

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
PLAN AND PROFILE OF PROPOSED
STATE HIGHWAY
WILKES COUNTY

LOCATION: BRIDGE OVER YADKIN RIVER AND APPROACHES ON NC
115 BETWEEN NC 18-268 AND SR 2510.

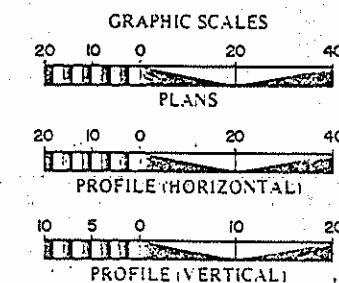
TYPE OF WORK: WIDENING, SURFACING, GRADING, DRAINAGE,
PAVING, AND STRUCTURE.

SKETCH MAP SHOWING SHIPPING
POINT AND LOCATION OF
STATE PROJECT 8.1760801 & 8.1760802

STATE	STATE PROJECT REFERENCE NO	SHEET NO	TOTAL SHEETS
N.C.	8.1760801 8.1760802	34	101
STATE PROJ NO	F.A. PROJ NO	DESCRIPTION	
8.1760801	BRM-9560(I)	PE. & R/W	
8.1760802	MR-9562(I)	PE. & R/W	
8.1760801	BRM-9560(I)	CONSTR.	
8.1760802	MR-9562(I)	CONSTR.	

CONVENTIONAL SYMBOLS

County Line	.....
City or Town Line	.....
Exist. Right of Way Line & Marker	.....
Right of Way Line & Marker	.....
Survey Line	.....
Property Line	.....
Exist. Fence	.....
Proposed Road	.....
Existing Road	.....
Railroad	.....
Control of Access Line	.....
Slope Stake Line	.....
Bridge	.....
Culvert	.....
Woods	.....
Telephone or Telegraph Pole	.....
Tower Pole and Line	.....
Power Pole	.....
Easement Line	.....
Temporary Silt Fence	.....
Guard Rail	.....
Sanitary Sewer Line	.....
Water Line	.....
Gas Line	.....
Proposed Woven Wire Fence	.....
Proposed Chain Link Fence	.....
Right of Way Break	.....
Construction Easement Break	.....



DESIGN DATA

ADT 1985	= 10,300
ADT 2005	= 18,000
DHV	= 11 %
D	= 5 %
T	= 4 %
V	= 45 M.P.H.

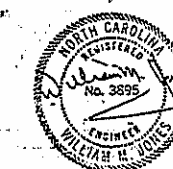
LEGEND

.....	NEW PAVEMENT
.....	RESURFACING
.....	PAVEMENT REMOVAL

NOTE:

THIS IS A PARTIALLY CONTROLLED
ACCESS PROJECT.

LENGTH OF ROADWAY F.A. PROJ. BRM-9560(I)	= 0.246 MI.
LENGTH OF ROADWAY F.A. PROJ. MR-9562(I)	= 0.236 MI.
LENGTH OF STRUCTURE F.A. PROJ. BRM-9560(I)	= 0.081 MI.
TOTAL LENGTH STATE PROJ. 8.1760801	= 0.327 MI.
TOTAL LENGTH STATE PROJ. 8.1760802	= 0.236 MI.



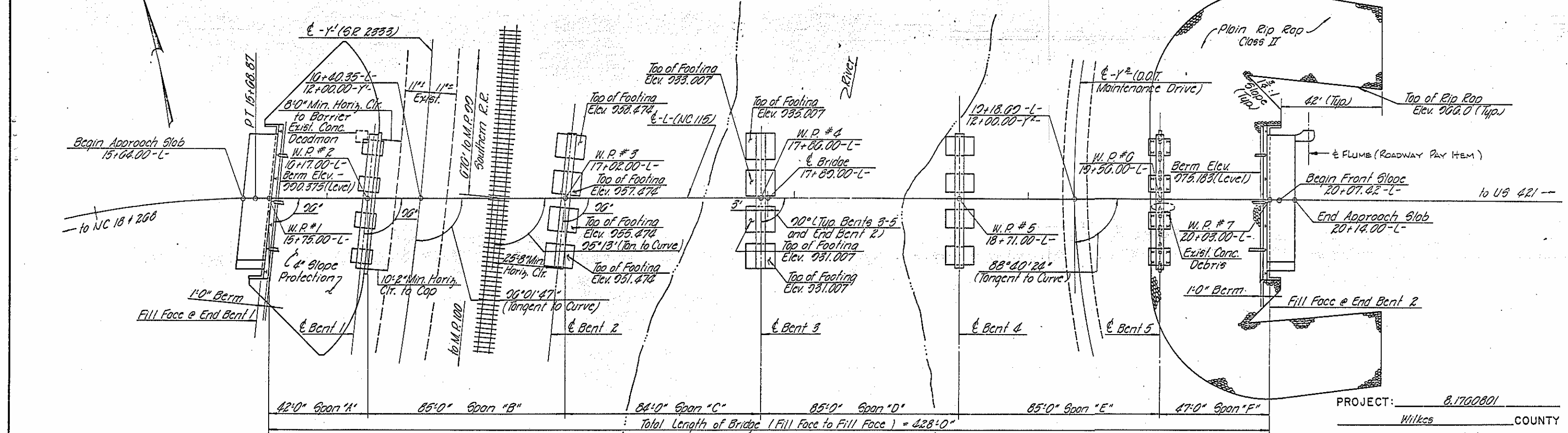
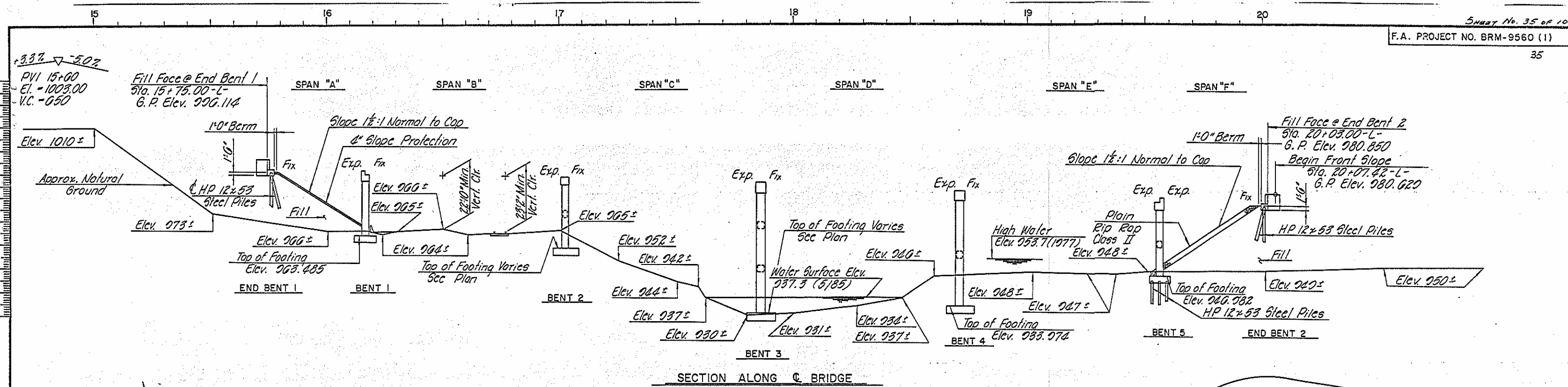
DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA	
APPROVED <i>J. J. Penick</i> STATE HIGHWAY ENGINEER - DESIGN	P.E.
APPROVED <i>Ray C. Shelton</i> CHIEF ENGINEER	P.E.
DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION	
APPROVED <i>Ray C. Shelton</i> DIVISION ADMINISTRATOR	DATE 8-24-89

PREPARED FOR
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

PLANS PREPARED BY: AMERICAN ENGINEERS
WILLIAM M. JONES - PROJECT ENGINEER
KEITH F. HUDSON - PROJECT DESIGN ENGINEER

LETTING DATE: OCTOBER 17, 1989

1984 STANDARD SPECIFICATIONS



TOP OF RAIL ELEVATIONS		
Sta. *	Rt. Rail	Lt. Rail
11+00	964.85	964.80
11+50	964.92	963.03
12+50	964.92	963.00
13+00	965.00	963.07

*Note: Stations are along Line -Y-

BY	DATE
MADE R.C.L.	5-88
CHECKED D.R.R.	5-88
IN CHARGE D. R. Ruggles	

PREPARED BY
AMERICAN ENGINEERS

Dwg. 1 of 39

PROJECT: 8.1760801
Wilkes COUNTY
STATION: 17+02.00-L-
Miscpost 92.125; Ecolocates Bridge No. 46

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
FOR BRIDGE OVER YADKIN RIVER
ON NC 115 BETWEEN
NC 18 & 268 AND US 421

MAY 1988		SHEET NO.
REVISIONS		5-1-35
NO	BY	DATE
TOTAL SHEETS		42 OF 101

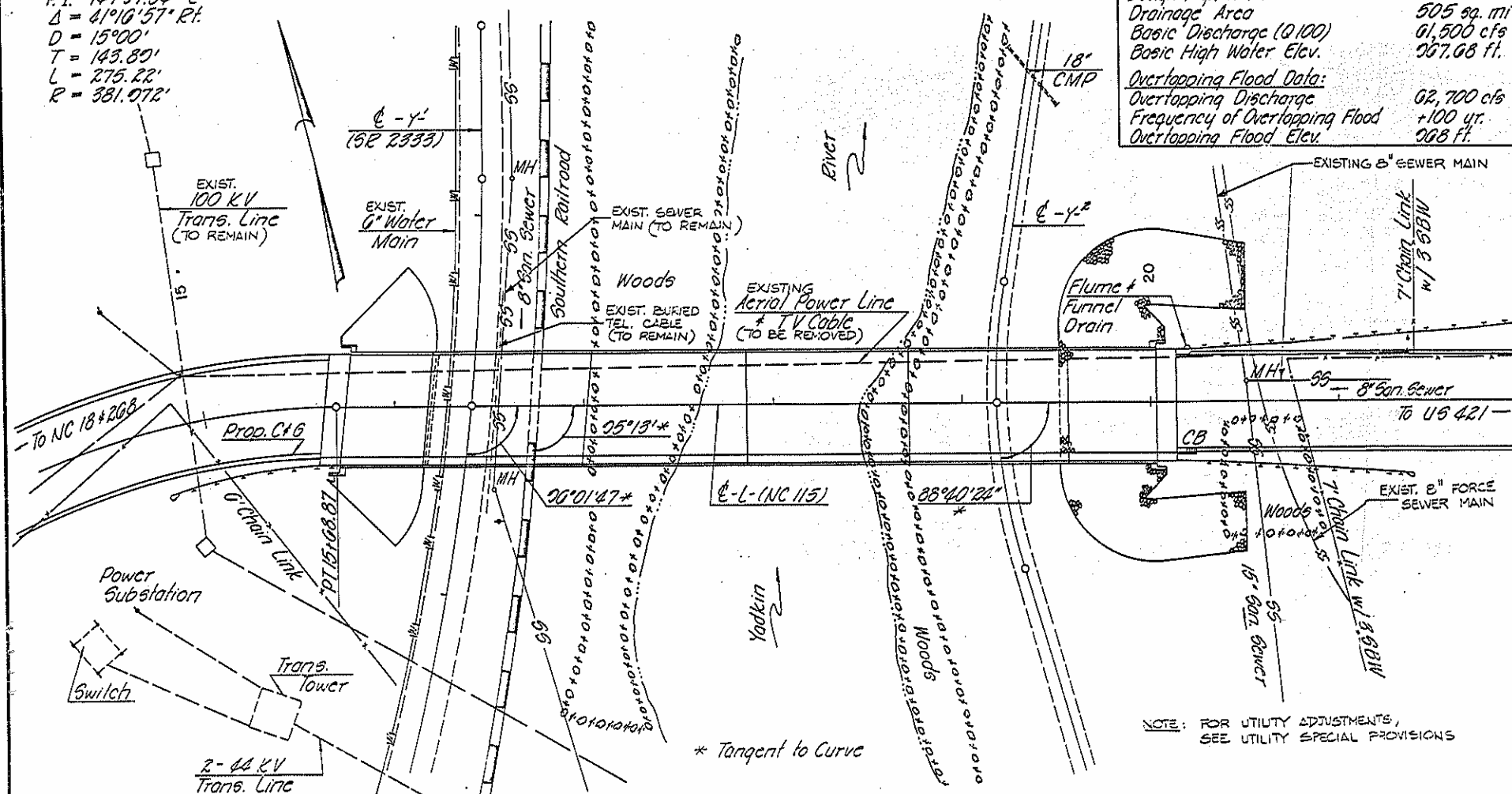
B-1431

Bench Mark: 80 d Nail in Pole 20' Lt. -Y- Sta. 7+50 Elev. 964.43 NGVD

LOCATION SKETCH

CURVE DATA

P.I. 14+37.54-L-
 $\Delta = 41^{\circ}16'57''$ Rt.
 $D = 15^{\circ}00'$
 $T = 143.89'$
 $L = 275.22'$
 $R = 381.27'$



Design Discharge	51,000 cfs
Frequency of Design Flood	50 yr.
Design High Water Elev.	264.94 ft.
Drainage Area	50.5 sq. mi.
Basic Discharge (Q ₁₀₀)	61,500 cfs
Basic High Water Elev.	267.68 ft.
<u>Overtopping Flood Data:</u>	
Overtopping Discharge	62,700 cfs
Frequency of Overtopping Flood	+100 yr.
Overtopping Flood Elev.	268 ft.

NOTES

- Assumed Live Load - HS20-44 or Alternate Loading
- For other design data and general notes, see sheet 9-N.
- Piles for End Bents and Bent 5 shall be driven to a minimum bearing capacity of 45 Tons each.
- Computed foundation load for Bents 1+4 equals 5 TSF.
- Computed foundation load for Bents 2+3 equals 4 TSF.
- Grouted footings of Bents 2-4 shall be carried at least 12" into rock with minimum thickness as shown on plans.
- Piles of End Bent 1 shall not be augered before driving.
- After serving as a temporary crossing the existing structure consisting of 11 continuous steel beam spans (total length, 472'-0"), 23'-10" clear width concrete deck with timber plank sidewalk on concrete bents and abutments, and located 300'± upstream from the proposed structure shall be removed.
- The existing bridge is presently posted below the legal load limit. Should the structural integrity of the bridge further deteriorate, this load limitation may be reduced as found necessary during the life of the project, see Special Provisions.
- The existing concrete deadman and concrete debris shown on the General Plan are to be removed.
- Payment for this item shall be included with "Removal of Existing Structure".
- For Reinforced Concrete Deck Slab, see Special Provisions.
- For Fabricated Metal Splay-in-place Forms, see Special Provisions.
- For Precast Concrete Panels, see Special Provisions
- For curing bridge deck slabs see the Special Provision, Reinforced Concrete Deck Slab.
- All reinforcing steel shall be Grade 60.
- Steel pile points are required for piles at End Bent 1.
- For Steel Pile Points, see Special Provisions.
- For maintenance of traffic beneath the structure, see Special Provisions.

NOTE: FOR UTILITY ADJUSTMENTS,
SEE UTILITY SPECIAL PROVISIONS

[illegible]

TOTAL BILL OF MATERIAL

TOTAL BILL OF MATERIALS																						
	Removal of Existing Structure @ Sta. 17+82.00	Foundation Excavation of Bents		Reinforced Concrete Deck Slab	Class "A" Concrete	Reinforcing Steel	Spiral Column Reinforcing Steel	30" Prestressed Concrete Girders		34" Prestressed Concrete Girders		HP 12x53 Steel Piles	Steel Pile Points	Three Bar Metal Rail	Concrete Barrier Rail	Bridge Approach Slabs @ Sta. 17+80.00	Elasto-meric Bearings	Plain Rip-Rap Class II (2'0" Thick)	4" Slope Protection	Preformed Compression Joint Seal		
	Lump Sum	Cu. Yd.	Lump Sum	Sq. Ft.	Cu. Yd.	Lbs.	Lbs.	No.	Lin. Ft.	No.	Lin. Ft.	No.	L.F.	Ea.	L.F.	Lin. Ft.	Lump Sum	L.S.	Tons	Sq. Yds.	Lump Sum	L.S.
Superstructure				25,403				14	604.92	28	2360.34				421.48	422.76						
End Bent 1					20.7	4,410						7	175	7			L.S.			645		
Bent 1		75			74.0	16,238	2,065															
Bent 2		303			131.3	21,267	2,704															
Bent 3			L.S.		212.1	42,218	5,420															
Bent 4			L.S.		174.6	27,666	3,083															
Bent 5		80			25.4	20,064	2,250					24	360									
End Bent 2					20.0	4,359						7	315				L.S.			1364		
Total	Lump Sum	467	Lump Sum	25,403	740.3	152,922	17,588	14	604.92	28	2360.34	38	550	7	421.48	422.76	Lump Sum	L.S.	1364	645	Lump Sum	

PROJECT: 8.17G0801
--Wilkes COUNTY
 STATION: 17+89.00-L-

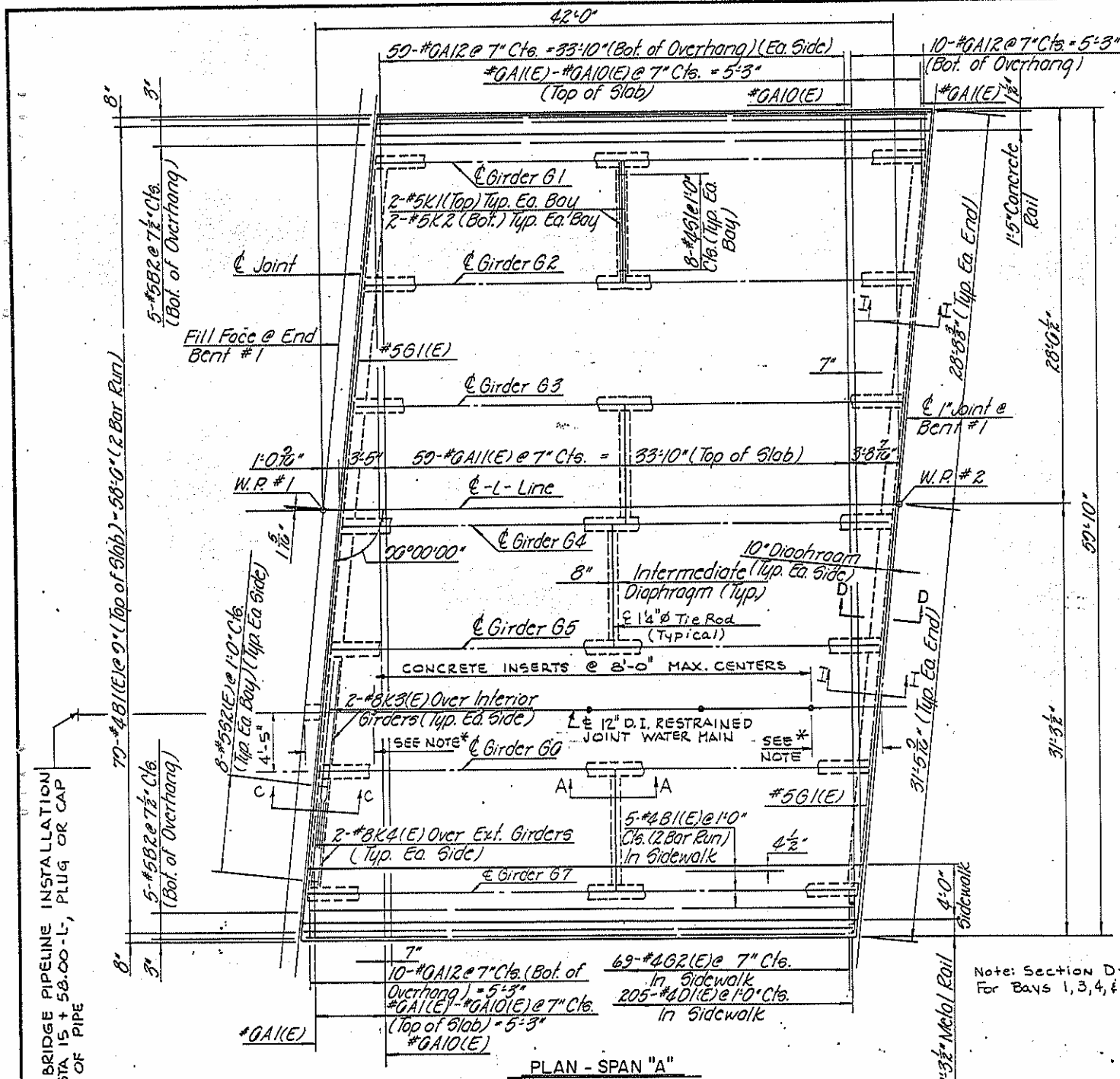
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
FOR BRIDGE OVER YADKIN RIVER
ON NC 115 BETWEEN
NC 18 & 268 AND US 421

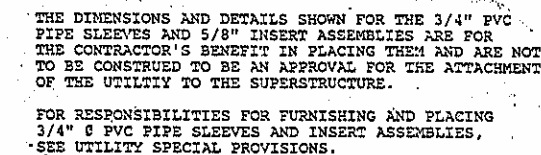
	BY	DATE
MADE	R.C.L.	5-88
CHECKED	D.R.R.	5-88
IN CHARGE D. R. Ruggles		

PREPARED BY
AMERICAN ENGINEERS

Dwg. 2 of 39

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	5-23
						TOTAL SHEET
						5-10

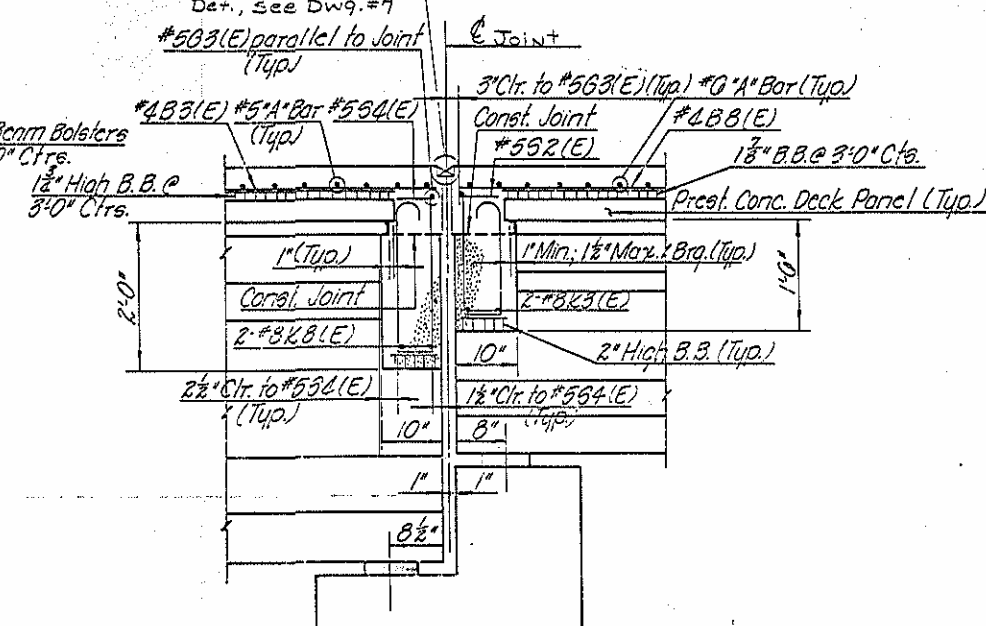




HALF SECTION - INTERMEDIATE DIAPHRAGM

TYPICAL SECTION - SPANS "A" & "F"

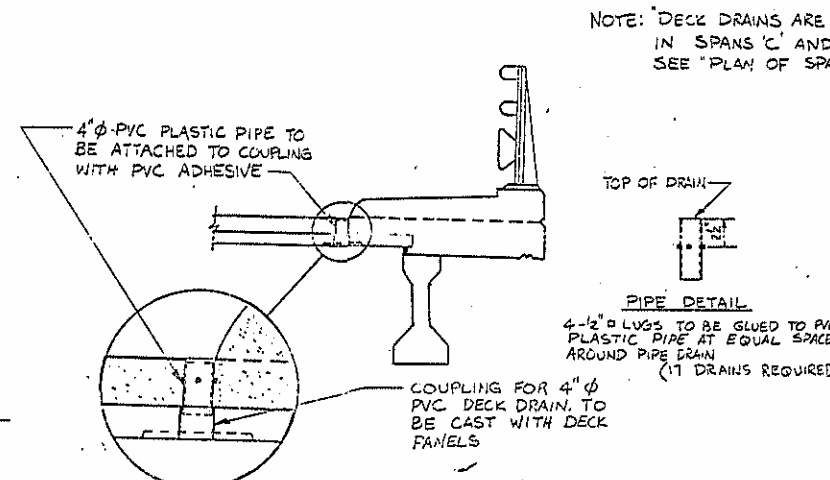
HALF SECTION - BENT DIAPHRAGM



SECTION "C - C"

SECTION "D - D"

SECTION "G - G"



NOTE: DECK DRAINS ARE REQUIRED
IN SPANS 'C' AND 'D' ONLY.
SEE "PLAN OF SPANS" SHEETS

PROJECT: 8.1760801
Wilkes COUNTY
 STATION: 17+82.00-L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
TYPICAL SECTIONS & DETAILS

REVISIONS							SHEET NO.
NO.	BY	DATE	NO.	BY	DATE		
①	JAG	12-14-89					
②	BC H	8-10-90					
							TOTAL SHEETS
							42

2) Added BBU To Overhang. By: BCH, VBy: CEP Date: 8-10-90

⚠ Added deck drain details
BY: JAG ✓ BY: TVK DATE: 12-17

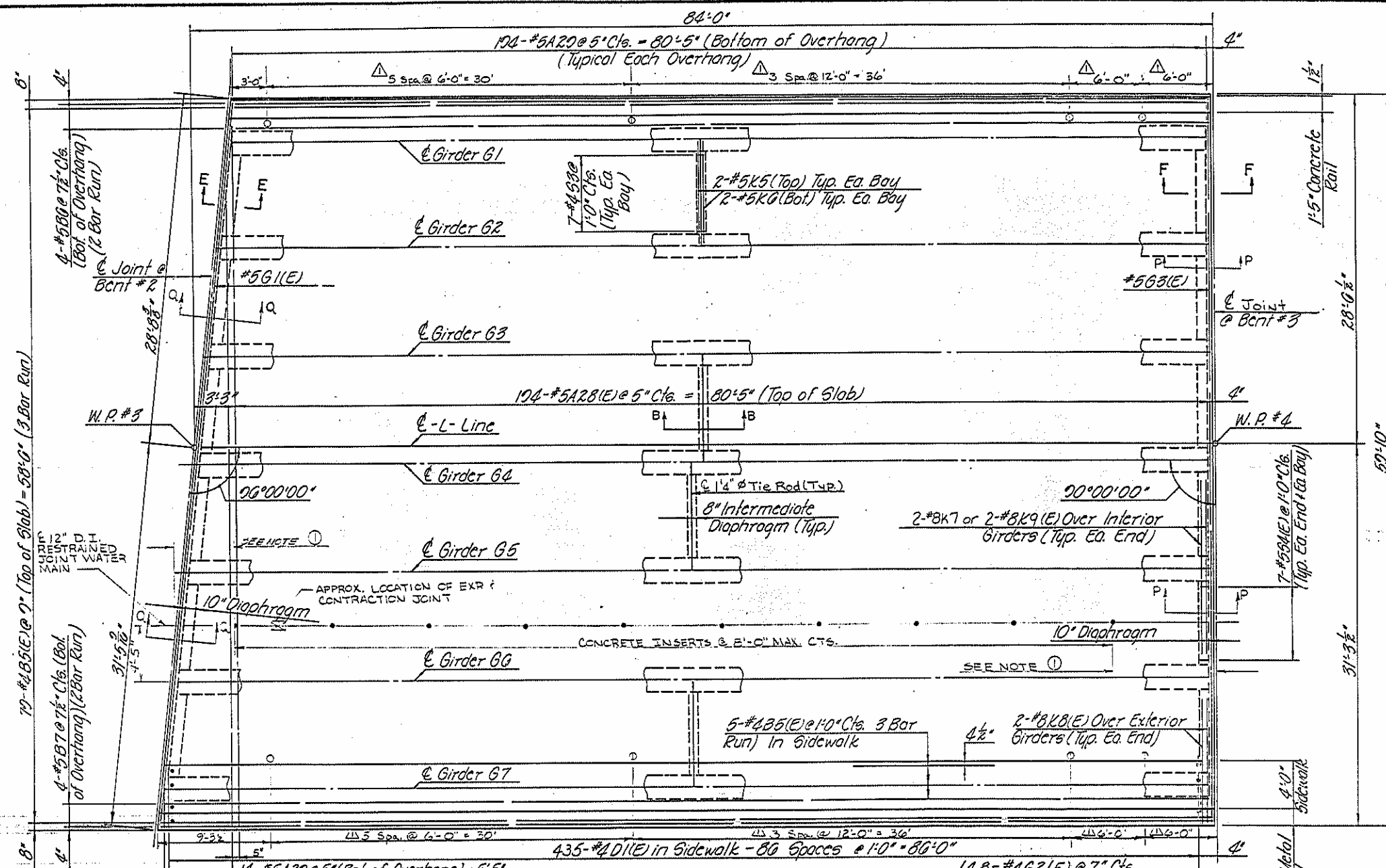
Dwg. 4 of 39

DRAINS SHALL BE OF 4" Ø P.V.C. PLASTIC PIPE.
TOP OF FLOOR DRAIN TO BE SET $\frac{3}{8}$ " BELOW SURFACE OF SLAB.
4-1/4" Ø LUGS TO BE GLUED TO THE P.V.C. PLASTIC PIPE
AT EQUAL SPACES AROUND THE PIPE DRAIN.

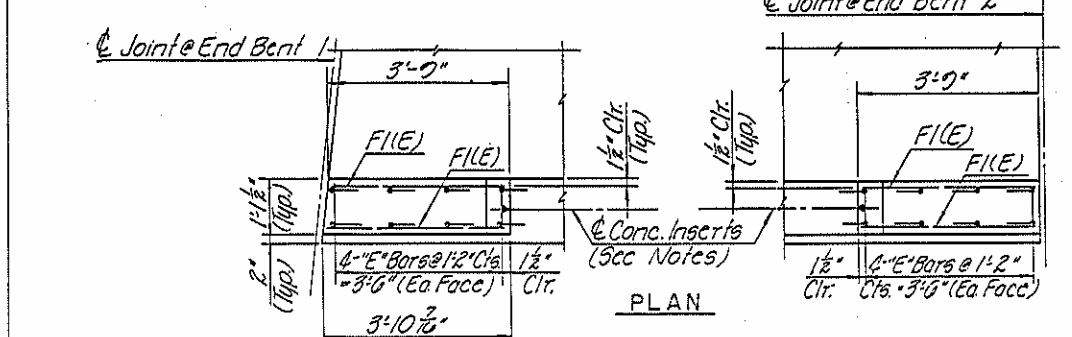
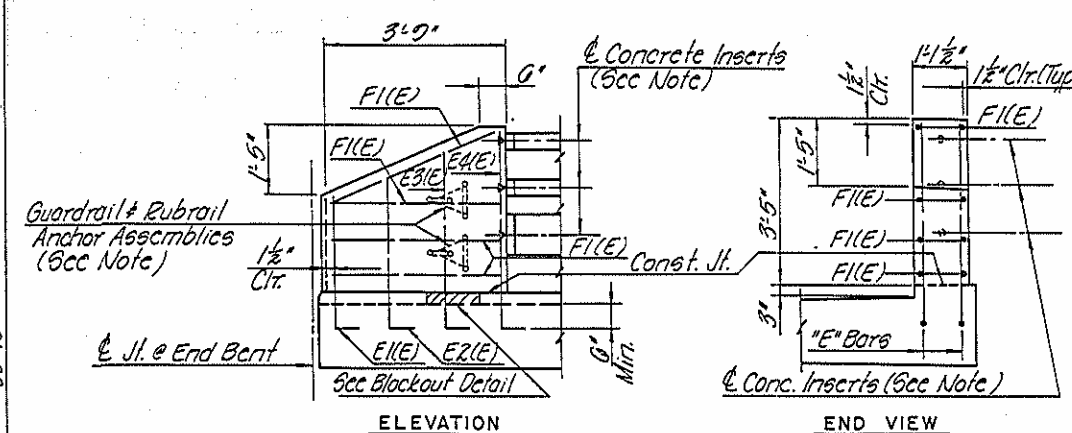
△ DRAIN DETAILS LEFT SIDE

✓ ⚠ Revised to add 4" ϕ deck drains to typical section BY: JAC ✓ BY: TYK DATE: 12-19-88 Dwg. 5 of 3

FED. ROAD DIST. NO.	STATE	PROJECT NO.
4	N.C.	
F. A. PROJECT		



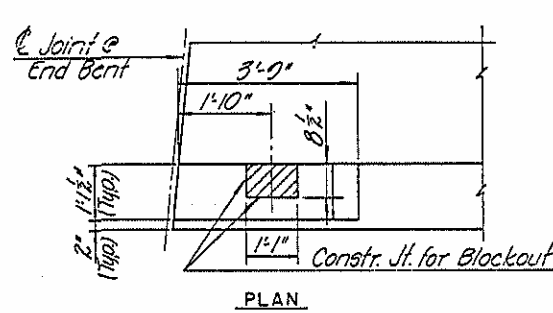
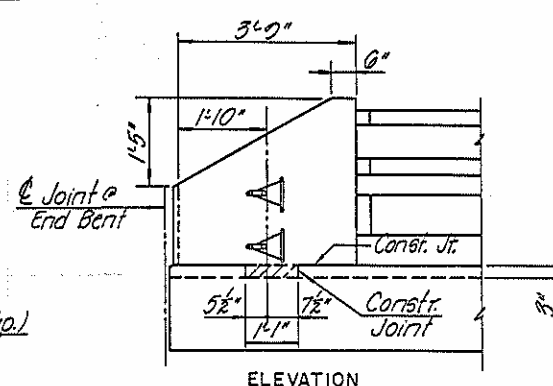
NOTE ① CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING "INSERT SPACING PLAN LAYOUTS" SHOWING LOCATIONS & SPACINGS OF INSERTS AND LOCATIONS OF PIPE JOINTS FOR APPROVAL. "SEE SPECIAL PROVISIONS."



Notes: Section F-F For Bays 1, 2, 3 & 6

END POST FOR THREE BAR RAIL

Notes:
1) The concrete in the shaded area of the sidewalk parapet shall be poured with the end post.
2) For details of concrete inserts, guardrail & rubrail anchor assemblies, see "Rail Post Spacing and End of Rail Detail" sheet (Dwg. #4).



BLOCKOUT DETAIL IN SIDEWALK PARAPET

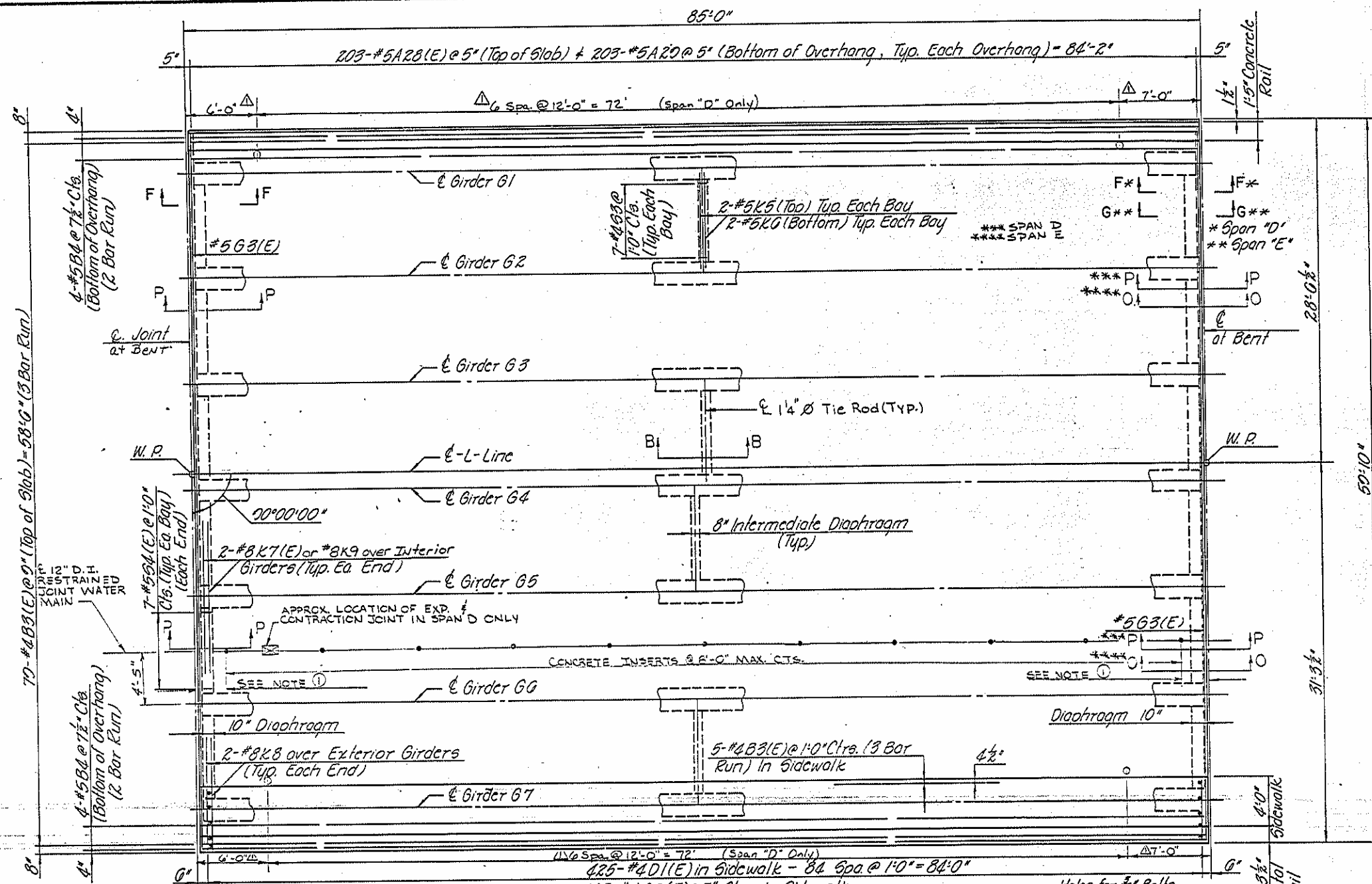
PROJECT: 0.1700801
Wilkes COUNTY
STATION: 17+82.00-L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
PLAN OF SPAN "C"
AND SECTIONS

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1	JAG	12-13-87				42
TOTAL SHEETS						101

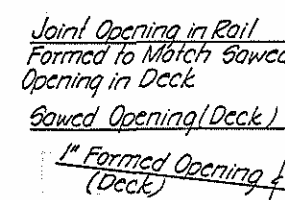
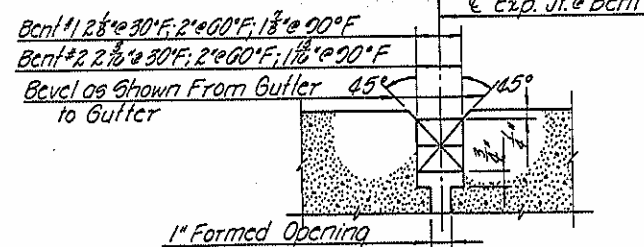
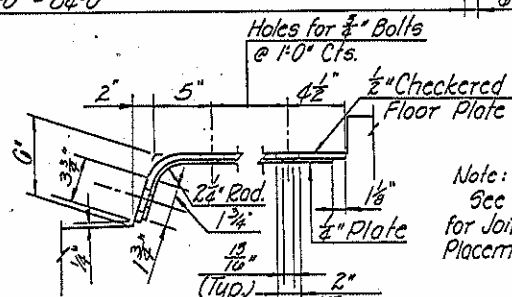
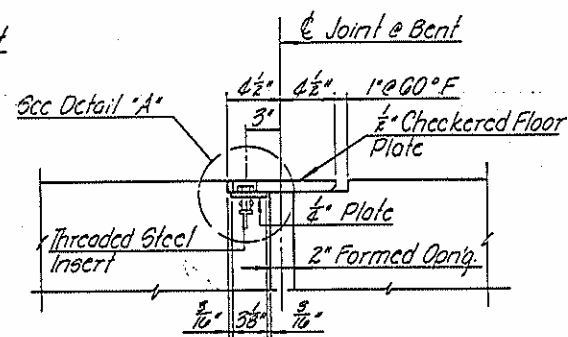
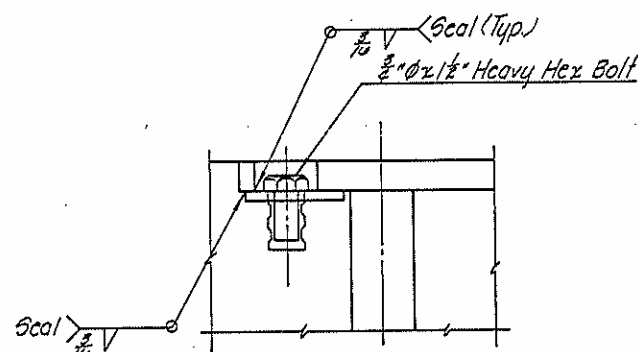
BY	DATE
MADE D.C.B.	5-88
CHECKED D.R.R.	5-88
IN CHARGE D.R. Ruggles	

Revised to add 4" deck drains, both sides of bridge by JAG 1/8/91 TVR DATE: 12-19-91 Dwg. 6 of 39

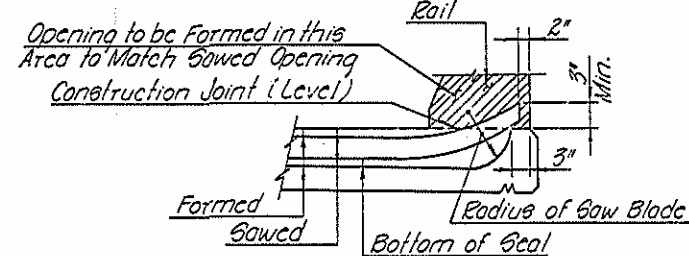


Note: Section F-F For Bays 1, 3, 4, & 6

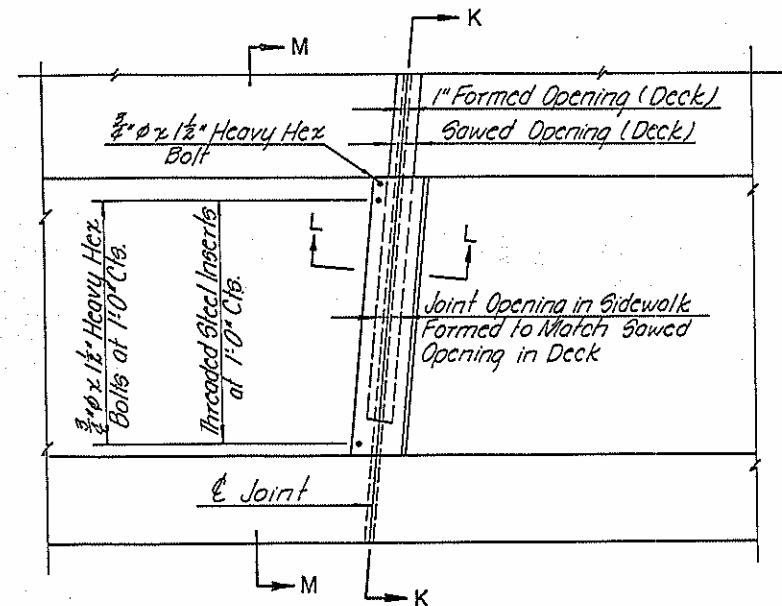
NOTE ① CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING "INSERT SPACING PLAN LAYOUTS" SHOWING LOCATIONS & SPACINGS OF INSERTS AND LOCATIONS OF PIPE JOINTS FOR APPROVAL. "SEE SPECIAL PROVISIONS."



