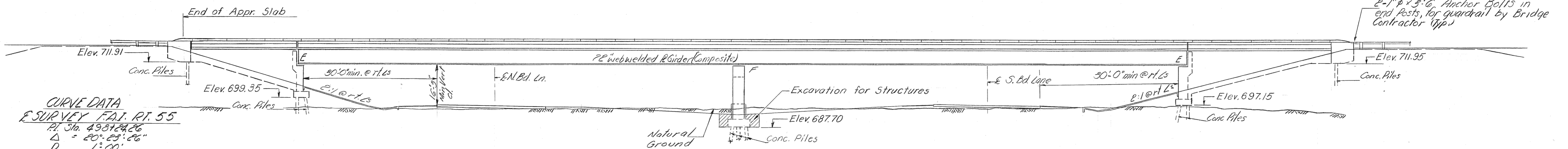


BM: 155, RR Spike in 2nd Power Pole North of Pt 31, Elev. 693.06

STATE OF ILLINOIS

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
S. B. I.	53-6	Livingston	43	9
F. A. I. 55	HB-2			25 SHEETS
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT:		



**CURVE DATA**  
 SURVEY FAI RT. 55  
 P.I. Sta. 498124.26  
 $\Delta = 20^\circ 23' 26''$   
 $D = 1:00$   
 $L = 2059.06'$   
 $R = 5729.53'$   
 $T = 1030.43$   
 $P.C. Sta. 4871.93.83$   
 $P.T. Sta. 5081.36.89$   
 $S.L. Attain. =$   
 $Sta. 4861.27$  to  $Sta. 4881.77$   
 $Sta. 5071.50$  to  $Sta. 5101.00$   
 $S.E. = 0.0354$

STATION 501+41.31  
 BUILT 197 BY  
 STATE OF ILLINOIS  
 F.A.I. RT.55 SEC. 53-6HB-2  
 PROJECT I-55-5(40)  
 LOADING HS 20  
**NAME PLATE**  
 See Std. 2113

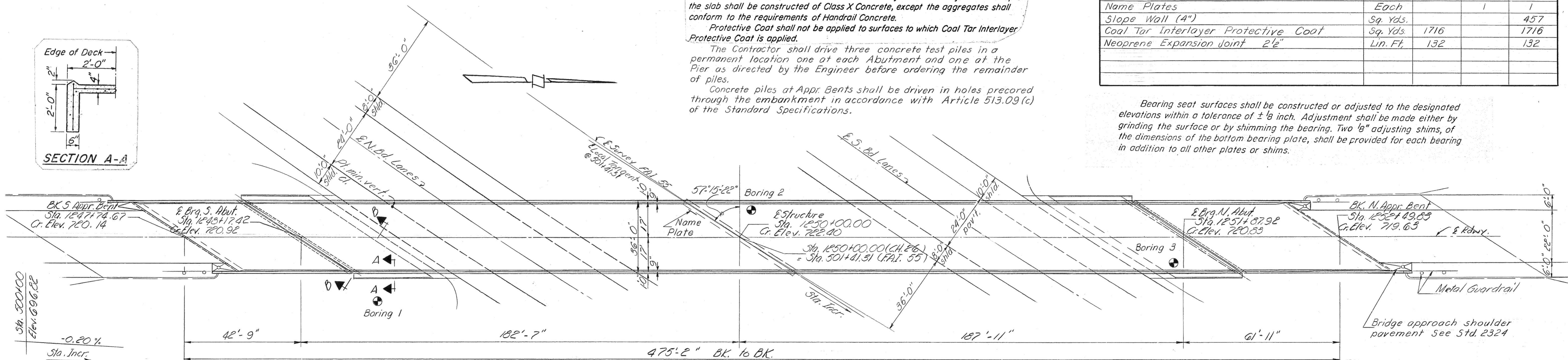
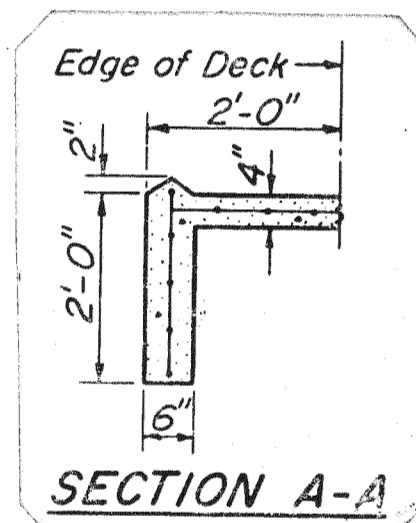
**ELEVATION GENERAL NOTES**

All reinforcement bars shall be lapped 24 diameters unless otherwise shown.  
 Fasteners shall be high strength bolts. Bolts  $\frac{3}{4}$ "  $\phi$ ; open holes  $\frac{1}{8}$ "  $\phi$ , unless otherwise noted.  
 Calculated weight of Structural Steel = 631090 lbs.  
 The Basic Lead Silica Chromate paint system shall be used for shop and field painting of structural steel.  
 Field welding of construction accessories will not be permitted to the bottom flange of beams or girders nor to the top flange for a distance equal to one-fourth the span length each way from the pier supports. Field welding in other areas will be permitted only when approved by the Engineer.  
 Anchor bolts shall be set before bolting Cross Frames over supports.  
 Slope wall shall be reinforced with welded wire fabric 6" x 6" mesh, weighing 58# per 100 sq. ft.  
 The embankment configuration shown shall be the minimum embankment that must be constructed prior to construction of the abutments.  
 The concrete rail section above the mandatory construction joint at the top of the slab shall be constructed of Class X Concrete, except the aggregates shall conform to the requirements of Handrail Concrete.  
 Protective Coat shall not be applied to surfaces to which Coal Tar Interlayer Protective Coat is applied.  
 The Contractor shall drive three concrete test piles in a permanent location one at each Abutment and one at the Pier as directed by the Engineer before ordering the remainder of piles.  
 Concrete piles at Appr. Bents shall be driven in holes precored through the embankment in accordance with Article 513.09(c) of the Standard Specifications.

**TOTAL BILL OF MATERIAL**

Item	Unit	Super	Sub	Total
Bituminous Concrete Surface Course Class I	Tons	139		139
Structure Excavation	Cu. Yds.			122
Protective Coat	Sq. Yds.	191		191
Class X Concrete	Cu. Yds.	601.3	526.4	1127.7
Furnishing & Erecting Precast Prestressed Conc. I Brn. 36"	Lin. Ft.	110		110
Furnishing & Erecting Precast Prestressed Conc. I Brn. 42"	Lin. Ft.	166		166
Structural Steel	L. S.	L. S.		L. S.
Stud Shear Connectors	Each	2085		2085
Aluminum Railing	Lin. Ft.	976		976
Reinforcement Bars	Lbs.	142480	48440	190920
Concrete Piles	Lin. Ft.		5489	5489
Test Pile Concrete	Each		3	3
Name Plates	Each		1	1
Slope Wall (4")	Sq. Yds.			457
Coal Tar Interlayer Protective Coat	Sq. Yds.	1716		1716
Neoprene Expansion Joint 2 1/2"	Lin. Ft.	132		132

Bearing seat surfaces shall be constructed or adjusted to the designated elevations within a tolerance of  $\pm \frac{1}{8}$  inch. Adjustment shall be made either by grinding the surface or by shimming the bearing. Two  $\frac{1}{8}$ " adjusting shims, of the dimensions of the bottom bearing plate, shall be provided for each bearing in addition to all other plates or shims.

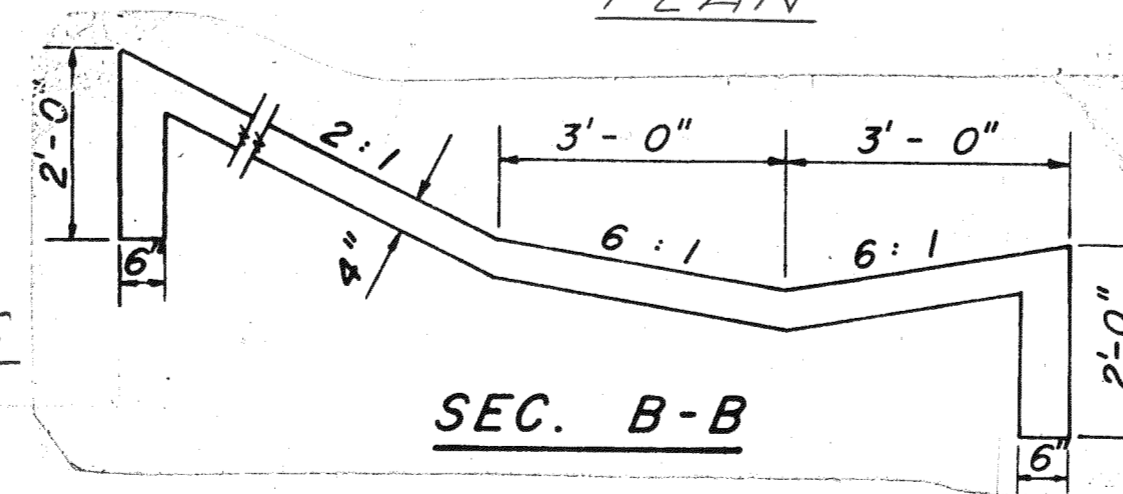


PROPOSED PROFILE FAI 55  
 (@ Median edge of Pav'tl)

**PRECAST PRESTRESSED UNITS**

$f_c = 5,000$  psi  
 $f_{ci} = 4,000$  psi  
 $f_s = 248,000$  psi (Strands)  
 $f_{si} = 173,600$  psi (Strands)  
 4.00%  
 P.I. Sta. 1250+00  
 Elev. 731.40  
 $VC = 900'$   
 PROPOSED PROFILE CH. 26

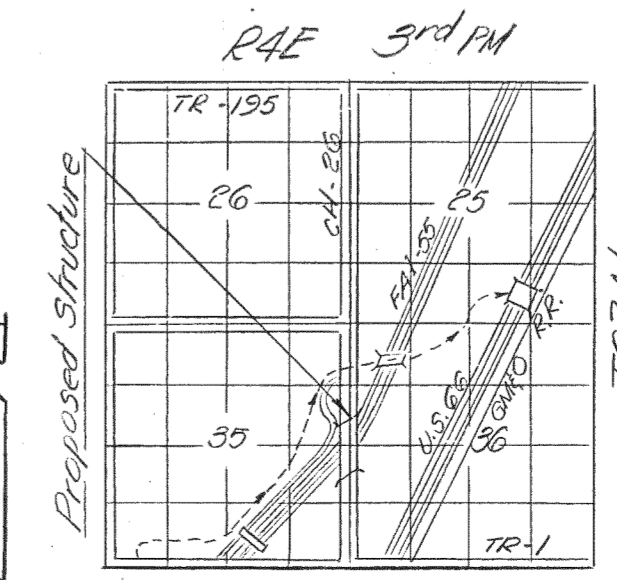
**PLAN**



**DESIGN STRESSES**  
 $f_c = 1200$  psi (Deck Slab)  
 $f_c = 1400$  psi (Curb, Parapet, Sub)  
 $f_s = 20,000$  psi (Reinf.)  
 $f_s = 20,000$  psi A-36, 27,000 psi A 588 (Struct.)  
 $V_c = 75$  psi (Figs.)  
 $n = 10$   
 Allow 25# sq ft for future W/S

