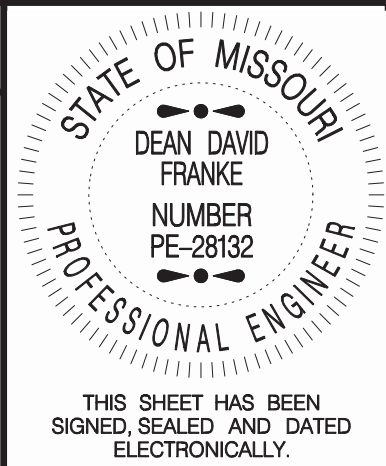


(45' - 68' - 72' - 58') CONTINUOUS COMPOSITE WIDE FLANGE SPANS
(15° LA SKEW)

SEC/SUR 4 TWP 44N RGE 31W



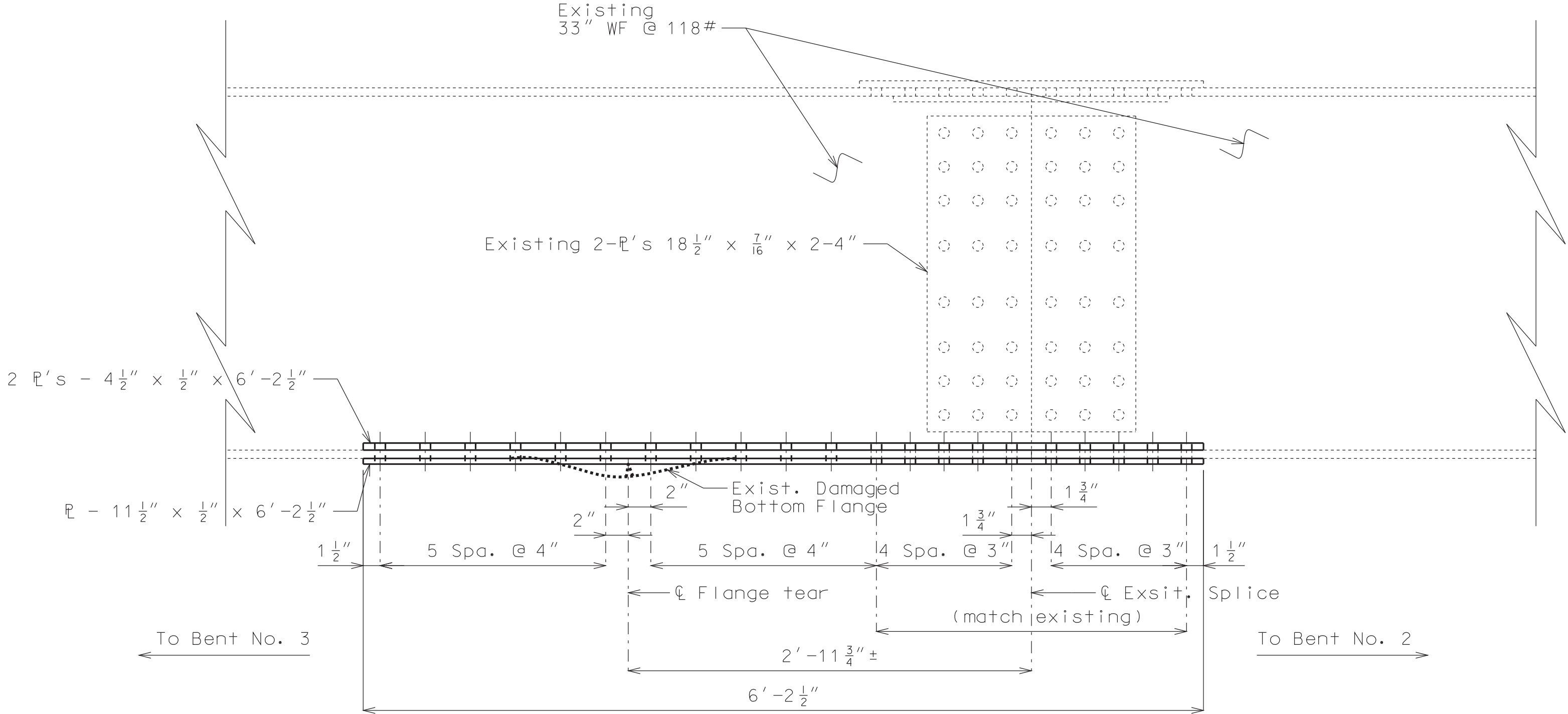
DATE PREPARED 5/4/2015	
ROUTE 1-49	STATE MO
DISTRICT BR	SHEET NO. 1
COUNTY CASS	
JOB NO. K15C5919	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A14951	

DESCRIPTION	DATE

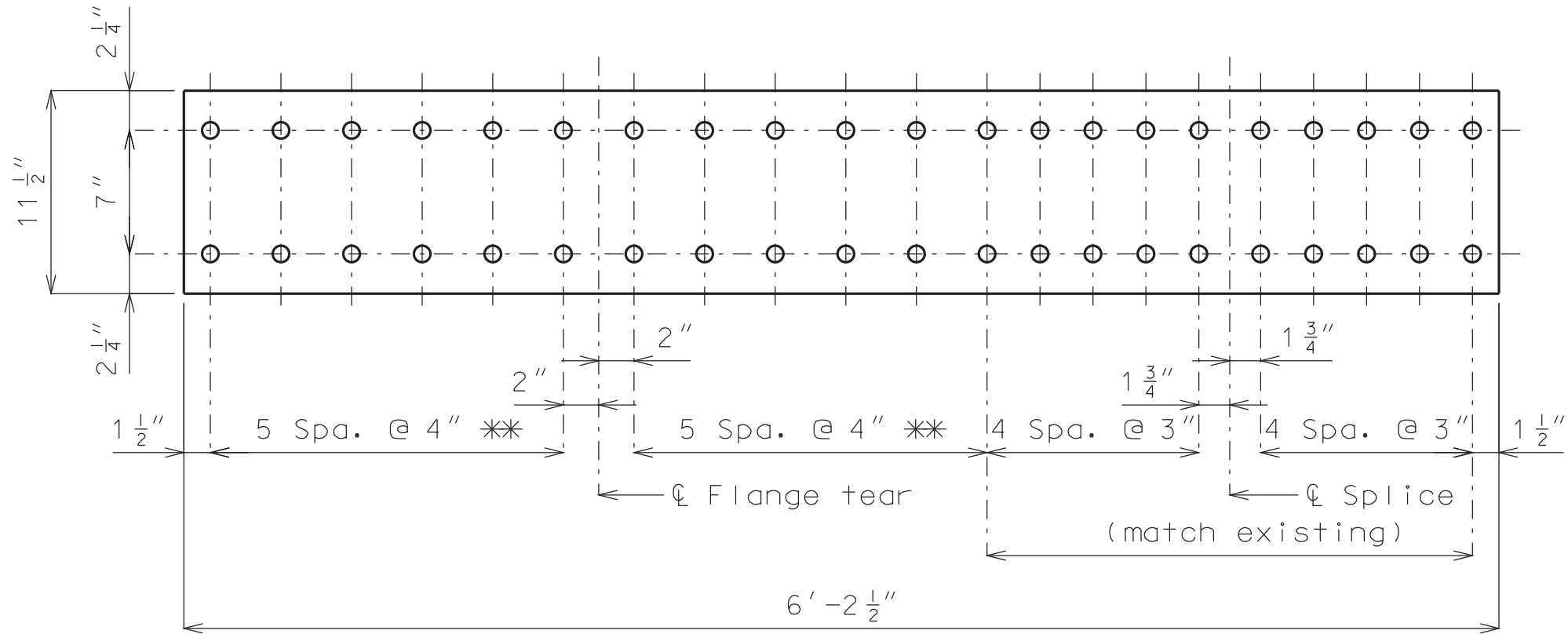
MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

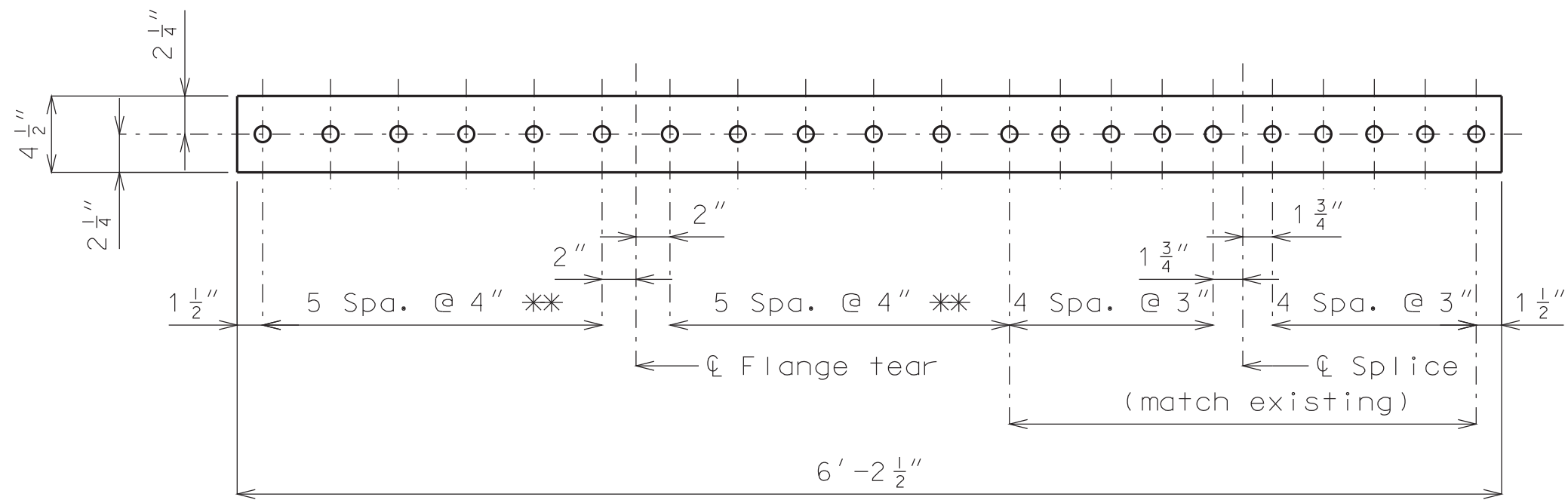
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



DETAIL OF BOLTED FIELD SPLICE

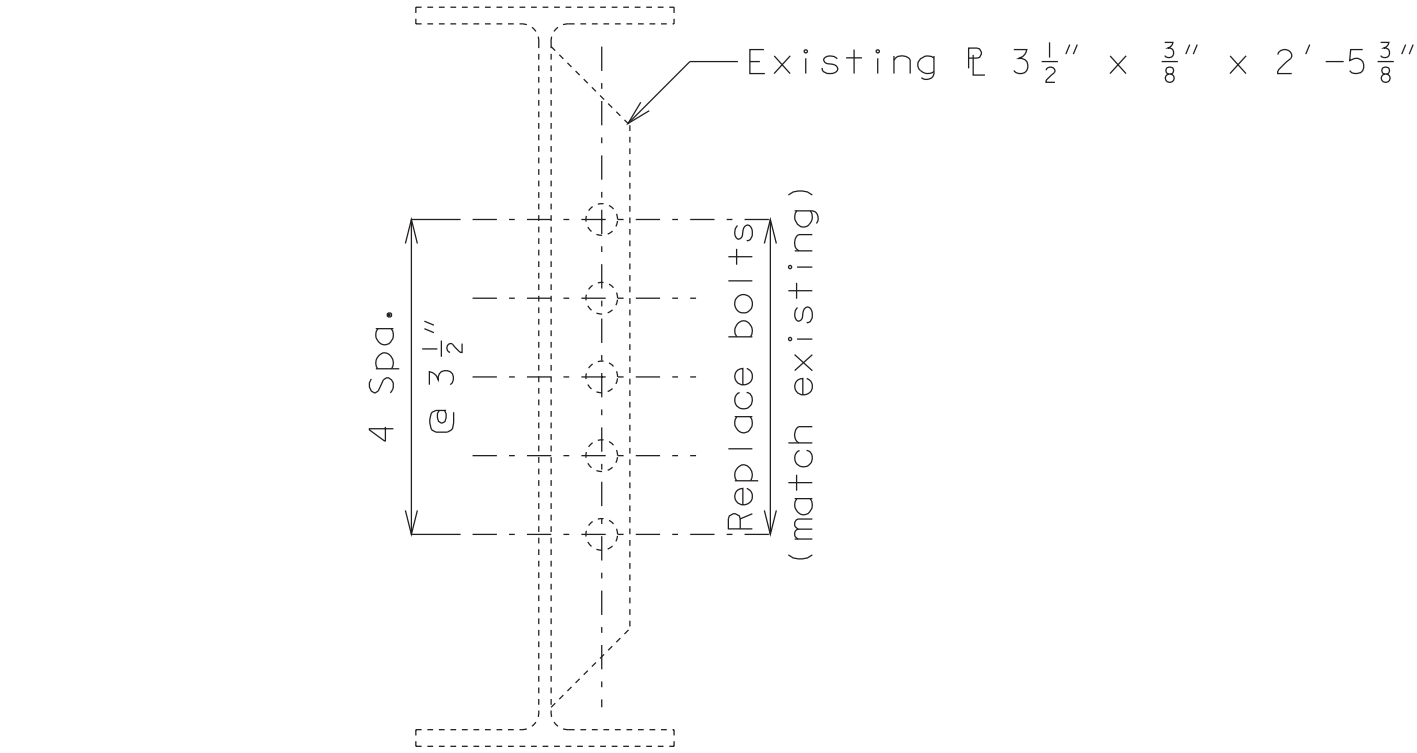


PLAN OF BOTTOM SPLICE BOTTOM PLATE



PLAN OF BOTTOM SPLICE TOP PLATE

** Spacing may be decreased to a minimum of 3" cts. or increased to a maximum of 5" cts. to maintain the number of bolts on each side of flange tear



TYPICAL SECTION THRU
EXISTING DIAPHRAGM CONNCTION

Note:
The intermediate diaphragm nearest to the splice shall have the 10 bolts replaced with new like sized high strength bolts.

- Notes:
- Use 7/8"Ø high strength bolts, nuts and washers with 15/16"Ø holes for splice plates.
 - Contact surfaces shall be in accordance with Sec 1081 for surface preparation.
 - Coating on the existing structural steel is non-lead base. All coating removed or damaged at the repair areas shall be given a prime coat of System G Inorganic Zinc. Cost will be considered completely covered by Heat Straightening.
 - Flange and web splices shall be subject to notch toughness requirements.
 - Fabricated structural steel shall be ASTM A709 Grade 50, except as noted.
 - Remove existing bottom splice plates and replace as shown.
 - Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

Estimated Quantities		
Item		Total
Fabricated Structural Low Alloy Steel (Misc.) A709, Grade 50	pound	260
* Heat Straightening	lump sum	1
Diaphragm Replacement Bolts	each	10

* See Job Special Provisions for Heat Straightening.

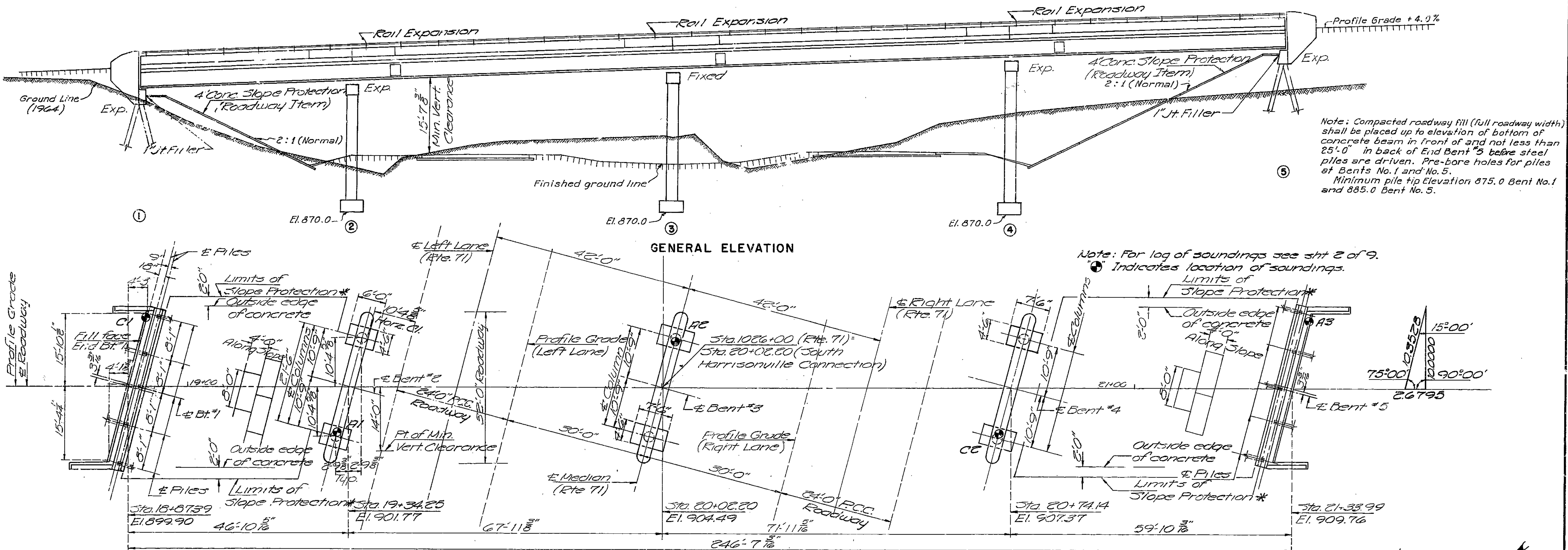
REPAIR TO BRIDGE: SOUTH HARRISONVILLE
CONNECTION OVER RTE 1-49

STATE ROAD FROM RTE 291 TO RTE A
ABOUT 1.9 MILES SOUTH OF RTE 291
STA. 1026+00 (RTE. 1-49)

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	135	

(45°-68°-72°-55°) Continuous Comp. I - Beams - Sk. 15° L.A.



Note: Compacted roadway fill (full roadway width) shall be placed up to elevation of bottom of concrete beam in front of and not less than 25'-0" in back of End Bent #5 before steel piles are driven. Pre-bore holes for piles at Bents No. 1 and No. 5. Minimum pile tip elevation 875.0 Bent No. 1 and 885.0 Bent No. 5.

