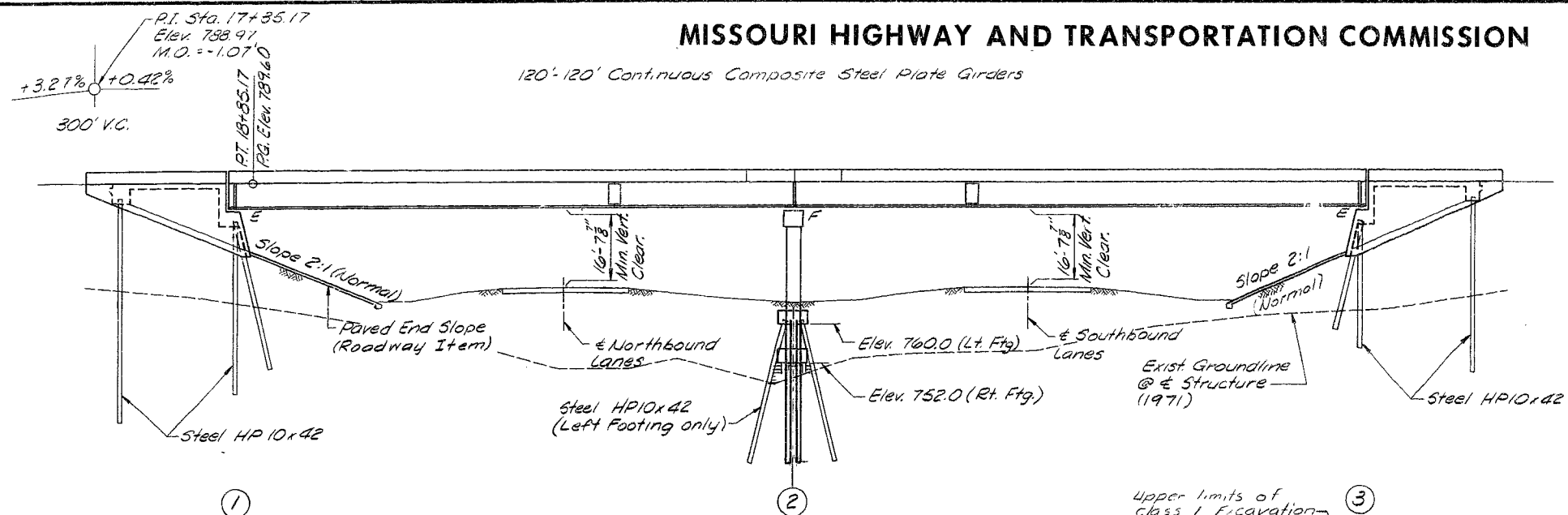
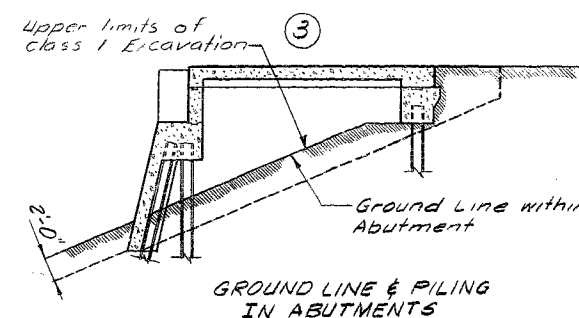


MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

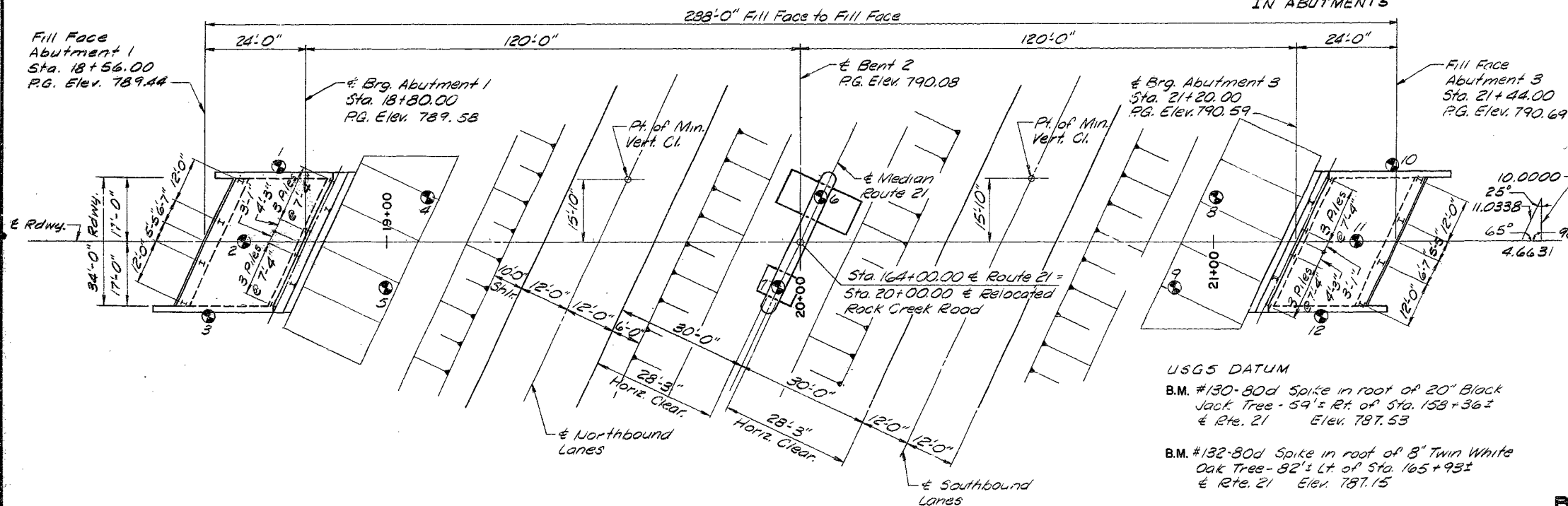
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	26	
Sec. 2B Twp. 43N Rgs 5E					



ELEVATION



GROUND LINE & PILING IN ABUTMENTS



PLAN

⊙ Indicates boring locations.
For Boring Data, see Sheet
No. 2 of 15.



SUBMITTED BY:

Ronald D. Williams
REGISTERED PROFESSIONAL ENGINEER
MISSOURI NO. E-14673

Sheet No. 1 of 15.

GENERAL NOTES

DESIGN SPECIFICATIONS:

A.A.S.H.T.O. - 1983 and Interims thru 1964 & 1985
Load Factor Design.

DESIGN LOADING:

H 15-44
Earth = 120 lb/cu. ft., Equivalent Fluid Pressure 30 lb/cu. ft.
Fatigue Case III
#15/sq. ft. Future Wearing Surface

DESIGN UNIT STRESSES:

Class B Concrete (Substructure) $f'_c = 3,000$ psi.
Class B1 Concrete (Safety Barrier Curb) $f'_c = 1,000$ psi.
Reinforcing Steel (Grade 60) $f_y = 60,000$ psi.
Structural Carbon Steel $f_y = 36,000$ psi.
Steel Pile $f_b = 9,000$ psi.
Class B2 conc. (Superstructure except safety Barrier Curb) $f'_c = 4,000$ psi.

JOINT FILLER:

All joint filler shall meet the requirements of Std. Spec. 1057.2.4., except as noted.

FIELD CONNECTIONS:

Field connections, High Strength Bolts $\frac{3}{4}$ " ϕ , holes $\frac{13}{16}$ " ϕ except as noted.
Turn of Nut Method of tensioning high strength bolts will be permitted.

PAINT:

System B by contractor in accordance with Std. Spec. 712.12. Color of final coat for system B shall be green.

REINFORCING STEEL:

Minimum clearance to reinforcing steel shall be $\frac{1}{2}$ " unless otherwise shown.

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 approach beam within the limits of the structure and for not less than 25' in back of the fill face of the abutments before piles are driven for any bents falling within the embankment section.

GROUND LINE WITHIN SEMI-DEEP ABUTMENTS:

In no case shall the earth within Abutments No. 1 and 3 be above the Ground Line shown. Forms supporting abutment slab may be left in place.

BRIDGE ROCK CREEK ROAD UNDERPASS

STATE ROAD 21

ABOUT 4 MILES SOUTH OF ROUTE 141

PROJECT NO.

STA. 164+00.00

JOB NO. 6-U-21-256C

RTE. 21

JEFFERSON

COUNTY

STD. 706.35

STD. 611.60

A-3101

DESIGNED Dec. 1978 Achtentuch
DETAILED Jan. 1979 Tobias
CHECKED May 1979 Achtentuch

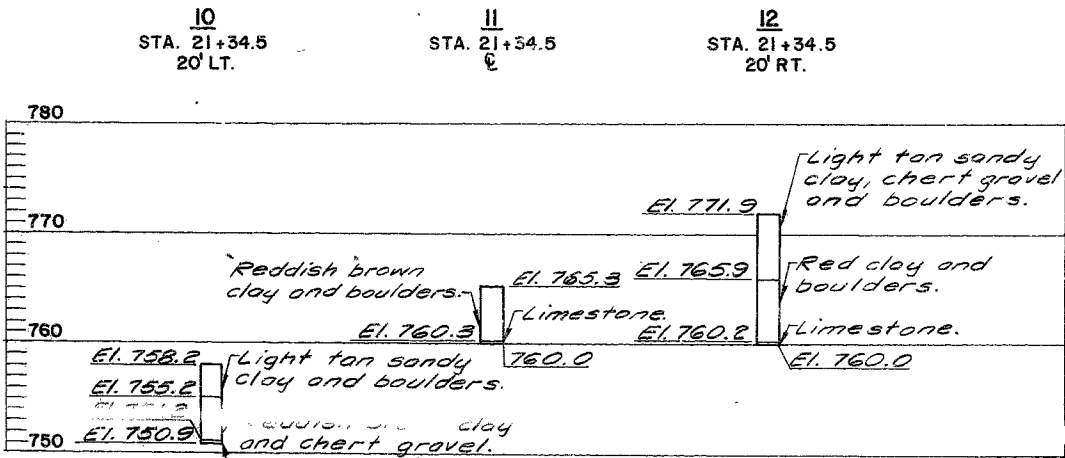
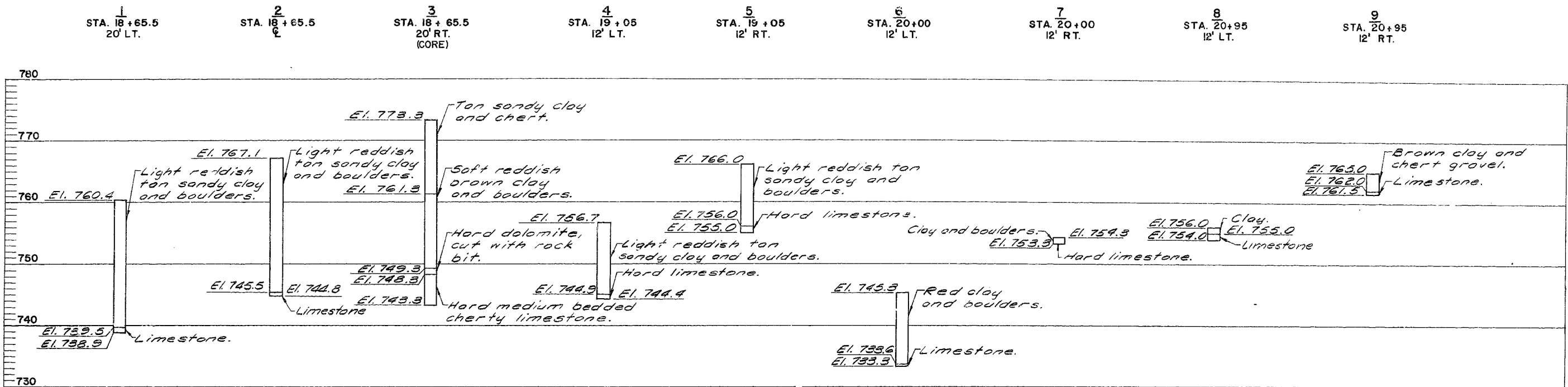
Booker
Engineers Architects Planners

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

SEE PLAN PLANS

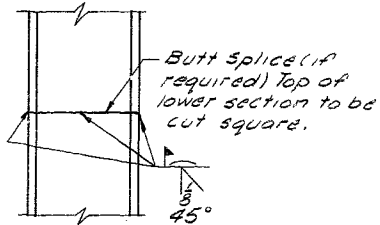
DATE 3/11/87

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



PILE AND FOOTING DATA						
BEARING PILES	ABUTMENT OR BENT NO.	1 (APPR. BM.)	1 (BRG. BM.)	2 (LT.)	2 (RT.)	3 (BRG. BM.) 3 (APPR. BM.)
	PILE TYPE & SIZE	HP10x42	HP10x42	HP10x42		HP10x42 HP10x42
	NUMBER	4	6	8		6 4
	APPROXIMATE LENGTH FT.	42' RT. 47' LT.	31' RT. 36' LT.	28		23' RT. 27' LT. 37' LT.
SPREAD FOOTINGS	DESIGN BEARING TONS	55.5	55.5	55.5		55.5 55.5
	HAMMER ENERGY REQUIRED FT. LBS.	12375	13100	13100		13100 12375
	FOUNDATION MATERIAL				Rock	
SPREAD FOOTINGS	DESIGN BEARING TONS/SQ. FT.				12	

Minimum energy requirement of hammer based on plan length and design bearing of piles.
All piles shall be driven to practical refusal.
Manufactured pile point reinforcement shall be used on all piles in this structure. See special Provisions.



DETAIL OF STEEL PILE SPLICE

ESTIMATED QUANTITIES				
ITEM	UNIT	SUBSTR.	SUPERSTR.	TOTAL
Class 1 Excavation	Cu. Yd.	80		80
Structural Steel Pile (HP 10x42)	Lin. Ft.	88.3		88.3
Class B Concrete	Cu. Yd.	204.3		204.3
Slab on Steel, see special Provisions	Sq. Yd.		985	985
Preformed Compression Exp. Jt. Seal (3.5 in.)	Lin. Ft.		76	76
Reinforcing Steel (Grade 60)	Lbs.	20980		20980
Reinforcing Steel (Grade 60) (Epoxy)	Lbs.	540		540
Fabricated Structural Carbon Steel	Lbs.		254380	254380
Painting (System B) Green	Ton		126.6	126.6
Safety Barrier Curb	Lin. Ft.		597	597
Slab on Semi-Deep Abutment	Sq. Yd.		187	187
Laminated Neoprene Bearing Pads	Each		15	15
Pile Point Reinforcement	Each	28		28

Note: All conc. and reinforcing steel below top of slab and above const. jt. under slab in Semi-Deep Abutments are included in superstructure quantities for slab on semi-Deep Abutments.

BORING DATA & ESTIMATED QUANTITIES

Note: The table of Estimated Quantities for Alternate slabs and semi-Deep Abutment 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 sq. yd. of Alternate Slabs and Semi-Deep Abutment Slab used.
See special Provisions for alternate methods of forming slabs.
Precast panel quantities based on skewed end panels.

Estimated Quantities for Alternate Slabs			
TYPE OF SLABS	Slab on Steel		Conc.
	Reinf. (Lbs.)	Epoxy Cu. Yd.	
Cast-In-Place Conventional Forms	57,560	230.8	
Precast Panel Forms	39,740	168.8	
Estimated Quantities for Semi-Deep Abut Slab			
	Reinf. (Lbs.)		Conc.
	Epoxy	Cu. Yd.	
Slab on Semi-Deep Abut.	14,400	72.7	

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

DETAILED Dec. 19 78 Bishop
CHECKED May 19 79 Achtentuch

Booker
Engineers, Architects, Planners

Sheet No. 2 of 15.

