BK-5130

CONTRACT #DO00084

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BK-5130	1	7

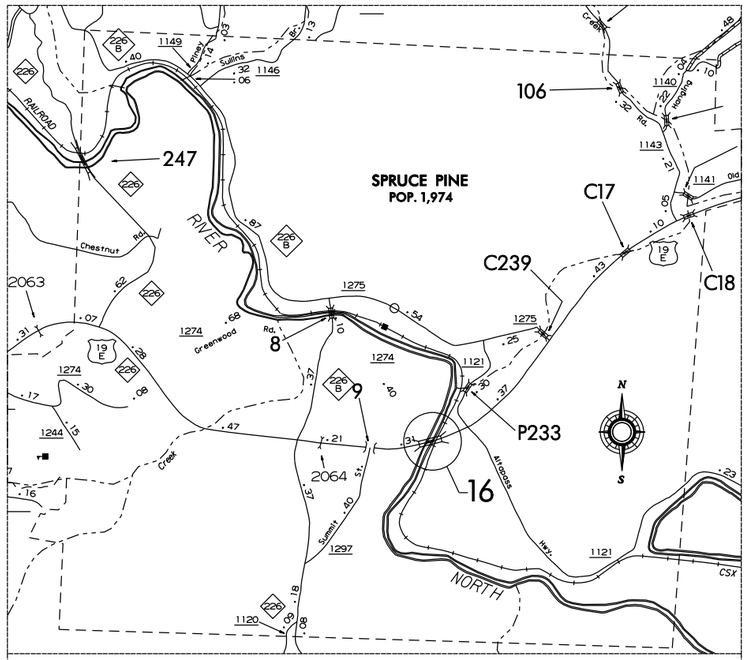
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
47066.1.1	BRSTP-019E (5)	PE
47066.3.1	BRSTP-019E (5)	CONST

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

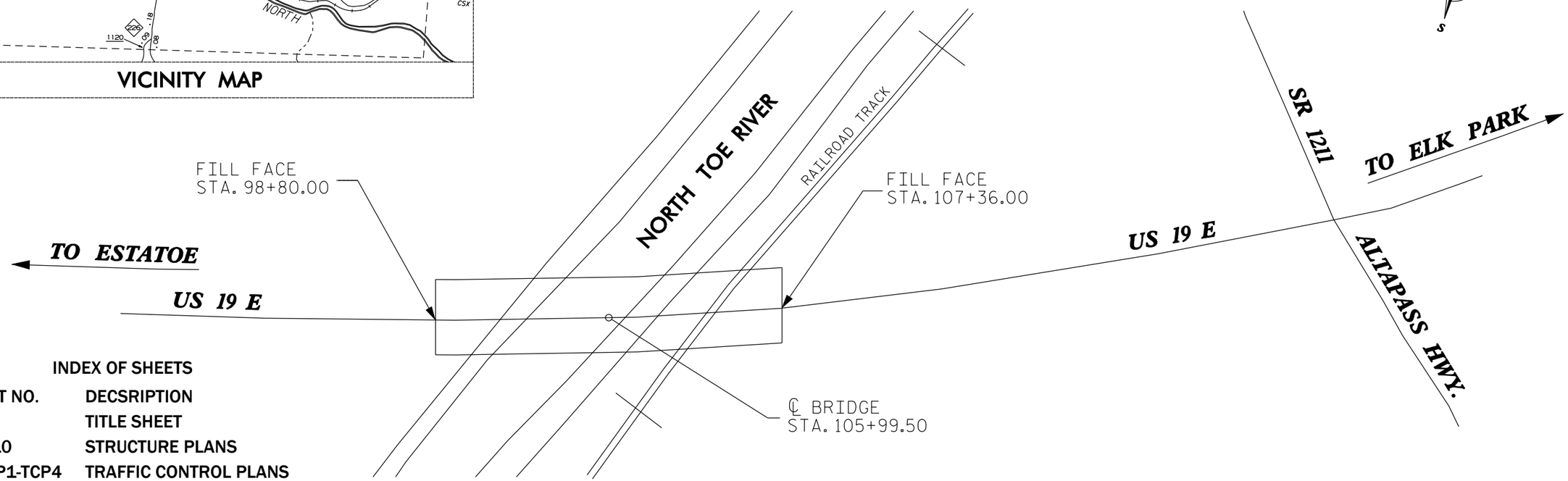
MITCHELL COUNTY

LOCATION: BRIDGE #16, ON US 19 E, OVER THE NORTH TOE RIVER.

TYPE OF WORK: BRIDGE PRESERVATION: STRUCTURAL STEEL REPAIRS & PAINTING, JOINTS, AND SUBSTRUCTURE REPAIRS



VICINITY MAP



INDEX OF SHEETS

SHT NO.	DECSRIPTION
	TITLE SHEET
1-10	STRUCTURE PLANS
TCP1-TCP4	TRAFFIC CONTROL PLANS
19 SHTS	EXISTING STRUCTURE PLANS

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DESIGN DATA

ADT 2005 = 15000
ADT 2025 = 30000

PROJECT LENGTH

LENGTH OF HYDRO-DEMOLITION PROJECT = .1621 MILE

Prepared in the Office of:

DIVISION OF BRIDGE MANAGEMENT

2006 STANDARD SPECIFICATIONS

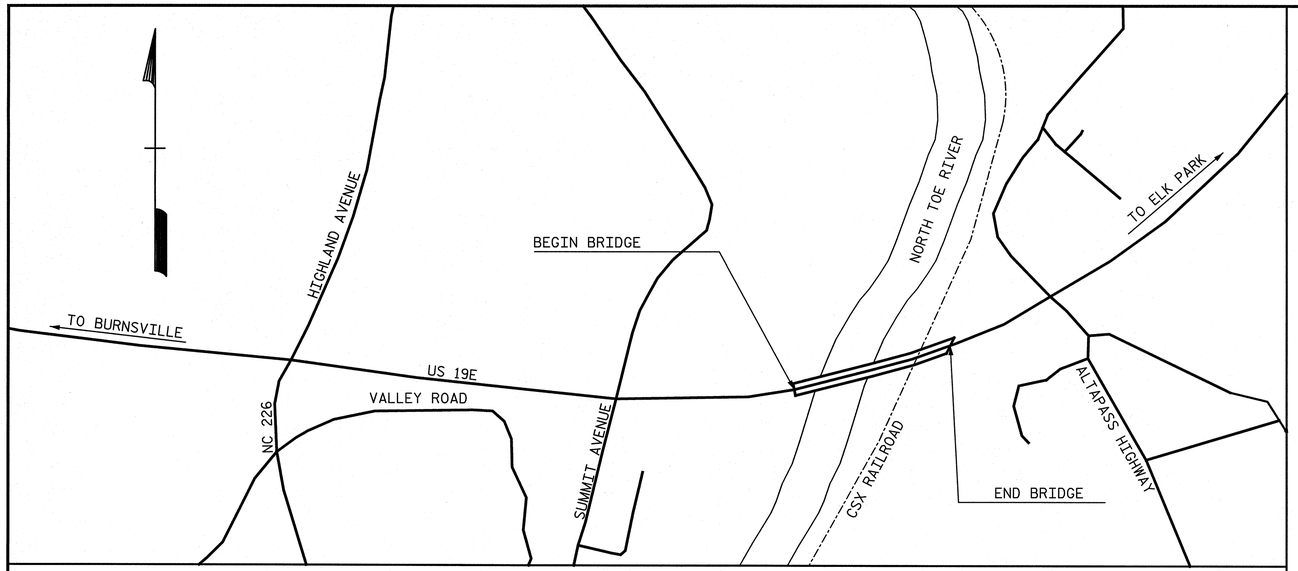
LETTING DATE:
OCT. 28, 2010

DAN HOLDERMAN, PE
PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 20208 8/16/10 ENGINEER ERIC B. NELSON, JR.

ERIC NELSON, PE
DESIGN ENGINEER

F.A. NO.: BRSTP-019E(5)



LOCATION SKETCH

INDEX OF SHEETS:

SHEET NO.	TITLE
1	GENERAL PLAN
2	PLAN OF END BENT 1 REPAIRS
3	PLAN OF BENT 3 REPAIRS
4	PLNA OF BENT 6 REPAIRS
5	PLAN OF END BENT 2 REPAIRS
6	GIRDER DETAILS AND DIAPHRAGM MODIFICATION
7	GIRDER REPAIR
8	EVAZOTE JOINT SEAL DETAIL AND GENERAL NOTES
9	BENT 3 SUBSTRUCTURE REPAIR
10	BENT 6 SUBSTRUCTURE REPAIR

GENERAL NOTES

ALL EXISTING AND PROPOSED STEEL SHALL BE CLEANED AND PAINTED FOR A DISTANCE OF 1½TIMES THE GIRDER DEPTH AT ALL EXPANSION JOINTS. THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 442 OF THE STANDARD SPECIFICATIONS AND THE SPECIAL PROVISIONS.

WORK ON THIS BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL SUBMIT PLANS FOR EROSION CONTROL AND CONSTRUCTION ACCESS IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS AND THE PROJECT SPECIAL PROVISIONS.

ALL STRUCTURAL STEEL FOR SUPERSTRUCTURE REPAIRS SHALL BE AASHTO M270 GRADE 50W, OR APPROVED EQUIVALENT.

TO FACILITATE BRIDGE JACKING, GIRDER REPAIR, JOINT SEAL REPAIR AND PEDESTAL REPAIR THE BRIDGE WILL BE CLOSED TO TRAFFIC FOR A PERIOD UP TO 6 WEEKS. SEE TRAFFIC CONTROL PLANS. SEE SPECIAL PROVISIONS FOR DETAILS.

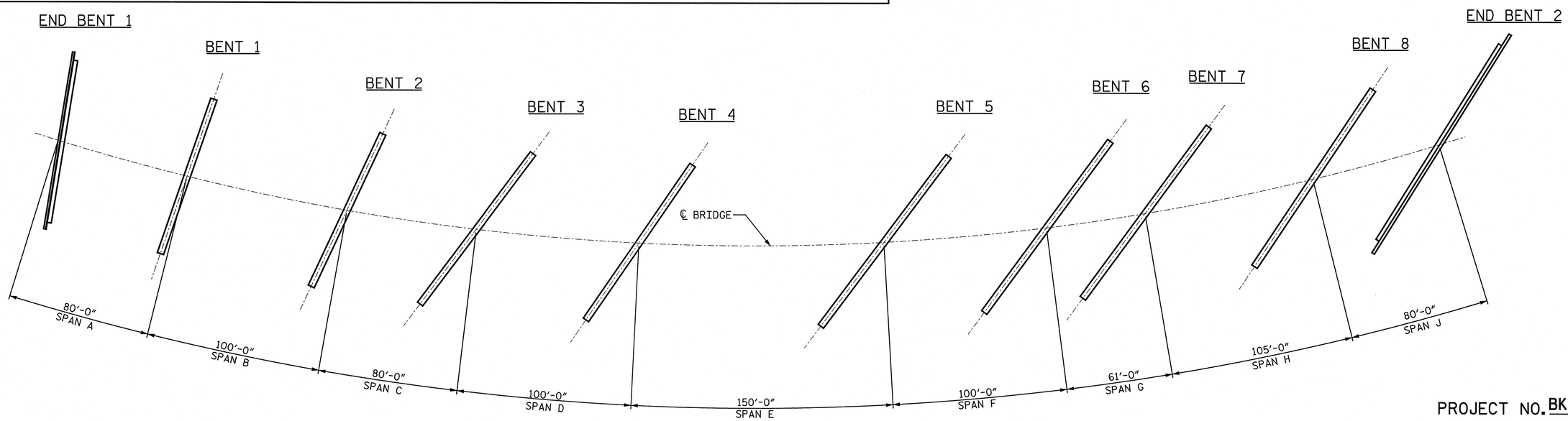
IT IS THE CONTRACTORS RESPONSIBILITY TO FOLLOW ALL OSHA AND STATE SAFETY REQUIREMENTS.

DIMENSIONS AND ELEVATIONS IN THESE PLANS ARE BASED ON ORIGINAL PLANS AND FIELD SURVEY INFORMATION. THE COTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO CONSTRUCTION.

FOR ADDITIONAL NOTES, SEE EVAZOTE JOINT SEAL DETAIL AND GENERAL NOTES SHEET.

ALL VISUAL AND NON-DESTRUCTIVE WELD TESTING WILL BE PERFORMED BY NCDOT.

FOR UNDER STRUCTURE WORK PLATFORM SEE SPECIAL PROVISIONS.



PLAN

PROJECT NO. BK-5130

MITCHELL COUNTY

STATION: 105+99.50

REHABILITATION OF BRIDGE #16

PAY ITEMS

	BRIDGE JACKING	DIAPHRAGM MODIFICATION	GIRDER REPAIR	EPOXY RESIN INJECTION	CONCRETE REPAIRS TO SUBSTRUCTURE	CLASS A CONCRETE	✳ REINFORCING STEEL	EVAZOTE JOINT SEALS @ END BENTS 1 & 2	EVAZOTE JOINT SEALS @ BENTS 3 & 6	CLEANING & PAINTING STRUCTURAL STEEL	TRAFFIC CONTROL	UNDER STRUCTURE WORK PLATFORM
	LUMP SUM	LBS	LBS	LINEAR FT.	CU. FT.	CU. FT.	LBS.	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM
END BENT 1		3,315	1,460									
BENT 3		1,687	651	13	42		100					
BENT 6		2,352		20	73	13	100					
END BENT 2		6,078	1,983									
TOTAL	LUMP SUM	13,432	4,094	33	115	13	200	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM

✳ REINFORCING STEEL FOR REPLACEMENT OF DAMAGED REBAR

8/18/10
NORTH CAROLINA PROFESSIONAL SEAL 19765 ENGINEER PAUL E. KELLY, JR.

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE ON US 19E
OVER NORTH TOE RIVER

GENERAL PLAN

DRAWN BY : RDM & CLG DATE : 6-10
CHECKED BY : PEK DATE : 6-10

STV/ Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License No. F-0991

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	1
1	STV	8/18/10	3			TOTAL SHEETS
2			4			10

8/18/2010
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NOTES:

THE CONTRACTOR TO PROVIDE BLOCKING FOR ALL JACKS AS NECESSARY. A BLOCKING PLAN SHALL BE SUBMITTED FOR ALL SPANS LIFTED FOR APPROVAL BY THE ENGINEER.

THE CONTRACTOR SHALL JACK ALL GIRDERS IN A SPAN ON AN INDIVIDUAL BENT SIMULTANEOUSLY BY MEANS OF A DUAL-FLOW PRESSURIZED PUMP CONTROLLING THE JACKS.

THE CONTRACTOR SHALL MONITOR THE PLAN LOCATION OF THE GIRDERS FROM INITIAL JACKING UNTIL GIRDERS ARE SECURED ON THEIR PERMANENT BEARINGS. IF THE PLAN LOCATION OF THESE GIRDERS SHIFT FROM ITS ORIGINAL POSITION, ALL WORK SHALL CEASE AND THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY.

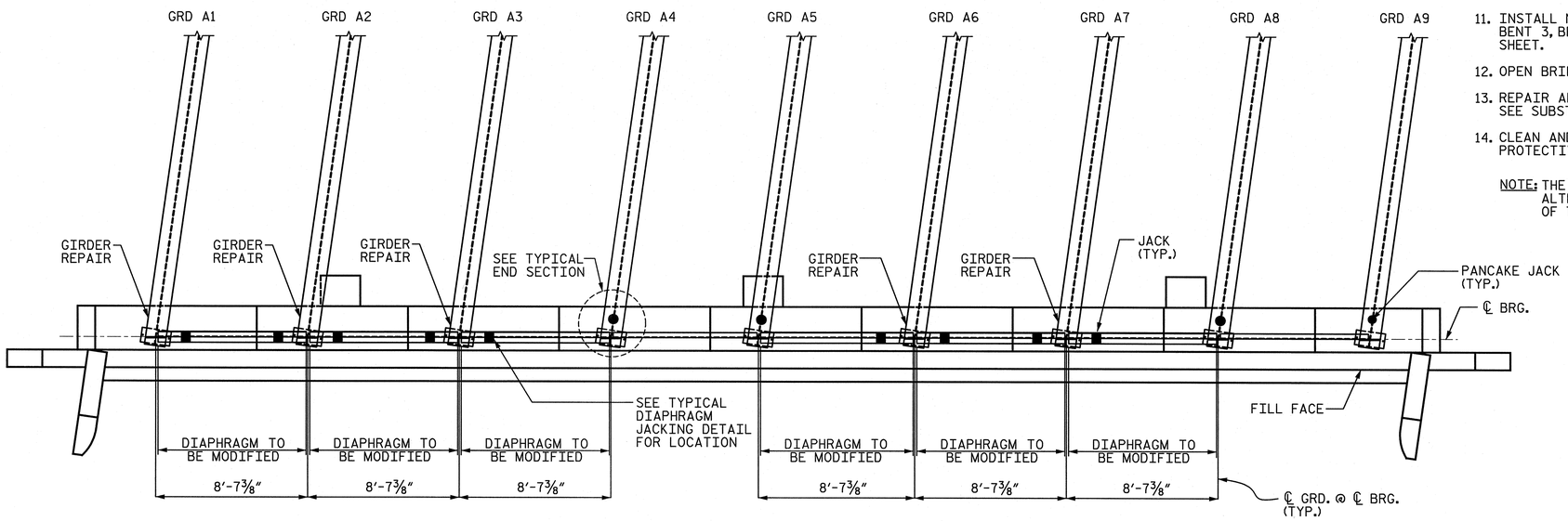
EACH JACK SHALL HAVE A MINIMUM SAFE WORKING CAPACITY OF 60 TONS.

PRIOR TO JACKING THE CONTRACTOR SHALL ENSURE THERE ARE NO OBSTACLES PREVENTING THE SPAN FROM BEING LIFTED.

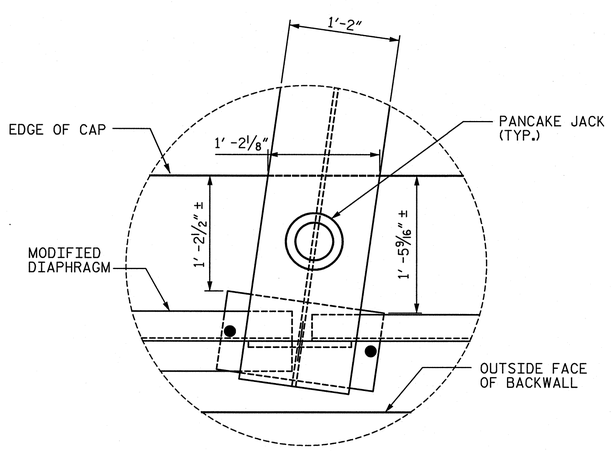
CONSTRUCTION SEQUENCE

1. CLOSE BRIDGE TO TRAFFIC
2. REMOVE EXISTING EXPANSION JOINT SEALS AT END BENT 1, BENT 3, BENT 6, AND END BENT 2
3. PERFORM DIAPHRAGM MODIFICATIONS AT SPECIFIED LOCATIONS. SEE GIRDER DETAILS AND DIAPHRAGM MODIFICATIONS SHEET.
4. INSTALL JACKS AND BLOCKING AT LOCATIONS SHOWN ON PLAN
5. JACK ALL GIRDERS A MAXIMUM OF 1" AT END BENT 1
6. MECHANICALLY LOCK ALL JACKS AT BENT
7. PERFORM GIRDER REPAIRS AT SPECIFIED LOCATIONS. SEE GIRDER REPAIR SHEET. CLEAN AND PAINT ALL BEARINGS.
8. REMOVE AND REPLACE EXISTING PEDESTALS (BENT 6 ONLY) AT SPECIFIED LOCATIONS. SEE BENT 6 REPAIR SHEET.
9. ONCE ALL GIRDER, BEARING STIFFENER AND PEDESTAL REPAIRS ARE COMPLETE, LOWER BRIDGE.
10. REPEAT STEPS 3 THRU 9 FOR BENT 3, BENT 6, AND END BENT 2
11. INSTALL NEW EVAZOTE EXPANSION JOINT SEALS AT END BENT 1, BENT 3, BENT 6, AND END BENT 2. SEE EVAZOTE JOINT DETAIL SHEET.
12. OPEN BRIDGE TO TRAFFIC
13. REPAIR ALL CRACKS AND SPALLING ON BRIDGE SUBSTRUCTURE. SEE SUBSTRUCTURE REPAIR SHEET.
14. CLEAN AND PAINT ALL STRUCTURAL STEEL. APPLY EPOXY PROTECTIVE COATING TO BENT CAPS. SEE GENERAL NOTES.

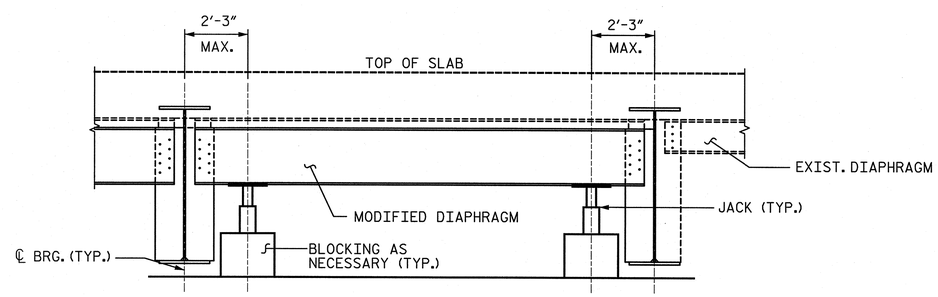
NOTE: THE CONTRACTOR HAS THE OPTION TO PROPOSE AN ALTERNATE CONSTRUCTION SEQUENCE PER THE APPROVAL OF THE ENGINEER.



END BENT 1



TYPICAL END SECTION



TYPICAL DIAPHRAGM JACKING DETAIL

(BEARING NOT SHOWN FOR CLARITY)

PROJECT NO. BK-5130

MITCHELL COUNTY

STATION: 105+99.50

8/9/10

NORTH CAROLINA PROFESSIONAL SEAL 19765 ENGINEER PAUL E. KECKLER JR.

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE ON US 19E OVER NORTH TOE RIVER

PLAN OF END BENT 1 REPAIRS

STV / Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License No. F-0991

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	2
1			3			TOTAL SHEETS
2			4			10

DRAWN BY : CLG DATE : 6-10
CHECKED BY : PEK DATE : 6-10

8/9/2010
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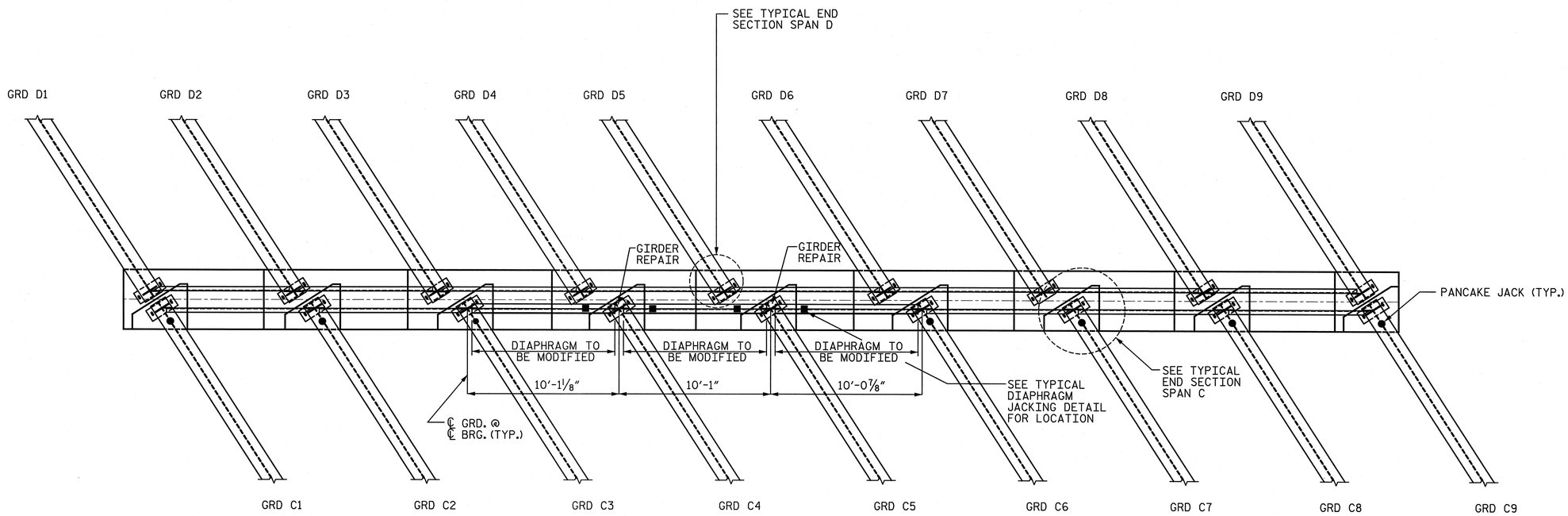
NOTES:

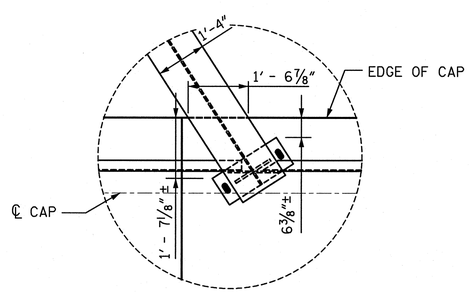
SEE GIRDER REPAIR DETAIL AT BENT 3 ON GIRDER REPAIR SHEET FOR GIRDER REPAIR DETAILS.

SEE GIRDER DETAILS AND DIAPHRAGM MODIFICATION SHEET FOR DIAPHRAGM MODIFICATION DETAILS.

SEE PLAN OF END BENT 1 REPAIRS FOR TYPICAL DIAPHRAGM JACKING DETAIL, CONSTRUCTION SEQUENCE AND NOTES.

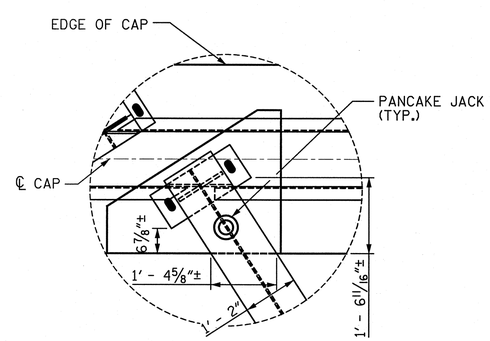


BENT 3



TYPICAL END SECTION

(SPAN D)



TYPICAL END SECTION

(SPAN C)

PROJECT NO. BK-5130

MITCHELL COUNTY

STATION: 105+99.50

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE ON US 19E OVER NORTH TOE RIVER

PLAN OF BENT 3 REPAIRS

8/9/10
NORTH CAROLINA PROFESSIONAL SEAL 19765 ENGINEER PAUL E. KELLER, JR.

