

# MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		8	26	
SEC 26	TWP. 43N	RGE. 1W			

## GENERAL NOTES:

### DESIGN SPECIFICATIONS

4.A.S.H.T.O. - 1977 with 1978 & 1979 Interim Specifications  
Load Factor Design

### DESIGN LOADING

HS 20-44 (Modified 24,000\* Tandem Axle)  
Earth 120#/ft<sup>2</sup> Equivalent Fluid Pressure = 30\*/ft<sup>2</sup>  
Fatigue Case I  
Superstructure: Simply supported noncomposite for Dead Load of Units. Simply supported composite for live load Unit 2. Continuous composite for live load Units 1 & 3.

### DESIGN UNIT STRESSES

Class E Concrete (Substructure)  
f'c = 3000 psi  
Class B Concrete (Superstructure except prestressed girders and safety barrier curb) f'c = 4000 psi  
Reinforcing Steel (Grade 60) fy = 60,000 psi  
Class B1 Concrete (Safety Barrier Curb) f'c = 4000 psi

### STRUCTURAL STEEL (A.S.T.M. A-52B)

Fy = 50,000 psi  
Steel Pile fy = 9,000 psi  
Structural Carbon Steel fy = 36,000 psi  
For Prestressed Girder stresses see sheet 22.

### NEOPRENE PADS

Bearings shall be 50 durometer Neoprene Pads for Bent 1, Pier 3, Pier 4, and Bent 6.  
Bearings shall be 60 durometer Neoprene Pads for Bent 2 and Bent 5.

### JOINT FILLER

All joint filler shall meet the requirements of Std. Spec. 1057.2.4.

### FIELD CONNECTIONS

Field connections, High Strength Bolts 3/4" dia. holes 1/8" except as noted.

### REINFORCING STEEL

Minimum clearance to reinforcing steel shall be 1/2" unless otherwise shown. All reinforcing bars in tops of substructure beams or caps shall be secured to other anchor bolts for bearings by at least 1/2".

### BENCHMARKS

B.M. 70 80d Spike in base of 28" Sycamore, 125' S. of Ene. 60, 120' E. of Vct. of Ene. 47 W. & Ene. 17. Elev. 543.50  
B.M. 71 1" on S.E. Corner Br. Abut. S. Side Exist. Br. Elev. 521.26  
B.M. 72 1" on S.E. Corner Wingwall 18' R. & Exist. Rte. 50 E. End Bridge 4-3872 over drainage ditch. Elev. 516.85

### STEEL SWAY BRACING

Paint: Shop prime, field all exposed surfaces of steel piles and bracing shall be painted in accordance with Std. Spec. 702.7.7 using system A or B. Color of final coat shall be Aluminum.

### FOR ADDITIONAL GENERAL NOTES SEE SHEET 3

## BRIDGE OVER BOURBEUSE RIVER

STATE ROAD ROUTE 50

IN UNION

PROJECT NO. BRF-50-4 (18) STA. 1255+89.80

JOB NO. 6-1066A

RTE. 50

FRANKLIN COUNTY

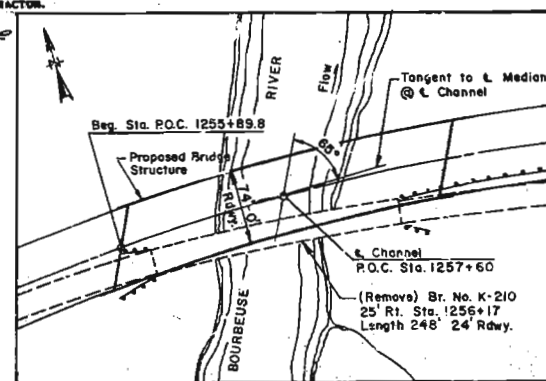
STD 706.35

A-3961

HYDROLOGIC DATA	
Drainage Area	= 808 Sq. Miles (Hilly)
Des. Discharge	= 34,400 c.f.s.
Des. H.W. Elev.	= 512.5
Frequency	= 50 Yrs.
BASIC FLOOD DATA	
Design Q 100	= 38,400 c.f.s.
H.W. Elev.	= 513.5 c.f.s.

### CURVE DATA

P.I. Sta. 1256+06.10  
Δ = 21° 40' 14.16" Rt.  
Cc = 3'  
Ec = 1909.86'  
Is = 150'  
Ts = 439.32'  
T = 346.86'  
Lc = 637.35'  
Os = 2° 15'  
P = 0.49'  
E = 0.75'  
Xs = 149.97'  
Xs = 149.97'  
Xs = 149.97'  
S.E. = 0.03'/ft.



LOCATION SKETCH

Sheet No. 1 of 31

DATE 11/23/83

55'-55' Prestressed Concrete I-Girders Unit 1

112' Composite Welded Plate Girder Unit 2

55'-55' Prestressed Concrete I-Girders Unit 3

5'-0' (Normal) R.R. Berm

0.00% Grade

2 to 1 Slope (Normal to bent)

Note: For R.R. Fill requirements see Special Provisions.

### ELEVATION

Note: Bents cannot be accurately located from the reference point on the tangent by conventional survey methods based on 100' Chords.

335'-3 3/4"

112'-0 3/8"

56'-0 3/8"

54'-4 3/8"

16' Measured Horizontally Along E Median

### PLAN

\* Indicates locations of Borings. For boring data see sheet No. 2 and 3.

\* Use existing bridge No. K-210 during 1st Stage construction, then remove.

All concrete above lower construction joint in end bents is included with superstructure quantities.  
All reinforcement in the end bents is included with the superstructure quantities.  
\*\* No direct payment will be made for furnishing, installing, cleaning and painting of bracing at intermediate bents.

### ESTIMATED QUANTITIES

ITEM	UNIT	SUBSTR	SUPERSTR	TOTAL
Class 1 Excavation	Cu. Yd.	70		70
Removal of Bridge (Bridge No. K-210) *	Each			1
Pre-Bore for Piling	Lin. Ft.	20		20
Class 2 Excavation	Cu. Yds.	238		238
Structural Steel Piles (HP10x42)	Lin. Ft.	1369		1369
Class B Concrete (Substructure)	Cu. Yds.	445.3		445.3
Pile Point Reinf. Cement	Each	40		40
Plain Neoprene Bearing Pads	Each		60	60
Laminated Neoprene Bearing Pads	Each		40	40
Preformed Compression Expansion Joint Seal (4 inches)	Lin. Ft.		169	169
Prestressed Concrete Members, I-Section (55'-0")	Each		40	40
Reinforcing Steel (Grade 60)	Lbs.	50,150		50,150
Safety Barrier Curb	Lin. Ft.		711	711
Precast Structural Low Alloy Steel (Plate Girder) A-572 *	Lbs.		216,470	216,470
Slab Drains	Each		15	15
Protective Coating for Conc. Bts. (Weathering Steel)	Lump Sum		1	1
Slab on Conc. I-Girders See Spec. Provisions	Sq. Yds.		1914	1914
Station Steel See Special Provisions	Sq. Yds.		948	948

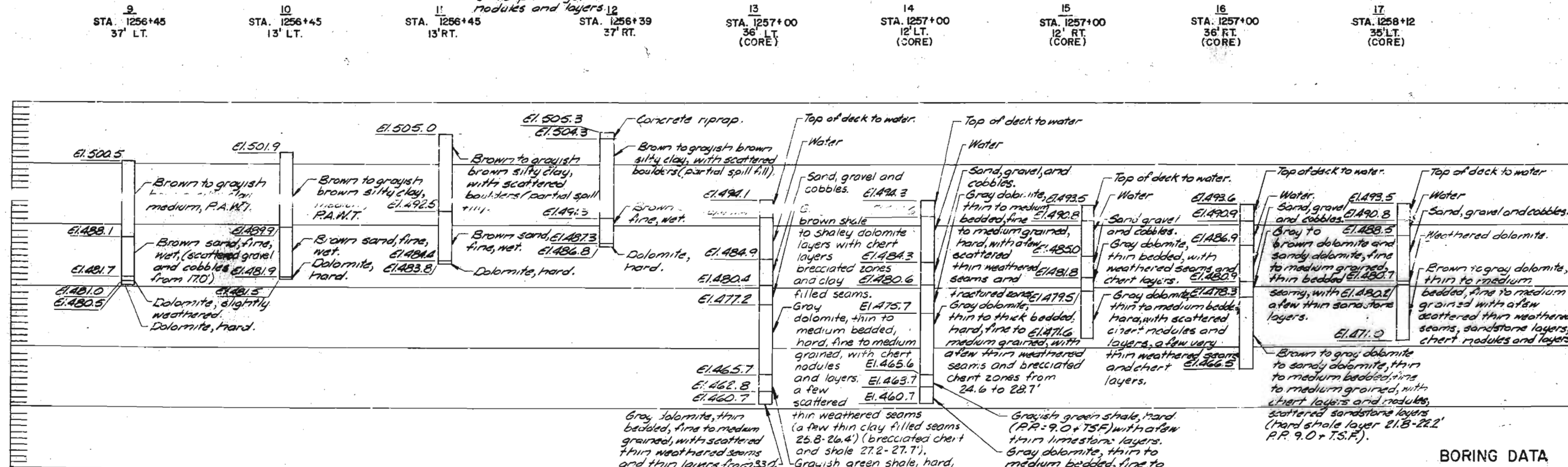
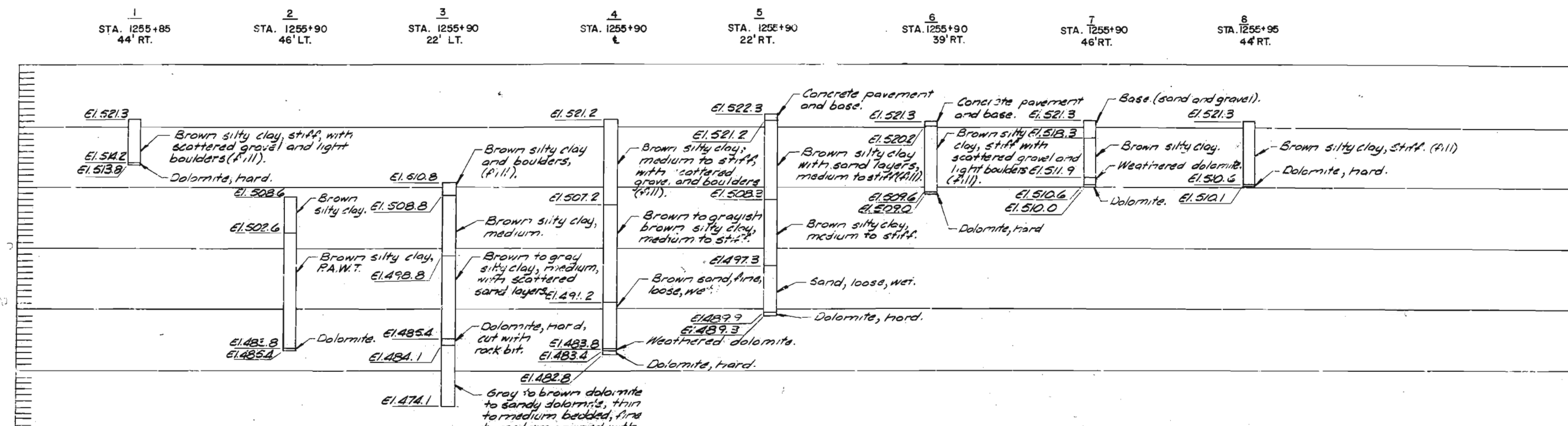
Note: Cost of furnishing, fabricating and installing Neoprene Brg. Pads on plate in place shall be paid for at the contract unit price for Plain Neoprene Bearing Pads per each and Laminated Neoprene Bearing Pads per each.

Note: This drawing is not to scale. Follow dimensions.

REGISTERED PROFESSIONAL ENGINEER  
MISSOURI NO. E-17747

DESIGNED Sept. 1979 Hargis  
CHECKED Sept. 1979 Tobias  
CHECKED Apr. 1980 Bruckner

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	27	



BORING DATA

DETAILED Aug. 1979 Baltasar  
CHECKED Apr. 1980 Hargis

**Booker**  
Engineers, Architects, Planners

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 2 of 31.

FRANKLIN COUNTY

A-3961

18  
STA. 1258+12  
8' LT.  
(CORE)

19  
STA. 1258+12  
11' RT.  
(CORE)

20  
STA. 1258+12  
35' RT.  
(CORE)

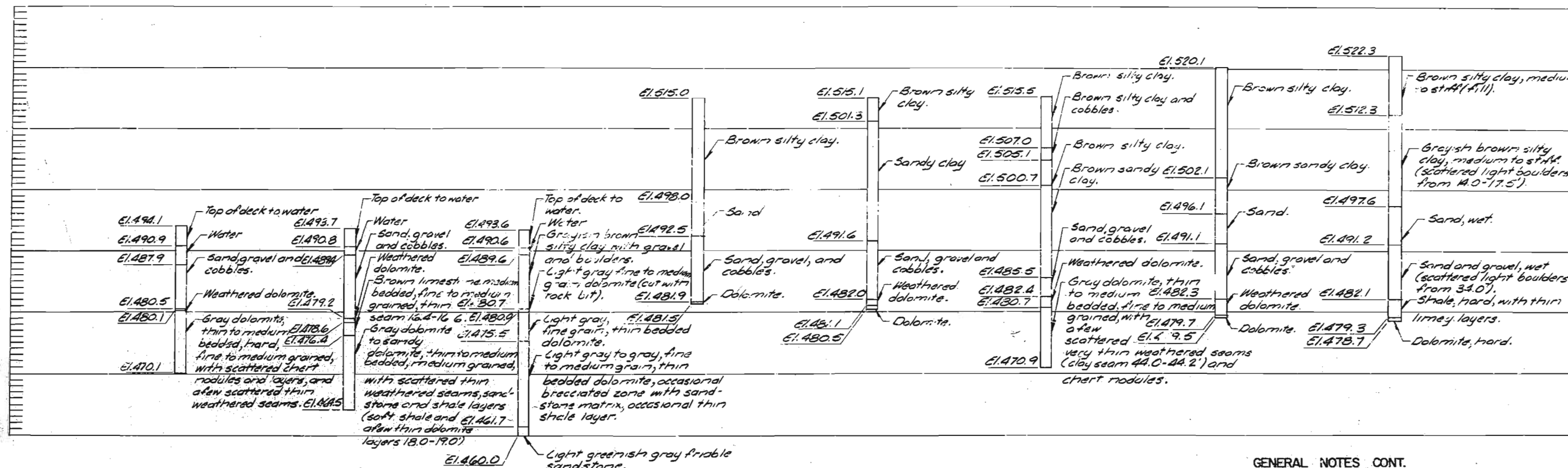
21  
STA. 1259+27  
45' LT.

22  
STA. 1259+27  
20' LT.

23  
STA. 1259+27  
6' RT.  
(CORE)

24  
STA. 1259+27  
20' RT.

25  
STA. 1259+27  
40' RT.



#### GENERAL NOTES CONT.

##### COMPACTED ROADWAY FILL

Compacted roadway fill shall be completed to the final roadway section and up to the elevation of the bottom of the concrete beam within the limits of the structure and for not less than 25' in back of the fill face of the end bents before piles are driven for any bents falling within the embankment section.

##### BRIDGE END FILLS HAVING PASSIVE PRC. SURE

For passive pressure fill requirements, see special provisions.

##### FOOTINGS

In no case shall footings of Piers 3 and 4 be placed higher than Elevation 480.0.

PILE & FOOTING DATA TABLE

BEARING PILES	PIER OR BENT NO.		1	2	3	4	5	6
	PILE TYPE & SIZE		HP10x42	HP10x42			HP10x42	HP10x42
	NUMBER		9	12			12	9
	APPROXIMATE LENGTH		FT.					
			28' 33"	32			35	35
			1 @ 28'					
			2 @ 15'					
	DESIGN BEARING		TONS	50	56		55	49
	HAMMER ENERGY REQUIRED		FT. LBS.	11,800	13,200		13,200	11,800
SPREAD	FOUNDATION MATERIAL				Rock	Rock		
	DESIGN BEARING		TONS/SQ. FT.		12	12		

Minimum energy requirement of hammer based on plan length and design bearing value of piles.  
All piles shall be driven to practical refusal.  
Manufactured pile point reinforcement shall be used on piles of bents #1, #2, #5 & #6.  
(See Special Provisions)  
For pre-bore data see Sheet No. 11.  
Omit pile points when pre-boring for piling is specified.

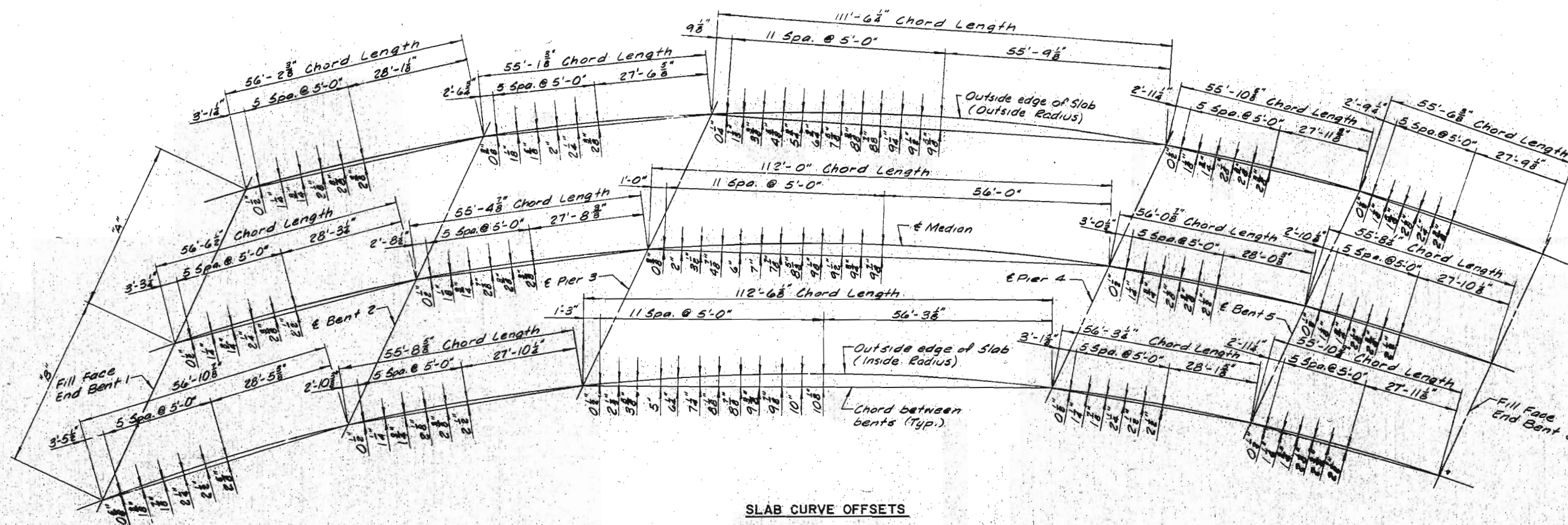
ESTIMATED QUANTITIES FOR ALTERNATE SLABS

TYPE OF SLABS	REINF. (LBS.)		CONC.
	EPOXY	PLAIN	CU. YDS.
CAST-IN-PLACE CONVENTIONAL FORMS (CIP)	104,020	109,700	903.6
PRECAST PANEL FORMS	116,610	23,990	738.7

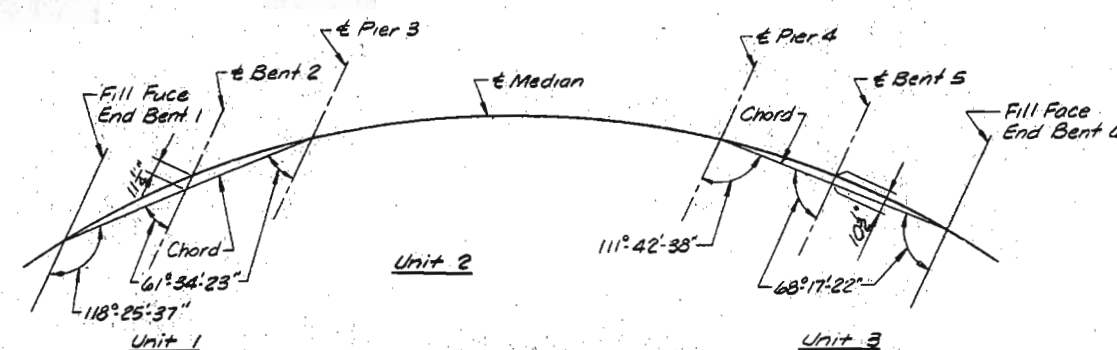
Note: The table of Estimated Quantities for Alternate Slabs represents the quantities used by the state in preparing the cost estimate for concrete slabs. Variations may be encountered in these estimated quantities but these variations cannot be used for an adjustment in the Contract Unit Price per square yard of Alternate Slab used.  
See Special Provisions for alternate methods of forming slabs.  
Precast panel quantities are based on skewed end panels.

BORING DATA





SLAB DISTANCES		
	DIMENSION "A"	DIMENSION "B"
Fill Face End Bent 1	44'-2"	44'-5 1/2"
E Bent 2	43'-5 1/2"	43'-8 1/2"
E Pier 3	42'-9 3/8"	43'-0 1/2"
E Pier 4	41'-8 1/2"	41'-10 1/8"
E Bent 5	41'-2 3/8"	41'-3 3/8"
Fill Face End Bent 6	40'-9"	40'-10 1/2"



Note: All P/S Girders for Unit 1 are to be placed parallel to a chord between the intersection of the E. of Median with the Fill Face of End Bent 1 and the E. of Pier 3.  
All P/S Girders for Unit 3 are to be placed parallel to a chord between the intersection of the E. of Median with the E. of Pier 4 and the Fill Face of End Bent 6.

**NOTES:**  
For Intermediate Bents or Piers  
Dimension "A" is the distance along the E. of bent from the E. Median to the outside edge of slab (outside radius).  
Dimension "B" is the distance along the E. of bent from the E. Median to the outside edge of slab (inside radius).  
For End Bents  
Dimension "A" is the distance along the Fill Face from the E. Median to the outside edge of slab (outside radius).  
Dimension "B" is the distance along the Fill Face from the E. Median to the outside edge of slab (inside radius).

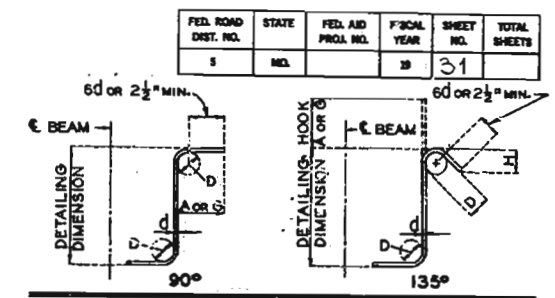


# COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO.	MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS												NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT		
										B		C		D		E		F		H					K	
										FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.				FT.	IN.
END BENT 1																										
2	5	H1	Cap		20					49	4								49.4	103						
2	5	H2	"		20					42	2								42.2	88						
12	9	H3	"		20					54	7								54.7	2,227						
12	9	H4	"		20					42	2								42.2	1,720						
2	6	H5	"		20					50	9								50.9	152						
2	6	H6	"		20					42	2								42.2	127						
24	6	H7	"		20					7	8								7.8	276						
3	6	H8	"		20					44	3								44.3	199						
3	6	H9	"		20					47	5								47.5	214						
3	6	H10	"		20					8	0								8.0	14						
28	6	H11	Wingwall		20				V4	11	3							11.3	15.0	315						
Incr. = 15"																										
5	6	H12	Wingwall		23					1	23	4	1	2	1	0	8	7	5	8.5	7	42				
12	6	H13	"		20					11	6								11.6	207						
4	6	H14	Cap		15					5	0	2	7	2	2	8	1	3	7	7	6	45				
5	6	H15	Wingwall		23					1	25	7	1	2	1	0	8	7	7	11	7	10	59			
4	6	H16	Cap		2					6	0	2	7				5	2	4	3	0	8	7	3	2	49
Incr. = 7 1/2"																										
8	6	V4	Wingwall		20					7	2								7.2	86						
Total Epoxy Coated Bar 1,418																										
Total Non-Epoxy End Bent 1 7,831																										
BENT 2																										
2	9	H17	Cap		20	X				55	10								55.1	366						
2	9	H18	"		20	X				36	10								36.1	250						
2	9	H19	"		20	X				52	9								52.9	359						
4	9	H20	"		20	X				35	9								35.9	486						
2	6	H21	"		20	X				50	9								50.9	152						
2	6	H22	"		20	X				38	9								38.9	107						
2	9	H23	"		20	X				54	8								54.8	372						
H24 Not Used																										
2	9	H25	Cap		17	X				55	9								57.0	388						
2	9	H26	"		17	X				36	10								38.1	259						
6	6	H27	"		7	X				5	4	2	8						8.2	74						
Total Bent 2 4,290																										
24	6	V5	Cap		20	X				1	9								1.9	63						
77	6	U6	Cap		13	X				2	8	2	8	2	8	2	8		11.10	11.4	4	1,311				
2	6	U7	"		13	X				2	6	2	8	2	6	2	8		11.6	11.0	33					
2	6	U8	"		10	X					6	2	8						3.8	3.6	70					
Total Bent 2 4,290																										

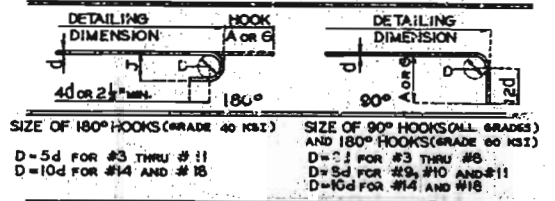
# COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO.	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (V)	VARIES (V)	NO. EACH	DIMENSIONS										NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT				
									B		C		D		E		F					H		K	
									FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.				FT.	IN.	FT.	IN.
PIER 3																									
20	2	P1	A.B. Wall	22	X			1	5			9 1/2						23	0	7					
6	10	H28	Web Wall	18	X			27	6									30	4	78					
3	8	H29	"	20	X			20	3									20	3	16					
3	8	H30	"	20	X			6	1									6	11	5					
16	4	H31	"	20	X			41	4									41	4	44					
16	4	H32	"	20	X			1	0									31	0	33					
2	4	H33	"	20	X			3	4									33	4	4					
7	6	H34	Cap	20	X			49	6									49	6	52					
7	6	H35	"	20	X			37	4									37	4	39					
2	9	H36	"	20	X			53	8									53	8	36					
2	9	H37	"	20	X			37	4									37	4	25					
3	9	H38	"	17	X			16	9									16	9	17					
3	9	H39	"	17	X			10	9									16	9	17					
2	9	H40	"	17	X			54	3									55	6	37					
2	9	H41	"	17	X			38	7									39	10	27					
2	6	H42	"	17	X			50	6									51	2	15					
2	6	H43	"	17	X			38	7									39	3	11					
		H44	Not Used																						
		H45	Not Used																						
8	7	H46	Cap	7	X			4	4	3	6							10	8	17					
13	10	V6	Column	17	X			34	0									35	5	1,98					
13	10	V7	"	17	X			33	2									34	7	1,93					
13	10	V8	"	17	X			32	8									34	1	1,90					
13	10	V9	"	17	X			32	0									33	5	1,86					
124	4	V10	"	16	X			3	2									4	7	37					
15	4	V11	Web Wall	20	X			14	0									14	0	14					
11	4	V12	"	20	X			14	7									14	7	10					
15	4	V13	"	20	X			15	4									15	4	15					
88	5	U9	Web Wall	10	X				3	4	1	0						7	8	7.5	29				
114	6	U10	Cap	13	X			3	6	3	3	3	3					14	8	14.2	242				
83	5	U11	"	10	X				2	6	1	5						6	5	6.2	53				
2	6	U12	"	13	X			3	2	3	3	2	3	3				14	0	13.6	4				
2	5	U13	"	10	X				2	6	1	4						6	4	6.1	73				
17	4	U14	"	10	X					6	1	7						2	7	2.5	2				
22	5	U15	"	10	X					6	1	7						2	7	2.4	5				
52	10	D1	Column	17	X			9	3									10	8	2,38					
56	1	F1	Footing	18	X			8	3									9	11	1,13					
56	7	F2	"	18	X			6	9									8	5	6,15					
Total Pier 3																	20,865								



STIRRUP HOOK DIMENSIONS				
BAR SIZE	D (in.)	90° HOOK		135° HOOK
		HOOK A OR G	HOOK A OR G	APPROX. H
#3	1-1/2"	4"	4"	2-1/2"
#4	2"	4-1/2"	4-1/2"	3"
#5	2-1/2"	6"	5-1/2"	3-3/4"
#6	4-1/2"	8"	7"	4-1/2"

NOTE: UNLESS OTHERWISE NOTED DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.



BAR SIZE	END HOOK DIMENSIONS			
	180° HOOKS		90° HOOKS	
	GRADE 40	GRADE 60	ALL GRADES	
	A OR G	J	A OR G	J
#3	5"	2-3/4"	5"	3"
#4	6"	3-1/2"	6"	4"
#5	7"	4-1/2"	7"	5"
#6	8"	5-1/4"	8"	6"
#7	9"	6-1/4"	10"	7"
#8	10"	7"	11"	8"
#9	12"	8"	15"	11-1/4"
#10	13"	9"	17"	12-3/4"
#11	14"	10"	19"	14-1/4"
#14	21-2"	20-1/2"	21-2"	20-1/2"
#18	21-11"	21-3"	21-11"	21-3"

NOTES: ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEG. TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEG. STD. HOOKS. HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.

H - HIGH STRENGTH (ASTM A-615 GRADE 60).

S - STIRRUP.

X - BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.

V - BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE.

NO. EA. - NUMBER OF BARS OF EACH LENGTH.

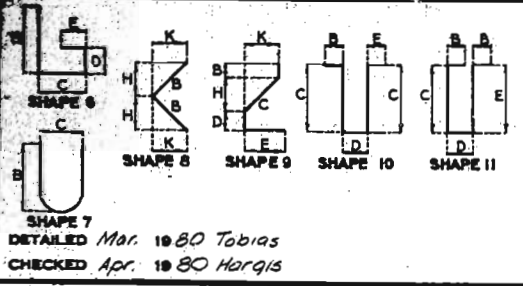
NOMINAL LENGTHS - ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING DIAGRAM AND ARE LISTED FOR FABRICATORS USE. (NEAREST INCH)

ACTUAL LENGTHS - ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.

