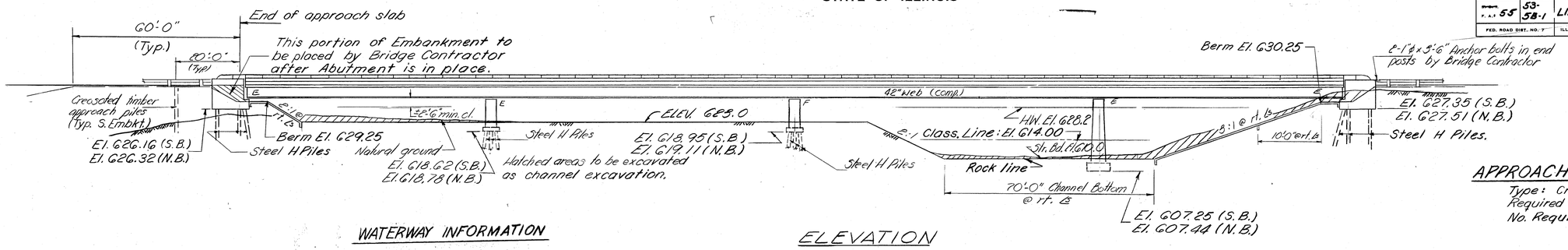
BM: #10 RR Spike in hedge corner post 300' Rt. Sta 188+00 - Elev 629.41

STATE OF ILLINOIS

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F. A. I. 55	53-5B-1	LIVINGSTON	29	7
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 1 18 SHEETS



ELEVATION

APPROACH PILE DATA

Type: Creosoted
Required Length: 16'-0"
No. Required: 12

WATERWAY INFORMATION

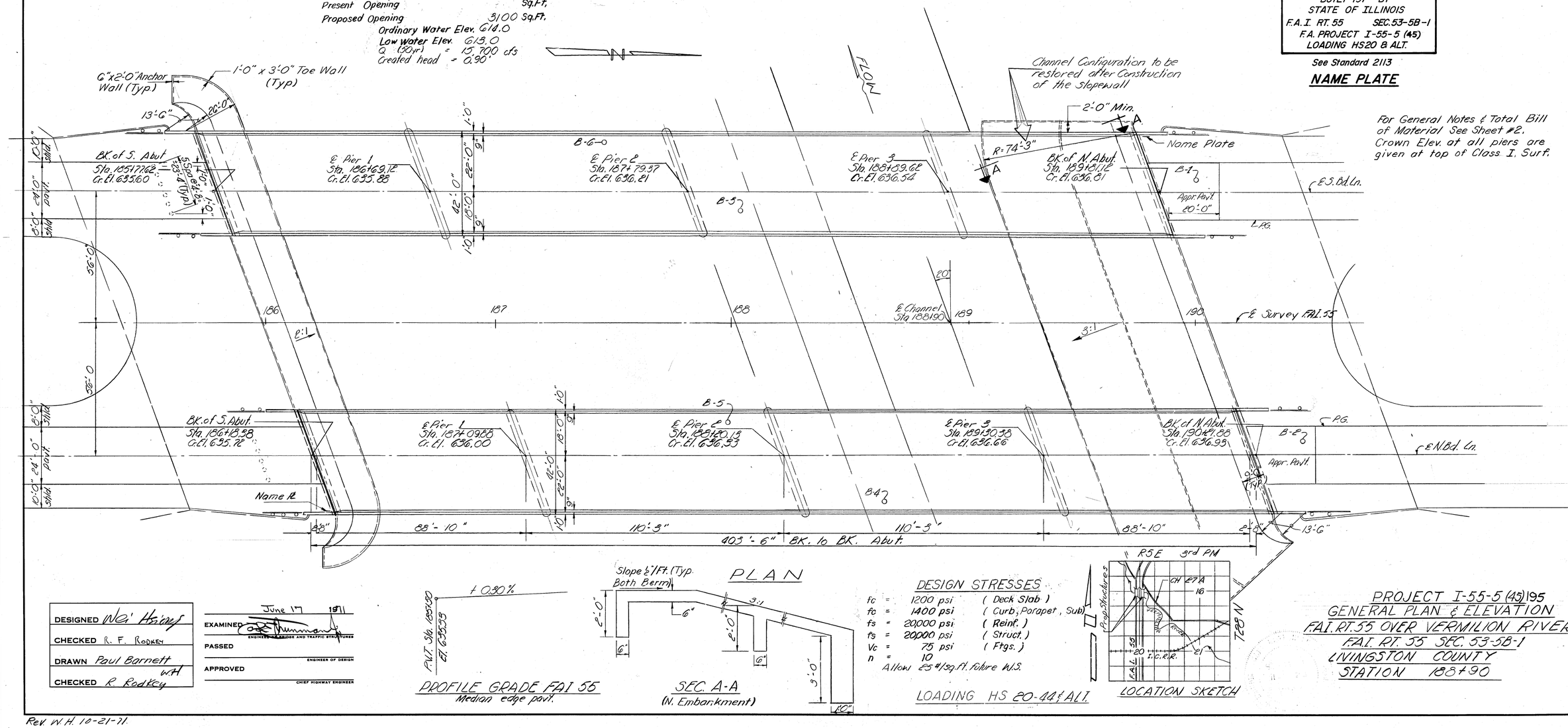
Drainage Area		587 Sq. mi.
Character		rolling timber
Required Opening	(50 yr. flood)	3100 Sq. Ft.
Present Opening		Sq. Ft.
Proposed Opening		3100 Sq. Ft.
Ordinary Water Elev.		614.0
Low Water Elev.		613.0
Q (50 yr)	=	15,700 cfs
Created head	=	0.90'

