Jefferson Sec 113BK, 113BR-1, 113BR-3

95%
11-24-90

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED FEDERAL AID HIGHWAY

SCALE IN FEET

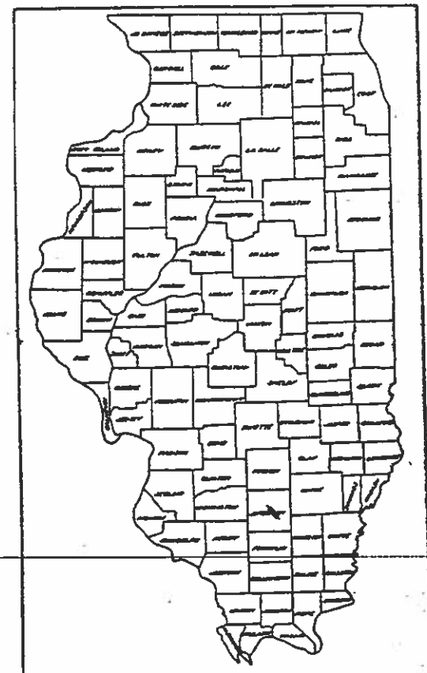
SCALE — PLAN, PROFILE HORIZ., PROFILE VERT., CROSS SECTION HORIZ., CROSS SECTION VERT.

F.A. ROUTE 849 (ILL. RTE. 142)
SECTION 113BR, 113 BR-1, 113 BR-3
PROJECT ACBHF-ACF-849(6)
JEFFERSON COUNTY

C-97-031-88

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
S.B.I. 142	*	JEFFERSON	3 SETS	1

* 113 BR, 113 BR-1, 113 BR-3
P 97-021-84
P 97-020-84
P 97-016-84



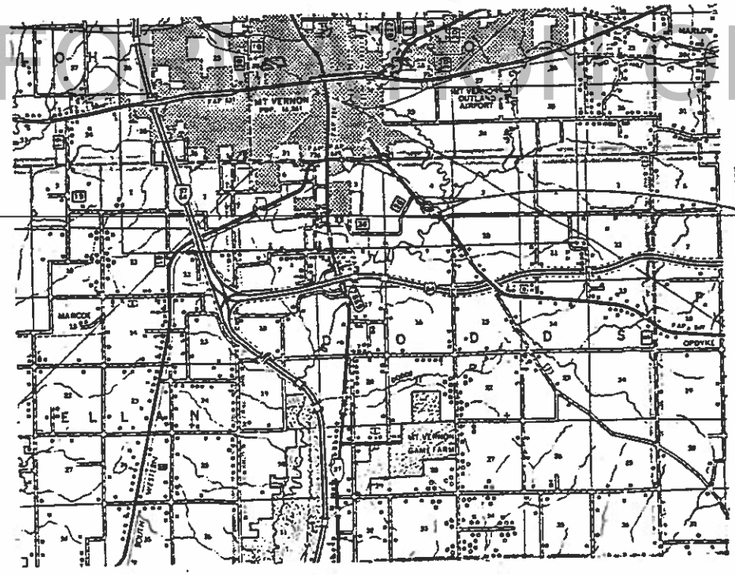
LOCATION OF SECTION INDICATED THUS:—

COMBINED INDEX OF SHEETS

SHEET NO.	TITLE
1	TITLE SHEET
2	SUMMARY OF QUANTITIES
3-4	STAGE CONSTRUCTION DETAILS
1-23	PLANS FOR SECTION 113 BR (SET 1 OF 3)
1-27	PLANS FOR SECTION 113 BR-1 (SET 2 OF 3)
1-22	PLANS FOR SECTION 113 BR-3 (SET 3 OF 3).

THE FOLLOWING STANDARDS ARE A PART OF THESE PLANS AND ARE INCLUDED AFTER SET NO. 3 OF 3 SETS

STD. NO.	DESCRIPTION
1686-4	SYMBOLS AND ABBREVIATIONS
1744-4	RIGHT OF WAY MARKERS
2113-2	NAME PLATE FOR BRIDGES
2230-15	STEEL PLATE BEAM GUARD RAIL TYPES A, B, C, & D
2262-4	PRECAST REINFORCED CONCRETE FLARED END SECTION
2298-7	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES
2299-10	DESIGN OF TRAFFIC CONTROL DEVICES
2300-3	FLAGMAN TRAFFIC CONTROL SIGN
2301-5	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES
2302-5	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES
2305-5	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES
2306-6	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES
2307-6	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES
2308-5	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES
2311-8	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES
2323-11	PAVEMENT JOINTS
2324-6	BRIDGE APPROACH SHOULDER PAVEMENT
2336-4	TRAFFIC BARRIER TERMINAL, TYPE I AND TYPE IA
2341-1	TRAFFIC BARRIER TERMINAL, TYPE S
2381	TEMPORARY EROSION CONTROL SYSTEMS
2382-2	BRIDGE APPROACH PAVEMENT
2383-1	TEMPORARY CONCRETE BARRIER
2409-1	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES
2427	CLASS C AND D PATCHES



LAYOUT MAP
0 1 2 Miles
APPROXIMATE SCALE

LOCATION OF PROJECTS
FA. RTE. 849
SECTION 113BR, 113BR-1, 113BR-3
CASEY FORK
BEGIN STA. 109+00
ENDS STA. 129+00

NET LENGTH OF PROJECT = 2000 FEET = 0.379 MILES

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
Oct 3 88
M. R. Segal
DEC 16 88
Dan Hyde
DEC 16 88
DEC 16 88
DIRECTOR OF HIGHWAYS

CONTRACT NO. 94034

041-0041 11204

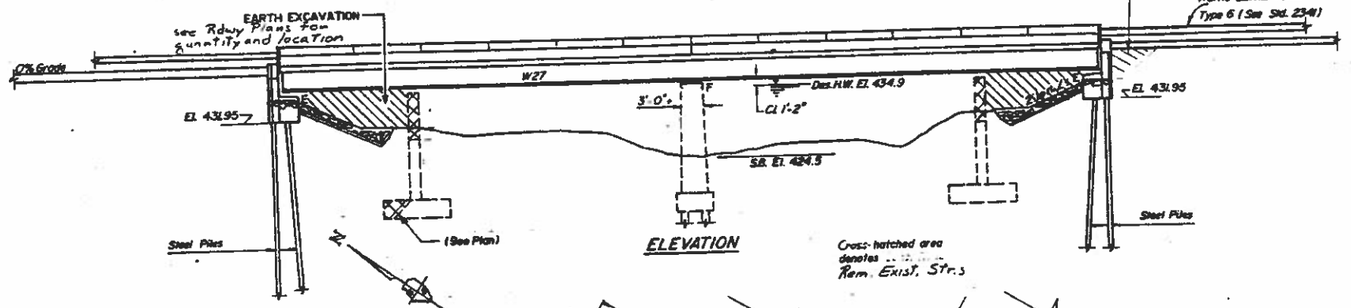
7-105

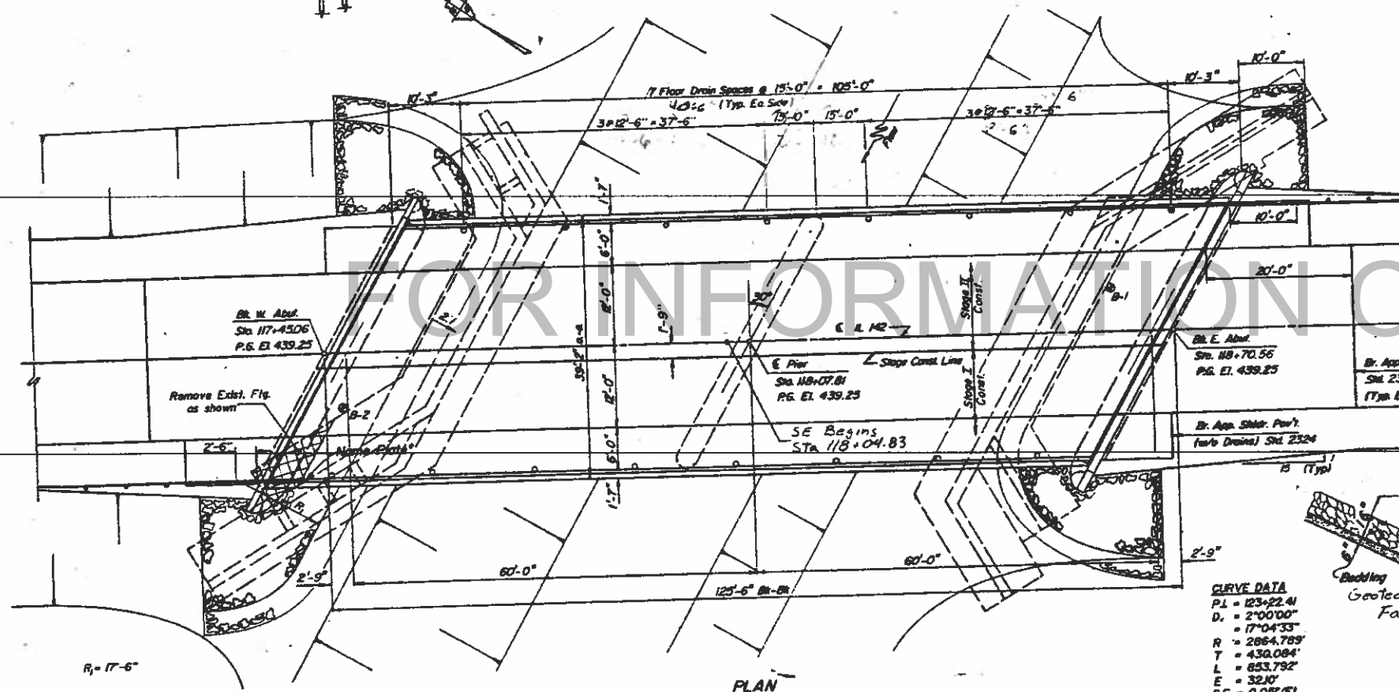
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. 849	113BR-3	JEFFERSON	22	6
DRAWINGS NO. 6	ILLINOIS	FED. AID PROJECT-		

BRIDGE SHEET 1 OF 17

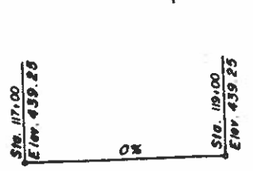
B.M. "D" Top of N.W. Wing of Exist. Br. Elev. 439.00

Exist. Struct "041-0041 Two span R.C. Deck girder. Built 1928 - Widened 1953 (36'-4" x 86'-11" Bk.-Bk.) R.C. Closed Abuts. and Solid Pier. To be removed using Stage Const. Pier to be revised to accommodate new superstructure. No other salvage.





PLAN



PROFILE GRADE

STATION 118+07.81
Rebuilt 198 by
STATE of ILLINOIS
F.A. 849 SEC. 113BR-3
F.A. PROJ. ACBHF-ACF-849(6)
Loading HS 20.
STR. NO. 041-0041

NAME PLATE
(See Standard 2113)

* Locate Existing Name & adjacent to New. Cost incidental

CURVE DATA
P.I. = 123+22.41
D = 2°00'00"
= 17°04'33"
R = 2864.789'
T = 430.084'
L = 853.792'
E = 32.10'
S.E. = 0.05'/Ft.
S.E. Attn. = 119+04.83 to 119+78.83

WATERWAY INFORMATION TABLE

Drainage Area 75.7 Square Miles Low Grade Elev. 438.52 at Sta. 124+50

Section	Flood	Freq. Yr.	Q Total C.F.S.	Opening (Sq. Ft.) Exist.	Opening (Sq. Ft.) Prop.	Nat. W.S.E.	Head (Ft.) Exist.	Head (Ft.) Prop.	Headwater Elev. Exist.	Headwater Elev. Prop.
113BR-3	Design	50	2294	519	570	434.9	0.52	0.39	435.42	435.29
	Base	100	2633	533	587	435.1	0.68	0.48	435.78	435.58
	Max. Calc.	500	3389		600	435.5		0.76		436.26

APPROVED
FOR STRUCTURAL ADEQUACY ONLY
James T. Reardon
Engineer of Bridges and Structures

GENERAL NOTES

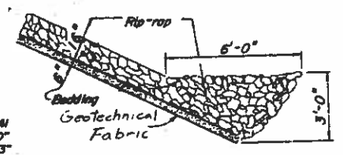
1. Fasteners shall be high strength bolts. Bolts ¾"ø, Open Holes ⁷⁄₈"ø, or Bolts ⅞"ø, Open Holes 1"ø, unless otherwise noted.
2. Calculated weight of structural steel 86,930 pounds.
   (M223-Gr. 50) 70,130
   (M 183 ..... 16,800)
3. The zinc-silicate and vinyl paint system shall be used for shop and field painting of structural steel except where otherwise noted.
4. All W27 beams and splice plates shall be AASHTO M223, Gr. 50.
5. 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 ⅛ the span length each way from the pier supports. Field welding in other areas will be permitted only when approved by the Engineer.
6. Anchor bolts shall be set before bolting diaphragms over supports.
7. The main load carrying member components subject to tensile stress shall conform to the supplemented requirements for notch zone 2. These components are the wide flange beams and all splice plate material.
8. Reinforcement bars shall conform to the requirements of AASHTO M-31, M-42, or M-53 Grade 60.
9. Bearing seat surfaces shall be constructed or adjusted to the designated elevations within a tolerance of ¼". Adjustment shall be made either by grinding the surface or by shimming the bearing. Two ¼" adjusting shims, of the dimensions of the bottom bearing plate, shall be provided for each bearing in addition to all other plates or shims. For Type 1 Elastomeric bearings, shims of the dimensions of top plate shall be provided and placed as detailed.
10. The Contractor shall drive one (1) Steel Test Pile in a permanent location at the East Abutment as directed by the Engineer before ordering the remainder of piles.
11. See Sh 16 For Boring Data
12. Layout of Stone Riprap may be varied in the field as directed by the Engineer to suit ground conditions.

