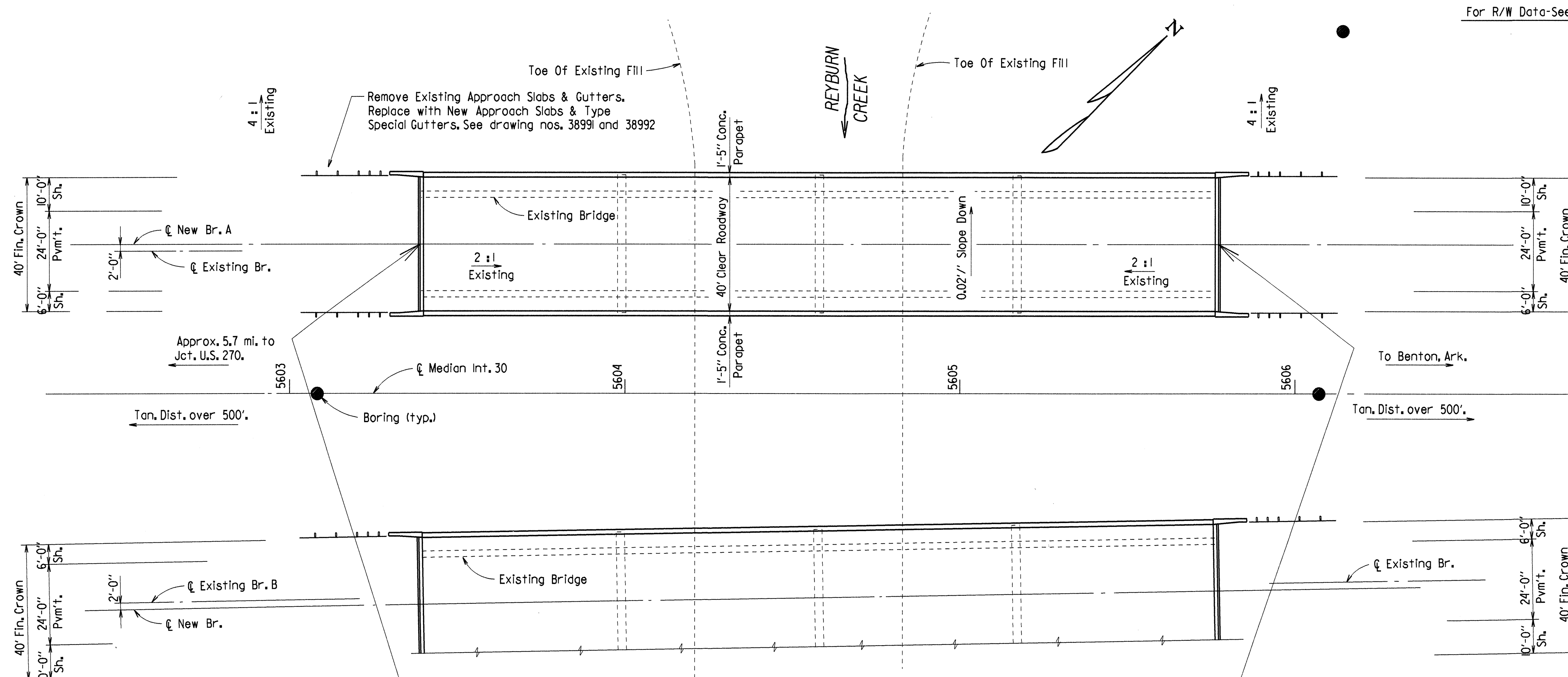


For R/W Data-See Rdwy. Plans

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.		060591	69	146
				A&B 3430	LAYOUT		38970	



PLAN - B.R. A

### "N" VALUES

Sta. 5603+08 -  $\bar{C}$  Med. I-30

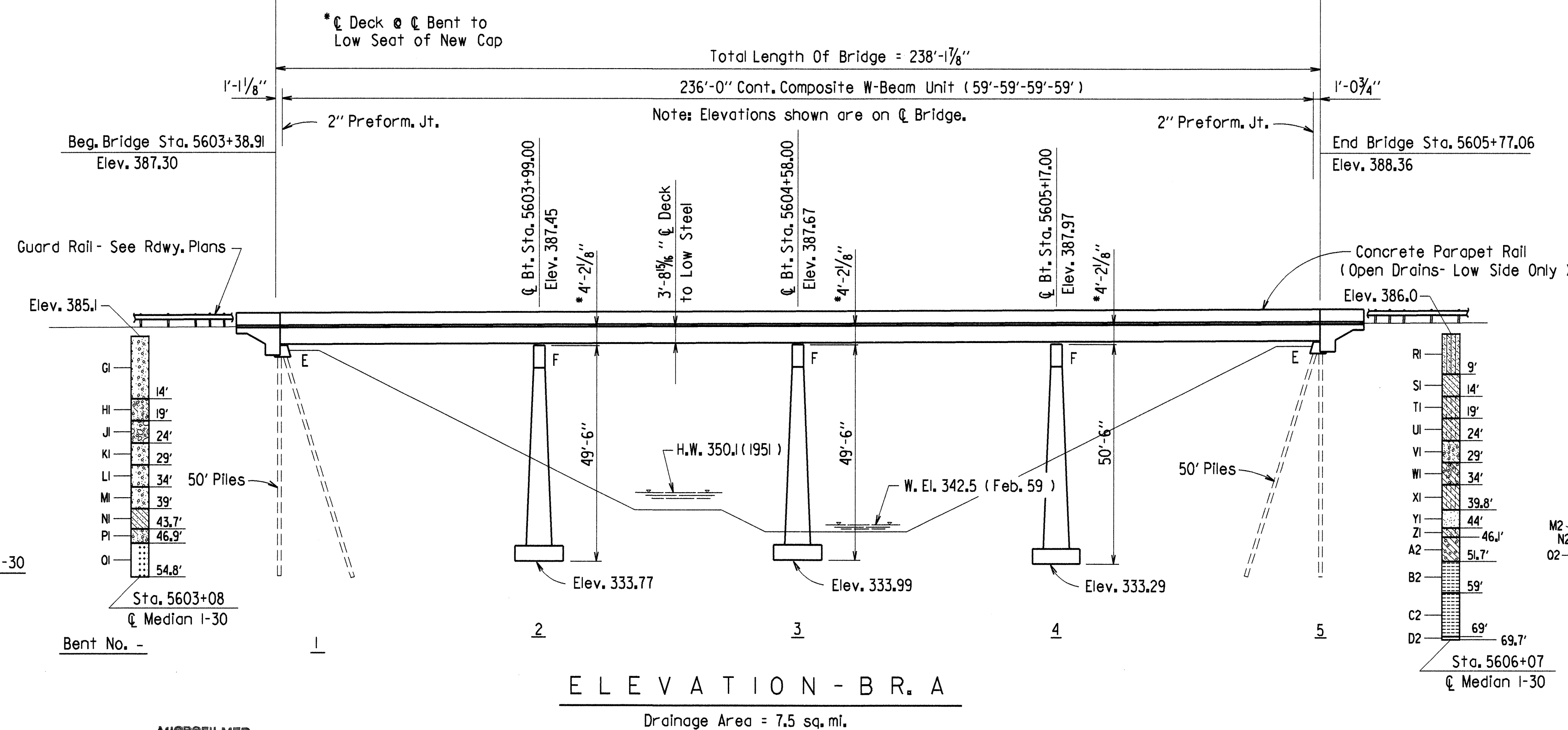
4.5-	5.5, N=5
9.5-	10.5, N=7
14.5-	15.5, N=5
19.5-	20.5, N=20
24.5-	25.5, N=31
29.5-	30.5, N=23
34.5-	35.5, N=20
39.5-	40.5, N=11
44.5-	45.5, N=12

Sta. 5606+07 -  $\bar{C}$  Med. I-30

4.5-	5.5, N=12
9.5-	10.5, N=15
14.5-	15.5, N=13
19.5-	20.5, N=8
24.5-	25.5, N=16
29.5-	30.5, N=16
34.5-	35.5, N=5
39.5-	40.5, N=7
44.5-	45.5, N=8
49.5-	50.5, N=47
54.5-	55.5, N=104 (0.8')
59.5-	59.6, N=60 (0.1')
64.5-	64.6, N=60 (0.1')
69.5-	69.7, N=60 (0.2')

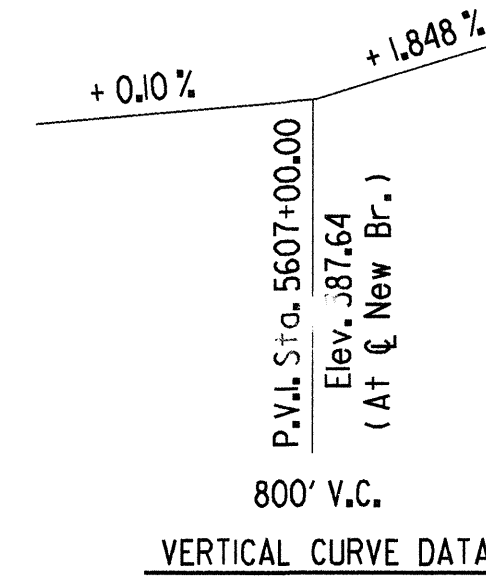
Sta. 5606+14 - 107' Lt.  $\bar{C}$  Med. I-30

3.2-	4.2, N=9
8.2-	9.2, N=10
13.2-	14.2, N=8
18.2-	19.2, N=6
23.2-	24.2, N=13
28.2-	29.2, N=13
33.2-	34.2, N=6
38.2-	39.2, N=6
43.2-	44.2, N=24
48.2-	48.3, N=60 (0.1')
53.2-	54.2, N=27
67.5-	68.5, N=11



ELEVATION - B.R. A

Drainage Area = 7.5 sq. mi.



VERTICAL CURVE DATA

### GENERAL NOTES

BENCH MARK: See Roadway Plans.

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, 1996 edition, with applicable supplemental specifications and special provisions.

DESIGN SPECIFICATIONS: AASHTO Standard Specifications for Highway Bridges, 1996 with current interim specifications.

LIVE LOADING: HS20 METHOD OF DESIGN: Load Factor  
SEISMIC PERFORMANCE CATEGORY: A

MATERIALS AND STRENGTHS:  
Class S(AE) Concrete (superstructure)  $f'_c = 4,000$  psi  
Class S Concrete (substructure)  $f'_c = 3,500$  psi  
Reinforcing Steel (AASHTO M31 or M53, Gr. 60)  $F_y = 60,000$  psi  
Structural Steel (AASHTO M270, Gr. 36)  $F_y = 36,000$  psi  
Structural Steel (AASHTO M270, Gr. 50W)  $F_y = 50,000$  psi

BORING LOGS: Boring logs may be obtained from the Programs and Contracts Division.

STEEL PILING: All piling shall be HP 12 x 53 and shall be driven with an approved air, steam or diesel hammer to a minimum safe bearing capacity of 55 tons per pile and into the material designated as novaculite or shale on the boring legend. Lengths shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with the specifications. Piles in end bents to be driven after embankment to bottom of cap is in place.

BRIDGE DECK: The concrete bridge deck shall be given a fine finish as specified for final finishing in subsection 802.9 for Class 5 Bridge Roadway Surface Finish.

CLASS I PROTECTIVE SURFACE TREATMENT: Boiled linseed oil treatment shall be applied to the roadway surface and to the face and top of the concrete parapet rail.

DETAIL DRAWINGS: DRAWING NO.  
Substructure 38973 - 38976  
236' Cont. Comp. W-Beam Unit 38977 - 38981

NEW FOOTINGS: New footings shall be set a minimum of 1'-6" into material designated as novaculite or shale on the boring legend. The top of the intermediate bent footings shall be set at or below the channel bottom. Foundations for footings shall be prepared in accordance with section 801.04 of the Standard Specifications. Rock excavations shall be made to neat lines of the concrete footings. Care shall be exercised to avoid shattering of rock faces by excessive blasting. Concrete in footings shall be poured directly against excavated surfaces of rock.

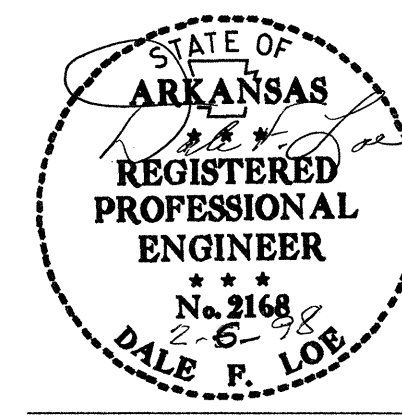
THE PROPOSED WORK CONSISTS OF: Raising and widening the Existing Bridges; removing and replacing the existing bridge decks, railings, existing diaphragms and struts and expansion devices; removing and replacing all existing beams; removing and replacing existing shoes with bearings as shown on plans and repairing existing bents and constructing new bent additions as shown on plans.

VERIFICATION: Components of Existing Bridges are to be retained and joined to the proposed work. The Contractor is to strictly adhere to the requirements for verification of the geometry of the Existing Bridges and its relationship to the proposed work described in Article 821.02 of the Standard Specifications.

REMOVAL AND SALVAGE: All material removed from the Existing Bridges under Item 821 shall be disposed of according to Section 205 of the Standard Specifications, except the Aluminum Bridge Rails and Posts shall remain property of the State. The Bridge Rail and Post shall be delivered by the Contractor to the Hot Springs County Maintenance Headquarters in Malvern.

( SHEET 1 OF 2 )

LAYOUT OF BRIDGE OVER  
REYBURN CREEK  
OUACHITA RIVER-NINE MILE CREEK ( F )  
HOT SPRING COUNTY  
ROUTE 30 SEC. 21  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.



DRAWN BY: W.M.A.L. DATE: 12-2-97  
CHECKED BY: G.V.A. DATE: 2-6-98 SCALE: 1" = 20'  
DESIGNED BY: J.R.W. DATE: Nov-97  
BRIDGE NO. A&B 3430 DRAWING NO. 38970

1, 550, 3001, 060591, RWME548, B060591X1, L01

For R/W Data-See Rdwy. Plans

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.		060591	70	146
				A&B 3430	LAYOUT			38971

### BORING LEGEND

Al-Moist, Medium Dense, Brown and Gray Sand and Novaculite Gravel and Cobbles  
Bl-Moist, Loose, Gray and Brown Sand and Novaculite Gravel and Cobbles  
Cl-Wet, Medium Dense, Gray and Brown Sand and Novaculite Gravel and Cobbles  
Dl-Moist, Very Stiff, Gray and Brown Sandy Clay with some Gravel  
El-Moist, Medium Dense, Brown and Gray Sand with Clay Seams, Gravel and Cobbles  
Fl-Hard, Gray Novaculite with some Clay and Fractured Seams  
Gl-Moist, Loose, Gray and Brown to Gray Sand and Novaculite Gravel  
Hl-Moist, Loose, Brown and Gray Sand with Clay Seams and Gravel  
Jl-Moist, Medium Dense, Gray and Brown Sand and Novaculite Gravel and Cobbles  
Kl-Moist, Dense, Brown and Gray Sand and Novaculite Gravel  
Ll-Moist, Medium Dense, Brown and Gray Sand and Gravel  
Ml-Moist, Medium Dense, Brown and Gray Sand and Gravel with some Clay Seams  
Nl-Moist, Stiff, Gray and Brown Sandy Clay with some Gravel and Organic Matter  
Pl-Wet, Medium Dense, Brown Sand with Clay Seams and Gravel  
Ql-Hard, Gray Novaculite  
Rl-Moist, Medium Dense, Gray and Brown Sandy Silt with Clay Seams  
Sl-Moist, Stiff, Reddish Brown and Gray Sandy Clay with some Gravel  
Tl-Moist, Stiff, Reddish Brown and Gray Sandy, Silty Clay  
Ul-Moist, Medium Stiff, Gray and Brown Sandy, Silty Clay  
Vl-Moist, Medium Dense, Brown and Gray Sand with Clay Seams and Gravel  
Wl-Wet, Very Stiff, Brown and Gray Silty Clay with Gravel  
Xl-Wet, Medium Stiff, Reddish Brown and Gray Silty Clay with some Gravel  
Yl-Wet, Loose, Brown and Gray Sand with some Organic Matter  
Zl-Wet, Medium Stiff, Brown and Gray Sandy, Silty Clay with some Gravel  
A2-Wet, Dense, Gray Gravel with Dark Gray Clay Seams  
B2-Medium Hard, Gray Weathered Shale  
C2-Hard, Gray Weathered Shale  
D2-Medium Hard, Dark Gray Highly Weathered Shale  
E2-Moist, Medium Stiff, Brown Sandy Clay with Gravel  
F2-Moist, Loose, Brown and Gray Sandy Silt with Clay Seams and some Gravel  
G2-Moist, Loose, Brown and Gray Sandy Silt with some Gravel  
H2-Moist, Medium Stiff, Gray Sandy Clay  
J2-Moist, Medium Stiff to Stiff, Brown and Gray Clay with Sand Seams  
K2-Moist, Medium Stiff, Reddish Brown and Gray Silty Clay with some Gravel  
L2-Wet, Medium Stiff, Gray Sandy, Silty Clay with some Organic Matter  
M2-Wet, Medium Dense, Brown and Gray Sand and Gravel  
N2-Wet, Medium Stiff, Brown and Gray Silty Clay  
P2-Wet, Medium Dense, Brown and Gray Sand with Clay Seams and Gravel  
Q2-Hard, Gray Novaculite with some Clay Seams  
R2-Moist, Hard, Gray Sandy Clay with Novaculite Gravel  
S2-Wet, Medium Dense, Gray Sand and Novaculite Fragments  
T2-Medium Dense, Gray Novaculite Fragments

### "N" VALUES

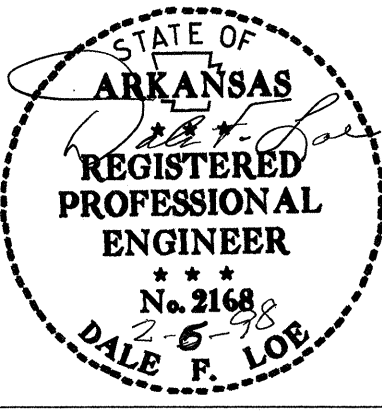
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9.0- 10.0, N=7	9.5- 10.5, N=15
14.0- 15.0, N=17	14.5- 15.5, N=13
19.0- 20.0, N=11	19.5- 20.5, N=8
24.0- 25.0, N=25	24.5- 25.5, N=16
29.0- 29.7, N=69(0.7')	29.5- 30.5, N=16
	34.5- 35.5, N=5
	39.5- 40.5, N=7
	44.5- 45.5, N=8
	49.5- 50.5, N=47
	54.5- 55.3, N=104(0.8')
	59.5- 59.6, N=60(0.1')
	64.5- 64.6, N=60(0.1')
	69.5- 69.7, N=60(0.2')

Sta. 5603+08 - @ Med. I-30
4.5- 5.5, N=5
9.5- 10.5, N=7
14.5- 15.5, N=5
19.5- 20.5, N=20
24.5- 25.5, N=31
29.5- 30.5, N=23
34.5- 35.5, N=20
39.5- 40.5, N=11
44.5- 45.5, N=12

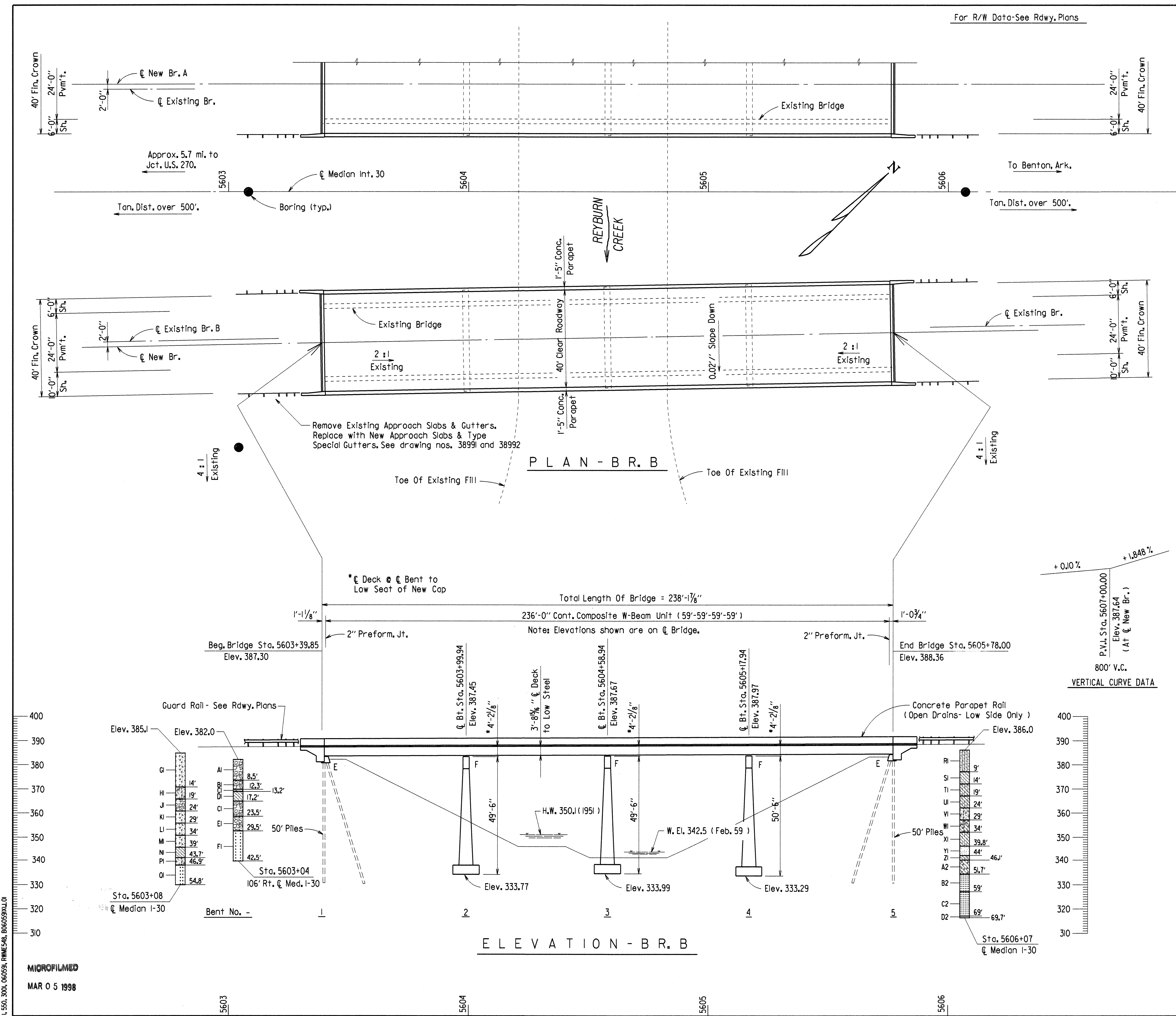
(SHEET 2 OF 2)

LAYOUT OF BRIDGE OVER  
REYBURN CREEK  
OUACHITA RIVER-NINE MILE CREEK (F)  
HOT SPRING COUNTY  
ROUTE 30 SEC. 21  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

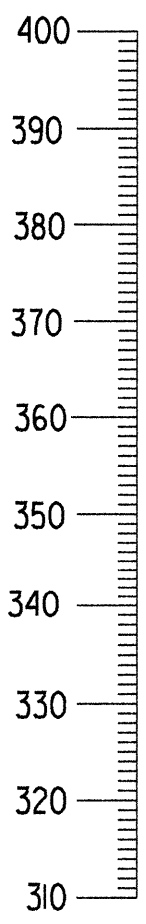
DRAWN BY: W.M.A. DATE: 12-2-97  
CHECKED BY: G.V.A. DATE: 2-6-98  
DESIGNED BY: A.P.W. DATE: 10-2-97  
BRIDGE NO. A&B 3430 DRAWING NO. 38971



### ELEVATION - B.R. B



VERTICAL CURVE DATA  
+0.10%  
+1.848%  
P.V.L. Sta. 5607+00.00  
Elev. 387.64  
(At @ New Br.)  
800' V.C.



40' Fin. Crown  
24'-0" Pvm't.  
6'-0" Sh.

40' Fin. Crown  
24'-0" Pvm't.  
6'-0" Sh.

40' Fin. Crown  
24'-0" Pvm't.  
6'-0" Sh.

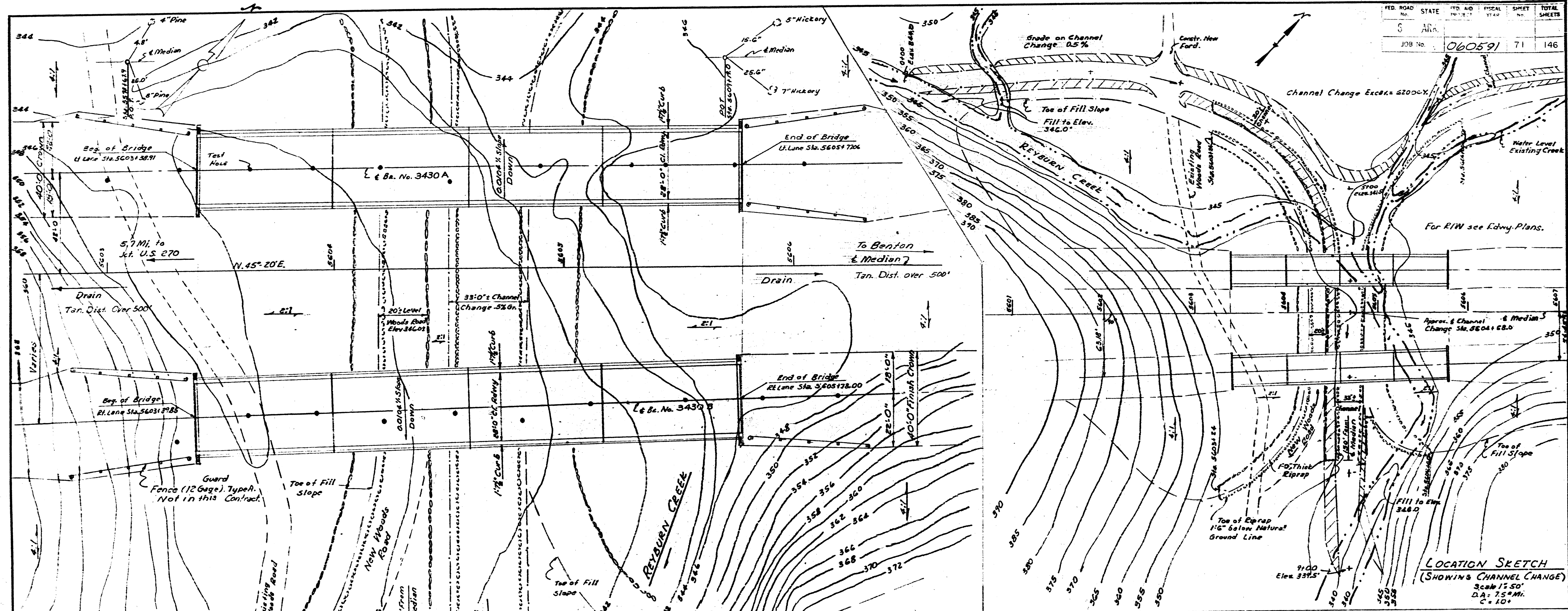
40' Fin. Crown  
24'-0" Pvm't.  
6'-0" Sh.

1:50, 300, 060591, RWME548, B060591X1L01

MICROFILMED  
MAR 05 1998

1:50, 300, 060591, RWME548, B060591X1L01





**LOCATION SKETCH**  
(SHOWING CHANNEL CHANGE)  
Scale 1/8" = 100'  
Dist. 1/4" = 100'

SPECIFICATIONS: Arkansas State Highway Commission Standard Specifications for Highway Construction, Adopted December 9, 1959.

