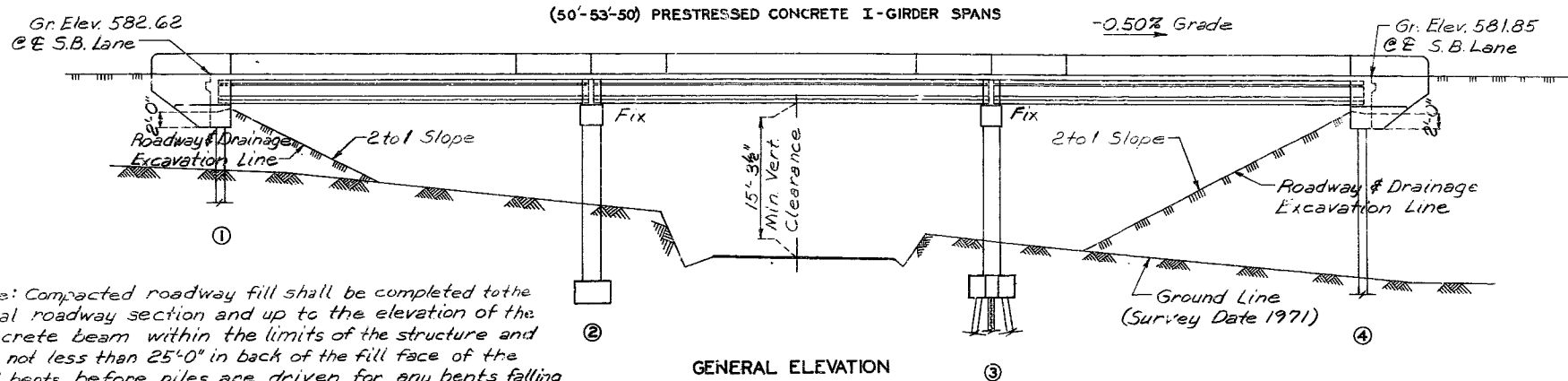


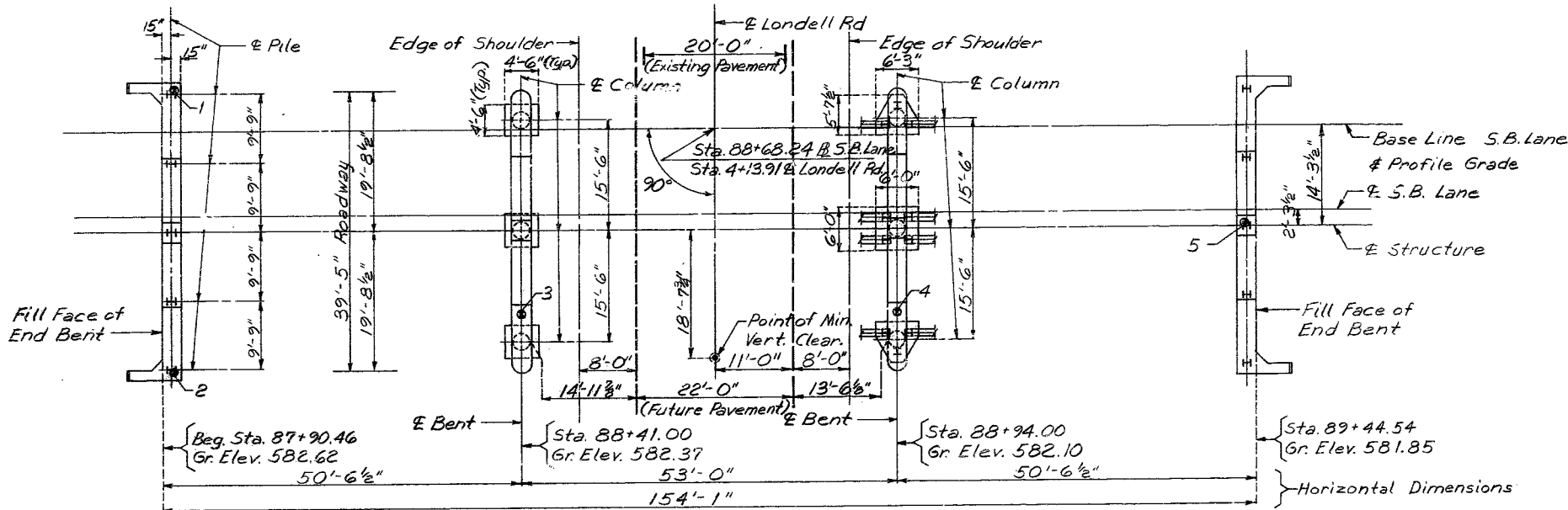
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.		30
SEC./SUR. 22	TWP. 43N	RGE. 5E



Note: Compacted roadway fill shall be completed to the final roadway section and up to the elevation of the concrete beam within the limits of the structure and for not less than 25'-0" in back of the fill face of the end bents before piles are driven for any bents falling within the embankment section.

Note: For bottom of footing elevations at Bents No. 2 & 3 see sheets No. 4 & 5



Note: Grade Elevations shown are of E.S.B. Lane.
For Boring Data see Sheet No. 2.
"•" Indicates location of boring
For Location Sketch see Sheet No. 2.

PLAN

GENERAL NOTES:

Design Specifications: A.A.S.H.T.O. - 1983 and Interims thru 1985
Load Factor Design

Design Loading:

H-20-44, 15/sq. ft. Future Wearing Surface
Earth 120/cu. ft. Equivalent Fluid Pressure 30*/cu. ft.
Superstructure: Simply supported non-composite for Dead Load.
Continuous composite for Live Load.

Design Unit Stresses:

Class B Concrete (Substructure) $f'_c = 3,000$ psi.
Class B1 Concrete (Safety Barrier Curb) $f'_c = 4,000$ psi.
Class B2 Concrete (Superstructure except Prestressed Girders and Safety Barrier Curb) $f'_c = 4,000$ psi.
Reinforcing Steel (Grade 60) $F_y = 60,000$ psi.
Steel Pile $F_b = 3,000$ psi.
For Prestressed Girder Stresses see Girder Sheets.

Reinforcing Steel:

Minimum clearance to reinforcing steel shall be 1 1/2" unless otherwise shown.

Joint Filler:

All joint filler shall meet the requirements of Std. Spec. 1057.2.4, except as noted.

Bearings:

Bearings shall be 60 durometer Neoprene Pads.

Construction Clearance:

A minimum vertical clearance of 14'-0" from crown of existing lanes and a minimum lateral clearance of 28'-0" centered on existing lanes shall be maintained during construction.

ESTIMATED QUANTITIES			
ITEM		SUBSTR.	SUPERSTR. TOTAL
Class I Excavation	Cu. Yd.	130	130
Structural Steel Pile (10")	Lin. Ft.	525	525
Class B Concrete	Cu. Yd.	85.5	85.5
() Slab on Concrete I-Girders, see Spec. Prov. Sq. Yd.			720 720
Safety Barrier Curb	Lin. Ft.		340 340
Plain Neoprene Bearing Pads	Each		30 30
Prestressed Concrete Members, I-Gdr. (50")	Each		10 10
Prestressed Concrete Members, I-Gdr. (53")	Each		5 5
Reinforcing Steel	Lb.	9220	9220
Pile Point Reinforcement	Each	20	20
Abutment Vertical Drain	Lump Sum		1

Note: Cost of furnishing, fabricating and installing Neoprene Bearing Pads complete in place, will be paid for at the contract unit price for Plain Neoprene Bearing Pads per each.

All concrete between the upper and lower construction joints in end bents is included in the estimated superstructure quantities for Slab on Concrete I-Girders, see Special Provisions.

All reinforcement in the end bents is included with superstructure quantities.

B.M. #117-80d Spika in Power Pole @ Ground Level
710' ± Rt of Sta. 87+65 ± E. NBL. Elev. 626.95

BRIDGE OVER LONDELL ROAD

STATE ROAD RTE. 21 S.B.L. FROM CTTO TO RTE. 141

ABOUT 1 MILE SOUTH OF RTE. 141

PROJECT NO. STA. 87+90.46

JOB NO. 6-U-21-256B RTE. 21

JEFFERSON COUNTY

DATE 3/12/87

STD.
STD. 706.35
A-3099

ESTIMATED QUANTITIES FOR ALTERNATE SLABS			
TYPE OF SLAB	REINF. (LBS.)		CONC. (CU. YD.)
	EPOXY	PLAIN	
Cast-In-Place Conventional Forms	45,920	6,290	229.0
Precast Panel Forms	28,130	6,290	188.0*

Note: The table of Estimated Quantities for Alternate Slabs represents the quantities used by the state in preparing the cost estimate for concrete slabs. Variations may be encountered in the estimated quantities but these variations cannot be used for an adjustment in the Contract Unit Price per square yard of Alternate Slab used.

See Special Provisions for alternate methods of forming slabs.
* Based on minimum top flange thickness and minimum joint filler thickness.

PILE & FOOTING DATA				
BENT NO.		1	2	3
				4
BEARING PILE	Pile Type and Size	HP10x42	HP10x42	HP10x42
	Number	5	3	4
	Approximate Length Ft.	15	18	20
	Design Bearing Tons	47	56	47
SPREAD FOOTINGS	Foundation Material		Rock	
	Design Bearing Tons/Sq. Ft.		10.7	

Minimum energy requirement of hammer based on plan length and design bearing value of piles.
All pile shall be driven to practical refusal.
Manufactured pile point reinforcement shall be used on all piles in this structure. See Special Provisions.

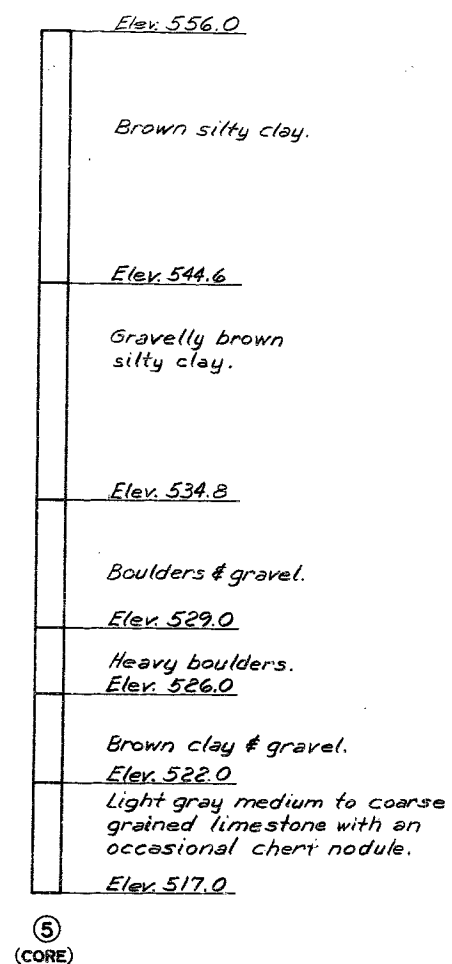
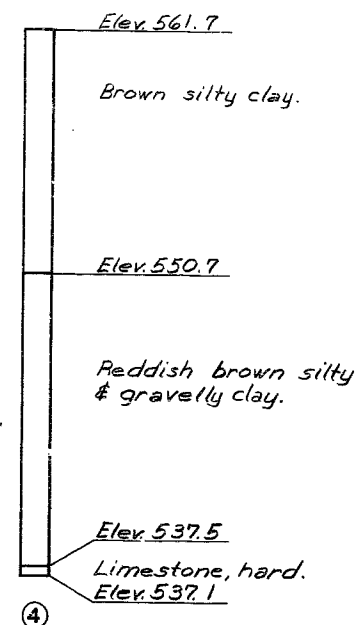
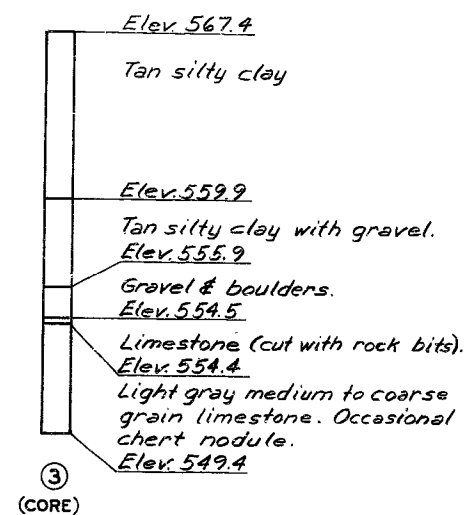
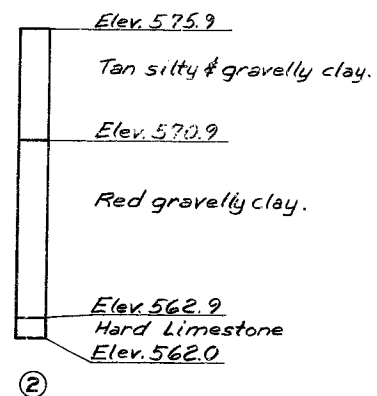
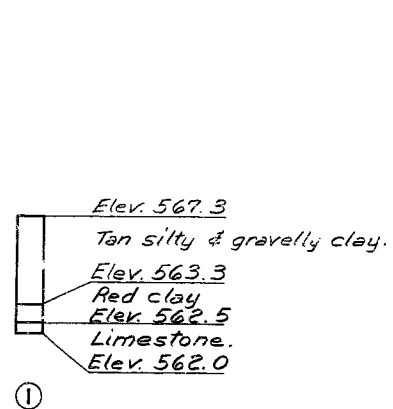
SEE FINAL PLANS

Sheet No. 1 of 15.

DESIGNED AUG. 1978
DETAILED JAN. 1980
CHECKED MAY 1983

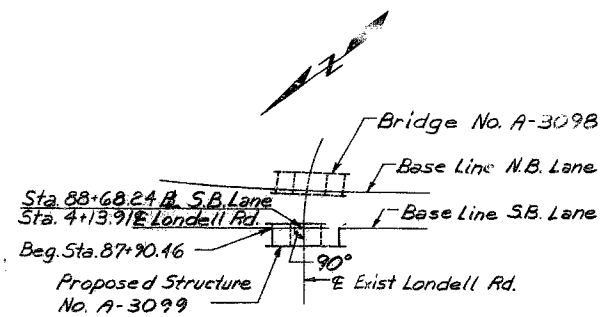
Note: This drawing is not to scale. Follow dimensions.