JEFFERSON COUNTY

A-3101

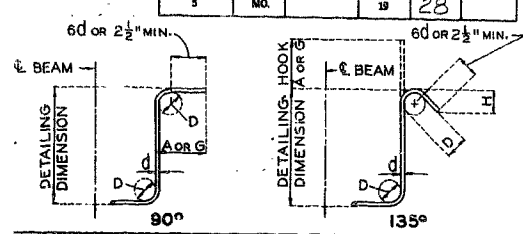
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	NO.		19	28	

COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO.	LOCATION	GRADE 60 (H)	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.
ABUTMENT 1																									
14	6 H1	Pile Wall	H20	X					40	2								40	2	845					
7	6 H2	"	H14	X							6	1	6				1	4 3/8	7 3/8	3	0	32			
3	7 H3	Beam	H20	X					40	2								40	2	657					
2	6 H4	"	H20	X					40	2								40	2	121					
8	4 H5	Backwall	H20	X					40	2								40	2	215					
2	6 H6	"	H20	X					40	2								40	2	121					
8	8 H7	Pile Cap	H20	X					40	2								40	2	858					
2	6 H8	"	H20	X					40	2								40	2	121					
7	6 H9	Pile Wall	H32	X							6	1	6				1	4 3/8	7 3/8	3	0	27			
2	4 H10	Wingwall	H20	X					6	4								6	4			8			
2	4 H11	"	H20	X					6	9								6	9			9			
2	4 H12	"	H20	X					5	1								5	1			7			
2	4 H13	"	H20	X					5	6								5	6			7			
10	4 H14	"	H20	X	V	2	1/3		4									13	4	17	7	59			
		Incr. = 2'-3 1/4"							4									4							
10	5 H15	Wingwall	H20	X	V	2	1/8		4									18	4	45	0	235			
		Incr. = 2'-1"							26									26							
10	4 H16	Wingwall	H20	X	V	2	3		10									5	10	16	6	55			
		Incr. = 2'-2 1/2"							12									12							
10	5 H17	Wingwall	H20	X	V	2	1/8		6 1/4									18	6	45	4	236			
		Incr. = 7 7/8"							26		9 7/8							26							
4	4 H18	Wingwall	H20	X	V	2	1/4		1									14	1	25	1	34			
		Incr. = 3'-1"							11		0							11		0					
4	4 H19	Wingwall	H20	X	V	2	1/4		7									14	7	26	1	35			
		Incr. = 3'-1"							11		6							11	6						
52	5 V1	Pile Wall	H20	X					9	1									9	1			493		
74	5 V2	Backwall	H20	X					7	10									7	10			605		
20	5 V3	Wingwall	H20	X	V	4	2		4									2	4	6		68			
		Incr. = 5 1/2"							4		2							4		2					
28	4 V4	Wingwall	H20	X	V	2	4		1 1/8									4	11	19	4	181			
		Incr. = 8 3/4"							14		4 3/4							14		5					
3	4 V5	Wingwall	H20	X					3	7									3	7			46		
28	4 V6	"	H20	X	V	2	4		10									4	10	19	5	181			
		Incr. = 9"							14		7							14		7					
6	4 V7	Wingwall	H20	X					9	0									9	0			36		
2	4 V8	"	H19	X					6	10	3		11					10	9	10	8	14			
2	4 V9	"	H19	X					6	10	3		0					9	10	9	9	13			
4	4 V10	"	H20	X					6	10									6	10			18		
14	4 U1	Pile Wall	H10	X							10	1	3						4	11	4		44		
10	4 U2	Beam	H10	X							6	2	3						3	3	1		21		
35	6 U3	"	H13	X					3	2 3/4	3	2 3/4	4	0	3	1 1/2			14	9	14	3	749		
38	4 U4	Pile Cap	H13	X					2	3	2	9	2	3	2	9			10	9	10	5	264		
5	4 U5	Wingwall	H10	X							3	11		6					3	4	8	2	27		
5	4 U6	"	H10	X							3	0		6					6	6	4		21		
35	5 U11	Pile Cap**	H10	X							2	7	2	4					7	6	7	4	268		
2	7 T1	Wingwall	H14	X							2	3	7	7					3	3 1/8	6	10 3/8	9	10	40
2	7 T2	"	H14	X							5	2	1	3	29	11			27	0 1/8	12	10 1/8	37	9	153
2	7 T3	"	H14	X							2	0	6	4					2	10 1/8	5	10 1/8	3	6	35
2	7 T4	"	H14	X							5	2	1	3 1/4	30	0 1/8			27	0 1/8	13	1 1/8	36	11	150
10	2 P1	A.B. Well	H22	X							1	3		9 1/8										230	38
Total Abutment 1 Epoxy Coated																		268							
Total NON Epoxy Coated																		1879							

COMPLETE BILL OF REINFORCING STEEL

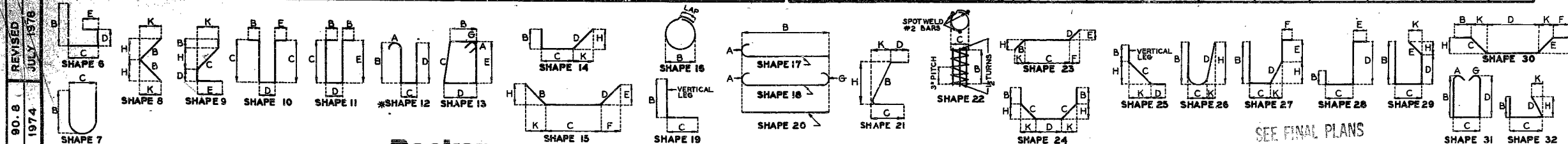
NO. REQD.	MARK NO.	LOCATION	GRADE 60 (H)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS												NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT		
									B		C		D		E		F		H					K	
									FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.				FT.	IN.
ABUTMENT 3																									
14	6H1	Pile Wall	H20	X					40	2								40	2	845					
7	6H2	"	H14	X						6	1	6					1	4 3/8	7 5/8	3	0	3	0	32	
3	7H3	Beam	H20	X					40	2															657
2	6H4	"	H20	X					40	2															121
8	4H5	Backwall	H20	X					40	2															215
2	6H6	"	H20	X					40	2															121
3	8H7	Pile Cap	H20	X					40	2															858
2	6H8	"	H20	X					40	2															121
7	6H9	Pile Wall	H32	X						6	1	6						1	4 3/8	7 5/8	3	0	2	7	27
2	4H10	Wingwall	H20	X					6	4															8
2	4H11	"	H20	X					6	9															9
2	4H12	"	H20	X					5	1															7
2	4H13	"	H20	X					5	6															7
4	4H20	"	H20	X	V	2			13	10															33
		Incr. = 3'-2"							10	8															
4	4H21	Wingwall	H20	X	V	2			14	2															34
		Incr. = 3'-1"							11	1															
10	4H22	Wingwall	H20	X	V	2			13	1															57
		Incr. = 2'-3"							4	1															
10	5H23	Wingwall	H20	X	V	2			26	4															231
		Incr. = 2'-1"							18	0															
10	5H24	Wingwall	H20	X	V	2			12	5															84
		Incr. = 2'-2"							3	9															
10	5H25	Wingwall	H20	X	V	2			26	2															231
		Incr. = 2'-0"							18	2															
52	5 V1	Pile Wall	H20	X					9	1															493
74	5 V2	Backwall	H20	X					7	10															605
2	4 V3	Wingwall	H19	X					6	10	3	11													14
2	4 V9	"	H19	X					6	10	3	0													13
8	4 V10	"	H20	X					6	10															37
20	5 V3	"	H20	X	V	4			2	4															68
		Incr. = 5'-1/2"							4	2															
28	4 V11	Wingwall	H20	X	V	2			4	11 3/4															182
		Incr. = 8'-7/8"							14	6 1/2															
8	4 V5	Wingwall	H20	X					9	7															46
28	4 V12	"	H20	X	V	2			4	11 1/4															178
		Incr. = 8'-7/8"							14	13 1/2															
6	4 V7	Wingwall	H20	X					9	0															36
14	4 U1	Pile Wall	H10	X						10	1	3													44
10	4 U2	Beam	H10	X						6	2	3													21
35	6 U3	"	H13	S	X				3	2 3/8	3	2 3/8	4	0	3	1 1/2									749
38	4 U4	Pile Cap	H13	S	X				2	3	2	9	2	3	2	9									264
5	4 U5	Wingwall	H10	X						3	11	6													27
5	4 U6	"	H10	X						3	0	6													21
35	5 U11	Pile Cap**	H10	X						2	7	2	4												268*
2	7 T5	Wingwall	H14	X						2	3	7	7												40
2	7 T6	"	H14	X						5	2	1	8	30	2										150
2	7 T7	"	H14	X						2	0	6	6												35
2	7 T8	"	H14	X						5	2	1	8	30	2										150
10	2 P1	A.B. Well	H22	X						1	3	9	8												38
Total Abutment 3 Epoxy Coated																		268							
Total NON Epoxy Coated																		6909							



STIRRUP HOOK DIMENSIONS				
GRADES 40-50-60 KSI				
BAR SIZE	D (IN.)	90° HOOK	135° HOOK	
		H A OR G	H 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"

COMPLETE BILL OF REINFORCING STEEL																									
NO. REQD.	MARK NO.	LOCATION	GRADE	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.
BENT 2																									
6	11 H26	Cap	H20	X				34	2									34	2	1089					
4	6 H27	"	H20	X				34	2									34	2	206					
2	11 H28	"	H18	X				35	2									384	407						
2	11 H29	"	H18	X				36	10									400	425						
2	11 H30	"	H18	X				37	5									407	431						
8	7 H31	"	H17	X				4	2	3	4							10	3	166					
34	5 U7	Cap	H13	S	X			3	5	3	9	3	5	3	7			15	6	535					
8	4 U8	"	H10	X							6	3	5					4	5	22					
2	5 U9	"	H13	S	X			3	0	3	9	3	0	3	9			13	7	26					
2	5 U10	"	H13	S	X			3	4	3	9	3	4	3	7			15	6	31					
14	9 V16	Column	H20	X				19	7									19	7	932					
14	9 V17	"	H20	X				27	7									27	7	1313					
42	4 V18	"	H16	X				3	3									11	3	311					
14	9 D1	Column	H17	X				7	0									8	3	393					
14	9 D2	"	H20	X				7	11									7	11	377					
4	10 F1	Footing	H20	X				11	9									11	9	202					
9	5 F2	"	H20	X				6	9									6	9	63					
2	6 F3	"	H10	X						4	0	11	0					19	0	56					
7	5 F4	"	H20	X				5	3									5	3	38					
7	7 F5	"	H18	X				7	3									5	11	128					
10	2 P1	A.B. Well	H22	X				1	6	9	8							26	1	44					
																		Total Bent 2		7195					
SLAB REINFORCEMENT (C.I.P.)																									
54	5 S1**	Slab	H20					36	5									36	5	20549					
339	5 S2**	"	H20					36	5									36	5	12876					
170	5 S3**	"	H20					30	1									50	18	880					
76	5 S4**	"	H20					12	35	0								350	37	0					
																		Incr=10 1/8"		2 0					
46	5 S5**	Slab	H20					12	34	12								341	360	884					
																		Incr=1 7/8"		2 9					
145	5 S6**	Slab	H20					50	1									50	1	7574					
112	5 S7**	"	H20					41	3									41	3	4809					
10	5 S8**	"	H20					50	1									50	1	522					
																		Total Epoxy Coated		57560					
SLAB REINFORCEMENT (P/C PANEL)																									
54	5 S1**	Slab	H20					36	5									36	5	20549					
305	5 S2**	"	H20					50	1									50	1	1567					
76	5 S4**	"	H20					12	35	0								350	37	0					
																		Incr=10 3/4"		2 0					
145	5 S6**	Slab	H20					50	1									50	1	7574					
174	5 S7**	"	H20					41	3									41	3	4809					
10	5 S8**	"	H20					50	1									50	1	522					
482	4 S31**	"	H20					3	0									3	0	966					
																		Total Epoxy Coated		39735					

COMPLETE BILL OF REINFORCING STEEL																									
NO. REQD.	MARK NO.	LOCATION	GRADE	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.
BARRIER REINFORCEMENT																									
620	5 R1**	Barrier	H15					2	6	3	2							2	6	3					
620	5 R2**	"	H19					2	6	3	2							2	6	3					
620	5 R3**	"	H19					1	5	6								1	11	10					
584	5 R4**	"	H27							6	11	8	7	1	0	9	6	3	0	2					
20	5 R5**	"	H27							6	11	8	7			6	3	9	2	10					
4	5 R6**	"	H20					28	0									28	0	117					
40	5 R7**	"	H20					28	2									28	2	1175					
4	5 R8**	"	H20					26	2									26	2	110					
48	5 R9**	"	H20					56	1									56	1	2805					
26	5 R10**	"	H20					9	9									9	9	264					
16	5 R20**	"	H10	S						1	5	6						3	4	3					
																		Total Barrier Reinforcement		11032					
SLAB ON SEMI-DEEP ABUT. NO. 1 & 3																									
28	4 S9**	Slab	H20					40	2									40	2	751					
48	4 S10**	"	H20					22	8									22	8	727					
56	5 S11**	"	H20					40	2									40	2	2346					
136	9 S12**	"	H20					22	8									22	8	10481					
4	5 S13**	"	H20					22	8									22	8	95					
																		Total Epoxy Coated		14400					



REVISED JULY 1978
 MAY 1974
 DETAILED April 1979 Tobias
 CHECKED May 1979 Achtentuch

Booker
 Engineers-Architects-Planners
 Note: This drawing is not to scale. Follow dimensions.

BENDING DIAGRAMS
 SEE FINAL PLANS
 Sheet No. 4 of 15

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	29	

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"	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.

DETAILING DIMENSION		HOOK		DETAILING DIMENSION	
4d or 2 1/2" MIN.		180°		90°	

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

SIZE OF 90° HOOKS (ALL GRADES) AND 180° HOOKS (GRADE 60 KSI)
 D = 5d FOR #3 THRU #11
 D = 8d FOR #9, #10 AND #11
 D = 10d FOR #14 AND #18

END HOOK DIMENSIONS				
BAR SIZE	180° HOOKS		90° HOOKS	
	GRADE 40	GRADE 60	ALL GRADES	
#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"	21-5"

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.

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 ARE LISTED FOR FABRICATORS USE. (NEAREST INCH)

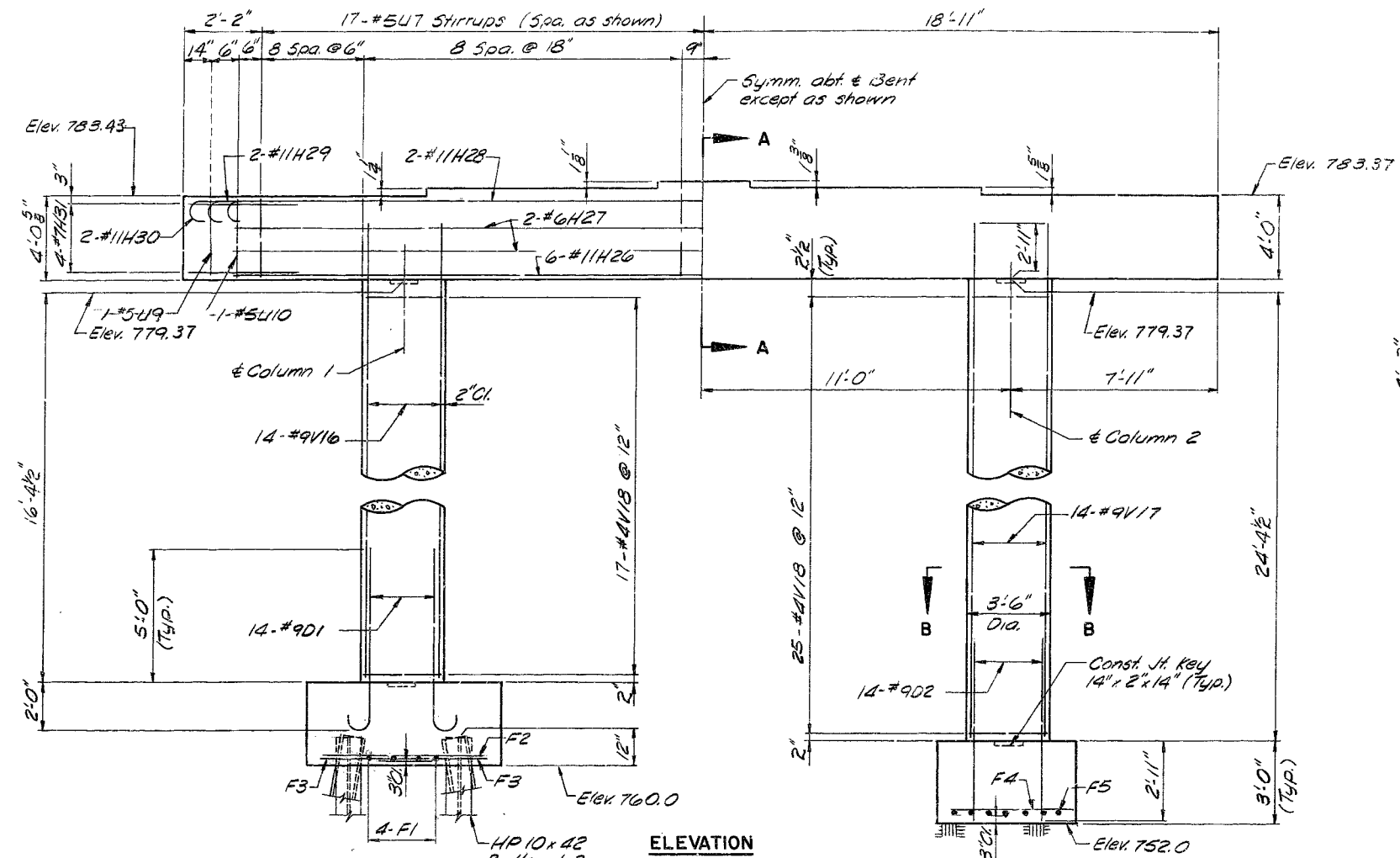
ACTUAL LENGTHS - ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.

