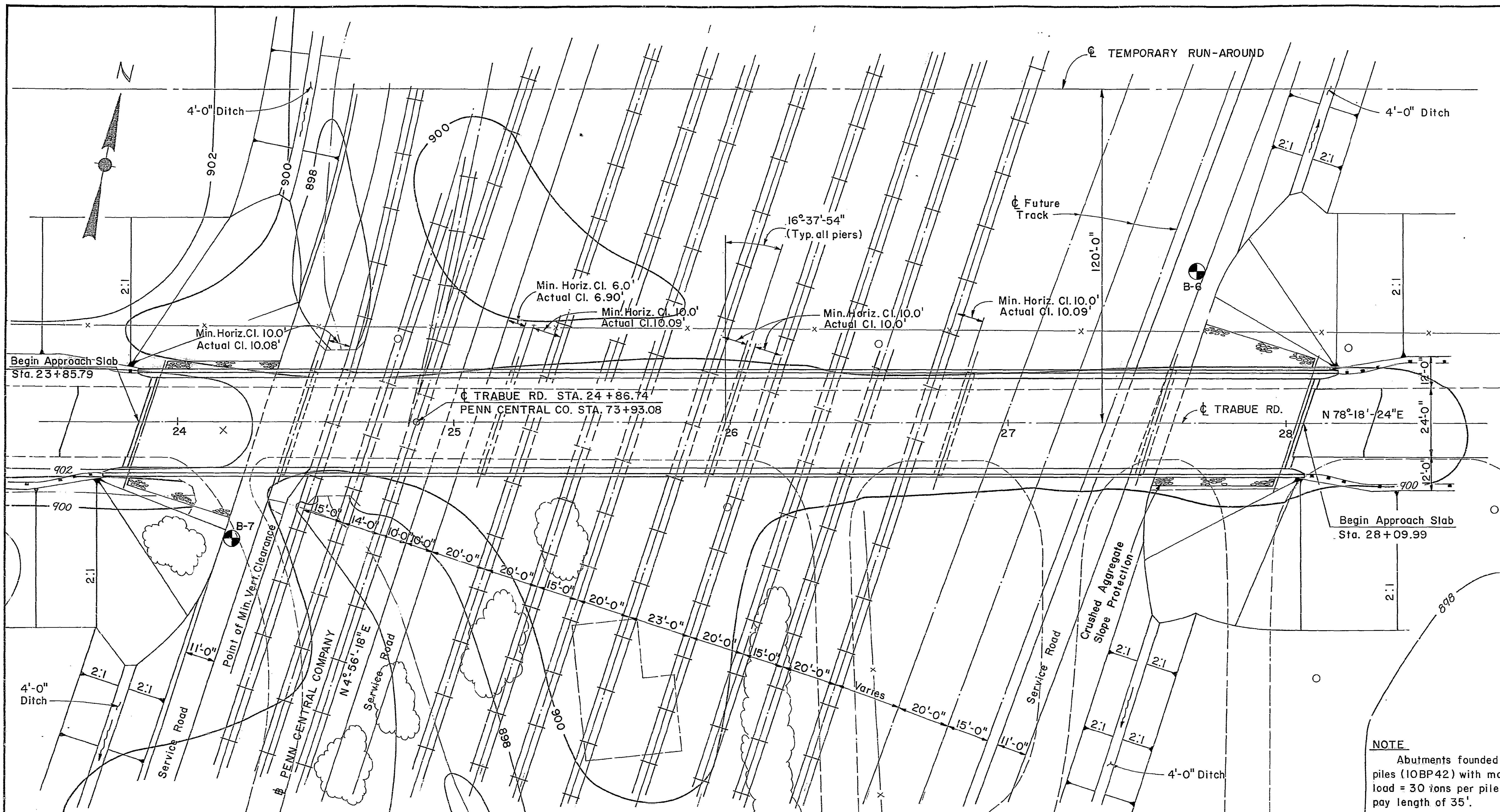
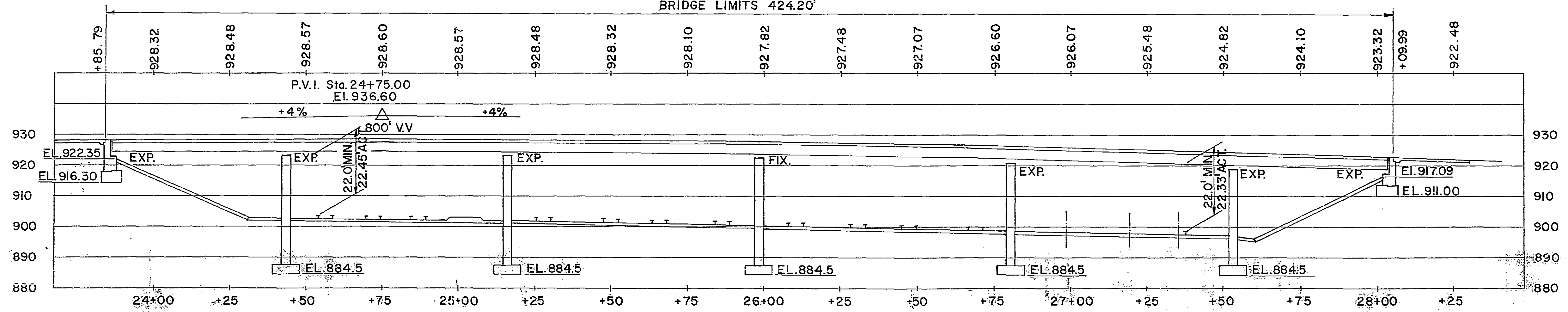




PLAN

BRIDGE LIMITS 424.20'



PROFILE ALONG C OF SURVEY

NOTE
 Abutments founded on steel "H" piles (10BP42) with maximum design load = 30 tons per pile and an est. pay length of 35'.
 Piers are founded on spread footings with a maximum design load of 3 tons per sq. ft.

PROPOSED STRUCTURE
 TYPE: 6 Span continuous steel beam with reinforced concrete deck and substructure.
 SPANS: 56'-3", 72'-0", 81'-6", 81'-6", 72'-0" and 56'-3"
 ROADWAY: 30'-0" f/f of 2'-0" curbs
 LOADING: HS 20-44
 SKEW: 16°-37'-54" L.F.
 WEARING SURFACE: 1" Monolithic concrete
 APPROACH SLAB: AS-1-67 (25'-0" long)
 ALIGNMENT: Tangent
 SUPERELEVATION: None

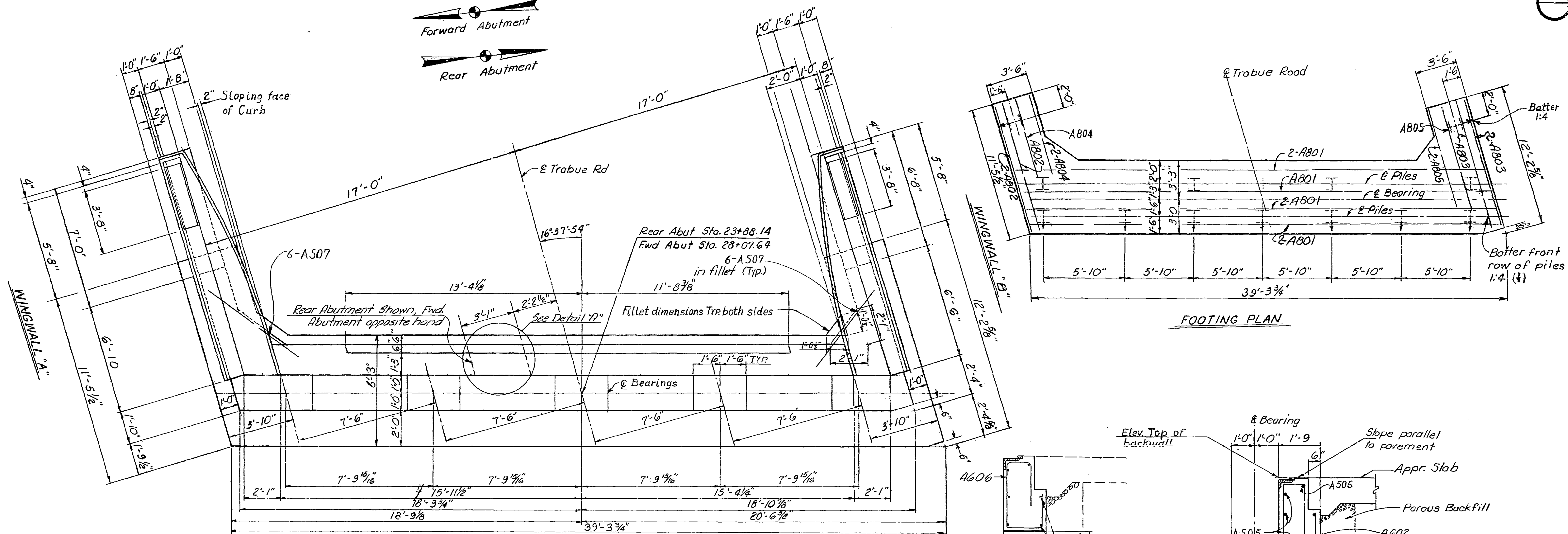
E. S. PRESTON & ASSOCIATES, LIMITED
 ENGINEERS
 COLUMBUS, OHIO

SITE PLAN
 BRIDGE NO. NO-27-7.85
 TRABUE ROAD OVER
 PENN CENTRAL COMPANY
 COLUMBUS YARD

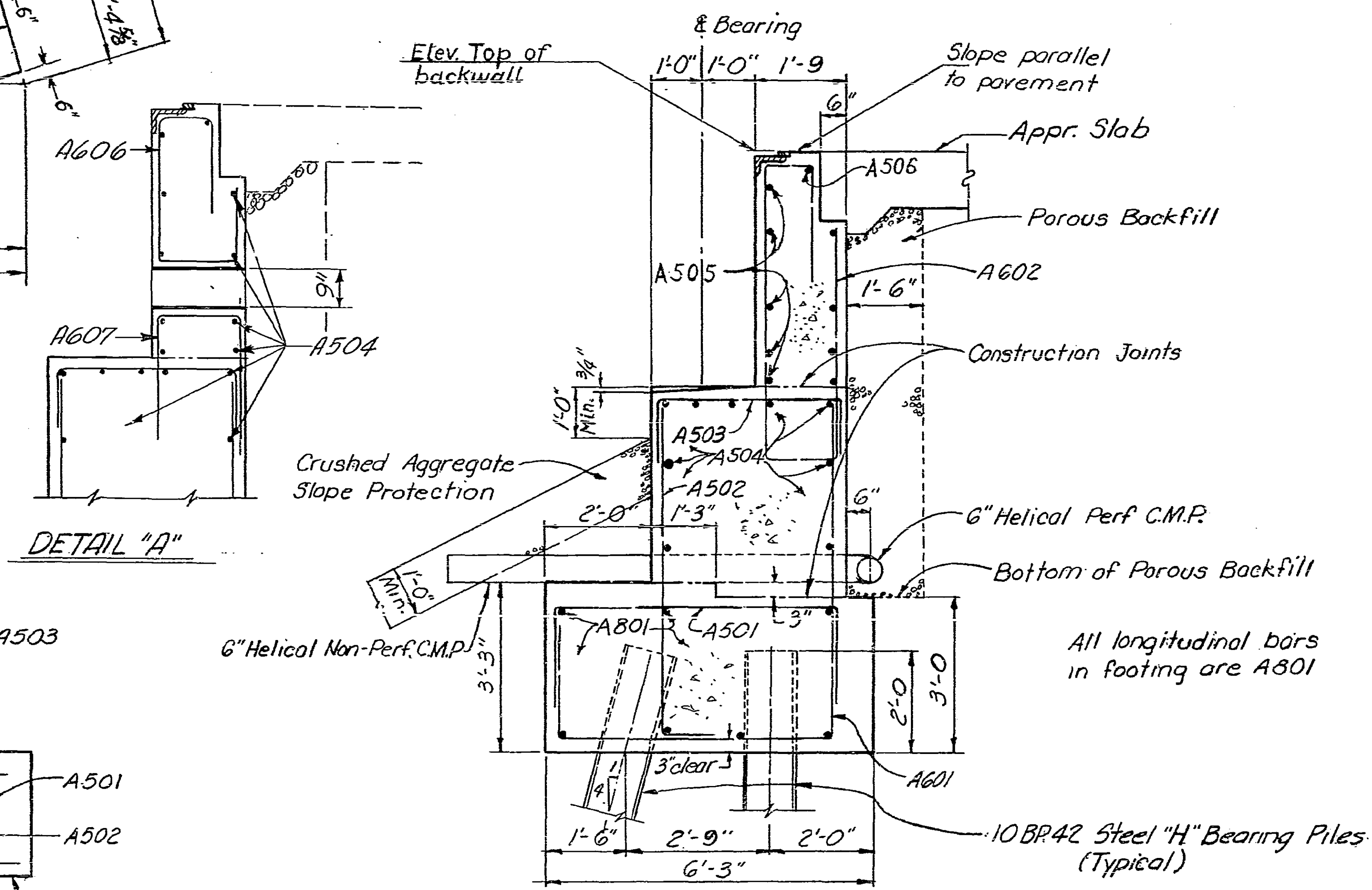
FRANKLIN COUNTY
 STA. 23+85.79
 STA. 28+09.99

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED DATE	REVISION
	EJK	B.B.			

3910 010 SITE PLAN 1968 018 01



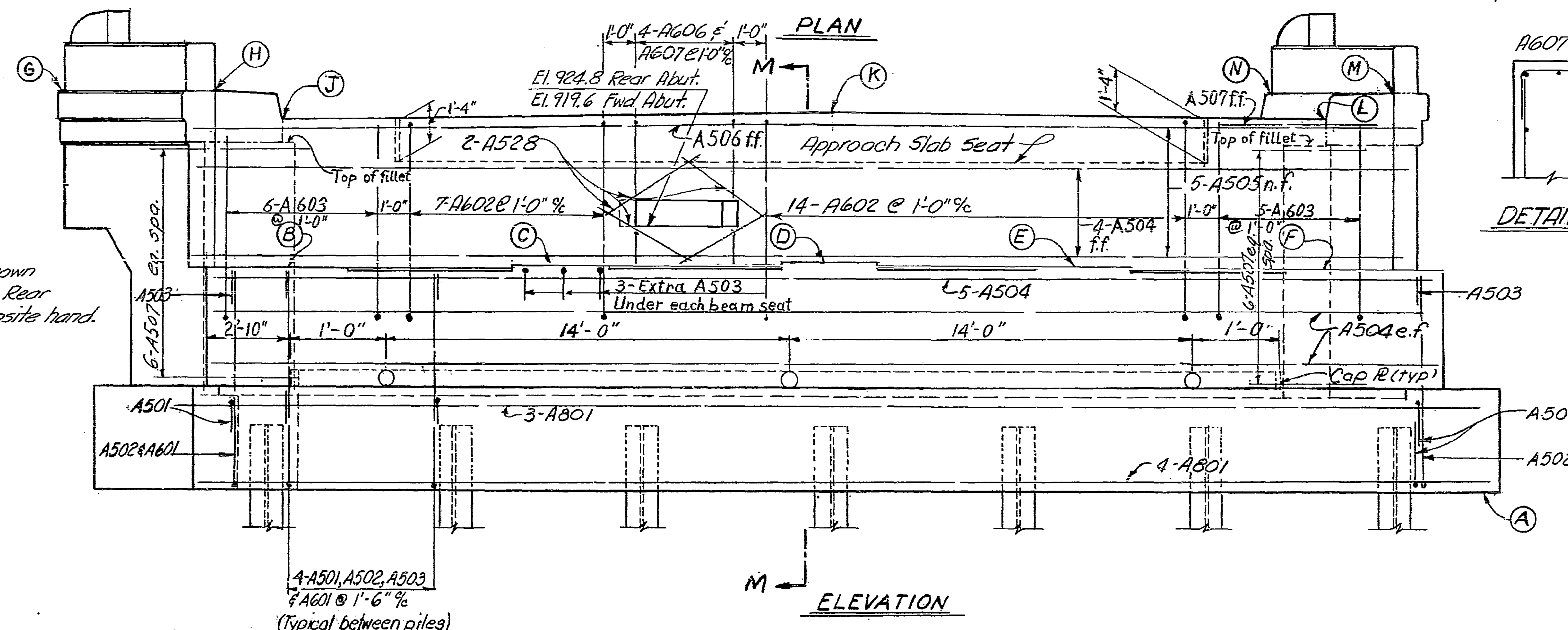
FOOTING PLAN



DETAIL "A"

SECTION M-M

NOTE
Vertical reinf. steel shown
in the backwall is for Rear
Abut., Fwd. Abut. opposite hand.



ELEVATION

TABLE OF ELEVATIONS

TABLE OF ELEVATIONS													
POINTS	A	B	C	D	E	F	G	H	J	K	L	M	N
REAR ABUTMENT	916.30	923.35	923.49	923.62	923.53	923.43	928.67	928.81	927.94	928.21	928.02	928.90	928.78
FORWARD ABUTMENT	911.00	918.09	918.28	918.47	918.42	918.38	923.03	923.51	922.66	923.03	922.94	923.84	923.39

LEGEND

n.f. denotes near face
f.f. denotes far face
e.f. denotes each face

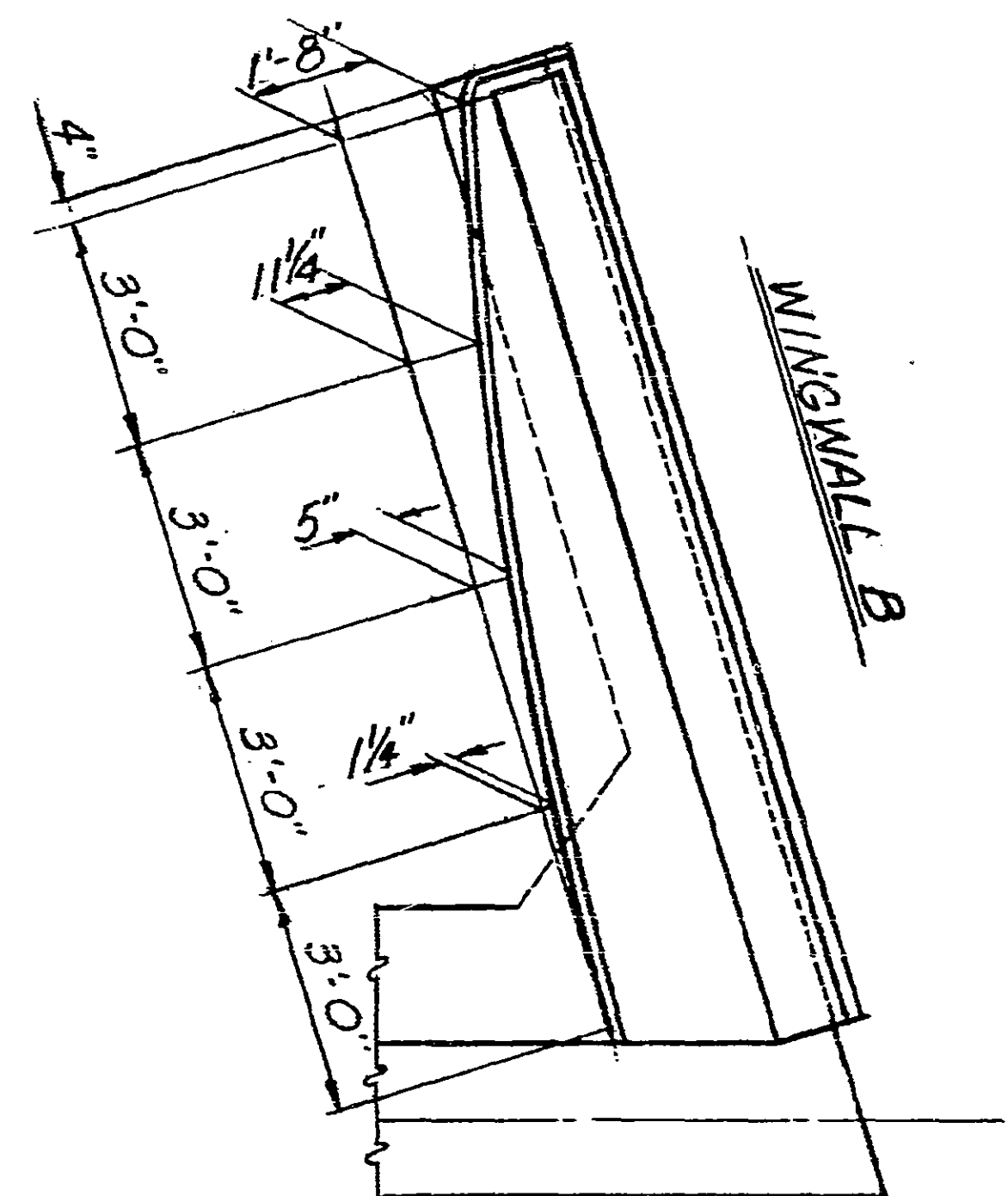
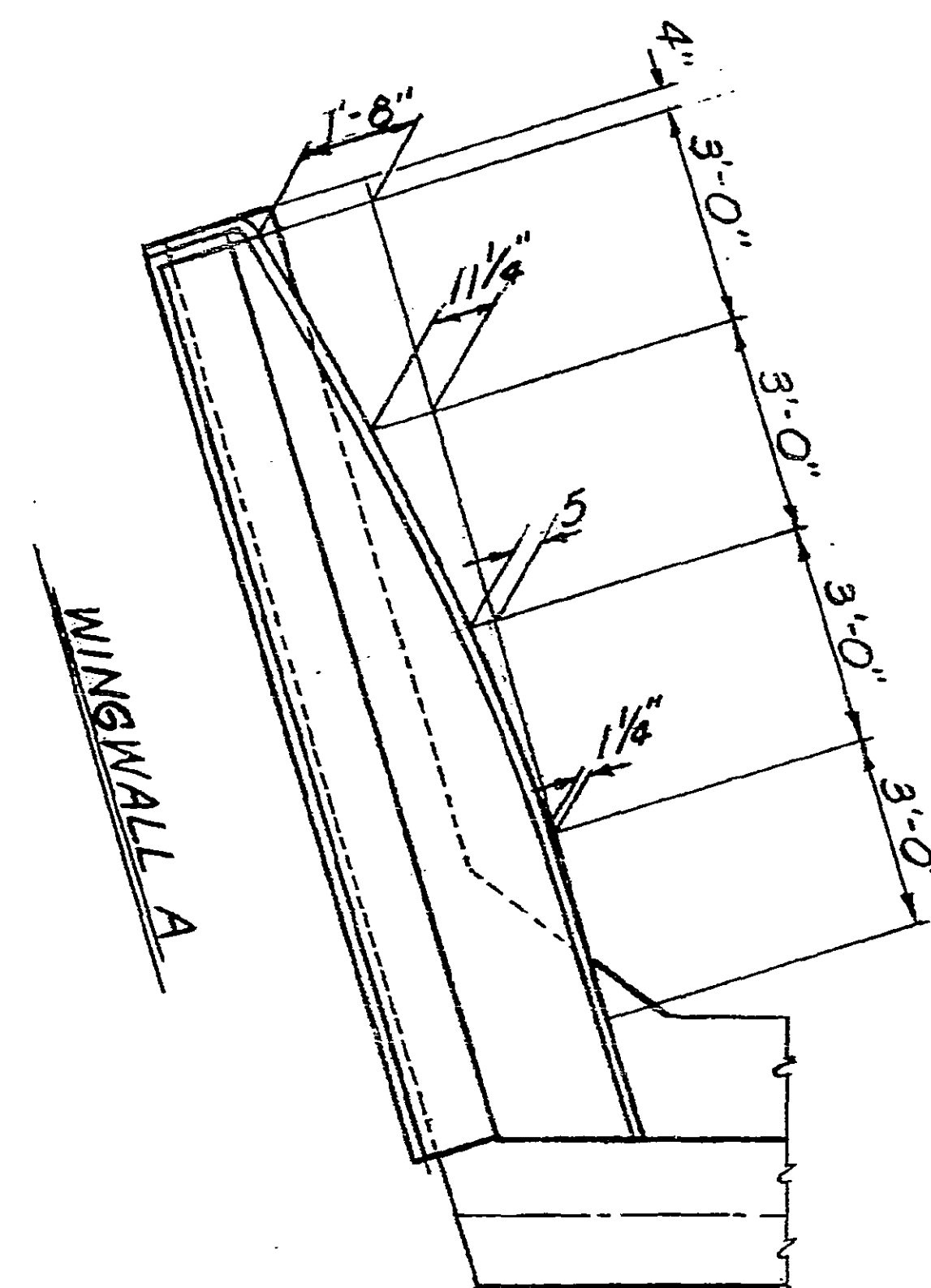
NOTE
Adjustable Type Elbows meeting specification requirements for gage and coating are acceptable for making bends in perforated corrugated metal pipe. Elbows and the stem of tees need not be perforated.