COMPRESSION JOINT SEAL DETAIL AT RAIL



Note: Sections F-F and G-G For Bays 1, 3, 4, & 6



COMPRESSION JOINT SEAL DETAIL AT SIDEWALK

NOTES:
FOR COMPRESSION JOINT SEAL, SEE SPECIAL PROVISIONS.
STEEL CHECKERED FLOOR PLATES ARE REQUIRED AT ALL INTERIOR BENTS AND AT BOTH END BENTS.
THE STEEL PLATES SHALL CONFORM TO ASTM A36 OR APPROVED EQUAL. AFTER FABRICATION, THE PLATES SHALL BE COATED WITH TWO (2) COATS OF ZINC RICH PAINT IN ACCORDANCE WITH THE SPECIFICATIONS. EACH COAT SHALL HAVE A MINIMUM THICKNESS OF 3 MILS.
THE 3/4" Ø HEAVY HEX HEAD BOLTS SHALL CONFORM TO TYPE 304 STAINLESS STEEL.
THE 3/4" CONCRETE INSERTS SHALL BE CLOSED-END FERRULES WITH LOOPED WIRE STRUTS ATTACHED TO THEM. THE INSERTS SHALL CONFORM TO ASTM A108, GRADE 12L14 AND SHALL HAVE A TENSILE WORKING LOAD CAPACITY OF 3000 LBS.
NO SEPARATE PAYMENT WILL BE MADE FOR FURNISHING AND INSTALLING THE COVER PLATE. THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE LUMP SUM PRICE FOR "PREFORMED COMPRESSION JOINT SEALS."

PROJECT: 8.1760801
Wilkes COUNTY
STATION: 17+82.00-L-

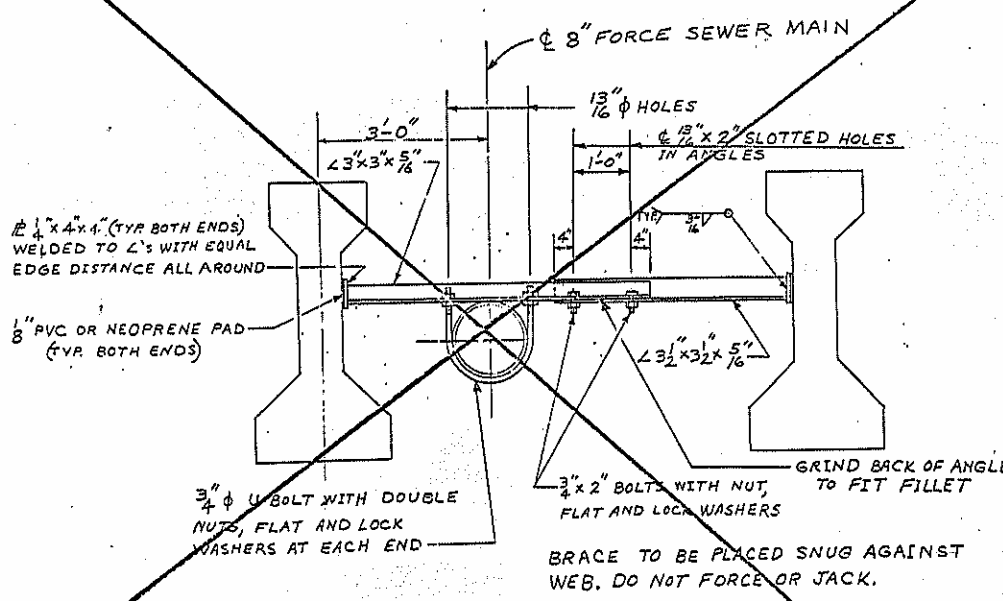
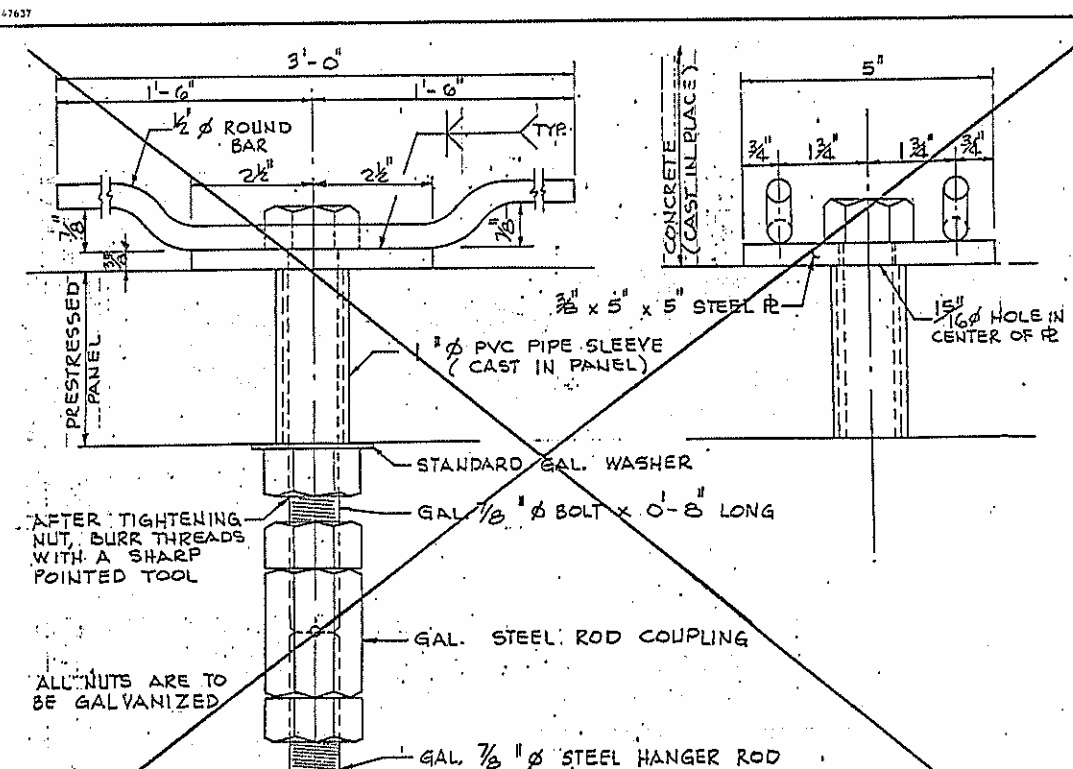
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
PLAN OF SPANS "D" AND "E"
AND JOINT DETAILS

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1	JAG	12-13-88				5741
TOTAL SHEETS						42.101

BY	DATE
MADE	D.C.B. 5-88
CHECKED	D.R.R. 5-88
IN CHARGE	D. R. Ruggles

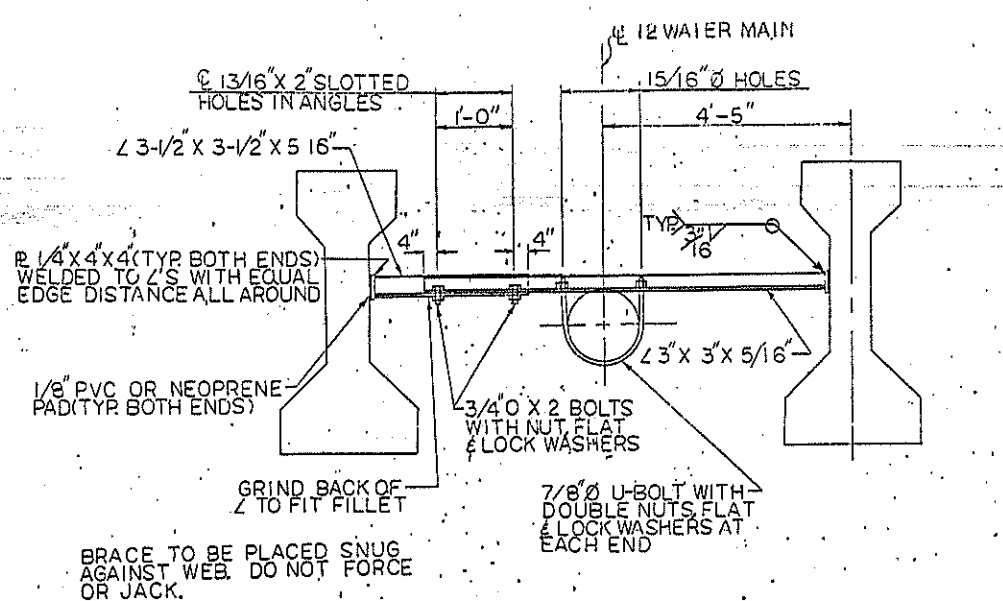
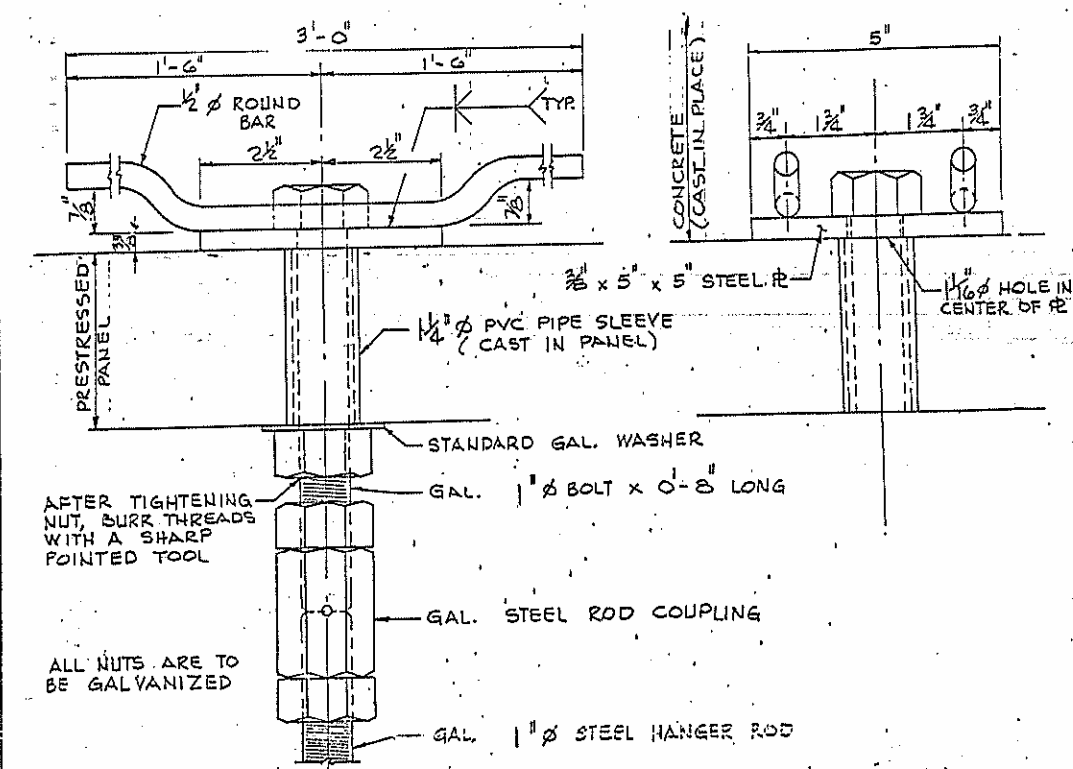
PREPARED BY
AMERICAN ENGINEERS
Revised to add 4" Ø deck drains, both sides of bridge BY: JAG / BY: TTR DATE: 12-13-88

Dwg. 7 of 39



BILL OF MATERIALS FOR 8" SEWER MAIN		
ITEM NO.	QUANTITY	DESCRIPTION
1	2 EA.	12" STEEL PIPE SLEEVES
2	55 EA.	CONCRETE INSERT ASSEMBLIES FOR USE WITH PRECAST CONCRETE PANELS
3	55 EA.	1" x 1/2" STEEL ROD COUPLINGS
4	55 EA.	10" ADJUSTABLE PIPE ROLL HANGERS WITH 7/8" R RODS
5	457 L.F.	8" BITUMINOUS COATED D.I. RESTRAINED J.T., CLASS 52 PIPE
6	2 EA.	8" D.I. RESTRAINED EXPANSION AND CONTRACTION JOINT
7	2 EA.	END PLUG OR CAP FOR 8" D.I. CLASS 52 PIPE
8	22 EA.	LATERAL BRACE ASSEMBLIES
9	2 EA.	APPROVED MODULAR TYPE CASING SEAL
10	30 LBS.	JUTE
11	20 LBS.	MASTIC FOR PLASTIC CAULKING COMPOUND
12	1 LOT	PAINT AS REQUIRED

*THE CONTRACTOR SHALL NOT CONSTRUCT THESE QUANTITIES TO BE EXACT. ACTUAL QUANTITIES MAY VARY FROM THESE ESTIMATED QUANTITIES DEPENDING UPON SPACINGS FOR LOCATIONS OF CONCRETE INSERT ASSEMBLIES AND VARIATIONS IN LENGTHS OF PIPE SECTIONS WHICH MUST BE PRE-DETERMINED BY THE CONTRACTOR TO AVOID CONFLICTS BETWEEN PIPE HANGERS AND PIPE JOINTS.



BILL OF MATERIALS FOR 12" WATER MAIN		
ITEM NO.	QUANTITY	DESCRIPTION
1	2 EA.	16" STEEL PIPE SLEEVES
2	55 EA.	CONCRETE INSERT ASSEMBLIES FOR USE WITH PRECAST CONCRETE PANELS
3	55 EA.	1" x 1/2" STEEL ROD COUPLINGS
4	55 EA.	14" ADJUSTABLE PIPE ROLL HANGERS WITH 1" R RODS
5	460 L.F.	12" BITUMINOUS COATED D.I. RESTRAINED J.T., CLASS 52 PIPE
6	2 EA.	12" D.I. RESTRAINED EXPANSION AND CONTRACTION JOINT
7	2 EA.	END PLUG OR CAP FOR 12" D.I. CLASS 52 PIPE
8	22 EA.	LATERAL BRACE ASSEMBLIES
9	2 EA.	APPROVED MODULAR TYPE CASING SEAL
10	50 LBS.	JUTE
11	40 LBS.	MASTIC FOR PLASTIC CAULKING COMPOUND
12	1 LOT	PAINT AS REQUIRED

*THE CONTRACTOR SHALL NOT CONSTRUCT THESE QUANTITIES TO BE EXACT. ACTUAL QUANTITIES MAY VARY FROM THESE ESTIMATED QUANTITIES DEPENDING UPON SPACINGS FOR LOCATIONS OF CONCRETE INSERT ASSEMBLIES AND VARIATIONS IN LENGTHS OF PIPE SECTIONS WHICH MUST BE PRE-DETERMINED BY THE CONTRACTOR TO AVOID CONFLICTS BETWEEN PIPE HANGERS AND PIPE JOINTS.

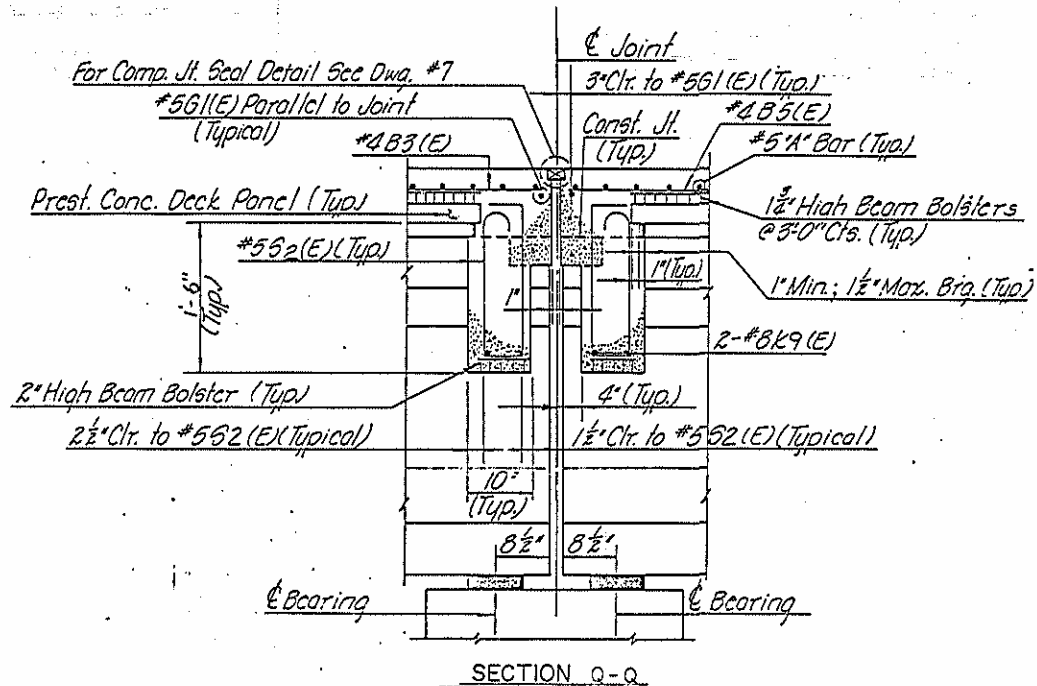
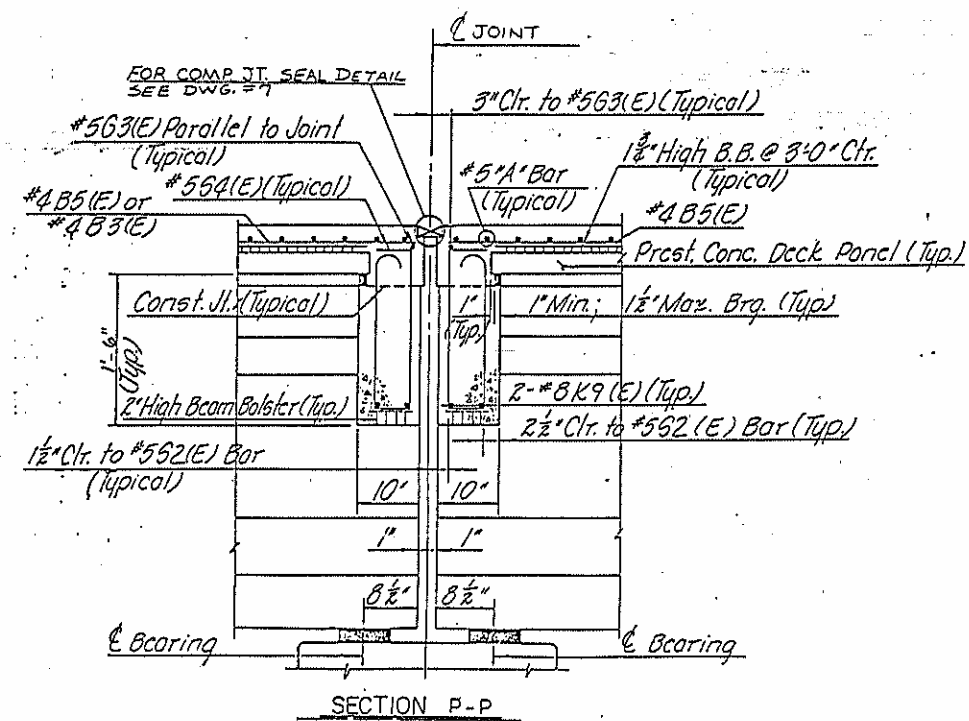
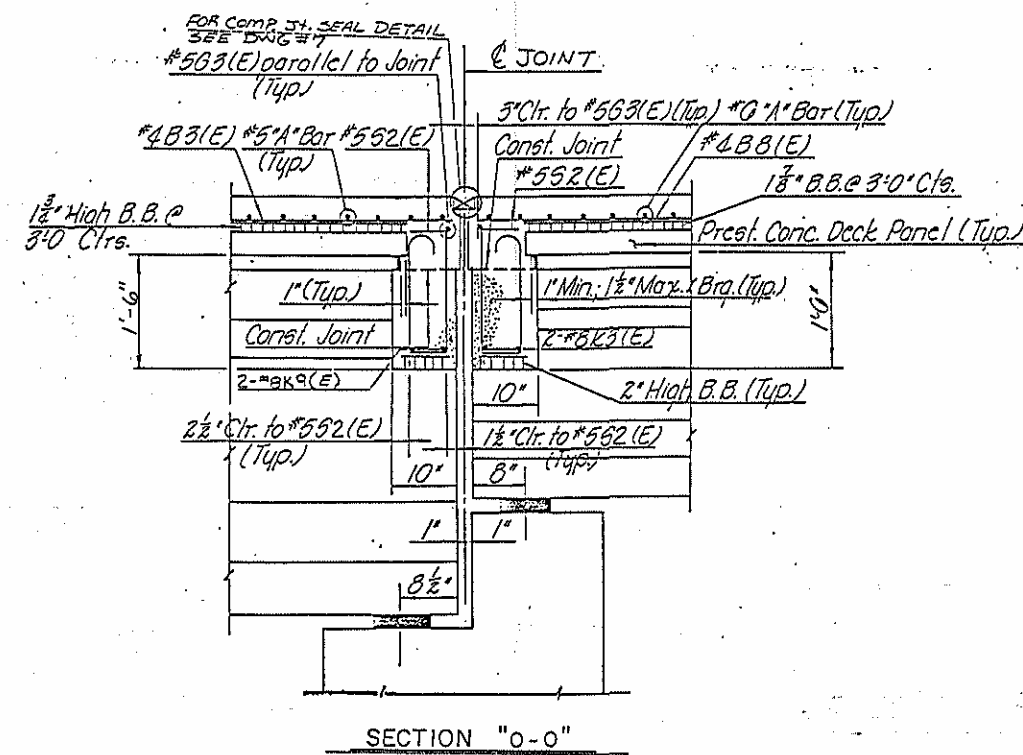
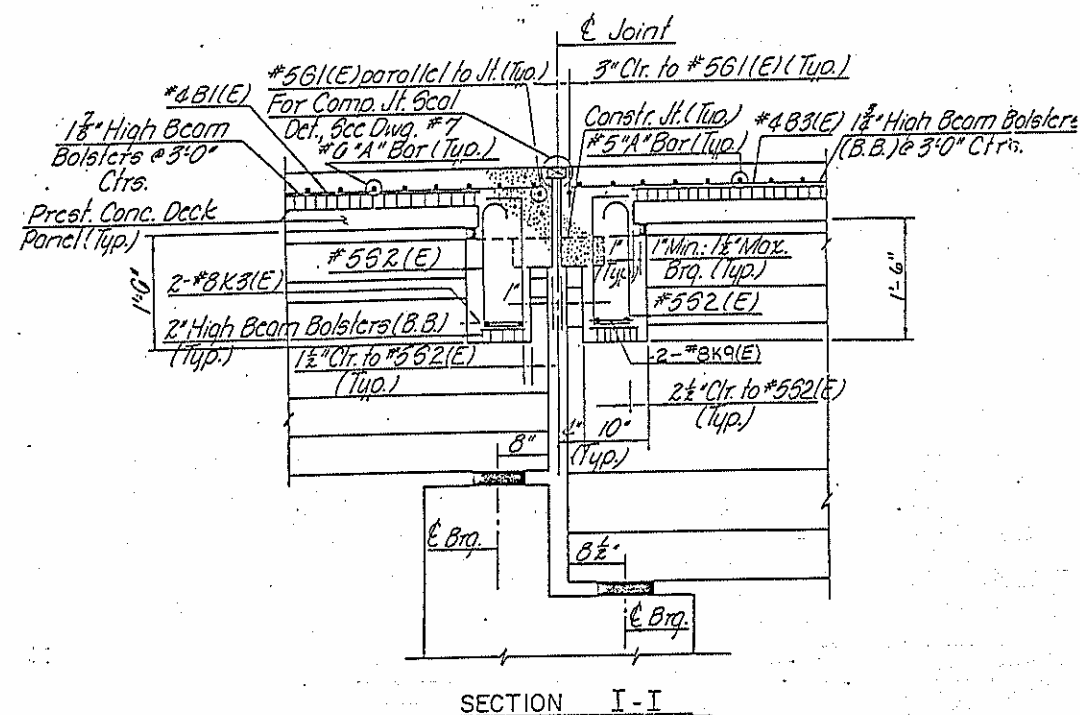
PROJECT No. 81780801
WILKES COUNTY
STATION: 17+89.00-1

DRAWN BY: C. C. SMITH DATE: 6-21-89
CHECKED BY: C. POPE DATE: 6-22-89

NOTES FOR INSTALLATION OF 12" WATER MAIN
CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING "INSERT SPACING PLAN LAYOUTS" SHOWING LOCATIONS & SPACINGS OF INSERTS AND LOCATIONS OF PIPE JOINTS FOR APPROVAL. "SEE SPECIAL PROVISIONS."
SEE SPECIAL PROVISIONS FOR SPECIAL REQUIREMENTS CONCERNING THE SECTIONS OF PIPE TO BE INSTALLED THROUGH THE END BENT BACKWALLS & UNDER THE APPROACH SLABS.
NO PIPE JOINTS SHALL BE PERMITTED BENEATH BRIDGE APPROACH SLABS.
LAYING CONDITION FOR PIPE IN DIRECT BURY SHALL BE IN ACCORDANCE WITH LAYING CONDITION SHOWN ON "ROADWAY UTILITY CONSTRUCTION PLANS".

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH UTILITY ATTACHMENT DETAILS					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

42 SHEET
NO. 42
TOTAL SHEETS
42 OF 101



PROJECT NO. S.1760801
 WILKES COUNTY
 STATION: 17+69.00-L

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 DETAILS

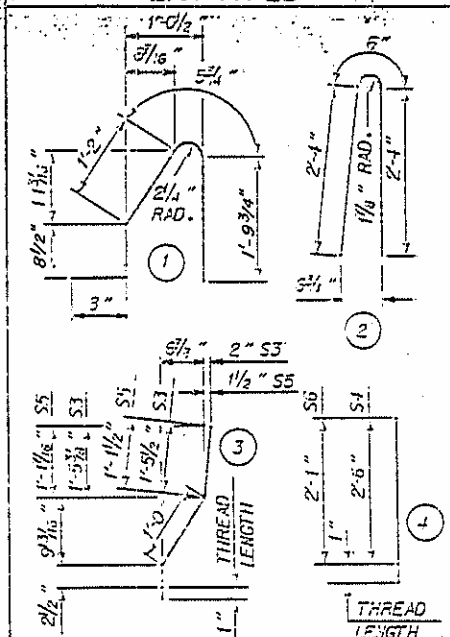
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

43 SHEET
 NO. 43

TOTAL
 SHEETS
 101

DRAWN BY S.C. HUNT DATE 8-22-59
 CHECKED BY R.J. WIDERS DATE 11-22-59

BAR TYPES



ALL BAR DIMENSIONS ARE CUT TO CUT

BILL OF MATERIAL

FOR CONCRETE BARRIER RAIL ONLY

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
S1	400	#5	1	4'-10"	2016
S2	400	#5	2	5'-2"	2156
S3	14	#5	3	2'-8"	58
S4	14	#5	4	2'-8"	54
S5	4	#5	3	2'-5"	15
S6	4	#5	4	2'-2"	13
B1	12	#5	STR.	20'-0"	250
B2	66			27'-10"	1916
B3	6			24'-0"	150
B4	12	#5	STR.	22'-6"	292

EPOXY COATED REINFORCING STEEL 6.910 LBS.
CLASS A-A-CONCRETE 38.7 CU. YDS.
CONCRETE BARRIER RAIL 422.76 LIN. FT.

NOTES

FOR CONCRETE BARRIER RAIL, SEE SPECIAL PROVISIONS.

THE BARRIER RAIL IN EACH SPAN SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

WHEN COMPRESSION JOINT SEAL IS REQUIRED, THE JOINT IN THE DECK SHALL BE SAWED PRIOR TO THE CASTING OF BARRIER RAIL.

FERRULES SHALL BE PLUGGED DURING CASTING OF SLAB AS RECOMMENDED BY THE MANUFACTURER.

THE BARRIER RAIL ANCHOR ASSEMBLY FERRULES SHALL HAVE THREADS COMPATIBLE TO THE THREADED REINFORCING BARS. THE FERRULES SHALL HAVE A MINIMUM LENGTH EQUAL TO THE LENGTH OF THE THREADS ON THE REINFORCING BARS.

AT THE CONTRACTOR'S OPTION, FERRULES WITH OPEN OR CLOSED ENDS MAY BE USED.

THE THREADED REINFORCING BARS ARE TO BE TIGHTENED BY HAND.

THE WIRE GAGE AND FERRULES SHALL BE OF SUFFICIENT STRENGTH TO ENSURE LOAD ANCHORING CAPACITY AS SPECIFIED IN THE AASHTO SPECIFICATIONS. A MANUFACTURER'S CERTIFICATION OF LOAD ANCHORING CAPACITY SHALL BE FURNISHED WITH EACH SHIPMENT OF BARRIER RAIL ANCHOR ASSEMBLIES.

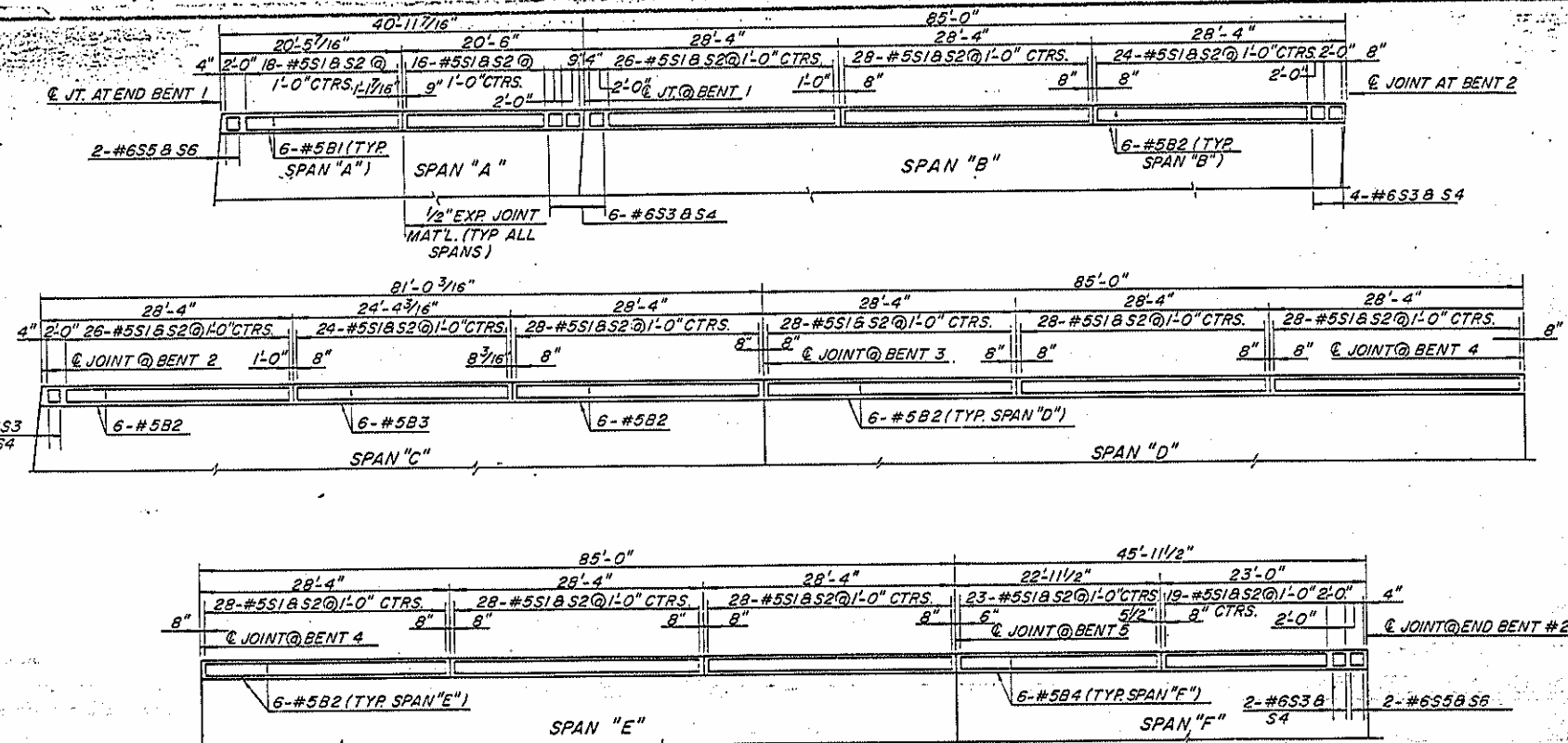
THE THREADED REINFORCING BARS SHALL BE GRADE 60. THE BAR SHALL BE MANUFACTURED WITH A MALE THREADED END WITH A MINIMUM TENSILE STRESS AREA OF 0.334 SQUARE INCHES. THE BARRIER RAIL ANCHOR ASSEMBLY AND THREADED REINFORCING BARS SHALL BE SUPPLIED AS A UNIT.

THE BARRIER RAIL ANCHOR ASSEMBLIES WITH THREADED REINFORCING BARS SHALL BE ASSEMBLED IN THE SHOP. REINFORCING BAR THREADS MAY BE RECUT AS NECESSARY.

THE COST OF THE BARRIER RAIL ANCHOR WITH THREADED REINFORCING BARS SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

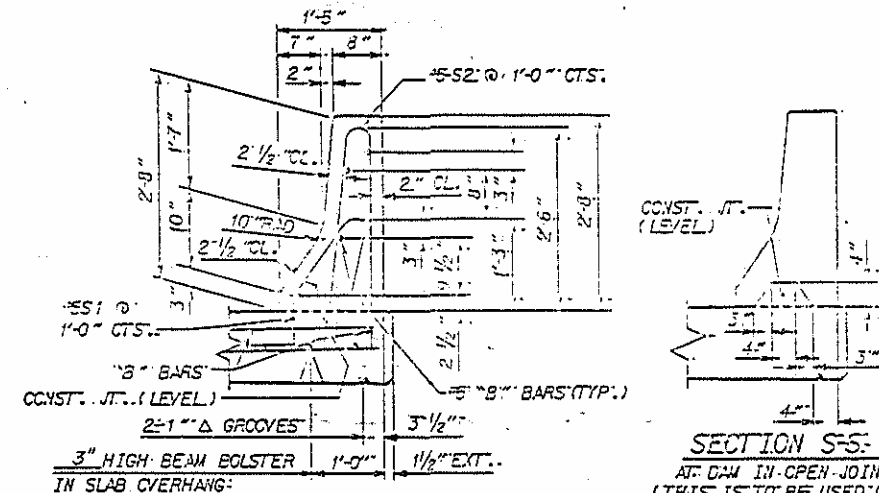
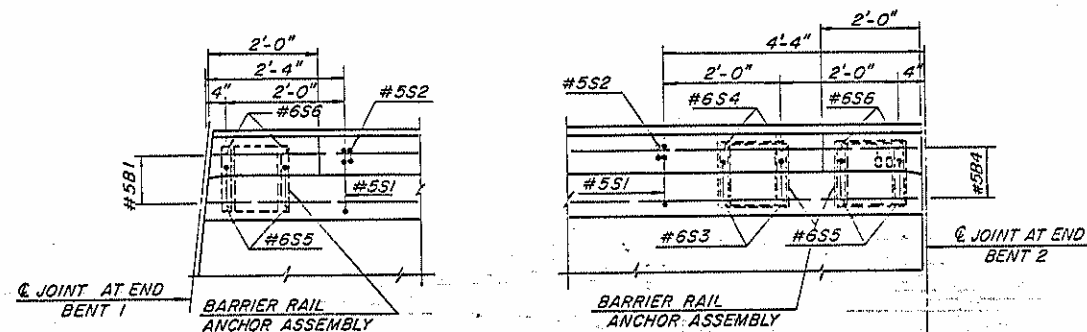
ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

FOR EPOXY COATED REINFORCING STEEL, SEE SPECIAL PROVISIONS.



PLAN

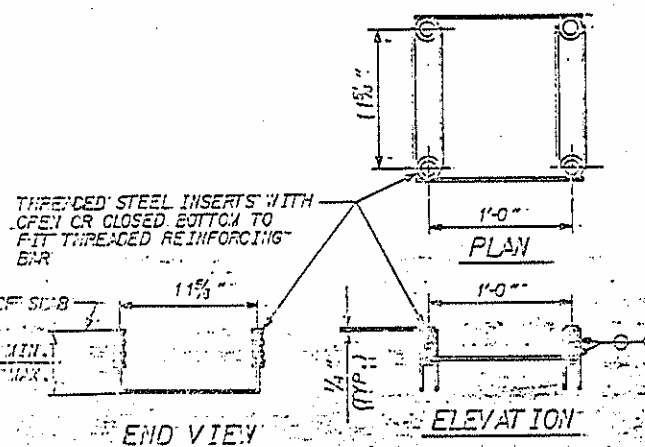
NOTE: ALL DIMENSIONS ARE ALONG OUTSIDE FACE OF RAIL.