STATE	PROJ NO	SHEET NO
MO.		40



BORING DATA

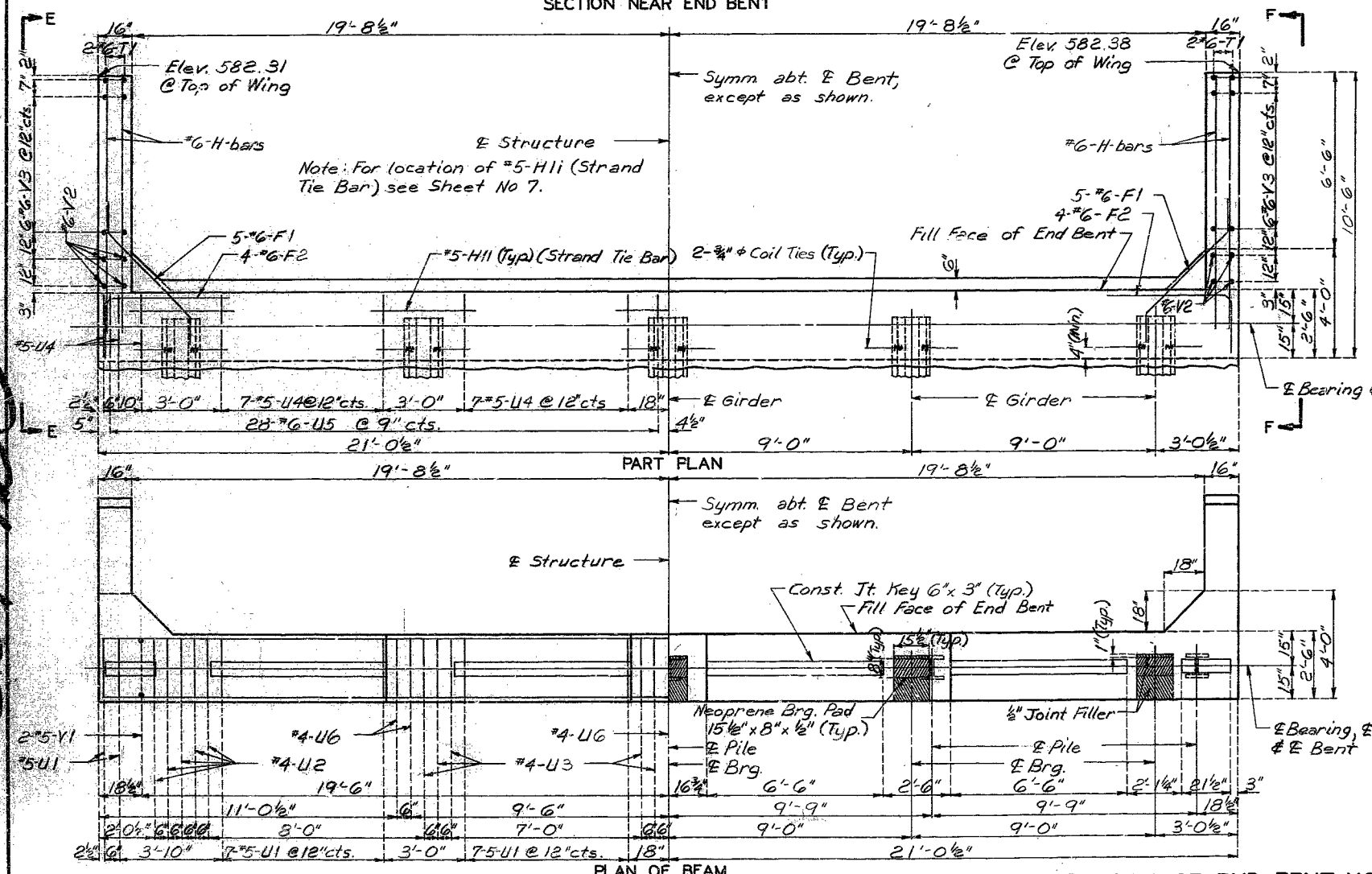
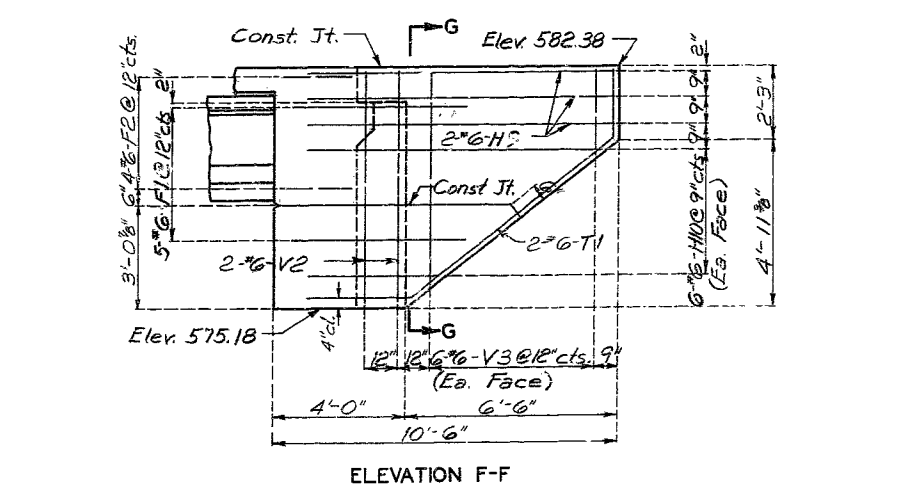
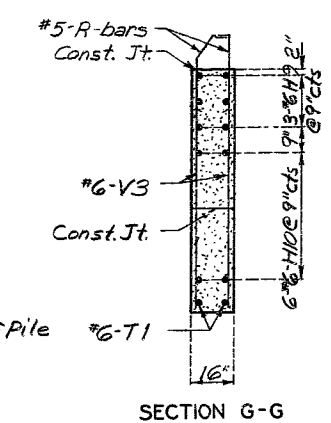
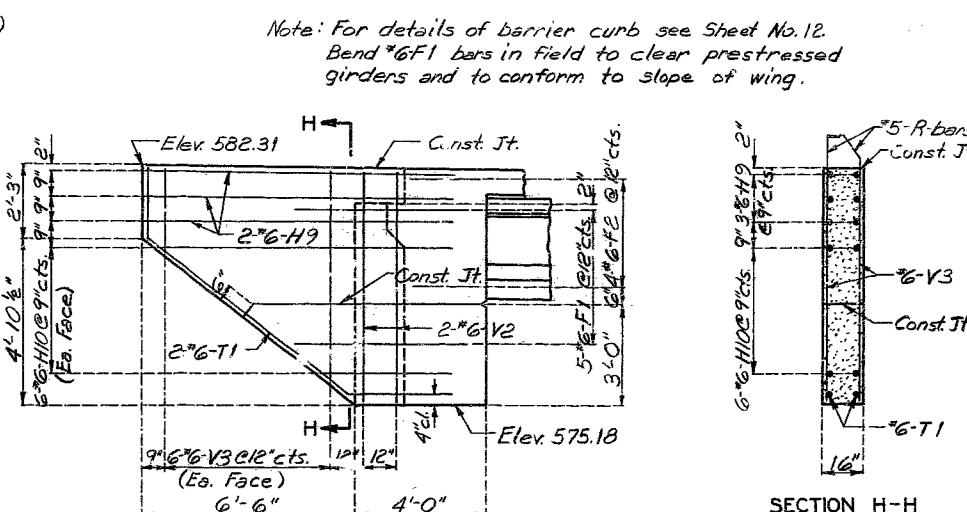
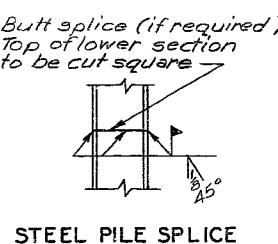
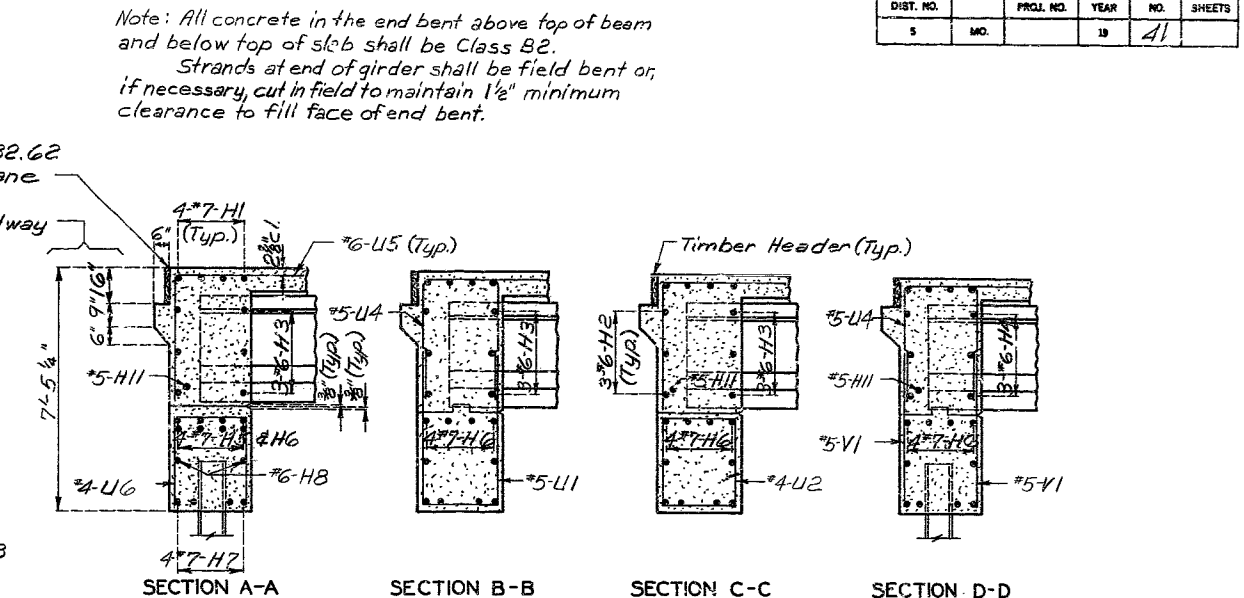
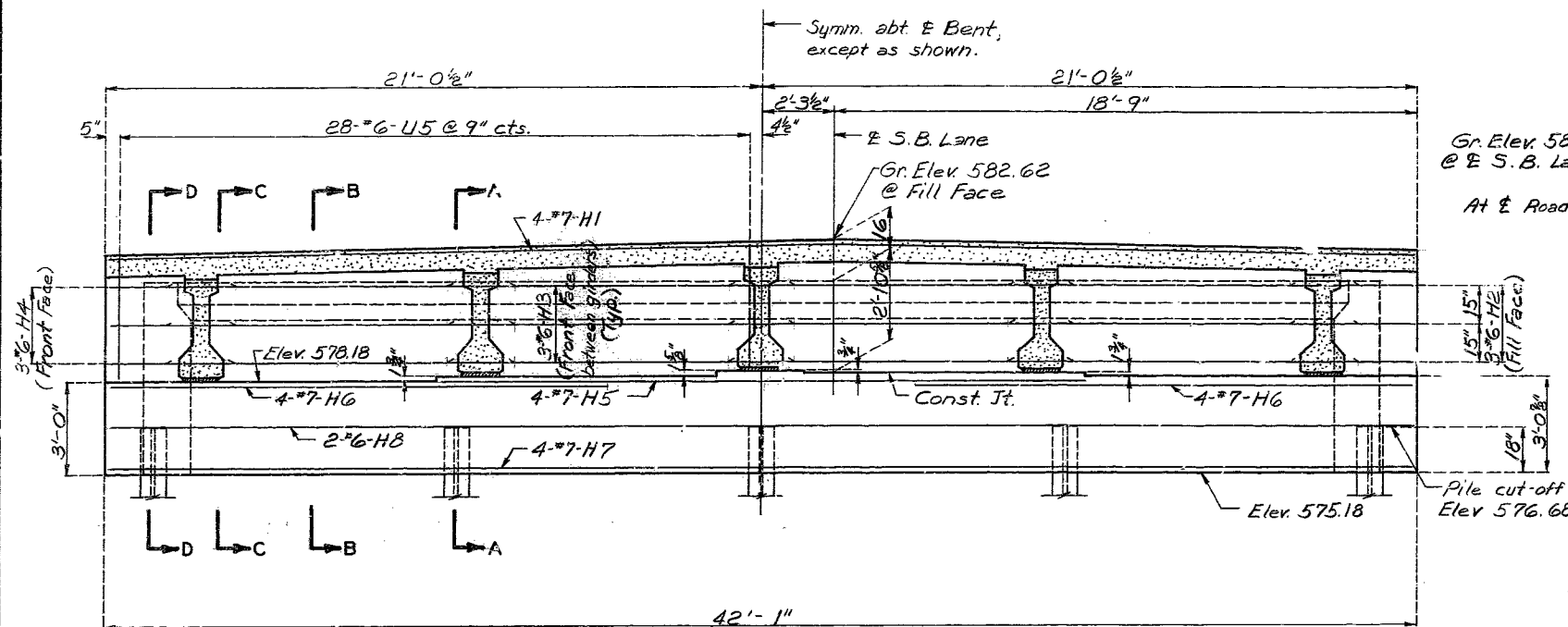
Note: See sheet No 1 for location of borings.



LOCATION SKETCH

330/59

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



DETAILS OF END BENT NO. 1

DETAILED APRIL 1979
CHECKED MAY 1980

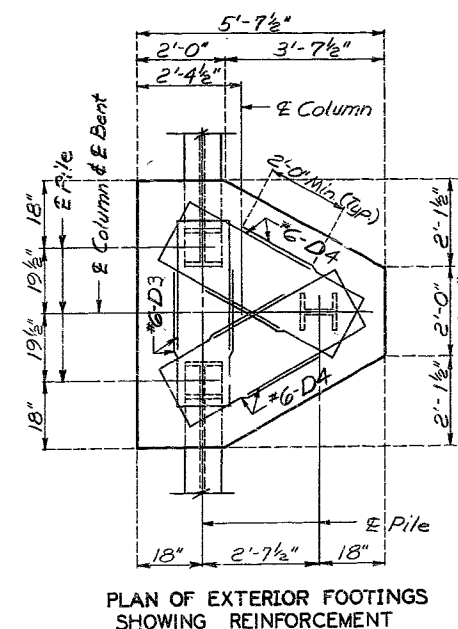
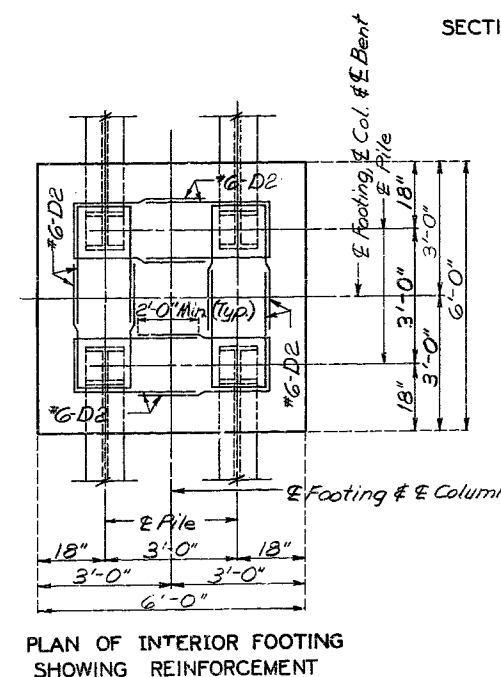
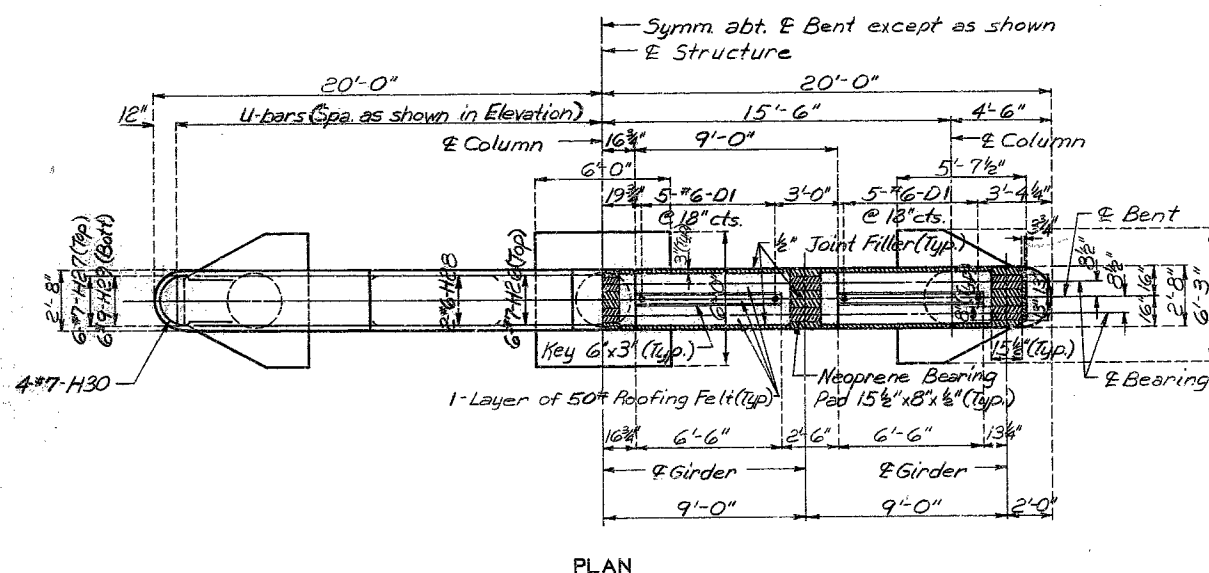
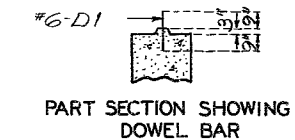
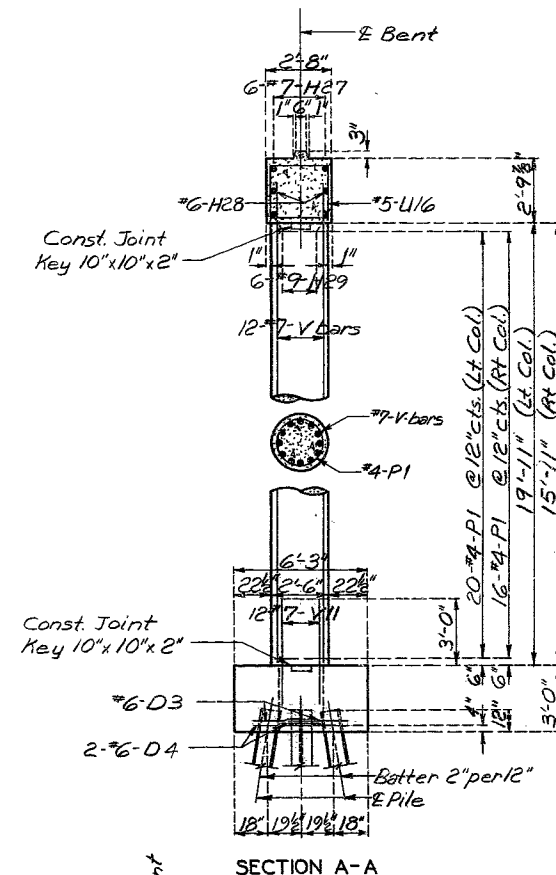
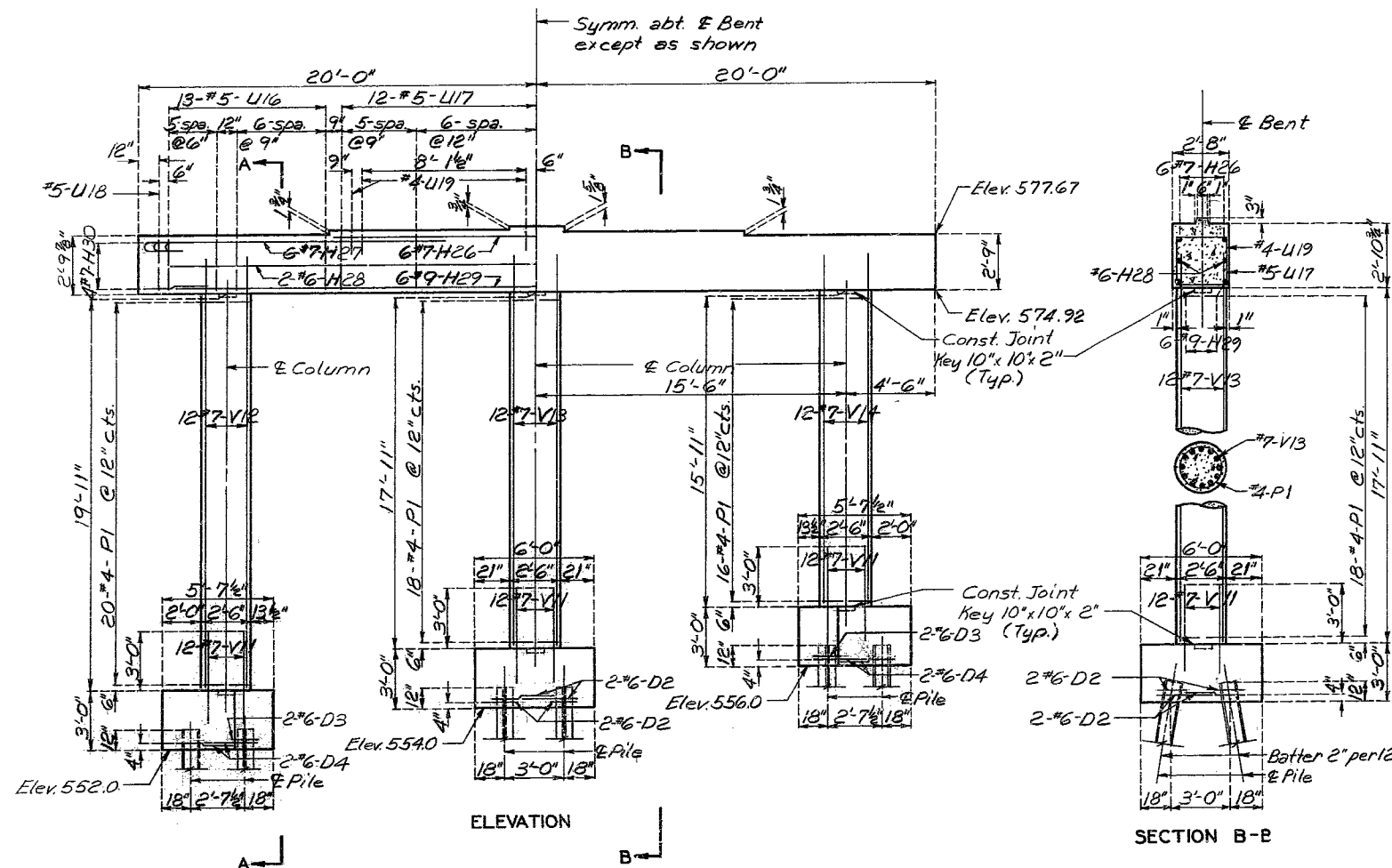
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 3 of 15.