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

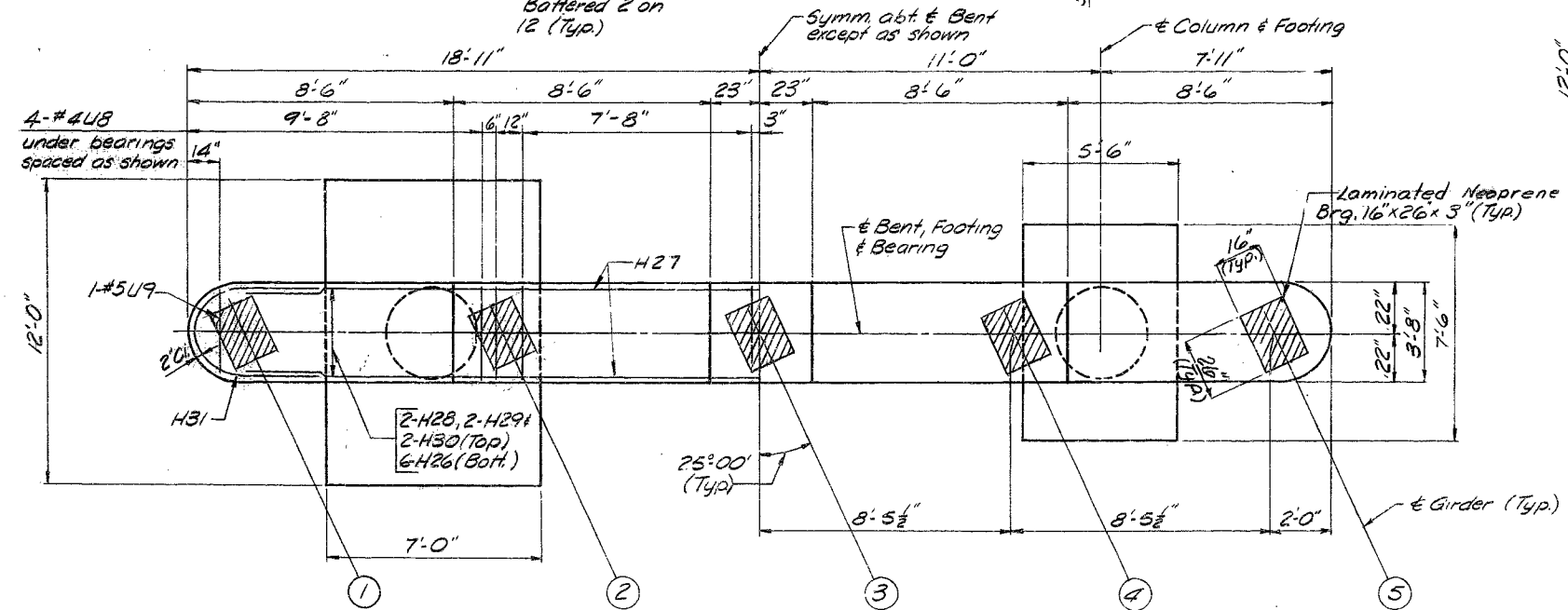
** Indicates epoxy coated bars.
 ① 2 additional R10, S10 & S27 are included in bar bill for testing.

BAR LIST
 SUBSTRUCTURE BENT 2
 AND SUPERSTRUCTURE
 JEFFERSON COUNTY
 A-3101

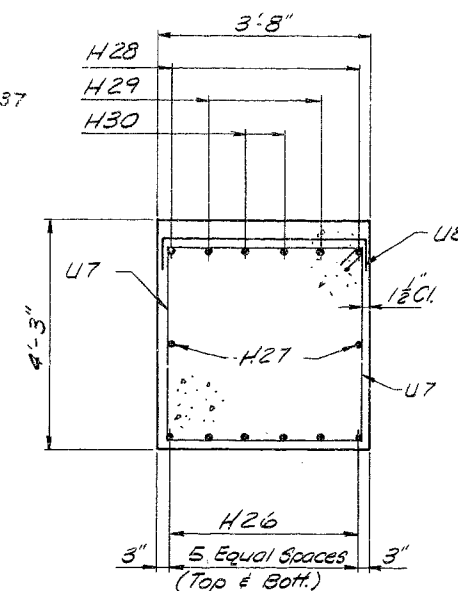
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	32	



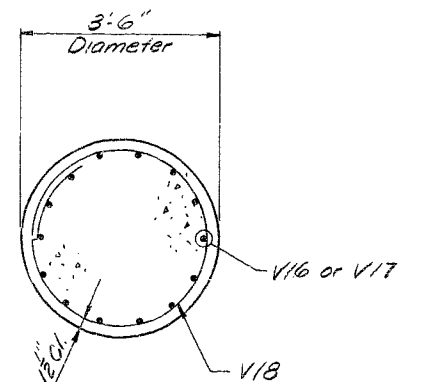
ELEVATION



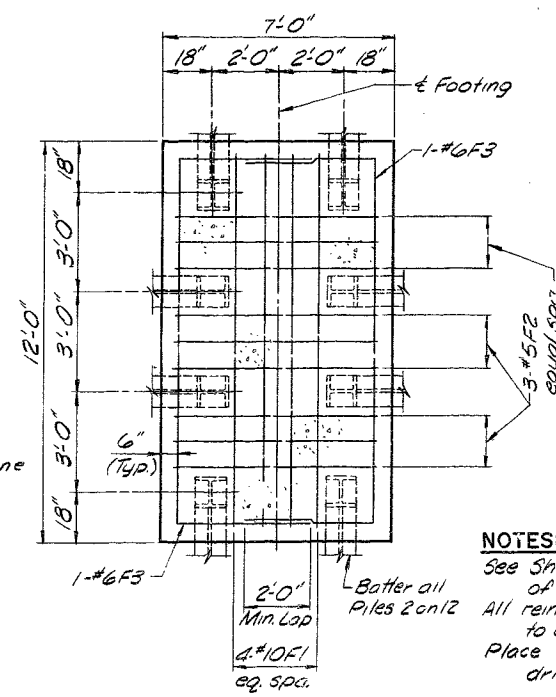
PLAN



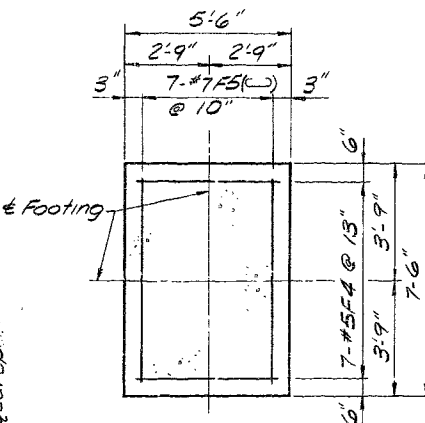
SECTION A-A



SECTION B-B



FOOTING PLAN (Column 1)



FOOTING PLAN (Column 2)

NOTES:
See Sheet No. 11 of 15 for Anchor Bolt Plan and billing of #2PI Spiral Bars.
All reinforcing bars in top of bent caps shall be spaced to clear anchor bolt for bearings by at least 1/2".
Place compacted fill under Footing 1 before driving piles.

BENT 2

DETAILED Jan. 1979 Tobias
CHECKED May 1979 Achtentuch

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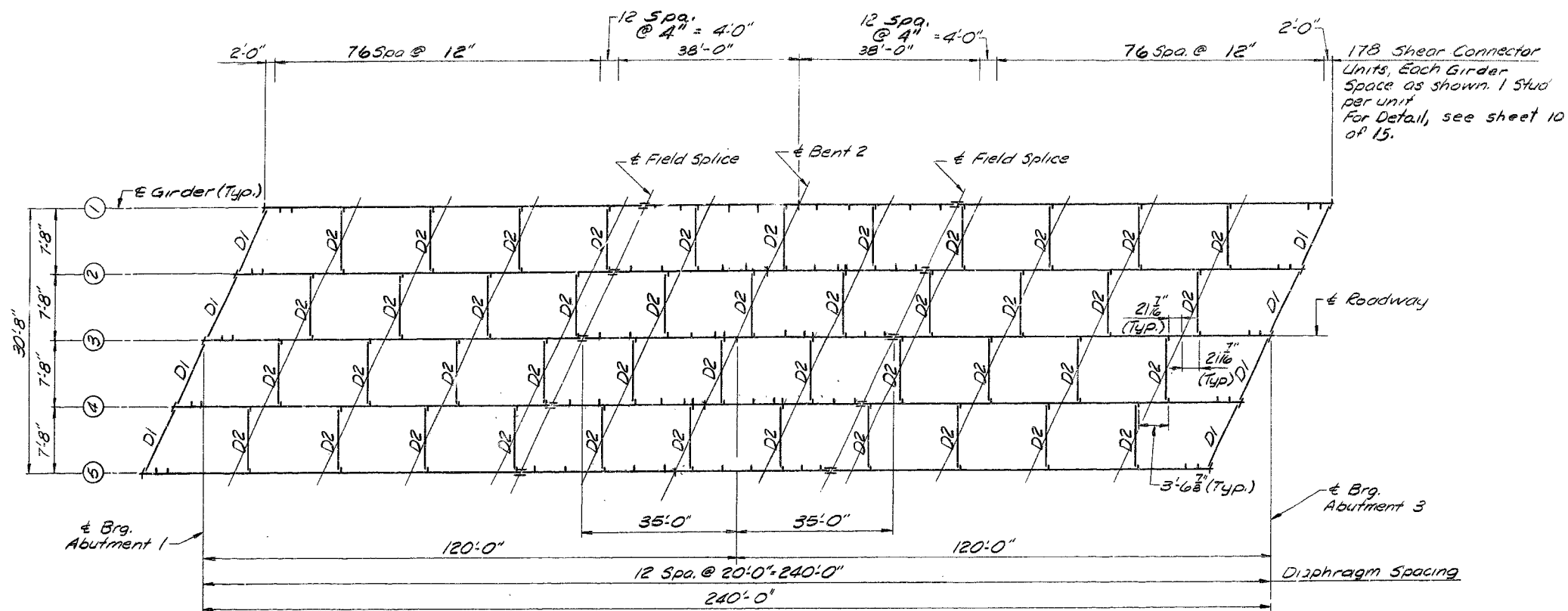
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 7 of 15.

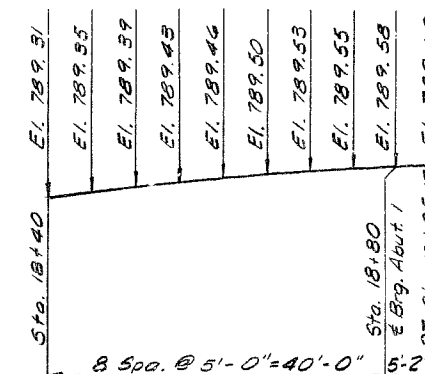
JEFFERSON COUNTY

A-3101

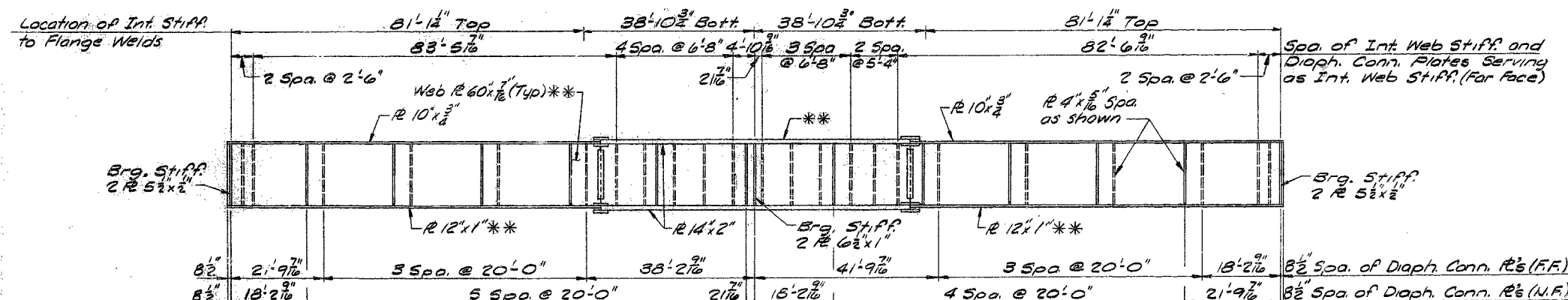
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	33	



STRUCTURAL STEEL PLAN

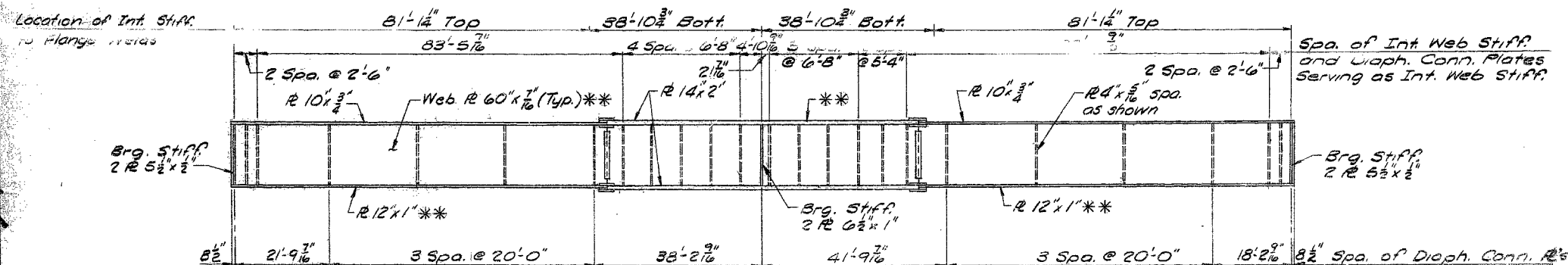


PROFILE GRADE ELEVATIONS
@ VERTICAL CURVE ABUTMENT 1



INTERIOR GIRDER ELEVATION

NOTES:
Transverse web stiffeners and diaphragm connection plates to be placed as detailed.
** Indicates plates subject to notch toughness requirements.
Fabricated structural carbon shall be A-36 except as noted.
For Diaphragm detail, see Sheet No. 9 of 15.
Plate girders shall be fabricated to conform with Camber Diagram shown on Sheet No. 9 of 15.
For Welding Details and Bolted Field Splice, see Sheet No. 10 of 15.
Longitudinal dimensions shown are taken parallel to grade at top of web.
Intermediate web stiffener plate and diaphragm spacings may vary from plan dimensions by a maximum of 3" for diaphragm to connect to intermediate web stiffener plates.
Fabricated structural steel shall be A36 except as noted.