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Charlotte, NC 28208
NC License F-0991

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	3
1			3			TOTAL SHEETS
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DRAWN BY : CLG DATE : 6-10
CHECKED BY : PEK DATE : 6-10

8/9/2010
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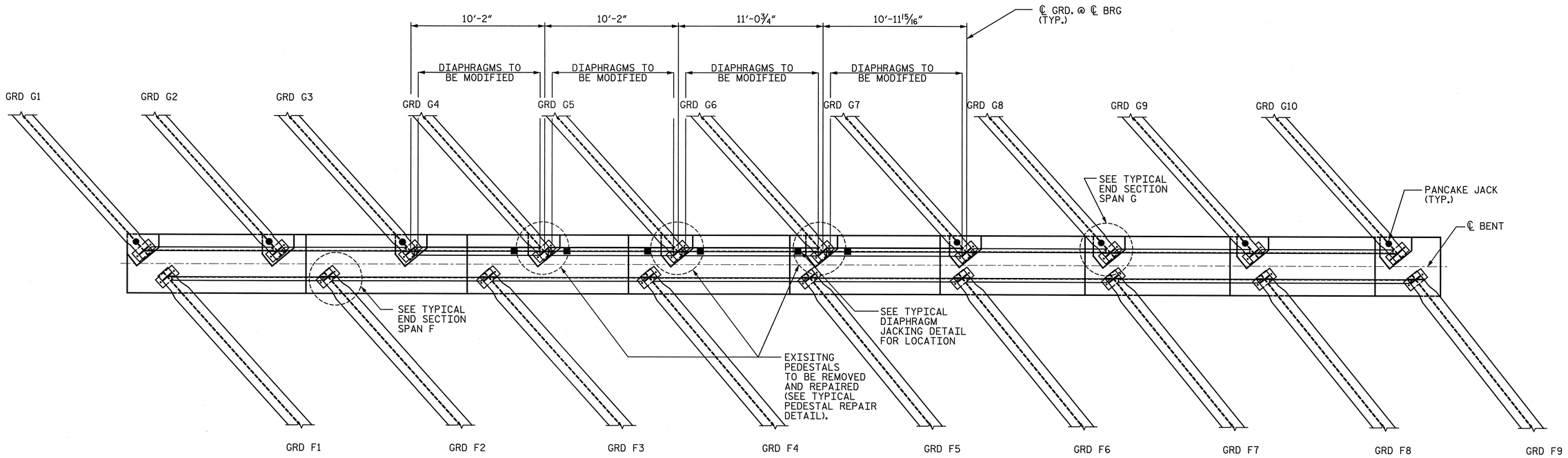
NOTES:

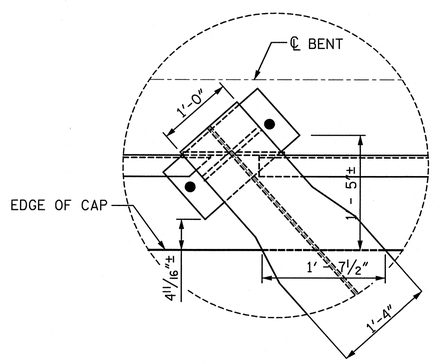
SEE TYPICAL PEDESTAL REPAIR DETAIL ON BENT 6 SUBSTRUCTURE REPAIR SHEET.

SEE GIRDER DETAILS AND DIAPHRAGM MODIFICATION SHEET FOR DIAPHRAGM MODIFICATION DETAILS.

SEE PLAN OF END BENT 1 REPAIRS FOR TYPICAL DIAPHRAGM JACKING DETAIL, CONSTRUCTION SEQUENCE AND NOTES.



BENT 6



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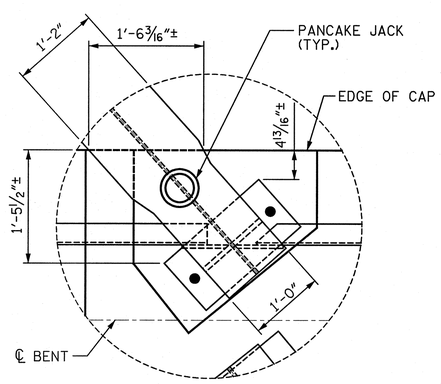
(SPAN F)



TYPICAL END SECTION
(SPAN G)

PROJECT NO. BK-5130

MITCHELL COUNTY

STATION: 105+99.50

8/9/10

NORTH CAROLINA PROFESSIONAL SEAL 19765 ENGINEER PAUL E. KELLY, JR.

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE ON US 19E
OVER NORTH TOE RIVER

PLAN OF BENT 6
REPIARS

STV/ Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License No. F-0991

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	4
1			3			TOTAL SHEETS
2			4			10

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CHECKED BY :	PEK	DATE :	6-10

8/9/2010
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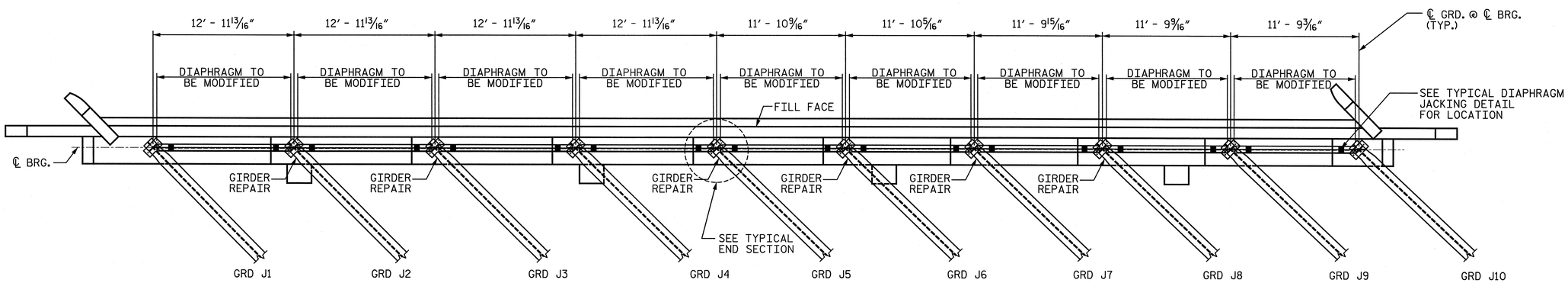
NOTES:

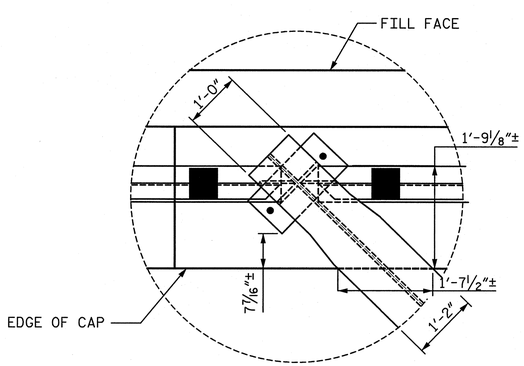
SEE GIRDER REPAIR DETAIL AT END BENT 2 ON GIRDER REPAIR SHEET FOR GIRDER REPAIR DETAILS.

SEE GIRDER DETAILS AND DIAPHRAGM MODIFICATION SHEET FOR DIAPHRAGM MODIFICATIONS.

SEE PLAN OF END BENT 2 REPAIRS FOR TYPICAL DIAPHRAGM JACKING DETAIL, CONSTRUCTION SEQUENCE AND NOTES.



END BENT 2



TYPICAL END SECTION

PROJECT NO. BK-5130

MITCHELL COUNTY

STATION: 105+99.50

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE ON US 19E OVER NORTH TOE RIVER

PLAN OF END BENT 2 REPAIRS

8/9/10

NORTH CAROLINA PROFESSIONAL SEAL 19765 ENGINEER PAUL E. KELLER

STV / Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License F-0991

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1			3			
2			4			

SHEET NO. 5
TOTAL SHEETS 10

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8/9/2010
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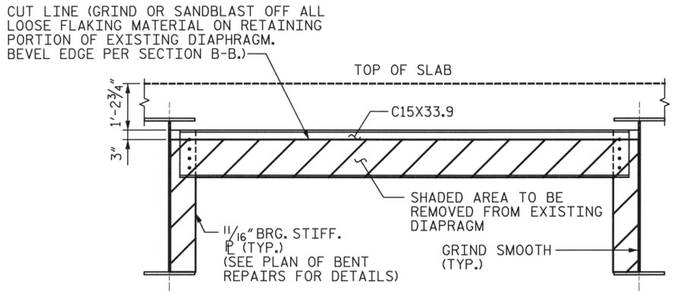
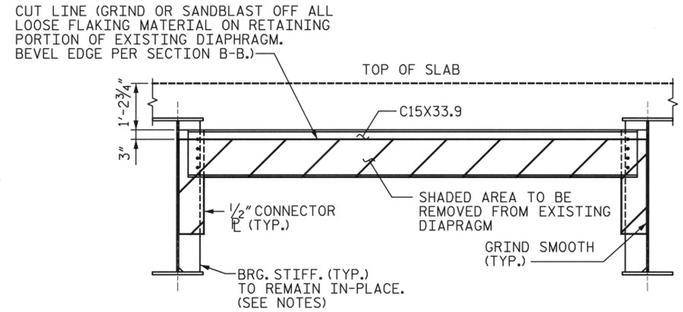


EXISTING DIAPHRAGM

(TYP. ALL BAYS @ END BENT 1 ONLY)



EXISTING DIAPHRAGM

(TYP. ALL BAYS @ BENT 3, 6 AND END BENT 2)

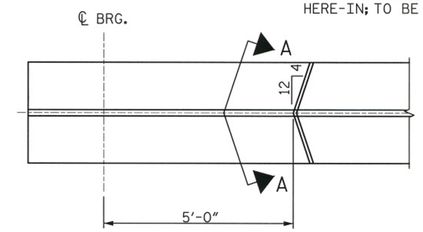
NOTES:

DIAPHRAGM MODIFICATION TO BE COMPLETED ONE BAY AT A TIME.

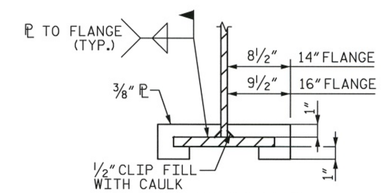
ALL WELDING SHALL BE IN ACCORDANCE WITH CURRENT AWS SPECIFICATIONS.

BEARING STIFFENERS AT BENTS 3, 6 @ END BENT 2 MAY REMAIN IN PLACE PROVIDED. REMOVAL OF CONNECTOR PLATE DOES NOT DAMAGE BEARING STIFFENER OR BEARING STIFFENER WELDS. DAMAGED BEARING STIFFENERS SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

CONTRACTOR MAY ELECT TO REPLACE BEARING STIFFENERS WITH SAME SIZE MATERIAL AND SIMILAR DETAILS AS SHOWN HERE-IN; TO BE APPROVED BY THE ENGINEER.



PLAN - BOTTOM ℄

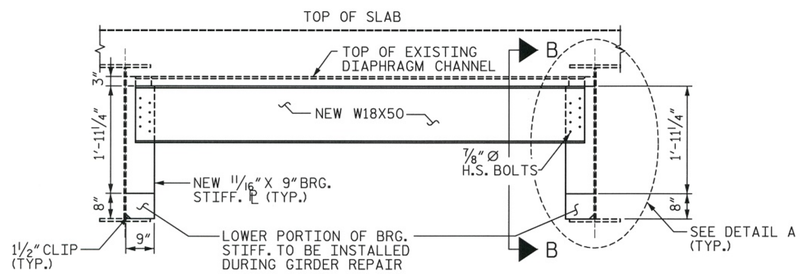


AT BOTTOM ℄

SECTION A-A

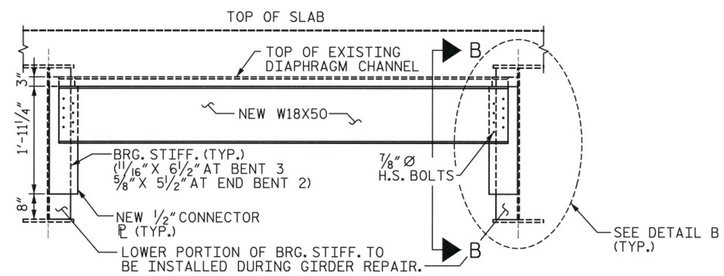
WATER DIVERSION PLATE DETAIL

NOTE: WATER DIVERSION PLATES TO BE LOCATED AT SPAN A END BENT 1, SPAN D BENT 3, AND SPAN G BENT 6 EXTERIOR GIRDERS ONLY. ALL HOIRZONTAL DIMENSIONS ARE ALONG ℄ OF PLATE.



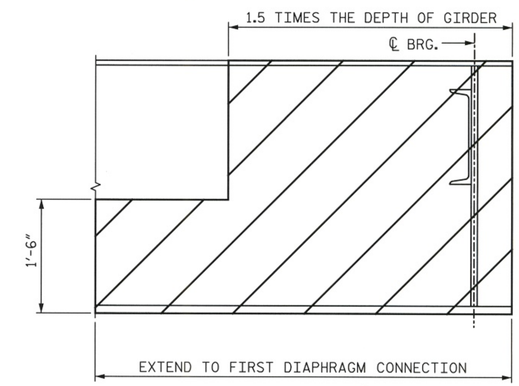
PROPOSED DIAPHRAGM REPLACEMENT INTERIOR BAY

(TYP. ALL BAYS @ END BENT 1 ONLY)



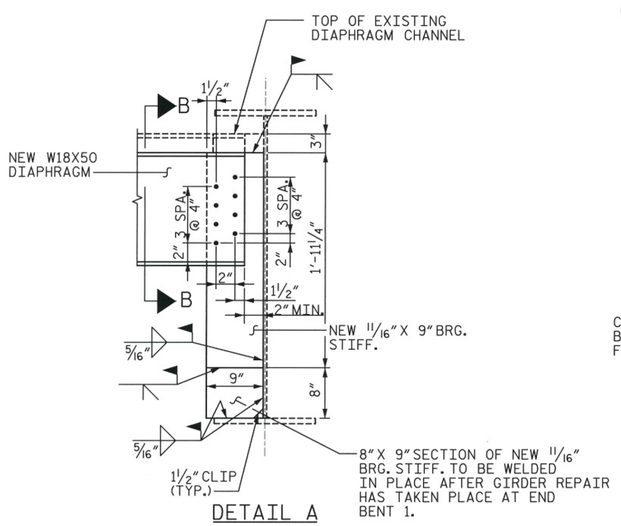
PROPOSED DIAPHRAGM REPLACEMENT EXTERIOR BAY

(TYP. ALL BAYS @ BENT 3, BENT 6, & END BENT 2)

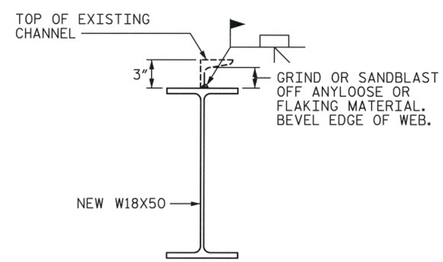


TYPICAL PAINT DETAIL

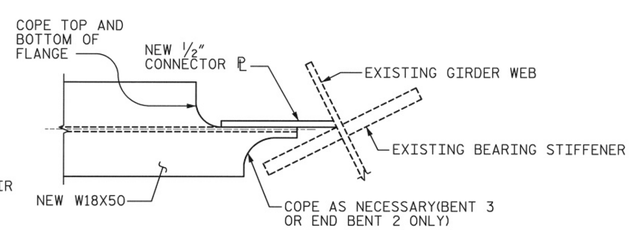
(FOR ALL GIRDERS)
(SEE NOTES ON GIRDER REPAIR SHEET)



DETAIL A

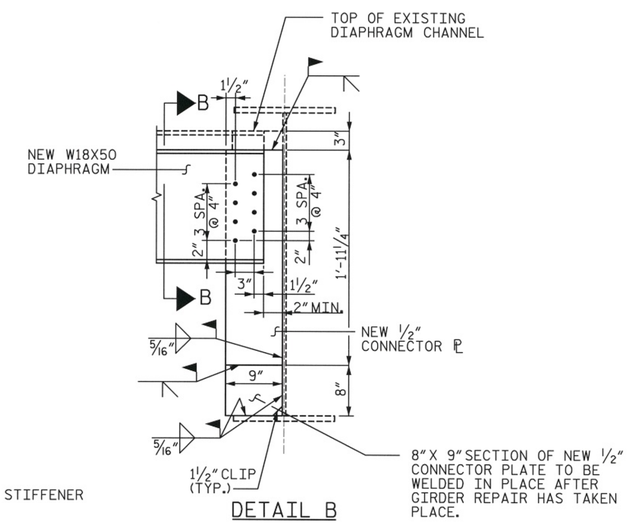


SECTION B-B



COPING DETAIL

(FOR NEW W18X50 DIAPHRAGM)



DETAIL B

PROJECT NO. BK-5130

MITCHELL COUNTY

STATION: 105+99.50

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE ON US 19E OVER NORTH TOE RIVER

GIRDER DETAILS AND DIAPHRAGM MODIFICATION

NORTH CAROLINA PROFESSIONAL SEAL 19765 ENGINEER PAUL E. KELLY, JR.

9/17/10

STV / Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License No. F-0991

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	6
1	STV	9-16-10	3			TOTAL SHEETS
2			4			10

DRAWN BY : CLG DATE : 6-10
CHECKED BY : PEK DATE : 6-10

9/16/2010
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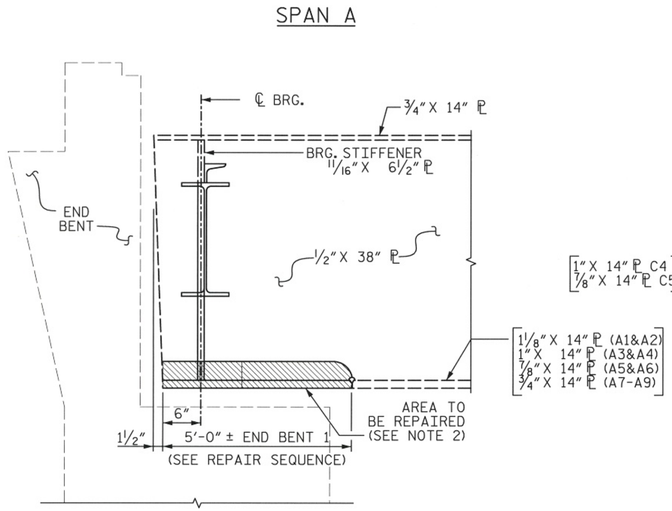
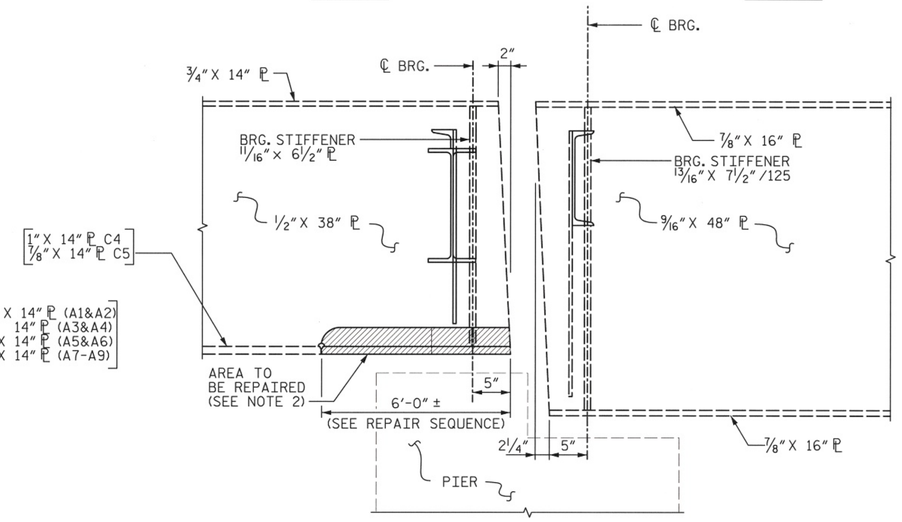


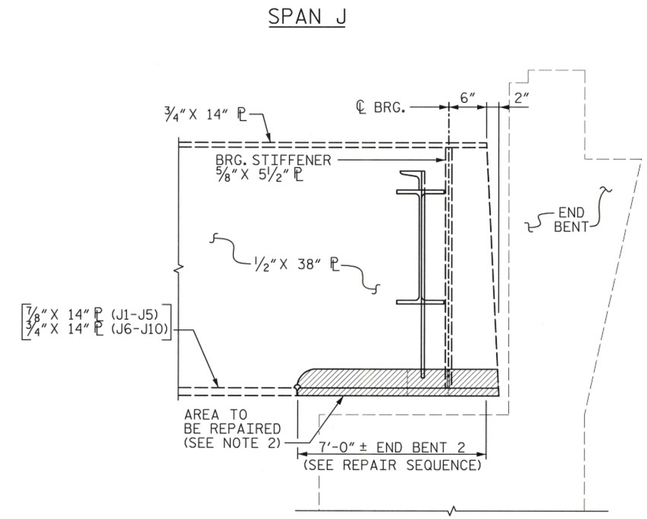
GIRDER REPAIR DETAIL FOR END BENT 1

(FOR GIRDERS A1, A2, A3, A6 & A7 @ END BENT 1)
(BEARINGS NOT SHOWN FOR CLARITY)



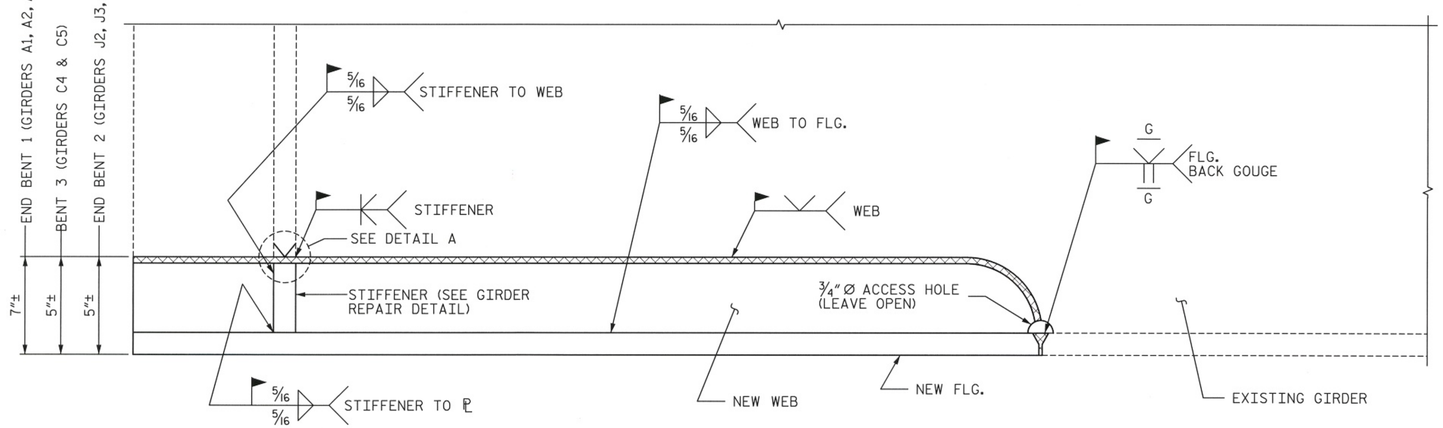
GIRDER REPAIR DETAIL AT BENT 3

(FOR GIRDER C4 & GIRDER C5 AT BENT 3)
(BEARINGS NOT SHOWN FOR CLARITY)

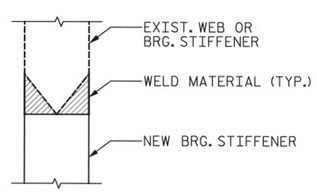


GIRDER REPAIR DETAIL FOR END BENT 2

(FOR GIRDERS J2, J3, J5, J6, J7 & J8 @ END BENT 2)
(BEARINGS NOT SHOWN FOR CLARITY)



TYPICAL REPAIR WELD DETAIL ⚠



DETAIL A

NOTES: ⚠

REPLACEMENT STEEL SHALL BE A588 STEEL OR APPROVED EQUAL AND PAINTED IN ACCORDANCE WITH SYSTEM 4 OF ARTICLE 442-7 OF THE STANDARD SPECIFICATIONS.

THE ENGINEER SHALL DETERMINE THE EXTENT OF GIRDER REPAIR.

REPLACEMENT PLATES SHALL BE MANUFACTURED USING MATERIAL OF CORRESPONDING THICKNESS AND WIDTH TO MATERIAL BEING REPLACED.

REPAIR SEQUENCE:

1. AREA AROUND GIRDER DAMAGE SHALL BE MECHANICALLY CLEANED SUCH THAT NO CORROSION IS REMAINING.
2. DAMAGED AREA SHALL BE REMOVED AND REMAINING SURFACES SHALL BE PREPARED FOR WELDING.
3. REPLACEMENT PLATES SHALL BE WELDED TO GIRDER AS SHOWN.
4. GIRDER ENDS, AND ANY DAMAGED AREAS, SHALL BE PAINTED PER NOTE 1 ABOVE.

PROJECT NO. BK-5130
MITCHELL COUNTY
STATION: 105+99.50

STATE OF NORTH CAROLINA
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RALEIGH

BRIDGE ON US 19E
OVER NORTH TOE RIVER

GIRDER REPAIR

NORTH CAROLINA PROFESSIONAL SEAL 19765 ENGINEER PAUL E. KELLY, JR.
9/17/10

STV / Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License No. F-0991

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1	STV	9-16-10	3			TOTAL SHEETS
2			4			10

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9/17/2010
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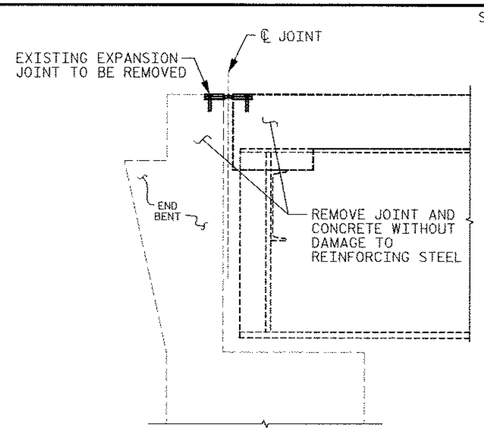
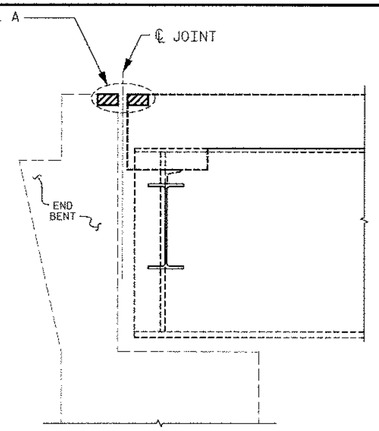
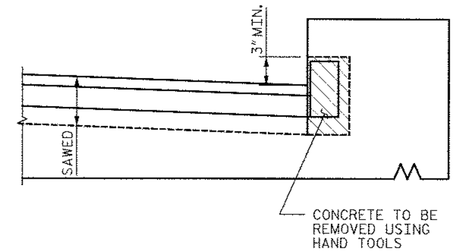


EXISTING SECTION AT END BENT 1 & 2



PROPOSED SECTION AT END BENT 1 & 2



SECTION AT CURB

GENERAL NOTES: ⚠2

EXISTING BRIDGE AND REPAIR DETAILS INDICATED ON THE PLANS ARE FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE 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 AND REPAIR DETAILS SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

THE COST ASSOCIATED WITH WELDING THE STRUCTURAL STEEL REPAIR PLATES TO THE EXISTING GIRDERS SHALL BE INCLUDED IN THE BID PRICE PER POUND FOR GIRDER REPAIR.