**GENERAL NOTES:**

B.M. Nail in 10" Pine 55' Lt. Sta. 5571+55.0 Elev. 407.43.  
All piling shall be 12BP53 Steel Bearing piles, driven to refusal or to a minimum depth of two ft. into material designated as shale or rock on the boring logs with minimum bearing capacity of 36 tons/pile. Lengths of piling shown are for estimating quantities only. Actual lengths to be determined in the field. Order lengths shown cut off or build-up, where necessary, to be paid for in accordance with section 804 of the specifications. All piling shall be driven with a steam hammer. The embankment is in place.  
For details of substructure see drawing 11235-A 5-17-64.  
For details of superstructure see drawing 5462-A 5-17-64.  
LOADING: H-20-S16 A.A.S.H.O. 1957; 2-24,000 lbs. as a 4-10 str.  
STRESSES: Class A Concrete (f<sub>c</sub>) = 8,400 psi  
Class S Concrete (f<sub>c</sub>) = 1,200 psi  
Reinforcing Steel 20,000 psi  
Structural Steel 18,000 psi  
Foundation Pressure 4,800 lb./sq. ft.

**SOIL LEGEND**

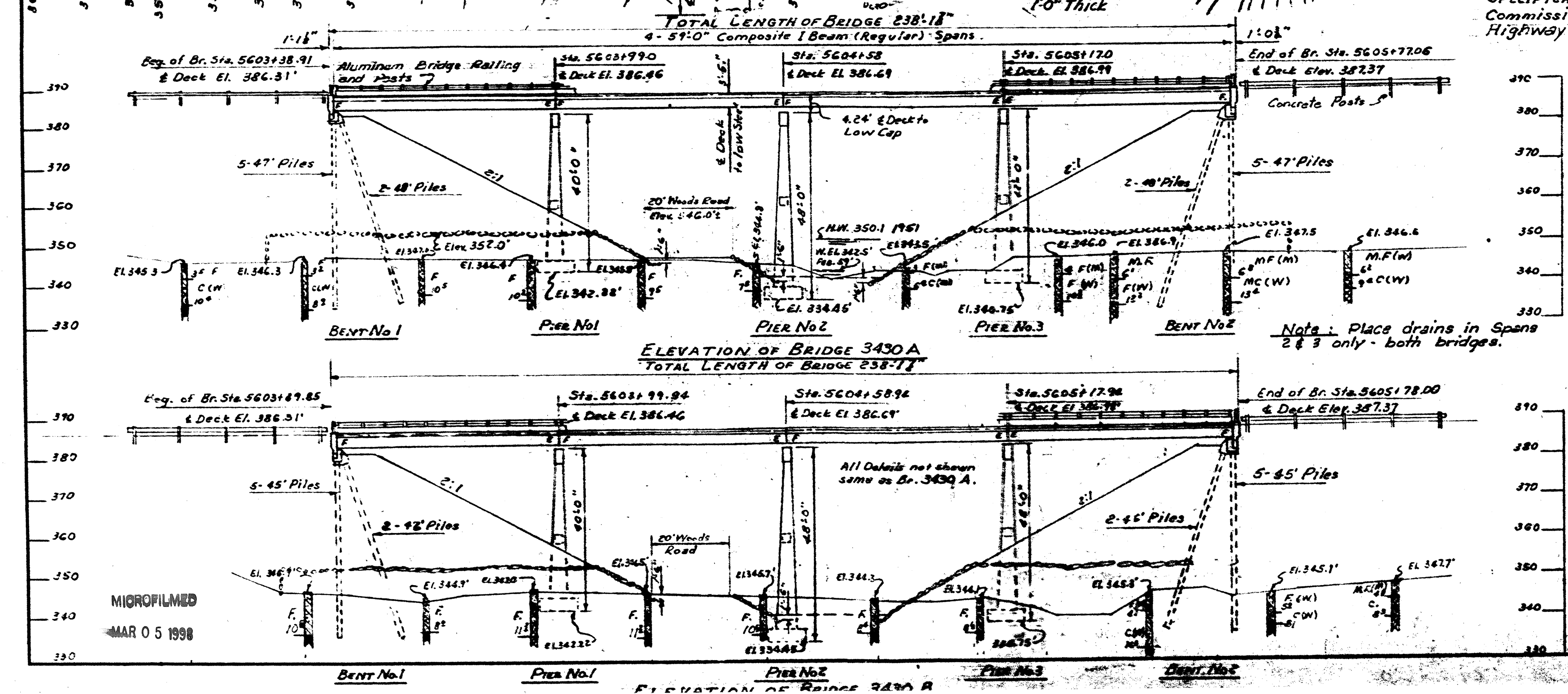
- |            |                         |
|------------|-------------------------|
| M. Medium  | Sandy Clay              |
| F. Firm    | Sandy Clay              |
| C. Compact | Gravelly Small Boulders |
| H. Hard    | Clay Gravel             |
| (W) Wet    | Small Boulders          |
| (M) Moist  | Shale                   |
|            | Rock                    |

**LAYOUT OF  
BRIDGE OVER REYBURN CREEK  
OUACHITA RIVER - NINE MILE CREEK  
HOT SPRING COUNTY**

FOR INFORMATION ONLY

INT. ROUTE 30 SEC. 2  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.  
DRAWN BY: F23 DATE: 7-3-57  
TRACED BY: DATE: 8-12-59  
CHECKED BY: BUP DATE: 8-12-59  
BRIDGE NO. 3430 A&B DRAWING NO. 38972

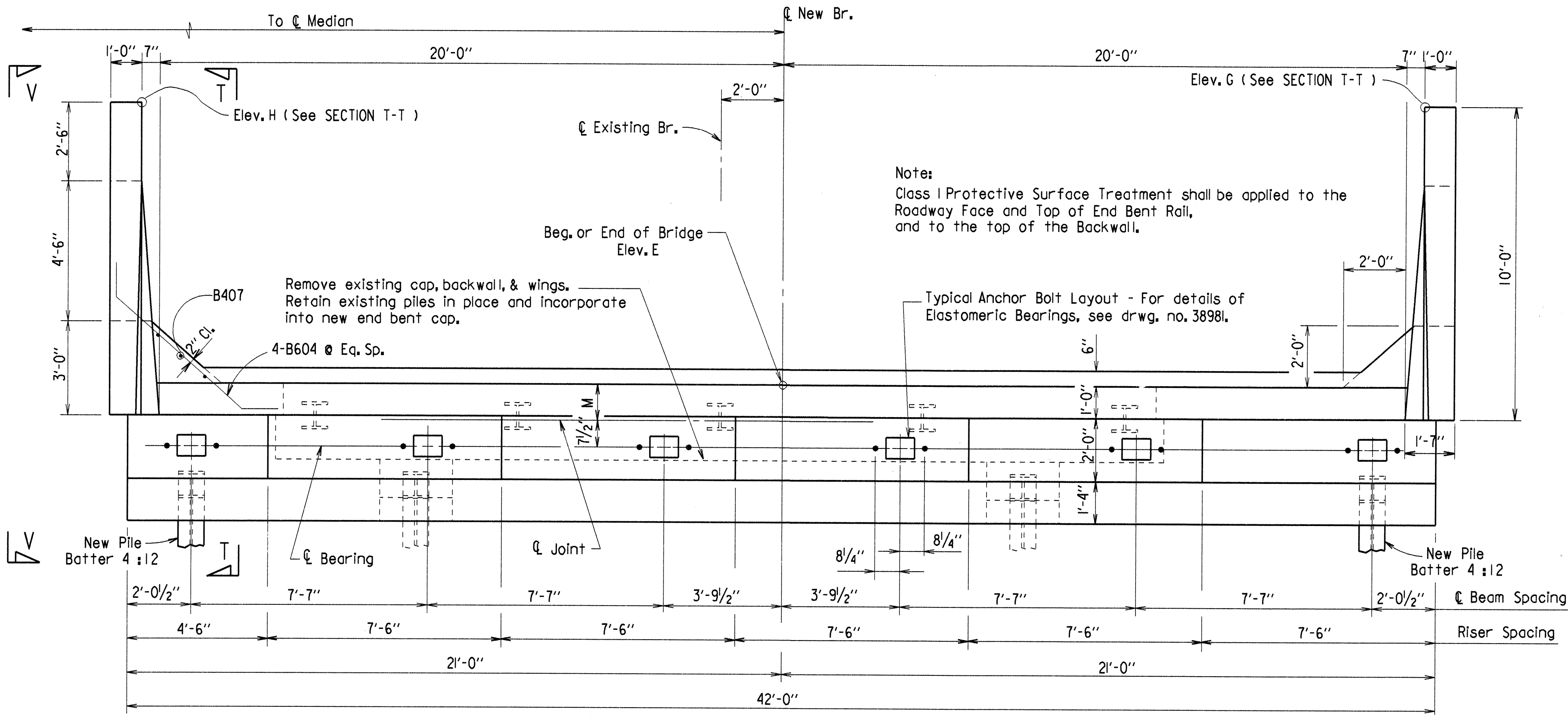
L.P. Carlson  
BRIDGE DESIGN ENGINEER



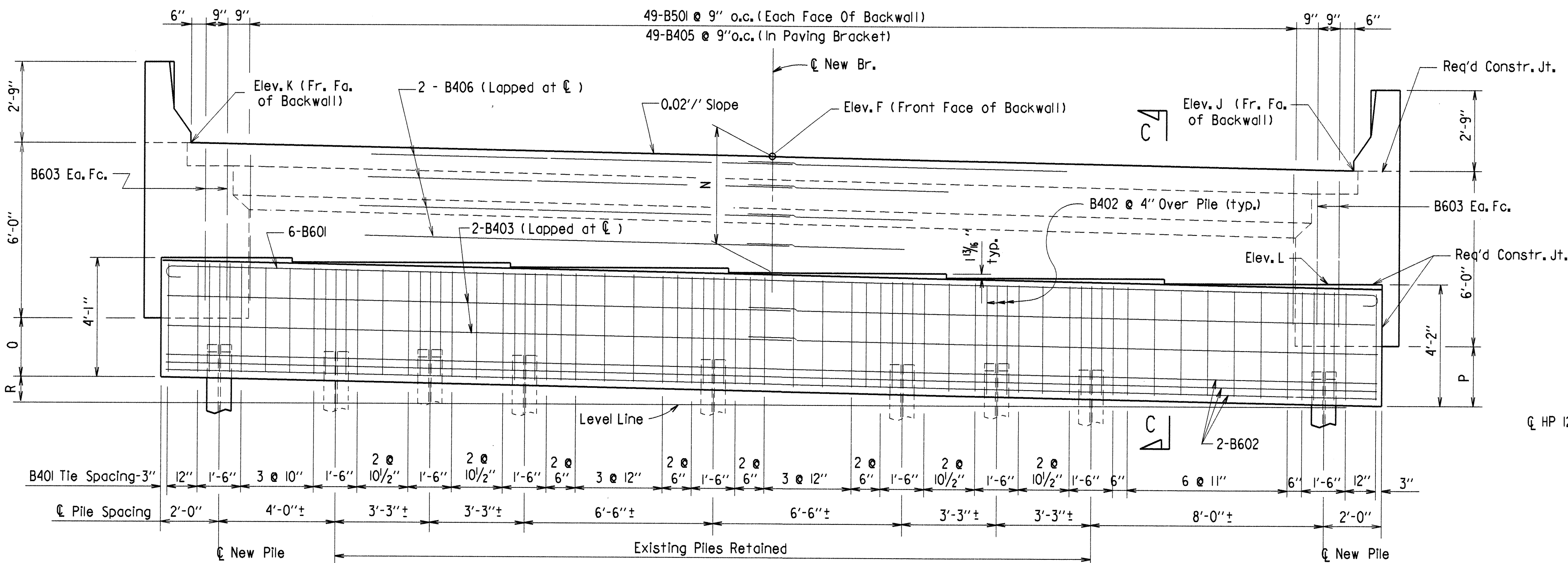
MICROFILMED  
MAR 05 1998



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.		060591	72	146
				1 A&B 3430		BENTS		38973



PLAN  
(Bent 1 - Bridge A)  
(Bent 5 - Bridge B)



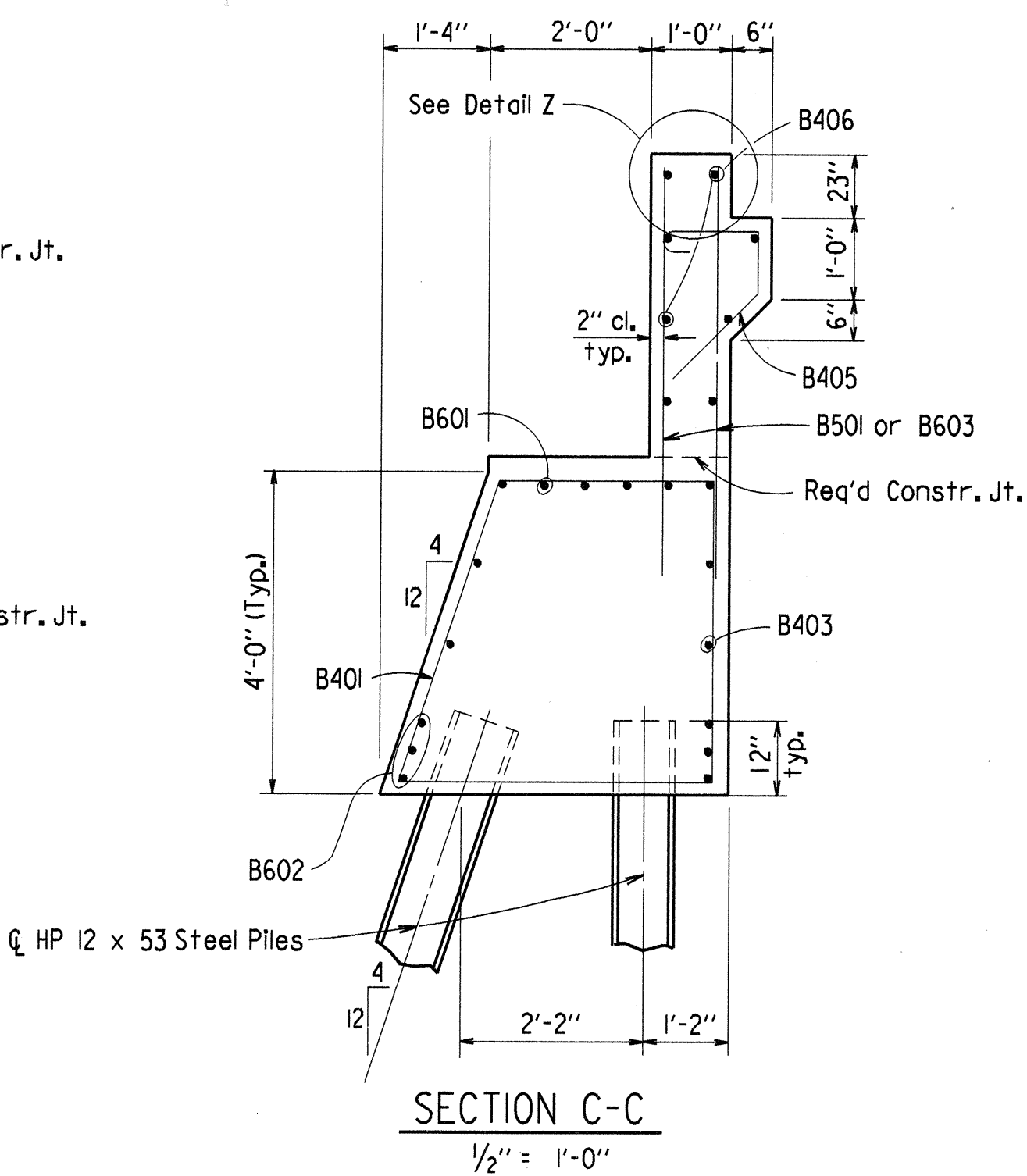
ELEVATION

TABLE OF VARIABLES

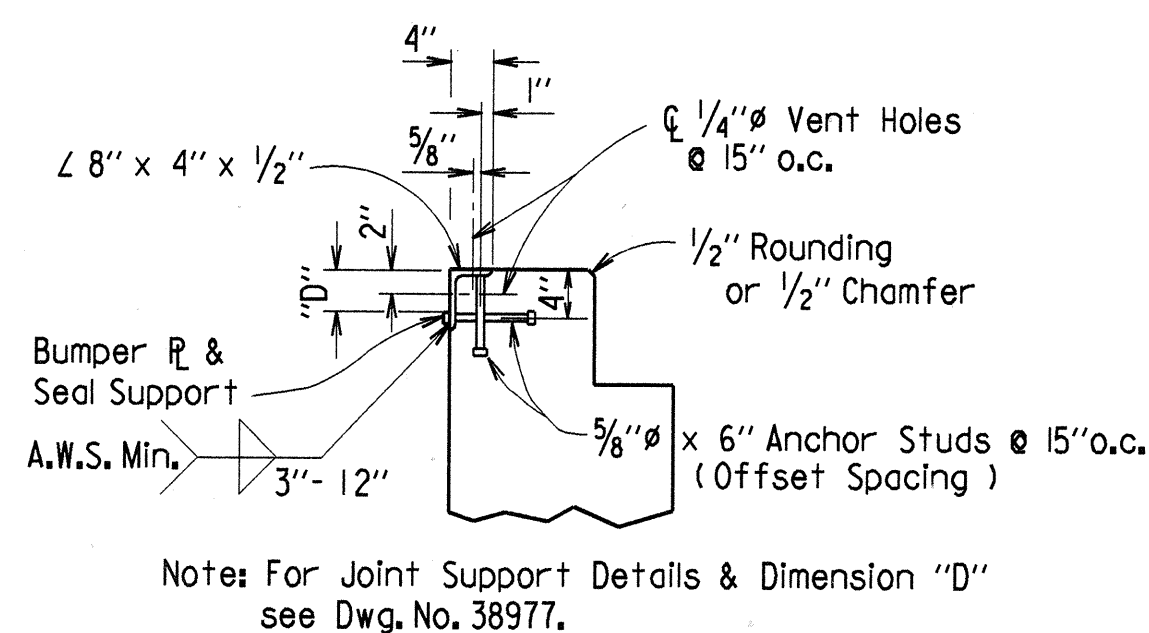
Bent No.	Elev. E	Elev. F	Elev. G	Elev. H	Elev. J	Elev. K	Elev. L	M	N	P	Q	R
1	387.30	387.30	386.88	387.68	386.90	387.70	383.01	1'-11/8"	3'-11/8"	2'-0 1/16"	2'-0 3/16"	10 1/16"
5	388.36	388.35	388.02	388.82	387.95	388.75	384.06	1'-0 3/4"	3'-11 1/8"	2'-0 1/16"	2'-0 3/16"	10 1/16"

BAR LIST - ONE END BENT

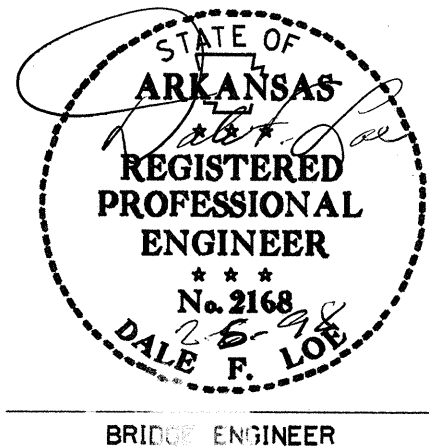
Mark	No. Req'd.	Length	A	B	Pin Dia.	Bending Diagrams (Dimensions are out to out of bars.)
B401	45	14'-6"	2'-8"	3'-11"	2"	
B402	27	10'-0"	2'-8"	3'-11"	2"	
B403	8	2'-8"			Str.	
B406	49	3'-11"	1'-2"	4 1/2"	2"	
B407	16	22'-3"			Str.	
B501	6	4'-6"			Str.	
B601	98	5'-11"			Str.	
B602	6	43'-0"	4'-8"	6"	4 1/2"	
B603	8	4'-8"			Str.	
B604	8	6'-4"			Str.	
R401	8	7'-3"	5'-3"	1'-0"	4 1/2"	
R402	8	3'-11"	6"	2'-6 1/2"	2"	
R403	12	4'-0"	7"	2'-6 1/2"	2"	
R601	16	9'-8"			Str.	
R602	6	4'-5"			Str.	
W401	6	5'-0"			Str.	
W402	6	7'-3"	6'-1"	1'-2"	2"	
W403	6	8'-5"			Str.	
W404	2 Ea.	Var. 3'-5" to 5'-5"	Var. 2'-3" to 4'-3"	1'-2"	2"	
W407	2 Ea.	Var. 4'-6" to 6'-6"			Str.	
W408	2 Ea.	Var. 4'-6" to 6'-6"			Str.	
W412	2 Ea.	Var. 4'-6" to 6'-6"			Str.	
W413	4	7'-11"	1'-1"	4'-3"	2"	
W701	12	4'-0"			Str.	
W702	4	9'-8"			Str.	
W703	4	6'-0"			Str.	
W704	4	4'-6"			Str.	
W705	4	8'-4"	5'-6"	2'-10"	5 1/4"	



SECTION C-C  
1/2" = 1'-0"



DETAIL Z  
3/4" = 1'-0"



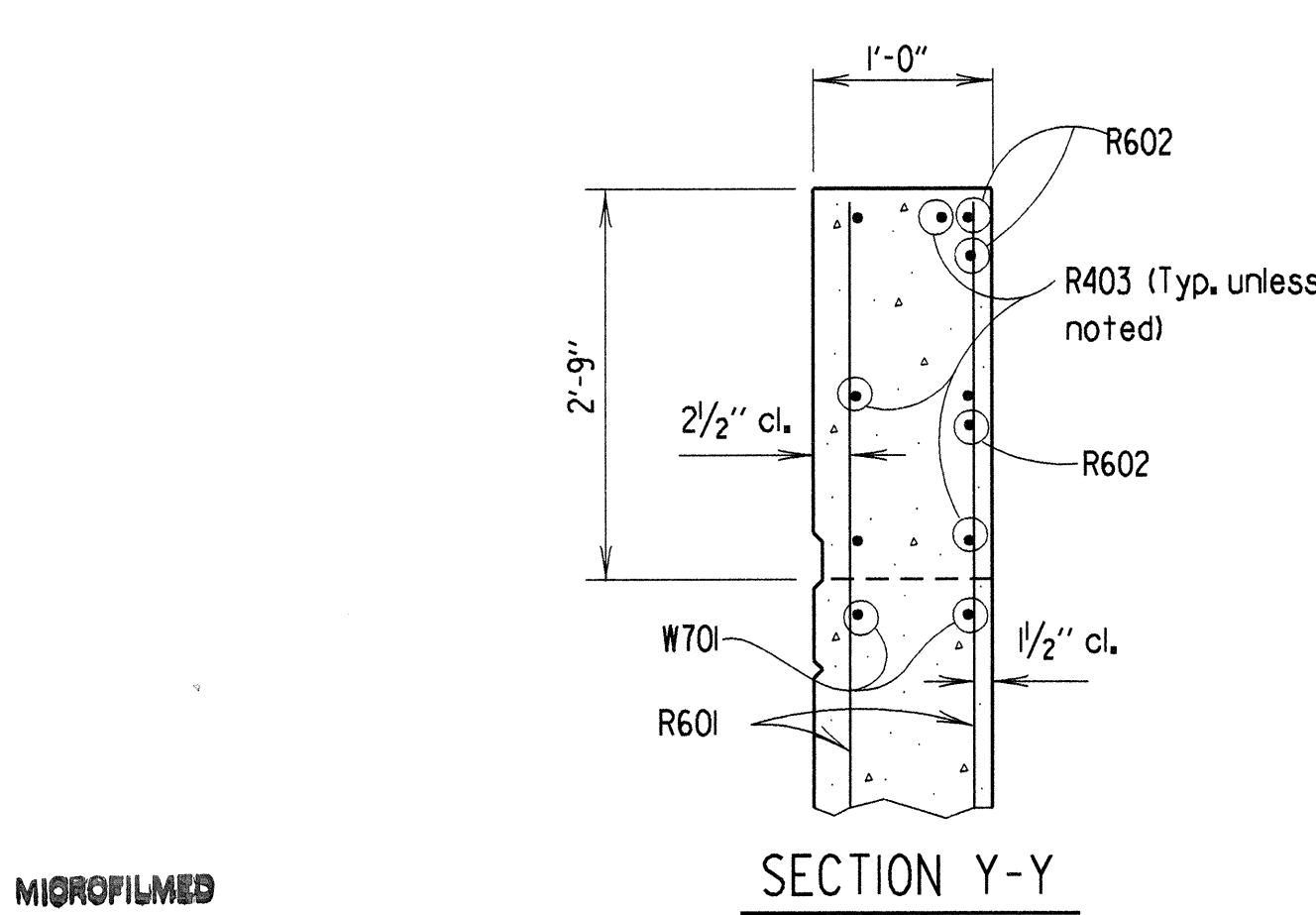
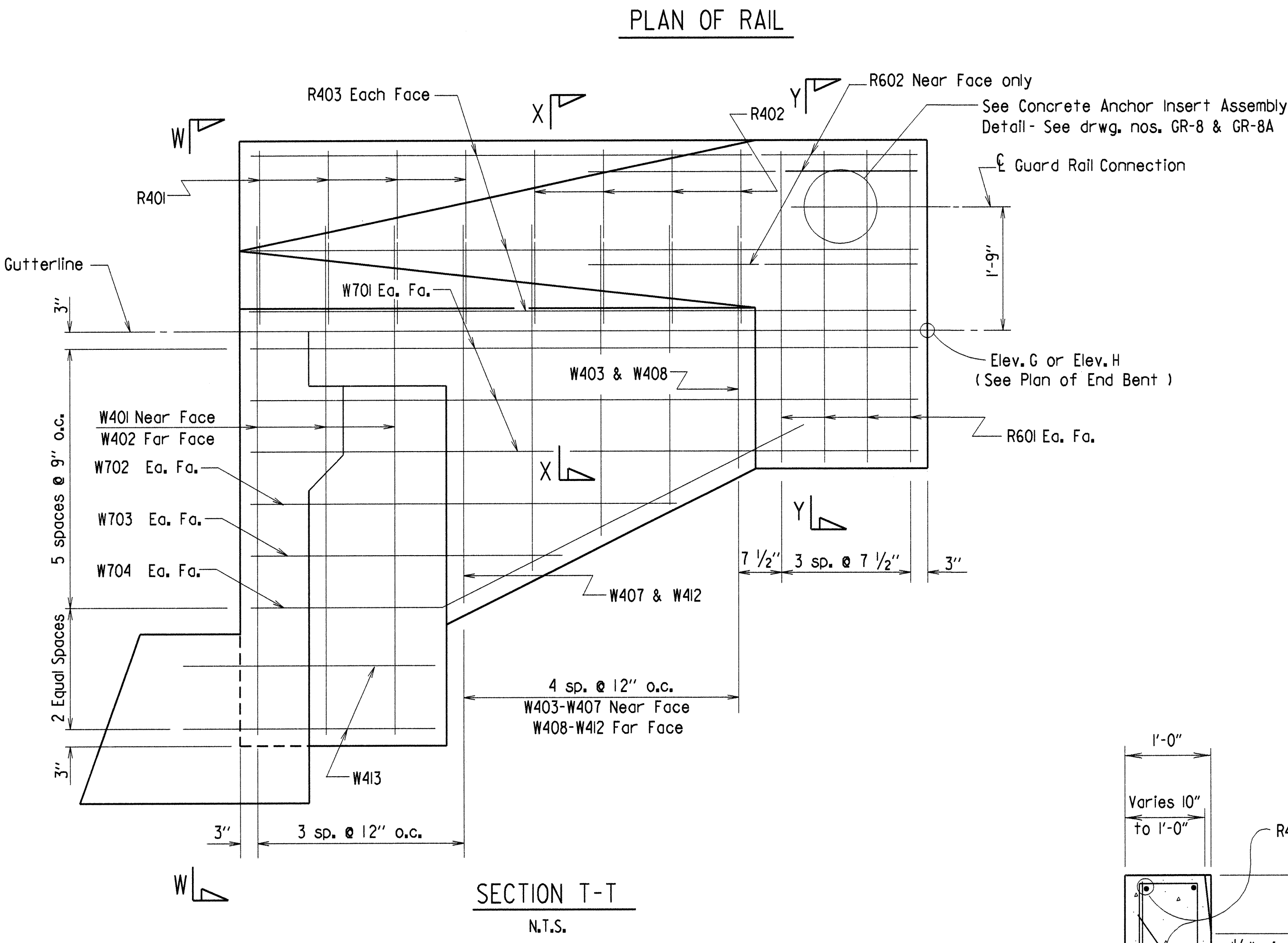
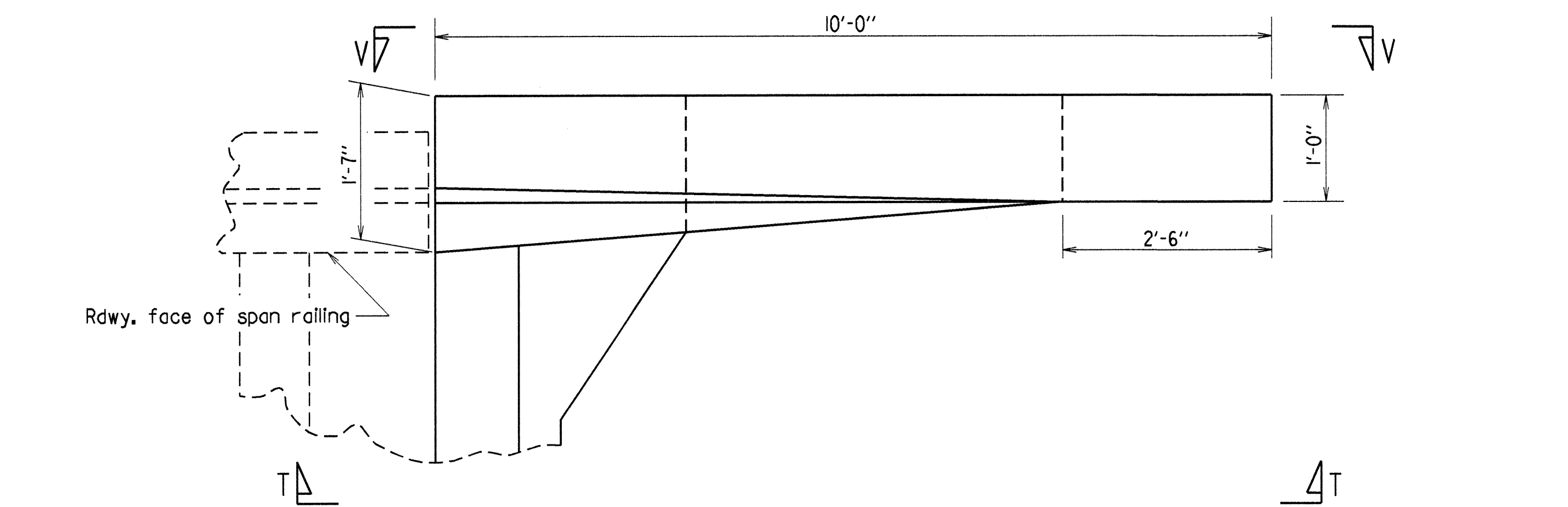
SHEET 1 OF 3  
DETAILS OF END BENTS  
REYBURN CREEK  
ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

