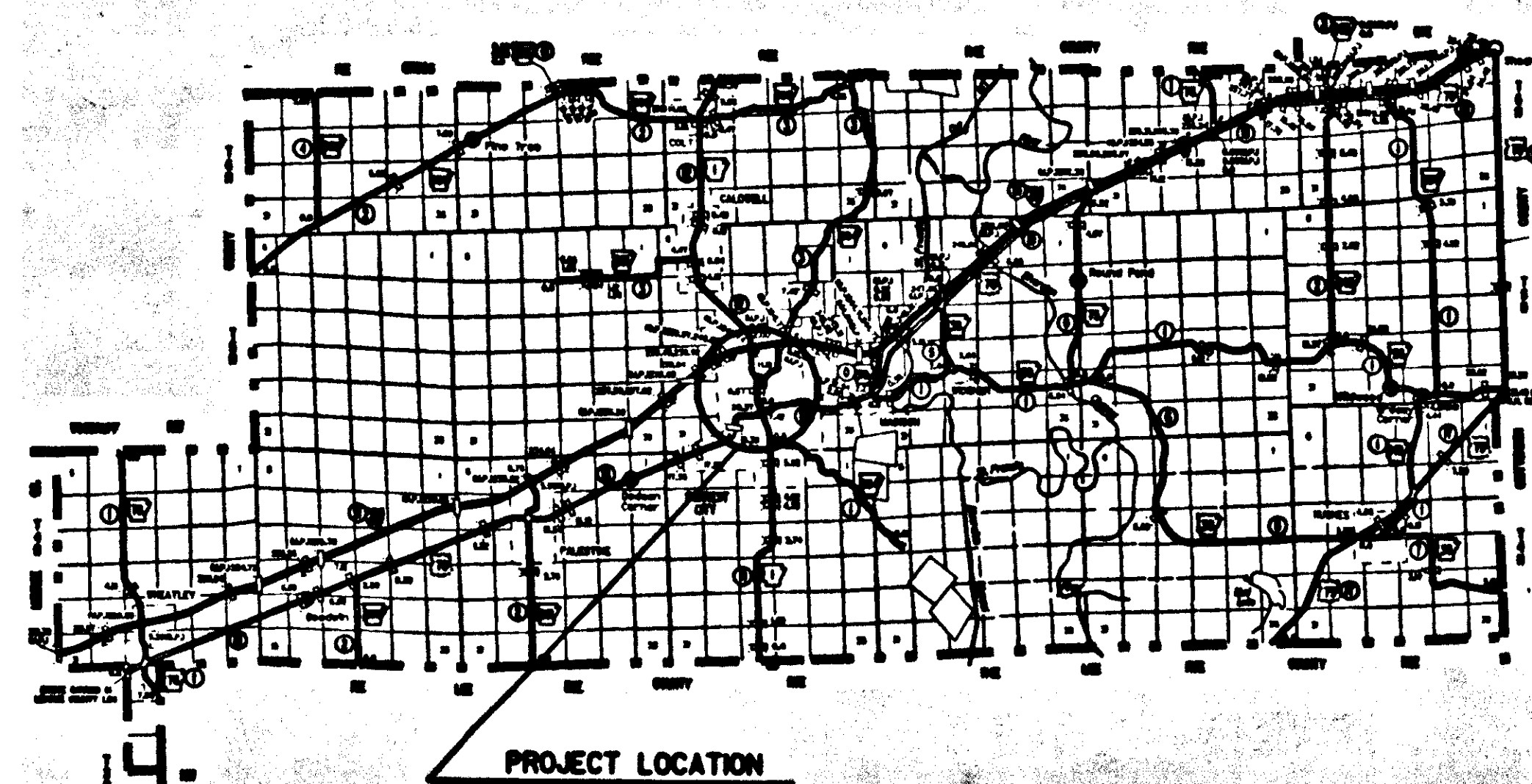


ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT  
CONSTRUCTION PLANS FOR STATE HIGHWAY

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. AID DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 110335	1	427
						(2) FORREST CITY BYPASS (S)		



"THIS IS A PARTIALLY CONTROLLED ACCESS FACILITY"

# FORREST CITY BYPASS (S)

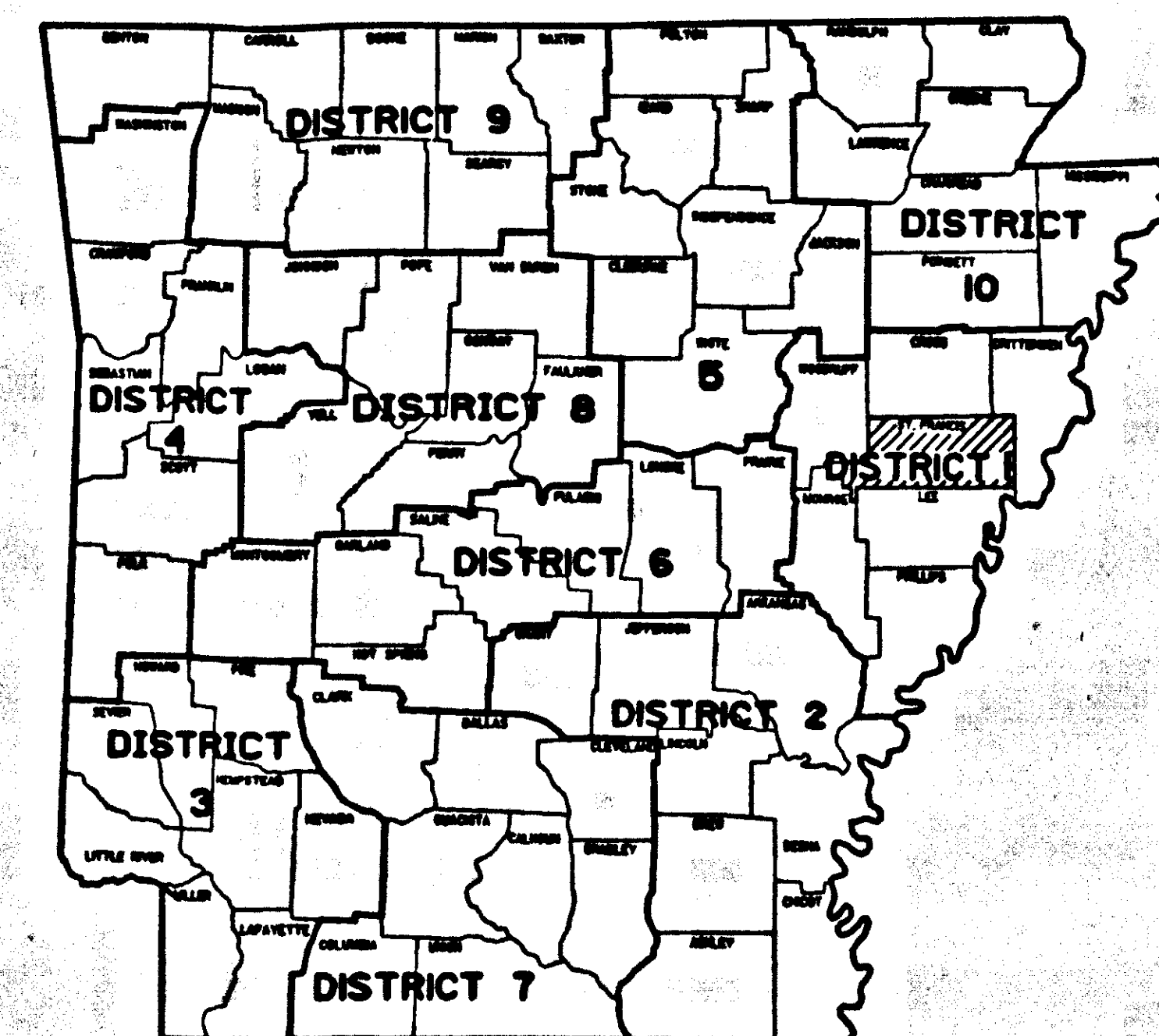
ST. FRANCIS COUNTY

ROUTE 1 SECTION 11 & 12

FED. AID PROJ. MGS-0068(31)

## JOB 110335

THIS IS A METRIC PROJECT



ARK. HWY. DIST. NO. 1

ST. FRANCIS COUNTY

STA. 134+94.370 RT. LANES

END JOB 110335

### BRIDGE CONSTRUCTION

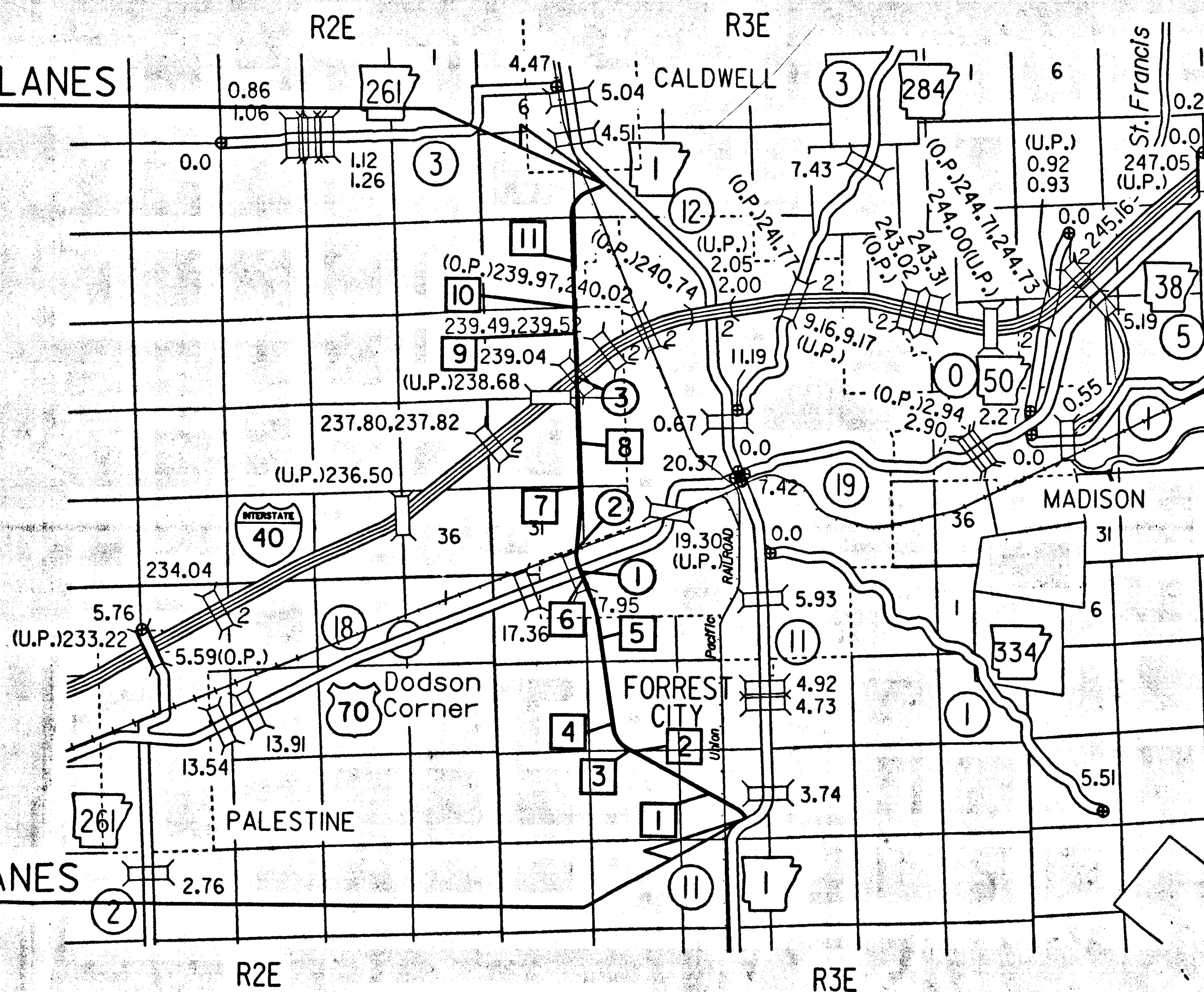
- STA. 59+63.675 BR. END  
BRIDGE NO. B6802  
79m CONT. COMP. W-BEAM UNIT  
(25.0m-29.0m-25.0m)  
79.650m BRIDGE LENGTH  
15.0m CLEAR ROADWAY  
STA. 60+43.325 BR. END
- STA. 63+30.662 BR. END  
BRIDGE NO. B6801  
179m CONT. COMP. W-BEAM UNIT  
(24.5m-24.5m-27m-27m-24.5m-24.5m)  
179.747m BRIDGE LENGTH  
VAR. RT. FWD. SKEW  
12.0m CLEAR ROADWAY  
STA. 65+10.365 BR. END
- STA. 95+53.102 BR. END  
BRIDGE NO. B6770  
154m CONT. COMP. W-BEAM UNIT  
(34.4m-42.6m-42.6m-34.4m)  
154.820m BRIDGE LENGTH  
37° 34' RT. FWD. SKEW  
12.0m CLEAR ROADWAY  
STA. 97+07.922 BR. END

STA. 0+16.640 RT. LANES

BEGIN JOB 110335

STRUCTURES OVER 6.0m SPAN  
REFER TO SHEET NO. 2

CENTER OF PROJECT  
LAT. = N 35° 02' 43"  
LONG. = W 90° 48' 58"



LENGTH MEASURED ALONG RT. LANES  
GROSS LENGTH OF PROJECT 13477.730 METERS OR 13.478 KM  
NET LENGTH OF ROADWAY 12958.743 METERS OR 12.959 KM  
NET LENGTH OF BRIDGES 518.987 METERS OR 0.519 KM  
NET LENGTH OF PROJECT 13477.730 METERS OR 13.478 KM

P.E. 011884  
NON-PART.

DESIGN TRAFFIC DATA  
DESIGN YEAR ----- 2020  
2000 ADT ----- 3650  
2020 ADT ----- 5450  
2020 DHV ----- 600  
DIRECTIONAL DISTRIBUTION ----- 60%  
TRUCKS ----- 20%  
DESIGN SPEED ----- 100 KMPH

RECOMMENDED FOR APPROVAL

BRIDGE DESIGN ENGINEER

ROADWAY DESIGN ENGINEER

DISTRICT ENGINEER

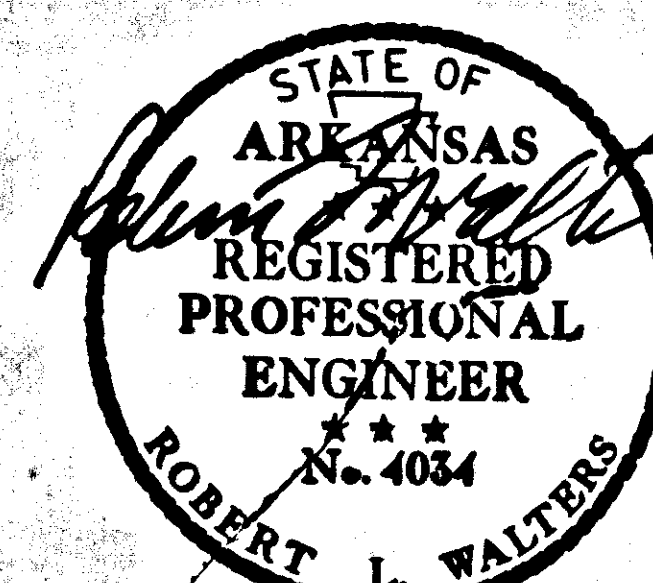
APPROVED

CHIEF ENGINEER

U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
RECOMMENDED FOR APPROVAL

APPROVED

DIVISION ENGINEER



8-25-2000

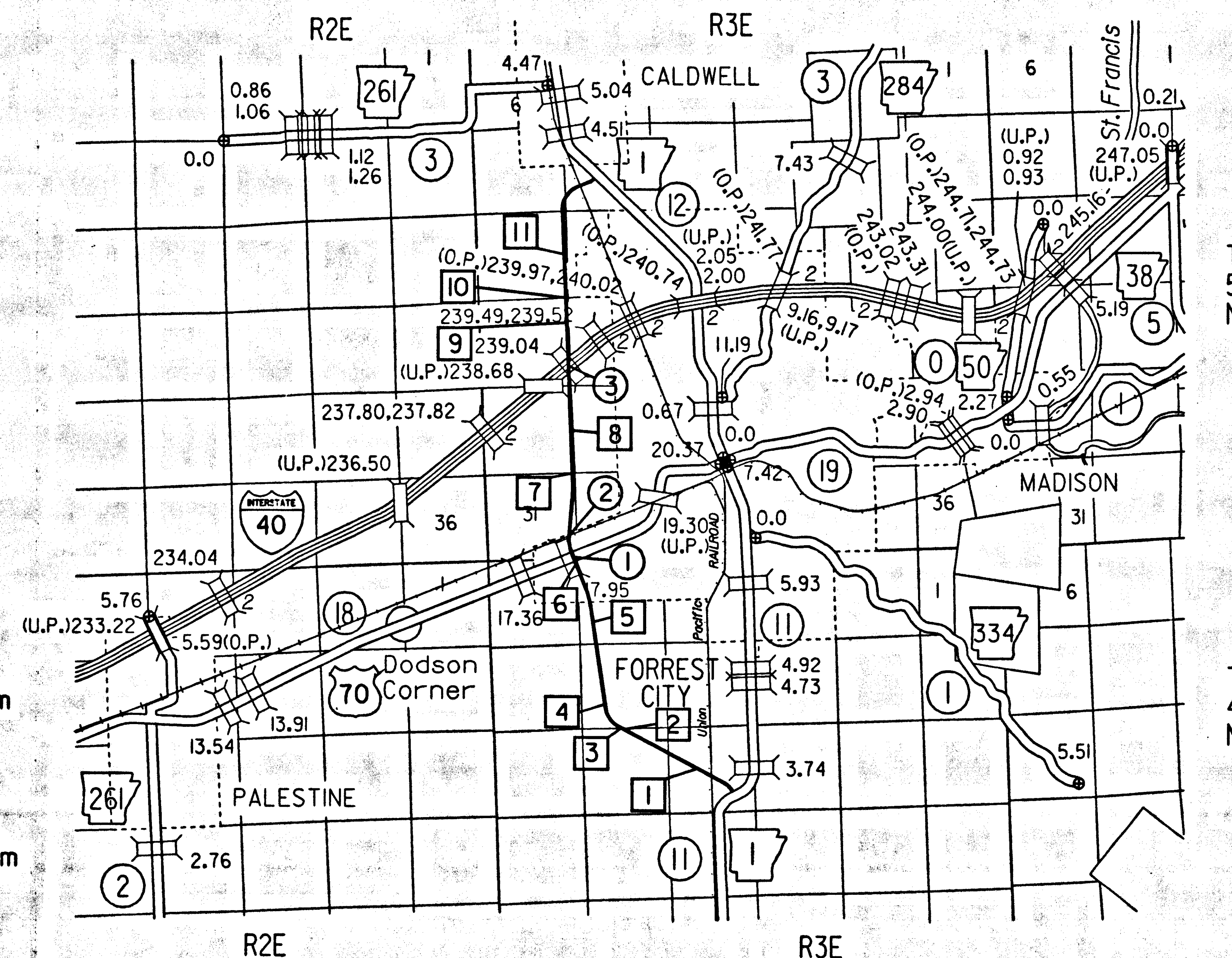


RI1884.TIT 24 JUL 97

A circular professional engineer seal for the State of Arkansas. The outer ring contains the name "PHILLIP L. MCCONNELL". The inner circle contains the text "STATE OF ARKANSAS" at the top, a stylized state outline in the center, "REGISTERED PROFESSIONAL ENGINEER" below the outline, and "No. 3823" and "Exp. 12-25-00" at the bottom. The seal is stamped over a document with handwritten text.