JEFFERSON COUNTY

A-3099

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



DETAILS OF INTERMEDIATE BENT NO. 3

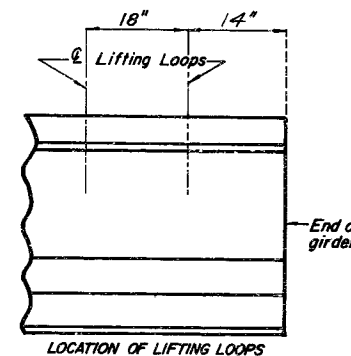
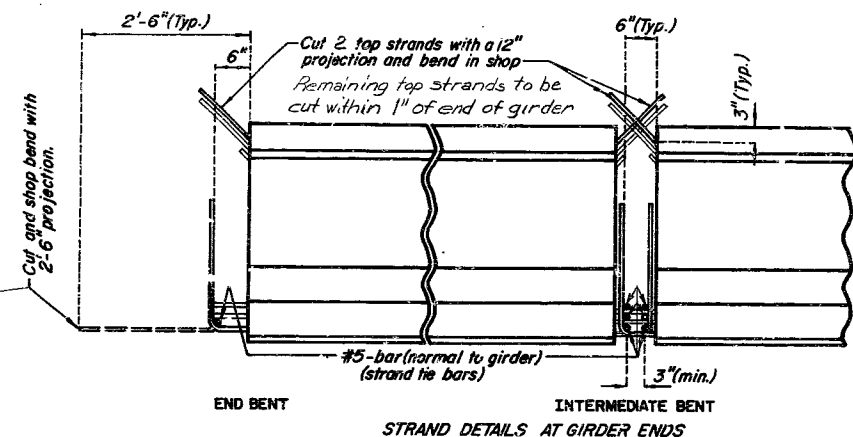
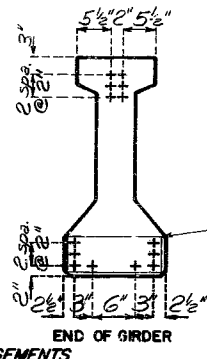
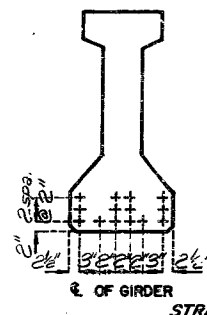
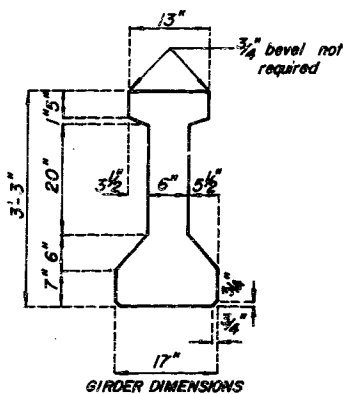
DETAILED FEB. 1979
CHECKED MAY 1980

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

Sheet No. 5 of 15.

JEFFERSON COUNTY

A-3099



NOTES:
CONCRETE FOR PRESTRESSED GIRDERS SHALL BE CLASS A1 WITH $f'c = 5,000$ psi.
(+) INDICATES PRESTRESSED STRAND.
USE 14 STRANDS WITH AN INITIAL PRESTRESS FORCE OF 405 KIPS.
COIL TIES SHALL BE HELD IN PLACE IN THE FORMS BY SLOTTED WIRE-SETTING-STUDS PROJECTING THRU FORMS. STUDS ARE TO BE LEFT IN PLACE OR REPLACED WITH TEMPORARY PLUG UNTIL GIRDERS ARE ERECTED AND THEN REPLACED BY COIL TIE RODS.

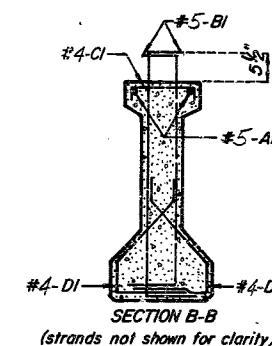
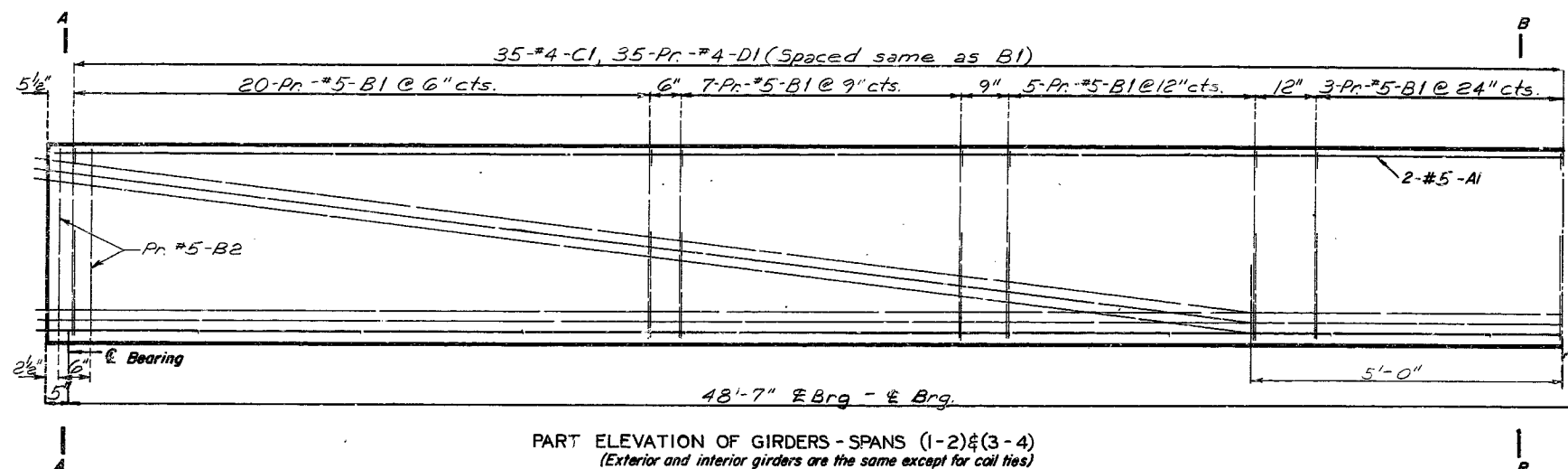
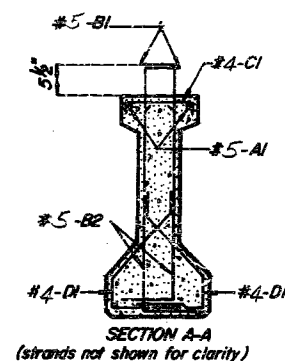
Note: Prestressing tendons shall be uncoated seven-wire 1/2 inch diameter conforming to A.A.S.H.T.O. M203, Grade 270.

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

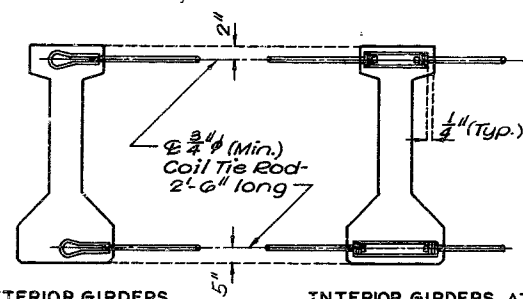
BILL OF REINFORCING STEEL - EACH GIRDER			
NO.	SIZE & MARK	LENGTH	SHAPE
2	5 A1	49'-2"	20
138	5 B1	4'-9"	11
8	5 B2	3'-9"	19
69	4 C1	13"	10
138	4 D1	2'-11"	9

BENDING DIAGRAMS	
SHAPE 9	SHAPE 10
SHAPE 11	SHAPE 20
SHAPE 12	SHAPE 19

NOTE: ALL DIMENSIONS ARE OUT TO OUT.
WHERE DEFLECTING STRANDS INTERFERE WITH PLACEMENT, SOME IN-PLACE BENDING MAY BE NECESSARY.
Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures stirrup and tie dimensions.
Actual lengths are measured along centerline bar to the nearest inch.
Minimum clearance to reinforcing shall be 1"
All reinforcement shall be Grade 60.



Note: For details of Intermediate Diaphragms 1 1/2" ϕ holes in web, see Sheet No. 9.



EXTERIOR GIRDERS AT INT. BENTS
INTERIOR GIRDERS AT ALL BENTS
EXTERIOR GIRDERS AT END BENTS
DETAILS OF COIL TIES

Note: For location of coil ties see Sheets No. 3, 6 & 9.
Cost of 3/4" ϕ coil tie rods placed in diaphragms is included in contract unit price for prestressed concrete members.

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

DETAILED APRIL 1979
CHECKED MAY 1980

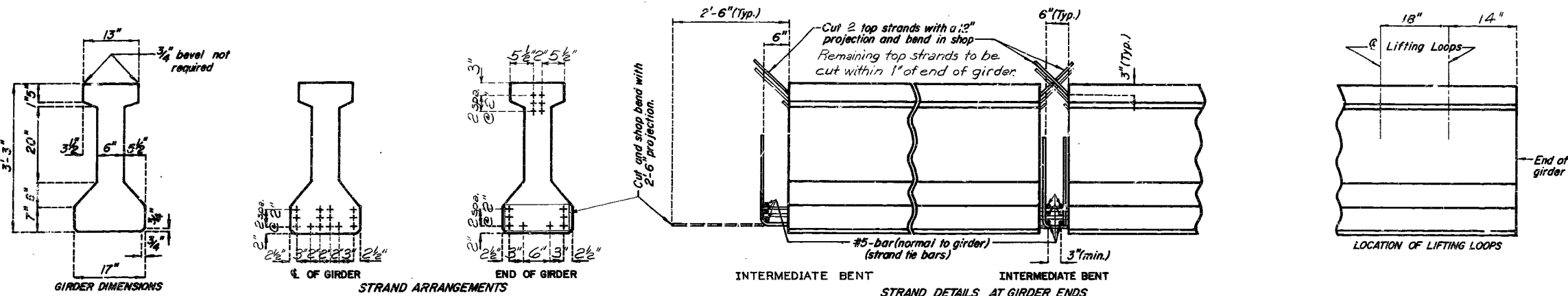
Sheet No. 7 of 15.

JEFFERSON COUNTY

A-3099

335 164

DES 553.6
REV 1973
JAN 1980



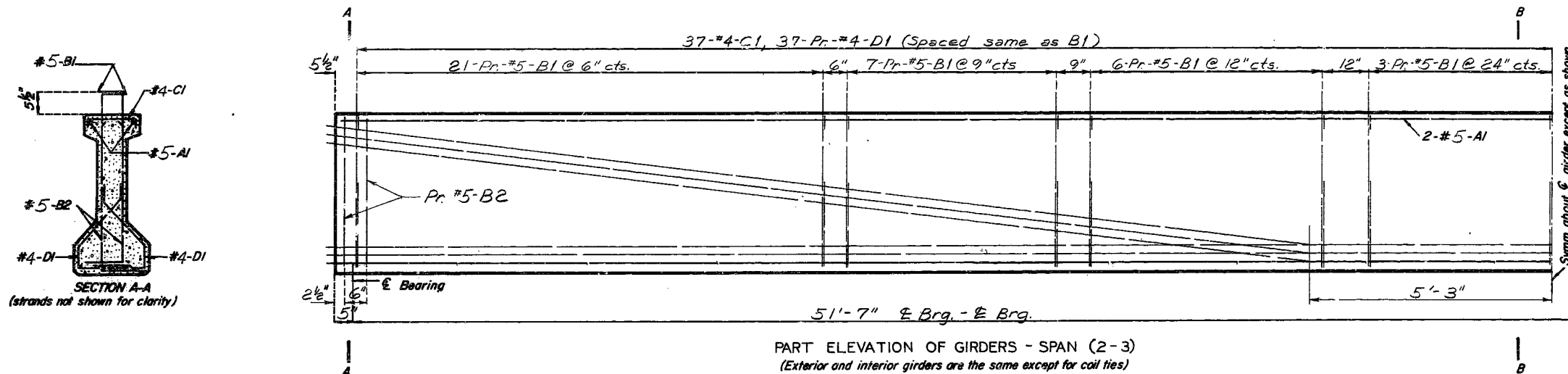
NOTES:
CONCRETE FOR PRESTRESSED GIRDERS SHALL BE CLASS A: WITH $f'_c = 5,000$ psi.
(*) INDICATES PRESTRESSED STRAND.
USE 14 STRANDS WITH AN INITIAL PRESTRESS FORCE OF 405 KIPS.
COIL TIES SHALL BE HELD IN PLACE IN THE FORMS BY SLOTTED WIRE-SETTING-STUDS PROJECTING THRU FORMS. STUDS ARE TO BE LEFT IN PLACE OR REPLACED WITH TEMPORARY PLUG UNTIL GIRDERS ARE ERECTED AND THEN REPLACED BY COIL TIE RODS.

Note: Prestressing tendons shall be uncoated seven-wire $\frac{1}{2}$ inch diameter conforming to A.A.S.H.T.O. M203, Grade 270.

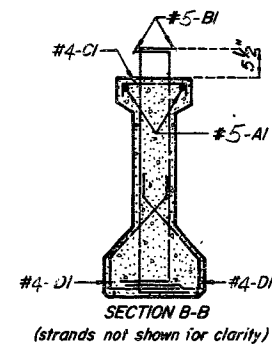
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	46	

BILL OF REINFORCING STEEL - EACH GIRDER					
NO.	SIZE & MARK	LENGTH	SHAPE	BENDING DIAGRAMS	
2	5 A1	52'-2"	20	SHAPE 11	
146	5 B1	4'-9"	11	SHAPE 9	
8	5 B2	3'-9"	19	SHAPE 10	
73	4 C1	13"	10	SHAPE 20	
146	4 D1	2'-11"	9	SHAPE 19	

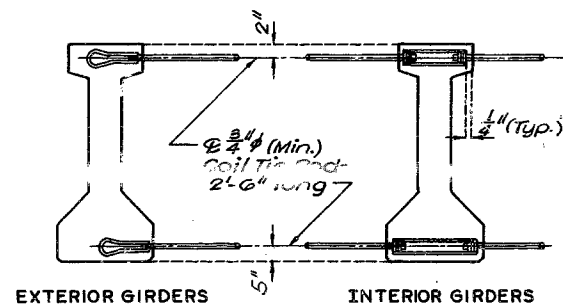
NOTE: ALL DIMENSIONS ARE OUT TO OUT.
WHERE DEFLECTING STRANDS INTERFERE WITH PLACEMENT, SOME IN-PLACE BENDING MAY BE NECESSARY.
Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures stirrup and tie dimensions.
Actual lengths are measured along centerline bar to the nearest inch.
Minimum clearance to reinforcing shall be 1".
All reinforcement shall be Grade 60.



SECTION A-A
(strands not shown for clarity)



Note: The $1\frac{1}{2}$ " ϕ holes shall be cast in web. Drilling is not allowed.



DETAILS OF COIL TIES
AT INT. BENTS

Note: For details of Intermediate Diaphragms $\frac{1}{2}$ " ϕ holes in web, see Sheet No. 9.
For location of coil ties see Sheet No. 9.

Note: Cost of $\frac{3}{4}$ " ϕ coil tie rods placed in diaphragms is included in contract unit price for prestressed concrete members.