STATION 188+90
BUILT 197 BY
STATE OF ILLINOIS
F.A.I. RT. 55 SEC. 53-5B-1
F.A. PROJECT I-55-5 (45)
LOADING HS20 & ALT.

See Standard 2113

NAME PLATE

For General Notes & Total Bill of Material See Sheet #2.
Crown Elev. at all piers are given at top of Class I. Surf.



PLAN

PROFILE GRADE FAI 55
Median edge pavt.

SEC. A-A
(N. Embankment)

DESIGN STRESSES

fc	=	1200 psi	(Deck Slab)
fc	=	1400 psi	(Curb, Parapet, Sub)
fs	=	20000 psi	(Reinf.)
fs	=	20000 psi	(Struct.)
Vc	=	75 psi	(Ftgs.)
n	=	10	

Allow 25 #/Sq. Ft. future W.S.

LOADING HS 20-44 & ALT.

LOCATION SKETCH

DESIGNED	W.A. Hsieng
CHECKED	R. F. Rodkey
DRAWN	Paul Barnett
CHECKED	R Rodkey WH

EXAMINED June 17 1971
ENGINEER OF BRIDGE AND TRAFFIC STRUCTURES
PASSED
ENGINEER OF DESIGN
APPROVED
CHIEF HIGHWAY ENGINEER

PROJECT I-55-5 (45) 195
GENERAL PLAN & ELEVATION
F.A.I. RT. 55 OVER VERMILION RIVER
F.A.I. RT. 55 SEC. 53-5B-1
LIVINGSTON COUNTY
STATION 188+90

