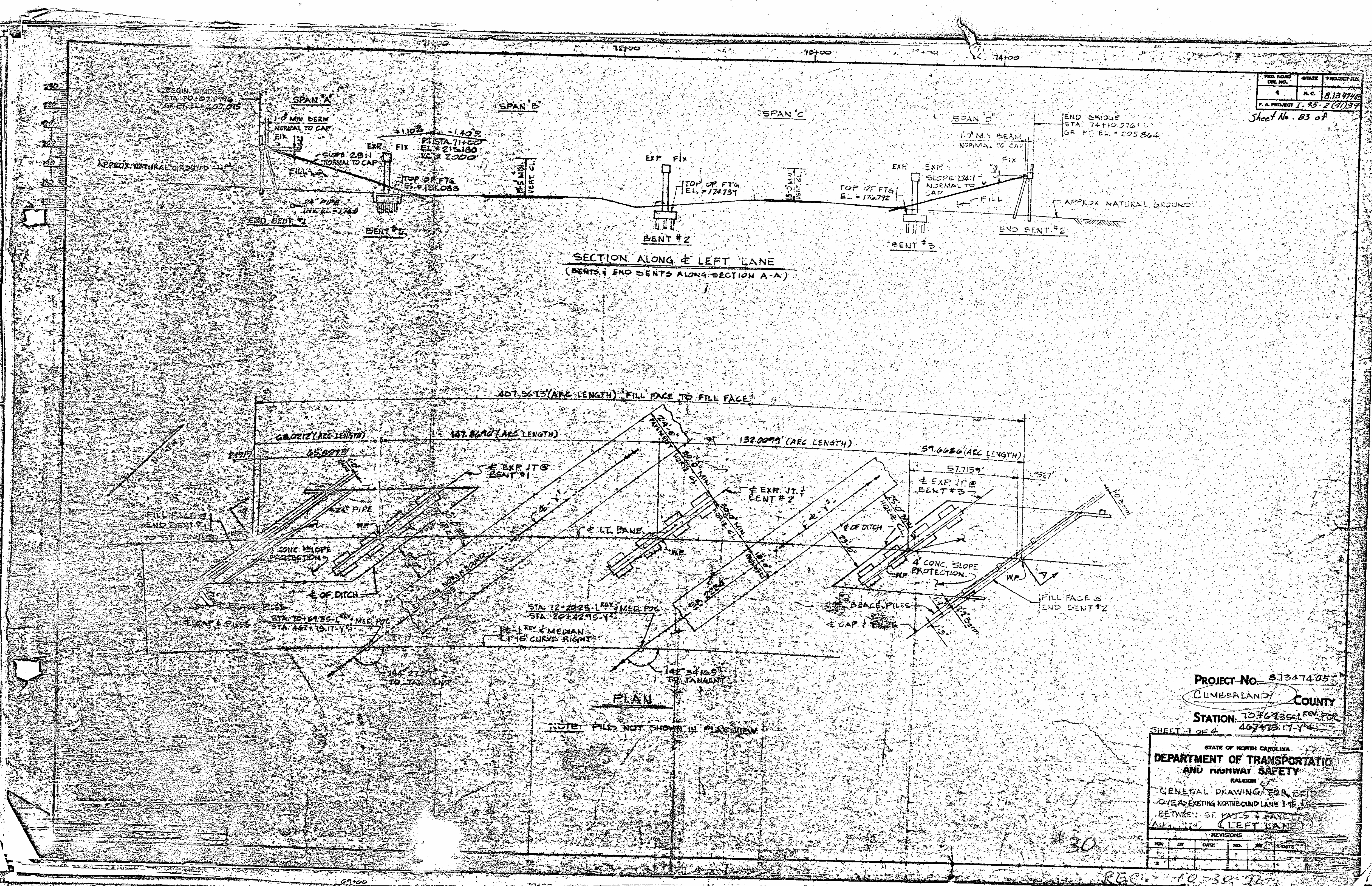
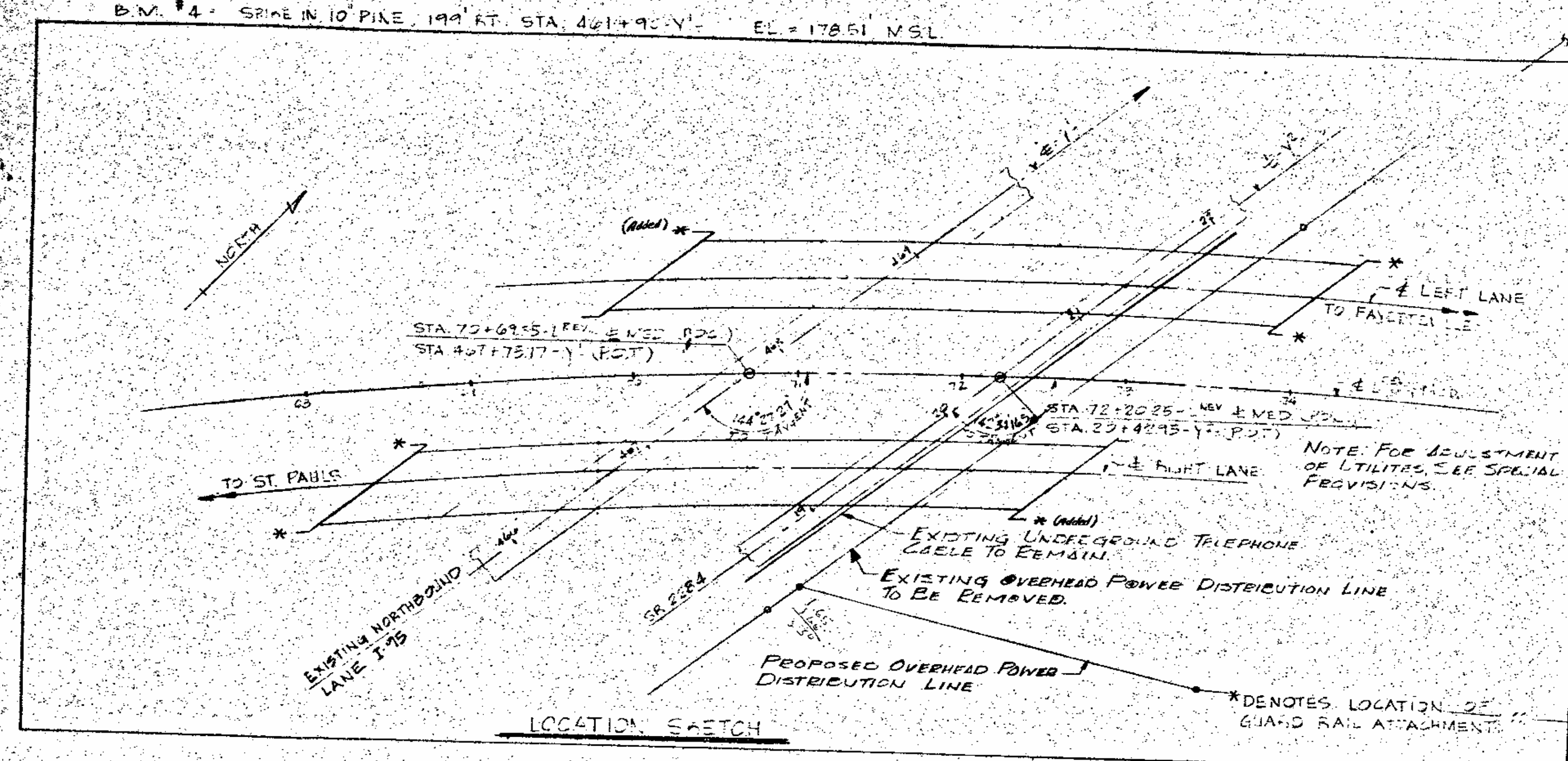

SPAN "A"
SPAN "B"
SPAN "C"
SPAN "D"
END BRIDGE
APPROX. NATURAL GROUND
END BENT #1
BENT #1
BENT #2
BENT #3
END BENT #2
SECTION ALONG ℄ LEFT LANE
(BENTS & END BENTS ALONG SECTION A-A)
407.5613' (ARC LENGTH) FILL FACE TO FILL FACE
132.0099' (ARC LENGTH)
59.6686' (ARC LENGTH)
℄ EXP. JT. @ BENT #1
℄ EXP. JT. @ BENT #2
℄ EXP. JT. @ BENT #3
℄ LT. LANE
4" CONC. SLOPE PROTECTION
FILL FACE @ END BENT #2
℄ CAP & PILES
PLAN
NOTE: PILES NOT SHOWN IN PLAN VIEW
Sheet No. 83 of
PROJECT No. 8.1347405
CUMBERLAND COUNTY
STATION: 70+64.35-L REV. POC
407+75.17-Y
SHEET 1 OF 4
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
AND HIGHWAY SAFETY
RALEIGH
GENERAL DRAWING FOR BRIDGE
OVER EXISTING NORTHBOUND LANE I-95
BETWEEN ST. PAULS & FAYETTEVILLE
(LEFT LANE)
REVISIONS
#30
REC. 10-30-72

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

Sheet No. 85 of

B.M. #4 - SPIKE IN 10" PINE, 199' RT. STA. 461+90-Y1- EL = 178.51 M.S.L.



LOCATION SKETCH

NOTE

THE ASSUMED LIVE LOAD = HS 20-44 OR ALTERNATE LOADING.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET S-N.

ALL PILES TO BE DRIVEN TO A MINIMUM BEARING CAPACITY OF 30 TONS EACH.

ALL STRUCTURAL STEEL SHALL BE UNPAINTED ASTM A-588 (INCLUDING BEARING PLATES) WITH A MINIMUM YIELD STRENGTH OF 50,000 P.S.I. EXCEPT, ANCHOR BOLTS, NUTS & WASHERS WHICH SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS. ALL BEARING PLATES EXCEPT SELF-LUBRICATING PLATES SHALL BE GALVANIZED IN ACCORDANCE WITH SPECIFICATION.

FOR SURFACE PREPARATION & PROTECTION OF UNPAINTED STRUCTURAL STEEL, SEE SPECIAL PROVISIONS.

FOR PROTECTION OF SUBSTRUCTURE, SEE SPECIAL PROVISIONS.

FOR REQUIREMENTS FOR TEXTURE OF BRIDGE DECK, SEE SPECIAL PROVISIONS.

FOR PORTLAND CEMENT CONCRETE, SEE SPECIAL PROVISIONS.