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

DETAILED APRIL 1979
CHECKED MAY 1980

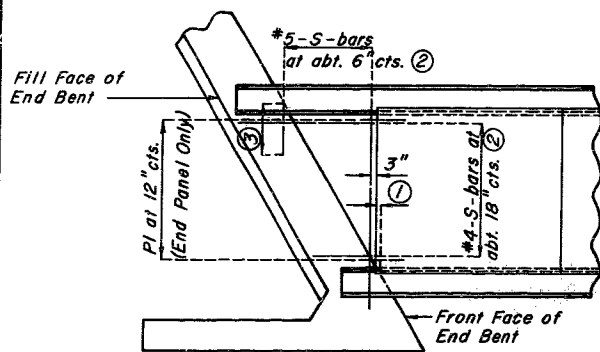
Sheet No. 8 of 15.

JEFFERSON COUNTY

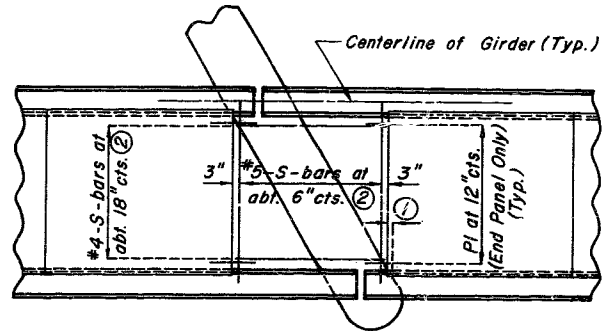
A-3099

336 165

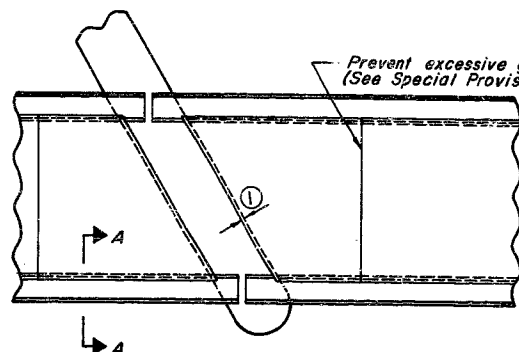
SPS 553.6
April 1979
Revised
JAN 1980



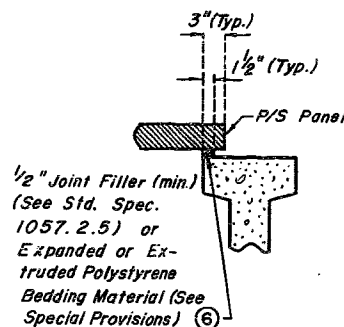
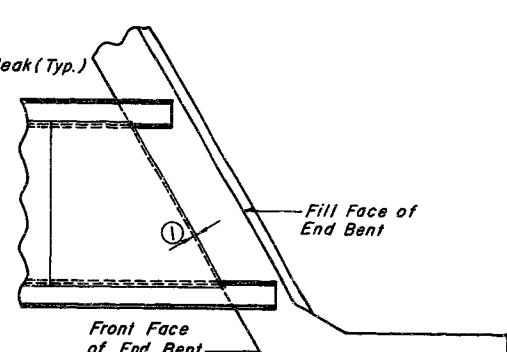
PANELS - SQUARED ENDS



PLAN OF PRECAST PRESTRESSED PANELS PLACEMENT



PANELS - SKEWED ENDS



SECTION A-A

NOTE:
USE SLAB HAUNCHING DIAGRAM ON SHEET NO. 10 FOR DETERMINING THICKNESS OF JOINT FILLER OR POLYSTYRENE BEDDING MATERIAL WITHIN THE LIMITS NOTED BELOW.

GENERAL NOTES:

PRESTRESSED PANELS:
CONCRETE FOR PRESTRESSED PANELS SHALL BE CLASS A1 WITH $F'_c = 5,000$ PSI, $F'_t = 3,500$ PSI.

THE TOP SURFACE OF ALL PANELS SHALL RECEIVE A SCORED FINISH WITH A DEPTH OF SCORING OF 1/4 INCH PERPENDICULAR TO THE PRESTRESSING STRANDS IN THE PANELS (SEE SPECIAL PROVISIONS).

PRESTRESSING TENDON SHALL BE HIGH-TENSILE STRENGTH UNCOATED SEVEN-WIRE (7) LOW RELAXATION STRANDS FOR PRESTRESSED CONCRETE CONFORMING TO AASHTO M203 EXCEPT THAT NOMINAL DIAMETER OF STRAND = 3/8 INCH AND NOMINAL AREA = 0.085 SQ. IN. AND MINIMUM ULTIMATE STRENGTH = 23,000 LBS. (270 KSI). LARGER STRANDS MAY BE USED WITH THE SAME SPACING AND INITIAL TENSION.

INITIAL PRESTRESSING FORCE = 17.2 KIPS/STRAND.
THE METHOD AND SEQUENCE OF RELEASING THE STRANDS SHALL BE SHOWN ON THE SHOP DRAWINGS.

SUITABLE ANCHORAGE DEVICES FOR LIFTING PANELS MAY BE CAST IN PANELS PROVIDED THEY ARE SHOWN ON THE SHOP DRAWINGS AND APPROVED BY THE ENGINEER. PANEL LENGTHS SHALL BE DETERMINED BY THE CONTRACTOR AND SHOWN ON THE SHOP DRAWINGS.

WHEN SQUARE END PANELS ARE USED AT SKEWED BENTS IT IS REQUIRED THAT THE SKEWED PORTION BE CAST FULL DEPTH. NO SEPARATE PAYMENT WILL BE MADE FOR THE ADDITIONAL CONCRETE AND REINFORCING REQUIRED.

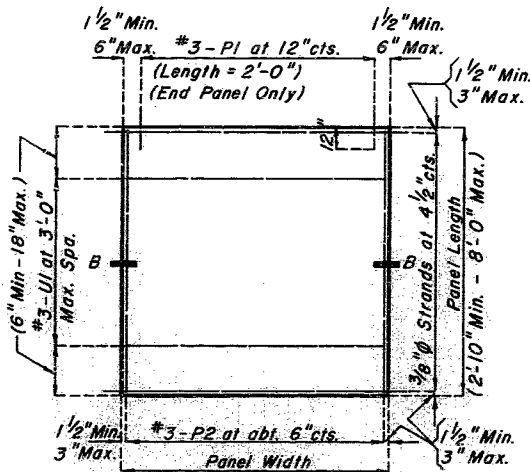
MINIMUM JOINT FILLER OR POLYSTYRENE BEDDING MATERIAL THICKNESS SHALL BE 1/2 INCH. THICKER JOINT FILLER OR POLYSTYRENE BEDDING MATERIAL MAY BE USED ON ONE OR BOTH SIDES OF THE GIRDER TO REDUCE CAST-IN-PLACE CONCRETE THICKNESS WITHIN TOLERANCES. NO MORE THAN 2 INCHES TOTAL THICKNESS OF JOINT FILLER OR POLYSTYRENE BEDDING MATERIAL SHALL BE USED.

THE SAME THICKNESS OF JOINT FILLER MATERIAL SHALL BE USED UNDER ANY ONE EDGE OF ANY PANEL AND THE MAXIMUM CHANGE IN THICKNESS BETWEEN ADJACENT PANELS SHALL BE 1/4 INCH. THE POLYSTYRENE BEDDING MATERIAL MAY BE CUT TO MATCH HAUNCH HEIGHT ABOVE TOP OF FLANGE.

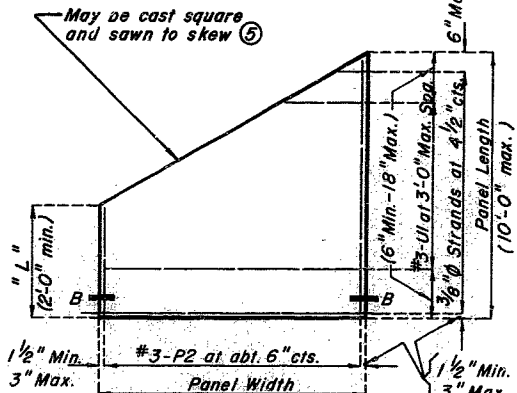
AT THE CONTRACTOR'S OPTION THE VARIATION IN SLAB THICKNESS OVER PRESTRESSED PANELS MAY BE ELIMINATED OR REDUCED BY INCREASING AND VARYING THE GIRDER TOP FLANGE THICKNESS. DIMENSIONS SHALL BE SHOWN ON THE SHOP DRAWINGS.

NOTE:

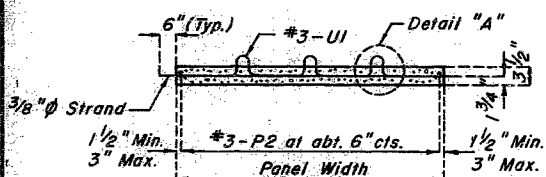
- END PANEL TO BE DIMENSIONED 1 1/2 INCH INSIDE FACE OF DIAPHRAGM.
- S-BARS SHOWN ARE BOTTOM STEEL IN SLAB BETWEEN PANELS AND USED WITH SQUARED END PANELS ONLY.
COST OF S-BARS SHALL BE INCLUDED IN PRICE BID FOR SLAB PER SQ. YD.
S-BARS ARE NOT LISTED IN BILL OF REINFORCING.
SUPPORT FROM DIAPHRAGM FORMS REQUIRED UNDER OPTIONAL SKEWED END UNTIL CAST-IN-PLACE CONCRETE HAS REACHED 3,000 PSI COMPRESSIVE STRENGTH.
- EXTEND S-BARS 18 INCHES BEYOND FRONT FACE OF END BENT ONLY.
SLAB EXTERIOR GIRDER HAUNCH TO BE THE SAME AS CAST-IN-PLACE.
SLAB THICKNESS OVER PRESTRESSED PANELS VARIES DUE TO GIRDER CAMBER.
- IN ORDER TO MAINTAIN MINIMUM SLAB THICKNESS IT MAY BE NECESSARY TO RAISE THE GRADE UNIFORMLY THROUGHOUT THE STRUCTURE. NO PAYMENT WILL BE MADE FOR ADDITIONAL LABOR OR MATERIALS REQUIRED FOR NECESSARY GRADE ADJUSTMENT.
- ANY STRAND 2'-0" OR SHORTER SHALL HAVE A #4 REINFORCING BAR ON EACH SIDE OF IT CENTERED BETWEEN STRANDS. STRANDS 2'-0" OR SHORTER MAY THEN BE DEBONDED AT FABRICATOR'S OPTION.
- ALL PANEL SUPPORT PADS SHALL BE GLUED TO THE GIRDER. WHEN SUPPORT THICKNESS EXCEEDS 1 1/2 INCH THE PADS SHALL BE GLUED TOP AND BOTTOM. THE GLUE USED SHALL BE THE TYPE RECOMMENDED BY THE PANEL SUPPORT PADS MANUFACTURER.



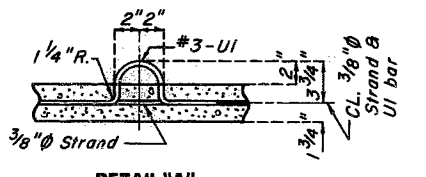
PLAN OF PRECAST PRESTRESSED PANEL



PLAN OF PRECAST PRESTRESSED PANEL (SKEWED END-OPTIONAL)



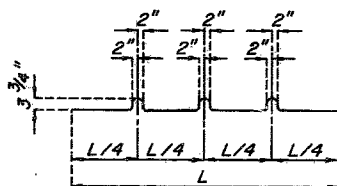
SECTION B-B



DETAIL "A"

REINFORCING STEEL:

ALL DIMENSIONS ARE OUT TO OUT.
MINIMUM CLEARANCE TO REINFORCING STEEL SHALL BE 1 1/2 INCH UNLESS OTHERWISE SHOWN.
HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE C.R.S.I. MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES, STIRRUP AND TIE DIMENSIONS.
ACTUAL LENGTHS ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.
THE PRESTRESSED PANEL QUANTITIES ARE NOT INCLUDED IN THE TABLE OF ESTIMATED QUANTITIES FOR ALTERNATE SLABS.
IF U1 BARS INTERFERE WITH PLACEMENT OF SLAB STEEL, U1 LOOPS MAY BE BENT OVER AS NECESSARY TO CLEAR SLAB STEEL.
WELDED WIRE FABRIC OR WELDED DEFORMED BAR MATS PROVIDING A MINIMUM AREA OF REINFORCING PERPENDICULAR TO STRANDS OF 0.22 SQ. IN./FT. WITH SPACING PARALLEL TO STRANDS SUFFICIENT TO INSURE PROPER HANDLING MAY BE USED IN LIEU OF THE #3-P2 BARS SHOWN. WIRE OR BAR DIAMETER SHALL NOT BE LARGER THAN 0.375 INCHES.



BENDING DIAGRAM FOR U1 BAR

#3-U1 BARS MAY BE ORIENTED AT RIGHT ANGLES TO LOCATION AND SPACING SHOWN. U1 BARS SHALL BE PLACED BETWEEN P1 BARS.

DETAILS OF PRECAST PRESTRESSED PANELS

Sheet No. 11 of 15

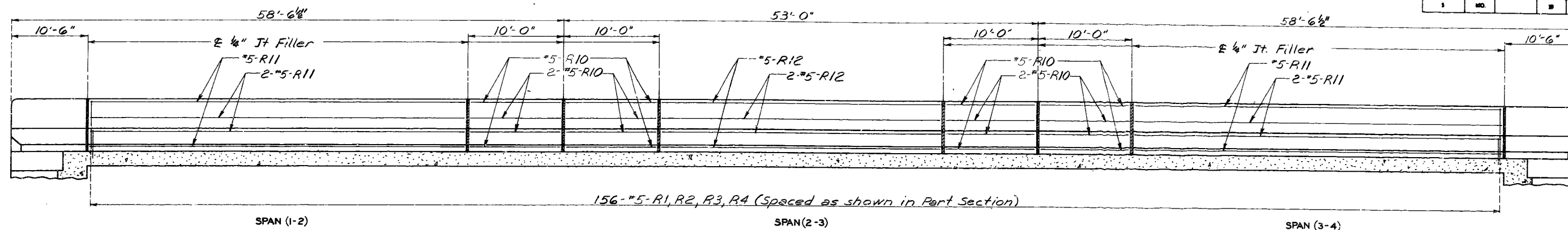
JEFFERSON COUNTY

A-3099

DETAILED SEPT. 1985
CHECKED SEPT. 1985

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

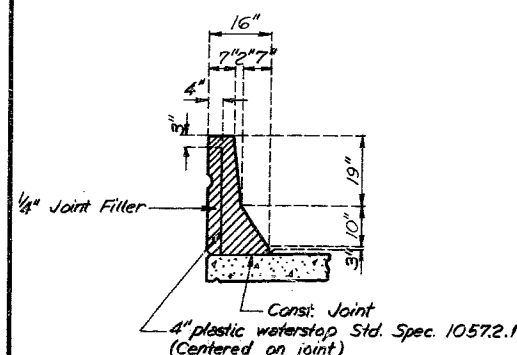
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MO.		8	50	



156-#5-R1,R2,R3,R4 (Spaced as shown in Part Section)

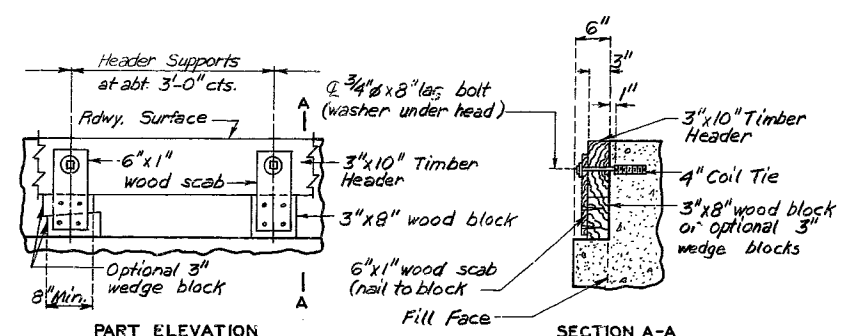
SECTION NEAR LEFT BARRIER CURB

Note: Longitudinal dimensions shown are horizontal.



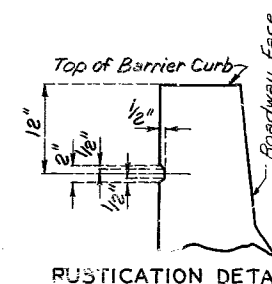
Note: Plastic waterstop shall be placed in all safety barrier curb filled joints.
Cost of plastic waterstop complete in place to be included in unit price bid for concrete.