DRAWN BY: W.M.J. DATE: 1-6-98  
CHECKED BY: E.V.A. DATE: 2-6-98  
DESIGNED BY: F.R.W. DATE: 2-6-98  
BRIDGE NO. A&B 34 DRAWING NO. 38973

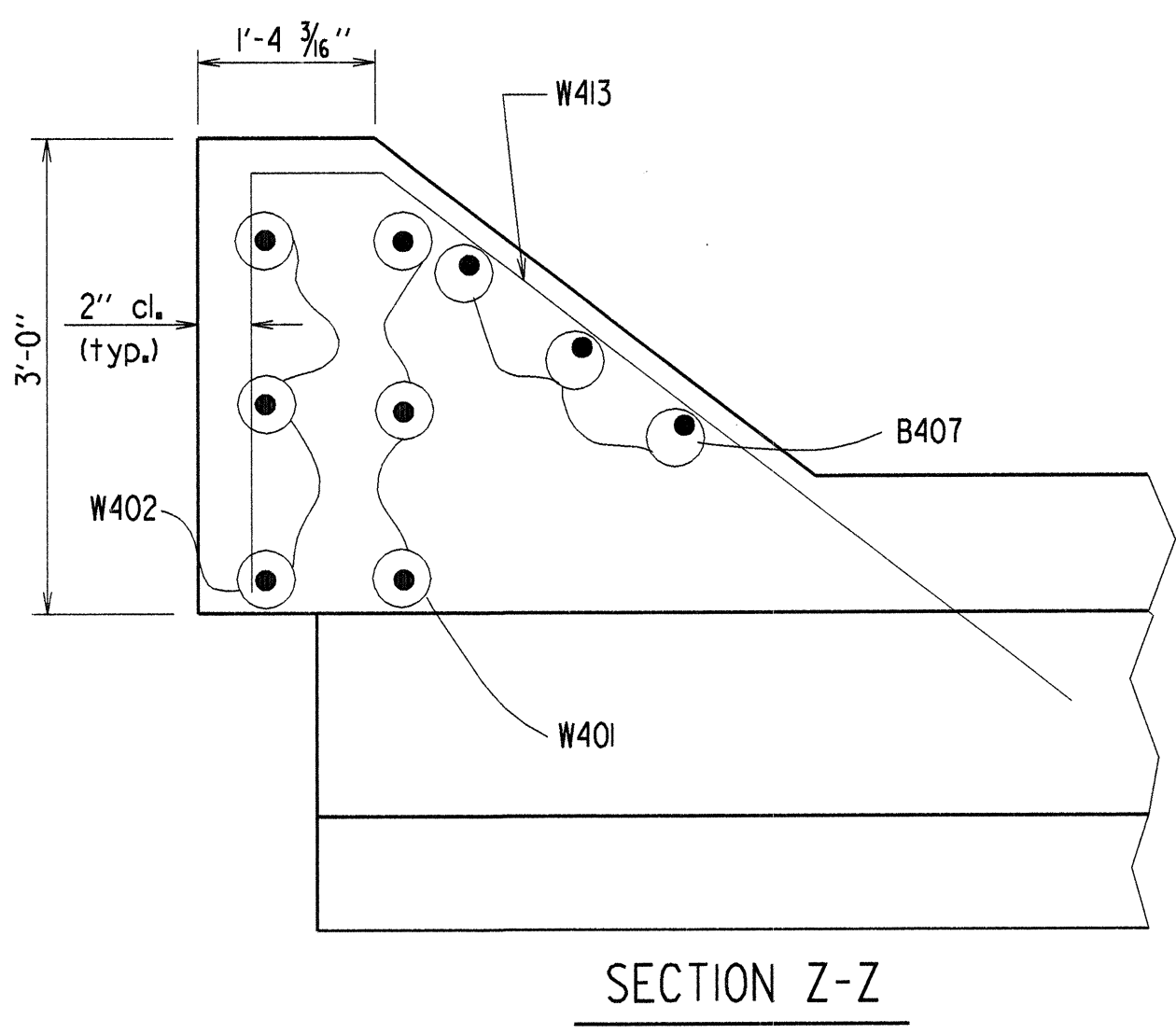
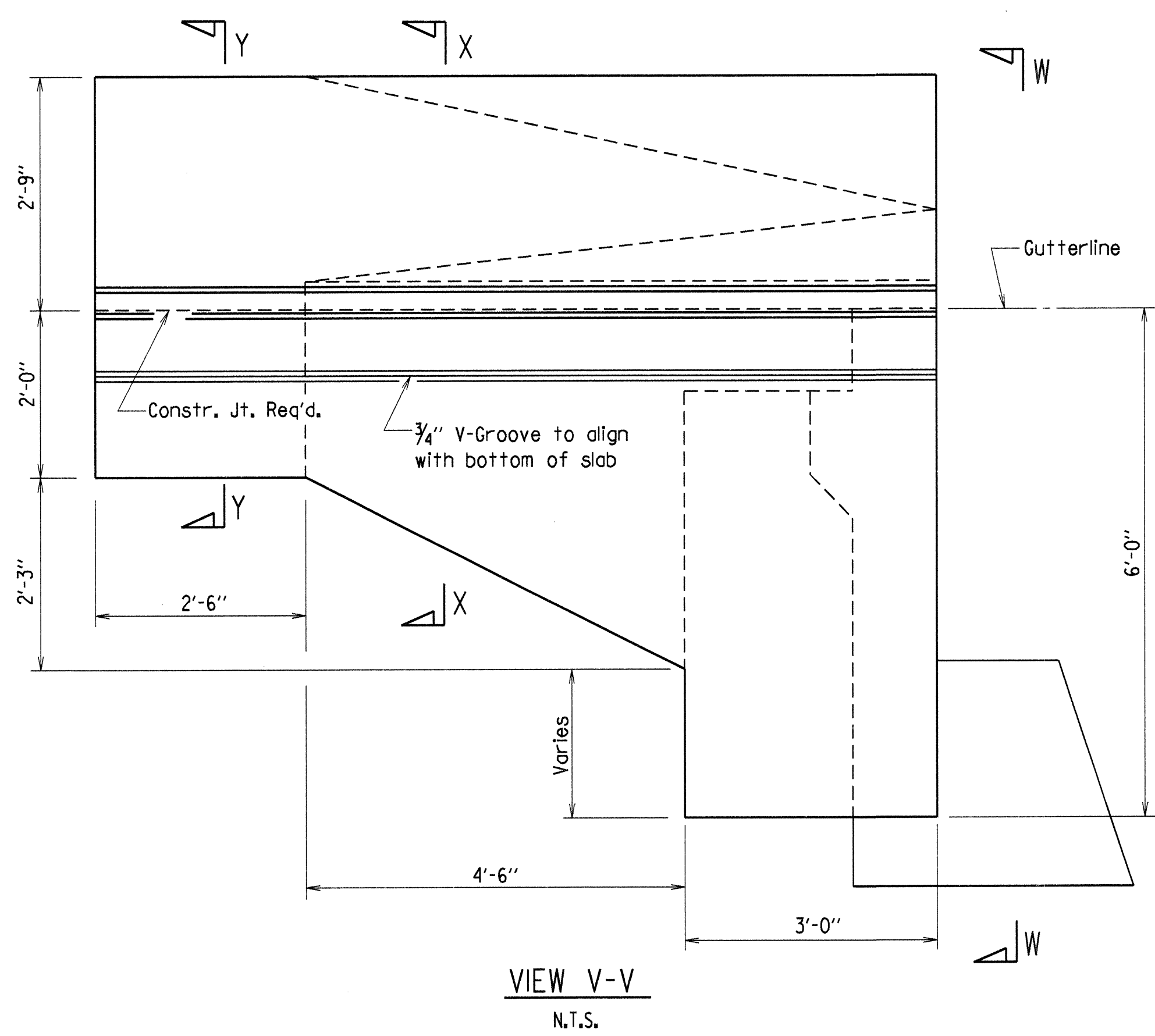




DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		060591	74	146
				A&B 3430		BENTS		38975



MICROFILMED  
MAR 0 5 1998



**GENERAL NOTES**

All concrete shall be Class "S" and shall be poured in the dry. All exposed corners to be chamfered 3/4" unless otherwise noted.

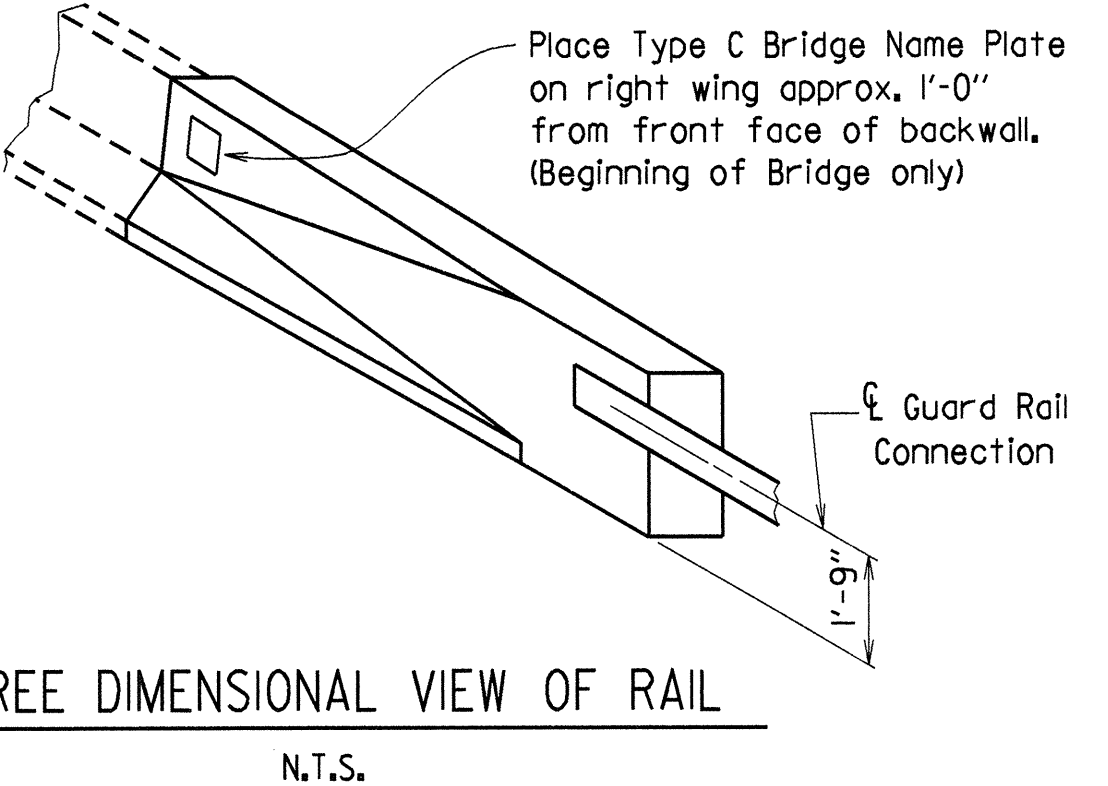
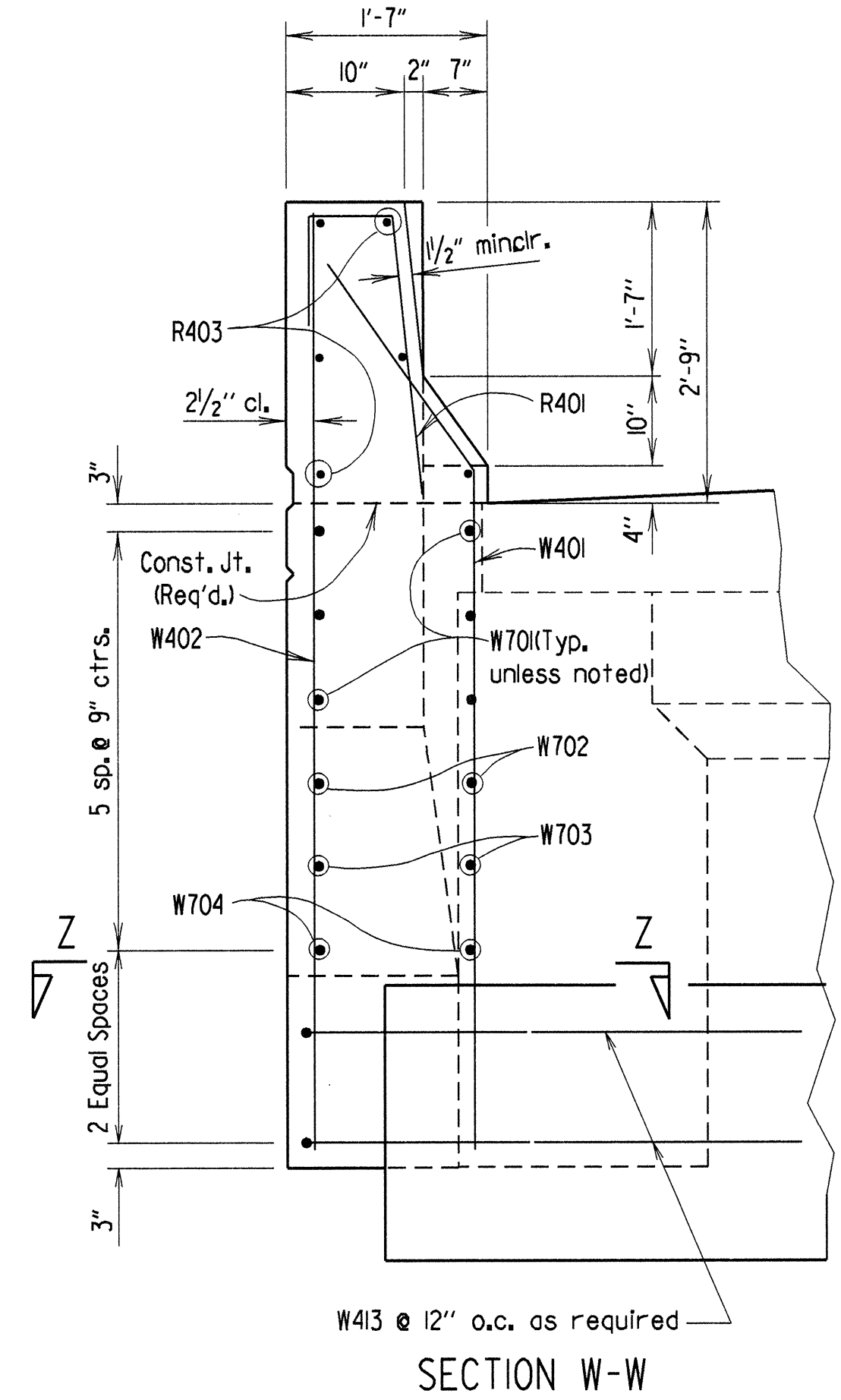
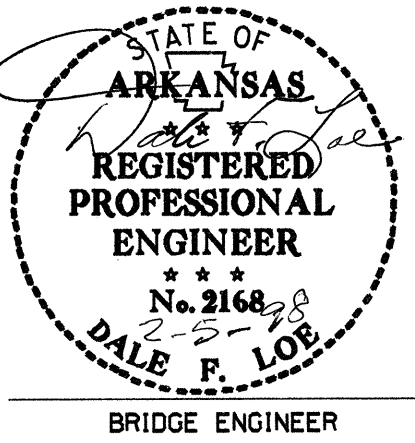
All reinforcing steel shall conform to AASHTO M31 or M53, Grade 60.

Backwall shall not be poured before beams are in place.

Structural steel in end bents shall be M270, Gr. 50W and shall be paid for as "Structural Steel in Beam Spans (M270, Gr. 50W 1)".

If anchor bolts are drilled into cap, top reinforcing bars shall be placed to avoid damage.

For additional information, see layout.



Note: For details of guard rail connections, see Drwg. No. GR-8 & GR-8A.

**SHEET 3 OF 3**  
**DETAILS OF END BENTS**  
**REYBURN CREEK**  
**ROUTE SEC.**  
**ARKANSAS STATE HIGHWAY COMMISSION**  
**LITTLE ROCK, ARK.**

DRAWN BY: WMAI DATE: 1-6-98  
CHECKED BY: GYA DATE: 2-3-98  
DESIGNED BY: ALW DATE: Dec-97  
BRIDGE: 3430 DRAWING NO. 38975

060591, RWME548, B060591X1.B1A

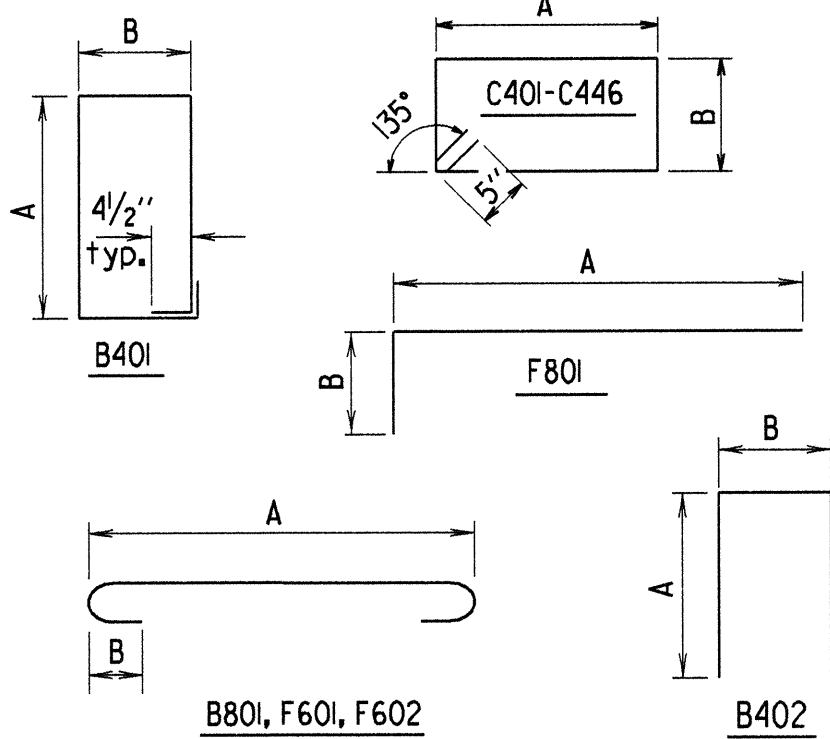
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		060591	75	146
				1	A&B 3430	BENT		38976

# BAR LIST PER BENT

MK	No. Req'd.	Length	A	B	Pin Dia.
B801	4	43'-6"	41'-8"	8"	6"
B802	4	41'-8"			Str.
B501	10	41'-8"			Str.
B401	44	14'-1"	4'-8 <sup>5</sup> / <sub>8</sub> "	2'-2"	2"
B402	12	11'-5"	4'-8 <sup>5</sup> / <sub>8</sub> "	2'-2"	2"
F801	24	9'-3"	8'-1"	1'-4"	6"
F601	22	11'-10"	10'-6"	6"	4 <sup>1</sup> / <sub>2</sub> "
F602	42	6'-10"	5'-6"	6"	4 <sup>1</sup> / <sub>2</sub> "
C801	24	CH + 3'-9"			Str.

For Bt. For Bts. 2 & 3	For Bt. For Bts. 4						
C401 to C445	2 Ea.	8'-5" to 13'-10"	1'-10 <sup>3</sup> / <sub>8</sub> " to 4'-7 <sup>3</sup> / <sub>8</sub> "	2'-1"	2"		
C401 to C446	2 Ea.	8'-5" to 14'-0"	1'-10 <sup>3</sup> / <sub>8</sub> " to 4'-8 <sup>5</sup> / <sub>8</sub> "	2'-1"	2"		

