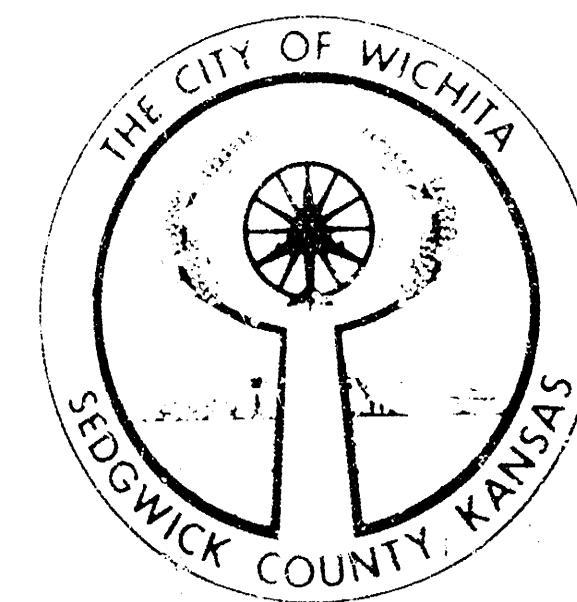


TWENTY-FIRST STREET BRIDGE

OVER THE

BIG ARKANSAS RIVER

CITY OF



WICHITA

A. PRICE WOODARD JR., MAYOR

WALTER M. KEELER

DONALD K. ENOCH

JACK H. GREENE

JOHN S. STEVENS

COMMISSIONERS

RALPH WULZ, CITY MANAGER

INDEX OF SHEETS

1. Title Sheet
2. Contour Map
3. Plan-Profile
4. Construction Layout
5. Abutment Plan
6. Abutment Retaining
7. Pier Details
8. Deck Sections
9. Substructure Plan
10. Superstructure and Sidewalk Details
11. Handrail Details
12. Structural Steel Details and Bearing Devices
13. Weir Details
14. Auxiliary Details and Summary of Quantities
5. Bar List and Bending Diagrams

DEPARTMENT OF PUBLIC WORKS

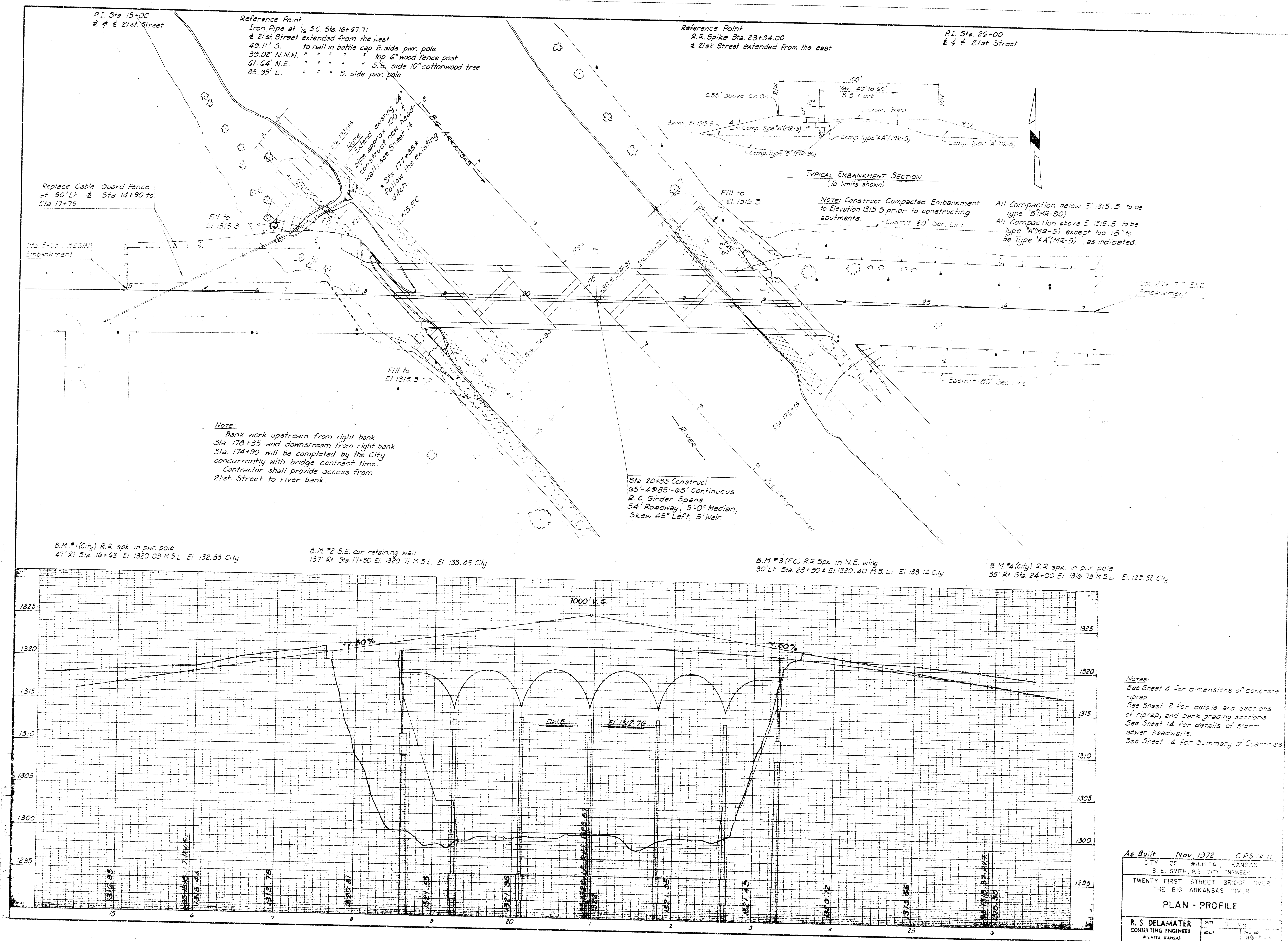
R. W. BRUGGEMAN, P.E. DIRECTOR OF PUBLIC WORKS

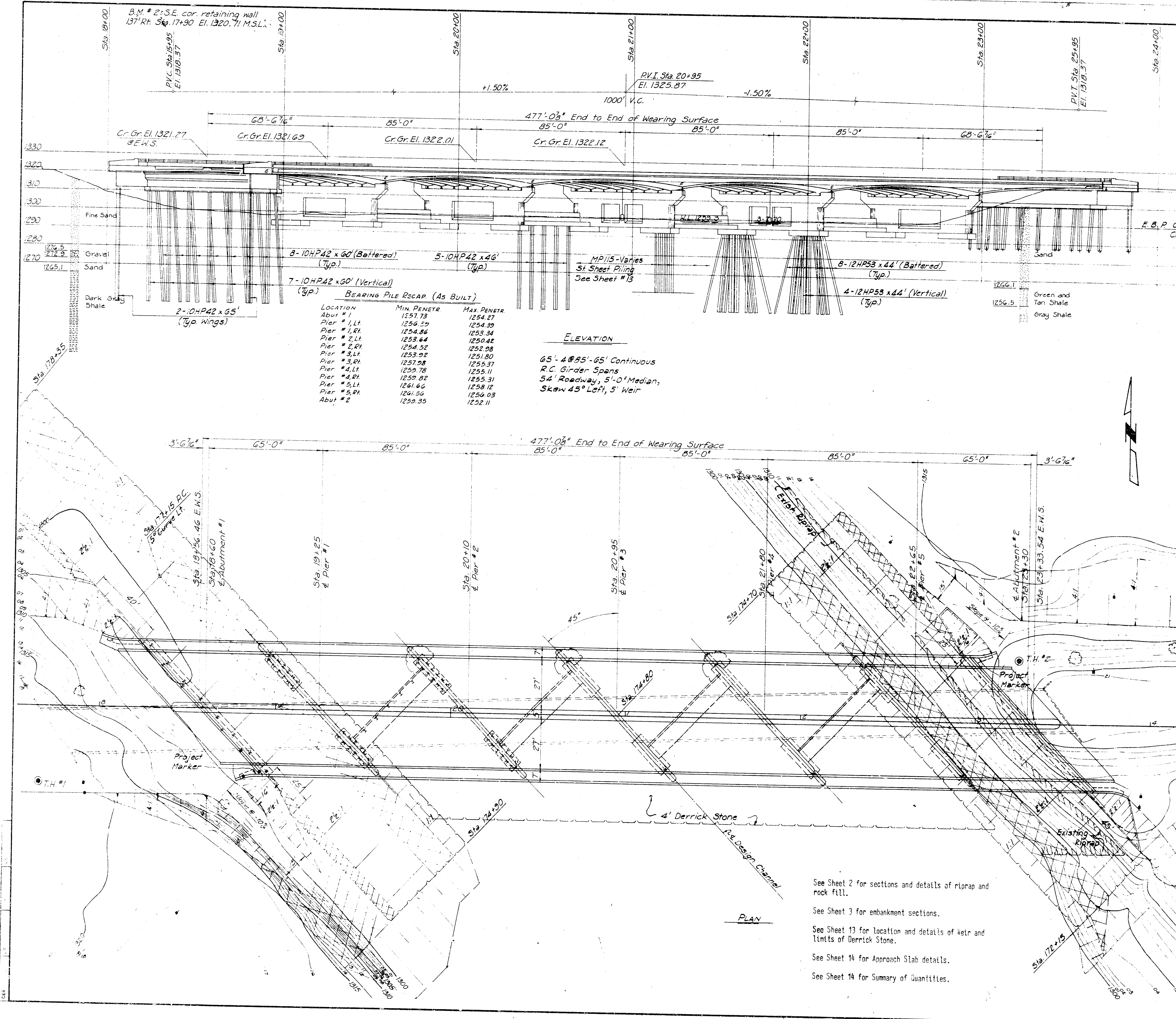
BILL E. SMITH, P.E. CITY ENGINEER

R. S. DELAMATER & ASSOCIATES, WICHITA, CONSULTING ENGINEERS

PROJECT C10-51

DECEMBER, 1970





B.M. #4 (City) R.R. spk. in pwr. pole
 35' R.R. Sta. 24+00 El. 1316.78 M.S.L.

GENERAL NOTES

COMMON EXCAVATION: There will be no excavating for Common Excavation, or borrow, as such, unless it will be for material in place, as indicated on the plan.

EMBANKMENTS: The Contractor shall construct the embankments and grade the bents to the elevations shown at the abutments as shown on the Profile, Sheet No. 3, prior to construction of the bridge.

EXCAVATION: Elevation 1300.0 constitutes the excavation boundary plane for estimating quantities for Class I and Class II Bridge Excavation and for Class I and Class II Excavation below the Slab Excavation below; see Sheet 14 for limits of pay excavation.

SOUNDINGS: Sounding information shown on Sheet 14 is as obtained from borings made in the field and represents the best information available to the City of Wichita.

PILES: All piles shall be driven to the penetration shown unless in the opinion of the Engineer such penetration cannot be secured without injury to the pile. Piles shall be driven to a minimum computed bearing value, for steel bearing piles, of 70 tons per pile in piers, 50 tons per pile in abutments and 30 tons in weir base, and for steel sheet piles, of 15 tons per pile.

PILE DRIVING: All piles shall be driven with a steam or diesel hammer; if a diesel hammer is used, sufficient hammer data shall be provided to permit rating by the Engineer before driving starts.

EXISTING STRUCTURE: The Contractor will remove the existing structure, consisting of a steel beam bridge on wood pile piers. All material to become the property of the Contractor, to be removed from the site.

FALSEWORK AND FORMING: Falsework under superstructure, including each sidewalk slab, shall be left in place in any span until the concrete in that span and the adjacent span constructed latest shall have attained its design strength; but in no case shall the falsework be removed before 14 days after placing concrete. Handrail parapet walls and traffic rails shall be placed before falsework supporting the walk has been removed. See note on Sheet 3 regarding median curb forming. Camber shall be provided in the amounts shown on the Dead-Load Camber Diagram.

CONCRETE: Class AAA(AE) Concrete shall be used in Superstructure, including sidewalks, rails and parapets, and approach slab. Class A Concrete shall be used in abutments, piers and in dam foundation, weir wall, and reinforced concrete riprap.

REINFORCING STEEL: All dimensions shown relative to reinforcing steel placement are to centerline of bars unless otherwise noted. All dimensions shown in bending diagrams are out to out of bars.

DECK TREATMENT: Bridge deck shall be cured with Linseed Oil emulsion, in accordance with the Specifications.

See Sheet 2 for sections and details of riprap and rock fill.

See Sheet 3 for embankment sections.

See Sheet 13 for location and details of weir and limits of Derrick Stone.

See Sheet 14 for Approach Slab details.

See Sheet 14 for Summary of Quantities.

DESIGN:

Design Loading: HS20-44 A.A.S.H.O. Specifications (1995 Ed.)

Unit Stresses:

f_c	1,600 p.s.i. Class AAA(AE)
f'_c	4,000 p.s.i. Class AAA(AE)
f_c	1,200 p.s.i. Class A
f'_c	3,000 p.s.i. Class A
f_s	20,000 p.s.i. (Rein.)

Pile Loading:

60 tons per pile in piers
45 tons per pile in abutment
20 tons per pile in weir
10 tons per pile for steel piles

As Built Nov. 1972 C.R.S./K.H.

CITY OF WICHITA, KANSAS

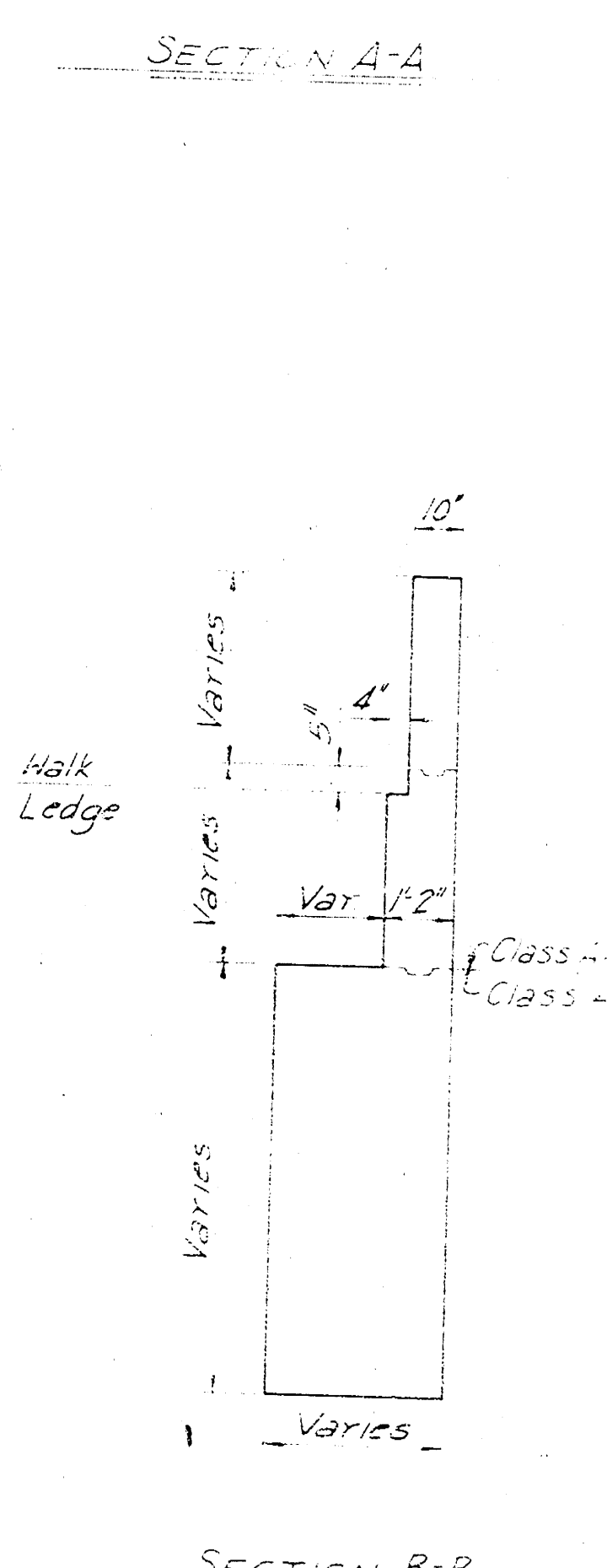
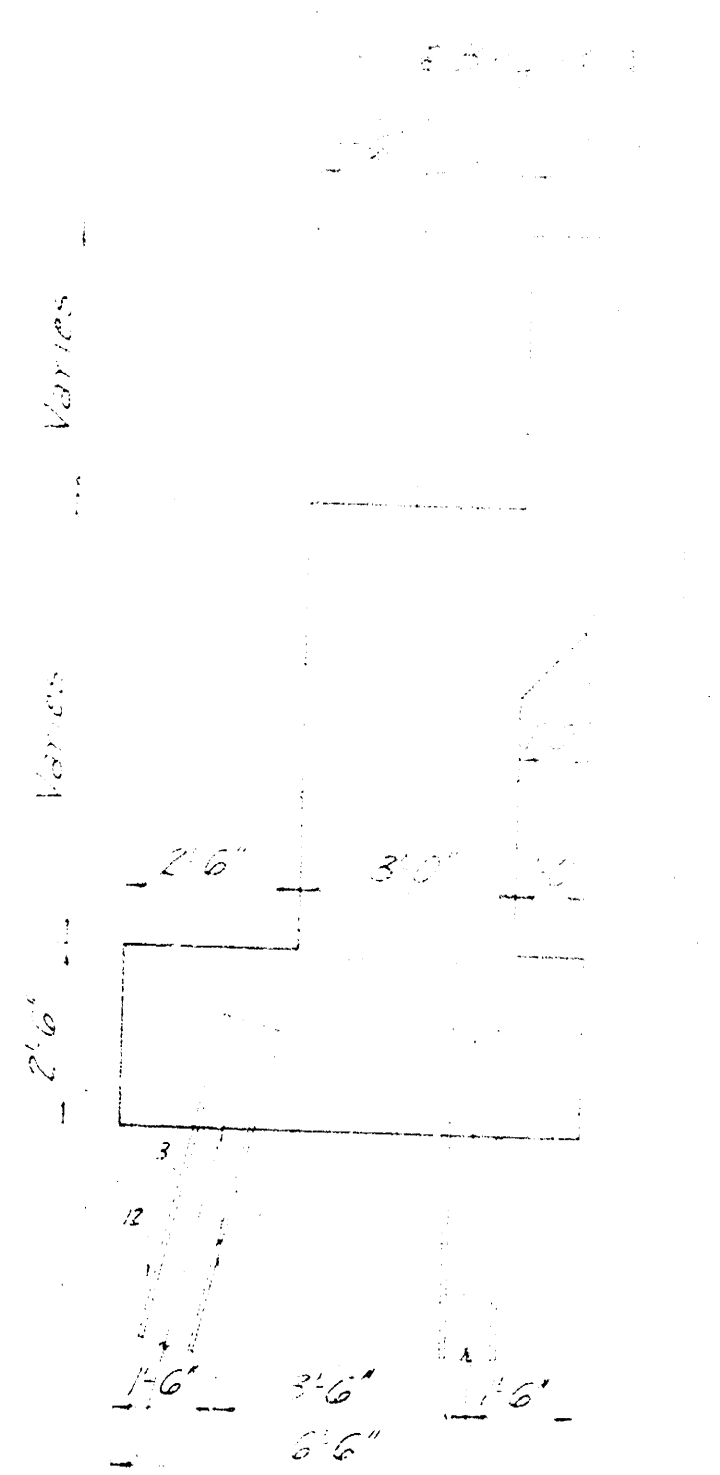
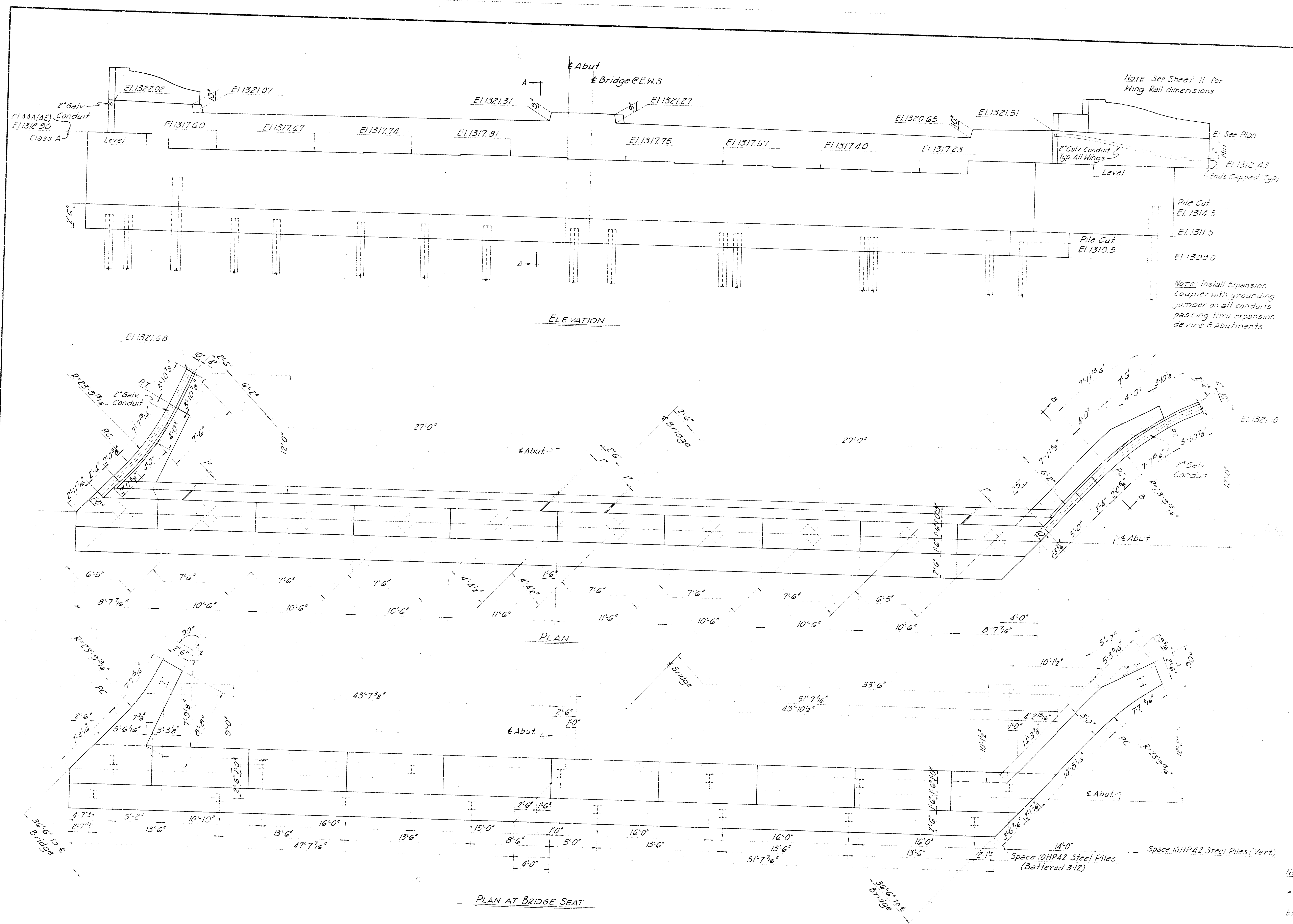
R. E. SMITH, P.E., CITY ENGINEER