SECTION THRU RAIL

SECTION S-S

AT JAW IN OPEN JOINT
(THIS IS TO BE USED ONLY
WHEN SLIP FORM IS USED)

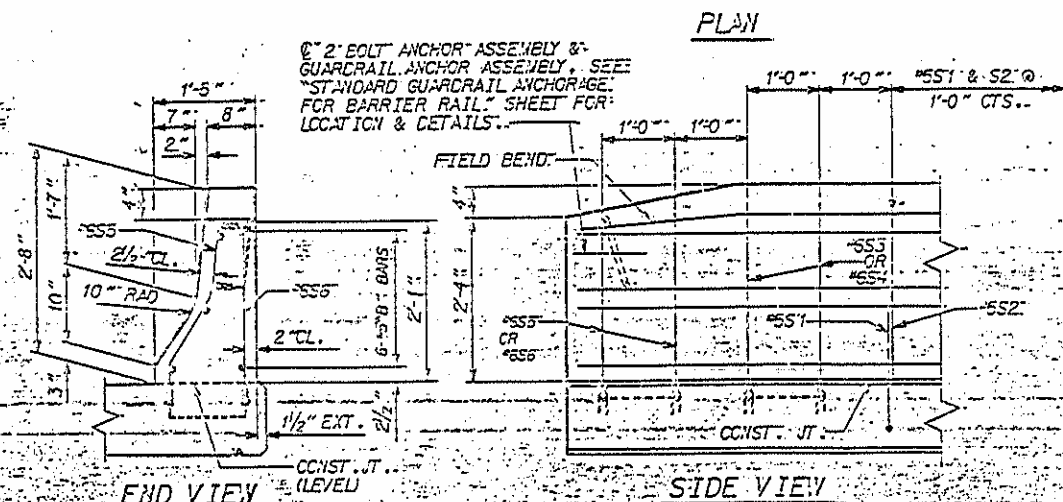


BARRIER RAIL ANCHOR ASSEMBLY

9 ANCHOR ASSEMBLIES REQUIRED

ASSEMBLED BY: W.L.H.	DATE: 5/88	SPECIAL
CHECKED BY: R.C.L.	DATE: 5/88	
DRAWN BY: R. DOWD	DATE: 5/23/88	STANDARD
CHECKED BY: S.J. DAVIS	DATE: 9/3/88	

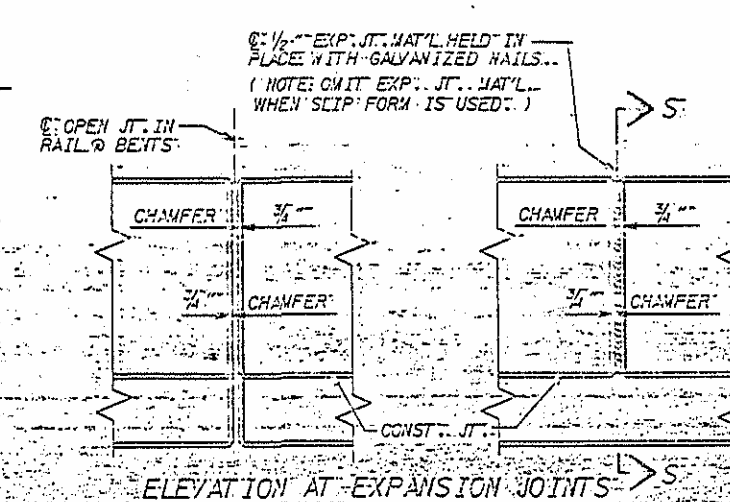
CICD



END VIEW

SIDE VIEW

BARRIER RAIL-END OF RAIL DETAILS



ELEVATION AT EXPANSION JOINTS

BARRIER RAIL-DETAILS

PROJECT NO. 81700801

Wilkes COUNTY

STATION: 77+80.00-6

DEPARTMENT OF TRANSPORTATION

STANDARD

CONCRETE

BARRIER RAIL

NO.	DATE	REVISIONS	BY	DATE
1	5/88			

STD. NO. CBRI

NOTES

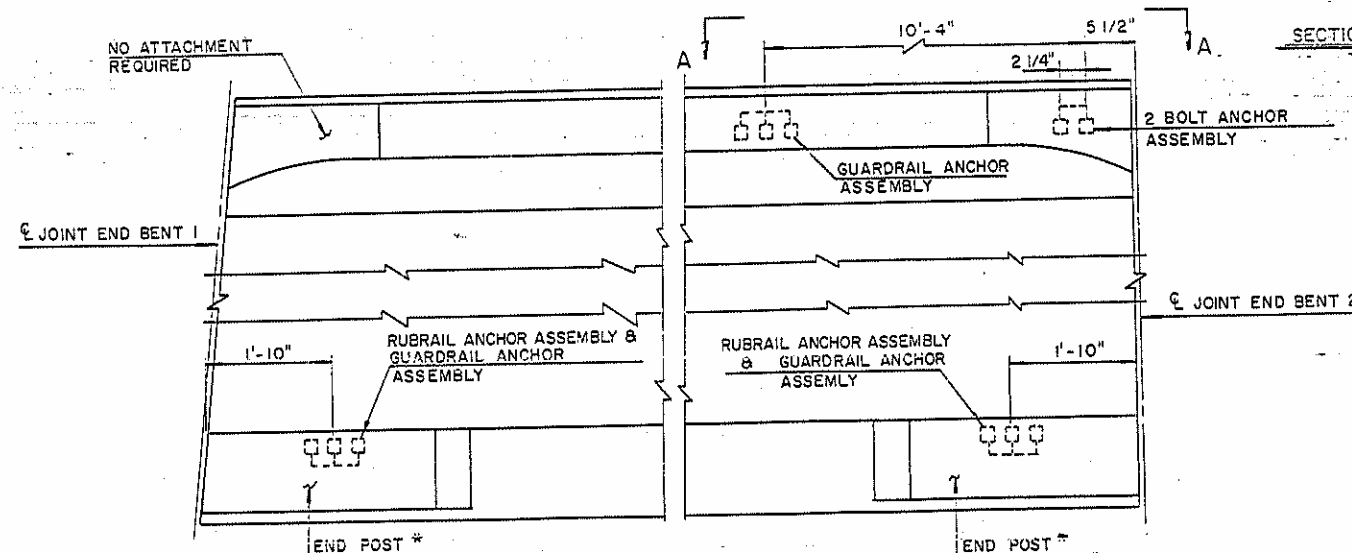
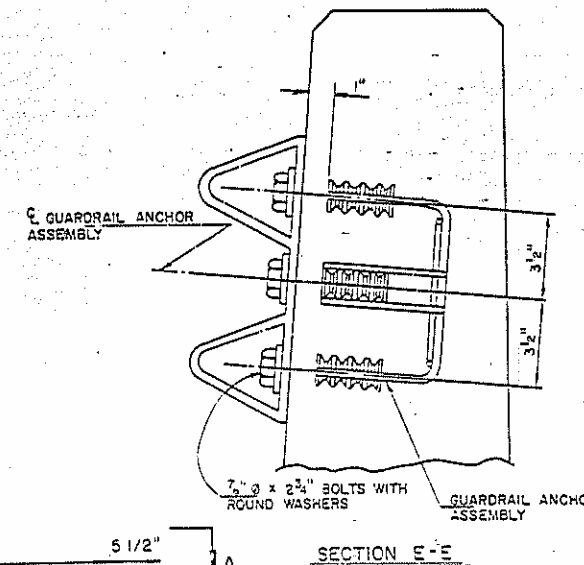
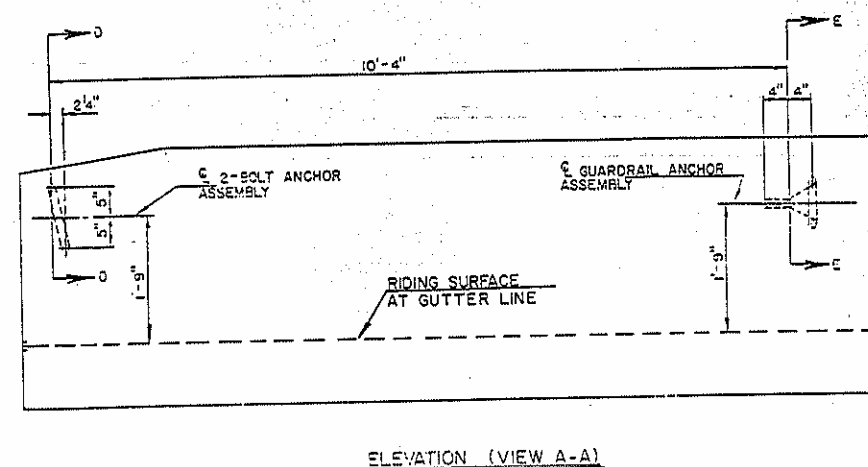
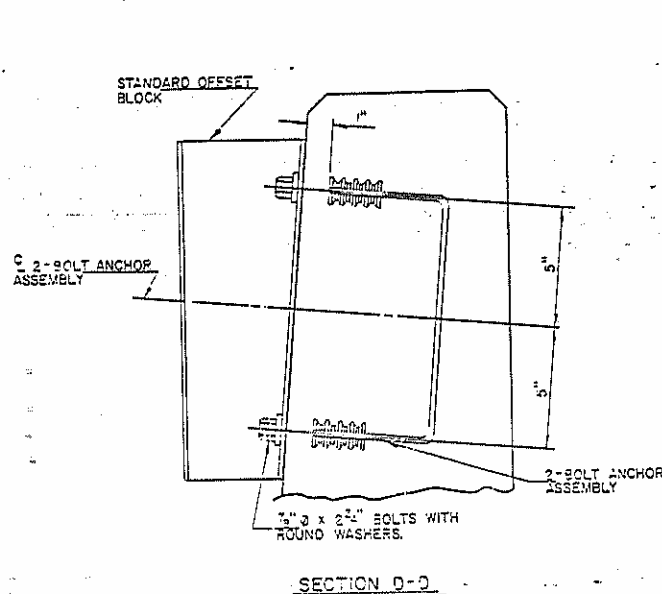
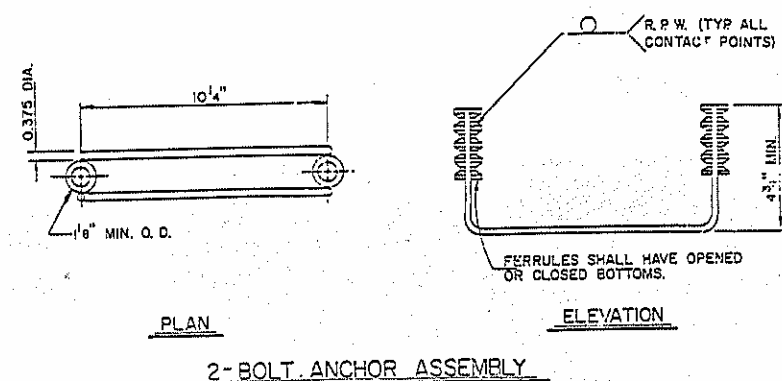
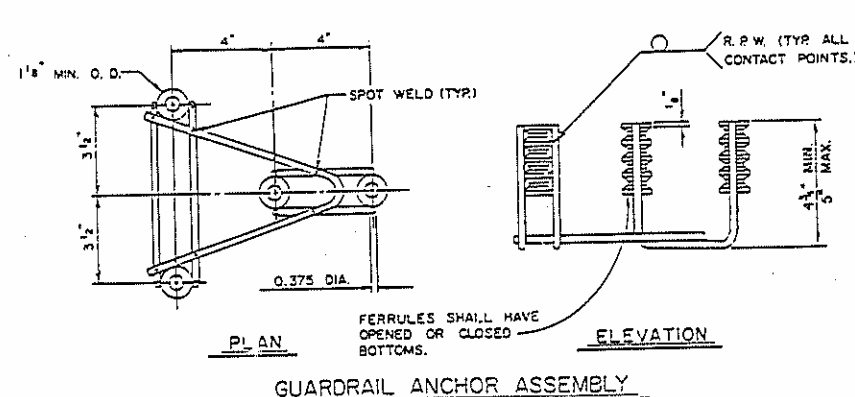
THE GUARDRAIL ANCHOR ASSEMBLY AND THE 2-BOLT ANCHOR ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:

- FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF ASTM A108, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF 4' - 7/8" DIA. X 2 3/4" BOLTS WITH WASHERS FOR GUARDRAIL ANCHOR ASSEMBLY AND 2-7/8" DIA. X 2 3/4" BOLTS WITH WASHERS FOR 2-BOLT ANCHOR ASSEMBLY SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTORS OPTION, STAINLESS STEEL BOLTS WITH WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" DIA. X 2 3/4" GALVANIZED BOLTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
- WIRE STRUTS SHOWN IN THE ANCHOR ASSEMBLY ARE THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI.

THE GUARDRAIL ANCHOR ASSEMBLIES AND THE 2-BOLT ANCHOR ASSEMBLIES WITH BOLTS SHALL BE ASSEMBLED IN THE SHOP. BOLT THREADS MAY BE RECUT AS NECESSARY.

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES AND THE 2-BOLT ANCHOR ASSEMBLIES WITH BOLTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

THE GUARDRAIL ANCHOR ASSEMBLY AND THE 2-BOLT ANCHOR ASSEMBLY ARE REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.



LOCATION OF ANCHORS FOR GUARDRAILS & OFFSET BLOCKS

* FOR LOCATION OF ANCHORS IN END POST, SEE "STANDARD RAIL POST SPACINGS AND END OF RAIL DETAILS", DWG. #14

PROJECT No. 8.1760801
WILKES COUNTY
STATION: 17+89.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
GUARDRAIL ANCHORAGE
FOR BARRIER RAIL

MARCH 1984

REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			2		
3			4		

DWG 10 of 39

STD. NO. GRAI

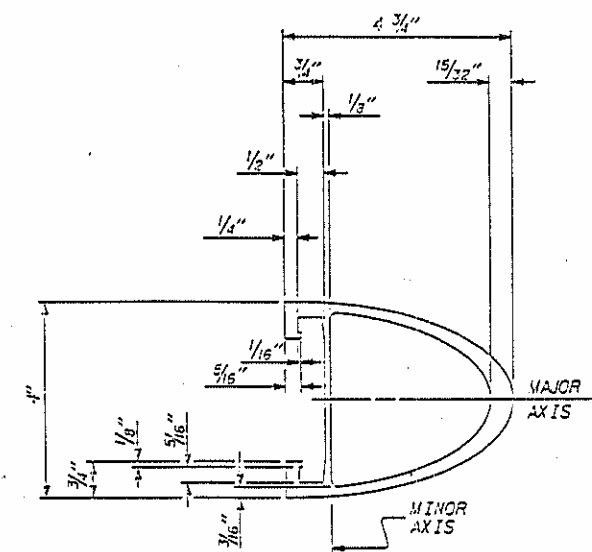
ASSEMBLED BY	DCB	DATE	5-88	SPECIAL
CHECKED BY	DRR	DATE	5-88	
DRAWN BY	E. R. LUPWICK, JR.	DATE	JANUARY 3, 1984	STANDARD
CHECKED BY	R. N. MUTHNERSON	DATE	JANUARY 3, 1984	

NOTES

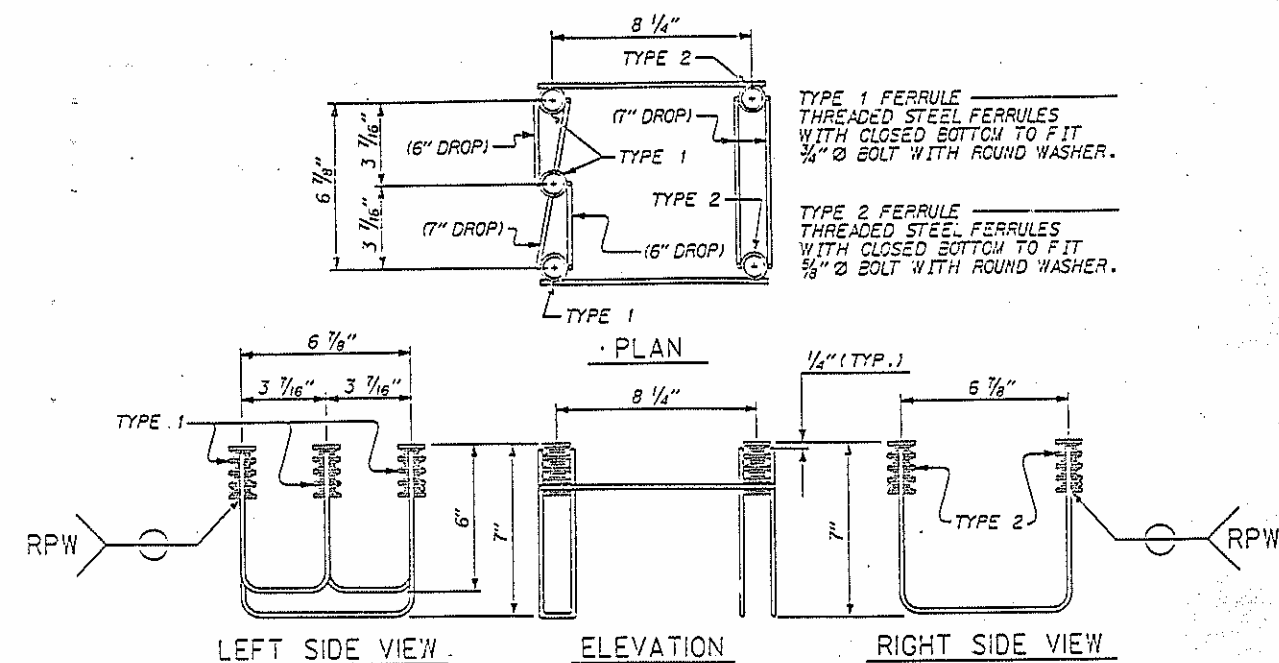
STRUCTURAL CONCRETE ANCHOR ASSEMBLY

THE STRUCTURAL CONCRETE ANCHOR ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS :

- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF ASTM A108, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF $1\frac{1}{2}$ ".
- B. $3 - \frac{3}{4}" \times 1\frac{1}{2}"$ BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTORS OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE $\frac{3}{4}" \times 1\frac{1}{2}"$ GALVANIZED BOLTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
- C. $2 - \frac{5}{8}" \times 1\frac{1}{2}"$ BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTORS OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE $\frac{5}{8}" \times 1\frac{1}{2}"$ GALVANIZED BOLTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
- D. WIRE STRUT SHOWN IN THE CONCRETE ANCHOR ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI.
- E. THE METAL RAIL ANCHOR ASSEMBLIES TO BE HOT DIPPED GALVANIZED TO CONFORM TO REQUIREMENTS OF ASTM A-123.
- F. THE COST OF THE METAL RAIL ANCHOR ASSEMBLY WITH BOLTS AND WASHERS COMPLETE IN PLACE SHALL BE INCLUDED IN THE PRICE BID FOR LINEAR FEET OF METAL RAIL.
- G. BOLTS TO BE TIGHTENED ONE-HALF TURN WITH A WRENCH FROM A FINGER-TIGHT POSITION.

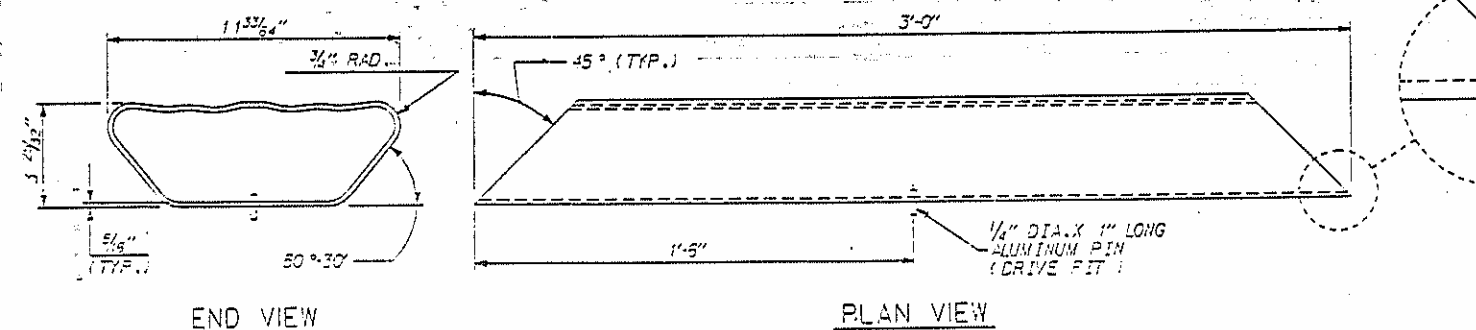


TOP & MIDDLE RAIL SECTION

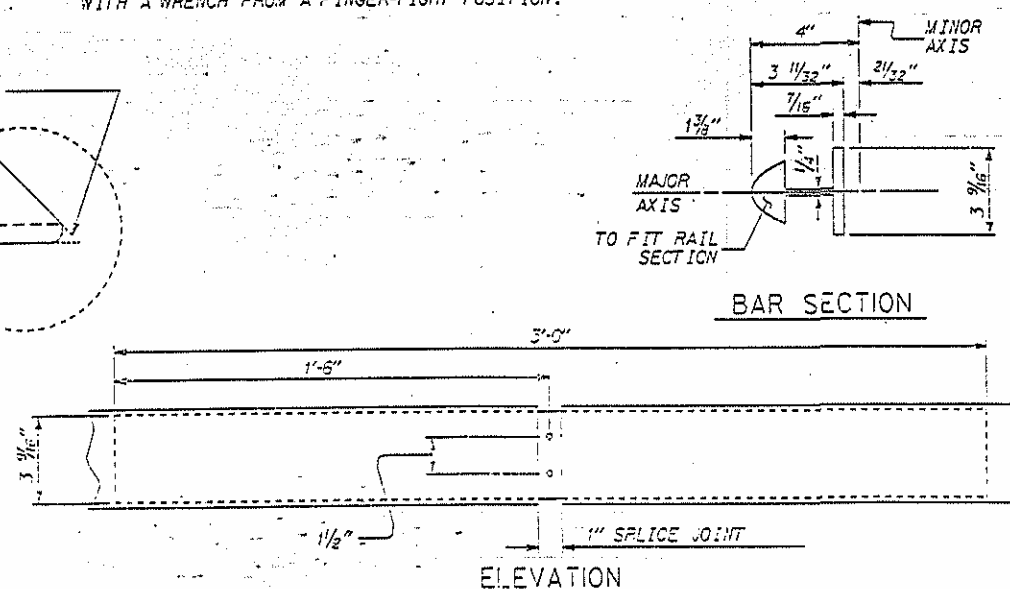


5-BOLT METAL RAIL ANCHOR ASSEMBLY

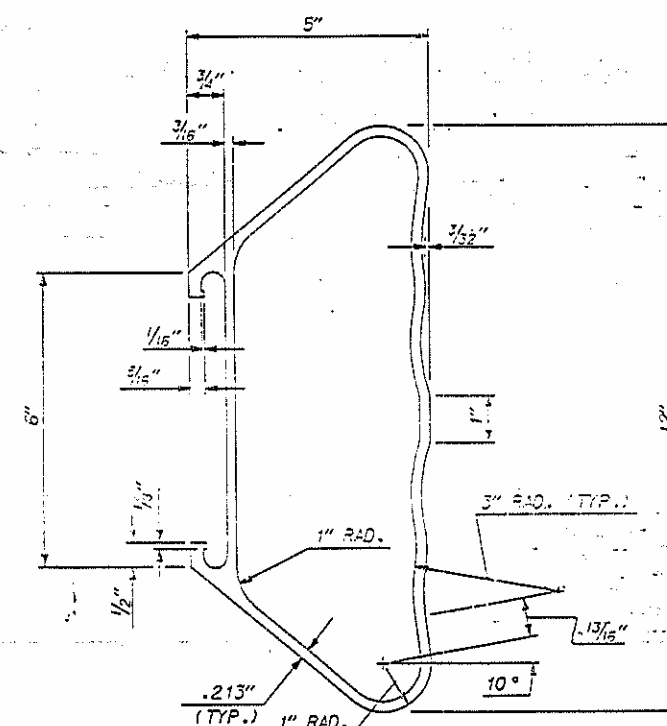
(68 ASSEMBLIES REQUIRED)



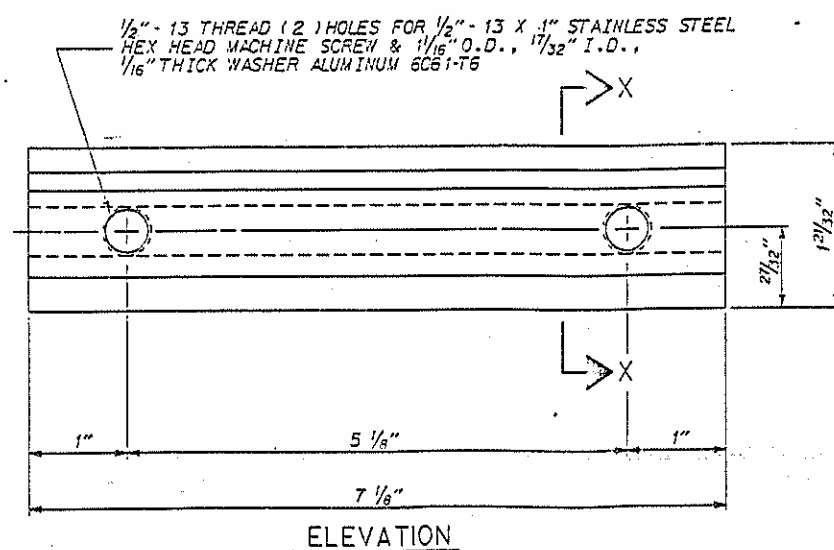
BOTTOM RAIL-SPLICE BAR



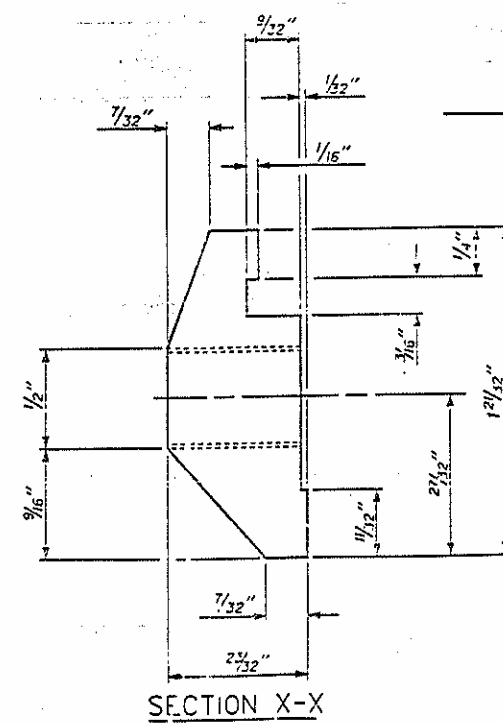
TOP & MIDDLE RAIL SPLICE BAR



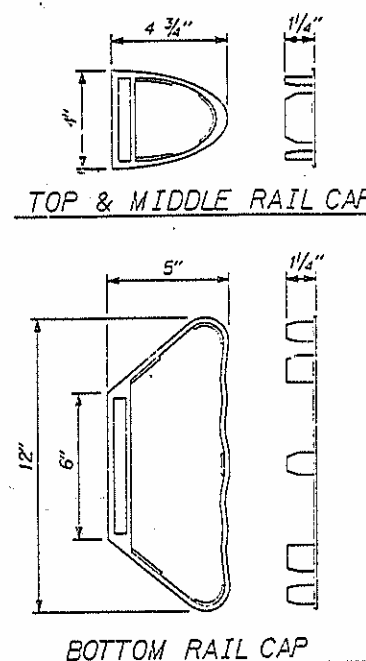
BOTTOM RAIL SECTION



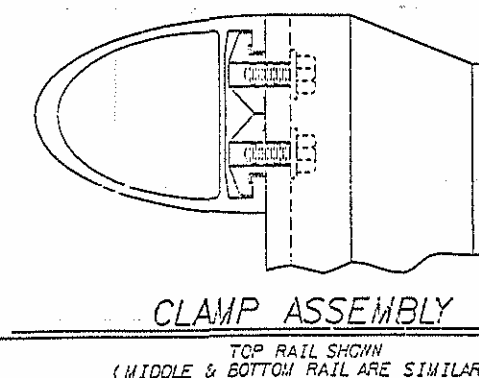
ELEVATION



CLAMP BAR DETAIL
(6 REQUIRED PER POST)



TOP & MIDDLE RAIL CAP



CLAMP ASSEMBLY

TCP RAIL SHOWN
(MIDDLE & BOTTOM RAIL ARE SIMILAR)

PROJECT NO. 8.1760801

WILKES COUNTY

STATION: 17+89.00 - L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RAILROAD

STANDARD

3 BAR METAL RAIL

JAN. 1981

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	48514

7		33		TOTAL SHEETS 42
9	12	4		

DWG 12 of 39

STD.No.BMR3

ASSEMBLED BY : <u>DRR</u>	DATE : <u>5/88</u>	SPECIAL
CHECKED BY : <u>RCL</u>	DATE : <u>5/89</u>	
DRAWN BY : <u>MIKE BRITT</u>	DATE : <u>JAN. 1988</u>	STANDARD
CHECKED BY : <u>G. G. HARPER</u>	DATE : <u>JAN. 1989</u>	

NOTES

METAL RAIL TO END POST CONNECTION

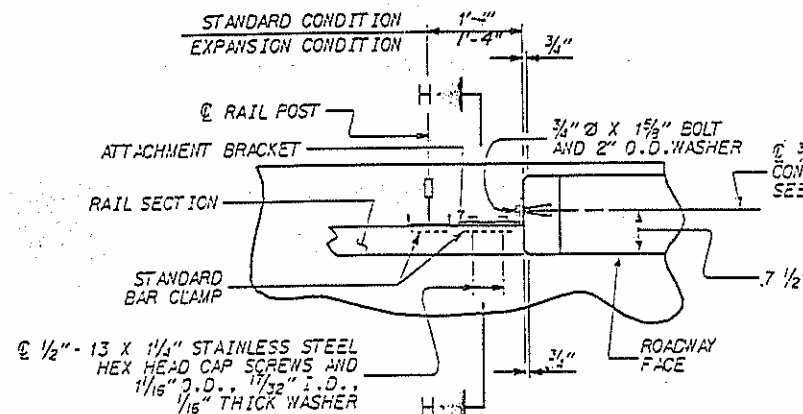
- THE METAL RAIL TO END POST CONNECTION SHALL CONSIST OF THE FOLLOWING COMPONENTS:
- $\frac{1}{2}$ " PLATES SHALL CONFORM TO ASTM A36 AND SHALL BE GALVANIZED AFTER FABRICATION.
 - $\frac{3}{4}$ " STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4300 LBS. THE FERRULES SHALL ENGAGE A $\frac{3}{4}$ " $\times$ $1\frac{1}{2}$ " BOLT WITH 2" O.D. WASHER IN PLACE. THE $\frac{3}{4}$ " $\times$ $1\frac{1}{2}$ " BOLT SHALL HAVE H. C. THREADS.
 - CAP SCREWS FOR RAIL ATTACHMENT TO ANGLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM A276 TYPE 430. CAP SCREWS TO BE CENTERED IN SLOTS AT 60° F.
 - STANDARD CLAMP BARS (SEE METAL RAIL SHEET).
 - $\frac{1}{2}$ " ϕ PIPE SLEEVES (IF REQUIRED) TO BE GALVANIZED.

THE COST OF THE STANDARD CLAMP BARS AND CAP SCREWS USED IN THE METAL RAIL TO END POST CONNECTION SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR LINEAR FEET OF 1 AND 3 BAR METAL RAILS.

THE $\frac{3}{4}$ " STRUCTURAL CONCRETE INSERT WITH BOLT SHALL BE ASSEMBLED IN THE SHOP.

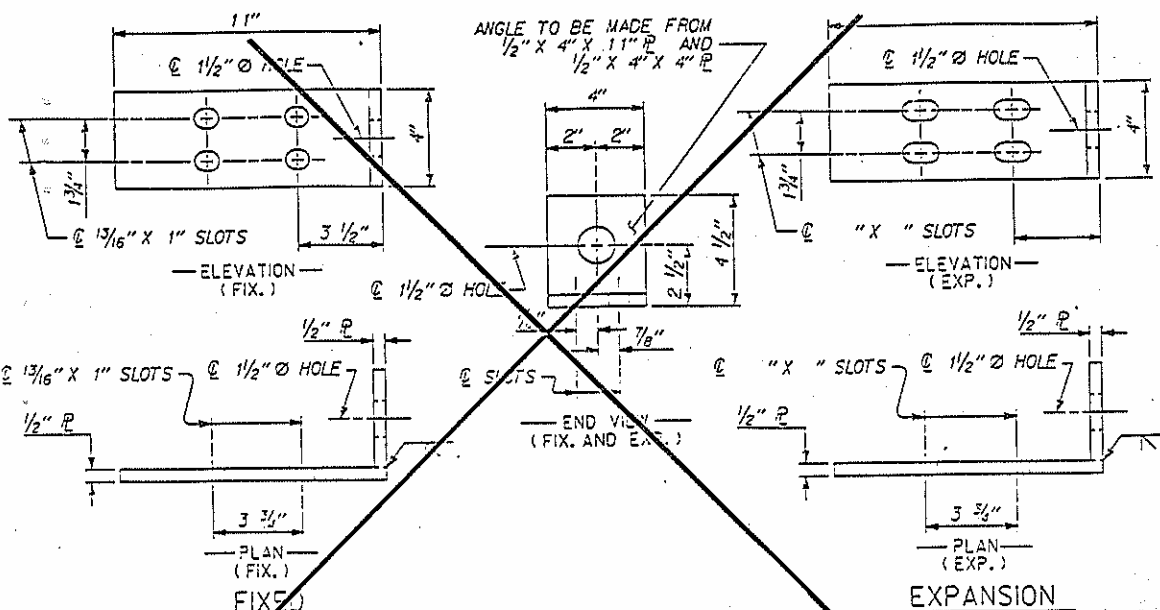
THE COST OF THE $\frac{3}{4}$ " STRUCTURAL CONCRETE INSERT ASSEMBLY, AND THE $\frac{1}{2}$ " PLATES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE $\frac{3}{4}$ " $\times$ $1\frac{1}{2}$ " BOLT WITH WASHER SHALL BE REPLACED WITH A $\frac{3}{4}$ " $\times$ $6\frac{1}{2}$ " BOLT AND 2" O.D. WASHER. ALL SPECIFICATIONS WHICH APPLY TO THE $\frac{3}{4}$ " $\times$ $1\frac{1}{2}$ " BOLT SHALL APPLY TO THE $\frac{3}{4}$ " $\times$ $6\frac{1}{2}$ " BOLT. SEE SPECIAL PROVISIONS FOR "ANCHOR BOLTS DRILLED INTO EXISTING CONCRETE USING AN ADHESIVE BONDING SYSTEM".



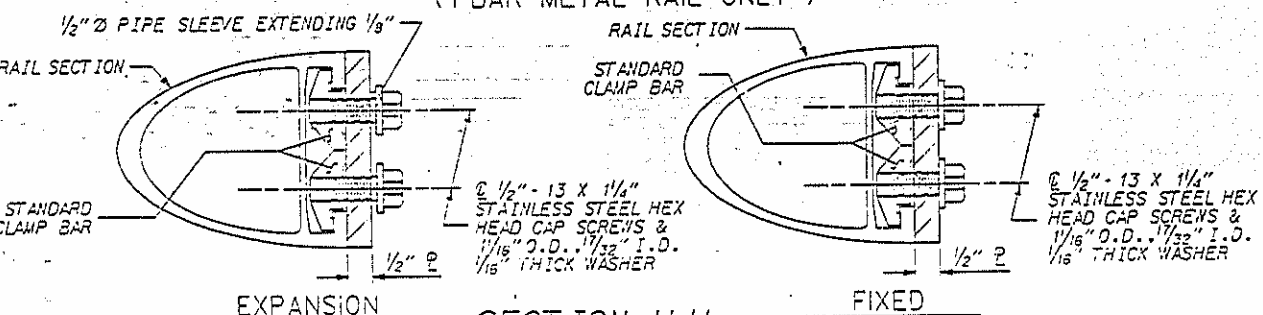
PLAN OF RAIL AND END POST

(STIFFENER ON $\frac{1}{2}$ " ϕ NOT SHOWN FOR CLARITY)



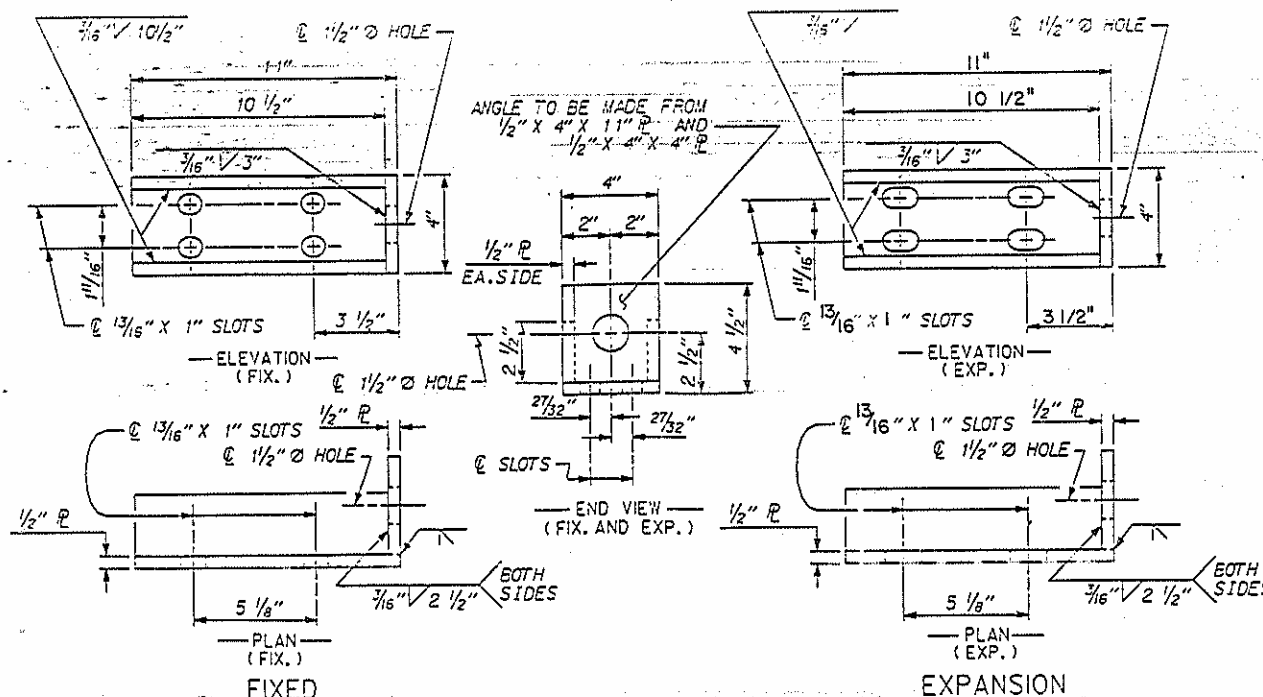
DETAILS FOR ATTACHMENT BRACKET

(1 BAR METAL RAIL ONLY)



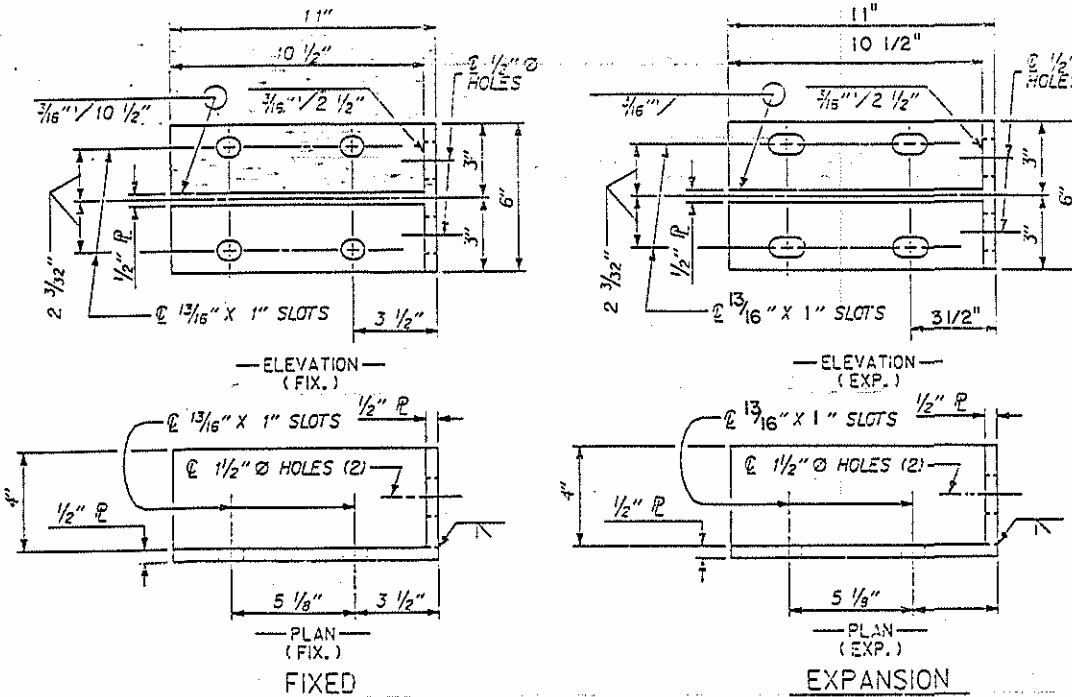
SECTION H-H

(FOR 1 BAR METAL RAIL AND TOP & MIDDLE BAR OF 3 BAR METAL RAIL)



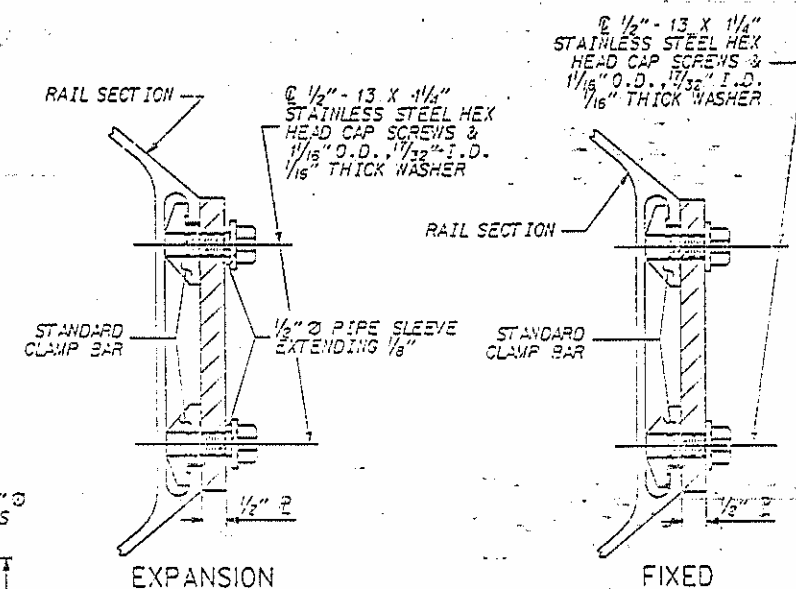
DETAILS FOR ATTACHMENT BRACKET

(TOP & MIDDLE RAIL OF 3 BAR METAL RAIL ONLY)



DETAILS FOR ATTACHMENT BRACKET

(BOTTOM RAIL OF 3 BAR METAL RAIL ONLY)



SECTION H-H

(FOR BOTTOM RAIL OF 3 BAR METAL RAIL)

PROJECT NO. 8.1760801

WILKES COUNTY

STATION: 17+89.00 - L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RAILROAD

STANDARD
RAIL POST SPACINGS
AND
END OF RAIL DETAILS
FOR ONE & THREE BAR METAL RAILS

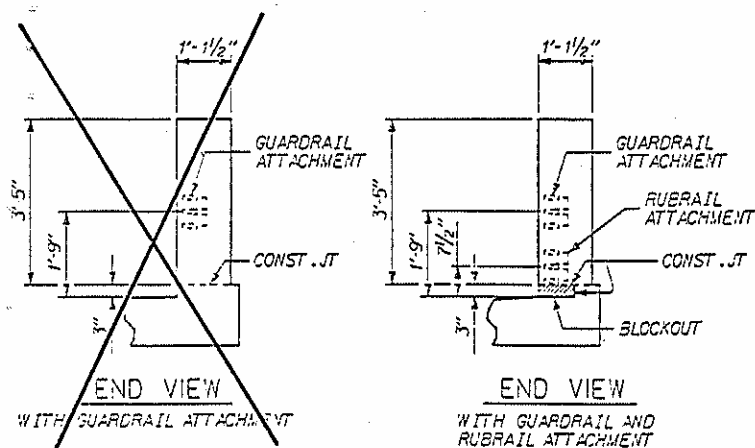
JAN. 1988

REVISIONS			SHEET NO.		
NO.	BY	DATE	NO.	BY	DATE
1			2		
2			3		
3			4		

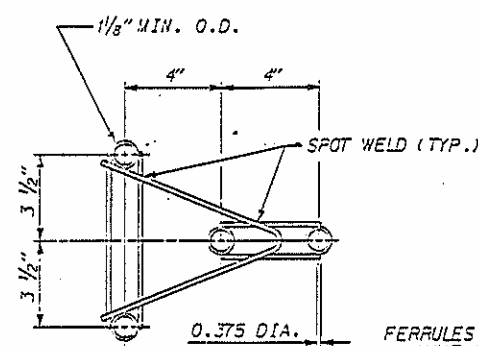
Dwg 13 of 39

STD. No. BMR4

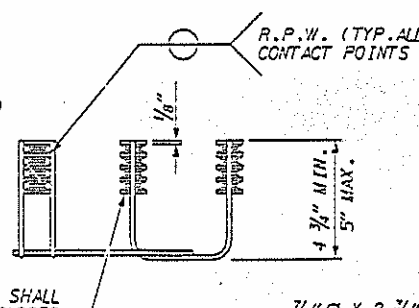
ASSEMBLED BY: ORR	DATE: 5/88	SPECIAL
CHECKED BY: RCL	DATE: 5/88	
DRAWN BY: MIKE BRITT	DATE: JAN. 1988	STANDARD
CHECKED BY: G.G. HARPER	DATE: JAN. 1988	



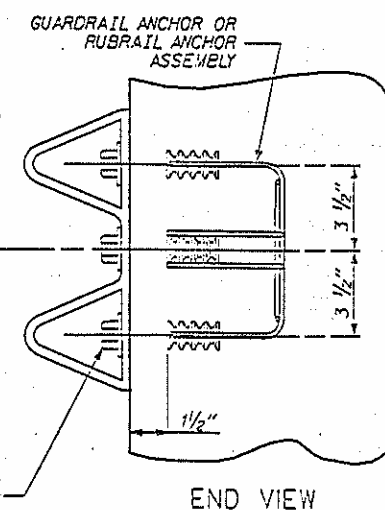
LOCATION OF GUARDRAIL AND RUBRAIL
ANCHOR AT END POST
(TO BE USED WITH THREE-BAR METAL RAIL)



PLAN



ELEVATION



END VIEW

GUARDRAIL ANCHOR ASSEMBLY DETAILS
AND RUBRAIL ANCHOR ASSEMBLY DETAILS, IF REQUIRED

NOTES

GUARDRAIL ANCHOR ASSEMBLY
AND RUBRAIL ANCHOR ASSEMBLY (IF REQUIRED)
THE GUARDRAIL ANCHOR ASSEMBLY AND RUBRAIL ANCHOR ASSEMBLY (IF REQUIRED) SHALL CONSIST
OF THE FOLLOWING COMPONENTS:

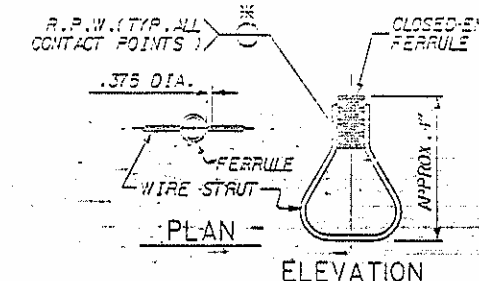
- FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF ASTM A108, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1 1/2".
 - 4 - 7/8" Ø X 2 3/4" BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTORS OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø X 2 3/4" GALVANIZED BOLTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
 - WIRE STRUTS SHOWN IN THE ANCHOR ASSEMBLY DETAIL ARE THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI.
- THE GUARDRAIL ANCHOR ASSEMBLY AND RUBRAIL ANCHOR ASSEMBLY (IF REQUIRED) WITH BOLTS SHALL BE ASSEMBLED IN THE SHOP. BOLT THREADS MAY BE RECUT AS NECESSARY TO INSURE FIT.
- THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY AND RUBRAIL ANCHOR ASSEMBLY (IF REQUIRED) WITH BOLTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.
- THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE GUARDRAIL IS TO BE ATTACHED TO THE END POST, AND THE RUBRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE RUBRAIL IS TO BE ATTACHED TO THE END POST. FOR POINTS OF ATTACHMENT, SEE SKETCH.