E. S. PRESTON & ASSOCIATES, LIMITED 3/8
ENGINEERS
COLUMBUS, OHIO

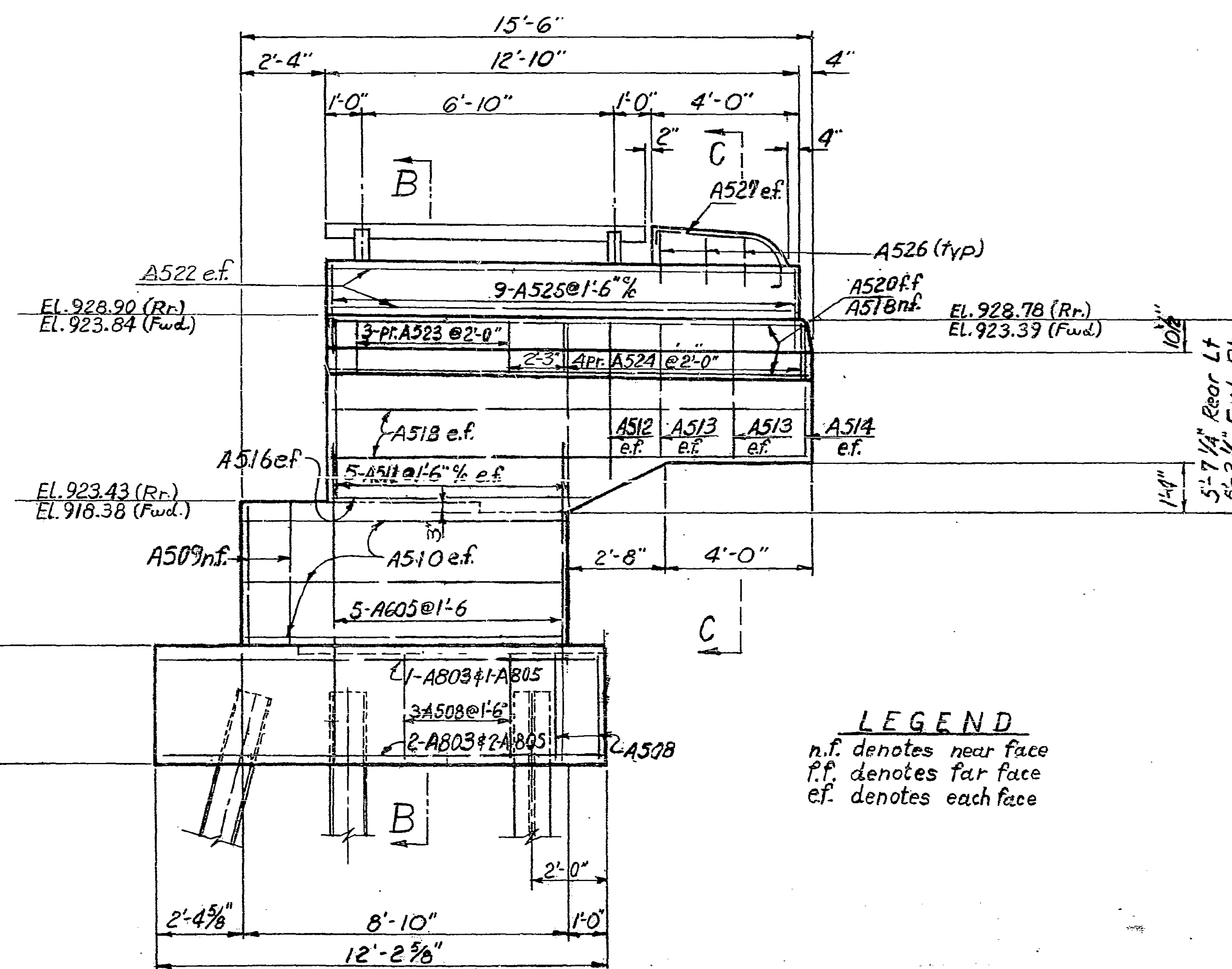
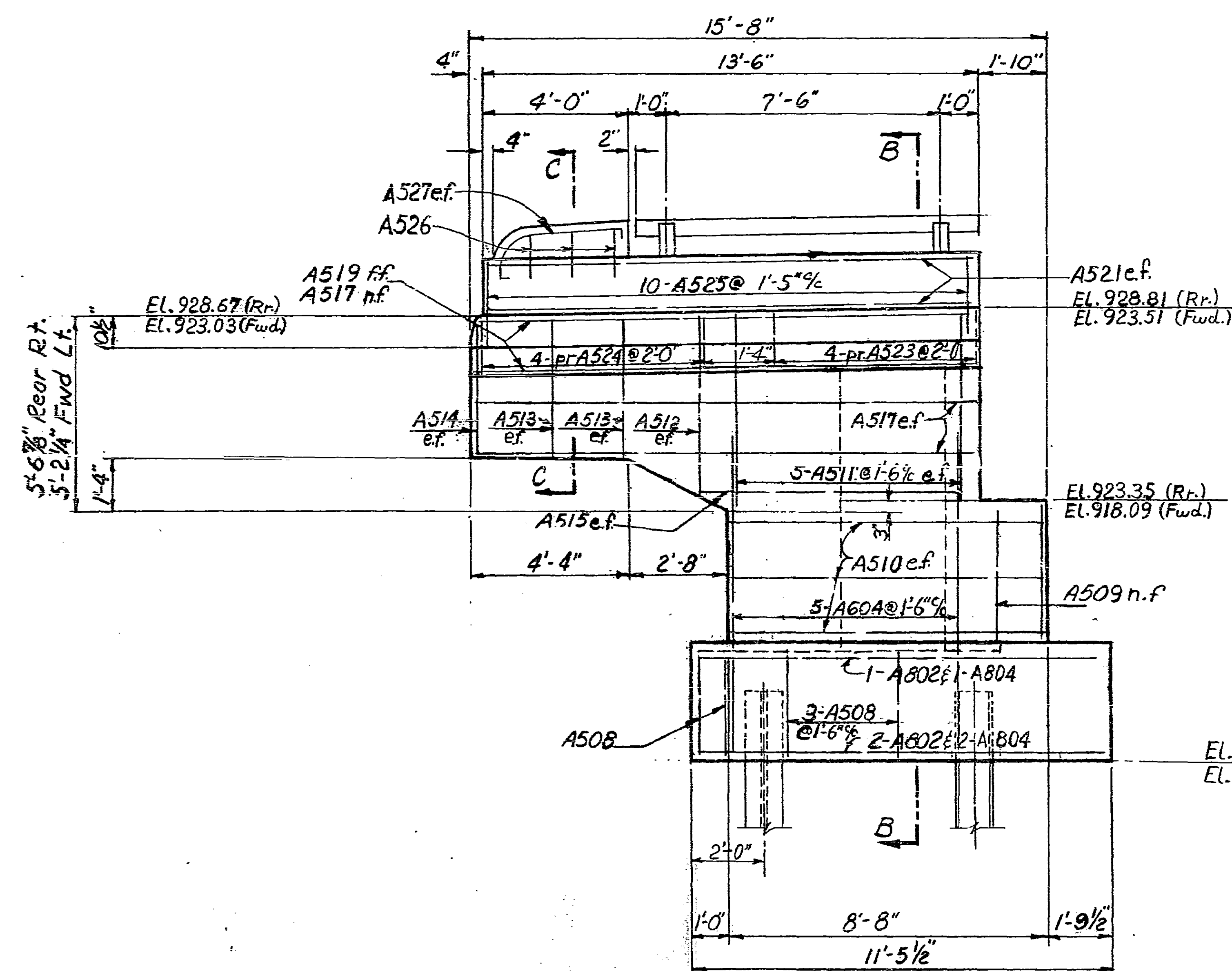
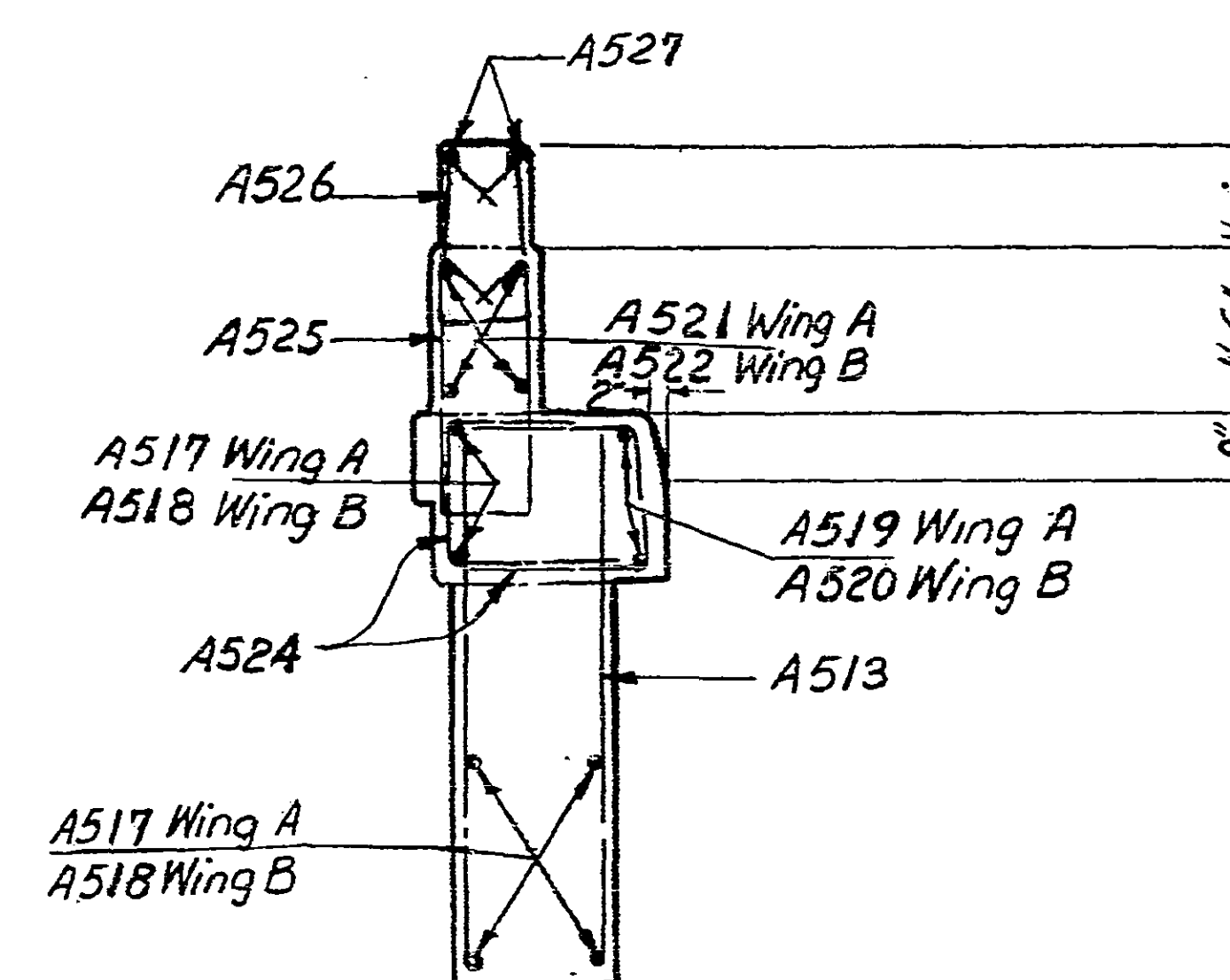
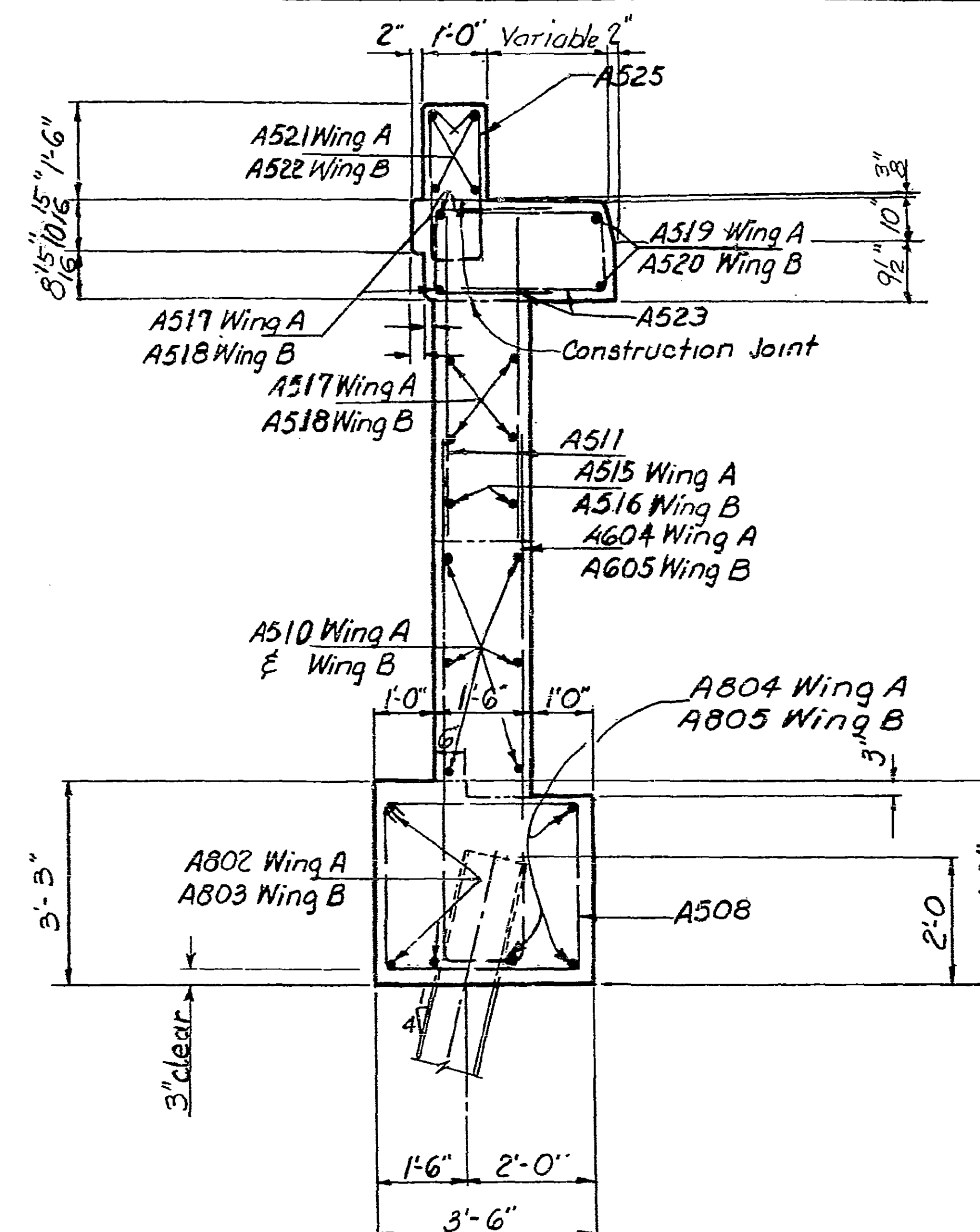
ABUTMENT DETAILS
BRIDGE NO. NO-27-7.85
OVER PENN CENTRAL COMPANY
COLUMBUS YARD
FRANKLIN CO. STA. 23+85.79 TO
STA. 28+09.99

DESIGNED F.Y.	DRAWN S	TRACED	CHECKED R.W.T.	REVIEWED DATE H. 11-7-68	REVISED
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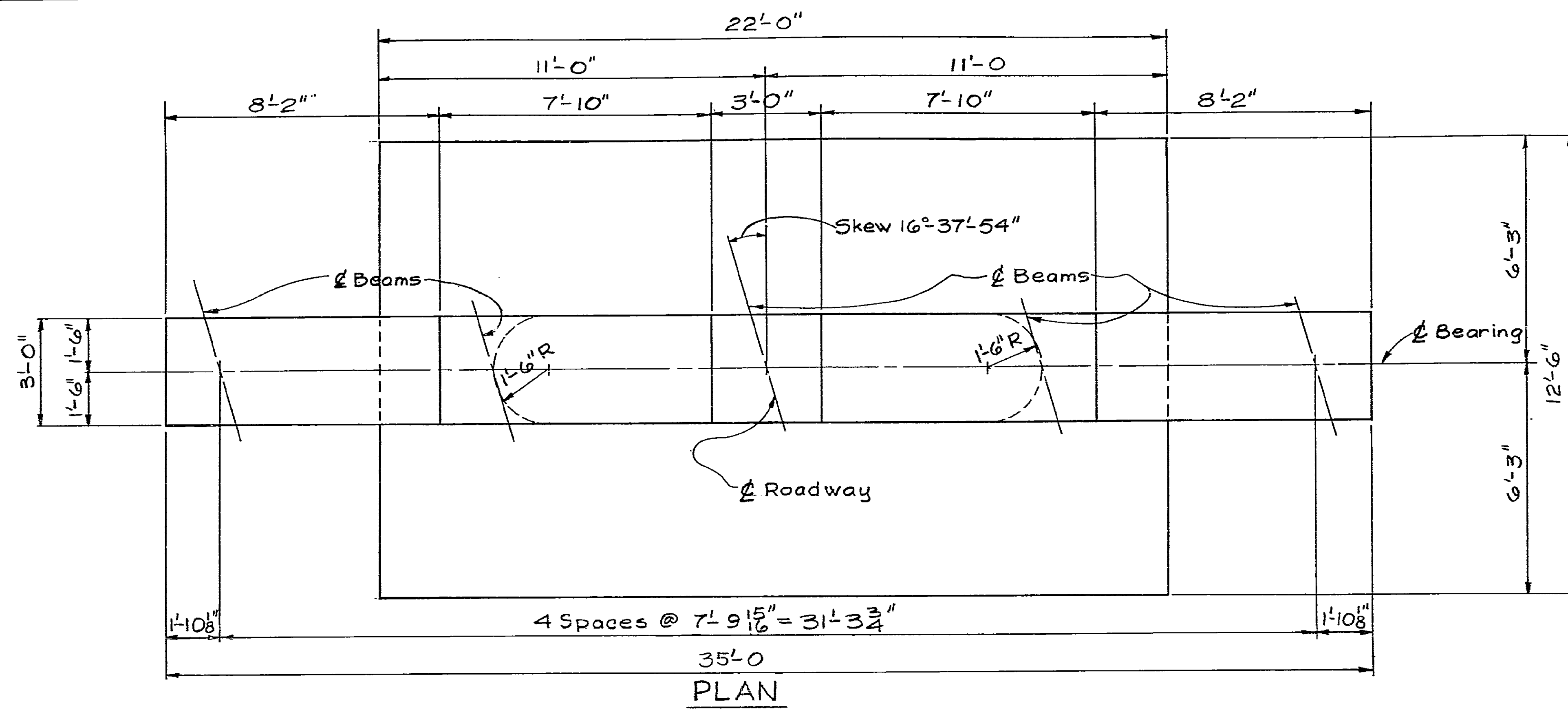


CURB PLAN.

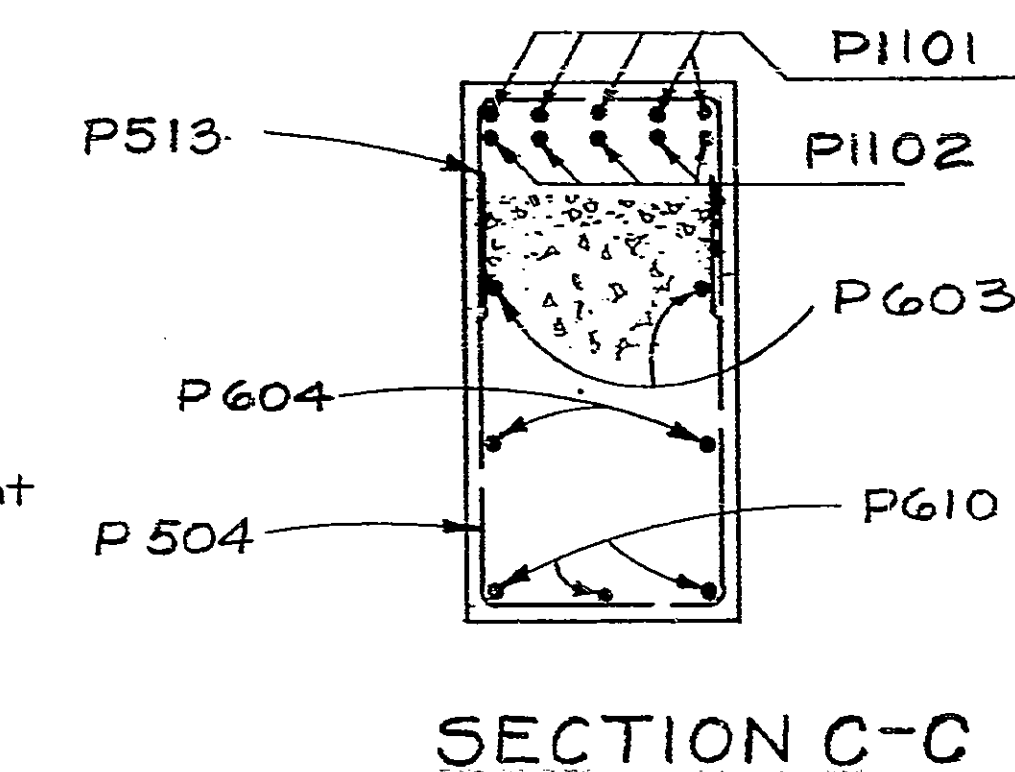
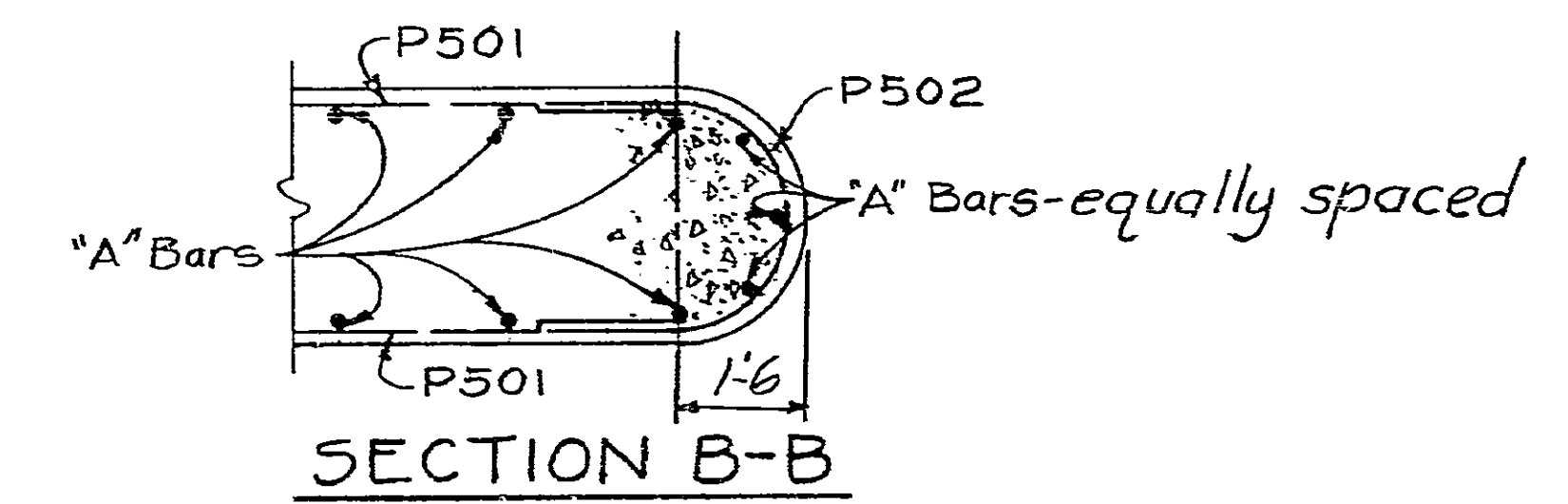
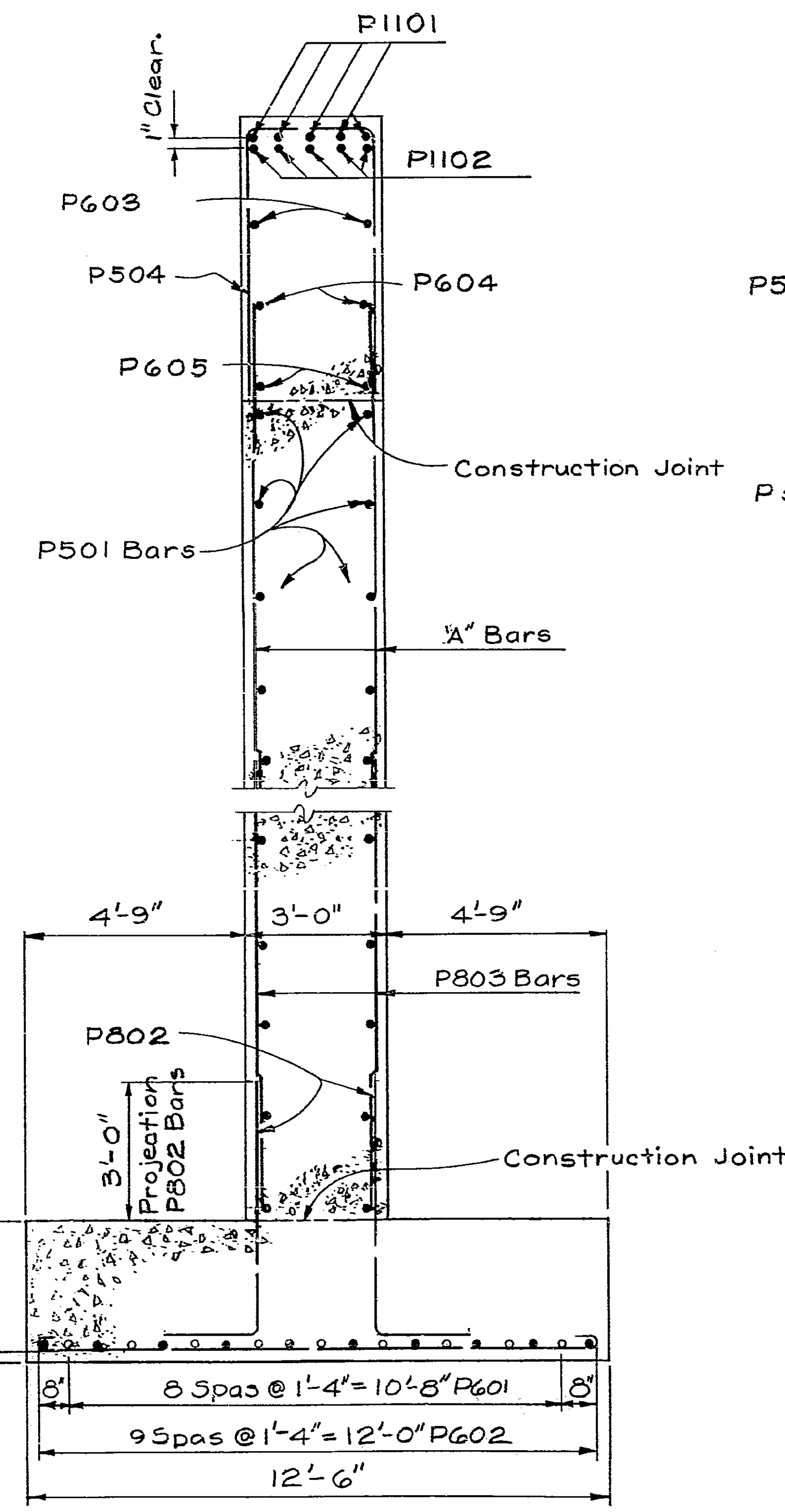
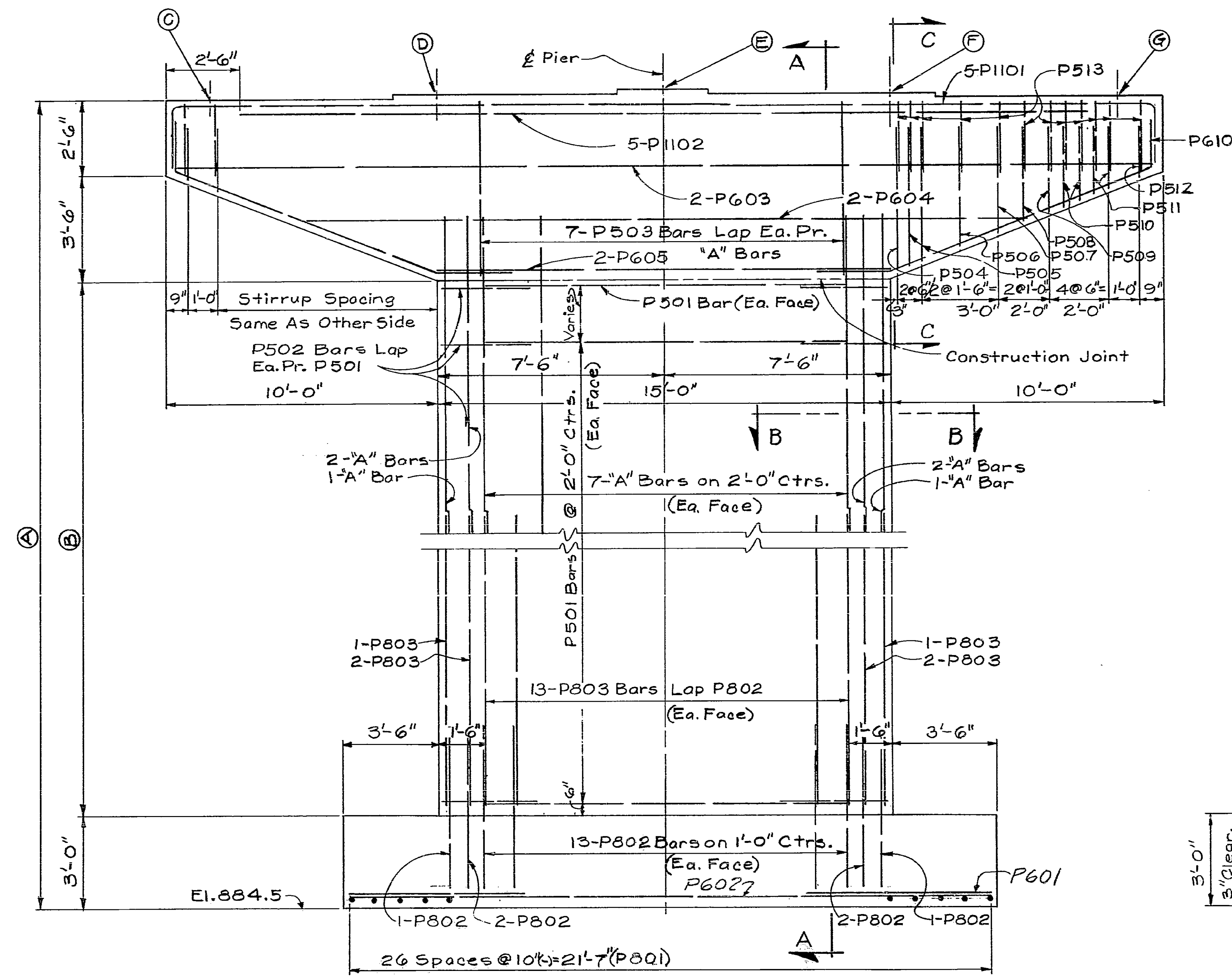


