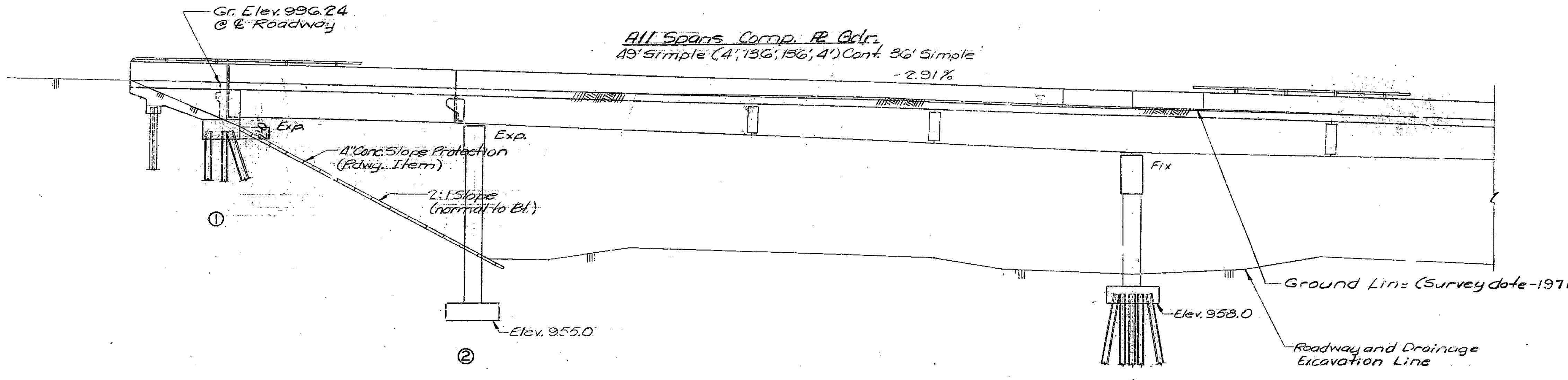
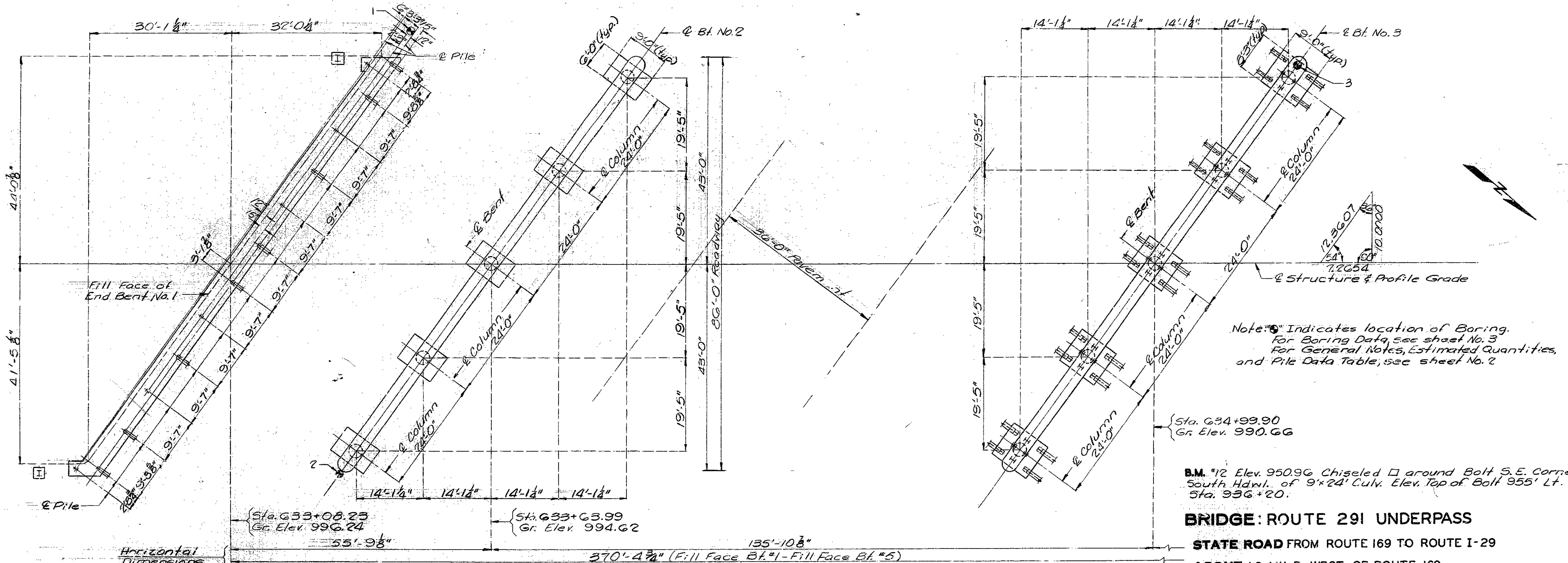
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	26	



PART GENERAL ELEVATION



Note: Grade Elevations shown are taken at ℄ Roadway.

PART PLAN

B.M. #12 Elev. 950.96 Chiseled □ around Bolt S.E. Corner South Hdwl. of 9'×24' Culv. Elev. Top of Bolt 955' Lt. Sta. 936+20.

BRIDGE: ROUTE 291 UNDERPASS

STATE ROAD FROM ROUTE 169 TO ROUTE I-29

ABOUT 1.0 MILE WEST OF ROUTE 169

PROJECT NO. I-435-1 (115) **STA.** 633+08.23

JOB NO. 4-I-435-50 **RTE.** I-435

PLATTE COUNTY

DATE July 27, 1977

STD. 611.60B
STD. 706.35
A-3287

DESIGNED Oct. 1973
DETAILED July 1975
CHECKED Sept. 1975

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

SEE FINAL PLANS

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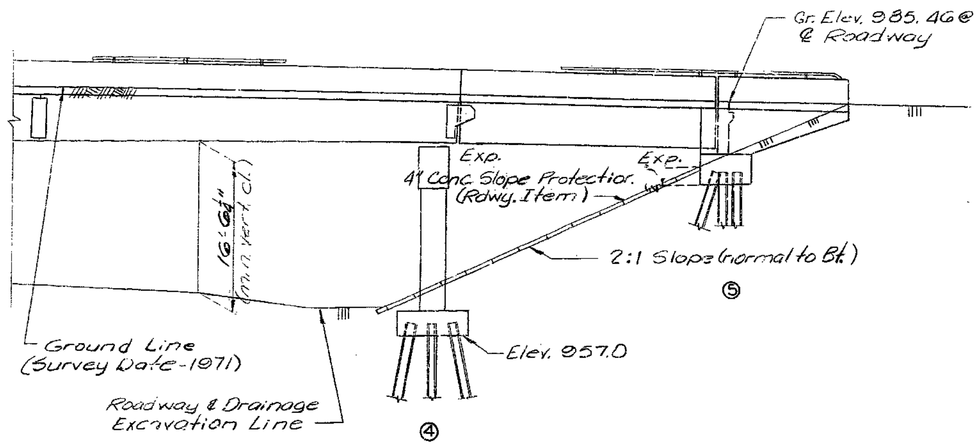
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	27	



PART GENERAL ELEVATION

PILE DATA							
BENT NO.			1	2	3	4	5
Bearing Pile	Pile Type and Size		HP10×42		HP10×42	HP10×42	HP10×42
	Number		16		40	25	14
	Approximate Length	Ft.	32		12	12	28
	Design Bearing	Tons	56		56	51	52
	Hammer Energy Required	Ft.Lbs.	14,600		13,200	12,000	13,600
Spread Footings	Foundation Material			Rock			
	Design Bearing	Tons/Sq.Ft.		4.8			

' Minimum energy requirement of hammer based on plan length and design bearing value of Piles.

All pile shall be driven to practical refusal.

Prebore piling to Elev. 948.0 at Int. Bent No. 3 and to Elev. 947.0 at Int. Bent No. 4. Cost of preboring shall be included in price bid for Structural Steel Pile.

GENERAL NOTES:

Design Specifications: A.A.S.H.T.O. - 1973
Design Loading: HS20-44 (No Future Wearing Surface)
Earth 120# Equivalent Fluid Pressure 30#
Fatigue Stress: Case I

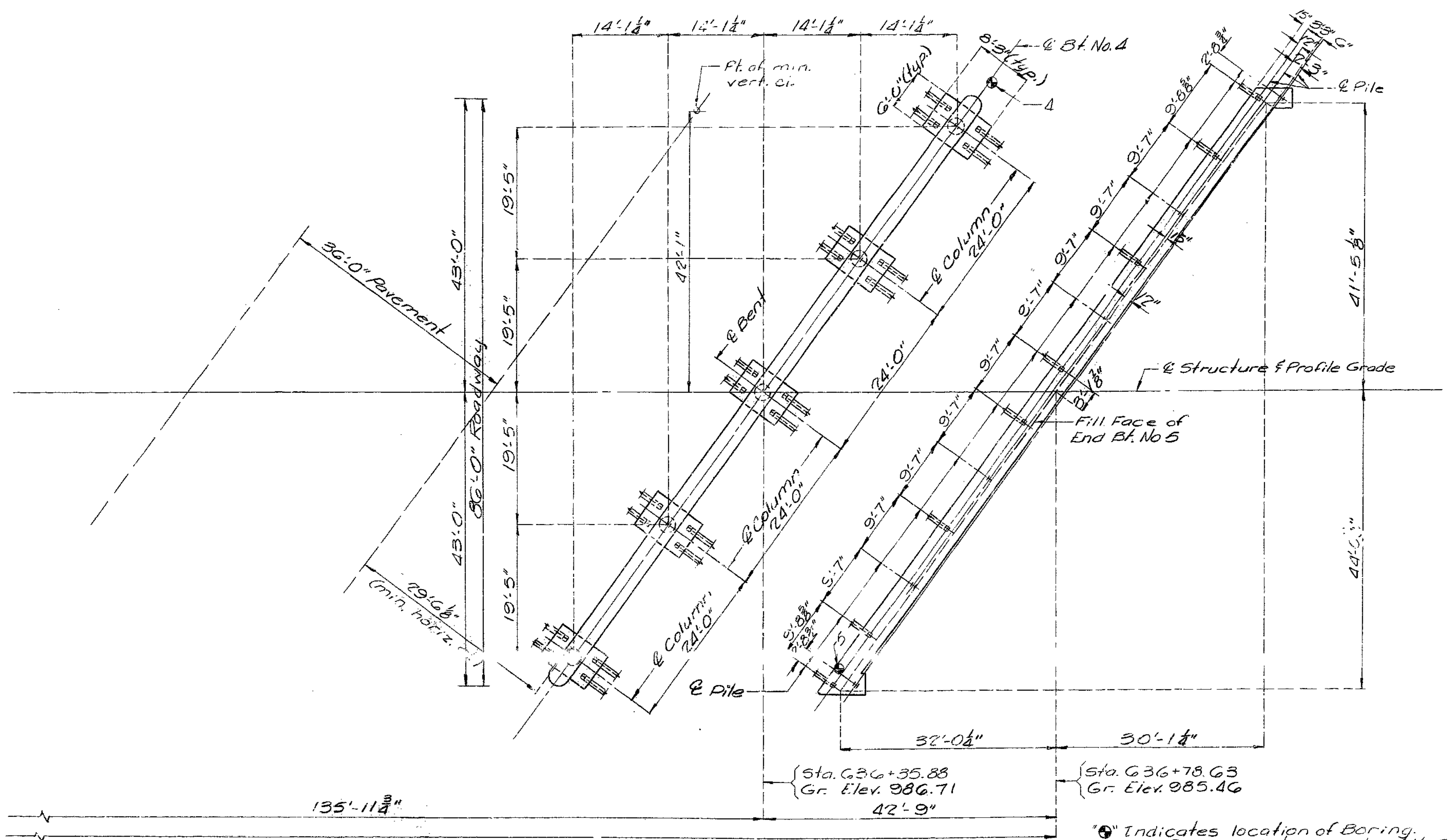
Design Unit Stresses:
Class B Concrete (Substructure) f'c = 1200 psi.
Class B1 Concrete (Superstructure) f'c = 1600 psi.
Reinforcing Steel (Grade 60) fy = 60,000 psi.
Reinforcing Steel fs = 20,000 psi.
Structural Carbon Steel fs = 20,000 psi.
Structural Steel (A.S.T.M. A-572) Grade 50 fs = 27,000 psi.
Steel Pile fb = 9,000 psi.

Fabricated Steel:
Field Connections, High Strength Bolts ¾"ϕ holes 13/16"ϕ except as noted.

Painting:
Paint: System B or C by Contractor in accordance with Std. Spec. 712.12 (final field coat to be green).

Reinforcing Steel:
Minimum clearance to reinforcing steel shall be 1½" unless otherwise shown. All reinforcing bars in tops of beams shall be spaced to clear anchor bolts for bearing by at least ½".

Payweight for fabricated steel will be based on welded field splices regardless of type used.



"⊕" Indicates location of Boring. For Boring Data, see Sheet No. 3

PART PLAN

ESTIMATED QUANTITIES				
ITEM		SUBSTR.	SUPERSTR.	TOTAL
Class 1 Excavation	Cu. Yd.	750		750
Asphalt Cement (Asphaltic Concrete)	Ton		19.5	19.5
Mineral Aggregate (Asphaltic Concrete)(special mix)	Ton		363.8	363.8
Structural Steel Pile (10")	Lin.Ft.	1684		1684
Class B Concrete	Cu.Yd.	559.3		559.3
Class B 1 Concrete	Cu. Yd.		1046.1	1046.1
Steel Reinf. Elastomeric Exp. Jt. Seal (2.0")	Lin. Ft.		213	213
Reinforcing Steel (Grade 40)	Lb.	98610	8230	106840
Reinforcing Steel (Grade 60)	Lb.		247,000	247,000
Bridge Deck Waterproofing (Liquid)	Sq.Yd.		3095	3095
Fabricated Structural Carbon Steel	Lb.		834,010	834,010
Fabricated Structural Low Alloy Steel	Lb.		193,970	193,970
Painting	Ton		512.1	512.1
Bridge Rail (one tube)	Lin.Ft.		794	794

All concrete and Reinforcement in Safety Barrier Curb is included with Superstructure Quantities.

DETAILED July 1975
CHECKED Aug 1975

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

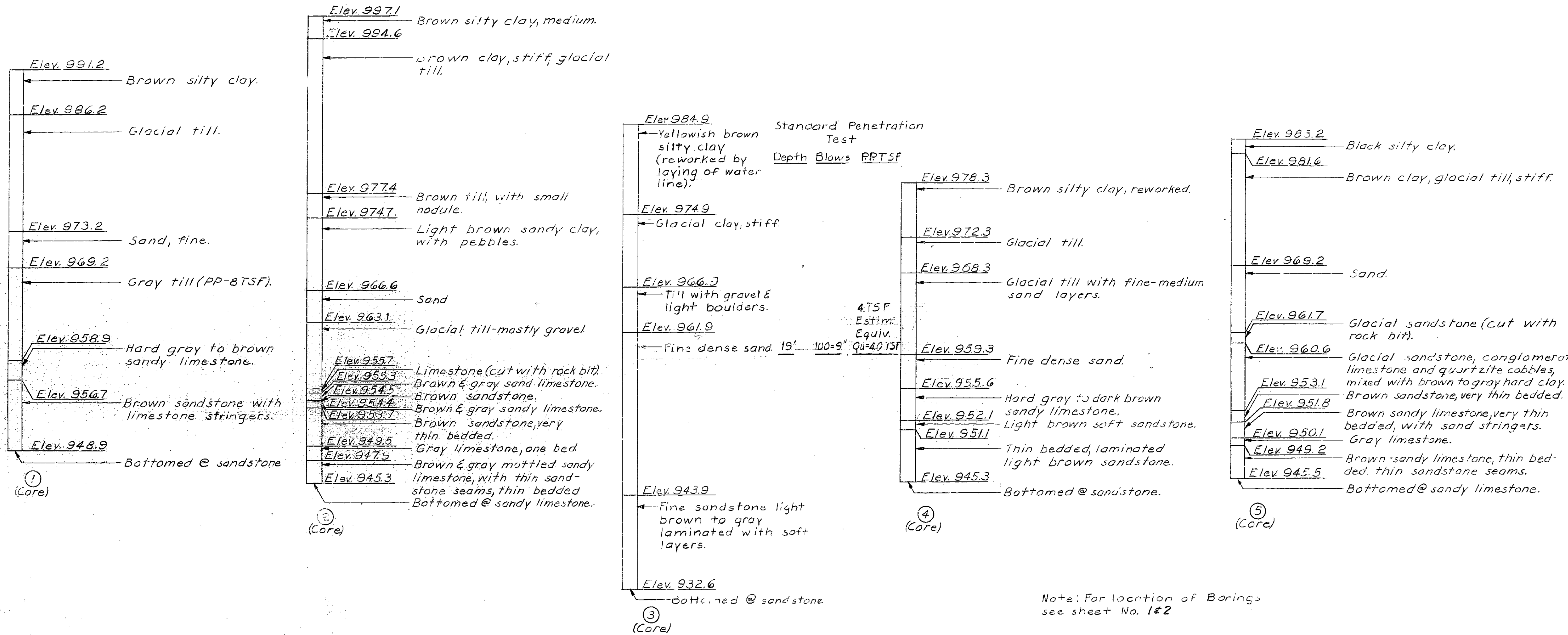
Sheet No. 2 of 28

PLATTE COUNTY

A-3287

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	28	



Note: For location of Borings see sheet No. 1&2

BORING DATA

DETAILED JAN. 1974
CHECKED AUG. 1975

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

Sheet No. 3 of 28.

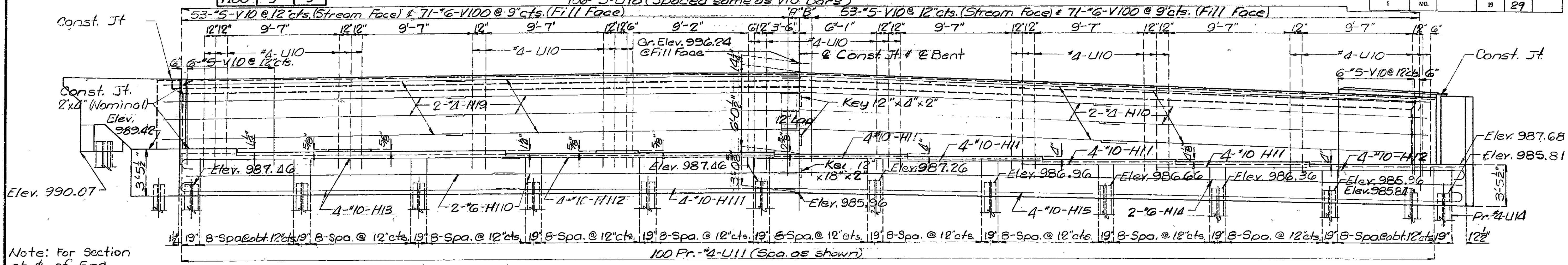
PLATTE COUNTY

A-3287

MISSOURI STATE HIGHWAY DEPARTMENT

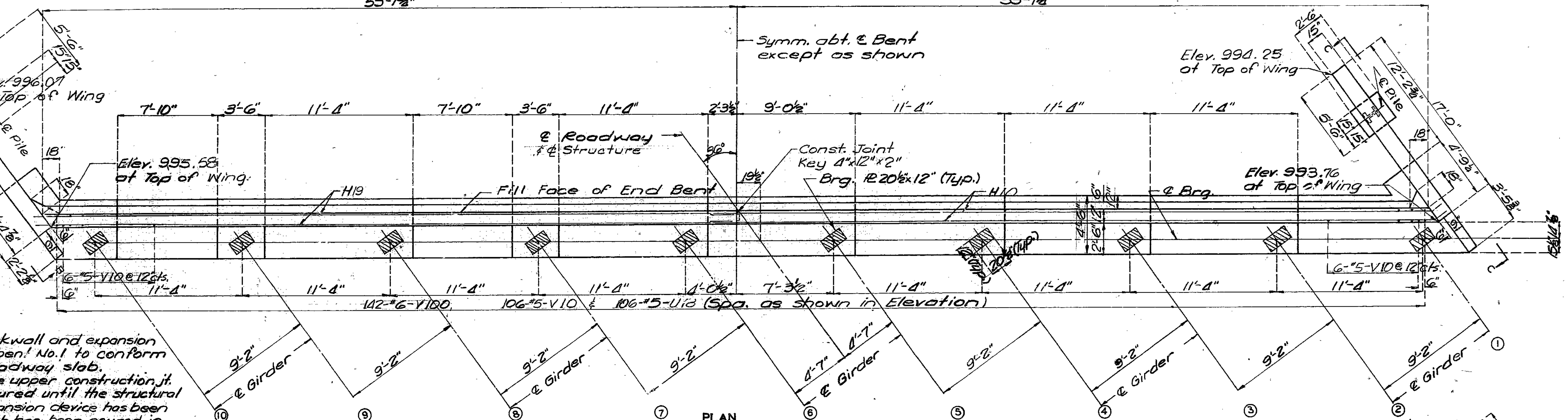
Bars	"A"	"B"
V10	12"	12"
V100	9"	9"

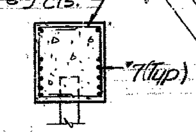
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	29	



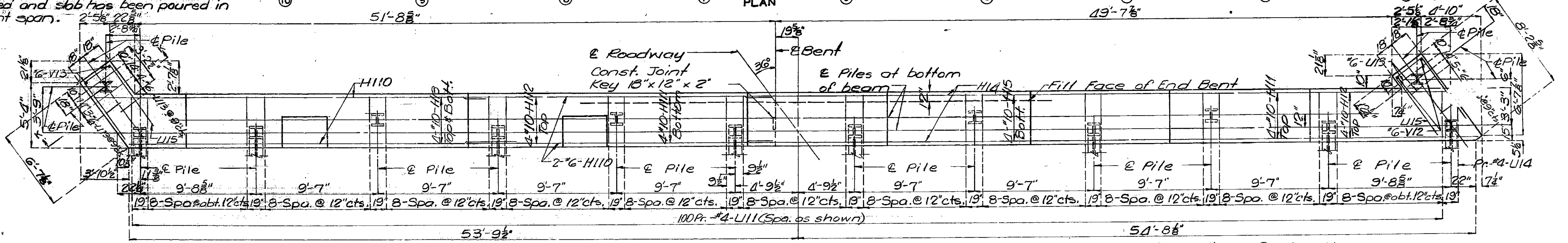
Note: For Section at ℄ of End Bent No. 1 see sheet No. 10

Note: For Elevation of Wings see sheet No. 10




SECTION K-K

Note: Top of backwall and expansion device for end bent No. 1 to conform to crown of roadway slab.
Backwall above upper construction jt. shall not be poured until the structural steel of the expansion device has been installed and slab has been poured in adjacent span.



PLAN OF BEAM
(BELOW LOWER CONSTRUCTION JOINT)

Note: Field Bend H10 in Backwall.

DETAILED OCT. 1974
CHECKED AUG. 1975

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

DETAILS OF END BENT NO. 1

Sheet No. 4 of 28.

PLATTE COUNTY

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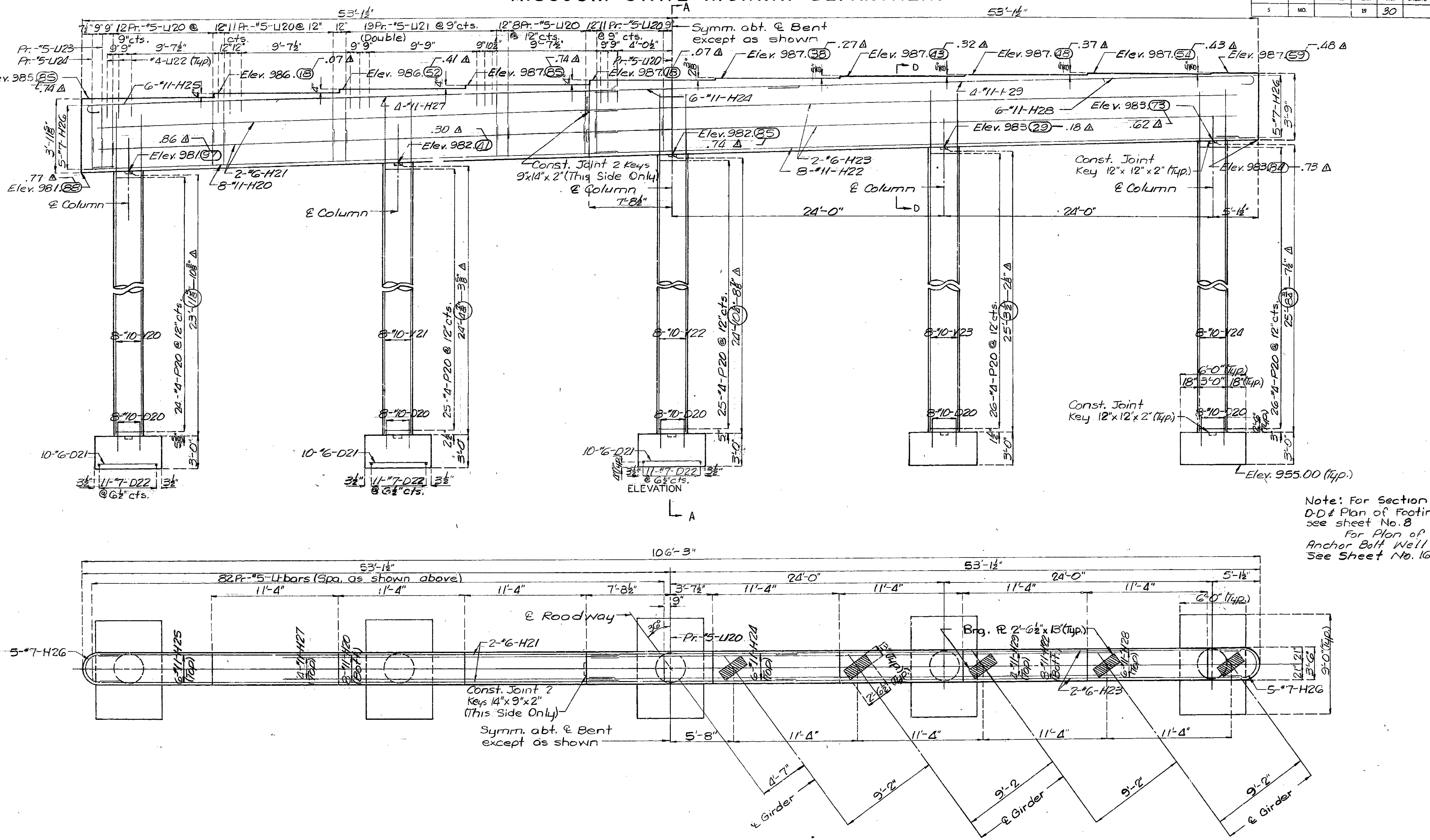
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	30	



Note: For Section A-A, D-D & Plan of Footing see sheet No. 8
For Plan of Anchor Bolt Well See Sheet No. 16

DETAILED JULY 1975
CHECKED AUG. 1975

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

DETAILS INT. BENT NO. 2

Sheet No. 5 of 28.

