SPRING RIVER WARREN WITH VERTICALS DECK TRUSS BRIDGE
Spanning Spring River
Miami vicinity
Ottawa County
Oklahoma
JP Numbers 24272(04) & 24278(04)
Structure Number 5824 0831X
NBI Number 12853

PHOTOGRAPHS

COPIES OF PLANS

AND

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Final

HISTORIC AMERICAN ENGINEERING RECORD
Submitted to:
Oklahoma State Historic Preservation Office
Oklahoma Historical Society
Oklahoma History Center, 800 Nazih Zuhdi Dr.
Oklahoma City, Oklahoma 73105
June 2015
SHPO File No. 0267-11/MOA #379

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Kelli Gaston, Photographer, May 2014

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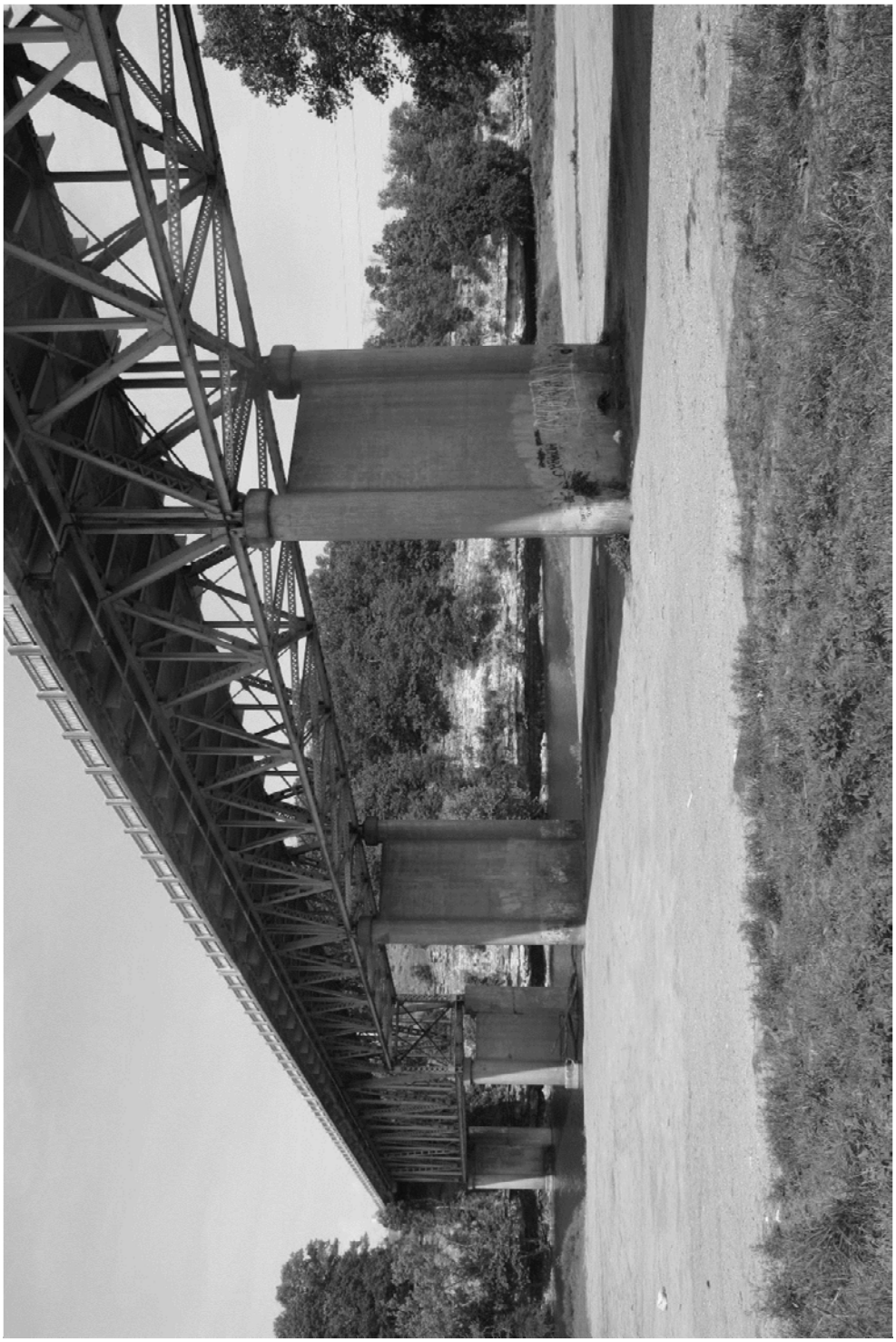

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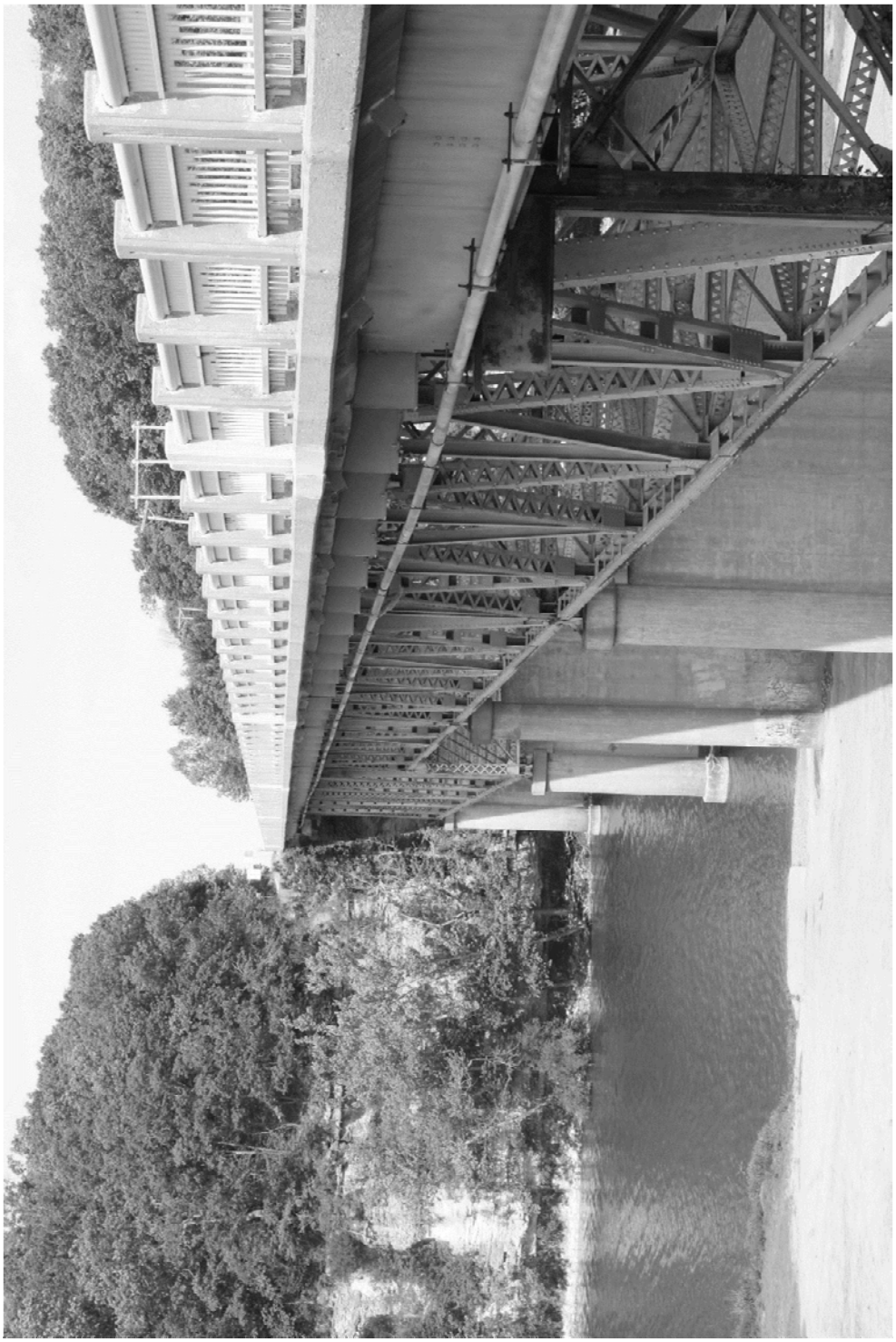

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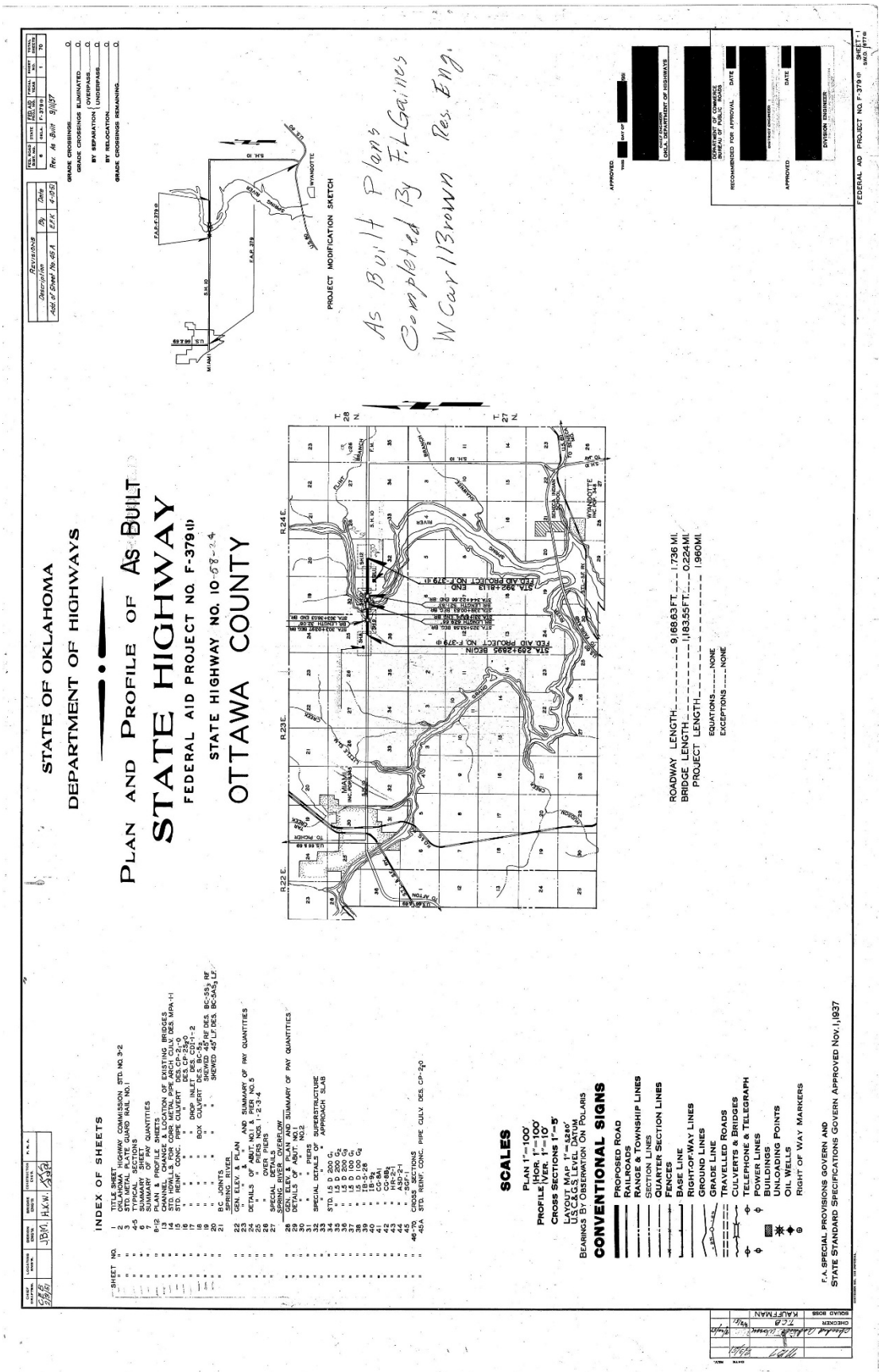

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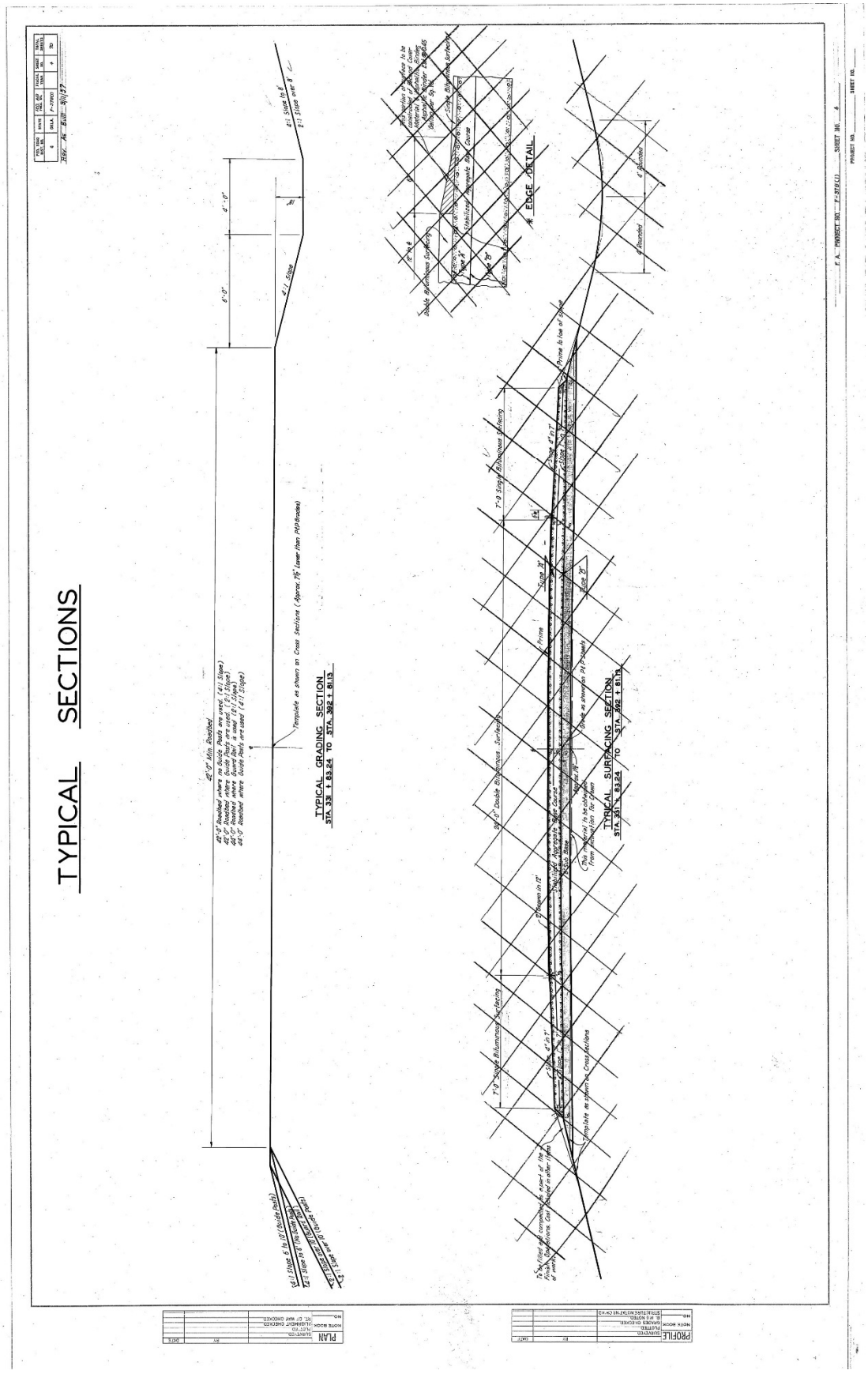