Plan dimensions and details relative to existing structure have been taken from existing plans and are subject to normal construction variations. It shall be the Contractor's responsibility to verify such dimensions and details in the field and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in the scope of the work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUB	SUPER	TOTAL
Protective Coat *	sq.yd.		761	761
Class X Concrete	cu.yd.	74.8		74.8
Structural Steel	L.sum		0.3	0.3
Stud Shear Connectors	ea.		1764	1764
Reinforcement Bars	lb.	6620		6620
Reinforcement Bars (Epoxy coated)	lb.		32010	32010
Name Plate	ea.		1	1
Preformed Joint Seal 2½"	lin.ft.		90	90
(Steel Piles HP 8x36	lin.ft.	672		672
Test Piles, Steel HP 8x36	ea.	1		1
Class X Concrete Superstrs	cu.yd		145.2	145.2
Stone Riprap, Class A4	sq.yd.	540		540
Floor Drains	ea.	16		16
Concrete Removal	cu.yd.	6.3		6.3
Removal of Existing Structures**	ea.		1	1
Temp. Sheet Piling	sq. ft.	1000		1000
Elastomeric Brg. Assy. Ty. I	ea.	12		12
Filter Fabric For use w/ Riprap	sq.yd.	540		540
Structure Excavation	cu.yd.	100		100

* Quantity includes bridge deck surface
** Except that the pier shall be rehabilitated for reuse.



RIP-RAP ANCHOR DETAIL

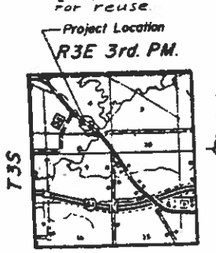
DESIGN STRESSES

f'c = 3,500 p.s.i.
fy = 60,000 p.s.i. (Reinf.)
fy = 50,000 p.s.i. (St. St. M223) Gr. 50
fy = 36,000 p.s.i. M-183

LOADING HS20-44

Design Specifications: 1983 A.A.S.H.T.O. & 1984 thru 1988 Interims

Allow 25 #/sq. ft. for future wearing surface.



LOCATION MAP

STATE OF ILLINOIS
ROBERT BRADFORD, JR.
3376
REGISTERED STRUCTURAL ENGINEER
Robert Bradford Jr.

GENERAL PLAN & ELEVATION

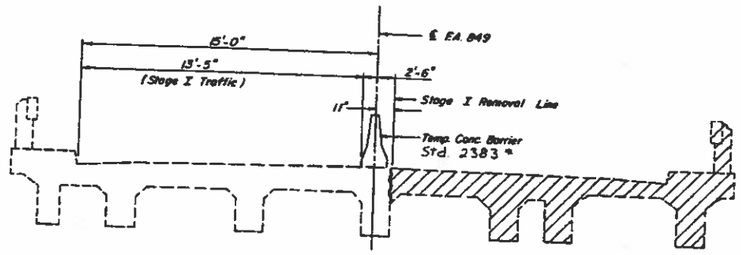
F.A. RTE 849 (ILL. 142)/CASEY FORK CREEK
SECTION 113 BR-3
JEFFERSON COUNTY
STATION 118+07.81
STRUCTURE NO. 041-0041

GREENE & BRADFORD, Ltd.
CONSULTING ENGINEERS

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA 849	113BR 3	JEFFERSON	22	6

ILLINOIS FED. AID PROJECT

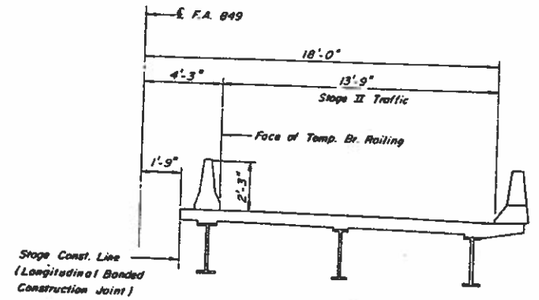
BRIDGE SHEET 2 OF 17



REMOVAL

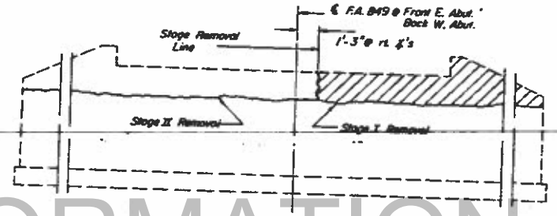
(Showing Stage I Traffic)

* see Rdwy Plans for Quantity & location



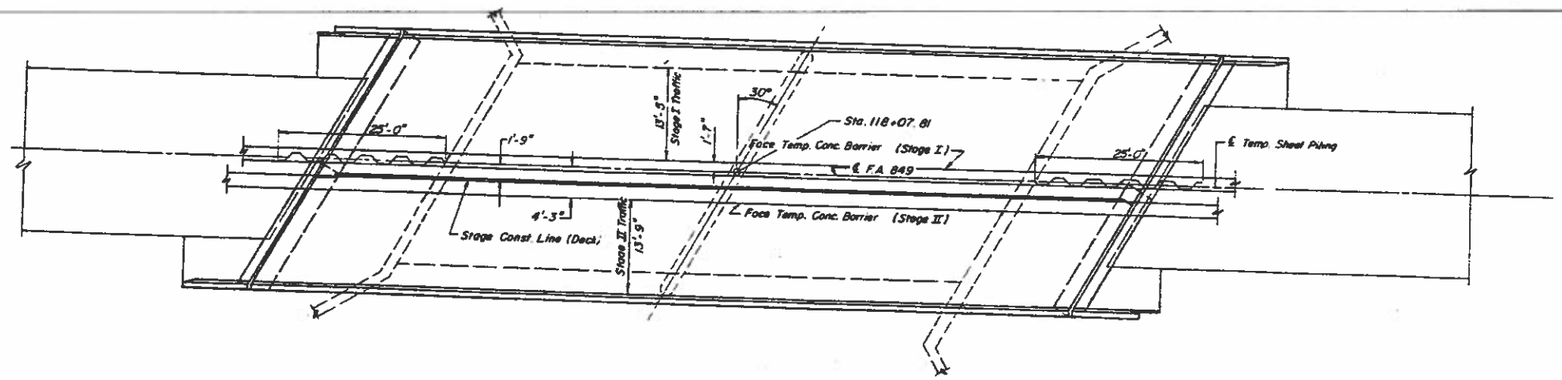
CONSTRUCTION

(Showing Stage II Traffic)



ABUTMENTS - STAGE REMOVAL

(Both Abutments Shown Looking Easterly)



PLAN VIEW

(Showing Stage Traffic Lanes)

NOTE: Following completion of Stage I the Temp. Conc. Barrier shall be removed and relocated to Stage II as shown.

Temporary sheet piling to extend from Elev. 419.0 (Tip Elev.) to Elev. 439.0 (Top of Exist. Pav't.) at locations shown.

Contractor to anchor sheeting to back of existing abutment wall. Connection to be approved by Engineer. Sheeting within limits of existing footing shall have their tip Elev. at top of footing.

THE INFORMATION SHOWN FOR THE TEMPORARY SHEET PILING IS ESTIMATED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE A DESIGN OF THE TEMPORARY SHEET PILING AND ASSOCIATED MEMBERS, IF REQUIRED, SUBJECT TO THE APPROVAL OF THE ENGINEER.

STAGING DETAILS

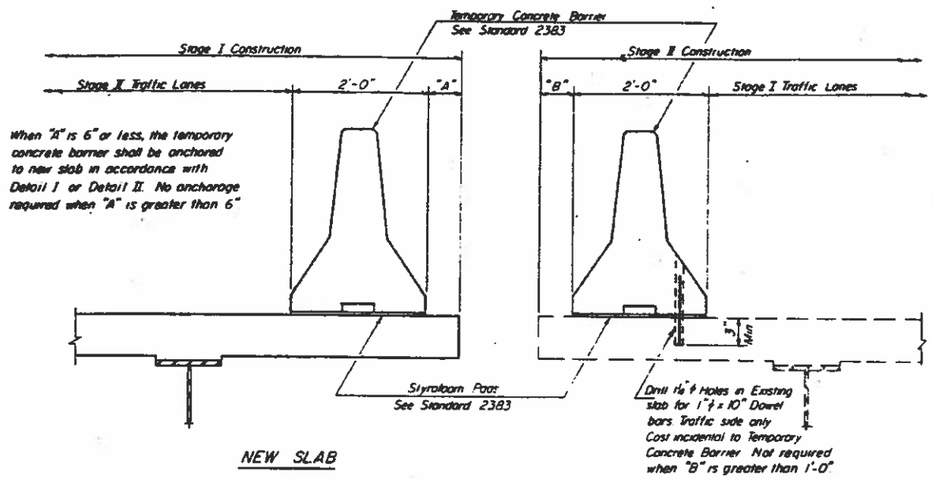
F.A. RTE. 849 SECTION 113 BR-3
JEFFERSON CO.
STATION 118+07.81
S.N. 041-0041

GREENE & BRADFORD, Ltd.
CONSULTING ENGINEERS

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

849	I13BR-3	JEFFERSON	22	7

BRIDGE SHEET 3 OF 17



SECTIONS THRU SLAB

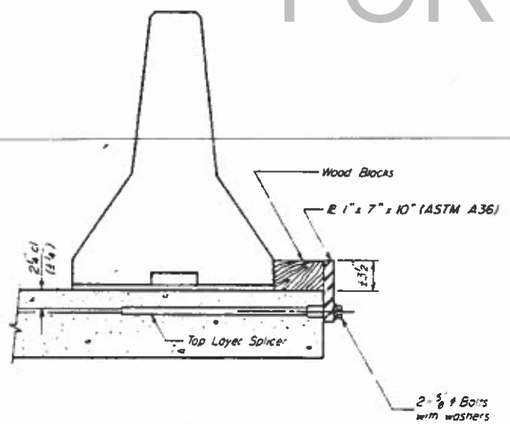
NOTES

Detail I - With Bar Splicer or Couplers
Connect one (1) 1" x 7" x 10" steel ℙ to the top layer of couplers with 2 - ⅝" ϕ bolts screwed to coupler at approximate ℄ of each 10'-0" barrier panel

Detail II - With Extended Reinforcement Bars
Connect one (1) 1" x 7" x 10" steel ℙ to the concrete slab with 2 - ⅝" ϕ Expansion Anchors or cast in place inserts spaced between the top layer of reinforcement at approximate ℄ of each 10'-0" barrier panel

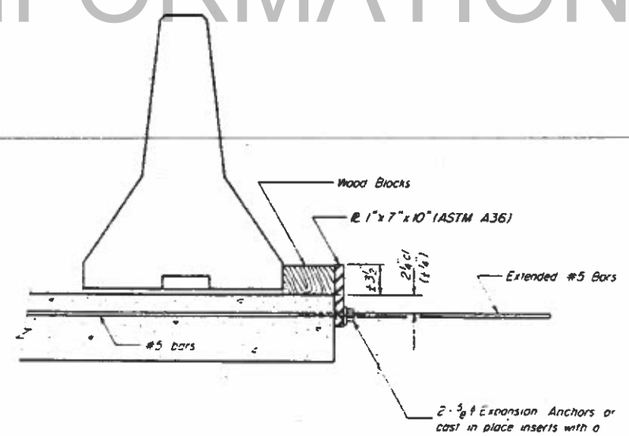
Cost of anchorage is incidental to Temporary Concrete Barrier

For Pay Item See Roadway plan



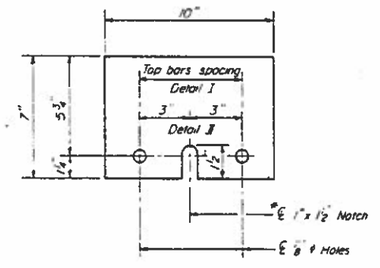
DETAIL I

The 1" x 7" x 10" Plate shall not be removed until Stage II Construction forms and reinforcement bars are in place



DETAIL II

The 1" x 7" x 10" Plate shall not be removed until Stage II Construction forms and all reinforcement bars are in place and the concrete is ready to be placed



ℙ 1" x 7" x 10"

* Required only with Detail II

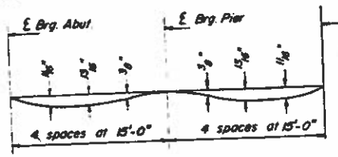
TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION

FA RTE 849 SECTION 113BR-3
JEFFERSON CO.
STATION 118+07.81
S.N. 041-0041

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

					SHEET NO.
849	113BR3	JEFFERSON	22	8	SHEETS

BRIDGE SHEET 4 OF 17

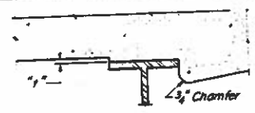


DEAD LOAD DEFLECTION DIAGRAM

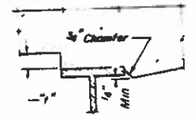
(Includes weight of concrete only)

Note: The above deflections are not to be used in the field if the engineer is working from the grade elevations adjusted for dead load deflections as shown below.