TWENTY-FIRST STREET BRIDGE OVER THE BIG ARKANSAS RIVER

CONSTRUCTION LAYOUT

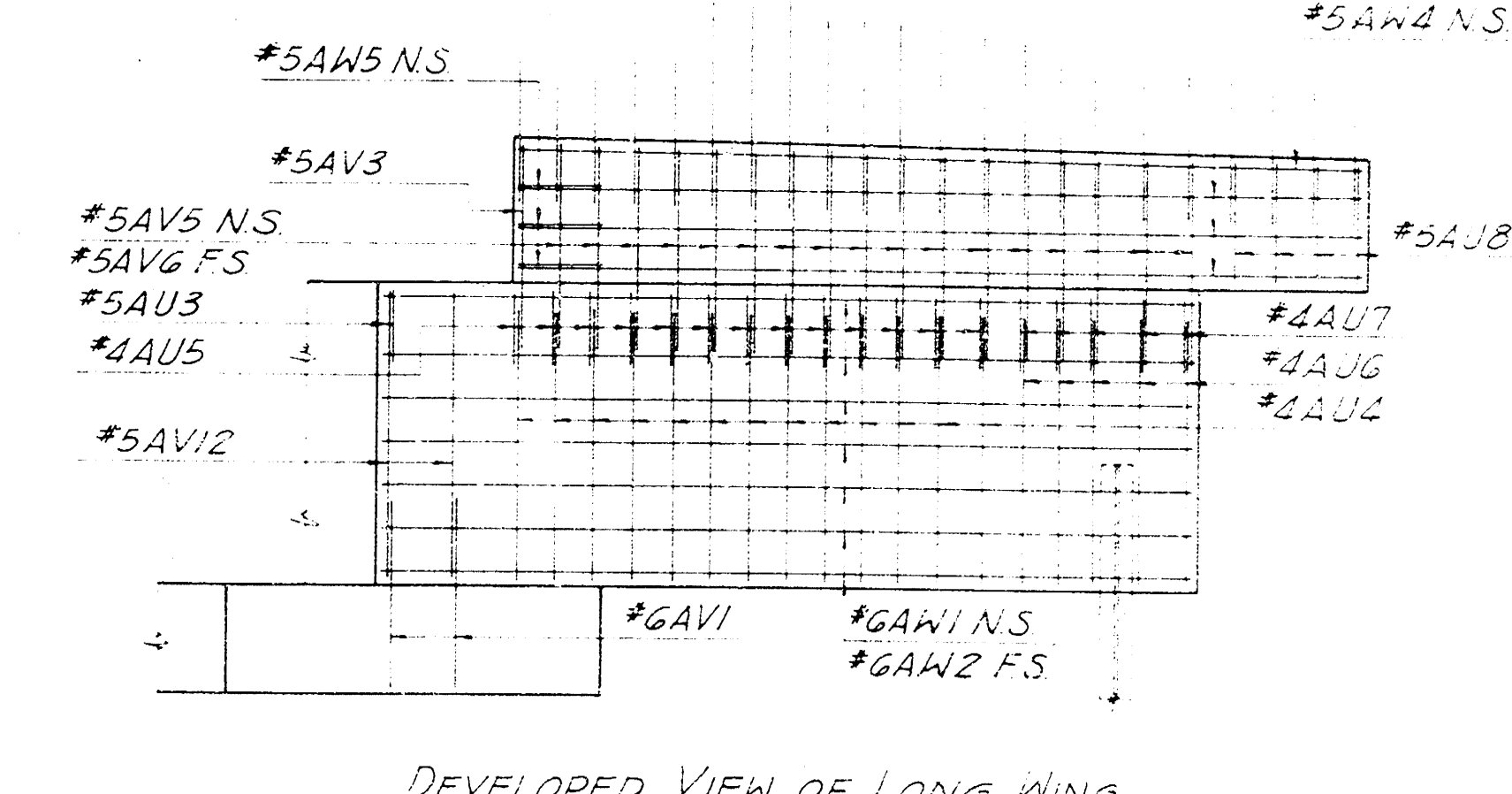
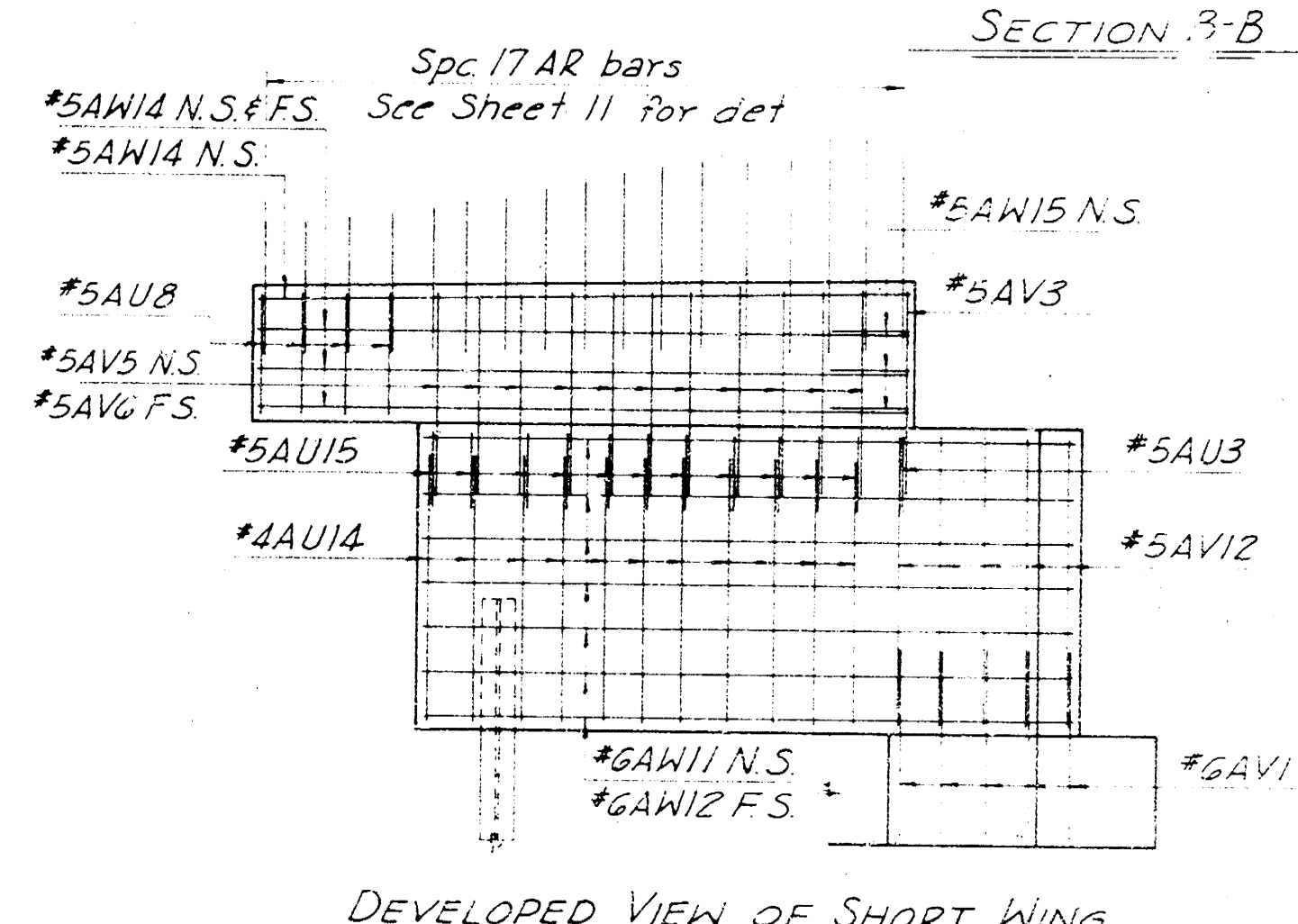
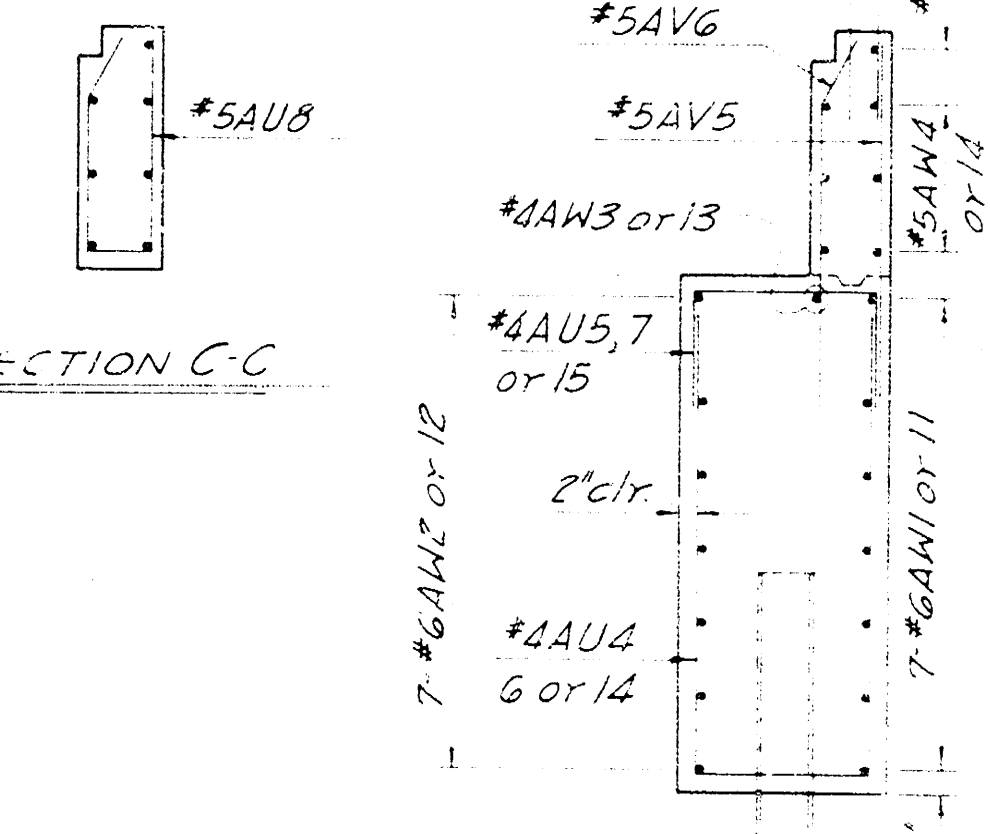
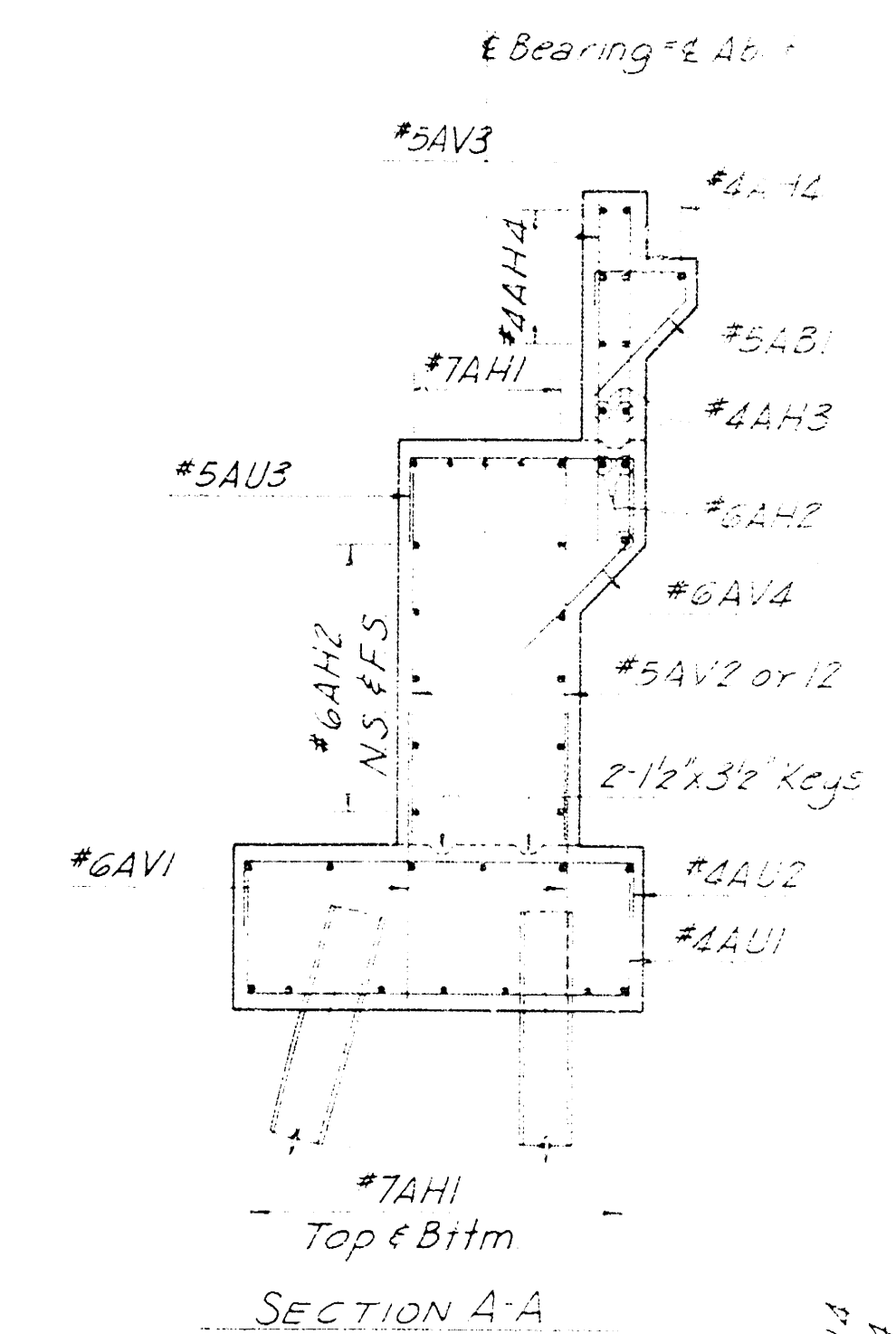
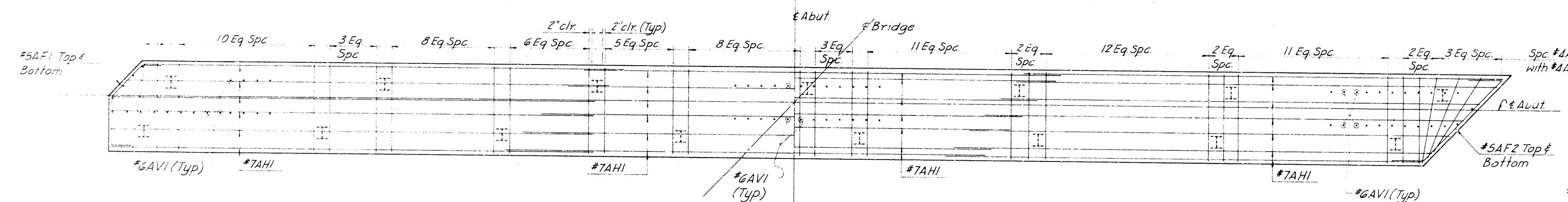
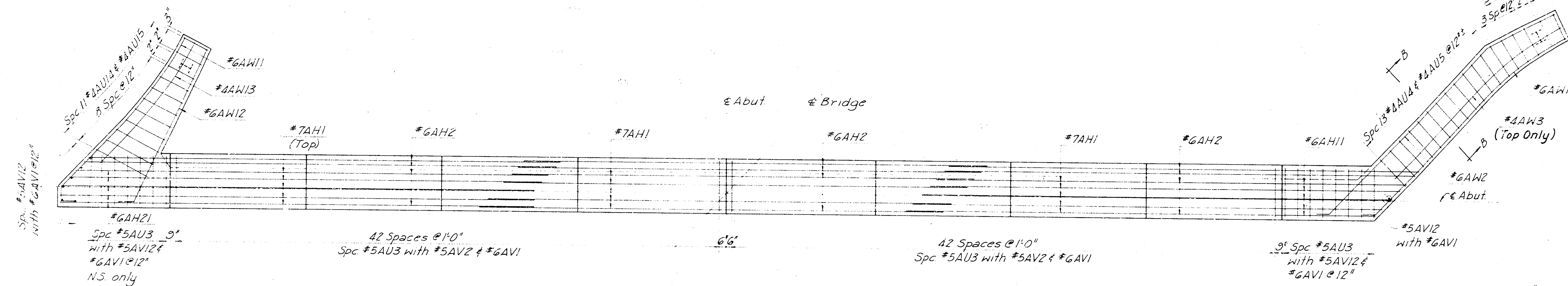
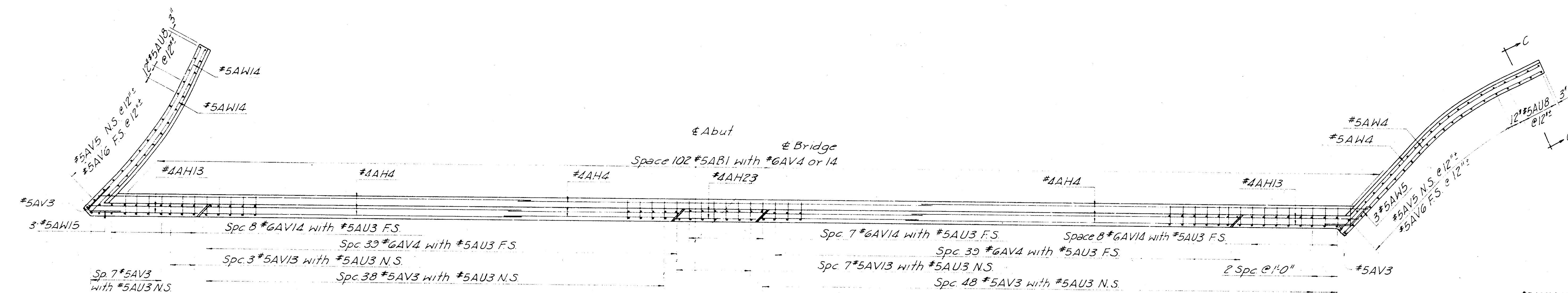
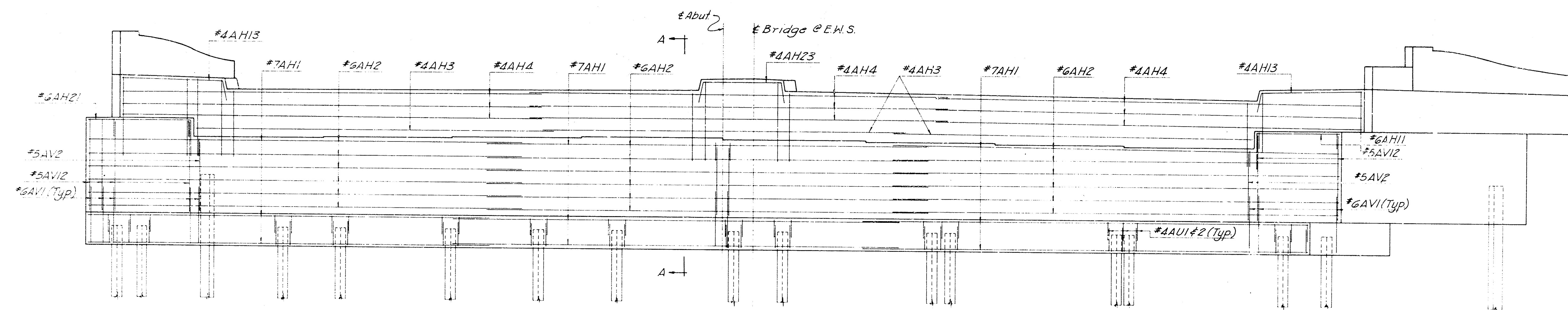
R. S. DELAMATER
CONSULTING ENGINEER
WICHITA, KANSAS

DATE: 12/20/72
SCALE: 1"=20'
BY: R.S.D.



NOTE:
 Use Class A Concrete for all bridge structure.
 Use Class AAA (AE) Concrete for bridge seat & abutment.
 See Sheet 4 for General Notes.
 See Sheet 5 for Bridge Design.
 See Sheet 6 for Bridge Design Loadings.

As Built	Nov. 1972
CITY OF WICHITA R. E. SMITH, Mayor TWENTY-FIRST STREET, 2ND FLOOR THE BIG ARRIVERS BUILDING	
ABUTMENT PLAN	
R. S. DELAMATER CONSULTING ENGINEER WICHITA, KANSAS	



NOTE:
See Sheet 5 for Dimensions and Elevations.
See Sheet 15 for Bar List and Bending Diagrams.

As Built		Nov. 1972		GPS/KH	
CITY OF WICHITA, KANSAS					
B E SMITH, PE, CITY ENGINEER					
TWENTY-FIRST STREET BRIDGE OVER THE BIG ARKANSAS RIVER					
ABUTMENT REINFORCING					
R. S. DELAMATER CONSULTING ENGINEER WICHITA, KANSAS		DATE SCALE		DECEMBER 1972	
		DRAWN BY DATE		89-F-6	

As Built		Nov. 1972		GPS/KH	
CITY OF WICHITA, KANSAS					
B E SMITH, PE, CITY ENGINEER					
TWENTY-FIRST STREET BRIDGE OVER THE BIG ARKANSAS RIVER					
ABUTMENT REINFORCING					
R. S. DELAMATER CONSULTING ENGINEER WICHITA, KANSAS		DATE		DECEMBER 1972	
		SCALE		DRAWING NO.	
				89-F-6	

As Built		Nov. 1972		GPS/KH	
CITY OF WICHITA, KANSAS					
B E SMITH, PE, CITY ENGINEER					
TWENTY-FIRST STREET BRIDGE OVER THE BIG ARKANSAS RIVER					
ABUTMENT REINFORCING					
R. S. DELAMATER CONSULTING ENGINEER WICHITA, KANSAS		DATE SCALE		DECEMBER 1972	
		DRAWN BY DATE		89-F-6	

As Built		Nov. 1972		GPS/KH	
CITY OF WICHITA, KANSAS					
B E SMITH, PE, CITY ENGINEER					
TWENTY-FIRST STREET BRIDGE OVER THE BIG ARKANSAS RIVER					
ABUTMENT REINFORCING					
R. S. DELAMATER CONSULTING ENGINEER WICHITA, KANSAS		DATE		DECEMBER 1972	
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As Built		Nov. 1972		GPS/KH	
CITY OF WICHITA, KANSAS					
B E SMITH, PE, CITY ENGINEER					
TWENTY-FIRST STREET BRIDGE OVER THE BIG ARKANSAS RIVER					
ABUTMENT REINFORCING					
R. S. DELAMATER CONSULTING ENGINEER WICHITA, KANSAS		DATE SCALE		DECEMBER 1972	
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As Built		Nov. 1972		GPS/KH	
CITY OF WICHITA, KANSAS					
B E SMITH, PE, CITY ENGINEER					
TWENTY-FIRST STREET BRIDGE OVER THE BIG ARKANSAS RIVER					
ABUTMENT REINFORCING					
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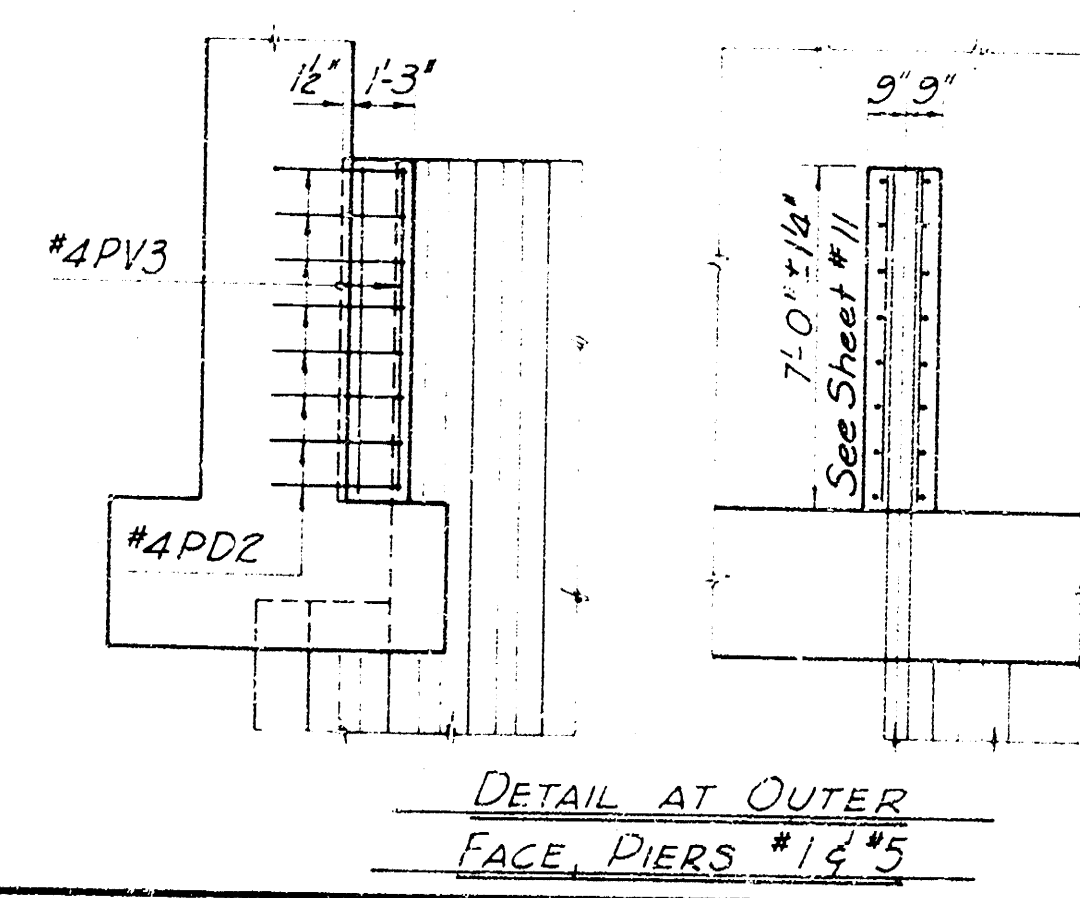
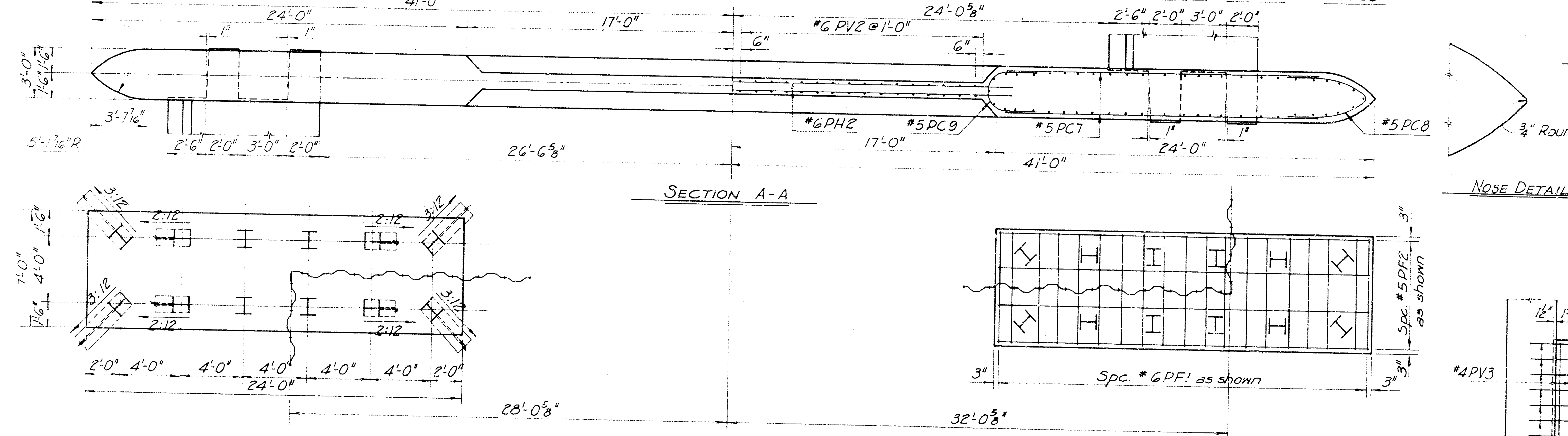
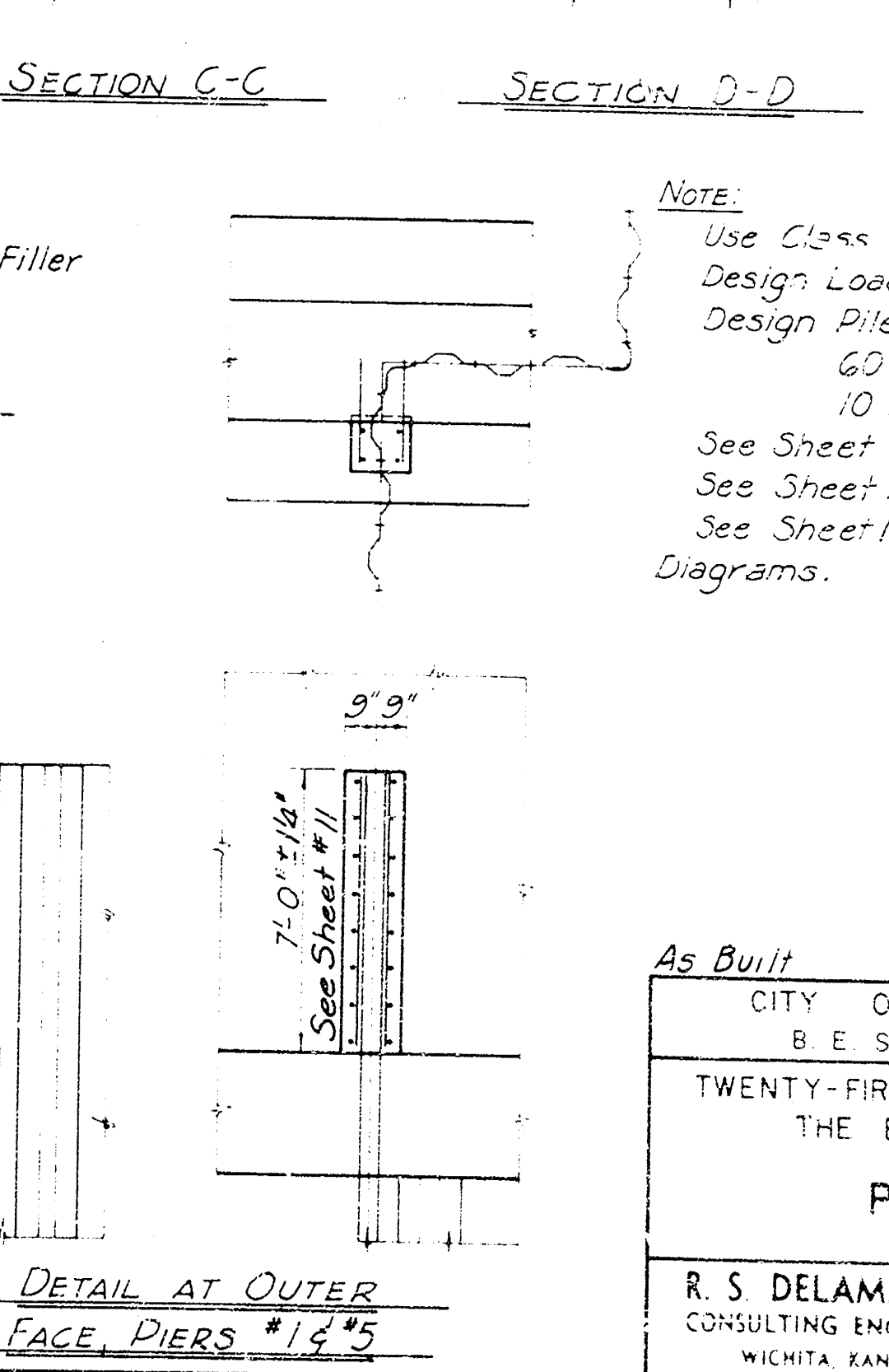
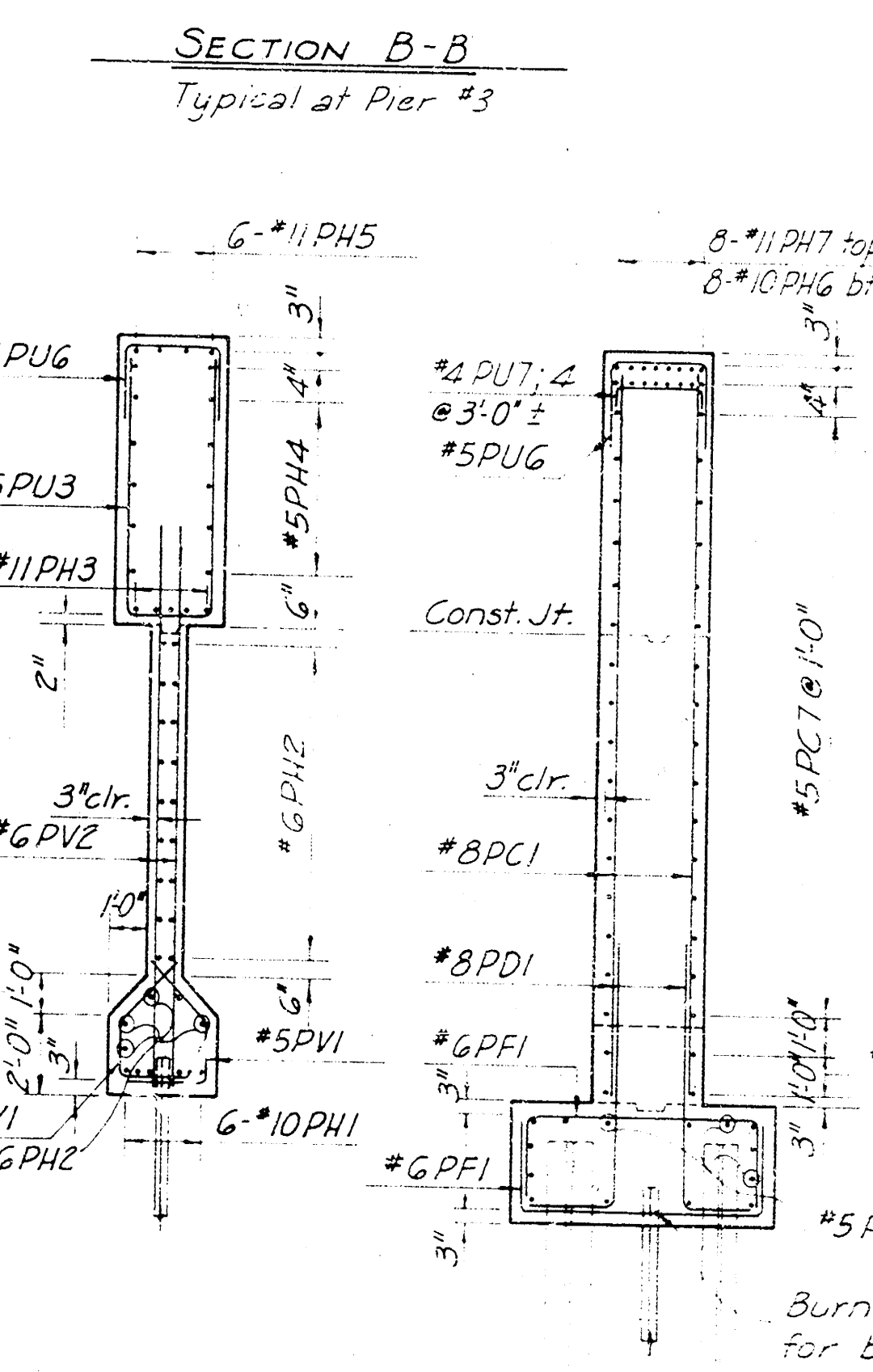
As Built		Nov. 1972		GPS/KH	
CITY OF WICHITA, KANSAS					
B E SMITH, PE, CITY ENGINEER					
TWENTY-FIRST STREET BRIDGE OVER THE BIG ARKANSAS RIVER					
ABUTMENT REINFORCING					
R. S. DELAMATER CONSULTING ENGINEER WICHITA, KANSAS		DATE SCALE		DECEMBER 1972	
		DRAWN BY DATE		89-F-6	

