

ARKANSAS STATE HIGHWAY COMMISSION

JOB NO. 11635

MISSISSIPPI STATE HIGHWAY DEPARTMENT

MISSISSIPPI RIVER BRIDGE

FEDERAL AID PROJECT U-F-018-5 (2)

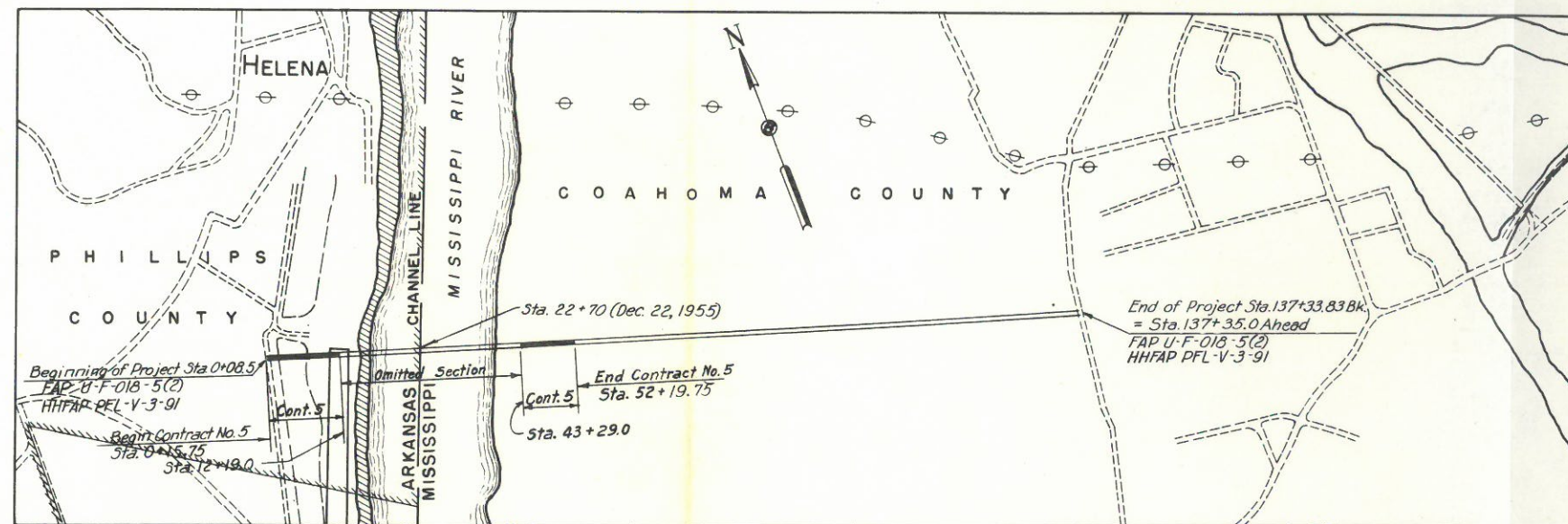
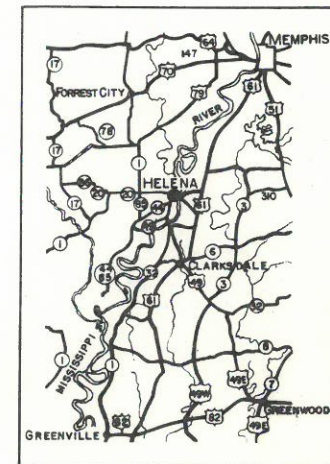
HOUSING AND HOME FINANCE AGENCY PROJECT PFL-V-3-91

NEAR HELENA ARKANSAS

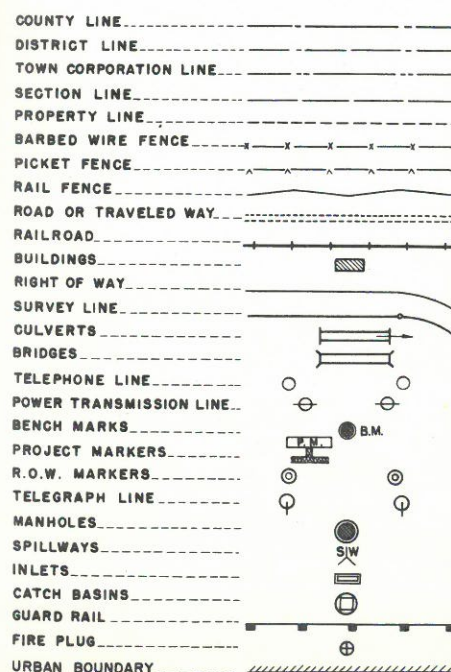
PHILLIPS COUNTY, ARKANSAS

COAHOMA COUNTY, MISSISSIPPI

CONTRACT NO. 5 APPROACHES TO RIVER BRIDGE - SUPERSTRUCTURE



CONVENTIONAL SIGNS



LAYOUT

Scale: 1" = 1500'

GROSS LENGTH OF PROJECT	13725.05 FEET OR 2.599 MILES
NET LENGTH OF PROJECT	13725.05 FEET OR 2.599 MILES
ROADWAY	0.00 " " 0.000 "
BRIDGES	2094.00 " " 0.396 "
CONTRACT NO. 5	2094.00 " " 0.396 "

LIST OF DRAWINGS

5.01 COVER SHEET	5.11 GIRDER DETAILS UNITS 2, 3, 4 AND 5
5.02 GENERAL PLAN AND ELEVATION	5.12 ROADWAY EXPANSION JOINTS
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5.04 RIVER STAGES	5.14 EXPANSION JOINTS AT PIERS 10 AND 15
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5.07 UNIT 1	5.17 ROADWAY SLAB REINFORCEMENT
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5.09 FRAMING UNITS 4 AND 5	5.19 CURB DETAILS
5.10 MISCELLANEOUS DETAILS	5.20 HANDRAIL

ACCEPTED JOHN F. BEASLEY CONST. CO. - DALLAS, TEXAS
CONTRACTOR - CITY AND STATE

DATE 4/27/59 BY John F. Beasley PRESIDENT
TITLE

APPROVED Wagon
DATE 8-28-58 ENGINEERING BRANCH - HOUSING AND HOME FINANCE AGENCY
APPROVED Wagon (Acting)
DATE 8-28-58 REGIONAL COUNCIL - HOUSING AND HOME FINANCE AGENCY
APPROVED Wagon
DATE 8-28-58 CHIEF ENGINEER - ARKANSAS STATE HIGHWAY COMMISSION
APPROVED Wagon
DATE 8-28-58 DIRECTOR - MISSISSIPPI STATE HIGHWAY DEPARTMENT
APPROVED John H. Carter
DATE 9-3-58 DIVISION ENGINEER - BUREAU OF PUBLIC ROADS

PREPARED AND RECOMMENDED BY
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS

KANSAS CITY CLEVELAND NEW YORK



- 1 River Bridge Substructure
- 2 Approaches to River Bridge - Substructure
- 3-6 Relief Structures
- 4 River Bridge Superstructure
- 5 Approaches to River Bridge - Superstructure
- 7 Embankment and Paving
- 8 Toll Collection Facilities, Utilities and Lighting

GENERAL PLAN AND ELEVATION

SCALE 1" = 200' HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE EFC DATE 3-8-56 CONSULTING ENGINEERS
TRCD. AH DATE 6-25-56 KANSAS CITY CLEVELAND NEW YORK
CKD. GR. DATE 9-6-56 984 SHEET 1.02

0.2 miles below Y. and M.V. R.R. incline opposite Helena, Arkansas. 500 feet back of top bank (1952) in open field. Pipe and tile stamped "B.M. Igmis 1933"; 40 feet D.S. of D.S. fork of cultivated field; in small timber 65 feet back of 40" Pecan. Elev. 188.02.

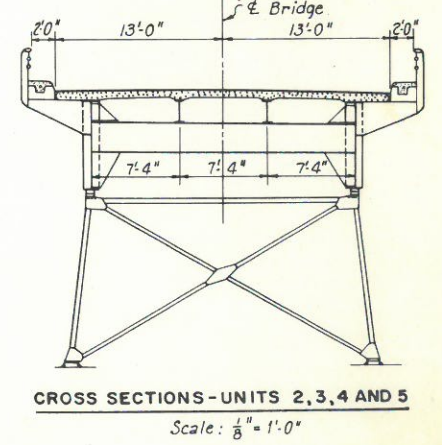
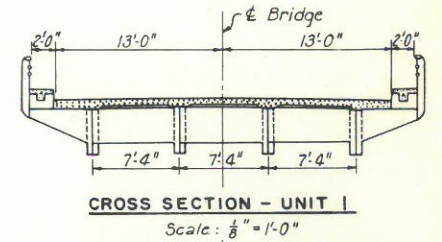
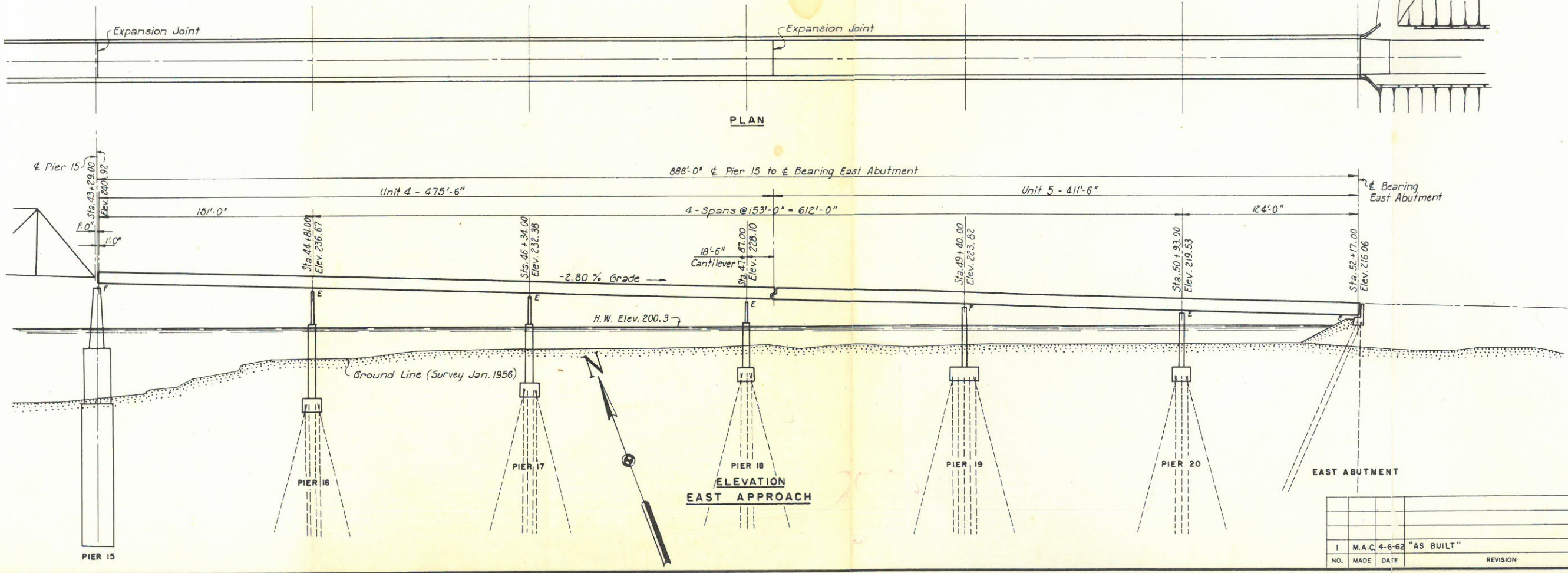
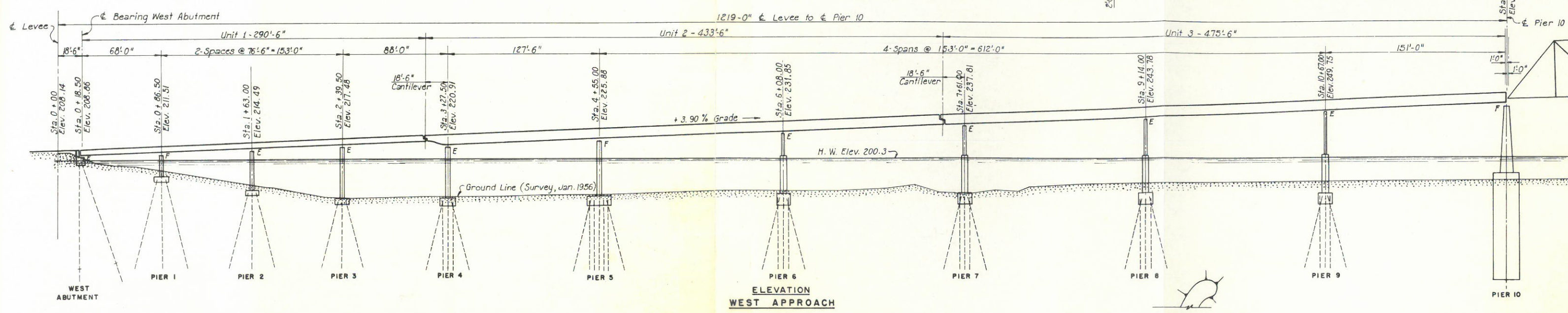
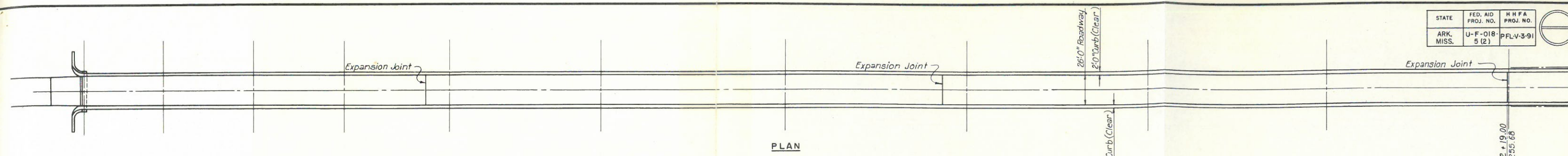
8. All concrete in pier bases and shafts shall have a minimum strength 3000 psi at 28 days. See Specifications.

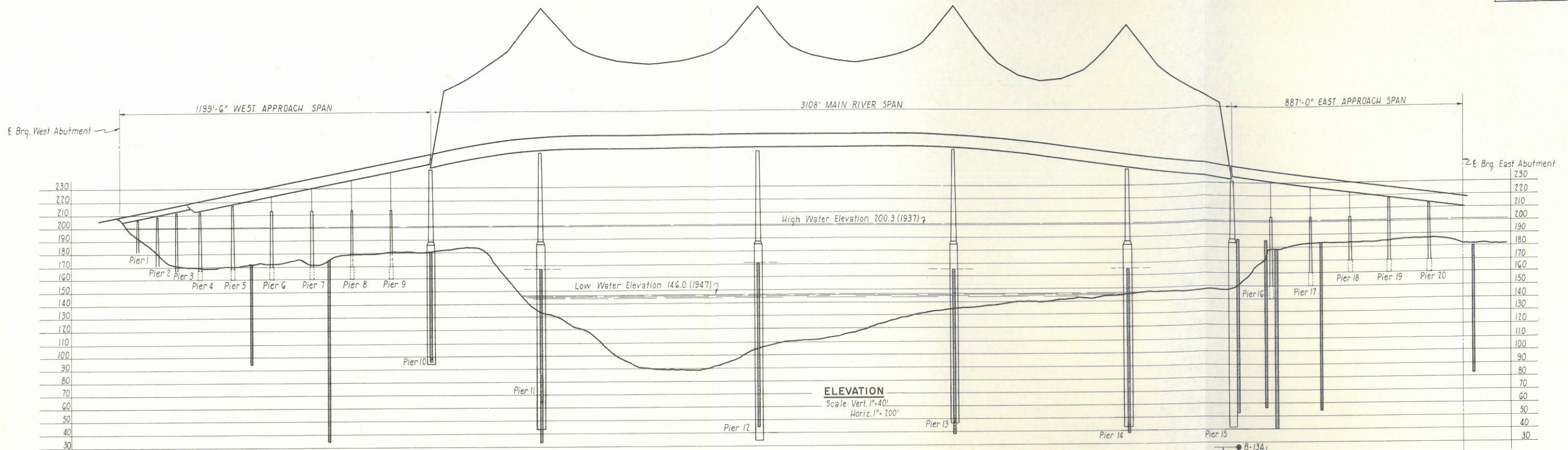
9. Reinforcing steel shall be spliced as shown or as approved by the Engineer. Lap all bars 30 diameters at splices. All bars must be placed 3" clear from the face of concrete. Bends shall conform to A.C.I. standards. Reinforcing steel to be billet steel (intermediate or hard grade) or rail steel, with a design tensile stress of 20,000 p.s.i. One grade or type of reinforcing steel shall be used exclusively in any one structural component, caisson, shaft, etc. All bar sizes are designated on the plans by number; the first digit of the bar mark, (in the case of 3 digits, and first 2 digits in the case of 4), indicates the size of the bar.

10. All welding shall conform to the American Welding Society Specifications for welded Highway and Railroad Bridges.
11. Elevations of ground surface and of various sub-surface strata shown on this and accompanying drawings are based on the best information presently available but must be considered as approximate only. See the Specifications.
12. All steel not otherwise shown shall be carbon structural steel A.S.T.M. A7-55T. Manganese steel is modified A242. On sheets with both carbon and manganese steel specified, each is identified by the letters "C" for carbon structural steel and "A" for manganese steel. See the specifications.

13. Carbon steel pins are to be A235-54 T (Class I) or Class A108 - 54T steel, or as provided in A.A.S.H.O. revisions T1 (55)
14. Unless otherwise noted, all rivets shall be $\frac{3}{4}$ " diameter.
15. Rivet spacing shall conform to the requirements of the design specifications.
16. All surfaces which will be inaccessible after erection shall be field painted or metallized in shop.
17. Light-weight aggregate shall be used in roadway slab and safety walks for truss spans, making a finished concrete weighing less than 105 #/cu. ft. It shall have a finished strength of 3000 p.s.i. at 28 days. See Specifications.