EXTERIOR GIRDER ELEVATION

STEEL FRAMING PLAN

DETAILED Jan. 19 79 Tobias
CHECKED May 19 79 Achtentuch

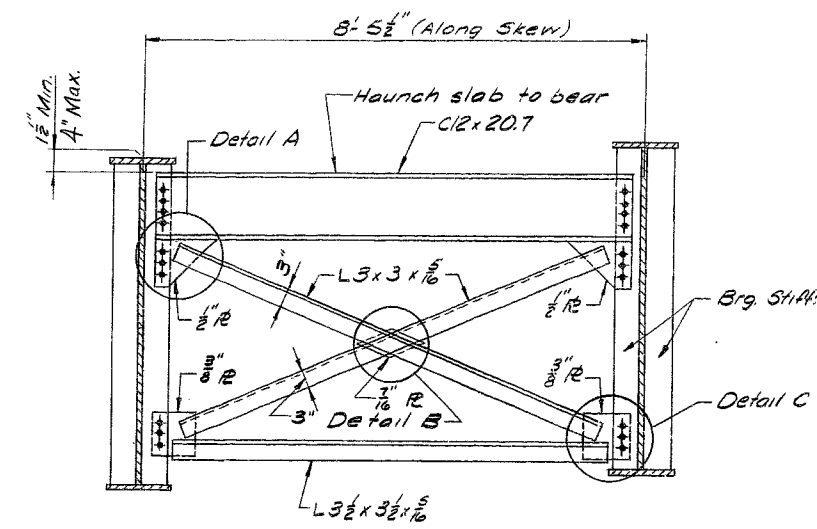
Booker
Engineers Architects Planners

(Girder 5 shown. Girder 1 opposite hand.)
Note: This drawing is not to scale. Follow dimensions.

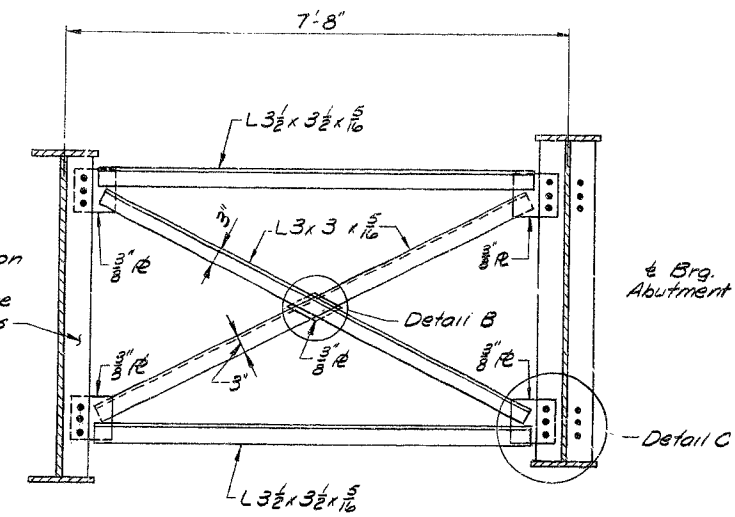
Sheet No. 8 of 15.

JEFFERSON COUNTY

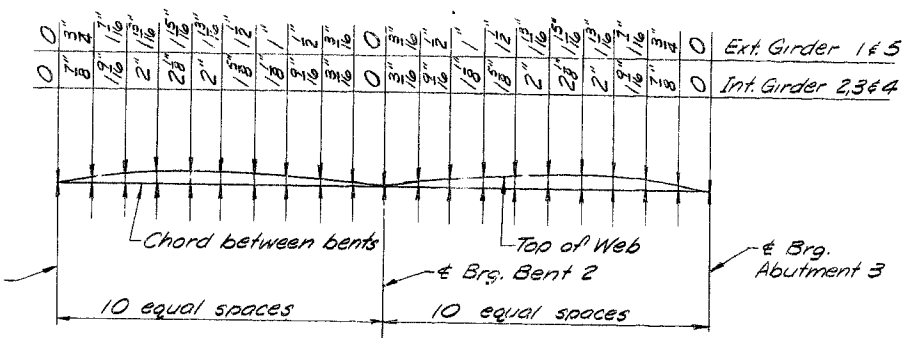
A-3101



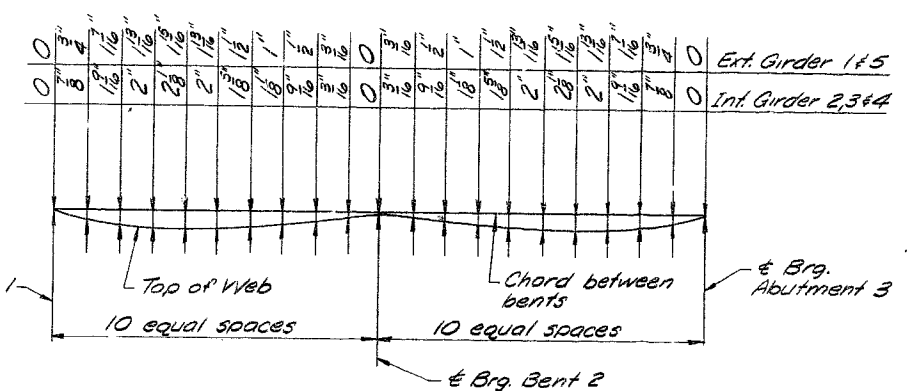
END DIAPHRAGMS D1



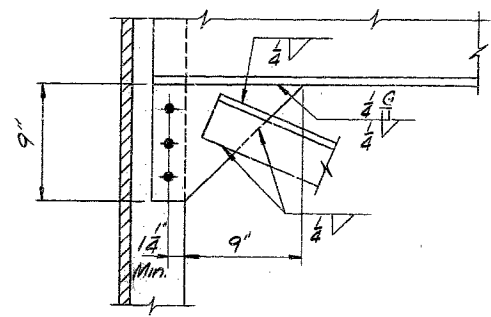
INTERIOR DIAPHRAGM D2



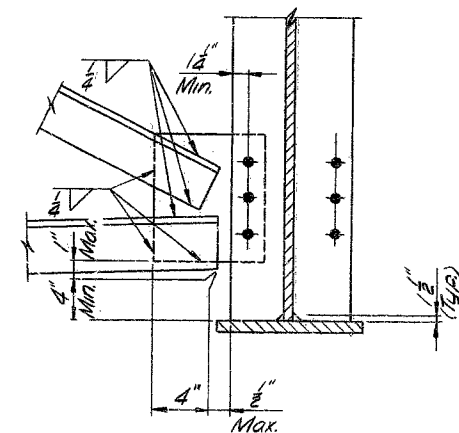
CAMBER DIAGRAM



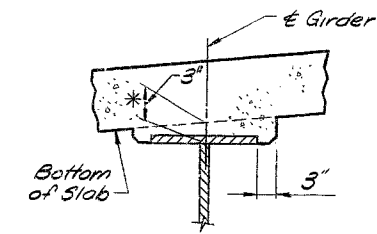
DEAD LOAD DEFLECTION



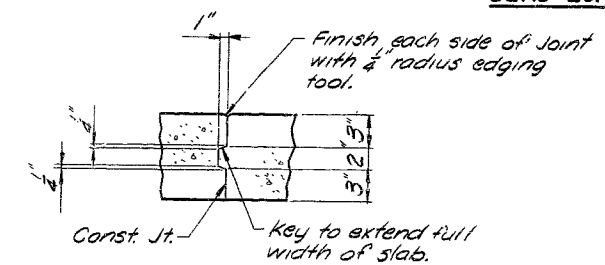
DETAIL A



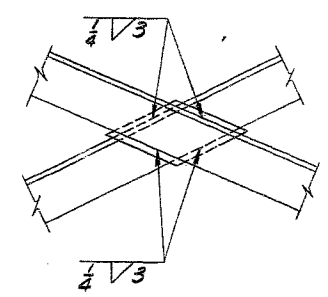
DETAIL C



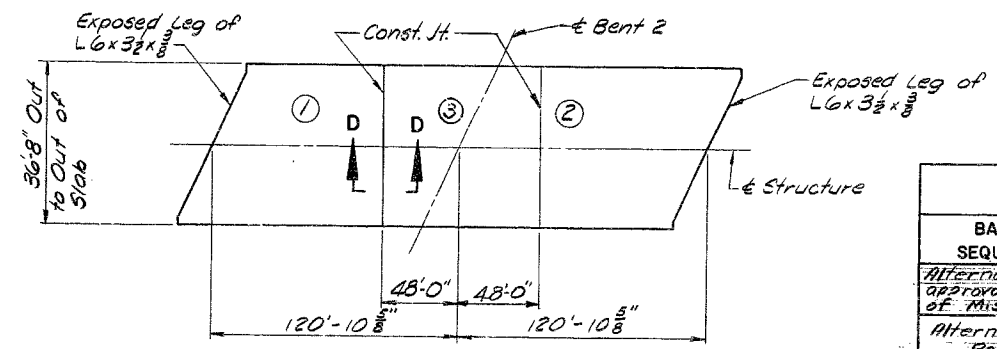
THEORETICAL SLAB HAUNCH



SECTION D-D



DETAIL B

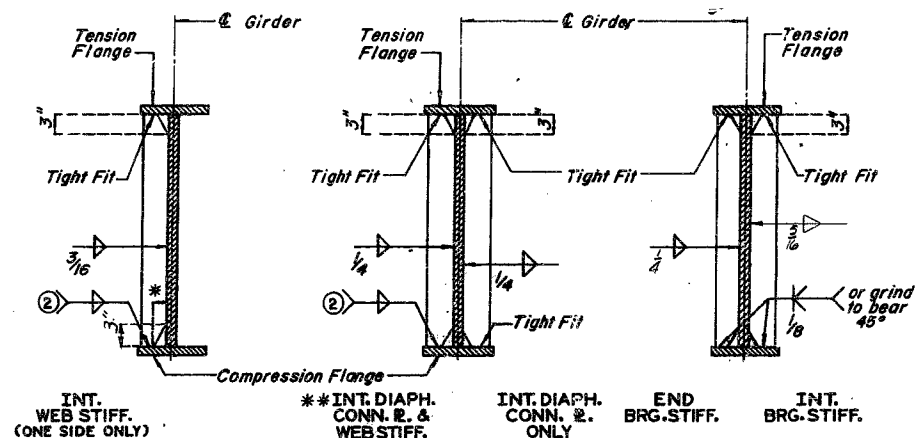


SLAB POURING SEQUENCE

SEQUENCE OF POURS	SEQUENCE OF POURS			Min. Rate of Pour Cu. Yds. / Hr.	
	DIRECTION			With Retarder	No Retarder
BASIC SEQUENCE	1	2	3	25	25
	Either Direction				
Alternate pours to the basic skip sequence are subject to the approval of the engineer in accordance with section 705.3.12.4 of Missouri Standard Specifications.					
Alternate "A" Pours	1	3 + 2		45	65
	End to 3	1 to End			
Alternate "B" Pours	1 + 3 + 2			45	65
	End to End				

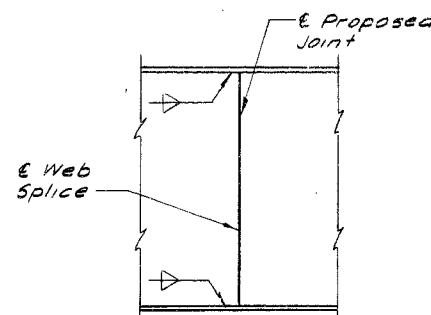
NOTES:
 The contractor shall pour and satisfactorily finish the slab pours at the rate given. Retarder, if used, shall be an approved type and retard the set of the conc. to 2.5 hours.
 Camber includes allowance for dead load deflection due to concrete slab, barrier and structural steel.
 17% of dead load deflection due to weight of structural steel.
 * Dimension may vary if girder camber after erection differs from plan camber by more than the 9% of D.L. Deflection due to weight of structural steel. No payment will be made for additional forming or concrete required for variation in haunching.

STEEL DETAILS AND
SLAB POURING SEQUENCE

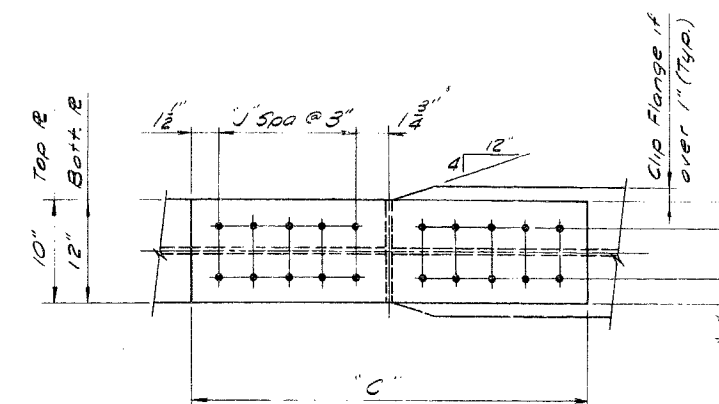


② Weld to compression flange as located on ELEVATION OF GIRDER.
 * 1/8" typical for all Int. Web Stiff., Int. Diaph. Conn. & End Brg. Stiff.,
 ** Weld may be omitted on interior girders, and Tight Fit used when Int. Diaph. Conn. R. is required on both sides.

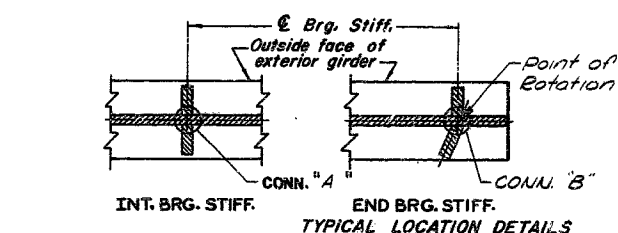
WELDING DETAILS



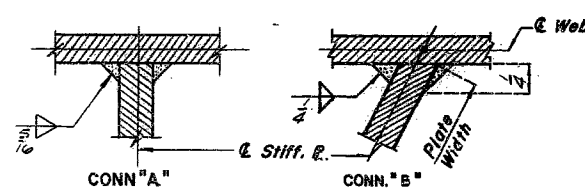
SHOP WEB SPLICE



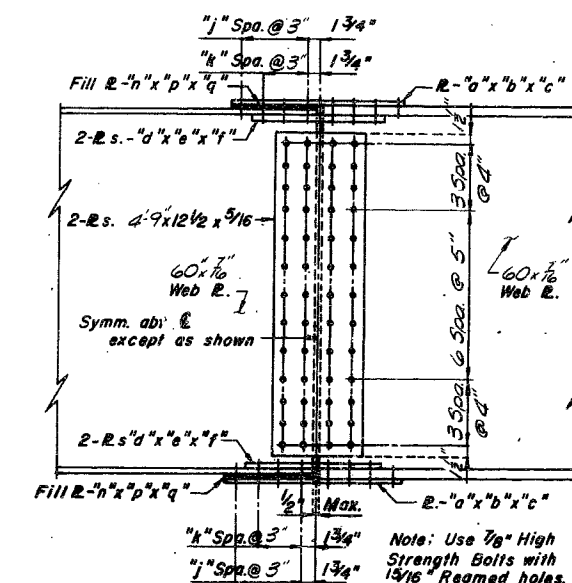
FLANGE SPLICE PLAN



TYPICAL LOCATION DETAILS



WELDING DETAILS

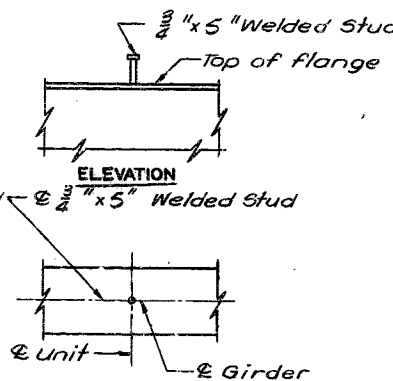


NO REQ'D	BOLTED FIELD SPLICE TABLE												
	FLANGE	a	b	c	d	e	f	g	j	k	n	p	q
10	Top	10"	3"	18 1/2"	4"	1/2"	18 1/2"	2"	2	2	10"	1 1/2"	9"
	Bottom	12"	1/2"	2' 6 1/2"	5"	5/8"	2' 0 1/2"	2 1/2"	14	3	12"	1"	15"

DETAILS OF FIELD SPLICE

NOTE:

Weight of 680 lbs. of Shear Connectors is included in Weight of Fabricated Structural Carbon Steel.