Note: For log of soundings see sht 2 of 9. Indicates location of soundings.

Note: Dimensions shown are horizontal distances.

* Raise edge 5" in 2'-0" (Typical)

PLAN

B.M. #91 100d Spike U. Side transformer pole 360± Lt. 1029+65.00 El. 907.39

GENERAL NOTES

Design Specifications: A. A. S. H. O. - 1961

Design Loading:

H20-44
15#/sq. ft. Future Wearing Surface

Earth 120#. Equivalent Fluid Pressure 30#

Design Unit Stresses

Class B Concrete (substructure) $f_c = 1,200$ psi

Class B1 Concrete (superstructure) $f_c = 1,600$ psi

Reinforcing Steel $f_s = 20,000$ psi

Structural Steel (A.S.T.M. A36-62T) $f_s = 20,000$ psi

Steel Pile (A.S.T.M. A36-62T) $f_b = 6000$ psi

Superstructure deck to be surface sealed.

Field connections, High Strength Bolts $\frac{3}{4}" \phi$, holes

$\frac{13}{16}" \phi$ except as noted.

Paint; shop, none; Field, three coats.

FOOTING AND PILE DATA

Bent No.		1	2	3	4	5
Spread Footings	Foundation Material	Shale				
	Design Bearing Tons/Sq. Ft.	60				
Bearing Pile	Pile Type and Size	108P42				
	Number	5				
	Approximate Length Ft.	25				
	Plan Bearing Tons	37				
	Minimum Required Bearing Tons	26				
	Hammer	Power				

NOTE: All pile shall be driven to practical refusal on or into solid rock or other point bearing material at not less than the Plan Bearing shown, unless excessive splicing is required to obtain Plan Bearing, in which case the engineer will authorize a lesser bearing, but in no case less than the Minimum Required Bearing.

ESTIMATED QUANTITIES

Item	Substr.	Superstr.	Total
Class/Excavation for Structures Cu.Yds.	200		200
Steel Piles in place (10") Lin.Ft.	220		220
Steel Pile cut-off (10") Lin.Ft.	30		30
Class B Concrete Cu.Yds.	127.4		127.4
Class B1 Concrete Cu.Yds.		242.7	242.7
Reinforcing Steel Lbs.	23,500	74,300	99,800
Painting Tons.	78.3	78.3	
Fabricated Structural Carbon Steel Lbs.	158,000	158,000	
Bridge Rail (Single Tube Type) Lin.Ft.		492	492

NOTE: Concrete in end posts, parapets and curbs is included with superstructure concrete.

No payment for excavation will be allowed at End Bent No. 5

LOCATION SKETCH

BRIDGE-S. HARRISONVILLE CONNECTION UNDERPASS

STATE ROAD FROM PECULIAR TO ARCHIE

ABOUT 1.75 MILES S.W. OF HARRISONVILLE

PROJECT NO. F-66-71-4(6) (RTE. 71) STA. 1026+00

SEC. B

CASS

COUNTY

SUBMITTED BY: D. B. Jenkins DATE: 5/20/65

BRIDGE/ENGINEER

APPROVED BY: M. J. Linder DATE: 5/20/65

CHIEF ENGINEER

STD. 54.00

A-1495



Sheet No. 1 of 9

SEE FINAL PLANS FOR V.LINES

Note: This drawing is not to scale. Follow dimensions.

BURGWIN & MARTIN
CONSULTING ENGINEERS

DESIGNED: A.G. Latham
CHECKED: F.D. Polard
DETAILED: A.G. Latham
CHECKED: F.D. Polard

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	136	

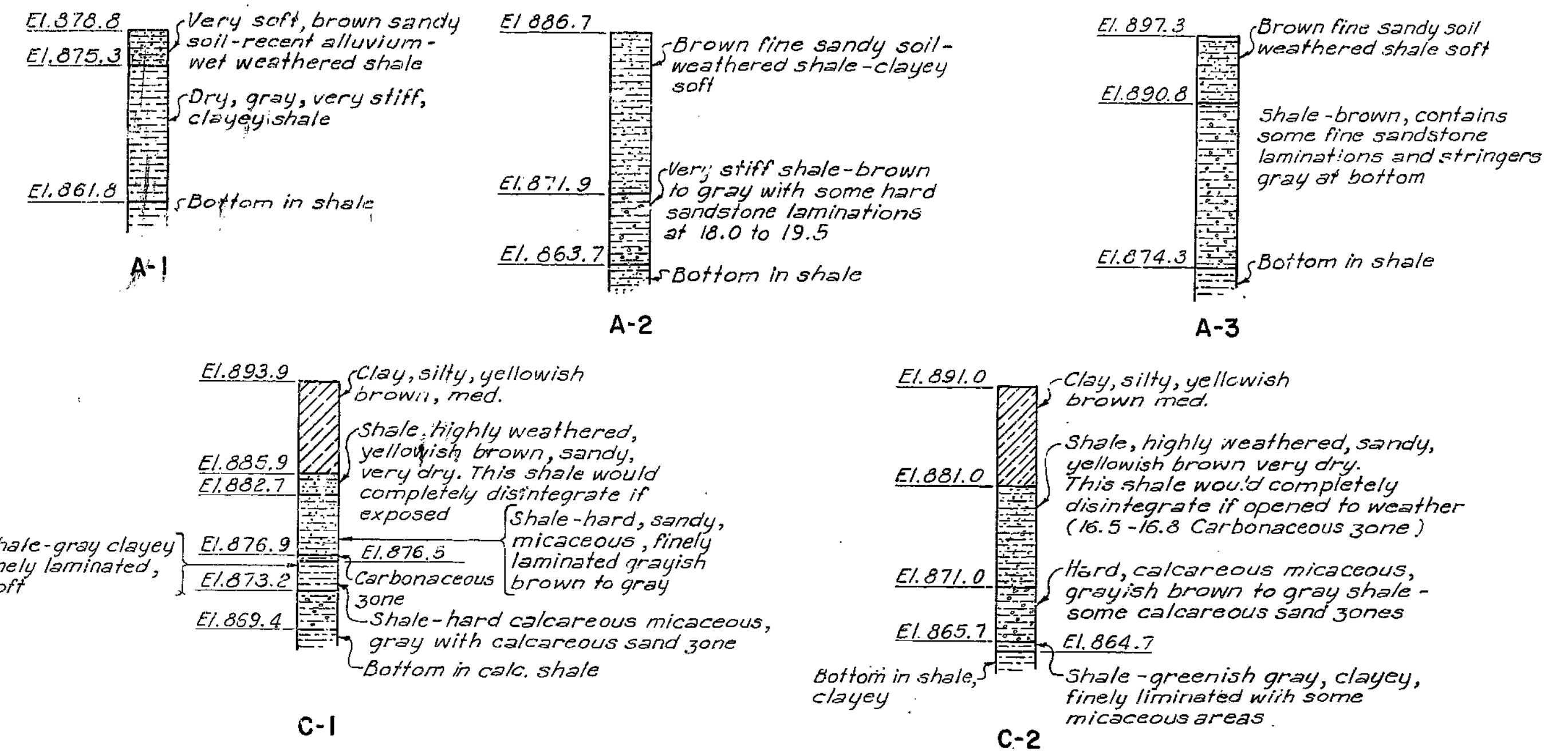
COMPLETE BILL OF REINFORCING STEEL

COMPLETE BILL OF REINFORCING STEEL					BENDING SKETCHES & CUTTING DIAGRAMS					NO. SIZE LENGTH MARK LOCATION				
END BENT NO. 1										END BENT NO. 5				
2	6	35'-3"	H1	Backwall						104	6	18'-5"	U21	Beam
6	4	35'-3"	H2	"						4	6	1'-0"	U22	"
8	8	37'-6"	H3	Beam						4	6	3'-6"	U23	"
2	6	35'-3"	H4	"						36	9	27'-3"	V31	Bl. No. 3
4	8	9'-9"	H5	"						36	9	29'-6"	V41	Bl. No. 4
1	6	5'-3"	H6	"						16	8	19'-9"	W1	AB Wells
1	6	4'-6"	H7	"										
6	8	4'-0"	H8	"										
8	8	5'-0"	H9	"										
1	6	5'-0"	H10	"										
36	6	4'-0"	H11	Beam & Wing										
8	6	8'-9"	H12	Wing										
20	6	6'-9"	H13	"										
BENT NO. 2										BENT NO. 3 & NO. 4				
16	9	4'-6"	D31	Fig.	24	9	4'-6"	D21	Fig.	492	5	3'-9"	C1	Curb
18	5	7'-0"	D22	"	32	5	4'-0"	D23	"	8	5	23'-3"	C2	"
12	5	4'-0"	D23	"	36	6	8'-6"	D31	"	8	5	34'-9"	C3	"
4	9	32'-6"	H21	Beam	12	10	13'-6"	H22	Beam	8	5	36'-9"	C4	"
6	10	13'-6"	H22	"	8	6	29'-9"	H24	"	8	5	30'-0"	C5	"
10	9	29'-9"	H23	"	12	7	6'-0"	H25	"	940	6	34'-5"	S1	Slab
4	6	29'-9"	H24	"	18	10	32'-9"	H31	"	315	4	23'-0"	S2	"
8	7	6'-0"	H25	"	36	6	8'-6"	D31	"	378	3	23'-3"	S3	"
42	3	8'-0"	P21	Col.	12	10	13'-6"	H22	Beam	90	4	16'-0"	S4	"
36	6	12'-3"	U21	Beam	8	6	29'-9"	H24	"	36	6	32'-0"	S5	"
2	6	7'-0"	U22	"	12	7	6'-0"	H25	"	84	5	28'-3"	S6	"
10	6	3'-6"	U23	"	18	10	32'-9"	H31	"	388	5	5'-0"	P7	Para.
16	9	24'-0"	V21	Col.	36	6	8'-6"	D31	"	4	5	36'-0"	P8	Para. Ft.
8	2	19'-9"	W1	AB Wells	12	10	13'-6"	H22	Beam	4	5	35'-0"	P9	" Lt.
BENT NO. 3 & NO. 4					8	6	29'-9"	H24	"	16	5	8'-9"	P10	" Rt.
24	9	4'-6"	D21	Fig.	12	7	6'-0"	H25	"	32	3	9'-9"	P11	" Lt.
32	5	4'-0"	D23	"	18	10	32'-9"	H31	"	8	5	25'-0"	P12	" Rt.
36	6	8'-6"	D31	"	36	6	8'-6"	D31	"	8	5	24'-6"	P13	" Lt.
12	10	13'-6"	H22	Beam	12	10	13'-6"	H22	Beam	8	5	27'-0"	P14	" Rt.
8	6	29'-9"	H24	"	18	10	32'-9"	H31	"	8	5	26'-6"	P16	" Lt.
12	7	6'-0"	H25	"	36	6	8'-6"	D31	"	8	5	25'-6"	P17	" Rt.
8	10	32'-9"	H31	"	12	10	13'-6"	H22	Beam	8	5	25'-0"	P18	" Lt.
18	10	29'-9"	H32	"	18	10	32'-9"	H31	"					
48	3	8'-0"	P21	Bl. No. 3										
32	3	8'-0"	P21	Bl. No. 4										

All dimensions are out to out of bars.

BURGIN & MARTIN
CONSULTING ENGINEERSDESIGNED BY AG Lathrop
DESIGN CK. FD Felard
CHECKED BY JR Kettler
CHECKED BY ED Sebo

Note: This drawing is not to scale. Follow dimensions.



Note: For Location of soundings see Sheet No. 1 of 9
 "A" Indicates location of soundings.
 "A" Indicates soundings taken with an Auger.
 "C" Indicates soundings taken with a Core Drill.
 Elevations at top of hole as of 1964.

