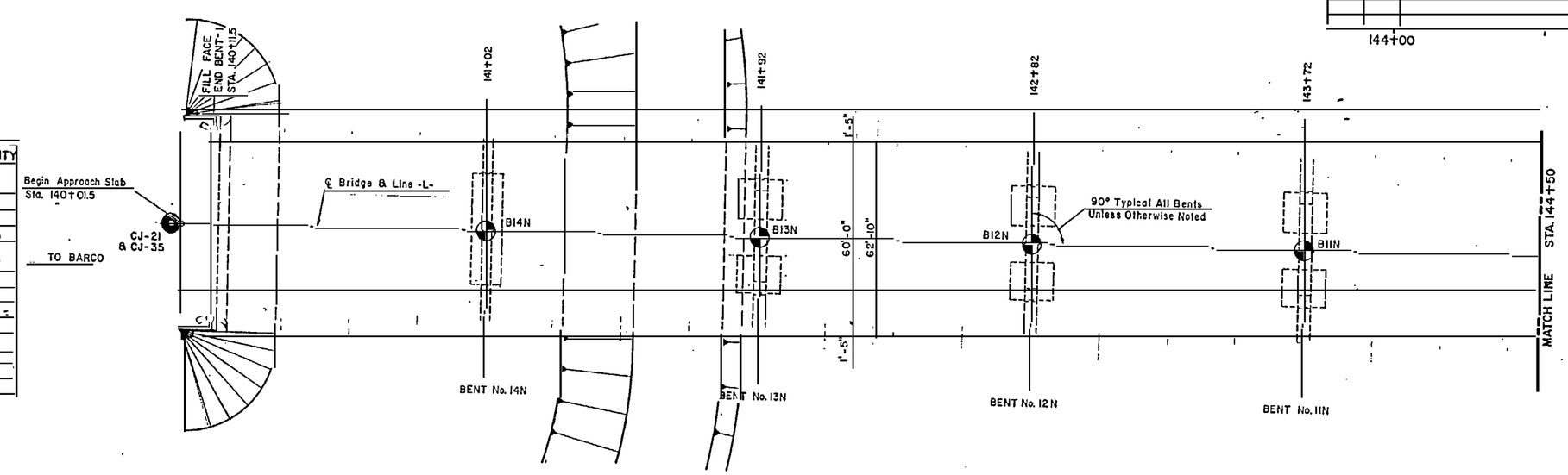
CORPS OF ENGINEERS

U. S. ARMY

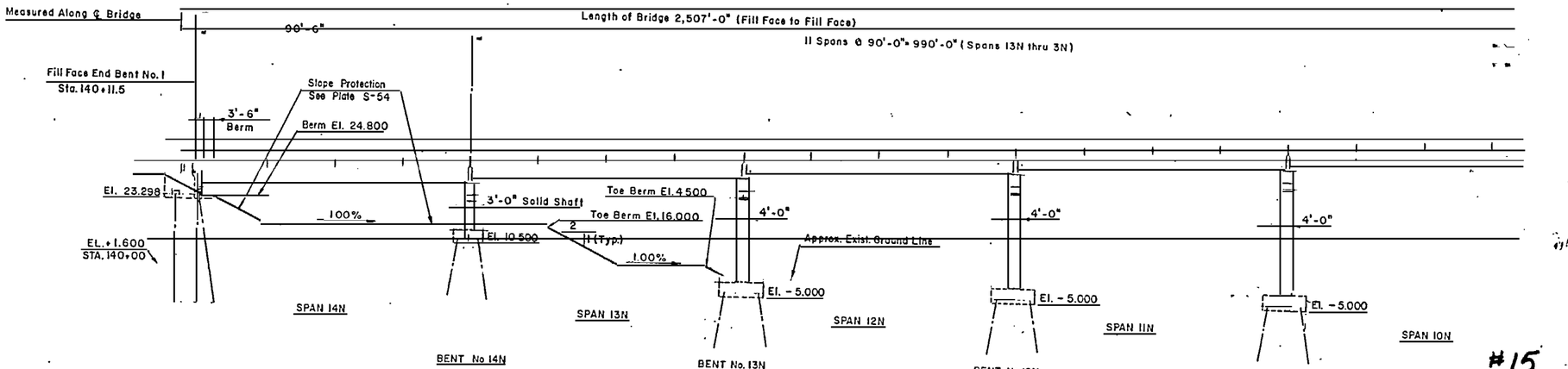
N.C. STATE AID PROJECT NO.

FEDERAL AID PROJECT NO. | FED. RD. DIV. NO.

BID ITEMS	UNIT	QUANTITY
NEW BRIDGE STA. 153+55 (COMPLETE EXCEPT AS OTHERWISE INDICATED HERE IN).	L.S.	—
BRIDGE APPROACH SLAB (2-REQ'D.)	L.S.	—
FOUNDATION EXCAVATION	C.Y.	3,726
12" PRESTRESSED CONCRETE PILES (SQUARE)	L.F.	3,930
22" PRESTRESSED CONCRETE PILES (OCTAGONAL) OR 20" PRESTRESSED CONCRETE PILES (SQUARE)	L.F.	28,855
COFFERDAMS COMPLETE (2 REQ'D. BENTS IN 8 IS)	L.S.	—
FENDER SYSTEM COMPLETE (EXCLUDING PILES)	L.S.	—
TREATED TIMBER PILES (FENDER SYSTEM)	L.F.	13,714 ±
NAVIGATIONAL LIGHTING SYSTEM	L.S.	—
REMOVAL OF EXISTING BRIDGE (STA. 153+55)	L.S.	—
PILE LOAD TESTS	EA.	5
STONE SLOPE PROTECTION	S.Y.	2,529
TEST PILES	L.F.	555



PLAN



ELEVATION

#15

26 0015

LEGEND

B(No.)N/S- OR CJ-(No.) — DENOTES BORING LOCATION & NUMBER (SEE APPENDIX A OF THE SPECS. FOR BORING LOGS)

RECORD DRAWING

HNTB ARCHITECTS ENGINEERS PLANNERS — HOWARD NEEDLES TAMMEN & BERGENDOFF, ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT, WILMINGTON — CORPS OF ENGINEERS, WILMINGTON, NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY

GENERAL PLAN AND ELEVATION.

COINJOCK BRIDGE REPLACEMENT PROJECT

CURRITUCK COUNTY NORTH CAROLINA

DESIGNED BY:	CHECKED BY:
B.T.G.	M.A.M.

PREPARED BY: [signature]

PRINCIPAL OF FIRM HNTB

INVITATION NO.	SIZE	DRAWING NUMBER	PLATE NO.
DACW54-83-B-0014		BR104-06-17	S-1
SCALE 1" = 20'	DATE 22 JULY 1983	SHEET 51 OF 126	

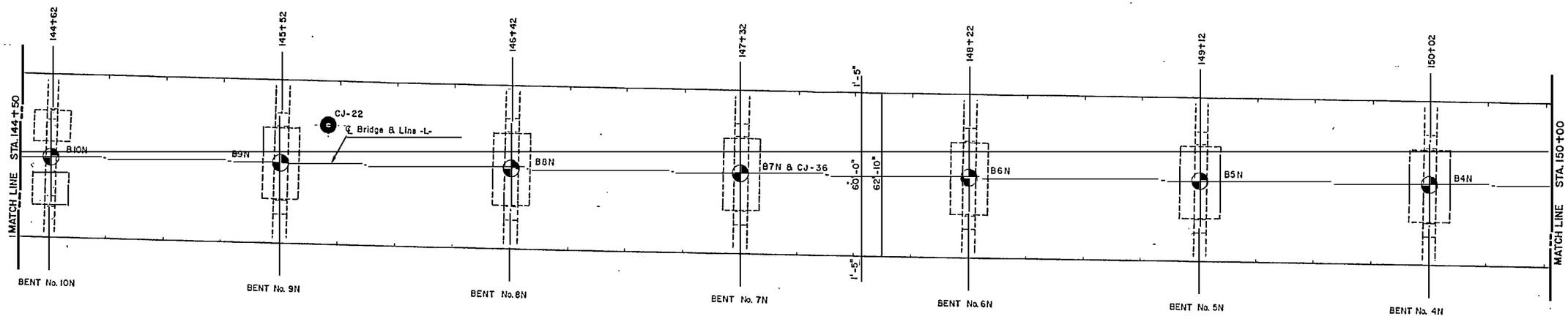
34504000

CORPS OF ENGINEERS

U. S. ARMY

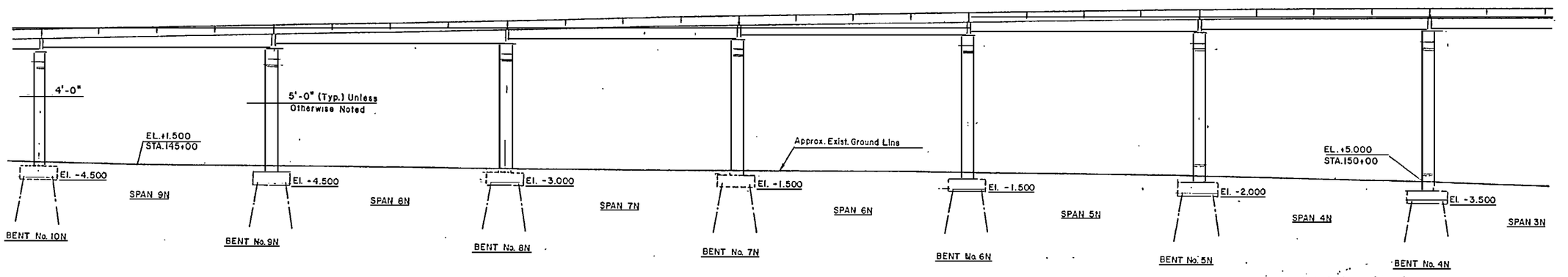
N.C. STATE AID PROJECT NO.	
FEDERAL AID PROJECT NO.	FED AID DIV NO.

145+00 146+00 147+00 148+00 149+00 150+00



PLAN

Length of Bridge 2,507'-0" (Fill Face to Fill Face)



ELEVATION

RECORD DRAWING

LEGEND

B(No.)N/S – DENOTES BORING LOCATION & NUMBER (SEE APPENDIX A OR CJ-(No.) OF THE SPECS. FOR BORING LOGS)

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY

GENERAL PLAN AND ELEVATION

COINJOCK BRIDGE REPLACEMENT PROJECT

CURRITUCK COUNTY NORTH CAROLINA

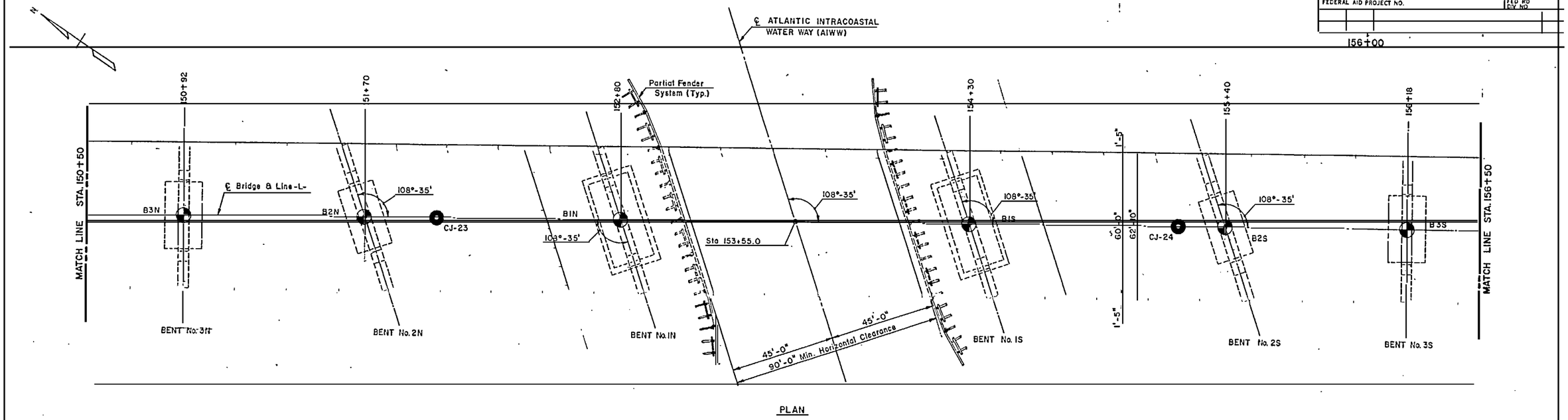
DESIGNED BY: B.T.G.	CHECKED BY: M.A.M.		
PREPARED BY:	INVITATION NO. DACW54-83-B-0014	SIZE	DRAWING NUMBER BR104-06-17 / PLATE NO. S-2
PRINCIPAL OF FIRM HNTB	SCALE 1"=20'	DATE 22 JULY 1983	SHEET 52 OF 126

34504000

CORPS OF ENGINEERS

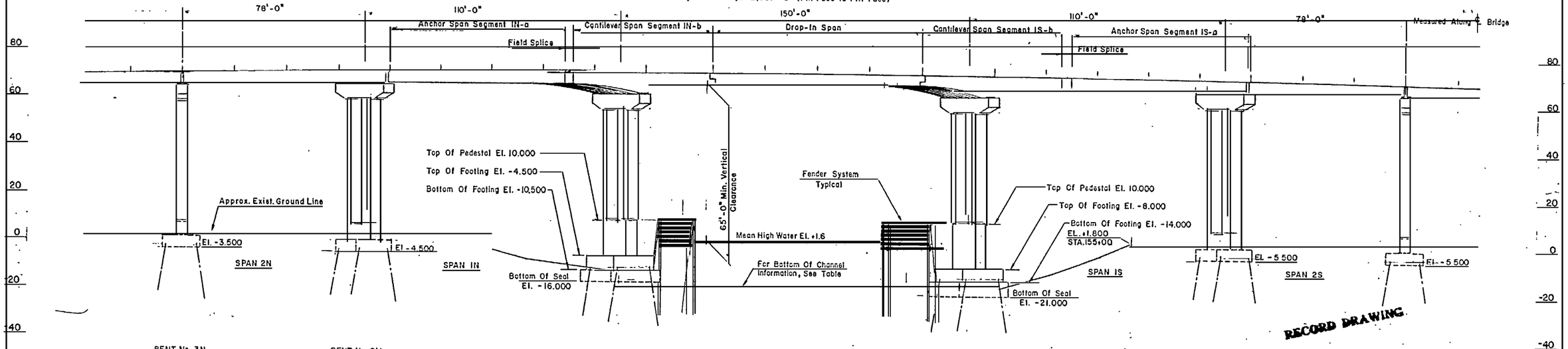
U. S. ARMY

N.C. STATE AID PROJECT NO	
FEDERAL AID PROJECT NO.	FED RD DIV NO

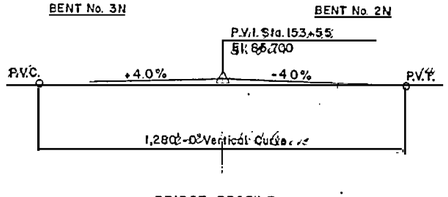


PLAN

Length of Bridge 2,507'-0" (Fill Face to Fill Face)



RECORD DRAWING



BRIDGE PROFILE

Mean Sea Level El. 0.0
Mean Low Water El. -0.1

ELEVATION

CHANNEL BOTTOM ELEVATION NOTES:

1. ORIENTATION FOR CHANNEL BOTTOM ELEVATIONS IS LOOKING UP STATION.
2. CHANNEL BOTTOM ELEVATIONS TABULATED FOR LEFT & RIGHT SIDES OF LINE "L" WERE MEASURED 50' PARALLEL TO ℄ AIWW FROM INTERSECTION STATION SHOWN.
3. INFORMATION NOTED BASED ON SURVEY TAKEN JANUARY OF 1981.
4. ELEVATIONS ARE BASED ON MEAN SEA LEVEL 0.0.

CHANNEL BOTTOM ELEVATIONS

STATION	LEFT	LINE -L-	RIGHT
152+15	-2.7	-0.7	-1.2
152+40	-7.7	-7.2	-8.2
152+90	-13.7	-13.7	-14.7
153+40	-18.7	-18.7	-19.7
153+90	-19.2	-19.7	-19.7
154+40	-18.7	-18.7	-19.2
154+65	-12.2	-11.7	-11.7
154+87	-4.2	-3.7	-3.7

LEGEND

B(No.)N/S- OR CJ-(No.) DENOTES BORING LOCATION & NUMBER (SEE APPENDIX A OF THE SPECS FOR BORING LOGS)

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY

GENERAL PLAN AND ELEVATION

COINJOCK BRIDGE REPLACEMENT PROJECT

CURRITUCK COUNTY NORTH CAROLINA

DESIGNED BY: B.T.G.	CHECKED BY: M.A.M.		
PREPARED BY:	INVITATION NO DACW54-83-B-0014	SIZE	DRAWING NUMBER BRI04-06-17
PRINCIPAL OF FIRM HNTB	SCALE: 1"= 20'	DATE 22 JULY 1983	SHEET 53 OF 126

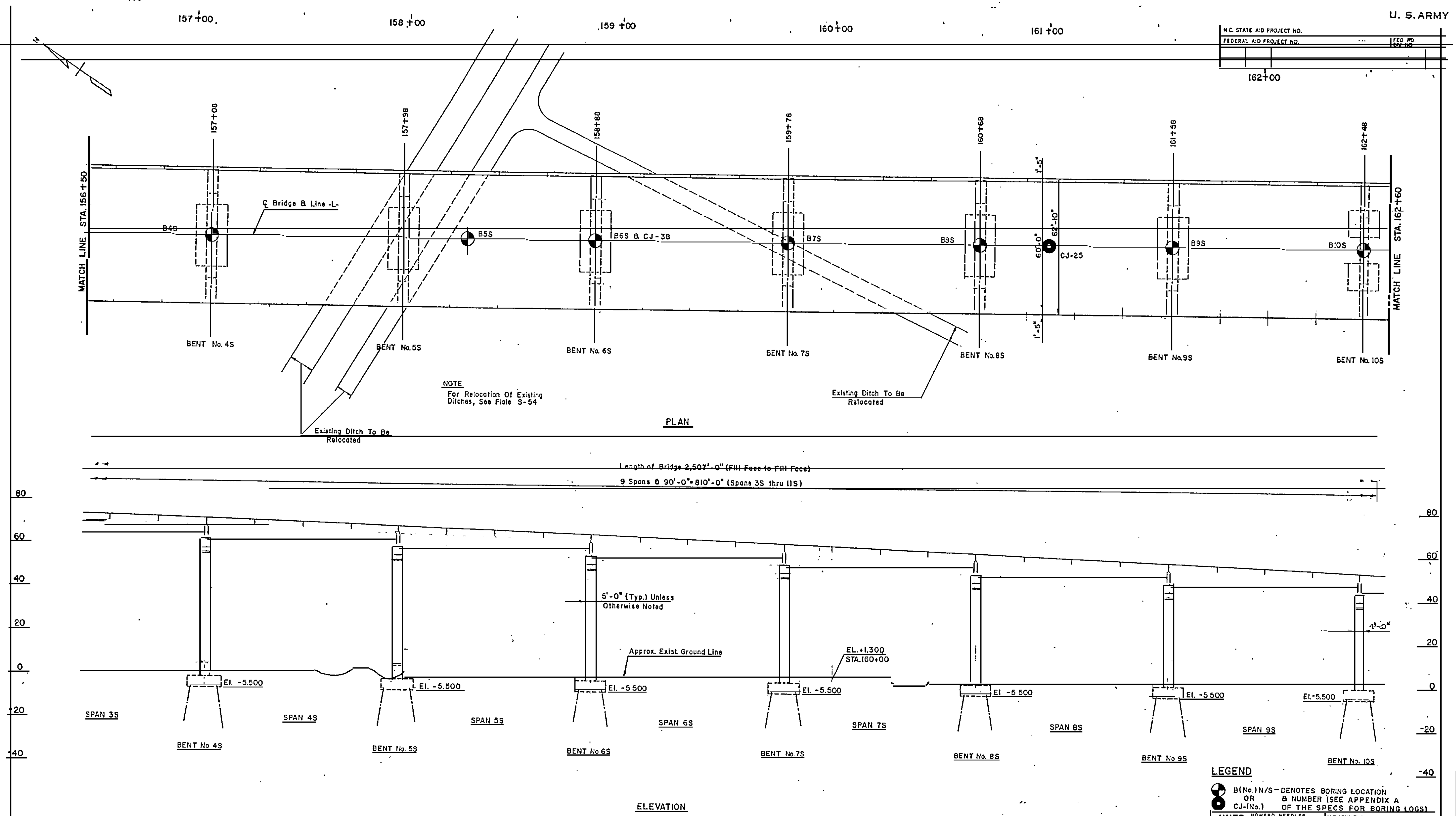
PLATE NO. S-3

34504000

CORPS OF ENGINEERS

U. S. ARMY

N.C. STATE AID PROJECT NO.
FEDERAL AID PROJECT NO.



LEGEND

B(No.)N/S – DENOTES BORING LOCATION OR CJ-(No.) & NUMBER (SEE APPENDIX A OF THE SPECS FOR BORING LOGS)

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF
ARCHITECTS ENGINEERS PLANNERS
ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT, WILMINGTON
CORPS OF ENGINEERS
WILMINGTON, NORTH CAROLINA

RECORD DRAWING

ATLANTIC INTRACOASTAL WATERWAY

GENERAL PLAN AND ELEVATION

COINJOCK BRIDGE REPLACEMENT PROJECT

CURRITUCK COUNTY NORTH CAROLINA

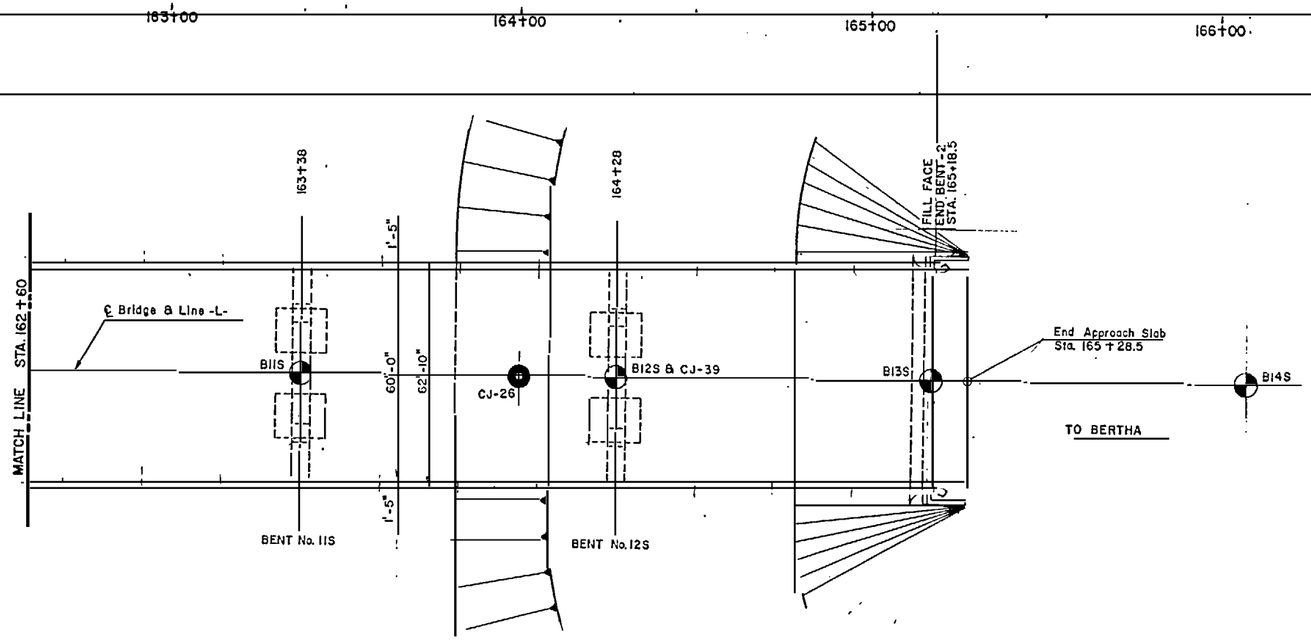
DESIGNED BY: B.T.G.	CHECKED BY: M.A.M.			
PREPARED BY: [signature]	INVITATION NO. DACW 54-83-B-0014	SIZE	DRAWING NUMBER BR104-06-17	PLATE NO. S-4
PRINCIPAL OF FIRM HNTB	SCALE 1" = 20'	DATE 22 JULY 1983		SHEET 54 OF 126

34504000

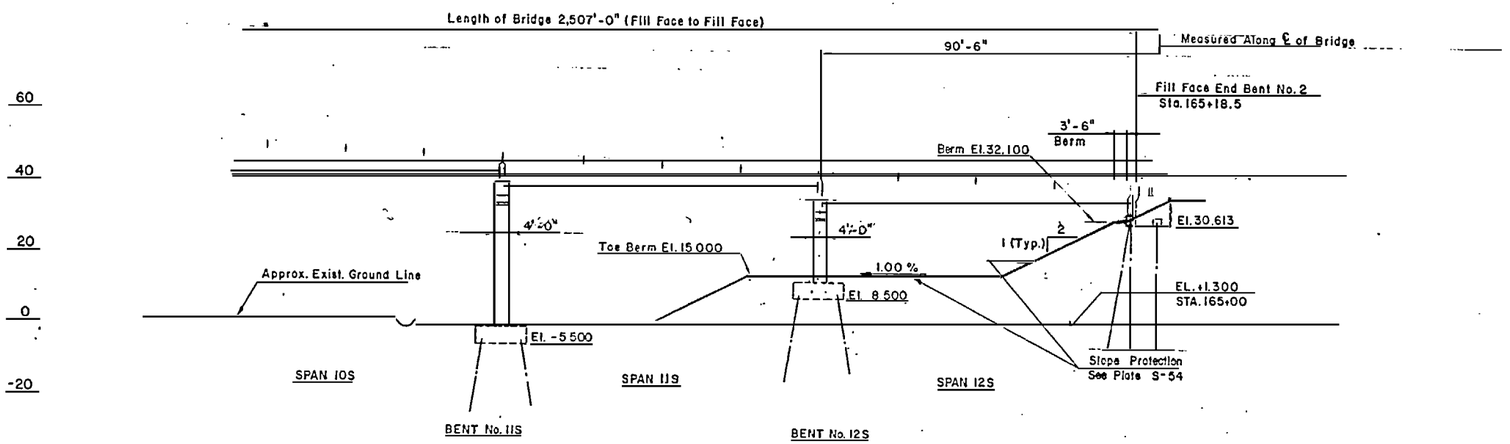
CORPS OF ENGINEERS

U. S. ARMY

N.C. STATE AID PROJECT NO	
FEDERAL AID PROJECT NO.	FED. RD DIV. NO.



PLAN



ELEVATION

RECORD DRAWING

LEGEND

B(No.)N/S – DENOTES BORING LOCATION
OR
CJ-(No.) & NUMBER (SEE APPENDIX A OF THE SPECS. FOR BORING LOGS)

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA	U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY

GENERAL PLAN AND ELEVATION

COINJOCK BRIDGE REPLACEMENT PROJECT

CURRITUCK COUNTY NORTH CAROLINA

DESIGNED BY: B.T.G.	CHECKED BY: M.A.M.			
PREPARED BY:		INVITATION NO. DACW54-83-B-0014	SIZE	DRAWING NUMBER BR104-06-17 / PLATE NO. S-5
PRINCIPAL OF FIRM HNTB		SCALE 1"=20'	DATE 22 JULY 1983	SHEET 55 OF 126

34504000

CORPS OF ENGINEERS

NOTE:
QUANTITIES LISTED IN THE BILL OF MATERIALS ARE ESTIMATED QUANTITES AND ARE FOR INFORMATION ONLY.

U. S. ARMY

N.C. STATE AID PROJECT NO.			
FEDERAL AID PROJECT NO.			FED. RD. DIV. NO. 1
1	8/12/83	1. REV. QTY OF CLASS A CONC. & ADD NOTE 4.	GMG

TOTAL BILL OF MATERIALS

	CLASS A CONCRETE	CLASS AA CONCRETE (2)	CLASS S CONCRETE	REINFORCING STEEL (3)	54" PRE-STRESSED CONCRETE GIRDERS (1)	VARIABLE DEPTH PRESTRESSED CONCRETE GIRDERS	LINSEED OIL CONCRETE PROTECTION	FOUNDATION EXCAVATION	NAVIGATIONAL LIGHTING SYSTEM	BRIDGE APPROACH SLABS	ELASTOMERIC BEARINGS	TREATED STRUCTURAL TIMBER	STONE SLOPE PROTECTION	TREATED TIMBER PILES	12" SQUARE CONCRETE PILES	20" SQUARE OR 22" OCTAGONAL CONCRETE PILES	COFFERDAMS	REMOVAL OF EXISTING BRIDGE	TEST PILES	PILE LOAD TEST	PREFORMED COMPRESSION JOINT SEAL
	CU. YDS.	CU. YDS.	CU. YDS.	LBS.	LIN. FT.	LIN. FT.	GALS.	CU. YDS.	LUMP SUM	SQ. FT.	EACH	M. B. F.	SQ. YDS.	LIN. FT.	LIN. FT.	LIN. FT.	LUMP SUM	LUMP SUM	LIN. FT.	EACH	LUMP SUM
SUPERSTRUCTURE		4,965.6		1,210,873	18,985	960	375				16										
END BENT NO. 1	26.6			4,644						599	8		1,380		1,025						
BENT NO. 1N	406.7 (1)		188.2	61,214				75			8					1,655					
BENT NO. 2N	279.2			73,598				153			16					1,100			95	1	
BENT NO. 3N	265.2			47,731				148			16					1,125					
BENT NO. 4N	262.6			49,731				157			16					1,210					
BENT NO. 5N	257.0			46,073				153			16					1,210					
BENT NO. 6N	230.2			43,022				142			16					1,060					
BENT NO. 7N	224.1			42,110				133			16					910			85	1	
BENT NO. 8N	220.1			41,431				133			16					995					
BENT NO. 9N	216.2			40,773				136			16					930					
BENT NO. 10N	165.3			37,405				162			16					980					
BENT NO. 11N	161.9			36,895				161			16					920					
BENT NO. 12N	157.9			35,974				166			16					835			85	1	
BENT NO. 13N	153.8			33,526				171			16					920					
BENT NO. 14N	126.4			13,883				85			16					1,105					
BENT NO. 1S	429.3 (1)		239.6	62,653				79			8					1,655					
BENT NO. 2S	276.4			74,083				153			16					1,000					
BENT NO. 3S	268.2			48,346				151			16					1,045			95	1	
BENT NO. 4S	265.6			47,964				153			16					1,210					
BENT NO. 5S	262.2			47,158				153			16					1,210					
BENT NO. 6S	237.7			44,327				141			16					1,060					
BENT NO. 7S	231.6			43,382				137			16					1,125					
BENT NO. 8S	224.8			43,185				135			16					1,160			100	1	
BENT NO. 9S	218.1			40,986				135			16					1,125					
BENT NO. 10S	166.4			37,644				164			16					1,105					
BENT NO. 11S	162.5			36,691				165			16					1,040					
BENT NO. 12S	137.8			30,921				185			16					1,165					
END BENT NO. 2	26.6			4,644						599	8		1,149		2,095						
FENDER SYSTEM												29,624		13,714							
CURVED END BLOCKS	2.5			560																	
EXTRA TEST PILE																			95		
TOTAL (1)	8083.0	4,965.6	427.8	2,380,464	18,985	960	375	3,726	LUMP SUM	1,198	432	29,624	2,529	13,714	3,930	28,855	LUMP SUM	LUMP SUM	555	5	LUMP SUM

① INCLUDES QUANTITIES FOR DROP-IN SPAN AND CONSTANT DEPTH PORTION OF ANCHOR SPAN.
② INCLUDES QUANTITIES FOR CLOSURE-POUR.
③ INCLUDES QUANTITIES FOR CLOSURE-POUR.
④ VOLUME OF PILE HEADS HAS NOT BEEN DEDUCTED FROM QUANTITY OF CLASS A CONCRETE.

ESTIMATED QUANTITIES IN DECK SLAB

	UNIT	SPAN 14N	SPANS 13N-3N (one span given)	SPAN 2N	SPAN 1N	SPAN DROP-IN	SPAN 1S	SPAN 2S	SPANS 3S-11S (one span given)	SPAN 12S
CLASS AA CONCRETE	CU. YDS.	191.3	176.37	152.6	285.5	179.4	285.5	152.6	176.37	191.3
REINFORCING STEEL	LBS.	42,289.0	41,147.0	36,042.0	91,901.0	47,469.0	91,901.0	36,042.0	41,147.0	42,289.0
LINSEED OIL CONCRETE PROTECTION	GALS.	13.5	13.5	11.5	20.8	13.4	20.8	11.5	13.5	13.5

RECORD DRAWING

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA
U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY

BILL OF MATERIALS

COINJOCK BRIDGE REPLACEMENT PROJECT
CURRITUCK COUNTY NORTH CAROLINA

DESIGNED BY: CAC.	CHECKED BY: JAL.		
PREPARED BY:	INVITATION NO. DACW54-83-B-0014	SIZE	DRAWING NUMBER BRI04-06-17 PLATE NO S-6
PRINCIPAL OF FIRM HNTB	SCALE NONE	DATE 22 JULY 1983	SHEET 56 OF 126

34504000

NC STATE AID PROJECT NO.		
FEDERAL AID PROJECT NO.		FED RD DIV NO
1	8/10/83 Add f'_{c_i} For Prestressed Concrete	GMG

Design Criteria

Roadway: 60'-0" Clear

Loading: Dead Load: Includes a uniform load of 20 lbs. per sq. ft. for future wearing surface; includes a uniform load of 12.5 lbs. per sq. ft. for stay-in-place metal forms.

Live Load: HS20-44 (HS18) and Military Loading (two 24 kips axles 4'-0" center to center)

Specifications: North Carolina Department of Transportation Standard Specifications for Roads and Structures, 1978, as modified by revisions; Supplemental Specifications, and Special Provisions.

Design: AASHTO Standard Specifications for Highway Bridges, 1977, and current Interim Specifications as supplemented and modified by the latest North Carolina Department of Transportation standards and practices.

1 Materials: Concrete: Prestressed Concrete Members, f'_c = 5,500 psi, f'_{c_i} = 4,400 PSI (Except Cantilever Segment) f'_{c_i} = 5,000 PSI (Cantilever Segment)
Seals - Class S, f'_c = 3,000 psi
Substructure - Class A, f'_c = 3,000 psi
Superstructure - Class AA, f'_c = 4,500 psi

Reinforcement: ASTM A615 - Grade 60

Treated Timber: Creosote Preservative Treatment
Timber and Lumber - 18 lbs. retention per cu. ft.
Piles - treat to refusal - min. retention 22 lbs. per cu. ft.
Retention will be determined by the assay method.

Prestressing Strands:
As noted on the plans, design, detail and properties of strands is based on stress relieved strands. Stress relieved strands must be used for Spans 1N and 1S. For all other spans, the Contractor, at his option, may use low-relaxation strands in lieu of stress relieved strands in accordance with the following:

Design and strand pattern must provide at least the same net compressive stress after the losses. The ultimate strength of the girder must meet the requirements of the applicable AASHTO specifications. Low-relaxation strands shall be tensioned and anchored at a load equal to 75% of its ultimate strength. This applied prestressed force shall be shown on the plans. Size of low-relaxation strands shall not be larger than those shown for stress relieved strands. Design and detail plans using low relaxation strands must be submitted to the Engineer for approval. Any additional cost due to the use of low relaxation strands will be paid for by the Contractor.

All prestressing strands shall be 7-wire stress relieved or low-relaxation Grade 270 strands and shall conform to ASTM A-416 except for sampling requirements which shall be in accordance with the standard specifications.

General Notes

Datum: Mean Sea Level - (1929) - Elevation 0.00

Concrete Surface Finish: All formed surfaces shall receive an Ordinary Surface Finish. Unless otherwise noted, all exposed edges shall be chamfered 3/4".

Dimensions: All dimensions are measured horizontally or vertically unless otherwise noted. All elevations refer to Mean Sea Level.

Excavation: There is no separate payment for end bent excavation or backfill, it is included as part of the lump sum bid price for the "New Bridge - Sta. 153+55".

Test Piles: The Contractor shall drive a 22" octagonal or 20" square prestressed concrete test pile, at the following locations and where shown on the plans:

		Estimated Length
Bent No. 12N	One pile	85.0'
Bent No. 7N	One pile	85.0'
Bent No. 2N	One pile	95.0'
Bent No. 3S	One pile	95.0'
Bent No. 8S	One pile	100.0'

Test piles shall have the same cross sectional dimensions as all other piles to be used in intermediate bents, shall be driven vertically and shall be load tested to a minimum of 250 tons as described in the technical provisions. After testing, they shall be cut off and become part of the completed structure, provided that they conform to the specifications and are driven in the presence of the Contracting Officer. Test piles shall be paid for at the contract unit price per linear foot for Test Piles. Loading tests shall be paid for at the contract unit price per each for pile load tests.

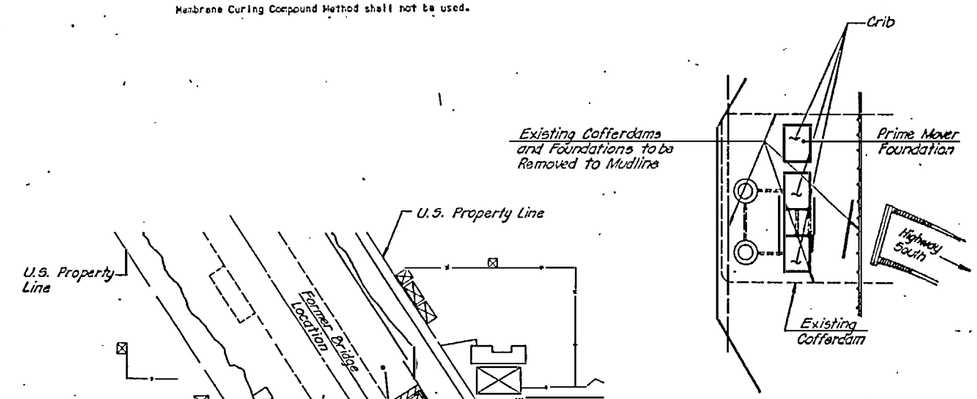
Piles: The piles for End Bents 1 and 2 shall be 12-inch square prestressed concrete, shall be driven to a minimum bearing capacity of 30 tons each, and shall be driven to at least the minimum pile tip elevations shown on the Drawings. Piles in end bents shall be pre-augered to the bottom of the fill. The piles for the intermediate bents shall be (at the Contractor's option) either 20-inch square or 22-inch octagonal prestressed concrete, shall be driven to a minimum bearing capacity of 125 tons each, and shall be driven to at least the minimum pile tip elevations shown on the Drawings. All timber piles for the fender system shall be driven to a minimum bearing capacity of 10 tons each and to at least the minimum pile tip elevations shown on the Drawings. The minimum pile tip elevation shown refers to an elevation above which the pile tip is not intended to be stopped.

Waiting Period: No work shall begin on end bents 1 and 2, and on intermediate bents 14N, 13N and 12S until all embankment fill has been in place a minimum of 9 months. See the Technical Provisions.

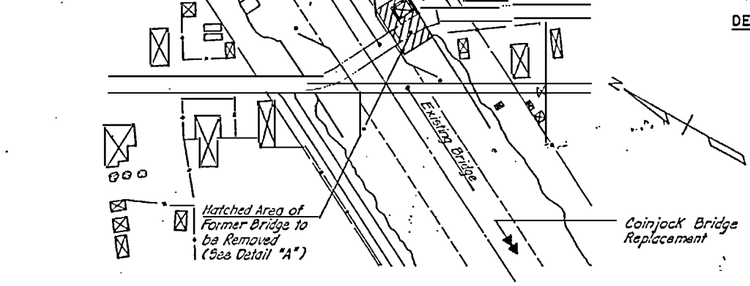
Falsework: Care shall be taken to insure that falsework for the bent column forms is set to give the correct lines shown on the Drawings with proper allowance for shrinkage, deflections, and settlement. Falsework supporting the columns shall not be removed until the concrete in the bent cap has reached the strength specified in Article 420-18 of the Standard Specifications.

Removal of Existing Structure: Upon completion of the new bridge and roadway, and upon notice by the Engineer, the existing swing span bridge located approximately 950 feet northeast of the new waterway crossing and submerged portions of a former bridge shall be removed. See Special Provisions.

Epoxy Protective Coating: An epoxy protective coating for concrete shall be applied to the top surfaces and edge chamfers of all bent caps, except Bents 1N and 1S but including End Bents 1 and 2. The epoxy protective coating shall not be applied to the areas under the elastomeric bearings. The concrete surfaces to be epoxy coated shall be cured in accordance with the Standard Specifications except the Membrane Curing Compound Method shall not be used.



DETAIL "A"
N.T.S.



REMOVAL OF SUBMERGED PORTIONS OF FORMER BRIDGE
N.T.S.

RECORD DRAWING

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U S ARMY ENGINEER DISTRICT WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY

GENERAL NOTES

COINJOCK BRIDGE REPLACEMENT PROJECT

CURRITUCK COUNTY NORTH CAROLINA

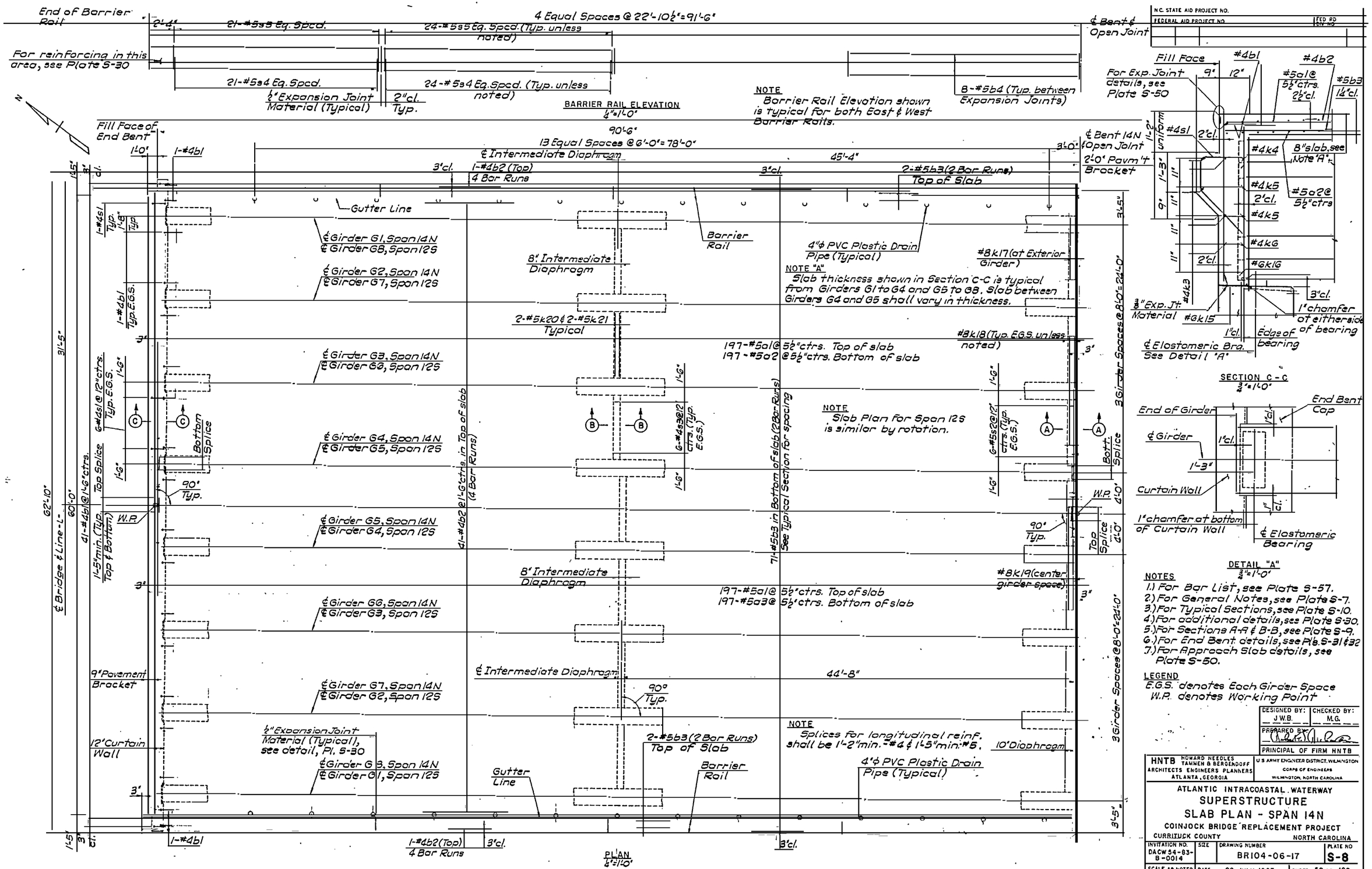
DESIGNED BY: J.A.L.	CHECKED BY: J.E.W.	INVITATION NO. DACW54-83-B-0014	SIZE	DRAWING NUMBER BR104-06-17	PLATE NO. S-7
PREPARED BY: [signature]					
PRINCIPAL OF FIRM HNTB		SCALE NONE	DATE 22 JULY 1983	SHEET 57 OF 126	

CORPS OF ENGINEERS

U. S. ARMY

N.C. STATE AID PROJECT NO.

FEDERAL AID PROJECT NO. | FED RD DIV NO



NOTES

1.) For Bar List, see Plate S-57.
2.) For General Notes, see Plate S-7.
3.) For Typical Sections, see Plate S-10.
4.) For additional details, see Plate S-30.
5.) For Sections A-A & B-B, see Plate S-9.
6.) For End Bent details, see Pls. S-31 & 32
7.) For Approach Slab details, see Plate S-50.

LEGEND

E.G.S. denotes Each Girder Space
W.P. denotes Working Point

DESIGNED BY: J.W.B.	CHECKED BY: M.G.
PREPARED BY:	PRINCIPAL OF FIRM HNTB

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY

SUPERSTRUCTURE

SLAB PLAN - SPAN 14N

COINJOCK BRIDGE REPLACEMENT PROJECT

CURRITUCK COUNTY NORTH CAROLINA

INVITATION NO.	SIZE	DRAWING NUMBER	PLATE NO
DACW 54-83-B-0014		BR104-06-17	S-8

SCALE AS NOTED | DATE: 22 JULY 1983 | SHEET 58 OF 126

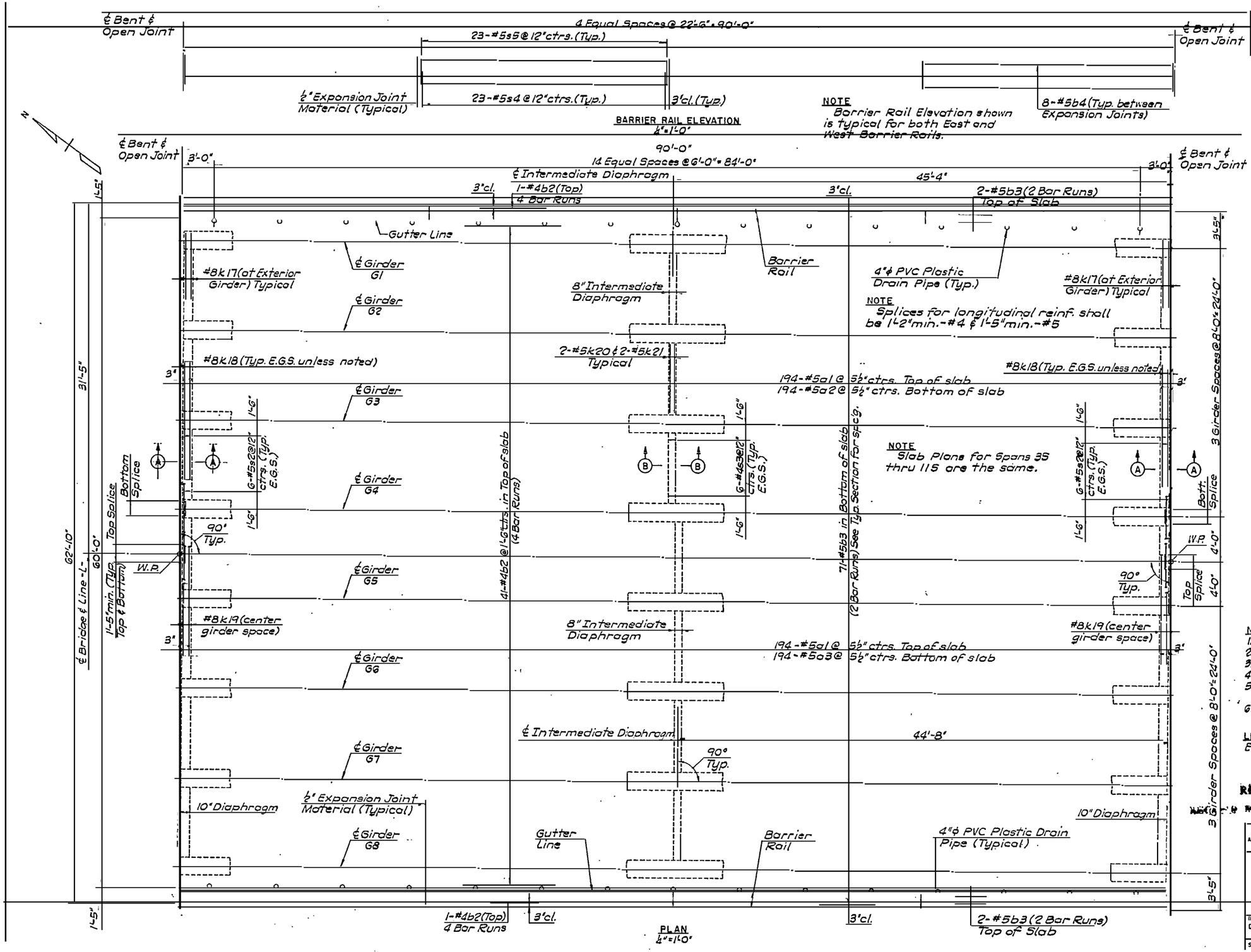
CORPS OF ENGINEERS

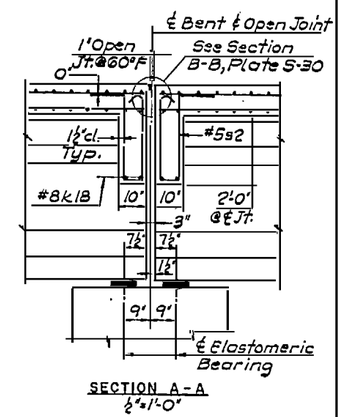
U. S. ARMY

N.C. STATE AID PROJECT NO

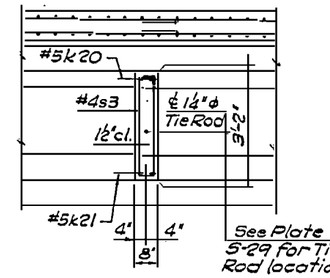
FEDERAL AID PROJECT NO.

FED. AID DIV NO





SECTION A - A
½" = 1'-0"



SECTION B - B
½" = 1'-0"

NOTES
1.) For Bar List, see Plate S-57.
2.) For General Notes, see Plate S-7.
3.) For Typical Sections, see Plate S-10.
4.) For additional details, see Plate S-30.
5.) For Prestressed Girder details, see Plate S-22.
6.) For Expansion Joint details in Barrier Rails, see Plate S-30.

