

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090507	1	20

① DISTRICT 9 BRIDGE PAINTING (2019) (S)

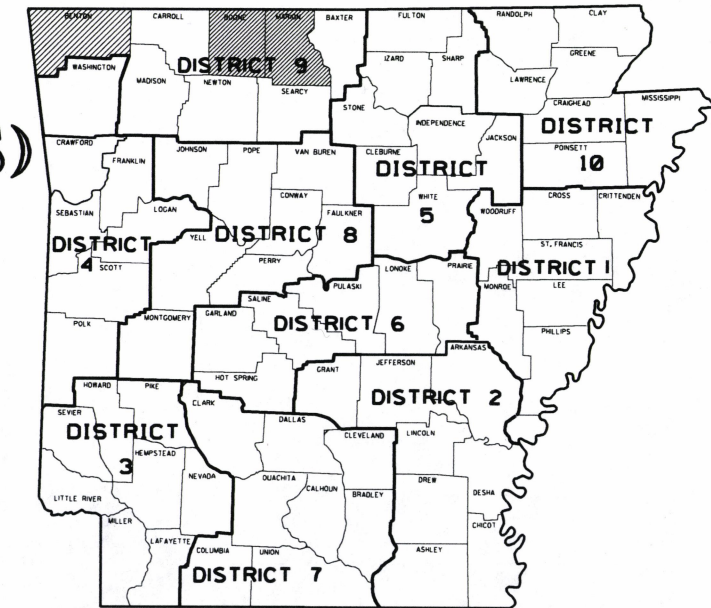
ARKANSAS DEPARTMENT OF TRANSPORTATION
MAINTENANCE PLANS

DISTRICT 9 BRIDGE PAINTING (2019) (S)

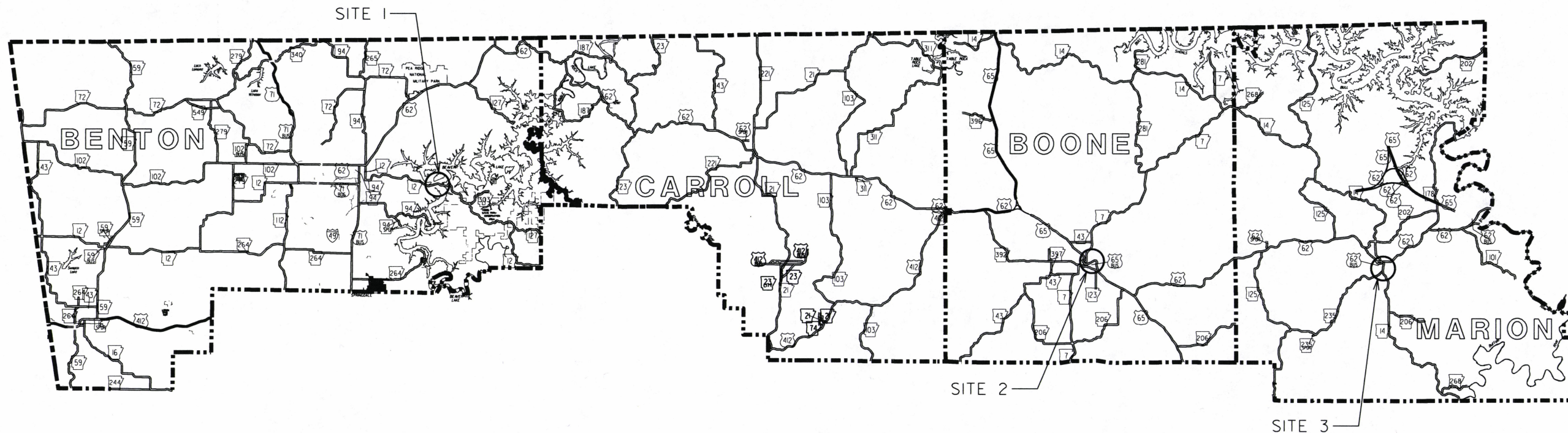
BENTON, BOONE, & MARION COUNTIES
VARIOUS ROUTES

JOB 090507

FEDERAL AID PROJ. STPF-0076(200)



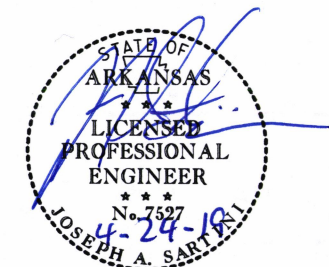
ARKANSAS HIGHWAY DIST. 9



BRIDGE DATA:

- 1 BRIDGE NO. 03636
SH 12, SEC. 03, LM 7.33
1515' PLATE GIRDER SPANS
WITH 24' CLEAR ROADWAY.
LAT. 36° 19' 55" LONG. 94° 1' 12"
- 2 BRIDGE NO. 05330
US 65, SEC. 02, LM 0.48
396' COMPOSITE I-BEAM SPANS
WITH 50' CLEAR ROADWAY.
LAT. 36° 13' 57" LONG. 93° 5' 32"

- 3 BRIDGE NO. 00338
SH 14, SEC. 03, LM 0.16
430' COMPOSITE I-BEAM
WITH 24' CLEAR ROADWAY.
LAT. 36° 13' 24" LONG. 92° 40' 47"



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6/3/19				6	ARK.			
						JOB NO. 090507	2	20

IND. OF SHTS., STD. DWGS., & GOV. SPECS.

INDEX OF SHEETS

SHEET NO.	TITLE
1	TITLE SHEET
2	INDEX OF SHEETS, STANDARD DRAWINGS, AND GOVERNING SPECIFICATIONS
3	QUANTITIES AND GENERAL NOTES
4	SUMMARY OF QUANTITIES AND REVISIONS
5	BENTON COUNTY MAP
6	BOONE COUNTY MAP
7	MARION COUNTY MAP
8	BRIDGE PICTURES
9	LAYOUT OF BRIDGE NO. 03636 - FOR INFORMATION ONLY
10	SUPERSTRUCTURE DETAILS - BR. NO. 03636 - FOR INFORMATION ONLY
11	PLATE GIRDER DETAILS END UNITS - BR. NO. 03636 - FOR INFORMATION ONLY
12	PLATE GIRDER DETAILS CENTER UNIT - BR. NO. 03636 - FOR INFORMATION ONLY
13	LAYOUT OF BRIDGE NO. 05330 - FOR INFORMATION ONLY
14	DETAILS OF BEAM SPANS (SHEET 1 OF 3) - BRIDGE NO. 05330 - FOR INFORMATION ONLY
15	DETAILS OF BEAM SPANS (SHEET 2 OF 3) - BRIDGE NO. 05330 - FOR INFORMATION ONLY
16	DETAILS OF BEAM SPANS (SHEET 3 OF 3) - BRIDGE NO. 05330 - FOR INFORMATION ONLY
17	LAYOUT OF BRIDGE NO. 00338 - FOR INFORMATION ONLY
18	DETAILS OF BEAM SPANS (SHEET 1 OF 2) - BRIDGE NO. 00338 - FOR INFORMATION ONLY
19	DETAILS OF BEAM SPANS (SHEET 2 OF 2) - BRIDGE NO. 00338 - FOR INFORMATION ONLY
20	DETAILS OF PILE BENTS - BRIDGE NO. 00338 - FOR INFORMATION ONLY

GOVERNING SPECIFICATIONS

ARKANSAS STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EDITION OF 2014, AND THE FOLLOWING SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS:

NUMBER	TITLE
ERRATA	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273	SUPPLEMENT - WAGE RATE DETERMINATION
100-3	CONTRACTOR'S LICENSE
100-4	DEPARTMENT NAME CHANGE
102-2	ISSUANCE OF PROPOSALS
108-1	LIQUIDATED DAMAGES
108-2	WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER
306-1	QUALITY CONTROL AND ACCEPTANCE SETTLING REQUIREMENTS ²
JOB 090507	BIDDING REQUIREMENTS AND CONDITIONS
JOB 090507	CARGO PREFERENCE ACT REQUIREMENTS
JOB 090507	CONTAINMENT SYSTEM
JOB 090507	CONTRACTOR CERTIFICATION
JOB 090507	DETAILS FOR BOATER SAFETY ²
JOB 090507	DOCUMENTATION OF PAYMENTS MADE TO DISADVANTAGED BUSINESS ENTERPRISES
JOB 090507	DRINKING WATER PROTECTION
JOB 090507	INSPECTOR'S PERSONAL PROTECTION CLOTHING
JOB 090507	MANDATORY ELECTRONIC CONTRACT
JOB 090507	MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB 090507	NESTING SITES OF MIGRATORY BIRDS
JOB 090507	PAINT CONTRACTOR LABEL
JOB 090507	SPECIAL MAINTENANCE OF TRAFFIC REQUIREMENTS

ROADWAY STANDARD DRAWINGS

DRWG. NO.	TITLE	DATE
TC-1	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	04-13-17
TC-2	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	09-02-15
TC-3	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	09-02-15

² REVISED NAME OF SS 306-1 & ADDED DETAILS FOR BOATER SAFETY SP



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				JOB NO.		090507	3	20

① QUANTITIES & GENERAL NOTES

CLEANING AND PAINTING EXISTING STRUCTURAL STEEL (TYPE II)

DESCRIPTION	QUANTITY	UNIT
BRIDGE NO. 03636	656	TON
BRIDGE NO. 05330	267	TON
BRIDGE NO. 00338	* 146	TON
TOTAL:	1069	TON

* INCLUDES 6 TONS OF EXPOSED PILES

****DISPOSAL OF HAZARDOUS WASTE**

DESCRIPTION	QUANTITY	UNIT
BRIDGE NO. 03636 (SITE NO. 1)	1.00	LUMP SUM
BRIDGE NO. 05330 (SITE NO. 2)	1.00	LUMP SUM
BRIDGE NO. 00338 (SITE NO. 3)	1.00	LUMP SUM

** POTENTIAL HAZARDOUS WASTE IN THE FORM OF LEAD PAINT DEBRIS WILL BE REMOVED FROM THIS STRUCTURE AND SENT TO AN APPROPRIATE TREATMENT FACILITY AS PER CODE OF FEDERAL REGULATIONS 40 CFR PART 260.

GENERAL NOTES

1. PAINT SYSTEM: SEE SECTION 807 AND 820 OF THE STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.
PRIME COAT: ONE COAT OF INORGANIC ZINC, 3 MIL DFT MINIMUM UNLESS NOTED.
INTERMEDIATE EPOXY TIE COAT: 2 MIL DFT MINIMUM
FINISH COAT: ONE COAT URETHANE, 3 MIL DFT MINIMUM, GRAY - FEDERAL STANDARD 595B COLOR CHIP 26270
MAXIMUM DFT FOR EACH COAT AS RECOMMENDED BY COATING MANUFACTURER.
2. ALL SURFACES TO BE PAINTED SHALL BE CLEAN AND FREE OF DUST OR OTHER OBJECTIONABLE MATTER.
3. CONTRACTOR IS RESPONSIBLE FOR BEING FAMILIAR WITH THE LOCATION OF ALL UTILITIES ON THE BRIDGES BEFORE BIDDING.
4. UTILITIES ON BRIDGES SHOULD BE PROTECTED DURING THE CLEANING AND PAINTING OPERATION.
5. CONTAINMENT REQUIRED :

BRIDGE NUMBER	CLASS OF CONTAINMENT	MIGRATORY BIRDS
03636	3	YES
05330	3	YES
00338	4	YES

① 3

MOBILIZATION

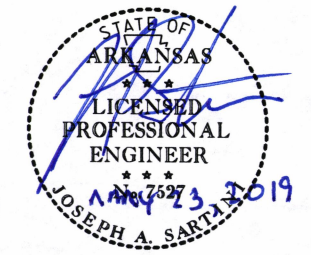
DESCRIPTION	QUANTITY	UNIT
ENTIRE PROJECT	1.00	LUMP SUM
TOTAL:	1.00	LUMP SUM

*****MAINTENANCE OF TRAFFIC**

DESCRIPTION	QUANTITY	UNIT
ENTIRE PROJECT	1.00	LUMP SUM
TOTAL:	1.00	LUMP SUM

*** ALL TRAFFIC CONTROL DEVICES AND/OR PAVEMENT MARKINGS WILL BE PLACED IF AND WHERE DIRECTED BY THE ENGINEER. ALL ITEMS NECESSARY FOR TRAFFIC CONTROL IS SUBSIDIARY TO THE ITEM OF "MAINTENANCE OF TRAFFIC".

① Site Class revised from 4 to 3 in accordance with Interoffice Memorandum dated 5/16/2019.
By: ADN 5/23/19



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6/3/19				6	ARK.			
						090507	4	20

① SUMMARY OF QUANTITIES & REVISIONS

SUMMARY OF QUANTITIES

LOCATION			BRIDGE DATA		ITEM NO.	SP & 820	601	SP & 603	820	
BRIDGE NUMBER	RT/SEC/LOG MILE	COUNTY	ROADWAY WIDTH (FT)	ROADWAY LENGTH (FT)	BRIDGE NAME	PAY ITEM	CLEANING AND PAINTING EXISTING STRUCTURAL STEEL (TYPE II)	MOBILIZATION	MAINTENANCE OF TRAFFIC	DISPOSAL OF HAZARDOUS WASTE (SITE NO.)
						UNIT				
							TON	LUMP SUM	LUMP SUM	LUMP SUM
03636	12/03/7.34	BENTON	24	1300	SH 12 OVER BEAVER RESERVOIR		656			1.00 (SITE NO. 1)
05330	65/02/0.48	BOONE	50	396	US 65 OVER CROOKED CREEK		267			1.00 (SITE NO. 2)
00338	14/03/0.16	MARION	24	430	SH 14 OVER CROOKED CREEK		* 146			1.00 (SITE NO. 3)
TOTAL JOB NO. 090507							1069	1.00	1.00	

* INCLUDES 6 TONS OF EXPOSED PILES

REVISIONS

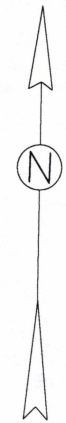
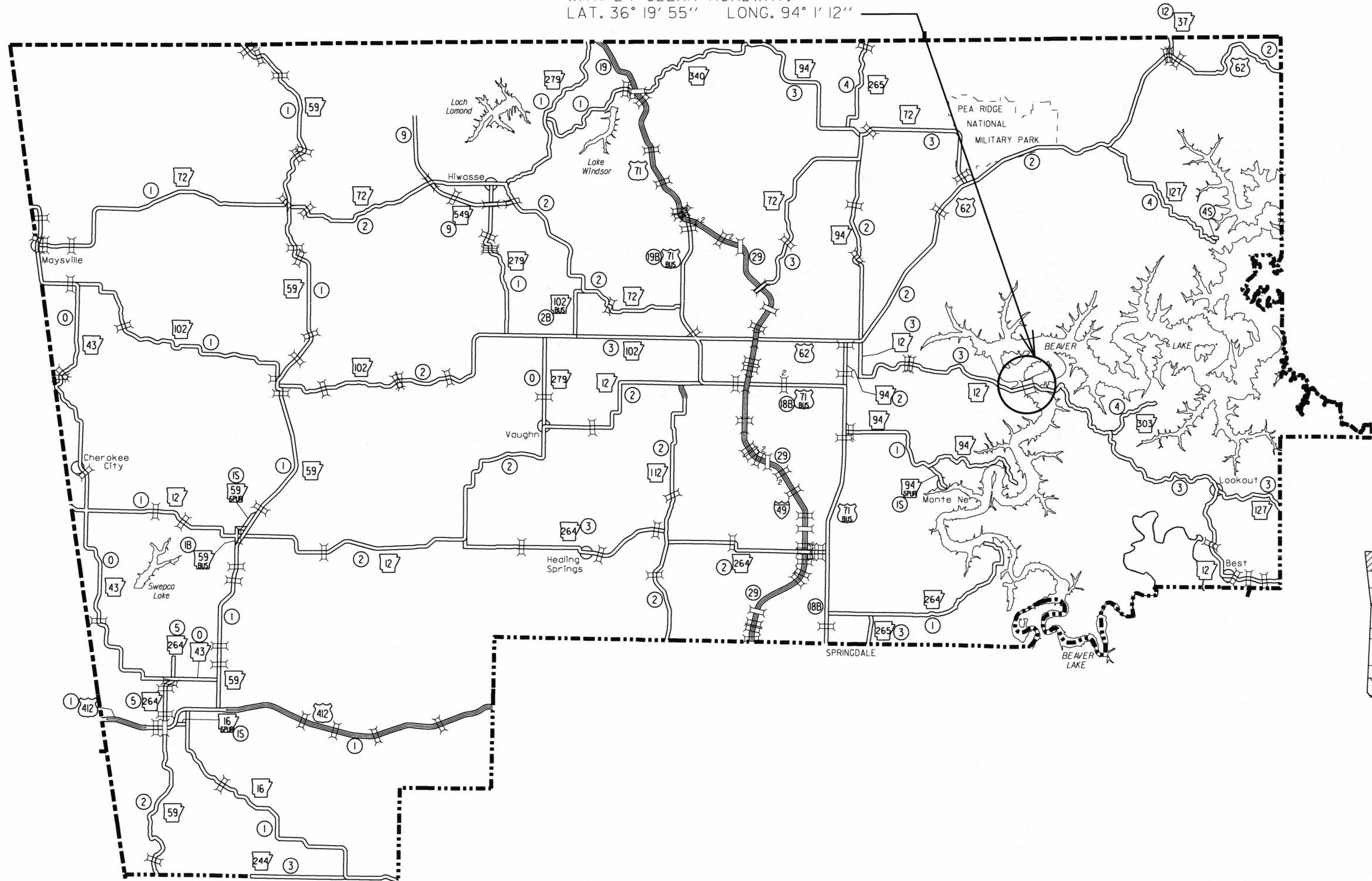
DATE	REVISION	SHEET NO.
5/23/2019	SITE CLASS FOR BRIDGE 00338 REVISED FROM 4 TO 3	3 & 4
6/3/2019	REVISED NAME OF SS 306-1 & ADDED DETAILS FOR BOATER SAFETY SP	2 & 4