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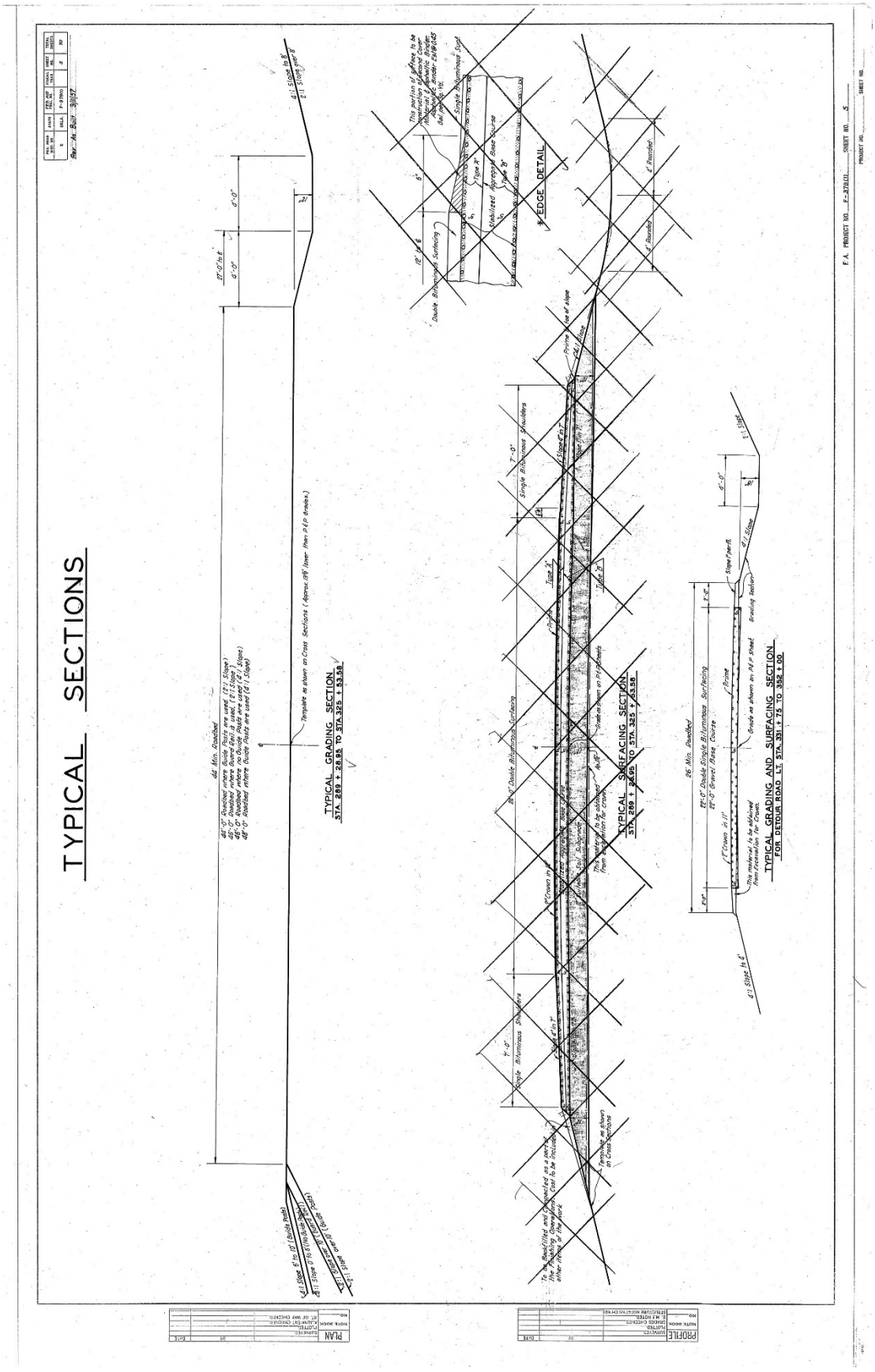


SUMMARY SHEET

REVISIONS Description	By	Date
Change Str. No. 14 & 15 & Rev. Quant.	E.F.K.	4-10-51

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	OKLA.	F-379(1)		6	70

Rev. As Built 9/11/57

STRUCTURES DRAINAGE

STRUCT. NO.	P & P SHEET NO.	STATION	DESCRIPTION	DESIGN	DESIGN SHEET NO.	NUMBER & LOCATION OF CONST. JOINT	STRUCT. EXCAV. CU. YD.	CLASS A CONC. CU. YD.	REINF. STEEL LB.	REINFORCED CONCRETE PIPE LIN. FEET 15"	18"	24"	30"	36"	42"	48"	54"	1½" GALV. IRON HANDRAIL L.F.	CORR. METAL PIPE LIN. FT. ARCH 22"x13"	ARCH 29"x18"	ROUND 18"	ROUND 30"	ROUND 48"		REMARKS
			CONTRACT 2 PARTICIPATING																						
1	8	289+95	4'x4'x49' Cl. Rdy. R.C.B. Skew. 45° Rt. Fwd. 21' Lt. ℄ 28' Rt.	BC-55₃	19	1 on ℄	213	42.19	3329																
2	9	293+45	22"x13"x26'-8" Rdy. CGMP Arch Side Drain Rt. with Hdwlls.	MPA-1-1	14		8	0.85	34										28						
3	9	296+21.5	29"x18"x30'-8" Rdy. CGMP Arch Side Drain Lt. with Hdwlls.	MPA-1-1	14		10	1.24	42											32					
4	9	296+24	22"x13"x26'-8" Rdy. CGMP Arch Side Drain Rt. with Hdwlls.	MPA-1-1	14		8	0.84	34										28						
5	9	303+20	Bridge																						
6	9	304+33	42"x82'-4" Rdy. R.C.P. with 45° Wings.	CP-2₁-0	15		41	5.78	306						84										
7	9	307+70	22"x13"x38'-8" Rdy. CGMP Arch Side Drain Lt. with Hdwlls.	MPA-1-1	14		12	0.85	34										40						
8	9	312+20	42"x102.59' Cl. Rdy. R.C.P. Skew. 60° Lt. Fwd. 60.39' Lt. ℄ 42.2' Rt.	CP-25₂-0	16		142	8.80	546						116										
9	9	316+55	30"x67.34' Cl. Rdy. R.C.P. Skew. 60° Rt. Fwd. 34.88' Lt. ℄ 29.00' Rt.	CP-25₂-0	16		103	5.54	364				76												
10	10	325+33.58	18"x50' Long CGMP Flume Lt. with Std. Height Drop Inlet	CDI-1-2	17		50	0.93	101												50				
11	10	325+33.58	18"x50' Long CGMP Flume Rt. with Std. Height Drop Inlet	CDI-1-2	17		33	0.93	101												50				
14	11	363+79	48"x78'-4" Rdy. R.C.P. with 45° Wings	CP-2₂-0	15		43	7.63	374							80									
15	11	371+00	48"x74'-4" Rdy. R.C.P. with 45° Wings	CP-2₂-0	15		29	7.63	374							76									
16	11	377+74	22"x13"x26'-8" Rdy. CGMP Arch Side Drain Lt. with Hdwlls.	MPA-1-1	14		8	0.85	34										28						
17	11	379+65	22"x13"x26'-8" Rdy. CGMP Arch Side Drain Rt. with Hdwlls.	MPA-1-1	14		8	0.85	34										28						
18	12	387+97.1	3'x2'x48' Rdy. R.C.B.	BC-5₂	18		34	14.49	1322																
			TOTAL				649	99.40	7029				76		200	156			152	32	100				
			CONTRACT 2 NON-PARTICIPATING																						
1	9	303+75	2-48"x52' Long CGMP Lt. under Detour Road No Hdwlls.				40																104		
			TOTAL				40																104		
			CONTRACT 1 NON-PARTICIPATING																						
1	10	334+40	30"x32' Long CGMP under Detour Road No Hdwlls.				25															32			
2	10	345+00	5-48"x36' Long CGMP under Detour Road No Hdwlls.				100																180		
			TOTAL				125															32	180		

SHEET ESTIMATES

P & P SHEET NO.	STATION	STATION	EMB. + SHRINKAGE 15% & 30% CU. YD.	CLASS D EXCAVATION CU. YD.	WASTE CU. YD.	OVERHAUL STA. YD.	TRAFFIC BOUND SURFACE COURSE CU. YD.	RIGHT OF WAY MARKERS EACH	GUIDE POSTS EACH	REMOVE & STORE GUIDE POSTS EACH	METAL PLATE GUARD RAIL L.F.
	CONTRACT 1										
10	325+13.58	325+53.58									
10	331+83.24	339+00.83									
10	344+22.66	345+00									
10	℄ Detour Road		100,954	102,591	1637	220,200					
	TOTAL		100,954	102,591	1637	220,200					
	CONTRACT 2										
8-9	289+29.95	325+33.58 ℄									
8	Beginning Incidental Const.		8076	91968	930	364,000		22			
10	332+03.24	338+80.83									
10-11-12	also 334+42.66	392+81.13									
12	and End Incidental Const.		93,440	10478		2850		29		16	
	TOTAL		101,516	102,446	930	366,850		51		16	
	~~CONTRACT 5 SURFACING~~										
~~8 to 12~~	~~289+29.95~~	~~392+81.13~~									
	~~Including Incidental Const.~~										
	~~at Beginning & End.~~		~~400~~	~~2000~~	~~1600~~		~~177~~		~~141~~		~~2683.6~~
	~~TOTAL~~		~~400~~	~~2000~~	~~1600~~		~~177~~		~~141~~		~~2683.6~~

F.A. PROJ. NO. F-379(1) SHEET NO. 6

PROJECT NO. ____ SHEET NO. ____

Rev. As Built 3/1/57

Revision Description	by	Date
Deleted Roll.& Sprink.on Contr. 2	RW	12-19-51

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	OKLA.	F-379(1)		7	70

REVISIONS Description	By	Date
Pay Quant. Cl. "A" Conc., Reinf. Steel, Delete 36" RCP	EFK	4-10-51

SUMMARY OF PAY QUANTITIES

PAY QUANTITIES – BRIDGES – F-379(1)

ITEM NUMBER	ITEM	UNIT	Str. No. 5 Sta. 303+20 In Place 2-10'x5'x49' Rdy. RCB – Skew 45° Lt. Fwd. Des. BC-5AS3 CONTRACT NO. 2	Str. No. 12 Sta. 328+68 (In Place) 1-60' I-Bm., 1-200' Deck Truss, 3-100' Deck Trusses, 1-60' I-Bm. Span 28' Rdy. & 2-18" S.W. Approach Slabs Des. 15D-100G, 15D-100G, 15D-200G, 15D-100G, 15D-100G, 18-5 CONTRACT NO. 1	NO.	NO.	Str. No. 13 Sta. 341+81.75 (In Place) 5-40' Conc. Girder Spans – 28' Rdy. & 2-18" Sidewalks 45° Skew Lt. Fwd. – with Approach Slabs Des. CG-8A, CG-8B, ASD-2-1 & Spec. CONTRACT NO. 1	CONTRACT NO.
202.06d	Class "D" Unclassified Excavation	Cu. Yd.						
501.06a	Structural Excavation Unclassified	Cu. Yd.	◑ 200.					
501.06b	Substructure Excavation Common	Cu. Yd.		1145.25			2696.42	
501.06c	Substructure Excavation Rock	Cu. Yd.		166.64			141.25	
501.06d	Removal of Existing Structures	Ea.	1.				1.	
505.06	Reinforced Concrete Hand Rail	L.F.					1051.5	
505.06 Sp.	Steel Hand Rail	L.F.		1261.5				
506.06a	Structural Steel	Lb.		765,907				
509.06a	Class "A" Concrete	Cu. Yd.	196.4	383.5			739.3	
509.06aa	Class "A" Concrete Pier & Abutment Bases	Cu. Yd.					297.19	
509.06b	Class "AA" Concrete	Cu. Yd.		548.3			877.6	
511.06	Reinforcing Steel	Lb.	17,590.	136,881			322,088	
601.06	Plain Rip Rap	Cu. Yd.						
Special	6" Black Traffic Stripe	L.F.		669.91			596.5	
308.06 Sp.	4" Sand Cushion	Sq. Yd.		69.0			251.6	
308.06 Sp.	9" Sand Cushion	Sq. Yd.		70.0				
414.06 c	Approach Slab	Sq. Yd.		139.0			251.6	
506.06aa Sp.	Erect Structural Steel	Lbs.						
501.06d Sp.	*Removal of Existing Structures	L.S.						
513.06b	15" Corrugated Galvanized Metal Pipe	L.F.		100.			90.	
513.06c	18" Corrugated Galvanized Metal Pipe	L.F.		30.			60.	
514.06aa	Concrete Test Piles	Each		1.			2.	
514.06d	R.C. Piling	L.F.		451.89	437.53		799.95	
611.06h	Inlet-Frame and Grate	Each		2.			4.	
Special	Special Plain Rip Rap – 3' thick	Tons		2516.	2516.		1900.	
505.06a Sp.	Erect Steel Hand Rail	L.F.						

Note: Construction Joint on Str. No. 5 to be placed as directed by Res. Engr., so as to permit placing of Pipe for Detour Road.

BRIDGE CONSTRUCTION NOTES

* Removal of Existing Structures consists of the removal of two Bridges, (1) 2-150' Pin Connected Trusses and 1-22' I-B Span, 16' Rdy. Concrete Piers and Abutments, (2) 3-17.5' I-B Spans, Pipe Beam Hand Rail, 15' Rdy. Concrete Piers and Abutments, and the removal of the existing fill between them to the natural ground line. All Piers shall be removed to the low water elevation and Abutments to the natural ground line. All materials in the old structures shall be removed in accordance with Section 501 and the structural Steel shall be stacked on the [illegible] as directed by the Resident Engineer. Other materials shall be disposed of as directed by the Resident Engineer. Payment will be by the Lump Sum price bid, which price shall include removal of both structures and the existing Fill as stated above.

◑ Structural Excavation Unclassified for Box is computed only below the excavation lines of the Channel.

ROADWAY CONSTRUCTION NOTES

It shall be the responsibility of the Contractor to determine the nature and formation of the material in the excavation from approximate Sta. 317 to approximate Sta. 325+50. The Contractor shall so conduct his operations and use such precautions as are necessary, particularly in the event that Solid Rock is encountered, that the Bridge, the Approach Slab, and all other construction are not damaged. Any damage to the Bridge, the Approach Slab, or other construction resulting from the Contractors operations or method of construction used in excavating the material between the above Stations, shall be the responsibility of the Contractor and shall be repaired or rebuilt by him at his own expense to the satisfaction of the Engineer.

Backfill around all structures and embankment in Dikes, inaccessible to Rollers, shall be compacted with Mechanical Tampers. Cost to be included in other items of the work.

Guide Posts to be "Removed and Stored" shall be stored on the R/W as directed by the Res. Engr.

NOTE: This Project will be constructed under Six Contracts described in general as follows:
CONTRACT NO. 1 – Construction of Detour Roadway, Excavation at West Abutment of Spring River Bridge, Excavation of Channels and placing portion of embankment between Spring River Bridge and Overflow Structure (including Fills around abutments), Construction of Piers and Abutments of Spring River Bridge and construction of entire Overflow Structure.
CONTRACT NO. 2 – Furnish and Fabricate Structural Steel F.O.B. (See Plans).
CONTRACT NO. 3 – Erection of Structural Steel and completion of Spring River Bridge.
CONTRACT NO. 4 – Completion of remaining grading on Roadway, construction of Ramps as shown and construction of Structure No. 5
CONTRACT NO. 5 – Construction of Suitable Soil Subgrade and Sub Base, Surfacing, and Incidentals.
CONTRACT NO. 6 – Removal and Stacking of Trusses and I-Bms of Existing Structures and remove Approach Fills as noted in Bridge Construction Notes.