\* ALL HOOKS AND BENDS FOR SHAPE NO. 12 - GRADE 40 ONLY ARE BASED ON D = 5d.

495

REVISED  
MAY 1974  
JUL 1975



**Booker**  
Engineers Architects Planners

Note: This drawing is not to scale. Follow dimensions.

BENDING DIAGRAMS

Sheet No. 6 of 31

FRANKLIN COUNTY

A-3961

BAR LIST  
END BENT 1,  
BENT 2 &  
PIER 3



# COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO.	LOCATION	EPOXY	SHAPE NO.	STIRRUP (S)	SPLIN. (X)	VARIES (V)	NO. EACH	DIMENSIONS												NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT		
									B		C		D		E		F		H					K	
									FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.				FT.	IN.
PIER 4																									
20	2	P1	A.B. Well	22	X			1	3			9 1/2								23 0	77				
6	10	H28	Web Wall	18	X			27	6											30 4	783				
3	8	H29	"	20	X			20	3											20 3	162				
3	8	H30	"	20	X			6	11											6 11	55				
16	4	H31	"	20	X			41	4											41 4	442				
16	4	H32	"	20	X			31	0											31 0	331				
2	4	H33	"	20	X			33	4											33 4	45				
8	7	H46	Cap	7	X			4	4	3	6									10 8	174				
7	6	H47	"	20	X			48	6											48 6	510				
7	6	H48	"	20	X			36	6											36 6	384				
2	9	H49	"	20	X			52	8											52 8	358				
2	9	H50	"	20	X			36	6											36 6	248				
3	9	H51	"	17	X			15	11											15 11	162				
3	7	H52	"	17	X			15	11											15 11	162				
2	9	H53	"	17	X			53	4											54 7	371				
2	9	H54	"	17	X			37	7											38 11	265				
2	6	H55	"	17	X			49	6											50 2	151				
2	6	H56	"	17	X			37	8											38 4	115				
13	10	V6	Column	17	X			34	0											35 5	1,981				
13	10	V7	"	17	X			33	2											34 7	1,935				
13	10	V8	"	17	X			32	8											34 1	1,907				
13	10	V9	"	17	X			32	0											33 5	1,869				
24	4	V10	"	16	X			3	2											4 7	380				
15	4	V11	Web Wall	20	X			14	0											14 0	140				
11	4	V12	"	20	X			14	7											14 7	107				
15	4	V13	"	20	X			15	4											15 4	154				
38	5	U1	Web Wall	18	X				3	4	1	0								7 8	7 5	294			
117	6	U2	Cap	13	S	X		3	6	3	3	6	3	3						14 8	14 2	2,490			
81	5	U1	"	10	X				2	6	1	5								6 5	6 2	521			
2	6	U2	"	13	S	X		3	2	3	3	2	3	3						14 0	13 6	41			
2	5	U3	"	10	X				2	6	1	4								6 4	6 1	13			
20	4	U4	"	10	X					6	1	7								2 7	2 5	32			
15	5	U15	"	10	X					6	1	7								2 7	2 4	37			
52	10	D1	Column	17	X			9	3											10 8	2,387				
56	7	F1	Footing	18	X			3	3											9 11	1,135				
36	7	F2	"	18	X			6	9											8 5	619				

# COMPLETE BILL OF REINFORCING STEEL

REQD.	MARK NO.	LOCATION	EPOXY	SHAPE NO.	STIRRUP (3)	SUBSTR. (3)	VARIES (2)	NO. EACH	DIMENSIONS												NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT		
									B		C		D		E		F		H					K	
									FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.				FT.	IN.
BENT 5																									
6	27	Cap		7	X			3	4	2	8								8 2	74					
4	9 H57	"		20	X			50	2										50 2	682					
4	9 H58	"		20	X			33	5										33 9	459					
2	9 H59	"		20	X			51	2										51 2	348					
2	9 H60	"		20	X			34	9										34 9	236					
2	6 H61	"		20	X			48	3										48 3	145					
2	6 H62	"		20	X			93	9										93 9	101					
2	9 H63	"		17	X			53	0										54 5	370					
2	9 H64	"		17	X			34	9										36 0	245					
24	6 V5	Cap		20	X			1	9										1 9	63					
77	6 U6	Cap		13	X			2	5	2	8	2	8	2	8				11 10	11 4	1,311				
2	6 U7	"		13	X			2	6	2	8	2	6	2	8				11 6	11 0	33				
38	4 U8	"		10	X						6	2	8						3 8	3 6	89				
2	4 U16	"		10	X						6	2	5						3 5	3 4	4				
																			Total Bent 5		4160				
END BENT 6																									
23	6 H11	Wingwall Incr. = 15"		20			4	11	3										11 3	5 0	315				
12	6 H12	Wingwall		20				11	6										11 6	207					
2	5 H66	Cap		20				37	2										37 2	78					
2	5 H67	"		20				46	3										46 3	96					
8	9 H68	"		20				37	2										37 2	107					
8	9 H69	"		20				51	4										51 4	1,396					
2	6 H70	"		20				37	2										37 2	112					
2	6 H71	"		20				47	6										47 6	143					
4	9 H72	"		20				40	3										40 3	547					
4	9 H73	"		20				47	3										47 3	643					
24	6 H74	"		20				7	4										7 4	264					
3	6 H75	"		20				40	3										40 3	181					
3	6 H76	"		20				44	9										44 9	202					
3	6 H77	"		20				2	6										2 6	11					
4	6 H78	"		21				4	3	2	8					4	0	1	5 1/8	6 11	6 10	41			
4	6 H79	"		21				5	0	2	4					4	8 1/2	1	8 1/2	7 4	7 1	43			
5	6 H80	Wingwall		23				1	2	5	3	1	2	8 1/2	11 1/2	8 1/2	11 1/2	7	7	7	7	57			
5	6 H81	Cap		23				1	2	3	8	1	2	8	11	8	11	6	0	6	0	45			
10	5 V1	Cap		20				4	6										4 6	47					
109	6 V2	"		19				3	10	4	4								8 2	8 0	1,310				
32	6 V3	Wingwall Incr. = 7 1/2"		20			4	6	9										6 9	9 4	224				
8	6 V4	Wingwall		20				7	2										2 5						
34	5 U4	Cap		10					2	3	9								3 0	2 9	241				
55	5 U7	"		10					4	7	2	4							11 6	11 3	625				
31	4 U18	"		13	5			2	4	3	0	2	4	3	0				11 5	11 1	230				
18	4 U19	"		10					3	0	2	4							8	11	97				
60	5 U20	"		10					3	10	2	4							10 0	9 9	610				
20	5 B23	Cap		23				1	3	1	5						5 1/4	1 1/2	2 5	2 7	54				
4	6 T1	Wingwall		25				2	0	9	10	2	6				5	2 1/2	4 1/4	4 1/4	3	86			
																			Total Epoxy Coated Bar		1,310				
																			Total Non-Epoxy End Bent 6		7,712				

# COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO.	LOCATION	EPOXY SHAPE NO.	STIRRUP (S) NO.	VARIABLES (V) NO. EACH	DIMENSIONS										NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT				
						B		C		D		E		F					H		Y	
						FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.				FT.	IN.	FT.	IN.
SLAB REINFORCEMENT																						
208	5	51	Slab	20		57	0										57	0	12,366			
572	6	52	"	20		38	0										38	0	32,647			
208	5	53	"	20		56	11										56	11	12,348			
520	5	54	"	20		38	0										38	0	20,847			
208	5	55	"	20		56	9										56	9	13,312			
42	6	56	"	20	V 1	32	7									36	7	1,217				
			Incr. = 10 1/8"	20		2	0									2	0					
120	5	57	Slab	20		57	0										57	0	7,134			
1	6	58	"	20		37	4										37	4	56			
120	5	59	"	20		56	11										56	11	7,124			
40	5	510	"	20	V 1	37	7									37	7	826				
			Incr. = 10 1/8"	20		2	0									2	0					
120	5	511	Slab	20		56	9										56	9	7,103			
42	6	512	"	20	V 1	39	11									39	11	1,401				
			Incr. = 10 1/8"	20		2	0									2	0					
38	5	513	Slab	20	V 1	39	7									37	1	1,775				
			Incr. = 11 1/8"	20		2	0									2	0					
1	5	514	Slab	20		37	8										37	8	39			
36	6	515	"	20	V 1	37	11									37	11	1,133				
			Incr. = 11 1/8"	20		2	0									2	0					
32	5	516	Slab	20	V 1	36	6									36	6	679				
			Incr. = 12 1/2"	20		2	0									2	0					
1	5	517	Slab	20		37	7										37	7	39			
34	6	518	"	20	V 1	37	4									37	4	1,089				
			Incr. = 11 1/8"	20		5	4									5	4					
32	5	519	Slab	20	V 1	37	10									37	10	719				
			Incr. = 12 3/8"	20		5	3									5	3					
1	6	520	Slab	20		37	9										37	9	57			
32	6	521	"	20	V 1	36	10									36	10	1,029				
			Incr. = 11 1/8"	20		6	0									6	0					
30	6	522	Slab	20	V 1	37	6									37	5	682				
			Incr. = 12 1/8"	20		6	2									6	2					
34	6	523	Slab	20	V 1	39	4									39	4	1,170				
			Incr. = 11 1/8"	20		6	0									6	0					
1	6	524	Slab	20		37	9										37	9	57			
32	5	525	"	20	V 1	39	11									39	11	775				
			Incr. = 12 3/8"	20		6	0									6	0					
28	6	526	Slab	20	V 1	36	8									36	8	901				
			Incr. = 13 1/8"	20		6	2									6	2					
1	6	527	Slab	20		37	10										37	10	57			
26	5	528	"	20	V 1	36	6									36	6	575				
			Incr. = 14 1/8"	20		5	11									5	11					
1	5	529	Slab	20		37	9										37	9	39			
30	6	530	"	20	V 1	37	2									37	2	937				
			Incr. = 13 1/8"	20		4	5									4	5					
26	5	531	Slab	20	V 1	36	6									36	6	548				
			Incr. = 14 1/8"	20		4	11									4	11					
1	5	532	Slab	20		36	9										36	9	38			
1	6	533	"	20		37	3										37	3	56			
28	6	534	"	20	V 1	36	1									36	1	859				
			Incr. = 13 1/8"	20		4	9									4	9					
26	5	535	Slab	20	V 1	36	11									36	11	575				
			Incr. = 15 1/8"	20		5	6									5	6					
28	6	536	Slab	20	V 1	40	0									40	0	1,025				
			Incr. = 15 1/8"	20		5	9									5	9					
26	5	537	Slab	20	V 1	40	1									40	1	661				
			Incr. = 15 1/8"	20		8	8									8	8					
1	6	538	Slab	20		37	0										37	0	56			

# COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO.	LOCATION	EPOXY SHAPE NO.	STIRRUP (S)	SUBSTR. (V)	VARIABLES (V)	NO. EACH	DIMENSIONS										NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT				
								B		C		D		E		F					H		K	
								FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.				FT.	IN.	FT.	IN.
SLAB REINFORCEMENT (cont.)																								
26	6	539	Slab	20		V 1	35	8									35 8	37 9	73					
			Incr. = 16 1/8"	20			2	1									2 1							
1	5	540	Slab	20			37	0										37 0	3					
24	5	541	"	20		V 1	35	6									35 6	37 7	47					
			Incr. = 17 1/8"	20			2	1									2 1							
26	6	542	Slab	20		V 1	37	4									37 4	40 5	78					
			Incr. = 16 1/2"	20			2	11									2 11							
24	5	543	Slab	20		V 1	37	2									37 2	40 1	50					
			Incr. = 17 1/8"	20			2	11									2 11							
4	5	544	Slab	20			57	0										57 0	23					
4	5	545	"	20			56	11										56 11	23					
4	5	546	"	20			56	9										56 9	23					
120	5	547	"	20			16	0										16 0	2,00					
526	5	548	"	20			40	6										40 6	326					
526	5	549	"	20			40	6										40 6	22,21					
DIAPHRAGM REINFORCEMENT																								
64	6	81	Diaph. D2	28				2	4	3	7	1	0				6 11	6 7	63					
192	4	82	"	28				2	3	3	7	1	0				6 10	6 7	84					
32	6	83	"	20			7	10									7 10		37					
32	4	84	"	20			7	10									7 10		16					
16	5	85	"	23			1	3	1	5				7 1/8	1	1/4	2 8	2 7	4					
32	5	86	"	20			3	7									3 7		12					
64	5	87	"	19			9	2	0								2 9	2 7	17					
64	6	811	Diaph. D3	10				2	8	1	3						4 4	4 2	40					
192	4	812	"	10				2	6	1	3						4 8	4 0	51					
4	6	813	"	20			39	8									39 8		23					
16	6	814	"	20			7	10									7 10		18					
4	4	815	"	20			39	8									39 8		10					
16	4	816	"	20			7	10									7 10		8					
16	5	817	"	20			3	9									3 9		6					
16	5	818	"	21			1	11	10					1	8	1 1/2	3 9	5 7	6					
16	5	819	"	16				1	10	9				7 1/4	4 1/2	2 7	2 5	4						
24	5	820	Diaph. D2	23			1	3	1	5	1	3	7 1/8	1	1 1/8	7 1/8	1 1/8	3 11	3 10	9				
32	4	821	"	20			7	5									7 5		15					
32	6	822	"	20			7	5									7 5		35					
16	5	823	"	23			1	8	1	5				5 1/2	1	1 1/8	2 8	2 7	4					
24	5	824	"	23			1	3	1	5	1	3	5 1/2	1	1 1/8	5 1/2	1 1/8	3 10	9					
4	6	825	Diaph. D3	20			38	1									38 1		22					
16	6	826	"	20			7	5									7 5		17					
4	4	827	"	20			38	1									38 1		10					
16	4	828	"	20			7	5									7 5		7					
SLAB Total Epoxy-Coated Bars																		1012						
REIN. Total Non-Epoxy Coated Bars																		8876						
Total Diaphragm Reinforcement																		541						

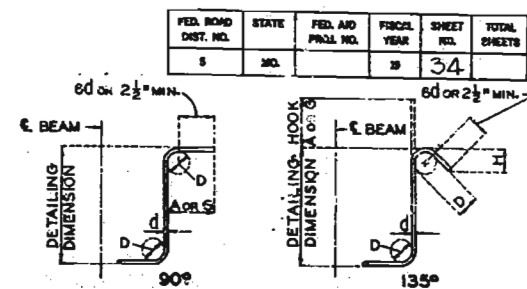


# COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO.	LOCATION	EPOXY SHAPE NO.	STIRRUP (S) NO.	STIRRUP (S) VARIATION (V)	NO. EACH	DIMENSIONS										NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT						
							B	C	D	E	F	H	K	FT.	IN.	FT.				IN.	FT.	IN.	FT.	IN.	FT.
SLAB REINFORCEMENT																									
8	5	51	Slab	E20			57	0																57 0	476
572	6	52	"	E20			38	0																38 0	32647
8	5	53	"	E20			56	11																56 11	472
8	5	55	"	E20			56	9																56 9	474
42	6	56	"	E20	V1		33	7																33 7	1,217
			Incr. = 10 1/8"	E20			2	0																2 0	
120	5	57	Slab	E20			57	0																57 0	7,134
1	6	58	"	E20			37	4																37 4	56
120	5	59	"	E17			56	11																57 3	7,218
120	5	511	Slab	E20			56	9																56 9	7,103
42	6	512	"	E20	V1		39	11																39 11	1,401
			Incr. = 10 3/8"	E20			2	0																2 0	
36	6	515	"	E20	V1		5	11																37 11	1,138
			Incr. = 11 1/4"	E20			4	2																4 2	
34	6	518	"	E20	V1		37	4																37 4	1,089
			Incr. = 11 3/8"	E20			5	4																5 4	
1	6	520	Slab	E20			37	9																37 9	57
32	6	521	"	E20	V1		36	10																36 10	1,029
			Incr. = 11 1/4"	E20			6	0																6 0	
34	6	523	Slab	E20	V1		39	4																39 4	1,170
			Incr. = 11 1/4"	E20			6	6																6 6	
1	6	524	Slab	E20			37	9																37 9	57
28	6	526	Slab	E20	V1		36	8																36 8	901
			Incr. = 13 3/4"	E20			6	2																6 2	
1	6	527	Slab	E20			37	10																37 10	57
30	6	530	"	E20	V1		37	2																37 2	937
			Incr. = 13 3/4"	E20			4	5																4 5	
1	6	533	"	E20			37	3																37 3	56
28	6	534	"	E20	V1		36	1																36 1	859
			Incr. = 13 1/4"	E20			4	9																4 9	
28	6	536	Slab	E20	V1		40	0																40 0	1,025
			Incr. = 13 3/8"	E20			3	9																3 9	
1	6	538	Slab	E20			37	0																37 0	56

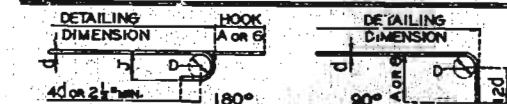
# COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO.	LOCATION	EPOXY	SHAPE NO.	STIRRUP (S)	SURFACE (V)	VARIES (V)	NO. EACH	DIMENSIONS												NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT		
									B		C		D		E		F		H					K	
									FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.				FT.	IN.
SLAB REINFORCEMENT (cont.)																									
26	6 397	Slab	E20	V1				35	8									35 8	97 9	737					
		Incr. = 16 1/8"	E20					2	1									2 1	—						
26	6 342	Slab	E20	V1				37	4									37 4	40 3	786					
		Incr. = 16 1/8"	E20					2	11									2 11	—						
4	5 344	Slab	E20					57	0									57 0		236					
4	5 345	"	E20					56	11									56 11		237					
4	5 346	"	E20					56	9									56 9		237					
342	6 347	"	E20					40	0									40 0		1453					
329	6 348	"	E20					40	6									40 6		3264					
668	4 550	"	E20					2	0									2 0		892					
DIAPHRAGM REINFORCEMENT																									
64	6 81	Diaph. D2	E20						2	4	3	7	1	0				2 4 3	7 1	0	633				
192	4 82	"	E20						2	3	3	7	1	0				2 3 3	7 1	0	844				
32	6 83	"	E20					7	10									7 10			377				
32	4 84	"	E20					7	10									7 10			167				
16	5 85	"	E20					3	1	5					7 8	1	1 1/2	2	8	2	7	43			
82	5 86	"	E20					3	7									3	7			120			
64	5 87	"	E20					9	2	0								9 2	0			172			
64	6 811	Diaph. D3	E20						2	8	1	9						2 8 1	9			400			
192	4 812	"	E20						2	6	1	9						2 6 1	9			513			
4	6 813	"	E20					39	8									39 8				238			
16	6 814	"	E20					7	10									7 10				188			
4	4 815	"	E20					39	8									39 8				106			
16	6 816	"	E20					7	10									7 10				82			
16	5 817	"	E20					3	9									3 9				63			
16	5 818	"	E20					1	11	10					5		1 1/2	3	9	3	7	60			
16	5 819	"	E20						1	10	9				7 1/4		4 1/2	2	7	2	5	40			
24	5 820	Diaph. D2	E20					1	3	1	5	1	3	7 8	1	1 1/8	7 8	1	1 1/8	3	11	5	10	96	
32	4 821	"	E20					7	5									7 5					159		
32	6 822	"	E20					7	5									7 5					356		
16	5 823	"	E20					1	3	1	5				5 1/2	1	1 1/8	2	8	2	7	43			
24	5 824	"	E20					1	3	1	5	1	3	5 1/2	1	1 1/8	5 1/2	1	1 1/8	3	11	5	10	96	
4	6 825	Diaph. D3	E20					39	1									39 1					229		
16	6 826	"	E20					7	5									7 5					178		
4	4 827	"	E20					39	1									39 1					102		
16	4 828	"	E20					7	5									7 5					79		
SLAB Total Epoxy-Coated Bars																			113 880						
REIN. Total Non-Epoxy Coated Bars																			3029						
Total Dia-Grasm Reinforcement																			5414						



STIRRUP HOOK DIMENSIONS				
GRADES 40-50-60 KSI				
BAR SIZE	D (in.)	90° HOOK	135° HOOK	APPROX. H
#3	1-1/2"	4"	4"	2-1/2"
#4	2"	4-1/2"	4-1/2"	3"
#5	2-1/2"	5"	5-1/2"	3-3/4"
#6	4-1/2"	8"	7"	4-1/2"

NOTE: UNLESS OTHERWISE NOTED DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.



SIZE OF 90° HOOKS (GRADE 40 KSI) AND 180° HOOKS (GRADE 60 KSI)  
 D = 5d FOR #3 THRU #11  
 D = 10d FOR #14 AND #18

END HOOK DIMENSIONS				
180° HOOKS				
BAR SIZE	GRADE 40	GRADE 60	ALL GRADES	
#3	5"	2-3/4"	5"	6"
#4	6"	3-1/2"	6"	8"
#5	7"	4-1/2"	7"	10"
#6	8"	5-1/4"	8"	12"
#7	9"	6-1/4"	10"	14"
#8	10"	7"	11"	16"
#9	12"	8"	13"	18"
#10	13"	9"	14"	20"
#11	14"	10"	15"	22"
#14	21-2"	20-1/2"	21-2"	21-7"
#18	21-11"	21-3"	21-11"	31-5"

NOTES: ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEG. TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEG. STD. HOOKS. HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.

H - HIGH STRENGTH (ASTM A-615 GRADE 60). S - STIRRUP.

\* - BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.

V - BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE.

NO. EA. - NUMBER OF BARS OF EACH LENGTH.

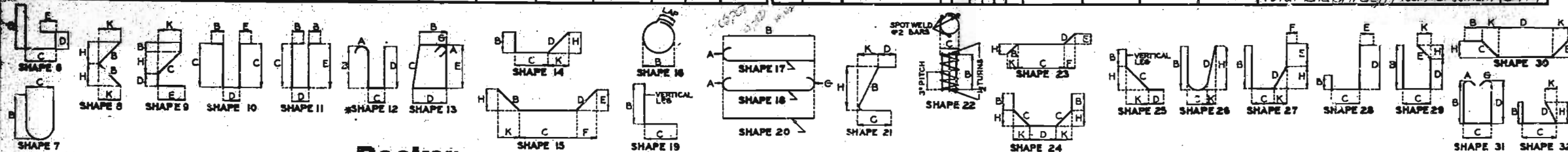
NOMINAL LENGTHS - ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING DIAGRAM AND ARE LISTED FOR FABRICATORS USE. (NEAREST INCH).

ACTUAL LENGTHS - ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.

\* ALL HOOKS AND BENDS FOR SHAPE NO. 12 - GRADE 40 (ONLY) ARE BASED ON D = 5d.

TWO ADDITIONAL S2 BARS AND S47 BARS ARE INCLUDED IN BAR BILL FOR TESTING.

BAR LIST  
 SLAB REINFORCEMENT,  
 DIAPHRAGM REINFORCEMENT  
 PRECAST PANEL OPTION



Booker  
 Engineers/Architects/Planners

Note: This drawing is not to scale. Follow dimensions.

BENDING DIAGRAMS

Sheet No. 9 of 31

FRANKLIN COUNTY

A-3961

498

REVISED 90.8  
 MAY 1974  
 CHECKED Apr. 1980 Hargis  
 DETAILED Mar. 1980 Tobias

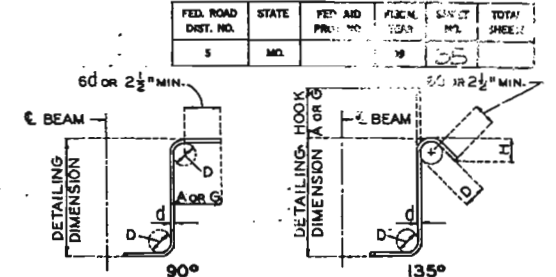
# MISSOURI STATE HIGHWAY DEPARTMENT

## COMPLETE BILL OF REINFORCING STEEL

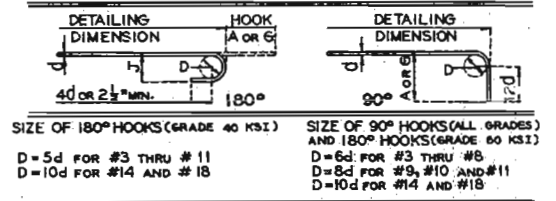
## COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO.	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS								NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT			
									B		C		D		E					F		H
									FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
BARRIER CURB REINFORCEMENT																						
737	5 R1	Barrier	E15					2	6 1/2	3 1/2					2	6		3	2 10 2	8	2,050	
737	5 R2	"	E19					2	6	3 1/2									2 10 2	8	2,050	
673	5 R3	"	E19					1	5	6									1 11 1	9	1,228	
673	5 R4	"	E27							6	11 3/8	7 1	0	9 3/8	6 3/8			3	0 2	10	1,989	
48	5 R5	"	E27							6	11 3/8	1	3	9 3/8	6 3/8			2	8 2	6	125	
48	5 R6	"	E19					2	0	6								2	6 2	4	117	
16	5 R7	"	E10						2	0	6							4	6 4	3	71	
2	5 R8	"	E20					12	7										12 7		26	
20	5 R9	"	E20					12	8										12 8		264	
2	5 R10	"	E20					10	9										10 9		22	
2	5 R11	"	E20					12	4										12 4		26	
20	5 R12	"	E20					12	5										12 5		259	
2	5 R13	"	E20					10	6										10 6		22	
6	5 R14	"	E20					42	11										42 11		269	
48	5 R15	"	E20					9	9										9 9		488	
6	5 R16	"	E20					46	0										46 0		288	
12	5 R17	"	E20					56	11										56 11		712	
6	5 R18	"	E20					45	5										45 5		284	
6	5 R19	"	E20					43	0										43 0		269	
6	5 R20	"	E20					43	0										43 0		269	
6	5 R21	"	E20					44	10										44 10		281	
12	5 R22	"	E20					56	5										56 5		706	
6	5 R23	"	E20					45	7										45 7		285	
6	5 R24	"	E20					42	2										42 2		264	
Total Epoxy Coated Bars																		12,364				

NO. REQD.	MARK NO.	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS								NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT
									B	C	D	E	F	H	K				
									FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	LBS.



STIRRUP HOOK DIMENSIONS				
GRADES 40-50-60 KSI				
BAR SIZE	D (IN.)	90° HOOK A OR G	135° HOOK A OR G	APPROX. H
#3	1-1/2"	4"	4"	2-1/2"
#4	2"	4-1/2"	4-1/2"	3"
#5	2-1/2"	6"	5-1/2"	3-3/4"
#6	4-1/2"	8"	7"	4-1/2"



END HOOK DIMENSIONS				
BAR SIZE	180° HOOKS		90° HOOKS	
	GRADE 40 A OR G	GRADE 60 J	GRADE 40 A OR G	GRADE 60 J
#3	5"	2-3/4"	5"	3"
#4	6"	3-1/2"	6"	4"
#5	7"	4-1/2"	7"	5"
#6	8"	5-1/4"	8"	6"
#7	9"	6-1/4"	10"	7"
#8	10"	7"	11"	8"
#9	12"	8"	15"	11-1/4"
#10	13"	9"	17"	12-3/4"
#11	14"	10"	19"	14-1/4"
#14	21-2"	20-1/2"	21-2"	20-1/2"
#18	21-11"	21-3"	21-11"	21-3"

NOTE: ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEG. TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEG. STD. HOOKS. HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.

H - HIGH STRENGTH (ASTM A-615 GRADE 60).

S - STIRRUP.

X - BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.

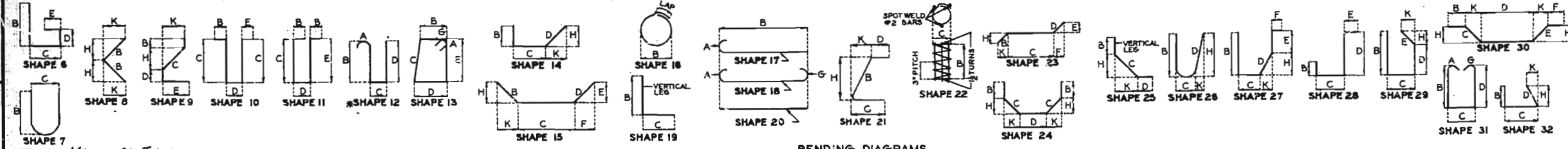
V - BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE.

NO. EA. - NUMBER OF BARS OF EACH LENGTH.

NOMINAL LENGTHS - ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING DIAGRAMS AND A/E LISTED FOR FABRICATORS USE. (NEAREST INCH)

ACTUAL LENGTHS - ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.

\* ALL HOOKS AND BENDS FOR SHAPE NO. 12 - GRADE 40 (CONC.) ARE BASED ON D=5d.



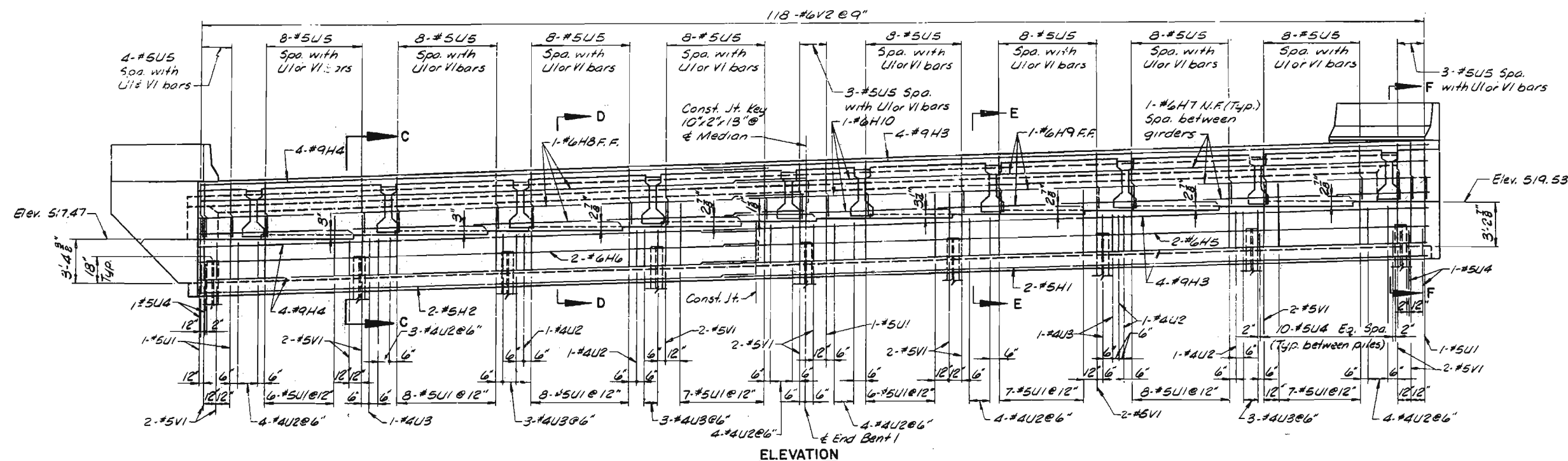
BAR LIST  
BARRIER CURB  
REINFORCEMENT

Note: This drawing is not to scale. Follow dimensions.