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						090507	5	20

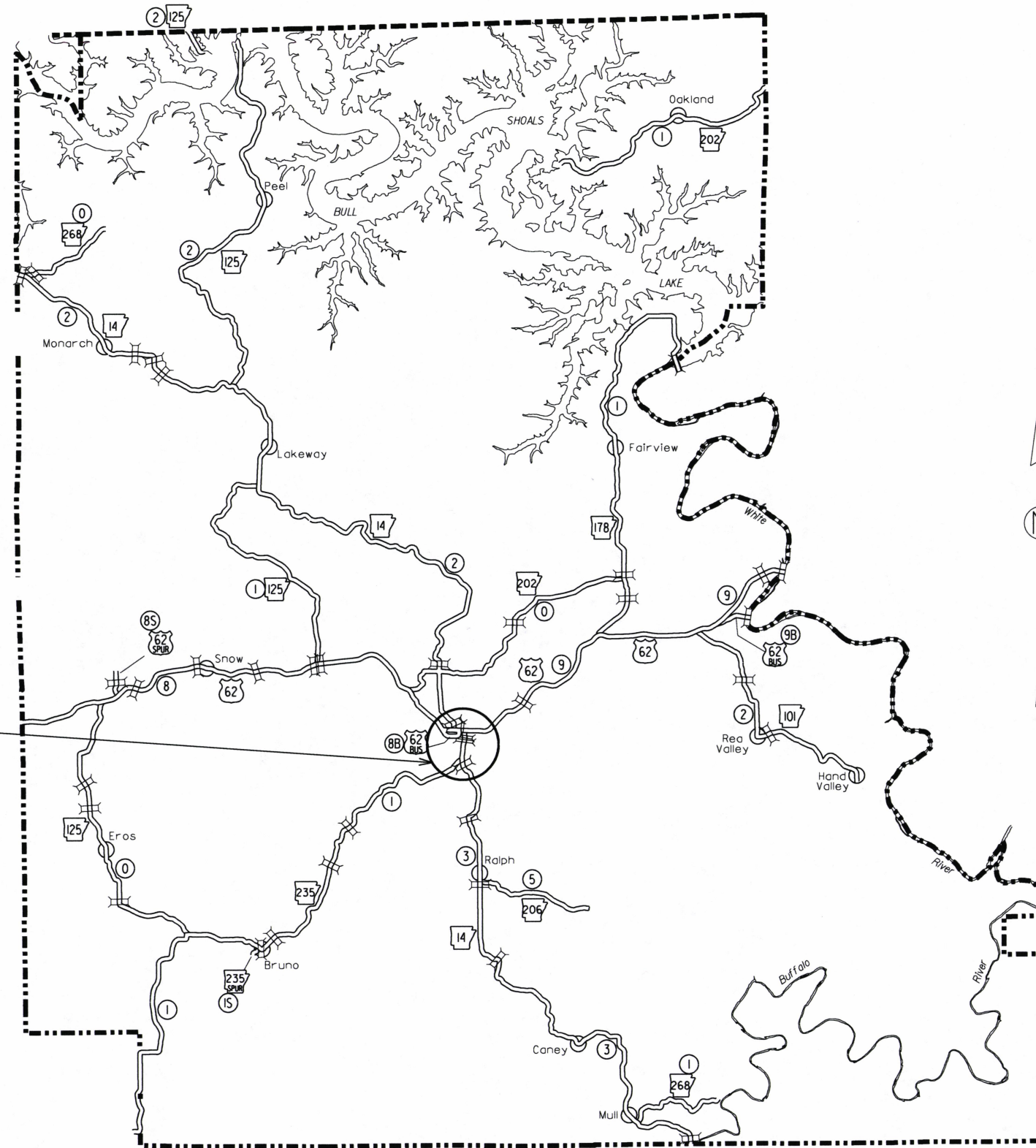
1 BENTON COUNTY MAP

SITE 1 BRIDGE NO. 03636
 SH 12, SEC. 03, LM 7.33
 1515' PLATE GIRDER SPANS
 WITH 24' CLEAR ROADWAY.
 LAT. 36° 19' 55" LONG. 94° 1' 12"



BENTON COUNTY MAP

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				6	ARK.			
				JOB NO.		090507	7	20
MARION COUNTY MAP								



SITE 3 BRIDGE NO. 00338
 SH 14, SEC. 03, LM 0.16
 430' COMPOSITE I-BEAM
 WITH 24' CLEAR ROADWAY.
 LAT. 36° 13' 24" LONG. 92° 40' 47"



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				6	ARK.			
				JOB NO. 090507			8	20

① BRIDGE PICTURES



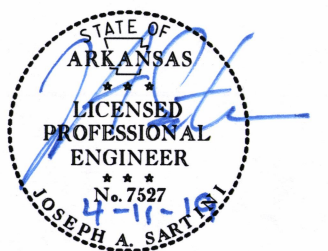
SITE NO. 1 - BRIDGE NO. 03636



SITE NO. 2 - BRIDGE NO. 05330



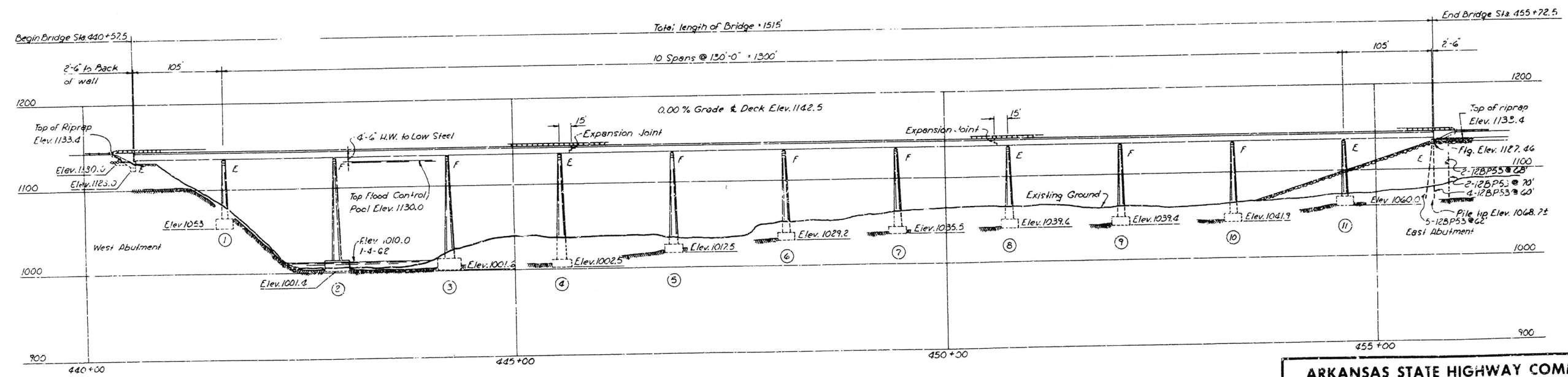
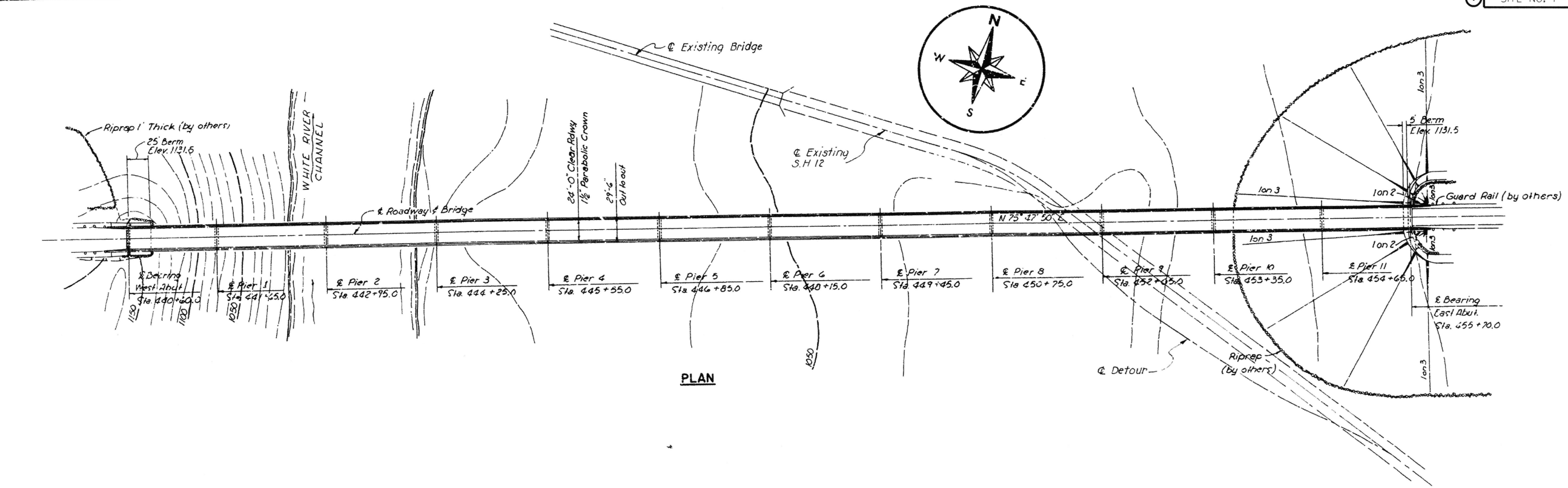
SITE NO. 3 - BRIDGE NO. 00338



BRIDGE PICTURES

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1 SITE NO. 1 - FOR INFORMATION ONLY



Note: Embankment, Abutments and Piers by others.

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS

BRIDGE ENGINEER

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
BEAVER RESERVOIR CROSSING
STATE ROUTE 12

LAYOUT OF BRIDGE OVER BEAVER RESERVOIR

DRAWN BY: W.K.D. DATE: 1-2-62
TRACED BY: R.E.T. DATE: 1-12-62
BRIDGE NO. 3636

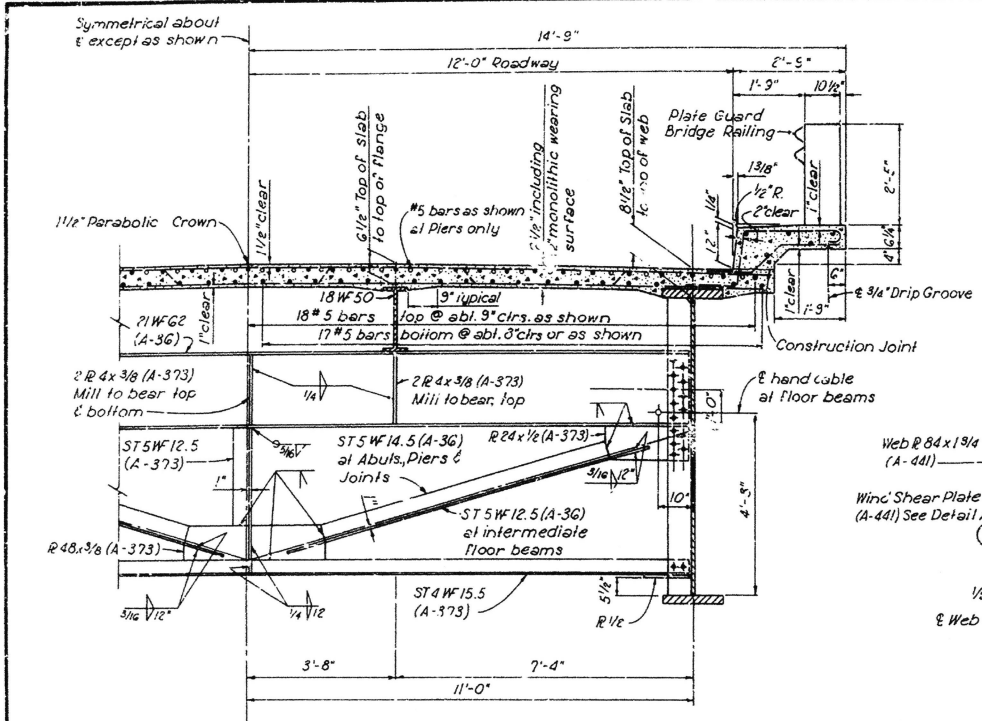
CHECKED BY: P.S. DATE: 3-5-62
SCALE: 1"=60'-0"
DRAWING NO. 1
Drawing No. 12111

FOR INFORMATION ONLY

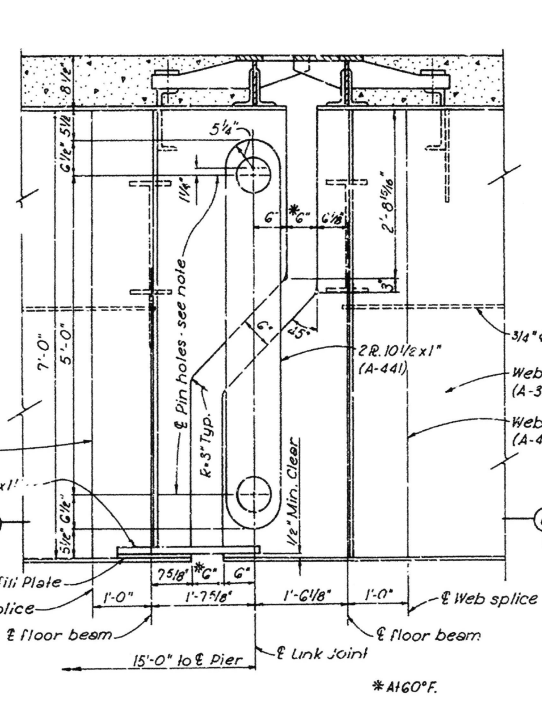
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				6	ARK.				
JOB NO.							090507	10	20

1 SITE NO. 1 - FOR INFORMATION ONLY

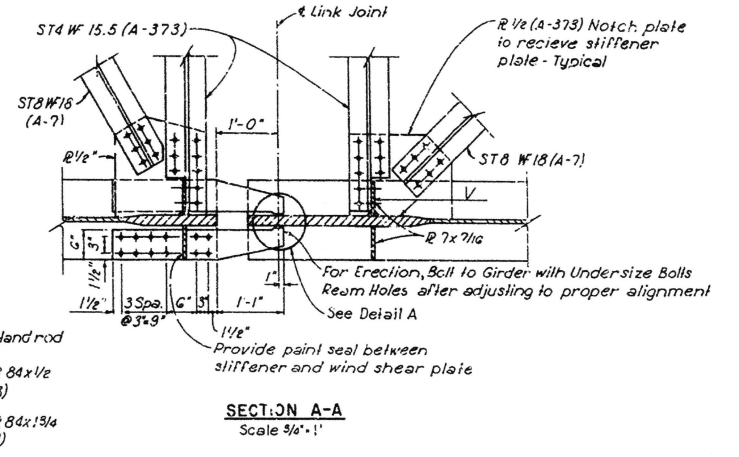
CORPS OF ENGINEERS CONTRACT NO. DA-03-050-CIVENG-62-521



PART SECTION AT FLOORBEAMS
Scale 1/2"=1'

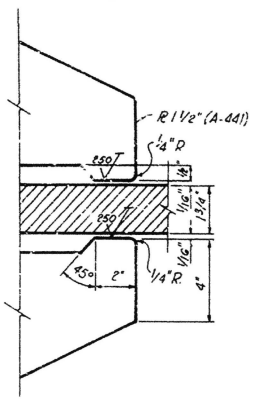


LINK JOINT DETAIL
Scale 3/4"=1'



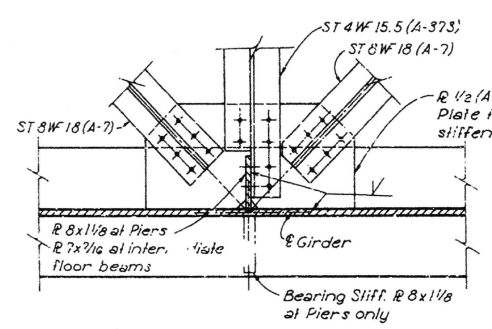
SECTION A-A
Scale 3/4"=1'

Note: Wind shear details are common to both girders and both link joints.

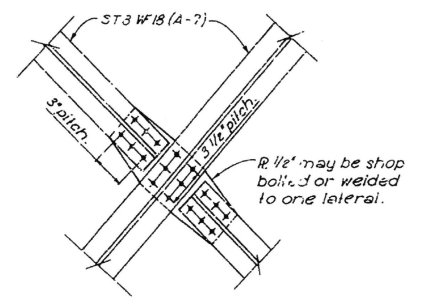


DETAIL A
Scale 3"=1'

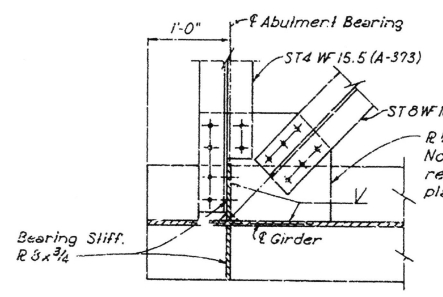
Notes:
Link joint pins shall be Class A steel annealed forgings, A.S.T.M. designation A237-55 with a minimum yield point of 50,000 psi. Pins and pin holes shall have a finish equal to ASA125. The diameter of the pin hole shall not exceed the diameter of the pin by more than 1/32". Nuts on link joint pins shall be adjusted to allow free movement of joint before set screws are placed.
Provide one hand cable on inside of each girder. Cables shall be continuous between field splices. Omit rod and cable between floorbeams at link joints. Holes for wire rope shall be free of sharp edges. After cables have been installed, the eye bolts shall be tightened until all visible sag has been removed from the cable. All handhold cables and incidentals there to shall be paid for as Structural Steel in Plate Girder Spans and have accordingly been included in the quantities for their respective units.
All bolts shall be 3/8" high strength steel.
For Stiffener details see sheet 6.
For Stringer and Girder Details see sheets 5 & 6.
For Handrail details see sheet 9.
For Slab Reinforcing and Drain Spacing see sheet 3.
For Expansion Joint Details see sheet 7.



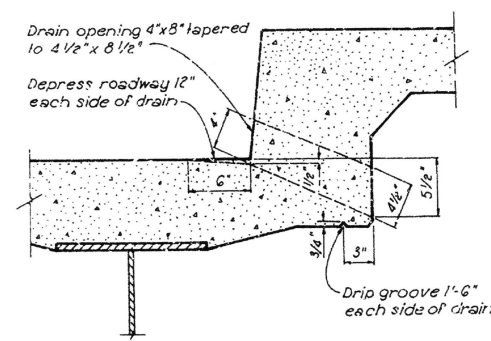
LATERAL CONNECTION TO GIRDER AT FLOORBEAMS
Scale 1"=1'



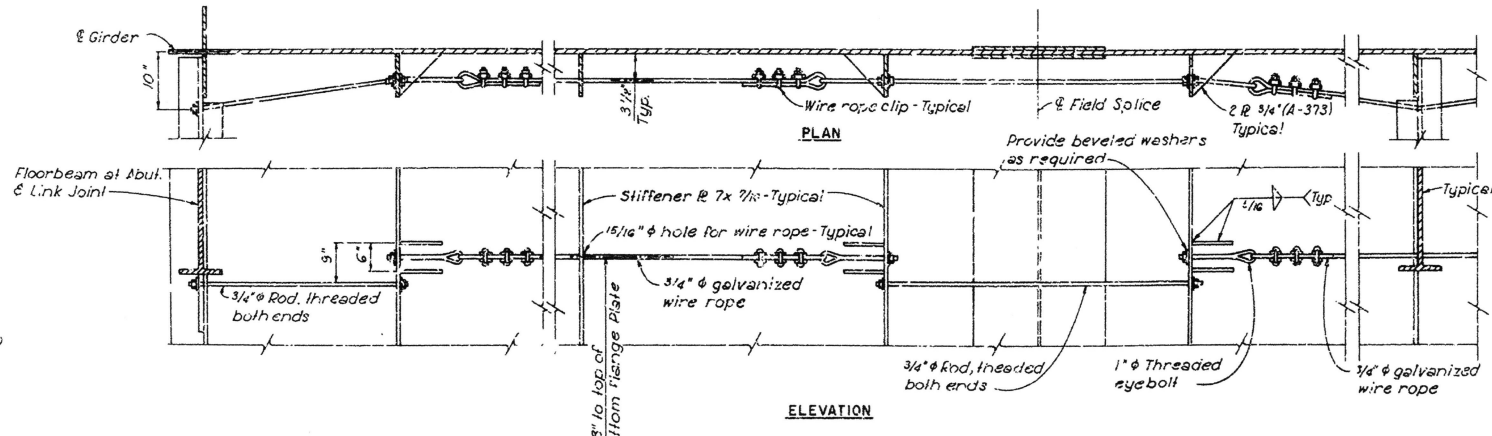
LATERAL CONNECTION AT MID-PANEL
Scale 3/4"=1'



LATERAL CONNECTION TO GIRDER AT ABUTMENT
Scale 1"=1'



CURB DRAIN DETAIL
Scale 1/2"=1'



HANDHOLD CABLE DETAILS
No Scale

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS

BRIDGE ENGINEER

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
BEAVER RESERVOIR CROSSING
STATE ROUTE 12