LOADING HS 20-44

Design Specifications AASHTO 1969 as applicable LOCATION SKETCH

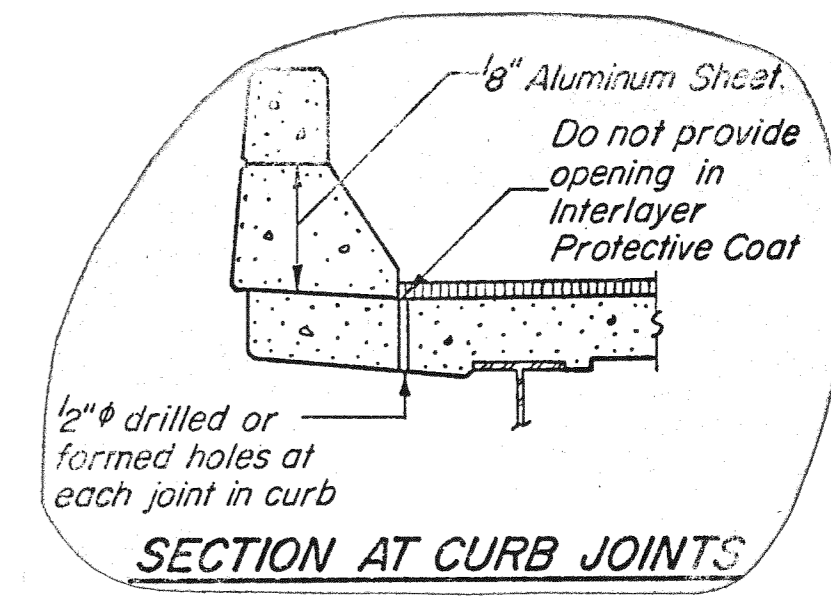
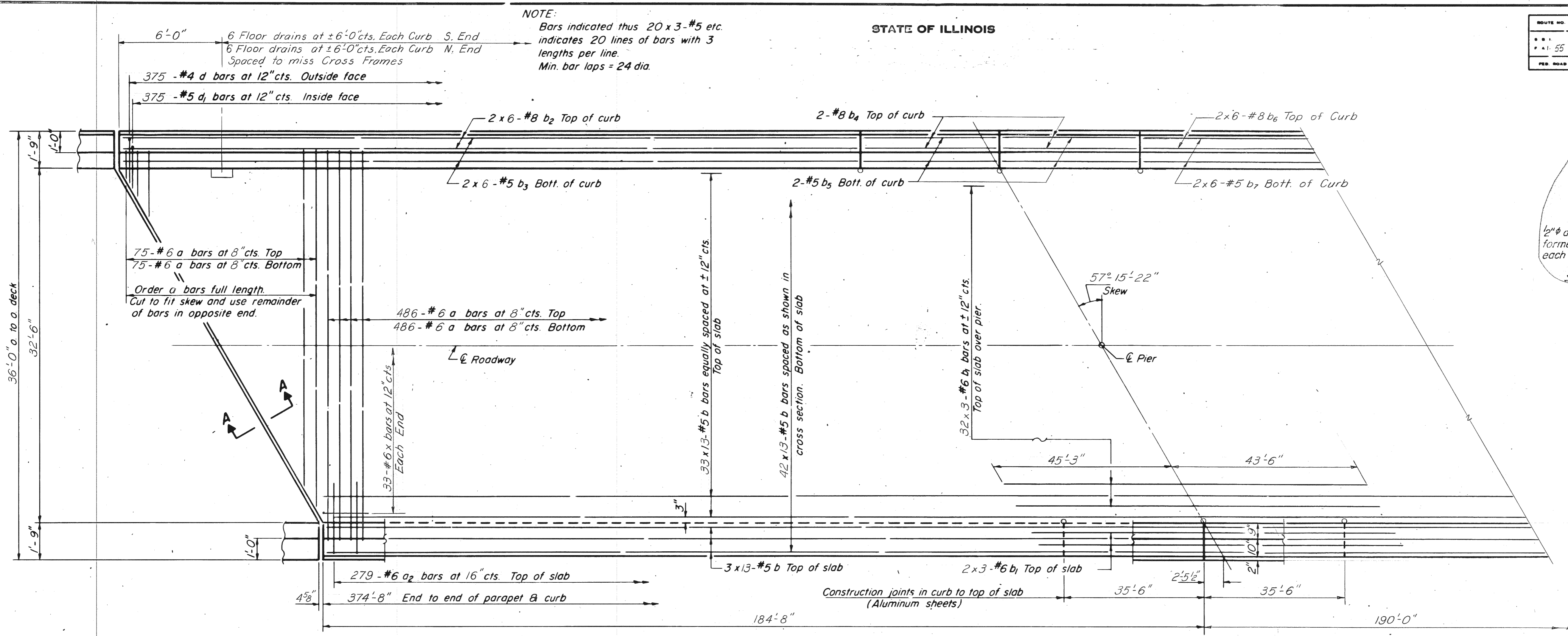


**GENERAL PLAN & ELEVATION**  
 PROJECT I-55-5(40)  
 CH. 26 OVER FAI RT. 55  
 F.A.I. RT. 55 SECTION 53-6HB-2  
 LIVINGSTON COUNTY  
 STATION 501+41.31 FAI RT. 55

DESIGNED R. K. Mathur  
 CHECKED Mary W. Baxter  
 R.P.S.  
 DRAWN daryll w. Williams sr.  
 CHECKED G.W.B.

EXAMINED  
 PASSED  
 APPROVED  
 Richard J. Goltzman  
 CHIEF HIGHWAY ENGINEER

NOTE:  
Bars indicated thus 20 x 3-#5 etc.  
indicates 20 lines of bars with 3  
lengths per line.  
Min. bar laps = 24 dia.