NOTES

STRUCTURAL CONCRETE INSERT

THE STRUCTURAL CONCRETE INSERT ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:

- FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF ASTM A108, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1 1/2".
- 1 - 3/4" Ø X 1 1/2" BOLT WITH WASHER. BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLT AND WASHER SHALL BE GALVANIZED. (AT THE CONTRACTORS OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE 3/4" Ø X 1 1/2" GALVANIZED BOLT AND WASHER. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
- WIRE STRUT SHOWN IN THE CONCRETE INSERT ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI.



STRUCTURAL CONCRETE
INSERT

* EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.

PROJECT NO. 8.1760801

WILKES COUNTY

STATION: 17+89.00 -L-

SHEET 2 OF 2

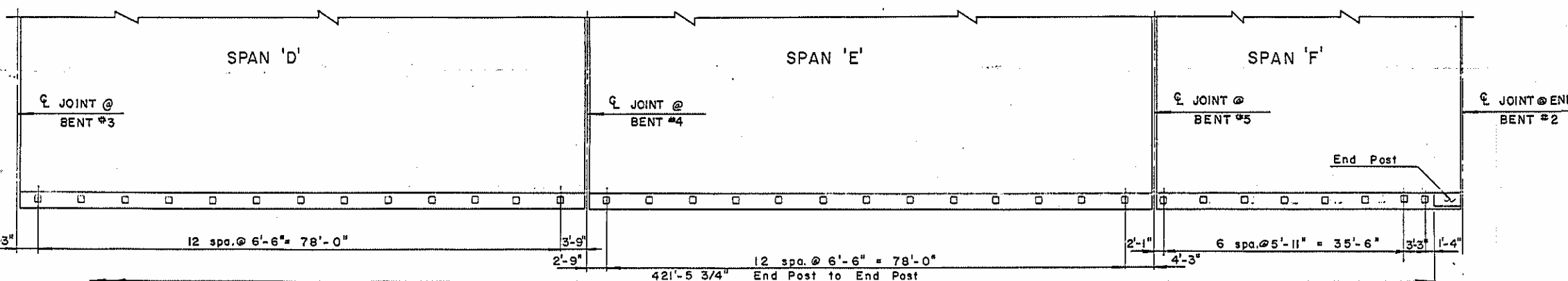
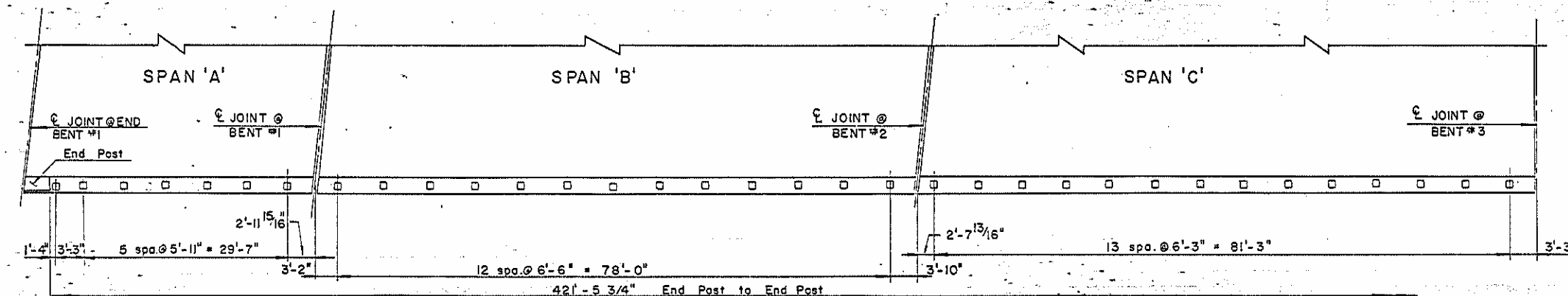
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RAILROAD

STANDARD
RAIL POST SPACINGS
AND
END OF RAIL DETAILS
FOR ONE & THREE BAR METAL RAILS

REVISIONS				SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE
1			2		
3			4		
5			6		

Dwg 14 of 39

STD. No. BMR5

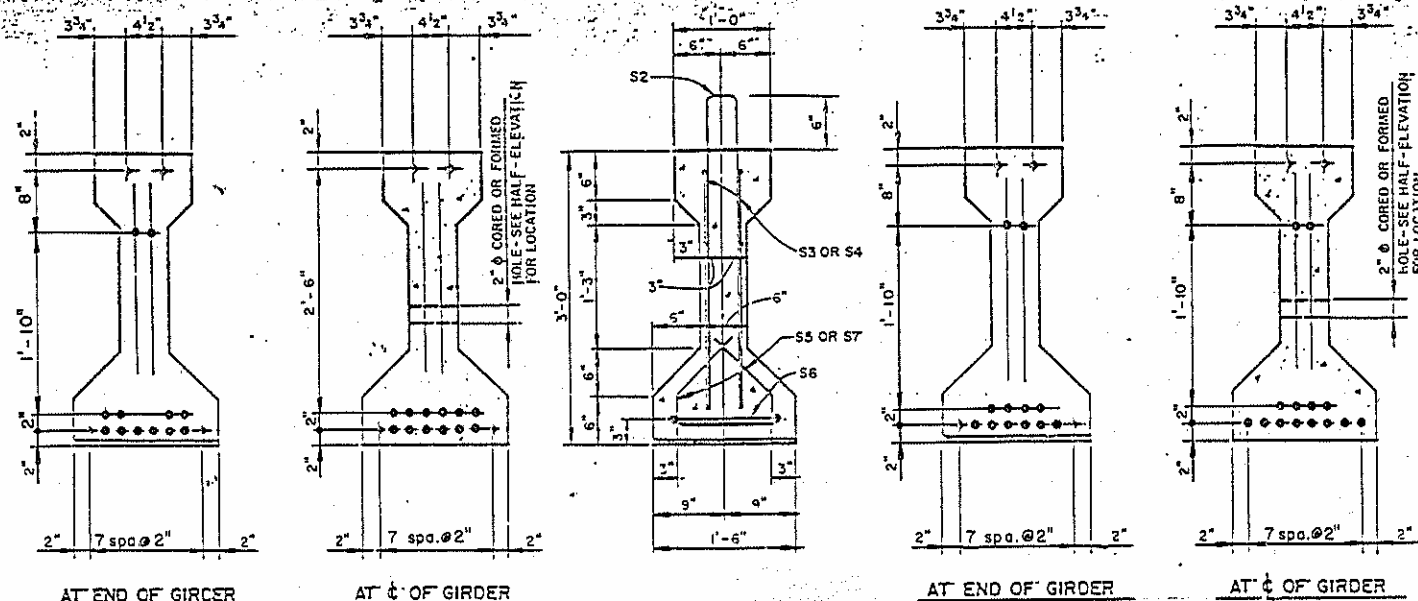


PLAN OF RAIL POST SPACING

For location of Guardrail Attachments and Rubrail Attachments, see Dwg. 10 and End View on this drawing.

ASSEMBLED BY: DCB	DATE: 5/88	SPECIAL
CHECKED BY: RCL	DATE: 5/88	
DRAWN BY: MIKE BRITT	DATE: JAN. 1988	STANDARD
CHECKED BY: G.C. HARPER	DATE: JAN. 1988	

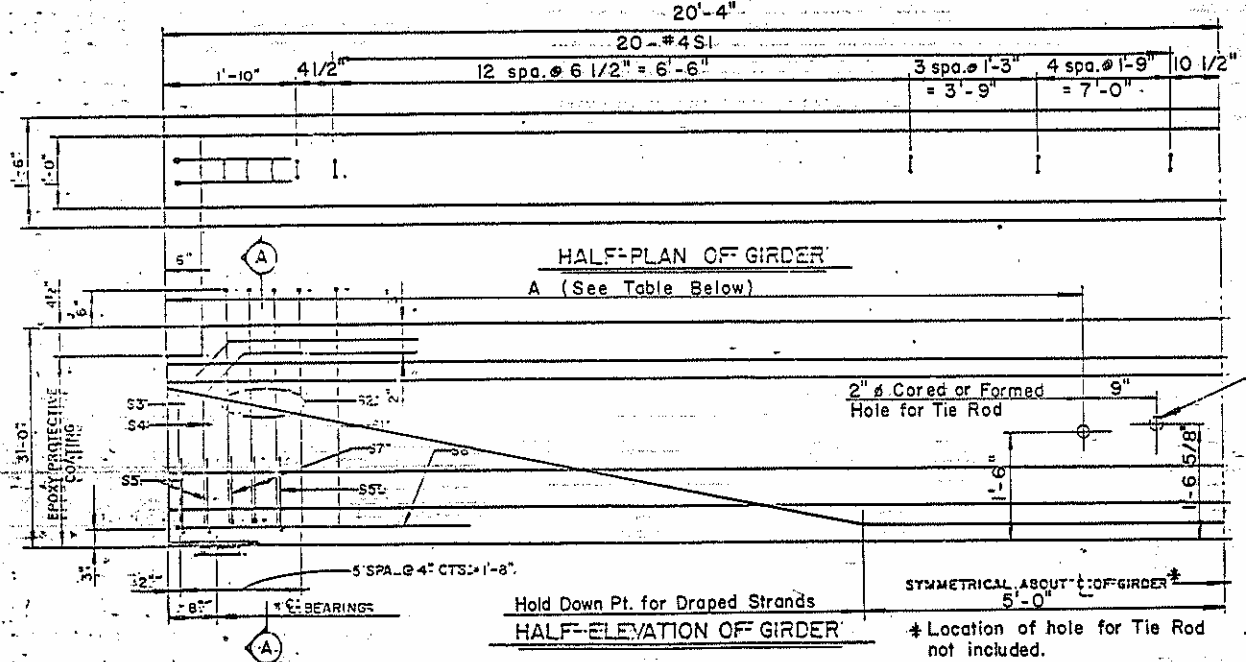
CADD



1/2" ϕ STRESS RELIEVED STRAND LAYOUT

SECTION "A-A"

1/2" ϕ LOW RELAXATION STRAND LAYOUT

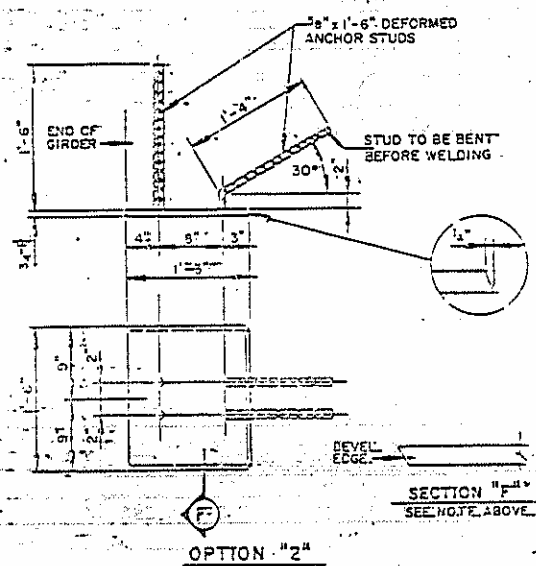


HALF-ELEVATION OF GIRDER

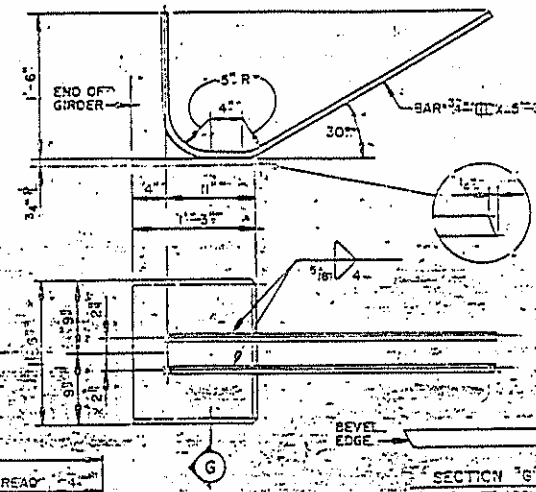
DEFLECTION TABLE (SPAN 'A')

Girder	Dim. 'A'	Camber (Girder Alone in Place)	Deflection Due To Superimposed D. L.	Final Camber
G 1	17'-11 1/16"	15 1/16"	5 1/16"	5 8/16"
G 2	18'-10 3/16"	11 1/16"	5 1/16"	3 8/16"
G 3	19'-9 3/8"	11 1/16"	5 1/16"	3 8/16"
G 4	19'-11 1/2"	11 1/16"	5 1/16"	3 8/16"
G 5	20'-10 5/8"	11 1/16"	5 1/16"	3 8/16"
G 6	21'-9 3/4"	11 1/16"	5 1/16"	3 8/16"
G 7	22'-8 15/16"	11 1/16"	5 1/16"	3 8/16"

Girder	Dim. 'A'
G 1	17'-11 1/16"
G 2	18'-10 3/16"
G 3	19'-9 3/8"
G 4	19'-11 1/2"
G 5	20'-10 5/8"
G 6	21'-9 3/4"
G 7	22'-8 15/16"



OPTION "2"



OPTION "1"

NOTES

THE CONTRACTOR MAY USE EITHER 1/2" ϕ STRESS RELIEVED OR 1/2" ϕ LOW RELAXATION STRANDS ACCORDING TO LAYOUTS SHOWN ON THIS SHEET. THE CONTRACTOR, AT HIS OPTION, MAY USE 7/16" ϕ STRESS RELIEVED STRANDS IN LIEU OF THE 1/2" ϕ STRANDS SHOWN. DESIGN AND DETAIL PLANS USING 7/16" ϕ STRESS RELIEVED STRANDS MUST BE SUBMITTED TO THE HEAD OF STRUCTURE DESIGN UNIT FOR APPROVAL. ANY ADDITIONAL COST DUE TO THE USE OF 7/16" ϕ STRESS RELIEVED STRANDS WILL BE PAID FOR BY THE CONTRACTOR.

THE SAME TYPE AND SAME SIZE STRANDS WILL BE USED FOR ALL GIRDERS IN THE STRUCTURE.

DEBONDING OF STRANDS WILL NOT BE PERMITTED IN ANY OPTIONAL REDESIGN.

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE, STRESS RELIEVED OR LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO ASTM A-416 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

TIE ROD ASSEMBLY SHALL BE ASTM A-36 GRADE STRUCTURAL STEEL.

ALL REINFORCING STEEL SHALL BE GRADE 60.

APPLY EPOXY PROTECTIVE COATING TO END OF GIRDER SURFACES.

FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

EMBEDDED PLATE "B-1" SHALL BE GALVANIZED.

THE CONTRACTOR MAY SELECT OPTION "1" OR OPTION "2" FOR EMBEDDED PLATE "B-1".

BEVEL EDGES OF PLATE "B-1" TO GIVE CLOSE FIT BUT NOT TIGHT FIT TO STEEL CASTING FORM.

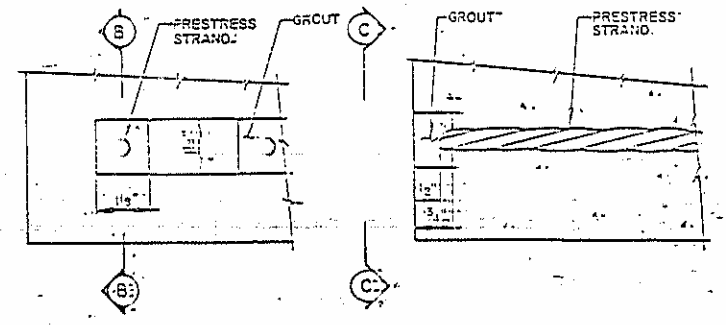
DEFORMED ANCHOR STUDS SHALL CONFORM TO ASTM A-496. WELDING PROCEDURE QUALIFICATION TEST FOR DEFORMED ANCHOR STUDS MAY BE REQUIRED.

ENDS OF ALL PRESTRESSED STRANDS SHALL BE RECESSED AND GROUTED. SEE DETAIL BELOW. GROUT TO BE NON-METALLIC, NON-SHRINK AND SHALL BE APPROVED BY THE ENGINEER. SEE SPECIAL PROVISIONS.

The transfer of load from the anchorages to the girder shall be done when the concrete has reached a compressive strength of not less than 4000 psi.

The contractor, at his option, may use a strand layout other than as shown on the plans for the low relaxation strands only. The strand design and layout for low relaxation strands must be submitted to the Unit Head Structure Design Unit for approval. Any additional cost due to this option must be paid for by the contractor.

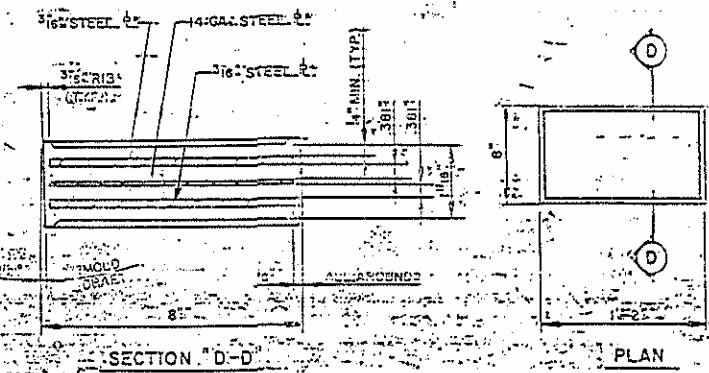
For Prestressed Conc. Girder Web Splitting, see Special Provisions.



VIEW "C-C"

SECTION "B-B"

GROUTED RECESS AT END OF PRESTRESS STRAND



ELASTOMERIC BEARING DETAIL - P1

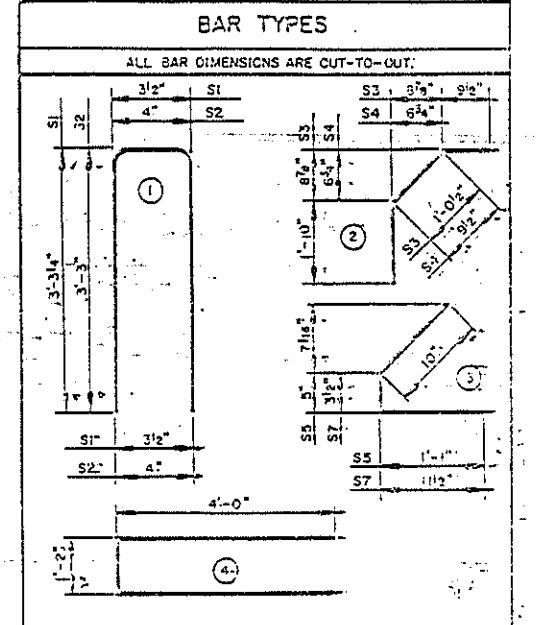
14 Required

GRADE 270 STRANDS

	1/2" ϕ S.R.	1/2" ϕ L.R.
AREA (SQUARE INCHES)	0.153	0.153
ULTIMATE STRENGTH (LBS. PER STRAND)	41,300	41,300
APPLIED PRESTRESS (LBS. PER STRAND)	29,900	30,980

REINFORCING STEEL FOR ONE GIRDER

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	40	#4		6'-10"	183
S2	8	#5		5'-10"	57
S3	4	#5		3'-8"	22
S4	4	#5		3'-5"	21
S5	12	#4		2'-4"	19
S6	2	#4		9'-2"	12
S7	8	#4		2'-1"	11



QUANTITIES FOR ONE GIRDER

REINFORCING STEEL	5,000 PSI	60,000 PSI	12" ϕ S.R.	12" ϕ L.R.
LB.	325	3.9	16	16

GIRDERS REQUIRED

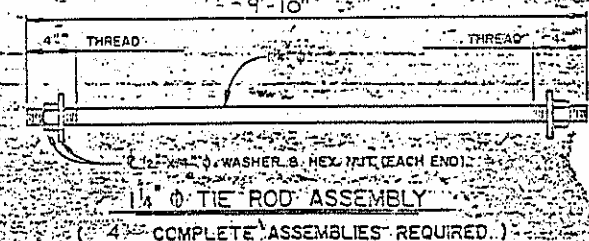
NUMBER	LENGTH	TOTAL LENGTH
7	40'-8"	284'-8"

PROJECT NO. 8.1760801
WILKES COUNTY
STATION: 17+89.00 - L -

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
36" PRESTRESSED CONCRETE GIRDER
SPAN 'A'

NO.	DATE	BY	DATE	BY
1	5/88	WLB	5/88	WLB

APPROVED BY: DCB
CHECKED BY: WLB
DATE: 5/88
DRAWN BY: C.E. BETHUNE
DATE: 5/88
CHECKED BY: P.D. LUNDGREN
DATE: 5/88



1/4" ϕ TIE ROD ASSEMBLY

EMBEDDED PLATE "B-1" DETAILS

NOTES

THE CONTRACTOR MAY USE EITHER 1/2" ϕ STRESS RELIEVED OR 1/2" ϕ LOW RELAXATION STRANDS ACCORDING TO LAYOUTS SHOWN ON THIS SHEET. THE CONTRACTOR, AT HIS OPTION MAY USE 7/16" ϕ STRESS RELIEVED STRANDS IN LIEU OF THE 1/2" ϕ STRANDS SHOWN. DESIGN AND DETAIL PLANS USING 7/16" ϕ STRESS RELIEVED STRANDS MUST BE SUBMITTED TO THE HEAD OF STRUCTURE DESIGN UNIT FOR APPROVAL. ANY ADDITIONAL COST DUE TO THE USE OF 7/16" ϕ STRESS RELIEVED STRANDS WILL BE PAID FOR BY THE CONTRACTOR.

THE SAME TYPE AND SAME SIZE STRANDS WILL BE USED FOR ALL GIRDERS IN THE STRUCTURE.

DEBONDING OF STRANDS WILL NOT BE PERMITTED IN ANY OPTIONAL REDESIGN.

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE STRESS RELIEVED OR LOW-RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO ASTM A-416 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

TIE ROD ASSEMBLY SHALL BE ASTM A-36 GRADE STRUCTURAL STEEL.

ALL REINFORCING STEEL SHALL BE GRADE 60.

APPLY EPOXY PROTECTIVE COATING TO END OF GIRDER SURFACES.

FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

EMBEDDED PLATE "B-1" SHALL BE GALVANIZED.

THE CONTRACTOR MAY SELECT OPTION "1" OR OPTION "2" FOR EMBEDDED PLATE "B-1".

BEVEL EDGES OF PLATE "B-1" TO GIVE CLOSE FIT BUT NOT TIGHT FIT TO STEEL CASTING FORM.

DEFORMED ANCHOR STUDS SHALL CONFORM TO ASTM A-496. WELDING PROCEDURE QUALIFICATION TEST FOR DEFORMED ANCHOR STUDS MAY BE REQUIRED.

ENDS OF ALL PRESTRESSED STRANDS SHALL BE RECESSED AND GROUTED. SEE DETAIL BELOW. GROUT TO BE NON-METALLIC, NON-SHRINK AND SHALL BE APPROVED BY THE ENGINEER. SEE SPECIAL PROVISIONS.

The transfer of load from the anchorages to the girders shall be done when the concrete has reached a compressive strength of not less than 4500 psi.

COMPRESSIVE STRENGTH OF CONCRETE AT 28 DAYS, $f'_c = 6000$ psi.

For Prestressed Conc. Girder Web Splitting, see Special Provisions.

GRADE 270 STRANDS

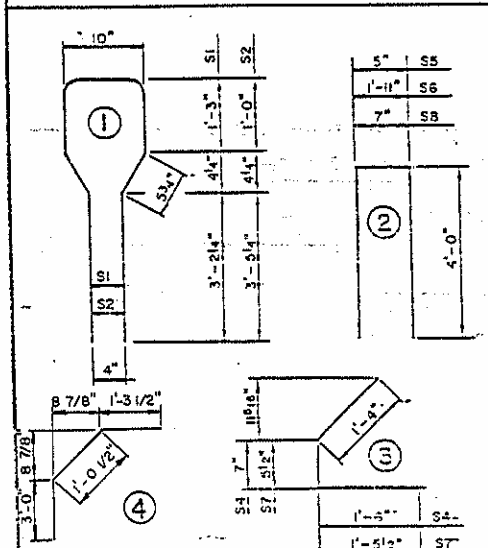
	1/2" ϕ S.R.	1/2" ϕ L.R.
AREA (SQ. INCHES)	0.253	0.253
CONCRETE STRENGTH (PSI)	41,300	41,300
APPLIED PRESTRESS (KIP PER FT.)	23,900	30,980

REINFORCING STEEL FOR ONE GIRDER

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
G1	S1	55	"4	10'-8"	392
G2, G3	S1	56	"4	10'-8"	399
G4, G5	S1	57	"4	10'-8"	408
G6, G7	S1	58	"4	10'-8"	413
S2	8	"6	"1	10'-8"	128
S3	8	"6	"4	5'-4"	64
S4	12	"4	"3	3'-5"	27
S5	6	"4	"2	8'-5"	34
S6	2	"4	"2	9'-11"	13
S7	8	"4	"3	3'-3"	17
S8	4	"4	"2	8'-7"	23

BAR TYPES

ALL BAR DIMENSIONS ARE CUT-TO-OUT



QUANTITIES FOR ONE GIRDER

GIRDER	REINFORCING STEEL (LB)	CONCRETE (CY)	1/2" ϕ S.R. STRANDS (LBS)	1/2" ϕ L.R. STRANDS (LBS)
G1	698	16.5	44	38
G2	705	16.7	44	38
G3	705	16.9	44	38
G4	712	17.0	44	38
G5	712	17.2	44	38
G6	719	17.4	44	38
G7	719	17.6	44	38

GIRDERS REQUIRED

NUMBER	LENGTH (VARIES)	TOTAL LENGTH (587'-10 1/8")
7		

PROJECT NO. 81760601

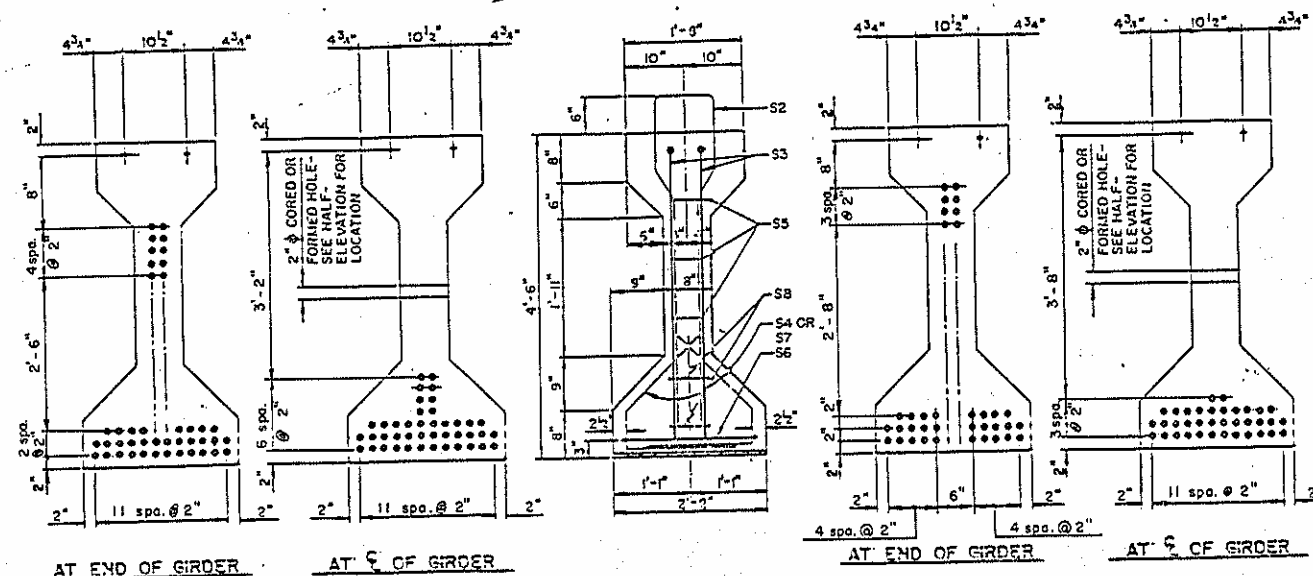
WILKES COUNTY

STATION 17+89.00-L

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
SALMON
STANDARD
54" PRESTRESSED
CONCRETE GIRDER
SPAN 6'

JUNE 1972
DATE
BY
CHECKED BY
DESIGNED BY
APPROVED BY

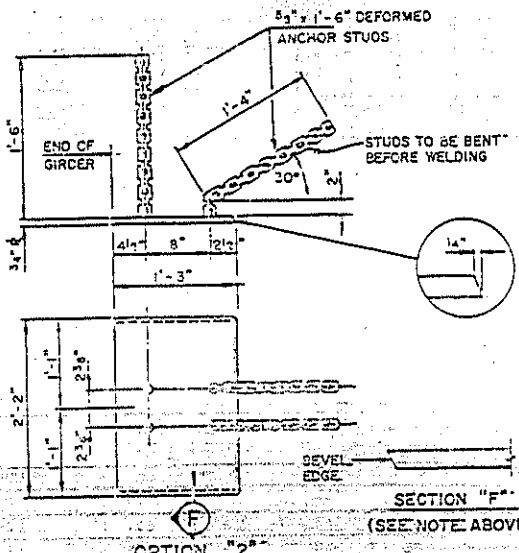
17 of 39
Dwg 17 of 39
STD NO. PC63



1/2" ϕ STRESS RELIEVED STRAND LAYOUT

SECTION "A-A"

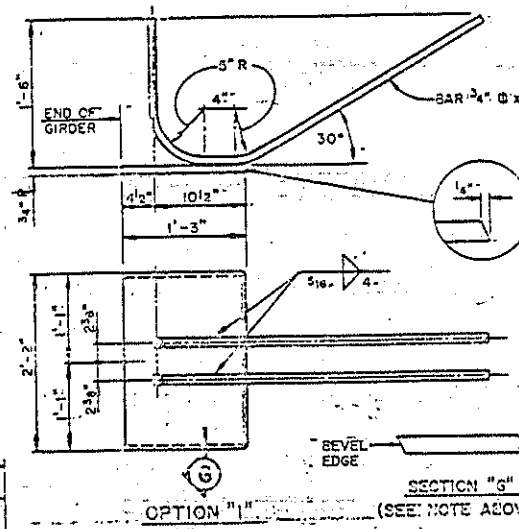
1/2" ϕ LOW RELAXATION STRAND LAYOUT



OPTION "2"

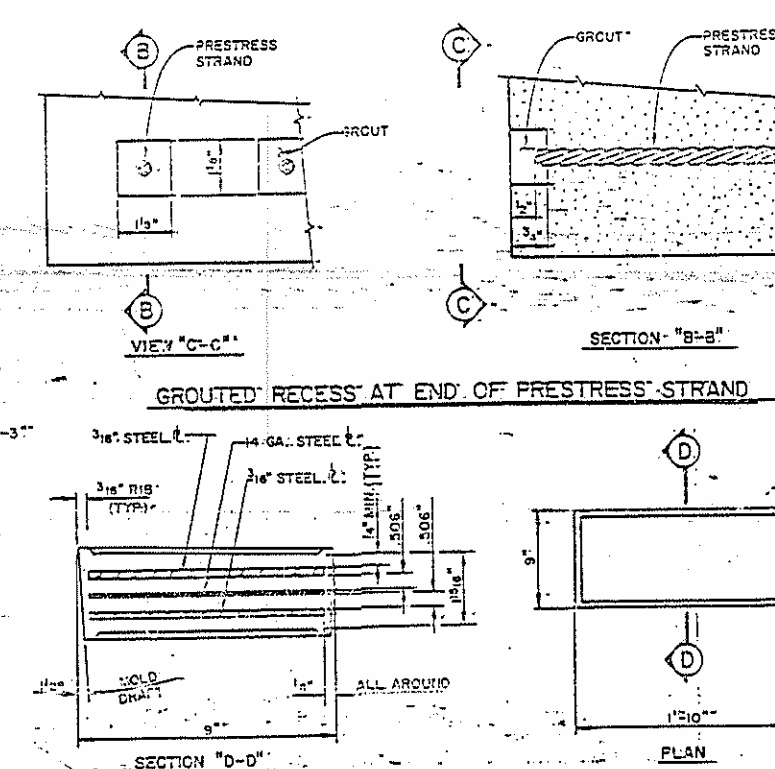
SECTION "F"

(SEE NOTE ABOVE)



OPTION "1"

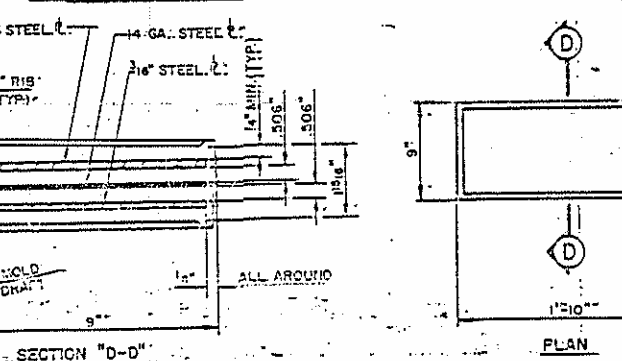
(SEE NOTE ABOVE)



VIEW "C-C"

SECTION "B-B"

GROUTED RECESS AT END OF PRESTRESS STRAND

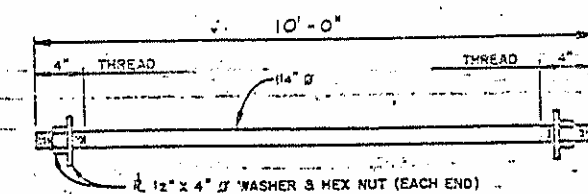


SECTION "D-D"

PLAN

ELASTOMERIC BEARING DETAIL - P2

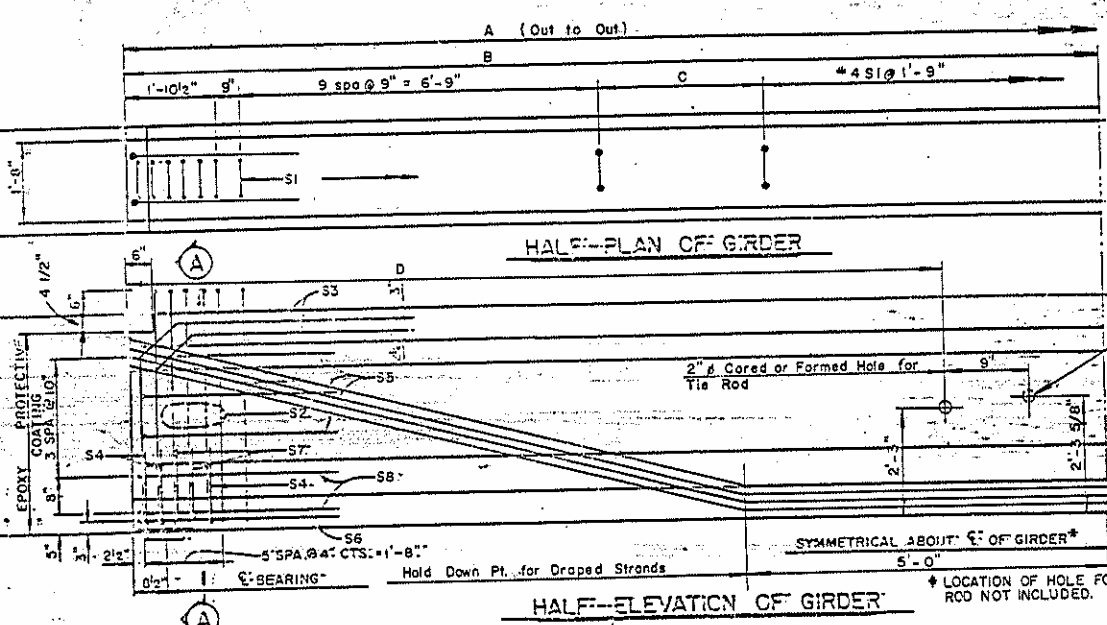
14 Required



1 1/4" ϕ TIE ROD ASSEMBLY

(4 COMPLETE ASSEMBLIES REQUIRED.)

EMBEDDED PLATE "B-1" DETAILS



HALF-PLAN OF GIRDER

HALF-ELEVATION OF GIRDER

TABLE OF DIMENSIONS

Girder	A	B	C	D
G1	81'-2 1/4"	40'-7 1/8"	1'-5 5/8"	38'-6 7/8"
G2	82'-1 1/2"	41'-0 3/4"	1'-0 3/4"	40'-6 1/8"
G3	83'-0 5/8"	41'-6 5/16"	1'-6 5/16"	41'-5 1/4"
G4	83'-11 3/4"	41'-11 7/8"	1'-1 3/8"	41'-7 3/8"
G5	84'-10 7/8"	42'-5 7/16"	1'-6 5/16"	42'-6 1/2"
G6	85'-10"	42'-11"	1'-2"	43'-5 5/8"
G7	86'-9 1/8"	43'-4 9/16"	1'-7 9/16"	44'-4 3/4"

DEFLECTION TABLE SPAN C'

	Camber (Girder Alone in Place)	Deflection Due To Superimposed D.L.	Final Camber
S. R. Strands	3"	1 1/4"	1 3/4"
L. R. Strands	2 7/8"	1 1/4"	1 5/8"

APPROVED BY: DCB DATE: 5/88
DESIGNED BY: W.L.H. DATE: 5/88
DRAWN BY: ROSS EDWARD KUBENY DATE: JUNE 1972
CHECKED BY: S. RUSSELL LUTWICK, JR. DATE: JUNE 1972

SPECIAL
STANDARD

NOTES

THE CONTRACTOR MAY USE EITHER 1/2" & STRESS RELIEVED OR 1/2" & LOW RELAXATION STRINGS ACCORDING TO LAMBERT'S SPEC. ON THIS SHEET. THE CONTRACTOR, AT HIS OPTION MAY USE 7/16" & STRESS RELIEVED STRINGS IN LIEU OF THE 1/2" & STRINGS SHOWN. DESIGN AND DETAIL PLANS USING 7/16" & STRESS RELIEVED STRINGS MUST BE SUBMITTED TO THE HEAD OF STRUCTURE DESIGN UNIT FOR APPROVAL. ANY ADDITIONAL COST DUE TO THE USE OF 7/16" & STRESS RELIEVED STRINGS WILL BE PAID FOR BY THE CONTRACTOR.

THE SAME TYPE AND SAME SIZE STRINGS WILL BE USED FOR ALL GIRDERS IN THE STRUCTURE.

DEFORMING OF STRINGS WILL NOT BE PERMITTED IN ANY OPTIONAL REDUCTION.