LEGEND
E.G.S. denotes Each Girder Space
W.P. denotes Working Point

RECORD DRAWING

DESIGNED BY: JWB.	CHECKED BY MG.
PREPARED BY:	
PRINCIPAL OF FIRM, HNTB	

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

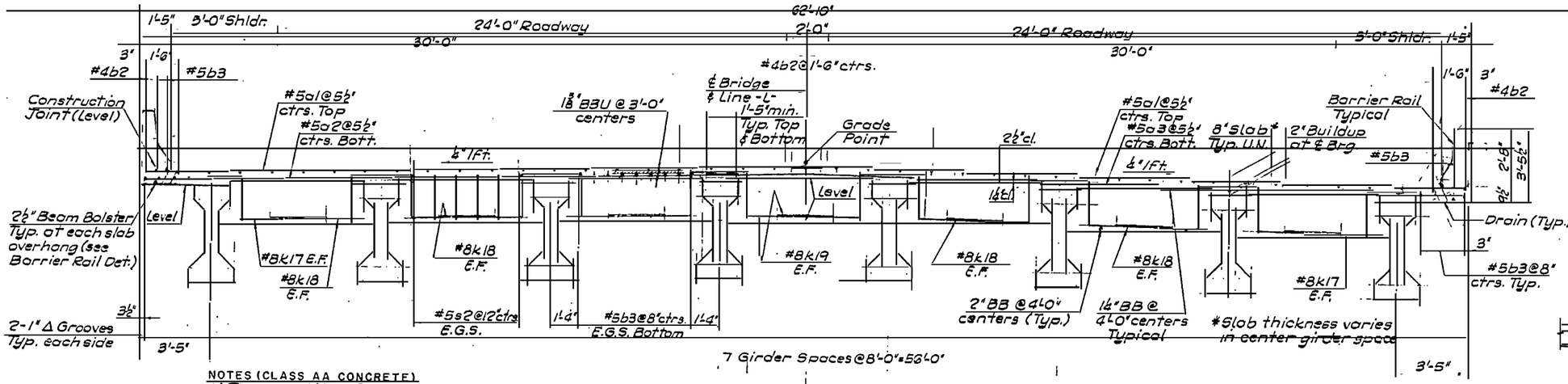
U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY
SUPERSTRUCTURE
SLAB PLAN - SPANS 3N THRU 13N
COINJOCK BRIDGE REPLACEMENT PROJECT
CURRITUCK COUNTY NORTH CAROLINA

INVITATION NO.	SIZE	DRAWING NUMBER	PLATE NO
DACW54-83-B-0014		BR104-06-17	S-9
SCALE AS NOTED	DATE 22 JULY 1983	SHEET 59 OF 126	

N.C. STATE AID PROJECT NO

FEDERAL AID PROJECT NO. | FED. RD. DIV. NO.



TYPICAL SECTION
(at Open Joint)
3/8"=1'-0"

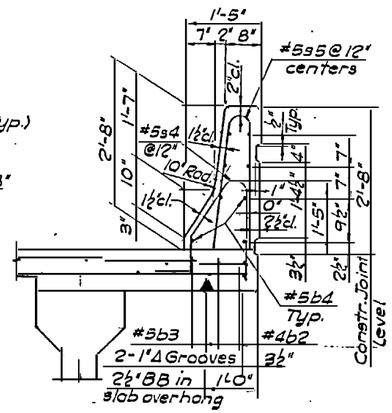
NOTES (CLASS AA CONCRETE)

1.) The quantity of all Class AA Concrete in Spans 14N and 12S averages 2.11 C.Y./Lin.Ft. of deck.

2.) The quantity of all Class AA Concrete in Spans 3N thru 14N and 3S thru 11S averages 1.96 C.Y./Lin.Ft. of deck.

NOTE

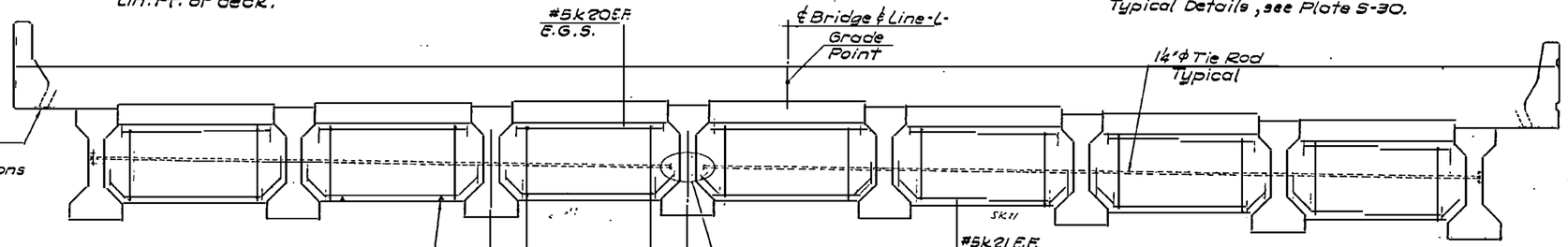
Metal Stay-In-Place forms have not been shown on Cross Sections. For Typical Details, see Plate S-30.



BARRIER RAIL DETAIL
3/4"=1'-0"

NOTE

At the Contractor's option he may use the alternate Barrier Rail Section shown on Plate No. S-30.



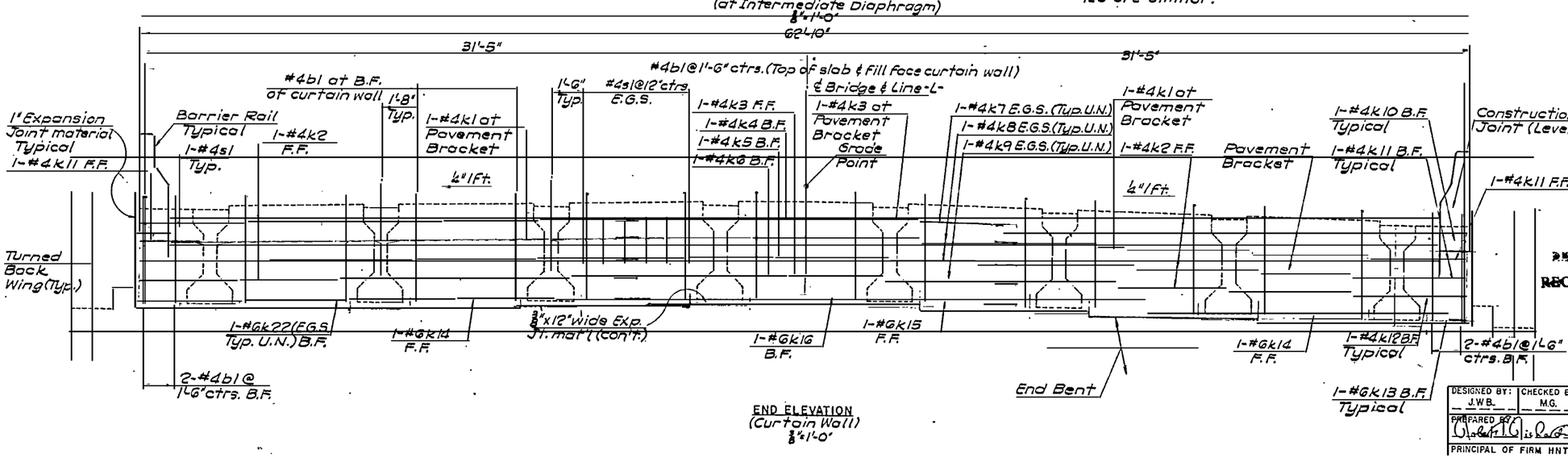
NOTE

Typical Sections for Spans 3S thru 12S are similar.

NOTES

1.) For General Notes, see Plate S-7.
2.) For additional details, see Pl's. S-8 & 9.
3.) For End Bent details, see Pl's S-31 & 32.
4.) For Girder details, see Plate S-22.
5.) Temporary struts shall be placed between prestressed girders adjacent to the diaphragms and the nuts on the 1¼" ϕ Tie Rods shall be fully tightened before diaphragms are cast. Struts shall remain in place 3 days after concrete is placed. The Tie Rods shall be retightened after the struts have been removed.

TYPICAL SECTION
(at Intermediate Diaphragm)
3/8"=1'-0"



END ELEVATION
(Curtain Wall)
3/8"=1'-0"

LEGEND

F.F. denotes Fill Face
B.F. denotes Back Face
E.G.S. denotes Each Girder Space
B.B. denotes Beam Bolster
U.N. denotes Unless Noted
B.B.U. denotes Beam Bolster Upper
E.F. denotes Each Face

RECORD DRAWING

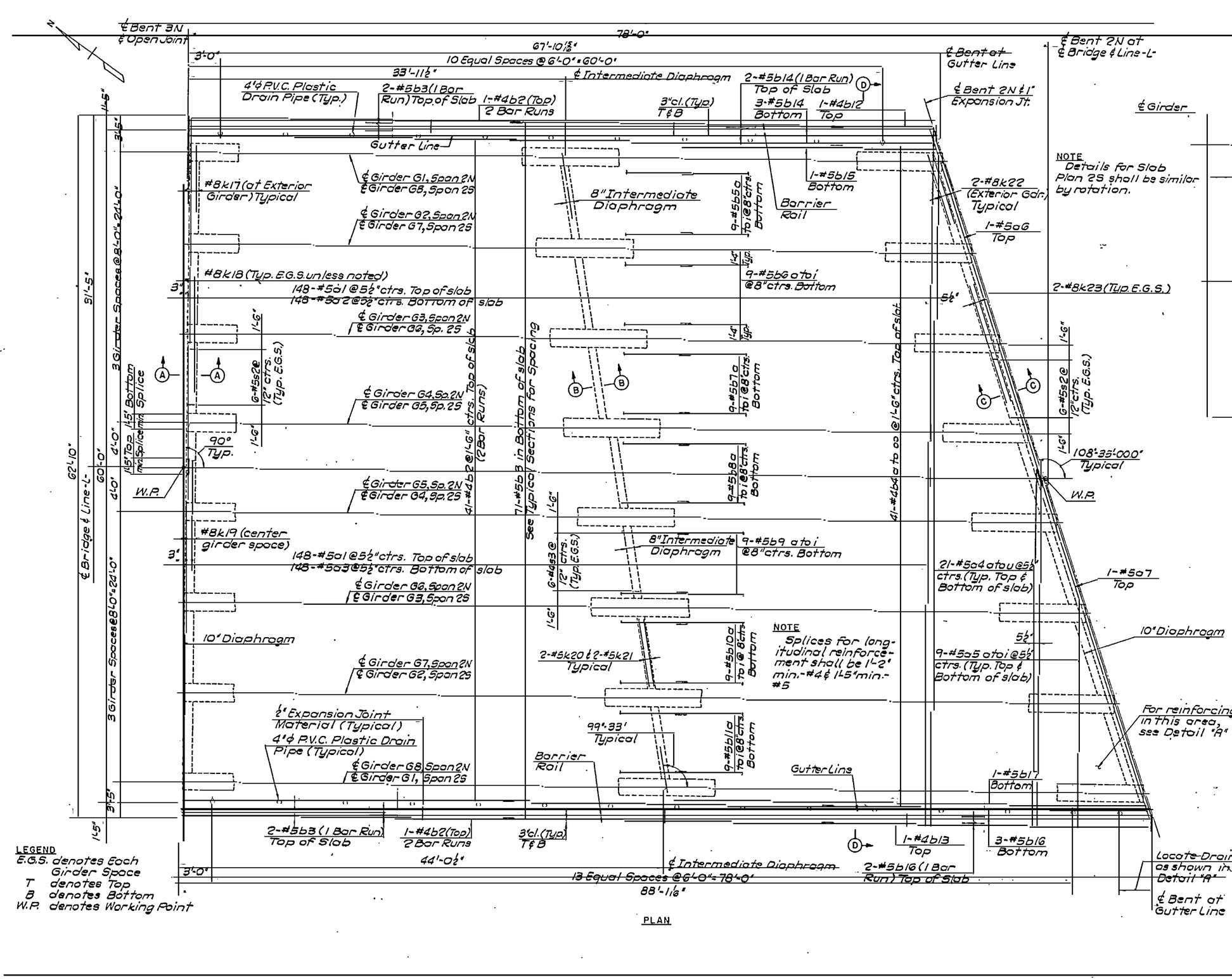
HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA	U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA	
ATLANTIC INTRACOASTAL WATERWAY		
SUPERSTRUCTURE		
TYPICAL SECTIONS - SPANS 3N THRU 14N		
COINJOCK BRIDGE REPLACEMENT PROJECT		
CURRITUCK COUNTY	NORTH CAROLINA	
DESIGNED BY: J.W.B. / CHECKED BY: M.G.		
PREPARED BY: [signature] PRINCIPAL OF FIRM HNTB		
INVITATION NO. DACW54-83-B-0014	SIZE	DRAWING NUMBER BR104-06-17 / PLATE NO. S-10
SCALE AS NOTED	DATE 22 JULY 1983	SHEET 60 OF 126

CORPS OF ENGINEERS

U. S. ARMY

N.C. STATE AID PROJECT NO.

FEDERAL AID PROJECT NO. | FED. RD. DIV. NO.



LEGEND
E.G.S. denotes Each Girder Space
T denotes Top
B denotes Bottom
W.P. denotes Working Point

PLAN

DETAIL "A"
⅜" = 1'-0"

NOTE
Splices for longitudinal reinforcement shall be 1'-2" min. - #4 @ 1'-5" min. - #5

NOTES
1.) For Barrier Rail Elevations, see Pl. S-12.
2.) For Bar List, see Plate S-57.
3.) For General Notes, see Plate S-7.
4.) For Typical Sections (at Bent 3N and Intermediate Diaphragm), see Plate S-10.
5.) For additional details, see Plate S-12.
6.) For Sections A-A and B-B, see Plate S-9.
7.) For Sections C-C and D-D, see Plate S-12.
8.) For Prestressed Girders in this span, see Plate S-23.
9.) For Expansion Joint details in Barrier Rail, see Plate S-30.

DESIGNED BY: J.W.B. | CHECKED BY: M.G.

PREPARED BY:

PRINCIPAL OF FIRM HNTB

RECORD DRAWING

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY
SUPERSTRUCTURE
SLAB PLAN - SPAN 2N
COINJOCK BRIDGE REPLACEMENT PROJECT
CURRITUCK COUNTY NORTH CAROLINA

INVITATION NO.	SIZE	DRAWING NUMBER	PLATE NO.
DACW54-83-B-0014		BR104-06-17	S-11

SCALE AS NOTED | DATE 22 JULY 1983 | SHEET 61 OF 126

CORPS OF ENGINEERS

U. S. ARMY

N.C. STATE AID PROJECT NO.

FEDERAL AID PROJECT NO. | FED. RD. DIV. NO.

℄ Bent 3N ℄ Open Joint

2 Equal Spaces @ 22'-0" = 44'-0"

23'-10 15/16"

℄ Bent 2N at Curb Line

23-#5s5 Equally Spaced

23-#5s5 Equally Spaced

25-#5s5 Equally Spaced

½" Expansion Joint Material (Typical)

8-#5b18

23-#5s4 Equally Spaced

8-#5b18

23-#5s4 Equally Spaced

8-#5b19

25-#5s4 Equally Spaced

2" cl. Typ.

BARRIER RAIL ELEVATION - EAST FASCIA
¼"=1'-0"

3 Equal Spaces @ 22'-0" = 66'-0"

22'-11⅛"

℄ Bent 2N at Curb Line

23-#5s5 Equally Spaced

½" Expansion Joint Material (Typical)

8-#5b18 (Typical between Expansion Joints)

#5s4, see Barrier Rail Detail for required modification

23-#5s4 Equally Spaced

BARRIER RAIL ELEVATION - WEST FASCIA
¼"=1'-0"

For Joint details, see Plate 5-20

℄ Bent 2N ℄ 1" Exp. Joint @ 60°F

#5a4 #5a1 #5a2 #5a1 #5b5 #4b4 #5a6 #4b2 #5b7 #5s2 #8k23 1½" cl. #5s2 #8k23 1½" 10" 7" 7" 10" 2'-0" Typ.

Measured normal to ℄ Bent 2" Beam Bolster

℄ Brg. "9" 1'-0" ℄ Brg.

3' clear between girders

* Measured along ℄ Girder

SECTION C-C
¾"=1'-0"

62'-10"

1'-3" 5'-0" Shldr. 24'-0" Roadway 30'-0" 2'-0" 24'-0" Roadway 30'-0" 5'-0" Shldr. 1'-3"

3" #4b12 1'-6" #5b14

#4b4 @ 1'-6" ctrs.

Construction Joint (Level)

#5b15

#5a1 @ 5½" ctrs. Top

#5a2 @ 5½" ctrs. Bottom

¼" / Ft.

18" Beam Bolster Uppers @ 3'-0" ctrs.

℄ Bridge ℄ Line "L"

1'-5" min. Typ. Top ℄ Bottom

Grade Point

Level

8" Typ.

2½" cl.

#5a1 @ 5½" ctrs. Top

#5a3 @ 5½" ctrs. Bottom

¼" / Ft.

14" cl.

8" Slab** Typ. U.N.

2" Buildup at ℄ Brg. #5b17

Barrier Rail Typical

1'-6" 3" #4b13 #5b16

2'-8½" 31-5½"

4"ϕ PVC Plastic Drain Pipe, see Slab Plan #5b14 or #5b16 @ 8" ctrs., see Slab Plan

See Note "A" Typ. E.G.S.

2½" Beam Bolster Typ. at each slab overhang, see Barrier Rail Detail

Level

3½"

2-1"Δ Grooves Typ. each side

3'-5"

#5b5 a to i @ 8" ctrs.

#5b6 a to i @ 8" ctrs.

1'-4" Typ.

#5b7 a to i @ 8" ctrs.

1'-4" Typ.

#5b8 a to i @ 8" ctrs.

#5b9 a to i @ 8" ctrs.

#5b10 a to i @ 8" ctrs.

#5b11 a to i @ 8" ctrs.

3'-5"

7 Girder Spaces @ 8'-0" = 56'-0"

SECTION D-D
⅜"=1'-0"

** Slab thickness varies in center girder space.

NOTE
Metal Stay-In-Place forms have not been shown in Cross Section. For Typical Details, see Plate 5-30.

NOTE "A"
End diaphragms have not been shown, for details and reinforcement requirements, see Section D-D, Plate No. 5-15.

NOTES
1.) For Slab Plan - Span 2N, see Pl. 5-11.
2.) For Deck Drain Detail and Exp. Jt. detail in Barrier Rail, see Pl. 5-30.

2" Open Joint in Barrier & 1" Jt. in deck.

Barrier Rail

Gutter Line

Exterior Girder

1" Exp. Joint

Limits of ⅜" Exp. Jt. Mat'l noted by hatching

JOINT PLAN AT EXTERIOR GIRDER
¾"=1'-0"

NOTE
For Section B-B and additional Joint details, see Plate 5-20.

NOTE (CLASS AA CONCRETE)
The quantity of all Class AA Concrete in Spans 2N and 2S averages 1.98 C.Y. / Lin. Ft. of deck at ℄ Bridge.

2" cl. #5s5 #5s4 See Section D-D 1½" cl. 0" 2½" cl. 7" 7" 9½" #5b18 or #5b19 2½"

Field bend as required to clear Expansion Joint

2½" BB in slab overhang

1'-0"

BARRIER RAIL DETAIL
¾"=1'-0"

NOTE
For details not shown, see Barrier Rail Detail on Plate 5-10.

LEGEND
U.N. denotes Unless noted
BB denotes Beam Bolster
E.G.S. denotes Each Girder Space

RECORD DRAWING

DESIGNED BY: JWB. | CHECKED BY: MG

PREPARED BY

PRINCIPAL OF FIRM HNTB

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

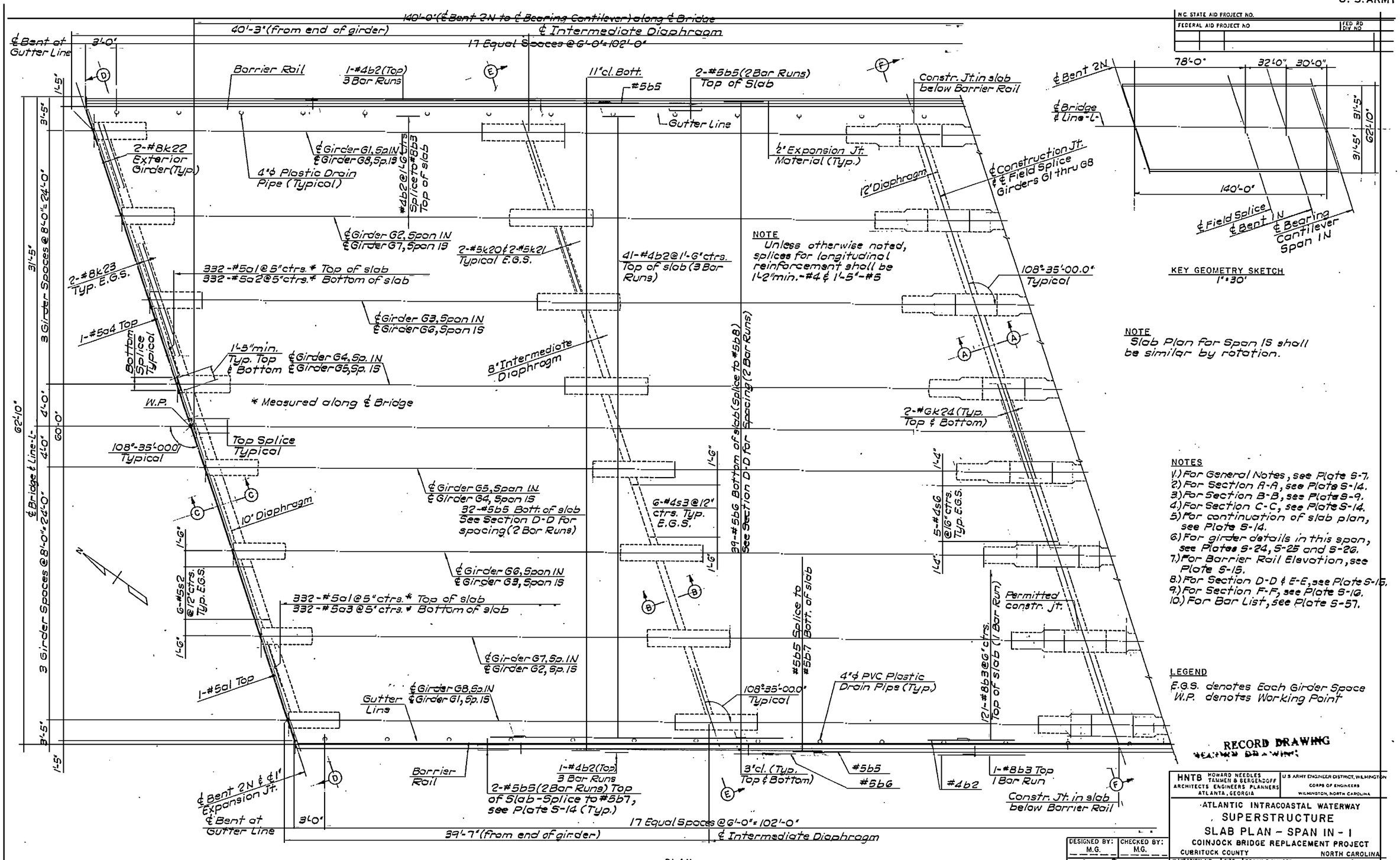
ATLANTIC INTRACOASTAL WATERWAY
SUPERSTRUCTURE
SPAN 2N - DETAILS
COINJOCK BRIDGE REPLACEMENT PROJECT
CURRITUCK COUNTY NORTH CAROLINA

INVITATION NO.	SIZE	DRAWING NUMBER	PLATE NO.
DACW 54-83-B-0014		BR104-06-17	S-12

SCALE AS NOTED | DATE 22 JULY 1983 | SHEET 62 OF 126

N.C. STATE AID PROJECT NO.

FEDERAL AID PROJECT NO. | FED. RD. DIV. NO.



PLAN

KEY GEOMETRY SKETCH
1" = 30'

NOTE
Slab Plan for Span 1S shall be similar by rotation.

NOTES
1.) For General Notes, see Plate S-7.
2.) For Section A-A, see Plate S-14.
3.) For Section B-B, see Plate S-9.
4.) For Section C-C, see Plate S-14.
5.) For continuation of slab plan, see Plate S-14.
6.) For girder details in this span, see Plates S-24, S-25 and S-26.
7.) For Barrier Rail Elevation, see Plate S-15.
8.) For Section D-D & E-E, see Plate S-15.
9.) For Section F-F, see Plate S-16.
10.) For Bar List, see Plate S-57.

LEGEND
E.G.S. denotes Each Girder Space
W.P. denotes Working Point

RECORD DRAWING

HNTB ARCHITECTS ENGINEERS PLANNERS — HOWARD NEEDLES TAMMEN & BERGENDOFF — ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT, WILMINGTON — CORPS OF ENGINEERS — WILMINGTON, NORTH CAROLINA

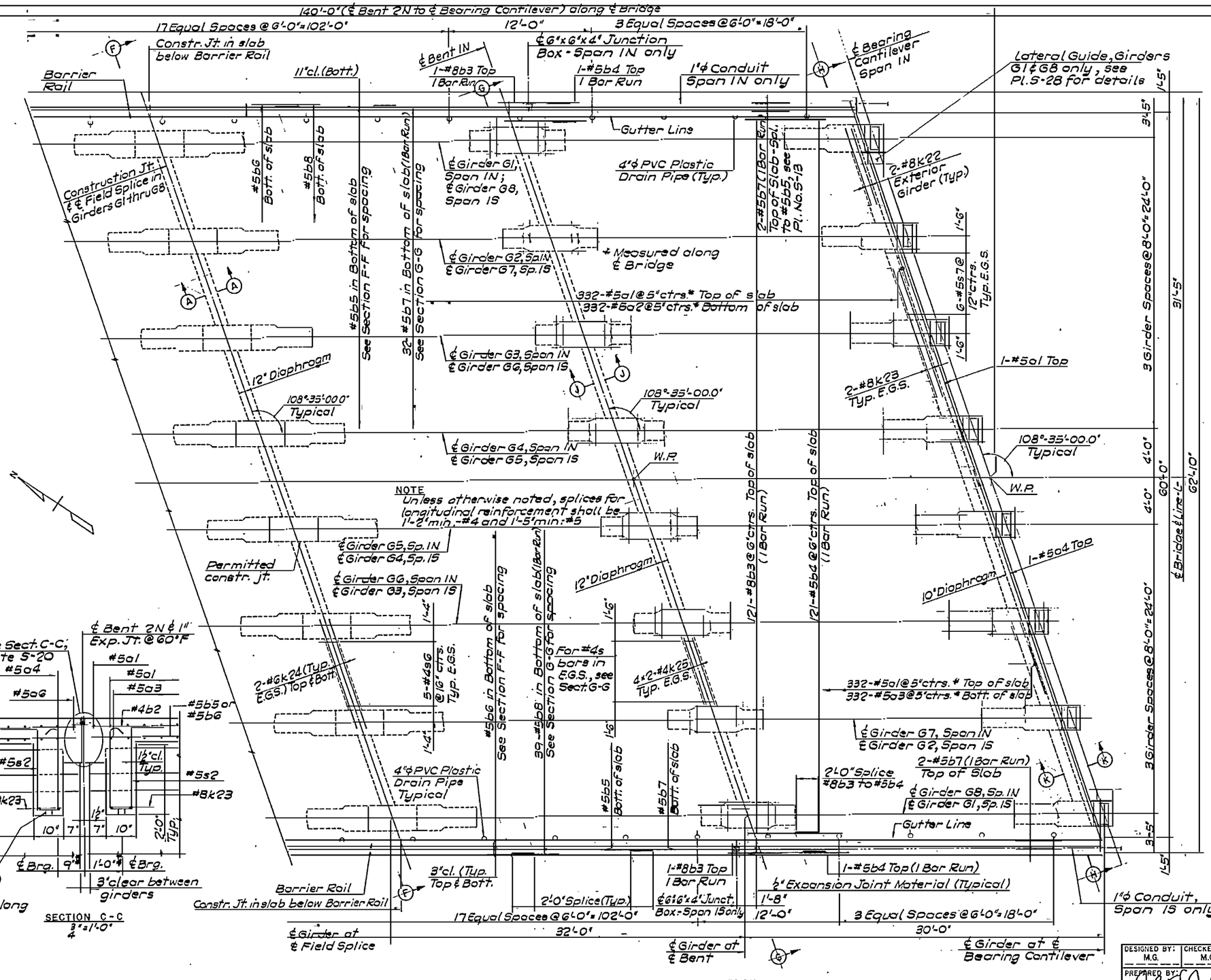
ATLANTIC INTRACOASTAL WATERWAY
SUPERSTRUCTURE
SLAB PLAN – SPAN IN - 1
COINJOCK BRIDGE REPLACEMENT PROJECT
CURRITUCK COUNTY NORTH CAROLINA

DESIGNED BY: M.G.	CHECKED BY: M.G.			
PREPARED BY:		INVITATION NO. DACW54-83-B-0014	SIZE	DRAWING NUMBER BR104-06-17
PRINCIPAL OF FIRM HNTB	SCALE 1"=1'-0" UN	DATE 22 JULY 1983	SHEET 63 OF 126	PLATE NO. S-13

CORPS OF ENGINEERS

U. S. ARMY

N.C. STATE AID PROJECT NO.	
FEDERAL AID PROJECT NO.	BRO-50 (3) NO



NOTE

Slab Plan for Span 1S shall be similar by rotation with exception of 1"℄ Conduit and 6"x6"x4' Junction Box, see Plan.

NOTES

1.) For portion of slab from Bent 2N to field splice, see Plate S-13.
2.) For Sections F-F thru H-H, see Plate S-16.
3.) For girder details in this span, see Plates S-24, S-25 and S-26.
4.) For Barrier Rail Elevation, see Plate S-15.
5.) For Sections J-J ℄ K-K, see Plate S-17.
6.) For Navigation Lighting, see Plate S-53

LEGEND

E.G.S. denotes Each Girder Space
W.P. denotes Working Point

RECORD DRAWING

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY
SUPERSTRUCTURE
SLAB PLAN - SPAN 1N - 2
COINJOCK BRIDGE REPLACEMENT PROJECT
CURRITUCK COUNTY NORTH CAROLINA

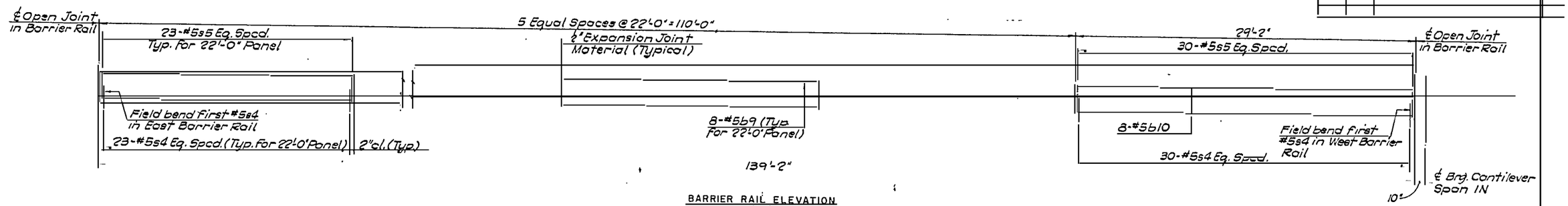
DESIGNED BY: M.G.	CHECKED BY: M.G.			
PREPARED BY:	INVITATION NO DACW54-83-B-0014	SIZE	DRAWING NUMBER BR104-06-17	PLATE NO. S-14
PRINCIPAL OF FIRM HNTB	SCALE 1"=1'-0" UNLESS OTHERWISE NOTED	DATE 22 JULY 1983	SHEET 64 OF 126	

CORPS OF ENGINEERS

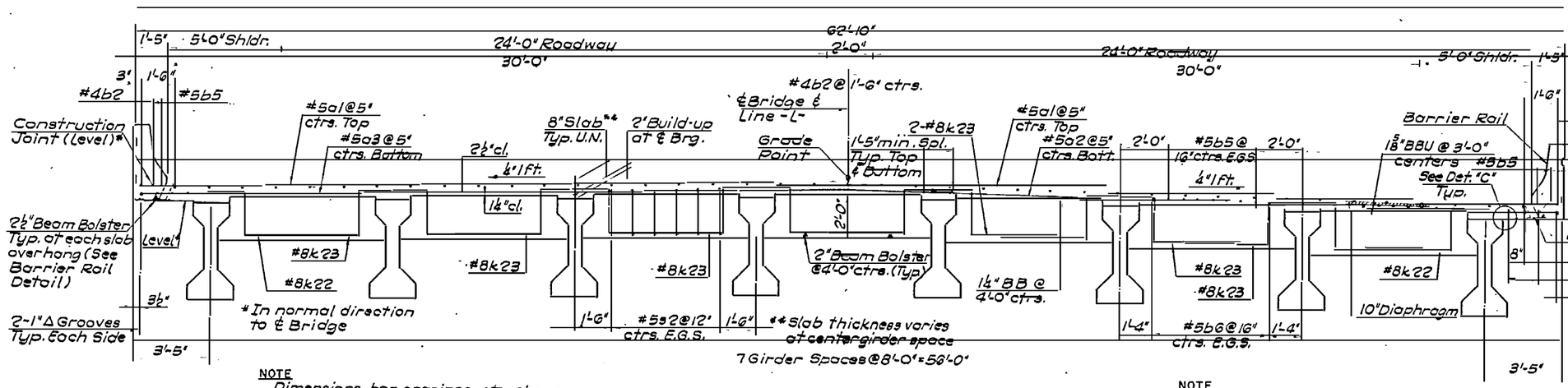
U. S. ARMY

N.C. STATE AID PROJECT NO.

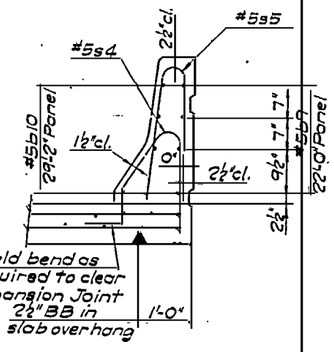
FEDERAL AID PROJECT NO. | FED. RD. DIV. NO.



BARRIER RAIL ELEVATION
℄ 1"=1'-0"
(Typ. for both East & West Barrier Rails)



BARRIER RAIL DETAIL
3/4"=1'-0"



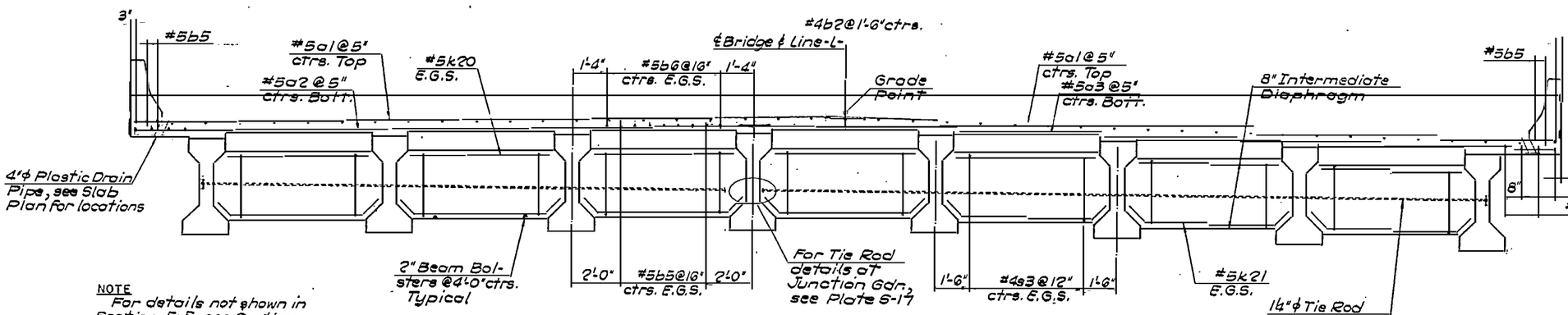
NOTE
For details not shown, see Barrier Rail Detail on Plate S-10.

NOTE
Dimensions, bar spacings, etc. shown in Sections D-D & E-E reflect values measured normal to or along ℄ Bridge.

SECTION D-D
3/8"=1'-0"

NOTE
Metal Stay-In-Forms have not been shown in Sections D-D and E-E. For Typical details, see Pl. S-30.

NOTES
1.) For General Notes, see Plate S-7.
2.) For additional details, see Pls. S-16 & 17.
3.) For Slab Plan of Span IN, see Plates S-13 and S-14.
4.) For Girder Details, see Plates S-24, S-25 and S-26.
5.) For Erection Sequence, see Pl. S-28.
6.) For Tie Rod detail, see Plate S-17.
7.) For Detail "C", see Plate S-20.



NOTE
For details not shown in Section E-E, see Section D-D.

SECTION E-E
3/8"=1'-0"

NOTE (CLASS AA CONCRETE)
The quantity of all Class AA Concrete for Spans I N and I S averages 2.05 C.Y./Lin. Ft. of deck.

LEGEND
E.G.S. denotes Each Girder Space
BB. denotes Beam Bolster
B.B.U. denotes Beam Bolster Upper
U.N. denotes Unless Noted

RECORD DRAWING

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY
SUPERSTRUCTURE.
SPAN IN - DETAILS I.
COINJOCK BRIDGE REPLACEMENT PROJECT
CURRITUCK COUNTY NORTH CAROLINA

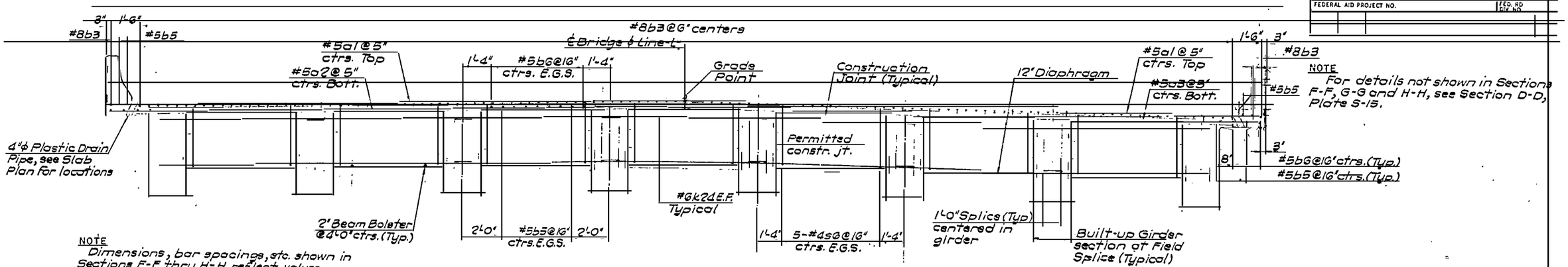
DESIGNED BY: M.G.	CHECKED BY: M.G.		
PREPARED BY:	INVITATION NO. DACW54-83-B-0014	SIZE	DRAWING NUMBER BRI04-06-17
PRINCIPAL OF FIRM HNTB	SCALE AS NOTED	DATE 22 JULY 1983	SHEET 65 OF 126

PLATE NO. S-15

CORPS OF ENGINEERS

U. S. ARMY

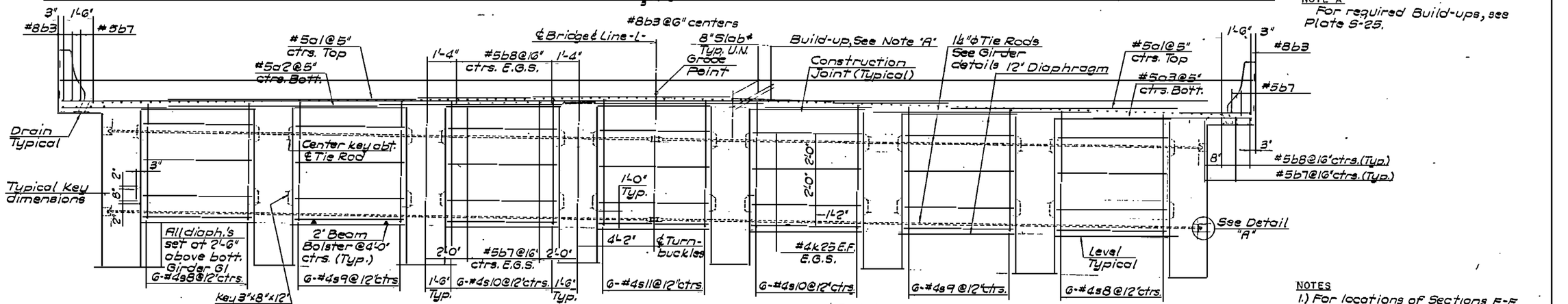
N.C. STATE AID PROJECT NO.	
FEDERAL AID PROJECT NO.	FED. RD DIV. NO.



NOTE
Dimensions, bar spacings, etc. shown in Sections F-F thru H-H reflect values measured normal to or along ℄ Bridge.

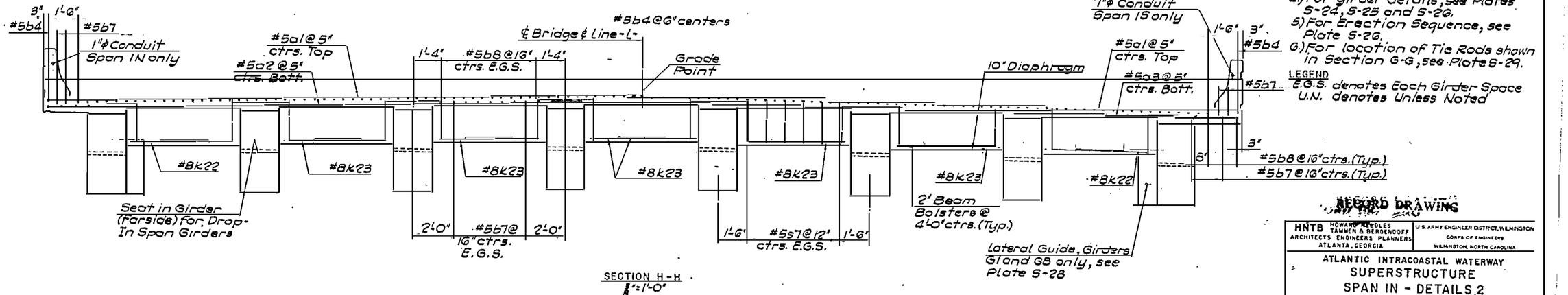
NOTE "A"
For required Build-ups, see Plate S-25.

SECTION F-F
3/8"=1'-0"



* Slab thickness varies in center girder space.

SECTION G-G
3/8"=1'-0"



SECTION H-H
3/8"=1'-0"

NOTES
1.) For locations of Sections F-F thru H-H, see Plate S-14.
2.) For Detail 'A', see Plate S-17.
3.) For additional details, see Pl. S-15.
4.) For girder details, see Plates S-24, S-25 and S-26.
5.) For Erection Sequence, see Plate S-26.
6.) For location of Tie Rods shown in Section G-G, see Plate S-29.

LEGEND
E.G.S. denotes Each Girder Space
U.N. denotes Unless Noted

RECORD DRAWING

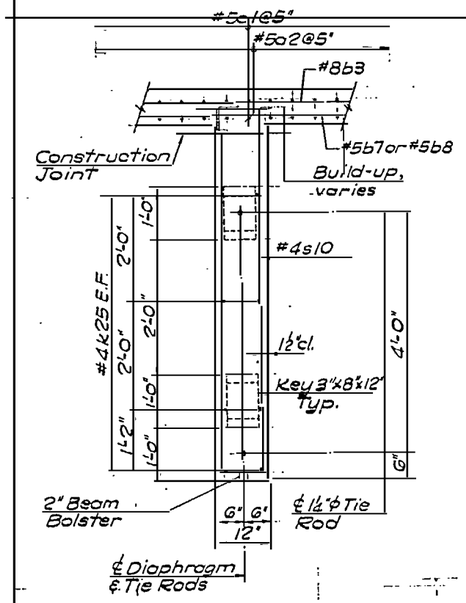
HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

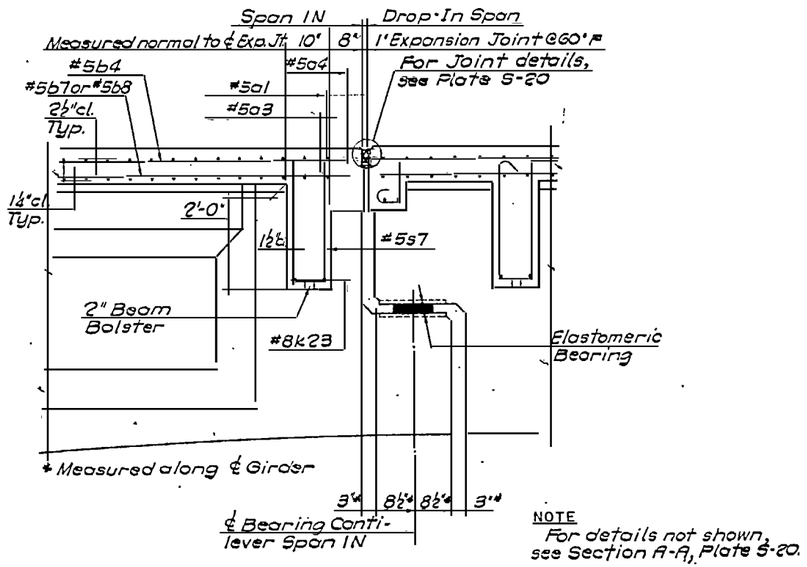
ATLANTIC INTRACOASTAL WATERWAY
SUPERSTRUCTURE
SPAN IN - DETAILS 2
COINJOCK BRIDGE REPLACEMENT PROJECT
CURRITUCK COUNTY NORTH CAROLINA

DESIGNED BY: M.G.	CHECKED BY: M.G.			
PREPARED BY:		INVITATION NO. DACW54-83-B-0014	SIZE	DRAWING NUMBER BRI04-06-17 / PLATE NO. S-16
PRINCIPAL OF FIRM HNTB		SCALE AS NOTED	DATE 22 JULY 1983	SHEET 66 OF 126

N.C. STATE AID PROJECT NO			
FEDERAL AID PROJECT NO		FED. RD. DIV. NO.	

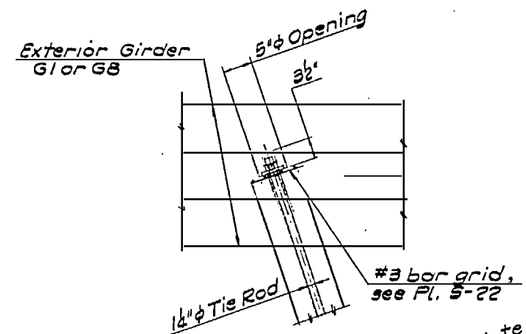


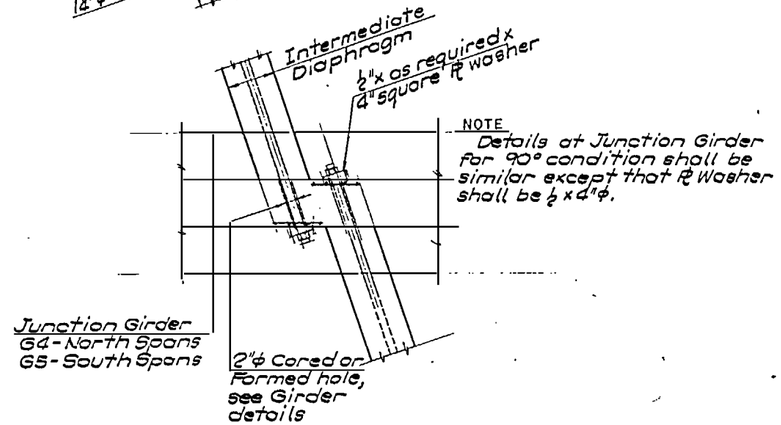
SECTION J - J
3/4"=1'-0"



NOTE
For details not shown, see Section A-A, Plate S-20.

SECTION K - K
3/4"=1'-0"





DETAIL "A"
1"=1'-0"
(Detail at Spans 2N, IN, 1S & 2S)

NOTES
1.) For locations of Sections J-J and K-K, see Plate S-14.
2.) For Tie Rod Detail, see Plate S-25.

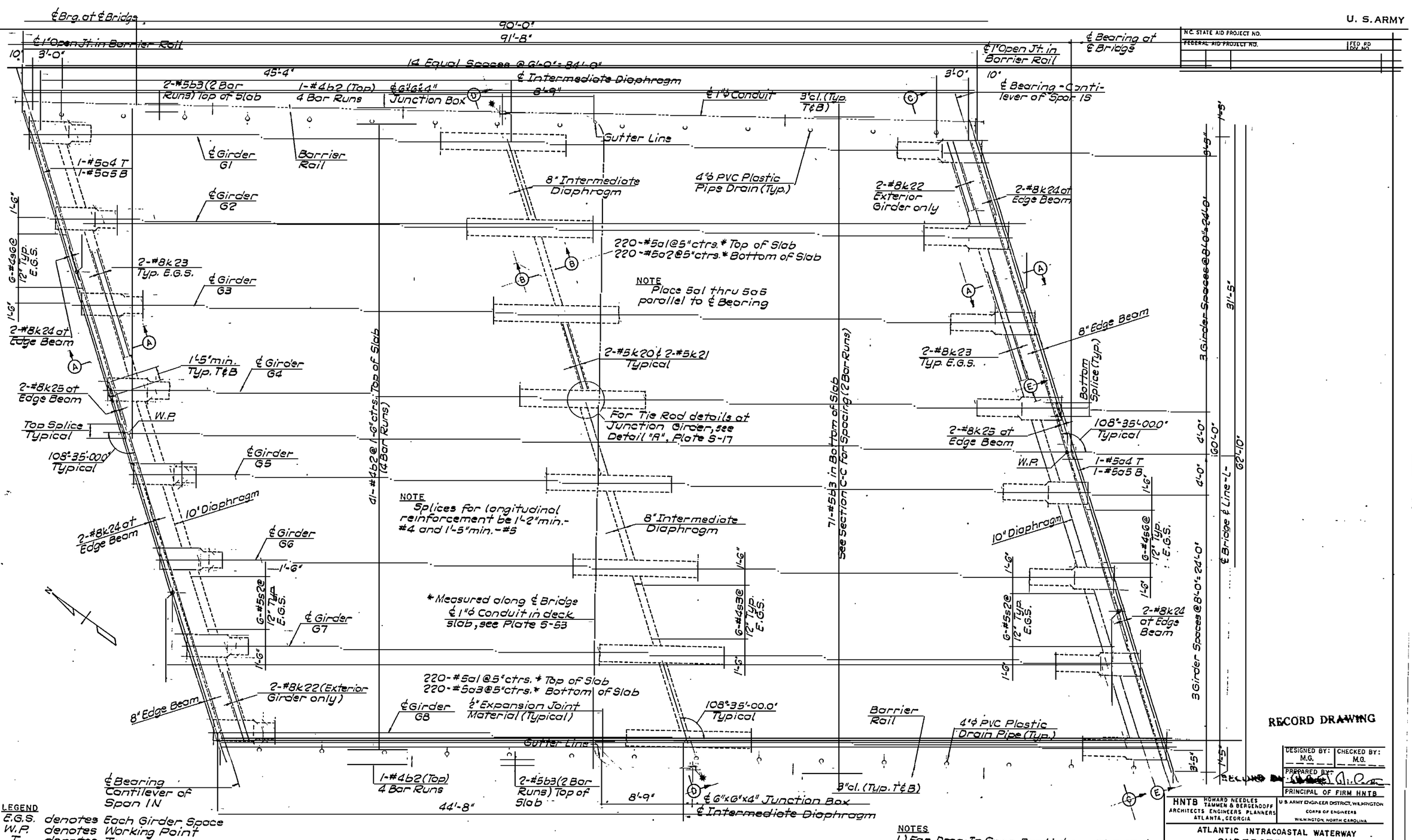
RECORD DRAWING

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA		U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA	
ATLANTIC INTRACOASTAL WATERWAY SUPERSTRUCTURE SPAN IN - DETAILS 3 COINJOCK BRIDGE REPLACEMENT PROJECT CURRITUCK COUNTY NORTH CAROLINA			
DESIGNED BY: M.G.	CHECKED BY: M.G.		
PREPARED BY:		INVITATION NO DACW54-83-B-0014	SIZE
PRINCIPAL OF FIRM HNTB		SCALE AS NOTED	DATE 22 JULY 1983
		DRAWING NUMBER BRIO4-06-17	PLATE NO. S-17
			SHEET 67 OF 126

CORPS OF ENGINEERS

U. S. ARMY

N.C. STATE AID PROJECT NO.
FEDERAL AID PROJECT NO. | FED. RD DIV. NO.