As Built		Nov. 1972		GPS/KH	
CITY OF WICHITA, KANSAS					
B E SMITH, PE, CITY ENGINEER					
TWENTY-FIRST STREET BRIDGE OVER THE BIG ARKANSAS RIVER					
ABUTMENT REINFORCING					
R. S. DELAMATER CONSULTING ENGINEER WICHITA, KANSAS		DATE		DECEMBER 1972	
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As Built		Nov. 1972		GPS/KH	
CITY OF WICHITA, KANSAS					
B E SMITH, PE, CITY ENGINEER					
TWENTY-FIRST STREET BRIDGE OVER THE BIG ARKANSAS RIVER					
ABUTMENT REINFORCING					
R. S. DELAMATER CONSULTING ENGINEER WICHITA, KANSAS		DATE SCALE		DECEMBER 1972	
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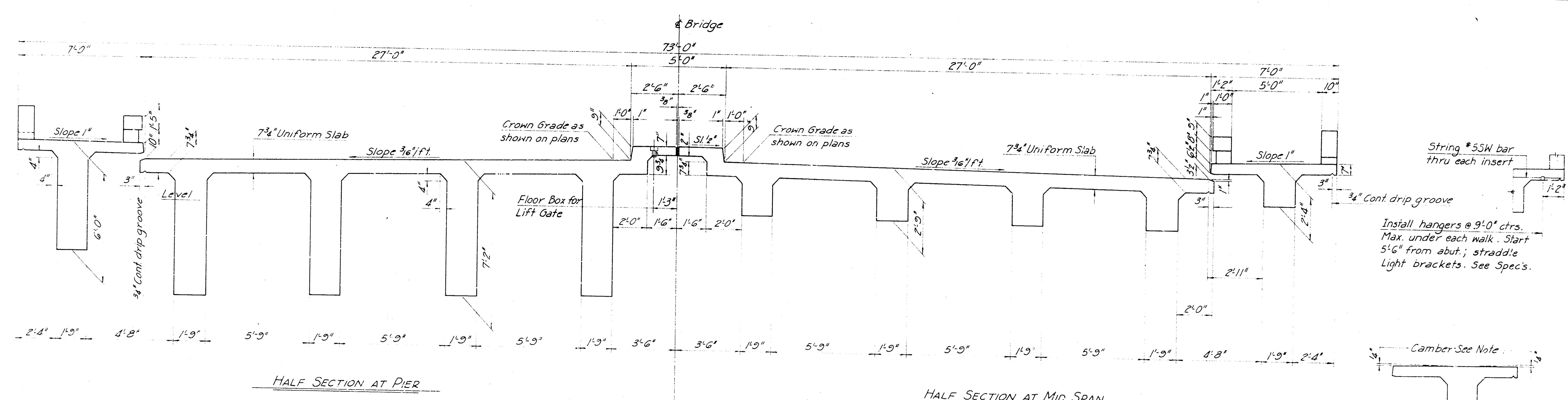
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CITY OF WICHITA, KANSAS					
B E SMITH, PE, CITY ENGINEER					
TWENTY-FIRST STREET BRIDGE OVER THE BIG ARKANSAS RIVER					
ABUTMENT REINFORCING					
R. S. DELAMATER CONSULTING ENGINEER WICHITA, KANSAS		DATE		DECEMBER 1972	
		SCALE		DRAWING NO.	
				89-F-6	

Two structural drawings of bridge piers. The top drawing is labeled "SECTION B-B" and "Typical at Piers No. 1, 2, 4, & 5". It shows a rectangular pier with a trapezoidal cutwater on the right side. Reinforcement bars are labeled #11PH12 and #11PH13. The bottom drawing is labeled "As Built" and shows a similar pier with reinforcement bars labeled #5PU12 and #5PU15. Dimensions include 3" and 9".



Note:
Use Class A Concrete in piers.
Design Loading: HS20-44 (1969 Ed.)
Design Pile load:
60 Tons on 12" H-piles
10 Tons each on Sheer piles
See Sheet 4 for General Notes.
See Sheet 13 for Weir Details & L.F. Gate
See Sheet 15 for Bar List and Bonding
Diagrams.

As Built		Nov. 1972		CPS 24	
CITY OF WICHITA, KANSAS					
B E SMITH, PE, CITY ENGINEER					
TWENTY-FIRST STREET BRIDGE OVER THE BIG ARKANSAS RIVER					
PIER DETAILS					
R. S. DELAMATER CONSULTING ENGINEER WICHITA, KANSAS			DATE: 11-1-72 SCALE: 1"=1'-0" BY: F-1		

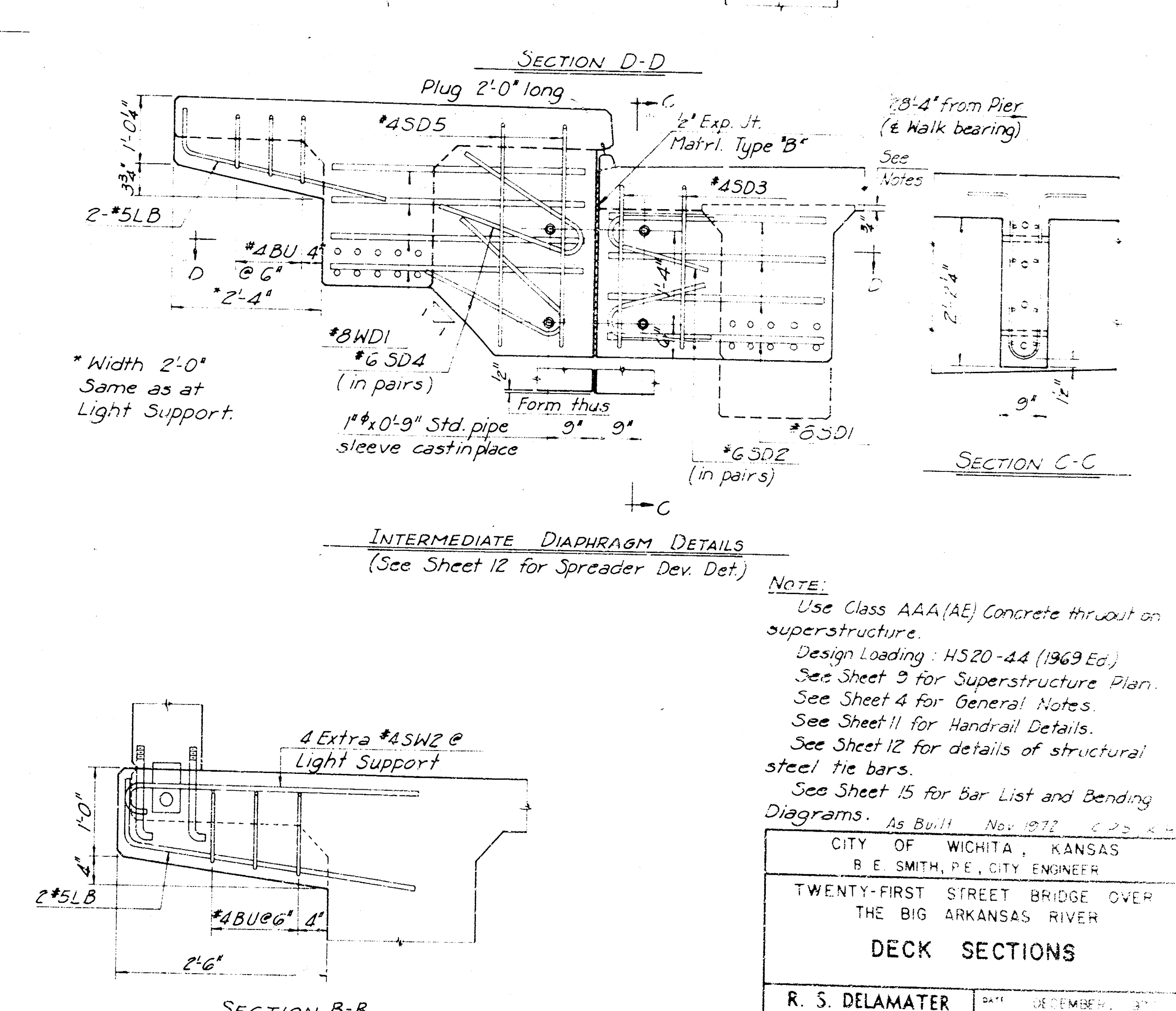
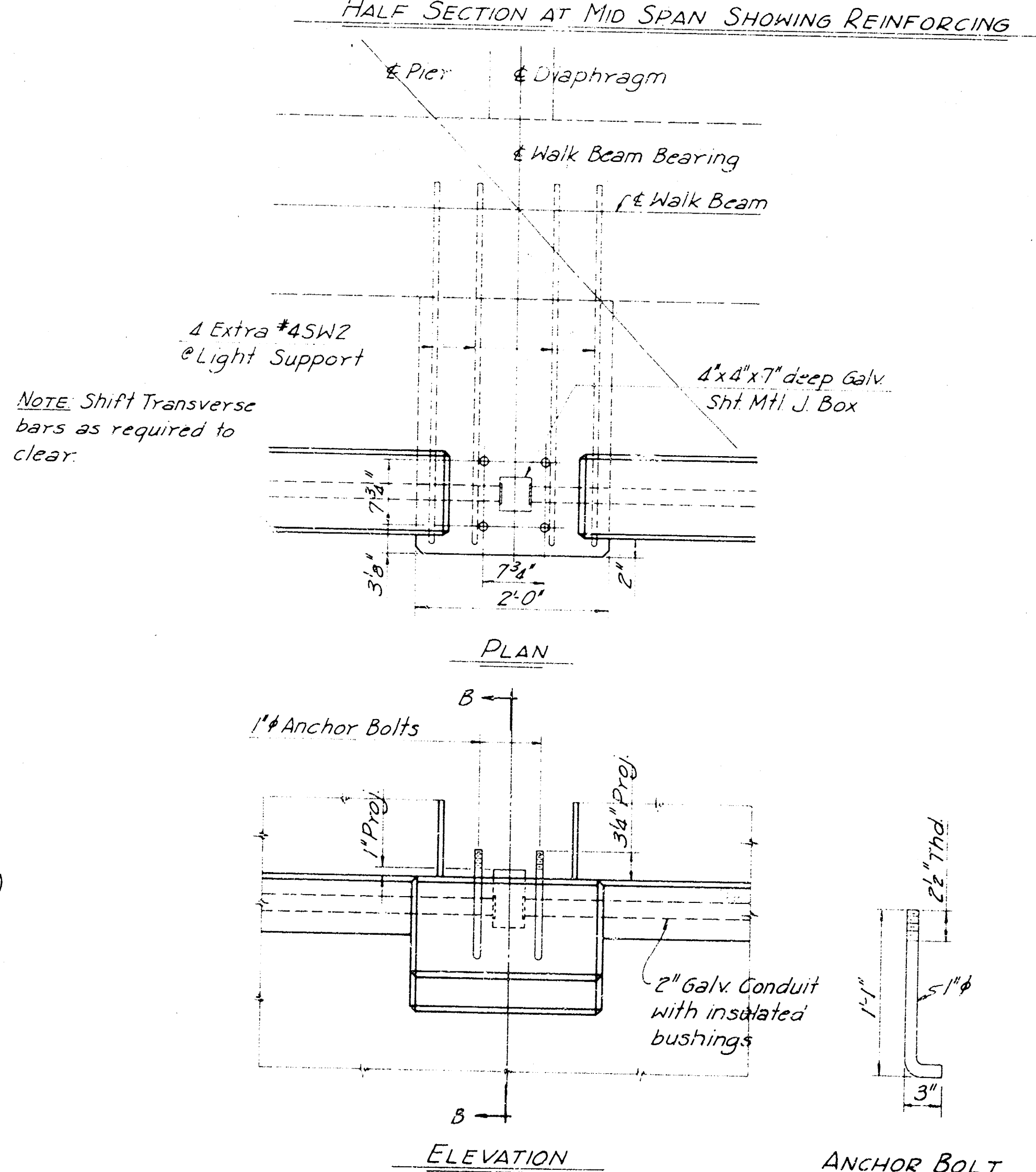
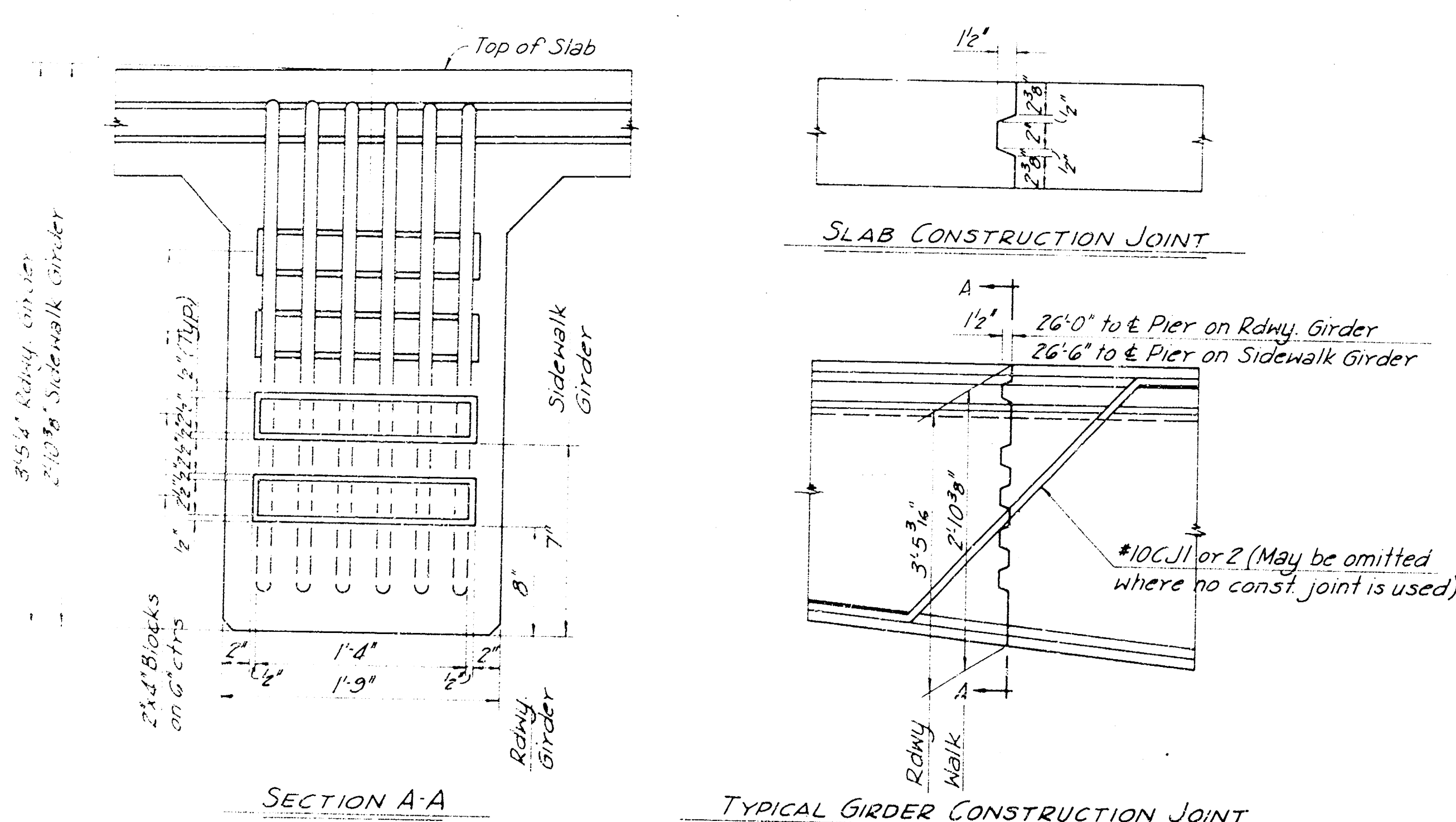
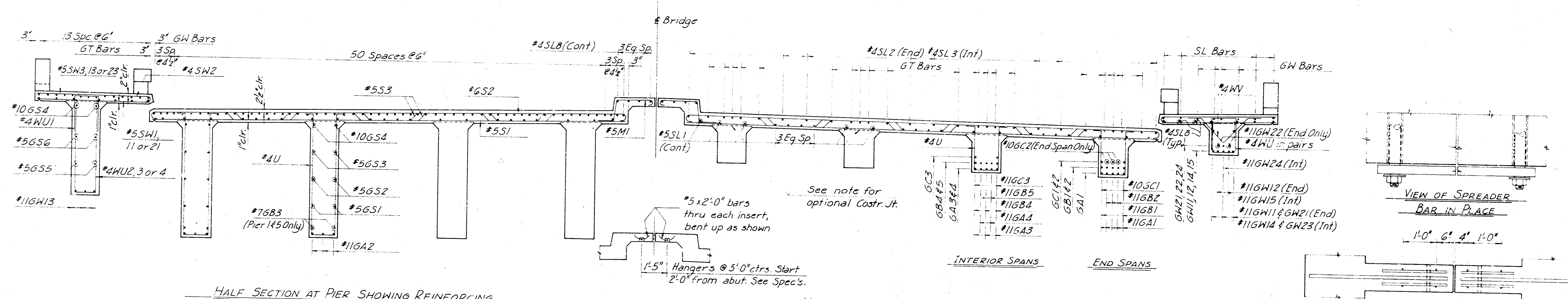


CONSTRUCTION NOTES:

At the Contractor's option concrete in the curb stems may be placed ahead of and separately from the flanges, provided that the stems are cast to a level above the flange on crown side and is brushed from the surface before final concrete is placed. The surface shall be thoroughly soaked and covered with plastic flange concrete. Place the flange concrete as soon as practically possible after completing the stems has fully settled.

Median curbs shall be rounded after placement and removed from both sides of superstructure as soon as suspended from superstructure concrete. Inserts may be installed under superstructure for spacing of the median forms.

Camber edges of walk beams at ends of deck brackets and/or fixed diaphragms.



NOTE:

Use Class AAA(AE) Concrete thruout on superstructure.

Design Loading: HS20-44 (1969 Ed.)

See Sheet 3 for Superstructure Plan.

See Sheet 4 for General Notes.

See Sheet 11 for Handrail Details.

See Sheet 12 for details of structural steel tie bars.

See Sheet 15 for Bar List and Bending Diagrams.

