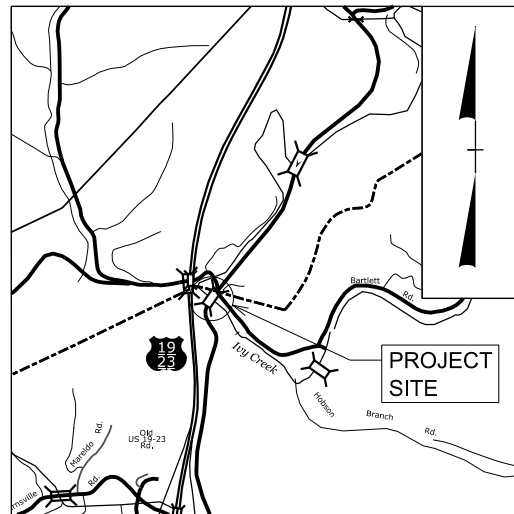


CONTRACT: D13POC.BM.31161 BRIDGE PROJECT: 18313.1011215.PR



VICINITY MAP (NTS)

NOTES:

1. EXISTING DIMENSIONS AND BRIDGE CONDITIONS ARE FROM BEST INFORMATION AVAILABLE; THE CONTRACTOR SHALL FIELD VERIFY THE INFORMATION SHOWN ON THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSIONS AND CONDITIONS DIFFER; THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THAT SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.
2. ORIGINAL PE SEALS FOUND HEREIN DO NOT APPLY TO PLANSET MARKUPS PROVIDED IN RED.
3. SCOPE OF WORK
 - HEAT STRAIGHTEN GIRDER INCLUDING REMOVAL AND REPLACEMENT OF DIPHRAGMS AS NEEDED.

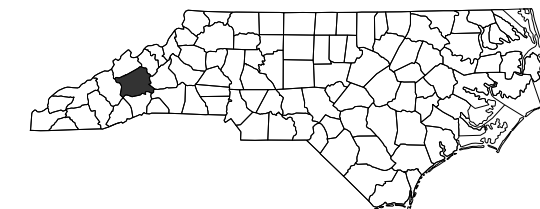
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BUNCOMBE COUNTY

LOCATION: *REPAIR BRIDGE #100734 ON OLD MARS HILL HWY
OVER IVY CREEK*

TYPE OF WORK: *STRUCTURE REPAIR*

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.		1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
18313.1011215.PR	N/A	CONSTRUCTION	



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

DESIGN DATA

ADT 2025 = 1900
ADT 2040 = 3800
-
-
-
V = 55 MPH
* TTST = DUAL
FUNC CLASS =
URBAN COLLECTOR

PROJECT LENGTH

PROJECT LENGTHS FOR BRIDGE PROJECT 18313.1011139.PR:
TOTAL LENGTH PROJECT 18313.1011139.PR = 0.023 MILES

NCDOT Contact: JUSTIN RICE

Prepared in the Office of:



2024 STANDARD SPECIFICATIONS

CHIRAG PATEL, PE
PROJECT ENGINEER

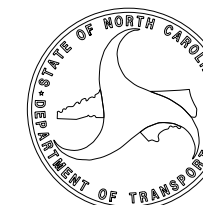
LETTING DATE:
MAY 20, 2026

STRUCTURES ENGINEER



DocuSigned by:
Kevin Fischer
339FA2058A84DC
4/23/2026

W. KEVIN FISCHER, PE
SIGNATURE:



6.503394

#734 BUNCOMBE

EXISTING BRIDGE No. 734 (SUPERSTRUCTURE AND BENTS TO BE REMOVED, END BENT ABUTMENTS TO REMAIN IN PLACE) SPANS: 2 @ 37'-6", 1 @ 36'-0". SUPERSTRUCTURE: REINFORCED CONCRETE DECK GIRDERS, SUBSTRUCTURE: REINFORCED CONCRETE POST AND WEB PIERS, AND REINFORCED CONCRETE ABUTMENTS.

TBM: ORANGE PAINT ON CORNER OF CONCRETE SLAB, 6' LEFT OF STA. 14+20.43, ELEV. 1977.64

NOTES

THE DRILLED PIERS AT END BENTS 1 AND 2 HAVE BEEN DESIGNED FOR BOTH SKIN FRICTION AND TIP BEARING. THE REQUIRED TIP BEARING CAPACITY IS 20 TSF.

THE REQUIRED TIP BEARING CAPACITY AT ENDS BENTS 1 AND 2 SHALL BE VERIFIED.

DRILLED PIERS FOR END BENTS 1 AND 2 HAVE BEEN DESIGNED FOR AN APPLIED LOAD OF 150 TONS EACH AT THE TOP OF THE COLUMN.

PERMANENT STEEL CASING IS NOT REQUIRED FOR DRILLED PIERS AT END BENTS 1 AND 2.

DRILLED PIERS AT END BENT 1, LEFT, CENTER, AND RIGHT, SHALL EXTEND TO AN ELEVATION NO HIGHER THAN 1947 FEET, 1943 FEET, AND 1941 FEET, RESPECTIVELY, AND SATISFY THE REQUIRED TIP BEARING CAPACITY.

DRILLED PIERS AT END BENT 2 SHALL EXTEND TO AN ELEVATION NO HIGHER THAN 1947 FEET AND SATISFY THE REQUIRED TIP BEARING.

FOR DRILLED PIERS, SEE SPECIAL PROVISIONS.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH FHWA'S TECHNICAL ADVISORY T5140.20 (SCOUR AT BRIDGES).

THE SCOUR CRITICAL ELEVATION FOR ENDS BENTS 1 AND 2 IS 1955 FEET. THE SCOUR CRITICAL ELEVATIONS ARE FOR USE BY MAINTENANCE FORCES TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

SPT TESTING IS NOT REQUIRED TO DETERMINE THE TIP BEARING CAPACITY OF THE DRILLED PIERS AT ENDS BENTS 1 AND 2.

STD INSPECTIONS ARE NOT REQUIRED TO DETERMINE THE BOTTOM CLEANLINESS OF THE DRILLED PIERS AT ENDS BENTS 1 AND 2.

CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR THE DRILLED PIERS AT ENDS BENTS 1 AND 2. SEE SPECIAL PROVISION FOR CROSSHOLE SONIC LOGGING.