## STRUCTURES OVER 6.0m SPAN

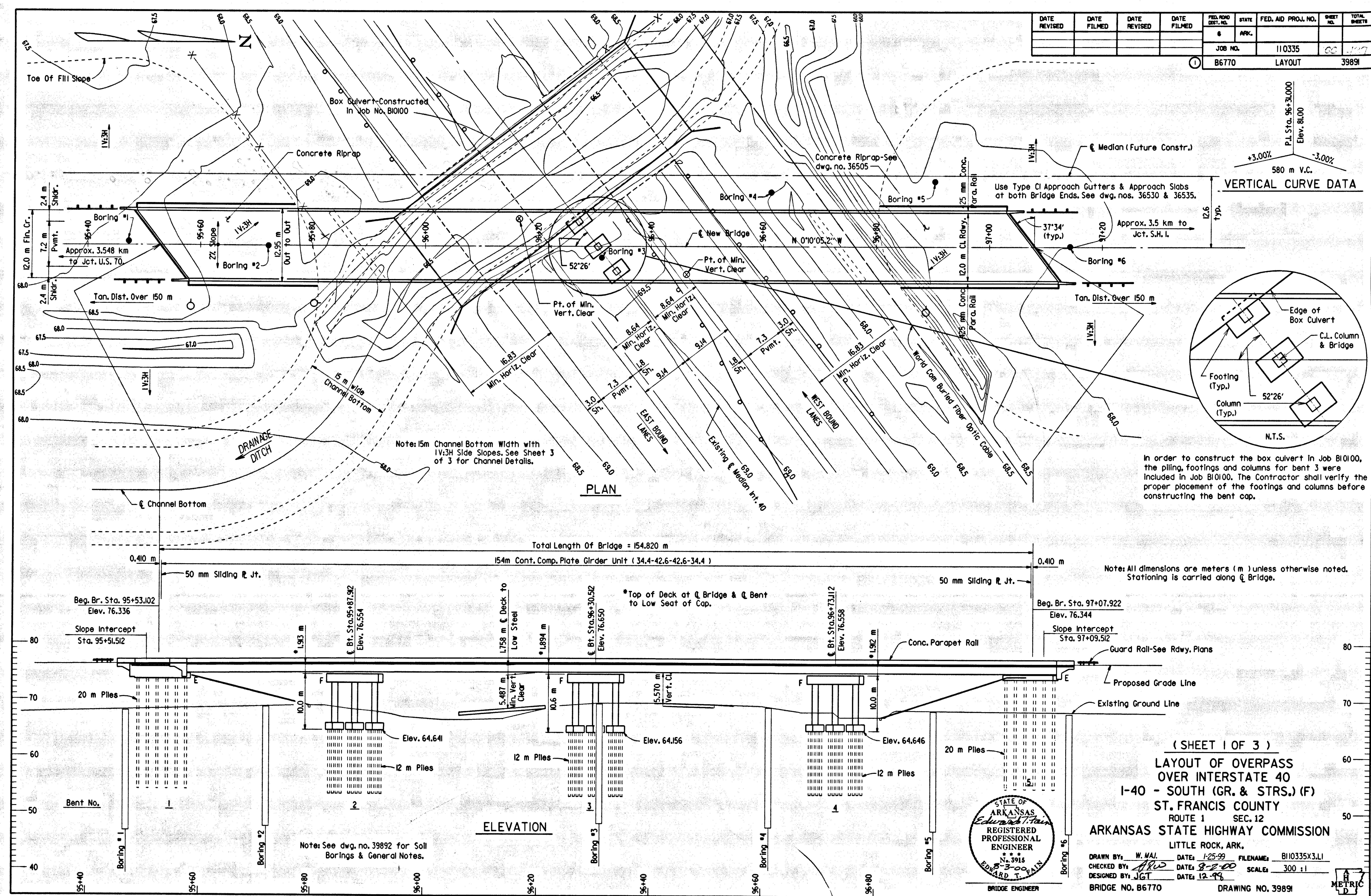
- 1 STA. 8+28 RT. LANES CONST.  
TRI. 3600mm X 2400mm X 25.7m  
R.C. BOX CULVERT  
SPAN = 11.887m
- 2 STA. 25+00 RT. LANES CONST.  
QUINT. 1800mm X 900mm X 36.3m  
R.C. BOX CULVERT  
(45° LT. FWD. SKEW)  
SPAN = 14.513m
- 3 STA. 25+88 RT. LANES CONST.  
QUAD. 1800mm X 900mm X 38.4m  
R.C. BOX CULVERT  
(45° LT. FWD. SKEW)  
SPAN = 11.640m
- 4 STA. 30+17 RT. LANES CONST.  
QUAD. 2400mm X 1200mm X 39.6m  
R.C. BOX CULVERT  
(38° LT. FWD. SKEW)  
SPAN = 13.538m
- 5 STA. 45+30 RT. LANES CONST.  
DBL. 3600mm X 2400mm X 39.3m  
R.C. BOX CULVERT  
(40° RT. FWD. SKEW)  
SPAN = 11.281m
- 6 STA. 59+48 RT. LANES CONST.  
TRI. 1800mm X 1200mm X 63.0m  
R.C. BOX CULVERT  
SPAN = 6.198m
- 7 STA. 76+21 RT. LANES IN PLACE  
EXISTING DBL. 3600mm X 2400mm X 25.2m  
R.C. BOX CULVERT  
SPAN = 7.976m  
LENGTH UNDER ROADWAY PORTION
- 8 STA. 84+33 RT. LANES IN PLACE  
EXISTING QUAD. 3600mm X 1800mm X 25.3m  
R.C. BOX CULVERT  
SPAN = 15.799m  
LENGTH UNDER ROADWAY PORTION
- 9 STA. 104+89 RT. LANES CONST.  
TRI. 3000mm X 1500mm X 25.2m  
R.C. BOX CULVERT  
SPAN = 9.957m
- 10 STA. 109+09 RT. LANES CONST.  
QUAD. 3600mm X 2100mm X 25.2m  
R.C. BOX CULVERT  
SPAN = 15.799m
- 11 STA. 117+16 RT. LANES CONST.  
TRI. 3000mm X 1500mm X 25.9m  
R.C. BOX CULVERT  
SPAN = 9.957m



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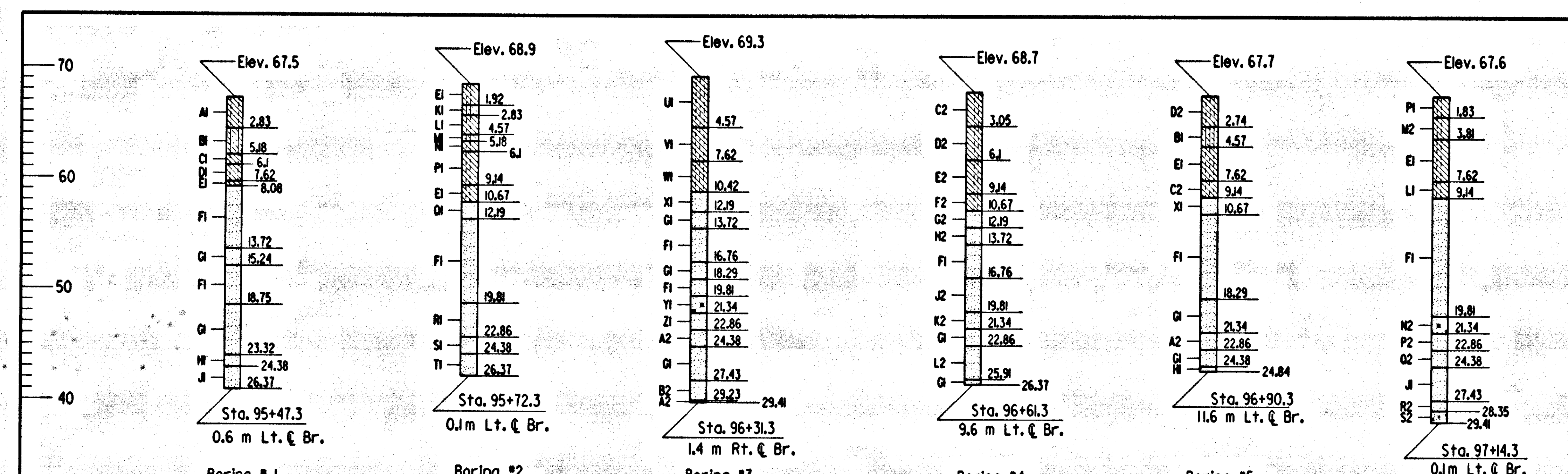


R11884.TIT 24 JUL 97



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OCT 04 2000

# TAMERAN



Boring #1	Boring #2	Boring #3	Boring #4	Boring #5	Boring #6
Sta. 95+47.3 - 0.6 m Lt. & Br.	Sta. 95+72.3 - 0.1m Lt. & Br.	Sta. 96+31.3 - 1.4 m Rt. & Br.	Sta. 96+61.3 - 9.6 m Lt. & Br.	Sta. 96+90.3 - 11.6 m Lt. & Br.	Sta. 97+14.3 - 0.1m Lt. & Br.
1.46- 1.76, N=10 3.59- 3.89, N=13 6.25- 6.55, N=5 7.77- 8.07, N=6 9.29- 9.59, N=12 10.82- 11.12, N=12 12.34- 12.64, N=17 13.87- 14.17, N=31 15.39- 15.69, N=27 16.91- 17.21, N=24 18.44- 18.74, N=28 19.96- 20.26, N=37 21.49- 21.79, N=45 23.01- 23.31, N=42 24.53- 24.83, N=84 26.06- 26.36, N=98	2.07- 2.37, N=9 3.59- 3.89, N=13 5.33- 5.63, N=4 6.25- 6.55, N=8 7.77- 8.07, N=9 9.29- 9.59, N=8 10.82- 11.12, N=21 12.34- 12.64, N=11 13.87- 14.17, N=16 15.39- 15.69, N=22 16.91- 17.21, N=22 18.44- 18.74, N=29 19.96- 20.26, N=42 21.49- 21.79, N=32 23.01- 23.31, N=46 24.53- 24.83, N=39 26.06- 26.36, N=110	1.58- 1.88, N=15 3.20- 3.50, N=15 4.72- 5.02, N=17 6.25- 6.55, N=11 7.77- 8.07, N=9 9.29- 9.59, N=6 10.82- 11.12, N=15 12.34- 12.64, N=31 13.87- 14.17, N=22 15.39- 15.69, N=23 16.91- 17.21, N=33 18.44- 18.74, N=28 19.96- 20.26, N=11 21.49- 21.79, N=23 23.01- 23.31, N=36 24.53- 24.83, N=35 26.06- 26.36, N=42 27.58- 27.88, N=96 29.11- 29.41, N=49	1.55- 1.85, N=5 3.20- 3.50, N=11 4.72- 5.02, N=9 6.25- 6.55, N=7 7.77- 8.07, N=9 9.29- 9.59, N=4 10.82- 11.12, N=15 12.34- 12.64, N=16 13.87- 14.17, N=23 15.39- 15.69, N=21 16.91- 17.21, N=42 18.44- 18.74, N=49 19.96- 20.26, N=24 21.49- 21.79, N=36 23.01- 23.31, N=51 24.53- 24.83, N=43 26.06- 26.36, N=43	1.37- 1.67, N=9 3.50- 3.80, N=12 4.72- 5.02, N=8 6.25- 6.55, N=7 7.77- 8.07, N=5 9.29- 9.59, N=12 10.82- 11.12, N=14 12.34- 12.64, N=17 13.87- 14.17, N=15 15.39- 15.69, N=17 16.91- 17.21, N=17 18.44- 18.74, N=34 19.96- 20.26, N=35 21.49- 21.79, N=34 23.01- 23.31, N=33 24.53- 24.83, N=35	1.98- 2.28, N=18 3.50- 3.80, N=11 4.72- 5.02, N=8 6.25- 6.55, N=12 7.77- 8.07, N=12 9.29- 9.59, N=14 10.82- 11.12, N=15 12.34- 12.64, N=15 13.87- 14.17, N=16 15.39- 15.69, N=20 16.91- 17.21, N=26 18.44- 18.74, N=24 19.96- 20.26, N=32 21.49- 21.79, N=24 23.01- 23.31, N=31 24.53- 24.83, N=103 26.06- 26.36, N=61 27.58- 27.88, N=45 29.11- 29.41, N=47 29.11- 29.41, N=47

### BORING LEGEND

- A1-Moist, Medium Stiff to Stiff, Brown and Gray Silty Clay with some Organic Matter
- B1-Moist, Medium Dense, Brown and Gray Clayey Silt
- C1-Moist, Soft, Brown and Gray Silty Clay
- D1-Moist, Medium Stiff, Brown and Gray Silty Clay with some Organic Matter
- E1-Moist, Medium Stiff, Brown and Gray Silty Clay
- F1-Wet, Medium Dense, Brown Sand
- G1-Wet, Dense, Brown Sand
- H1-Wet, Dense, Brown Sand with Traces of Gravel
- I1-Wet, Very Dense, Brown Sand
- K1-Moist, Loose, Brown and Gray Clayey Silt
- L1-Moist, Stiff, Brown and Gray Silty Clay
- M1-Moist, Very Loose, Brown and Gray Clayey Silt
- N1-Wet, Soft, Brown and Gray Silty Clay
- O1-Moist, Medium Stiff to Stiff, Brown and Gray Silty Clay
- P1-Wet, Medium Dense, Brown Sand
- R1-Wet, Dense, Brown to Gray and Brown Sand
- S1-Wet, Dense, Gray and Brown Sand with Traces of Gravel
- T1-Wet, Dense to Very Dense, Gray and Brown Sand
- U1-Moist, Stiff, Brown and Gray to Gray Silty Clay
- V1-Moist, Very Stiff to Stiff, Gray and Brown Silty Clay
- W1-Moist, Stiff to Medium Stiff, Gray and Brown Silty Clay with some Organic Matter
- X1-Wet, Medium Dense, Brown Sand with some Organic Matter
- Y1-Wet, Medium Dense, Brown and Gray Sand with Organic Matter (Wood)
- Z1-Wet, Medium Dense, Brown and Gray Sand
- A2-Wet, Dense, Brown Sand with some Gravel
- B2-Wet, Very Dense to Dense, Brown Sand
- C2-Moist, Medium Stiff, Gray and Brown Silty Clay with some Organic Matter
- D2-Moist, Stiff, Gray and Brown Silty Clay with some Organic Matter
- E2-Moist, Medium Stiff to Stiff, Gray and Brown Silty Clay with some Organic Matter
- F2-Wet, Soft, Brown Silty Clay
- G2-Moist, Medium Dense, Brown Sand with some Organic Matter
- H2-Wet, Medium Dense, Brown Sand with some Clay Seams
- J2-Wet, Dense, Brown Sand with some Clay Seams
- K2-Wet, Medium Dense, Brown Sand with some Gravel
- L2-Wet, Very Dense to Dense, Brown Sand with some Gravel
- M2-Moist, Very Stiff to Stiff, Brown and Gray Silty Clay
- N2-Wet, Dense, Gray Sand with Lignite Seams
- P2-Wet, Medium Dense, Gray Sand with some Lignite
- Q2-Wet, Dense, Gray and Brown Sand
- R2-Wet, Dense, Brown and Gray Sand
- S2-Wet, Dense, Brown Sand and Gravel

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.		110335	5	107
				B6770	LAYOUT			39892

### GENERAL NOTES

All dimensions are in meters unless otherwise noted.  
 Bench Mark : TBM #919 CH. SO. N.E. COR. E. BNT. BR I-40 12.88 M RT. OF STA. 96+28.6453  
 ELEV. 69.538 (CONSTRUCTION).  
 CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, (1996 edition), with applicable supplemental specifications and special provisions. Section and Subsection refer to the Standard Construction Specifications unless otherwise noted in the Plans.  
 DESIGN SPECIFICATIONS: AASHTO Standard Specifications for Highway Bridges, (1996 Edition), with current interim specifications.  
 LIVE LOADING: MS 18  
 Seismic Performance Category : B  
 METHOD OF DESIGN: Load Factor

### MATERIALS AND STRENGTHS:

Class 5(AE) Concrete (superstructure) f'c = 28 MPa  
 Class 5 Concrete (substructure) f'c = 24 MPa  
 Reinforcing Steel (ASTM A615/A615M-96a, Gr. 420) Fy = 420 MPa  
 Structural Steel (M270, Gr. 345W) Fy = 345 MPa  
 Structural Steel (M270, Gr. 250) Fy = 250 MPa

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

CONCRETE PILING: Piling shall be 455mm square precast concrete and shall be driven with an approved air, steam or diesel hammer to a minimum safe bearing capacity of 530kN per pile.  
 Drive all piles to a minimum penetration of 6.0 meters below natural ground. Lengths of piling shown are assumed for estimating quantities only. Actual lengths to be determined in the field. Drive one 23m test pile in Bent 1 and one 15m test pile in Bent 2 and Bent 4. Piles in end bents to be driven after embankment to bottom of cap is in place.

FOOTINGS: The top of the footings for Int. bents shall be set a minimum of 0.6m below natural ground.  
 Foundation for footings shall be set in accordance with Section 801.04.

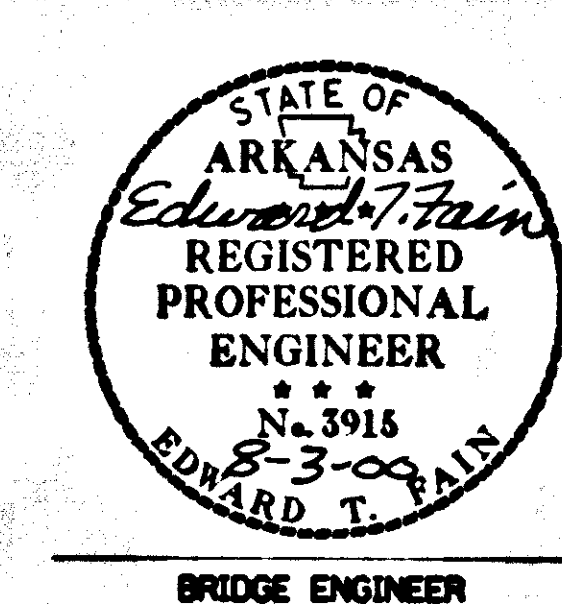
BRIDGE DECK: The concrete deck shall be given a fine finish as specified for final finishing in subsection 802.09 for Class 5 Bridge Roadway Surface Finish.

PROTECTIVE SURFACE TREATMENT: Class I Protective Surface Treatment shall be applied to the roadway surface and to the face and top of the concrete parapet rail.

DETAIL DRAWINGS:	DRAWING NO.
End Bents	39894 - 39896
Intermediate Bents	39897 - 39899
154m Cont. Comp. Plate Girder Unit	39900 - 39905

(SHEET 2 OF 3)

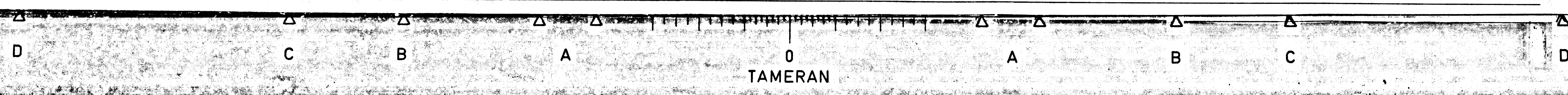
LAYOUT OF OVERPASS  
 OVER INTERSTATE 40  
 I-40 - SOUTH (GR. & STRS.) (F)  
 ST. FRANCIS COUNTY  
 ROUTE 1 SEC. 12  
 ARKANSAS STATE HIGHWAY COMMISSION  
 LITTLE ROCK, ARK.