LEGEND
n.f. denotes near face
f.f. denotes far face
ef. denotes each face

E. S. PRESTON & ASSOCIATES, LIMITED					4/8	
ENGINEERS						
COLUMBUS, OHIO						
ABUTMENT DETAILS						
BRIDGE NO.			NO-27-7.85			
OVER PENN CENTRAL COMPANY						
COLUMBUS YARD						
FRANKLIN CO			STA 23+85.79 TO			
			STA 28+09.99			
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED DATE		REVISED
<i>g.f.</i>	<i>g.f.</i>		<i>R.W.L.</i>	<i>AK 4-7-68</i>		



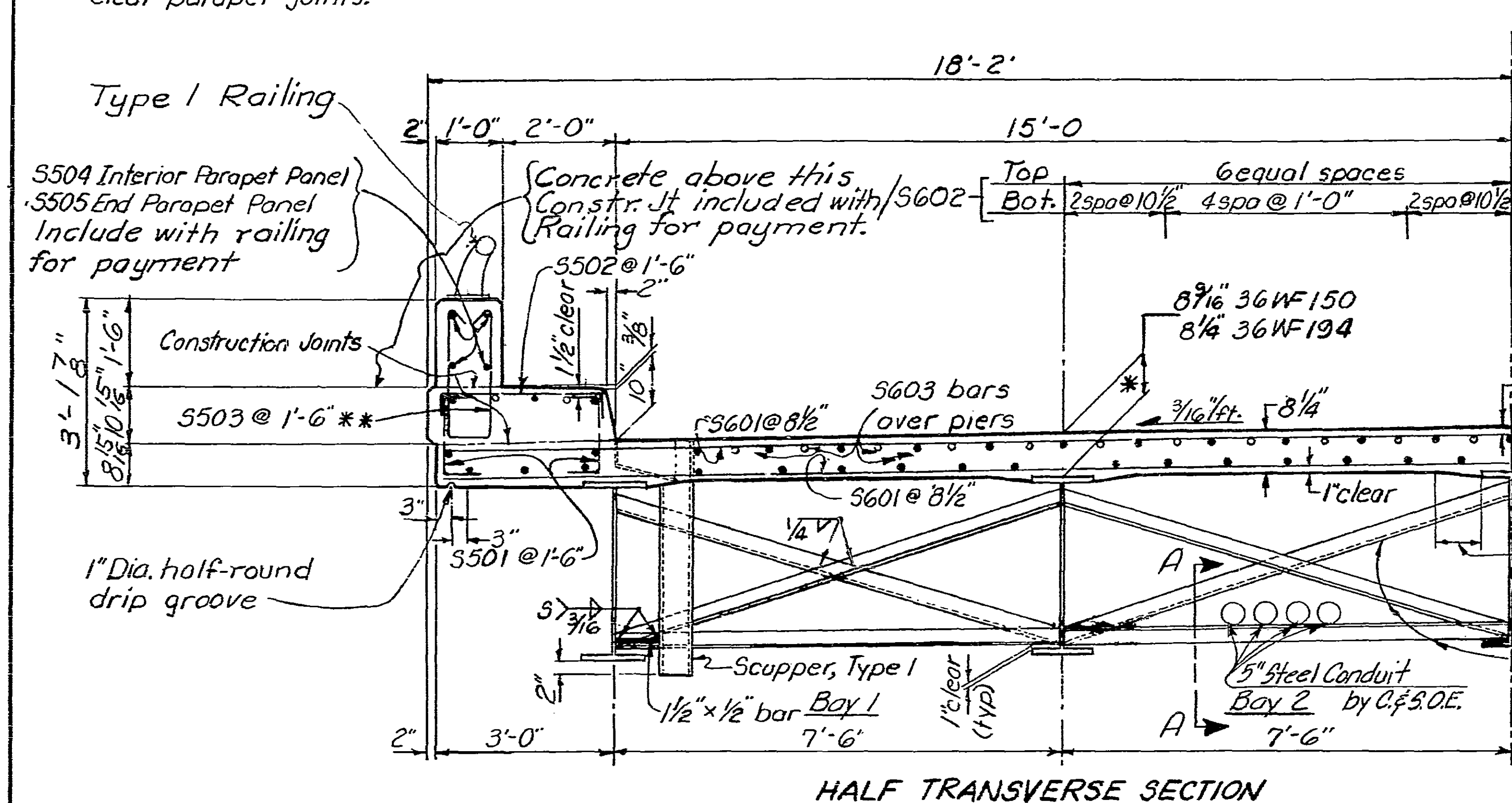
Pier	Dimension		Elevations					Reinforcing Bar Data		
Nº	A	B	C	D	E	F	G	"A" Bars	P501's	P502's
1	38'-8 $\frac{5}{8}$ "	29'-8 $\frac{5}{8}$ "	923.22	923.33	923.45	923.32	923.20	P606	32	32
2	38'-7 $\frac{5}{8}$ "	29'-7 $\frac{5}{8}$ "	923.13	923.25	923.38	923.27	923.16	P606	32	32
3	37'-10 $\frac{3}{8}$ "	28'-10 $\frac{3}{8}$ "	922.36	922.50	922.65	922.56	922.46	P607	30	30
4	36'-6 $\frac{5}{8}$ "	27'-6 $\frac{5}{8}$ "	921.05	921.22	921.38	921.30	921.23	P608	28	28
5	34'-9 $\frac{3}{4}$ "	25'-9 $\frac{3}{4}$ "	919.31	919.49	919.67	919.62	919.56	P609	26	26



NOTE:
Concrete is Class "C".
Locate stirrups in Pier #3 to miss bolster
anchor bolts.

E. S. PRESTON & ASSOCIATES, LIMITED					5/8
ENGINEERS COLUMBUS, OHIO					
PIER DETAILS					
BRIDGE NO.		NO-27-7.85			
OVER PENN CENTRAL COMPANY					
COLUMBUS YARD					
FRANKLIN CO.			STA. 23+85.79 TO STA. 28+09.99		
DESIGNED R.W.T.	DRAWN JTH	TRACED	CHECKED H.S.P.	REVISED DATE MAR 1972	REVIEWED

** Except where necessary to clear parapet joints.



HALF TRANSVERSE SECTION

Trabue Road
Symmetrical about E Roadway

*These are nominal dimensions. The quantity of deck concrete to be paid for shall be based on these dimensions, even though deviation from them may be necessary because the top flange of the beam may not have the exact camber or conformation required to place it parallel to the finished grade. Deduction shall be made for volume of encased steel plates as per Sec. 511.19 of the "Construction and Material Specifications."

2" clearance which includes 1" monolithic wearing surface Profile Grade

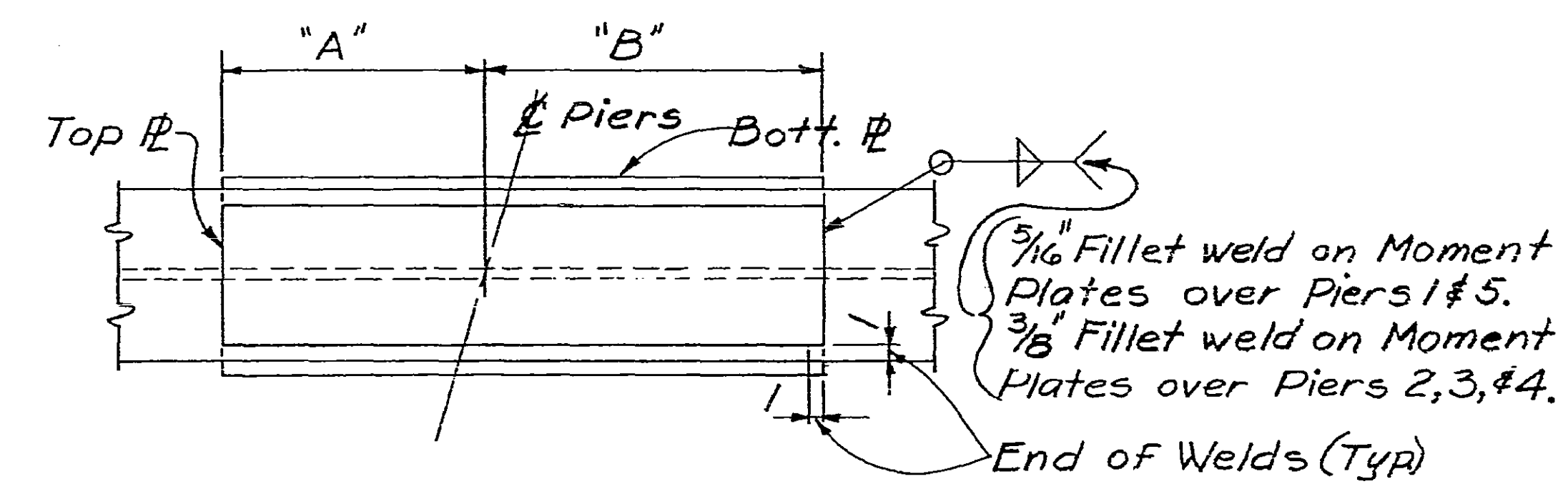
A typical haunch width of 9" shall be used for computing quantity of concrete. However, the haunch width may vary between 6 and 12 provided that the slope shall be not more than 1:4 for a haunch less than 9" in width.

Intermediate crossframe angle 3x3x5/16. Weld both sides of vertical leg and top side of horizontal leg to beam with 1/4" continuous fillet weld.

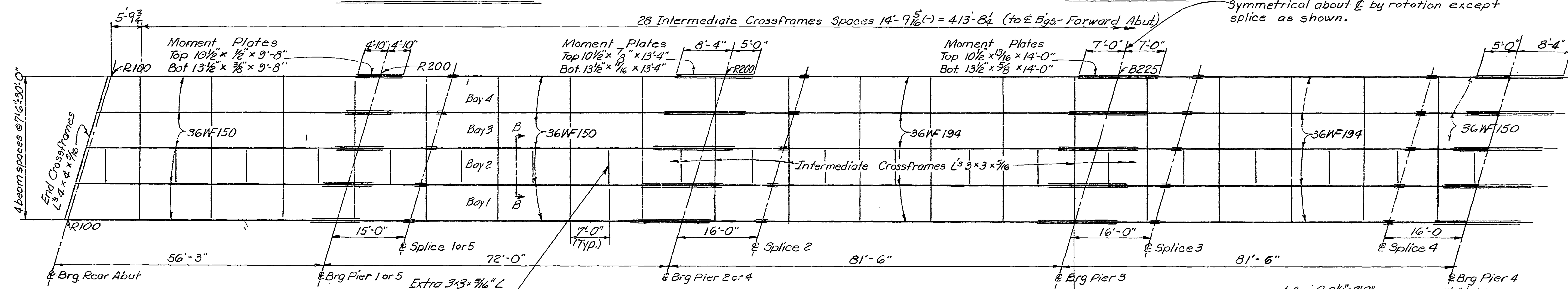
5" Steel Conduit

Horizontal Leg up (Typ. for crossframes in Bay 2 only)

SECTION A-A

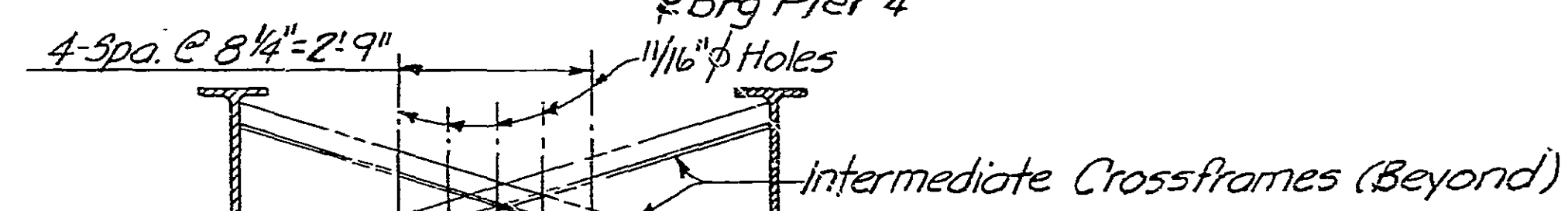


MOMENT PLATES WELDING DETAIL



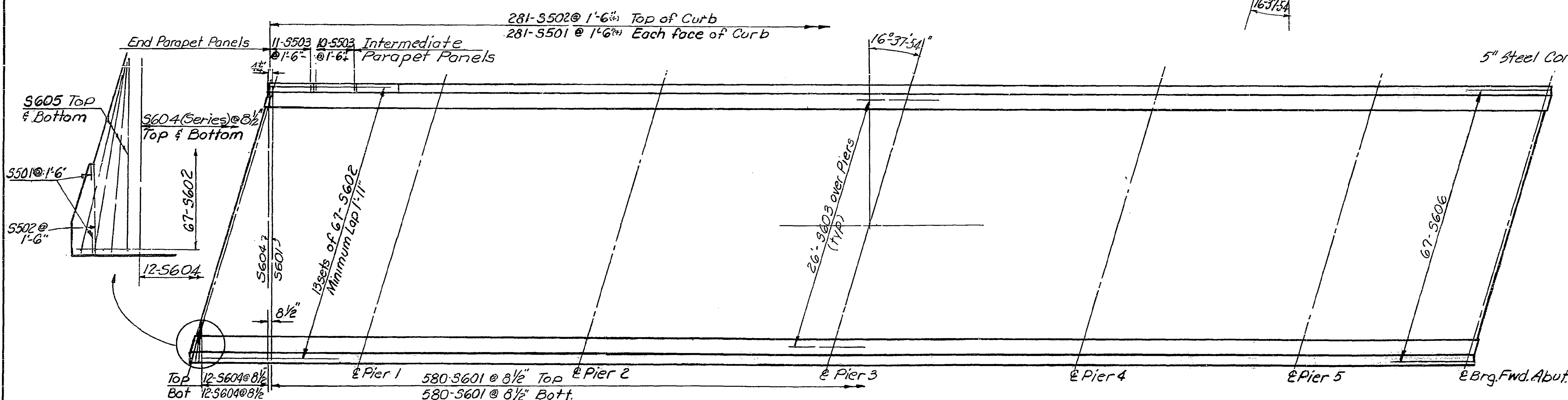
HALF FRAMING PLAN

Symmetrical about E by rotation except splice as shown.



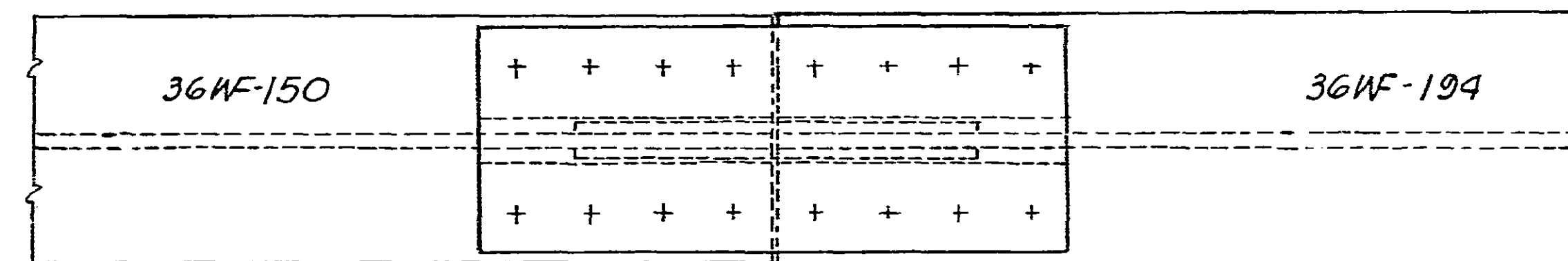
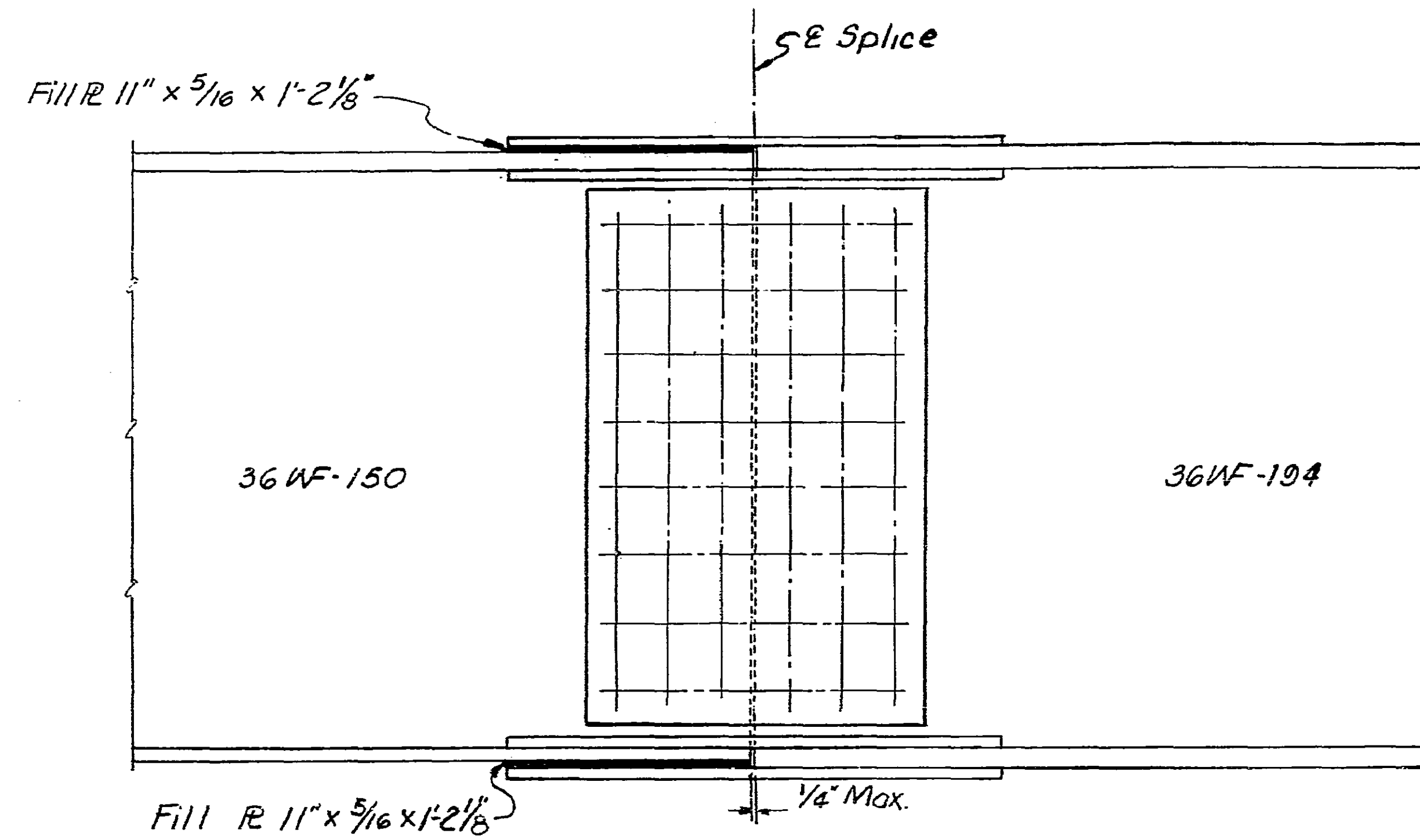
SECTION B-B

DIAGRAM SHOWING STAGGER OF S603 BARS OVER PIERS



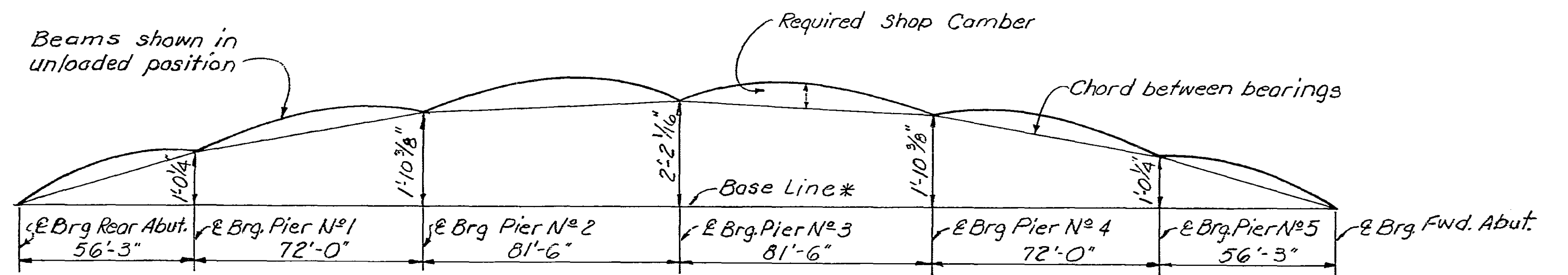
SLAB PLAN

E. S. PRESTON & ASSOCIATES, LIMITED ENGINEERS COLUMBUS, OHIO					
SUPERSTRUCTURE DETAILS					
BRIDGE NO. NO-27-7.85					
OVER PENN CENTRAL COMPANY					
COLUMBUS YARD					
FRANKLIN CO. STA. 23+85.79 TO STA. 28+09.99					
DESIGNED HSR	DRAWN J	TRACED	CHECKED RNT	REVIEWED DATE 11/2/68	REVIEWED



**STANDARD 36WF-150 BEAM SPLICE
WITH FILLER PLATES**

NOTE: See Sheet SD1-65(3) for plate sizes, dimensions and location of bolts holes.



* Base Line is a line from bottom of beam at centerline of bearing rear abutment to bottom of beam at centerline of bearing forward abut. Offset dimensions are to the bottom of the beams.

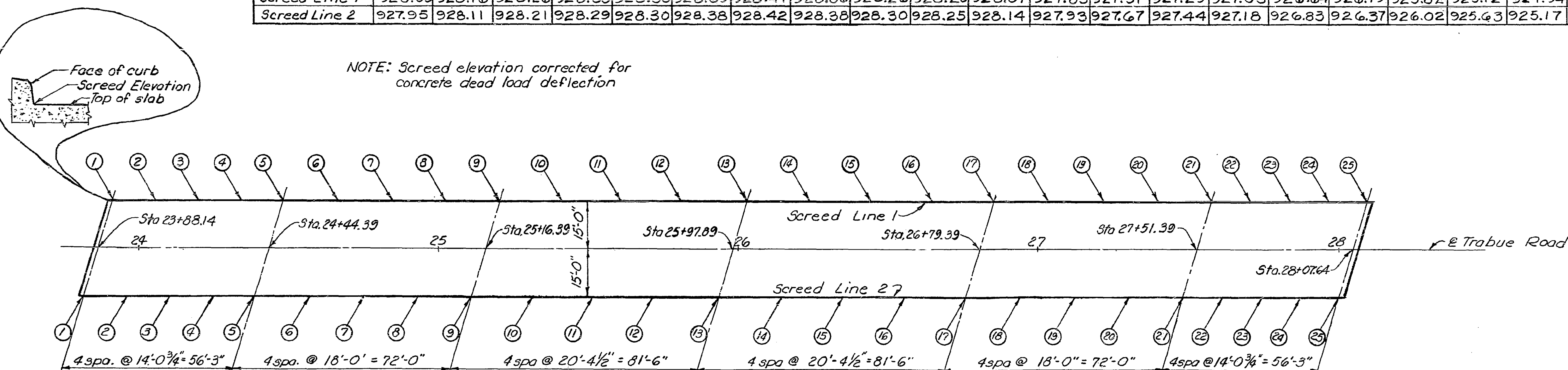
BEAM CAMBER LAYOUT DIAGRAM

LOCATION	DEFLECTION AND CAMBER															
	SPAN 1				SPAN 2				SPAN 3				SPAN 4			
	1/4 Pt.	1/2 Pt.	3/4 Pt.	Splice	1/4 Pt.	1/2 Pt.	3/4	Splice	1/4 Pt.	1/2 Pt.	3/4 Pt.	Splice	1/4 Pt.	1/2 Pt.	3/4 Pt.	Splice
Deflection due to weight of steel	1/16	1/16	0.	0	1/16	1/16	0.	1/16	1/16	1/8	1/16	1/16	1/16	1/8	1/16	1/16
Deflection due to remaining dead load	1/16	1/2	1/4	3/16	5/16	1/16	1/16	1/16	1/16	1/16	1/2	1/16	1/16	1/16	1/2	1/16
Adjustment required for vertical curve	3/8	1/2	3/8	1/2	3/16	3/4	1/16	5/8	3/4	1	3/4	5/8	3/4	1	3/4	5/8
Required Shop Camber	1/8	1 1/16	5/8	1 1/16	1 1/16	1 1/8	1/8	1 1/8	1 3/8	2 1/16	1 5/16	1 1/8	1 3/8	2 1/16	1 5/16	1 1/8

NOTE: Deflections for Spans 5 & 6 are Opposite Hand to Spans 1 & 2.