CROSS SECTION, LINK JOINT & LATERAL DETAILS

DRAWN BY B.C.V. DATE 3-14-65
TRACED BY E.R. DATE 2-16-66

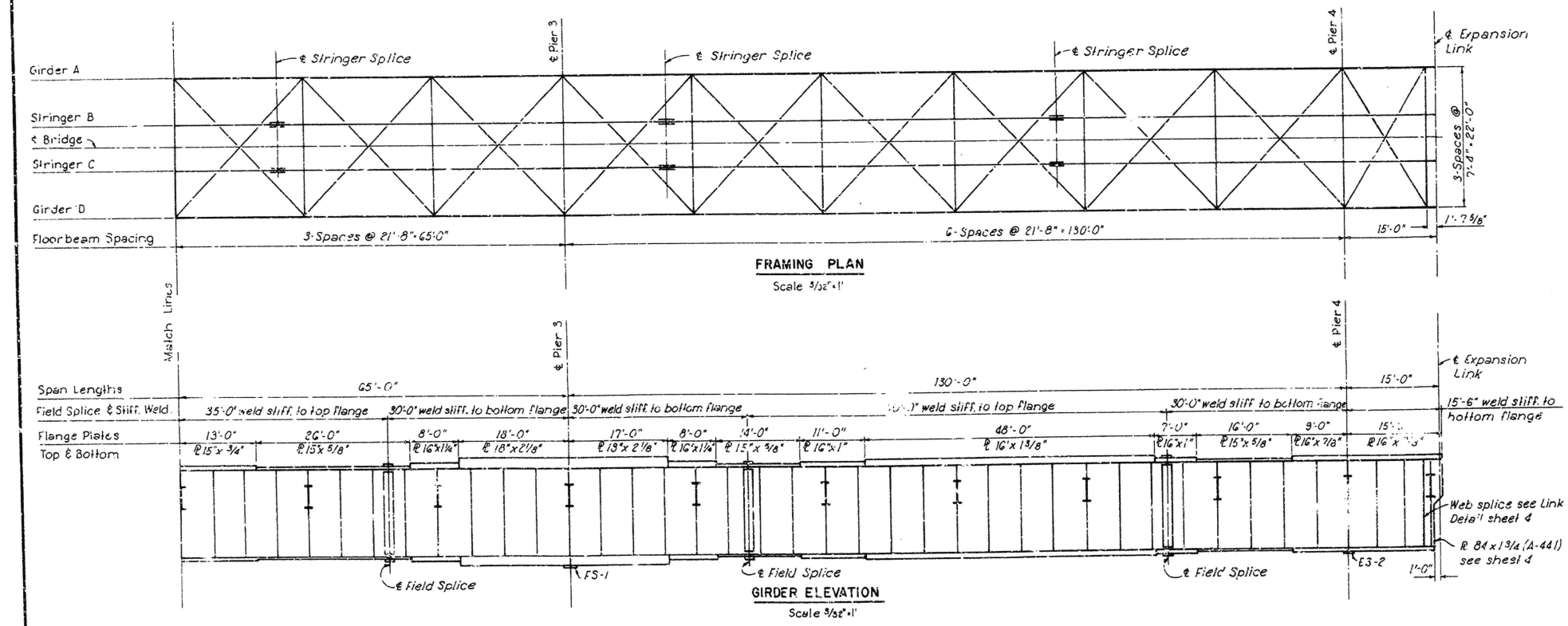
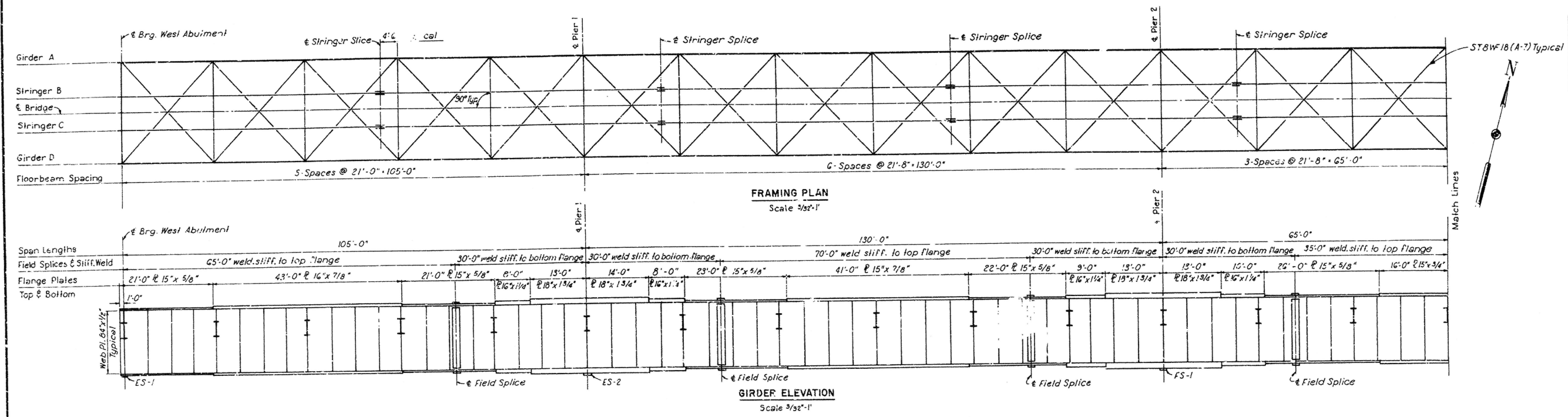
CHECKED G.D. DATE 4-3-66
SCALE AS SHOWN

BRIDGE NO. 7636
DRAWING NO. 4
Drawing No. 12114

FOR INFORMATION ONLY

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1 SITE NO. 1 - FOR INFORMATION ONLY



Notes:
 Top and bottom girder flanges are identical except as shown.
 Girder A is identical to Girder D except as shown.
 Stringer B is identical to Stringer C.
 Superstructure End Units are identical.
 Intermediate stiffeners and stiffeners at floorbeams are 1" x 7x7/16" on interior side of girder only. Intermediate stiffeners shall be equally spaced between floorbeams as shown. All stiffeners shall have a tight fit on the tension flange and shall be welded to the compression flange as shown in girder elevation. A 1"x1" clip shall be used for all stiffeners at the corner of the web and the flange.
 Stiffeners at Link Joints are 2" x 7x7/16" as shown on Link Joint Detail Sheet 4.
 All stringers are 18 WF 50. All stringers and all stringer splice material to be A-36 steel.
 All girder and stiffener material to be A-373 steel except as noted.
 For Lateral and floorbeam Details see sheet 4.
 For Splice Details see sheet 6.
 For Bearing stiffener details see sheet 6.
 Girders shall be cambered for full dead load deflection. For girder deflections see sheet 9.
 All bolts to be 7/8" high strength unless otherwise noted.

FOR INFORMATION ONLY

ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.
BEAVER RESERVOIR CROSSING
 STATE ROUTE 12

GIRDER DETAILS-END UNITS

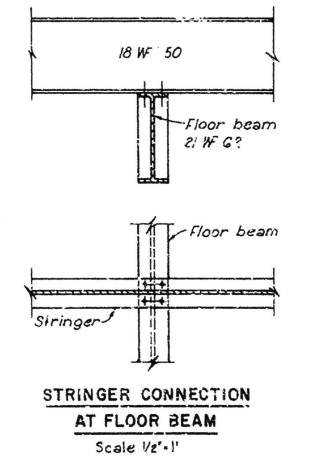
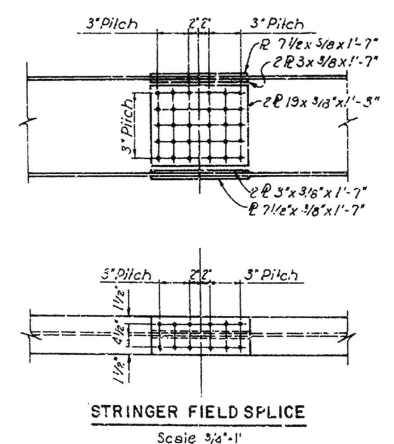
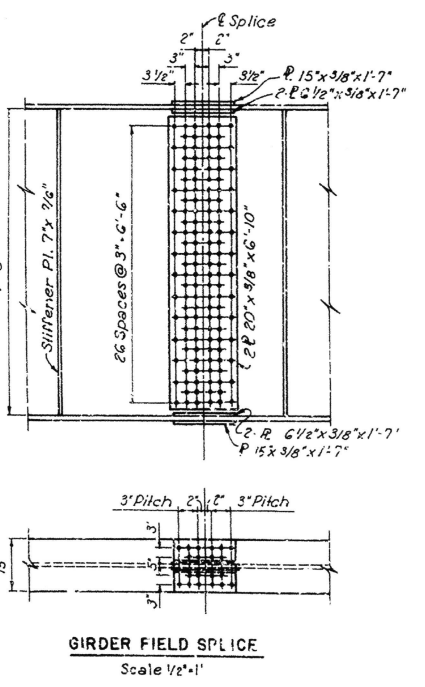
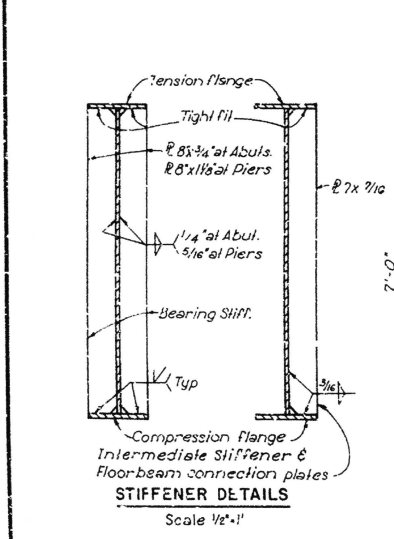
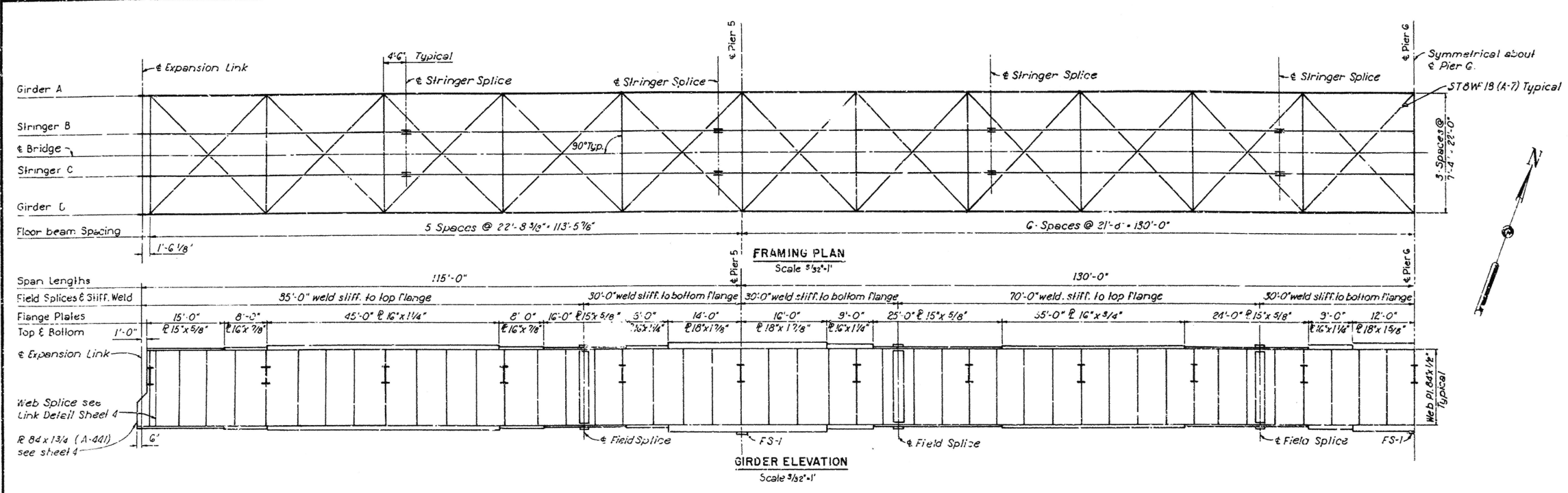
DRAWN BY: R.C.V. DATE 2-14-62	CHECKED P.E.S. DATE 3-22-62
TRACED BY T.E.K. DATE 2-20-62	SCALE AS SHOWN
BRIDGE NO. 3636	DRAWING NO. 5
	Drawing No. 12115

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
 CONSULTING ENGINEERS

BRIDGE ENGINEER

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				6	ARK.	090507	12	20
				SITE NO. 1 - FOR INFORMATION ONLY				

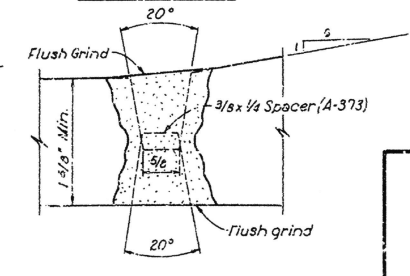
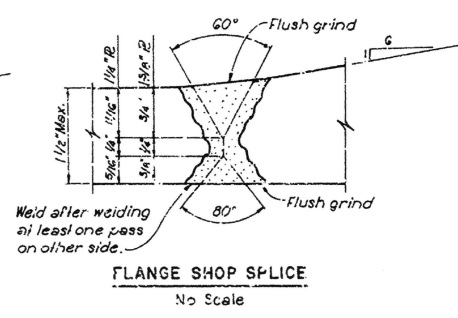
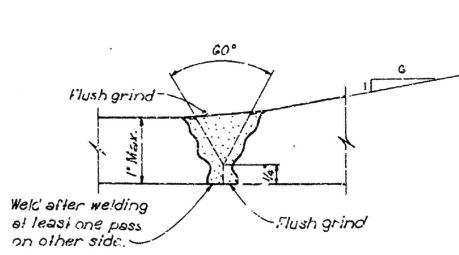
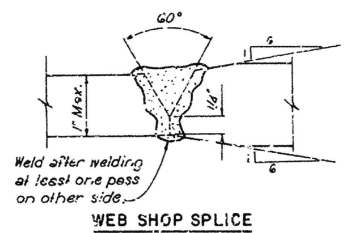
CORPS OF ENGINEERS CONTRACT
NO. DA-03-050-CIVENG-62-521



Flange to Web Welds	
Maximum thickness of flange plate	Fillet Weld Size
5/8" to 3/4"	1/4"
7/8" to 1 1/2"	3/8"
1 5/8" to 2 1/4"	3/8"

Notes:
For lateral & floor beam details see sheet 4.
For Girder deflections see sheet 9.
For Girder & Stringer notes see sheet 5.

FOR INFORMATION ONLY



HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS

Note:
Shop splices shown are applicable to the submerged arc welding process only. Manual arc welding shall be done only with the approval of the Engineer.

BRIDGE ENGINEER

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
BEAVER RESERVOIR CROSSING
STATE ROUTE 12

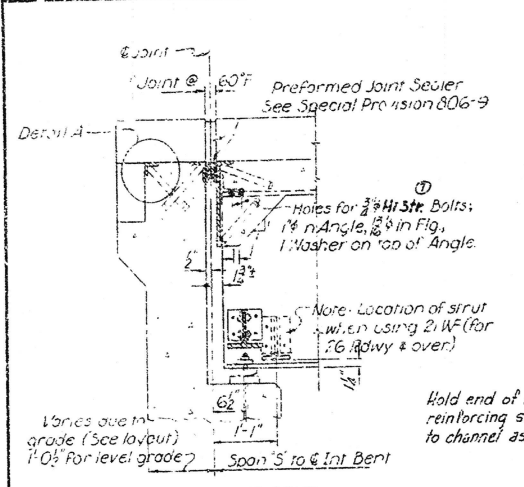
GIRDER DETAILS-CENTER UNIT

DRAWN BY R.C.V. DATE 2-14-62
TRACED BY T.E.R. DATE 3-1-62

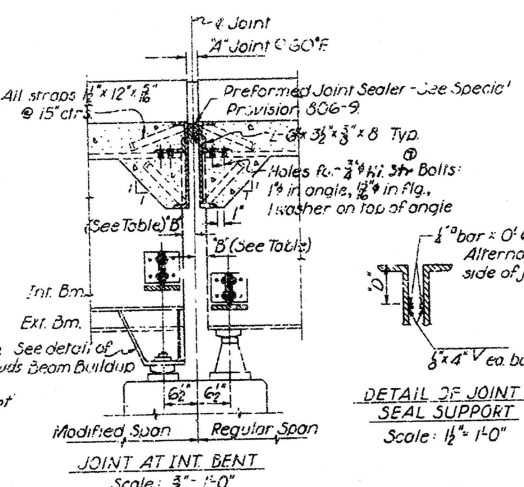
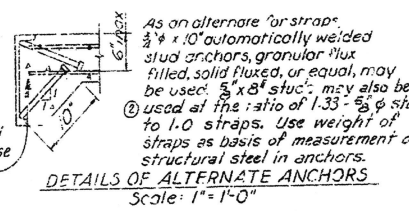
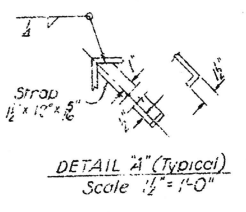
CHECKED R.E.S. DATE 3-23-62
SCALE As shown

BRIDGE NO. 3636 DRAWING NO. 6
Drawing No. 12-116

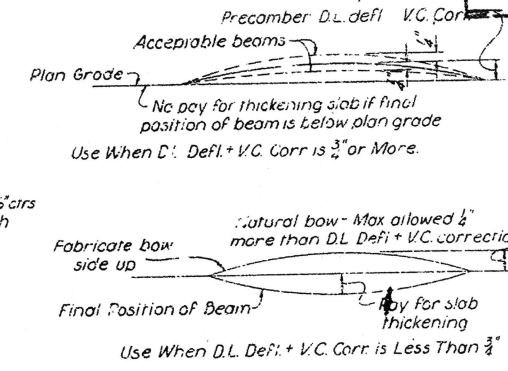
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
		2-10-62	4-22-61	6	ARK.				