Rev W.H. 10-21-71

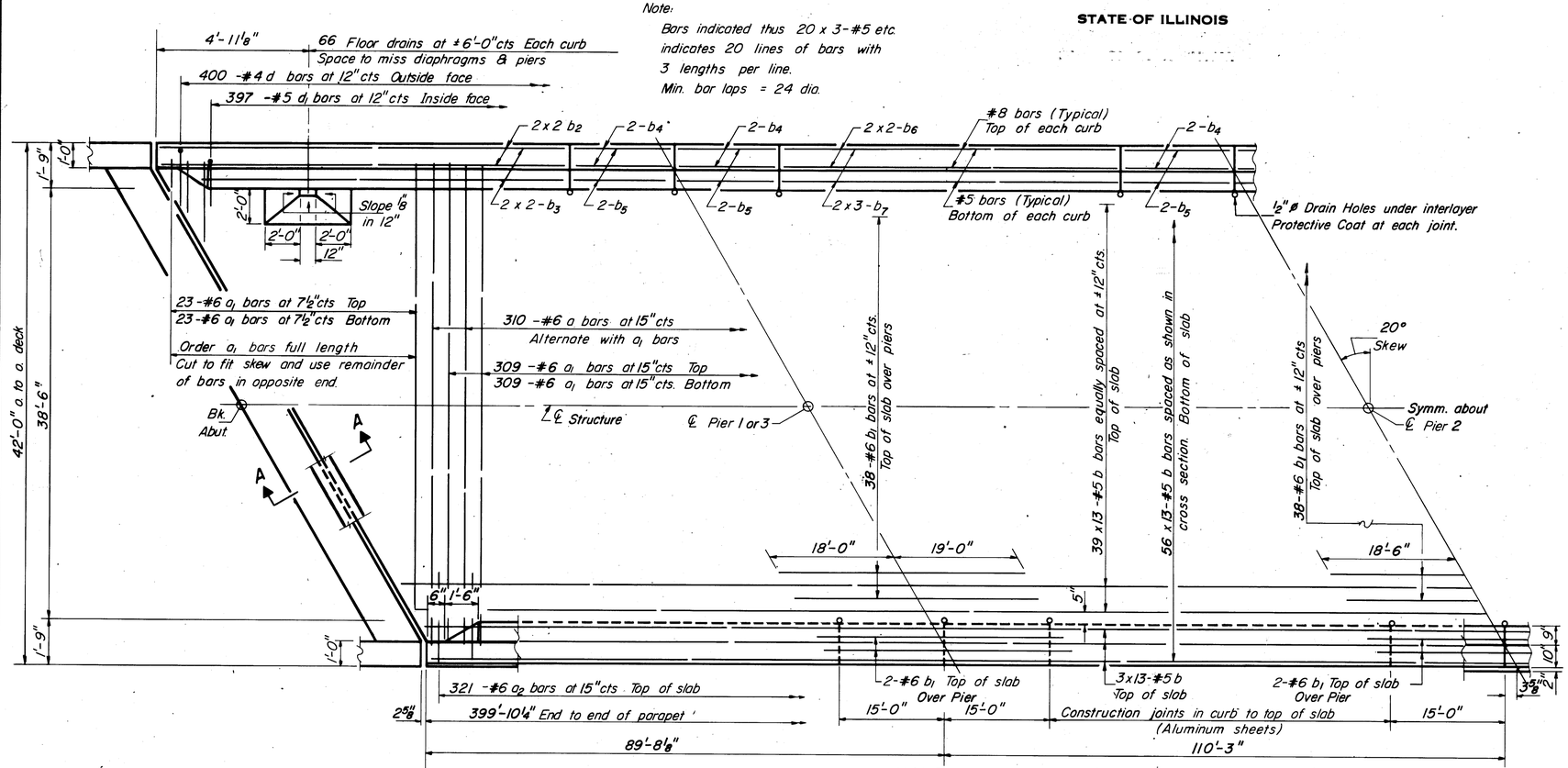
*K & E CO. 19-1253

STATE OF ILLINOIS

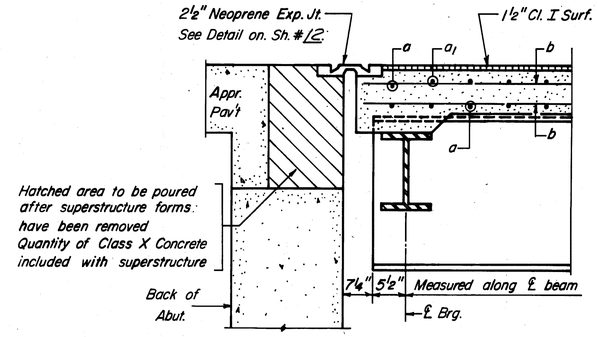
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.I. 55	53-5B-1	LIVINGSTON	29	9
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 3 / 18 SHEETS

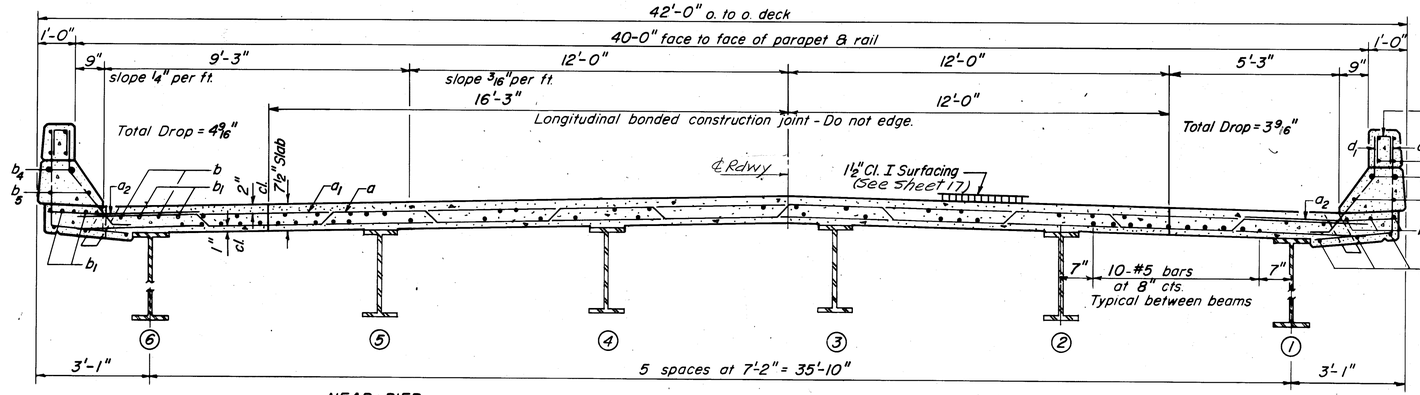
Note:
Bars indicated thus 20 x 3-#5 etc. indicates 20 lines of bars with 3 lengths per line.
Min. bar laps = 24 dia.