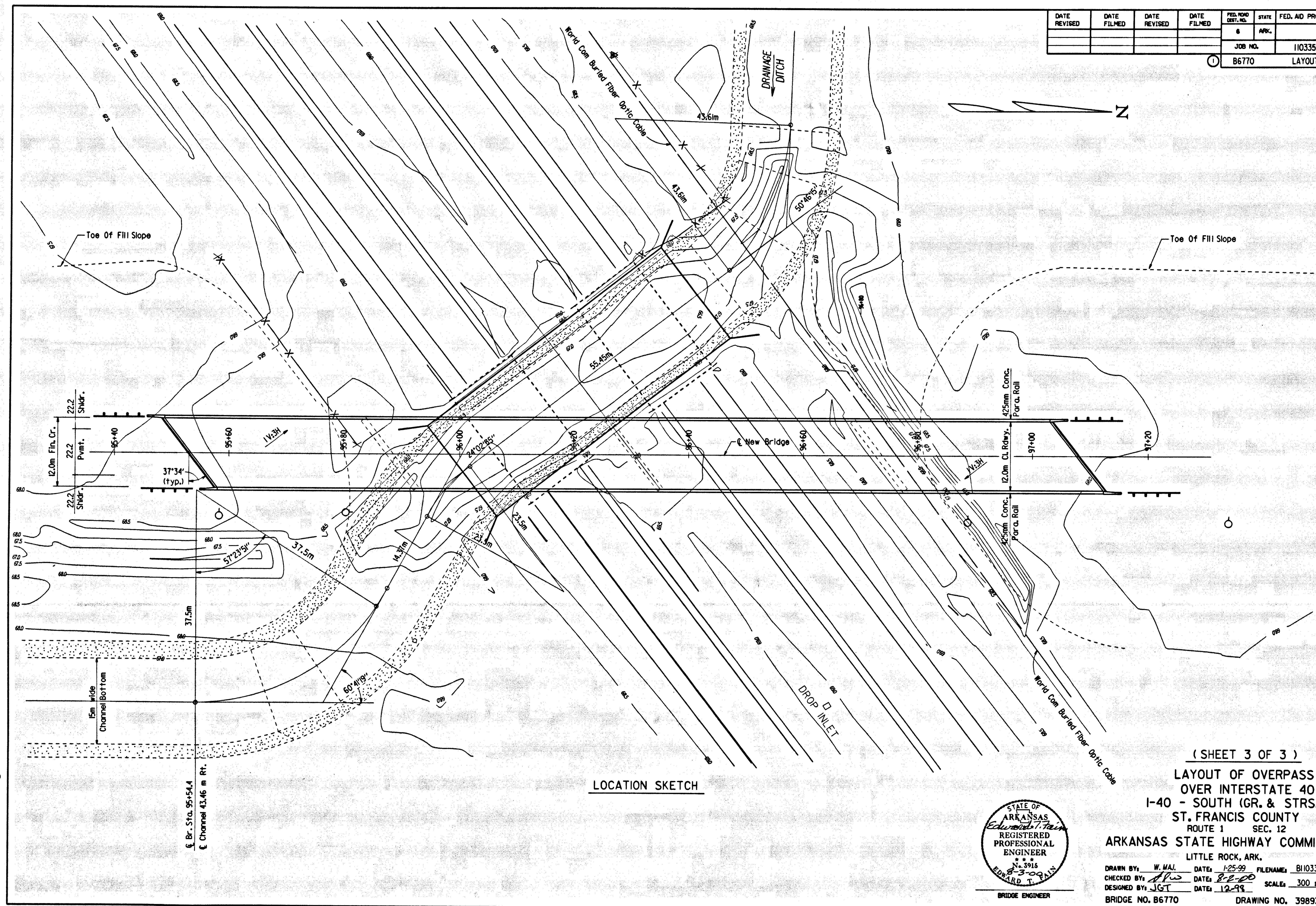


DRAWN BY: W. H. H. DATE: 3-2-99 FILENAME: B110335X3.L1  
 CHECKED BY: JGT DATE: 8-2-00  
 DESIGNED BY: JGT DATE: 12-98 SCALE: No Scale  
 BRIDGE NO. B6770 DRAWING NO. 39892



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 OCT 04 2000



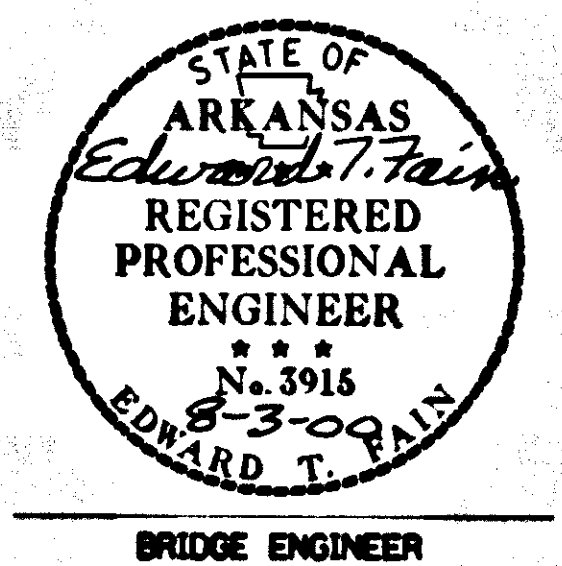


DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110335	CS-107	
						B6770	LAYOUT	39893

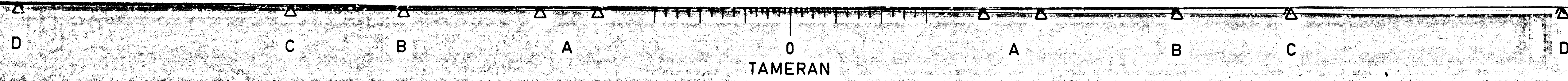
N

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OCT 04 2000

LOCATION SKETCH



(SHEET 3 OF 3)  
 LAYOUT OF OVERPASS  
 OVER INTERSTATE 40  
 I-40 - SOUTH (GR. & STRS.) (F)  
 ST. FRANCIS COUNTY  
 ROUTE 1 SEC. 12  
 ARKANSAS STATE HIGHWAY COMMISSION  
 LITTLE ROCK, ARK.  
 DRAWN BY: W. MAJ. DATE: 1-25-99 FILENAME: B110335X3.L1  
 CHECKED BY: JGT DATE: 8-2-99 SCALE: 300 : 1  
 DESIGNED BY: JGT DATE: 12-98  
 BRIDGE NO. B6770 DRAWING NO. 39893





DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
1-17-01	1-24-01			6	ARK.			
				JOB NO.	110335			
				B6770	END BENT		39895	

Note: For View A-A & Section B-B, see Dwg. No. 39896

Note: Class I Protective Surface Treatment shall be applied to the Rdwy. Face and Top of the End Bent Roll, and to the Top of the Backwall.

• See "Rounding Detail" on Dwg. No. 39900

**PLAN - BENT 5**

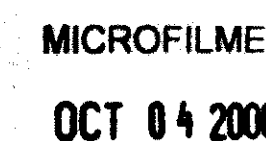
**ELEVATION - BENT 5**  
(Looking Forward)

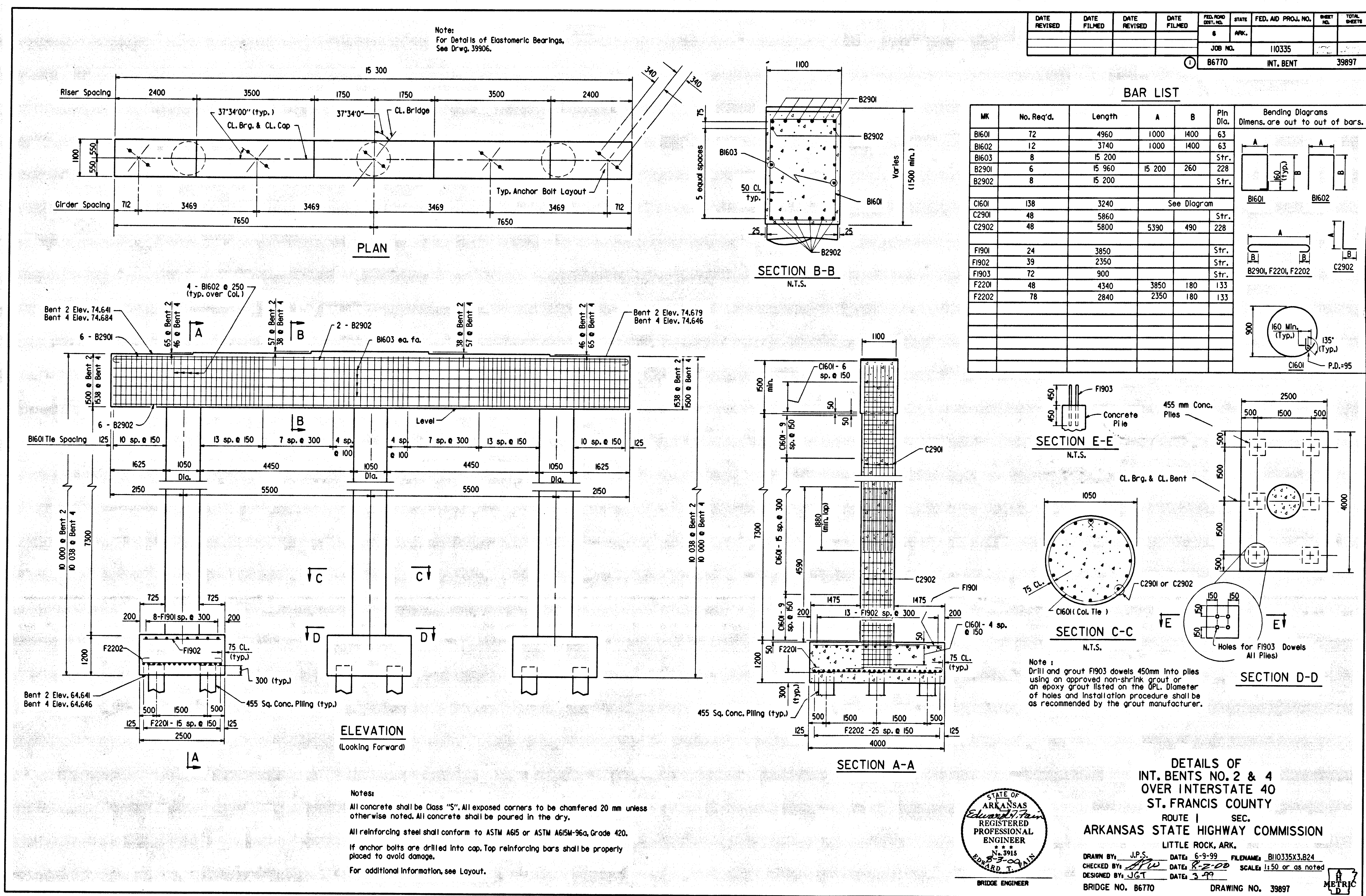
Rev. 1-17-01 Dimensions RWM

(SHEET 2 OF 3)

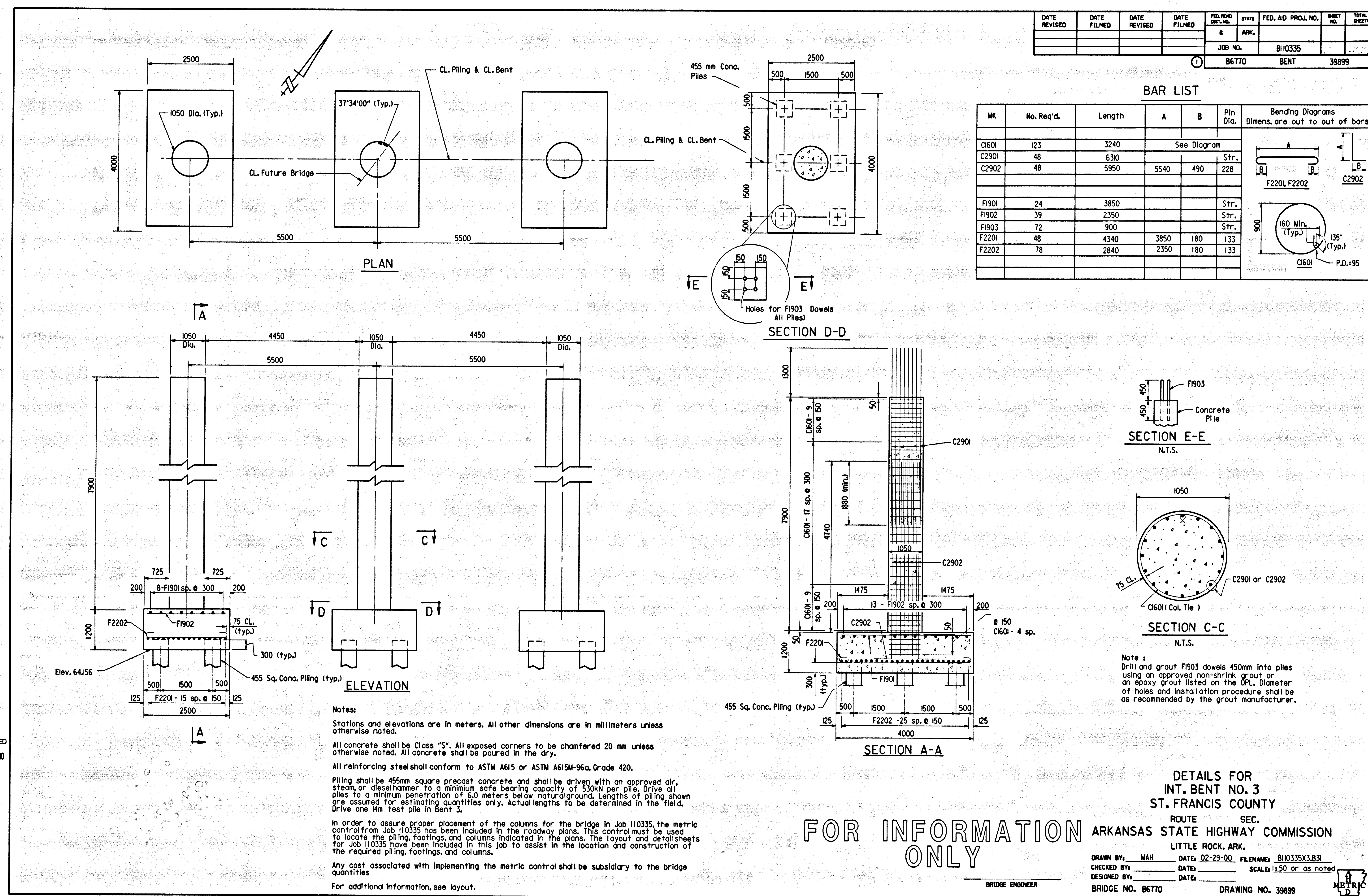
DETAILS OF END BENTS FOR  
OVERPASS OVER INTERSTATE 40  
ROUTE 1 SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

DRAWN BY: WJA/ DATE: 6-8-99 FILENAME: B110335X3.B1  
 CHECKED BY: JCT DATE: 8-2-00 SCALE: 1:30 or as Noted  
 DESIGNED BY: JCT DATE: 3-99  
 BRIDGE NO. B6770 DRAWING NO. 39895

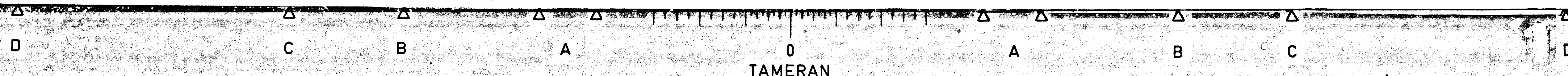




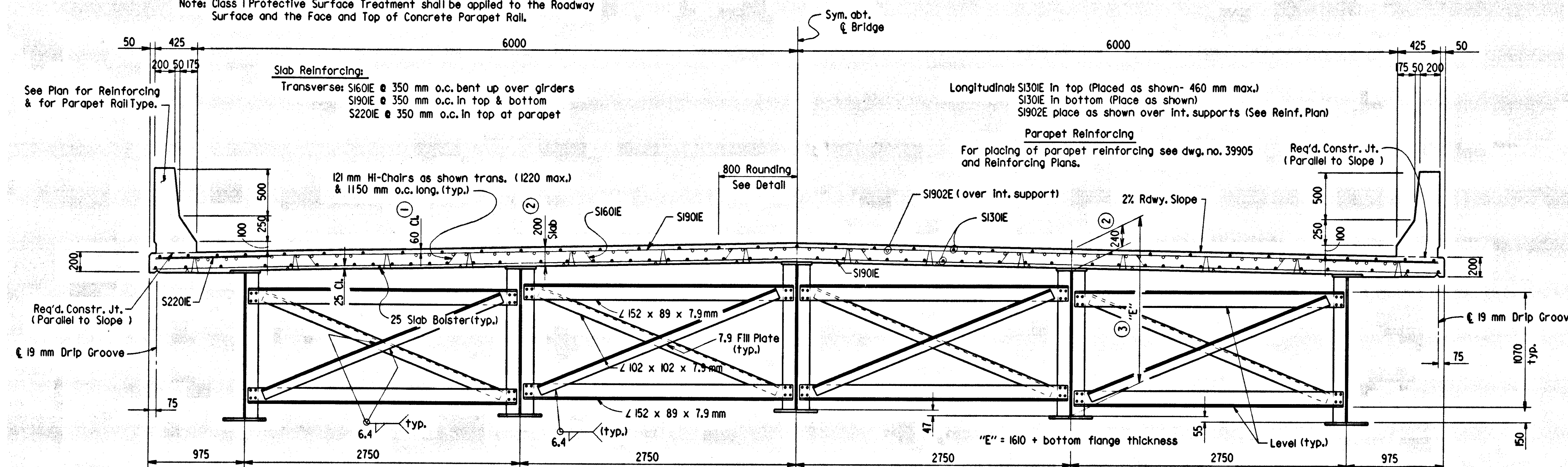




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OCT 04 2000



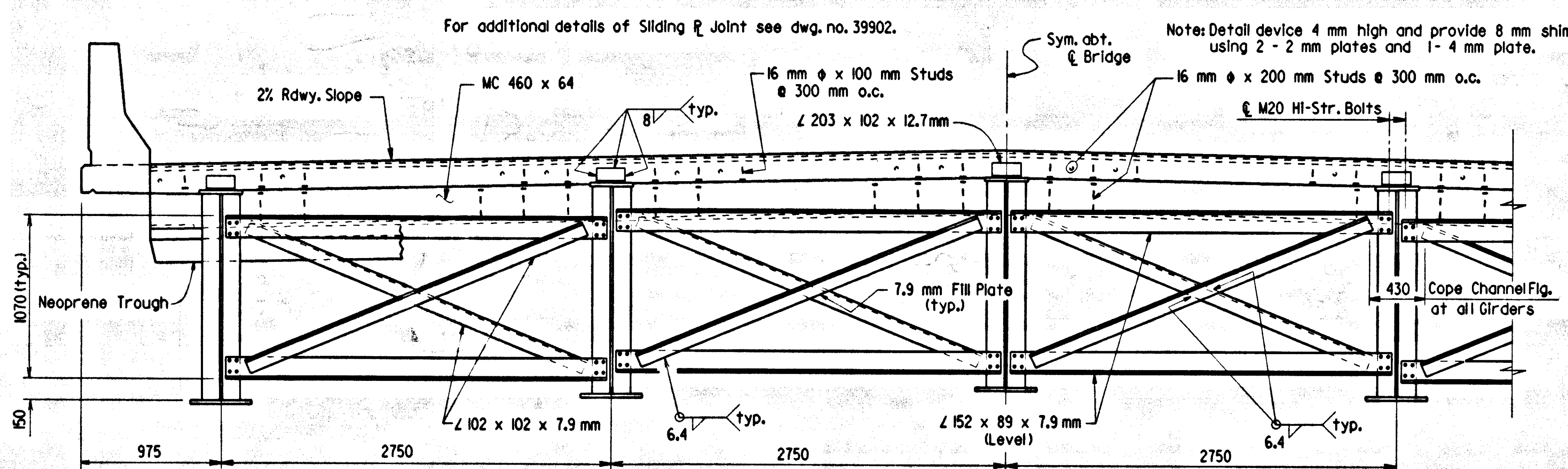
Note: Class I Protective Surface Treatment shall be applied to the Roadway Surface and the Face and Top of Concrete Parapet Wall.



- ① - Tolerance: Minus = 6 mm, Plus equal to amount of Slab Thickening used to meet Slab Thickness Tolerance - see Typ. Haunch Detail.
- ② - Refer to Typ. Haunch Detail
- ③ - This dimension is taken at  $\bar{C}$  Bearing &  $\bar{C}$  Girder.

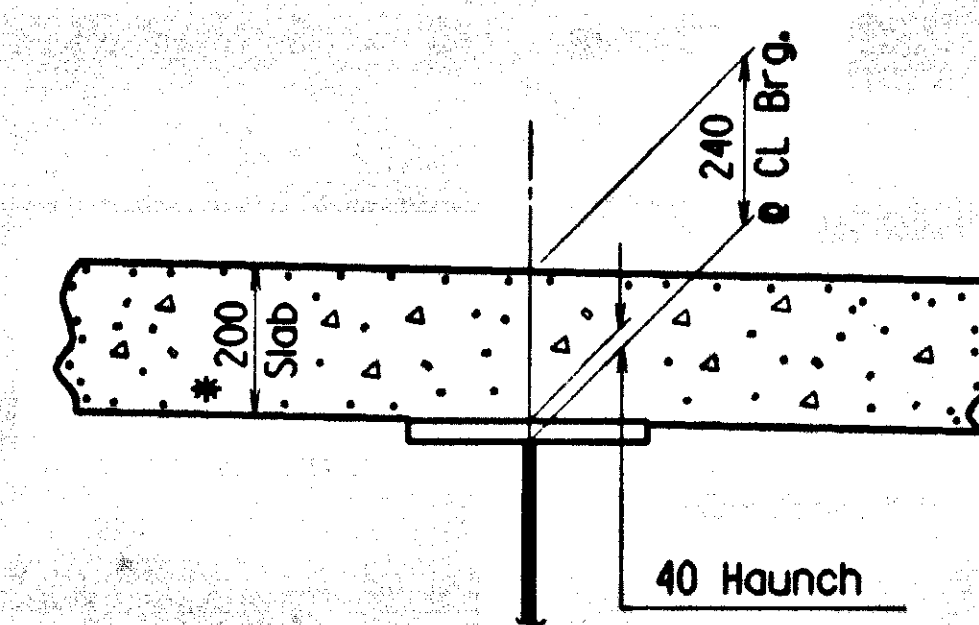
ROADWAY SECTION NEAR INT. BENT  
(Looking Forward)  
N.T.S.