TRAFFIC TO BE DETOURED DURING THE PROPOSED CONSTRUCTION.

TOTAL BILL OF MATERIAL FOR LEFT LANE

* See General Notes Pay Record Book No. 2, Page 7

	FOUNDATION EXCAVATION	CLASS 'AA' CONCRETE	CLASS 'A' CONCRETE	REINFORCING STEEL	STRUCTURAL STEEL	HP 12x53 STEEL PILES		LINSEED OIL CONC. PROT.	BRIDGE APPR. SLABS	EXPANSION JOINT SEAL	4' CONC. SLOPE PROTECTION	CONCRETE BARRIER RAIL	EPOXY RESIN PROT. COATING FOR CONC.
	CU. YDS.	CU. YDS.	CU. YDS.	LBS.	APPROX. LBS.	NO.	LIN. FT.	GALS.	LUMP SUM	LUMP SUM	SQ. YDS.	LIN. FT.	SQ. FT.
SUPERSTRUCTURE		513.1		136,091	586,600			43					
END BENT #1			35.1	6,470		16	808.60 ~~1440~~			LUMP SUM	552.50 ~~543~~	822.30 ~~821.92~~	
BENT #1	NONE ~~120~~		81.1	11,197 ~~10,270~~		32	1622.46 ~~2080~~		LUMP SUM				
BENT #2	90.08 ~~105~~		89.5	15,321		36	1364.33 ~~2540~~						238.8 ~~[illegible]~~ ~~244~~
BENT #3	121.58 ~~132~~		83.2	10,313		28	902.84 ~~1540~~						226.7 ~~[illegible]~~ ~~242~~
END BENT #2			31.4	5,987 / 5,104		14	762.92 ~~1330~~				413.05 ~~415~~		219.72 ~~[illegible]~~ ~~223~~
CURVED END BLOCKS		2.9		591					LUMP SUM				
TOTAL	231.66 ~~355~~	516.0	320.6	164,171 ~~165,926~~	536,620	126	5449.65 ~~8730~~	43	LUMP SUM	LUMP SUM	965.56 ~~955~~	822.3 ~~822.30~~ ~~821.92~~	685.23 ~~[illegible]~~ ~~696~~

See Str. Pay Record Book No. 2, Pages 67 & 68

** Note: A 403 Lin. Ft. Section of Barrier Rail Rt. of Span D. failed to meet required strength on Concrete Test Cylinders # 71 & is to be paid for at a reduced price of $20.93 Per Lin. Ft.

I HEREBY CERTIFY THAT THESE STRUCTURES WERE BUILT ACCORDING TO PLANS EXCEPT AS NOTED HEREIN.

A. P. Nelson
RESIDENT ENGINEER

DEC 04 1978
Highways
RESIDENT ENGINEER

TOTAL BILL OF MATERIAL FOR RIGHT LANE

	FOUNDATION EXCAVATION	CLASS AA CONCRETE	CLASS 'A' CONCRETE	REINFORCING STEEL	STRUCTURAL STEEL	HP 12x53 STEEL PILES		LINSEED OIL CONC. PROT.	BRIDGE APPR. SLABS	EXPANSION JOINT SEAL	4" CONC. SLOPE PROTECTION	CONCRETE BARRIER RAIL	EPOXY RESIN PROT. COATING FOR CONC.
	CU. YDS.	CU. YDS.	CU. YDS.	LBS.	APPROX. LBS.	NO.	LIN. FT.	GALS.	LUMP SUM	LUMP SUM	SQ. YDS.	LIN. FT.	SQ. FT.
SUPERSTRUCTURE		533.7		121,113	645,800								
END BENT #1			38.3	6934		16	742.50 ~~1440~~	45		LUMP SUM	588.77 ~~565~~	857.50 ~~857.76~~	
BENT #1	NONE ~~115~~		81.4	11,597		32	1234.67 ~~2980~~		LUMP SUM				
BENT #2	117.01 ~~125~~		94.4	15,673		40	1550.08 ~~2035~~						252.3 ~~[illegible]~~ ~~253~~
BENT #3	235.72 ~~145~~		82.3	10,401		28	1172.44 ~~1630~~						238.73 ~~237.65~~ ~~243~~
END BENT #2			32.8	6278		14	874.86 ~~1269~~				391.88 ~~410~~		229.44 ~~233.36~~ ~~233~~
CURVED END BLOCKS		2.9		626					LUMP SUM				
TOTAL	352.73 ~~385~~	536.6	329.2	172,622	645,800	130	5611.04 ~~9260~~	45	LUMP SUM	LUMP SUM	980.65 ~~975~~	~~857.50~~ ~~857.76~~	720.47 ~~[illegible]~~ ~~729~~

See Str. Pay Record Book No. 3, Pages 73 & 74

DRAWN BY THAMES DATE AUG. 74
CHECKED BY CHARLES POPE DATE FEB 74

REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS

BAR SIZE	SPLICE DISTANCE
# 4	1'-3"
# 5	1'-9"
# 6	2'-0"
# 7	2'-3"
# 8	2'-6"
# 9	2'-9"
# 10	3'-3"
# 11	3'-6"

△: REVISED SUPERSTRUCTURE REINFORCING STEEL & TOTAL. / BY WST
REV. #1: REVISED REINFORCING STEEL WEIGHT FOR LEFT LANE BENT #3 AND LEFT LANE TOTAL. / BY. CEP

PROJECT No. 8.1347405
CUMBERLAND COUNTY
STATION: 72+69.35-L REV. POC
SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

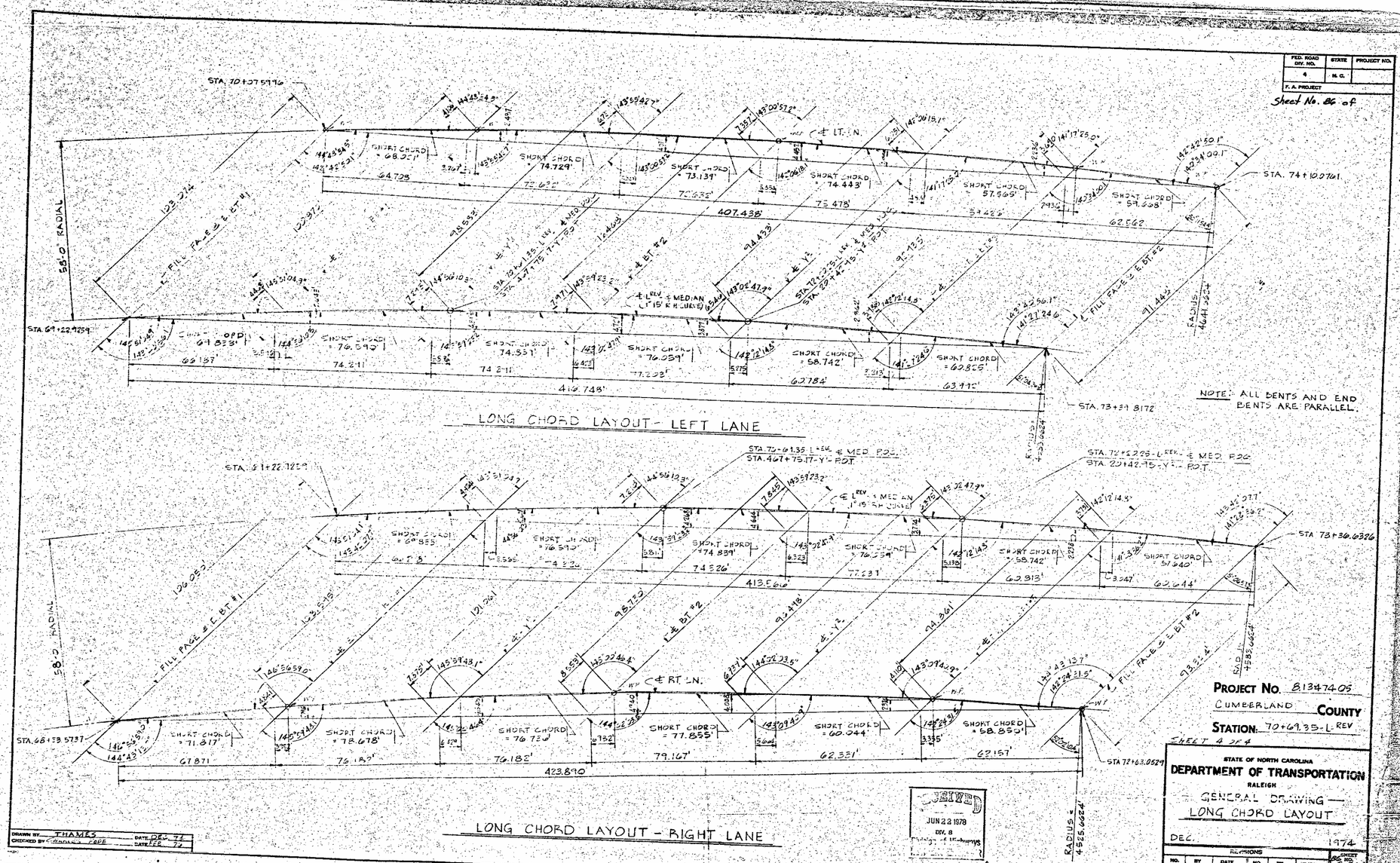
GENERAL DRAWING FOR BRIDGE OVER EXISTING NORTHBOUND LANE I-95 & SR 2294 BETWEEN ST. PAULS & FAYETTEVILLE

(AUG. 1974)

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	85 ~~S-20~~
1	[illegible]	2-14-78				TOTAL SHEETS
△	J.C.H.	11-29-78	4			75

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

Sheet No. 86 of



NOTE: ALL BENTS AND END BENTS ARE PARALLEL.