[illegible]





GROUND PLAN
Scale: 1" = 200'

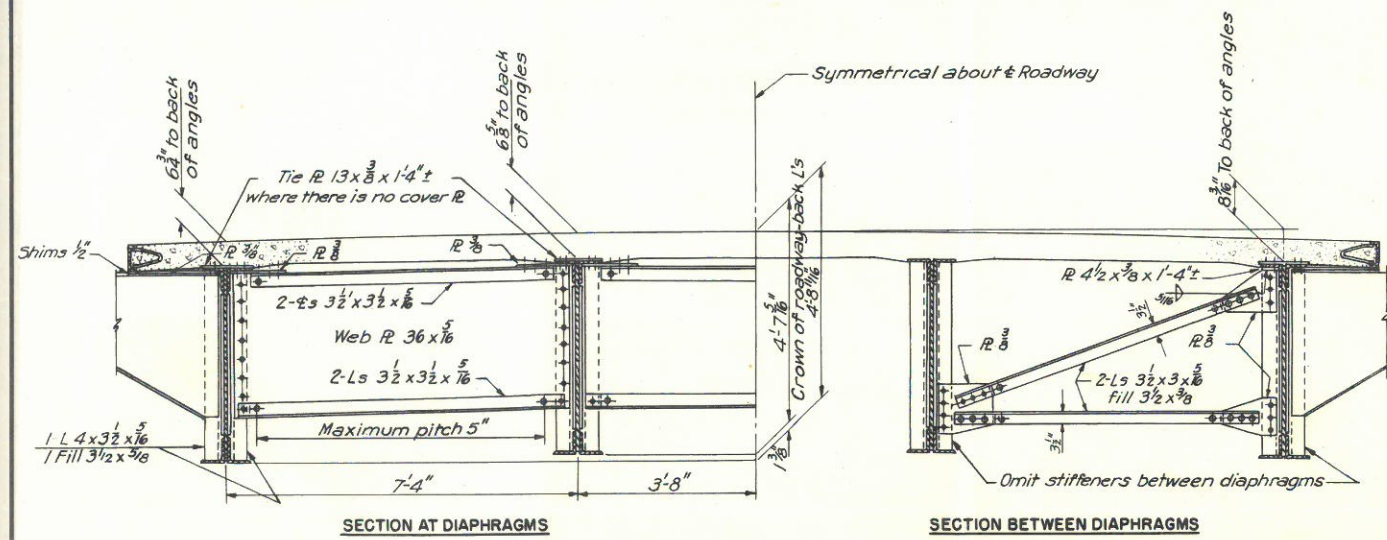
Note:
Borings made in February, March, April, 1956, by National Soil Services, Houston, Texas.
Borings B-5, B-9 and B-12 were wash type borings. Cores and/or semi-undisturbed samples taken in all other borings with 2" O.D. Split-spoon and Shelby tube samplers.
Numbers to left of borings are the number of blows of a 140" hammer falling thirty inches required to drive a 2" O.D. Split-spoon sampler one foot after first being driven six inches.
Samples of lignite layer obtained by driving 3" Shelby Tube sampler.
Log is of material encountered in the particular hole bored and is not guaranteed to represent material actually encountered in the excavation.

BORING SIGNS AND ABBREVIATIONS

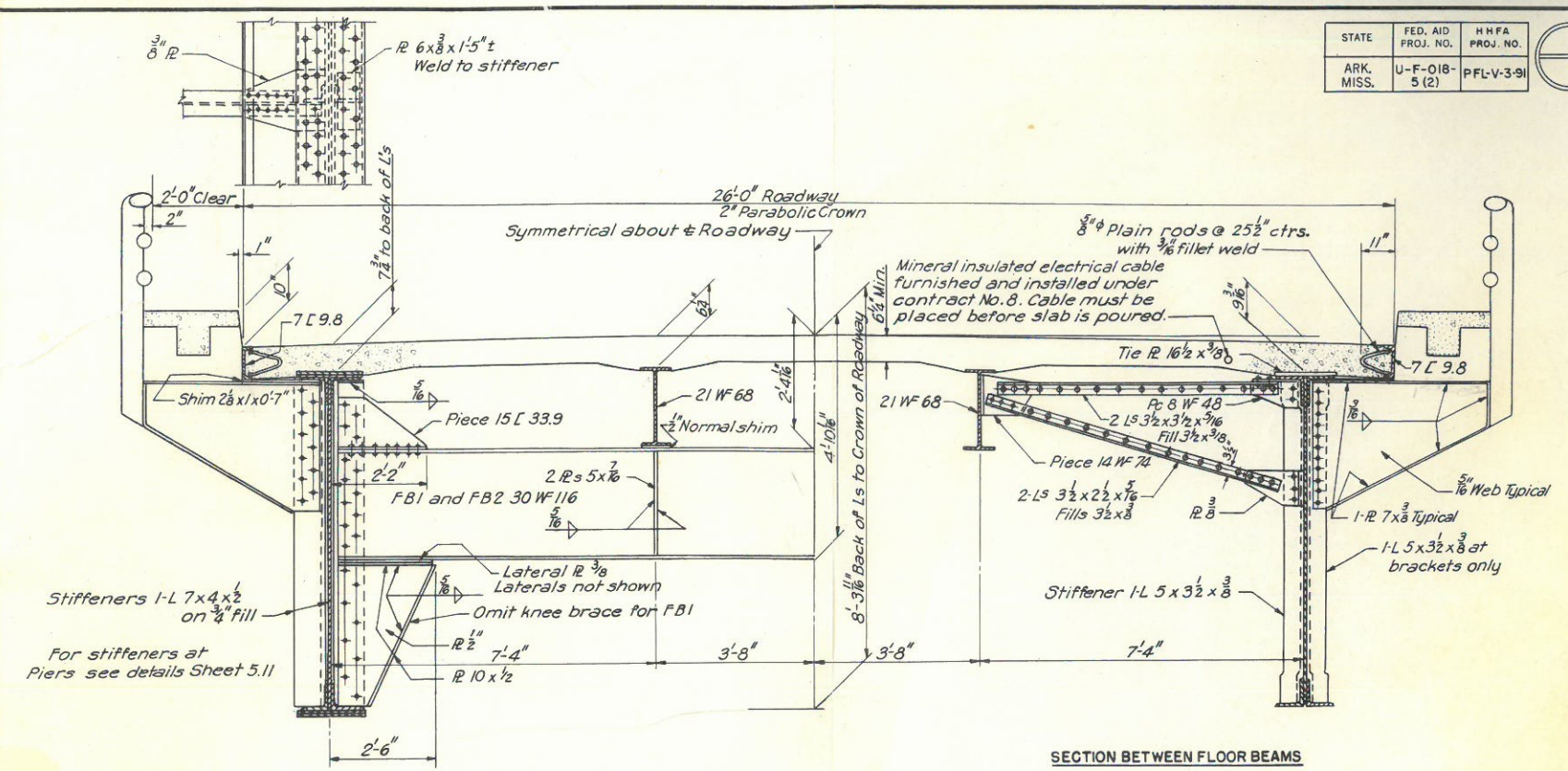
+	and	lgy	lignitic
→	becomes	lt	light
↓	below, after	ls	loose
-	to	me	medium
l	with	oc	occasional, some
br	brown	sa	sand
chg	changing	say	sandy
cl	clay	sf	stiff
clay	clayey	sh	shale
cn	clean	shy	shaley
co	coarse	si	silt
dn	dense	siy	silty
dk	dark	sk(s)	streak(s)
fi	fine	sl	slightly
fm	firm	sm(s)	seam(s)
gr	gray	so	soft
gv	gravel	ss	siltstone
gvq	gravelly	th	thin
hd	hard	tr(s)	trace(s)
lg	lignite	v	very

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MISSISSIPPI STATE HIGHWAY DEPARTMENT
MISSISSIPPI RIVER BRIDGE
NEAR HELENA, ARKANSAS

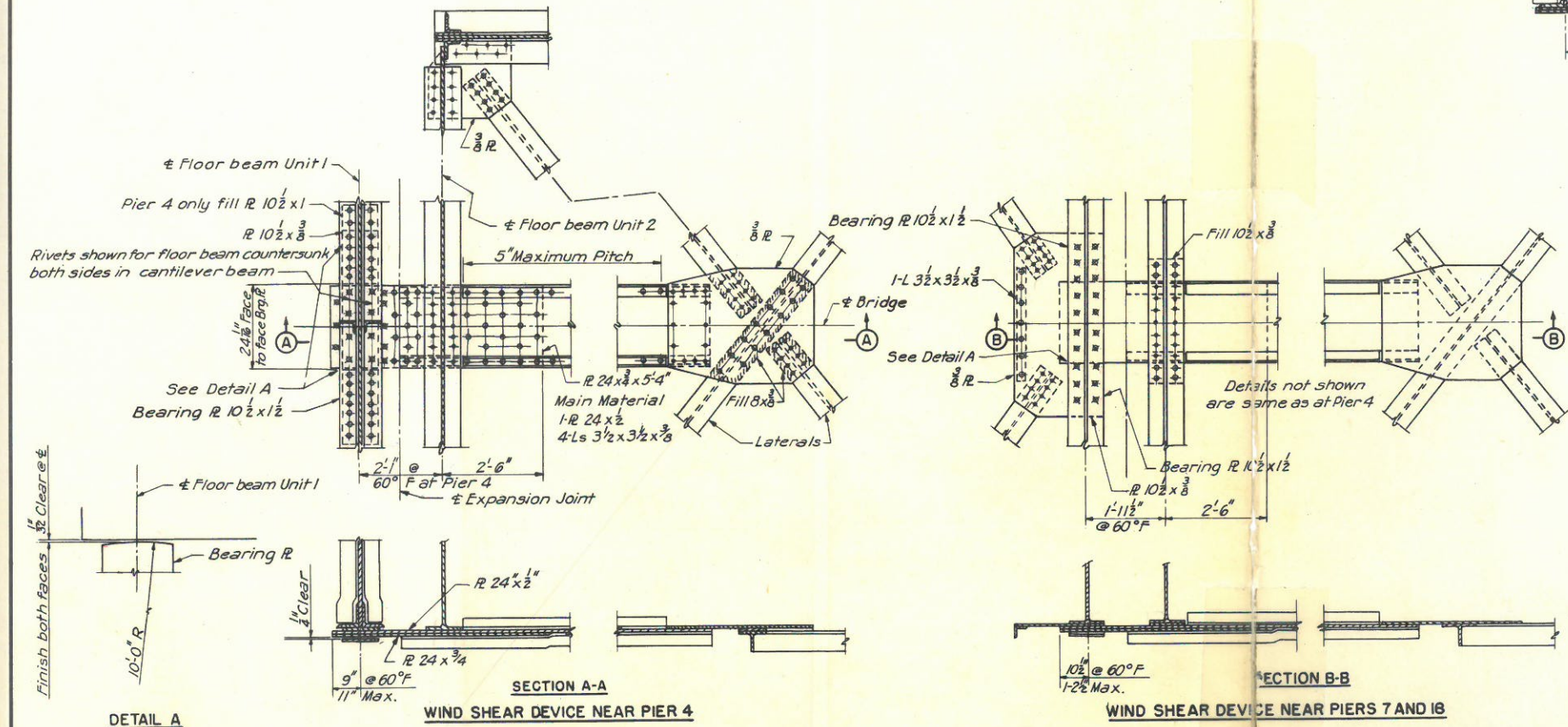
RIVER BRIDGE SUBSTRUCTURE BORINGS



TYPICAL CROSS SECTIONS UNIT 1
Slab and Sidewalk same as for Unit 2

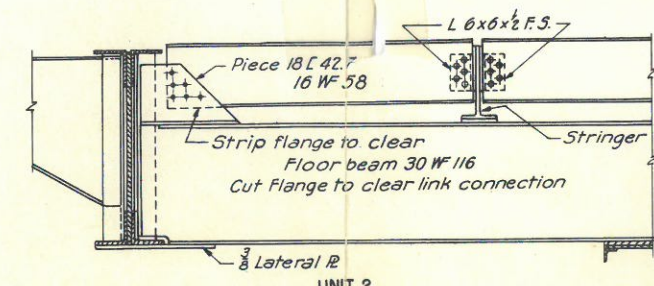
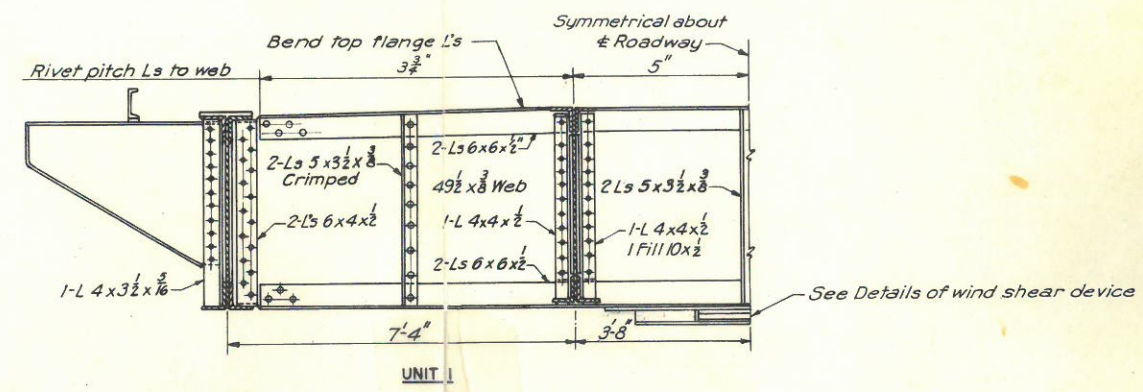


TYPICAL CROSS SECTIONS UNITS 2 TO 5



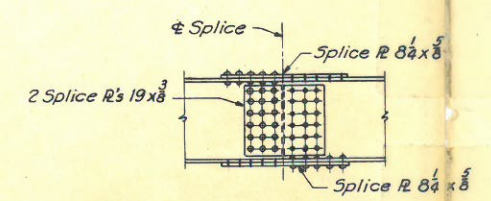
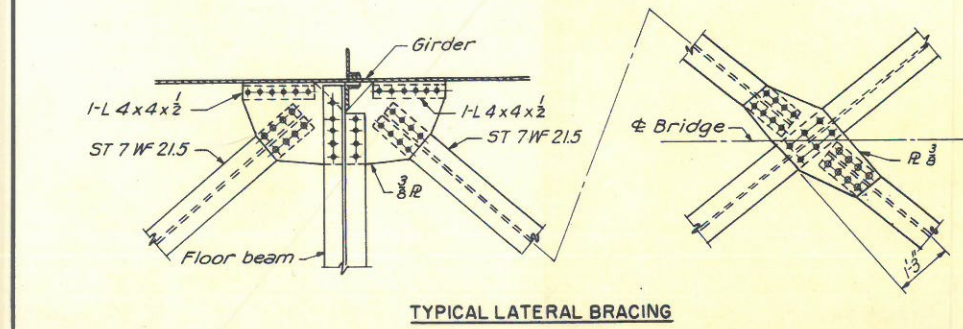
WIND SHEAR DEVICE NEAR PIER 4

WIND SHEAR DEVICE NEAR PIERS 7 AND 18

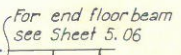


FLOOR BEAMS AT EXPANSION JOINT NEAR PIER 4

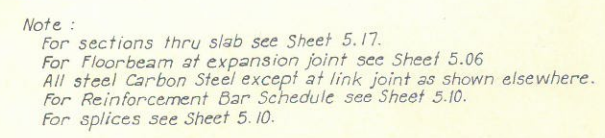
Note:
All steel carbon steel.



Stringer Splices to be in end panels and in general about two panels apart and about 6'-4" from $\pm$ of floor beam.



Unit 1 - 290'-6" Measured on horizontal

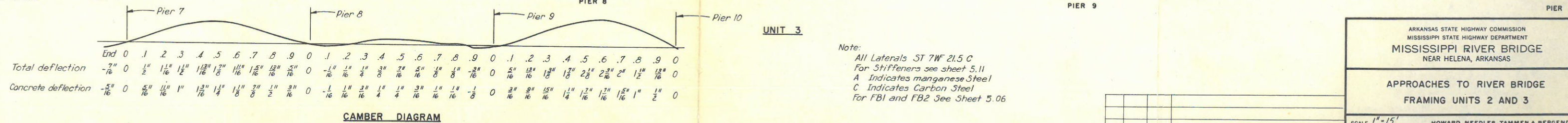
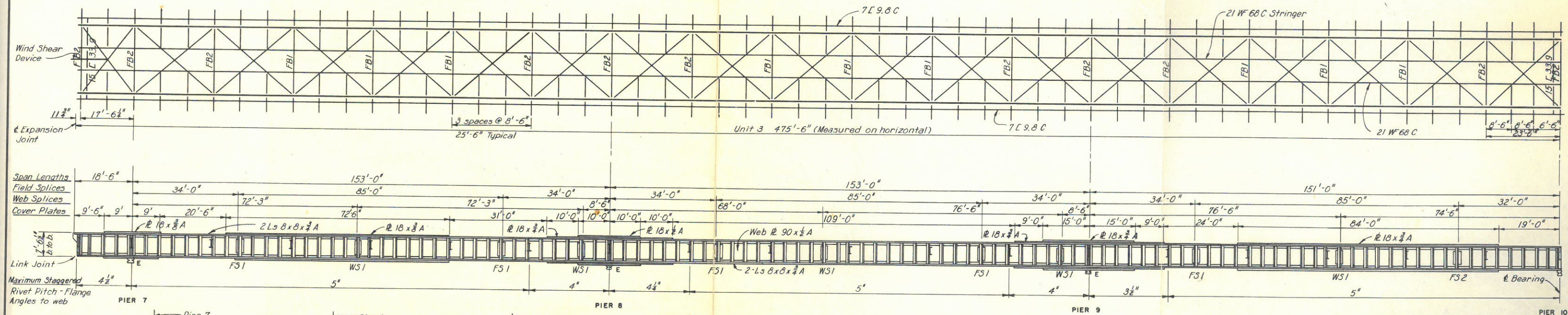
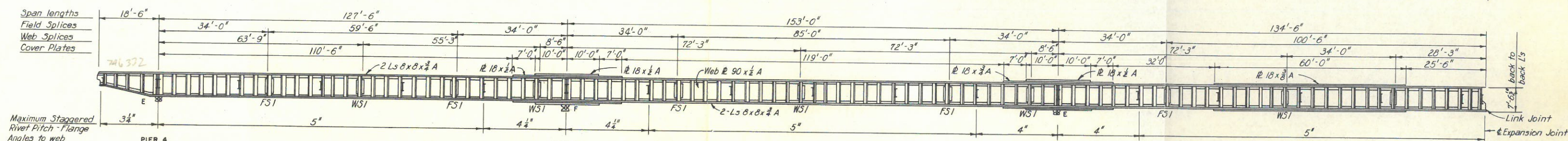
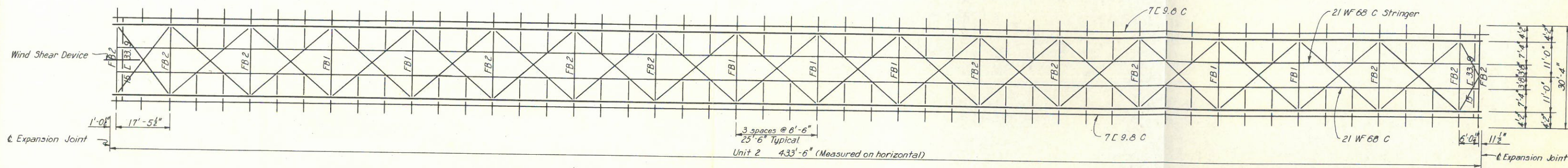