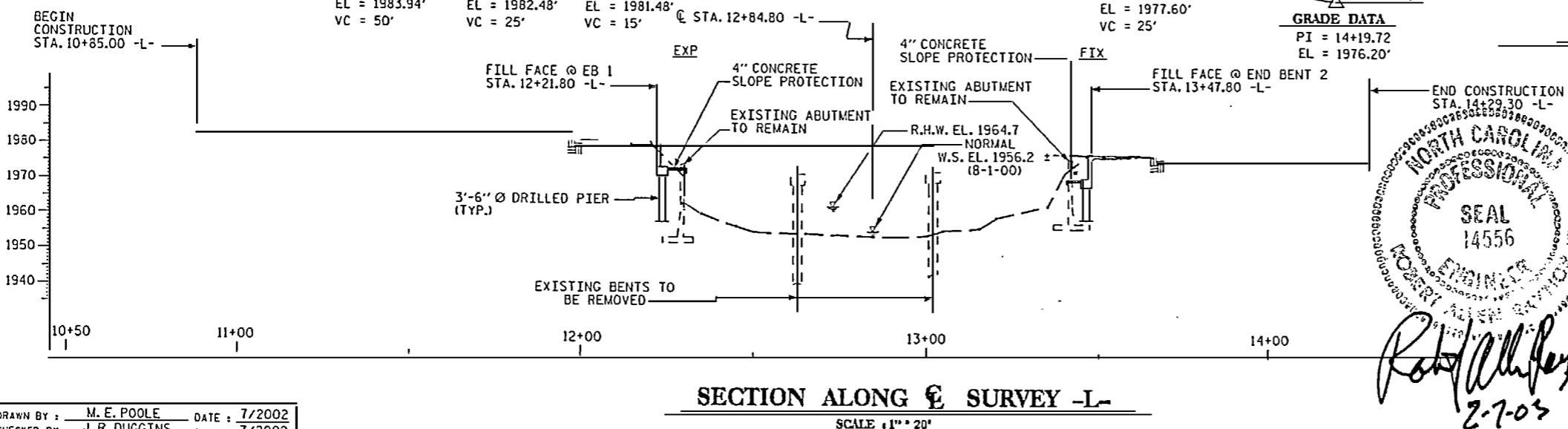
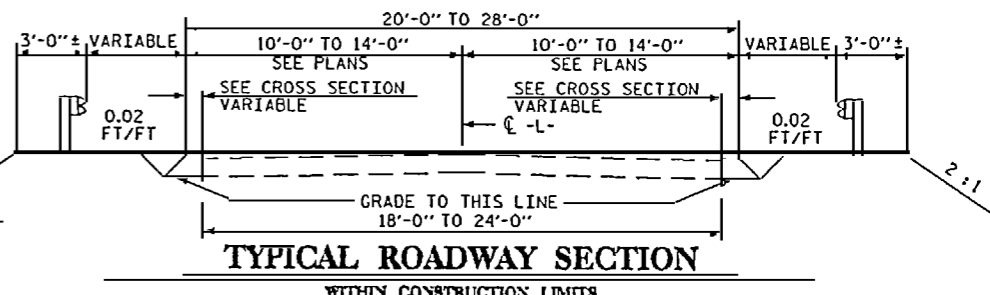
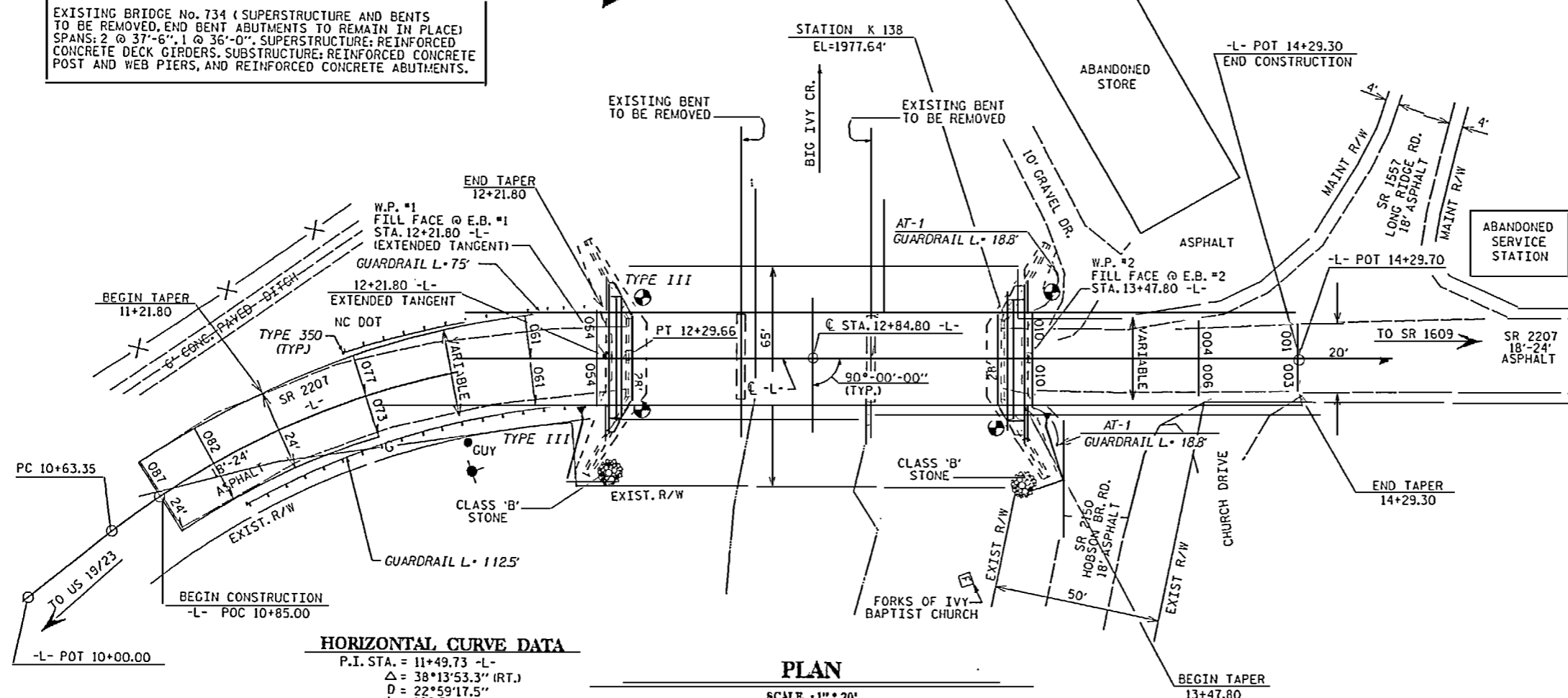
REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVICTION OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

ROADWAY APPROACH EMBANKMENT SHALL BE WIDENED AS NECESSARY FOR GAURDRAIL INSTALLATION.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR SEISMIC DESIGN OF HIGHWAY BRIDGES FOR SEISMIC PERFORMANCE CATEGORY B.

FOR PARTIAL REMOVAL OF THE EXISTING END BENT ABUTMENTS THE CONTRACTOR WILL BE REQUIRED TO SAWCUT AND REMOVE THE EXISTING CONCRETE TO AN ELEVATION TO MATCH THE BOTTOM OF THE CONCRETE SLOPE PROTECTION FOR A WIDTH OF 2'-2" ± (OR POINT WHERE EAWALLS MEET EXISTING ABUTMENT) EITHER SIDE OF CENTERLINE -L- AT EACH END BENT. (ELEVATIONS ARE TO BE DETERMINED BY THE ENGINEER).