RECEIVED
JUN 23 1978
DIV. 8
Bridges & Structures

⚠ REVISED TO CORRECT BENT WORKLINE DESIGNATION. √BY CEP

DRAWN BY: THAMES DATE: DEC. 74
CHECKED BY: CHARLES FEE DATE: FEB. 75

PROJECT NO. 8134705
CUMBERLAND COUNTY
STATION: 70+61.35-L-REV

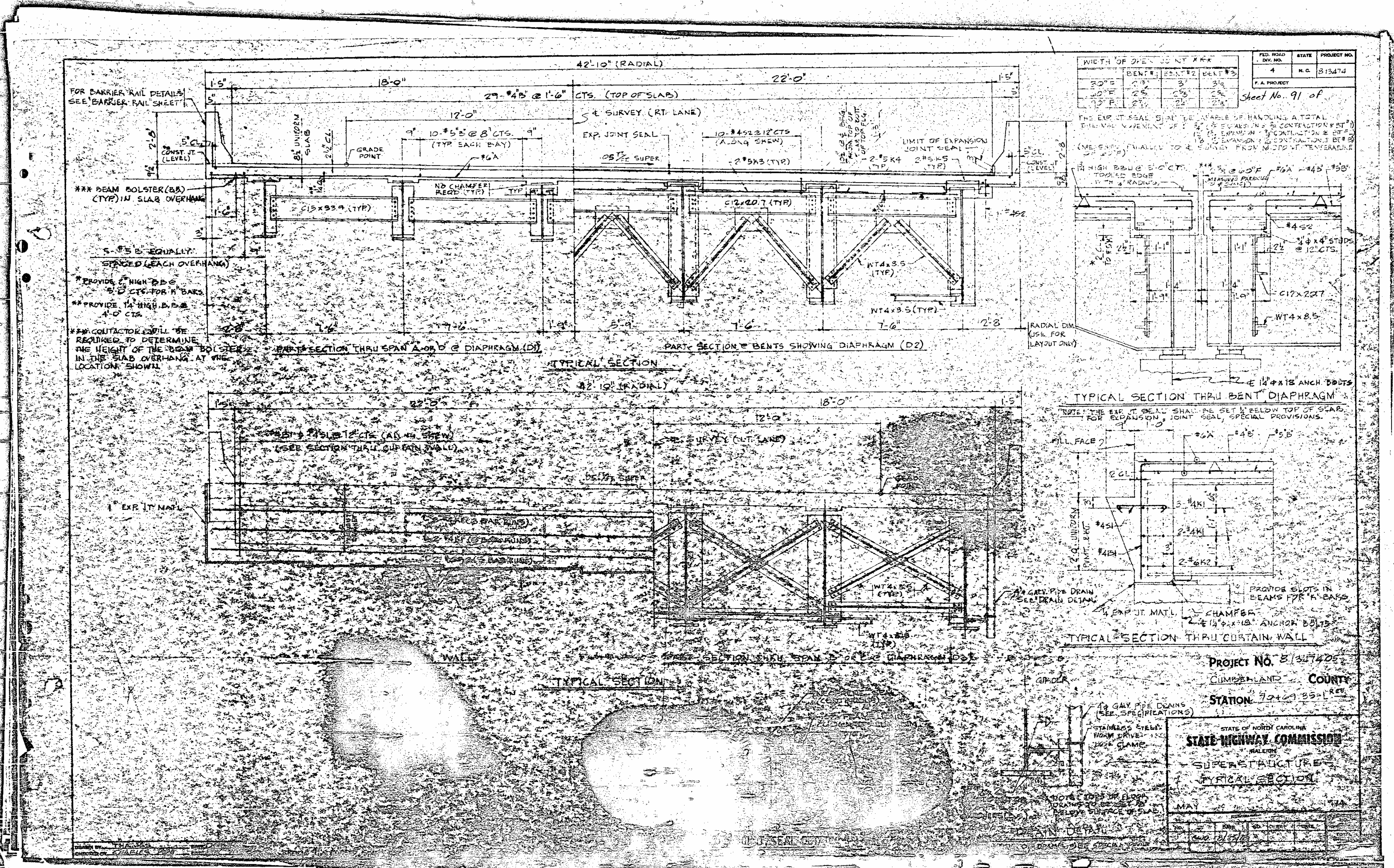
SHEET 4 OF 4

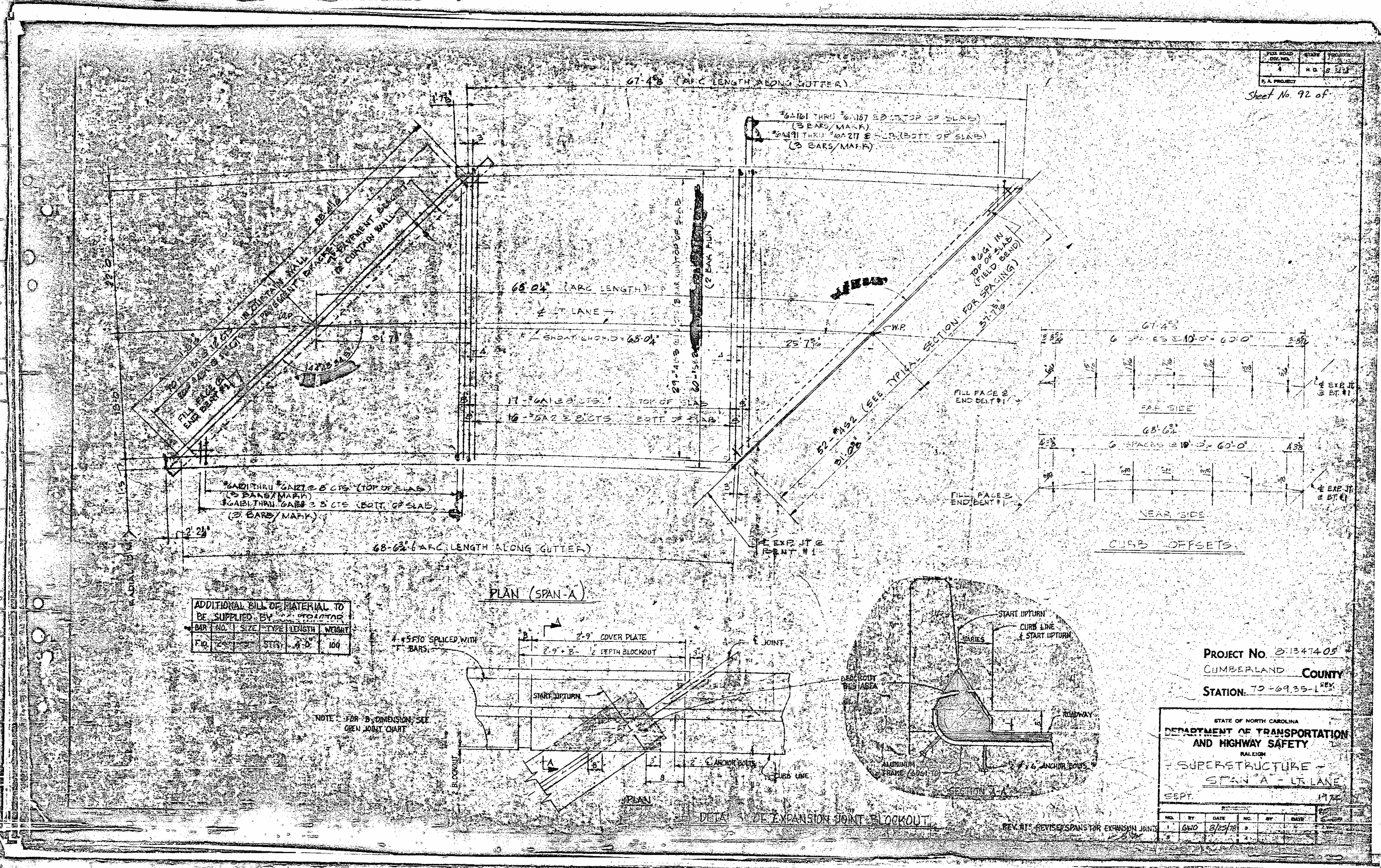
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
LONG CHORD LAYOUT

DEC. 1974

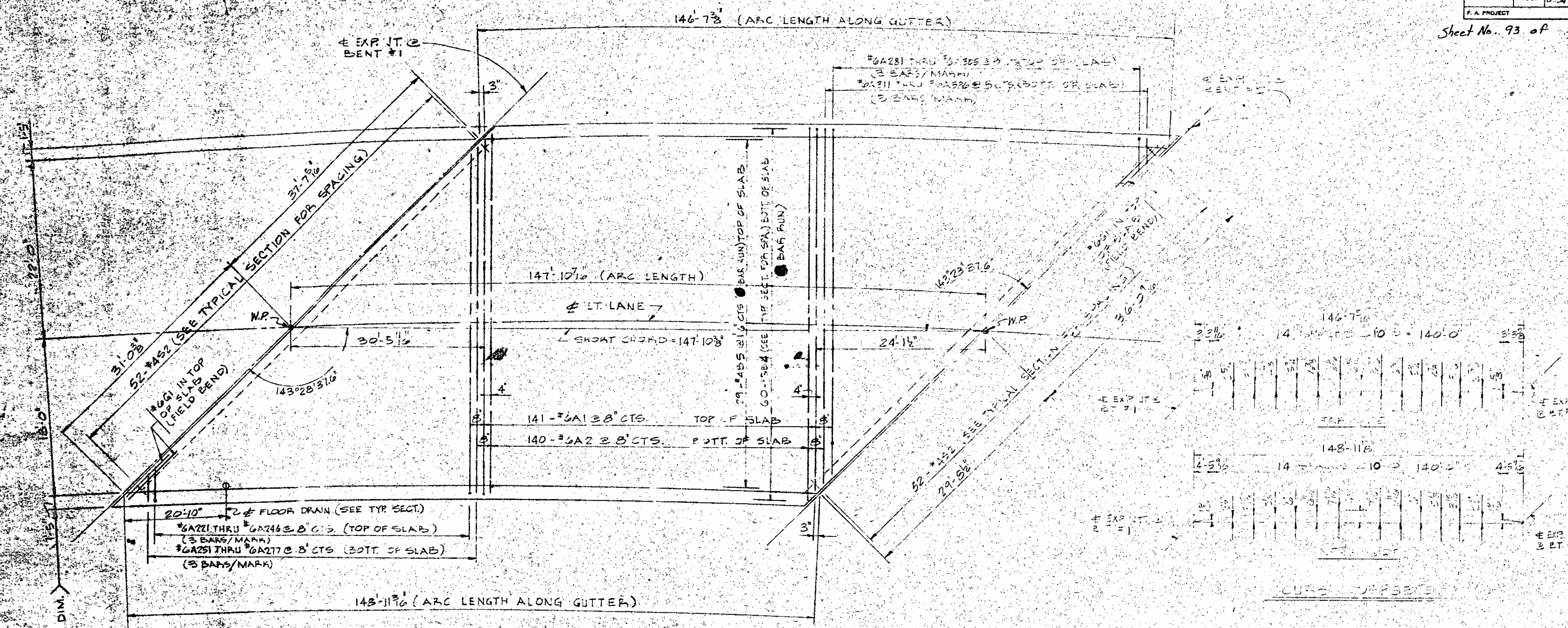
REVISIONS						SHEET NO.	TOTAL SHEETS
NO.	BY	DATE	NO.	BY	DATE	4	4
⚠ 1	W.S.T.	6-22-78	3				
2			4				