TABLE OF SCREED ELEVATION																									
Point	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Screed Line 1	928.03	928.16	928.26	928.33	928.33	928.39	928.41	928.36	928.26	928.20	928.07	927.83	927.57	927.29	927.03	926.64	926.19	925.82	925.12	924.94	924.42	924.06	923.63	923.19	922.68
Screed Line 2	927.95	928.11	928.21	928.29	928.30	928.38	928.42	928.38	928.30	928.25	928.14	927.93	927.67	927.44	927.18	926.83	926.37	926.02	925.63	925.17	924.67	924.32	923.91	923.47	922.97

NOTE: Screed elevation corrected for concrete dead load deflection

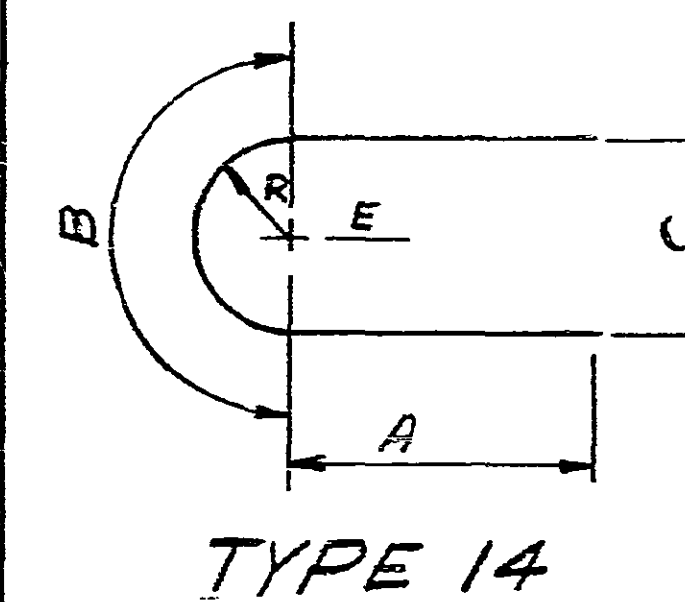
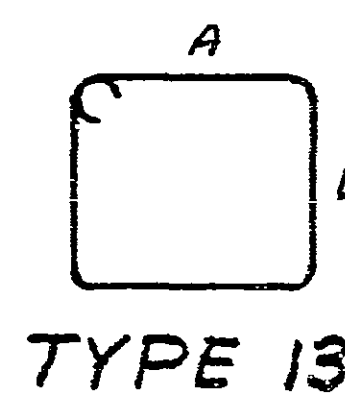
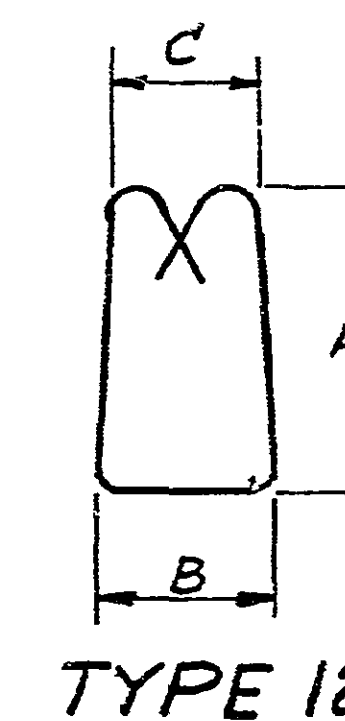


SCREED ELEVATION DIAGRAM

E. S. PRESTON & ASSOCIATES, LIMITED					7/8
ENGINEERS					
COLUMBUS, OHIO					
SUPERSTRUCTURE DETAILS					
BRIDGE NO. NO-27-7.85					
OVER PENN CENTRAL COMPANY					
COLUMBUS YARD					
FRANKLIN CO. STA 23+85.79 TO					
STA 28+09.99					
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED DATE	REVISED
HSR	3		RWT	4/21/76	

[illegible][illegible]

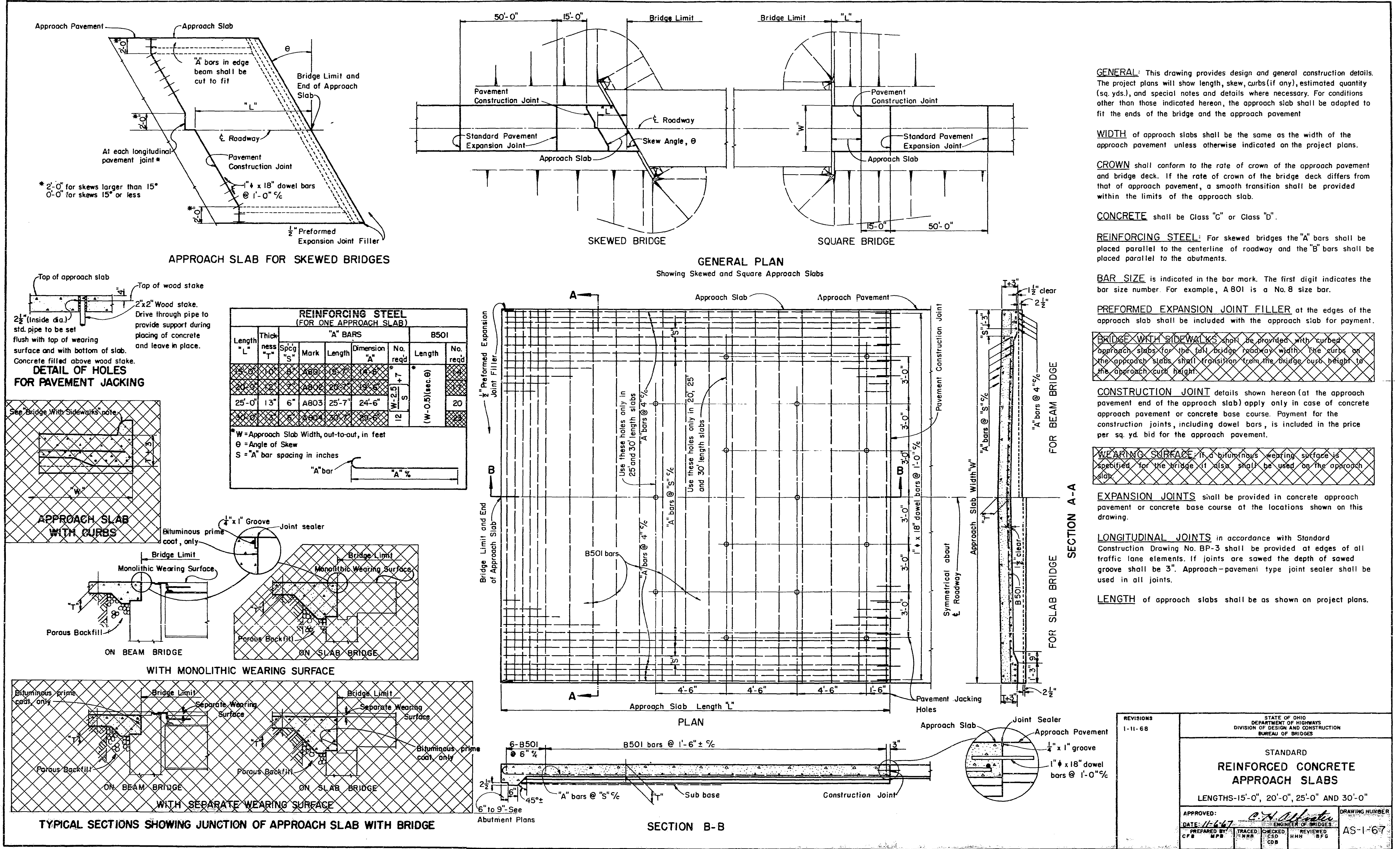
PIERS									
MARK	NO	LENGTH	TYPE	A	B	C	D	E	WEIGHT
PI101	25	38'5	1	34'8	2'2				5,100
PI102	25	30'0	S						3,982
PB01	135	14'2	2	12'0					5,107
PB02	160	6'9	7	5'7	1'5				2,880
PB03	160	17'0	S						7,264
P601	90	6'0	S						810
P602	50	21'8	S						1,625
P603	10	34'8	S						520
P604	10	24'0	S						360
P605	10	15'0	S						225
P606	40	16'7	S						996

[illegible]

BAR SIZE is indicated in the bar mark. The first digit where three digits are used, and the first two digits where four are used, indicate the bar size number. For example A506 is a No. 5 size bar, and P1008 is a No. 10 size bar.

REPLACEMENT BARS		
MARK	LENGTH	NO
RE 1101	8'-5	1
RE 801	7'-6	1
RE 601	6'-11	6
RE 501	6'-7	1

E. S. PRESTON & ASSOCIATES, LIMITED ENGINEERS COLUMBUS, OHIO					17
REINFORCING STEEL LIST BRIDGE NO. 7-785 OVER PENN CENTRAL COMPANY COLUMBUS YARD FRANKLIN CO. STA. 23+85.79 TO STA. 28+09.99					
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED DATE	
<i>JS</i>	<i>JS</i>	<i>JSW</i>	<i>RWT</i> <i>HSR</i>	<i>HSR 11-7-68</i>	
			REVISION		



GENERAL: This drawing provides design and general construction details. The project plans will show length, skew, curbs (if any), estimated quantity (sq. yds.), and special notes and details where necessary. For conditions other than those indicated hereon, the approach slab shall be adapted to fit the ends of the bridge and the approach pavement.

WIDTH of approach slabs shall be the same as the width of the approach pavement unless otherwise indicated on the project plans.

CROWN shall conform to the rate of crown of the approach pavement and bridge deck. If the rate of crown of the bridge deck differs from that of approach pavement, a smooth transition shall be provided within the limits of the approach slab.

CONCRETE shall be Class "C" or Class "D".

REINFORCING STEEL: For skewed bridges the "A" bars shall be placed parallel to the centerline of roadway and the "B" bars shall be placed parallel to the abutments.

BAR SIZE is indicated in the bar mark. The first digit indicates the bar size number. For example, A801 is a No. 8 size bar.

PREFORMED EXPANSION JOINT FILLER at the edges of the approach slab shall be included with the approach slab for payment.

BRIDGE WITH SIDEWALKS shall be provided with curbed approach slabs for the full bridge roadway width. The curbs on the approach slabs shall transition from the bridge curb height to the approach curb height.

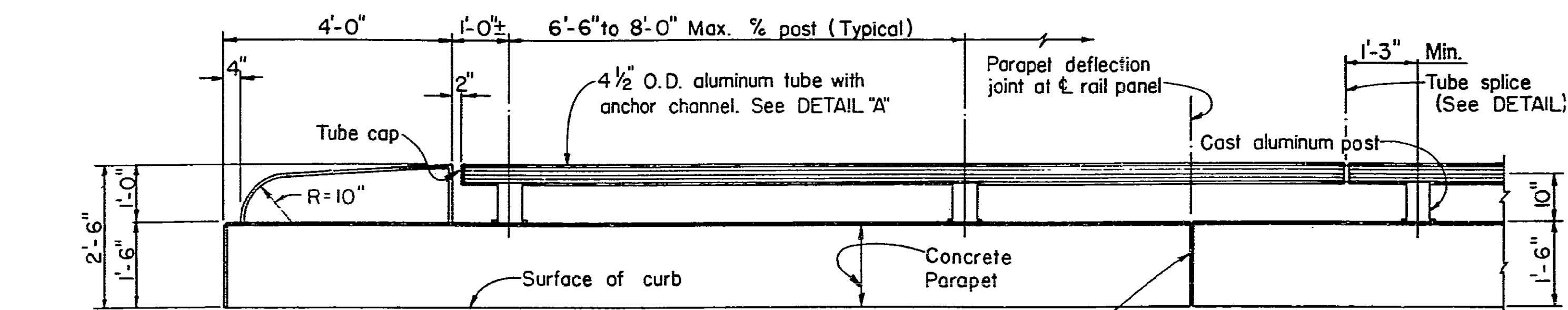
CONSTRUCTION JOINT details shown hereon (at the approach pavement end of the approach slab) apply only in case of concrete approach pavement or concrete base course. Payment for the construction joints, including dowel bars, is included in the price per sq. yd. bid for the approach pavement.

WEARING SURFACE: If a bituminous wearing surface is specified for the bridge it also shall be used on the approach slab.

EXPANSION JOINTS shall be provided in concrete approach pavement or concrete base course at the locations shown on this drawing.

LONGITUDINAL JOINTS in accordance with Standard Construction Drawing No. BP-3 shall be provided at edges of all traffic lane elements. If joints are sawed the depth of sawed groove shall be 3". Approach-pavement type joint sealer shall be used in all joints.

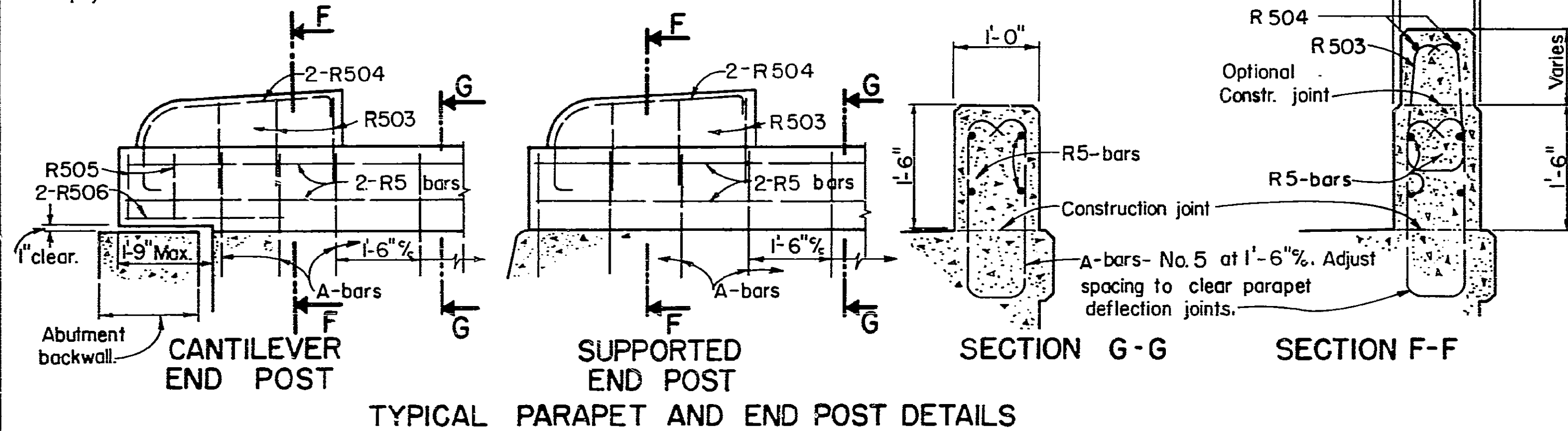
LENGTH of approach slabs shall be as shown on project plans.



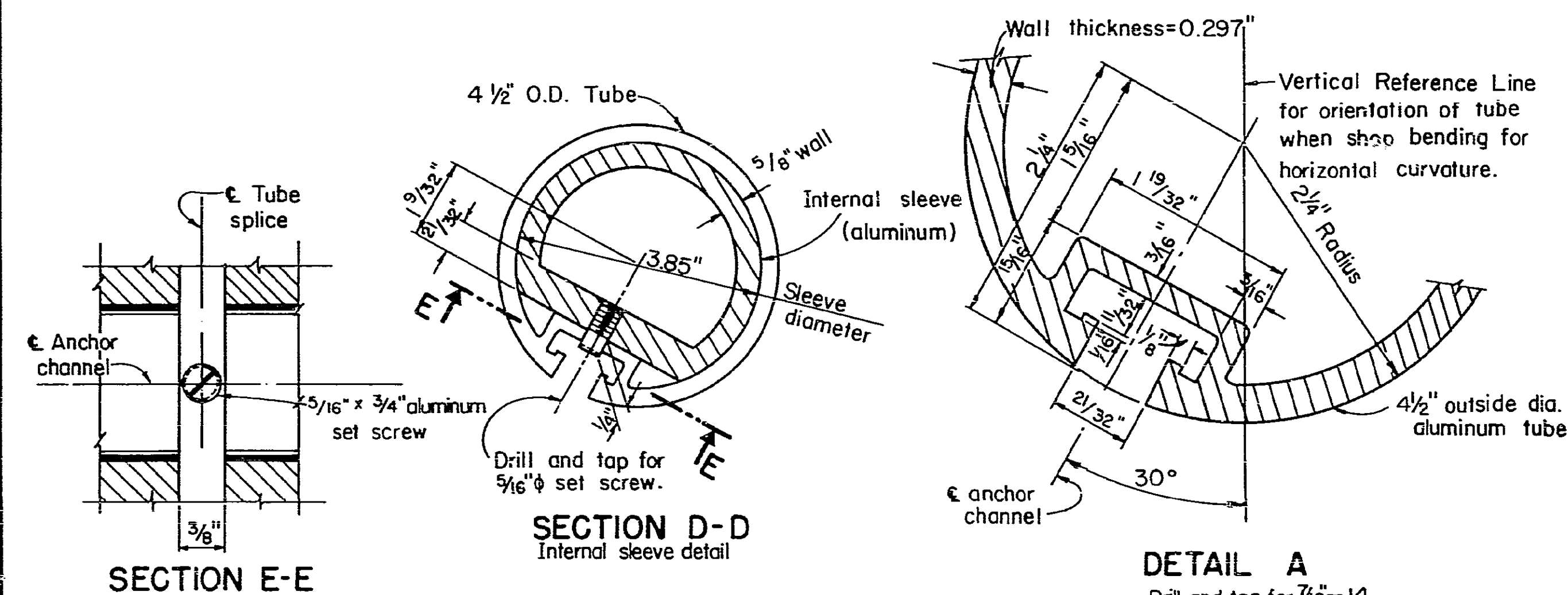
Concrete above curb surface construction joint is included with Item 517 for payment.

1/4" gray sponge rubber preformed expansion joint filler (Sec. 705.03, AASHTO M-153), spaced two railing panel lengths apart. (Included with Item 517 for payment.)

ELEVATION OF RAILING



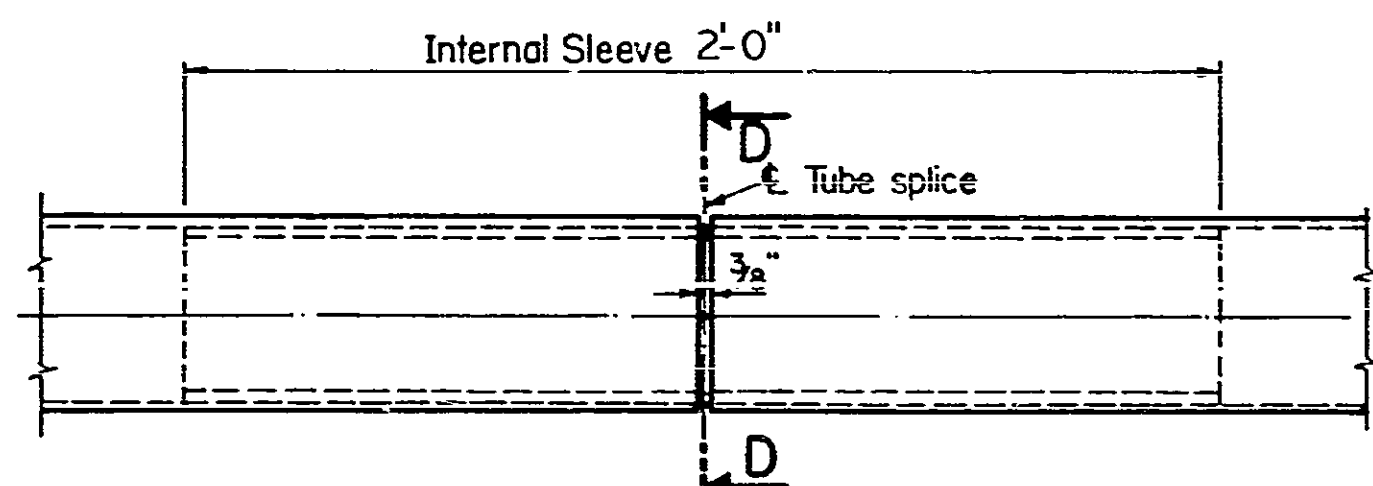
TYPICAL PARAPET AND END POST DETAILS



SECTION D-D
Internal sleeve detail

SECTION E-E

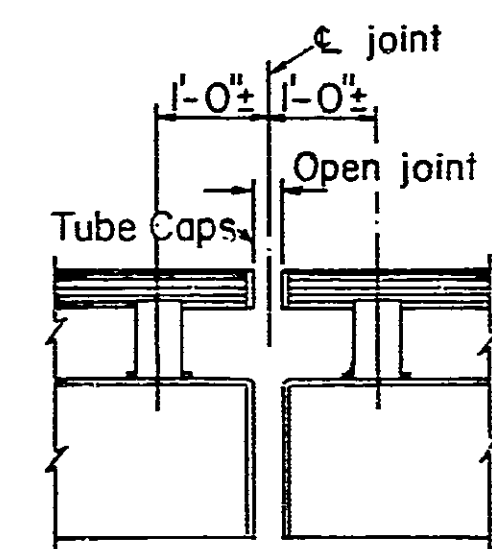
DETAIL A



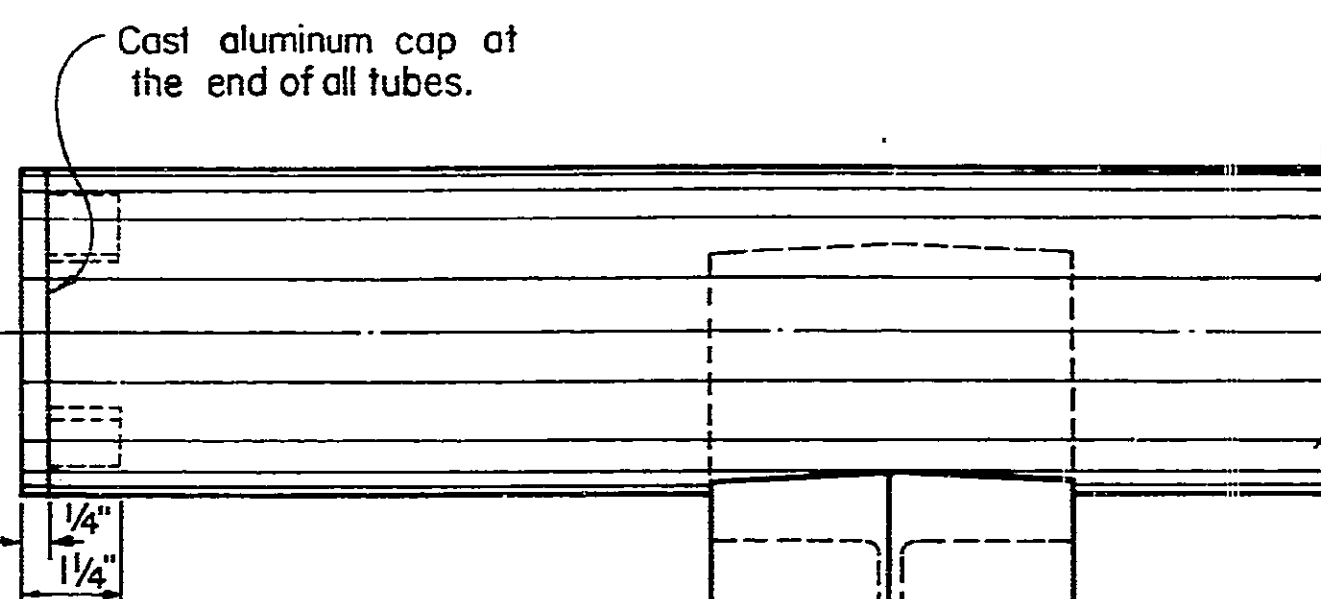
TUBE SPlice DETAIL

TUBE ANCHOR BAR DETAIL
(aluminum)

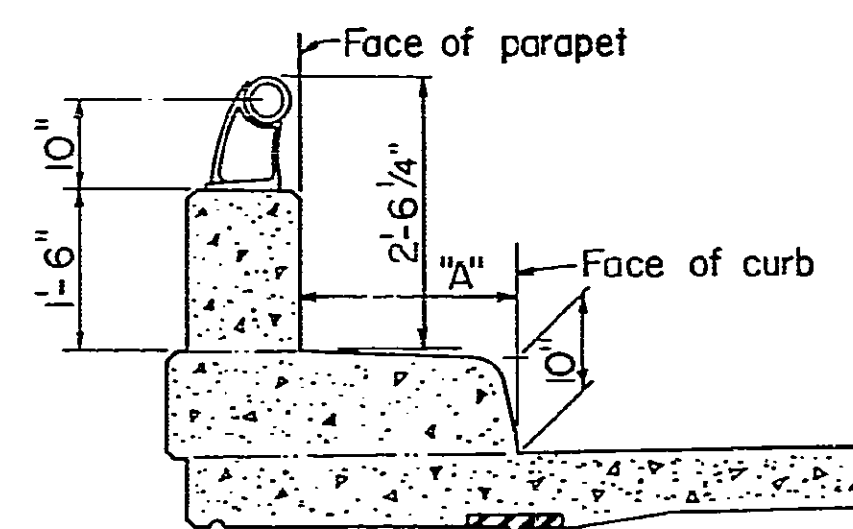
RAILING REINFORCING STEEL			
Mark	Length	Weight	Shape
R5-bars	#		St.
R503	4'-2"		Bl.
R504	5'-4"		Bl.
R505	3'-5"		St.
R506	3'-0"		St.
Included with Item 517 for payment.			
Bending Diagrams			
* See project plans			



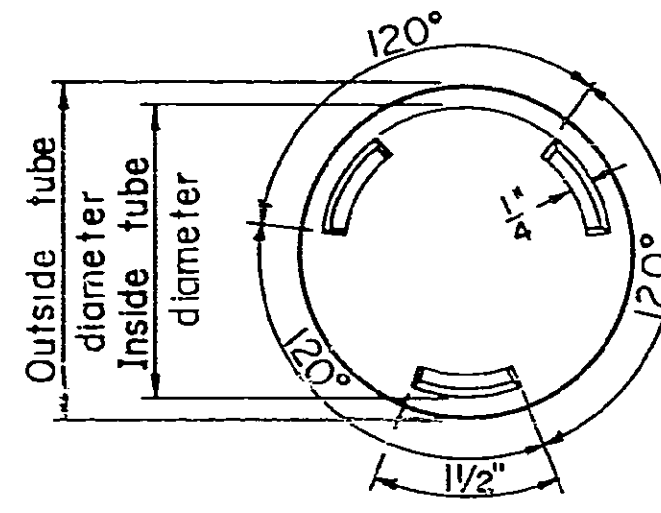
RAILING DETAIL AT DECK EXPANSION JOINT



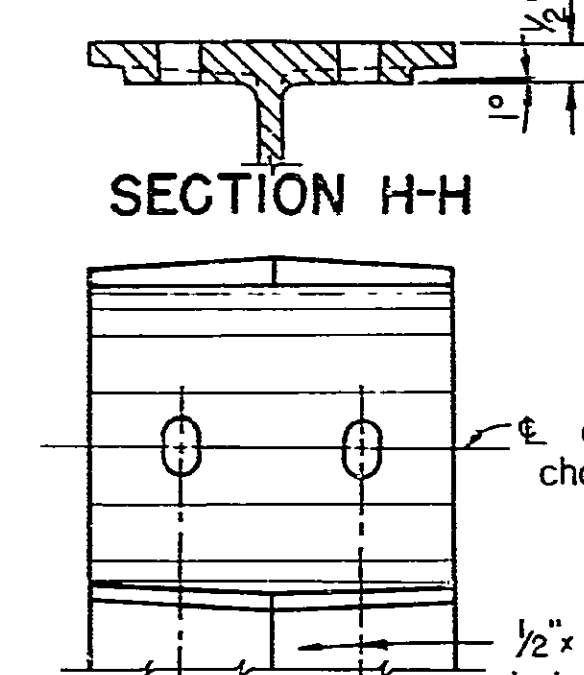
VIEW A-A



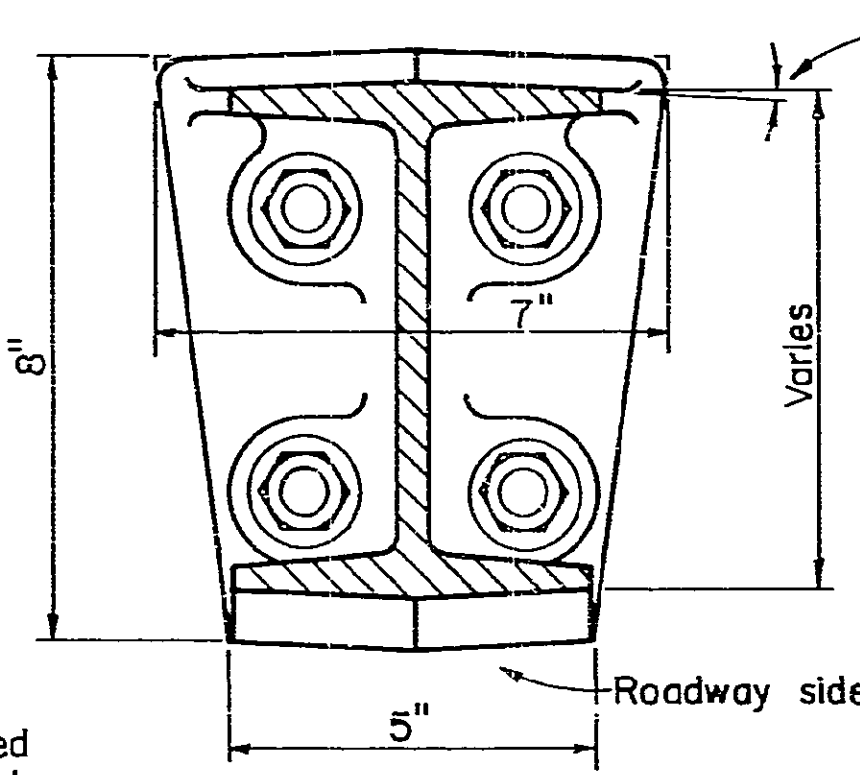
PART DECK SECTION
For "A" less than 3'-0"



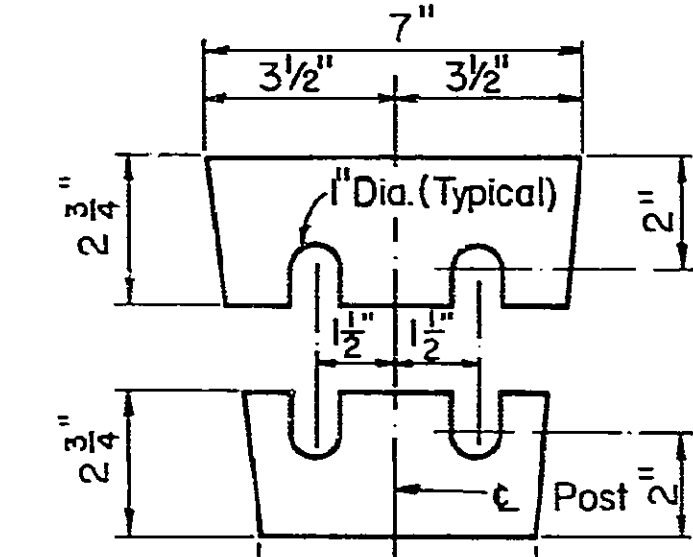
CAST TUBE CAP
Cap shall fit tight in tubes



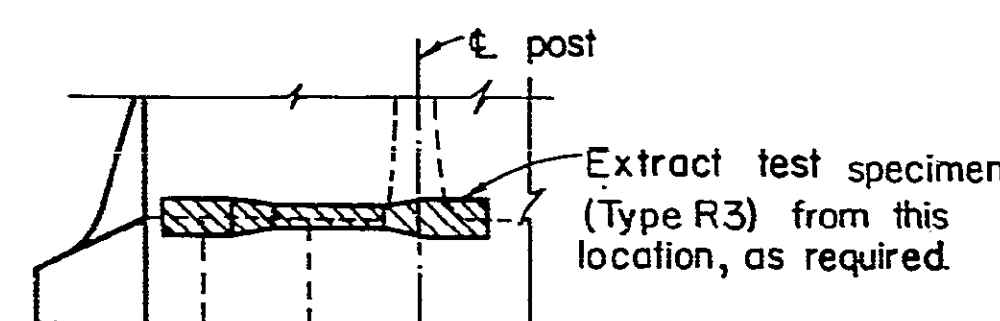
VIEW C-C
(Showing tube seat)



SECTION B-B



POST SHIM PLATES
(aluminum)



PART VIEW A-A
DETAIL B

GENERAL: This drawing provides design and construction details. The project plans for each structure shall give necessary additional railing dimensions including parapet and tube panel lengths, reinforcing steel details, reinforcing steel list, estimated quantities, and any other pertinent information, including special notes and details.