Professional Engineer Seal for Robert Allen Reynolds, No. 14556, dated 2-7-03.

Professional Engineer Seal for John R. Duggins, Jr., No. 15779, dated 2-7-03.

PROJECT NO. 6.503394
COUNTY: BUNCOMBE
STATION: 12+84.80 -L-
REPLACES BRIDGE No. 734

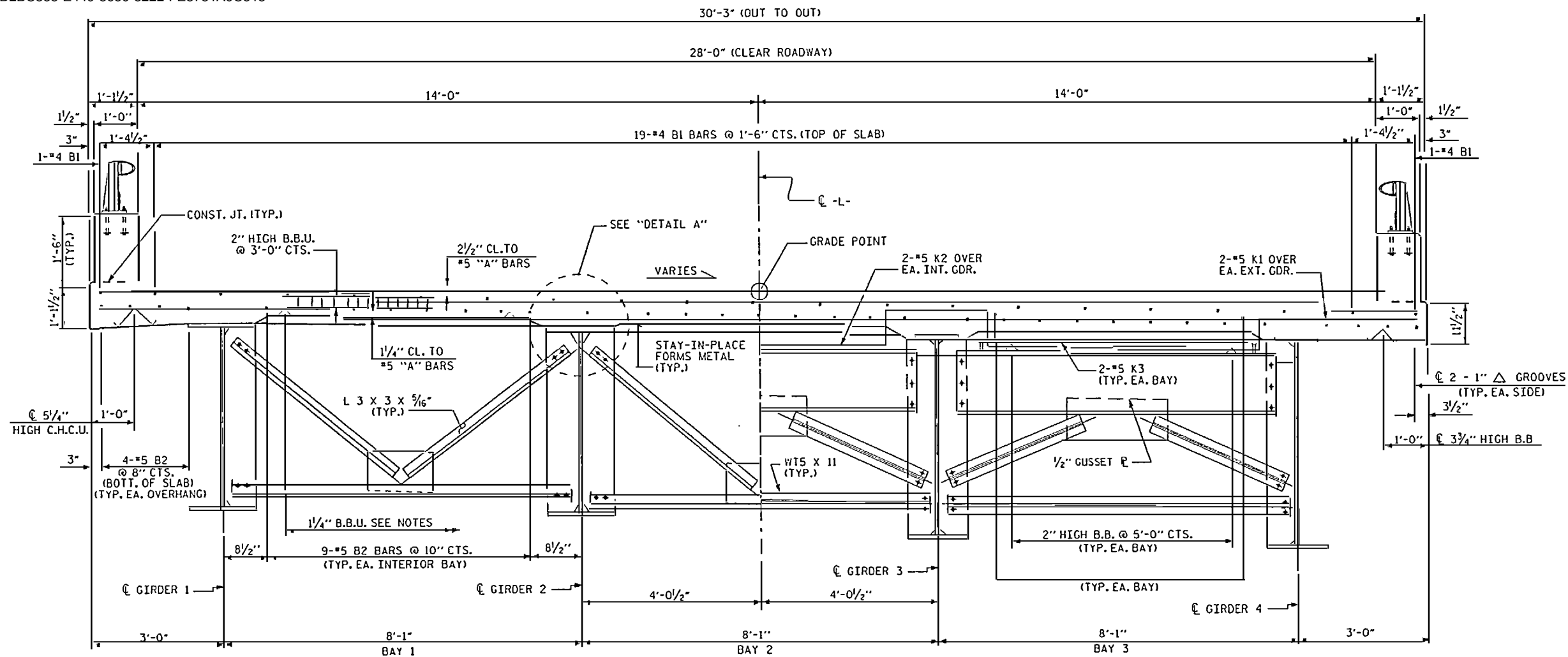
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION

BRIDGE ON SR 2207 OVER BIG IVY CREEK BETWEEN SR 2148 AND SR 2150

REVISIONS				SHEET NO.
NO.	BY	DATE	NO.	1
1			3	TOTAL SHEETS
2			4	29

ORIGINAL PE SEALS DO NOT APPLY TO PLANSET MARKUPS IN RED

DRAWN BY: M. E. POOLE DATE: 7/2002
CHECKED BY: J. R. DUGGINS DATE: 7/2002



TYPICAL HALF-SECTION
(SHOWING INTERMEDIATE DIAPHRAGMS CF-2)

TYPICAL HALF-SECTION
(SHOWING END BENT DIAPHRAGMS CF-1)

NOTES

PROVIDE 1 1/4" HIGH BEAM BOLSTERS UPPER AT 4'-0" CTS. ATOP THE METAL STAY-IN-PLACE FORMS TO SUPPORT THE BOTTOM MAT OF 'A' BARS. WHEN USING REMOVABLE FORMS, PROVIDE CONTINUOUS HIGH CHAIRS FOR METAL DECK (C.H.C.M.) @ 4'-0" CTS. WITH A HEIGHT TO SUPPORT THE BOTTOM MAT OF 'A' BARS A CLEAR DISTANCE OF 2 1/2" ABOVE THE TOP OF THE REMOVABLE FORM.

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.

THE CONTRACTOR MAY, WHEN NECESSARY, PROPOSE A SCHEME FOR AVOIDING INTERFERENCE BETWEEN METAL STAY-IN-PLACE FORM SUPPORTS OR FORMS AND BEAM/GIRDER STIFFENERS OR CONNECTOR PLATES. THE PROPOSAL SHALL BE INDICATED, AS APPROPRIATE, ON EITHER THE STEEL WORKING DRAWINGS OR THE METAL STAY-IN-PLACE FORM WORKING DRAWINGS.