LINE	BEAM OR GIRDER	STATION	OFFSET	THEORETICAL GRADE ELEVATION	ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION
REVISED	BM 1	11754.683	16.667	438.965	438.965
	BM 2	11750.834	10.000	439.093	439.093
	BM 3	11746.984	3.333	439.198	439.198
	CENTER	11745.060	.000	439.250	439.250
	STAGE	11744.050	-1.750	439.223	439.223
	BM 4	11743.136	-3.333	439.198	439.198
	BM 5	11738.286	-10.000	439.093	439.093
	BM 6	11735.437	-16.667	438.965	438.965
B	BM 1	11757.433	16.667	438.965	438.965
	BM 2	11753.584	10.000	439.093	439.093
	BM 3	11749.734	3.333	439.198	439.198
	CENTER	11747.810	.000	439.250	439.250
	STAGE	11746.800	-1.750	439.223	439.223
	BM 4	11745.886	-3.333	439.198	439.198
	BM 5	11742.036	-10.000	439.093	439.093
	BM 6	11738.187	-16.667	438.965	438.965
C	BM 1	11767.433	16.667	438.965	439.007
	BM 2	11763.584	10.000	439.093	439.135
	BM 3	11759.734	3.333	439.198	439.240
	CENTER	11757.810	.000	439.250	439.292
	STAGE	11756.800	-1.750	439.223	439.265
	BM 4	11755.886	-3.333	439.198	439.240
	BM 5	11752.036	-10.000	439.093	439.135
	BM 6	11748.187	-16.667	438.965	439.007
D	BM 1	11777.433	16.667	438.965	439.031
	BM 2	11773.584	10.000	439.093	439.160
	BM 3	11769.734	3.333	439.198	439.266
	CENTER	11767.810	.000	439.250	439.317
	STAGE	11766.800	-1.750	439.223	439.289
	BM 4	11765.886	-3.333	439.198	439.264
	BM 5	11762.036	-10.000	439.093	439.160
	BM 6	11758.187	-16.667	438.965	439.031
E	BM 1	11787.433	16.667	438.965	439.032
	BM 2	11783.584	10.000	439.093	439.160
	BM 3	11779.734	3.333	439.198	439.265
	CENTER	11777.810	.000	439.250	439.317
	STAGE	11776.800	-1.750	439.223	439.289
	BM 4	11775.886	-3.333	439.198	439.265
	BM 5	11772.036	-10.000	439.093	439.160
	BM 6	11768.187	-16.667	438.965	439.032
F	BM 1	11797.433	16.667	438.965	439.010
	BM 2	11793.584	10.000	439.093	439.138
	BM 3	11789.734	3.333	439.198	439.243
	CENTER	11787.810	.000	439.250	439.295
	STAGE	11786.800	-1.750	439.223	439.267
	BM 4	11785.886	-3.333	439.198	439.243
	BM 5	11782.036	-10.000	439.093	439.138
	BM 6	11778.187	-16.667	438.965	439.010
G	BM 1	11807.433	16.667	438.977	438.992
	BM 2	11803.584	10.000	439.093	439.109
	BM 3	11799.734	3.333	439.198	439.213
	CENTER	11797.810	.000	439.250	439.266
	STAGE	11796.800	-1.750	439.223	439.238
	BM 4	11795.886	-3.333	439.198	439.213
	BM 5	11792.036	-10.000	439.093	439.109
	BM 6	11788.187	-16.667	438.965	438.980
PIER	BM 1	11817.433	16.667	439.022	439.022
	BM 2	11813.584	10.000	439.127	439.127
	BM 3	11809.734	3.333	439.204	439.204
	CENTER	11807.810	.000	439.250	439.250
	STAGE	11806.800	-1.750	439.222	439.222
	BM 4	11805.886	-3.333	439.197	439.197
	BM 5	11802.036	-10.000	439.093	439.093
	BM 6	11798.187	-16.667	438.965	438.965
I	BM 1	11827.433	16.667	439.068	439.084
	BM 2	11823.584	10.000	439.165	439.180
	BM 3	11819.734	3.333	439.217	439.232
	CENTER	11817.810	.000	439.250	439.266
	STAGE	11816.800	-1.750	439.220	439.235
	BM 4	11815.886	-3.333	439.192	439.208
	BM 5	11812.036	-10.000	439.083	439.099
	BM 6	11808.187	-16.667	438.959	438.975
J	BM 1	11837.433	16.667	439.114	439.159
	BM 2	11833.584	10.000	439.203	439.248
	BM 3	11829.734	3.333	439.229	439.274
	CENTER	11827.810	.000	439.250	439.295
	STAGE	11826.800	-1.750	439.217	439.262
	BM 4	11825.886	-3.333	439.188	439.233
	BM 5	11822.036	-10.000	439.068	439.113
	BM 6	11818.187	-16.667	438.942	438.986
K	BM 1	11847.433	16.667	439.160	439.226
	BM 2	11843.584	10.000	439.241	439.308
	BM 3	11839.734	3.333	439.242	439.309
	CENTER	11837.810	.000	439.250	439.317
	STAGE	11836.800	-1.750	439.214	439.281
	BM 4	11835.886	-3.333	439.183	439.250
	BM 5	11832.036	-10.000	439.054	439.121
	BM 6	11828.187	-16.667	438.924	438.991
L	BM 1	11857.433	16.667	439.205	439.272
	BM 2	11853.584	10.000	439.279	439.346
	BM 3	11849.734	3.333	439.255	439.321
	CENTER	11847.810	.000	439.250	439.317
	STAGE	11846.800	-1.750	439.211	439.277
	BM 4	11845.886	-3.333	439.176	439.243
	BM 5	11842.036	-10.000	439.038	439.104
	BM 6	11838.187	-16.667	438.907	438.973
M	BM 1	11867.433	16.667	439.251	439.293
	BM 2	11863.584	10.000	439.317	439.359
	BM 3	11859.734	3.333	439.267	439.309
	CENTER	11857.810	.000	439.250	439.292
	STAGE	11856.800	-1.750	439.206	439.248
	BM 4	11855.886	-3.333	439.168	439.209
	BM 5	11852.036	-10.000	439.012	439.054
	BM 6	11848.187	-16.667	438.871	438.913
N	BM 1	11877.433	16.667	439.297	439.297
	BM 2	11873.584	10.000	439.355	439.355
	BM 3	11869.734	3.333	439.280	439.280
	CENTER	11867.810	.000	439.250	439.250
	STAGE	11866.800	-1.750	439.202	439.202
	BM 4	11865.886	-3.333	439.159	439.159
	BM 5	11862.036	-10.000	438.987	438.987
	BM 6	11858.187	-16.667	438.831	438.831
REVISED	BM 1	11880.183	16.667	439.309	439.309
	BM 2	11876.334	10.000	439.366	439.366
	BM 3	11872.484	3.333	439.284	439.284
	CENTER	11870.560	.000	439.250	439.250
	STAGE	11869.550	-1.750	439.201	439.201
	BM 4	11868.636	-3.333	439.157	439.157
	BM 5	11864.786	-10.000	438.980	438.980
	BM 6	11860.937	-16.667	438.820	438.820



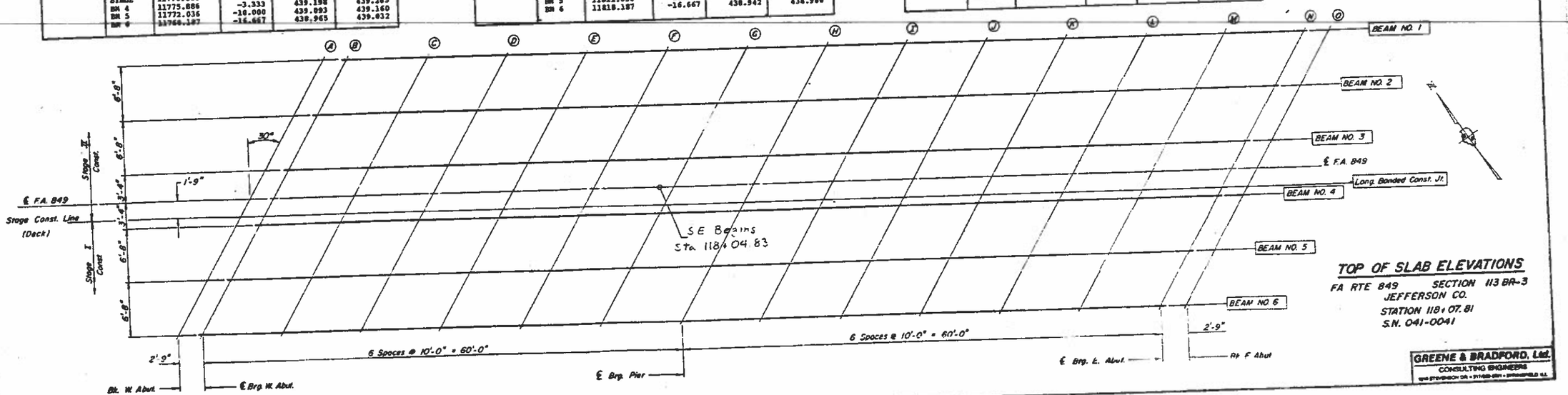
At Minimum Fillet



At Maximum Fillet

To determine "I" After all structural steel has been erected, elevations of the top flanges of the beams shall be taken at intervals shown below. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown below, minus slab thickness, equals the fillet heights "I" above top flange of beams.