HALF PLAN



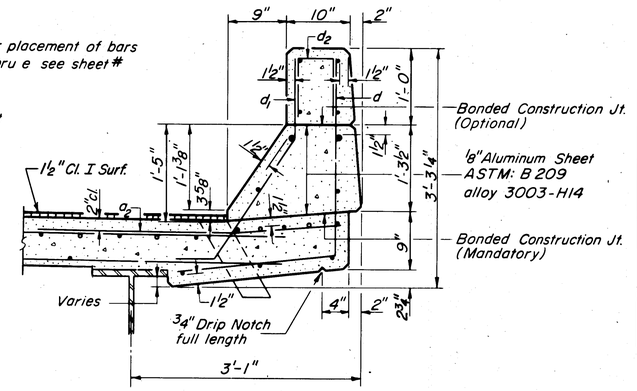
SECTION A-A



NEAR PIER NEAR MIDSPAN

CROSS SECTION
SBL LOOKING NORTH
NBL LOOKING SOUTH

Note: For placement of bars d_2 & e thru e see sheet #



CURB SECTION

Cost of Aluminum Drains and Sheets shall be incidental to Class X Concrete

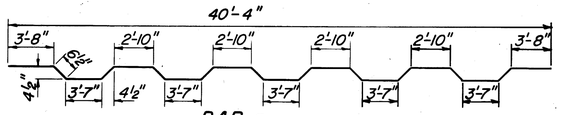
TWO BRIDGES
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a	620	#6	42'-0"	
a_1	1328	#6	40'-6"	
a_2	1284	#6	4'-0"	
b	2626	#5	32'-0"	
b_1	252	#6	37'-0"	
b_2	32	#8	38'-3"	
b_3	32	#5	37'-9"	
b_4	48	#8	14'-9"	
b_5	48	#5	14'-9"	
b_6	32	#8	41'-0"	
b_7	48	#5	27'-6"	
d	1600	#4	4'-9"	
d_1	1588	#5	3'-9"	
Reinforcement Bars			Lbs.	252,590
Class X Concrete			Cu. Yds.	927.5

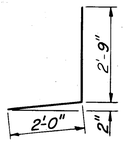
DESIGNED	W. E. Haines
CHECKED	R. F. Rodkey
DRAWN	P. Barnett
CHECKED	R. Rodkey

EXAMINED June 17 1971
ENGINEER OF BRIDGES AND TRAFFIC STRUCTURES
PASSED
ENGINEER OF DESIGN
APPROVED
CHIEF HIGHWAY ENGINEER

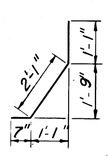
I-4 to 6-R (>15° thru 30°) 3-1-68, 12-3-69



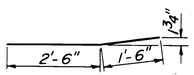
BAR a



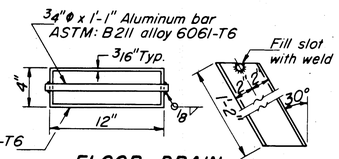
BAR d



BAR d_1



BAR a_2



FLOOR DRAIN

Aluminum Sheets Welded
ASTM: B209 alloy 6061-T6
or Aluminum Extrusions
ASTM: B221 alloy 6061-T6

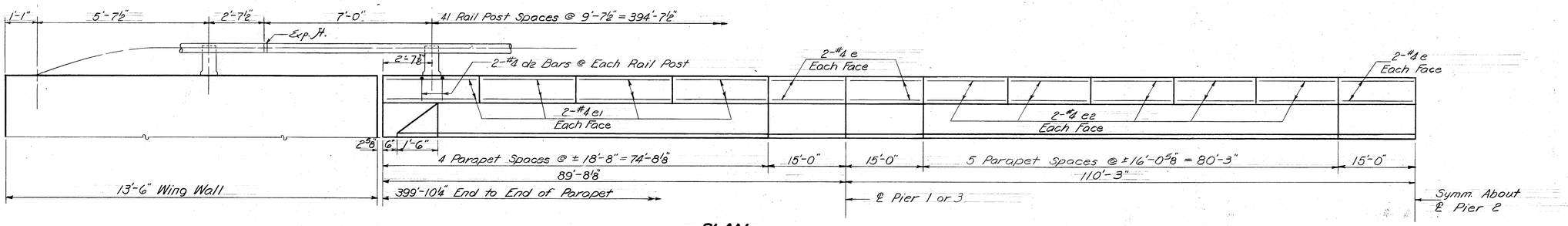
The lengths and quantities of longitudinal reinforcement and Class X Concrete in parapets are not included in above quantities. See sheet

SUPERSTRUCTURE
F.A.I. RT. 55 SEC. 53-5B-1
LIVINGSTON COUNTY
STA. 188+90

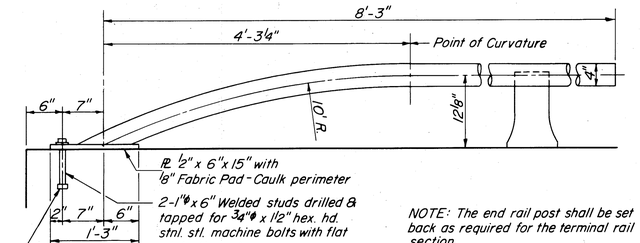
STATE OF ILLINOIS

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.I. 55	53-5B-1	LIVINGSTON	29	10
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