# Bending Diagrams Dimensions are out to out of bars



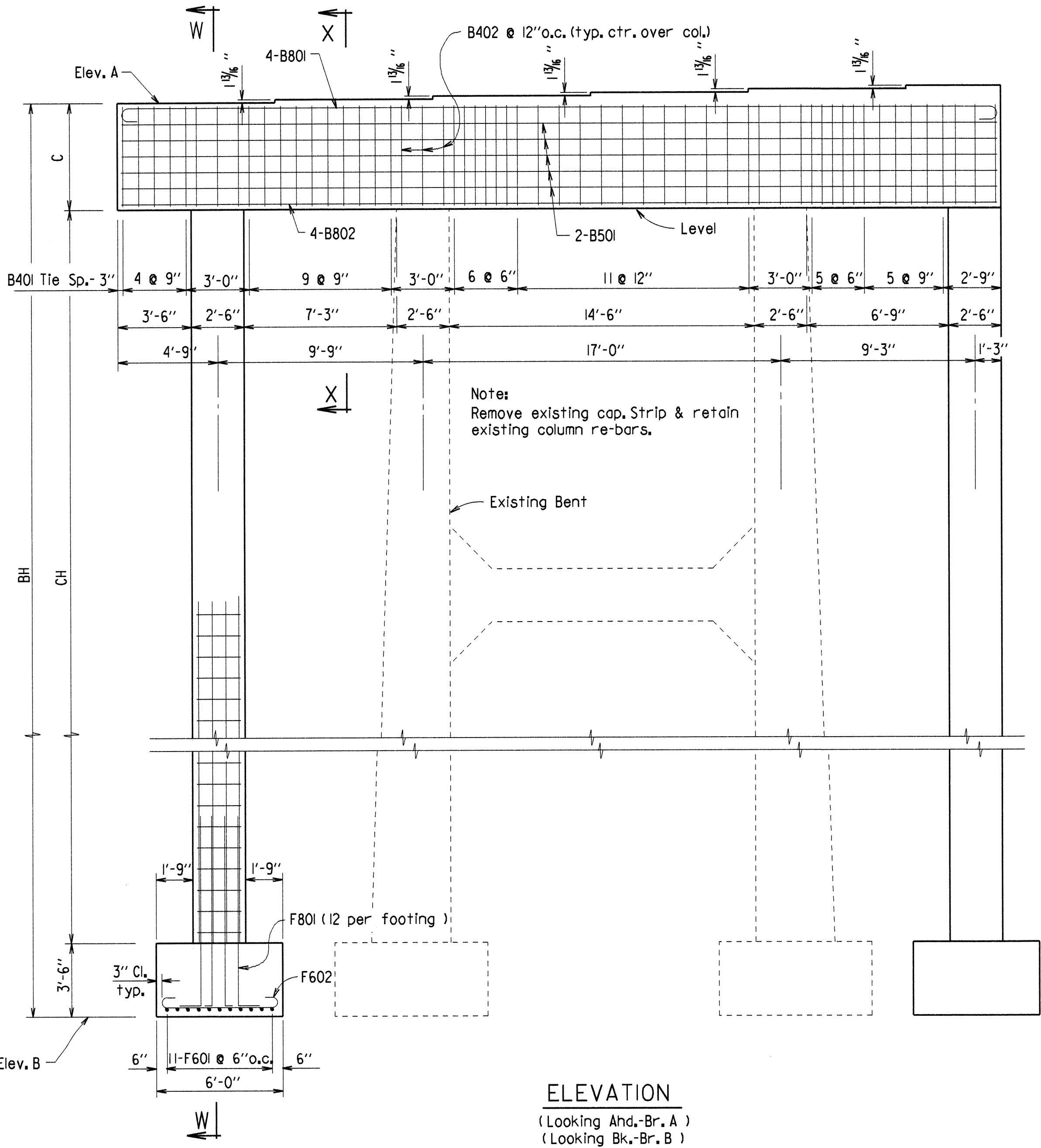
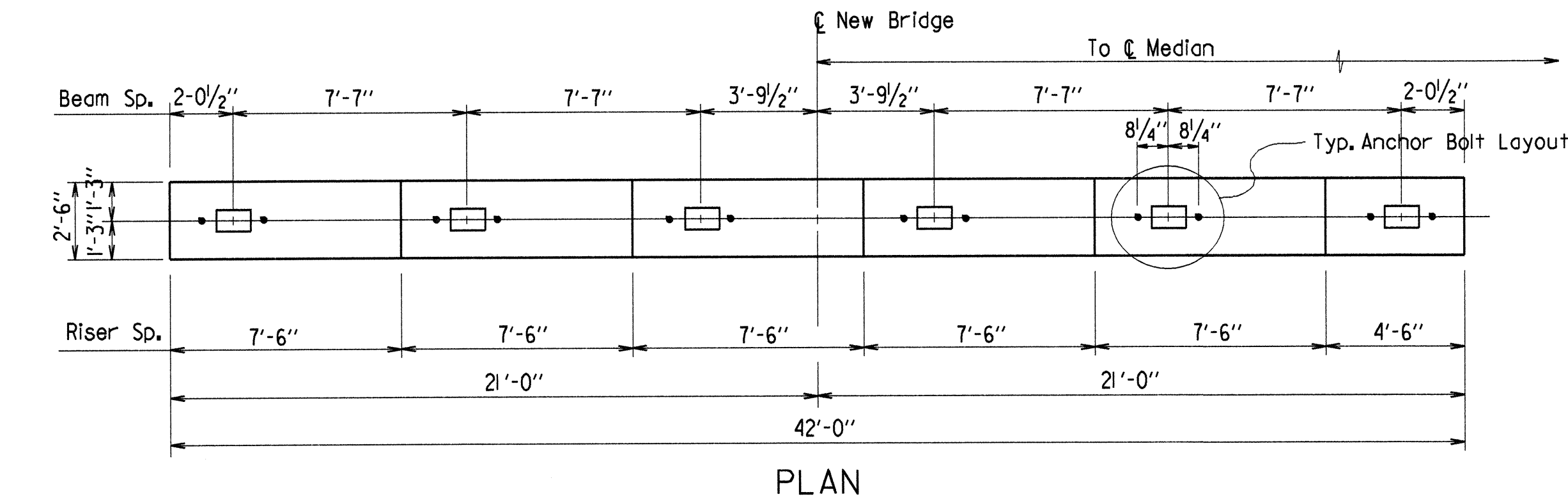
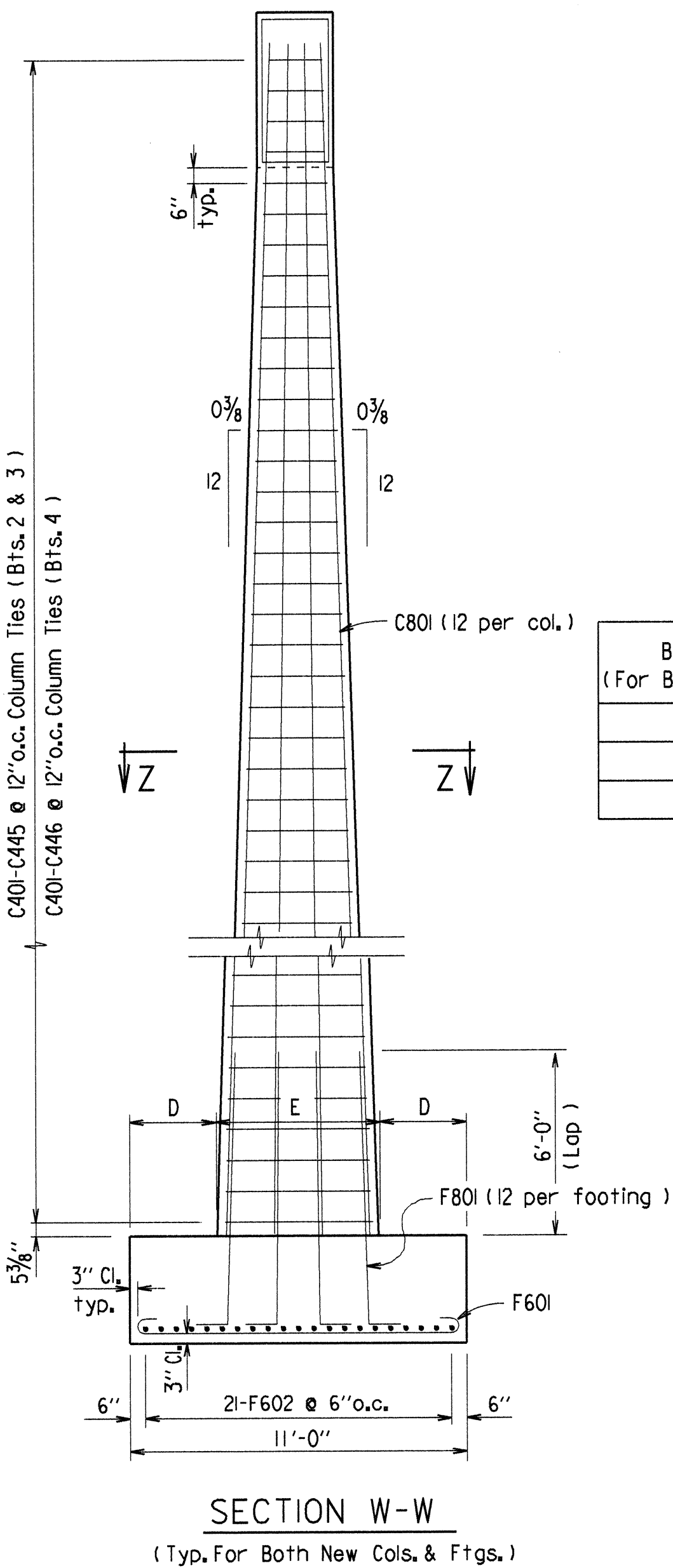
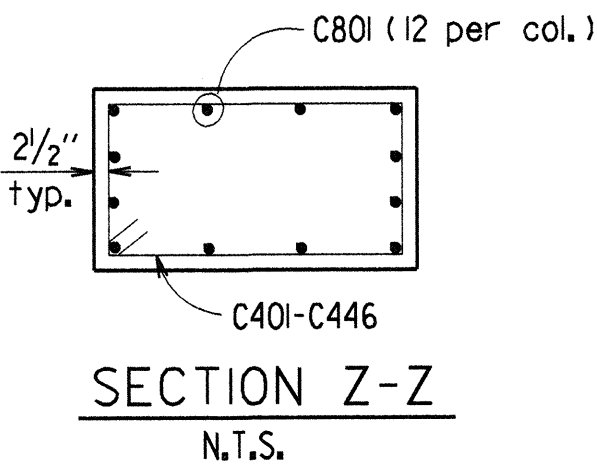
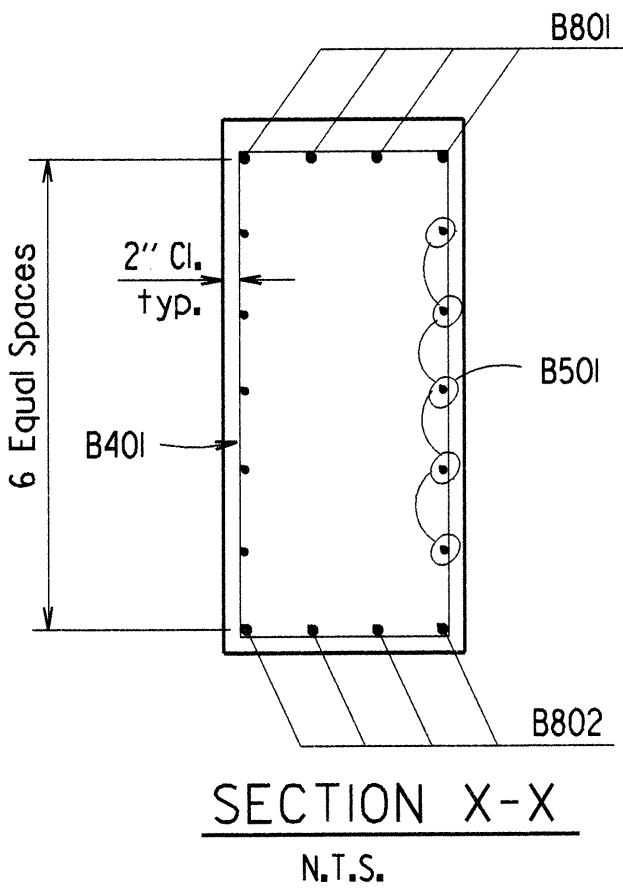
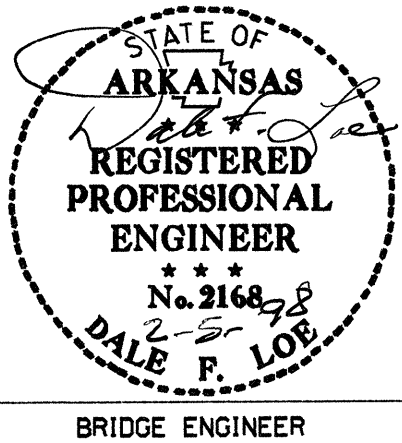
Bt. No. (For Br. A & B)	BH	CH	C	D	E	Elev. A	Elev. B
2	49'-6"	40'-11 <sup>3</sup> / <sub>8</sub> "	5'-0 <sup>5</sup> / <sub>8</sub> "	2'-11 <sup>5</sup> / <sub>8</sub> "	5'-0 <sup>3</sup> / <sub>4</sub> "	383.27	333.77
3	49'-6"	40'-11 <sup>3</sup> / <sub>8</sub> "	5'-0 <sup>5</sup> / <sub>8</sub> "	2'-11 <sup>5</sup> / <sub>8</sub> "	5'-0 <sup>3</sup> / <sub>4</sub> "	383.49	333.99
4	50'-6"	41'-11 <sup>3</sup> / <sub>8</sub> "	5'-0 <sup>5</sup> / <sub>8</sub> "	2'-11 <sup>1</sup> / <sub>4</sub> "	5'-1 <sup>1</sup> / <sub>2</sub> "	383.79	333.29

# GENERAL NOTES

All concrete shall be Class S with a minimum 28 day compressive strength  $f'_c = 3500$  psi.  
Concrete shall be poured in the dry and all corners shall be chamfered  $\frac{3}{4}"$  unless otherwise noted.  
All reinforcing steel shall conform to AASHTO M31 or M53, Grade 60 (yield strength = 60,000 psi).  
For additional notes, see bridge layout.

# DETAILS OF INT. BENTS REYBURN CREEK ROUTE SEC. ARKANSAS STATE HIGHWAY COMMISSION LITTLE ROCK, ARK.

DRAWN BY: W.M.A. DATE: 12-17-97  
CHECKED BY: GVA DATE: 2-3-98 SCALE:  $\frac{1}{4}" = 1'-0"$  or as shown  
DESIGNED: ARW DATE: Dec-97  
BRIDGE 3430 DRAWING NO. 38976



Note: Existing cap to be removed. Vertical reinforcing extending from the columns shall be retained. Care shall be required to prevent damage to vertical reinforcing during cap removal. Any damaged vertical bars shall be replaced at no cost to the State.

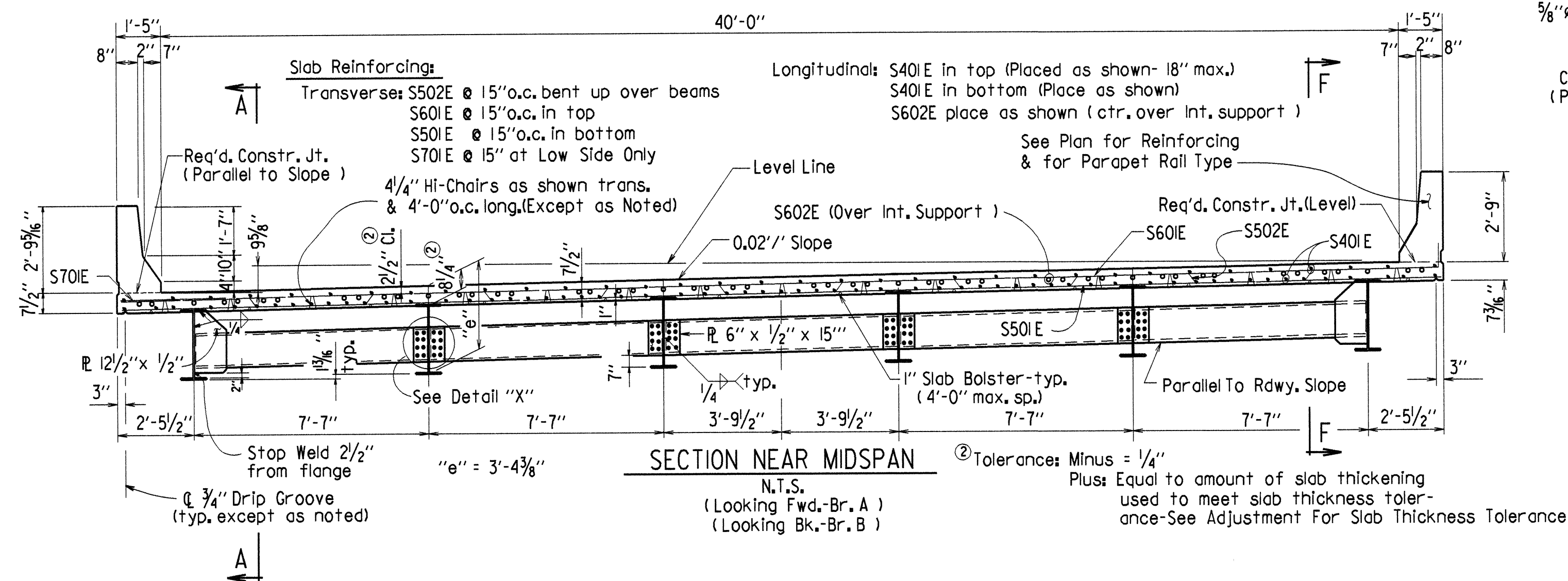
MICROFILMED  
MAR 05 1998



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.		060591	76	146
				A&B 3430		CONT. UNIT		38977

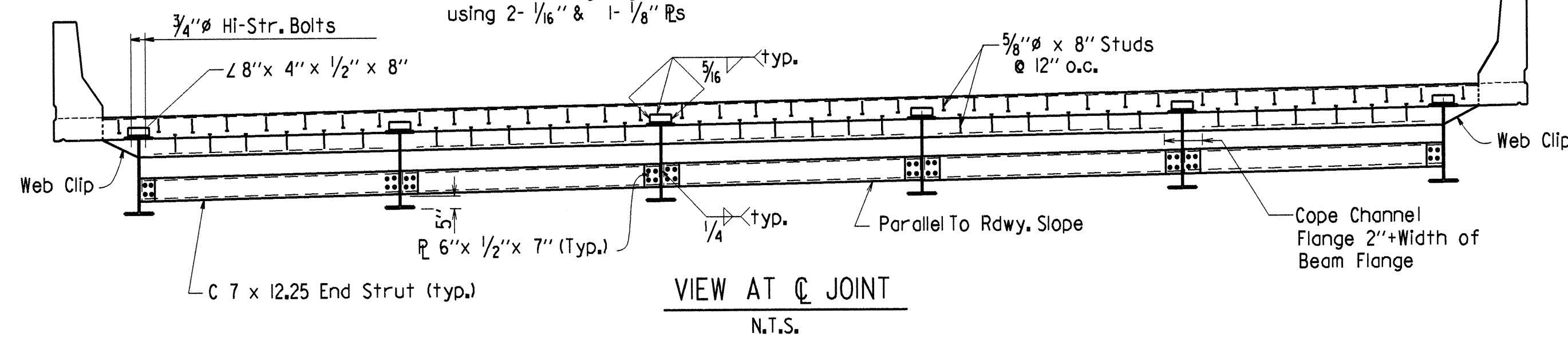
Notes: Class I Protective Surface Treatment shall be applied to the Roadway Surface and the Face and Top of Concrete Parapet Rail.

Notes: One epoxy coated #5 bar in the top and one epoxy #5 bar in the bottom may be substituted for each bar S502E. Payment will be based on the weight of bar S502E.



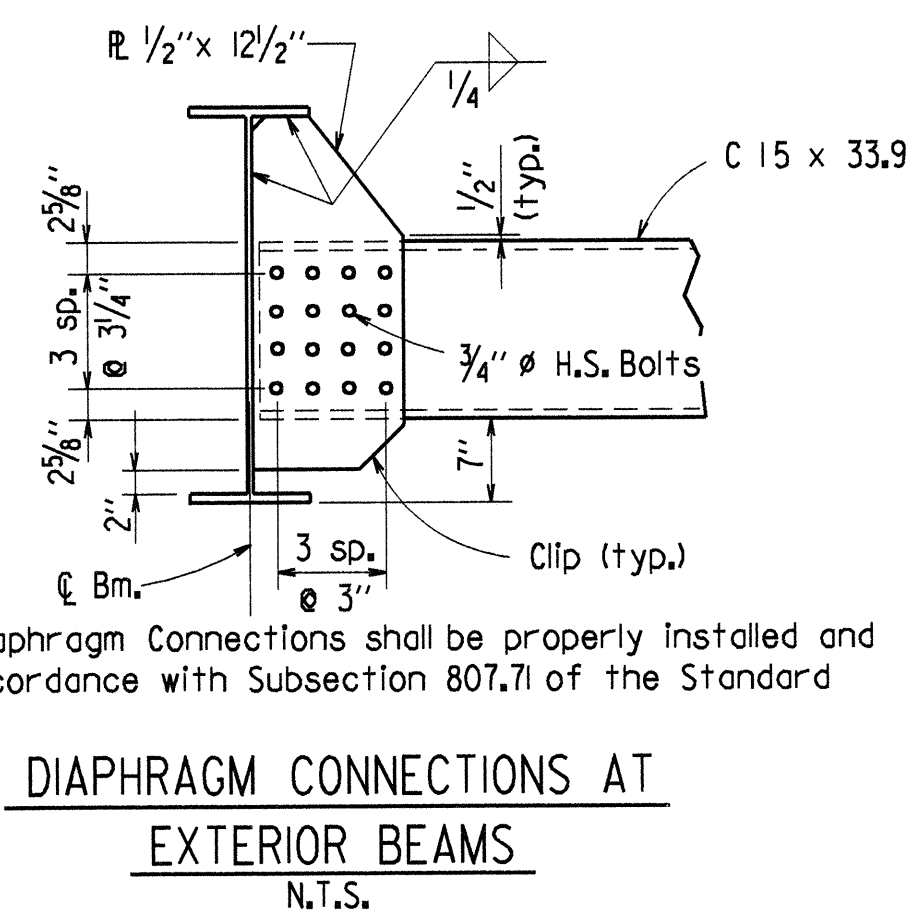
Expansion Devices:  
Rdwy. C 15 x 33.9  
Conn. L's 8"x 4"x 1/2"x 8"  
Detail Device 1/8" high & provide 1/4" Shims using 2- 1/16" & 1- 1/8" R's

5/8" x 8" Studs @ 12" o.c. (Top & Bottom)  
For Details of Bumper R & Seal Support, see Detail Of Joint Seal & Support.



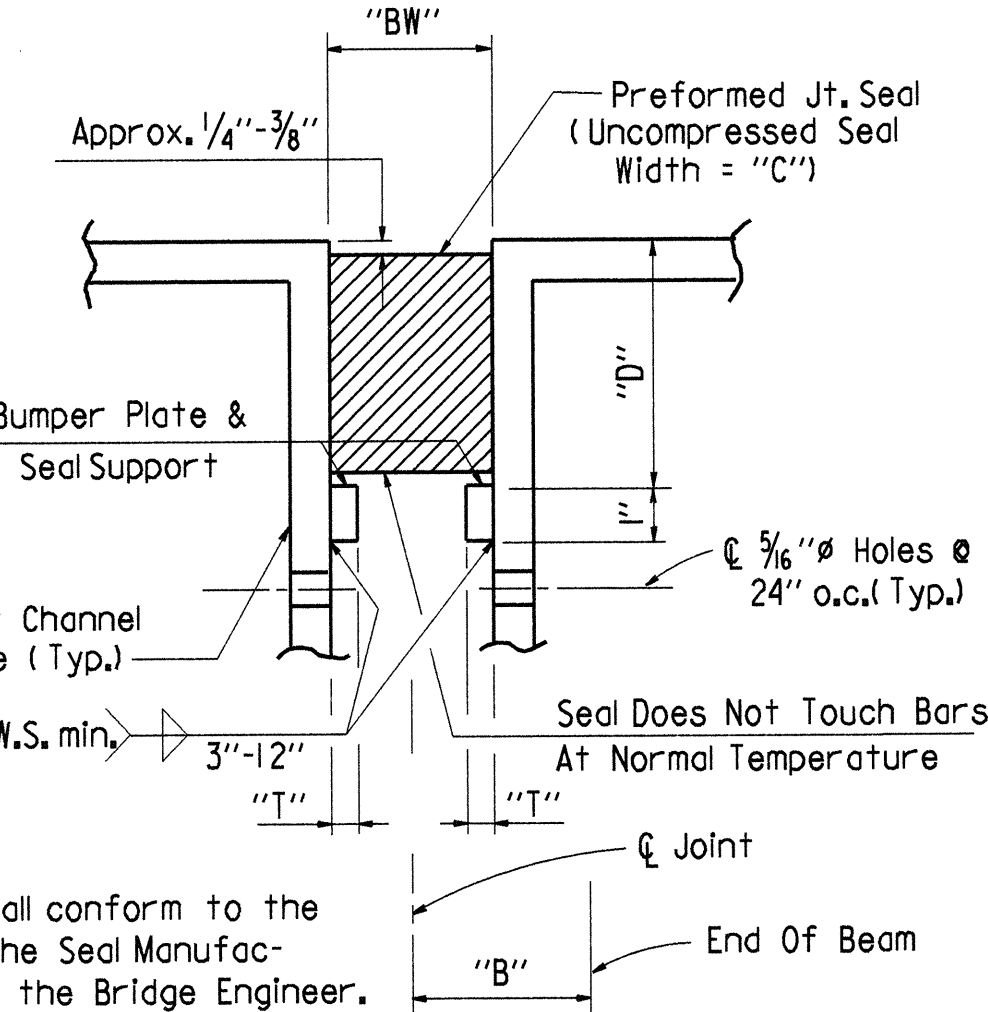
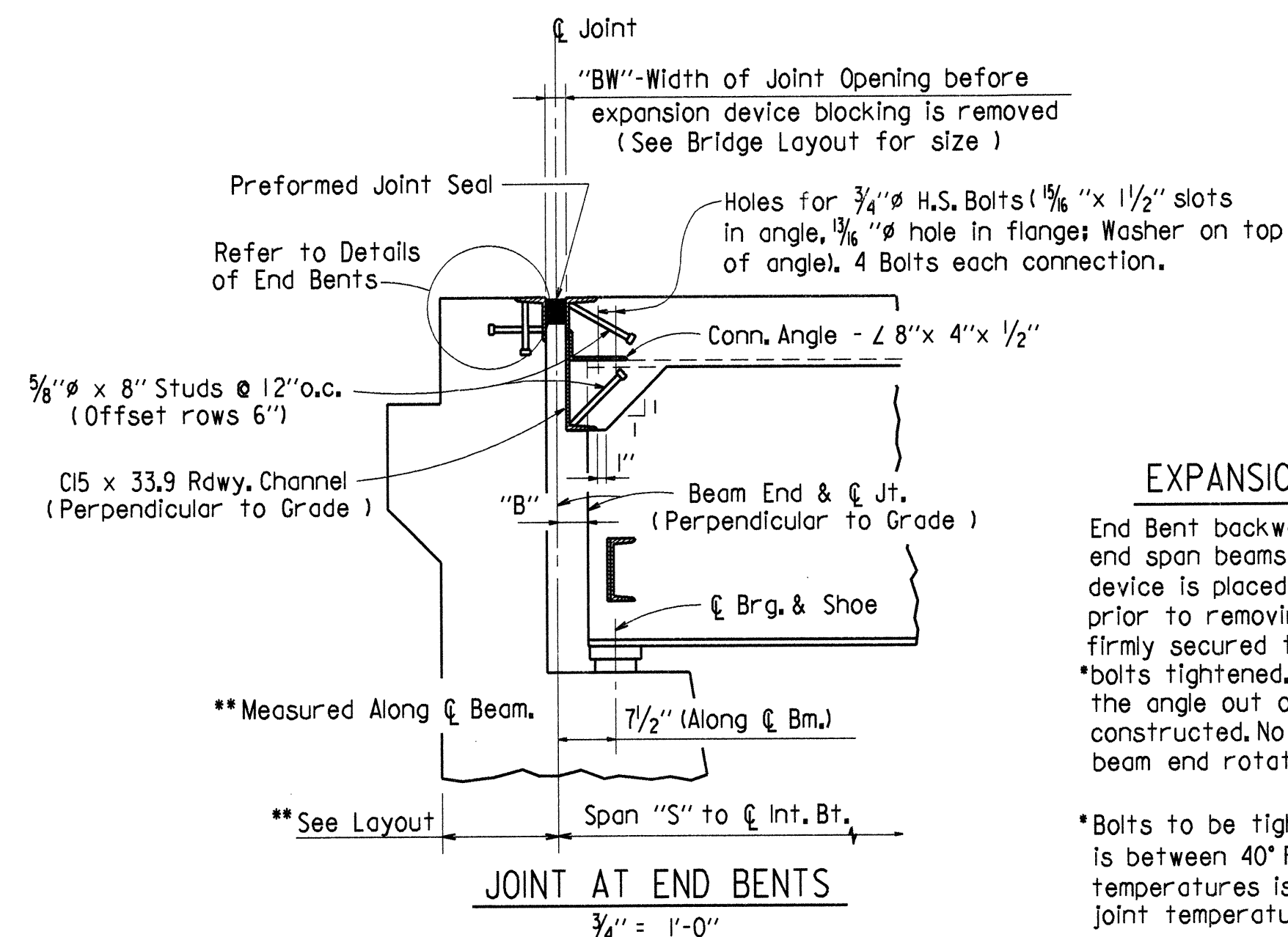
#### BAR LIST

MK	No. Required	Length	Pin Dia.	Bending Diagrams (Dimensions are out to out of bars.)
S401E	665	35'-1"	Str.	
S501E	189	42'-6"	Str.	
S502E	188	43'-4"	3"	
S601E	189	43'-6"	4 1/2"	
S602E	150	30'-0"	Str.	
S701E	188	10'-9"	6 1/2"	
P401E	436	6'-4"	2"	
P402E	436	5'-6"	2"	
P403E	120	12'-6"	Str.	
P404E	96	9'-6"	Str.	
P405E	96	3'-2"	2"	
P406E	96	5'-10"	2"	
P601E	60	12'-6"	Str.	



Notes: Bolts in Diaphragm Connections shall be properly installed and tightened in accordance with Subsection 807.71 of the Standard Specifications.

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MAR 0 5 1998



Notes: The Seal shall be in one piece (without splices) for the full length of the joint.

#### JOINT SEAL DATA

"BW" Blocking Width Perpendicular To Joint	"B" Perpendicular To Joint At 60°F	"C" Uncompressed Seal Width	"T" Bumper Plate Thickness
2"	2 3/8" ±	3 1/2"	0 5/8"

Installation is limited to 40°F. min. and 80°F. max.

#### ADJUSTMENT FOR SLAB THICKNESS TOLERANCE WHEN REMOVABLE DECK FORMING IS USED

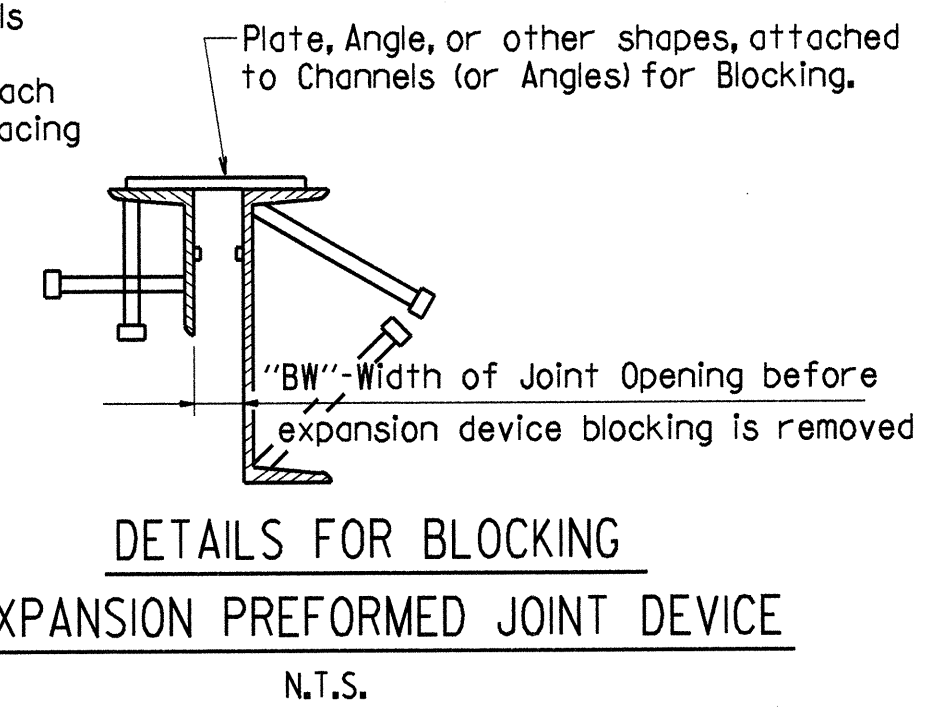
Tolerances shown are applicable only when removable deck forming is used. See Std. Dwg. No. 14991 for tolerances when permanent steel deck forms are used. Payment for concrete shall be based on removable deck forming.