DETAILS OF PLASTIC WATERSTOP



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

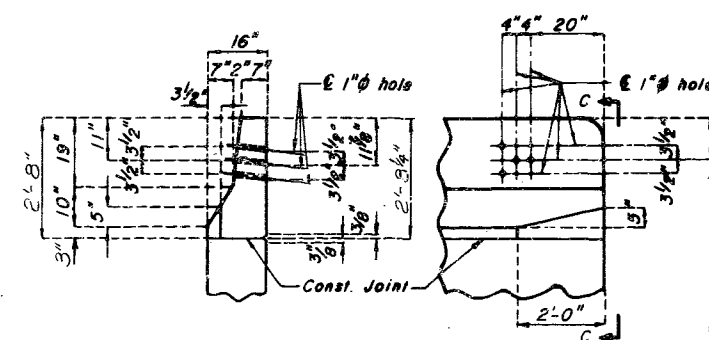
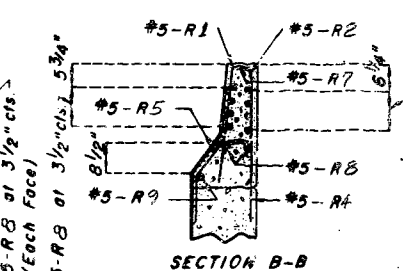
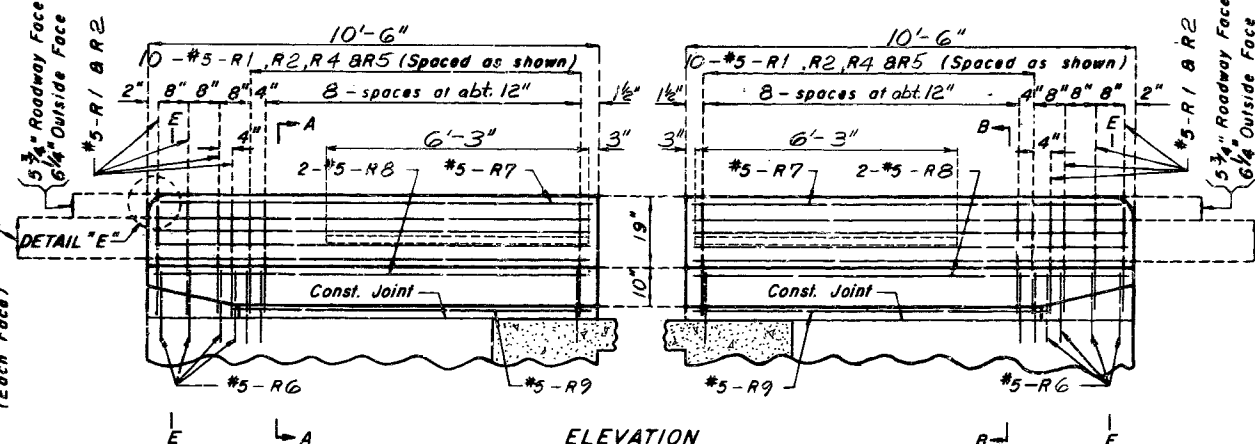
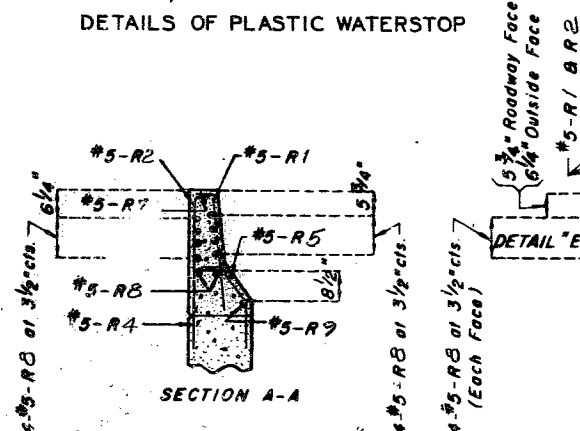
DETAILS OF TIMBER HEADER AT END BENTS



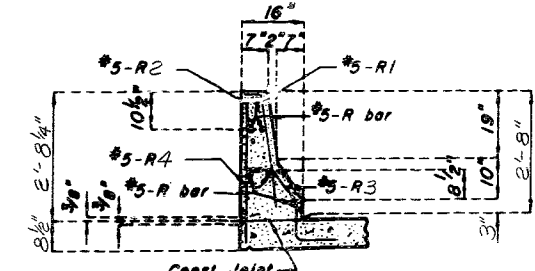
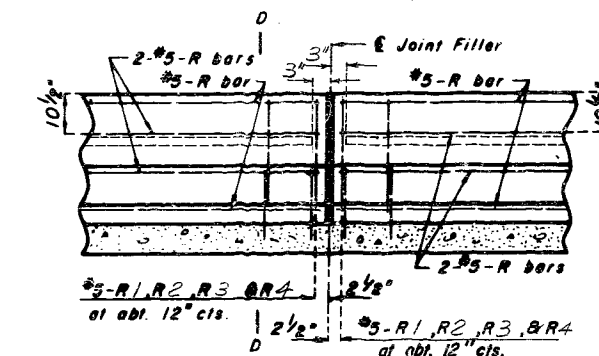
RUSTICATION DETAIL

NOTES:

Top 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.
When the barrier curb is bid by linear feet, the contract unit price shall include the cost of all concrete and reinforcement, complete in place.
Concrete in the safety barrier curb shall be Class B1.
Measurement of safety barrier curb is to the nearest linear foot for each structure, measured along the outside top of slab from end of wing to end of wing.



DETAILS OF GUARD RAIL ATTACHMENT



Note: Use a minimum lap of 17" for #5 horizontal barrier bars.

PART SECTION NEAR LEFT BARRIER CURB

Sheet No. 12 of 15 SEE FINAL PLANS

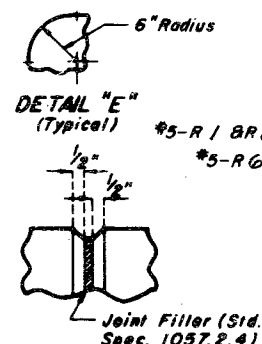
JEFFERSON COUNTY

A-3099

DETAILS OF BARRIER CURB AT END BENTS

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

FILLED JOINT DETAIL

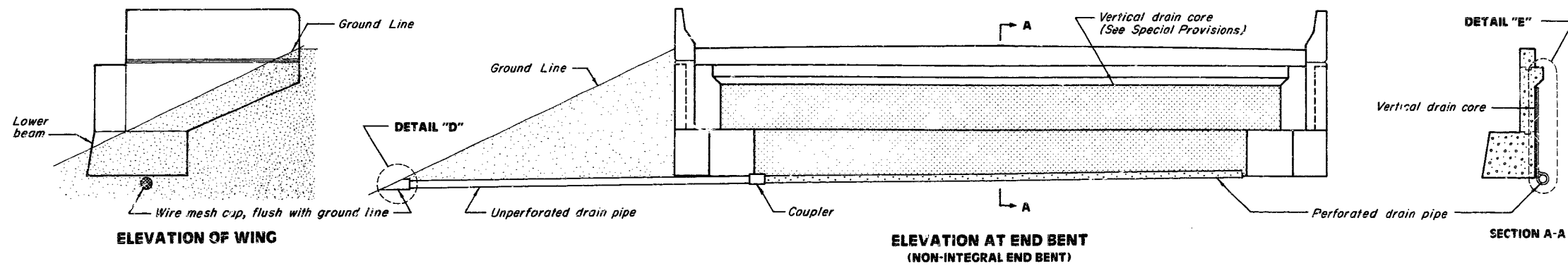


340 169

STD. L78(17) REVISED
AUG 1978 NOV 1979
CHECKED MAY 1980

DETAILED APRIL 1978
CHECKED MAY 1980

STATE	PROJ NO	SHEET NO
MO		51

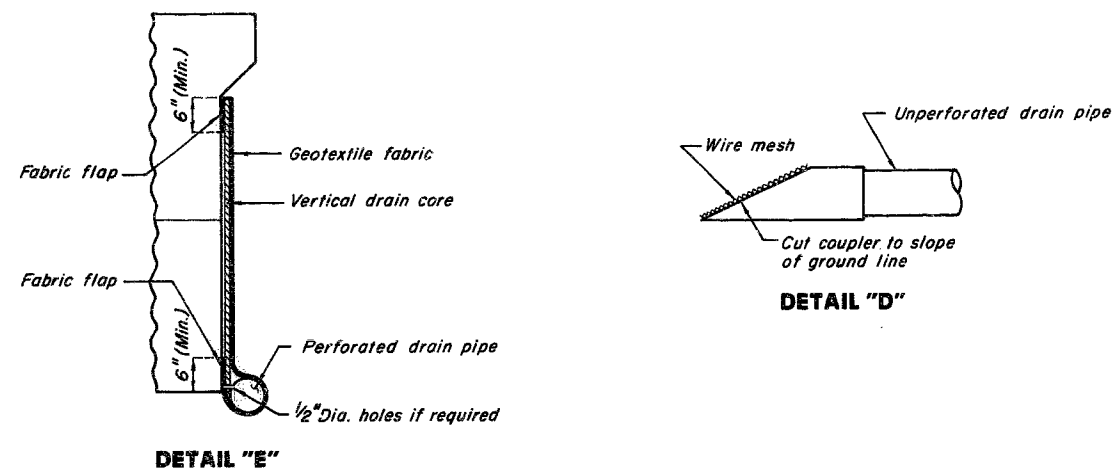
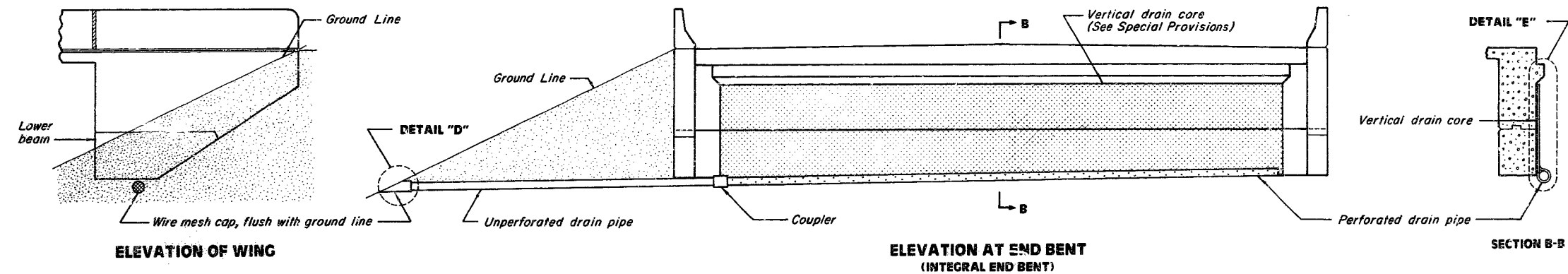


GENERAL NOTES:

DRAIN PIPE MAY BE EITHER 6" DIAMETER CORRUGATED METALLIC COATED STEEL PIPE UNDERDRAIN, 4" DIAMETER CORRUGATED POLY VINYL CHLORIDE (PVC) DRAIN PIPE, OR 4" DIAMETER CORRUGATED POLYETHYLENE (PE) DRAIN PIPE.

PLACE DRAIN PIPE 1/2" FROM FACE OF END BENT AND SLOPE TO LOWEST GRADE OF GROUND LINE, ALSO MISSING THE LOWER BEAM OF END BENT BY 1/2". (SEE ELEVATION AT END BENT)

PERFORATED PIPE SHALL BE PLACED AT FILL FACE SIDE AT THE BOTTOM OF END BENT AND PLAIN PIPE SHALL BE USED WHERE THE VERTICAL DRAIN ENDS TO THE EXIT AT GROUND LINE.



ABUTMENT VERTICAL DRAIN

SEE FINAL PLANS

344 170

Abut. Vert. Drain
MARCH 1986
Revised
SEPT. 1986

DETAILED FEB. 1987
CHECKED FEB. 1987

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

Sheet No. 13 of 15

JEFFERSON COUNTY

A-3099

348

REVISED
NOV. 1979
MAY 1974
MAY 1980
CHECKED

COMPLETE BILL OF REINFORCING STEEL

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

COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO.	LOCATION	EPCXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS												NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT		
									B		C		D		E		F		H					K	
									FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.				FT.	IN.
4	7H1	DIAPH.	E 20						41	10.000									41	10	41	10	342		
3	6H2	DIAPH.		20					41	10.000									41	10	41	10	189		
12	6H3	DIAPH.		20					7	4.000									7	4	7	4	132		
6	6H4	DIAPH.		20					2	1.000									2	1	2	1	19		
4	7H5	BEAM		20					20	6.000									20	6	20	6	168		
8	7H6	BEAM		20					14	11.000									14	11	14	11	244		
4	7H7	BEAM		20					41	10.000									41	10	41	10	342		
2	6H8	BEAM		20					41	10.000									41	10	41	10	126		
12	6H9	WING		20					9	5.000									9	5	9	5	170		
24	6H10	WING		20			V 4		9	1.500									9	2	9	2			
		INCR = 12.250 IN							4	1.000									4	1	4	1	239		
5	5H11	DIAPH		20					3	11.000									3	11	3	11	20		
4	6T1	WING		25					2	0.500	7	8.375	3	2.000			4	7.250	6	2.000	12	11	12	10	77
32	5U1	BEAM		10	S					4	5.625	2	3.000						11	2	11	0	367		
10	4U2	BEAM		13	S				2	3.000	2	9.000	2	3.000	2	9.000			10	9	10	6	70		
10	4U3	BEAM		13	S				2	3.000	2	10.750	2	3.000	2	10.750			11	1	10	10	72		
34	5U4	DIAPH	E 10	S					3	10.500	2	3.000							10	0	9	10	349		
58	6U5	DIAPH	E 19	S					3	10.500	4	0.500							7	11	7	9	675		
5	4U6	BEAM		10	S					2	10.750	2	3.000						8	1	7	11	26		
4	5V1	BEAM		20					4	3.000									4	3	4	3	18		
8	6V2	WING		20					6	10.000									6	10	6	10	82		
24	6V3	WING		20			V 4		6	3.500									6	4	6	4			
		INCR = 9.000 IN							2	6.500									2	7	2	7	161		
		END BT NO 4																							
10	6F3	WING BRACE		23					14.125	4	4.500	14.125	10.000	10.000	10.000	10.000	6	9	6	8			100		
8	6F4	DIAPH		19					4	6.000	2	3.000							6	9	6	7	79		
6	7H35	DIAPH	E 20						41	10.000									41	10	41	10	513		
3	6H36	DIAPH		20					41	10.000									41	10	41	10	189		
12	6H37	DIAPH		20					7	4.000									7	4	7	4	132		
6	6H38	DIAPH		20					2	1.000									2	1	2	1	19		
4	7H39	BEAM		20					20	6.000									20	6	20	6	168		
8	7H40	BEAM		20					14	11.000									14	11	14	11	244		
4	7H41	BEAM		20					41	10.000									41	10	41	10	342		
2	6H42	BEAM		20					41	10.000									41	10	41	10	126		
12	6H43	WING		20					9	5.000									9	5	9	5	170		
24	6H44	WING		20			V 4		9	0.750									9	1	9	1			
		INCR = 12.250 IN							3	11.625									4	0	4	0	236		
5	5H45	DIAPH		20					3	11.000									3	11	3	11	20		
4	6T2	WING		25					2	0.500	7	7.250	3	2.000			4	6.000	6	1.500	12	10	12	9	77
32	5U21	BEAM		10	S					4	5.625	2	3.000						11	2	11	0	367		
10	4U22	BEAM		13	S				2	3.000	2	9.000	2	3.000	2	9.000			10	9	10	6	70		
10	4U23	BEAM		13	S				2	3.000	2	10.750	2	3.000	2	10.750			11	1	10	10	72		
34	5U24	DIAPH	E 10	S					3	10.250	2	3.000							10	0	9	9	349		
56	6U25	DIAPH	E 19	S					3	10.250	4	0.500							7	11	7	9	652		
5	4U26	BEAM		10	S					2	10.750	2	3.000						8	1	7	11	26		
4	5V16	BEAM		20					4	3.000									4	3	4	3	18		
8	6V17	WING		20					6	9.000									6	9	6	9	82		
24	6V18	WING		20			V 4		6	2.375									6	2	6	2			
		INCR = 8.750 IN							2	6.250									2	6	2	6	154		