CONTRACT NO. 1

(1) Est. @ 1 hr. per 75 C.Y. of Emb. (100,984 C.Y.)
(2) Est. @ 30 Gal. per C.Y. of Emb. (100,984 C.Y.)
(3) Est. @ 1 hr. per 18 C.Y. (Actual Vol.) (Detour Road) (835 C.Y. Gravel Base Cse.)
(4) Est. @ 0.40 Gal. per Sq. Yd. (Gravel Base) (Detour Road) (5011 Sq. Yd.).
(5) Est. @ 180 Gal. per C.Y. (Actual Vol.) (Detour Road) (835 C.Y. Gravel Base Cse.)
(6) Est. @ 0.35 Gal. per Sq. Yd. (Surface) (Detour Road) (5011 Sq. Yd.) each application.
(7) Est. @ 1 C.Y. per 70 Sq. Yd. (Surface) (Detour Road) (5011 Sq. Yd.) each application.

CONTRACT NO. 2

(1) Includes 600 C.Y. for Ramps & Incidental Construction
(2) (3) Deleted
(4) Location of 8" Pipe Underdrain, if and where required, to be determined by the Resident Engineer. Quantities estimated only.

See Special Provision for Maintenance of Traffic.

*NOTE: See Spec. Prov. for "Const. of Emb. in Layers, Test Controlled Compaction".

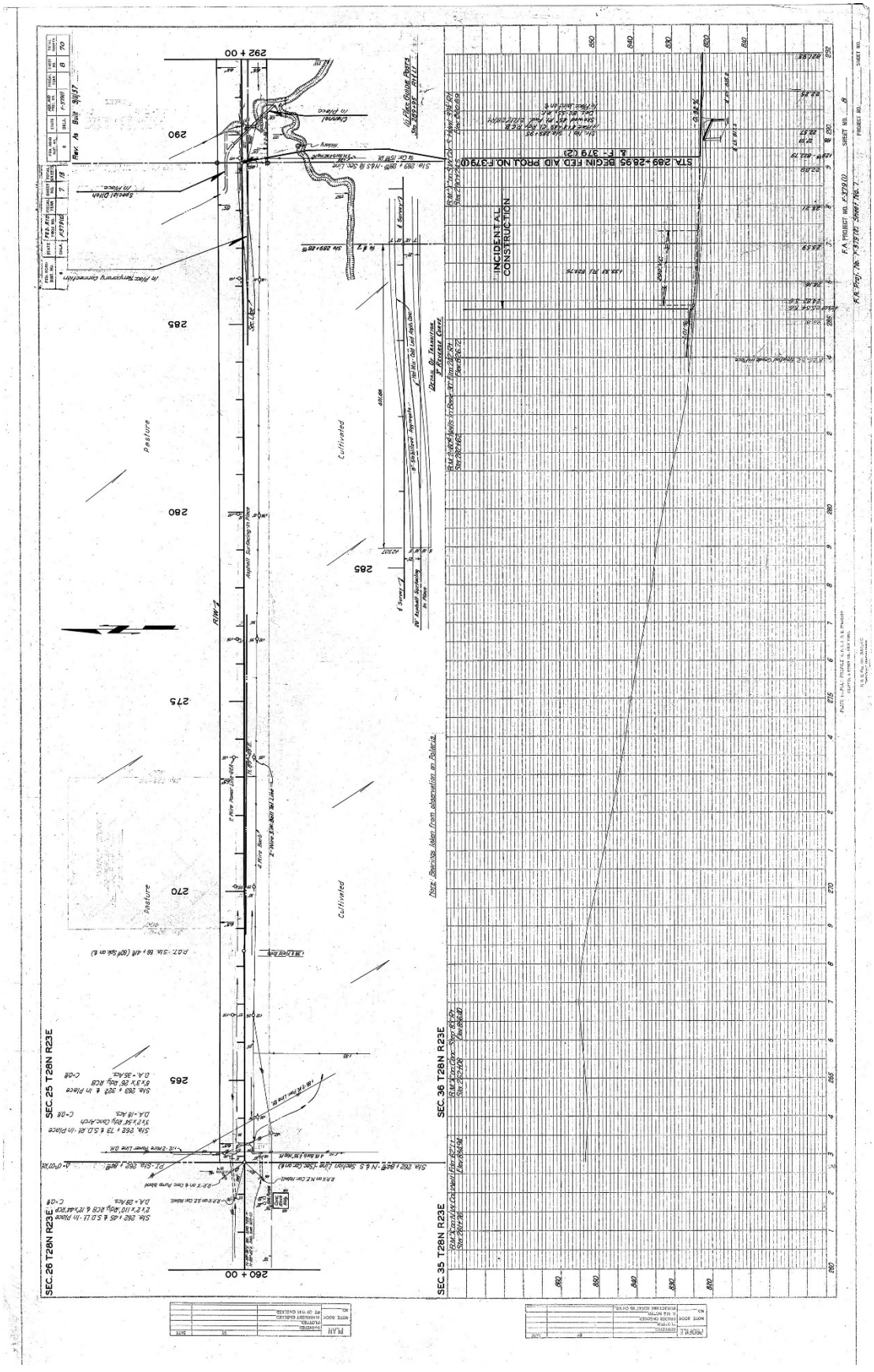
CONTRACT NO. 5

(1) Est. @ 1 hr. per 75 C.Y. of Emb. (1400 C.Y.) and Suit. Soil Subgrade (8894 C.Y.).
(2) Est. @ 30 Gal. per C.Y. of Emb. (1400 C.Y.) and Suit. Soil Subgrade (8894 C.Y.).
(3) Est. @ 0.35 Gal. per Sq. Yd. of Shoulders (13,946 Sq. Yd.), includes Incidental Construction.
(4) Est. @ 1 C.Y. per 70 Sq. Yd. of Shoulders (13,946 Sq. Yd.), includes Incidental Construction.
(5) Est. @ 1 C.Y. per 1000 Sq. Yd. of Shoulders (13,946 Sq. Yd.), includes Incidental Construction.
(6) Est. @ 0.40 Gal. per Sq. Yd. of Base Course (42,181 Sq. Yd.)
(7) Est. @ 0.80 Gal. per Sq. Yd. of Surfacing (26,216 Sq. Yd.) & Est. @ 0.65 Gal. per Sq. Yd. edge (1099 Sq. Yd.) & includes Incidental Construction.
(8) Est. @ 1 C.Y. per 40 Sq. Yd. of Surface (26,216 Sq. Yd.) includes Incidental Construction.
(9) Est. @ 1 C.Y. per 80 Sq. Yd. of Surface (26,216 Sq. Yd.) & 1 C.Y. per 54 Sq. Yd. of Edge (1099 Sq. Yd.) & includes Incidental Construction.
(10) Est. @ 148 Lbs. per Cu. Ft. – includes Incidental Construction.
(11) Includes Incidental Construction at Beginning of Project.
(12) Includes Incidental Construction at the end of Project.
(13) Estimated @ 60 hrs. per Mile of Reshaping Roadbed (1.873 Miles).
(14) Estimated @ 120 Gal. per Mile of Reshaping Roadbed (1.873 Miles).

ROADWAY PAY QUANTITIES

ITEM NUMBER	ITEM	UNIT	CONTRACT NO. 1 (STA. TO STA. 323+13.58 – 325+33.58, 331+83.34 – 339+00.83, 344+22.68 – 345+00 DETOUR, TOTAL 0.158 MI) PART	CONTRACT NO. 1 NON-PART	CONTRACT NO. 2 (CONTRACT NO. 4) (STA. TO STA. INCIDENTAL CONST. 289+28.95 – 325+33.58, 332+03.34 – 338+80.83, 344+42.66 – 392+81.13, TOTAL 1.727 MI) PART	CONTRACT NO. 2 NON-PART	CONTR. 5 SURF. (STA. TO STA. INCIDENTAL CONST. 289+28.95 – 325+33.58, 332+03.34 – 338+80.83, 344+42.66 – 392+81.13, TOTAL 1.727 MI)
202.06d	Class "D" Unclassified Excavation	Cu. Yd.	101,506		(1) 102630		2000.
202.06e	Rolling	Hr.	(1) 2813		(2)		(1)(2) 236.
202.06f	Sprinkling	1000 Gal.	(2) 0	0	(3)		(2)(3) 504.
204.06	Overhaul	Sec. Yd.	128500		339000		
207.06a	Shoulders	Mile					
308.06 Sp.	Sand Cushion (4")	Sq. Yd.					
401.06 Sp.	Traffic Bound Surface Course	Cu. Yd.		25	0		
501.06a	Structural Excavation Unclassified	Cu. Yd.			714	40.	
509.06a	Class "A" Concrete	Cu. Yd.			99.4		
509.06d	Class "C" Concrete	Cu. Yd.					
511.06	Reinforcing Steel	Lb.			7029		
512.06b	15" Reinforced Concrete Pipe	L.F.					
512.06c	18" Reinforced Concrete Pipe	L.F.					
512.06d	24" Reinforced Concrete Pipe	L.F.					
512.06e	30" Reinforced Concrete Pipe	L.F.			76		
512.06f	36" Reinforced Concrete Pipe	L.F.					
512.06g	42" Reinforced Concrete Pipe	L.F.			200		
512.06h	48" Reinforced Concrete Pipe	L.F.			156		
512.06i	54" Reinforced Concrete Pipe	L.F.					
513.06b	15" Corrugated Galvanized Metal Pipe	L.F.					
513.06c	18" Corrugated Galvanized Metal Pipe	L.F.			100		
513.06d	24" Corrugated Galvanized Metal Pipe	L.F.					
513.06e	30" Corrugated Galvanized Metal Pipe	L.F.		32			
513.06h	48" Corrugated Galvanized Metal Pipe	L.F.		180		104.	
601.06	Plain Rip Rap	Cu. Yd.					
614.06a Sp.	4" Pipe Underdrain	L.F.					
614.06 c	8" Pipe Underdrain (Drain Tile)	L.F.			(4) 1000.		
614.06k Sp.	Pipe Underdrain Cover Material	Cu. Yd.			(4) 370.		
622.06a	Pipe Railing (1½" Galv. Iron)	L.F.					
623.06c	Metal Plate Guard Rail	L.F.					2683.6
625.06a	Monument	Ea.					
625.06b	Right-of-Way Markers	Ea.			51		
Special	Guide Posts	Ea.					141.
Special	Remove and Store Guide Posts	Each			16		
Special	Bermuda Slab Sodding	Sq. Yd.					
Special	Water for Sodding	1000 Gal.					
Special	22"x13" Corrugated Galvanized Metal Pipe Arch	L.F.			152		
Special	29"x18" Corrugated Galvanized Metal Pipe Arch	L.F.			32		
Special	36"x22" Corrugated Galvanized Metal Pipe Arch	L.F.					
Special	43"x27" Corrugated Galvanized Metal Pipe Arch	L.F.					
Special	Stabilized Aggregate Base Course Type "A" & "B"	Tons					(10) 17,200.
Special	Reshaping Roadbed	Mile					1.873
Special	Preparation of Subgrade (Method B)	Sta.					38.95
Special	12" Suitable Soil Subgrade	Sta.					(11) 40.1
Special	6" Sub Base	Sta.					(12) 64.1
Special	Shaping Roadbed	Sta.			3.5		
Special	Gravel Base Course	C.Y.	1230				
402.06a	Prime Material	Gal.	(4) 1716				
402.06b	Asphalt Binder	Gal.	(6) 2353				(3) 4,881.
402.06c	Cover Material	C.Y.	(7) 143				(4) 199.
402.06 Sp.	Sand for Blotting	C.Y.					(5) 14.
309.06a	Rolling	Hrs.	(3) 39.5				
309.06b	Sprinkling	M Gal.	(5)	97			
403.06a	Prime Material	Gal.					(6) 16,873.
403.06b	Asphaltic Binder	Gal.					(7) 21,468.
403.06c	First Cover Material	C.Y.					(8) 656.
403.06d	Second Cover Material	C.Y.					(9) 348.

SPRING RIVER WARREN WITH VERTICALS DECK TRUSS BRIDGE
SEE INDEX TO COPIES FOR CAPTION
SHEET 8



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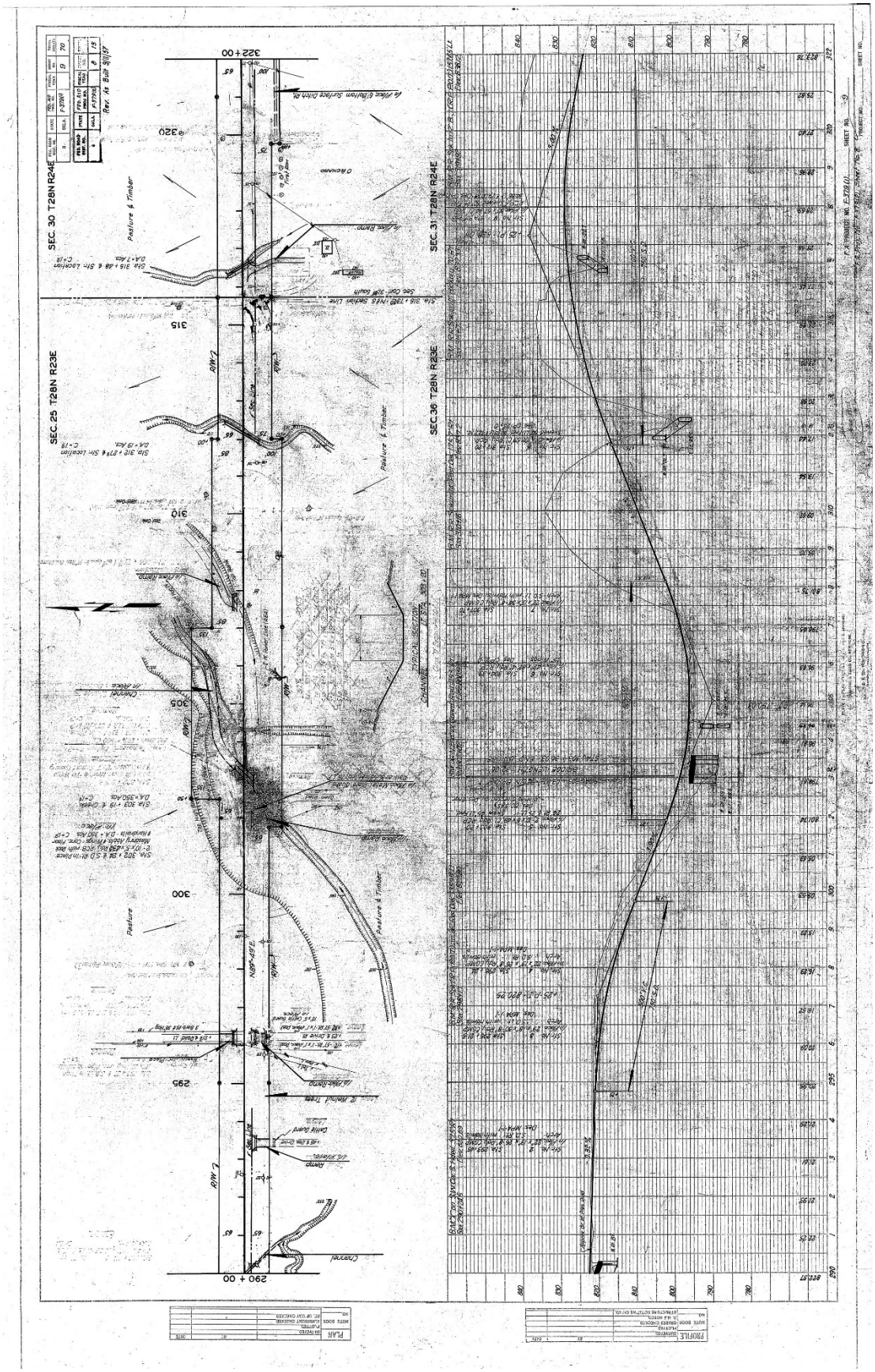