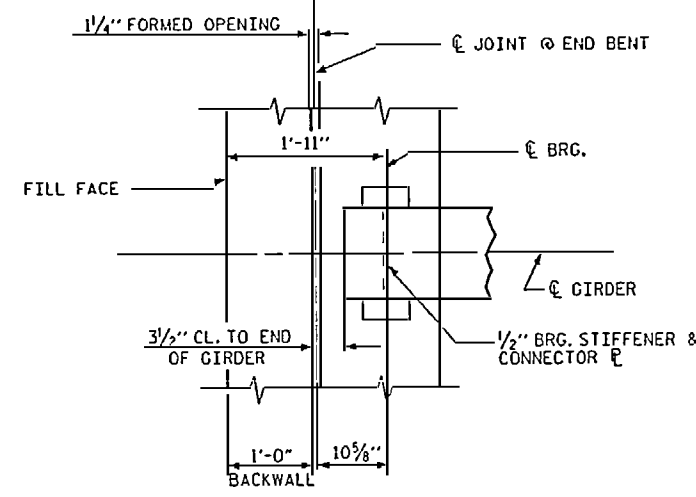
PROJECT NO. 6.503394
COUNTY: BUNCOMBE
STATION: 12+84.80 -L-
REPLACES BRIDGE No. 734

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RAILROAD

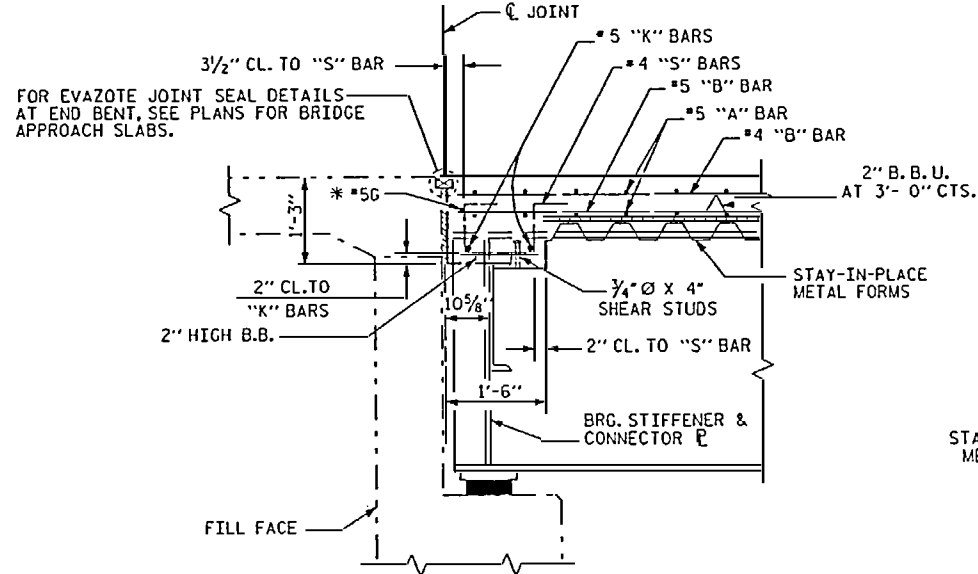
SUPERSTRUCTURE
TYPICAL SECTION

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

TOTAL SHEETS: 29

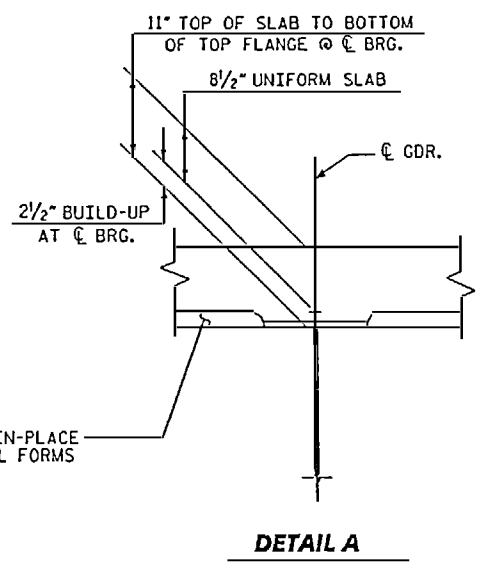


END BENT JOINT DETAILS



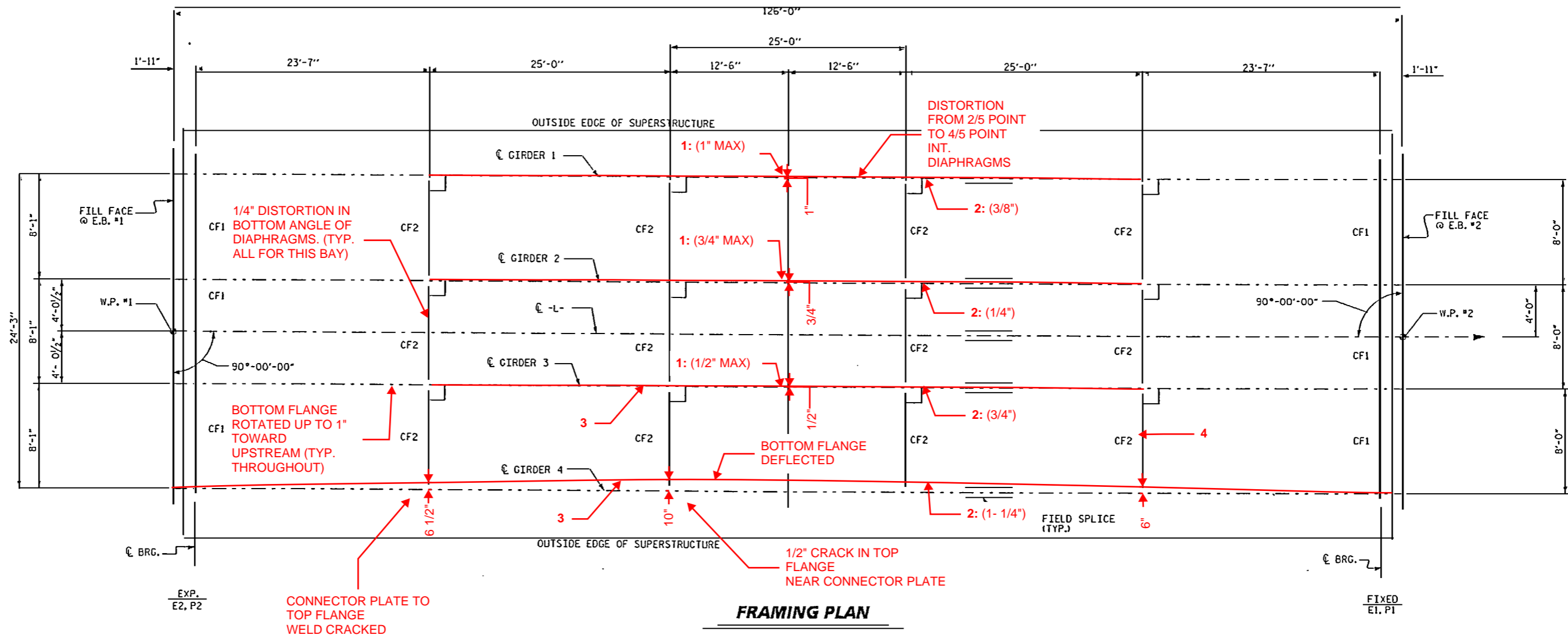
SECTION THRU END BENT

* #5G BAR MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR REINFORCING STEEL AND STIRRUPS.



DETAIL A

DRAWN BY: M.E. POOLE DATE: 2/2002
CHECKED BY: W.C. CARTER DATE: 5/2002



LEGEND

1: LOWER PORTION OF WEB DISTORTED ALONG LONGITUDINAL AXIS UP TO " MAX.