PLAN

LEGEND
E.G.S. denotes Each Girder Space
W.P. denotes Working Point
T denotes Top
B denotes Bottom
✸ denotes 360° Green Channel Center Navigation Light

NOTES
1.) For Drop-In Span Bar List, see Pl. S-57.
2.) For Section A-A, see Plate S-20.
3.) For Section B-B, see Plate S-9.
4.) For Sections C-C, D-D and Barrier Rail Elevation, see Plate S-19.
5.) For Section E-E and additional details, see Plate S-20.

RECORD DRAWING

DESIGNED BY: M.G.	CHECKED BY: M.G.
PREPARED BY:	
PRINCIPAL OF FIRM HNTB	

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

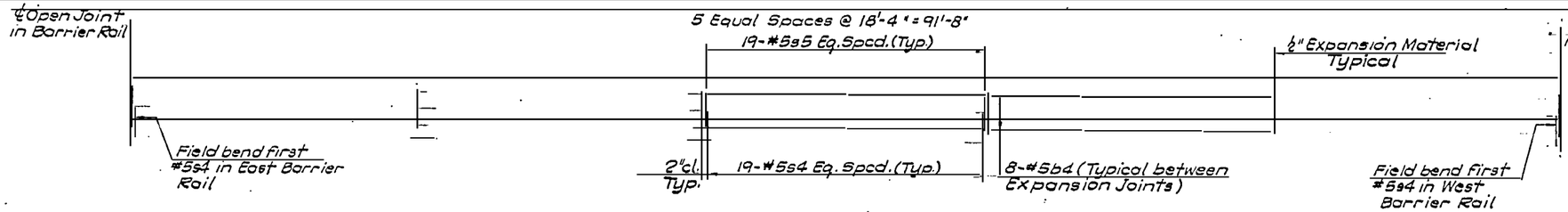
U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY
SUPERSTRUCTURE
SLAB PLAN - DROP-IN SPAN
COINJOCK BRIDGE REPLACEMENT PROJECT
CURRITUCK COUNTY NORTH CAROLINA

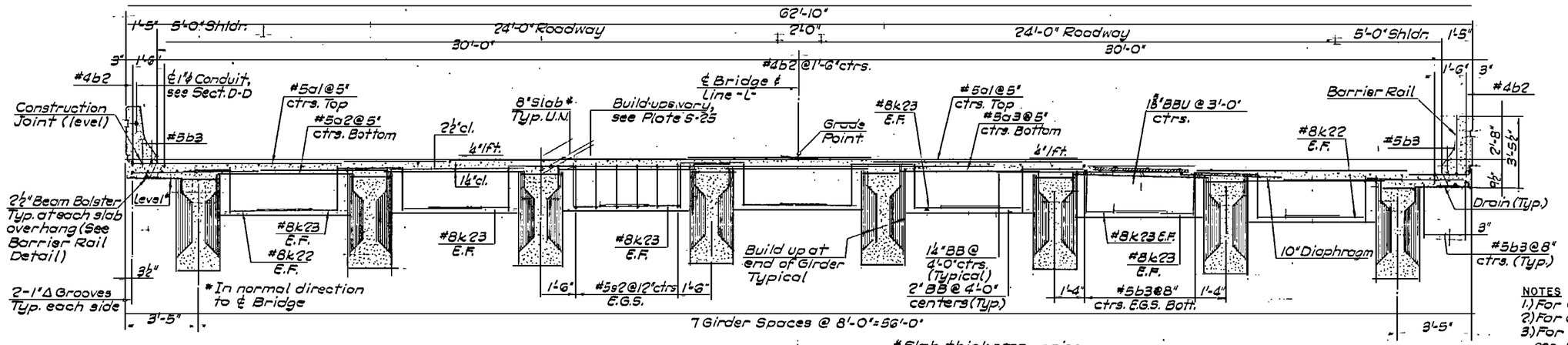
INVITATION NO.	SIZE	DRAWING NUMBER	PLATE NO.
DACW54-83-B-0014		BR104-06-17	S-18
SCALE 1"=1'-0"	DATE 22 JULY 1983	SHEET 68 OF 126	

N.C. STATE AID PROJECT NO

FEDERAL AID PROJECT NO. | FED. RD. DIV. NO.



BARRIER RAIL ELEVATION
¼"=1'-0"
(Typ. for both East and West Barrier Rail)



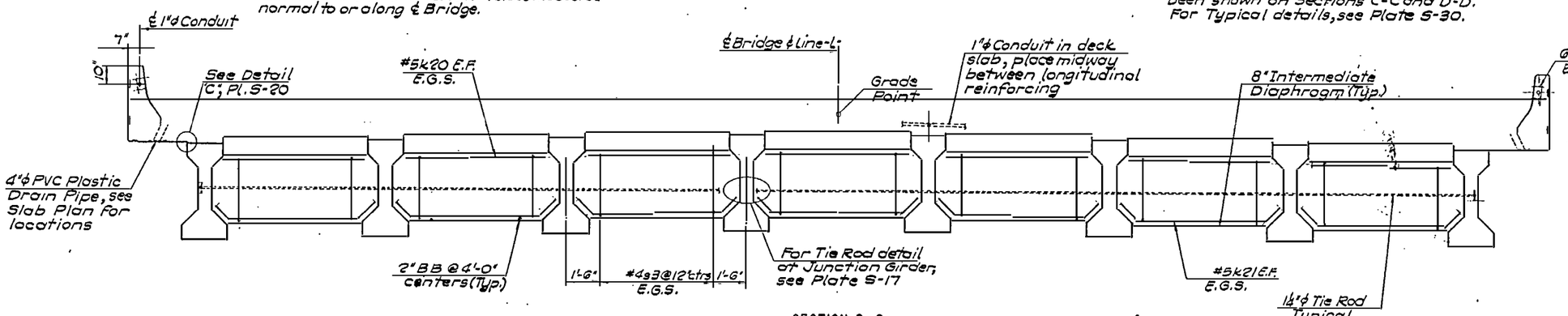
NOTES
1.) For General Notes, see Plate S-7,
2.) For additional details, see Pl. S-20,
3.) For Slab Plan of Drop-In Span, see Plate S-18,
4.) For Girder details, see Pl's. S-27 & 28,
5.) For Barrier Rail detail, see Pl. S-15,
6.) For Erection Sequence, see Pl. S-26,
7.) For Tie Rod detail, see Pl. S-27.

NOTE
Dimensions, bar spacings, etc. shown in Sections C-C and D-D reflect values measured normal to or along ℄ Bridge.

SECTION C-C
⅜"=1'-0"

*Slab thickness varies in center girder space.

NOTE
Metal Stay-In-Place forms have not been shown on Sections C-C and D-D. For Typical details, see Plate S-30.



SECTION D-D
⅜"=1'-0"

NOTE (CLASS AA CONCRETE)
The quantity of all Class AA Concrete in Drop-In Span averages 1.96 C.Y./Lin. Ft. of deck.

230° Green Channel Center Navigation Light not shown, see Plate S-53 (Typ.)

LEGEND
E.G.S. denotes Each Girder Space
B.B. denotes Beam Bolster
B.B.U. denotes Beam Bolster Upper
U.N. denotes Unless Noted
E.F. denotes Each Face

RECORD DRAWING

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY
SUPERSTRUCTURE
DROP-IN SPAN - DETAILS I
COINJOCK BRIDGE REPLACEMENT PROJECT
CURRITUCK COUNTY NORTH CAROLINA

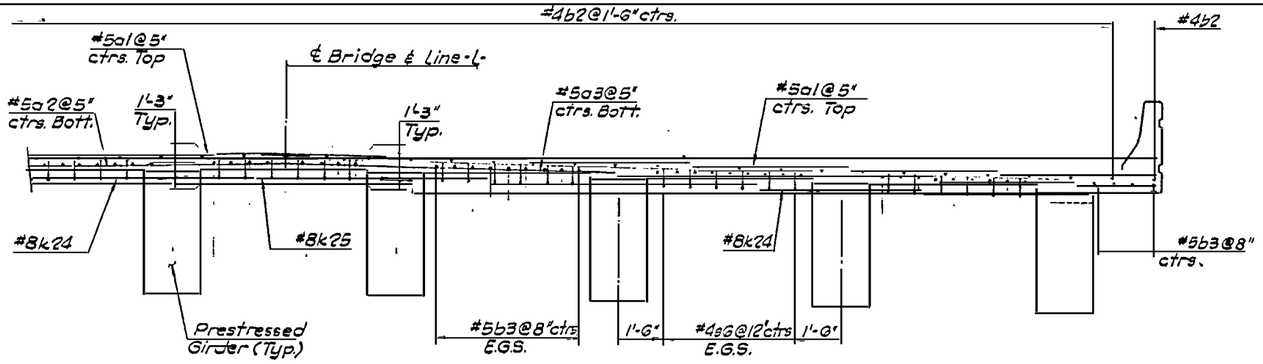
DESIGNED BY: M.G.	CHECKED BY: M.G.			
PREPARED BY	INVITATION NO. DACW54-83-B-0014	SIZE	DRAWING NUMBER BRI04-06-17	PLATE NO S-19
PRINCIPAL OF FIRM HNTB	SCALE AS NOTED	DATE 22 JULY 1983	SHEET 69 OF 126	

CORPS OF ENGINEERS

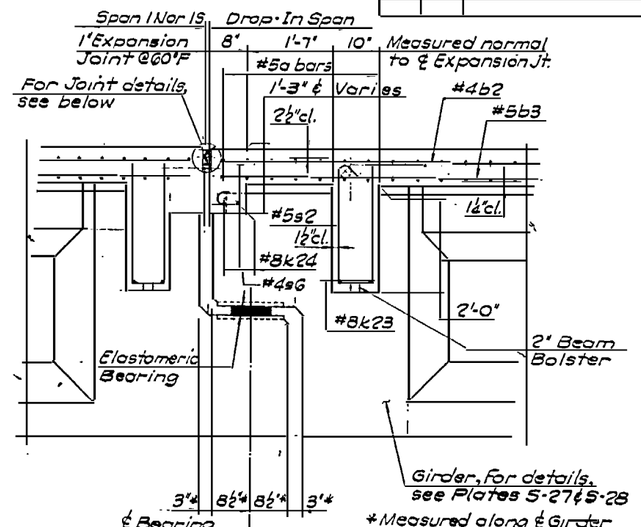
U. S. ARMY

N.C. STATE AID PROJECT NO.

FEDERAL AID PROJECT NO. | FED. RD. DIV. NO.

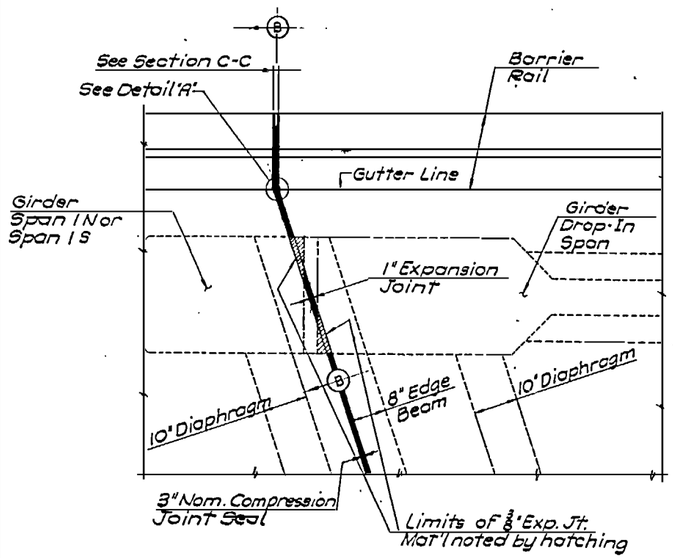


SECTION E - E
3/8"=1'-0"

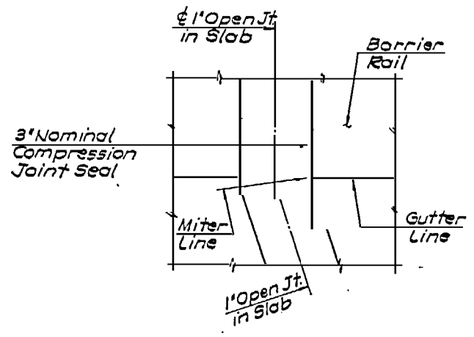


SECTION A-A
3/8"=1'-0"

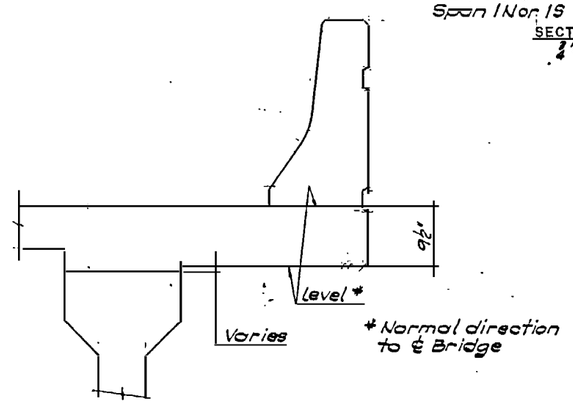
NOTE
For details not shown, see Section K-K, Pl. S-17.



JOINT PLAN AT EXTERIOR GIRDER
3/4"=1'-0"



DETAIL "A"
Not to Scale

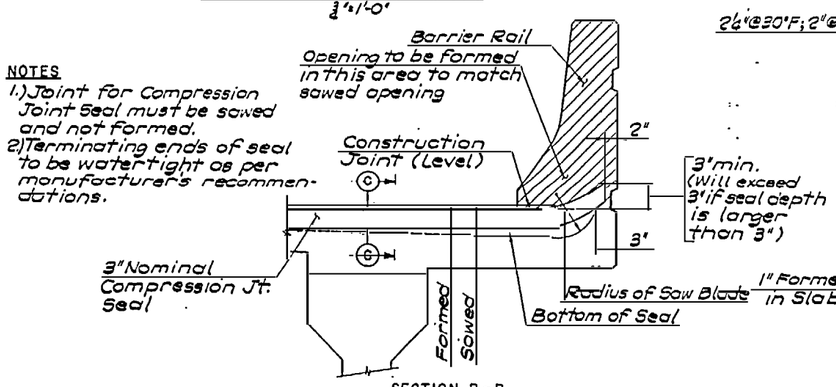


DETAIL "C"
1"=1'-0"

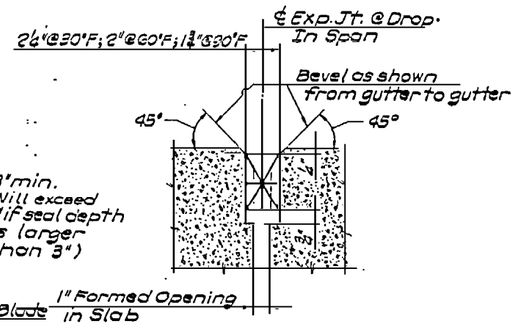
NOTES
1.) For Slab Plan of Drop-In Span, see Plate S-18.
2.) For Slab Plan IN, see Plate S-14.

LEGEND
E.G.S. denotes Each Girder Space

NOTES
1.) Joint for Compression Joint Seal must be sawed and not formed.
2.) Terminating ends of seal to be water-tight as per manufacturer's recommendations.



SECTION B-B
1"=1'-0"



SECTION C-C
Not to Scale

RECORD DRAWING

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

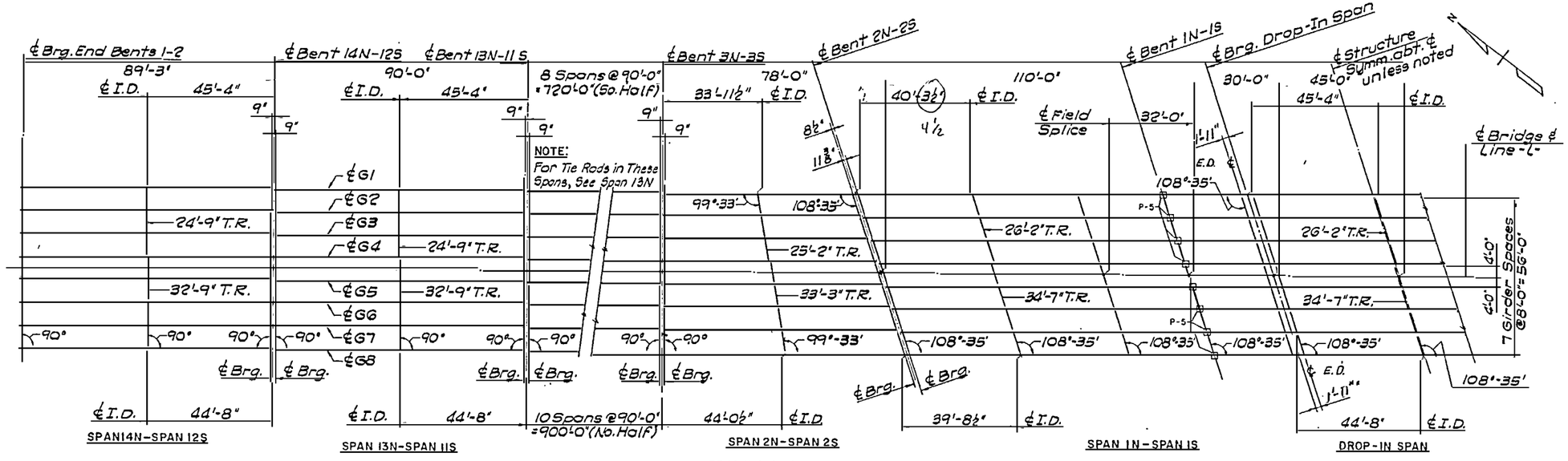
ATLANTIC INTRACOASTAL WATERWAY
SUPERSTRUCTURE
DROP-IN SPAN - DETAILS 2
COINJOCK BRIDGE REPLACEMENT PROJECT
CURRITUCK COUNTY NORTH CAROLINA

DESIGNED BY: M.G.	CHECKED BY: M.G.			
PREPARED BY:	INVITATION NO. DACW54-83-B-0014	SIZE	DRAWING NUMBER BRI04-06-17	PLATE NO. S-20
PRINCIPAL OF FIRM HNTB	SCALE AS NOTED	DATE 22 JULY 1983	SHEET 70 OF 126	

CORPS OF ENGINEERS

U. S. ARMY

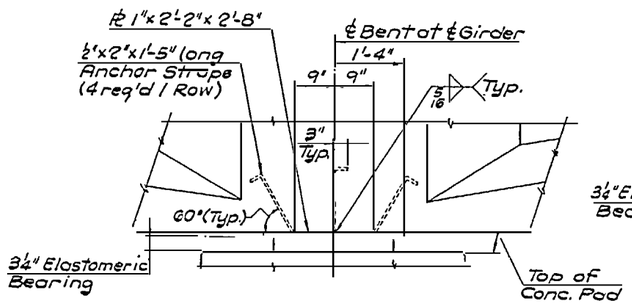
NC STATE AID PROJECT NO	
FEDERAL AID PROJECT NO	FED RD DIV NO



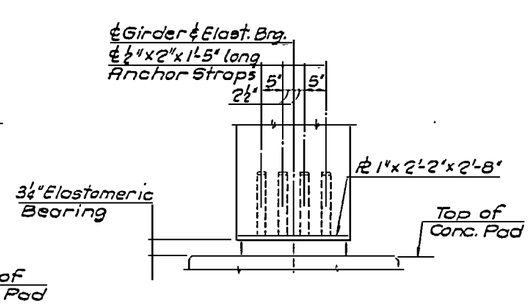
FRAMING PLAN
1"=20'

BEARING TYPES		
LOCATION	STATION	TYPE
End Bent 1	140+12.75	P-4
Bent 14N	141+02	↕
13N	141+92	
12N	142+82	
11N	143+72	
10N	144+62	
9N	145+52	
8N	146+42	↓
7N	147+32	P-4
6N	148+22	P-3
5N	149+12	P-3
4N	150+02	P-2
3N	150+92	P-2
2N	151+70	P-2
Bent 1N	152+80	P-5
Drop-In(No.)	153+10	P-1
Drop-In(So.)	154+00	P-1
Bent 1S	154+30	P-5
2S	155+40	P-2
3S	156+18	P-2
4S	157+08	P-2
5S	157+98	P-3
6S	158+88	P-3
7S	159+78	P-4
8S	160+68	↕
9S	161+58	
10S	162+48	
11S	163+38	↓
Bent 12S	164+28	P-4
End Bent 2	165+17.25	P-4

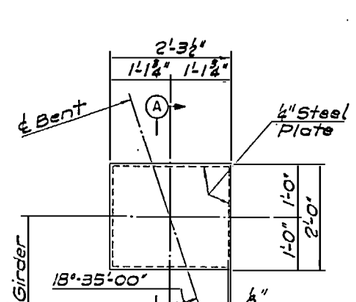
LEGEND
I.D. denotes Intermediate Diaphragm
T.R. denotes Tie Rod



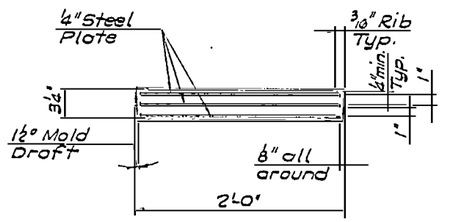
SIDE ELEVATION
¾"=1'-0"



FRONT ELEVATION
¾"=1'-0"



PLAN
¾"=1'-0"



SECTION A-A
1½"=1'-0"

BEARING TYPE P-5 DETAILS

NOTE
The same bearing type shall be required at both North and South bearings at any one bent except where only one line of bearings is required.

E.D. = End Diaphram

NOTES
1.) For details of Bearing Types P-1 thru P-4, see Plate S-22.
2.) For Girder Cambers, see Plate S-29.

NOTES (ELASTOMERIC BEARINGS AT BENTS 1N & 1S)
1.) Elastomer in all bearings shall have a Grade 50 Durometer hardness.
2.) Steel plates in laminated bearing shall conform to A.S.T.M. A36.
3.) Embedded Plate 1"x 2'-2"x 2'-8" shall be galvanized in accordance with A.S.T.M. A123. Weld ½" straps prior to galvanizing.

RECORD DRAWING

DESIGNED BY: M.G.	CHECKED BY: M.A.M.
PREPARED BY:	
PRINCIPAL OF FIRM HNTB	

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT WILMINGTON CORPS OF ENGINEERS WILMINGTON NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY
SUPERSTRUCTURE
FRAMING PLANS AND
BEARING DETAILS
COINJOCK BRIDGE REPLACEMENT PROJECT
CURRITUCK COUNTY NORTH CAROLINA

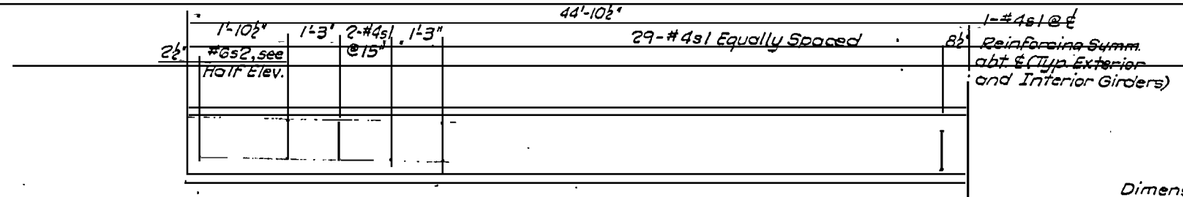
INVITATION NO	SIZE	DRAWING NUMBER	PLATE NO
DAC W54-83-B-0014		BR104-06-17	S-21
SCALE AS NOTED	DATE 22 JULY 1983	SHEET 71 OF 126	

CORPS OF ENGINEERS

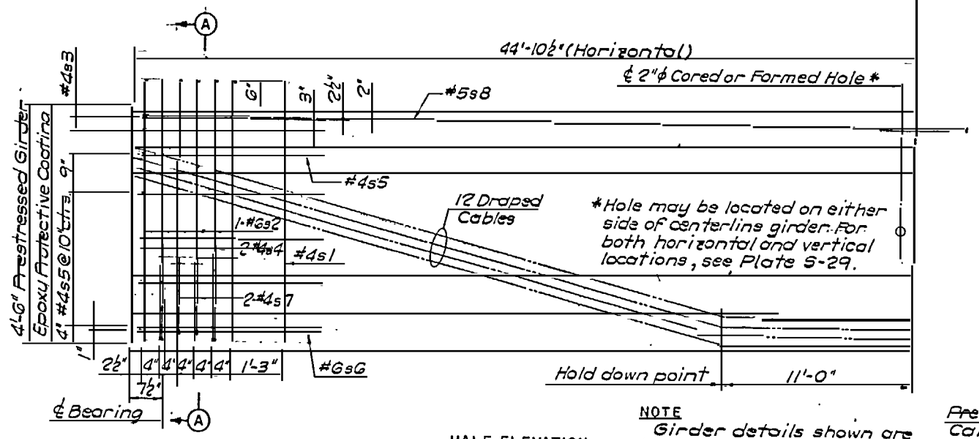
U. S. ARMY

N.C. STATE AID PROJECT NO.

FEDERAL AID PROJECT NO. FED. RD. DIV. NO.

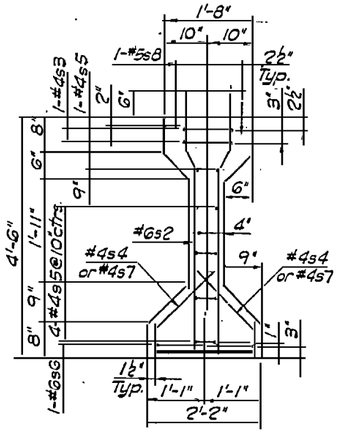


HALF PLAN

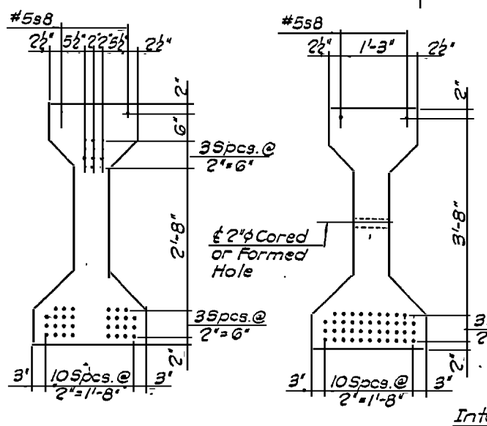


HALF ELEVATION

NOTE
Girder details shown are typical for Girders G1 thru G8 unless noted.



SECTION A-A
(Cables not shown)



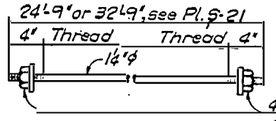
AT END

AT ℄

PRESTRESS CABLE LAYOUT

QUANTITIES FOR ONE GIRDER			
	REINFORCING STEEL Lbs.	5,500 psi CONCRETE Cu. Yds.	GRADE 270 S.R. CABLES No.
EXTERIOR GIRDER	981	18.2	42
INTERIOR GIRDER	981	18.2	42

NOTE
Quantities shown are for the convenience of the bidder and are for information only.

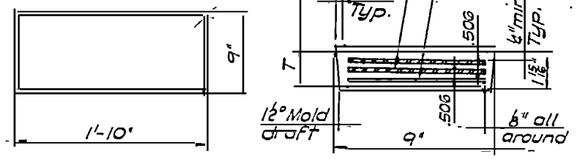


NO. REQUIRED: (complete assemblies) 22 at 24'-9", 22 at 32'-9"

1¼" TIE ROD

CABLE CHARACTERISTICS				
SIZE	GRADE	AREA	ULTIMATE STRENGTH	APPLIED PRESTRESS
Inches		sq. in.	lbs. / cable	lbs. / cable
½	270	0.153	41,300	28,900

GIRDERS REQUIRED		
NO.	LENGTH	TOTAL LENGTH
176	89'-9"	15,796

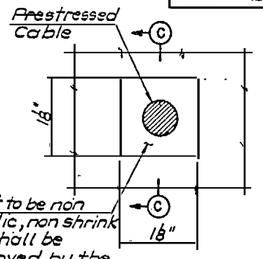


PLAN

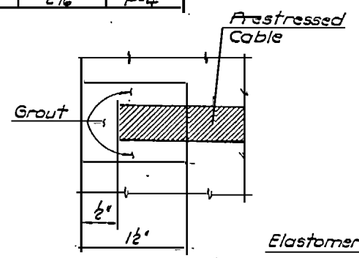
TYPICAL SECTION

ELASTOMERIC BEARINGS

BEAM-GRADE %	-T (Inches)	BEARING TYPES
0.00 - 1.00	1⅛"	P-1
1.01 - 2.25	2⅛"	P-2
2.25 - 3.50	2⅜"	P-3
3.51 - 5.00	2⅝"	P-4

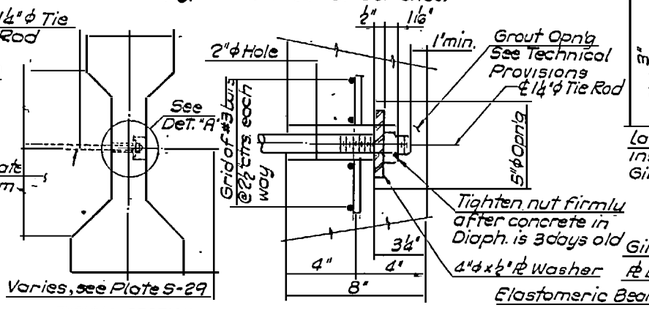


ELEVATION



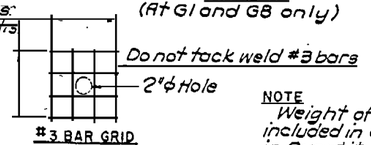
SECTION C - C

1⅛" x 1⅛" x 1½" GROUTED RECESS
(Typ. detail at Girder ends)



TYPICAL SECTION

DETAIL "A"
(At G1 and G8 only)

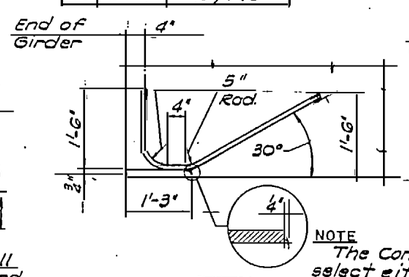


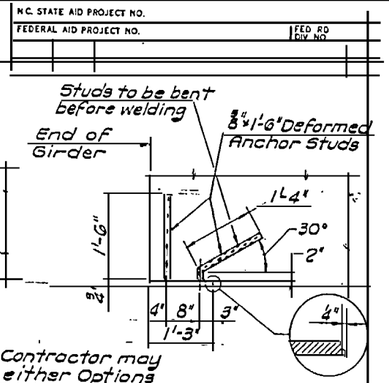
#3 BAR GRID

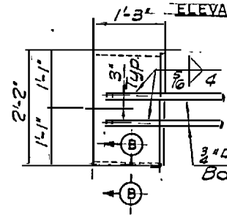
NOTE
See note on Plate S-23 for material requirements.

GROUTED RECESS FOR END OF TIE ROD

NOTE
Weight of #3 bars is not included in quantities noted in Quantity for one girder.

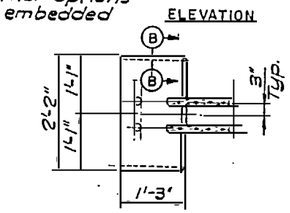






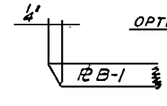
PLAN

OPTION 1



PLAN

OPTION 2

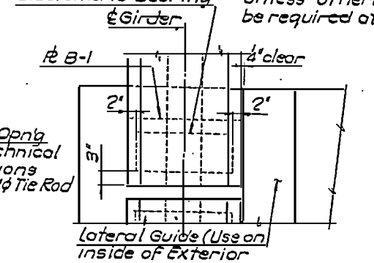


SECTION B-B

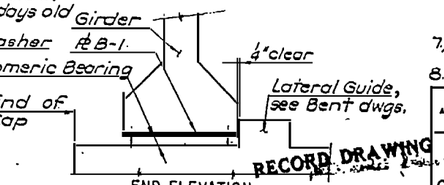
NOTE
Bevel edges of ℄ B-1 to give close fit but not tight fit to steel casting form.

EMBEDDED PLATE B-1

Unless otherwise shown, Plate B-1 shall be required at all bearing ends of girders.



PLAN



END ELEVATION

NOTES

1.) Elastomer in all bearings shall have a grade 50 Durometer hardness. See Technical Provisions.
2.) Steel plates in laminated bearings shall conform to A.S.T.M. A-36.
3.) Apply Epoxy Protective Coating to end of Girder surfaces. For Epoxy Protective Coating, see Technical Provisions.
4.) Embedded ℄ B-1 to be galvanized.
5.) All Prestressing Strands shall be ½" 7-wire stress relieved Grade 270 cables in accordance with the Specifications.
6.) Girders shown on this sheet are typical for Spans 3N thru 14N and 3S thru 12S.
7.) For additional girder geometry, see Plate S-29.
8.) For Bar Lists, see Plate S-59.

GIRDER DETAILS

RECORD DRAWING

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY
SUPERSTRUCTURE
GIRDER DETAILS I - APPROACH SPANS
COINJOCK BRIDGE REPLACEMENT PROJECT
CURRITUCK COUNTY NORTH CAROLINA

DESIGNED BY: J.W.B.	CHECKED BY: M.G.
PREPARED BY:	
PRINCIPAL OF FIRM HNTB	

INVITATION NO.	SIZE	DRAWING NUMBER	PLATE NO
DACW54-83-B-0014	D	BRI04-06-17	S-22

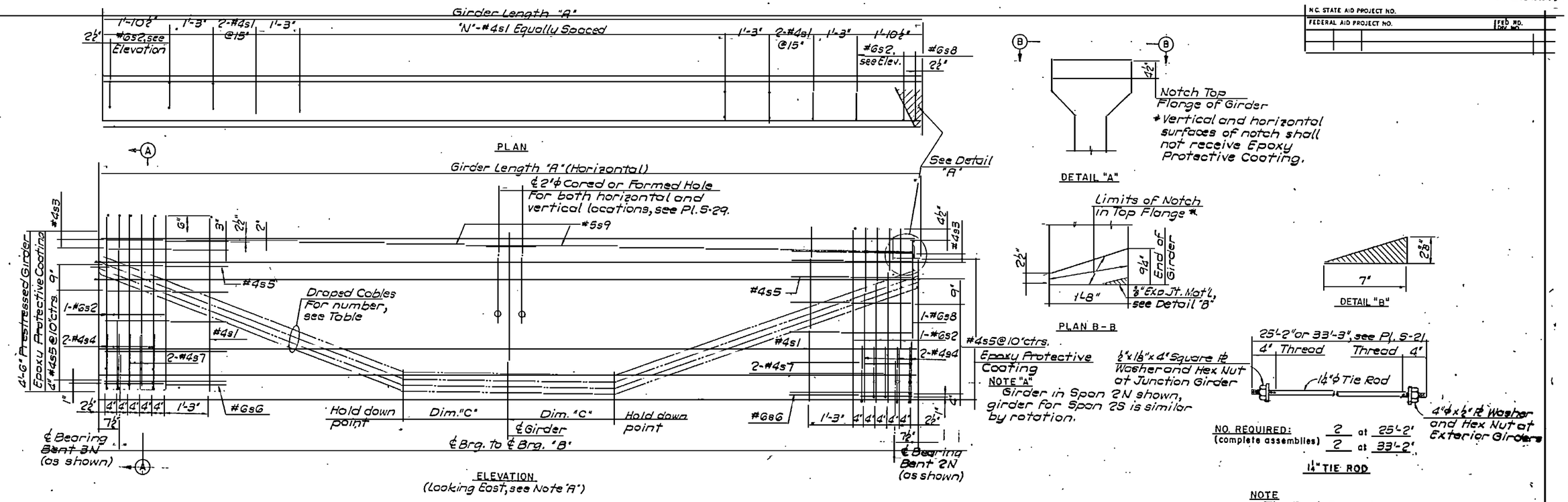
SCALE NONE | DATE 22 JULY 1983 | SHEET 72 OF 126

CORPS OF ENGINEERS

U. S. ARMY

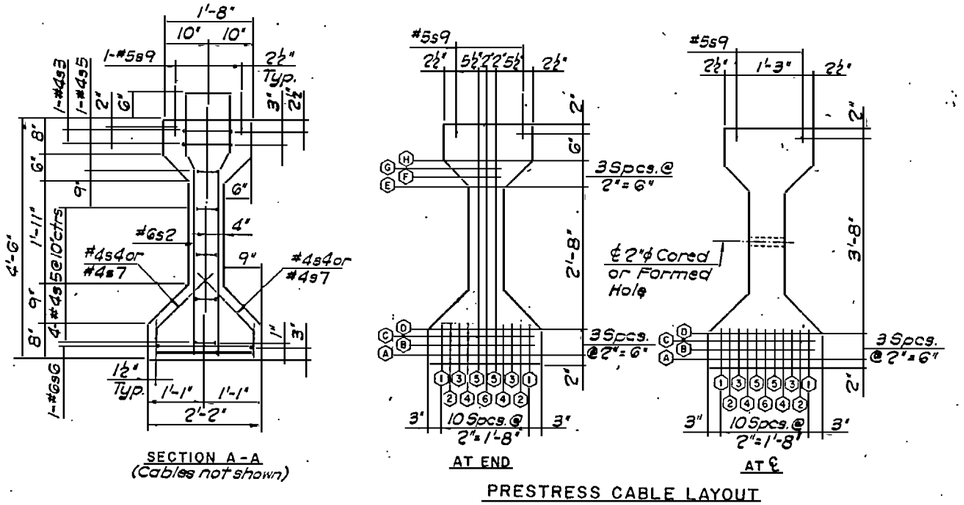
N.C. STATE AID PROJECT NO.

FEDERAL AID PROJECT NO. | FED. NO. DIV. NO.



NOTE
Tie Rod Assembly shall be A.S.T.M. A36 grade structural steel and be hot dipped galvanized in accordance with A.S.T.M. A153.

NOTES
1.) For additional details and notes, see Plates S-17 and S-22.
2.) For Span 2N Plan, see Plate S-11.
3.) For additional girder geometry, see Plate S-29.
4.) For Bar Lists, see Plates S-59 and S-60.



PRESTRESS CABLE LAYOUT

GIRDER NUMBER	SPAN 2N	G1	G2	G3	G4	G5	G6	G7	G8
	SPAN 2S	G8	G7	G6	G5	G4	G3	G2	G1
NUMBER REQUIRED		2	2	2	2	2	2	2	2
GIRDER LENGTH "A"		68'-4"	71'-0⅛"	73'-8⅛"	76'-4⅛"	79'-1⅛"	81'-9⅛"	84'-5⅛"	87'-2"
BRG. TO BRG. "B"*		67'-1"	69'-9⅛"	72'-5⅛"	75'-1⅛"	77'-10⅛"	80'-6⅛"	83'-2⅛"	85'-11"
HOLD DOWN PT. "C"*		8'-6"	8'-9"	9'-0"	9'-6"	9'-9"	10'-0"	10'-6"	10'-9"
TOTAL NO. OF CABLES PER GIRDER		24	27	28	30	32	34	37	39
NO. OF DRAPED CABLES PER GIRDER		5	6	7	7	7	7	8	11
LOCATION OF PRESTRESS CABLES AT ℄ OF GIRDER	A	1 thru 6	1 thru 6	1 thru 6	1 thru 6	1 thru 6	1 thru 6	1 thru 6	1 thru 6
	B	1 thru 6	1 thru 6	1 thru 6	1 thru 6	1 thru 6	1 thru 6	1 thru 6	1 thru 6
	C	5	4,5,6	4,5,6	3 thru 6	2 thru 6	1 thru 6	2 thru 6	1 thru 6
	D			6	6	6	6	3,4,5	3,4,5
AT ENDS OF GIRDER	E	5,6	5,6	5,6	5,6	5,6	5,6	5,6	5,6
	F	5	5,6	5,6	5,6	5,6	5,6	5,6	5,6
	G			6	6	6	6	5	5,6
	H								5
"N" - #4s1		41	43	45	47	49	51	53	55
QUANTITIES FOR ONE GIRDER									
REINF. STEEL	Lbs.	820	840	860	880	900	920	940	961
5,500 psi CONC.	Cu. Yds.	13.9	14.4	15.0	15.5	16.1	16.6	17.1	17.7

*Dimensions shown are measured horizontally.

NOTE
Quantities shown are for the convenience of the Bidder and for information only.

CABLE CHARACTERISTICS				
SIZE	GRADE	AREA	ULTIMATE STRENGTH	APPLIED PRESTRESS
Inches		sq. in.	lbs. / cable	lbs. / cable
½	270	0.153	41,300	28,900

REVISED SEA WING

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY
SUPERSTRUCTURE
GIRDER DETAILS 2 - SPAN 2N
COINJOCK BRIDGE REPLACEMENT PROJECT
CURRITUCK COUNTY NORTH CAROLINA

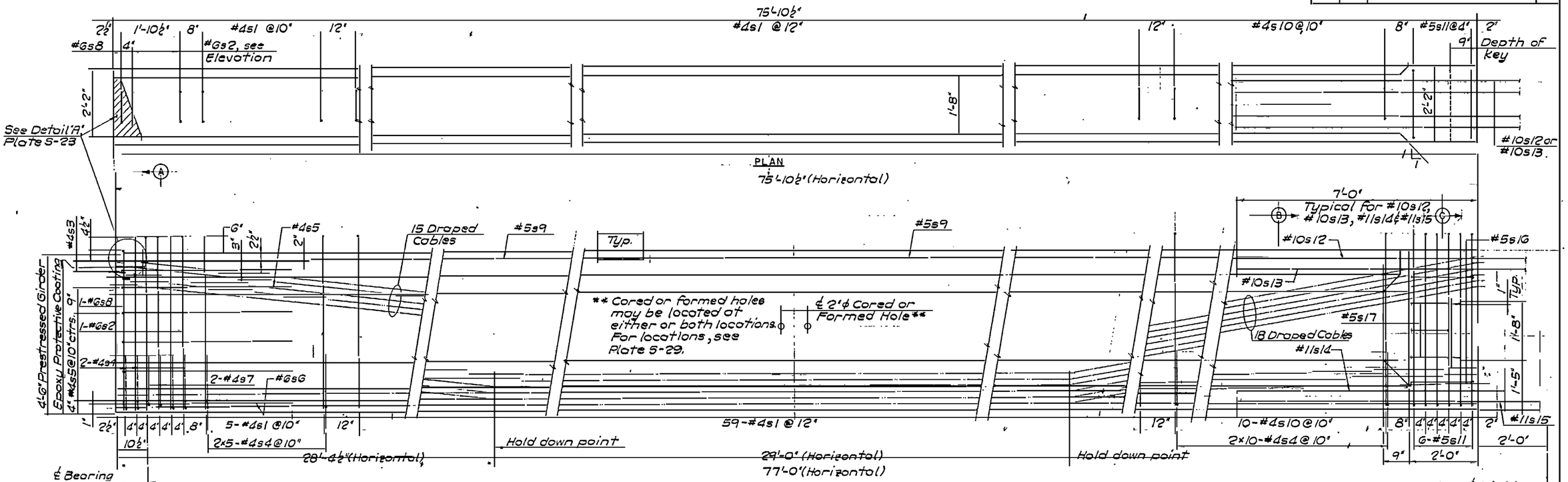
DESIGNED BY: J.W.B.	CHECKED BY: M.G.
PREPARED BY:	
PRINCIPAL OF FIRM HNTB	

INVITATION NO.	SIZE	DRAWING NUMBER	PLATE NO.
DACW54-83-B-0014		BR104-06-17	S-23
SCALE NONE	DATE 22 JULY 1983	SHEET 73 OF 126	

CORPS OF ENGINEERS

U. S. ARMY

N.C. STATE AID PROJECT NO.	
FEDERAL AID PROJECT NO	FED. RD. DIV. NO



NOTE

Girder details shown on this drawing are typical for Girders G1 thru G8.

ELEVATION

(Looking East, see Note 'A')

NOTE "A"

Girder in Span 1N shown, girder for Span 1S is similar by rotation.

* See Note "A", Plate S-30.

GIRDERS REQUIRED		
NO.	LENGTH	TOTAL LENGTH
8*	75'-10½"	607'-0"

*Number req'd for Span 1N, Span 1S same

½"x1¾"x4" Square ℄ Washer and Hex Nut at Junction Girder

26'-2" or 34'-7", see Pl. S-21

4'-4" Thread — Thread 4'

1¼"ϕ

4"x4"x½" R. Washer and Hex Nut at Exterior Girder

NO. REQUIRED: (complete assemblies)	2	26'-2"
	2	34'-7"

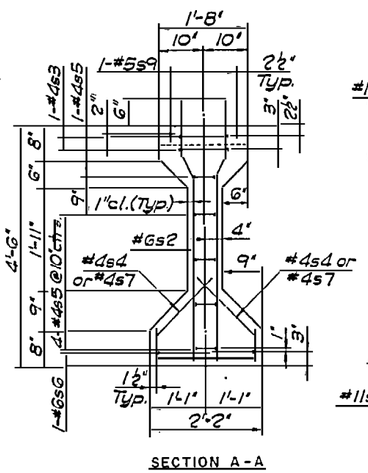
1¼" TIE ROD

NOTE

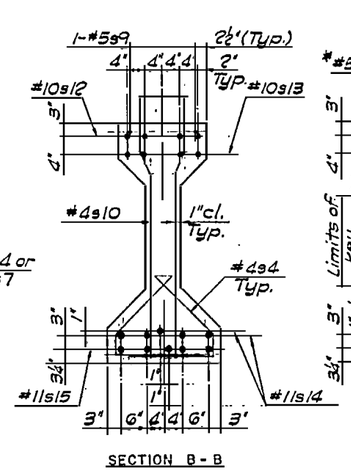
For Tie Rod material requirements, see Plate S-23.

NOTES

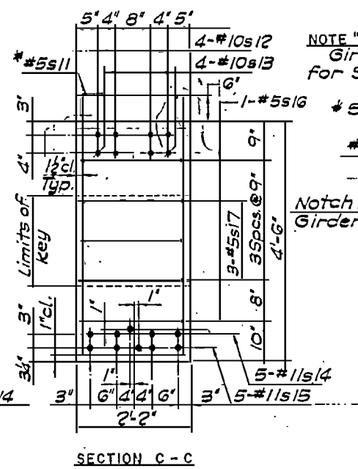
1.) For Bar List, see Plate S-59.
2.) For Slab Plan - Span 1N, see Plates S-13 and S-14.
3.) For additional girder details, see Plates S-17 and S-22.
4.) For Erection Sequence, see Pl. S-26.
5.) For Field Splice details, see Pl. S-26.



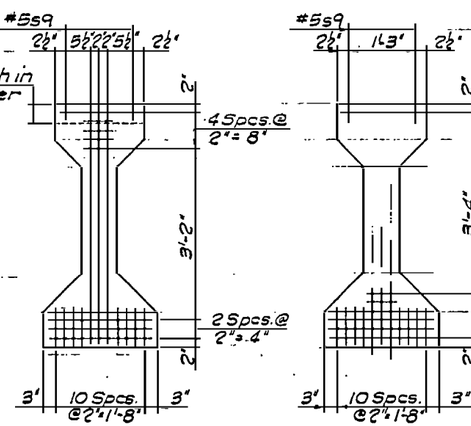
SECTION A-A



SECTION B-B



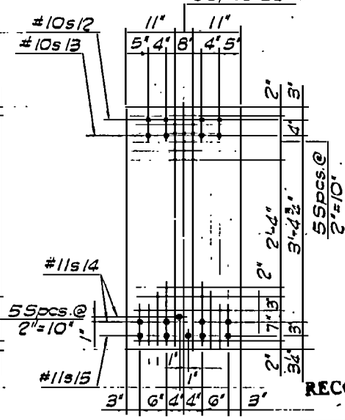
SECTION C-C



AT BRG. END

AT ℄

PRESTRESS CABLE LAYOUT



AT FIELD SPLICE

CABLE CHARACTERISTICS				
SIZE	GRADE	AREA	ULTIMATE STRENGTH	APPLIED PRESTRESS
Inches		sq. in.	lbs. / cable	lbs. / cable
½	270	0.153	41,300	28,900

NOTE

Girders in Span 1N are composed of two prestressed segments (1N-a and 1N-b) and one cast-in-place segment. For details of segment 1N-b, see Plates S-25 and S-26.

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

RECORD DRAWING

ATLANTIC INTRACOASTAL WATERWAY
SUPERSTRUCTURE
GIRDER DETAILS 3 - SPAN IN SEGMENT 1N-a
COINJOCK BRIDGE REPLACEMENT PROJECT
CURRITUCK COUNTY NORTH CAROLINA

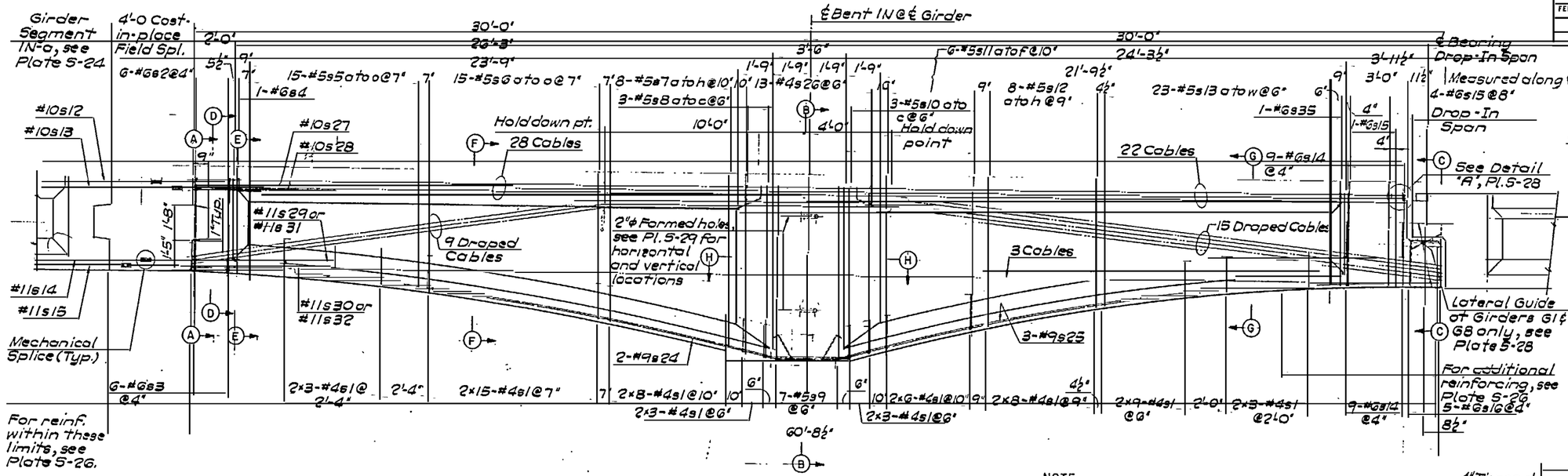
DESIGNED BY: M.G.	CHECKED BY: M.G.		
PREPARED BY: [signature] PRINCIPAL OF FIRM HNTB			
INVITATION NO. DACW54-83-B-0014	SIZE	DRAWING NUMBER BR104-06-17	PLATE NO. S-24
SCALE 1"=1'-0" UNLESS NOTED		DATE 22 JULY 1983	SHEET 74 OF 126

CORPS OF ENGINEERS

U. S. ARMY

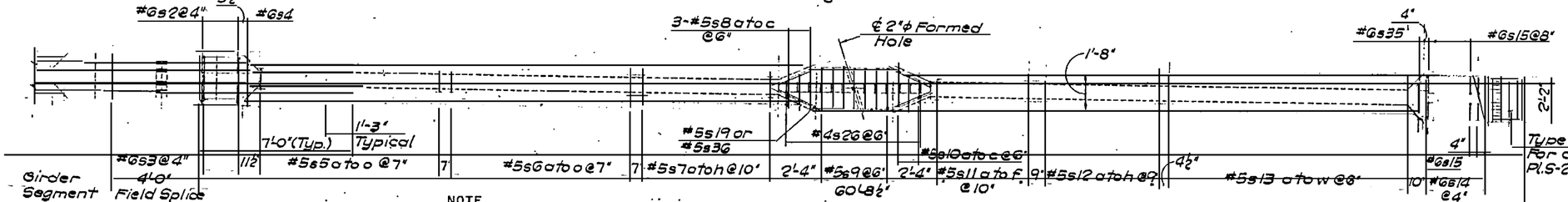
N.C. STATE AID PROJECT NO

FEDERAL AID PROJECT NO. | FED. AID DIV. NO.