LOG OF SOUNDINGS

BRIDGE-S. HARRISONVILLE CONNECTION UNDERPASS

STATE ROAD FROM PECULIAR TO ARCHIE

ABOUT 1.75 MILES S.W. OF HARRISONVILLE

PROJECT NO. F-FG-71-4 (6) (RTE. 71) STA. 1026+00
SEC. B

CASS

COUNTY

Sheet No. 2 of 9. Revised 9-7-65

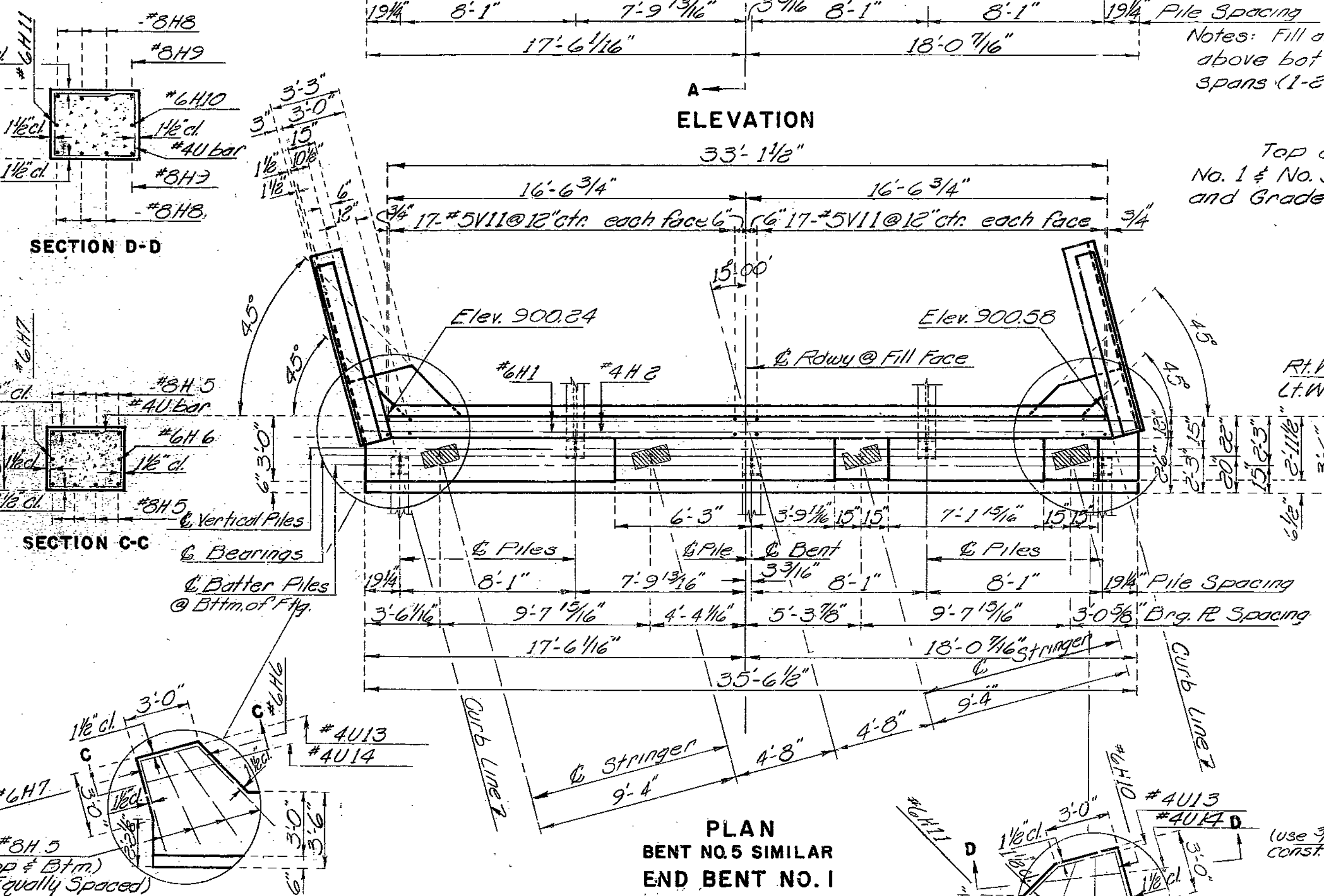
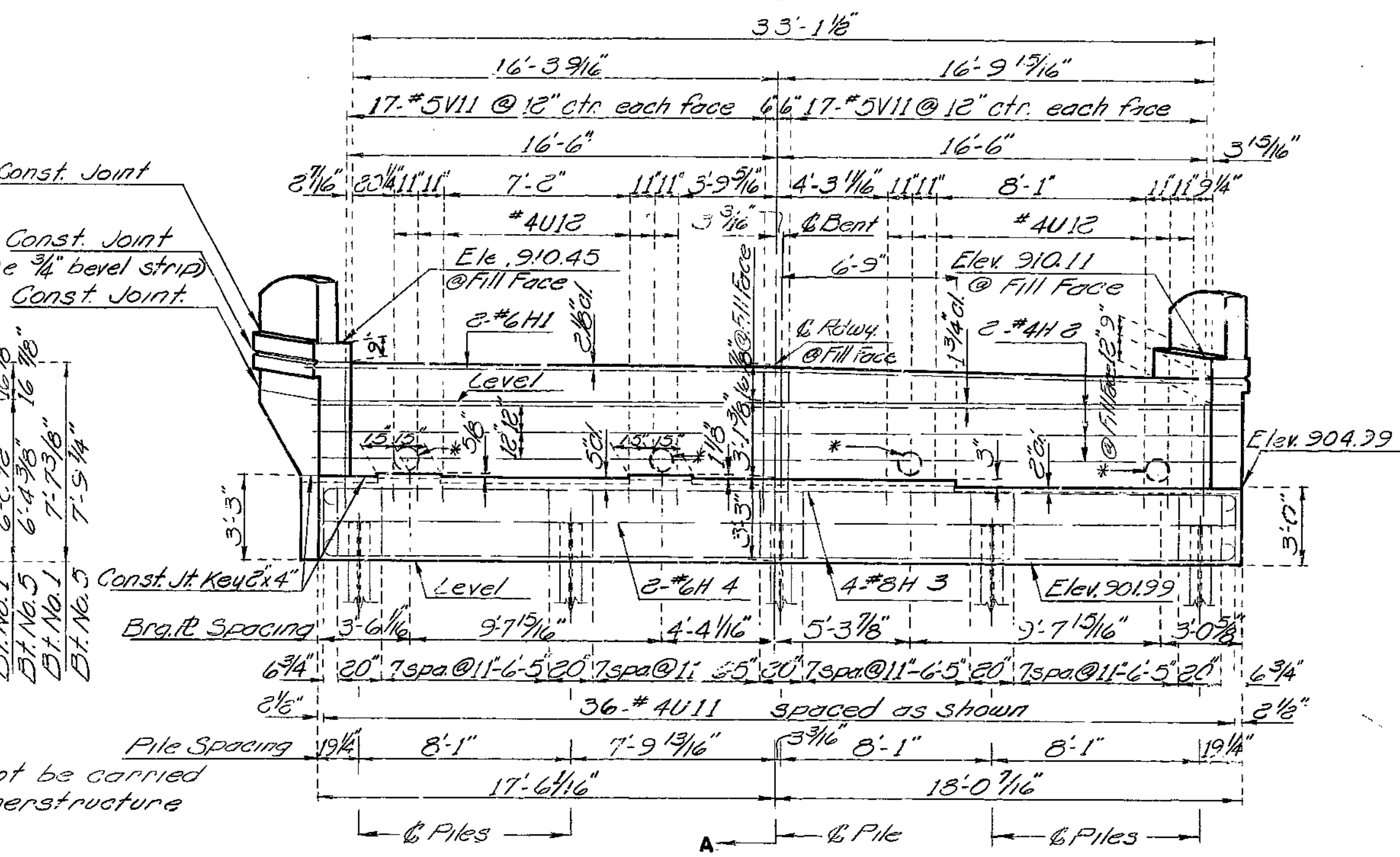
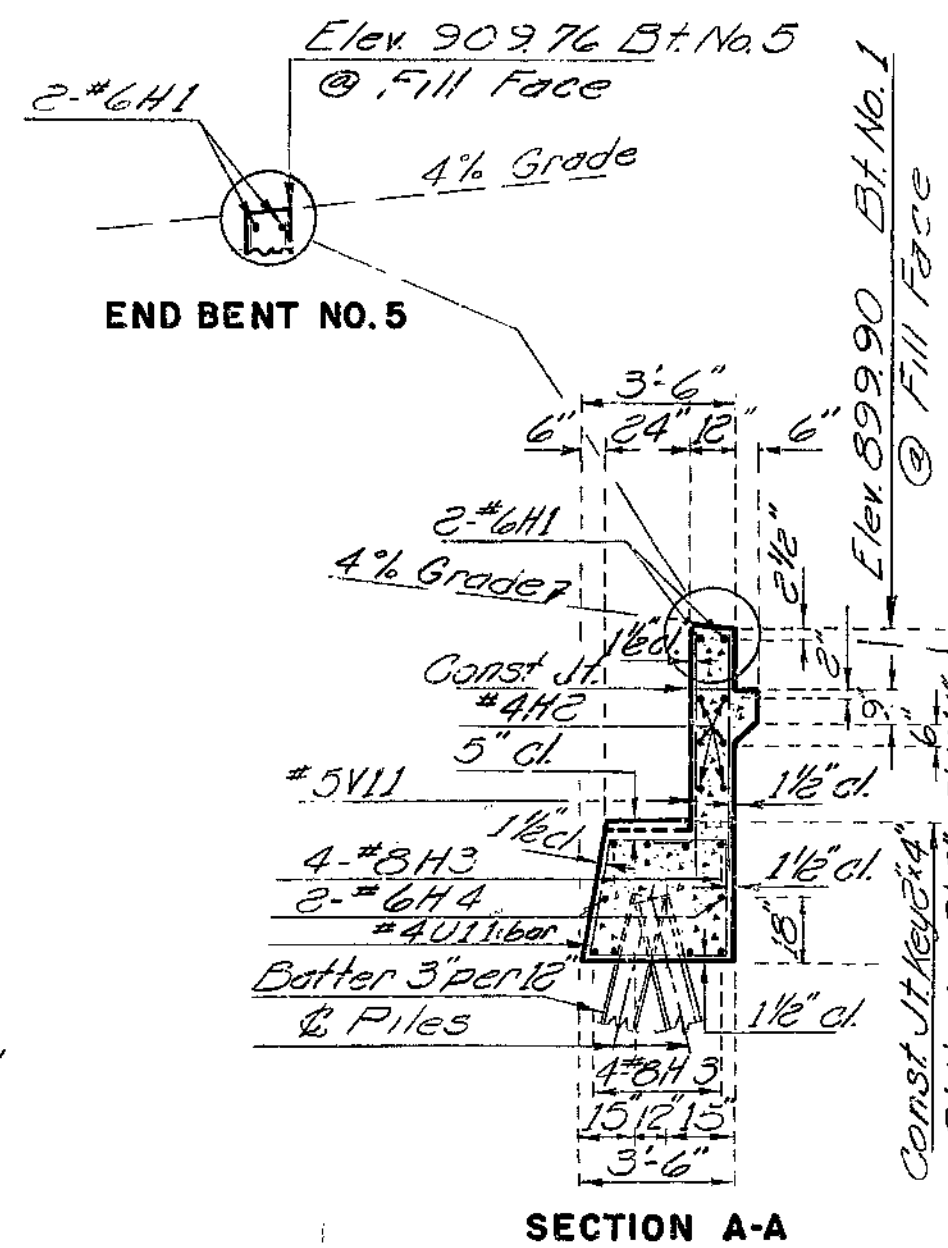
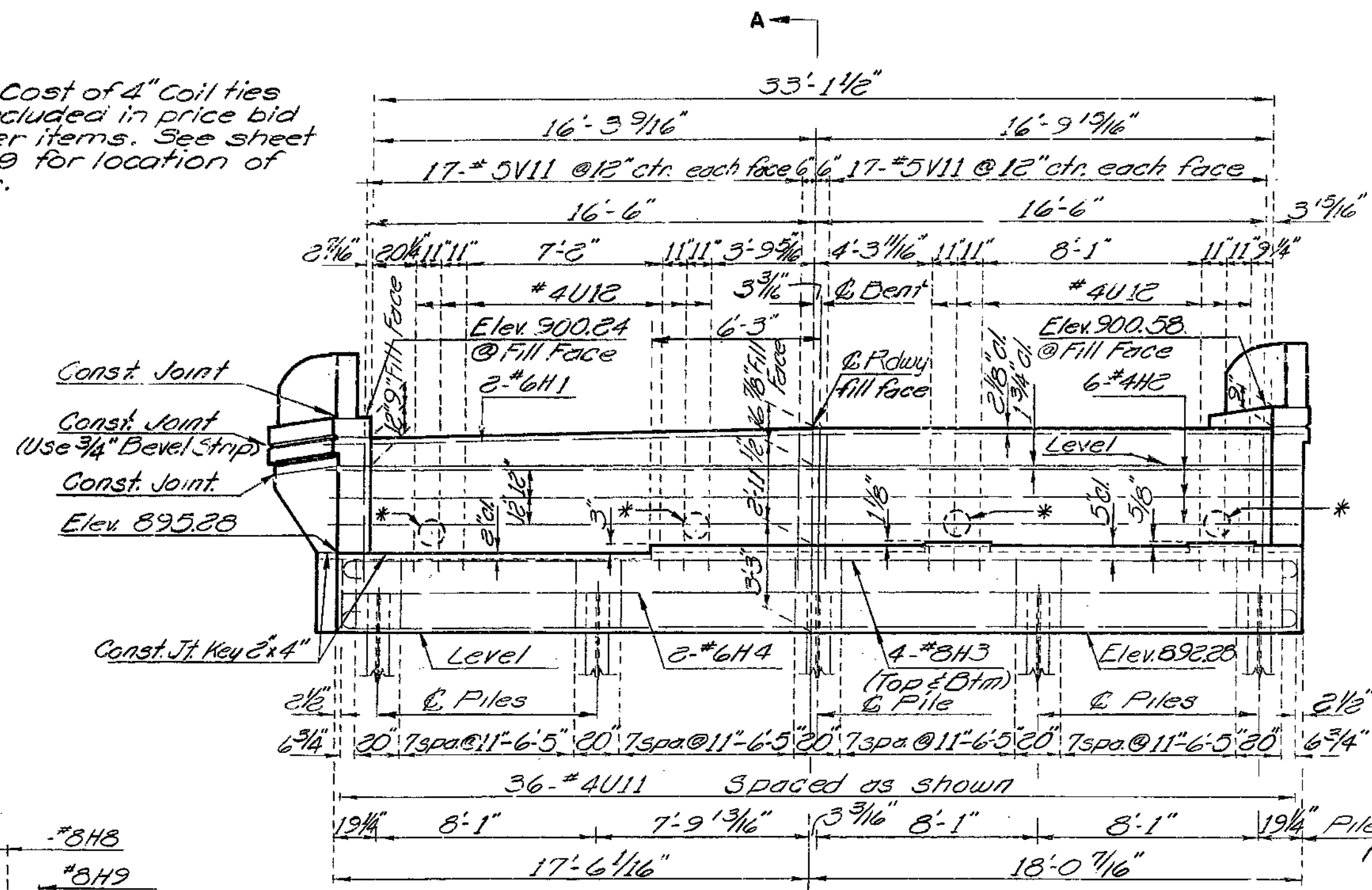
NO CONSTRUCTION CHANGES

A-1495

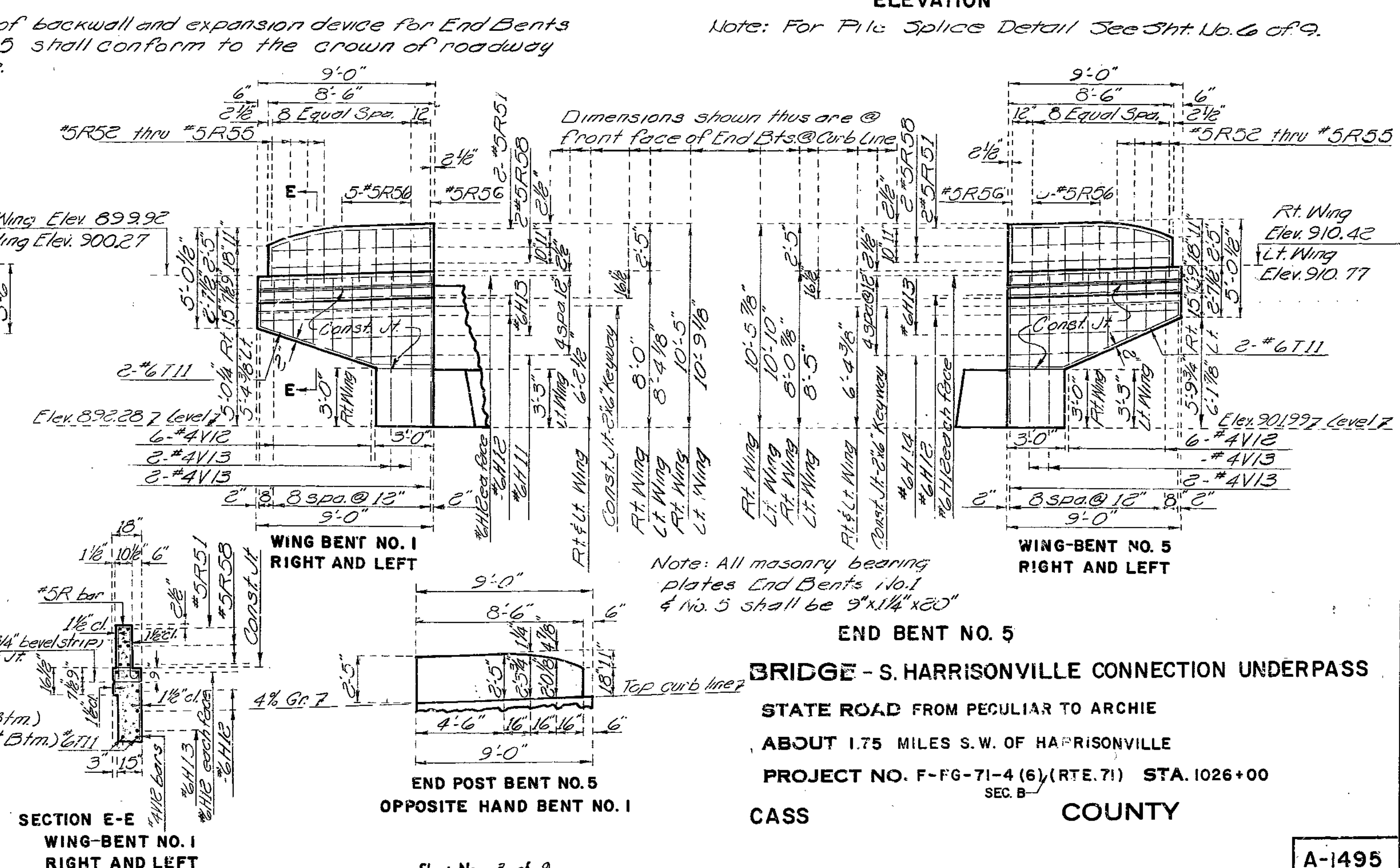
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	137	

Note: * Cost of 4" coil ties to be included in price bid for other items. See sheet No. 5 of 9 for location of coil ties.



Note: Backwall above upper construction joint shall not be poured until the structural steel of the expansion device has been installed and the slab has been poured in adjacent span.



BURGWIN & MARTIN
CONSULTING ENGINEERS

DESIGNED A.G. Latham
CHECKED F.D. Feland

DETAILED E. Vaughn
CHECKED E.D. Sebo

Note: This drawing is not to scale. Follow dimensions.

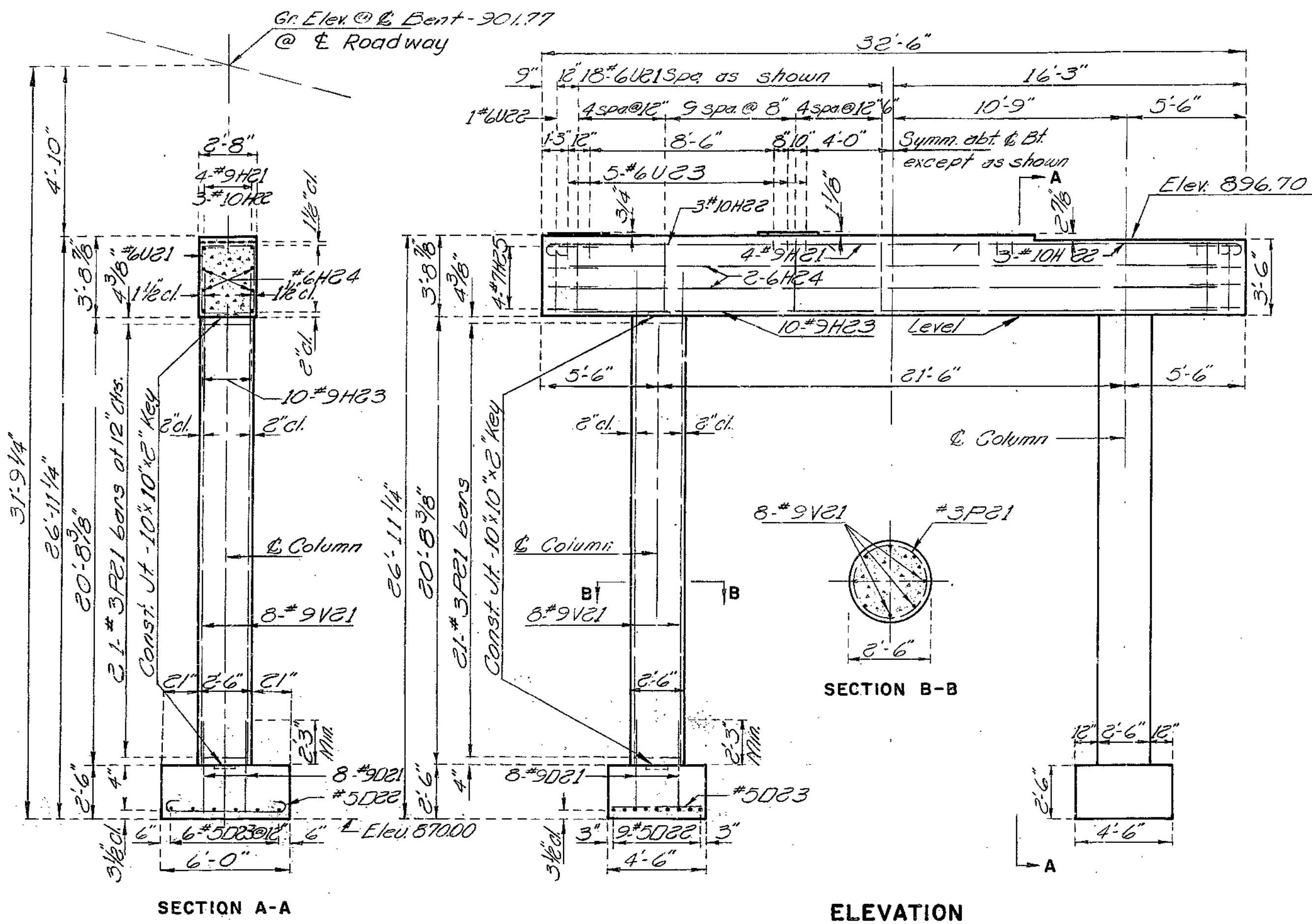
Sheet No. 3 of 9.