2: WEB DISTORTED ABOUT VERTICAL AXIS TOWARD LEFT AND RIGHT AT VERTICAL WELD SPLICE LOCATION

3: UP TO 1/2" WEB DISTORTION ABOUT VERTICAL AXIS TOWARD UPSTREAM AND DOWNSTREAM (TYP. BETWEEN ALL INT. DIAPHRAGMS)

4: ALL INT. DIAPHRAGMS IN BAY 3 HAVE BUCKLED W/ DISTORTION IN WEB STIFFENER PLATES AT BOLTED CONN'S.

FRAMING PLAN

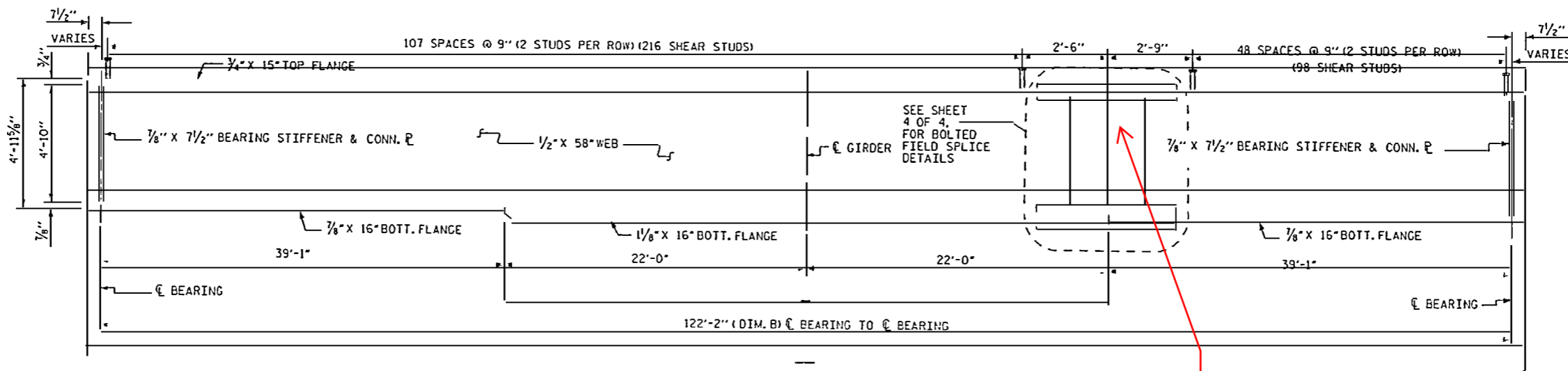
PROJECT NO. 6.503394
COUNTY: BUNCOMBE
STATION: 12+84.80 -L-
REPLACES BRIDGE No. 734

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALPHIN

**SUPERSTRUCTURE
 STRUCTURAL STEEL
 DETAILS
 FRAMING PLAN**

DRAWN BY : M.E. POOLE DATE : 2/2002
 CHECKED BY : W. C. CARTER DATE : 5/2002

REVISIONS						SHEET NO. 6
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 29
2			4			

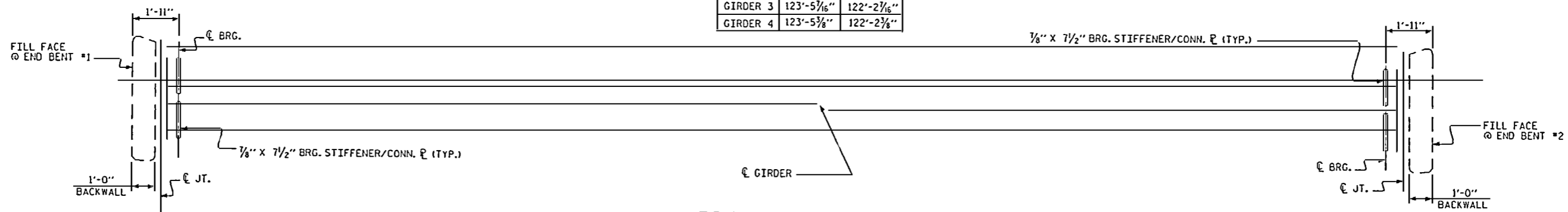


GIRDER ELEVATION

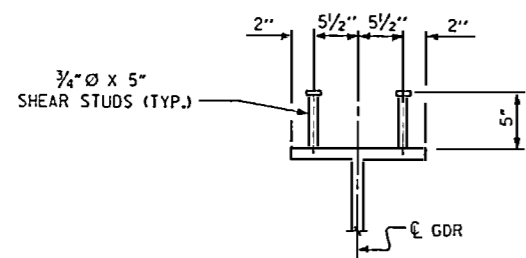
DIMENSIONS SHOWN IN () ARE SLOPED DIMENSIONS

	DIM. A	DIM. B
GIRDER 1	123'-5 1/16"	122'-2 1/16"
GIRDER 2	123'-5 5/16"	122'-2 1/16"
GIRDER 3	123'-5 7/16"	122'-2 1/16"
GIRDER 4	123'-5 3/8"	122'-2 3/8"

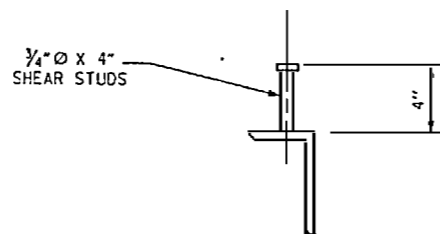
FIELD SPLICE NOT USED IN ORIGINAL CONSTRUCTION