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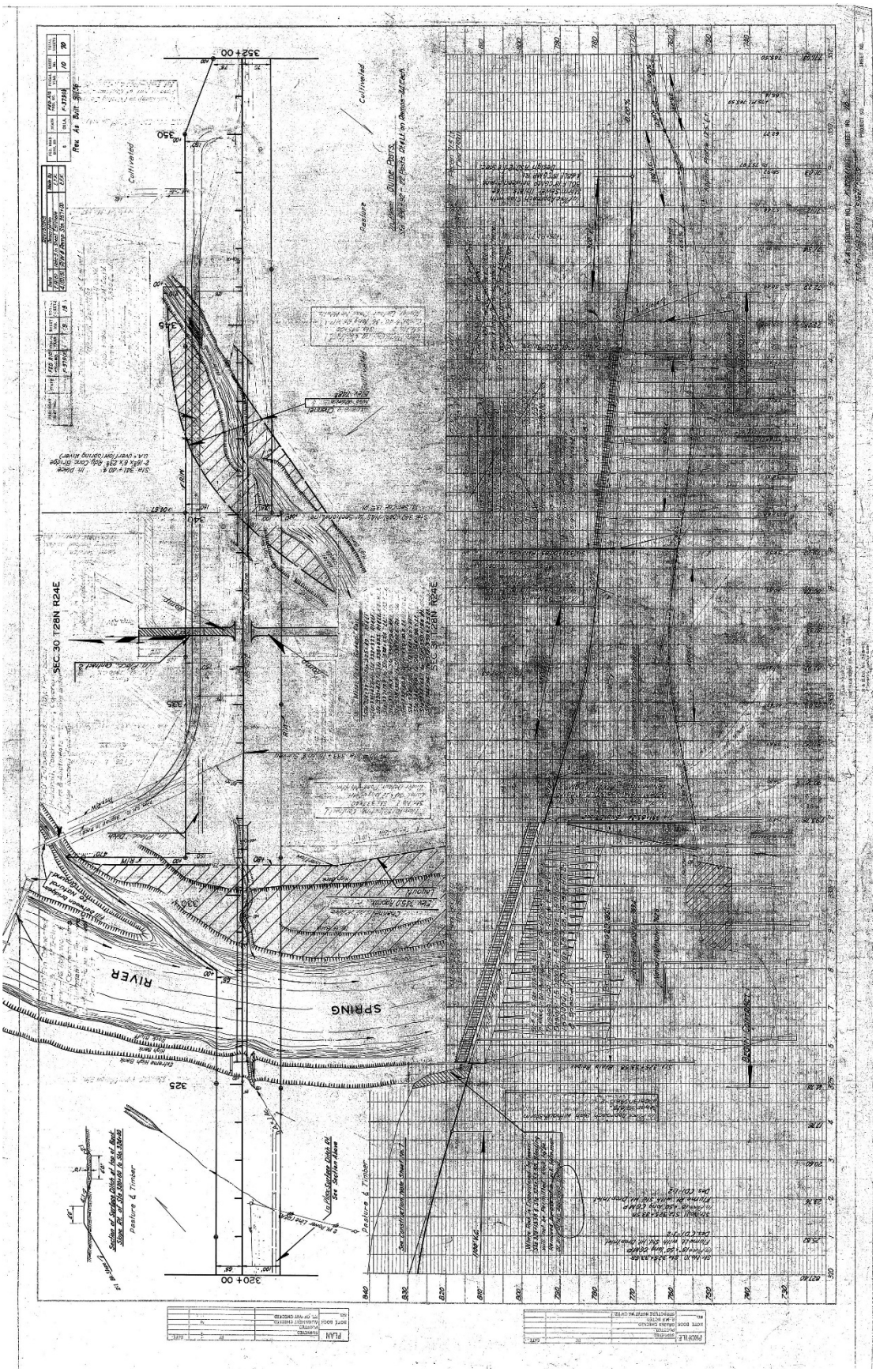

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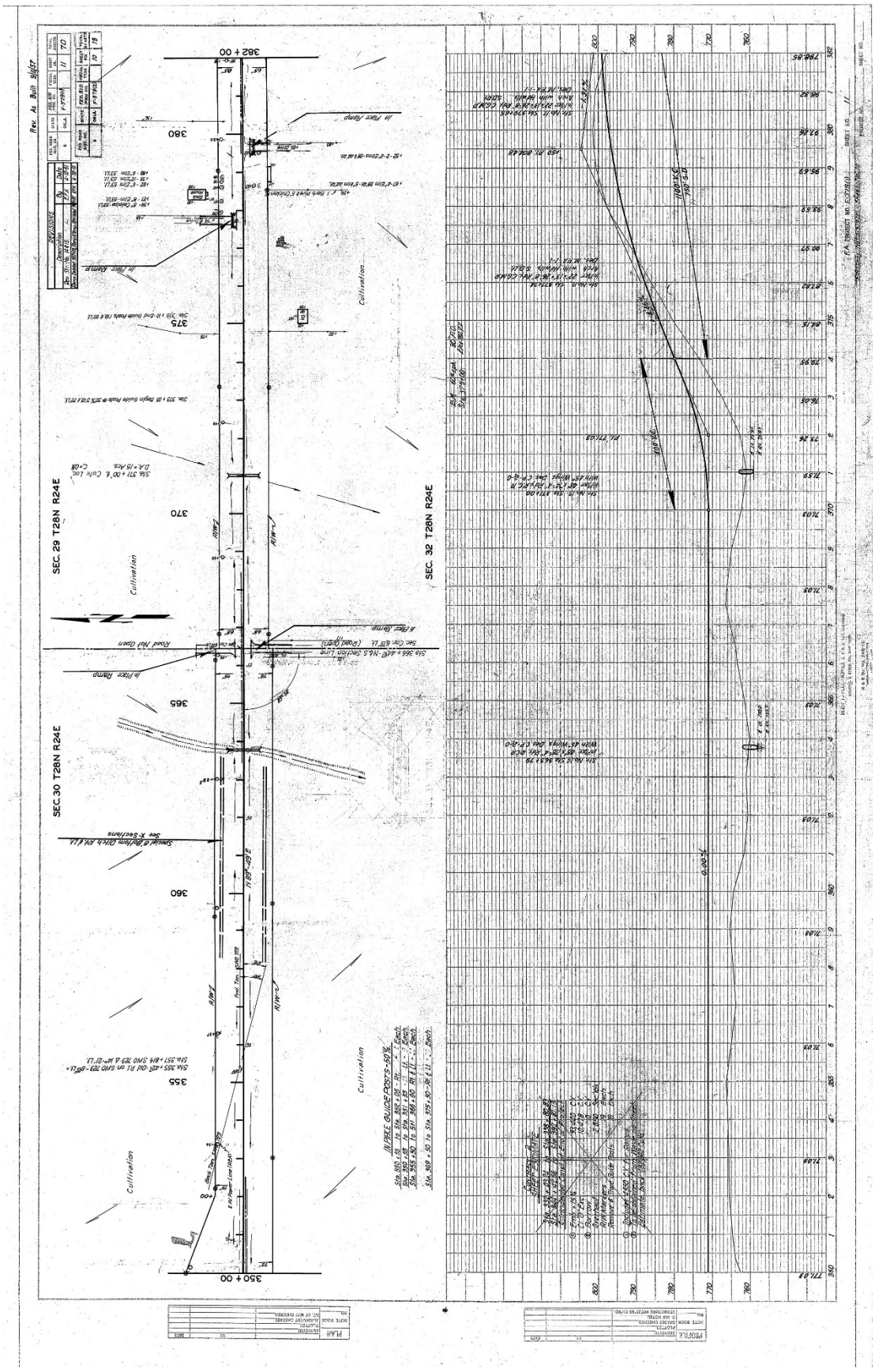

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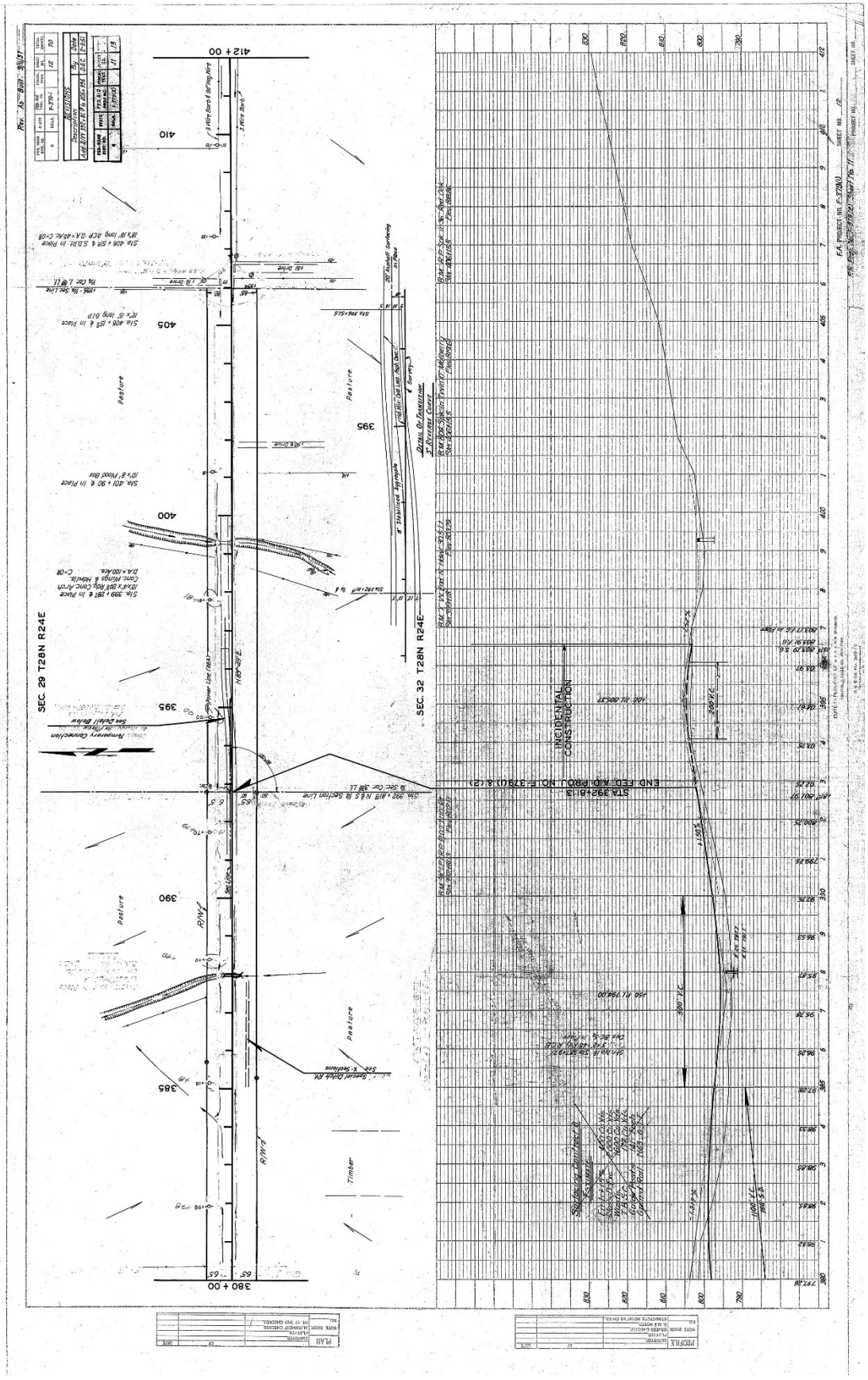

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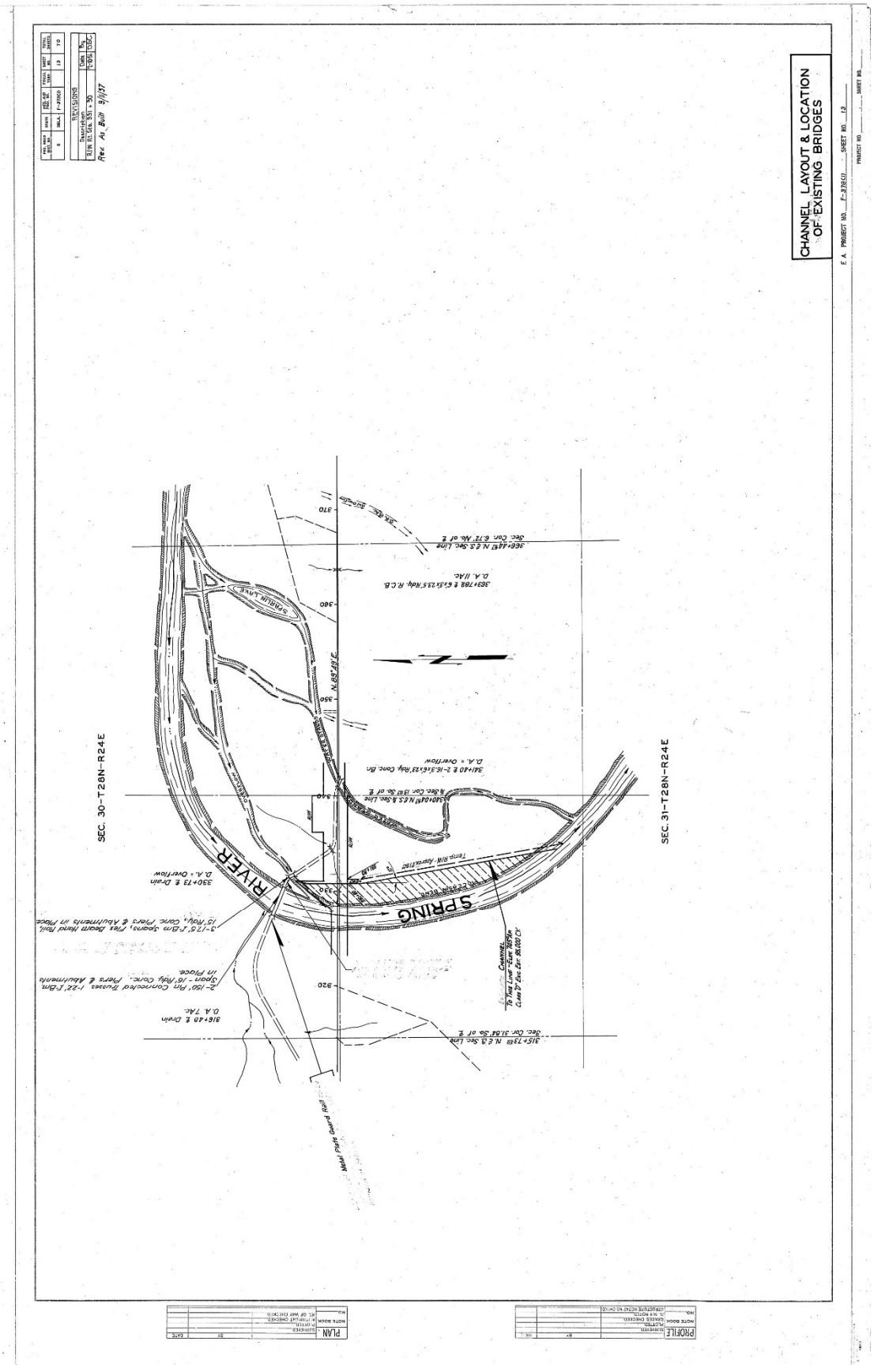