NO CONSTRUCTION CHANGES

A-1495

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	138	

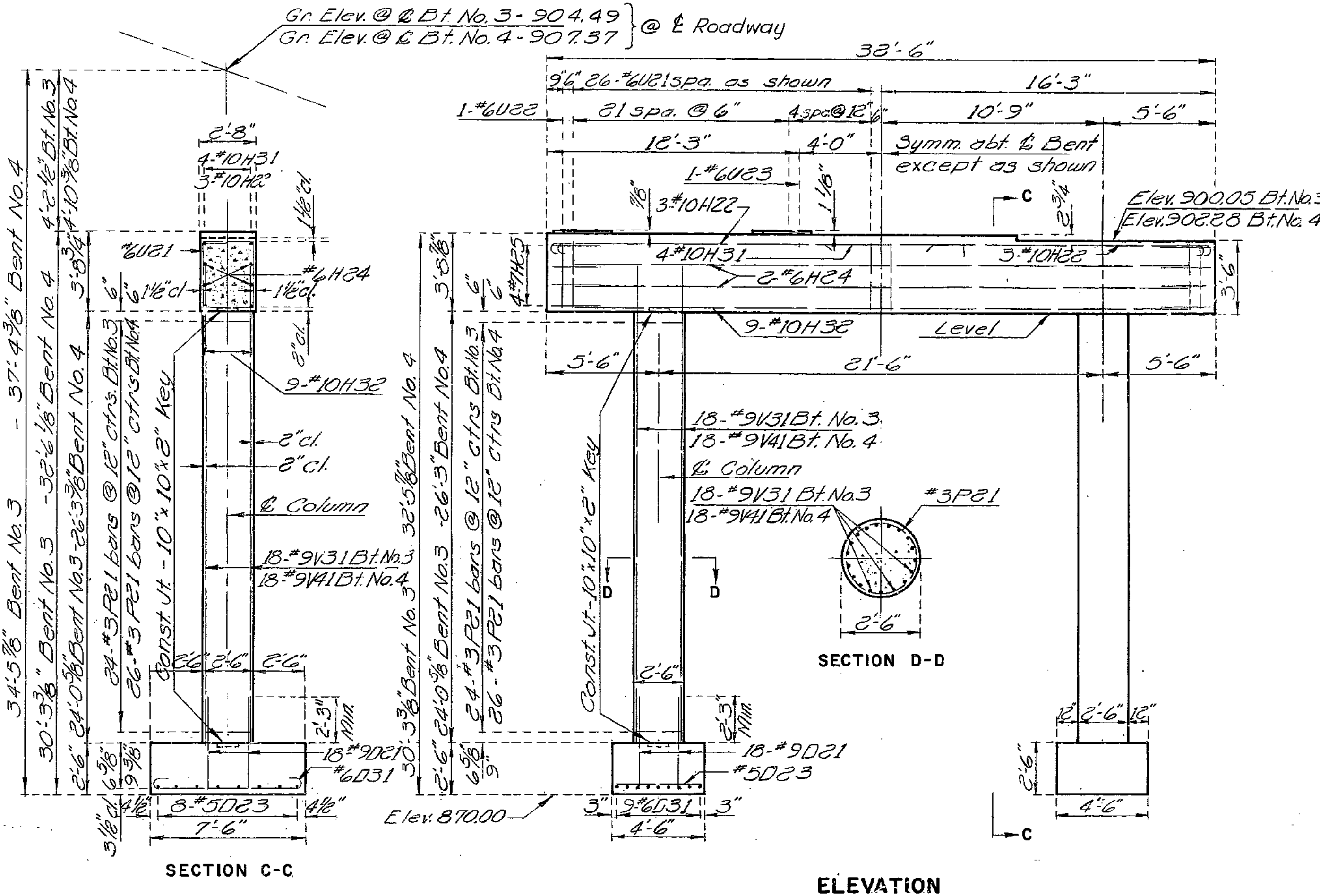


SECTION A-A

ELEVATION

PLAN

DETAILS INTERMEDIATE BENT NO. 2



SECTION C-C

ELEVATION

FOOTING PLAN
END BENTS NO. 3 & NO. 4

Note: Bearing Plate Sizes
Bent No. 3 - 11' x 20' x 18"
Bent No. 4 - 13' x 21' x 24"

DETAILS INT. BENTS NO. 3 AND NO. 4

Sheet No. 4 of 9.

NO CONSTRUCTION CHANGES

BRIDGE-S. HARRISONVILLE CONNECTION UNDERPASS

STATE ROAD FROM PECULIAR TO ARCHIE

ABOUT 1.75 MILES S.W. OF HARRISONVILLE

PROJECT NO. F-F6-71-4 (6) (RTE. 71) STA. 1026+00

CASS

COUNTY

A-1495

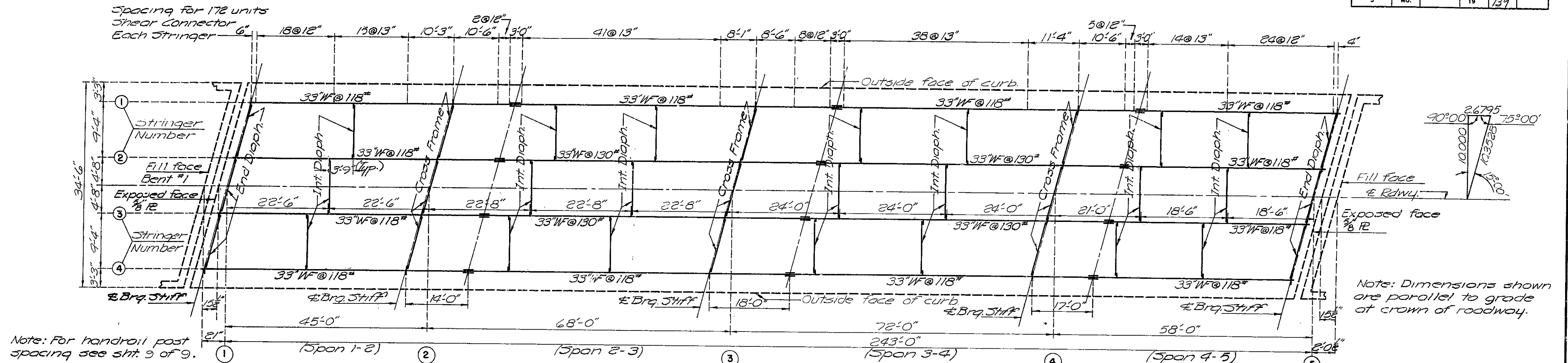
Note: This drawing is not to scale. Follow dimensions.

BURGWIN & MARTIN
CONSULTING ENGINEERS
DESIGNED A.G. Latham
CHECKED F.D. Folan
DETAILED E. Vaughn
CHECKED E.D. Soto

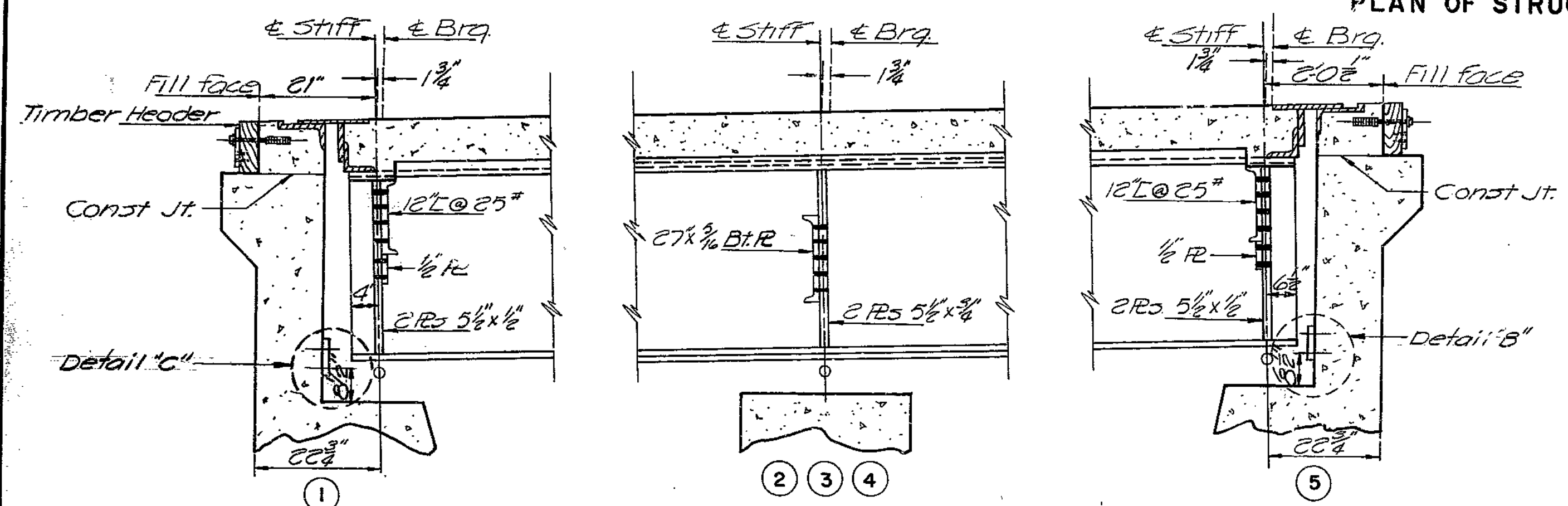
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MISSOURI STATE HIGHWAY DEPARTMENT

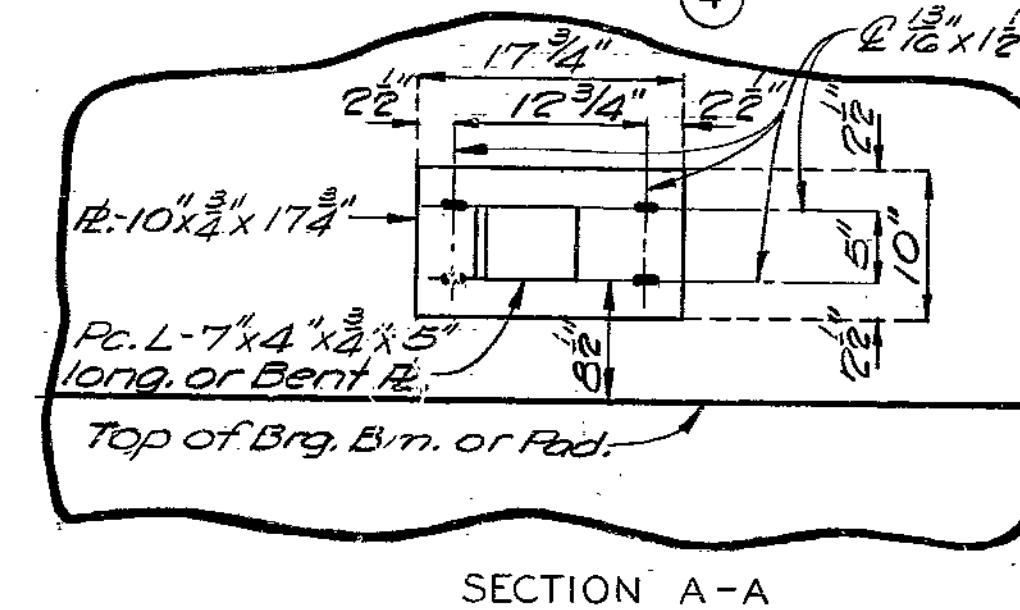
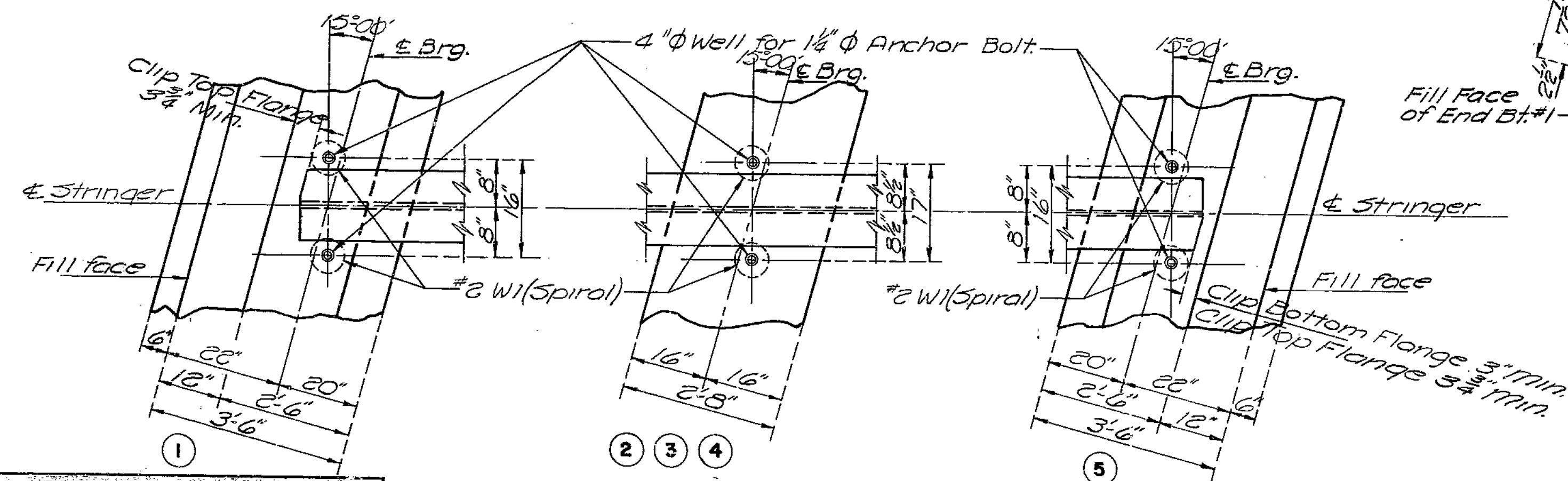
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5	MO.		19	139	