PLAN OF STUD CONN.

DETAILS OF SHEAR CONNECTORS

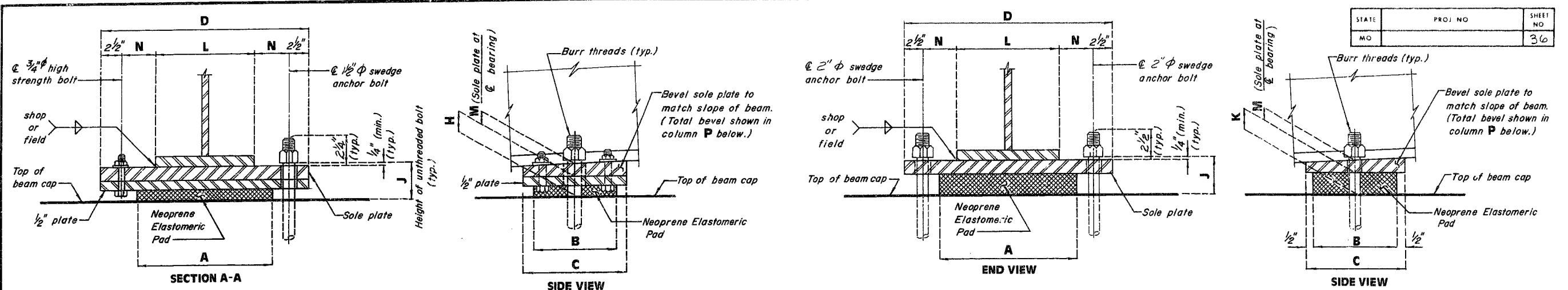
DETAILED July 1985
 CHECKED Sept. 1985

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

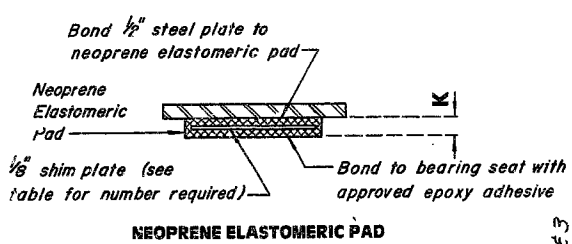
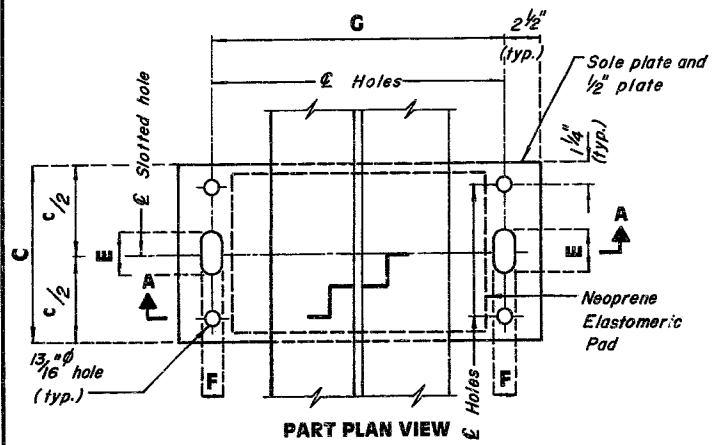
Sheet No. 10 of 15.

JEFFERSON COUNTY

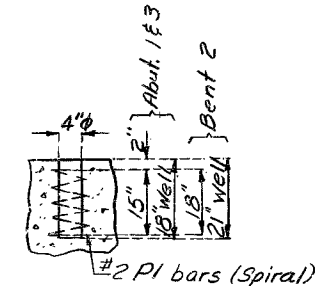
A-3101



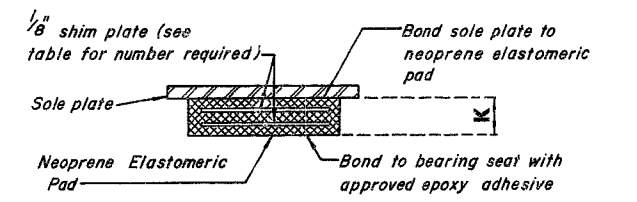
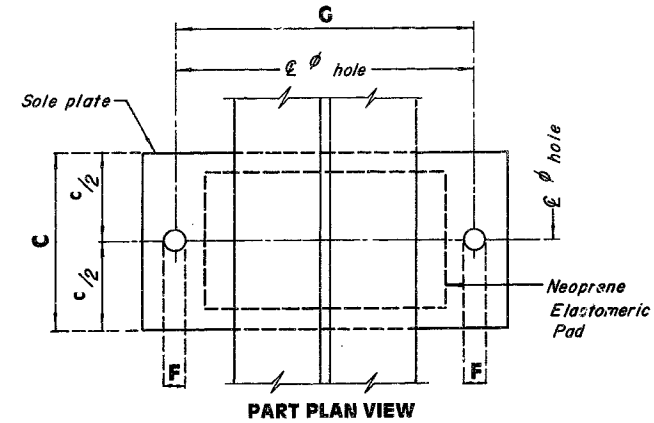
Note: The location of anchor bolts in relation to the slotted holes in the sole plate shall correspond with the temperature at the time of erection. At 60° F. the slotted holes should center on the anchor bolts.



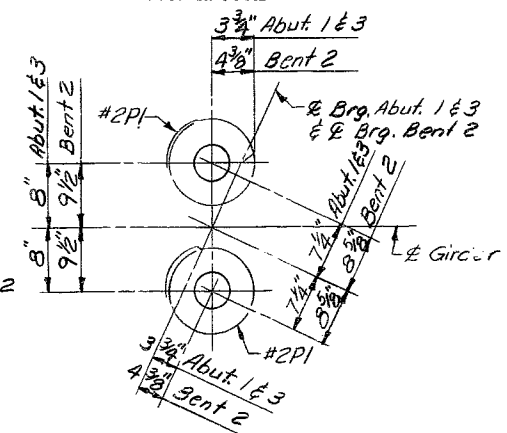
EXPANSION BEARINGS
 NUMBER REQUIRED = 5 @ Abut. No. 1.
 5 @ Abut. No. 3



DETAIL OF ANCHOR BOLT WELLS



FIXED BEARINGS
 NUMBER REQUIRED = 5 @ Bt. #2



EXPANSION BEARINGS													NUMBER OF SHIM PLATES (*)
ABUT. NO.	A	B	C	D	E	F	G	H	J	K	L	M	
1	12"	9"	10"	21"	5"	1 3/8"	16"	4 1/8"	5 3/8"	3 3/8"	12"	1"	5
3	12"	9"	10"	21"	5"	1 3/8"	16"	4 1/8"	5 3/8"	3 3/8"	12"	1"	5

(*) THE REQUIRED SHIM PLATE SHALL BE PLACED BETWEEN EQUAL LAYERS OF ELASTOMER AND MOLDED TOGETHER TO FORM AN INTEGRAL UNIT.

- ① 1/2" φ for Abut. 1 & 3, 2" φ for Bent 2.
- ② 15" for Abut. 1 & 3, 18" for Bent 2.
- ③ 60 for Abut. 1 & 3, 50 for Bent 2.

GENERAL NOTES:
 ANCHOR BOLTS SHALL BE ⑥ SWEDGED BOLTS AND SHALL EXTEND ⑦ INTO CONCRETE WITH HEXAGON NUTS.
 WEIGHT OF ANCHOR BOLTS AND HEXAGON NUTS FOR BEARINGS SHALL BE INCLUDED IN WEIGHT OF FABRICATED STRUCTURAL STEEL.
 NEOPRENE ELASTOMERIC PADS SHALL BE ⑧ DUROMETER.
 THE SOLE PLATE SHALL BE FURNISHED WITH THE BEARING AND FIELD OR SHOP WELDED TO THE STRINGERS OR GIRDERS.
 STRUCTURAL STEEL FOR SOLE PLATE AND 1/2 INCH BEARING PLATE SHALL BE A-36.
 PAYMENT FOR THE SOLE PLATE, 1/2 INCH BEARING PLATE WILL BE INCLUDED IN THE COST OF THE BEARING ASSEMBLY. SEE SPECIAL PROVISIONS.
 ALL ANCHOR BOLTS SHALL BE A-588 STEEL WITH A-563 (GRADE 50) HEXAGON NUTS.
 THE ACCEPTED QUANTITY OF ELASTOMERIC BEARING ASSEMBLIES, COMPLETE IN PLACE, WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR LAMINATED NEOPRENE BEARINGS, EACH.
 ALL STRUCTURAL STEEL FOR SOLE PLATES, 1/2 INCH BEARING PLATES, ANCHOR BOLTS AND HEXAGON NUTS SHALL BE PAINTED WITH 2 COATS (5 MILS MINIMUM) OF INORGANIC ZINC. WELD AREAS TO BE TOUCHED UP AFTER ASSEMBLY.

DETAILS OF LAMINATED NEOPRENE BEARINGS

FIXED BEARINGS													NUMBER OF SHIM PLATES (*)
BENT NO.	A	B	C	D	F	G	J	K	L	M	N	P	
2	16"	26"	27"	24"	2 1/8"	19"	4 3/4"	3"	14"	1 1/2"	2 1/2"	0"	4

(*) THE REQUIRED SHIM PLATE SHALL BE PLACED BETWEEN EQUAL LAYERS OF ELASTOMER AND MOLDED TOGETHER TO FORM AN INTEGRAL UNIT.

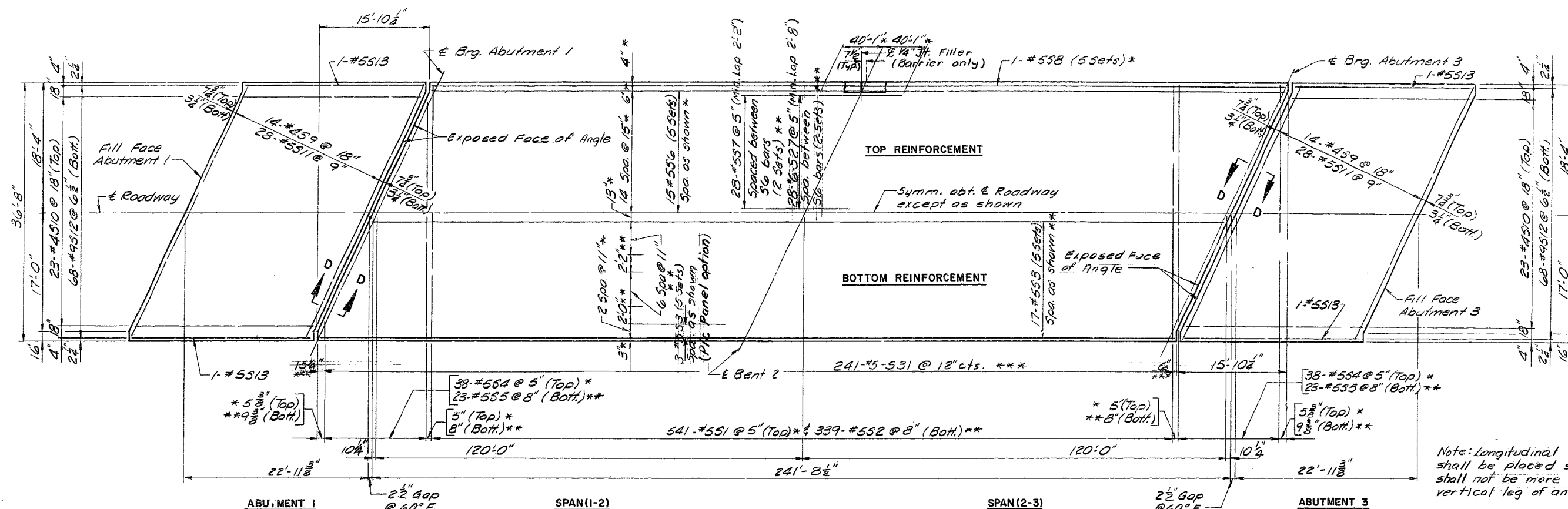
446 774
 LAM. NEOP. BRGS.
 MARCH 1979
 REVISED
 JULY 1985

DETAILED June 1985
 CHECKED July 1985

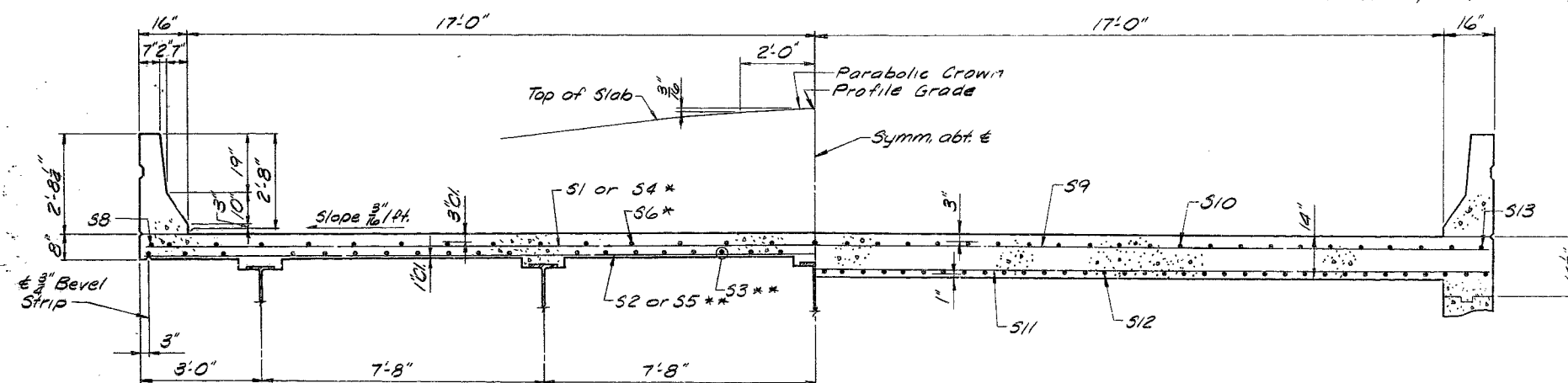
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 11 of 15

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SCALE YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	37	



Note: Longitudinal reinforcing steel shall be placed so that ends shall not be more than 1" from vertical leg of angle at exp. device.



NOTES:

Minimum lap for 53, 56 and 58 shall be 2'-2"
Longitudinal dimensions shown are measured parallel to grade at top of slab.
For Section D-D, see Sheet No. 14 of 15.
For Const. Joint Detail, see Sheet No. 9 of 15.
For Barrier Details, see Sheet No. 15 of 15.
Longitudinal reinforcing steel shall be placed so that the ends shall not be more than 1" from vertical leg of angle for Exp. Device.
Field Bend 59 and 511 Bars in field where required.