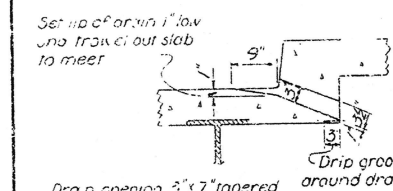
JOINT AT END BENT Scale: 3/8" = 1'-0"



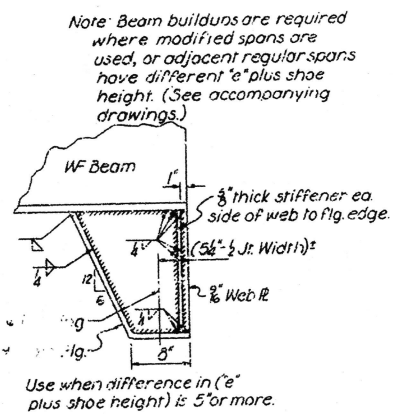
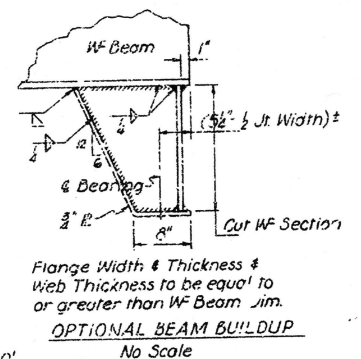
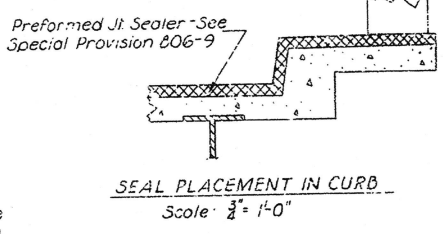
JOINT AT INT. BENT Scale: 3/8" = 1'-0"



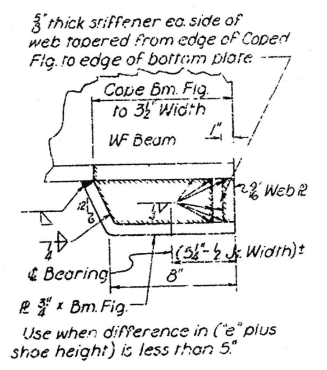
1" concrete to be Class 3. All exposed corners to be chamfered 3/4" unless otherwise noted.
Field connections to be riveted or bolted with high strength bol
Fluets: 3/4" #, open holes 13/16" # except where noted otherwise.
Structural shapes of equal or greater strength may be substituted for shapes shown, but payment will be made on the basis of shapes or those actually used, whichever is less.
All welded connections to be S16" fillet shop welds except as noted. All welding shall conform to the American Welding Society Standard specifications for Welded Highway and Railway Bridges, current edition.
Shop Paint: All structural steel except surfaces in contact with concrete shall be given one coat of red lead and raw linseed oil before shipment.
Field Paint: First coat - red lead tinted with lamp black. Second coat - aluminum paint.
All metal bearing and roadway expansion devices to be paid for as "Structural Steel in Beam Spans." Bearings shall be finally seated in accordance with Sec. 806.54, including alternate, of the Standard Specifications. This work may not be considered as subsidiary to the item "Structural Steel in Beam Spans" and will not be paid for directly.
This drawing shows general features of design only. Shop drawings shall be made in accordance with the Specifications, submitted and approved secured before fabrication is begun.
All steel shall be ASTM A-36 unless otherwise noted.
Anchor bolts shall be galvanized to conform to ASTM Specification, Designation A153.
Reinforcing steel to be deformed bars of intermediate or hard grade. The reinforcing steel is to be accurately located in the forms and firmly held in place by steel wire supports, sufficient in number and size to prevent displacement during the course of construction. The wire supports will not be paid for directly but will be considered subsidiary to the item of "Reinforcing Steel."
Shop lists and bending diagrams of reinforcing steel, including wire supports, shall be submitted and approved secured before fabrication is begun.
S.L. Pouring Note:
Floor slabs may be poured in one continuous operation with a strikeoff extending over the whole span length, or may be poured in increments with the center one-third to one-half span length poured first. After the center section is poured, not less than 72 hours shall elapse before pouring the end sections. End sections may be poured simultaneously. If not poured simultaneously, 48 hours shall elapse between end section pours. A minimum of 72 hours shall elapse (1) between completion of the slab and the pouring of the curb section if poured separately, and (2) between the completion of the curb and the pouring of the type A rail parapet. Posts for Type C rail may be poured 24 hours after completion of the curb.
For details of Bridge Rating see Div. No. 14992 or PREPACs shown on Bridge Layout.
SPECIFICATIONS: Arkansas State Highway Commission Standard Specifications for Highway Construction Edition of 1959, the 1966 Supplemental Specifications thereto and applicable Special Provisions.



SECTION THRU DRAIN Scale: 3/8" = 1'-0"

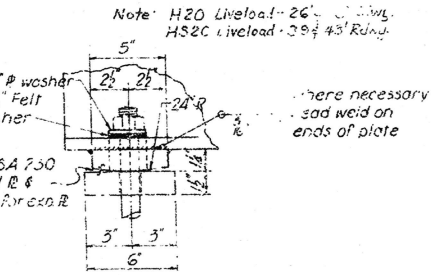


DETAILS OF BEAM BUILDUP No Scale

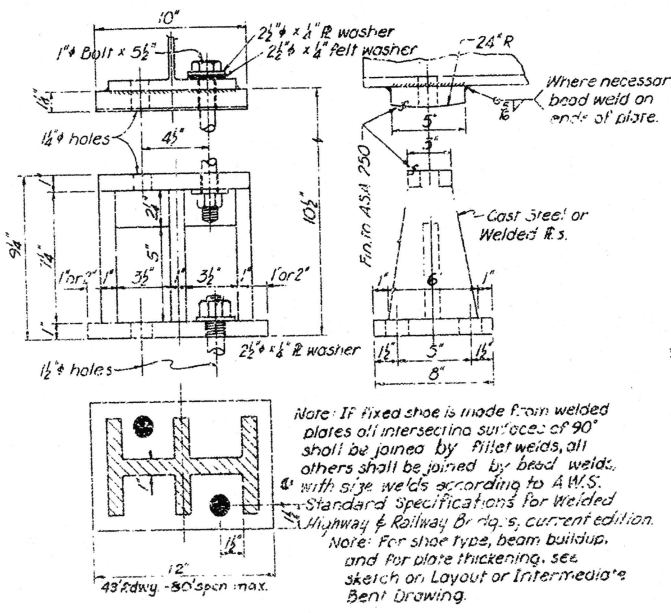


Expansion Shoe: (All spans thru 50')
2 1/2" x 1 1/2" slots in Sole R. & Bm. Fig. with 1 1/2" holes in Masonry R.
Fixed Shoe:
1 1/2" Holes in Masonry R.
Sole R. & Bm. Fig. for spans thru 50'.
1 1/2" holes for spans over 50'.

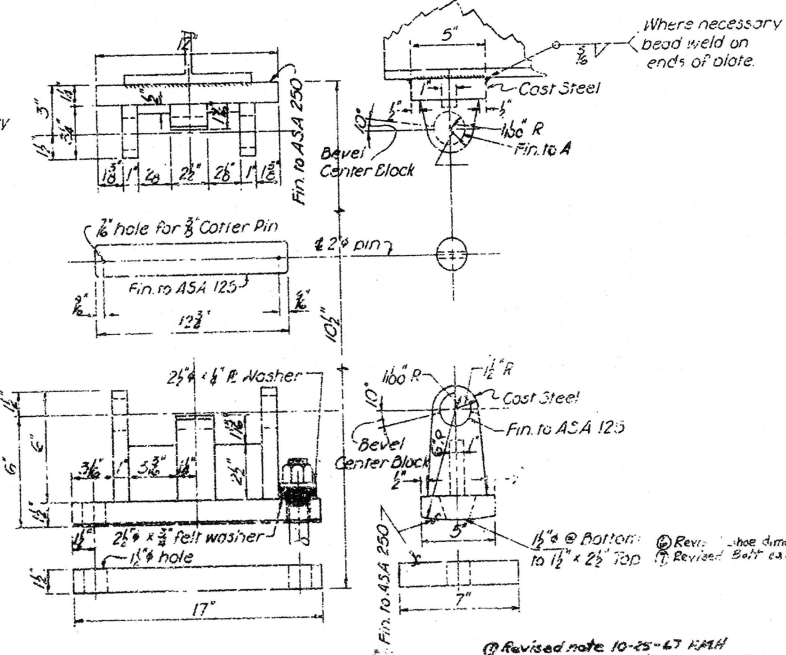
Span	1'-0" to 1'-6"	1'-6" to 2'-0"	2'-0" to 2'-6"	2'-6" to 3'-0"	3'-0" to 3'-6"	3'-6" to 4'-0"	4'-0" to 4'-6"	4'-6" to 5'-0"
1'-0" to 1'-6"	1'-0" to 1'-6"	1'-0" to 1'-6"	1'-0" to 1'-6"	1'-0" to 1'-6"	1'-0" to 1'-6"	1'-0" to 1'-6"	1'-0" to 1'-6"	1'-0" to 1'-6"



TYPE B FIXED OR EXPANSION SHOE - Scale: 3/8" = 1'



TYPE A FIXED SHOE Scale: 3/8" = 1'



TYPE A EXPANSION SHOE Scale: 3/8" = 1'

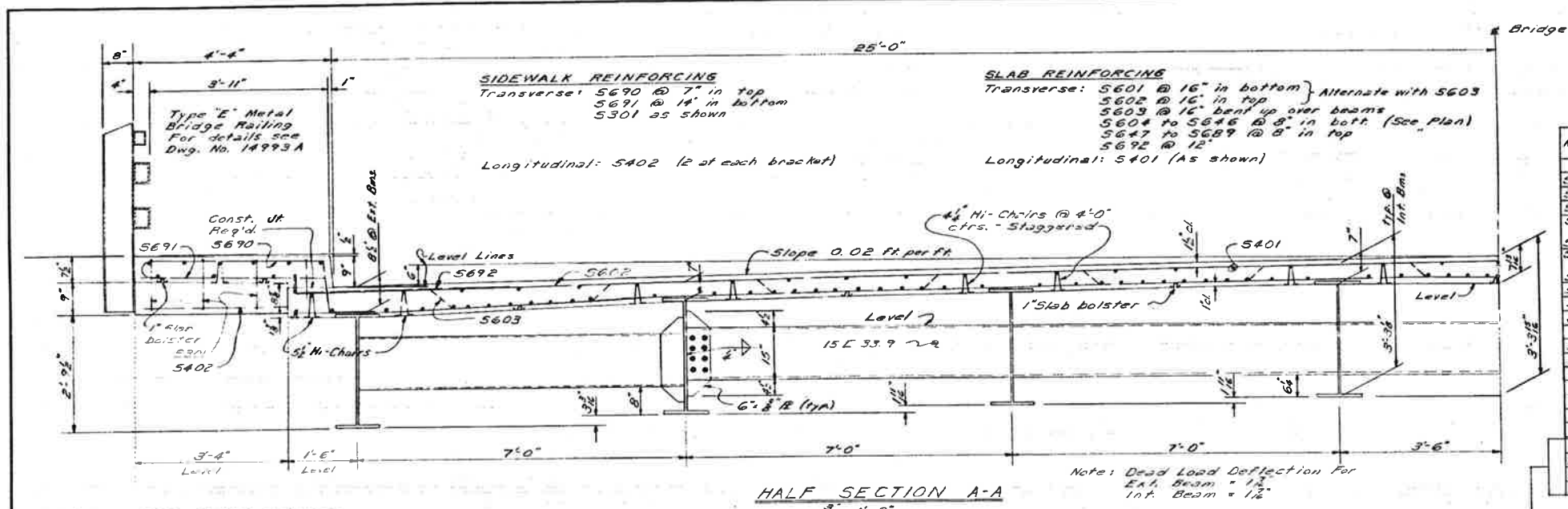
EXPANSION JOINT DATA

Total Length of Spans Excluding at (F-E) Span B - 1/2" Pier (E-E 2 Spans)	Joint Width Perpendicular to (webs @ 60°F)	Seal Width	Joint Seal	B
To 80'	1"	1 1/2"	1 1/2" x 1 1/2"	1 1/2"
Over 80' to 100'	1 1/2"	2"	2" x 2"	2"
Over 100' to 130'	2"	2 1/2"	2 1/2" x 2 1/2"	2 1/2"
Over 130' to 150'	2 1/2"	3"	3" x 3"	3"
Over 150' to 180'	3"	3 1/2"	3 1/2" x 3 1/2"	3 1/2"

Note: All joints of Abutments and at Fix-Fix joints shall be 1"
The Dimension "D" shall conform to the recommendations of the seal manufacturer as approved by the Bridge Engineer. The depth of the seal shall be approximately equal to the uncompressed width of the seal.
Joints shown are to be used at skew angles up to and including 15°. For joints to be used at skew angles greater than 15°, see supplemental details.

DETAILS COMMON TO STANDARD 35'-90'
COMPOSITE I-BEAM SPANS
ALL ROADWAYS
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

BRIDGE NO. D' WING NO. 14990D
DATE: 1-4-67
SCALE: As Shown

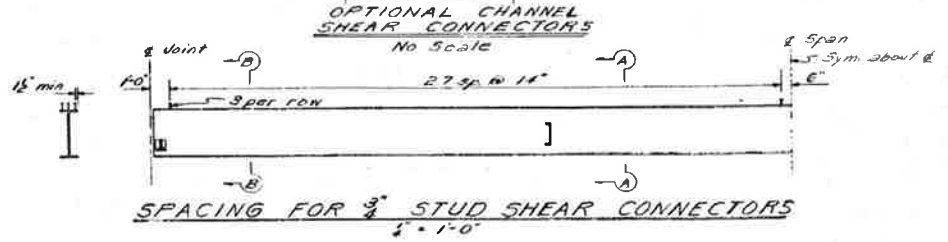
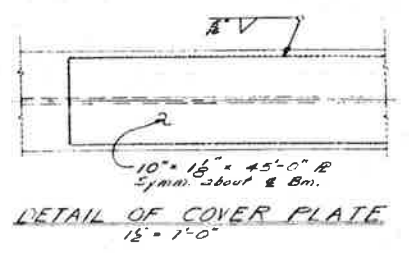
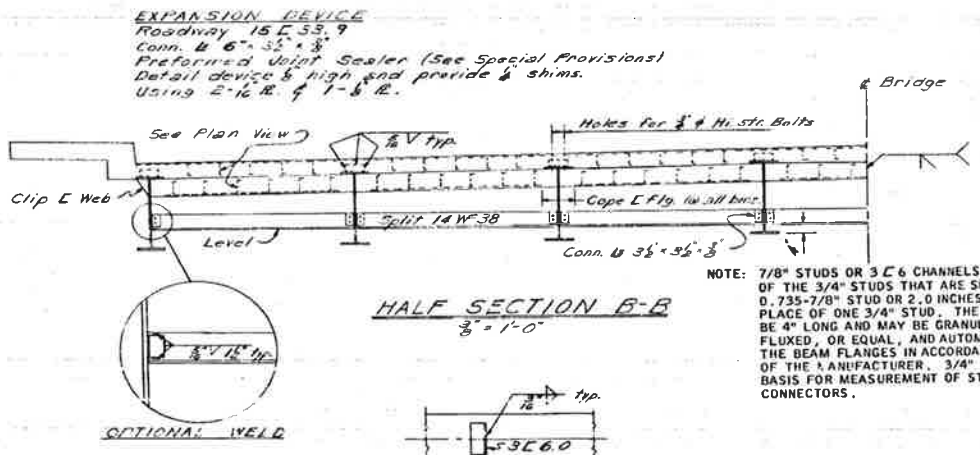
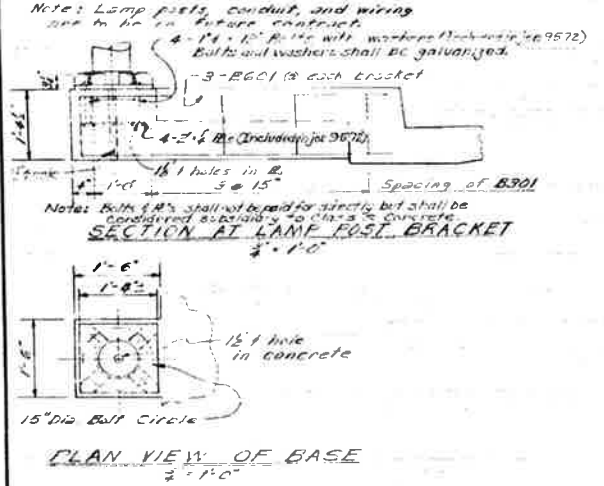


REVISED	DATE	BY	CHKD	DATE	BY	CHKD	DATE	BY	CHKD
6	ARK								

JOB NO. 191307/11/20
 D. FRED STANLEY'S 16553

BAR LIST

Mark	Size	No. Req'd	Length	Pin Dia.	BENDING DIAGRAMS (Dimensions are out to out of bars)
5601	6	28	51'-8"	5/8"	
5602	6	28	52'-6"	3"	
5603	6	29	54'-0"	5"	
5604	6	2 each	49'-6"	5/8"	
5647	6	2 each	49'-0"	5"	
5689	6	228	6'-0"	3"	
5690	6	114	4'-0"	5/8"	
5691	6	132	5'-7"	3"	
5692	6	132	5'-7"	3"	
5401	4	288	38'-7"	5/8"	
5402	4	40	4'-0"	5/8"	
5403	4	5	32'-0"	5/8"	
5301	3	60	2'-9"	1/2"	



DESIGN SPECIFICATIONS: AASHTO 1965
 LIVE LOADING: HS20

	INTERIOR BEAM	EXTERIOR BEAM
1. DEAD LOAD (TYPE E RAIL)		
a. TO WF BEAM	761#/'	653#/'
b. TO COMPOSITE BEAM	175#/'	310#/'
2. LIVE LOAD		
a. TO EACH COMPOSITE BEAM	1,273 WHEELS+IMPACT	1,217 WHEELS+IMPACT

UNIT STRESSES: CLASS 5 CONCRETE (N#10) 1,200 PSI
 STRUCTURAL STEEL (A-36) 20,000 PSI
 REINFORCING STEEL 20,000 PSI

SHEET NO. 2 OF 2
 DETAILS OF SPANS
 BRIDGE OVER CROOKED CREEK
 HARRISON BYPASS
 BOONE COUNTY
 ROUTE 65 SEC. 2
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

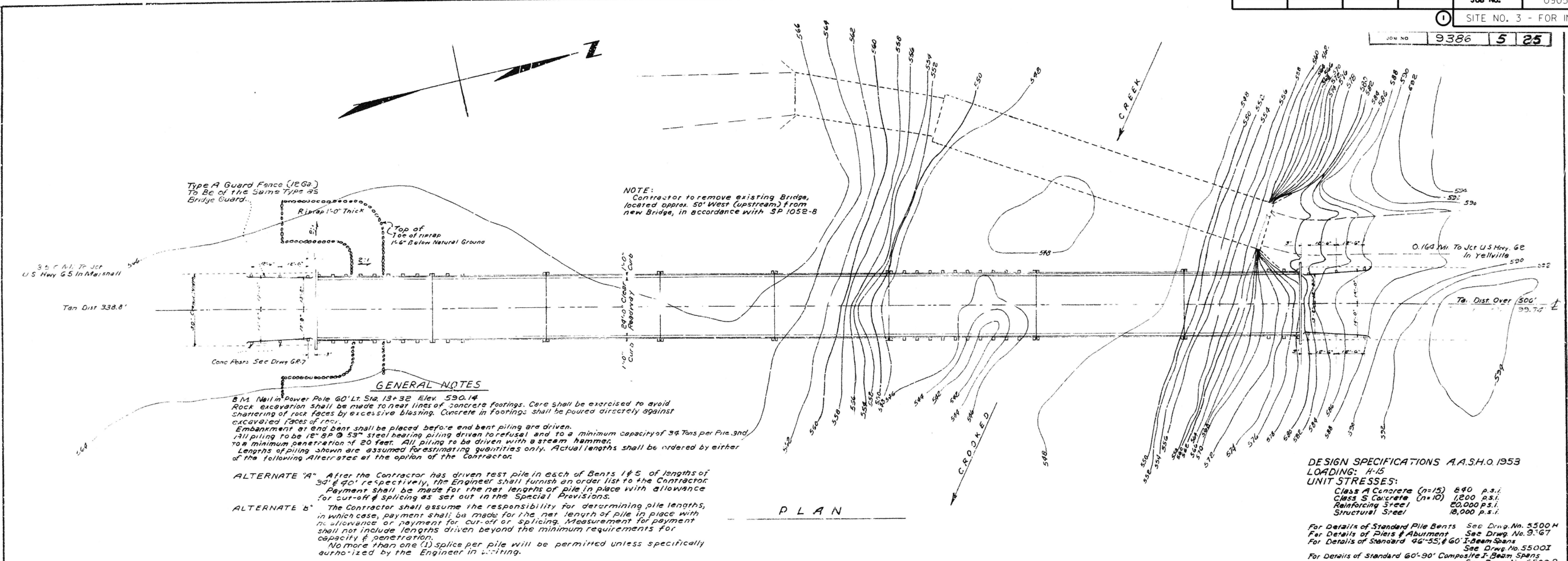
DRAWN BY: JAS DATE: 2-22-67
 TRACED BY: JPL DATE: 2-28-68
 CHECKED BY: JPL DATE: 2-28-68
 BRIDGE NO. 5330 DRAWING NO. 16558

FOR INFORMATION ONLY

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. PROJ. NO.	STATE	FED. AD PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.	090507	17	20