Note:  
At the Contractor's option, one epoxy coated 1600 bar top & bottom may be substituted for bar S1601E. Payment for reinforcing will be based on the weight of bar S1601E.

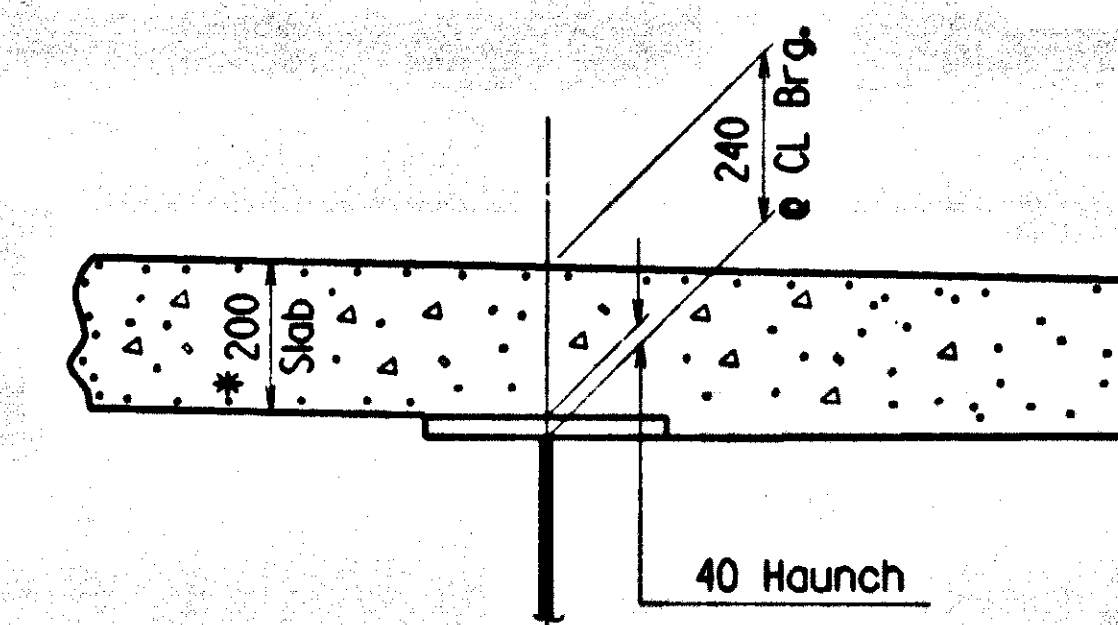


EXPANSION DEVICE SECTION AT SLIDING Jt.  
(Looking Forward)  
(Typ. Cross-Frames shown for both ends of Unit)  
N.T.S.

Note: Detail device 4 mm high and provide 8 mm shims using 2 - 2 mm plates and 1 - 4 mm plate.



INTERIOR GIRDER  
(See Rounding Detail for Girder at  $\bar{C}$  Br.)



EXTERIOR GIRDER

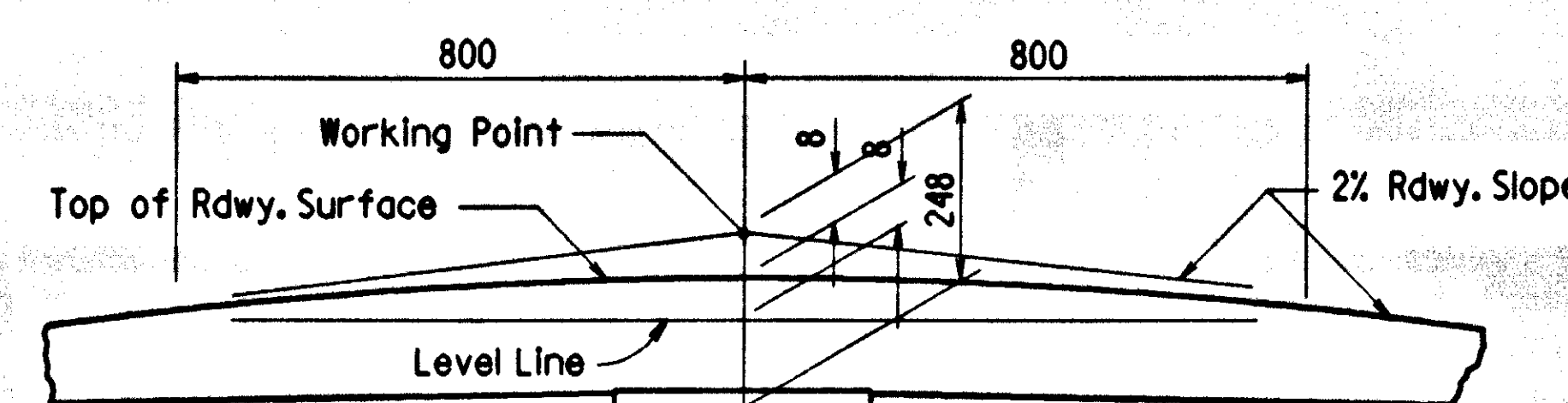
Haunch is required. Slab may be thickened and/or the haunch thickened to maintain slab tolerance.

\*Thickness as detailed on Roadway Section. Tolerance is minus 6 mm and plus 12 mm.

Note: No increase in concrete and structural steel quantities will be made to meet slab tolerances.

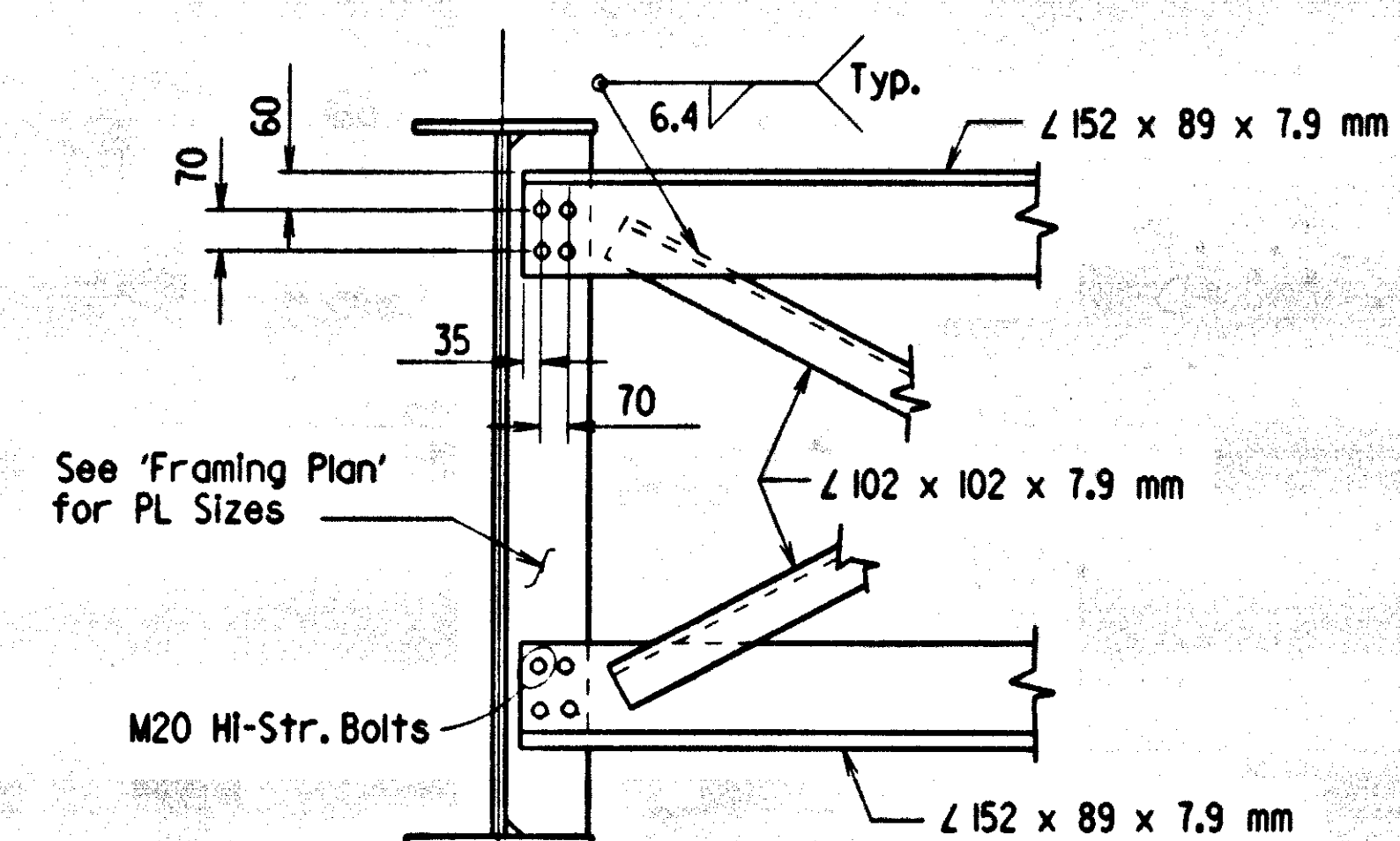
TYPICAL HAUNCH DETAIL  
N.T.S.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FEED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110335		
							B6770	CONT. UNIT 39900



NOTE: Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL  
N.T.S.



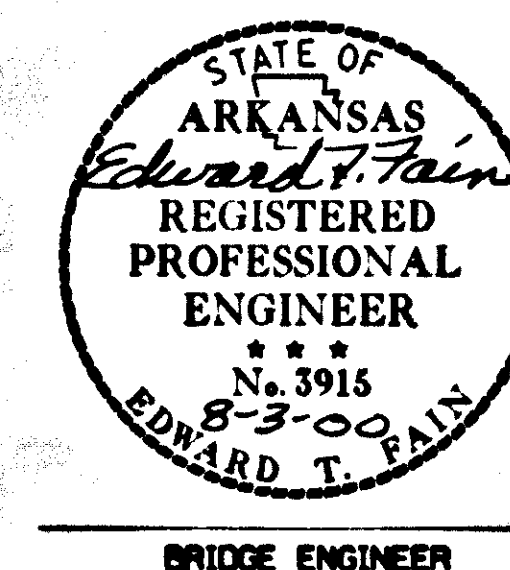
TYPICAL CROSS - FRAME CONNECTION  
N.T.S.

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Note:  
The Superstructure Details shown are for use when Removable Deck Forming is used and are the basis for measurement of Class (S/AE) Concrete. See Standard Drawing 36515 for allowable modifications and for tolerances when Permanent Steel Bridge Deck forms are used.

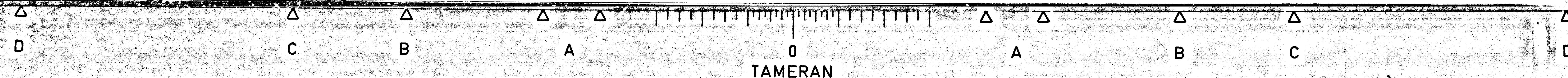
Cross frames shall be installed as girders are erected. Cross frames shall be installed and completely bolted in accordance with Subsection 807.71 of the Standard Specifications prior to pouring of floor slab.

Stations & elevations are in meters. All other dimensions are in millimeters unless otherwise noted.

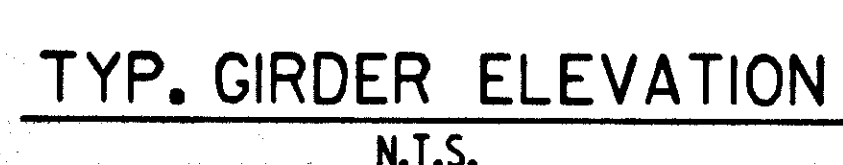
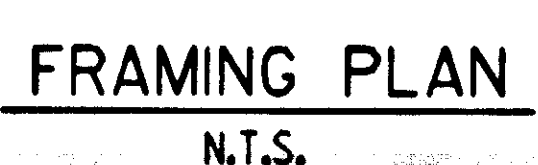


BRIDGE ENGINEER

(SHEET 1 OF 6)  
DETAILS FOR  
154 METER CONT. COMP. PLATE GIRDER UNIT  
OVERPASS OVER INTERSTATE 40  
ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.  
DRAWN BY: W.M.A. DATE: 4-23-99  
CHECKED BY: J.P. DATE: 8-2-00  
DESIGNED BY: J.G.T. DATE: 2-99  
BRIDGE NO. B6770  
DRAWING NO. 39900  
FILENAME: B110335X3.SI  
SCALE: As Shown  
METRIC



①	B6770	CONT. UNIT	39901
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Note: Stations and elevations are in meters. All other dimensions are in millimeters unless otherwise noted.



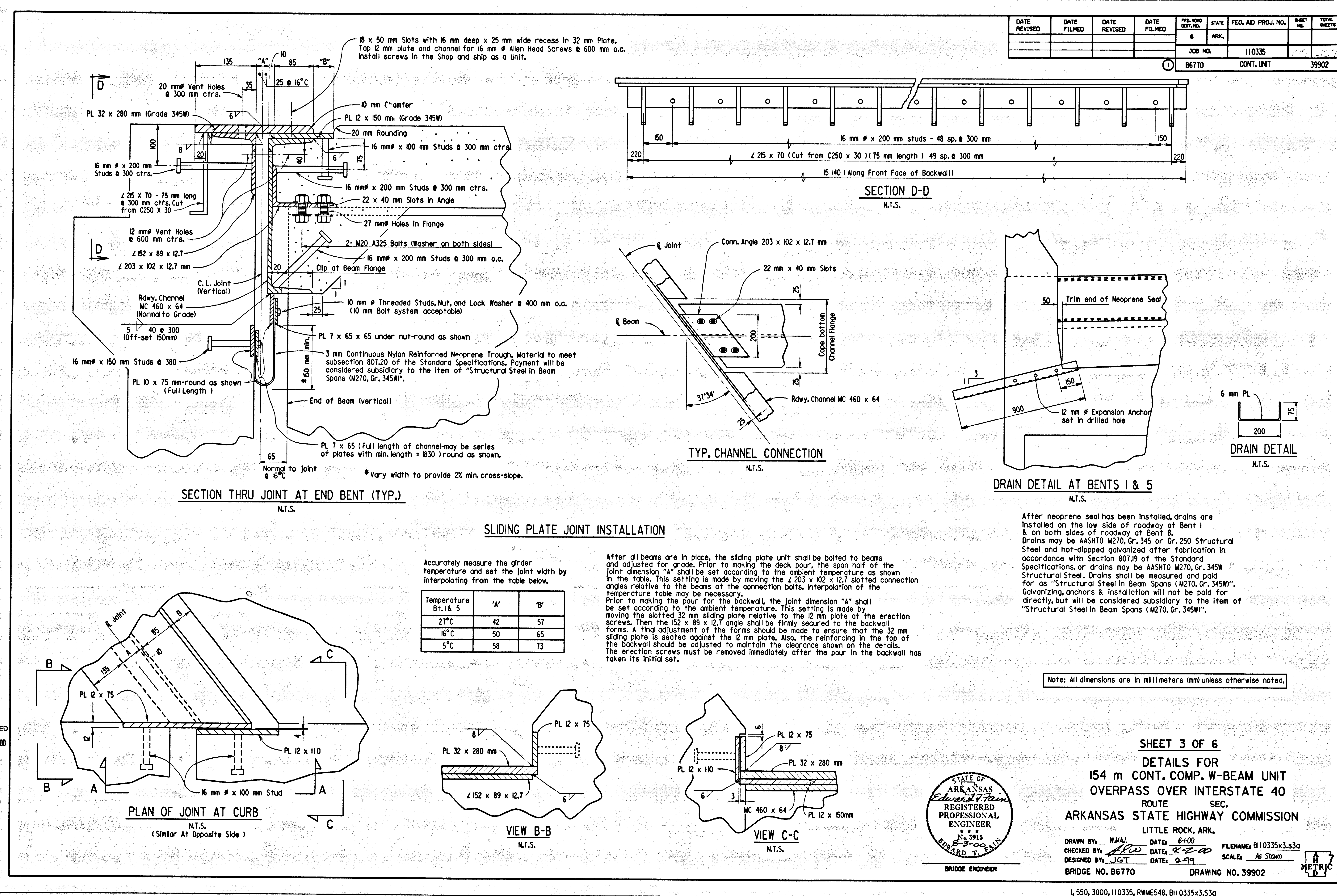
STATE OF  
ARKANSAS  
*Edward T. Fain*  
REGISTERED  
PROFESSIONAL  
ENGINEER  
\*\*\*  
No. 3915  
*8-3-00*  
EDWARD T. FAIN

**BRIDGE ENGINEER**

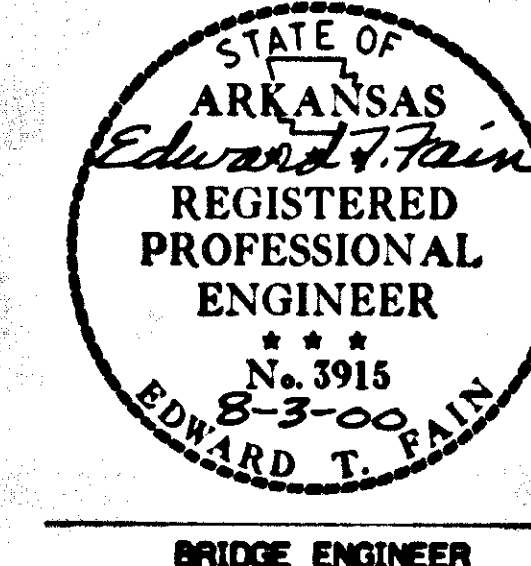
DRAWN BY: W.M.A. DATE: 5-4-99 FILENAME: B110335X3.s2  
 CHECKED BY: APW DATE: 8-2-00 SCALE: As Shown  
 DESIGNED BY: JGT DATE: 2-99  
 BRIDGE NO. B6770 DRAWING NO. 3990I

MICROFILMED  
OCT 04 2000

TAMERAN



MICROFILMED  
OCT 04 2000



**SHEET 3 OF 6**  
**DETAILS FOR**  
**152 m CONT. COMP. W-BEAM UNIT**  
**OVERPASS OVER INTERSTATE 40**  
**ROUTE SEC.**  
**ARKANSAS STATE HIGHWAY COMMISSION**  
**LITTLE ROCK, ARK.**  
DRAWN BY: WMAJ DATE: 6-00  
CHECKED BY: JGT DATE: 8-00  
DESIGNED BY: JGT DATE: 2-99  
BRIDGE NO. B6770 DRAWING NO. 39902  
FILENAME: B110335x3.s3a  
SCALE: As Shown  
METRIC

1,550, 3000, 110335, RWME548, B110335x3.s3a

TAMERAN

# GENERAL NOTES

All concrete shall be Class (S/AE) with a minimum 28 day compressive strength  $f'_c = 28$  MPa. Concrete shall be poured in the dry and all exposed corners to be chamfered 20 mm unless otherwise noted.

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

The concrete deck shall be given a trowel finish in accordance with Section 802.19 of the Standard Specifications for Class 5, Tied Bridge Roadway Surface Finish. Movement of the finishing machine across new concrete shall be on planes 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 girder. If a longitudinal strike-off is used, a vertical camber adjustment must be made in the strike-off to account for the future deadload deflection of the railing. A minimum of 72 hours shall elapse between completion of the slab and the pouring of the parapet railing.

All reinforcing steel shall conform to ASTM A615/A615M-96a, Grade 420. 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".

All structural steel shall be M 270, Gr. 345W unless otherwise noted and shall be paid for at the unit price per pound bid for "Structural Steel in Plate Girder Spans (M 270, Gr. 345W)". M 270, Gr. 345W steel shall not be painted. All exposed surfaces to be cleaned in accordance with the Standard Specifications. Structural steel completely embedded in concrete may be M 270, Gr. 250.

All girder webs and flanges are considered main load carrying members and shall meet the Longitudinal Charpy V-Notch Test specified in Section 807.05 of the Standard Specifications. This work and material will not be paid for directly, but are to be considered as subsidiary to the item "Structural Steel in Plate Girder Spans (M 270, Gr. 345W)". Charpy V-Notch Test will not be required on web and flange splice plates.

Girder webs may be made by shop splicing with minimum lengths of 7620 mm for sections. Flange plates longer than 15 240 mm may be made by shop splicing with minimum lengths of 7620 mm for sections. No additional payment for welds for these splices will be made.

Structural steel shapes of equal or greater strength may be substituted for shapes shown if prior approval is obtained from the Bridge Engineer. Payment will be made on the basis of shapes shown.