ARKANSAS STATE HIGHWAY COMMISSION
MISSISSIPPI STATE HIGHWAY DEPARTMENT
MISSISSIPPI RIVER BRIDGE
NEAR HELENA, ARKANSAS

APPROACHES TO RIVER BRIDGE
UNIT I

SCALE $1" = 10'$
MADE EGC DATE 7-12-56
TRCD, AH DATE 7-8-56
CKD, DMD DATE 7-25-56

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
984 SHEET. 5 OF 7



Note:

All Laterals ST 7WF 21.5 C

For Stiffeners see sheet 5.11

A Indicates manganese Steel

C Indicates Carbon Steel

For FB1 and FB2 See Sheet 5.06

ARKANSAS STATE HIGHWAY COMMISSION
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NEAR HELENA, ARKANSAS

APPROACHES TO RIVER BRIDGE
FRAMING UNITS 2 AND 3

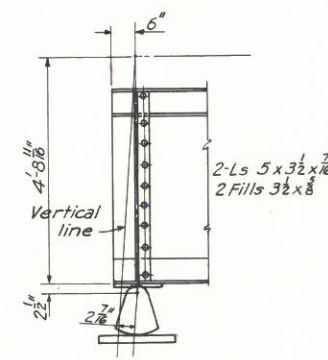
SCALE 1"=15'

MADE EFC DATE 4-25-56
TRCD GJK DATE 7-20-56
CKD DMD DATE 6-28-56

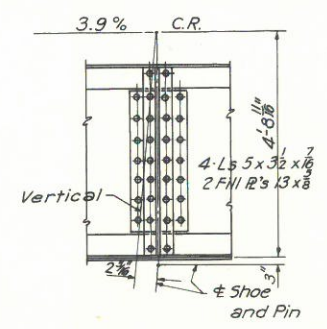
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

984 SHEET 5.08

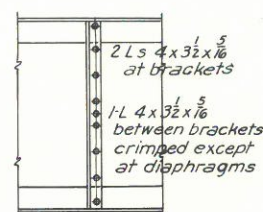
NO.	MADE	DATE	REVISION
1	M.A.C.	4-6-62	"AS BUILT"



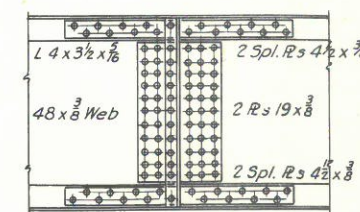
STIFFENERS AT WEST ABUTMENT



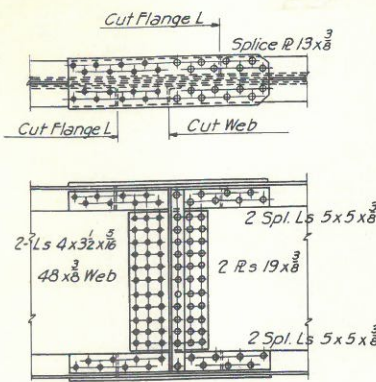
STIFFENERS AT PIERS 1, 2 AND 3



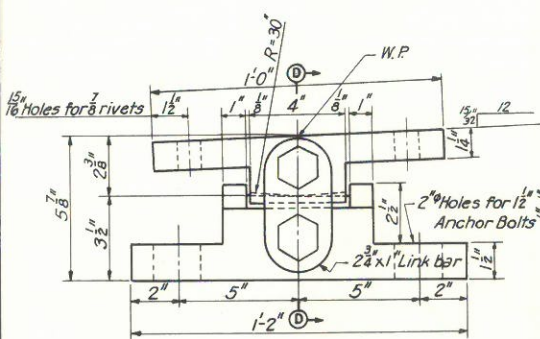
TYPICAL STIFFENERS



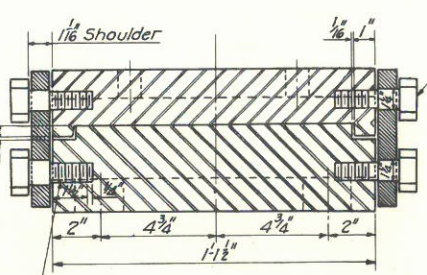
WEB SPLICE



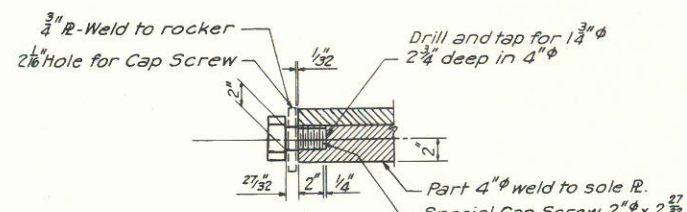
FIELD SPLICE



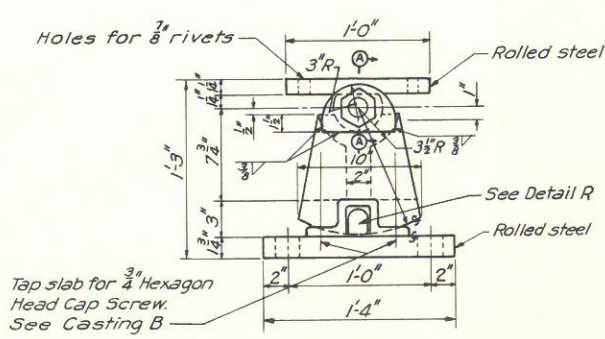
SHOE AT PIER 1
Scale 3" = 1'-0"
4 Required



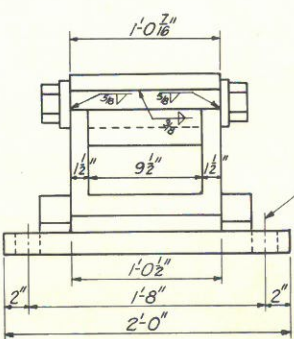
SECTION D-D



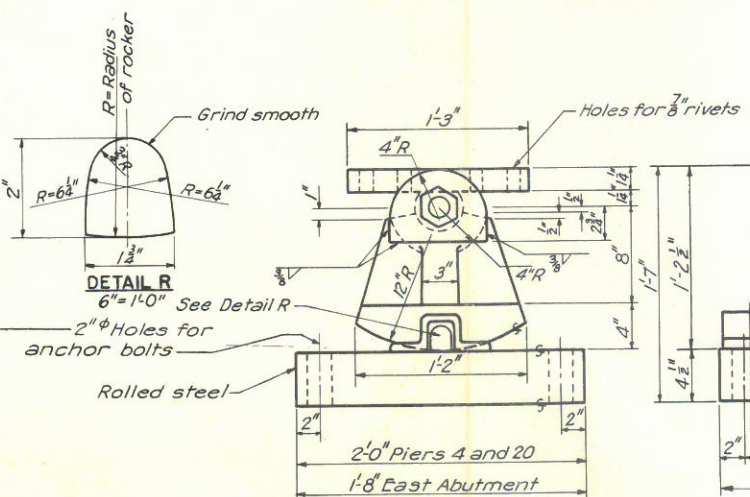
SECTION A-A



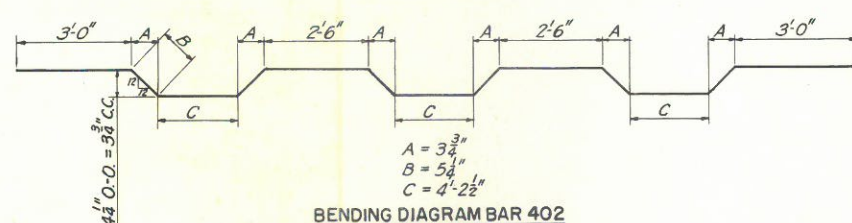
SHOE AT WEST ABUTMENT AND PIERS 2 AND 3
Scale 1 1/2" = 1'-0"
12 Required



CASTING B
Scale 1 1/2" = 1'-0"



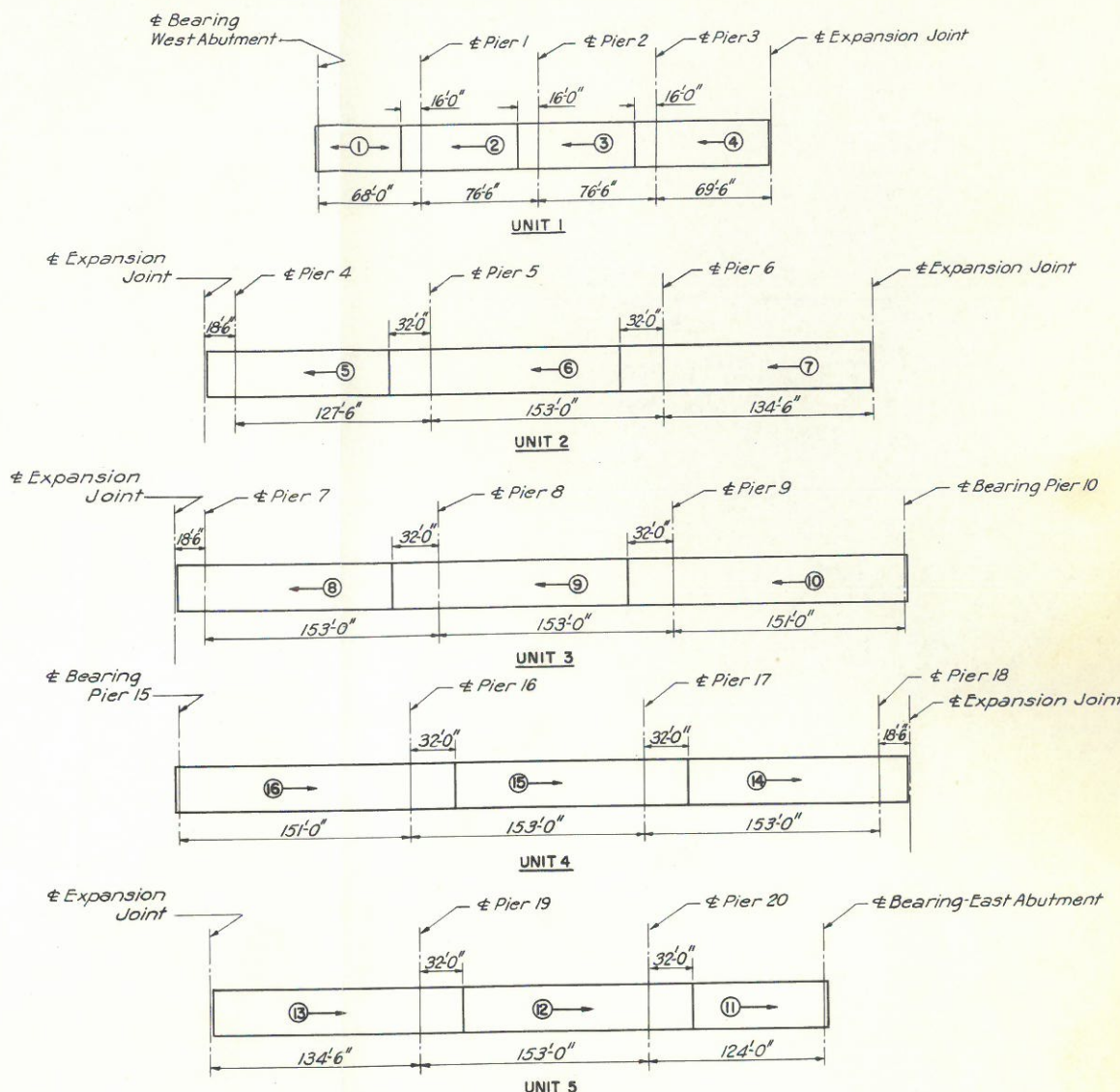
DETAIL R
6" = 1'-0" See Detail R



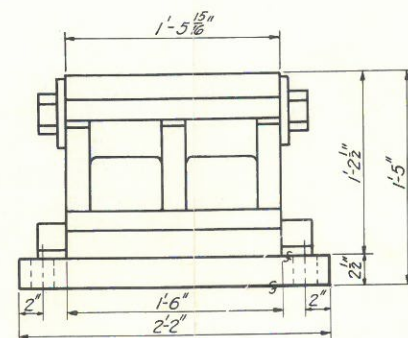
BENDING DIAGRAM

BENDING DIAGRAM BAR 402

MARK	NUMBER					LENGTH	TYPE
	UNIT 1	UNIT 2	UNIT 3	UNIT 4	UNIT 5		
401	774	1148	1260	1260	1094	25'-6"	Str.
402	385	571	627	627	545	26'-3"	Bent
403	378	540	648	648	540	40'-6"	Str.
404	84	56	84	84	56	23'-0"	Str.
405	54					17'-9"	Str.
406		54				5'-0"	Str.
407			54			7'-9"	Str.
408				54		7'-9"	Str.
409					54	21'-9"	Str.



SLAB POURING SEQUENCE
APPROACH SPANS
No Scale



SHOE AT EAST ABUTMENT

Scale 1 1/2" = 1'-0"
Same as Shoe at Pier 4 except as shown
2 Required

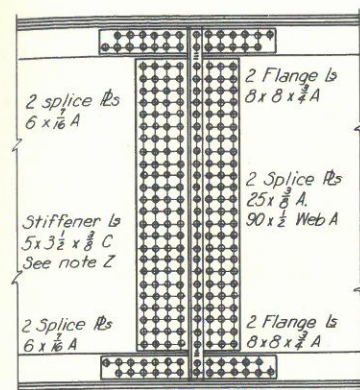
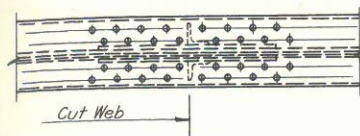
SHOE AT PIERS 4 AND 20
Scale 1 1/2" = 1'-0" 4 Required
Shoe at Pier 4 Carbon Steel
Rocker and Slab at Pier 20 to be
Manganese Steel. Remainder Carbon Steel

ARKANSAS STATE HIGHWAY COMMISSION
MISSISSIPPI STATE HIGHWAY DEPARTMENT
MISSISSIPPI RIVER BRIDGE
NEAR HELENA, ARKANSAS

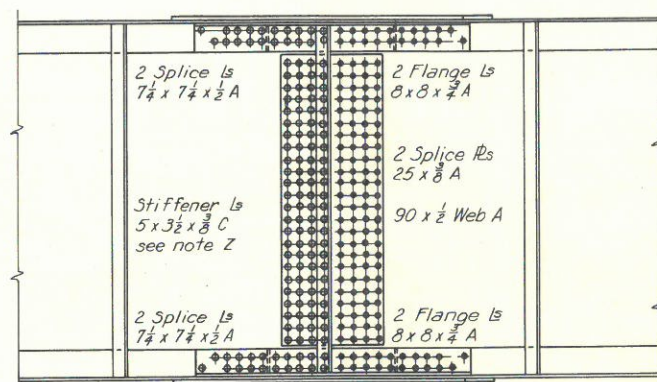
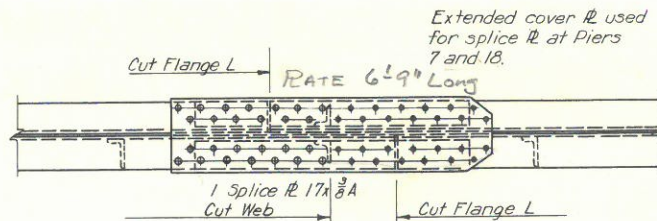
APPROACHES TO RIVER BRIDGE
MISCELLANEOUS DETAILS

SCALE As Shown
MADE E.T.C. DATE 6-15-36
TRCD. E.T.H. DATE 7-4-36
CKD. D.M.Q. DATE 7-19-36
HOWARD, NEEDLES, TAMMEN & BERGENSON
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
984 SHEET 510

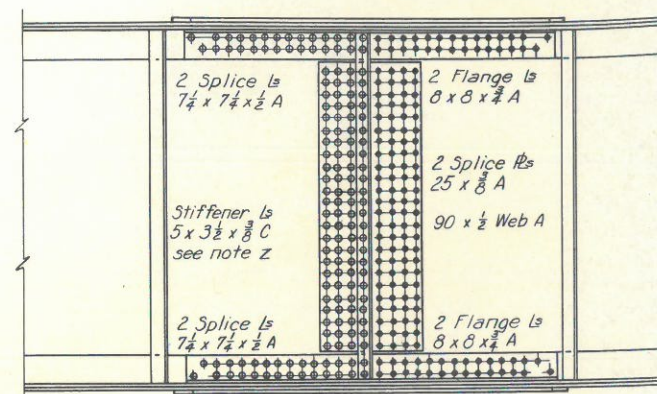
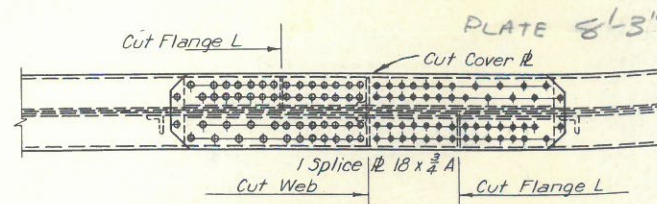
NO.	MADE	DATE	REVISION
1	M.A.C.	4-6-62	"AS BUILT"



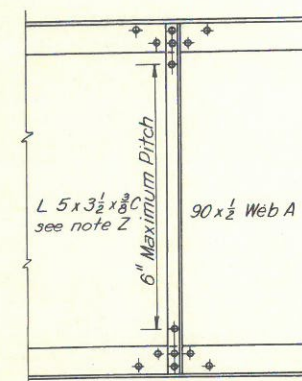
WEB SPLICE WSI



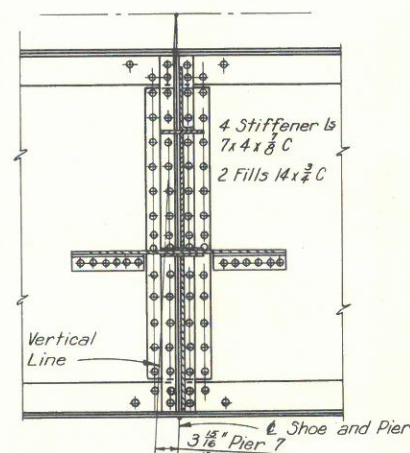
FIELD SPLICE FSI



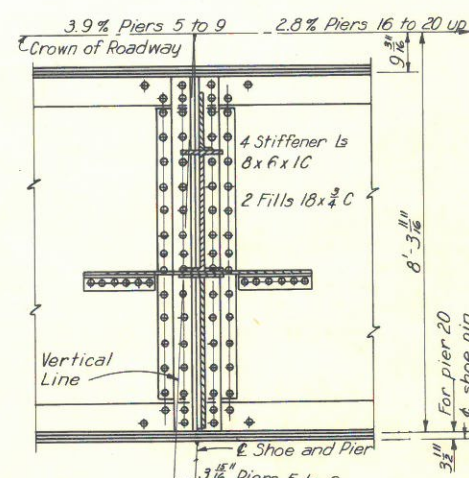
FIELD SPLICE FS2



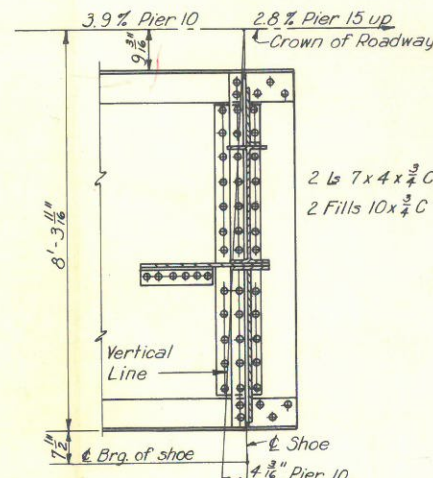
Note Z
Stiffeners to be as follows:
At piers: As shown below.
At other floorbeams:
2L 7x4 x 1/2 A
At sidewalk brackets:
2L 5x3 1/2 x 3/8 C
Between brackets:
1L 5x3 1/2 x 3/8 C on inside of girder, crimped.
At splices: As called for above, crimped.
At Line Joints: As shown in details.