1 SITE NO. 3 - FOR INFORMATION ONLY

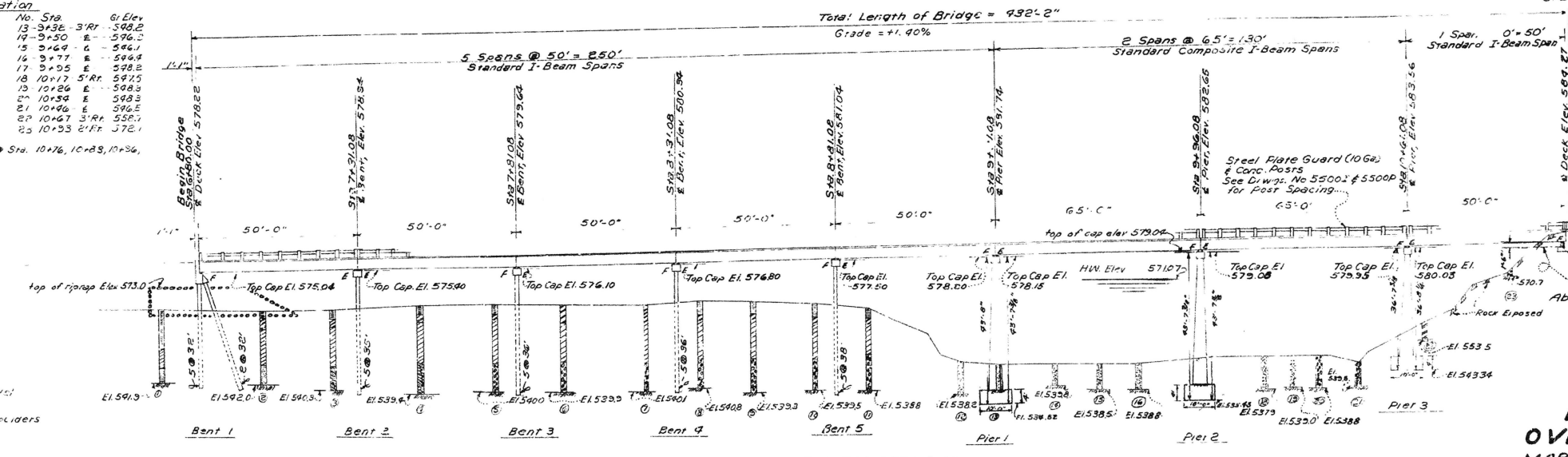
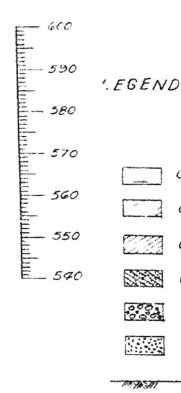
JOB NO. 9386 5 25



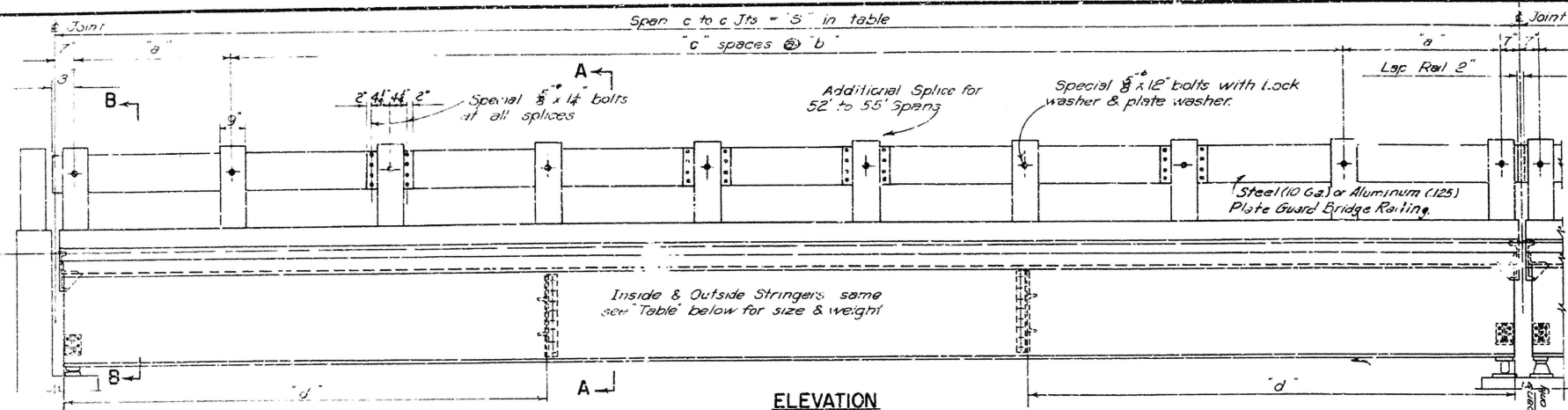
Test Hole Location

No.	Sta.	Gr. Elev.	No.	Sta.	Gr. Elev.
1	6+70	E 567.0	13	9+32	3'RT - 568.2
2	7+00	1'RT 567.0	14	9+50	E - 566.0
3	7+23	E 565.2	15	9+69	E - 566.1
4	7+57	E 565.5	16	9+77	E - 566.4
5	7+74	E 566.0	17	9+95	E 568.3
6	7+96	E 565.7	18	10+17	5'RT 568.5
7	8+21	2'LT 563.8	19	10+26	E - 568.3
8	8+39	E 566.3	20	10+34	E 568.3
9	8+56	E 568.0	21	10+46	E 566.5
10	8+75	1'RT 565.1	22	10+67	3'RT 558.7
11	8+92	E 562.8	23	10+83	2'RT 572.1
12	9+20	2'RT 547.5			

Note: Solid Rock Exposed @ Sta. 10+76, 10+89, 10+96, 11+03 & 11+07



LAYOUT OF BRIDGE OVER CROOKED CREEK
 MARION COUNTY, ROUTE 14, SEC. 3
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.
 DRAWN BY: JBC DATE: 6-26-57
 CHECKED BY: DATE:
 SCALE: 1"=20'
 BRIDGE NO. 338 DRAWING NO. 9565



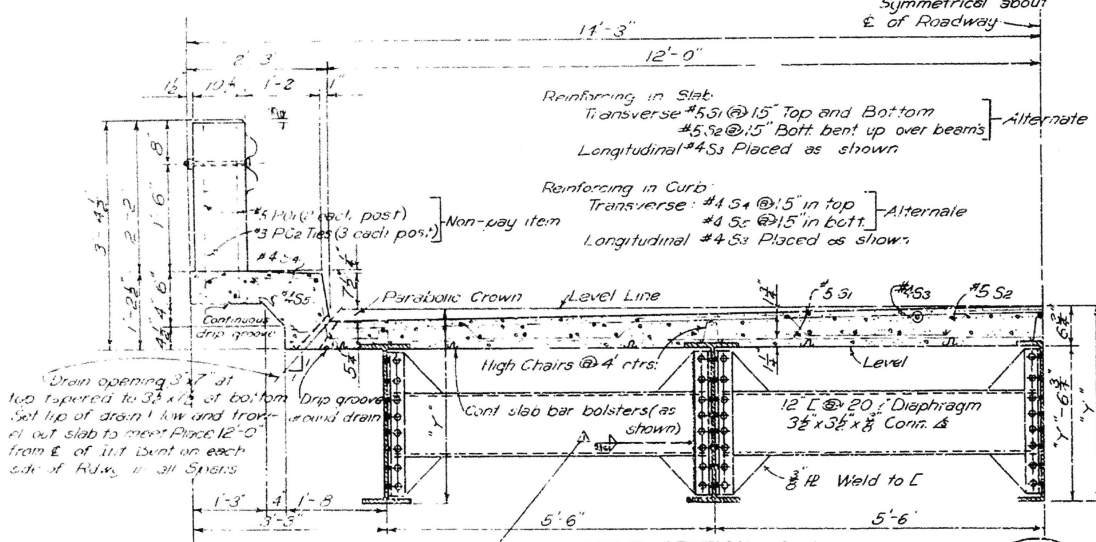
LIST OF REINFORCING STEEL

WK	SIZE	NO OF BARS IN EACH SPAN	LENGTH	BENDING DIAGRAM	
S1	5	76 76 78 80 82 84 86 88 90 92	25'-0"		
S2	"	37 37 38 39 40 41 41 42 43 44 45	25'-9"		
S3	4	94			
S4	"	76 76 78 80 82 84 86 88 90 92	4'-5"		
S5	"	74 74 76 78 80 82 84 86 88 90	3'-0"		
P01	5	36	40	44	5'-4"
P02	3	54	60	66	8'-8"

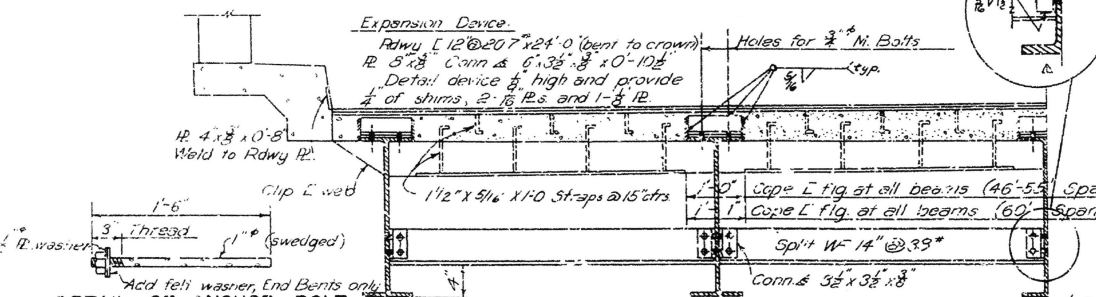
Non-pay item
Dimensions are to face of bars

LIST OF VARIABLES 46'-55' & 60' SPANS

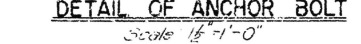
Spans c to c Jts	Reqd. Stringer	Post Spacing	Strut	D.L. Def.	Y	
46'-0"	30WF108	5'-6"	5'-7 1/2"	6	15'-4"	2'-11 1/2"
47'-0"	"	5'-8"	5'-9"	6	15'-5"	"
48'-0"	"	5'-9 1/2"	5'-10 1/2"	6	15'-6"	"
49'-0"	"	5'-11"	6'-0"	6	15'-7"	"
50'-0"	"	6'-0"	6'-1 1/2"	6	15'-8"	"
51'-0"	30WF116	6'-2"	6'-3"	6	17'-0"	"
52'-0"	"	5'-7"	5'-8"	7	17'-4"	"
53'-0"	"	5'-9 1/2"	5'-9"	7	17'-8"	"
54'-0"	30WF124	5'-10 1/2"	5'-10 1/2"	7	17'-0"	2'-11 1/2"
55'-0"	"	5'-11"	6'-0"	7	18'-4"	"
60'-0"	33WF130	6'-1"	5'-10"	8	20'-0"	3'-3"



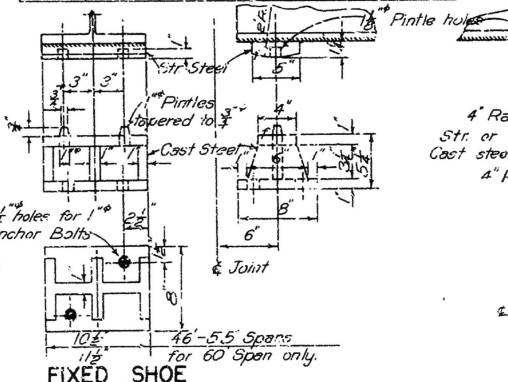
HALF SECTION A-A
Scale: 1/4" = 1'-0"



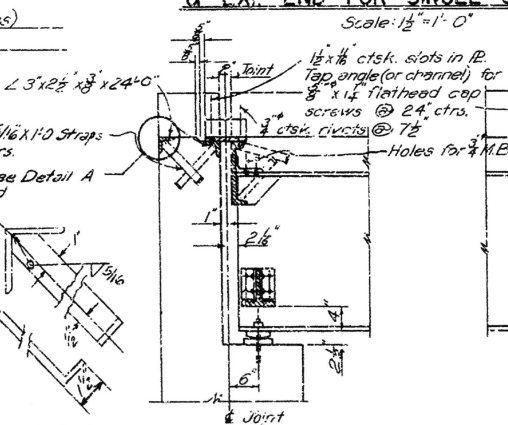
HALF SECTION B-B
Scale: 1/4" = 1'-0"



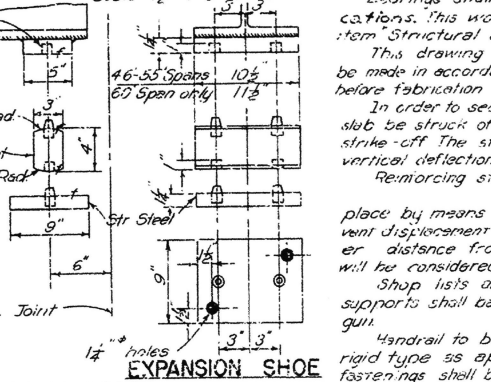
DETAIL OF ANCHOR BOLT
Scale: 1/2" = 1'-0"



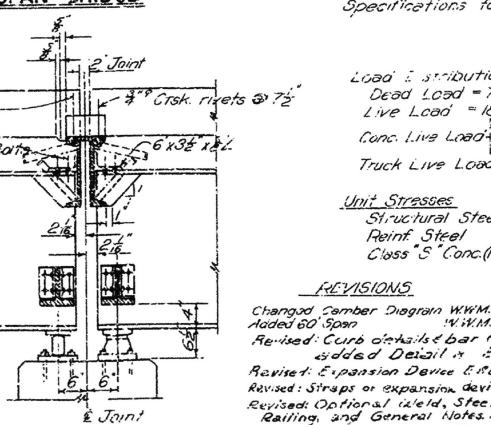
DETAILS OF BEARINGS AT END BENTS - MULTIPLE SPANS
Scale: 1/2" = 1'-0"



DETAILS OF BEARINGS AT INTERM. BENTS & EXP. END FOR SINGLE SPAN BRIDGE
Scale: 1/2" = 1'-0"



EXPANSION SHOE



JOINT AT END BENT
Scale: 3/4" = 1'-0"



JOINT AT INTERM. BENT
Scale: 3/4" = 1'-0"

GENERAL NOTES

All concrete to be Class 'S'. All exposed corners to have 1/4" chamfer unless otherwise noted.

Field Connections for diaphragms to be riveted or bolted with high strength bolts.

Rivets - 3/4" Open holes, 1/2" except where noted otherwise.

Structural shapes of equal or greater strength may be substituted for shapes shown but payment will be made on a basis of shapes shown or those actually used, whichever is the lesser.

All welded connections to be 3/8" fillet shop welds except as noted. All welding shall conform to the American Welding Society Standard Specifications for Welded Highway and Railway Bridges, 5th Edition 1955.

Shop Paint - All structural steel, except surfaces in contact with concrete shall be given one coat of red lead and raw linseed oil before shipment.

Field Paint - 1st Coat - Red lead lined with lamp black.
2nd Coat - Aluminum Paint.

All bearing plates and roadway expansion devices to be paid for as Structural Steel in Beam Spans.

Bearings shall be finally sealed in the manner set forth in the Specifications. This work and material are to be considered as subsidiary to the item Structural Steel in Beam Spans and will not be paid for directly.

This drawing shows general features of design only. Shop drawings shall be made in accordance with the Specifications, submitted and approval secured before fabrication is begun.

In order to secure a good riding surface it will be required that the floor slab be struck off from curb to curb with at least a half span length longitudinal strike-off. The strike-off shall be sufficiently stiff so as to have no appreciable vertical deflection.

Reinforcing steel to be deformed bars of intermediate or hard grade. Steel to be accurately located in the forms and firmly held in place by means of steel wire supports, sufficient in number and size to prevent displacement during the course of construction and to keep the steel a proper distance from the forms. The wire supports will not be paid directly but will be considered subsidiary to the item of Reinforcing Steel.

Shop lists and bending diagrams of reinforcing steel, including wire supports shall be submitted and approval secured before fabrication is begun.

Handrail to be Plate Guard Bridge Railing of the type shown or an equivalent rigid type as approved by the Engineer. The rail including posts and fastenings shall be paid for at the unit price bid per linear foot for "Steel or Aluminum Plate Guard Bridge Railing".

SPECIFICATIONS, Arkansas State Highway Commission Standard Specifications for Highway Construction, Edition of Dec 9, 1953.

LOADING HIS (I.A.S.H.Q. 1957)

Load Distribution Outside Stringer	Load Distribution Inside Stringer
Dead Load = 700 lb/ft (WT per ft of WF used)	Dead Load = 546 lb/ft (WT per ft of WF used)
Live Load = 150 lb/ft	Live Load = 265 lb/ft
Conc. Live Load = 5100 lb/ft for moment	Conc. Live Load = 7400 lb/ft for moment
Truck Live Load = 0.80 wheels	Truck Live Load = 1.1 wheels

Unit Stresses

Structural Steel	18,000 psi
Reinf. Steel	20,000 psi
Class 'S' Conc. (n=10)	1200 psi

DETAILS OF STANDARD 46'-55' & 60' I-BEAM SPANS
24'-0" CLEAR RDWY. 1'-0" CURBS

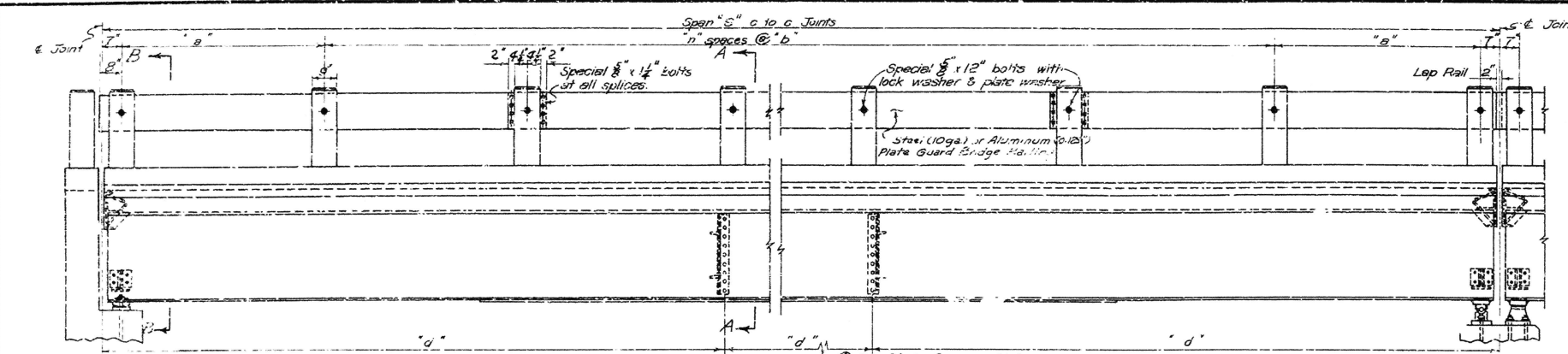
REVISIONS

Changed Camber Diagram W.W.M. 6-24-54
Added 60' Span "W.W.M. 6-28-54
Revised: Curb details & bar max. or 1/2" stop, added Detail A "W.W.M. 11-8-57
Revised: Expansion Device E.P.B. 11-6-57
Revised: Straps on expansion device E.D.N. 4-14-58
Revised: Optional detail, Steel 12" Bar
Railing and General Notes F.D.M. 12-12-58

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

Drawn By: W.W.M. Date: 2-24-54
Traced By: W.W.M. Date: 3-5-55
Checked By: J.H.C. Date: 3-4-53

BRIDGE NO. 5500I
DRAWING NO. 5500I



LIST OF REINFORCING STEEL

Bar	Size	No. of Bars in Each Span	Length	Bending Diagram
S1	#5	104 112 120 130 138 145 154	25'-0"	Str.
S2	#5	51 55 60 64 68 73 77	25'-8"	
S3	#4	141	3'-11"	Str.
S4	#4	104 112 120 130 138 145 154	4'-6"	
S5	#4	102 110 120 128 136 145 154	3'-0"	
PO1	#5	44 46 52 52 58 60 64	5'-4"	Str.
PO2	#3	66 72 78 78 84 90 90	2'-8"	

Dimensions shown are to centers of bars
* Non-Pay items

Slab Pouring Note: Floor slabs may be poured in one continuous operation with a strikeoff extending over the whole span length, or may be poured in increments with the center one-third in one-half span length poured first. After the center section is poured, not less than 72 hours shall elapse before pouring the end sections. The end sections may be poured simultaneously, if not poured simultaneously, 48 hours shall elapse between end section pours.