Note: The preformed expansion joint device shall be blocked in the Shop by the Fabricator to the dimension "BW", and the blocking details shall be shown on the Shop Drawings. Blocking shall be placed within 2 feet of each end of the device and with a maximum spacing of 8 feet.

#### EXPANSION DEVICE INSTALLATION

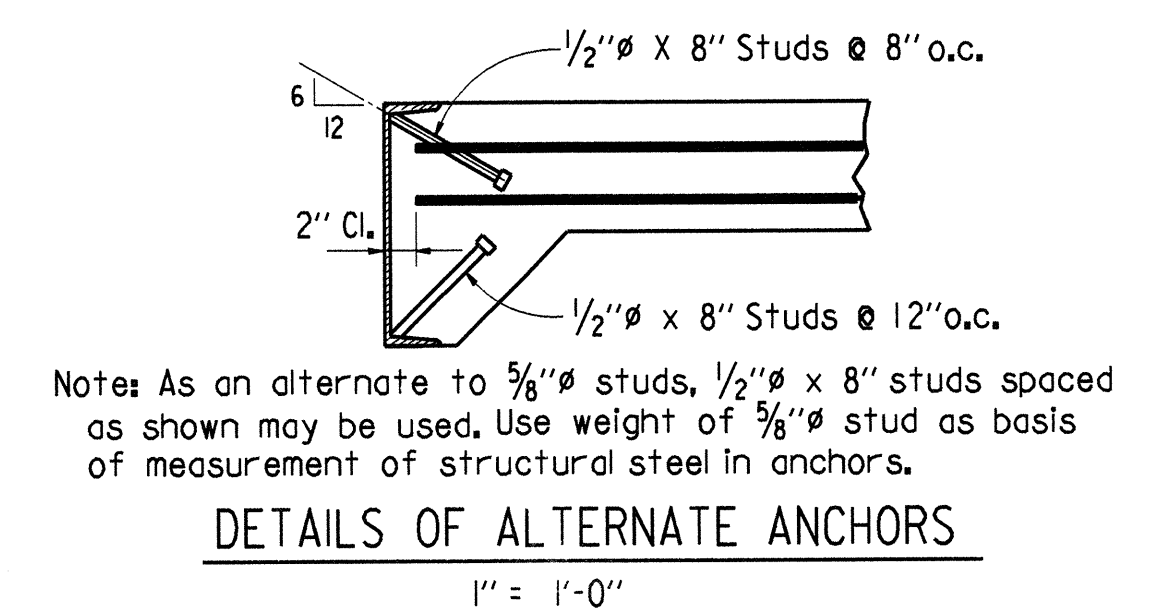
End Bent backwall forms shall be in place and the end span beams erected before the blocked expansion device is placed and adjusted for grade. Immediately prior to removing the blocking, the end bent shall be firmly secured to the backwall forms and the connection bolts tightened. Care shall be exercised to avoid moving the angle out of position until after the backwall is constructed. No joint opening adjustment is required for beam end rotation or temperature changes.

\*Bolts to be tightened only when beam temperature is between 40°F and 80°F. If tightening at other temperatures is required, the Bridge Engineer will provide joint temperature adjustment values.

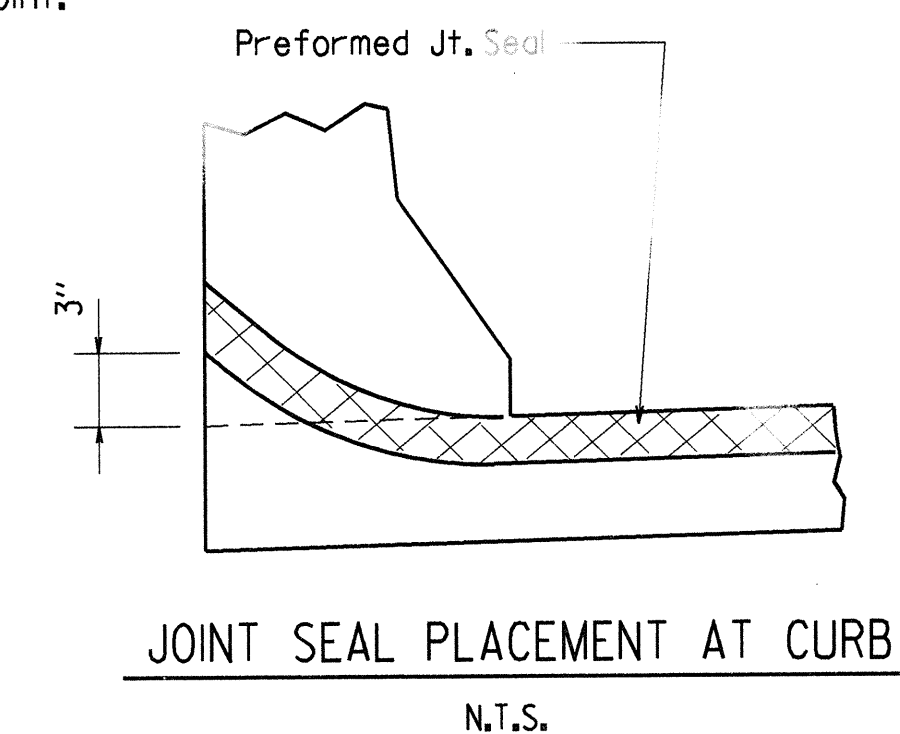


#### CHANNEL CONNECTION DETAIL AT PREFORMED JOINT

N.T.S.

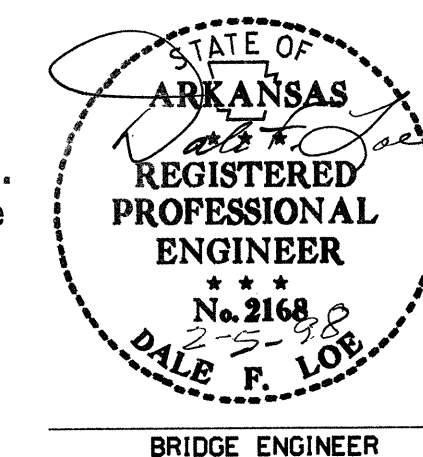


Notes: As an alternate to 5/8" x 8" studs, 1/2" x 8" studs spaced as shown may be used. Use weight of 5/8" stud as basis of measurement of structural steel in anchors.



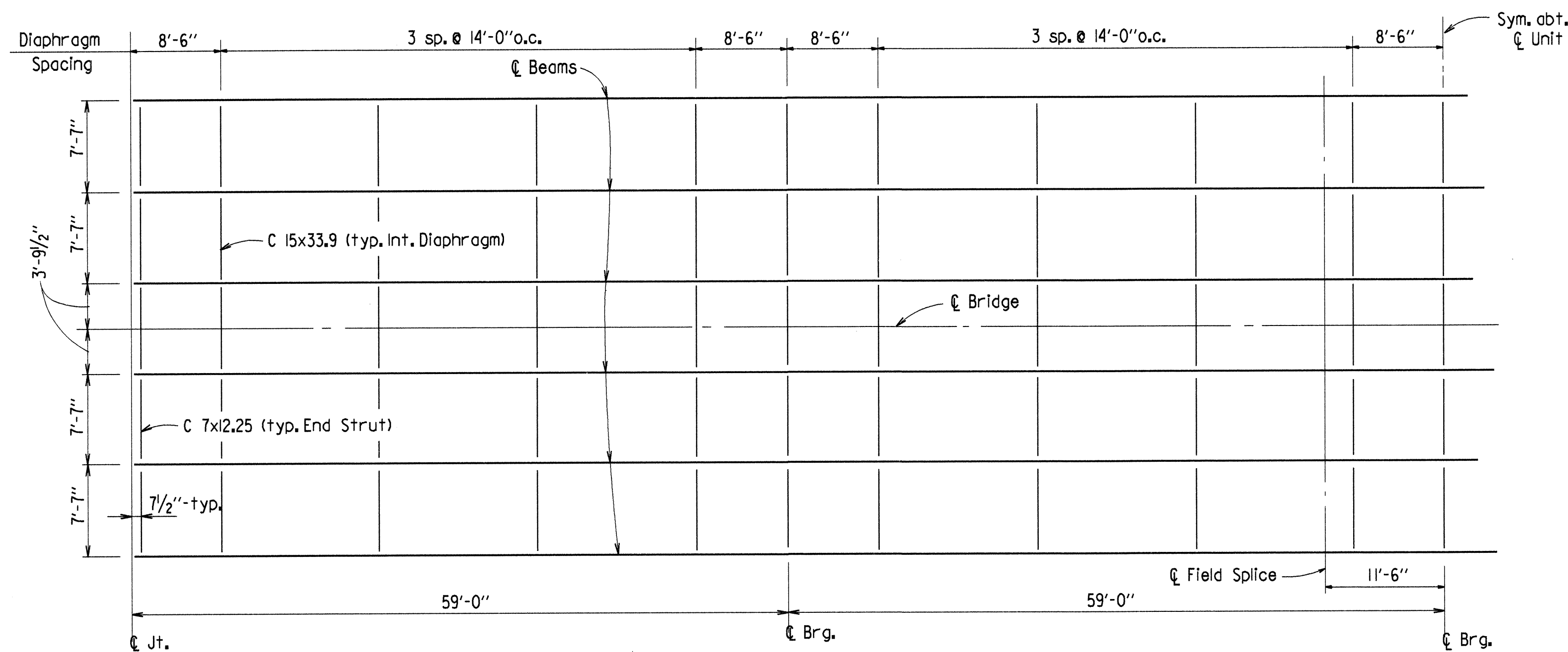
SHEET 1 OF 3  
DETAILS OF  
236' CONT. COMP. W-BEAM UNIT-BRS. A & B  
REYBURN CREEK  
ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

DRAWN BY: W.M.A. DATE: 12-14-97  
CHECKED BY: G.V.A. DATE: 2-3-98  
DESIGNED BY: A.W. DATE: Dec-97  
BRIDGE NO. A&B 3430 DRAWING NO. 38977

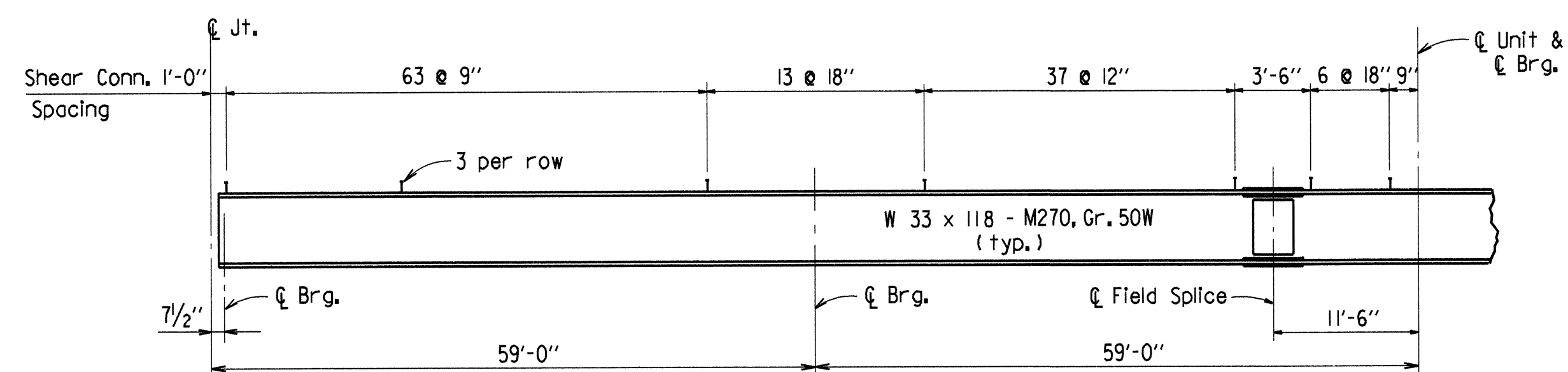




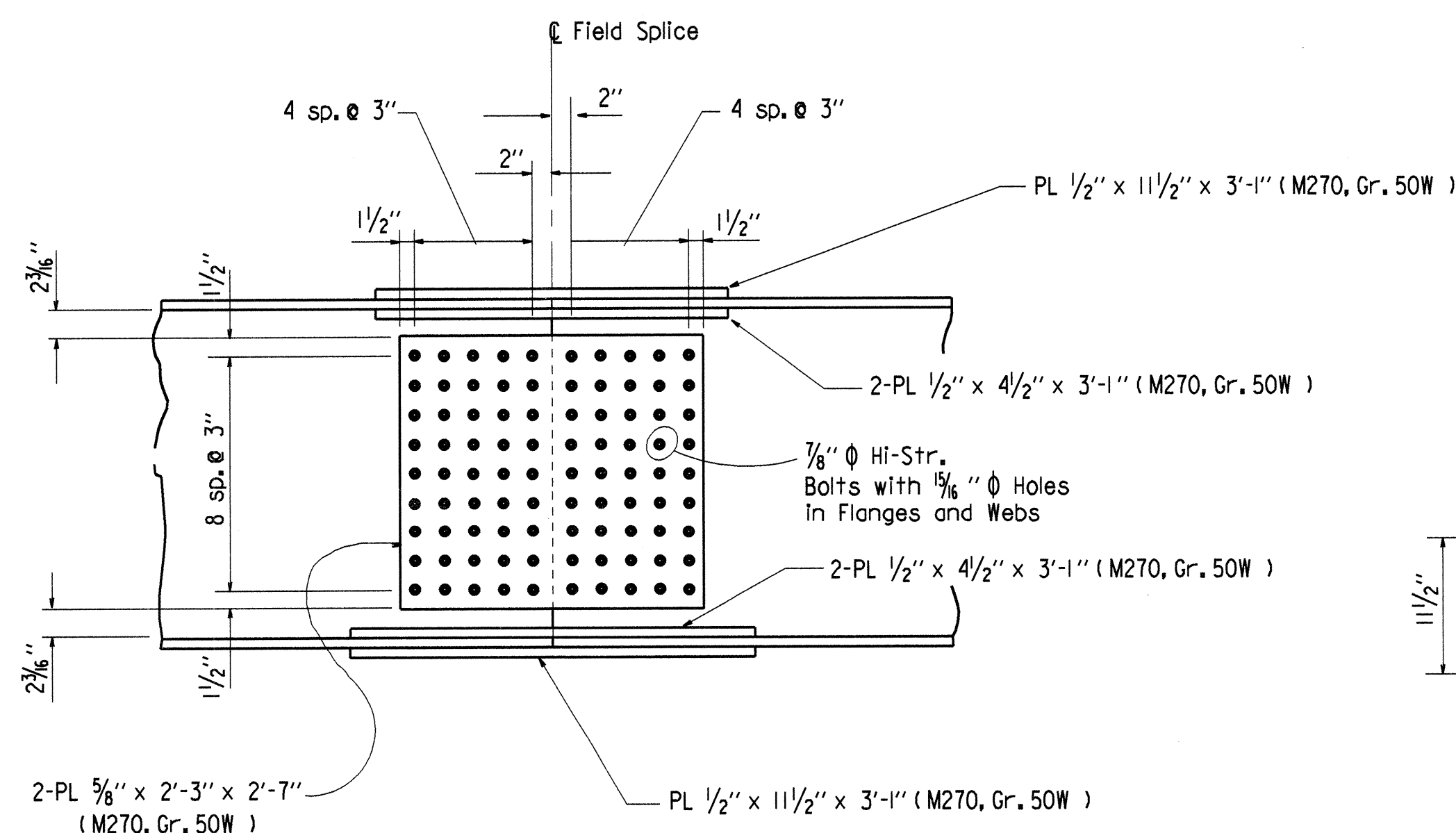
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		060591	77	146
				A&B 3430		CONT. W-BM. UNIT		38978



FRAMING PLAN  
N.T.S.

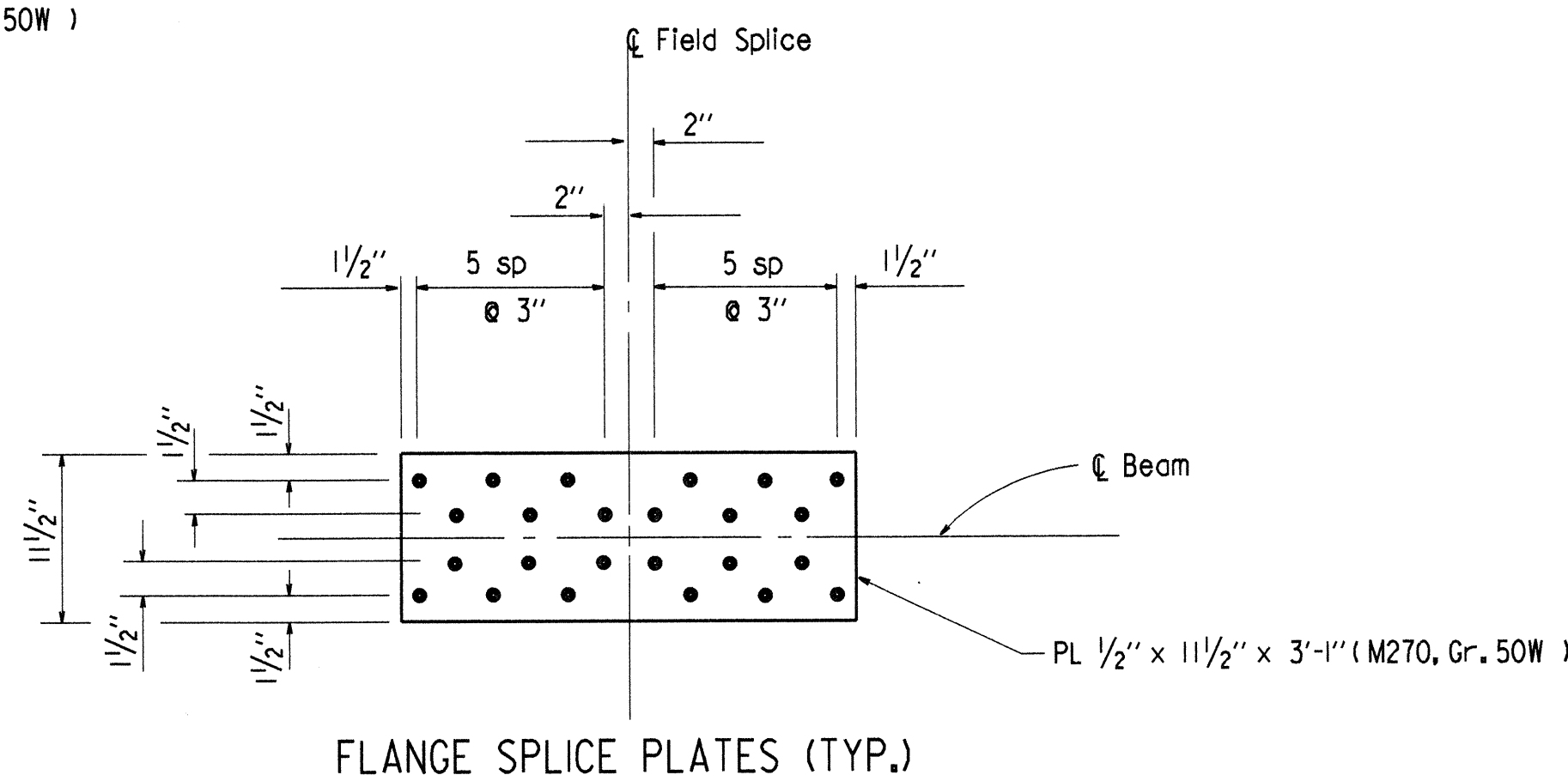


TYPICAL BEAM ELEVATION  
N.T.S.

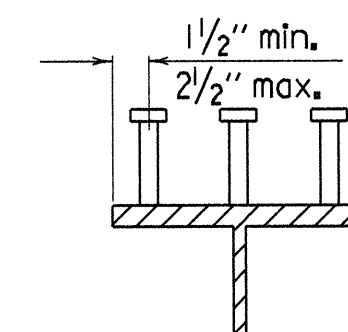


DETAILS OF FIELD SPICE (TYP.)

N.T.S.



FLANGE SPICE PLATES (TYP.)



SHEAR CONNECTOR DETAIL

N.T.S.

Stud Shear Connectors shown shall be  $\frac{7}{8}$ "  $\phi$  x 4" long, granular flux filled, solid fluxed or equal, and automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer.  $\frac{3}{4}$ "  $\phi$  studs may be used in place of the  $\frac{7}{8}$ "  $\phi$  studs shown, at the ratio of 1.361  $\frac{3}{4}$ "  $\phi$  studs in place of one  $\frac{7}{8}$ "  $\phi$  stud.  $\frac{7}{8}$ "  $\phi$  studs will be used as basis for measurement of structural steel in shear connectors. Maximum stud spacing = 24".

TABLE FOR WELD

Material Thickness of Thicker Part Joined (Inches)	Minimum Size of Fillet Weld (Inches)	Single Pass Weld Must Be Used
To $\frac{3}{4}$ " Inclusive	$\frac{1}{4}$ "	
Over $\frac{3}{4}$ "	$\frac{5}{16}$ "	

NOTE: When a fillet weld size, as shown on the plans, is larger than the minimum, the first pass shall be that specified for minimum size of fillet weld.

Design Specifications: AASHTO 1996 with Interim Specifications

Live loading: HS20

Method of Design: Load Factor

Dead Load:

Interior Beam

Exterior Beam

A. To W-Beam

723 plf +  
1.3 (Wt./Ft. of W-Bm.)

581 plf +  
1.3 (Wt./Ft. of W-Bm.)

B. To Composite Beam

290 plf \*

290 plf \*

Closed Parapets

279 plf \*

279 plf \*

Open Parapets

1,379 wheels + impact

1,286 wheels + impact

Live Load: To each composite beam

\* Includes 160 plf future wearing surface

Material Strength:

Class (SAE) Concrete (N-8)

$f'_c$  = 4,000 p.s.i.

Reinforcing Steel (AASHTO M31 or M53, Gr. 60)

$f_y$  = 60,000 p.s.i.

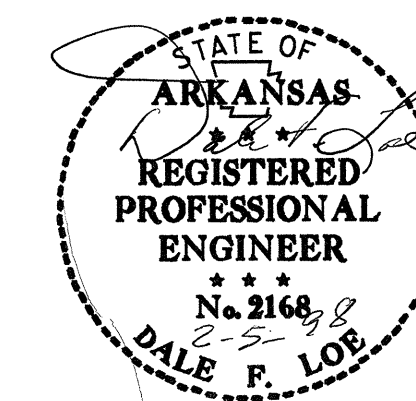
Structural Steel (AASHTO M270, Gr. 36)

$f_y$  = 36,000 p.s.i.

Structural Steel (AASHTO M270, Gr. 50W)

$f_y$  = 50,000 p.s.i.

For additional details see dwg. no. 38979, 38980 & 38981.

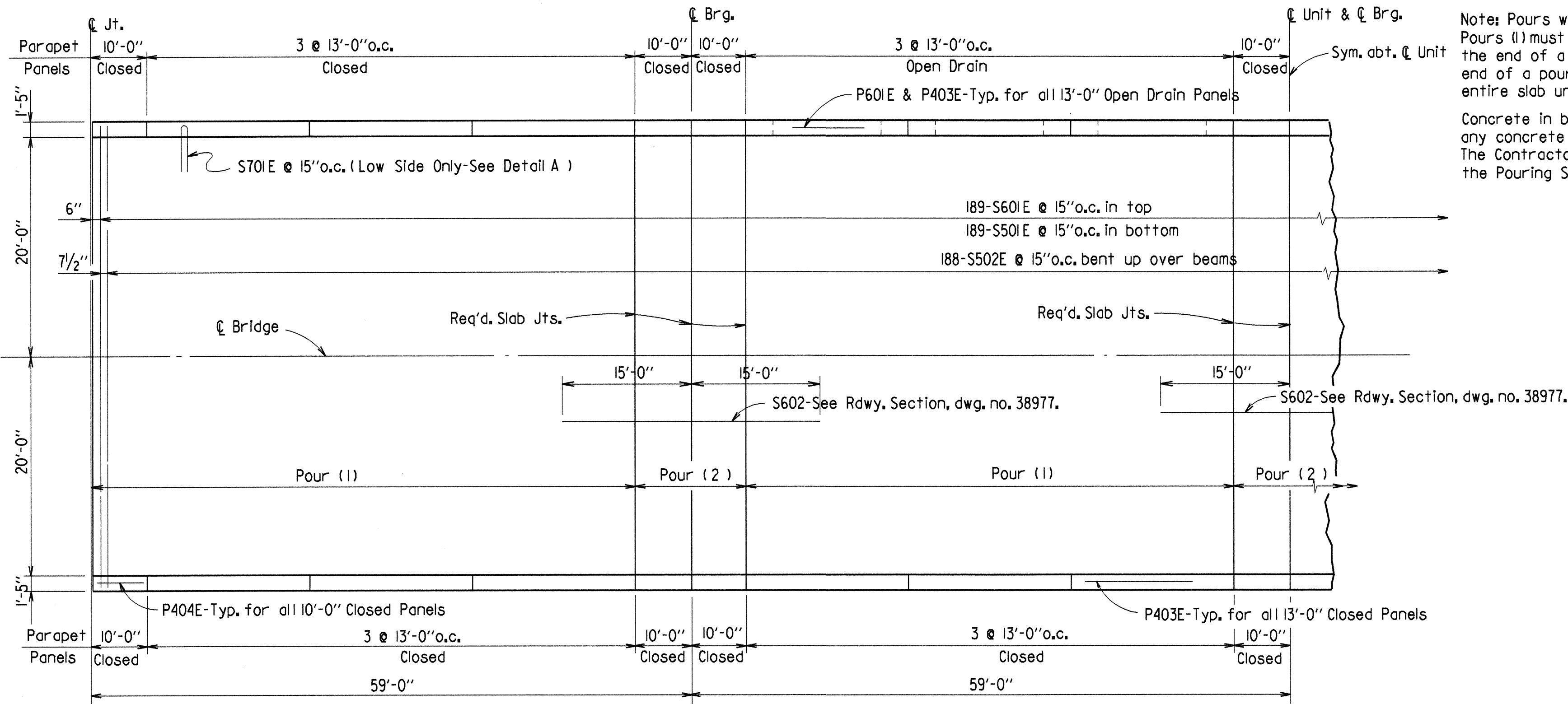


SHEET 2 OF 3  
DETAILS OF  
236' CONT. COMP. W-BEAM UNIT-BRS. A & B  
REYBURN CREEK  
ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

DRAWN BY: WMAJ DATE: 12-15-97  
CHECKED BY: GVA DATE: 2-3-98  
DESIGNED BY: ALW DATE: Dec-97  
BRIDGE NO. A&B 3430 DRAWING NO. 38978

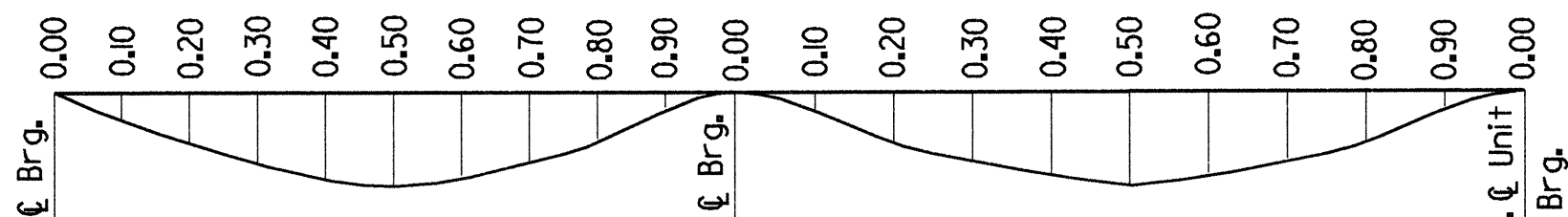
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		060591	78	146
				A&B 3430		CONT. W-BM. UNIT	34979	



### REINFORCING PLAN & DIAGRAM OF POURING SEQUENCE

N.T.S.  
(Shown for Bridge A; Bridge B Similar)



### DEAD LOAD DEFLECTIONS DIAGRAM (TYP.)

Camber for Dead Load Deflection plus Vertical Curve  $\pm 1/4"$  tolerance.  
Deflections shown are from a chord from Centerline Bearing to Centerline Bearing. Vertical Curve Corrections not included.