FILLET HEIGHTS



TOP OF SLAB ELEVATIONS

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JEFFERSON CO.
STATION 118+07.81
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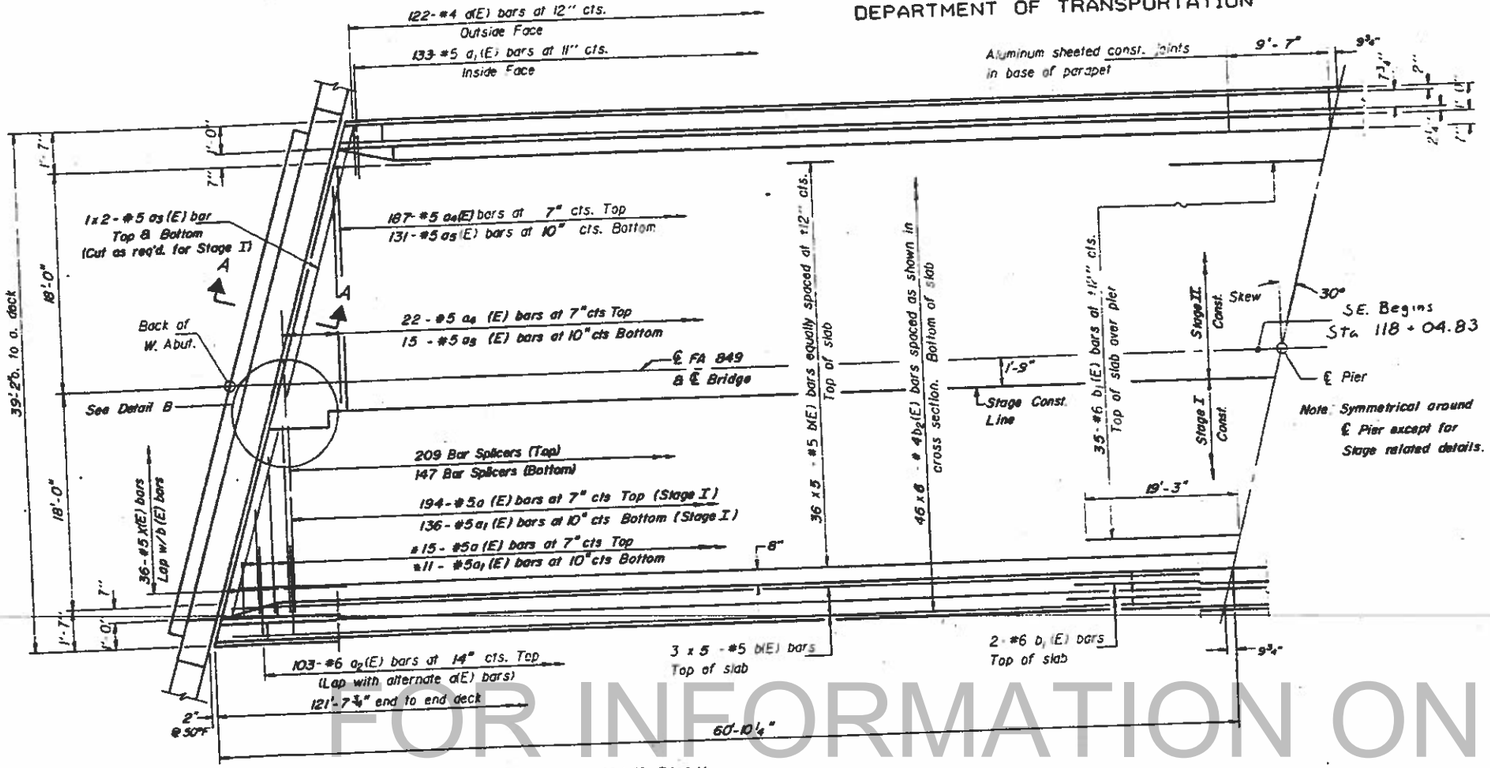
DEPARTMENT OF TRANSPORTATION

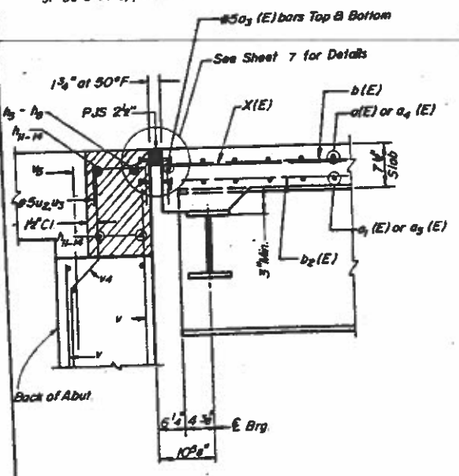
BRIDGE SHEET 5 OF 17

			SHEET NO.	SHEETS
F.A.P. 849	113BR3	JEFFERSON	22	9

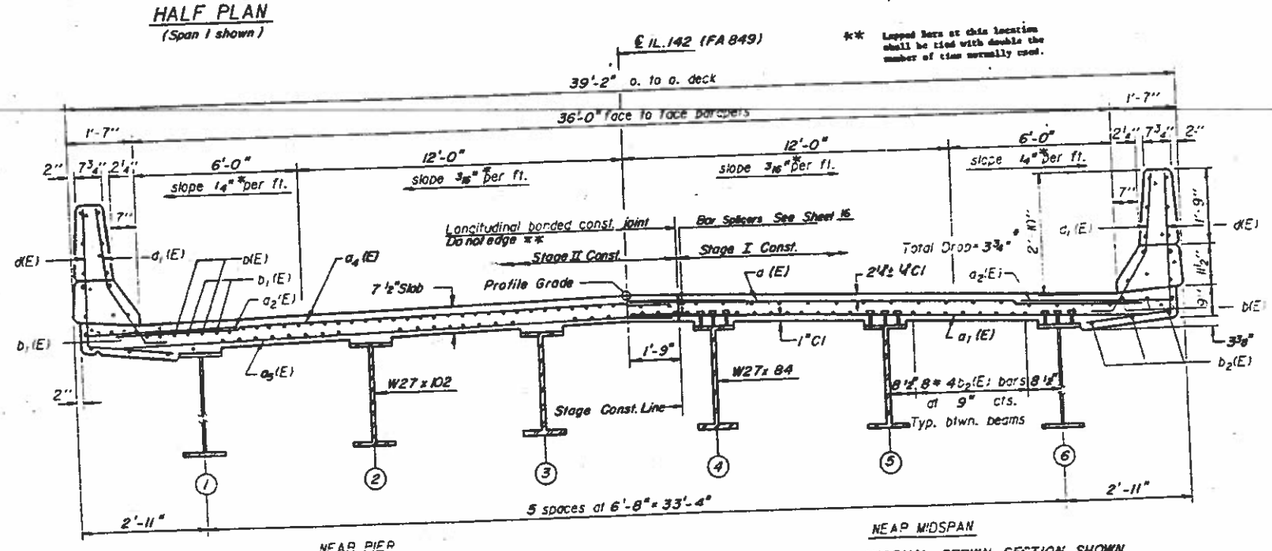


HALF PLAN
(Span 1 shown)

* Order d(E) a1(E), a4(E), & as(E) bars full length. Cut to fit skew and/or Staging Joint (Detail B). Use remainder of bars in opposite end of same Stage.



SEC. A-A
SEE SHEET 7 FOR EXP. DEVICE DETAILS



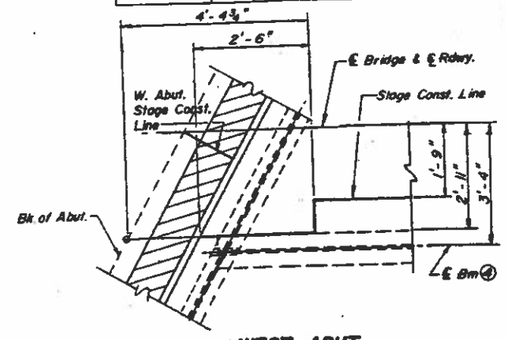
NEAR PIER

NEAR MIDSPAN

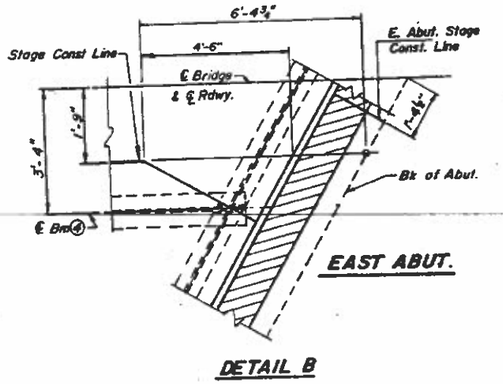
CROSS SECTION
(Looking East)

\# (NORMAL CROWN SECTION SHOWN, SPAN 2 IN SE. TRANSITION)

** Legend bars at this location shall be tied with double the number of ties normally used.



WEST ABUT.



EAST ABUT.

DETAIL B

Notes: See sheet #6 for superstructure details and Bill of Material.
Reinforcement bars designated (E) shall be epoxy coated.
Bars indicated thus 20 x 3-#5 etc. indicates 20 lines of bars with 3 lengths per line.

Minimum Bar Laps
#4 bar 1'-4"
#5 bar 1'-8"

FOR FLOOR DRAIN LOCATION AND DETAILS, SEE SHEET 1

SUPERSTRUCTURE
FA RTE 849 SECTION 113 BR-3
JEFFERSON CO.
STATION 118+07.81
S.N. 041-0041

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BRIDGE SHEET 6 OF 17

					SHEET NO.
F.A. Rte. 849	113BR-3	JEFFERSON	22	10	SHEETS

121'-8½" End to End

17'-1¼" | 17'-1" | 17'-1" | 9'-7" | 9'-7" | 17'-1" | 17'-1" | 17'-1" | 17'-1¼"

Parapet Jt. spacing

3-#4 e(E) Each Face
1 x 3 - #8 b_4(E) Each Face
3-#4 e_1(E) E.F.
1-#8 b_6(E) E.F.
1 x 3 - #5 b_3(E) Each Face
1-#5 b_5(E) E.F.
Aluminum sheeted constr. joints in base of parapet
1 x 3 - #5 b_3(E) Each Face
3-#4 e(E) Each Face
1 x 3 - #8 b_4(E) Each Face
1 x 3 - #5 b_3(E) Each Face
*Bend in Field (Typ)
2'-0"
5' (Typ)
2'-6" (Typ)
3" 1'-9"
60'-10¼" SPAN 1
℄ Pier
60'-10¼" SPAN 2

INSIDE ELEVATION OF PARAPET

½"ϕ x 8" Alum. Bar ASTM: B 211 alloy 6061-T6

FIBERGLASS PIPE

Fill slot with weld

ALUMINUM TUBE

6" O.D. Aluminum Tube alloy 6061-T6 or 6"ϕ Fiberglass Pipe

TOP PLAN (Showing Aluminum Tube)

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

½" Preformed Cork Jt. Filler (in accordance with Articles 715.07 or 715.08) Cost incidental.

Const. Jt. (Optional)

Const. Jts. at Piers ⅛" Aluminum sheet ASTM: B 209 alloy 3003-H14. Cost incidental.

Bonded Constr. Jt. (Mandatory)

Parapet Jts.

BAR d_1(E)

BAR d(E)

PARAPET JOINT DETAILS

Notes:

The exterior surfaces of the Floor Drain shall be painted with the vinyl enamel coat painting specified for Structural Steel. The exterior surfaces of the Aluminum Tube shall be cleaned and given a washcoat pretreatment in accordance with Steel Structures Painting Council's Spec. SSPC-SP1 & SSPC-Paint 27 prior to painting.

Fiberglass pipe shall conform to ASTM: D2996, with short-time rupture strength hoop tensile stress of 30,000 p.s.i. minimum. The surface of the Fiberglass pipe shall be free of bond inhibiting agents.

3'-9"
6"

BAR X(E)

NOTE.

1. Bars indicated thusly, 1x3 - #5 etc. indicates 1 line of bars with 3 lengths per line.
2. Minimum bar laps
   #4 bar - 1'-4"
   #5 bar - 1'-8"
   #8 bar - 3'-6"

e(E) or e_1(E)
d(E)
¾" Notch
b_4(E), b_6(E)
b_3(E), b_5(E)
a_2(E)
a_1(E)
℄ ¾"ϕ x 1'-7" (Min.) Steel Stud Bolts threaded 6" Each End with 2 washers & locknut
⅝"ϕ Holes in web (May be drilled in the field)
Varies 1"
¾" Drip Notch
6"ϕ Pipe Clamp
℄ Web
2'-11"
Parapet
Slab

SECTION THRU PARAPET

* Dimension as required by Pipe Clamp

6"ϕ Pipe Clamp
⅛" Fabric Pad

SECTION B-B

TOP PLAN

SUPERSTRUCTURE BILL OF MATERIAL

Bar	No.	Size	Length	Shape
e(E)	209	#5	16'-6"	
e_1(E)	147	#5	16'-4"	
c_2(E)	206	#6	4'-0"	
a_3(E)	8	#5	26'-0"	
a_4(E)	209	#5	20'-3"	
a_5(E)	146	#5	20'-1"	
b(E)	210	#5	25'-6"	
b_3(E)	39	#6	38'-6"	
b_4(E)	276	#4	21'-6"	
b_5(E)	24	#5	18'-4"	
b_6(E)	24	#8	19'-4"	
b_7(E)	8	#5	9'-3"	
b_8(E)	8	#8	9'-3"	
d(E)	244	#4	5'-2"	
d_1(E)	266	#5	3'-11"	
a(E)	72	#4	16'-9"	
a_1(E)	24	#4	9'-3"	
X(E)	72	#5	4'-3"	
Reinforcement Bars (Epoxy Coated)		Lbs.	32,010	
Class A Concrete Superstructure		Cu. Yds.	145.2	
Protective Coat		Sq. Yd.	600	

Reinforcement bars designated 'E' shall be epoxy coated.