GENERAL NOTES

All concrete to be Class 5. All exposed corners to be chamfered.

Field connections for diaphragms to be riveted or bolted with high strength bolts. Rivets to be open holes except where noted otherwise.

Structural shapes of equal or greater strength may be substituted for shapes shown but payment will be made on basis of shapes shown or those actually used, whichever is less.

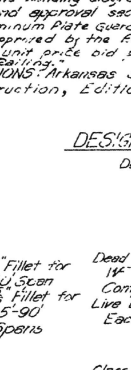
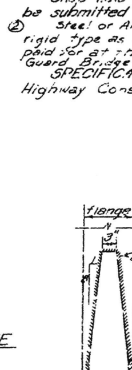
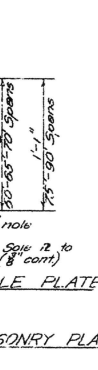
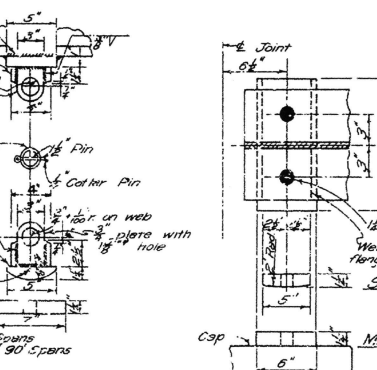
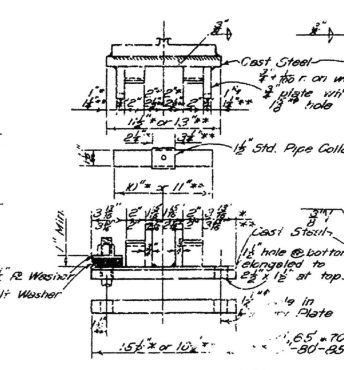
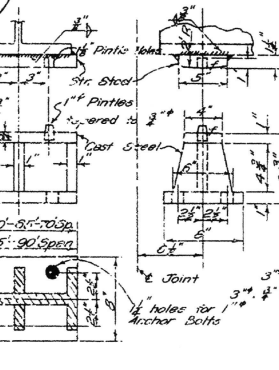
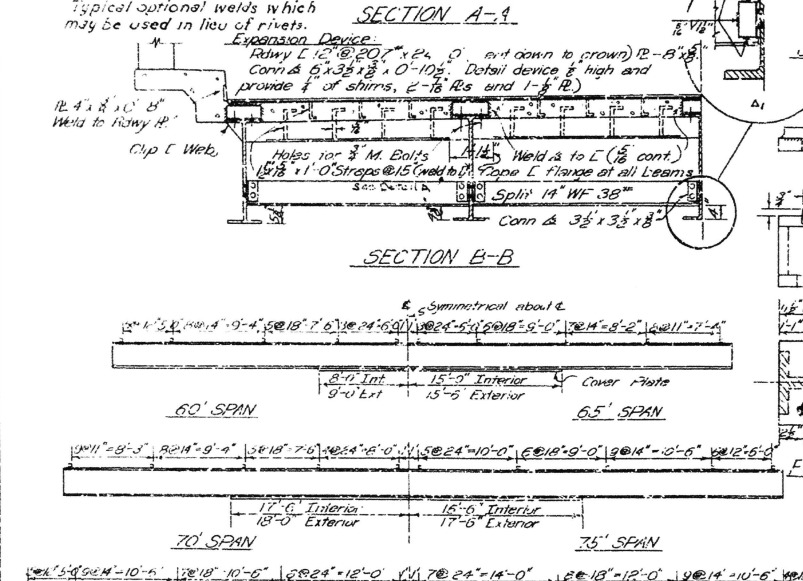
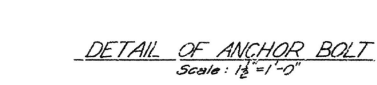
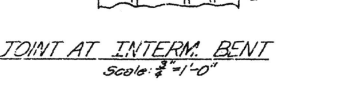
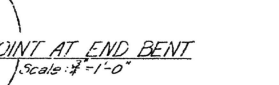
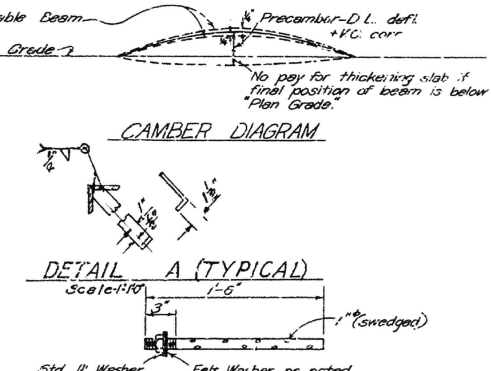
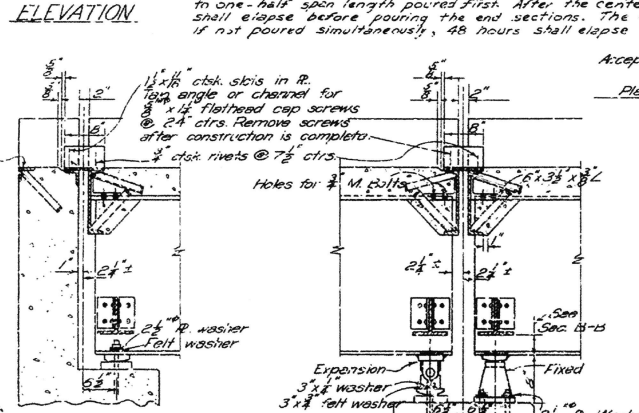
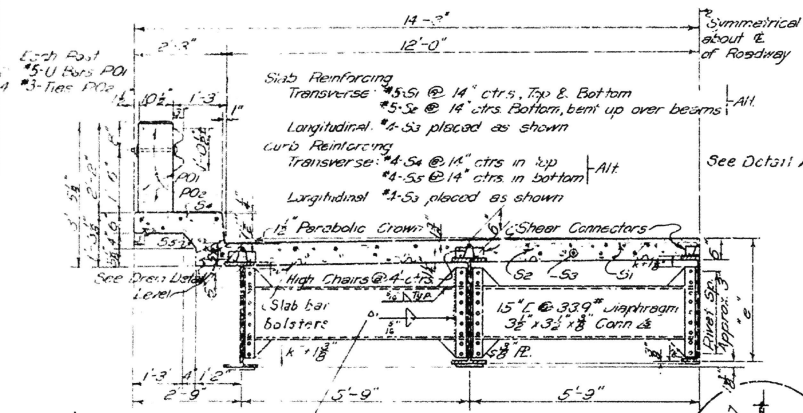
All welded connections to be $\frac{1}{4}$ " fillet shop welds except as noted. All welding shall conform to the American Welding Society Standard Specifications for Welded Highway and Railway Bridges, 5th Edition 1956.

Shop Paint: All structural steel except surfaces in contact with concrete shall be given one coat of red lead and raw linseed oil before shipment.

Field Paint: - 1st Coat - Red lead thinned with lamp black.
- 2nd Coat - Aluminum Paint.

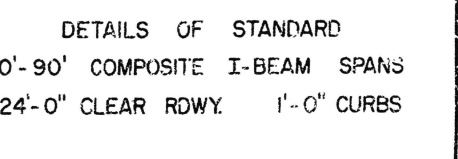
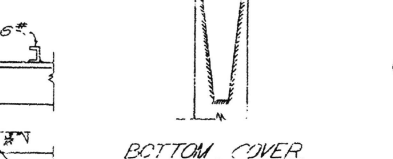
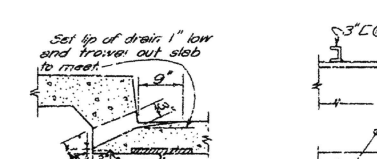
All bearing plates and roadway expansion devices to be paid for as Structural Steel in Beam Spans. Bearings shall be finally seated in the manner set forth in the Specifications. This work and material are to be considered as subsidiary to the item Structural Steel in Beam Spans and will not be paid for directly.

This drawing shows general features of design only. Shop drawings shall be made in accordance with the Specifications submitted and is, approved secured before fabrication is begun.



DETAILS OF BEARINGS AT INTERM. BENTS & EXP. END FOR SINGLE SPAN BRIDGE
Scale: 1/2" = 1'-0"

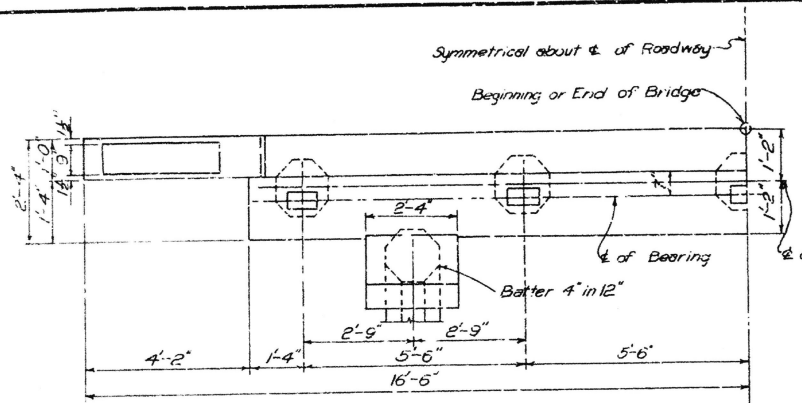
Span	Rowd	Cover	Plate	Part	Spacing	Strut	D.L. Dist.
ft	ft	ft	ft	ft	ft	ft	ft
60	30W108	10'-0"	10'-0"	6'-1"	5'-10"	3	5@20'-0" 2'-11 1/2"
65	30W108	10'-0"	10'-0"	6'-2"	5'-9"	9	4@17'-6" 2'-11 1/2"
70	30W116	10'-0"	10'-0"	6'-1"	6'-2"	10	4@17'-6" 2'-11 1/2"
75	33W150	10'-0"	10'-0"	6'-1"	6'-2"	10	4@17'-6" 3'-2 1/2"
80	33W141	10'-0"	10'-0"	5'-11"	5'-11"	11	4@20'-0" 3'-2 1/2"
85	35W150	10'-0"	10'-0"	5'-11"	6'-0"	12	5@17'-0" 3'-4 1/2"
90	35W170	10'-0"	10'-0"	5'-11"	5'-11"	13	5@15'-0" 3'-5"



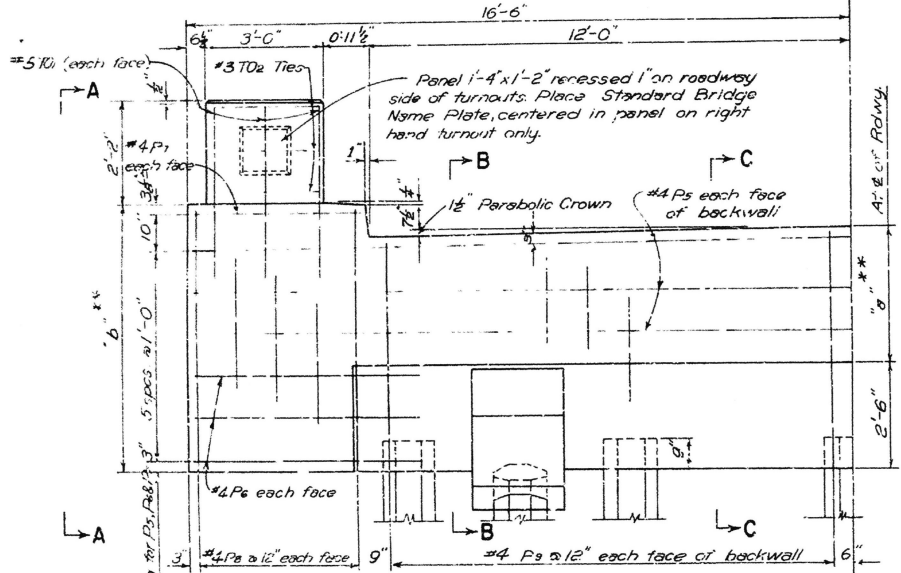
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

Drawn By: J.E.H. Date: 8-30-55
Traced By: L.M.H. Date: 8-12-56
Checked By: J.E.H. Date: 9-22-55
Scale: 1/8" = 1'-0" (except as noted)

BRIDGE NO. DRAWING No. 5500P

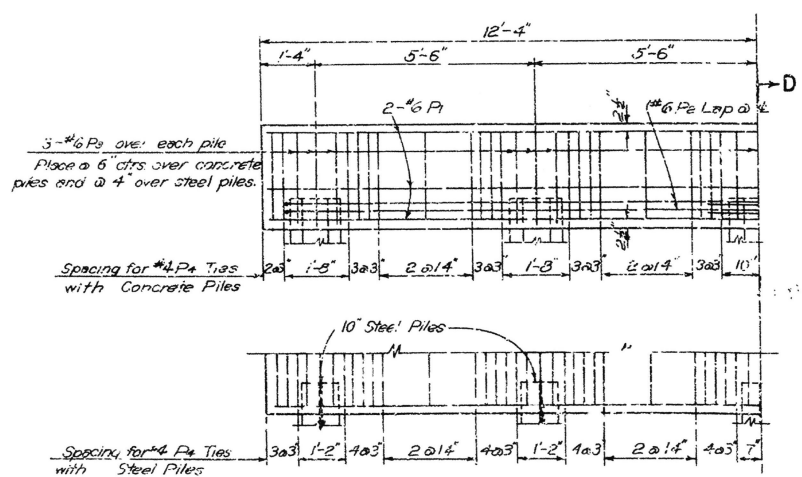


HALF PLAN OF END BENT

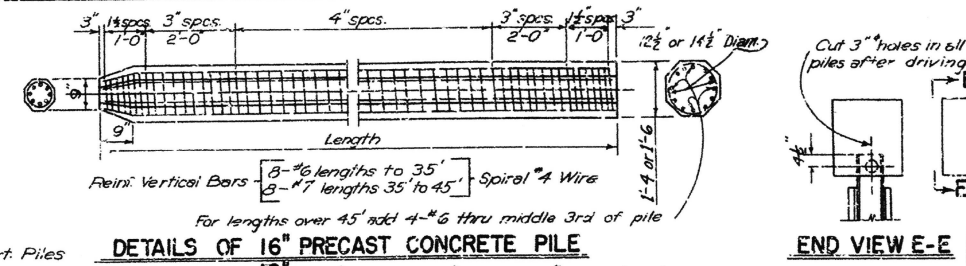


HALF ELEVATION END BENT

Cap reinforcing same as shown for Intermediate Bent



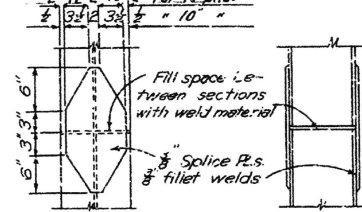
HALF ELEVATION INTERMEDIATE BENT



DETAILS OF 16" PRECAST CONCRETE PILE

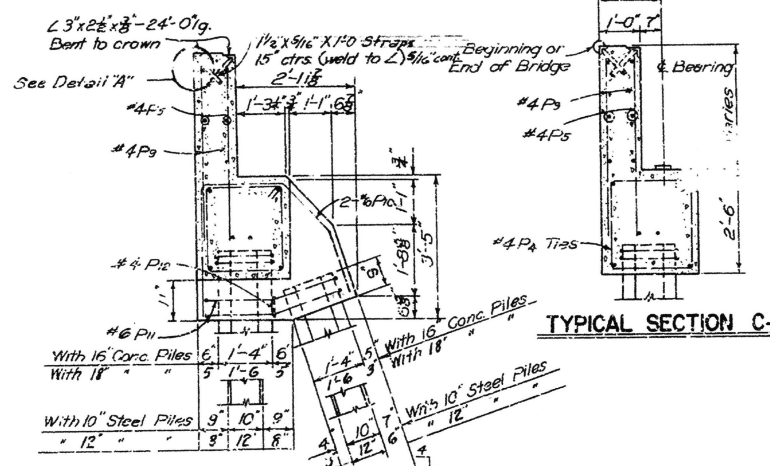
LIST OF VARIABLES **

Span	Vertical Dimensions		
	a	b	c
46'	3'-2 3/4"	6'-1 1/2"	3'-6 3/8"
48'	"	"	"
49'	"	"	"
50'	"	"	"
51'	"	"	"
52'	"	"	"
53'	"	"	"
54'	3'-2 3/4"	6'-1 1/2"	3'-6 3/8"
55'	"	"	"



STEEL PILE SPLICE DETAILS

Scale: 1" = 1'-0"
Generally all piles shall be driven full length and shall not be spliced except by permission of the Engineer.

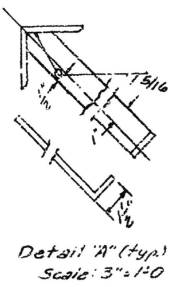


TYPICAL SECTION C-C

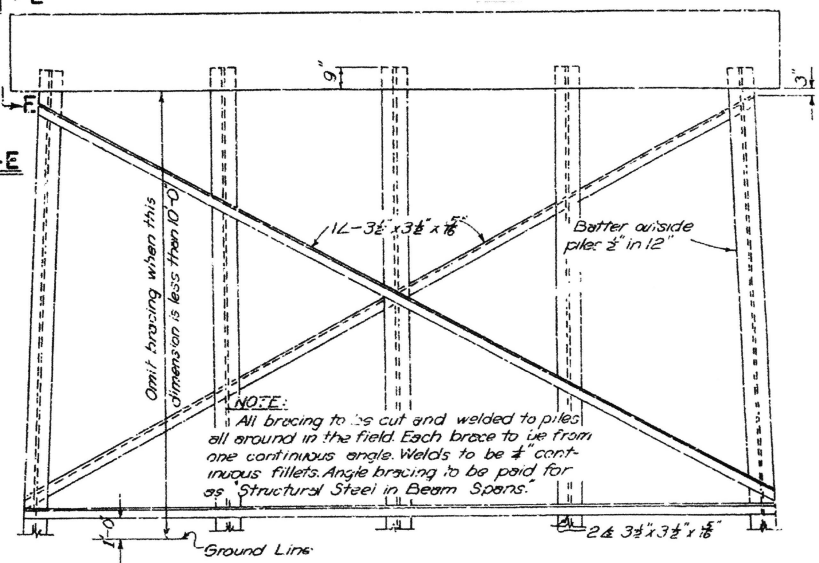
SECTION B-B AT BATTER PILES

SECTION D-D

(Showing concrete pile - 1'-4")



Detail W (Typ)
Scale: 3" = 1'-0"



TYPICAL BRACING INTERMEDIATE BENT

LIST OF REINFORCING STEEL

PK	SIZE	NO. IN BENTS	LENGTH	Str.	BENDING DIAGRAM	
					END	INT.
P1	6	6	24'-4"	Str.	13'2" for 16" pile	13'4" for 18" pile
P2	4	4	27'-6"		2'-0"	2'-0"
P3	15	15	6'-2"		2'-0"	2'-0"
P4	4	40	8'-11"		2'-0"	2'-0"
P5	6	6	32'-8"		1'-11"	1'-11"
P6	12	12	5'-3"		1'-9"	1'-9"
P7	4	4	4'-2"		1'-0"	1'-0"
P8	20	20	5'-0"		1'-0"	1'-0"
P9	48	48	4'-6"		1'-0"	1'-0"
P10	6	4	7'-10"		1'-11"	1'-11"
P11	4	4	11'-2"		1'-0"	1'-0"
P12	4	2	5'-3"		1'-0"	1'-0"
T01	5	12	4'-0"		1'-0"	1'-0"
T02	3	6	6'-11"		1'-0"	1'-0"

Dimensions are to ctrs. of bars.