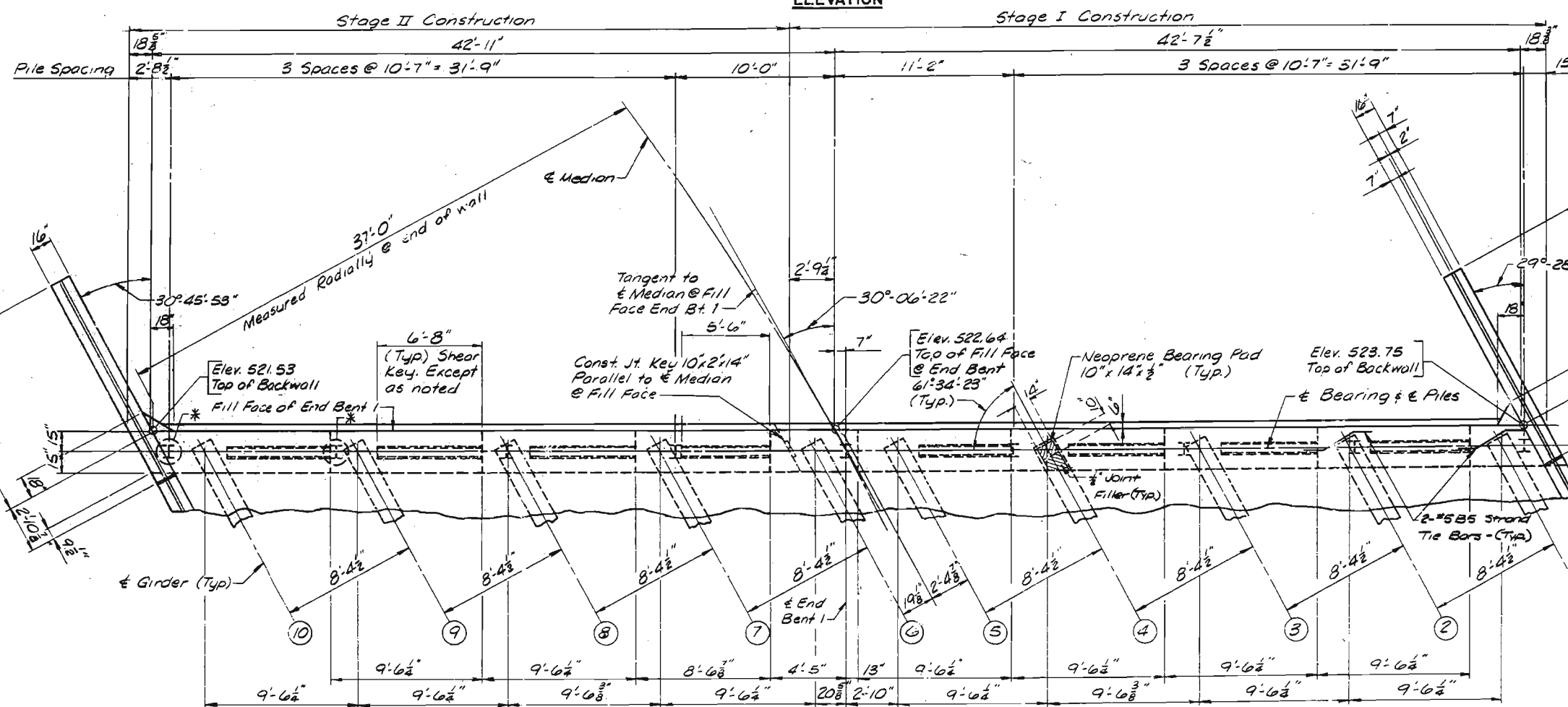
499

STD. 90.8  
MAY 1974  
REVISED  
JULY 1978  
DETAILED Mar. 1980 Tobias  
CHECKED Apr. 1980 Hargis

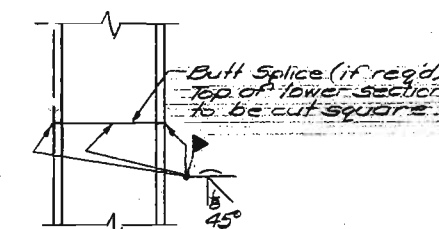
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	NO.		10	36	



ELEVATION



PLAN



DETAIL OF STEEL PILE SPLICE

# NOTES:

- For Section C-C, D-D, E-E & F-F, see Sheet 12.
- For Shear Key Detail, see Sheet 10.
- For Timber Header Detail, see Sheet 10.
- All concrete above lower construction joint is to be Class B2 Concrete.
- All stirrups and vertical bars are to be placed parallel to roadway.
- Minimum lap splice length of H9 with H8 to be 2'-10".
- Minimum lap splice length of H1 with H2 to be 1'-8".
- Minimum lap splice length of H3 with H4 to be 6'-11".
- Minimum lap splice length of H5 with H6 to be 3'-1".

END BENT I

DETAILED Oct. 1979 Tobias  
CHECKED Apr. 1980 Hargis

Note: This drawing is not to scale. Follow dimensions.

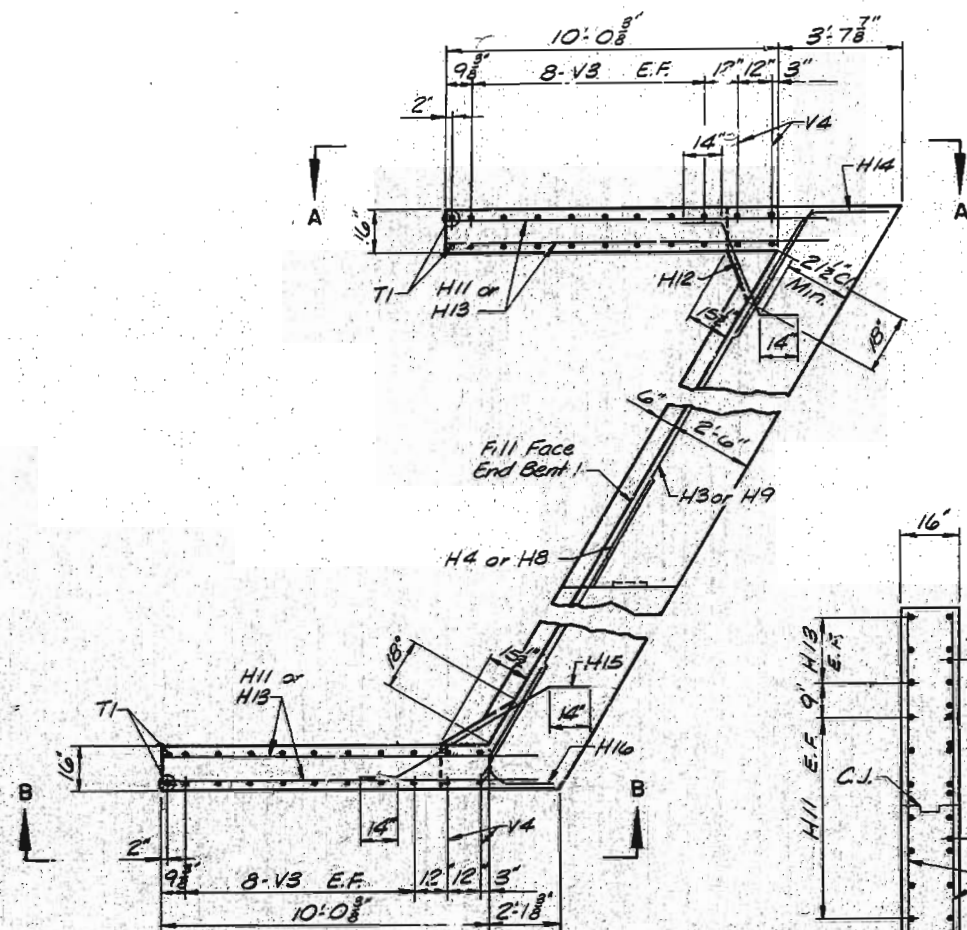
Sheet No. 11 of 31.

FRANKLIN COUNTY

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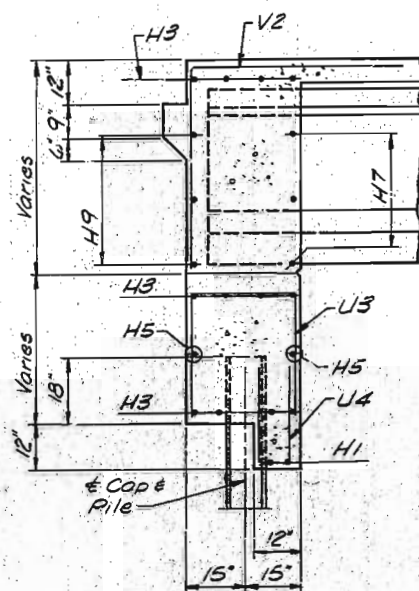


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		79	37	

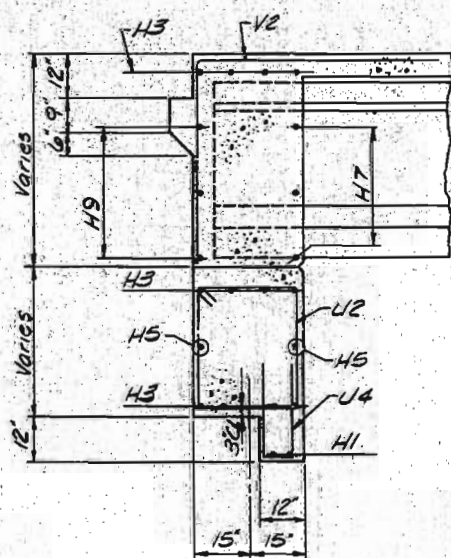


WINGWALL PLAN

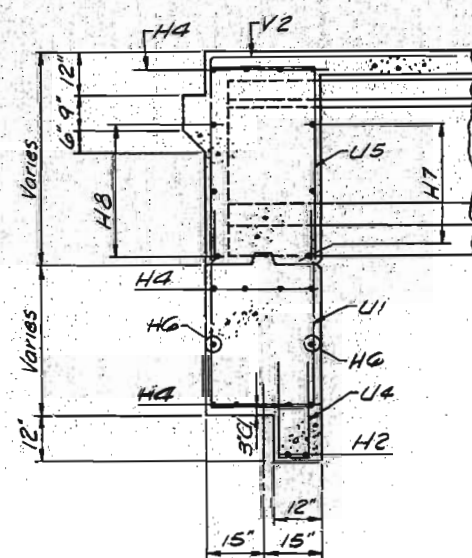
SECTION THRU WINGWALL



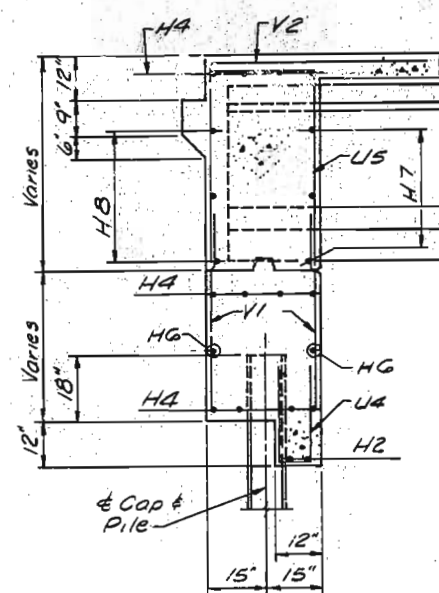
SECTION F-F



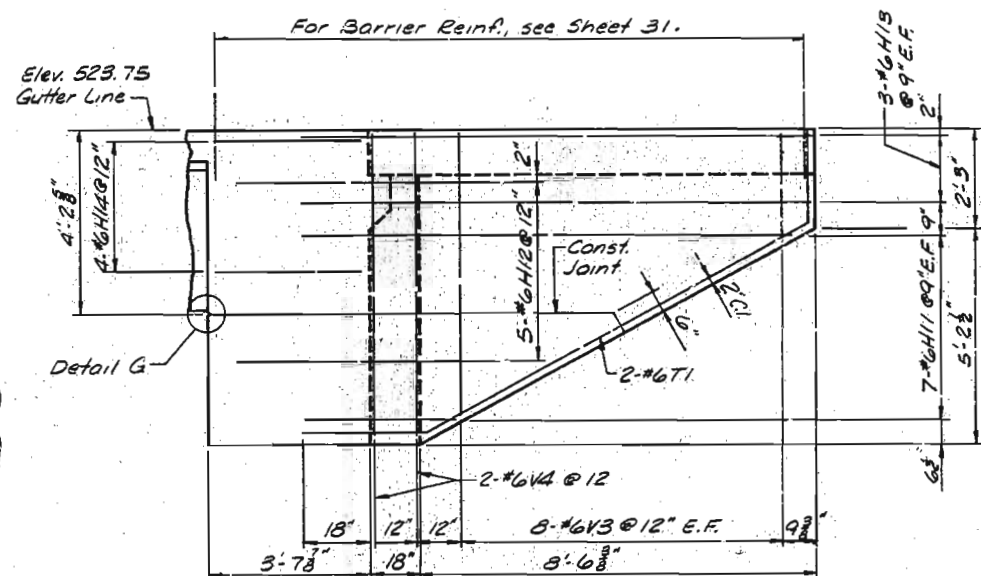
SECTION E-E



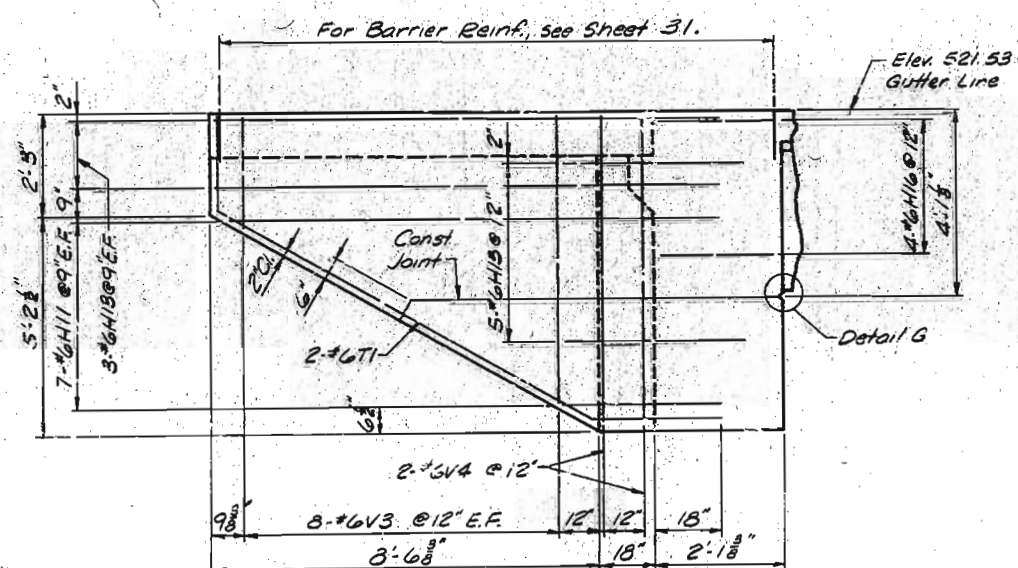
SECTION D-D



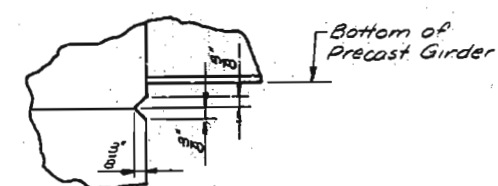
SECTION C C



VIEW A-A



VIEW B-B



DETAIL G

NOTES:  
Bend H12 and H15 Bars in field to clear prestressed beam web or flange.

WINGWALL DETAILS  
END BENT I

DETAILED Oct. 1979 Tobias  
CHECKED Apr. 1980 Hargis

Note: This drawing is not to scale. Follow dimensions.

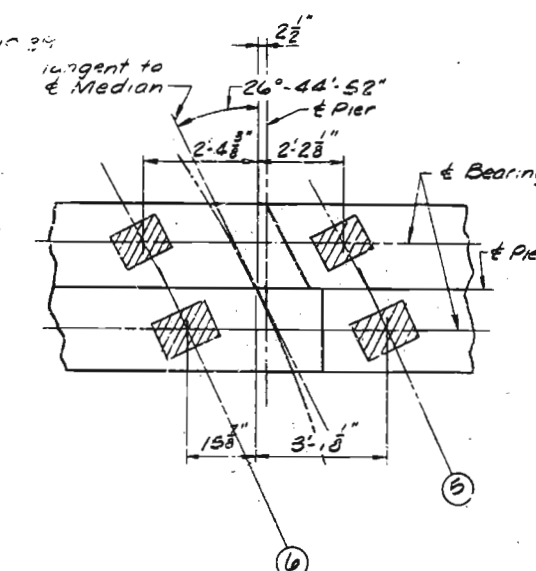
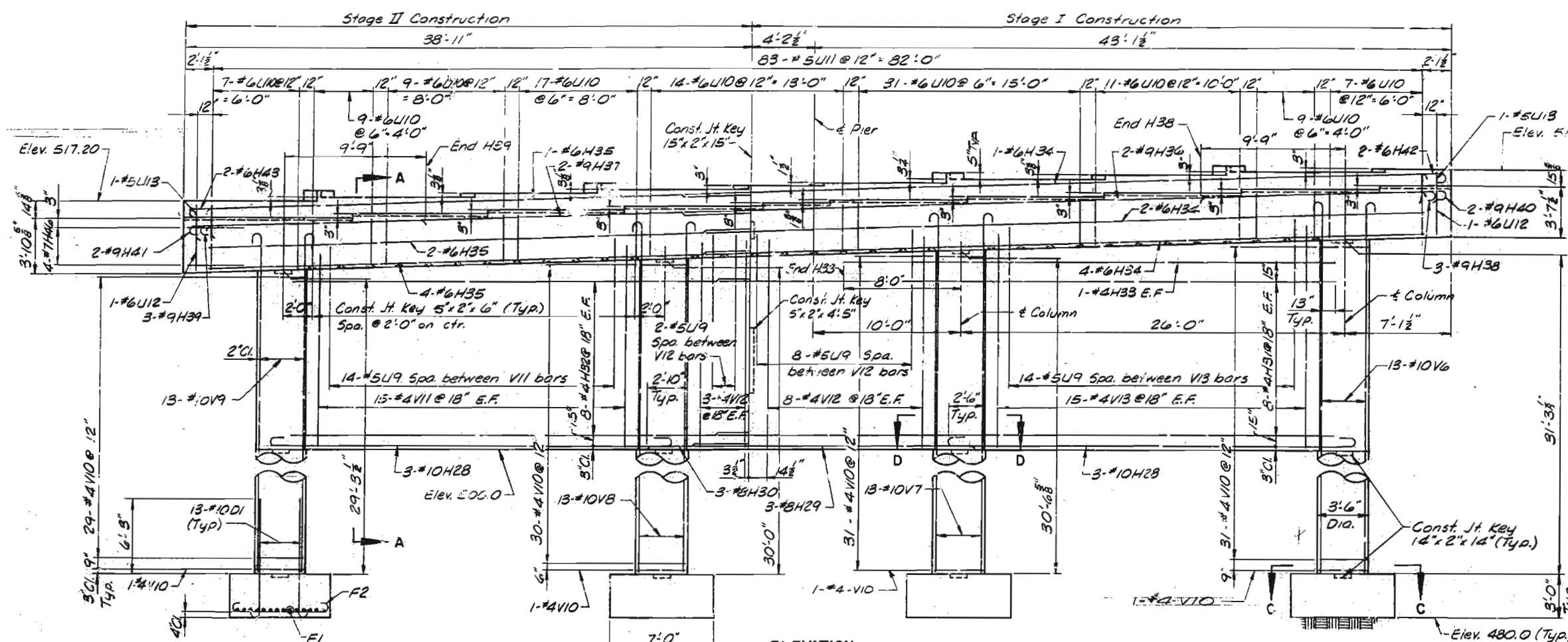
Sheet No. 12 of 31.

FRANKLIN COUNTY

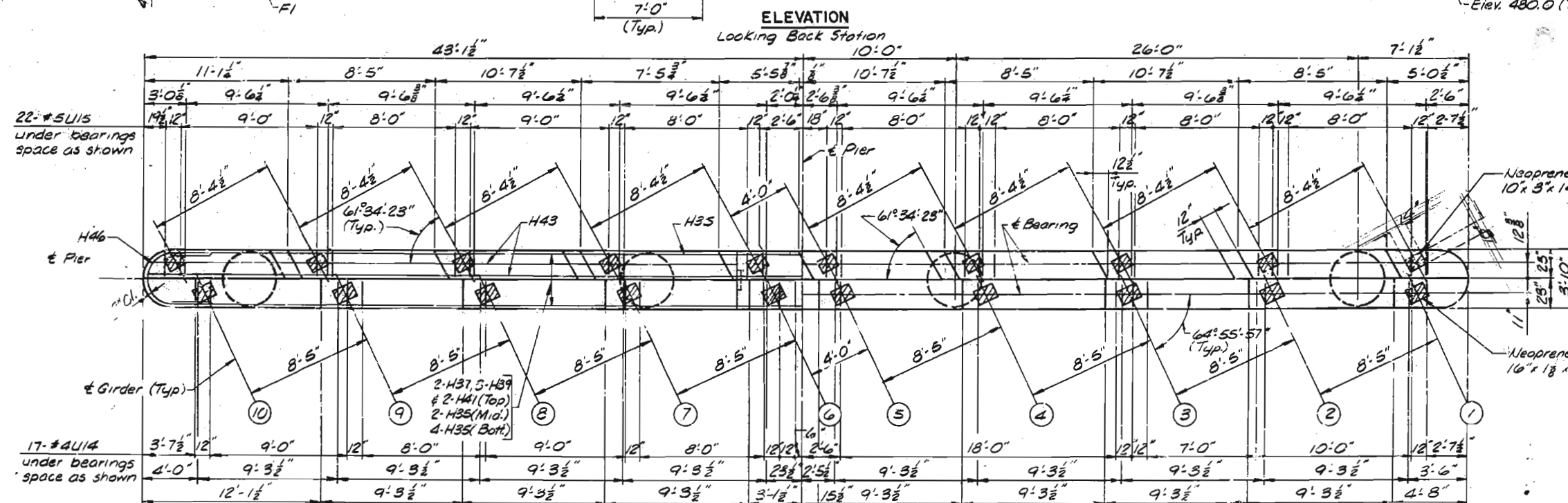
A-3961



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		8	39	



VIEW AT PIER



PLAN  
Looking Back Station  
(Footing and Web Wall Omitted for Clarity)

NOTES:

- For Sections A-A, C-C & D-D, see Sheet 16.
- For Anchor Bolt Plan and Spiral Billing, see Sheet 16.
- Minimum lap splice length of H29 with H30 bars to be 4'-10\".
- Minimum lap splice length of H31 with H32 bars to be 22\".
- Minimum lap splice length of H34 with H35 & H42 with H45 to be 3'-1\".
- Minimum lap splice length of H37 with H39 & H36 with H38 & H40 with H41 to be 6'-11\".
- For Footing Details, see Sheet 16.
- For detail of 10\" x 3\" x 14\" Neoprene bearing pad see sheet 22.
- For details of 16\" x 18\" x 11\" Neoprene Org. Pad see Sht 26.

PIER 3

DETAILED Dec. 1979 Tobias  
CHECKED Apr. 1980 Hargis

Note: This drawing is not to scale. Follow dimensions.

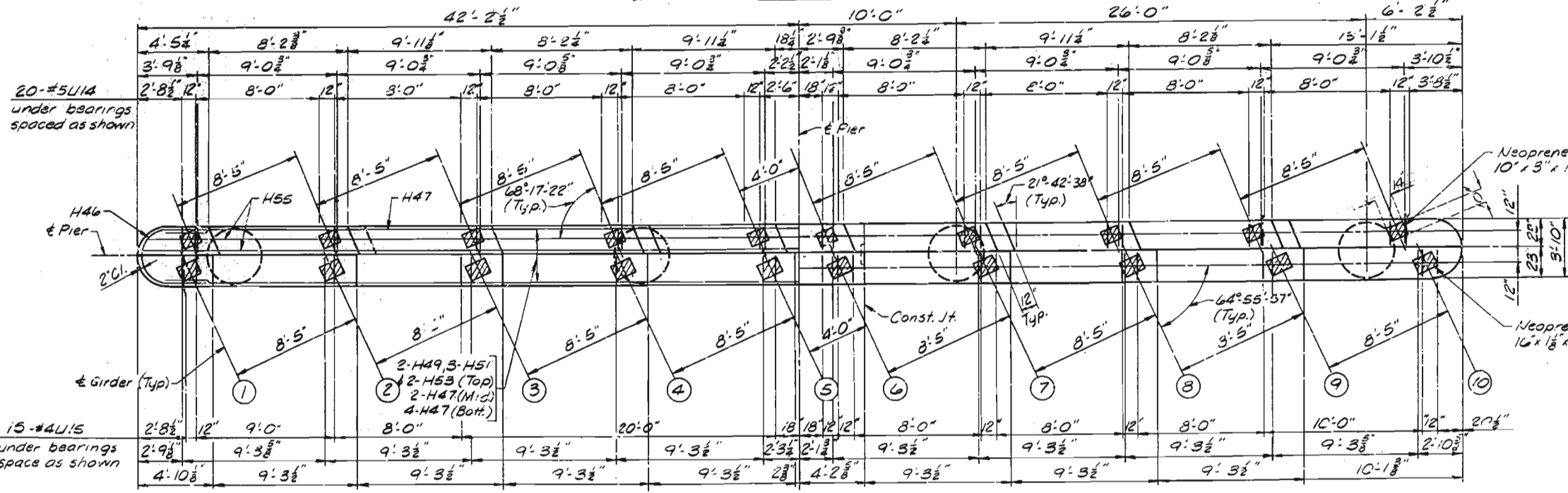
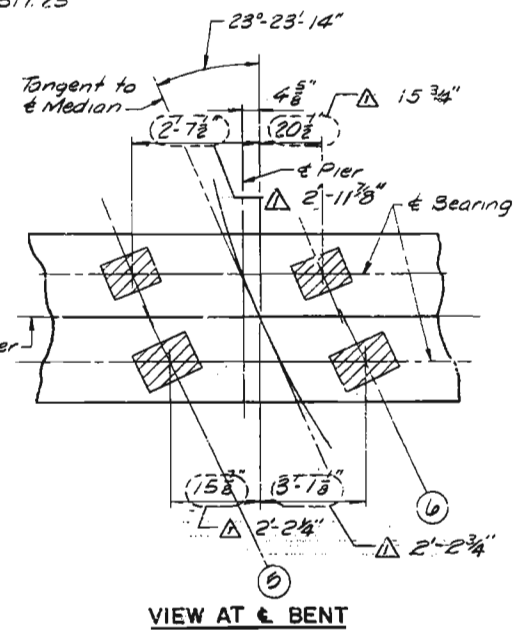
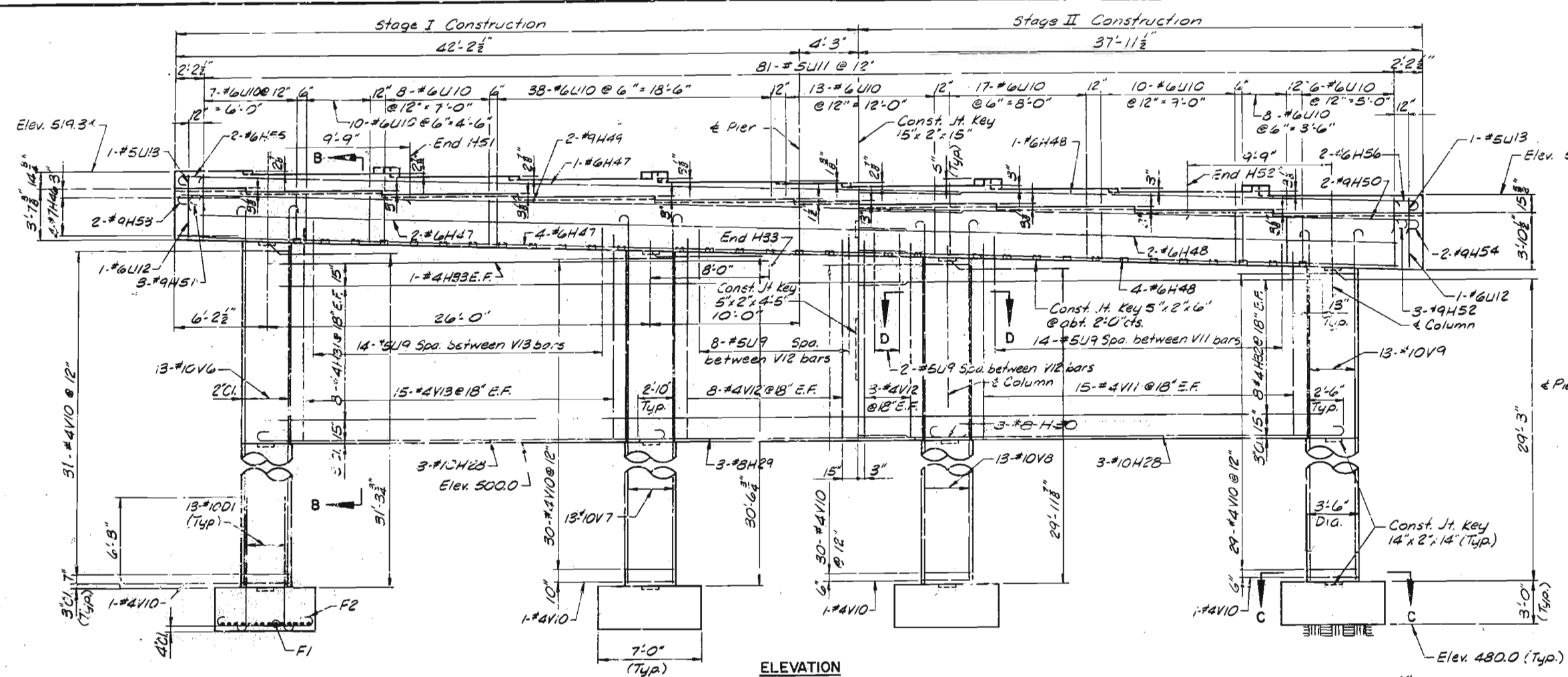
Sheet No. 14 of 31.