343 172

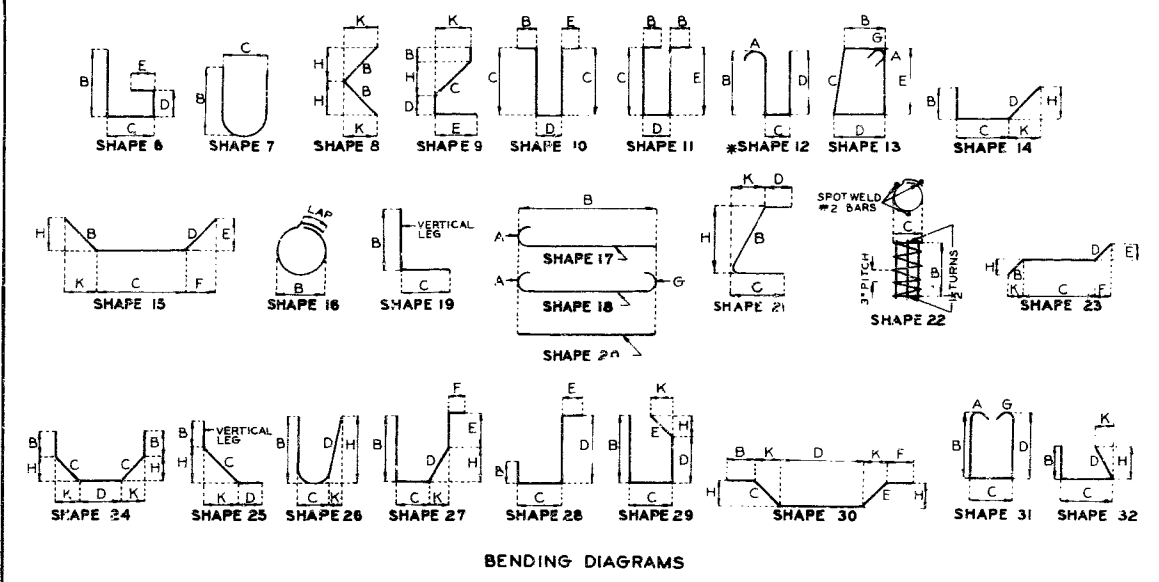
STD. 90.8.5
MAY 1974
REVISED
NOV 1979

DETAILED MAY 1980
CHECKED MAY 1980

Note: This drawing is not to scale. Follow dimensions

Sheet No 15 of 15 SEE FINAL PLANS

JEFFERSON COUNTY A-3099



COMPLETE BILL OF REINFORCING STEEL																												
NO.	REQD.	MARK NO.	MARK	LOCAT	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS										NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT					
											B	C	D	E	F	H	K	FT.	IN.	FT.				IN.	FT.	IN.	FT.	IN.
32	6H52			DIAPH AT INT BT		20					7	1.000											7	1	7	1	340	
32	4H53			DIAPH AT INT BT		20					8	0.000											8	0	8	0	171	
16	5H54			DIAPH AT INT RT		20					3	6.000											3	6	3	6	58	
32	5H55			DIAPH AT INT BT		19					2	9.500	10.000										3	8	3	6	117	
36	5H56			DIAPH AT INT BT		20					3	11.000											3	11	3	11	147	
24	5H57			DIAPH AT INT RT		20					2	8.000											2	8	2	8	67	
32	6U31			DIAPH AT INT RT	E	28	S							2	2.500	3	4.875	14.000					6	9	6	6	312	
98	4U32			DIAPH AT INT RT	E	28	S							2	0.500	3	4.875	12.000					6	5	6	5	409	
368	5R1			BARRIER CURB	E	15	S				2	6.125	3.500						2	6.000	3.000		2	10	2	9	1056	
368	5R2			BARRIER CURB	E	19	S				2	6.000	3.500										2	10	2	8	1024	
312	5R3			BARRIER CURB	E	27	S					6.000		11.125	7.000	12.000		9.125	6.375			3	0	2	10	922		
352	5R4			BARRIER CURB	E	19	S					17.000	9.000										2	2	2	1	765	
40	5R5			BARRIER CURB	E	27	S					6.000		11.125	7.875			9.125	6.375			2	1	2	0	83		
16	5R6			BARRIER CURB	E	10	S						23.500	6.000									4	5	4	3	71	
4	5R7			BARRIER CURB	E	20					9	10.500											9	11	9	11	41	
42	5R8			BARRIER CURB	E	20					10	3.000											10	3	10	3	449	
4	5R9			BARRIER CURB	E	20					8	6.000											8	6	8	6	35	
48	5R10			BARRIER CURB	E	20					9	9.000											9	9	9	9	488	
24	5R11			BARRIER CURB	E	20					37	9.000											37	9	37	9	945	
12	5R12			BARRIER CURB	E	20					32	9.000											32	9	32	9	410	
				CAST-IN-PLACE																								
				CONVENTIONAL																								
				FORMS																								
358	5S1			SLAB	E	20					41	10.000											41	10	41	10	15620	
256	5S2			SLAB	E	20					41	10.000											41	10	41	10	11170	
136	5S3			SLAB	E	20					40	1.000											40	1	40	1	5686	
184	5S4			SLAB	E	20					39	10.000											39	10	39	10	7645	
132	5S5			SLAB	E	20					16	0.000											16	0	16	0	2203	
				PRECAST PANEL																								
				FORMS																								
299	5S1			SLAB	E	20					41	10.000											41	10	41	10	13046	
136	5S3			SLAB	E	20					40	1.000											40	1	40	1	5686	
24	5S4			SLAB	E	20					39	10.000											39	10	39	10	997	
132	5S6			SLAB	E	20					30	7.000											30	3	30	3	4165	
300	4S7			SLAB	E	20					3	2.000											3	2	3	2	635	
				END OF BAR LIST																								

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MO		18	53	

STIRRUP HOOK DIMENSIONS				
GRADES 40-50-60 KSI				
BAR SIZE	D (IN.)	90° HOOK A OR G	135° HOOK A OR G	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.

END HOOK DIMENSIONS				
BAR SIZE	180° HOOKS			90° HOOKS
	GRADE 40 A OR G	J	GRADE 60 A OR G	J ALL GRADES
#3	5"	2-3/4"	5"	3"
#4	6"	3-1/2"	6"	4"
#5	7"	4-1/2"	7"	5"
#6	8"	5-1/4"	8"	6"
#7	9"	6-1/4"	10"	7"
#8	10"	7"	11"	8"
#9	12"	8"	15"	11-1/4"
#10	13"	9"	17"	12-3/4"
#11	14"	10"	19"	14-1/4"
#14	21-2"	20-1/2"	21-2"	20-1/2"
#18	21-11"	21-3"	21-11"	21-3"

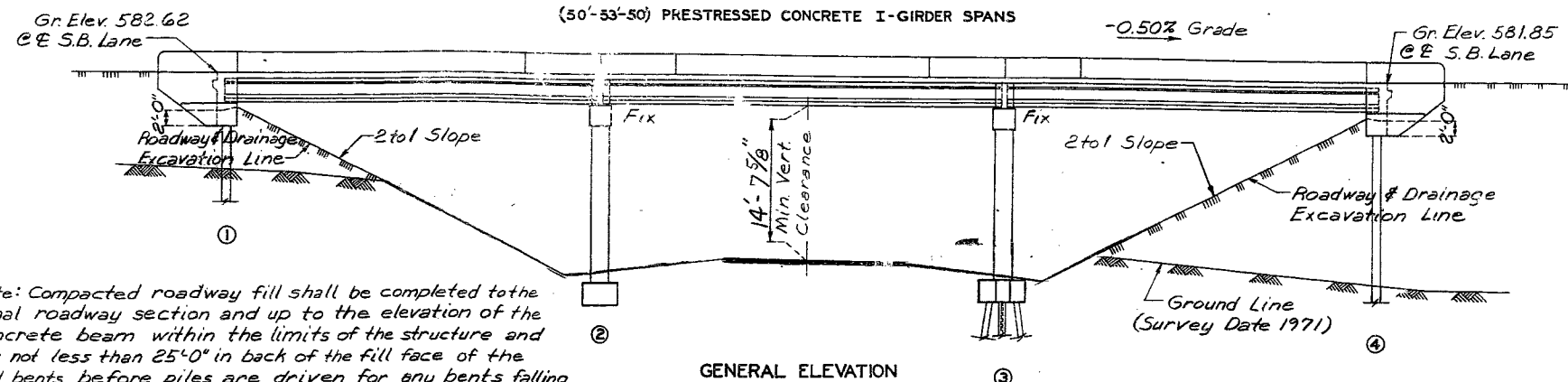
NOTES: ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEG. TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEG. STD. HOOKS. HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET. E - EPOXY COATED REINFORCEMENT. S - STIRRUP. X - BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES. V - BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE. NO. EA. - NUMBER OF BARS OF EACH LENGTH. NOMINAL LENGTHS - ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING DIAGRAMS AND ARE LISTED FOR FABRICATORS USE. (NEAREST INCH) ACTUAL LENGTHS - ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.

* ALL HOOKS AND BENDS FOR SHAPE NO. 12 - GRADE 40 (ONLY) ARE BASED ON D=5d.

Two additional #4U32 #5R8 bars are included in bar bill for testing.

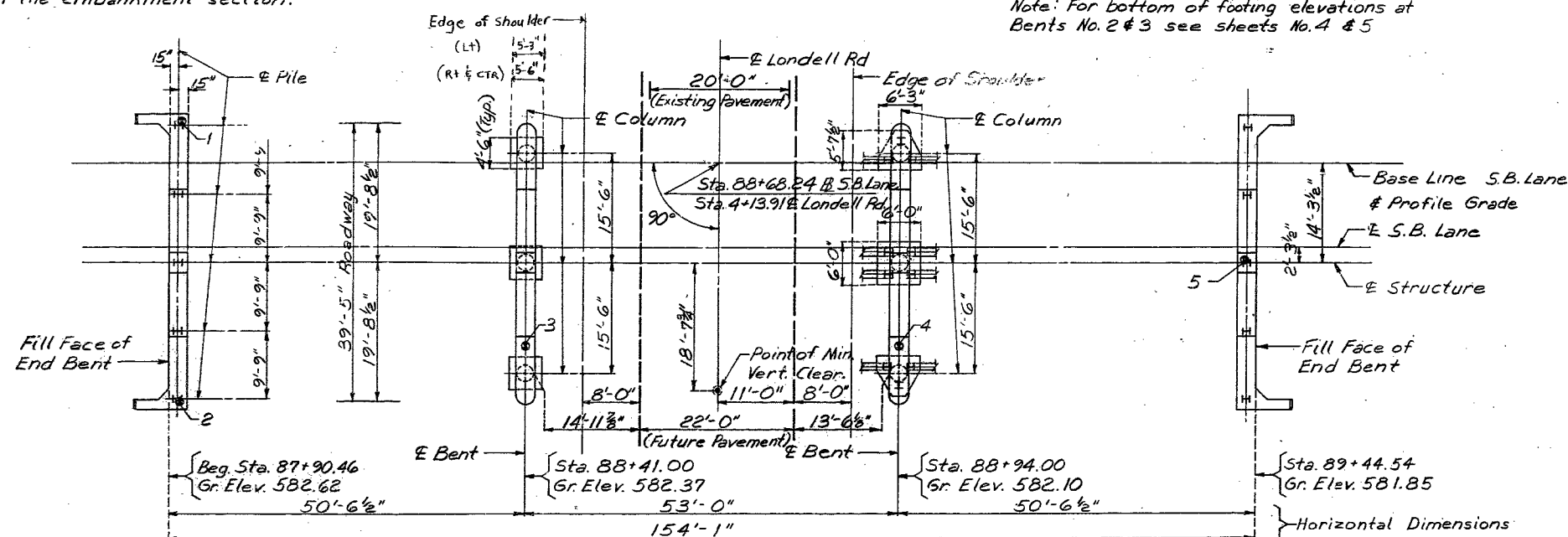
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO	F-21-2(23)	23
SEC./SUR	22 TWP. 43N RGE. 5E	



Note: Compacted roadway fill shall be completed to the final roadway section and up to the elevation of the concrete beam within the limits of the structure and for not less than 25'-0" in back of the fill face of the end bents before piles are driven for any bents falling within the embankment section.

Note: For bottom of footing elevations at Bents No. 2 & 3 see sheets No. 4 & 5



Note: Grade Elevations shown are of E.S.B. Lane. For Boring Data see Sheet No. 2. * Indicates location of boring. For Location Sketch see Sheet No. 2.

PLAN

QUANTITIES FOR ALTERNATE SLABS			
TYPE OF SLAB	REINF. (LBS)		CONC. (CU. YD.)
	EPOXY	PLAIN	
Precast Panel Forms	28,130	6,290	188.0*

Note: The table of Estimated Quantities for Alternate Slabs represents the quantities used by the state in preparing the cost estimate for concrete slabs. Variations may be encountered in the estimated quantities but these variations cannot be used for an adjustment in the Contract Unit Price per square yard of Alternate Slab used.

*Based on minimum top flange thickness and minimum joint filler thickness.

DESIGNED AUG. 1978
DETAILED JAN. 1980
CHECKED MAY 1983

Accepted:
Prepared By: Gene Winch, Ed Werner
Resident Engineer: Charles G. Bejcek 1/10/89
Dist. Office:
Main Office:

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

PILE & FOOTING DATA				
PILE NO.				
	1	2	3	4
Pile Type and Size	HP10x42		HP10x42	HP10x42
Number	5		3	5
Approximate Length Ft.	15		19	51
Design Bearing Tons	47		56	47
Hammer Energy reqd. Ft.Lbs.	10,600		13,200	10,600
SPREAD	Foundation Material			
FOOTINGS	Rock			
Design Bearing Tons/Sq.Ft.		10.7		

Minimum energy requirement of hammer based on plan length and design bearing value of piles. All pile shall be driven to practical refusal. Manufactured pile point reinforcement shall be used on all piles in this structure. See Special Provisions.

GENERAL NOTES:

Design Specifications: A.A.S.H.T.O. - 1983 and Interims thru 1985
Load Factor Design

Design Loading:

H520-44, 15"/sq. ft. Future Wearing Surface
Earth 120"/cu. ft. Equivalent Fluid Pressure 30"/cu. ft.
Superstructure: Simply supported non-composite for Dead Load.
Continuous composite for Live Load.

Design Unit Stresses:

Class B Concrete (Substructure) $f'_c = 3,000$ psi.
Class B1 Concrete (Safety Barrier Curb) $f'_c = 4,000$ psi.
Class B2 Concrete (Superstructure except Prestressed Girders and Safety Barrier Curb) $f'_c = 4,000$ psi.
Reinforcing Steel (Grade 60) $f_y = 60,000$ psi.
Steel Pile $f_b = 90,000$ psi.
For Prestressed Girder Stresses see Girder Sheets.

Reinforcing Steel:

Minimum clearance to reinforcing steel shall be 1/2" unless otherwise shown.

Joint Filler:

All joint filler shall meet the requirements of Std. Spec. 1057.2.4, except as noted.

Bearings:

Bearings shall be 60 durometer Neoprene Pads.

Construction Clearance:

A minimum vertical clearance of 14'-0" from crown of existing lanes and a minimum lateral clearance of 28'-0" centered on existing lanes shall be maintained during construction.

QUANTITIES				
ITEM		SUBSTR.	SUPERSTR.	TOTAL
Class 1 Excavation	Cu. Yd.	126.5		126.5
Structural Steel Pile (10")	Lin. Ft.	516		516
Class B Concrete	Cu. Yd.	88.9		88.9
Slab on Concrete I-Girders, see Spec. Prov.	Sq. Yd.		720	720
Safety Barrier Curb	Lin. Ft.		0	0
Plain Neoprene Bearing Pads	Each		30	30
Prestressed Concrete Members, I-Gdr. (50')	Each		10	10
Prestressed Concrete Members, I-Gdr. (53')	Each		5	5
Reinforcing Steel	Lb.	9880		9880
Pile Point Reinforcement	Each	20		20
Abutment Vertical Drain	Lump Sum		1	1
Class 1 Excavation + 25% (Cont.)	Cu. Yd.	26.5		26.5
Test Holes (Cont.)	Lin. Ft.	16		16
Slip Form Safety Barrier Curb (Cont.)	Lin. Ft.		340	340

Note: Cost of furnishing, fabricating and installing Neoprene Bearing Pads complete in place, will be paid for at the contract unit price for Plain Neoprene Bearing Pads per each.

All concrete between the upper and lower construction joints in end bents is included in the estimated superstructure quantities for Slab on Concrete I-Girders, see Special Provisions.

All reinforcement in the end bents is included with superstructure quantities.

B.M. "Chisel Square" Northwest Corner of Bridge on Top of Barrier Wall. Elev. 585.20

BRIDGE OVER LONDELL ROAD

STATE ROAD RTE. 21 S.B.L. FROM OTTO TO RTE. 141

ABOUT 1 MILE SOUTH OF RTE. 141

PROJECT NO. F-21-2(23) STA. 87+90.46

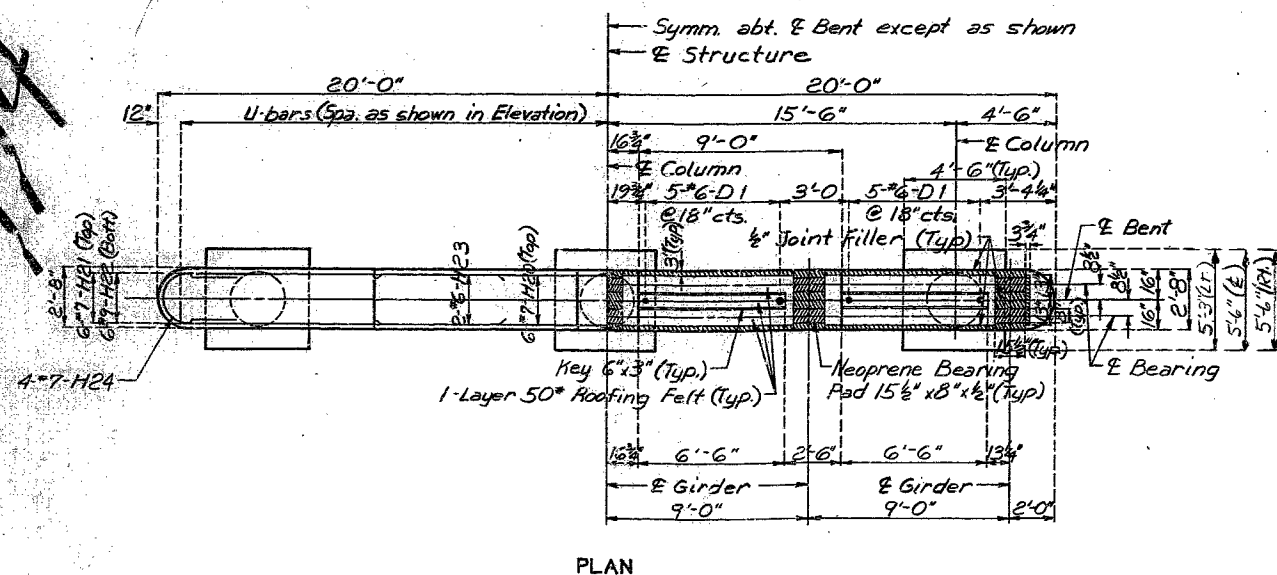
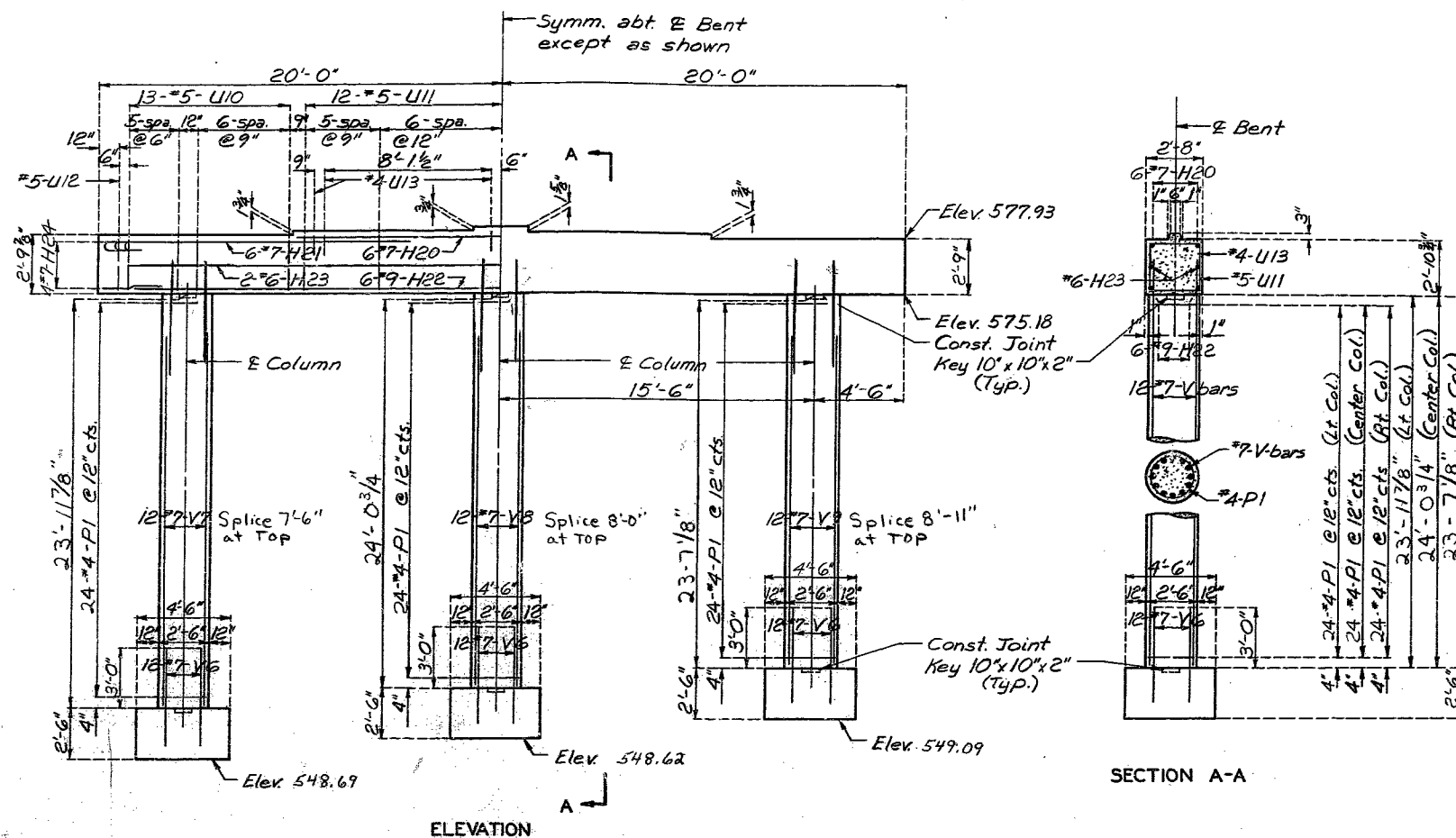
JOB NO. 6-U-21-256B RTE. 21