42'-10" (RADIAL)
18'-0"
22'-0"
29-#4S @ 1'-6" CTS. (TOP OF SLAB)
12'-0"
℄ SURVEY (RT. LANE)
FOR BARRIER RAIL DETAILS SEE BARRIER RAIL SHEET
10-#5S @ 8" CTS. (TYP. EACH BAY)
EXP. JOINT SEAL
GRADE POINT
LIMIT OF EXPANSION JOINT SEAL
CONST. JT. (LEVEL)
***BEAM BOLSTER (BB) (TYP) IN SLAB OVERHANG
NO CHAMFER REQD. (TYP)
C15x33.9 (TYP)
C12x20.7 (TYP)
WT4x8.5 (TYP)
5-#5B EQUALLY SPACED (EACH OVERHANG)
*PROVIDE 2" HIGH B.B.S. @ 3'-0" CTS. FOR "A" BARS
**PROVIDE 1½" HIGH B.B.B. @ 4'-0" CTS.
***CONTRACTOR WILL BE REQUIRED TO DETERMINE THE HEIGHT OF THE BEAM BOLSTER IN THE SLAB OVERHANG AT THE LOCATION SHOWN
PART. SECTION THRU SPAN A OR C @ DIAPHRAGM (D1)
PART. SECTION @ BENTS SHOWING DIAPHRAGM (D2)
TYPICAL SECTION
RADIAL DIM. USE FOR LAYOUT ONLY
WIDTH OF OPEN JOINT ***
BENT #1
BENT #2
BENT #3
C17x22.7
WT4x8.5
TYPICAL SECTION THRU BENT DIAPHRAGM
TYPICAL SECTION THRU CURTAIN WALL
PROVIDE SLOTS IN BEAMS FOR "K" BARS
CHAMFER
ANCHOR BOLTS
FED. ROAD DIV. NO. 4
STATE N.C.
PROJECT NO. 813474
Sheet No. 91 of
PROJECT NO. 8.13474
CUMBERLAND COUNTY
STATION
STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH
SUPERSTRUCTURE
TYPICAL SECTION
DRAIN DETAIL


Sheet No. 92 of
67'-4⅝" (ARC LENGTH ALONG GUTTER)
(3 BARS/MARK)
(3 BARS/MARK)
68'-0¼" (ARC LENGTH)
℄ LT. LANE
W.P.
52-#4S2 (SEE TYPICAL SECTION FOR SPACING)
TOP OF SLAB
BOTT. OF SLAB
68'-6⅞" (ARC LENGTH ALONG GUTTER)
PLAN (SPAN 'A')
FAR SIDE
NEAR SIDE
CURB OFFSETS
ADDITIONAL BILL OF MATERIAL TO BE SUPPLIED BY CONTRACTOR
BAR
NO.
SIZE
TYPE
LENGTH
WEIGHT
COVER PLATE
DEPTH BLOCKOUT
START UPTURN
NOTE: FOR B DIMENSION, SEE GEN. JOINT CHART
ANCHOR BOLTS
CURB LINE
PLAN
DETAILS OF EXPANSION JOINT BLOCKOUT
START UPTURN
CURB LINE
VARIES
ALUMINUM FRAME
ANCHOR BOLTS
ROADWAY
SECTION A-A
PROJECT NO. 8.1347405
CUMBERLAND COUNTY
STATION: 70+69.35-L REV.
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION AND HIGHWAY SAFETY
RALEIGH
SUPERSTRUCTURE - SPAN "A" - LT. LANE
SEPT.
NO.
BY
DATE
1
GWO
8/25/78
REVISED SPANS FOR EXPANSION JOINTS

FED. ROAD DIV. NO.	STATE	PROJECT NO.
4	N. C.	B-3474
F. A. PROJECT		

Sheet No. 93 of



PLAN (SPAN 'B')

PROJECT NO. B-347405

CUMBERLAND COUNTY

STATION:

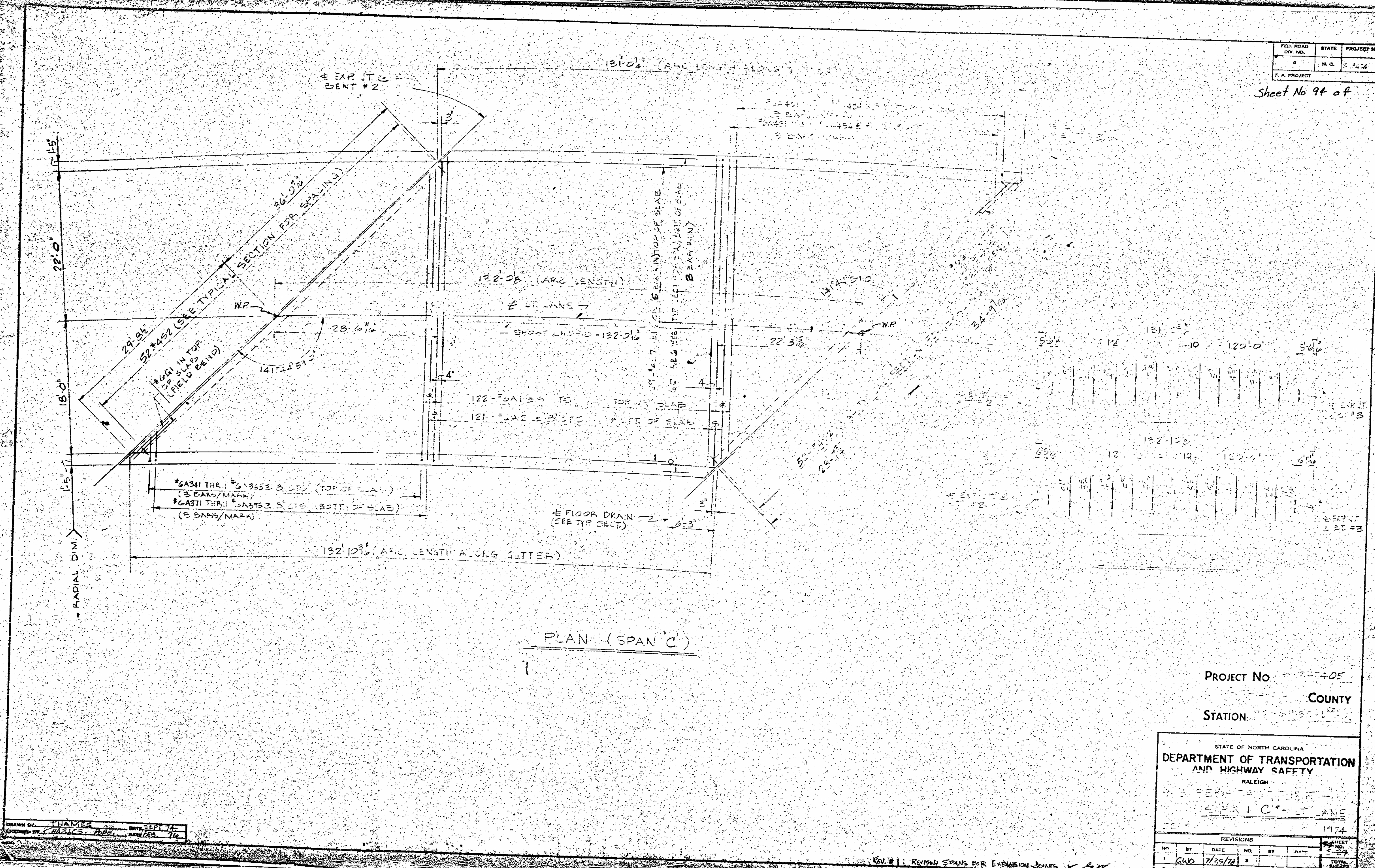
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
AND HIGHWAY SAFETY
RALEIGH

- SUPERSTRUCTURE -
SPAN 'B' - LT. LANE

SEPT. 1974

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-28
1			3			TOTAL SHEETS
2			4			75

REV. #1: REVISED SPANS FOR EXPANSION JOINTS



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

Sheet No 94 of

PROJECT No. ...7405

COUNTY

STATION:

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION AND HIGHWAY SAFETY
RALEIGH