DESIGN SPECIFICATION: This standard drawing conforms to the requirements of the A.A.S.H.O. Interim Specification, I (64).

DESIGN UNIT STRESSES as given in the A.S.C.E. paper No. 3341 were used in the design of the rail tubing. 35% of the unit stresses given in the paper were used in the design of the post. Basic unit stresses: Tubes = 21,000 psi Post = 6,000 psi

TUBE SPLICES are to be located so that each tube segment shall be connected to not less than two posts nor more than three.

CONCRETE PARAPETS shall be placed in alternate sections by the use of bulkheads. Closing sections shall be placed after removal of bulkheads and after placement of sponge rubber. Rubber shall be flush with surface of concrete and exposed edges shall be free of mortar.

SHIMS shall be provided under railing post, where necessary, to provide for the vertical adjustment of the post. Shims shall be of aluminum alloy, 1/8 inch thick, cut as shown. Where more adjustment of the post is required, for plumb alignment, than can be corrected by one shim, the post shall be removed and the concrete surface corrected by grinding.

FINISH: The outside surface of the post flanges and the tube caps shall be given a 40 grit finish.

ANCHORS: Post anchor rods, hexagonal nuts and flat washers shall be galvanized steel, with all galvanizing, except on the lower 6" of the anchor rods, meeting the requirements of Ohio Specification Section 711.02. Anchor rods, as fabricated, shall have the following minimum dimensions and mechanical properties.

Diameter at root of threads	0.620"
Straight portion of rod	1'-0" long
Hook at bottom	2 1/2"-90° bend
Anchor tensile strength	21,000 lbs

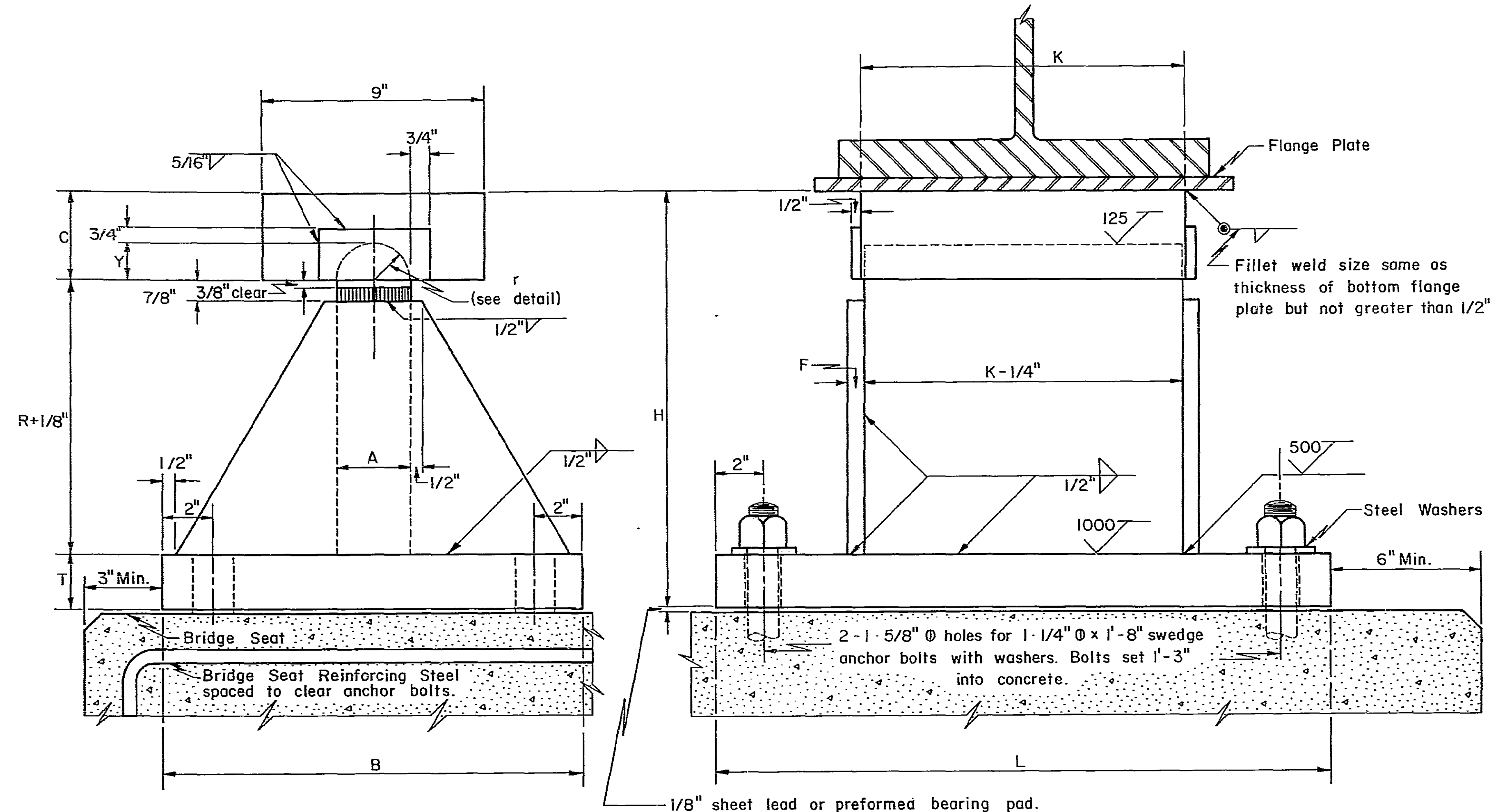
Hexagonal nut shall develop the tensile strength of the anchor rod.

Cap screws shall be stainless steel, ASTM A276, type 410 with a minimum yield strength of 80,000 psi.

MATERIAL: Railing posts shall be permanent mold castings. All aluminum products shall conform to Section 711.20.

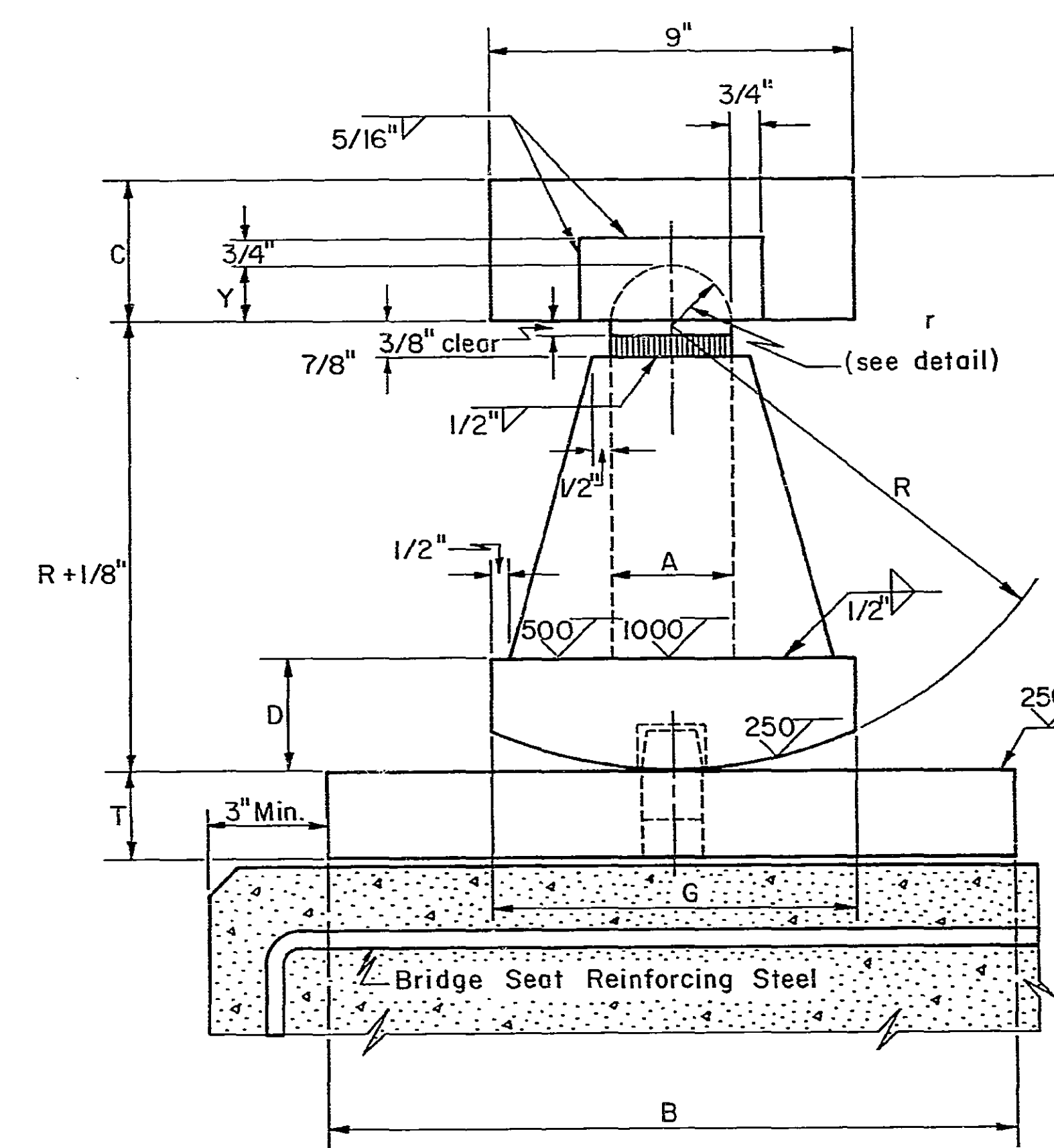
HORIZONTAL CURVATURE: This standard is applicable to structures having a railing curvature radius of 20 feet or more. For a radius less than 20 feet, the design shall be special. For structures on curvatures of 3° or less, the tubes may be furnished straight and forced into position in the field.

REVISIONS 11-24-65		STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES	
APPROVED DATE 2-1-65		STANDARD BRIDGE RAILING TYPE I WITH CONCRETE PARAPETS	
PREPARED MPB		DRAWING NUMBER BR-1-65	
TRACED JPH		SHEET NO 1 OF 2 SHEETS	



STRUCTURAL STEEL BOLSTER

See Table below for additional dimensions.

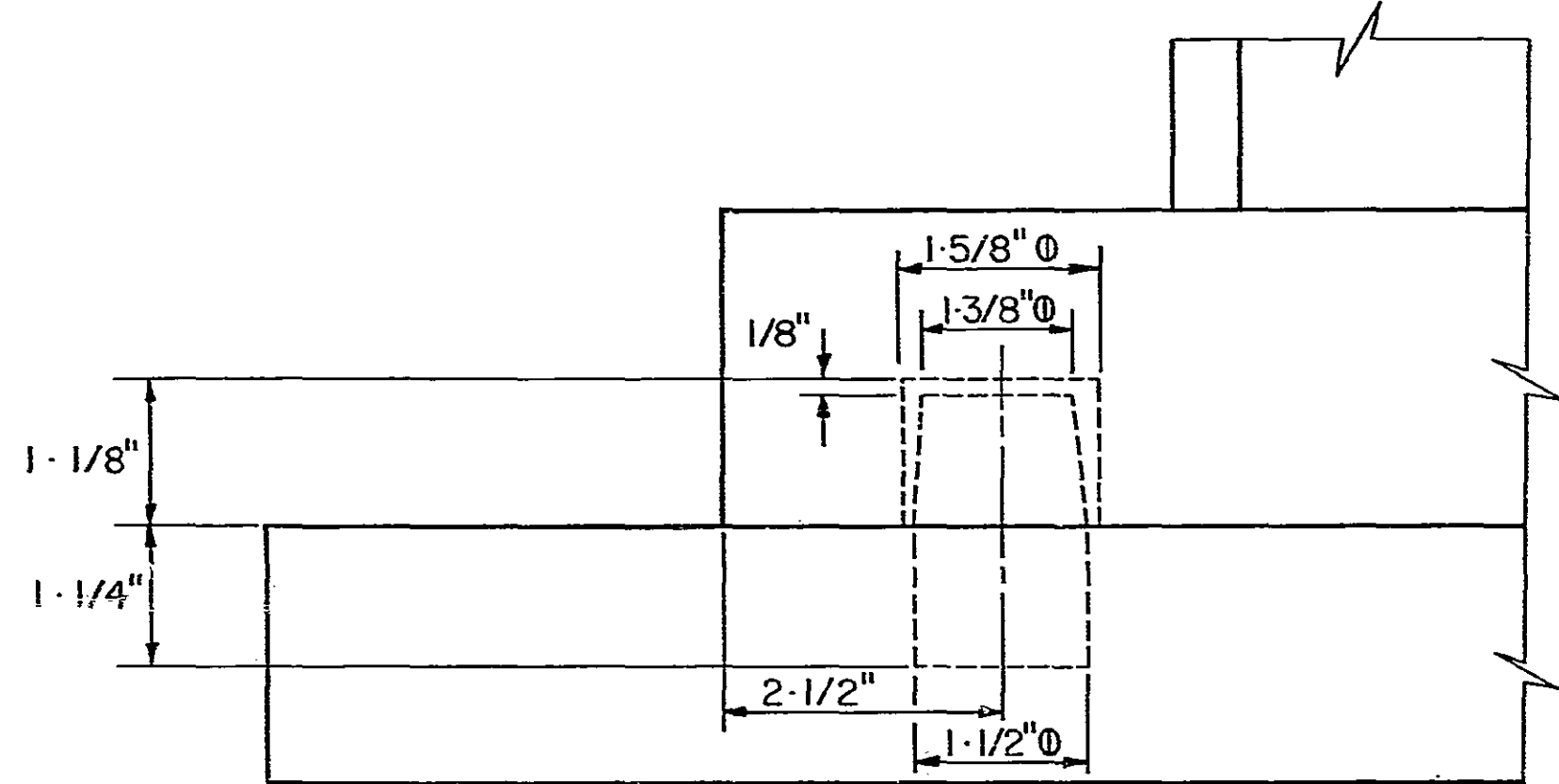


STRUCTURAL STEEL ROCKER

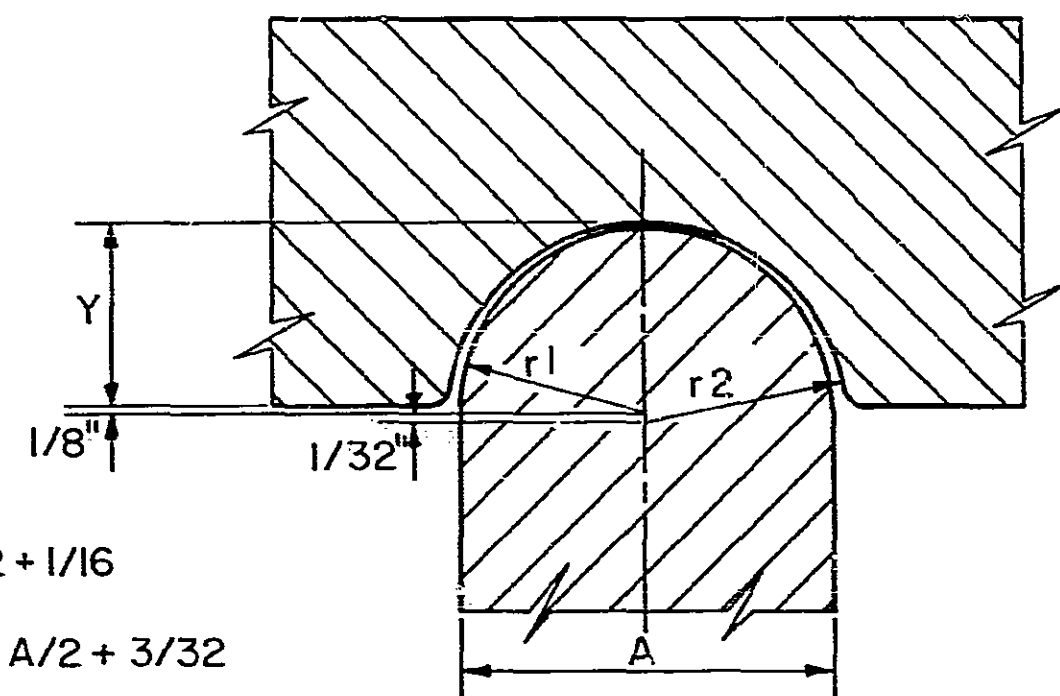
See Table below for additional dimensions.

Bolster No.	Rocker No.	Dimensions (inches)													Weight each (lb.)		Maximum Load (lb.)
		A	B	C	D	F	G	H	K	L	M	R	T	Y	Bolster	Rocker	
	R-75	2 1/2	8	2 1/2	1 3/4	1/2	7	9 5/8	9	18	16	5 1/2	1 1/2	1 3/16	205	250	75,000
B-100	R-100	2 1/2	10	2 1/2	2	1/2	7 1/2	10 5/8	9	19	17	6 1/2	1 1/2	1 3/16	225	250	100,000
B-125	R-125	3	11	3	2	1/2	8	12 1/8	10 1/2	20	18	7 1/2	1 1/2	1 7/16	295	315	125,000
B-150	R-150	3	12	3	2 1/4	1/2	8 1/2	13 3/8	11 1/2	22	19	8 1/2	1 3/4	1 7/16	360	400	150,000
B-175	R-175	3	14	3 1/2	2 1/2	1/2	9	15 1/8	12	23	20	9 1/2	2	1 7/16	455	505	175,000
B-200	R-200	3	16	3 1/2	2 3/4	5/8	9	16 3/8	12	24	21	10 1/2	2 1/4	1 7/16	540	605	200,000

Weights given are for one rocker or bolster complete (including sheet lead, anchor bolts & washers).



DOWEL DETAIL

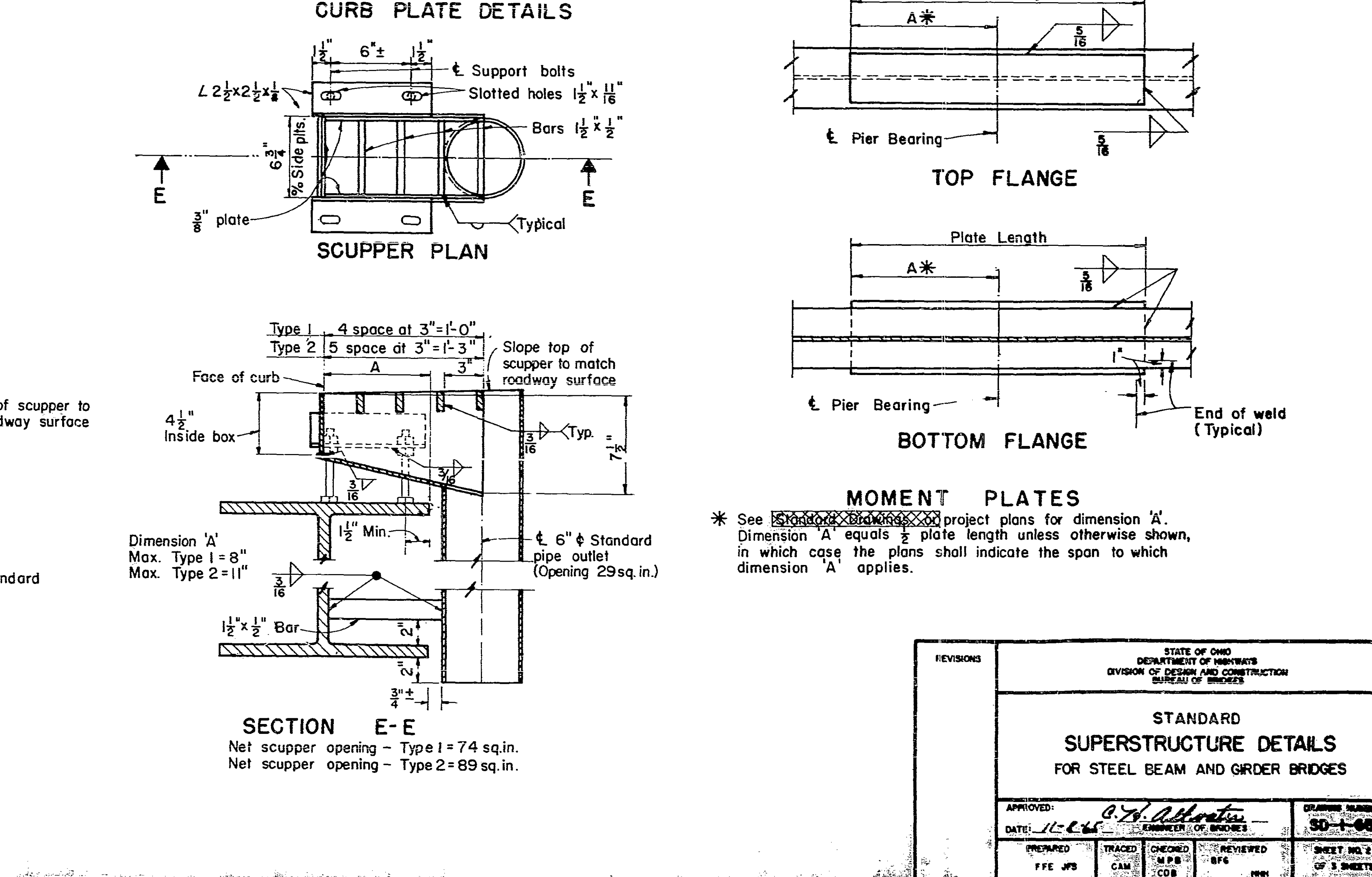
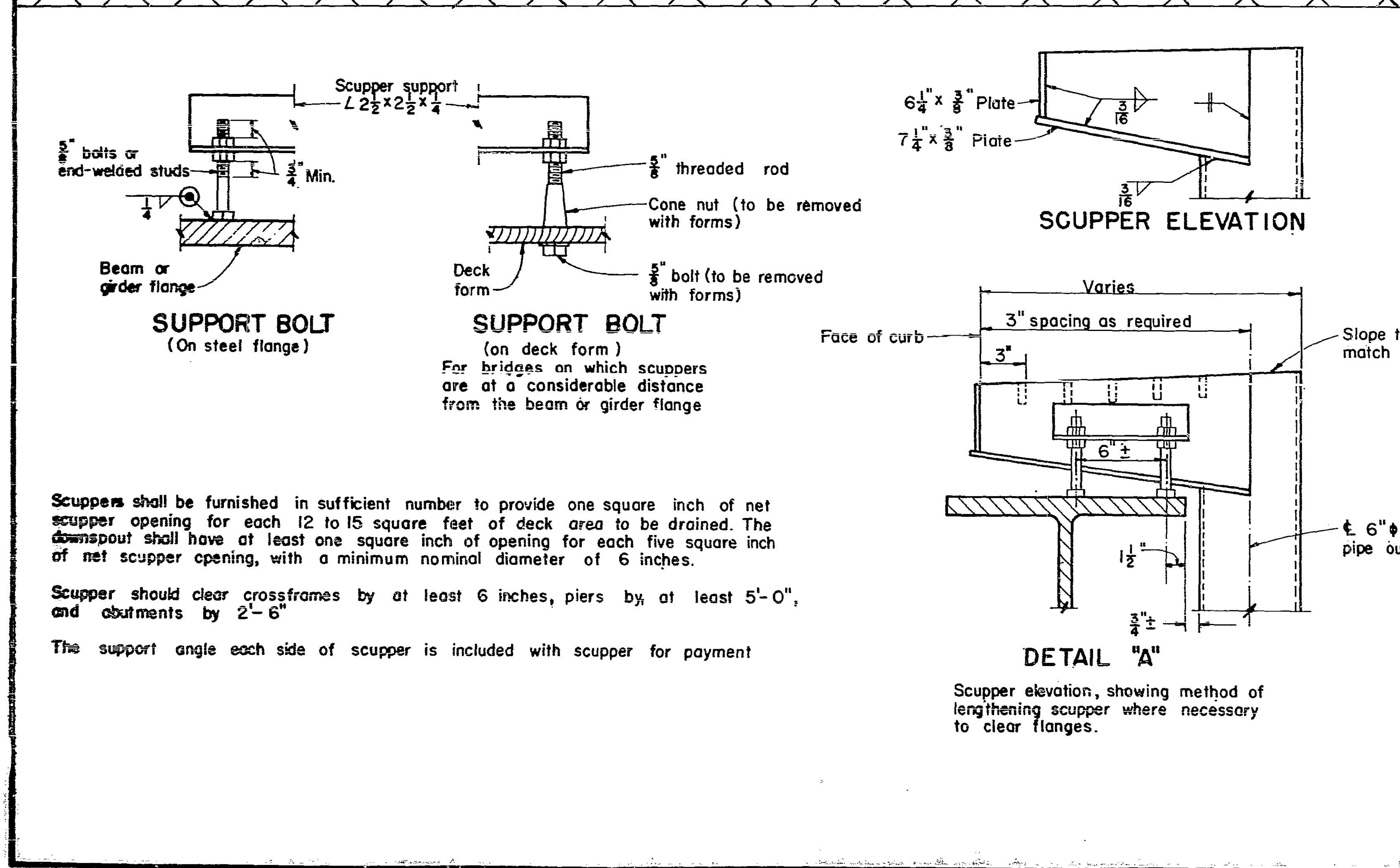
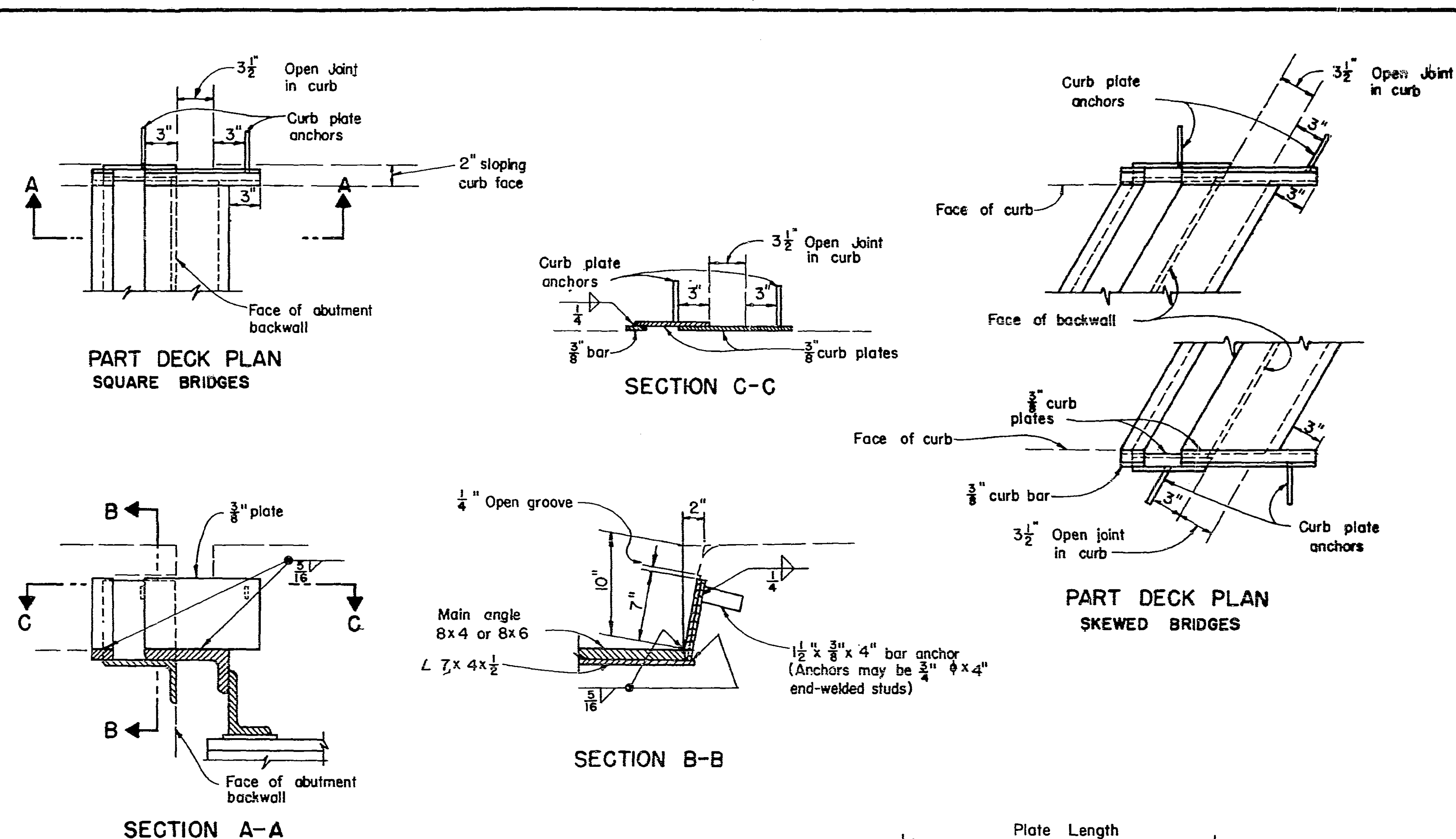
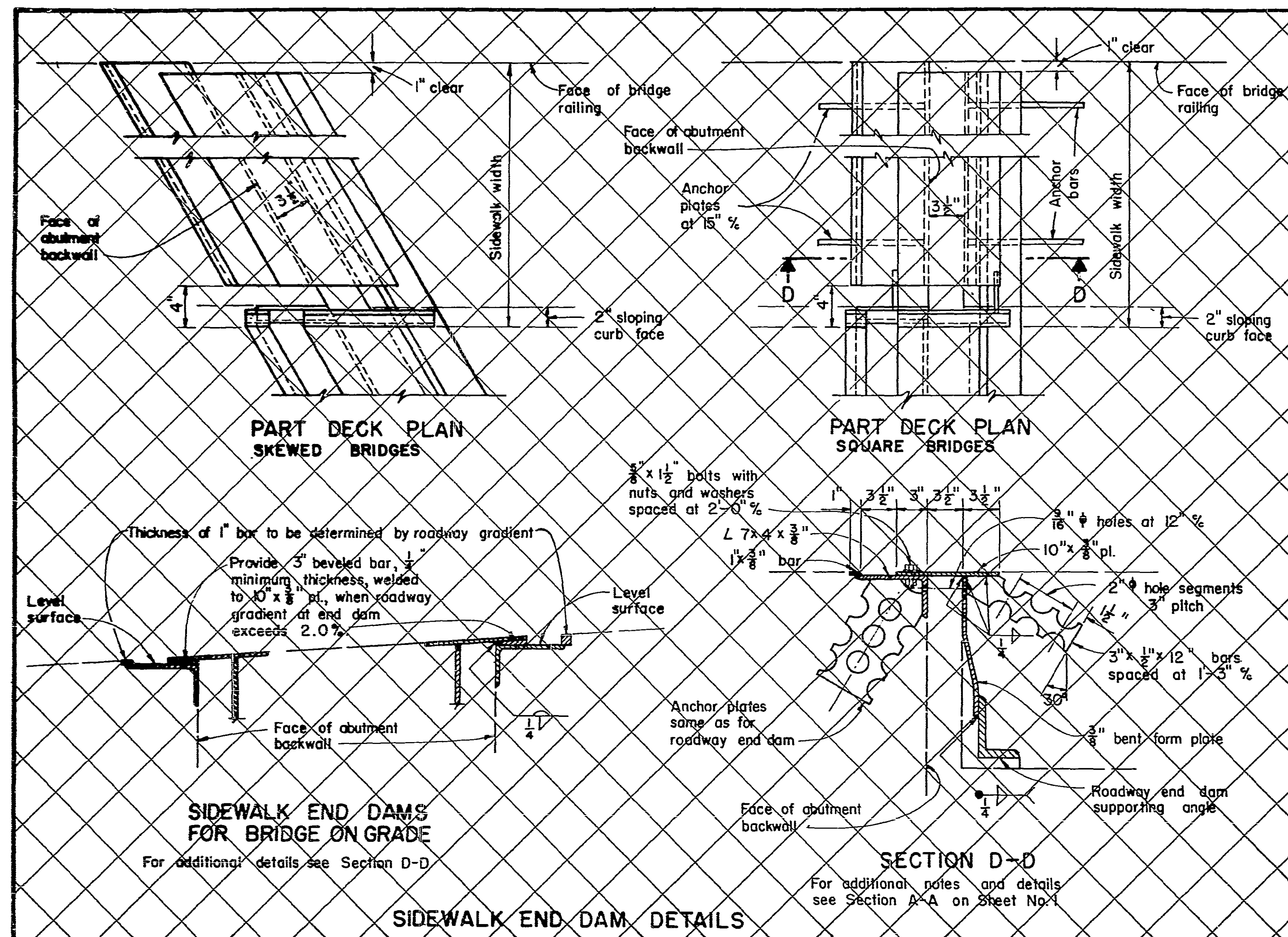