Cross-frames shall be installed as girders are erected. All bolts in cross-frames and field splices shall be installed and tightened in accordance with Subsection 807.71 of the Standard Specifications prior to pouring of the slabs.

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

All girders shall be blocked in their true position in the shop, in groups of a minimum of 3 sections as specified in Section 807.54(b)(2). The camber, length of sections, distance between bearings and opening of joints shall be measured with the beams in this position and this information shall become part of the permanent record of this 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 16 degrees C. A tolerance of 6 mm (plus or minus) is allowed for camber.

Web and flange plates for main members and flange splice plates for main members shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses.

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 a formal request to the Bridge Engineer for approval. All welding shall conform to Subsection 807.26.

Groove welds in main members shall be Quality Control (Q.C.) tested by nondestructive testing, as required by the Standard Specifications. Fillet welds at flange to web plate connections shall be Q.C. tested by the magnetic particle method. All Quality Control (Q.C.) testing is at the contractor's expense.

Field connections to be bolted with high-strength bolts. Bolts shall be M20 except as noted and open holes 22 mm dia except as noted. Bolt spacing shall be 70 mm for 20 mm dia. bolts unless otherwise noted. Minimum edge distance shall be 30 mm unless otherwise noted. Bolts shall be placed with heads on the outside face of the exterior beam and on the bottom of the beam flanges. Holes for M20 high-strength bolts may be 24 mm dia. If a washer is supplied for use under both the nut and head of bolt.

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

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 edition), with current interim specifications.

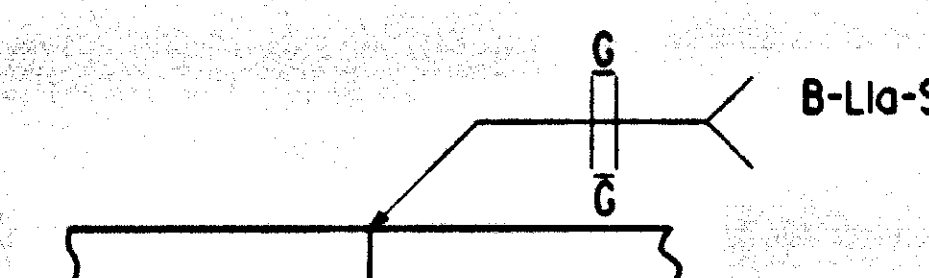
Live Loading: MS18 Method of Design: Load Factor

Materials and Strengths  
Class (S/AE) Concrete  $f'_c = 28$  MPa  
Reinforcing Steel (ASTM A615/A615M-96a, Gr. 420)  $f_y = 420$  MPa  
Structural Steel (M 270, Gr. 345W)  $f_y = 345$  MPa  
Structural Steel (M 270, Gr. 250)  $f_y = 250$  MPa

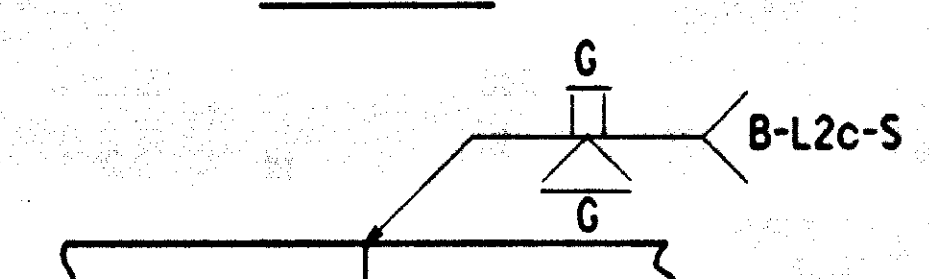
Load Distribution  
Interior Girder  
Dead Load 12,960 kN/m + 1.3(Wt. of Girder)  
To Composite Girders 5,035 kN/m  
Exterior Girder  
Dead Load 11,075 kN/m + 1.3(Wt. of Girder)  
To Composite Girders 5,035 kN/m

\*Includes 2,758 kN/m future wearing surface.

Live Load  
To Composite Girders 1,640 Wheels + Impact 1,442 Wheels + Impact



Equal Thickness  
WEB SPLICE



Equal Thickness  
FLANGE SPLICE

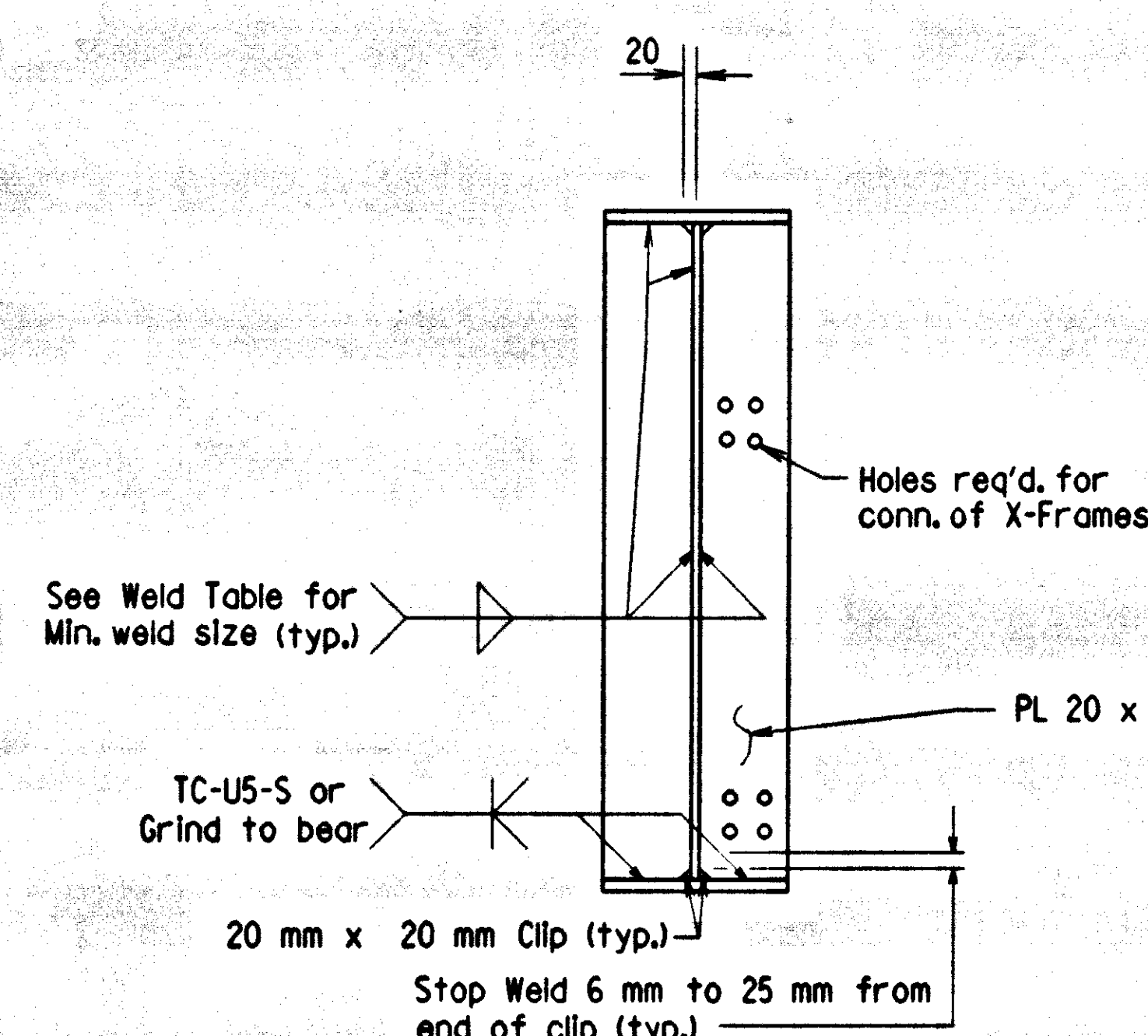
## DETAILS OF WELDED SPLICES

N.T.S.

## TABLE FOR WELD

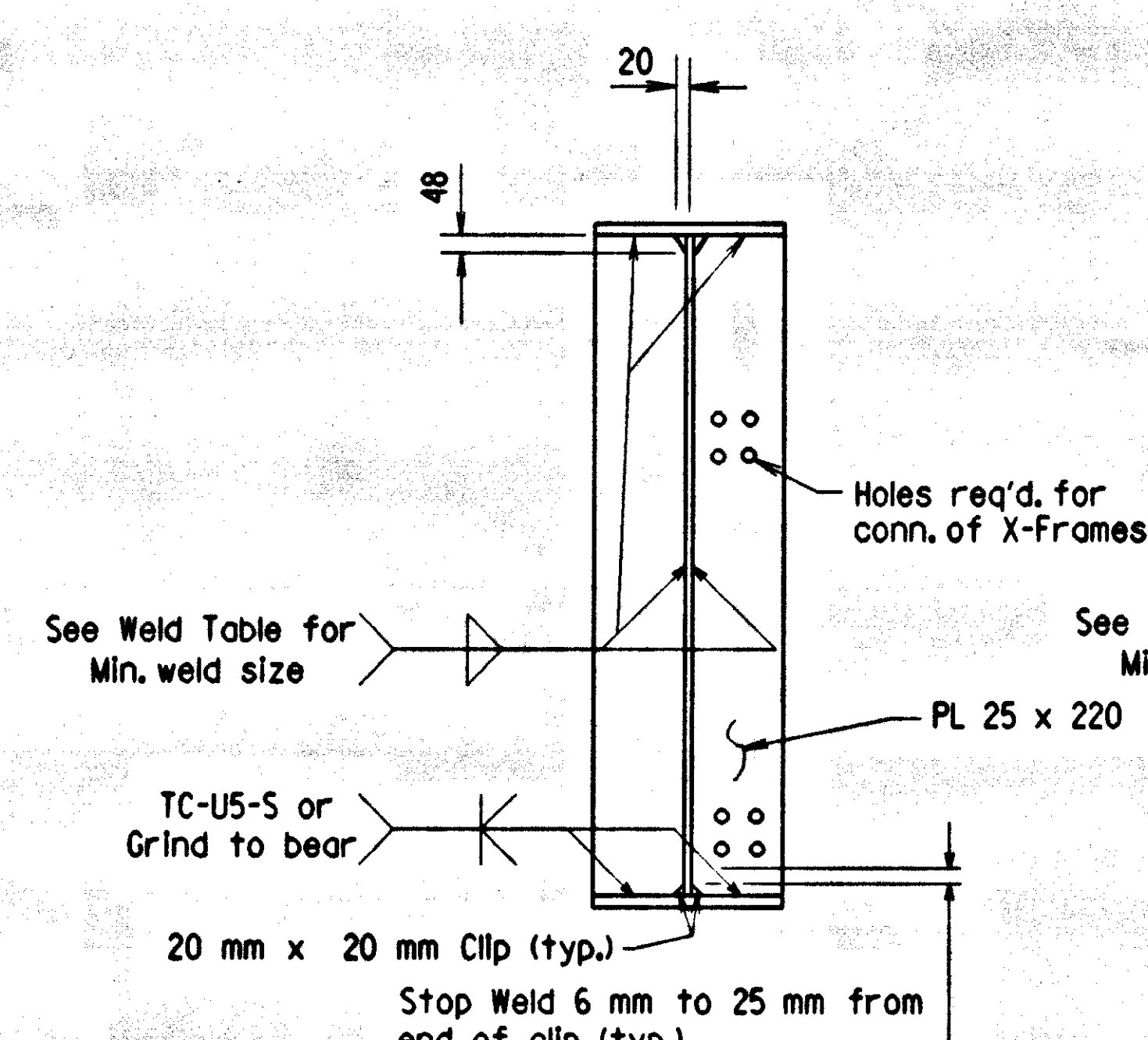
Material Thickness of Thicker Part Joined (mm)	Minimum Size of Fillet Weld (mm)	Single Pass Weld Must Be Used
To 20 Inclusive	6.4	
Over 20	8.0	

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.



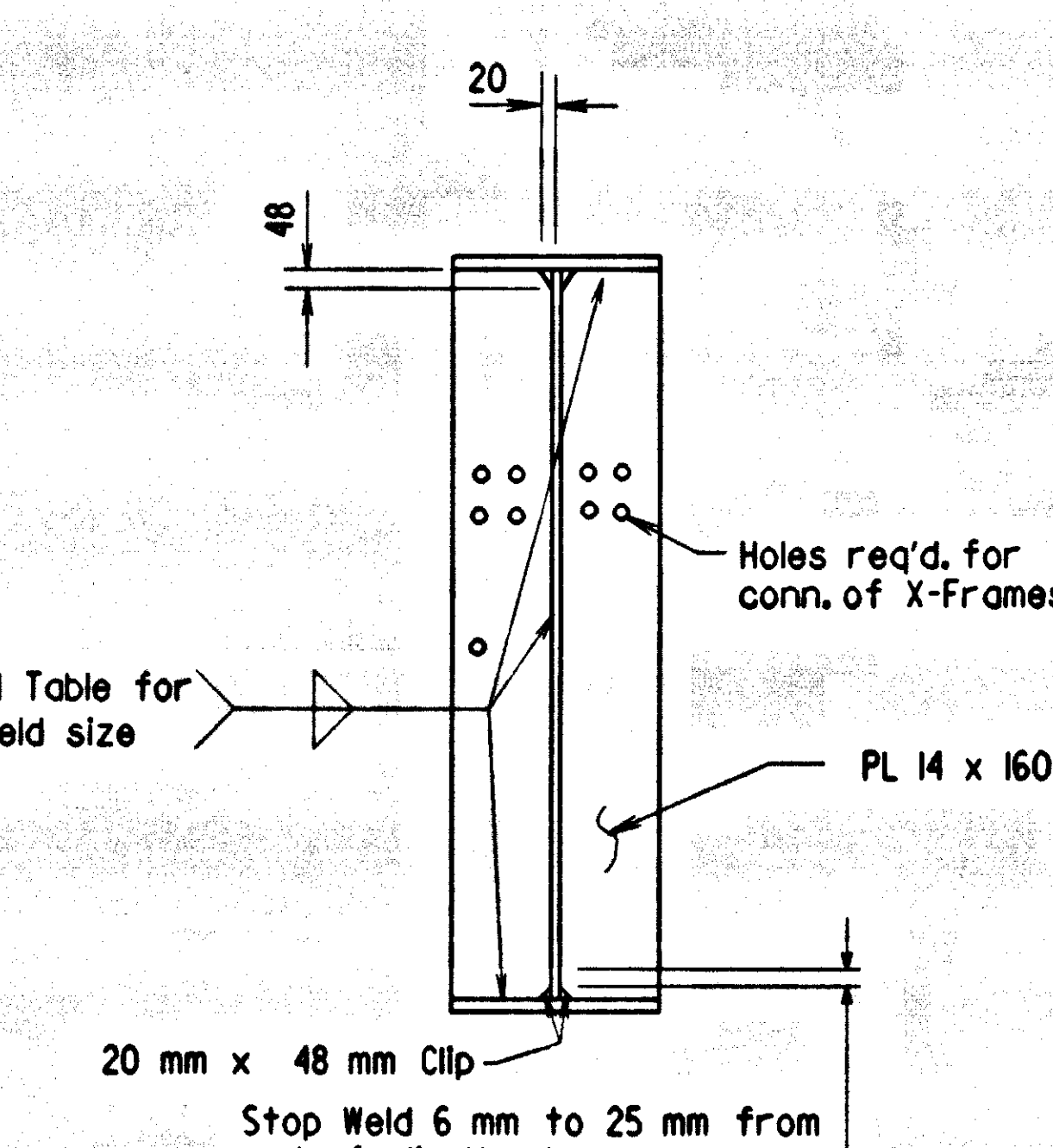
END BEARING STIFFENER DETAIL

N.T.S.



INT. BEARING STIFFENER DETAIL

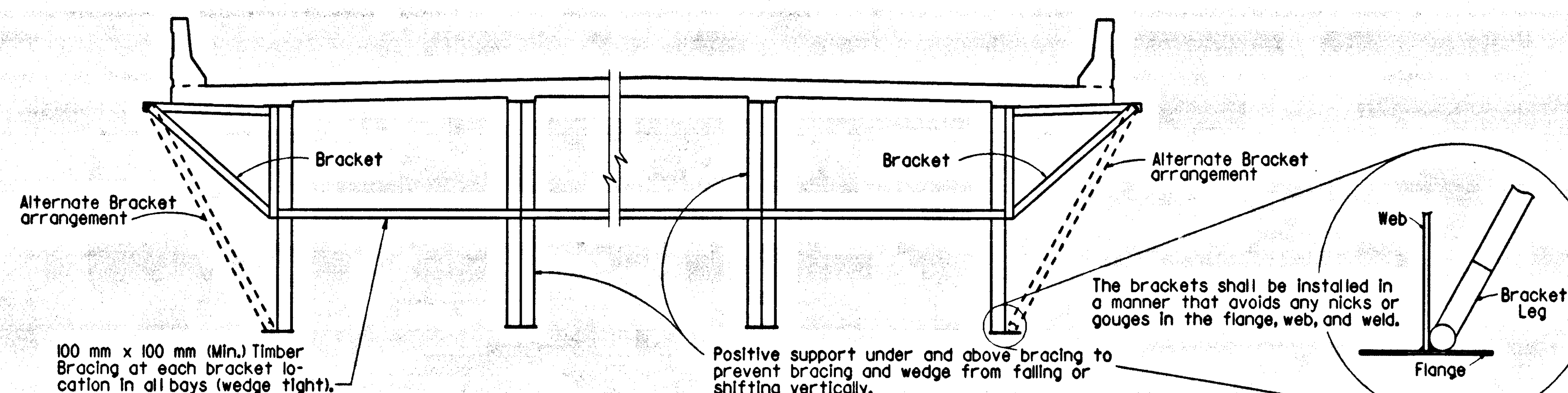
N.T.S.



CROSS FRAME CONNECTION DETAIL

N.T.S.

Note: For location of Bearing Stiffeners and Cross-Frame Stiffeners, see Framing Plan.



SCREED RAIL SUPPORT

N.T.S.

Note: If a transverse finishing machine is used, the roll shall be supported directly over the exterior girders, or as an alternate, the roll may be supported by the overhang brackets if the above strutting system is used. The strutting system may be omitted if 14 mm x 150 mm web stiffeners are welded to the insides of the exterior girders at the location of each bracket or if the alternate bracket arrangement shown above is used. The alternate bracket arrangement shall extend down to the junction of the web and bottom flange. The stiffener shall conform to the details for intermediate connection plates shown on drawing No. 39900. No direct payment will be made for brackets, timber bracing, supports, or welded stiffeners. Payment shall be subsidiary to "Structural Steel in Plate Girder Spans (M270, Gr. 345W)".

Note: Stations & elevations are in meters. All other dimensions are in millimeters unless otherwise noted.

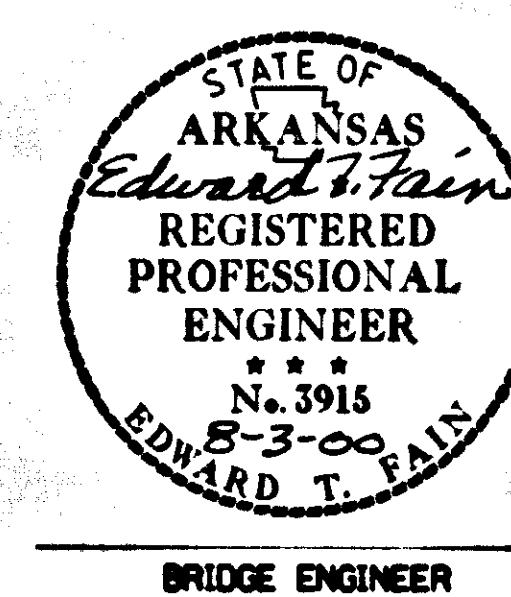
## SHEET 4 OF 6

DETAILS FOR  
154 METER CONT. COMP. PLATE GIRDER UNIT  
OVERPASS OVER INTERSTATE 40  
ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION

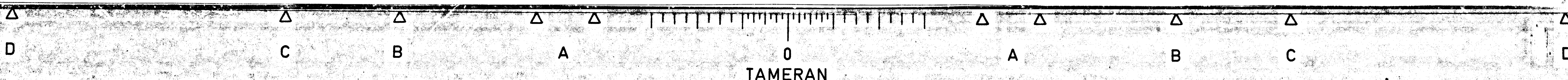
LITTLE ROCK, ARK.