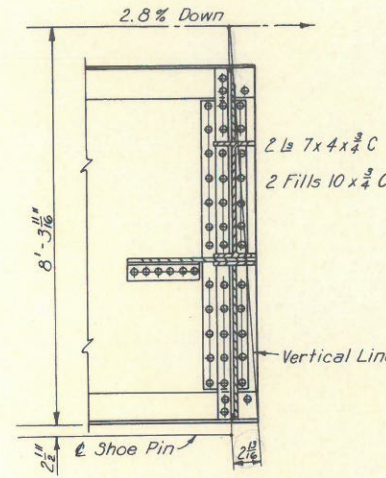
STIFFENERS AT PIERS 7 AND 18



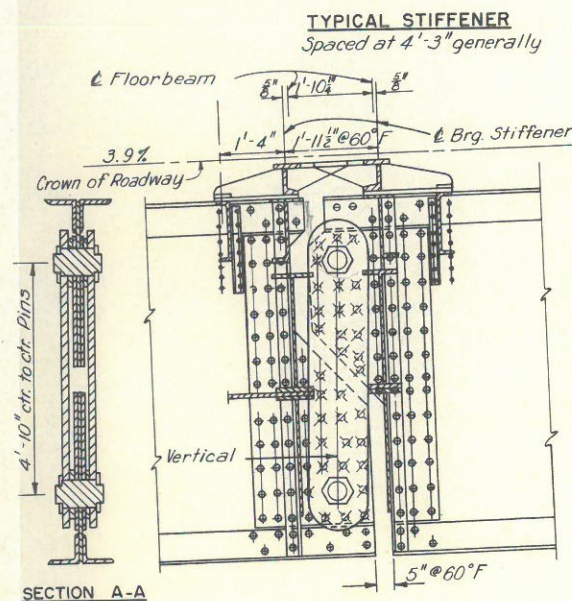
STIFFENERS AT PIERS 5, 6, 8, 9, 16, 17, 19 AND 20



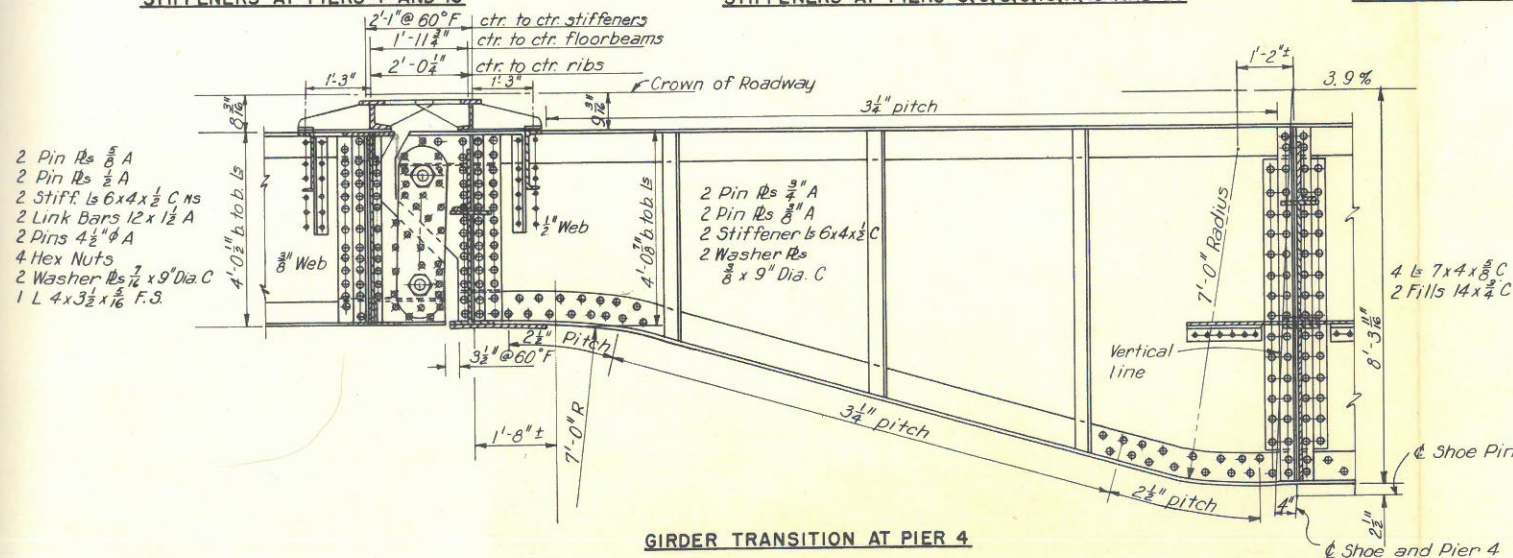
STIFFENERS AT PIERS 10 AND 15



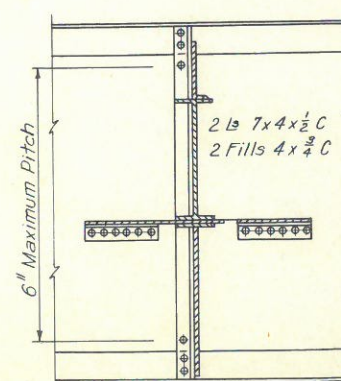
STIFFENERS AT EAST ABUTMENT



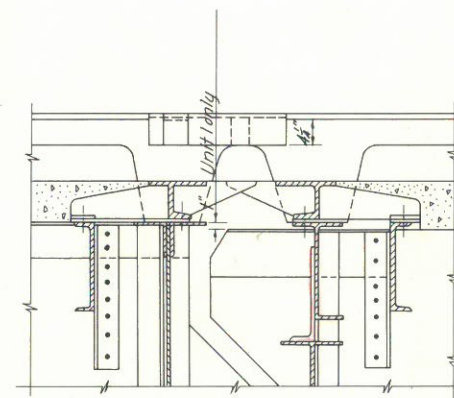
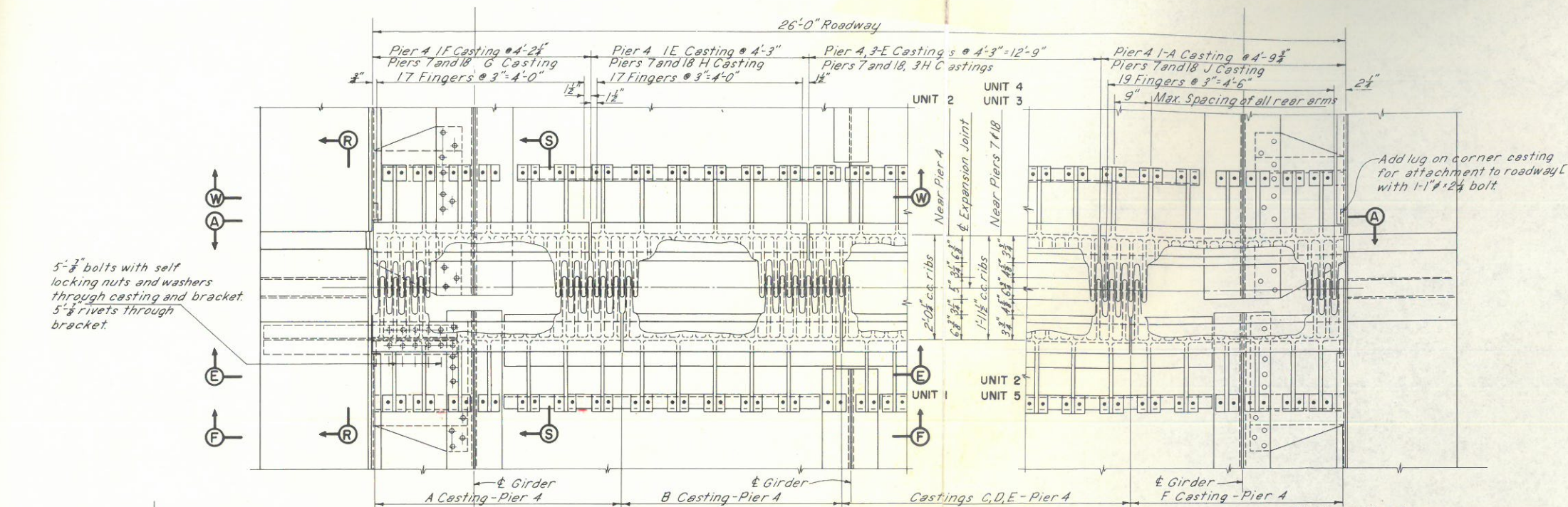
LINK EXPANSION JOINT



GIRDER TRANSITION AT PIER 4

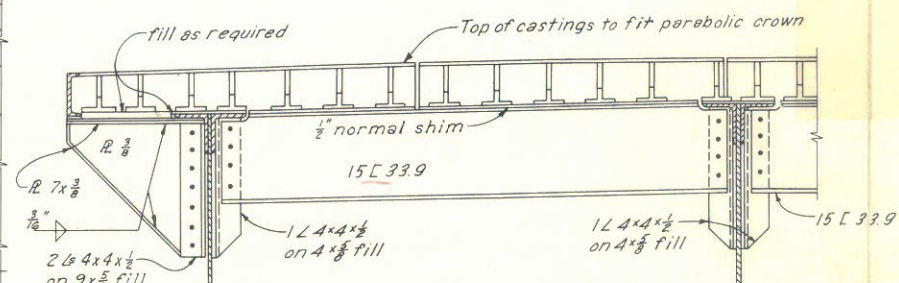


STIFFENERS AT FLOORBEAMS

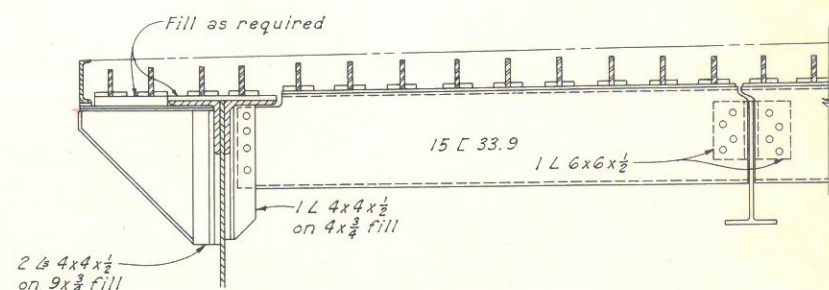


SECTION S-S
Scale: 1/4"=1'-0"

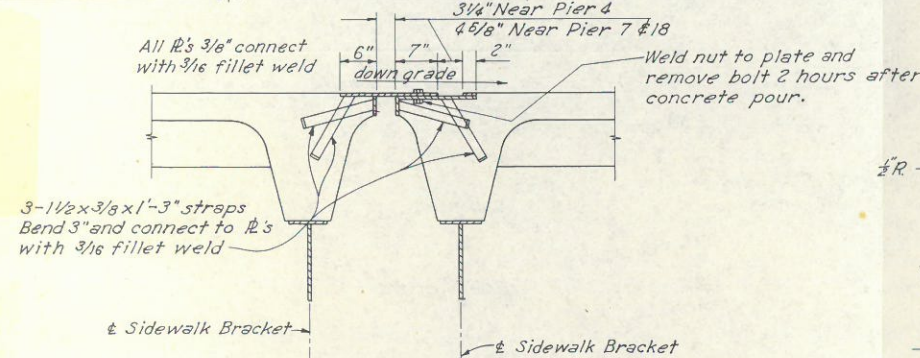
Note: For location of castings with respect to their supporting metal see Sh. 5.11.



SECTION F-F (Unit 1 only)
Scale: 1/4"=1'-0"



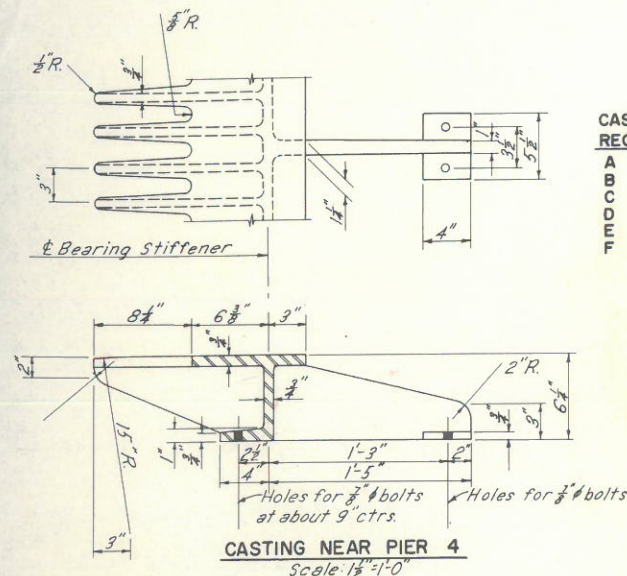
SECTION W-W
Scale: 1/4"=1'-0"



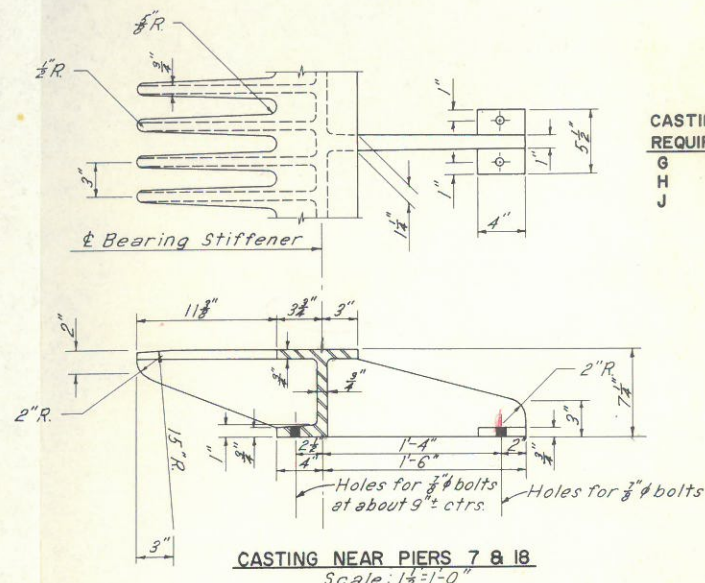
SECTION R-R
Scale: 1/4"=1'-0"

NOTE ON CASTINGS
Roadway castings shall be of a high strength steel and galvanized or metallized after shop assembly. They shall be machined to a smooth finish on all surfaces in contact with metal and shall have at least one machine cutting over the tops of the extended fingers.

Notes:
For Section E-E Pier 4 see Unit 1 Floorbeam, Sh. 5.14.
For Section A-A and E-E Piers 7 & 18 see Section A-A Sh. 5.14.
At Pier 4 the tooth layouts for both sides are the same by rotation but anchor arm spacing differs.
At Piers 7 & 18 the two sides are the same by rotation.
For Section F-F, Piers 7 & 18 see Section B-B, Sh. 5.14.