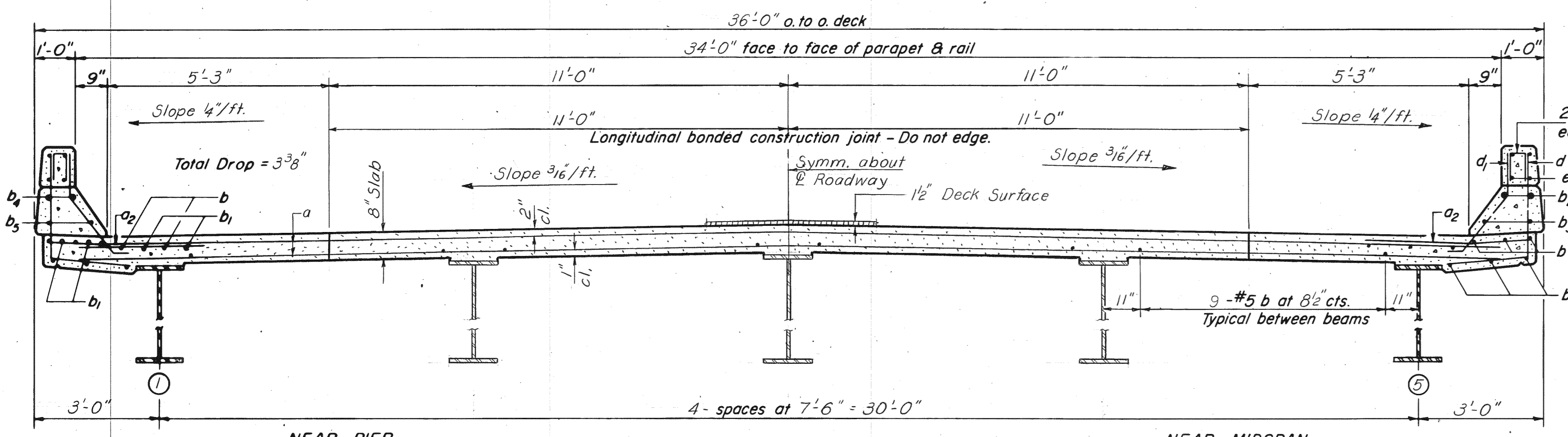
HALF PLAN

BILL OF MATERIAL

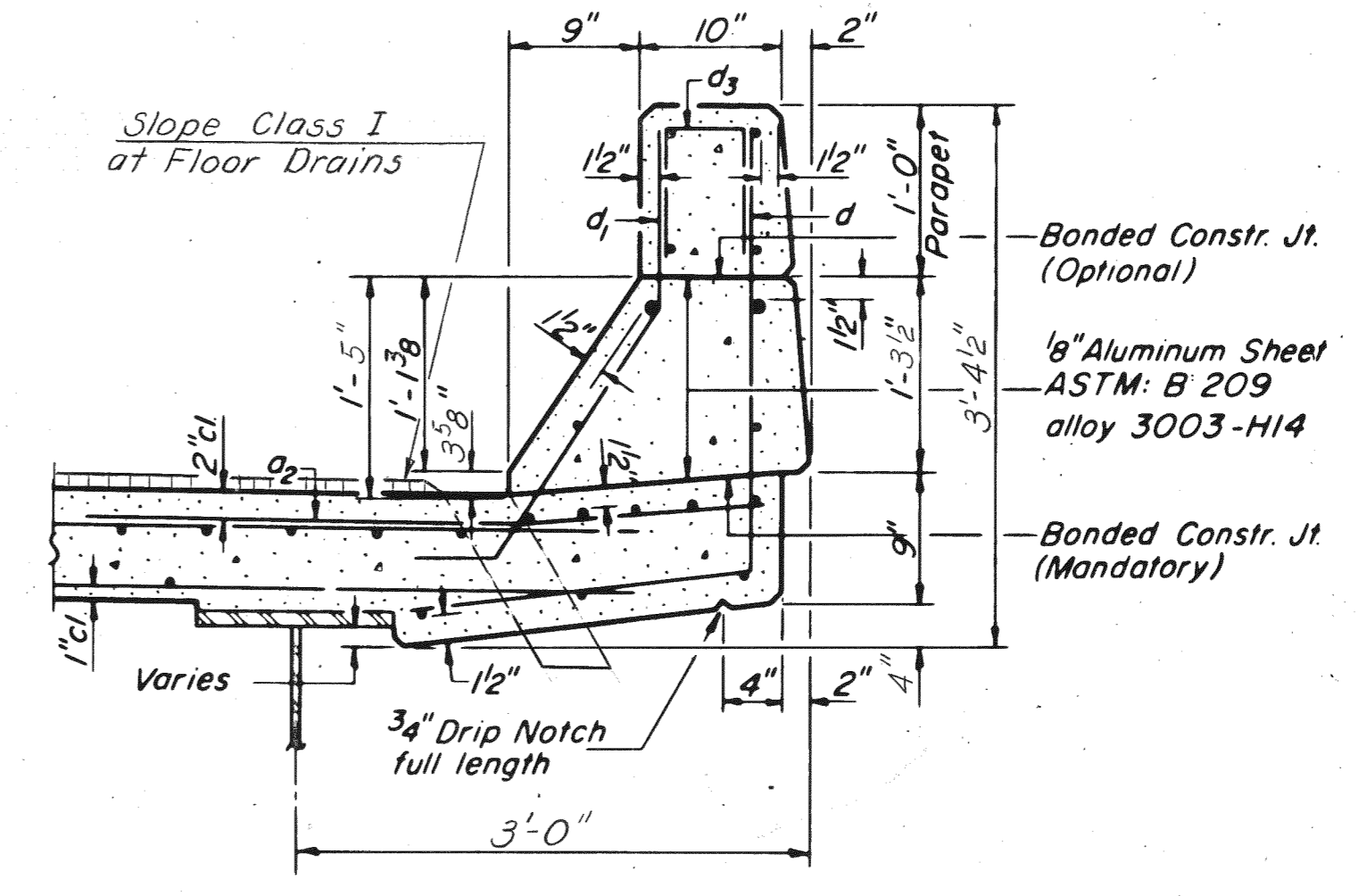
Bar	No.	Size	Length	Shape
a	1122	#6	33'-9"	—
a <sub>2</sub>	558	#6	4'-0"	—
b	1053	#5	30'-0"	—
b <sub>1</sub>	108	#6	30'-7"	—
b <sub>2</sub>	24	#8	26'-6"	—
b <sub>3</sub>	24	#5	25'-11"	—
b <sub>4</sub>	8	#8	35'-3"	—
b <sub>5</sub>	8	#5	35'-3"	—
b <sub>6</sub>	24	#8	27'-5"	—
b <sub>7</sub>	24	#5	26'-9"	—
d	750	#4	4'-4"	J
d <sub>1</sub>	750	#5	3'-5"	J
x	66	#6	6'-0"	—
Reinforcement Bars			Lbs.	109400
Class X Concrete			Cu. Yds.	406.2

For Sec. A-A see Sheet #7

NOTE: For placement of bars d<sub>3</sub> and e thru e<sub>3</sub> see sheet #14



CROSS SECTION (LOOKING NORTH)

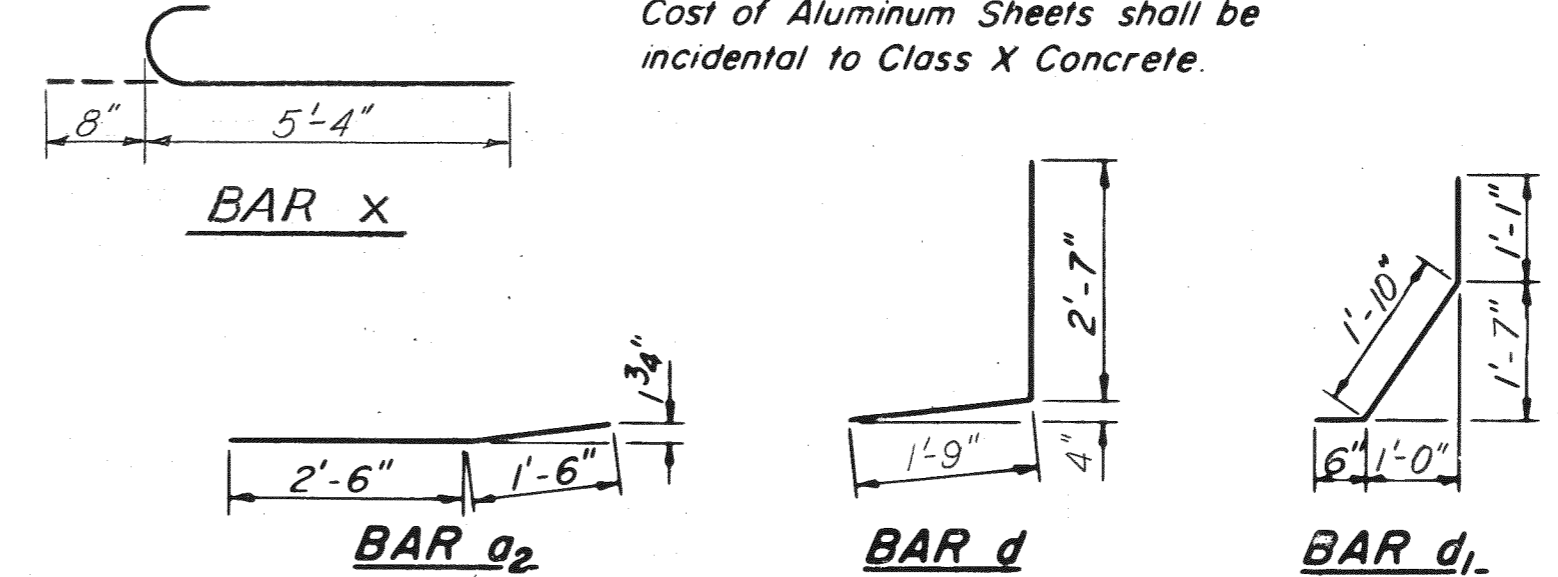
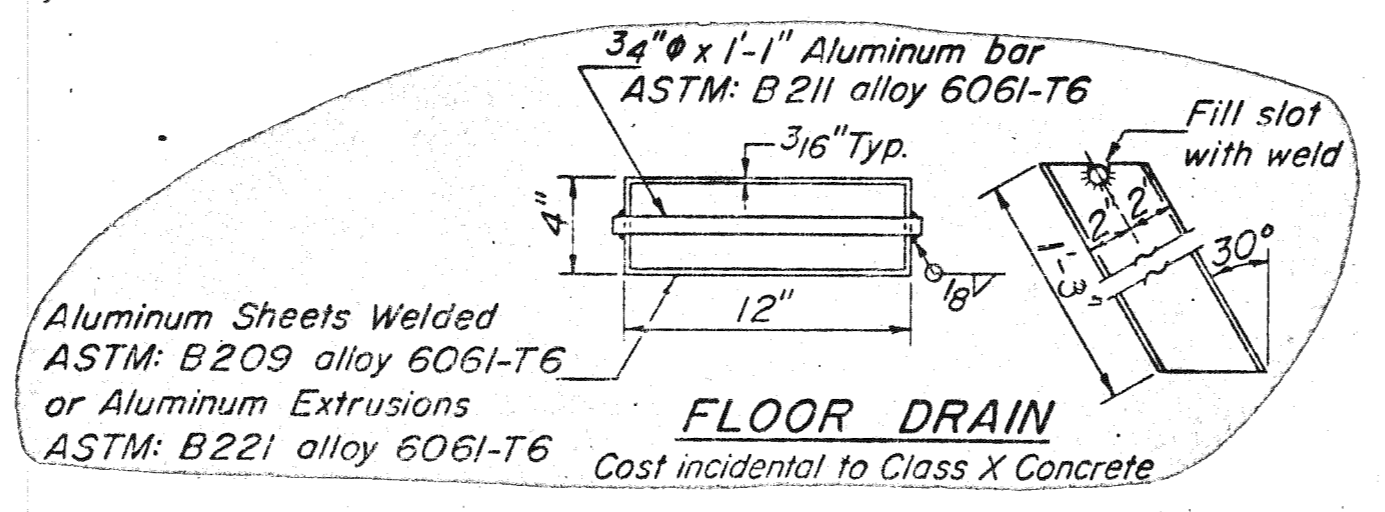


CURB SECTION

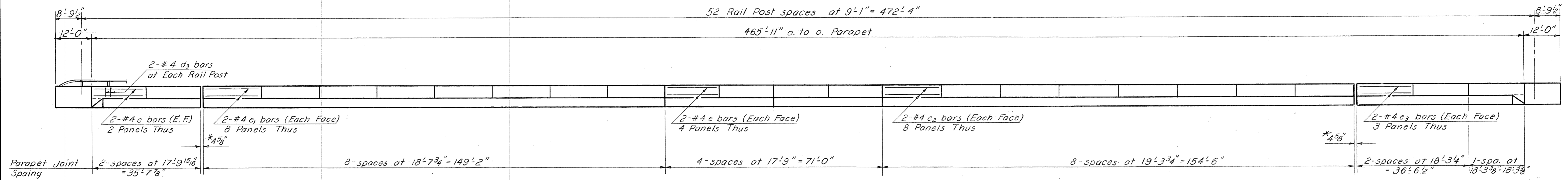
Cost of Aluminum Sheets shall be incidental to Class X Concrete.