△ Revised 7-11-78

PLATTE COUNTY

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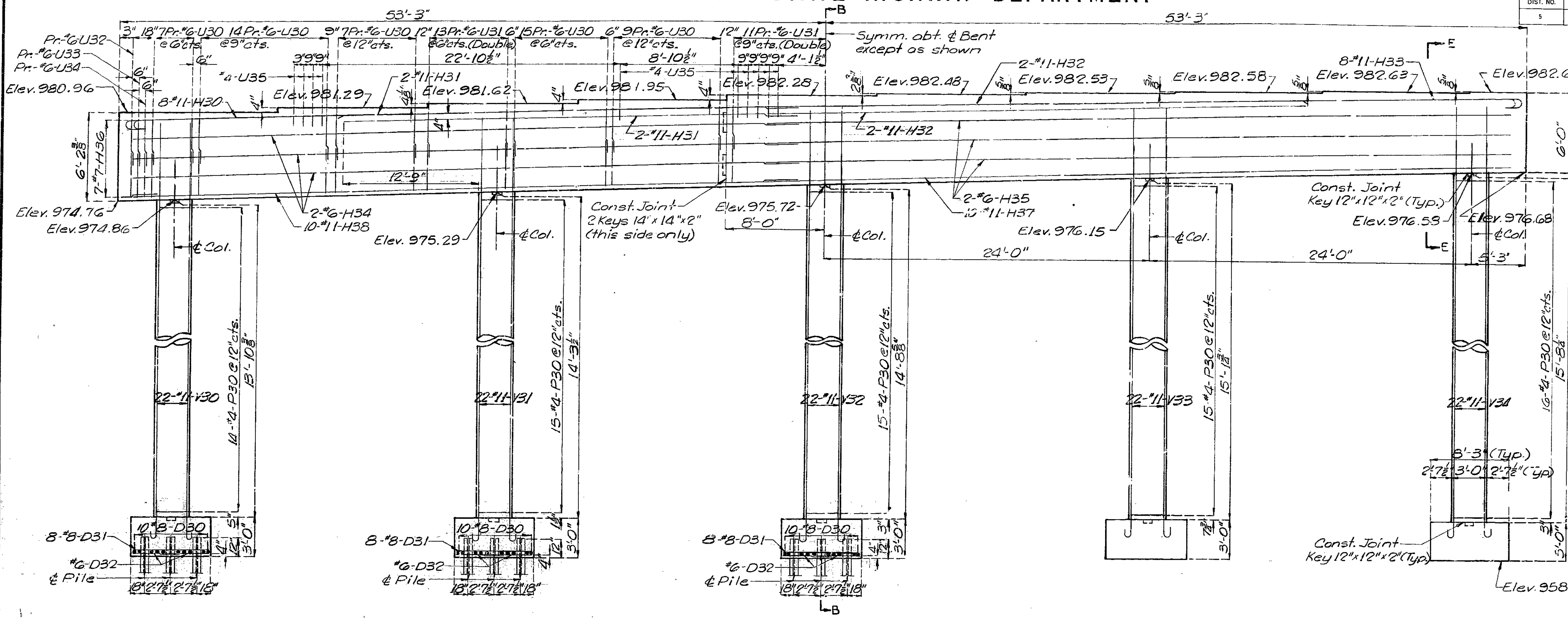
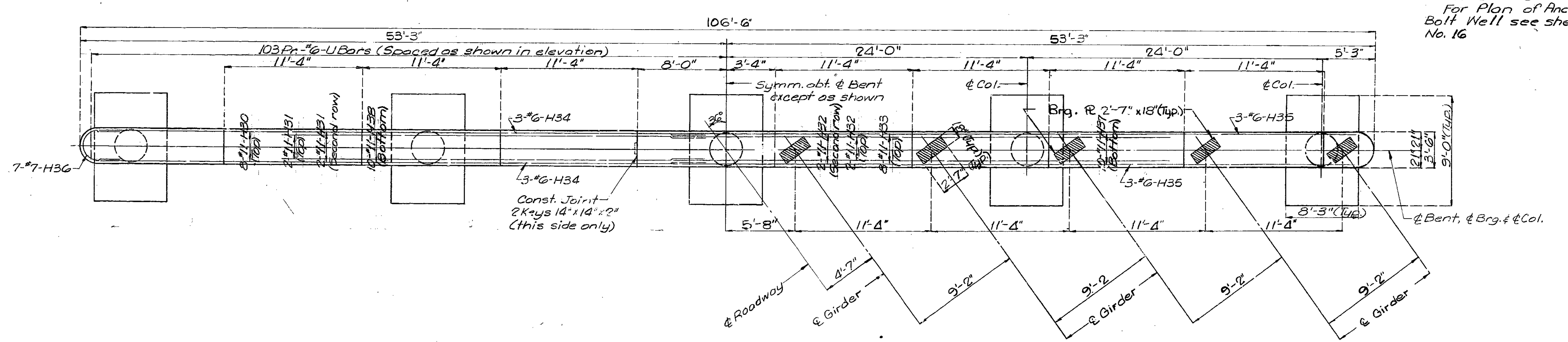
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	31	



ELEVATION

Note: For Section B-B, E-E & for Plan of Footing see Sheet No. 8
For Plan of Anchor Bolt Well see sheet No. 16



PLAN

DETAILED JULY 1975
CHECKED AUG. 1975

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

DETAILS INT. BENT NO. 3

Sheet No. 6 of 28.

PLATTE COUNTY

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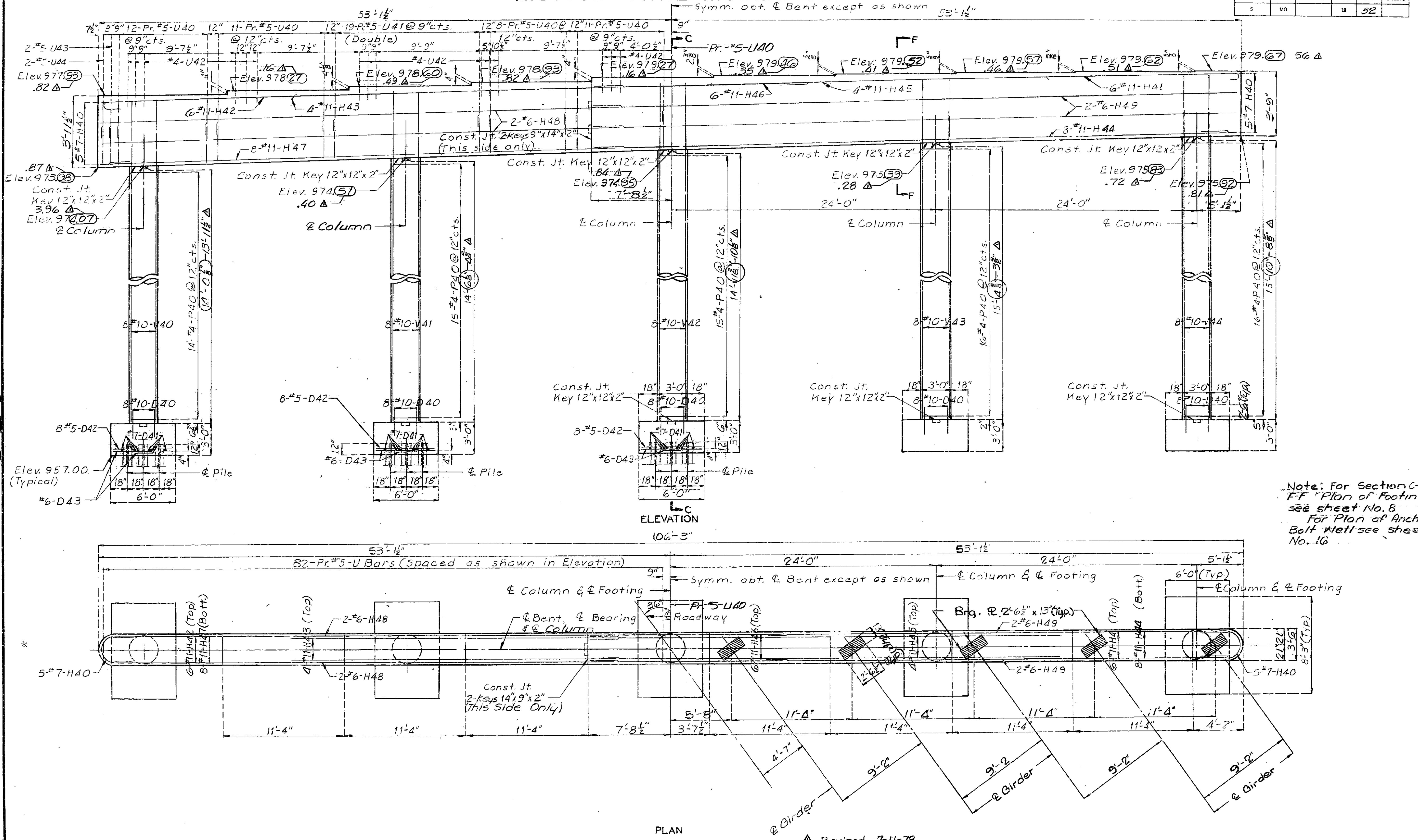
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	32	



Note: For Section C-C, F-F "Plan of Footing" see sheet No. 8
For Plan of Anchor Bolt Well see sheet No. 16

△ Revised 7-11-78

DETAILED JULY 1975
CHECKED AUG. 1975

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

DETAILS INT. BENT NO. 4

Sheet No. 7 of 28.

PLATTE COUNTY

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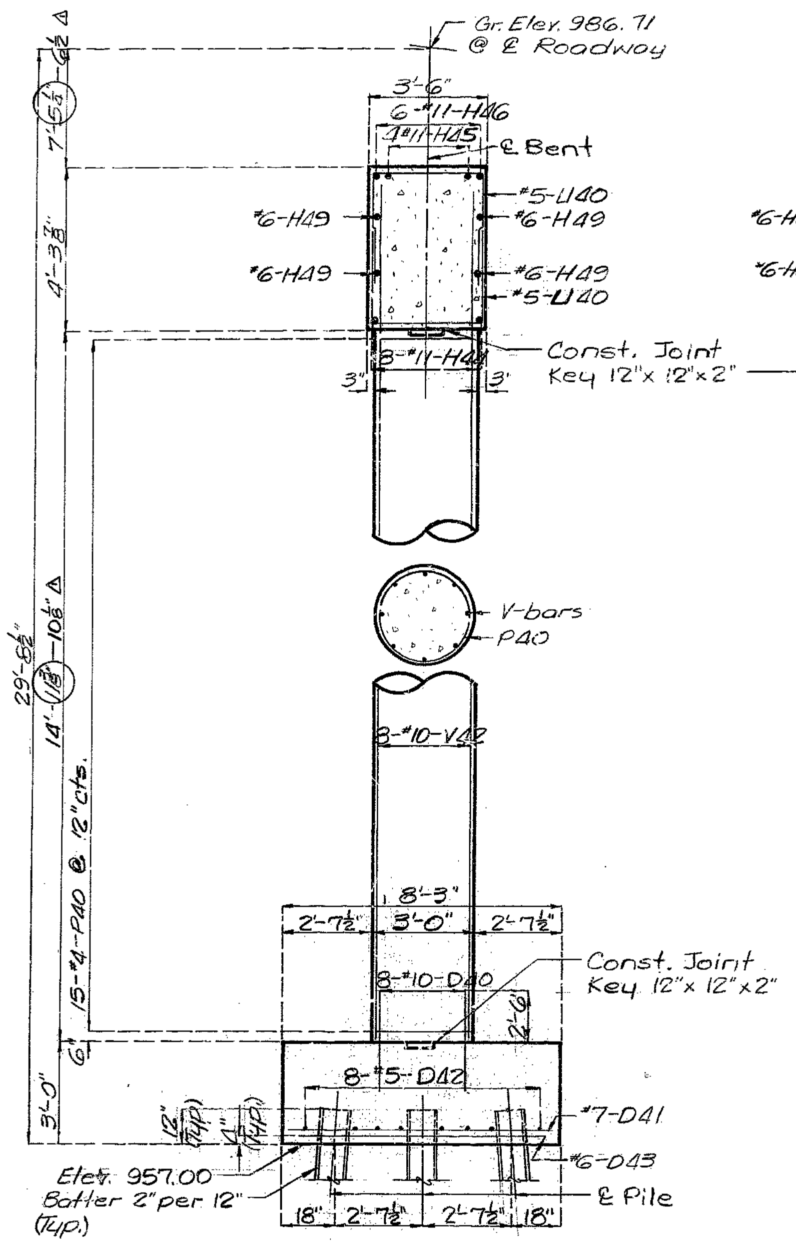
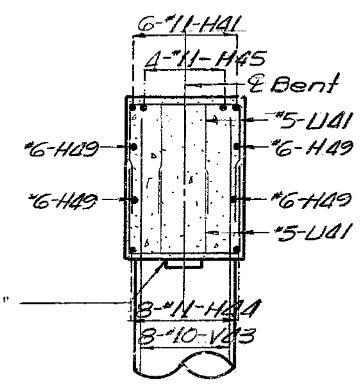
MISSOURI STATE HIGHWAY DEPARTMENT

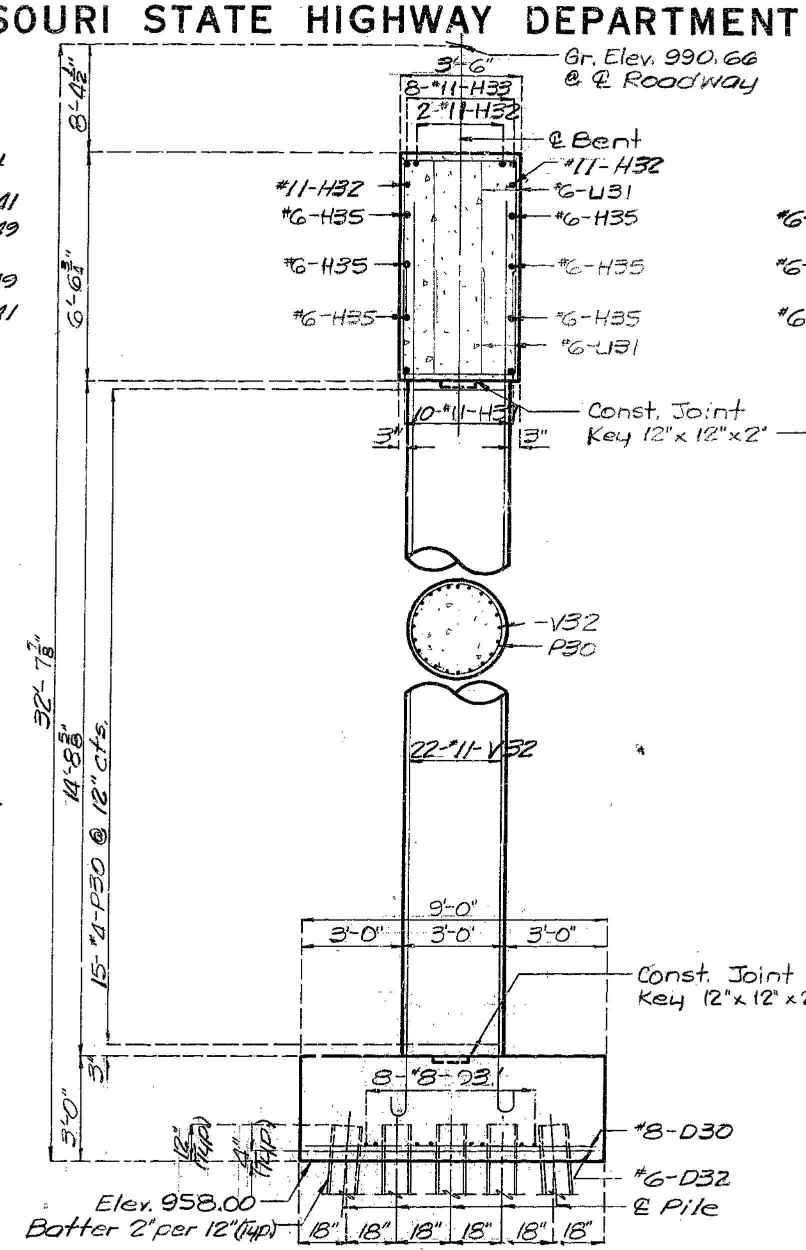
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	33	



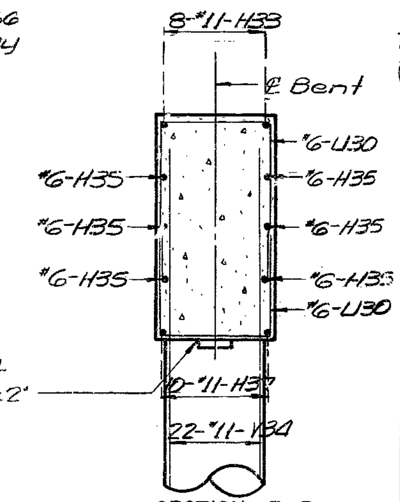
SECTION C-C BENT NO. 4



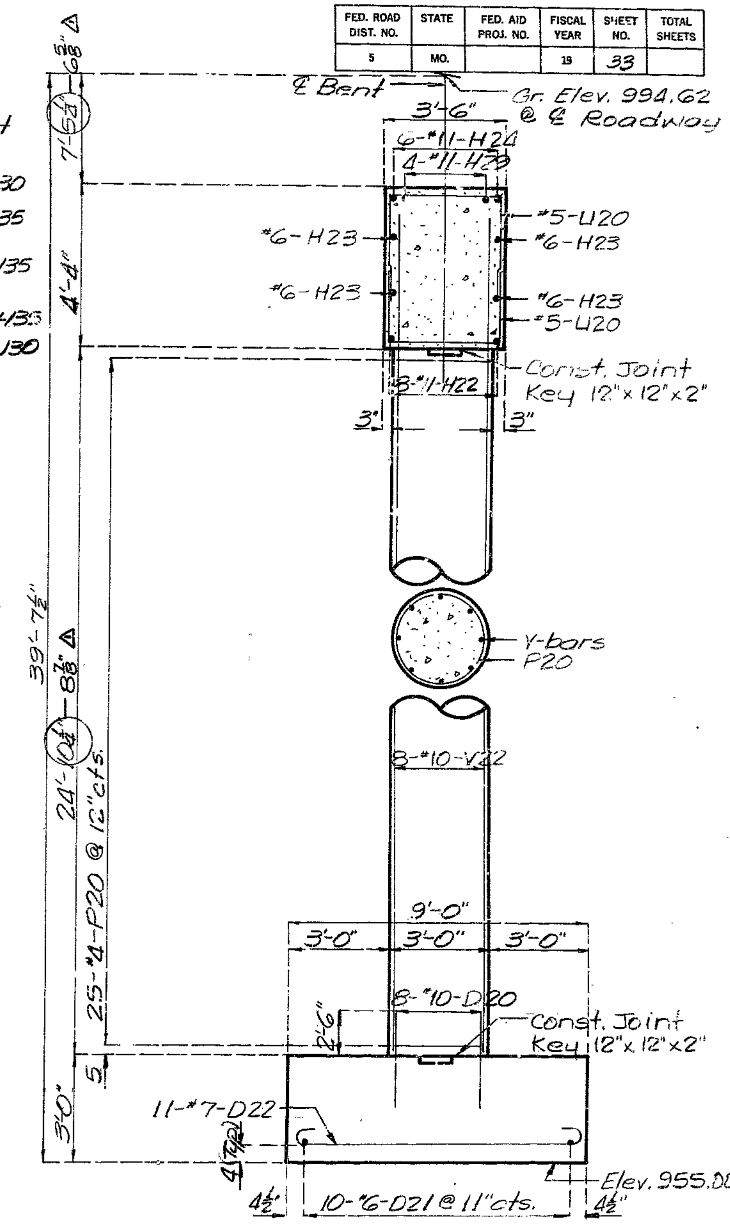
SECTION F-F



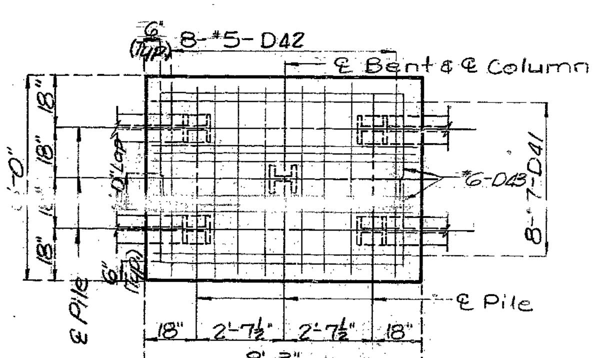
SECTION B-B BENT NO. 3



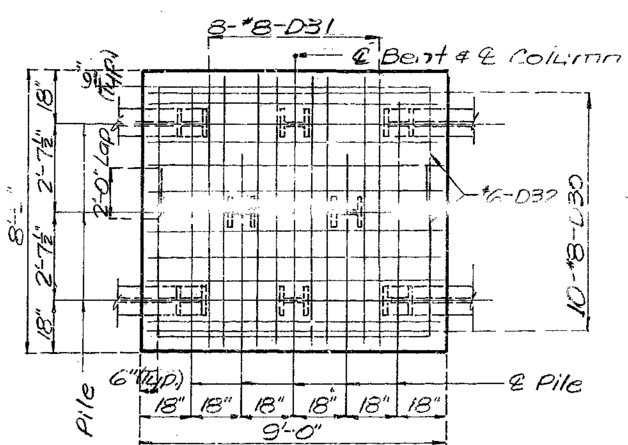
SECTION E-E



SECTION A-A BENT NO. 2



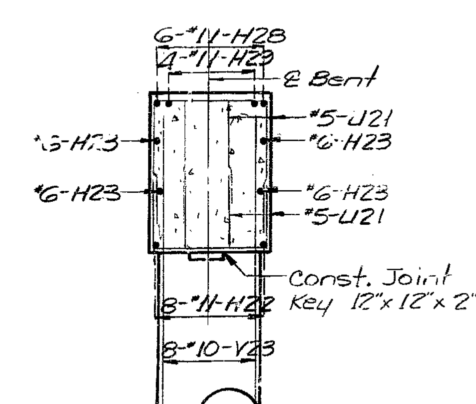
PLAN OF FOOTING SHOWING REINFORCEMENT INT. BENT NO. 4



PLAN OF FOOTING SHOWING REINFORCEMENT INT. BENT NO. 3

Note: For Location of Section A-A & D-D see sheet No. 5
For Location of Section B-B & E-E see sheet No. 6
For Location of Section C-C & F-F see sheet No. 7

BENT NO. 2



SECTION D-D

△ Revised 7-11-78

DETAILED JULY 1975
CHECKED AUG. 1975

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

Sheet No. 8 of 28

PLATTE COUNTY

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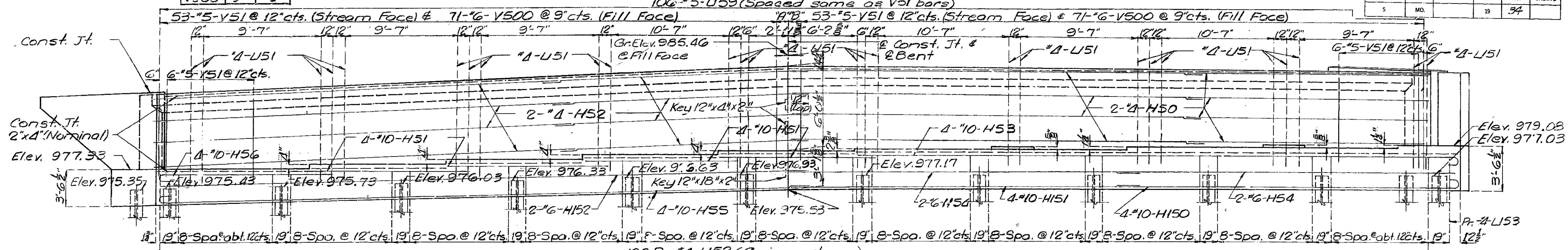
bars	"A"	"B"
V51	12"	12"
V500	9"	9"

MISSOURI STATE HIGHWAY DEPARTMENT

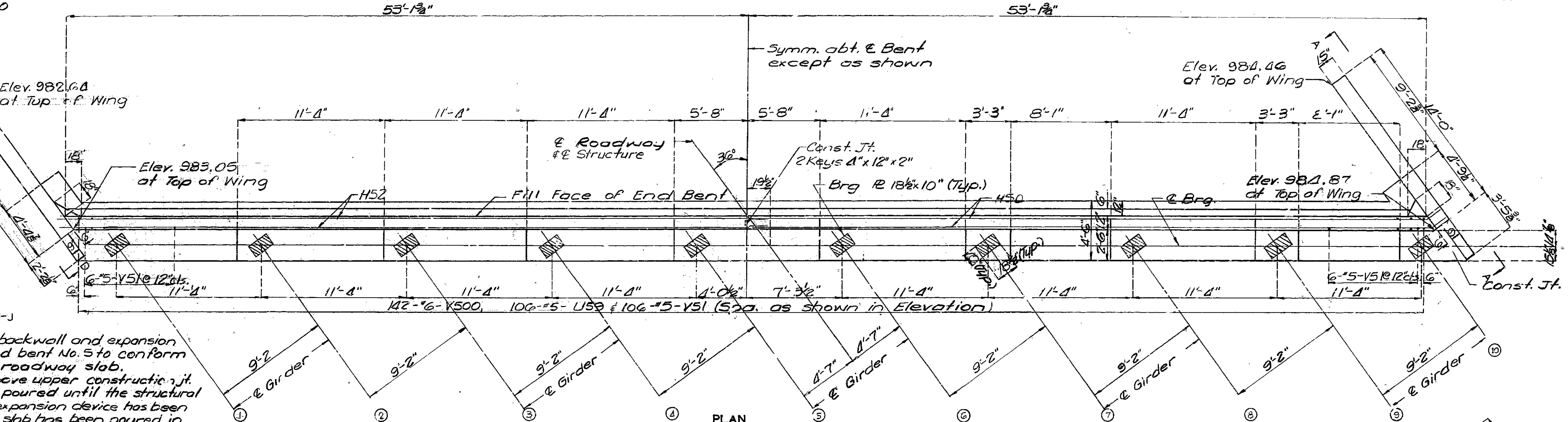
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	34	

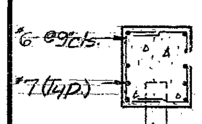


ELEVATION

Note: For Section of ℄ Roadway of End Bent No. 5 see sheet No. 10

Note: For Elevation of Wings see sheet No. 10

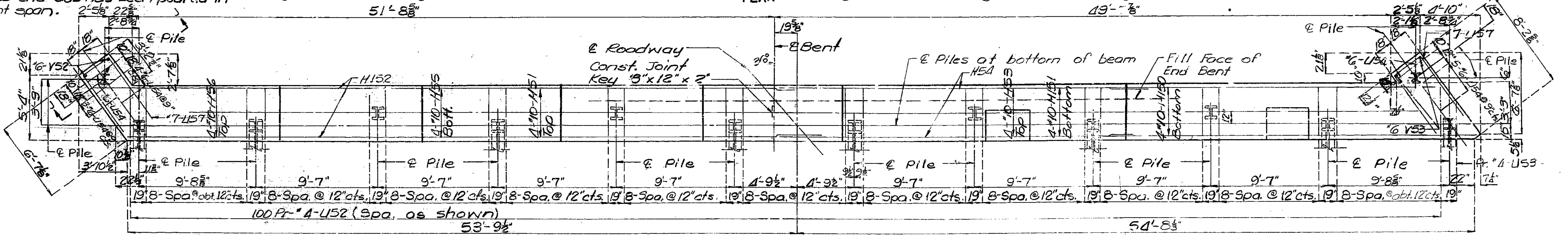




SECTION J-J

Note: Top of backwall and expansion device for end bent No. 5 to conform to crown of roadway slab.
Backwall above upper construction jt. shall not be poured until the structural steel of the expansion device has been installed and slab has been poured in adjacent span.