As Built Nov. 1972

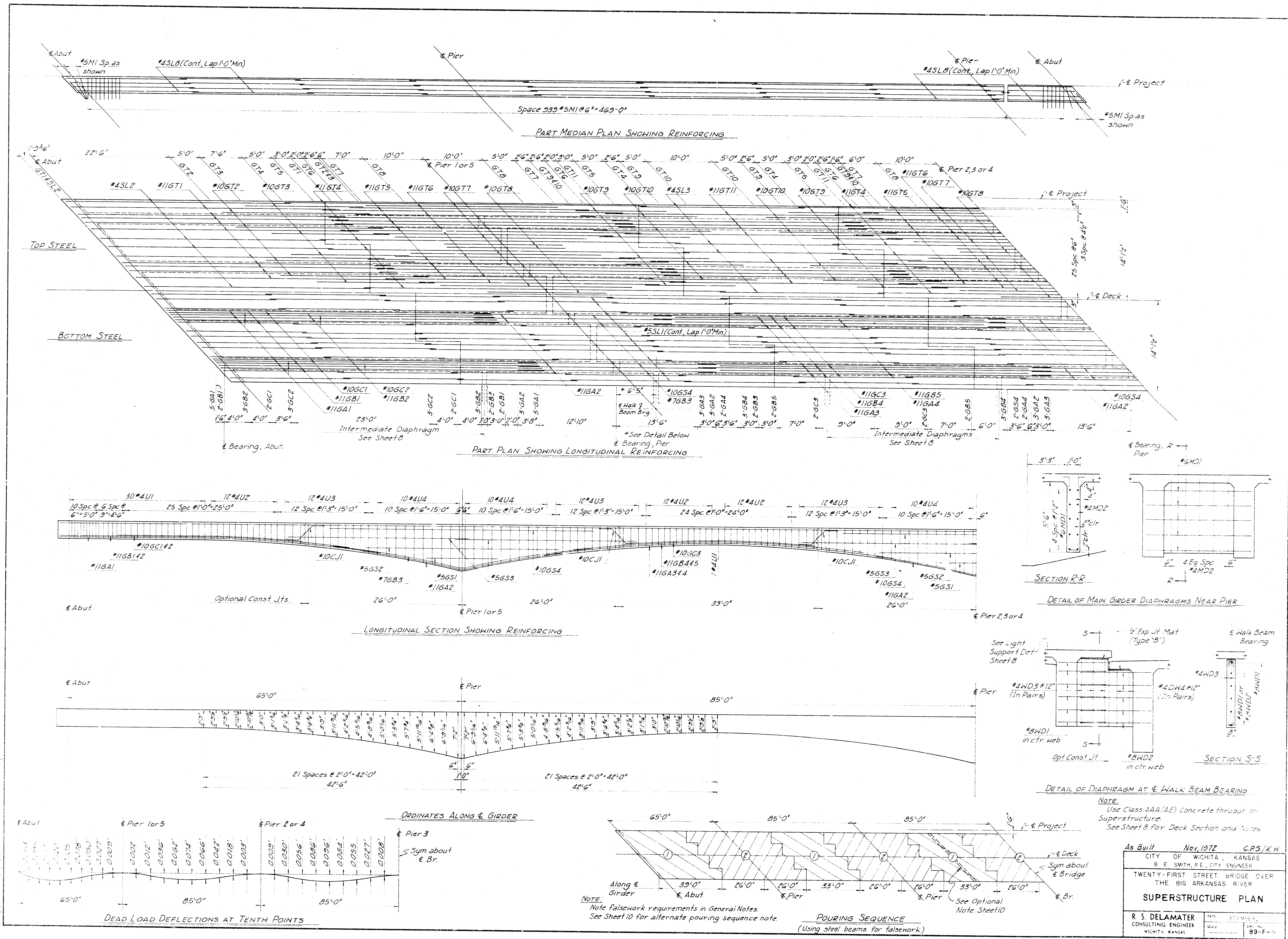
CITY OF WICHITA, KANSAS
B. E. SMITH, P.E., CITY ENGINEER

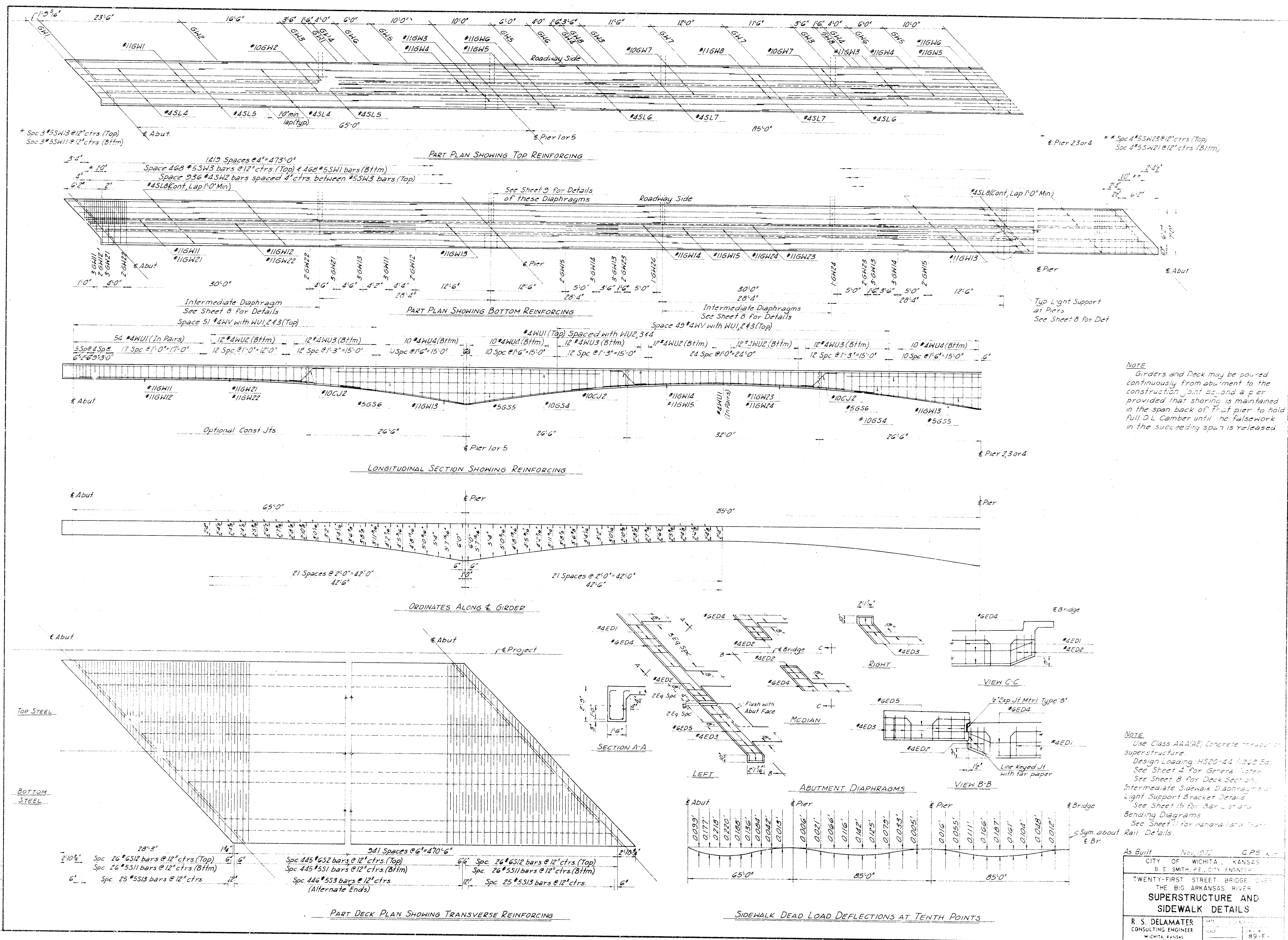
TWENTY-FIRST STREET BRIDGE OVER
THE BIG ARKANSAS RIVER

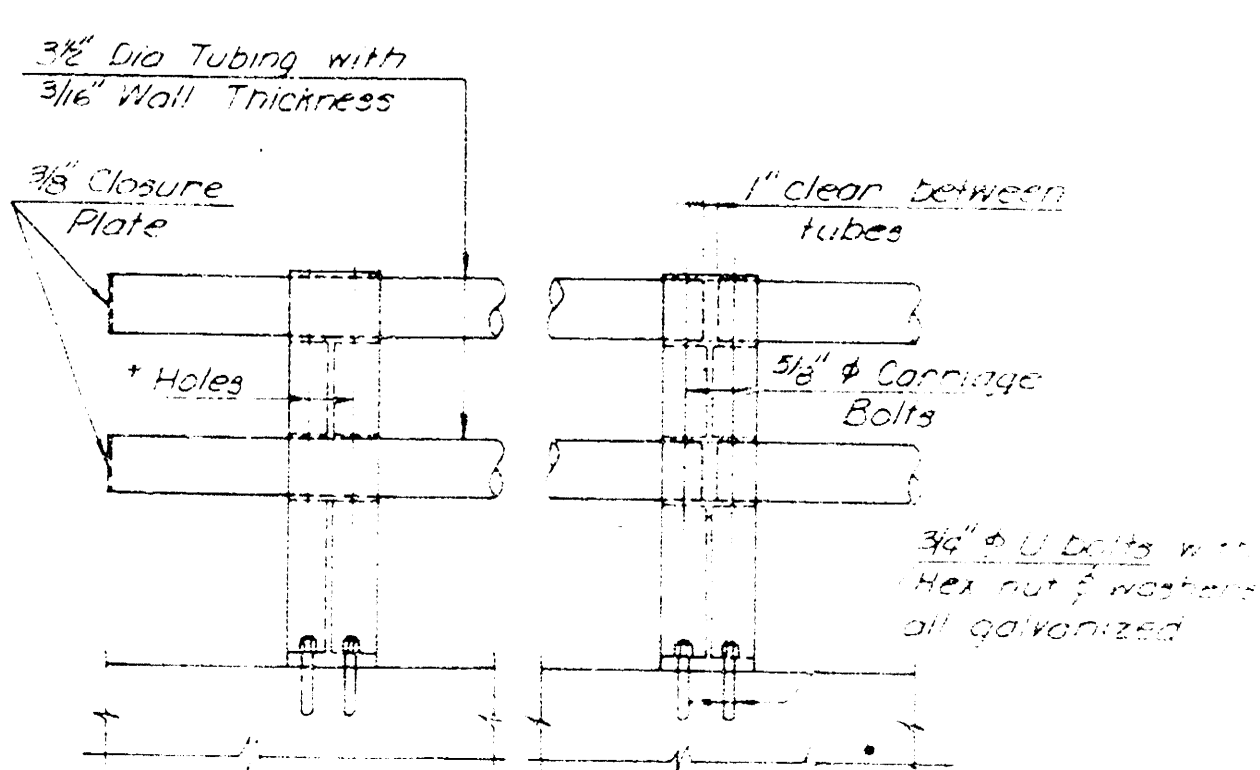
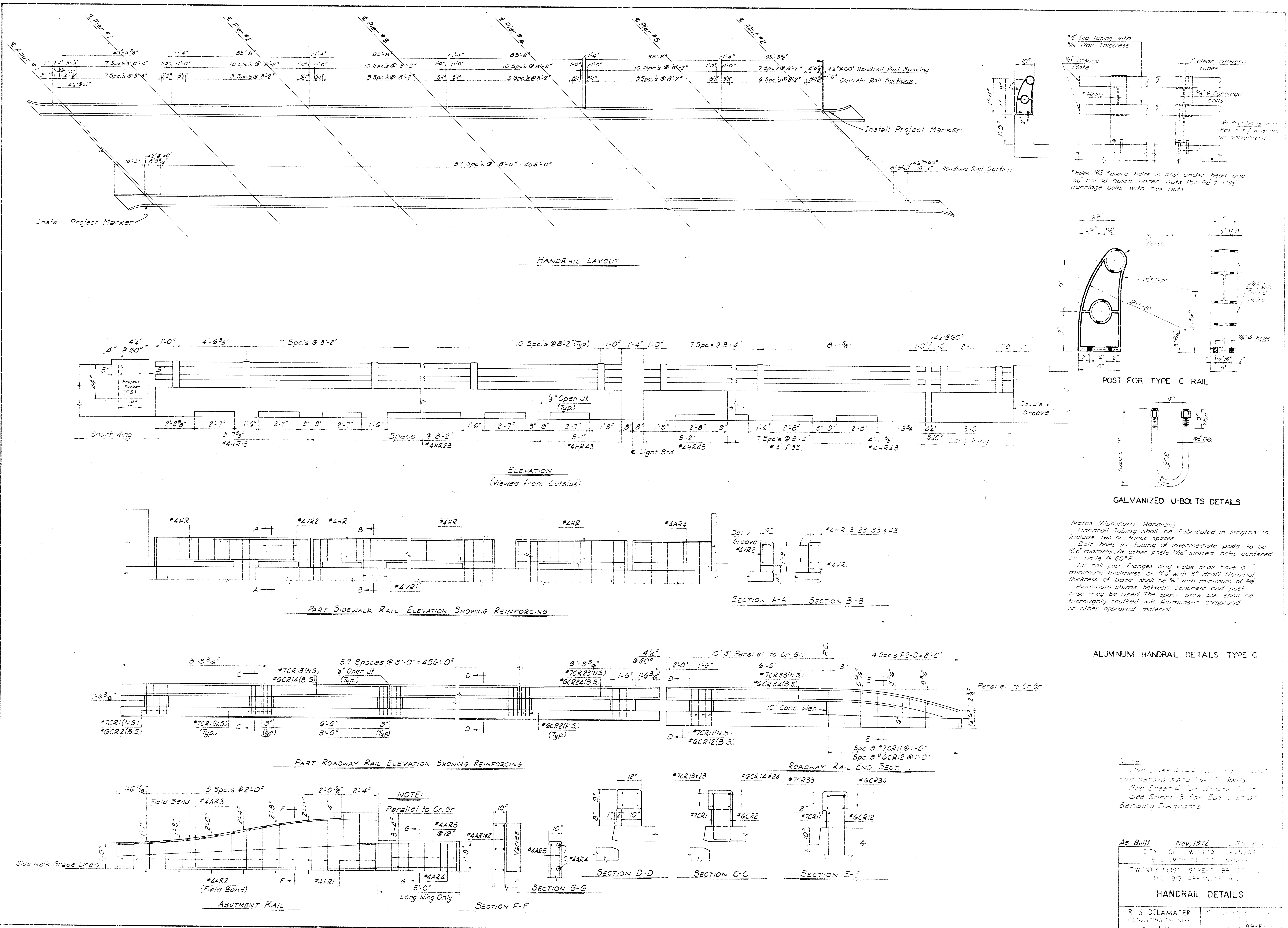
DECK SECTIONS

R. S. DELAMATER
CONSULTING ENGINEER
WICHITA, KANSAS

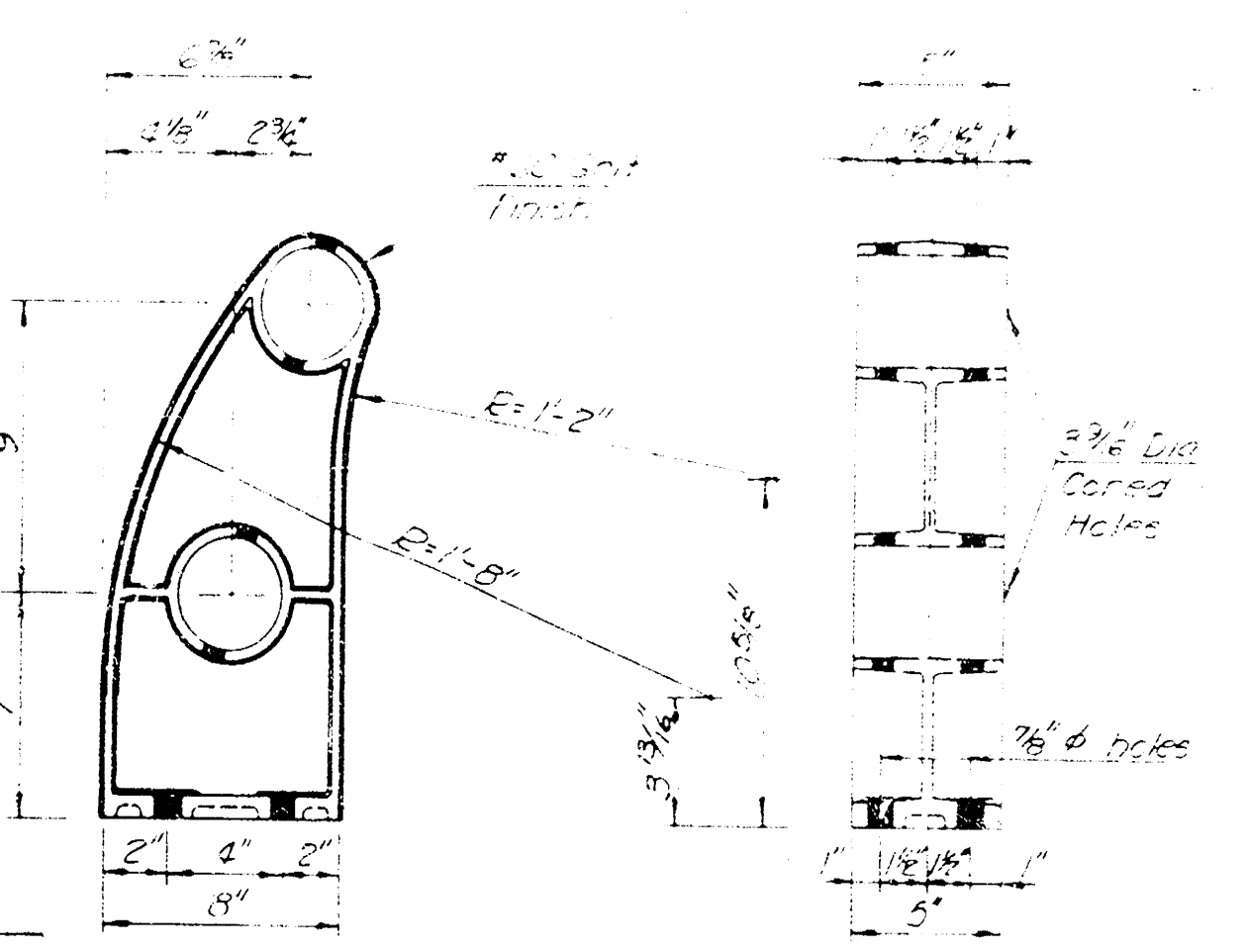
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89-F-15



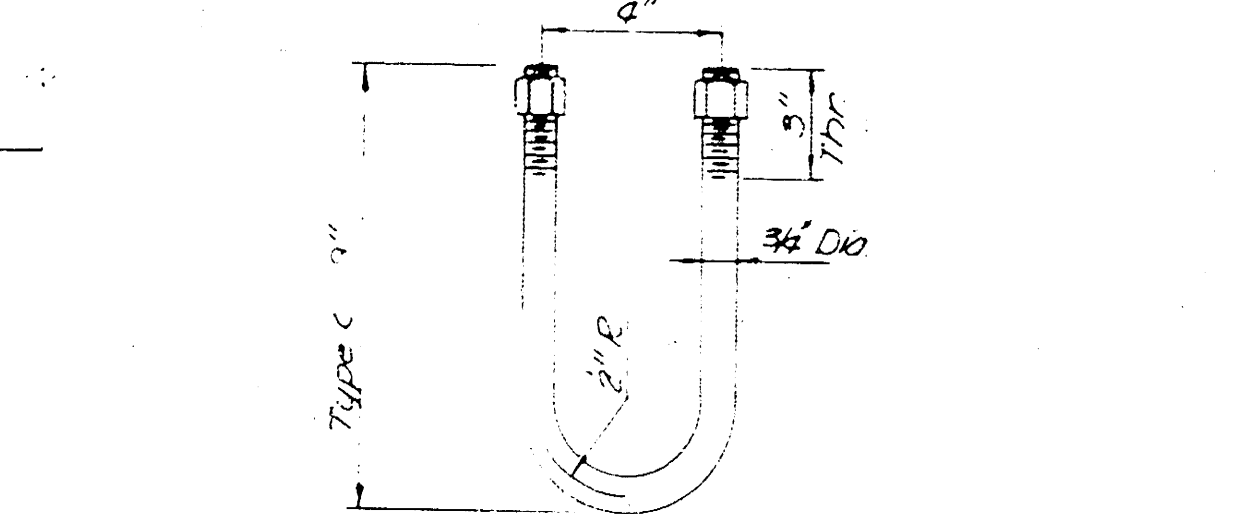




*Holes 1/2 inch square holes in post under head and 1/2 inch round holes under nuts for 1/2 inch carriage bolts with hex nuts