### TABLE OF DEAD LOAD DEFLECTIONS

Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Rail	
		Interior	Exterior	Interior	Exterior	Interior	Exterior
1 br 4	0.00	0	0	0	0	0	0
	0.10	0.038	0.035	0.235	0.194	0.254	0.213
	0.20	0.071	0.065	0.437	0.359	0.471	0.395
	0.30	0.093	0.086	0.579	0.477	0.625	0.524
	0.40	0.105	0.097	0.649	0.534	0.700	0.588
	0.50	0.103	0.096	0.641	0.527	0.692	0.581
	0.60	0.090	0.084	0.561	0.462	0.606	0.509
	0.70	0.068	0.063	0.426	0.350	0.461	0.387
	0.80	0.042	0.039	0.261	0.215	0.283	0.238
	0.90	0.017	0.015	0.104	0.085	0.112	0.094
2 br 3	0.00	0	0	0	0	0	0
	0.10	-0.002	-0.002	-0.012	-0.010	-0.013	-0.010
	0.20	0.006	0.005	0.036	0.030	0.042	0.035
	0.30	0.017	0.016	0.106	0.088	0.118	0.100
	0.40	0.027	0.025	0.167	0.138	0.184	0.155
	0.50	0.032	0.029	0.200	0.165	0.219	0.185
	0.60	0.032	0.029	0.196	0.161	0.215	0.181
	0.70	0.025	0.023	0.156	0.129	0.171	0.144
	0.80	0.015	0.014	0.093	0.077	0.102	0.086
	0.90	0.005	0.004	0.030	0.025	0.033	0.028
	0.00	0	0	0	0	0	0

Note: Pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2) can be placed. 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between the end of a pour and the start of an adjacent pour. Any railing pours made before the entire slab unit has been placed must be approved by the Bridge Engineer.

Concrete in bridge superstructure shall be consolidated for the entire pour before any concrete has taken its initial set. This may require the use of a retarding agent. The Contractor must obtain approval from the Bridge Engineer for any deviations from the Pouring Sequence shown.

### GENERAL NOTES

Governing specifications are the Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, 1996 edition, with applicable supplemental specifications and special provisions.

All concrete shall be Class S(AE) and shall be poured in the dry. All exposed corners to be chamfered  $3/4"$  unless otherwise noted.

All concrete shall be poured and screeded off prior to initial set. The concrete deck shall be finished in accordance with section 802.19, Class 5 of the Standard Specifications. Movement of the finishing machine across new concrete shall be on planks placed on the surface and shall be prohibited for 72 hours after finishing the pour. Sufficient concrete must be placed ahead of the strike-off to fully load the beam. If a longitudinal strike-off is used, a vertical camber adjustment must be made in the strike-off to account for the future dead load deflection of the railing.

Concrete in bridge superstructure shall be placed and consolidated for the entire pour before any concrete has taken its initial set. This may require the use of a retarding agent.

The bridge deck shall be given a fine finish as specified for final finishing in subsection 802.19 for a Class 5 Bridge Roadway Surface Finish.

Reinforcing steel shall conform to AASHTO M31 or M53, Grade 60. The reinforcing 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 "Reinforcing Steel".

All stud shear connectors shall be granular flux filled, solid fluxed, or equal, and shall be automatically end welded in accordance with recommendations of the manufacturer.

Field connections shall be bolted with  $3/4"$  high strength bolts unless otherwise noted. Bolt holes shall be  $1/8"$  except that  $1/8"$  holes may be used for connection of expansion devices, diaphragms, and end struts if a washer is used under both the nut and head of the bolt.

Diaphragms shall be installed as beams are erected. All bolts in diaphragms and field splices shall be installed and tightened in accordance with subsection 807.10 of the Standard Specifications prior to pouring of the concrete.

Drawings show general features of design only. Shop drawings shall be made in accordance with the specifications, submitted and approval secured before any fabrication is begun. Structural shapes of equal or greater strength may be substituted for shapes shown if approval is obtained from the bridge engineer. Payment will be made on the basis of shapes shown.

All Structural Steel shall be AASHTO M270, Gr. 50W unless otherwise noted and shall be paid for at the unit price per pound bid for "Structural Steel in Beam Spans (M270, Gr. 50W)". M270, Gr. 50W steel shall not be painted. All exposed surfaces to be cleaned in accordance with Subsection 807.84(e) of the Standard Specifications. Structural steel completely embedded in concrete may be AASHTO M270, Gr. 36.

All beams shall be blocked in their true position in the shop. The camber, length of sections, distance between bearings and openings of joints shall be measured with the beams in this position and this information shall become a part of the permanent record of the job. The component parts shall be match marked in this assembly and these marks shall be shown on the erection diagram. All beam dimensions are based on a temperature of 60°F. A tolerance of  $\pm 1/4"$  is allowed for camber.

Beams are considered main load carrying members and shall meet the longitudinal Charpy V-Notch test specified in Section 807.05. All welding shall conform to Subsection 807.26. Welded connections shall be  $3/8"$  fillet shop welds unless otherwise noted. All welding that is to be done during fabrication of structural steel, including temporary welds, shall be detailed on the shop drawings and submitted for approval. If the Contractor or Erector should want to make additional welds, whether temporary or permanent, he shall submit detailed drawings with formal request to the Bridge Engineer of the Arkansas State Highway and Transportation Department for approval.

### SHEET 3 OF 3

DETAILS OF  
236' CONT. COMP. W-BEAM UNIT-BRS. A & B  
REYBURN CREEK  
ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.



BRIDGE ENGINEER

DRAWN BY: W.M.A. DATE: 12-15-97  
CHECKED BY: GVA DATE: 2-3-98 SCALE: As Shown  
DESIGNED BY: ARW DATE: Dec-97  
BRIDGE NO. A&B 3430 DRAWING NO. 38979

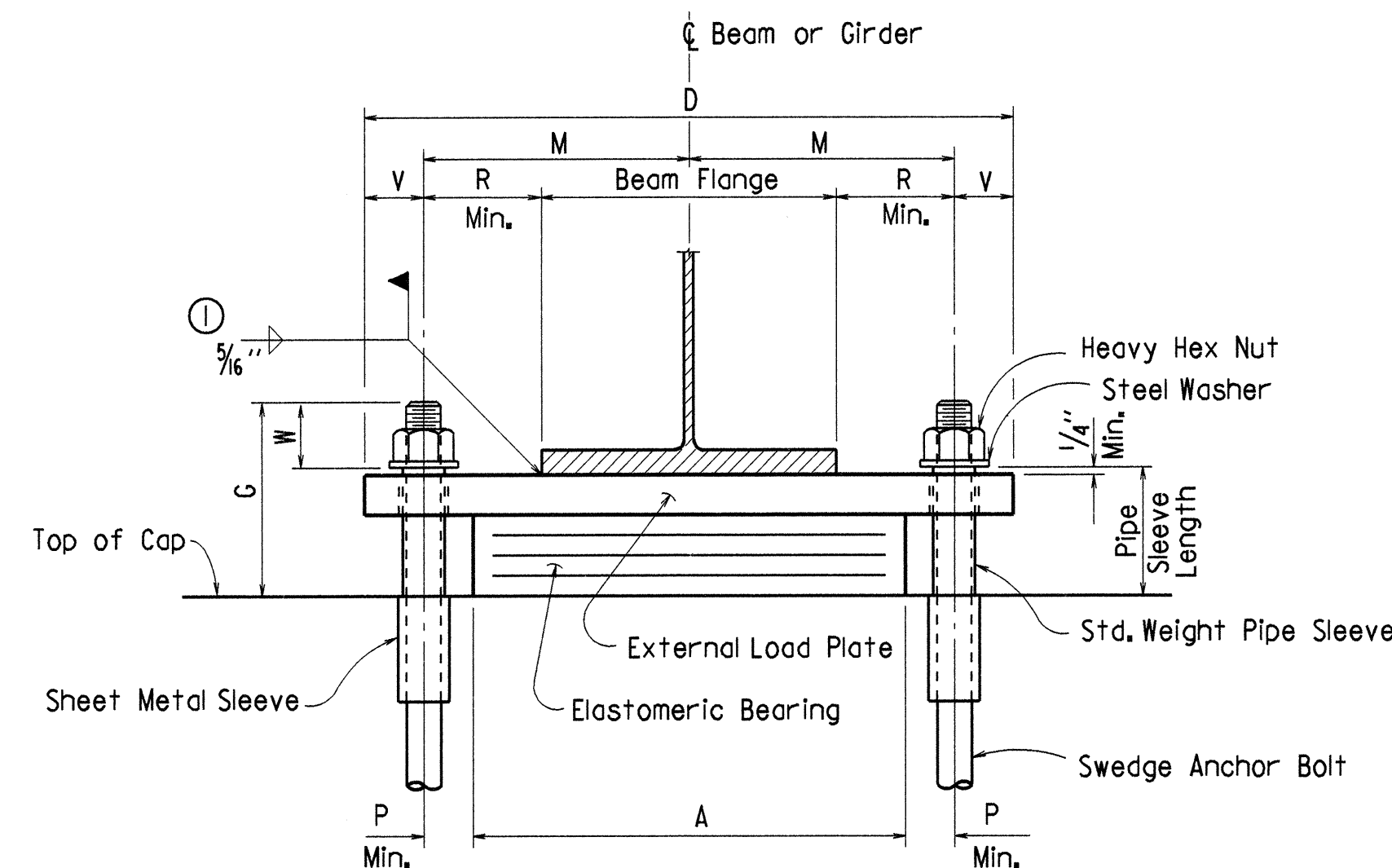
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MAR 05 1998



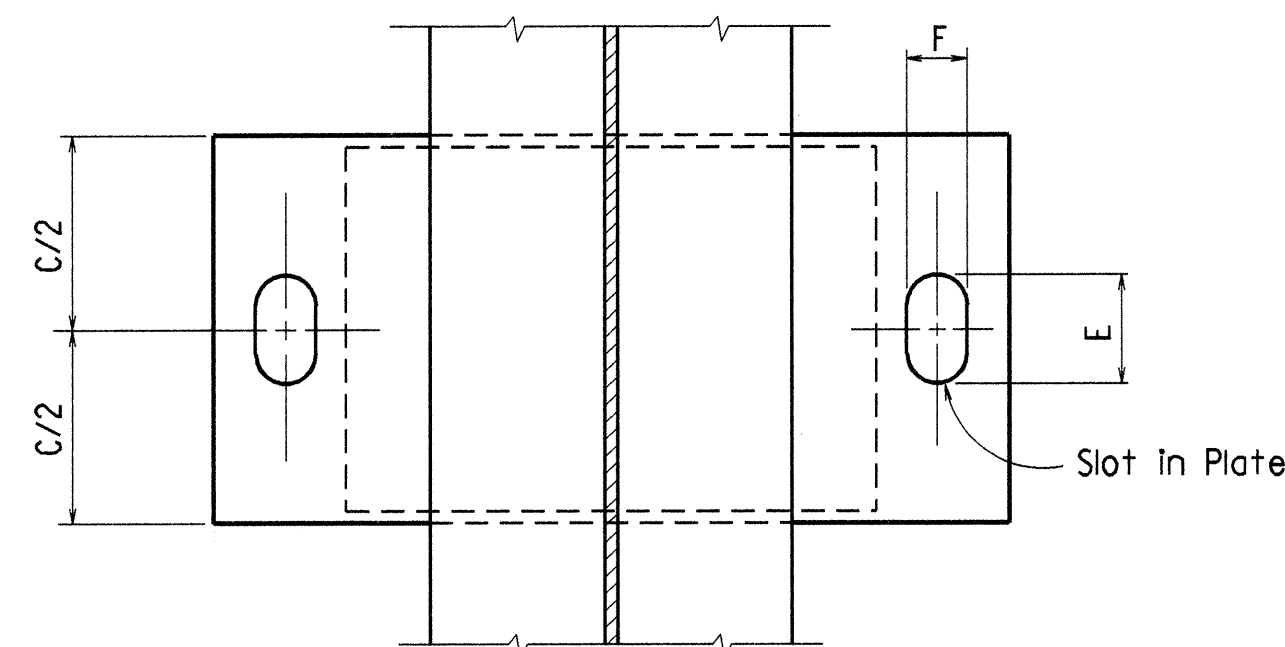


DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		060591	80	146
				(1)	A&B 3430	ELASTO. BRGS.		38981

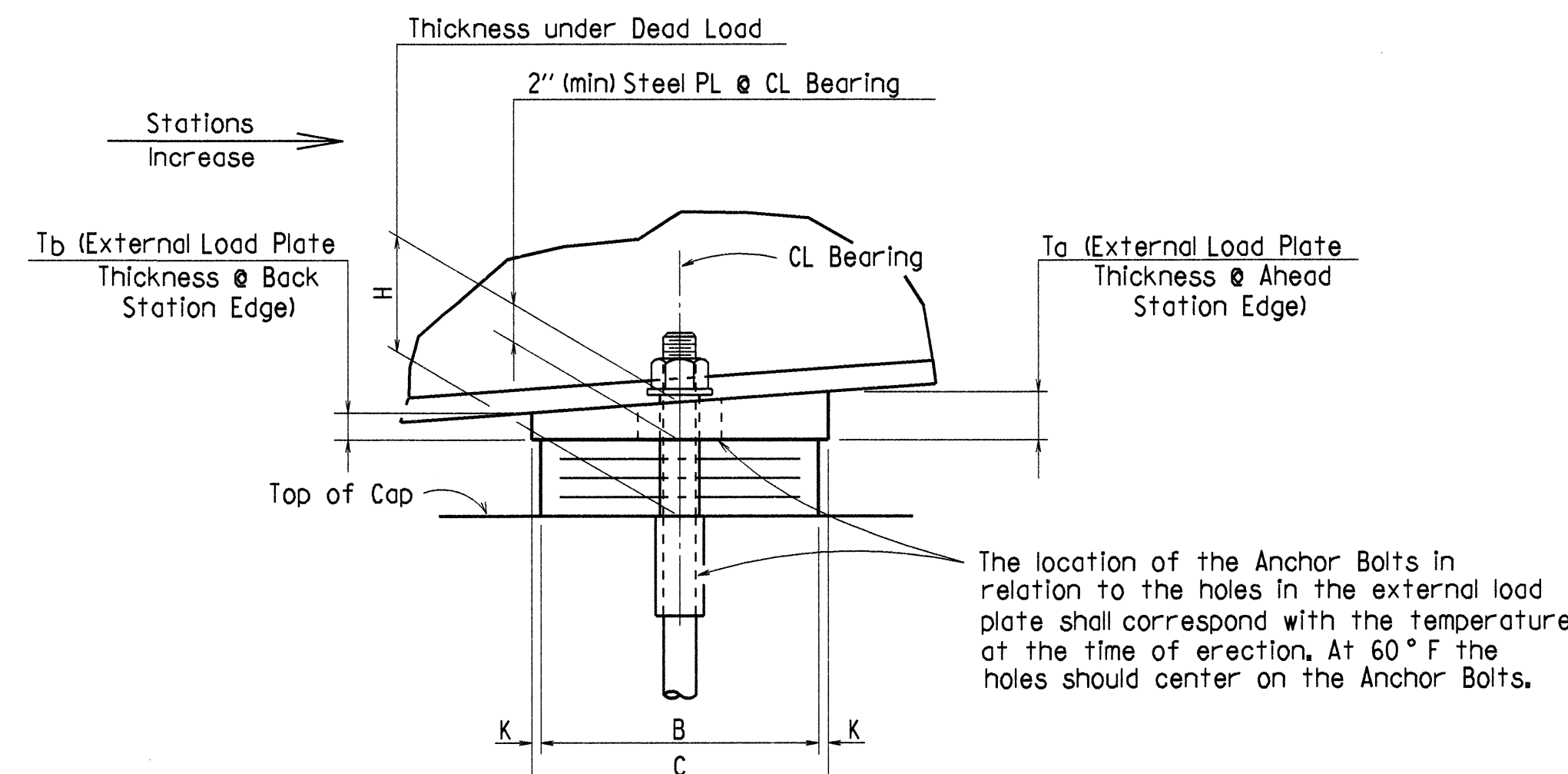


FRONT VIEW

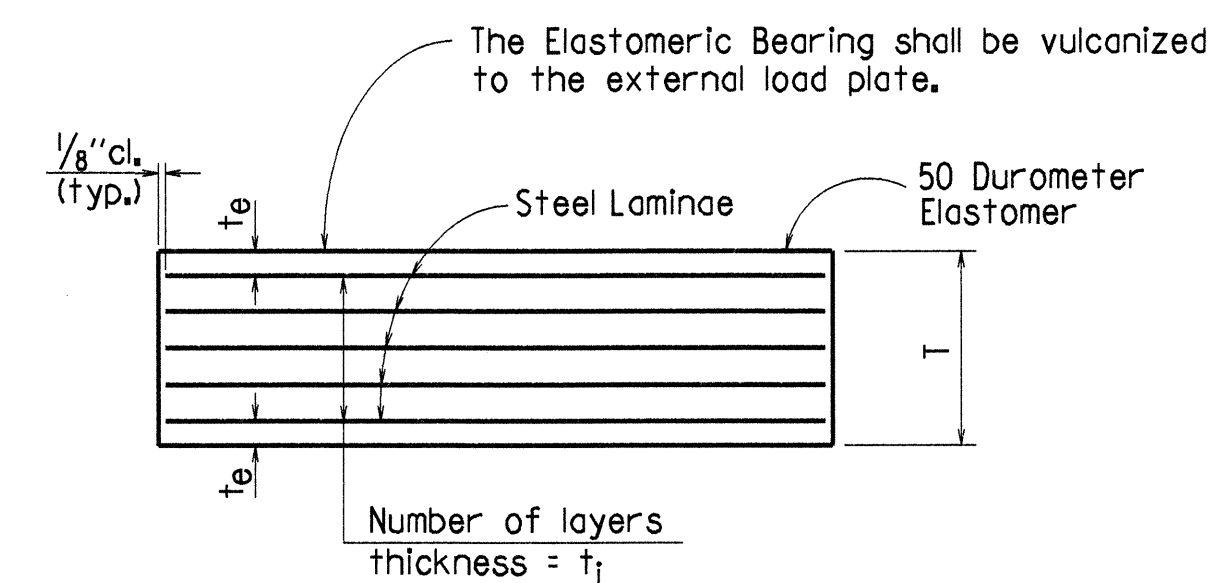
① Care shall be taken to ensure that the external load plate is in full and complete contact with the beam or girder flange before welding begins.



PLAN VIEW

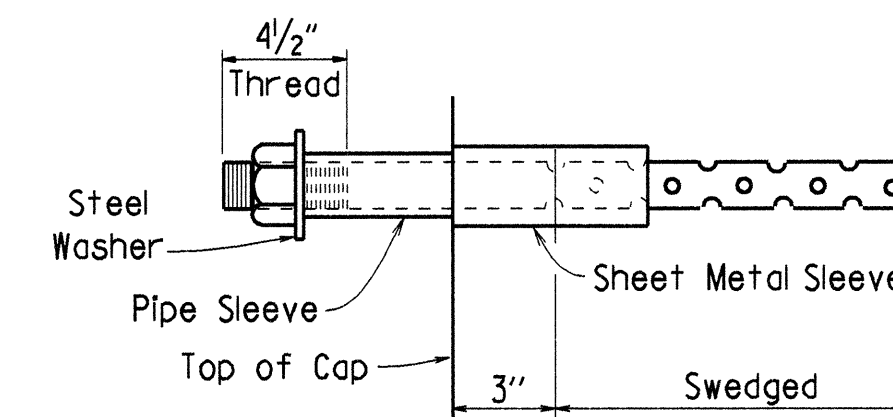


SIDE VIEW



$t_e$  = thickness of elastomer cover on top and bottom of pad  
 $t_i$  = thickness of elastomer between steel laminae  
 $N$  = number of elastomer layers of thickness  $t_i$

## ELASTOMERIC BEARING



ANCHOR BOLT DETAIL

NOTE: Anchor Bolts may be cast in place or drilled and grouted into place. If Anchor Bolts are to be cast in place, the Galvanized Sheet Metal Sleeves will not be required.

If Anchor Bolts are to be drilled and grouted in place, the Galvanized Sheet Metal Sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of Structural Steel, the dry pack shall be removed and holes for the anchor bolts shall be accurately drilled into the masonry. Bolts placed in drilled holes shall be accurately set and fixed using a OPL approved epoxy or non-shrink grout that completely fills the holes. Galvanized Sheet Metal Sleeves will not be paid for directly, but will be considered subsidiary to the item "Structural Steel in Beam Spans, (M 270, Gr. 50W 1)"

### GENERAL NOTES

Elastomeric Bearings shall conform to Section 808 of the Standard Specifications and shall be paid for at the unit price bid for "Elastomeric Bearings."

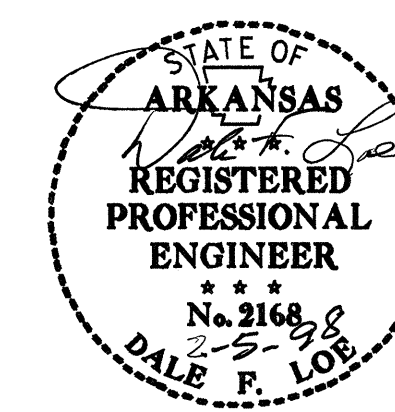
External load plates shall conform to AASHTO M 270, Grade 50W. Pipe sleeves shall be ASTM A53, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or AASHTO M 298, Class 50.

External load plates shall be completely fabricated (including bevel, bolt holes and all shop welding) and shall be blast cleaned to remove rust, loose mill scale, dirt, oil, grease and other foreign substances before vulcanizing to the elastomeric bearing. The surface in contact with the elastomeric bearing shall be blast cleaned to the surface finish specified in subsection 808.04(b). Other surfaces shall be blast cleaned in accordance with subsection 807.84(b) for painted steel and 807.84(e) for unpainted Grade 50W steel.

Anchor Bolts, Washers and Nuts shall conform to subsection 807.07 of the Standard Specifications. The anchor bolt grade of steel shall be as specified in the "Table of Fabricator Variables". Indentations shall be circular with rounded bottoms and staggered as shown in the details.

Pipe Sleeves, Anchor Bolts, Washers and Nuts shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M270, Gr. 50W)".