Parapet Reinforcement and Class X Concrete are billed on sheet #14

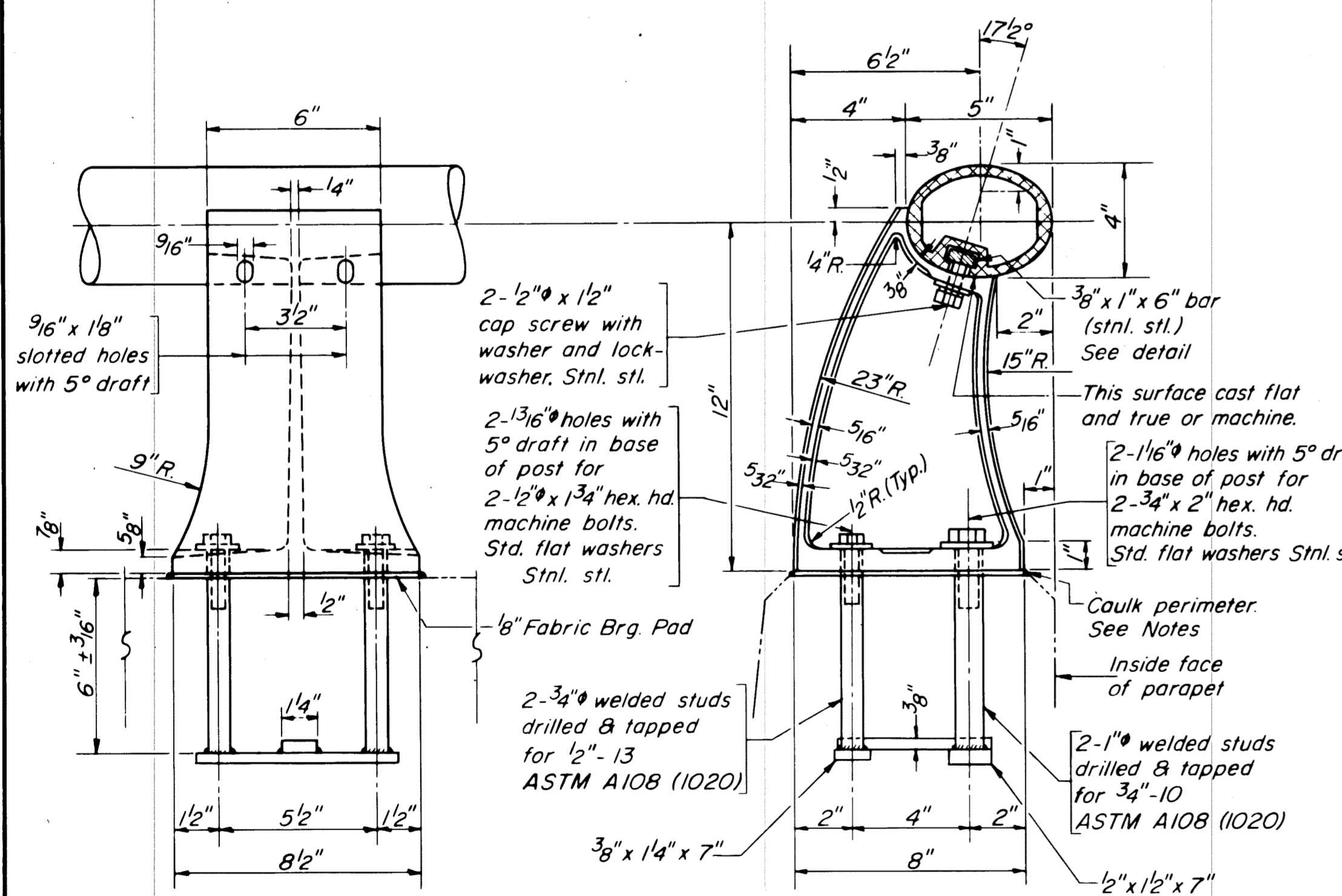
DESIGNED	R. K. Mattiur
CHECKED	Jay W. Boster
DRAWN	R. P. Summer
CHECKED	G. W. B.
EXAMINED	Richard H. Holtzman
PASSED	Richard H. Holtzman
APPROVED	Richard H. Holtzman



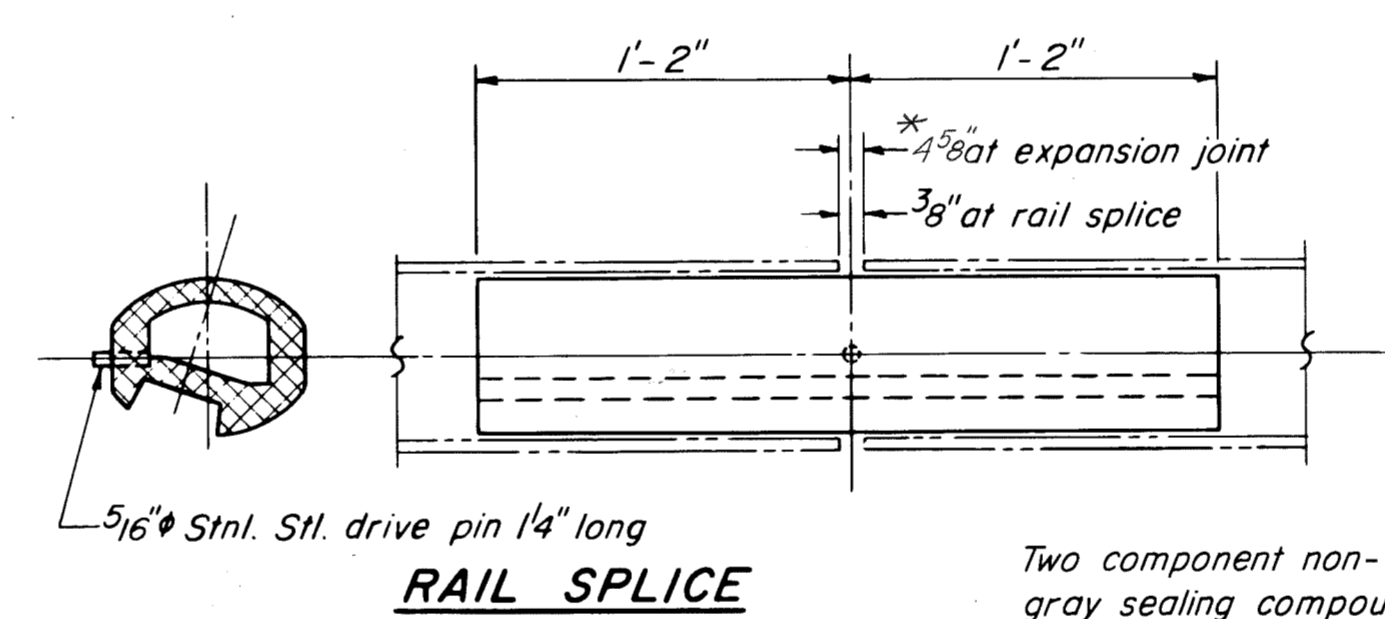
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO. 14 25 SHEETS
53-6	HB-2	Livingston	43	22	
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT:			