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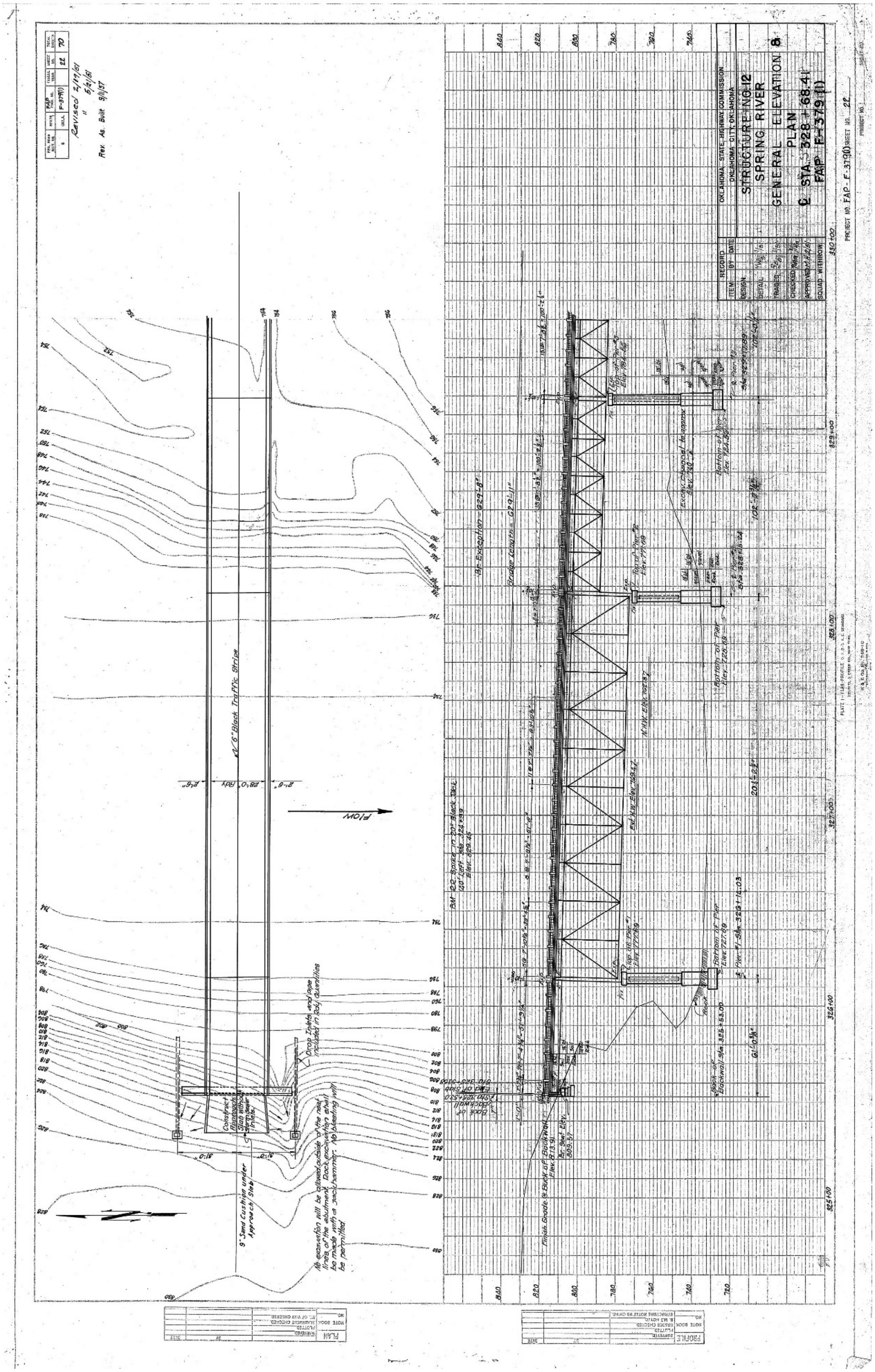

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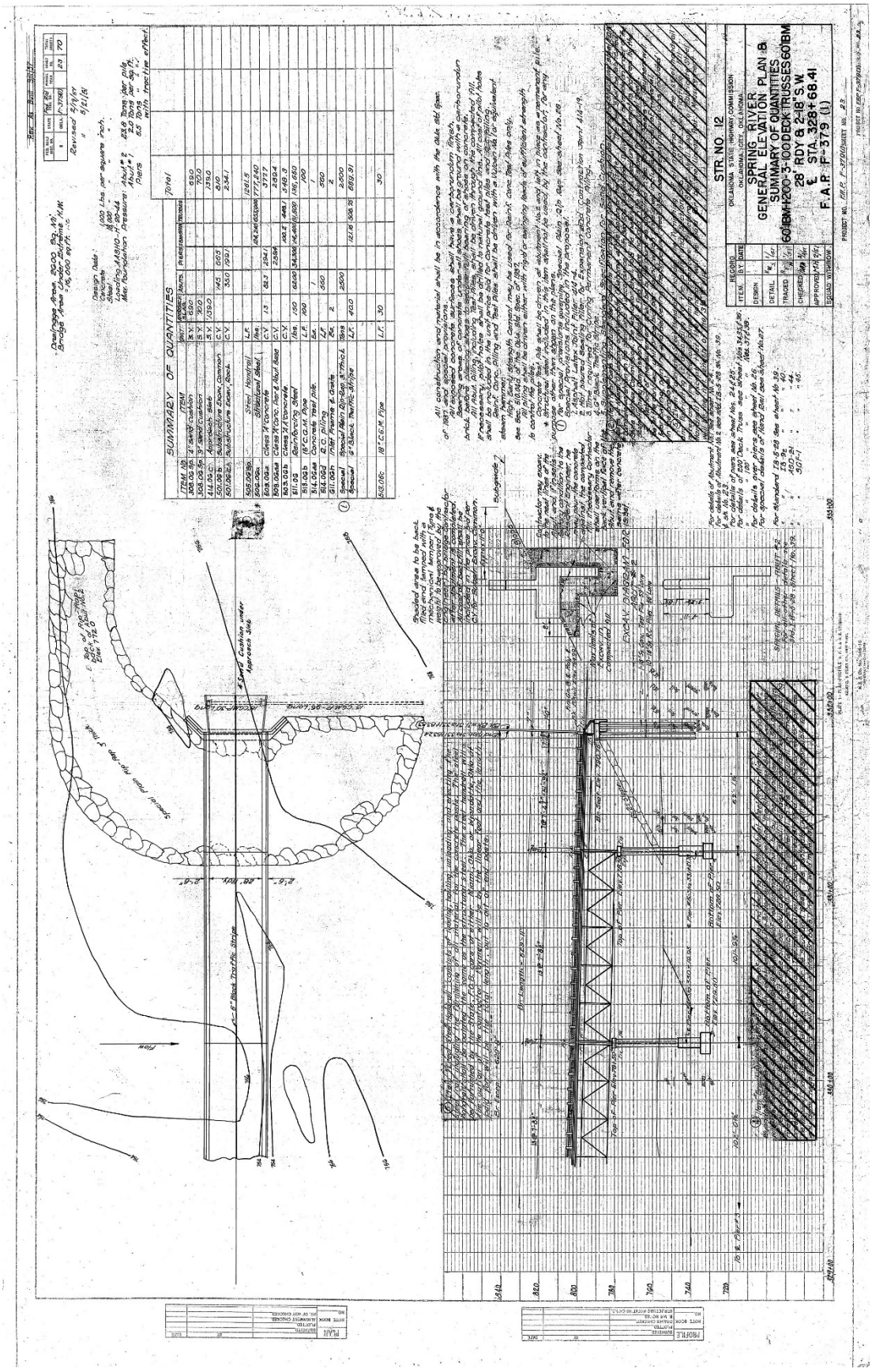

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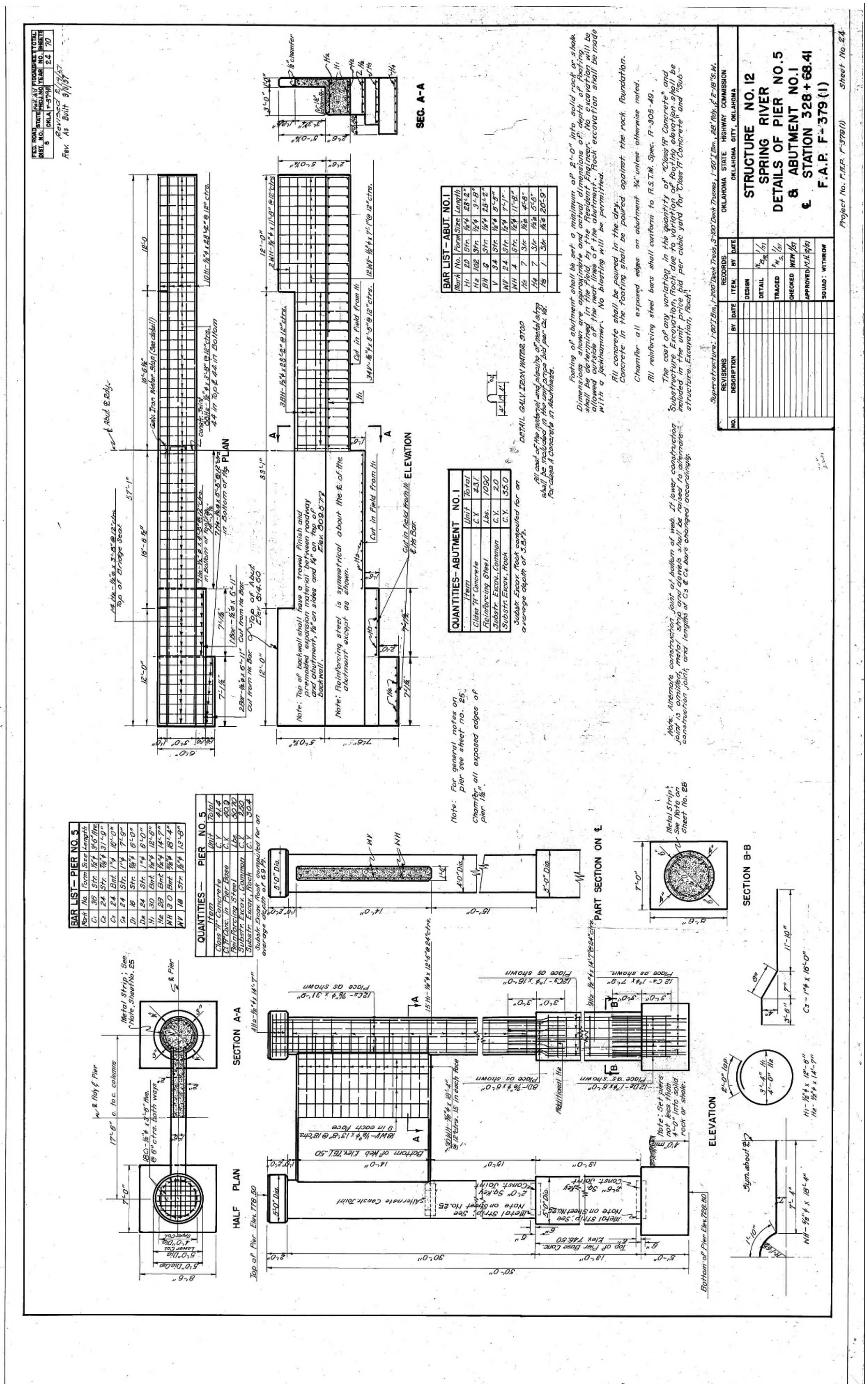

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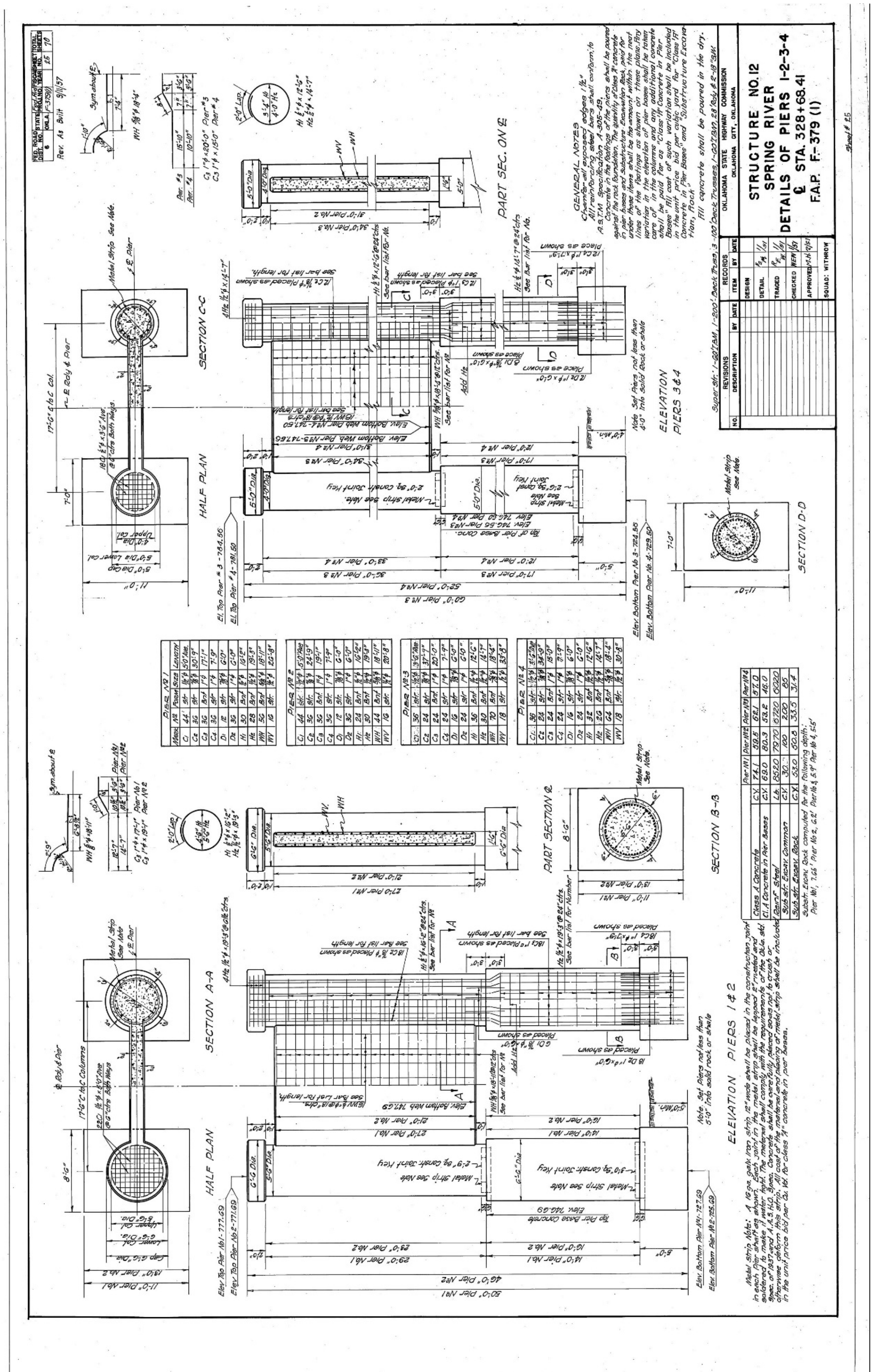