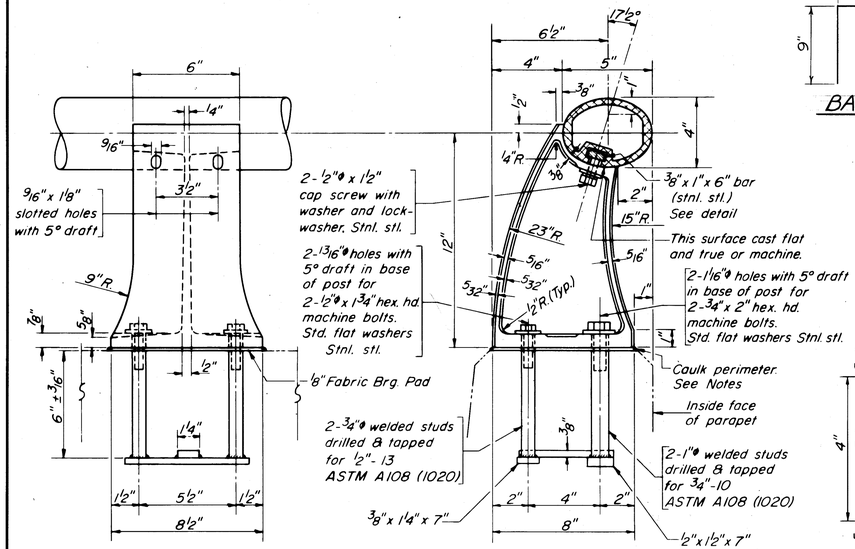
SHEET NO. 4
SHEETS



PLAN

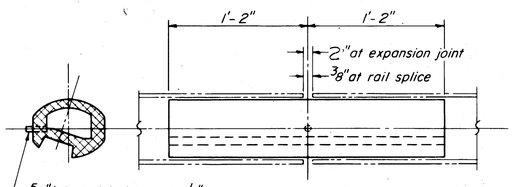


NOTE: The end rail post shall be set back as required for the terminal rail section.

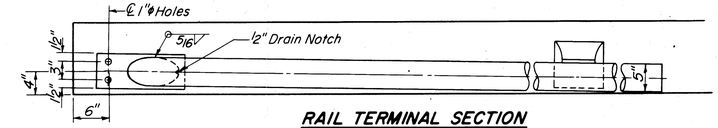


RAIL POST DETAILS

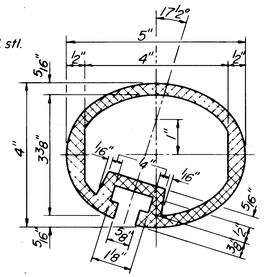
BAR d2



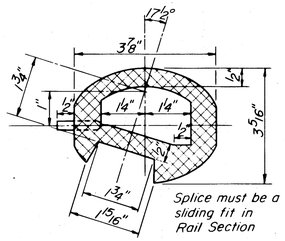
RAIL SPLICE



RAIL TERMINAL SECTION

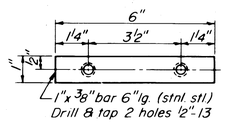


SEC. THRU ELLIPTICAL RAIL SECTION



Splice must be a sliding fit in Rail Section

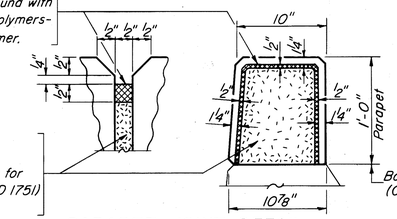
SEC. THRU SPLICE



CLAMP BAR

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

½" Preformed Cork Asphalt Joint Filler. (meets qualifications for ASTM: Designation D 1751) Cost incidental.



PARAPET JOINT DETAIL

PARAPETS & RAILS BILL OF MATERIAL

Bar	No.	Size	Length	Shape
d2	336	#4	2'-1"	
"		"		
e	96	#4	14'-9"	
e1	128	#4	18'-5"	
e2	160	#4	15'-9"	
Reinforcement Bars		Lbs.	4670	
Class X Concrete		Cu. Yds.	51.5	
Aluminum Railing		Lin. Ft.	1701	

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 - ⅛" 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.

DESIGNED	N.G. Hisey
CHECKED	R. F. Rodkey
DRAWN	C.E. Wilkins
CHECKED	R Rodkey

EXAMINED June 17 1971
ENGINEER OF BRIDGE AND TRAFFIC STRUCTURES
PASSED
ENGINEER OF DESIGN
APPROVED
CHIEF HIGHWAY ENGINEER