BLOCKING SHALL BE PROVIDED TO INSURE THE SAFETY OF THE STRUCTURE AND ITS OCCUPANTS DURING THE JACKING PROCESS. AT NO TIME SHALL JACKS BE IN OPERATION IN THE ABSENCE OF BLOCKING . FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS TO SUBSTRUCTURES, SEE SPECIAL PROVISIONS.

FOR CLEANING AND PAINTING STRUCTURAL STEEL, SEE SPECIAL PROVISIONS.

AFTER ALL REPAIRS AT EACH BENT HAVE BEEN COMPLETED AN EPOXY PROTECTIVE COATING SHALL BE APPLIED TO THE TOP SURFACE OF BENT CAPS, INCLUDING PEDESTALS, AT END BENT 1, BENT 3, BENT 6 AND END BENT 2. CAP SURFACES SHALL BE GRIT BLASTED PRIOR TO EPOXY COATING. SEE STANDARD SPECIFICATIONS. FOR EPOXY COATING. ALL COSTS ASSOCIATED WITH APPLYING EPOXY PROTECTIVE COATING SHALL BE INCLUDED IN THE SEVERAL PAY ITEMS FOR THE PROJECT. NO ADDITIONAL PAYMENT WILL BE MADE FOR THIS WORK.

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

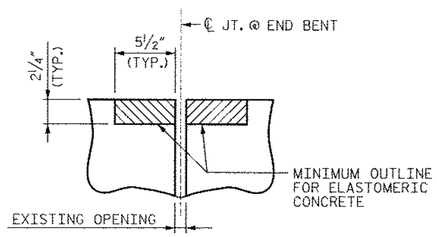
FOR HIGH STRENGTH BOLTS, SEE SPECIAL PROVISIONS.

FOR TRAFFIC CONTROL, SEE TRAFFIC CONTROL PLANS.

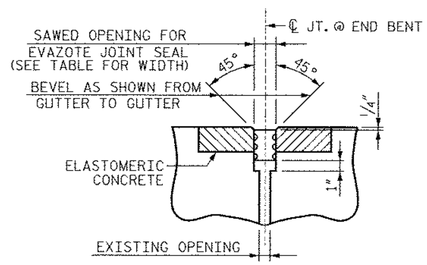
FOR GIRDER REPAIR, SEE SPECIAL PROVISIONS.

FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

FOR CLEANING AND PAINTING EXISTING BEARINGS, SEE SPECIAL PROVISIONS.



DETAIL A
EVAZOTE JOINT SEAL
(PRE-SAWED ELASTOMERIC CONCRETE DIMENSIONS)

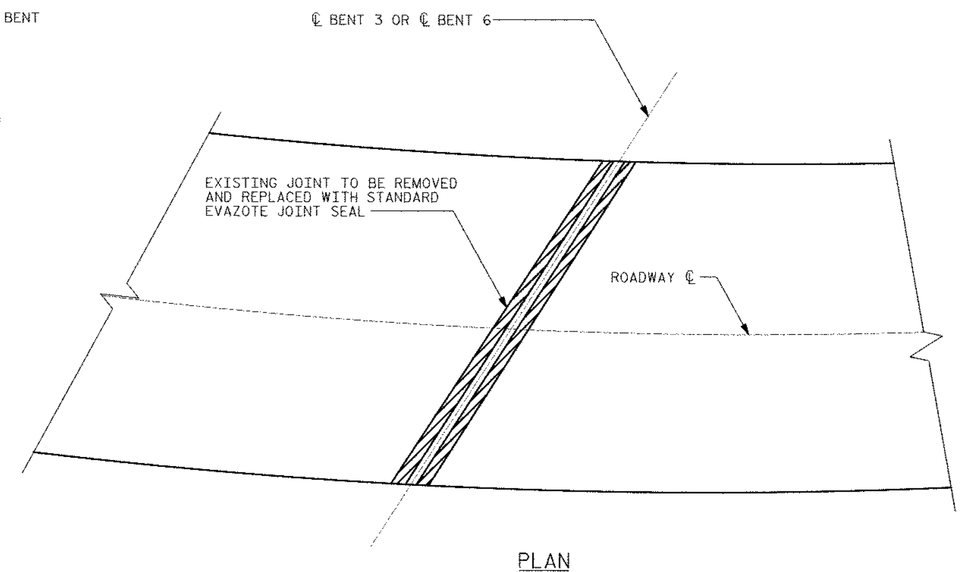


DEATAIL A
EVAZOTE JOINT SEAL
(EXPANSION)

ELASTOMERIC CONCRETE	
END BENT NO.	ELASTOMERIC CONCRETE * (CU. FT.)
1	12.5
2	20.0
TOTAL	32.5

* BASED ON THE MINIMUM OUTLINE SHOWN.

EVAZOTE JOINT SEAL REPAIR AT END BENTS



PLAN

MOVEMENT AND SETTING AT EVAZOTE JOINT						
BENT NO.	SKEW ANGLE	NOMINAL UNCOMPRESSED SEAL WIDTH	TOTAL MOVEMENT (ALONG ℄ RDWY)	PERPENDICULAR JOINT OPENING AT 45° F	PERPENDICULAR JOINT OPENING AT 60° F	PERPENDICULAR JOINT OPENING AT 90° F
E.B. 1	82°00'00"	2 1/2"	1 5/16"	2 1/16"	1 7/8"	1 1/2"
3	122°09'38"	5 3/8"	2 5/8"	■	■	■
6	129°09'38"	5 3/8"	2 3/8"	■	■	■
E.B. 2	134°04'50"	2 1/2"	7/8"	2 1/8"	1 7/8"	1 5/8"

TOTAL MOVEMENT IS CALCULATED ALONG THE CENTERLINE OF ROADWAY.
JOINT OPENINGS ARE MEASURED PERPENDICULAR TO THE JOINT.

■ JOINT SEALS AT BENTS 3 & 6 WILL BE REPLACED WITH THE JOINT OPENING IN ITS CURRENT STATE. NO SAW CUTTING OR REFORMING OF JOINT IS REQUIRED.

EVAZOTE JOINT REPAIR

NORTH CAROLINA PROFESSIONAL SEAL 19765 ENGINEER PAUL E. KELLY, JR.
9/17/10

PROJECT NO. BK-5130
MITCHELL COUNTY
STATION: 105+99.50

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE ON US 19E OVER NORTH TOE RIVER

EVAZOTE JOINT SEAL DETAIL AND GENERAL NOTES

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1	STV	8/18/10	3				TOTAL SHEETS
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STV / Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208

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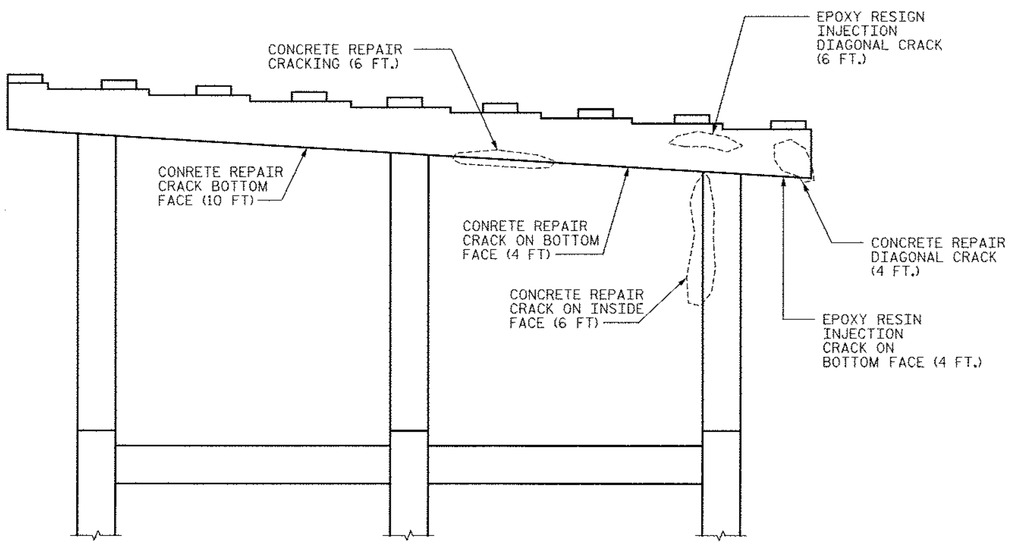
9/17/2010
I:\Projects\2514736\2514736_0001\50_Deliverables & Submittals\08 Evazote Joint Seal and General Notes.dgn

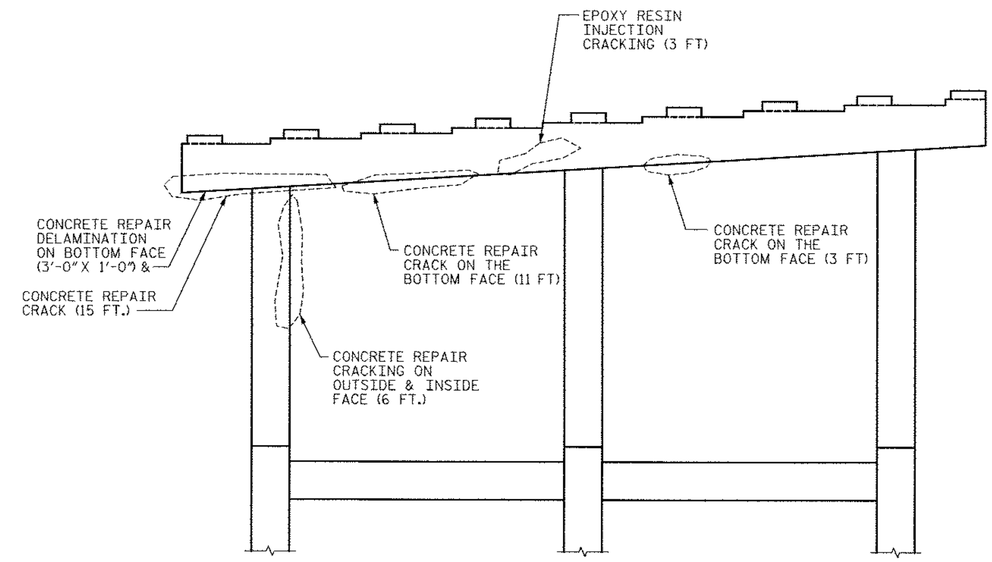
⚠ NOTES:

1. SAWCUT 1/4" - 1/2" DEEP AROUND ALL SPALLS.
2. FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.
3. FOR CONCRETE REPAIR SEE SPECIAL PROVISION CONCRETE REPAIR TO SUBSTRUCTURE.
4. SPALL AND CRACK DIMENSIONS SHOWN ARE APPROXIMATE.
5. CONCRETE SHOULD BE SOUNDED TO DETERMINE IF SPALL REPAIR IS NECESSARY. CRACK HAS BEEN QUANTIFIED AS EPOXY RESIN INJECTION. BUT IF SOUNDING SHOULD PROVE OTHERWISE, USE TYPICAL CONCRETE REPAIR DETAIL.



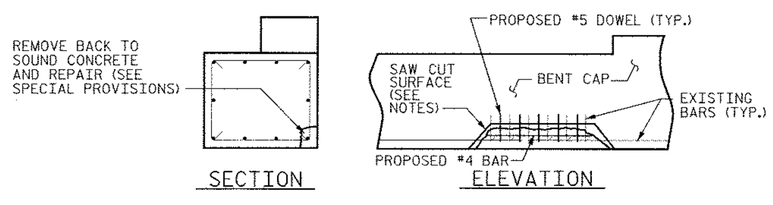
⚠ BENT 3 ELEVATION

(LOOKING WEST)



⚠ BENT 3 ELEVATION

(LOOKING EAST)



TYPICAL CONCRETE REPAIR DETAIL

PROJECT NO. BK-5130

MITCHELL COUNTY

STATION: 105+99.50

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE ON US 19E
OVER NORTH TOE RIVER

BENT 3
SUBSTRUCTURE REPIAR

NORTH CAROLINA PROFESSIONAL SEAL 19765 ENGINEER PAUL E. KELCH, JR.

9/17/10

STV / Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License No. F-0991

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	9
1	STV	9-16-10	3			TOTAL SHEETS
2			4			10

DRAWN BY : CLG DATE : 6-10
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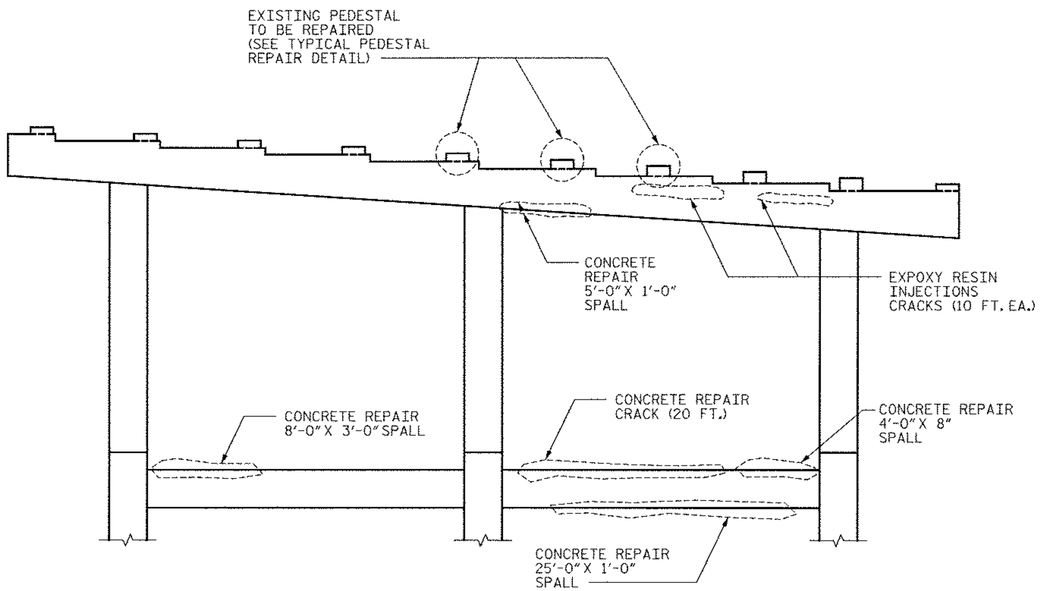
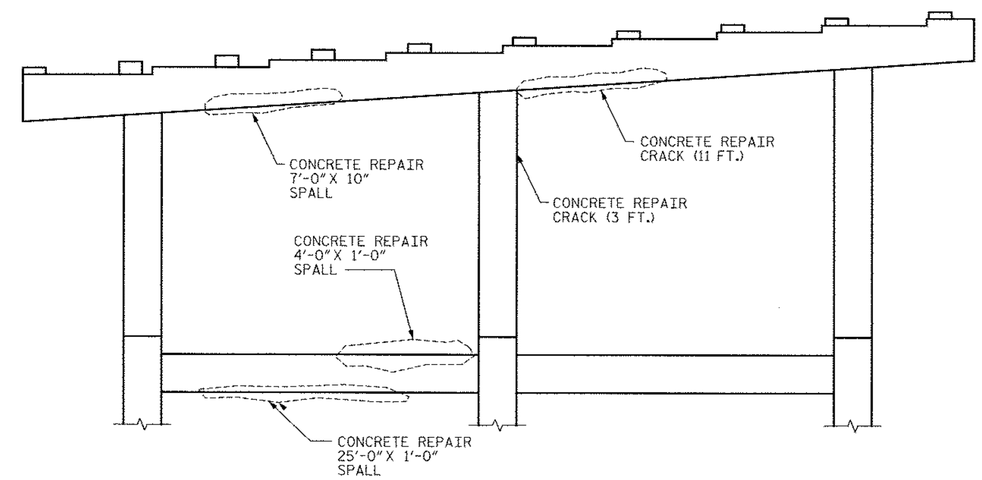
NOTES:

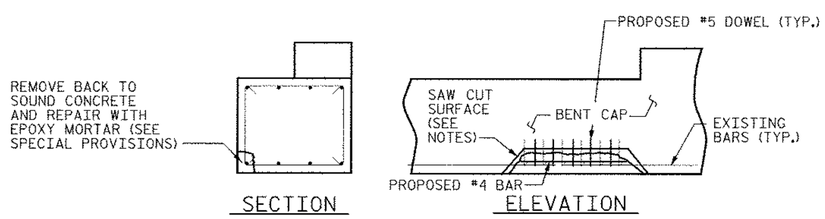
1. FOR ADDITIONAL NOTES SEE SHEET 9 OF 10.
2. PEDESTAL HEIGHT BASED UPON EXISTING PLANS. CONTRACTOR SHALL VERIFY EXISTING BEARING HEIGHTS AND ADJUST PEDESTAL AS NEEDED TO MAINTAIN GRADE ON BRIDGE.
3. CONTRACTOR TO REMOVE CONCRETE PEDESTAL WITH CARE AS NOT TO DAMAGE THE EXISTING REBAR, ANCHOR BOLTS, BEARING ASSEMBLY OR GIRDER.
4. CONTRACTOR SHALL REPLACE ALL DAMAGED REBAR WHILE REMOVING PEDESTAL.
5. PEDESTAL CONCRETE SHALL BE CLASS A WITH A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI. MINIMUM COMPRESSIVE STRENGTH SHALL BE ACHIEVED PRIOR TO PLACING LOAD. SEE STANDARD SPECIFICATION FOR DETAILS.



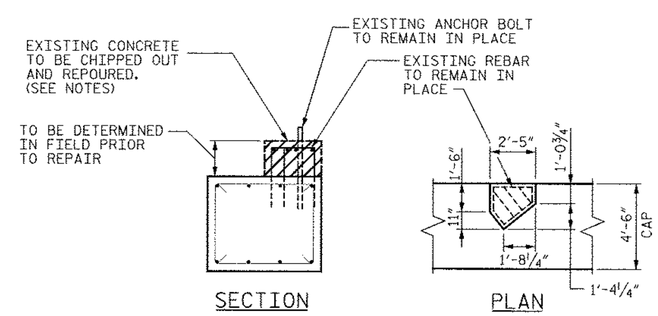
⚠ BENT 6 ELEVATION
(LOOKING WEST)



⚠ BENT 6 ELEVATION
(LOOKING EAST)



TYPICAL CONCRETE REPAIR DETAIL



TYPICAL PEDESTAL REPAIR DETAIL

PROJECT NO. BK-5130
MITCHELL COUNTY
STATION: 105+99.50

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE ON US 19E OVER NORTH TOE RIVER

BENT 6
SUBSTRUCTURE REPAIR

NORTH CAROLINA PROFESSIONAL SEAL 19765 ENGINEER PAUL E. KELLER JR.
9/17/10

STV / Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License No. F-0991

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1	STV	9-16-10	3			TOTAL SHEETS
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BK- 5130

TIP PROJECT:

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE PROJECT REFERENCE NO.	SHEET NO.
BK- 5130	TCP-1

PLAN FOR PROPOSED TRAFFIC CONTROL, MARKING & DELINEATION

MITCHELL COUNTY

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JULY 2006 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.03	TEMPORARY ROAD CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1130.01	DRUMS
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1205.12	PAVEMENT MARKINGS - BRIDGES

INDEX OF SHEETS

SHEET NO.	TITLE
TCP-1	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND, INDEX OF SHEETS, PHASING AND GENERAL NOTES
TCP-2	OFFSITE DETOUR ROUTE
TCP-3	OFFSITE DETOUR ROUTE
TCP-4	SIGNING

PHASING

STEP 1) INSTALL ALL OFFSITE DETOUR SIGNING AND COVER.

STEP 2) UNCOVER SIGNING (REFER TO GENERAL NOTE 'A'), USE TYPE III BARRICADES TO CLOSE -L- (US 19E), AND DETOUR TRAFFIC OFFSITE (SEE TCP-2 & TCP-3). CONSTRUCT -L- UP TO AND INCLUDING THE FINAL LIFT OF SURFACE COURSE AND FINAL PAVEMENT MARKINGS.

STEP 3) REMOVE TYPE III BARRICADES, OPEN -L- TO TRAFFIC, AND REMOVE OFFSITE DETOUR SIGNING.

GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS, OR RESULT IN DUPLICATE, OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATIONS MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING OR REMOVAL OF DEVICES, AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT, EXCEPT WHEN OTHERWISE NOTED IN THE PLAN, OR DIRECTED BY THE ENGINEER.

TRAFFIC PATTERN ALTERATIONS

A) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATIONS.

SIGNING

B) STATE FORCES WILL BE RESPONSIBLE FOR PERMANENT SIGNING.

C) PROVIDE DETOUR SIGNING WITHIN AND OFF THE PROJECT LIMITS.

D) COVER OR REMOVE ALL DETOUR SIGNS WITHIN AND OFF THE PROJECT LIMITS WHEN A DETOUR IS NOT IN OPERATION.

E) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

TRAFFIC CONTROL DEVICES

F) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

PAVEMENT MARKINGS AND MARKERS

G) STATE FORCES WILL INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	MARKER
US-19E	PAINT	NONE

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- NORTH ARROW
- PROPOSED PVMT. - - - - EXIST. PVMT.
- WORK AREA
- REMOVAL OF EXISTING PAVEMENT

TRAFFIC CONTROL DEVICES

- TYPE I BARRICADE
- TYPE II BARRICADE
- TYPE III BARRICADE
- CONE
- DRUM
- SKINNY DRUM
- FLASHING ARROW PANEL (TYPE C)
- STATIONARY SIGN
- PORTABLE SIGN
- STATIONARY OR PORTABLE SIGN
- CRASH CUSHION
- CHANGEABLE MESSAGE SIGN
- TRUCK MOUNTED IMPACT ATTENUATOR (TMIA)
- POLICE
- FLAGGER

PAVEMENT MARKINGS

- CRYSTAL/CRYSTAL PAVEMENT MARKER
- YELLOW/YELLOW PAVEMENT MARKER
- CRYSTAL/RED PAVEMENT MARKER
- PAVEMENT MARKING SYMBOLS

APPROVED: _____
DATE: _____

SEAL

PLAN PREPARED BY: N.C.D.O.T. WORK ZONE TRAFFIC CONTROL UNIT

_____ TRAFFIC CONTROL ENGINEER
_____ TRAFFIC CONTROL PROJECT ENGINEER
_____ TRAFFIC CONTROL PROJECT DESIGN ENGINEER
_____ TRAFFIC CONTROL DESIGN ENGINEER / TECHNICIAN

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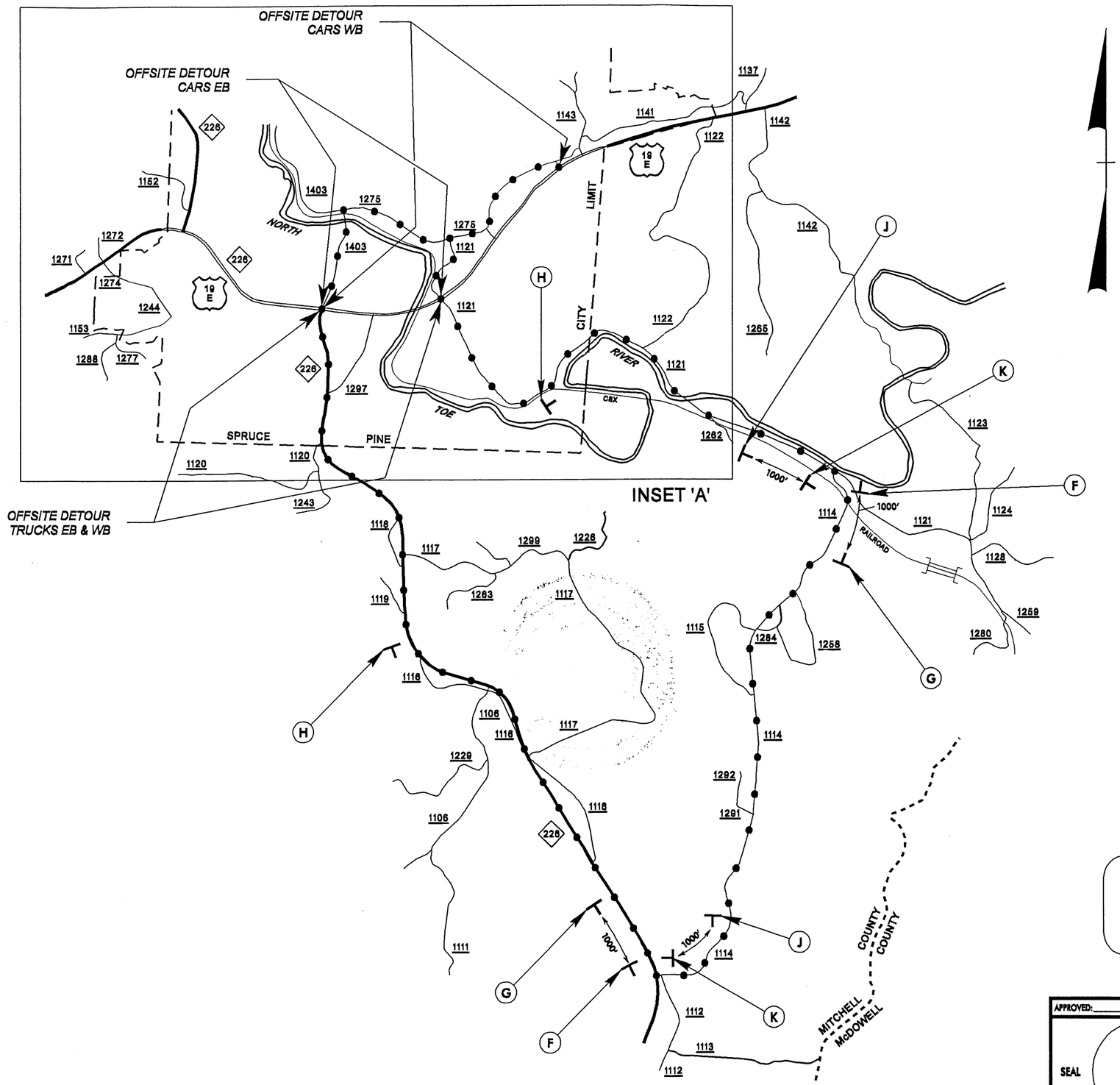
PROJ. REFERENCE NO.	SHEET NO.
BK- 5130	TCP-2