DRAWN BY: W.M.A. DATE: 5-6-99  
CHECKED BY: JST DATE: 8-2-00  
DESIGNED BY: JST DATE: 2-9-99

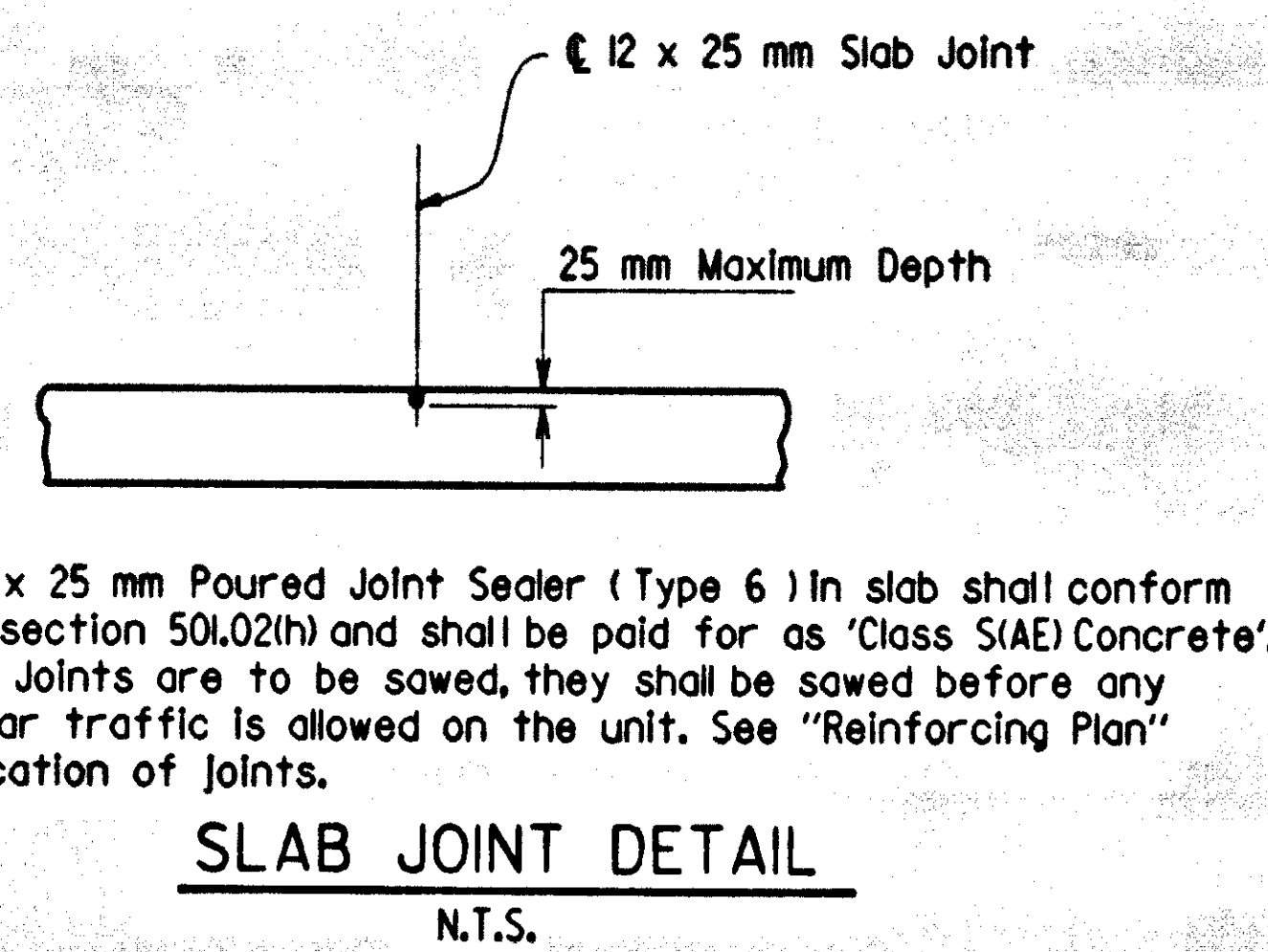
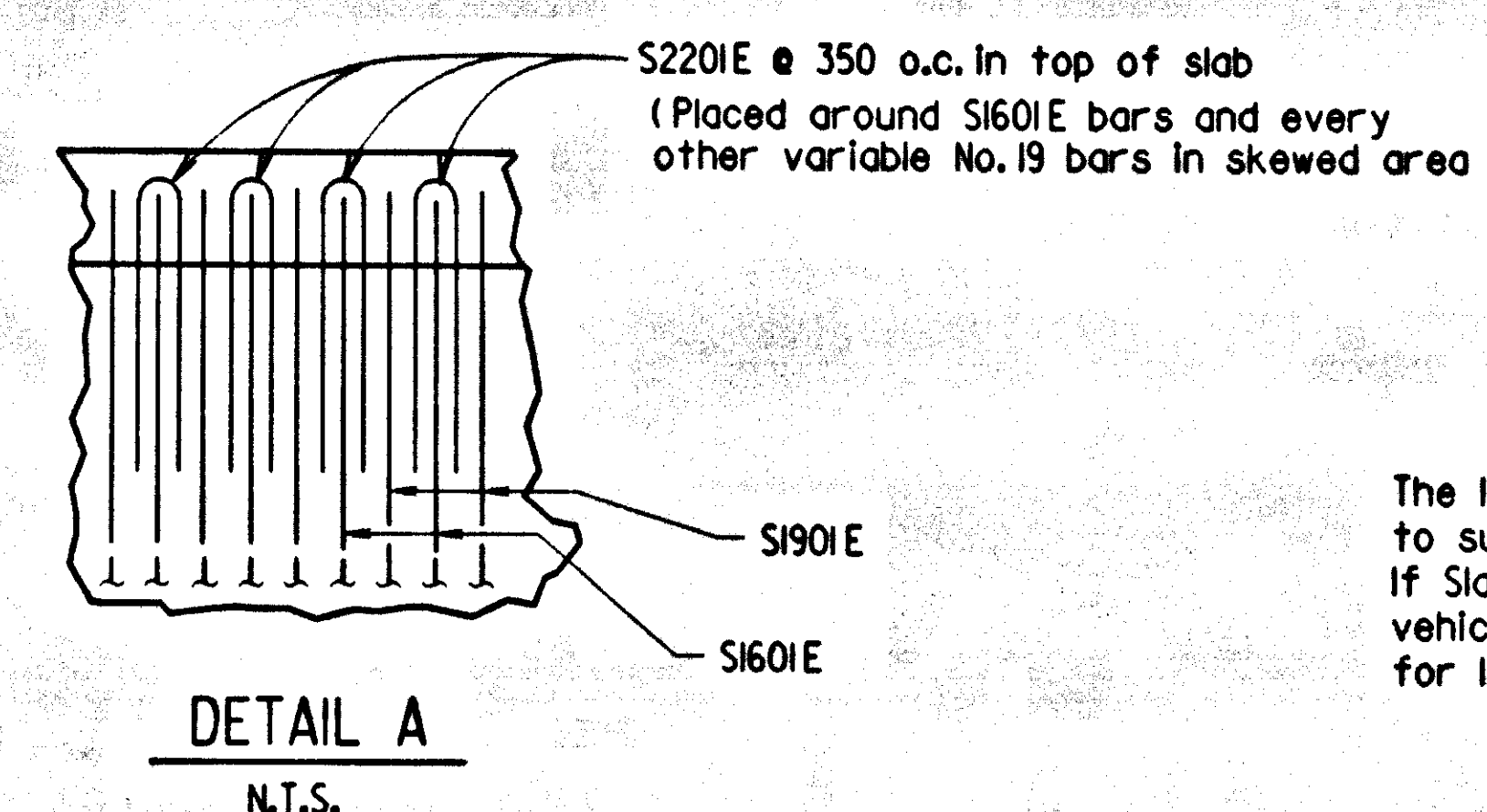
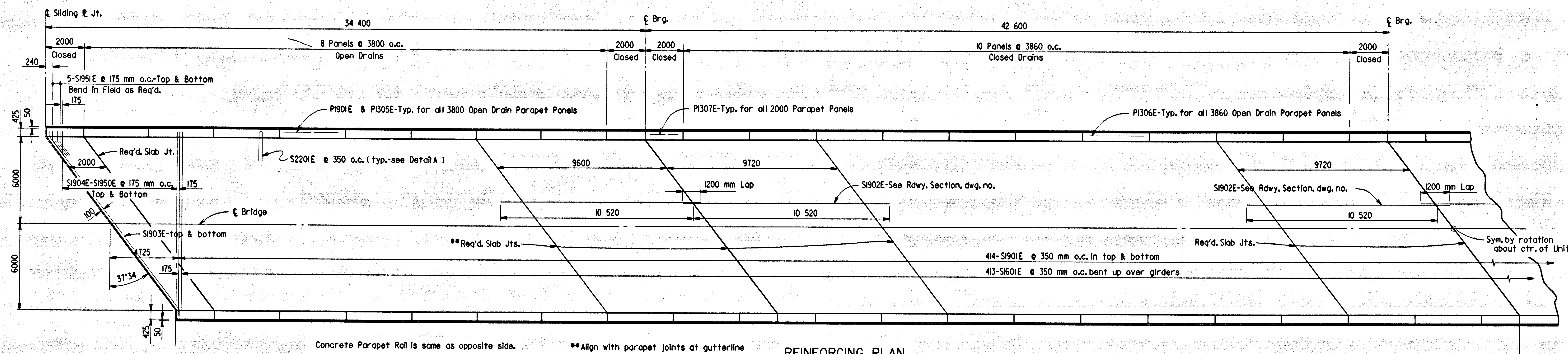
BRIDGE NO. B6770 DRAWING NO. 39903



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OCT 04 2000

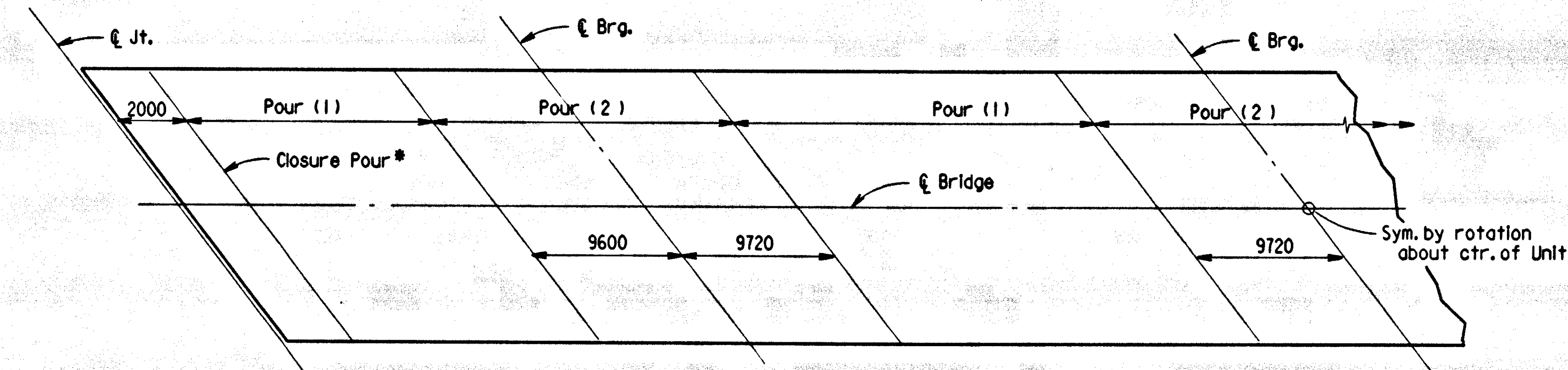


DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110335		
				① B6770		CONT. UNIT	39904	



# REINFORCING PLAN

N.T.S.



# SLAB POURING SEQUENCE

N.T.S.

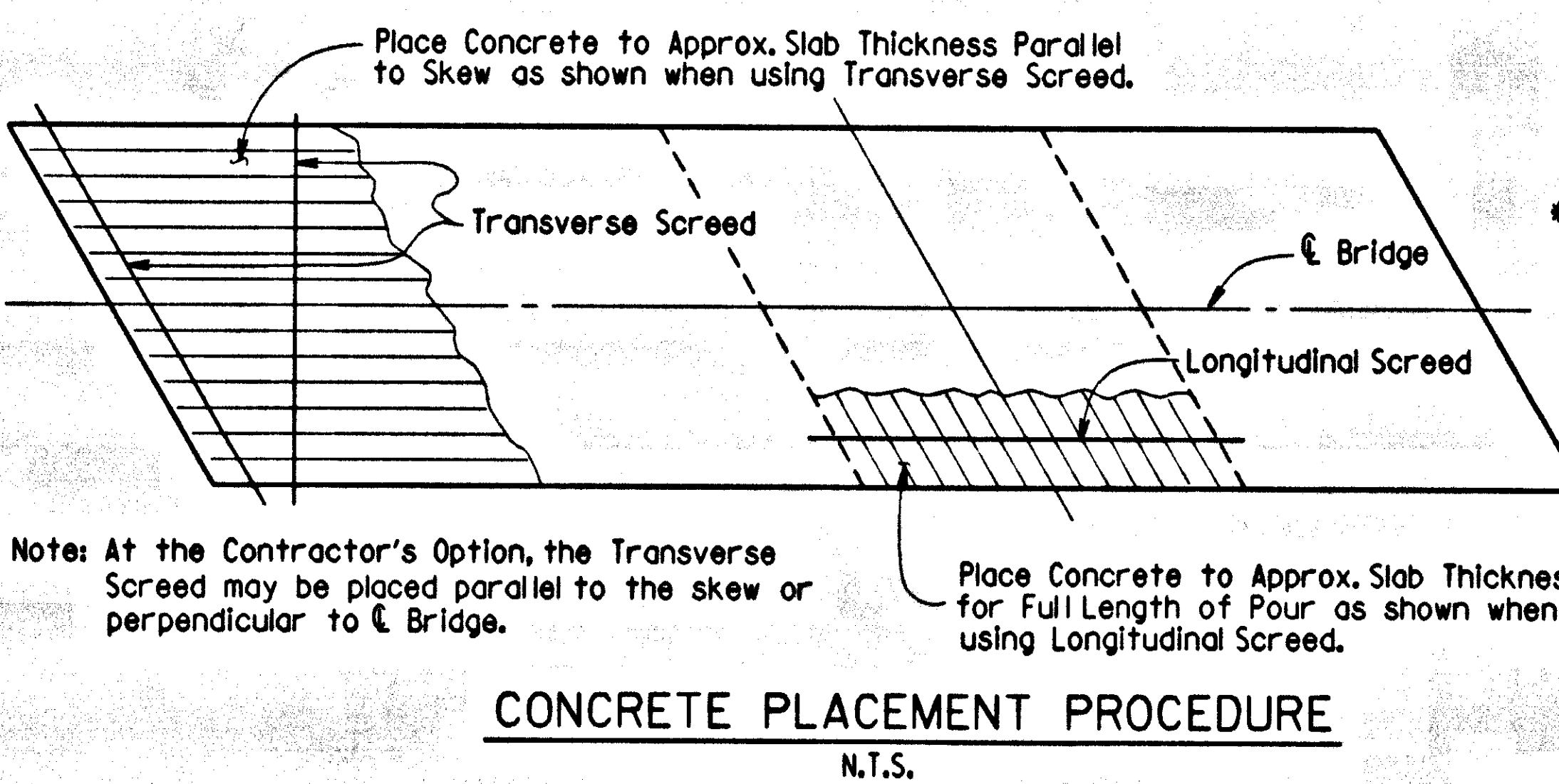
Note: Pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2) can be placed, 48 hours shall elapse between the end of a pour and the start of the next pour, 72 hours shall elapse between the end of a pour and the start of an adjacent pour. 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.

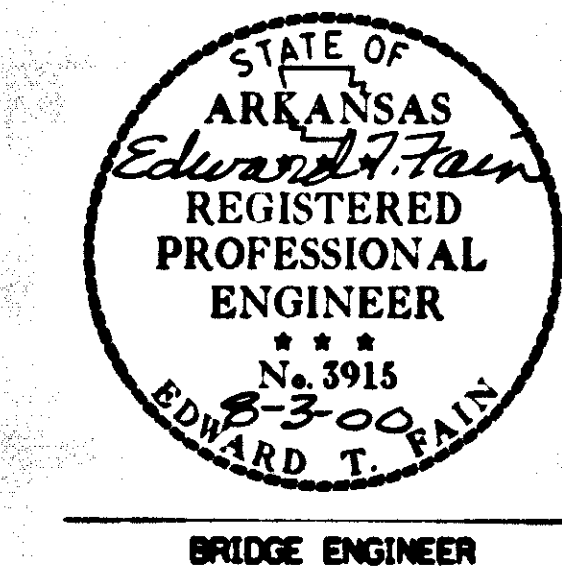
\* After all Pours (1) and Pours (2) are complete, Joint Closure Pours shall be poured simultaneously, 48 hours shall elapse between end of last Pour (2) and start of Joint Closure Pour.

# BAR LIST FOR 154m UNIT

BAR	No. Req'd.	Length	Dia. Pin	Bending Diagrams (Dimensions are out to out of bars.)
S1301E	1246	11 750	Str.	76 p.d.
S1601E	413	13 090	76	76 p.d.
S1901E	828	12 850	Str.	76 p.d.
S1902E	336	11 120	Str.	76 p.d.
S1903E	4	15 990	114	76 p.d.
S1904E-S1905E	4 Ea.	12 220 to 1750	Str.	76 p.d.
S1951E	20	1610	Str.	76 p.d.
S2201E	874	3700	155	76 p.d.
P1301E	952	1930	50	76 p.d.
P1302E	952	1680	50	76 p.d.
P1303E	256	1780	50	76 p.d.
P1304E	256	940	50	76 p.d.
P1305E	128	3700	Str.	76 p.d.
P1306E	240	3760	Str.	76 p.d.
P1307E	96	1900	Str.	76 p.d.
P1901E	160	3700	Str.	76 p.d.



Note: Stations & elevations are in meters. All other dimensions are in millimeters unless otherwise noted.