PLAN



PLAN OF BEAM
BELOW LOWER CONST. JOINT

Note: Field Bending shall be required at wings for H-bars & F-bars in Backwall.

DETAILED NOV. 1974
CHECKED AUG. 1975

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

DETAILS OF END BENT NO. 5

Sheet No. 9 of 28.

PLATTE COUNTY

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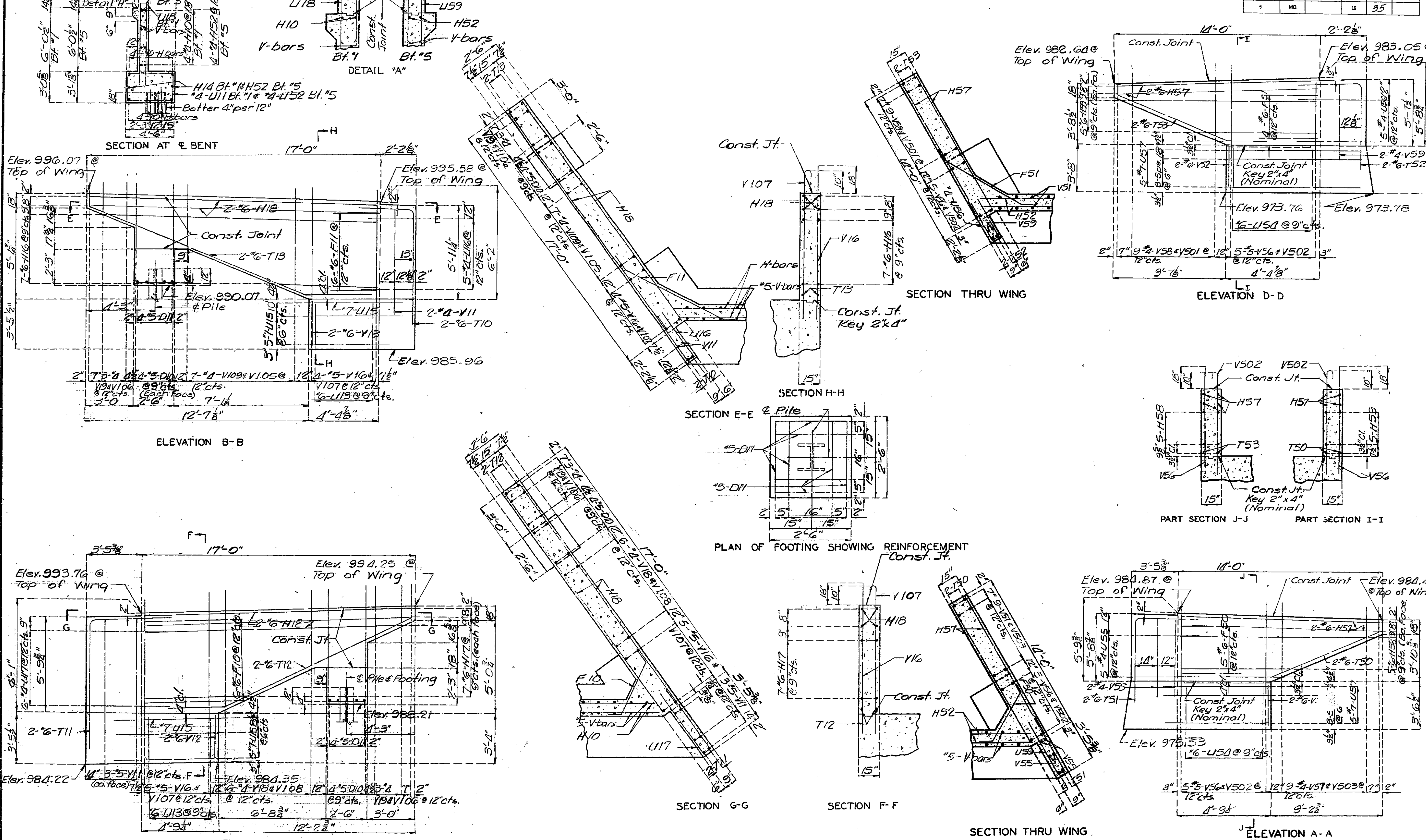
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	35	



DETAILED FEB. 1974
CHECKED AUG. 1975

DETAILS OF WINGS FOR END BENT NO. 1

DETAILS OF WINGS FOR END BENT NO. 5

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

Sheet No. 10 of 28.

PLATTE COUNTY

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MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	36	

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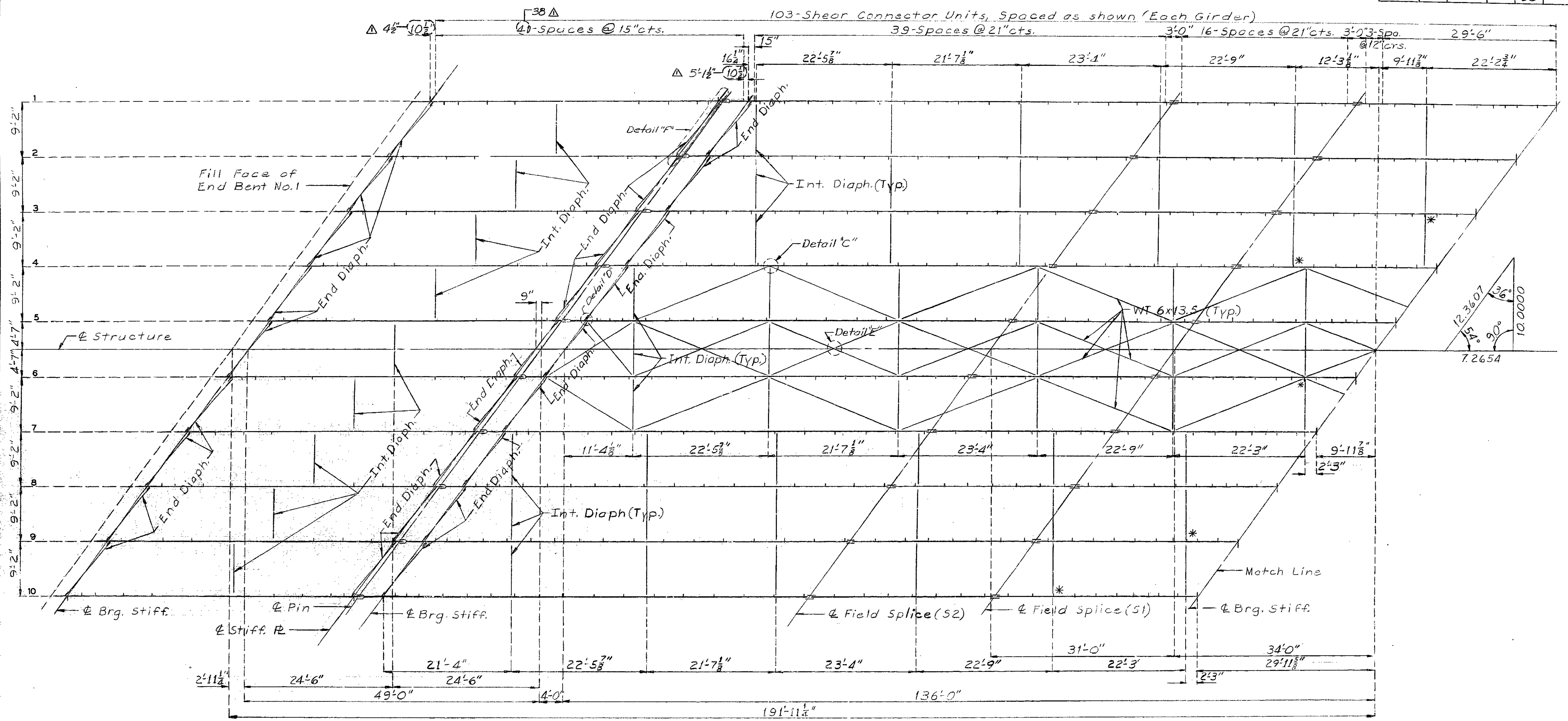


SPAN (1-2)

SPAN (2-3)

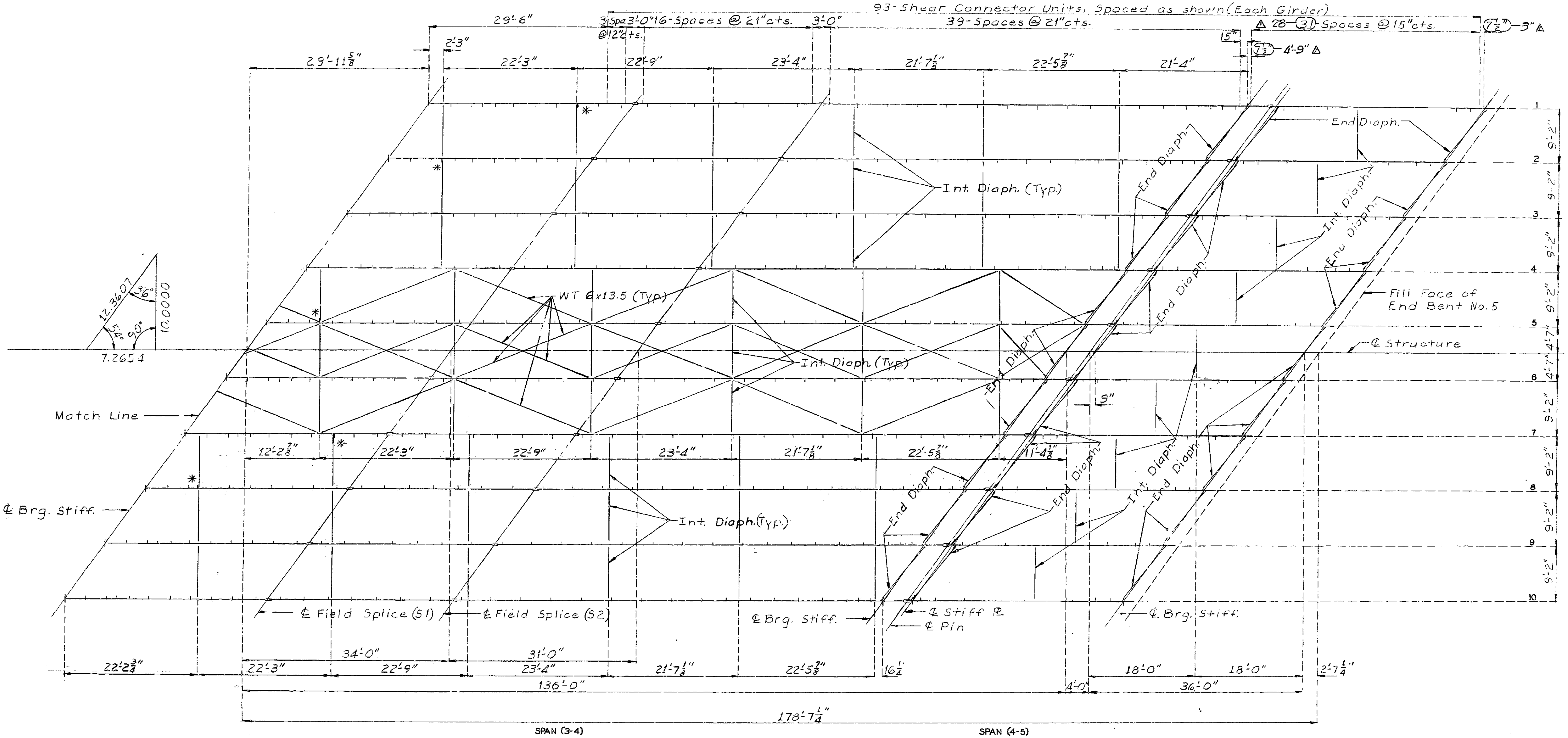
PLAN OF STRUCTURAL STEEL

Note: Longitudinal dimensions shown are taken parallel to grade at top of concrete slab.
* Transverse stiffener used as intermediate diaphragm connection plate.
For Details "C", "D" & "E" see sheet No.13.
Transverse stiffeners shall be placed as detailed.

Longitudinal stiffeners shall be placed on the outside face of exterior girders and on the side opposite to transverse web stiffener plates for interior girders.
For Detail "F" see sheet No.14.

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	37	



PLAN OF STRUCTURAL STEEL

Note: Longitudinal dimensions shown are taken parallel to grade at top of concrete slab.
* Transverse stiffener used as intermediate diaphragm connection plate.
Transverse stiffeners shall be placed as detailed.

Longitudinal stiffeners shall be placed on the outside face of exterior girders and on the side opposite to transverse web stiffener plates for interior girders.

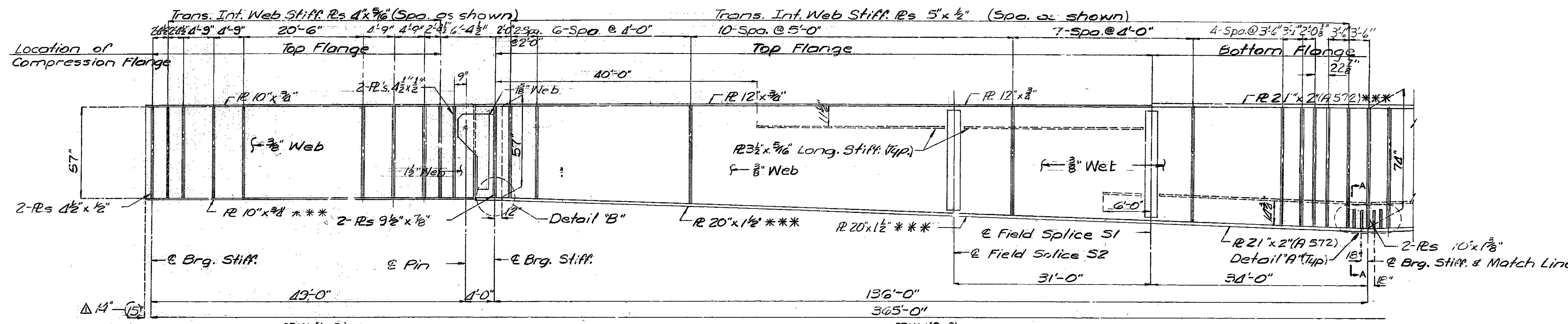
DETAILED AUG. 1975
CHECKED AUG 1975

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

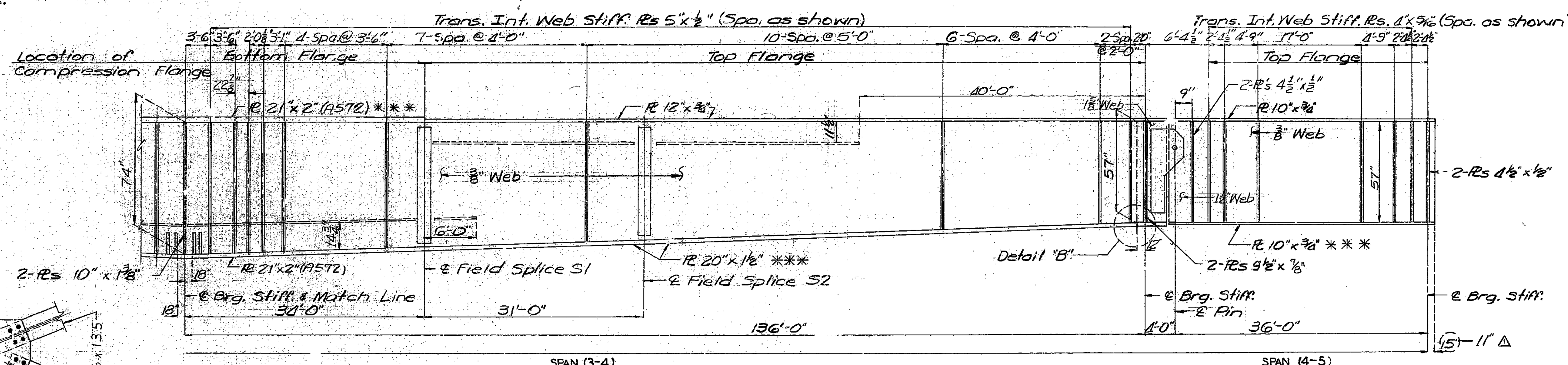
Sheet No. 12 of 28 PLATTE △ Revised 3-2-78 COUNTY A-3287

MISSOURI STATE HIGHWAY DEPARTMENT

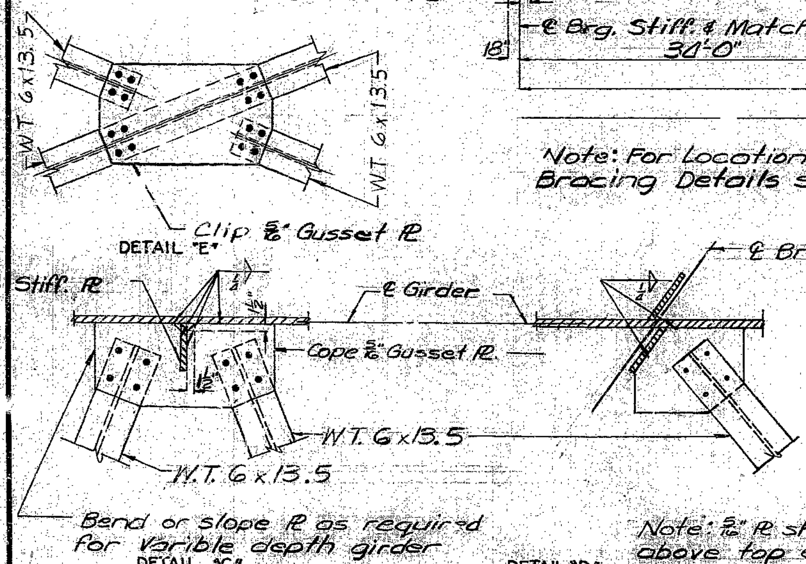
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	38	



Note: *** Indicates flange plates subject to notch toughness requirements.



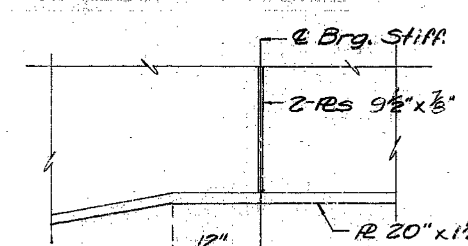
Note: For Location of Lateral Bracing Details see sheets No. 11 & 12



DETAILS OF LATERAL BRACING

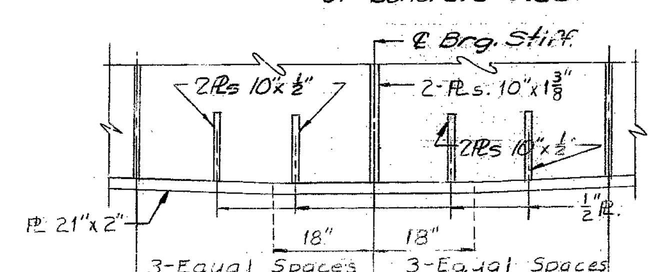
PART ELEVATION OF GIRDERS
(EXT. & INT.)

Bend or slope ℞ as required for varible depth girders.

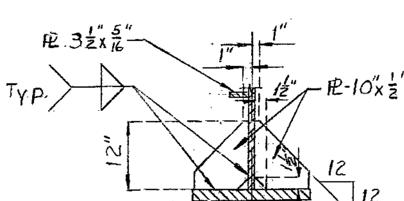


DETAIL "B"

Note: Longitudinal web stiffeners and Transverse Web stiffeners shall be placed as detailed.
Fabricated Structural Steel shall be A36 except as noted.
Longitudinal Dimensions are parallel to grade along top of Concrete Slab.



DETAIL "A"



SECTION A-A SHOWING STIFF. ℞. DETAILS

DETAILED JAN. 1974
CHECKED AUG. 1975

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

Sheet No. 13 of 28. △ Revised 3-2-78

PLATTE COUNTY

A-3287

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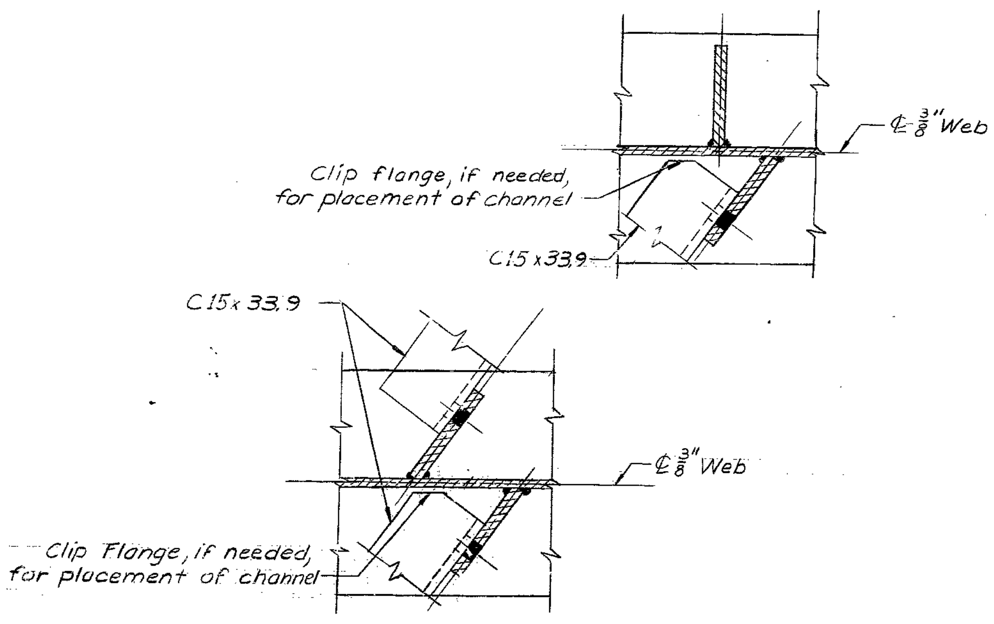
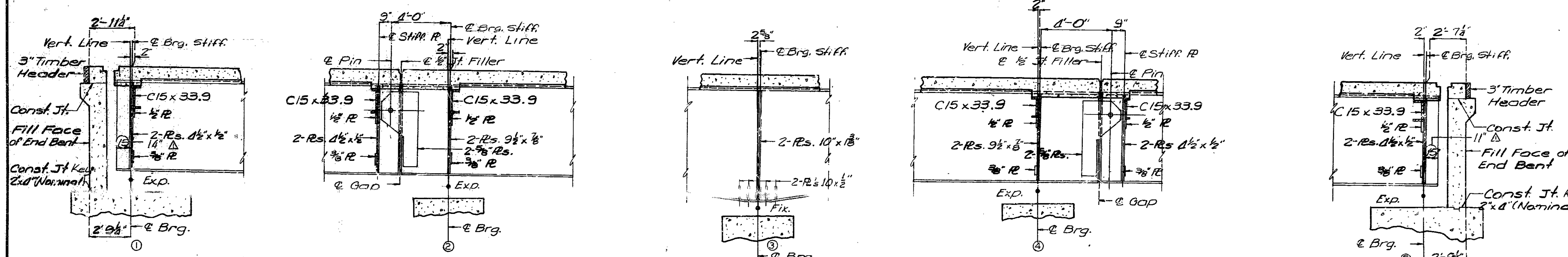
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	39	

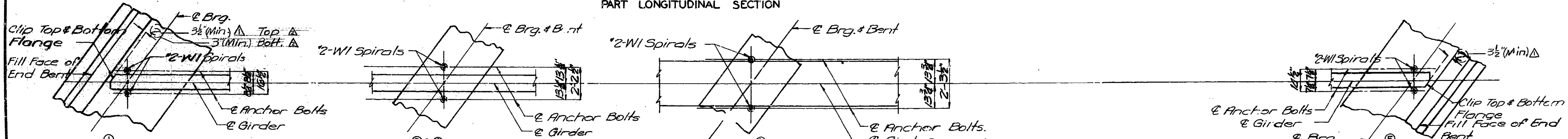


DETAIL "F"

For location of Detail "F" see sheet No. 11
See sh. # 16 for alignment of brg. stiff.



PART LONGITUDINAL SECTION



DETAILED Aug. 1975
CHECKED AUG. 1975

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

PART ANCHOR BOLT PLAN

Sheet No. 14 of 28

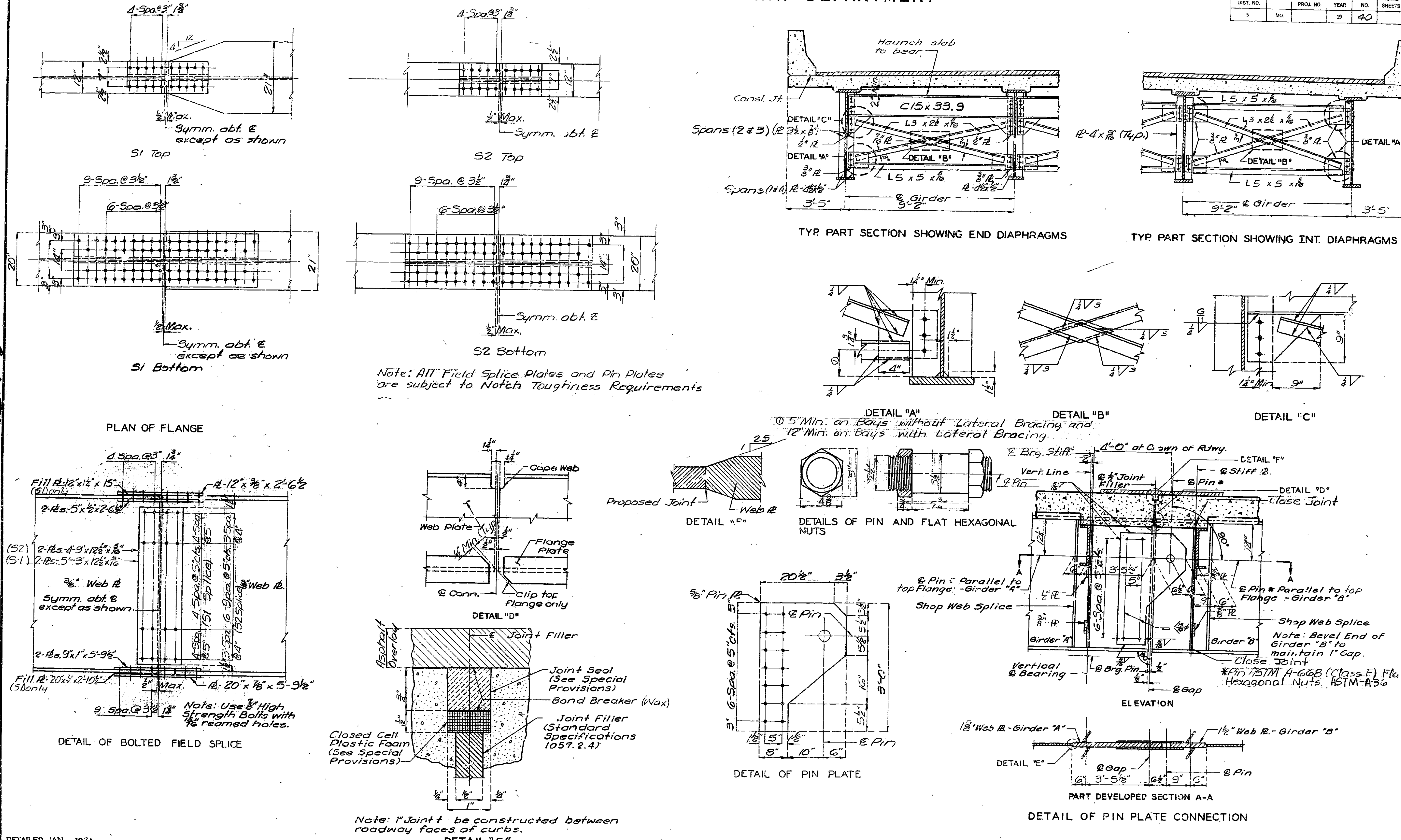
△ Revised 3-17-78
△ Revised 3-2-78

PLATTE COUNTY

A-3287

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	40	



DETAILED JAN. 1974
CHECKED July 1975

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

Sheet No. 15 of 28.