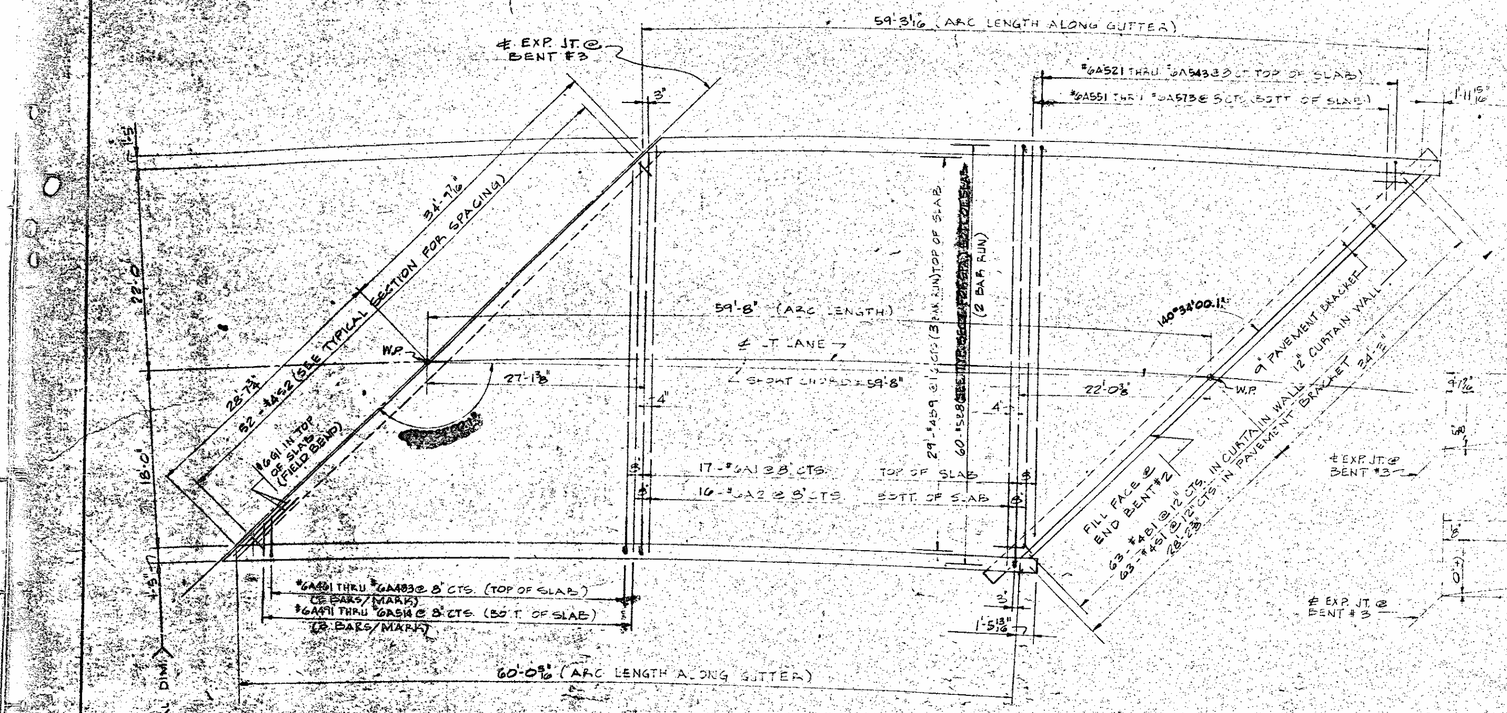
SPAN C ... LANE

1974

REVISIONS						
NO.	BY	DATE	NO.	BY	DATE	SHEET NO.
1	GWO	7/25/78	3			S-29
2			4			TOTAL SHEETS

FED. ROAD DIV. NO.	STATE	PROJECT
4	N.C.	8.1347.1
F. A. PROJECT		

Sheet No. 95 of



PLAN (SPAN 'D')

REV. #1 - REVISED SPANS FOR EXPANSION JOINTS.

PROJECT NO. 8.1347405
CUMBERLAND COUNTY
STATION: 70+69.35-L REV.

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION AND HIGHWAY SAFETY
RALEIGH

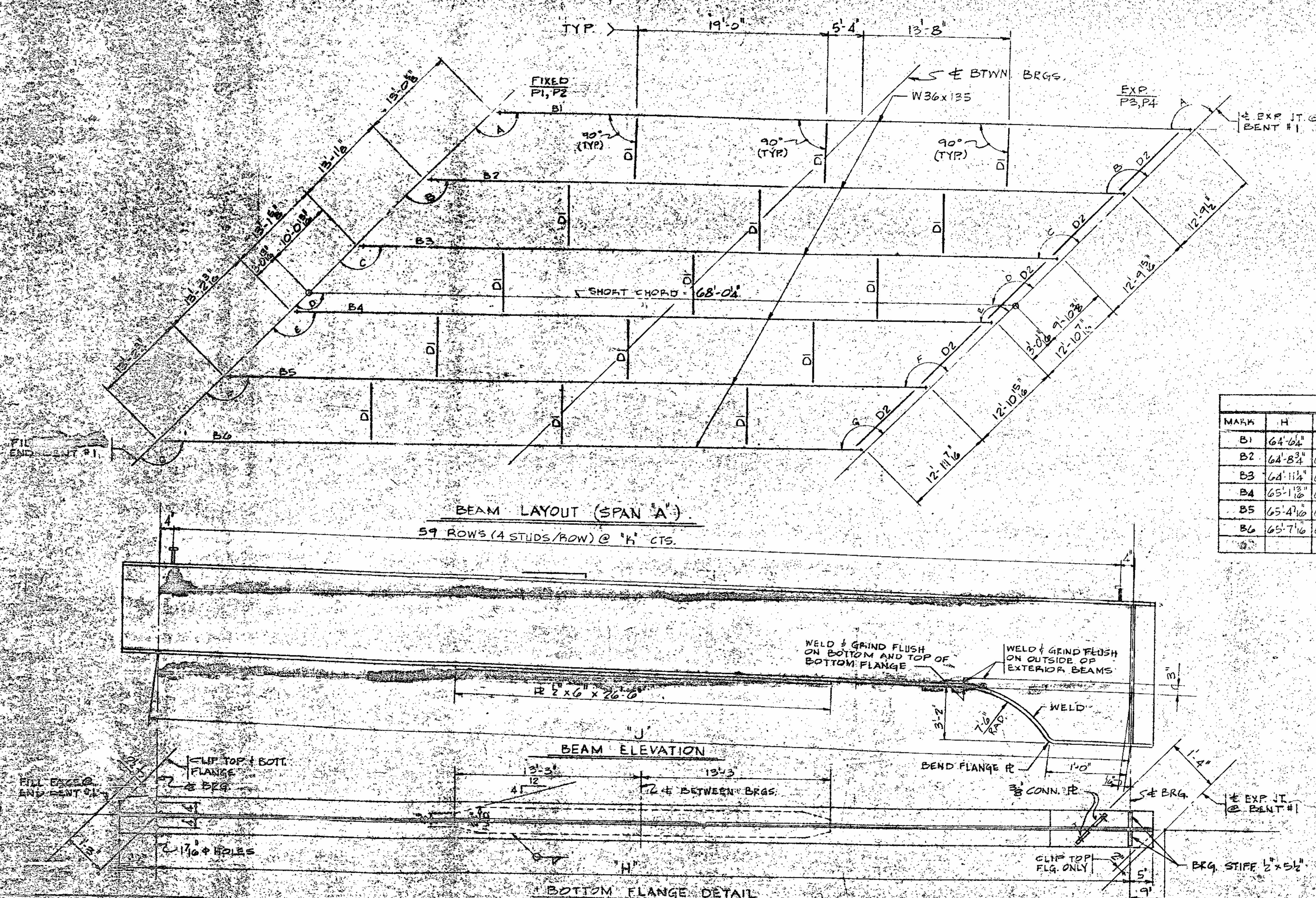
SUPERSTRUCTURE
SPAN 'D' - LT. LANE

SEPT. 1974

REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1.	GWO	8/25/75	3.		
2.			4.		

SHEET NO. S-50

Sheet No. 106 of



LAYOUT ANGLES	
MARK	ANGLE
A	144°26'58.2"
B	144°34'44.1"
C	144°42'33.0"
D	144°48'34.5"
E	144°50'24.8"
F	144°58'19.8"
G	145°06'17.9"

BEAM DIMENSIONS						
MARK	H	J	K			
B1	64'-6¼"	64'-6 5/16"	1'-1 3/16"			
B2	64'-8¾"	64'-8 13/16"	1'-1¼"			
B3	64'-11¼"	64'-11 5/16"	1'-1 5/16"			
B4	65'-1 13/16"	65'-1⅞"	1'-1 5/16"			
B5	65'-4 7/16"	65'-4½"	1'-1⅜"			
B6	65'-7 1/16"	65'-7⅛"	1'-1 7/16"			

PROJECT NO. 8.1347405

CUMBERLAND **COUNTY**

STATION: 70+69.35-L REV.

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
STRUCTURAL STEEL DETAILS
SPAN "A" LEFT LANE

OCT. 197[illegible]

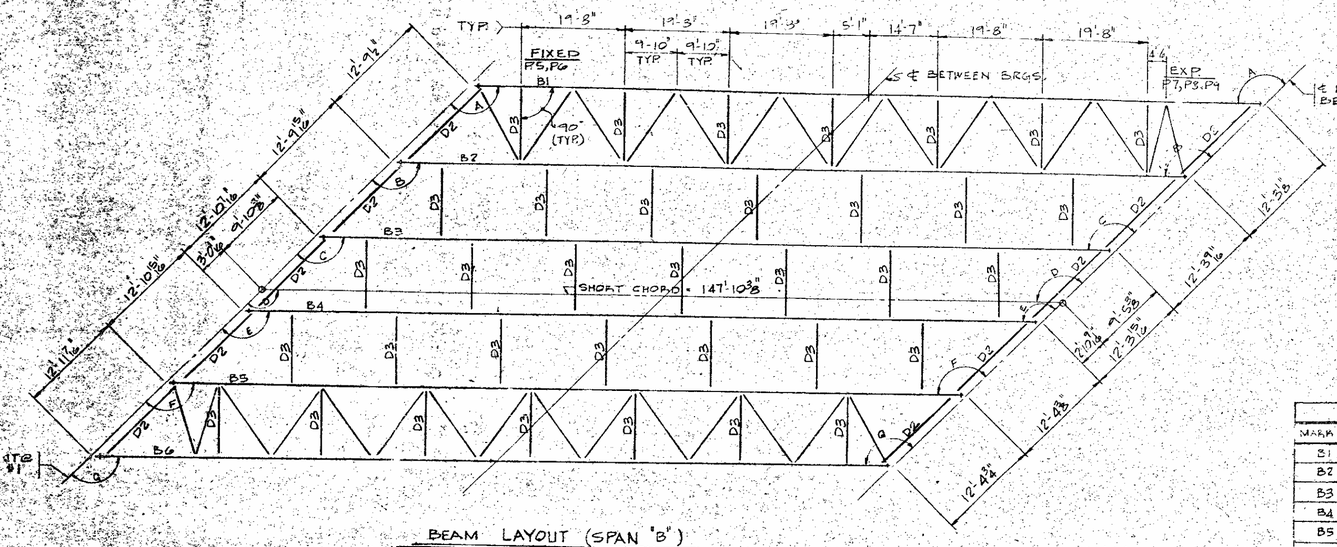
REVISIONS

NO.	BY	DATE			

FED. ROAD DIV. NO.	STATE	PROJECT NO.
4	N.C.	