TOP BEARING DETAIL

$r_1 \text{ (web)} = A/2 + 1/16$
 $r_2 \text{ (top pl.)} = A/2 + 3/32$

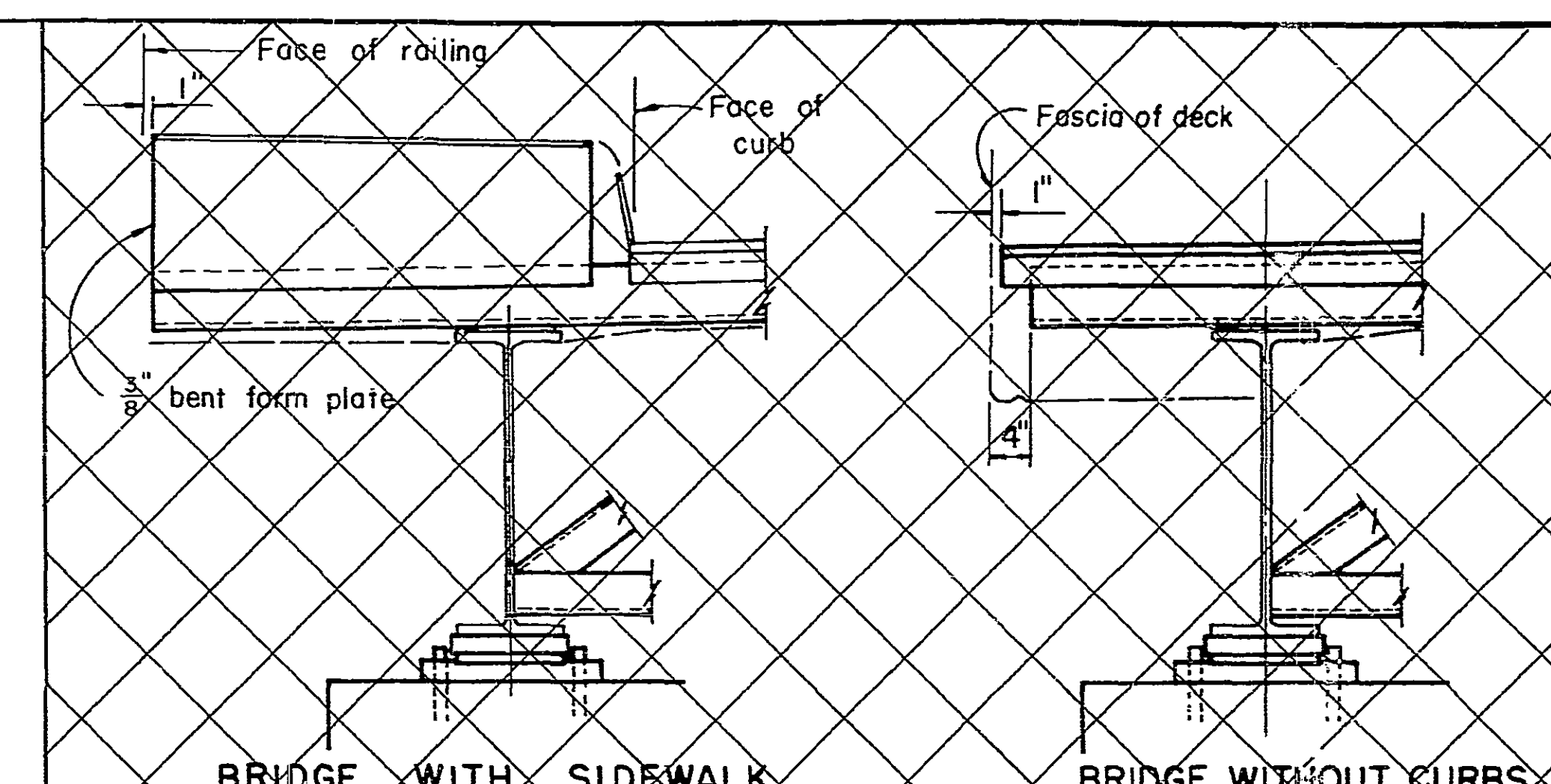
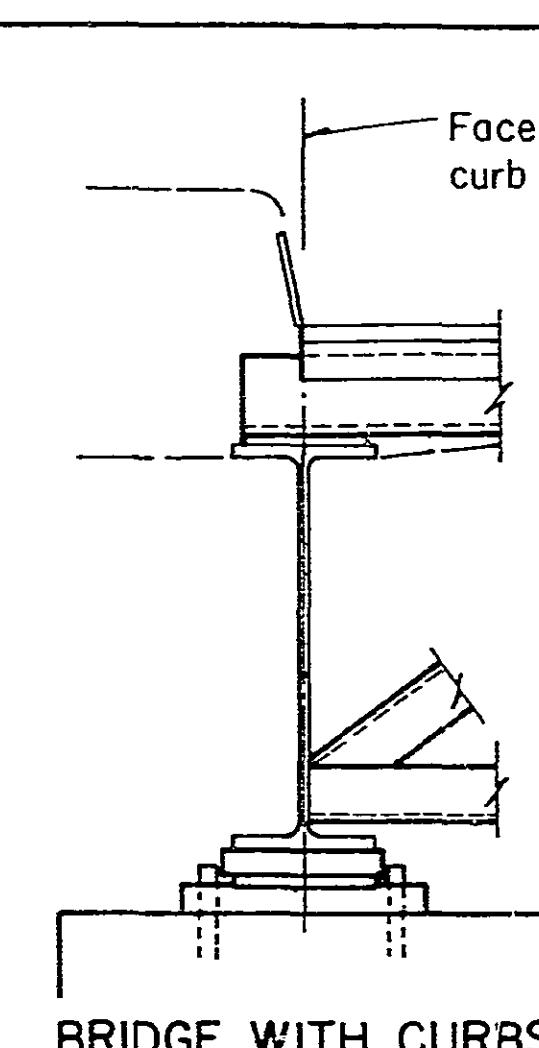
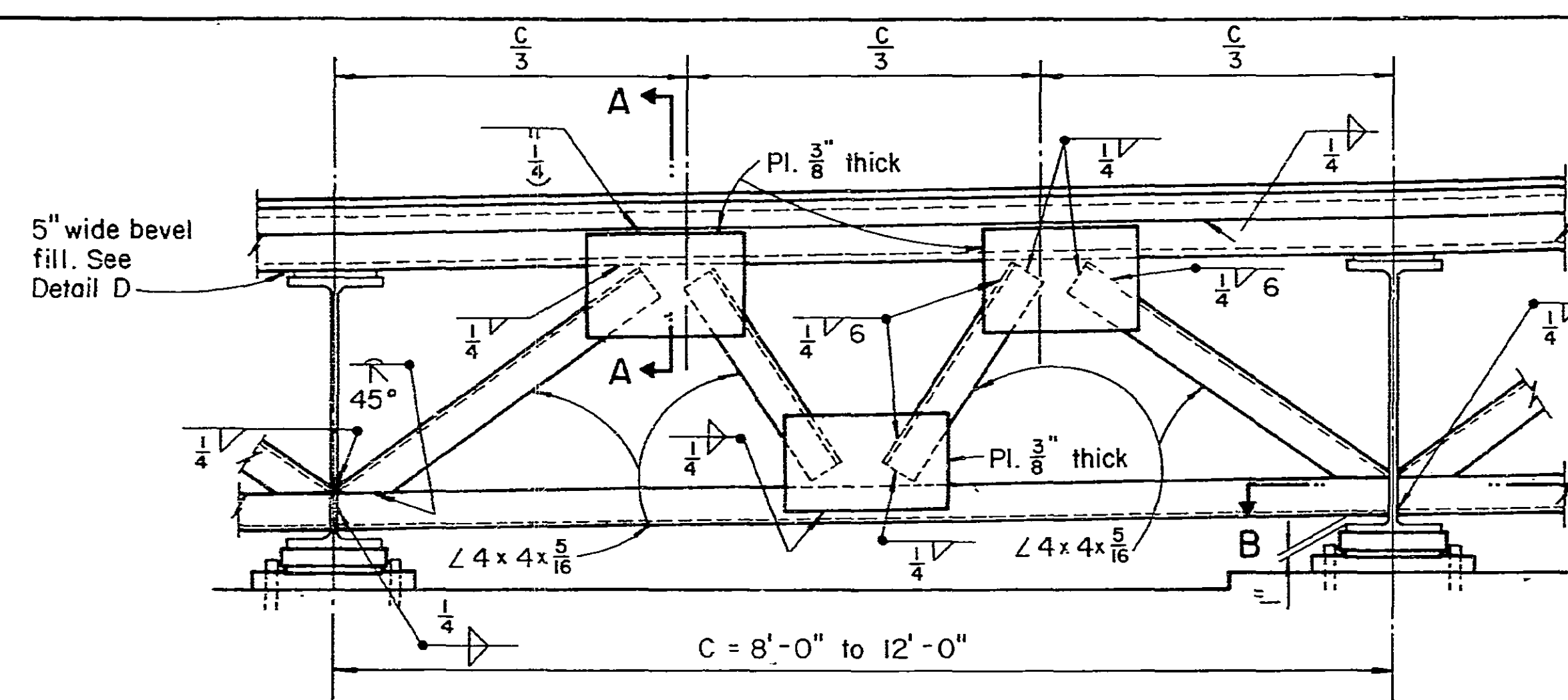
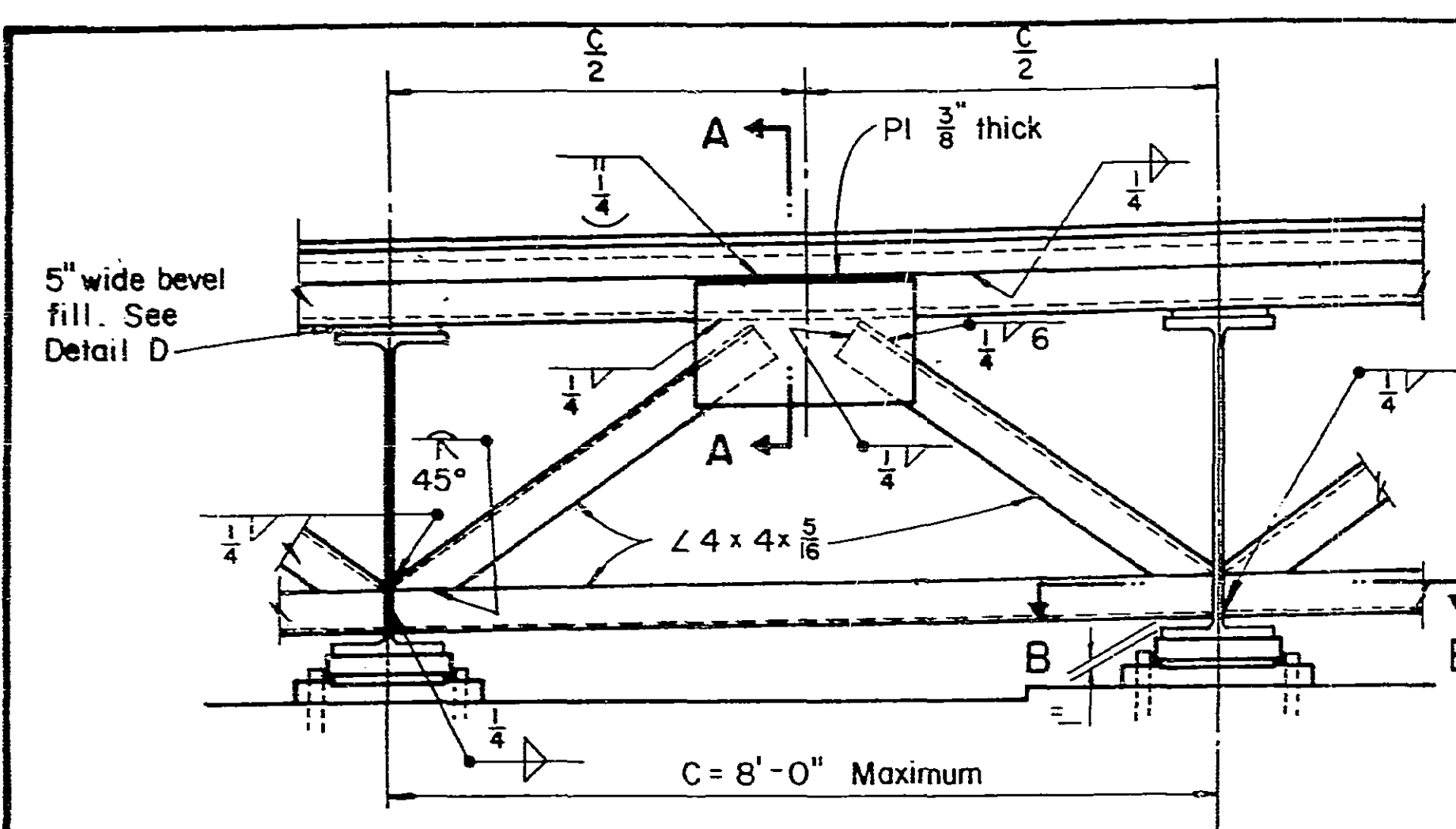
E. S. PRESTON & ASSOCIATES, LIMITED ENGINEERS COLUMBUS, OHIO					
SUPERSTRUCTURE DETAILS (STD. ROCKERS & BOLSTERS)					
PENN CENTRAL COMPANY COLUMBUS YARD					
FRANKLIN COUNTY (DWG. RB-1-55)					
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE

3/9/10 010 Superstructure Details 1/9/18 02/10 01

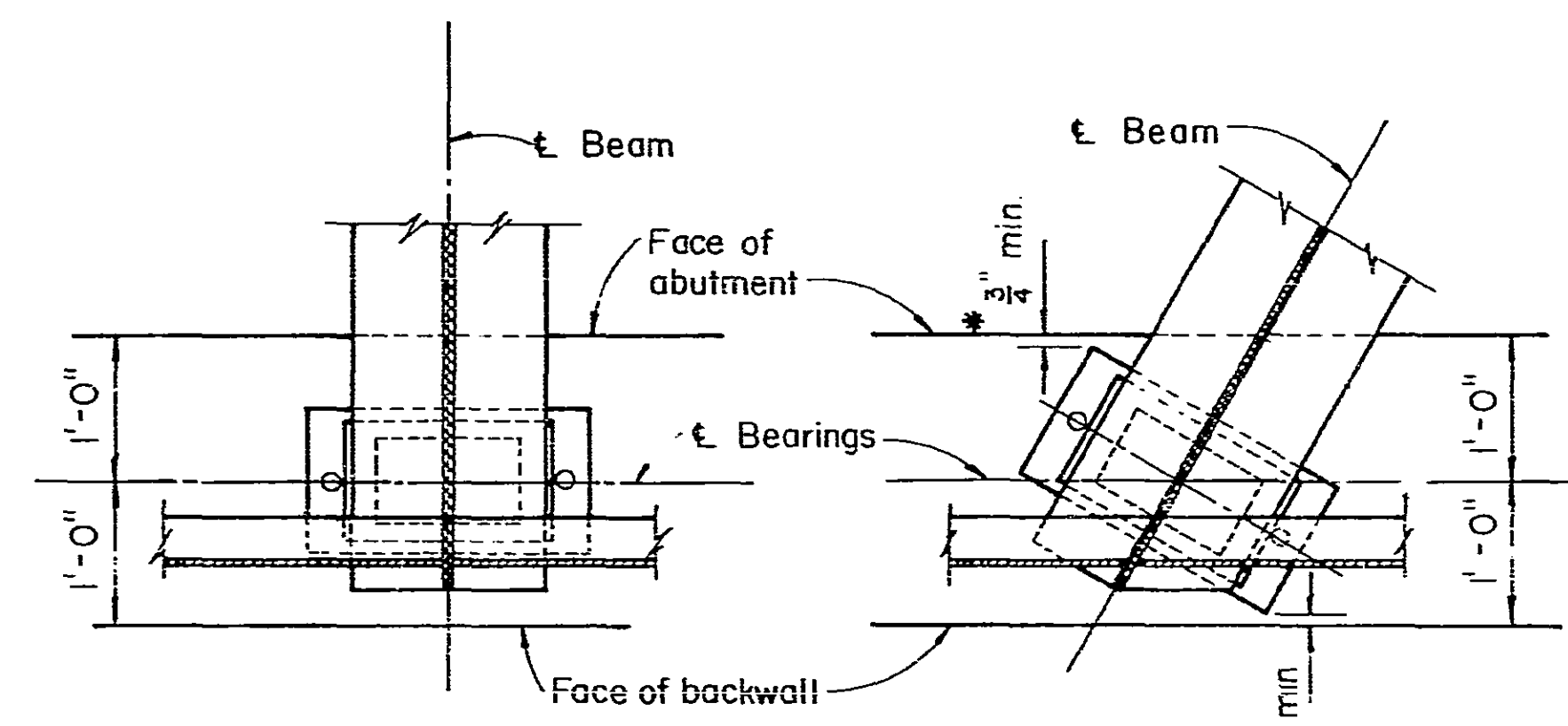
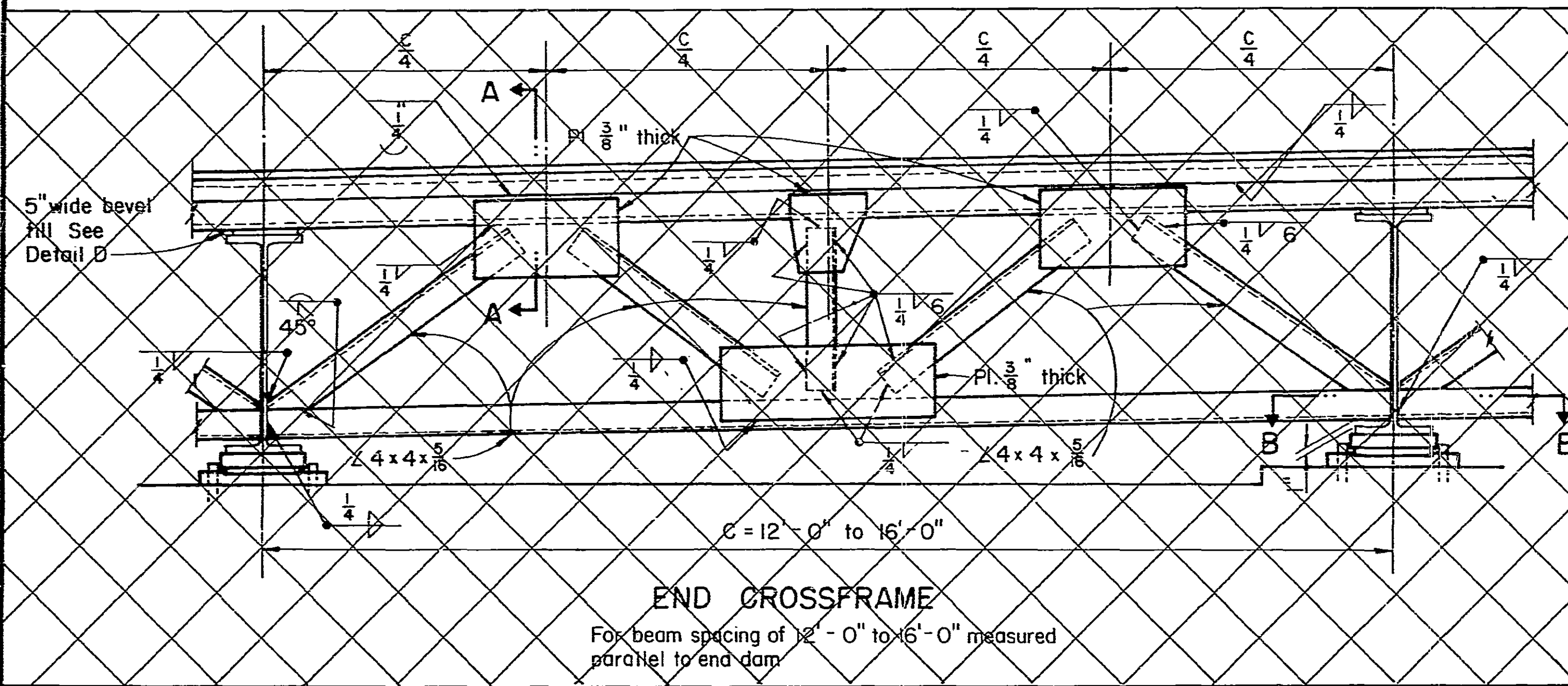


STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES			
STANDARD SUPERSTRUCTURE DETAILS FOR STEEL BEAM AND GIRDER BRIDGES			
APPROVED:	DATE: 11-1-66		
PREPARED	TRACED	CHECKED	REVIEWED
FFE JPS	CAM	MPS CDB	BFG
SHEET NO. 2 OF 3 SHEETS			GRAPHIC NUMBER SD-1-66