SUPERSTRUCTURE DETAIL

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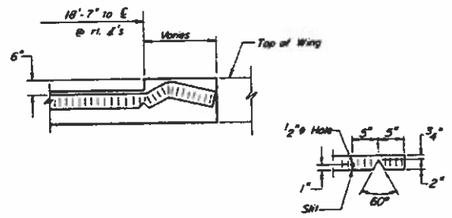
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. 849	113BR-3	JEFFERSON	22	11
STA.		TO STA.		
SHOWS RES. NO. 8 | ILLINOIS FED. AID PROJECT				

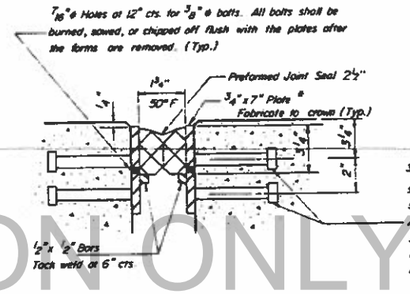
BRIDGE SHEET 7 OF 17



SEAL CUT-OUT

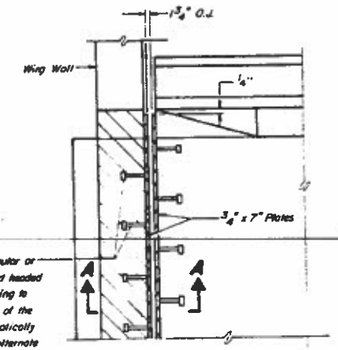
END OF SEAL TREATMENT

(TYP. EACH ABUT.)



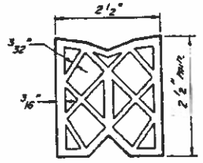
SEC. A-A

@ Provide 2 @ 18'-0 5/8" & 2 @ 24'-0 7/8" (W. Abut.)
2 @ 17'-1 3/4" & 2 @ 25'-8 3/4" (E. Abut.)



EXPANSION JOINT

NOTE: After fabrication all surfaces of the steel plates shall be given one shop coat of paint specified for Structural Steel.



PREFORMED JOINT SEAL (2 1/2")

EXPANSION JOINT DETAILS

FA RTE 849 SECTION 113BR-3
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STATION 118+07.81

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ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F A 649	113BR 3	JEFFERSON	22	12
STA.		TO STA.		
FHWA REG. NO. 6	ILLINOIS	FED. AID PROJECT-		

STATE OF ILLINOIS
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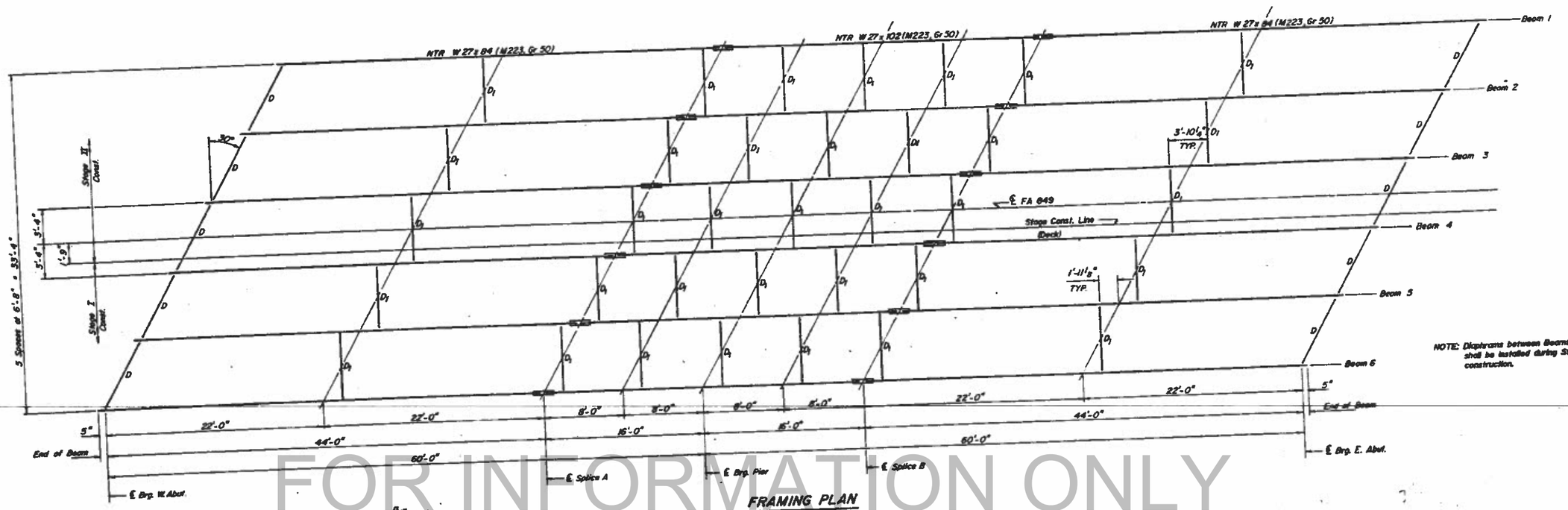
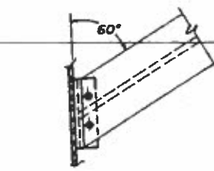
BRIDGE SHEET 8 OF 17

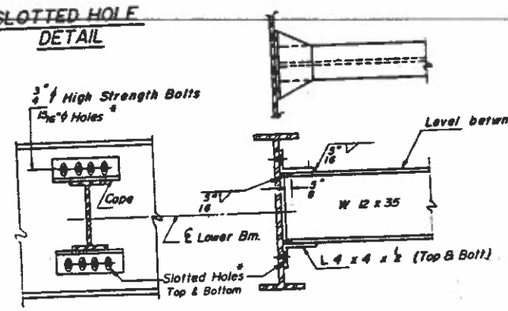


FRAMING PLAN



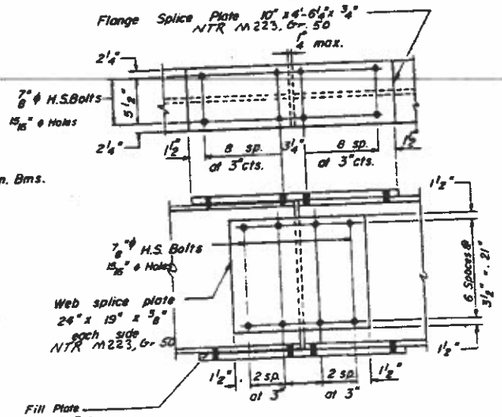
DIAPHRAGM D
10 Required

SLOTTED HOLE DETAIL



DIAPHRAGM D1
35 Required

Note : Two hardened washers shall be required over all 15/16" ϕ holes
* Provide slotted holes in 4 x 4 x ½ angles for diaphrams between Beams 3 & 4. Provide slots in angles at North end of diaphrams only. Provide ⅝" Str. ℙ washer at each slotted connector.
¾" H.S. Bolts for diaphrams D1 between Beams 3 & 4 shall be tightened only after completing Stage II deck construction.



SPLICE
(M223, Gr 50)
NTR - All Plates

ELEVATION TOP OF WF **

Location / Beam	1	2	3	4	5	6
West Abutment	438.17	438.27	438.40	438.40	438.27	438.17
* Splices A & B	438.17	438.27	438.40	438.40	438.27	438.17
Pier	438.17	438.27	438.40	438.40	438.27	438.17
East Abutment	438.53	438.59	438.51	438.39	438.21	438.04

* Elevations shown are for W 27 x 84. For top of W 27 x 102 at Splices add .02"

** Use for Shop Fabrication only.

NTR - Notch Toughness Requirement

NOTE: Bolts for interior Diaphrams between Beams 3 & 4 shall be tightened after Stage II Deck is in place.

STRUCTURAL STEEL

FA RTE. 849 SECTION 113 BR-3
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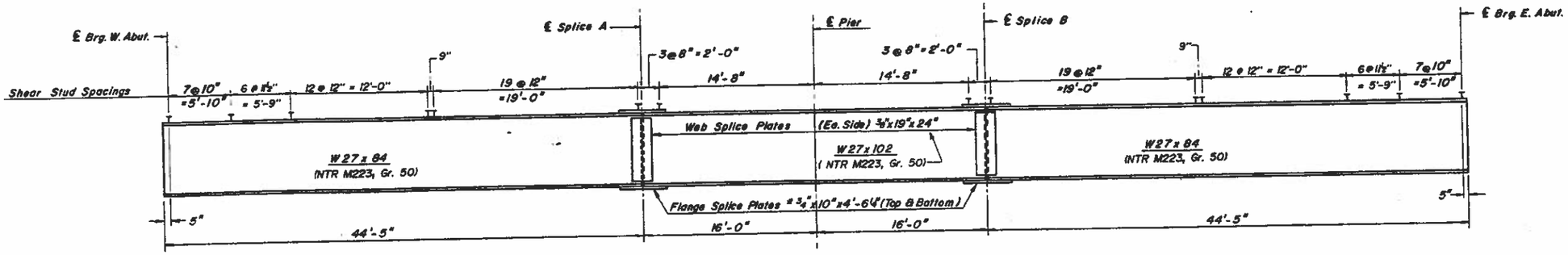
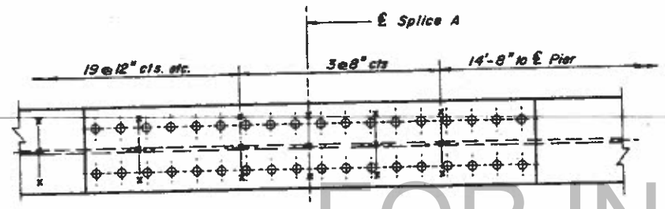
F.A.849	113BR-3	JEFFERSON	22	13
FHWA REG. NO. 5	ILLINOIS FED. AID PROJECT-			

BRIDGE SHEET 9 OF 17



ELEVATION TYPICAL BEAM

@ See Sheet 8 for Fill Plates



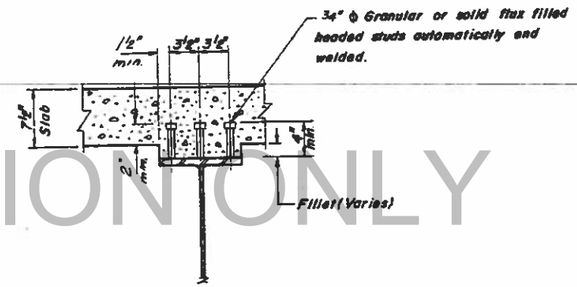
STUD LOCATION PLAN

(Splice A Shown - B Similar)

o — Flange Splice Bolt

x — Shear Stud

Note: Minor relocation of studs will be permitted in order to avoid flange bolts.



SHEAR STUDS

4,764 Req'd.

INTERIOR GIRDER MOMENT TABLE		
	0.4 Sp.	Pier
I_s (in.⁴)	2850	3620
I_c (in.⁴)	9088	
S_B (in.³)	213	267
S_c (in.³)	342	
Z (in³)		305
M_D^{ℓ} (K/ft)	0.726	1.028
M_D^{ℓ} ('K)	173	-463
$\pm M_L^{\ell}$ (K/ft)	302	
M_S^{ℓ} ('K)	86	
M_L^{ℓ} ('K)	417	-223
M impact ('K)	118	-60
$S_B(M_L^{\ell}+I)$ ('K)	882	-470
M_R ('K)	1483	-1212
* M_N ('K)	1734	
f_B^{ℓ} non-comp (k.s.i.)	9.7	18.2
f_B^{ℓ} (comp) (k.s.i.)	3.3	
$f_B^{S_B}(L+I)$ (k.s.i.)	30.9	18.5
f_B (Overload) (k.s.i.)	43.9	36.7
** f_B (Total) (k.s.i.)		47.7
VR (K)	45.3	

INTERIOR GIRDER REACTION TABLE		
	Abut	Pier
R^{ℓ} (K)	23.1	77.0
R_L^{ℓ} (K)	35.8	43.8
Imp. (K)	9.7	11.8
R_{Total} (K)	68.6	132.6

NOTES

I_c and S_c are the moment of inertia and section modulus of the composite section used in computing f_c (Total Overload).

I_s and S_B are the moment of inertia and section modulus of the steel section used in computing f_B (Total Overload)

VR is the maximum L_L + impact shear range in span.

Z is the plastic section modulus used to determine the Fully Plastic Moments in the non-composite areas.

The Fully Plastic Moment capacity (M_N) is computed according to AASHTO 10.48.1 & 10.50.1.1

f_c (Total) is the sum of the stresses due to $1.3\left[M_D^{\ell} + M_S^{\ell} + S_B(M_L^{\ell}+I)\right]$

f_B (Overload) is the sum of the stresses due to $M_L^{\ell} + M_S^{\ell} + S_B(M_L^{\ell}+I)$

M_D^{ℓ} – Moment due to dead loads on non-composite section.