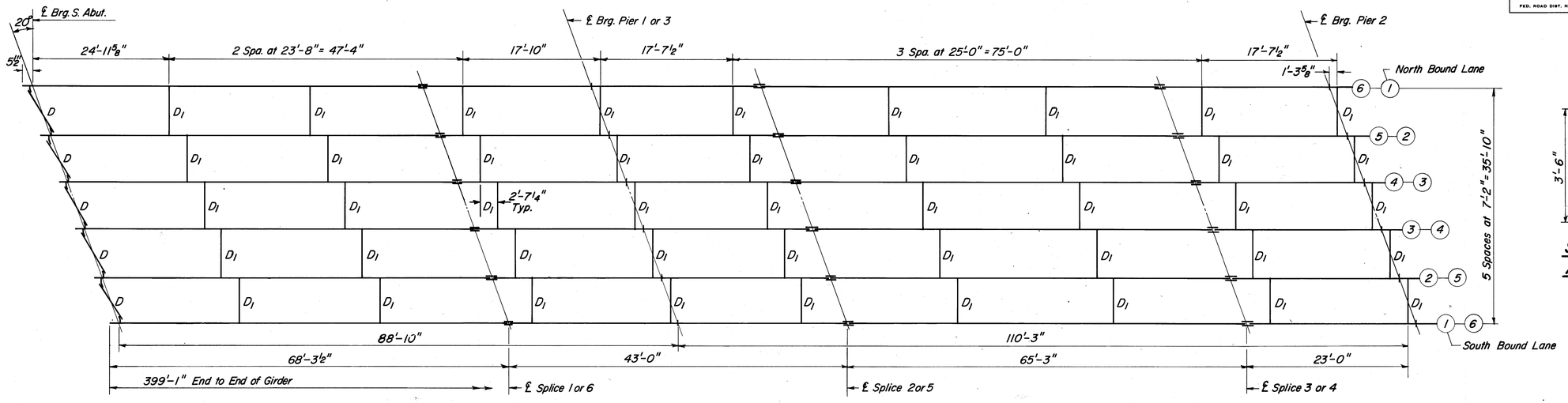
R-17 4-22-68 9-18-69 3-3-71

ALUMINUM RAILING
F.A.I. RT. 55 SEC. 53-5B-1
LIVINGSTON COUNTY
STA. 188+90

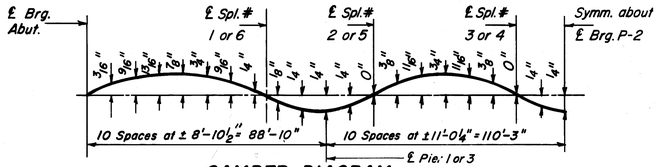
STATE OF ILLINOIS

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F. A. I. 55	53-5B-1	LIVINGSTON	29	11
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

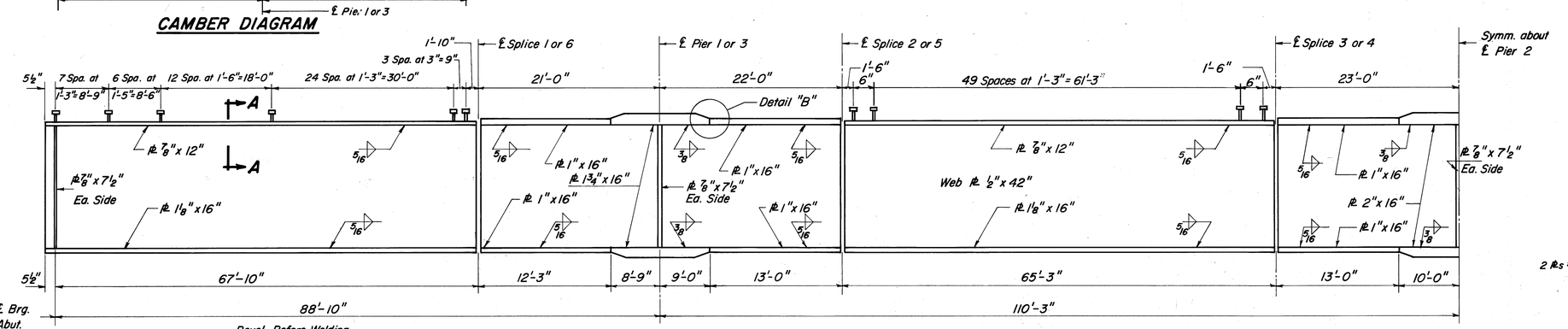
SHEET NO. 5
18 SHEETS



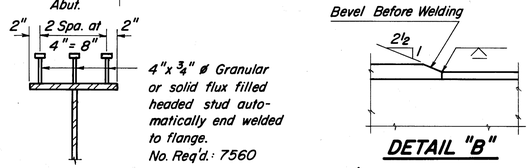
HALF FRAMING PLAN



CAMBER DIAGRAM



HALF GIRDER ELEVATION



SECTION A-A

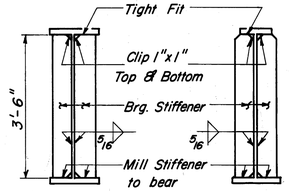
DETAIL "B"