3910 010 SUPERSTRUCTURE DETAIL 1/5 1968 0290 01

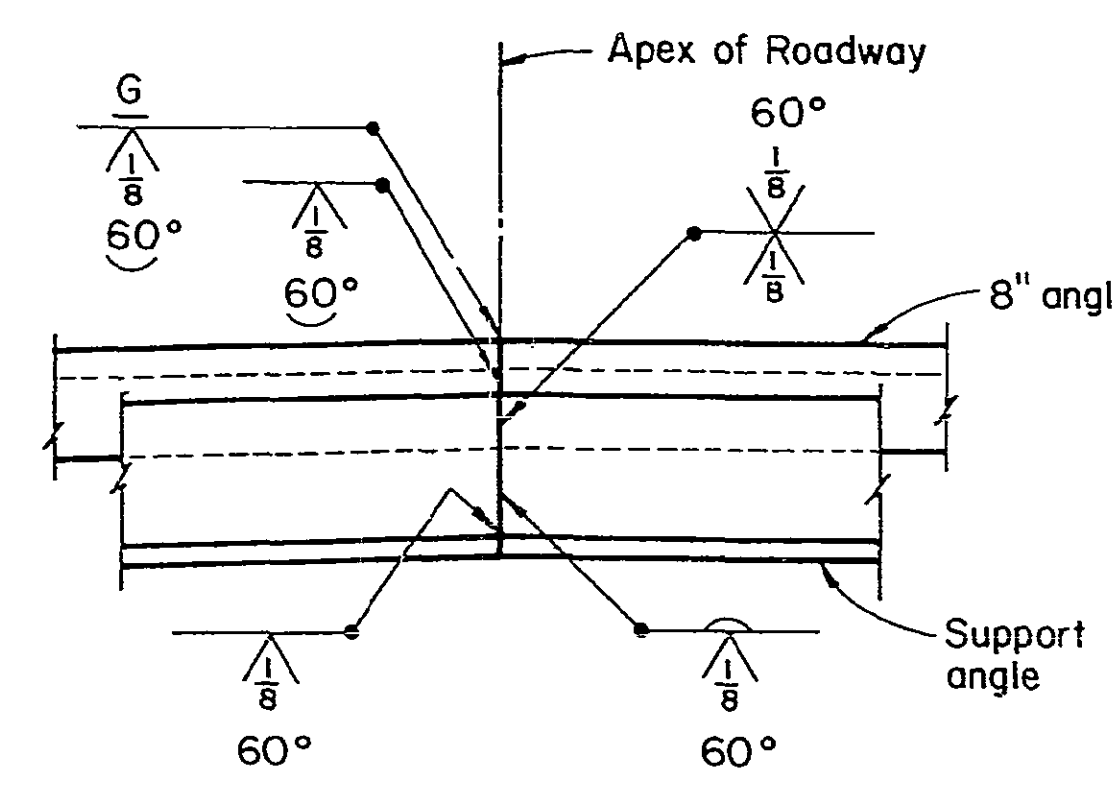
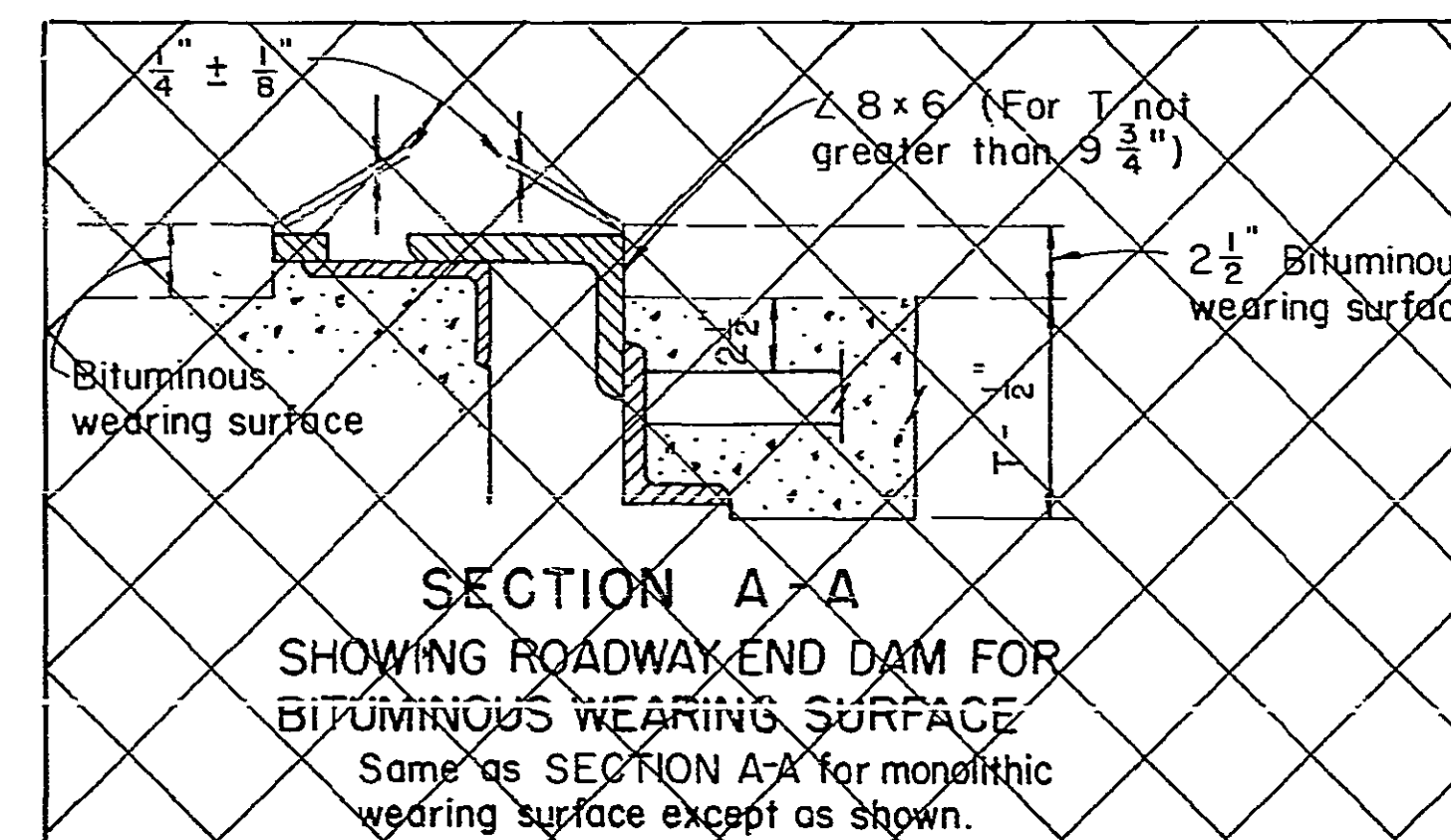
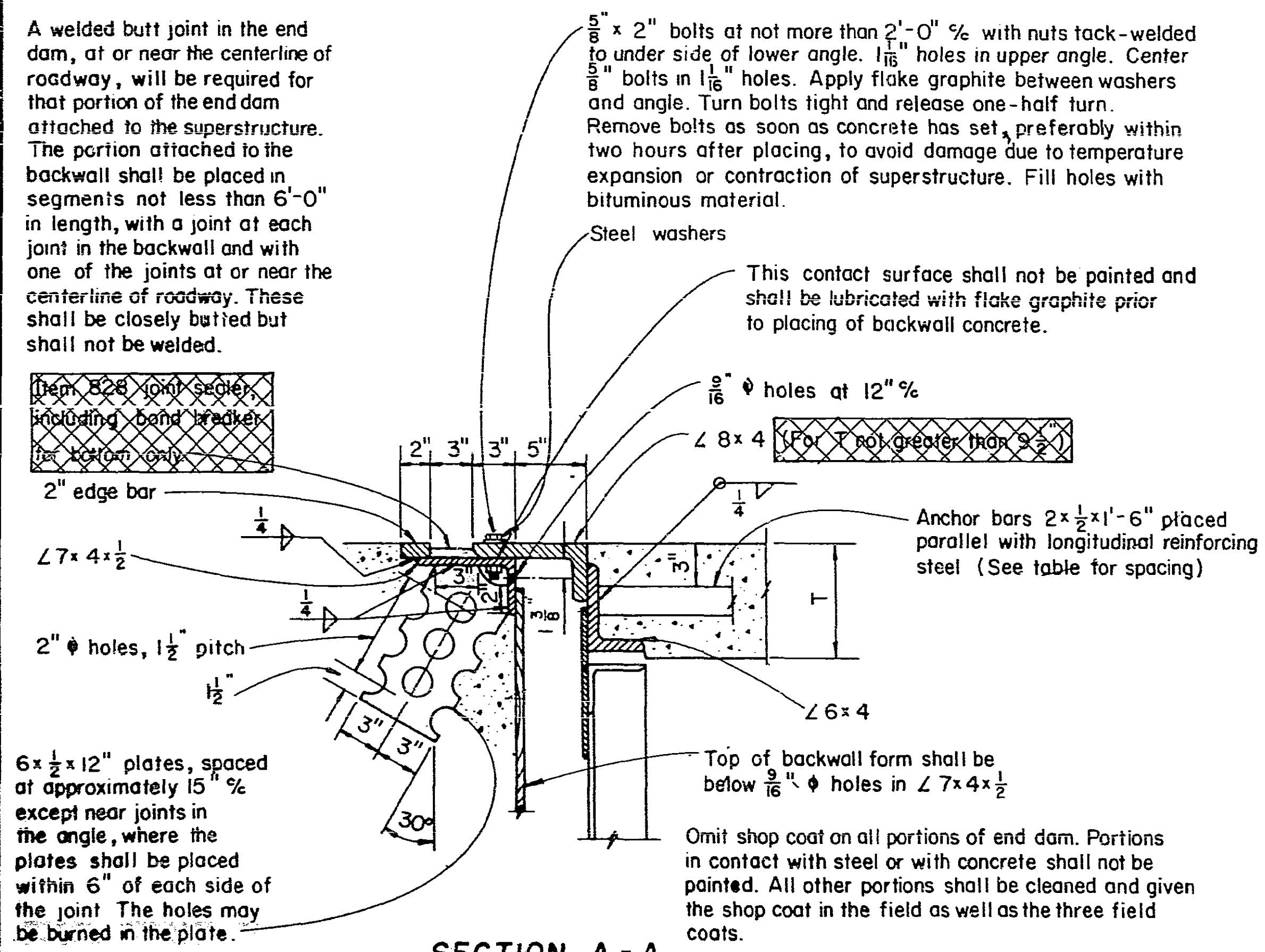
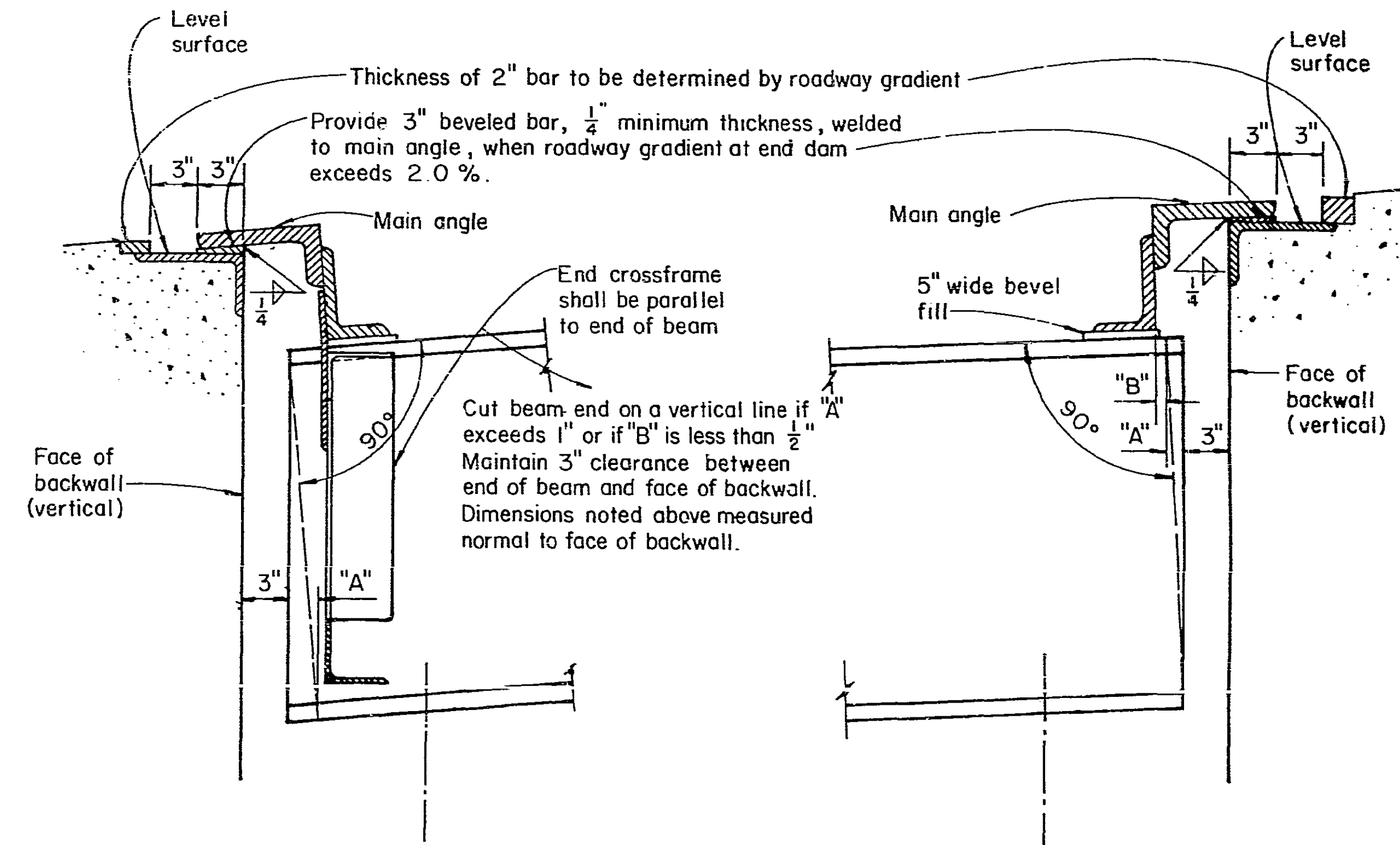
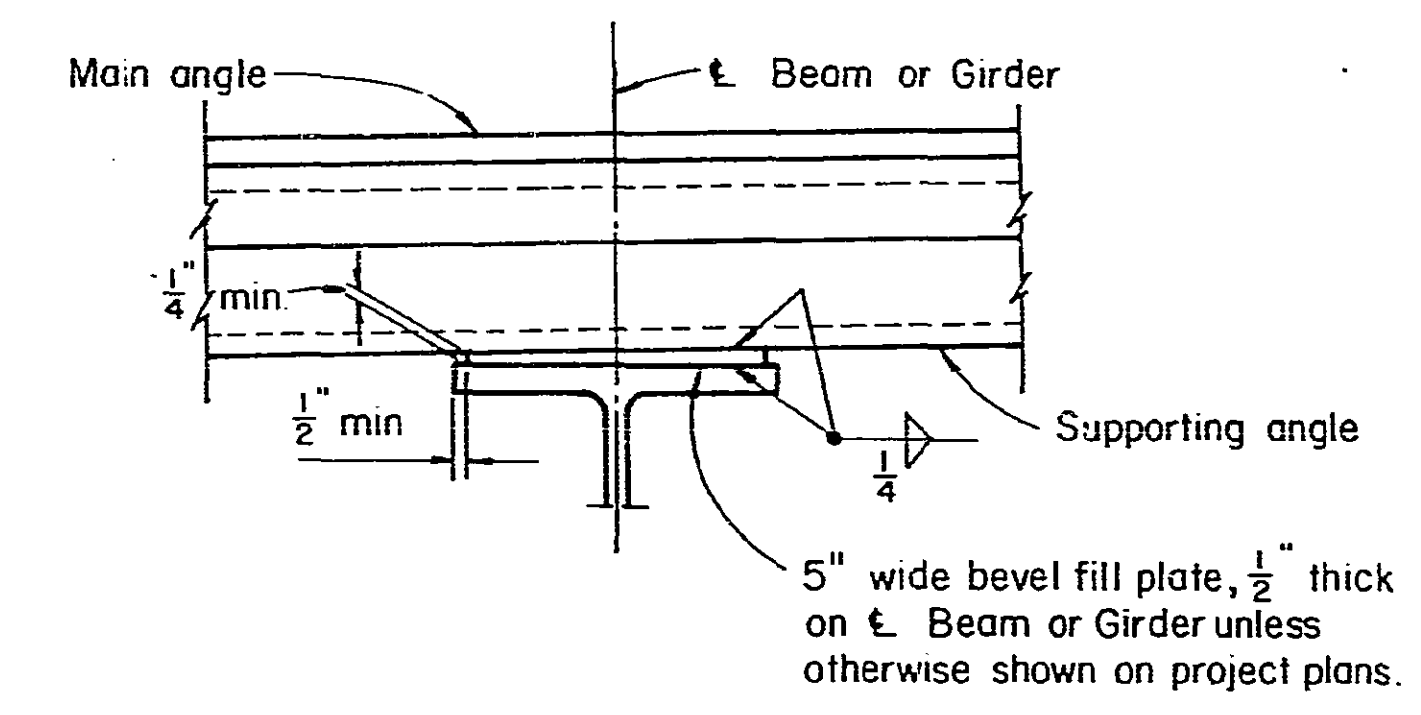


END DAM DETAILS AT FASCIA BEAM
(For additional details see Sheet No. 4)



SECTION B - B

* Where necessary, cope corner of masonry plate in order to maintain $\frac{3}{4}$ " clearance.



ROADWAY END DAM DATA			
Member	Thickness or spacing of member for load frequency of $\times$		
	CF = 150	CF = 400	CF = 2000
Main angle: 8x4 			1"
2" edge bar +			12" Sp.
2x 1/2 x 1'-6" anchor bars - Spacing			3/4"
Supporting angle: 6x4			

REVISIONS	STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES			
	STANDARD SUPERSTRUCTURE DETAILS FOR STEEL BEAM AND GIRDER BRIDGES			
APPROVED: <i>C. H. Advertiser</i> DATE: <i>11-8-65</i>	ENGINEER OF BRIDGES			DRAWING NUMBER SD-I-65
PREPARED FFE	TRACED JTK	CHECKED WJJ FFE	REVIEWED BFG GDB MPM WCR NMM	SHEET NO. 1 OF 3 SHEETS

GENERAL: This drawing provides design and construction details. The Project plans shall show the location of splices plus a reference to this drawing where applicable. For splicing beams of different sizes, the project plans shall also include a splice detail showing splice plates, bolts, and fills.

DESIGN SPECIFICATIONS: This standard drawing conforms to the requirements of "Design Specifications for Highway Structures" of the State of Ohio, Department of Highways, dated September 1, 1957, together with current revisions thereof, except; strength of splice is based on Section 1.6.31 of the A.A.S.H.O. "Standard Specifications for Highway Bridges" dated 1961, together with current revisions thereof.

DESIGN UNIT STRESSES:

Structural Steel	ASTM A-36	20,000 psi	bending
		12,000 psi	shear
High Strength Bolts	ASTM A-325	13,500 psi	shear
		40,000 psi	bearing

DESIGN: The splice details shown are based on 75% of the strength of the beam. For each structure, the designer shall determine the splice location and calculate the maximum total stresses (moment and shear) at the splice. As required by the above Specifications, the splice strength shall be based on the average of the calculated stresses and the strength of the beam, but not less than 75% of the strength of the beam. For splices located near points of contraflexure, the latter requirement will generally govern and the splices shown hereon may be used. Where a splice strength exceeding 75% of the beam strength is required, the splice design shall be special. For splicing beams of different sizes, the design of the splice shall be based on the strength of the lighter weight beam. Beam strength at the splice, as noted above, is based on the net section for bending and gross section for shear.

MATERIAL: Splice plates, bolts, and fills shall be in accordance with the Construction and Material Specifications. Bolts shall be 1" diameter, high strength. The splice weight shown hereon, plus the weight of fills, where required, shall be included with the structural steel quantity for payment.

FILLS shown on the project plans and shop drawings shall be dimensioned to the nearest 1/8 inch in thickness, but not less than 1/8 inch thick, based on the dimensions for detailing and intended relative position of the abutting flanges and webs to be spliced. However, in the final shop assembly, fills shall be furnished with thicknesses sufficient to compensate for any misalignment of abutting flanges and webs due to standard rolling mill tolerances. The clamping together of splice plates over material (including fills) that vary by more than 1/8 inch in thickness or relative position, at the centerline of the splice, will not be permitted.

VERTICAL CLEARANCE: For grade separation structures an allowance of 3/4 inches plus the thickness of the outside flange splice plate shall be used in computing the actual vertical clearance under a beam splice.

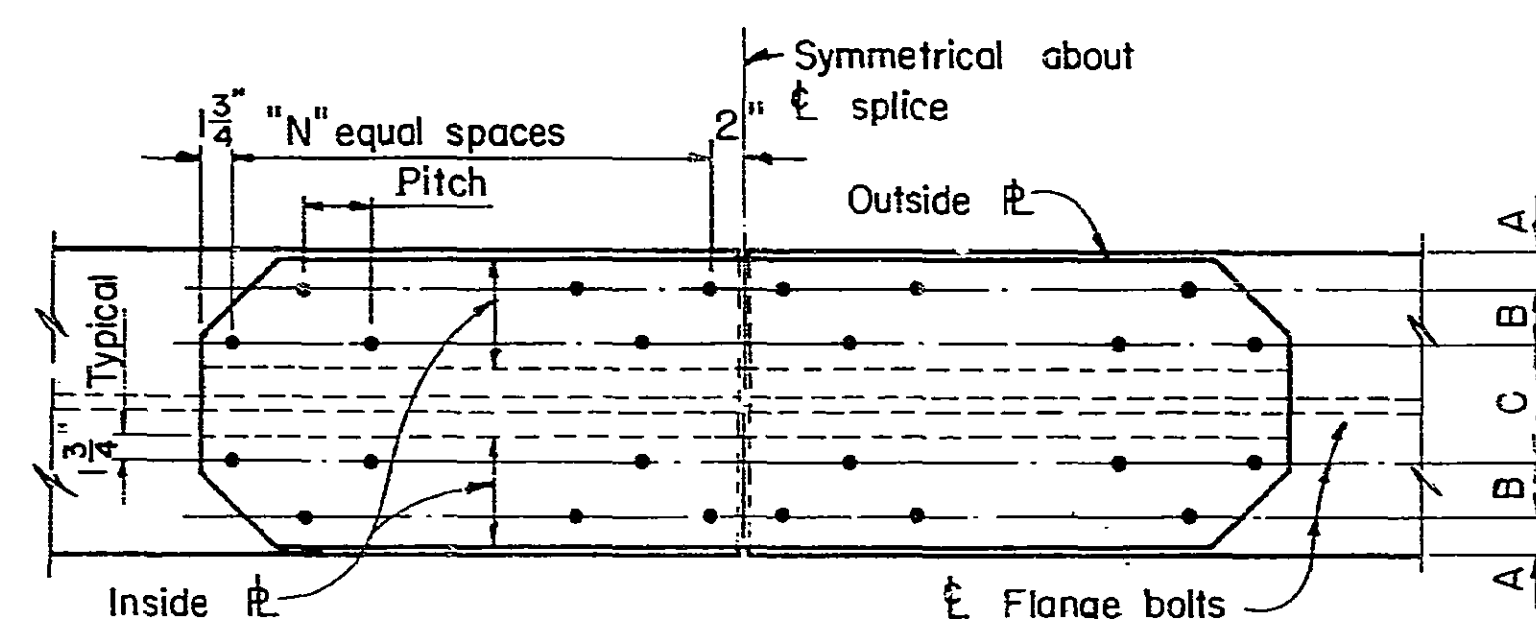
ERECTION: In the field erection of beams with bolted field splices, the beams shall be positioned to facilitate the placing of drift pins. Drifting done during erection shall be only such as to align the parts to be bolted and not to enlarge the holes or distort the metal. Heavy driving of drift pins will not be permitted.

FIELD ASSEMBLY: In the final assembly of the parts to be bolted, drift pins shall be placed in a sufficient number of holes (not less than 25 percent for field erection) to provide and maintain accurate alignment of holes and parts, and sufficient bolts shall be installed and brought to a snug tight condition to bring the parts into complete contact. Bolts shall then be installed in any remaining open holes and tightened to a snug tight fit, after which all bolts shall be tightened completely by calibrated wrenches or by the turn-of-nut method. Drift pins shall then be replaced with bolts, tightened in the same manner.