NOTE
Girder in Span IN shown, girder for Span 1S is similar by rotation.

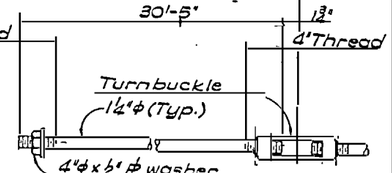
REQUIRED BUILD-UPS			
GIRDER NO.	AT BEGIN. OF GIRDER	AT ℄ BENT	AT ℄ BRG. DROP-IN SPAN
G1	2"	2½"	2¾"
G2		2⅛"	2¾"
G3		2½"	2⅝"
G4		2⅞"	2½"
G5		2½"	2⅜"
G6		2½"	2¼"
G7		2⅜"	2⅛"
G8	2"	2⅜"	2"



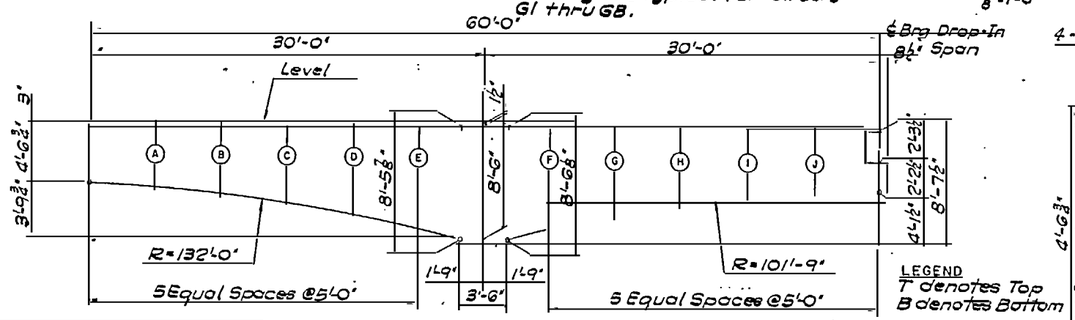
NO. REQUIRED: 4 (complete assemblies) 30'-5"

1¼" TIE ROD
Not to Scale

NOTE
Tie Rod Assembly shall be A.S.T.M. A36 structural steel and shall be hot dipped galvanized in accordance with A.S.T.M. A153.



NOTE
Girder details shown on this drawing are typical for Girders G1 thru G8.

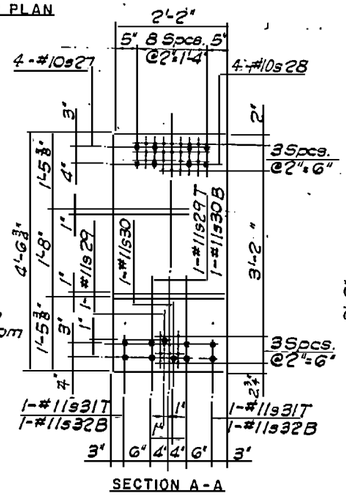


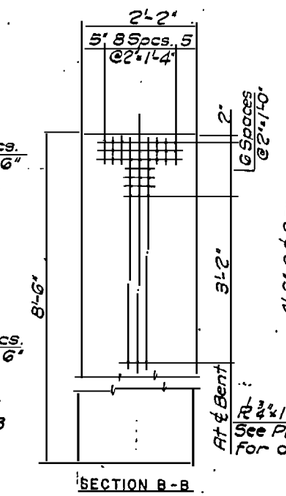
GIRDER GEOMETRY
Not to Scale

GIRDER DEPTHS			
LOCATION	DEPTH	LOCATION	DEPTH
A	4'-9⅞"	F	7'-7½"
B	5'-3"	G	6'-5⅝"
C	5'-10½"	H	5'-7⅛"
D	6'-8⅛"	I	5'-0"
E	7'-8⅝"	J	4'-7

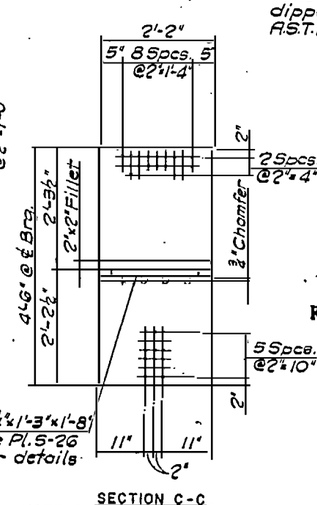
NOTE
Girder geometry shown is typical for Girders G1 thru G8.

TYPICAL GIRDER PLAN
3/8"=1'-0"





PRESTRESS CABLE LAYOUT
¾"=1'-0"



NOTE
Conc. to attain a min. compressive strength of 5,000 psi before transfer of stress.

CABLE CHARACTERISTICS				
SIZE	GRADE	AREA	ULTIMATE STRENGTH	APPLIED PRESTRESS
inches		sq.in.	lbs./cable	lbs./cable
½	270	0.153	41,300	28,900

NOTES
1.) For Bar Lists, see Plate S-59.
2.) For Slab Plan Span IN, see Pl. S-13.
3.) For additional girder details and Sections D-D thru H-H, see Plate S-26.
4.) For Drop-In Span details, see Plate S-27.
5.) For camber requirements, see Plate S-29.
6.) For Erection Sequence, see Plate S-26.

RECORD DRAWING

DESIGNED BY: M.G.	CHECKED BY: M.G.
PREPARED BY: [illegible]	PRINCIPAL OF FIRM HNTB

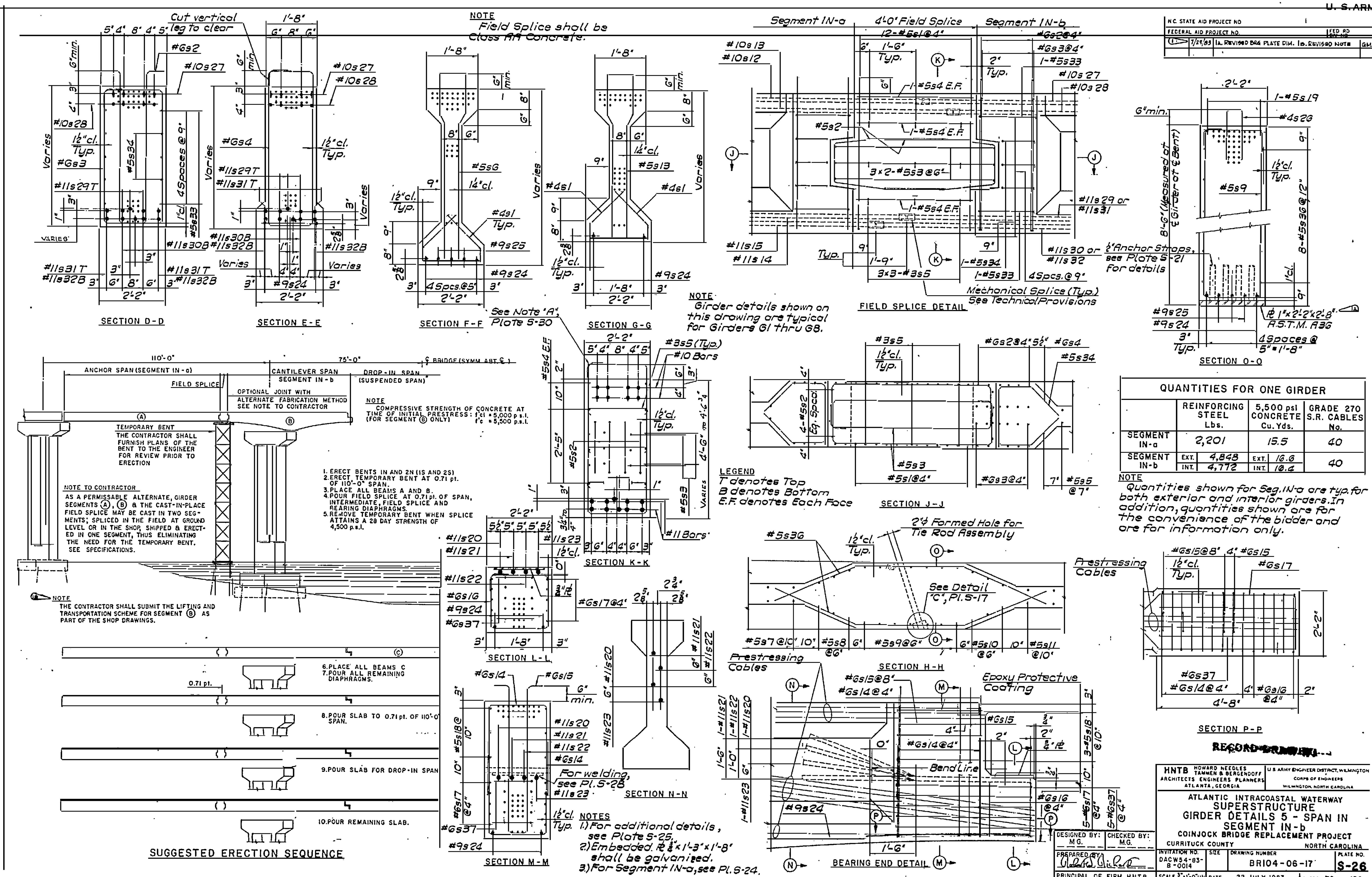
HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY
SUPERSTRUCTURE
GIRDER DETAILS 4 - SPAN IN SEGMENT IN-b
COINJOCK BRIDGE REPLACEMENT PROJECT
CURRITUCK COUNTY NORTH CAROLINA

INVITATION NO.	SIZE	DRAWING NUMBER	PLATE NO.
DACW54-83-B-0014		BRI04-06-17	S-25
SCALE AS NOTED	DATE 22 JULY 1983	SHEET 75 OF 126	

N.C. STATE AID PROJECT NO.	
FEDERAL AID PROJECT NO.	FED. RD. DIV. NO.
1 7/29/83	1a. REVISED BRG PLATE DIM. 1b. REVISED NOTE GMG



NOTE
Field Splice shall be Class AA Concrete.

NOTE
Girder details shown on this drawing are typical for Girders G1 thru G8.

NOTE
COMPRESSIVE STRENGTH OF CONCRETE AT TIME OF INITIAL PRESTRESS: f'ci = 5,000 p.s.i. (FOR SEGMENT (B) ONLY) f'c = 5,500 p.s.i.

TEMPORARY BENT
THE CONTRACTOR SHALL FURNISH PLANS OF THE BENT TO THE ENGINEER FOR REVIEW PRIOR TO ERECTION

NOTE TO CONTRACTOR
AS A PERMISSABLE ALTERNATE, GIRDER SEGMENTS (A), (B) & THE CAST-IN-PLACE FIELD SPLICE MAY BE CAST IN TWO SEGMENTS; SPLICED IN THE FIELD AT GROUND LEVEL OR IN THE SHOP, SHIPPED & ERECTED IN ONE SEGMENT, THUS ELIMINATING THE NEED FOR THE TEMPORARY BENT. SEE SPECIFICATIONS.

1b NOTE
THE CONTRACTOR SHALL SUBMIT THE LIFTING AND TRANSPORTATION SCHEME FOR SEGMENT (B) AS PART OF THE SHOP DRAWINGS.

1. ERECT BENTS IN AND 2N (1S AND 2S)
2. ERECT TEMPORARY BENT AT 0.71 pt. OF 110'-0" SPAN.
3. PLACE ALL BEAMS A AND B.
4. POUR FIELD SPLICE AT 0.71 pt. OF SPAN, INTERMEDIATE, FIELD SPLICE AND BEARING DIAPHRAGMS.
5. REMOVE TEMPORARY BENT WHEN SPLICE ATTAINS A 28 DAY STRENGTH OF 4,500 p.s.i.
6. PLACE ALL BEAMS C
7. POUR ALL REMAINING DIAPHRAGMS.
8. POUR SLAB TO 0.71 pt. OF 110'-0" SPAN.
9. POUR SLAB FOR DROP-IN SPAN
10. POUR REMAINING SLAB.

LEGEND
T denotes Top
B denotes Bottom
E.F. denotes Each Face

QUANTITIES FOR ONE GIRDER

	REINFORCING STEEL Lbs.	5,500 psi CONCRETE Cu. Yds.	GRADE 270 S.R. CABLES No.
SEGMENT IN-a	2,201	15.5	40
SEGMENT IN-b	EXT. 4,848 INT. 4,772	EXT. 16.6 INT. 16.4	40

NOTE
Quantities shown for Seg. IN-a are typ. for both exterior and interior girders. In addition, quantities shown are for the convenience of the bidder and are for information only.

NOTES
1.) For additional details, see Plate S-25.
2.) Embedded PL 3/4"x1'-3"x1'-8" shall be galvanized.
3.) For Segment IN-a, see Pl. S-24.

RECORD DRAWING

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY
SUPERSTRUCTURE
GIRDER DETAILS 5 - SPAN IN
SEGMENT IN-b
COINJOCK BRIDGE REPLACEMENT PROJECT
CURRITUCK COUNTY NORTH CAROLINA

DESIGNED BY: M.G.	CHECKED BY: M.G.
PREPARED BY:	PRINCIPAL OF FIRM HNTB

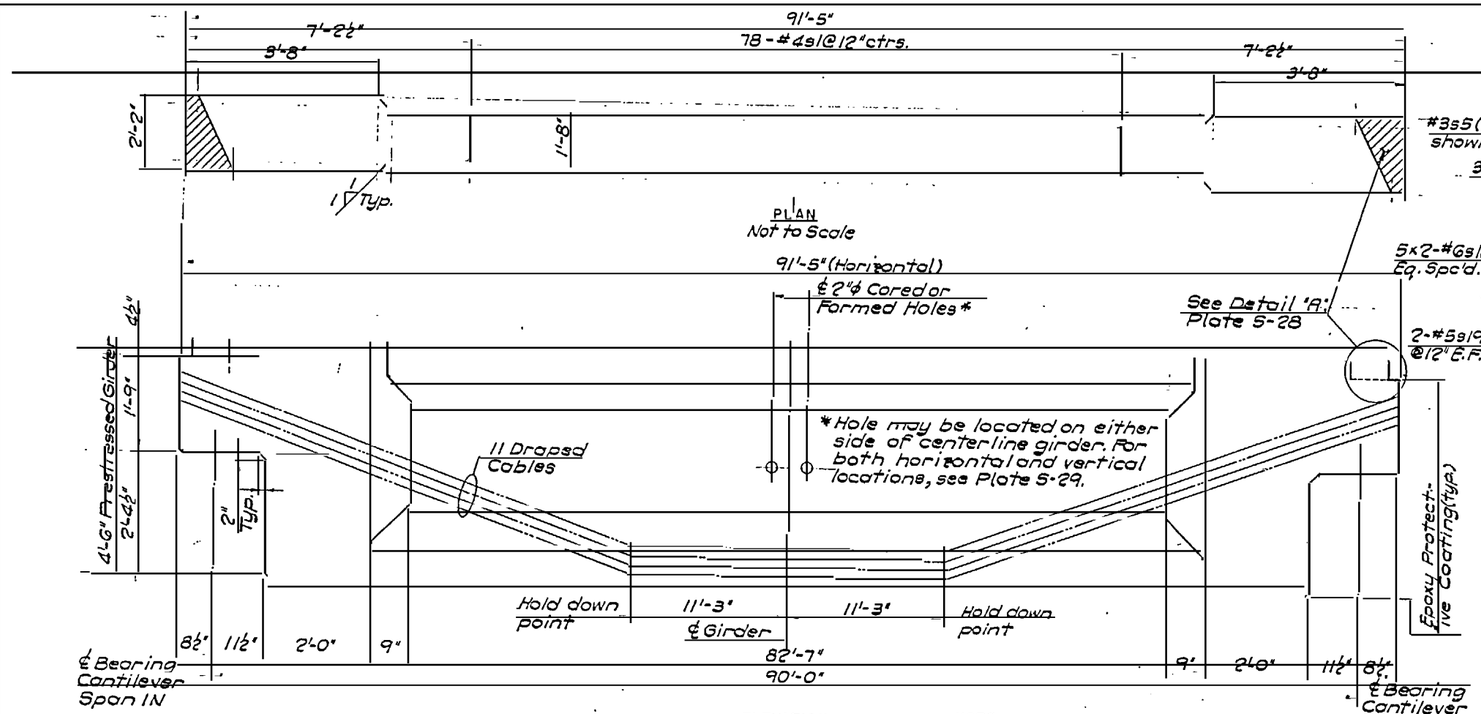
INVITATION NO.	SIZE	DRAWING NUMBER	PLATE NO.
DACW54-83-B-0014		BR104-06-17	S-26
SCALE 3/4"=1'-0" U.N.	DATE 22 JULY 1983	SHEET 76 OF 126	

CORPS OF ENGINEERS

U. S. ARMY

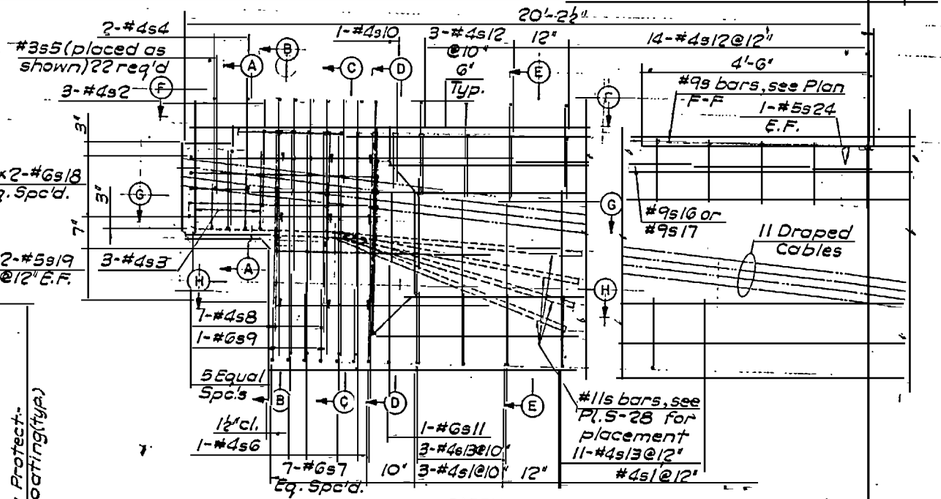
N.C. STATE AID PROJECT NO.

FEDERAL AID PROJECT NO. | FED. RD. DIV. NO.

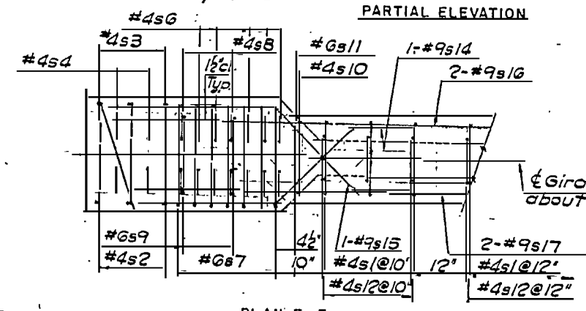


ELEVATION
Not to Scale

NOTE
Details shown on this sheet are typical for Girders G1 thru G8.



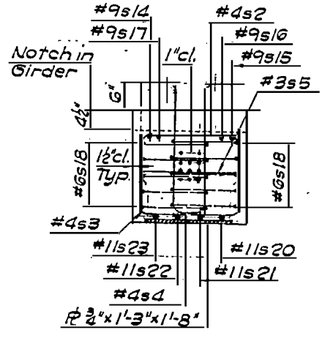
PARTIAL ELEVATION



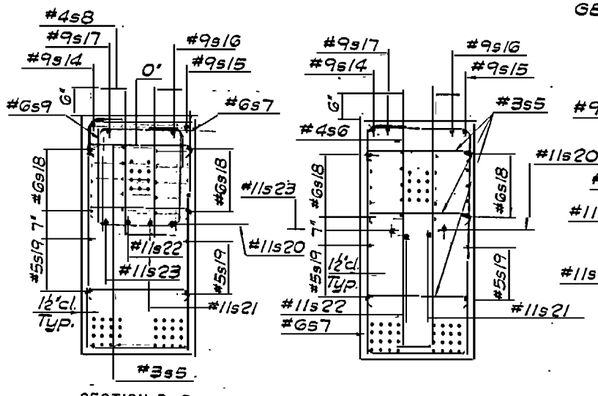
LEGEND
E.F. denotes Each Face

℄ Girder (Reinf. symm. about ℄ unless noted)

PLAN F-F

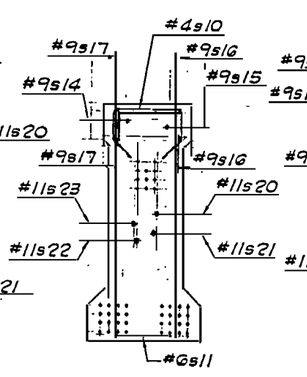


SECTION A-A

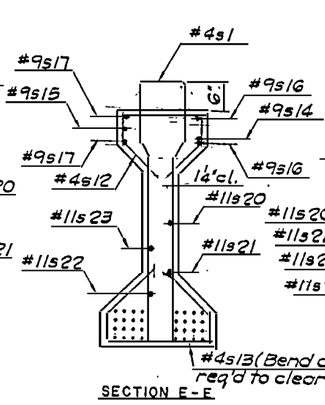


SECTION B-B

SECTION C-C

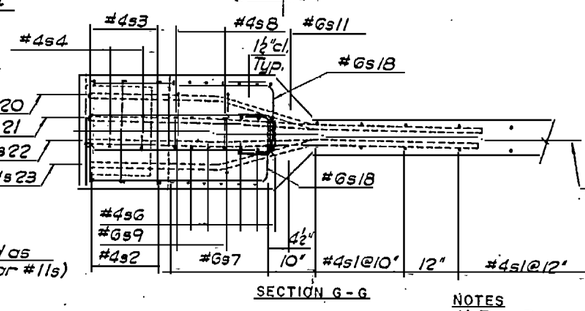


SECTION D-D



#4s13 (Bend as req'd to clear #11s)

SECTION E-E



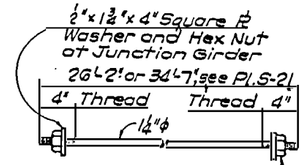
SECTION G-G

GIRDERS REQUIRED		
NO.	LENGTH	TOTAL LENGTH
8	91'-5"	731'-4"

NOTE
Quantities shown are for the convenience of the Bidder and are for information only.

QUANTITIES FOR ONE GIRDER			
	REINFORCING STEEL Lbs.	5,500 psi CONCRETE Cu. Yds.	GRADE 270 S.R. CABLES No.
EXTERIOR GIRDER	2,781	19.2	41
INTERIOR GIRDER	2,781	19.2	41

CABLE CHARACTERISTICS				
SIZE	GRADE	AREA	ULTIMATE STRENGTH	APPLIED PRESTRESS
Inches		sq. in.	lbs. / cable	lbs. / cable
½	270	0.153	41,300	28,900

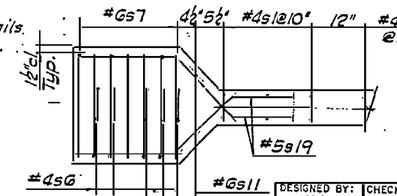


NO. REQUIRED: (complete assemblies) 1 at 26'-2", 1 at 34'-7"

1¼" TIE ROD
Not to Scale

NOTE
For additional details and notes, see Pl. S-28.

NOTE
For Tie Rod material requirements, see Pl. S-23.



SECTION H-H

NOTES
1.) For Drop-In Slab Plan, see Pl. S-18.
2.) For additional details, see Pl. S-22.
3.) For Bar Lists, see Plate S-60.

RECORD DRAWING

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY
SUPERSTRUCTURE
GIRDER DETAILS 6 - DROP - IN SPAN
COINJOCK BRIDGE REPLACEMENT PROJECT
CURRITUCK COUNTY NORTH CAROLINA

DESIGNED BY: M.G. | CHECKED BY: M.G.

PREPARED BY

PRINCIPAL OF FIRM HNTB

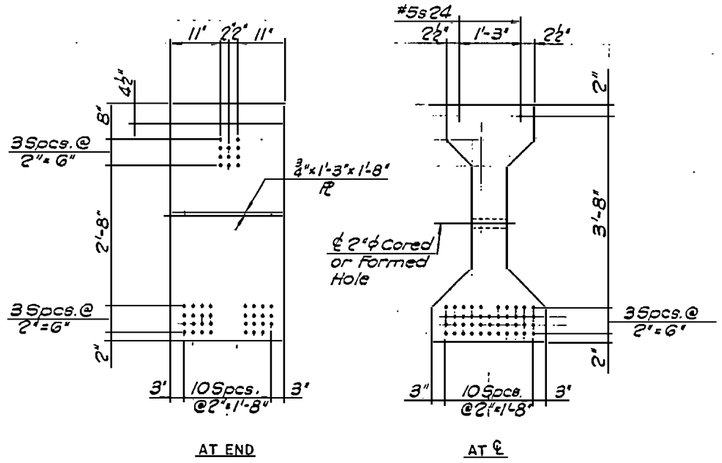
INVITATION NO. DACW54-83-B-0014 | SIZE | DRAWING NUMBER BR104-06-17 | PLATE NO. S-27

SCALE ¾"=1'-0" UN. | DATE 22 JULY 1983 | SHEET 77 OF 126

CORPS OF ENGINEERS

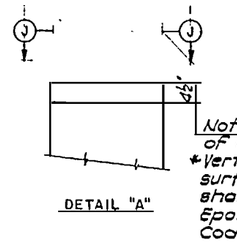
U. S. ARMY

N.C. STATE AID PROJECT NO			
FEDERAL AID PROJECT NO			FED. NO. DIV. NO.



AT END AT ℄

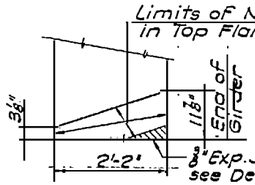
PRESTRESS CABLE LAYOUT



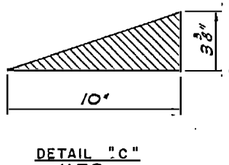
Notch Top Flange of Girder

*Vertical and horizontal surfaces of notch shall not receive Epoxy Protective Coating

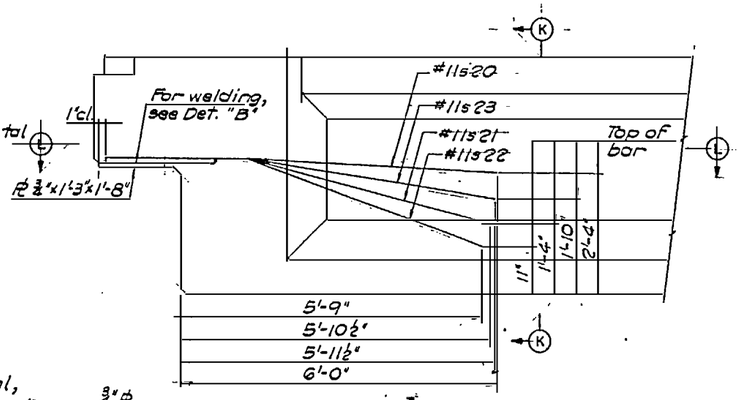
DETAIL "A"



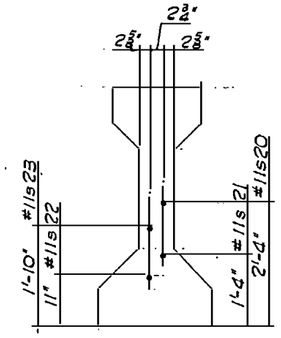
PLAN J-J



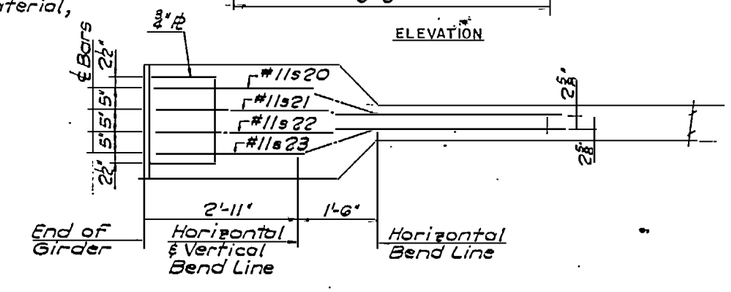
DETAIL "C"
N.T.S.



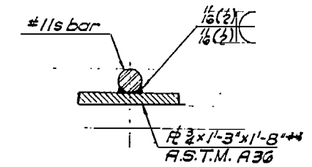
ELEVATION



SECTION K-K



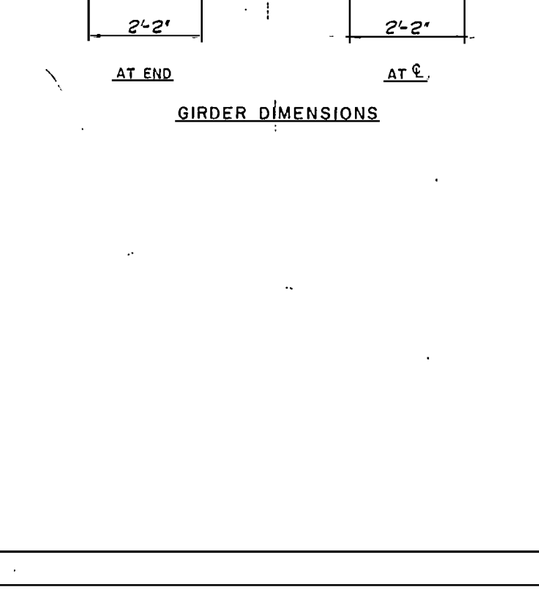
SECTION L-L



DETAIL "B"
3"=1'-0"

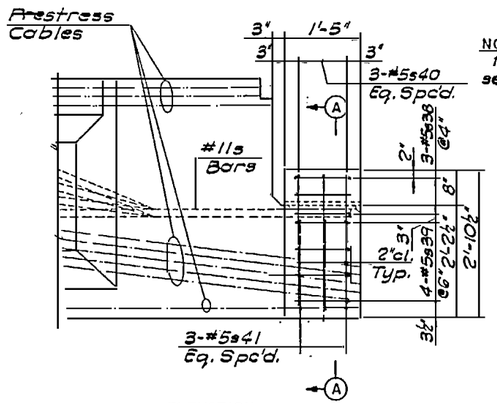
** Plate to be galvanized in accordance with A.S.T.M. A123.

GEOMETRY AND DETAILS FOR 11s BARS



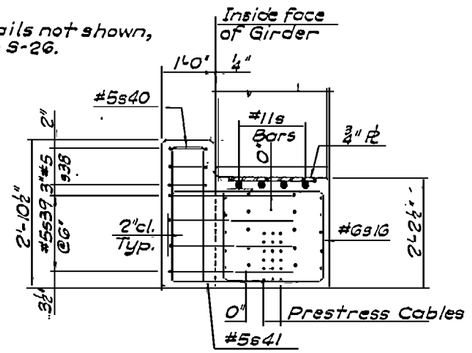
AT END AT ℄

GIRDER DIMENSIONS



ELEVATION

NOTE
For details not shown, see Plate S-26.



SECTION A-A

LATERAL GUIDE DETAIL AT GIRDERS G1 AND G8

NOTE
Details at Girder G1-Span 1N shown. Details for Girder G8-Span 1N and Girders G1 & G8-Span 1S are similar.

NOTES
1.) For additional girder details, see Plate S-27.
2.) For Drop-In Slab Plan, see Plate S-18.

RECORD DRAWING

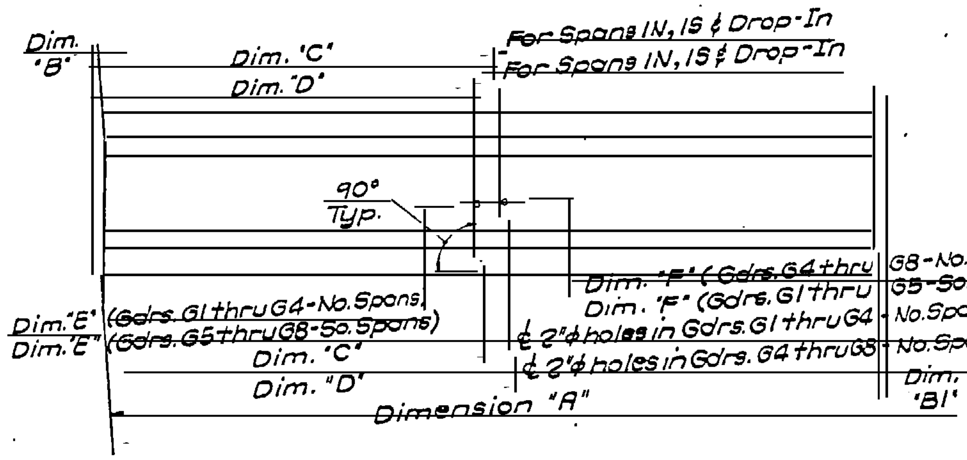
HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY
SUPERSTRUCTURE
GIRDER DETAILS 7 - DROP - IN SPAN
COINJOCK BRIDGE REPLACEMENT PROJECT
CURRITUCK COUNTY NORTH CAROLINA

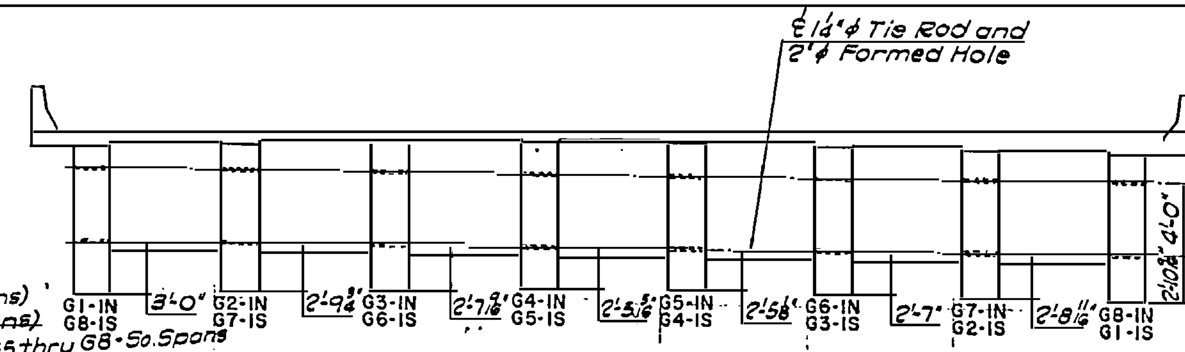
DESIGNED BY: M.G.	CHECKED BY: M.G.			
PREPARED BY:	INVITATION NO DACW54-83-B-0014	SIZE	DRAWING NUMBER BR104-06-17	PLATE NO. S-28
PRINCIPAL OF FIRM HNTB	SCALE ¾"=1'-0" UN	DATE 22 JULY 1983	SHEET 78 OF 126	

N.C. STATE AID PROJECT NO			
FEDERAL AID PROJECT NO.		FED. RD. DIV. NO.	
1	1-7-85	REVISE CAMBER & DEFLECTIONS SPAN 1N+1S	GMG



SLOPED GIRDER ELEVATION

Girder Elevation shown is typical for girders in Spans 2N thru 14N, Drop-In and Segment 1N-a of Span 1N. Girder Elevation for girders in Spans 2S thru 12S & Segment 1S-a shall be similar but opposite hand.



TIE ROD LOCATION IN DIAPHRAGM AT BENTS 1N & 1S

(Looking in direction of increasing stations Bent 1N)
(Looking in direction of decreasing stations Bent 1S)

NOTE
Vertical locations of Tie Rods are shown at intersection of ℄ Girder with ℄ Diaphragm.

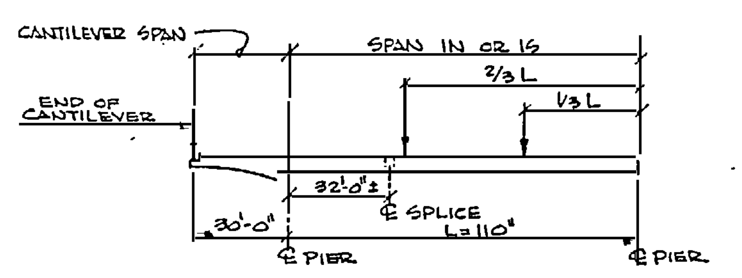
SLOPED GIRDER DIMENSIONS

SPAN NO.	GIRDER NO.	DIM. "A"	DIM. "B"	DIM. "B1"	DIM. "C"	DIM. "D"	DIM. "E"	DIM. "E'"	GIRDER NO.	SPAN NO.
14N to 7N	G1	89'-9 7/8"	2 3/16"	2 3/16"	44'-6 15/16"	—	2'-6"	—	G8	12S to 7S
	G2					—	2'-4"	—	G7	
	G3					—	2'-2"	—	G6	
	G4				44'-6 15/16"	45'-2 15/16"	2'-0"	2'-0"	G5	
	G5				—		—	2'-0"	G4	
	G6				—		—	2'-2"	G3	
	G7				—		—	2'-4"	G2	
14N to 7N	G8	89'-9 7/8"	2 3/16"	2 3/16"	—	45'-2 15/16"	—	2'-6"	G1	12S to 7S
6N	G1 to G8	89'-9 11/16"	2 1/8"	1 15/16"	44'-6 7/8"	45'-2 7/8"	Same as 14N to 7N	Same as 14N to 7N	G1 to G8	6S
5N		89'-9 1/2"	1 13/16"	1 1/2"	44'-6 3/4"	45'-2 3/4"				5S
4N		89'-9 5/16"	1 1/2"	1 3/16"	44'-6 11/16"	45'-2 11/16"				4S
3N	G1 to G8	89'-9 1/16"	1 3/16"	7/8"	44'-6 5/8"	45'-2 5/8"			G1 to G8	3S
2N	G1	68'-4 1/8"	7/8"	5/8"	33'-10"	—	2'-6 9/16"	—	G8	2S
	G2	71'-0 1/8"			35'-2 1/8"	—	2'-4 3/8"	—	G7	
	G3	73'-8 11/16"			36'-6 5/16"	—	2'-2 3/16"	—	G6	
	G4	76'-4 15/16"			37'-10 7/16"	38'-6 9/16"	2'-0"	2'-0"	G5	
	G5	79'-1 1/4"			—	39'-10 11/16"	—	1'-11 13/16"	G4	
	G6	81'-9 1/2"			—	41'-2 13/16"	—	2'-1 5/8"	G3	
	G7	84'-5 13/16"		5/8"	—	42'-6 13/16"	—	2'-3 7/16"	G2	
2N	G8	87'-2 1/16"	1"	1/16"	—	43'-11 1/8"	—	2'-5 1/4"	G1	2S
1N	Segment 1N-a G1	75'-10 9/16"	5/8"		40'-3"	—	2'-6 15/16"	—	G8 Segment 1S-a	1S
	G2					—	2'-4 5/8"	—	G7	
	G3					—	2'-2 5/16"	—	G6	
	G4				40'-3"	39'-7"	2'-0"	2'-0"	G5	
	G5				—		—	1'-11 3/4"	G4	
	G6				—		—	2'-1 7/16"	G3	
	G7		5/8"		—		—	2'-3 5/8"	G2	
1N	G8	75'-10 9/16"	1/2"		—	39'-7"	—	2'-4 7/8"	G1	1S
Drop-In	G1 to G8	91'-5"	0"	0"	46'-0 1/2"	45'-4 1/2"	Same as 14N to 7N			

TABLE OF CAMBERS AND DEFLECTIONS

SPAN NO.	GIRDER NO.	INITIAL CAMBER (1)	DEFLECTIONS (2)	DEFLECTIONS (3)	TOTAL (1)+(2)+(3)
14N to 3N	G1 to G8	+1.54	-1.21	-0.15	+0.18
2N	G1	+0.66	-0.41	-0.05	+0.20
	G2	+0.79	-0.48	-0.06	+0.25
	G3	+0.84	-0.55	-0.07	+0.22
	G4	+0.95	-0.64	-0.08	+0.23
	G5	+1.08	-0.73	-0.09	+0.26
	G6	+1.22	-0.83	-0.10	+0.29
	G7	+1.35	-0.95	-0.11	+0.29
2N	G8	+1.42	-1.07	-0.13	+0.22
Drop-In	G1 to G8	+1.68	-1.29	-0.15	+0.24
2S	G1	+1.42	-1.07	-0.13	+0.22
	G2	+1.35	-0.95	-0.11	+0.29
	G3	+1.22	-0.83	-0.10	+0.29
	G4	+1.08	-0.73	-0.09	+0.26
	G5	+0.95	-0.64	-0.08	+0.23
	G6	+0.84	-0.55	-0.07	+0.22
	G7	+0.79	-0.48	-0.06	+0.25
2S	G8	+0.66	-0.41	-0.05	+0.20
3S to 12S	G1 to G8	+1.54	-1.21	-0.15	+0.18

LEGEND
Values given for Cambers and Deflections are in inches.
(1) Initial Camber: Beam Dead Load and Initial Stress.
(2) Deflection due to dead load of slab including Stay-in-Place forms, Build-up (Haunch) and Diaphragms.
(3) Deflection due to Barrier Rail and Future Wearing Surface (20 lbs./sq.ft.)
Positive value Upward
Negative value Downward
D.L. denotes Dead Load



CAMBER AND DEFLECTION POINTS - SPAN 1N & 1S
NOT TO SCALE

CAMBERS - SPANS 1N AND 1S

	CATEGORY	1/3 ANCHOR SPAN	2/3 ANCHOR SPAN	END OF CANTILEVER
I	Prestressing Force	+1.68	+0.84	+0.36
II	Anchor & Cantilever Beam D.L.	-1.92	-1.80	+1.56
III	Total I & II	-0.24	-0.96	+1.92
IV	Drop-In Span Beam Dead Load	+1.20	+1.32	-1.80
	Total Camber (III + IV)	+0.96	+0.36	+0.12

(Anchor & Cantilever Spans)

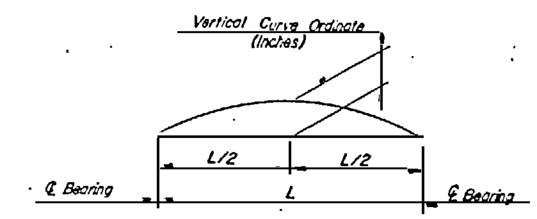
DECK D.L. DEFLECTIONS - SPANS 1N AND 1S

	CATEGORY	1/3 ANCHOR SPAN	2/3 ANCHOR SPAN	END OF CANTILEVER
I	Concrete Slab: Anchor & Cantilever Span	-1.92	-1.80	+1.56
II	Concrete Slab: Drop-In Span	+1.08	+1.32	-1.68
III	I + II	-0.84	-0.48	-0.12
IV	Superimposed Dead Load Cantilever & Anchor Span	-0.36	-0.36	+0.24
V	Superimposed Dead Load Drop-In Span	+0.24	+0.24	-0.36
VI	IV + V	-0.12	-0.12	-0.12
	Total Deflection III + VI	-0.96	-0.60	-0.24
	Total Camber + Total Deflections	0.00	-0.24	-0.12

(Anchor & Cantilever Spans)

VERTICAL CURVE ORDINATES

SPAN NUMBER	GIRDER NUMBER	ORDINATE
14N thru 7N	G1 thru G8	0.00"
6N thru 3N	G1 thru G8	0.73"
2N	G1	0.42"
	G2	0.46"
	G3	0.49"
	G4	0.53"
	G5	0.58"
	G6	0.61"
	G7	0.65"
2N	G8	0.70"
1N	See Girder Details	
Drop-In	G1 thru G8	0.76"
1S	See Girder Details	
2S	G1	0.70"
	G2	0.65"
	G3	0.61"
	G4	0.58"
	G5	0.53"
	G6	0.49"
	G7	0.46"
2S	G8	0.42"
3S thru 6S	G1 thru G8	0.73"
7S thru 12S	G1 thru G8	0.00"



VERTICAL CURVE ORDINATE DIAGRAM

NOTES
1.) For General Notes, see Pl. S-7.
2.) For Span 1N & 1S Girder Details, see Plates S-24 thru S-26.
3. ACTUAL FIELD DIMENSIONS MAY VARY DUE TO CAMBER GROWTH AND ELASTIC SHRINKAGE.
4. DECK FORMS SHALL BE SET BASED ON ACTUAL IN-PLACE BEAM CAMBERS.

RECORD DRAWING

DESIGNED BY: M.G.	CHECKED BY: M.G.
PREPARED BY: [signature]	
PRINCIPAL OF FIRM HNTB	

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

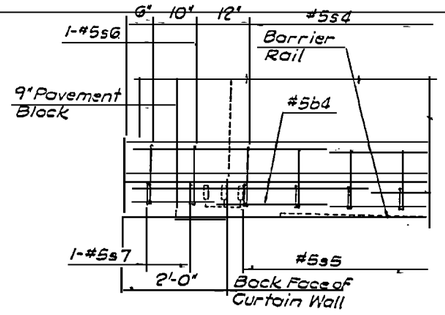
U S ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY
SUPERSTRUCTURE
GIRDER GEOMETRY
COINJOCK BRIDGE REPLACEMENT PROJECT
CURRITUCK COUNTY NORTH CAROLINA

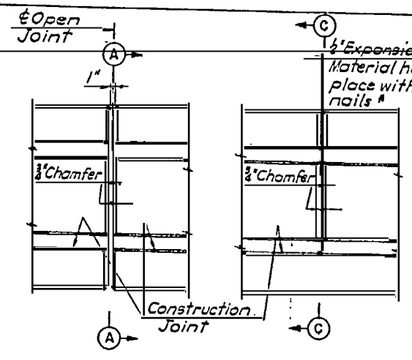
INVITATION NO.	SIZE	DRAWING NUMBER	PLATE NO.
DACW54-83-B-0014		BR104-06-17	S-29
SCALE NONE	DATE 22 JULY 1983	SHEET 79 OF 126	

N.C. STATE AID PROJECT NO.

FEDERAL AID PROJECT NO. | FED. RD DIV. NO.

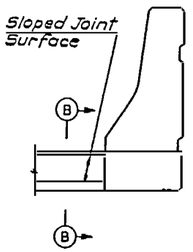


PLAN



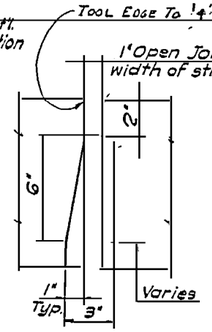
AT OPEN JOINT AT INTERMEDIATE JOINT

* Omit Exp. Jt. matl. if Slip Form Option is used.

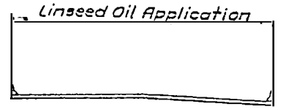


SECTION A-A

BARRIER RAIL ELEVATIONS

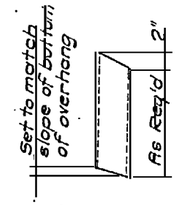


SECTION B-B
Not to Scale

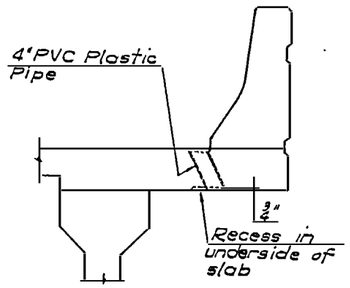


LIMITS OF LINSEED OIL CONCRETE PROTECTION
Not to Scale

EXPANSION JOINT DETAILS
For locations, see Deck Slab Plans
Not to Scale

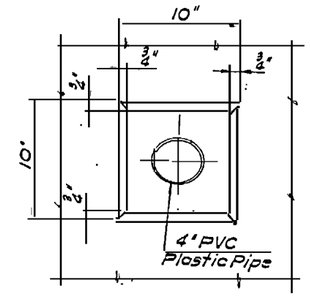


DRAIN DETAIL
Not to Scale



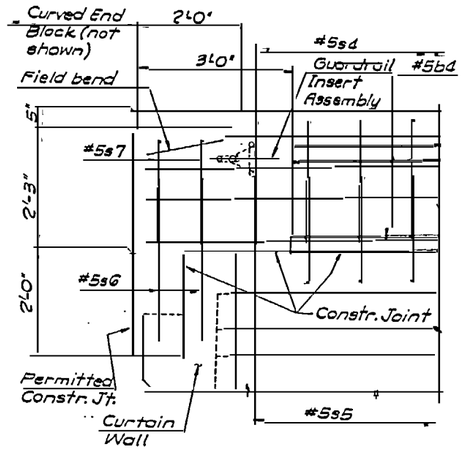
TYPICAL SECTION AT DRAIN

NOTE (DRAINS)
Drains shall be 4"ϕ PVC Plastic Pipe (see Specifications). Top of Floor Drains to be set ⅜" below surface of slab.