Tabular Data by : W.MAJ. Date: 1-26-98  
Checked by : G.V.A. Date: 1-28-98  
Designed by : ARJW. Date: 1-7-98



## DETAILS OF ELASTOMERIC BEARINGS

ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

DRAWN BY: MJT DATE: Nov. 12/96  
 CHECKED BY: AMS DATE: Nov. 15/96 SCALE: NONE  
 DESIGNED BY: Sld. DATE: \_\_\_\_\_  
 BRIDGE NO. A&B 3430 DRAWING NO. 3898I

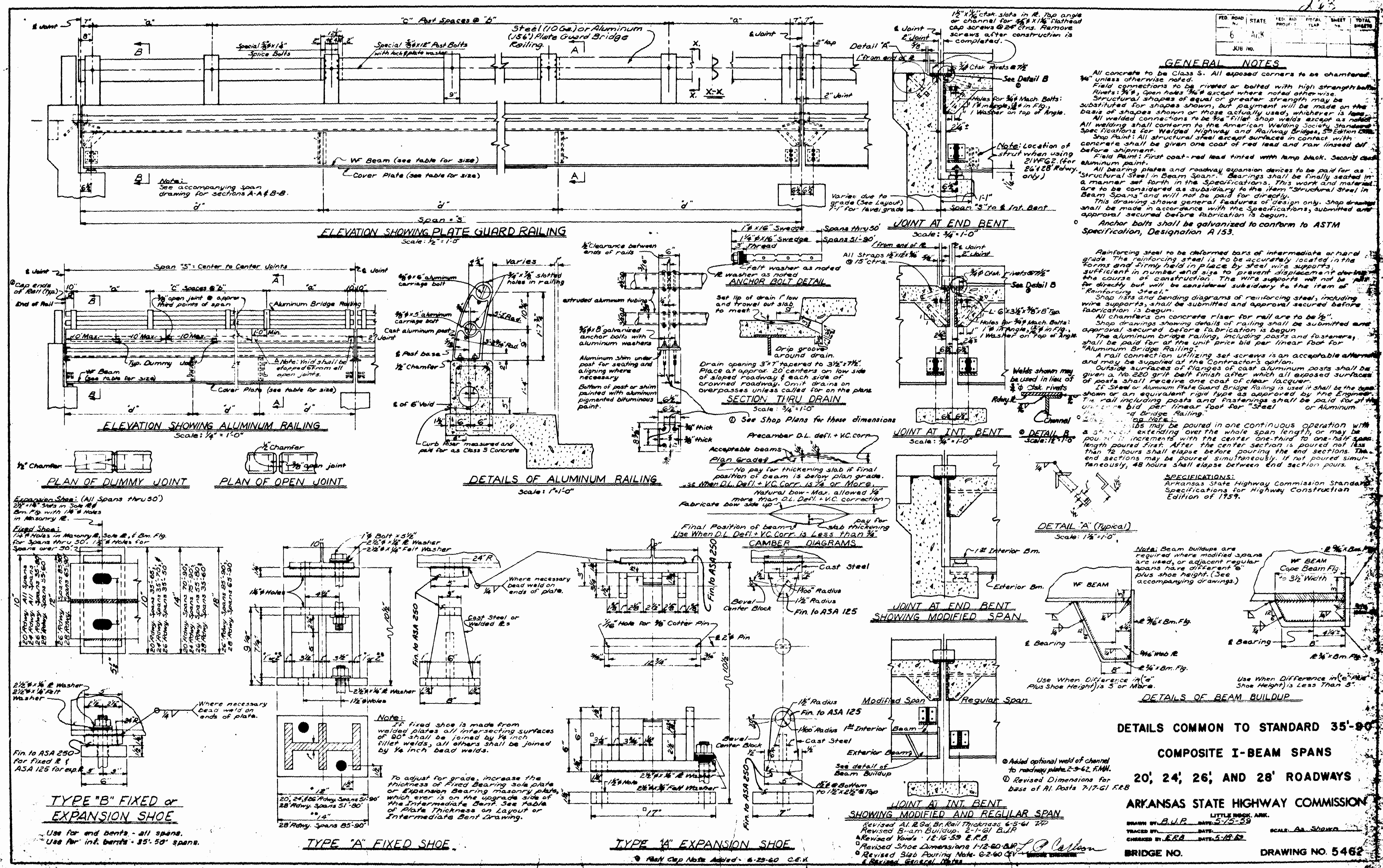
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\* Maximum Design Load = Service Load



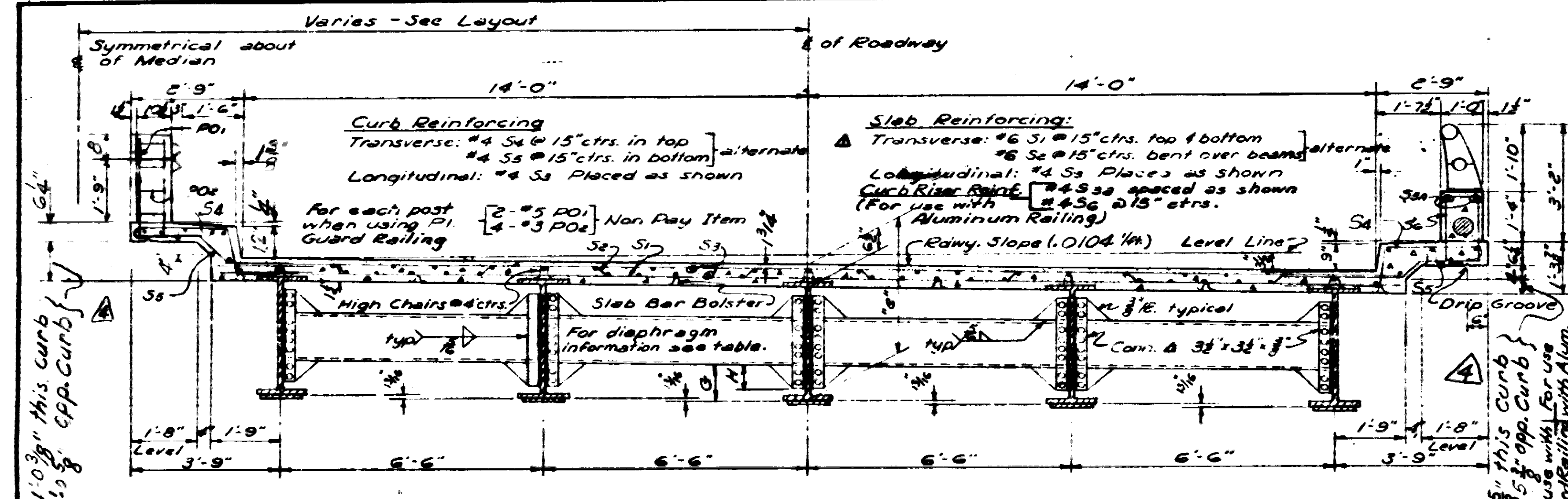


**GENERAL NOTES**

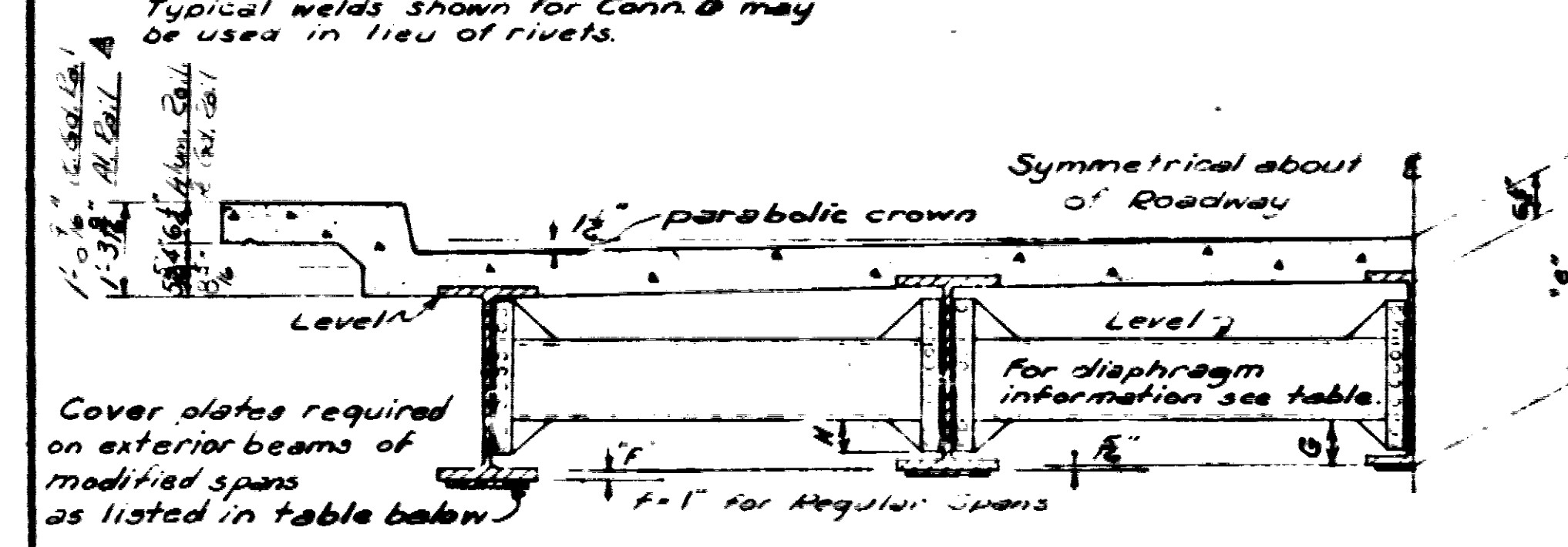
All concrete to be Class S. All exposed corners to be chamfered.  
Field connections to be riveted or bolted with high strength bolts.  
Rivets: 7/8", open holes 1 1/8" except where noted otherwise.  
Structural shapes of equal or greater strength may be substituted for shapes shown, but payment will be made on the basis of shapes shown or those actually used, whichever is less.  
All welding shall conform to the American Welding Society Standard Specifications for Welded Highway and Railway Bridges, 5th 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 bearing plates and roadway expansion devices to be paid for as "Structural Steel in Beam Spans" and shall be finally sealed in a 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.  
Shop drawings shall be made in accordance with the Specifications, submitted and approved secured before fabrication is begun.  
Anchor bolts shall be galvanized to conform to ASTM Specification, Designation A 153.  
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 casting of concrete. The wire supports will not be paid for directly but will be considered subsidiary to the item of "Reinforcing Steel".  
Shop drawings showing details of reinforcing steel, including wire supports, shall be submitted and approved secured before fabrication is begun.  
All chamfers on concrete floor for rail are to be 1/4".  
Shop drawings showing details of railing shall be submitted and approved secured before fabrication is begun.  
The aluminum bridge railing, including posts and fasteners, shall be paid for at the unit price bid per linear foot for "Aluminum Bridge Railing".  
A rail connection utilizing set screws is an acceptable alternative and may be supplied at the Contractor's option.  
Outside surfaces of flanges of cast aluminum posts shall be given a No. 220 grit belt finish after which all exposed surfaces of posts shall receive one coat of clear lacquer.  
If steel or aluminum plate guard bridge railing is used it shall be the type shown or an equivalent rigid type as approved by the Engineer.  
All rail including posts and fasteners shall be paid for at the unit price bid per linear foot for "Steel or Aluminum Bridge Railing".  
Concrete slabs may be poured in one continuous operation with a 3/4" extension over the whole span length or may be poured incrementally in the center one third to one half span length poured first. After the center section is poured not less than 12 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.  
**SPECIFICATIONS:**  
Arkansas State Highway Commission Standard Specifications for Highway Construction  
Edition of 1959.

**DETAILS COMMON TO STANDARD 35'-00"**  
**COMPOSITE I-BEAM SPANS**  
**20', 24', 26', AND 28' ROADWAYS**  
**ARKANSAS STATE HIGHWAY COMMISSION**  
BRIDGE NO. 5462  
DATE: 5-23-60  
DRAWING NO. 5462



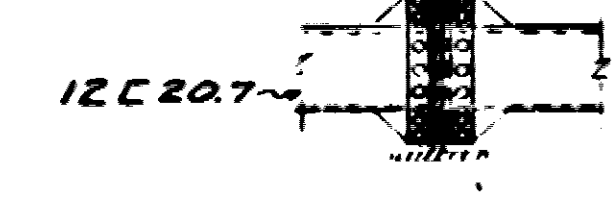


SECTION A-A OF REGULAR SPAN SLOPED RDWY.  
(Regular Spans Have All Beams of Equal Depth)



HALF SECTION A-A MODIFIED OR REGULAR SPAN  
PARABOLIC RDWY

NOTE:  
See Drawing No. 5462 for location of  
Sections A-A and Section B-B  
and Variables a, b, c, and d.



DIAPHRAGM FOR  
43-49 SPANS

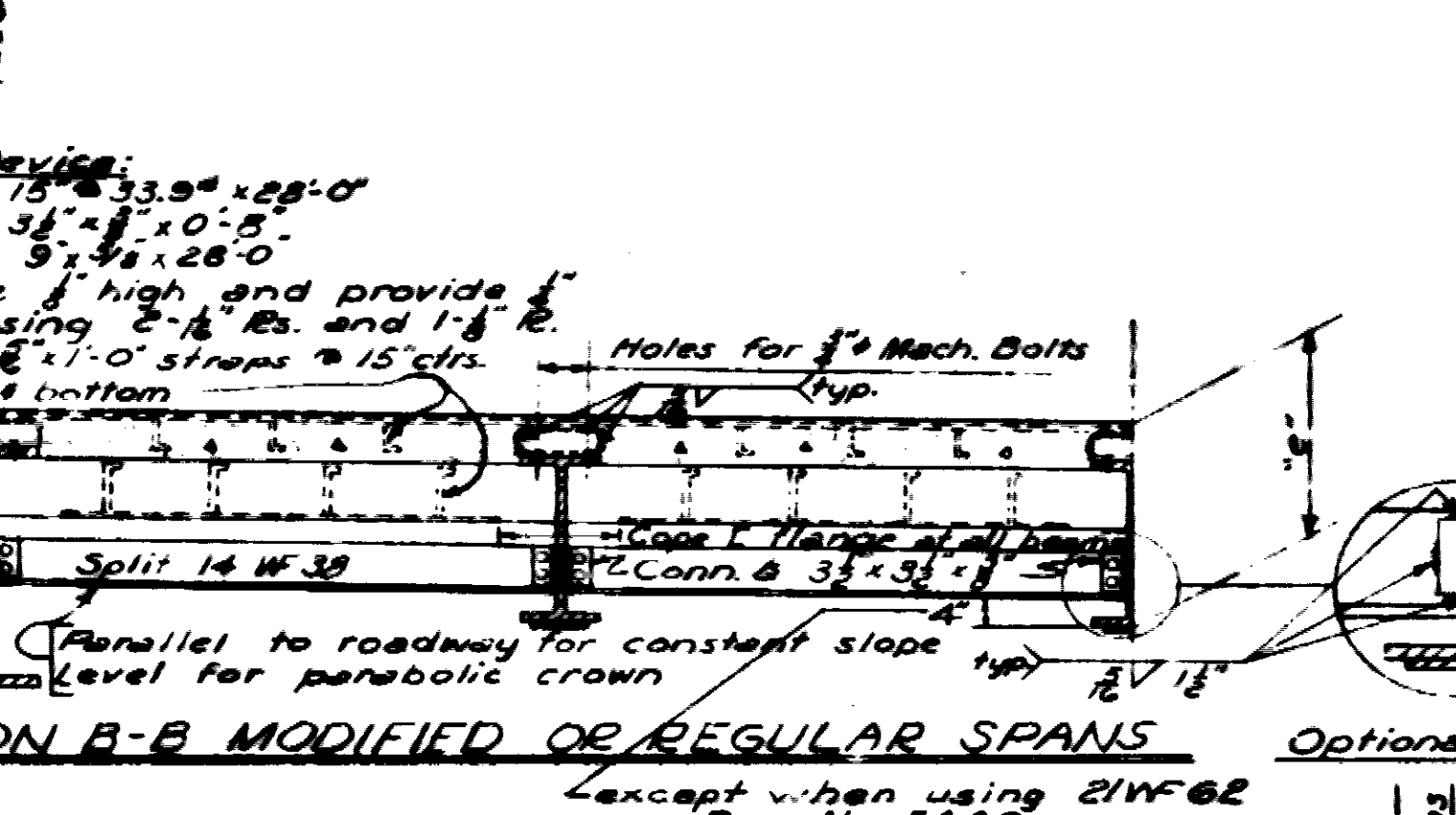
Deflection of exterior beam is for regular spans only.

Span	REGULAR SPAN		POST SPACING FOR ALUMINUM RAILING		MODIFIED SPANS, EXTERIOR BEAMS REQUIRE COVER E		POST SPACING FOR ALUMINUM RAILING		DEAD LOAD DEFLECTION		STRENGTH		Values of "a" and Dead Load Defl. for outside beams of modified spans	
	Beam	Cover Plate	a	b	a	b	a	b	Int.	Ext.	Spacing No. a-b	Spacing No. a-b	24WF76	24WF94
35	24WF76	7'-0" x 15'-0"	8'-4"	8'-4"	24WF76	4'-0" x 12'-0"	5'-0"	5'-0"	2'-0"	2'-0"	2-17-0"	2-17-0"	3/8"	3/8"
36	24WF76	7'-0" x 15'-0"	8'-4"	8'-4"	24WF76	4'-0" x 12'-0"	5'-0"	5'-0"	2'-0"	2'-0"	2-17-0"	2-17-0"	3/8"	3/8"
37	24WF76	7'-0" x 15'-0"	8'-4"	8'-4"	24WF76	4'-0" x 12'-0"	5'-0"	5'-0"	2'-0"	2'-0"	2-17-0"	2-17-0"	3/8"	3/8"
38	24WF76	7'-0" x 15'-0"	8'-4"	8'-4"	24WF76	4'-0" x 12'-0"	5'-0"	5'-0"	2'-0"	2'-0"	2-17-0"	2-17-0"	3/8"	3/8"
39	24WF76	7'-0" x 15'-0"	8'-4"	8'-4"	24WF76	4'-0" x 12'-0"	5'-0"	5'-0"	2'-0"	2'-0"	2-17-0"	2-17-0"	3/8"	3/8"
40	24WF76	7'-0" x 15'-0"	8'-4"	8'-4"	24WF76	4'-0" x 12'-0"	5'-0"	5'-0"	2'-0"	2'-0"	2-17-0"	2-17-0"	3/8"	3/8"
41	24WF76	7'-0" x 15'-0"	8'-4"	8'-4"	24WF76	4'-0" x 12'-0"	5'-0"	5'-0"	2'-0"	2'-0"	2-17-0"	2-17-0"	3/8"	3/8"
42	24WF76	7'-0" x 15'-0"	8'-4"	8'-4"	24WF76	4'-0" x 12'-0"	5'-0"	5'-0"	2'-0"	2'-0"	2-17-0"	2-17-0"	3/8"	3/8"
43	24WF94	7'-0" x 15'-0"	8'-4"	8'-4"	24WF94	4'-0" x 12'-0"	5'-0"	5'-0"	2'-0"	2'-0"	2-17-0"	2-17-0"	3/8"	3/8"
44	24WF94	7'-0" x 15'-0"	8'-4"	8'-4"	24WF94	4'-0" x 12'-0"	5'-0"	5'-0"	2'-0"	2'-0"	2-17-0"	2-17-0"	3/8"	3/8"
45	24WF94	7'-0" x 15'-0"	8'-4"	8'-4"	24WF94	4'-0" x 12'-0"	5'-0"	5'-0"	2'-0"	2'-0"	2-17-0"	2-17-0"	3/8"	3/8"
46	24WF94	7'-0" x 15'-0"	8'-4"	8'-4"	24WF94	4'-0" x 12'-0"	5'-0"	5'-0"	2'-0"	2'-0"	2-17-0"	2-17-0"	3/8"	3/8"
47	24WF94	7'-0" x 15'-0"	8'-4"	8'-4"	24WF94	4'-0" x 12'-0"	5'-0"	5'-0"	2'-0"	2'-0"	2-17-0"	2-17-0"	3/8"	3/8"
48	24WF94	7'-0" x 15'-0"	8'-4"	8'-4"	24WF94	4'-0" x 12'-0"	5'-0"	5'-0"	2'-0"	2'-0"	2-17-0"	2-17-0"	3/8"	3/8"
49	24WF94	7'-0" x 15'-0"	8'-4"	8'-4"	24WF94	4'-0" x 12'-0"	5'-0"	5'-0"	2'-0"	2'-0"	2-17-0"	2-17-0"	3/8"	3/8"
50	30WF108	8'-0" x 20'-0"	9'-0"	9'-0"	30WF108	4'-0" x 12'-0"	5'-0"	5'-0"	2'-0"	2'-0"	2-17-0"	2-17-0"	3/8"	3/8"
51	30WF108	8'-0" x 20'-0"	9'-0"	9'-0"	30WF108	4'-0" x 12'-0"	5'-0"	5'-0"	2'-0"	2'-0"	2-17-0"	2-17-0"	3/8"	3/8"
52	30WF108	8'-0" x 20'-0"	9'-0"	9'-0"	30WF108	4'-0" x 12'-0"	5'-0"	5'-0"	2'-0"	2'-0"	2-17-0"	2-17-0"	3/8"	3/8"
53	30WF108	8'-0" x 20'-0"	9'-0"	9'-0"	30WF108	4'-0" x 12'-0"	5'-0"	5'-0"	2'-0"	2'-0"	2-17-0"	2-17-0"	3/8"	3/8"
54	30WF108	8'-0" x 20'-0"	9'-0"	9'-0"	30WF108	4'-0" x 12'-0"	5'-0"	5'-0"	2'-0"	2'-0"	2-17-0"	2-17-0"	3/8"	3/8"
55	30WF108	8'-0" x 20'-0"	9'-0"	9'-0"	30WF108	4'-0" x 12'-0"	5'-0"	5'-0"	2'-0"	2'-0"	2-17-0"	2-17-0"	3/8"	3/8"
56	30WF108	8'-0" x 20'-0"	9'-0"	9'-0"	30WF108	4'-0" x 12'-0"	5'-0"	5'-0"	2'-0"	2'-0"	2-17-0"	2-17-0"	3/8"	3/8"
57	30WF108	8'-0" x 20'-0"	9'-0"	9'-0"	30WF108	4'-0" x 12'-0"	5'-0"	5'-0"	2'-0"	2'-0"	2-17-0"	2-17-0"	3/8"	3/8"
58	30WF108	8'-0" x 20'-0"	9'-0"	9'-0"	30WF108	4'-0" x 12'-0"	5'-0"	5'-0"	2'-0"	2'-0"	2-17-0"	2-17-0"	3/8"	3/8"
59	30WF108	8'-0" x 20'-0"	9'-0"	9'-0"	30WF108	4'-0" x 12'-0"	5'-0"	5'-0"	2'-0"	2'-0"	2-17-0"	2-17-0"	3/8"	3/8"
60	30WF108	8'-0" x 20'-0"	9'-0"	9'-0"	30WF108	4'-0" x 12'-0"	5'-0"	5'-0"	2'-0"	2'-0"	2-17-0"	2-17-0"	3/8"	3/8"
65	30WF108	8'-0" x 20'-0"	9'-0"	9'-0"	30WF108	4'-0" x 12'-0"	5'-0"	5'-0"	2'-0"	2'-0"	2-17-0"	2-17-0"	3/8"	3/8"
70	30WF108	8'-0" x 20'-0"	9'-0"	9'-0"	30WF108	4'-0" x 12'-0"	5'-0"	5'-0"	2'-0"	2'-0"	2-17-0"	2-17-0"	3/8"	3/8"
75	30WF108	8'-0" x 20'-0"	9'-0"	9'-0"	30WF108	4'-0" x 12'-0"	5'-0"	5'-0"	2'-0"	2'-0"	2-17-0"	2-17-0"	3/8"	3/8"
80	30WF108	8'-0" x 20'-0"	9'-0"	9'-0"	30WF108	4'-0" x 12'-0"	5'-0"	5'-0"	2'-0"	2'-0"	2-17-0"	2-17-0"	3/8"	3/8"
85	30WF108	8'-0" x 20'-0"	9'-0"	9'-0"	30WF108	4'-0" x 12'-0"	5'-0"	5'-0"	2'-0"	2'-0"	2-17-0"	2-17-0"	3/8"	3/8"
90	30WF108	8'-0" x 20'-0"	9'-0"	9'-0"	30WF108	4'-0" x 12'-0"	5'-0"	5'-0"	2'-0"	2'-0"	2-17-0"	2-17-0"	3/8"	3/8"

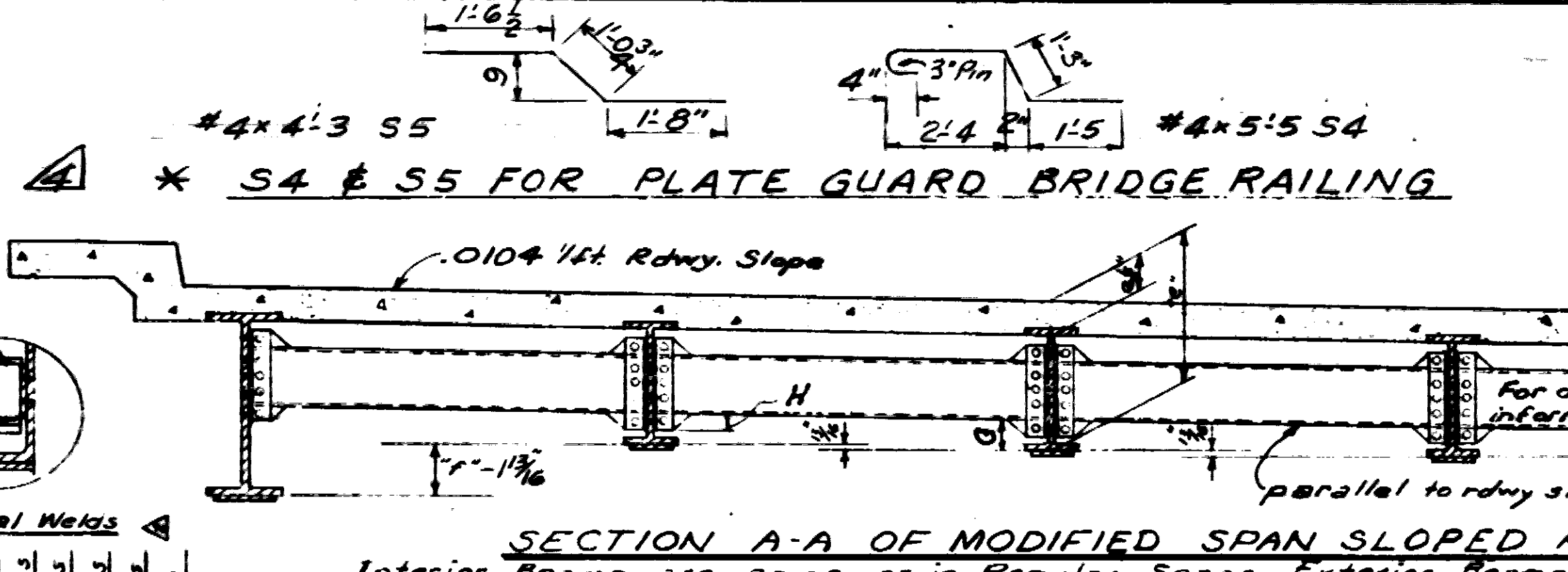
\*Steel for these beams and cover plates shall conform to the specifications for Structural Steel for Welding, A.S.T.M. Designation A373.

BAE LIST - ONE SPAN		Number Required Each Span	
Mark	Size	Length	Pin Dia.
35	3/8"	35'	3/8"
36	3/8"	36'	3/8"
37	3/8"	37'	3/8"
38	3/8"	38'	3/8"
39	3/8"	39'	3/8"
40	3/8"	40'	3/8"
41	3/8"	41'	3/8"
42	3/8"	42'	3/8"
43	3/8"	43'	3/8"
44	3/8"	44'	3/8"
45	3/8"	45'	3/8"
46	3/8"	46'	3/8"
47	3/8"	47'	3/8"
48	3/8"	48'	3/8"
49	3/8"	49'	3/8"
50	3/8"	50'	3/8"
51	3/8"	51'	3/8"
52	3/8"	52'	3/8"
53	3/8"	53'	3/8"
54	3/8"	54'	3/8"
55	3/8"	55'	3/8"
56	3/8"	56'	3/8"
57	3/8"	57'	3/8"
58	3/8"	58'	3/8"
59	3/8"	59'	3/8"
60	3/8"	60'	3/8"
65	3/8"	65'	3/8"
70	3/8"	70'	3/8"
75	3/8"	75'	3/8"
80	3/8"	80'	3/8"
85	3/8"	85'	3/8"
90	3/8"	90'	3/8"

FED. ROAD NO.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	ARK.				
JOB NO.					
Dimensions are to centers of bars.					
BENDING DIAGRAM					



HALF SECTION B-B MODIFIED OR REGULAR SPANS



SECTION A-A OF MODIFIED SPAN SLOPED RDWY

NOTE: These dimensions are for interior beams. For exterior beams these dimensions shall be shortened by 1".

DETAILS OF SHEAR CONNECTORS		Variables of Shear Connector Spacing	
Span	Size	Span	Size
35	3/8"	35	3/8"
36	3/8"	36	3/8"
37	3/8"	37	3/8"
38	3/8"	38	3/8"
39	3/8"	39	3/8"
40	3/8"	40	3/8"
41	3/8"	41	3/8"
42	3/8"	42	3/8"
43	3/8"	43	3/8"
44	3/8"	44	3/8"
45	3/8"	45	3/8"
46	3/8"	46	3/8"
47	3/8"	47	3/8"
48	3/8"	48	3/8"
49	3/8"	49	3/8"
50	3/8"	50	3/8"
51	3/8"	51	3/8"
52	3/8"	52	3/8"
53	3/8"	53	3/8"
54	3/8"	54	3/8"
55	3/8"	55	3/8"
56	3/8"	56	3/8"
57	3/8"	57	3/8"
58	3/8"	58	3/8"
59	3/8"	59	3/8"
60	3/8"	60	3/8"
65	3/8"	65	3/8"
70	3/8"	70	3/8"
75	3/8"	75	3/8"
80	3/8"	80	3/8"
85	3/8"	85	3/8"
90	3/8"	90	3/8"

NOTE: Stud shear connectors, granular flux filled, solid fluxed, or equal may be used in place of the channels shown at the following ratios: 3" diameter stud in place of 1.82 inches of channel, 1/2" diameter stud in place of 0.52 inches of channel. The studs shall be 4" long and automatically and welded to the beam flanges in accordance with recommendations of the manufacturer. Channel sections will be used as basis for measurement of structural steel in shear connectors.