DETOUR ROUTE

APPROVED: _____ DATE: _____

SEAL

OFFSITE DETOUR ROUTE

SCALE:	NONE
DATE:	04/09
DWG. BY:	RMT
DESIGN BY:	JMT
REVIEWED BY:	JMT

REVISIONS

CADD FILE

07-APR-2009 09:44
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PROJ. REFERENCE NO.	SHEET NO.
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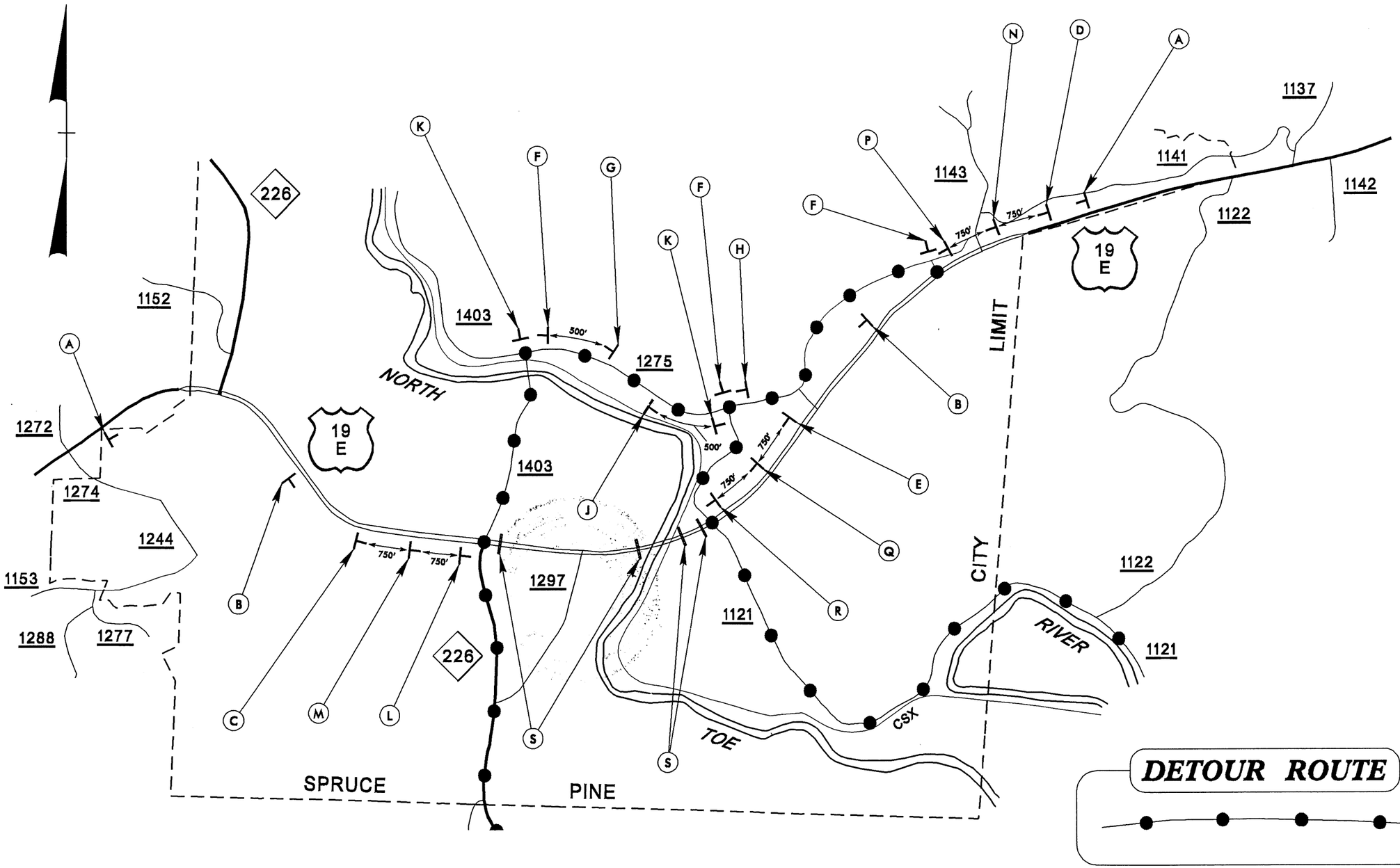

INSET 'A'

APPROVED: _____ DATE: _____

SEAL

OFFSITE DETOUR ROUTE

SCALE:	NONE
DATE:	04/09
DWG. BY:	RMT
DESIGN BY:	JMT
REVIEWED BY:	JMT

REVISIONS

CADD FILE

07-APR-2009 09:44
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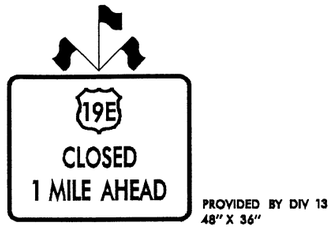
cbright AT BGMU240325

PROJ. REFERENCE NO.	SHEET NO.
BK-5130	TCP-4



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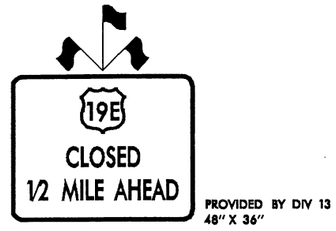

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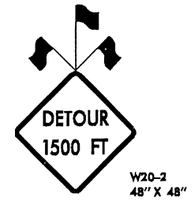

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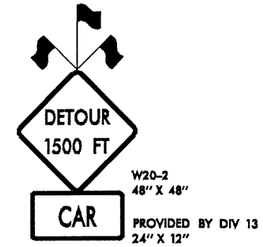

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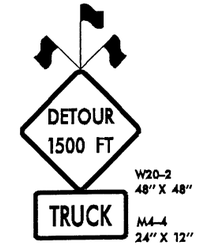

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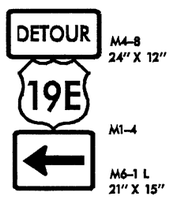

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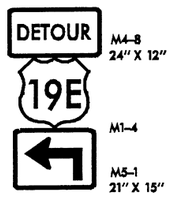

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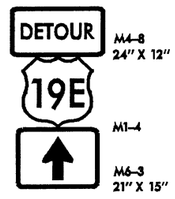

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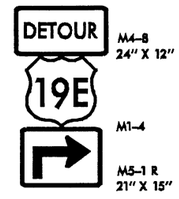

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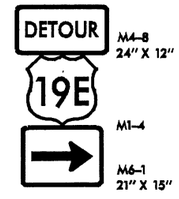

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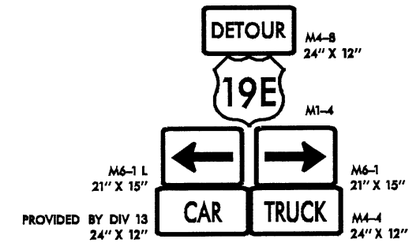

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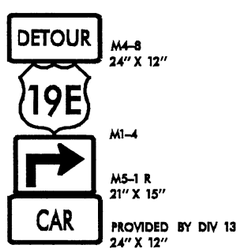

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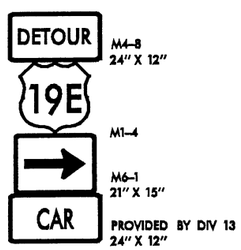

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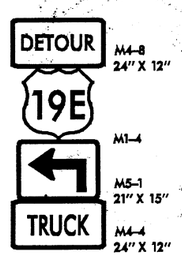

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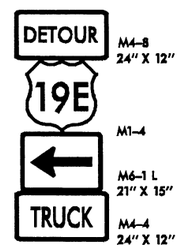

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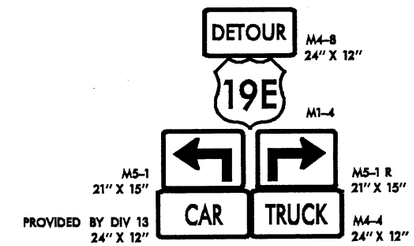

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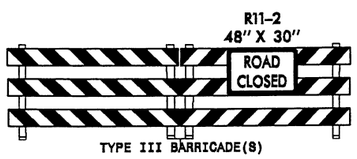

(S)

APPROVED: _____ DATE: _____

SEAL

SIGNING

SCALE:	NONE
DATE:	04/09
DWG. BY:	RMT
DESIGN BY:	JMT
REVIEWED BY:	JMT

REVISIONS

CADD FILE

07-APR-2009 09:44
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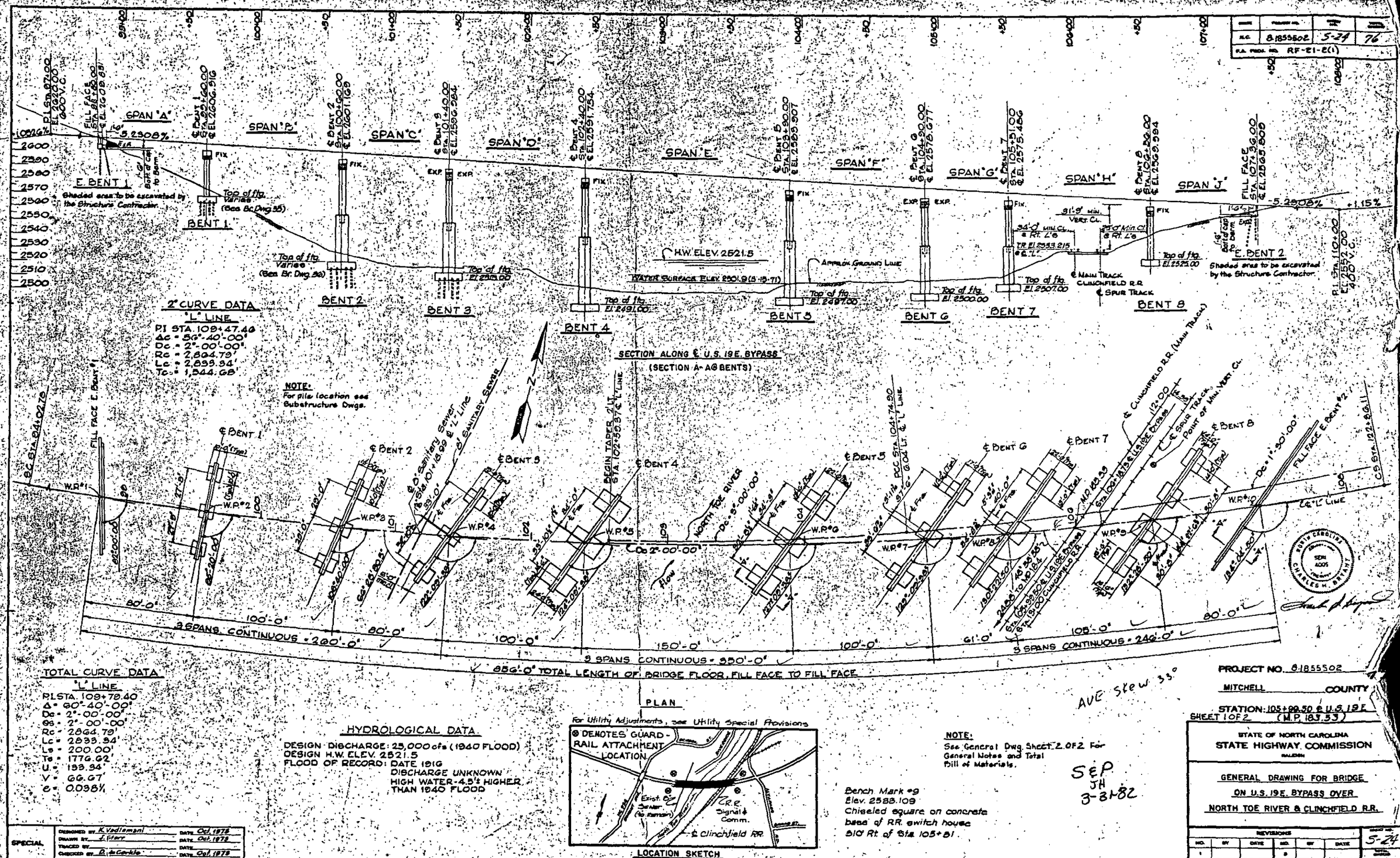
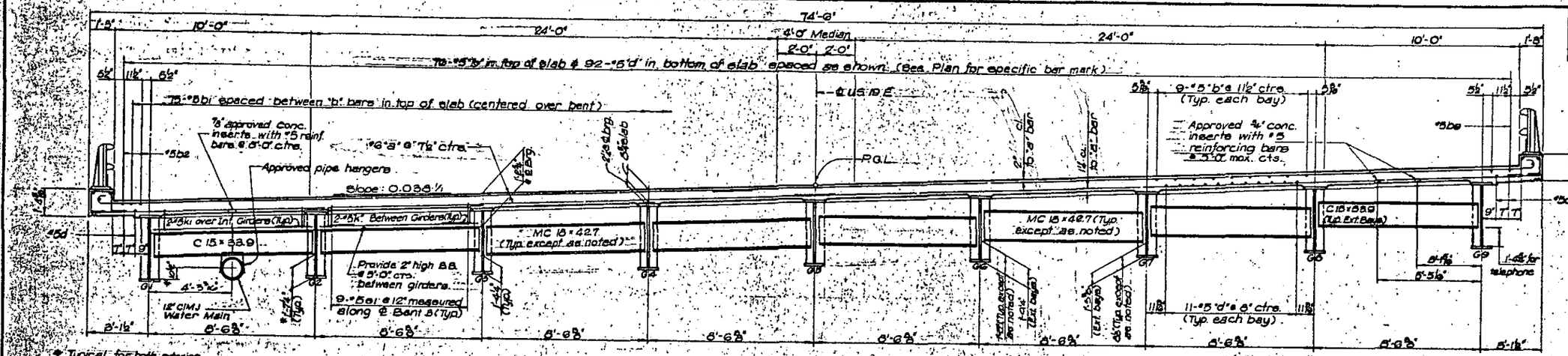
R.C.	8.1855502	5-24	76
F.A. PROJ. NO.	RF-21-2(1)		



STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	8.1855502		
F.A. PROJ. NO.			



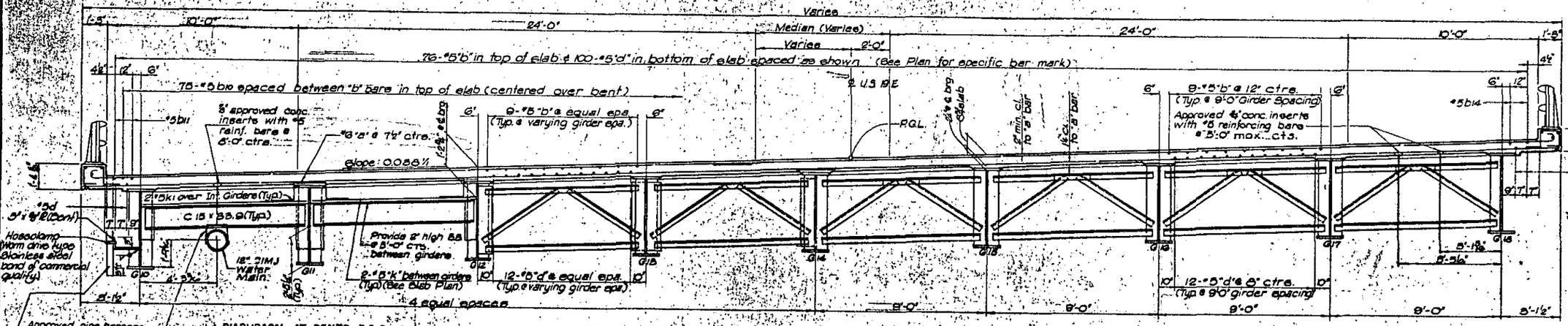
Typical for both exterior bays at Bent 1 & 2 and all bays at End Bent 1 & Bent 8.

DIAPHRAGM AT BENT 3 & END BENT 1

DIAPHRAGM AT BENTS 1 & 2

AT INTERIOR DIAPHRAGM

TYPICAL SECTION - SPANS A, B & C

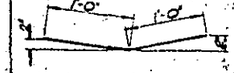


DIAPHRAGM AT BENTS 3 & 6

DIAPHRAGM AT BENTS 4 & 5

AT INTERIOR DIAPHRAGM

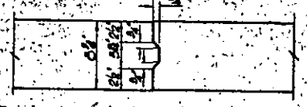
TYPICAL SECTION - SPANS D, E & F



DETAIL OF NO. 5 REINFORCING BAR

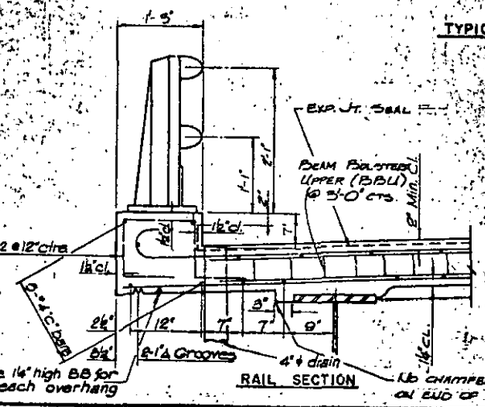
See Superstructure Typ. Sect. Sheet 2 of 2

Note: Provide continuous high chair for metal deck (C H C M) @ 4'-0" cts. with leg spacing to match the pitch of the metal form and adequate to support bottom layer of slab reinforcement a clear distance of 1½" above the top of the stay-in-place form.

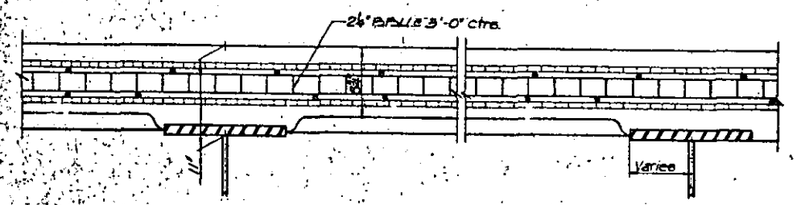


Note: Reinforcing steel in slab not shown. Transverse & longitudinal reinforcing steel shall be continuous thru joint.

TRANSVERSE CONSTRUCTION JOINT IN DECK SLAB



RAIL SECTION



AT INTERIOR GIRDER

AT EXTERIOR GIRDER

DETAIL OF STAY-IN-PLACE STEEL FORMS

NOTES

1. Assumed live load: HS 20-44.
2. Stresses:
   Conc. in compression 1,100 psi
   Reinf. in tension 20,000 psi
   Stress in extreme fiber of structural steel. 27,000 psi.
3. For other Design Data and General Notes, see Sheet 3A.
4. For bars indicated and no bar mark shown, see plans for the different spans.
5. The dimensions for the inserts and pipe sleeves are shown for the Contractor's information only. Neither these items nor the attachment of the utilities to the proposed structure are to be made until an encroachment contract has been executed by the Board of Transportation.
6. Drains should be of 4" ϕ Gal. Steel Pipe. Tops of floor drains to be set ⅛" below surface of slab.

PROJECT NO. 8.1855502

MITCHELL COUNTY

STATION: 105+89.50 ℄ U.S. 19 E

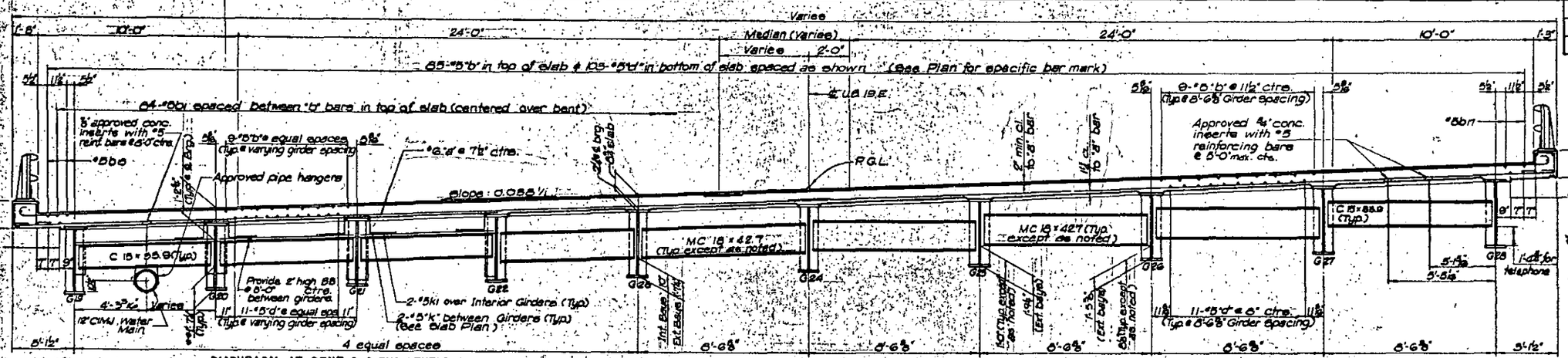
Sheet 1 of 2 M.P. 183.53

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

SUPERSTRUCTURE
TYPICAL SECTIONS

REVISIONS								SHEET NO.
NO.	BY	DATE	NO.	BY	DATE			5-32
1			3					TOTAL SHEETS
2			4					76

SPECIAL			
DESIGNED BY	D. McCorkle	DATE	7-73
DRAWN BY	J. Robison	DATE	7-73
TRACED BY		DATE	
CHECKED BY	K. Vadlamani	DATE	7-73



* Typical for exterior bays at Bents 7 & 8. Typical for all bays @ Bent 6 & End Bent 2.

DIAPHRAGM AT BENT 6 & END BENT 2

DIAPHRAGM AT BENTS 7 & 8

AT INTERIOR DIAPHRAGM

DETAIL OF NO. 5 REINFORCING BAR

Note: For responsibilities of furnishing and placing conc. inserts, #5 reinforcing & conduit sleeves, see the special Provisions. Reinforcing bars to be placed parallel to girders.

Note A: Expansion Joint Seals will be required @ End Bents 1 & 2 and Bents 3 & 6. For limits of expansion joint seal see rail post spacing sheets. The expansion joint seal shall be capable of handling total movement, measured parallel to the centerline of the roadway of:

1½" expansion & 1½" contraction @ Bents 3 & 6

¾" expansion & ¾" contraction @ End Bents 1 & 2

Top of Exp. joint seal to be set ¼" below top of slab.

BILL OF MATERIAL - SPANS A, B & C

Bar	No.	Size	Detail	Length	Weight
k1	28	5	(2)	5'-3"	153
k2	16	5	Str.	8'-3"	138
k3	16	5	Str.	9'-8	161
*a1	412	6	(1)	54'-4"	21246
a2	781	6	Str.	56'-9"	44870
*a3	369	6	(1)	42'-10"	23740
*a4	1 Set	6	(1)	Varies	189
a5	1 Set	6	Str.	Varies	212
*a6	1 Set	6	Str.	Varies	279
a7	1 Set	6	Str.	Varies	199
*a8	1 Set	6	(1)	Varies	1081
a9	1 Set	6	Str.	Varies	1039
*a10	1 Set	6	Str.	Varies	1217
a11	1 Set	6	Str.	Varies	1106
*b1	150	5	Str.	40'-0"	6258
*b2	120	5	Str.	58'-0"	7259
*b3	100	5	Str.	56'-7"	5902
*b4	100	5	Str.	55'-5"	5780
*b5	100	5	Str.	54'-3"	5658
*b6	100	5	Str.	53'-1"	5537
*b7	100	5	Str.	51'-11"	5415
*b8	100	5	Str.	50'-9"	5293
*b9	120	5	Str.	49'-7"	6206
*g1	2	6	Noted	6'-0"	18
c1	50	4	Str.	29'-8"	985
c2	45	4	Str.	24'-5"	734
s1	128	4	(3)	8'-8"	374
s2	518	4	(4)	4'-2"	1442
d1	65	5	Str.	58'-1"	8958
d2	55	5	Str.	50'-8"	2907
d3	55	5	Str.	55'-6"	3184
d4	55	5	Str.	54'-4"	3117
d5	55	5	Str.	53'-2"	3050
d6	55	5	Str.	52'-0"	2983
d7	55	5	Str.	50'-10"	2916
d8	65	5	Str.	49'-8"	3367
Reinforcing Steel (Epoxy Coated) - Lbs.					101,078
Reinforcing Steel - Lbs.					76,818
Class AA Concrete - Cu. Yds.					
Pour #1					141.0
Pour #2					144.7
Pour #3					140.8
Pour #4					82.0
Pour #5					82.0
Total					590.4

BILL OF MATERIAL - SPANS D, E & F

Bar	No.	Size	Detail	Length	Weight
k1	28	5	(2)	5'-3"	153
k2	8	5	Str.	9'-2"	76
k3	8	5	Str.	10'-2"	85
k4	8	5	Str.	11'-2"	93
k5	8	5	Str.	12'-0"	100
*a12	1154	6	(1)	52'-5"	7498
a13	154	6	Str.	56'-5"	8565
*a14	506	6	(1)	44'-6"	33821
a15	511	6	Str.	39'-10"	30578
*a16	161	6	(1)	38'-2"	8021
a17	161	6	Str.	37'-0"	8947
*a18	85	6	(1)	54'-5"	4291
a19	85	6	Str.	56'-5"	4768
*a20	126	6	(1)	56'-11"	6987
a21	125	6	Str.	40'-9"	7651
*a22	1 Set	6	Str.	Varies	684
a23	1 Set	6	Str.	Varies	925
*a24	1 Set	6	(1)	Varies	1452
a25	1 Set	6	Str.	Varies	1148
*a26	1 Set	6	(1)	Varies	1751
a27	1 Set	6	Str.	Varies	1750
*a28	1 Set	6	Str.	Varies	1797
a29	1 Set	6	Str.	Varies	1459
*b10	150	5	Str.	50'-0"	7823
*b11	140	5	Str.	52'-6"	7660
*b12	126	5	Str.	52'-0"	6834
*b13	108	5	Str.	53'-11"	6749
*b14	120	5	Str.	53'-8"	7468
c3	65	4	Str.	28'-8"	1245
c4	65	4	Str.	27'-11"	1212
*g1	4	6	Noted	6'-0"	36
d9	182	5	Str.	52'-7"	8982
d10	168	5	Str.	52'-1"	9126
d11	144	5	Str.	60'-0"	9012
d12	144	5	Str.	59'-8"	8974
s1	68	4	(3)	3'-8"	167
s2	703	4	(4)	4'-2"	1902
s3	64	4	(5)	4'-1"	229
Reinforcing Steel (Epoxy Coated) - Lbs.					102,378
Reinforcing Steel - Lbs.					108,022
Class AA Concrete - Cu. Yds.					
Pour #1					183.2
Pour #2					198.5
Pour #3					171.8
Pour #4					132.2
Pour #5					135.4
Total					820.0