CASTINGS REQUIRED	
A	2
B	1
C	5
D	2



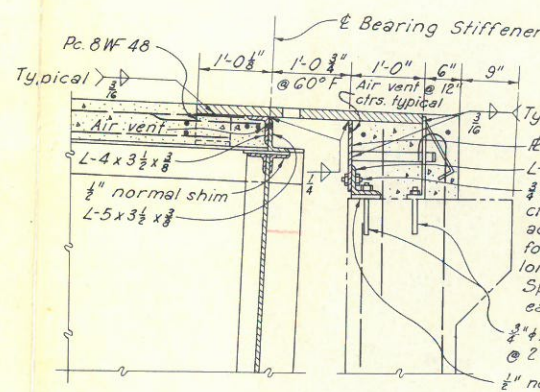
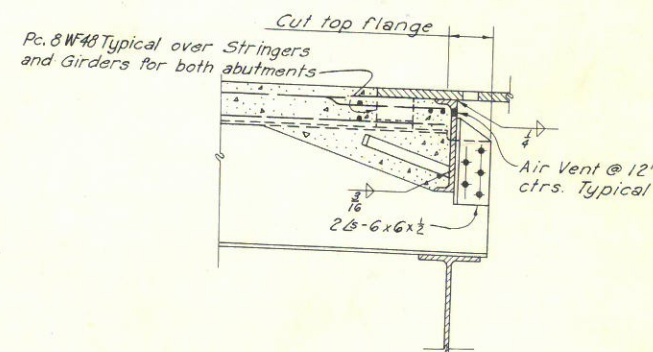
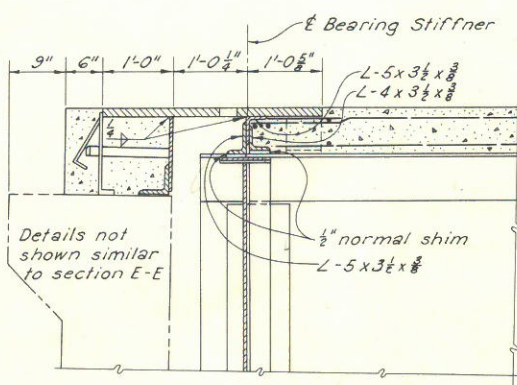
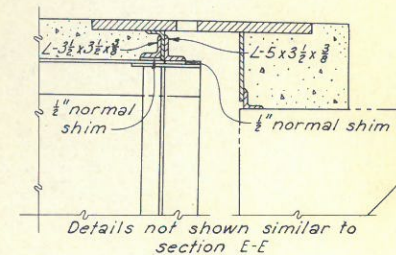
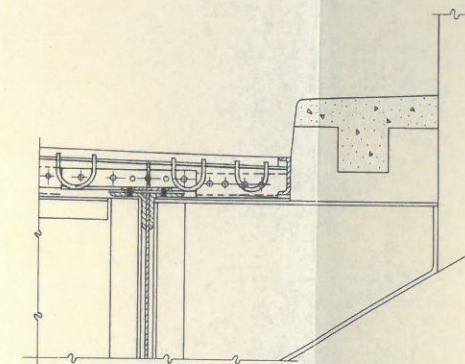
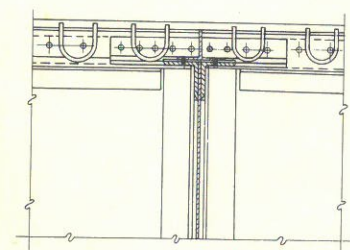
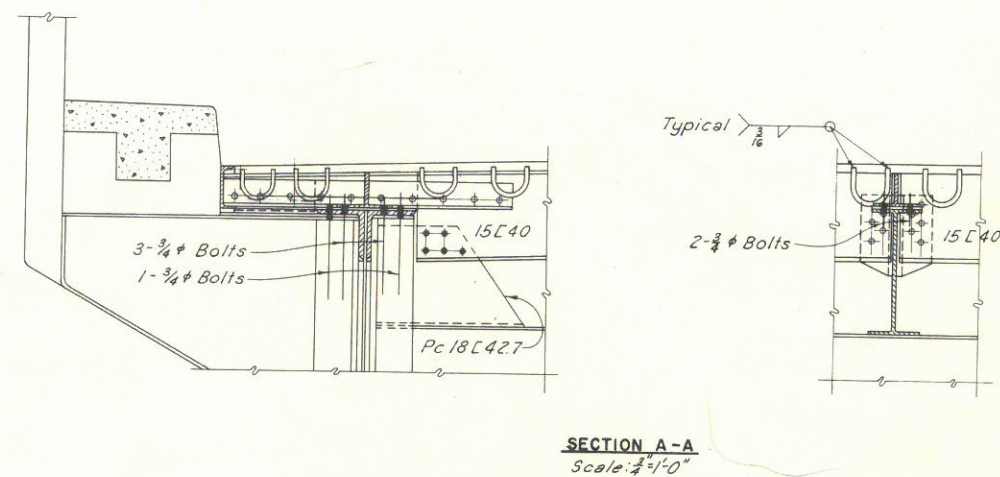
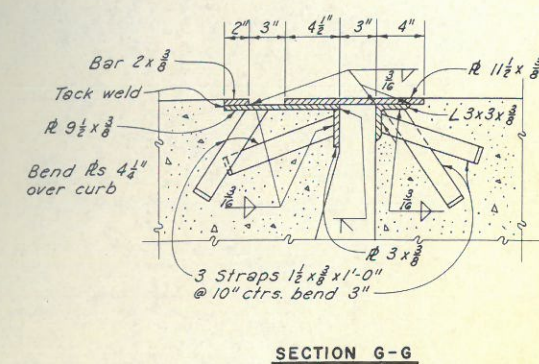
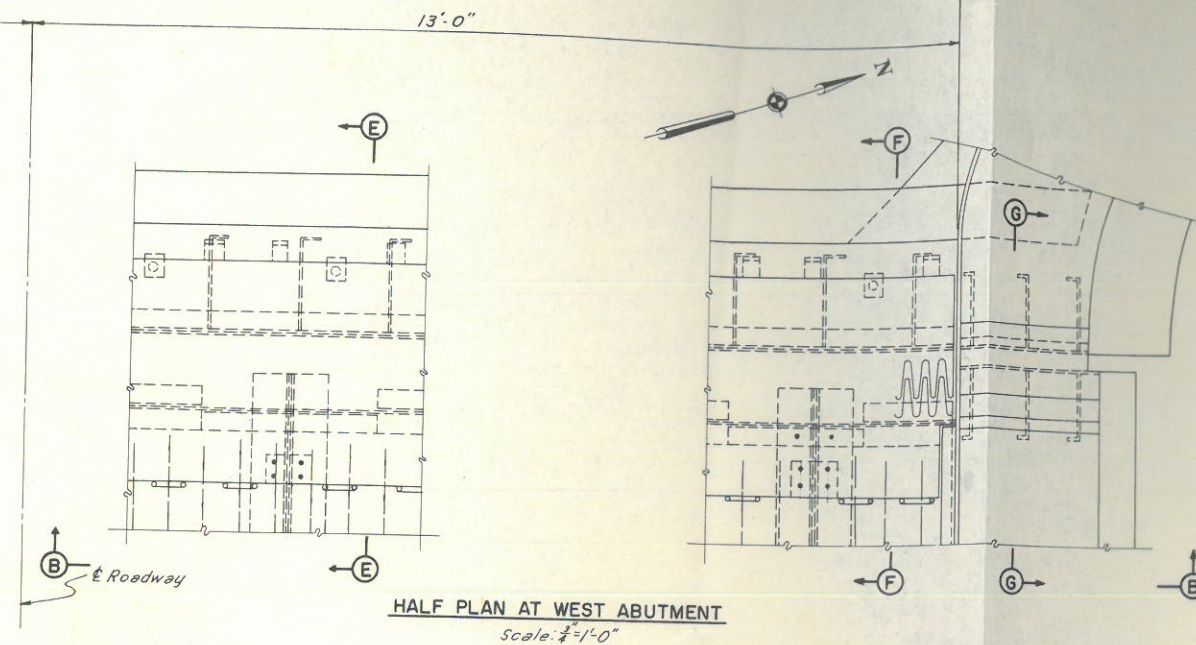
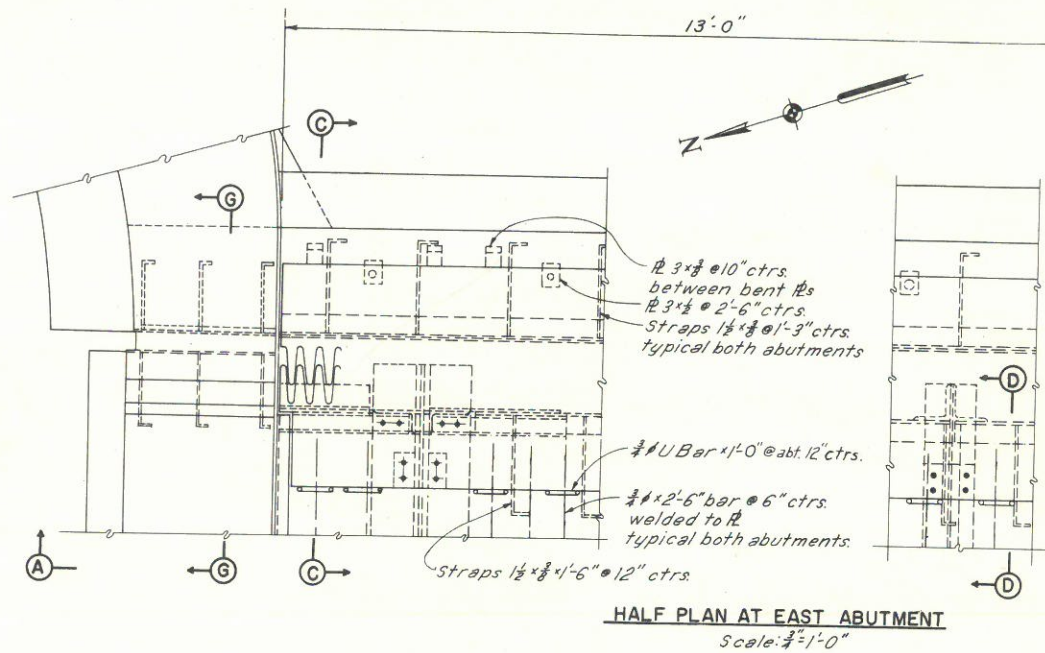
CASTINGS REQUIRED	
G	4
H	16
J	4

ARKANSAS STATE HIGHWAY COMMISSION
MISSISSIPPI STATE HIGHWAY DEPARTMENT
MISSISSIPPI RIVER BRIDGE
NEAR HELENA, ARKANSAS

APPROACHES TO RIVER BRIDGE
ROADWAY EXPANSION JOINTS

SCALE As Shown
MADE E.F.C. DATE 6-15-56
TRGD. B.H.G. DATE 11-5-56
CKD. G.R. DATE 11-12-56
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
984 SHEET- 5.12

NO.	MADE	DATE	REVISION
1	M.A.C.	4-6-62	"AS BUILT"



Dimensions Typical for both abutments

Typical

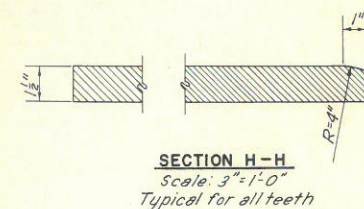
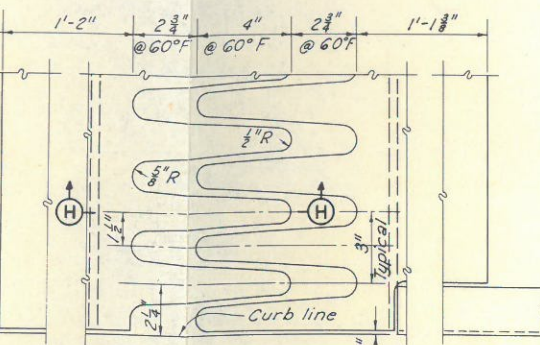
R 3/8"

L-5 x 5 x 3/8"

3/8" Hex. head bolts @ 2'-6" ctrs. slot R for vertical adjustment. Slot angle for horizontal and longitudinal adjustment. Space 4 rivets between each 3/8" Hex. bolts.

3/8" x 1'-0" anchor bolt @ 2'-6" ctrs. by others

1/2" normal shim



ARKANSAS STATE HIGHWAY COMMISSION
MISSISSIPPI STATE HIGHWAY DEPARTMENT
MISSISSIPPI RIVER BRIDGE
NEAR HELENA, ARKANSAS

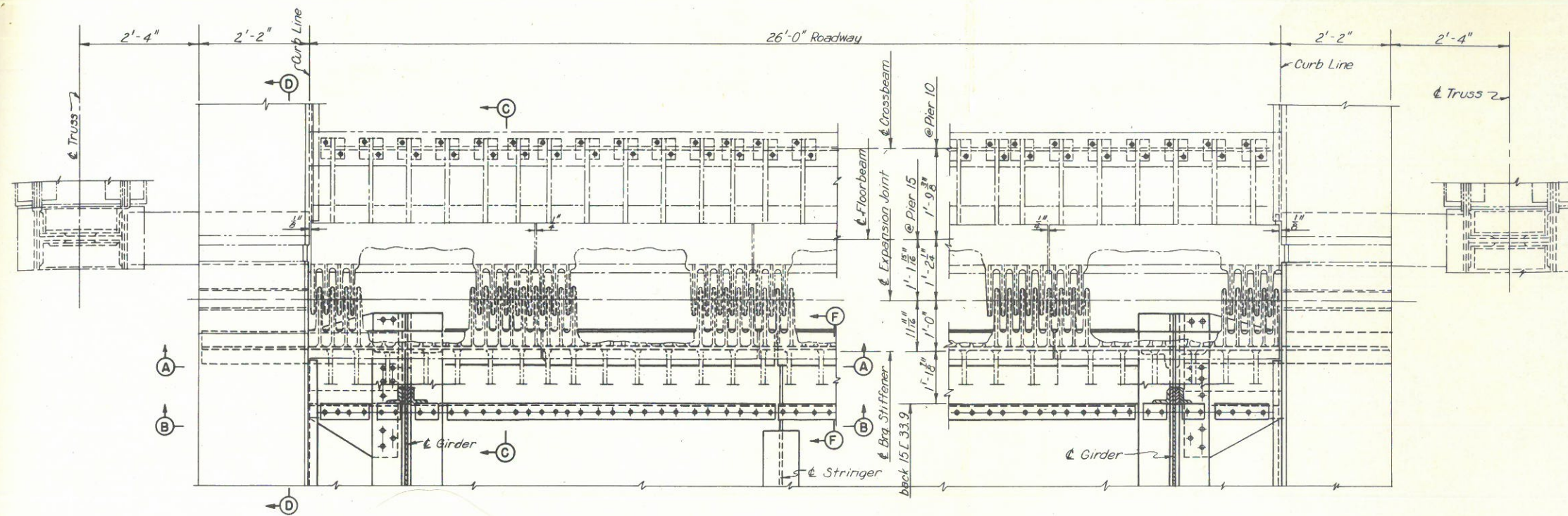
APPROACHES TO RIVER BRIDGE
EXPANSION JOINTS AT ABUTMENTS

SCALE AS SHOWN
MADE EFC. DATE 8-23-56
TRCD. 3EP. DATE 11-5-56
CKD. GR. DATE 9-20-56

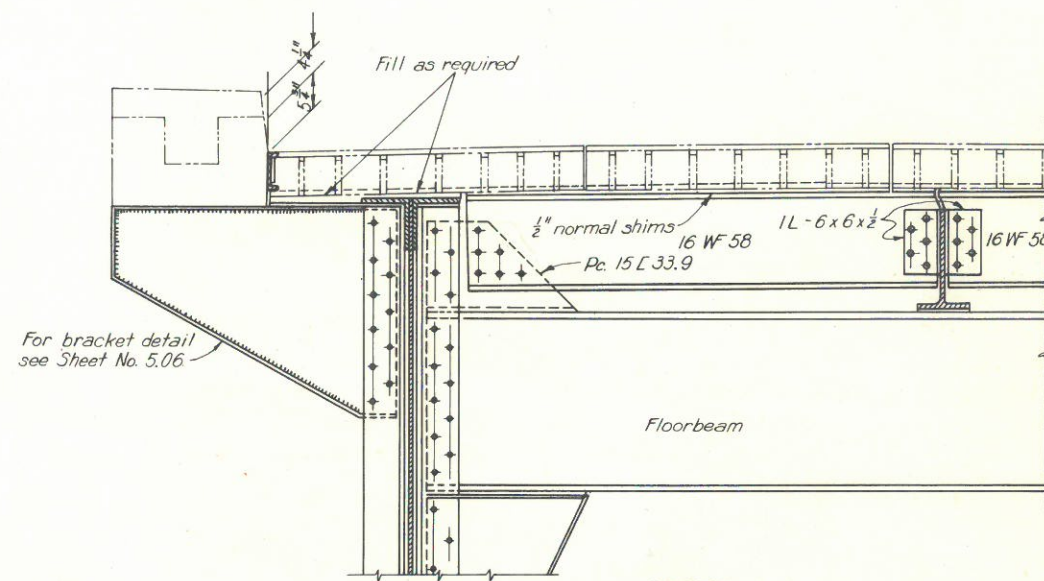
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

984 SHEET- 5.13

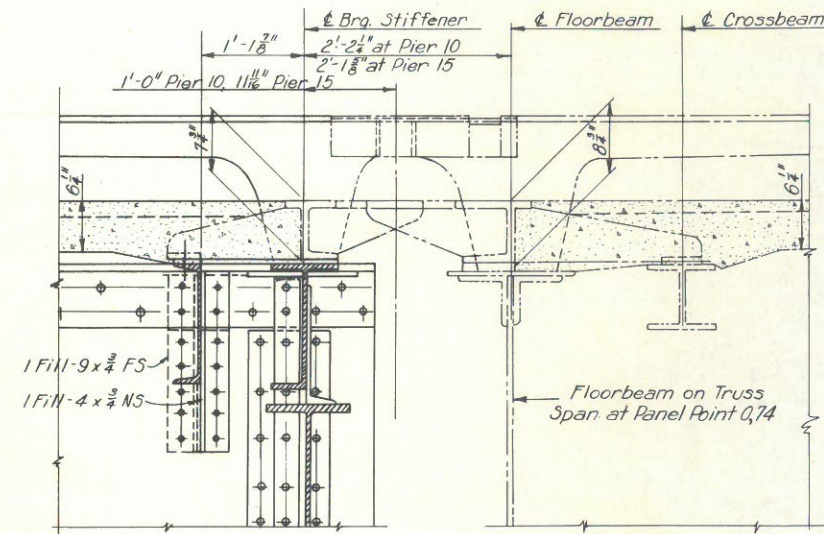
NO.	MADE	DATE	REVISION
1	M.A.C.	4-6-62	"AS BUILT"



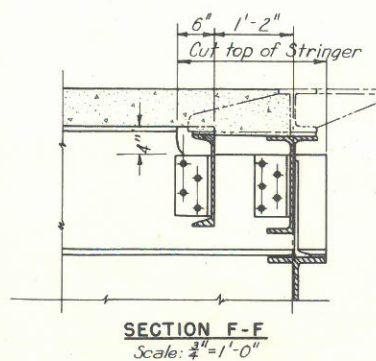
PLAN
Scale: $\frac{1}{4}'' = 1'-0''$



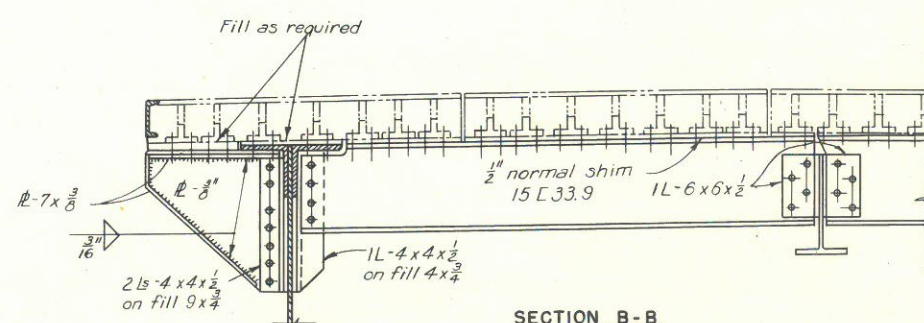
SECTION A-A
Scale: $\frac{3}{4}'' = 1'-0''$