TOP OF WEB ELEVATIONS

For fabrication only.*

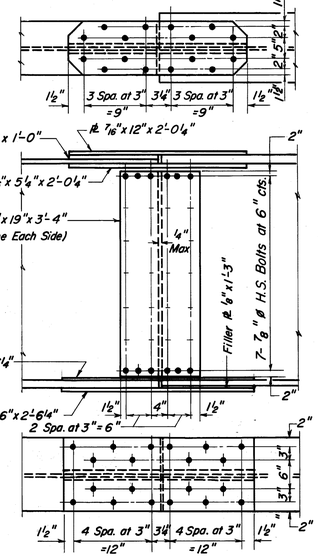
GIRDER \ LOC.	℄ BRG. S. ABUT.	℄ SPL. #1	℄ PIER #1	℄ SPL. #2	℄ SPL. #3	℄ PIER #2	℄ SPL. #4	℄ SPL. #5	℄ PIER #3	℄ SPL. #6	℄ BRG. N. ABUT
SOUTH BOUND LANE											
1	634.50	634.65	634.69	634.78	634.95	635.00	635.09	635.30	635.35	635.43	635.69
2	634.62	634.77	634.81	634.90	635.07	635.12	635.21	635.42	635.47	635.55	635.81
3	634.73	634.88	634.92	635.01	635.18	635.23	635.32	635.53	635.58	635.66	635.92
4	634.66	634.81	634.85	634.94	635.11	635.16	635.25	635.46	635.51	635.59	635.85
5	634.53	634.68	634.72	634.81	634.98	635.03	635.12	635.33	635.38	635.46	635.72
6	634.38	634.53	634.57	634.66	634.83	634.88	634.97	635.18	635.23	635.31	635.57
NORTH BOUND LANE											
1	634.58	634.73	634.77	634.86	635.03	635.08	635.17	635.38	635.43	635.51	635.77
2	634.72	634.87	634.91	635.00	635.17	635.22	635.31	635.52	635.57	635.65	635.91
3	634.84	634.99	635.03	635.12	635.29	635.34	635.43	635.64	635.69	635.77	636.03
4	634.79	634.94	634.98	635.07	635.24	635.29	635.38	635.59	635.64	635.72	635.98
5	634.68	634.83	634.87	634.96	635.13	635.18	635.27	635.48	635.53	635.61	635.87
6	634.54	634.69	634.73	634.82	634.99	635.04	635.13	635.34	635.39	635.47	635.73

*Elev. have been adjusted for camber



SECTION AT PIER

SECTION AT ABUTMENT



FIELD SPLICE DETAIL

DESIGNED	W. C. Hsiung
CHECKED	R. F. Rodkey
DRAWN	P. Barnett
CHECKED	R. Rodkey

June 17 1971

EXAMINED — ENGINEER OF BRIDGE AND TRAFFIC STRUCTURES

PASSED — ENGINEER OF DESIGN

APPROVED — CHIEF HIGHWAY ENGINEER

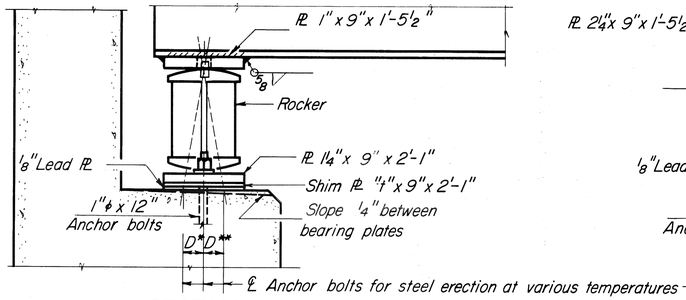
STRUCTURAL STEEL

F.A.I. RT. 55 SEC. 53-5B-1 LIVINGSTON COUNTY STA. 188+90

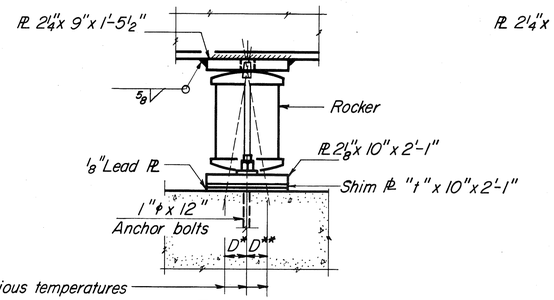
STATE OF ILLINOIS

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.I. 55	53-5B-1	LIVINGSTON	29	12
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