M_S^{ℓ} – Moment due to dead loads on composite section.

M_L^{ℓ} – Moment due to live load on non composite or composite section.

I – Live load impact

* M_N = Full Plastic Moment Capacity for Compact, Braced section.

** Non-compact section

M_R (Applied Moment) = $1.3\left[M_D^{\ell} + M_S^{\ell} + S_B(M_L^{\ell}+I)\right]$

STRUCTURAL STEEL DETAILS

FA RTE 849 SECTION 113 BR-3
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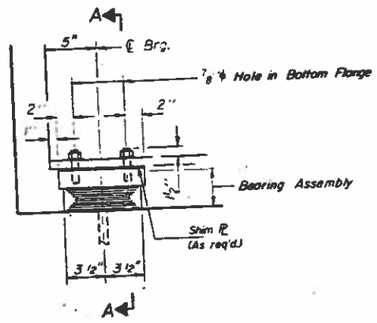
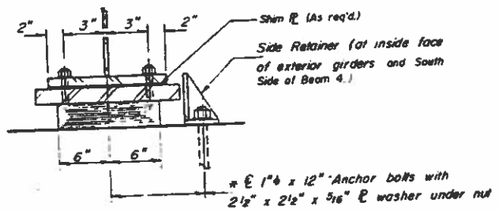
				SHEET NO.
F.A.P. 849	113BR3	JEFFERSON	22	14 SHEETS
F.A.S.				

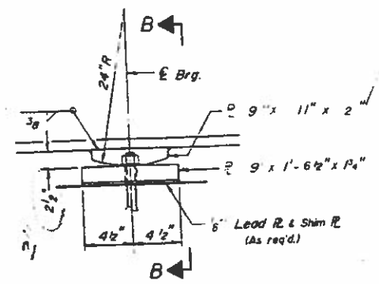
BRIDGE SHEET 10 OF 17



ELEVATION AT ABUT.

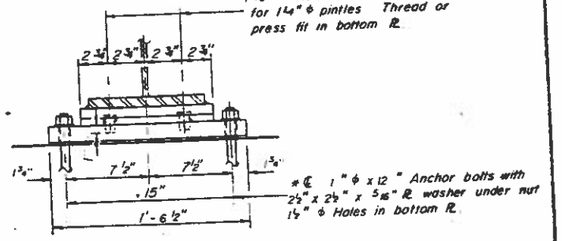


SECTION A-A



ELEVATION AT PIER

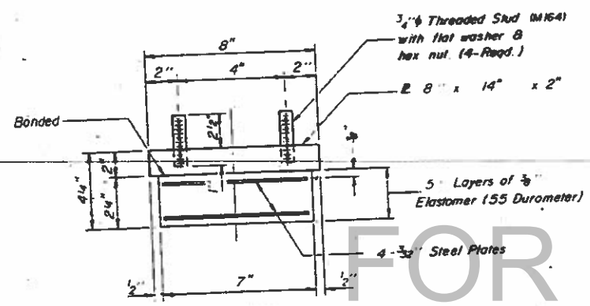
TYPE I ELASTOMERIC EXP. BRG.



SECTION B-B

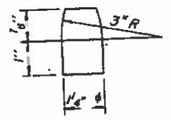
* Notes: Anchor bolts at fixed bearings may be built into the masonry.
See sheet #15 for Anchor Bolt installation.

FIXED BEARING
(6 Req'd.)

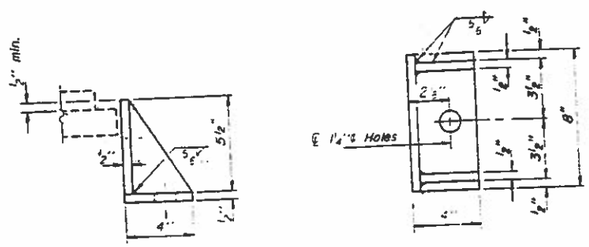


BEARING ASSEMBLY

Note: Shim plates shall not be placed under Bearing Assembly



PINTLE



SIDE RETAINER
Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.

(6 Req'd.) included with Structural Steel

BILL OF MATERIAL

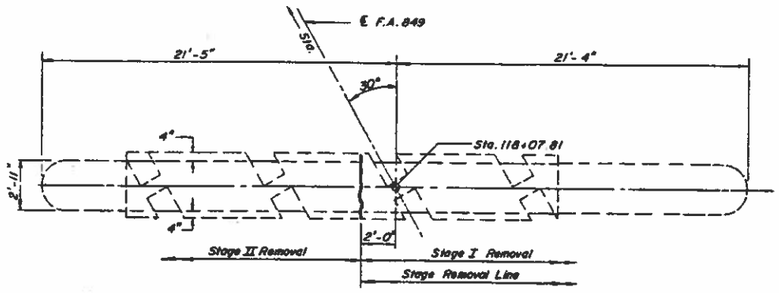
Item	Unit	Total
Elastomeric Bearing Assembly Type I	Each	12

BEARINGS
FA RTE 849 SECTION 113BR-3
JEFFERSON CO
STATION 118+07.81

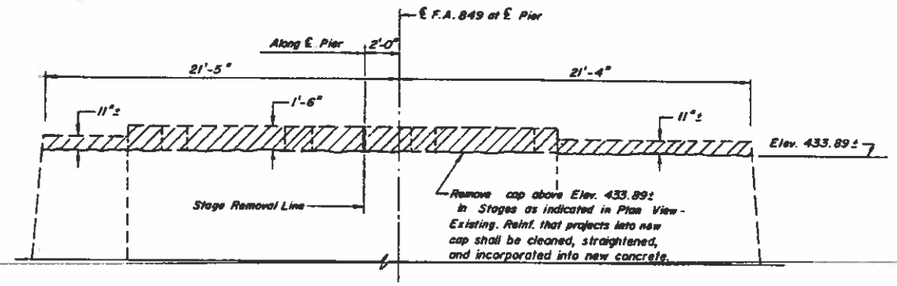
GREENE & BRADFORD, Ltd.
CONSULTING ENGINEERS

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.849	113BR3	JEFFERSON	22	15
FILM WIRES NO. 8 | ILLINOIS	FED. AID PROJECT –			

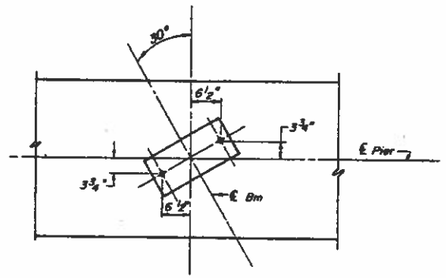
BRIDGE SHEET 11 OF 17



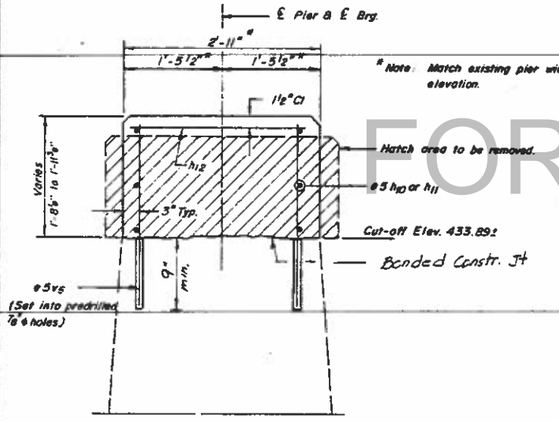
PLAN VIEW - EXISTING



PARTIAL ELEVATION VIEW - EXISTING

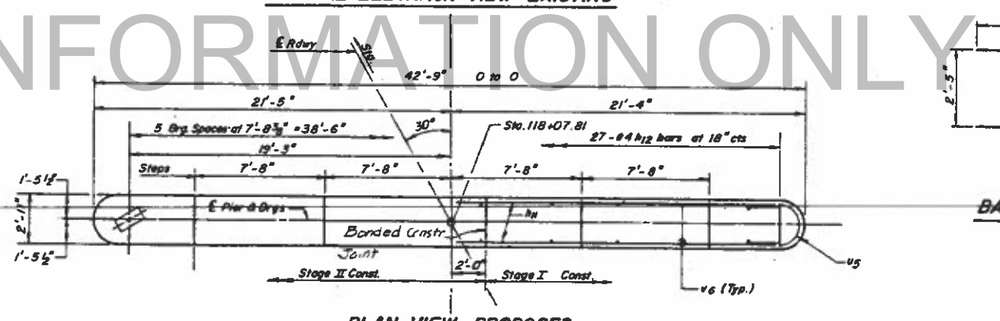


BEARING PLATE ANCHOR BOLT LAYOUT

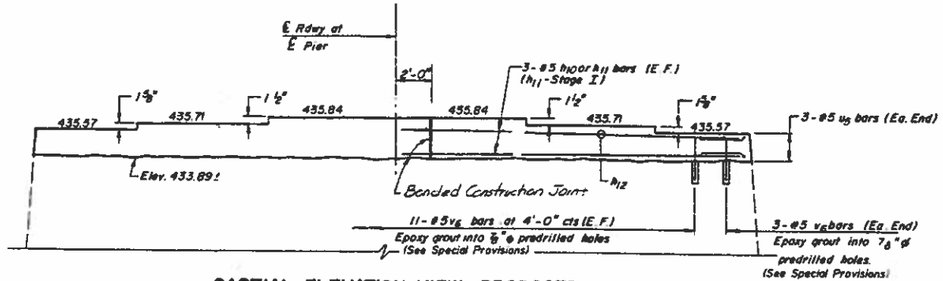


* Note: Match existing pier width at cut-off elevation.

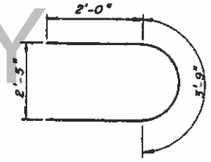
SEC. THRU PIER CAP



PLAN VIEW - PROPOSED



PARTIAL ELEVATION VIEW - PROPOSED



BAR - U5

PIER

BAR	NO.	SIZE	LENGTH	SHAPE
h10	6	#5	21'-10"	——
h11	6	#5	20'-0"	——
h12	27	#4	2'-8"	——
u5	6	#5	7'-9"	⊃
v6	28	#5	2'-7"	——
Concrete Removal			Cu. Yd.	6.3
Class X Concrete			Cu. Yd.	6.3
Reinforcement Bars			Lb.	430

PIER

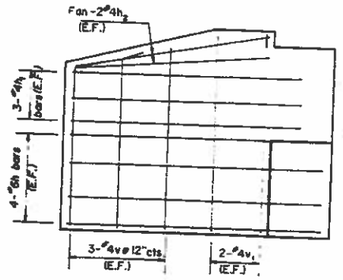
F.A. RTE 849 SECTION 113 BR-3
JEFFERSON CO.
STATION 118+07.81

GREENE & BRADFORD, Ltd.
CONSULTING ENGINEERS

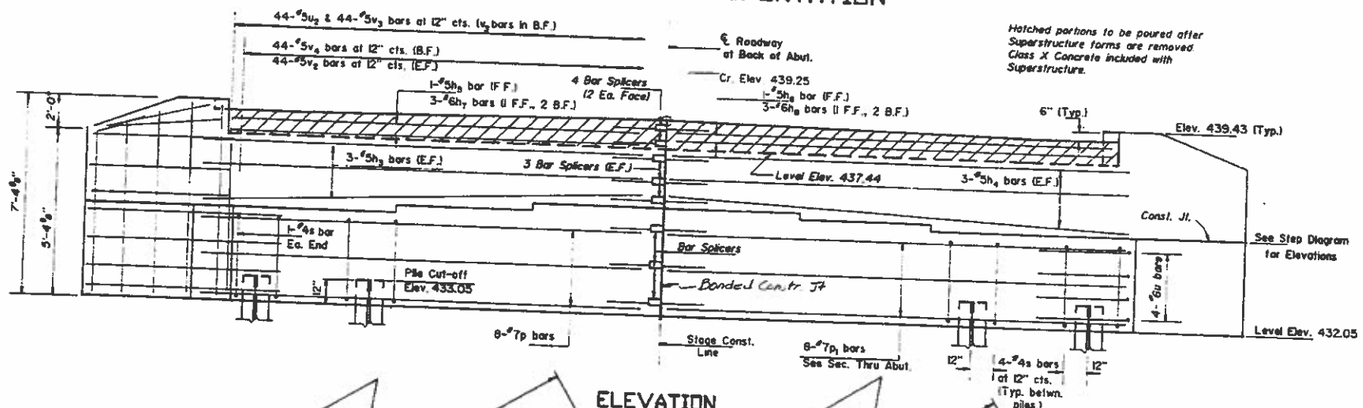
SEC NO	ROUTE	COUNTY	TOTAL SHEETS	SHEET NO.
113BR-3	FA 849	JEFFERSON	22	16
FINAL ASSIGN NO 3	ILLINOIS	FED. AID PROJ NO.		