FRANKLIN COUNTY

A-3961



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	40	



- NOTES:**
- For Sections B-B, C-C & D-D, see Sheet 1G.
  - For Anchor Bolt Plan and Spiral Billing, see Sheet 1G.
  - Minimum lap splice length of H29 with H30 bars to be 4'-10".
  - Minimum lap splice length of H31 with H32 bars to be 22".
  - Minimum lap splice length of H47 with H48 bars & H55 with H56 bars to be 3'-1".
  - Minimum lap splice length of H53 with H54 bars & H51 with H49 bars & H49 with H48 bars to be 6'-11".
  - For Footing Details, see Sheet 1G.
  - For detail of 10" x 8" x 14" neoprene bearing pad see sheet 22.
  - For details of 16" x 1 1/2" x 11" Neoprene Brq. Pad see Sht. 26.

PLAN  
(Footings Omitted for Clarity)

PIER 4

DETAILED Dec. 1979 Tobias  
CHECKED Apr. 1980 Hargis

Note: This drawing is not to scale. Follow dimensions.

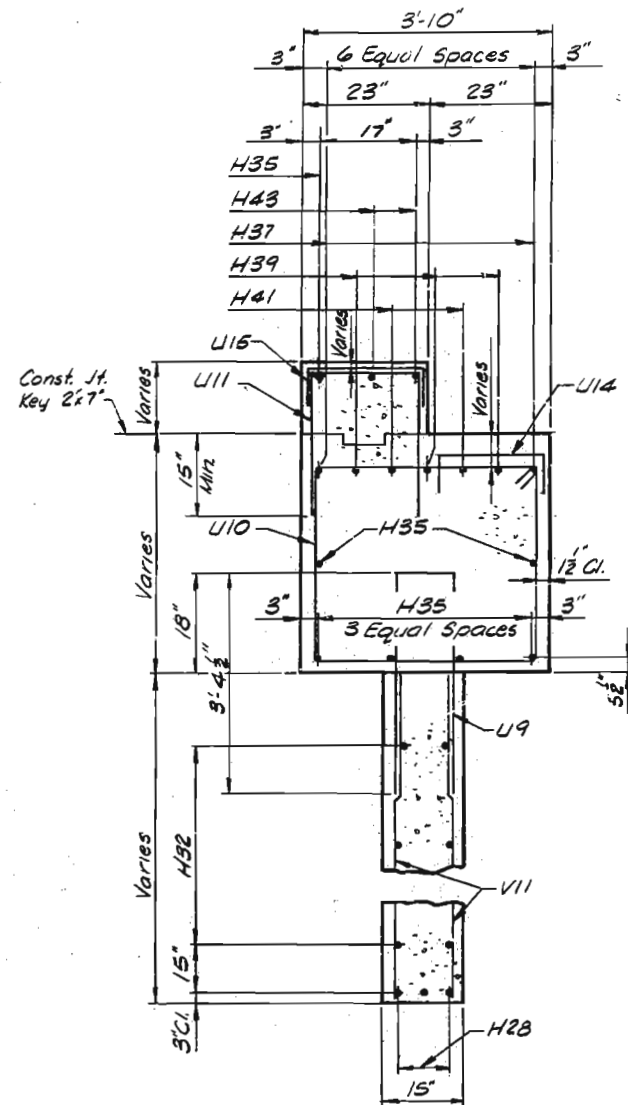
Revised 10-10-84

Sheet No. 13 of 31.

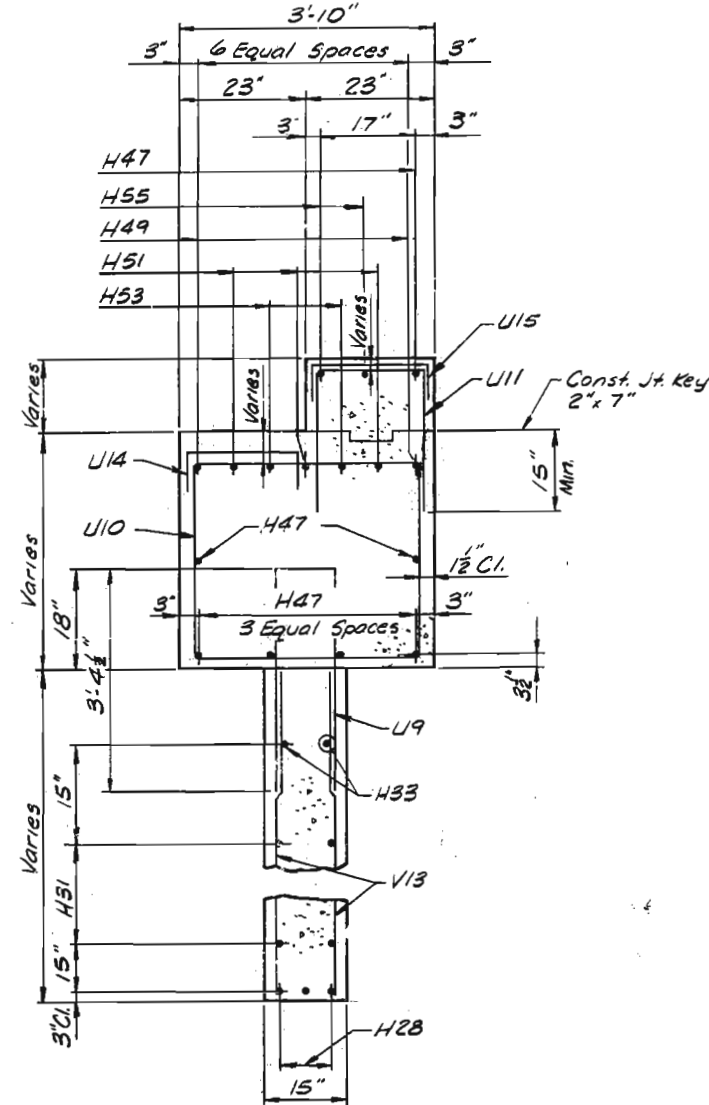
FRANKLIN COUNTY

A-3961

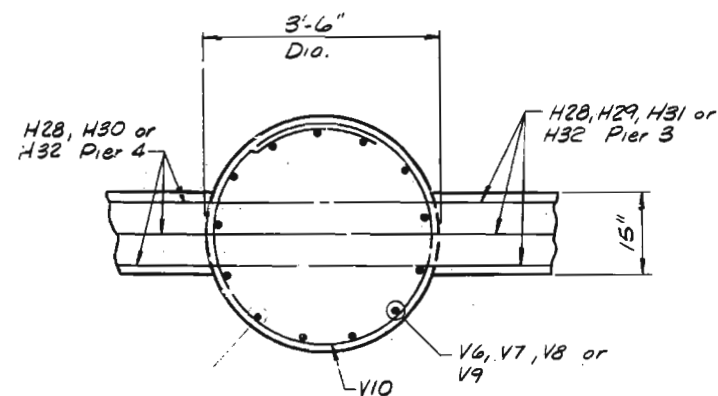
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	AL
5	MO.		18	41	



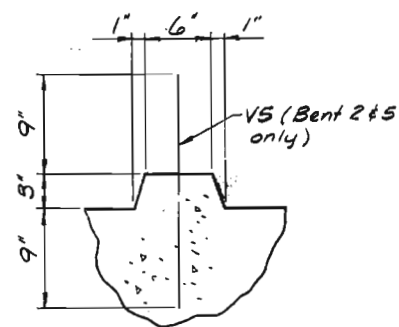
SECTION A-A



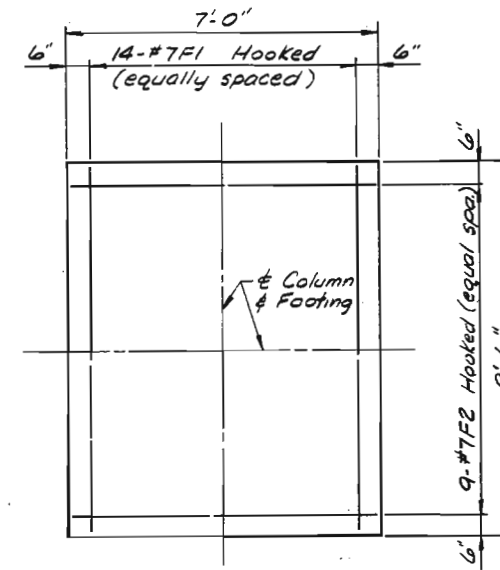
SECTION B-B



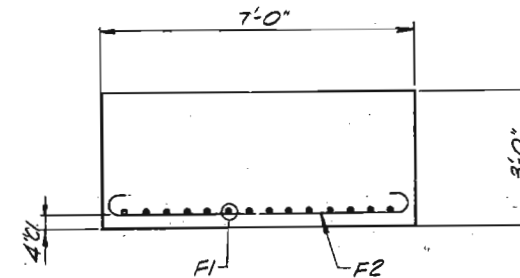
SECTION D-D



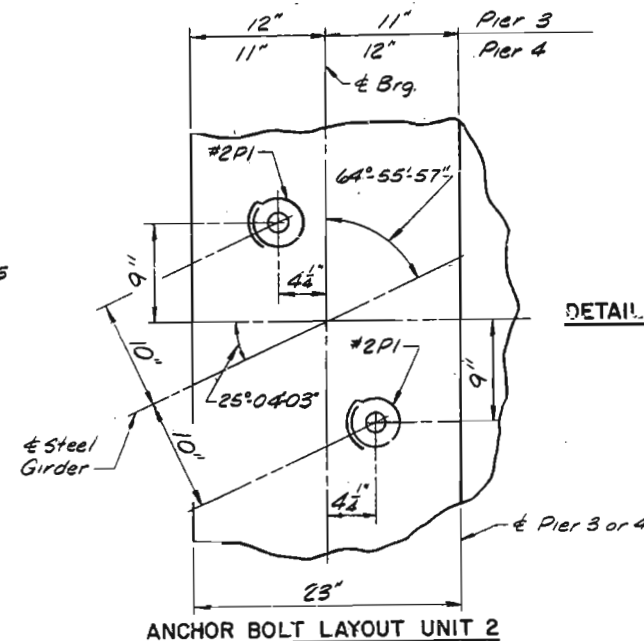
SHEAR KEY DETAIL



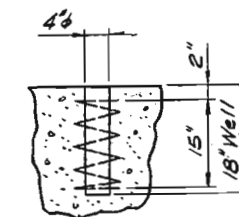
SECTION C-C



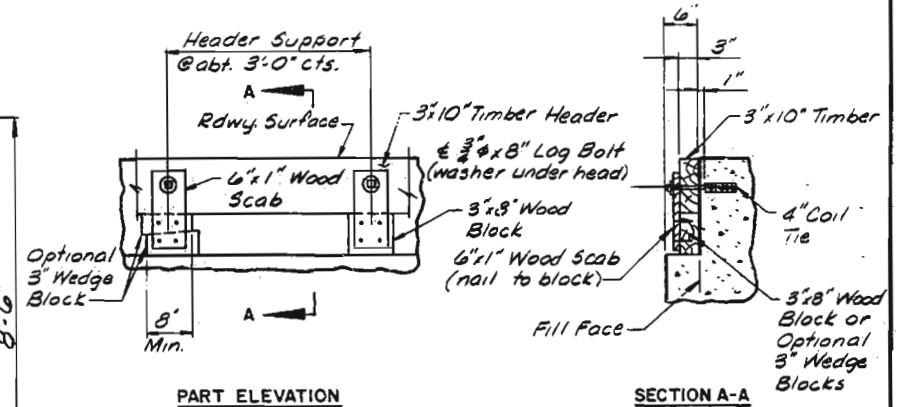
FOOTING PLAN



ANCHOR BOLT LAYOUT UNIT 2



DETAIL OF ANCHOR BOLT WELL



PART ELEVATION

SECTION A-A

**DETAILS OF TIMBER HEADER AT END BENTS**  
Cost of timber headers complete in place to be included in price bid for concrete.

**NOTES:**  
For location of Section A-A see sheet 14.  
For location of Section B-B see sheet 15.  
For location of Sections C-C and D-D see sheets 14 of 31 and 15 of 31.

BENT & PIER DETAILS

FRANKLIN COUNTY

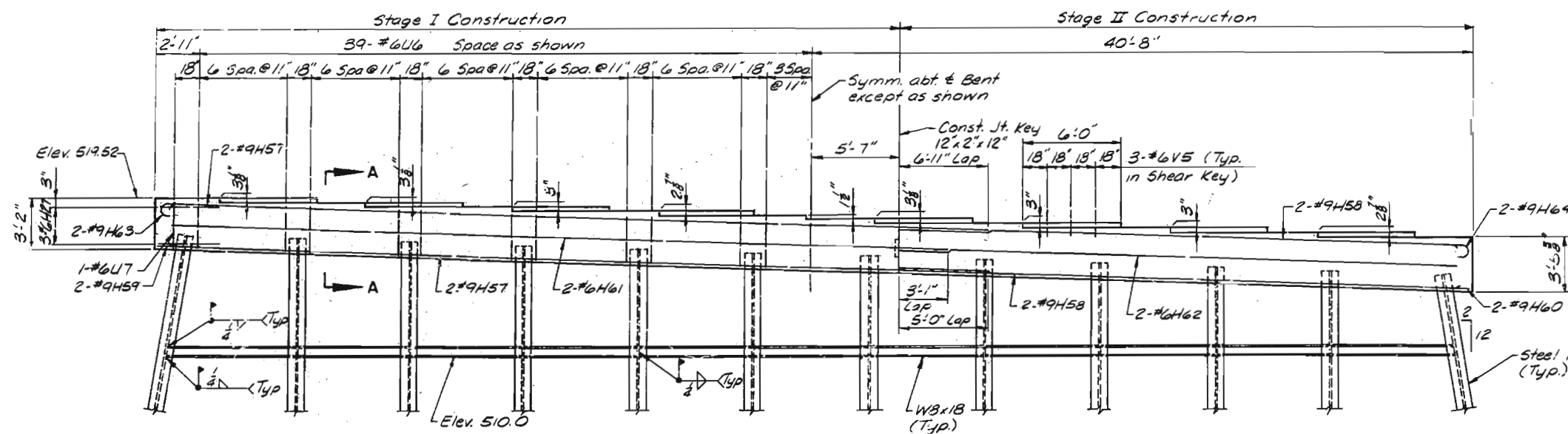
A-3961

DETAILED Jan 1980 Tobias  
CHECKED Apr 1980 Hargis

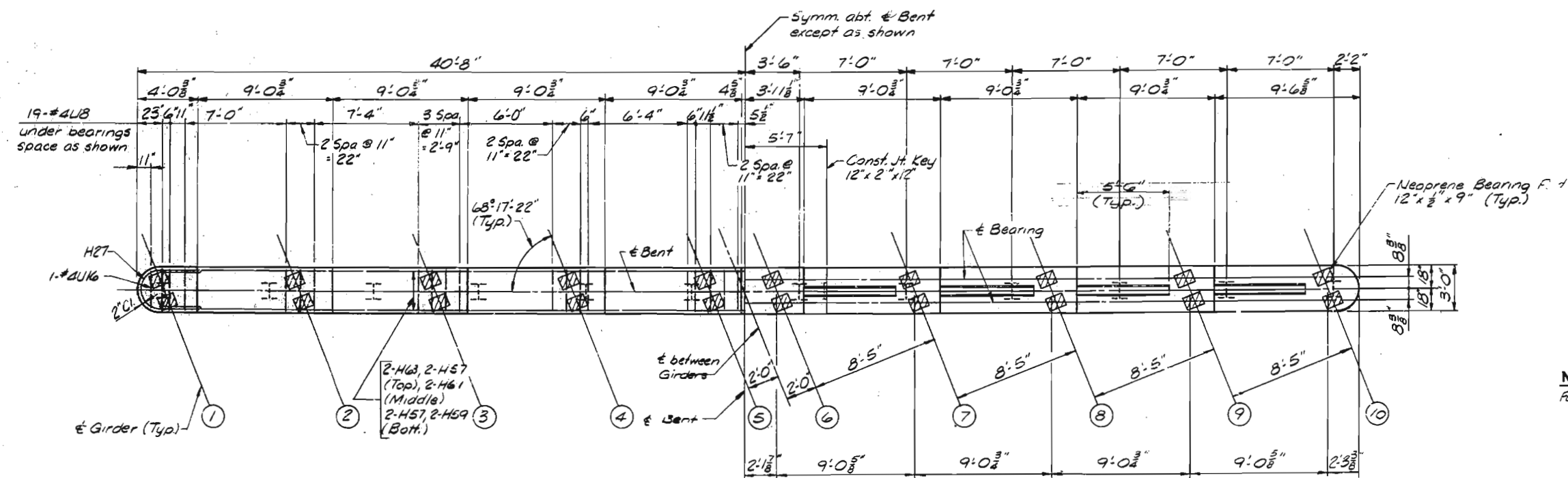
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 16 of 31.

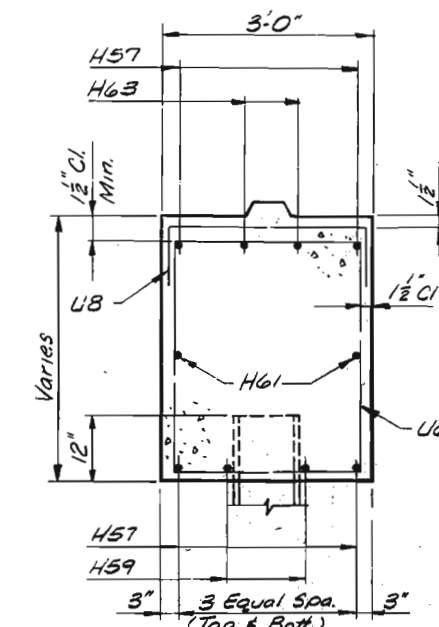
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		20	42	



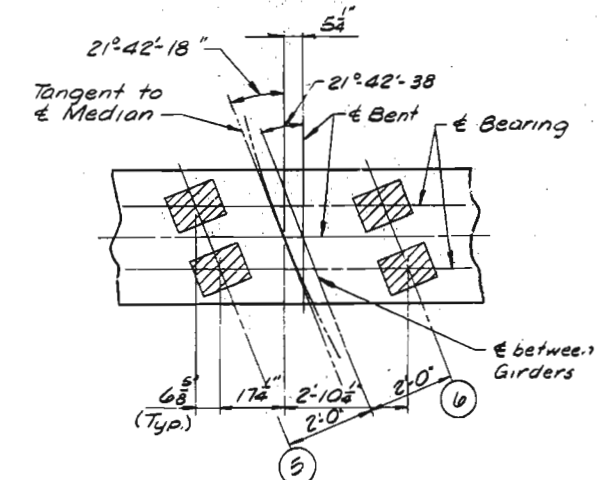
ELEVATION



PLAN



SECTION A-A



VIEW AT BENT

NOTES:  
For Shear Key Details, see Sheet 16.

BENT 5

DETAILED Oct. 1979 Walker  
CHECKED Apr. 1980 Hargis

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 17 of 31.

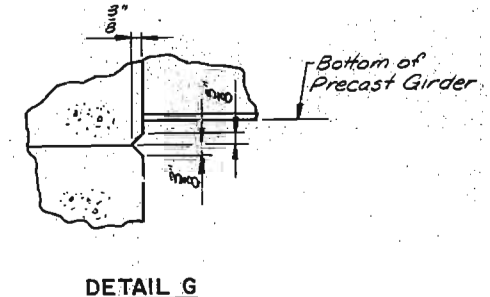
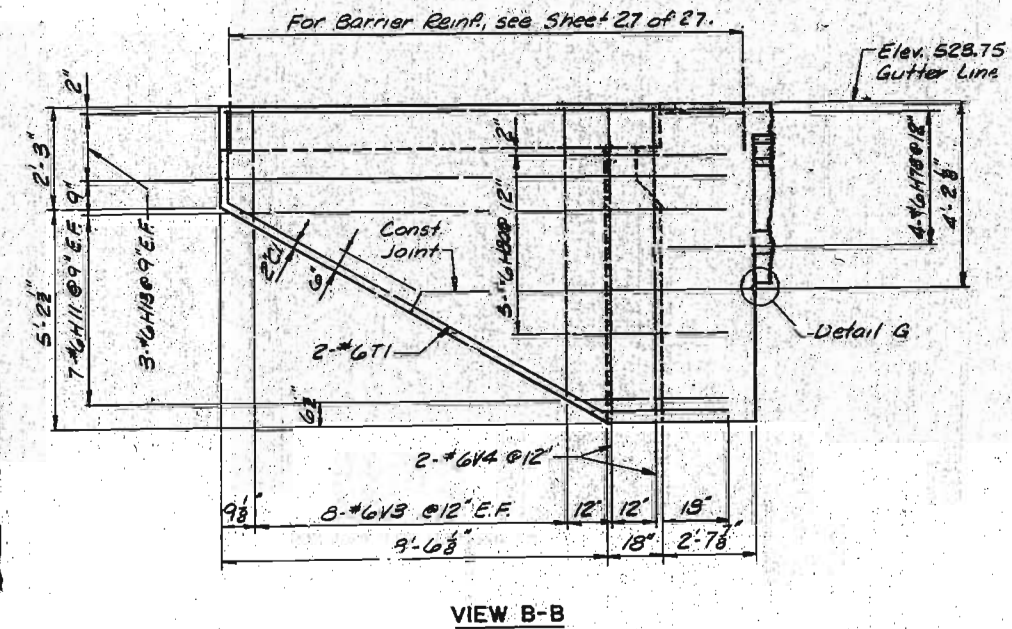
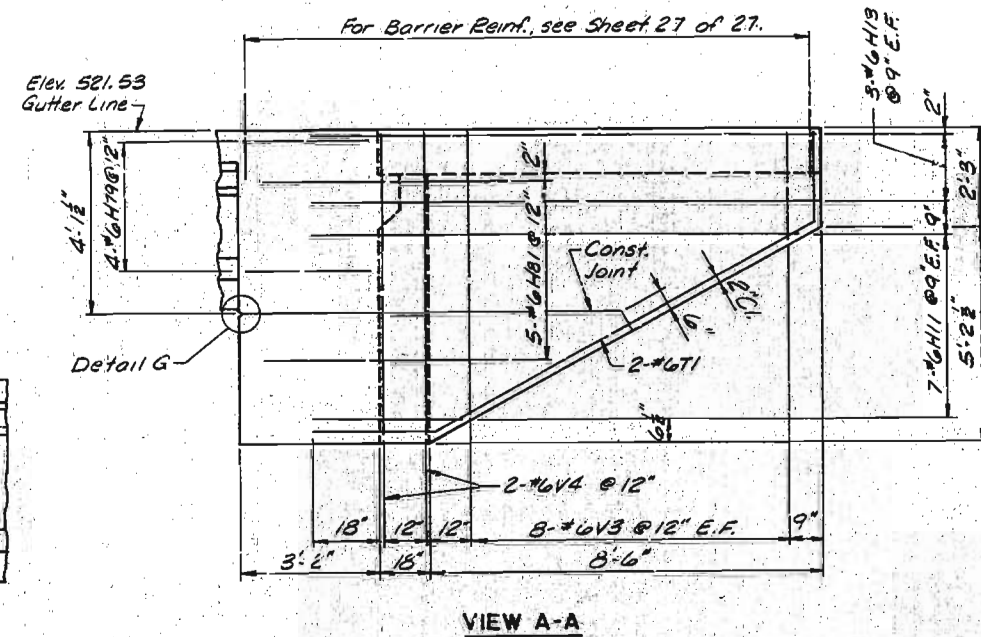
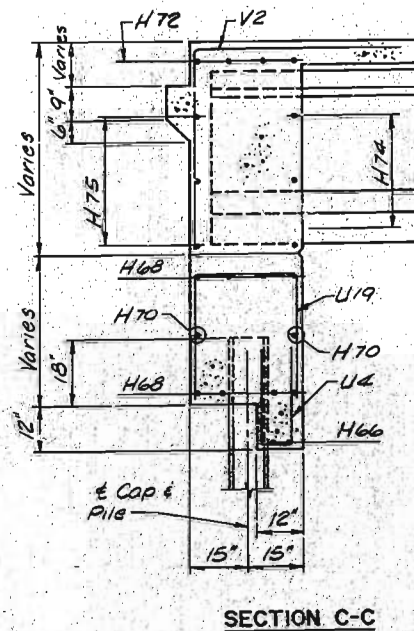
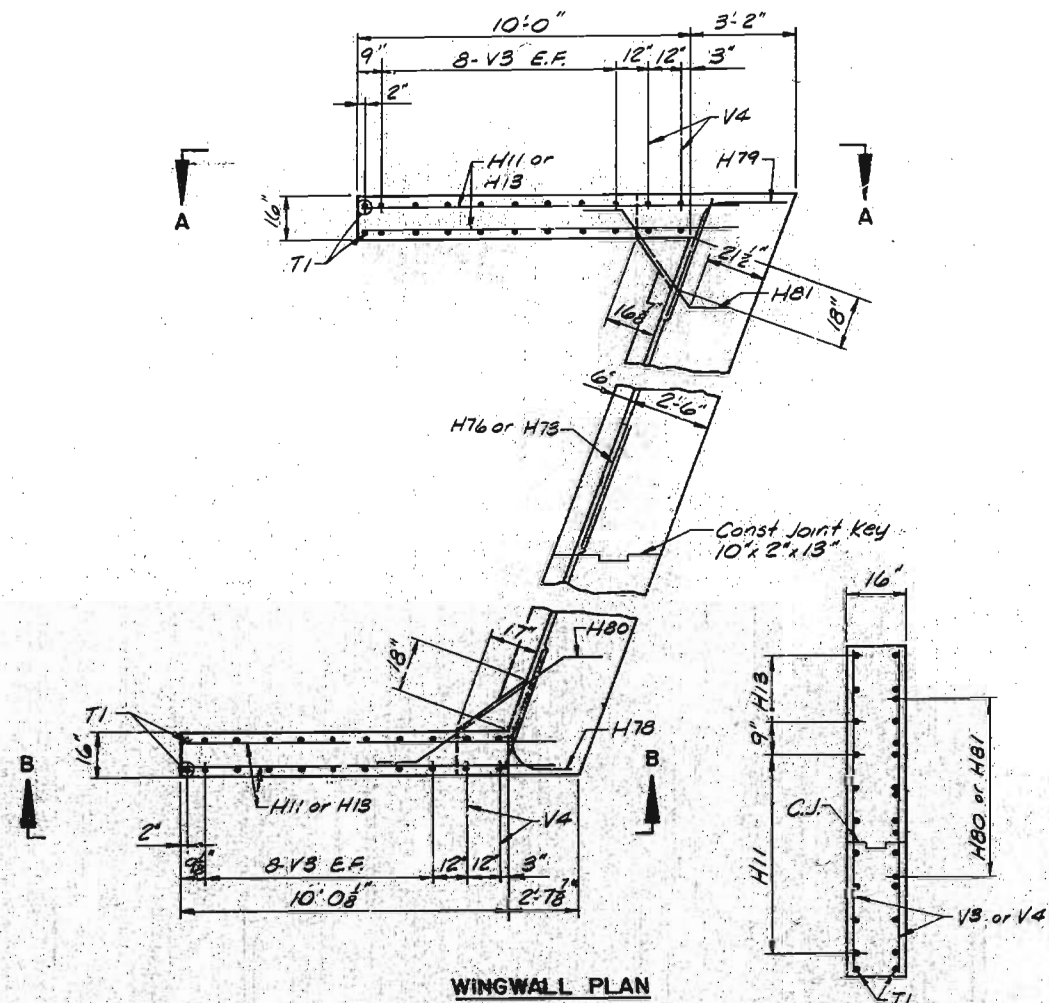
FRANKLIN COUNTY

A-3961





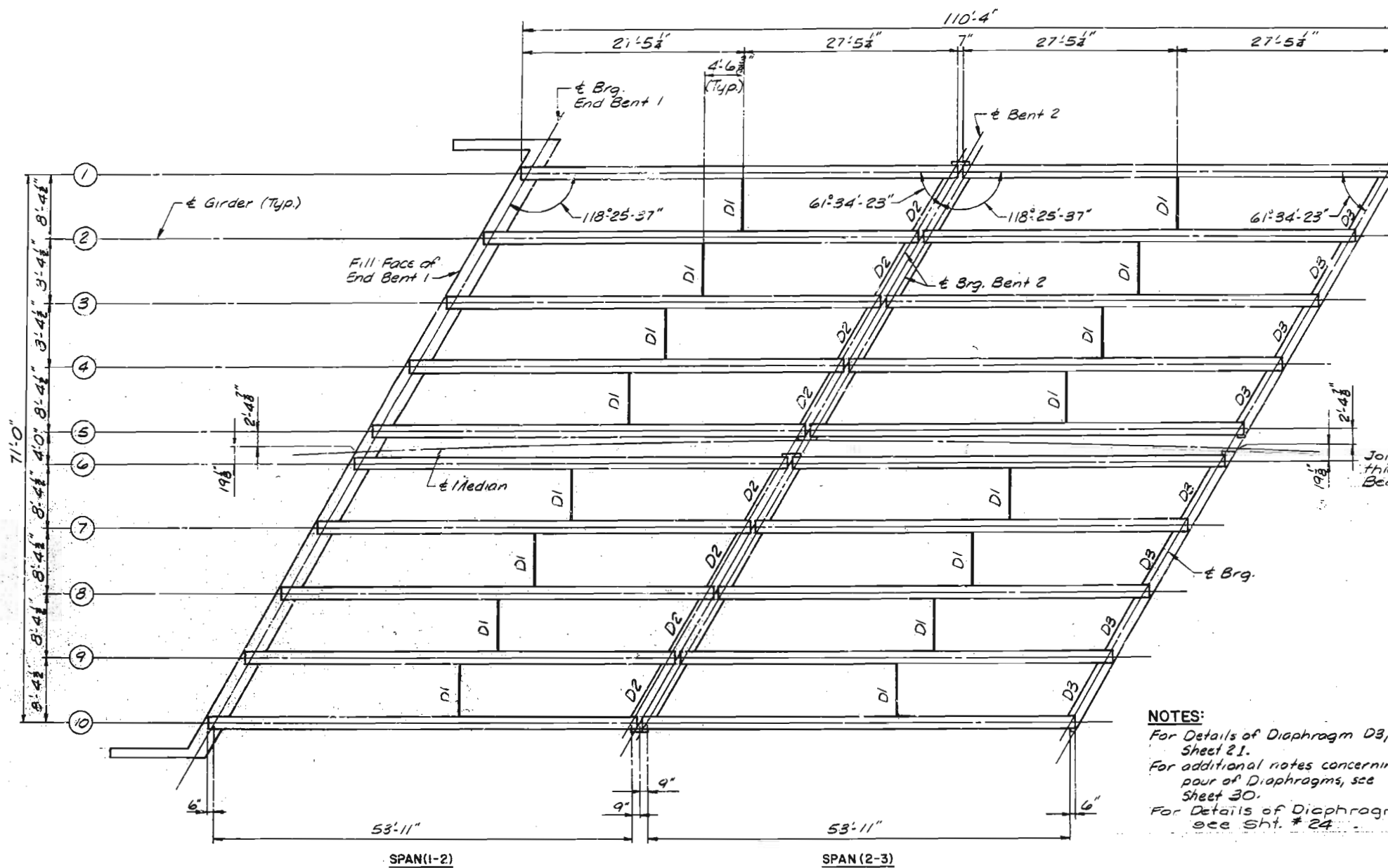
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	44	