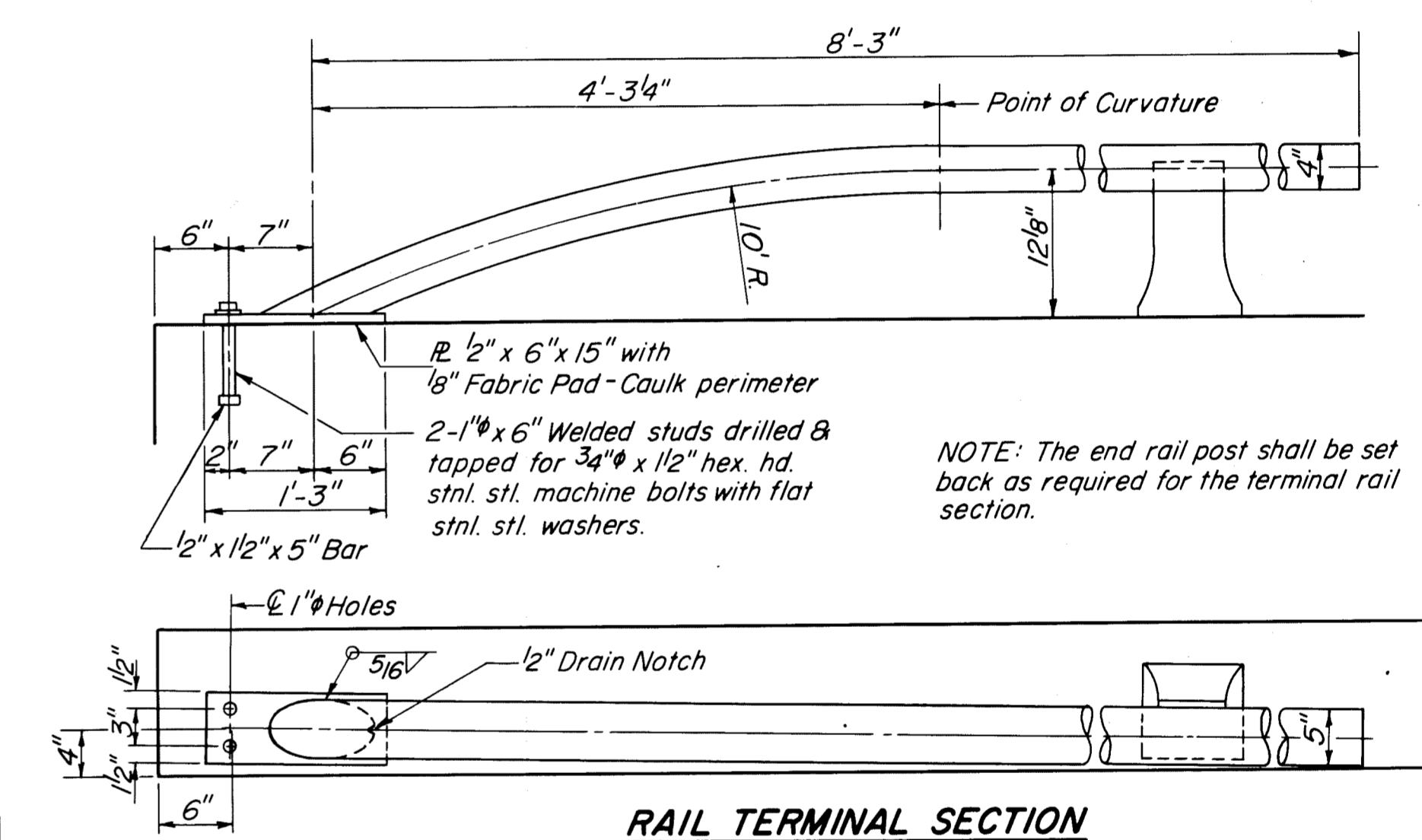
ELEVATION  
Looking West  
\* @ 50° F



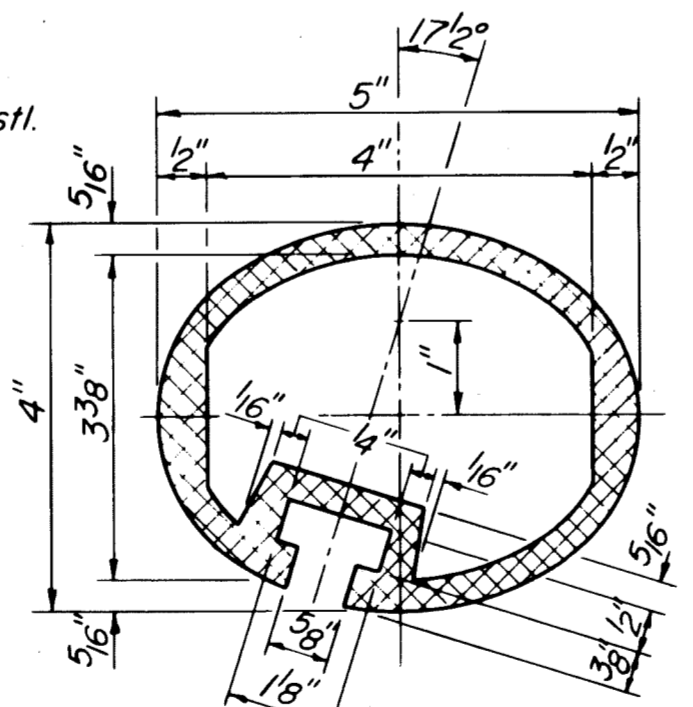
RAIL POST DETAILS



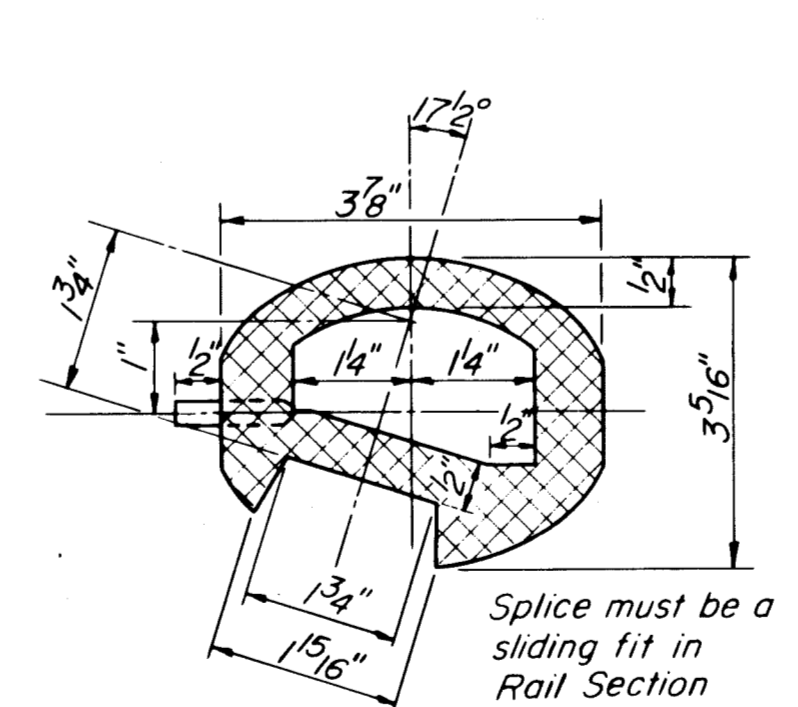
RAIL SPLICE



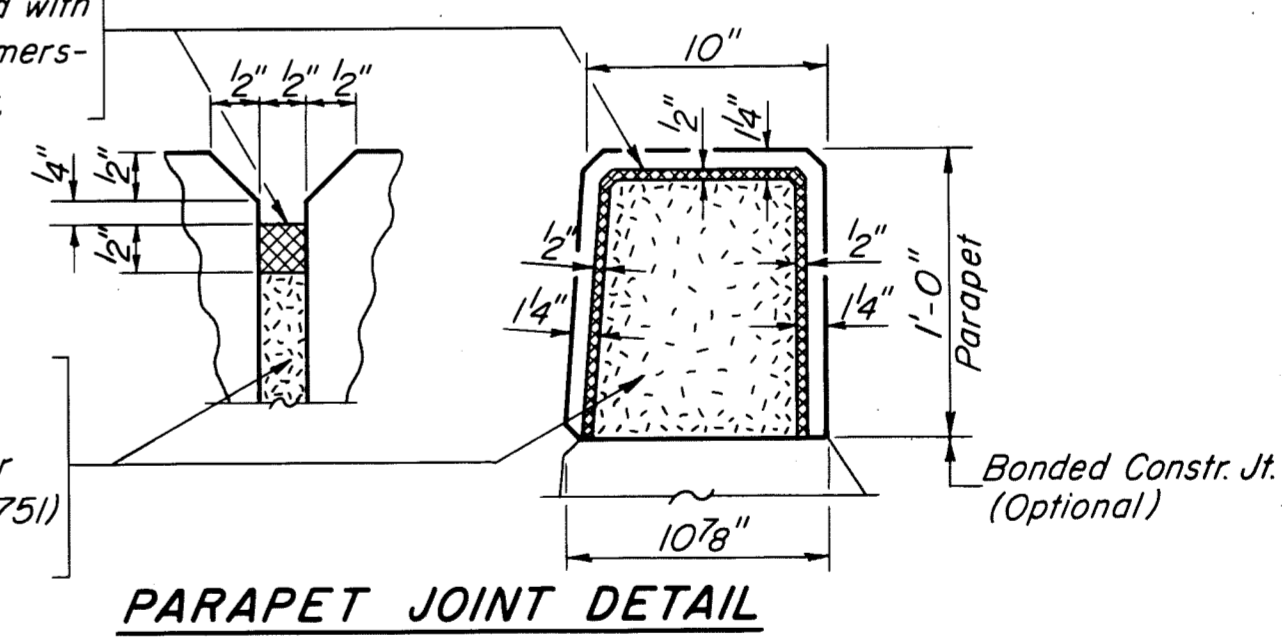
RAIL TERMINAL SECTION



SEC. THRU ELLIPTICAL RAIL SECTION



SEC. THRU SPLICE



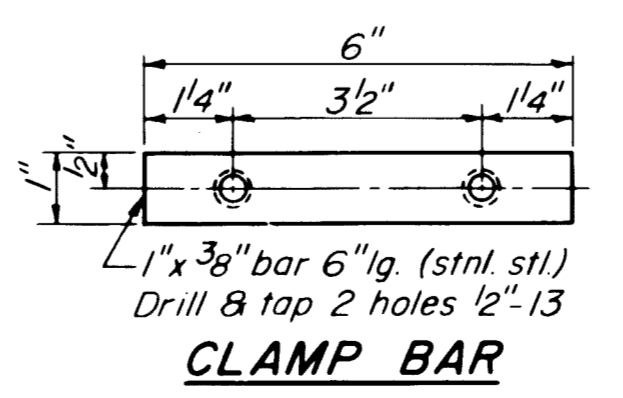
PARAPET JOINT DETAIL

Two component non-staining gray sealing compound with polysulfide liquid polymers-gun grade with primer.

1/2" Preformed Cork Asphalt Joint Filler. (meets qualifications for ASTM: Designation D 1751) Cost incidental.

NOTES:

All Aluminum Alloy Extruded Rail shall be supplied in modular lengths of 30 feet, except at the end of bridge or over open joints in bridge deck where the rail shall be attached to a minimum of 2 posts. If the rail is on a horizontal curve of 2300 foot radius or less, the modular lengths may be reduced but shall be attached to a minimum of 2 posts.  
All joints in rail shall be spliced per detail.  
Provide 1-1/8" and 2-1/16" Aluminum Shims for 25% of the Posts. Rail element shall be parallel to Grade - high spots shall be ground and low spots shimmed.  
Seal perimeter of base of post to parapet with two component non-staining gray sealing compound with polysulfide liquid polymers, gun grade with primer. Fabric Bearing Pad shall have same dimensions as base of post.  
Aluminum alloy rail shall conform to ASTM B221 alloy 6061-T6 or 6351-T5 with min. yield 35 ksi, min. tensile 38 ksi, and elongation of 10% in 2 inches.



CLAMP BAR

PARAPETS & RAILS  
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
e	48	#4	17'-6"	—
e1	64	#4	18'-4"	—
e2	64	#4	19'-0"	—
e3	24	#4	18'-0"	—
d3	204	#4	2'-1"	□
Reinforcement Bars			Lbs.	2730
Class X Concrete			Cu Yds.	30.1
Aluminum Railing			Lin. Ft.	976

ALUMINUM RAILING  
F.A.I. RT.55 SEC.53-6HB-2  
LIVINGSTON COUNTY  
STATION 501+41.31

DESIGNED	R. K. Mathur
CHECKED	Gary V. Banta
DRAWN	R. P. Summer
CHECKED	G. W. B.

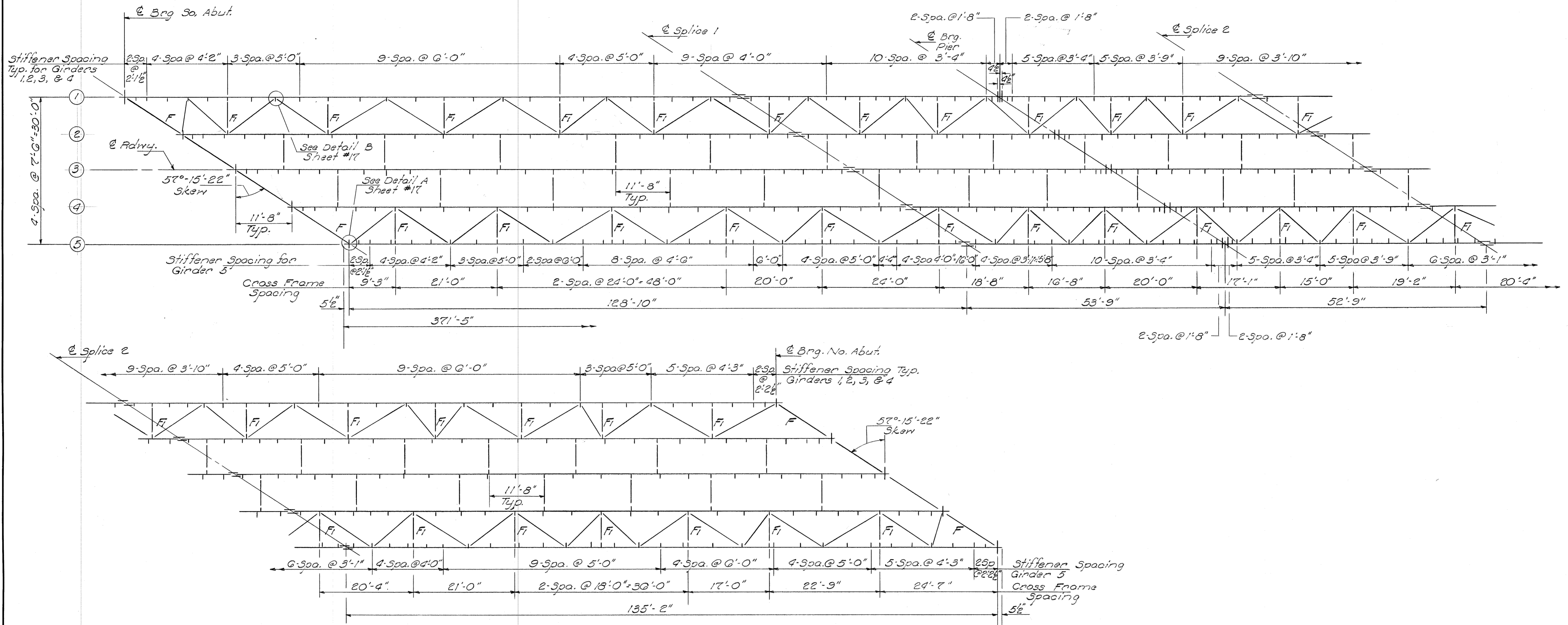
EXAMINED	[Signature]	1971
PASSED	W. E. Bannmann	ENGINEER OF DESIGN
APPROVED	Richard H. Motterman	CHIEF HIGHWAY ENGINEER