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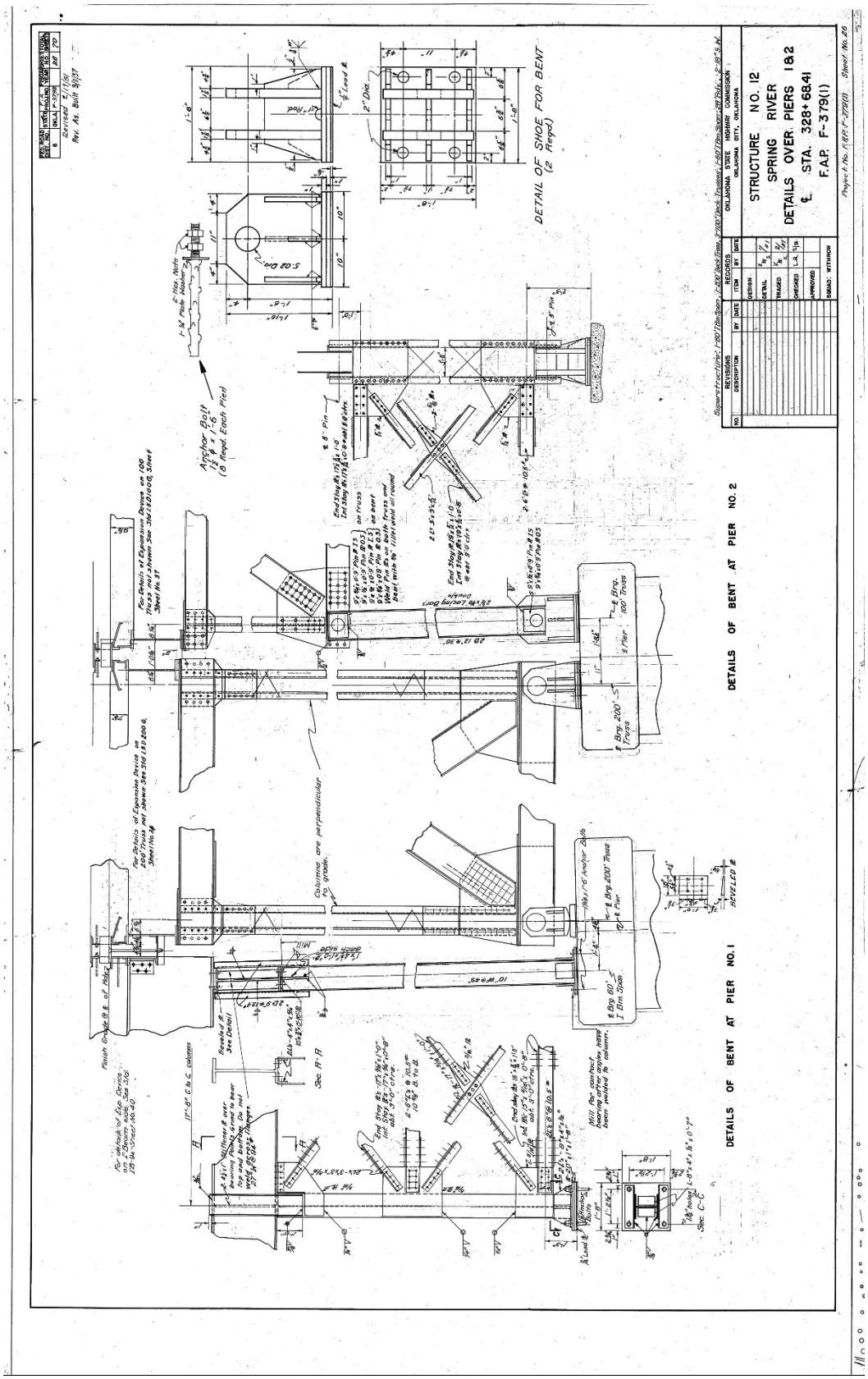

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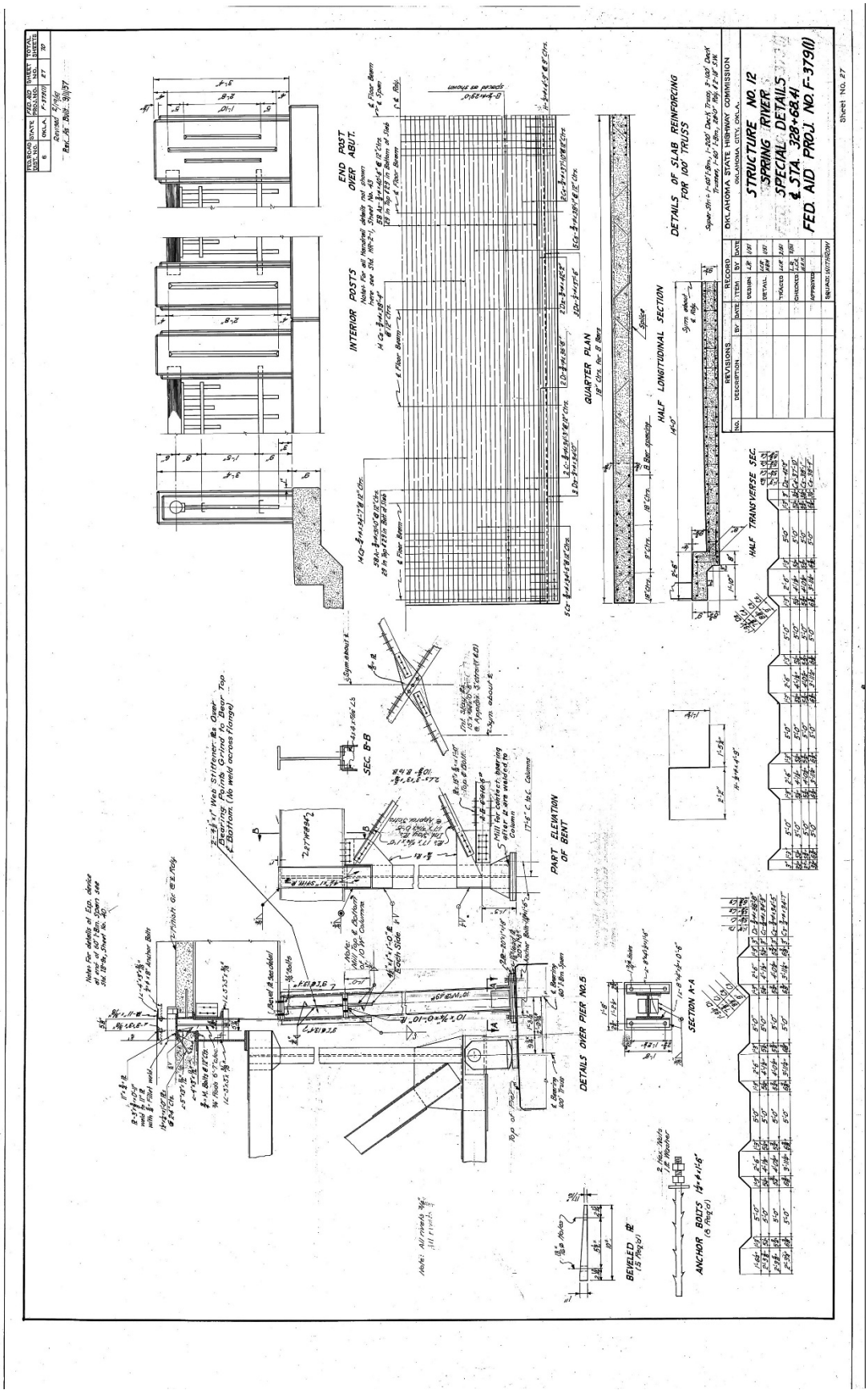
SHEET 27



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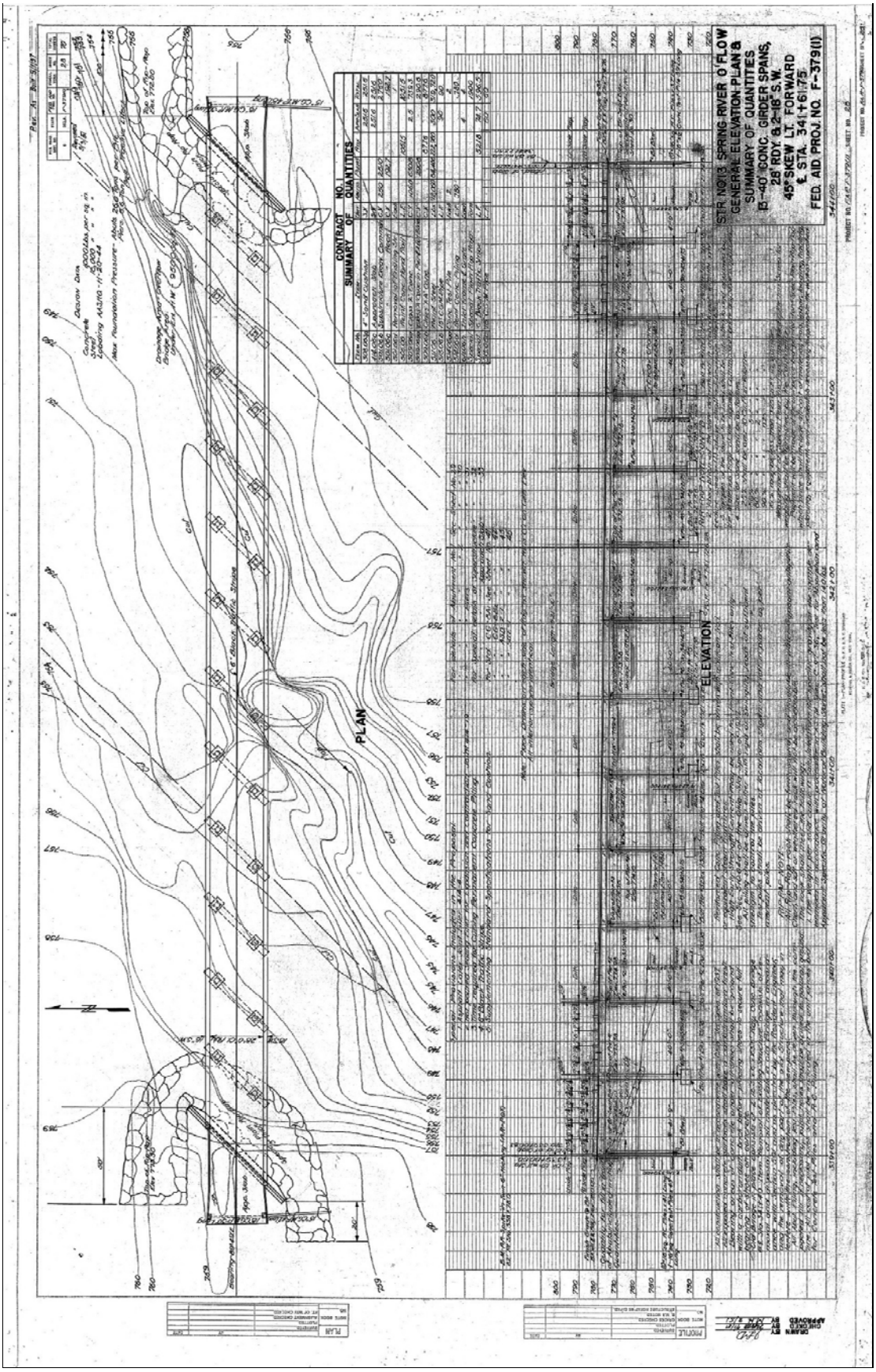

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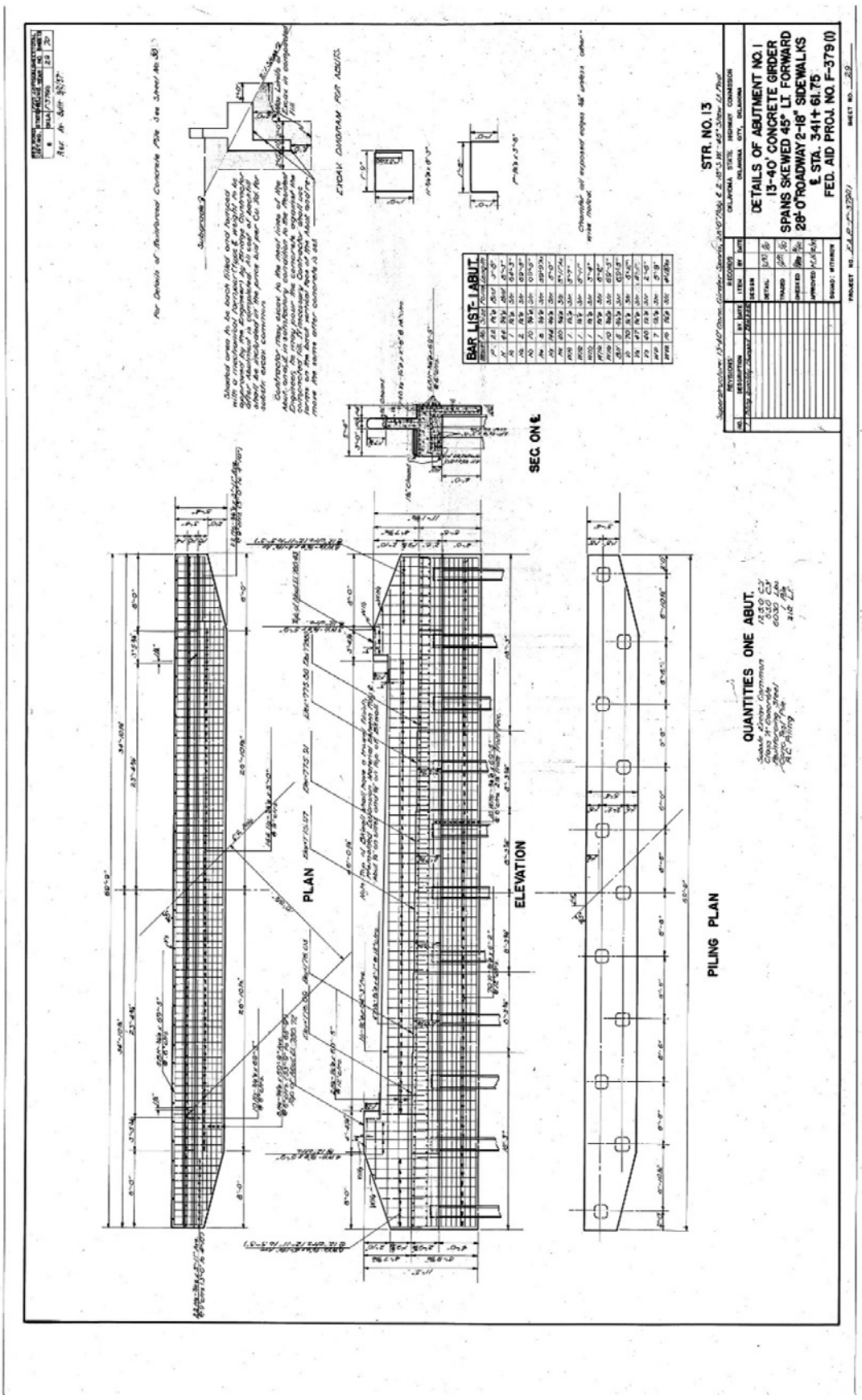