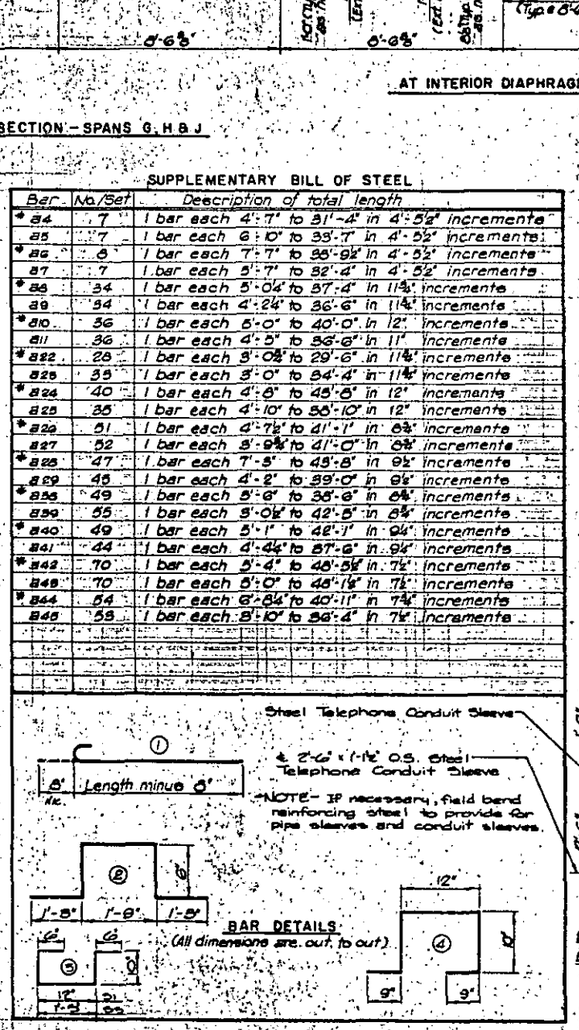
TYPICAL SECTION - SPANS G, H & J

BILL OF MATERIAL - SPANS G, H & J

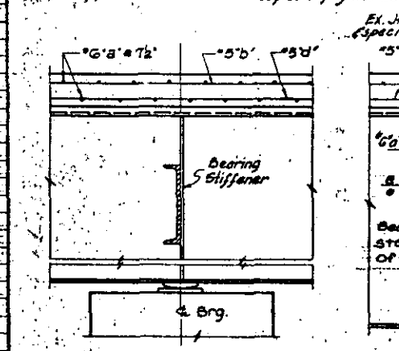
Bar	No.	Size	Detail	Length	Weight
a2	385	6	Str.	56'-5"	19246
*a3	329	6	(1)	42'-10"	21166
*a30	84	6	(1)	41'-10"	5278
a31	84	6	Str.	40'-5"	5780
*a32	84	6	(1)	43'-2"	5446
a33	84	6	Str.	46'-9"	5898
*a34	84	6	(1)	44'-4"	5595
a35	84	6	Str.	47'-11"	6046
*a36	81	6	(1)	45'-2"	5495
a37	81	6	Str.	48'-9"	5931
*a38	1 Set	6	Str.	Varies	1546
a39	1 Set	6	Str.	Varies	1878
a40	1 Set	6	(1)	Varies	1736
a41	1 Set	6	Str.	Varies	1584
*a42	1 Set	6	(1)	Varies	2626
a43	1 Set	6	Str.	Varies	2793
*a44	1 Set	6	Str.	Varies	1931
a45	1 Set	6	Str.	Varies	1599
*b1	168	5	Str.	40'-0"	7009
*b15	145	5	Str.	52'-0"	7864
*b16	165	5	Str.	51'-4"	7228
*b17	145	5	Str.	50'-8"	7665
*g1	4	6	Noted	6'-0"	36
c5	45	4	Str.	28'-2"	677
c6	45	4	Str.	28'-0"	842
d13	175	5	Str.	52'-1"	9506
d14	165	5	Str.	51'-5"	8649
d15	175	5	Str.	50'-9"	9269
k11	52	5	(2)	5'-3"	175
k10	8	5	Str.	9'-10"	82
k11	10	5	Str.	10'-8"	111
k12	10	5	Str.	11'-5"	119
k14	8	5	Str.	12'-7"	105
s1	108	4	(3)	3'-8"	252
s2	495	4	(4)	4'-2"	1376
s3	86	4	(5)	4'-1"	235
Reinforcing Steel (Epoxy Coated) - Lbs.					80819
Reinforcing Steel - Lbs.					82299
Class AA Concrete - Cu. Yds.					
Pour #1					140.2
Pour #2					155.6
Pour #3					225.6
Pour #4					185.0
Total					656.4

SUPPLEMENTARY BILL OF STEEL

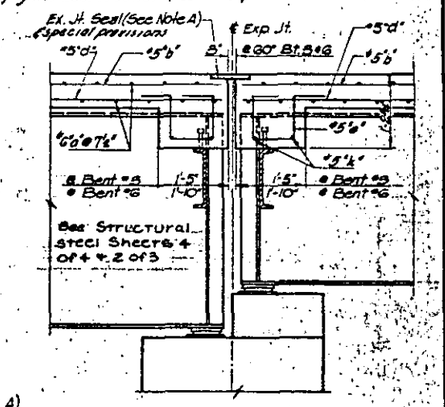
Bar	No./Set	Description of total length
*a4	7	1 bar each 4'-7" to 31'-4" in 4'-5½" increments
a5	7	1 bar each 6'-0" to 33'-7" in 4'-5½" increments
*a6	8	1 bar each 7'-7" to 36'-9½" in 4'-5½" increments
a7	7	1 bar each 5'-7" to 32'-4" in 4'-5½" increments
*a8	34	1 bar each 5'-0¼" to 37'-4" in 11¼" increments
a9	34	1 bar each 4'-2¼" to 36'-6" in 11¼" increments
*a10	36	1 bar each 5'-0" to 40'-0" in 12" increments
a11	36	1 bar each 4'-5" to 36'-6" in 11" increments
*a12	28	1 bar each 3'-0¾" to 29'-6" in 11¼" increments
a13	35	1 bar each 3'-0" to 34'-4" in 11¼" increments
*a24	40	1 bar each 4'-8" to 45'-8" in 12" increments
a25	35	1 bar each 4'-10" to 38'-10" in 12" increments
*a26	51	1 bar each 4'-7½" to 41'-1" in 8¾" increments
a27	52	1 bar each 3'-9¾" to 41'-0" in 8¾" increments
*a28	47	1 bar each 7'-5" to 45'-8" in 9½" increments
a29	48	1 bar each 4'-2" to 39'-0" in 9½" increments
*a38	49	1 bar each 5'-6" to 36'-6" in 8¾" increments
a39	55	1 bar each 3'-0½" to 42'-8" in 8¾" increments
*a40	49	1 bar each 5'-1" to 42'-1" in 9¼" increments
a41	44	1 bar each 4'-4½" to 37'-6" in 9¼" increments
*a42	70	1 bar each 5'-4" to 46'-5¾" in 7½" increments
a43	70	1 bar each 5'-0" to 46'-1¾" in 7½" increments
*a44	54	1 bar each 6'-8¼" to 40'-11" in 7¾" increments
a45	58	1 bar each 3'-10" to 36'-4" in 7½" increments



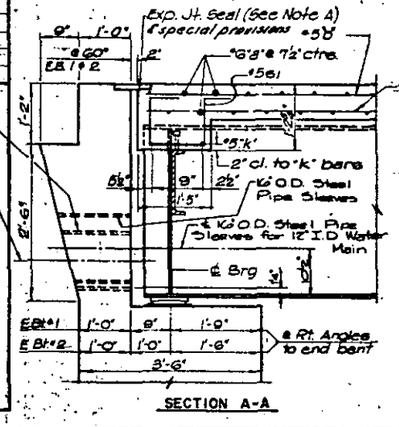
BAR DETAILS (All dimensions are out to out)



SECTION B-B



SECTION C-C



SECTION A-A

PROJECT NO. B-1855502

MITCHELL COUNTY

STATION: 105+99.50 ℄ U.S. 19E

Sheet 2 of 2 M.P. 183.53

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

SUPERSTRUCTURE
TYPICAL SECTIONS

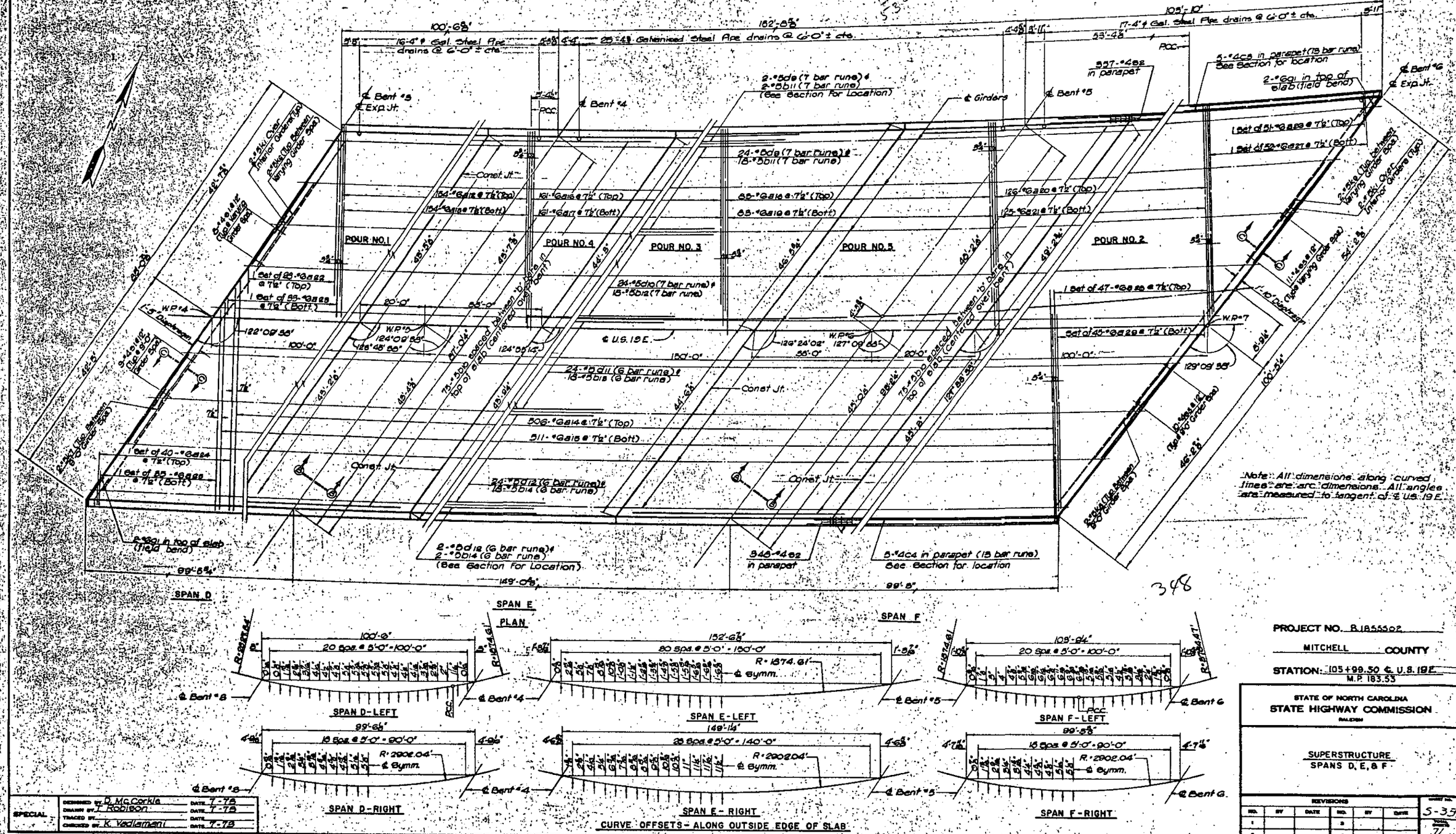
REVISIONS							
NO.	BY	DATE	NO.	BY	DATE	SHEET NO.	
1			3			5-33	
2			4			TOTAL SHEETS	76

SPECIAL

DESIGNED BY D. Mc Cockle DATE 7-75
DRAWN BY T. Robison DATE 7-75
TRACED BY DATE
CHECKED BY K. Vadlamani DATE 7-75

* Epoxy Coated Reinforcing

B.C.	B.1855502		
F.A. PROJ. NO.			



PROJECT NO. B.1855502

MITCHELL COUNTY

STATION: 105+99.50 ℄ U.S. 19E
M.P. 183.53

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

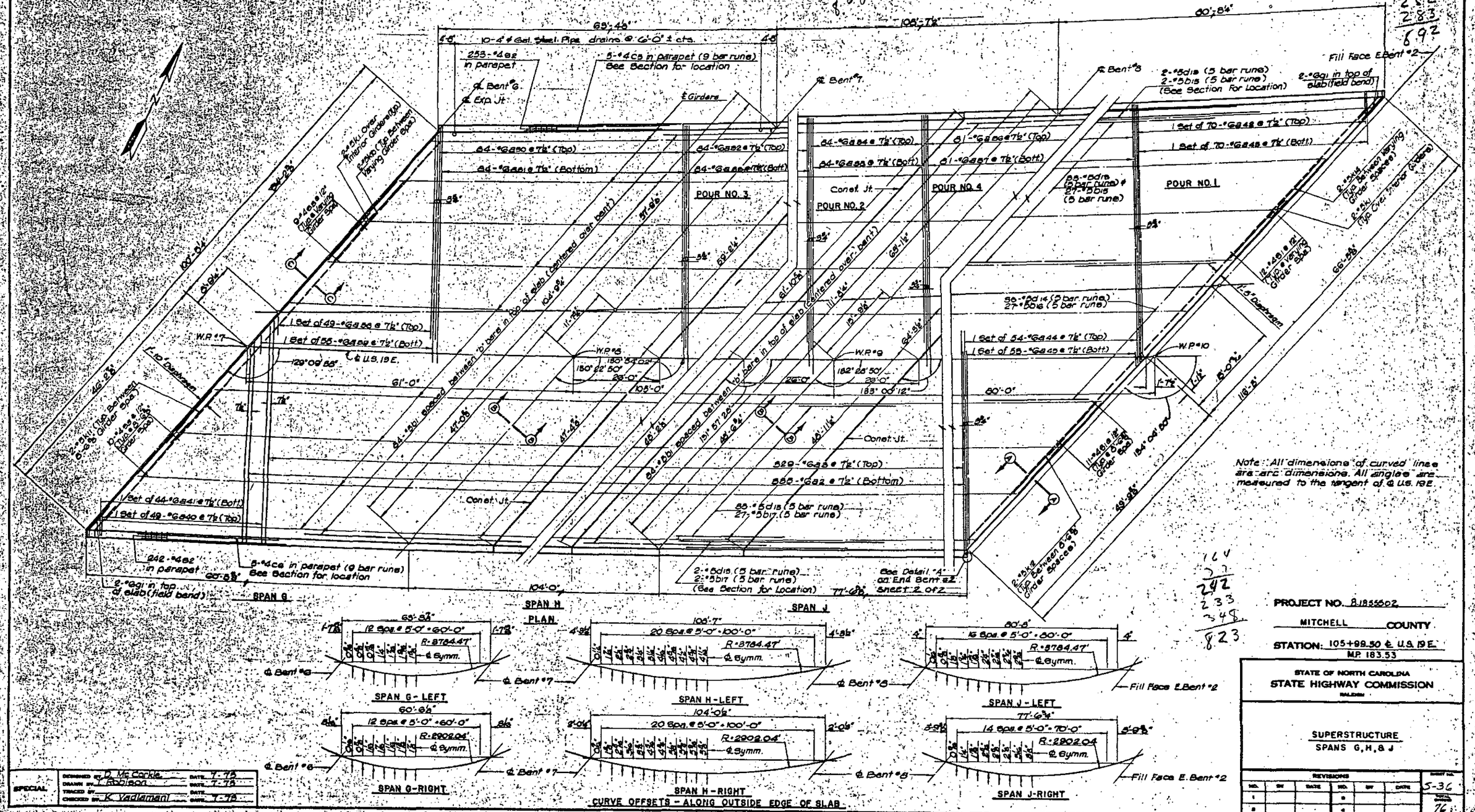
SUPERSTRUCTURE
SPANS D, E, & F

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

SHEET NO. S-35
TOTAL SHEETS 76

SPECIAL			
DESIGNED BY	D. McCorkle	DATE	7-78
DRAWN BY	J. Robison	DATE	7-78
TRACED BY		DATE	
CHECKED BY	K. Vadlamani	DATE	7-78

B.R.C.	81855502		
F.A. PROJ. NO.			



PROJECT NO. 81855502

MITCHELL COUNTY

STATION: 105+99.50 ℄ U.S. 19E.
M.P. 183.53

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

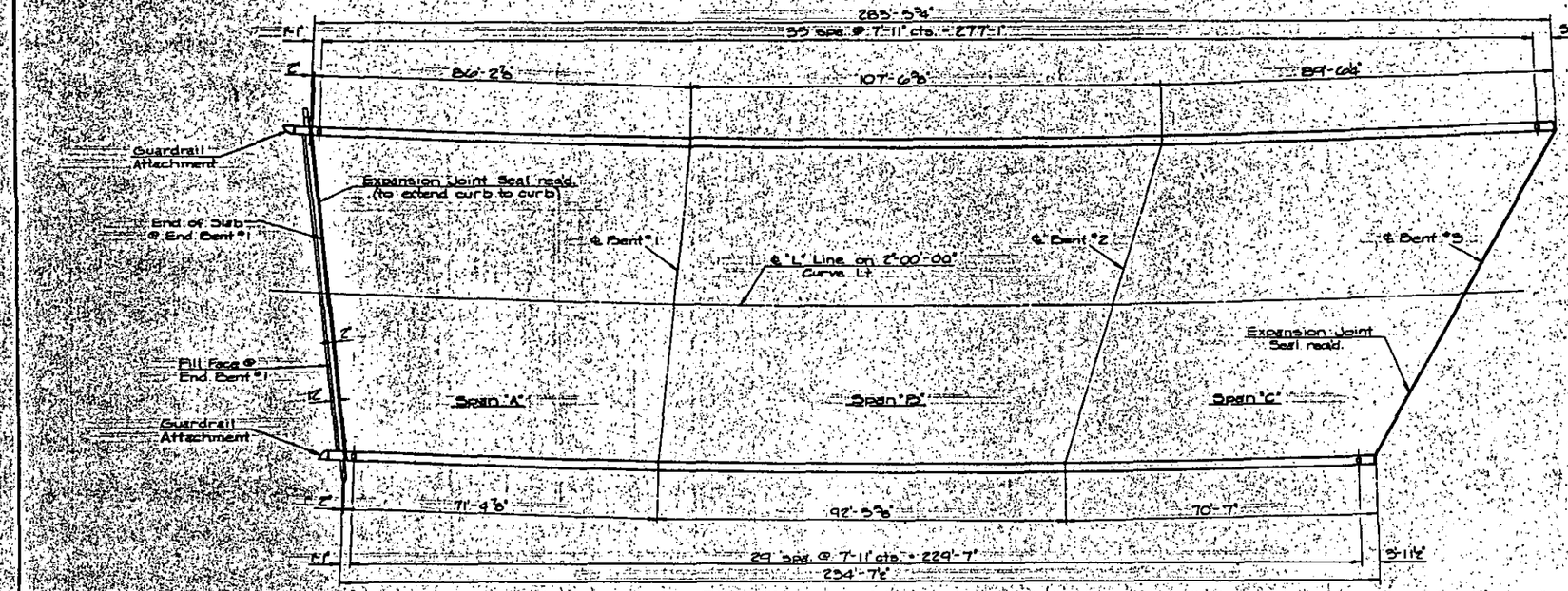
SUPERSTRUCTURE
SPANS G, H, & J

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

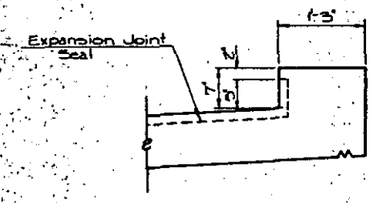
SHEET NO. S-36
TOTAL SHEETS 76

SPECIAL			
DESIGNED BY	D. McCorkle	DATE	7-75
DRAWN BY	T. Robison	DATE	7-75
TRACED BY		DATE	
CHECKED BY	K. Vadlamani	DATE	7-75

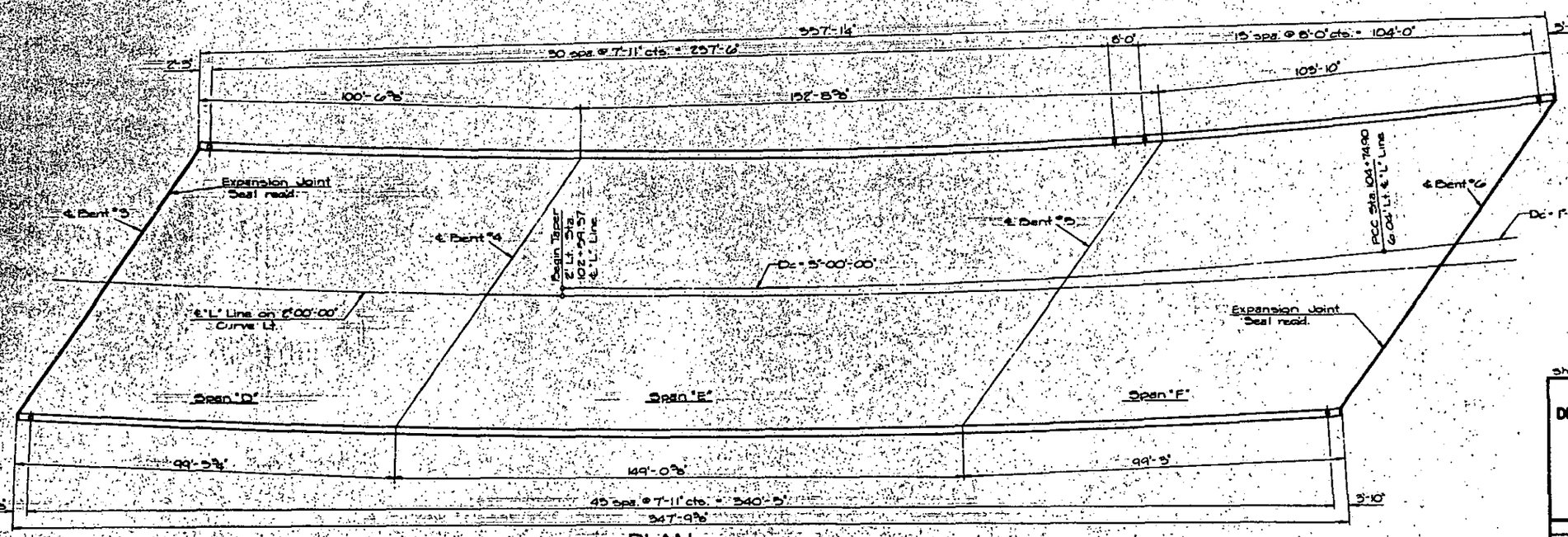
FED. ROAD DIV. NO.	STATE	PROJECT NO.
4	N.C.	B-1855502
R.A. PROJECT		



PLAN



EXPANSION JOINT SEAL LIMITS



PLAN

-NOTE-

Dimensions shown are dimensions, measured along inside of Parapet.

PROJECT NO. B-1855502

MITCHELL COUNTY

STATION: 105+99.50 ℄ U.S. 19 E. (M.P. 183.55)

Sheet 2 of 4

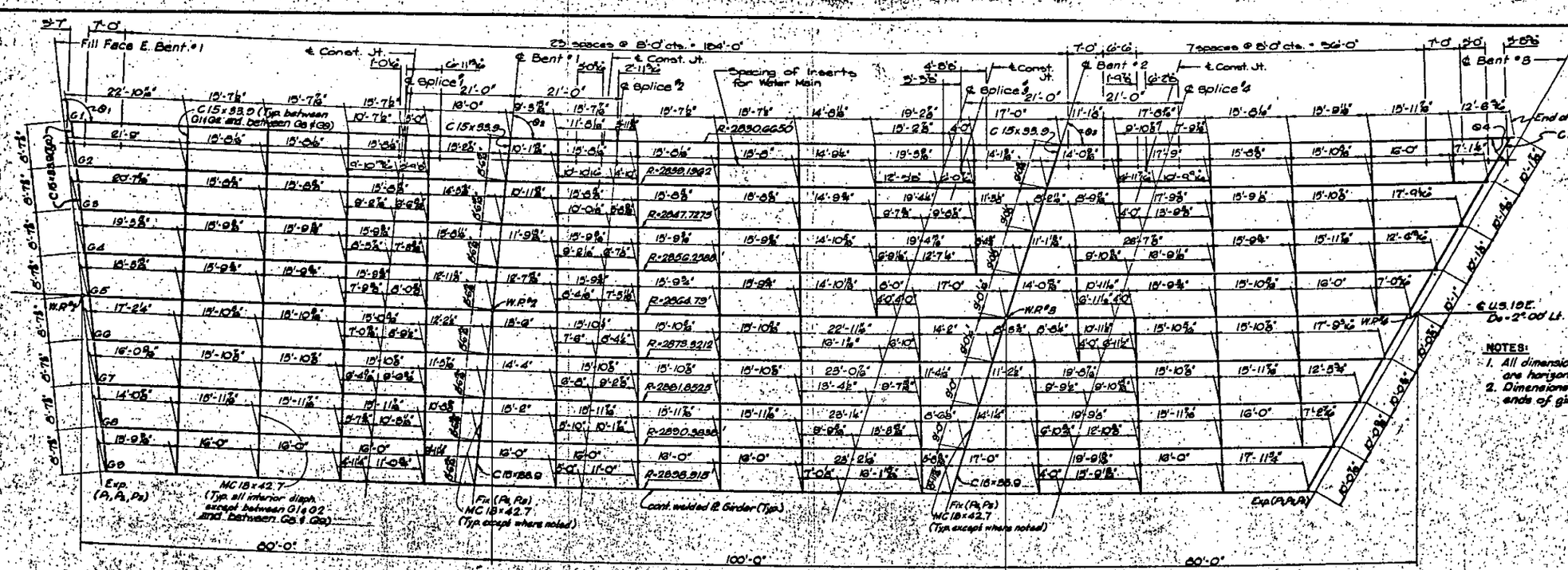
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

RAIL POST SPACING

March 1975

REVISIONS							SHEET NO.
NO.	BY	DATE	NO.	BY	DATE		5-98
1			3				TOTAL SHEETS
2			4				76

DRAWN BY: N.C. Carter DATE: 3-21-75
CHECKED BY: [illegible] DATE: April, 1974



SPAN A

SPAN B

SPAN C

STRUCTURAL STEEL PLAN

NOTES:

1. All dimensions shown on this drawing are horizontal.
2. Dimensions to diaphragms are from ends of girders.

TABLE OF ANGLES AND RADII

Girder \ Angle	At F.F. EB#1 θ_1	At ℄ Bent #1 θ_2	At ℄ Bent #2 θ_3	At ℄ Bent #3 θ_4	Radius
G1	98°-05'-50"	84°-36'-06"	71°-05'-59"	57°-24'-15"	2890.665'
G2	98°-04'-21"	84°-37'-07"	71°-09'-32"	57°-30'-51"	2893.1962'
G3	98°-02'-54"	84°-38'-05"	71°-13'-02"	57°-37'-24"	2847.7275'
G4	98°-01'-27"	84°-39'-09"	71°-16'-32"	57°-43'-54"	2856.2588'
G5	98°-00'-00"	84°-40'-00"	71°-20'-00"	57°-50'-22"	2864.79'
G6	97°-58'-34"	84°-40'-57"	71°-23'-27"	57°-56'-51"	2873.3212'
G7	97°-57'-08"	84°-41'-54"	71°-26'-53"	58°-03'-18"	2881.8825'
G8	97°-55'-48"	84°-42'-51"	71°-30'-17"	58°-09'-38"	2890.3838'
G9	97°-54'-18"	84°-43'-57"	71°-33'-40"	58°-15'-55"	2898.915'

SPECIAL	DESIGNED BY D. McCorkle	DATE 7-79	
	DRAWN BY T. Robison	DATE 7-79	
	TRACED BY	DATE	
	CHECKED BY K. Vadlamani	DATE 7-79	

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-1855502		
F.A. PROJ. NO.			