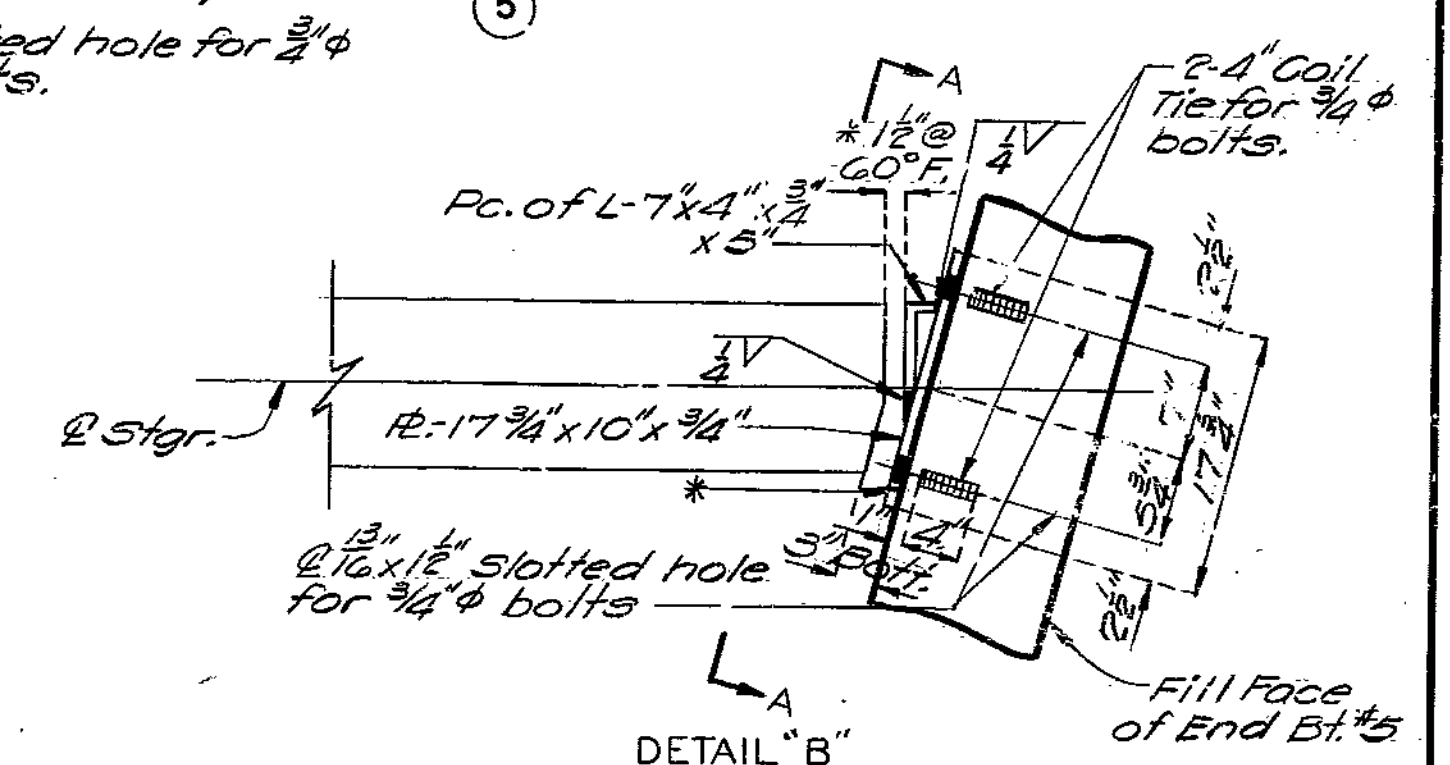
PLAN OF STRUCTURAL STEEL



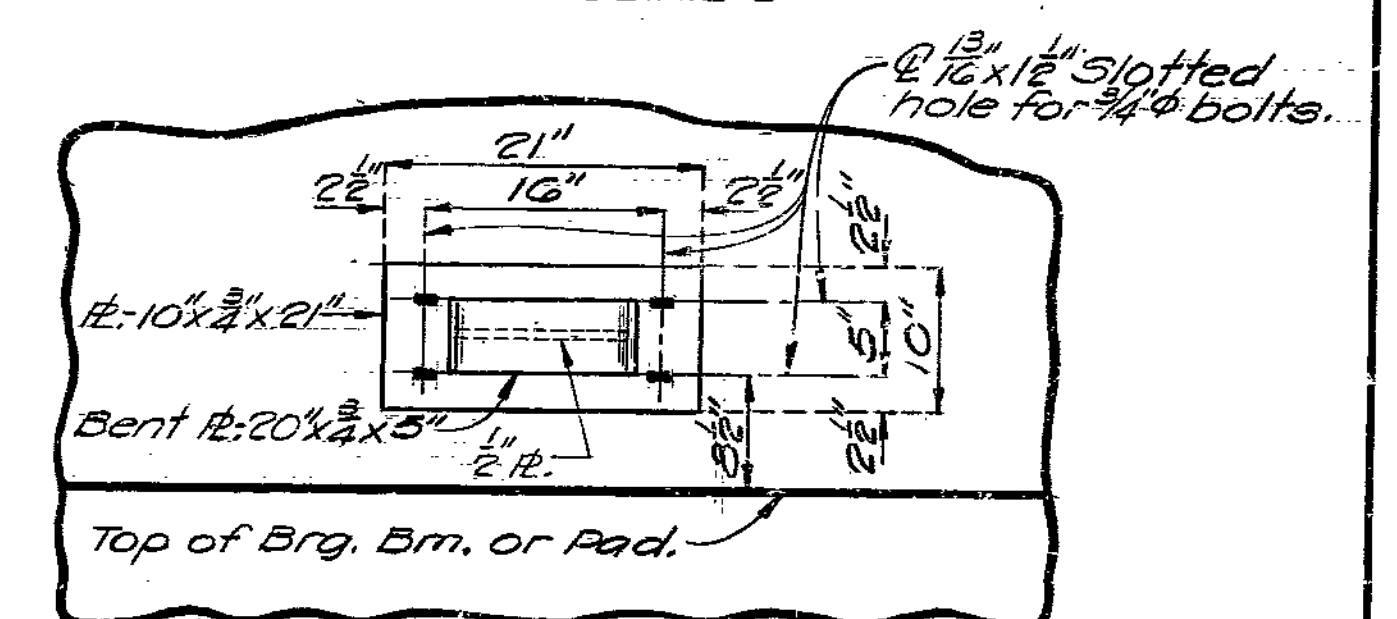
PART LONGITUDINAL SECTIONS



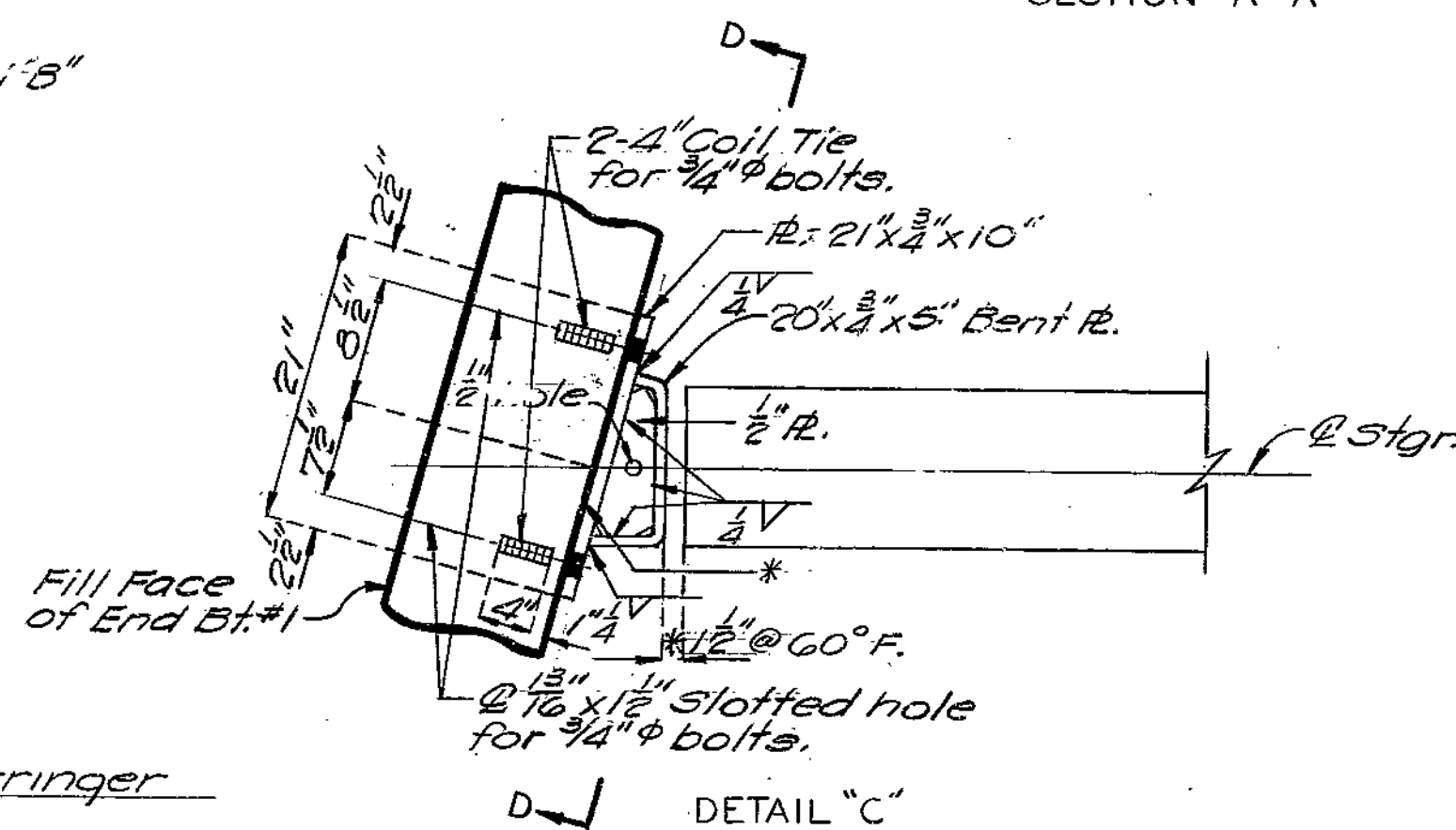
SECTION A-A



DETA



SECTION D-D



DETAIL "C"

*Note: * Stringer stop may be slightly adjusted for horizontal alignment by movement of stop within slotted holes in 1 7/8"x10 3/4" L and a 2"x10 3/4" L. Large horizontal adjustment to be made by use of full size metal shims placed between concrete backwall and stringer stop. Cost of shims to be included in price bid for other items.*

DETAILS OF STRINGER STOP

BRIDGE-S. HARRISONVILLE CONNECTION UNDERPASS

STATE ROAD FROM PECULIAR TO ARCHIE

ABOUT 1.75 MILES S.W. OF HARRISONVILLE

PROJECT NO. F-FG-7i-4 (6) (RTE. 71) STA. 1026+00

CASS

COUNTY

Sheet No. 5 of 9 .

A-1495

NO CONSTRUCTION CHANGES

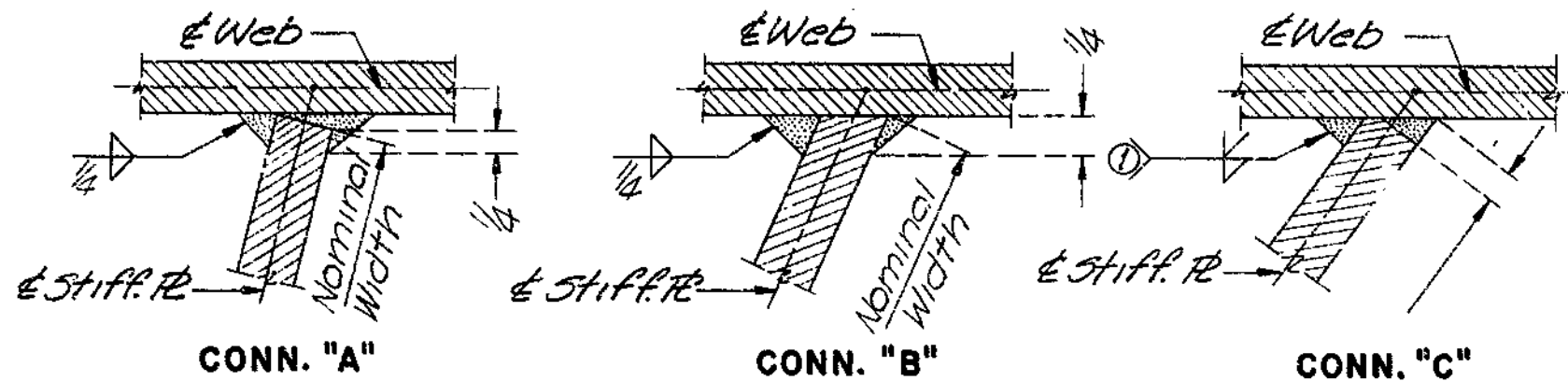
Note: This drawing is not to scale. Follow dimensions.

BURGWIN & MARTIN
CONSULTING ENGINEERS

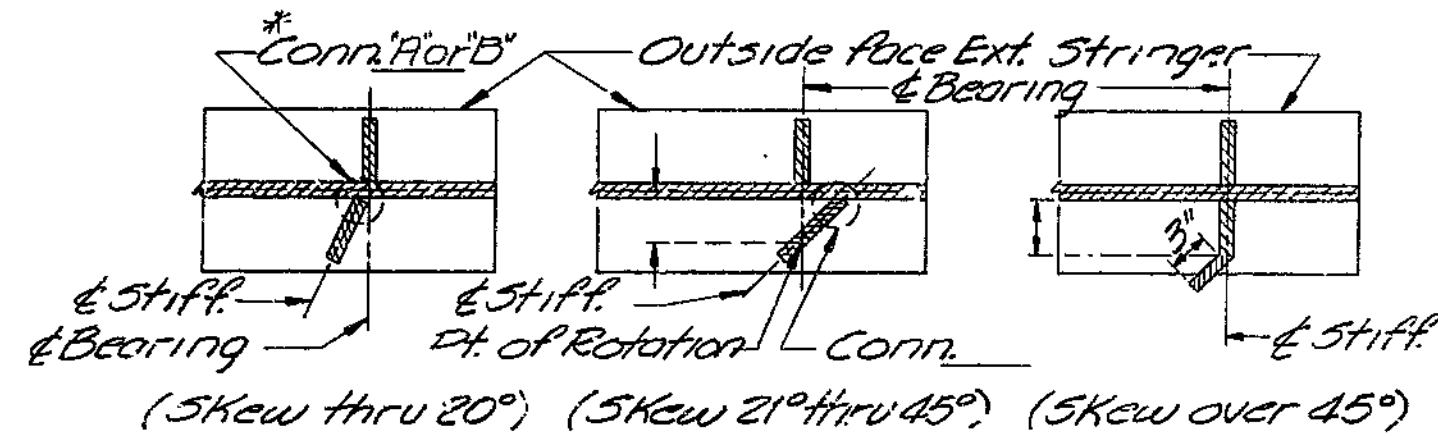
DESIGNED <i>A.G. Latham Es</i>	DETAILED <i>J.R. Kettler Es</i>
DESIGN CK. <i>F.D. Foland</i>	DETAIL CK. <i>E.D. Seba Es</i>

STIFFENER CONNECTION				
STIFFENER THICKNESS				
3/8	1/2	5/8	3/4	1
1	2	3	4	5

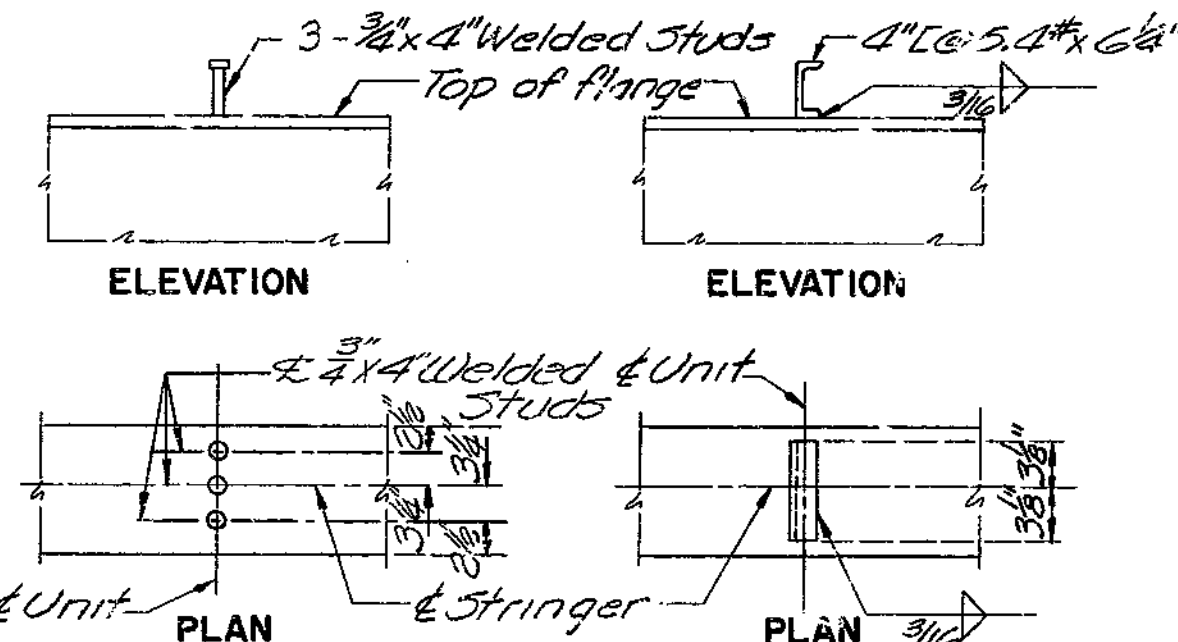
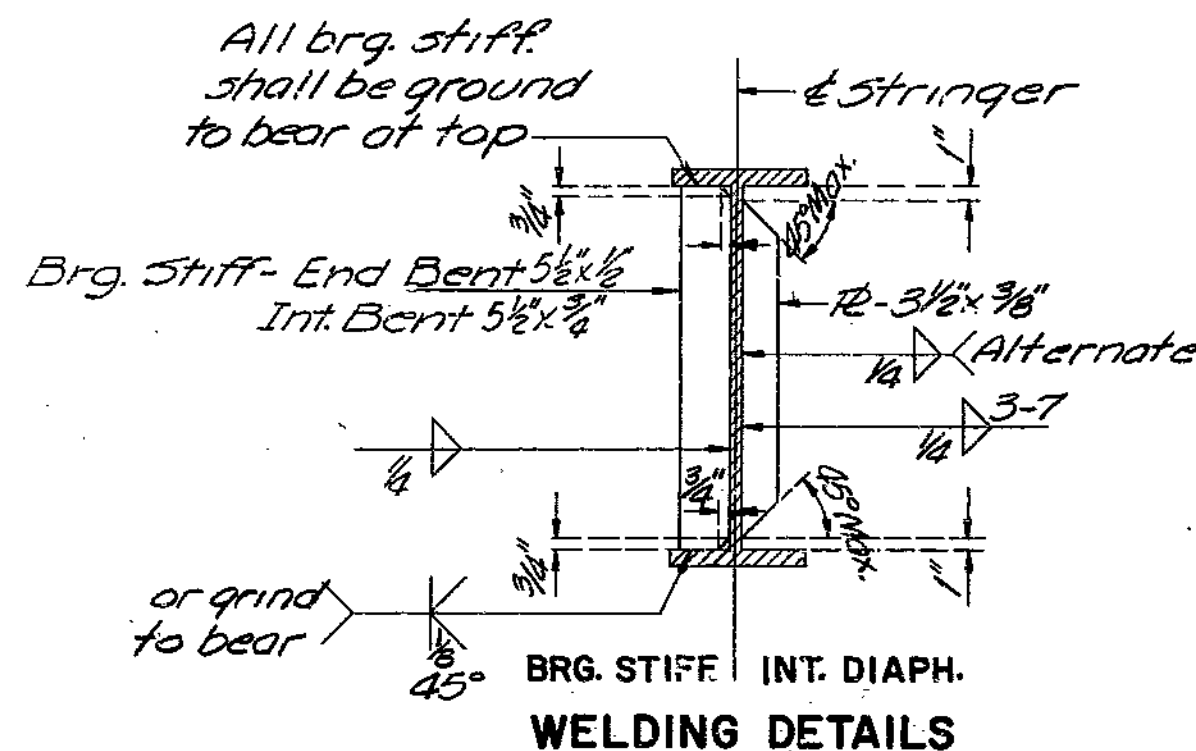
Groove weld penetration 1/4 Min.
Only welding processes having
good penetration will be
permitted on groove welds.



* B1 1.65 Conn. A
B1 2.384 Conn. B

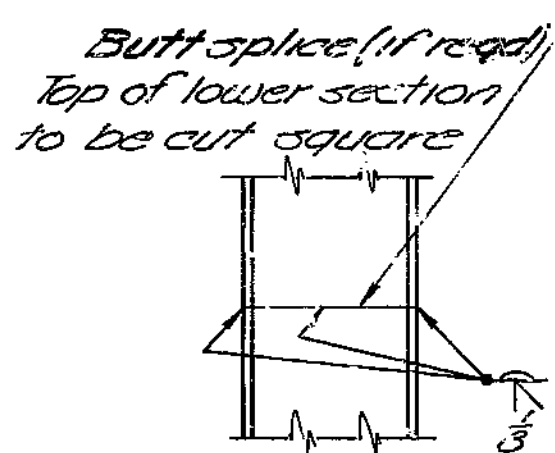


DETAILS LOCATING STIFF. PLATE



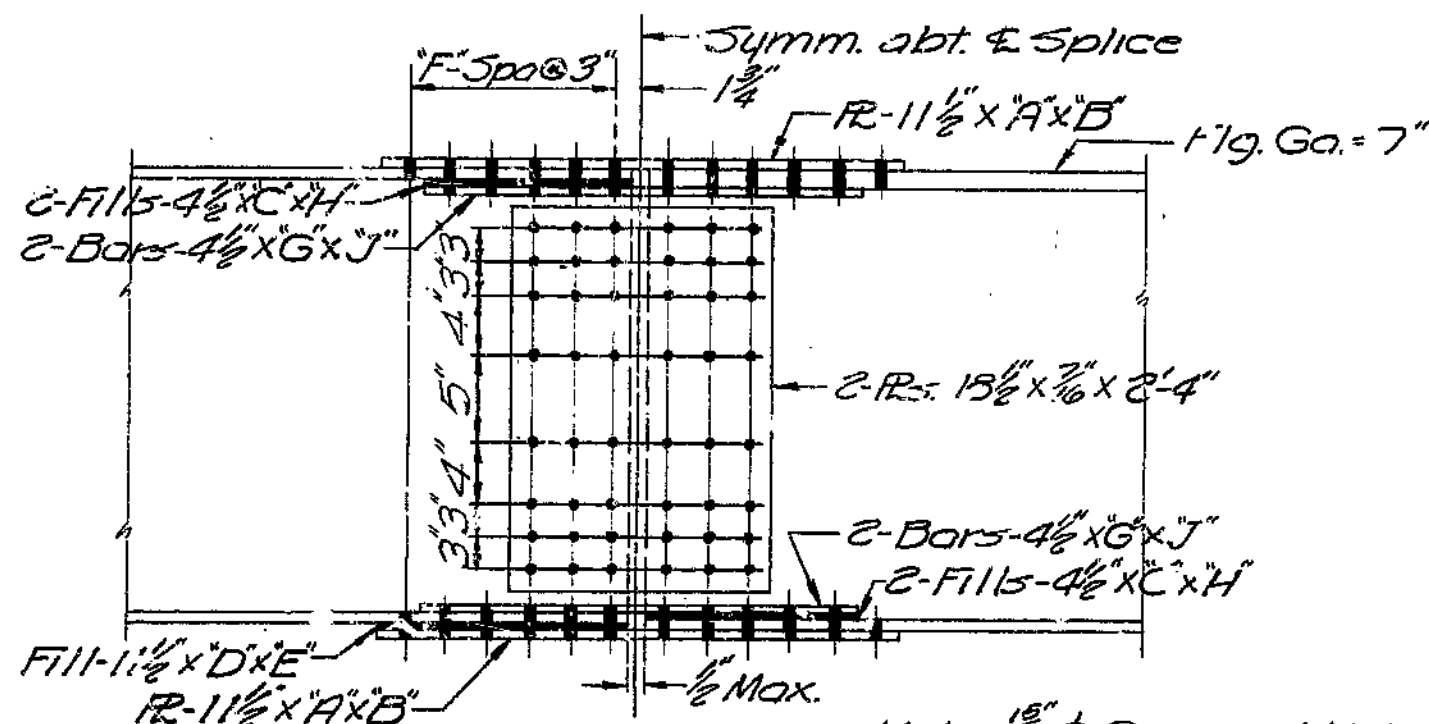
Note: Locate channel connectors with backs toward ends of spans.