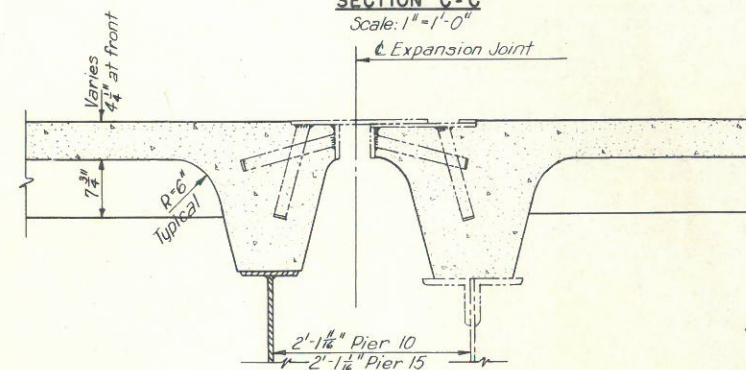
SECTION C-C
Scale: $1'' = 1'-0''$



SECTION F-F
Scale: $\frac{3}{4}'' = 1'-0''$



SECTION B-B
Scale: $\frac{3}{4}'' = 1'-0''$



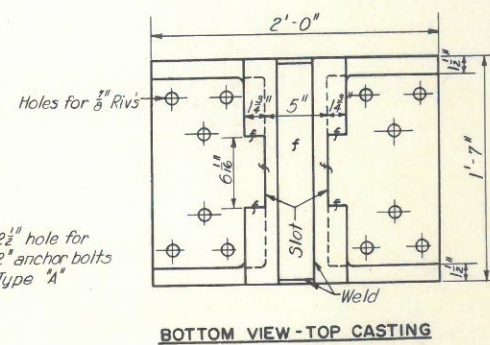
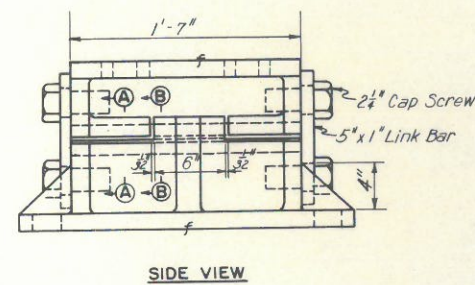
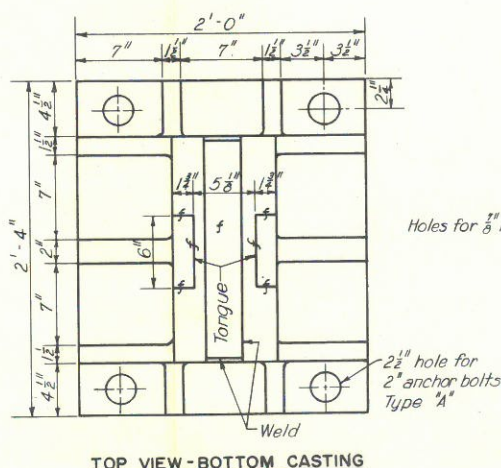
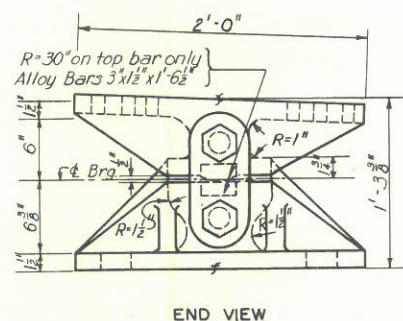
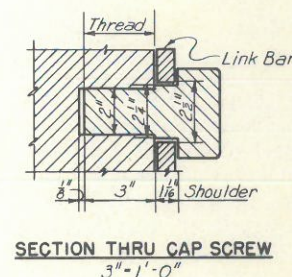
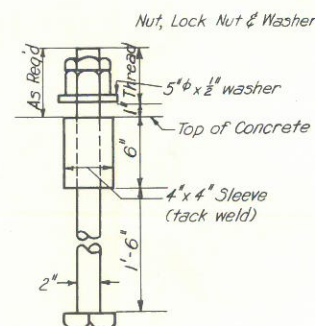
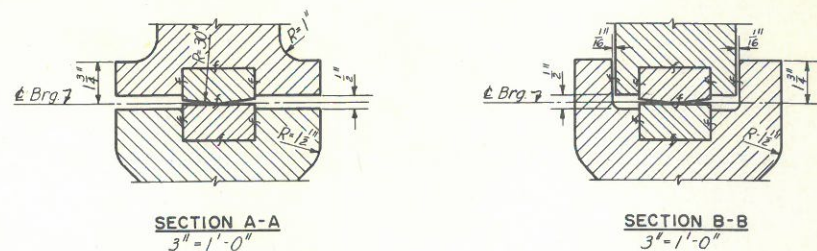
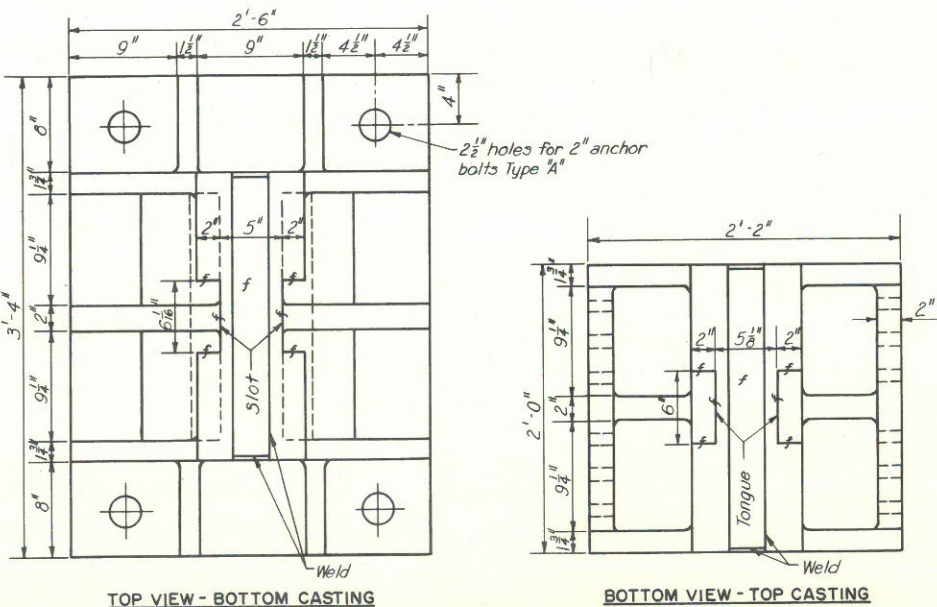
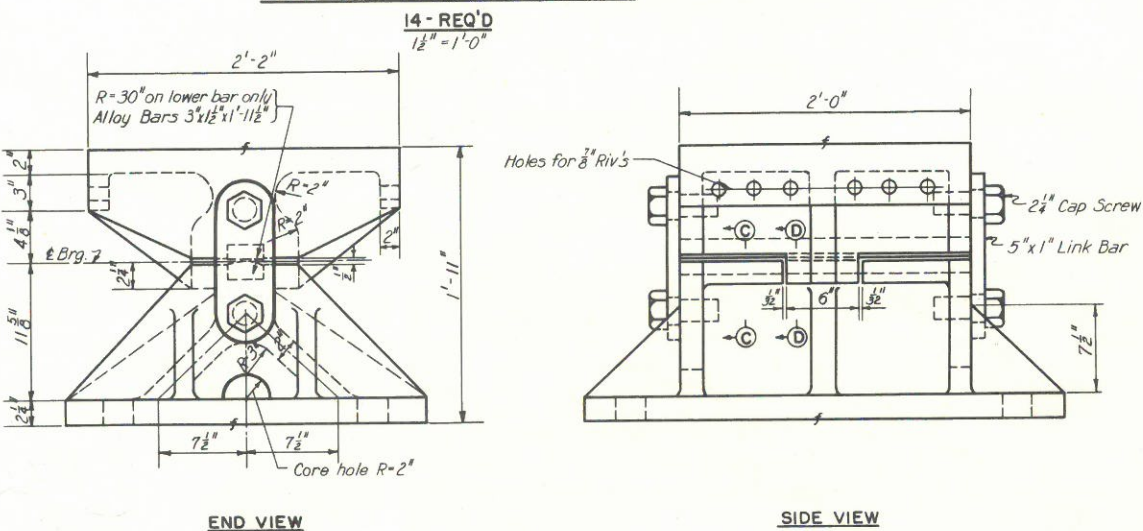
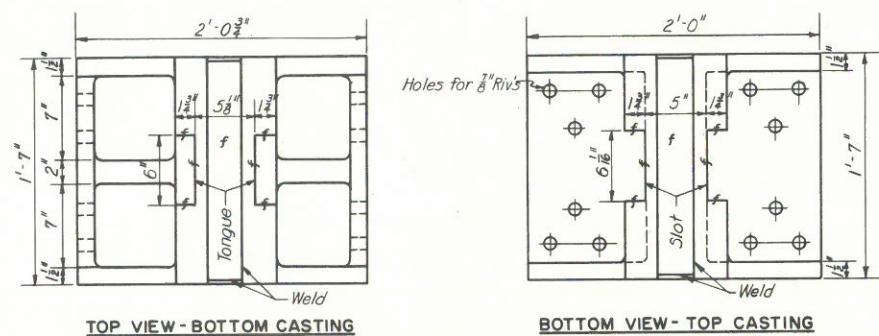
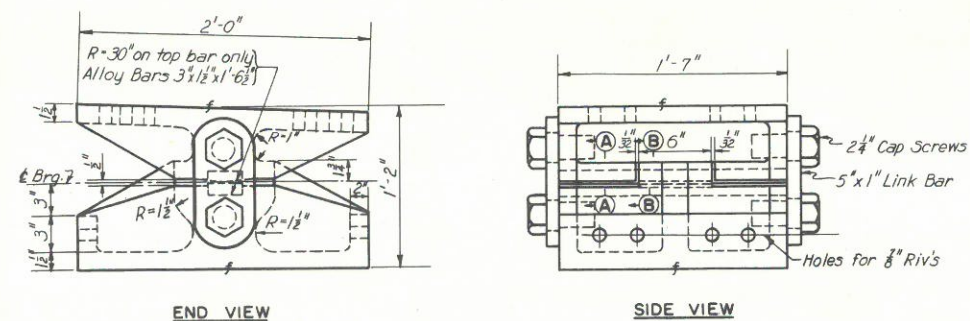
SECTION D-D
Scale: $1'' = 1'-0''$

ARKANSAS STATE HIGHWAY COMMISSION
MISSISSIPPI STATE HIGHWAY DEPARTMENT
MISSISSIPPI RIVER BRIDGE
NEAR HELENA, ARKANSAS

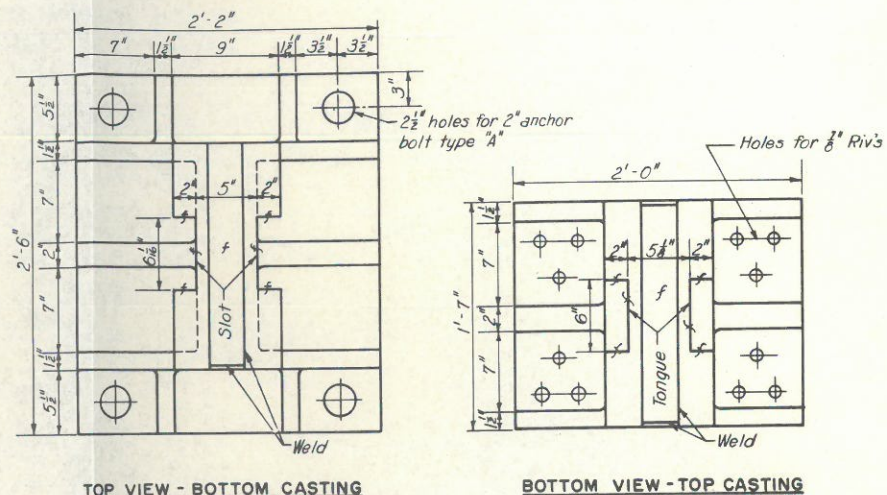
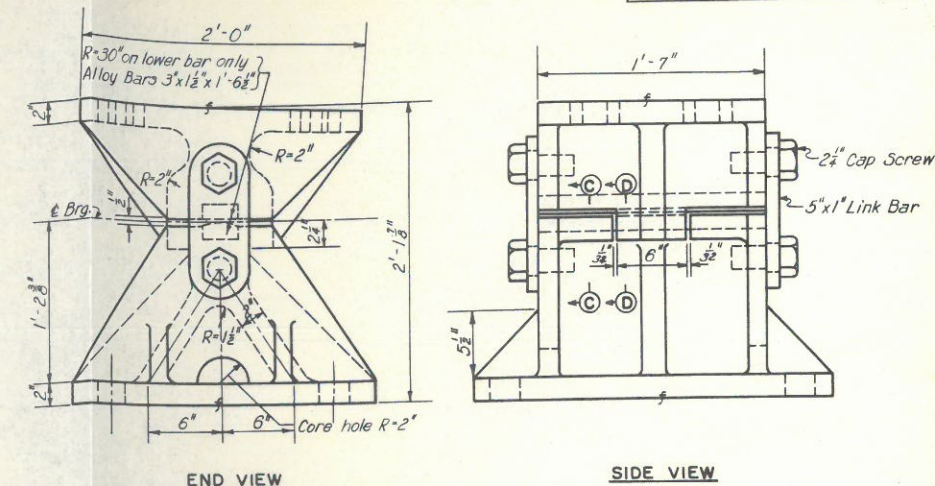
APPROACHES TO RIVER BRIDGE
EXPANSION JOINTS AT PIERS 10 AND 15

SCALE As Shown
MADE DME DATE 4-25-56
TRCD, GJK DATE 3-31-56
CKD, GR DATE 9-14-56
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
984 SHEET 5.14

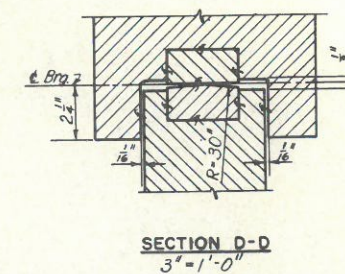
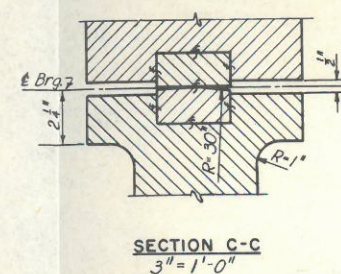
NO.	MADE	DATE	REVISION
1	M.A.C.	4-6-62	"AS BUILT"



SHOE - PIERS 10 & 15
4-REQ'D
1 1/2" x 1'-0"



SHOE - PIERS 5 & 19
4-REQ'D
1 1/2" x 1'-0"



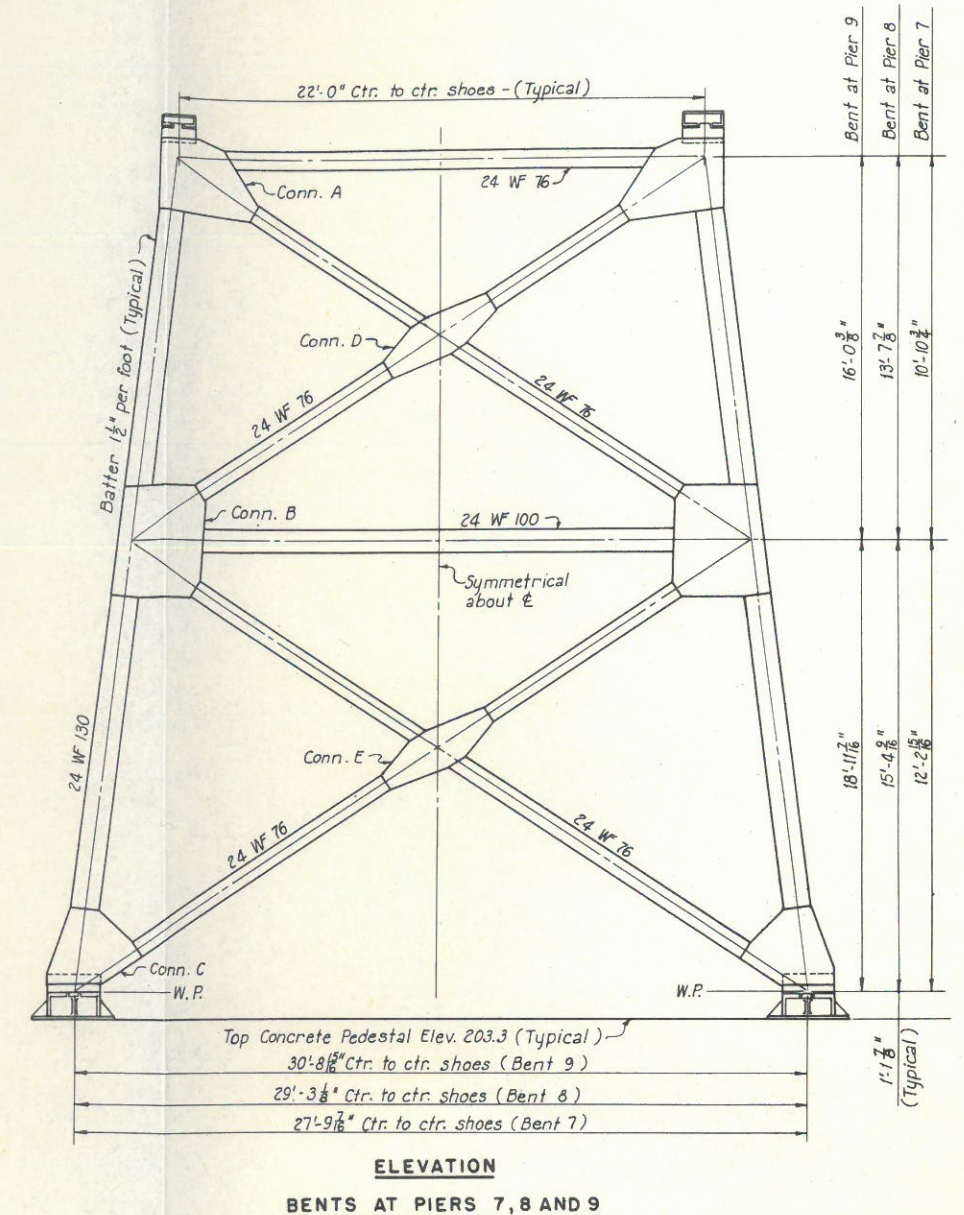
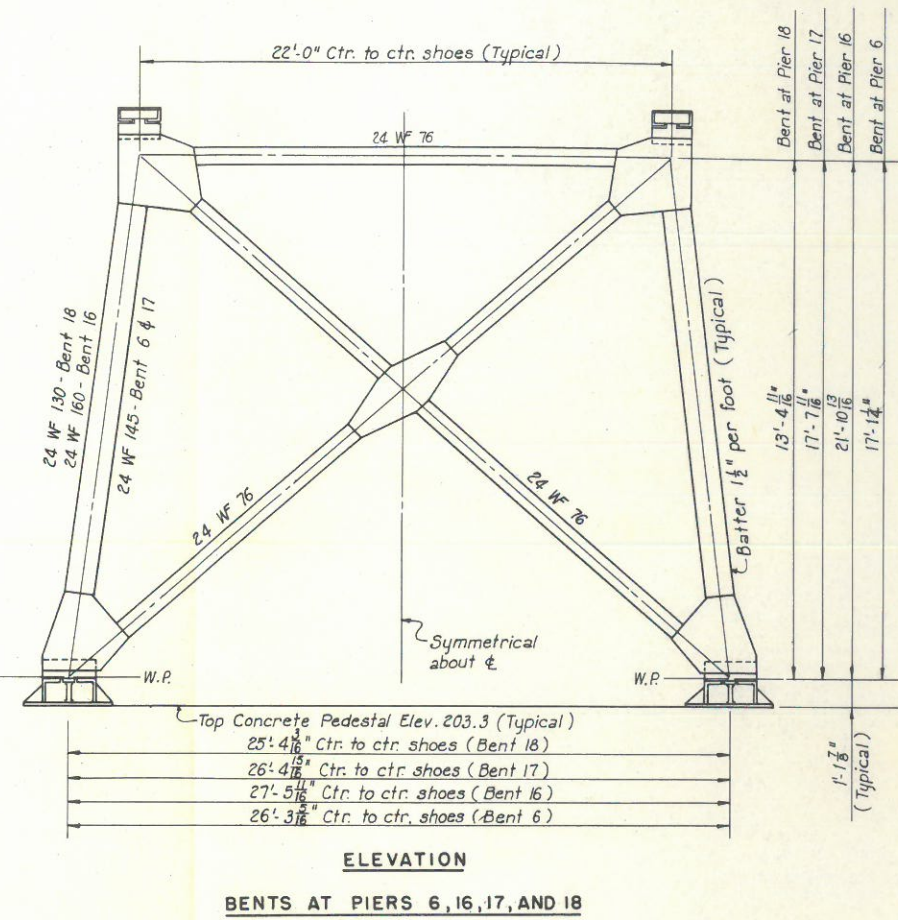
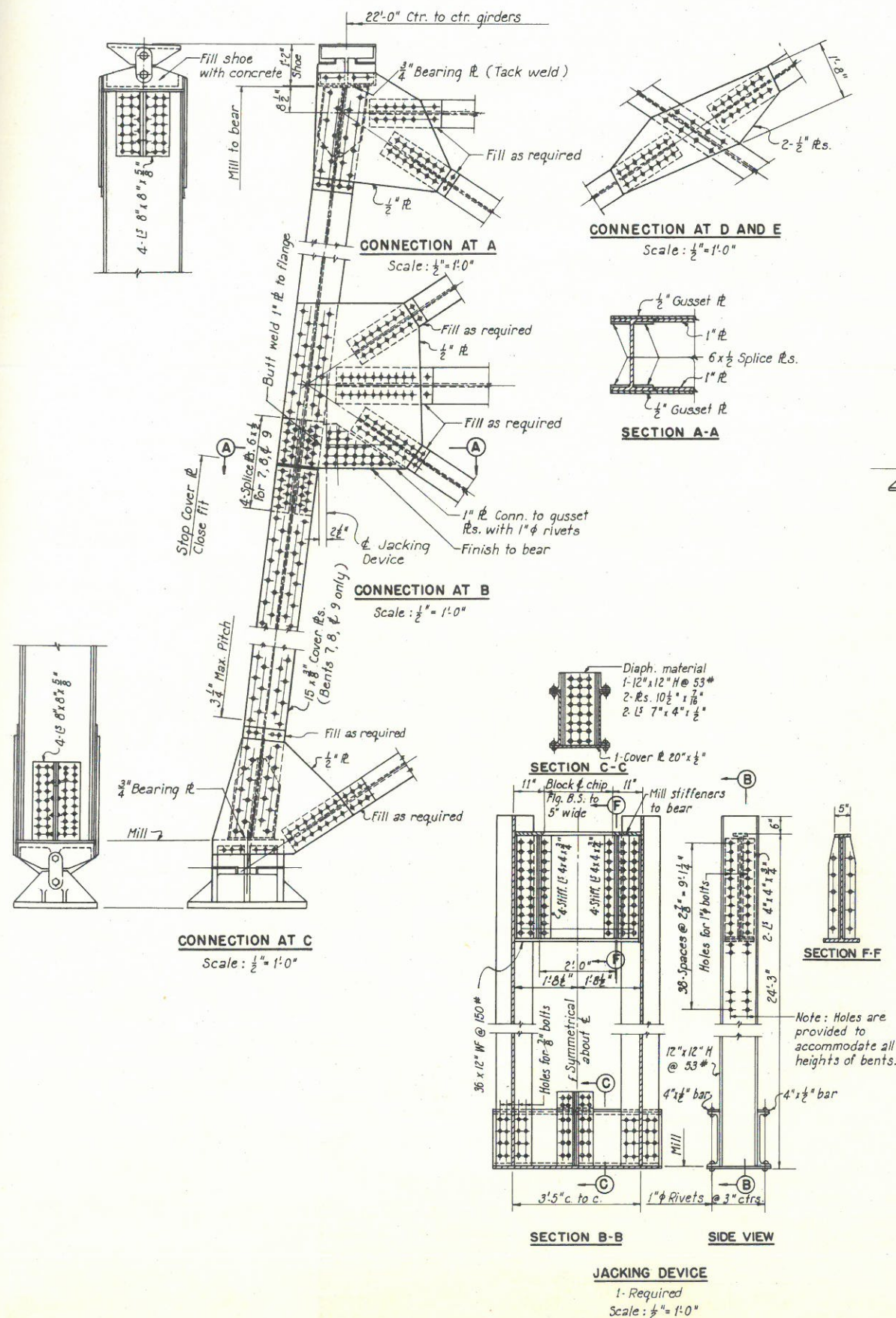
Note: All alloy bars to be tightly fitted and securely welded.
Castings to be made of Median strength steel A.S.T.M. Standard A-27, Grade 65-35.
Spot face Anchor Bolt Holes