POST FOR TYPE C RAIL



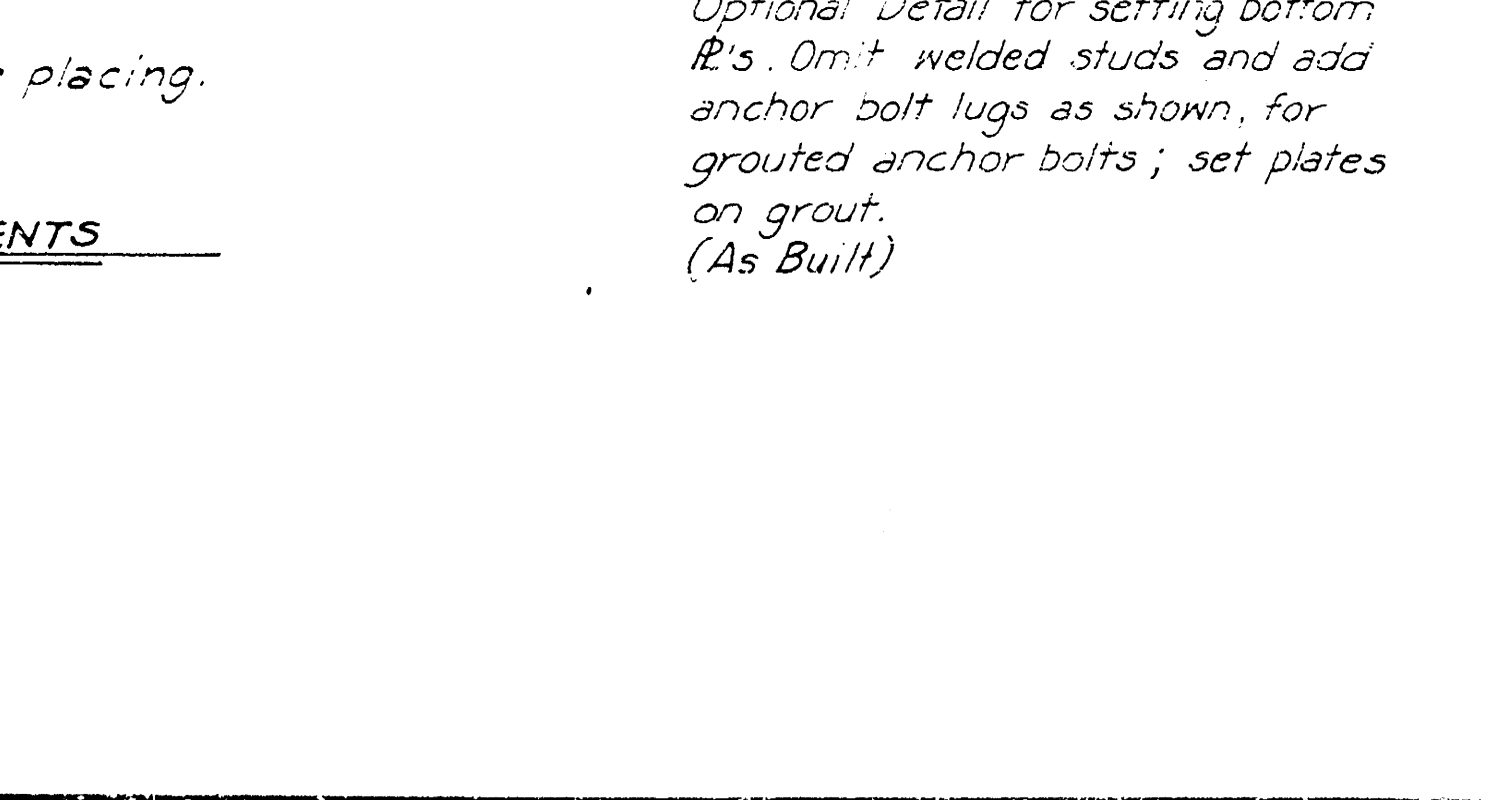
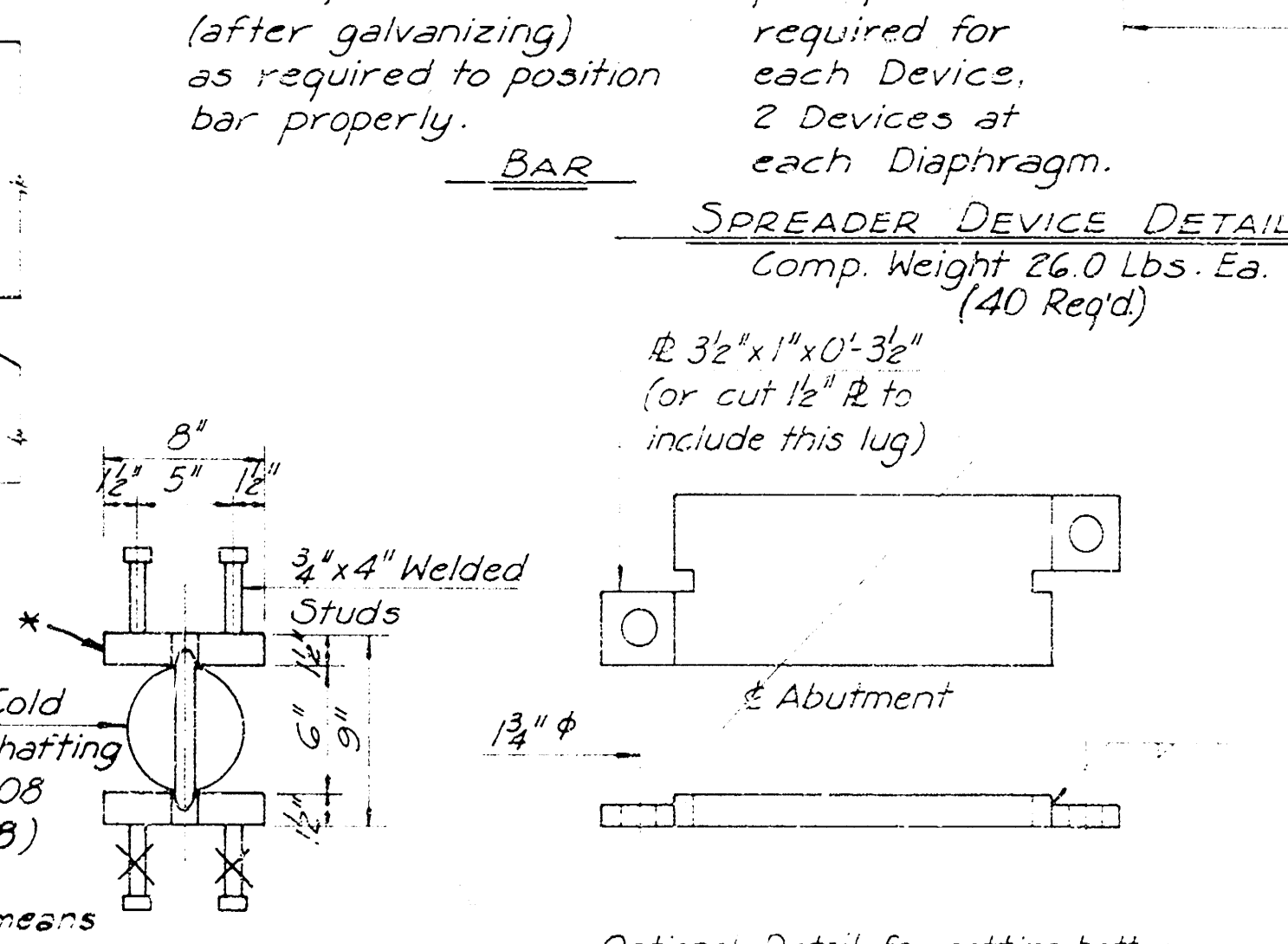
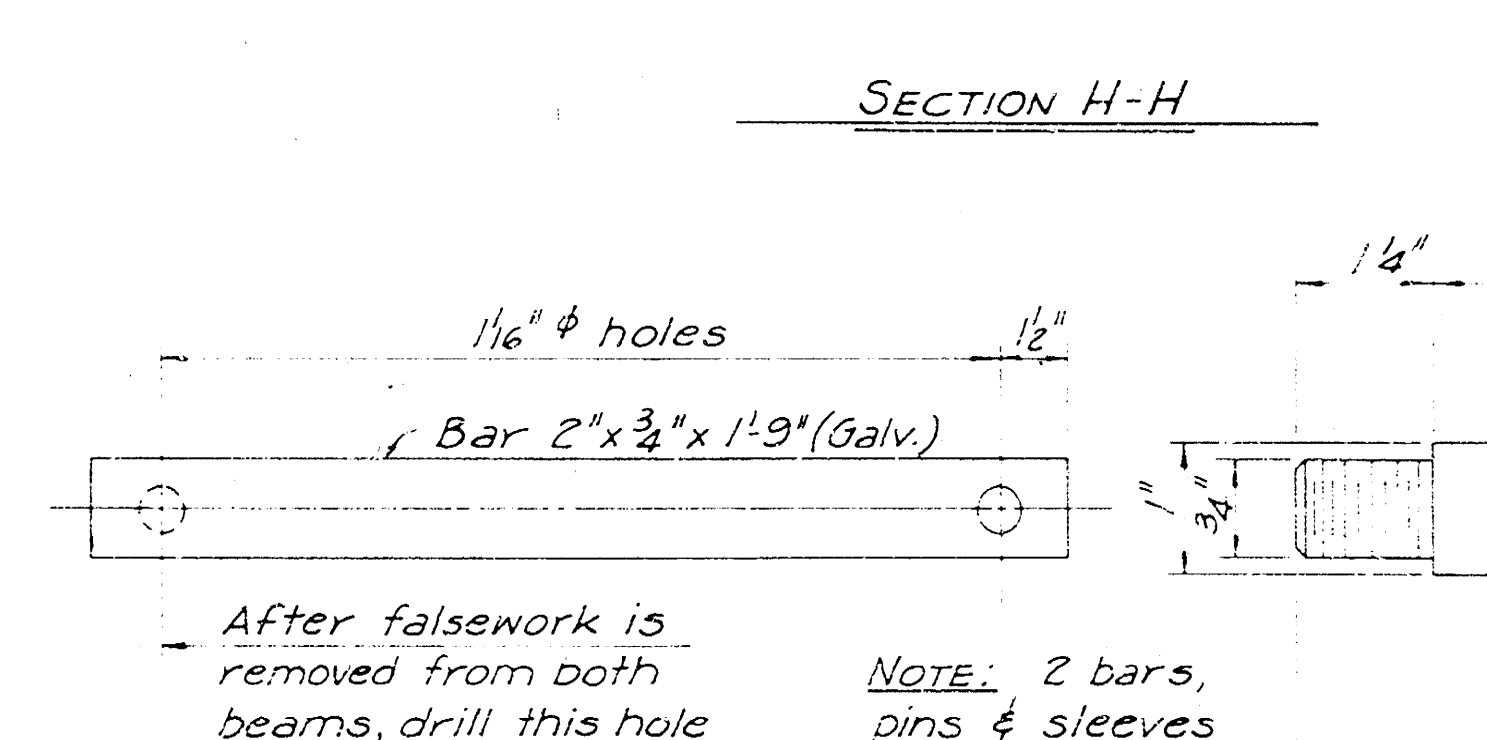
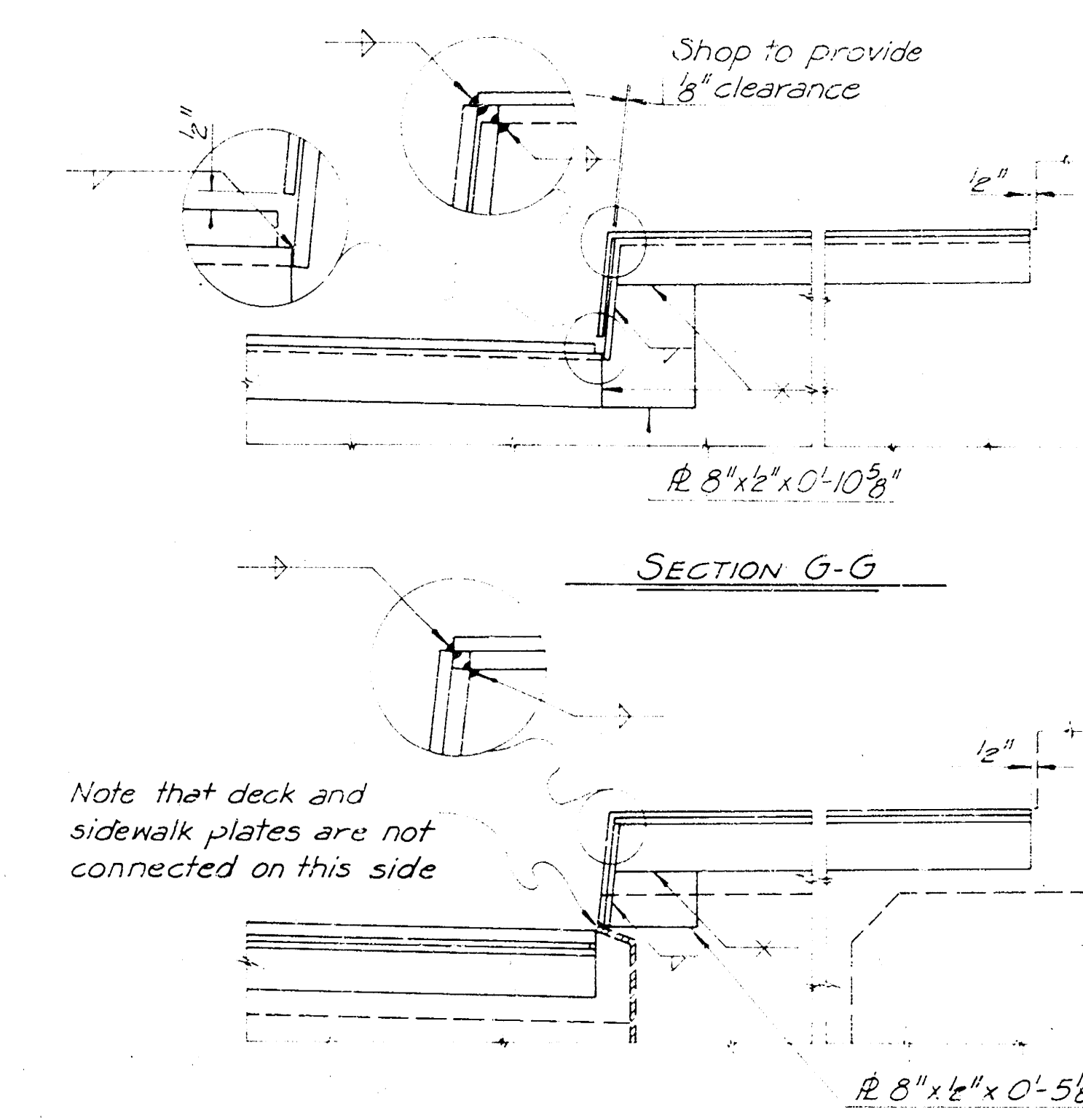
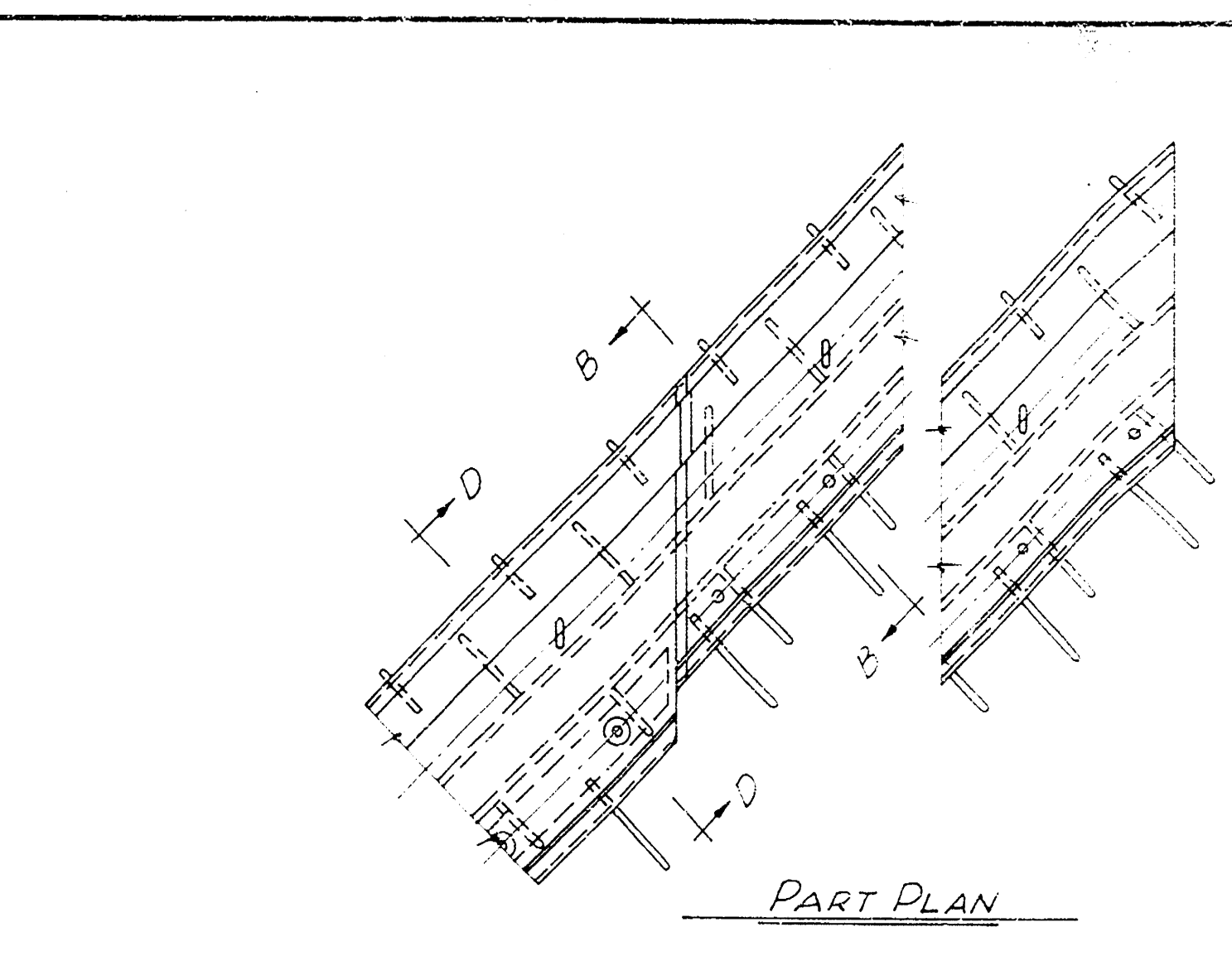
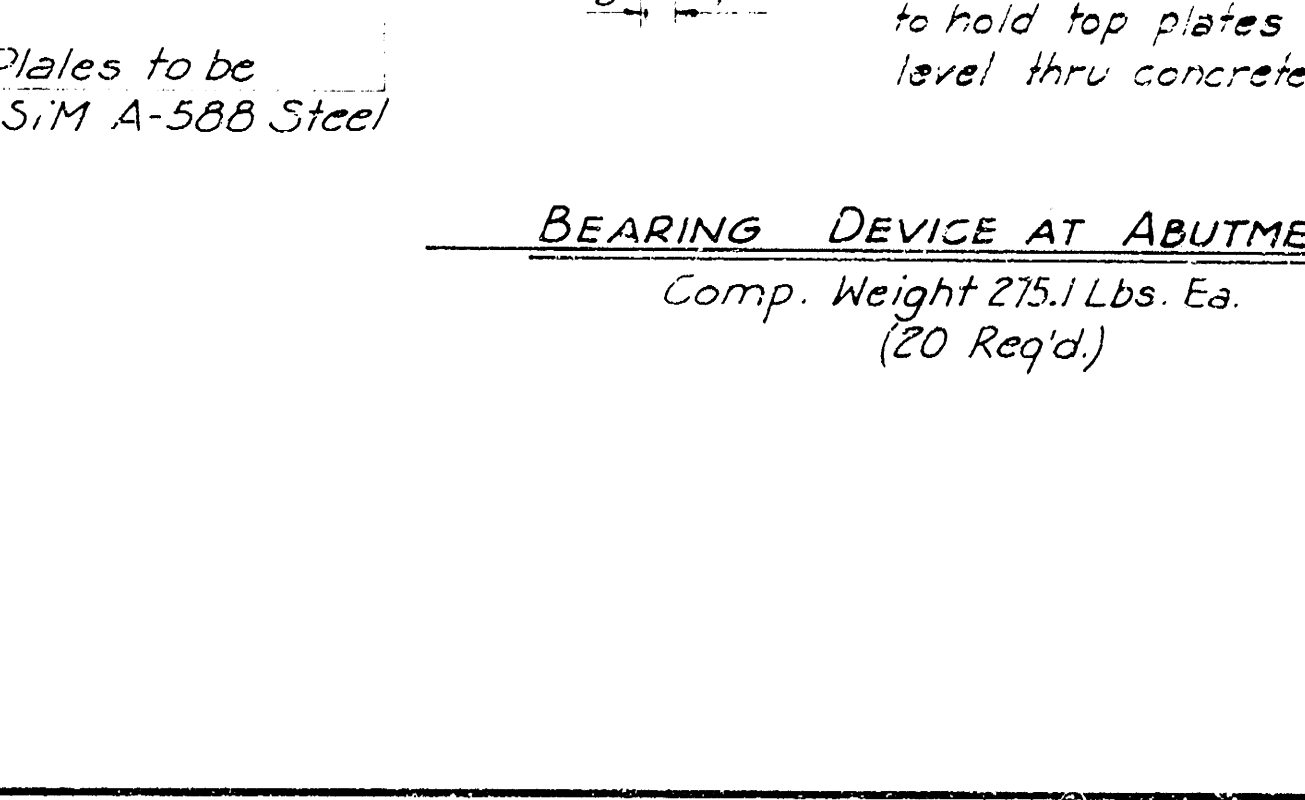
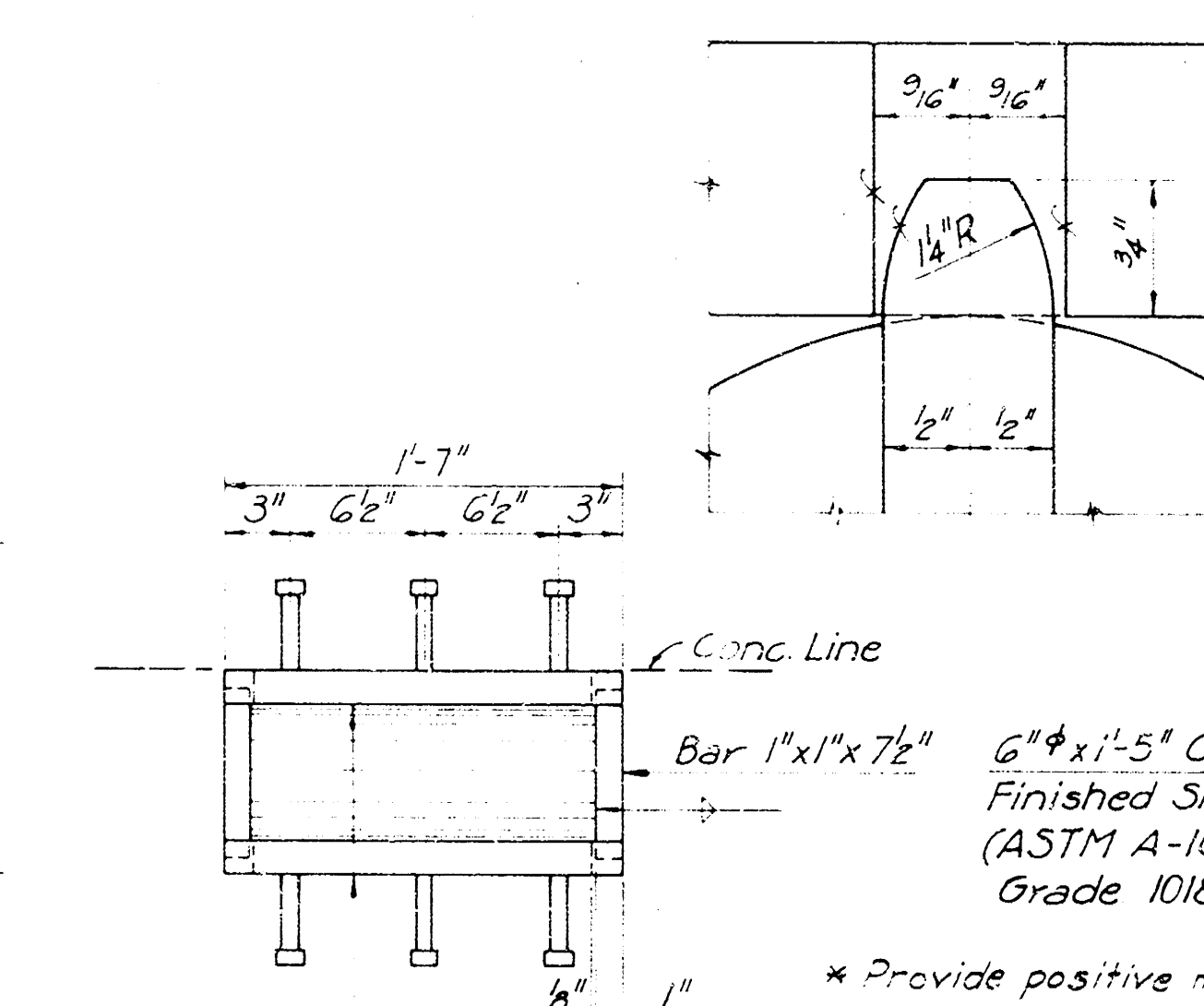
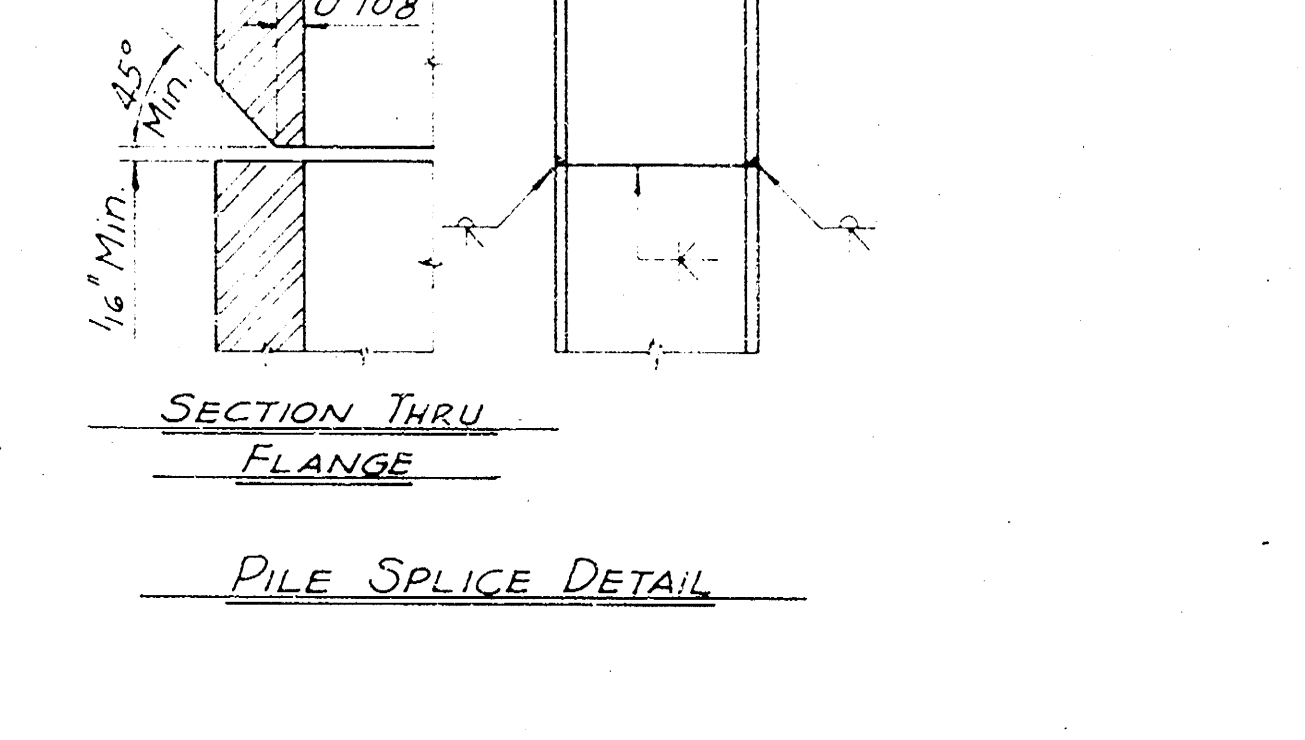
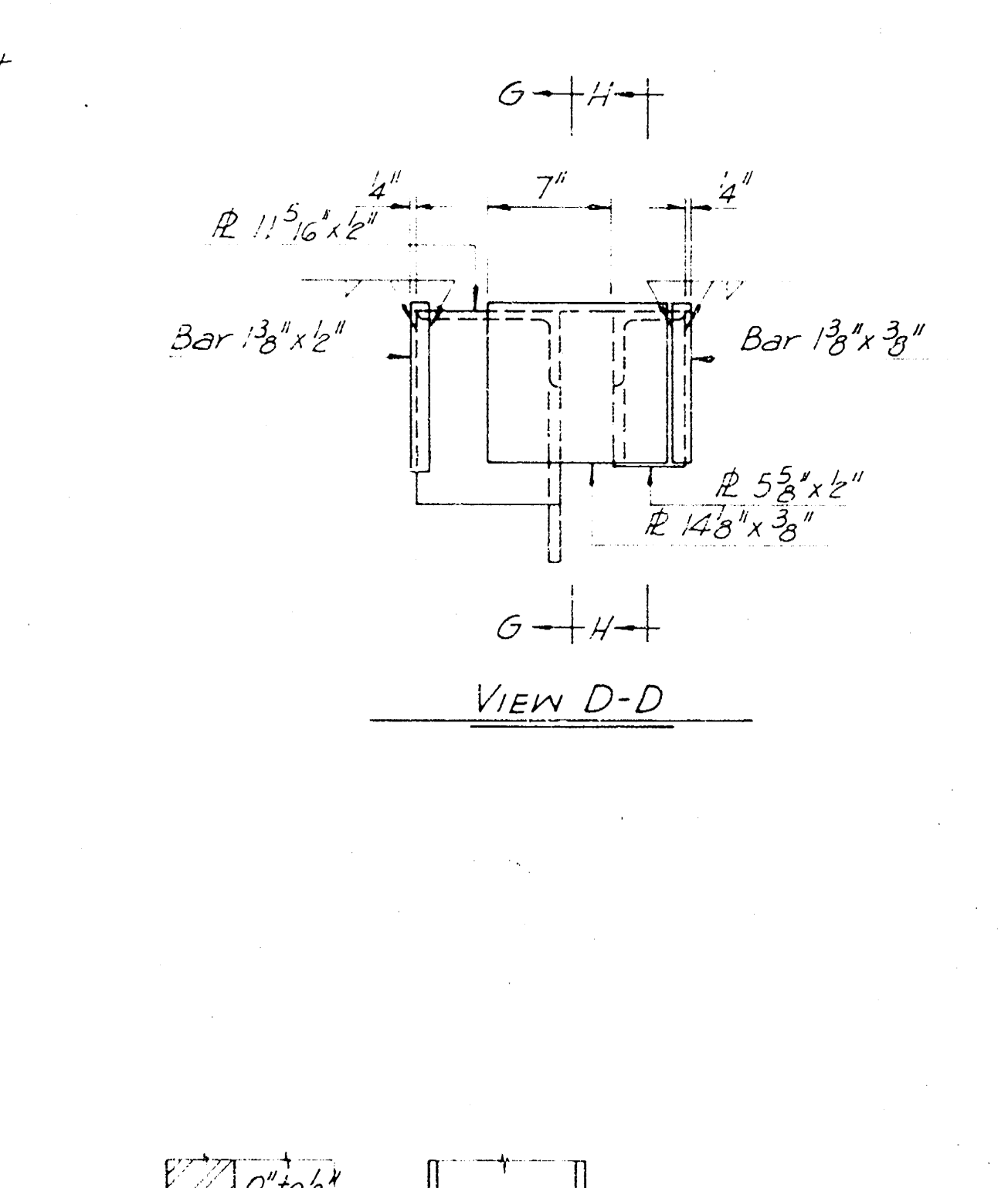
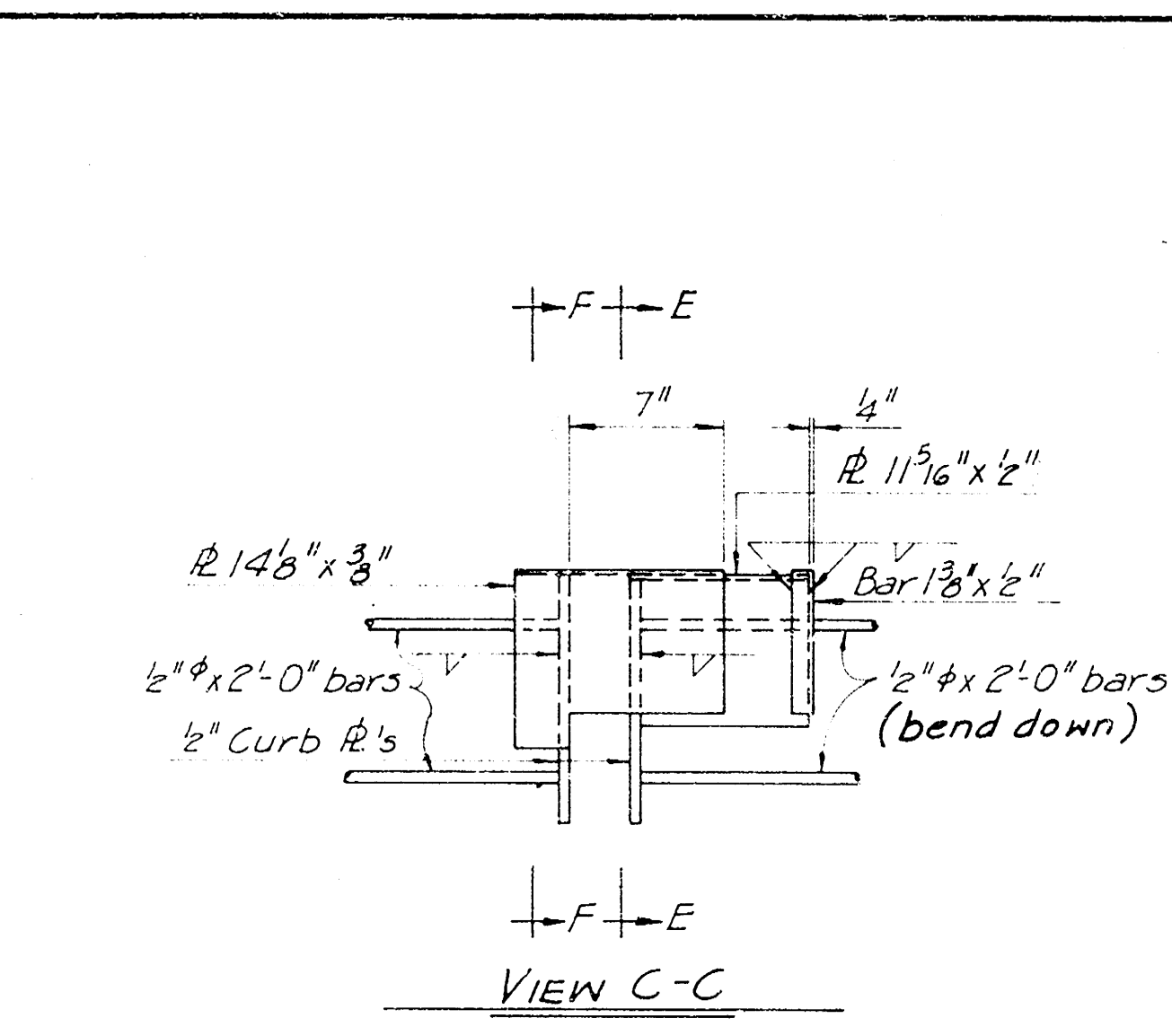