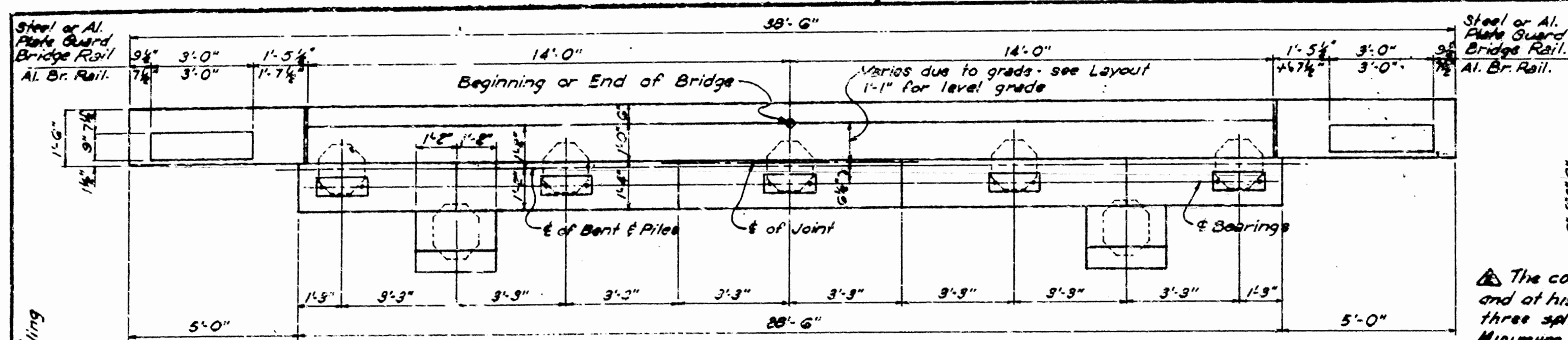
LOADING: H2O-SIG (A.A.S.H.O. 1957) and Special Interstates Loading  
a. To Beam - 526% + 11 (w/ft. dwt)  
b. To Composite Beam  
(1) Plate Guard Br. Railing 90%  
(2) Aluminum Br. Railing 142%  
c. Live Load:  
a. To each Comp. Beam - 1182 wheels + Impact  
b. To each Comp. Beam - 1182 wheels + Impact

UNIT STRESSES		DIAPHRAGM TABLE	
Class S Concrete (n=10)	1,200 psi	Span Lengths	Channel Size
Structural Steel	18,000 psi	35-42	12C207
Reinforcing Steel	20,000 psi	43-49	12C207

Span Lengths	Channel Size	Regular Span	Modified Span	G	H
35-42	12C207	5	5	3 1/2	2 1/4
43-49	12C207	7	7	7	5
50-75	15C33.9	8	8	8	5
80-90	15C33.9	8	8	8	5

DETAILS OF STANDARD  
35'-90' COMPOSITE I-BEAM SPANS  
28' CLEAR ROADWAY 1'-6" & 1'-7 1/2" CURBS  
ROADWAY: 1/2" Parabolic Crown 0.0104% SLOPE  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.  
DRAWN BY: E.P.N. DATE: 6-22-59  
CHECKED BY: F.E.B. DATE: 6-12-59  
BRIDGE NO. DRAWING NO. 5472

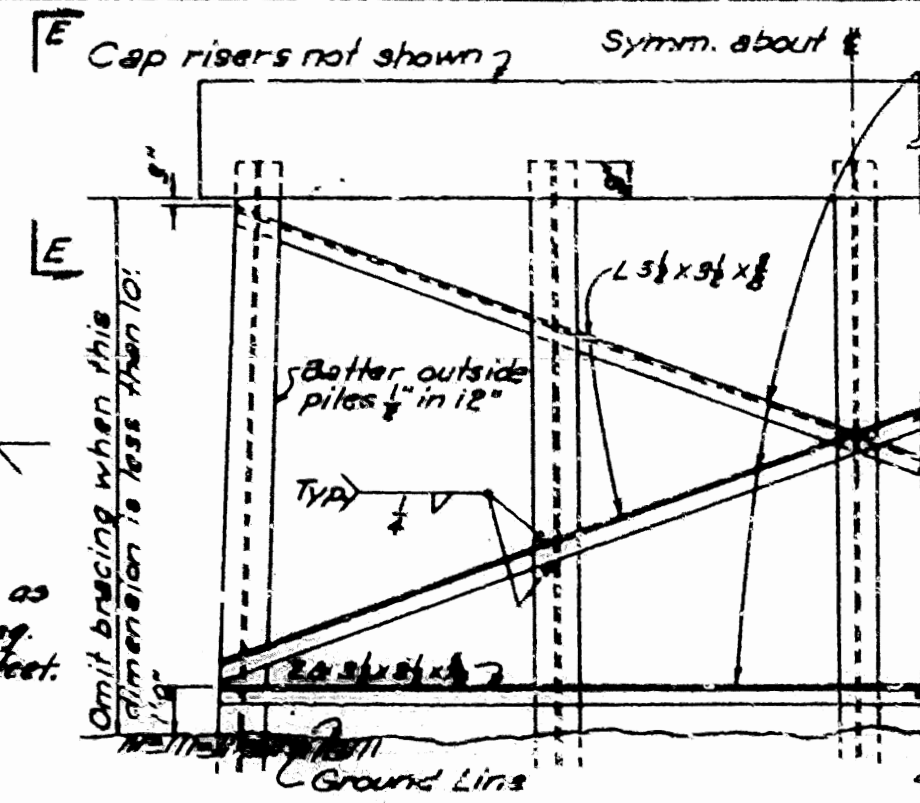




Plan of End Bent  
Sloped or Crowned Roadway

△ The contractor may for his convenience and at his own expense provide as many as three splices per pile for steel bearing piling. Minimum spacing between splices shall be 5 feet.

Pile Splice Detail  
Scale:  $\frac{1}{2}" = 1'-0"$



Typical Bracing  
Intermediate H Pile Bent  
Scale:  $\frac{1}{4}" = 1'-0"$

The lengths of bracing members shall be determined in the field. Each member shall be one continuous and shall be welded to the steel bearing piles as shown. Angle bracing shall be measured and paid for as "Structural Steel in Beam Space".

Spa.7	Beams		Sloped Roadway								Crowned Roadway				
	Interior	Exterior	a	b	c	d	e	f	g	h	i	k	m		
35'	21W125	30W125	35'	-	-	0"	-	-	35'	-	0"	-	-		
{	{	30W125	35'	5"	5"	-	-	5"	5"	5"	5"	5"	5"		
		30W125	35'	5"	5"	-	-	5"	5"	5"	5"	5"	5"		
		30W125	35'	5"	5"	-	-	5"	5"	5"	5"	5"	5"		
35'	21W125	30W125	35'	5"	5"	5"	-	-	5"	5"	5"	5"			
36'-48"	21W125	30W125	35'	5"	5"	5"	-	-	5"	5"	5"	5"			
{	{	30W125	35'	5"	5"	-	-	-	-	-	-	-	-		
		30W125	35'	5"	5"	-	-	-	-	-	-	-	-		
		30W125	35'	5"	5"	-	-	-	-	-	-	-	-		
36'-48"	21W125	30W125	35'	5"	5"	5"	-	-	5"	5"	5"	5"			
43'-43"	21W125	30W125	35'	5"	5"	5"	-	-	5"	5"	5"	5"			
{	{	30W125	35'	5"	5"	-	-	-	-	-	-	-	-		
		30W125	35'	5"	5"	-	-	-	-	-	-	-	-		
		30W125	35'	5"	5"	-	-	-	-	-	-	-	-		
43'-49"	21W125	30W125	35'	5"	5"	5"	-	-	5"	5"	5"	5"			
50'-54"	21W125	30W125	35'	5"	5"	5"	-	-	5"	5"	5"	5"			
{	{	30W125	35'	5"	5"	-	-	-	-	-	-	-	-		
		30W125	35'	5"	5"	-	-	-	-	-	-	-	-		
		30W125	35'	5"	5"	-	-	-	-	-	-	-	-		
50'-54"	21W125	30W125	35'	5"	5"	5"	-	-	5"	5"	5"	5"			
55'-65"	21W125	30W125	35'	5"	5"	5"	-	-	5"	5"	5"	5"			
70'	21W125	30W125	35'	5"	5"	5"	-	-	5"	5"	5"	5"			

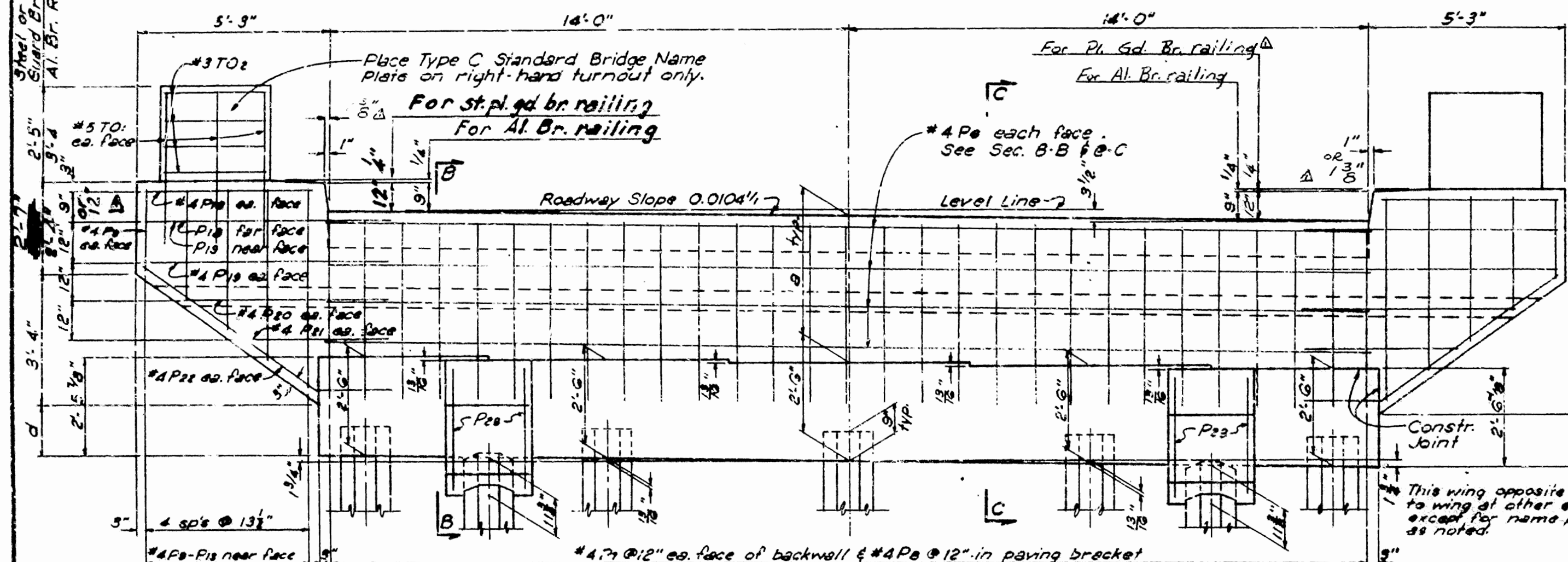
### Bar List

Mark	Size	Number Per Bent						Length	A	B	Pin Dia.	Bending Diagram
		Sloped Rdwy.			Crowned Rdwy.							
		End	Int.	End	Int.	End	Int.					
		CapW	CapX	CapW	CapY	CapZ	CapY					
P1	#8	3	-	3	-	3	-	28'-2"			Str.	
P2	#8	-	9	-	-	9	-	15'-2"				
P3	#8	-	6	-	-	6	-	8'-0"				
P4	#6	4	4	4	4	4	4	28'-2"			Str.	
P5	#6	4	4	4	4	4	4	31'-6"	1'-7"	15'-0"	8'-2"	
P6	#6	15	6	15	6	15	6	6'-11"	1'-11"	8'-11"	8'-2"	
P7	#6	-	9	-	-	-	-	6'-11"	3'-2"	8'-11"	8'-2"	
P8	#6	-	-	-	-	9	-	6'-11"	3'-2"	8'-11"	8'-2"	
P9	#4	52	16	52	16	52	16	8'-9"		1'-11"	1'-11"	
P10	#4	-	96	-	-	-	-	8'-9"	2'-2"	8'-11"	8'-2"	
P11	#4	-	-	-	-	96	-	8'-9"	2'-2"	8'-11"	8'-2"	
P12	#6	8	0	-	8	0	-	28'-0"			Str.	
P13	#6	58	0	-	58	0	-	4'-7"			Str.	
P14	#6	23	29	-	23	29	-	4'-0"			1'-11"	
P15	#6	4	4	-	4	4	-	2'-0"			Str.	
P16	#6	2	2	-	2	2	-	2'-9"				
P17	#6	2	2	-	2	2	-	3'-6"				
P18	#6	2	2	-	2	2	-	4'-3"				
P19	#6	2	2	-	2	2	-	5'-0"			Str.	
P20	#6	2	2	-	2	2	-	3'-11"	2'-6"	0	1'-11"	
P21	#6	2	2	-	2	2	-	3'-10"		0'-9"		
P22	#6	2	2	-	2	2	-	4'-7"		1'-6"		
P23	#6	2	2	-	2	2	-	5'-4"	2'-6"	2'-9"	1'-11"	
P24	#6	0	0	-	0	0	-	4'-11"			Str.	
P25	#6	0	0	-	0	0	-	6'-9"				
P26	#4	4	4	-	4	4	-	5'-8"				
P27	#4	4	4	-	4	4	-	4'-2"			Str.	
P28	#4	4	4	-	4	4	-	7'-9"			1'-11"	
P29	#6	4	4	-	4	4	-	8'-0"			8'-2"	
P30	#6	4	4	-	4	4	-	11'-4"			8'-2"	
P31	#4	2	2	-	2	2	-	5'-11"	0'-5"	1'-10"	1'-11"	
T01	#5	12	12	-	12	12	-	4'-9"			Str.	
T02	#3	0	0	-	0	0	-	6'-11"	0'-6"	8'-9"	1'-11"	

Dimensions are to ctrs. of bars.

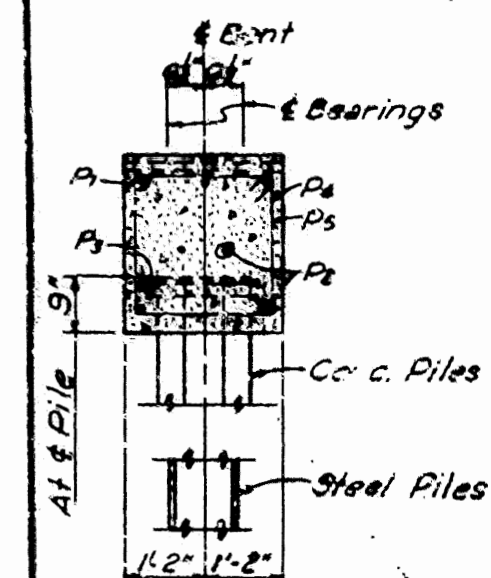
\* For values of "g" and "m" see table of variable dimensions.

\* For Steel Plate Guard Bridge Railing add 3" to lengths of bars P5-P17 making increase of P14 to P17 in dimension A.



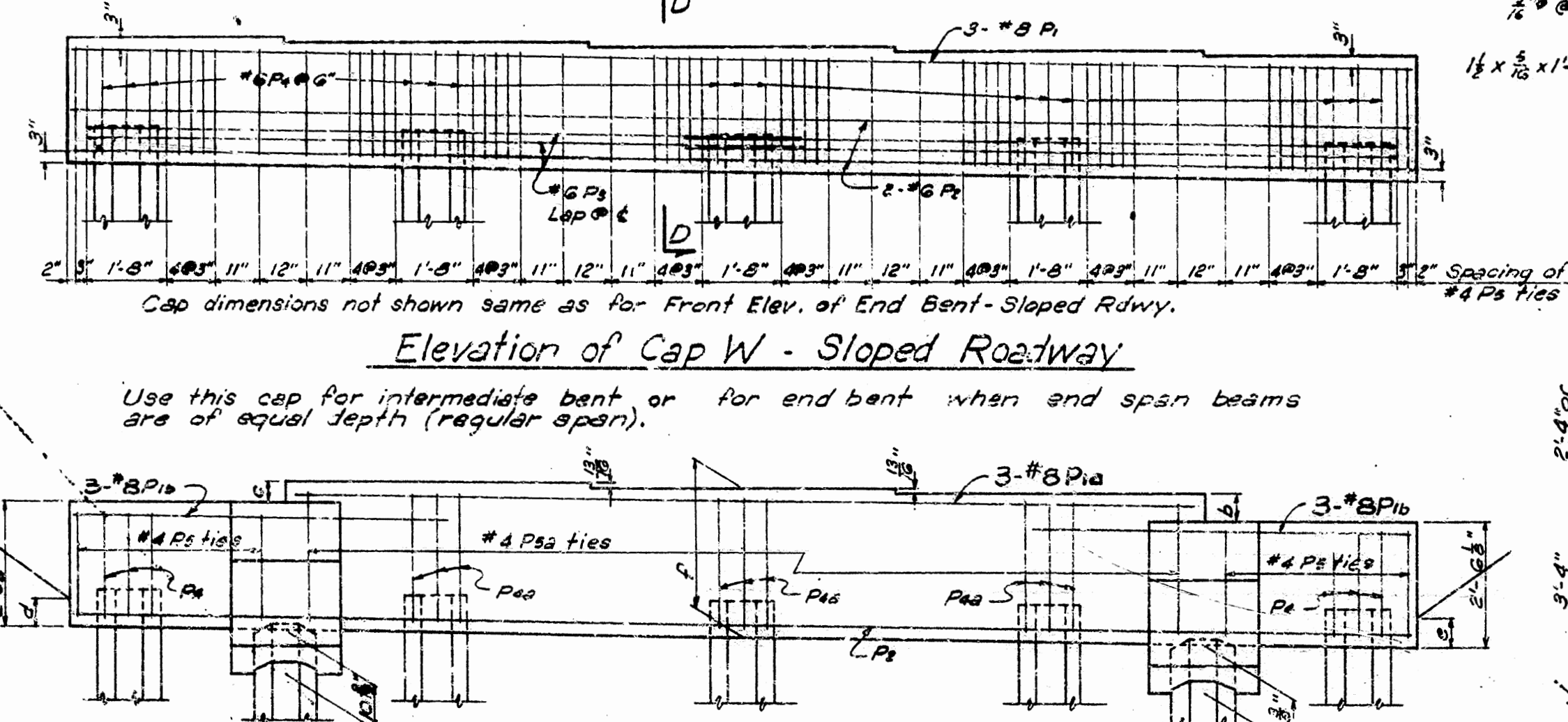
Front Elevation of End Bent - Sloped Roadway

Cap W shown with batter piles. Batter piles occur at end bents only



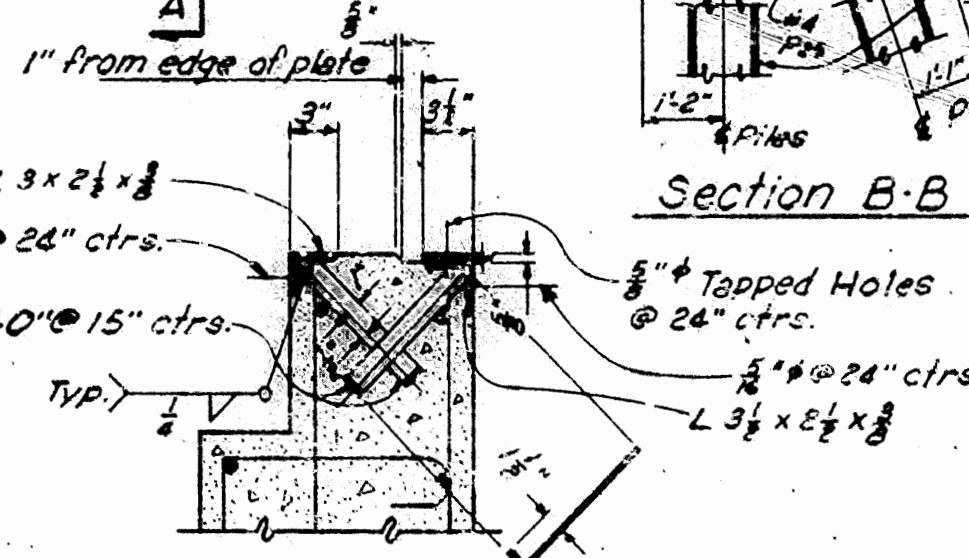
Section D-D

As intermediate  
Bent



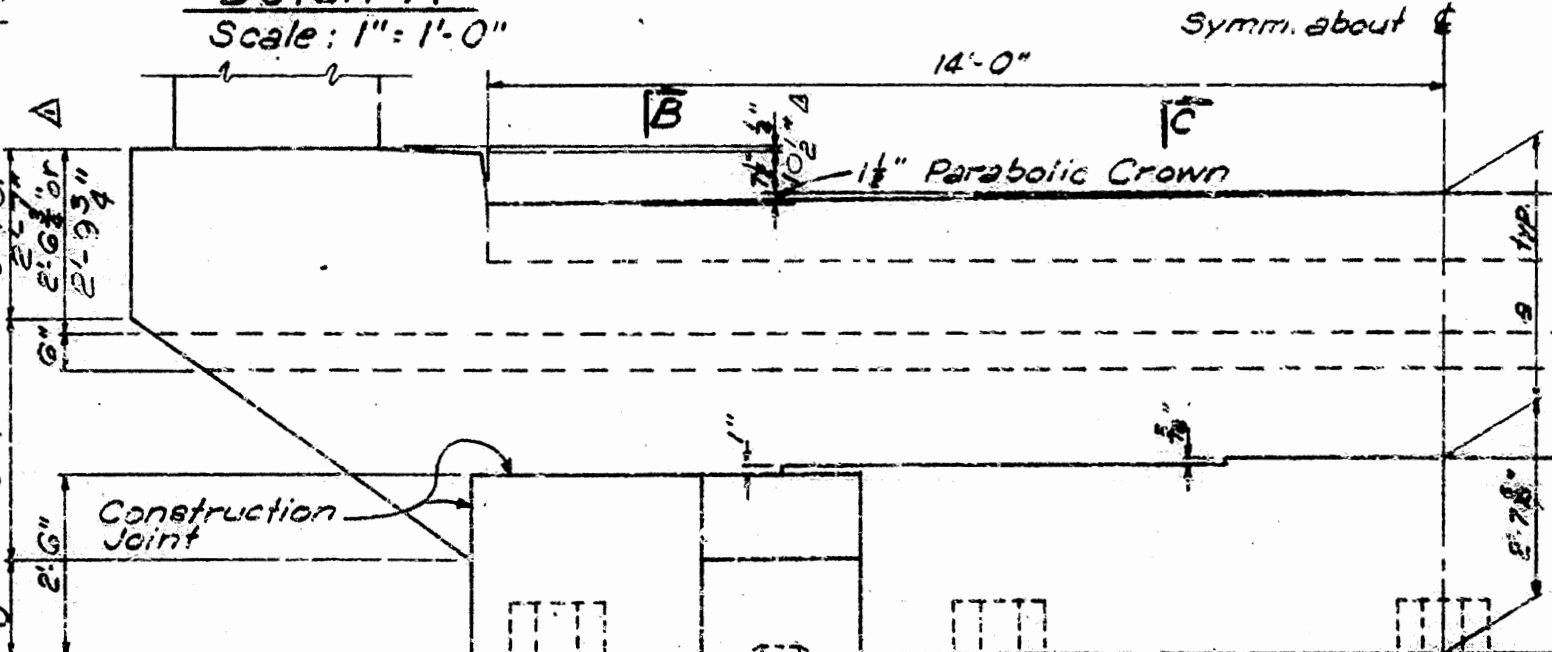
Elevation of Cap W - Sloped Roadway

Use this cap for intermediate bent or for end bent when end span beams are of equal depth (regular span).



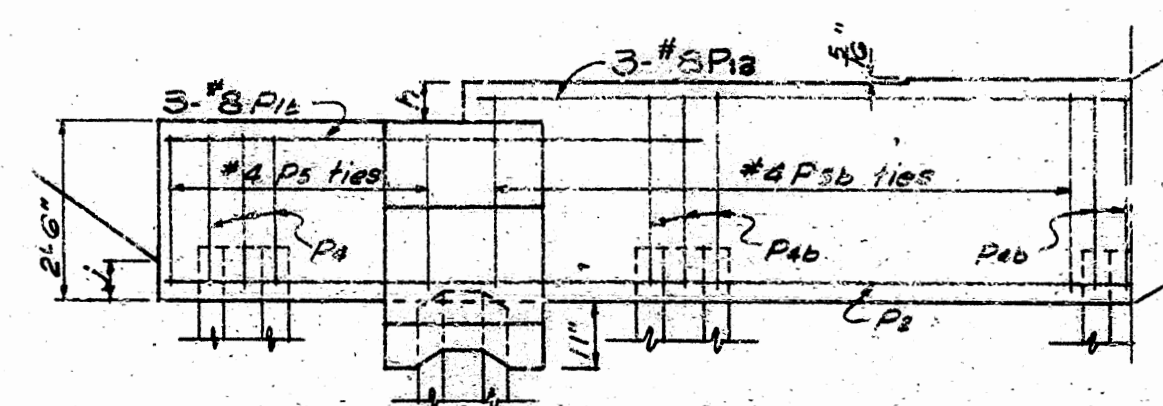
Detail A

Scale: 1" = 1'-0"



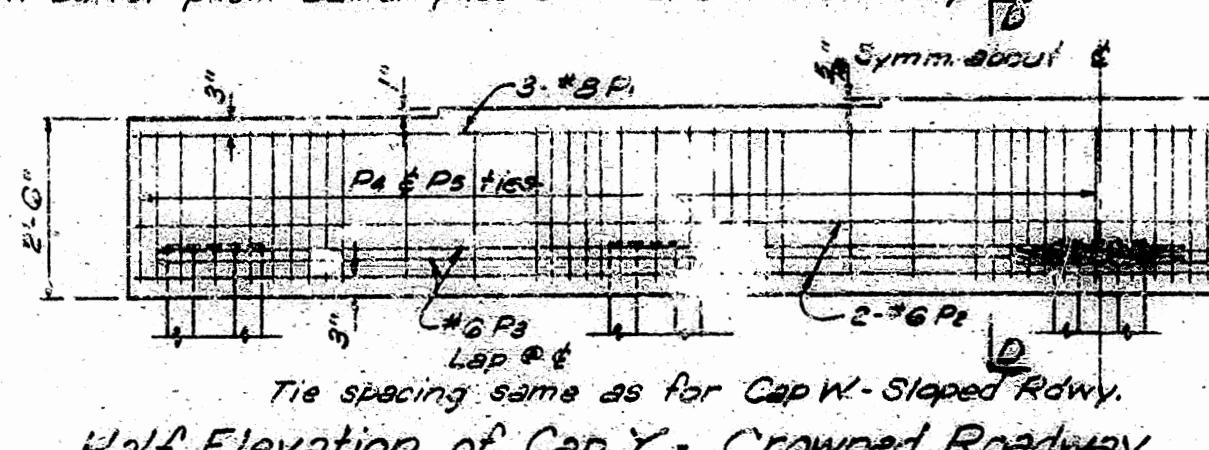
For details not shown see Elev. End Bent - Sloped Roadway.  
Half Front Elevation of End Bent - Crowned Roadway

Cap Y shown with batter piles. Batter piles occur at and bents only.



Half Elevation of Cap Z - Crowned Roadway

Use this cap for end bent when end span interior beams are of less depth than exterior beams (modified span)



Half Elevation of Cap Y - Crowned Roadway

Use this cap for intermediate bent or for end bent when end span beams are of equal depth (regular span).

### Notes

All concrete to be Class S. All exposed corners to have  $\frac{3}{4}$ " chamfer unless otherwise noted.

Steel piles are to be driven to refusal. Concrete or concrete filled metal shell piles are to be driven to a minimum capacity of 30 tons per pile.

Intermediate bents not to be used for spans over 45'.

DETAILS OF STANDARD PILE BENTS  
FOR 35' TO 70' COMPOSITE I-BEAM SPANS  
28' CLEAR ROADWAY 1'-6" OR 1'-7½" CURBS

Roadway:  $1\frac{1}{2}$ " Parabolic Crown or 0.0104 % Slope

ROUTE SEC.

W  
51 ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

59. DRAWN BY: P.L.C. DATE: 5-20-59  
60. TRACED BY: 1-20 DATE: 9 JUN 59 SCALE:  $\frac{3}{8}'' = 1'-0''$   
and as noted

CHECKED BY: 2/2/82 DATE: 2/2/82  
BRIDGE NO. DRAWING NO. 5477A