PLATTE COUNTY

A-3287

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	41	

NOTES: TYPE "E" BEARINGS

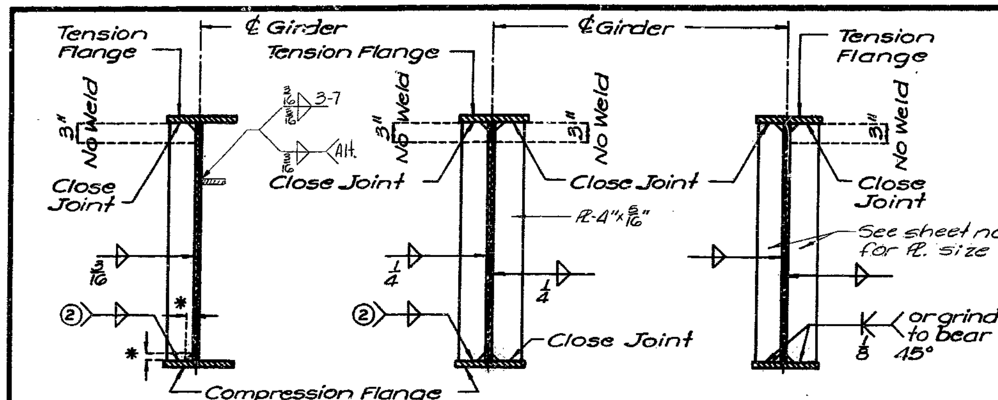
ANCHOR BOLTS FOR TYPE "E" BEARINGS SHALL BE 1-1/4"Ø SWEDGED BOLTS AND SHALL EXTEND 12" INTO CONCRETE WITH HEXAGON NUTS AND PLAIN WASHERS FOR FIXED BEARINGS, NO NUTS FOR EXPANSION BEARINGS.

"ESTIMATED WEIGHT" DOES NOT INCLUDE WEIGHT OF ANCHOR BOLTS.

"℈" INDICATES MACHINE FINISH SURFACE.

(1) BONDED LUBRICANT

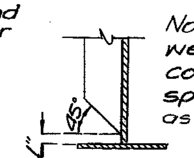
A LUBRICANT COATING SHALL BE APPLIED IN THE SHOP TO BOTH MATING SURFACES OF THE BEARING ASSEMBLY. THE LUBRICANT, METHOD OF CLEANING, AND APPLICATION SHALL MEET THE REQUIREMENTS OF MIL-L-23398 AND MIL-L-46147 SUCH AS DOW CORNING'S MOLYKOTE 3402 BONDED LUBRICANT. THE COATED AREAS SHALL BE PROTECTED FOR SHIPPING AND ERECTION.



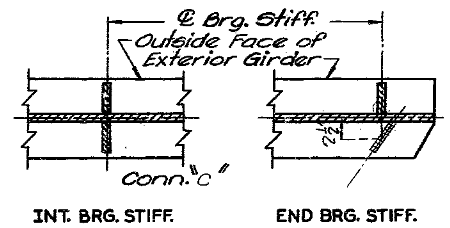
INT. WEB STIFF. (ONE SIDE ONLY) — LONG. WEB STIFF. — **INT. DIAPH. CONN. PL. & WEB STIFF. — INT. DIAPH. CONN. PL. ONLY — END BRG. STIFF. — INT. BRG. STIFF.

(2) Weld to compression flange as located on Elevation of Girder.
* 1½" Typical for all Int. Web Stiff., Int. Diaph. Conn. Pl. and Brg. Stiff.
** Weld may be omitted on interior girders, and Close Joint used when Intermediate Diaphragm Connection Plate is required on both sides.

Note: When intermediate web stiffener or diaphragm conn. Pls. interfere with flg. splices Pls. or bolts, clip as shown (Detail "A")

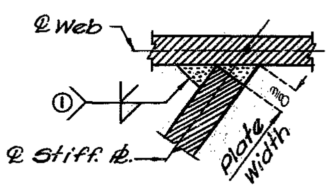


DETAIL "A"



INT. BRG. STIFF. — END BRG. STIFF.

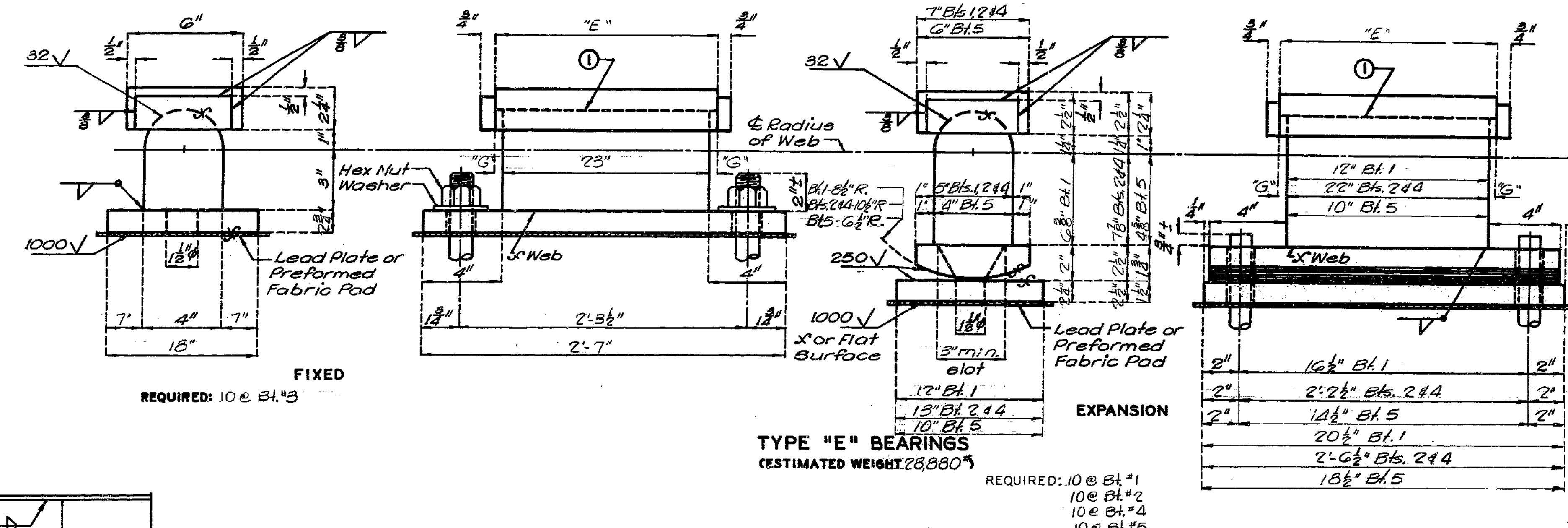
TYPICAL LOCATION DETAILS



CONN. C

(1) Groove weld penetration = 3/16" min.

WELDING DETAILS



FIXED

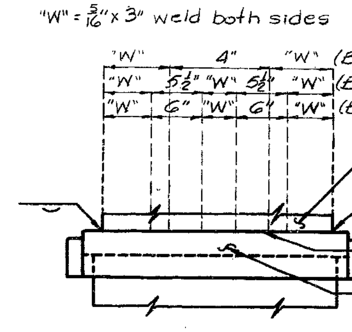
REQUIRED: 10 @ Bt. #3

EXPANSION

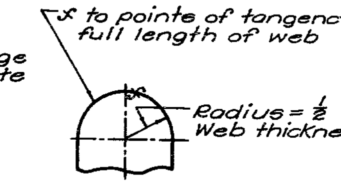
TYPE "E" BEARINGS

(ESTIMATED WEIGHT 28,880#)

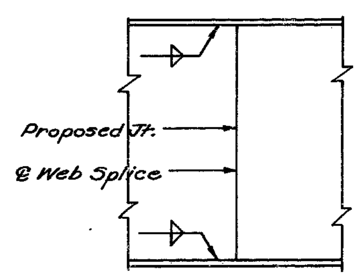
REQUIRED: 10 @ Bt. #1, 10 @ Bt. #2, 10 @ Bt. #4, 10 @ Bt. #5



WELDING DETAILS



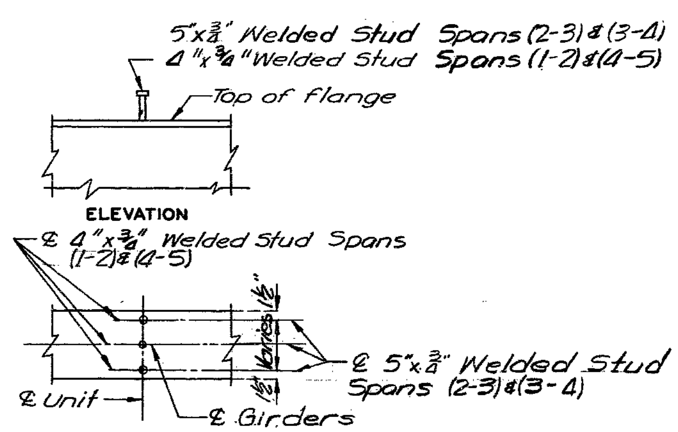
END VIEW OF WEB TYPE "E" BEARINGS



SHOP WEB SPLICE

Note: Field splices may be field welded or field bolted.

TOP PLATE BEARING DIMENSIONS	"E"	"G"
Bt. #1 Girders 1,2,3,8,9, & 10	12¾"	⅜"
Bt. #1 Girders 4,5,6, & 7	12⅛"	1/16"
Bts. #2 & 4 Girders 1,2,3,8,9, & 10	22¾"	⅜"
Bts. #2 & 4 Girders 4,5,6 & 7	22⅛"	1/16"
Bt. #3 Girders 1,2,3,8,9, & 10	23¾"	⅜"
Bt. #3 Girders 4,5,6 & 7	23⅛"	1/16"
Bt. #5 Girders 1,2,3,8,9, & 10	10¾"	⅜"
Bt. #5 Girders 4,5,6 & 7	10⅛"	1/16"

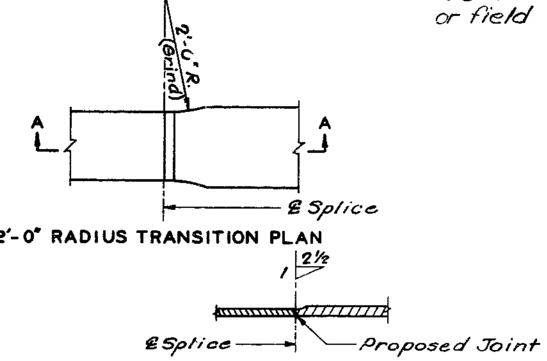


ELEVATION

PLAN OF STUD CONN

DETAILS OF SHEAR CONNECTORS

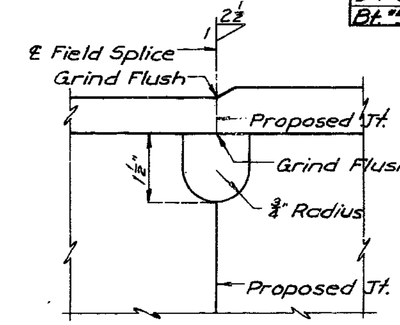
Weight of 4162. lbs. of shear connectors is included in weight of Fabricated Structural Carbon Steel.



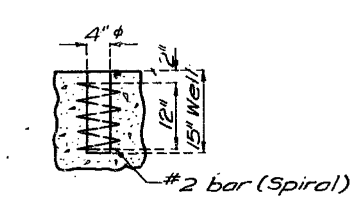
2'-0" RADIUS TRANSITION PLAN

SECTION A-A

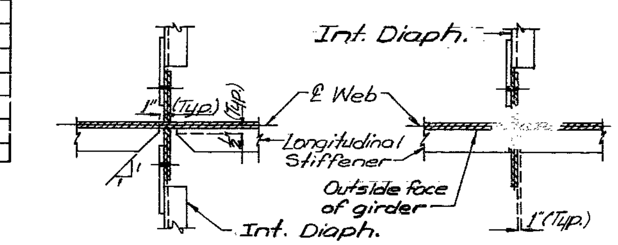
WELDED SHOP OR FIELD FLANGE SPLICE



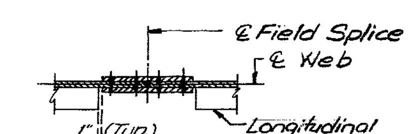
WELDED FIELD SPLICE



DETAIL OF ANCHOR BOLT WELLS



INTERIOR GIRDERS — EXTERIOR GIRDERS AT INTERMEDIATE BEARING STIFFENERS



TYPICAL SECTION AT BOLTED FIELD SPLICE

STD. E.B. MAR. 1973 — REVISED NOV. 1976

DETAILED July 1977
CHECKED July 1977

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

Sheet No. 16 of 28

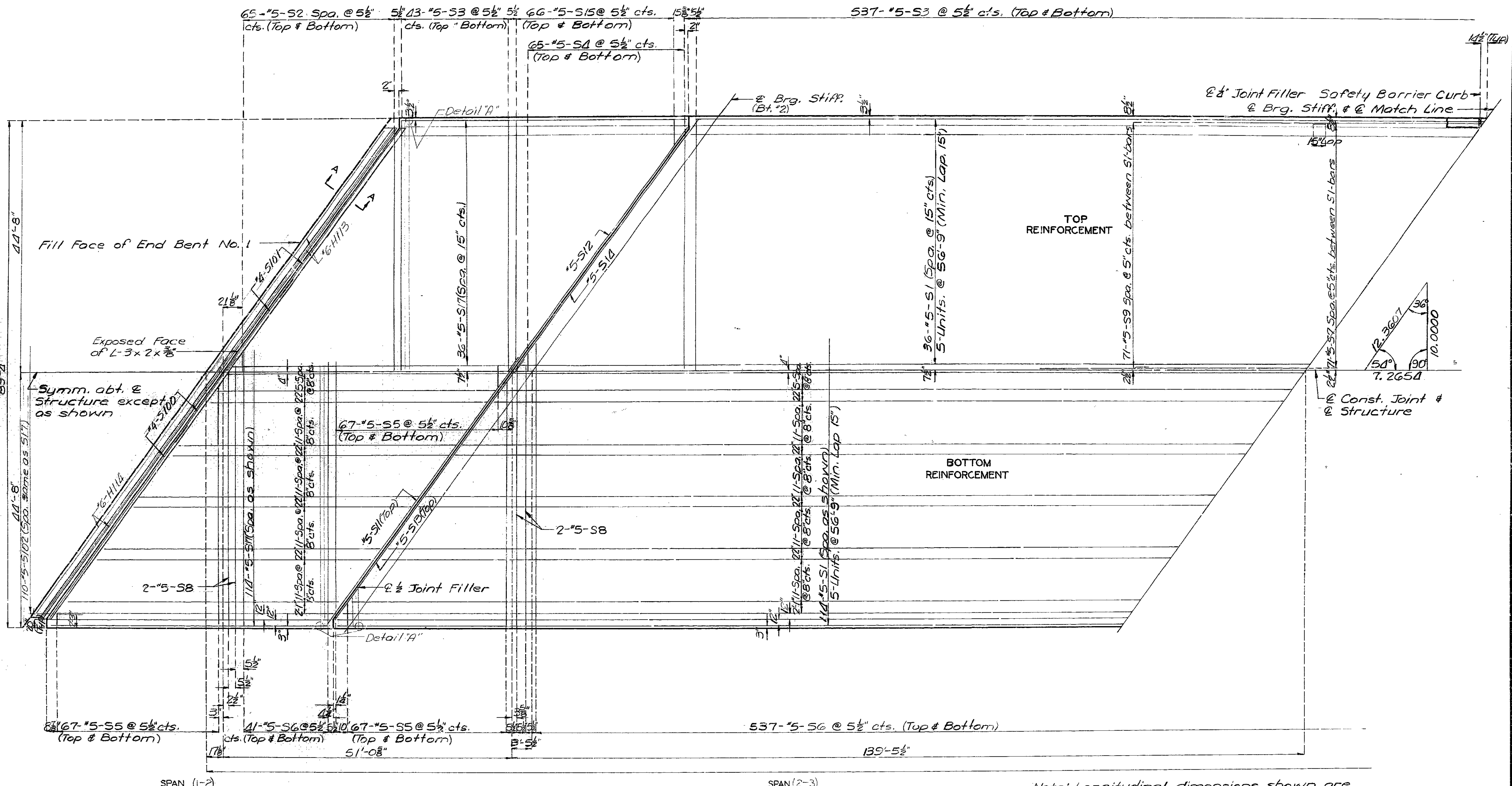
PLATTE COUNTY

A-3287

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	42	

Note: Position of slab reinforcement adjacent to joints that are to be protected by Steel Reinforced Elastomeric Expansion Joint Seal shall be adjusted to the minimum extent necessary to provide 2" clear distance from anchor bolt positions shown on approved shop drawings.



PART PLAN OF SLAB SHOWING REINFORCEMENT

Note: Longitudinal dimensions shown are taken parallel to grade at crown of roadway & Top of Concrete Slab

For Detail "A" & Section A-A see sheet No. 18.

DETAILED SEPT. 1974
CHECKED AUG. 1975

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

PLATTE COUNTY

A-3287

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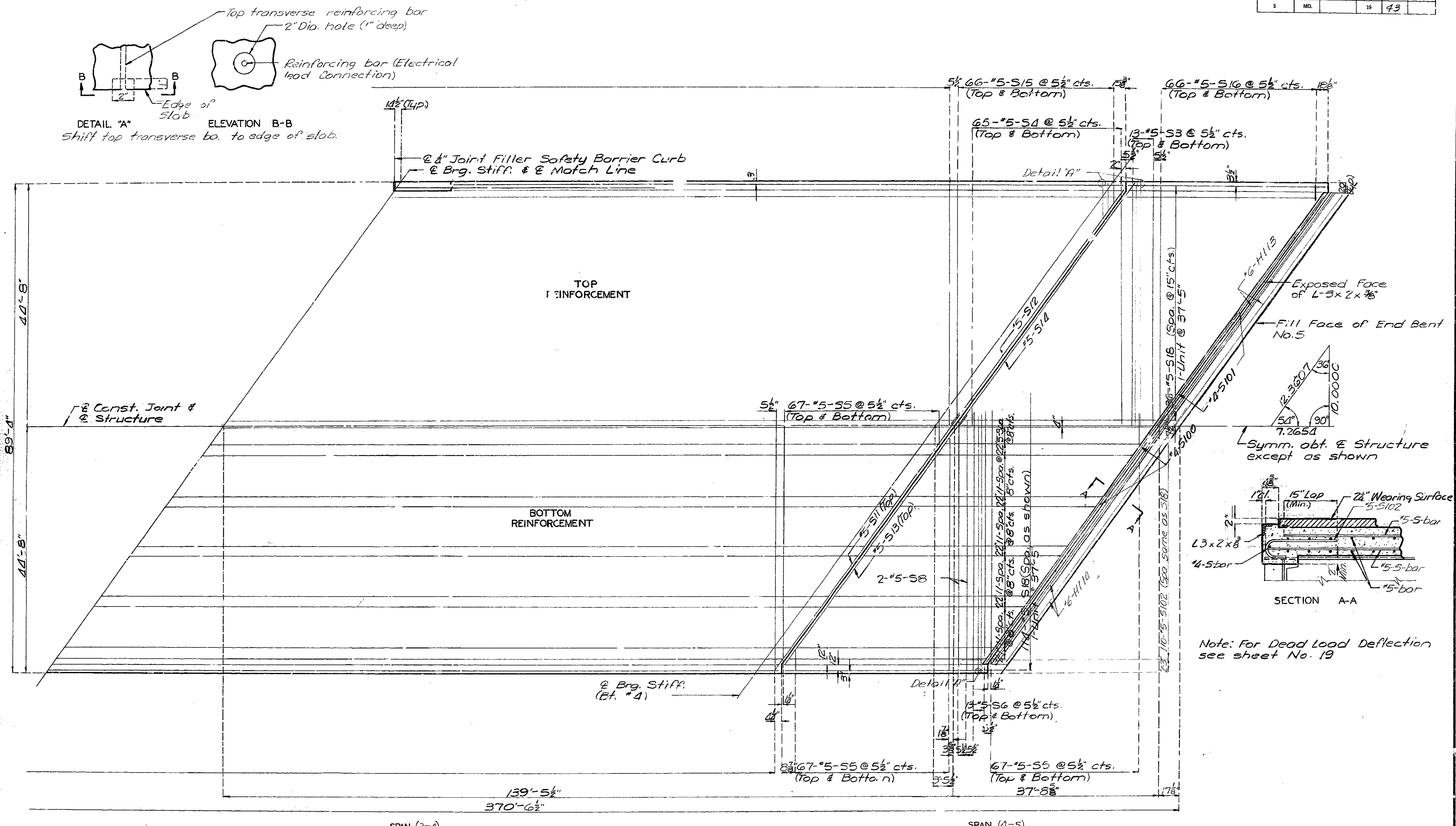
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	43	



Note: For Dead Load Deflection see sheet No. 19

PART PLAN OF SLAB SHOWING REINFORCEMENT

Note: Longitudinal dimensions shown are taken parallel to grade at crown of roadway at top of Concrete Slab.

DETAILED SEPT. 19 74
CHECKED AUG. 19 75

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

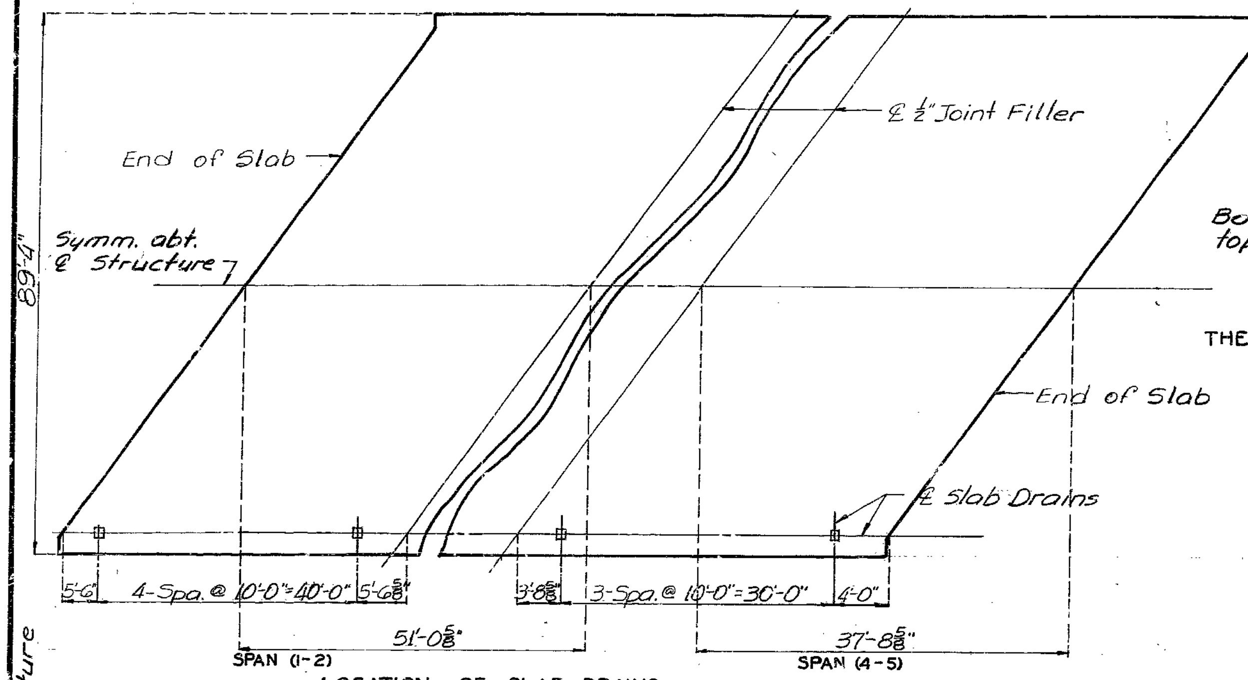
Sheet No. 18 of 28

PLATTE COUNTY

A-3287

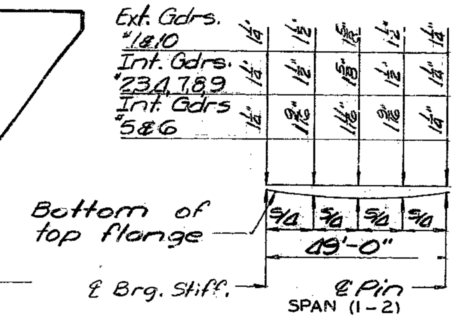
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	44	

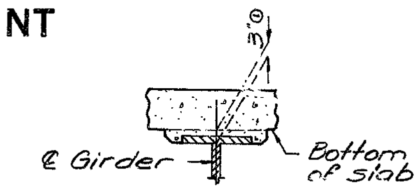


LOCATION OF SLAB DRAINS

Note: For Details of Slab Drains see sheet No. 20.

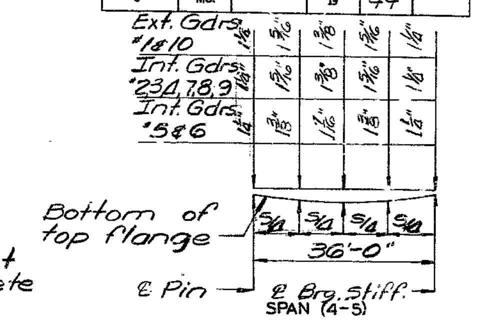


THEORETICAL SLAB HAUNCHING DIAG.