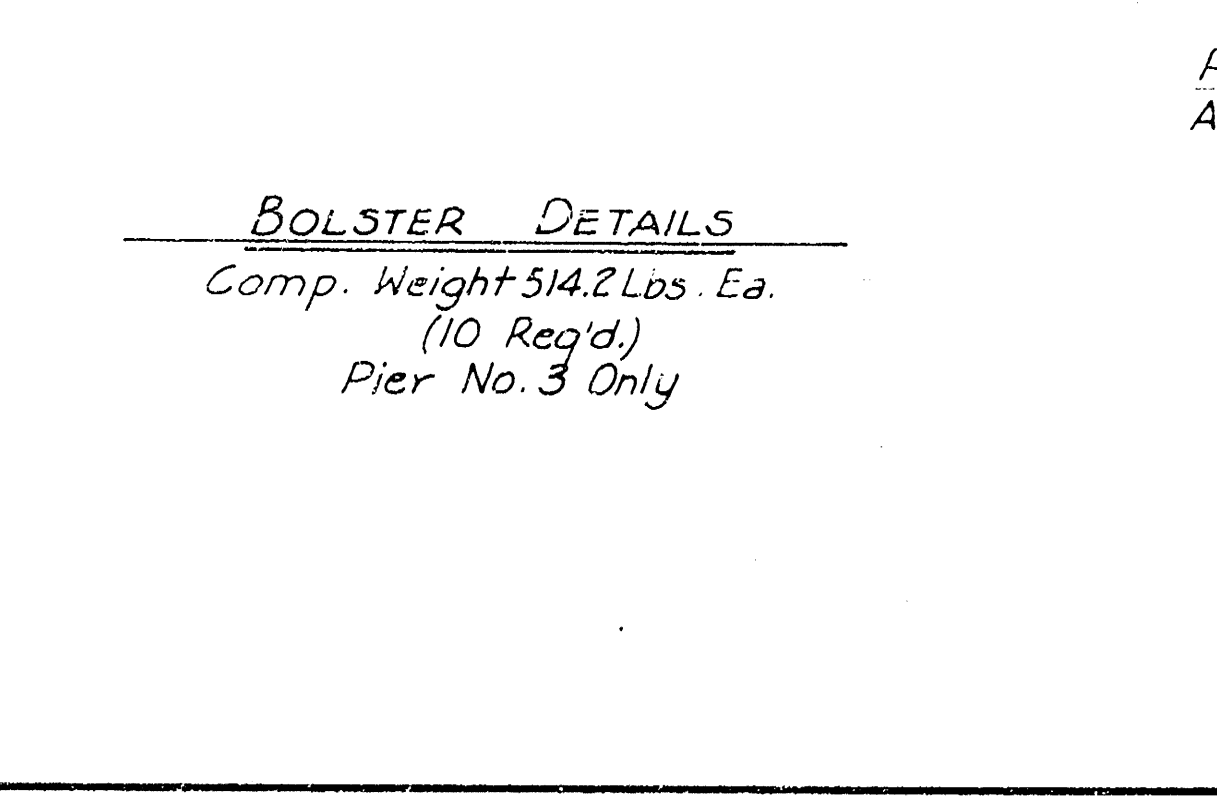
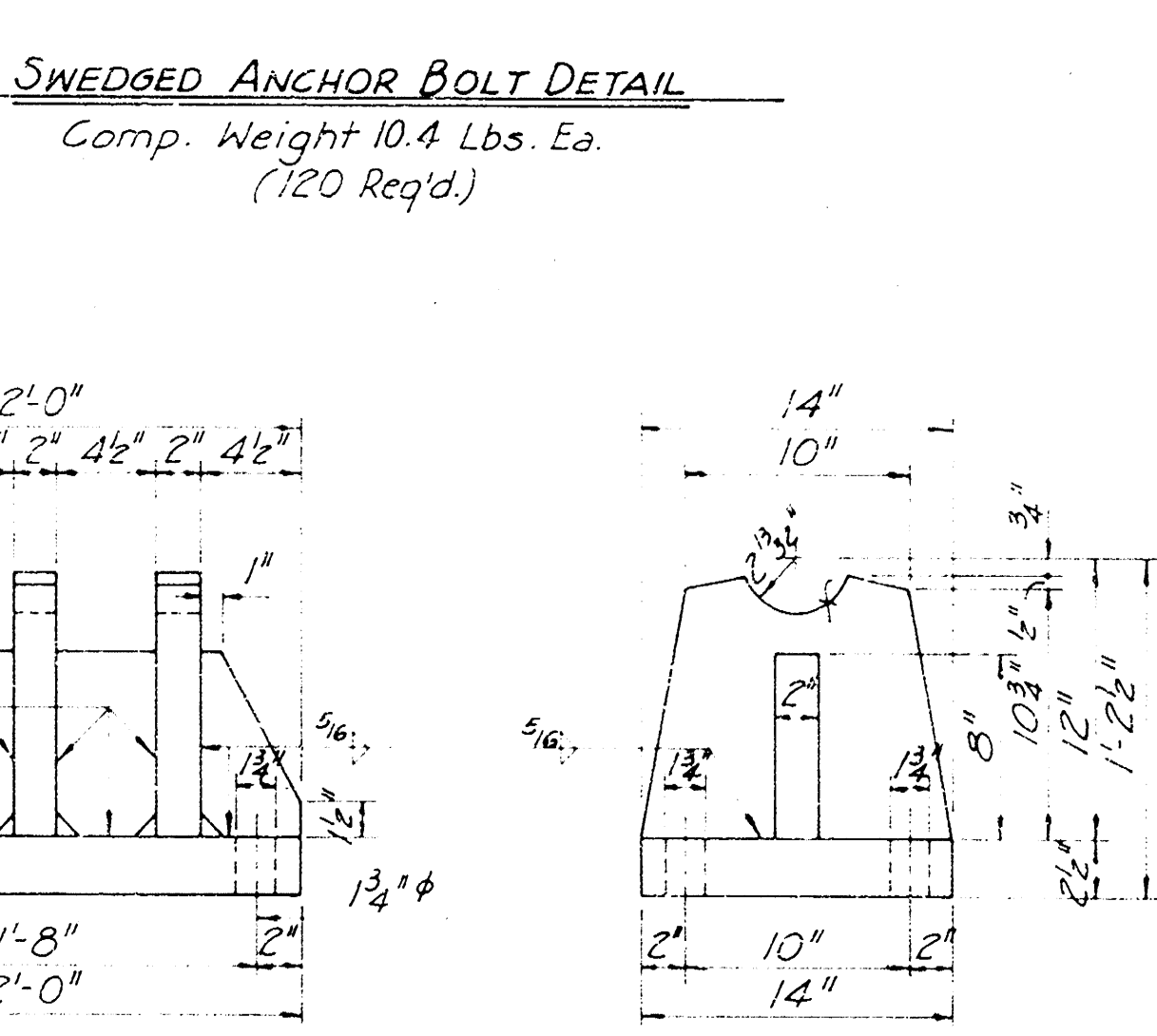
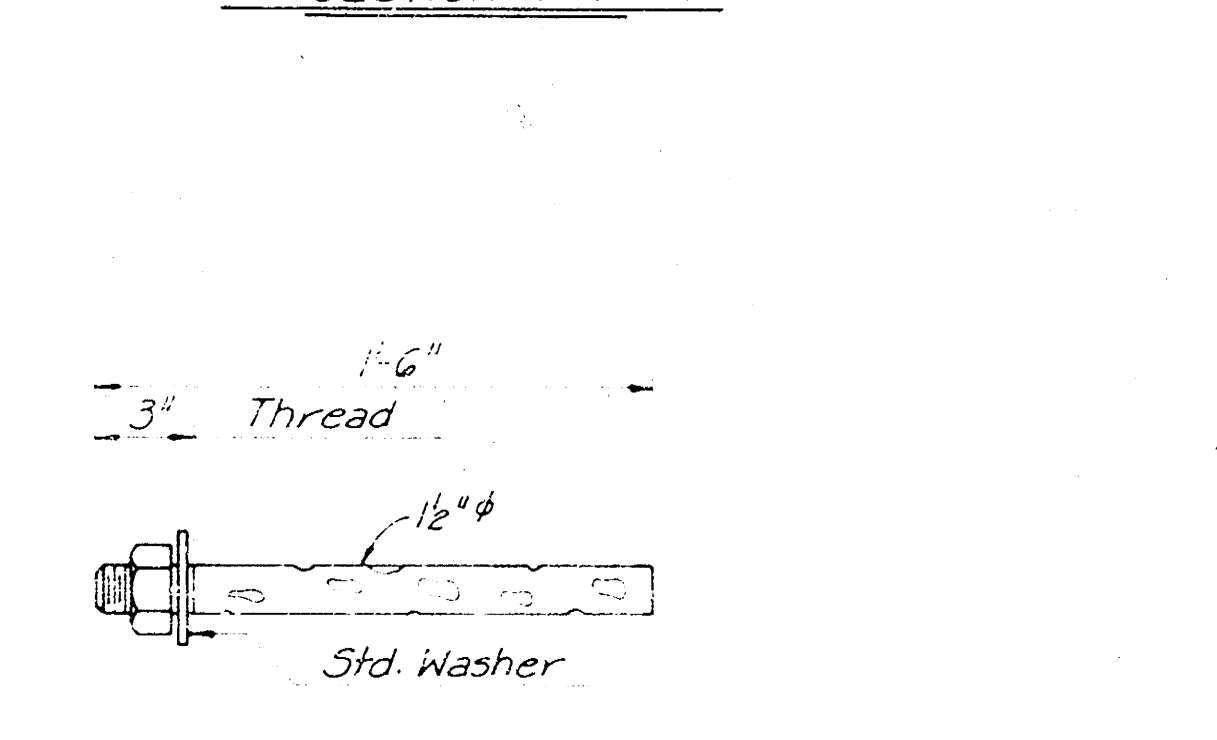
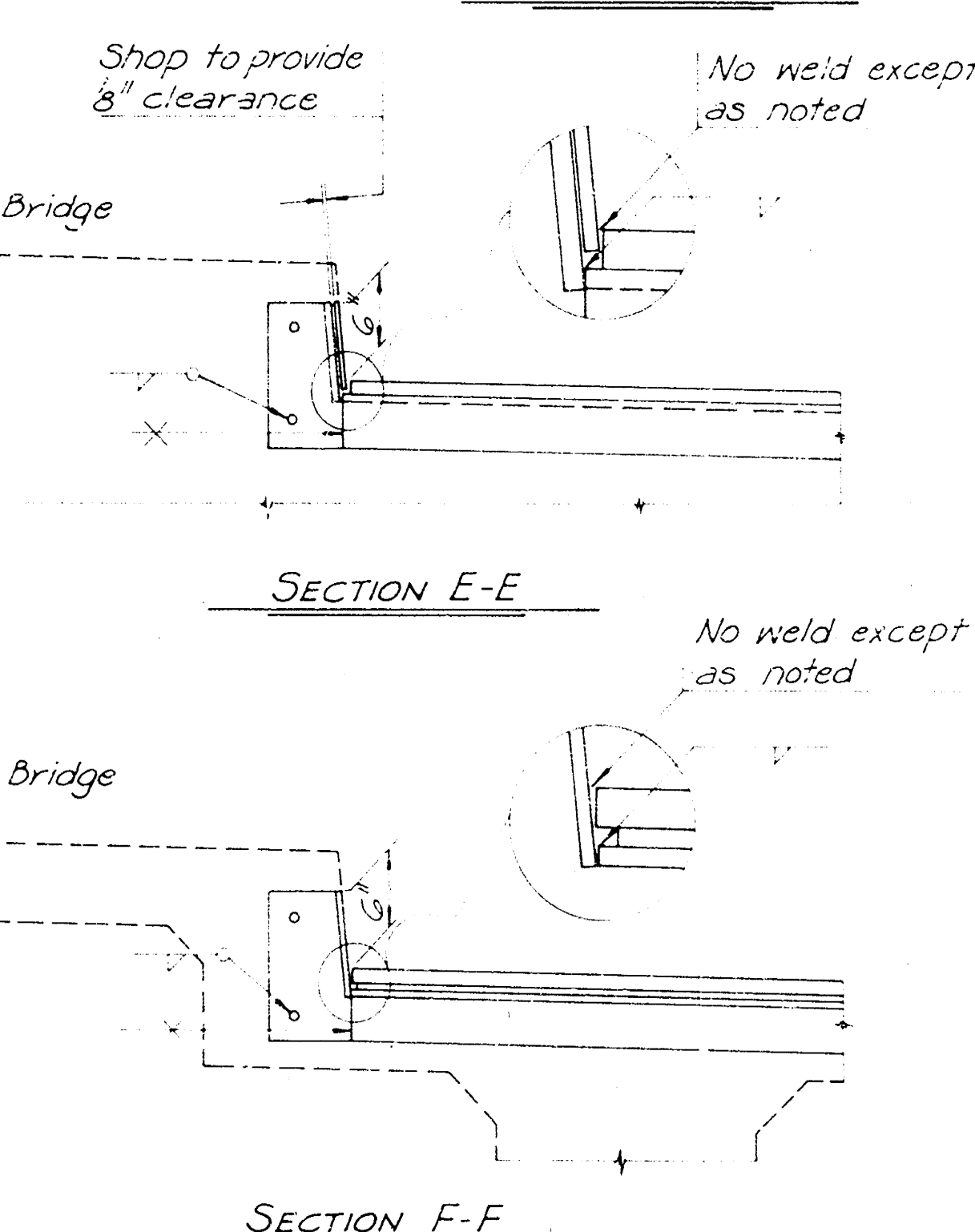
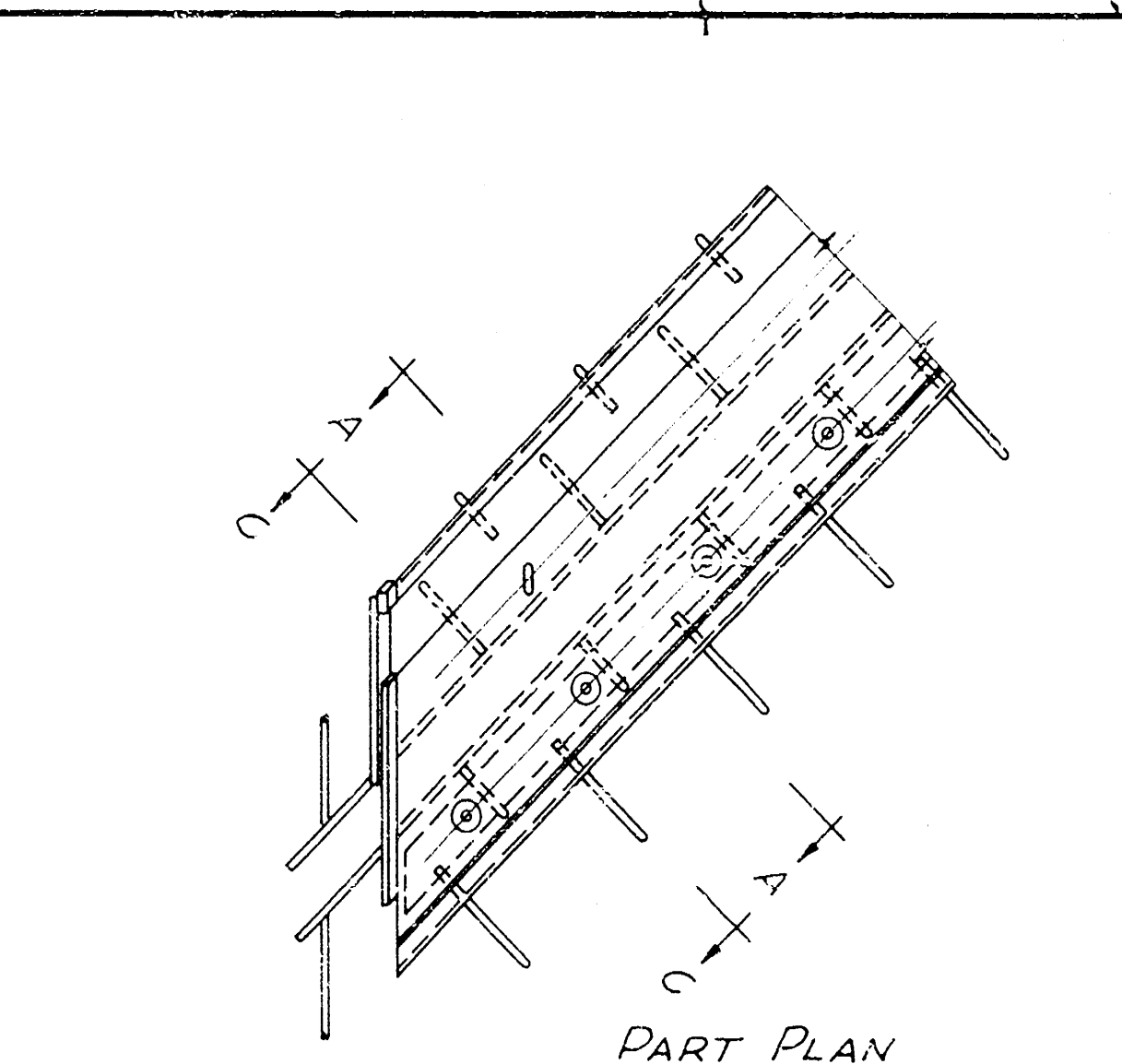
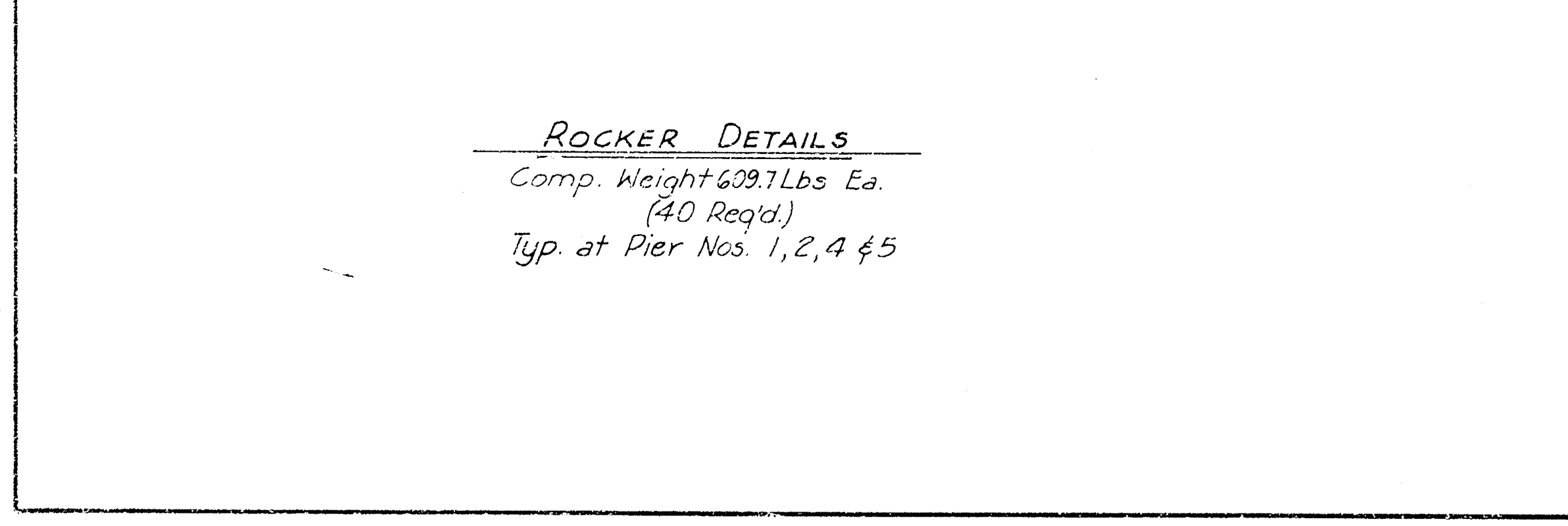
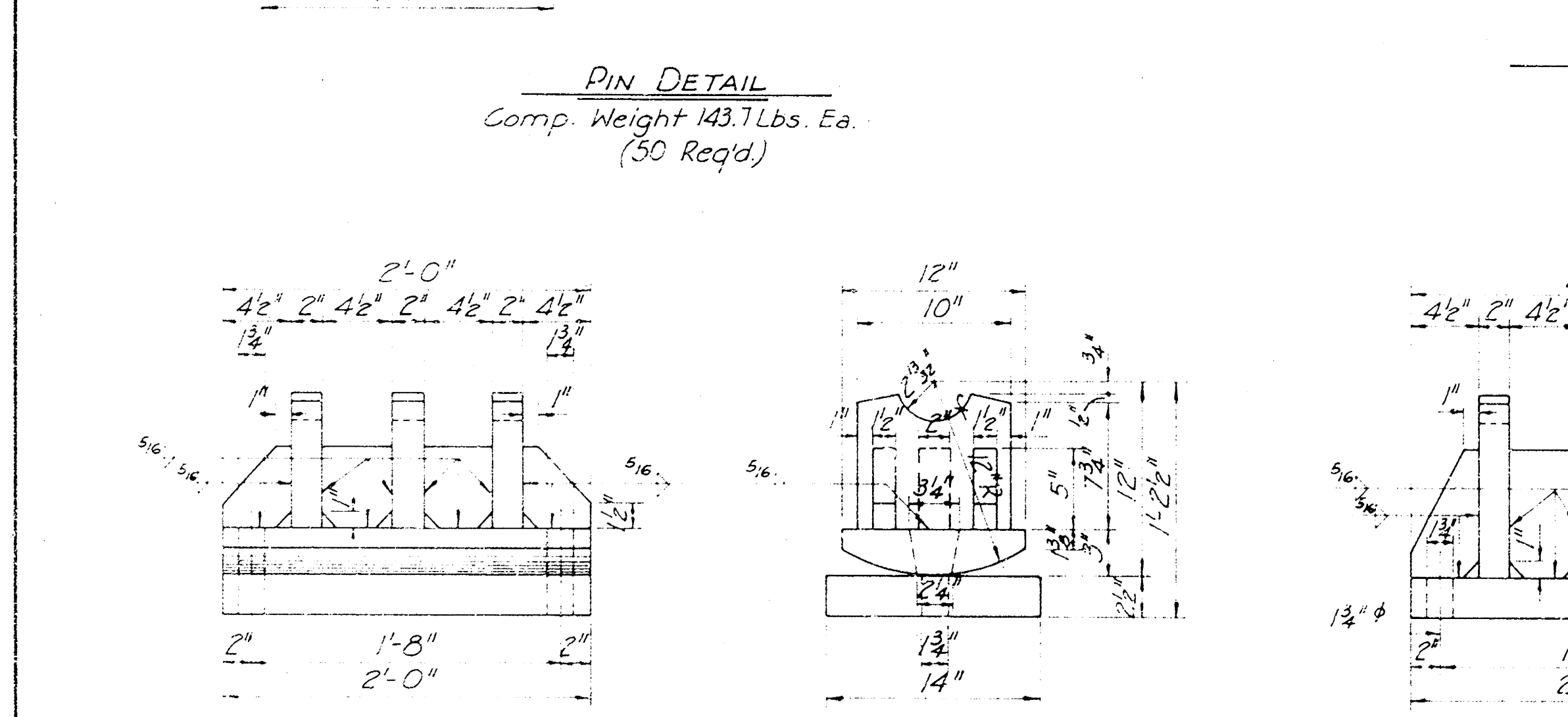
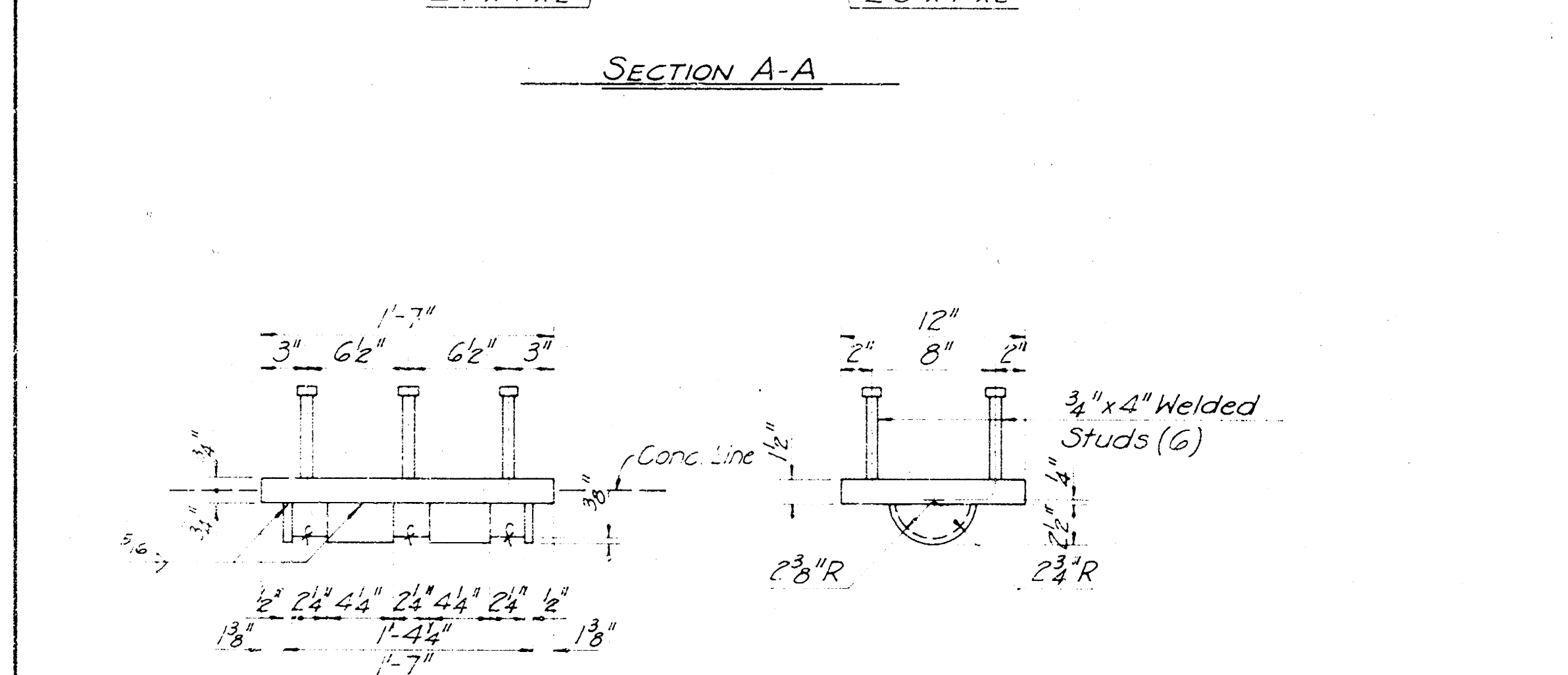
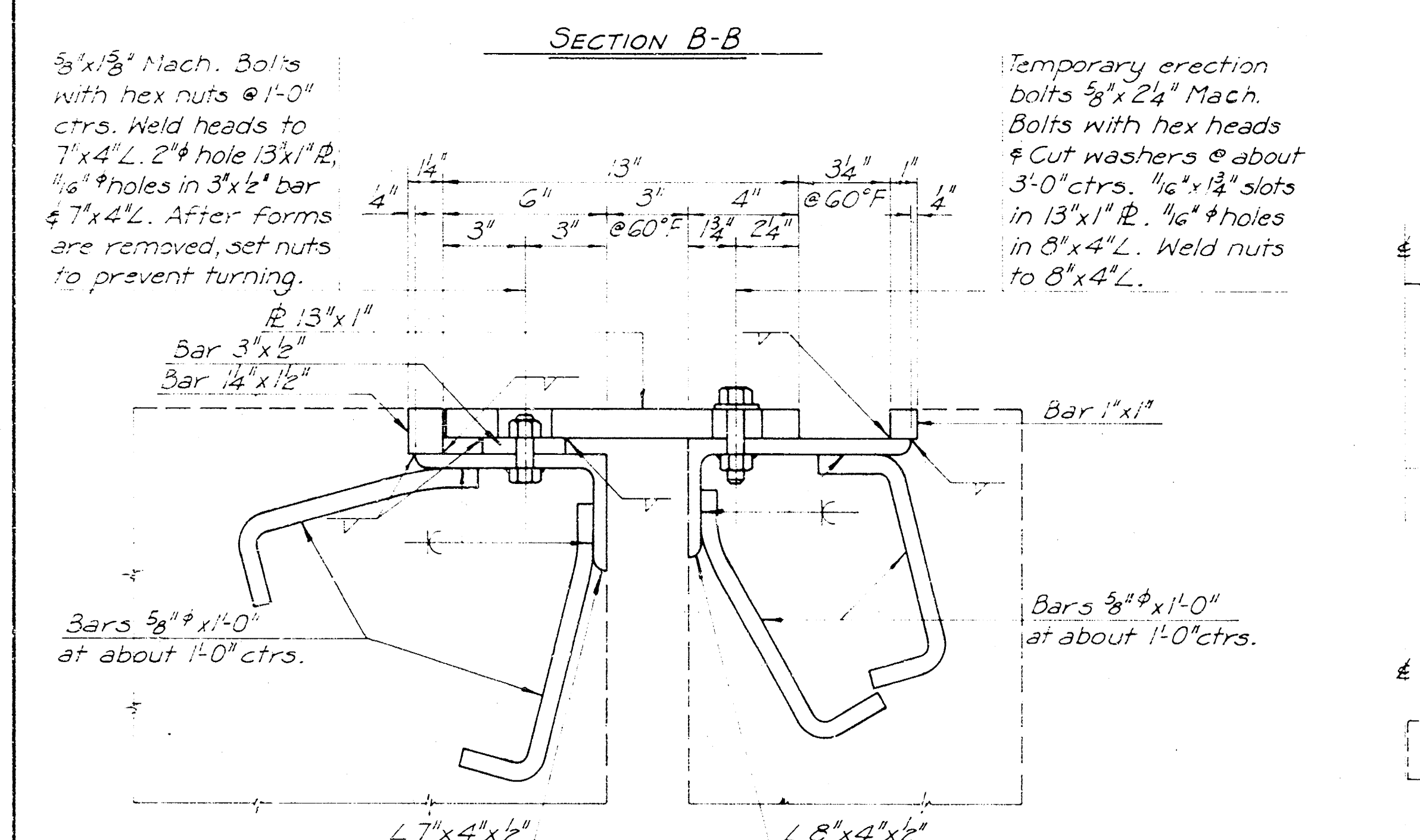
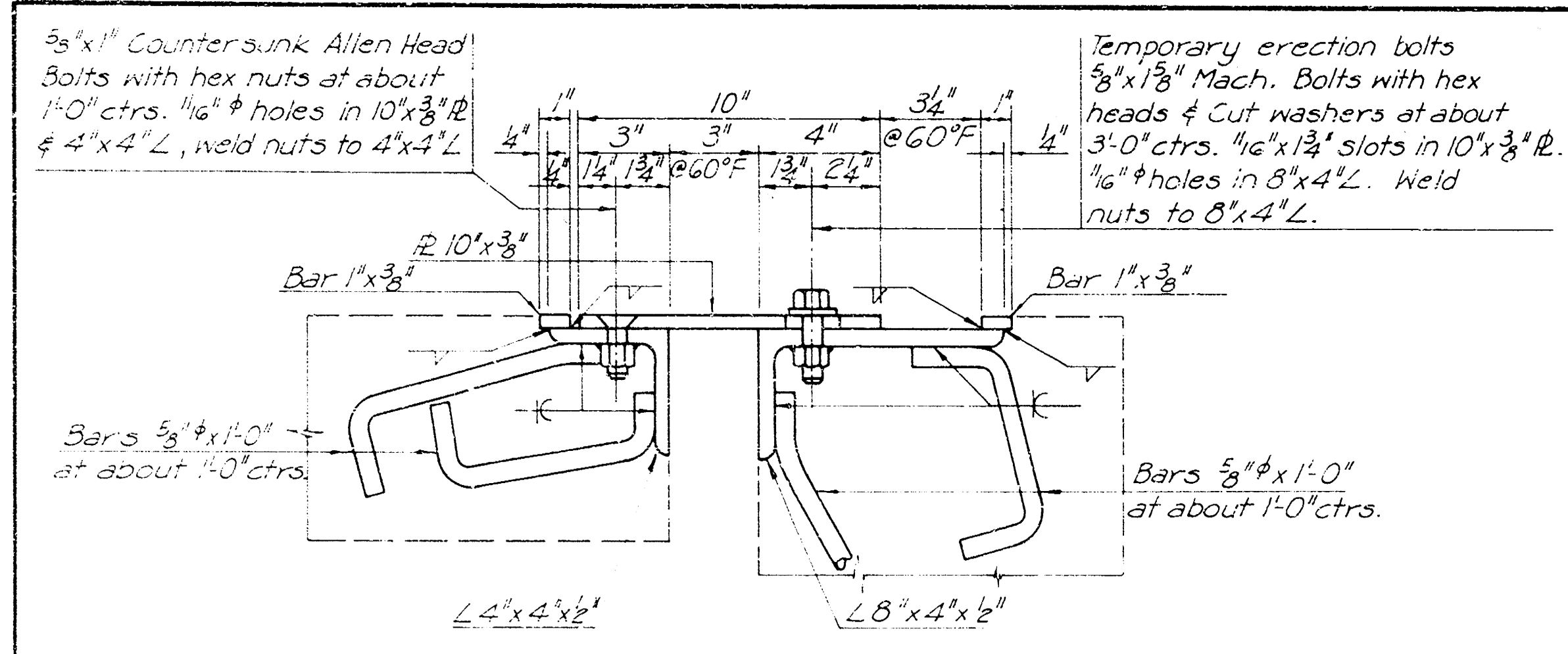
GALVANIZED U-BOLTS DETAILS