** When a simple span bridge is used, dimensions "a" and "b" and lengths of P8 and P9 bars must be increased 4" to compensate for deeper well required by use of expansion shoes. This is for one End Bent only.

* 50 Bars, if steel piles are used.

NOTES


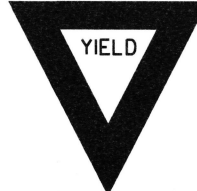
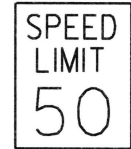






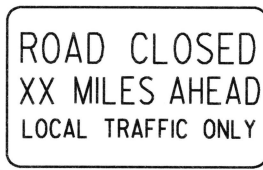
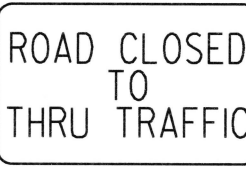





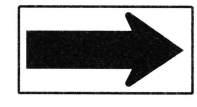

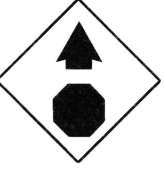

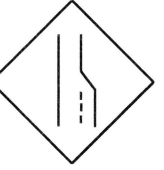

















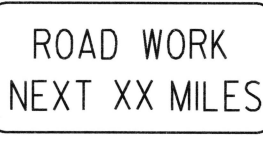
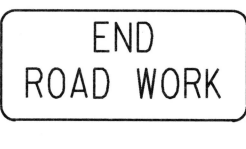
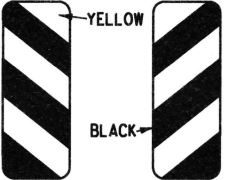


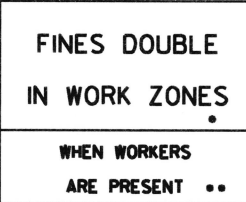
Steel Piles are to be driven to refusal. Concrete Piles to be driven to a minimum capacity of 34 Tons. or Details of Superstructure and for General Notes, see Dwg. No. 5500 I.
Use type of pile called for on Bridge Layout.

Revised to include 18" Piles - 9-21-54 W.W.M.
Revised to include 12" " " 10-10-55 W.W.M.
Revised to include Pz bars for 18" Piles - 1-15-51 W.W.M.
Revised: Curv. dimensions, bar numbers, & straps E.R.B. 11-5-51
Added detail A. E.E.B. 11-7-51
Revised Curv. Widths 4-25-58 L.S.C.

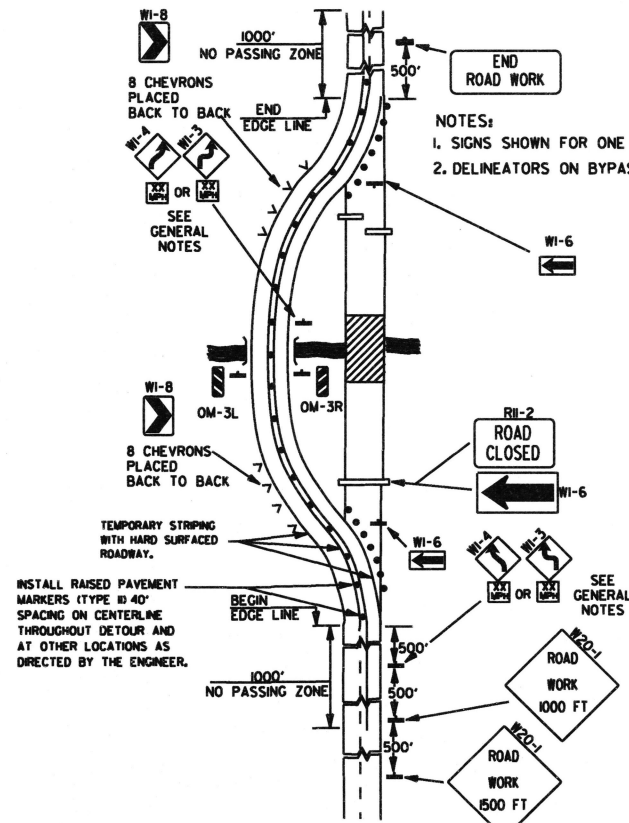
DETAILS OF STANDARD CONCRETE PILE BENTS
46' TO 55' I-BEAM SPANS
24'-0" CLR FOR RDWY. 1'-0" CURBS

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

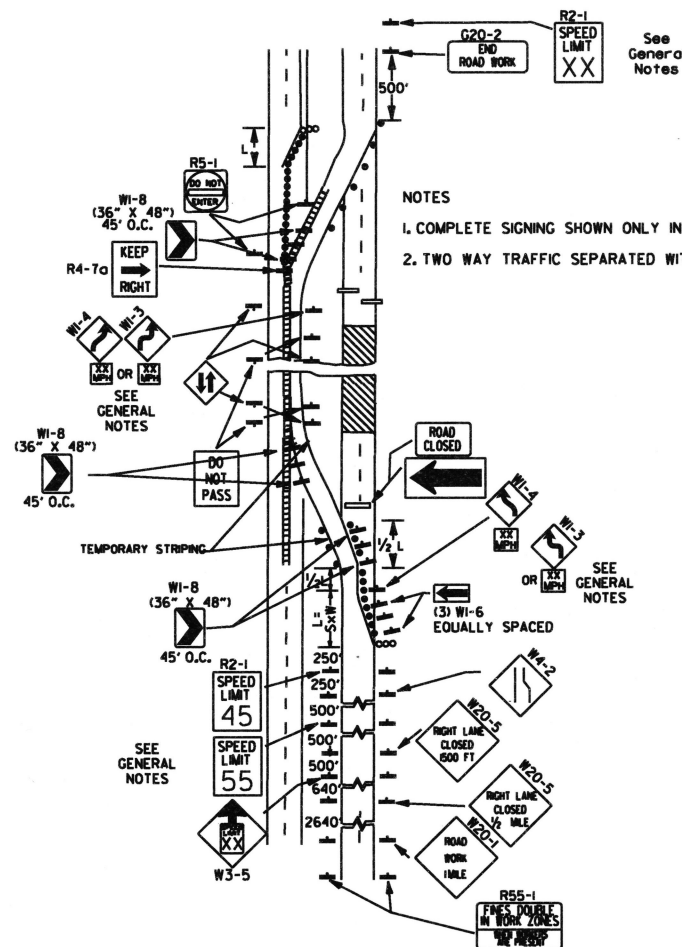
Drawn By: W.W.M. Date: 2-22-53
Traced By: L.W.L. Date: 2-25-54
Checked By: J.L. Date: 8-1-54
BRIDGE NO. DRAWING NO. 5500H

<p>RI-1</p>  <p>STANDARD 30"x30" EXPRESSWAY 36"x36" SPECIAL 48"x48"</p>	<p>RI-2</p>  <p>STD. 36"x36"x36" EXPWY. 48"x48"x48" FWY. 60"x60"x60"</p>	<p>R2-1</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>W3-5</p>  <p>STD. 36"x36" EXPWY. 48"x48" FWY. 48"x48"</p>	<p>W3-5a</p>  <p>STD. 36"x36" EXPWY. 48"x48" FWY. 48"x48"</p>	<p>R4-1</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R4-2</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>ADVANCE DISTANCES (XXXX)</p> <p>500 FT 1/2 MILE 1000 FT 3/4 MILE 1500 FT 1 MILE AHEAD</p> <p>GENERAL NOTES:</p> <ol style="list-style-type: none"> ALL TRAFFIC CONTROL DEVICES USED ON ROAD CONSTRUCTION SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, AND TO THE STANDARD HIGHWAY SIGNS, LATEST EDITION, OR AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION. TRAFFIC CONTROL DEVICES SHALL BE SET UP JUST BEFORE THE START OF CONSTRUCTION OPERATIONS AND SHALL BE PROPERLY MAINTAINED DURING THE TIME SUCH CONDITIONS EXIST. THEY SHALL REMAIN IN PLACE ONLY AS LONG AS NEEDED AND REMOVED THEREAFTER. EXISTING SIGNS AND CONSTRUCTION SIGNS SHALL BE KEPT IN PROPER POSITION, AND BE CLEAN AND LEGIBLE AT ALL TIMES. SIGNS THAT DO NOT APPLY TO EXISTING CONDITIONS SHALL BE REMOVED. SIGNS THAT ARE DAMAGED, DEFACTED, OR THAT ACCUMULATE DIRT DURING CONSTRUCTION SHALL BE CLEANED, REPAIRED, OR REPLACED. SIGNS ARE USUALLY MOUNTED ON A SINGLE POST, ALTHOUGH THOSE WIDER THAN 36" OR LARGER THAN 10 SQ. FT. SHALL BE MOUNTED ON TWO POSTS OR ABOVE A TYPE III BARRICADE. SIGN POSTS DIRECT BURIED IN SOIL SHALL BE 2 LB. MINIMUM CHANNEL POST OR 4"x4" WOOD POSTS. CHANNEL POSTS SHALL BE PAINTED GREEN. WOOD POSTS SHALL BE PAINTED WHITE. ALL POSTS SHALL BE NEATLY CONSTRUCTED, AND SHALL BE REPLUMBED, CLEANED, OR REPAIRED AS NEEDED FOR THE DURATION OF THE JOB. THERE SHALL NOT BE MORE THAN 2 POSTS IN A 7' PATH FOR WOOD OR CHANNEL POSTS. ANY CHANNEL POST SPLICE SHALL BE IN ACCORDANCE WITH STANDARD DRAWING TC-3. POST MOUNTED SIGNS IN RURAL AREAS SHALL BE CONSTRUCTED WITH THE NEAR EDGE OF THE SIGN FROM 6 TO 12 FEET FROM THE PAVEMENT EDGE. SIGNS IN URBAN AREAS AND BARRICADE MOUNTED SIGNS SHALL BE MOUNTED A MINIMUM OF 2 FEET FROM THE PAVEMENT EDGE. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN URBAN AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN RURAL AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE, EXCEPT A MINIMUM OF 6' SHALL BE USED WHEN MOUNTING AN ADVISORY SIGN BELOW A WARNING SIGN. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR INTERMEDIATE TERM STATIONARY WORK CONDITIONS. THE SIGNS MINIMUM MOUNTING HEIGHT SHALL BE 5'. RETROREFLECTIVE DEVICES SHALL BE USED. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR SHORT-TERM, SHORT DURATION, AND MOBILE CONDITIONS. THEY SHALL BE NO LESS THAN ONE (1) FOOT ABOVE THE TRAVELED WAY. LONG-TERM STATIONARY SIGNS SHALL BE DIRECT BURIED IN SOIL, UNLESS CONDITIONS NECESSITATE THE USE OF PORTABLE SIGNS, OR AS APPROVED BY THE ENGINEER. CONCRETE PADS, CONCRETE OR ROCK BALLAST, OR OTHER SOLID MATERIALS SHALL NOT BE UTILIZED WITH PORTABLE SIGN SUPPORTS. FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS. MOST OF THE SIGNS SHOWN ARE ORIENTED TO THE RIGHT. HOWEVER, THIS DOES NOT PRECLUDE THE USE OF MIRROR IMAGES OF THESE SIGNS WHERE THE REVERSE ORIENTATION MIGHT BETTER CONVEY TO MOTORISTS THE PROPER DIRECTION OF MOVEMENT. R55-1 SIGNS SHALL BE PLACED AT LEAST 1500' BUT NOT MORE THAN 1 MILE IN ADVANCE OF THE WORK ZONE. IF A SPEED LIMIT REDUCTION IS IN EFFECT, THE SIGN SHALL BE PLACED A MINIMUM OF 500' IN ADVANCE OF THE "REDUCED SPEED AHEAD" SIGN. <p>* NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED FOR ALL PROJECTS.</p>
<p>R5-1</p>  <p>STD. 30"x30" EXPWY. 36"x36" SPECIAL 48"x48"</p>	<p>R11-2</p>  <p>48"x30"</p>	<p>R11-3A</p>  <p>60"x30"</p>	<p>R11-4</p>  <p>60"x30"</p>	<p>W21-5a</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W1-1</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W1-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>8. FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.</p> <p>9. MOST OF THE SIGNS SHOWN ARE ORIENTED TO THE RIGHT. HOWEVER, THIS DOES NOT PRECLUDE THE USE OF MIRROR IMAGES OF THESE SIGNS WHERE THE REVERSE ORIENTATION MIGHT BETTER CONVEY TO MOTORISTS THE PROPER DIRECTION OF MOVEMENT.</p> <p>10. R55-1 SIGNS SHALL BE PLACED AT LEAST 1500' BUT NOT MORE THAN 1 MILE IN ADVANCE OF THE WORK ZONE. IF A SPEED LIMIT REDUCTION IS IN EFFECT, THE SIGN SHALL BE PLACED A MINIMUM OF 500' IN ADVANCE OF THE "REDUCED SPEED AHEAD" SIGN.</p> <p>* NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED FOR ALL PROJECTS.</p>
<p>W1-3</p>  <p>STD. 48"x48"</p>	<p>W1-4</p>  <p>STD. 48"x48"</p>	<p>W1-6</p>  <p>STD. 48"x24" SPECIAL 60"x30"</p>	<p>W1-8</p>  <p>STD. 18"x24" SPECIAL 24"x30" EXPWY. 30"x36" FWY. 36"x48"</p>	<p>W3-1</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W3-2</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W4-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>8. FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.</p> <p>9. MOST OF THE SIGNS SHOWN ARE ORIENTED TO THE RIGHT. HOWEVER, THIS DOES NOT PRECLUDE THE USE OF MIRROR IMAGES OF THESE SIGNS WHERE THE REVERSE ORIENTATION MIGHT BETTER CONVEY TO MOTORISTS THE PROPER DIRECTION OF MOVEMENT.</p> <p>10. R55-1 SIGNS SHALL BE PLACED AT LEAST 1500' BUT NOT MORE THAN 1 MILE IN ADVANCE OF THE WORK ZONE. IF A SPEED LIMIT REDUCTION IS IN EFFECT, THE SIGN SHALL BE PLACED A MINIMUM OF 500' IN ADVANCE OF THE "REDUCED SPEED AHEAD" SIGN.</p> <p>* NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED FOR ALL PROJECTS.</p>
<p>W5-1</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W6-3</p>  <p>EXPWY. 36"x36" SPECIAL 48"x48"</p>	<p>W8-7</p>  <p>EXPWY. 36"x36" FWY. 48"x48"</p>	<p>W9-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W13-1</p>  <p>STD. 24"x24"</p>	<p>W20-1</p>  <p>STD. 48"x48"</p>	<p>W20-2</p>  <p>STD. 48"x48"</p>	<p>8. FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.</p> <p>9. MOST OF THE SIGNS SHOWN ARE ORIENTED TO THE RIGHT. HOWEVER, THIS DOES NOT PRECLUDE THE USE OF MIRROR IMAGES OF THESE SIGNS WHERE THE REVERSE ORIENTATION MIGHT BETTER CONVEY TO MOTORISTS THE PROPER DIRECTION OF MOVEMENT.</p> <p>10. R55-1 SIGNS SHALL BE PLACED AT LEAST 1500' BUT NOT MORE THAN 1 MILE IN ADVANCE OF THE WORK ZONE. IF A SPEED LIMIT REDUCTION IS IN EFFECT, THE SIGN SHALL BE PLACED A MINIMUM OF 500' IN ADVANCE OF THE "REDUCED SPEED AHEAD" SIGN.</p> <p>* NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED FOR ALL PROJECTS.</p>
<p>W20-4</p>  <p>STD. 48"x48"</p>	<p>W20-5</p>  <p>STD. 48"x48"</p>	<p>W20-7a</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W21-2</p>  <p>STD. 30"x30" SPECIAL 36"x36"</p>	<p>W21-5</p>  <p>STD. 30"x30" SPECIAL 36"x36"</p>	<p>W24-1</p>  <p>STD. 36"x36"</p>	<p>W1-4b</p>  <p>STD. 48"x48"</p>	<p>R56-1</p>  <p>STD. 18"x18"</p>
<p>W8-11</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W8-9</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>G20-1</p>  <p>60"x24"</p>	<p>G20-2</p>  <p>48"x24"</p>	<p>OM-3L OM-3R</p>  <p>12"x36"</p>	<p>M4-9</p>  <p>STD. 30"x24" SPECIAL 48"x36" SPECIAL 60"x48"</p>	<p>M4-10</p>  <p>48"x18"</p>	<p>R55-1</p>  <p>36"x60"</p> <p>• USE 6" C LETTERS •• USE 4" D LETTERS</p>

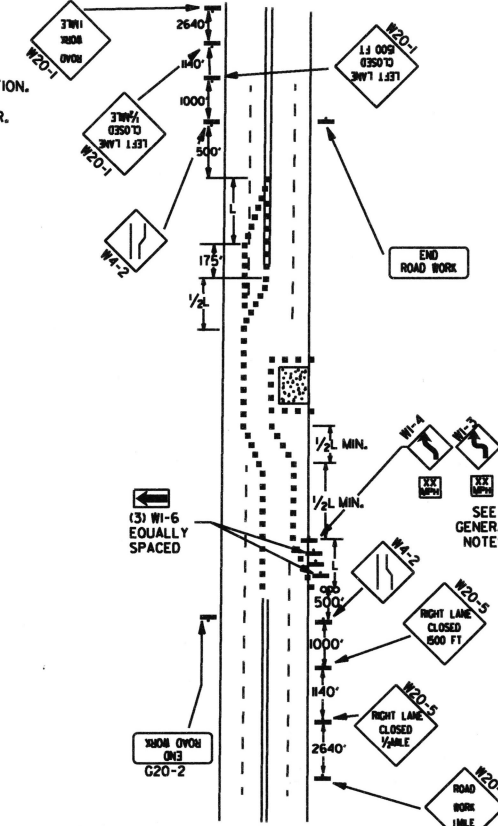
4-13-17	DELETED RSP-1 & ADDED W21-5a	
9-2-15	REVISED REDUCED SPEED LIMIT AHEAD SIGNS REVISED ROAD WORK NEXT XX MILES	
12-15-4	REVISED W24-1	
11-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
11-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
11-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
1-18-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED NOTE 5	
10-18-96	ADDED CONTROLLED ACCESS HWY. SIGN & TO NOTE 7	
10-12-95	ADDED R55-1	
6-8-95	REVISED TO CORRECT SIGN ILLUSTRATIONS	6-8-95
2-2-95	REVISED PER PART VI, MUTCD SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	
DATE	REVISION	FILMED



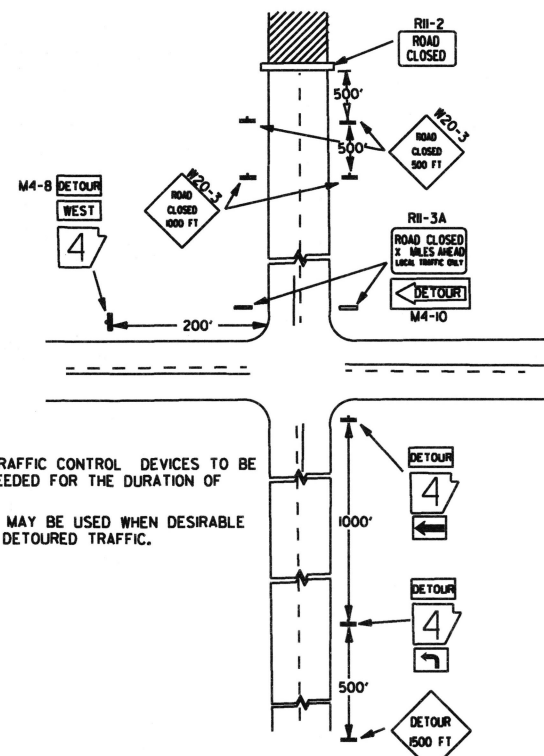
(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.