DECK SLAB

DETAILED Jan. 1979 Tobias
CHECKED May 1979 Achtentuch

Booker
Engineers Architects Planners

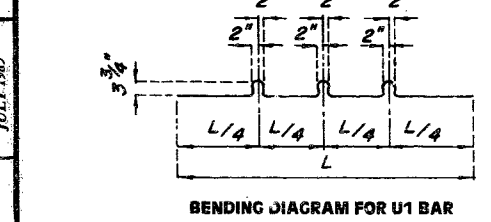
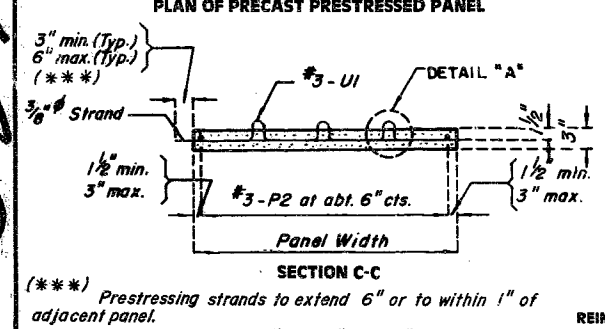
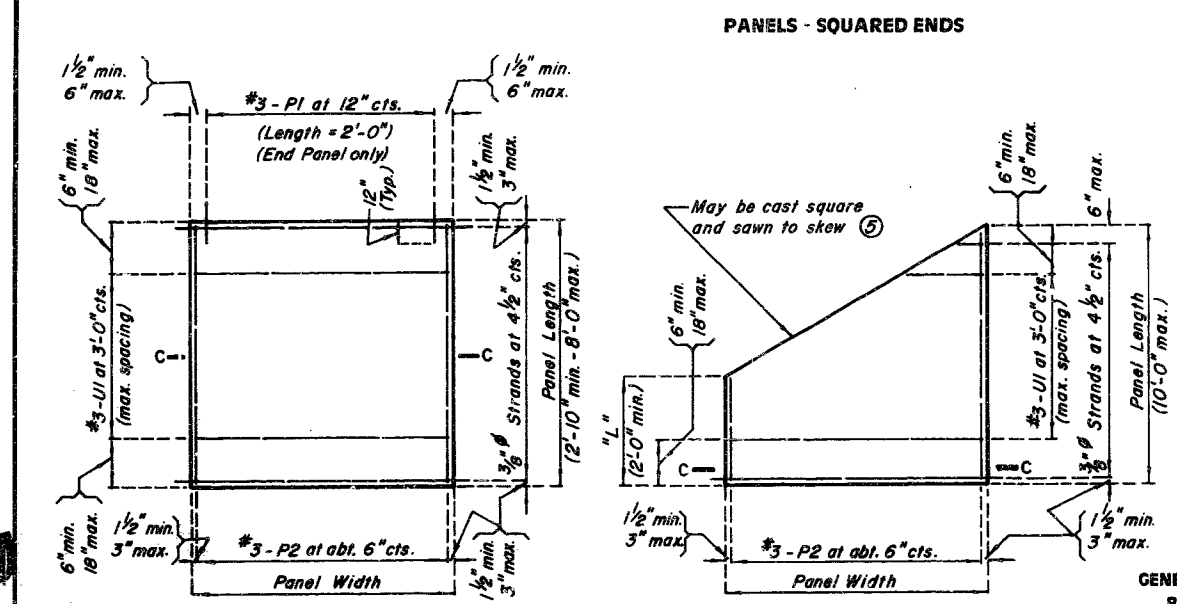
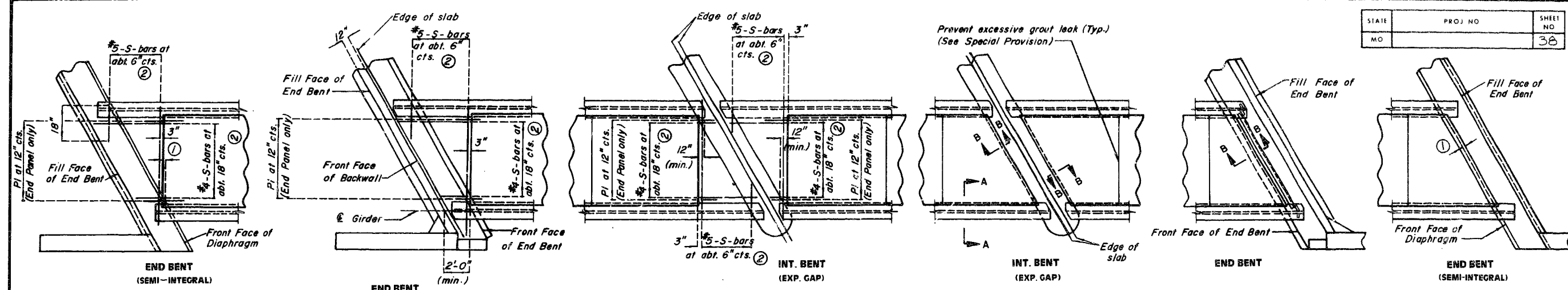
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 12 of 15.

JEFFERSON COUNTY

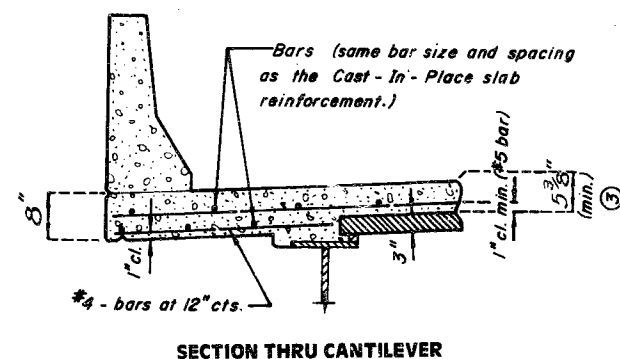
A-3101

STATE	PROJ NO	SHEET NO
MO		38



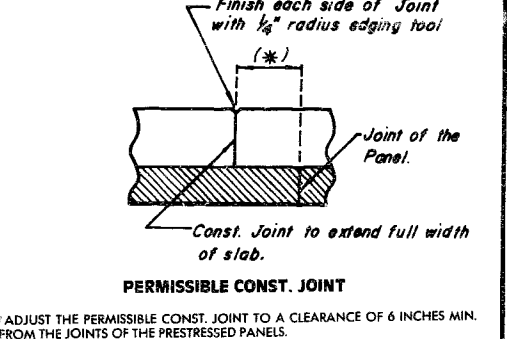
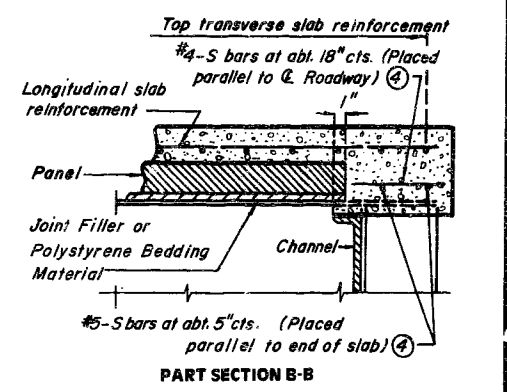
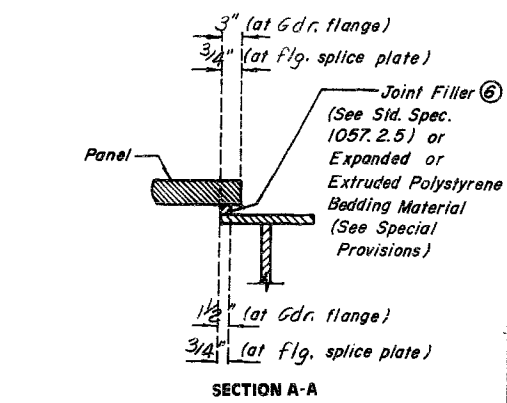
REINFORCING STEEL:
ALL DIMENSIONS ARE OUT TO OUT.
MINIMUM CLEARANCE TO REINFORCING STEEL SHALL BE 1 1/2 INCH UNLESS OTHERWISE SHOWN.
HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE C.R.S.I. MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES, STIRRUP AND THE DIMENSIONS.
ACTUAL LENGTHS 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.
IF U1 BARS INTERFERE WITH PLACEMENT OF SLAB STEEL, U1 LOOPS MAY BE BENT OVER AS NECESSARY TO CLEAR SLAB STEEL.
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 HANDLING MAY BE USED IN LIEU OF THE #3-P2 BARS SHOWN. WIRE OR BAR DIAMETER SHALL NOT BE LARGER THAN 0.375 INCHES. #3-U1 BARS MAY BE ORIENTED AT RIGHT ANGLES TO LOCATION AND SPACING SHOWN. U1 BARS SHALL BE PLACED BETWEEN P1 BARS.

PLAN OF PRECAST PRESTRESSED PANELS PLACEMENT



GENERAL NOTES:
PRESTRESSED PANEL:
CONCRETE FOR PRESTRESSED PANELS SHALL BE CLASS A1 WITH $P_c = 5,000$ PSI, $P_{ci} = 3,500$ PSI.
THE TOP SURFACE OF ALL PANELS SHALL RECEIVE A SCORED FINISH WITH A DEPTH OF SCORING OF 1/8 INCH PERPENDICULAR TO THE PRESTRESSING STRANDS IN THE PANEL (SEE SPECIAL PROVISIONS).
PRESTRESSING TENDON SHALL BE HIGH TENSILE STRENGTH UNCOATED SEVEN-WIRE (7) LOW RELAXATION STRANDS FOR PRESTRESSED CONCRETE CONFORMING TO AASHTO M203 EXCEPT THAT NOMINAL DIAMETER OF STRAND = 3/8 INCH AND NOMINAL AREA = 0.085 SQ. IN. AND MINIMUM ULTIMATE STRENGTH = 23,000 LBS. (270 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.
SUITABLE 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 CONTRACTOR AND SHOWN ON THE SHOP DRAWINGS.
WHEN SQUARE END PANELS ARE USED AT SKEWED BENTS IT IS REQUIRED THAT THE SKEWED PORTION BE CAST FULL DEPTH. NO SEPARATE PAYMENT WILL BE MADE FOR THE ADDITIONAL CONCRETE AND REINFORCING REQUIRED.
MINIMUM JOINT FILLER OR POLYSTYRENE BEDDING MATERIAL THICKNESS SHALL BE 3/8 INCH EXCEPT OVER SPLICE PLATES WHERE MINIMUM THICKNESS SHALL BE 1/2 INCH. WHEN JOINT FILLER IS LESS THAN 1/2" THICK OVER SPLICE PLATE, MAKE THE WIDTH OF JOINT FILLER AT SPLICE THE SAME WIDTH AS PANEL ON SPLICE. THICKER JOINT FILLER OR POLYSTYRENE BEDDING MATERIAL MAY BE USED ON ONE OR BOTH SIDES OF THE GIRDER TO REDUCE CAST-IN-PLACE CONCRETE THICKNESS, WITHIN TOLERANCES. NO MORE THAN 2 INCHES TOTAL THICKNESS OF JOINT FILLER OR POLYSTYRENE BEDDING MATERIAL SHALL BE USED.
THE SAME THICKNESS OF JOINT FILLER MATERIAL SHALL BE USED UNDER ANY ONE EDGE OF ANY PANEL EXCEPT AT SPLICES. AND THE MAXIMUM CHANGE IN THICKNESS BETWEEN ADJACENT PANELS SHALL BE 1/4 INCH TO CORRECT FOR VARIATIONS FROM GIRDER CAMBER DIAGRAM. THE POLYSTYRENE BEDDING MATERIAL MAY BE CUT TO MATCH HAUNCH HEIGHT ABOVE TOP OF FLANGE.
SUPPORT FROM DIAPHRAGM FORMS REQUIRED UNDER OPTIONAL SKEWED END UNTIL CAST-IN-PLACE CONCRETE HAS REACHED 3,000 PSI COMPRESSIVE STRENGTH.

NOTES:
① END PANEL TO BE DIMENSIONED 1 1/2 INCH INSIDE FACE OF DIAPHRAGM.
② S-BARS SHOWN ARE BOTTOM STEEL IN SLAB BETWEEN PANELS AND USED WITH SKEWED END PANELS ONLY.
③ ADJUSTMENT IN THE SLAB THICKNESS, JOINT FILLER OR EXPANDED POLYSTYRENE BEDDING MATERIAL THICKNESS OR GRADE WILL BE NECESSARY IF THE GIRDER CAMBER AFTER ERECTION DIFFERS FROM PLAN CAMBER BY MORE THAN THE 1/8" OF DEAD LOAD DEFLECTION DUE TO THE WEIGHT OF STRUCTURAL STEEL. NO PAYMENT WILL BE MADE FOR ADDITIONAL LABOR OR MATERIALS FOR THE ADJUSTMENT.
④ S-BARS SHOWN ARE USED WITH SKEWED END PANELS OR SQUARE END PANELS OF SQUARE STRUCTURES ONLY. #5 S-BARS SHALL EXTEND THE WIDTH OF SLAB (21 INCHES LAP IF NECESSARY) OR TO WITHIN 3 INCHES OF EXPANSION DEVICE ASSEMBLIES.
COST OF S-BARS SHALL BE INCLUDED IN PRICE BID FOR SLAB PER SQUARE YARD.
S-BARS ARE NOT LISTED IN 'L OF REINFORCING.
SLAB EXTERIOR GIRDER HAUNCH TO BE THE SAME AS CAST-IN-PLACE.
⑤ ANY STRAND 2'-0" OR SHORTER SHALL HAVE A #4 REINFORCING BAR ON EACH SIDE OF IT CENTERED BETWEEN STRANDS. STRANDS 2'-0" OR SHORTER MAY THEN BE DEBONDED AT FABRICATORS OPTION.
⑥ ALL PANEL SUPPORT PADS SHALL BE GLUED TO THE GIRDER. WHEN SUPPORT THICKNESS EXCEEDS 1 1/2 INCH THE PADS SHALL BE GLUED TOP AND BOTTOM. THE GLUE USED SHALL BE THE TYPE RECOMMENDED BY THE PANEL SUPPORT PADS MANUFACTURER.



DETAILS OF PRECAST PRESTRESSED PANELS

Sheet No. 13 of 15

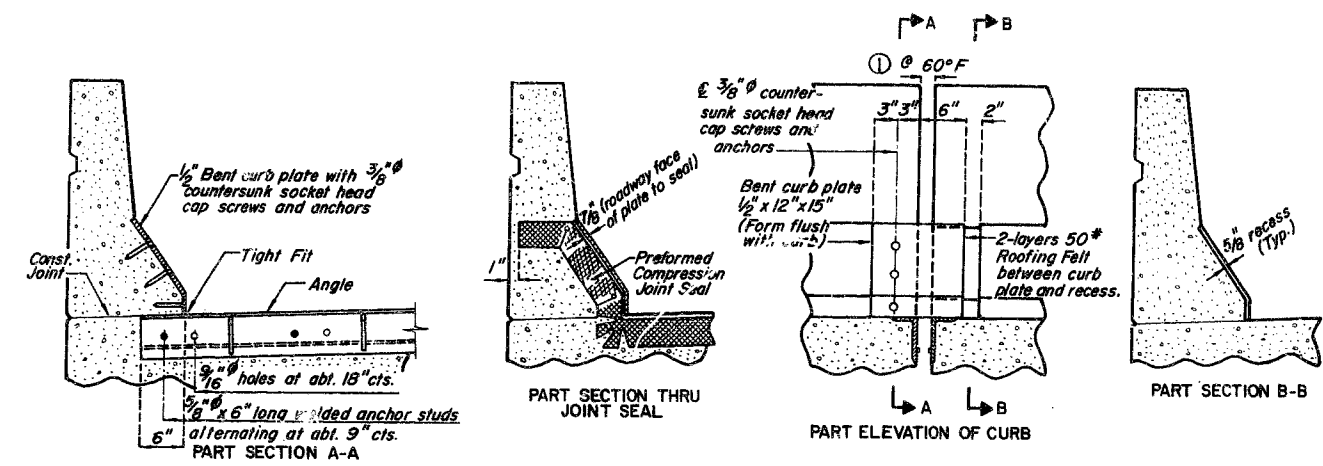
JEFFERSON

COUNTY

A-3101

DETAILED Sept. 1985
CHECKED Sept. 1985

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



GENERAL NOTES:
 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.
 ANCHORS FOR COMPRESSION SEAL ARMOR SHALL BE APPROVED STUD WELDED ANCHORS (C1010 THRU C1020).
 PLAN DIMENSIONS ARE BASED ON INSTALLATION AT 60°F.
 DIMENSIONS (1) SHALL BE INCREASED 1/8" FOR EACH 10°F FALL IN TEMPERATURE AND DECREASED 1/8" FOR EACH 10°F RISE IN TEMPERATURE AT INSTALLATION.
 SEE SPECIAL PROVISIONS FOR THE REQUIREMENTS OF COMPRESSION JOINT SEAL.
 FURNISHING, PAINTING AND INSTALLING THE STRUCTURAL STEEL ARMORED JOINT AND CURB PLATES SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR EXPANSION JOINT SEAL.
 NEOPRENE EXTRUSIONS SHALL MEET A.S.T.M. D3542-83.