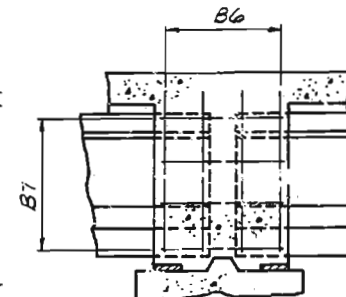
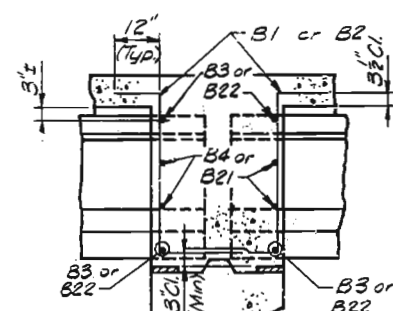
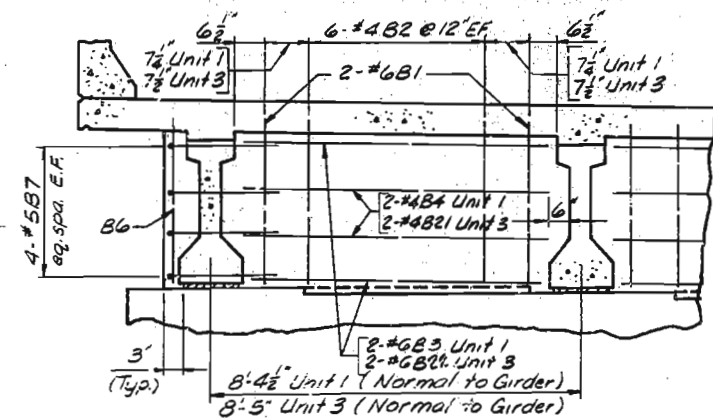
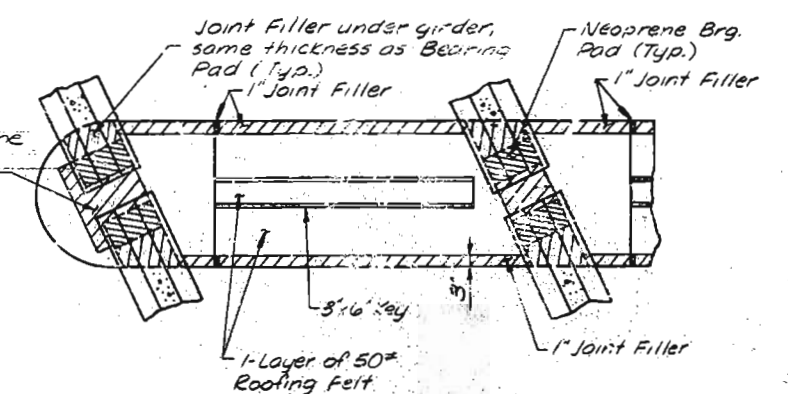
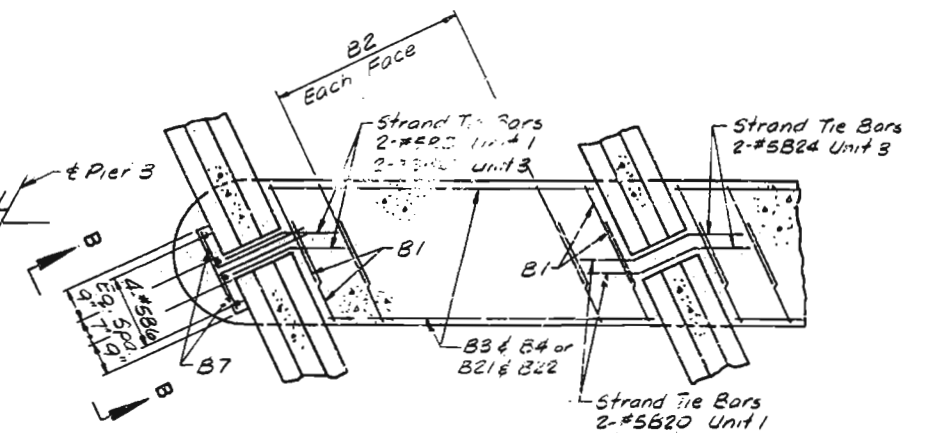
NOTES:  
Bend H80 and H81 Bars in field to clear prestressed beam.

WINGWALL DETAILS  
END BENT 6

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MD.		28	45	



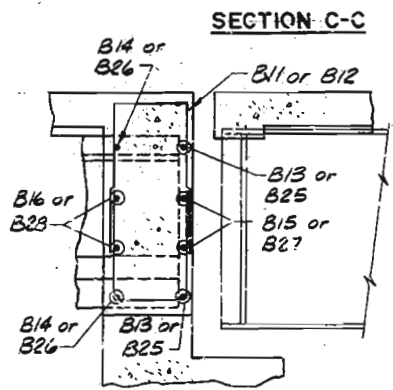
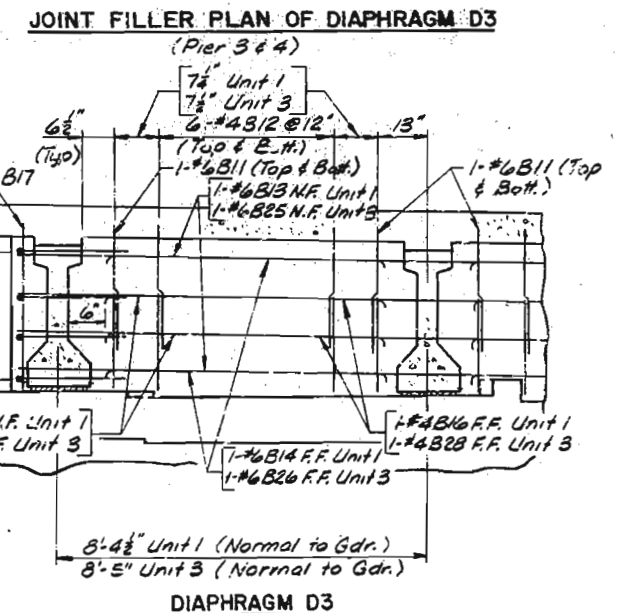
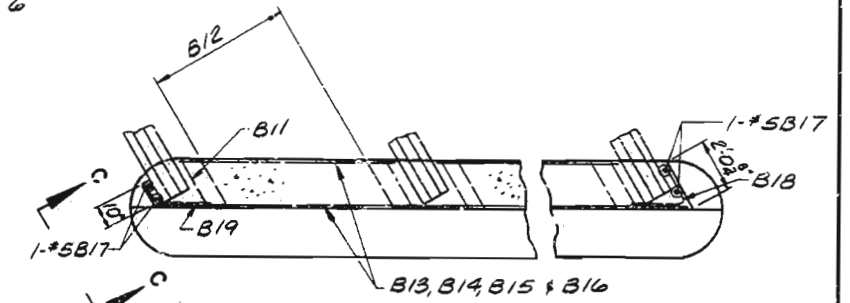
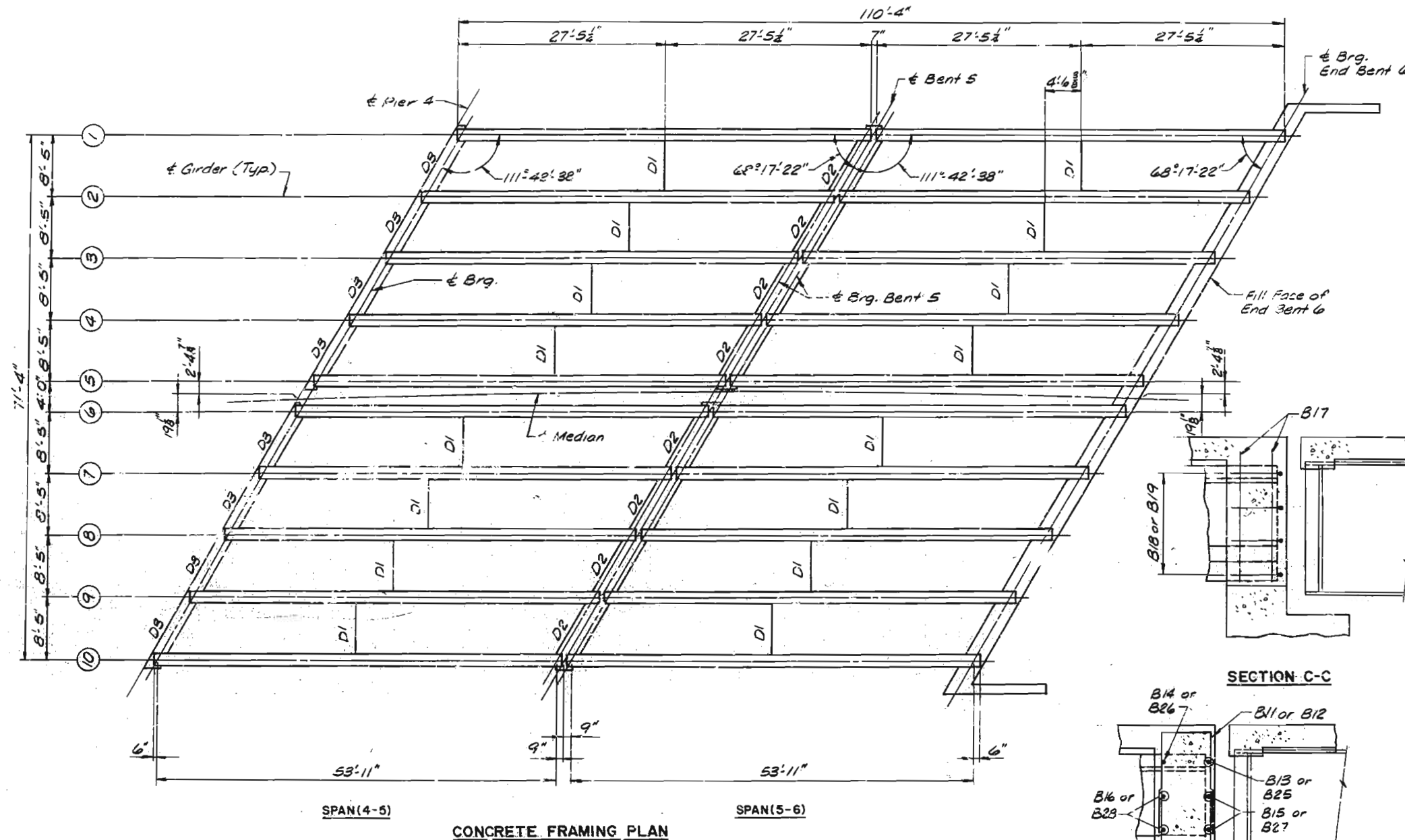
**NOTES:**  
 For Details of Diaphragm D3, see Sheet 21.  
 For additional notes concerning the pair of Diaphragms, see Sheet 30.  
 For Details of Diaphragm D1 see Sht. # 24.



CONCRETE FRAMING PLAN UNIT 1



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	I-O.		19	46	



SECTION THRU DIAPHRAGM D3

**NOTES:**

For details of Diaphragm D1 see Sht. #24; For Diaphragm D2 see Sht. #20.

For additional notes concerning the pouring of Diaphragms, see Sheet #30.

Slab drains may be fabricated of either 1/4" Welded Sheets of A.S.T.M. A-36 Steel or from 3/4" Structural Steel Tubing A.S.T.M. A-500 or A-501.

Outside dimensions of Drains are 8"x4".

The drains shall be cast in the concrete with the top of the drains being 1/8" below the finished concrete line.

Locate Drains in slab by dimensions shown in Part Elevation.

The Drains and bracket assembly shall be galvanized in accordance with A.S.T.M. A-123.

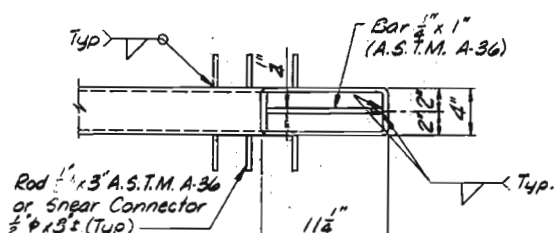
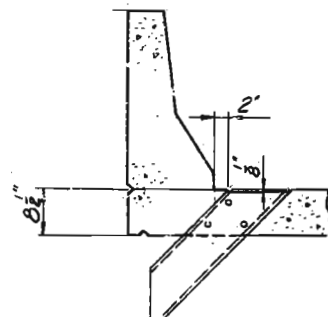
The 1/4"x3"x2" bar shall be located on the plate girder shop drawings.

Shop drawings will not be required for Slab Drains and bracket assembly.

Cost of furnishing, fabricating, galvanizing and installing slab drains, complete in place, shall be paid for at the contract unit price of drains per each.

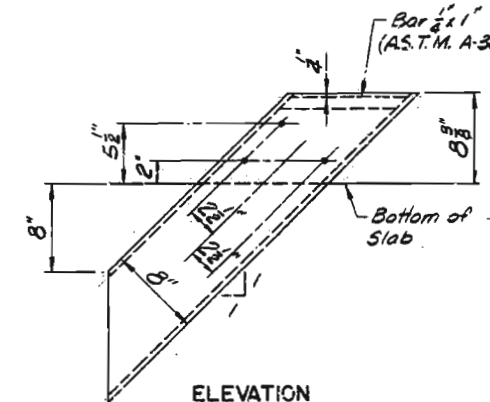
Sheet No. 21 of 31.

CONCRETE FRAMING PLAN UNIT 3



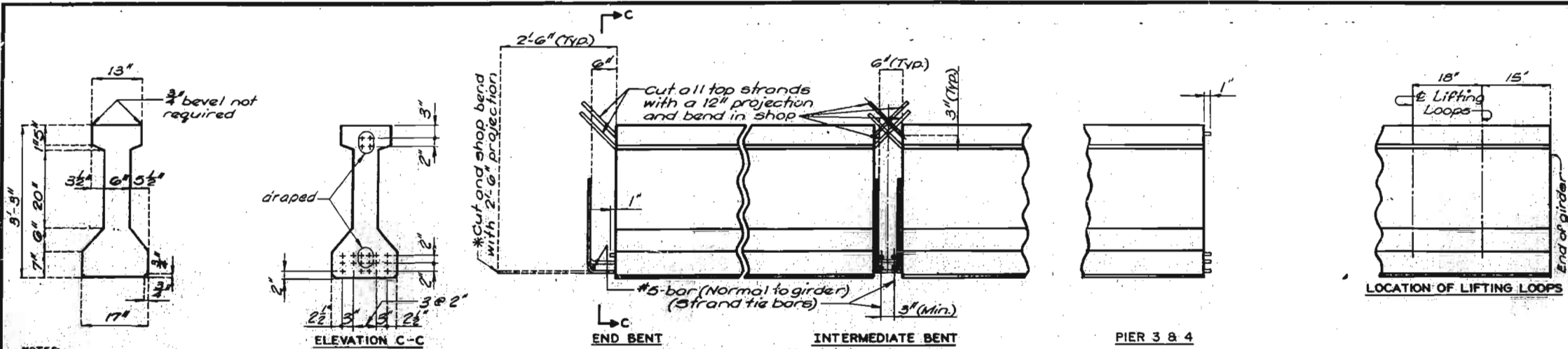
Note: For location of slab drains see sheet 27 or 28.

Note: This drawing is not to scale. Follow dimensions.



Note: All bolts, lock washers and nuts shall be galvanized in accordance with A.S.T.M. A-153.

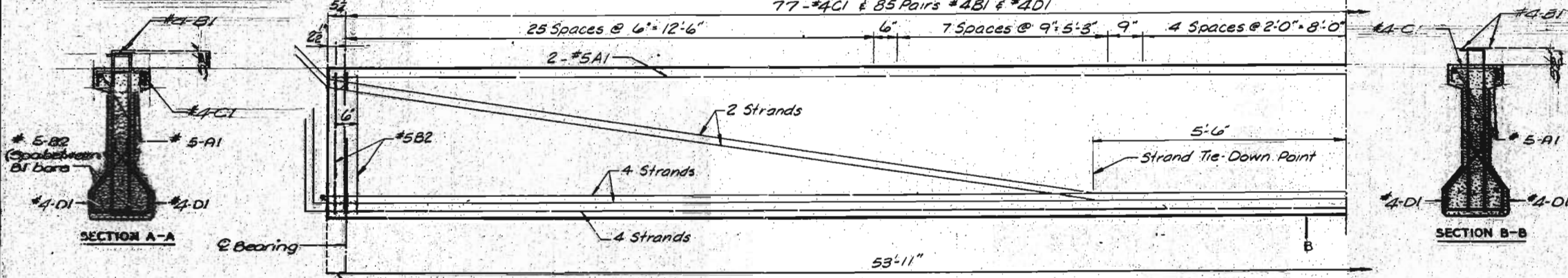
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		8	47	



BILL OF REINFORCING STEEL-EACH GIRDER				BENDING DIAGRAMS	
NO.	SIZE & MARK	LENGTH	SHAPE		
2	5A1	54'-7"	20	SHAPE 10	SHAPE 10
154	4B1	4'-8"	65		
8	5B2	3'-0"	185	SHAPE 95	SHAPE 185
77	3C1	13"	10		
154	3D1	2'-11"	95	SHAPE 65	SHAPE 20

**NOTES:**  
 CONCRETE FOR PRESTRESSED GIRDERS SHALL BE CLASS A1 WITH  $f'_c = 5,000$  psi.  
 (+) INDICATES PRESTRESSED STRAND.  
 USE 1/6" STRANDS WITH AN INITIAL PRESTRESS FORCE OF 406 KIPS.  
 COIL TIES SHALL BE HELD IN PLACE IN THE FORMS BY SLOTTED WIRE-SETTING-STUDS PROJECTING THRU FORMS. STUDS ARE TO BE LEFT IN PLACE OR REPLACED WITH TEMPORARY PLUG UNTIL GIRDERS ARE ERECTED AND THEN REPLACED BY COIL TIE RODS.  
 PRESTRESSING TENDONS SHALL BE UNCOATED SEVEN WIRE LOW RELAXATION STRANDS, 1/2" DIA. CONFORMING TO AASHTO M203, GRADE 270.

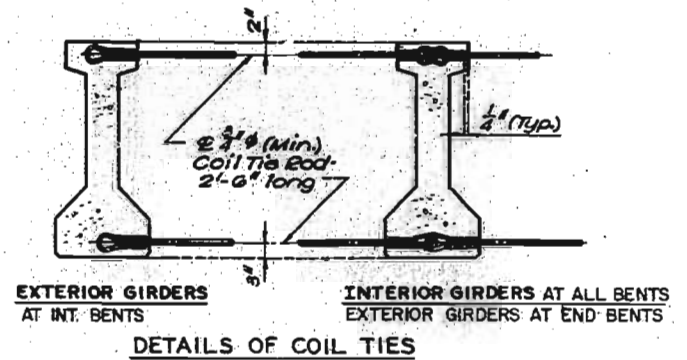
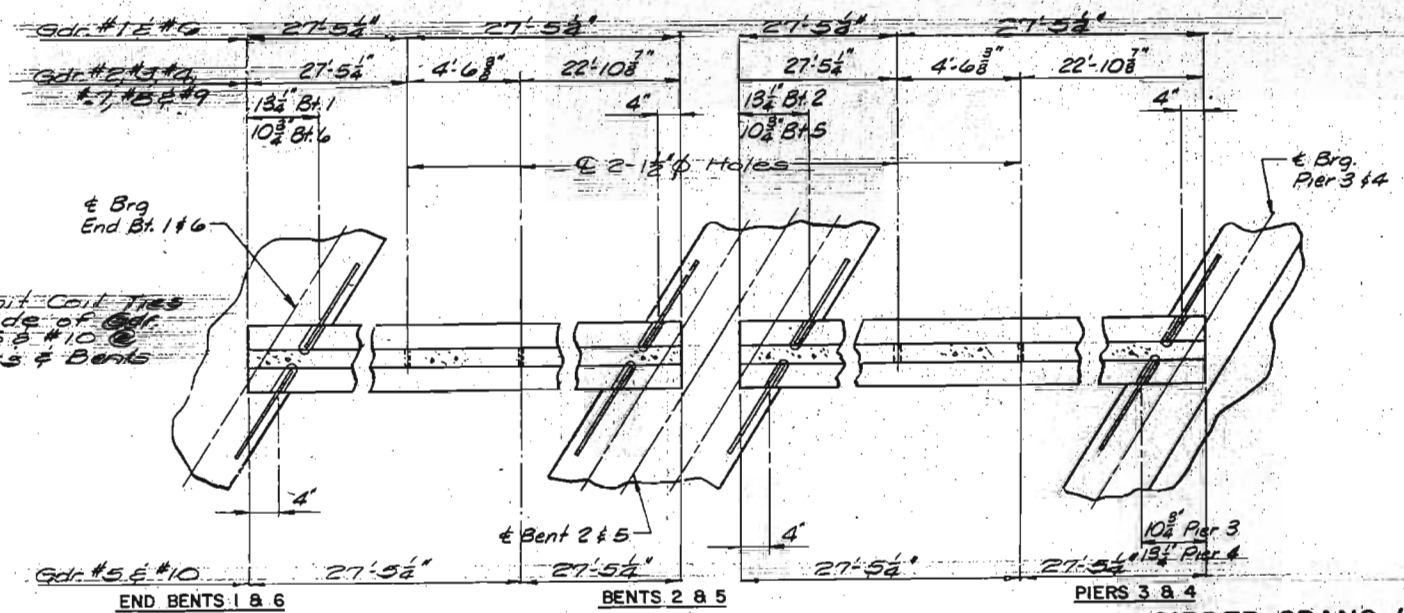
**NOTE:** ALL DIMENSIONS ARE OUT TO OUT.  
 WHERE DEFLECTING STRANDS INTERFERE WITH PLACEMENT, SOME IN-PLACE BENDING MAY BE NECESSARY.  
 HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE CRSI MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES.  
 THE LETTER S AFTER THE SHAPE NUMBER, IN BENDING SKEETES, INDICATES BARS THAT ARE TO BE BENT ACCORDING TO CRSI STIRRUP AND TIE DIMENSIONS.  
 LENGTH - TOTAL LENGTHS ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.  
 MINIMUM CLEARANCE TO REINFORCING SHALL BE 1".  
 COST OF 3/4" COIL TIE RODS PLACED IN DIAPHRAGMS IS INCLUDED IN PRICE BID FOR P/S MEMBERS.  
 EXTERIOR AND INTERIOR GIRDERS ARE THE SAME EXCEPT FOR COIL TIES AND 1/2" HOLES.



**Note:** For location of slotted holes cast in top flange for Exp. Device at Piers #3 & #4 see Sht. No. 29.



**Note:** Omit Coil Ties on Outside of Girder #1, #2, #3 & #10 @ Int. Piers & Bents only.



**GIRDER SPANS (1-2) (2-3), (4-5) & (5-6)**

STD. 55.3.6 REVISED  
 APRIL 1973

DESIGNED Jan. 1980 Tobias  
 CHECKED Apr. 1980 Hargis

**Note:** This drawing is not to scale. Follow dimensions.

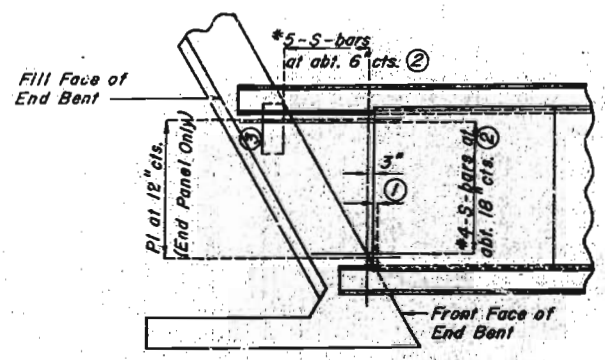
Sheet No. 22 of 31

FRANKLIN COUNTY

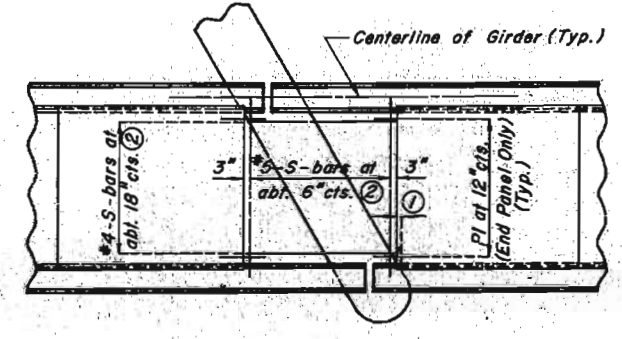
A-3961



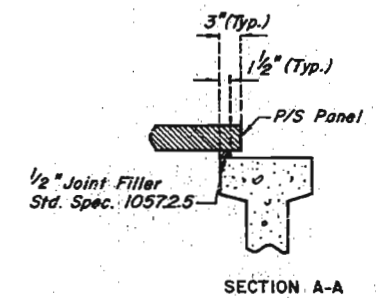
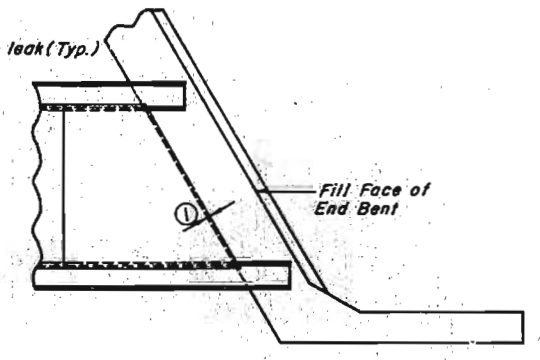
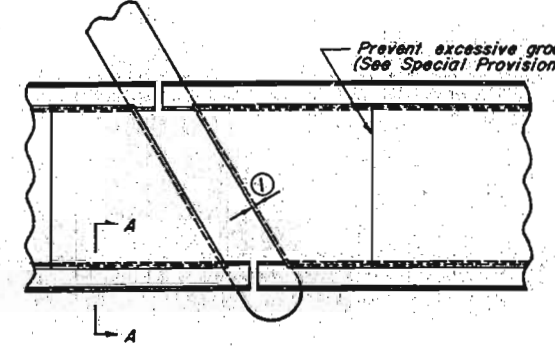
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		85	48	



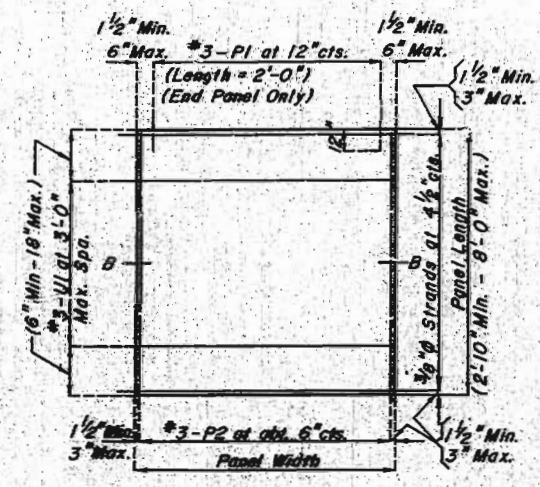
PANELS - SQUARED ENDS



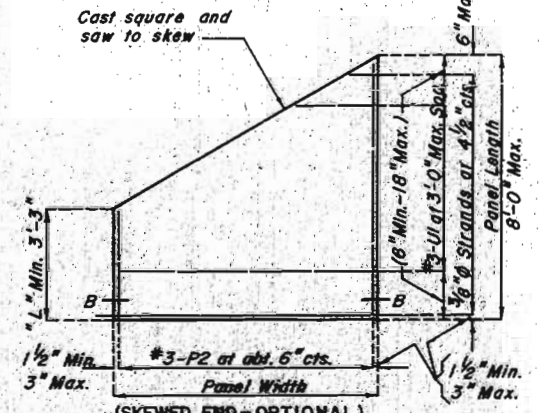
PANELS - SKEWED ENDS



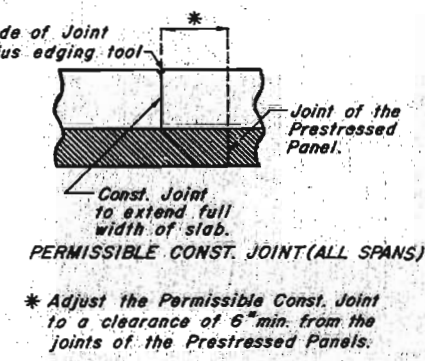
### PLAN OF PRESTRESSED PANEL PLACEMENT SPANS (1-2)(2-3)(4-5)(5-6)



PLAN OF PRESTRESSED PANEL (ALL SPANS)



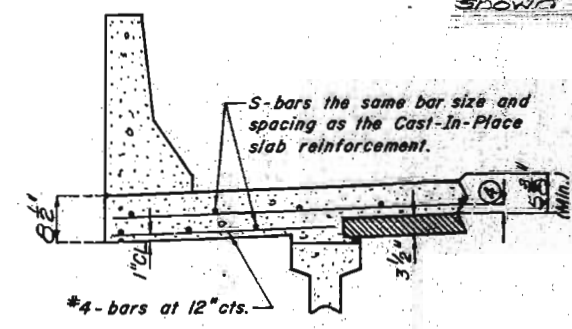
PLAN OF PRESTRESSED PANEL (ALL SPANS) (SKEWED END - OPTIONAL)



**GENERAL NOTES:**

PRESTRESSED PANELS: CONCRETE FOR PRESTRESSED PANELS SHALL BE CLASS A1 WITH  $f'_c = 5,000$  psi,  $f_{ct} = 3,500$  psi. THE TOP SURFACE OF ALL PLANKS SHALL RECEIVE A SCORED FINISH WITH A DEPTH OF SCORING OF 1/8" PERPENDICULAR TO THE PRESTRESSING STRANDS IN THE PLANK (SEE SPECIAL PROVISIONS). PRESTRESSING TENDON SHALL BE HIGH-TENSILE STEEL UNCOATED SEVEN-WIRE (7) LOW RELAXATION STRANDS FOR PRESTRESSED CONCRETE CONFORMING TO AASHTO M283 EXCEPT THAT NOMINAL DIAMETER OF STRAND = 3/8" AND NOMINAL AREA = 0.085 SQ. IN. AND MINIMUM UTMATE STRENGTH = 23,000 LBS. (230 KSI). LARGER STRANDS MAY BE USED WITH THE SAME SPACING AND INITIAL TENSION. INITIAL PRESTRESSING FORCE = 17.2 KIPS/STRAND. THE METHOD AND SEQUENCE OF RELEASING THE STRANDS SHALL BE SHOWN ON THE SHOP DRAWINGS. SUTURE ANCHORAGE DEVICES FOR LIFTING PANELS MAY BE CAST IN PANELS PROVIDED THEY ARE SHOWN ON THE SHOP DRAWINGS AND APPROVED BY THE ENGINEER. PANEL LENGTHS SHALL BE DETERMINED BY THE CONCRETEWORKER AND SHOWN ON THE SHOP DRAWINGS. WHEN SQUARE END PANELS ARE USED AT SKEWED ENDS IT IS REQUIRED THAT THE SKEWED PORTION BE CAST FULL DEPTH. NO SEPARATE PARTITION WALL BE MADE FOR THE ADDITIONAL CONCRETE AND REINFORCING REQUIRED. AT THE CONTRACTOR'S OPTION THE WEEDING IN SLAB REINFORCEMENT OVER PRESTRESSED PANELS MAY BE ELIMINATED OR REDUCED BY SUPERSEDING AND VARYING THE GIRDER TOP FLANGE THICKNESS. DIMENSIONS SHALL BE SHOWN ON THE SHOP DRAWINGS. WELDED WIRE FABRIC OR WELDED DEFORMED BAR MATS PROVIDING A MINIMUM AREA OF REINFORCING PERPENDICULAR TO STRANDS OF 0.22 SQ. IN./FT. WITH SPACING PARALLEL TO STRANDS SUFFICIENT TO INSURE PROPER BONDING MAY BE USED IN LIEU OF THE #3-P2 BARS SHOWN WIRE OR BAR DIAMETER SHALL NOT BE LARGER THAN 0.375 INCHES.