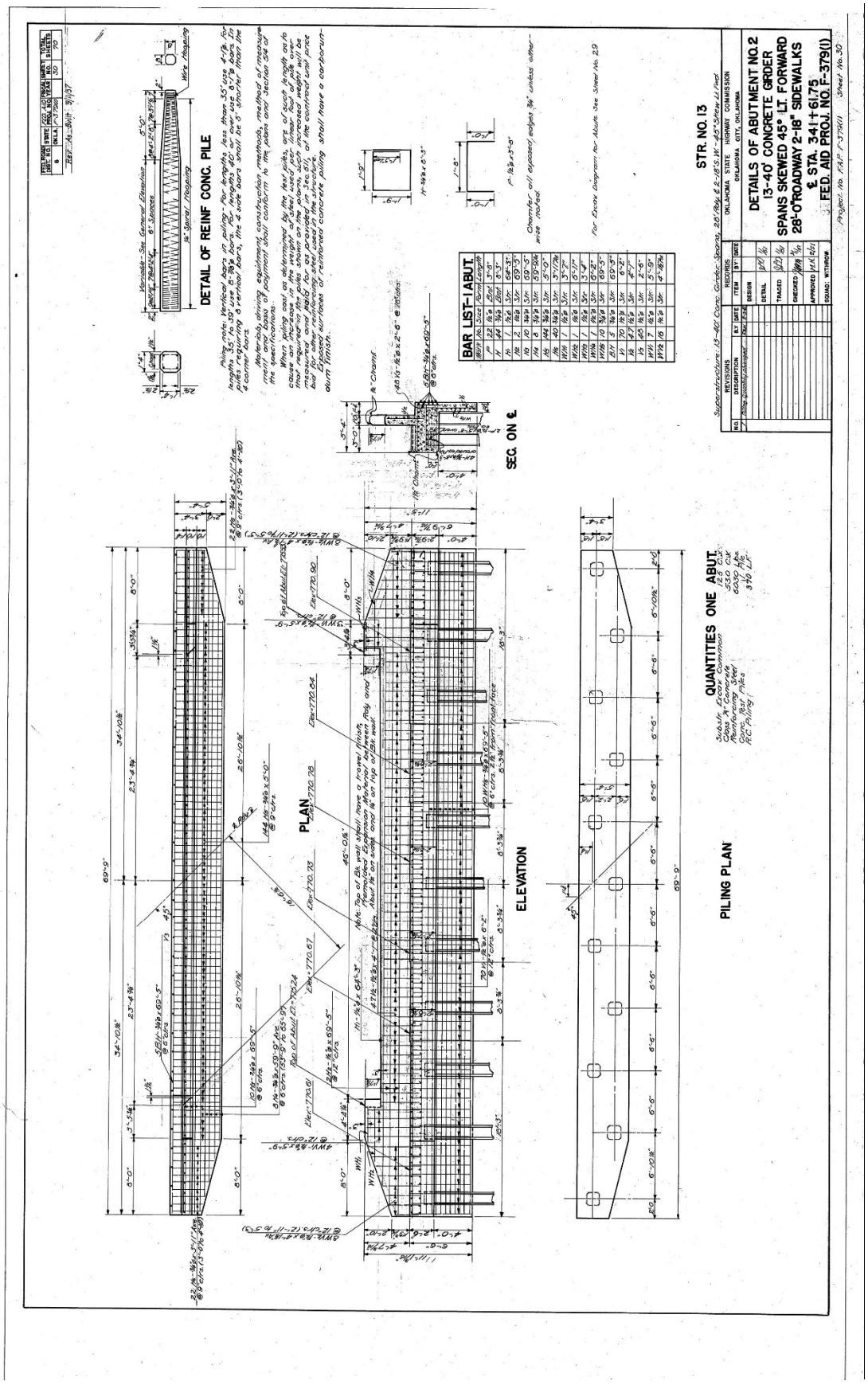
DETAIL OF REINF CONC. PILE
PLAN
ELEVATION
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QUANTITIES ONE ABUT.
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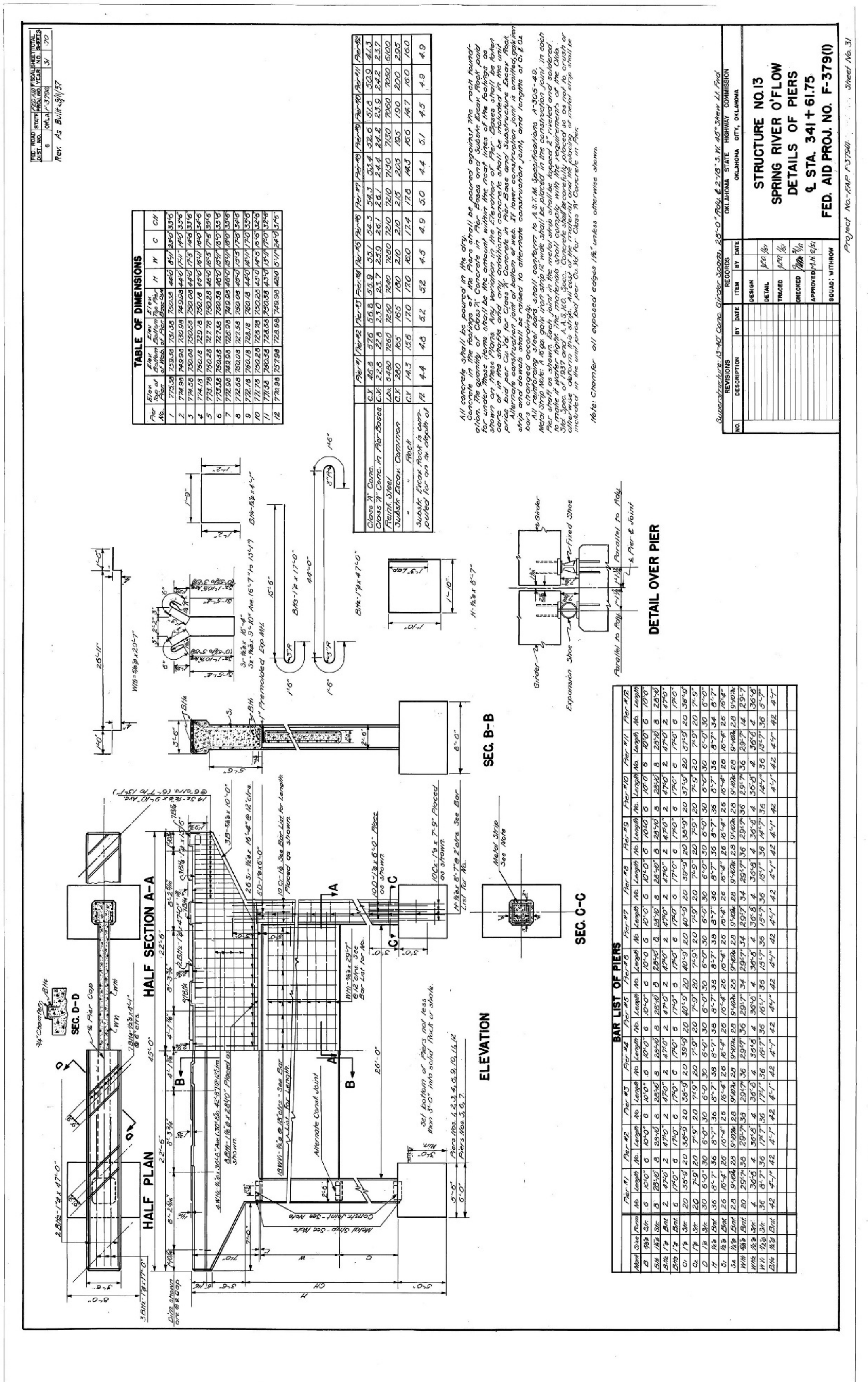
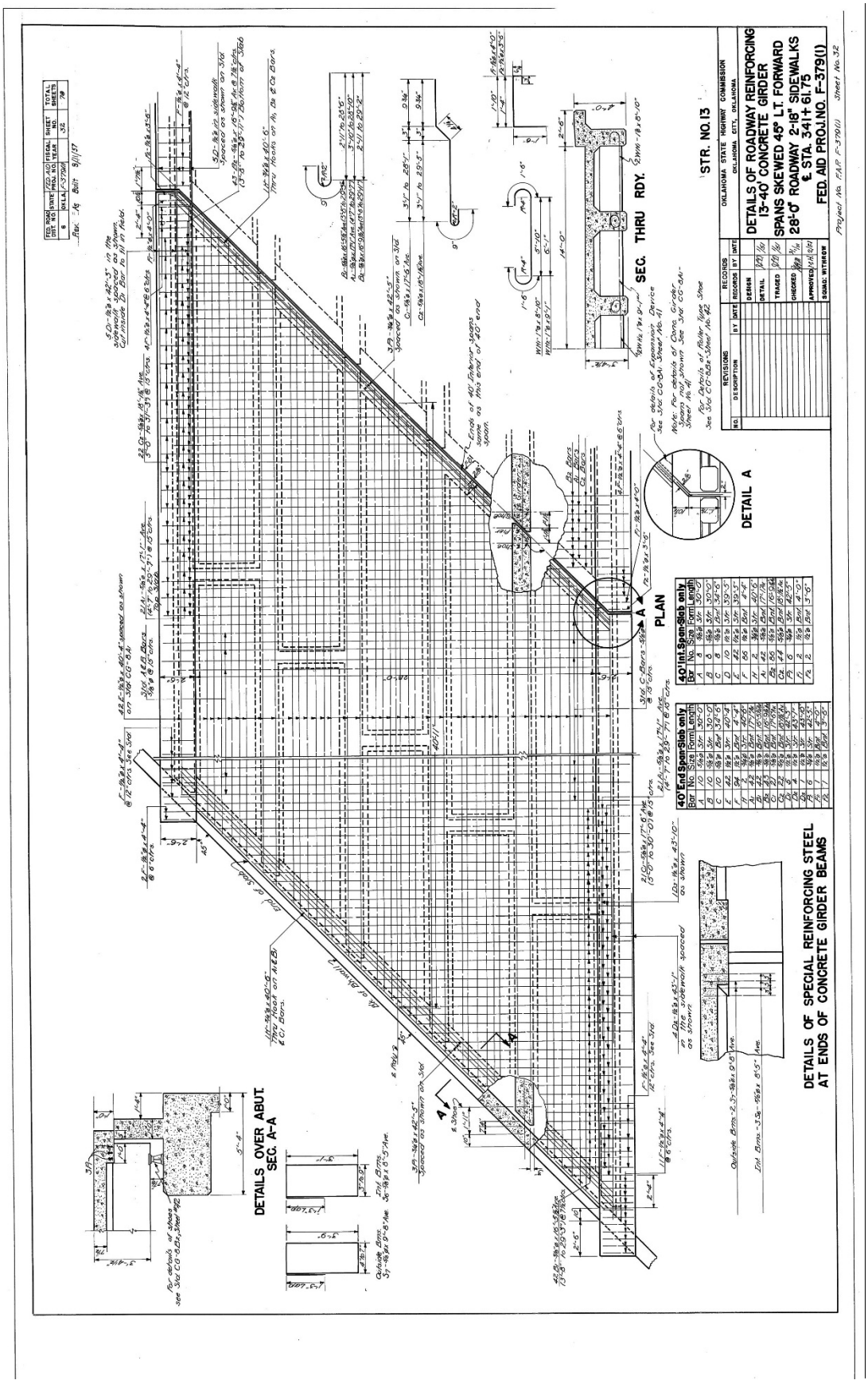
STR. NO. 13
DETAILS OF ABUTMENT NO. 2
13-40' CONCRETE GIRDER
SPANS SKEWED 45° LT. FORWARD
28'-0" ROADWAY 2-18" SIDEWALKS
℄ STA. 341+61.75
FED. AID PROJ. NO. F-379(I)


HALF PLAN
HALF SECTION A-A
SEC. D-D
ELEVATION
SEC. B-B
SEC. C-C
TABLE OF DIMENSIONS
BAR LIST OF PIERS
DETAIL OVER PIER
Rev. As Built 3/11/57
OKLAHOMA STATE HIGHWAY COMMISSION
OKLAHOMA CITY, OKLAHOMA
STRUCTURE NO. 13
SPRING RIVER O'FLOW
DETAILS OF PIERS
℄ STA. 341 + 61.75
FED. AID PROJ. NO. F-379(1)
Sheet No. 31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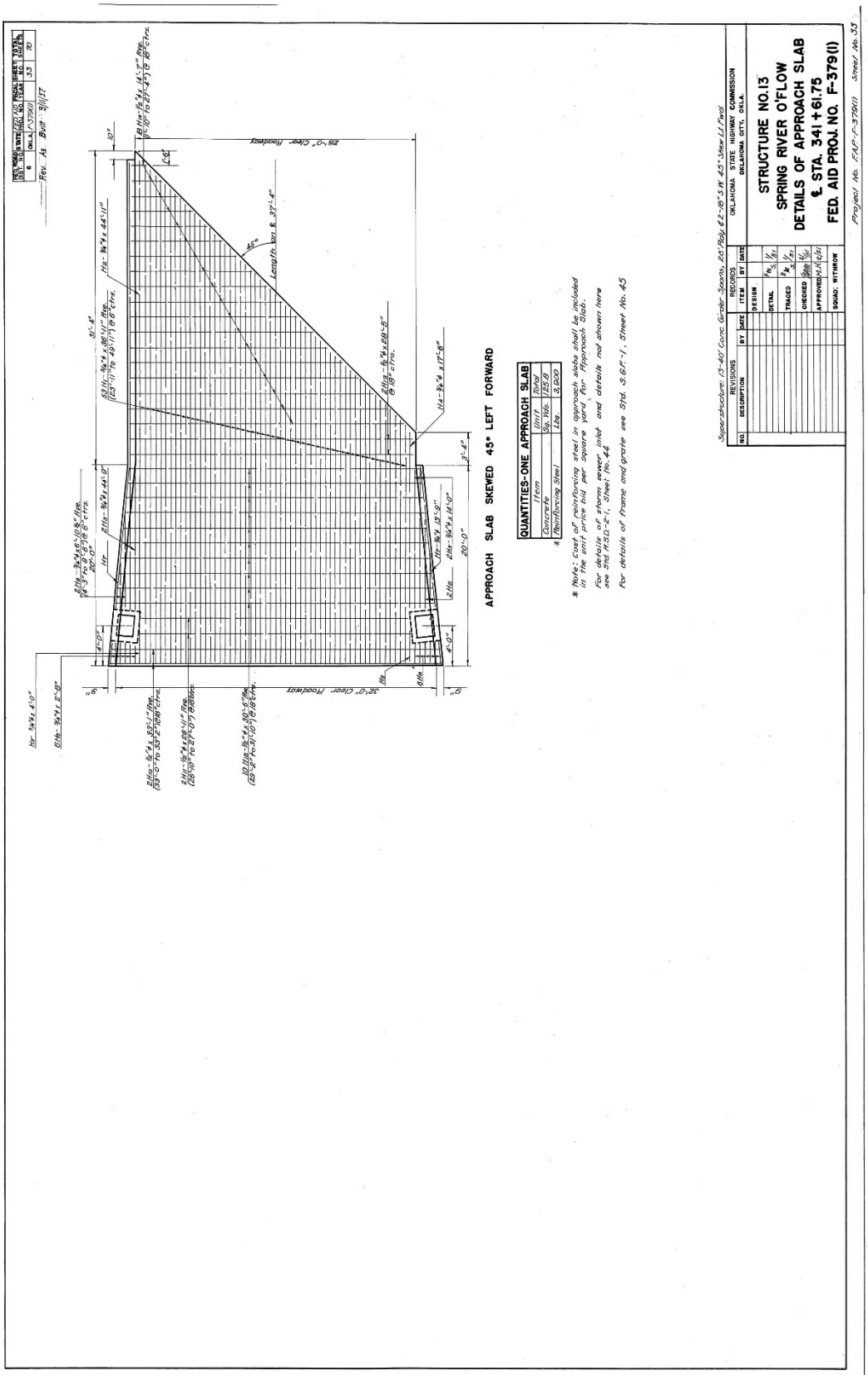
13-40' CONCRETE GIRDER
SPANS SKEWED 45° LT. FORWARD
28'-0" ROADWAY 2-18" SIDEWALKS
℄ STA. 341+61.75
FED. AID PROJ. NO. F-379(I)
OKLAHOMA STATE HIGHWAY COMMISSION
OKLAHOMA CITY, OKLAHOMA
STR. NO. 13
SEC. THRU RDY.
PLAN
DETAIL A
DETAILS OF SPECIAL REINFORCING STEEL AT ENDS OF CONCRETE GIRDER BEAMS
DETAILS OVER ABUT. SEC. A-A

SPRING RIVER WARREN WITH VERTICALS DECK TRUSS BRIDGE
SEE INDEX TO COPIES FOR CAPTION
SHEET 33



SPRING RIVER WARREN WITH VERTICALS DECK TRUSS BRIDGE
Spanning Spring River
Miami vicinity
Ottawa County
Oklahoma
JP Numbers 24272(04) & 24278(04)
Structure Number 5824 0831X
NBI Number 12853

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD

SPRING RIVER WARREN WITH VERTICALS DECK TRUSS BRIDGE

Location: Spanning Spring River approximately 6 miles east of Miami in eastern Ottawa County.
UTM: Zone 15S, 342632E, 4082063N

Legal Location: On the line between Section 30 and Section 31, T28N R24E.

Map Reference: U.S.G.S. 7.5' series, MIAMI SE, OKLA (1978)

Present Owner: Ottawa County
Oklahoma Department of Transportation (ODOT)

Present Use: Currently on ODOT Adopt-A-Bridge Program.

Significance: The Spring River Bridge is a notable example of a Warren with Verticals Deck Truss Bridge. One of approximately only five such bridges remaining across the state, this relatively rare bridge type is further significant because of its picturesque location and its association with flood control and transportation history in rural Ottawa County.

Project Information: Historic American Engineering Record (HAER) Level II equivalent documentation was performed May through June 2014. Kelli Gaston, Architectural Historian, conducted an onsite visit, took photographs, and compiled the historical information. The photographs have been digitally reproduced following National Park Service (NPS) standards for digital images. The HAER recordation serves as mitigation for the removal of the structure from vehicular traffic.