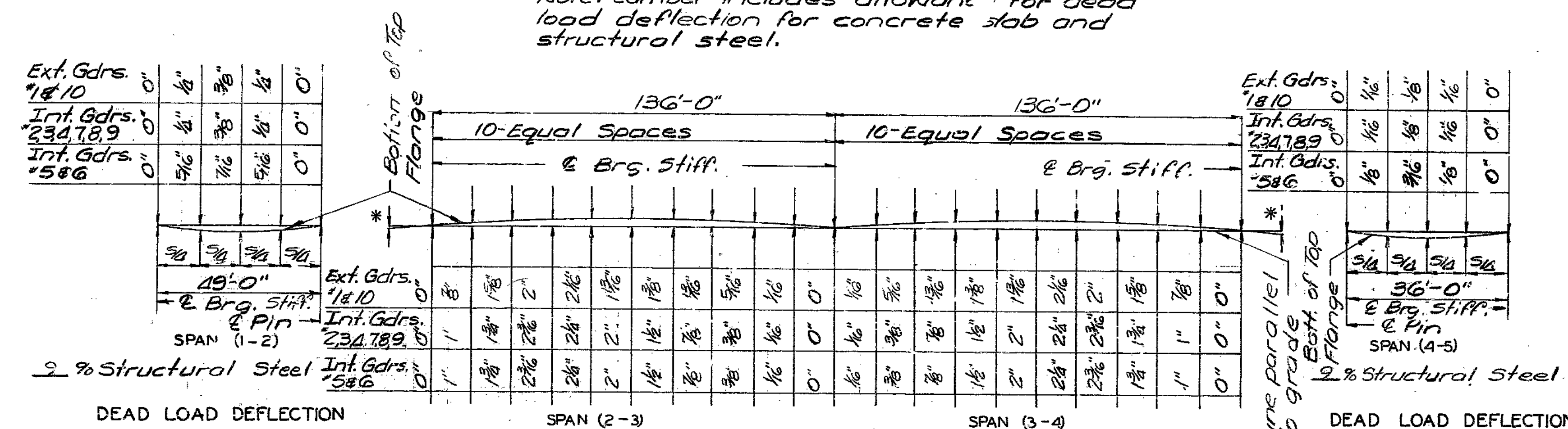
THEORETICAL SLAB HAUNCH
SPANS (2-3) & (3-4)

① Dimension may vary if girder camber after erection differs from plan camber by more than the % of D.L. deflection due to weight of structural steel. No payment will be made for additional forming or concrete required for variable haunching.



THEORETICAL SLAB HAUNCHING DIAG.

Note: Camber includes allowance for dead load deflection for concrete slab and structural steel.



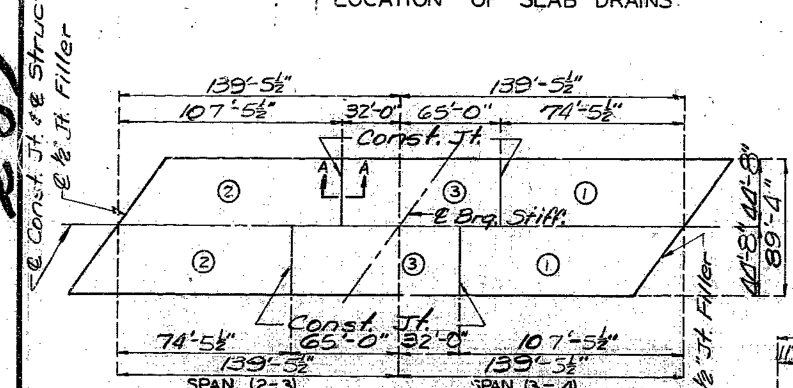
DEAD LOAD DEFLECTION

PLATE GIRDER CAMBER DIAGRAM

DEAD LOAD DEFLECTION

* ⅛ All Girders

Note: 13 % of dead load deflection due to weight of Structural Steel.

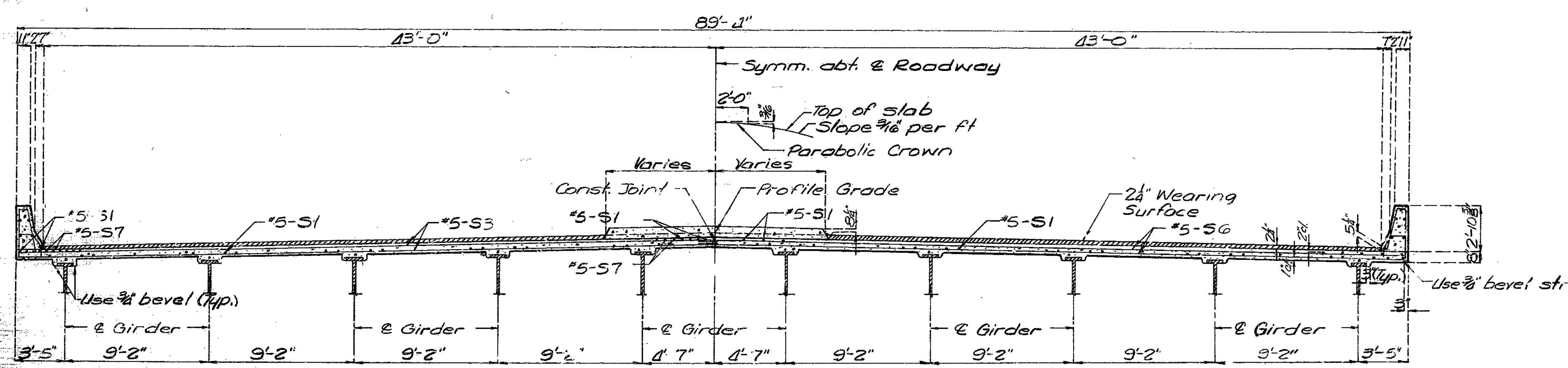


	SEQUENCE OF POURS		
	DIRECTION		
	1	2	3
Basic Sequence	End to 3	3 to End	1 to 2
Alternate "A" Pours	1	2+3	
	End to 3	1 to End	
Alternate "B" Pours	1+2+3		
	End to End		

Note: The contractor shall observe the basic pouring sequence and shall pour and satisfactorily finish the slab pours at a rate of not less than 25 cubic yards per hour. However, if he elects to use one of the Alternate Pours, he shall furnish an approved retarder to retard the set of the concrete to 2.5 hours and shall pour and satisfactorily finish the slab pours at a rate of not less than 62 cubic yards per hour.

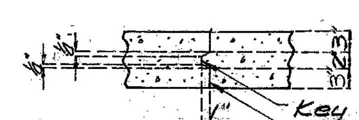
Simple Spans: The contractor shall pour and satisfactorily finish the slab pours at a rate of not less than 25 cubic yards per hour. Simple spans shall be poured before pouring continuous spans.

SLAB POURING SEQUENCE



HALF SECTION NEAR INT. BENT

HALF SECTION NEAR ℄ SPAN



SECTION A-A

Note: For details and reinforcement of curb and parapet not shown see sheet No. 23 & 24.

DETAILED OCT. 1974
CHECKED AUG. 1975

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

Sheet No. 19 of 28.

PLATTE COUNTY

A-3287

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	45	

DRAIN NOTES

Slab Drains may be fabricated of either ¼" Welded Sheets of A.S.T.M. A36 Steel or from ¼" Structural Steel Tubing A.S.T.M A500 or A501.

Outside dimensions of Drains are, Piece "A" 8¾"x4¾", Piece "B" 8"x 4"

Piece "A" shall be cast in the Concrete. Prior to placement of Wearing Surface, Piece "B" shall be inserted in Piece "A".

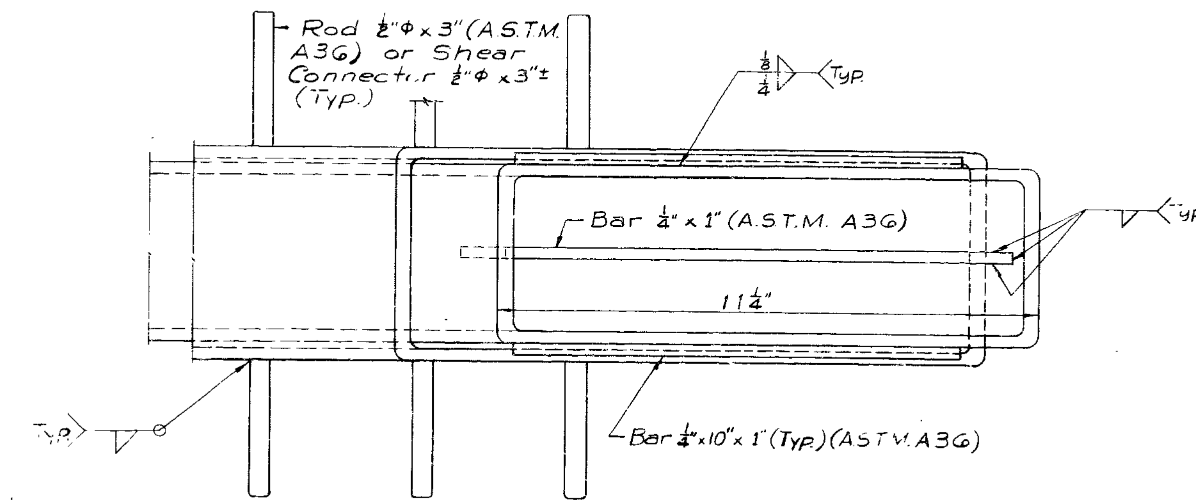
Locate Piece "A" in slab by dimensions shown in Partial Elevation.

Shift Reinforcing Steel in field where necessary to clear drains.

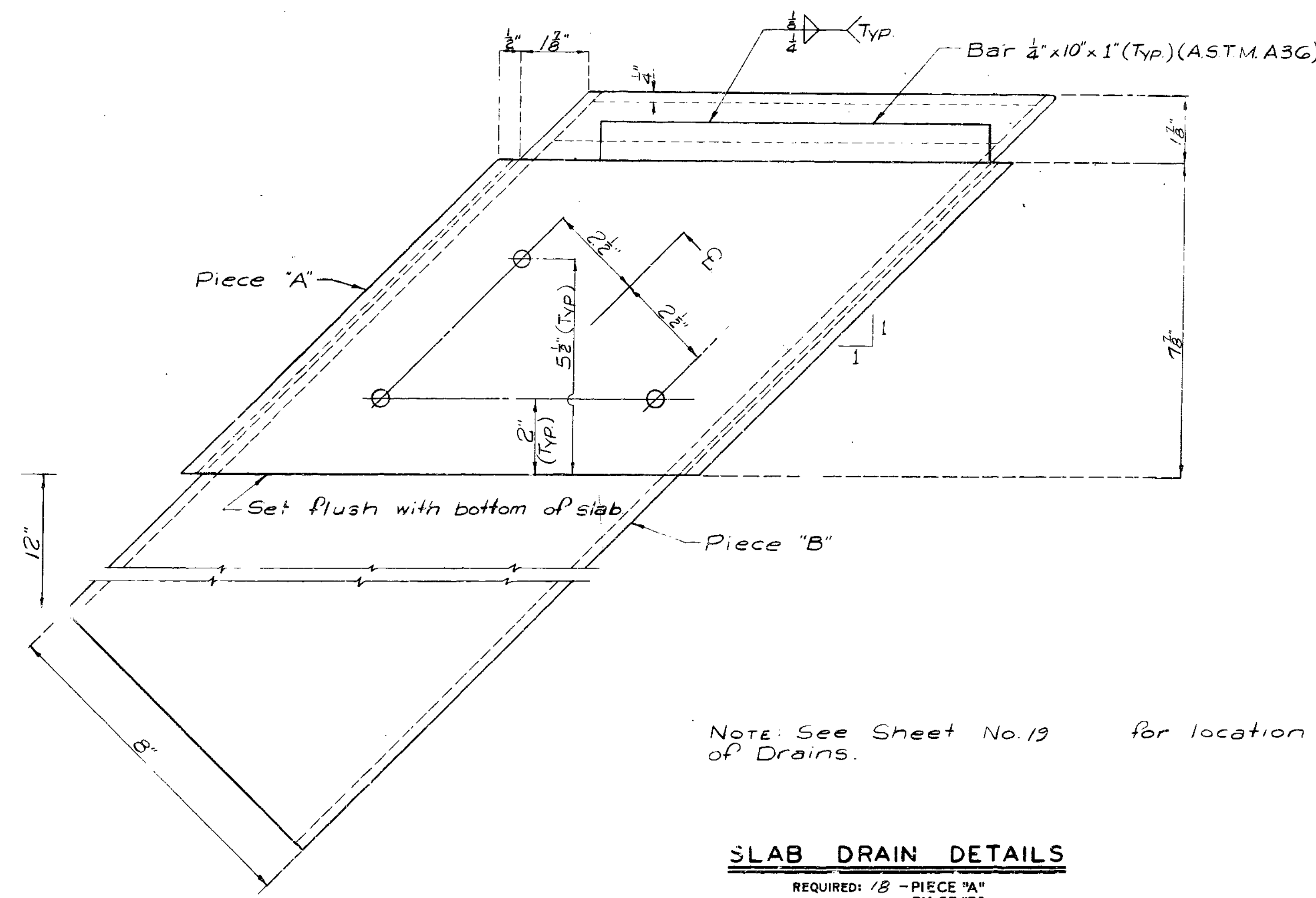
Pieces "A" and "B" shall be Galvanized in accordance with A.S.T.M. A123.

Cost of furnishing, fabricating, galvanizing and erecting Drains, complete in place, shall be included in price bid for other items.

Shop Drawings will not be required for the Slab Drains

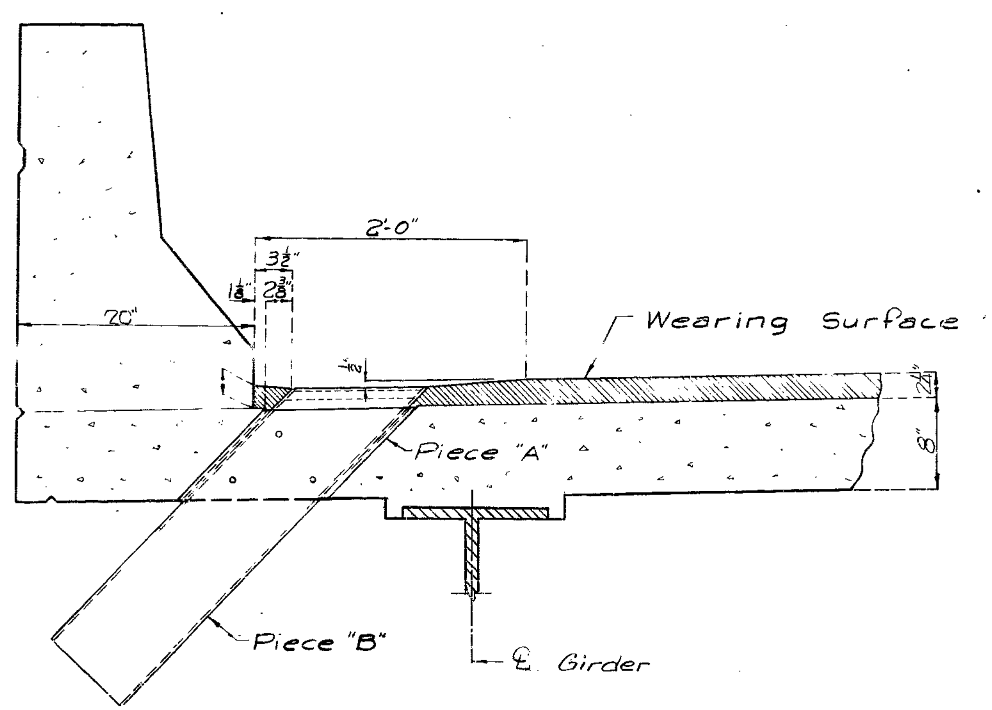


PLAN



ELEVATION

Note: See Sheet No. 19 for location of Drains.



PARTIAL ELEVATION OF SLAB

SLAB DRAIN DETAILS

REQUIRED: 18 – PIECE "A"
18 – PIECE "B"

STD. S.D.-ALL-W.S.	REVISED
APRIL 1976	NOV. 1976

DETAILED July 1977
CHECKED July 1977

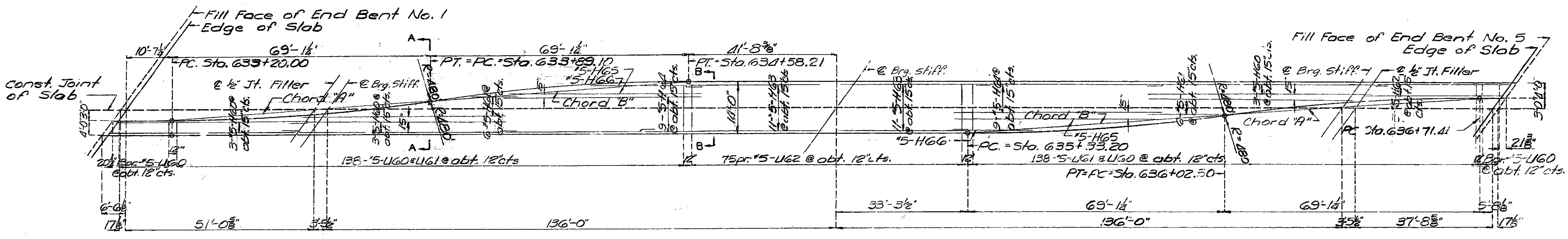
Note: This drawing is not to scale. Follow dimensions.

PLATTE COUNTY

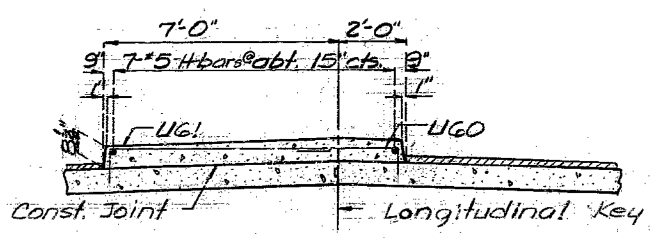
A-3287

MISSOURI STATE HIGHWAY DEPARTMENT

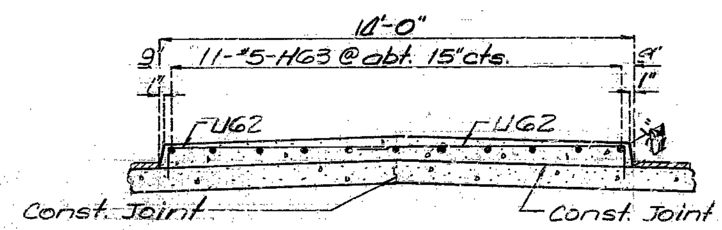
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	46	



PLAN

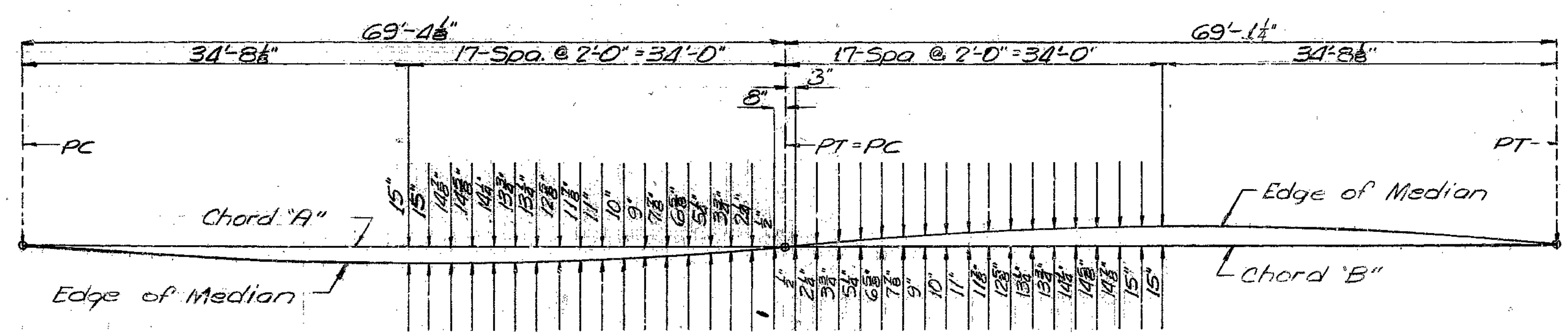


SECTION A-A



SECTION B-B

Note: Longitudinal dimensions shown are taken parallel to grade at top of Concrete Slab.



CURVE OFFSETS

Median Curve Data.
$\Delta = 8°16'37"$
$R = 480'$

DETAILS OF MEDIAN

DETAILED FEB. 1974
CHECKED AUG. 1975

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

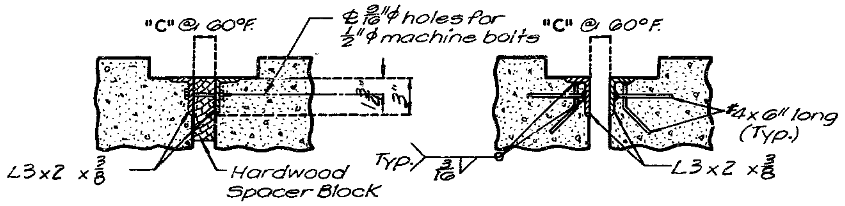
Sheet No. 21 of 28.

PLATTE COUNTY

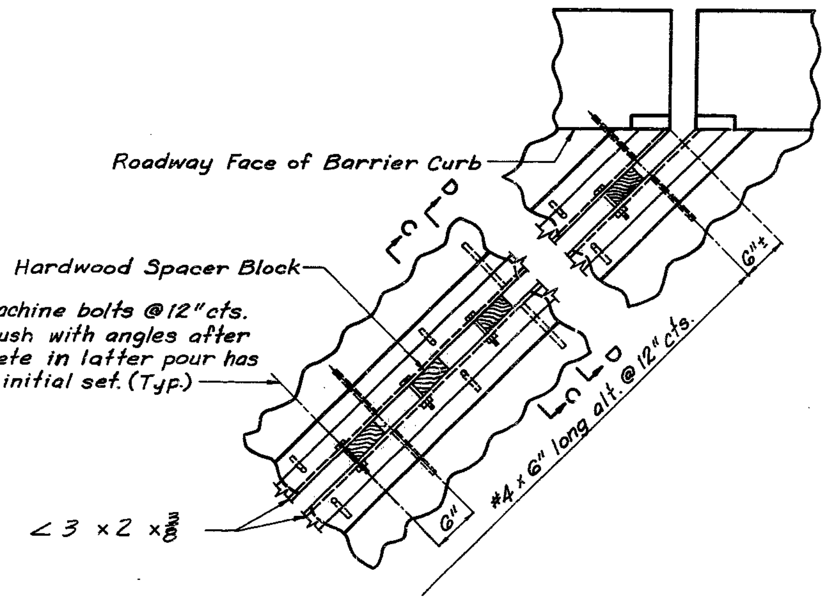
A-3287

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	47	



SECTION C-C SECTION D-D



PART PLAN

NOTES FOR ARMOR JOINT ANGLES:

ARMOR JOINT ANGLE FIELD SPLICES MADE BY AN EXPERIENCED WELDER ARE PERMITTED FOR SECTIONS OVER 50 FEET. THE ARMOR JOINT ANGLES SHALL BE BENT TO CONFORM TO CROWN AND GRADE OF ROADWAY.

NO. 4 BARS FOR ARMOR JOINT ANGLES SHALL BE STRUCTURAL GRADE.

APPROVED STUD WELDED ANCHORS OR DEFORMED BAR ANCHORS (ASTM A496) MAY BE USED IN LIEU OF NO. 4 BARS SHOWN.

PAYMENT FOR FURNISHING, PAINTING AND PLACING STRUCTURAL STEEL FOR ARMOR JOINT ANGLES SHALL BE INCLUDED IN UNIT PRICE BID FOR OTHER ITEMS.

ARMOR JOINT ANGLES SHOULD BE FIELD ADJUSTED WITH METAL SHIMS (1/8 x 2 x 3) PLACED BETWEEN ONE SIDE OF ANGLE AND HARDWOOD SPACER AT EACH BOLT, AS REQUIRED FOR TEMPERATURE CORRECTION.

DETAILS OF ARMOR JOINT ANGLES

SECTION E-E

TABLE OF VARIABLE DIMENSIONS			
TEMPERATURE °F	DIMENSION "A"	DIMENSION "B"	DIMENSION "C" (MAXIMUM)
110	7-5/8"	9-3/8"	1"
90	8"	9-3/4"	1-3/8"
70	8-1/4"	10"	1-5/8"
60	8-1/2"	10-1/4"	1-7/8"
50	8-5/8"	10-3/8"	2"
40	8-3/4"	10-1/2"	2-1/8"
30	9"	10-3/4"	2-3/8"
10	9-1/4"	11"	2-5/8"
-10	9-5/8"	11-3/8"	3"

JOINT SEAL FOR 2" MOVEMENT.

NOTE: *Plan dimensions are based on installation at 60°F. Expansion joint width shall be adjusted during installation for compliance with the above table. See Special Provisions.*

NOTES FOR STEEL REINFORCED ELASTOMERIC EXPANSION JOINT SEAL

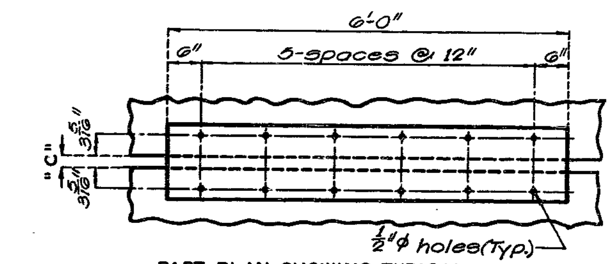
THE EXPANSION JOINT SHALL BE SET, ANCHORED, BONDED AND SEALED AS RECOMMENDED BY THE MANUFACTURER AND AS SET FORTH IN THE SPECIAL PROVISIONS. ANCHORS SHALL BE CONE EXPANSION TYPE. PAYMENT FOR FURNISHING AND INSTALLING THE EXPANSION JOINT, INCLUDING ANCHOR BOLT ASSEMBLY, SHALL BE MADE UNDER UNIT PRICE BID PER LINEAL FOOT OF JOINT.

ACCURATELY LOCATE THE HOLE SPACING FOR 1/2" STUD ANCHORS (CONE EXPANSION TYPE), ON BOTH SIDES OF THE EXPANSION VOID AT A DISTANCE OF 3-5/16" FROM THE EDGE OF THE CONCRETE. LAYOUT TRANSVERSE HOLE SPACING IN ACCORDANCE WITH THE SHOP DRAWINGS AND THE TYPICAL LAYOUT AS SHOWN ON PLANS. INSURE THAT THE HOLES ARE DIRECTLY OPPOSITE EACH OTHER (SQUARE). DRILL HOLES 2-1/4" DEEP FOR 1/2" STUD ANCHORS.

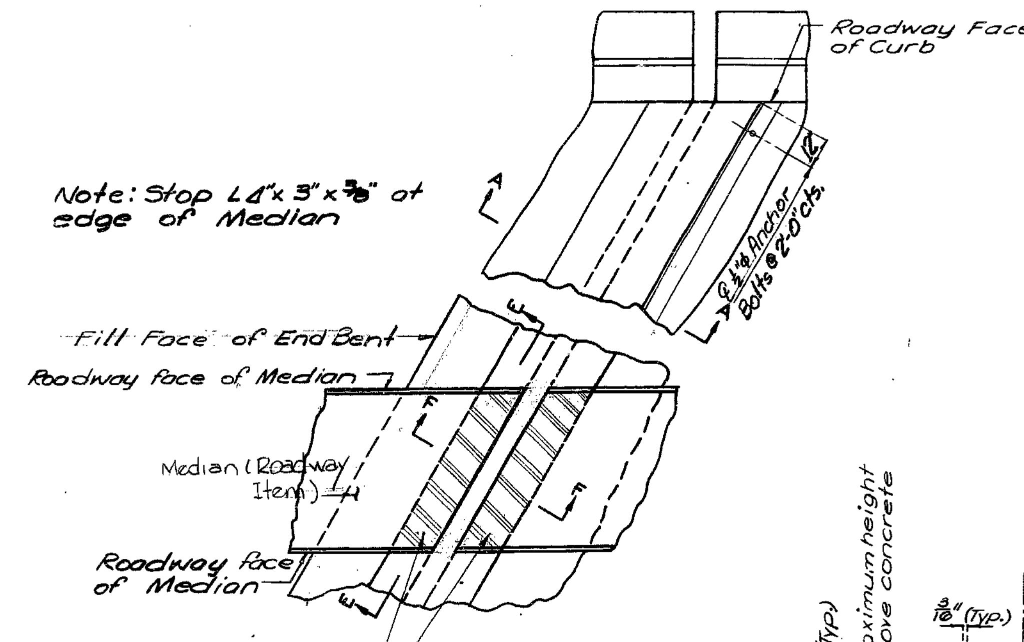
HOLES SHALL NOT BE DRILLED NOR ANCHOR BOLTS SET UNTIL THE CONCRETE IS AT LEAST 7 DAYS OLD.