**REINFORCING STEEL:** ALL DIMENSIONS ARE OUT TO OUT. MINIMUM CLEARANCE TO REINFORCING STEEL SHALL BE 1-1/2" UNLESS OTHERWISE SHOWN. HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE C.R.S.I. MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES, STIRRUP AND TIE DIMENSIONS. ACTUAL LENGTHS ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH. THE PRESTRESSED PANEL QUANTITIES ARE NOT INCLUDED IN THE TABLE OF ESTIMATED QUANTITIES FOR ALTERNATE SLABS.



SECTION THRU CANTILEVER SPANS (1-2)(2-3)(4-5)(5-6)

Note: For details of Span (3-4) not shown on this sheet see sheet 146-24.

④ 1" CL. Min. #5 bar.

Slab exterior girder haunch to be the same as cast-in-place.

Slab thickness over prestressed panels varies due to girder camber.

**NOTE:**

① End panel to be dimensioned 1" inside face of diaphragm.

② S-bars shown are bottom steel in slab between panels and used with squared end panels only.

Cost of S-bars shall be included in price bid for Slab per sq. yd.

S-bars are not listed in bill of reinforcing.

**NOTES CON'T.**

Support from diaphragm forms required under optional skewed end until Cast-In-Place concrete has reached its minimum compressive strength.

③ Extend S-bars 18" beyond Front Face of End Bent only.

### DETAILS OF PRECAST PRESTRESSED PANELS

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 23 of 31.

FRANKLIN COUNTY

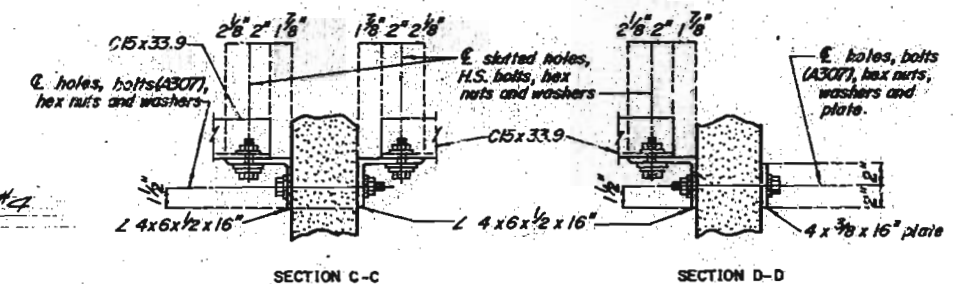
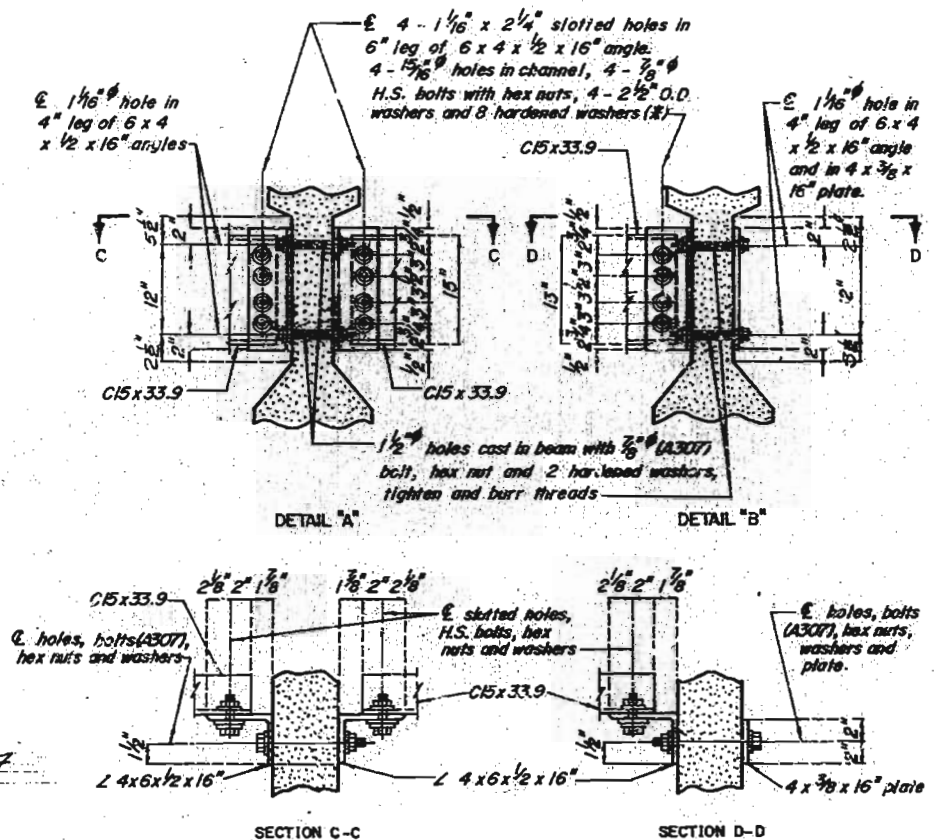
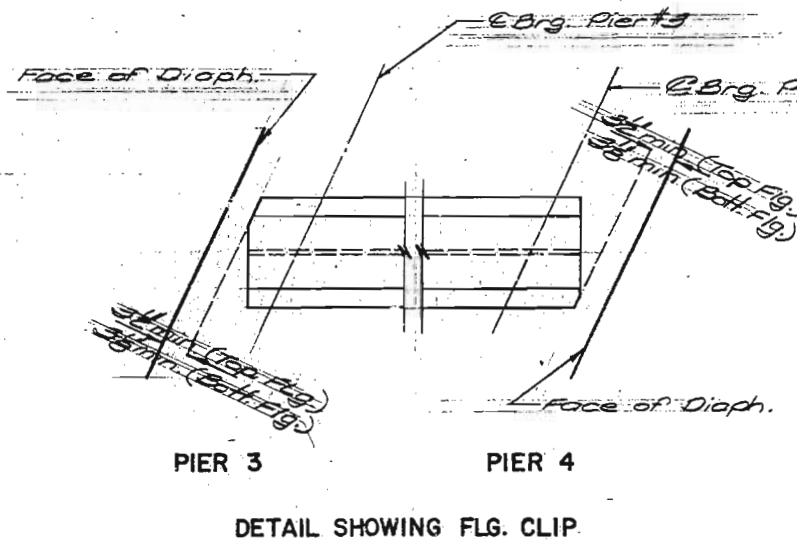
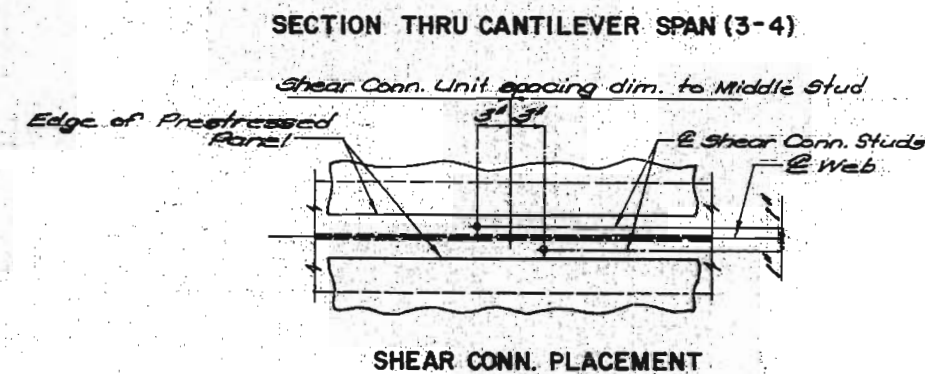
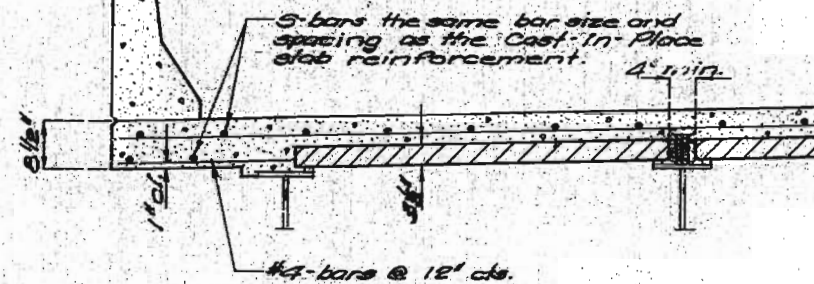
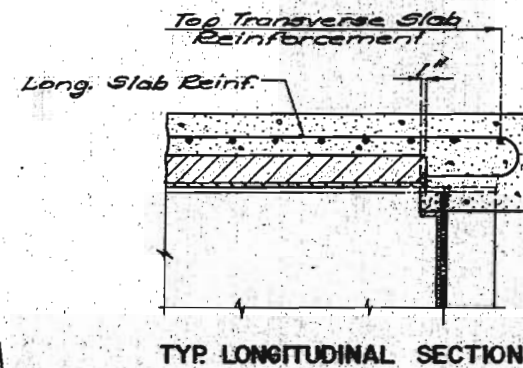
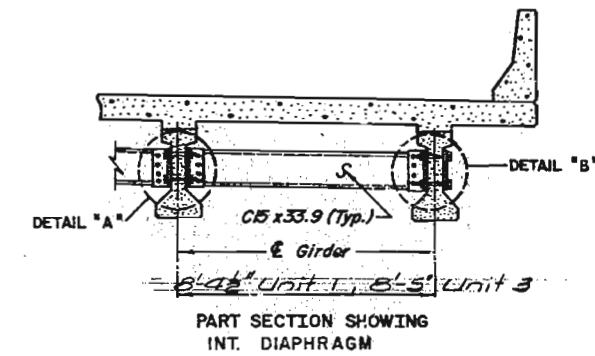
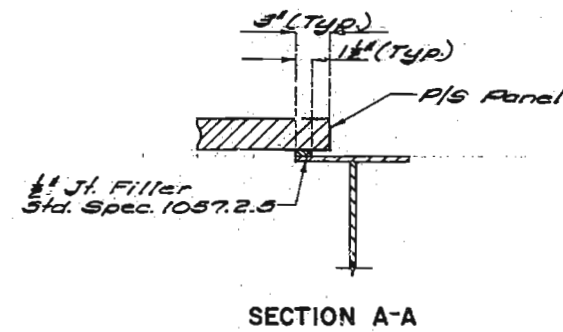
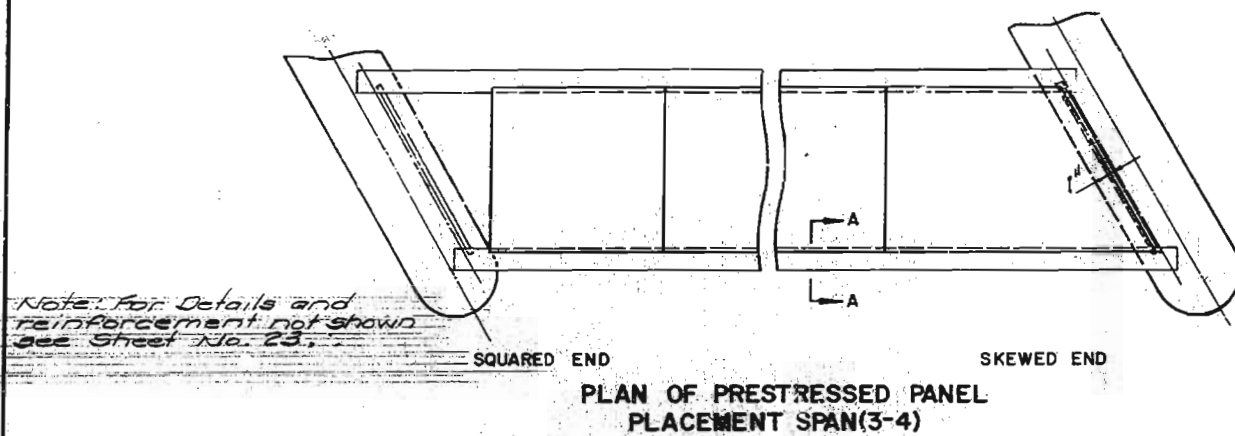
A-3961

DETAILED Feb. 1984  
CHECKED Feb. 1984

512



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MO.		19	49	



**NOTES:**

(註) In lieu of 2 2<sup>1</sup>/<sub>2</sub>" O.D. washers, contractor may substitute a 3<sup>1</sup>/<sub>16</sub>" (min. thickness) plate with 4 - 15<sup>5</sup>/<sub>16</sub>" holes and 1 hardened washer per bolt.

*All H.S. bolts may be tensioned by Turn-of-Nut method.*

All diaphragm materials, including bolts, nuts and washers shall be galvanized.

The  $1\frac{1}{2}$ " holes shall be cast in the web. Drilling is not allowed.

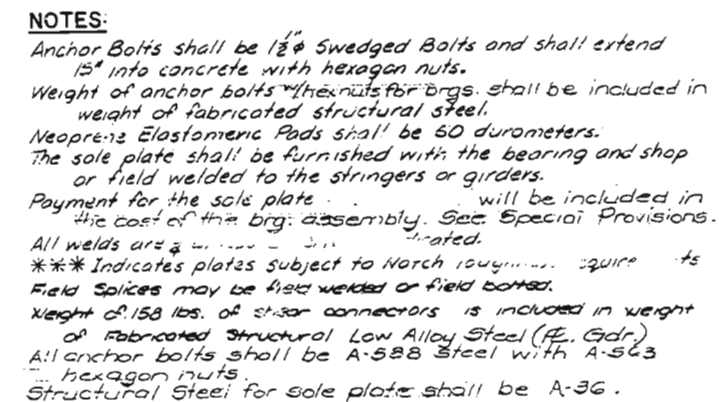
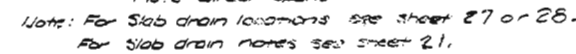
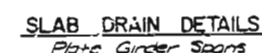
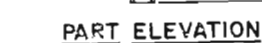
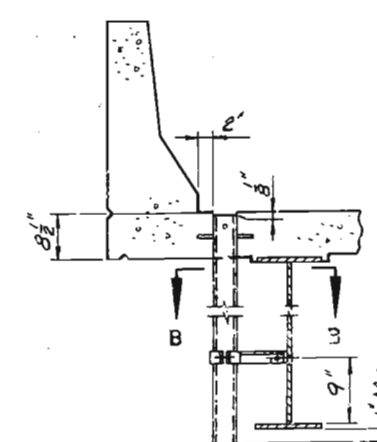
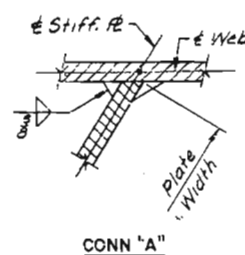
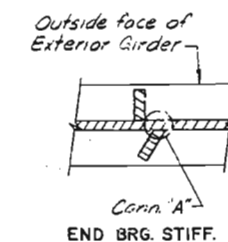
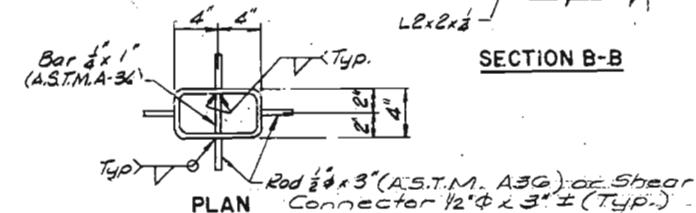
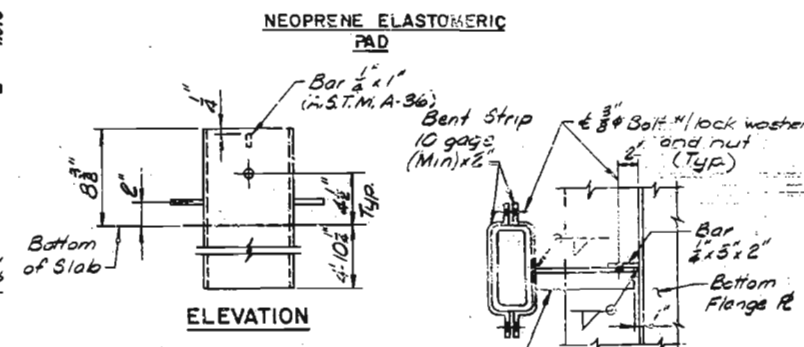
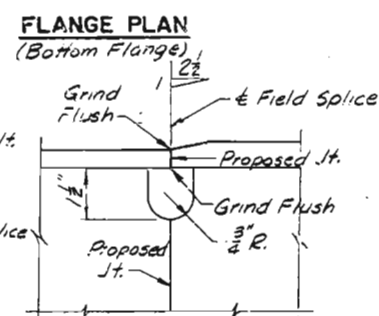
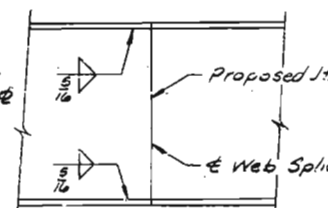
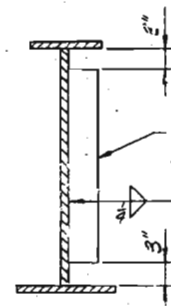
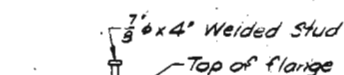
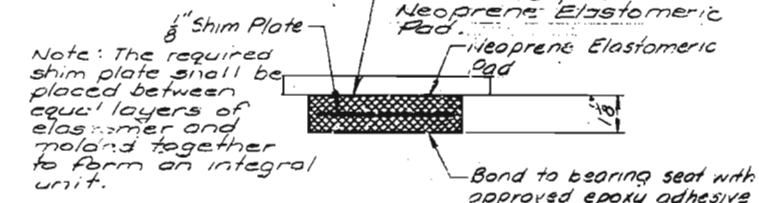
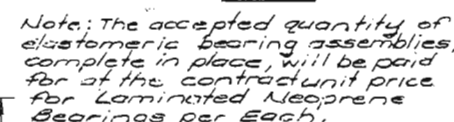
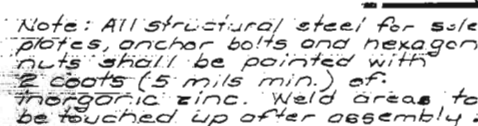
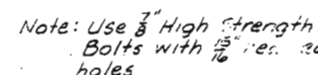
Fabricated Structural Steel shall be A-36 except as noted.

Cost of diaphragms to be included in price bid for Slab on Conc. I-Gdr, See Special Provisions.

PRECAST PRESTRESSED  
PANEL DETAILS SPAN(3-4  
& INT. DIAPH. DETAILS



Note: Contact surfaces are to be blast cleaned.



## STEEL DETAILS

A-3964

**Note:** This drawing is not to scale. Follow dimensions.

Sheet No. 26 of 31.

FRANKLIN COUNTY

A-3964

515

SPS - NEP8	REVISED
APRIL 1970	

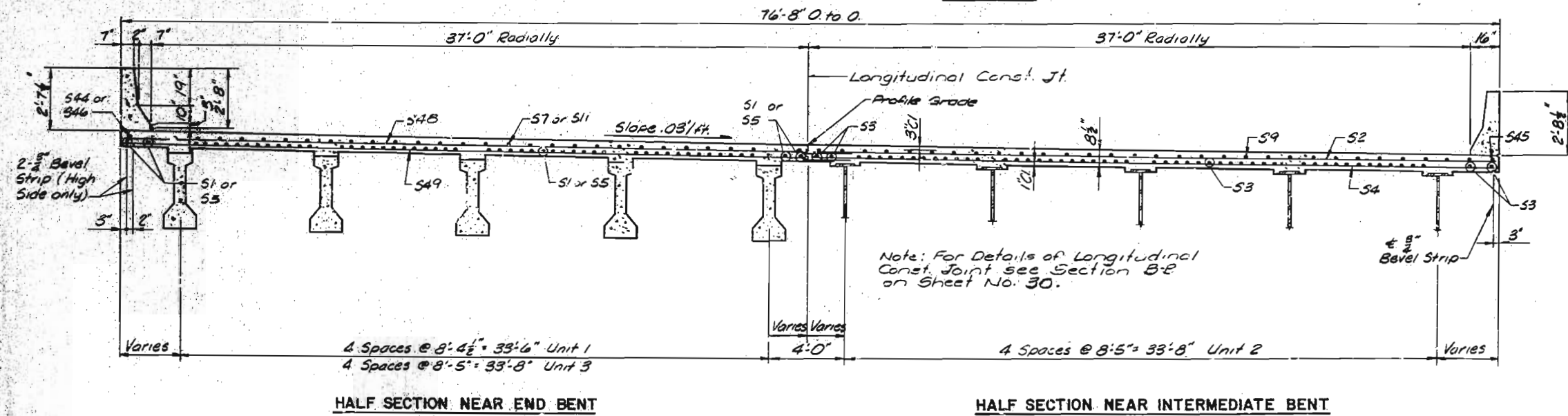
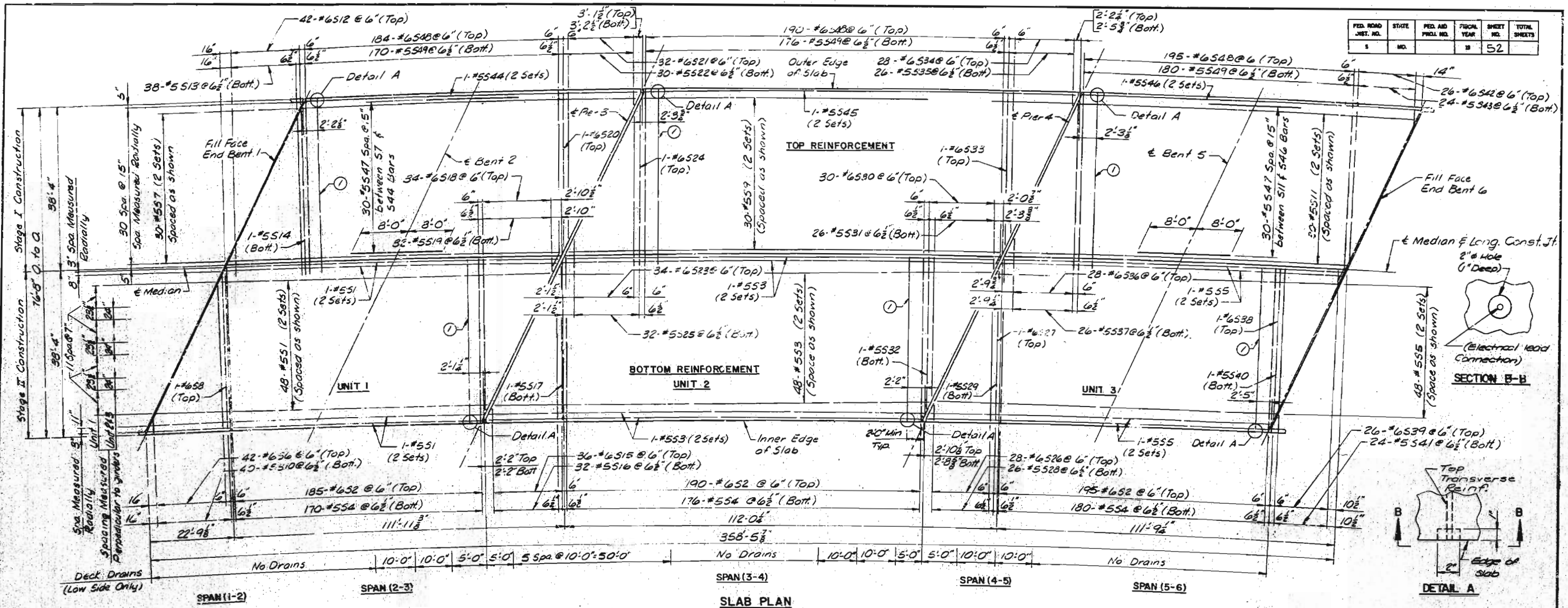
DETAILED Jan. 1980 Tobias  
CHECKED Apr. 1980 Hargis

### WELDING DETAILS

**Note:** This drawing is not to scale. Follow dimensions.



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		52		



**NOTES:**

- All transverse reinforcement is placed radially. The spacing for the Stage I Transverse reinforcement is measured along the outer edge of slab. The spacing for the Stage II Transverse reinforcement is measured along the E of Median. Minimum top for top and bottom longitudinal reinforcing bars is 20".
- Shift top transverse bar to edge of slab.
- Electrical Lead Connections required. Actual location to be designated by the Engineer as part of the test system.
- For deck drain details for Unit 1 & 3, See Sheet No. 21.
- For deck drain details for Unit 2, See Sheet #26.
- Longitudinal bars are to be bent in field to fit horizontal alignment.
- Shift reinforcing bars in field where necessary to clear deck drains.
- For details of barrier curb not shown, see Sheet No. 31.
- Longitudinal reinforcing steel shall be placed so that the ends shall not be more than 1" from vertical leg of angle for Exp. Device.

Note: For Details of Longitudinal Const. Joint see Section B-B on Sheet No. 30.