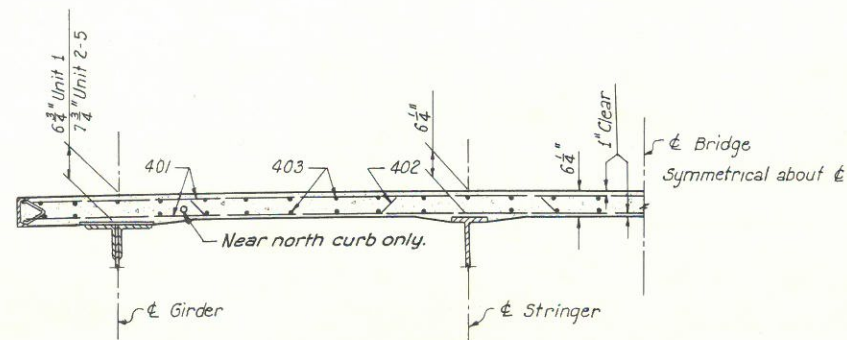
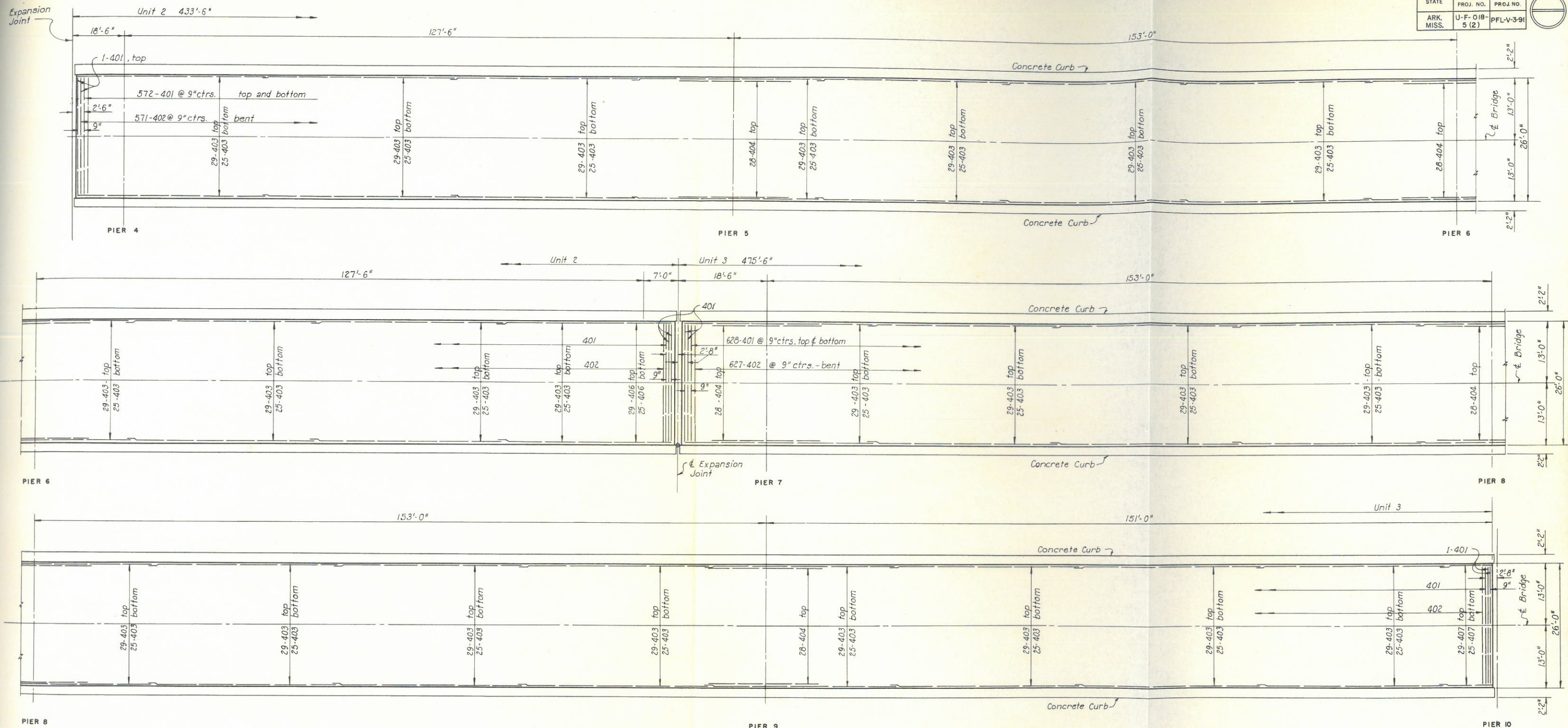
ARKANSAS STATE HIGHWAY COMMISSION
MISSISSIPPI STATE HIGHWAY DEPARTMENT
MISSISSIPPI RIVER BRIDGE
NEAR HELENA, ARKANSAS

APPROACHES TO RIVER BRIDGE
SHOES

SCALE As Shown
MADE DATE 7-6-56
TRCD. DATE 7-26-56
CKD. DATE 8-21-56
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
984 SHEET 5.15

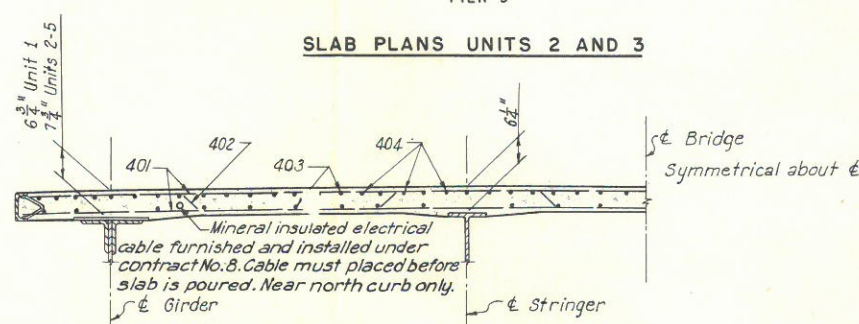
1	M.A.C. 4-6-62	"AS BUILT"
NO.	MADE	DATE
REVISION		





SECTION BETWEEN PIERS

Scale: 1/2" = 1'-0"



SECTION OVER ALL PIERS EXCEPT 10 AND 15

Scale: 1/2" = 1'-0"

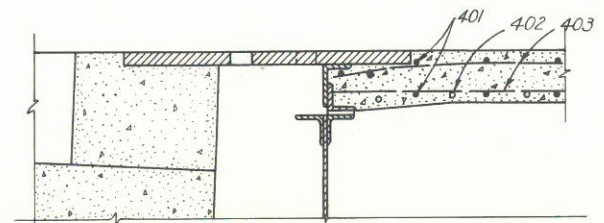
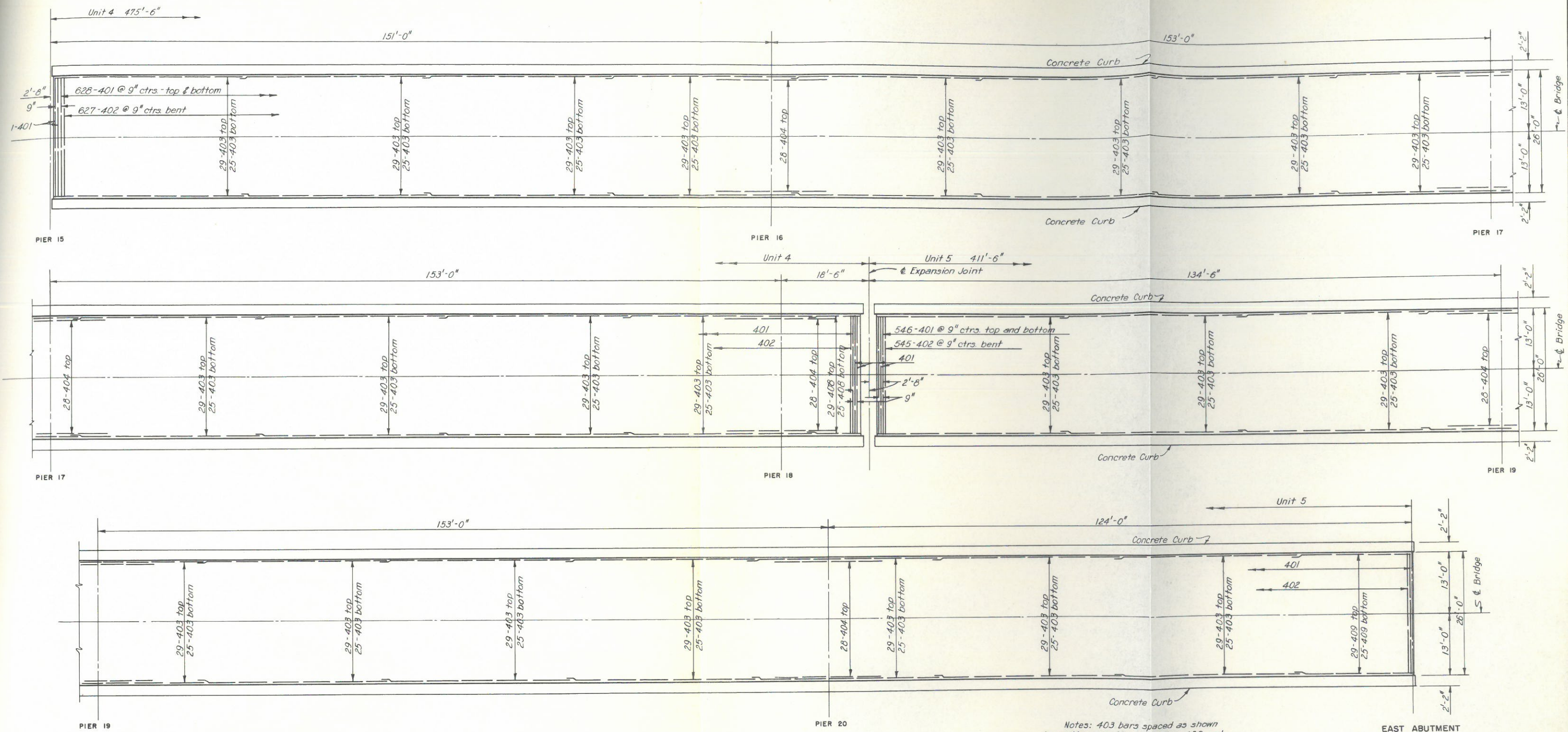
NOTE:
403 bars spaced as shown in sections. 406 and 407 spaced same as for 403.
For pouring sequence see Sheet No. 5.10
For longitudinal section at expansion joint 5.18 see Sheet No. 5.19
For Concrete Curb Details see Sheet No. 5.19
For reinforcement schedule see Sheet 5.10.

ARKANSAS STATE HIGHWAY COMMISSION
MISSISSIPPI STATE HIGHWAY DEPARTMENT
MISSISSIPPI RIVER BRIDGE
NEAR HELENA, ARKANSAS

APPROACHES TO RIVER BRIDGE
ROADWAY SLAB REINFORCEMENT

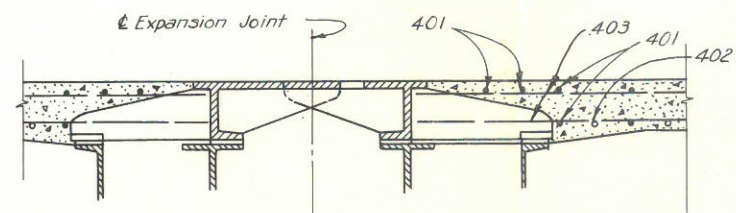
SCALE 1" = 1'-0" HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE EFC DATE 3-29-56 CONSULTING ENGINEERS
TRCD. AH DATE 4-24-56 KANSAS CITY CLEVELAND NEW YORK
CKD. DME DATE 7-12-56 984 SHEET- 5.17

NO.	MADE	DATE	REVISION
1	M.A.C.	4-6-62	"AS BUILT"



LONGITUDINAL SECTION AT WEST ABUTMENT
Scale: 1" = 1'-0"

Note: Reinforcement similar at East Abutment



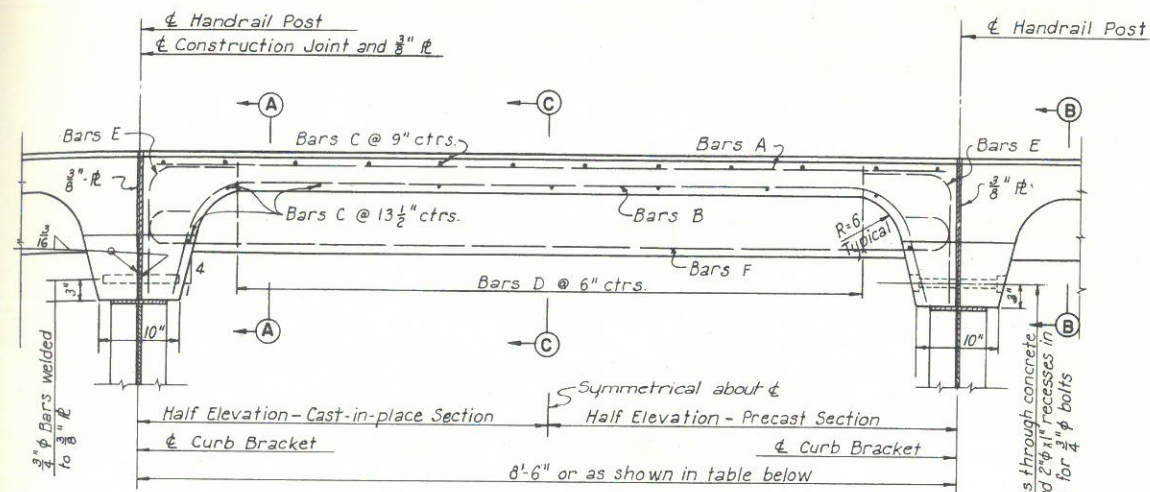
LONGITUDINAL SECTION AT EXPANSION JOINT
Scale: 1" = 1'-0"

Notes: 403 bars spaced as shown in sections on Sheet No. 5.17 408 and 409 spaced same as 403.
For pouring sequence see Sheet No. 5.10
For Transverse Sections see Sheet No. 5.17
For Concrete Curb Details see Sheet No. 5.19
For reinforcement schedule see Sheet No. 5.10.