SHEET 5 OF 6

DETAILS OF

154 METER CONT. COMP. PLATE GIRDER UNIT

OVERPASS OVER INTERSTATE 40

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: WJH DATE: 5-5-99

CHECKED BY: JGT DATE: 8-2-99

DESIGNED BY: JGT DATE: 2-9-99

BRIDGE NO. B6770

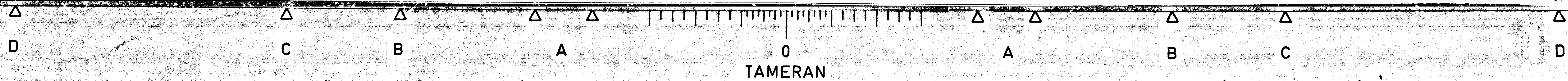
DRAWING NO. 39904

FILENAME: B10335X3.S5

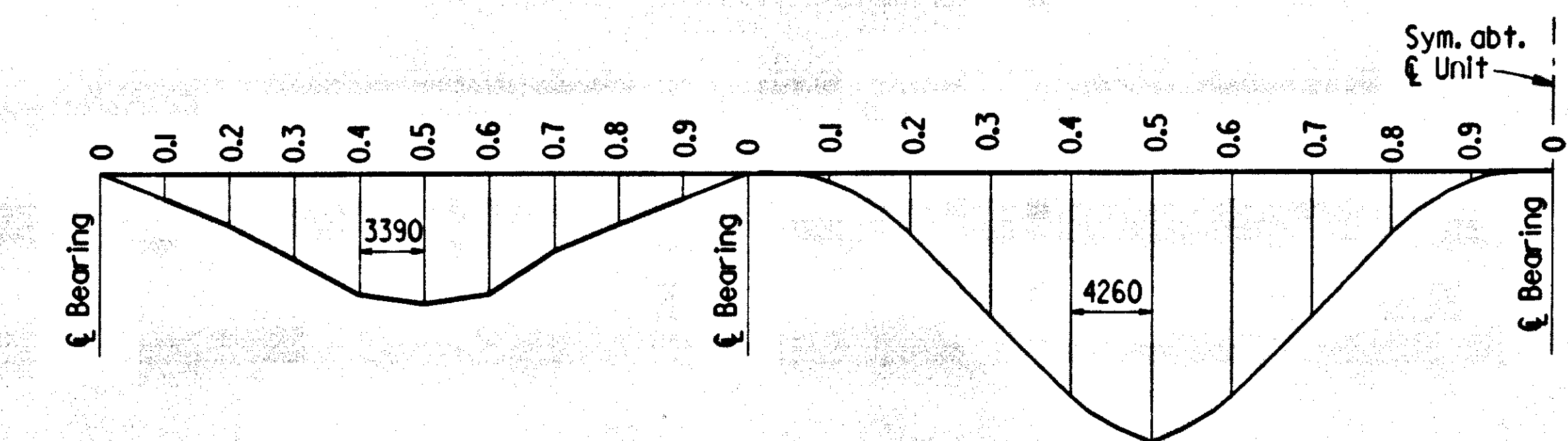
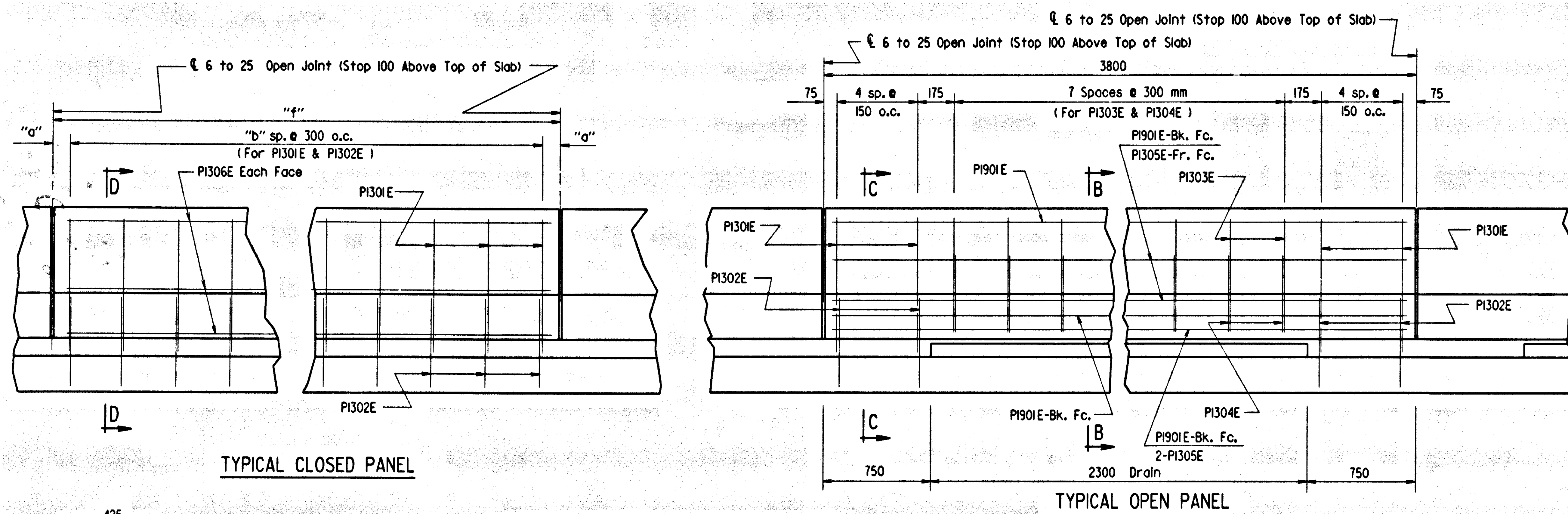
SCALE: As Shown

METRIC

MICROFILMED  
OCT 04 2000



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.		110335	150	150
						CONT. UNIT	39905	

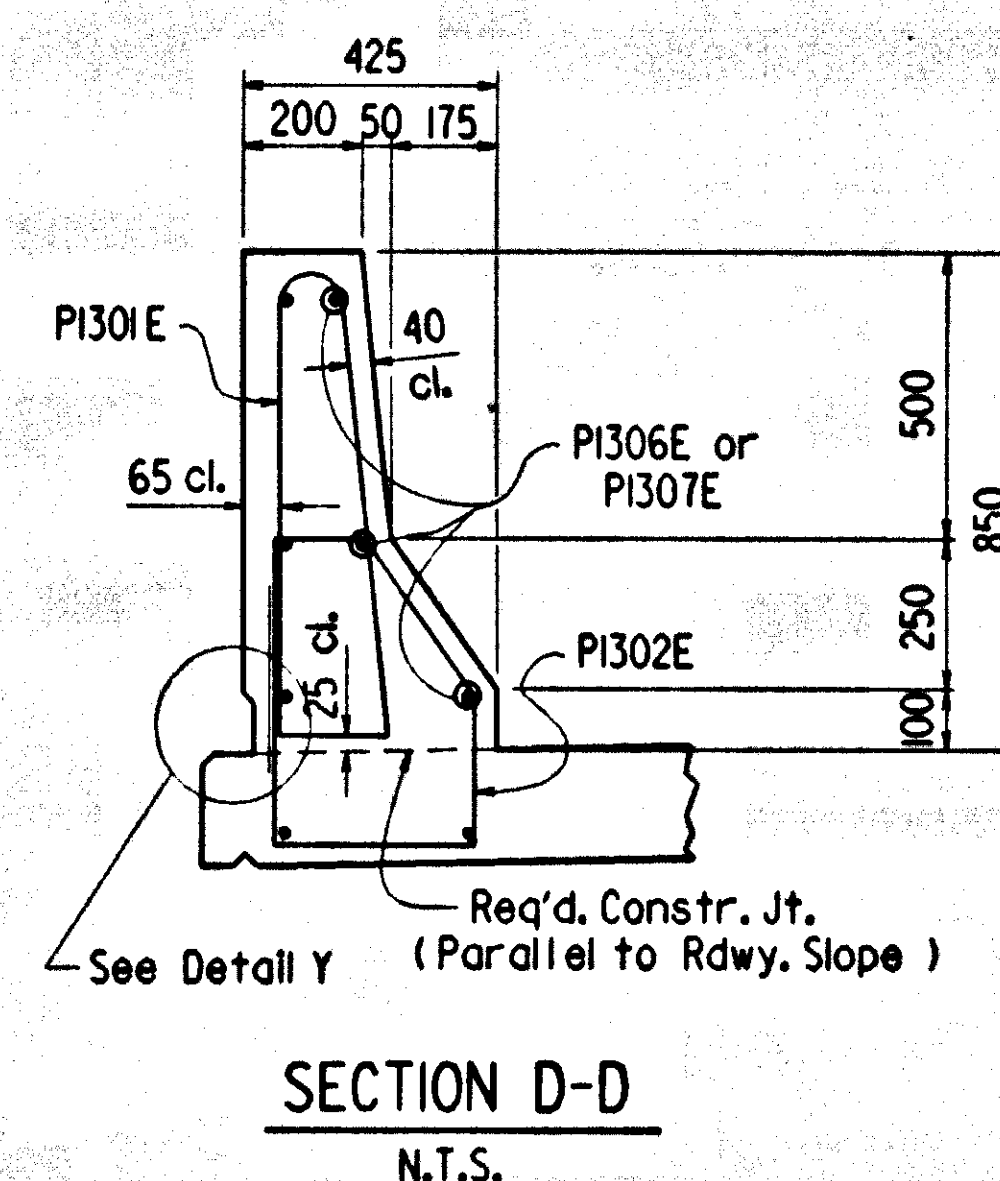


DEAD LOAD DEFLECTION DIAGRAM  
Camber for Dead Load Deflection plus Vertical curve  $\pm 6$  mm tolerance.

TABLE OF DEAD LOAD DEFLECTIONS (mm)  
Note: Deflections are symmetrical about  $\ell$  Unit.

Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet	
		Interior	Exterior	Interior	Exterior	Interior	Exterior
0	0	0	0	0	0	0	0
1.1	3	3	16	14	17	15	
1.2	6	6	29	25	31	28	
1.3	8	7	37	33	41	36	
1.4	8	8	41	36	44	39	
1.5	8	7	38	34	42	37	
1.6	7	6	32	28	35	31	
1.7	5	4	22	20	24	22	
1.8	2	2	12	10	13	12	
1.9	1	1	4	3	4	3	
2.0	0	0	0	0	0	0	
2.1	1	1	5	5	6	5	
2.2	4	3	17	15	19	17	
2.3	6	6	30	27	33	30	
2.4	8	8	40	35	44	39	
2.5	9	9	44	39	48	43	
2.6	8	8	40	35	44	39	
2.7	6	6	30	27	33	30	
2.8	4	3	17	15	19	17	
2.9	1	1	5	5	6	5	
3.0	0	0	0	0	0	0	

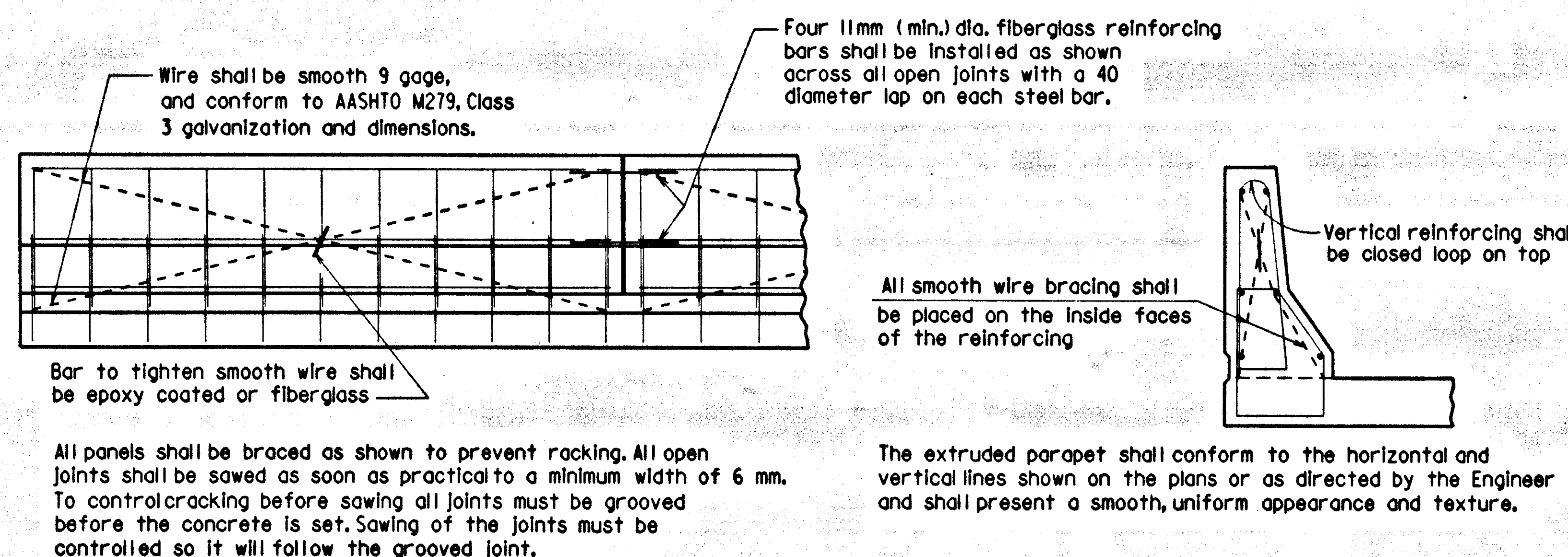
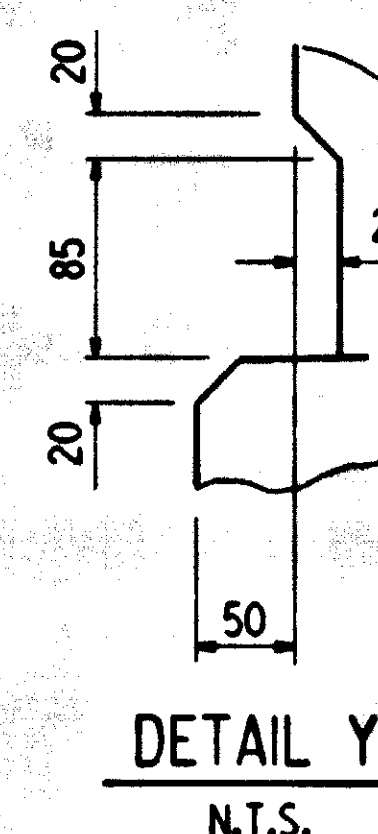
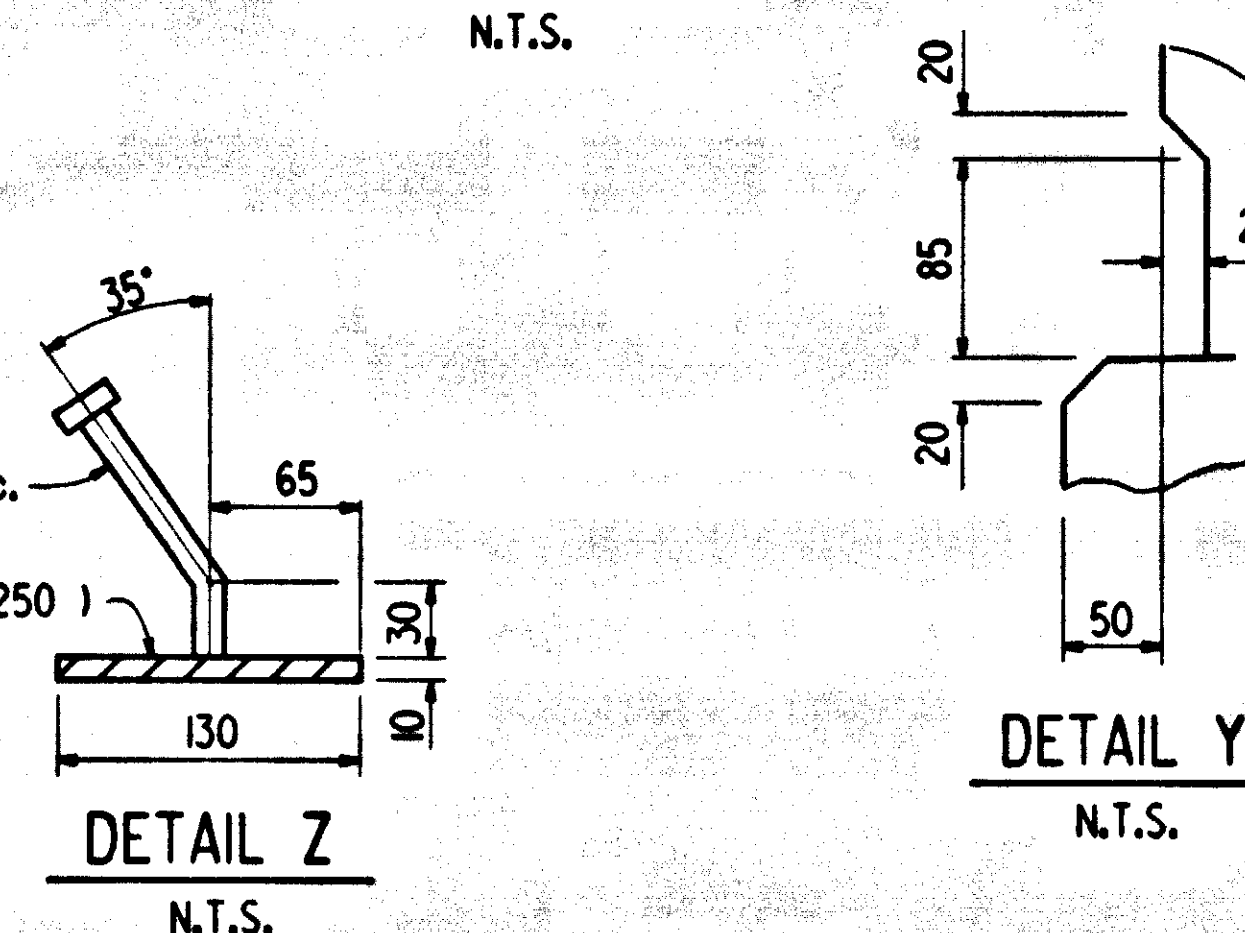
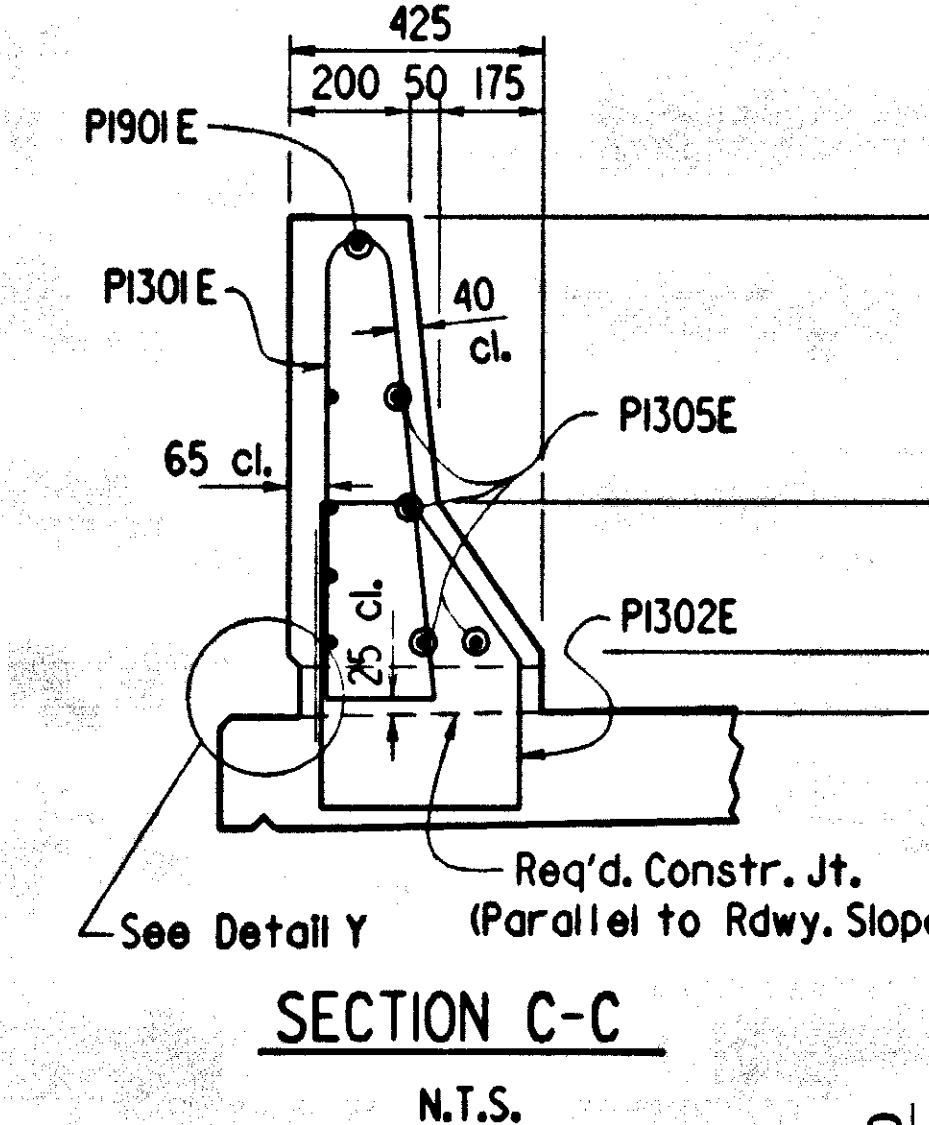
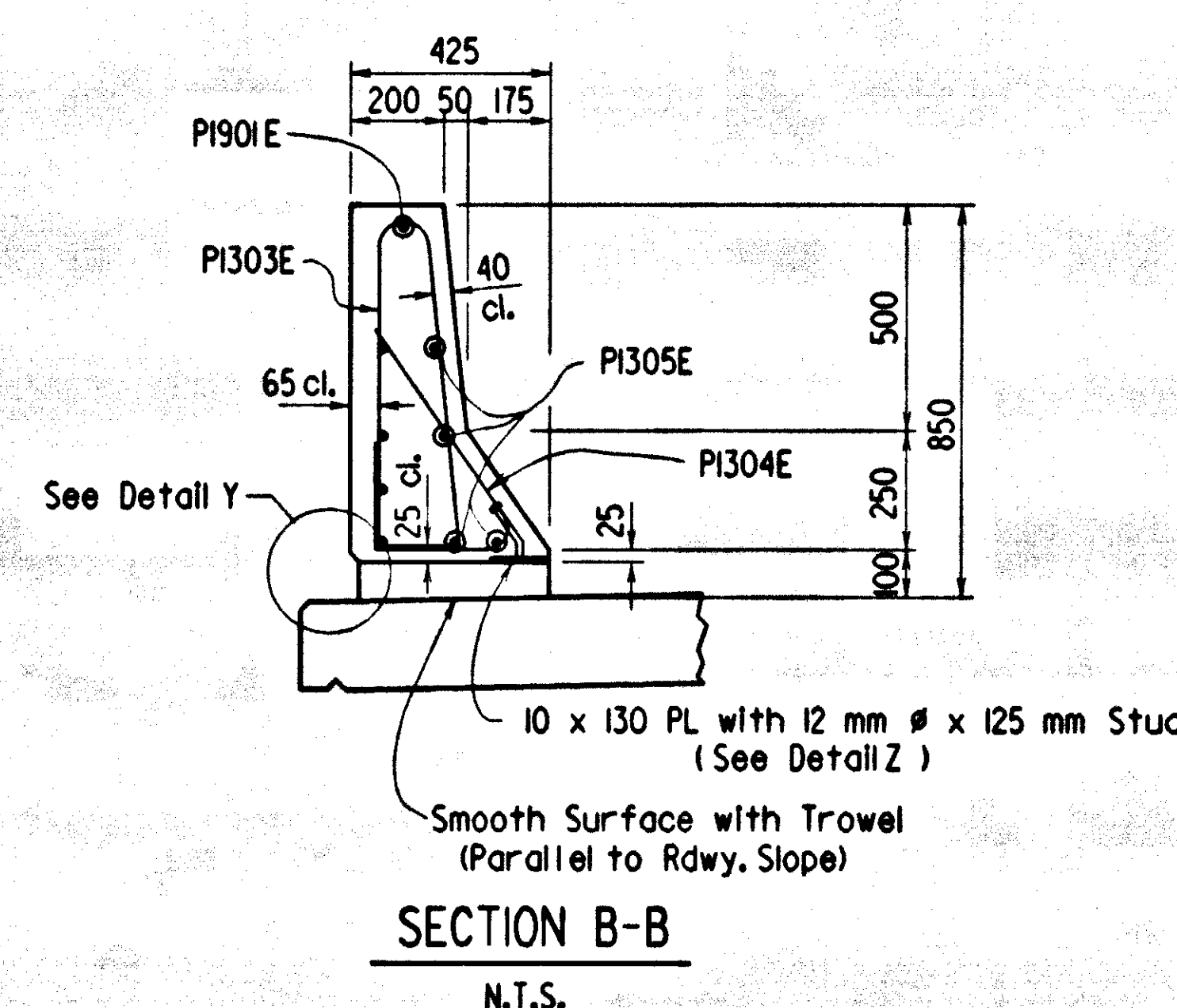
Note: Deflections shown are from a chord from  $\ell$  bearing to  $\ell$  bearing.