R-17 4-22-68 9-18-69 3-3-71



STATE OF ILLINOIS

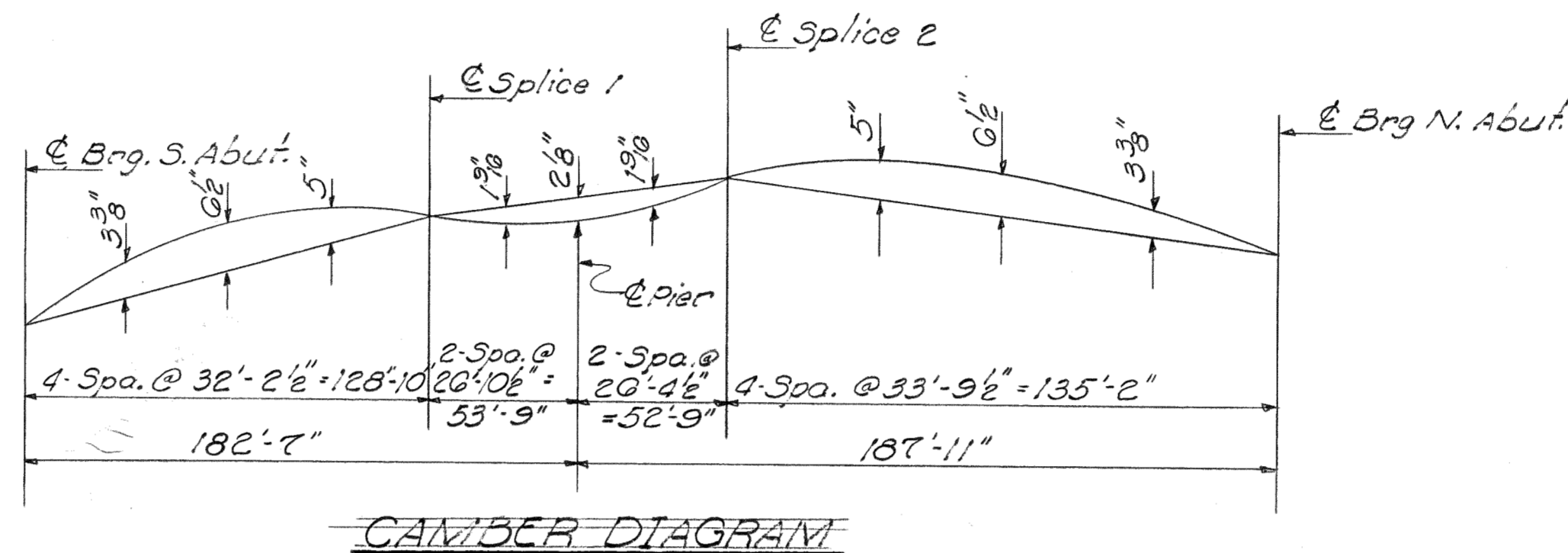
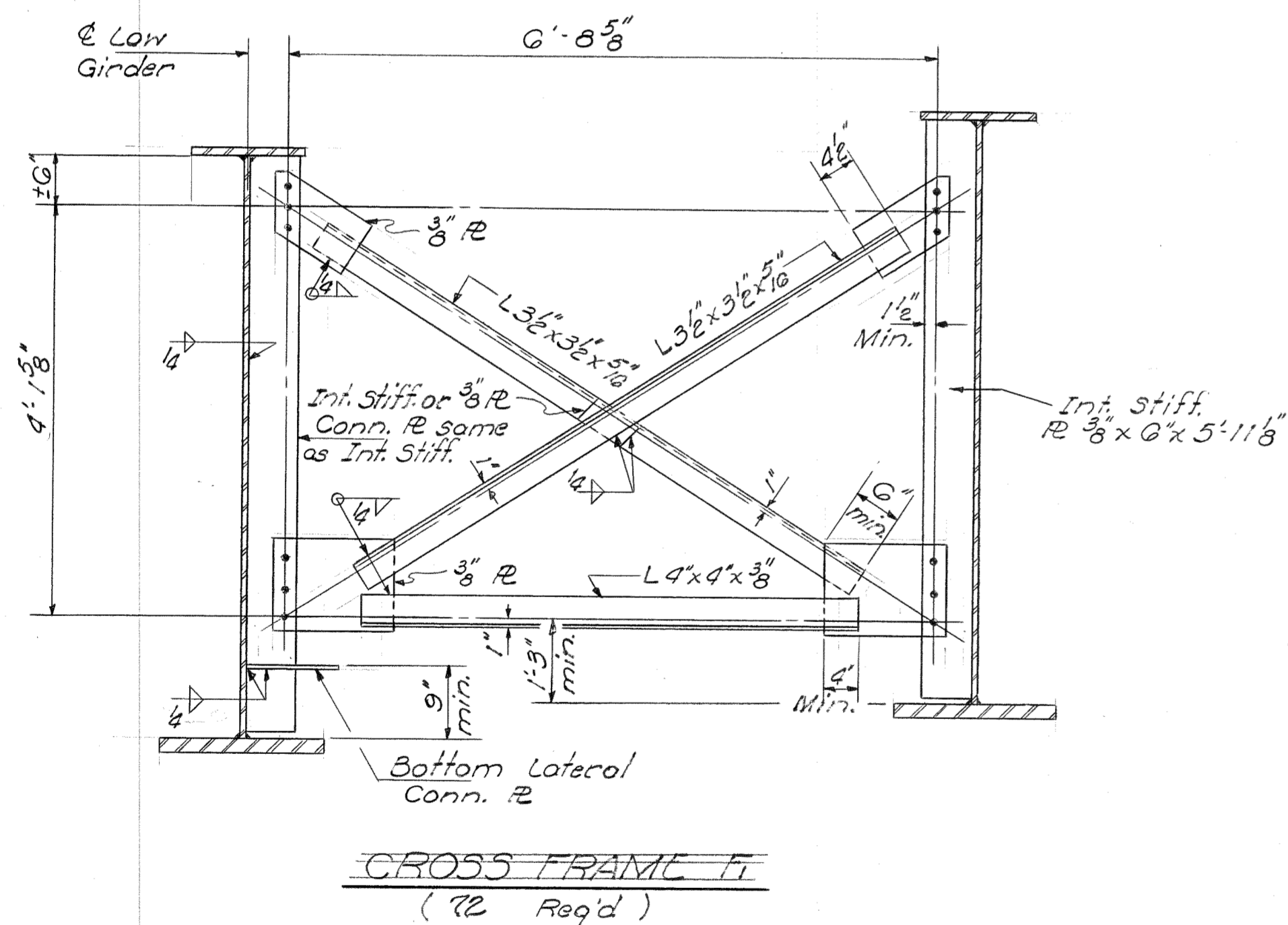
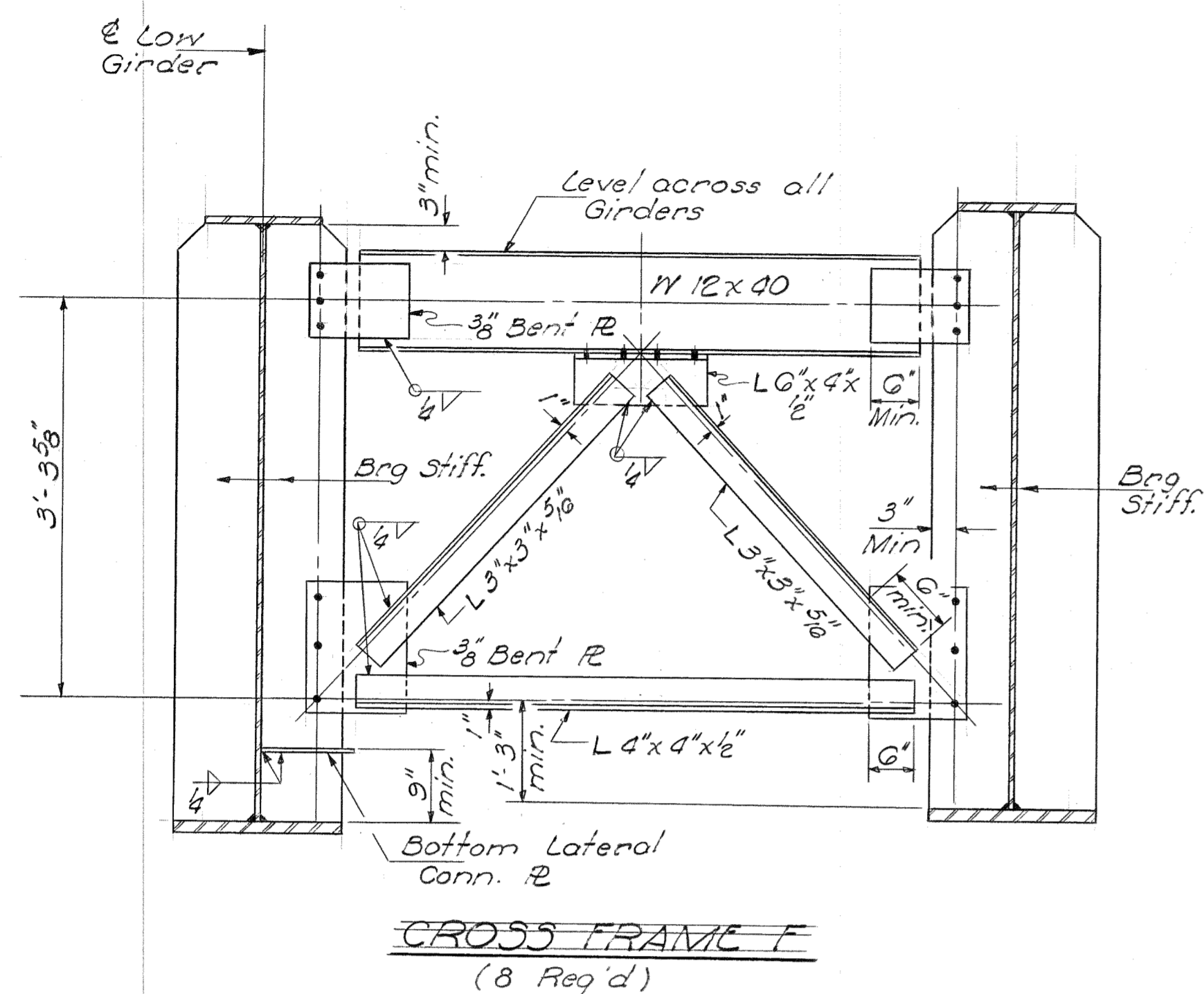
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO. 10 25 SHEETS
P.A. 1. 55	53-6 HB-2	Livingston	43	24	
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT			



FRAMING PLAN

DESIGNED	R. W. Matlun	EXAMINED	[Signature]
CHECKED	Jay W. Bost	PASSED	H. E. Baumann
DRAWN	J. SCHNELLER	APPROVED	Richard A. Nolteman
CHECKED	G. W. B.		