Notes: (Aluminum Handrail)
Handrail tubing shall be fabricated in lengths to include two or three spaces.
Bolt holes in tubing of intermediate posts to be 1/2 inch diameter. All other posts 1/2 inch slotted holes centered on bolts @ 60°.
All rail post flanges and webs shall have a minimum thickness of 3/16 inch with 3° draft. Nominal thickness of base shall be 3/4 inch with minimum of 1/2 inch.
Aluminum shims between concrete and post base may be used. The space below post shall be thoroughly caulked with polyurethane compound or other approved material.

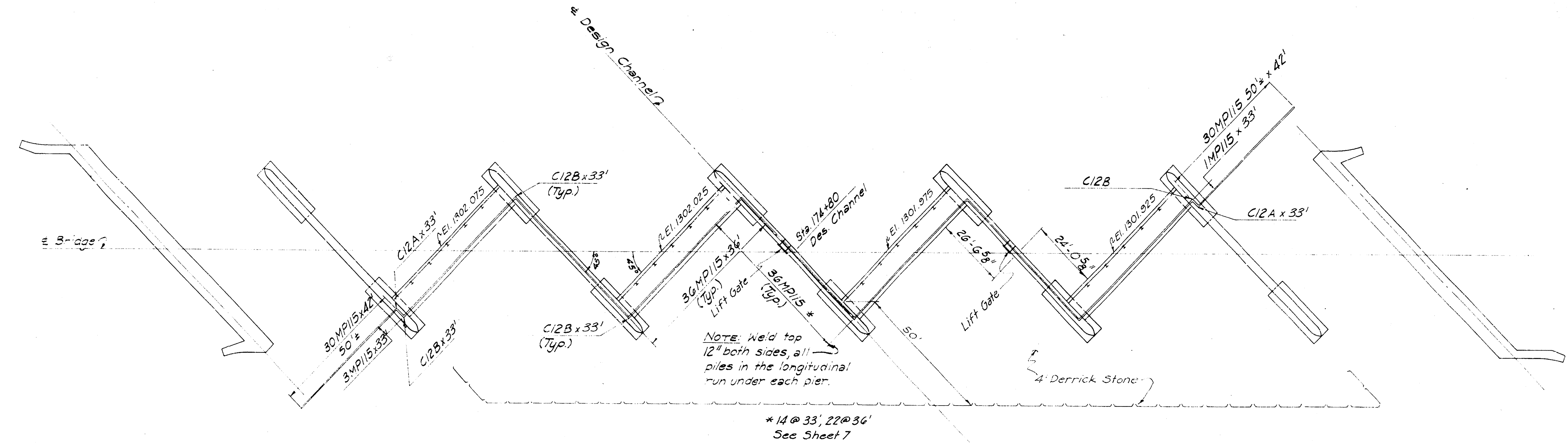
ALUMINUM HANDRAIL DETAILS TYPE C

NOTE:
Use Class 14420 (or equivalent) for handrail and traffic rails.
See Sheet 4 for general notes.
See Sheet 5 for Bar Layouts and Bending Diagrams.

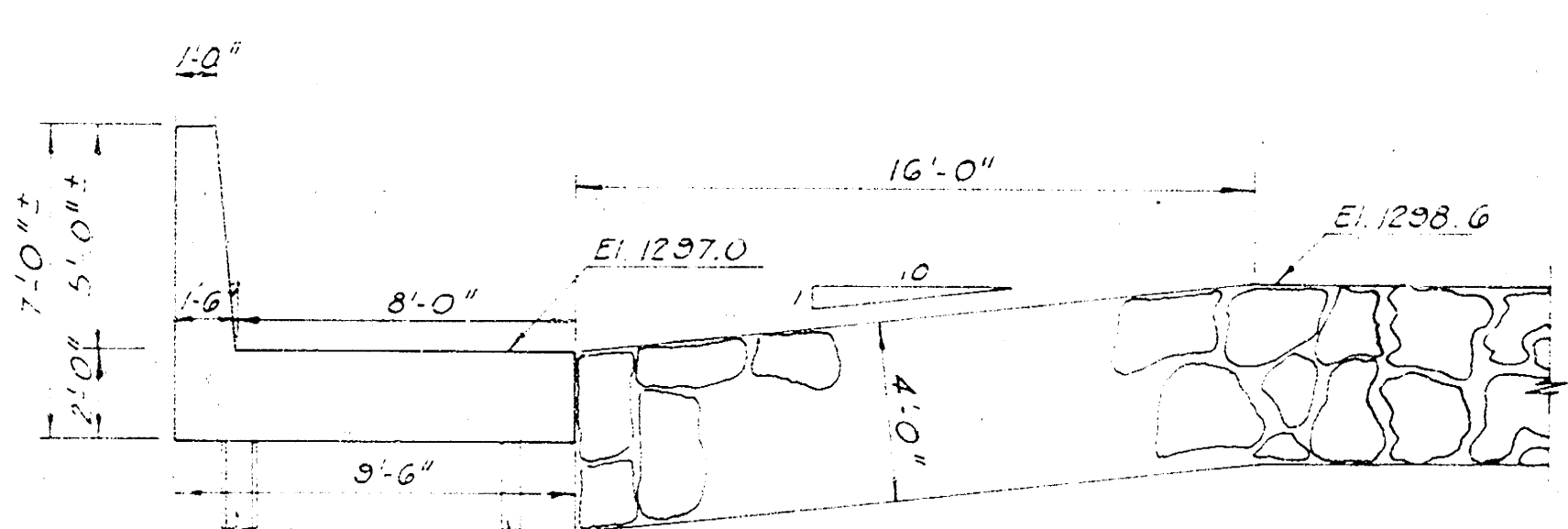
As Built	Nov. 1972	SP-100
CITY OF WICHITA, KANSAS	B. E. SMITH, ENGINEER	
TWENTY-FIRST STREET BRIDGE OVER THE BIG ARKANSAS RIVER		
HANDRAIL DETAILS		
R. S. DELAMATER	CONSULTING ENGINEER	
		89-F-1



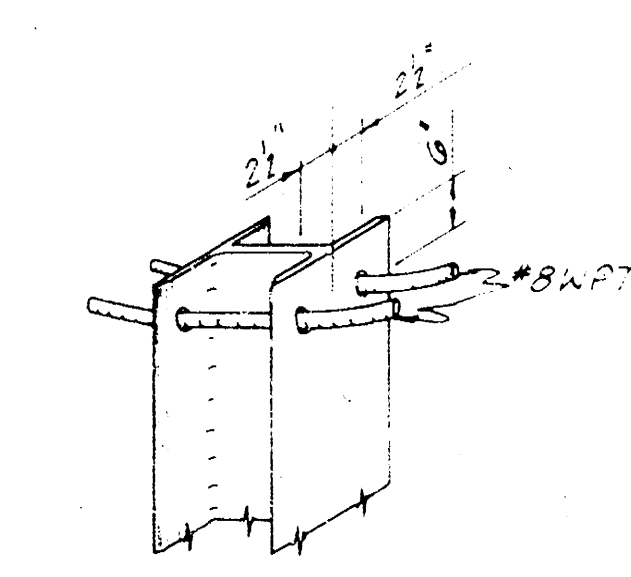
As Built			
Nov. 1972			
C.P.B. & J.			
CITY OF WICHITA, KANSAS			
R. E. SMITH, P.E., CIVIL ENGINEER			
TWENTY-FIRST STREET BRIDGE OVER			
THE BIG ARKANSAS RIVER			
STRUCTURAL STEEL DETAILS &			
BEARING DEVICES			
R. S. DELAMATER			
CONSULTING ENGINEER			
WICHITA, KANSAS			
89			



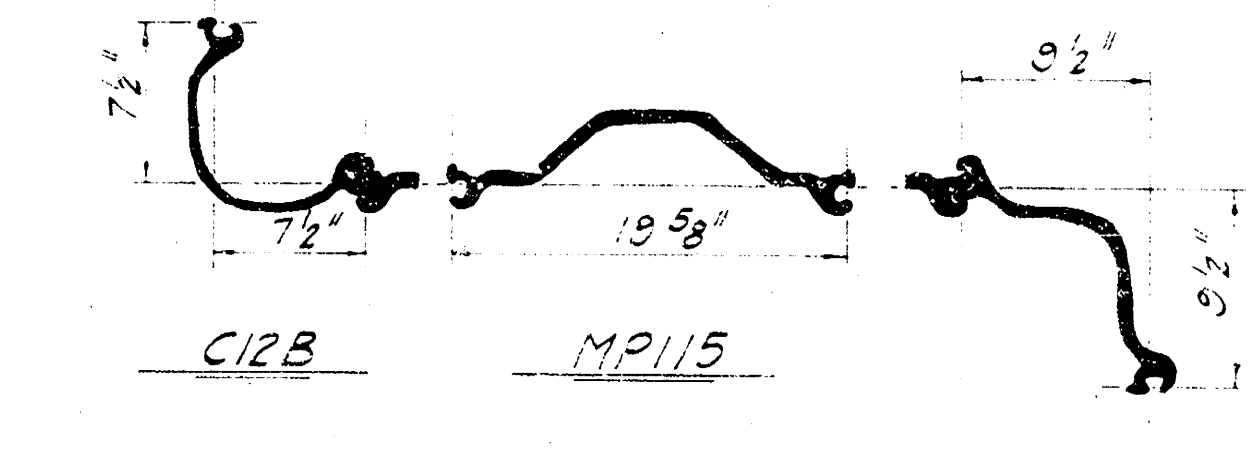
SECTION THRU PIERS



NOTE: Place 1/2" Expansion Joint Filler, Type 'B', against pier face, entire end contact area of each weir.

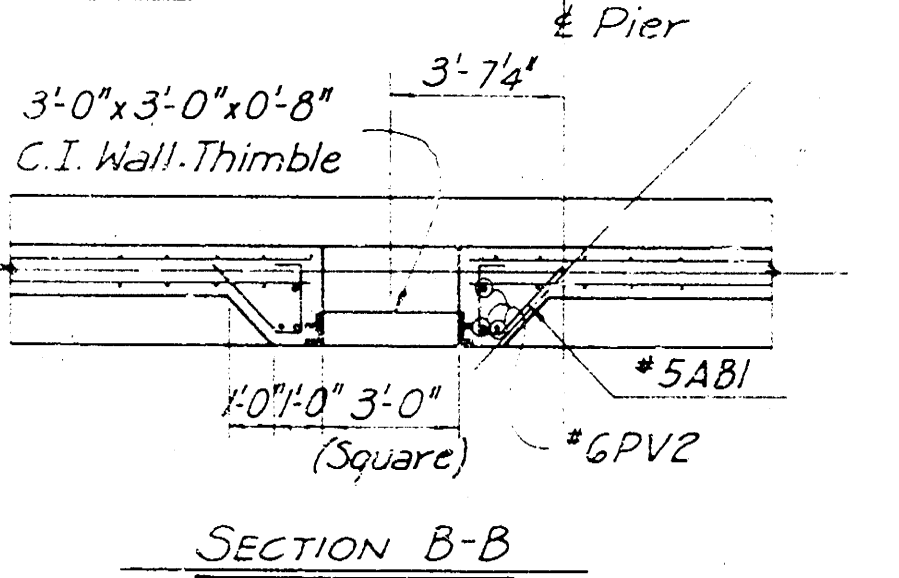
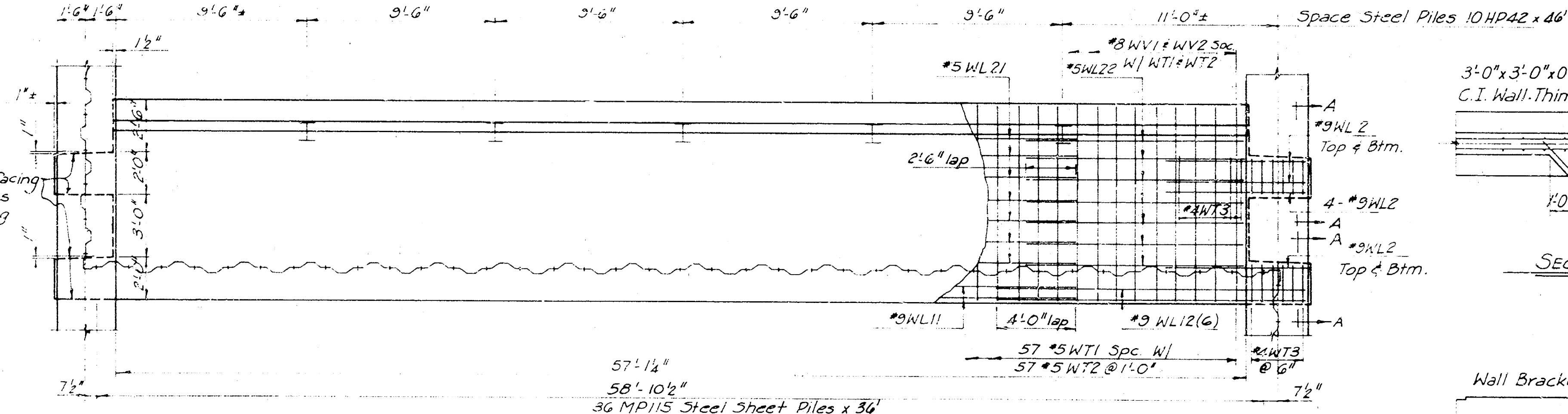
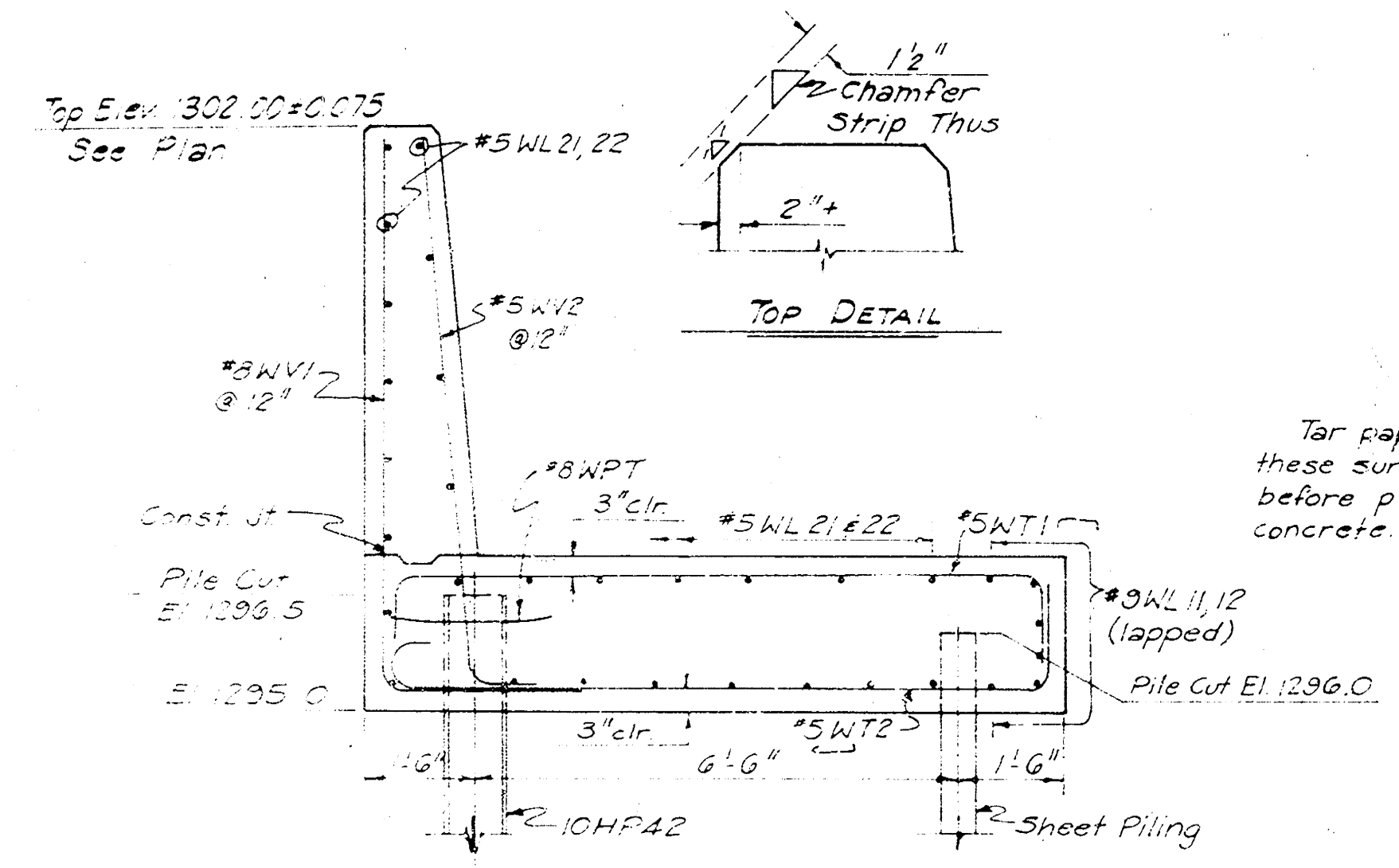


SECTION A-A



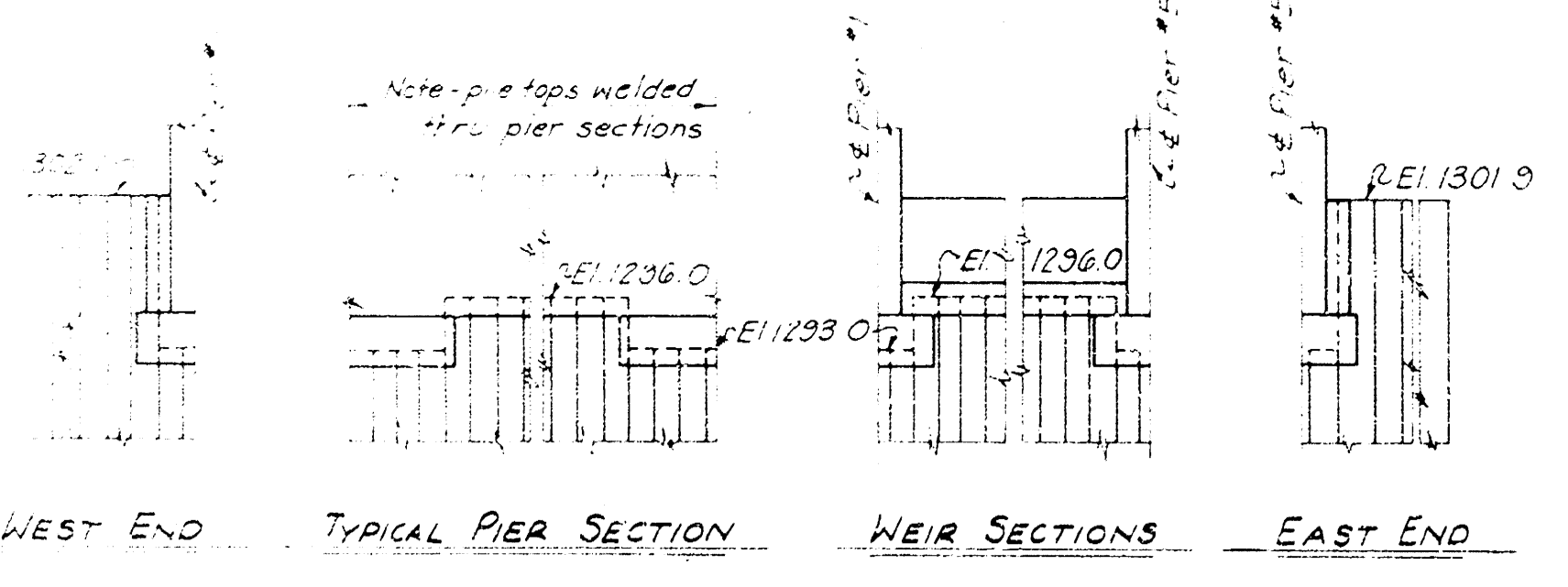
RECAP OF STEEL SHEET PILING

C12A	2 pcs @ 33'	= 66 Lin. Ft.
C12B	8 pcs @ 33'	= 264 "
MPI15	56 pcs @ 33'	= 1,848 "
	102 pcs @ 36'	= 3,672 "
	58 pcs @ 42'	= 2,436 "
Total		= 11,886 "



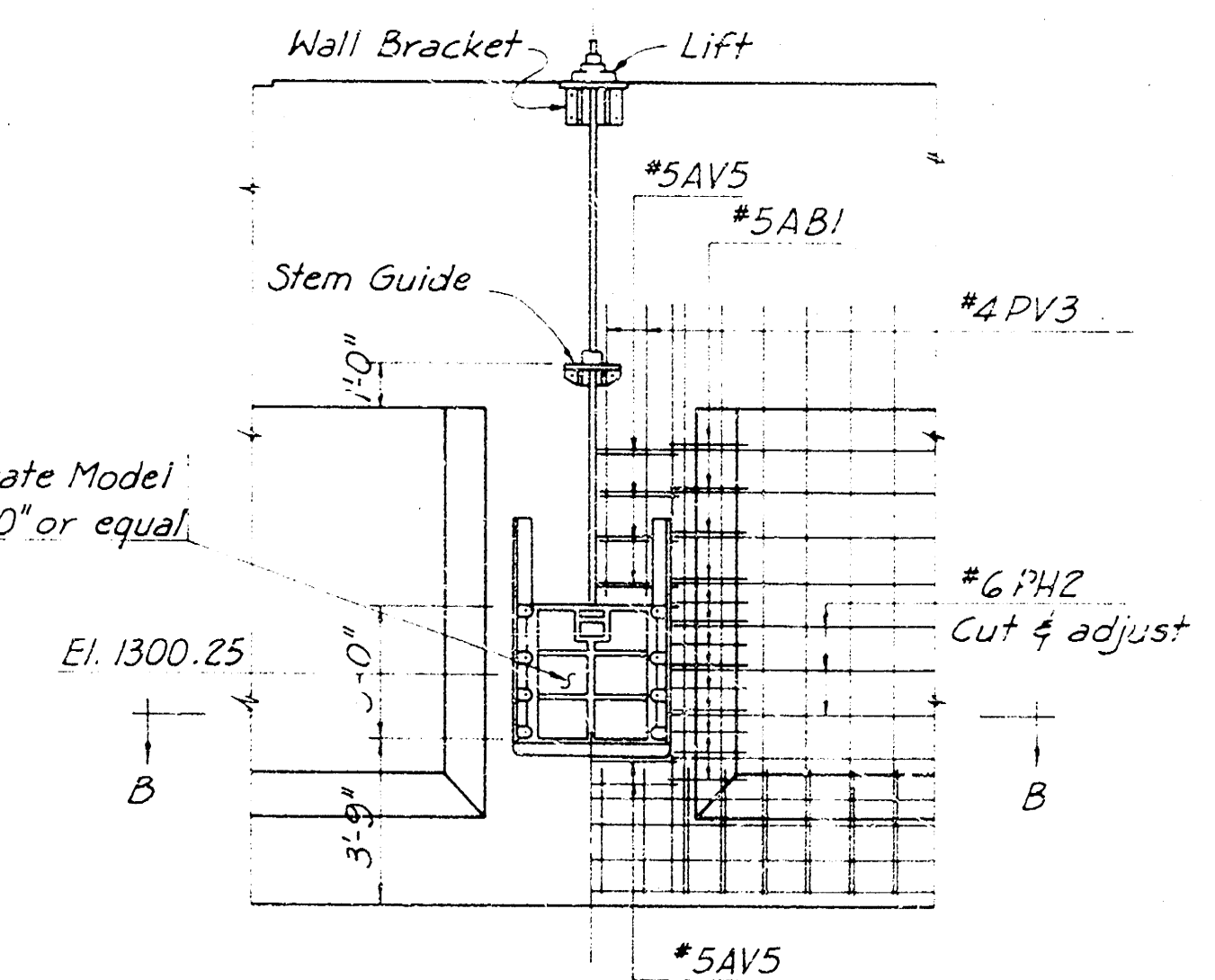
Notes:
Use Class A concrete thru-out in the weir.
See Sheet 2 for General Notes.
See Sheet 5 for Bar List and Bending Diagrams.
See Sheet 7 for details of Sheet Piling location thru piers.