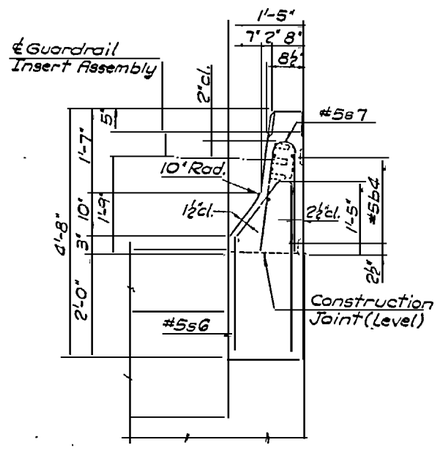


PLAN OF RECESS

SLAB DRAIN DETAILS
Not to Scale

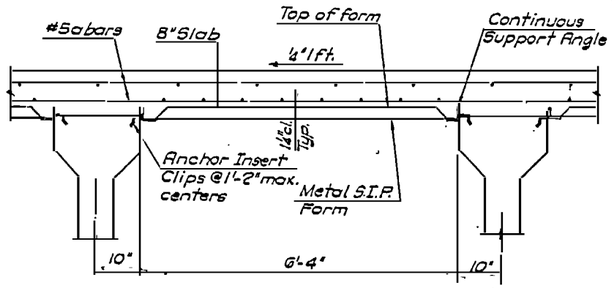


ELEVATION



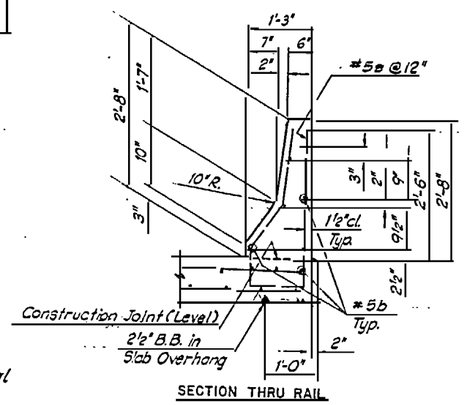
END VIEW

BARRIER RAIL END DETAILS
¾"=1'-0"



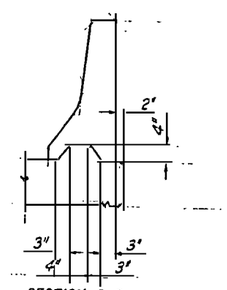
METAL STAY-IN-PLACE FORM DETAILS
Not to Scale

NOTE "A"
The Contractor has the option of using either fabricated Metal Stay-in-Place forms as detailed or Prestressed Concrete Deck Panels, with the exception that Prestressed Concrete Deck Panels will not be permitted in Spans 2N, 2S, 1N, 1S or in the drop-in span. In the event he chooses to use deck panels, it shall be his responsibility to supply the Engineer with revisions to deck slab and girder reinforcing (bar lists), girder cambers and any vertical controls, including any necessary increase in build-up dimensions. In addition, see Technical Provisions.



SECTION THRU RAIL

OPTIONAL BARRIER DETAIL
¾"=1'-0"



SECTION C-C
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)

NOTE "B"
The Contractor has the option of using the Barrier Rail Detail as detailed on the plans (1'-5") or the Reduced Width Barrier (1'-3") as shown above. In addition, if the reduced barrier is constructed it may done using the Slip Form Method. In the event he chooses to construct the reduced width barrier rail, it shall be his responsibility to supply the Engineer with revisions to the Barrier Rail Reinforcing (Bar Lists).

NOTES
1.) For General Notes, see Plate S-7.
2.) For drain locations, see Slab Plans
3.) For Curved End Block Details, see Plate S-49.

RECORD DRAWING

RECORD DRAWING

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY
SUPERSTRUCTURE
MISCELLANEOUS DETAILS
COINJOCK BRIDGE REPLACEMENT PROJECT
CURRITUCK COUNTY NORTH CAROLINA

DESIGNED BY: JAL	CHECKED BY: MAM
PREPARED BY:	
PRINCIPAL OF FIRM HNTB	

INVITATION NO.	SIZE	DRAWING NUMBER	PLATE NO.
DACW54-83-B-0014		BRI04-06-17	S-30
SCALE AS NOTED	DATE 22 JULY 1983	SHEET 80 OF 126	

CORPS OF ENGINEERS

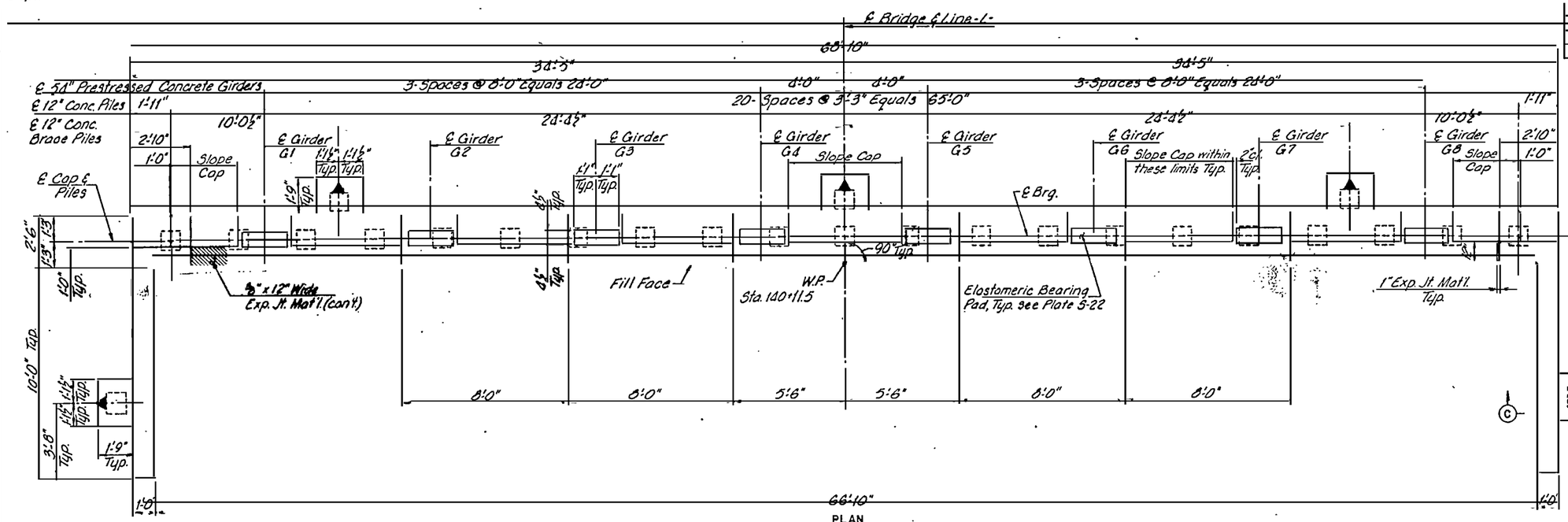
U. S. ARMY

N.C. STATE AID PROJECT NO

FEDERAL AID PROJECT NO

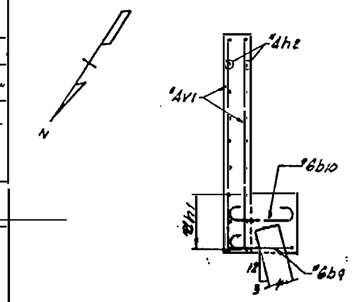
FED. AID PROJ. NO

CONT. NO



PLAN

3/8" = 1'-0"



SECTION C-C

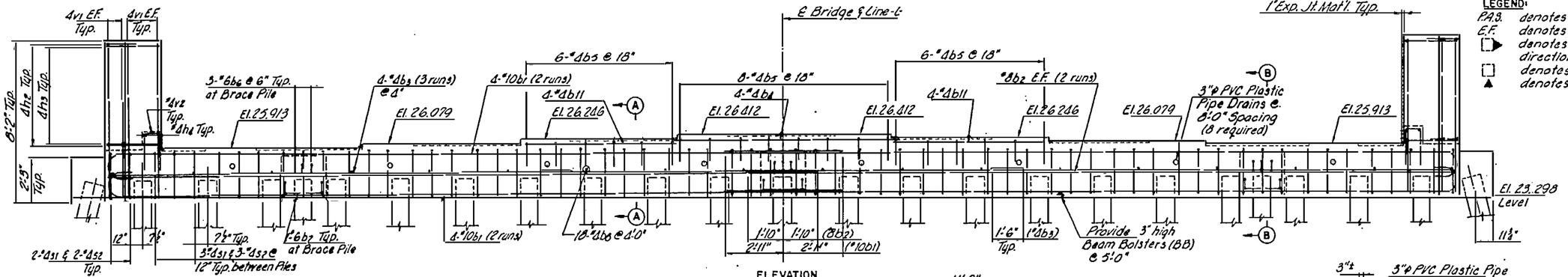
3/8" = 1'-0"

NOTES:

1. For General Notes, see Plate S-7.
2. For Pile Details, see Plate S-46.
3. For Girder and Pad Details, see Plate S-22.
4. For Bar Bending Diagrams, see Plates S-55 and S-56.
5. For Reinforcing Bar List, see Plate S-61.
6. Pile Spacing is Measured at Bottom of Cap.

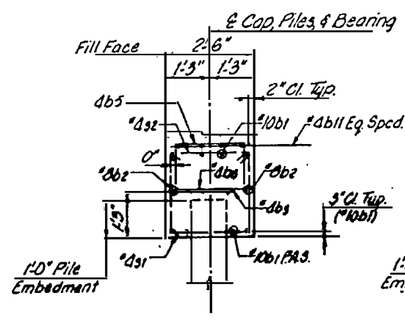
LEGEND:

P.A.S. denotes Place as shown.
E.F. denotes Each face.
denotes Battered Pile 3:12 in direction of arrow.
denotes Vertical Pile
▲ denotes 3" Beam Bolster (BB).



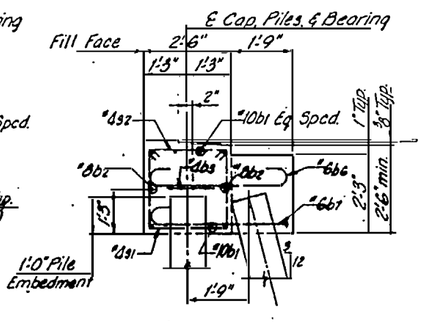
ELEVATION

3/8" = 1'-0"



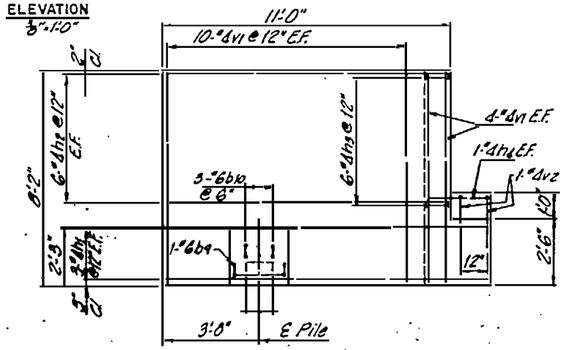
SECTION A-A

½" = 1'-0"



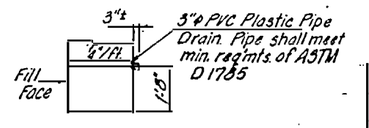
SECTION B-B

½" = 1'-0"



WINGWALL ELEVATION

3/8" = 1'-0"



SECTION THRU CAP

3/8" = 1'-0"

6" Sq. Aluminum or Galv. Steel Wire & Mesh Hardware Cloth of Commercial Quality. Anchor firmly to Fill Face.

FILL FACE ELEVATION
PIPE DRAIN DETAILS

Note: N.T.S.

No separate payment will be made for furnishing & installing the PVC Plastic Pipe Drains, Hardware Cloth & Fasteners.

RECORD DRAWING

RECORD DRAWING

* See General Notes, Pl. S-7.

PILE REQUIREMENTS

BENT NO.	MIN. PILE TIP ELEV*	NO. OF PILES	EST. TOTAL LENGTH
END BENT 1	-40	26	1835

DESIGNED BY: F.E.L. | CHECKED BY: A.A.S.

PREPARED BY:

PRINCIPAL OF FIRM HNTB

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY

SUBSTRUCTURE

END BENT 1

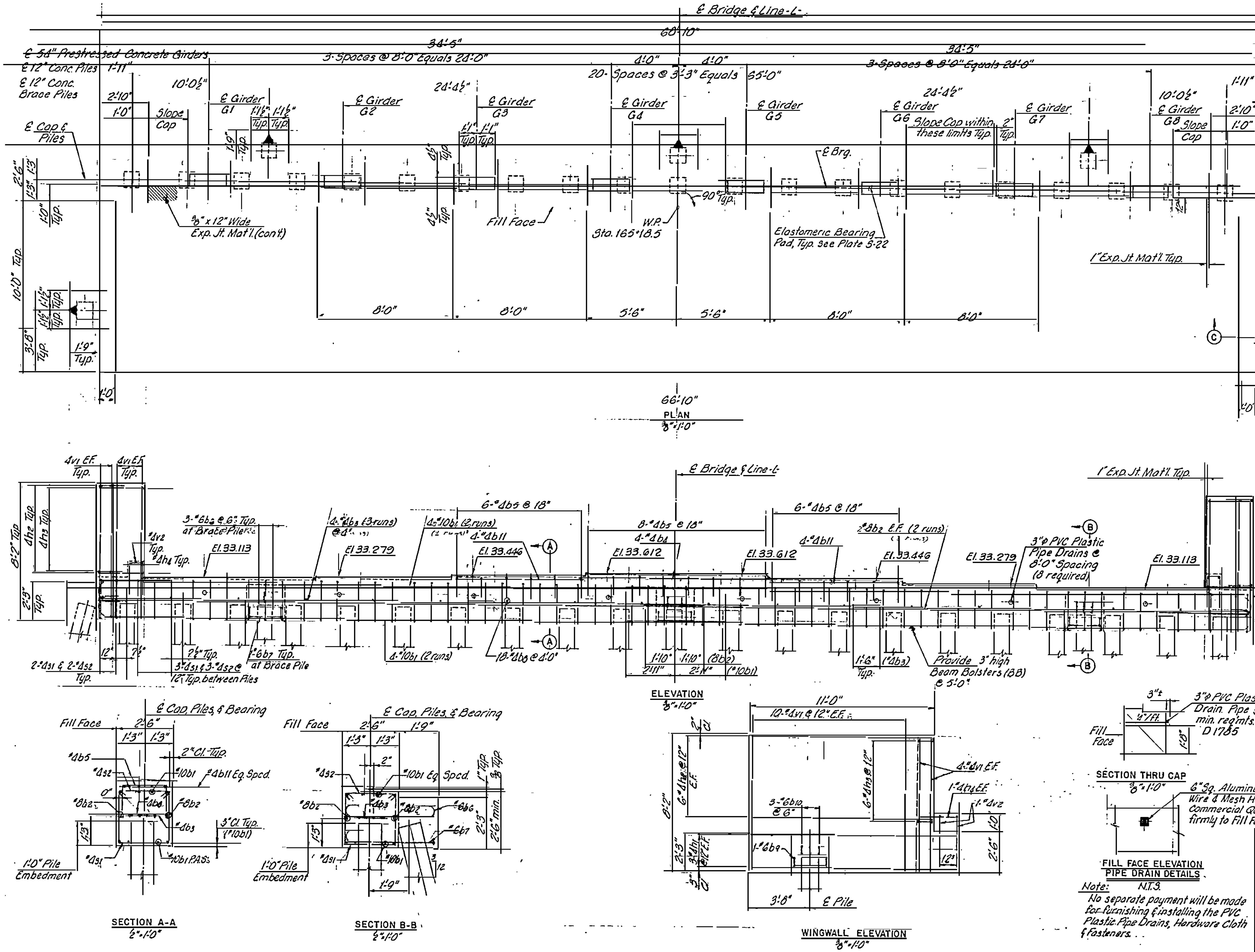
COINJOCK BRIDGE REPLACEMENT PROJECT

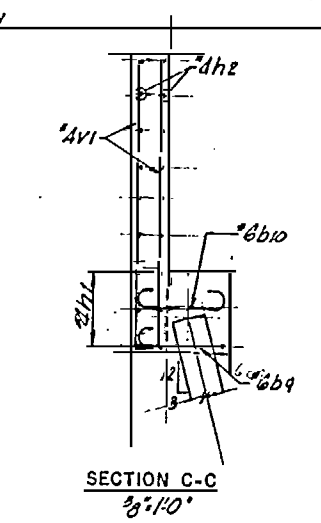
CURRITUCK COUNTY NORTH CAROLINA

INVITATION NO	SIZE	DRAWING NUMBER	PLATE NO
DACW54-83-B-0014		BRI04-06-17	S-31

SCALE AS NOTED | DATE 22 JULY 1983 | SHEET 81 OF 126

N.C. STATE AID PROJECT NO.	
FEDERAL AID PROJECT NO.	FED. RD. DIV. NO.





NOTES:

1. For General Notes, see Plate S-7.
2. For Pile Details, see Plate S-46.
3. For Girder and Pad Details, see Plate S-22.
4. For Bar Bending Diagrams, see Plates S-55 and S-56.
5. For Reinforcing Bar List, see Plate S-68.
6. Pile Spacing is Measured at Bottom of Cap.

LEGEND:

P.A.S. denotes Place as shown.
E.F. denotes Each face.
denotes Battered Pile 3:12 in direction of arrow.
denotes Vertical Pile
denotes 3" Beam Bolster (BB).

RECORD DRAWING

* See General Notes, S-7.

PILE REQUIREMENTS

BENT NO.	MIN. PILE TIP ELEV.	NO. OF PILES	EST. TOTAL LENGTH
END BENT 2	-40	26	2095

DESIGNED BY: F.F.L. CHECKED BY: A.A.S.
PREPARED BY:
PRINCIPAL OF FIRM HNTB

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA
U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

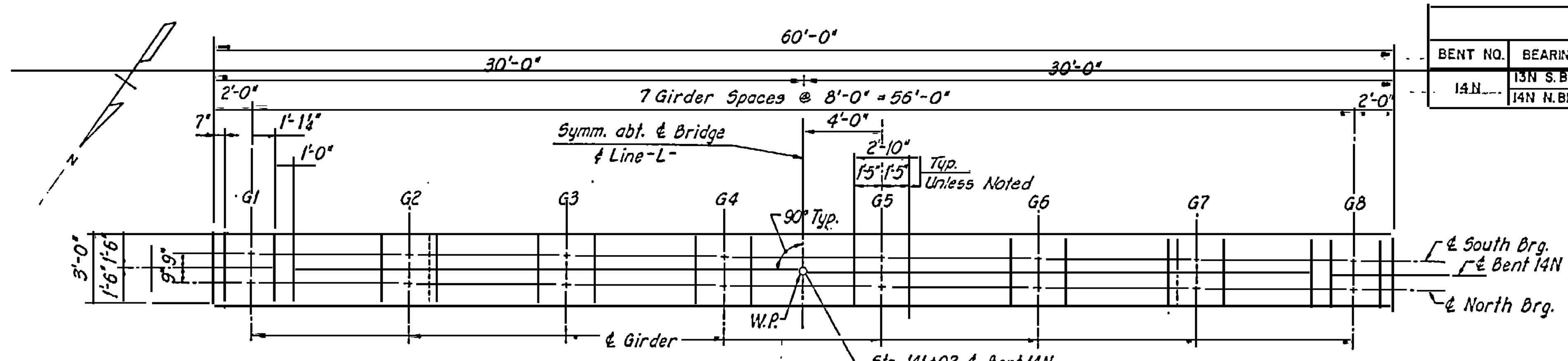
ATLANTIC INTRACOASTAL WATERWAY
SUBSTRUCTURE
END BENT 2
COINJOCK BRIDGE REPLACEMENT PROJECT
CURRITUCK COUNTY NORTH CAROLINA

INVITATION NO.	SIZE	DRAWING NUMBER	PLATE NO.
DACW54-83-B-0014		BRI04-06-17	S-32
SCALE AS NOTED	DATE 22 JULY 1983		SHEET 82 OF 126

N.C. STATE AID PROJECT NO.	
FEDERAL AID PROJECT NO	FED RD DIV NO

PAD ELEVATIONS

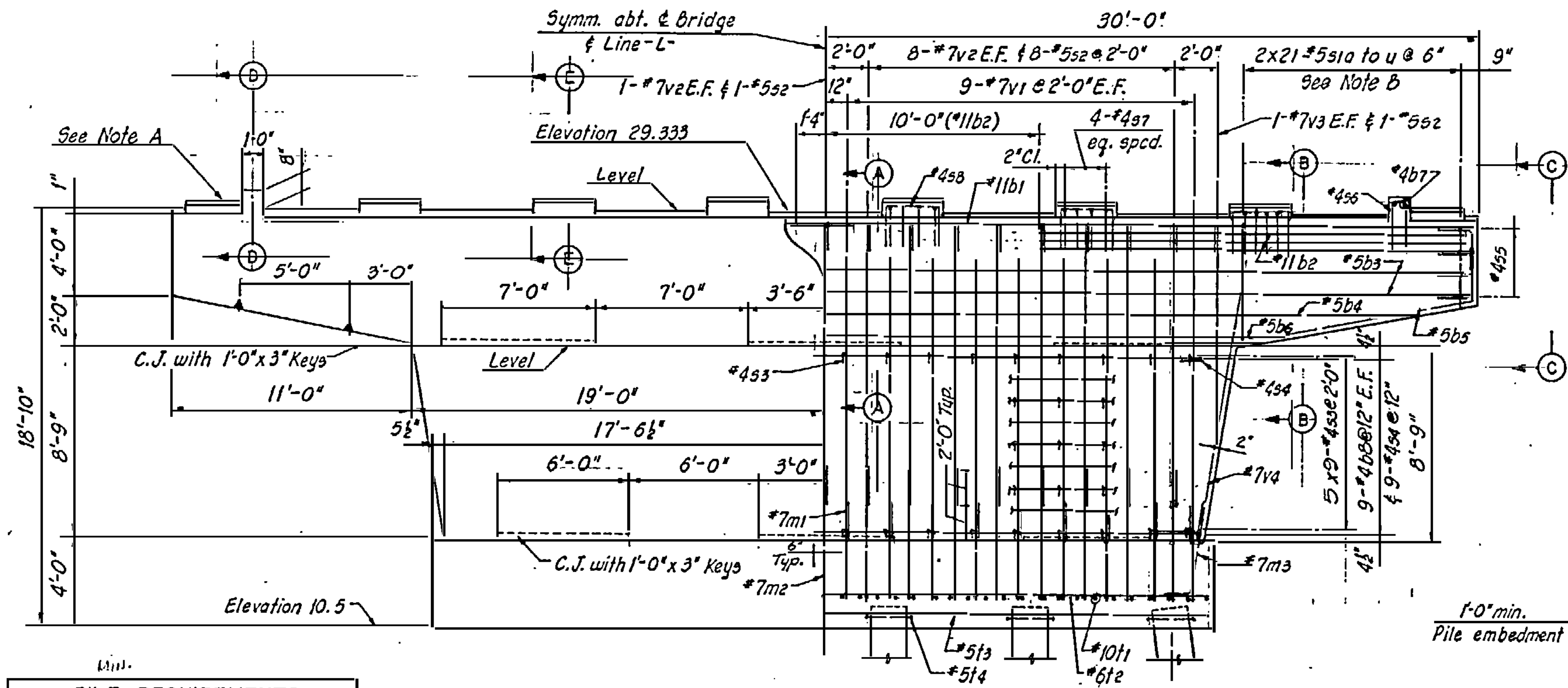
BENT NO.	BEARING	GDR. 1	GDR. 2	GDR. 3	GDR. 4	GDR. 5	GDR. 6	GDR. 7	GDR. 8
14N	13N S. BRG.	29.513	29.679	29.846	30.012	30.012	29.846	29.679	29.513
	14N N. BRG.	29.453	29.619	29.786	29.952	29.952	29.786	29.619	29.453



PLAN

NOTE A:
Reinforce all concrete pads as shown except at girders G1 and G8.

NOTE B:
Adjust (#5s1u) stirrup bars inwardly as required to clear #7v4 bars.

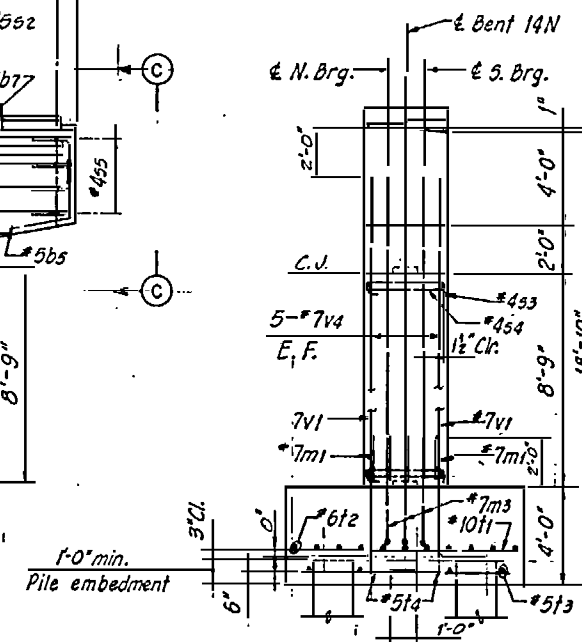


ELEVATION

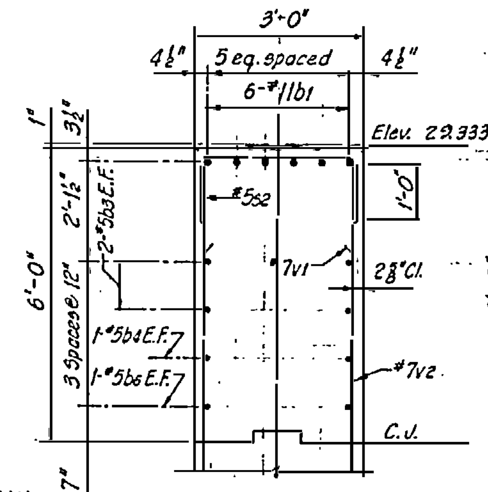
PILE REQUIREMENTS

BENT NO.	MIN. PILE TIP ELEV.	NO. OF PILES	EST. TOTAL LENGTH
14N	-55.0	12	1105

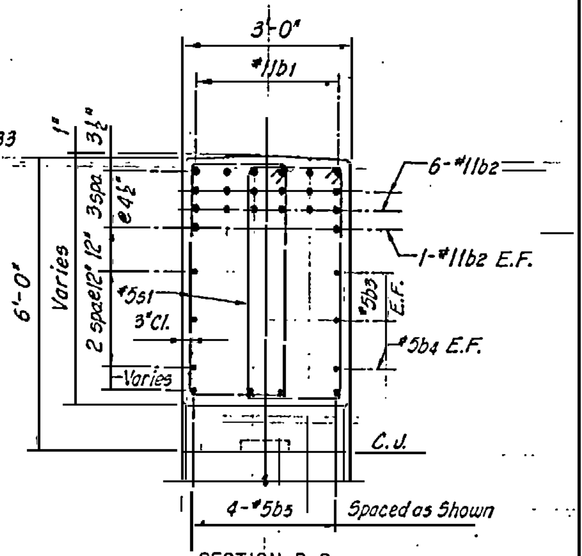
-55.0



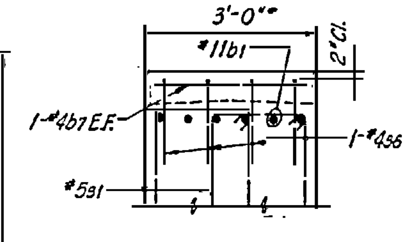
END VIEW



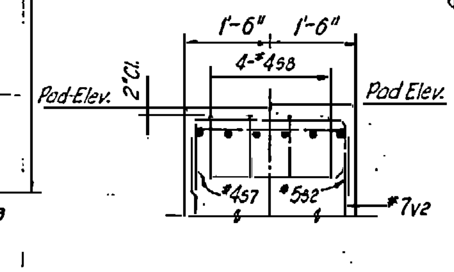
SECTION A-A



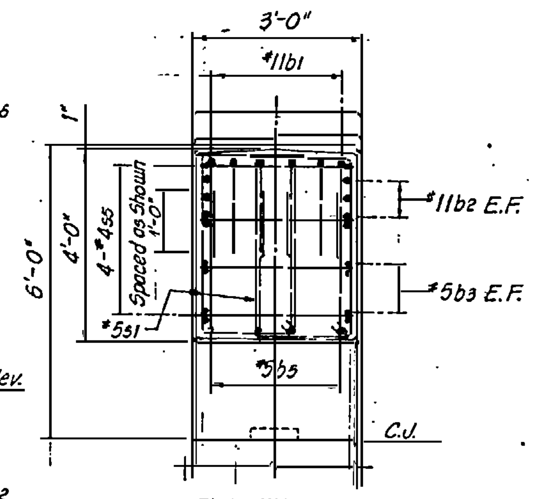
SECTION B-B



SECTION D-D



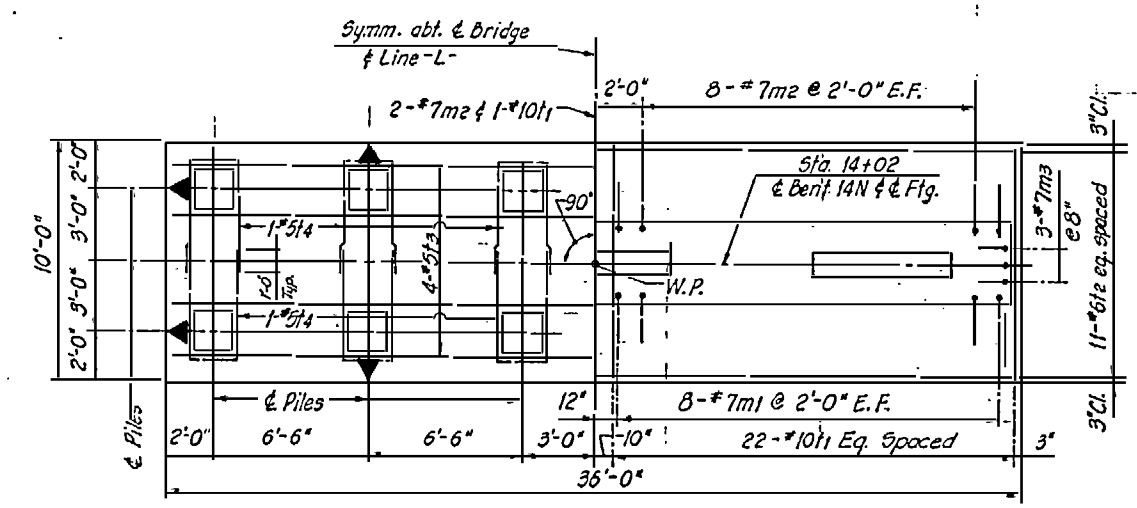
SECTION E-E



ELEVATION C-C

CAP DETAILS
½" = 1'-0"

Note: Section E-E typical at Girders 2 thru 7 only.



FOOTING PLAN

RECORD DRAWING

NOTES

1. See General Notes Plate No. S-7
2. For Pile Details see Plate No. S-47 or S-48
3. For Girder and Pad Details see Plate No. S-22
4. For Reinforcing Bar List see Plate No. S-61
5. For Bar Bending Diagrams see Plates No. S-55 and S-56
6. Pile Spacings are Measured at Bottom of Footing

LEGEND

- W.P. denotes Working Point
- E.F. denotes Each Face
- C.J. denotes Construction Joint
- ☐▶ denotes battered pile 1½ : 12 in direction of arrow.
- ☐ denotes vertical pile
- ▲ denotes 3" Beam Bolster (BB)

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA	U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

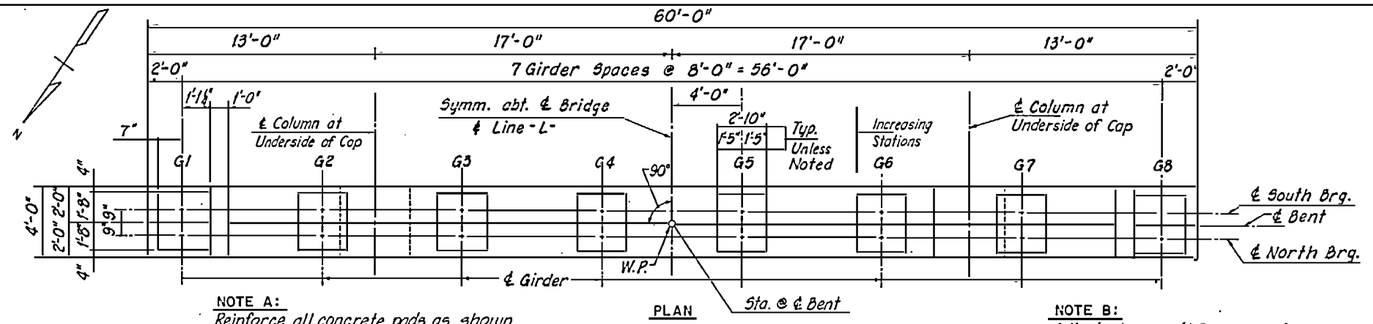
ATLANTIC INTRACOASTAL WATERWAY

SUBSTRUCTURE
BENT 14N DETAILS

COINJOCK BRIDGE REPLACEMENT PROJECT
CURRITUCK COUNTY NORTH CAROLINA

DESIGNED BY:	CHECKED BY:	INVITATION NO	SIZE	DRAWING NUMBER	PLATE NO.
M.G.	M.A.M.	DACW54-83-B-0014		BR104-06-17	S-33
PREPARED BY: [signature]		SCALE ¼" = 1'-0"	DATE	22 JULY 1983	SHEET 83 OF 126
PRINCIPAL OF FIRM HNTB					

N.C. STATE AID PROJECT NO.		
FEDERAL AID PROJECT NO		FED RD DIV NO



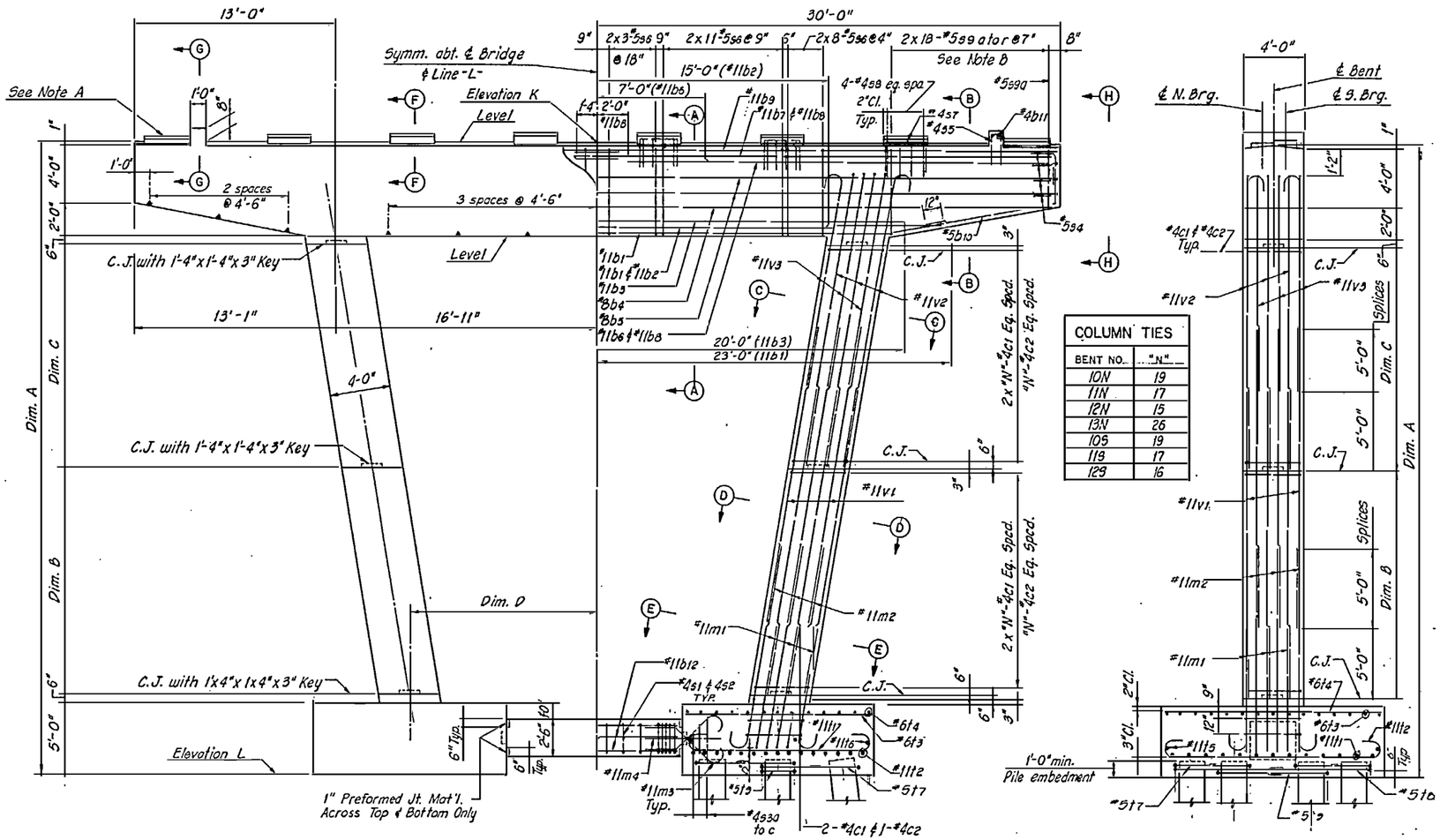
PLAN

NOTE A:
Reinforce all concrete pads as shown except at girders G1 and G8.

NOTE B:
Adjust stirrups (#5g9 q and r) inwardly as required to clear column reinforcement (#11v bars).

PAD ELEVATIONS

BENT NO.	BEARING	GDR. 1	GDR. 2	GDR. 3	GDR. 4	GDR. 5	GDR. 6	GDR. 7	GDR. 8
10N	SOUTH	43.913	44.079	44.246	44.412	44.412	44.246	44.079	43.913
	NORTH	43.853	44.019	44.186	44.352	44.352	44.186	44.019	43.853
11N	SOUTH	40.313	40.479	40.646	40.812	40.812	40.646	40.479	40.313
	NORTH	40.253	40.419	40.586	40.752	40.752	40.586	40.419	40.253
12N	SOUTH	36.713	36.879	37.046	37.212	37.212	37.046	36.879	36.713
	NORTH	36.653	36.819	36.986	37.152	37.152	36.986	36.819	36.653
13N	SOUTH	33.113	33.279	33.446	33.612	33.612	33.446	33.279	33.113
	NORTH	33.053	33.219	33.386	33.552	33.552	33.386	33.219	33.053
10S	NORTH	43.913	44.079	44.246	44.412	44.412	44.246	44.079	43.913
	SOUTH	43.853	44.019	44.186	44.352	44.352	44.186	44.019	43.853
11S	NORTH	40.313	40.479	40.646	40.812	40.812	40.646	40.479	40.313
	SOUTH	40.253	40.419	40.586	40.752	40.752	40.586	40.419	40.253
12S	NORTH	36.713	36.879	37.046	37.212	37.212	37.046	36.879	36.713
	SOUTH	36.653	36.819	36.986	37.152	37.152	36.986	36.819	36.653



ELEVATION

Looking in direction of increasing stations

COLUMN TIES	
BENT NO.	"N"
10N	19
11N	17
12N	15
13N	26
10S	19
11S	17
12S	16

END VIEW

Note: No intermediate construction joints in columns at Bents 13N and 12S.

TABLE OF ELEVATIONS & DIMENSIONS

BENT NO.	ELEVATIONS K	ELEVATIONS L	STA. @ ℄ BENT	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C	DIMENSIONS D
10N	43.750	-4.500	144+62	48'-3"	18'-1"	18'-1"	10'-9½"
11N	40.167	-5.000	143+72	45'-2"	16'-6"	16'-7"	11'-3½"
12N	36.500	-5.000	142+82	41'-6"	14'-8"	14'-9"	11'-11½"
13N	32.917	-5.000	141+92	37'-11"	25'-10"	0'-0"	12'-6½"
10S	43.750	-5.500	162+48	49'-3"	18'-7"	18'-7"	10'-7½"
11S	40.167	-5.500	163+38	45'-8"	16'-9"	16'-10"	11'-2½"
12S	36.500	8.500	164+28	28'-0"	15'-11"	0'-0"	14'-3½"

NOTES

1. See General Notes Plate No. S-7
2. See Plate No. S-35 for Sections A-A thru G-G and Elevation H-H
3. For Pile Details see Plate No.'S S-47 and S-48
4. For Girder and Pad Details see Plate No. S-21
5. For Reinforcing Bar List see Plate No's S-61, S-62 and S-67
6. For Footing Plan See Plate No. S-35
7. For Bar Bending Diagrams See Plate No.'S S-55 and S-56.

LEGEND

E.F. denotes Each Face
C.J. denotes Construction Joint
▶ denotes battered pile 1½ : 12 in direction of arrow.
□ denotes vertical pile
W.P. denotes Working Point
▲ denotes 3" Beam Bolster (BB)

RECORD DRAWING

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

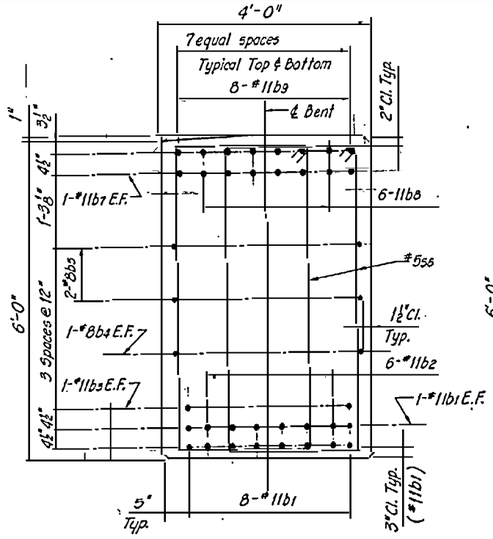
U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY
SUBSTRUCTURE
BENTS 10N-13N & 10S-12S
: COINJOCK BRIDGE REPLACEMENT PROJECT
CURRITUCK COUNTY NORTH CAROLINA

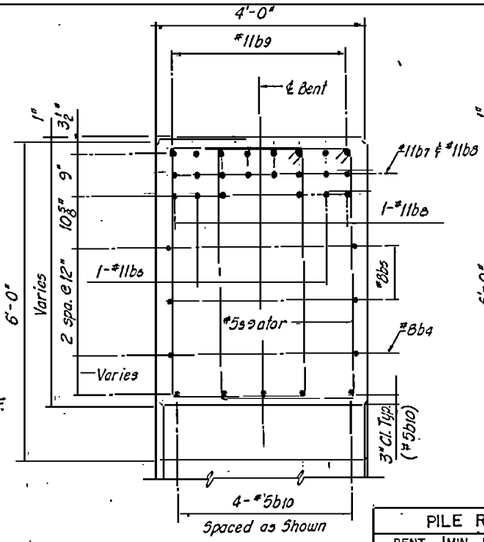
DESIGNED BY: M.G.	CHECKED BY: M.A.M.			
PREPARED BY:	INVITATION NO DACW54-83-B-0014	SIZE	DRAWING NUMBER BR104-06-17	PLATE NO S-34
PRINCIPAL OF FIRM HNTB	SCALE 1/4"=1'-0".	DATE 22 JULY 1983	SHEET 84 OF 126	

N.C. STATE AID PROJECT NO.

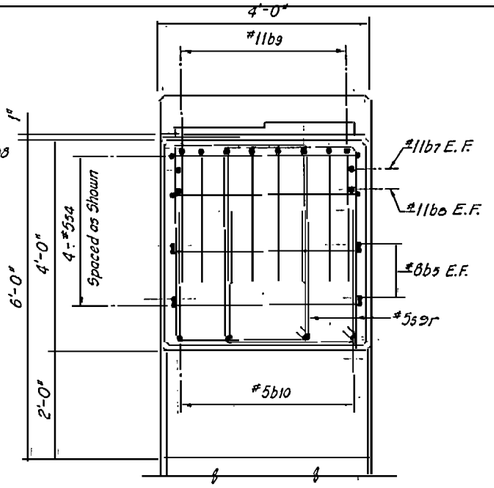
FEDERAL AID PROJECT NO | FED. RD. DIV. NO.



SECTION A-A.



SECTION B-B

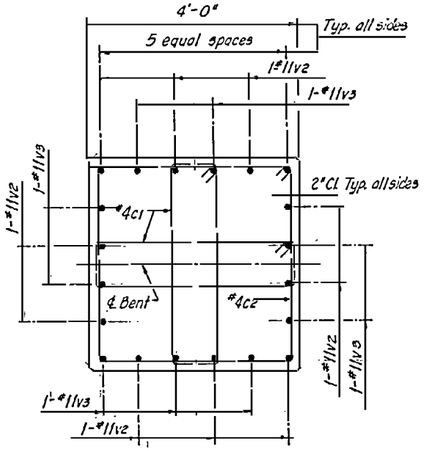


ELEVATION E-E

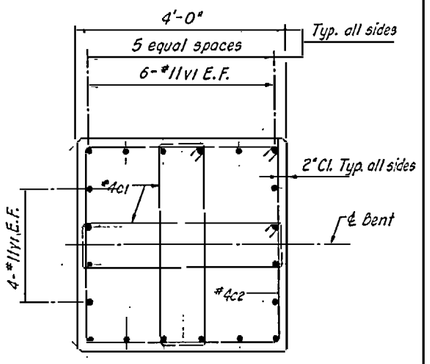
PILE REQUIREMENTS			
BENT NO.	MIN. PILE TIP ELEV.	NO. OF PILES	EST. TOTAL LENGTH
10N	-55.0	12	980
11N	-55.0	12	920
12N	-55.0	12	835*
13N	-55.0	12	920
10S	-55.0	12	1105
11S	-55.0	12	1040
12S	-55.0	12	1165

See General Notes Plate No. S-7

*Does not include 85' of Test Piles

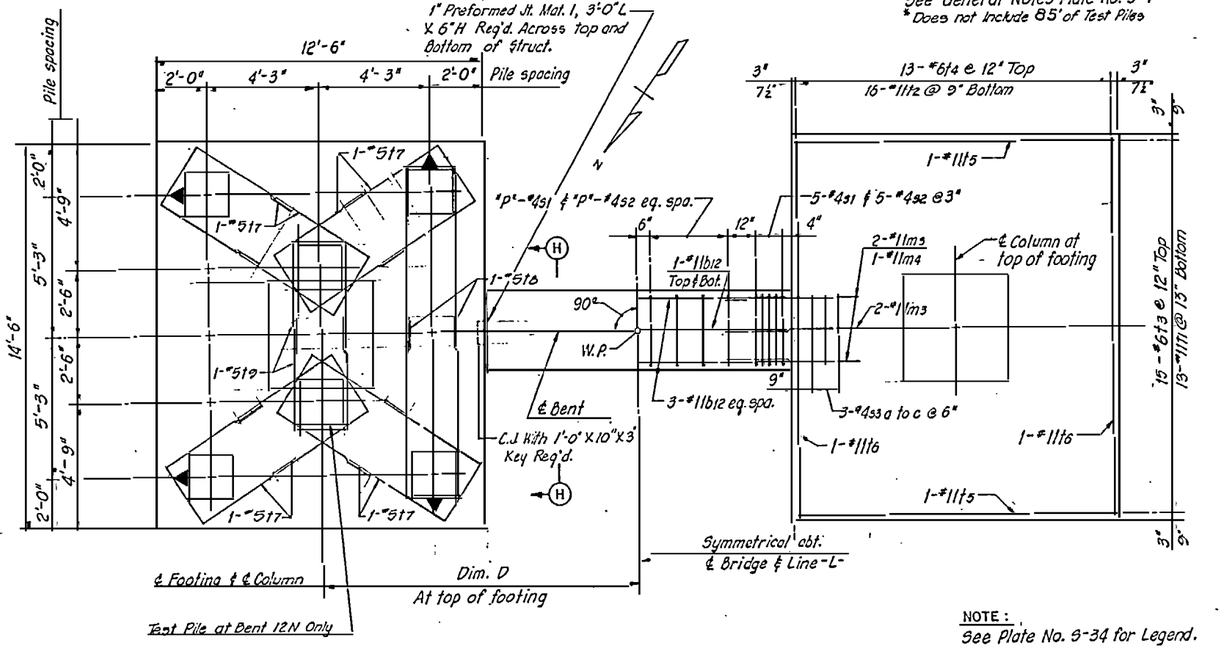


SECTION C-C



Note: Section D-D does not Apply to Columns in Bents 13N and 12S

SECTION D-D

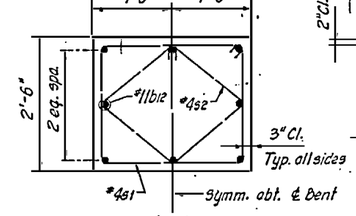


FOOTING PLAN

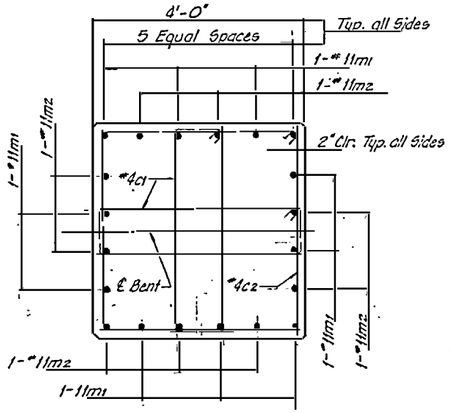
3/8"=1'-0"

Note: Pile Spacings are measured at Bottom of Footing

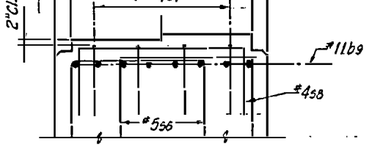
NOTE:
See Plate No. S-34 for Legend.



SECTION H-H

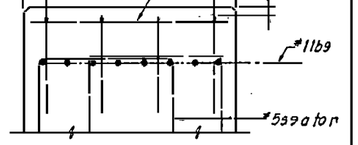


SECTION E-E



SECTION F-F

Note: Section F-F typical at Girders 2 thru 7 only



SECTION G-G

BENT NO.	"P"
10N	3
11N	4
12N	4
13N	5
10S	3
11S	4
12S	7

RECORD DRAWING

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY

SUBSTRUCTURE

BENTS 10N-13N & 10S-12S DETAILS

COINJOCK BRIDGE REPLACEMENT PROJECT

CURRITUCK COUNTY NORTH CAROLINA

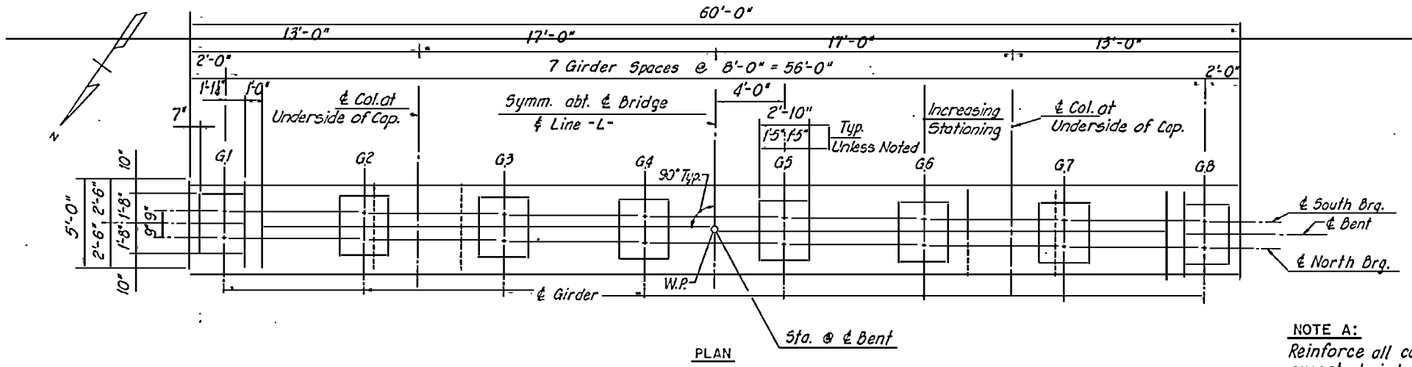
DESIGNED BY: M.G.	CHECKED BY: M.A.M.	
PREPARED BY: [signature]		
PRINCIPAL OF FIRM HNTB		

INVITATION NO.	SIZE	DRAWING NUMBER	PLATE NO.
DACW54-83-B-0014		BR104-06-17	S-35
SCALE 3/4"=1'-0"	DATE 22 JULY 1983	SHEET 65 OF 126	

CORPS OF ENGINEERS

U. S. ARMY

N.C. STATE AID PROJECT NO	
FEDERAL AID PROJECT NO	FED. AID CITY NO.