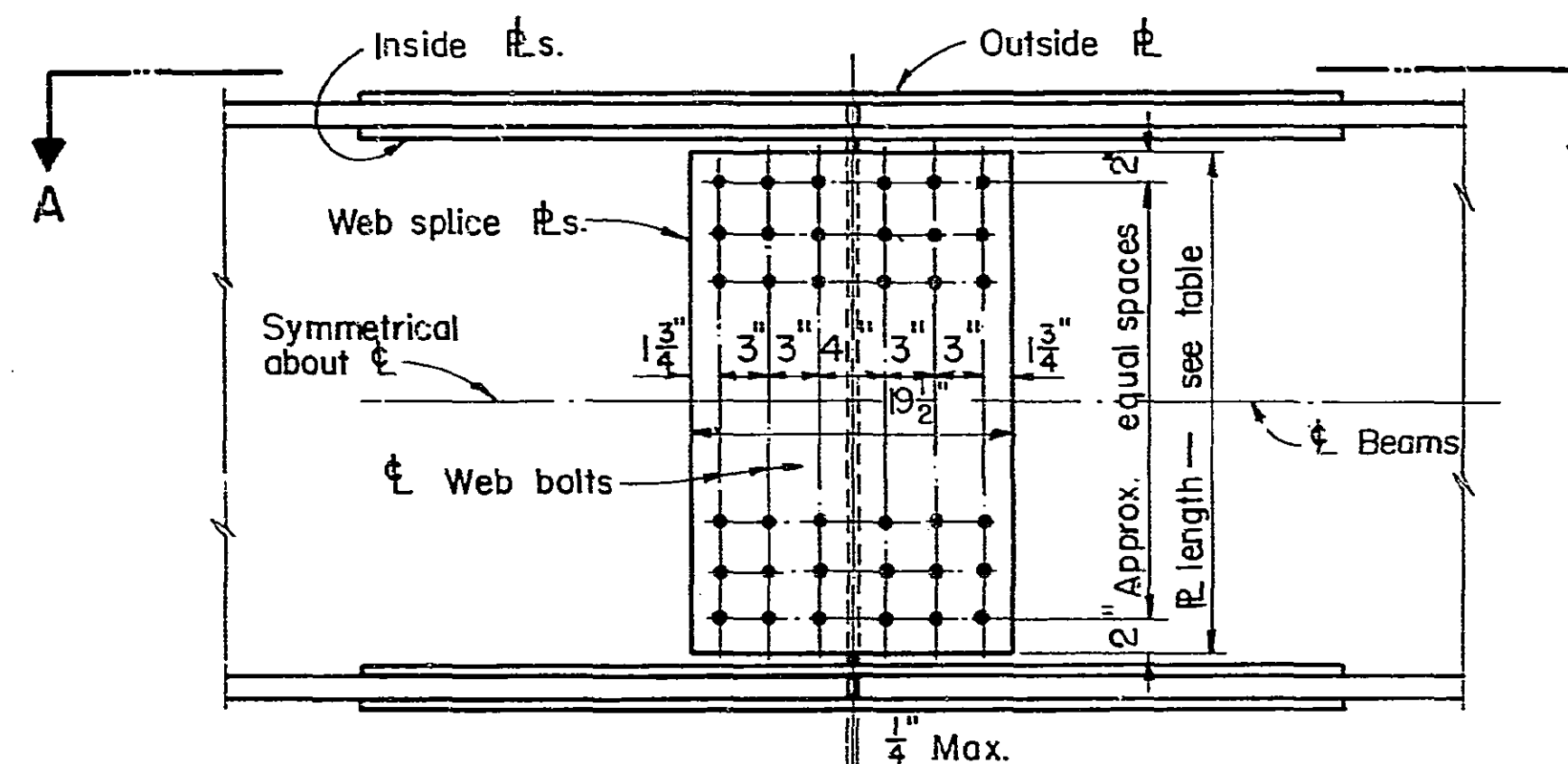
BEAM SPLICE DATA																		
DETAILS															DESIGN			
Beam		Flange Splice										Web Splice			Weight of splice material # lbs.	Beam Strength		
		TYPE	Flange Plates		Flange Bolts						TYPE	Web Plates 2 required	Web Bolts No.	Moment ft.- kips		Shear kips		
			Outside 2 required	Inside 4 required	Number	N Spa.	Dimensions (inches)											
							Pitch	A	B	C								
36 WF	280	B	16 x $\frac{11}{16}$ x 6'-3"	$6\frac{1}{2}$ x $\frac{13}{16}$ x 6'-3"	80	9	$3\frac{3}{4}$	$2\frac{1}{16}$	3	$6\frac{1}{2}$	B	$19\frac{1}{2}$ x $\frac{7}{16}$ x 2'-7"	60	1210	1455	354		
	260	B	16 x $\frac{5}{8}$ x 5'-0"	$6\frac{1}{2}$ x $\frac{3}{4}$ x 5'-0"	64	7	$3\frac{3}{4}$	2	3	$6\frac{1}{2}$	B	$19\frac{1}{2}$ x $\frac{7}{16}$ x 2'-7"	60	950	1338	338		
	245	B	16 x $\frac{5}{8}$ x 5'-0"	$6\frac{1}{2}$ x $\frac{11}{16}$ x 5'-0"	64	7	$3\frac{3}{4}$	2	3	$6\frac{1}{2}$	B	$19\frac{1}{2}$ x $\frac{7}{16}$ x 2'-7"	54	880	1261	321		
	230	B	16 x $\frac{5}{8}$ x 5'-0"	$6\frac{1}{2}$ x $\frac{5}{8}$ x 5'-0"	64	7	$3\frac{3}{4}$	2	3	$6\frac{1}{2}$	B	$19\frac{1}{2}$ x $\frac{3}{8}$ x 2'-7"	54	840	1180	306		
	194	A	11 x $\frac{5}{8}$ x 2'-11 $\frac{1}{2}$ "	$4\frac{1}{2}$ x $\frac{3}{4}$ x 2'-11 $\frac{1}{2}$ "	40	4	$3\frac{1}{2}$	$2\frac{9}{16}$	—	7	B	$19\frac{1}{2}$ x $\frac{7}{16}$ x 2'-7"	54	540	891	314		
	182	A	11 x $\frac{5}{8}$ x 2'-11 $\frac{1}{2}$ "	$4\frac{1}{2}$ x $\frac{11}{16}$ x 2'-11 $\frac{1}{2}$ "	40	4	$3\frac{1}{2}$	$2\frac{16}{16}$	—	7	B	$19\frac{1}{2}$ x $\frac{3}{8}$ x 2'-7"	48	490	838	295		
	170	A	11 x $\frac{1}{2}$ x 2'-11 $\frac{1}{2}$ "	$4\frac{1}{2}$ x $\frac{5}{8}$ x 2'-11 $\frac{1}{2}$ "	40	4	$3\frac{1}{2}$	$2\frac{2}{2}$	—	7	B	$19\frac{1}{2}$ x $\frac{3}{8}$ x 2'-7"	48	460	782	277		
	160	A	11 x $\frac{1}{2}$ x 2'-4 $\frac{1}{2}$ "	$4\frac{1}{2}$ x $\frac{9}{16}$ x 2'-4 $\frac{1}{2}$ "	32	3	$3\frac{1}{2}$	$2\frac{2}{2}$	—	7	B	$19\frac{1}{2}$ x $\frac{3}{8}$ x 2'-7"	48	400	729	266		
	150	A	11 x $\frac{7}{16}$ x 2'-4 $\frac{1}{2}$ "	$4\frac{1}{2}$ x $\frac{5}{16}$ x 2'-4 $\frac{1}{2}$ "	32	3	$3\frac{1}{2}$	$2\frac{2}{2}$	—	7	A	$13\frac{1}{2}$ x $\frac{3}{8}$ x 2'-7"	40	340	670	255		
30 WF	248	B	16 x $\frac{5}{8}$ x 4'-8 $\frac{1}{2}$ "	$6\frac{1}{2}$ x $\frac{13}{16}$ x 4'-8 $\frac{1}{2}$ "	64	7	$3\frac{3}{4}$	$2\frac{1}{16}$	$2\frac{1}{2}$	$6\frac{1}{2}$	B	$19\frac{1}{2}$ x $\frac{7}{16}$ x 2'-7"	60	970	1440	366		
	220	B	16 x $\frac{5}{8}$ x 3'-8 $\frac{1}{2}$ "	$6\frac{1}{2}$ x $\frac{11}{16}$ x 3'-8 $\frac{1}{2}$ "	64	7	$3\frac{3}{4}$	$2\frac{1}{16}$	$2\frac{1}{2}$	$6\frac{1}{2}$	B	$19\frac{1}{2}$ x $\frac{7}{16}$ x 2'-7"	60	790	1048	286		
	200	B	16 x $\frac{5}{8}$ x 3'-8 $\frac{1}{2}$ "	$6\frac{1}{2}$ x $\frac{5}{8}$ x 3'-8 $\frac{1}{2}$ "	48	5	$3\frac{3}{4}$	$2\frac{1}{16}$	$2\frac{1}{2}$	$6\frac{1}{2}$	B	$19\frac{1}{2}$ x $\frac{3}{8}$ x 2'-7"	48	680	943	264		
	152	A	11 x $\frac{5}{8}$ x 2'-4 $\frac{1}{2}$ "	$4\frac{1}{2}$ x $\frac{11}{16}$ x 2'-4 $\frac{1}{2}$ "	32	3	$3\frac{1}{2}$	$2\frac{1}{16}$	—	$6\frac{1}{2}$	B	$19\frac{1}{2}$ x $\frac{3}{8}$ x 2'-7"	42	380	655	237		
	141	A	10 x $\frac{7}{16}$ x 2'-4 $\frac{1}{2}$ "	$4\frac{1}{2}$ x $\frac{5}{8}$ x 2'-4 $\frac{1}{2}$ "	32	3	$3\frac{1}{2}$	$2\frac{1}{2}$	—	$6\frac{1}{2}$	A	$13\frac{1}{2}$ x $\frac{3}{8}$ x 2'-7"	36	320	595	228		
	130	A	10 x $\frac{5}{8}$ x 2'-4 $\frac{1}{2}$ "	$4\frac{1}{2}$ x $\frac{1}{2}$ x 2'-4 $\frac{1}{2}$ "	32	3	$3\frac{1}{2}$	$2\frac{1}{2}$	—	$6\frac{1}{2}$	A	$13\frac{1}{2}$ x $\frac{3}{8}$ x 2'-7"	36	300	549	218		
	118	A	10 x $\frac{3}{8}$ x 2'-9 $\frac{1}{2}$ "	$4\frac{1}{2}$ x $\frac{1}{2}$ x 2'-9 $\frac{1}{2}$ "	24	2	$3\frac{1}{2}$	$2\frac{1}{2}$	—	$6\frac{1}{2}$	A	$13\frac{1}{2}$ x $\frac{3}{8}$ x 2'-7"	36	250	475	208		
	132	A	10 x $\frac{7}{16}$ x 2'-4 $\frac{1}{2}$ "	$4\frac{1}{2}$ x $\frac{5}{8}$ x 2'-4 $\frac{1}{2}$ "	32	3	$3\frac{1}{2}$	$2\frac{1}{2}$	—	6	B	$19\frac{1}{2}$ x $\frac{3}{8}$ x 2'-7"	42	350	501	203		
	124	A	10 x $\frac{7}{16}$ x 2'-4 $\frac{1}{2}$ "	$4\frac{1}{2}$ x $\frac{3}{16}$ x 2'-4 $\frac{1}{2}$ "	32	3	$3\frac{1}{2}$	$2\frac{1}{4}$	—	6	A	$13\frac{1}{2}$ x $\frac{3}{8}$ x 2'-7"	32	300	464	199		
24 WF	115	A	10 x $\frac{3}{8}$ x 2'-9 $\frac{1}{2}$ "	$4\frac{1}{2}$ x $\frac{1}{2}$ x 2'-9 $\frac{1}{2}$ "	24	2	$3\frac{1}{2}$	$2\frac{1}{2}$	—	6	A	$13\frac{1}{2}$ x $\frac{3}{8}$ x 2'-7"	32	240	435	192		
	108	A	10 x $\frac{3}{8}$ x 1'-9 $\frac{1}{2}$ "	$4\frac{1}{2}$ x $\frac{1}{16}$ x 1'-9 $\frac{1}{2}$ "	24	2	$3\frac{1}{2}$	$2\frac{1}{2}$	—	6	A	$13\frac{1}{2}$ x $\frac{3}{8}$ x 2'-7"	32	230	392	186		
	99	A	10 x $\frac{3}{8}$ x 1'-9 $\frac{1}{2}$ "	$4\frac{1}{2}$ x $\frac{3}{8}$ x 1'-9 $\frac{1}{2}$ "	24	2	$3\frac{1}{2}$	$2\frac{1}{4}$	—	6	A	$13\frac{1}{2}$ x $\frac{3}{8}$ x 2'-7"	32	220	353	177		
	114	A	9 $\frac{1}{2}$ x $\frac{7}{16}$ x 2'-9 $\frac{1}{2}$ "	$4\frac{1}{2}$ x $\frac{1}{2}$ x 2'-9 $\frac{1}{2}$ "	24	2	$3\frac{1}{2}$	$2\frac{1}{16}$	—	6	B	$19\frac{1}{2}$ x $\frac{3}{8}$ x 1'-11"	36	270	390	174		
	102	A	9 $\frac{1}{2}$ x $\frac{3}{8}$ x 1'-9 $\frac{1}{2}$ "	$4\frac{1}{2}$ x $\frac{1}{16}$ x 1'-9 $\frac{1}{2}$ "	24	2	$3\frac{1}{2}$	2	—	6	A	$13\frac{1}{2}$ x $\frac{3}{8}$ x 1'-11"	28	280	345	168		
	94	A	9 $\frac{1}{2}$ x $\frac{3}{8}$ x 1'-9 $\frac{1}{2}$ "	$4\frac{1}{2}$ x $\frac{7}{16}$ x 1'-9 $\frac{1}{2}$ "	24	2	$3\frac{1}{2}$	2	—	6	A	$13\frac{1}{2}$ x $\frac{3}{8}$ x 1'-11"	28	220	315	150		
	84	A	9 $\frac{1}{2}$ x $\frac{3}{8}$ x 1'-9 $\frac{1}{2}$ "	$4\frac{1}{2}$ x $\frac{3}{8}$ x 1'-9 $\frac{1}{2}$ "	24	2	$3\frac{1}{2}$	2	—	6	A	$13\frac{1}{2}$ x $\frac{3}{8}$ x 1'-11"	28	210	273	141		
	110	A	10 x $\frac{7}{16}$ x 2'-4 $\frac{1}{2}$ "	$4\frac{1}{2}$ x $\frac{1}{2}$ x 2'-4 $\frac{1}{2}$ "	32	3	$3\frac{1}{2}$	$2\frac{3}{8}$	—	$6\frac{1}{2}$	B	$19\frac{1}{2}$ x $\frac{3}{8}$ x 1'-8"	30	300	373	166		
	100	A	10 x $\frac{7}{16}$ x 2'-4 $\frac{1}{2}$ "	$4\frac{1}{2}$ x $\frac{1}{2}$ x 2'-4 $\frac{1}{2}$ "	32	3	$3\frac{1}{2}$	$2\frac{3}{8}$	—	$6\frac{1}{2}$	B	$19\frac{1}{2}$ x $\frac{3}{8}$ x 1'-8"	30	300	338	126		
20 WF	94	A	8 $\frac{1}{2}$ x $\frac{7}{16}$ x 1'-9 $\frac{1}{2}$ "	$3\frac{1}{2}$ x $\frac{1}{2}$ x 1'-9 $\frac{1}{2}$ "	24	2	$3\frac{1}{2}$	2	—	5	B	$19\frac{1}{2}$ x $\frac{3}{8}$ x 1'-8"	30	230	282	140		
	84	A	8 $\frac{1}{2}$ x $\frac{3}{8}$ x 1'-9 $\frac{1}{2}$ "	$3\frac{1}{2}$ x $\frac{1}{2}$ x 1'-9 $\frac{1}{2}$ "	24	2	$3\frac{1}{2}$	2	—	5	B	$19\frac{1}{2}$ x $\frac{3}{8}$ x 1'-8"	30	230	250	127		
	76	A	8 $\frac{1}{2}$ x $\frac{3}{8}$ x 1'-9 $\frac{1}{2}$ "	$3\frac{1}{2}$ x $\frac{1}{2}$ x 1'-9 $\frac{1}{2}$ "	24	2	$3\frac{1}{2}$	2	—	5	B	$19\frac{1}{2}$ x $\frac{3}{8}$ x 1'-8"	30	230	223	119		
	68	A	8 $\frac{1}{2}$ x $\frac{3}{8}$ x 1'-9 $\frac{1}{2}$ "	$3\frac{1}{2}$ x $\frac{1}{16}$ x 1'-9 $\frac{1}{2}$ "	24	2	$3\frac{1}{2}$	2	—	5	A	$13\frac{1}{2}$ x $\frac{3}{8}$ x 1'-8"	24	200	195	102		
	68	A	8 $\frac{1}{2}$ x $\frac{3}{8}$ x 1'-8"	$3\frac{1}{2}$ x $\frac{3}{8}$ x 1'-8"	16	2	$3\frac{1}{2}$	$1\frac{1}{2}$	—	$4\frac{1}{2}$	B	$19\frac{1}{2}$ x $\frac{3}{8}$ x 1'-5"	24	190	175	102		

* Trim plates as required to fit beam fillets.

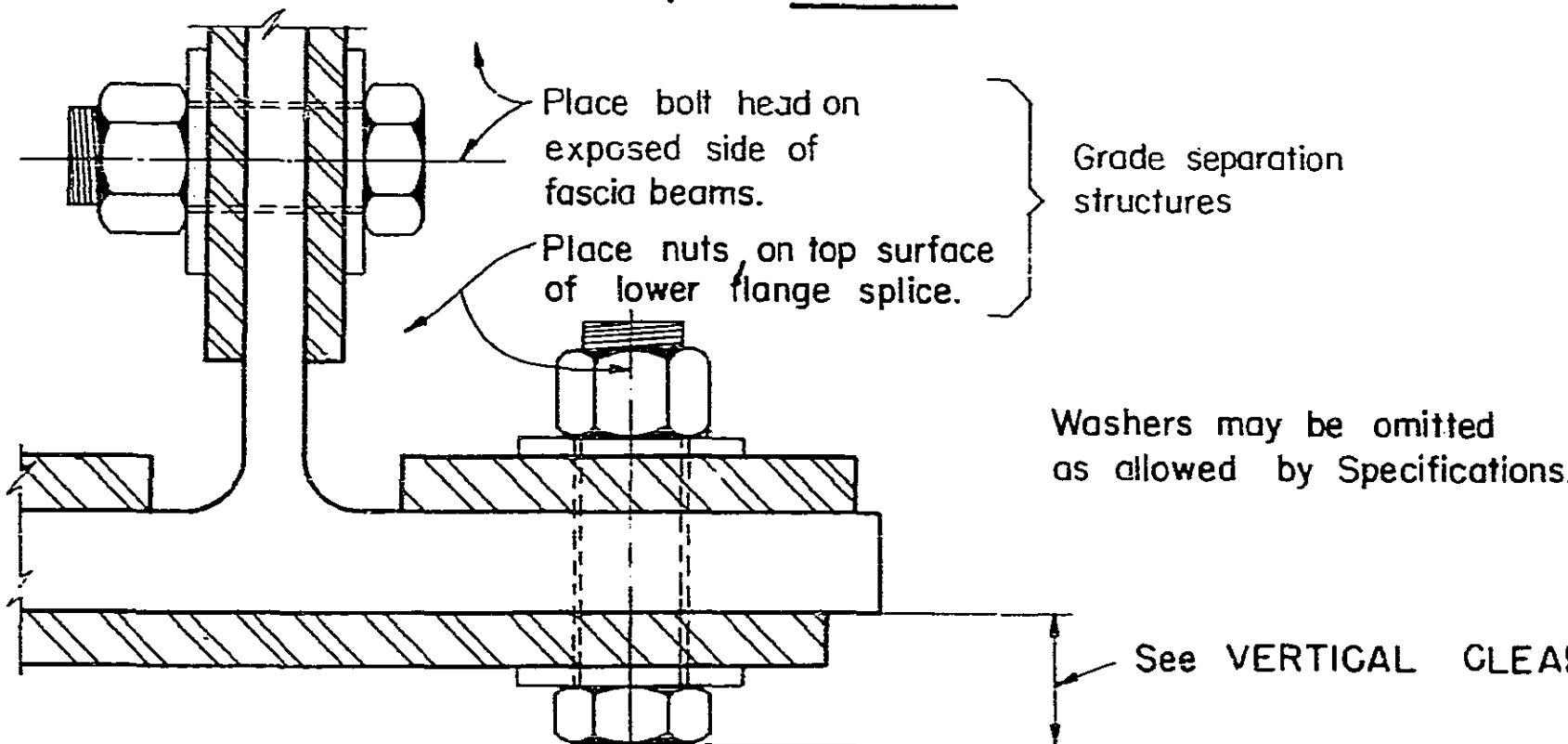
* Includes an allowance for weight of bolts and washers.



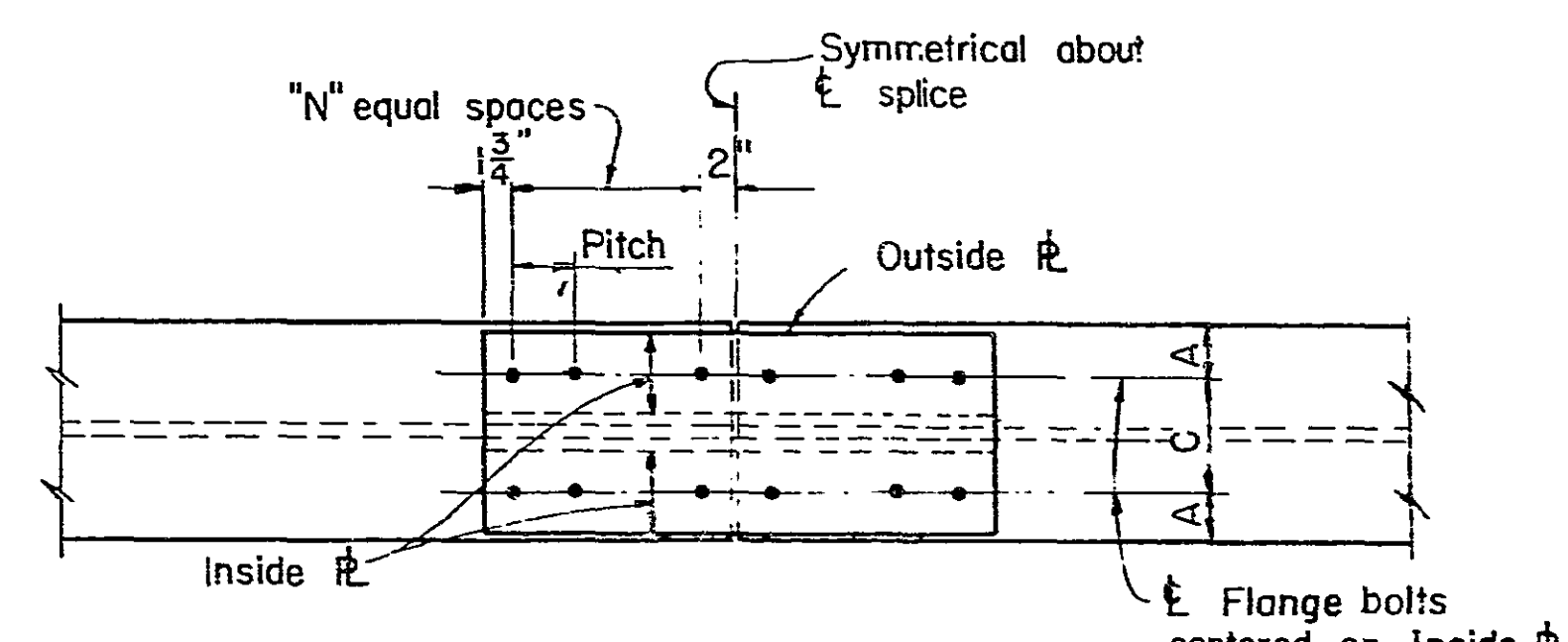
VIEW A-A
Flange Splice - TYPE B



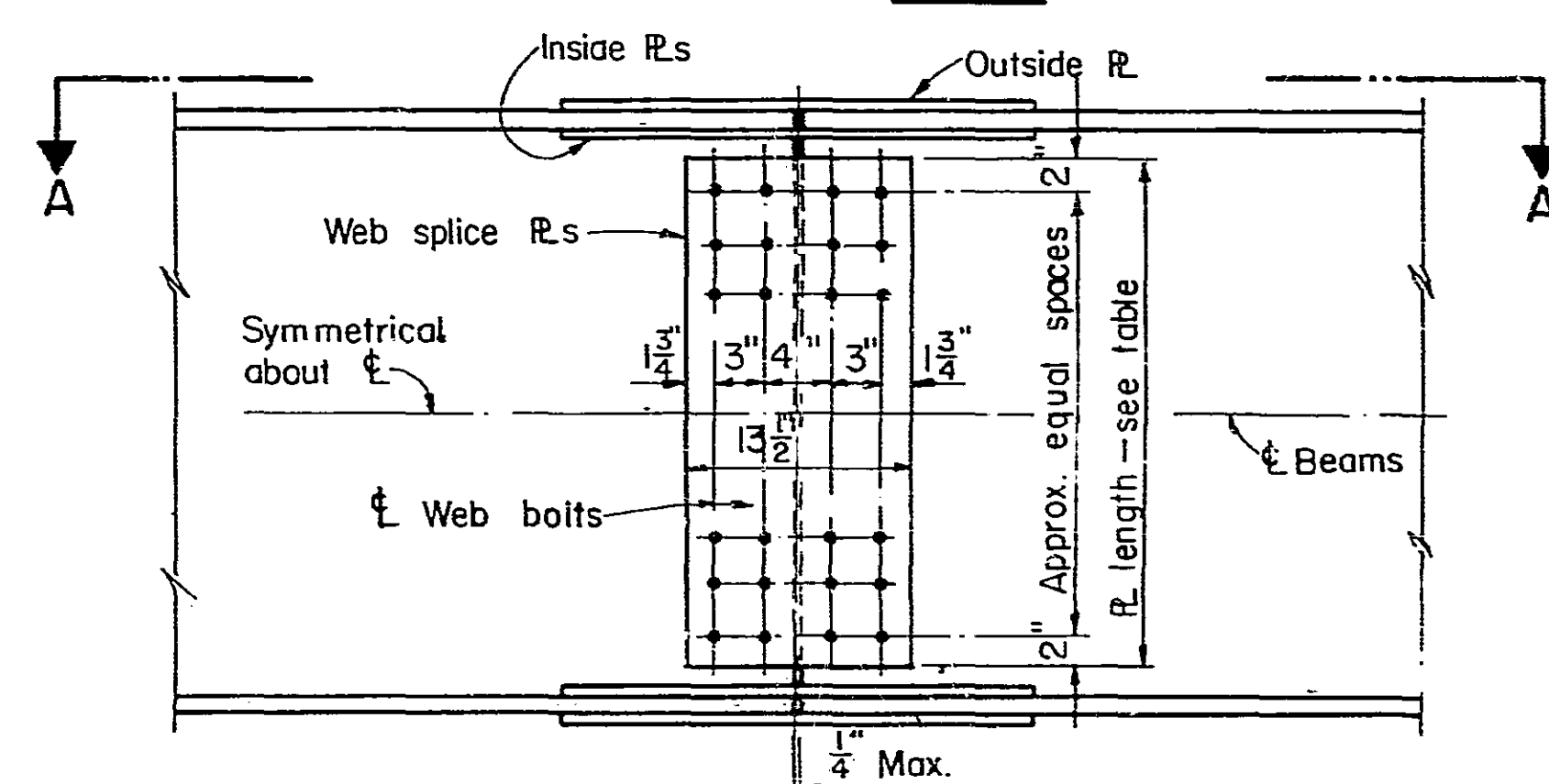
BEAM SPLICE DETAIL
Web Splice - TYPE B



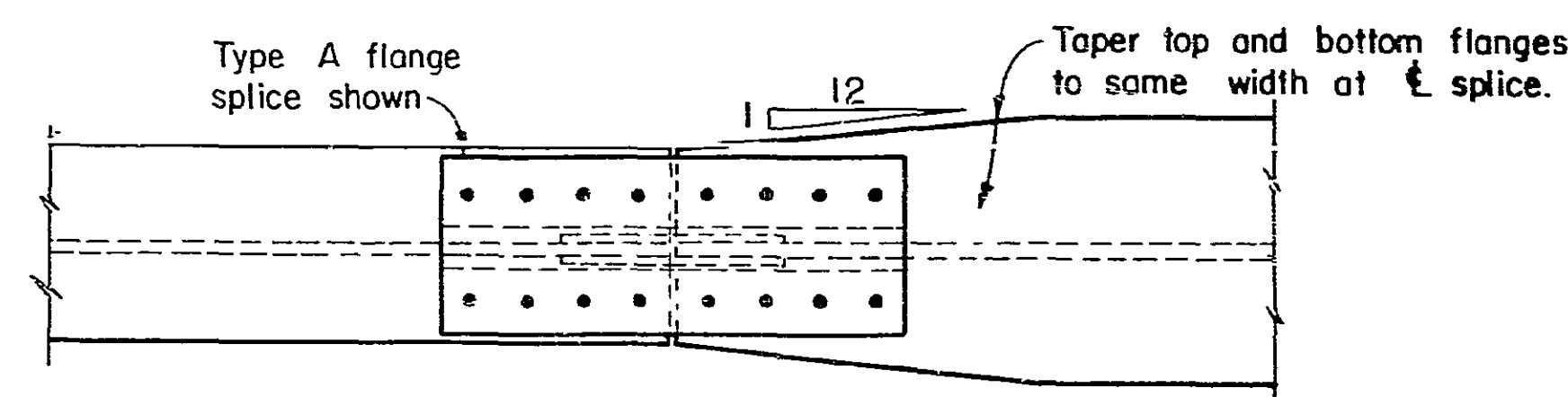
PARTIAL SECTION
(at center of beam splice)



VIEW A-A
Flange Splice - TYPE A



BEAM SPLICE DETAIL
Web Splice - TYPE A



VIEW A-A
Splice detail for beams having different flange widths

REVISIONS		STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES	
STANDARD BOLTED BEAM SPLICE DETAILS FOR STEEL BEAM BRIDGES		DRAWING NUMBER SD-1-65	
APPROVED:	DATE: 11-8-65		ENGINEER OF BRIDGES
PREPARED	TRACED	CHECKED	REVIEWED
MPB	CAM	CPD	NNH BFG RVK
SHEET NO. 3		OF 3 SHEETS	

3910 0110 0011 0022 0033 0044 0055 0066 0077 0088 0099 0100 0111 0122 0133 0144 0155 0166 0177 0188 0199 0200 0211 0222 0233 0244 0255 0266 0277 0288 0299 0300 0311 0322 0333 0344 0355 0366 0377 0388 0399 0400 0411 0422 0433 0444 0455 0466 0477 0488 0499 0500 0511 0522 0533 0544 0555 0566 0577 0588 0599 0600 0611 0622 0633 0644 0655 0666 0677 0688 0699 0700 0711 0722 0733 0744 0755 0766 0777 0788 0799 0800 0811 0822 0833 0844 0855 0866 0877 0888 0899 0900 0911 0922 0933 0944 0955 0966 0977 0988 0999 1000 1011 1022 1033 1044 1055 1066 1077 1088 1099 1100 1111 1122 1133 1144 1155 1166 1177 1188 1199 1200 1211 1222 1233 1244 1255 1266 1277 1288 1299 1300 1311 1322 1333 1344 1355 1366 1377 1388 1399 1400 1411 1422 1433 1444 1455 1466 1477 1488 1499 1500 1511 1522 1533 1544 1555 1566 1577 1588 1599 1600 1611 1622 1633 1644 1655 1666 1677 1688 1699 1700 1711 1722 1733 1744 1755 1766 1777 1788 1799 1800 1811 1822 1833 1844 1855 1866 1877 1888 1899 1900 1911 1922 1933 1944 1955 1966 1977 1988 1999 2000 2011 2022 2033 2044 2055 2066 2077 2088 2099 2100 2111 2122 2133 2144 2155 2166 2177 2188 2199 2200 2211 2222 2233 2244 2255 2266 2277 2288 2299 2300 2311 2322 2333 2344 2355 2366 2377 2388 2399 2400 2411 2422 2433 2444 2455 2466 2477 2488 2499 2500 2511 2522 2533 2544 2555 2566 2577 2588 2599 2600 2611 2622 2633 2644 2655 2666 2677 2688 2699 2700 2711 2722 2733 2744 2755 2766 2777 2788 2799 2800 2811 2822 2833 2844 2855 2866 2877 2888 2899 2900 2911 2922 2933 2944 2955 2966 2977 2988 2999 3000 3011 3022 3033 3044 3055 3066 3077 3088 3099 3100 3111 3122 3133 3144 3155 3166 3177 3188 3199 3200 3211 3222 3233 3244 3255 3266 3277 3288 3299 3300 3311 3322 3333 3344 3355 3366 3377 3388 3399 3400 3411 3422 3433 3444 3455 3466 3477 3488 3499 3500 3511 3522 3533 3544 3555 3566 3577 3588 3599 3600 3611 3622 3633 3644 3655 3666 3677 3688 3699 3700 3711 3722 3733 3744 3755 3766 3777 3788 3799 3800 3811 3822 3833 3844 3855 3866 3877 3888 3899 3900 3911 3922 3933 3944 3955 3966 3977 3988 3999 4000 4011 4022 4033 4044 4055 4066 4077 4088 4099 4100 4111 4122 4133 4144 4155 4166 4177 4188 4199 4200 4211 4222 4233 4244 4255 4266 4277 4288 4299 4300 4311 4322 4333 4344 4355 4366 4377 4388 4399 4400 4411 4422 4433 4444 4455 4466 4477 4488 4499 4500 4511 4522 4533 4544 4555 4566 4577 4588 4599 4600 4611 4622 4633 4644 4655 4666 4677 4688 4699 4700 4711 4722 4733 4744 4755 4766 4777 4788 4799