DESIGN LOADS:
20 tons per pier on 10' bearing piles
10 tons per pier on sheet piles



STEEL SHEET PILE CUTOFF ELEVATIONS

Armco Lift Gate Model
50-10, 3'-0" x 3'-0" or equal



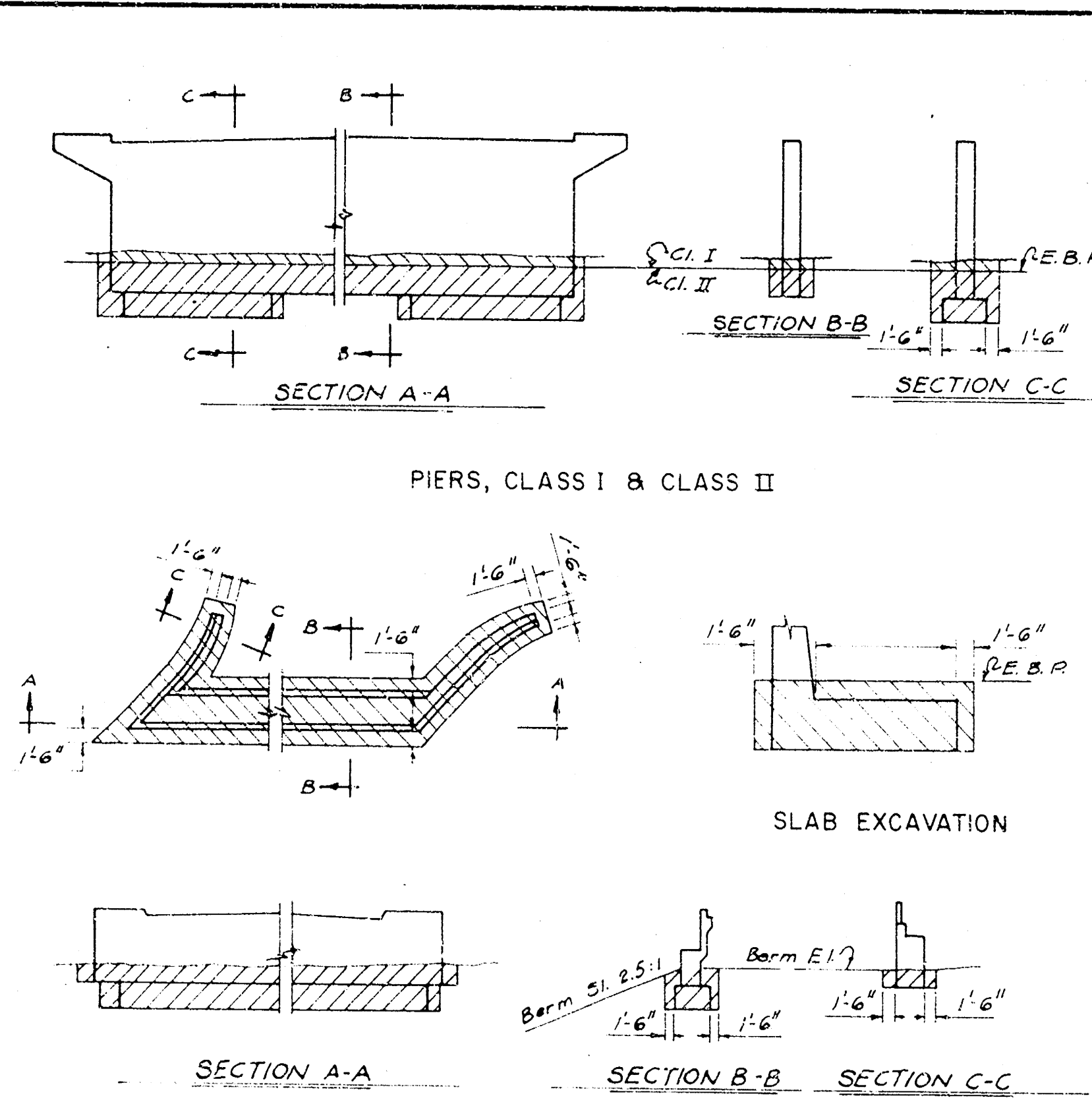
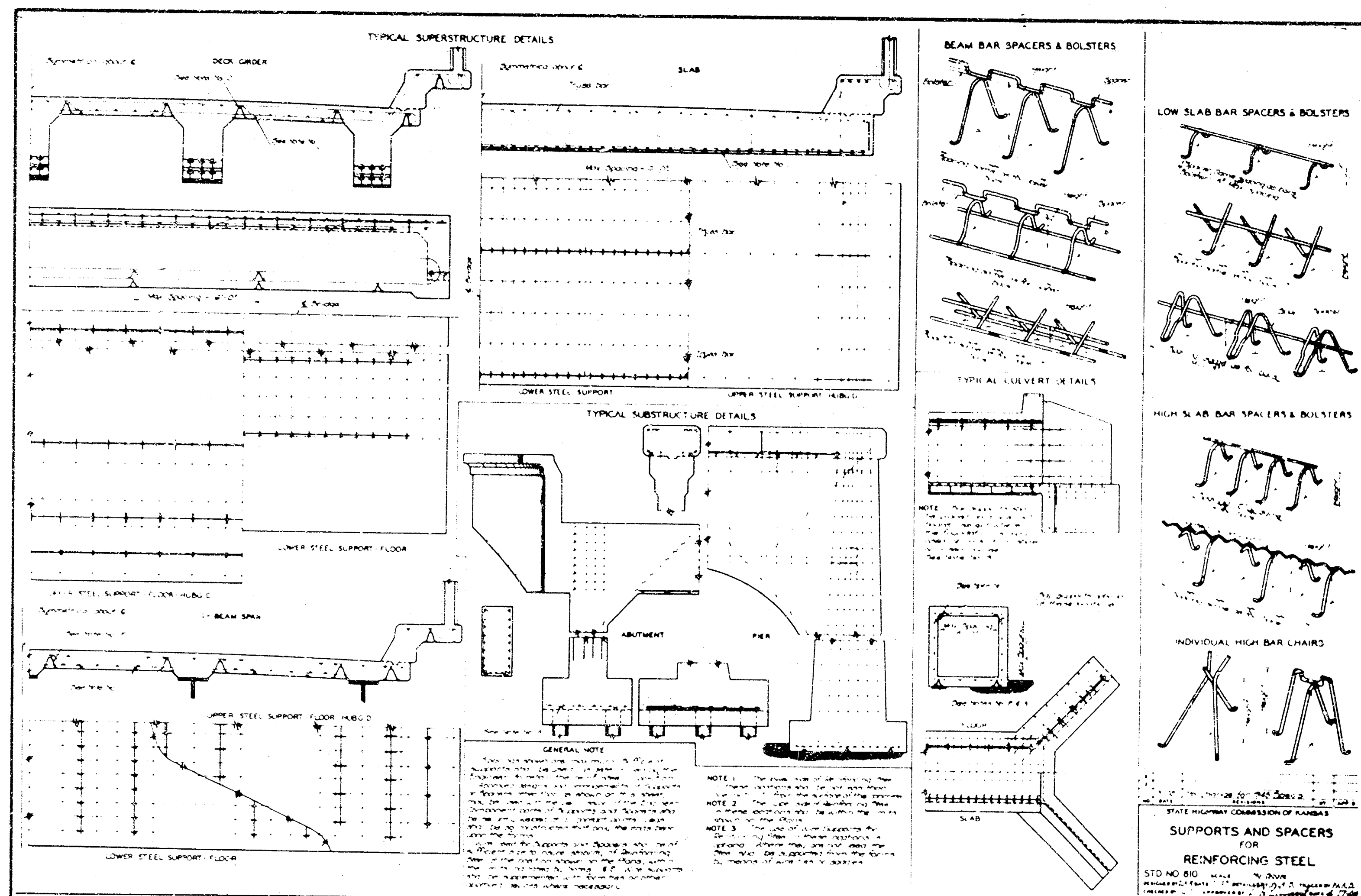
As Built Nov 1972 CPB:K.H.

CITY OF WICHITA, KANSAS
R. S. DELAMATER, CONSULTING ENGINEER
TWENTY-FIRST STREET BRIDGE OVER THE BIG ARKANSAS RIVER

WEIR DETAILS

R. S. DELAMATER
CONSULTING ENGINEER
WICHITA, KANSAS

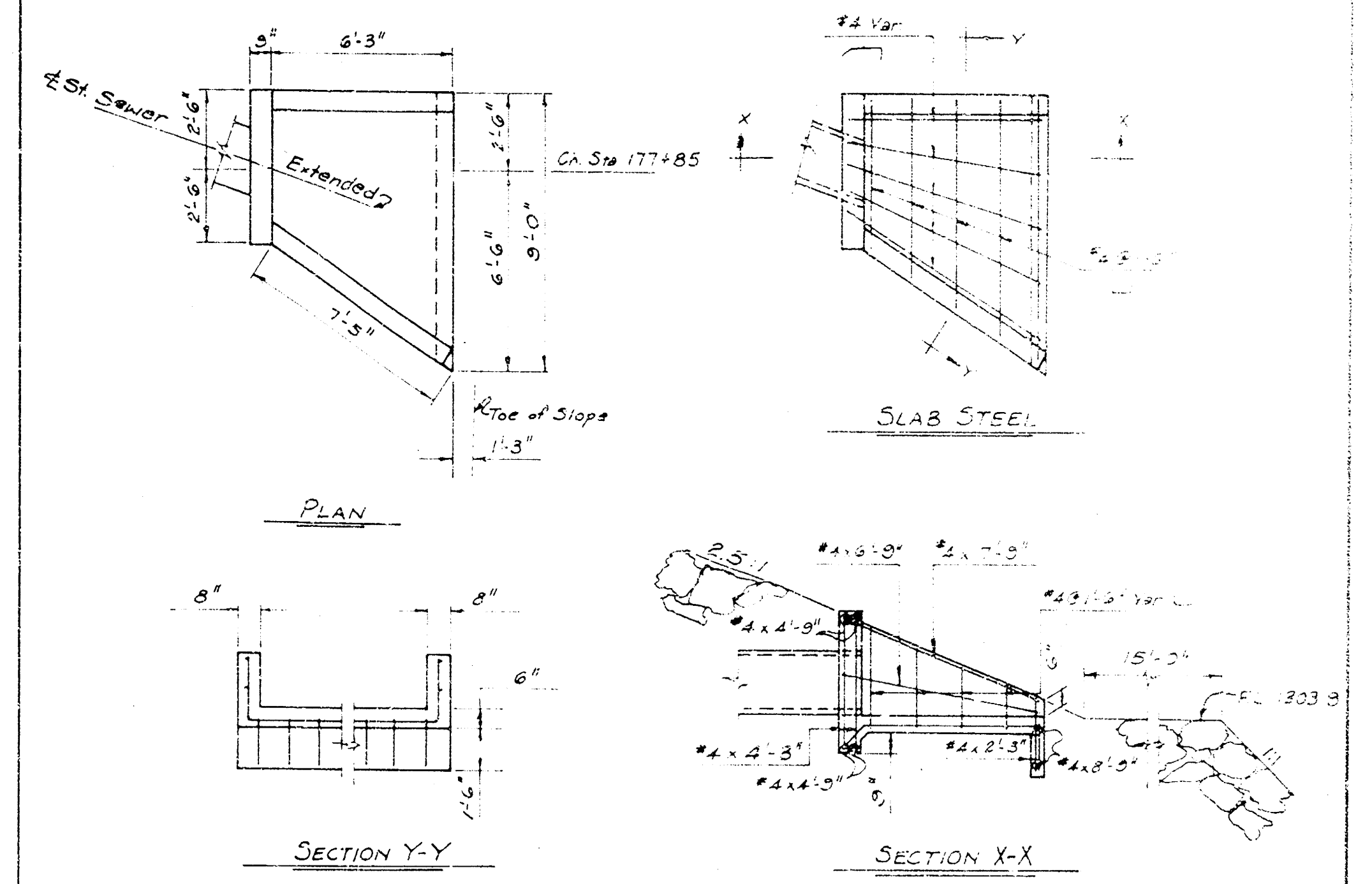
89-P-1



NOTES:

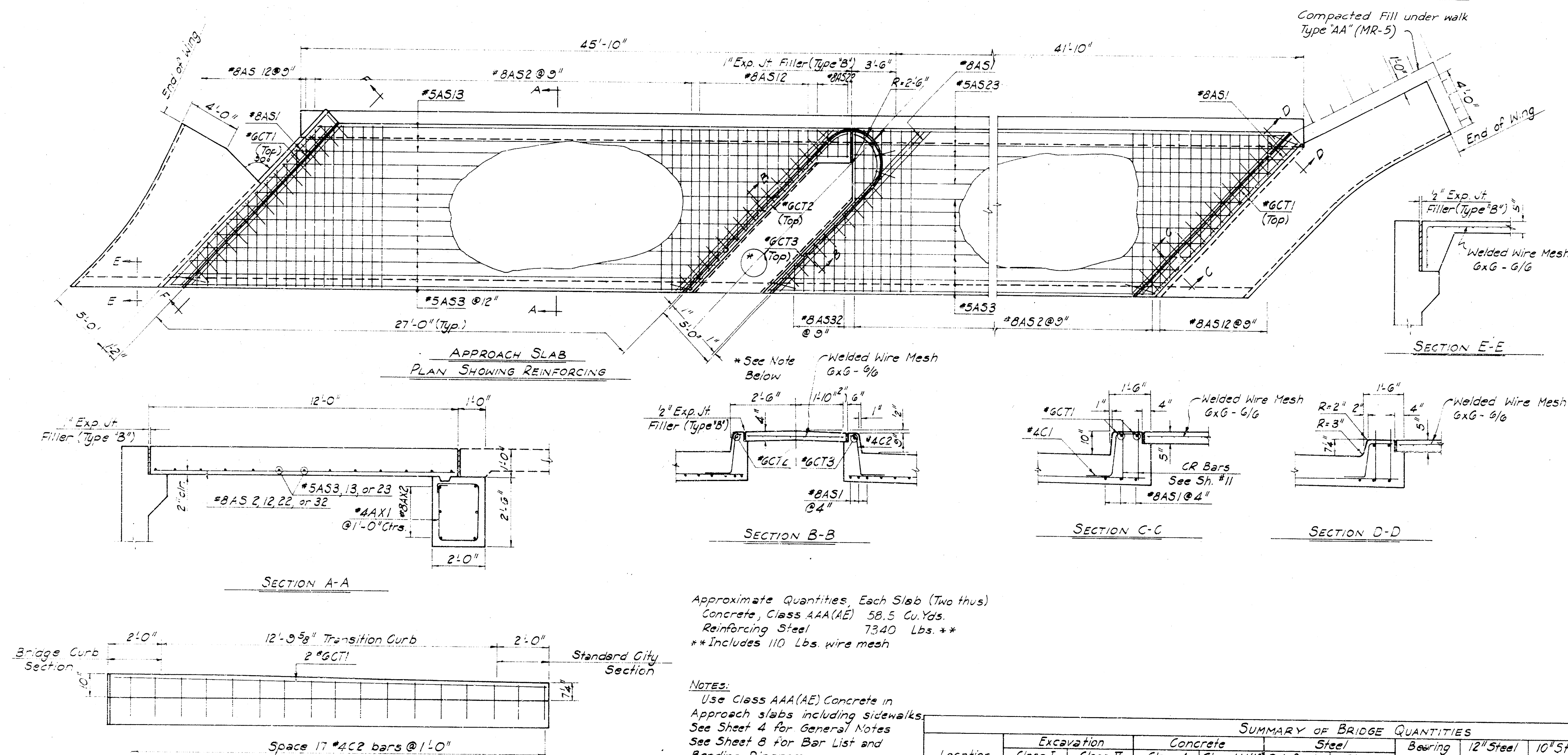
All bridge and weir excavation shall be completed on the basis of cross-hatched areas and boundary lines as indicated.

LIMITS OF EXCAVATION



Approx. Quantities:
2.3 Cubic Yds. Conc. Class A
88.5 lbs. #4 Reinf. St.
100.0 Lin. Ft. 24" R.C.P.
*For information only

See Sheet 3-4 for location of Storm Sewer extension



Approximate Quantities, Each Slab (Two thus):
Concrete, Class AAA(AE) 58.5 Cu. Yds.
Reinforcing Steel 7340 Lbs. **
**Includes 110 Lbs. wire mesh

NOTES:

Use Class AAA(AE) Concrete in Approach slabs including sidewalks. See Sheet 4 for General Notes. See Sheet 8 for Bar List and Bending Diagram. (For Information Only)

*Contractor shall provide for construction of cable manholes by K&B#E, see specifications.

*Compacted Embankment includes:
11,581 Cu. Yds. Type 'B' (MR-90)
5,586 Cu. Yds. Type 'A' (MR-5)
933 Cu. Yds. Type 'AA' (MR-5)

SUMMARY OF GRADING AND BANK PROTECTION QUANTITIES		
Item	Quant.	Unit
Removal of Exist. Structure	1.5	L.S.
Compacted Embankment	9,100	Cu. Yds.
Dumped Rock Embankment	684	Cu. Yds.
Dumped Rock Riprap	1,814	Cu. Yds.
Bedding	388	Cu. Yds.
Derrick Stone	2,393	Cu. Yds.
R.C. Riprap (5')	180	Sq. Yds.
Storm Sewer Ext.	1.5	L.S.
Seeding and Mulching	0.50	Acres

SUMMARY OF WEIR QUANTITIES		
Item	Quant.	Unit
Slab Excavation	371	Cu. Yds.
10" Steel Piles	920	Lin. Ft.
Sheet Piles	1,586	Lin. Ft.
Class A Concrete	221.7	Cu. Yds.
Reinforcing Steel	28,740	Lbs.
Lift Gates	2	Each

SUMMARY OF BRIDGE QUANTITIES										
Location	Excavation Class I Cu. Yds.	Excavation Class II Cu. Yds.	Concrete Class A Cu. Yds.	Concrete Class AAA(AE) Cu. Yds.	Reinforcing Steel Lbs.	Struct. Lbs.	Bearing Dev. Lbs.	12" Steel Piles Lin. Ft.	10" Steel Piles Lin. Ft.	Bridge Handrail Lin. Ft.
Abut #1	280		165.4	23.5	15,390		2,751		1,030	
Pier #1		98	189.5		25,130		7,742	1,056		
Pier #2		98	190.8		24,940		7,742	1,056		
Pier #3		98	191.2		25,230		6,935	1,056		
Pier #4		98	190.8		25,230		7,742	1,056		
Pier #5		98	189.5		25,130		7,742	1,056		
Abut #2	280		165.4	23.5	15,390		2,751		1,030	
Supstr.				2,025.6	719,000	18,650				915.5
Total	560	490	1,282.6	2,072.6	874,440	18,650	43,465	5,280	2,060	915.5

As Built Nov. 1972 C.P.S./K.H.
CITY OF WICHITA, KANSAS
B.E. SMITH, P.E., CITY ENGINEER
TWENTY-FIRST STREET BRIDGE OVER
THE BIG ARKANSAS RIVER
AUXILIARY DETAILS
SUMMARY OF QUANTITIES
R. S. DELAMATER
CONSULTING ENGINEER
WICHITA, KANSAS
DATE: DECEMBER 1, 1972
SCALE: 1" = 10'
89-F-14

SUPERSTRUCTURE									
STRAIGHT BARS					BENT BARS				
Mark	No. Req.	Size	Length		Mark	No. Req.	Size	Length	
GA1	80	11	53'8"		GA2	120	11	33'8"	
GA3	26	11	58'0"						
GA4	64	11	51'0"						
GB1	32	11	48'0"		GB3	32	7	45'8"	
GB2	48	11	38'6"						
GB4	26	11	44'0"						
GB5	64	11	32'0"						
GC1	32	10	30'6"						
GC2	48	10	23'0"						
GC3	64	11	18'0"						
GS1	30	5	12'0"						
GS2	30	5	32'0"						
GS3	180	5	30'0"		CJ1	480	10	8'0"	
GS4	100	10	34'0"		CJ2	120	10	7'6"	
GS5	20	5	16'0"						
GS6	20	5	40'0"		MI	1890	5	5'0"	
GT1	80	11	44'6"						
GT2	32	10	25'0"						
GT3	32	10	20'0"						
GT4	80	11	60'0"						
GT5	200	11	50'0"		UI	512	4	7'6"	
GT6	160	11	40'0"		U2	260	4	+++	
GT7	80	10	32'0"		U3	260	4	+++	
GT8	60	10	20'0"		U4	800	4	+++	
GT9	128	10	15'0"						
GT10	128	10	20'0"						
GT11	160	11	41'0"						
GW1	16	11	45'0"		WU1	912	4	5'4"	
GW2	8	10	25'0"		WU2	240	4	+++	
GW3	60	10	50'0"		WU3	240	4	+++	
GW4	20	11	40'0"		WU4	200	4	+++	
GW5	40	11	20'0"						
GW6	20	11	32'0"						
GW7	32	10	20'0"		HV	596	4	5'6"	
GW8	32	11	42'0"						
GW11	12	11	43'8"		GW13	30	11	42'8"	
GW12	8	11	52'0"						
GW14	64	11	50'0"						
GW15	16	11	60'0"						
GW21	12	11	38'6"						
GW22	8	11	30'0"						
GW23	16	11	40'0"						
GW24	8	11	30'0"						
SW1	336	5	6'8"		SW3	336	5	7'3"	
SW11	6	5	+++		SW13	6	5	+++	
SW21	8	5	+++		SW23	8	5	+++	
SI	830	5	28'0"		S2	830	6	29'4"	
SI1	104	5	+++		S3	832	5	30'0"	
SI2	104	6	+++		SI3	100	5	+++	
SL1	1100	5	20'0"						
SL2	32	4	38'0"						
SL3	64	4	27'0"						
SL4	16	4	22'0"						
SL5	16	4	26'6"						
SL6	32	4	28'0"		CR1	736	7	2'11"	
SL7	32	4	19'0"		CR2	436	6	2'4"	
SL8	550	4	20'0"		CR11	52	7	3'6"	
CR12	52	6	2'11"						
CR13	232	7	7'9"		CR33	8	7	18'2"	
CR14	232	6	7'9"		CR34	3	6	17'2"	
CR23	8	7	8'7"						
CR24	8	6	8'7"						
AR1	24	4	4'4"		VR1	338	4	6'0"	
AR2	112	4	4'0"		VR2	666	4	4'6"	
AR3	24	4	15'8"						
AR4	8	4	6'0"						
AR5	20	4	2'9"						
HR13	9	4	9'5"		LB	60	5	4'3"	
HR23	336	4	7'11"						
HR33	56	4	8'1"		BU	30	4	+++	
HR43	38	4	8'10"						
WD1	140	8	4'0"		WD3	60	4	5'8"	
WD2	50	8	6'0"		WD4	40	4	5'0"	
MD1	300	6	7'0"		MD2	150	4	13'4"	
					ED1	48	4	7'4"	
					ED2	24	4	11"	
					ED3	24	4	6'6"	
					ED4	16	6	30'10"	
					ED5	16	6	9'2"	
SD1	80	8	3'6"		SD2	80	6	4'0"	
					SD3	40	4	6'6"	
					SD4	30	6	5'0"	
					SD5	40	4	8'3"	

ABUTMENT (ONE)									
STRAIGHT BARS					BENT BARS				
Mark	No. Req.	Size	Length		Mark	No. Req.	Size	Length	
AH1	54	7	37'0"		AH11	5	6	+++	
AH2	30	6	36'0"		AH13	4	4	11'0"	
AH3	6	4	30'0"		AH21	5	6	+++	
AH4	21	4	32'0"		AH23	2	4	5'6"	
					AU1	36	4	10'0"	
					AU2	36	4	8'6"	
					AU3	101	5	6'1"	
					AU4	13	4	15'8"	
					AU5	13	4	5'2"	
					AU6	5	4	+++	
					AU7	5	4	+++	
					AU8	8	5	6'0"	
					AU13	11	4	+++	
					AU15	11	4	+++	
AV1	202	6	4'6"		AV4	78	6	6'6"	
AV2	172	5	5'6"		AV6	28	5	4'0"	
AV3	28	5	5'0"		AV14	23	6	7'2"	
AV5	23	5	4'6"		AB1	102	5	4'6"	
AV12	30	5	6'9"						
AV13	10	5	5'9"						
					AF1	2	5	9'11"	
					AF2	2	5	11'6"	
					AW1	7	6	21'6"	
					AW2	7	6	25'5"	
					AW3	1	4	17'6"	
					AW4	7	5	20'8"	
					AW5	3	5	4'0"	
					AW11	7	6	17'7"	
					AW12	7	6	4'3"	
					AW13	1	4	16'3"	
					AW14	7	5	15'8"	
					AW15	3	5	4'0"	

PIERS 2, 3 & 4 (ONE PIER)									
STRAIGHT BARS					BENT BARS				
Mark	No. Req.	Size	Length		Mark	No. Req.	Size	Length	
PC1	878	8	17'6"		PU1	8	5	6'6"	
PC2	14	8	10'6"		PU2	8	5	8'0"	
PC3	8	8	15'6"		PU3	42	5	16'0"	
PC4	8	5	3'9"		PU4	8	5	+++	
PC5	8	5	2'6"		PU5	14	5	+++	
PC6	8	5	8'6"		PU6	104	5	6'9"	
PC7	864	5	20'0"		PU7	10	4	4'0"	
PH1	6	10	43'0"		PC8	24	5	11'8"	
PH2	24	6	36'0"		PC9	20	5	8'0"	
PH3	5	11	43'0"		PD1	806	8	9'0"	
PH4	10	5	33'0"						
PH5	6	11	54'0"		PH6	16	10	21'0"	
PH9	16	5	+++		PH7	16	11	25'6"	
PH10	4	5	12'6"		PH8	12	9	15'9"	
PH11	4	5	6'0"		PH12	8	11	12'0"	
					PH13	6	11	11'0"	
PF2	28	5	23'6"		PF1	76	6	11'0"	
PV2	64	6	13'6"		PV1	64	5	6'3"	
PV3	8	4	6'6"		AB1	26	5	4'6"	
AV5	7	5	4'6"						

APPROACH SLAB (ONE)									
STRAIGHT BARS					BENT BARS				
Mark	No. Req.	Size	Length		Mark	No. Req.	Size	Length	
AS1	12	8	16'6"						
AS2	86	8	11'8"						
AS3	18	5	40'9"		C1	34	4	3'3"	
AS12	36	9	+++		C2	31	4	2'7"	
AS13	5	5	+++						
AS22	4	8	2'2"						
AS23	5	5	+++						
AS32	6	8	+++						
AX2	12	8	45'0"		AX1	86	4	7'8"	
CT1	4	6	16'6"		CT2	1	6	17'6"	
					CT3	1	6	16'4"	

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