SHEAR CONNECTOR DETAILS



DETAIL OF STEEL FILE SPLICE

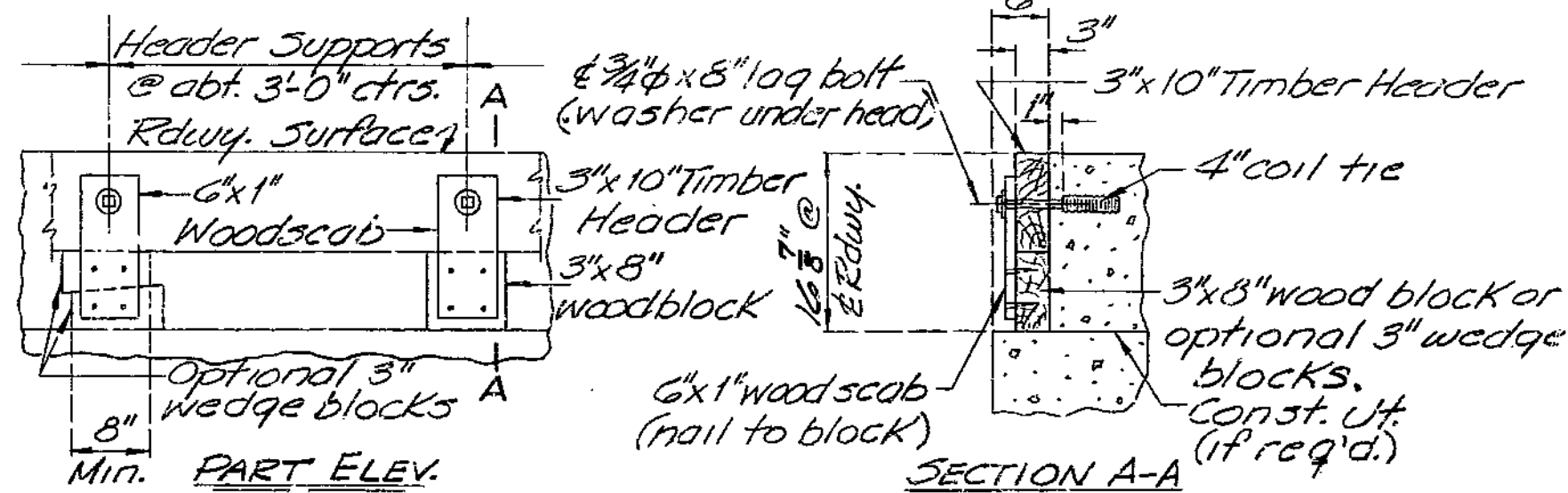
MISSOURI STATE HIGHWAY DEPARTMENT



Note: 1/8" ϕ Reamed Holes for 1/2" H.S. Bolts.

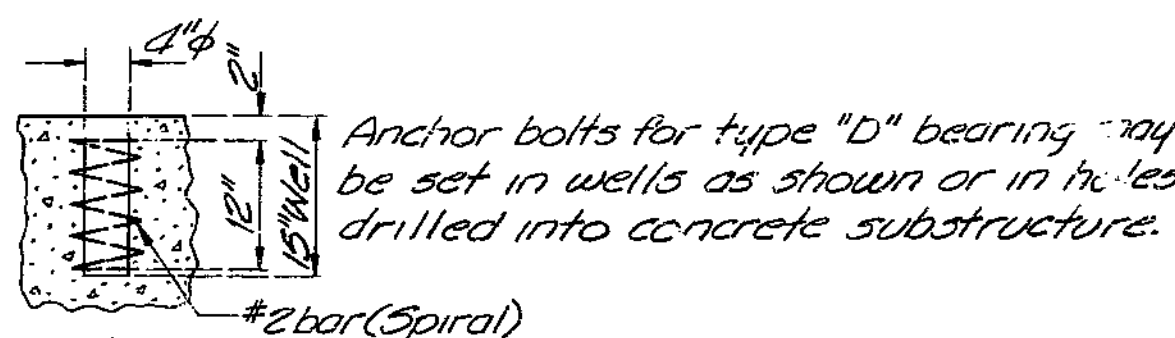
	A	B	C	D	E	F	G	H	J
33" W @ 118" to 118"	1/2	2 1/2				4	1/2		80%
33" W @ 118" to 130"	1/2	2 1/2	160	1/4	15	4	1/2	12	80%
33" W @ 130" to 150"	1/2	2 1/2				4	3/8		80%

FIELD SPLICE DETAIL



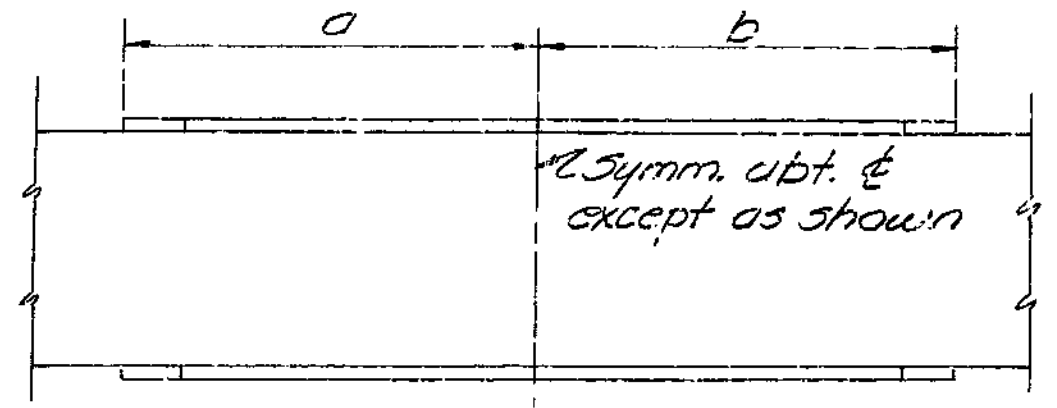
Note: Cost of timber headers complete in place to be included in price bid for concrete.

TIMBER HEADER DETAILS

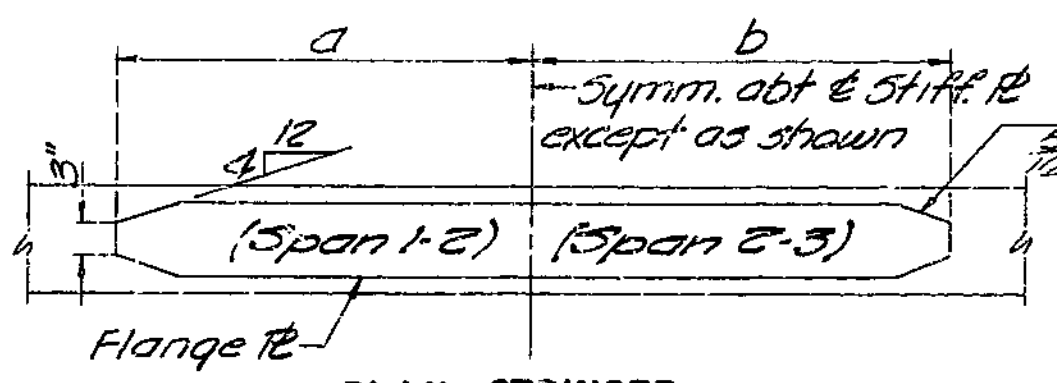


ANCHOR BOLT WELL DETAILS

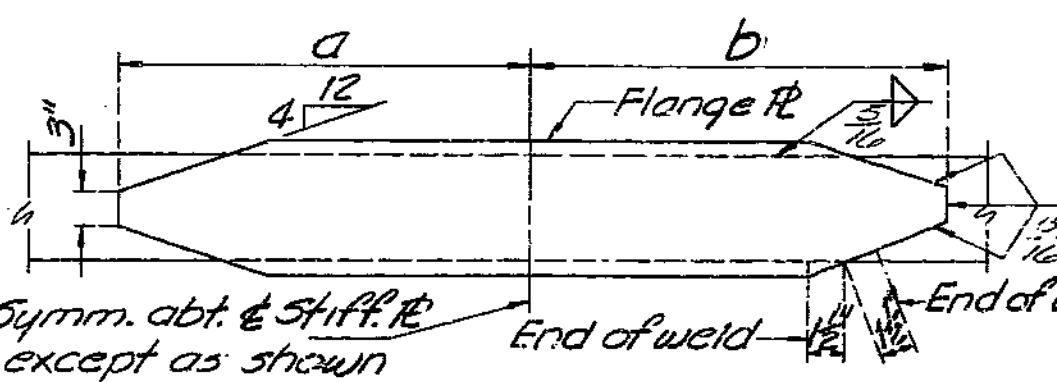
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	MO.		19	140	



ELEVATION OF STRINGER



PLAN-STRINGER Bent #2



PLAN-STRINGER Bent #5 & 4

TABLE OF FLANGE PLATE DETAILS					
BENT NO.	INT. STRINGER		EXT. STRINGER		
	SIZE	a b	SIZE	a b	
2	10 x 3/8	8'-6" 6'-6"	10 x 1/2	8'-6" 6'-6"	
3 & 4	13 x 3/4	9'-6" 9'-6"	15 x 3/4	9'-6" 9'-6"	

BRIDGE-S. HARRISONVILLE CONNECTION UNDERPASS

STATE ROAD FROM PECULIAR TO ARCHIE
ABOUT 1.75 MILES S.W. OF HARRISONVILLE
PROJECT NO. F-FG-71-4 (6), (RTE. 71) STA. 1026+00
SEC. B

CASS

COUNTY

BURGWIN & MARTIN CONSULTING ENGINEERS	
DESIGNED <i>A.G. Latham</i>	DETAILED <i>J.R. Kettler</i>
DESIGN CK. <i>F.D. Foland</i>	DETAIL CK. <i>E.D. Sebo</i>

Sheet No. 6 of 9.

NO CONSTRUCTION CHANGES

A-1495

FED ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	141	

NO CONSTRUCTION CHANGES

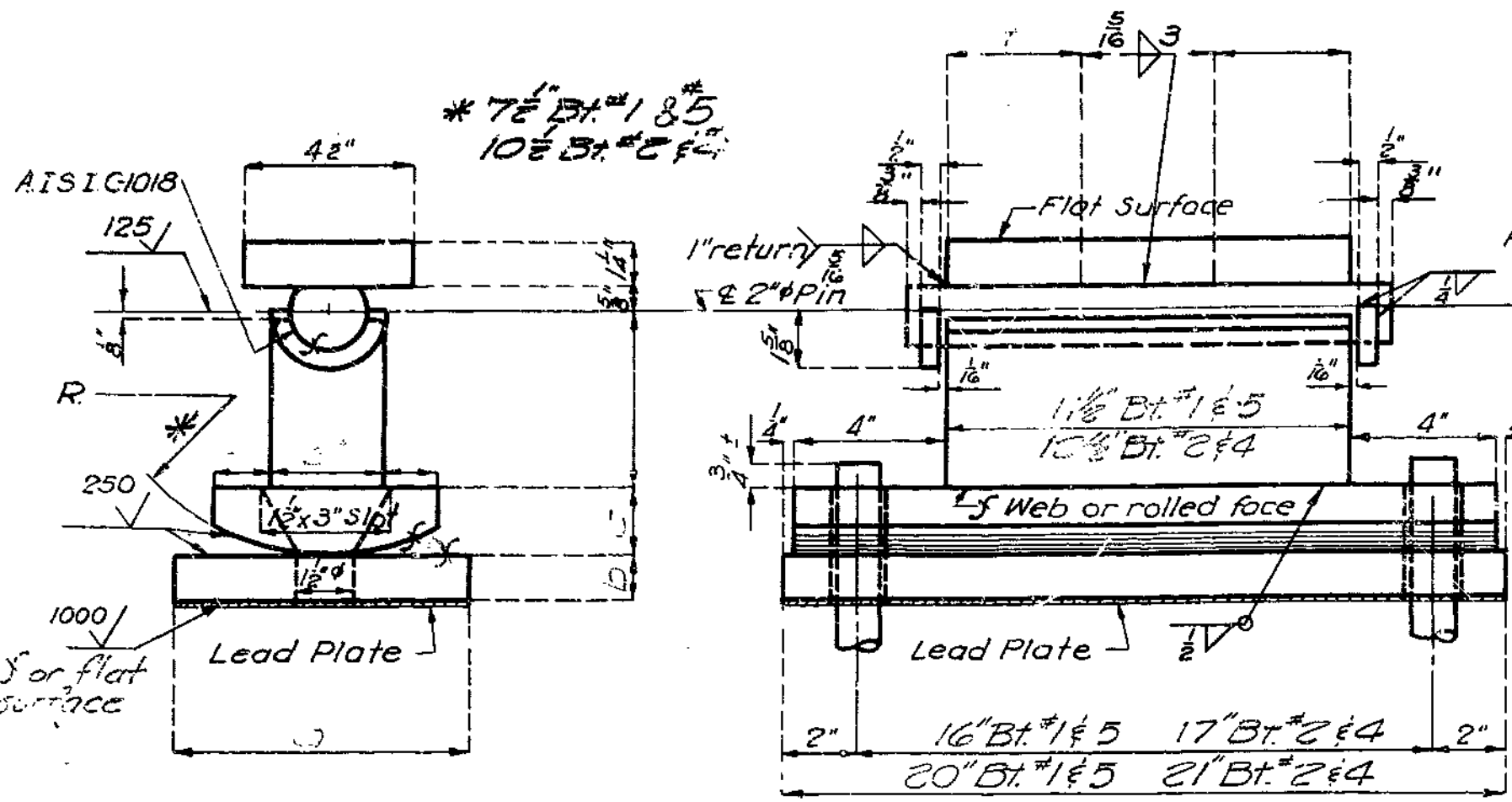
Note: This drawing is not to scale. Follow dimensions.

DETAIL "A"

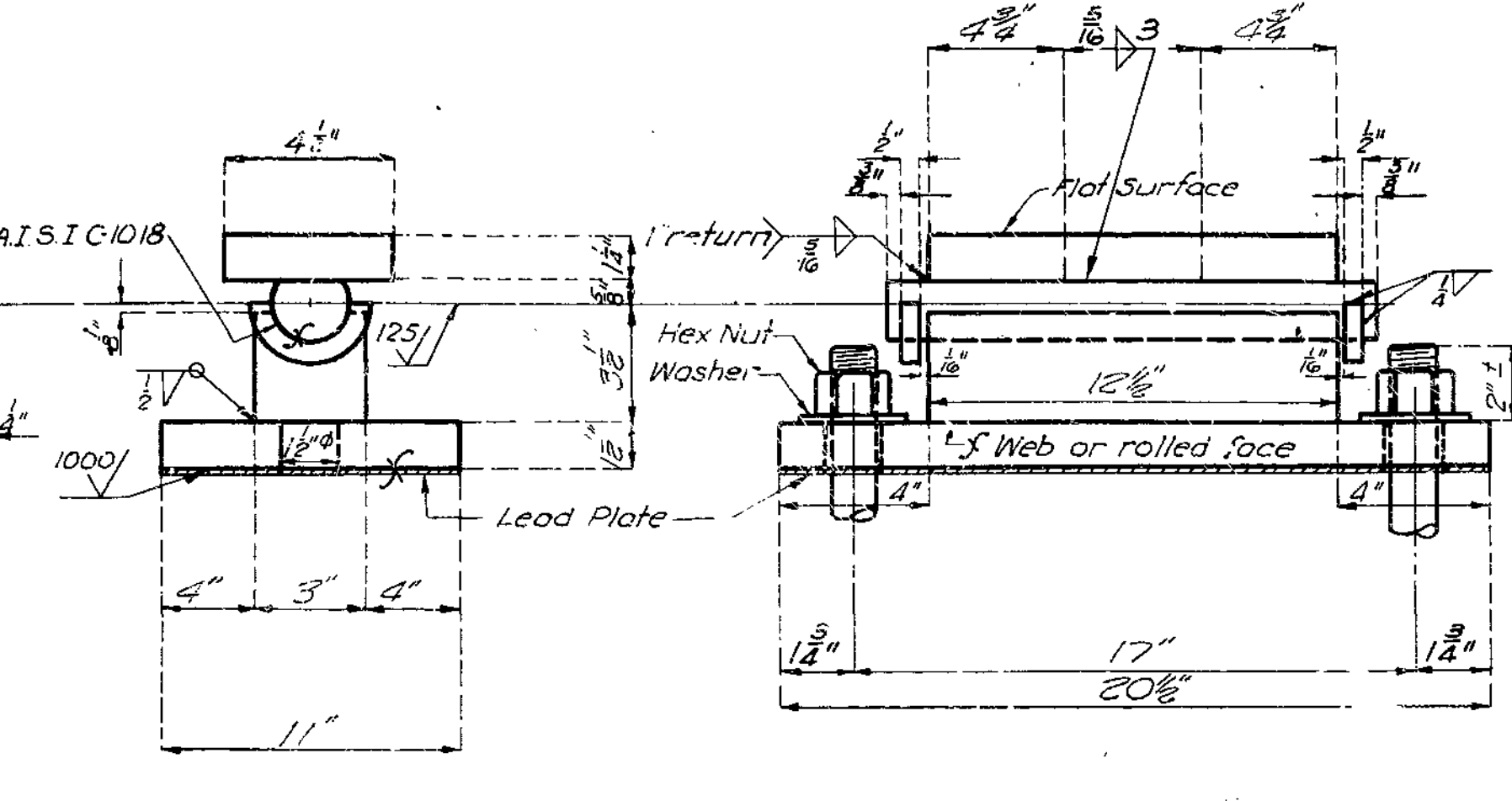
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO		19	142	