BOTTOM FLANGE DETAIL

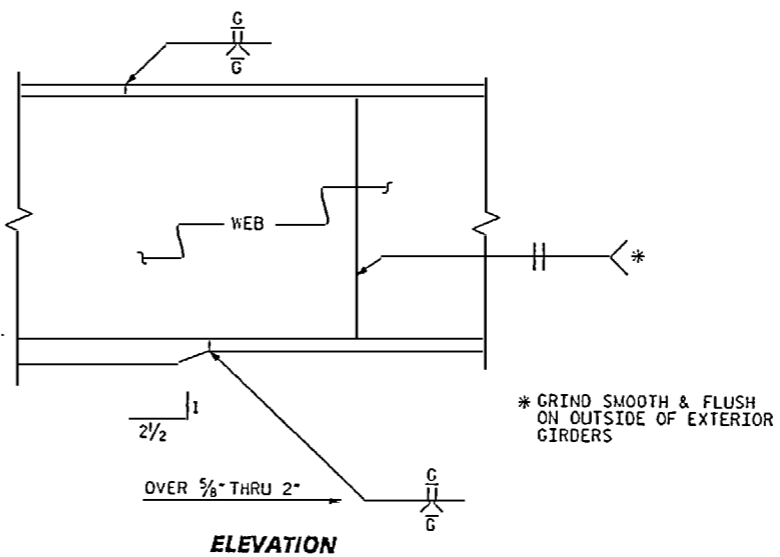


STUDS ON GIRDER



STUDS ON C15 X 33.9

SHEAR STUD DETAILS



TYPICAL FLANGE AND WEB BUTT JOINT

PROJECT NO. 6.503394
 COUNTY: BUNCOMBE
 STATION: 12+84.80 -L-
 REPLACES BRIDGE No. 734

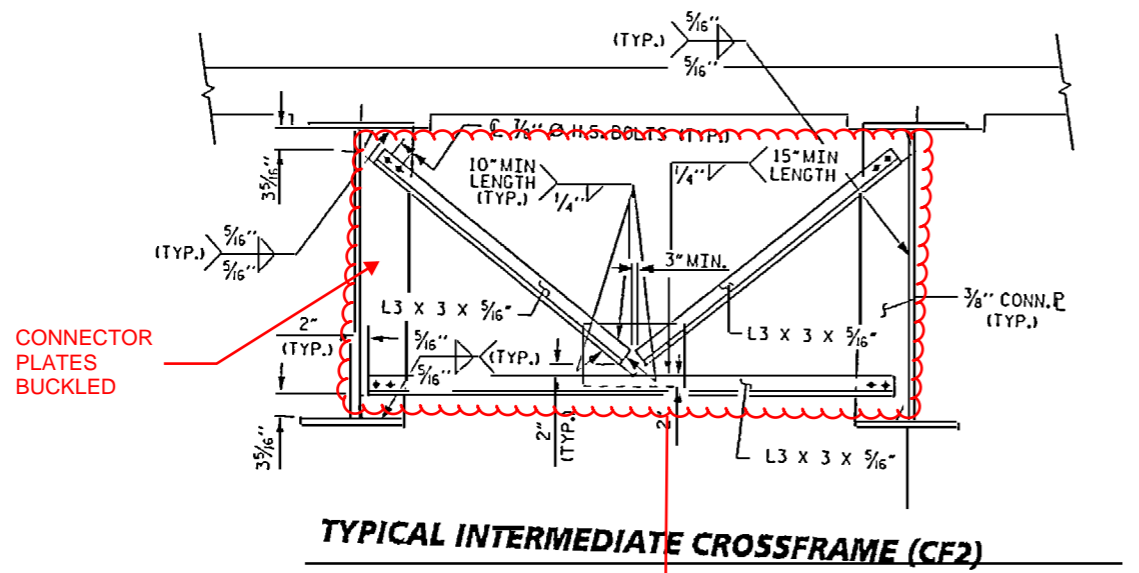
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 DIVISION

**SUPERSTRUCTURE
 STRUCTURAL STEEL
 DETAILS**

DRAWN BY: M.E. POOLE DATE: 2/2002
 CHECKED BY: W.C. CARTER DATE: 5/2002

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

TOTAL SHEETS: 7
 SHEET NO.: 7
 TOTAL SHEETS: 29

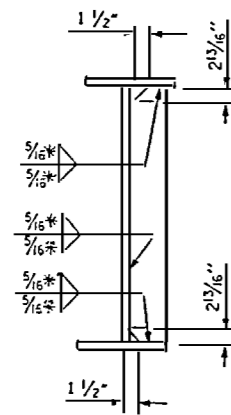


TYPICAL INTERMEDIATE CROSSFRAME (CF2)

* = SHOW WELD SIZE.
 ** = SET DIMENSION TO PROVIDE 2" MINIMUM AS SHOWN.
 *** = CLIP SIZE + 1/2". FOR CLIP SIZE, SEE FIGURE 7-56.
 SEE FIGURE 7-2 FOR WELD TERMINATION DETAILS.

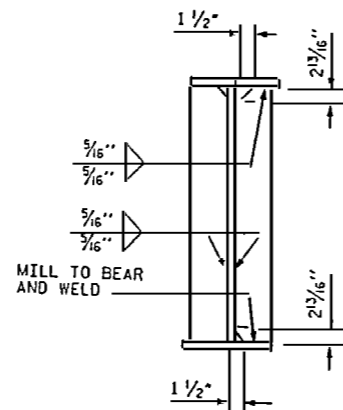
CONNECTOR PLATES BUCKLED

4 CROSSFRAMES IN BAY 3 TO BE REPLACED. REPLACEMENT OF DIAPHRAGMS IN BAY 1 AND 2 MAY BE REQUIRED AT THE DIRECTION OF THE ENGINEER.