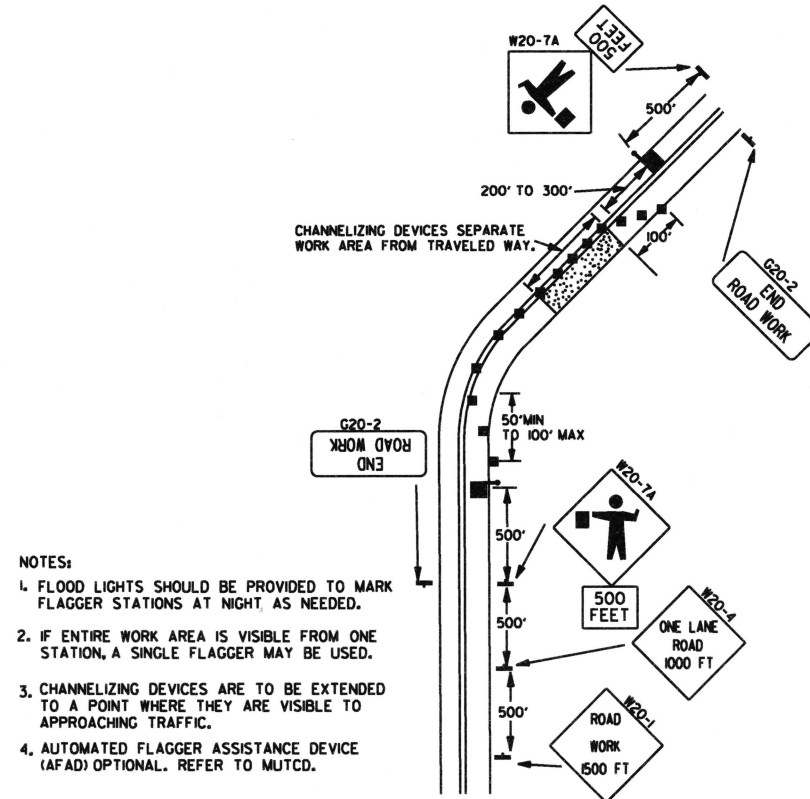
(B) TYPICAL APPLICATION - 4-LANE DIVIDED ROADWAY WHERE ONE ROADWAY IS CLOSED.



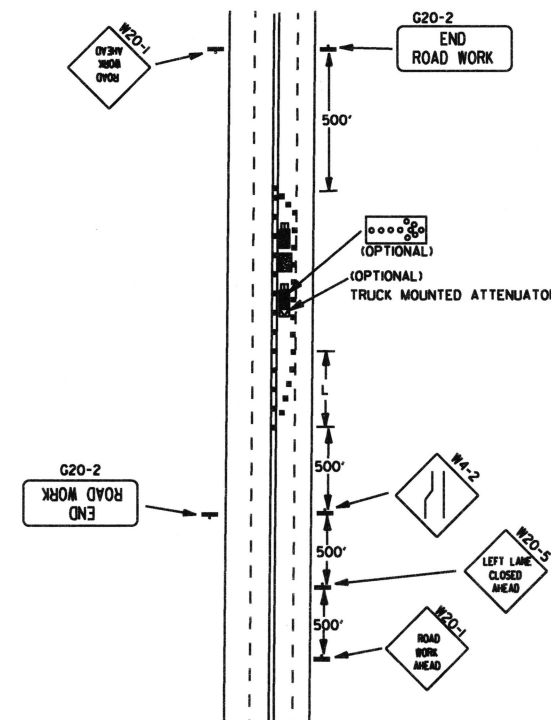
(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



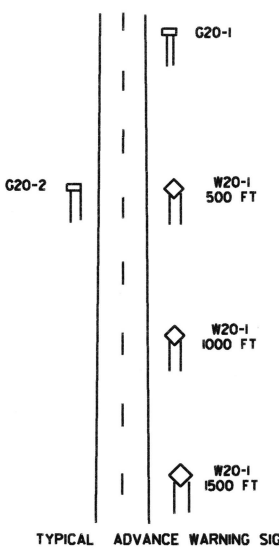
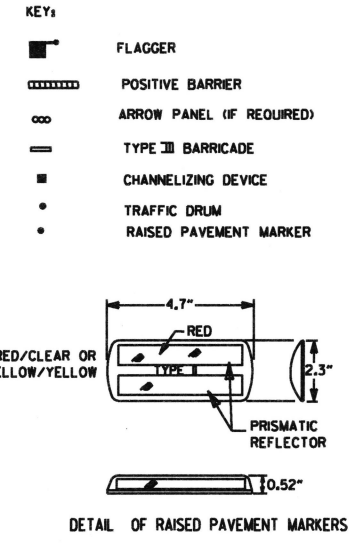
(D) TYPICAL APPLICATION - ROADWAY CLOSED BEYOND DETOUR POINT.



(E) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON 2-LANE HIGHWAY WHERE ONE LANE IS CLOSED AND FLAGGING IS PROVIDED.



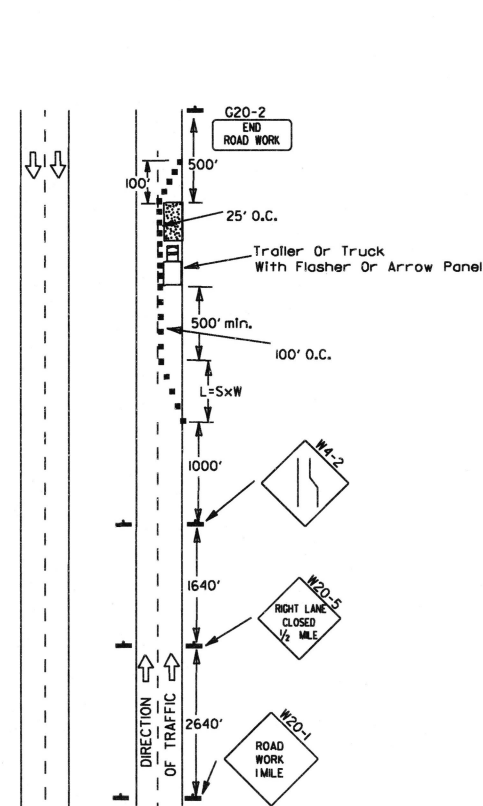
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.



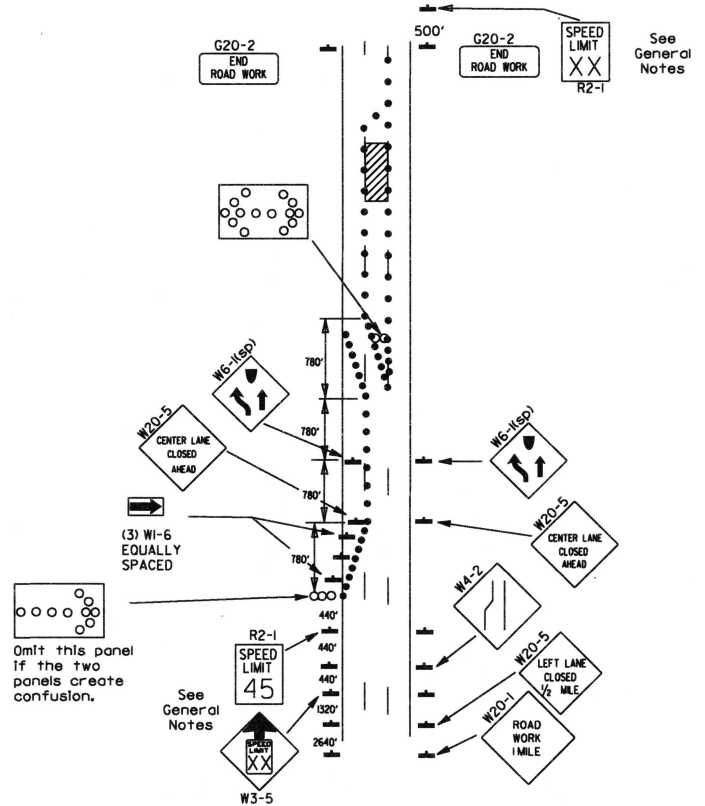
TAPER FORMULAE:
 $L = SXW$ FOR SPEEDS OF 45MPH OR MORE.
 $L = \frac{WS^2}{60}$ FOR SPEEDS OF 40MPH OR LESS.
 WHERE:
 L = MINIMUM LENGTH OF TAPER.
 S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.
 W = WIDTH OF OFFSET.

- GENERAL NOTES:
 1. ADVISORY SPEED POSTED ON WI-3 OR WI-4 CURVE WARNING SIGNS TO BE DETERMINED AT SITE. USE WI-4 WHEN SPEED IS GREATER THAN 30MPH AND WI-3 WHEN 30MPH OR LESS.
 2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-(K55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-145MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1/2 MILE INTERVALS. AT THE END OF THE WORK AREA A R2-(KXX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
 3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-(K65) SHALL BE OMITTED. ADDITIONAL R2-155MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1/2 MILE INTERVALS. AT THE END OF THE WORK AREA A R2-(KXX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
 4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT, OR AS DIRECTED BY THE ENGINEER.
 5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
 6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
 7. TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE.
 8. DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER, REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE AHTD QUALIFIED PRODUCTS LIST.

9-2-85	REVISED NOTE 2, ADDED NOTE 8, REVISED DRAWING (A) & REPLACED R2-5A WITH W3-5	
9-12-13	REVISED DETAIL OF RAISED PAVEMENT MARKERS	
3-11-10	ADDED (AFAD)	
11-20-08	REVISED SIGN DESIGNATIONS	
1-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	
DATE	REVISION	FILMED



(A) Typical application - daytime maintenance operations of short duration on a 4-lane divided roadway where half of the roadway is closed.

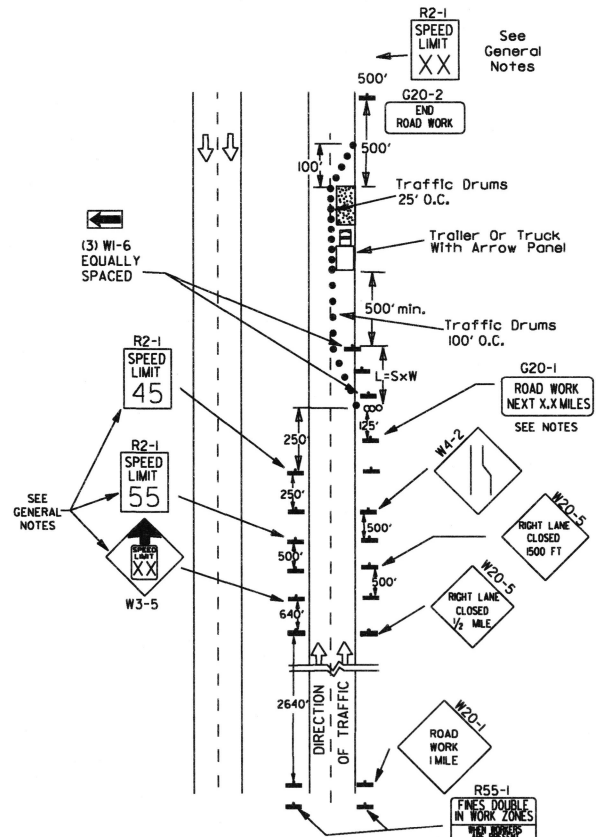


(B) Typical application - 3-lane oneway roadway where center lane is closed.

- KEY:
- Arrow Panel (if Required)
 - Channelizing Device
 - Traffic drum

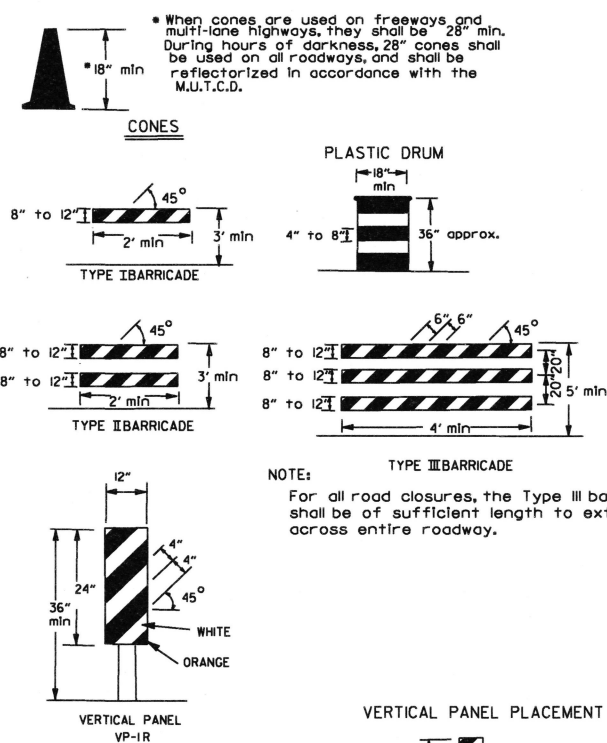
GENERAL NOTES:

1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the W3-5 shall be installed at that location. Additional R2-1(45) speed limit signs shall be installed at a maximum of 1 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
3. When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-1(65) shall be omitted. Additional R2-1(55) speed limit signs shall be installed at a maximum of 1 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
4. The maximum spacing between channelizing devices in a taper should be approximately equal in feet to the speed limit. Beyond the taper, maximum spacing shall be two times the speed limit or as directed by the Engineer.
5. Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.
6. Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
7. The G20-1 sign will be required on jobs of over two miles in length. When the lane closure is not at the beginning of the project, the G20-1 sign shall be erected 125' in advance of the job limit. Additional W20-1(1 MILE) signs are not required in advance of lane closures that begin inside the project limits.
8. Flaggers shall use STOP/SLOW paddles for controlling traffic through work zones. Flags may be used only for emergency situations.
9. All plastic drums and cones shall meet the requirements of NCHRP-350 or Manual for Assessing Safety Hardware (MASH).
10. Trailer mounted devices such as arrow panels and portable changeable message signs shall be delineated by affixing conspicuity material in a continuous line on the face of the trailer. When placed on or adjacent to the shoulder and not behind a positive barrier, these devices shall be delineated by placing five (5) traffic drums, equally spaced along the traffic side of the device.

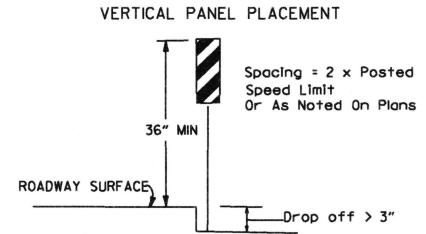


(C) Typical application - construction operations of intermediate to long term duration on a 4-lane divided roadway where half of the roadway is closed.

Channelizing devices



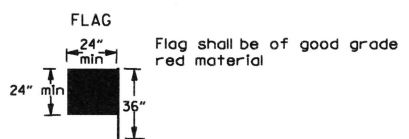
NOTE:
For all road closures, the Type III barricades shall be of sufficient length to extend across entire roadway.



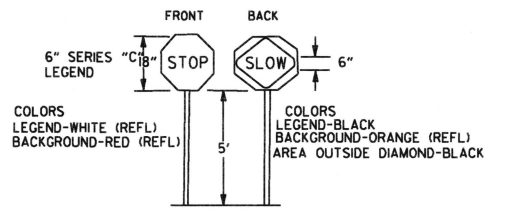
TRAFFIC CONTROL DEVICES FOR VERTICAL PAVEMENT DIFFERENTIALS

VERTICAL DIFFERENTIAL	LOCATIONS	TRAFFIC CONTROL
1" to 3"	Centerline, lane lines	W8-11
1" to 3"	Edge of shoulder	W8-9
Greater than 3"	Lane lines	Standard lane closure required
Greater than 3"	Edge of traveled lane	*RSP-1 and vertical panels, drums or concrete barrier
Greater than 3"	Edge of shoulder	*Vertical panels, drums or concrete barrier

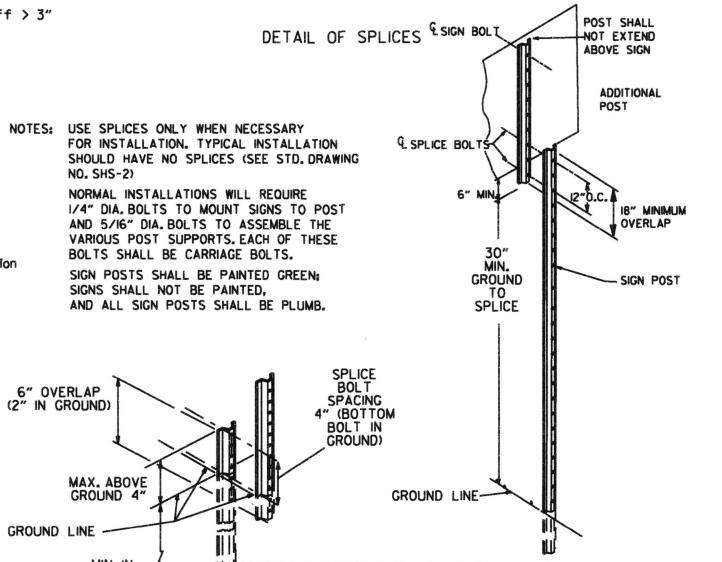
* When shown on the plans concrete barrier will be used.
When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.



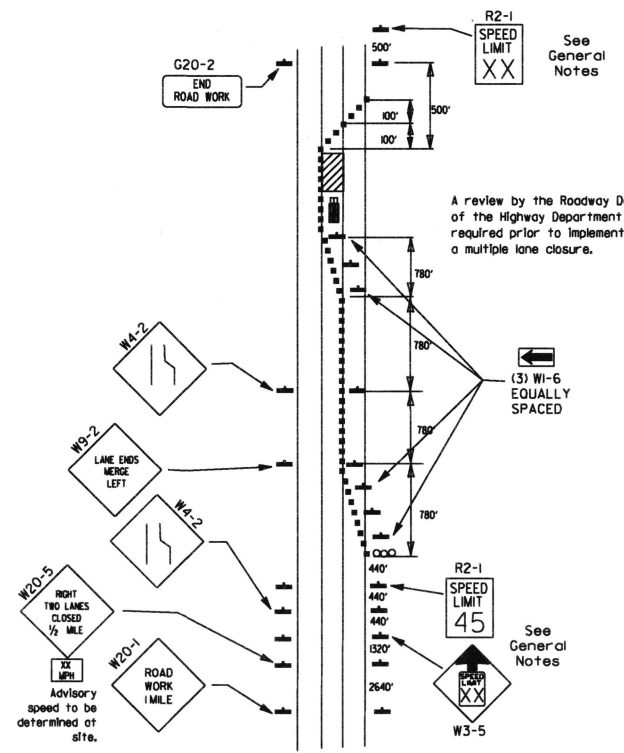
STOP SLOW PADDLE



DETAIL OF SPLICES



NOTES:
USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-2)
NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS. EACH OF THESE BOLTS SHALL BE CARRIAGE BOLTS.
SIGN POSTS SHALL BE PAINTED GREEN; SIGNS SHALL NOT BE PAINTED, AND ALL SIGN POSTS SHALL BE PLUMB.



(D) Typical application - closing multiple lanes of a multilane highway.

DATE	REVISION	FILMED
9-2-15	REVISED NOTE 2 & REPLACED R2-5A WITH W3-5	
10-15-09	ADDED REFERENCE TO MASH	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED NOTE	
10-1-98	ADDED NOTE	
4-03-97	ADDED (SP) TO W6-1& REVISED TRAFFIC CONTROL DEVICES NOTE	
10-18-96	ADDED R55-1	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL, TEXT	6-8-95
2-2-95	REVISED PER PART VII, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	