JEFFERSON COUNTY

DATE 3/12/87

STD.
STD. 706.35
A-3099

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	F-31-2(23)	19	26	



DETAILS OF INTERMEDIATE BENT NO. 2

DETAILED JAN. 1979
CHECKED MAY 1980

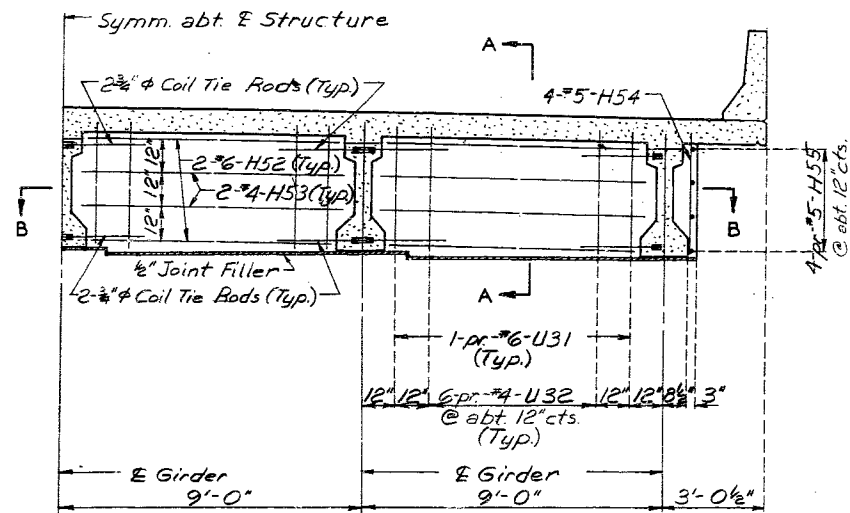
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 4 of 15.

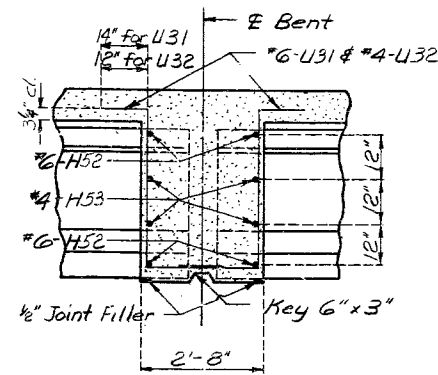
JEFFERSON COUNTY

A-3099

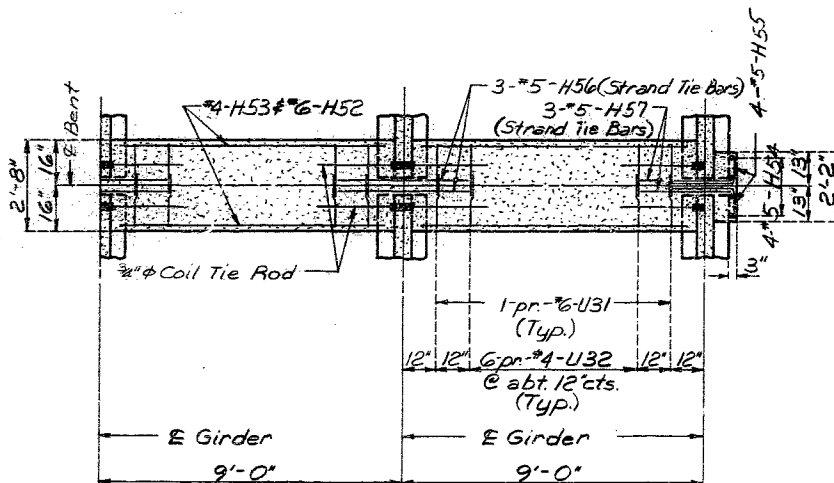
STATE	PROJ NO	SHEET NO
MO	F-21-2 (23)	27



HALF SECTION NEAR INT. BENTS



SECTION A-A

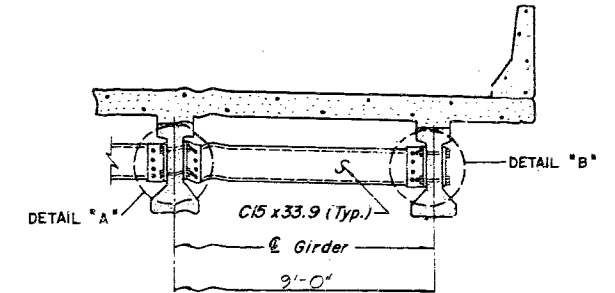


SECTION B-B

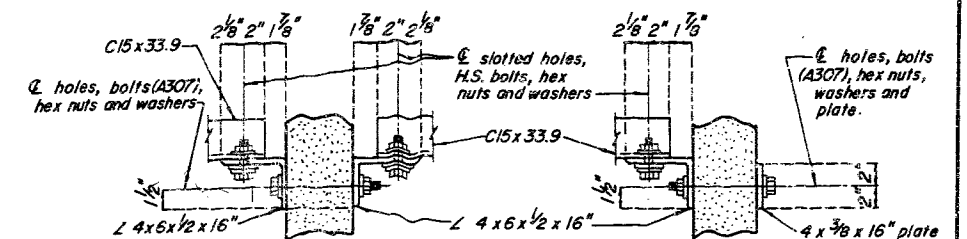
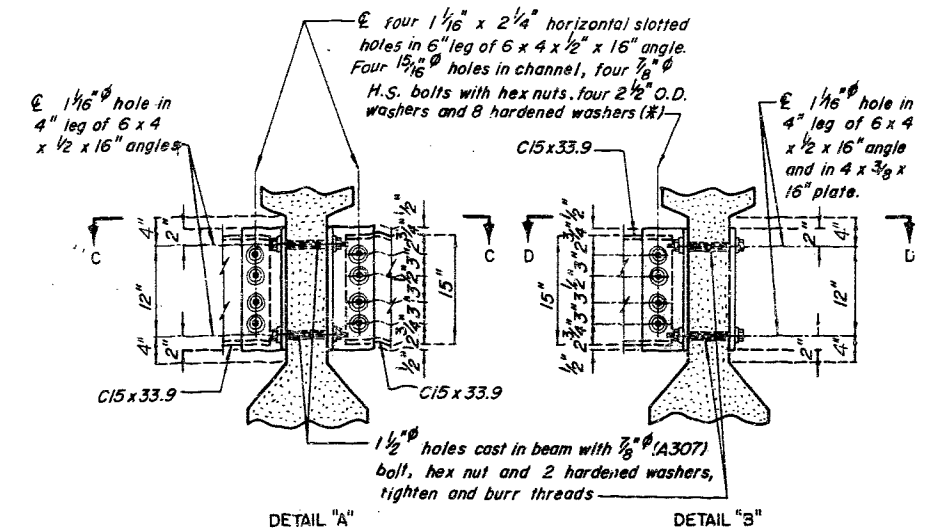
Note: Cost of 3/4" Coil Tie Rods in place in diaphragms is included in price bid for Prestressed Concrete Members.

Diaphragms at Intermediate Bents are vertical.

For location of #5-H56 & #5-H57 (Strand Tie Bars) at Int. Bents see Girder Sheets.



PART SECTION SHOWING INTERMEDIATE DIAPHRAGMS
Note: Intermediate diaphragms shall be placed at center of all spans.



STEEL DIAPHRAGM NOTES:

(1) IN LIEU OF 2 1/2" O.D. WASHERS, CONTRACTOR MAY SUBSTITUTE A 3/16" (MIN. THICKNESS) PLATE WITH FOUR 15/16" HOLES AND 1 HARDENED WASHER PER BOLT.

ALL H.S. BOLTS MAY BE TENSIONED BY TURN-OF-NUT METHOD.

ALL DIAPHRAGM MATERIALS INCLUDING BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED.

FABRICATED STRUCTURAL STEEL SHALL BE A36 EXCEPT AS NOTED.

PAYMENT FOR FURNISHING AND INSTALLING STEEL INTERMEDIATE DIAPHRAGMS SHALL BE INCLUDED IN CONTRACT UNIT PRICE FOR PRESTRESSED CONCRETE GIRDERS.

Shop drawings will not be required for Steel Intermediate Diaphragms and Angle Connections.

DETAILED MAY 1985
CHECKED MAY 1985

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

Sheet No. 2A of 15

JEFFERSON

COUNTY

A-3099

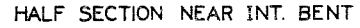


THEORETICAL SLAB HAUNCHING DIAGRAM



Note: Concrete in the slab haunches is included in the Estimated Quantities for Alternate Slabs as Class B2 Concrete. The slab is to be built parallel to grade and to the minimum thickness indicated.

DETAILED JAN. 1979
CHECKED MAY 1980



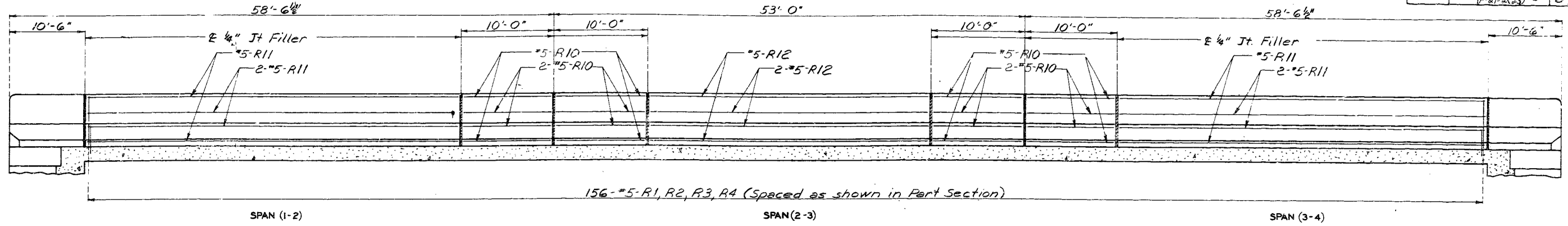
Note: For details and reinforcement of safety barrier curb not shown see Sheet No. 12.

Sheet No. 10A of 15 .

JEFFERSON COUNTY

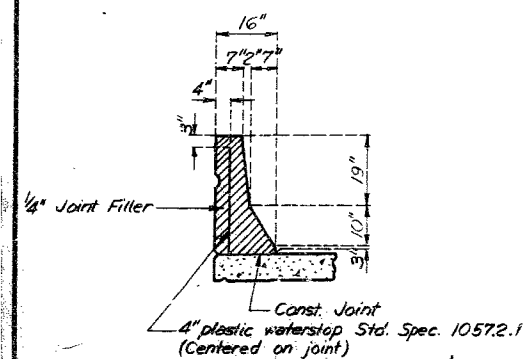
A-3099

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MD	F-21-2(23)	8	29	



SECTION NEAR LEFT BARRIER CURB

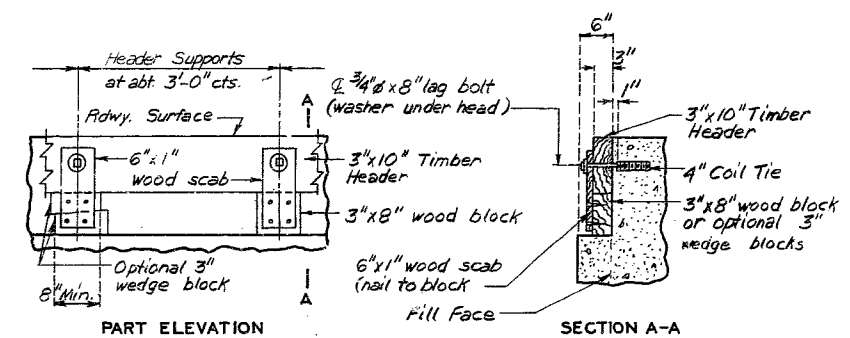
Note: Longitudinal dimensions shown are horizontal.



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

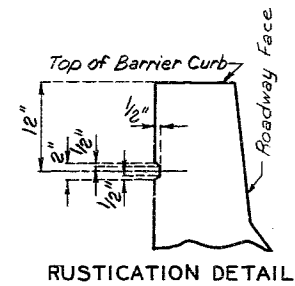
Cost of plastic waterstop complete in place to be included in unit price bid for concrete.

DETAILS OF PLASTIC WATERSTOP



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

DETAILS OF TIMBER HEADER AT END BENTS



RUSTICATION DETAIL

NOTES:

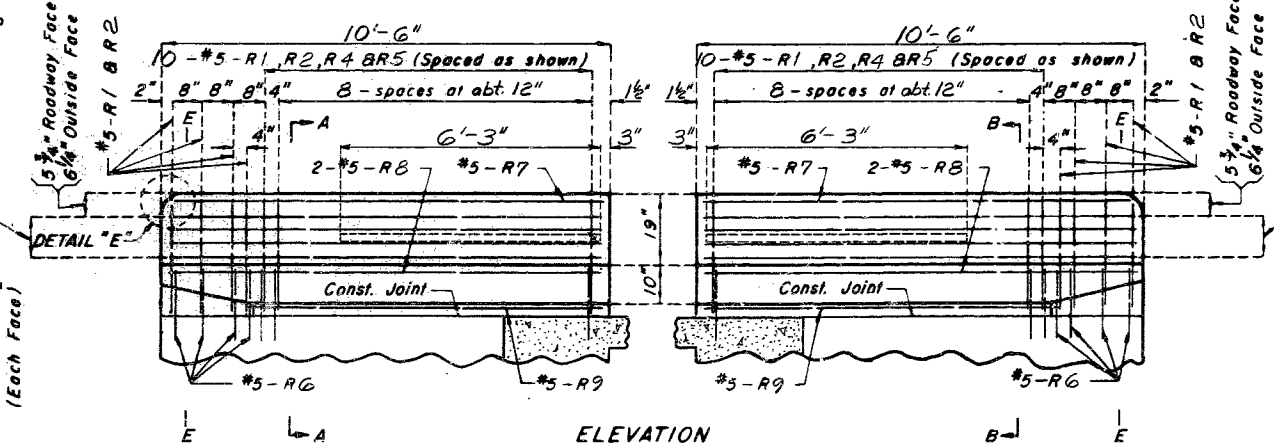
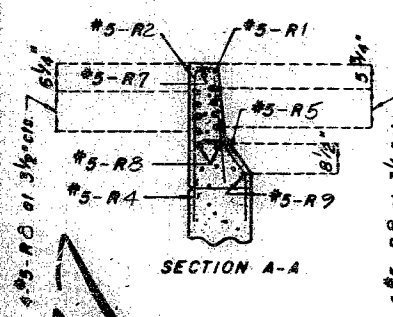
Top of barrier curb to be built parallel to grade with barrier curb joints (except at end bents) normal to grade.

All exposed edges of barrier curb shall have 1/2" radius or 3/8" bevel unless otherwise noted.