F. A. PROJECT

Sheet No. 107 of

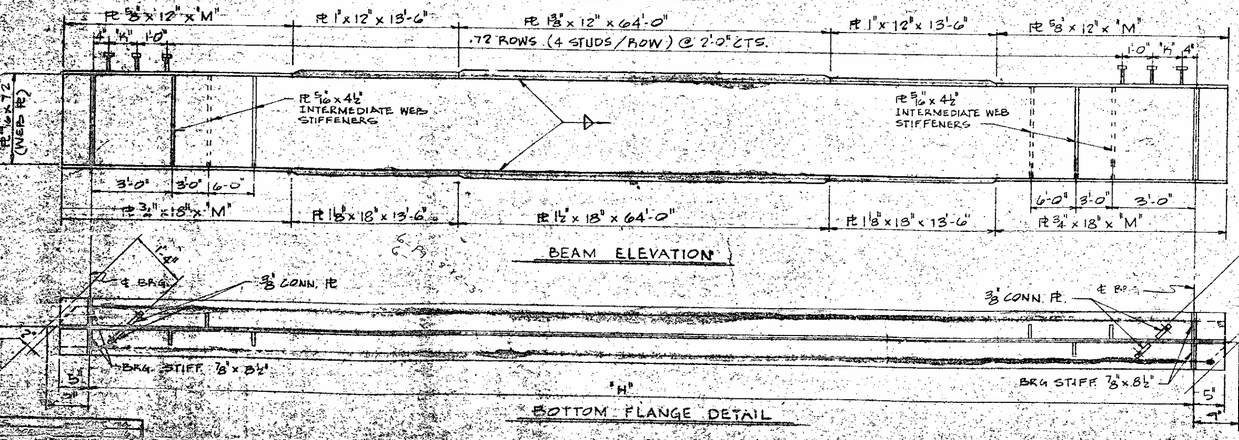


BEAM LAYOUT (SPAN "B")

LAYOUT ANGLES	
MARK	ANGLE
A	143°08'02.2"
B	143°15'26.3"
C	143°22'53.2"
D	143°28'37.6"
E	143°30'22.8"
F	143°31'55.2"
G	143°45'30.4"

BEAM DIMENSIONS						
MARK	H		M			
B1	145'-2¼"	3'-⅛"	27'-6⅛"			
B2	145'-7¼"	5'-⅜"	27'-8⅜"			
B3	146'-0⅜"	8 3/16"	27'-11 3/16"			
B4	146'-5⅝"	10 13/16"	28'-1 13/16"			
B5	146'-10⅝"	1'-1 7/16"	28'-4 7/16"			
B6	147'-4¼"	1'-4⅛"	28'-7⅛"			
	"					

BEAM ELEVATION



BOTTOM FLANGE DETAIL

PROJECT NO. 8.1347405

CUMBERLAND COUNTY

STATION: 70+69.35-L Rec.

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

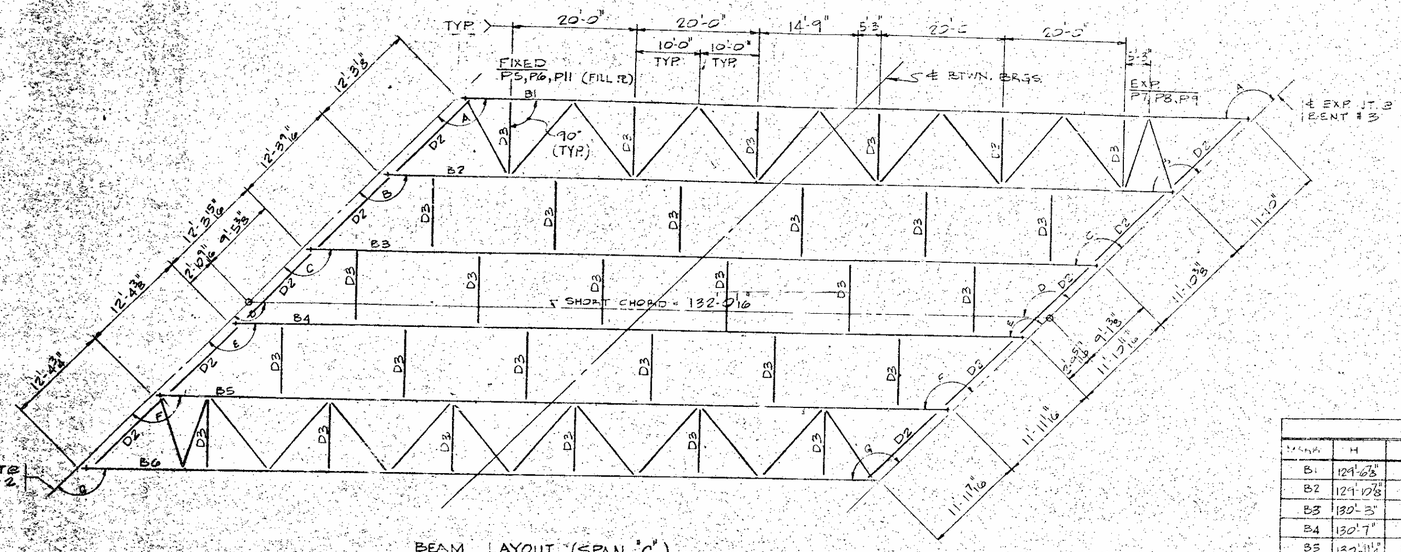
SUPERSTRUCTURE
STRUCTURAL STEEL DETAILS
SPAN C LEFT LANE

OCT. 1974

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

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

Sheet No. 108 of



LAYOUT ANGLES	
MARK	ANGLE
A	141°25'38.1"
B	141°32'35.6"
C	141°39'35.5"
D	141°44'59.0"
E	141°46'37.8"
F	141°53'42.6"
G	142°02'49.9"

BEAM DIMENSIONS						
MARK	H	K	M			
B1	129'-6⅝"	5 7/16"	33'-8 7/16"			
B2	129'-10⅞"	7 7/16"	33'-10 7/16"			
B3	130'-3"	9 7/16"	34'-0 7/16"			
B4	130'-7"	11 7/16"	34'-2 7/16"			
B5	130'-11¼"	1'-1⅝"	34'-4⅝"			
B6	131'-3⅜"	1'-3 11/16"	34'-6 11/16"			

PROJECT NO. B-1347405
CUMBERLAND COUNTY
STATION: 70+69.35-L RAY.

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

— SUPERSTRUCTURE —
STRUCTURAL STEEL DETAILS
SPAN "C" LEFT LANE

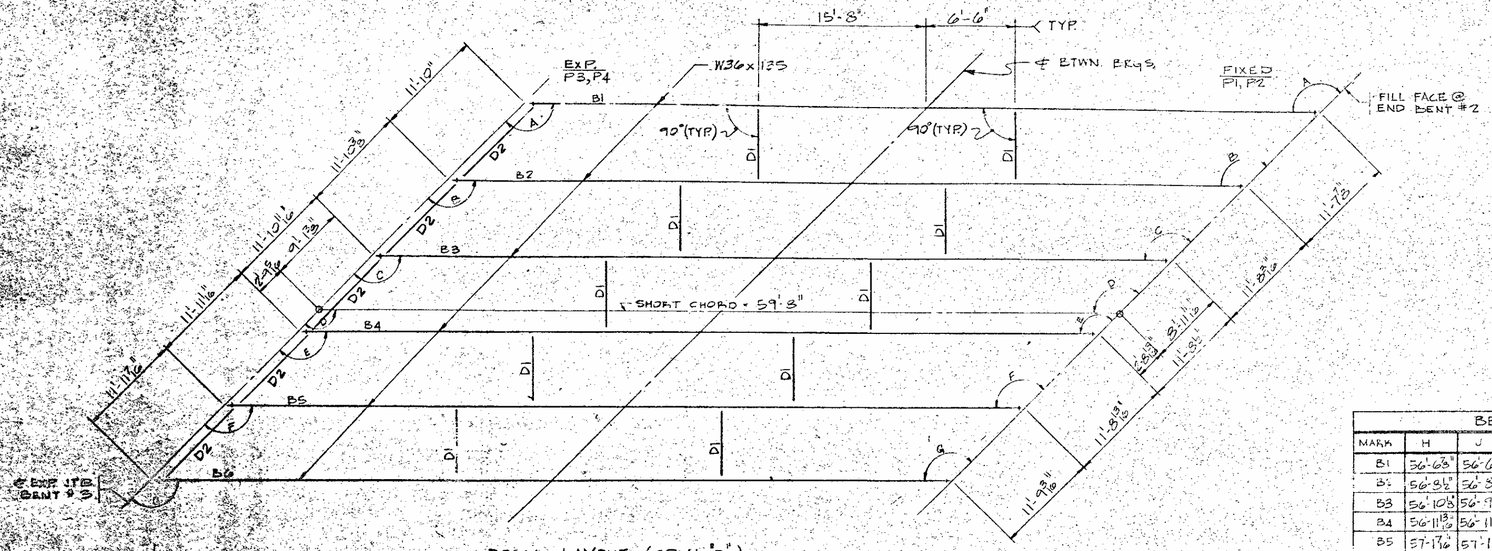
OCT. 1974

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

FED. ROAD DIV. NO.	STATE	PROJECT NO.
4	N.C.	

F. A. PROJECT

Sheet No. 109 of

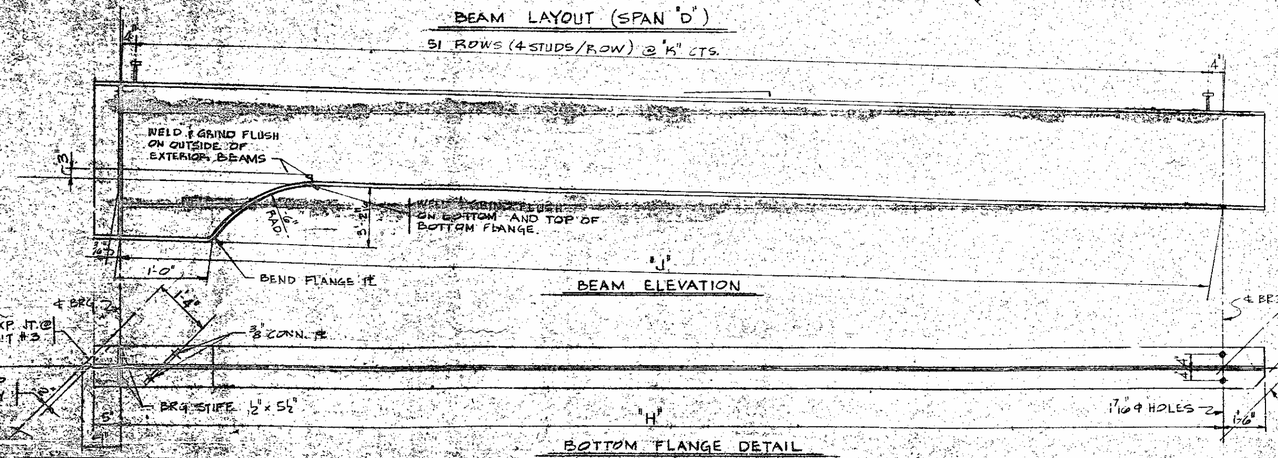


LAYOUT ANGLES	
MARK	ANGLE
A	140°15' 27.4"
B	140°22' 07.6"
C	140°28' 50.1"
D	140°34' 00.1"
E	140°35' 34.8"
F	140°42' 21.8"
G	140°49' 11.1"