DIMENSIONS FOR TYPE "D" BEARINGS					
Bent	A	B	C	D	E
1/15	3	13	6	7	2
2/15	15	20	7	2	

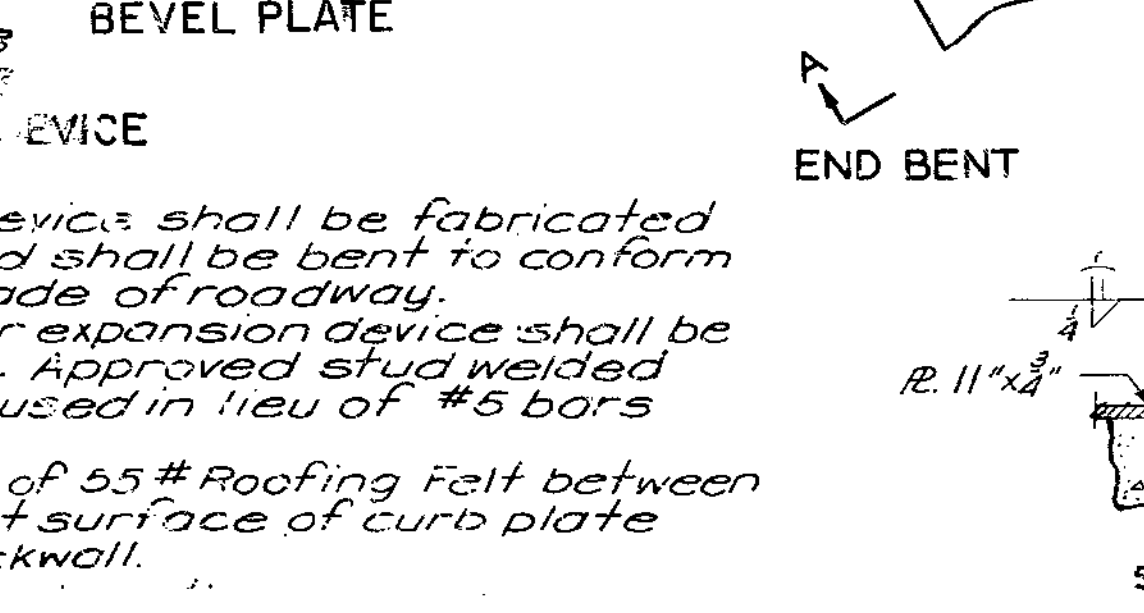
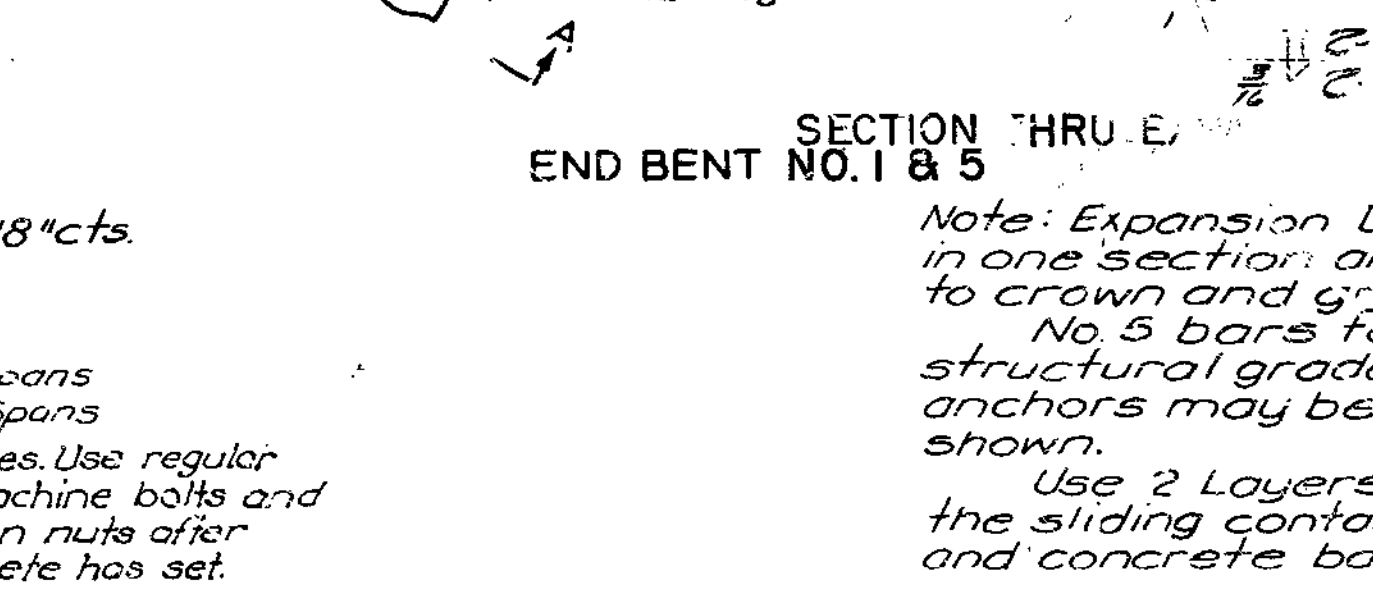
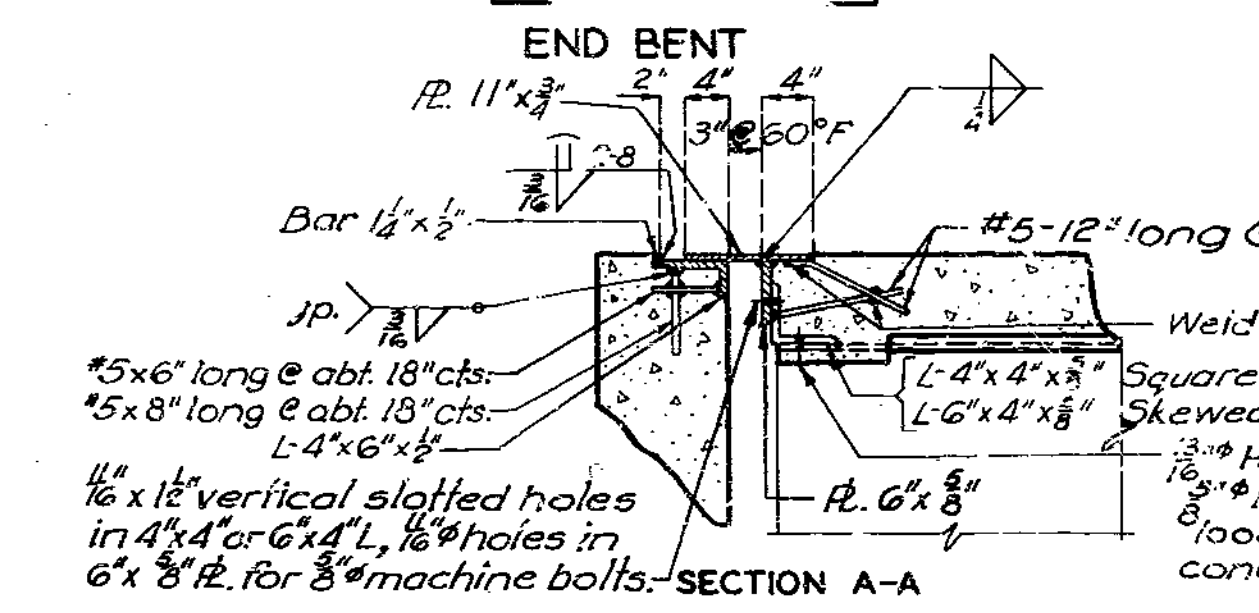
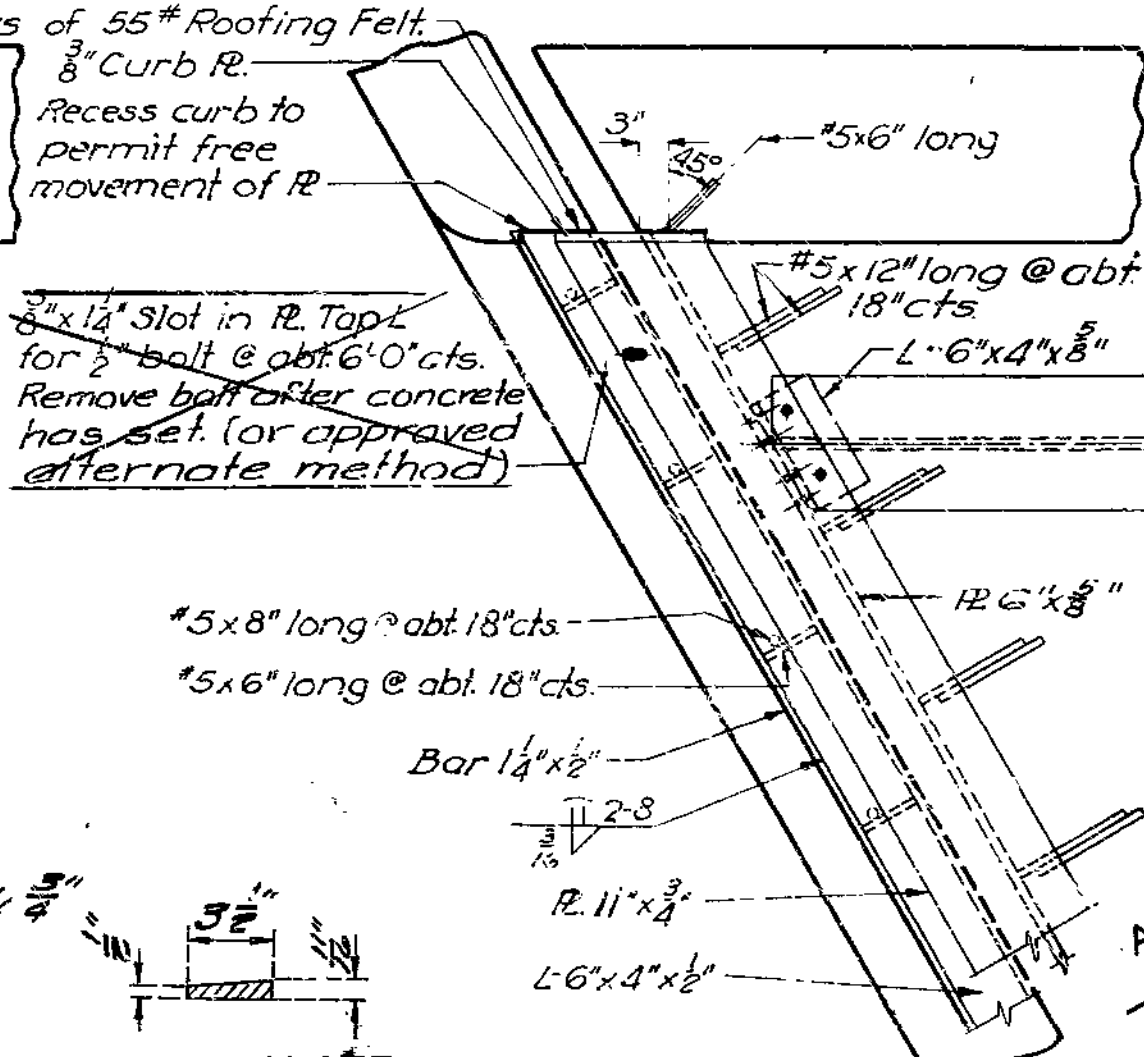
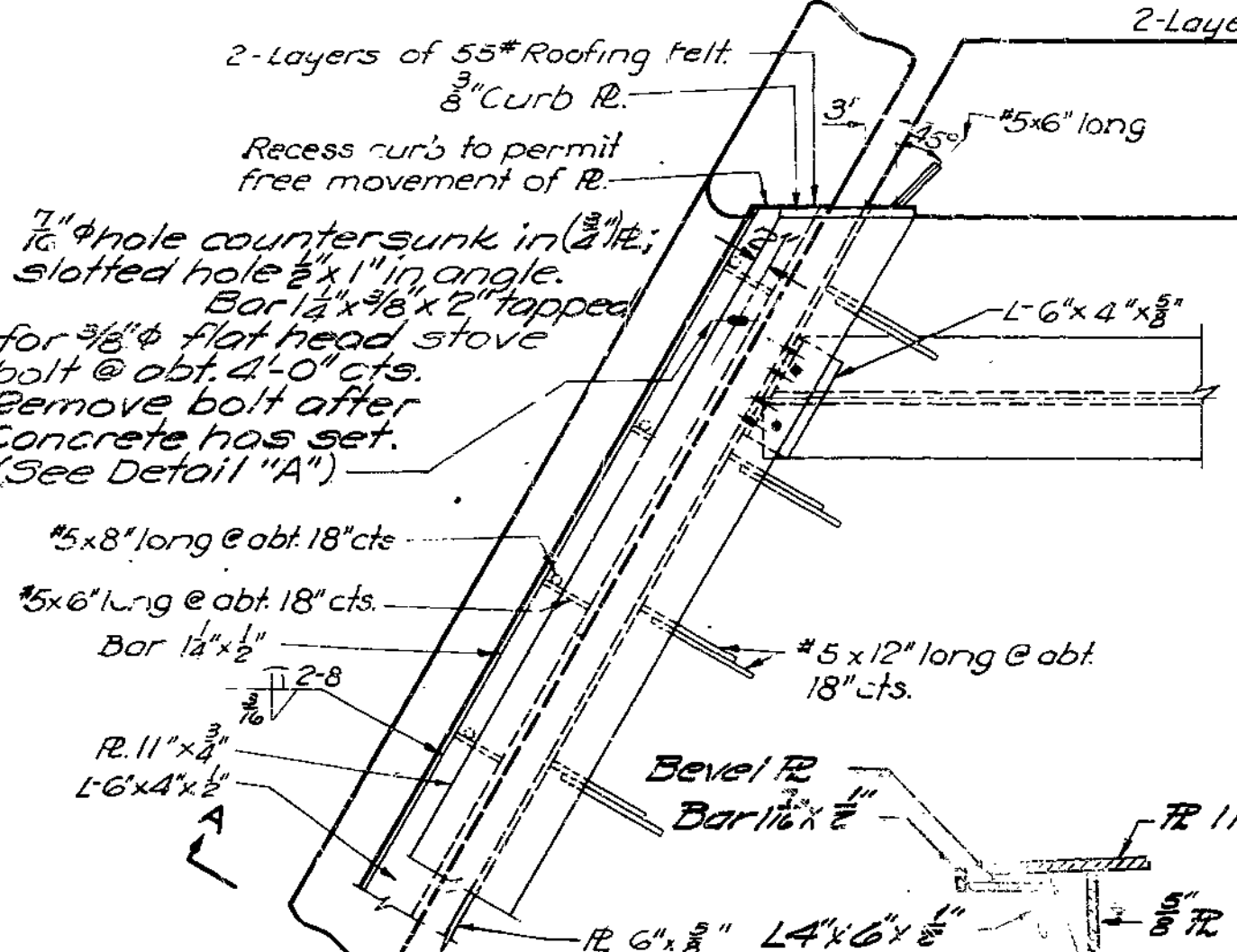
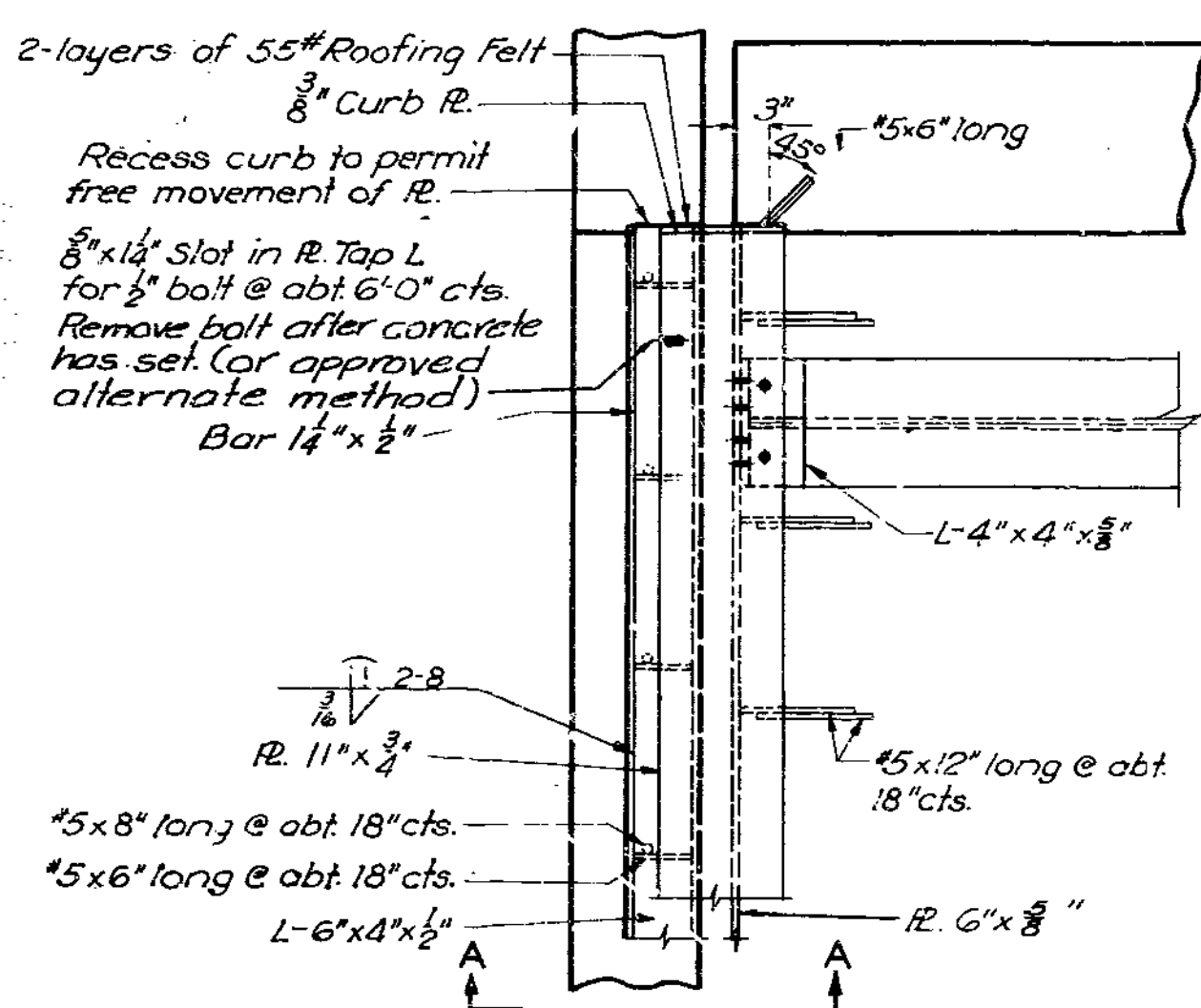