PROJECT NO. B-1855502

MITCHELL COUNTY

STATION: 105+88.50 ℄ U.S. 19E

Sheet 1 of 4

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

STRUCTURAL STEEL

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-52
1			3			TOTAL SHEETS
2			4			76

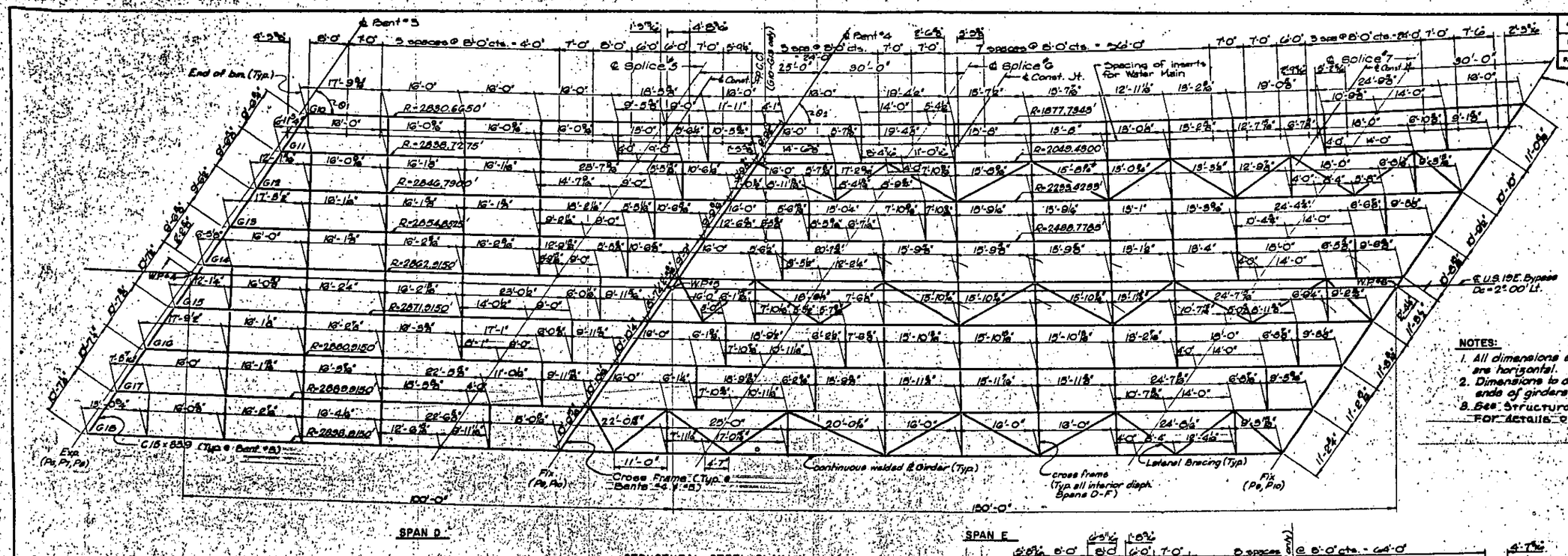


TABLE OF ANGLES

Girder \ Angle	At ℄ Bent #3 θ_1	At ℄ Bent #4 θ_2	At ℄ Bent #5 θ_3	At ℄ Bent #6 θ_4
G10	57°-24'-15"	55°-19'-38"	50°-40'-12"	48°-15'-16"
G11	57°-30'-29"	55°-29'-35"	51°-14'-49"	48°-22'-09"
G12	57°-36'-41"	55°-37'-55"	51°-49'-07"	49°-08'-08"
G13	57°-42'-50"	55°-46'-28"	52°-10'-29"	49°-56'-51"
G14	57°-48'-57"	55°-48'-50"	52°-48'-40"	50°-48'-32"
G15	57°-55'-44"	55°-56'-09"	52°-56'-50"	50°-57'-18"
G16	58°-02'-27"	56°-03'-24"	53°-04'-56"	51°-06'-00"
G17	58°-09'-06"	56°-10'-37"	53°-12'-58"	51°-14'-38"
G18	58°-15'-45"	56°-17'-49"	53°-20'-56"	51°-23'-12"

NOTES:

1. All dimensions shown on this drawing are horizontal.
2. Dimensions to diaphragms are from ends of girders.
3. See Structural Steel - Sheet 3 of 4 For Details of Lateral Bracing.

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	B.1855502		
F.A. PROJ. NO.			

PROJECT NO. B.1855502

MITCHELL COUNTY

STATION: 105+99.30 ℄ U.S. 19 E.

SHEET 2 OF 4

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

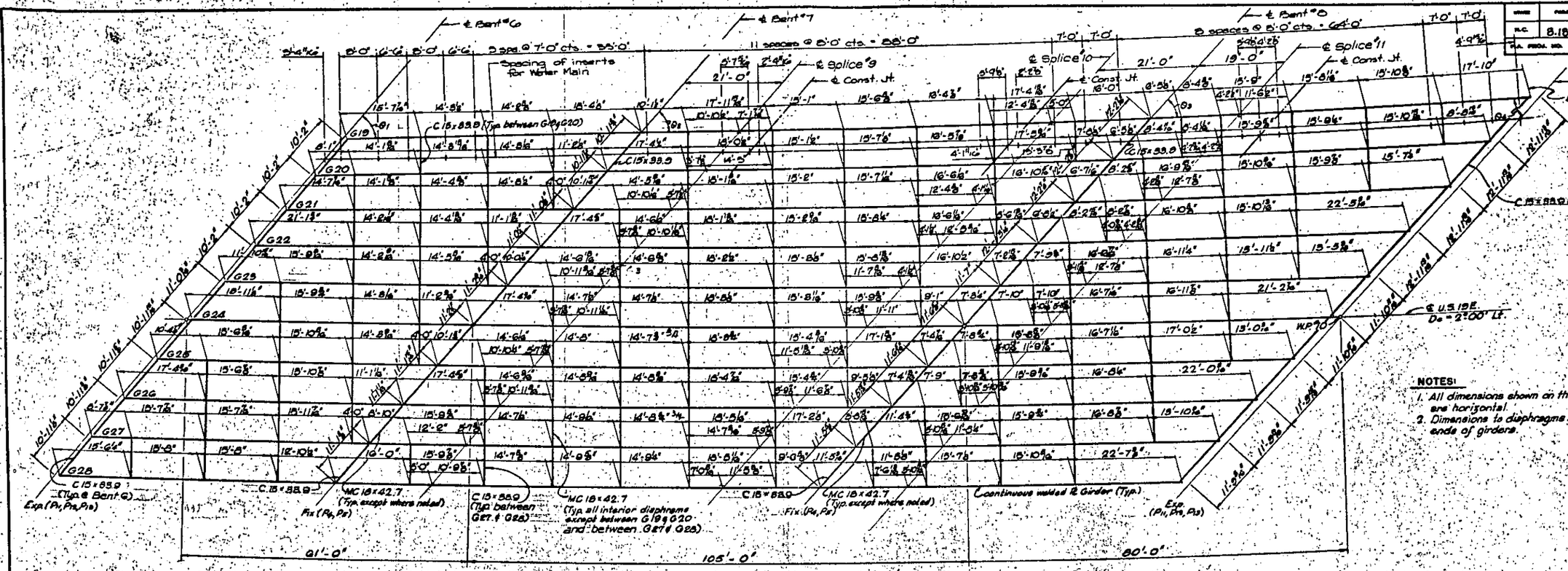
STRUCTURAL STEEL

REVISIONS							
NO.	BY	DATE	NO.	BY	DATE	SHEET NO. S-53	
1			3			TOTAL SHEETS 76	
2			4				

SPECIAL

DESIGNED BY D. McCorkle DATE 7-78
DRAWN BY T. Robison DATE 7-78
TRACED BY DATE
CHECKED BY K. Vedlamani DATE 7-78

R.C.	8.1855502		
F.A. PROJ. NO.			



SPAN G — SPAN H — SPAN J

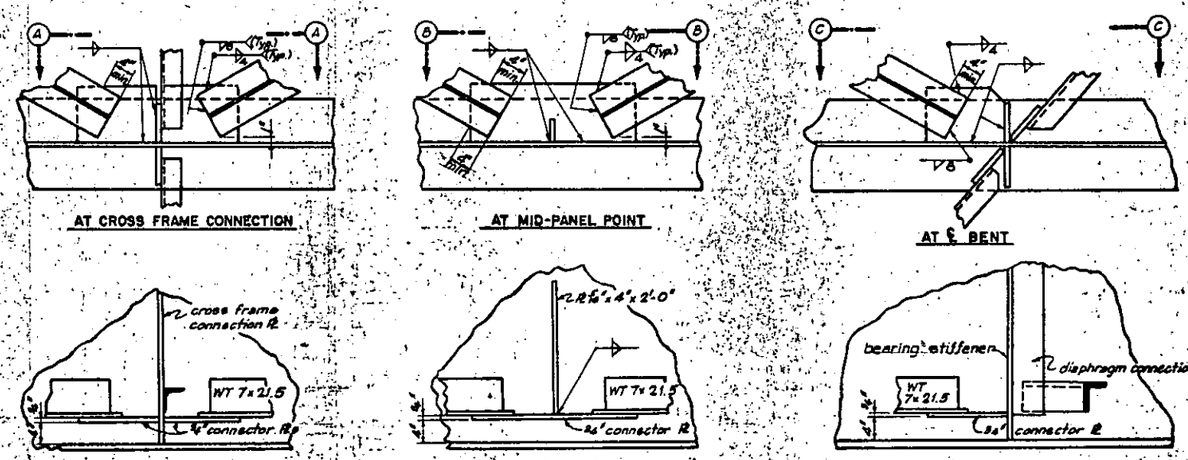
STRUCTURAL STEEL PLAN

NOTES:

1. All dimensions shown on this drawing are horizontal.
2. Dimensions to diaphragms are from ends of girders.

TABLE OF ANGLES AND RADII

Angle / Girder	At ℄ Bent #6 θ_1	At ℄ Bent #7 θ_2	At ℄ Bent #8 θ_3	At F.F.E.B. #2 θ_4	Radius
G19	48°-15'-16"	47°-17'-48"	45°-39'-15"	44°-24'-39"	3787.5996'
G20	48°-49'-50"	47°-49'-02"	46°-04'-49"	44°-45'-32"	3550.0000'
G21	49°-25'-42"	48°-51'-10"	46°-30'-15"	45°-06'-06"	3315.0000'
G22	50°-03'-11"	48°-54'-21"	46°-55'-57"	45°-25'-52"	3080.0000'
G23	50°-42'-00"	49°-28'-28"	47°-21'-45"	45°-45'-12"	2846.2586'
G24	50°-50'-22"	49°-37'-10"	47°-31'-10"	45°-55'-10"	2864.7900'
G25	50°-58'-40"	49°-45'-50"	47°-40'-30"	46°-05'-02"	2879.3212'
G26	51°-06'-55"	49°-54'-26"	47°-49'-45"	46°-14'-49"	2881.0528'
G27	51°-15'-08"	50°-02'-58"	47°-58'-56"	46°-24'-31"	2890.3838'
G28	51°-23'-12"	50°-11'-26"	48°-08'-02"	46°-34'-08"	2898.9180'



LATERAL BRACING DETAILS

PROJECT NO. 8.1855502

MITCHELL COUNTY

STATION: 105+99.50 ℄ U.S. 19E

SHEET 5 OF 4

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

STRUCTURAL STEEL

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

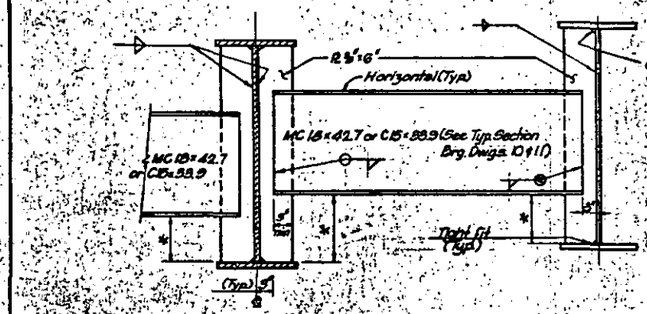
STRUCTURE NO. 5-54

TOTAL SHEETS 76

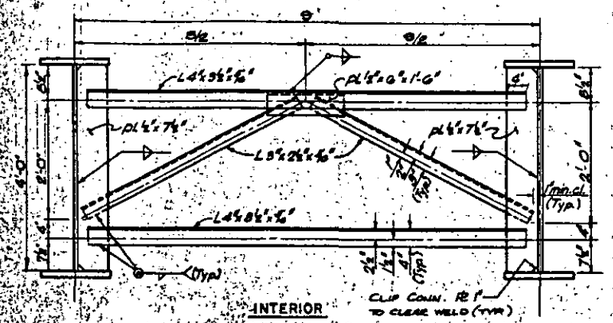
SPECIAL

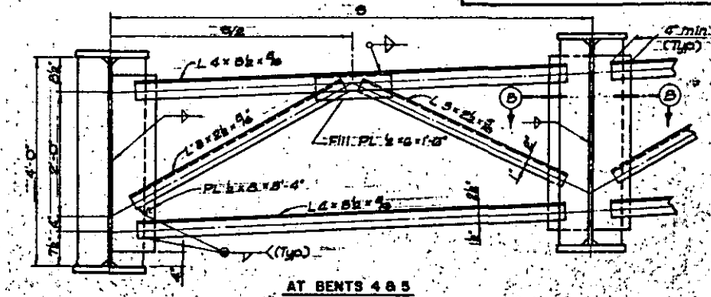
DESIGNED BY D. McCorkle DATE Sept. 1978
DRAWN BY J. Starr DATE Sept. 1978
TRACED BY DATE
CHECKED BY K. Vedlement DATE Sept. 1978

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-1855302		
F.A. PROJ. NO.			



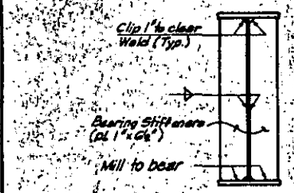
INTERIOR DIAPHRAGM CONNECTION
Spans A, B, C, G, H & J



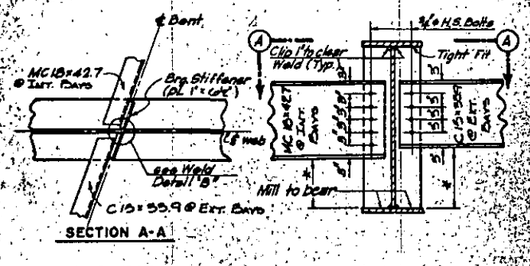


CROSS FRAME DETAILS
Spans D, E & F

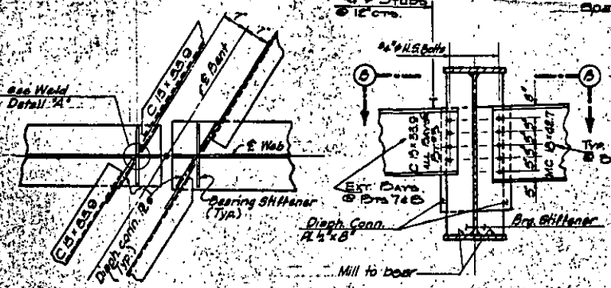
NOTE- SEE DETAIL "A" FOR WELD DETAILS OF DIAP. STIFF & CONN. PL. TO GIRDER WEB.



BEARING STIFFENER DETAIL

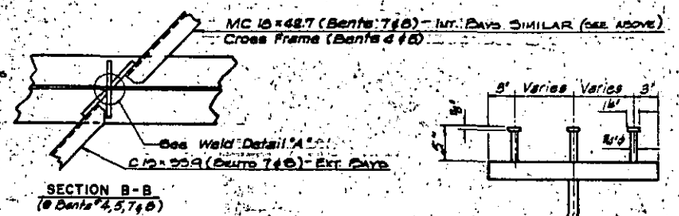


SECTION A-A

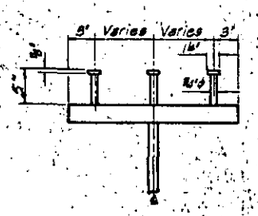


SECTION B-B
(@ Bent #8)

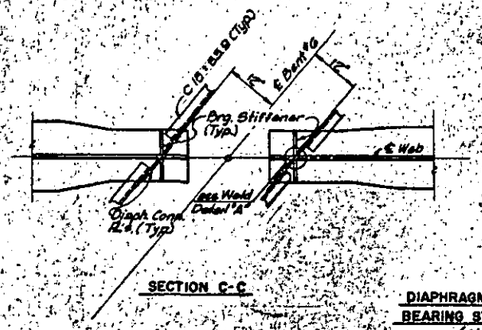
DIAPHRAGM CONNECTION & BEARING STIFFENER DETAILS



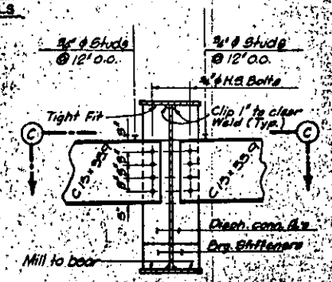
SECTION B-B
(@ Bents #4, 5, 7 & 8)



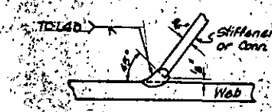
STUD DETAIL



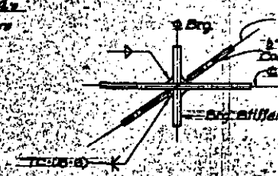
SECTION C-C



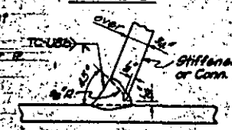
DIAPHRAGM CONNECTION & BEARING STIFFENER DETAILS
(At Bent #6)



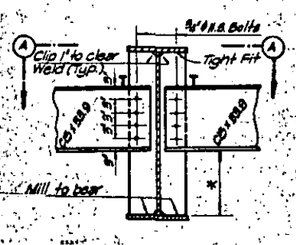
DETAIL B



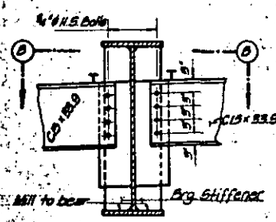
DETAIL A



DETAIL B

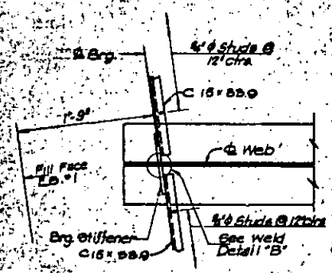


AT END BENT 1

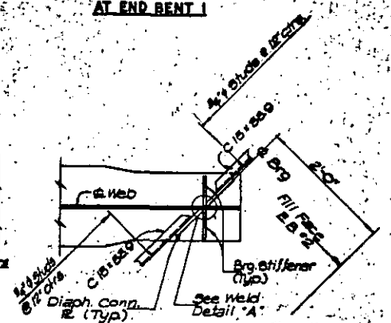


AT END BENT 2

WELD DETAILS



SECTION A-A



SECTION B-B

DIAPHRAGM CONNECTION & BEARING STIFFENER DETAILS
(At End Bents)

* SEE "TYPICAL SECTION" FOR THESE DIMENSIONS.

PROJECT NO. B-1855302

MITCHELL COUNTY

STATION: 105+89.50 ℄ U.S. 19 E

SHEET 1 OF 4

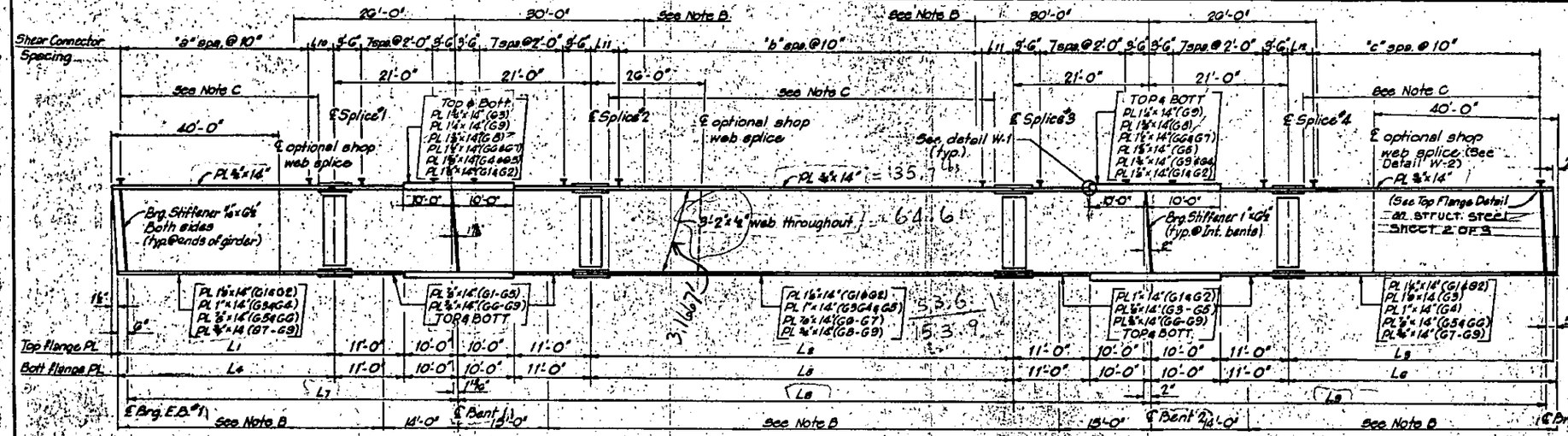
STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

STRUCTURAL STEEL

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	5-55
1			3			TOTAL SHEETS
2			4			76

SPECIAL		
DESIGNED BY D. McCorkle	DATE Sept. '78	
DRAWN BY J. Blair	DATE Sept. '78	
TRACED BY	DATE	
CHECKED BY K. Vedlamani	DATE Oct. '78	

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-1855502		
F.A. PROJ. NO.			



SPAN A

SPAN B

ELEVATION – GIRDERS 1 THRU 9

SPAN C

TABLE OF GIRDER DATA*

Girder	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	"a"	"b"	"c"
1	64'-11 1/16"	65'-3 11/16"	67'-8 7/16"	64'-10 7/16"	65'-3 1/16"	67'-10 7/16"	85'-4 3/16"	107'-3 1/16"	88'-0 3/16"	3'-7 1/16"	3'-0 5/8"	3'-1 7/16"	79	71	77
2	63'-2 9/16"	63'-6 3/8"	65'-5 9/16"	63'-1 1/16"	63'-6 3/8"	65'-7 9/16"	83'-7 1/16"	105'-6 9/16"	86'-2 9/16"	3'-6 9/16"	3'-0 1/16"	3'-4 3/16"	71	69	74
3	61'-5 7/16"	61'-8 3/8"	63'-2 1/16"	61'-8 9/16"	61'-8 3/8"	63'-4 1/16"	81'-9 13/16"	103'-8 3/8"	83'-11 1/16"	3'-5 1/16"	2'-11 1/16"	3'-7 1/16"	69	67	71
4	59'-8 9/16"	59'-11 1/16"	60'-11"	59'-6 9/16"	59'-11 1/16"	61'-1"	80'-0 9/16"	101'-11 1/16"	81'-8"	3'-4 1/16"	2'-10 13/16"	3'-0"	67	65	69
5	57'-11 3/16"	58'-1 9/16"	58'-8 1/16"	57'-9 11/16"	58'-1 9/16"	58'-10 1/16"	78'-3 11/16"	100'-1 9/16"	79'-5 1/16"	3'-3 1/16"	2'-9 11/16"	2'-3 1/16"	65	63	66
6	56'-2 1/16"	56'-4 1/16"	56'-5 1/16"	56'-0 1/16"	56'-4 1/16"	56'-7 1/16"	76'-6 1/16"	98'-4 1/16"	77'-2 1/16"	3'-2 1/16"	2'-8 1/16"	2'-6 1/16"	63	60	63
7	54'-5 7/16"	54'-6 3/8"	54'-2 1/16"	54'-3 1/16"	54'-6 3/8"	54'-4 1/16"	74'-9 1/16"	96'-6 3/8"	74'-11 1/16"	3'-1"	2'-7 13/16"	2'-11 1/16"	61	58	61
8	52'-7 1/16"	52'-8 1/16"	51'-11 1/16"	52'-6 1/16"	52'-9 1/16"	52'-1 1/16"	73'-0 1/16"	94'-9 1/16"	72'-6 1/16"	2'-11 1/16"	2'-7 1/16"	2'-2 1/16"	59	56	58
9	50'-10 1/16"	50'-11 1/16"	49'-8 1/16"	50'-9 1/16"	50'-11 1/16"	49'-10 1/16"	71'-3 1/16"	92'-11 1/16"	70'-5 1/16"	2'-10 1/16"	2'-11 1/16"	2'-3 1/16"	57	54	56

* All dimensions are sloped dimensions

NOTE A

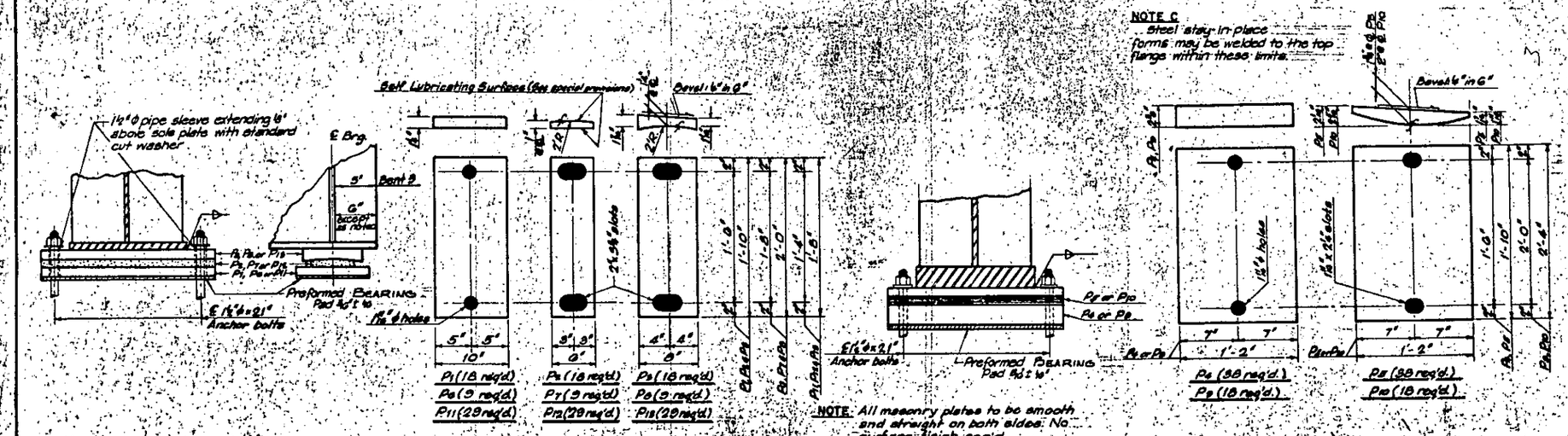
One additional shop flange splice will be permitted in top flange which exceeds 60 ft. in Spans A, B, & C. This splice is not to be located within the middle half of the flange plate.