TIGHTEN ALL NUTS TO 40 FOOT POUNDS. RETIGHTEN TO 40 FOOT POUNDS A MINIMUM OF 30 MINUTES AFTER INITIAL TIGHTENING.

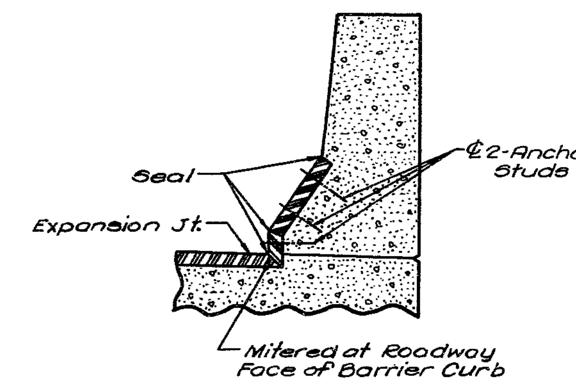
WIRE BRUSH BOLT CAVITY AND COAT WITH SEALANT. FILL CAVITY WITH SEALANT TO A DEPTH OF 1/2" AND PUSH PLUG DOWN TO SNAP LOCK. SCRAPE OFF ALL EXCESS SEALANT.



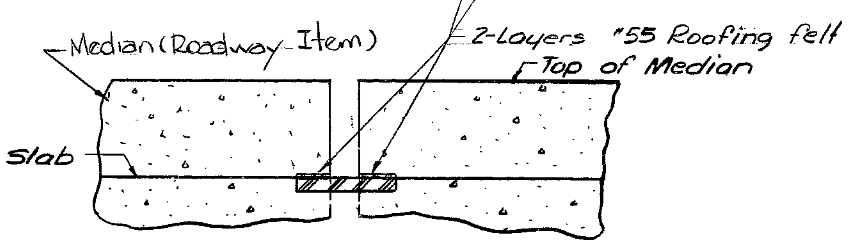
PART PLAN SHOWING TYPICAL LAYOUT FOR HOLE SPACING



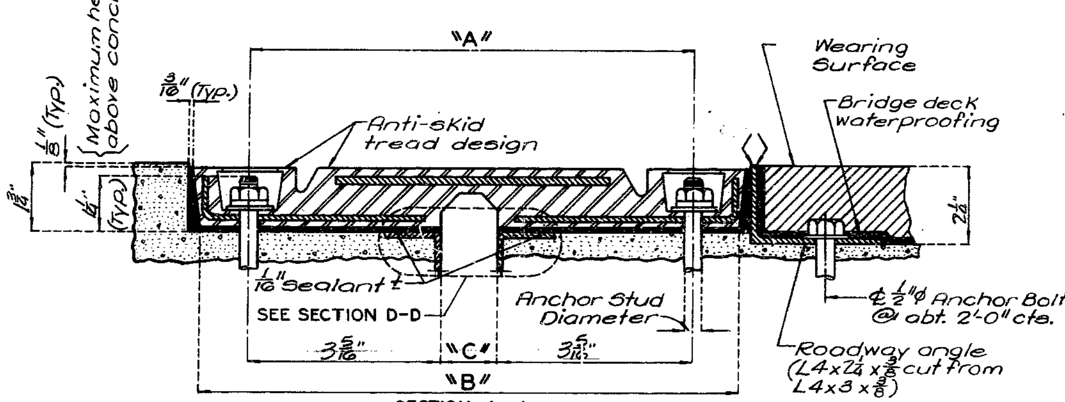
PART PLAN



SECTION THRU BARRIER CURB



SECTION F-F



SECTION A-A

DETAILS OF STEEL REINFORCED ELASTOMERIC EXPANSION JOINT SEAL AT BENTS NO. 1 & 5

STD. 5.7.2 DEC. 1974 REVISED JAN. 1976

284

DETAILED July 1977
CHECKED July 1977

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

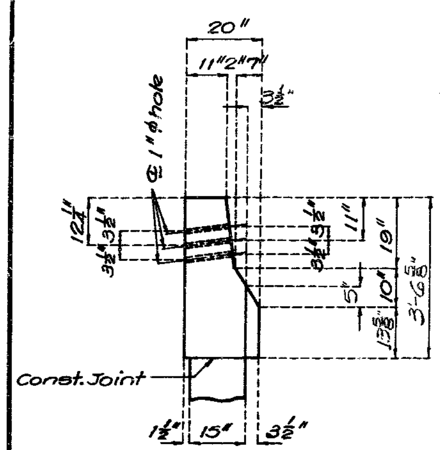
Sheet No. 22 of 28

PLATTE COUNTY

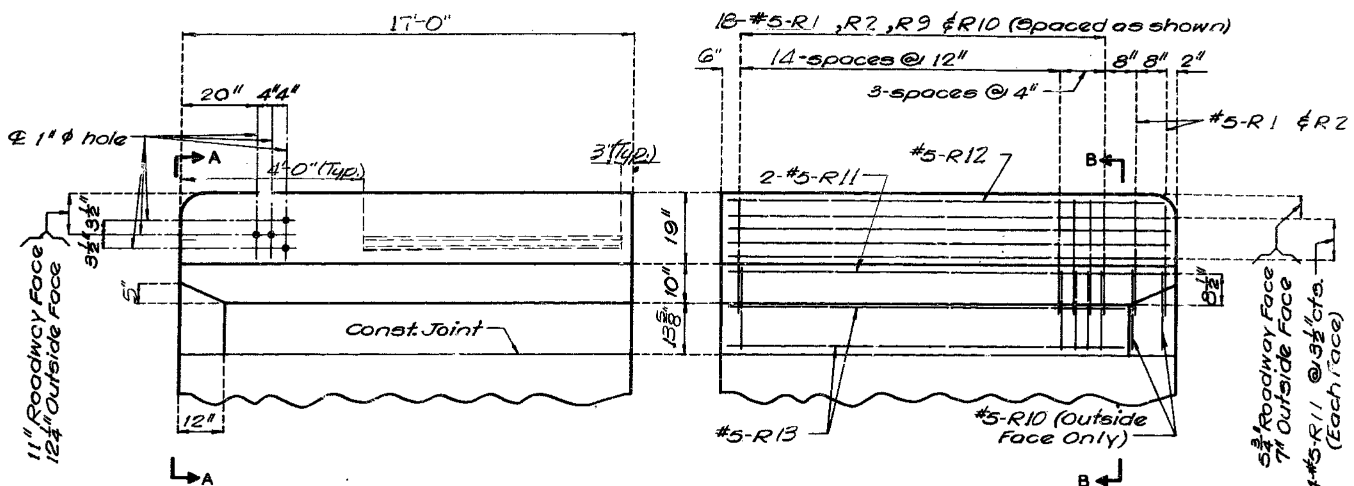
A-3287

MISSOURI STATE HIGHWAY DEPARTMENT

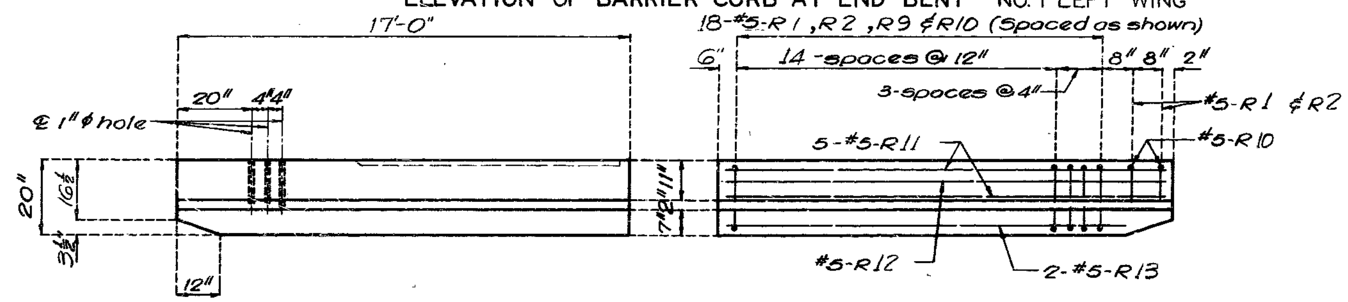
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	48	



SECTION A-A

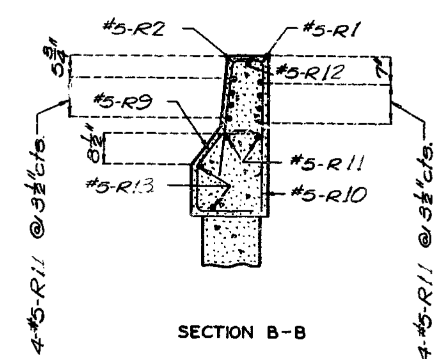


ELEVATION OF BARRIER CURB AT END BENT NO. 1 LEFT WING

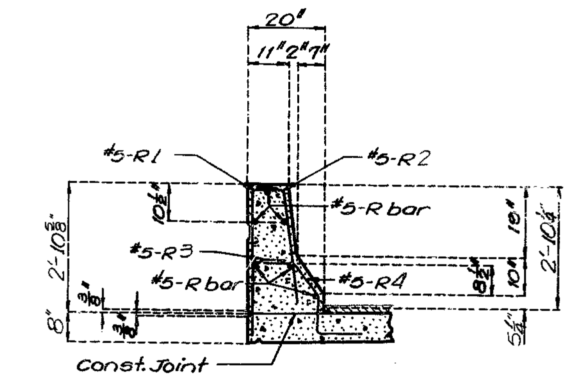


PLAN OF BARRIER CURB AT END BENT NO. 1 LEFT WING

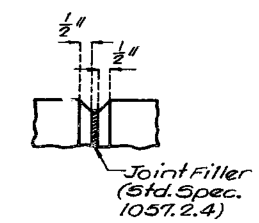
Note: Use a minimum lap of 15" for #5 horizontal barrier curb bars.



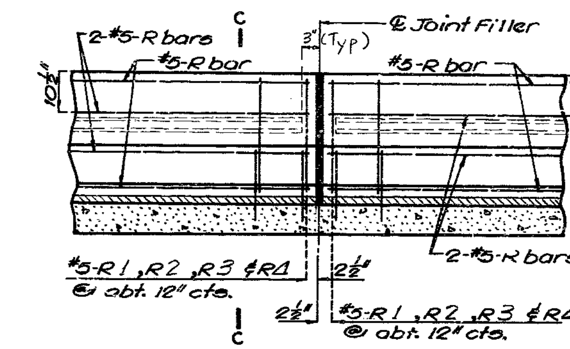
SECTION B-B



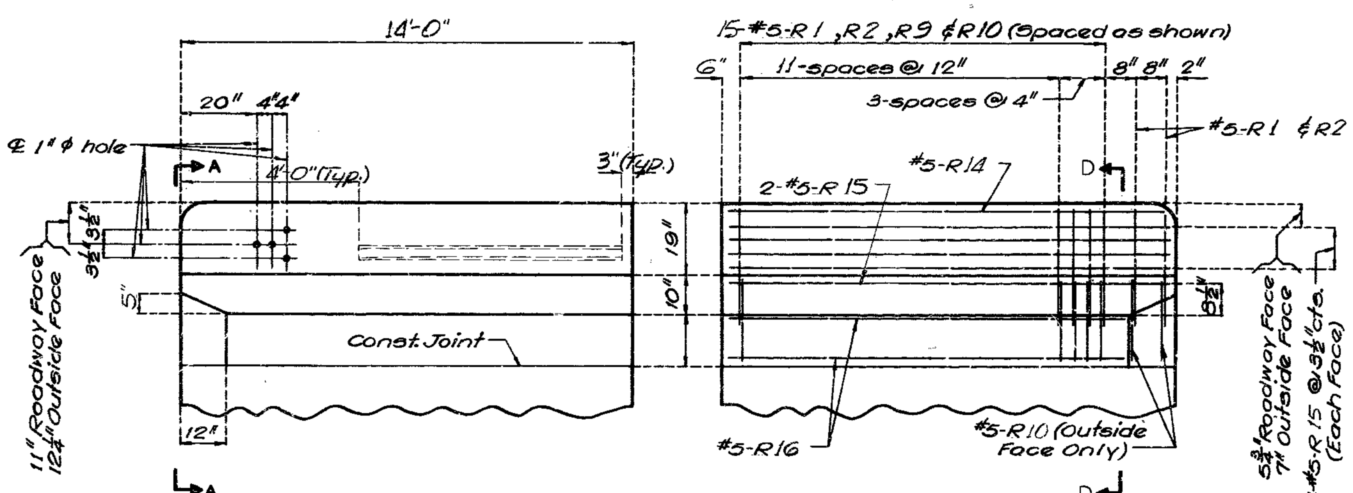
SECTION C-C



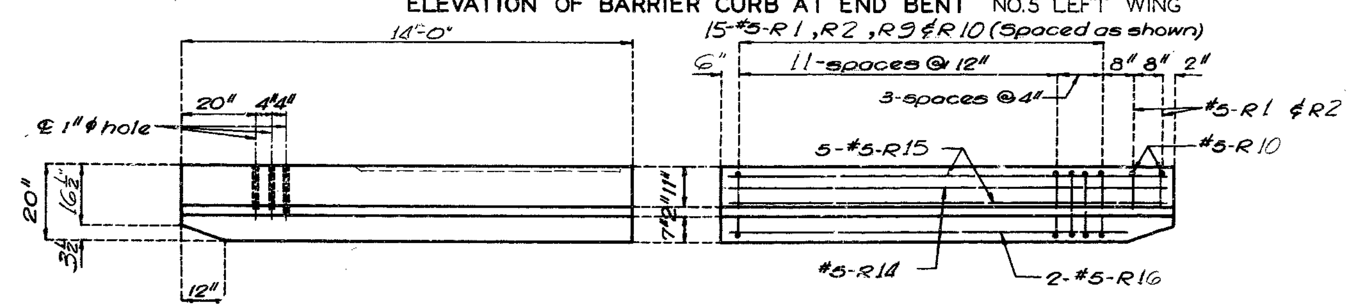
FILLED JOINT DETAIL



PART SECTION NEAR LEFT BARRIER CURB

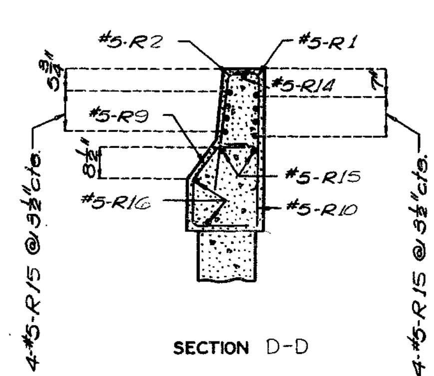


ELEVATION OF BARRIER CURB AT END BENT NO. 5 LEFT WING

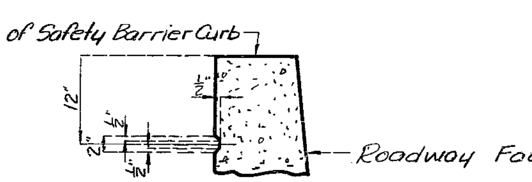


PLAN OF BARRIER CURB AT END BENT NO. 5 LEFT WING

Note: Use a minimum lap of 15" for #5 horizontal barrier curb bars.



SECTION D-D



PART SECTION SHOWING RUSTICATION DETAILS

DETAILED JULY 1975
CHECKED AUG. 1975

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

PLATTE COUNTY

A-3287

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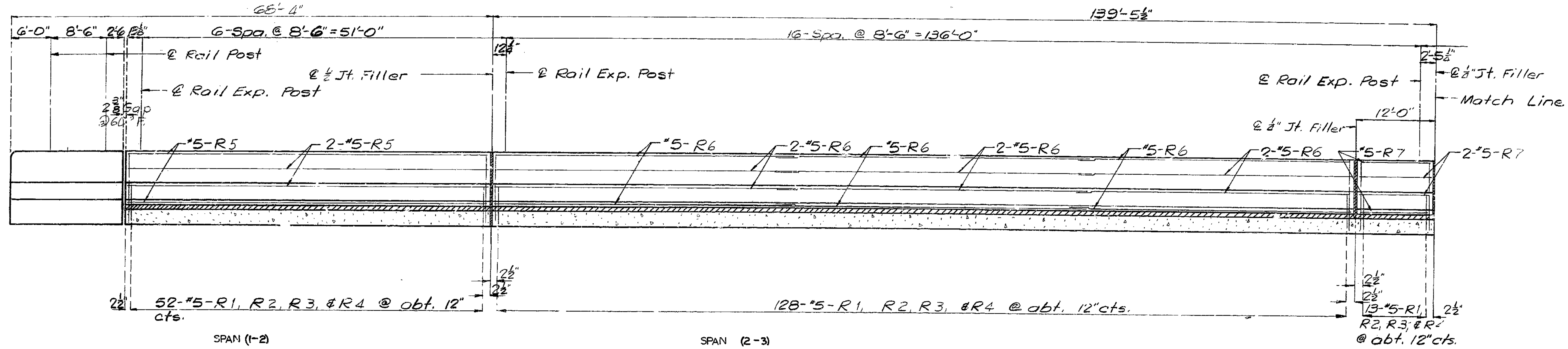
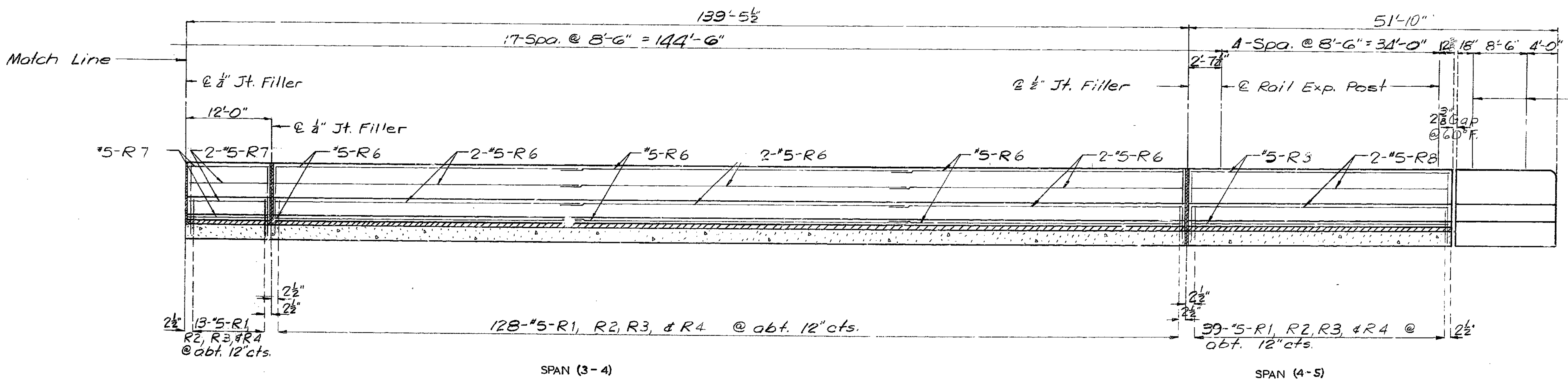
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. No.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	49	





SECTION NEAR LEFT SAFETY BARRIER CURB

Note: For Details of Safety Barrier Curb not shown see sheet No. 23.
For Details of Aluminum Rail see sheet No. 25.
Rustication not shown for clarity, see sheet No. 23.
Note: Longitudinal dimensions shown are taken parallel to grade at top of Safety Barrier Curb.

DETAILED OCT. 1974
CHECKED AUG 1975

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

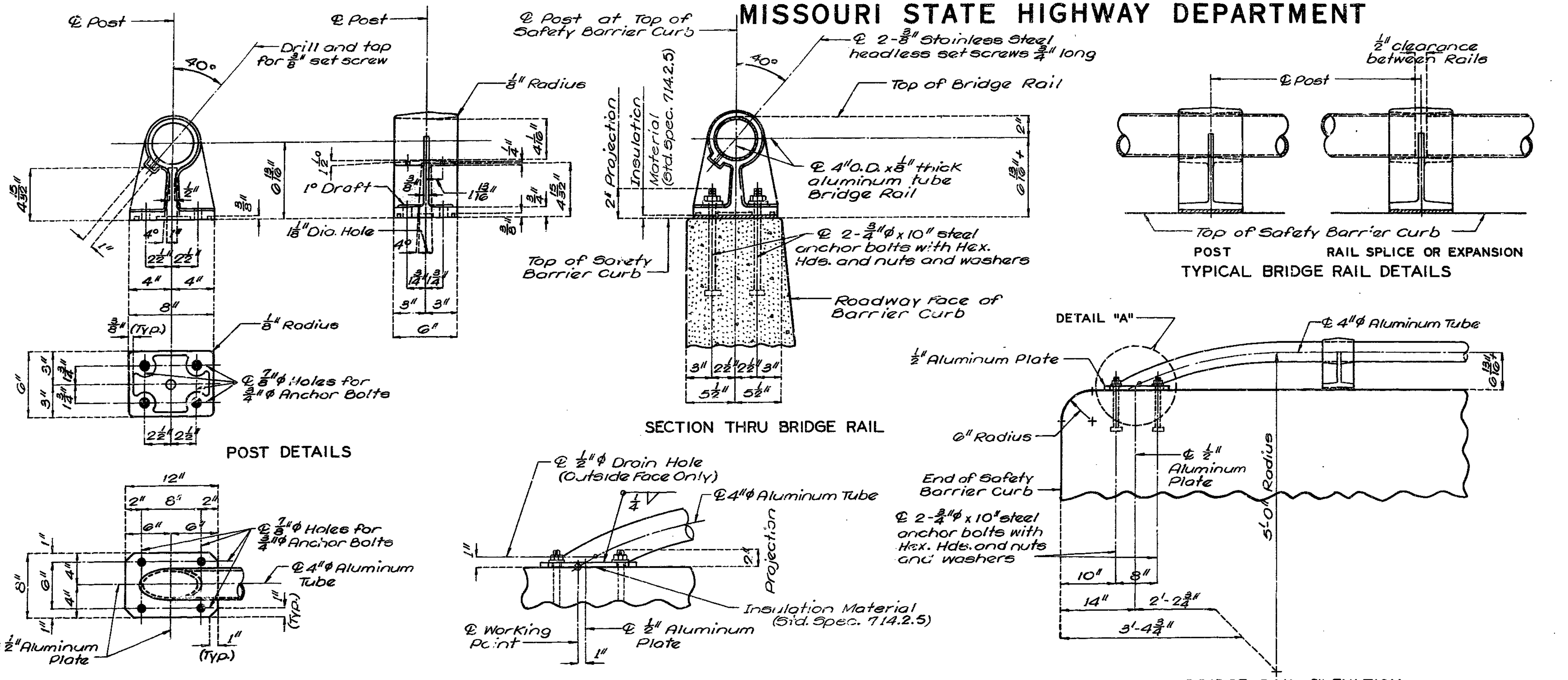
Sheet No. 24 of 28

PLATTE COUNTY

A-3287

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	50	



ONE TUBE ALUMINUM RAILING

GENERAL BRIDGE RAIL NOTES:

ALL BRIDGE RAIL POSTS SHALL BE SET NORMAL TO GRADE.

ALUMINUM TUBE BRIDGE RAIL SHALL BE BENT TO CONFORM TO VERTICAL AND HORIZONTAL ALIGNMENT OF BARRIER CURB.

ALUMINUM WASHER SHIMS BETWEEN TOP OF BARRIER CURB AND POST BASE MAY BE USED FOR ADJUSTING BRIDGE RAIL ALIGNMENT. MAXIMUM THICKNESS OF SHIMS TO BE 1/8". WHERE MORE TILTING OF POST IS REQUIRED FOR PROPER ALIGNMENT, CONCRETE BEARING AREAS SHALL BE GROUND DOWN.

ALL PARTS OF BRIDGE RAIL, EXCEPT ANCHOR BOLTS, NUTS, WASHERS, AND SET SCREWS ARE TO BE OF ALUMINUM MATERIAL.

ALL FILLETS 1/4" EXCEPT AS NOTED.

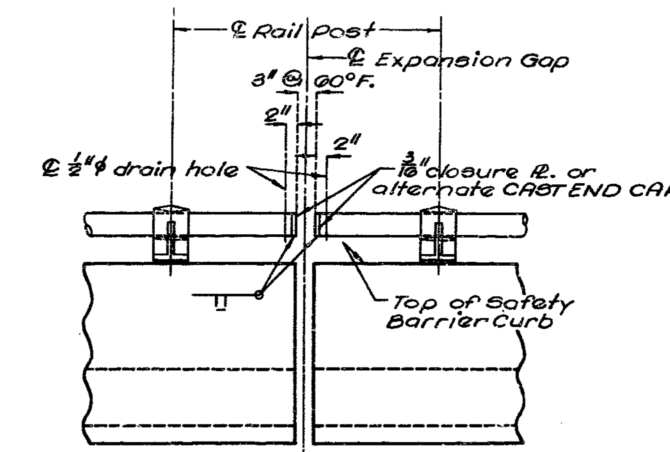
ALL DRAFTS 3° EXCEPT AS NOTED.

OMIT SET SCREW IN SIDE OF RAIL POST ADJACENT TO FILLED JOINTS IN BARRIER CURB AT RAIL EXPANSION POINTS.

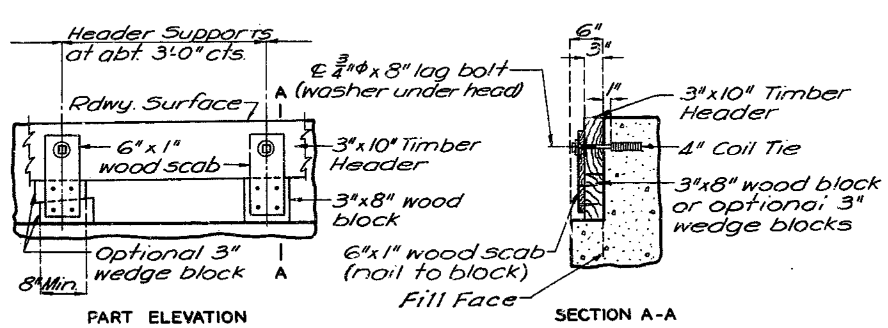
T OF BARRIER CURB TO BE BUILT PARALLEL TO GRADE WITH BARRIER CURB JOINTS (EXCEPT AT END BENTS) NORMAL TO GRADE.

ALL EXPOSED EDGES OF BARRIER CURB SHALL HAVE 1/2" RADIUS OR 3/8" BEVEL UNLESS OTHERWISE NOTED.