BRIDGE SHEET 12 OF 17

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

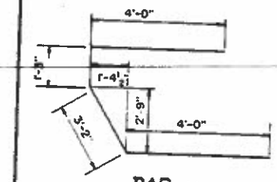


WING REINFORCEMENT

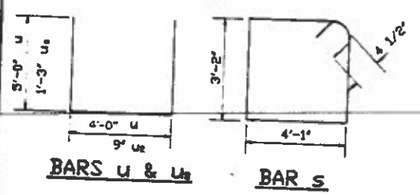


ELEVATION

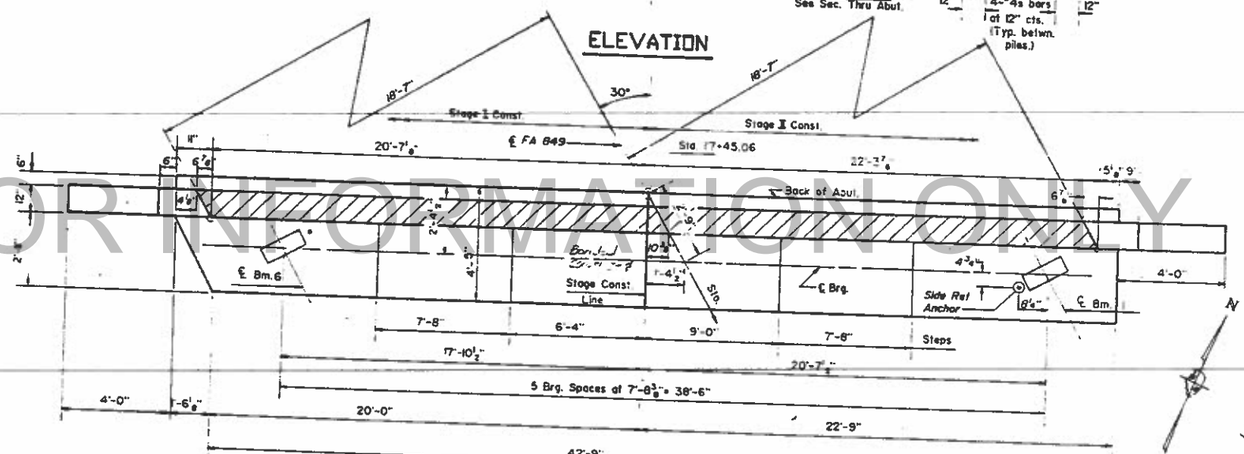
NOTE: Work this sheet with Sheet No. 14



BAR u1



BARS u & u2 BAR s

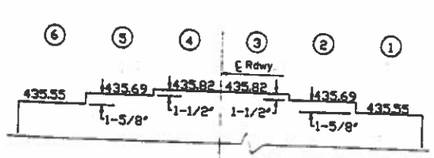


TOP VIEW

BAR u1

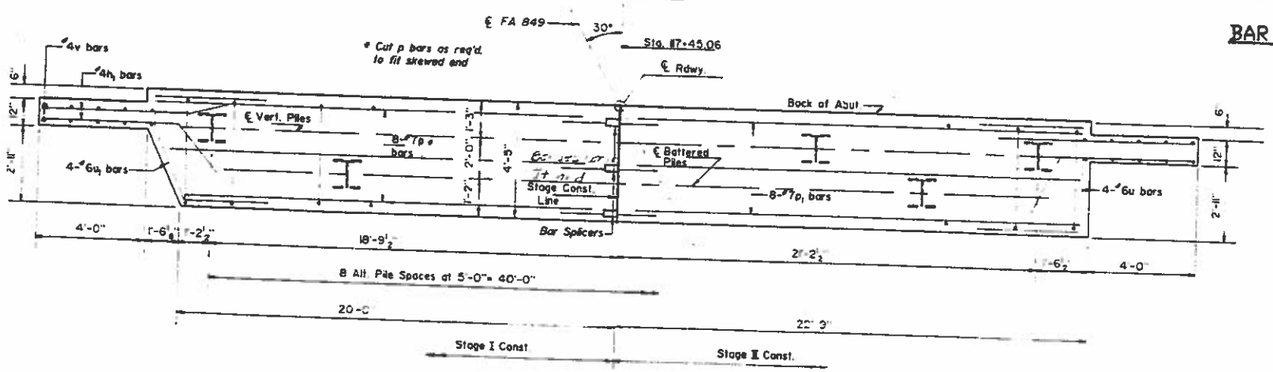
PILE DATA

TYPE: Steel HP 8X36
CAPACITY: To Refusal
EST. LENGTH: 40
NUMBER: 9



STEP DIAGRAM

(Four steps monolithically with cap)



PLAN PILE CAP

ONE ABUTMENT BILL OF MATERIALS

BAR	NO	SIZE	LENGTH	SHAPE
h	16	#6	7'-0"	
h1	12	#4	6'-0"	
h2	8	#4	4'-6"	
h3	6	#5	21'-9"	
h4	6	#5	23'-0"	
h5	1	#5	20'-9"	
h6	1	#5	22'-3"	
h7	3	#6	20'-9"	
h8	3	#6	22'-3"	
p	8	#7	21'-3"	
p1	8	#7	22'-6"	
s	34	#4	15'-3"	
u	4	#6	14'-0"	
u1	4	#6	12'-5"	
u2	44	#6	3'-3"	
v	12	#4	6'-2"	
v1	8	#4	7'-0"	
v2	88	#5	5'-0"	
v3	44	#5	3'-3"	
v4	44	#5	3'-6"	
REINFORCEMENT BARS		POUND	3050	
CLASS X CONCRETE		CU YD	32.3	
STEEL PILES HPBX36		LIN FT	360	

WEST ABUTMENT

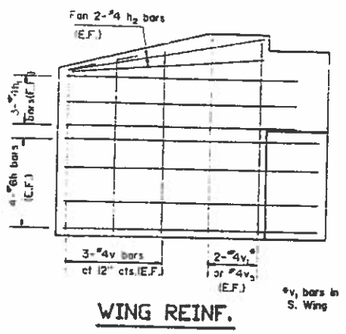
FA RTE 849 SEC 113BR-3
JEFFERSON COUNTY
STATION 118+07.61

GREENE & BRADFORD, LTD.
Consulting Engineers
1819 Stevenson Dr. 217/529-6681 Springfield, IL

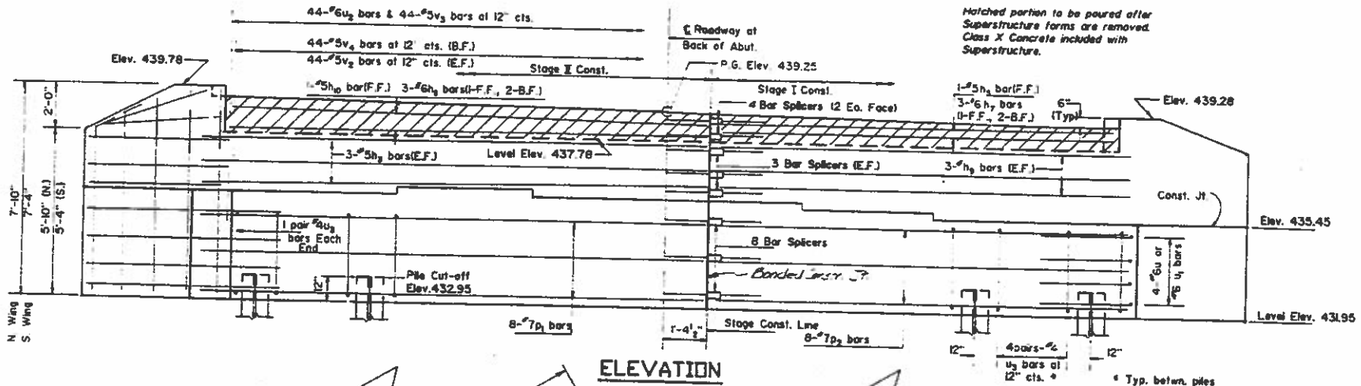
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SEC NO	ROUTE	COUNTY	TOTAL SHEETS	SHEET NO
113BR-3	FA 849	JEFFERSON	22	17
FRAS SECTION NO 9	ILLINOIS	FED. AID PROJ NO.		

BRIDGE SHEET 13 OF 17



WING REINF.



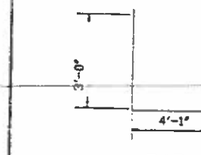
ELEVATION

NOTE: Work this sheet with Sheet No. 14

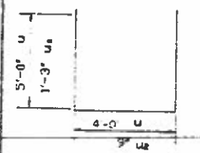
ONE ABUTMENT BILL OF MATERIALS

BAR	NO	SIZE	LENGTH	SHAPE
h	16	#6	7'-0"	
h_1	12	#4	6'-0"	
h_2	8	#4	4'-6"	
h_3	6	#5	21'-9"	
h_5	1	#5	20'-9"	
h_7	3	#6	20'-9"	
h_8	6	#5	21'-0"	
h_9	1	#5	21'-8"	
h_{10}	3	#6	21'-8"	
P_1	8	#7	22'-6"	
P_2	8	#7	21'-0"	
u	4	#6	14'-0"	
u_1	4	#6	12'-5"	
u_2	44	#6	3'-3"	
u_3	68	#4	10'-1"	
v	12	#4	6'-2"	
v_1	4	#4	7'-0"	
v_2	88	#5	5'-0"	
v_3	44	#5	3'-3"	
v_4	44	#5	3'-6"	
v_5	4	#4	7'-3"	

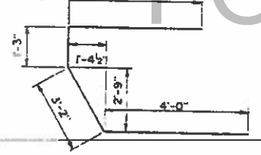
REINFORCEMENT BARS	POUND	3140
CLASS X CONCRETE	CU YD	34.2
STEEL PILES HP8X36	LIN FT	312
TEST PILE HP8X36	EA	1



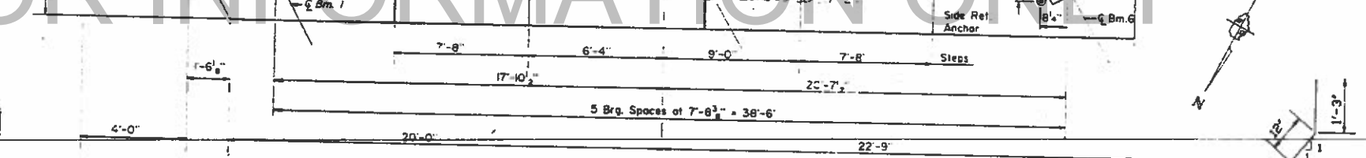
BAR U_3



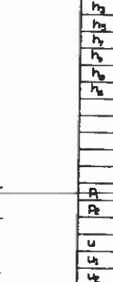
BARS u & U_2



BAR u_1



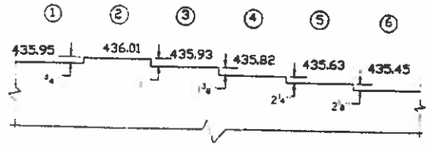
TOP VIEW



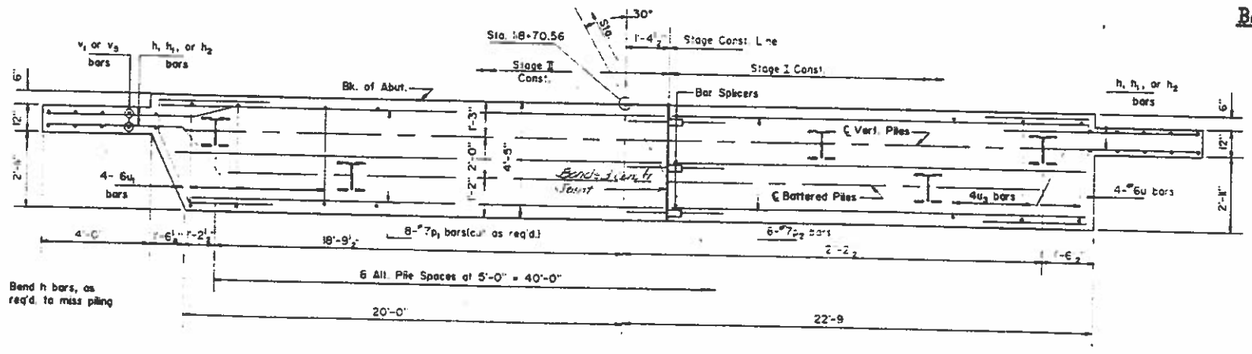
BAR V_4

PILE DATA

TYPE: Steel HP 8X36
CAPACITY: To Refusal
EST. LENGTH: 39
NUMBER: 8
TEST PILE: 1



STEP ELEVATION DIAGRAM
(Pour steps monolithically with cap)