ALL PRESTRESSING STRINGS SHALL BE 7-WIRE STRESS RELIEVED OR LOW-RELAXATION GRADE 270 STRINGS AND SHALL CONFORM TO ASTM A-410 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

TIE ROD ASSEMBLY SHALL BE ASTM A-36 GRADE STRUCTURAL STEEL.

ALL REINFORCING STEEL SHALL BE GRADE 60.

APPLY EPOXY PROTECTIVE COATING TO END OF GIRDER SURFACES.

FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

EMBEDDED PLATE "B-1" SHALL BE GALVANIZED.

THE CONTRACTOR MAY SELECT OPTION "1" OR OPTION "2" FOR EMBEDDED PLATE "B-1".

BEVEL CORNERS OF PLATE "B-1" TO GIVE CLOSE FIT BUT NOT TIGHT FIT TO STEEL CASTING POINT.

REINFORCEMENT STRINGS SHALL CONFORM TO ASTM A-410. WELDING PROCEDURE QUALIFICATION TEST FOR COMPRESSION AND TENSION REQUIRED.

ENDS OF ALL PRESTRESSING STRINGS SHALL BE PRESSED AND GRIPPED. SEE DETAIL "D" FOR GRIP TO BE USED. WELDING, GALVANIZING AND SHALL BE APPROVED BY THE ENGINEER. SEE SPECIAL PROVISIONS.

THE TRANSFER OF LOAD FROM PRESTRESSING STRINGS TO THE GIRDER SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 4500 PSI.

Compressive Strength of Concrete at 28 days, $f'_c = 6000$ psi.

For Prestressed Conc. Girder Web Splitting, see Special Provisions.

GRADE 270 STRINGS

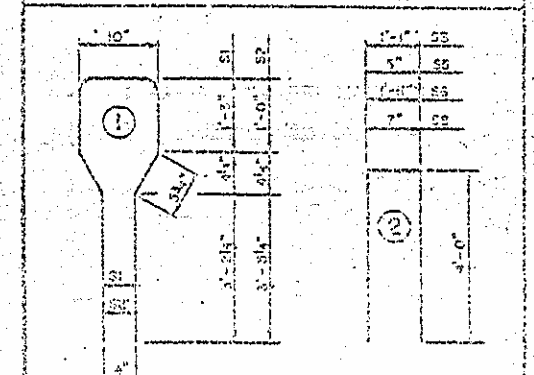
	1/2" & S.R.	1/2" & L.R.
MIN. TENSILE STRENGTH	0.55	0.53
MIN. TENSILE STRENGTH	41,000	41,000
MIN. TENSILE STRENGTH	23,100	20,900

REINFORCING STEEL FOR ONE GIRDER

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
1	58	#4	1	10'-0"	413
2	12	#4	1	10'-0"	132
3	4	#4	2	9'-1"	24
4	12	#4	3	3'-4"	22
5	6	#4	3	6'-8"	34
6	2	#4	3	9'-11"	13
7	3	#4	3	3'-3"	17
8	4	#4	2	8'-7"	23

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR ONE GIRDER

REINFORCING STEEL	6000 PSI CONCRETE	STRENGTH	STRENGTH
743	172	44	36

GIRDERS REQUIRED:

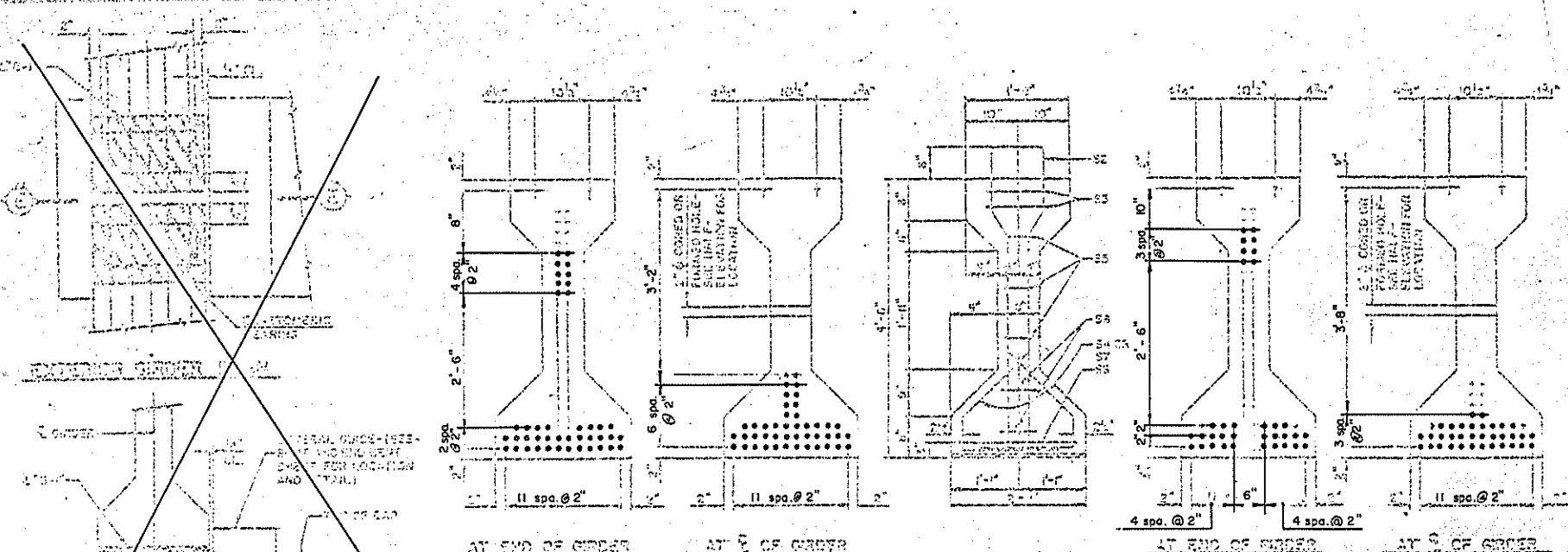
INCHES	LENGTH	TOTAL LENGTH
7	84'-10"	593'-10"
7	84'-10"	593'-10"

Project No. 8.1760801

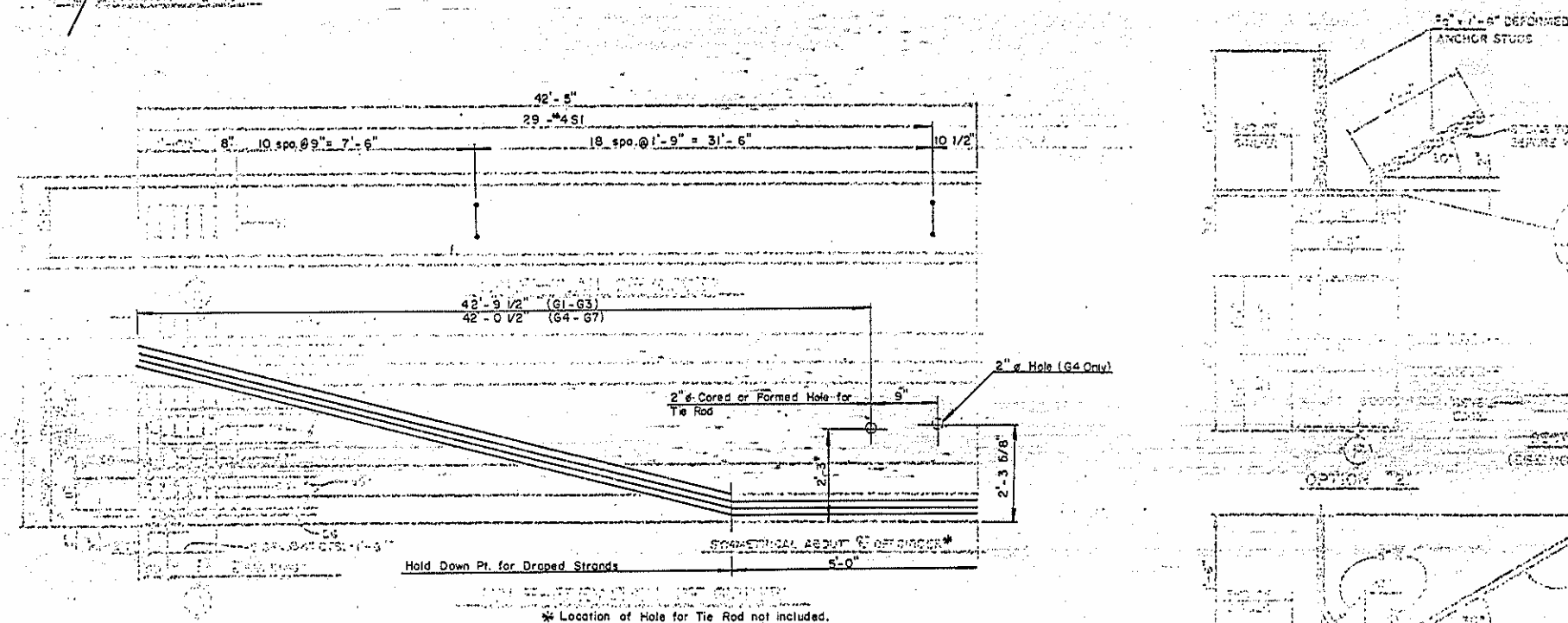
WILKES

Station 17+89.00 - L

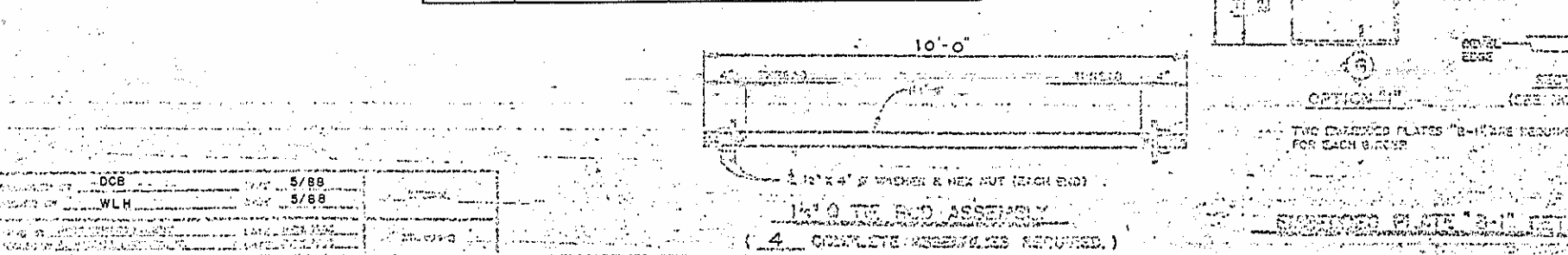
STANDARD
PRESTRESSED
CONCRETE GIRDER
SPANS 'D' and 'E'



SECTION "A-A" 1/2" & STRESS RELIEVED STRAND LAYOUT
SECTION "B-B" 1/2" & LOW RELAXATION STRAND LAYOUT



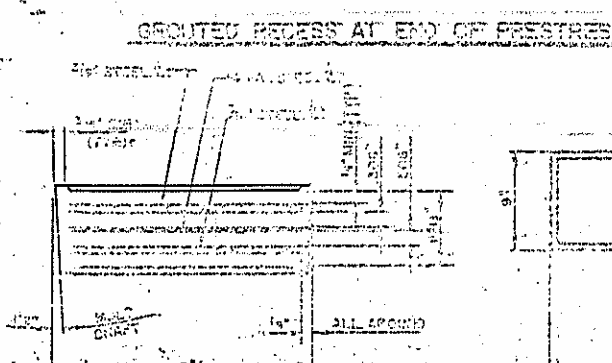
DEFLECTION TABLE SPANS 'D' and 'E'			
	Camber (Girder Alone in Place)	Deflection Due to Superimposed D.L.	Final Camber
S.R. Strands	3"	1 1/4"	1 3/4"
L.R. Strands	2 5/8"	1 1/4"	1 3/8"



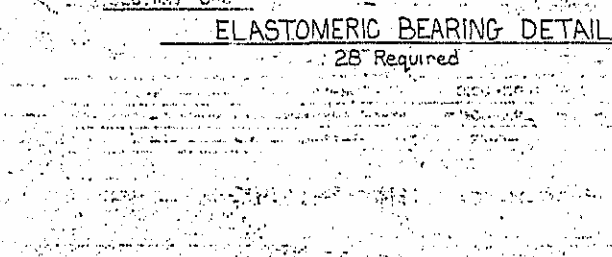
SECTION "C-C" 1/2" & STRESS RELIEVED STRAND LAYOUT
SECTION "D-D" 1/2" & LOW RELAXATION STRAND LAYOUT



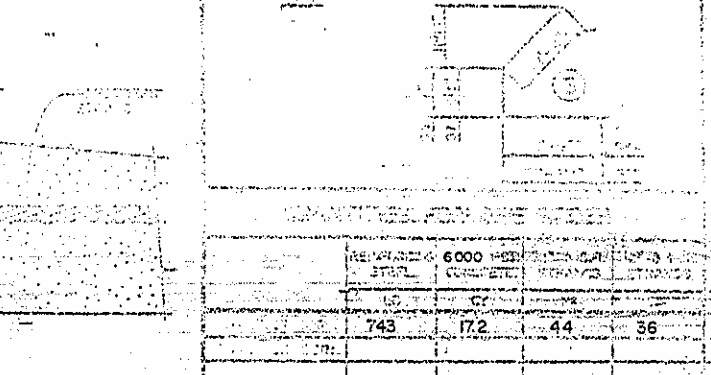
SECTION "E-E" 1/2" & STRESS RELIEVED STRAND LAYOUT
SECTION "F-F" 1/2" & LOW RELAXATION STRAND LAYOUT



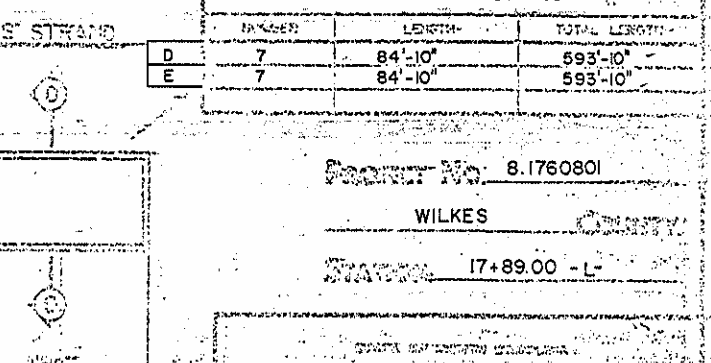
SECTION "G-G" 1/2" & STRESS RELIEVED STRAND LAYOUT
SECTION "H-H" 1/2" & LOW RELAXATION STRAND LAYOUT



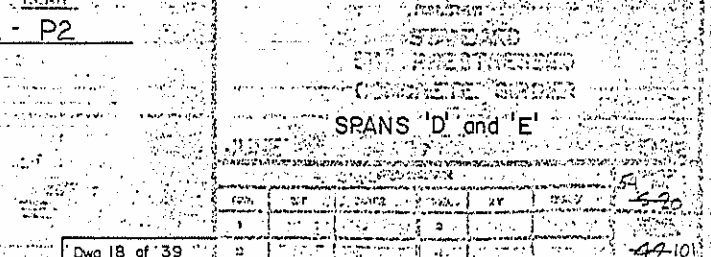
SECTION "I-I" 1/2" & STRESS RELIEVED STRAND LAYOUT
SECTION "J-J" 1/2" & LOW RELAXATION STRAND LAYOUT



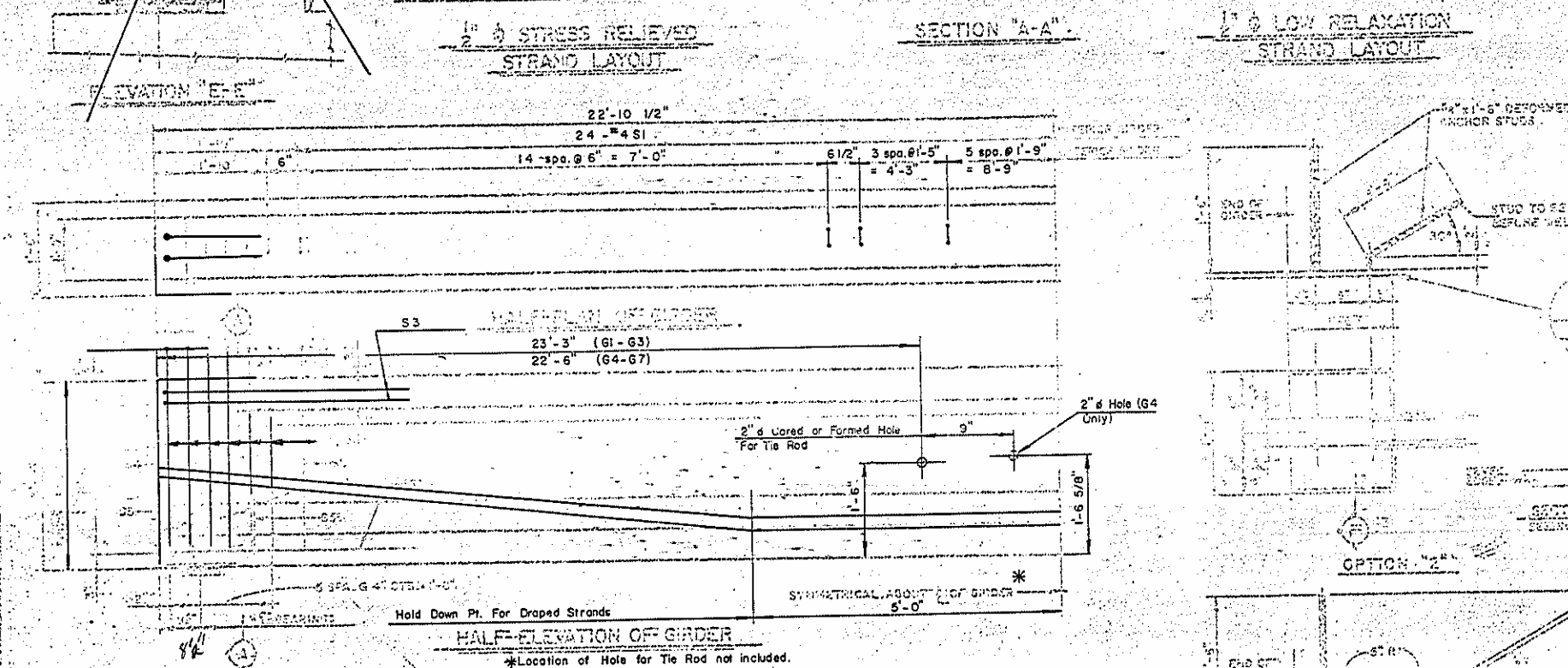
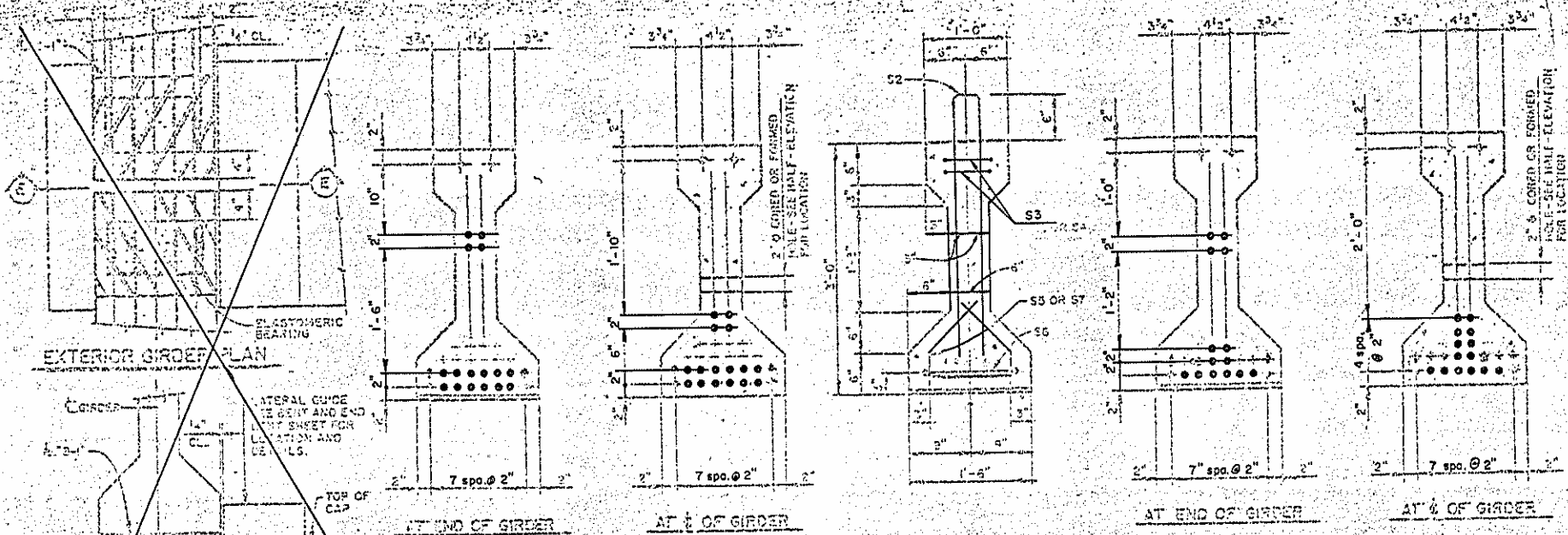
SECTION "K-K" 1/2" & STRESS RELIEVED STRAND LAYOUT
SECTION "L-L" 1/2" & LOW RELAXATION STRAND LAYOUT



SECTION "M-M" 1/2" & STRESS RELIEVED STRAND LAYOUT
SECTION "N-N" 1/2" & LOW RELAXATION STRAND LAYOUT



SECTION "O-O" 1/2" & STRESS RELIEVED STRAND LAYOUT
SECTION "P-P" 1/2" & LOW RELAXATION STRAND LAYOUT



DEFLECTION TABLE (SPAN 'F')			
Girders	Camber (Girder Alone in Place)	Deflection Due To Superimposed D.L.	Final Camber
S. R. Strands	Interior 1 5/16"	9/16"	3/4"
	Exterior 1 5/16"	1/2"	13/16"
L. R. Strands	Interior 1 1/4"	9/16"	11/16"
	Exterior 1 1/4"	1/2"	3/4"

NOTES

THE CONTRACTOR MAY USE EITHER 1/2" Ø STRESS RELIEVED OR 1/2" Ø LOW RELAXATION STRANDS ACCORDING TO LAYOUTS SHOWN ON THIS SHEET. THE CONTRACTOR AT HIS OPTION MAY USE 7/16" Ø STRESS RELIEVED STRANDS IN LIEU OF THE 1/2" Ø STRANDS SHOWN. DESIGN AND DETAIL PLANS USING 7/16" Ø STRESS RELIEVED STRANDS MUST BE SUBMITTED TO THE HEAD OF STRUCTURE DESIGN UNIT FOR APPROVAL. ANY ADDITIONAL COST DUE TO THE USE OF 7/16" Ø STRESS RELIEVED STRANDS WILL BE PAID FOR BY THE CONTRACTOR.

THE SAME TYPE AND SAME SIZE STRANDS WILL BE USED FOR ALL GIRDERS IN THE STRUCTURE.

REBENDING OF STRANDS WILL NOT BE PERMITTED IN ANY OPTIONAL REDESIGN.

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE STRANDS RELIEVED OF LOW-RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO ASTM A-421 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STRANDS SPECIFICATIONS.

TIE ROD ASSEMBLY SHALL BE ASTM A-36 GRADE STRUCTURAL STEEL.

ALL REINFORCING STEEL SHALL BE GRADE 60.

APPLY EPOXY PROTECTIVE COATING TO END OF GIRDER SURFACES.

FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

EMBEDDED PLATE "B-1" SHALL BE GALVANIZED.

THE CONTRACTOR MAY SELECT OPTION "1" OR OPTION "2" FOR EMBEDDED PLATE "B-1".

LEVEL EDGES OF PLATE "B-1" TO GIVE CLOSE FIT BUT NOT TIGHT FIT TO STEEL CASTING FORM.

DEFORMED ANCHOR STUDS SHALL CONFORM TO ASTM A-193. WELDING PROCEDURE QUALIFICATION TEST FOR DEFORMED ANCHOR STUDS MAY BE OMITTED.

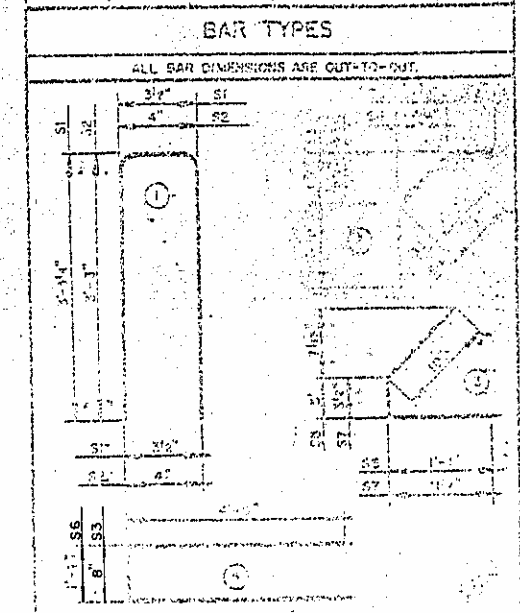
ENDS OF ALL PRESTRESSING STRANDS SHALL BE PREPARED AND GROUDED. SEE DETAIL BELOW. GROUDED TO BE MINIMUM 12" LONG AND SHALL BE APPROVED BY THE ENGINEER. SEE SPECIAL PROVISIONS.

When transfer of load from the anchors to the girders shall be done when the concrete has reached a compressive strength of not less than 4000 psi.

For Prestressed Conc. Girder Web Splitting, see Special Provisions.

GRADE 270 STRANDS		
	1/2" Ø S.L.R.	1/2" Ø L.R.
AREA (SQUARE INCHES)	0.153	0.153
ULTIMATE STRENGTH (KSI PER STRAND)	41,300	41,300
APPLIED PRESTRESS (KSI PER STRAND)	28,800	30,800

REINFORCING STEEL FOR ONE GIRDER					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	47	#4	1	6'-10"	214
S2	12	#6	1	6'-10"	86
S3	4	#4	4	6'-8"	23
S4	12	#4	3	2'-4"	19
S5	2	#4	4	2'-2"	12
S7	4	#4	3	2'-1"	11

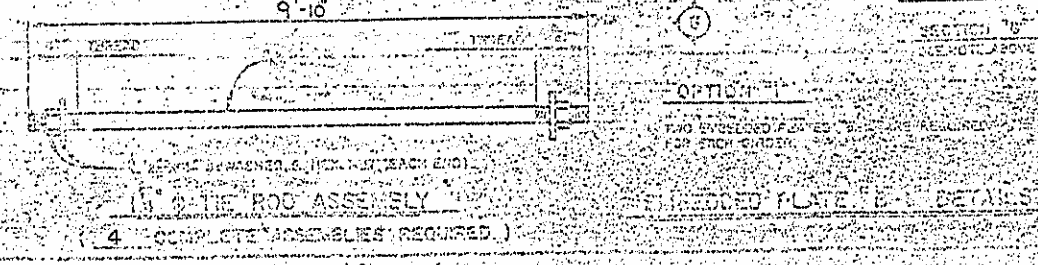
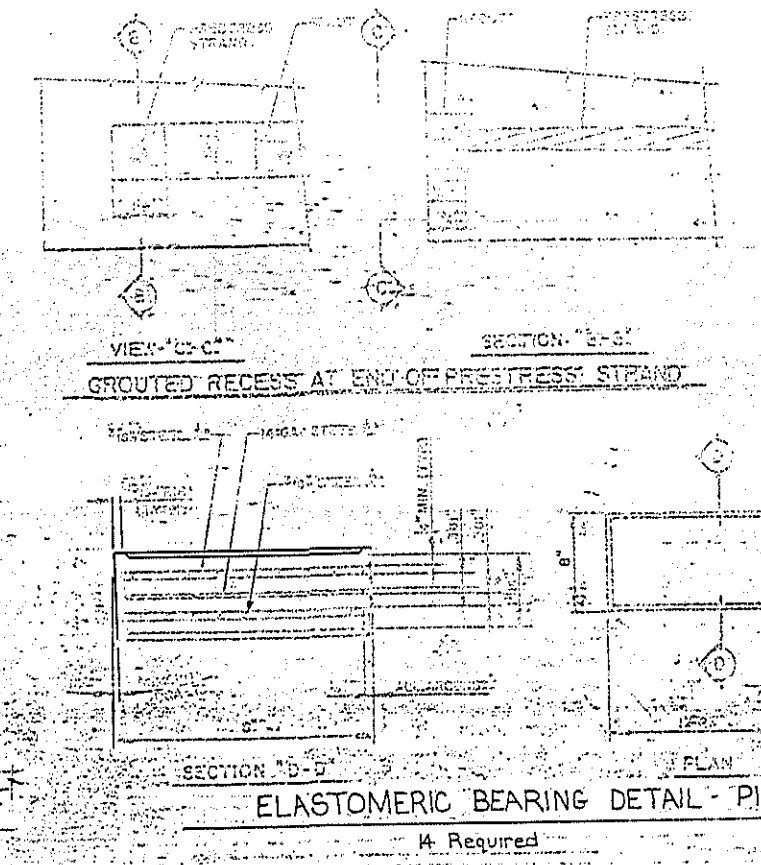


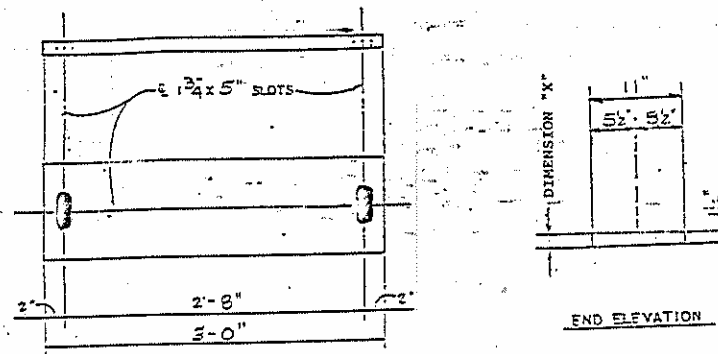
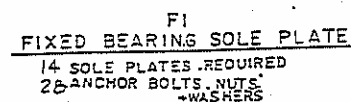
GIRDER REQUIREMENTS			
NUMBER	7	LENGTH	45'-9"
WEIGHT	365	STRENGTH	43
STRENGTH	20	STRENGTH	18

GIRDERS REQUIRED		
NUMBER	7	LENGTH
WEIGHT	45'-9"	STRENGTH
STRENGTH	320'-3"	

PROJECT NO. 8.1760801
WILKES COUNTY
STATION 17+89.00 - L -

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
STANDARD
30" PRESTRESSED CONCRETE GIRDERS
SPAN 'F'

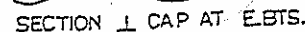
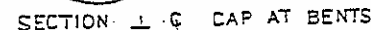




F2
FIXED BEARING SOLE PLATE
25 SOLE PLATES REQUIRED
50 ANCHOR BOLTS, NUTS
+ WASHERS



PLATE	DIMENSION "X"	REQUIRED
F1	1 3/8"	7
F2	1 3/4"	7
F3	1 1/2"	7
F4	1 5/8"	14
F5	1 3/4"	7
E1	1 3/8"	7
E2	1 3/4"	7
E3	1 1/2"	7
E4	1 5/8"	14
E5	1 3/4"	7

[illegible]

ELASTOMERIC BEARING AND SOLE PLATE LOCATIONS

PROJECT NO. 8.1760801
WILKES COUNTY
 STATION: 17+89.00 -L-

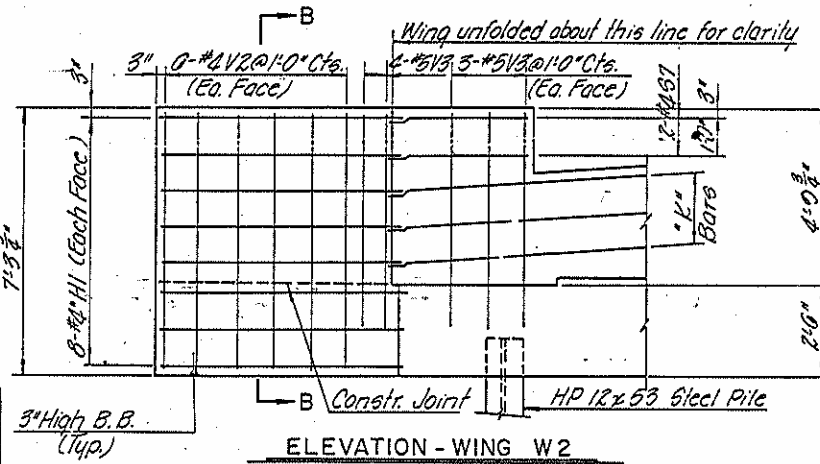
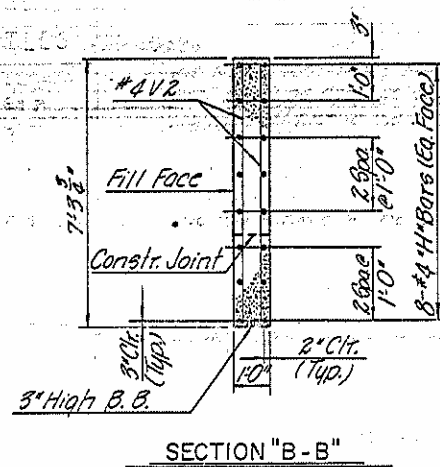
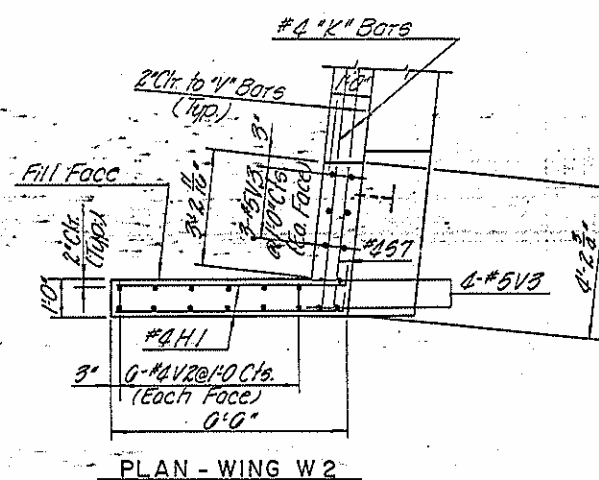
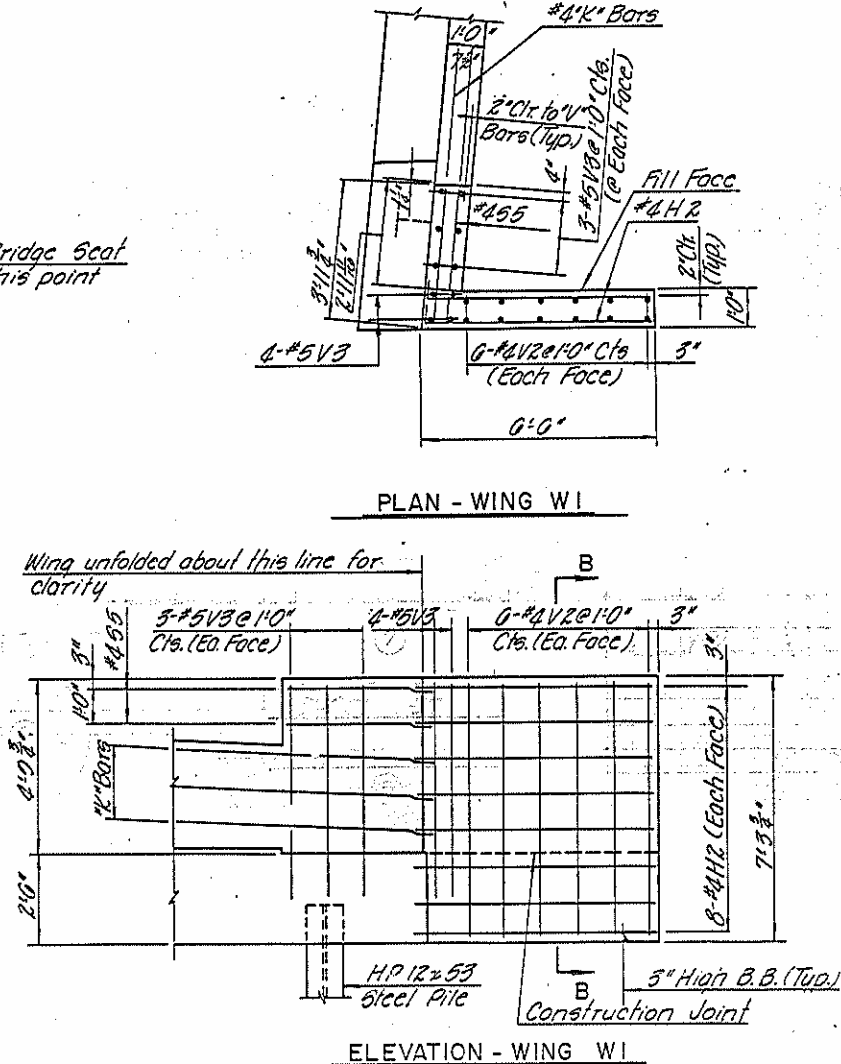
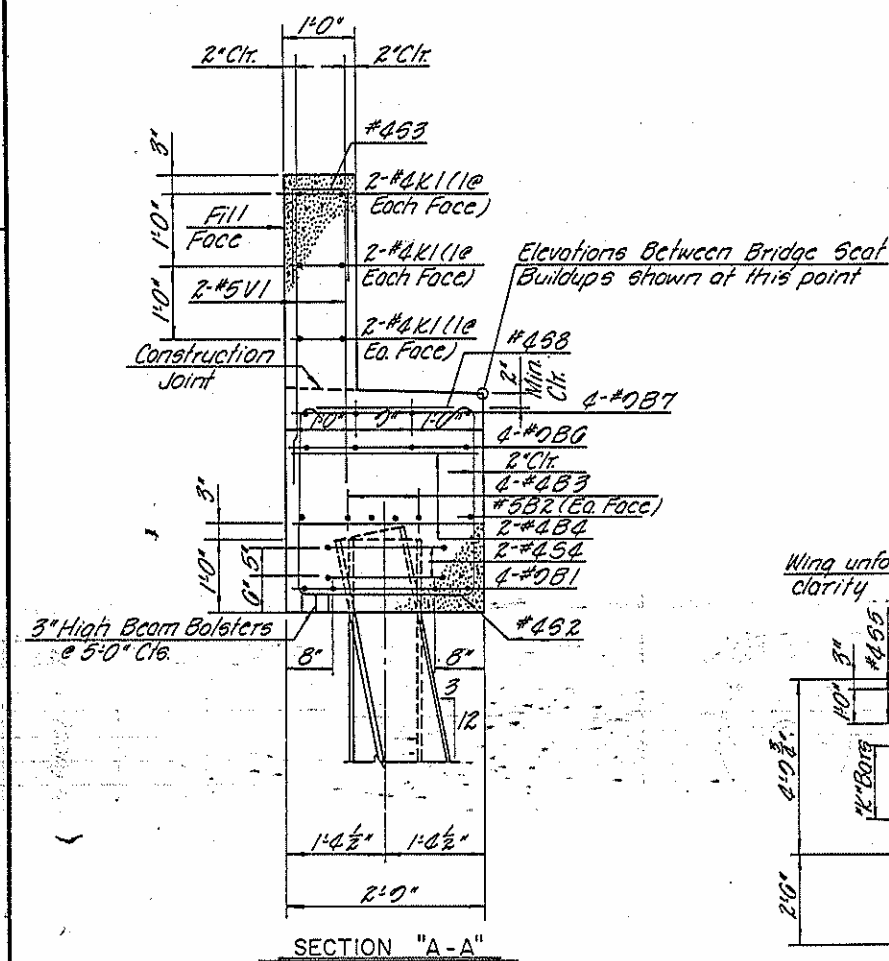
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SOLE PLATE DETAILS

REVISIONS						56 SHEET NO. 1
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
1			3			42
2			4			

56 SHEET NO. 1-2	TOTAL SHEETS 47
------------------------	-----------------------

DRAWN BY J.C. HUNT DATE 2-15-60
CHECKED BY V.L.C. CARTER DATE FEB. 1960

PREPARED BY
AMERICAN ENGINEERS
▲ Revised to add reinforcing steel splice lengths BY: JAG VBY: TWR DATE: 12-19-89 Dwg. 20 of 39



BAR TYPES		END BENT #1		BILL OF MATERIAL	
Bar No.	Size	Type	Length	Weight	
B1	8	#0	37'5"	1018	
B2	4	#5	32'5"	144	
B3	12	#4	23'7"	180	
B4	21	#4	2'5"	34	
B5	8	#0	33'1"	900	
B6	4	#0	20'0"	277	
B7	2	#4	7'0"	0	
B8	12	#4	12'8"	21	
H1	10	#4	0'7"	70	
H2	10	#4	0'6"	60	
K1	18	#4	23'7"	284	
S1	38	#4	7'5"	180	
S2	18	#4	8'1"	97	
S3	58	#4	3'2"	123	
S4	12	#4	0'5"	60	
S5	2	#4	7'0"	10	
S6	2	#4	8'3"	11	
S7	150	#4	3'2"	118	
S8	0	#4	4'11"	30	
V1	110	#5	4'2"	624	
V2	24	#4	6'11"	111	
V3	20	#5	5'11"	123	
Reinforcing Steel lbs.				4410	
Class "A" Conc. Cu. Yds.					
Pour 1				19.7	
Pour 2				10.0	
Total				29.7	
Steel Pile Points No.				7	
HP 12x53 Steel Piles No.				7	
Lim. Ft.				175	

HP 12 X 53 STEEL PILES

Pile No.	Length
1	25.9'
2	26.8'
3	25.9'
4	25.5'
5	23.8'
6	24.2'
7	23.0'

- Notes:
- 1) The top surface of the cap except the bridge seal buildup shall be sloped transversely from the fill face to the back face of the pile of 1/4" per foot.
 - 2) Backwall shall be placed before applying Epoxy Protective Coating.
 - 3) The top surface of the End Bent Cap shall be cured in accordance with the Standard Specifications except the Membrane Curing Compound Method shall not be used.
 - 4) For Epoxy Protective Coating see Special Provisions.
 - 5) Steel Pile Points are req'd. for piles of End Bent #1.
 - 6) Piles of End Bent #1 shall not be augered before driving.