A THIN COATING OF MATERIAL SHALL BE APPLIED TO THE STAINLESS STEEL HEADLESS SET SCREWS TO PREVENT LOCKING TO ALUMINUM POSTS. THE COATING MATERIAL SHALL BE EQUAL TO WYNN OIL COMPANY'S "VISCOTENE", STAHL SPECIALTY COMPANY'S "PBC 516" OR NATIONAL CHEMSEARCH CORPORATION'S "THREAD EZE".

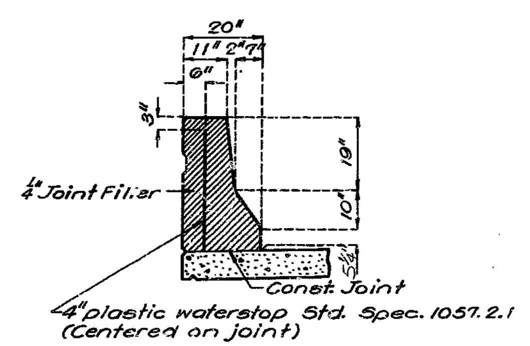


PART RAIL ELEVATION AT EXPANSION GAP



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

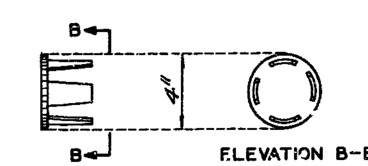
DETAILS OF TIMBER HEADER AT END BENTS



Note: Plastic waterstop shall be placed in all safety barrier curb filled joints.

Cost of plastic waterstop complete in place to be included in unit price bid for concrete.

DETAILS OF PLASTIC WATERSTOP



CAST END CAP (DRIVE FIT TYPE)

STD. 1.7.1	REVISED
NOV. 1974	JUNE 1977

DETAILED July 1977
CHECKED July 1977

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

PLATTE COUNTY

A-3287

MISSOURI STATE HIGHWAY DEPARTMENT

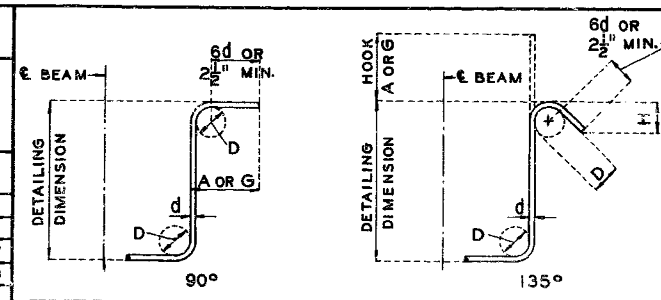
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	51	

COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO. SIZE MARK	LOCATION	GRADE 60 (H)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	F FT. IN.	H FT. IN.	K FT. IN.	NOMINAL LENGTH FT. IN.	ACTUAL LENGTH FT. IN.	WEIGHT LBS.
		END BENT NO. 1																
16	5010	WING FOOTING		20		X			7 0.000							7 0	7 0	117
16	5011	WING FOOTING		20		X			2 3.000							2 3	2 3	38
6	6F10	WING		15	S	X			11.875	3 6.000	11.875	10.500	5.500	10.500	5.500	5 6	5 4	48
6	6F11	WING		15	S	X			11.875	6 7.500	11.875	5.500	10.500	5.500	10.500	8 7	8 7	77
16	4H10	BACKWALL		20		X			28 4.000							28 4	28 4	303
16	10H11	BEAM		20		X			13 9.000							13 9	13 9	947
4	10H12	BEAM		17		X			14 2.000							15 3	15 3	262
8	10H13	BEAM		17		X			28 5.000							29 6	29 6	1016
2	6H14	BEAM		20		X			57 10.000							57 10	57 10	174
4	10H15	BEAM		17		X			58 10.000							59 11	59 11	1031
14	6H16	WING		20		X	V	2	16 2.000							16 2	16 2	
		INCR = 21.875 IN							5 3.000							5 3	5 3	225
14	6H17	WING		20		X	V	2	16 2.000							16 2	16 2	
		INCR = 20.625 IN							5 10.000							5 10	5 10	231
8	6H18	WING		20		X			16 9.000							16 9	16 9	201
16	4H19	BACKWALL		20		X			27 8.000							27 8	27 8	296
4	6H110	BEAM		20		X			28 0.000							28 0	28 0	168
4	10H111	BEAM		20		X			28 5.000							28 5	28 5	489
4	10H112	BEAM		20		X			26 2.000							26 2	26 2	450
2	6T10	WING		19		X			7 4.000	3 7.000						10 11	10 9	32
2	6T11	WING		19		X			7 3.000	4 10.000						12 1	11 11	36
2	6T12	WING		25	S	X			2 5.000	12 4.875	2 1.000			4 9.000	11 5.500	16 11	16 10	51
2	6T13	WING		25	S	X			2 5.000	12 11.625	23.000			4 11.000	12 0.000	17 4	17 3	52
29	4U10	BEAM		10	S	X				6.000	4 3.000					5 3	5 1	98
200	4U11	BEAM		10	S	X				2 2.000	4 3.000					8 7	8 5	1125
14	6U13	BEAM		10	S	X				2 1.000	3 1.000					7 3	6 11	146
2	4U14	BEAM		10	S	X				2 1.500	2 6.000					6 9	6 7	9
12	7U15	BEAM		10		X				4 11.000	2 7.500					12 6	12 2	300
5	4U16	WING		10	S	X				3 1.000	6.000					6 8	6 6	22
6	4U17	WING		10	S	X				4 4.000	6.000					9 2	9 0	36
106	5U18	BACKWALL		10	S	X				2 0.000	9.000					4 9	4 7	507
118	5V10	BACKWALL		20		X			8 3.000							8 3	8 3	1016
8	4V11	WING		20		X			6 10.000							6 10	6 10	37
2	6V12	BEAM		20		X			3 0.000							3 0	3 0	9
2	6V13	BEAM		20		X			3 1.000							3 1	3 1	9
9	5V16	WING		20		X			8 8.000							8 8	8 8	81
6	4V18	WING		20		X	V	1	7 3.000							7 3	7 3	
		INCR = 4.750 IN							5 3.000							5 3	5 3	25
6	4V19	WING		20		X	V	1	3 10.500							3 11	3 11	
		INCR = 2.000 IN							3 1.000							3 1	3 1	14
7	4V105	WING		17		X	V	1	6 9.000							7 3	7 3	
		INCR = 4.500 IN							4 6.000							5 0	5 0	29
6	4V106	WING		17		X	V	1	3 3.500							3 10	3 10	
		INCR = [illegible] IN							2 5.[illegible]							2 [illegible]	[illegible]	14
9	5V107	WING		17		X			8 0.000							8 7	8 7	83
6	4V108	WING		17		X	V	1	6 7.000							7 1	7 1	
		INCR = 4.750 IN							4 7.000							5 1	5 1	24
7	4V109	WING		17		X	V	1	7 4.500							7 11	7 11	
		INCR = 4.500 IN							5 2.000							5 8	5 8	32
142	6V100	BACKWALL		20		X			8 3.000							8 3	8 3	1760
20	2W1	A B WELLS		22		X			12.000	9.125						19 9	19 9	66
		INT BENT NO 2																
40	10020	FOOTING		20		X			5 0.000							5 0	5 0	861
50	6021	FOOTING		20		X			5 9.000							5 9	5 9	432
55	7022	FOOTING		18		X			8 9.000							10 3	10 3	1152
8	11H20	BEAM		20		X			46 4.000							46 4	46 4	1969
4	6H21	BEAM		20		X			45 1.000							45 1	45 1	271
6	11H22	BEAM		20		X			59 1.000							59 1	59 1	2511
4	6H23	BEAM		20		X			59 1.000							59 1	59 1	355
6	11H24	BEAM		20		X			17 6.000							17 6	17 6	558

288

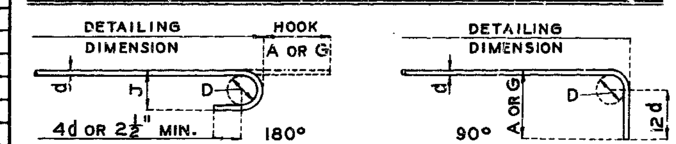
SPS



STIRRUP HOOK DIMENSIONS

GRADES 40-50-60 KSI				
BAR SIZE	D (IN.)	90° HOOK: HOOK A OR G	135° HOOK: HOOK A OR G	135° HOOK: APPROX. H
#3	1-1 2"	4"	4"	2-1 2"
#4	2"	4-1 2"	4-1 2"	3"
#5	2-1 2"	6"	5-1 2"	3-3 4"
#6	4-1 2"	8"	7"	4-1 2"

NOTE UNLESS OTHERWISE NOTED DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.



SIZE OF 180° HOOKS (GRADE 40 KSI)

D = 5d FOR #3 THRU #11
D = 10d FOR #14 AND #18

SIZE OF 90° HOOKS (ALL GRADES) AND 180° HOOKS (GRADE 60 KSI)

D = 6d FOR #3 THRU #8
D = 8d FOR #9, #10 AND #11
D = 10d FOR #14 AND #18

END HOOK DIMENSIONS

BAR SIZE	180° HOOKS GRADE 40 A OR G	180° HOOKS GRADE 40 J	180° HOOKS GRADE 60 A OR G	180° HOOKS GRADE 60 J	90° HOOKS ALL GRADES A OR G
#3	5"	2-3 4"	5"	3"	6"
#4	6"	3-1 2"	6"	4"	8"
#5	7"	4-1 2"	7"	5"	10"
#6	8"	5-1 4"	8"	6"	12"
#7	9"	6-1 4"	10"	7"	14"
#8	10"	7"	11"	8"	16"
#9	12"	8"	15"	11-1 4"	19"
#10	13"	9"	17"	12-3 4"	22"
#11	14"	10"	19"	14-1 4"	2'-0"
#14	2'-2"	20-1 2"	2'-2"	20-1 2"	2'-7"
#18	2'-11"	[illegible]	[illegible]	[illegible] 3"	[illegible]

NOTE: ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEG TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEG. STANDARD HOOKS.
NOTE HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.

NOMINAL LENGTHS ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING DIAGRAMS AND ARE LISTED FOR FABRICATORS USE.

PAYWEIGHTS ARE BASED ON ACTUAL LENGTHS.

H - HIGH STRENGTH (ASTM A-615 GRADE 60).

S - STIRRUP

X - BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.

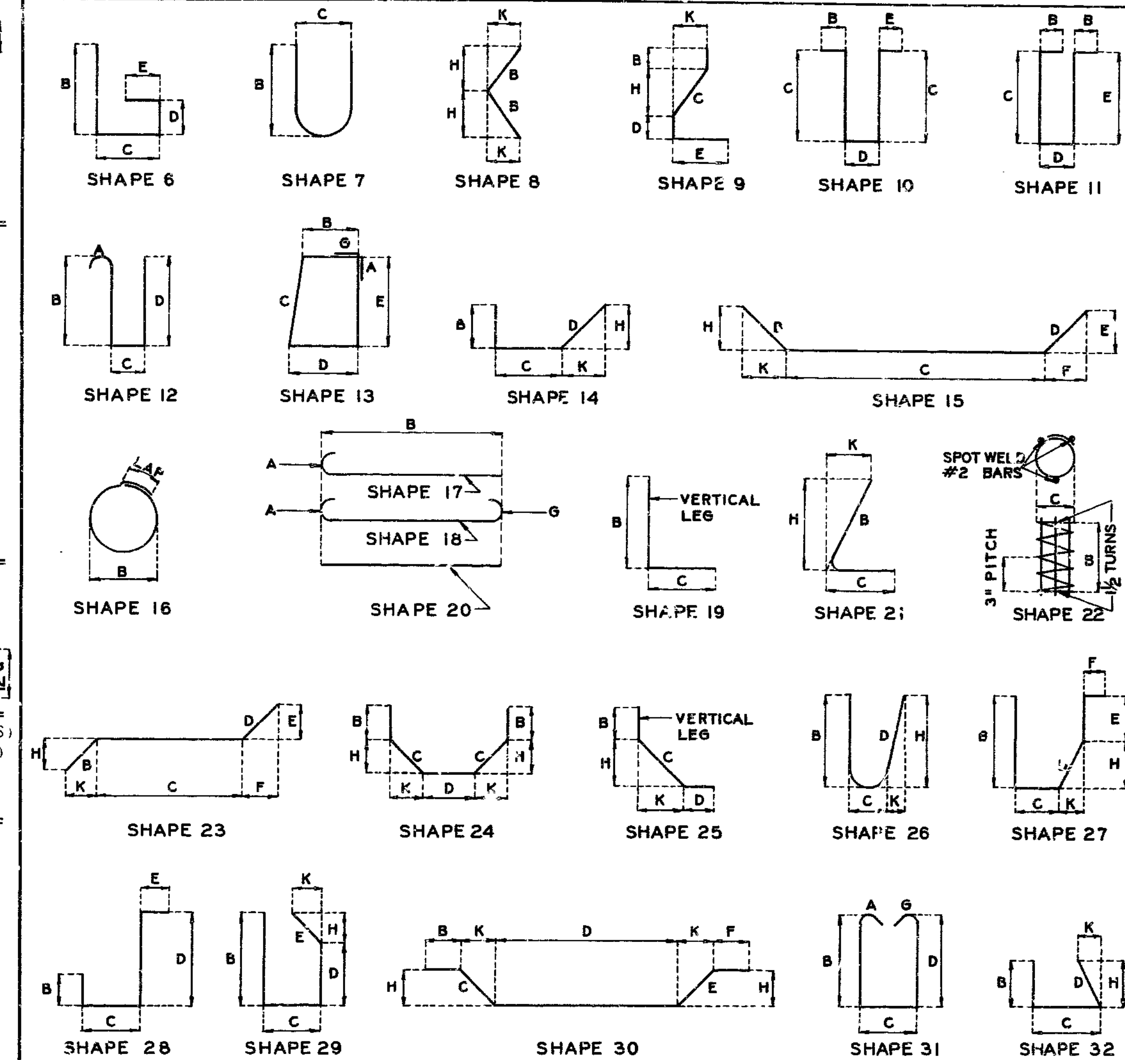
LENGTH - TOTAL LENGTHS ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.

V - BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE.

NO. EA. - NUMBER OF BARS OF EACH LENGTH.

*ALL HOOKS AND BENDS FOR SHAPE NO. 22 - GRADE 40 (only) ARE BASED ON D = 5d.

BENDING DIAGRAMS



STD. 90.8 REVISED
MAY 1974 JULY 1975

DETAILED OCT. 1975
CHECKED OCT. 1975

N15921

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

PLATTE COUNTY

A-3287

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	52	

289

COMPLETE BILL OF REINFORCING STEEL

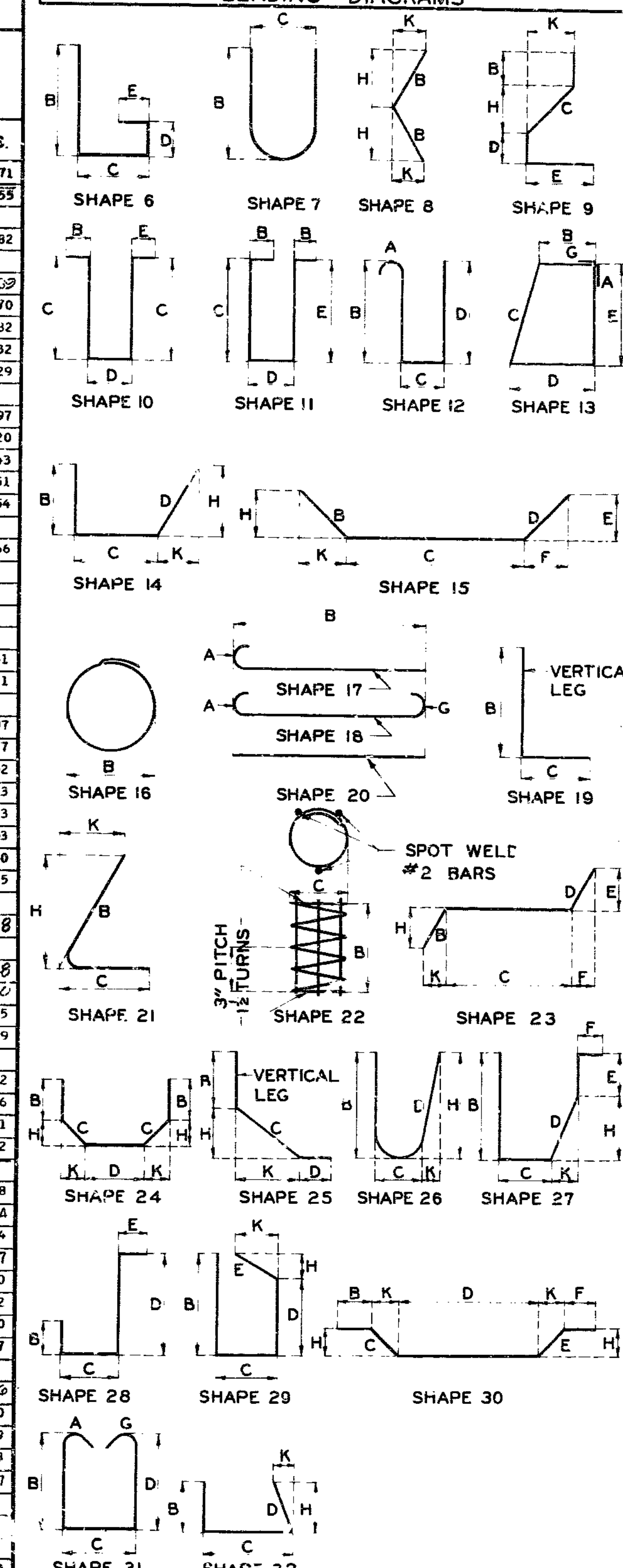
NO. REQD.	MARK NO. SIZE MARK	LOCATION	GRADE 60 (H)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	F FT. IN.	H FT. IN.	K FT. IN.	NOMINAL LENGTH FT. IN.	ACTUAL LENGTH FT. IN.	WEIGHT LBS.
6	11H25	BEAM		17		X			48 2.000							49 4	49 4	1573
19	7H26	BEAM		7		X			4 1.500	3 1.500						9 11	9 11	203
4	11H27	BEAM		20		X			28 7.000							28 7	28 7	608
6	11H28	BEAM		17		X			49 1.500							50 4	50 4	1605
4	11H29	BEAM		20		X			41 6.000							41 6	41 6	882
126	4P20	COLUMN		16		X			2 9.000							9 6	9 6	800
170	5U20	BEAM		10	S	X				2 4.500	3 3.000					8 0	7 10	1389
152	5U21	BEAM		10	S	X				2 4.500	2 2.000					6 11	6 9	1070
30	4U22	BEAM		10	S	X				6.000	3 3.000					4 3	4 1	82
4	5U23	BEAM		10	S	X				2 4.500	3 2.000					7 11	7 9	32
4	5U24	BEAM		10	S	X				2 4.500	2 3.000					7 0	6 10	29
8	10V20	COLUMN		20		X			27 3.000							27 3	27 3	938
8	10V21	COLUMN		20		X			27 10.000							27 10	27 10	958
8	10V22	COLUMN		20		X			28 7.000							28 7	28 7	984
8	10V23	COLUMN		20		X			28 10.000							28 10	28 10	993
8	10V24	COLUMN		20		X			29 0.000							29 0	29 0	998
20	2W1	A B WELLS		22		X			12.000	9.125						19 9	19 9	66
		INT BENT NO 3																
50	8D30	FOOTING		20		X			8 9.000							8 9	8 9	1168
40	8D31	FOOTING		20		X			8 0.000							8 0	8 0	854
10	6D32	FOOTING		10	S	X				4 7.500	8 0.000					17 3	16 11	254
8	11H30	BEAM		17		X			49 5.000							50 7	50 7	2150
4	11H31	BEAM		20		X			33 0.000							33 0	33 0	701
4	11H32	BEAM		20		X			47 8.000							47 8	47 8	1013
8	11H33	BEAM		17		X			58 6.000							59 8	59 8	2536
6	6H34	BEAM		20		X			54 3.000							54 3	54 3	489
6	6H35	BEAM		20		X			56 6.000							56 6	56 6	509
14	7H36	BEAM		7		X			4 1.500	3 1.500						9 11	9 11	284
10	11H37	BEAM		20		X			59 6.000							59 6	59 6	3161
10	11H38	BEAM		20		X			46 3.000							46 3	46 3	2457
75	4P30	COLUMN		16		X			2 9.000							9 6	9 6	476
208	6U30	BEAM		10	S	X				3 7.500	3 3.000					10 6	10 2	3176
188	6U31	BEAM		10	S	X				3 7.500	2 2.000					9 5	9 1	2565
4	6U32	BEAM		10	S	X				3 7.500	18.000					8 9	8 5	51
4	6U33	BEAM		10	S	X				3 7.500	2 6.500					9 10	9 6	57
4	6U34	BEAM		10	S	X				3 7.500	3 1.000					10 4	10 0	60
20	4U35	BEAM		10	S	X				6.000	3 3.000					4 3	4 1	55
22	11V30	COLUMN		17		X			21 3.000							22 5	22 5	2620
22	11V31	COLUMN		17		X			21 8.000							22 10	22 10	2669
22	11V32	COLUMN		17		X			22 1.000							23 3	23 3	2718
22	11V33	COLUMN		17		X			22 6.000							23 8	23 8	2766
22	11V34	COLUMN		17		X			23 0.000							24 2	24 2	2825
20	2W1	A B WELLS		22		X			12.000	9.125						19 9	19 9	66
		INT BENT NO 4																
40	10D40	FOOTING		20		X			5 0.000							5 0	5 0	861
40	7D41	FOOTING		20		X			8 0.000							8 0	8 0	654
40	5D42	FOOTING		20		X			5 9.000							5 9	5 9	240
10	6D43	FOOTING		10		X				3 6.000	7 3.000					14 3	13 11	209
10	7H40	BEAM		7		X			4 1.500	3 1.500						9 11	9 11	203
6	11H41	BEAM		17		X			46 4.500							47 7	47 7	1517
6	11H42	BEAM		17		X			48 2.000							49 4	49 4	1573
4	11H43	BEAM		20		X			28 7.000							28 7	28 7	608
8	11H44	BEAM		20		X			59 1.000							59 1	59 [illegible]	2511
4	11H45	BEAM		20		X			41 6.000							41 6	41 6	882
6	11H46	BEAM		20		X			17 6.000							17 6	17 6	558
8	11H47	BEAM		20		X			46 4.000							46 4	46 4	1969

DETAILED OCT. 1975
CHECKED OCT. 1975

COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO. SIZE MARK	LOCATION	GRADE 60 (H)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	F FT. IN.	H FT. IN.	K FT. IN.	NOMINAL LENGTH FT. IN.	ACTUAL LENGTH FT. IN.	WEIGHT LBS.
4	6H48	BEAM		20		X			45 1.000							45 1	45 1	271
4	6H49	BEAM		20		X			59 1.000							59 1	59 1	355
76	4P40	COLUMN		16		X			2 9.000							9 6	9 6	482
170	5U40	BEAM		10	S	X				2 4.500	3 3.000					8 0	7 10	1389
152	5U41	BEAM		10	S	X				2 4.500	2 2.000					6 11	6 9	1070
30	4U42	BEAM		10	S	X				6.000	3 3.000					4 3	4 1	82
4	5U43	BEAM		10	S	X				2 4.500	3 2.000					7 11	7 9	32
4	5U44	BEAM		10	S	X				2 4.500	2 3.000					7 0	6 10	29
8	10V40	COLUMN		20		X			17 4.000							17 4	17 4	597
8	10V41	COLUMN		20		X			18 0.000							18 0	18 0	620
8	10V42	COLUMN		20		X			18 8.000							18 [illegible]	18 8	643
8	10V43	COLUMN		20		X			18 11.000							18 11	18 11	651
8	10V44	COLUMN		20		X			19 0.000							19 0	19 0	654
20	2W1	A B WELLS		22		X			12.000	9.125						19 9	19 9	66
		END BENT NO.5																
5	6F50	WING		15	S	X			12.250	3 6.000	12.250	11.000	5.500	11.000	5.500	5 7	5 5	41
4	6F51	WING		15	S	X			12.375	6 6.000	12.375	5.750	11.000	5.750	11.000	8 7	8 6	51
16	4H50	BACKWALL		20		X			27 9.000							27 9	27 9	297
16	10H51	BEAM		20		X			13 9.000							13 9	13 9	947
16	4H52	BACKWALL		20		X			28 3.000							28 3	28 3	302
4	10H53	BEAM		17		X			49 1.000							50 2	50 2	863
4	6H54	BEAM		20		X			28 10.000							28 10	28 10	173
4	10H55	BEAM		17		X			57 2.000							58 3	58 3	1003
4	10H56	BEAM		17		X			17 6.000							18 7	18 7	320
8	6H57	WING		20		X			13 9.000							13 9	13 9	165
10	6H58	WING		20		X	V	2	13 [illegible].000							13 5	13 5	
		INCR = 21.250 IN							6 4.000							6 4	6 4	148
10	6H59	WING		20		X	V	2	13 8.500							13 9	13 9	
		INCR = 23.000 IN							6 1.000							6 1	6 1	148
4	10H150	BEAM		17		X			29 8.000							30 9	30 9	530
4	10H151	BEAM		20		X			29 4.000							29 4	29 4	505
2	6H152	BEAM		20		X			56 2.000							56 2	56 2	149
2	6T50	WING		25	S	X			2 4.000	9 7.000	2 0.000			4 2.750	8 7.250	13 11	13 10	42
2	6T51	WING		19		X			7 2.000	4 10.000						12 0	11 10	36
2	6T52	WING		19		X			7 0.000	3 7.000						10 7	10 5	31
2	6T53	WING		25	S	X			2 5.000	9 7.000	2 0.000			3 6.000	8 11.000	14 0	13 11	42
26	4U51	BEAM		10	S	X				6.000	4 3.000					5 3	5 1	88
200	4U52	BEAM		10	S	X				2 1.500	4 3.000					8 6	8 4	1114
2	4U53	BEAM		10	S	X				2 1.500	2 6.000					6 [illegible]	6 7	14
16	6U54	BEAM		10	S	X				2 1.000	3 1.000					7 3	6 11	167
5	4U55	WING		10	S	X				4 4.000	6.000					9 2	9 0	30
5	4U56	WING		10	S	X				3 1.000	6.000					6 8	6 6	22
10	7U57	BEAM		10		X				4 11.000	2 7.500					12 6	12 2	250
106	5U59	BACKWALL		10	S	X				2 0.000	9.000					4 9	4 7	507
118	5V51	BACKWALL		20		X			8 3.000							8 3	8 3	1016
2	6V52	BEAM		20		X			3 3.000							3 3	3 3	10
2	6V53	BEAM		20		X			3 1.000							3 1	3 1	9
4	4V55	WING		20		X			6 8.000							6 8	6 8	18
10	5V56	WING		20		X			8 4.000							8 4	8 4	87
9	4V57	WING		20		X	V	1	6 10.500							6 11	6 11	
		INCR = 5.500 IN							3 2.500							3 3	3 3	
9	4V58	WING		20		X	V	1	6 7.500							6 8	6 8	
		INCR = 5.250 IN							3 2.000							3 2	3 2	30
2	4V59	WING		20		X			6 6.000							6 6	6 6	9
9	4V501	WING		17		X	V	1	5 11.500							6 6	6 6	
		INCR = 5.250 IN							2 6.000							3 0	3 0	29
10	5V502	WING		17		X			7 6.500							8 2	8 2	85
102	6V500	Backwall		20		X			8 3							8 3	8 3	1760