ELEVATION OF TYPICAL PARAPET RAIL  
(As viewed from roadway side of parapet)  
N.T.S.

TABLE OF PARAPET VARIABLES

Panel Length	Closed Parapet Panel	
"a"	"b"	"c"
2000	100	6
3860	130	12

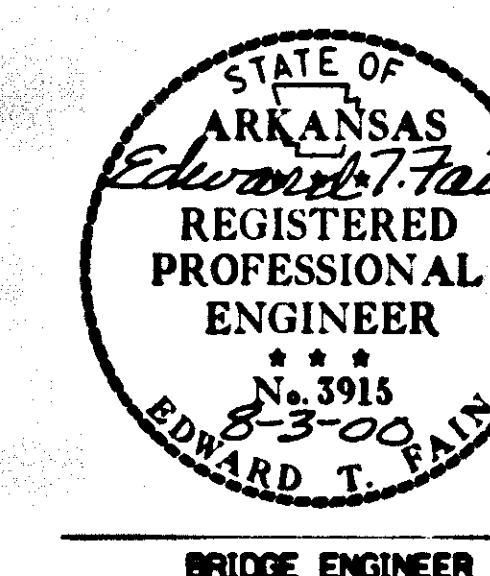


DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL (OPEN OR CLOSED)  
N.T.S.

Note:  
The surfaces of the 10 mm Plates which will not be in contact with concrete shall be painted in accordance with Section 638 or as approved by the Engineer. Only one prime coat is required where multiple coats are specified. All coats shall be applied in the fabricator's shop. Painting will not be paid for directly, but will be considered subsidiary to Structural Steel or Glass (AE) Concrete.

Note:  
For Reinforcing bar list, bending diagrams and additional details, see dwg. no. 39904

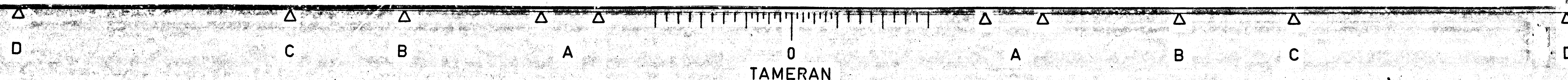
Stations & elevations are in meters. All other dimensions are in millimeters unless otherwise noted.



SHEET 6 OF 6  
DETAILS FOR  
154 METER CONT. COMP. PLATE GIRDER UNIT  
OVERPASS OVER INTERSTATE 40  
ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.  
DRAWN BY: W.M.A. DATE: 5-5-99  
CHECKED BY: JST DATE: 5-20-00 FILENAME: B110335X3.56  
DESIGNED BY: JST DATE: 2-9-99 SCALE: As Shown  
BRIDGE NO. B6770 DRAWING NO. 39905



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OCT 04 2000



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				110335	81	100
				JOB NO.		
				B6770	ELASTO. BRGS.	39906

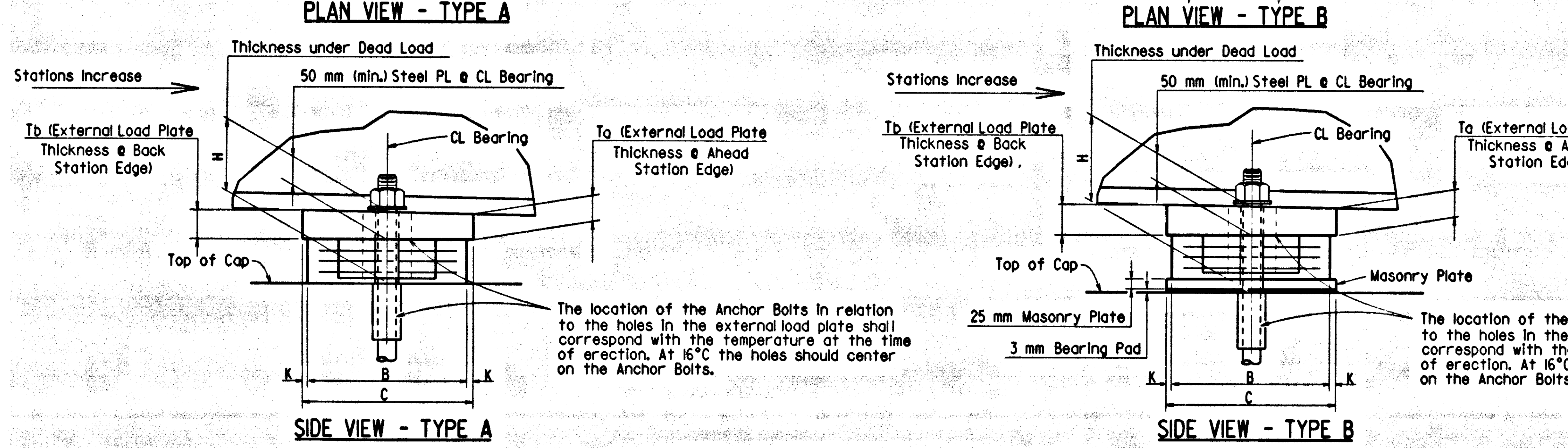
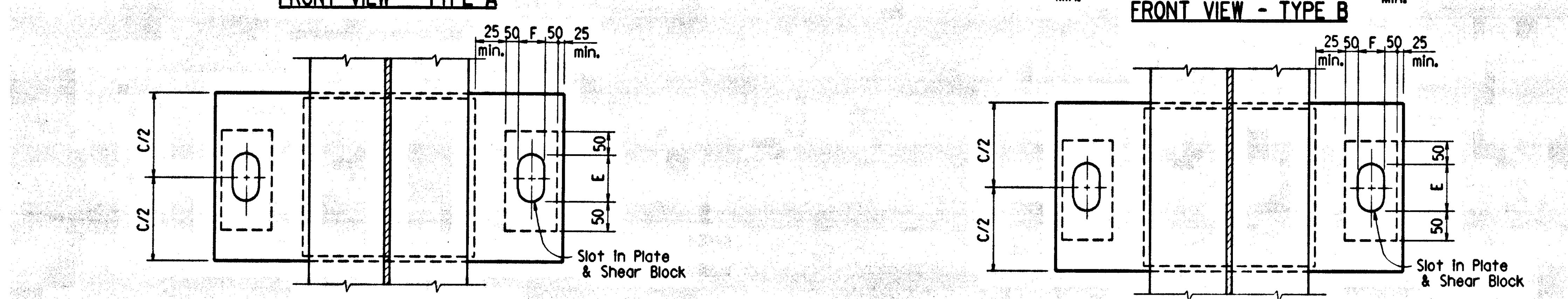
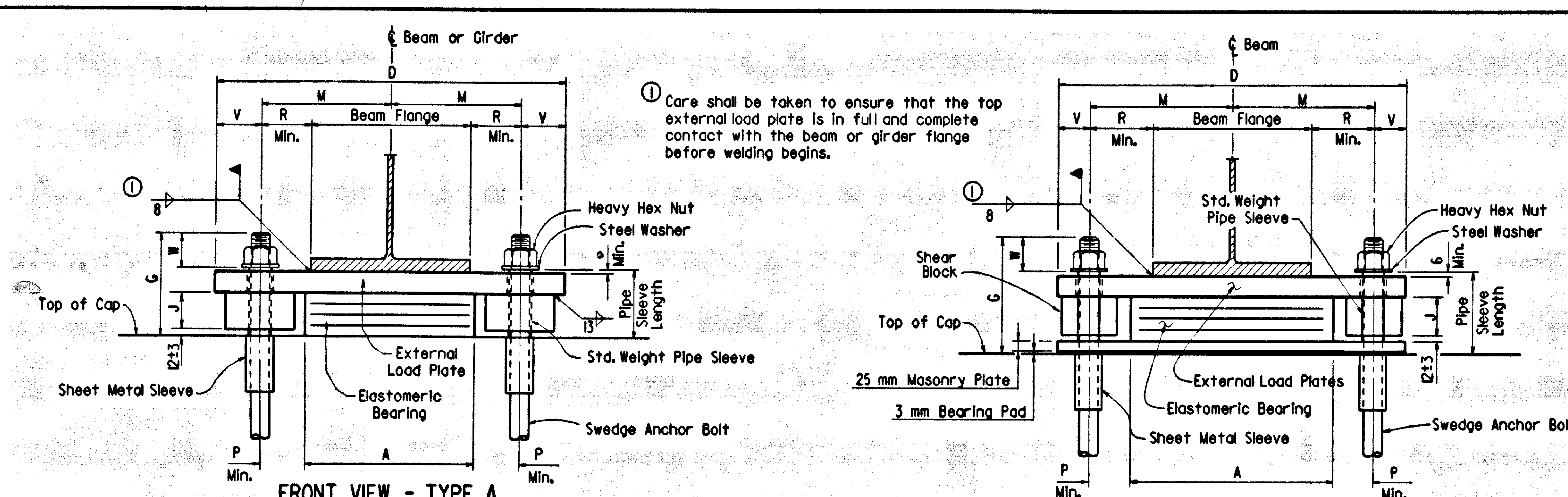
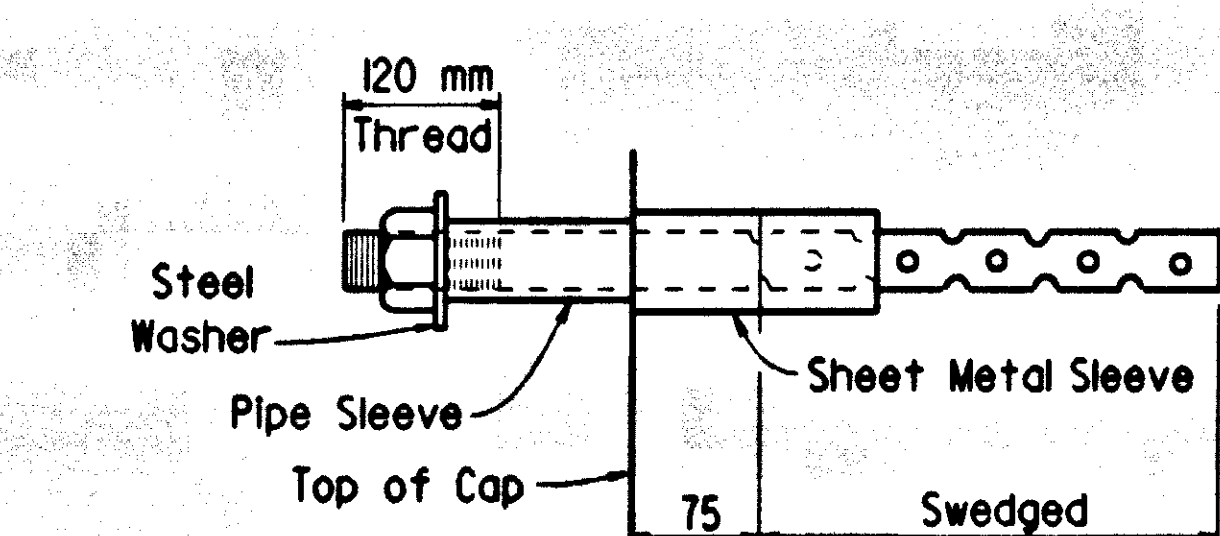


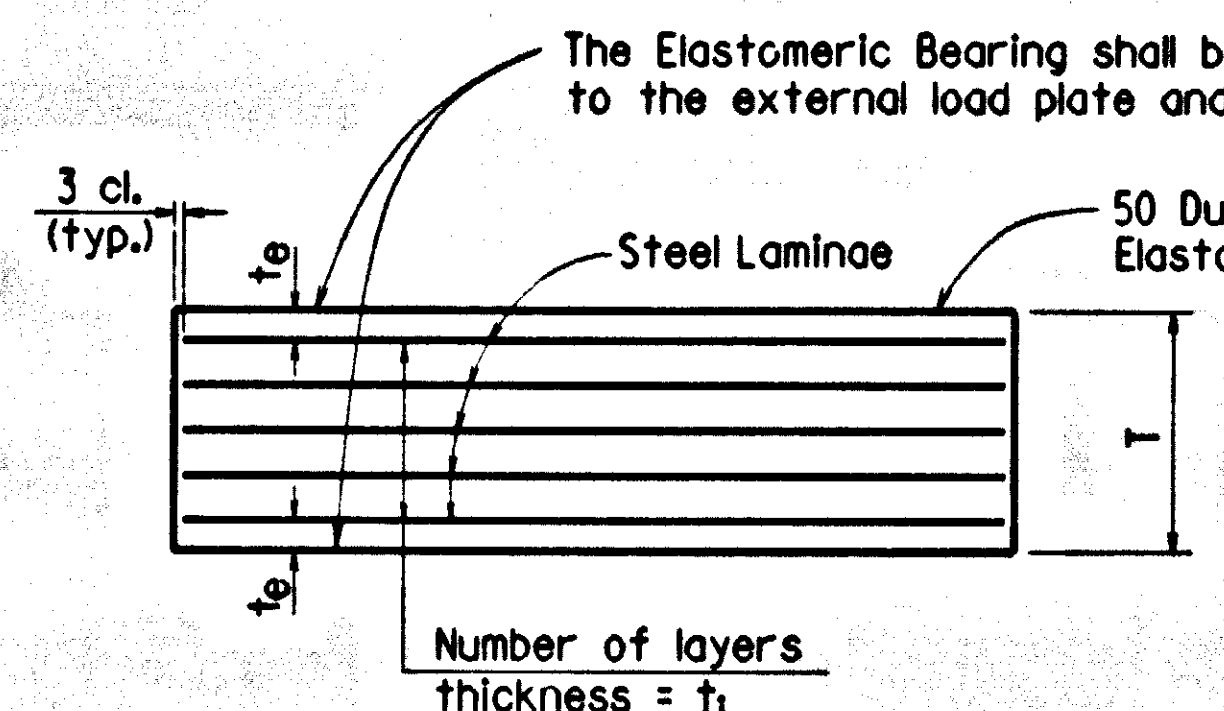
TABLE OF DESIGN VARIABLES (mm)

ANCHOR BOLT DIAMETER	PIPE SLEEVE NOMINAL DIAMETER	SHEET METAL SLEEVE DIA.	STANDARD WASHER SIZE (O.D.)	MINIMUM EMBEDMENT LENGTH	SLOT WIDTH "F"	P Min.	R Min.	V	W
25.4	31.7	76	50.8	260	40 #	100	50	100	55
31.7	31.7	76	63.5	310	50 #	100	60	100	60
38.1	38.1	76	76.2	380	60 #	105	65	105	65
44.4	50.8	100	85.7	460	70 #	110	70	110	70
50.8	63.5	100	95.2	510	80 #	115	75	115	80
57.1	63.5	100	101.6	590	80 #	115	75	115	85
63.5	76.2	100	114.3	640	95 #	125	85	125	90



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. 345W)".



$t_0$  = thickness of elastomer cover on top and bottom of pad  
 $t_1$  = thickness of elastomer between steel laminae  
 $N$  = number of elastomer layers of thickness  $t_1$

ELASTOMERIC BEARING

GENERAL NOTES

All dimensions are in millimeters (mm) unless otherwise noted. Elastomeric Bearings shall conform to Special Provision Job No. 110335 "Elastomeric Bearings" and Section 808 of the Standard Specifications. Long-duration testing of random lot samples specified in subsection 808.05 is not required. Bearings shall be paid for at the unit price bid for "Elastomeric Bearings."

External load plates and masonry plates shall conform to AASHTO M 270, Grade 345W. 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 with & without shear blocks and masonry 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(e) for unpainted Grade 345W 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. 345W)" or "Structural Steel in Plate Girder Spans (M270, Gr. 345W)". External load plates, shear blocks and masonry plates will not be measured or paid for separately but will be considered included in the unit bid price for "Elastomeric Bearings".

Bearings with masonry plates and 3mm bearing pads shall be firmly seated in accordance with Subsection 807.66 of the Standard Specifications. This work and material shall be considered subsidiary to the item "Elastomeric Bearings" and shall not be paid for directly.

TABLE OF FABRICATOR VARIABLES

*Maximum Design Load = Service Load								ELASTOMERIC PAD							EXTERNAL LOAD PLATE										ANCHOR BOLT				
BRIDGE NO.	LOCATION		BEARING TYPE	NO. of BEARINGS	*MAXIMUM DESIGN LOAD (KN)	G	H	A	B	N	t <sub>1</sub>	t <sub>e</sub>	NO. & THICKNESS OF STEEL LAMINAE	T	C	D	E	F	J	K	M	T <sub>a</sub>	T <sub>b</sub>	ANCHOR BOLT		PIPE SLEEVE SIZE (ø x L)	SHEET METAL SLEEVE SIZE (ø x L)	STEEL WASHER SIZE	
	BENT NO(S)	BEAM OR GIRDER NO.																						(ø x L)	GRADE				
B6770	1	All	B	5	540	290	204	380	380	15	6	3	16 @ 14 Ga.	126	410	840	180	80	115	15	305	52	48	50.8 x 875	55	63.5 x 210	100 x 300	95	
	2	All	A	5	1476	230	135	450	450	6	10	6	7 @ 14 Ga.	85	480	910	80	80	75	15	340	51	49	50.8 x 820	55	63.5 x 150	100 x 300	95	
	3	All	A	5	1484	230	135	450	450	6	10	6	7 @ 14 Ga.	85	480	910	80	80	75	15	340	50	50	50.8 x 820	55	63.5 x 150	100 x 300	95	
	4	All	A	5	1476	230	135	450	450	6	10	6	7 @ 14 Ga.	85	480	910	80	80	75	15	340	49	51	50.8 x 820	55	63.5 x 150	100 x 300	95	
	5	All	B	5	540	290	204	380	380	15	6	3	16 @ 14 Ga.	126	410	840	180	80	115	15	305	48	52	50.8 x 875	55	63.5 x 210	100 x 300	95	

STATE OF ARKANSAS  
 Registered Professional Engineer  
 Edward T. Fain  
 No. 3915  
 6-3-00  
 BRIDGE ENGINEER

DETAILS OF ELASTOMERIC BEARINGS  
 ROUTE SEC.  
 ARKANSAS STATE HIGHWAY COMMISSION  
 LITTLE ROCK, ARK.

DRAWN BY: W.M.J. DATE: 6-19-00  
 CHECKED BY: A.M.H. DATE: 6-20-00  
 DESIGNED BY: S.H. DATE: 6-20-00

FILENAME: B110335x3.brg  
 SCALE: NONE

BRIDGE NO. B6770 DRAWING NO. 39906

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 OCT 04 2000