NOTE B

Charpy V-notch tests will be required for top or bottom flange plates which fall within these limits. Also charpy V-notch tests will be required for all web plates, web splicing plates and flange splice plates. For Charpy V-notch tests see Special Provisions.

NOTE C

Steel stay-in-place forms may be welded to the top flange within these limits.



EXPANSION BEARING DETAILS
(At End Bents 1 & 2, Bent 3 & 6)

P1 (18 req'd)
P6 (9 req'd)
P11 (28 req'd)

P2 (18 req'd)
P7 (9 req'd)
P12 (28 req'd)

P3 (18 req'd)
P8 (9 req'd)
P13 (28 req'd)

NOTE: All masonry plates to be smooth and straight on both sides. No surface finish req'd.

FIXED BEARING DETAILS
(At Bents 1, 2, 4, 5, 7 and 8)

P4 (38 req'd.)
P9 (18 req'd.)

P5 (38 req'd.)
P10 (18 req'd.)

NOTES

A588 min. yield strength 50,000 psi. Design stress in extreme fiber in Bending 27,000 psi.

All structural steel except bearing assemblies, anchor bolts, nuts, washers and studs shall be of unpainted ASTM A-588 grade structural steel. High strength bolts, nuts and washers in girder splices and diaphragm connections shall be of ASTM A-325, Type 3 grade structural steel.

All welding shall be in accordance with the Special Provisions and the latest A.W.S. Specifications for Welded Highway and Railway Bridges. For radiographic and magnetic particle inspection see Special Provisions.

All welds shall be continuous. Weld sizes not shown shall be in accordance with A.W.S. Specifications & Special Provisions.

All shop splices in flange and web plates shall be made prior to welding flange plates to web plates. No splices other than those shown on the plans will be permitted in the flange plates. However additional shop web splices will be allowed within areas shown in the details. The location of these web splices shall be as shown on the Shop Plans.

Except for self lubricating plates, all bearing assemblies shall be galvanized.

At all fixed points of support, nuts for anchor bolts are to be tightened finger tight and then backed off ½ turn. The threads of the nut and bolt shall be burred with a sharp pointed tool.

Shear studs shall meet the requirements of the Standard Special Provisions regarding welded stud shear connectors.

For girder camber see "Deflection Diagrams"

See Struct. Steel Sheet 3 of 3 for Flange Weld details W-1 & W-2 and for field splice details.

Shipping details for beams and girders shall be submitted for approval indicating the top flange location during shipment and in all cases showing 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.

Cambered girder lengths shall be adjusted and bearings are to be placed on the cambered girder so as to be aligned with the anchors after the dead load deflection has occurred. Shop plans shall be prepared accordingly.

Flange plates shall be cut to radius as shown on plans for horizontal curve.

PROJECT NO. B-1855502

MITCHELL COUNTY

STATION: 105+98.50 ℄ U.S. 19 E

SHEET 1 OF 3

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

STRUCTURAL STEEL

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

TOTAL SHEETS 76

SPECIAL

DESIGNED BY	D. McCarkle	DATE Sept. 1978
DRAWN BY	J. Eberr	DATE Sept. 1978
TRACED BY		DATE
CHECKED BY	K. Vedlamani	DATE Oct. 1978

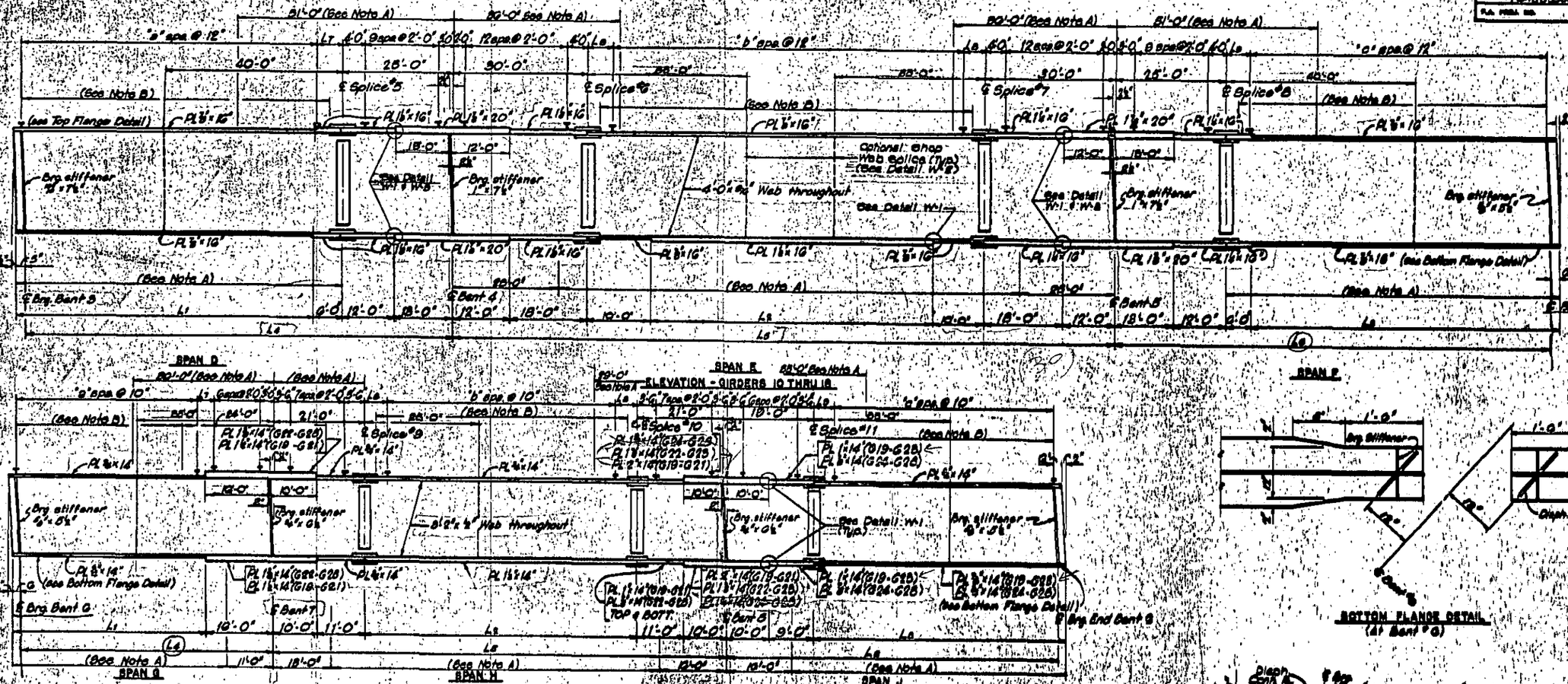
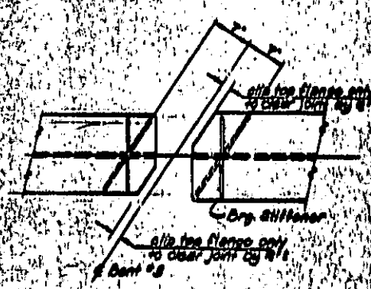


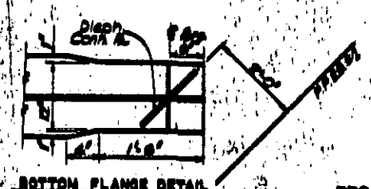
TABLE OF GIRDER DATA*

Girder	L1	L2	L3	L4	L5	L6	L7	L8	L9	'a'	'b'	'c'
10	69'-4½"	72'-10½"	72'-1"	89'-11½"	152'-10⅛"	102'-7"	4'-2½"	3'-11⅛"	4'-4½"	71	85	78
11	69'-5½"	72'-1⅛"	71'-2⅞"	89'-10½"	152'-1⅛"	101'-8⅛"	4'-0⅝"	4'-0⅝"	4'-0⅝"	71	84	78
12	69'-1⅝"	71'-5⅞"	70'-9⅛"	89'-6⅝"	151'-5⅞"	100'-9¼"	3'-11½"	3'-8⅝"	4'-7⅛"	71	84	77
13	68'-0½"	70'-10⅝"	69'-4½"	89'-7½"	150'-10⅝"	99'-10⅝"	3'-8⅝"	3'-11⅛"	4'-7⅝"	71	83	70
14	68'-10⅛"	70'-3⅛"	68'-4⅞"	89'-8⅛"	150'-3⅛"	98'-10⅝"	4'-0⅝"	4'-1⅛"	4'-8⅛"	70	82	69
15	68'-9½"	70'-0½"	68'-2⅛"	89'-4½"	150'-0½"	98'-8⅛"	4'-0⅛"	4'-0⅛"	4'-9⅛"	70	82	68
16	68'-7⅝"	69'-9⅛"	68'-0⅛"	89'-2½"	149'-9⅛"	98'-6⅛"	4'-5"	3'-10⅝"	4'-8⅛"	70	82	69
17	68'-5⅝"	69'-6⅛"	67'-9⅛"	89'-0⅝"	149'-6⅛"	98'-3⅞"	4'-5⅝"	4'-3⅛"	4'-1⅝"	70	81	68
18	68'-4⅝"	69'-3⅛"	67'-7⅝"	88'-11⅝"	149'-3⅛"	98'-1⅝"	4'-1⅝"	4'-1⅝"	3'-11⅝"	70	81	68
19	66'-6⅝"	66'-8⅝"	61'-0⅝"	82'-0⅝"	108'-8⅝"	78'-0⅝"	2'-2⅝"	3'-4⅝"	2'-10⅝"	64	72	68
20	46'-0⅝"	65'-10⅝"	60'-6⅛"	81'-0⅝"	107'-10⅝"	78'-0⅝"	1'-8⅝"	3'-2⅝"	3'-2⅝"	54	71	68
21	45'-5⅝"	65'-0⅝"	60'-0⅝"	80'-11⅝"	107'-0⅝"	78'-0⅝"	1'-11⅝"	3'-2⅝"	2'-6⅝"	55	70	68
22	44'-11⅝"	64'-2⅝"	59'-6⅝"	80'-5⅝"	106'-2⅝"	78'-0⅝"	1'-5⅝"	3'-2⅝"	3'-0⅝"	55	69	67
23	44'-5"	63'-4⅝"	59'-0⅝"	79'-11"	105'-4⅝"	77'-0⅝"	1'-5"	3'-2⅝"	3'-4⅝"	57	68	66
24	44'-3⅝"	63'-1⅝"	58'-9⅝"	79'-9⅝"	105'-1⅝"	77'-0⅝"	1'-7⅝"	3'-2⅝"	3'-1⅝"	57	68	66
25	44'-2"	62'-10⅝"	58'-7⅝"	79'-8"	104'-10⅝"	77'-1⅝"	1'-6"	3'-1⅝"	2'-11⅝"	57	68	66
26	44'-0⅝"	62'-7⅝"	58'-5⅝"	79'-6⅝"	104'-7⅝"	77'-11⅝"	2'-2⅝"	3'-0"	2'-9⅝"	57	68	66
27	43'-11"	62'-2⅝"	58'-2⅝"	79'-5⅝"	104'-2⅝"	78'-8⅝"	2'-1⅝"	3'-8⅝"	3'-8⅝"	57	67	66
28	43'-9⅝"	62'-2⅝"	58'-0⅝"	79'-5⅝"	104'-2⅝"	78'-0⅝"	1'-11⅝"	3'-2⅝"	3'-5⅝"	57	67	68

* All dimensions are sloped dimensions



TOP FLANGE DETAIL
(At Bent #8)



BOTTOM FLANGE DETAIL
(At End Bent #8)

Note 1: See Struct. Steel - Sheet 3 of 3 for Flange Weld Details W1, W1a & W1b and for field splice details.

Note A: Charpy V-Notch tests will be required for top or bottom flange plates which fall within these limits. Also, Charpy V-Notch tests will be required for all web plates, web splice plates and flange splice plates. For Charpy V-Notch tests see Special Provisions.

Note B: Steel stay-in-place forms may be welded to the top flange within these limits.

	B-1868308		
F.A. PROJ. NO.			

PROJECT NO. B-1868308

MITCHELL COUNTY

STATION: 1081.88.80 & U.S. 19E

SHEET 4 OF 5

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

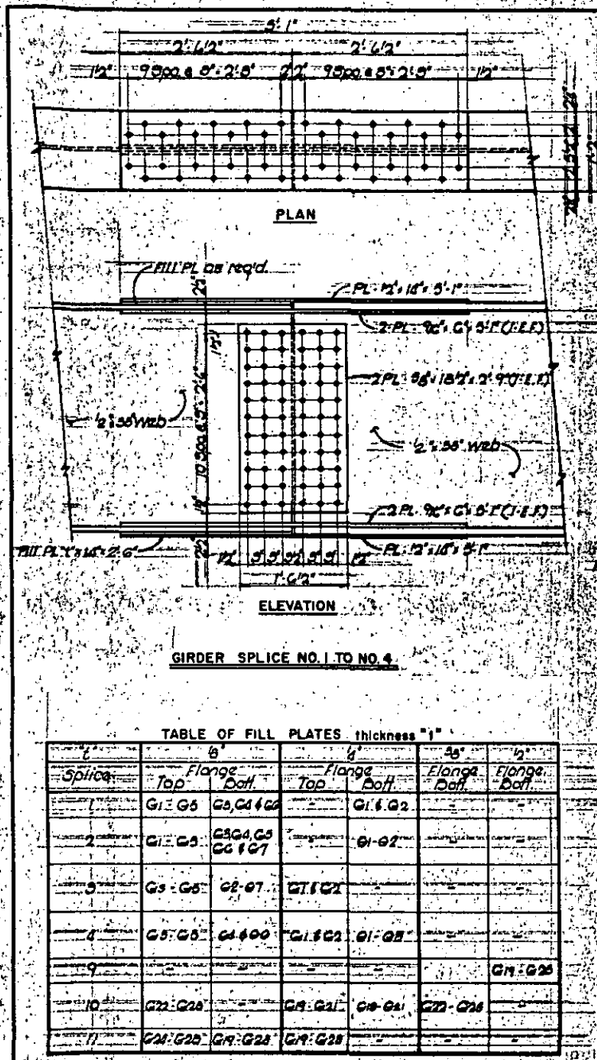
STRUCTURAL STEEL

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

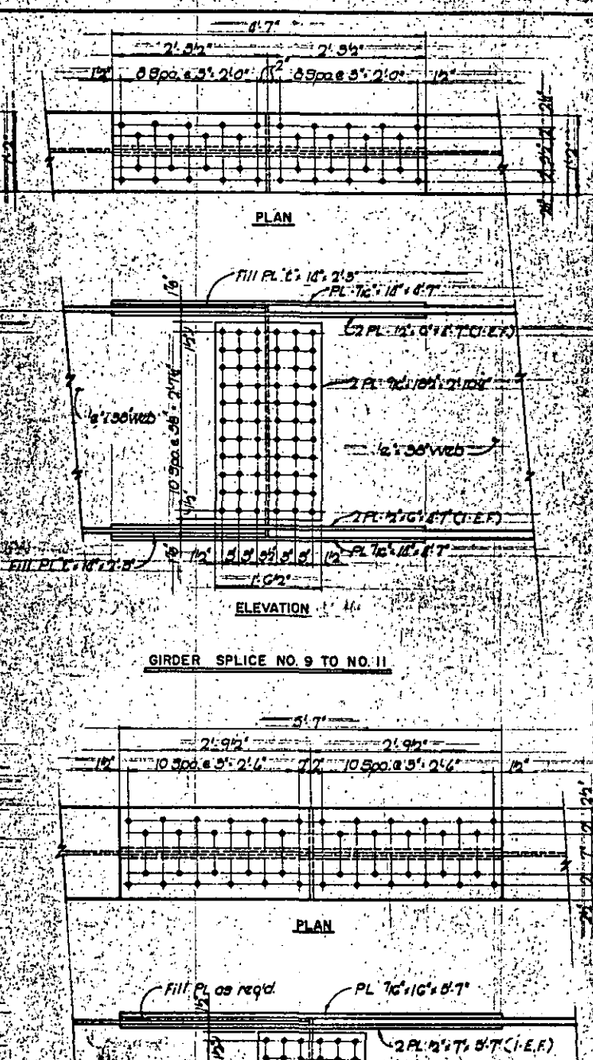
SHEET	5-57
TOTAL SHEETS	76

SPECIAL:

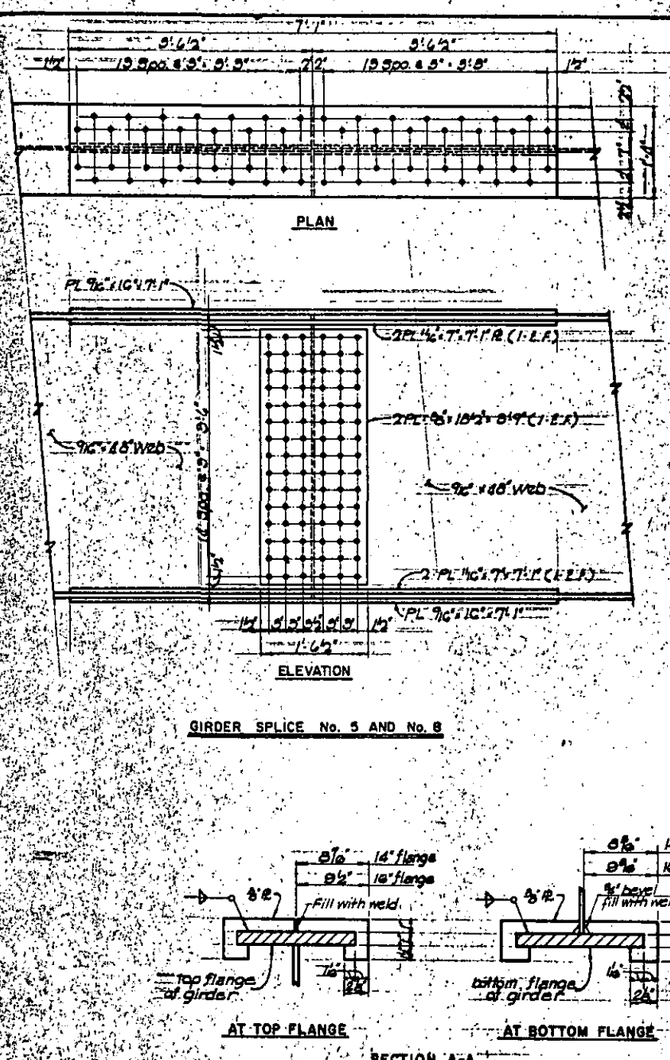
DESIGNED BY	D.M. Cockle	DATE Oct. 1978
DRAWN BY	J. Starr	DATE Oct. 1978
TRACED BY		DATE
CHECKED BY	K. Vadlamani	DATE Oct. 1978



GIRDER SPLICE NO. 1 TO NO. 4



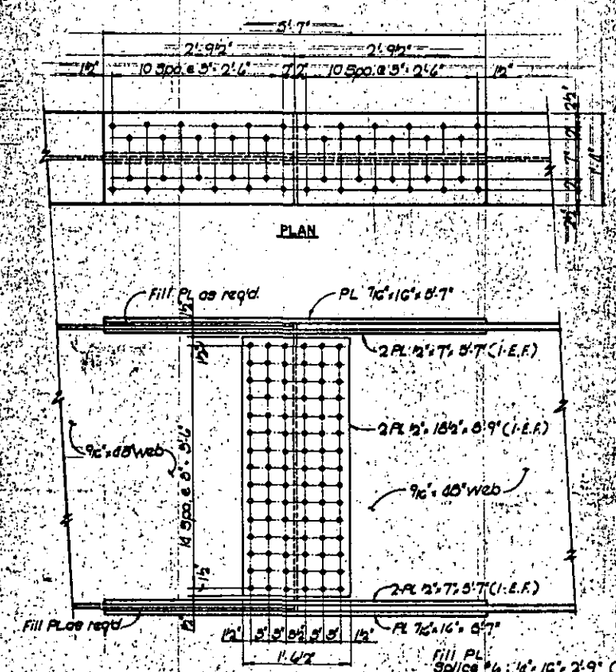
GIRDER SPLICE NO. 9 TO NO. 11



GIRDER SPLICE No. 5 AND No. 8

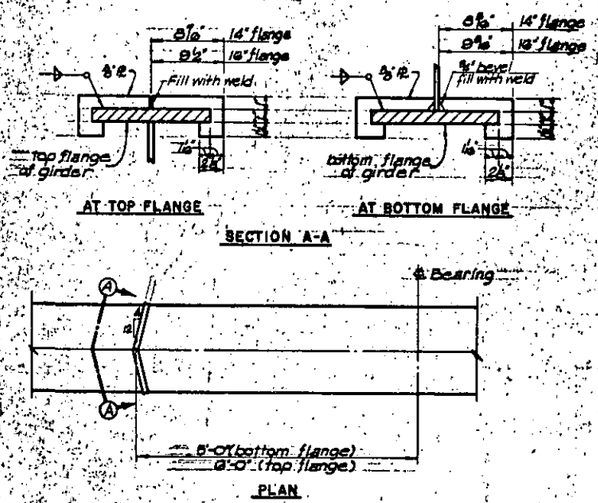
TABLE OF FILL PLATES thickness "1"

Splice	1/2" Flange Top	1/2" Flange Bott.	1/2" Flange Top	1/2" Flange Bott.	3/8" Flange Bott.	1/2" Flange Bott.
1	G1-G5	G5, G4 & G6		G1 & G2		
2	G1-G5	G5 G4, G5 G6 & G7		G1-G2		
3	G5-G6	G2-G7	G1 & G2			
4	G5-G6	G4 & G6	G1 & G2	G1-G2		
9						G19-G26
10	G22-G26		G19-G21	G19-G21	G22-G26	
11	G24-G26	G19-G23	G19-G23			



Fill PL as req'd
Fill PL
Splice #6: 1/2" x 16" x 2'-9" (G10-G18)
Splice #7: 3/8" x 16" x 2'-9" (G10-G18)

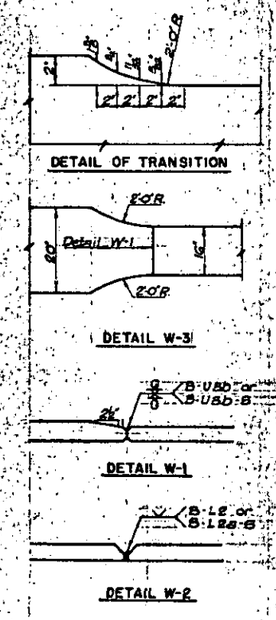
GIRDER SPLICE No. 6 AND No. 7



Note: Water diversion plates to be located at the low end of each span. All horizontal dimensions are along ℄ plate.

WATER DIVERSION PLATE DETAILS

NOTES:
1. All bolts shall be 3/4" ϕ. See Notes on Structural Steel Sheet 1 of 5.



PROJECT NO. B-1855502
MITCHELL COUNTY
STATION: 105+99.50 ℄ U.S. 19 E.
SHEET 3 OF 3

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

STRUCTURAL STEEL

DESIGNED BY	D.W. Corkle — DATE Sept. 1978
DRAWN BY	M. Gentry — DATE Sept. 1978
TRACED BY	DATE
CHECKED BY	K. Vadlemani — DATE Oct. 1978

SPECIAL

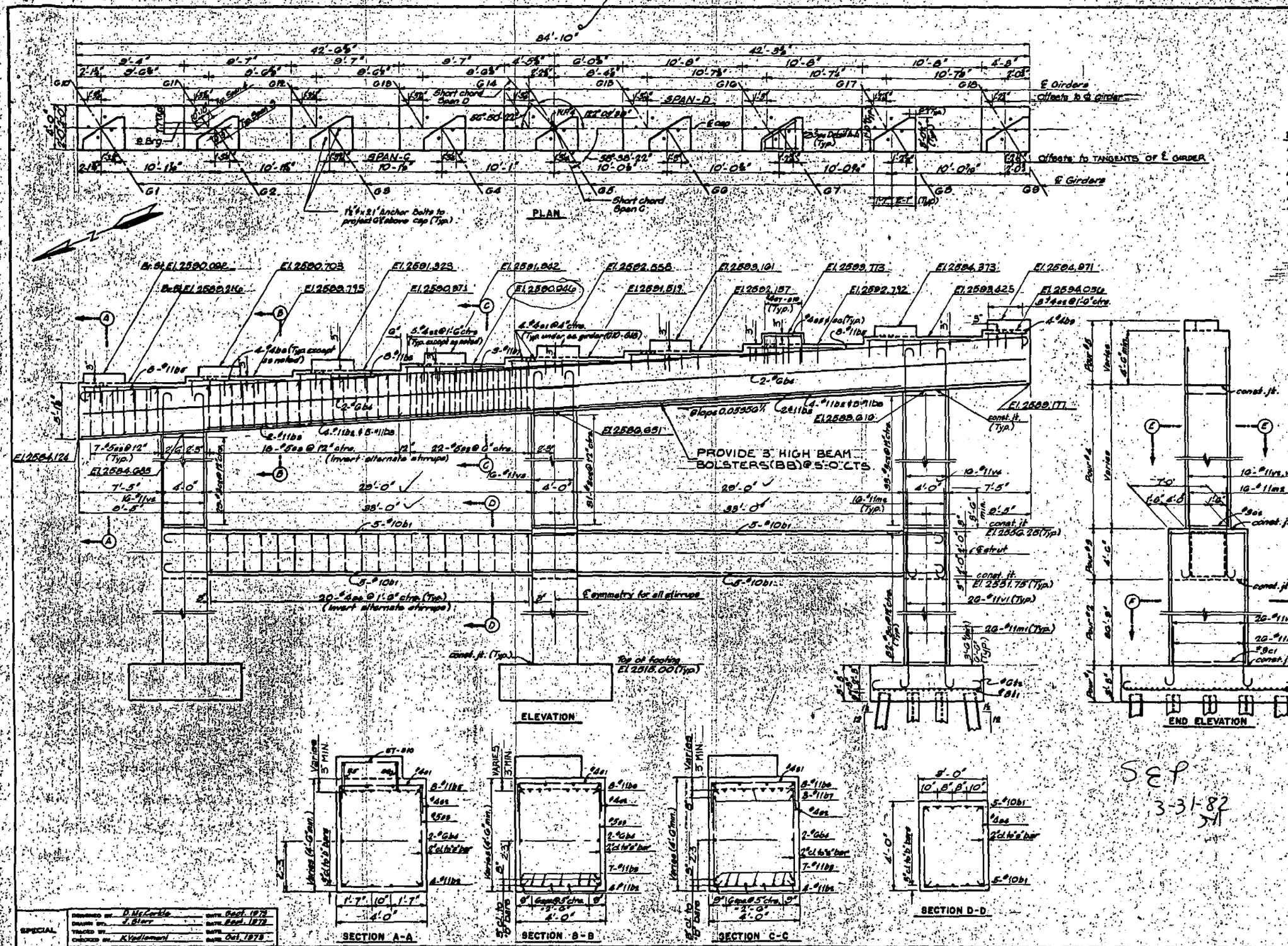
REVISIONS

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

SHEET NO. S-58
TOTAL SHEETS 76

B.O.	B1855502		
F.A. PROJ. NO.			