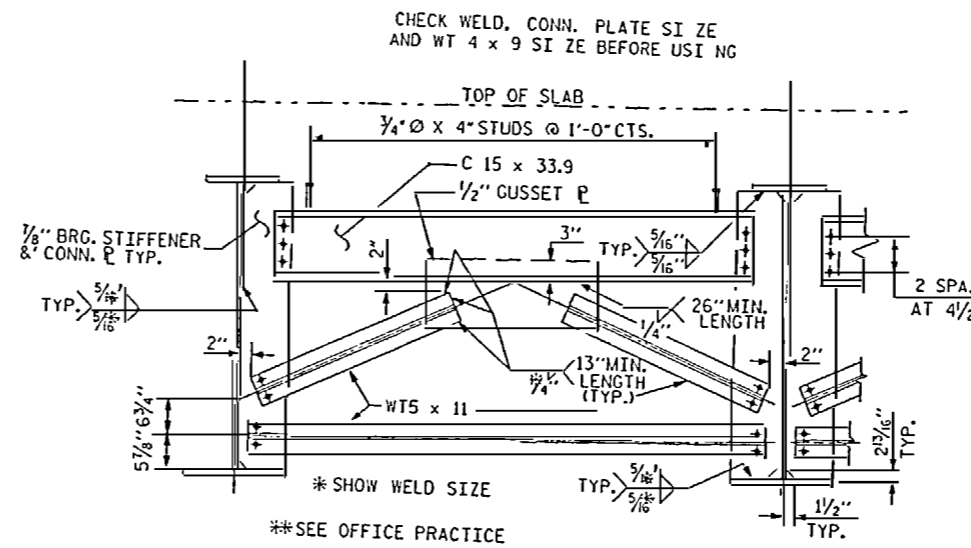
CONNECTOR PLATE DETAIL

* SHOW WELD SIZE
 ** SEE FIGURE 7-61 OFFICE MANUAL



BEARING STIFFENER

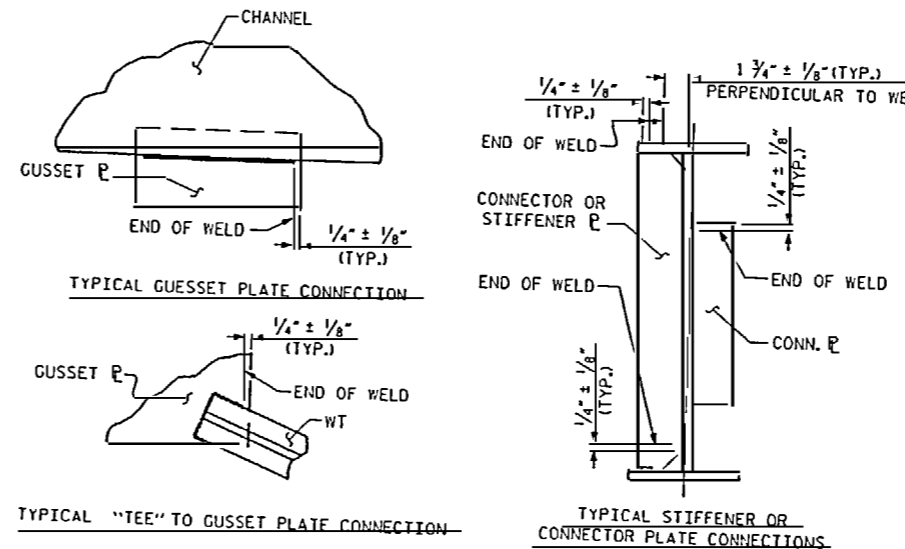
* SHOW WELD SIZE
 ** SEE FIGURE 7-61 OFFICE MANUAL



TYPICAL END BENT CROSSFRAME (CF1)

CHECK WELD, CONN. PLATE SIZE AND WT 4 x 9 SIZE BEFORE USING

**SEE OFFICE PRACTICE



WELD TERMINATION DETAILS

NOTES :

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W AND PAINTED IN ACCORDANCE WITH SYSTEM 4 OF ARTICLE 442-7 OF THE STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED ON THE PLANS.

ALL DIMENSIONS SHOWN ARE HORIZONTAL OR VERTICAL, UNLESS OTHERWISE NOTED.

ALL FIELD CONNECTIONS TO BE 3/8" DIA. HIGH STRENGTH BOLTS UNLESS OTHERWISE NOTED.

ENDS OF GIRDERS SHALL BE PLUMB.

BEARING STIFFENERS ARE TO BE PLACED NORMAL TO THE WEB OF THE GIRDER AND SHALL BE PLUMB.

A CHARPY V-NOTCH TEST IS REQUIRED FOR WEB PLATES, BOTTOM FLANGE PLATES, BOTTOM FLANGE SPLICE PLATES AND WEB SPLICE PLATES FOR ALL GIRDERS AND IN ACCORDANCE WITH ARTICLE 1072-9 OF THE STANDARD SPECIFICATIONS.

SHOP SPLICES ARE PERMITTED TO LIMIT THE MAXIMUM REQUIRED FLANGE PIECE LENGTHS TO 60 FEET AND WEB PIECE LENGTHS TO 45 FEET. PERMITTED FLANGE AND WEB SHOP SPLICES SHALL NOT BE LOCATED WITHIN 15 FEET OF MAXIMUM DEAD LOAD DEFLECTION (INOR WITHIN 15 FEET OF INTERMEDIATE BEARINGS OF CONTINUOUS UNITS). KEEP 2 FEET MINIMUM BETWEEN WEB AND FLANGE SHOP SPLICES. KEEP 6" MINIMUM BETWEEN CONNECTOR PLATE OR TRANSVERSE STIFFENER WELDS AND WEB OR FLANGE SHOP SPLICES.

STUDS ON GIRDERS MAY BE SHIFTED UP TO 1" IF NECESSARY TO CLEAR FLANGE SPLICE WELD.

TENSION ON THE AASHTO M164 BOLTS SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH ARTICLE 440-10 OF THE STANDARD SPECIFICATIONS.

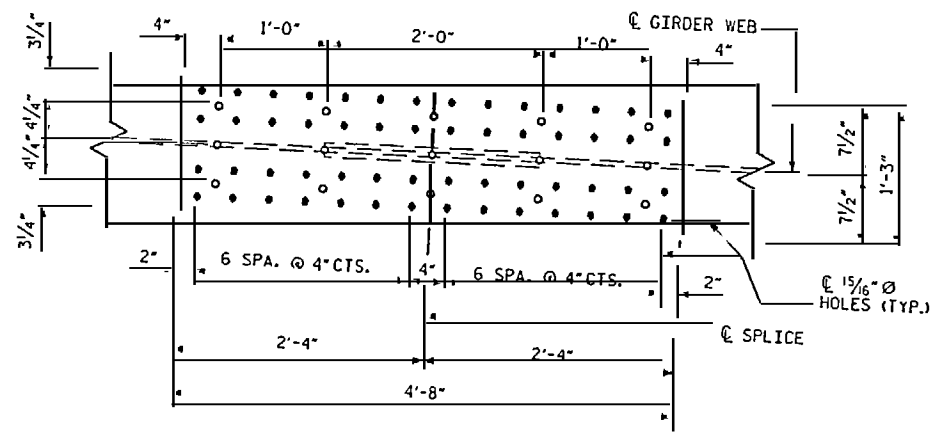
PROJECT NO. 6.503394
 COUNTY: BUNCOMBE
 STATION: 12+84.80 -L-
 REPLACES BRIDGE No. 734

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 DIVISION

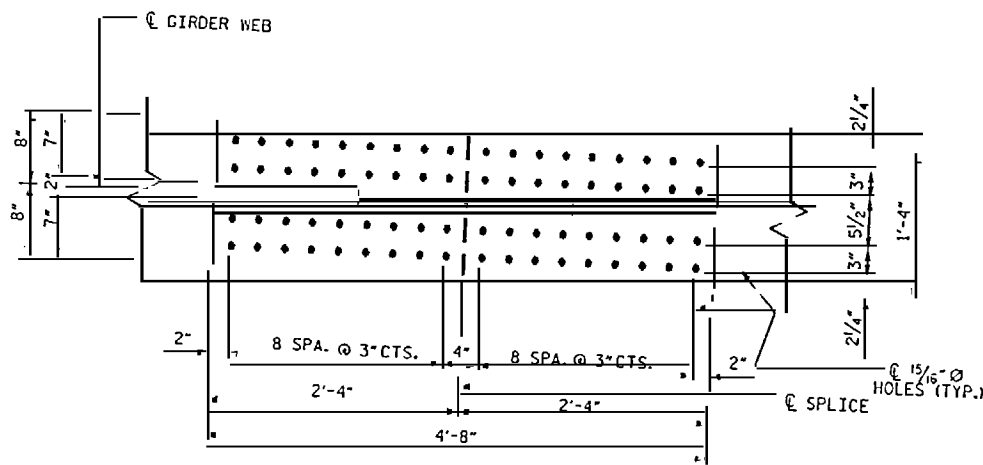
**SUPERSTRUCTURE
 STRUCTURAL STEEL
 DETAILS**