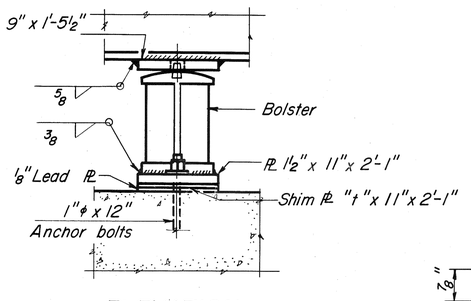
SHEET NO. 6
18 SHEETS



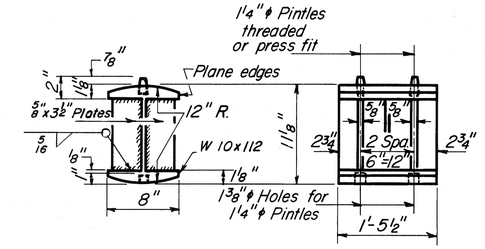
SECTION



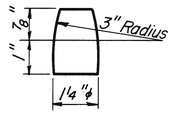
ELEVATION



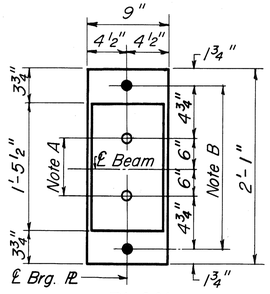
ELEVATION



ROCKER



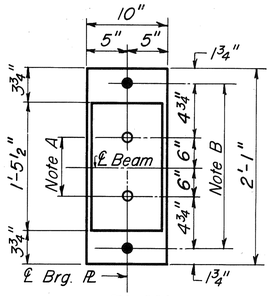
PINTLE



PLAN

AT ABUTMENT

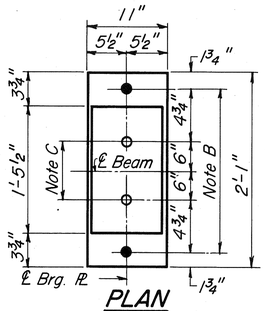
NOTE A
1⅜" ϕ Holes – 1" deep in top PL for pintles. Thread or press fit pintles into bottom PL.



PLAN

AT PIERS 1&3

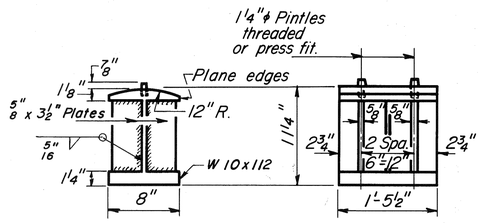
NOTE B
1½" ϕ Holes for 1" ϕ anchor bolts. 5/16" x 2½" x 2½" PL. Washers under nut.



PLAN

AT PIER 2

NOTE C
1⅜" ϕ Holes 1" deep in top PL only for 1¼" ϕ pintles.



BOLSTER

NOTES ON SETTING OF ANCHOR BOLTS AT EXP. BRGS.

a) D* (Side of brg. away from fixed brg.)
D* = ⅛" per each 100' of expansion for every 15° fall below the normal temp. of 50°F.
D** (Side of brg. toward fixed brg.)
D** = ⅛" 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.

BEARING ASSEMBLY DETAILS

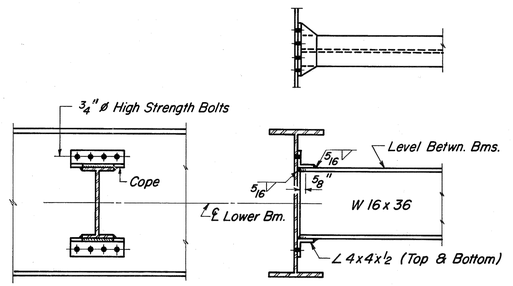
INTERIOR GIRDER MOMENT TABLE

	.4 Span 1	Pier 1	.5 Span 2	Pier 2
Is (in.4)	15745	29884	15745	34063
Ic (in.4)	40309		40309	
Ss (in.3)	836	1314	836	1481
Sc (in.3)	1136		1136	
ℓ (K/ℓ)	.89	1.43	.89	1.43
Mℓ ('K)	458	1435	385	1496
fsℓ (K.S.I)	6.6	13.1	5.5	12.1
sℓ (K/')	.54		.54	
Msℓ ('K)	323		322	
Mℓ ('K)	734	606	764	682
Mimp ('K)	172	135	163	145
Total ('K)	1229	741	1249	827
fsℓ (K.S.I)	13.0	6.8	13.2	6.7
fs Total (K.S.I)	19.6	19.9	18.7	18.8
VR (K)	46.2		48.1	

I_s and S_s are the moment of inertia and section modulus of the steel section.
I_c and S_c are the moment of inertia and section modulus of the composite sec. used in computing fs.
VR is the maximum L + impact shear range in span.

INTERIOR GIRDER REACTION TABLE

	Abut.	Pier 1 or 3	Pier 2
Rℓ (K)	47.4	157.9	158.8
Rℓ (K)	41.2	65.6	68.2
Imp. (K)	9.6	14.6	14.5
R Total (K)	98.2	238.1	241.5



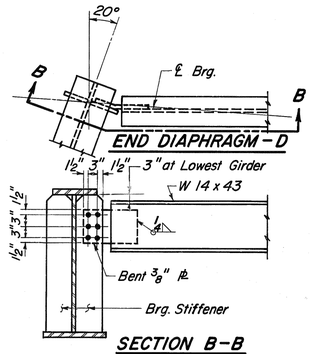
INTERIOR DIAPHRAGM D1

170 Required

SHIM PLATE THICKNESS "t"

(At All Supports)

Loc. / Bm	1	2	3	4	5	6
South Bound	0	0	0	½"	⅜"	0
North Bound	½"	½"	⅝"	0	0	0



SECTION B-B

DESIGNED	W.A. Hyary
CHECKED	R. F. Robley
DRAWN	P.G. Barnett
CHECKED	R Rodkey

EXAMINED June 17 1971
ENGINEER OF BRIDGE AND TRAFFIC STRUCTURES
PASSED
ENGINEER OF DESIGN
APPROVED
CHIEF HIGHWAY ENGINEER

I-2-B 9-1-65, 8-1-70

BEARING DETAILS

F.A.I. RT. 55 SEC. 53-5B-1
LIVINGSTON COUNTY
STATION 188+90