PROJECT: B.1700801
 Wilkes COUNTY
 STATION: 17+89.00-L-

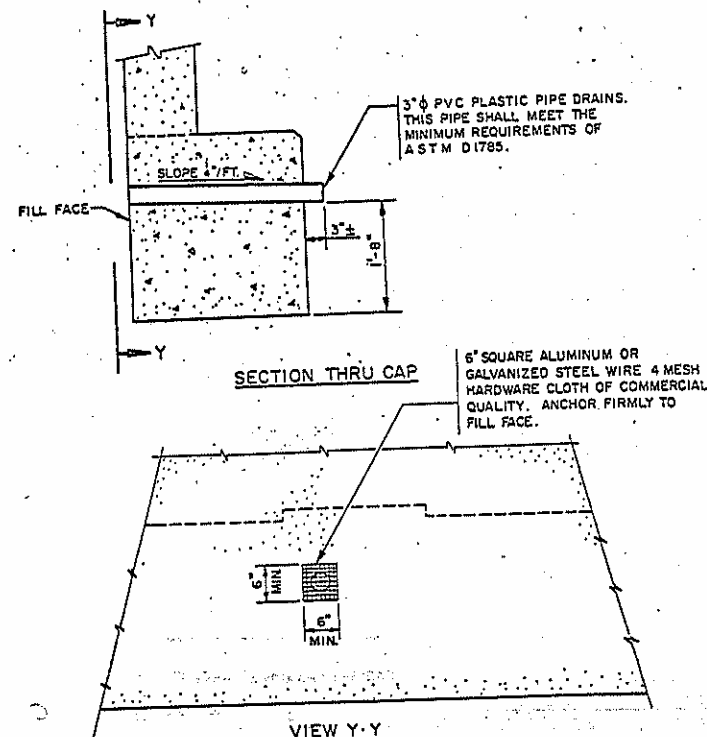
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT #1

REVISIONS						SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE	5-24-58	
TOTAL SHEETS						42	101

Dwg. 21 of 39

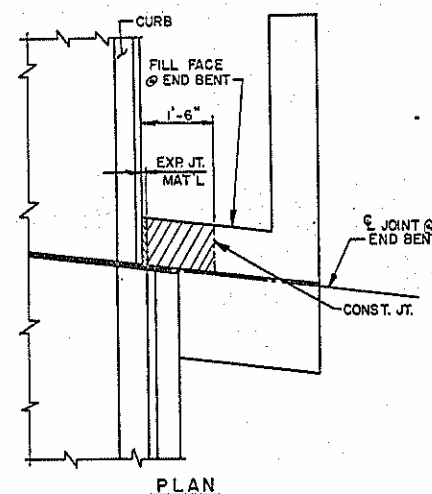
PREPARED BY
 AMERICAN ENGINEERS

MADE	BY	DATE
	D.C.B.	5-88
CHECKED	BY	DATE
	R.C.L.	5-88
IN CHARGE D.R. Ruggles		

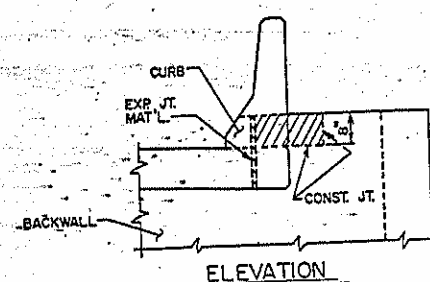


NOTE: NO SEPARATE PAYMENT WILL BE MADE FOR FURNISHING AND INSTALLING THE PVC PLASTIC PIPE DRAINS, HARDWARE CLOTH AND FASTENERS. THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

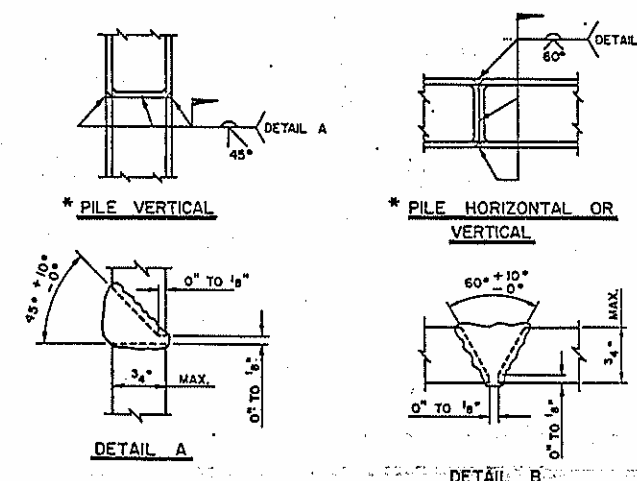
PIPE DRAIN DETAILS



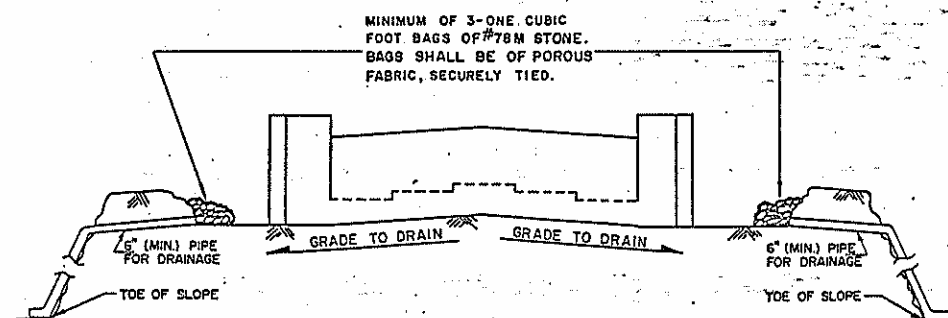
NOTE: THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE JOINT BETWEEN THE DECK AND APPROACH SLAB HAS BEEN SAWS AND THE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.



BLOCKOUT IN WING WALL FOR FITTING COMPRESSION JOINT SEAL (LEFT SIDE ONLY)



PILE SPICE DETAILS



BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DEGRADATED AND LOST THEIR EFFECTIVENESS.

NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

PROJECT: 8.1760801
WILKES COUNTY
STATION: 17+89.00 -L-

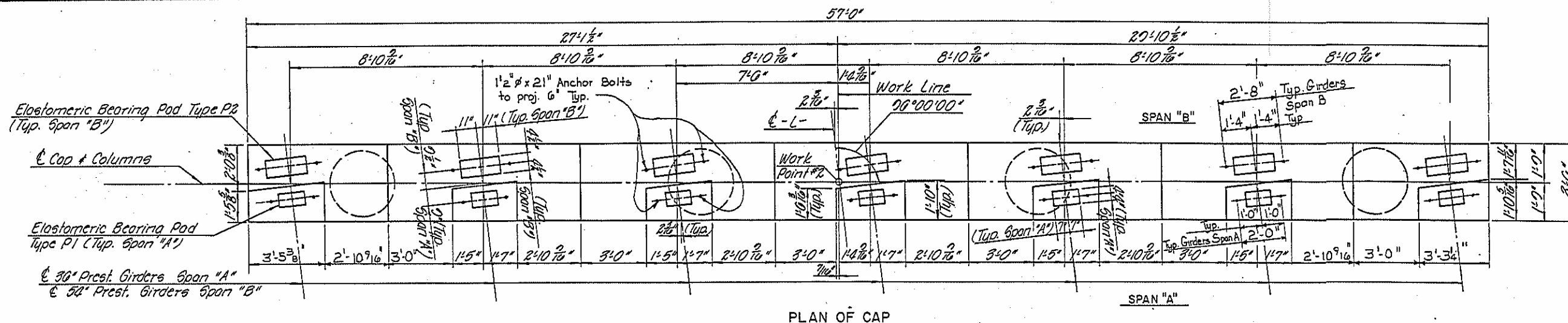
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
END BENT #1

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
						545-25
TOTAL SHEETS						42/101

PREPARED BY
AMERICAN ENGINEERS

Dwg 22 of 39

BY	DATE
MADE D.C.B.	5/88
CHECKED D.R.R.	5/88
IN CHARGE D.R.R.	



HP 12x53 STEEL PILES	
PILE NO.	LENGTH
1	25.9
2	26.8
3	25.9
4	25.5
5	23.8
6	24.2
7	23.0

- Notes:
- 1) For Spiral Column reinforcing steel see Special Provisions.
 - 2) Hooks on "V" Bars may be returned as necessary for placing reinforcing steel.
 - 3) Stirrups to be placed normal and inverted alternately.
 - 4) The top surface areas of the Bent Cap shall be cured in accordance with the Standard Specifications, except the Membrane Curing Compound Method shall not be used.
 - 5) For limits of epoxy protective coating see Special Provisions.

MAIN REINFORCING STEEL MAY BE SHIFTED SLIGHTLY HORIZONTALLY TO AVOID INTERFERENCE WITH ANCHOR BOLTS.

PROJECT: 8.1700801
 Wilkes COUNTY
 STATION: 17+80.00-L-

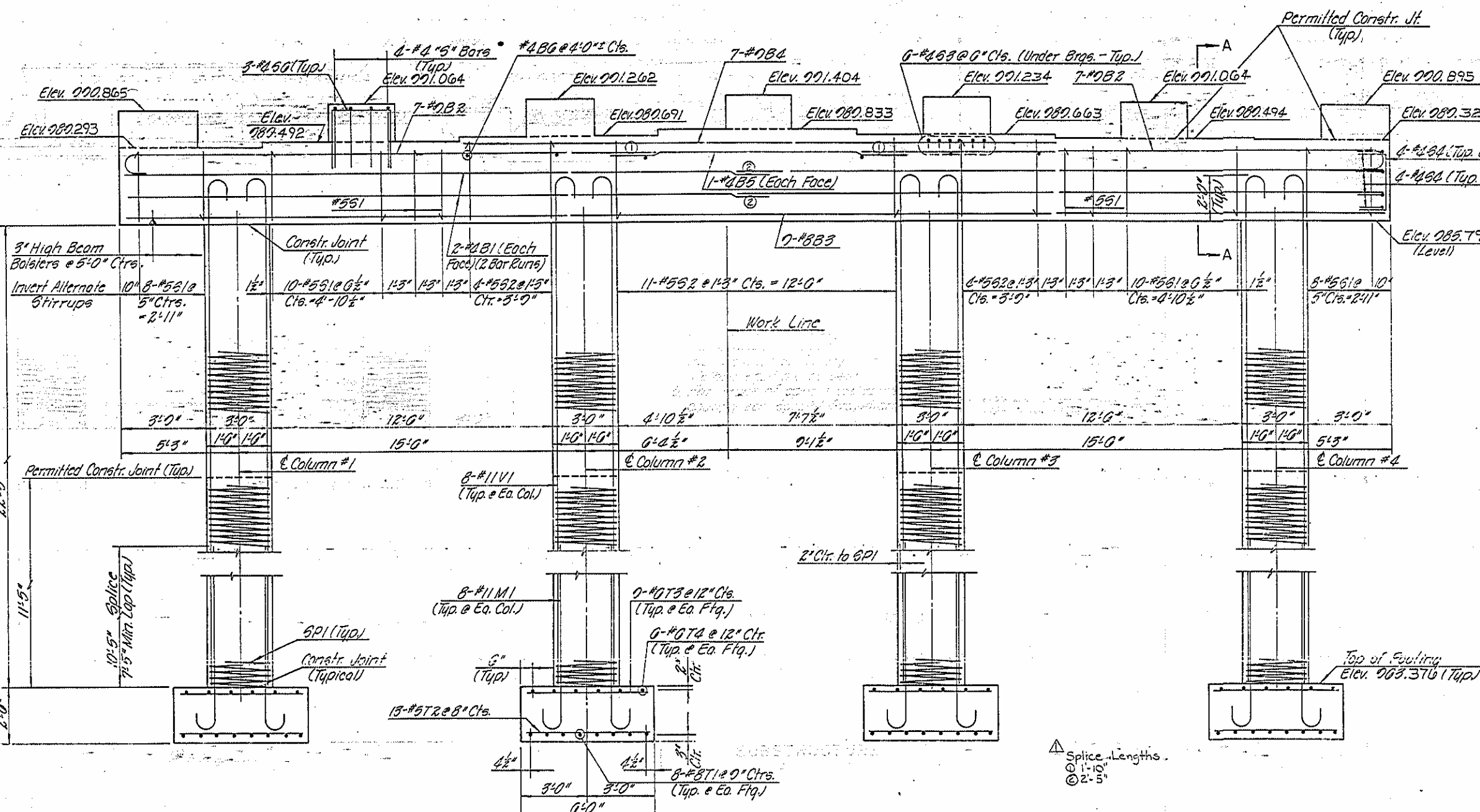
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT # 1

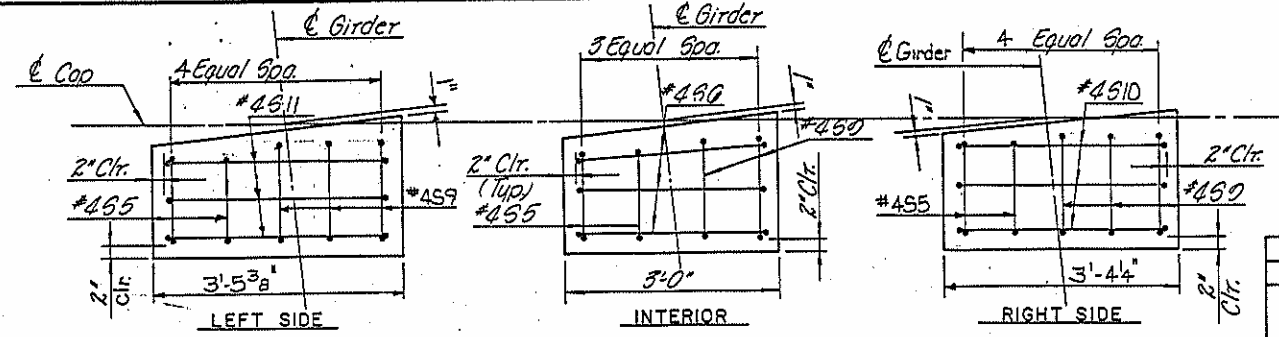
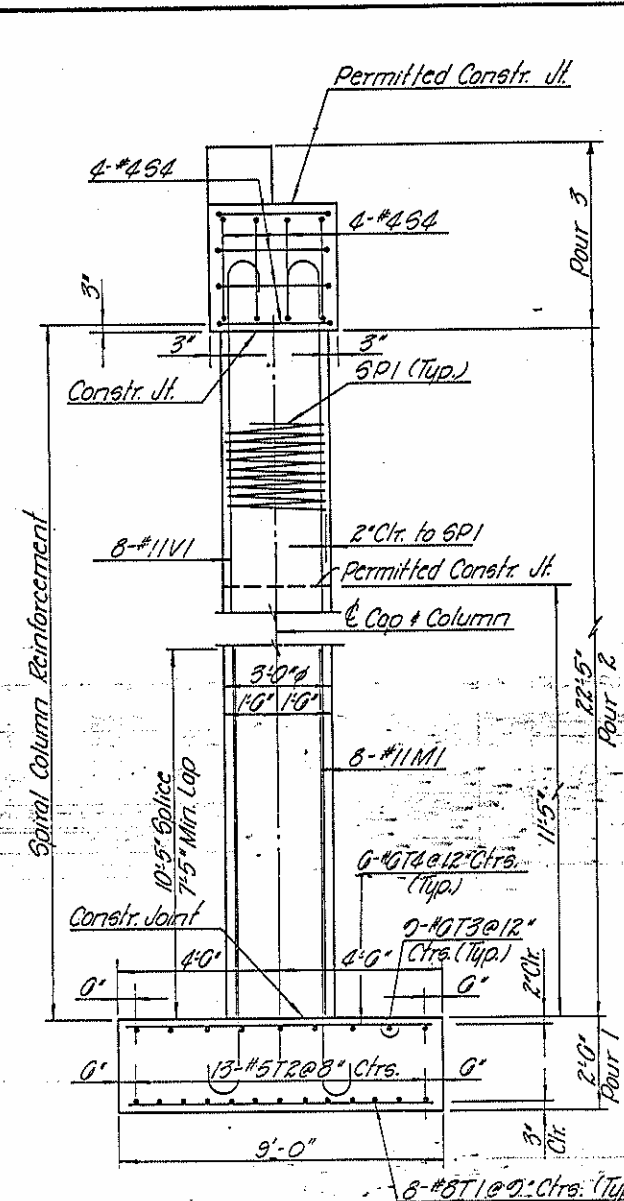
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1	JAG	12-12-89				5-26
						TOTAL SHEETS
						42-101

MADE	BY	DATE
CHECKED	D.C.B.	5-88
IN CHARGE	D.R.R.	5-88
IN CHARGE D.R. Ruggles		

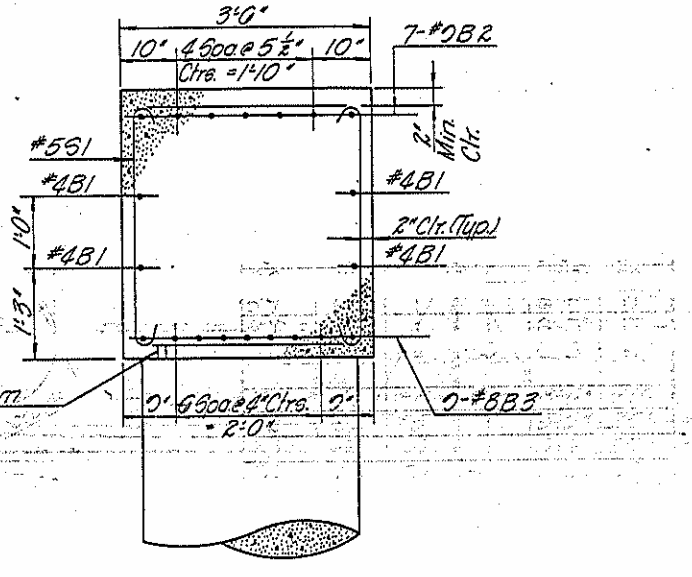
PREPARED BY
 AMERICAN ENGINEERS
 Revised to add reinforcing steel splice lengths BY: JAG / BY: TWR DATE: 12-18-89 Dwg. 23 of 39

ELEVATION





PLAN OF BRIDGE SEAT REINFORCEMENT



SECTION A-A

BAR TYPES

BENT # 1

BILL OF MATERIAL

Bar	No.	Size	Type	Length	Weight
B1	8	#4	Str.	20'-7"	158
B2	16	#4	Str.	25'-3"	1202
B3	2	#8	Str.	50'-8"	1302
B4	7	#2	Str.	20'-3"	1025
B5	2	#4	Str.	13'-0"	18
B6	6	#4	Str.	3'-2"	13

M1	32	#11	1	4'-2"	2200
----	----	-----	---	-------	------

S1	40	#5	2	10'-4"	431
S2	15	#5	2	11'-1"	220
S3	42	#8	8	3'-11"	110
S4	10			5'-0"	50
S5	14			6'-0"	61
S6	15			8'-0"	80
S7	16			6'-8"	71
S10	3			8'-3"	17
S11	3	#4	3	8'-5"	17

T1	32	#8	Str.	8'-0"	720
T2	58	#5		5'-0"	298
T3	30	#0		5'-8"	207
T4	122	#0	Str.	8'-0"	300

V1	32	#11	1	20'-0"	2420
----	----	-----	---	--------	------

S19	4	-	4	772'-10"	2085
-----	---	---	---	----------	------

Spiral Column Reinforcing Steel
lbs. 2005

HL	HL	HL	HL
24'-0" B2	12'-7" M1	24'-5" V1	1'-7"

HL	HL
5'-2"	5'-2"
3'-1/2" S1	3'-0" S2

1/2 Extra Turns

1/2 Extra Turns

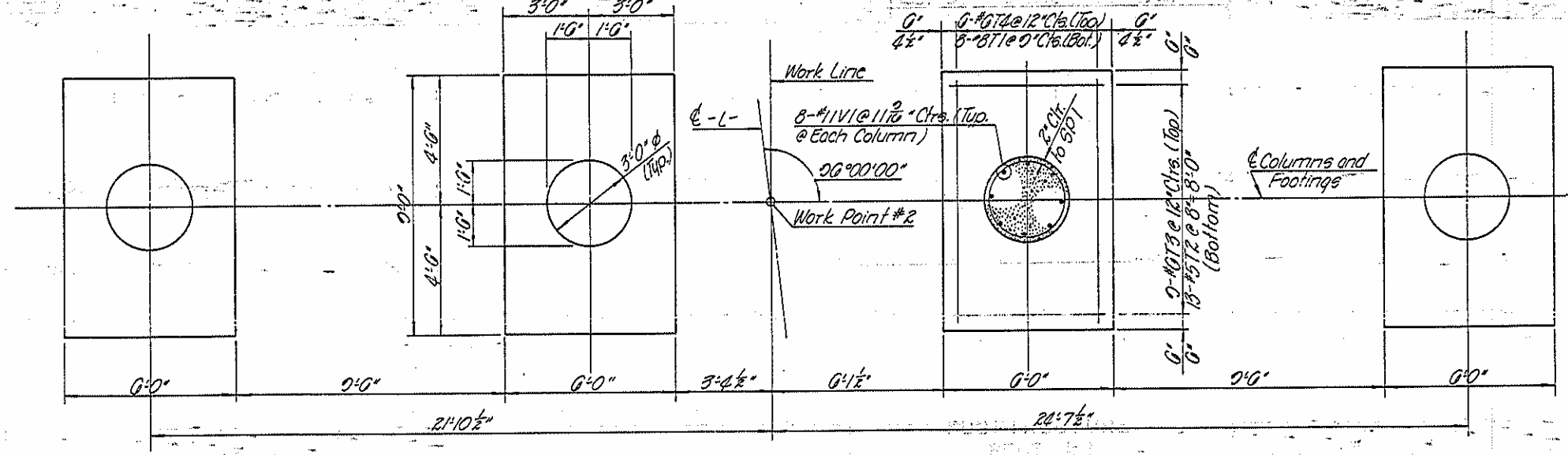
3'-2" S3	3'-0" S4	1'-2" S5	2'-8" S6	2'-11" S10	3'-1" S11	1'-4" S9
----------	----------	----------	----------	------------	-----------	----------

4'-2" S3	1'-3" S4	2'-8" S5	8'-0" S6	8'-0" S10	8'-0" S11
----------	----------	----------	----------	-----------	-----------

Notes: All bar dimensions are out-to-out

Note: All bar dimensions are out-to-out.

END ELEVATION



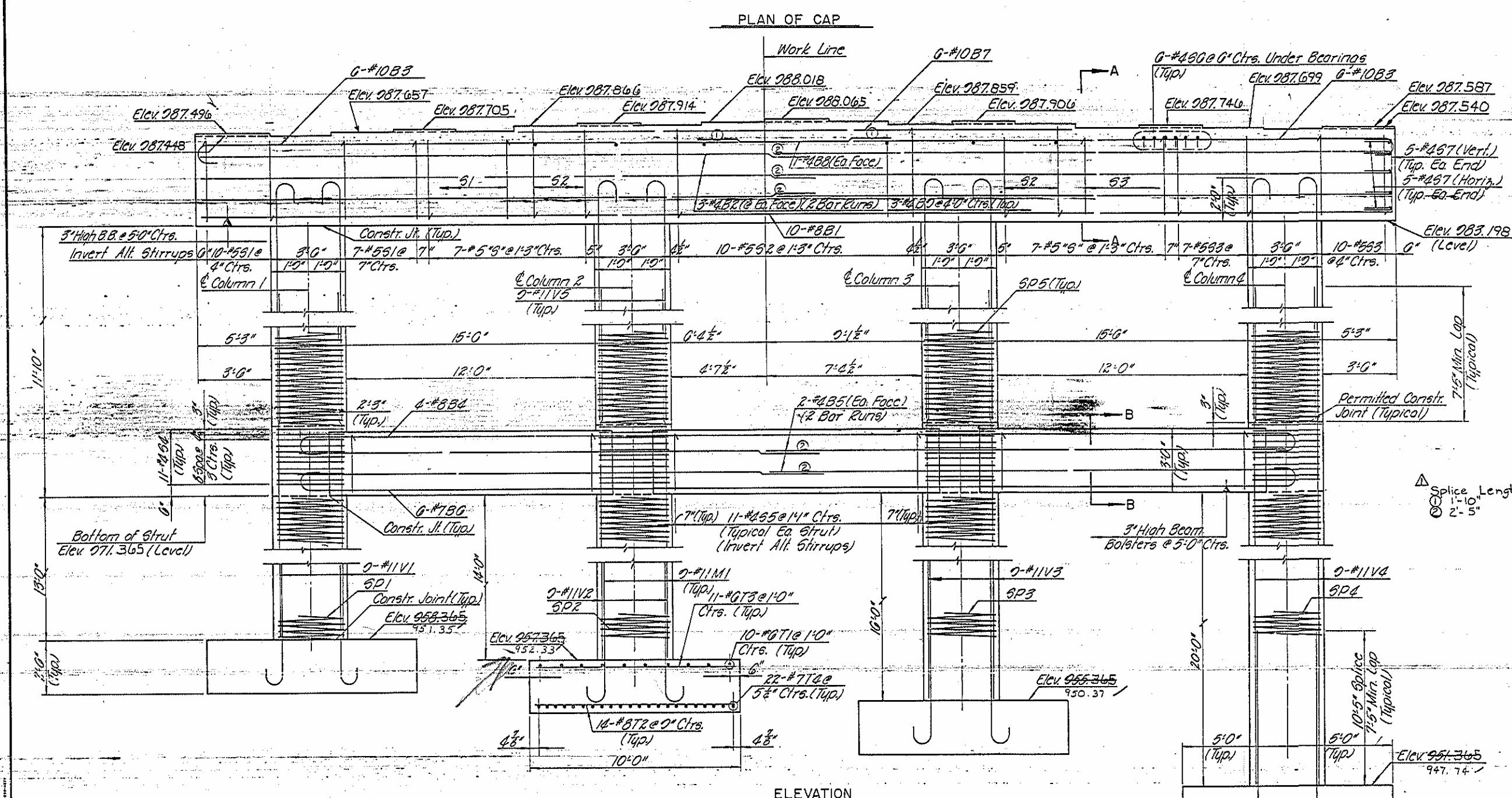
PLAN OF FOOTINGS
Note: All Footings are identical

PROJECT: 8.1760801
Wilkes COUNTY
STATION: 17+82.00-L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
BENT #1

REVISIONS				SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE
1			2		
TOTAL SHEETS					42/101

BY	DATE
MADE	D.C.B. 5-88
CHECKED	D.R.R. 5-88
IN CHARGE	D. R. Ruggles



Notes:

- 1) Hooks on "V" Bars may be turned as necessary for placing reinforcing steel.
- 2) Stirrups to be placed normal and inverted alternately.
- 3) The top surface area of bent cap shall be cured in accordance with the Standard Specifications, except the membrane curing compound method shall not be used.
- 4) For epoxy protective coating, see Special Provisions.
- 5) For Spiral Column reinforcing steel, see Special Provisions.

MAIN REINFORCING STEEL MAY BE SHIFTED SLIGHTLY
HORIZONTALLY TO AVOID INTERFERENCE WITH ANCHOR BOLTS

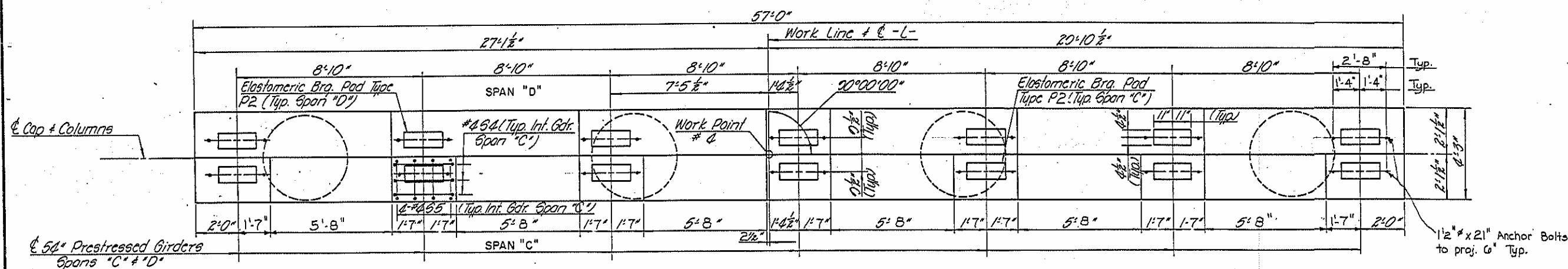
PROJECT: 8.17G0801
Wilkes COUNTY
 STATION: 17+80.00-L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
BENT # 2

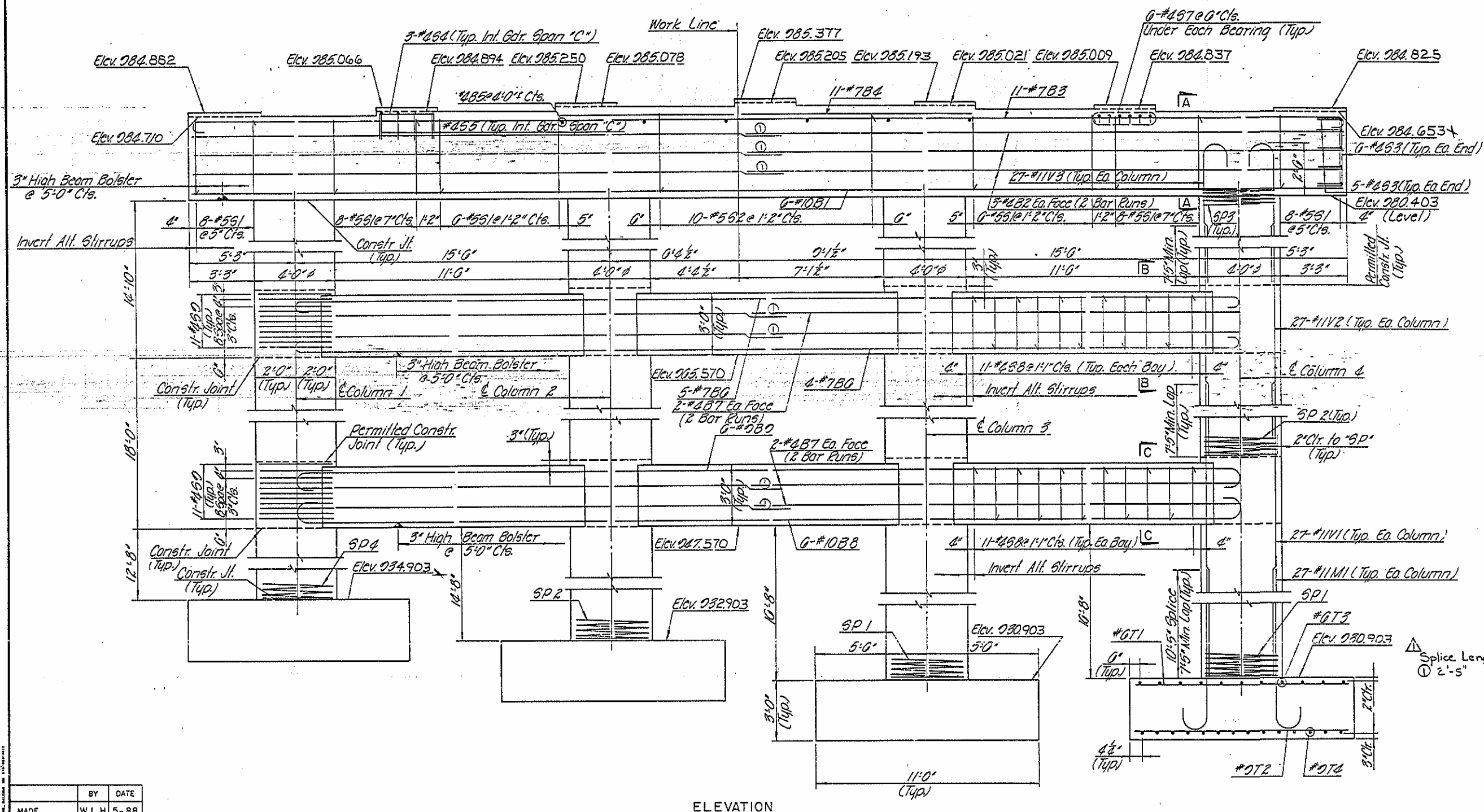
REVISIONS							SHEET NO.
NO.	BY	DATE	NO.	BY	DATE		
1	JAG	12-12-81				TOTAL SHEETS	
39						42	

AMERICAN ENGINEERS

... 27th / 27th



PLAN OF CAP



ELEVATION

NOTES:

1. For Epoxy Protective Coating, see Special Provisions.
2. Hooks on "V" Bars may be turned as necessary for placing Reinforcing Steel.
3. Stirrups to be placed normal and inverted alternately.
4. The top surface area of bent cap shall be cured in accordance with the Standard Specifications, except the membrane curing compound method shall not be used.
5. For Spiral Column Reinforcing Steel, see Special Provisions.

MAIN REINFORCING STEEL MAY BE SHIFTED SLIGHTLY HORIZONTALLY TO AVOID INTERFERENCE WITH ANCHOR BOLTS.

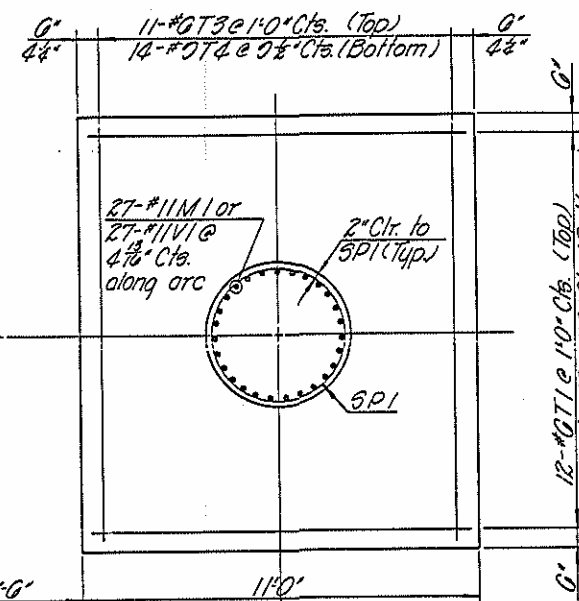
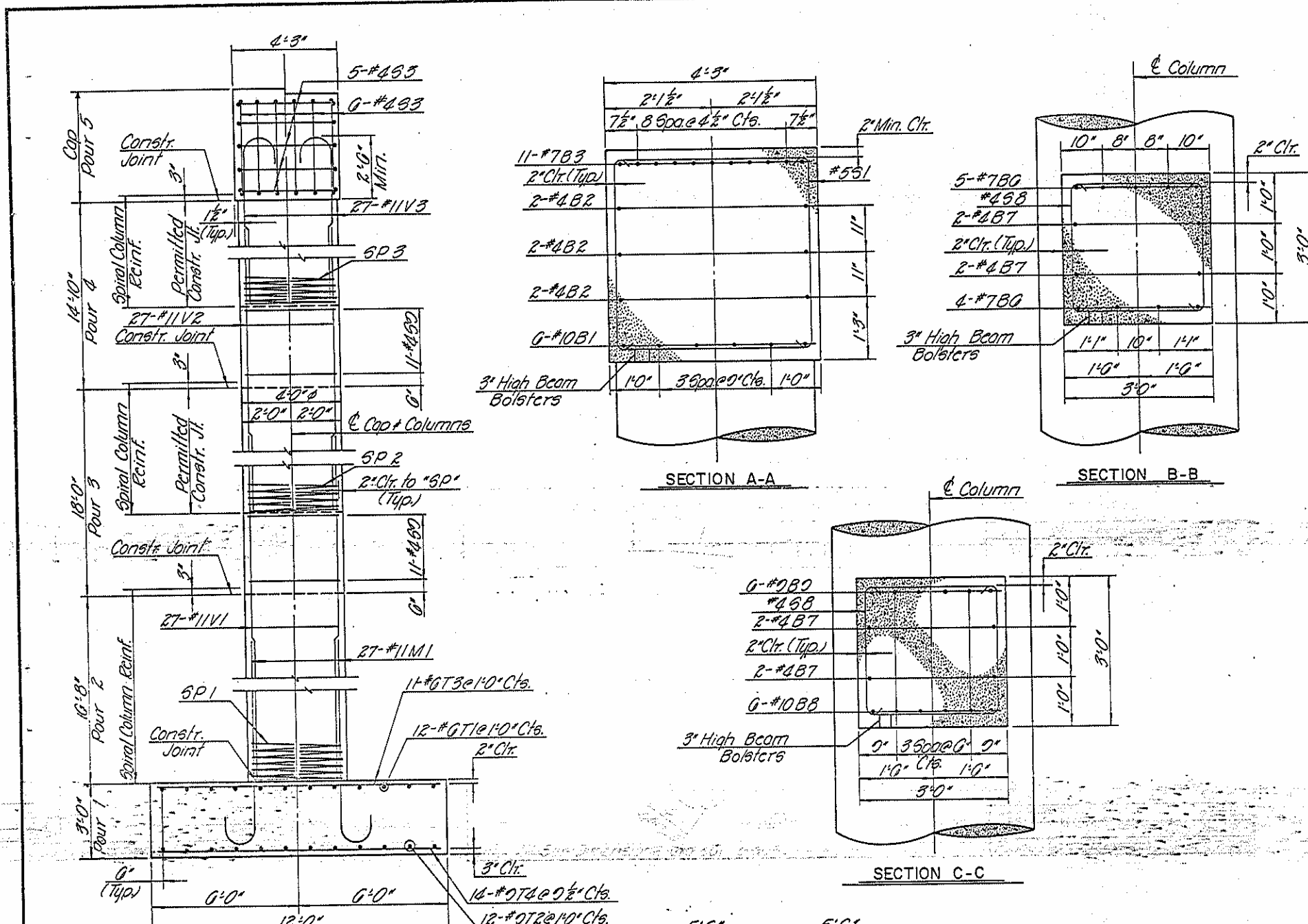
PROJECT: 8.1700801
 Wilkes COUNTY
 STATION: 17+80.00-L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT 3

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1	JAG	12-12-81				5-30
						TOTAL SHEETS
						42-101

BY	DATE
MADE	W.L.H. 5-88
CHECKED	D.R.R. 5-88
IN CHARGE	D. R. Ruggles

PREPARED BY
 AMERICAN ENGINEERS
 Revised to add reinforcing steel splice lengths. BY: JAG / 8/17/82 DATE: 12-12-81 Dwg. 27 of 39

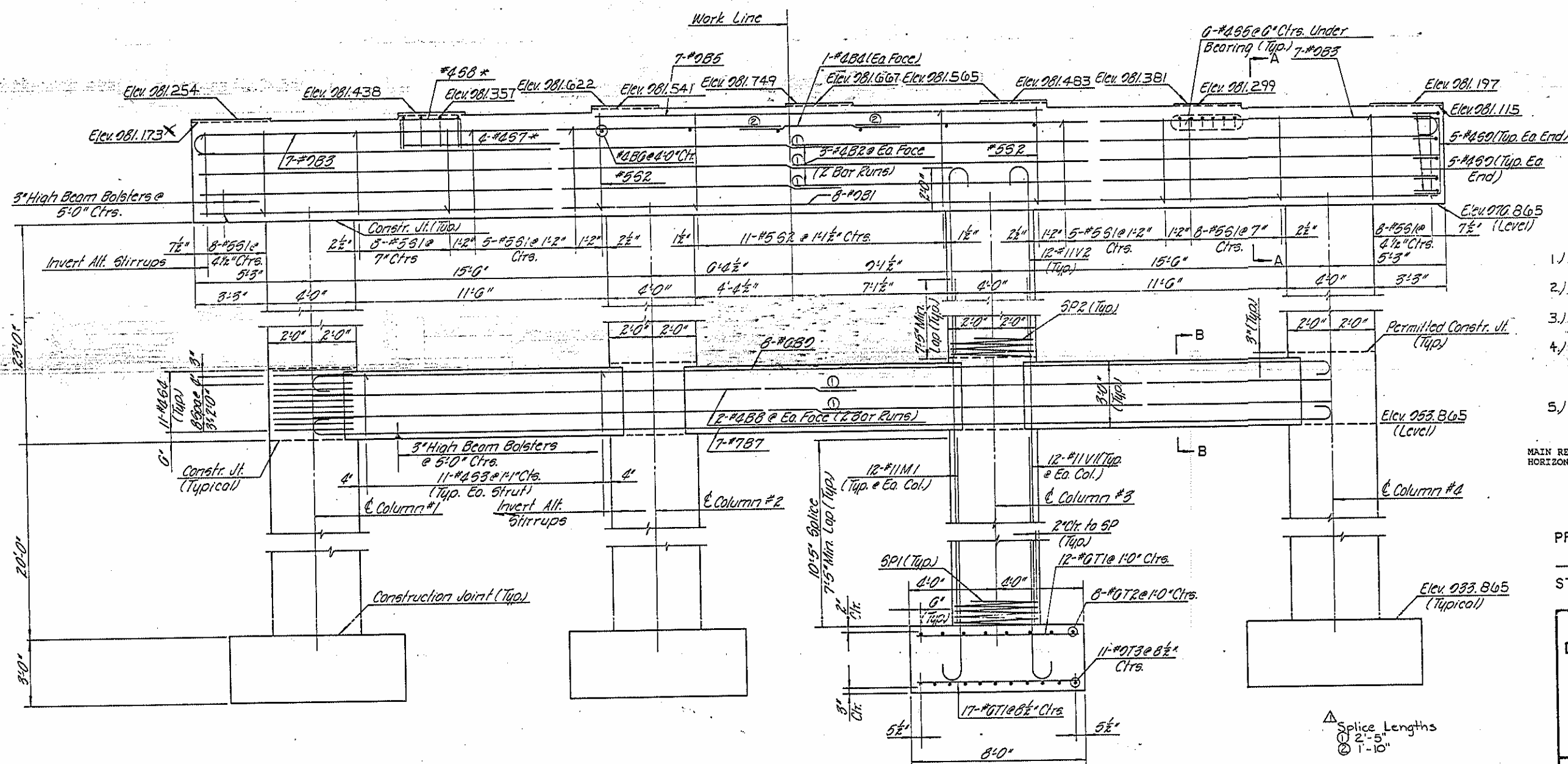


REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
						53105
						TOTAL SHEETS
						42101

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
						53105
						TOTAL SHEETS
						42101

PLAN OF CAP

*Note: Use #457 & #458 bars at Girders 2 and 4 only Span "D".