FRAMING PLAN  
 I. A. I. RT 55 SEC. 53-6 HB-2  
 LIVINGSTON COUNTY  
 STA. 501+41.31



**MOMENT TABLE**  
Composite 2 Span  
(Composite in Positive Moment Areas Only)

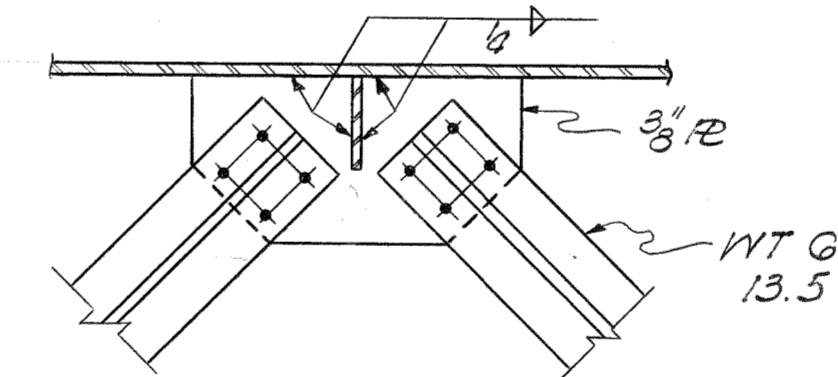
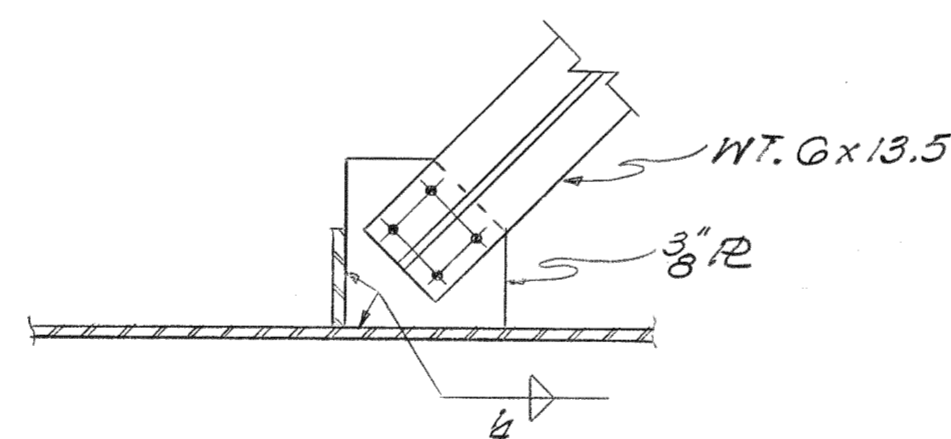
	0.4 Sp. 1	Pier	0.6 Sp. 2
$I_s$ (in <sup>4</sup> )	63716	188946	65911
$I_o$ (in <sup>4</sup> )	146138		153569
$S_o$ (in <sup>3</sup> )	2116	4845	2260
$S_s$ (in <sup>3</sup> )	2000		2838
$\phi$ (K/1)	.6	1.090	.6
$M_e$ (K)	1992	8108	2274
$f_s \phi$ (ksi)	11.3	20.1	12.1
$S_e$ (K/1)	.496		.496
$M_s \phi$ (K)	1120		1238
$M_e$ (K)	1850	2350	1940
$M_{imp}$ (K)	290	370	312
<b>TOTAL (K)</b>	<b>3200</b>	<b>2726</b>	<b>3490</b>
$f_s \phi + s_e$ (ksi)	14.7	6.80	14.8
$f_s$ TOTAL (ksi)	20.0	26.9	26.9
VR (K)	80		

**REACTION TABLE**

INT. GIR. REACTION TABLE	Abut.	Pier
R <sub>e</sub> (K)	71.5	207.2
R <sub>e</sub> + s <sub>e</sub> (K)	88.7	234.3
I <sub>ma</sub> (K)	8.6	19.1
<b>R<sub>TOTAL</sub> (K)</b>	<b>108.8</b>	<b>520.6</b>

$I_s$  &  $S_s$  are the moment of inertia and section modulus of the steel section.  
 $I_o$  &  $S_o$  are the moment of inertia and section modulus of the composite section used in computing  $f_s$ .

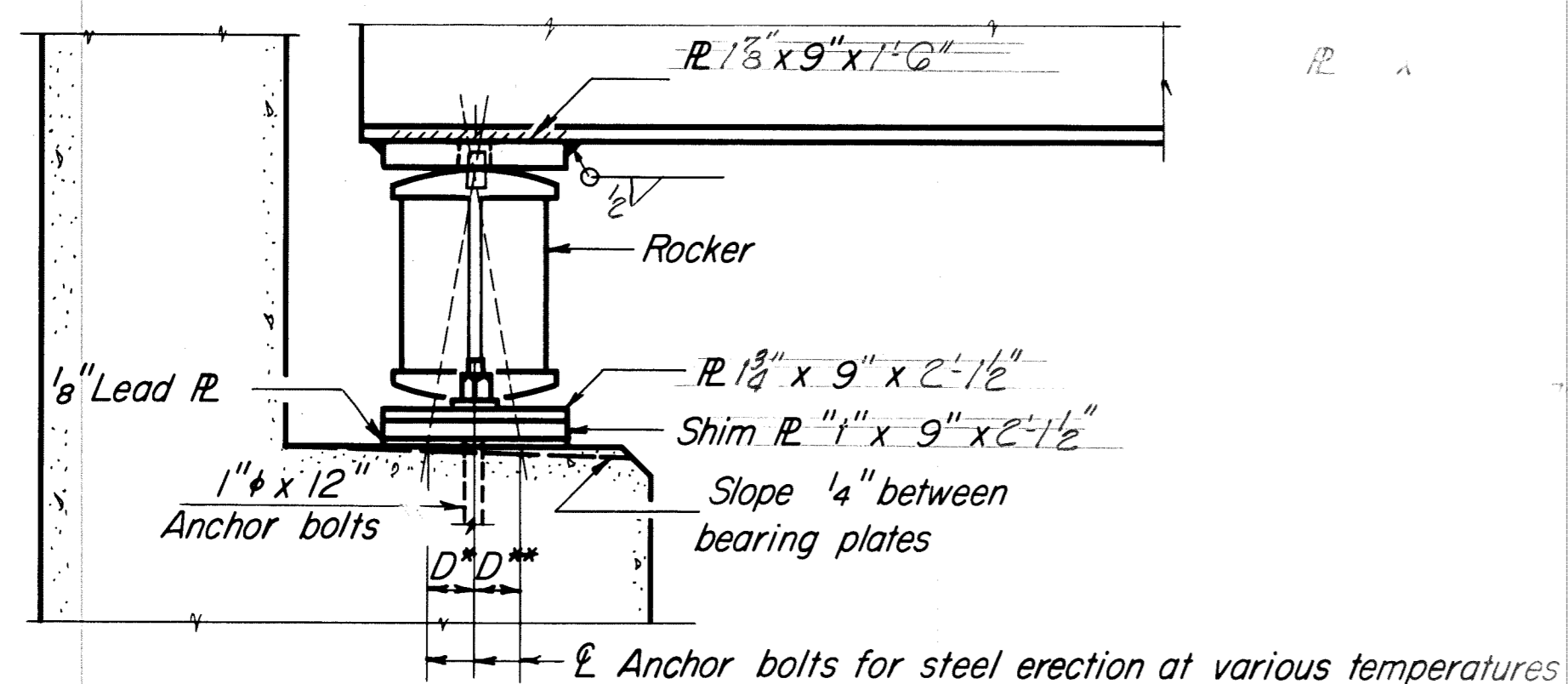
VR is the maximum  $\phi$  + Impact shear range.



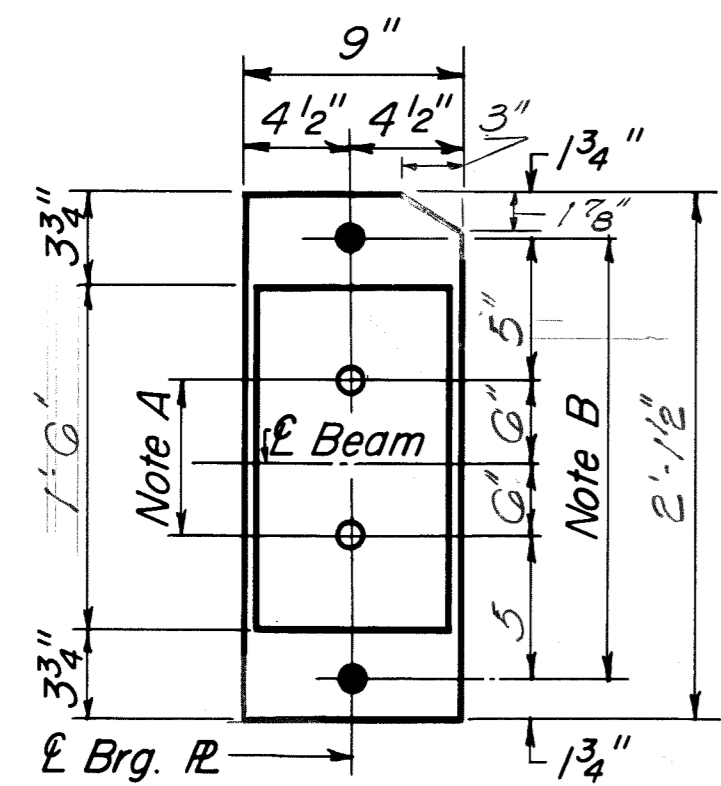
DESIGNED R. W. Mattum  
 CHECKED Gary W. Boster  
 DRAWN J. SCHNELLER  
 CHECKED G. W. R.