When the barrier curb is bid by linear feet, the contract unit price shall include the cost of all concrete and reinforcement, complete in place.

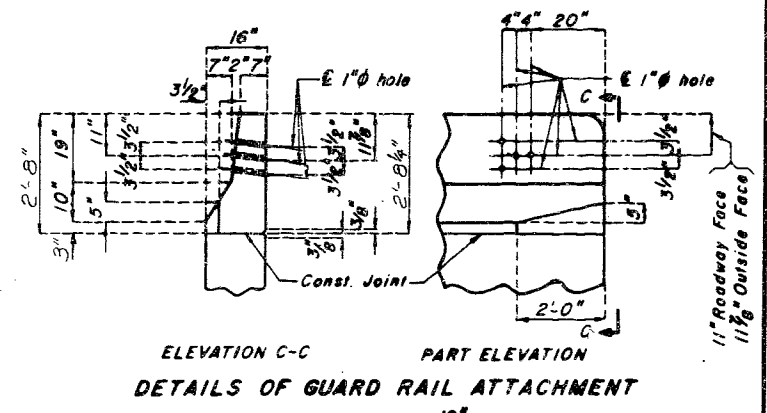
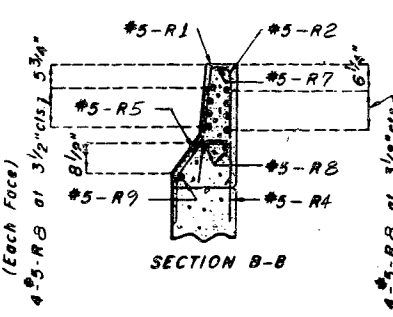
Concrete in the safety barrier curb shall be Class B1.

Measurement of safety barrier curb is to the nearest linear foot for each structure, measured along the outside top of slab from end of wing to end of wing.

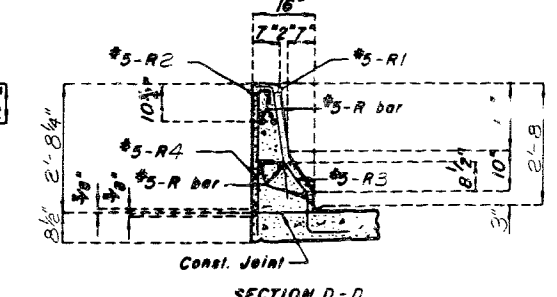
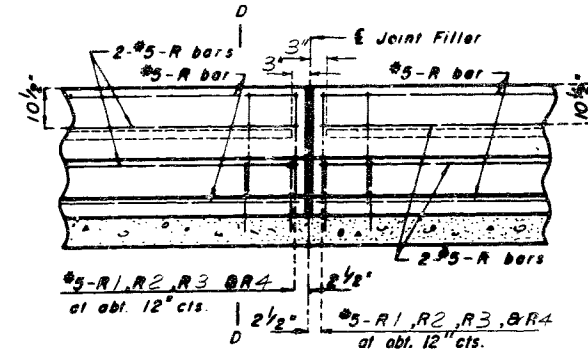


DETAILS OF BARRIER CURB AT END BENTS

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

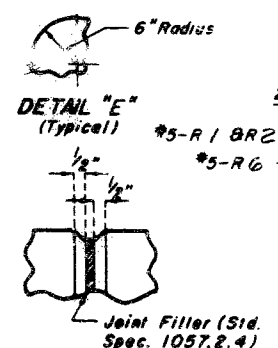


DETAILS OF GUARD RAIL ATTACHMENT



Note: Use a minimum lap of 17" for #5 horizontal barrier bars.

FILLED JOINT DETAIL



DETAILED APRIL 1978
CHECKED MAY 1980

Sheet No. 12/15

JEFFERSON COUNTY

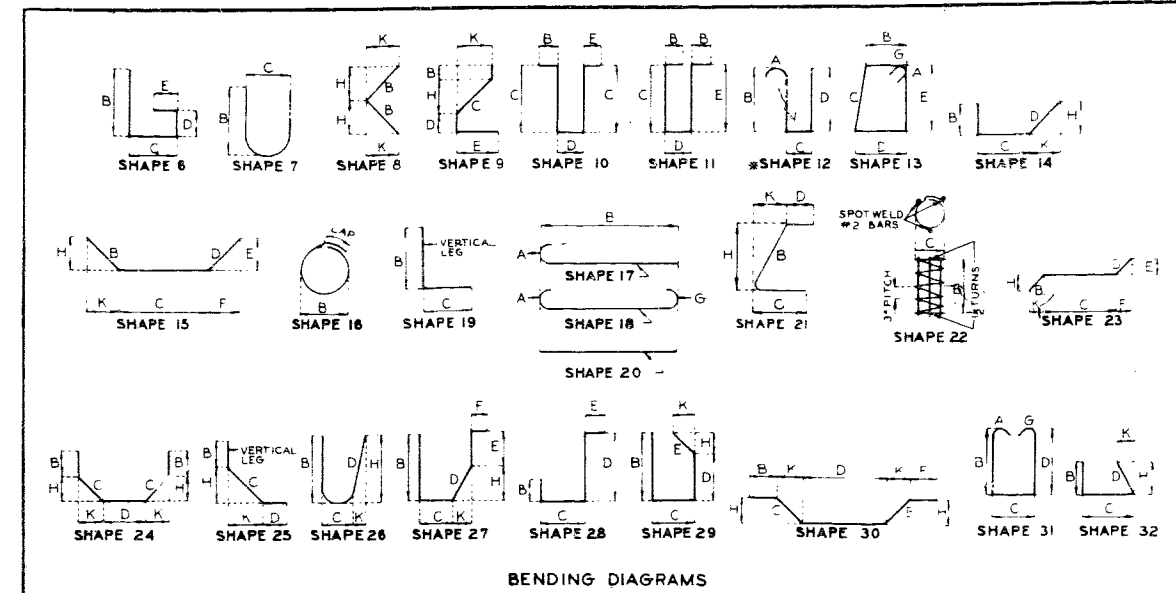
A-3099

COMPLETE BILL OF REINFORCING STEEL

COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO.	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS										NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT
									B	C	D	E	F	H	K						
									FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.			
		SUBSTRUCTURE																			
		INT BT NO 2																			
20	601	BEAM		20	X				21.000										21	21	53
6	7H20	BEAM		20	X				20 6.000										20 6	20 6	251
12	7H21	BEAM		17	X				14 10.000										15 8	15 8	384
6	9H22	BEAM		20	X				37 4.000										37 4	37 4	762
2	6H23	BEAM		20	X				37 6.000										37 6	37 6	113
8	7H24	BEAM		7	X				3 8.500	2 3.750									8 7	8 7	140
72	4P1	COL		16	X				2 3.000										7 11	7 11	381
26	5U10	BEAM		13	S	X			2 5.000	2 6.000	2 5.000	2 6.000							10 9	10 5	282
23	5U11	BEAM		13	S	X			2 5.000	2 7.750	2 5.000	2 7.750							11 1	10 9	258
2	5U12	BEAM		13	S	X			2 3.750	2 6.000	2 3.750	2 6.000							10 7	10 3	21
6	4U13	BEAM		10	S	X				6.000	2 5.000								3 5	3 3	13
36	7V6	COL & FOOTING		20	X				5 2.000										5 2	5 2	380
12	7V7	COL		20	X				22 6.000										22 6	22 6	552
12	7V8	COL		20	X				21 6.000										21 6	21 6	527
12	7V9	COL		20	X				20 6.000										20 6	20 6	503
12	7V7	Col. (Splice-Top)		20	X				7 6.000										7 6	7 6	184
12	7V8	Col. (Splice-Top)		20	X				8 0.000										8 0	8 0	196
12	7V9	Col. (Splice-Top)		20	X				7 11.000										7 11	7 11	219
		INT BT NO 3																			
20	601	BEAM		20	X				21.000										21	21	53
8	602	FOOTING		10	X					3 2.000	16.000								7 8	7 4	88
4	603	FOOTING		10	X					3 3.500	16.000								7 11	7 7	46
8	604	FOOTING		10	X					3 4.500	20.000								8 5	8 1	97
6	7H26	BEAM		20	X				20 6.000										20 6	20 6	251
12	7H27	BEAM		17	X				14 10.000										15 8	15 8	384
2	6H28	BEAM		20	X				37 6.000										37 6	37 6	113
6	9H29	BEAM		20	X				37 4.000										37 4	37 4	762
8	7H30	BEAM		7	X				3 8.500	2 3.750									8 7	8 7	140
54	4P1	COL		16	X				2 3.000										7 11	7 11	286
26	5U16	BEAM		13	S	X			2 5.000	2 6.000	2 5.000	2 6.000							10 9	10 5	282
23	5U17	BEAM		13	S	X			2 5.000	2 7.750	2 5.000	2 7.750							11 1	10 9	258
2	5U18	BEAM		13	S	X			2 3.750	2 6.000	2 3.750	2 6.000							10 7	10 3	21
6	4U19	BEAM		10	S	X				6.000	2 5.000								3 5	3 3	13
36	7V11	COL & FOOTING		20	X				5 8.000										5 8	5 8	417
12	7V12	COL		20	X				21 8.000										21 8	21 8	531
12	7V13	COL		20	X				19 8.000										19 8	19 8	482
12	7V14	COL		20	X				17 8.000										17 8	17 8	433
		SUPERSTRUCTURE																			
		END BT NO 1																			
10	6F1	WING BRACE		23					14.125	4 4.500	14.125	10.000	10.000	10.000	10.000	10.000	10.000	10.000	6 9	6 8	100
8	6F2	DIAPH.		19					4 6.000	2 3.000									6 9	6 7	79

NO.	REQD.	MARK NO.	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS								NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT						
										B		C		D		E					F		H		K	
										FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.				FT.	IN.	FT.	IN.	FT.	IN.
4	7H1	DIAPH.		20						41	10.000								41	10	41	10	342			
3	6H2	DIAPH.		20						41	10.000								41	10	41	10	189			
12	6H3	DIAPH.		20						7	4.000								7	4	7	4	132			
6	6H4	DIAPH.		20						2	1.000								2	1	2	1	19			
4	7H5	BEAM		20						20	6.000								20	6	20	6	168			
8	7H6	BEAM		20						14	11.000								14	11	14	11	244			
4	7H7	BEAM		20						41	10.000								41	10	41	10	342			
2	6H8	BEAM		20						41	10.000								41	10	41	10	126			
12	6H9	WING		20						9	5.000								9	5	9	5	170			
24	6H10	WING		20				V	4	9	1.500								9	2	9	2	3			
		INCR = 12.250 IN								4	1.000								4	1	4	1	239			
5	5H11	DIAPH		20						3	11.000								3	11	3	11	20			
4	6T1	WING		25						2	0.500	7	8.375	3	2.000			4	7.250	6	2.000	12	11	77		
32	5U1	BEAM		10	S					4	5.625	2	3.000						11	2	11	0	367			
10	4U2	BEAM		13	S					2	3.000	2	9.000	2	3.000	2	9.000		10	9	10	6	70			
10	4U3	BEAM		13	S					2	3.000	2	10.750	2	3.000	2	10.750		11	1	10	10	72			
34	5U4	DIAPH		10	S					3	10.500	2	3.000						10	0	9	10	349			
58	6U5	DIAPH		19	S					3	10.500	4	0.500						7	11	7	9	675			
5	4U6	BEAM		13	S					2	10.750	2	3.000						8	1	7	11	26			
4	5V1	BEAM		20						4	3.000								4	3	4	3	18			
8	6V2	WING		20						6	10.000								6	10	6	10	82			
24	6V3	WING		20				V	4	6	3.500								6	4	6	4	161			
		INCR = 9.000 IN								2	6.500								2	7	2	7	161			
		END BT NO 4																								
10	6F3	WING BRACE		23						14.125	4	4.500	14.125	10.000	10.000	10.000	10.000	10.000	6	9	6	8	100			
8	6F4	DIAPH		19						4	6.000	2	3.000						6	9	6	7	79			
6	7H35	DIAPH		20						41	10.000								41	10	41	10	513			
3	6H36	DIAPH		20						41	10.000								41	10	41	10	189			
12	6H37	DIAPH		20						7	4.000								7	4	7	4	132			
6	6H38	DIAPH		20						2	1.000								2	1	2	1	19			
4	7H39	BEAM		20						20	6.000								20	6	20	6	168			
8	7H40	BEAM		20						14	11.000								14	11	14	11	244			
4	7H41	BEAM		20						41	10.000								41	10	41	10	342			
2	6H42	BEAM		20						41	10.000								41	10	41	10	126			
12	6H43	WING		20						9	5.000								9	5	9	5	170			
24	6H44	WING		20				V	4	9	0.750								9	1	9	1	3			
		INCR = 12.250 IN								3	11.625								4	0	4	0	236			
5	5H45	DIAPH		20						3	11.000								3	11	3	11	20			
4	6T2	WING		25						2	0.500	7	7.250	3	2.000			4	6.000	6	1.500	12	10	77		
32	5U21	BEAM		10	S					4	5.625	2	3.000						11	2	11	0	367			
10	4U22	BEAM		13	S					2	3.000	2	9.000	2	3.000	2	9.000		10	9	10	6	70			
10	4U23	BEAM		13	S					2	3.000	2	10.750	2	3.000	2	10.750		11	1	10	10	72			
34	5U24	DIAPH		10	S					3	10.250	2	3.000						10	0	9	9	346			
56	6U25	DIAPH		19	S					3	10.250	4	0.500						7	11	7	9	652			
5	4U26	BEAM		10	S					2	10.750	2	3.000						8	1	7	11	26			
4	5V16	BEAM		20						4	3.000								4	3	4	3	18			
8	6V17	WING		20						6	9.000								6	9	6	9	81			
24	6V18	WING		20				V	4	6	2.375								6	2	6	2	156			
		INCR = 8.750 IN								2	6.250								2	6	2	6	156			



BENDING DIAGRAMS

179

MAILED MAY 1980
CHECKED MAY 1980

Note This drawing is not to scale. Follow dimensions

COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO.	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS												NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT		
									B		C		D		E		F		H					K	
									FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.
32	6H52	DIAPH AT INT BT		20					7	1.000											7	1	7	1	340
32	4H53	DIAPH AT INT BT		20					8	0.000											8	0	8	0	171
16	5H54	DIAPH AT INT RT		20					3	6.000											3	6	3	6	58
32	5H55	DIAPH AT INT BT		19					2	9.500	10.000										3	8	3	6	117
36	5H56	DIAPH AT INT BT		20					3	11.000											3	11	3	11	147
24	5H57	DIAPH AT INT RT		20					2	8.000											2	8	2	8	67
32	6U31	DIAPH AT INT RT	E	28	S				2	2.500	3	4.875	14	0.00							6	9	6	6	312
98	4U32	DIAPH AT INT BT	E	29	S				2	0.500	3	4.875	12	0.00							6	5	6	3	409
368	5R1	BARRIER CURB	E	15	S				2	6.125	3.500				2	6.000	3.000			2	10	2	9	1056	
368	5R2	BARRIER CURB	E	19	S				2	6.000	3.500									2	10	2	8	1024	
312	5R3	BARRIER CURB	E	27	S						6.000	11.125	7.000	12.000	9.125	6.375				3	0	2	10	922	
352	5R4	BARRIER CURB	E	19	S				17	0.00	9.000									2	2	2	1	765	
40	5R5	BARRIER CURB	E	27	S						6.000	11.125	7.875		9.125	6.375				2	1	2	0	85	
16	5R6	BARRIER CURB	E	10	S						23.500	6.000								4	5	4	3	71	
4	5R7	BARRIER CURB	E	20					9	10.500										9	11	9	11	41	
42	5R8	BARRIER CURB	E	20					10	3.000										10	3	10	3	449	
4	5R9	BARRIER CURB	E	20					8	6.000										8	6	8	6	35	
48	5R10	BARRIER CURB	E	20					9	9.000										9	9	9	9	488	
24	5R11	BARRIER CURB	E	20					37	9.000										37	9	37	9	945	
12	5R12	BARRIER CURB	E	20					32	9.000										32	9	32	9	410	

FINAL PLANS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO	F91-2(2)	15	31	

60 OR 2 1/2" MIN.

DETAILING DIMENSION

90°

135°

STIRRUP HOOK DIMENSIONS

GRADES 40-50-60 KSI

BAR SIZE	D (IN.)	90° HOOK	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.

DETAILING DIMENSION

180°

90°

SIZE OF 180° HOOKS (GRADE 40 KSI)

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

D=5d FOR #3 THRU #11

D=10d FOR #14 AND #18

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		90° HOOKS	
	GRADE 40	GRADE 60	ALL GRADES	ALL GRADES
#3	5"	2-3/4"	5"	6"
#4	6"	3-1/2"	6"	8"
#5	7"	4-1/2"	7"	10"
#6	8"	5-1/4"	8"	12"
#7	9"	6-1/4"	10"	14"
#8	10"	7"	11"	16"
#9	12"	8"	15"	19"
#10	13"	9"	17"	22"
#11	14"	10"	19"	24"
#14	21-2"	20-1/2"	21-2"	21-7"
#18	21-11"	21-3"	21-11"	31-5"

NOTES: ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEG. TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEG. STD. HOOKS.

HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.

E - EPOXY COATED REINFORCEMENT.

S - STIRRUP.

X - BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.

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.

NOMINAL LENGTHS - ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING DIAGRAMS AND ARE LISTED FOR FABRICATORS USE. (NEAREST INCH)

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

* ALL HOOKS AND BENDS FOR SHAPE NO. 12 - GRADE 40 (ONLY) ARE BASED ON D=5d.

Two additional #4U32#5R8 bars are included in bar bill for testing.