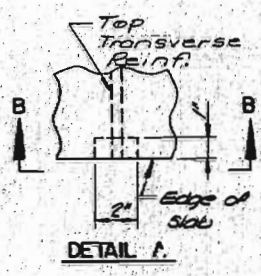
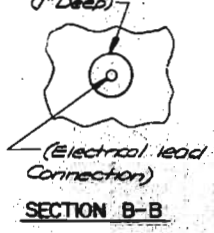
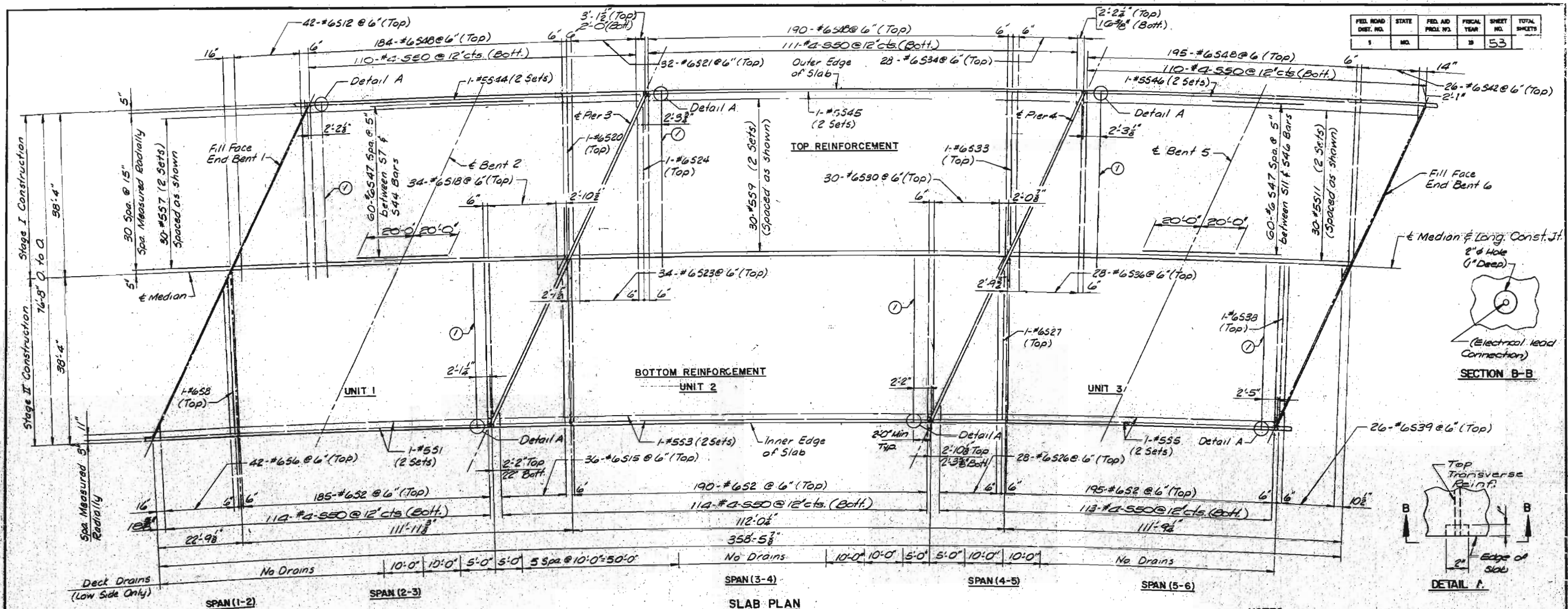
**SLAB PLAN  
CIP OPTION**

DETAILED Nov. 1979 Tobias  
CHECKED Apr. 1980 Hargis

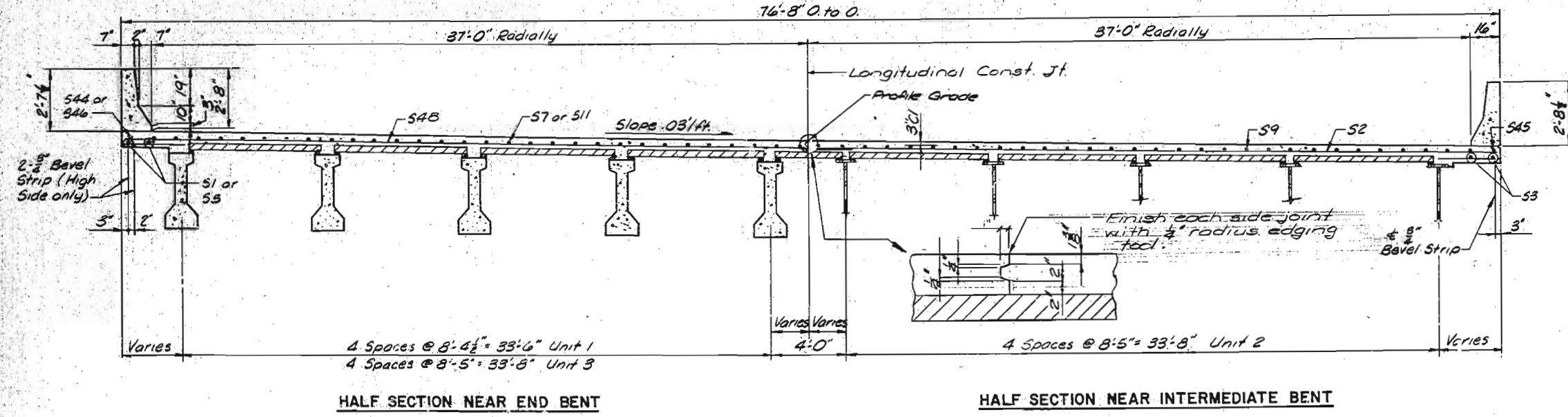
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 27 of 31.

**FRANKLIN COUNTY** **A-3961**



**NOTES:**  
 All transverse reinforcement is placed radially.  
 The spacing for the Stage I Transverse reinforcement is measured along the outer edge of slab.  
 The spacing for the Stage II Transverse reinforcement is measured along the E of Median.  
 Minimum lap for top and bottom longitudinal reinforcing bars is 20".  
 ① Shift top transverse bar to edge of slab.  
 ② Electrical Lead Connections required. Actual location to be designated by the Engineer as part of the test system.  
 For deck drain details for Unit 1 & 3, See Sheet No. 21.  
 For deck drain details for Unit 2, See Sheet 26.  
 Longitudinal bars are to be bent in field to fit horizontal alignment.  
 Shift reinforcing bars in field where necessary to clear deck drains.  
 For details of barrier curb not shown, see sheet No. 31.  
 Longitudinal reinforcing steel shall be placed so that the ends shall not be more than 1" from vertical leg of angle for Exp. Device.



DETAILED Nov. 1979 Tobias  
 CHECKED Apr. 1980 Hargis

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 28 of 31.

SLAB PLAN  
 PRECAST PANEL OPTION  
 FRANKLIN COUNTY  
 A-3961



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	54	

NOTES FOR PREFORMED COMPRESSION JOINT SEAL:

STRUCTURAL STEEL FOR EXPANSION DEVICE SHALL BE FABRICATED IN ONE SECTION EXCEPT THAT WHEN THE LENGTH IS OVER 50' SPlicing IS PERMISSIBLE.

THE EXPANSION DEVICE SHALL BE BENT TO CONFORM TO CROWN AND GRADE OF ROADWAY.

NO. 5 BARS FOR EXPANSION DEVICE SHALL BE STRUCTURAL GRADE.

APPROVED STUD WELDED ANCHORS (C-1010 THRU C-1020) OR DEFORMED BAR ANCHORS (ASTM A496) MAY BE USED IN LIEU OF NO. 5 BARS SHOWN.

PLAN DIMENSIONS ARE BASED ON INSTALLATION AT 60° F.

DIMENSION ① SHALL BE INCREASED  $\frac{1}{8}"$  FOR EACH 10° FALL IN TEMPERATURE AND DECREASED  $\frac{1}{8}"$  FOR EACH 10° RISE IN TEMPERATURE AT INSTALLATION.

SEE SPECIAL PROVISIONS FOR THE REQUIREMENTS OF COMPRESSION JOINT SEAL.

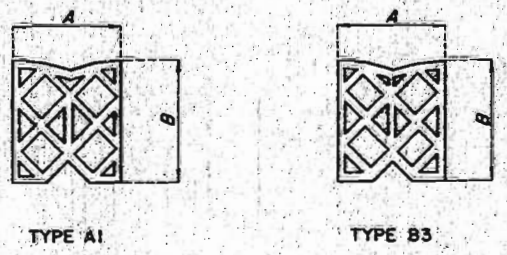
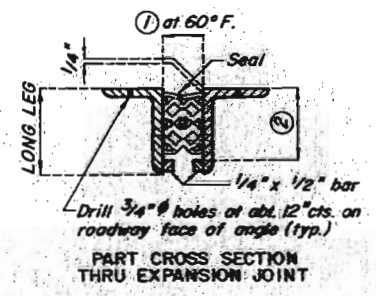
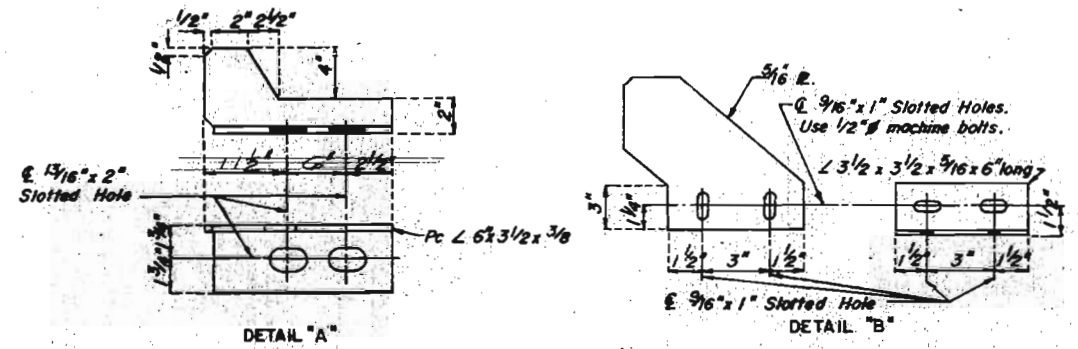
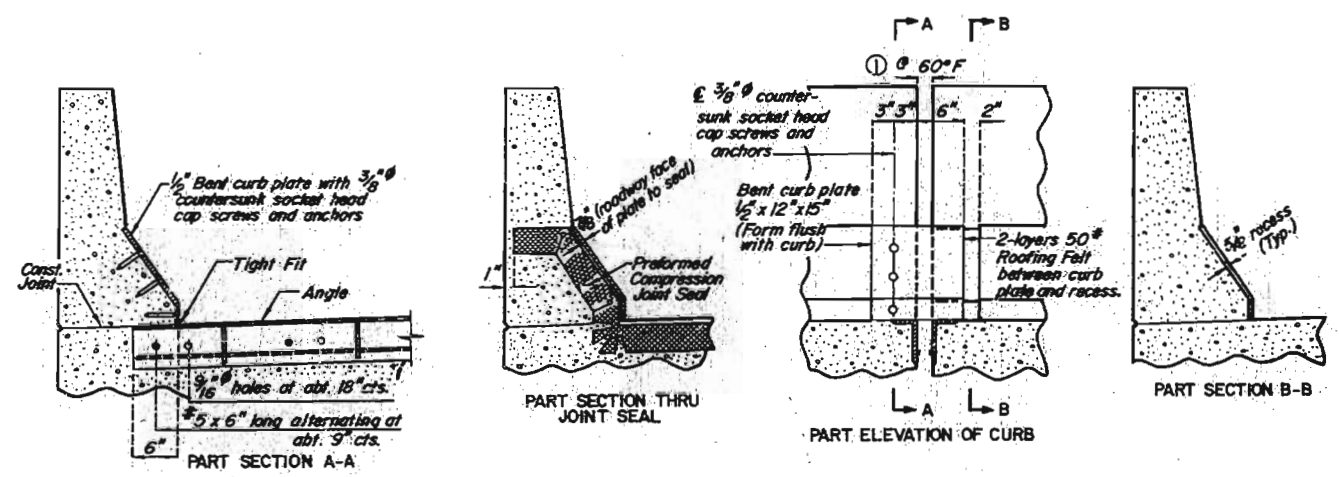


TABLE OF TRANSVERSE BRIDGE SEAL DIMENSIONS					
TYPE	"A" (WIDTH)	"B" (HEIGHT)	①	②	MAX. LIMIT OF COMPRESSIBILITY
A1 OR B3	2.5"	NOT LESS THAN "A"	1 5/8"	"B" + 1/2"	46%
A1 OR B3	3.0"	NOT LESS THAN "A"	1 7/8"	"B" + 1/2"	43%
A1 OR B3	3.5"	NOT LESS THAN "A"	2 1/8"	"B" + 1/2"	42%
PIER NO. 3 & 4	4.0"	NOT LESS THAN "A"	2 5/8"	"B" + 1/2"	42%
A1 OR B3	4.5"	NOT LESS THAN "A"	2 3/4"	"B" + 1/2"	40%
A1 OR B3	5.0"	NOT LESS THAN "A"	2 7/8"	"B" + 1/2"	40%

SIZE OF ARMOR ANGLE:

VERTICAL LEG OF ANGLE SHALL BE A MINIMUM OF "B" + 1/4".

HORIZONTAL LEG OF ANGLE SHALL BE A MINIMUM OF 3". MINIMUM THICKNESS OF ANGLE SHALL BE 3/8" FOR SEAL WIDTHS THROUGH 3.5" AND 1/2" FOR SEAL WIDTHS GREATER THAN 3.5".

IN LIEU OF THE SPECIFIED SEAL, THE NEXT LARGER SEAL MAY BE SUBSTITUTED. DIMENSIONS AND LIMITS SHALL CORRESPOND TO THE ACTUAL SEAL INSTALLED.

# DETAILS OF PREFORMED COMPRESSION JOINT SEAL AT PIER NO. 3 & 4

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 29 of 31.

FRANKLIN

COUNTY

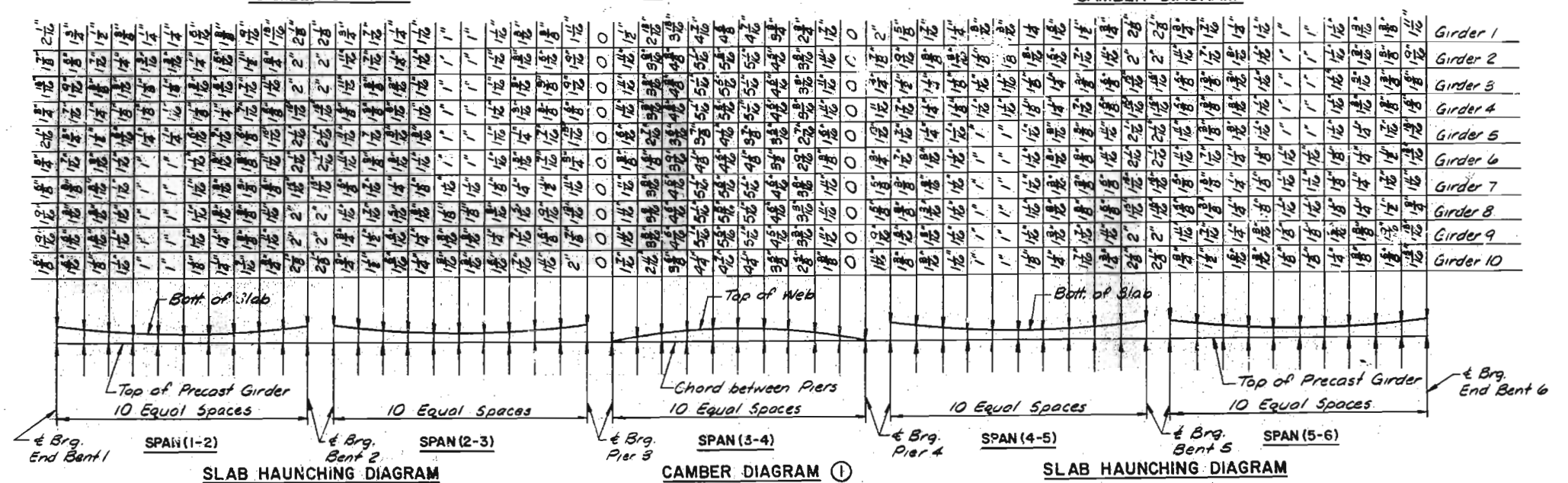
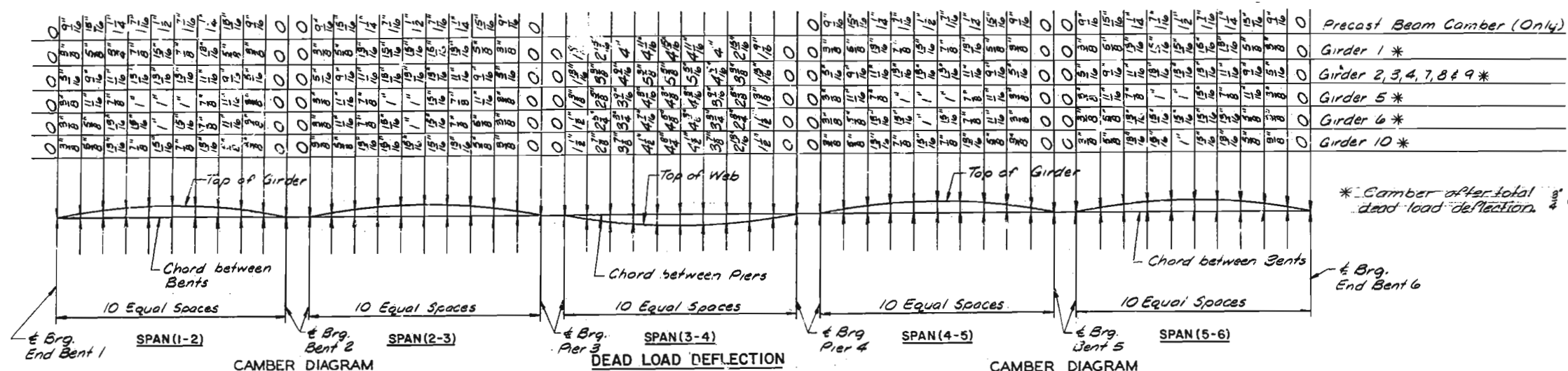
A-3961

518  
PCJS  
REVISED  
NOV. 1973

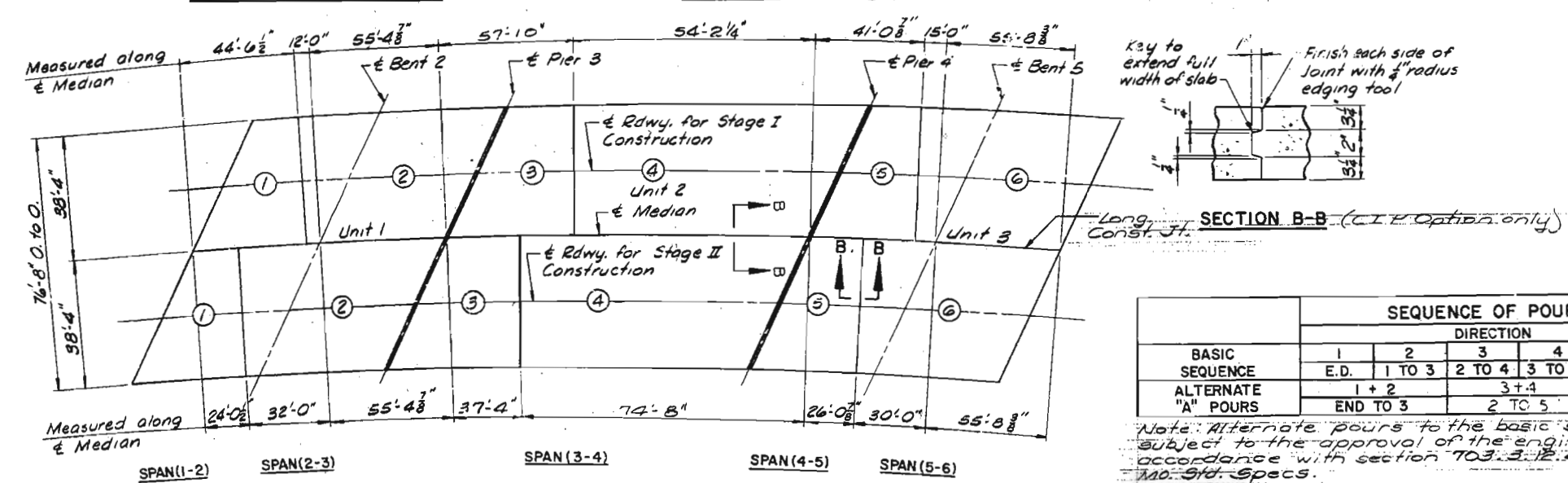
DETAILED NOV. 1983  
CHECKED NOV. 1983



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	ME.		19	55	



- \*\*\* Slab to be built parallel to grade and to a minimum thickness of 8 1/2". Slab haunches to be adjusted for any difference in girder camber from that shown in Prestress Girder Camber. Concrete in the slab haunches is included in the Estimated Quantities as Class B2 Concrete.
- ① Camber includes allowance for super-elevation and for dead load deflection due to concrete slab, curb and structural steel.
- \*\* Dimensions may vary if girder camber after erection differs from plan camber by more than the 1/2" of A.L. deflection due to weight of structural steel. No payment will be made for additional forming or concrete required for variation in haunching.
- 18% of Dead Load Deflection due to weight of structural steel.
- For Units 1 & 3  
The contractor shall pour and satisfactorily finish the slab pours at a rate of not less than 41 Cubic Yards per hour unless he elects to use an approved retarder to retard the set of the concrete to 2.5 hours in which case he may reduce his pouring and finishing rate to not less than 25 Cubic Yards per hour.
- For Unit 2  
The contractor shall pour and satisfactorily finish the roadway slab at a rate of not less than 25 cubic yards per hour.
- Longitudinal dimensions shown are measured along & Median.
- Slab Pour Rates were calculated using horizontal distances along & Median.
- The diaphragm at the int. Bts. and integral end Bts. shall be poured a minimum of 30 minutes and a maximum of 2 hrs. before the slab is poured.
- Intermediate diaphragms within spans and at expansion devices may be poured with construction joint between diaphragm and slab or monolithic with slab.

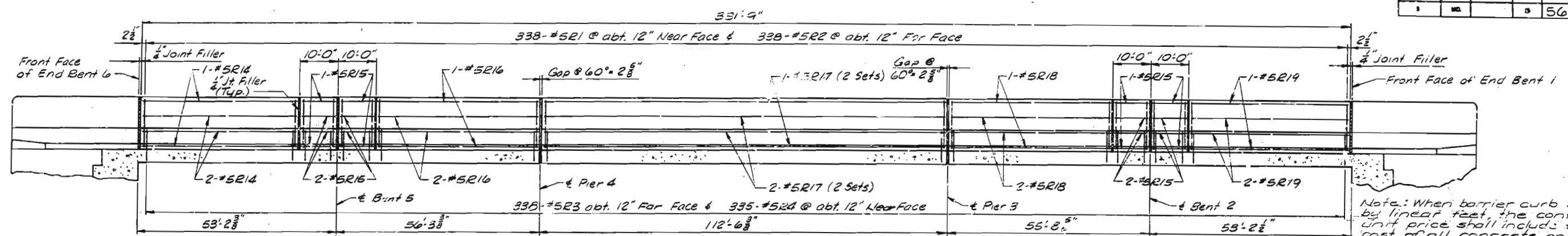


BASIC SEQUENCE	SEQUENCE OF POURS					
	DIRECTION					
	1	2	3	4	5	6
1	E.D.	1 TO 3	2 TO 4	3 TO 5	4 TO 6	5 TO END
2	1 + 2	3 + 4	5 + 6			
3	END TO 3	2 TO 5	4 TO END			

Note: Alternate pours to the basic sequence are subject to the approval of the engineer in accordance with section 703.3.12.4 of Mo. Std. Specs.

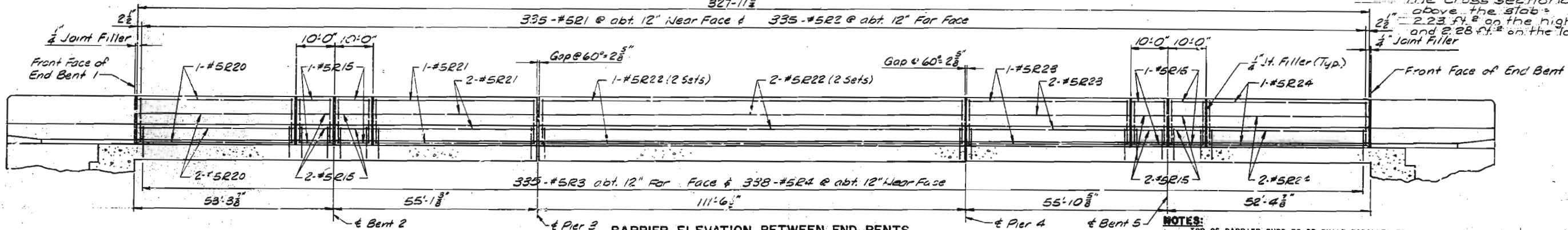
**CAMBER AND HAUNCHING DIAGRAM AND DEAD LOAD DEFLECTION AND SLAB POURING SEQUENCE**

FED. ROAD DIST. NO.	STATE	PC. AND FROM NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MD.	D	56		



**BARRIER ELEVATION BETWEEN END BENTS**

Right Side \*

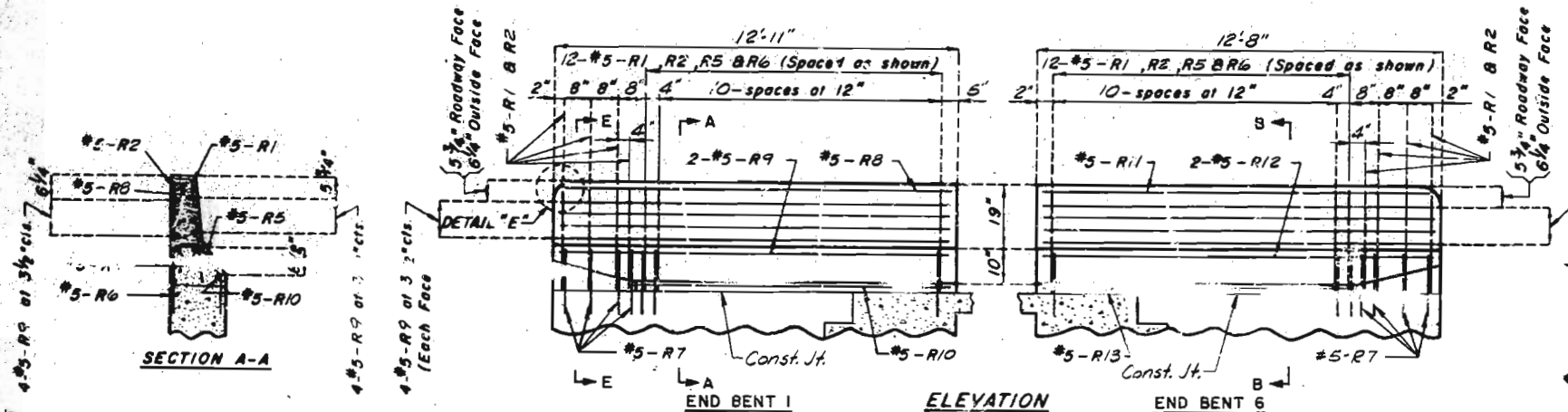


**BARRIER ELEVATION BETWEEN END BENTS**

Left Side \*

Note: When barrier curb is bid by linear feet, the contract unit price shall include the cost of all concrete and reinforcement, complete in place. Concrete in the safety barrier curb shall be class B1. The cross sectional area, above the slab, shall be 2.23 sq. ft. on the high side and 2.28 sq. ft. on the low side.

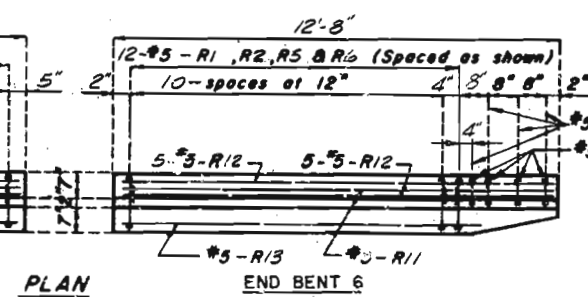
**NOTES:**  
 TOP OF BARRIER CURB TO BE BUILT PARALLEL TO GRADE WITH BARRIER CURB JOINTS (EXCEPT AT END BENTS) NORMAL TO GRADE.  
 ALL EXPOSED EDGES OF BARRIER CURB SHALL HAVE 1/2" RADIUS OR 3/8" BEVEL UNLESS OTHERWISE NOTED.  
 \* Dimensions measured along outside edge.



**ELEVATION**

**END BENT 1**

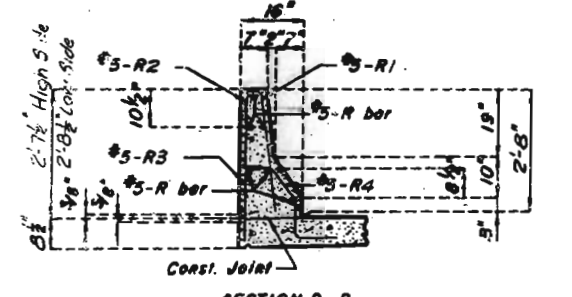
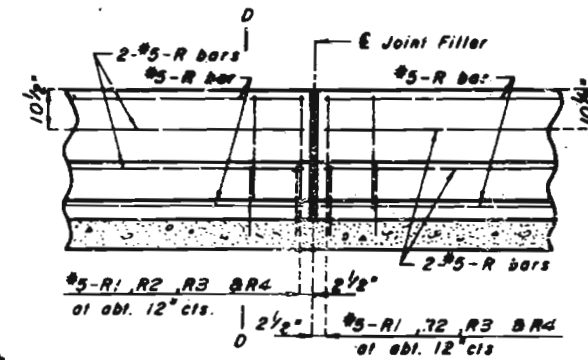
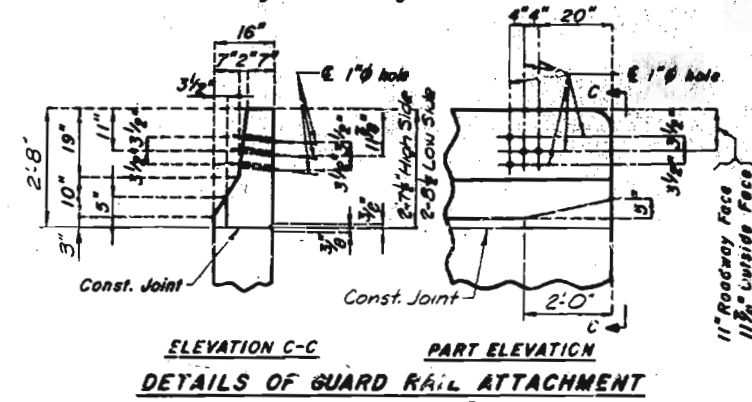
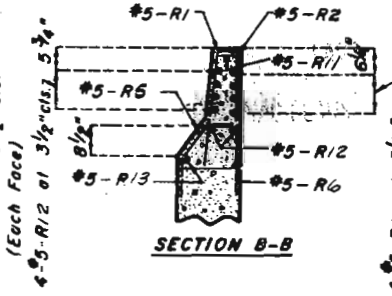
**END BENT 6**



**PLAN**

**DETAILS OF BARRIER CURB AT END BENTS**

Note: This drawing is not to scale. Follow dimensions.



Note: Use a minimum lap of 17" for #5 horizontal barrier bars.

FRANKLIN COUNTY

A-3961

520

REVISED

AUG. 1978

SEP. 1978

DET. 1271

1079 Tobias

1080 Hargis

DETAILS OF BARRIER CURB AT END BENTS

FILLED JOINT DETAIL

Booker

Engineers Architects Planners



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTL SHEETS
1	MO.		20	26	
SEC 26 TWP. 43N RGE. 1W					

DESIGN LOADING  
HS 20-44 (Modified 80,000# Tandem Axle)  
Earth 120<sup>12</sup> Equivalent Fluid Pressure = 30# / ft<sup>3</sup>  
Fatigue Case I  
Superstructure: Simply supported noncomposite for  
Dead Load all Units. Simply supported composite  
for the road Unit 2. Continuous composite for  
Live Load Units 1 & 3.

DESIGN UNIT STRESSES  
 Class B Concrete (Substructure)  
 $f'_c = 3000 \text{ psi}$   
 Class B2 Concrete (Superstructure except prestressed  
 girders and safety barrier curb)  $f'_c = 4000 \text{ psi}$   
 Reinforcing Steel (Grade 60)  $f_y = 60,000 \text{ psi}$   
 Class B1 Concrete (Safety Barrier Curb)  
 $f'_c = 4000 \text{ psi}$

Structural Steel (A.S.T.M. A-588)  
 $f_y = 50,000$  psi  
 Steel Plate  $f_b = 9,000$  psi  
 Structural Carbon Steel  $f_y = 36,000$  psi  
 For Prestressed Girder stresses see sheet 22.