EXAMINED [Signature]  
 PASSED W. E. Baumann  
 APPROVED David H. Goetsman

STRUCTURAL STEEL  
 F.A.T. RT. 55 SEC. 53-6HB-2  
 LIVINGSTON COUNTY  
 STA. 501+41.31

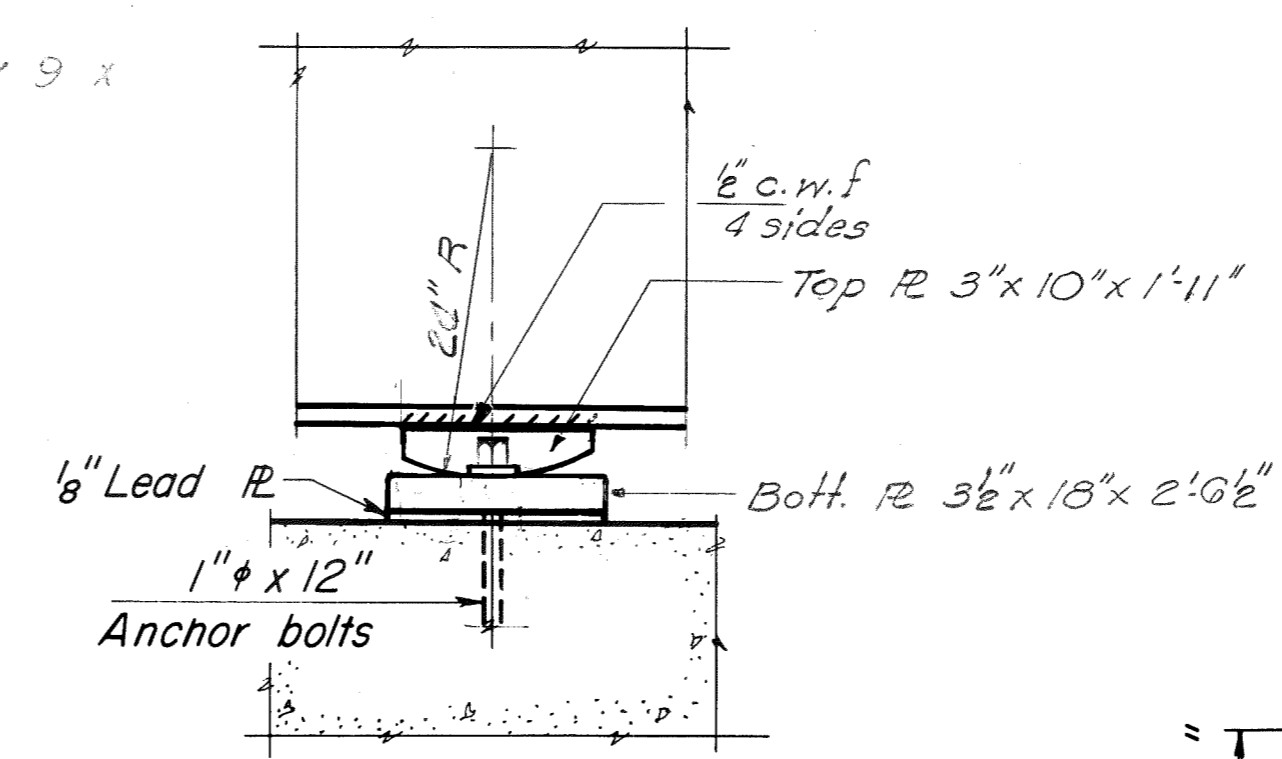


**SECTION**

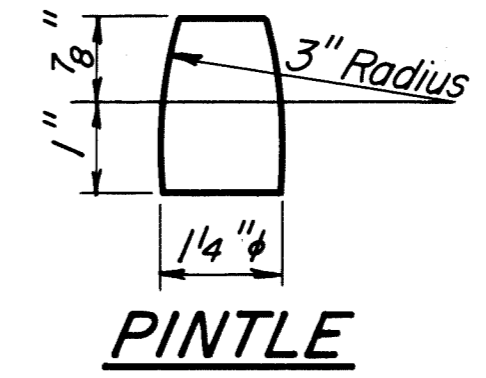


**PLAN AT ABUTMENT**

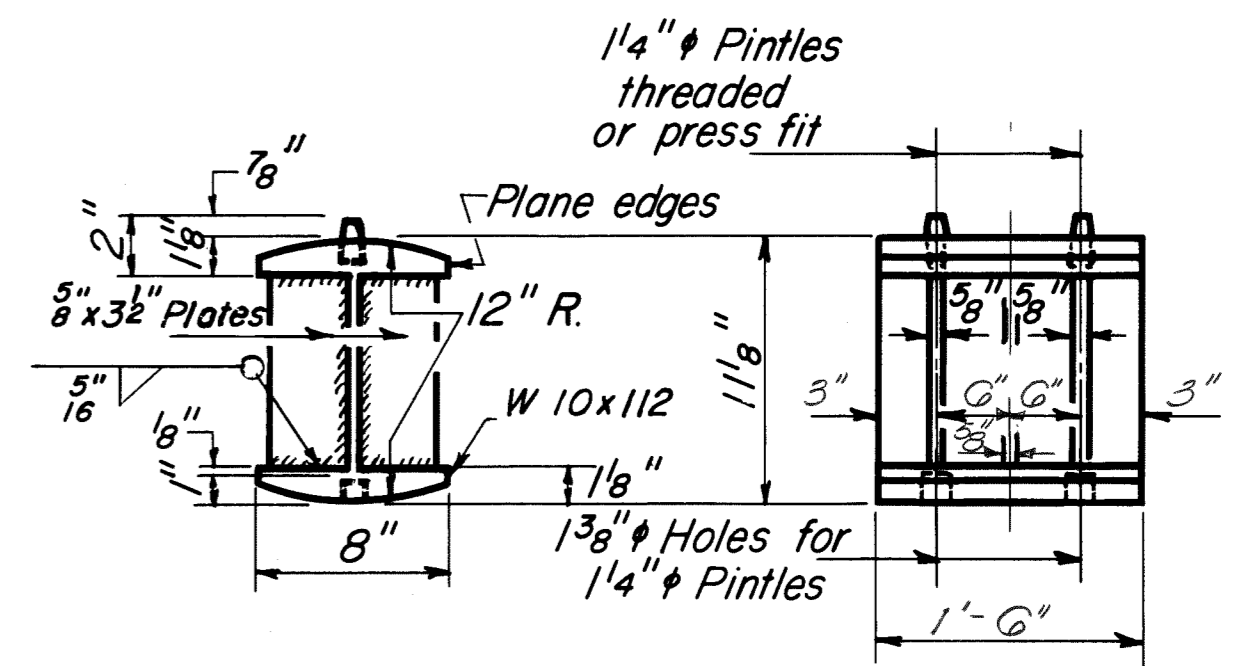
**NOTE A**  
1 3/8"  $\phi$  Holes - 1" deep in top R. for pintles. Thread or press fit pintles into bottom R.



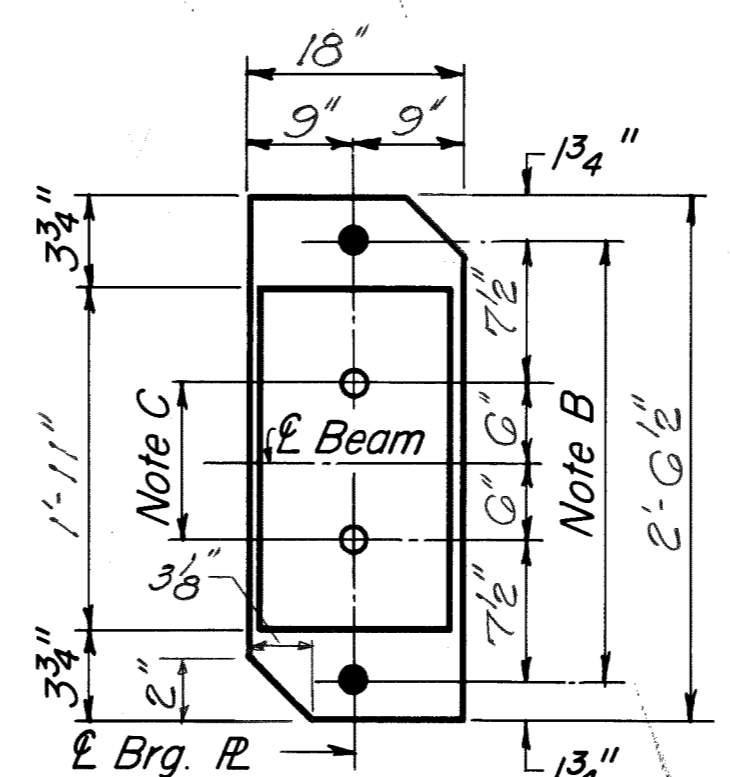
**ELEVATION**



**PINTLE**



**ROCKER**



**PLAN AT PIER**

**NOTE C**  
1 3/8"  $\phi$  Holes 1" deep in top R. only for 1 1/4"  $\phi$  pintles.

**BEARING ASSEMBLY DETAILS**

7 DIMENSIONS

Girder Location	1	2	3	4	5
So. Abutment	0	0	0	0	3/8"
No. Abutment	1/2"	0	0	0	0

**NOTES ON SETTING OF ANCHOR BOLTS AT EXP. BRGS.**

- a) D\* (Side of brg. away from fixed brg.)  
D\* = 1/8" per each 100' of expansion for every 15° fall below the normal temp. of 50°F.
- D\*\* (Side of brg. toward fixed brg.)  
D\*\* = 1/8" per each 100' of expansion for every 15° rise above the normal temp. of 50°F.
- b) After beams have been erected and dimensions D\* or D\*\* determined, holes shall be drilled and anchor bolts shall be grouted in place. All fixed anchor bolts may be built into the masonry.

DESIGNED	R. C. Mathews	EXAMINED	[Signature]
CHECKED	[Signature]	PASSED	[Signature]
DRAWN	P.G. Barnett	APPROVED	[Signature]
CHECKED	G.W.R.		

BEARING DETAILS  
F.A.I. RT. 55 SEC. 53-6HB-2  
LIVINGSTON COUNTY  
STA. 501+41.31