BENDING DIAGRAMS



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

STD. 90.7 REVISED SEPT. 1974

PLATTE COUNTY

A-3287

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	53	

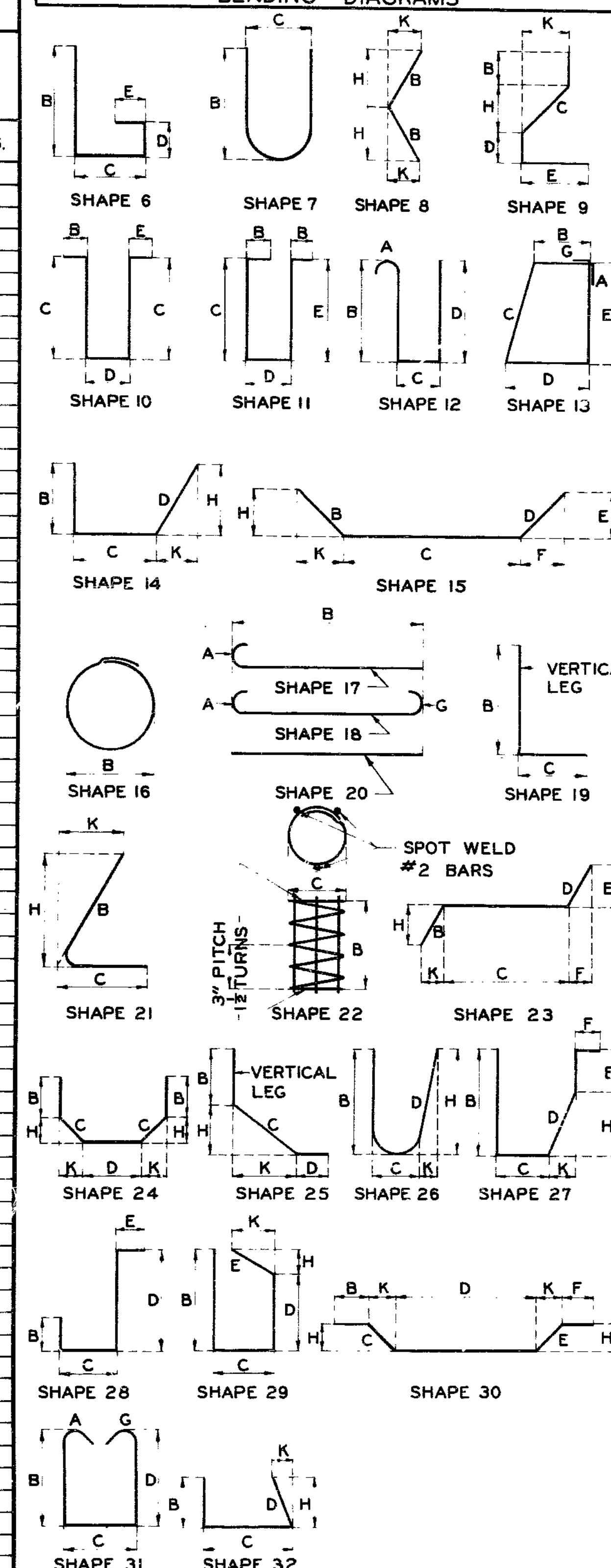
COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO. (SIZE MARK)	LOCATION	GRADE 60 (H)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	F FT. IN.	H FT. IN.	K FT. IN.	NOMINAL LENGTH FT. IN.	ACTUAL LENGTH FT. IN.	WEIGHT LBS.
9	4V503	WING		17		X	V	1	6 2.500							6 9	6 9	
		INCR = 5.500 IN							2 6.500							3 1	3 1	30
20	2W1	A B WELLS		22		X			12.000	9.125						19 9	19 9	66
		SUPERSTRUCTURE																
930	5S1	SLAB	H	20					56 9.000							56 9	56 9	55047
130	5S2	SLAB	H	20			V	2	2 2.000							2 2	2 2	
		INCR = 7.500 IN	H						42 5.000							42 5	42 5	3023
1186	5S3	SLAB	H	20					44 5.000							44 5	44 5	54943
260	5S4	SLAB	H	20			V	4	2 2.000							2 2	2 2	
		INCR = 7.500 IN							42 5.000							42 5	42 5	6045
804	5S5	SLAB	H	20			V	12	2 5.000							2 5	2 5	
		INCR = 7.500 IN							44 0.000							44 0	44 0	19462
1182	5S6	SLAB	H	20					45 8.000							45 8	45 8	56299
142	5S7	SLAB	H	20					46 0.000							46 0	46 0	6813
12	5S8	SLAB	H	20					44 8.000							44 8	44 8	558
142	5S9	SLAB	H	20					9 10.000							9 10	9 10	1456
2	5S11	SLAB	H	20					56 6.000							56 6	56 6	118
2	5S12	SLAB	H	20					53 0.000							53 0	53 0	111
2	5S13	SLAB	H	20					54 4.000							54 4	54 4	113
2	5S14	SLAB	H	20					55 0.000							55 0	55 0	115
264	5S15	SLAB	H	20			V	4	3 5.000							3 5	3 5	
		INCR = 7.625 IN							44 5.000							44 5	44 5	6585
132	5S16	SLAB	H	20			V	2	3 6.000							3 6	3 6	
		INCR = 7.500 IN							44 5.000							44 5	44 5	3298
186	5S17	SLAB	H	20					49 9.000							49 9	49 9	9651
186	5S18	SLAB	H	20					37 5.000							37 5	37 5	7259
4	4S100	SLAB	H	20					28 1.000							28 1	28 1	75
4	4S101	SLAB	H	20					27 4.000							27 4	27 4	73
220	5S102	SLAB	H	17					20.000							2 3	2 3	516
820	5R1	SAFTEY BARRIER	H	19	S				2 8.000	6.000						3 2	3 1	2637
820	5R2	SAFTEY BARRIER	H	15	S				2 7.750	6.000				2 7.625	3.000	3 2	3 1	2637
746	5R3	SAFTEY BARRIER	H	19	S				19.000	9.000						2 4	2 3	1751
746	5R4	SAFTEY BARRIER	H	27	S					9.000	11.125	9.000	12.000	9.125	6.375	3 5	3 3	2529
12	5R5	SAFTEY BARRIER	H	20					50 9.000							50 9	50 9	635
72	5R6	SAFTEY BARRIER	H	20					43 3.000							43 3	43 3	3248
24	5R7	SAFTEY BARRIER	H	20					11 9.000							11 9	11 9	294
12	5R8	SAFTEY BARRIER	H	20					37 4.500							37 5	37 5	468
66	5R9	SAFTEY BARRIER	H	27	S				12.000	12.000	11.125	6.000		6.375	9.125	3 5	3 3	224
74	5R10	SAFTEY BARRIER	H	19	S				22.000	9.000						2 7	2 6	193
20	5R11	SAFTEY BARRIER	H	20					16 9.000							16 9	16 9	349
2	5R12	SAFTEY BARRIER	H	20					16 8.000							16 8	16 8	35
4	5R13	SAFTEY BARRIER	H	20					15 9.000							15 9	15 9	66
2	5R14	SAFTEY BARRIER	H	20					13 8.000							13 8	13 8	29
20	5R15	SAFTEY BARRIER	H	20					13 9.000							13 9	13 9	288
4	5R16	SAFTEY BARRIER	H	20					12 9.000							12 9	12 9	53
		MEDIAN																
9	5H60	MEDIAN		20					48 5.000							48 5	48 5	454
12	5H61	MEDIAN		20			V	2	5 3.000							5 3	5 3	
		INCR =131.375 IN							60 0.000							60 0	60 0	408
3	5H62	MEDIAN		20					43 5.000							43 5	43 5	136
22	5H63	MEDIAN		20					44 6.000							44 6	44 6	1021
18	5H64	MEDIAN		20					49 3.000							49 3	49 3	925
2	5H65	MEDIAN		20					42 3.000							42 3	42 3	88
2	5H66	MEDIAN		20					26 6.000							26 6	26 6	55
318	5U60	MEDIAN		19					13.750	22.500						3 0	2 11	967
276	5U61	MEDIAN		19			V	2	13.750	23.500						3 1	3 0	
		INCR = 0.875 IN							13.750	11 9.500						12 11	12 10	2279
150	5U62	MEDIAN		19					13.755	6 10.500						8 0	7 11	1239
		END OF BAR LIST																
4	6H113	SLAB		20					53 8.000							53 8	53 8	323
4	6H114	SLAB		20					55 2.000							55 2	55 2	332

COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO. (SIZE MARK)	LOCATION	GRADE 60 (H)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	F FT. IN.	H FT. IN.	K FT. IN.	NOMINAL LENGTH FT. IN.	ACTUAL LENGTH FT. IN.	WEIGHT LBS.

BENDING DIAGRAMS

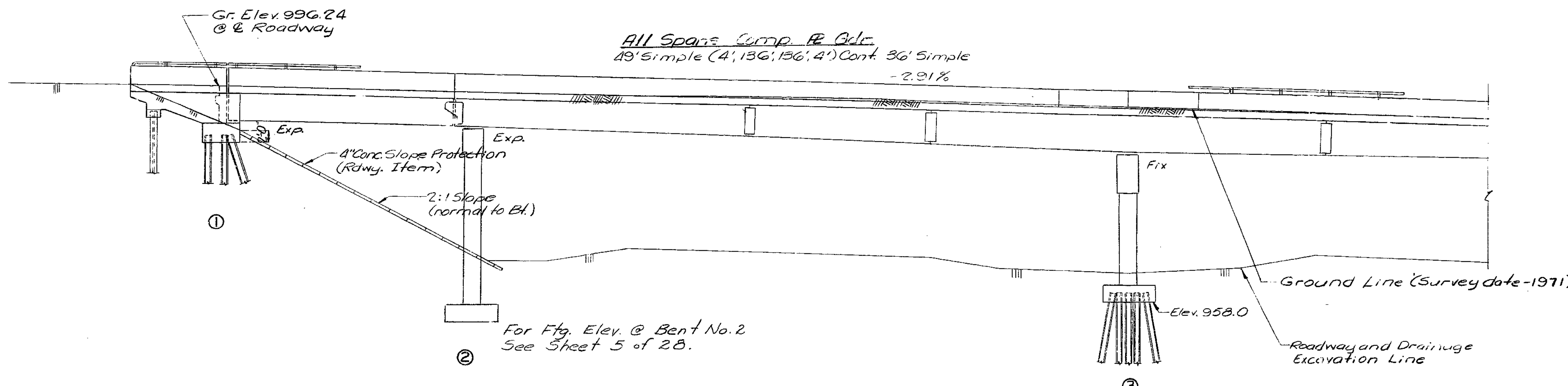


291

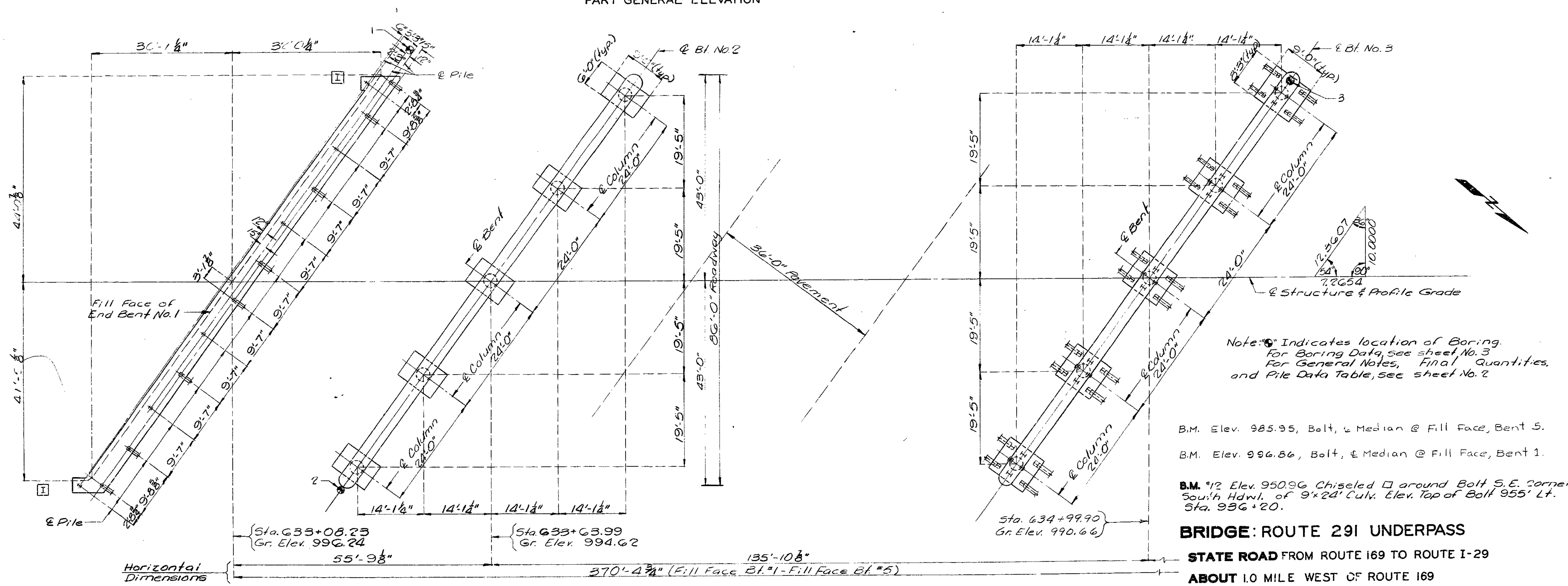
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	26	

FINAL PLANS



PART GENERAL ELEVATION



Note: Grade Elevations shown are taken at ℄ Roadway.

PART PLAN

BRIDGE: ROUTE 291 UNDERPASS

STATE ROAD FROM ROUTE 169 TO ROUTE I-29

ABOUT 1.0 MILE WEST OF ROUTE 169

PROJECT NO. I-435-1 (115) **STA.** 633+08.23

JOB NO. 4-I-435-50 **RTE.** I-435

PLATTE COUNTY

DATE July 27, 1977

STD. 611.60B
STD. 706.35
A-3287

DESIGNED Oct. 1973
DETAILED July 1975
CHECKED Sept. 1975

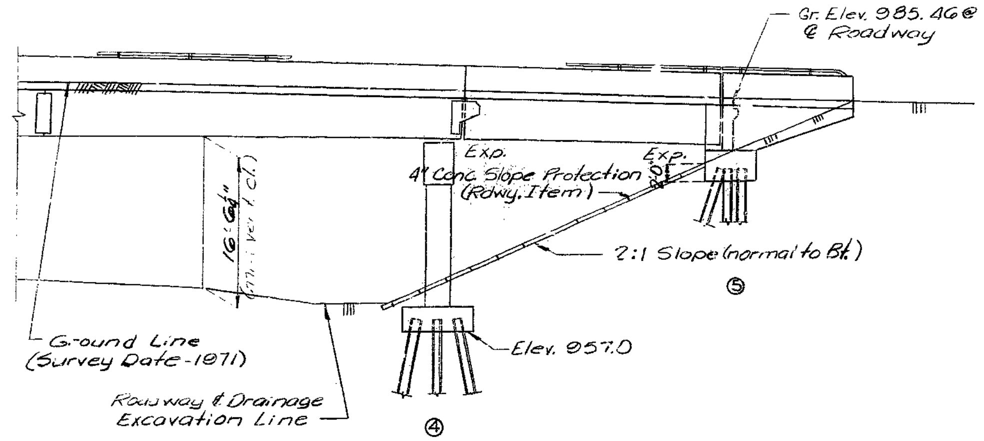
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 1A **of** 28.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	27	

MISSOURI STATE HIGHWAY DEPARTMENT

FINAL PLANS



PART GENERAL ELEVATION

PILE DATA						
BENT NO.		1	2	3	4	5
Bearing Pile	Pile Type and Size	HP10×42		HP10×42	HP10×42	HP10×42
	Number	16		40	25	14
	Approximate Length Ft.	32		12	12	28
	Design Bearing Tons	56		56	51	5[illegible]
	Hammer Energy Required Ft. Lbs.	14,[illegible]00		13,200	12,000	13,600
Spread Footings	Foundation Material		Rock			
	Design Bearing Tons/Sq. Ft.		4.8			

' Minimum energy requirement of hammer based on plan length and design bearing value of Piles.

All pile ~~shall be~~ was driven to practical refusal.

~~Prebored~~ Prebored piling to Elev. 948.0 at Int. Bent No. 3 and to Elev. 947.0 at Int. Bent No. 4. Cost of preboring ~~shall be~~ was included in price bid for Structural Steel Pile.

GENERAL NOTES:

Design Specifications: A.A.S.H.T.O. -1973
Design Loading: HS20-44 (No Future Wearing Surface)
Earth 120#, Equivalent Fluid Pressure 30#
Fatigue Stress: Case I

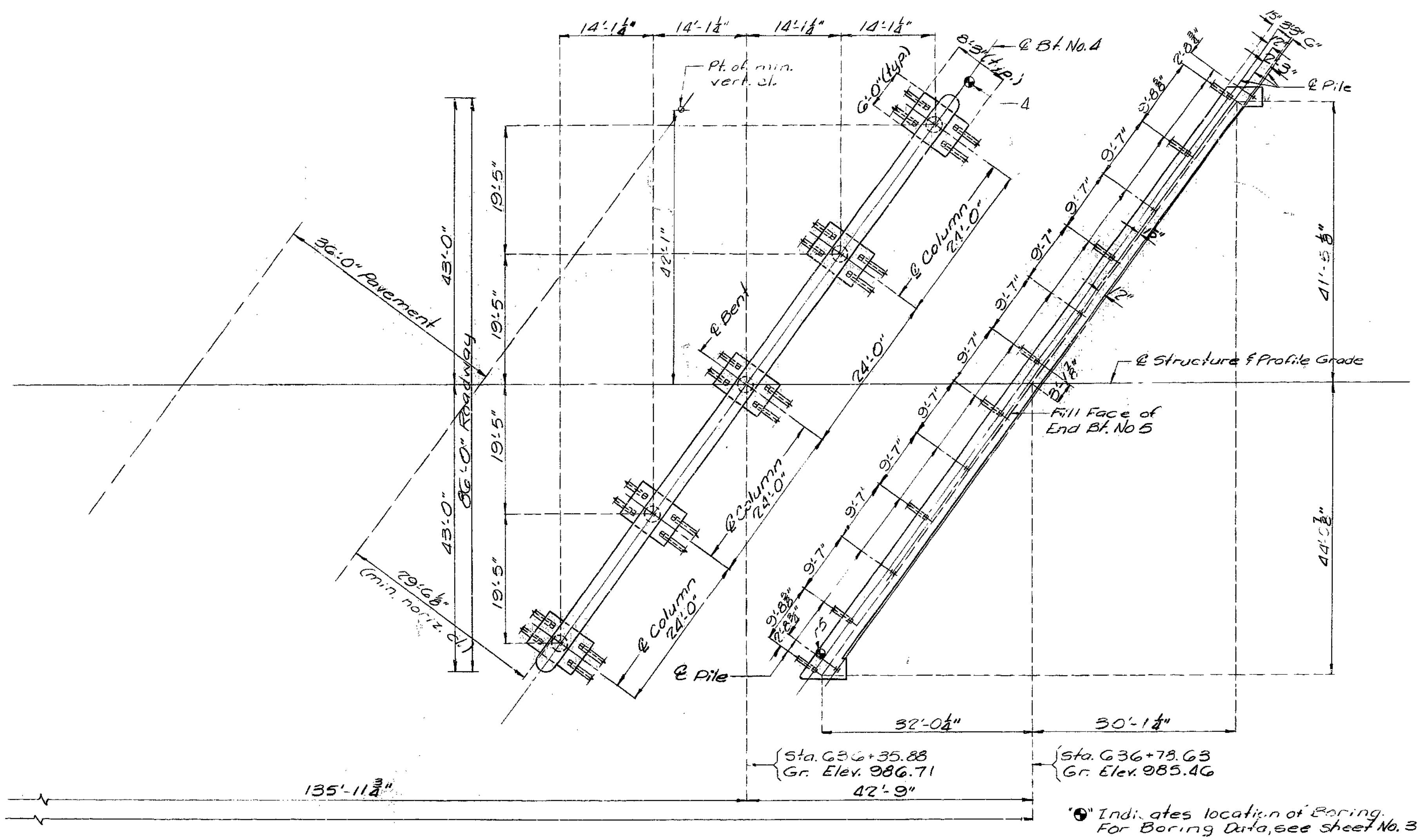
Design Unit Stresses:
Class B Concrete (Substructure) f'c = 1200 psi
Class B1 Concrete (Superstructure) f'c = 1600 psi.
Reinforcing Steel (Grade 60) fy = 60,000 psi.
Reinforcing Steel fs = 20,000 psi.
Structural Carbon Steel fs = 20,000 psi.
Structural Steel (A.S.T.M. A-5??) Grade 50 fs = 27,000 psi.
Steel Pile fb = 9,000 psi.

Fabricated Steel:
Field Connections, High Strength Bolts ¾"ϕ holes 13/16"ϕ except as noted.

Painting:
Paint: System B or C by Contractor in accordance with Std. Spec. 712.12 (final field coat to be green).

Reinforcing Steel:
Minimum clearance to reinforcing steel ~~shall be~~ was 1½" unless otherwise shown. All reinforcing bars in tops of beams ~~shall be~~ was spaced to clear anchor bolts for bearing by at least ½".

Payweight for fabricated steel ~~will be~~ was based on welded field splices regardless of type used.



PART PLAN

FINAL QUANTITIES				
ITEM		SUBSTR.	SUPERSTR.	TOTAL
Class 1 Excavation	Cu. Yd.	660		660
Asphalt Cement (Asphaltic Concrete)	Ton		17.6	17.6
Mineral Aggregate (Asphaltic Concrete) (special mix)	Ton		349.9	349.9
Structural Steel Pile (10")	Lin. Ft.	1770		1770
Class B Concrete	Cu. Yd.	756.7		756.7
Class B1 Concrete	Cu. Yd.		1046.1	1046.1
Steel Reinf. Elastomeric Exp. Jt. Seal (2.0")	Lin. Ft.		~~213~~	0
Reinforcing Steel (Grade 40)	Lb.	98610	8730	106340
Reinforcing Steel (Grade 60)	Lb.		247,000	247,000
Bridge Deck Waterproofing (Liquid)	Sq. Yd.		3095	3095
Fabricated Structural Carbon Steel	Lb.		836790	836790
Fabricated Structural Low Alloy Steel	Lb.		193,240	193,240
Painting	Ton		513.0	513.0
Bridge Rail (one tube)	Lin. Ft.		794	794
Test Holes	Lin. Ft.	36		36
502.01 Elast Exp Jt Seal 2 in.				213

All concrete and Reinforcement in Safety Barrier Curb is included with Superstructure Quantities.

6, 6 Ft. Test Holes in footings 1, 2, 3, 4 & 5 of bent No. 2. (Two test holes in ftg 4)

DETAILED July 1975
CHECKED Aug 1975

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

No. 2A of 28

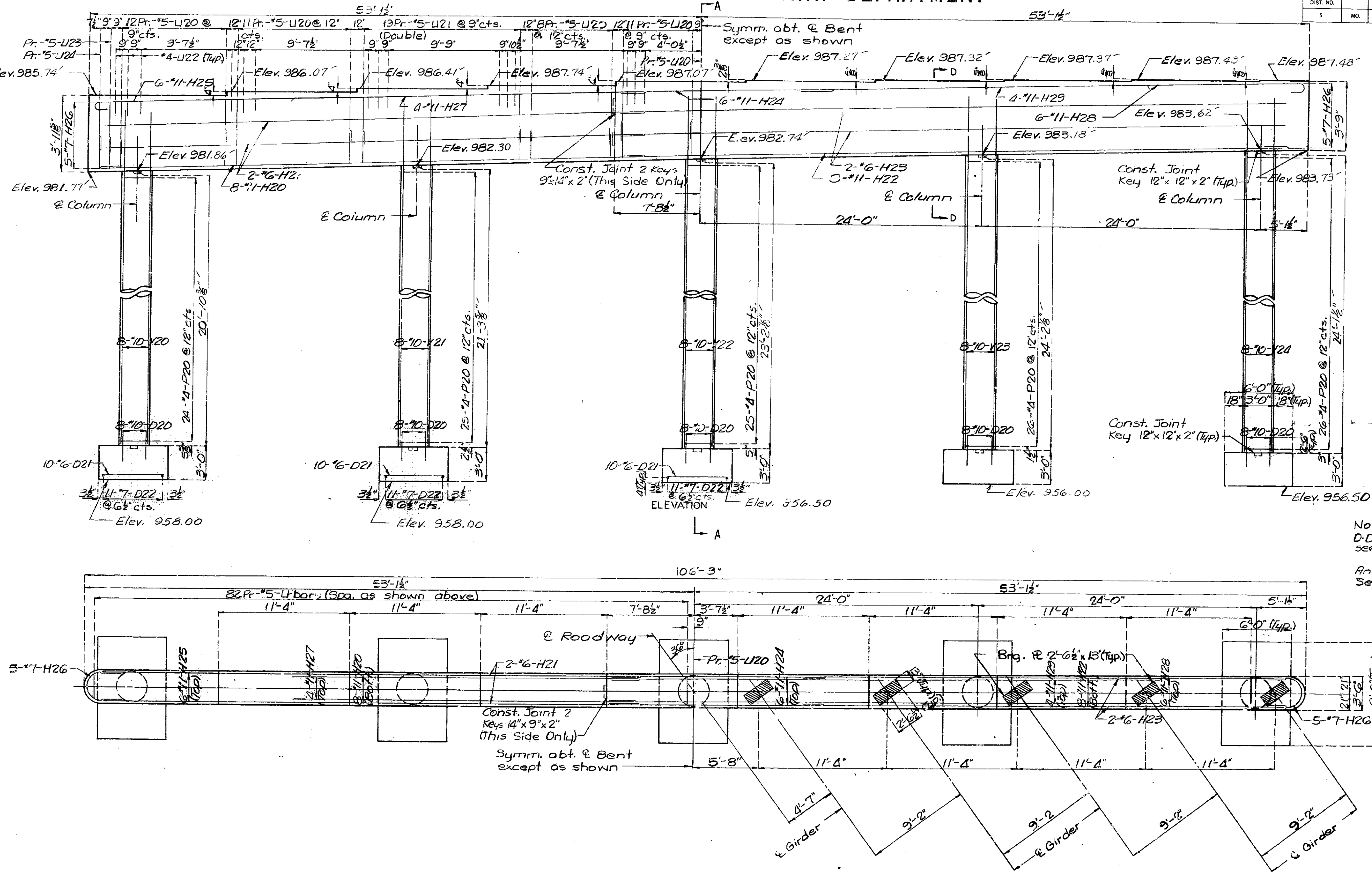
PLATTE COUNTY

A-3287

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	30	

FINAL PLANS



Note: For Section A-A, D-D & Plan of Footing see sheet No. 8
For Plan of Anchor Bolt Well See Sheet No. 16

DETAILED JULY 1975
CHECKED AUG. 1975

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

DETAILS INT. BENT NO. 2

Sheet No. 5A of 28.

PLATTE COUNTY

A-3287