NEOPRENE PADS  
Bearings shall be 50 durometer Neoprene Pads for  
Bent 1, Pier 3, Pier 4, and Bent 6.  
Bearings shall be 60 durometer Neoprene Pads for Bent  
2 and Bent 5.

JOINT FILLER  
All joint filler did meet the requirements of Std Spec 1057.2.4.

FIELD CONNECTIONS  
Field connections, High Strength Bolts 44's, holes 1/8" except as noted.

REINFORCING STEEL  
Minimum clearance to reinforcing steel shall be  $\frac{1}{2}$ " unless otherwise shown. All reinforcing bars in tops of substructure beams or caps shall be spaced to clear anchor bolts for bearings by at least  $\frac{1}{4}$ ".

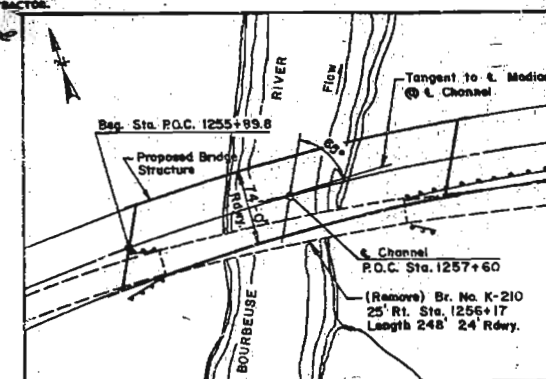
REMARKS  
B.H. TO 60ft Spike in base of 25' Sycamore, 125' S. of Rte.  
50, 150'E. of Jct. of Rte. 47 LL & Rte. 50. Elev 543.50

B.M. ☐ CHISELED SQUARE TOP OF CURB WALL  
NORTH EAST CORNER ELEV. 526.46

STEEL SHINY BRACING  
Paint: Shop prime, field all exposed surfaces of steel  
piles and bracing painted in accordance  
with Std. Spec. 702A.7 using System A or B. Color  
of final coat shall be Aluminum

FOR ADDITIONAL GENERAL NOTES SEE SHEET 3

**A-3961**



Sheet No. 1A of 31.

DATE 11/23/83

ESTIMATED QUANTITIES				
ITEM	UNIT	SUBSTR	SUPERSTR	TOTAL
Class 1 Excavation	CU. Yd.	119.5		119.5
Removal of Bridge (Bridge No. K-210) *	Each			1
Pre-Bore for Piling	LIN. FT.	29		29
Class 2 Excavation	CU. Yds.	184.0		184.0
Structural Steel Piles (HP10 x 42)	LIN. FT.	1395.0		1395.0
Class B Concrete (Substructure)	CU. Yds.	449.4		449.4
Base Point Reinforcement	Each	40		40
Neoprene Bearing Pads	Each		60	60
Expanded Neoprene Bearing Pads	Each		40	40
Formed Compression Expansion Joint Seal (4 inches)	LIN. FT.		169	169
Stressed Concrete Members, I-Section (55'-0")	Each		40	40
Reinforcing Steel (Grade 60)	Lbs.	52,230		52,230
Ready Barrier Curb	LIN. FT.		711	711
Corroated Structural Low Alloy Steel (Plate Girder) A-36 *	Lbs.		20840	20840
Slab Drains	Each		14	14
Protective Coating for Conc. Bts. (Weathering Steel)	Sq. Ft.	1		1
Slab on Conc. I-Gird.: See Spec. Provisions	Sq. Yds.		1914	1914
Slab on Steel, See Special Provisions	Sq. Yds.		946	946
TEST HOLES	LIN. FT.	44		44
CLASS 2 EXCAVATION @ 150%	CU. Yds.	8.0		8.0

**Note:** This drawing is not to scale. Follow dimensions.

PLAN

• Indicates locations of Borings. For boring data see sheet No. 2 and 3.

\* Use existing bridge No. K-210 during 1st Stage construction, then remove.

UNDERGROUND FACILITIES, STRUCTURES, AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS AND, THEREFORE, THESE LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. THERE MAY BE OTHER UNRECORDED UTILITIES WHICH ARE AT PRESENT UNDER VERIFICATION OF THE LOCATIONS OF UNDERGROUND UTILITIES, SHOWN OR NOT SHOWN, WILL BE THE RESPONSIBILITY OF THE CONSTRUCTION CONTRACTOR.

All concrete above lower construction joint in  
 end bents is included with superstructure  
 quantities.  
 All reinforcement in the end bents is included  
 with the superstructure quantities.  
 \*\*\* No direct payment was made for  
 furnishing, installing, cleaning and painting  
 of bracing at intermediate bents.

*Robert B. ...*  
REGISTERED PROFESSIONAL ENGINEER  
MISSOURI NO. E-17747

504.02  
504.01

## FIELD PLANS



MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION  
U.I.P. EXISTING (55'-55') PRESTRESSED CONCRETE I-GIRDER SPANS,  
(112') COMPOSITE WELDED PLATE GIRDER SPAN,  
(55'-55') PRESTRESSED CONCRETE I-GIRDER SPANS

ROUTE	STATE	DISTRICT	SHEET NO.
50	MO	BR	1
JOB NO. J6P1948B			
CONTRACT ID.			
PROJECT NO.			
COUNTY FRANKLIN			
SEC/SUR 26	TWP 43N	RGE 1W	

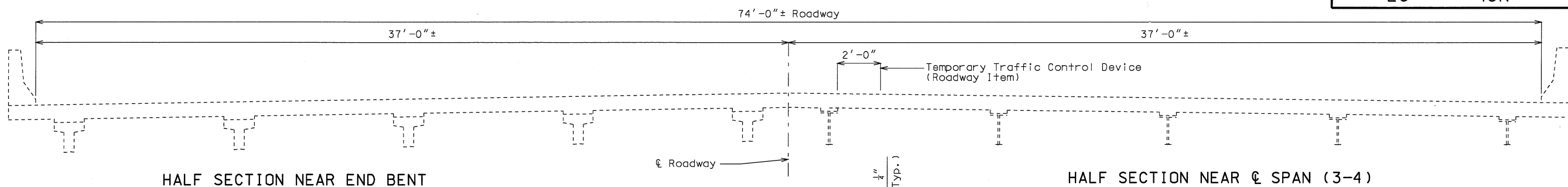
STATE OF MISSOURI

DEAN DAVID FRANK

NUMBER PE-28132

PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.



HALF SECTION NEAR END BENT

HALF SECTION NEAR ℄ SPAN (3-4)

GENERAL NOTES:

Design Specifications:  
2002 - AASHTO 17th Edition

Design Loading:  
HS20-44 (1977)  
Military 24,000# Tandem Axle

Concrete Protective Coating:

Protective coating for concrete bents and piers (Urethane) shall be applied as shown on the bridge plans and in accordance with Sec 711.

Traffic Handling:

Traffic over structure to be maintained during construction. See Roadway Plans for traffic control.

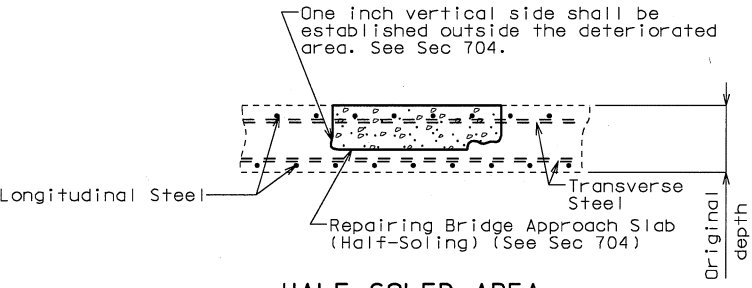
Miscellaneous:

Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

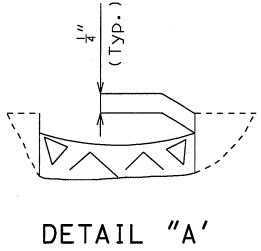
Contractor shall verify all dimensions in field before ordering new material.

"Sec" refers to the sections in the standard and supplemental specifications unless specified otherwise.

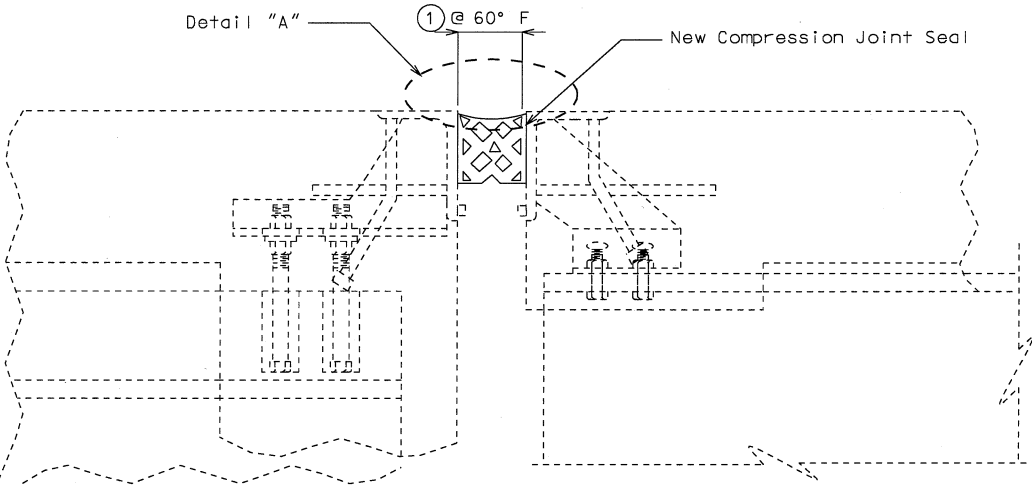
Concrete approach slab repair (half-soling) shall be preformed similar to repairing concrete deck (half-soling).



HALF-SOLED AREA

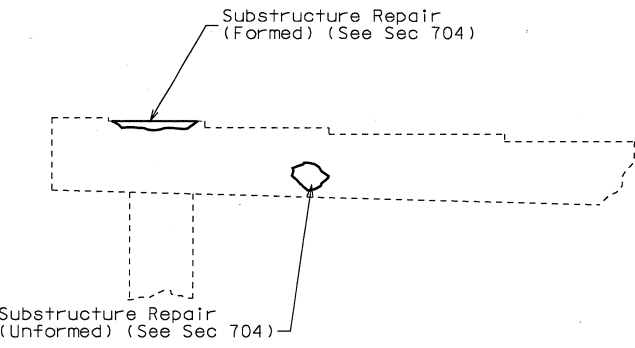


DETAIL "A"



TYPICAL PART SECTION SHOWING PREFORMED COMPRESSION SEAL REPLACEMENT AT PIERS NO. 3 & 4

Apply Protective Coating - Concrete Bents and Piers (Urethane) to exposed concrete surfaces as shown (See Sec 711).



PART ELEVATION OF PIERS 3 & 4 SHOWING SUBSTRUCTURE REPAIR

Estimated Quantities		
Item		Total
Removal of Existing Expansion Joint Seal or Sealant	linear foot	169
Substructure Repair (Formed)	sq. foot	100
Substructure Repair (Unformed)	sq. foot	100
Repairing Concrete Approach Slab (Half-Soling)	sq. foot	100
Protective Coating - Concrete Bents and Piers (Urethane)	lump sum	.1
Preformed Compression Seal	linear foot	169

TABLE OF TRANSVERSE BRIDGE SEAL DIMENSIONS				
Seal Width	①	②	Required Movement Range	
2.5"	1 5/8"	Manufacturer's Recommended Height	0.9"	
3.0"	1 7/8"	Manufacturer's Recommended Height	1.0"	
3.5"	2 1/4"	Manufacturer's Recommended Height	1.3"	
4.0"	2 5/8"	Manufacturer's Recommended Height	1.6"	
4.5"	2 3/4"	Manufacturer's Recommended Height	1.9"	
5.0"	2 7/8"	Manufacturer's Recommended Height	2.0"	

Note: Depth of seal shall not be less than width of seal.  
Plan dimensions are based on installation at 60°F. The expansion gap and other dimensions shall be increased or decreased 1/8" for each 10° fall or rise in temperature at installation.  
Curb plates shall be removed to install new preformed compression seal and then reinstalled.

PART SECTION THRU EXISTING PIER SHOWING PROTECTIVE COATING LIMITS (PIERS NO. 3 & 4)

Note:  
The cost of applying protective coating to Piers No. 3 & 4 will be considered completely covered by the contract lump sum price for Protective Coating - Concrete Bents and Piers (Urethane).

REPAIRS TO BRIDGE OVER BOURBEUSE RIVER

STATE ROAD FROM RTE. UU TO RTE. I-44

IN UNION

PROJECT NO.

STA. 1255+89.80±  
(MATCH EXIST.)

JOB NO. J6P1948B

RTE. 50

STD. 609.00

A39611

Detailed Sep. 2007  
Checked Sep. 2007

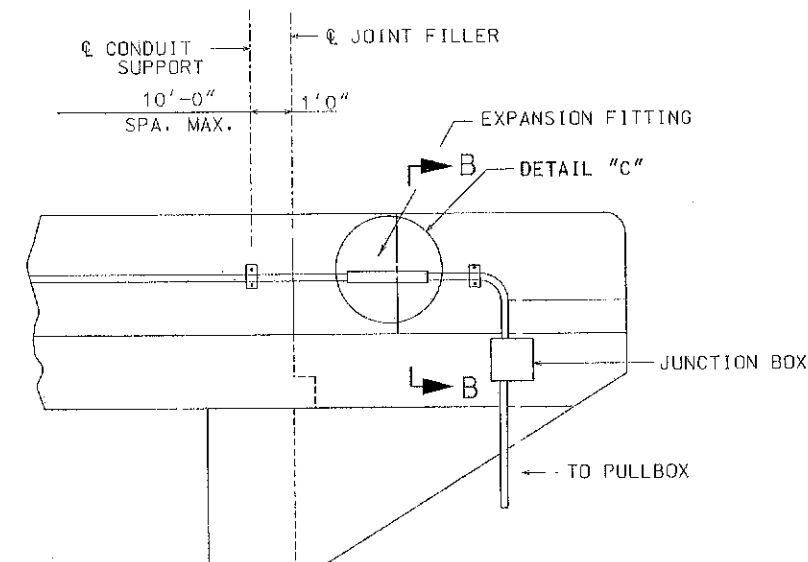
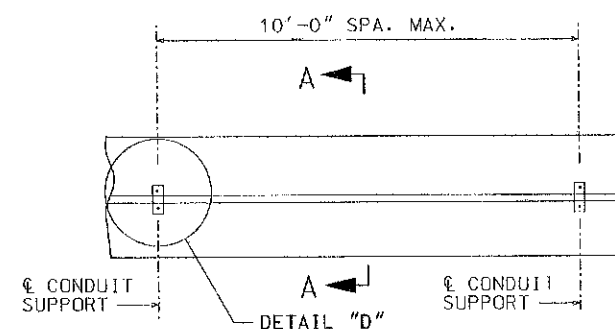
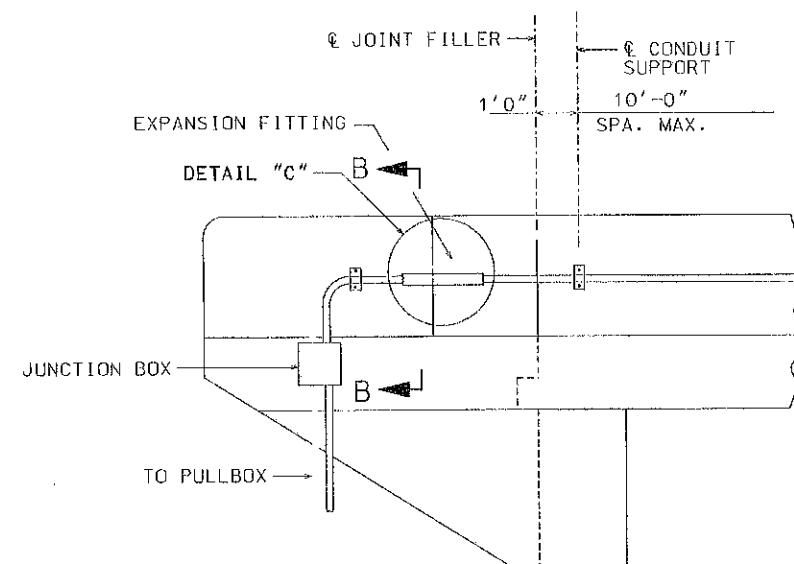
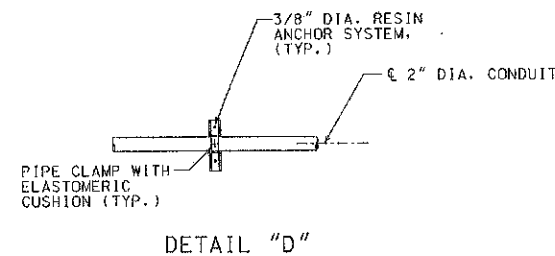
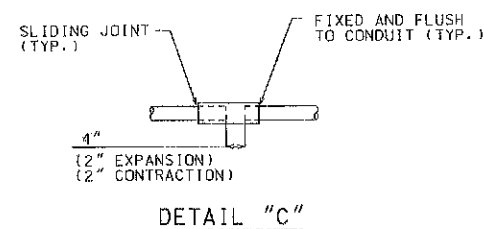
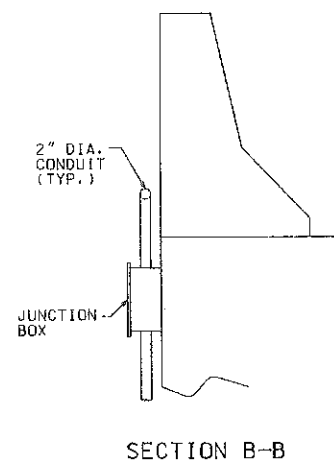
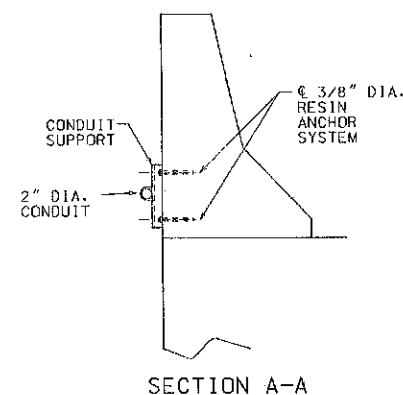
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 1 of 1

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

Contract I.D. 080125-604

ROUTE 50	STATE MO	DISTRICT 6	SHEET NO. 32
JOB NO. J6P2053C			
CONTRACT ID.			
PROJECT NO.			
COUNTY FRANKLIN			
DATE 3/13/08			
EFK Moen, LLC Civil Engineering Design			



ELEVATION OF CONDUIT SYSTEM ON BRIDGE  
(SEE PLAN SHEETS 10 & 11 FOR LOCATION)

# NOTES:

ALL MAIN CONDUIT SHALL BE 2" RIGID ALUMINUM

EACH SECTION OF CONDUIT SHALL BEAR THE UNDERWRITER'S LABORATORIES, INC. (UL) LABEL

CONCRETE ANCHORS FOR CONDUIT CLAMPS SHALL BE NON-DRILLING EXPANSION TYPE FOR 3/8" BOLTS. ANCHORS FOR BRACKETS SHALL BE IN ACCORDANCE WITH FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 4, CLASS 1, AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM-A153, B695-91 CLASS 50 OR SHALL BE STAINLESS STEEL. ANCHORS SHALL HAVE A CERTIFIED CONCRETE PULLOUT STRENGTH (ULTIMATE LOAD) OF 10,200 LBS IN 3,000 PSI CONCRETE. THE SUPPLIER SHALL BE REQUIRED TO FURNISH A MANUFACTURER'S CERTIFICATION THAT THE CONCRETE ANCHORS MEET THE REQUIRED MATERIAL AND GALVANIZING SPECIFICATIONS.

ALL STEEL PLATES AND SHAPES SHALL CONFORM TO ASTM A570, GRADE 33, AND SHALL BE HOT-DIP GALVANIZED CONFORMING TO ASTM A123. ALL NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153.

ALL MOUNTING BOLTS SHALL BE STAINLESS STEEL.

HOLES FOR CONCRETE ANCHORS SHALL BE PRE-DRILLED WITH A CONVENTIONAL CARBIDE MASONRY BIT. MINIMUM EMBEDMENT IN CONCRETE SHALL BE 1-3/4".

EXPANSION COUPLINGS SHALL BE INSTALLED ALONG THE 2" CONDUIT AT ALL JOINTS IN THE CONCRETE, HALFWAY BETWEEN GIRDERS BUT NEVER AT GREATER THAN 300' INTERVALS. COUPLINGS SHALL PROVIDE A MINIMUM MOVEMENT OF 2" IN EITHER DIRECTION. EXPANSION COUPLINGS SHALL BE EQUAL TO CARLON ELECTRICAL CONSTRUCTION PRODUCTS OR TRIANGLE CONDUIT AND CABLE COMPANY, INC.

CONDUIT TERMINATORS SHALL BE SEPARABLE.

ALL TERMINATORS AND COVERS SHALL BE OF WATERTIGHT CONSTRUCTION AND SHALL MEET REQUIREMENTS FOR NEMA 4 ENCLOSURE.

ALL JUNCTION BOXES SHALL BE PVC MOLDED SURFACE MOUNTED AND EQUAL TO CARLON ELECTRICAL CONSTRUCTION PRODUCTS OR CANTEX, INC.

WEEPHOLES SHALL BE PROVIDED AT APPROPRIATE LOCATIONS TO DRAIN ANY MOISTURE IN THE CONDUIT LINE.

LOCATE REINFORCEMENT IN CONCRETE WITH A PACHOMETER AND EXERCISE EXTREME CAUTION DURING THE INSTALLATION OF THE RESIN ANCHOR SYSTEM.

PAYMENT FOR ALL JUNCTION BOXES, CONDUIT, COUPLINGS, ANCHORS, CLAMPS, AND CONNECTIONS SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR CONDUIT SYSTEM ON STRUCTURE, PER LINEAR FOOT.

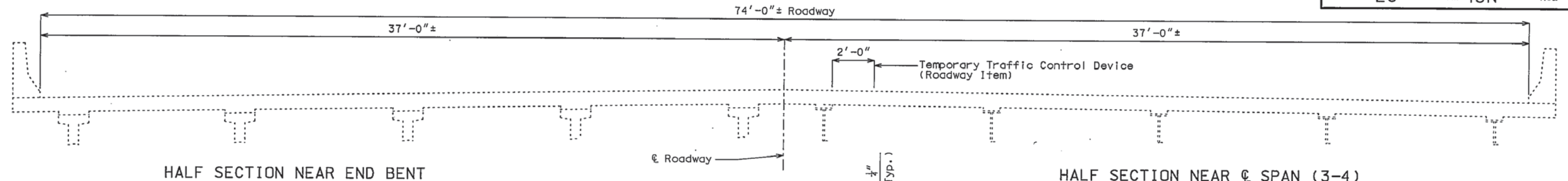
ROUTE 50  
SIGNAL NETWORKING  
CONDUIT SYSTEM ON  
STRUCTURES  
A-39612 & A40472

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION  
U.I.P. EXISTING (55'-55') PRESTRESSED CONCRETE I-GIRDER SPANS,  
(112') COMPOSITE WELDED PLATE GIRDER SPAN,  
(55'-55') PRESTRESSED CONCRETE I-GIRDER SPANS

FINAL PLANS

ROUTE 50	STATE MO	DISTRICT BR	SHEET NO. 1
JOB NO. J6P1948B			
CONTRACT ID. 080125-604			
PROJECT NO. FAF50-4(31)			
COUNTY FRANKLIN			
DATE			
SEC/SUR 26	TWP 43N	RGE 1W	

\*THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT.\*



GENERAL NOTES:

Design Specifications:  
2002 - AASHTO 17th Edition

Design Loading:  
HS20-44 (1977)  
Military 24,000# Tandem Axle

Concrete Protective Coating:

Protective coating for concrete bents and piers (Urethane) shall be applied as shown on the bridge plans and in accordance with Sec 711.

Traffic Handling:

Traffic over structure to be maintained during construction. See Roadway Plans for traffic control.

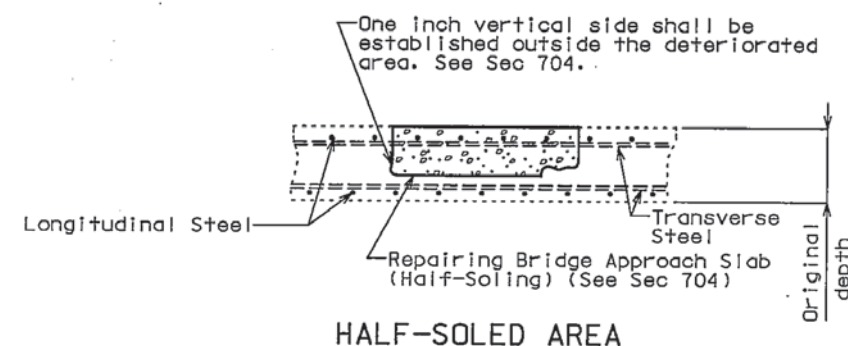
Miscellaneous:

Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

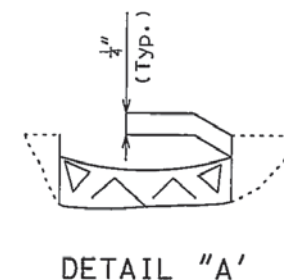
Contractor shall verify all dimensions in field before ordering new material.

"Sec" refers to the sections in the standard and supplemental specifications unless specified otherwise.

Concrete approach slab repair (half-soling) shall be preformed similar to repairing concrete deck (half-soling).

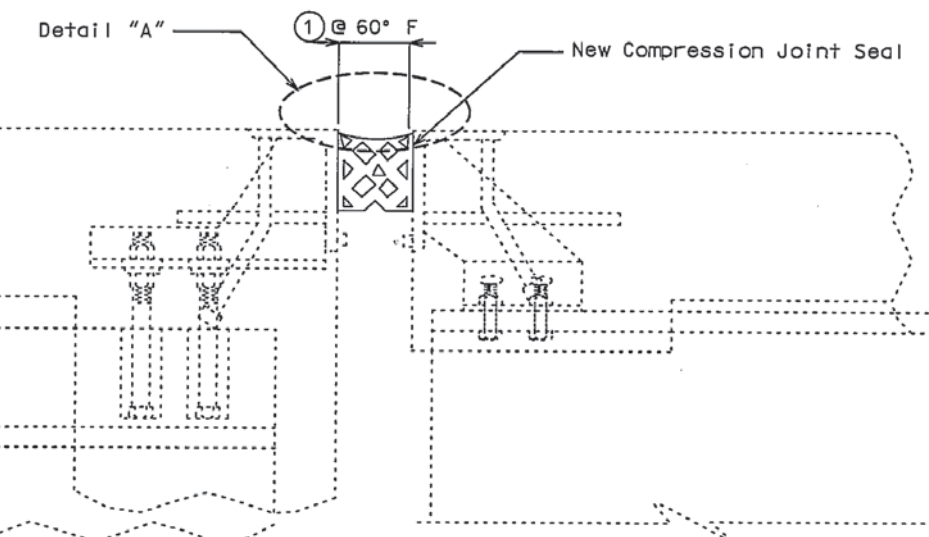


HALF-SOLED AREA



DETAIL "A"

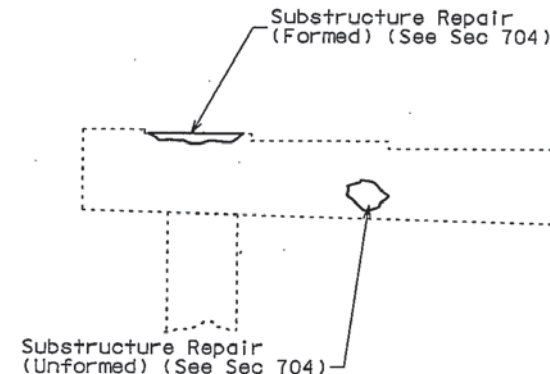
HALF SECTION NEAR C. SPAN (3-4)



TYPICAL PART SECTION SHOWING PREFORMED COMPRESSION SEAL REPLACEMENT AT PIERS NO. 3 & 4

Apply Protective Coating - Concrete Bents and Piers (Urethane) to exposed concrete surfaces as shown (See Sec 711).

Apply Protective Coating - Concrete Bents and Piers (Urethane) to exposed concrete surfaces as shown (See Sec 711).



PART ELEVATION OF PIERS 3 & 4 SHOWING SUBSTRUCTURE REPAIR

Final Quantities		
Item		Total
Removal of Existing Expansion Joint Seal or Sealant	linear foot	169
Substructure Repair (Formed)	sq. foot	0.00
Substructure Repair (Unformed)	sq. foot	37.00
Repairing Concrete Approach Slab (Half-Soling)	sq. foot	303.00
Protective Coating - Concrete Bents and Piers (Urethane)	linear foot	1
Preformed Compression Seal	linear foot	169

TABLE OF TRANSVERSE BRIDGE SEAL DIMENSIONS				
Seal Width	①	②	Required Movement Range	
2.5"	1 5/8"	Manufacturer's Recommended Height	0.9"	
3.0"	1 7/8"	Manufacturer's Recommended Height	1.0"	
3.5"	2 1/4"	Manufacturer's Recommended Height	1.3"	
4.0"	2 5/8"	Manufacturer's Recommended Height	1.6"	
4.5"	2 3/4"	Manufacturer's Recommended Height	1.9"	
5.0"	2 7/8"	Manufacturer's Recommended Height	2.0"	

Note: Depth of seal shall not be less than width of seal.

Plan dimensions are based on installation at 60°F. The expansion gap and other dimensions shall be increased or decreased 1/8" for each 10° fall or rise in temperature at installation.

Curb plates shall be removed to install new preformed compression seal and then reinstalled.

PART SECTION THRU EXISTING PIER SHOWING PROTECTIVE COATING LIMITS (PIERS NO. 3 & 4)

Note: The cost of applying protective coating to Piers No. 3 & 4 will be considered completely covered by the contract lump sum price for Protective Coating - Concrete Bents and Piers (Urethane).

REPAIRS TO BRIDGE OVER BOURBEUSE RIVER

STATE ROAD FROM RTE. UU TO RTE. I-44

IN UNION

PROJECT NO.

STA. 1255+89.80±  
(MATCH EXIST.)

JOB NO. J6P1948B

RTE. 50

STD. 609.00

A39611

Detailed Sep. 2007  
Checked Sep. 2007

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 1 of 1

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IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.