EXPANSION BENT NO. 1, 2, 4 & 5
Required: 16 Brqs. (4 Each Bt.) Bt. No. 1, 2, 4, 5



FIXED BENT NO. 3
Required: 4 Brqs. Bent No. 3

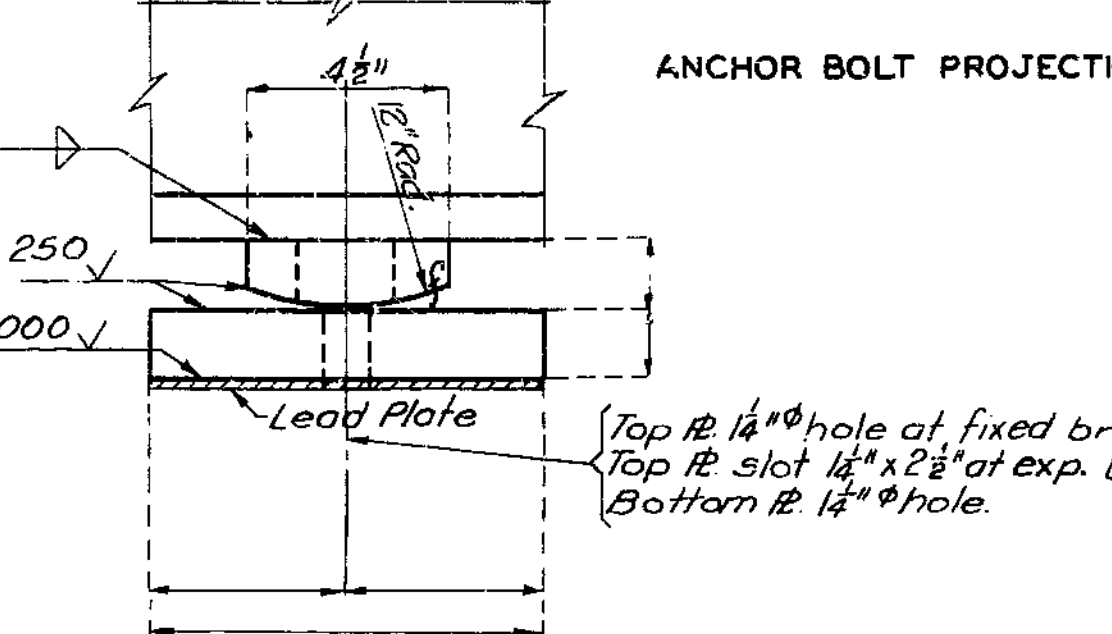
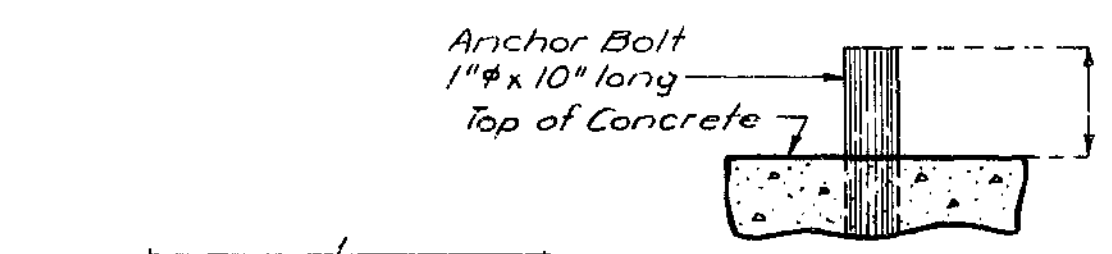
TYPE "D" BEARINGS
(Estimated Weight 4964#)



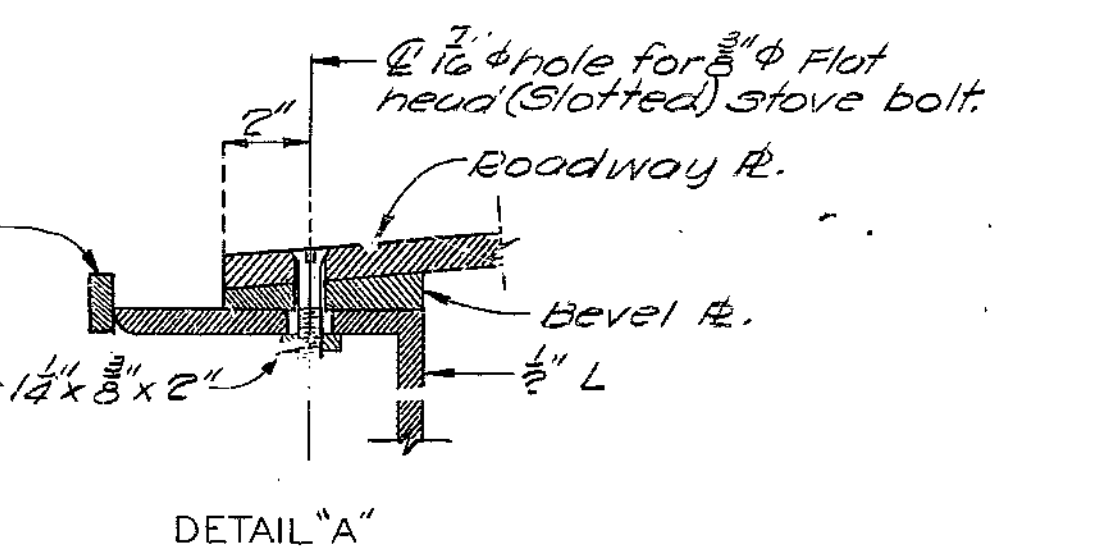
BURGWIN & MARTIN
CONSULTING ENGINEERS

DETAILS OF EXPANSION DEVICE
Note: This drawing is not to scale. Follow dimensions.

DESIGNED BY: J.C. Lathrop
CHECKED BY: J.D. Foland
DATE: 1/15/65



END ELEVATION



DETAIL "A"

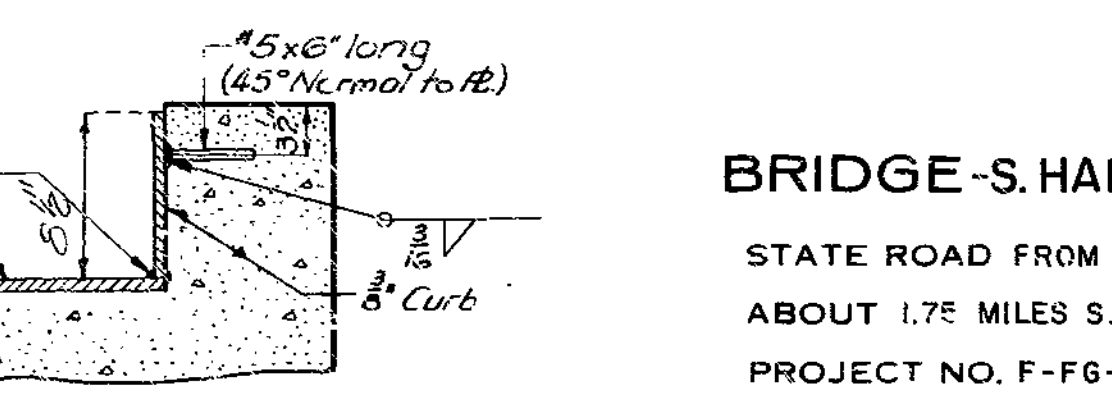
Required: -Fixed Bearings
-Expansion Bearings

TYPE "C" BEARINGS
(Estimated Weight)

NOTES: TYPE "C" BEARINGS
Anchor Bolts for Type "C" Bearings shall be 1" ϕ swaged bolts, 10" long with no heads or nuts. Top of Anchor Bolts shall be set approximately 1/4" below top of bearing.

NOTES: TYPE "D" BEARINGS
Anchor Bolts for Type "D" Bearings shall be 1 1/4" ϕ swaged bolts and shall extend 12" into concrete, with hexagon nuts and plain washers for Fixed Bearings, no nuts for Expansion Bearings.

GENERAL NOTES:
Lead Plates under bearings shall be approximately 5/8" thickness and weigh 8 #/sq. ft. Cost of lead plates shall be included in price bid for other items.
"Estimated Weight" does not include weight of anchor bolts. Rockers and pedestals shall be machined after welding. Where flat surface is indicated, tolerances shall be .003 in/in in any direction.

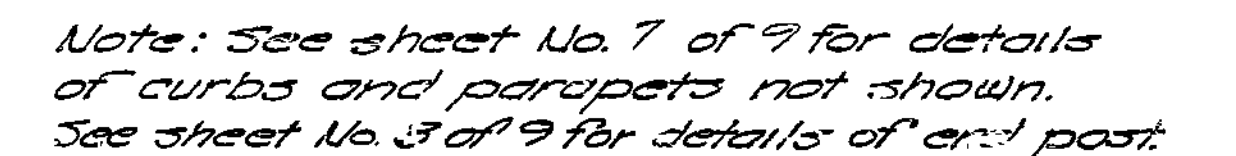
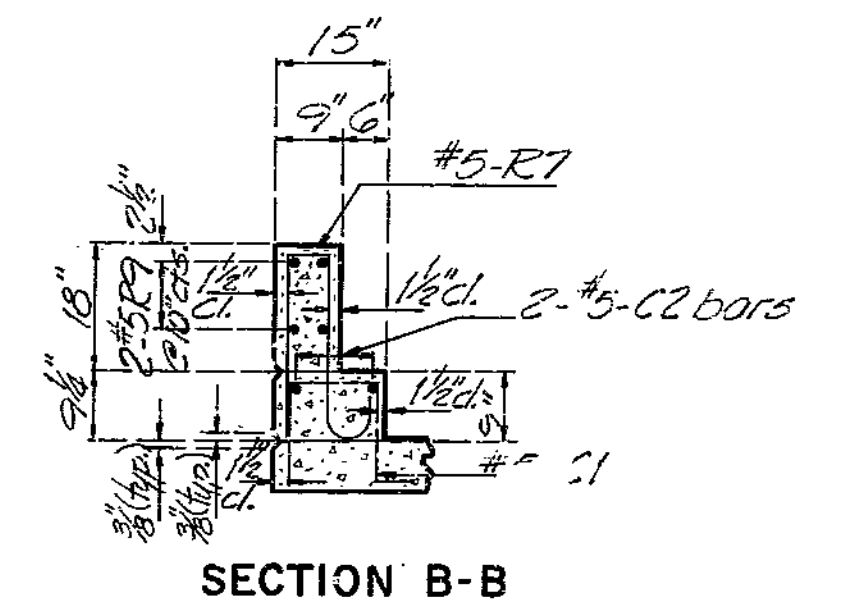
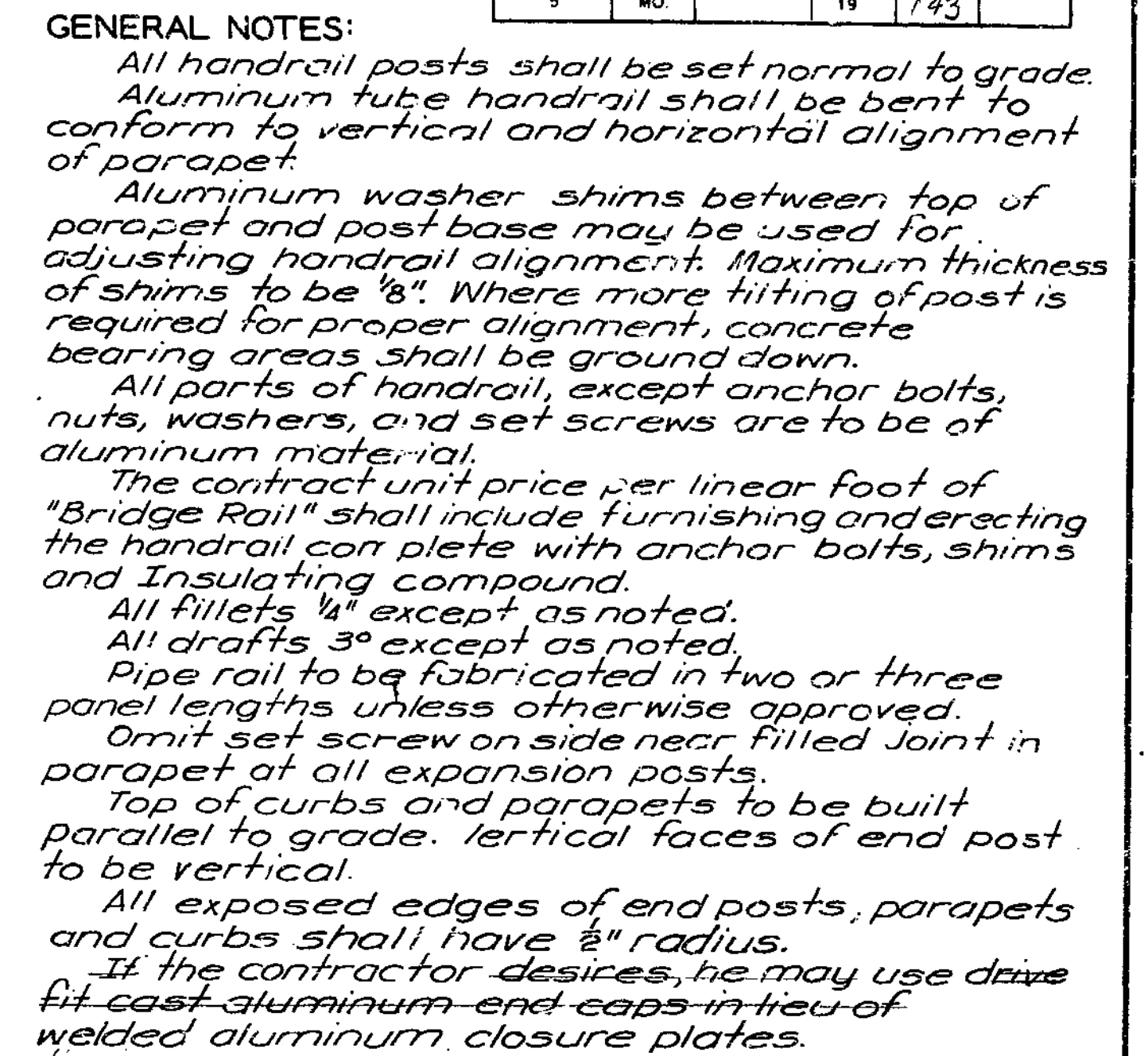


SECTION THRU CURB

BRIDGE-S. HARRISONVILLE CONNECTION UNDERPASS

STATE ROAD FROM PECULIAR TO ARCHIE
ABOUT 1.75 MILES S.W. OF HARRISONVILLE
PROJECT NO. F-FG-71-4 (6) (RTE. 71) STA. 1026+00
CASS COUNTY

FED ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
5	MO.		19	143	



COUNTY

A-1495

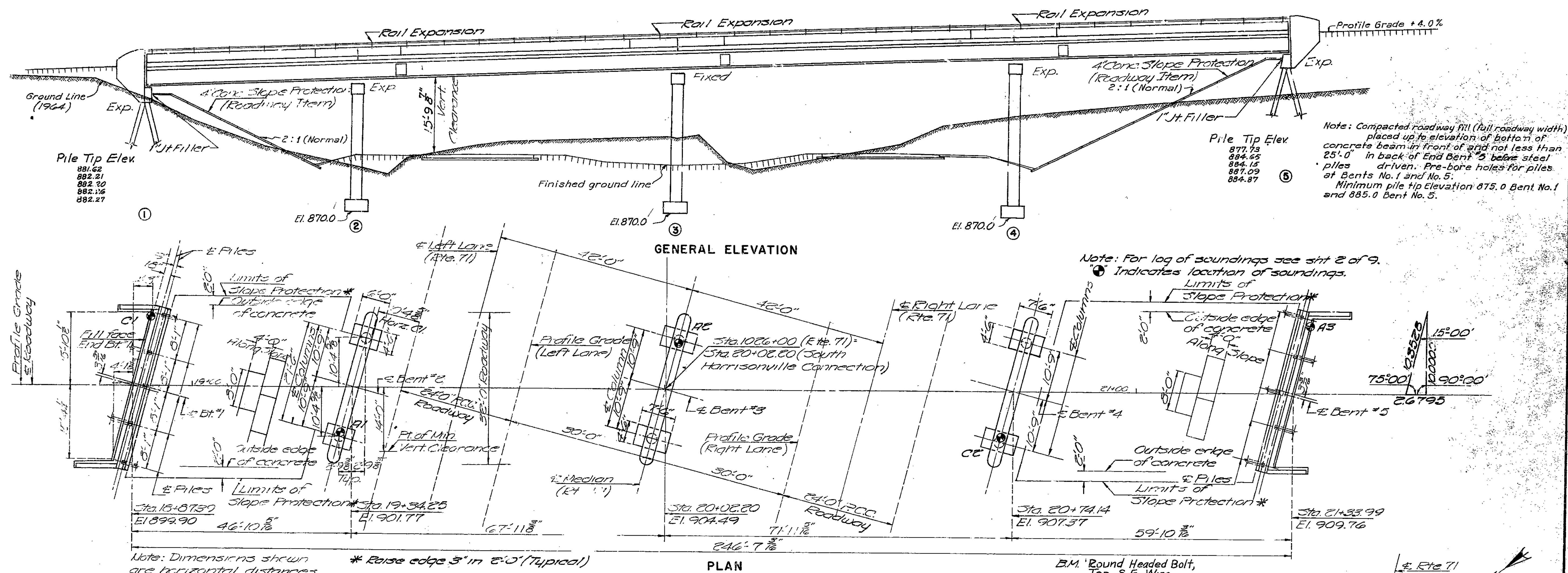
NO CONSTRUCTION CHANNELS

FINAL PLANS

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET	TOTAL SHEETS
5	MO.		13		

(45°-05'-28"±) Continuous Comp. I - Beams - Sk. 15° L.A.



Note: This drawing is not to scale. Follow dimensions.

FINAL PLANS