ELEVATION

- 1.) For Epoxy Protective Coating, see Special Provisions.
- 2.) Hooks on "V" Bars may be turned as necessary for placing Reinforcing Steel.
- 3.) Stirrups to be placed normal and inverted alternately.
- 4.) The top surface area of bent cap shall be cured in accordance with the Standard Specifications, except the membrane curing compound method shall not be used.
- 5.) For Spiral Column Reinforcing Steel, see Special Provisions.

MAIN REINFORCING STEEL MAY BE SHIFTED SLIGHTLY
HORIZONTALLY TO AVOID INTERFERENCE WITH ANCHOR BOLTS.

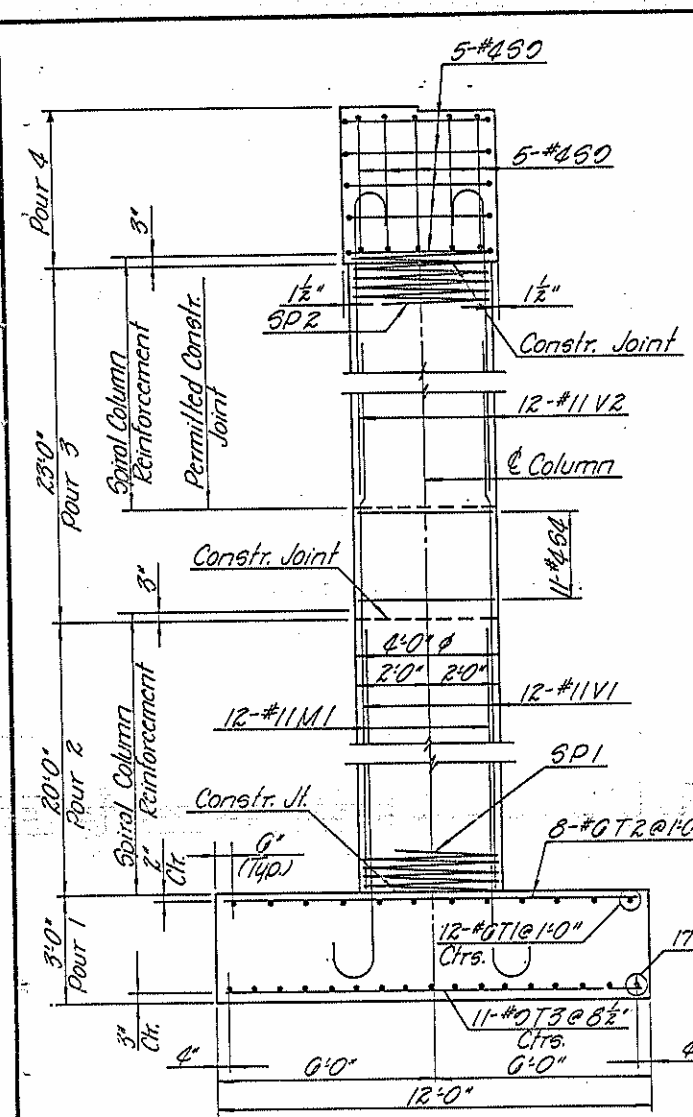
PROJECT: B.17G0801
Wilkes COUNTY
 STATION: 17+89.00-L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT # 4

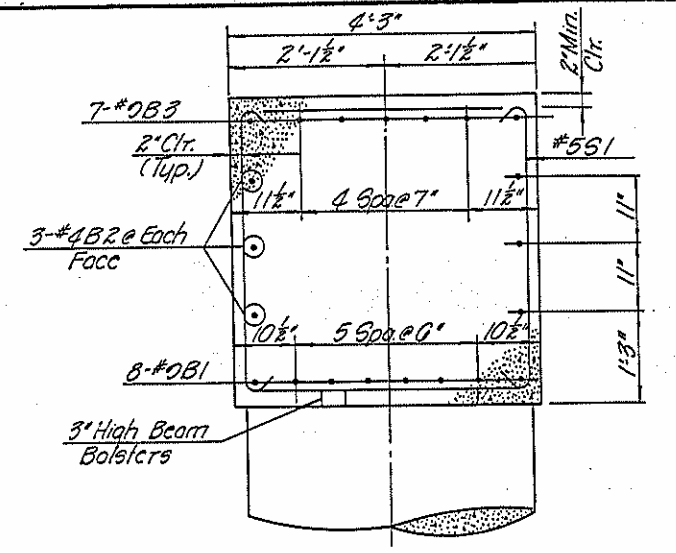
	BY	DATE
MADE	D.C.B.	5/88
CHECKED	D.R.R.	5/88
IN CHARGE D. R. Ruggles		

PREPARED BY
AMERICAN ENGINEERS

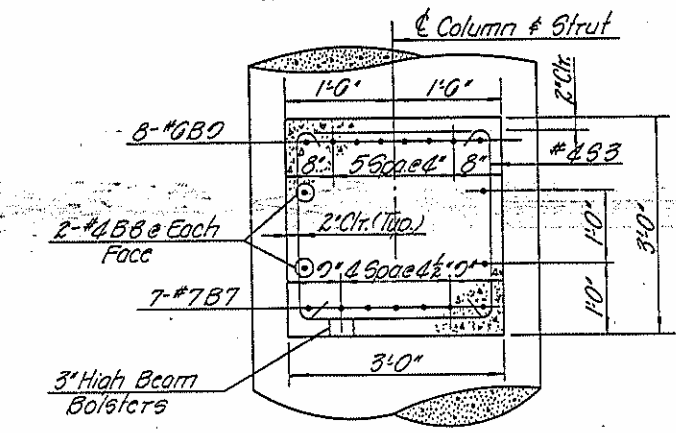
△ Revised to add reinforcing steel splice lengths BY: JAG ✓ BY: TTR DATE: 2-18-89 Dwg. 29 of 39



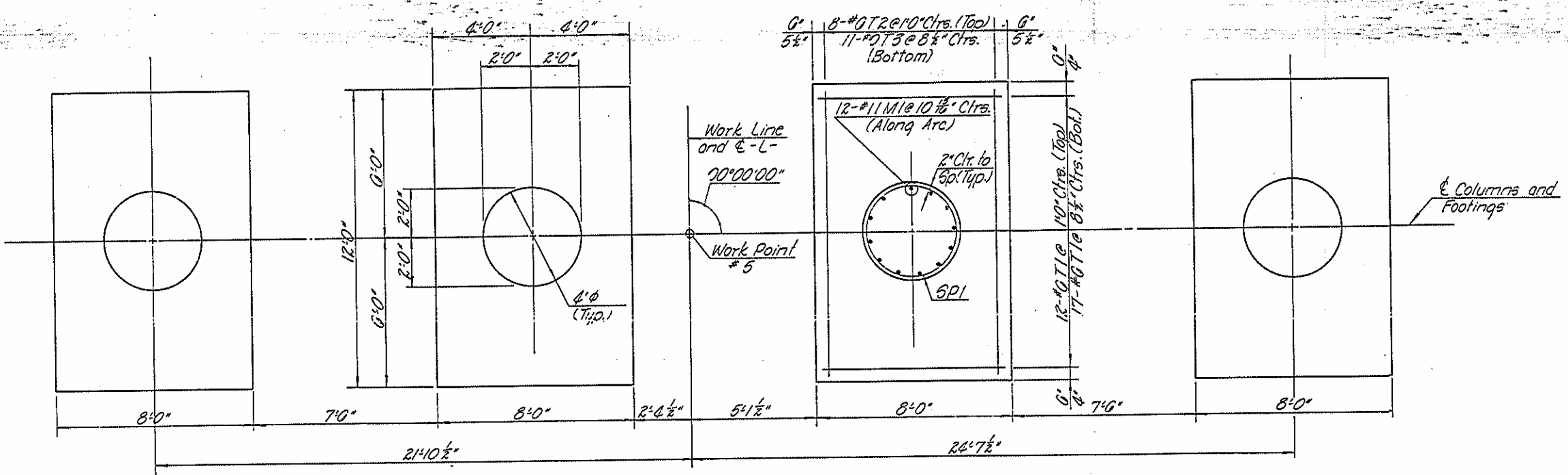
END ELEVATION



SECTION "A-A"



SECTION "B-B"



PLAN OF FOOTINGS
Note: All Footings are Identical

BENT # 4

BAR TYPES

① 20'11" B3, 13'1" M1, 21'10" V2, 17'1" V1

② 10'1" B3, 10'1" B7, 10'1" B9

③ 3'11" B3, 3'11" B7, 2'8" B9

④ 3'11" B3, 3'11" B7, 2'8" B9

⑤ 3'11" B3, 3'11" B7, 2'8" B9

BILL OF MATERIAL

Bar	No.	Size	Length	Weight
B1	8	#2	50'8"	154.11
B2	12	#2	51'8"	231.7
B3	14	#2	28'2"	134.1
B4	2	#2	51'8"	110
B5	7	#2	51'8"	484
B6	6	#2	51'8"	10
B7	7	#7	28'8"	689
B8	8	#2	51'8"	131
B9	8	#2	47'10"	575
M1	48	#11	18'8"	3740
B1	42	#5	12'7"	551
B2	13	#5	13'1"	177
B3	33	#4	8'8"	101
B4	44	#4	12'8"	372
B5	42	#5	4'8"	131
B7	8	#7	4'3"	23
B8	0	#7	5'4"	21
B9	20	#4	6'3"	84
T1	110	#0	51'8"	1307
T2	32	#0	51'8"	553
T3	44	#0	51'8"	1720
V1	48	#11	30'8"	7321
V2	48	#11	25'0"	5951
SP1	4	-	0	2554
SP2	4	-	0	2520

Spiral Column Reinforcing Steel

lbs. 5083

Reinforcing Steel lbs. 27,066

Class "A" Conc. Cu. Yds.

Pour 1 42.7

Pour 2 37.2

Pour 3 54.7

Pour 4 40.2

Total 174.8

Foundation Excavation Lump Sum

Note: All bar dimensions are out-to-out.

PROJECT: 8.17G0801
Wilkes COUNTY
STATION: 17+80.00-L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
BENT #4

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
						5-33-7
TOTAL SHEETS						42-101

BY	DATE
MADE	D.C.B. 5/88
CHECKED	D.R.R. 5/88
IN CHARGE	D. R. Ruggles

PREPARED BY
AMERICAN ENGINEERS

£ 30" Prestressed Girders Span "F"
£ 54" Prestressed Girders Span "E"

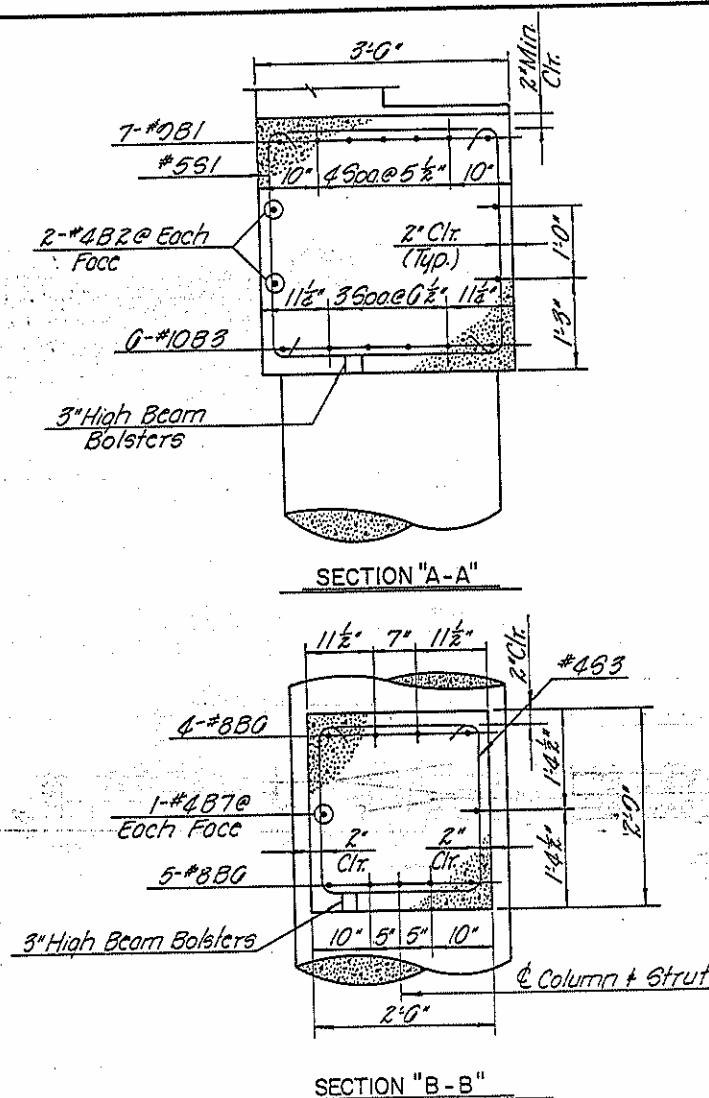
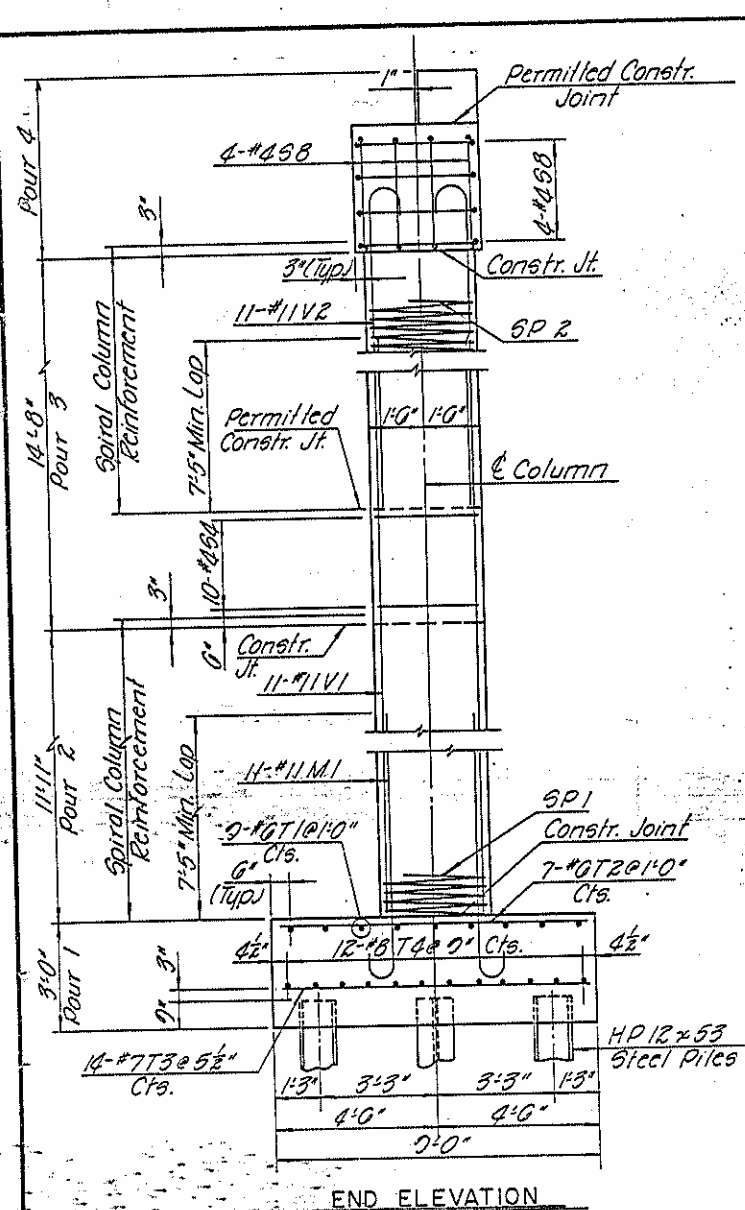
HP 12X53	STEEL PILES
PILE No	LENGTH
1	18.4
2	15.0
3	14.3
4	13.8
5	14.9
6	14.9
7	15.0
8	15.6
9	16.9
10	18.0
11	18.2
12	16.0
13	17.9
14	13.5
15	12.6
16	13.1
17	14.4
18	14.1
19	13.6
20	14.3
21	13.7
22	14.2
23	15.2
24	13.7

ELEVATION

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
BENT # 5

REVISIONS						SHEET, NO.
NO.	BY	DATE	NO.	BY	DATE	
1	JAG	12-12-89				TOTAL SHEETS
						42 101

PREPARED BY
AMERICAN ENGINEERS
△ Revised to add reinforcing steel splice lengths. BY: JAG /BY: TWR DATE: 12-19-67 Dwg. 31 of 39



BAR TYPES		BENT #5		BILL OF MATERIAL	
Bar	No.	Size	Type	Length	Weight
B1	14	#8	5ft.	28'-2"	134
B2	8	#4	5ft.	20'-7"	158
B3	6	#10		50'-8"	1403
B4	7	#8		20'-8"	284
B5	2	#4	5ft.	7'-8"	10
B6	2	#8	2	43'-10"	1173
B7	4	#4	5ft.	25'-0"	67
B8	6	#4	5ft.	34'-2"	13
M1	44	#11	1	10'-11"	2552
S1	48	#5	4	10'-4"	517
S2	13	#5	4	10'-10"	147
S3	33	#4	4	7'-8"	100
S4	40		3	0'-5"	252
S7	42		5	3'-11"	110
S8	10		1	5'-0"	50
S9	28		1	6'-10"	128
S10	21	#4	5	8'-4"	117
T1	30	#8	5ft.	0'-0"	351
T2	25	#8		8'-0"	357
T3	60	#7		8'-0"	978
T4	48	#8	5ft.	0'-0"	833
V1	44	#11	5ft.	22'-4"	5221
V2	44	#11	1	15'-3"	3505
GP1	4	-	0	42'-4"	1135
GP2	4	-	0	418'-1"	1117

Note: All bar dimensions are out-to-out

Spiral Column Reinforcing Steel	lbs.	2250
Reinforcing Steel lbs.		28,060
		20,064
Class "A" Concrete, Cu. Yds.		
Pour 1		25.0
Pour 2		12.5
Pour 3		25.2
Pour 4		29.7
Total		95.4 ✓
HP 12x53 Steel Piles		
No. 24 Lin. Ft. 300		
Foundation Excavation Cu. Yds.		89
		91.2

PROJECT: 8.17G0801
 Wilkes COUNTY
 STATION: 17+89.00-L

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT #5

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1						5-85
TOTAL SHEETS						42-101

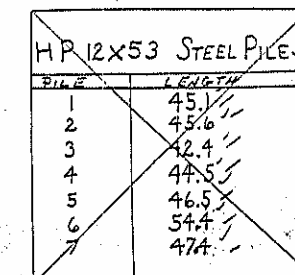
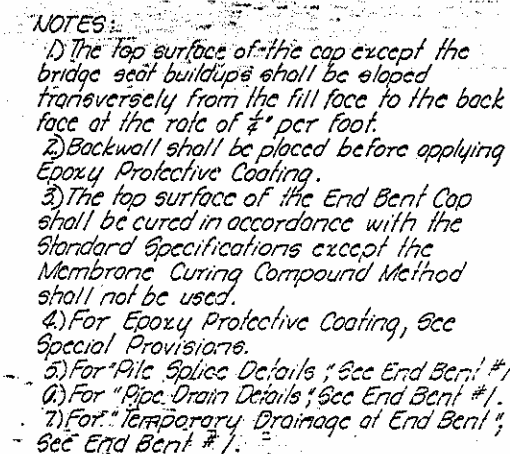
BY	DATE
MADE	D.C.B. 5-88
CHECKED	D.R.R. 5-88
IN CHARGE	D. R. Ruggles

PLAN OF FOOTINGS
 Note: All Footings are identical

PREPARED BY
 AMERICAN ENGINEERS

Dwg. 32 of 39

1/31/84

 $\text{SPAN}^{\text{II}} \text{F}^{\text{II}}$ 

MAIN REINFORCING STEEL MAY BE SHIFTED SLIGHTLY
HORIZONTALLY TO AVOID INTERFERENCE WITH ANCHOR BOLTS.

DETAIL "A"
(Typ. @ G2, G4 & G6)

THE DIMENSIONS AND DETAILS SHOWN FOR THE STEEL PLATE SLEEVE ARE FOR THE CONTRACTOR'S BENEFIT IN PLACING IT AND ARE NOT TO BE CONSTRUED TO BE AN APPROVAL FOR THE ATTACHMENT OF THE UTILITY TO THE SUPERSTRUCTURE.

FOR RESPONSIBILITIES FOR FURNISHING AND PLACING STEEL PLATE SLEEVE,
SEE UTILITY SPECIAL PROVISIONS.

Splice Lengths

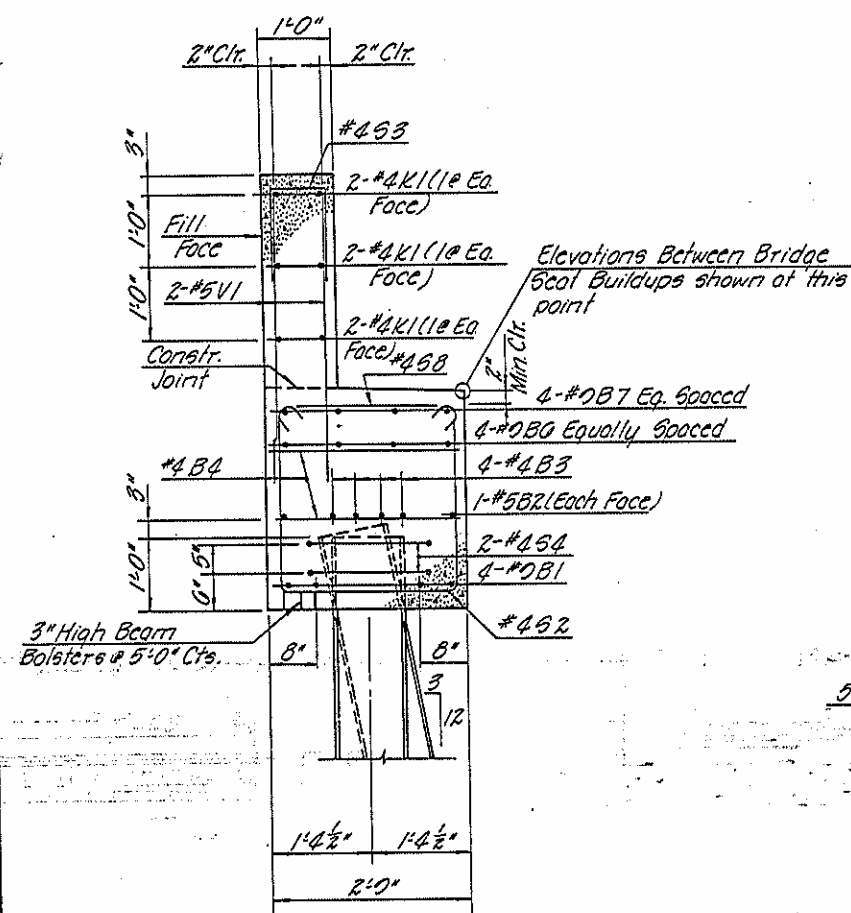
①	2'-5"	{#4}
②	3'-0"	{#5}
③	1'-10"	
④	6'-3"	

PROJECT: 8.1700801
Wilkes COUNTY
 STATION: 17+80.00-L-

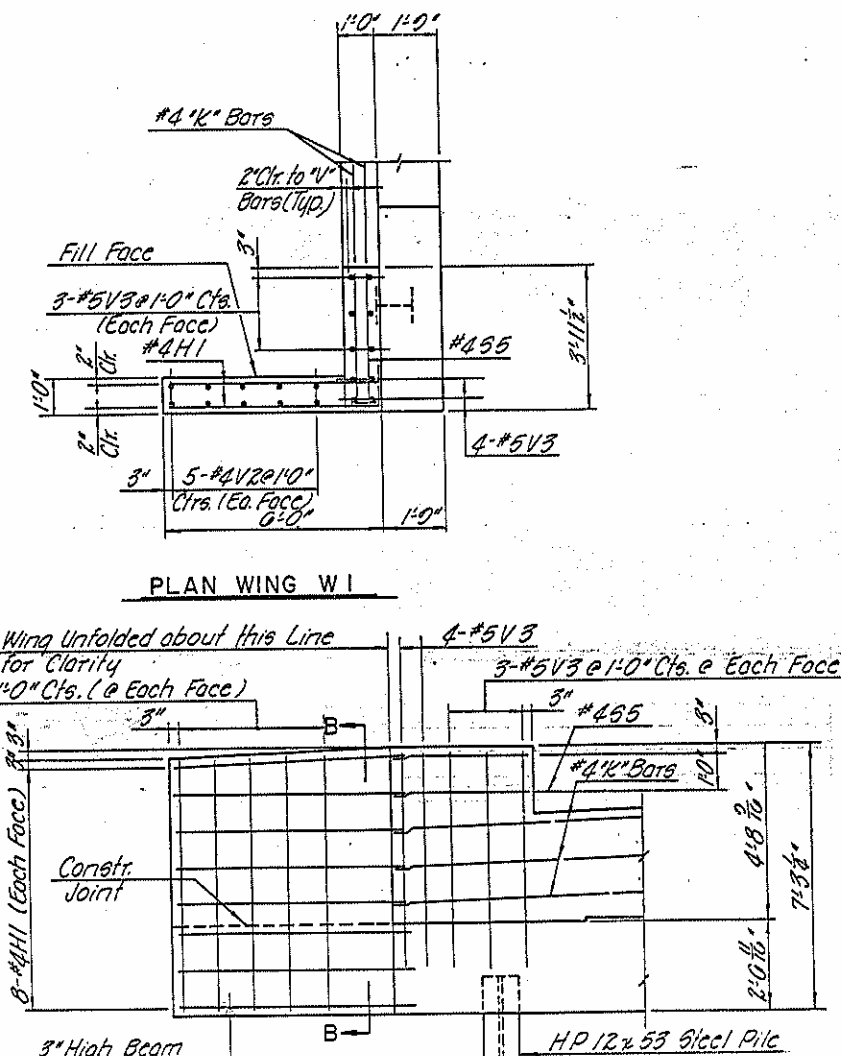
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
END BENT # 2

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	5-36 ⁷
1	JAG	12-12-89				TOTAL SHEET 47 10

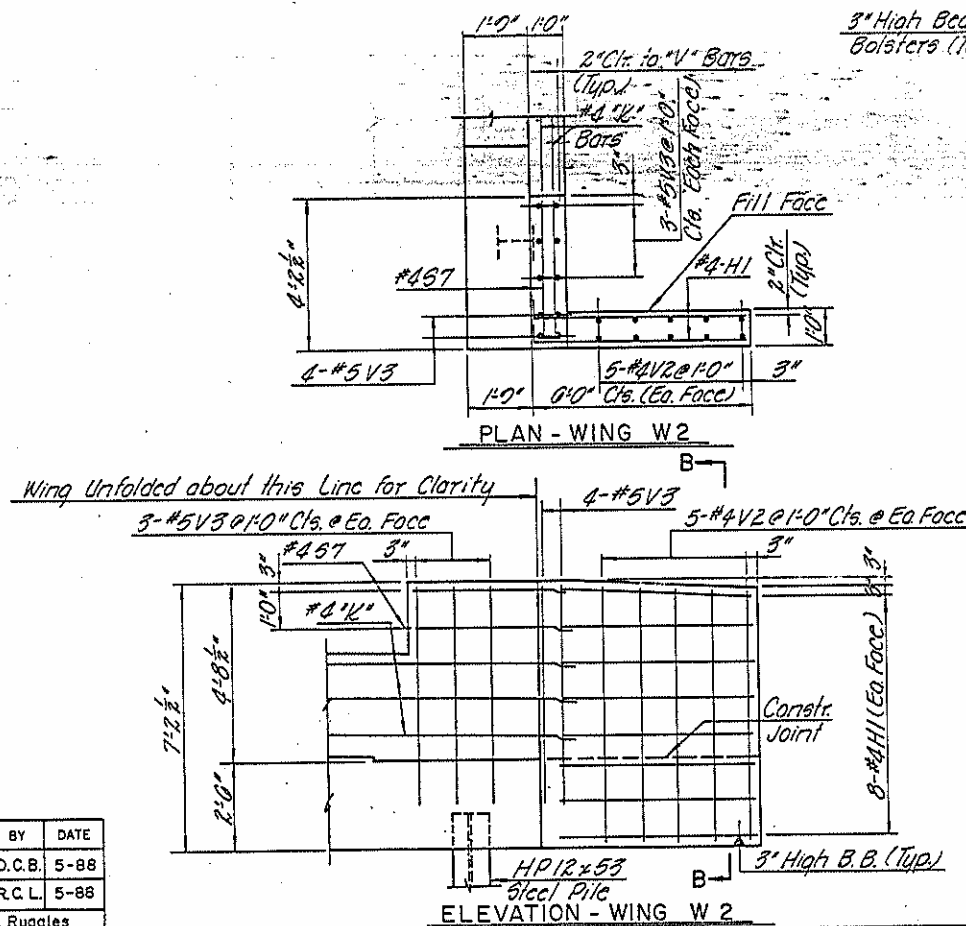
PREPARED BY
AMERICAN ENGINEERS
△ Revised to add reinforcing steel splice lengths BY: JAG ✓ BY: TJA DATE: 12-1-52 Dwg. 33 of 39



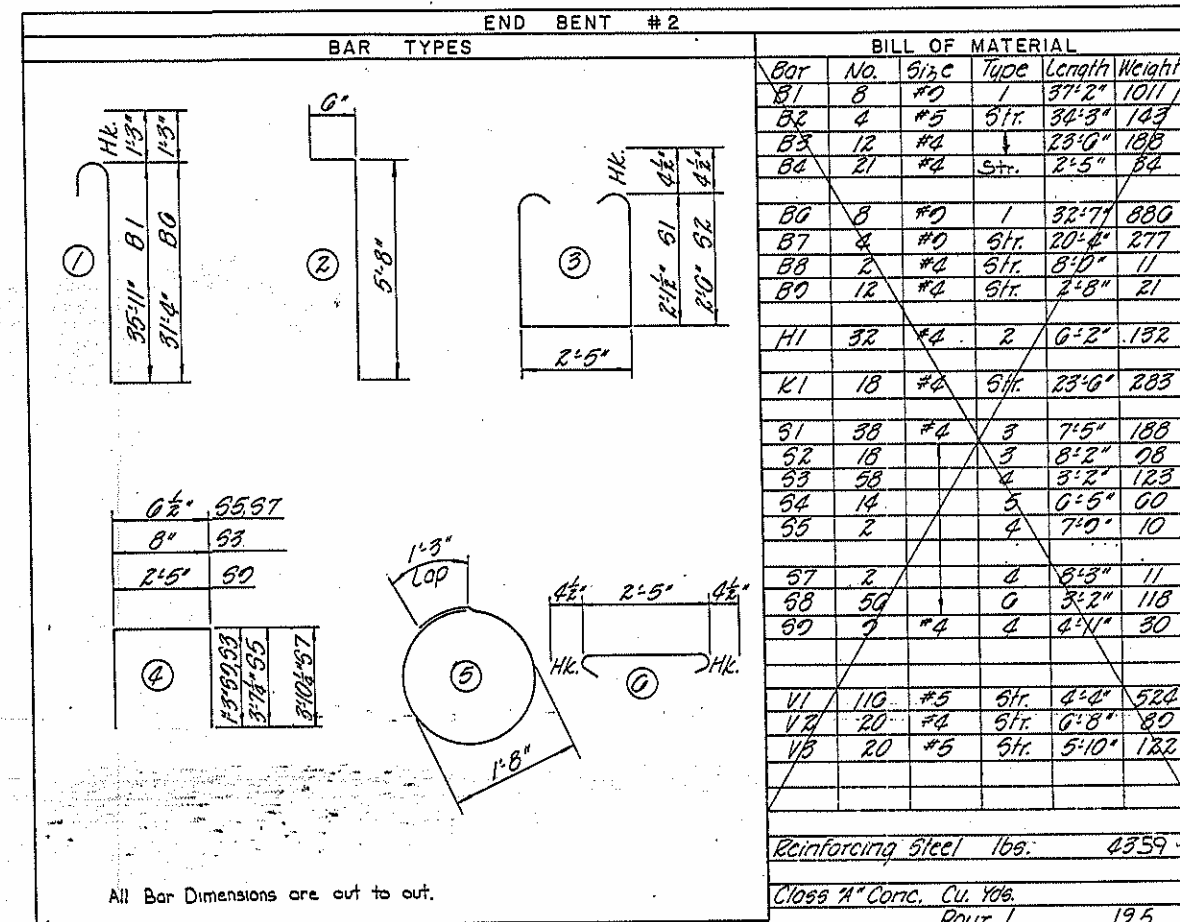
SECTION "A-A"



ELEVATION - WING W1



ELEVATION - WING W2

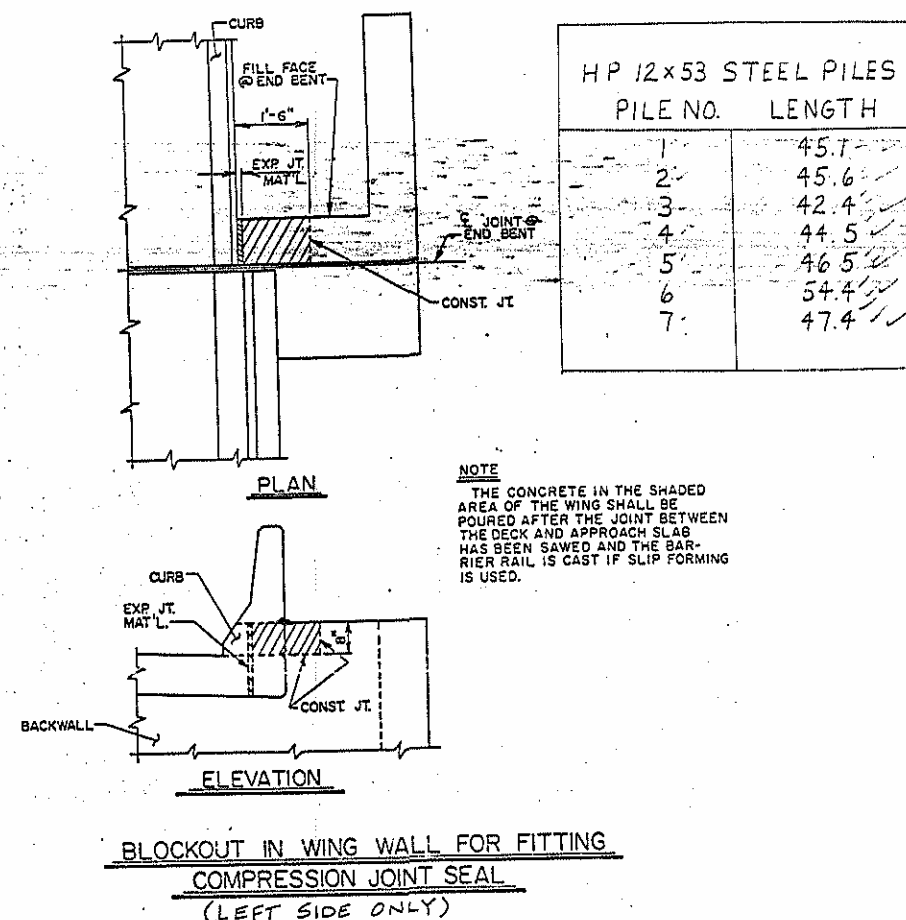


All Bar Dimensions are out to out.

Reinforcing Steel lbs. 4359

Class 11 Conc. Cu. Yds.
Pour 1 19.5
Pour 2 2.5
Total 22.0

HP 12x53 Steel Piles No. 7
Lin. Ft. 315
325.9



NOTE
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE JOINT BETWEEN THE DECK AND APPROACH SLAB HAS BEEN SAWS AND THE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

PROJECT: 8.1700801
Wilkes COUNTY
STATION: 17+89.00-L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
END BENT #2

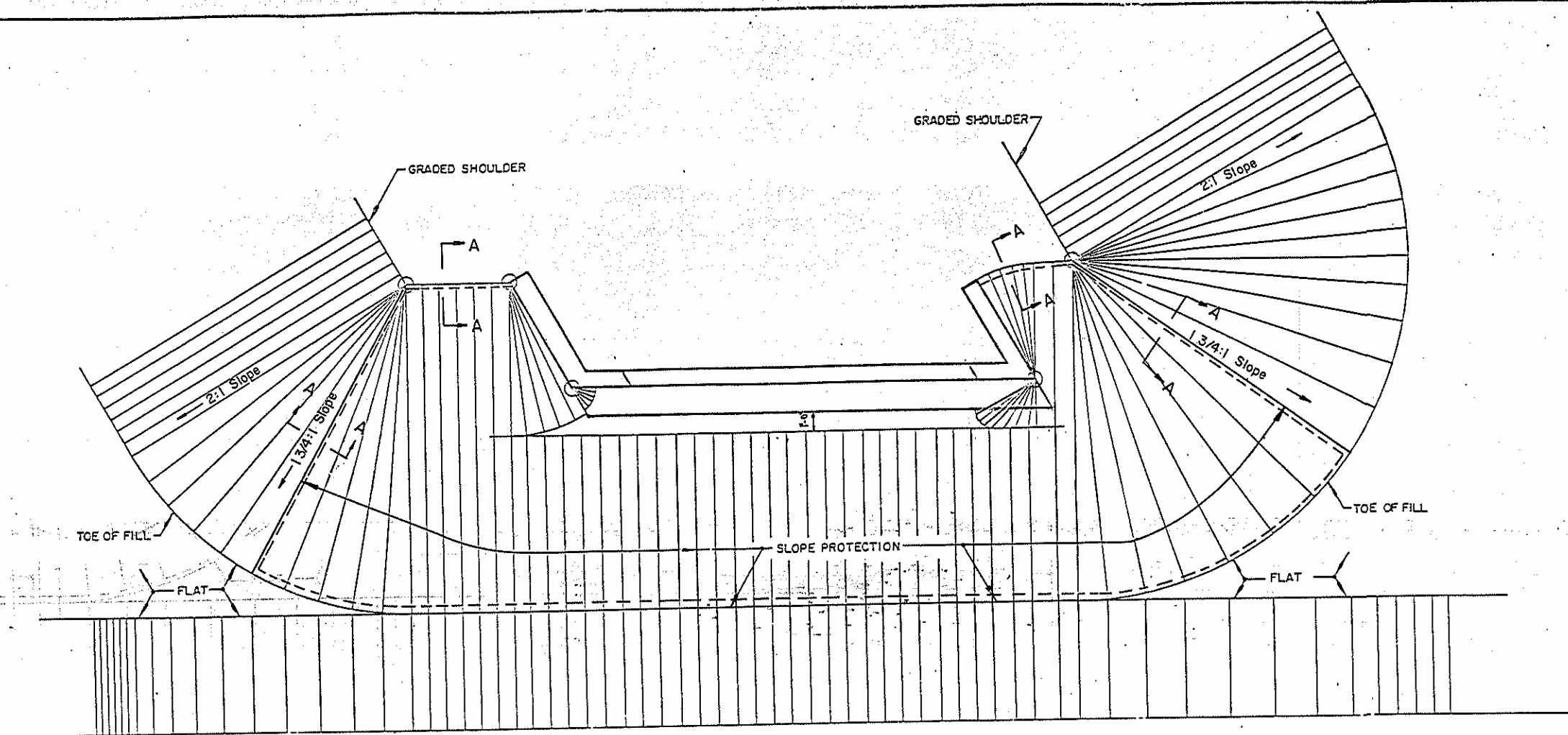
REVISIONS
NO. BY DATE NO. BY DATE
5-27-71
TOTAL SHEETS 42

Dwg. 34 of 59

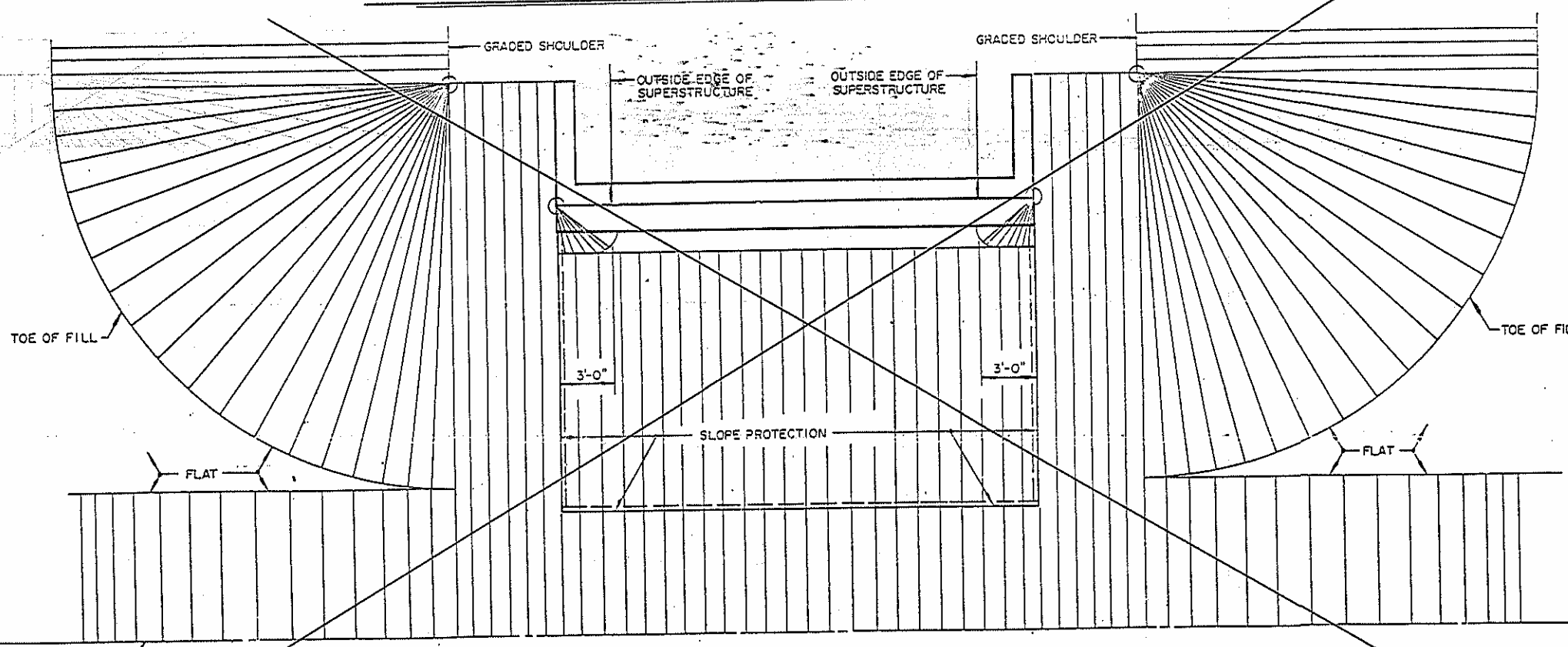
PREPARED BY
AMERICAN ENGINEERS

MADE BY DATE
D.C.B. 5-88
CHECKED R.C.L. 5-88
IN CHARGE D.R. Ruggles

STD. NO. SPI



PLAN - END BENT WITH SWEEP BACK WINGS - SKEWED



PLAN - END BENT WITH SWEEP BACK WINGS - 90°

NOTE: Slope protection required at End Bent 1 only.