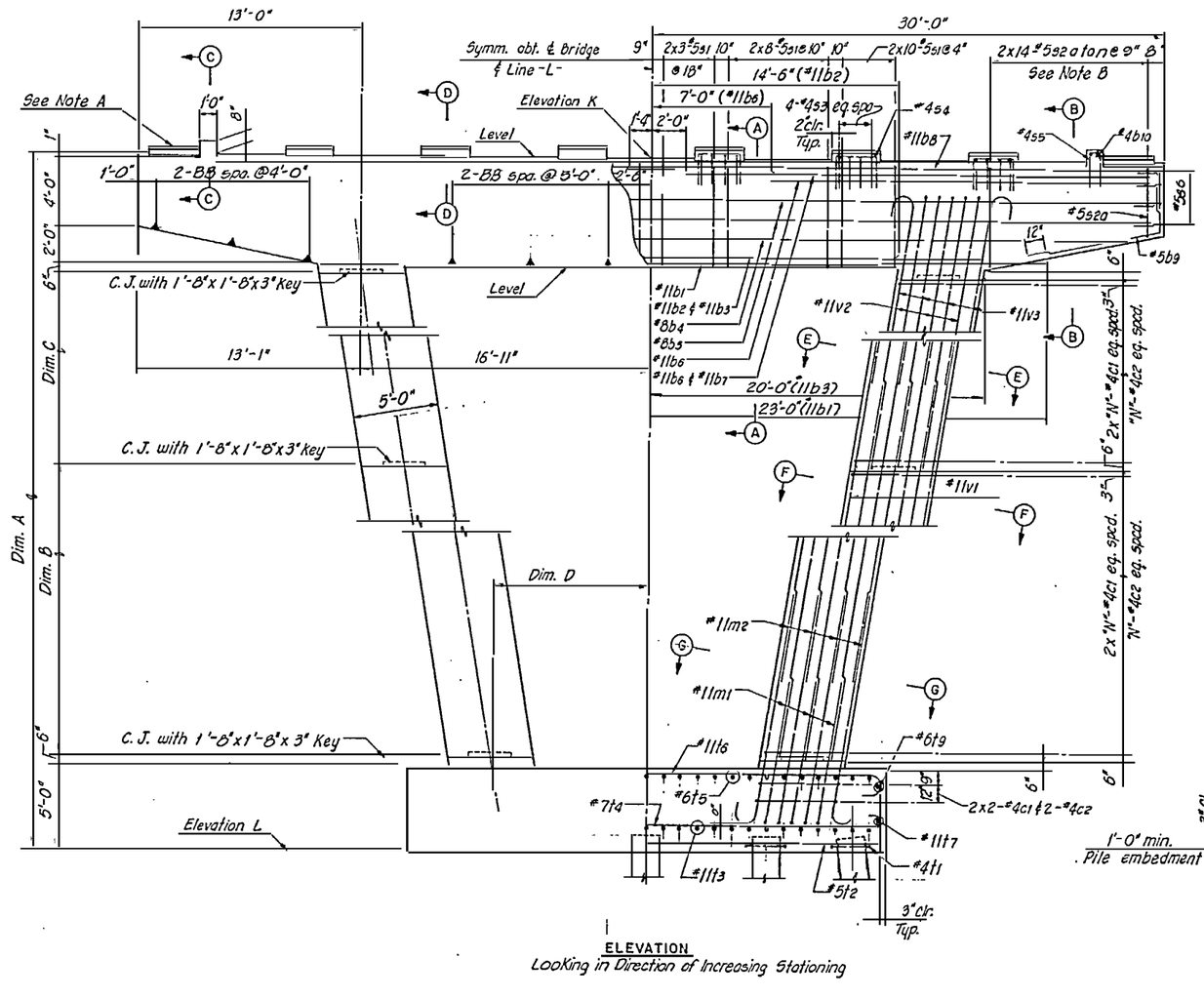
PLAN

COLUMN TIES	
BENT NO.	"N"
6N	24
7N	23
8N	22
9N	21
6S	26
7S	25
8S	23
9S	21

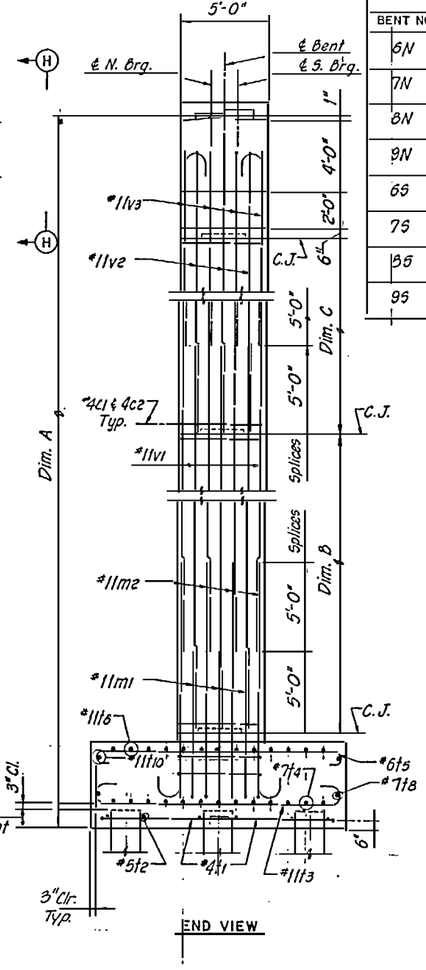
NOTE A:
Reinforce all concrete pads as shown except at girders G1 and G8.

TABLE OF ELEVATIONS & DIMENSIONS								
BENT NO.	ELEVATIONS		STA @ ℄ BENT	DIMENSIONS				
	I K	L		A	B	C	D	
6N	57.792	-1.500	148+22	59'-3½"	23'-7"	23'-7½"	8'-11⅜"	
7N	54.542	-1.500	147+32	56'-0½"	21'-11½"	22'-0"	9'-6 11/16"	
8N	50.917	-3.000	146+42	53'-11"	20'-11"	20'-11"	9'-10⅜"	
9N	47.333	-4.500	145+52	51'-10"	19'-11	19'-10"	10'-2½"	
6S	57.792	-5.500	158+88	63'-3½"	25'-7½"	25'-7"	8'-3⅜"	
7S	54.542	-5.500	159+78	60'-0½"	24'-0"	23'-11½"	8'-10⅛"	
8S	50.917	-5.500	160+68	56'-5"	22'-2"	22'-2"	9'-5⅛"	
9S	47.333	-5.500	161+58	52'-10"	20'-5	20'-4"	10'-0⅛"	

NOTE B:
Adjust stirrups (#5s2 m ℄ n) inwardly as required to clear column reinforcement (#11v bars).



ELEVATION
Looking in Direction of Increasing Stationing



END VIEW

PAD ELEVATIONS									
BENT NO.	BEARING	GDR. 1	GDR. 2	GDR. 3	GDR. 4	GDR. 5	GDR. 6	GDR. 7	GDR. 8
6N	South	57.957	58.123	58.290	58.456	58.456	58.290	58.123	57.957
	North	57.907	58.073	58.240	58.406	58.240	58.073	57.907	
7N	South	54.704	54.870	55.037	55.203	55.203	55.037	54.870	54.704
	North	54.644	54.811	54.977	55.144	55.144	54.977	54.811	54.644
8N	South	51.113	51.279	51.446	51.612	51.612	51.446	51.279	51.113
	North	51.053	51.219	51.386	51.552	51.552	51.386	51.219	51.053
9N	South	47.513	47.679	47.846	48.012	48.012	47.846	47.679	47.513
	North	47.453	47.619	47.786	47.952	47.952	47.786	47.619	47.453
6S	North	57.957	58.123	58.290	58.456	58.456	58.290	58.123	57.957
	South	57.907	58.073	58.240	58.406	58.406	58.240	58.073	57.907
7S	North	54.704	54.870	55.037	55.203	55.203	55.037	54.870	54.704
	South	54.644	54.811	54.977	55.144	55.144	54.977	54.811	54.644
8S	North	51.113	51.279	51.446	51.612	51.612	51.446	51.279	51.113
	South	51.053	51.219	51.386	51.552	51.552	51.386	51.219	51.053
9S	North	47.513	47.679	47.846	48.012	48.012	47.846	47.679	47.513
	South	47.453	47.619	47.786	47.952	47.952	47.786	47.619	47.453

NOTES

1. See General Notes Plate No. S-7
2. See Plate S-37 for Sections A-A thru G-G and Elevation H-H.
3. For Pile Details see Plate No.s S-47 and S-48
4. For Girder and Pad Details see Plate No. S-21
5. For Reinforcing Bar List see Plate No's S-62, S-63, S-66 and S-67
6. For Footing Plan see Plate No. S-37
7. For Bar Bending Diagrams see Plate No.s S-55 and S-56.

LEGEND

E.F. : denotes Each Face
C.J. denotes Construction Joint
denotes battered pile 1½ :12 in direction of arrow.
denotes vertical Pile
W.P. denotes Working Point
denotes 3" High Beam Bolster (BB)

RECORD DRAWING

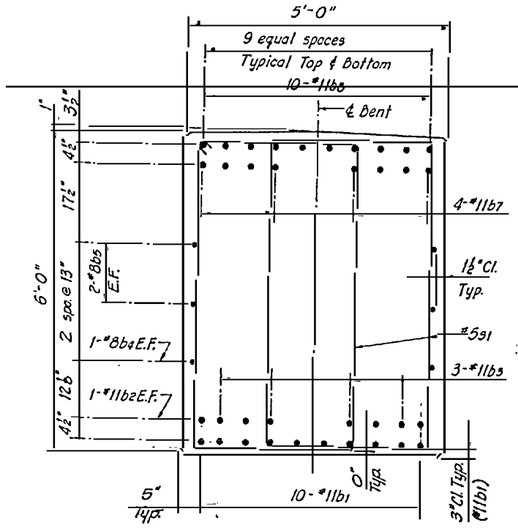
HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA	U.S. ARMY ENGINEER DISTRICT WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA	
ATLANTIC INTRACOASTAL WATERWAY SUBSTRUCTURE BENTS 6N-9N & 6S-9S COINJOCK BRIDGE REPLACEMENT PROJECT CURRITUCK COUNTY NORTH CAROLINA		
DESIGNED BY: M.G. / CHECKED BY: M.A.M.		
PREPARED BY:	INVITATION NO DACW54-83-B-0014 / SIZE / DRAWING NUMBER BR104-06-17 / PLATE NO S-36	
PRINCIPAL OF FIRM HNTB	SCALE 1" = 1'-0" / DATE 22 JULY 1983 / SHEET 86 OF 126	

CORPS OF ENGINEERS

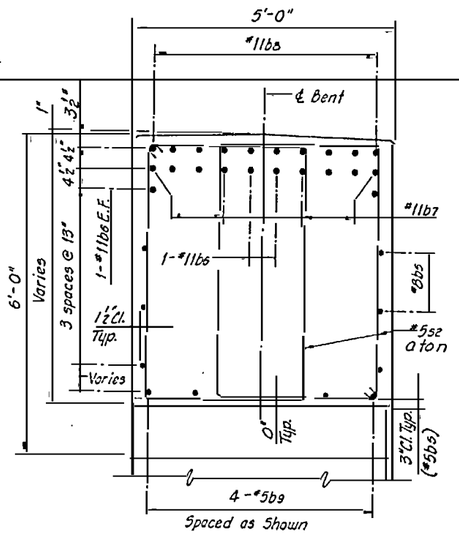
U. S. ARMY

N.C. STATE AID PROJECT NO

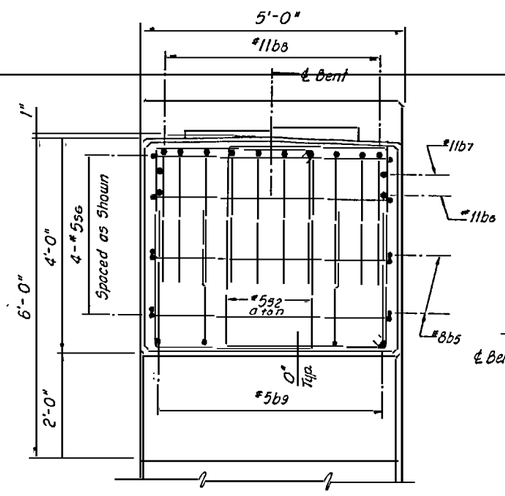
FEDERAL AID PROJECT NO | FED. RD. DIV. NO.



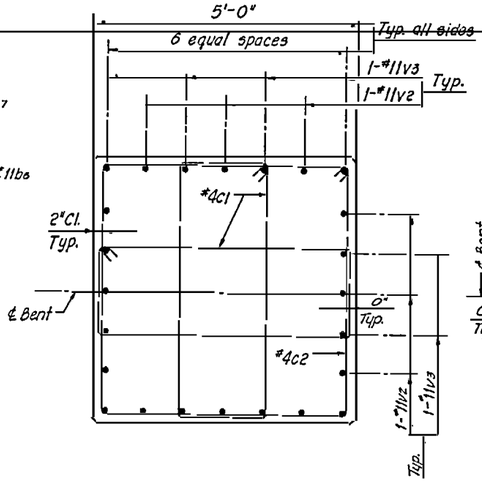
SECTION A-A



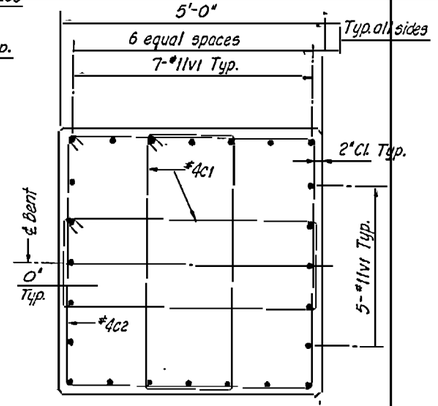
SECTION B-B



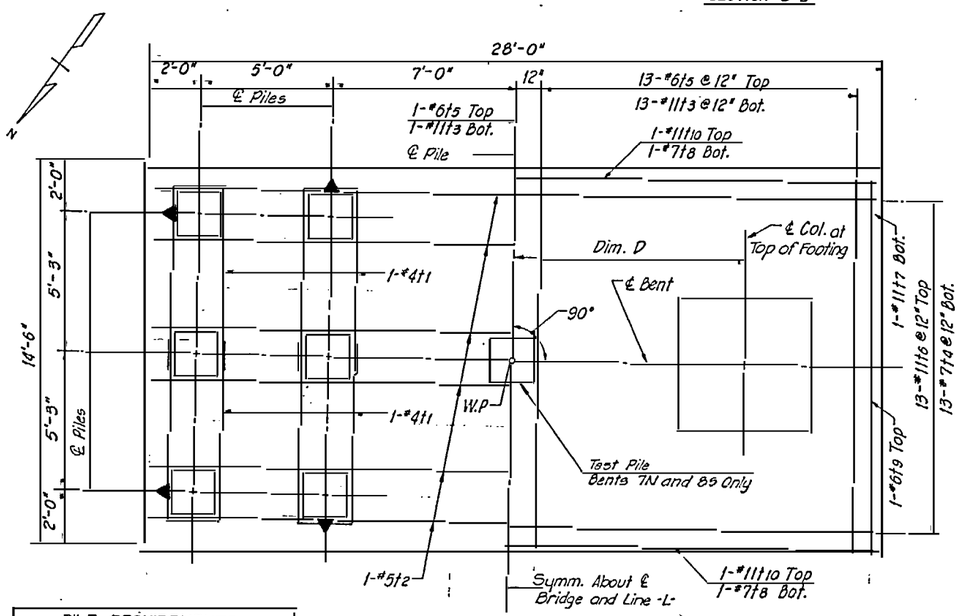
ELEVATION H-H



SECTION E-E



SECTION F-F



FOOTING PLAN

3/8"=1'-0"

PILE REQUIREMENTS			
BENT NO.	MIN. PILE TIP ELEV.	NO. OF PILES	EST. TOTAL LENGTH
6N	-55.0	13	1060
7N	-55.0	13	910 *
8N	-55.0	13	995
9N	-55.0	13	930
6S	-55.0	13	1060
7S	-55.0	13	1125
8S	-55.0	13	1160**
9S	-55.0	13	1125

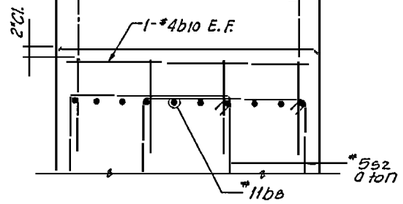
See General Notes Plate No. S-7

* Does not include 85' Test Pile

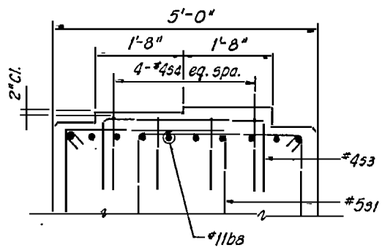
** Does not include 100' Test Pile

NOTE: Pile Spacing Measured at Bottom of Footing

NOTE: See Plate No. S-36 For Legend

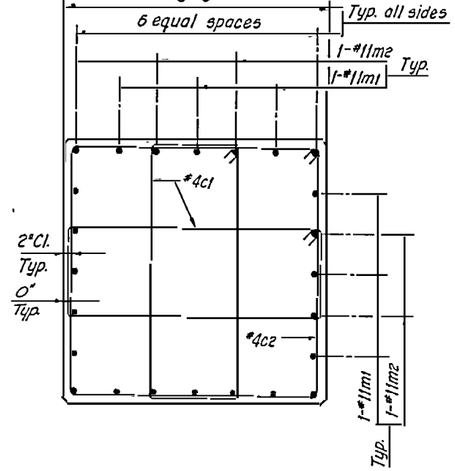


SECTION C-C



SECTION D-D

NOTE: Section D-D typical at Girders 2 thru 7 only.



SECTION G-G

RECORD DRAWING

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT WILMINGTON CORPS OF ENGINEERS WILMINGTON NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY

SUBSTRUCTURE

BENTS 6N-9N & 6S-9S DETAILS

COINJOCK BRIDGE REPLACEMENT PROJECT

CURRITUCK COUNTY NORTH CAROLINA

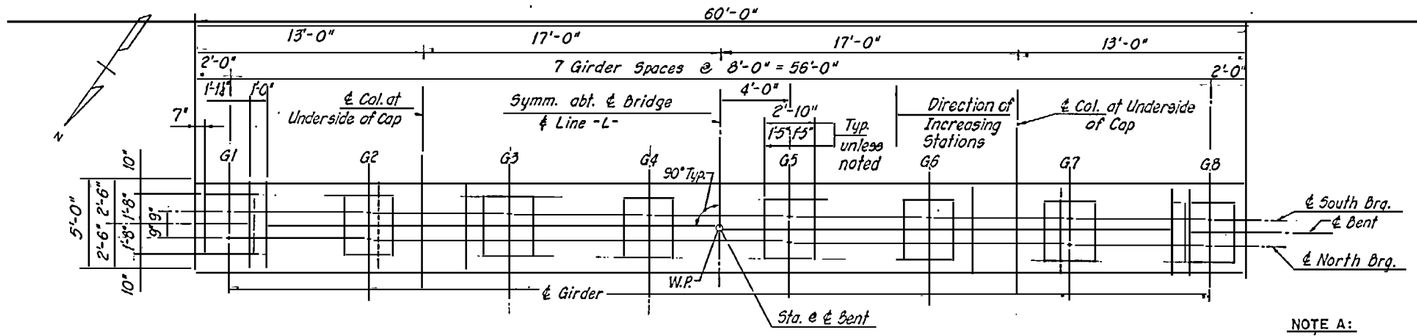
DESIGNED BY: M.G.	CHECKED BY: M.A.M.			
PREPARED BY:	INVITATION NO DACW54-83-B-0014	SIZE	DRAWING NUMBER BR104-06-17	PLATE NO S-37
PRINCIPAL OF FIRM HNTB	SCALE 3/4"=1'-0"	DATE 22 JULY 1983	SHEET 87 OF 125	

CORPS OF ENGINEERS

U. S. ARMY

N.C. STATE AID PROJECT NO.

FEDERAL AID PROJECT NO. | FED. RD. DIV. NO.



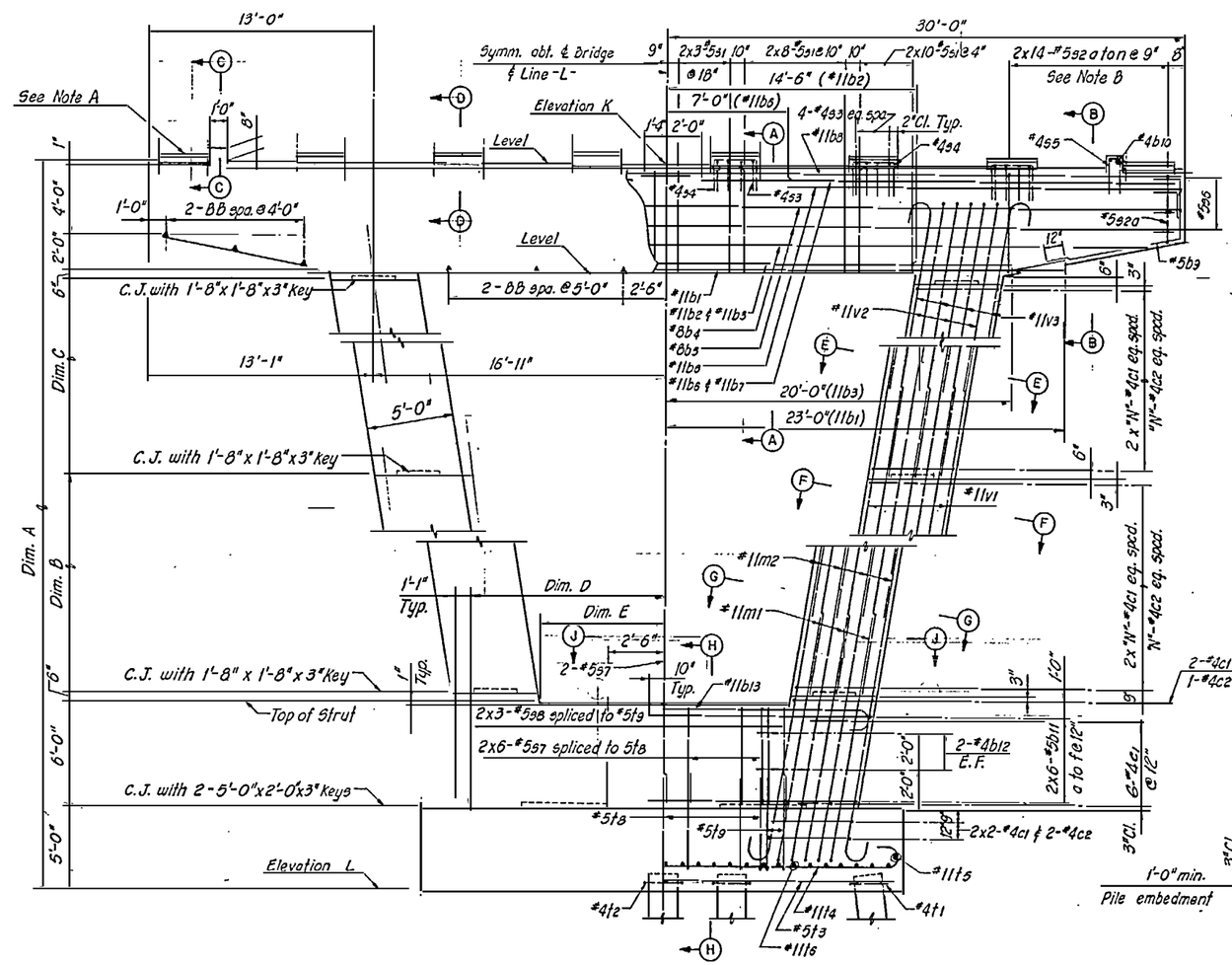
PLAN

COLUMN TIES	
BENT NO.	"N"
3N	26
4N	25
5N	23
3S	27
4S	26
5S	25

NOTE A:
Reinforce all concrete pads as shown except at girders G1 and G8.

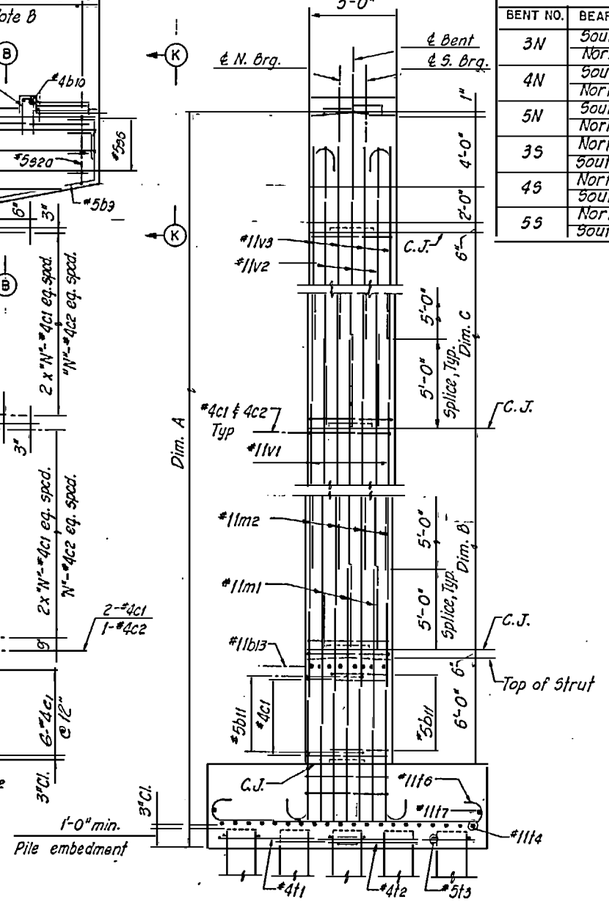
TABLE OF ELEVATIONS & DIMENSIONS								
BENT NO.	ELEVATIONS K	ELEVATIONS L	STA. of ℄ BENT	DIMENSIONS A	B	C	D	E
3N	64.500	-3.500	150+92	68'-0"	25'-0"	24'-11	10'-0⅜"	5'-11⅛"
4N	62.792	-3.500	150+02	66'-3½"	24'-1½"	24'-1"	10'-3⅛"	6'-3⅜"
5N	60.542	-2.000	149+12	62'-6½"	22'-3"	22'-2½"	10'-11⅞"	6'-10⅛"
3S	64.50	-5.500	156+18	70'-0"	26'-0"	25'-11"	9'-8⅜"	5'-7⅛"
4S	62.792	-5.500	157+08	68'-3½"	25'-1½"	25'-1"	10'-0"	5'-11⅛"
5S	60.542	-5.500	157+98	66'-0½"	24'-0"	23'-11⅝"	10'-4⅞"	6'-3⅛"

NOTE B:
Adjust stirrups (#5s2 m ℄ n) inwardly as required to clear column reinforcement (#11v bars).



ELEVATION

Looking in Direction of Increasing Stations



END VIEW

PAD ELEVATIONS									
BENT NO.	BEARING	GDR. 1	GDR. 2	GDR. 3	GDR. 4	GDR. 5	GDR. 6	GDR. 7	GDR. 8
3N	South	64.667	64.834	65.000	65.167	65.167	65.000	64.834	64.667
	North	64.643	64.809	64.976	65.142	65.142	64.976	64.809	64.643
4N	South	62.939	63.106	63.272	63.438	63.438	63.272	63.106	62.939
	North	62.906	63.073	63.239	63.405	63.405	63.239	63.073	62.906
5N	South	60.699	60.865	61.031	61.198	61.198	61.031	60.865	60.699
	North	60.657	60.824	60.990	61.156	61.156	60.990	60.824	60.657
3S	North	64.667	64.834	65.000	65.167	65.167	65.000	64.834	64.667
	South	64.643	64.809	64.976	65.142	65.142	64.976	64.809	64.643
4S	North	62.939	63.106	63.272	63.438	63.438	63.272	63.106	62.939
	South	62.906	63.073	63.239	63.405	63.405	63.239	63.073	62.906
5S	North	60.699	60.865	61.031	61.198	61.198	61.031	60.865	60.699
	South	60.657	60.824	60.990	61.156	61.156	60.990	60.824	60.657

NOTES
1. See General Notes Plate No. S-7.
2. See Plate No. S-39 for Sections A-A thru J-J and Elevation K-K.
3. For Pile Details see Plate Nos. S-47 and S-48.
4. For Girder and Pad Details see Plate No. S-21.
5. For Reinforcing Bar List see Plate No's S-63, S-64, S-65 and S-66.
6. For Footing Plan see Plate No. S-39.
7. For Bar Bending Diagram see Plate Nos. S-55 and S-56.

LEGEND
E.F. denotes Each Face
C.J. denotes Construction Joint
▶ denotes battered pile 1½ : 12 in direction of arrow
□ denotes vertical pile
W.P. denotes Working Point
▲ denotes 3" Beam Bolster (BB)

"RECORD" DRAWING

HNTB HOWARD NEEGLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY
SUBSTRUCTURE
BENTS 3N-5N & 3S-5S
COINJOCK BRIDGE REPLACEMENT PROJECT
CURRITUCK COUNTY NORTH CAROLINA

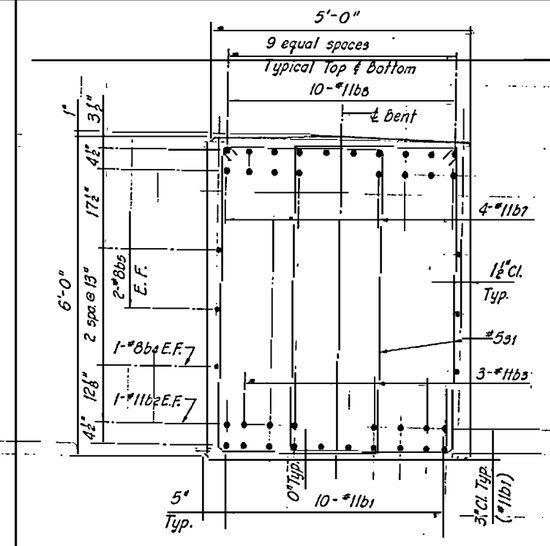
DESIGNED BY: M.G.	CHECKED BY: M.A.M.			
PREPARED BY:	INVITATION NO. DACW54-83-B-0014	SIZE	DRAWING NUMBER BR104-06-17	PLATE NO. S-38
PRINCIPAL OF FIRM HNTB	SCALE 1/4"=1'-0"	DATE 22 JULY 1983	SHEET 88 OF 126	

CORPS OF ENGINEERS

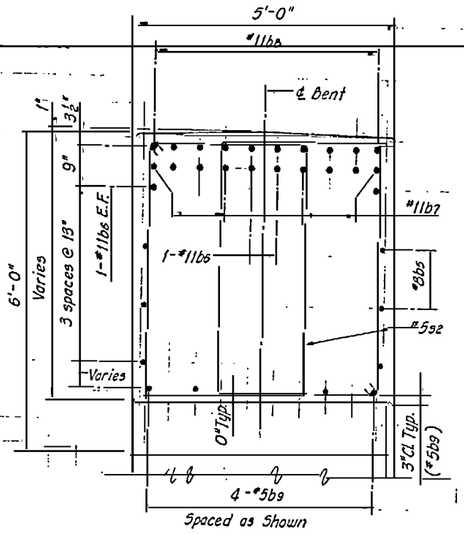
U. S. ARMY

N.C. STATE AID PROJECT NO

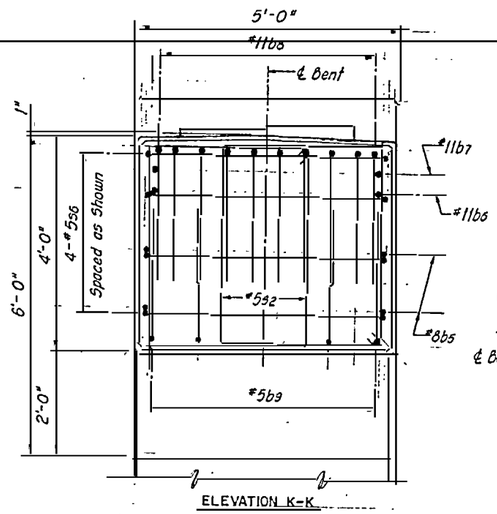
FEDERAL AID PROJECT NO. | FED RD DIV NO



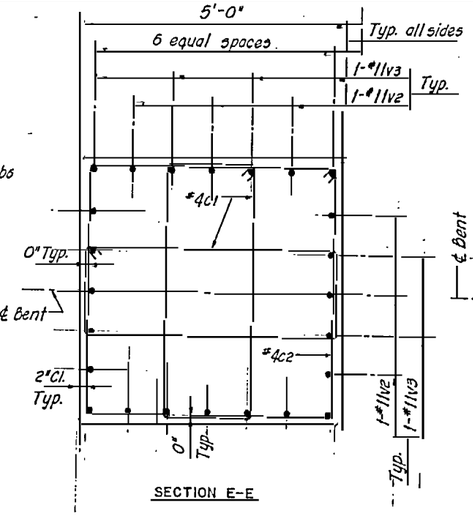
SECTION A-A.



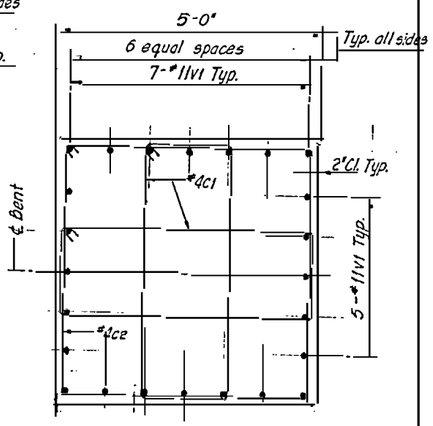
SECTION B-B



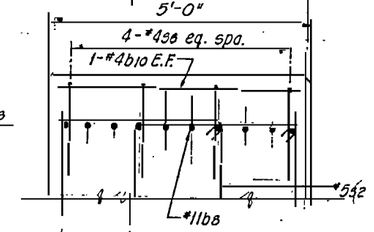
ELEVATION K-K



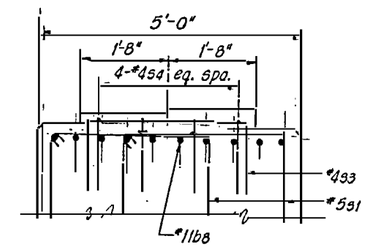
SECTION E-E



SECTION F-F

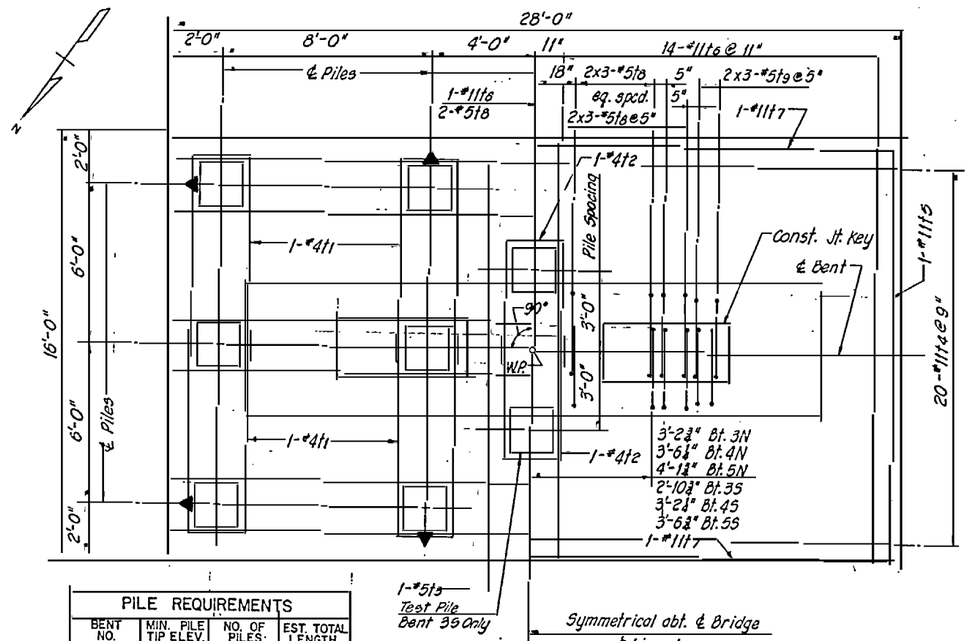


SECTION C-C



SECTION D-D

NOTE: Section D-D typical at Girders 2 thru 7 only.



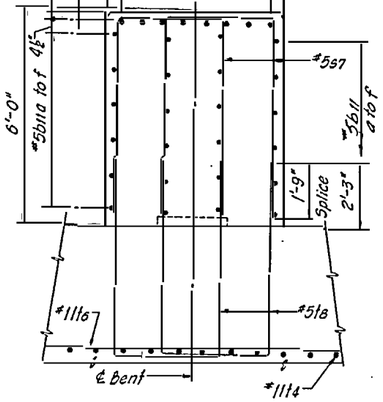
FOOTING PLAN
3/32" = 1'-0"

PILE REQUIREMENTS			
BENT NO.	MIN. PILE TIP ELEV.	NO. OF PILES	EST. TOTAL LENGTH
3N	-55.0	14	1125
4N	-55.0	14	1210
5N	-55.0	14	1210
3S	-55.0	14	1085*
4S	-55.0	14	1210
5S	-55.0	14	1210

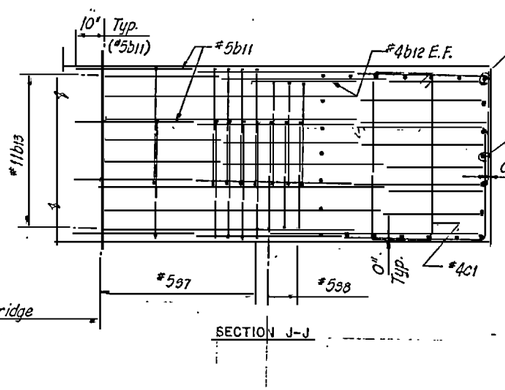
* Does not include 95' Test Pile

See General Notes Plate No. S-7

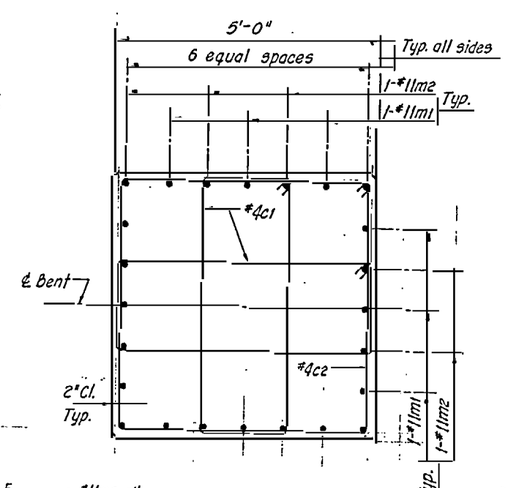
NOTE:
Pile spacing measured at bottom of footing.



SECTION H-H



SECTION J-J



SECTION G-G.

NOTE:
See Plate No. S-38 for Legend.

RECORD DRAWING

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY
SUBSTRUCTURE
BENTS 3N-5N & 3S-5S DETAILS
COINJOCK BRIDGE REPLACEMENT PROJECT
CURRITUCK COUNTY NORTH CAROLINA

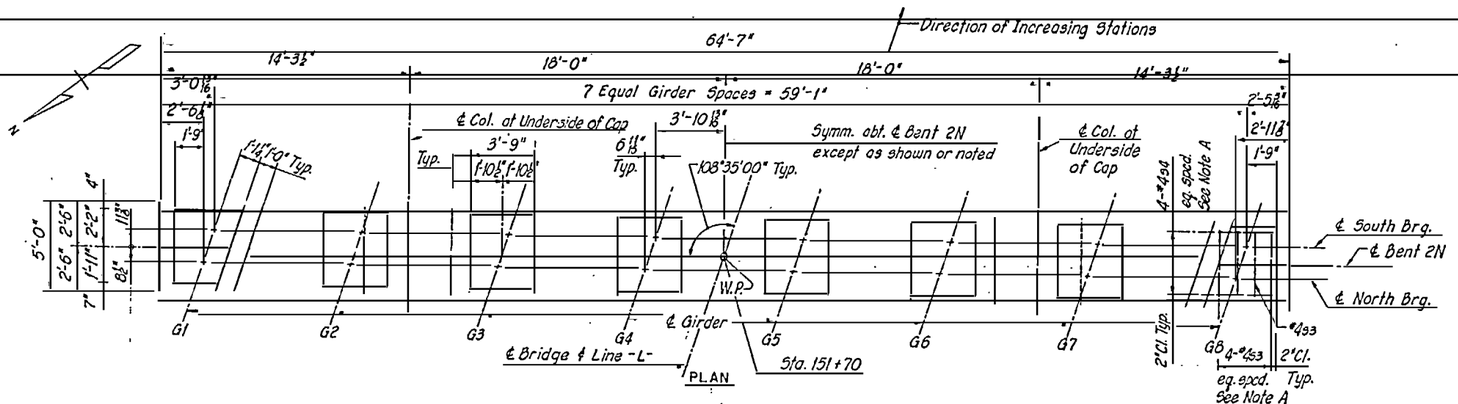
DESIGNED BY: M.G.	CHECKED BY: M.A.M.		
PREPARED BY:	INVITATION NO DACW54-83-B-0014	SIZE	DRAWING NUMBER BR104-06-17
PRINCIPAL OF FIRM HNTB	SCALE 3/32"=1'-0"	DATE 22 JULY 1983	SHEET 89 OF 126

PLATE NO S-39

CORPS OF ENGINEERS

U. S. ARMY

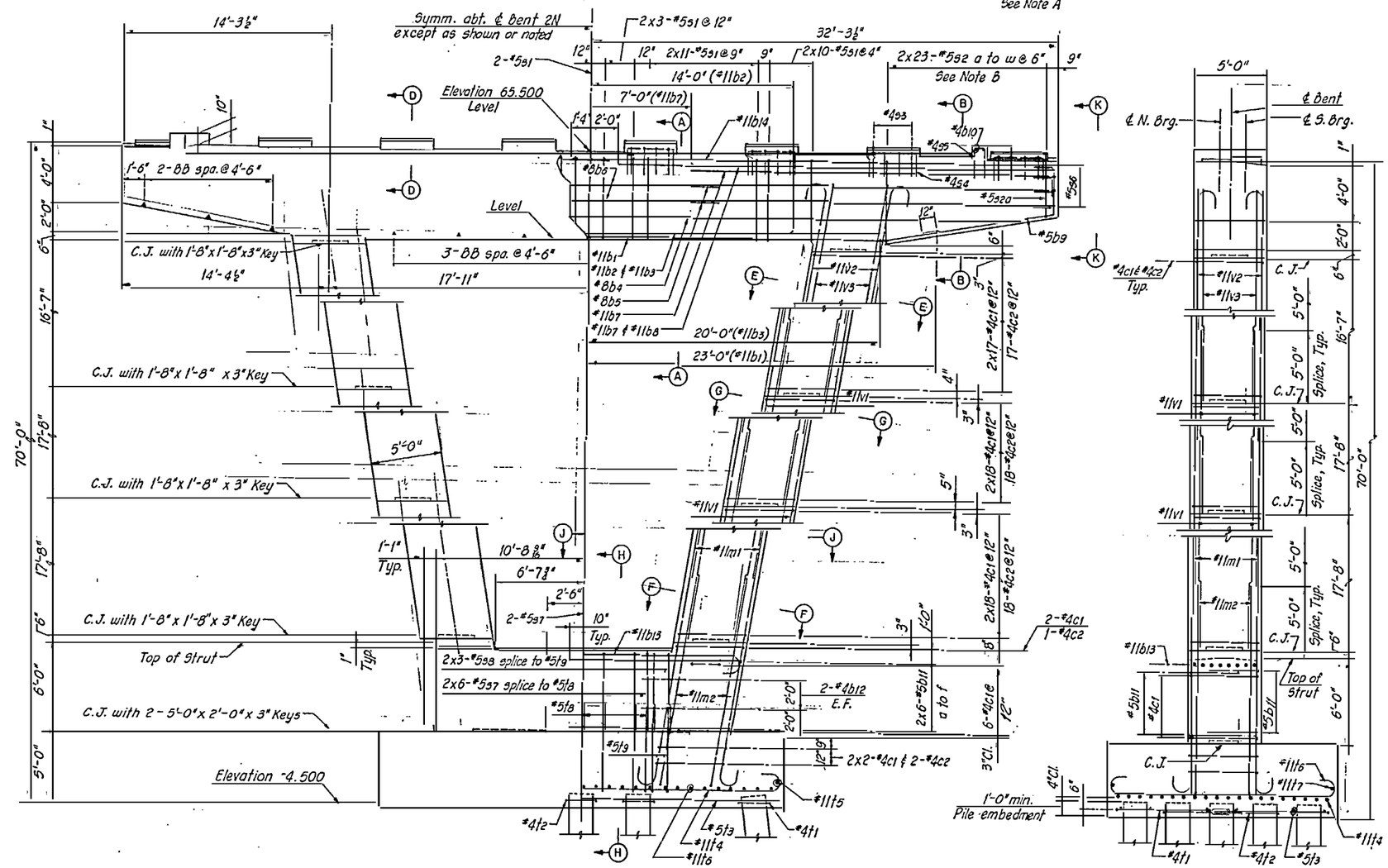
N.C. STATE AID PROJECT NO			FED RD CIV NO
FEDERAL AID PROJECT NO			



PAD ELEVATIONS									
BENT NO.	BEARING	GDR. 1	GDR. 2	GDR. 3	GDR. 4	GDR. 5	GDR. 6	GDR. 7	GDR. 8
2N	South	65.649	65.847	66.046	66.243	66.274	66.138	66.002	65.865
	North	65.627	65.826	66.025	66.223	66.254	66.119	65.983	65.846

NOTE A:
Reinforce all concrete pads as shown except at girder G1.

NOTE B:
Adjust stirrups (#5s2 v ℄ w) inwardly as required to clear column reinforcement (#11v bars).



ELEVATION
Looking in Direction of Increasing Stations

END VIEW

NOTES
1. See General Notes Plate No. S-7.
2. For Sections A-A thru J-J and Elevation K-K see Plate No. S-42
3. For Pile Details see Plate Nos. S-47 and S-48.
4. For Girder and Pad Details see Plate No. S-21
5. For Reinforcing Bar List see Plate No. S-64
6. For Footing Plan see Plate No. S-42
7. For Bar Bending Diagrams see Plate Nos. S-55 and S-56.

LEGEND
E.F. denotes Each Face
C.J. denotes Construction Joint
W.P. denotes Working Point
▶ denotes battered pile 1½ : 12 in direction of arrow.
□ denotes vertical pile
▲ denotes 3" Beam Bolster (BB)

RECORD DRAWING

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

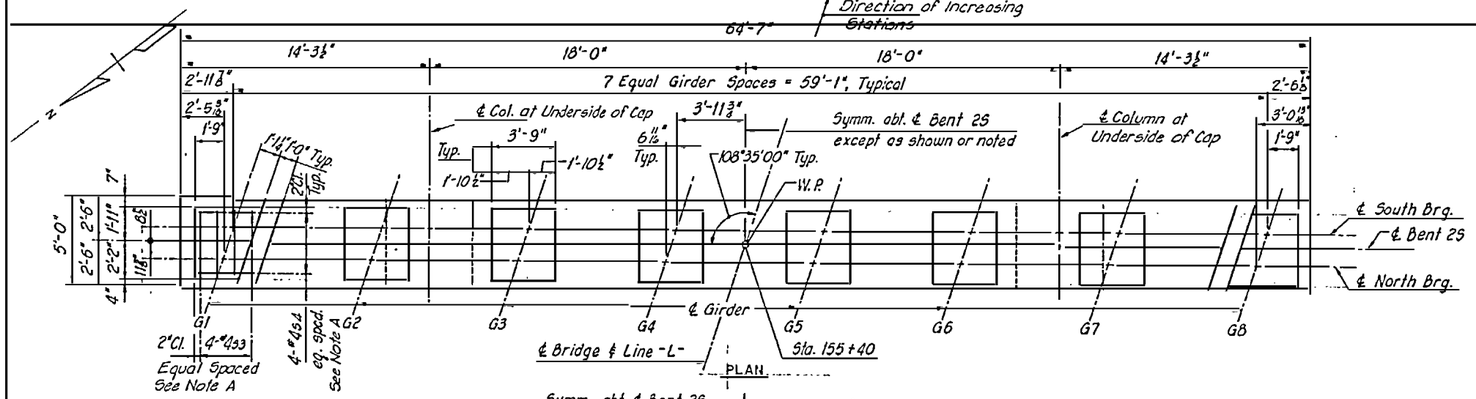
ATLANTIC INTRACOASTAL WATERWAY
SUBSTRUCTURE
BENT 2N
COINJOCK BRIDGE REPLACEMENT PROJECT
CURRITUCK COUNTY NORTH CAROLINA

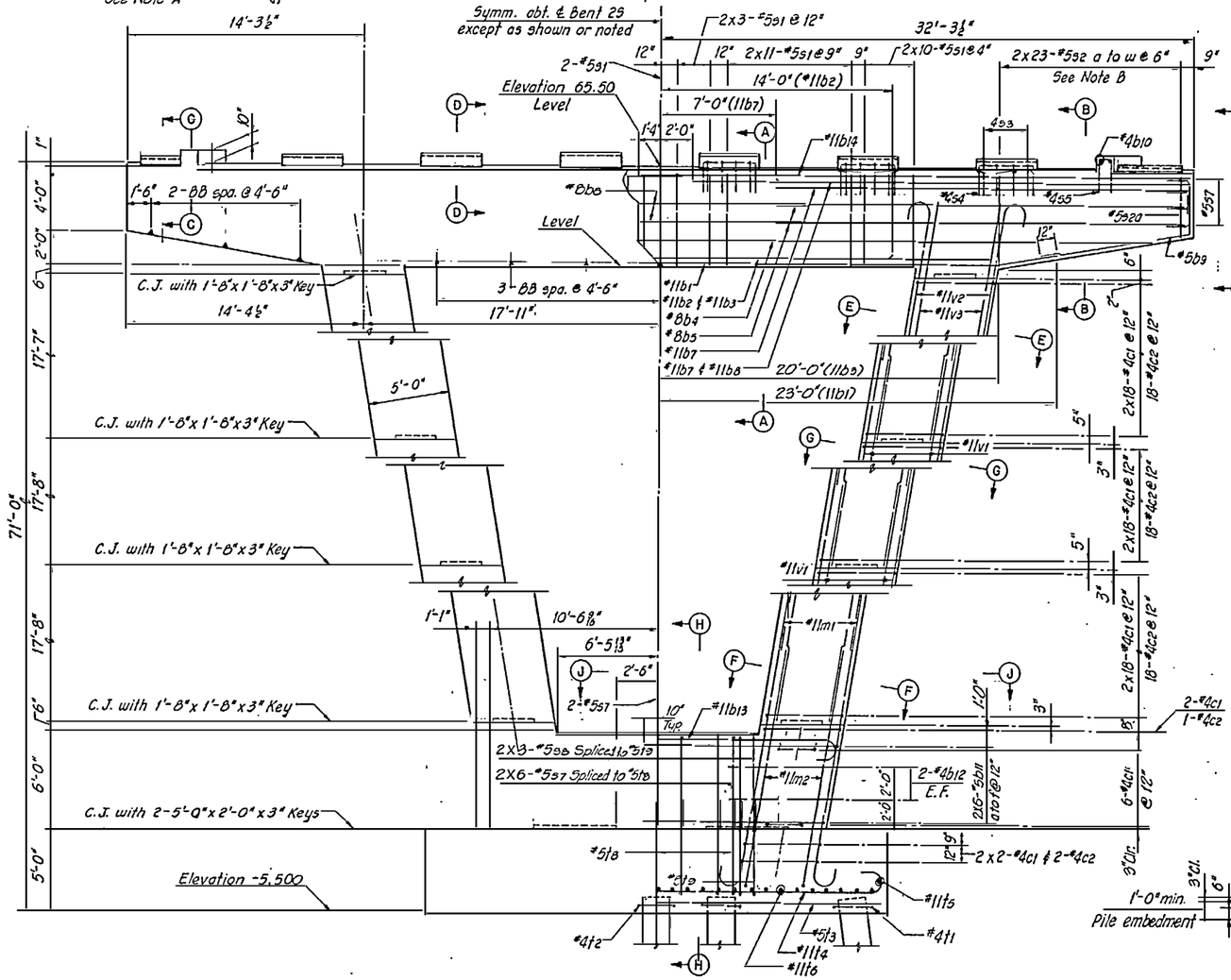
DESIGNED BY: M.G.	CHECKED BY: M.A.M.			
PREPARED BY:	INVITATION NO. DACW54-83-B-0014	SIZE	DRAWING NUMBER BR104-06-17	PLATE NO S-40
PRINCIPAL OF FIRM HNTB	SCALE 1/4"=1'-0"	DATE 22 JULY 1983	SHEET 90 OF 126	

CORPS OF ENGINEERS

U. S. ARMY

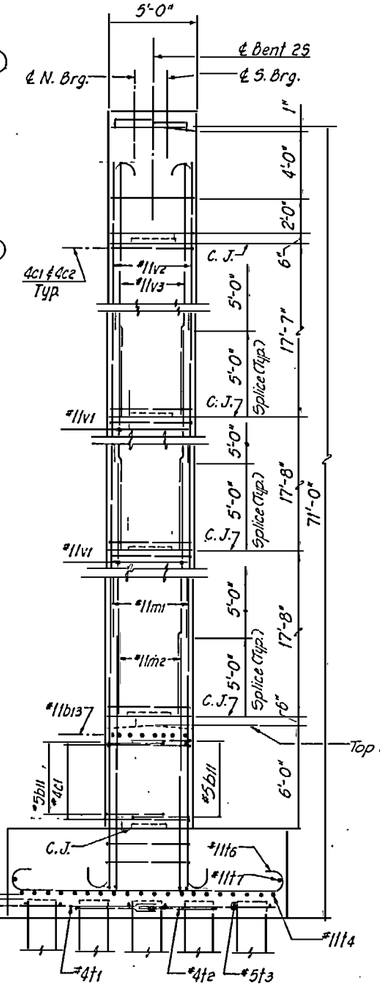
N.C. STATE AID PROJECT NO	
FEDERAL AID PROJECT NO	FED. AID DIV. NO.