REVISIONS						SHEET NO. 8
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 29
2			4			

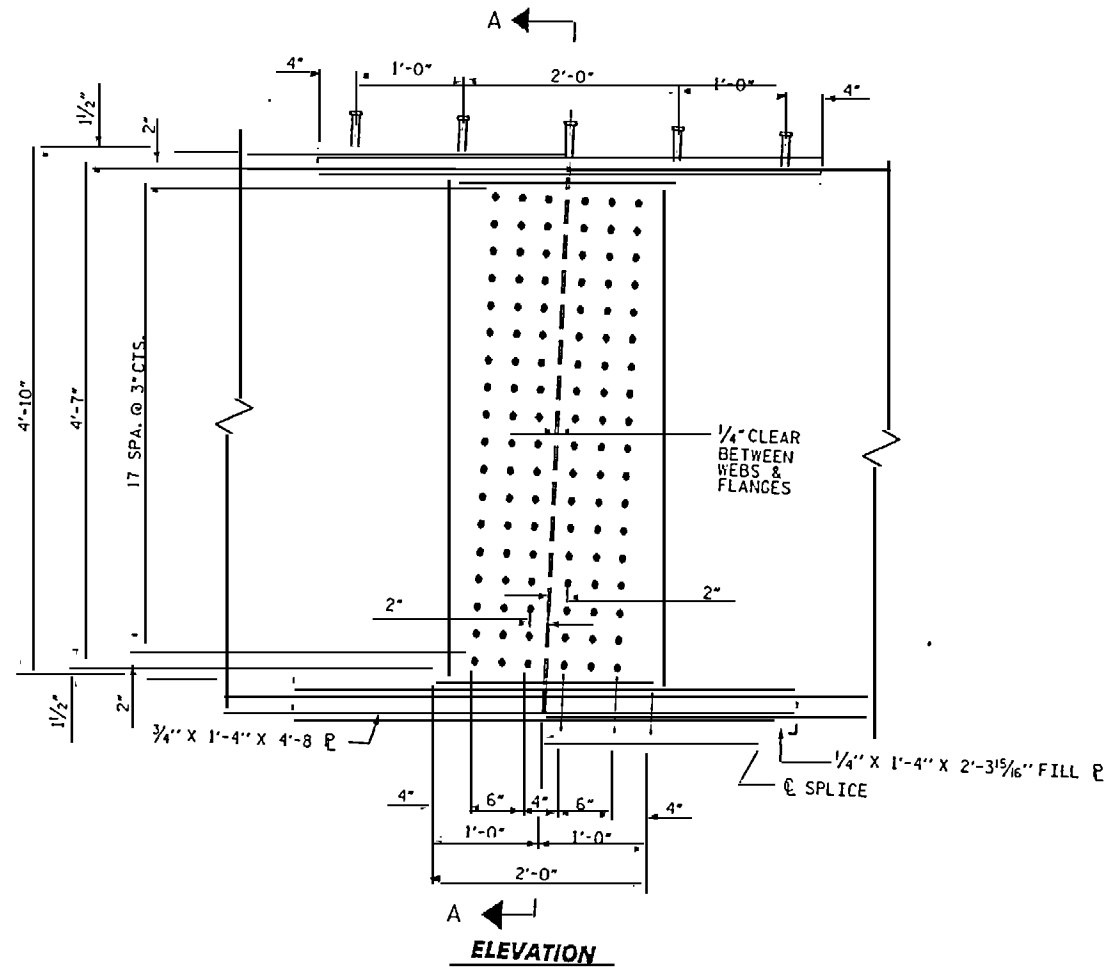
DRAWN BY: M.E. POOLE DATE: 2/2002
 CHECKED BY: W.C. CARTER DATE: 5/2002



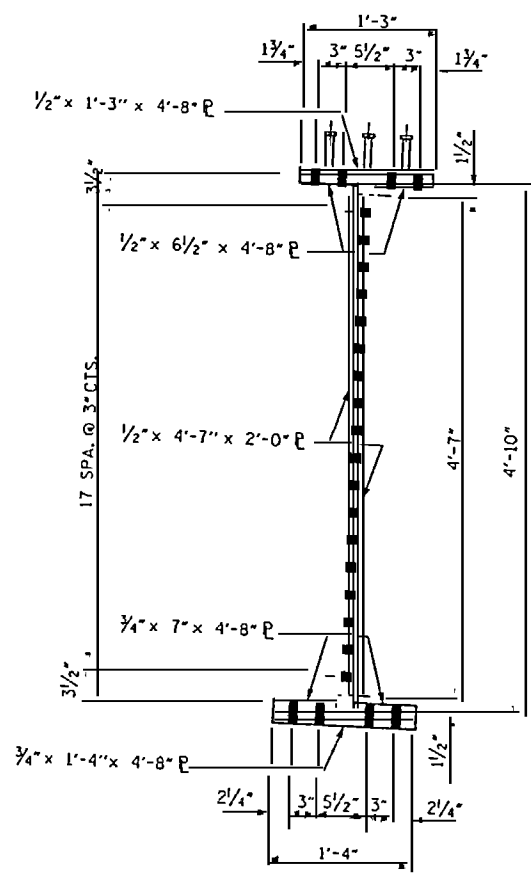
PLAN (TOP OF TOP FLANGE)



PLAN (TOP OF BOTTOM FLANGE)

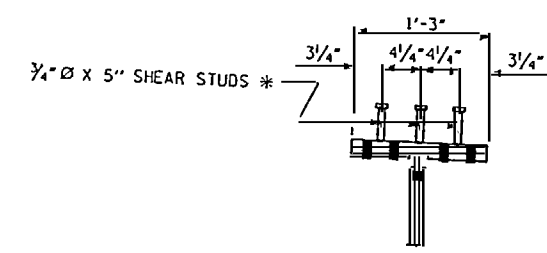


ELEVATION



SECTION A-A

FIELD SPLICE NOT USED
IN ORIGINAL
CONSTRUCTION



**SHEAR STUD DETAIL
FOR TOP FLANGE SPLICE PLATE**

* NOTE: SHEAR STUDS ARE TO BE SHOP WELDED ON TOP OF PLATE BEFORE FIELD ASSEMBLY

BOLTED FIELD SPLICE DETAILS
(TYPICAL EACH FIELD SPLICE)

DRAWN BY : M. E. POOLE DATE : 4/2002
CHECKED BY : J. R. DUGGINS DATE : 8/2002

PROJECT NO. 6.503394
COUNTY: BUNCOMBE
STATION: 12+84.80 -L-
REPLACES BRIDGE No. 734

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**SUPERSTRUCTURE
STRUCTURAL
STEEL DETAILS**

REVISIONS						SHEET NO. 9
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 29
2			4			

1) Girder 4 along with all diaphragms except end diaphragm in bay 3 distorted up to 8”