PLAN PILE CAP

EAST ABUTMENT

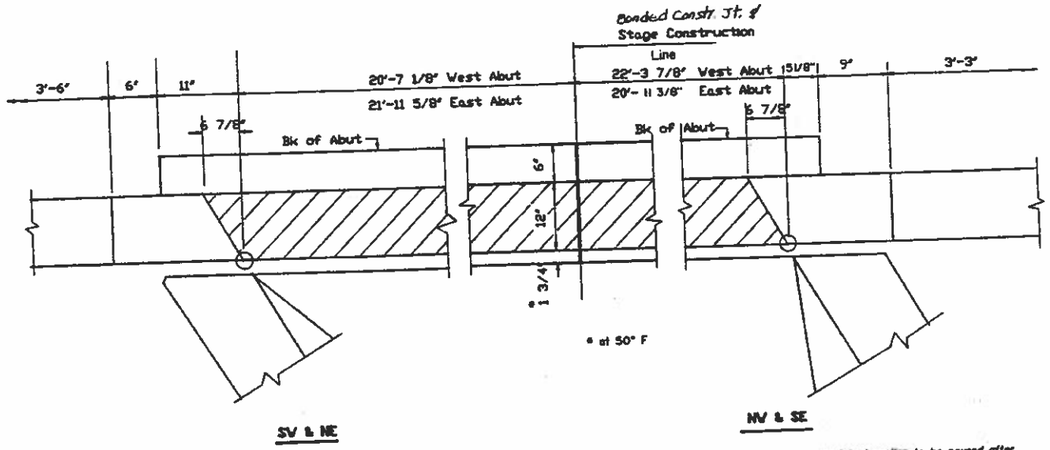
FA RTE 849 SEC 113BR-3
JEFFERSON COUNTY
STATION 118+07.81

GREENE & BRADFORD, LTD.
Consulting Engineers

SEC NO	ROUTE	COUNTY		
113BR-3	FA 849	JEFFERSON	22	18
FAP# SECTION NO 3		ILLINOIS	FED. AID PROJ NO.	

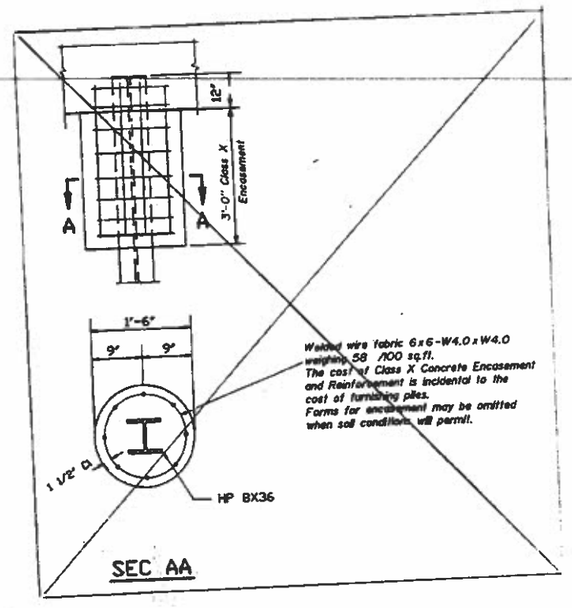
BRIDGE SHEET 14 OF 17

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



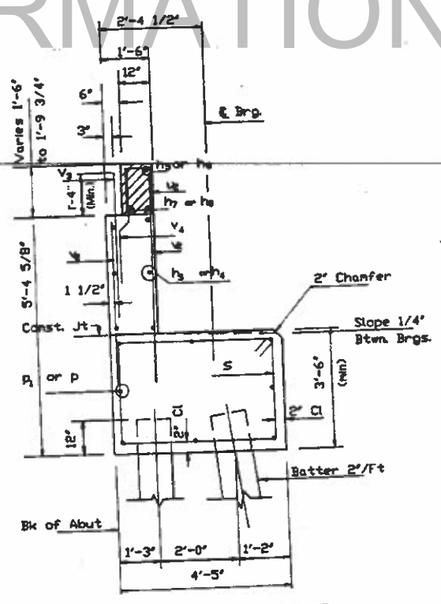
CORNER DETAILS

Hatched portion to be poured after Superstructure forms are removed. Class X Concrete included with Superstructure.

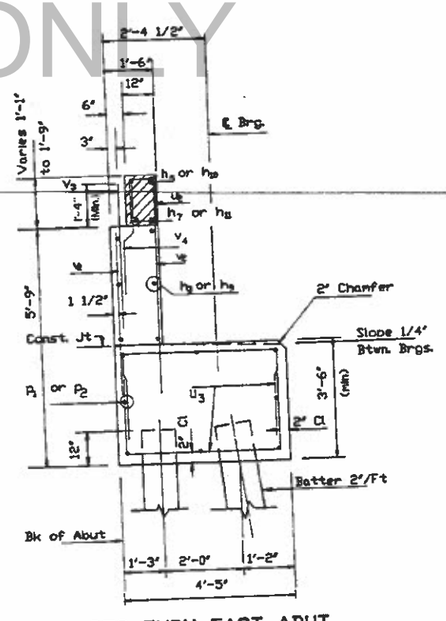


SEC AA

Welded wire fabric 6x6-W4.0xW4.0 weighing 58 /100 sq.ft. The cost of Class X Concrete Encasement and Reinforcement is incidental to the cost of furnishing piles. Forms for encasement may be omitted when soil conditions will permit.



SEC THRU WEST ABUT



SEC THRU EAST ABUT

ABUTMENT DETAILS

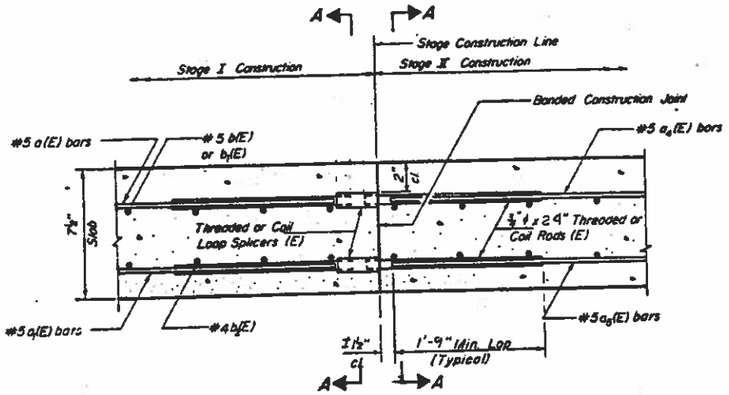
FA RTE SEC 113BR-3
JEFFERSON COUNTY
STA 118+07.81

GREENE & BRADFORD, LTD.
Consulting Engineers

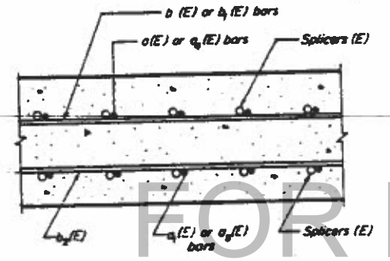
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. 849	113BR-3	JEFFERSON	22	21
PROJ. NUMBER SHEET NO.		PROJ. NO.		

BRIDGE SHEET 17 OF 17



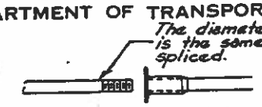
SECTION THRU SLAB



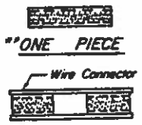
SECTION A-A

SPLICER DETAILS
(No. Req'd. 356)

Cost incidental to reinforcement bars (Epoxy Coated).



Rolled Thread Dowel Bar

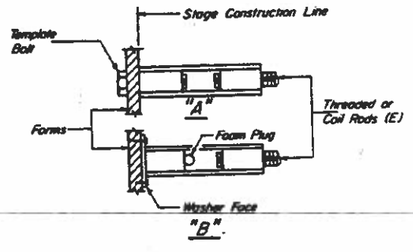


"ONE PIECE

WELDED SECTIONS

SPLICER ALTERNATIVES

"" Heavy Hex Nuts conforming to ASTM A 563, Grade C, D or DH may be used.



INSTALLATION AND SETTING METHODS

"A" Set splicer by means of a template bolt.
"B" Set splicer by nailing to wood forms or cementing to steel forms.
(E) Indicates epoxy coating.

NOTES

Steel Splicer (Coupler) assembly shall be of an approved type and shall develop in tension at least 125 percent of the yield strength of the lapped reinforcement bars.

Steel Splicer rods shall be of minimum 60 ksi yield strength, threaded or coiled full length and have effective tensile stress area equal or greater than that of the lapped reinforcement bars.

All reinforcement bars shall be lapped and tied to the splicer rods.

Splicer (coupler) assembly in the slab shall be epoxy coated in accordance with the requirements for reinforcement bars.

Other systems of similar design may be submitted to the Engineer for approval. Approval shall be based on certified test results from an approved testing laboratory that the proposed splicer (coupler) assembly satisfies the following requirements:

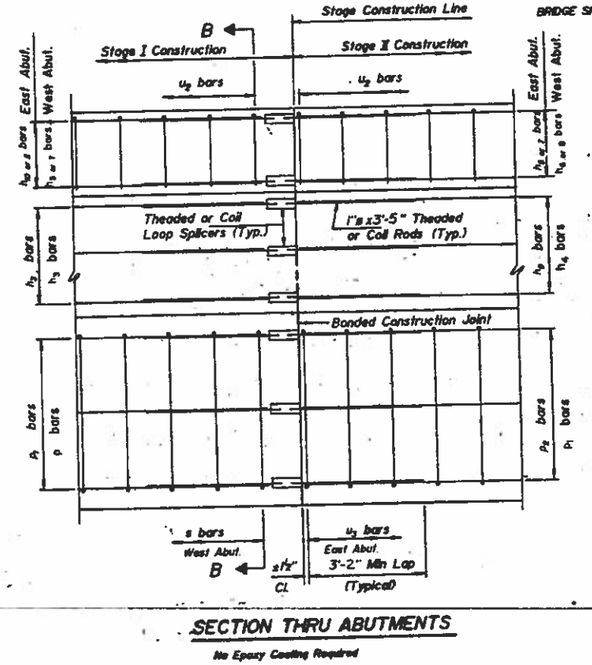
① Minimum Capacity = $1.25 \times f_y \times A_t$ (Tension in kips)

② Minimum * Pull-out Strength = $1.25 \times fs_{allow} \times A_t$ (Tension in kips)

Where f_y = Yield strength of lapped reinforcement bars in k.s.i.
fs_{allow} = Allowable tensile stress in lapped reinforcement bars in k.s.i. (Service Load)
A_t Tensile stress area of lapped reinforcement bars.
* 28 day concrete

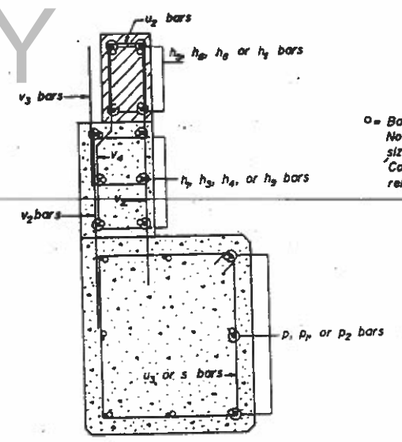
Typical Splicer (Coupler) Assembly Sizes

#5 bar lap with ⅝" ϕ Splicer (Coupler) x 2'-0" Splicer Rods	Minimum Capacity = 23.0 kips - tension Minimum Pull-out Strength = 9.2 kips - tension
#7 bar lap with 1" ϕ Splicer (Coupler) x 3'-5" Splicer Rods	Minimum Capacity = 45.1 kips - tension Minimum Pull-out Strength = 18.0 kips - tension
#6 bar lap with ¾" ϕ Splicer (Coupler) x 2'-8" Splicer Rods	Minimum Capacity = 33.1 kips - tension Minimum Pull-out Strength = 13.3 kips - tension



SECTION THRU ABUTMENTS

No Epoxy Coating Required



o = Bar Splicer - See Notes for appropriate sizes.
Cost incidental to reinforcement bars.

SECTION B-B

SPLICER DETAILS
(No. Required 361)

BAR SPLICER (COUPLER) DETAILS AT STAGE CONSTRUCTION

FA RTE 849 SECTION 113BR-3
JEFFERSON CO.
STATION 118+07.81

GREENE & BRADFORD, Ltd.
CONSULTING ENGINEERS