ELEVATION

Looking in Direction of Increasing Stationing



END VIEW

PAD ELEVATIONS

BENT NO.	BEARING	GDR. 1	GDR. 2	GDR. 3	GDR. 4	GDR. 5	GDR. 6	GDR. 7	GDR. 8
2S	North	65.865	66.002	66.138	66.274	66.243	66.046	65.847	65.649
	South	65.846	65.983	66.119	66.254	66.223	66.025	65.826	65.627

NOTE A:
Reinforce all concrete pads as shown except at girder G8.

NOTE B:
Adjust stirrups (#5s2 v & w) inwardly as required to clear column reinforcement (#11v bars).

NOTES
1. See General Notes Plate No. S-7
2. For Sections A-A thru J-J and Elevation K-K see Plate No. S-42
3. For Pile Details see Plate No.'s S-47 and S-48
4. For Girder and Pad Details see Plate No. S-21
5. For Reinforcing Bar List see Plate No. S-65
6. For Footing Plan see Plate No. S-42
7. For Bar Bending Diagrams see Plate No.'s S-55 and S-56.

LEGEND
E.F. denotes Each Face
C.J. denotes Construction Joint
W.P. denotes Working Point
denotes battered pile 1½:12 in direction of arrow.
denotes vertical pile
denotes 3" Beam Bolster (BB)

RECORD DRAWING

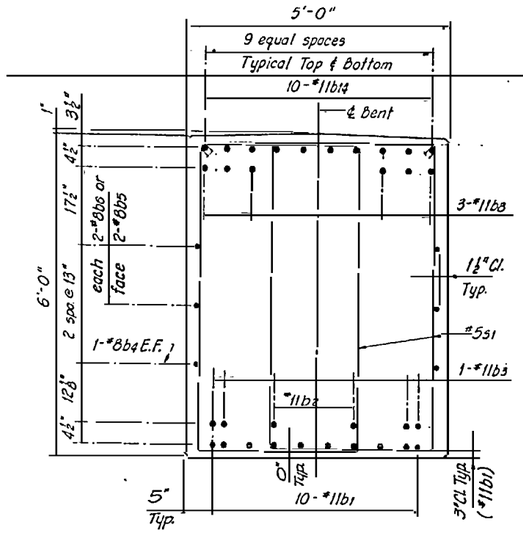
HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

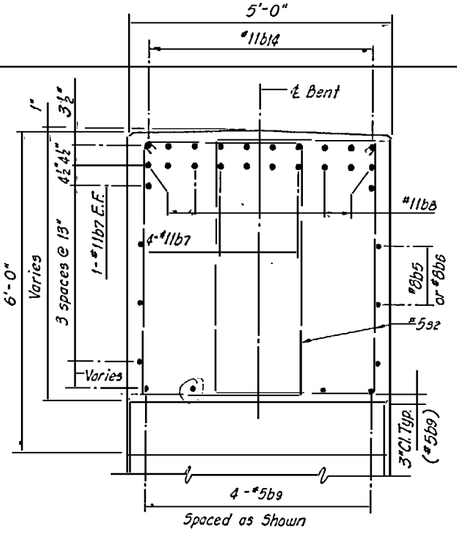
ATLANTIC INTRACOASTAL WATERWAY
SUBSTRUCTURE
BENT 2S
COINJOCK BRIDGE REPLACEMENT PROJECT
CURRITUCK COUNTY NORTH CAROLINA

DESIGNED BY: M.G.	CHECKED BY: M.A.M.			
PREPARED BY:	INVITATION NO DACW54-83-B-0014	SIZE	DRAWING NUMBER BR104-06-17	PLATE NO S-41
PRINCIPAL OF FIRM HNTB	SCALE 1" = 1'-0"	DATE 22 JULY 1983	SHEET 91 OF 126	

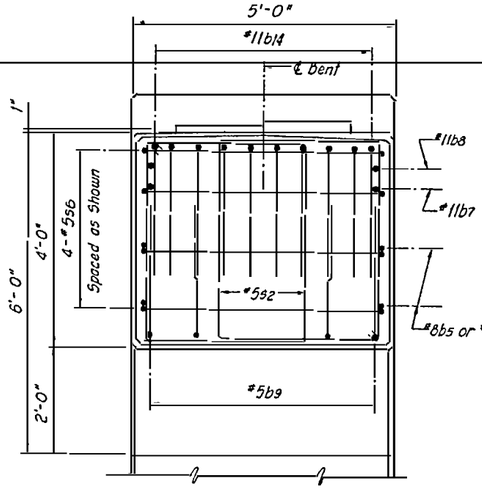
NC STATE AID PROJECT NO	
FEDERAL AID PROJECT NO	FED RD DIV NO



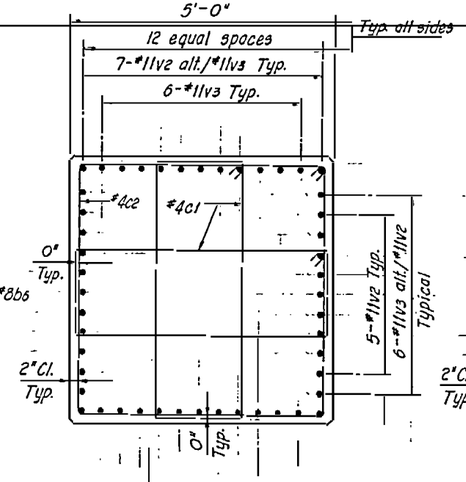
SECTION A-A



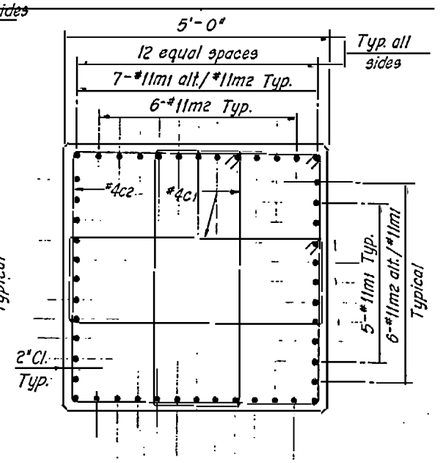
SECTION B-B



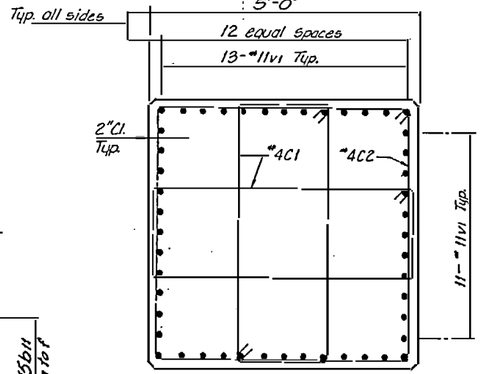
ELEVATION K-K



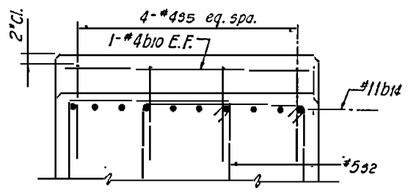
SECTION E-E



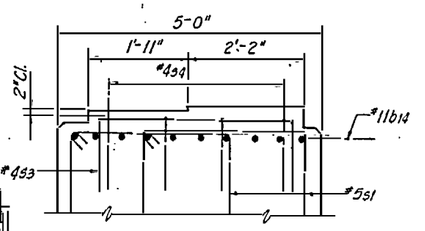
SECTION F-F



SECTION G-G

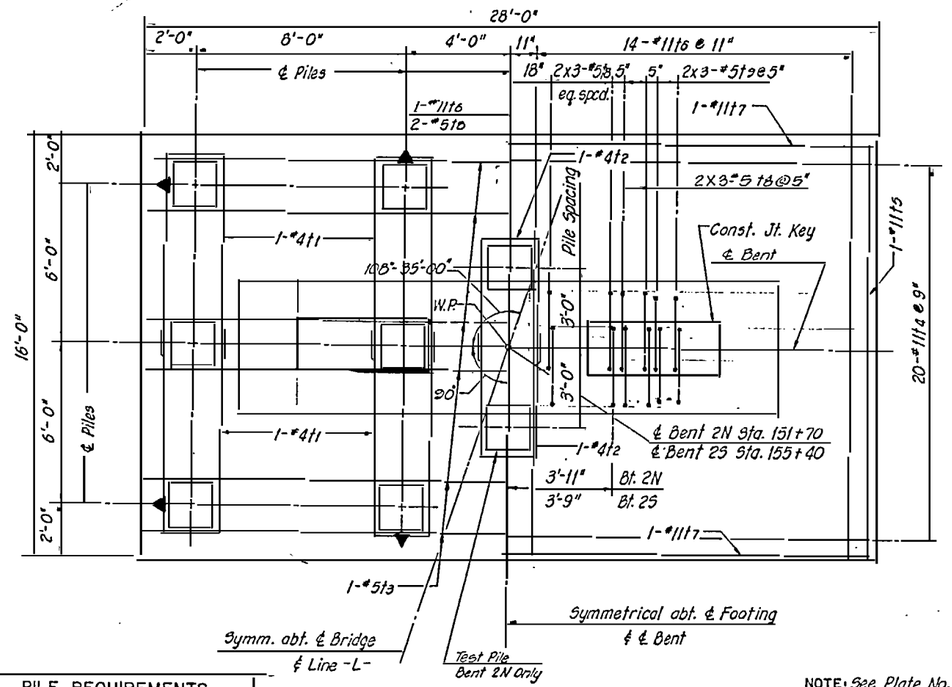


SECTION C-C



SECTION D-D

Section D-D typical at Girders 2 thru 6 Bent 2N
Girders 1 thru 7 Bent 2S



TYPICAL FOOTING PLAN

8" = 1'-0"

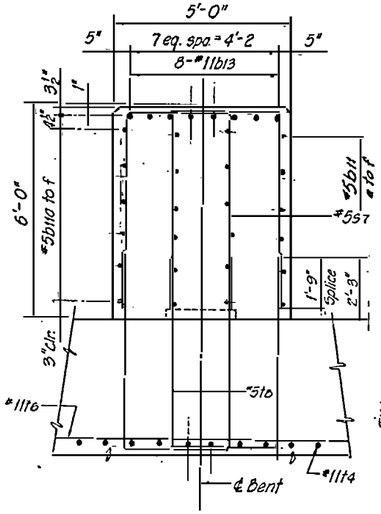
Note: Pile Spacing Measured at Bottom of Footing

PILE REQUIREMENTS			
BENT NO.	MIN. PILE TIP ELEV.	NO. OF PILES	EST. TOTAL LENGTH
2N	-55.0	14	1100*
2S	-55.0	14	1000'

See General Notes Plate No. S-7

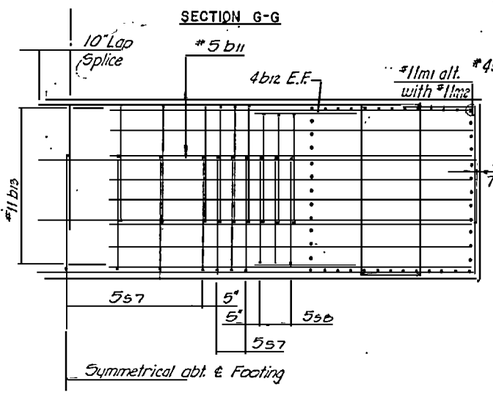
* Does not include .95' Test Pile

NOTE: See Plate No. S40 for Legend



SECTION H-H

1" = 1'-0"



SECTION J-J

RECORD DRAWING

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA	U S ARMY ENGINEER DISTRICT WILMINGTON CORPS OF ENGINEERS WILMINGTON NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY

SUBSTRUCTURE

BENTS 2N & 2S DETAILS

COINJOCK BRIDGE REPLACEMENT PROJECT

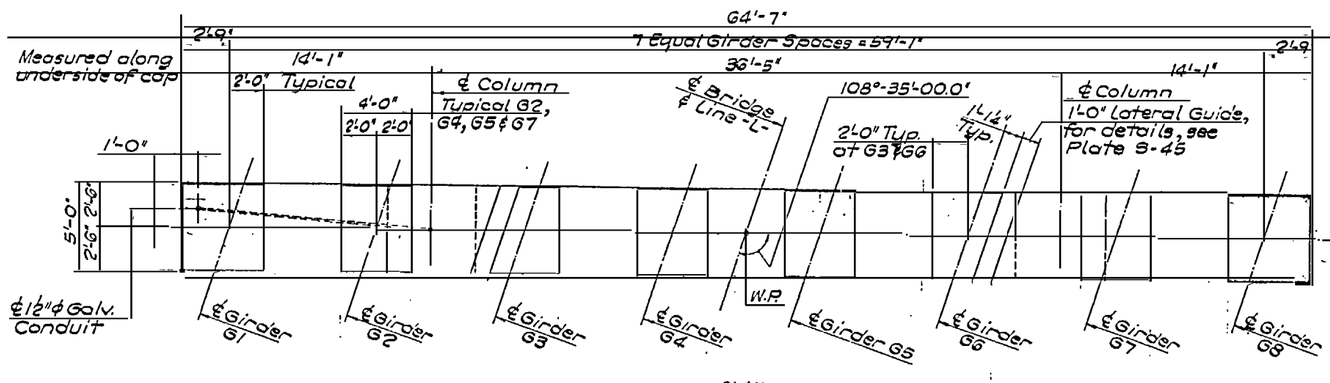
CURRITUCK COUNTY NORTH CAROLINA

DESIGNED BY: M.G.	CHECKED BY: M.A.M.
PREPARED BY:	
PRINCIPAL OF FIRM HNTB	

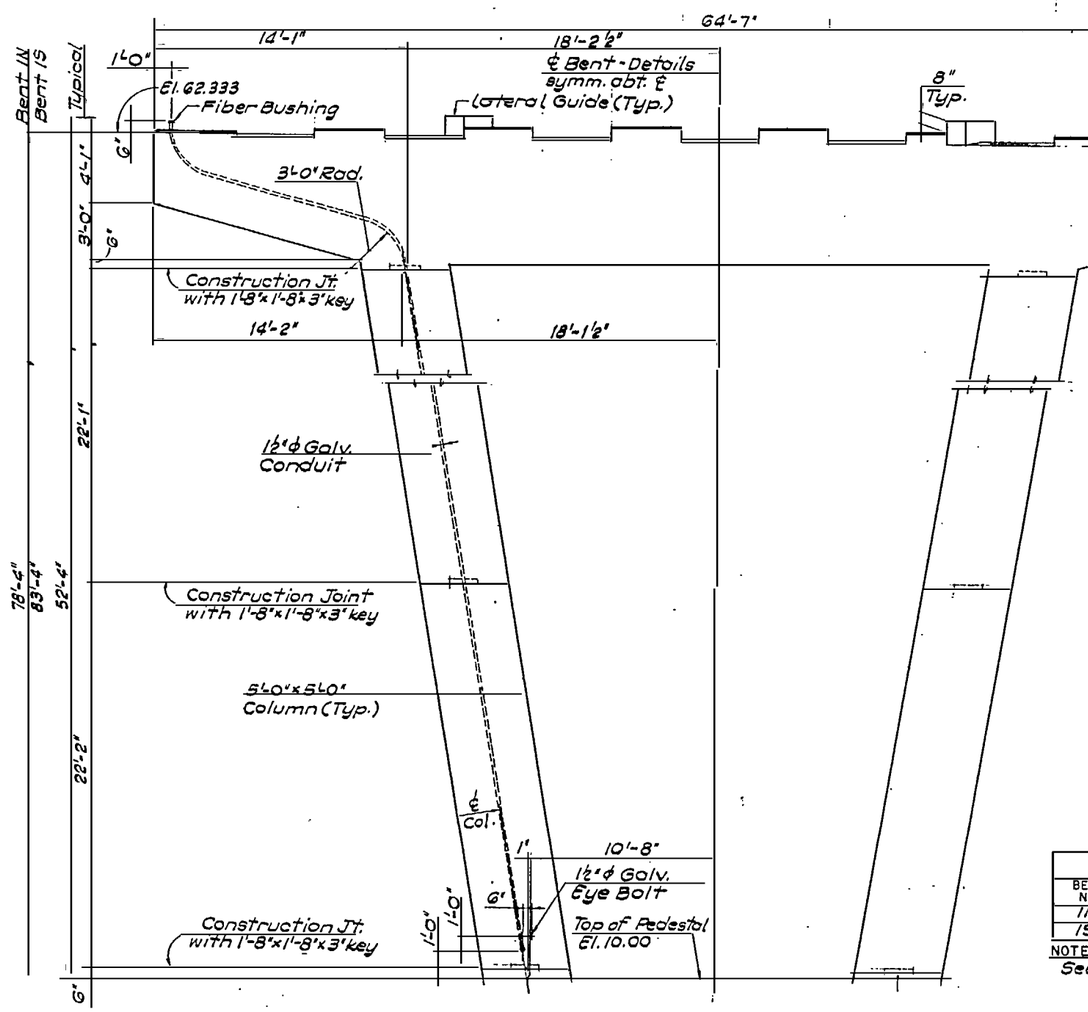
INVITATION NO	SIZE	DRAWING NUMBER	PLATE NO
DACW54-83-B-0014		BR104-06-17	S-42

SCALE 3/4"=1'-0" UN | DATE 22 JULY 1983 | SHEET 92 OF 126

N.C. STATE AID PROJECT NO.		
FEDERAL AID PROJECT NO		FED. RD. DIV. NO.



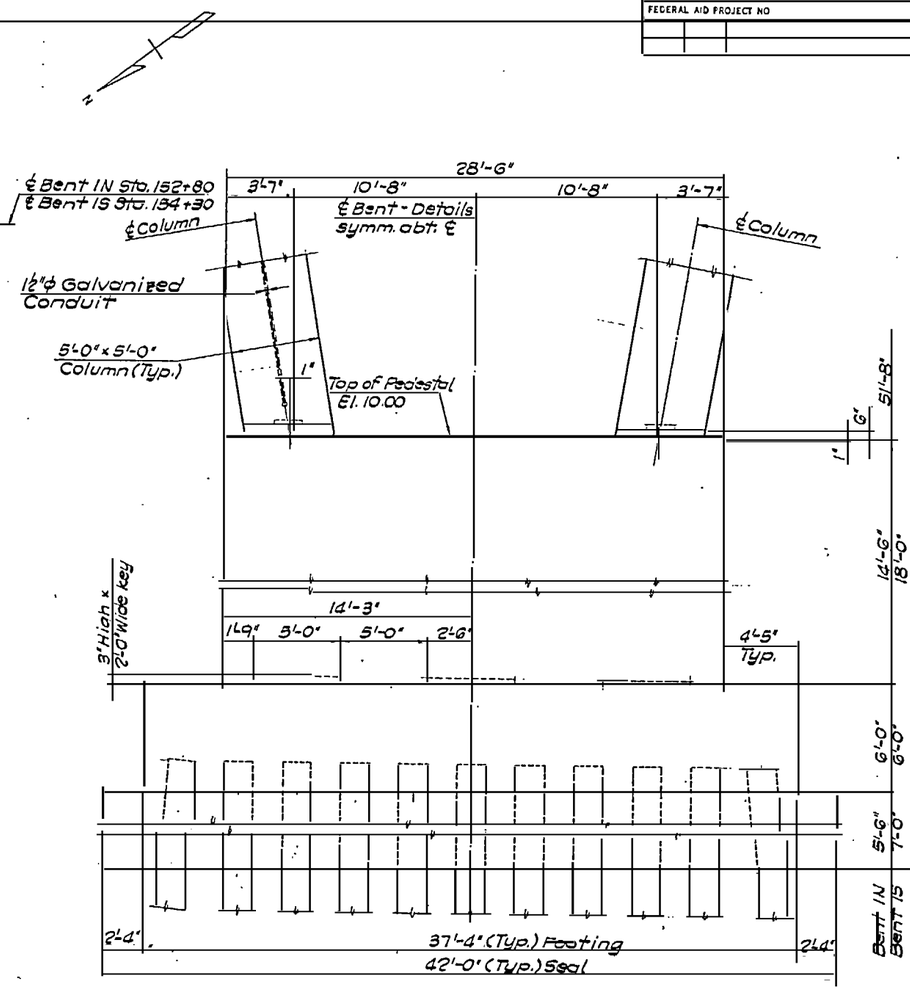
PLAN



ELEVATION

PILE REQUIREMENTS			
BENT NO.	MIN. PILE TIP ELEV.	NO. OF PILES	EST. TOTAL LENGTH
IN	-55.0	22	1855'
IS	-55.0	22	1855'

NOTE
See General Notes, Pl. S-7.



ELEVATION

PAD ELEVATIONS			
BENT NO. IN		BENT NO. IS	
GIRDER NO.	ELEVATION	GIRDER NO.	ELEVATION
G1	62.428	G1	62.548
G2	62.614	G2	62.703
G3	62.799	G3	62.847
G4	62.984	G4	63.001
G5	63.001	G5	62.984
G6	62.847	G6	62.799
G7	62.703	G7	62.614
G8	62.548	G8	62.428

NOTES
1.) For additional details, see Plates S-44 and S-45.

RECORD DRAWING

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY

SUBSTRUCTURE BENTS IN AND IS

COINJOCK BRIDGE REPLACEMENT PROJECT

CURRITUCK COUNTY NORTH CAROLINA

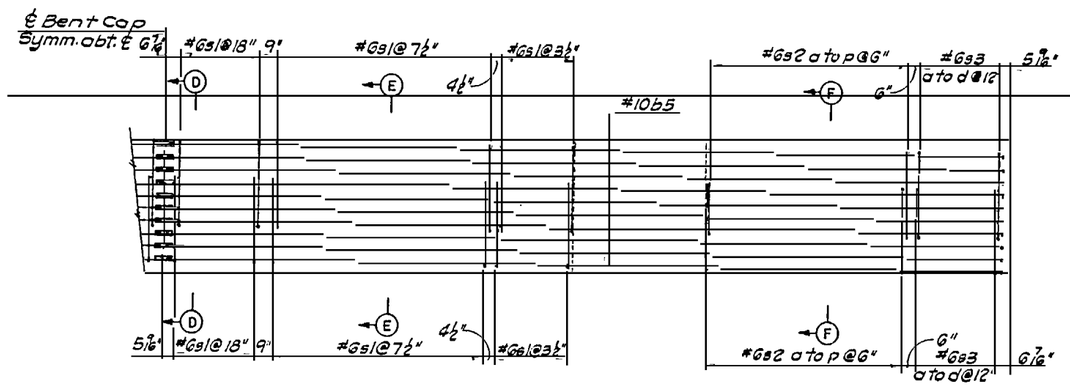
DESIGNED BY: M.G.	CHECKED BY: M.G.			
PREPARED BY:		INVITATION NO. DACW54-83-B-0014	SIZE	DRAWING NUMBER BR104-06-17 / PLATE NO. S-43
PRINCIPAL OF FIRM HNTB		SCALE 1"=1'-0"	DATE 22 JULY 1983	SHEET 93 OF 126

CORPS OF ENGINEERS

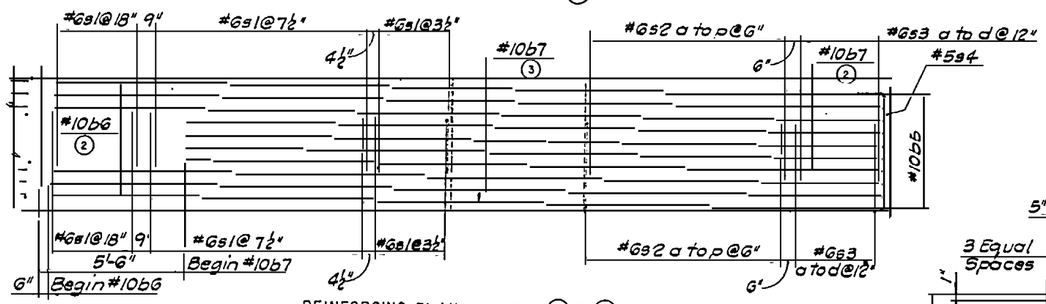
U. S. ARMY

N.C. STATE AID PROJECT NO

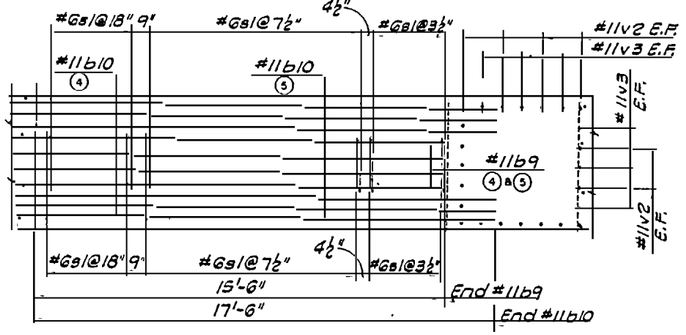
FEDERAL AID PROJECT NO | FED. RD. DIV. NO.



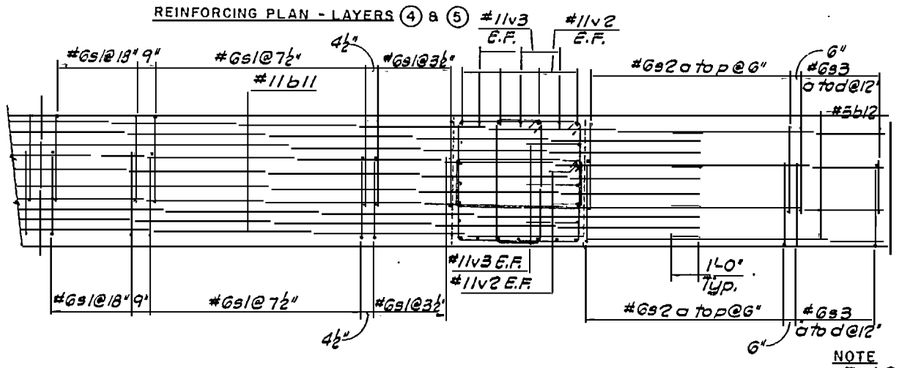
REINFORCING PLAN - LAYER (1)



REINFORCING PLAN - LAYERS (2) & (3)

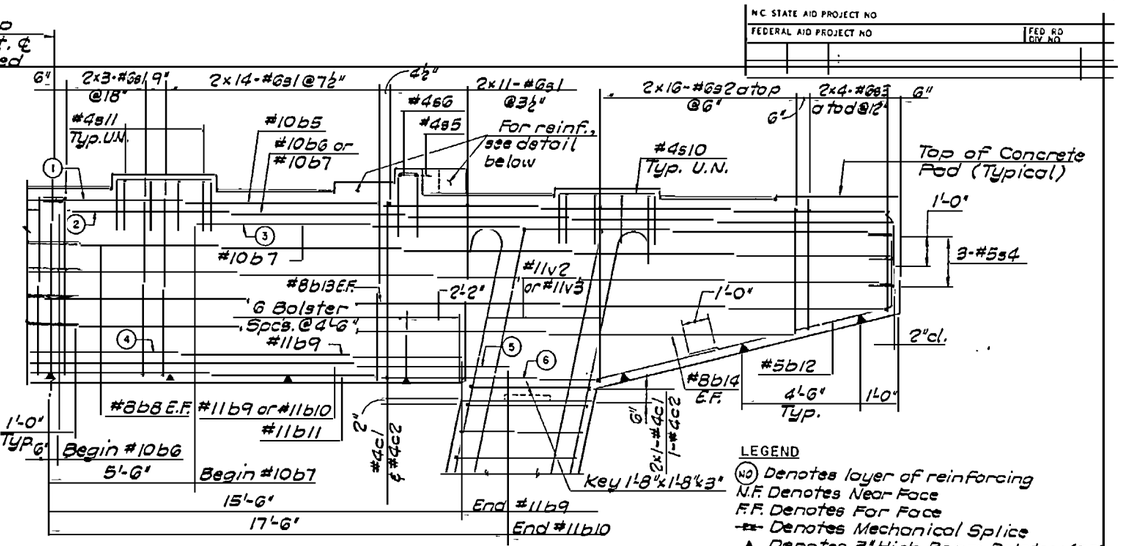


REINFORCING PLAN - LAYERS (4) & (5)



REINFORCING PLAN - LAYER (6)

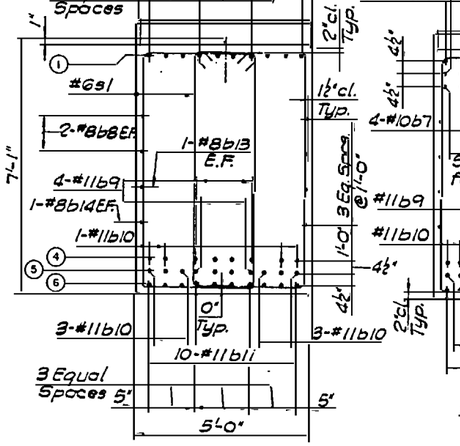
℄ Bent Cap
Symm. abt. ℄
Unless noted



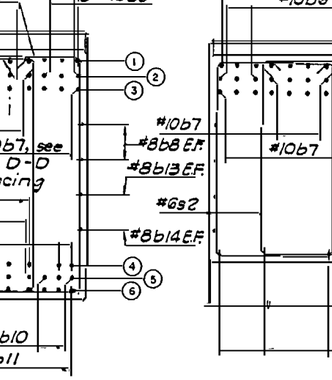
PARTIAL ELEVATION-BENT CAP

LEGEND

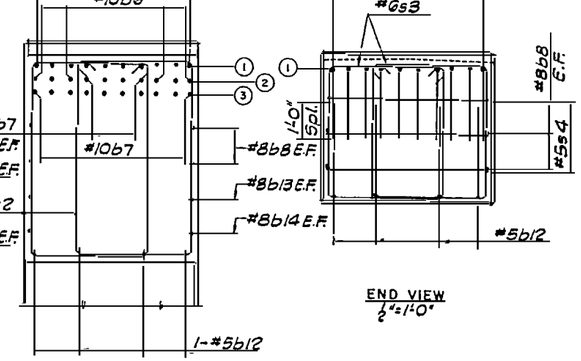
(NO) Denotes layer of reinforcing
N.F. Denotes Near Face
F.F. Denotes For Face
Denotes Mechanical Splice
▲ Denotes 3" High Beam Bolsters (BB)
E.F. Denotes Each Face
U.N. Denotes Unless Noted



SECTION D - D
½"=1'-0"

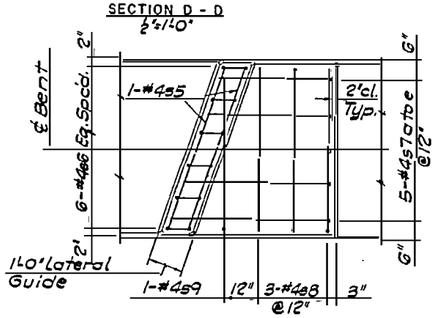


SECTION E - E
½"=1'-0"

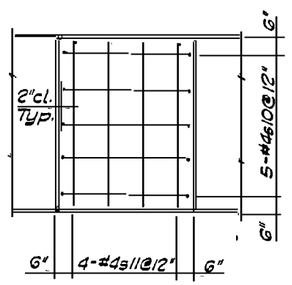


SECTION F - F
½"=1'-0"

END VIEW
½"=1'-0"



AT GIRDER G6 (AS SHOWN)



AT GIRDERS G1, G2, G4, G5, G7 & G8

TYPICAL PAD REINFORCEMENT
½"=1'-0"

NOTE

Pad for Gdr. G6 (Bent 1N) shown, pad Gdr. G3 is similar by rotation. Pads for Gdr.'s G3 and G6 (Bent 15) are similar.

NOTES

1.) For additional details, see Plates S-43 and S-44.
2.) For Bearing details, see Plate S-21.
3.) For Bar Lists, see Plates S-64 and S-65.

RECORD DRAWING

DESIGNED BY: M.G. | CHECKED BY: M.G.

PREPARED BY:

PRINCIPAL OF FIRM HNTB

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT WILMINGTON CORPS OF ENGINEERS WILMINGTON NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY

SUBSTRUCTURE

BENTS IN AND IS DETAILS - 2

COINJOCK BRIDGE REPLACEMENT PROJECT

CURRITUCK COUNTY NORTH CAROLINA

INVITATION NO	SIZE	DRAWING NUMBER	PLATE NO
DACW54-83 B-0014		BR104-06-17	S-45

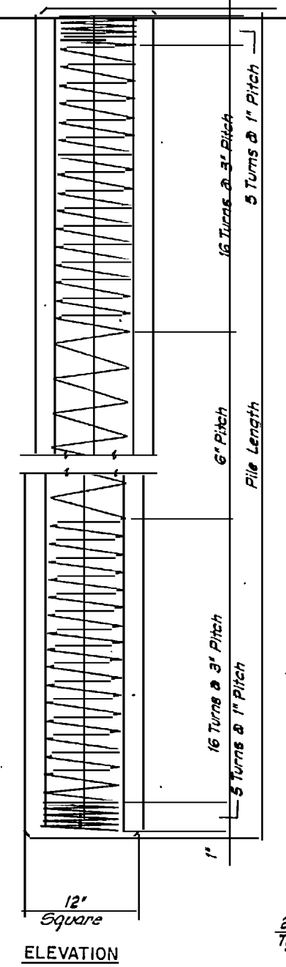
SCALE ½"=1'-0" UN. | DATE 22 JULY 1983 | SHEET 95 OF 126

CORPS OF ENGINEERS

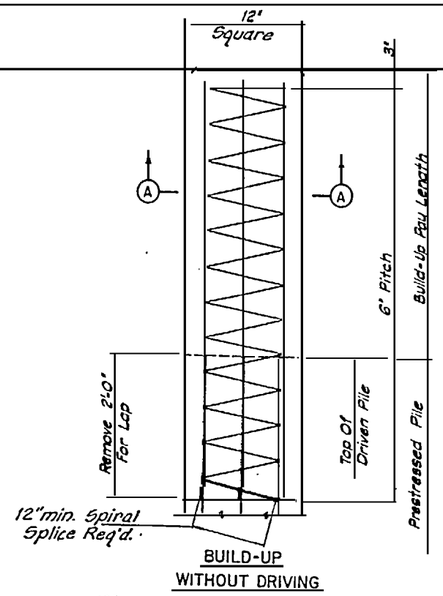
U. S. ARMY

N.C. STATE AID PROJECT NO

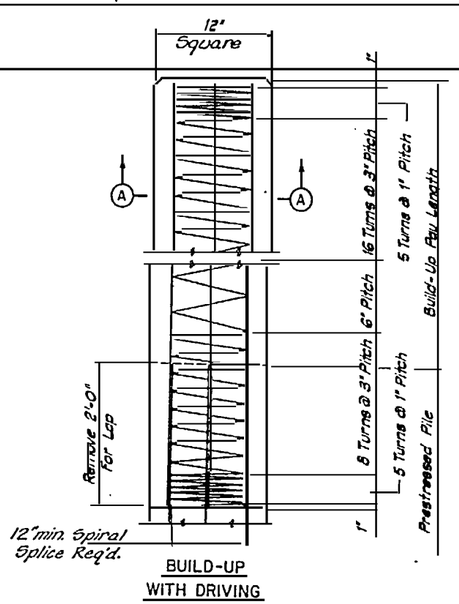
FEDERAL AID PROJECT NO | FED. RD. DIV. NO. 4



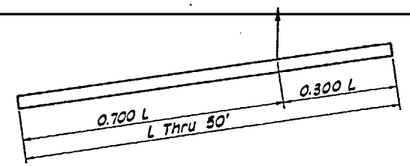
ELEVATION



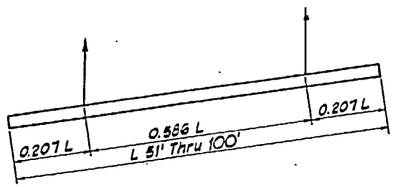
BUILD-UP WITHOUT DRIVING



BUILD-UP WITH DRIVING

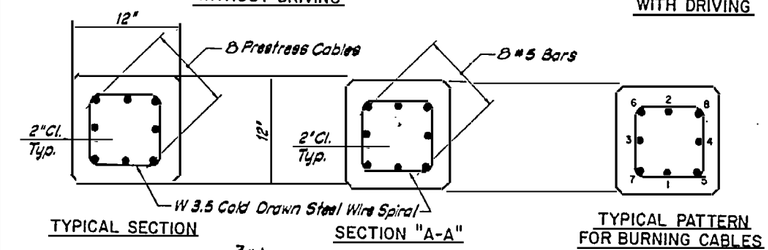


ONE POINT PICK-UP



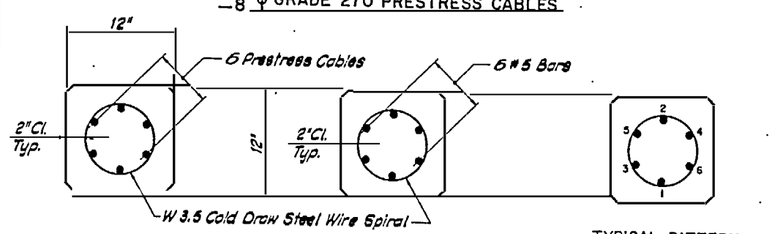
TWO POINT PICK-UP

PICK-UP POINTS



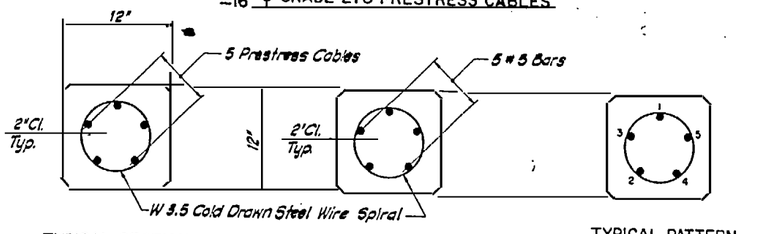
TYPICAL SECTION SECTION "A-A" TYPICAL PATTERN FOR BURNING CABLES

$\frac{3}{8}$"ϕ GRADE 270 PRESTRESS CABLES



TYPICAL SECTION SECTION "A-A" TYPICAL PATTERN FOR BURNING CABLES

$\frac{7}{16}$"ϕ GRADE 270 PRESTRESS CABLES



TYPICAL SECTION SECTION "A-A" TYPICAL PATTERN FOR BURNING CABLES

$\frac{1}{2}$"ϕ GRADE 270 PRESTRESS CABLES

PILE SPLICES

TWO PRECAST PILE SECTIONS MAY BE SPLICED BY PROVIDING CORED OR DRILLED DOWEL HOLES ON BOTH SIDES OF THE SPLICE. THE DOWELS SHALL HAVE AN AREA EQUAL TO 1-1/2% OF THE GROSS CROSS-SECTION OF PILE AND SHALL BE ADEQUATELY BONDED INTO BOTH SECTIONS. THE DOWEL HOLES AND SPACE BETWEEN SPLICED SECTIONS SHALL BE FILLED WITH A MATERIAL HAVING PROPERTIES FULLY EQUAL TO THAT OF THE CONCRETE AND ADHESIVE STRENGTH EQUAL TO THE SHEAR AND TENSILE STRENGTH OF THE CONCRETE. SUCH PROPERTIES SHALL BE OBTAINED WITHIN A TIME LIMIT CONSISTENT WITH THE DRIVING REQUIREMENT OF THE PILE.

ANY ALTERNATE METHOD OF SPLICING PROVIDING EQUAL RESULTS MAY BE CONSIDERED FOR APPROVAL.

IF THE JOINT BETWEEN SECTIONS IS EXPOSED AND SUBJECT TO CONDITIONS WHICH WOULD CAUSE DETERIORATION, SUITABLE STEPS SATISFACTORY TO THE ENGINEER SHALL BE TAKEN TO PROTECT THE JOINT.

PILE SPLICES, IF USED, SHALL BE LOCATED WITHIN THE MIDDLE ONE-THIRD OF THE INSTALLED PILE LENGTH. NO SEPARATE PAYMENT WILL BE MADE FOR SPLICES OF SEPARATE PILE SECTIONS, BUT ALL SUCH COSTS SHALL BE INCLUDED IN THE PRICE BID FOR THE ITEM "PRESTRESSED CONCRETE PILES".

NOTES

CONCRETE DESIGN DATA: f'c = 5,000 PSI; f_c = 2,000 PSI

IMPACT IN HANDLING = 50%

IN DRIVING PILES, A METHOD APPROVED BY THE ENGINEER SHALL BE USED, WHEREBY THE HEAD OF THE PILE IS NOT DAMAGED

DEVICES FOR LIFTING THE PILES SHALL BE APPROVED BY THE ENGINEER. LOOPS OF CABLE CAST IN THE PILES WILL NOT BE PERMITTED. INSERTS, CAST IN THE PILES TO RECEIVE THREADED EYE-BOLTS OR SIMILAR APPROVED DEVICES, MAY BE USED; OR WHERE IT IS PRACTICABLE, SATISFACTORY CLAMPS OR SLINGS MAY BE USED. WHERE PILES WILL BE EXPOSED TO VIEW IN THE STRUCTURE AND INSERTS ARE CAST IN THE PILES, THE OPENINGS SHALL BE REPAIRED AFTER THE EYE-BOLTS OR OTHER ATTACHMENTS HAVE BEEN REMOVED. THE OPENINGS SHALL BE REPAIRED IN A SATISFACTORY MANNER IN ORDER TO OBTAIN A UNIFORM APPEARANCE.

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE CABLES AS PRESCRIBED IN THE SPECIFICATIONS. THE CONTRACTOR MAY, AT HIS OPTION, USE ONE OF THE THREE TYPES OF CABLES LISTED BELOW; HOWEVER, ALL CABLES IN A PILE SHALL BE OF THE SAME TYPE.

SIZE	GRADE	NO. OF CABLES	AREA	ULTIMATE STRENGTH	APPLIED PRESTRESS FORCE
3/8"	270	8	0.085 □"	23,000# PER CABLE	16,100# PER CABLE
7/16"	270	6	0.115 □"	31,000# PER CABLE	21,700# PER CABLE
1/2"	270	5	0.153 □"	41,300# PER CABLE	28,900# PER CABLE

IF CABLE STRESS IS RELIEVED BY BURNING, THE CABLES SHALL BE BURNED IN PAIRS, EXCEPT WHERE 5 CABLES ARE USED THE LAST CABLE MAY BE BURNED SINGLY, ACCORDING TO BURNING PATTERNS SHOWN. NOT MORE THAN 4 CABLES MAY BE BURNED AT ANY ONE SECTION BEFORE THE SAME CABLES ARE BURNED AT BOTH ENDS OF THE BED AND BETWEEN EACH PAIR OF PILES IN THE BED.

BUILD-UPS SHALL BE OF "CLASS A" CONCRETE WITH 20% ADDITIONAL CEMENT. NO DRIVING OF THE BUILT-UP PILE WILL BE PERMITTED UNTIL THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF 3,000 P.S.I. AND UNTIL A PERIOD OF SEVEN DAYS HAS ELAPSED SINCE CASTING OF THE BUILD-UP.

ALL CORNERS TO BE CHAMFERED 3/4".

WHERE CAST-IN-PLACE LIFTING DEVICES ARE NOT USED, PICK-UP POINTS TO BE INDICATED WITH A BLACK MARK 2" WIDE.

QUANTITIES FOR ONE 12" SQUARE PILE

LENGTH	CONCRETE CU. YDS.	PILE WT. TONS	ONE PICK-UP POINT 0.3L	0.7L	TWO PICK-UP POINTS 0.207L	0.586L
25'-0"	0.91	1.85	7'-6"	17'-6"		
30'-0"	1.10	2.22	9'-0"	21'-0"		
35'-0"	1.28	2.59	10'-6"	24'-6"		
40'-0"	1.46	2.96	12'-0"	28'-0"		
45'-0"	1.64	3.33	13'-6"	31'-6"		
50'-0"	1.83	3.70	15'-0"	35'-0"		
55'-0"	2.01	4.07			11'-4½"	32'-3"
60'-0"	2.19	4.44			12'-5"	35'-2"
65'-0"	2.37	4.81			13'-5½"	38'-1"
70'-0"	2.56	5.18			14'-6"	41'-0"
75'-0"	2.74	5.55			15'-6½"	43'-11"
80'-0"	2.92	5.92			16'-6½"	46'-11"
85'-0"	3.10	6.29			17'-7"	49'-10"
90'-0"	3.29	6.66			18'-8"	52'-8"
95'-0"	3.47	7.03			19'-8½"	55'-8"
100'-0"	3.65	7.40			20'-9"	58'-7"

RECORD DRAWING

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY

PRECAST CONCRETE PILE DETAILS 12" SQUARE

COINJOCK BRIDGE REPLACEMENT PROJECT

CURRITUCK COUNTY NORTH CAROLINA

DESIGNED BY: B.T.G. | CHECKED BY: M.A.M.

PREPARED BY: _____ PRINCIPAL OF FIRM HNTB

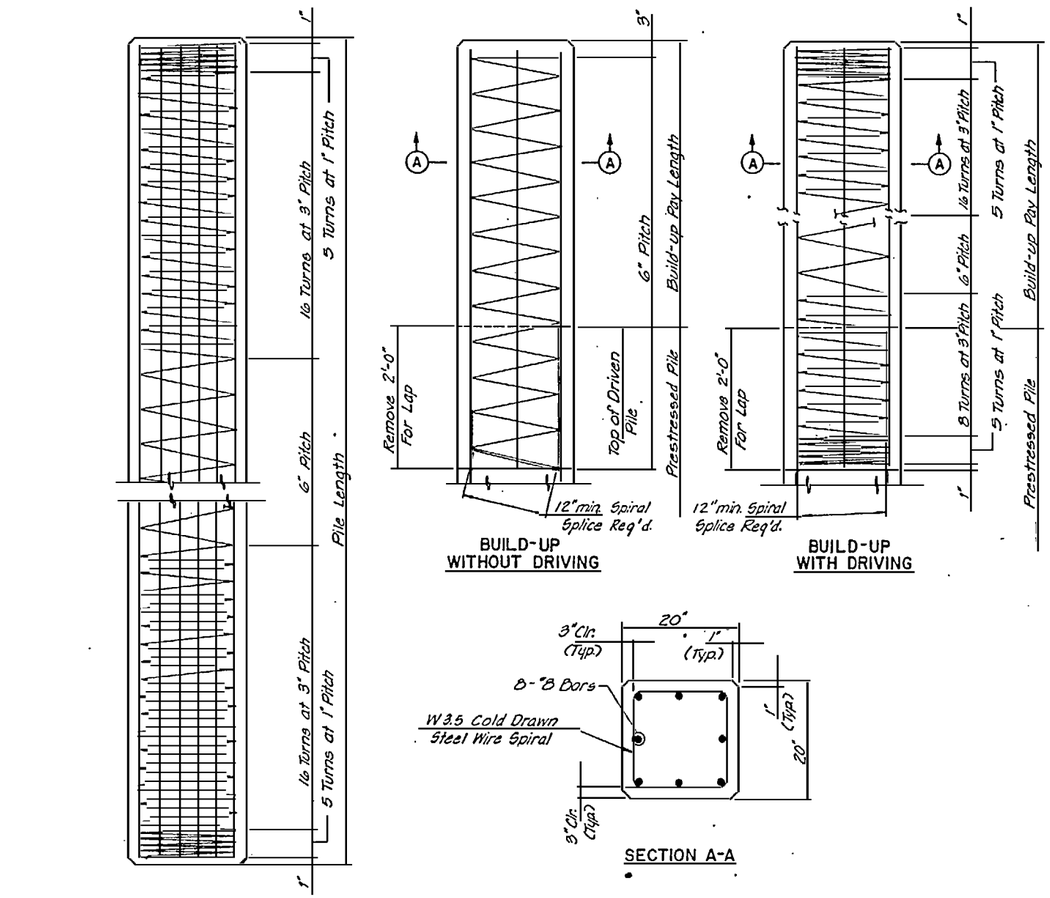
INVITATION NO DACW54-83-B-0014 | SIZE | DRAWING NUMBER B-R104-06-17 | PLATE NO S-46

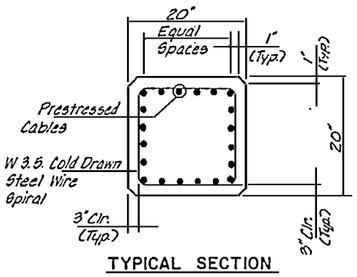
SCALE NONE | DATE 22 JULY 1983 | SHEET 96 OF 126

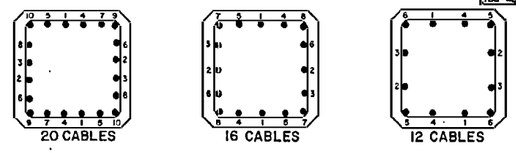
CORPS OF ENGINEERS

U. S. ARMY

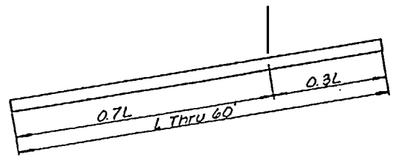
N.C. STATE AID PROJECT NO.		
FEDERAL AID PROJECT NO.		FED. RD DIV. NO.