BEAM DIMENSIONS						
MARK	H	J	K			
B1	56'-6 3/8"	56'-6 11/16"	1'-1 7/16"			
B2	56'-9 1/2"	56'-5 3/16"	1'-1 7/16"			
B3	56'-10 3/8"	56'-9 7/16"	1'-1 1/2"			
B4	56'-11 9/16"	56'-11 3/8"	1'-1 5/8"			
B5	57'-1 7/16"	57'-1 1/4"	1'-1 9/16"			
B6	57'-3 3/8"	57'-2 11/16"	1'-1 11/16"			

BEAM LAYOUT (SPAN "D")

51 ROWS (4 STUDS/ROW) @ "K" CTS.



PROJECT NO. 8.1347405

CUMBERLAND COUNTY

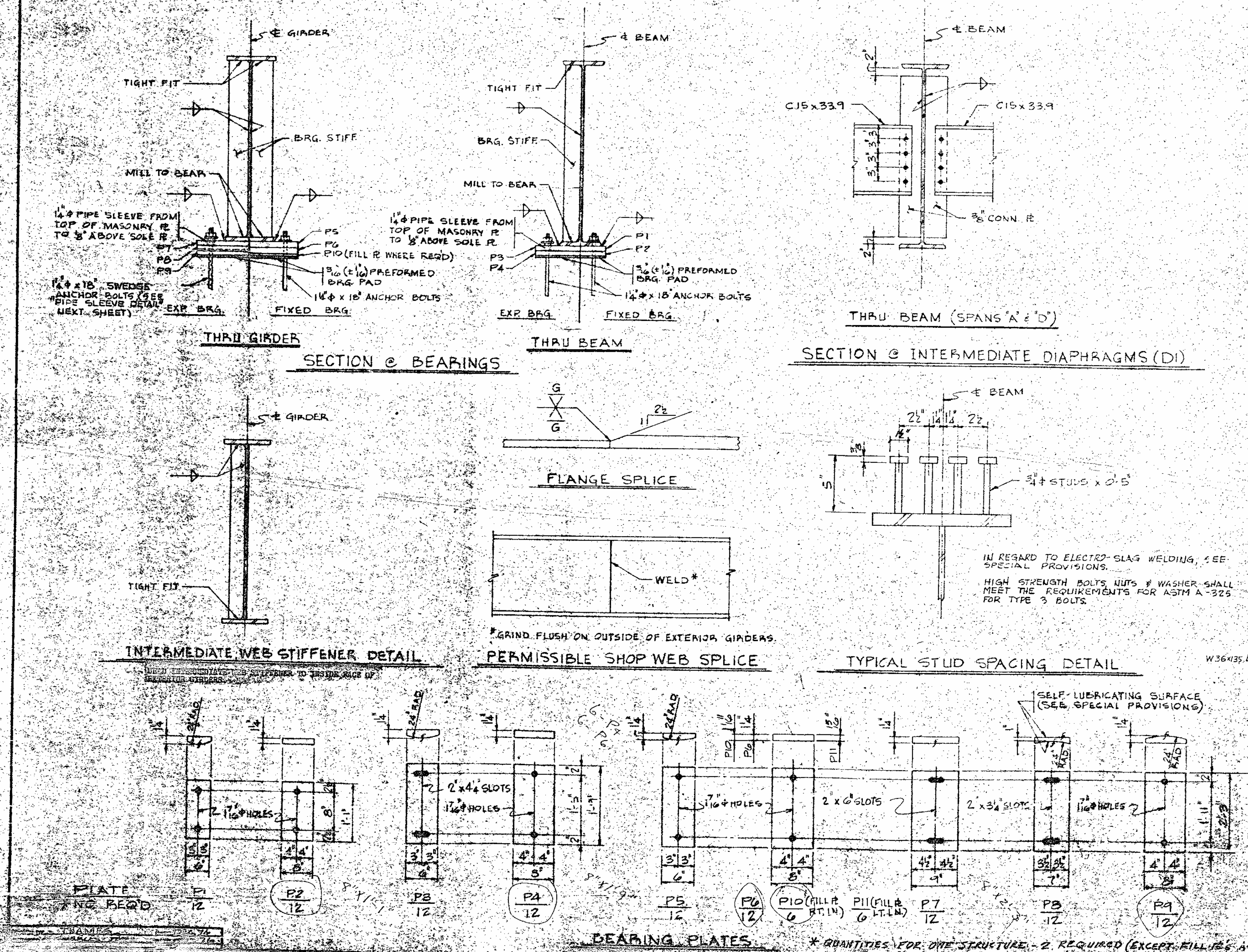
STATION: 70+69.35-L REV.

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

— SUPERSTRUCTURE —
STRUCTURAL STEEL DETAILS
SPAN D LEFT LANE

OCT. 1978

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



ALL STRUCTURAL STEEL SHALL BE UNPAINTED ASTM A-588 (INCLUDING BEARING PLATES) WITH A MINIMUM YIELD STRENGTH OF 50,000 P.S.I. EXCEPT ANCHOR BOLTS, NUTS & WASHERS WHICH SHALL BE IN ACCORDANCE WITH SPECIFICATIONS. THE ATMOSPHERIC CORROSION RESISTANCE AND COLORING CHARACTERISTICS OF ASTM A-588 STEEL IS REQUIRED FOR THE WELD METAL.

ALL FIELD CONNECTIONS TO BE 7/8" Ø HIGH STRENGTH BOLTS UNLESS OTHERWISE NOTED.

A CHARPY V-NOTCH TEST IS REQUIRED ON ALL ROLLED BEAMS AND ALL GIRDER WEB AND BOTTOM FLANGE PLATES. SEE SPECIAL PROVISIONS.

FOUR SHOP SPLICES WILL BE PERMITTED IN THE GIRDER WEB. NO SPLICE WILL BE LOCATED IN THE MIDDLE 30' OF THE GIRDER OR WITHIN 2' OF A FLANGE SPLICE.

ALL SHOP SPLICES IN FLANGE AND WEB PLATES SHALL BE MADE PRIOR TO WELDING FLANGE PLATES TO WEB PLATES.

NO SPLICE OTHER THAN THOSE SHOWN ON THE PLANS WILL BE PERMITTED IN THE FLANGE PLATES.

CAMBERED GIRDER LENGTHS SHALL BE ADJUSTED AND BEARINGS ARE TO BE PLACED ON THE CAMBERED GIRDER SO AS TO BE ALIGNED WITH ANCHORS AFTER THE DEAD LOAD DEFLECTION HAS OCCURRED. SHOP PLAN SHALL BE PREPARED ACCORDINGLY.

AT ALL FIXED POINTS OF SUPPORTS, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF ½ TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

FOR LOCATION OF HOLES IN BEAMS TO ACCOMODATE "K" BARS SEE SUPERSTRUCTURE SECTIONS AND DETAILS.

ALL BEARING SURFACES THAT ARE NOT REQUIRED TO BE FINISHED SHALL BE SMOOTH AND STRAIGHT.

CLIP THE CORNERS OF BEARING STIFFENERS 1" AT THE JUNCTIONS OF WEB AND FLANGES.

AT THE CONTRACTOR'S OPTION, FILL PLATES MAY BE COMBINED WITH MASONRY PLATES.

ALL BEARING PLATES EXCEPT SELF-LUBRICATING PLATES SHALL BE GALVANIZED IN ACCORDANCE WITH SPECIFICATIONS.

SHIPPING NOTES:

SHIPPING DETAILS FOR BEAMS AND GIRDERS SHALL BE SUBMITTED FOR APPROVAL, INDICATING THE TOP FLANGE LOCATION DURING SHIPMENT, AND IN ALL CASES SHOWING THE WEB VERTICAL. THE METHOD OF SHIPMENT, POSITION ON THE VEHICLE, AND ATTACHMENTS TO THE BEAMS OR GIRDERS OF ANY SHIPPING RESTRAINTS SHALL BE CLEARLY DETAILED.

HAUNCH MAKEUP OTHER THAN THAT SHOWN MAY BE SUBMITTED FOR APPROVAL. TYPES OF WELDS USED SHALL BE APPROVED PREQUALIFIED WELDS. RADIOGRAPHIC INSPECTION OF THESE WELDS WILL BE REQUIRED.

THE SIZES OF THE HAUNCH PLATES SHALL MATCH THOSE OF THE BEAM.