NO.	MADE	DATE
1	M.A.C.	4-6-62 "AS BUILT"

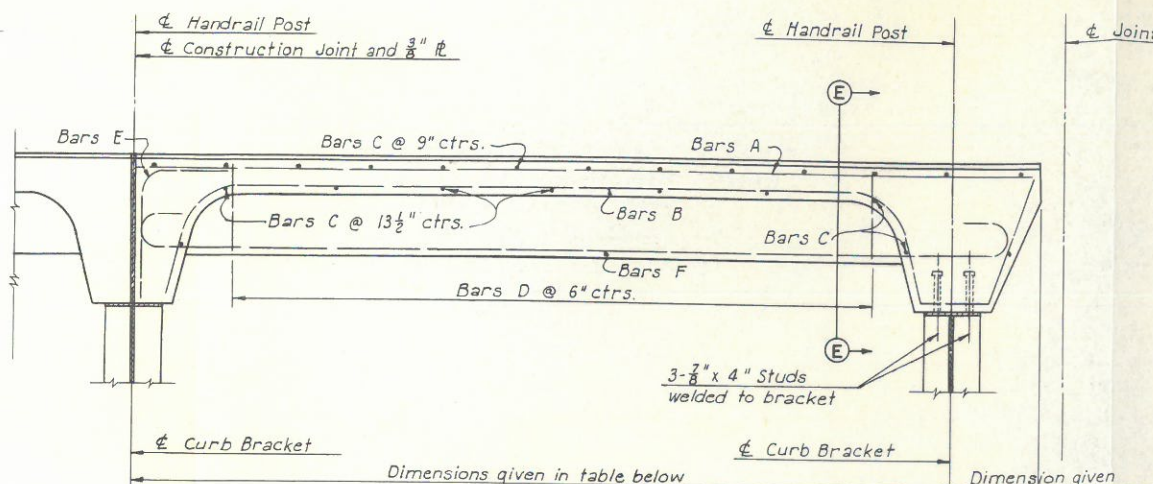
REVISION

ARKANSAS STATE HIGHWAY COMMISSION MISSISSIPPI STATE HIGHWAY DEPARTMENT MISSISSIPPI RIVER BRIDGE NEAR HELENA, ARKANSAS		
APPROACHES TO RIVER BRIDGE ROADWAY SLAB REINFORCEMENT		
SCALE 1" = 10'-0" MADE EFC DATE 5-17-56 TRCD. GJK DATE 7-9-56 CKD. DME DATE 7-16-56	HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS KANSAS CITY CLEVELAND NEW YORK	984 SHEET-5.18



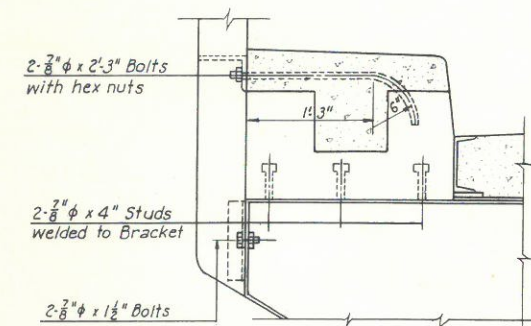
TYPICAL CURB SECTION

Left Half shows support for Cast-in-place section.
Right Half shows support for Precast section.



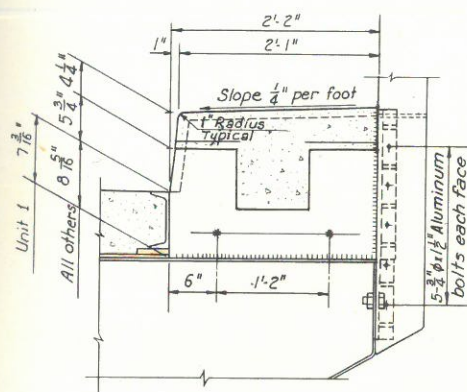
CURB SECTION AT EXPANSION JOINT

Similar to Typical Section except as shown.



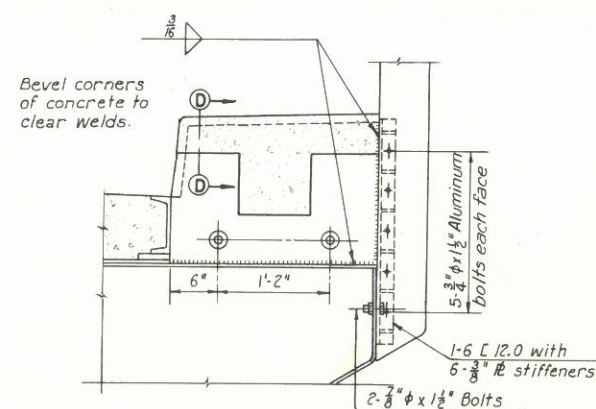
SECTION E-E

Similar to Section A-A except as shown.



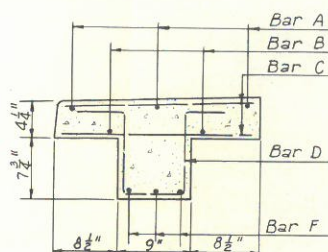
SECTION A-A

Attachment of Cast-in-place Section to bracket.

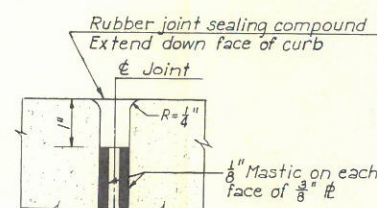


SECTION B-B

Attachment of Precast Section to bracket.



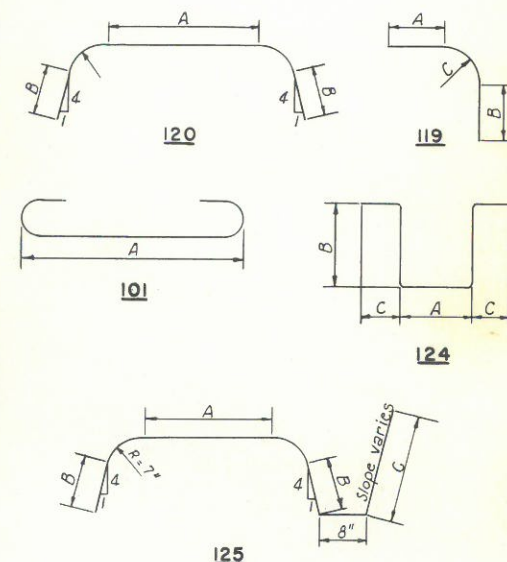
SECTION C-C



SECTION D-D

Scale: 6" = 1'-0"

MARK	NUMBER					LENGTH	TYPE	DIMENSION		
	UNIT 1	UNIT 2	UNIT 3	UNIT 4	UNIT 5			A	B	C
401	192	294	324	324	282	8'-3"	Str.			
402	128	196	216	216	188	9'-2"	120	6'-5"	8"	7"
403	1436	2140	2354	2354	2042	1'-9"	Str.			
404	954	1418	1560	1560	1348	2'-11"	124	7"	9"	5"
405	396	600	660	660	576	2'-0"	119	8"	12"	3"
406	6					9'-3"	Str.			
407	4					11'-2"	125	6'-5"	8"	1'-4"
410	6					9'-6"	Str.			
411	4	4				11'-8"	125	6'-11"	8"	1'-4"
412		6			6	6'-6"	Str.			
413		4			4	8'-9"	125	4'-0"	8"	1'-4"
414			6	6		9'-6"	Str.			
415			4	4		11'-9"	125	7'-0"	8"	1'-4"
419			6	6		7'-0"	Str.			
420			4	4		9'-2"	125	4'-5"	8"	1'-4"
423					6	5'-9"	Str.			
424					4	7'-8"	125	2'-11"	8"	1'-4"
425		6				9'-9"	Str.			
701	192	294	324	324	282	10'-10"	101	8'-2"		
702	6					11'-0"	101	9'-1"		
704	6	6				11'-1"	101	9'-3"		
705		6			6	8'-1"	101	6'-3"		
706			6	6		11'-2"	101	8'-10"	1'-2"	
709			6	6		8'-7"	101	6'-9"		
711					6	7'-2"	101	5'-4"		

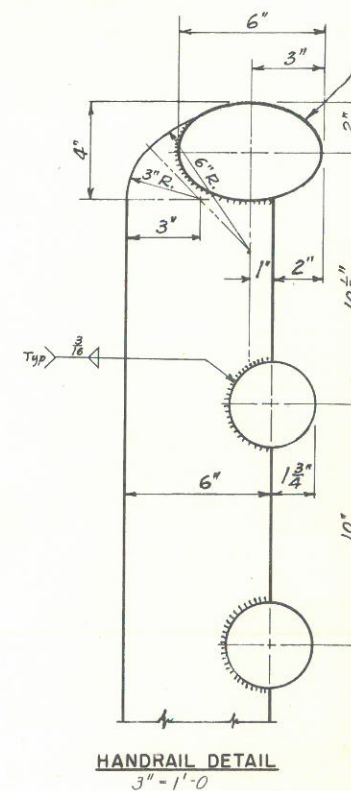


BAR TYPES

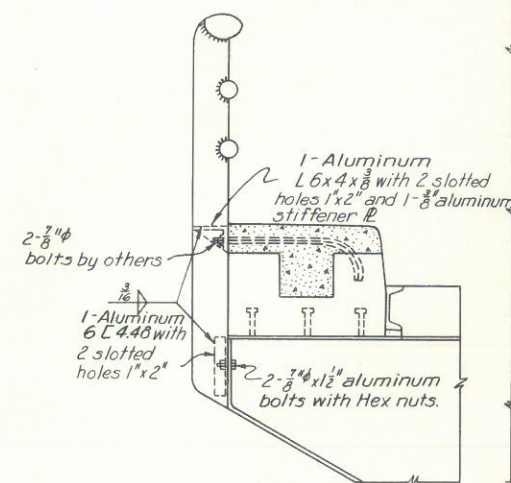
TABLE OF CURB REINFORCING BARS										
UNIT	E or T	DIMENSIONS		NO.	REINFORCING BARS EACH SECTION					
		C - C Brackets	to edge of slab		A	B	C	D	E	F
1	E	8'-6"	1'-0"	2	3-406	2-407	23-403	14-404	3-405	3-702
	T	8'-6"	—	64	3-401	2-402	21-403	14-404	6-405	3-701
	E	8'-11 1/8"	0'-10 3/8"	2	3-410	2-411	23-403	15-404	3-405	3-704
	E	9'-0 3/8"	0'-10 3/8"	2	3-425	2-411	23-403	14-404	3-405	3-704
2	E	8'-6"	—	98	3-401	2-402	21-403	14-404	6-405	3-701
	T	8'-6"	—	98	3-401	2-402	21-403	14-404	6-405	3-701
	E	6'-0 1/2"	0'-9 1/2"	2	3-412	2-413	18-403	9-404	3-405	3-705
	E	6'-0 1/2"	0'-9 1/2"	2	3-412	2-413	18-403	9-404	3-405	3-705
3	E	9'-0 3/4"	0'-9 3/4"	2	3-414	2-415	23-403	14-404	3-405	3-706
	T	8'-6"	—	108	3-401	2-402	21-403	14-404	6-405	3-701
	E	6'-6"	0'-9 3/8"	2	3-419	2-420	20-403	10-404	3-405	3-709
	E	6'-6"	0'-9"	2	3-419	2-420	20-403	10-404	3-405	3-709
4	E	8'-6"	—	108	3-401	2-402	21-403	14-404	6-405	3-701
	T	8'-6"	—	108	3-401	2-402	21-403	14-404	6-405	3-701
	E	9'-0 3/4"	0'-9 3/8"	2	3-414	2-415	23-403	14-404	3-405	3-706
	E	6'-0 3/4"	0'-9 3/4"	2	3-412	2-413	18-403	9-404	3-405	3-705
5	E	8'-6"	—	94	3-401	2-402	21-403	14-404	6-405	3-701
	T	8'-6"	—	94	3-401	2-402	21-403	14-404	6-405	3-701
	E	5'-0"	1'-0"	2	3-423	2-424	16-403	7-404	3-405	3-711
	E	5'-0"	1'-0"	2	3-423	2-424	16-403	7-404	3-405	3-711

Notes:
Curb sections "T" are typical sections.
Curb sections "E" are sections at Expansion Joints.
Curb sections at Expansion Joints are Cast-in-place.
Typical sections are to be either Cast-in-place or Precast as the Contractor may choose.
Mastic shall be provided on top of brackets to seat precast units.
Top surface of precast units shall be set true to line and grade.
Expansion Joint Plates are not shown on the curb elevation above.
For material and connection to curbs see Sheet Nos. 5.12, 5.13 and 5.14.
For Handrail Details see Sheet No. 5.20.
For location of Expansion Joints see Sheet Nos. 5.07, 5.08 and 5.09.

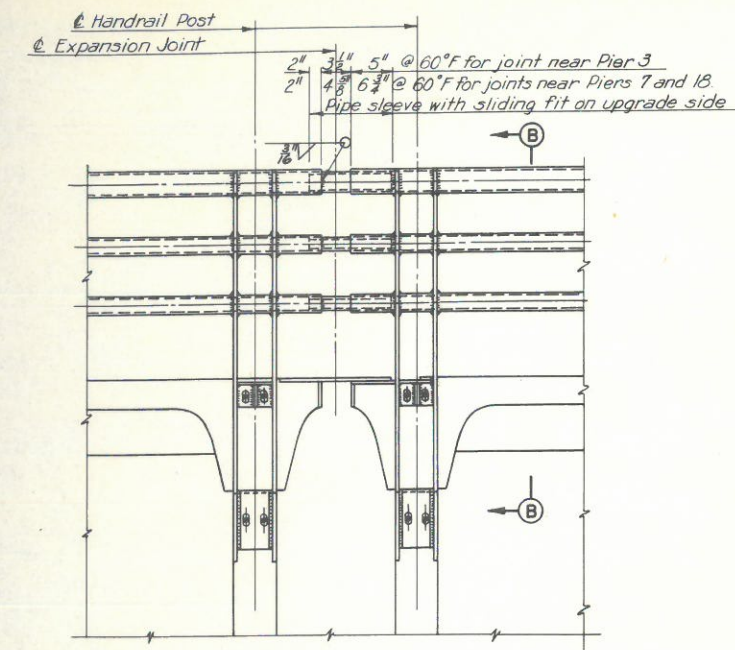
NO.	MADE	DATE	REVISION
1	M.A.C.	4-6-62	"AS BUILT"



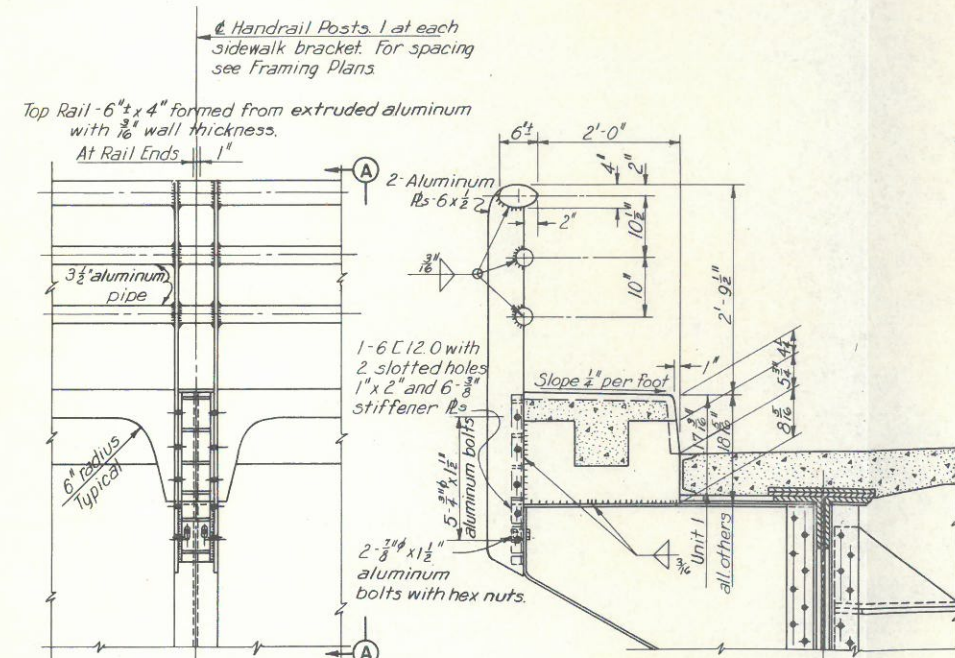
Form elliptical top rail from extruded aluminum, wall thickness of rails shall be 1/16".



POST AT ABUTMENT

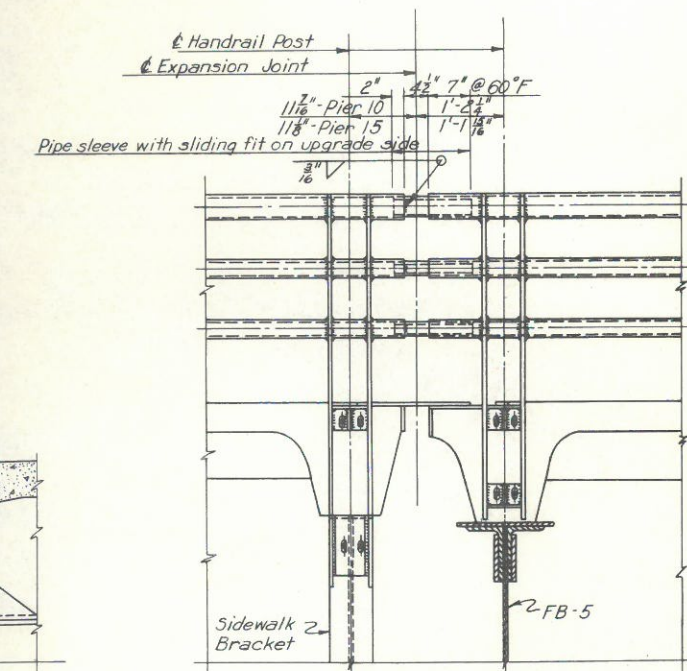


POSTS AT EXPANSION JOINTS GIRDER SPANS



TYPICAL POST ON GIRDER SPANS

SECTION A-A



POSTS AT EXPANSION JOINTS PIERS 10 AND 15

Notes:
Handrail Posts will be located at each sidewalk bracket. For spacing see Framing Plan Sheets 5.07, 5.08 and 5.09.
Railing shall be fabricated in Units of 2, 3, or 4 panels.
All aluminum surfaces in contact with concrete or steel shall be coated with Alumilastic Compound or equal.
Handrail shall be fabricated from aluminum, see specifications.

ARKANSAS STATE HIGHWAY COMMISSION
MISSISSIPPI STATE HIGHWAY DEPARTMENT
MISSISSIPPI RIVER BRIDGE
NEAR HELENA, ARKANSAS

APPROACHES TO RIVER BRIDGE
HANDRAIL

NO.	MADE	DATE	REVISION
1	M.A.C.	4-6-62	"AS BUILT"

SCALE 3/4" = 1'-0"
MADE DATE 6-11-56
TRCD. GJK. DATE 8-13-56
CKD. CED. DATE 8-20-56
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
984 SHEET 5.20