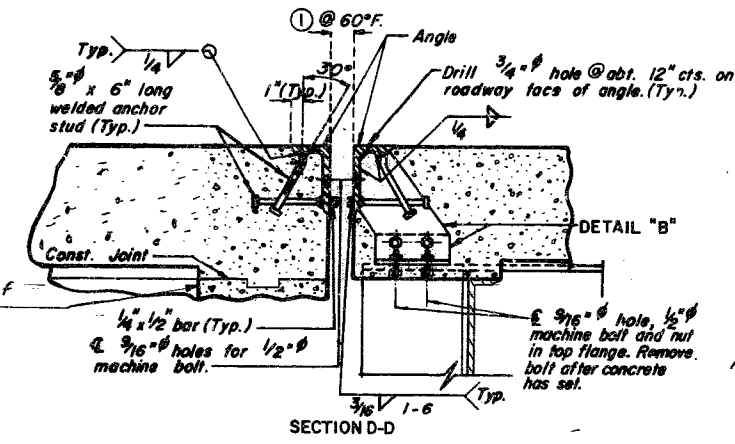
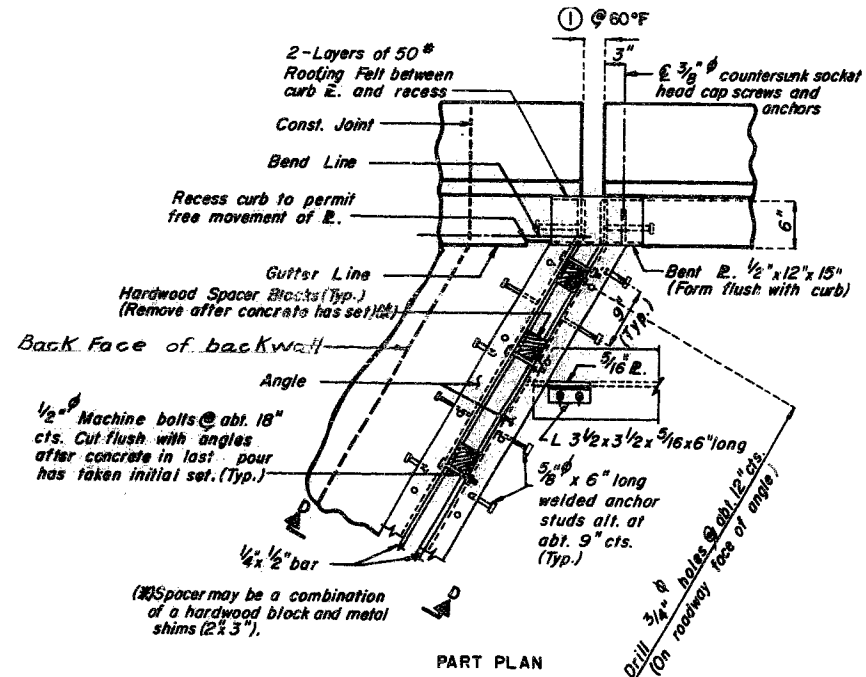
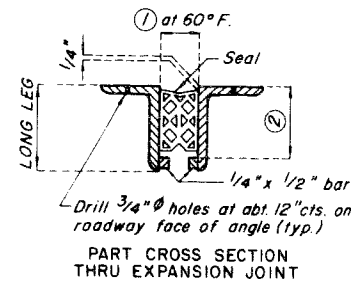
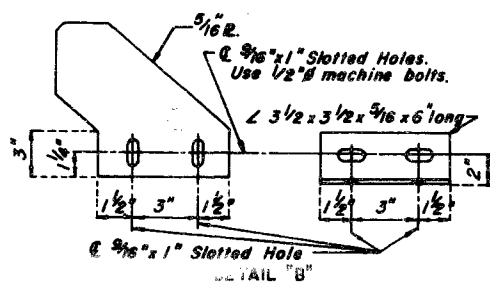


TABLE OF TRANSVERSE BRIDGE SEAL DIMENSIONS			
SEAL (WIDTH)	①	②	REQUIRED MOVEMENT RANGE
2.5"	1-5/8"	SEAL DEPTH + 3/4"	.9"
3.0"	1-7/8"	SEAL DEPTH + 3/4"	1.0"
3.5"	2-1/4"	SEAL DEPTH + 3/4"	1.3"
4.0"	2-5/8"	SEAL DEPTH + 3/4"	1.6"
4.5"	2-3/4"	SEAL DEPTH + 3/4"	1.9"
5.0"	2-7/8"	SEAL DEPTH + 3/4"	2.0"

NOTE: DEPTH OF SEAL SHALL NOT BE LESS THAN WIDTH OF SEAL.

SIZE OF ARMOR ANGLE:
 VERTICAL LEG OF ANGLE SHALL BE A MINIMUM OF DEPTH OF SEAL + 1-1/2".
 HORIZONTAL LEG OF ANGLE SHALL BE A MINIMUM OF 3". MINIMUM THICKNESS OF ANGLE SHALL BE 1/2".
 IF A SEAL SIZE LARGER THAN THAT INDICATED ON THE PLANS IS USED, THE MOVEMENT RANGE, THE OPENING AT 60° AND ALL DIMENSIONS FOR THE ARMOR ANGLES SHALL BE SHOWN ON THE SHOP DRAWINGS.



DETAILS OF PREFORMED COMPRESSION JOINT SEAL AT ABUTMENTS NO. 1 & 3

418 277

STD. PCJS(SK) REVISED
 OCT. 1973
 OCT. 1985

DETAILED Oct. 1985
 CHECKED Oct. 1985

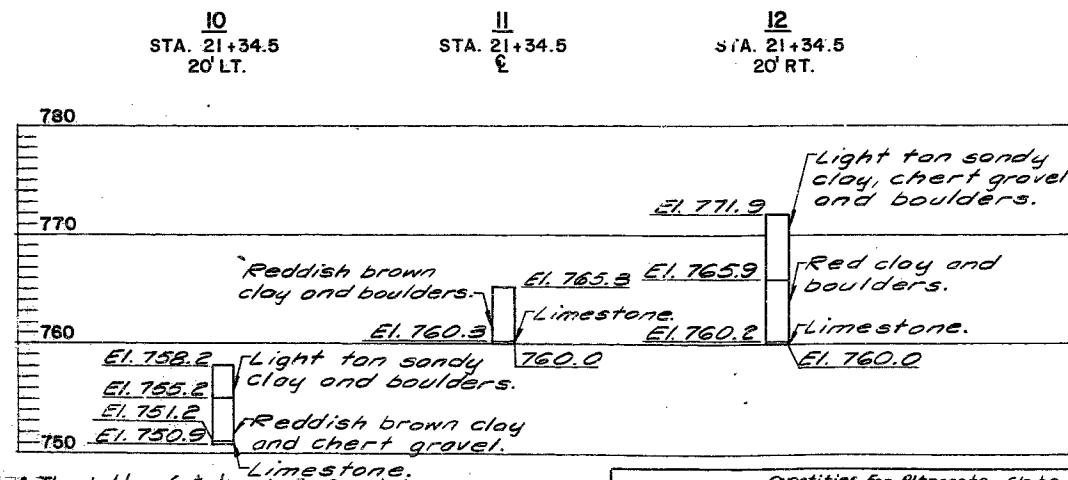
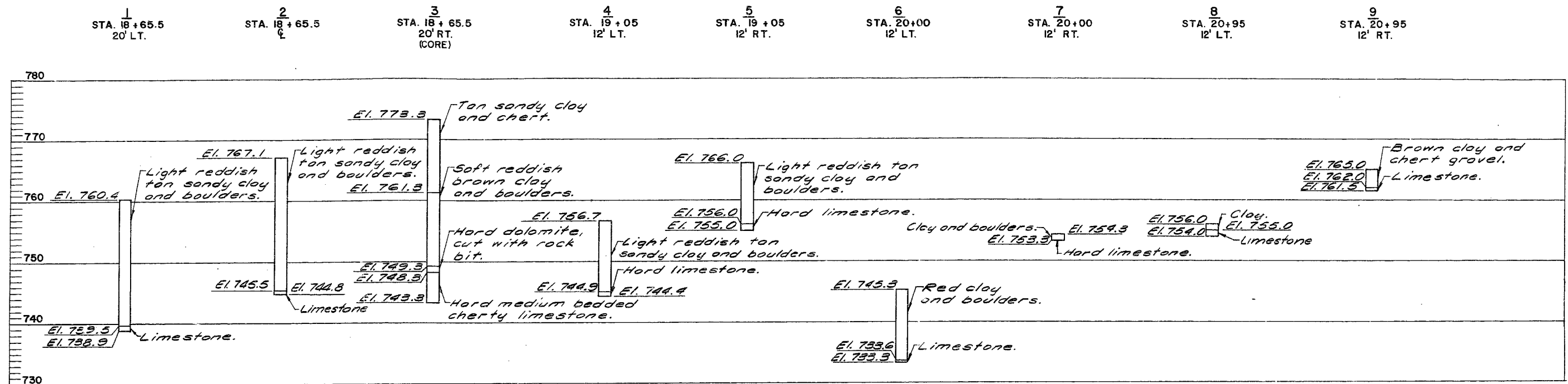
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 14 of 15

JEFFERSON COUNTY

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F.D. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	F-21-2(2-4)	18	25	



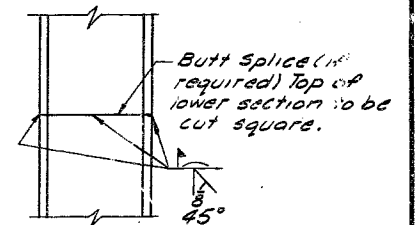
Note: The table of Estimated Quantities for Alternate Slabs and Semi-Deep Abutment Slabs represents the quantities used by the state in preparing the cost estimate for concrete slabs. Variations may be encountered in these estimated quantities but these variations cannot be used for an adjustment in the contract unit price per sq. yd. of Alternate Slabs and Semi-Deep Abutment Slab used. See special provisions for alternate methods of forming slabs. Precast panel quantities based on skewed end panels.

Quantities for Alternate Slabs			
TYPE OF SLABS	Slab on Steel		Conc.
	Reinf. (Lbs.)	Epox. Cu. Yd.	
Precast Panel Forms	39,740	168.8	
Quantities for Semi-Deep Abutment Slab			
	Reinf. (Lbs.)	Conc.	
	Epox. Cu. Yd.		
Slab on Semi-Deep Abut.	14,400	78.7	

PILE AND FOOTING DATA						
BEARING PILES	ABUTMENT OR BENT NO.	1 (APPR. BM)	1 (BRG. BM)	2 (LT.)	2 (RT.)	3 (BRG. BM)
	PILE TYPE & SIZE	HP10x42	HP10x42	HP10x42		HP10x42
	NUMBER	4	6	8		4
	AVERAGE LENGTH	31 ft.	34 ft.			37 ft.
SPREAD FOOTINGS	DESIGN BEARING	55.5	55.5	55.5		55.5
	HAMMER ENERGY REQUIRED	12375	13100	13100		13100
	FOUNDATION MATERIAL				Rock	
	DESIGN BEARING TONS/SQ. FT.				12	

Minimum energy requirement of hammer based on pile length and design bearing of piles.
All piles were driven to practical refusal.
Manufactured pile point reinforcement were used on all piles in this structure. See special provisions.

QUANTITIES				
ITEM	UNIT	SUBSTR.	SUPERSTR.	TOTAL
Class 1 Excavation	Cu. Yd.	95		95
Structural Steel Pile (HP 10x42)	Lin. Ft.	998		998
Class B Concrete	Cu. Yd.	206.0		206.0
Slab on Steel; see special provisions	Sq. Yd.		985	985
Preformed Compression Exp. Jt. Seal (3.5 in.)	Lin. Ft.		76	76
Reinforcing Steel (Grade 60)	Lbs.	21540		21540
Reinforcing Steel (Grade 60) (Epoxy)	Lbs.	540		540
Fabricated Structural Carbon Steel	Lbs.		254830	254830
Painting (System B) Green	Ton		127.1	127.1
Safety Barrier Curb	Lin. Ft.		0	0
Slab on Semi-Deep Abutment	Sq. Yd.		187	187
Laminated Neoprene Bearing Pads	Each		13	13
Pile Point Reinforcement	Each	28		28
Slipform Safety Barrier Curb (Cont.)	Lin. Ft.		597	597
Test Holes (Cont.)	Lin. Ft.	4		4
Class 1 Excavation + 25% (Cont.)	Cu. Yd.	135		135



DETAIL OF STEEL PILE SPLICE

Note: All conc and reinforcing steel below top of slab and above const. jt. under slab in semi-Deep Abutments are included in superstructure quantities for slab on semi-Deep Abutments.

BORING DATA & ESTIMATED QUANTITIES

DETAILED Dec. 19 78 Bishop
CHECKED May 19 79 Achtentuch

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

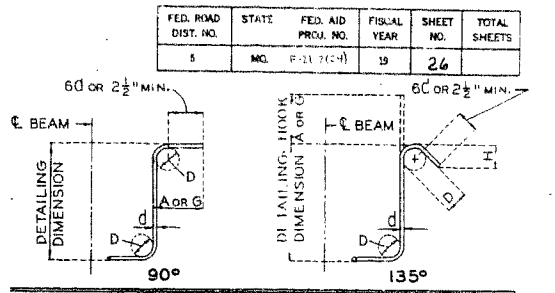
Sheet No. 2A of 15.

JEFFERSON COUNTY

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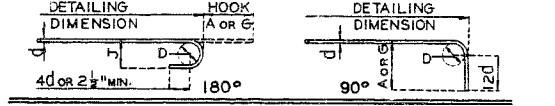
COMPLETE BILL OF REINFORCING STEEL																									
NO. REQD.	MARK NO.	LOCATION	GRADE	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS												NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT		
									B		C		D		E		F		H					K	
									FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.				FT.	IN.
BENT 2																									
6	11 H26	Cap	H20	X				34	2									34 2	1089						
4	6 H27		H20	X				34	2									34 2	206						
2	11 H28		H18	X				35	2									384	407						
2	11 H29		H18	X				36	10									430	425						
2	11 H30		H18	X				37	5									407	431						
8	7 H31		H17	X				2	23	4							10	310	2 166						
34	5 U7	Cap	H13	SX				3	5	3	9	3	5	3	9			15	615 1 535						
8	4 U8	"	H10	X							6	3	5					4	54 2 22						
2	5 U9	"	H13	SX				3	0 1/2	3	9	3	0 1/2	3	9			13 7 1/2	12 6 26						
2	5 U10	"	H13	SX				3	4 1/2	3	9	3	4 1/2	3	9			15	615 1 31						
14	9 V16	Column	H20	X				19	7									19 7	932						
14	9 V17	"	H20	X				27	7									27 7	1313						
47	4 V18	"	H16	X				3	3								11	3 11 1	348						
14	9 V19		H20	X				11	0									11 0	524						
14	9 D1	Column	H17	X				7	0									8	3 393						
14	9 D2	"	H20	X				7	11									7	11 377						
4	10 F1	Footing	H20	X				11	9									11 9	202						
9	5 F2	"	H20	X				6	9									6 9	43						
2	6 F3	"	H10	X						4	0 1/2	11	0					19	0 1/2 9 56						
7	5 F4	"	H20	X				5	3									5 3	38						
7	7 F5	"	H18	X				7	3									8	11 128						
10	2 P1	A.B. Well	H22	X				1	6	9 1/8								26	1 44						
Total Bent 2																7756									

COMPLETE BILL OF REINFORCING STEEL																									
NO. REQD.	MARK NO.	LOCATION	GRADE	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.
BARRIER REINFORCEMENT																									
620	5 R1**	Barrier	H15						2	6	3 1/2					2	6	3	2	102	9	1778			
620	5 R2**	"	H19						2		3 1/2								2	132	9	1778			
620	5 R3**	"	H19						1	5	6								1	11	10	1186			
584	5 R4**	"	H27							6	11 1/2	7	1	0	9 1/2	6 1/2	3	0	10	1	726				
20	5 R5**	"	H27							6	11 1/2	7			6 3/8	9 1/8	2	0	1	9	37				
4	5 R6**	"	H20						23	0									23	0	117				
40	5 R7**	"	H20						23	2									23	2	1175				
4	5 R8**	"	H20						26	2									26	2	110				
43	5 R9**	"	H20						5	1									5	1	2808				
26	5 R10**	" ①	H20						9	9									9	9	264				
16	5 R20**	"	H10	S						1	5	6							3	4	3	2	53		
																Total Barrier Reinforcement				11032					
SLAB ON SEMI-DEEP ABUT. NO. 1 & 3																									
284	59**	S16b	H20						40	2									40	2	751				
48	4 S10**	" ①	H20						22	8									22	8	727				
56	5 S11**	"	H20						40	2									40	2	2346				
136	9 S12**	"	H20						22	8									22	8	10481				
4	5 S13**	"	H20						22	8									22	8	95				
																Total Epoxy Coated				14400					



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

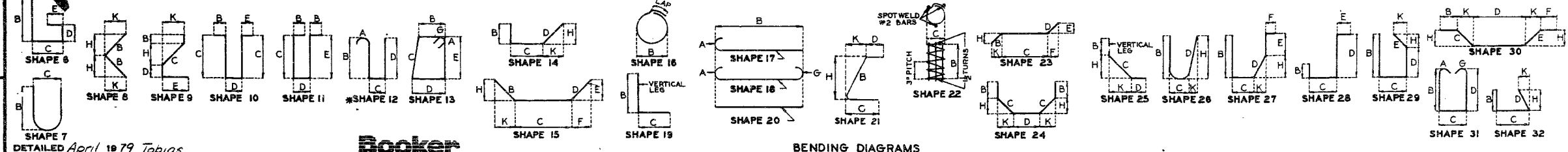
NOTE: UNLESS OTHERWISE NOTED DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.