PROJECT NO. 8.1347405

CUMBERLAND COUNTY

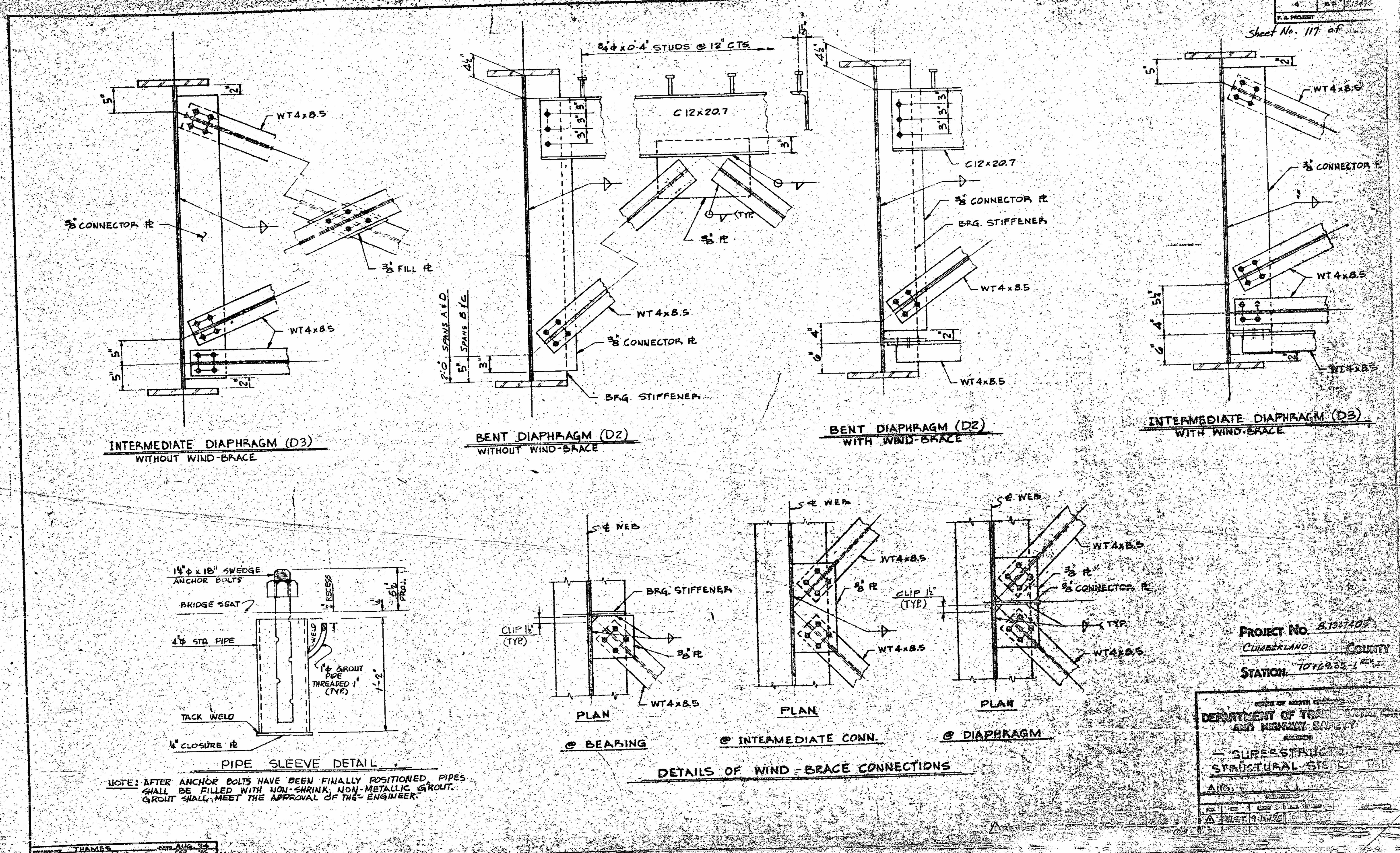
STATION: 70+69.35-L BEG.

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
STRUCTURAL STEEL DETAILS

REVISIONS

NO.	BY	DATE	NO.	BY	DATE


Sheet No. 117 of
WT4x8.5
3/8" CONNECTOR PL
3/8" FILL PL
INTERMEDIATE DIAPHRAGM (D3)
WITHOUT WIND-BRACE
3/4"φ x 0'-4" STUDS @ 12" CTS.
C12x20.7
BRG. STIFFENER
BENT DIAPHRAGM (D2)
WITHOUT WIND-BRACE
BENT DIAPHRAGM (D2)
WITH WIND-BRACE
INTERMEDIATE DIAPHRAGM (D3)
WITH WIND-BRACE
1 1/4"φ x 18" SWEDGE ANCHOR BOLTS
BRIDGE SEAT
4"φ STD PIPE
1/4" GROUT PIPE THREADED 1" (TYP.)
TACK WELD
1/4" CLOSURE PL
PIPE SLEEVE DETAIL
NOTE: AFTER ANCHOR BOLTS HAVE BEEN FINALLY POSITIONED, PIPES SHALL BE FILLED WITH NON-SHRINK, NON-METALLIC GROUT. GROUT SHALL MEET THE APPROVAL OF THE ENGINEER.
CLIP 1 1/2" (TYP.)
PLAN
@ BEARING
@ INTERMEDIATE CONN.
@ DIAPHRAGM
DETAILS OF WIND-BRACE CONNECTIONS
PROJECT No.
COUNTY
STATION
DEPARTMENT OF TRANSPORTATION AND HIGHWAY SAFETY
SUPERSTRUCTURE
STRUCTURAL STEEL

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS

PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
	144	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION

STANDARD NOTES

Sheet No 144 of

DESIGN DATA:

SPECIFICATIONS	A.A.S.H.O. (CURRENT)
LIVE LOAD	SEE PLANS
IMPACT ALLOWANCE	SEE SPECIFICATIONS
STRESS IN EXTREME FIBER OF	
STRUCTURAL STEEL - A.S.T.M. A36 GRADE -	20,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION	20,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	
FOR BRIDGE DECK SLABS	1,100 LBS. PER SQ. IN.
EXCEPT FOR BRIDGE DECK SLABS	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	90 LBS. PER SQ. IN.
STRUCTURAL TIMBER - TREATED OR	
UNTREATED - EXTREME FIBER STRESSES	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN	
ALL IN TIMBER	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	30 LBS. PER CU. FT.

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 1972 STANDARD SPECIFICATIONS OF THE N. C. STATE HIGHWAY COMMISSION.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS "A" CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT CLASS "AA" CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS. CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE LEFT SQUARE OR ROUNDED WITH A 1/4" FINISHING TOOL. CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

WATERSTOPS:

WATERSTOPS SHALL BE OF AN APPROVED MATERIAL WHICH CAN BE EASILY CUT AND JOINTS EFFECTIVELY SEALED IN THE FIELD. WHEN USED IN BRIDGE DECKS WITH CURBS, THE MATERIAL SHALL FORM A CONTINUOUS WATERSTOP ACROSS THE SLAB, UP THE CURBS AND ACROSS THE TOP OF CURBS OR WALKS TO THE INSIDE FACE OF RAIL POSTS OR RAIL BASES. WHEN USED IN BRIDGE DECKS WITH NO CURBS BUT WITH PARAPET WALLS, THE MATERIAL SHALL FORM A CONTINUOUS WATERSTOP ACROSS THE SLAB TO A POINT 4" INSIDE THE WALL AND THEN VERTICALLY TO A POINT 5" ABOVE THE BRIDGE DECK. A CONTINUOUS WATERSTOP SPLICE SHALL BE PROVIDED FROM CURB TO CURB; OR FROM PARAPET TO PARAPET, FOR ALL SPANS AND FOR FULL LENGTH OF THE MATERIAL FOR SPANS WITH NO SKEW. FOR SKEWED SPANS, A 45° LAPPED AND WELDED JOINT, SHOP OR FIELD FABRICATED, WILL BE PERMITTED IN THE WATERSTOP AT THE BOTTOM OF CURB OR PARAPET WALL. EXPANSION JOINT MATERIAL SHALL BE PLACED IN THE JOINT BELOW AND ABOVE THE WATERSTOP IN AN APPROVED MANNER, AND THE JOINT SHALL BE KEPT FREE OF CONCRETE. THE TOP OF THE JOINT SHALL BE SEALED WITH HOT POURED RUBBER ASPHALT MATERIAL.

ALLOWANCE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, THE ELEVATIONS SHOWN SHALL BE ADJUSTED FOR DEAD LOAD DEFLECTIONS. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. IF DEFLECTIONS ARE NOT SHOWN ON PLANS, THEY WILL BE FURNISHED BY THE ASSISTANT CHIEF ENGINEER - BRIDGES.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE ELEVATIONS SHOWN PLUS THE ALLOWANCE FOR PERMANENT CAMBER SPECIFIED BY THE ENGINEER.

FIVE SETS OF DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED WITH THE EXCEPTION OF #2 BARS. NUMBER 2 BAR REINFORCEMENT MAY BE FABRICATED FROM COLD DRAWN STEEL WIRE CONFORMING TO THE REQUIREMENTS OF ASTM A-82 FOR SIZE NUMBER W5. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED ON THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

UNLESS OTHERWISE SPECIFIED ON THE PLANS ALL STRUCTURAL STEEL EXCEPT ANCHOR BOLTS SHALL BE OF ASTM A36 GRADE. ANCHOR BOLTS SHALL BE OF ASTM A307, GRADE A, OR ASTM A36 GRADE. FILL PLATES LESS THAN 3/16 INCHES IN THICKNESS SHALL BE STRUCTURAL SHEET EQUIVALENT TO THE SPECIFIED STEEL.

STEEL BEAMS MAY VARY A MAXIMUM OF 1/4" FROM THE CAMBER SPECIFIED ON THE PLANS.

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF THE WELD FOR ATTACHING THESE COVER PLATES SHALL BE IN ACCORDANCE WITH THE AWS SPECIFICATIONS. AT THE CONTRACTOR'S OPTION, PROGRESSIVE GIRDER ASSEMBLY AS DEFINED IN ARTICLE 972-22(C) OF THE STANDARD SPECIFICATIONS MAY BE USED UNLESS OTHERWISE STATED ON THE PLANS.

HANDRAILS AND POSTS:

POSTS FOR CONCRETE HANDRAILS SHALL BE BUILT NORMAL TO THE GRADE OF THE CURB, AND THE CONCRETE RAILS AND TOP OF POSTS SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB. POST BRACKETS, WHEN USED, SHALL ALSO BE BUILT NORMAL TO THE GRADE OF THE CURB WITH TOP AND BOTTOM OF BRACKETS PARALLEL TO GRADE OF CURB.

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL, SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

STEEL PILE ENCASEMENT:

WHERE WIRE MESH AROUND STEEL PILES IS CALLED FOR ON PLANS, IT SHALL BE OF AN APPROVED TYPE, 12 GAGE WITH 4" X 8" OPENINGS OR 13 GAGE WITH 4" X 4" OPENINGS. NO ALLOWANCE WILL BE MADE FOR WIRE MESH.

EXCAVATION AND FOUNDATION DATA:

THE INFORMATION SHOWN ON PLANS PERTAINING TO EXCAVATION AND FOUNDATION DATA AND ALL ELEVATIONS OF GROUND LINE AND WATER SURFACES GIVEN ARE BELIEVED TO BE CORRECT AND ARE FURNISHED FOR THE CONVENIENCE OF BIDDERS, BUT THE STATE HIGHWAY COMMISSION ASSUMES NO RESPONSIBILITY FOR, NOR GUARANTEES AS CORRECT, ANY OF THE INFORMATION GIVEN.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

REVISED FOR NOTES CONCERNING STRUCTURAL STEEL - APRIL 1976

STD. NO. SN1