List of Preparers:

Historian/ Architectural Historian/ Photographer:	Kelli E. Gaston Consultant to Geo-Marine, Inc. Plano, Texas
Principal Investigator:	Marsha Prior, Ph.D. Geo-Marine, Inc. Plano, Texas
Report Production:	Anna Banda Geo-Marine, Inc. Plano, Texas

PART I: HISTORICAL INFORMATION

A. Physical History:

1. **Date of Construction:** 1952

2. **Architect/Engineer:** Homer X. White

3. **Builder/Contractor/Supplier:** J.A. Raines, General Contractor

4. **Original Plans:** Not Available

5. **Alterations and Additions:** Some concrete posts have been replaced.

B. Historical Context:

1. Introduction

In outlying rural communities across Oklahoma, bridges frequently stand as the most notable examples of expert engineering. These functional structures are artifacts representative of a community's development as well as changes in engineering practices over time. The bridge along Oklahoma Highway 10 (OK-10 or E100 Road) over Spring River, east of Miami in eastern Ottawa County, was a crucial "flood-proof" crossing for residents needing to travel from the county seat in Miami to portions of eastern Ottawa County. For over 50 years, through numerous floods, the bridge over Spring River provided stable and flood-proof transportation across a large body of water—a monument to the efforts of county commissioners and the state department of transportation to improving infrastructure across the county.

The area that would become Ottawa County is located in far northeastern Oklahoma. Geographically, the eastern portion of the county is part of the Ozark Plateau, and the western portion lies within the Osage Plains. The principal rivers in the county are the Neosho River (also known as the Grand) and Spring River, both of which now drain into the manmade Lake of the Cherokees (also known as Grand Lake), which was completed in 1940 and located southeast of Miami.

Archeological evidence indicates that Ottawa County was home to a number of Native American tribes across the millennia, but historically, the land that became Ottawa County was part of lands set aside by the federal government for the resettlement of the Osage Tribe. In 1828, the Western Cherokees were also granted lands in the area, and in 1831, the federal government set aside part of those tribal lands for use by smaller tribes also being relocated. These tribes included several groups of Seneca as well as Shawnee from Ohio. Later, they were joined by members of the Quapaw tribe, and others, including the Peoria, Kaskaskias, Weas, Piankeshaw, Miami, Ottawa, Wyandotte, and Modoc. The Neosho Agency oversaw intergovernmental affairs for all the tribes in the area. Several Indian Schools operated nearby, including the Seneca Indian School, St. Mary's of the Quapaw, and other smaller schools serving various tribes (Oklahoma Encyclopedia 2014a).

This part of the county possessed fertile farmland and good grazing land with plenty of access to fresh water (Nieberding 1983). The area became an important stop on regional transportation routes, including the Texas Road and the Shawnee Trail. Rail transportation began with the arrival of the Atlantic and Pacific Railroad in 1871 (later the St Louis and San Francisco). The nearby city of Miami was founded in 1891 by the Miami Town Company, a business owned by several locally prominent tribesmen. The town site included approximately 600 acres of land selected for its proximity to the Neosho River and nearby grazing lands. City lots were auctioned off by the Miami Town Company (Miami Weekly Herald 1901; Nieberding 1983:5, 26A).

Natural resources dramatically impacted the development of Ottawa County and the city of Miami. Zinc and lead were first successfully mined near Peoria in 1891. This first successful mine resulted in an influx of people to Miami and led to the creation of new communities as mining camps opened at Picher, Lincolnville, Commerce, Century, and Cardin. By 1926, Ottawa County was the largest source of lead and zinc in the world. Other important natural resources included limestone, timber, and the abrasive, tripoli[1] (Oklahoma Encyclopedia 2014a).

When Oklahoma gained statehood in 1907, the county was named in honor of one of the local tribes, and the city of Miami won a contest to host the county seat. The first county offices were located in a dance hall in Miami. After statehood, the area grew so quickly that lumber had to be floated in from Kansas or other parts of the Cherokee Nation to meet demand in Miami (Nieberding 1983:3, 4, and 26A; Oklahoma Encyclopedia 2014b).

The Neosho and Spring Rivers have been a benefit and a curse to nearby city residents and farmers both. They provide a source for drinking water as well as water for crops, but the rivers are large, difficult to cross, and prone to flooding. Attempts at flood control began in the late 1930s with the creation of the Pensacola Dam and the Grand Lake (of the Cherokees). The Neosho River, however, continued to flood with major floods occurring in 1943, 1951, 1986, 1994, and 2007. Flood control continues to be an issue as local, state, and federal agencies attempt to maintain a water level at Grand Lake that eases the threat of flooding along the Neosho and Spring Rivers (NOAA 2014a and 2014b; Stotts n.d.).

2. Development of the Ottawa County, Spring River Warren with Verticals Deck Truss Bridge

The Spring River Warren with Verticals Deck Truss Bridge, constructed in 1952 by J.A. Raines, General Contractor, is located on OK-10, approximately 6 miles east of Miami, Oklahoma, between S610 Road (Highway 137) and S630 Road. OK-10 is a two-lane paved highway with a narrow shoulder, surrounded by grazing land and a significant number of trees. There are a few scattered homes and businesses in the vicinity. The area along the river is very picturesque, including the locally famous “Devil’s Promenade” and “Lover’s Leap.” An early newspaper report described the area as such:

[1] Mines in the area closed by the 1960s, leaving an environmental disaster. Eventually, the federal government became involved with cleanup efforts, creating a Superfund site at Tar Creek in 2000 (Oklahoma Encyclopedia 2014a).

> The road is good and leads through the extremely pretty country lying between Tar Creek and Spring River. In every direction as far as the view extends is a gently undulating prairie covered with fields of corn and meadows of native grass (The Miami Herald 1901).

Ottawa County is traversed by numerous streams as well as larger rivers and bodies of water. Prior to the arrival of the railroad, these waterways served as important transportation routes. In particular, Ottawa County is drained by the Neosho and Spring Rivers. The abundance of this resource has helped bring prosperity to the state, but bridging these bodies of water has long posed a challenge to citizens, municipalities, and the state at large. The earliest attempts at bridge building were largely private, utilizing locally available materials. Such bridges, though, were unreliable, often dangerous, and required constant maintenance. After statehood, road and bridge building maintenance became a county issue and managing miles of roads and countless bridges posed a significant problem for county commissioners. Always mindful of limited budgets, bridges constructed during this period were frequently of inferior quality. In many counties across the state, county commissioners often chose prefabricated bridges, and even some suspension bridges, manufactured by companies such as the Oklahoma Bridge and Structural Steel. These bridges were relatively unstable and did not provide long-term solutions to transportation problems. Standardized bridges were ordered from catalogs or from bridge salesmen representing national or regional companies. The mass produced trusses were transported by rail and then assembled by locals onsite with a company representative overseeing the work (King 1993).

Bridge building efforts improved dramatically in Oklahoma after the 1920s as more and more impassable crossings were safely and permanently traversed. In spite of bridge improvements, flooding in Ottawa County was responsible for damage to bridges both large and small. One of the most significant floods occurred in July 1951. Within that month, record rains fell in Ottawa County and in areas to the north and northeast. Both the Neosho and Spring Rivers experienced flooding, with OK-10 east of Miami being closed near Spring River sometime prior to July 4. On the 11th of July, the local paper reported that up to 9 inches of rain had fallen within 48 hours, prompting a headline that read, “Highest Water in Years May Peril District.” Local rainfall was significant, but similar weather occurring in Kansas and Missouri also impacted water levels in Ottawa’s local rivers. By July 12, the Miami paper was predicting the “worst flood in history,” calling the expected damage to be “catastrophic.” By Friday, July 13, citizens in low lying areas were urged to evacuate and the worst followed on Monday, July 16, when the rivers crested at the highest point ever recorded. Early reports indicated multiple bridge washouts, but did not specifically mention a bridge over Spring River (Miami Daily News Record 1951a, 1951b, 1951c, 1951d, 1951e, 1951f, 1951g, 1951h, 1951i).

Although the exact extent of any damage to the bridge over Spring River due to the 1951 flood is uncertain, by 1952, local and state transportation officials deemed it necessary to build a new bridge. The *Miami Daily News Record* described the pre-1952 bridge over Spring River on OK-10 as being located in “one of the state’s oldest river crossings.” The old bridge had been constructed by Ottawa County before the road became part of OK-10, and was only 325 feet long and 18 feet wide. Furthermore, it was not designed to accommodate modern automobile traffic. The paper described the bridge as a “weary

structure" that "has been a costly maintenance job for the state for many years" (Miami Daily News Record 1952).

In June 1952, the *Miami Daily News Record* announced that the construction "of a new bridge over Spring River east of Miami, is moving about on schedule despite delays caused by occasional inavailability of steel." The article identified the contractor as Frank Raines and Sons Construction. On July 3, the newspaper noted that the state highway commission was "taking final steps to close out the State highway No. 10 flood area on Spring River, five miles east of Miami." Project F-379(1) included road paving and the "building [of] two big bridges and approaches on a high enough level to keep the river from blocking the road with floods." The article described the bridges as a "620-foot steel deck truss and a companion 520-foot concrete girder span overflow bridge" being built by J.A. Raines, a Muskogee contractor, at a cost of $482,672. A photo of the bridge was included in the subsequent State Highway commissioner's report (OK Department of Highways 1952) and the bridge was open to traffic by the end of 1952.

The Spring River Warren with Verticals Deck Truss Bridge is a notable example of this particular bridge type. The deck truss never rivaled the popularity of the through or pony truss bridges constructed in Oklahoma, but this relatively rare bridge design was suited to particular bridge crossings, like that at Spring River and the Canadian River between Lexington and Purcell in McClain/Cleveland Counties. According to King (1993), this bridge type was a "good choice" where "enough room existed below the bridge for its truss and where builders desired a more open bridge without the confining side panels of a through truss." The crossing at Spring River stands high above the river, and the surrounding environment is very picturesque. With the truss below the deck, travelers had a wide-open view of the surrounding landscape.

The Spring River Bridge was inventoried as part of the ODOT Planning and Research Division Cultural Resources Program 1993 assessment of Oklahoma highway bridges (King 1993). This study examined metal truss bridges and concrete and stone arch bridges longer than 20 feet in length built prior to 1955. The study determined the Spring River Bridge to be not eligible for the National Register of Historic Places at that time as there were more notable examples of the same bridge type in other locations across the state. The bridge was also included in the 2007 evaluation (Eddings). By that time, roughly half of the deck truss bridges evaluated in the 1993 study were no longer extant. As such, the Spring River Bridge was subsequently determined to be eligible for listing in the National Register of Historic Places as a surviving, notable example of a Warren with Verticals Deck Truss Bridge.

PART II. STRUCTURAL/DESIGN INFORMATION

A. General Description: The Spring River Warren with Verticals Deck Truss Bridge carries two lanes of traffic along OK-10, a paved state highway running east to west approximately 6 miles east of Miami in Ottawa County, Oklahoma. The 630-foot bridge features four Warren with Verticals Deck Trusses and one concrete girder approach span. The bridge is just over 28 feet wide curb to curb, with a total width of just over 33 feet. The bridge has riveted connections. The top chord of the main span features channel with stays as do the bottom chord and the vertical members. The diagonals have channel with lace. The bridge also has an ornate railing with concrete posts and steel rails. The bridge deck is concrete. The substructure of the bridge features concrete abutments and piers.

1. **Character:** The Warren with Verticals Deck Truss design of the Spring River Bridge is indicative of its rural setting and period of construction. The structure demonstrates the efforts made to improve rural roads, encourage development, and also to contend with an area known for flooding. Additionally, the bridge design allowed for a view of the surrounding picturesque landscape.

2. **Condition of Fabric:** The Spring River Warren with Verticals Deck Truss Bridge shows evidence of normal deterioration due to age and exposure to the elements. Several concrete posts have been replaced.

B. Site Information: The Spring River Warren with Verticals Deck Truss Bridge is located on a two-lane state highway in a rural area. In each direction, there is pastureland, dotted with trees and other heavy vegetation, particularly along fence rows and river beds. Near the site of the bridge, the river channel is deep and the banks are steep.

PART III. CURRENT STATUS

Due to structural deficiencies, the Spring River Warren with Verticals Deck Truss Bridge is slated for replacement. This HAER Level II documentation serves as mitigation and ODOT will pursue a Memorandum of Agreement with the Oklahoma State Historic Preservation Office (OK/SHPO). In January 2014, the bridge was advertised for adoption as part of ODOT's Adopt-A-Bridge Program.

PART IV. SOURCES OF INFORMATION

A. Primary Sources

Miami Weekly Herald, The
1901 "Miami". April 5.

Miami Daily News-Record
1951a "Neosho Covers Widened Area." July 1.

1951b "Flood Threats Continuing As Rains Stay On: Crests of Rivers in Kansas Will Bring More Water to This Area." July 3.

1951c "Neosho Falls over Foot but New Rise Later Is Predicted." July 4.

1951d "Neosho River Flood Will Menace Miami; Highest Water In Years May Peril District." July 11.

1951e "Worst Flood in History Is Predicted for Miami Area; Lowland Residents Warned." July 12.

1951f "Lowland Citizens Urged By Mayor To Move Out." July 13.

1951g "Flood Presses Toward Miami." July 15.

1951h "Flood Damage Enters Millions." July 16.

1951i "Big Clean-up Task Pushed, Losses Spiral." July 19.

1952 "Bridge Project Being Prodded." July 3.

National Oceanic and Atmospheric Association (NOAA)
2014a "Advanced Hydrologic Prediction Service, Neosho River Near Commerce." http://water.weather.gov/ahps2/hydrograph.php?wfo=tsa&gage=COMO2. Accessed July 14, 2014.

2014b "The 1941 Kansas – Missouri Floods . . . Have We Forgotten?" http://www.Crh.noaa.gov/mbrfc/flood51.pdf. Accessed July 14, 2014.

ODOT, Division 8, Tulsa, Oklahoma [ODOT Division 8]
Files, including Bridge Inspection Report, Bridge Inventory Reports, and miscellaneous.

OK Department of Highways
1952 *Report of The State Highway Commission and Director to the Governor of Oklahoma for the period Jan. 1, 1951 thru Dec. 31, 1952*. On file, Oklahoma Historical Society.

Stotts, Melinda
n.d. "Flooding in Miami: the History." *The Miami News Record*. http://m.miamiok.com/news/article_f4a619f2-327b-5743-9127-932a2293f2c1.html?mode=. Accessed July 14, 2014.

B. Secondary Sources

Eddings, Anna Marie
2007 *Oklahoma Historic Bridge Survey Phase I*. Oklahoma Department of Transportation, Planning and Research Division, Cultural Resources Program. Norman, Oklahoma.

King, J.
1993 *Spans of Time*. Center for Historic Preservation and Technology, Texas Tech University. Sponsored by the Planning Division, Oklahoma Department of Transportation, State of Oklahoma; and the Federal Highway Administration.

Nieberding, Velma
1983 *History of Ottawa County*. [Self-published], Miami, OK.

Oklahoma Encyclopedia
2014a "Ottawa County," Vertical File, Research Division, Oklahoma Historical Society, Oklahoma City. http://digital.library.okstate.edu/encyclopedia/entries/O/PT003.html. Accessed April 24, 2014.

2014b "Miami," Vertical File, Research Division, Oklahoma Historical Society, Oklahoma City. http://digital.library.okstate.edu/encyclopedia/entries/M/MI002.html. Accessed April 24, 2014.

SPRING RIVER WARREN WITH VERTICALS DECK TRUSS BRIDGE
Spanning Spring River
Miami vicinity
Ottawa County
Oklahoma
JP Numbers 24272(04) & 24278(04)
Structure Number 5824 0831X
NBI Number 12853

LOCATION MAP

SPRING RIVER WARREN WITH VERTICALS DECK TRUSS BRIDGE
OTTAWA COUNTY, OKLAHOMA
LOCATION MAP