SIZE OF 180° HOOKS (GRADE 40 KSI) D = 5d FOR #3 THRU #11 D = 10d FOR #14 AND #18
 SIZE OF 90° HOOKS (ALL GRADES) AND 180° HOOKS (GRADE 60 KSI) D = 6d FOR #3 THRU #8 D = 8d FOR #9, #10 AND #11 D = 10d FOR #14 AND #18

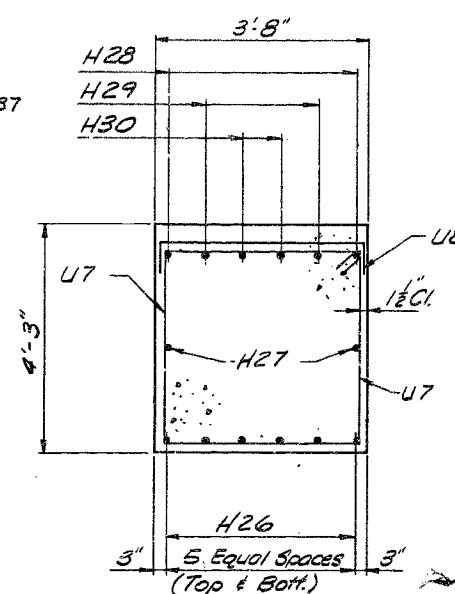
END HOOK DIMENSIONS				
BAR SIZE	180° HOOKS		90° HOOKS	
	GRADE 40 A OR G	GRADE 60 J	GRADE 40 A OR G	GRADE 60 J
#3	5"	2-3/4"	5"	3"
#4	6"	3-1/2"	6"	4"
#5	7"	4-1/2"	7"	5"
#6	8"	5-1/4"	8"	6"
#7	9"	6-1/4"	10"	7"
#8	10"	7"	11"	8"
#9	12"	8"	15"	11-1/4"
#10	13"	9"	17"	12-3/4"
#11	14"	10"	19"	14-1/4"
#14	21-2"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

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 DIAGRAMS 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.
 ** Indicates epoxy coated bars.
 ① 2 additional R10, S10 & S27 are included in bar bill for testing.

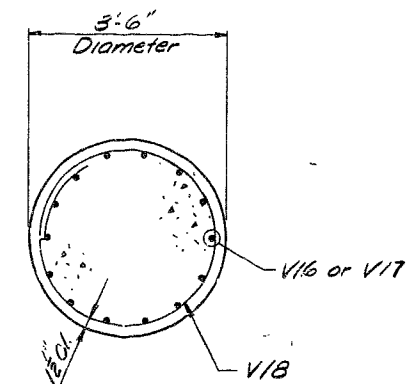


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 Note: This drawing is not to scale. Follow dimensions.

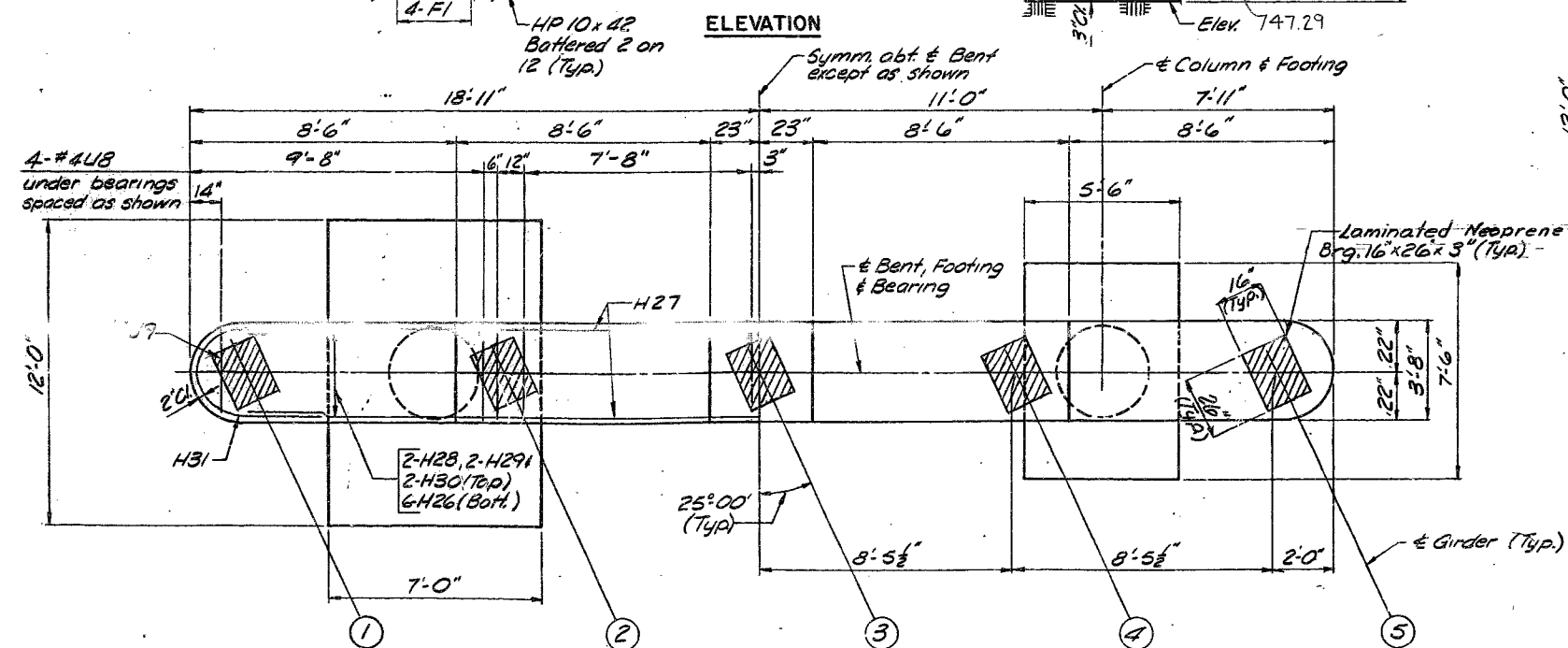
Sheet No. 4 of 15



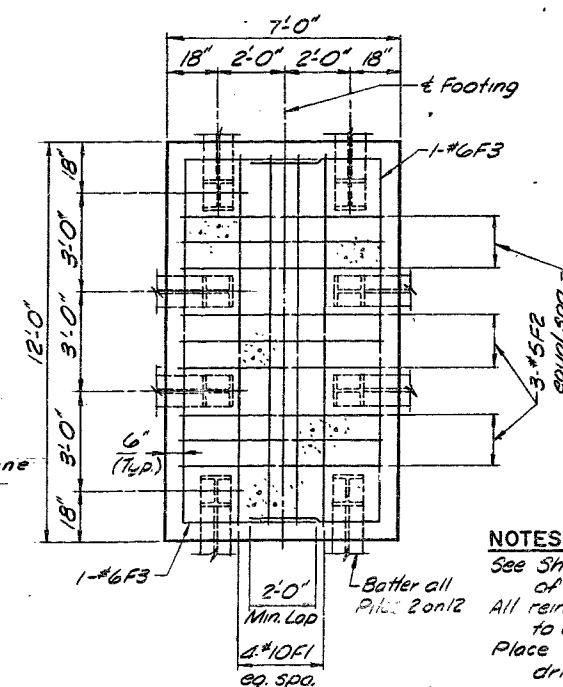
SECTION A-A



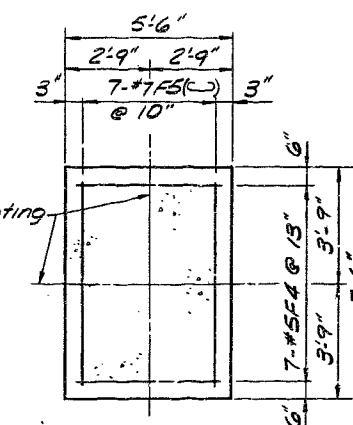
SECTION B-B



ELEVATION



FOOTING PLAN
(Column 1)



FOOTING PLAN
(Column 2)

NOTES:

See Sheet No. 11 of 15 for Anchor Bolt Plan and billing
of #2P1 Spiral Bars.
All reinforcing bars in top of bent caps shall be spaced
to clear anchor bolts for bearing of least 1".
Place compacted fill under footing 1' before
driving piles.

DETAILED Jan. 1979 Tobias
CHECKED May 1979 Achtentuch

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Engineers Architects Planners

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

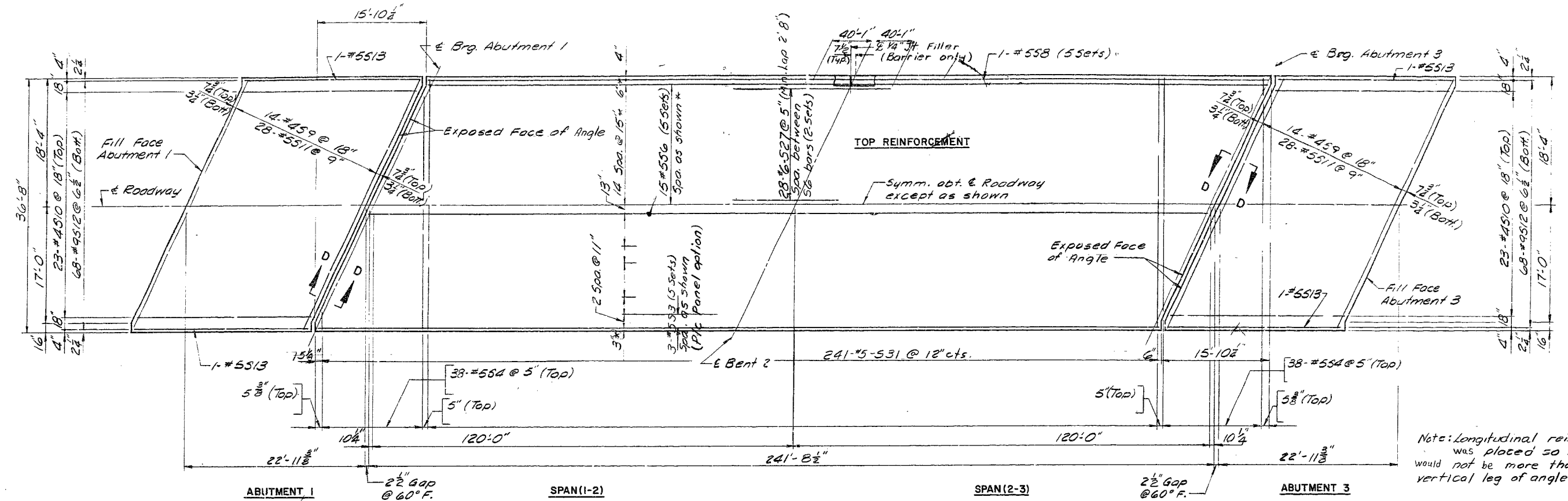
Sheet No. 7A of 15.

JEFFERSON COUNTY

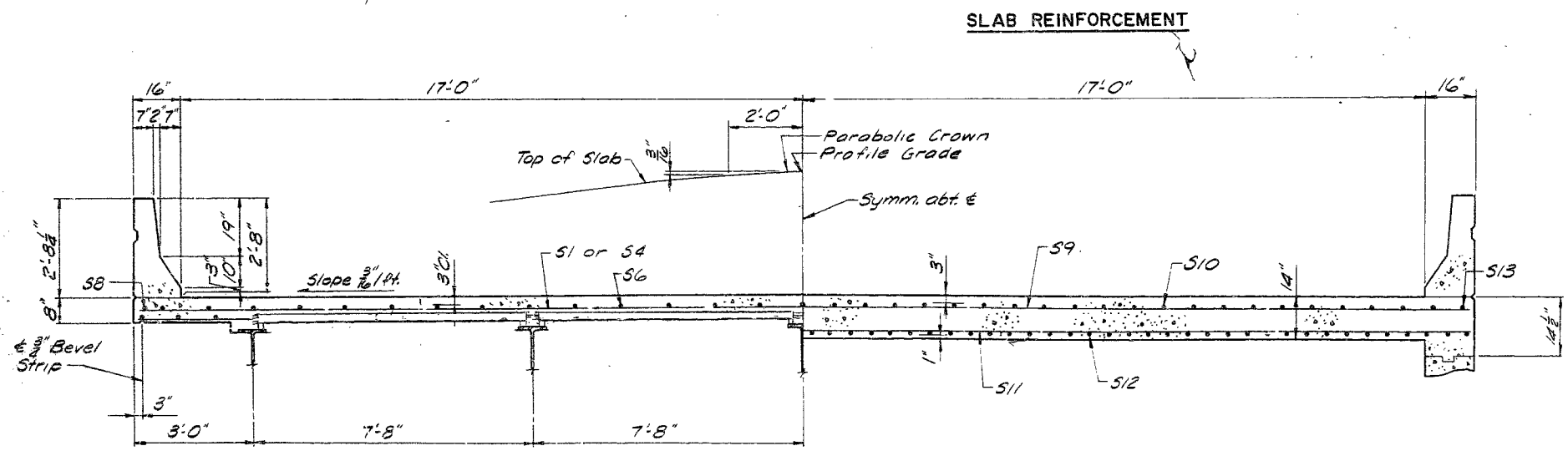
A-3101

BENT 2

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	F-21-2(15)	19	28	



Note: Longitudinal reinforcing steel was placed so that ends would not be more than 1" from vertical leg of angle at exp. device.



TYPICAL HALF SECTION
(Thru Bridge)

TYPICAL HALF SECTION
(Thru Abutments)

NOTES:
 Minimum lap for S3, S6 and S8 shall be 2'-2"
 Longitudinal dimensions shown are measured parallel to grade at top of slab.
 For Section D-D, see Sheet No. 14 of 15.
 For Const. Joint Detail, see Sheet No. 9 of 15.
 For Barrier Details, see Sheet No. 15 of 15.
 Longitudinal reinforcing steel shall be placed so that the ends shall not be more than 1" from vertical leg of angle for Exp. Device.
 Field Bend S9 and S11 Bars in field where required.

DECK SLAB

DETAILED Jan. 1979 Tobias
 CHECKED May 1979 Achtentuch

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

Sheet No. 12 of 15.

JEFFERSON COUNTY

A-3101