PROJECT NO. 8.1760801
WILKES COUNTY
STATION: 17+89.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
SLOPE PROTECTION
DETAILS

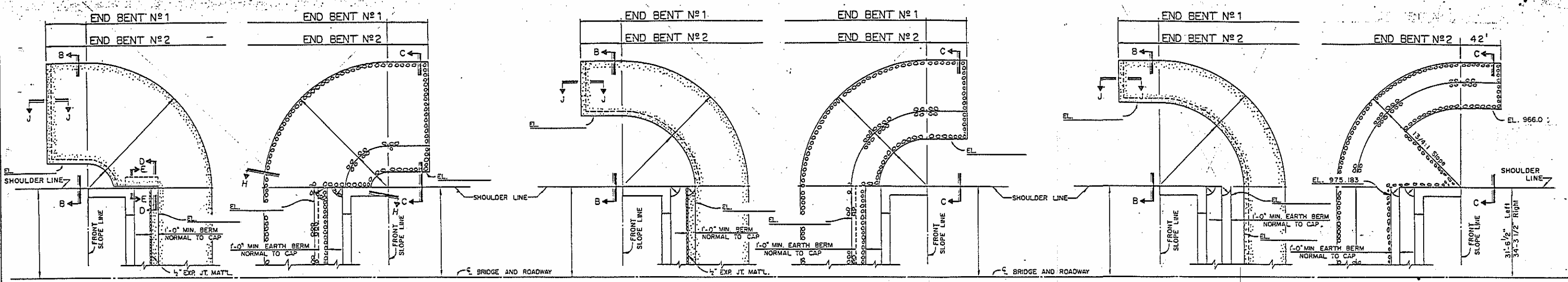
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
					TOTAL SHEETS
					42

Dwg 36 of 39

STD. NO. SP2

REVISED 3-1-84 BY JMB 207.000
REDESIGNED AND ADAPTED: APRIL 1, 1973

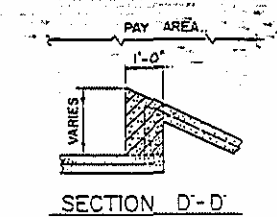
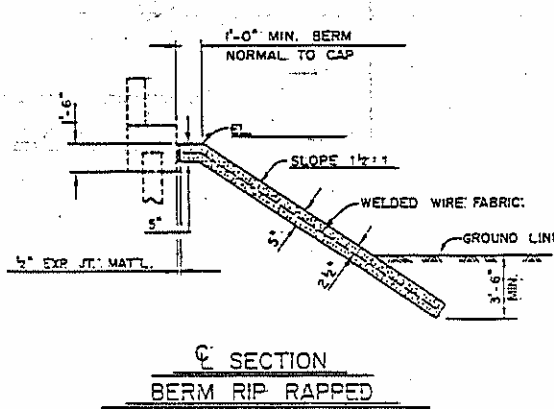
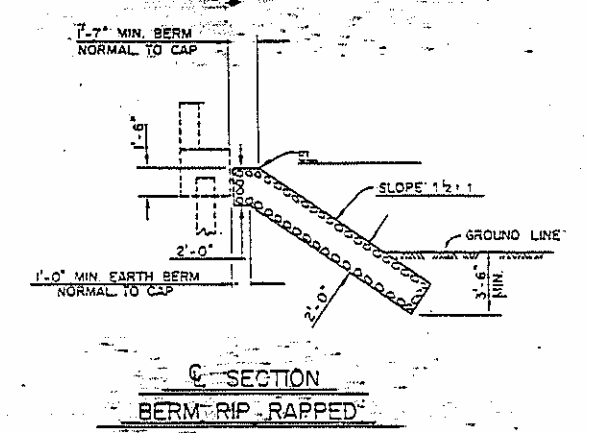
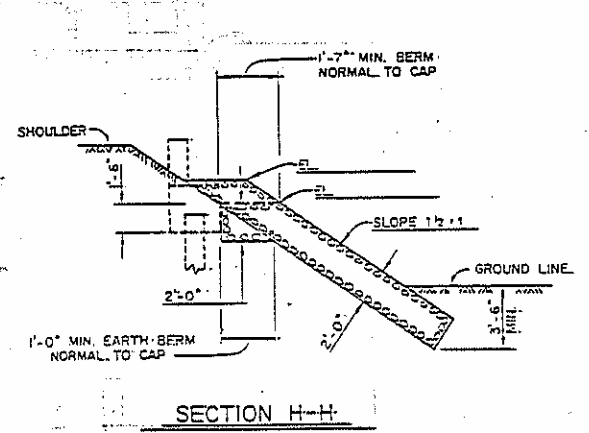
ASSEMBLED BY R.C. LARSON	DATE 5/88	SPECIAL
CHECKED BY D.R. RUGGLES	DATE 5/88	
DRAWN BY S.E. MITCHELL	DATE FEB 1979	STANDARD
CHECKED BY J. H. HARRIS	DATE FEB 81	



SHOULDER RIP RAP IS HIGHER THAN BERM RIP RAP
CONCRETE RIP RAP PLAIN RIP RAP

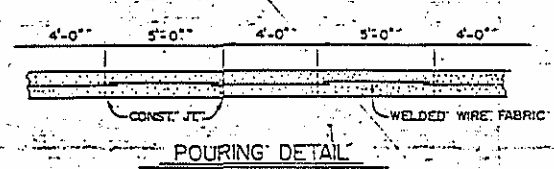
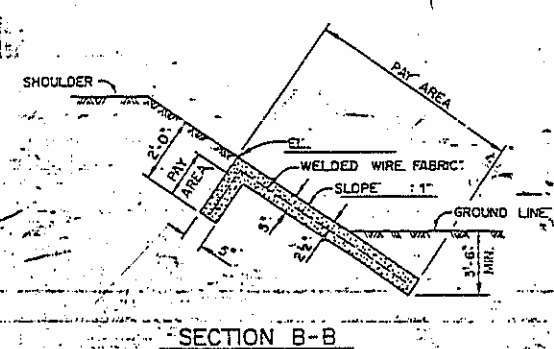
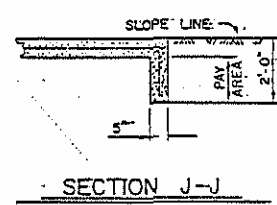
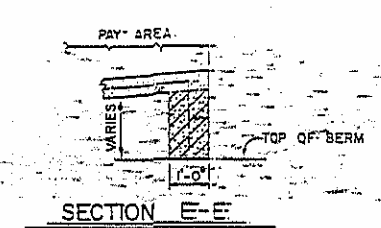
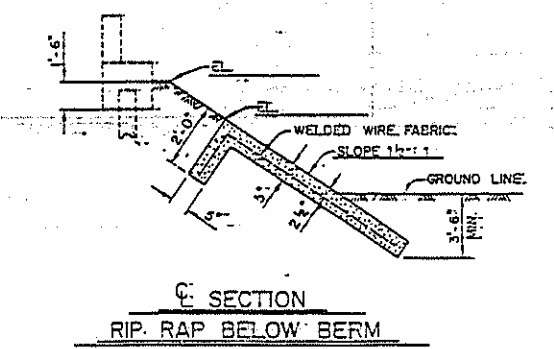
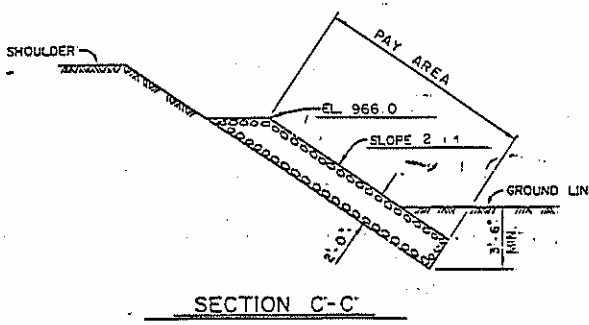
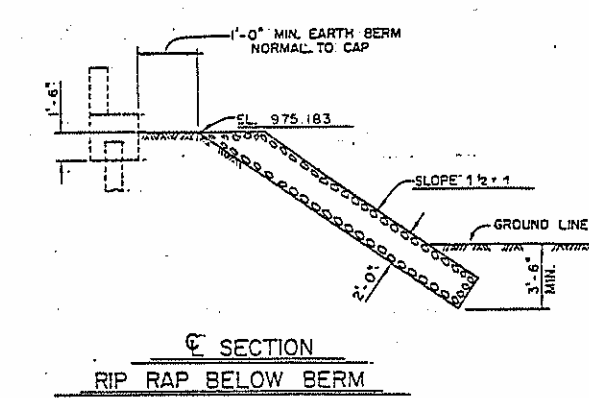
BERM RIP RAPPED
CONCRETE RIP RAP PLAIN RIP RAP

RIP RAP BELOW BERM
CONCRETE RIP RAP PLAIN RIP RAP



NOTES:
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.
CONCRETE RIP RAP SHALL BE CLASS "B" CONCRETE.
WELDED WIRE FABRIC REINFORCING TO BE STYLE 6 x 6, W2.9 x W2.9, 60" WIDE. ADJACENT RUNS OF WELDED WIRE FABRIC TO LAP AT LEAST 6".
CONCRETE RIP RAP TO BE POURED IN ALTERNATE 4" & 5" STRIPS AS SHOWN IN "POURING DETAIL". TOE WALLS SHALL BE CONSTRUCTED AT ENDS OF RIP RAP SIMILAR TO THAT SHOWN FOR THE TOP OF THE RIP RAP.
CONCRETE IN WALLS AT END BENT WINGS AS INDICATED BY CROSS-HATCHED AREAS IN SECTION D-D AND SECTION E-E WILL NOT BE MEASURED OR PAID FOR AS A SEPARATE ITEM. THE ENTIRE COST OF SAME SHALL BE INCLUDED IN THE PRICE BID PER SQ. YD. FOR CONCRETE RIP RAP.

ESTIMATED QUANTITIES				
	PLAIN RIP RAP CLASS 2 TONS	CONCRETE RIP RAP SQ. YDS.	WELDED WIRE FABRIC 60" WIDE APPROX. LIN. FT.	
BRIDGE AT	1E.BT. N#1	1E.BT. N#2	1E.BT. N#1	1E.BT. N#2
17+89.00 - L-		1364		



PLAIN RIP RAP DETAILS

CONCRETE RIP RAP DETAILS

ASSEMBLED BY	R.C. LARSON	DATE	5/88	SPECIAL
CHECKED BY	D.R. RUGGLES	DATE	5/88	
DRAWN BY	ROSE E. KUBERNY	DATE	1-3-94	
CHECKED BY	RALPH D. UHONEN	DATE	1-3-94	
				STANDARD

PROJECT No. 81760801
WILKES COUNTY
STATION: 17+89.00 - L-

STATE OF NORTH CAROLINA					
DEPARTMENT OF TRANSPORTATION					
RALEIGH					
STANDARD					
RIP RAP DETAILS					
MARCH			1984		
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1.			3.		
2.			4.		
Dwg 37 of 39					TOTAL SHEETS 42 OF 101

STD. N# RR2 SKEW = 90°

NOTES

FOR BRIDGE APPROACH SLABS, SEE SPECIAL PROVISIONS.
FOR PREFORMED COMPRESSION JOINT SEAL, SEE SPECIAL PROVISIONS.
THE PREFORMED COMPRESSION SEAL SHALL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE BID. SEE GENERAL DRAWING.
THE OPENING SHOWN IS BASED ON A NOMINAL UNCOMPRESSED SEAL WIDTH OF 3".
THE JOINT SHALL BE SAWED PRIOR TO THE CASTING OF THE CONCRETE CURB TO THE CONSTRUCTION JOINT AND THE BARRIER RAIL. FOR LOCATION OF CONSTRUCTION JOINT SEE CURB DETAILS.
THE 6" COMP. A.B.C. IS TO EXTEND 10'-0" BEYOND THE SLAB AS SHOWN AND 1'-0" OUTSIDE OF EACH EDGE OF SLAB.

SUBDRAIN FINE AGGREGATE IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL AND END BENT FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

THE CONTRACTOR, AT HIS OPTION, MAY USE 4" BITUMINOUS CONCRETE BASE COURSE, TYPE B2 IN LIEU OF 6" A.B.C. ANY ADDITIONAL COST DUE TO THE USE OF THIS OPTION WILL BE PAID FOR BY THE CONTRACTOR.

THE 1" EXPANSION JOINT MATERIAL IS TO BE HELD IN PLACE WITH GALVANIZED NAILS.

DOWELS MAY BE PUSHED INTO GREEN CONCRETE AFTER THE SLAB HAS BEEN SCREEDED AND FLOAT FINISHED EXCEPT AS NOTED ON THE PLANS.

TEMPORARY DRAINAGE AND TEMPORARY BERM AND SLOPE DRAINS WILL BE PAID FOR UNDER THE LUMP SUM PRICE FOR BRIDGE APPROACH SLAB.

AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE.

BILL OF MATERIAL

APPROACH SLAB AT END BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	36	4	STR.	29'-8"	713
B1	115	6	STR.	11'-2"	1929
B2	115	6	STR.	11'-8"	2015
B3	4	4	STR.	11'-8"	31
D1	32	4	STR.	10"	18
G1	12	4	STR.	3'-6"	28

APPROACH SLAB AT END BENT 2

A2	36	4	STR.	29'-6"	709
B1	115	6	STR.	11'-2"	1929
B2	115	6	STR.	11'-8"	2015
B3	4	4	STR.	11'-8"	31
D1	32	4	STR.	10"	18
D2	3	14" Ø	STR.	1'-6"	19
G1	12	4	STR.	3'-6"	28

REINFORCING STEEL END BENT 1 4794 LBS.

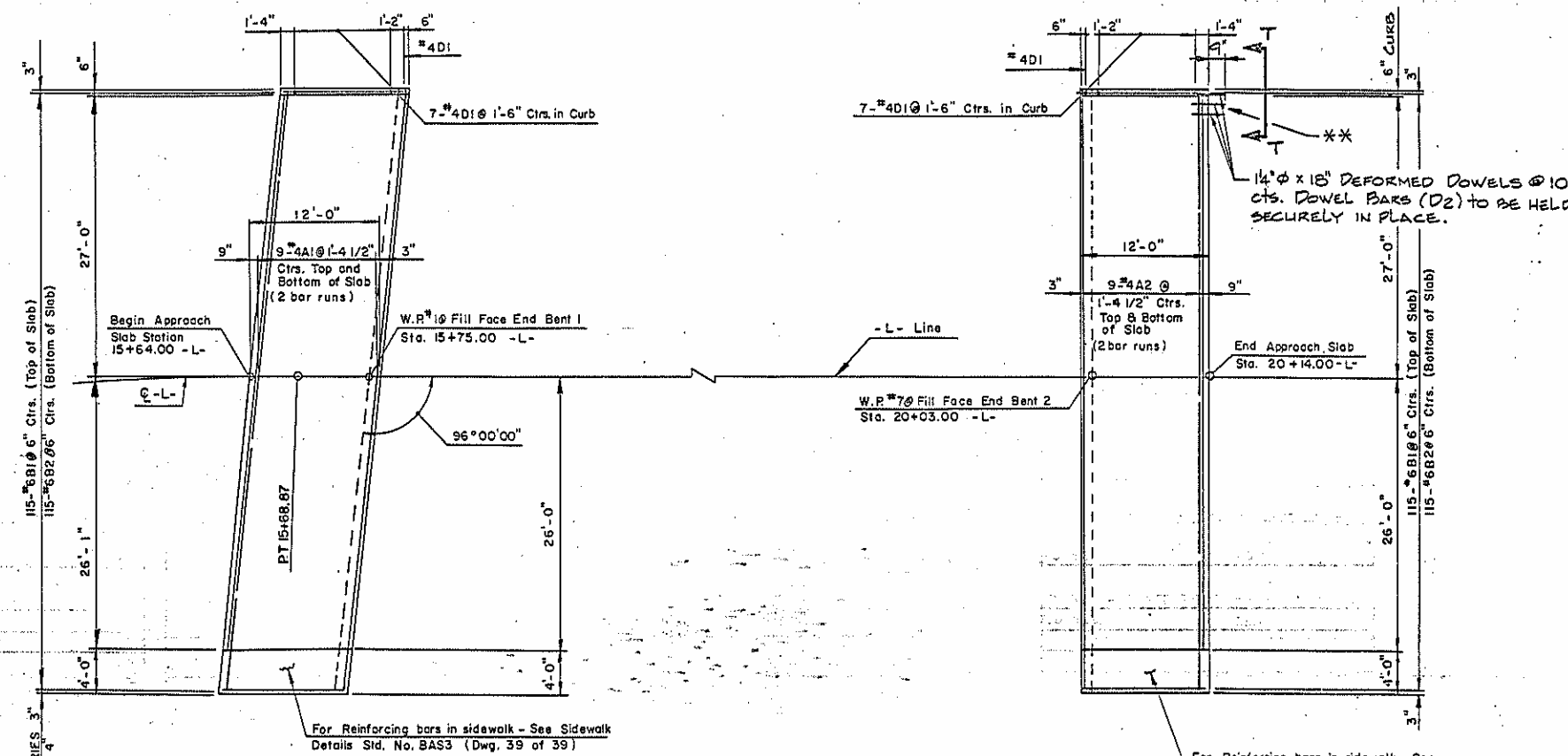
REINFORCING STEEL END BENT 2 4749 LBS.

CLASS 'AA' CONCRETE AT END BENT 1

CU. YDS. 23.1

CLASS 'AA' CONCRETE AT END BENT 2

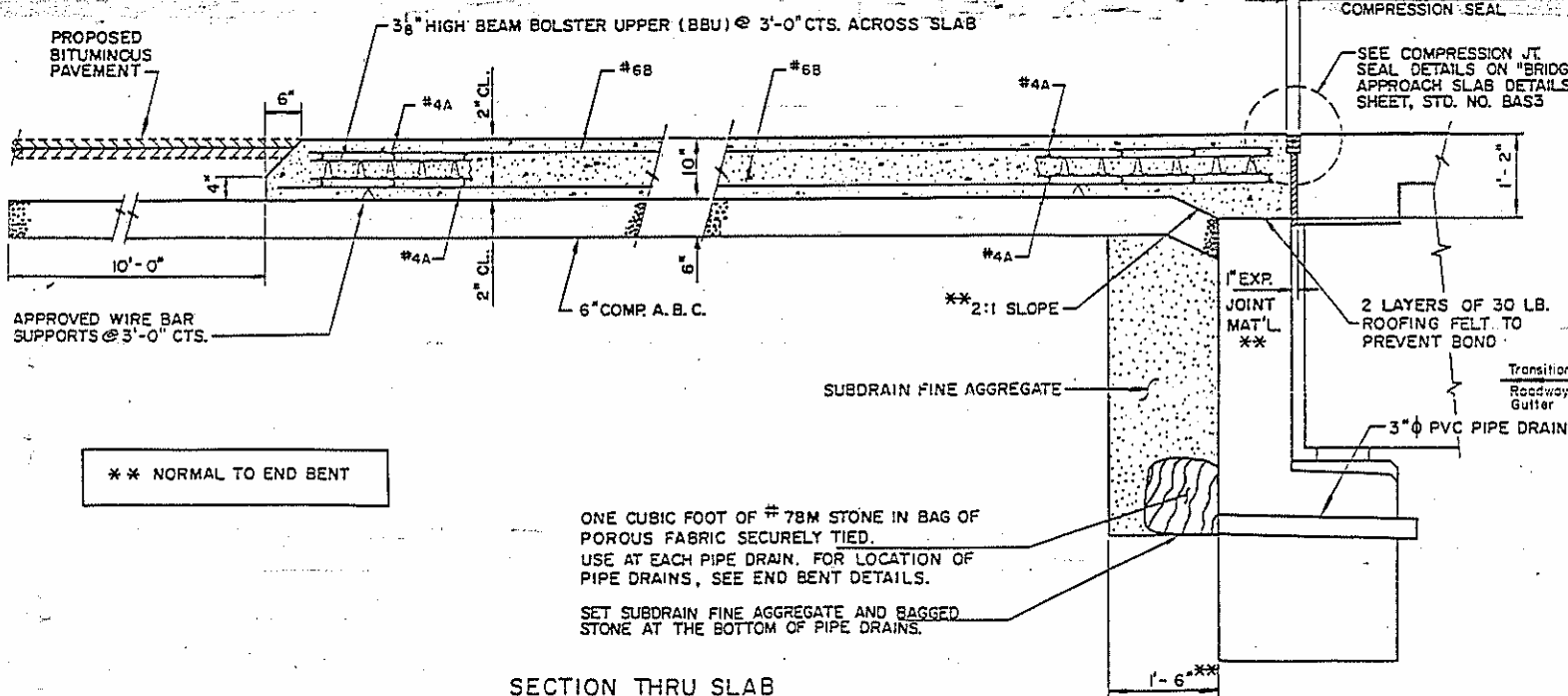
CU. YDS. 23.1



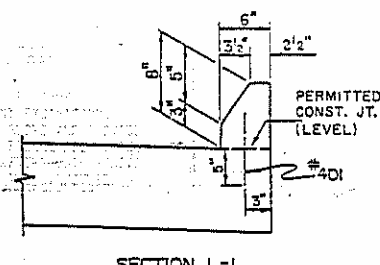
PLAN
AT END BENT 1

PLAN
AT END BENT 2

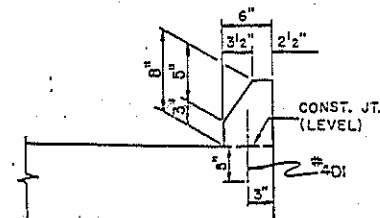
TEMPORARY BERM AND SLOPE DRAIN REQUIRED AT THIS LOCATION. FOR DETAILS SEE SHEET "STANDARD BRIDGE APPROACH SLAB DETAILS".



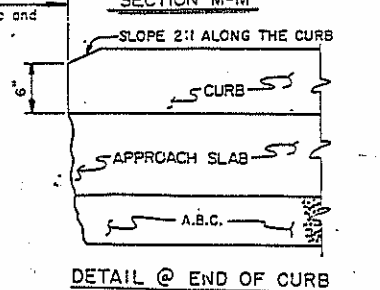
SECTION THRU SLAB



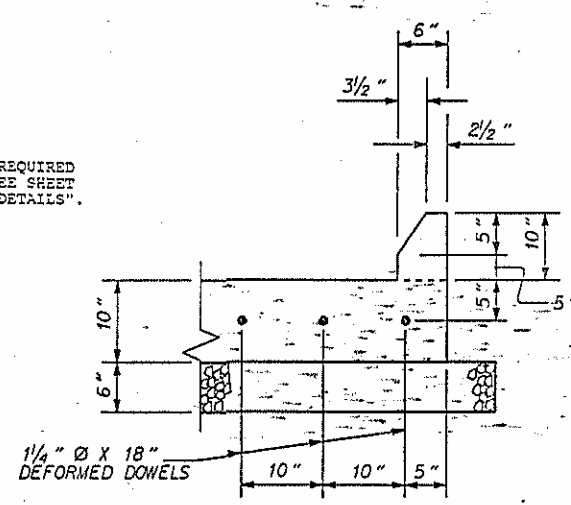
SECTION L-L



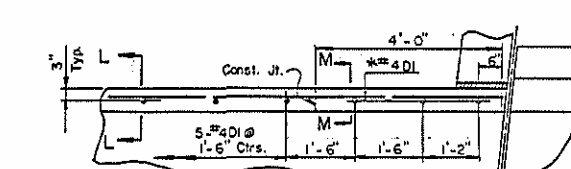
SECTION M-M



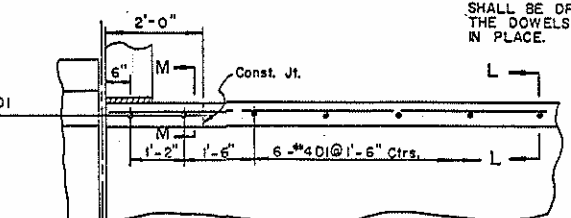
DETAIL @ END OF CURB



SECTION T-T

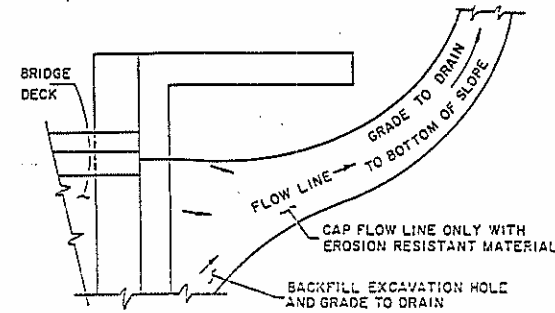


END BENT 1



END BENT 2

CURB DETAILS



NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT TO THE STRUCTURE. THE CONTRACTOR WILL BE REQUIRED TO REMOVE THESE MATERIALS PRIOR TO CONSTRUCTION OF THE APPROACH SLAB.

TEMPORARY DRAINAGE DETAILS

PROJECT NO. 8.176.0801

WILKES COUNTY

STATION: 17+89.00 - L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

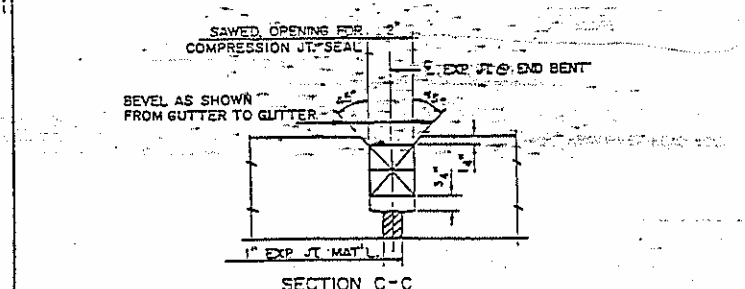
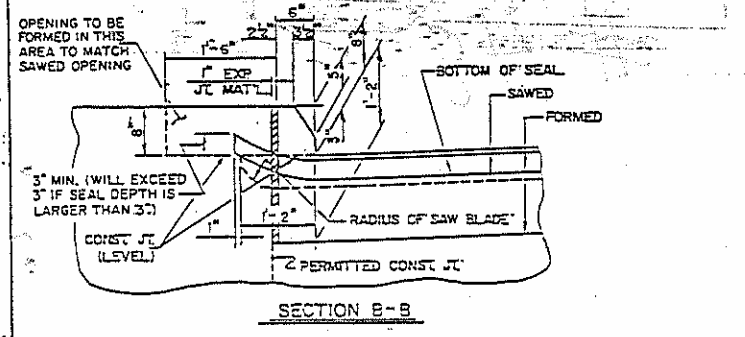
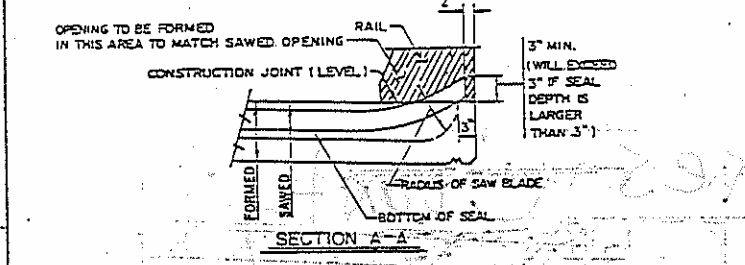
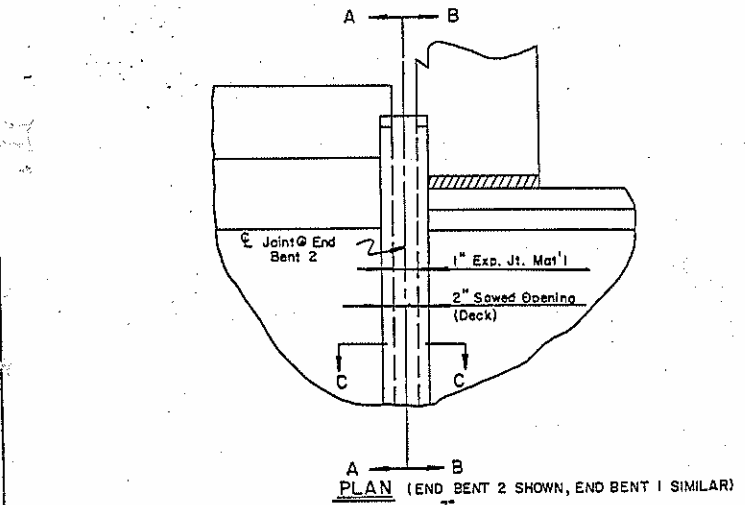
BRIDGE APPROACH SLAB
FOR FLEXIBLE PAVEMENT

JULY 1978					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

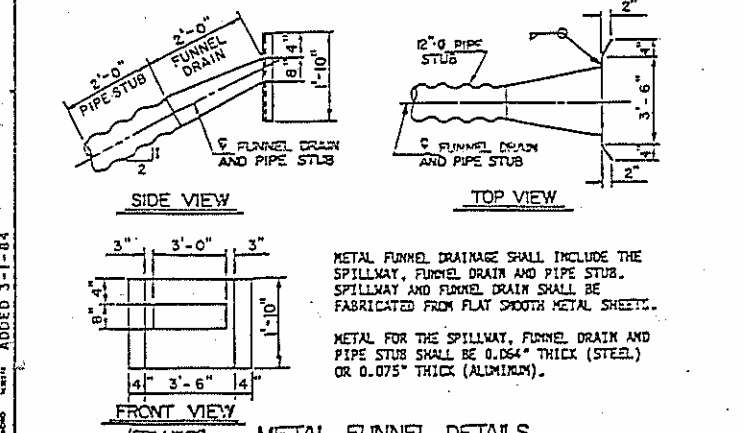
DWG 38 of 39

STD. NO. BAS2

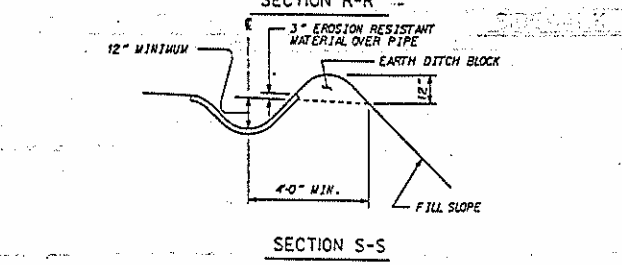
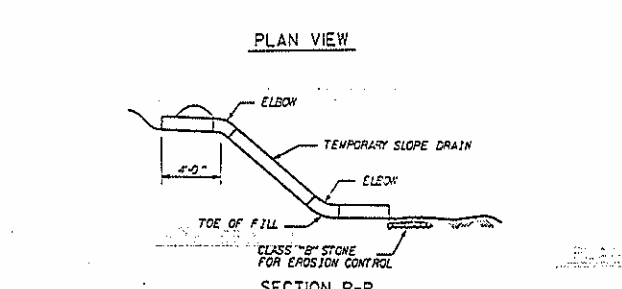
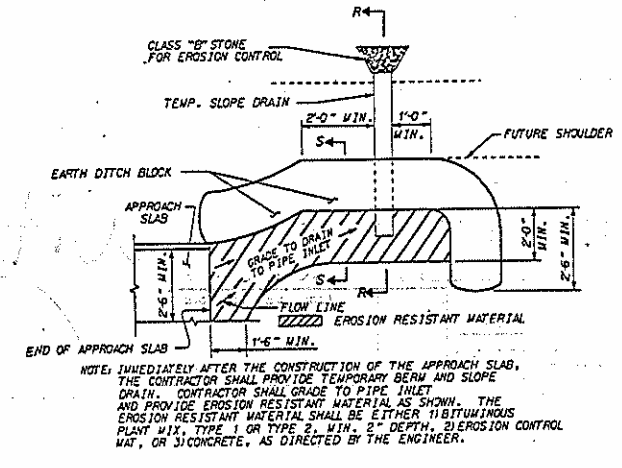
2ND DRAWN BY: K.G.P. DATE: 2-71 CHECKED BY: J.M.M.
DRAWN BY: DCB DATE: 5/88
CHECKED BY: W.L.H. DATE: 5/88



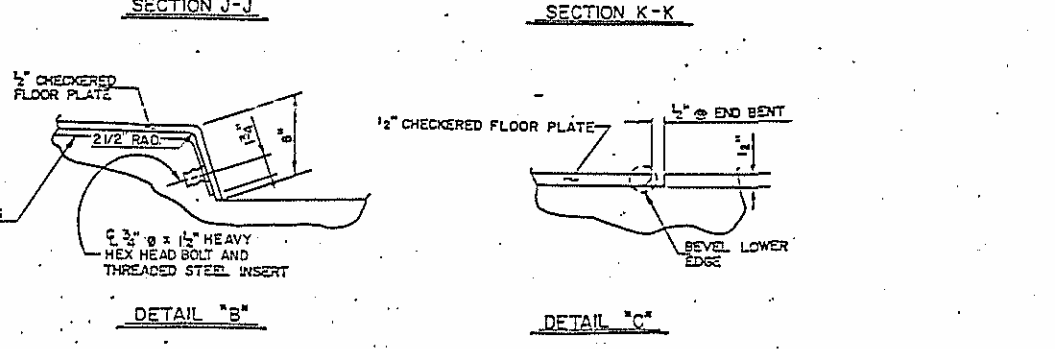
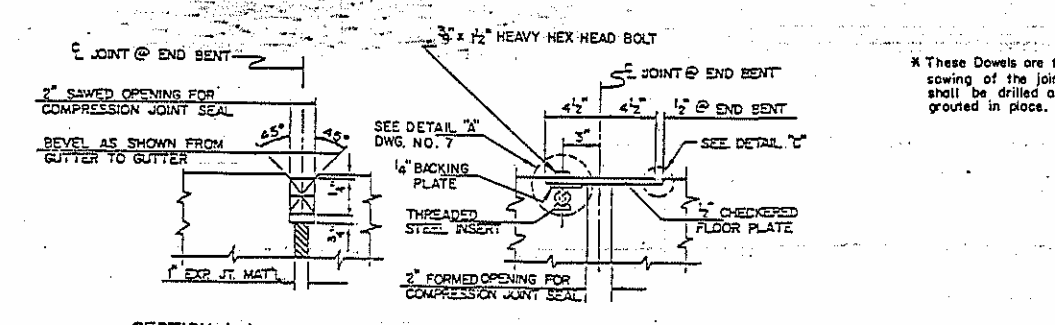
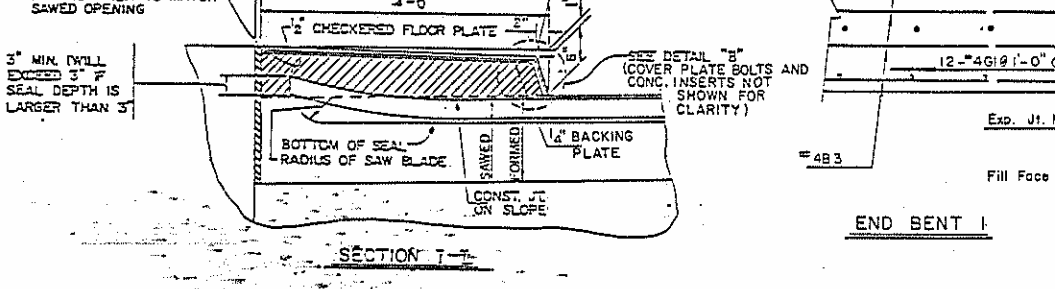
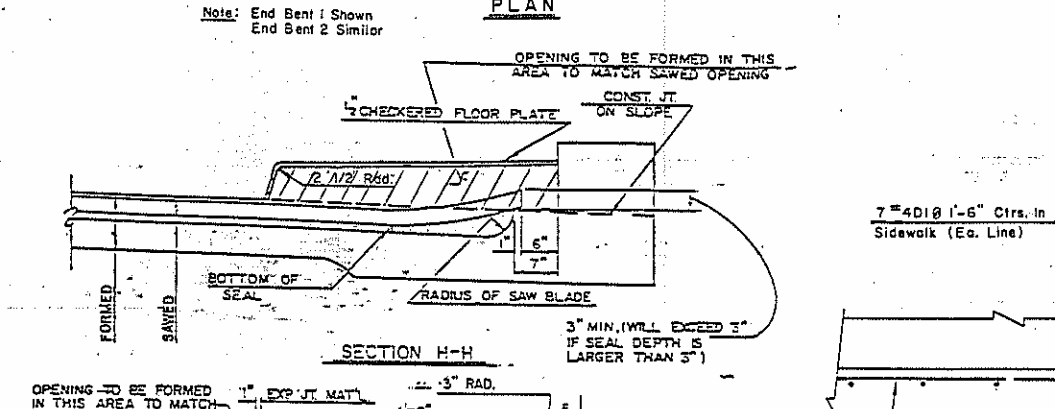
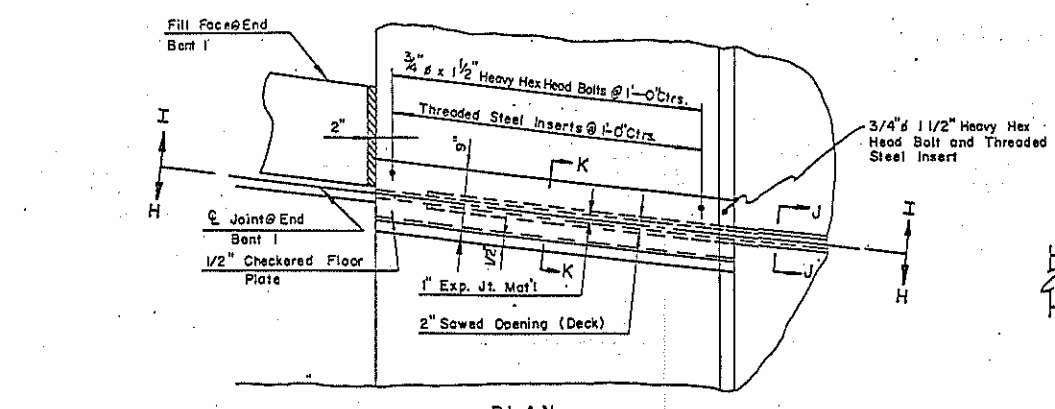
COMPRESSION JOINT SEAL DETAILS @ END BENT



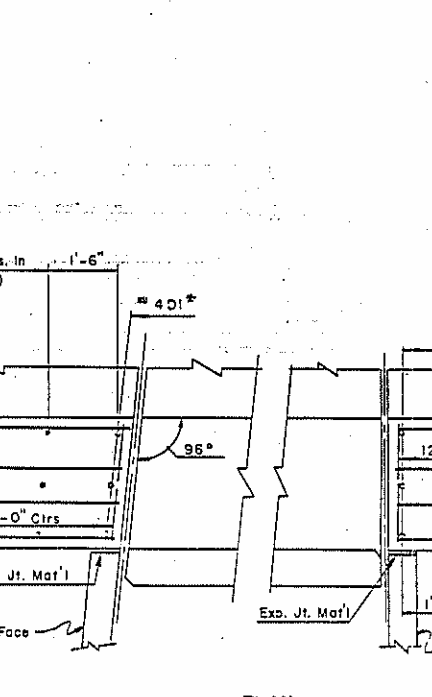
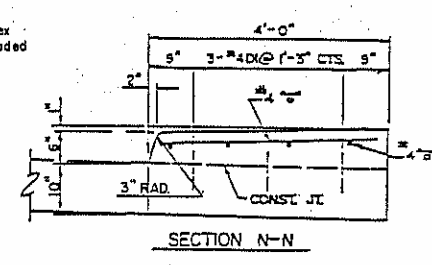
DESIGNED BY	DATE	SPECIAL
CHECKED BY	DATE	
DRAWN BY	DATE	STANDARD
CHECKED BY	DATE	



TEMPORARY BERM AND SLOPE DRAIN DETAILS



COMPRESSION JOINT SEAL DETAILS @ END BENT



PLAN

END BENT 2

SEWAGE DETAILS

NOTE: For Checked floor plate, see notes, Dwg. #7.

PROJECT No. 8.1760801
WILKES COUNTY
STATION 17+89.00 - L-

STATE OF NORTH CAROLINA					
DEPARTMENT OF TRANSPORTATION					
RALEIGH STANDARD					
BRIDGE APPROACH SLAB DETAILS					
MARCH 1984					
NO.	BY	DATE	NO.	BY	DATE
1			2		
DWG 39 of 39					