W.D.	8.1855502		
F.A. PROJ. NO.			



NOTES:

Reinforcing steel in cap may be shifted as necessary to clear anchor bolts.

Hooks on "V" bars may be turned as necessary for placing reinforcing steel.

For sections of columns, plan of footing and Bill of Material see BENT #3 SHEET 2 OF 2

All piles shall be driven to a minimum bearing capacity of 80 Tons each.

See END BENT #1 for pile splice details.

See General Drawing for location of 8" Sanitary Sewer.

PROJECT NO. 8.1855502

MITCHELL COUNTY

STATION 105+11.50 & U.S. 19E

SHEET 1 OF 2

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

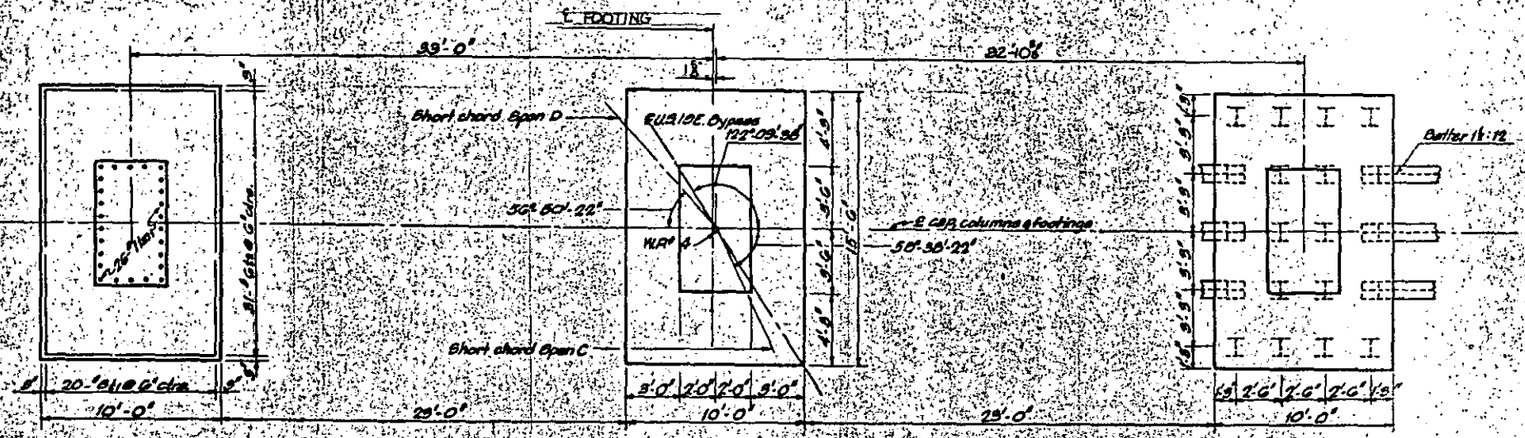
BENT NO. 3

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

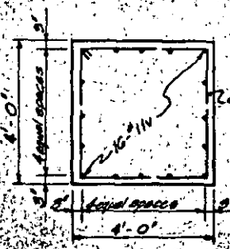
SPECIAL	DESIGNED BY D. McCarble	DATE Sept. 1978	
	DRAWN BY J. Starr	DATE Sept. 1978	
	TRACED BY	DATE	
	CHECKED BY K. Vadlamani	DATE Oct. 1978	

S&P
3-31-82

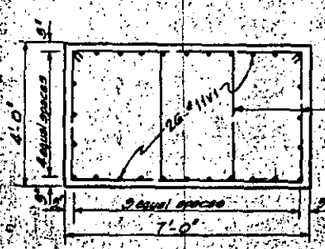
STATE	STATE PROJ. NO.	SHEET NO.	TOTAL SHEETS
N.C.	B.1855502		
F.A. PROJ. NO.			



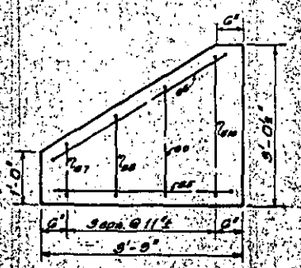
PLAN OF FOOTING



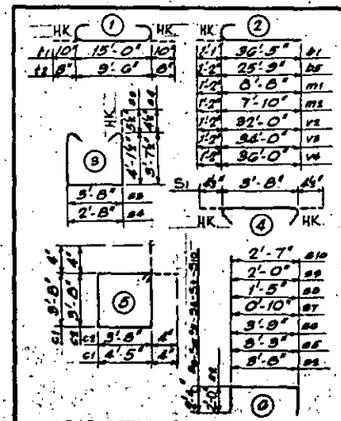
SECTION E-E



SECTION F-F



DETAIL A-A



BAR DETAILS

(All dimensions are out to out)

BILL OF MATERIAL

Bar	No.	Size	Detail	Length	Weight
b1	20	10	①	37'-6"	5227
b2	8	11	Str.	44'-0"	1870
b3	14	11	Str.	29'-0"	2157
b4	4	6	Str.	49'-8"	260
b5	16	11	③	26'-11"	2288
b6	8	11	Str.	40'-0"	1700
b7	3	11	Str.	27'-0"	351
b8	32	4	Str.	8'-0"	171
b9	4	4	Str.	3'-10"	10
c1	246	3	④	16'-10"	1597
c2	93	3	④	15'-4"	556
m1	78	11	②	9'-10"	4075
m2	48	11	②	9'-0"	2295
s1	36	4	⑤	4'-5"	106
s2	48	4	⑥	7'-8"	220
s3	34	5	⑥	12'-10"	1258
s4	40	4	⑤	10'-8"	285
s5	9	4	⑥	7'-11"	48
s6	9	4	⑥	8'-5"	51
s7	9	4	⑥	5'-6"	33
s8	9	4	⑥	6'-1"	37
s9	9	4	⑥	6'-8"	40
s10	9	4	⑥	7'-3"	44
t1	60	8	①	16'-8"	2670
t2	39	6	①	11'-10"	1658
v1	78	11	Str.	41'-0"	16991
v2	16	11	②	33'-2"	2820
v3	16	11	②	35'-2"	2989
v4	16	11	②	37'-2"	3159
Reinforcing Steel - Lbs.					52901.
Class "A" Concrete - cu. yds.					
Pour #1					56.0
Pour #2					114.8
Pour #3					89.8
Pour #4					54.1
Pour #5					63.3
Total:					527.5
12 H 53 steel piles: No. 60 , Lin. Ft.: 1740					

PROJECT NO. B.1855502

MITCHELL COUNTY

STATION: 105+9.50 & U.S. 19E

SHEET 2 OF 2

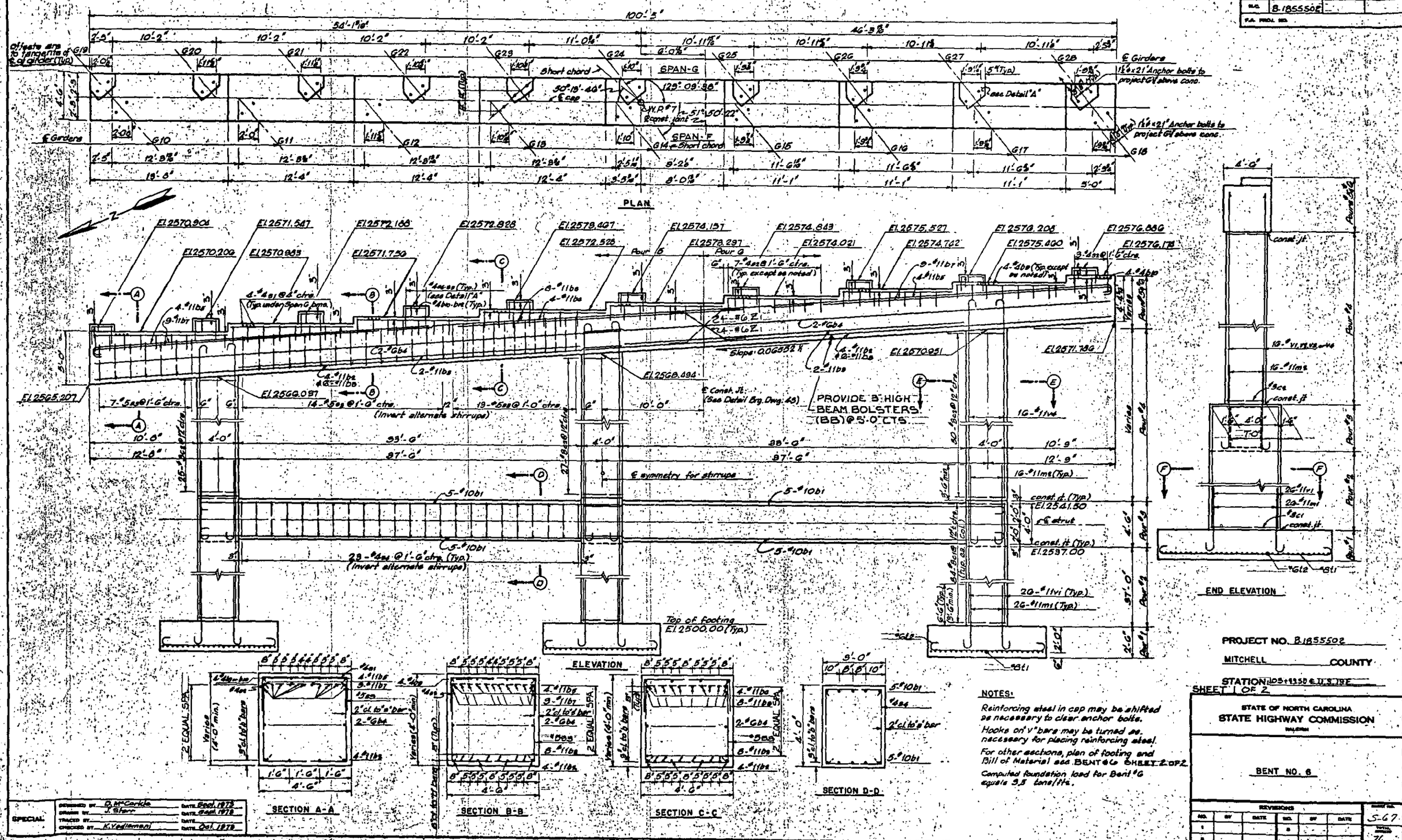
STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

BENT NO. 3 (CONT'D.)

REVISIONS						
NO.	BY	DATE	NO.	BY	DATE	SHEET NO. 5-63
1			3			TOTAL SHEETS 76
2			4			

SPECIAL			
DESIGNED BY	D. McCarkle	DATE	Sept. 1978
DRAWN BY	J. Starr	DATE	Sept. 1978
TRACED BY		DATE	
CHECKED BY	K. Vadlamani	DATE	Oct. 1978

W.B.	B-1855502		
F.A. PROJ. NO.			



PROJECT NO. B-1855502

MITCHELL COUNTY

STATION 105+13.50 ℄ U.S. 19E

SHEET 1 OF 2

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

BENT NO. 6

NOTES:

Reinforcing steel in cap may be shifted as necessary to clear anchor bolts.

Hooks on "V" bars may be turned as necessary for placing reinforcing steel.

For other sections, plan of footing and Bill of Material see BENT #6 SHEET 2 OF 2

Computed foundation load for Bent #6 equals 3.5 tons/ft.

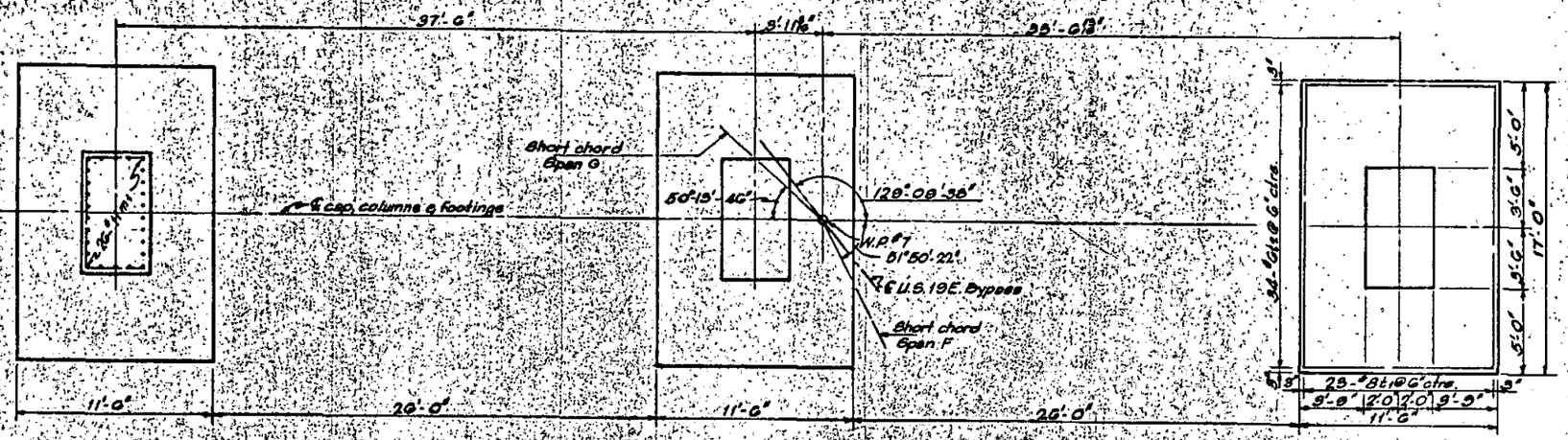
SPECIAL			
DESIGNED BY	D. McCorkle	DATE	Sept. 1973
DRAWN BY	J. Stern	DATE	April 1978
TRACED BY		DATE	
CHECKED BY	K. Vedlemann	DATE	Oct. 1978

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

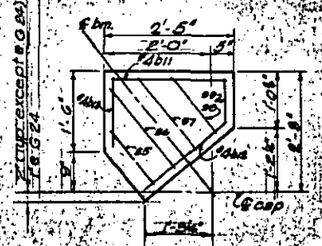
SHEET NO. S-67

TOTAL SHEETS 76

M.C.	B-1855502		
F.A. PROJ. NO.			



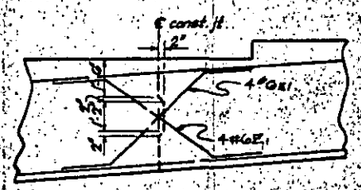
PLAN OF FOOTING



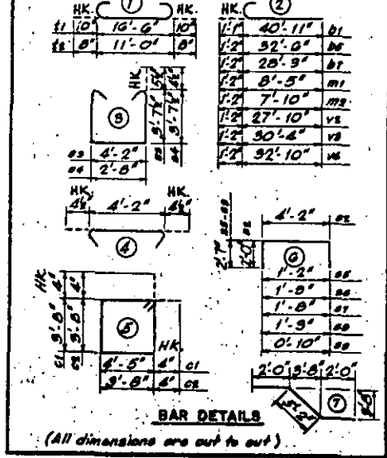
DETAIL "A"

SECTION E-E

SECTION F-F



CONSTRUCTION JOINT DETAIL



BAR DETAILS

(All dimensions are out to out)

BILL OF MATERIAL

Bar	No.	Size	Detail	Length	Weight
b1	20	10	2	42'-0"	3615
b2	8	11	Str.	51'-10"	2203
b3	16	11	Str.	35'-6"	2848
b4	4	6	Str.	50'-10"	305
b5	8	11	3	35'-8"	1431
b6	4	11	Str.	42'-0"	893
b7	18	11	3	29'-5"	2813
b8	8	11	Str.	28'-0"	1190
b9	32	4	Str.	11'-0"	235
b10	4	4	Str.	4'-3"	11
b11	10	4	Str.	2'-1"	14
b12	10	4	Str.	2'-0"	13
b13	10	4	Str.	1'-9"	8
c1	252	3	4	10'-10"	1505
c2	82	3	4	15'-4"	473
m1	78	11	2	8'-7"	3971
m2	48	11	2	8'-0"	2295
s1	96	4	6	2'-11"	118
s2	59	4	6	8'-2"	322
s3	68	5	6	12'-4"	875
s4	46	4	6	10'-8"	325
s5	10	4	6	6'-4"	42
s6	10	4	6	6'-11"	46
s7	10	4	6	6'-10"	46
s8	10	4	6	6'-5"	43
s9	10	4	6	6'-0"	40
t1	69	8	1	18'-2"	3347
t2	102	6	1	12'-4"	1889
v1	78	11	Str.	41'-2"	17060
v2	16	11	3	29'-0"	2465
v3	16	11	3	31'-6"	2678
v4	16	11	3	34'-0"	2890
z1	8	6	7	8'-2"	110
Reinforcing Steel - Lbs.					36,212
Class "A" Concrete - cu.yds.					
Pour #1					54.3
Pour #2					115.1
Pour #3					48.8
Pour #4					16.0
Pour #5					46.9
Pour #6					80.4
Total					305.9

PROJECT NO. B-1855502

MITCHELL COUNTY

STATION: 105+99.50 & U.S. 19E

SHEET 2 OF 2

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

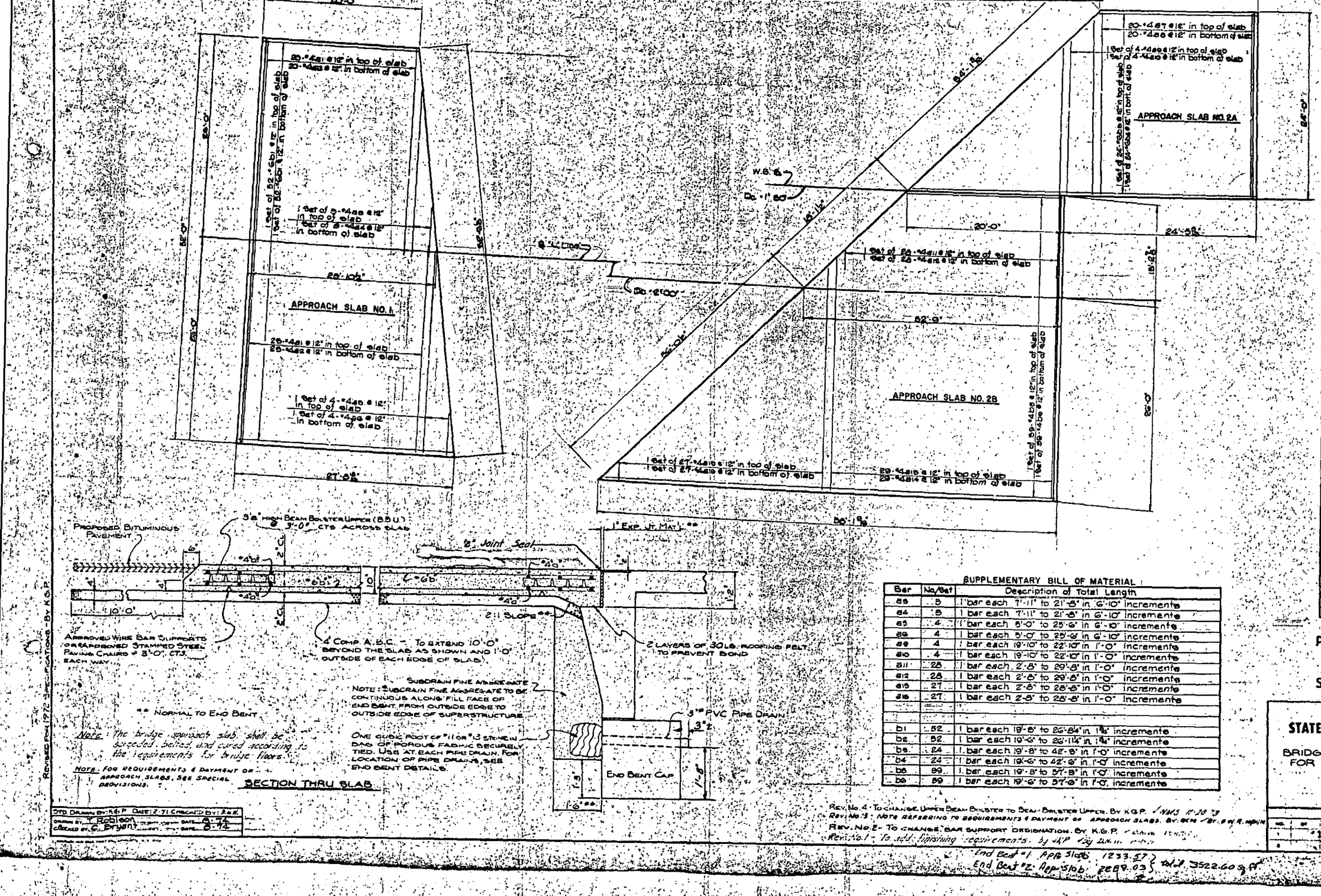
BENT NO. 6 (CONT'D)

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

SHEET NO. S-68

TOTAL SHEETS 76

SPECIAL			
DESIGNED BY	D. McCarkle	DATE	Sept. 1970
DRAWN BY	J. Black	DATE	Sept. 1970
TRACED BY		DATE	
CHECKED BY	K. Vadlamani	DATE	Oct. 1970



Std. Drawn by: K.G.P.	Date: 2-71	Checked by: R.W.H.
Drawn by: T. Robison	Date: 8-74	
Checked by: C. Bryant	Date: 8-74	

Revised from 1972 Specifications - By K.G.P.

Supplementary Bill of Material

Bar	No/Set	Description of Total Length
b3	5	1 bar each 7'-11" to 21'-8" in 6'-10" increments
b4	5	1 bar each 7'-11" to 21'-8" in 6'-10" increments
b5	4	1 bar each 5'-0" to 25'-6" in 6'-10" increments
b6	4	1 bar each 5'-0" to 25'-6" in 6'-10" increments
b9	4	1 bar each 19'-10" to 22'-10" in 1'-0" increments
b10	4	1 bar each 19'-10" to 22'-10" in 1'-0" increments
b11	28	1 bar each 2'-8" to 29'-8" in 1'-0" increments
b12	28	1 bar each 2'-8" to 29'-8" in 1'-0" increments
b15	27	1 bar each 2'-8" to 28'-8" in 1'-0" increments
b16	27	1 bar each 2'-8" to 28'-8" in 1'-0" increments
b1	52	1 bar each 19'-8" to 26'-8¼" in 1¾" increments
b2	52	1 bar each 19'-6" to 26'-11¼" in 1¾" increments
b3	24	1 bar each 19'-8" to 42'-8" in 1'-0" increments
b4	24	1 bar each 19'-6" to 42'-6" in 1'-0" increments
b5	89	1 bar each 19'-8" to 57'-8" in 1'-0" increments
b6	89	1 bar each 19'-6" to 57'-6" in 1'-0" increments

Rev. No. 4 - To change Upper Beam Bolster to Beam Bolster Upper. By K.G.P. NWS 11-10-73
Rev. No. 3 - Note referring to requirements & payment of approach slabs. By: RCM By: R.W.H.
Rev. No. 2 - To change bar support designation. By K.G.P.
Rev. No. 1 - To add finishing requirements. By J.K.P.

End Bent #1 App. Slab 1233.57
End Bent #2 App. Slab 2289.03
Total 3522.60 sq. ft.

F.A. Project

Bill of Material

Approach Slab No. 1

Bar	No.	Size	Type	Length	Weight
b1	45	4	Str.	26'-5"	759
b2	45	4	Str.	26'-5"	759
b3	1 Set	4	Str.	Varies	50
b4	1 Set	4	Str.	Varies	50
b5	1 Set	4	Str.	Varies	41
b6	1 Set	4	Str.	Varies	41
b1	1 Set	6	Str.	Varies	1794
b2	1 Set	6	Str.	Varies	1819
Reinforcing Steel - Lbs.					5207
Class AA Concrete - Cu. Yds.					56.4

Approach Slab No. 2

Bar	No.	Size	Type	Length	Weight
b7	20	4	Str.	26'-6"	314
b8	20	4	Str.	26'-6"	314
b9	1 Set	4	Str.	Varies	57
b10	1 Set	4	Str.	Varies	57
b11	1 Set	4	Str.	Varies	502
b12	1 Set	4	Str.	Varies	502
b13	29	4	Str.	29'-8"	575
b14	29	4	Str.	29'-8"	575
b15	1 Set	4	Str.	Varies	288
b16	1 Set	4	Str.	Varies	288
b3	1 Set	6	Str.	Varies	1108
b4	1 Set	6	Str.	Varies	1117
b5	1 Set	6	Str.	Varies	2241
b6	1 Set	6	Str.	Varies	2255
Reinforcing Steel - Lbs.					9783
Class AA Concrete - Cu. Yds.					
Approach Slab No. 2A - 28.9					
Approach Slab No. 2B - 42.7					
Total - 66.6					

Project No. B-1855502
Mitchell County
Station 105+99.50 ℄ U.S. 19E

State of North Carolina
STATE HIGHWAY COMMISSION
Raleigh

Bridge Approach Slab for Flexible Pavement

Revisions							
No.	By	Date	No.	By	Date	Sheet No. 5-75	Total Sheets 72