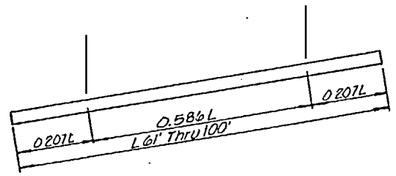




TYPICAL PATTERN FOR BURNING CABLES



ONE POINT PICK-UP



TWO POINT PICK-UP

PICK-UP POINTS

QUANTITIES FOR ONE 20" SQUARE PILE						
			ONE PICK-UP POINT		TWO PICK-UP POINTS	
LENGTH	CONCRETE CU. YDS.	PILE WT. TONS	0.3L	0.7L	0.207L	0.586L
25'-0"	2.56	5.18	7'-6"	37'-6"		
30'-0"	3.07	6.22	9'-0"	21'-0"		
35'-0"	3.58	7.26	10'-6"	24'-6"		
40'-0"	4.09	8.29	12'-0"	28'-0"		
45'-0"	4.61	9.33	13'-6"	31'-6"		
50'-0"	5.12	10.36	15'-0"	35'-0"		
55'-0"	5.63	11.40	16'-6"	38'-6"		
60'-0"	6.14	12.44	18'-0"	42'-0"		
65'-0"	6.65	13.47			13'-5"	38'-1"
70'-0"	7.17	14.51			14'-6"	41'-0"
75'-0"	7.68	15.55			15'-6"	43'-11"
80'-0"	8.19	16.58			16'-6"	46'-11"
85'-0"	8.70	17.62			17'-7"	49'-10"
90'-0"	9.21	18.66			18'-8"	52'-9"
95'-0"	9.73	19.69			19'-8"	55'-8"
100'-0"	10.24	20.72			20'-9"	58'-7"

NOTES

CONCRETE DESIGN DATA: $f'c$ = 5,000 PSI; f_c = 2,000 PSI

IMPACT IN HANDLING = 50%

IN DRIVING PILES, A METHOD APPROVED BY THE ENGINEER SHALL BE USED, WHEREBY THE HEAD OF THE PILE IS NOT DAMAGED

DEVICES FOR LIFTING THE PILES SHALL BE APPROVED BY THE ENGINEER. LOOPS OF CABLE CAST IN THE PILES WILL NOT BE PERMITTED. INSERTS, CAST IN THE PILES TO RECEIVE THREADED EYE-BOLTS OR SIMILAR APPROVED DEVICES, MAY BE USED; OR WHERE IT IS PRACTICABLE, SATISFACTORY CLAMPS OR SLINGS MAY BE USED. WHERE PILES WILL BE EXPOSED TO VIEW IN THE STRUCTURE AND INSERTS ARE CAST IN THE PILES, THE OPENINGS SHALL BE REPAIRED AFTER THE EYE-BOLTS OR OTHER ATTACHMENTS HAVE BEEN REMOVED. THE OPENINGS SHALL BE REPAIRED IN A SATISFACTORY MANNER IN ORDER TO OBTAIN A UNIFORM APPEARANCE.

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE CABLES AS PRESCRIBED IN THE SPECIFICATIONS. THE CONTRACTOR MAY, AT HIS OPTION, USE ONE OF THE THREE TYPES OF CABLES LISTED BELOW; HOWEVER, ALL CABLES IN A PILE SHALL BE OF THE SAME TYPE.

SIZE	GRADE	NO. OF CABLES	AREA	ULTIMATE STRENGTH	APPLIED PRESTRESS FORCE
7/16"	250	20	0.108 in^2	27,000# PER CABLE	18,900# PER CABLE
7/16"	270	16	0.115 in^2	31,000# PER CABLE	21,700# PER CABLE
1/2"	270	12	0.153 in^2	41,300# PER CABLE	28,900# PER CABLE

CABLES SHALL BE EQUALLY SPACED AS SHOWN IN THE "TYPICAL SECTION".

THE SLIP-FORM METHOD OF CASTING PILES WILL NOT BE PERMITTED.

IF CABLE STRESS IS RELIEVED BY BURNING, THE CABLES SHALL BE BURNED IN OPPOSITE PAIRS AS INDICATED IN THE TYPICAL PATTERN SHOWN. FOR ANY NUMBER OF CABLES BURN IN OPPOSITE PAIRS AND SYMMETRICAL ABOUT BOTH VERTICAL AND HORIZONTAL AXES CABLES 1-1 SHALL BE BURNED BEFORE 2-2, ETC. NOT MORE THAN 4 CABLES, SAY 5-5 AND 6-6, MAY BE BURNED AT ANY ONE SECTION BEFORE THESE SAME PAIRS OF CABLES ARE BURNED AT BOTH ENDS OF THE BED AND BETWEEN EACH PAIR OF PILES IN THE BED.

BUILD-UPS SHALL BE OF "CLASS A" CONCRETE WITH 20% ADDITIONAL CEMENT. NO DRIVING OF THE BUILT-UP PILE WILL BE PERMITTED UNTIL THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF 3,000 P.S.I. AND UNTIL A PERIOD OF SEVEN DAYS HAS ELAPSED SINCE CASTING OF THE BUILD-UP.

PILE SPLICES

TWO PRECAST PILE SECTIONS MAY BE SPLICED BY PROVIDING CORED OR DRILLED DOWEL HOLES ON BOTH SIDES OF THE SPLICE. THE DOWELS SHALL HAVE AN AREA EQUAL TO 1-1/2% OF THE GROSS CROSS-SECTION OF PILE AND SHALL BE ADEQUATELY BONDED INTO BOTH SECTIONS. THE DOWEL HOLES AND SPACE BETWEEN SPLICED SECTIONS SHALL BE FILLED WITH A MATERIAL HAVING PROPERTIES FULLY EQUAL TO THAT OF THE CONCRETE AND ADHESIVE STRENGTH EQUAL TO THE SHEAR AND TENSILE STRENGTH OF THE CONCRETE. SUCH PROPERTIES SHALL BE OBTAINED WITHIN A TIME LIMIT CONSISTENT WITH THE DRIVING REQUIREMENT OF THE PILE.

ANY ALTERNATE METHOD OF SPLICING PROVIDING EQUAL RESULTS MAY BE CONSIDERED FOR APPROVAL.

IF THE JOINT BETWEEN SECTIONS IS EXPOSED AND SUBJECT TO CONDITIONS WHICH WOULD CAUSE DETERIORATION, SUITABLE STEPS SATISFACTORY TO THE ENGINEER SHALL BE TAKEN TO PROTECT THE JOINT.

PILE SPLICES, IF USED, SHALL BE LOCATED WITHIN THE MIDDLE ONE-THIRD OF THE INSTALLED PILE LENGTH. NO SEPARATE PAYMENT WILL BE MADE FOR SPLICES OF SEPARATE PILE SECTIONS, BUT ALL SUCH COSTS SHALL BE INCLUDED IN THE PRICE BID FOR THE ITEM "PRESTRESSED CONCRETE PILES".

RECORD DRAWING

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT WILMINGTON CORPS OF ENGINEERS WILMINGTON NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY

PRECAST CONCRETE PILE DETAILS 20" SQUARE

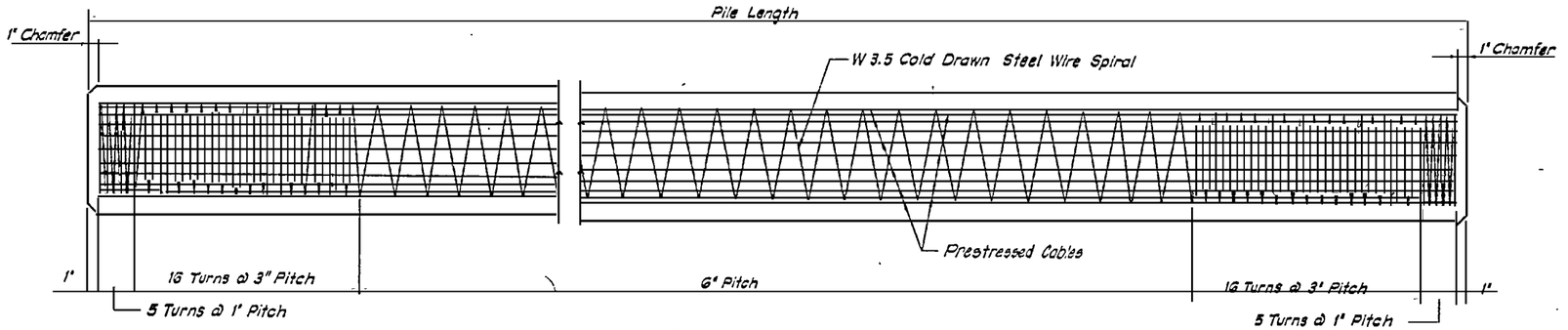
COINJOCK BRIDGE REPLACEMENT PROJECT

CURRITUCK COUNTY NORTH CAROLINA

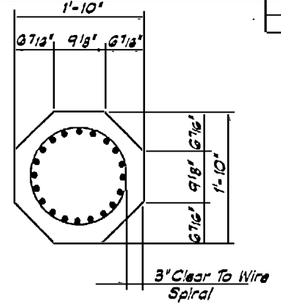
DESIGNED BY: B.T.G.	CHECKED BY: M.A.M.			
PREPARED BY:		INVITATION NO DACW54-83-B-0014	SIZE	DRAWING NUMBER BR104-06-17
PRINCIPAL OF FIRM HNTB	SCALE NONE	DATE 22 JULY 1983	SHEET 97 OF 125	PLATE NO. S-47

N.C. STATE AID PROJECT NO

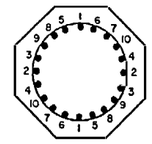
FEDERAL AID PROJECT NO | FED RD DIV NO



ELEVATION



TYPICAL SECTION



TYPICAL PATTERN FOR BURNING CABLES

PILE SPLICES

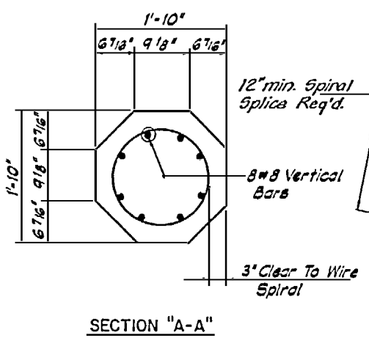
TWO PRECAST PILE SECTIONS MAY BE SPLICED BY PROVIDING CORED OR DRILLED DOWEL HOLES ON BOTH SIDES OF THE SPLICE. THE DOWELS SHALL HAVE AN AREA EQUAL TO 1-1/2% OF THE GROSS CROSS-SECTION OF PILE AND SHALL BE ADEQUATELY BONDED INTO BOTH SECTIONS. THE DOWEL HOLES AND SPACE BETWEEN SPLICED SECTIONS SHALL BE FILLED WITH A MATERIAL HAVING PROPERTIES FULLY EQUAL TO THAT OF THE CONCRETE AND ADHESIVE STRENGTH EQUAL TO THE SHEAR AND TENSILE STRENGTH OF THE CONCRETE. SUCH PROPERTIES SHALL BE OBTAINED WITHIN A TIME LIMIT CONSISTENT WITH THE DRIVING REQUIREMENT OF THE PILE.

ANY ALTERNATE METHOD OF SPLICING PROVIDING EQUAL RESULTS MAY BE CONSIDERED FOR APPROVAL.

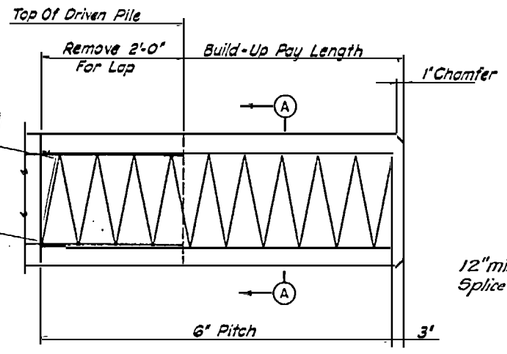
IF THE JOINT BETWEEN SECTIONS IS EXPOSED AND SUBJECT TO CONDITIONS WHICH WOULD CAUSE DETERIORATION, SUITABLE STEPS SATISFACTORY TO THE ENGINEER SHALL BE TAKEN TO PROTECT THE JOINT.

PILE SPLICES, IF USED, SHALL BE LOCATED WITHIN THE MIDDLE ONE-THIRD OF THE INSTALLED PILE LENGTH. NO SEPARATE PAYMENT WILL BE MADE FOR SPLICES OF SEPARATE PILE SECTIONS, BUT ALL SUCH COSTS SHALL BE INCLUDED IN THE PRICE BID FOR THE ITEM "PRESTRESSED CONCRETE PILES".

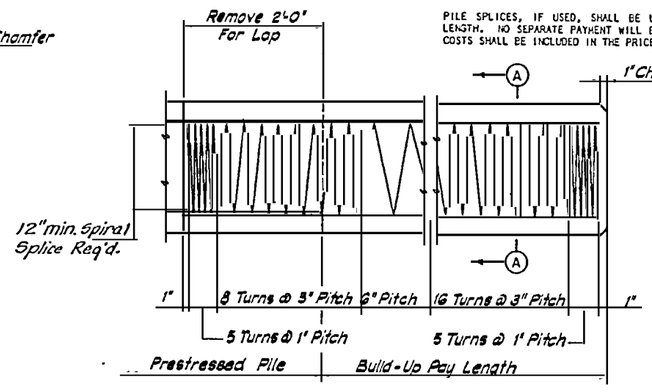
IF CABLE STRESS IS RELIEVED BY BURNING, THE CABLES SHALL BE BURNED IN OPPOSITE PAIRS AS INDICATED IN THE TYPICAL PATTERN SHOWN. FOR ANY NUMBER OF CABLES BURN IN OPPOSITE PAIRS AND SYMMETRICAL ABOUT BOTH VERTICAL AND HORIZONTAL AXES, CABLES 1-1 SHALL BE BURNED BEFORE 2-2, ETC. NOT MORE THAN 4 CABLES, SAY 5-5 AND 6-6, MAY BE BURNED AT ANY ONE SECTION BEFORE THESE SAME PAIRS OF CABLES ARE BURNED AT BOTH ENDS OF THE BED AND BETWEEN EACH PAIR OF PILES IN THE BED.



SECTION "A-A"

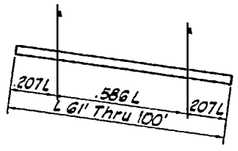


BUILD-UP WITHOUT DRIVING

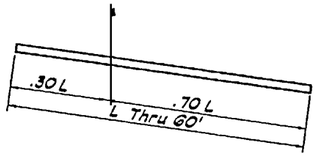


BUILD-UP WITH DRIVING

BUILD-UPS SHALL BE OF "CLASS A" CONCRETE WITH 20% ADDITIONAL CEMENT. NO DRIVING OF THE BUILT-UP PILE WILL BE PERMITTED UNTIL THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF 3,000 P.S.I. AND UNTIL A PERIOD OF SEVEN (7) DAYS HAS ELAPSED SINCE CASTING OF THE BUILD-UP.



TWO POINT PICK-UP



ONE POINT PICK-UP

PICK-UP POINTS

QUANTITIES FOR ONE 22" OCTAGONAL PILE

LENGTH	CONCRETE CU. YDS.	PILE WT. TONS	ONE PICK-UP POINT 0.3L	0.7L	TWO PICK-UP POINTS 0.207L	0.586L
25'-0"	2.58	5.22	7'-6"	17'-6"		
30'-0"	3.09	6.27	9'-0"	21'-0"		
35'-0"	3.61	7.31	10'-6"	24'-6"		
40'-0"	4.13	8.36	12'-0"	28'-0"		
45'-0"	4.64	9.40	13'-6"	31'-6"		
50'-0"	5.16	10.45	15'-0"	35'-0"		
55'-0"	5.67	11.49	16'-6"	38'-6"		
60'-0"	6.19	12.53	18'-0"	42'-0"		
65'-0"	6.71	13.58			13'-5½"	38'-1"
70'-0"	7.22	14.62			14'-6"	41'-0"
75'-0"	7.74	15.67			15'-6½"	43'-11"
80'-0"	8.25	16.71			16'-6½"	46'-11"
85'-0"	8.77	17.76			17'-7"	49'-10"
90'-0"	9.27	18.81			18'-8"	52'-9"
95'-0"	9.80	19.85			19'-8½"	55'-8"
100'-0"	10.32	20.89			20'-9"	58'-7"

NOTES

CONCRETE DESIGN DATA: $f'c$ = 5,000 PSI; f_c = 2,000 PSI

IMPACT IN HANDLING = 50%

IN DRIVING PILES, A METHOD APPROVED BY THE ENGINEER SHALL BE USED, WHEREBY THE HEAD OF THE PILE IS NOT DAMAGED

DEVICES FOR LIFTING THE PILES SHALL BE APPROVED BY THE ENGINEER. LOOPS OF CABLE CAST IN THE PILES WILL NOT BE PERMITTED. INSERTS, CAST IN THE PILES TO RECEIVE THREADED EYE-BOLTS OR SIMILAR APPROVED DEVICES, MAY BE USED; OR WHERE IT IS PRACTICABLE, SATISFACTORY CLAMPS OR SLINGS MAY BE USED. WHERE PILES WILL BE EXPOSED TO VIEW IN THE STRUCTURE AND INSERTS ARE CAST IN THE PILES, THE OPENINGS SHALL BE REPAIRED AFTER THE EYE-BOLTS OR OTHER ATTACHMENTS HAVE BEEN REMOVED. THE OPENINGS SHALL BE REPAIRED IN A SATISFACTORY MANNER IN ORDER TO OBTAIN A UNIFORM APPEARANCE.

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE CABLES AS PRESCRIBED IN THE SPECIFICATIONS. THE CONTRACTOR MAY, AT HIS OPTION, USE ONE OF THE THREE TYPES OF CABLES LISTED BELOW; HOWEVER, ALL CABLES IN A PILE SHALL BE OF THE SAME TYPE.

SIZE	GRADE	NO. OF CABLES	AREA	ULTIMATE STRENGTH	APPLIED PRESTRESS FORCE
7/16"	250	20	0.108 □"	27,000# PER CABLE	18,900# PER CABLE
7/16"	270	16	0.115 □"	31,000# PER CABLE	21,700# PER CABLE
1/2"	270	13	0.153 □"	41,300# PER CABLE	28,900# PER CABLE

CABLES SHALL BE EQUALLY SPACED AS SHOWN IN THE "TYPICAL SECTION".

THE SLIP-FORM METHOD OF CASTING PILES WILL NOT BE PERMITTED.

AS RECORD DRAWING

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY

PRECAST CONCRETE PILE DETAILS

~~22" OCTAGONAL~~

COINJOCK BRIDGE REPLACEMENT PROJECT

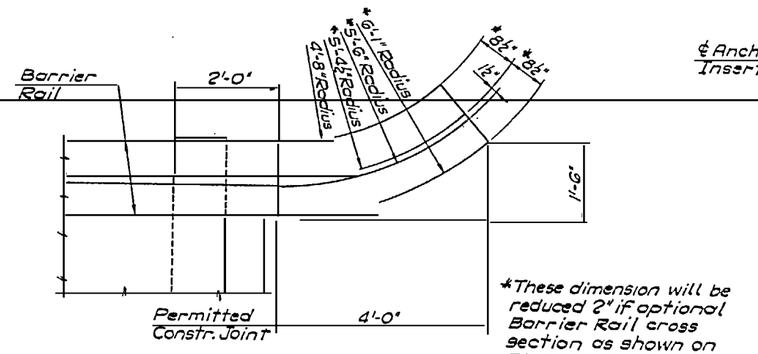
CURRITUCK COUNTY NORTH CAROLINA

DESIGNED BY:	CHECKED BY:	INVITATION NO	SIZE	DRAWING NUMBER	PLATE NO
B.T.G.	M.A.M.	DACW54-83-B-0014		BRI04-06-17	S-48
PREPARED BY:		DATE 22 JULY 1983		SHEET 98 OF 126	
PRINCIPAL OF FIRM HNTB		SCALE NONE			

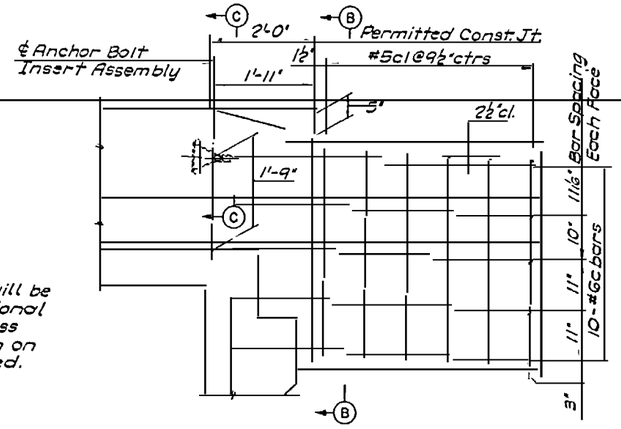
CORPS OF ENGINEERS

U. S. ARMY

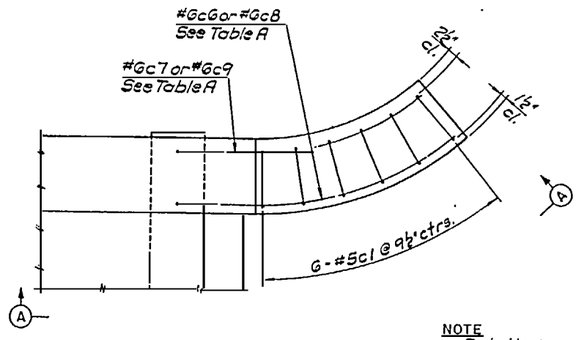
N.C. STATE AID PROJECT NO			
FEDERAL AID PROJECT NO			FED. RD DIV NO



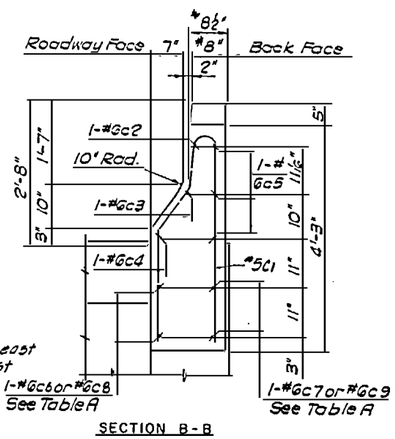
END BLOCK GEOMETRY



ELEVATION A-A



REINFORCING PLAN



SECTION B-B

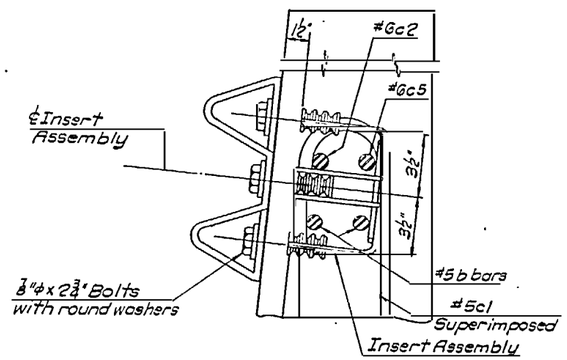
NOTE
Details have been shown for the Southeast and Northwest End Blocks. The Southwest and Northeast are opposite hand. See Table A for differences in reinforcing.

END BLOCK DETAILS
¾"=1'-0"

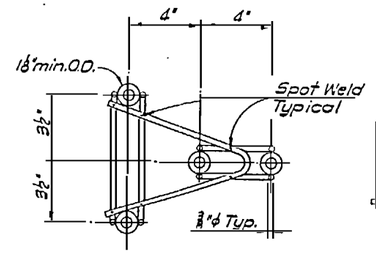
TABLE A	
END BLOCK	BAR MARK
Southeast	#6c6 & #6c7
Northwest	#6c6 & #6c7
Southwest	#6c8 & #6c9
Northeast	#6c8 & #6c9

NOTES

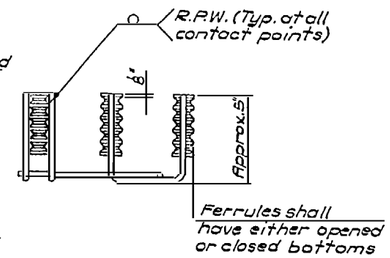
1. THE 4 - BOLT INSERT ASSEMBLY UNIT SHALL CONSIST OF THE FOLLOWING COMPONENTS:
   a. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF A.S.T.M. A108, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1 1/2".
   b. 4 - 7/8"Ø x 2 3/4" BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF A.S.T.M. A307. BOLTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8"Ø x 2 3/4" GALVANIZED BOLTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF A.S.T.M. A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER).
   c. WIRE STRUTS SHOWN IN THE INSERT ASSEMBLY DETAIL ARE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 P.S.I.
2. THE INSERT ASSEMBLY WITH BOLTS SHALL BE ASSEMBLED IN THE SHOP. BOLT THREADS MAY BE RECUT AS NECESSARY TO INSURE FIT.
3. THE COST OF THE 4 - BOLT INSERT ASSEMBLY UNIT COMPLETE IN PLACE, SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.
4. THE 4 - BOLT INSERT ASSEMBLY UNIT IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END POSTS. FOR POINTS OF ATTACHMENT, SEE PLANS.
5. CURVED END BLOCKS ARE REQUIRED AT ALL END POSTS.
6. THE COST OF THE FOUR CURVED END BLOCKS AND CURB BLOCK, WHEN USED, WHICH INCLUDES CLASS AA CONCRETE, REINFORCING STEEL, EXCAVATION, BACKFILL AND INCIDENTALS NECESSARY FOR THEIR CONSTRUCTION SHALL BE INCLUDED IN THE COST OF THE CONCRETE BARRIER RAIL.



SECTION C-C
3"=1'-0"



ELEVATION VIEW



PLAN VIEW

INSERT ASSEMBLY
3"=1'-0"

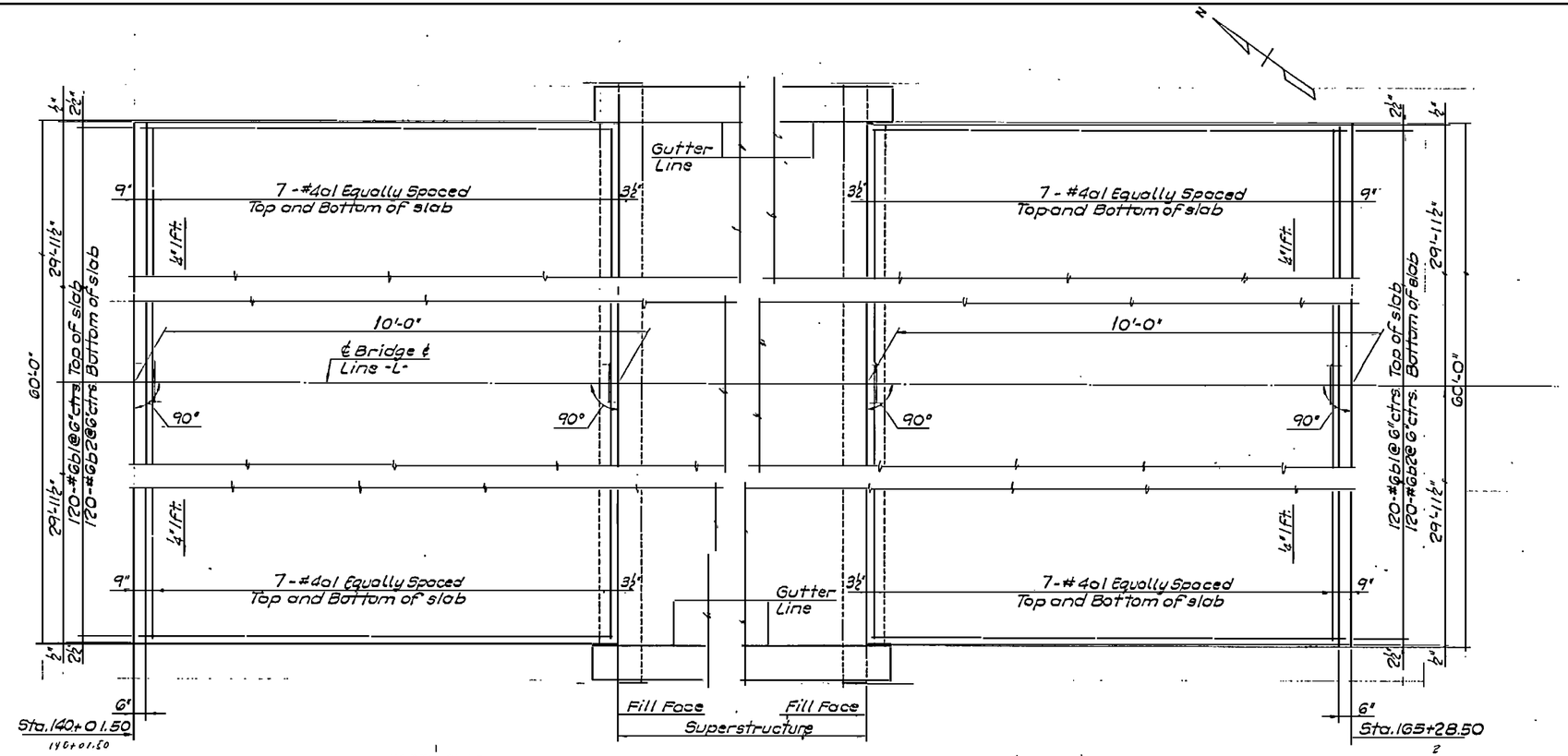
RECORD DRAWING

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA			U.S. ARMY ENGINEER DISTRICT WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA
ATLANTIC INTRACOASTAL WATERWAY CURVED END BLOCK AND GUARDRAIL ANCHORAGES FOR BARRIER RAIL COINJOCK BRIDGE REPLACEMENT PROJECT CURRITUCK COUNTY NORTH CAROLINA			
DESIGNED BY: J.A.L.	CHECKED BY: M.A.M.		
PREPARED BY:	INVITATION NO DACW54-83-B-0014	SIZE	DRAWING NUMBER BR104-06-17 / PLATE NO S-49
PRINCIPAL OF FIRM HNTB	SCALE AS NOTED	DATE 22 JULY 1983	SHEET 99 OF 126

CORPS OF ENGINEERS

U. S. ARMY

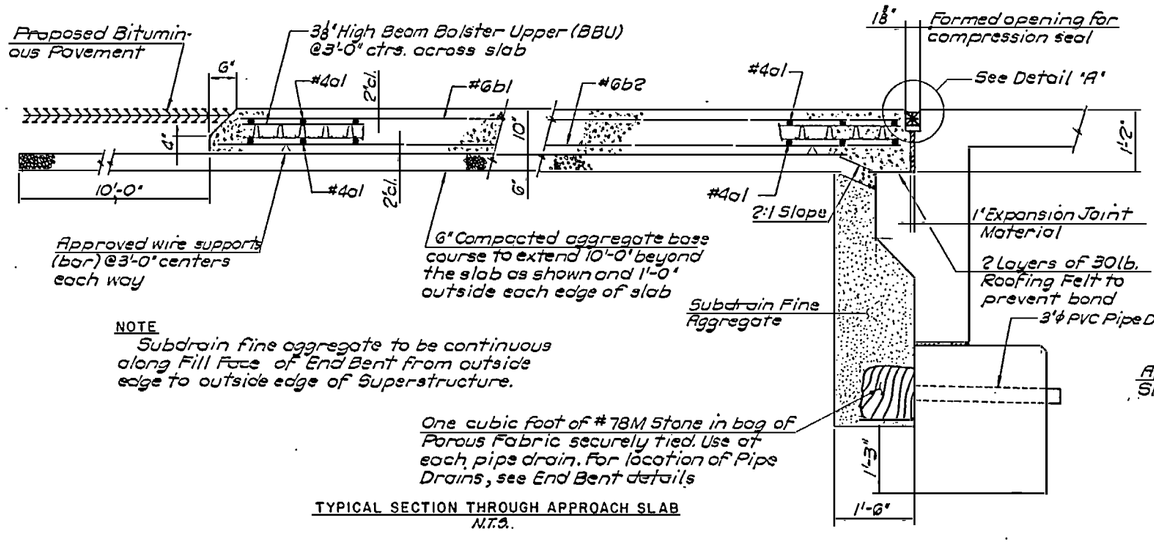
N.C. STATE AID PROJECT NO.			
FEDERAL AID PROJECT NO.			FED RD CIV NO



NORTH SLAB

SOUTH SLAB

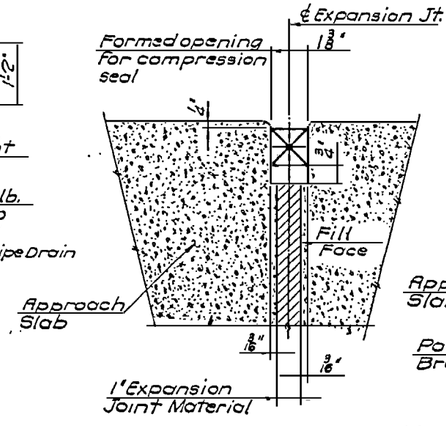
APPROACH SLAB PLANS
N.T.S.



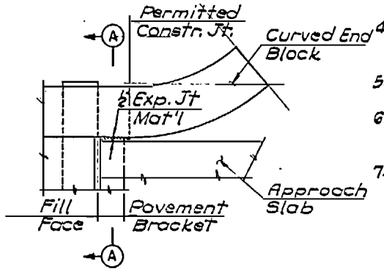
NOTE
Subdrain fine aggregate to be continuous along Fill Face of End Bent from outside edge to outside edge of Superstructure.

One cubic foot of #78M Stone in bag of Porous Fabric securely tied. Use at each pipe drain. For location of Pipe Drains, see End Bent details

TYPICAL SECTION THROUGH APPROACH SLAB
N.T.S.



DETAIL "A"
N.T.S.



SECTION A - A

DETAIL OF EXPANSION JOINT MATERIAL BETWEEN APPROACH SLAB & CURVED END BLOCK
N.T.S.

NOTE (QUANTITIES)
Approximate quantities shown are for two complete Approach Slabs and are given for the convenience of the bidder. Payment for Approach Slabs shall made for under lump sum item Bridge Approach Slabs.

APPROXIMATE QUANTITIES		
ITEM	UNIT	QUANTITY
REINFORCING STEEL	Lbs.	7900
CLASS AA CONCRETE	Cu. Yds.	375

NOTES
1) The Contractor, at his option, may use 4" Bituminous Concrete Base Course, Type HB in lieu of 6" Aggregate Base Course. Any additional cost due to use of the option will be paid for by the Contractor.
2) For preformed Compression Joint Seal, see Technical Provisions.
3) Preformed Compression Joint Seal shall be paid for at the contract Lump Sum price bid.
4) Opening shown is based on a nominal uncompressed seal width of 2".
5) The installed compression seal shall be watertight.
6) Provide watertight seal at end of compression seal as recommended by Manufacturer.
7) Compression seal extends from gutter to gutter along bridge deck notch.

RECORD DRAWING

DESIGNED BY: JAL	CHECKED BY: MAM
PREPARED BY:	
PRINCIPAL OF FIRM HNTB	

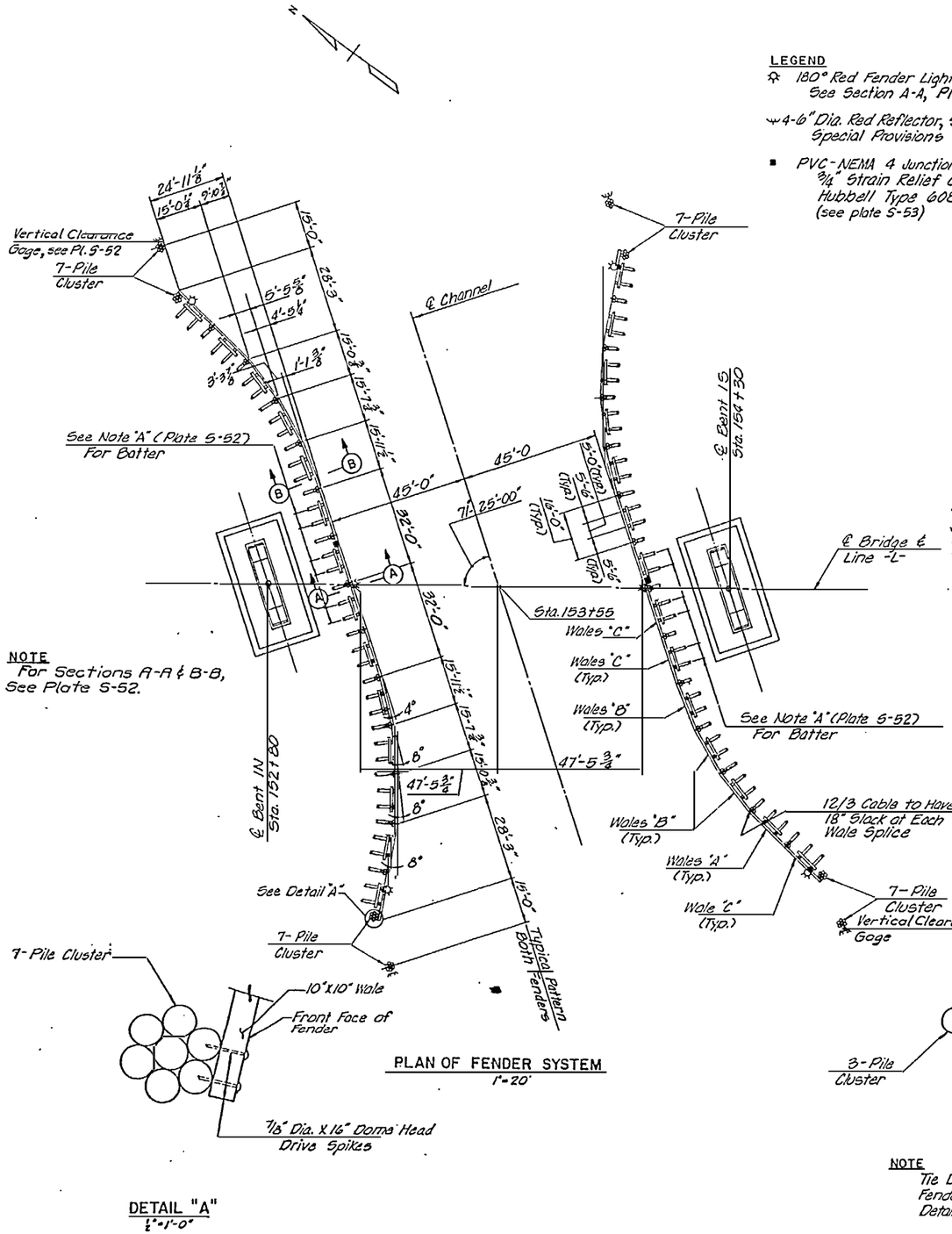
HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U S ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY
SUBSTRUCTURE
APPROACH SLAB DETAILS
COINJOCK BRIDGE REPLACEMENT PROJECT
CURRITUCK COUNTY NORTH CAROLINA

INVITATION NO.	SIZE	DRAWING NUMBER	PLATE NO.
DACW54-83-B-0014		BR104-06-17	S-50
SCALE AS NOTED	DATE 22 JULY 1983	SHEET 100 OF 126	

NC STATE AID PROJECT NO			
FEDERAL AID PROJECT NO.			FED NO DIV NO

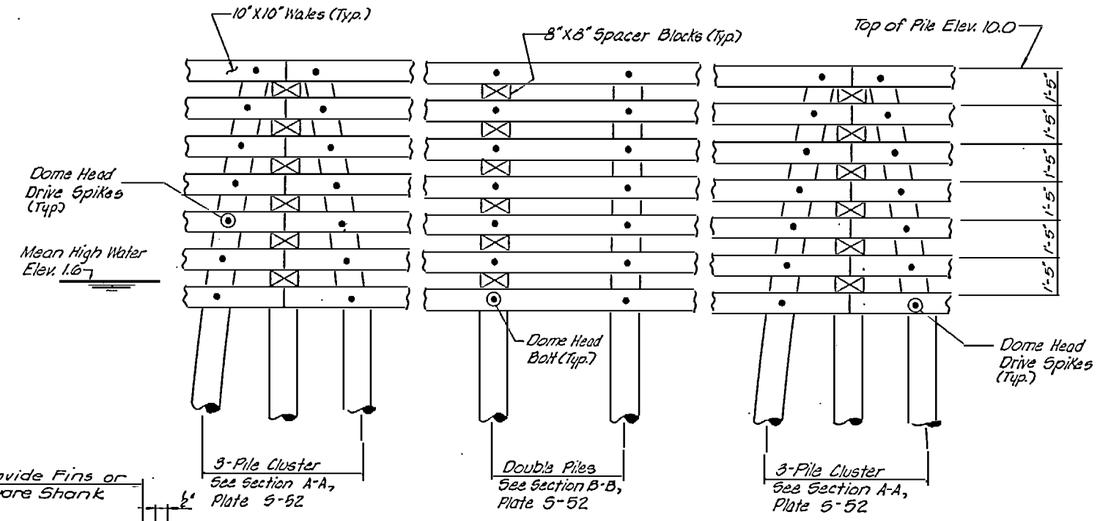


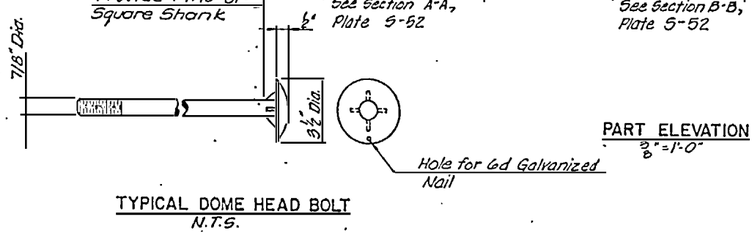
NOTE
For Sections A-A & B-B, See Plate 5-52.

PLAN OF FENDER SYSTEM
1"=20'

DETAIL "A"
½"=1'-0"

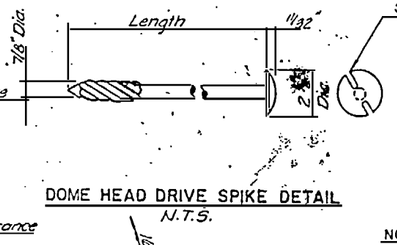
LEGEND
☼ 180° Red Fender Light See Section A-A, Plate 5-52
⊕ 4-6" Dia. Red Reflector, See Special Provisions
■ PVC-NEMA 4 Junction Box With ¾" Strain Relief Connectors, Hubbell Type 6081 or Equal. (see plate 5-53)



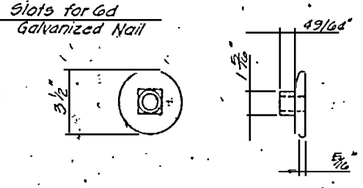


PART ELEVATION
3"=1'-0"

TYPICAL DOME HEAD BOLT
N.T.S.



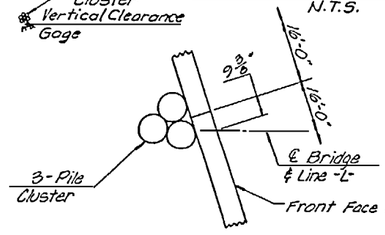
DOME HEAD DRIVE SPIKE DETAIL
N.T.S.



WASHER NUT DETAIL
N.T.S.

NOTES
Washer Nut as detailed above or equal, may be used in lieu of standard nut and washer.

NOTE
Cut and sawn surfaces and ends of Treated Piles and Timbers shall be treated in accordance with Section 450-8(B) of N.C.D.O.T. Standard Specifications. All exposed pile ends shall be capped with approved flashing material in accordance with Section 450-8(B) of the N.C.D.O.T. Standard Specifications.



GEOMETRY TIE DETAIL
⅜"=1'-0"

NOTE
Tie Detail Shown For North Fender System, South Tie Detail Similar by Rotation.

NOTE
Minimum Pile Tip Elevation for all Piles in Fender System Shall be Elev. -35.00.

NOTES
1) All Hardware Shall be Galvanized, All Nuts, Bolts Washers, and Spikes Shall be as Manufactured by Lewis Bolt and Nut Co. or Approved Equal.
2) Lengths of Bolts are Based on 13" Diameter Piles and are approximate Only. The Contractor Shall Determine Exact Lengths in the Field.
3) All Ends of Cables to be Secured With Three Standard Cable Clamps at 4½" Minimum Spacing.
4) 3/4" Dia. Cable Shall be in Accordance With ASTM A475, 19 Strand, Common Grade, Class A Zinc Coated Steel Wire Strand.
5) Piles Shall be Min. 12" Dia. Creosoted Treated Piles See Plate 5-52, for Additional Details
6) For Navigation Lighting Details, see Plate 5-53.

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA	U.S. ARMY ENGINEER DISTRICT WILMINGTON CORPS OF ENGINEERS WILMINGTON NORTH CAROLINA	

ATLANTIC INTRACOASTAL WATERWAY

FENDER SYSTEM DETAILS-1

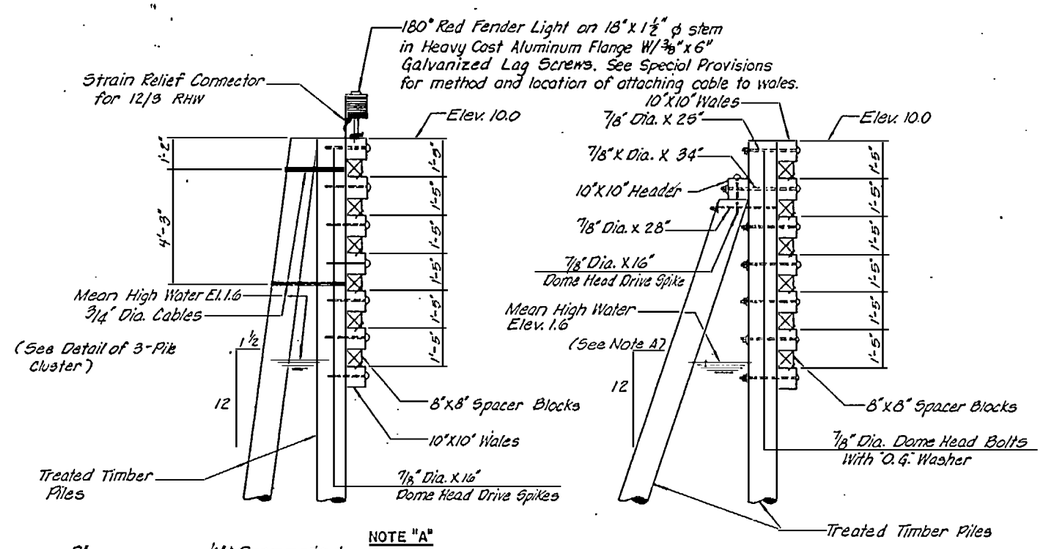
COINJOCK BRIDGE REPLACEMENT PROJECT

CURRITUCK COUNTY NORTH CAROLINA

RECORD DRAWING

DESIGNED BY: B.T.G.	CHECKED BY: M.A.M.			
PREPARED BY:	INVITATION NO. DACW54-83-B-0014	SIZE	DRAWING NUMBER BR104-06-17	PLATE NO S-51
PRINCIPAL OF FIRM HNTB	SCALE AS NOTED	DATE 22 JULY 1983	SHEET 101 OF 126	

N.C. STATE AID PROJECT NO.		
FEDERAL AID PROJECT NO.		FED. AID PROJ. NO.



NOTE "A"

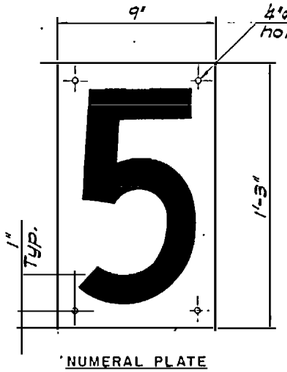
Piles Adjacent to Cofferdams for Bents 1N and 19 Shall be Driven at 3 on 12, See Plan on Plate 5-51 at Other Locations, Piles Shall be Driven at 4 on 12.

SECTION A-A

⅜"=1'-0"

SECTION B-B

⅜"=1'-0"

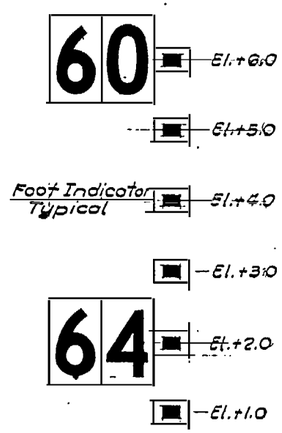


NUMERAL PLATE

GRAPHIC SCALE

NOTES:

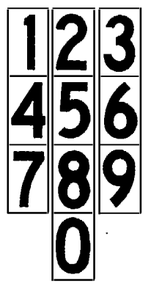
1. Gage Strip and Numeral Plates shall be 14 Gage (0.063 in.) Aluminum meeting ASTM-B209, Alloy 6061-16.
2. Numerals shall be one digit per plate with black numbers on white background.
3. The plates shall be secured using standard corrosion resistant fasteners having a minimum diameter of 3/16 inch along with backing washers. Washers will be for round columns only.
4. Numerals shall be in accordance with U.S. Department of Transportation Federal Highway Administration "Standard Alphabets for Highway Signs," Series "C".
5. Gages to be installed on 7 pile clusters as shown on Plate S-51.
6. Gages to be installed such that clearance is referenced to a point at El. +66.0.
7. Markings to extend from El. +6.0 down to El. +1.0.
8. Contractor shall provide corrosion resistant spacers or mounting frame to aid in installation.
9. Gage strips shall be at one (1) foot increments.
10. Number markings shall be at 4 foot increments.
11. The visible side of the gage strip and numeral plates shall receive two coats of porcelain enamel having a minimum total thickness of 0.007 inches.
12. Payment for gages will be made as part of the lump sum price for bridge.



GAGE ELEVATION

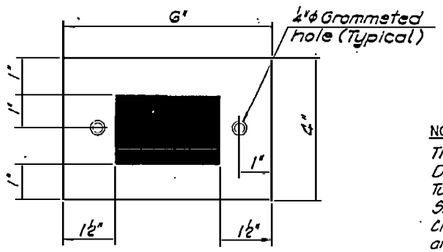
GRAPHIC SCALE

VERTICAL CLEARANCE GAGE DETAILS



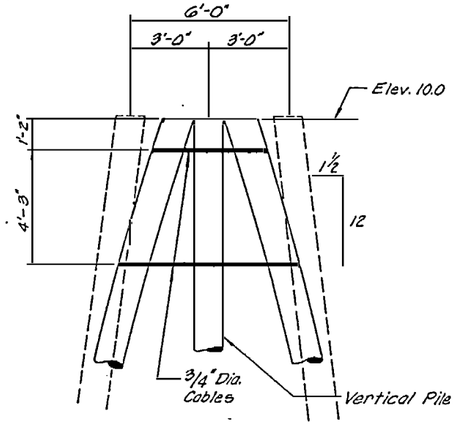
NUMERALS

GRAPHIC SCALE

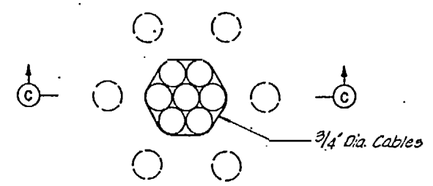


FOOT INDICATOR

GRAPHIC SCALE



SECTION C-C

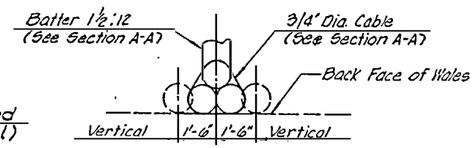


DETAIL OF 7-PILE CLUSTER

⅜"=1'-0"

NOTES

Six Outside Piles to be Equally Spaced on a 6'-0" Diameter Circle, Drawn Together at top and Wrapped With Three Turns of ¾" Dia. Cable at two Points. Cable Shall be Secured With ⅜" □ Staples and Clamps. Cables and Fastenings to be Galvanized and Included as Hardware. Batter Six Exterior Piles 1½:12. The Center Pile is to be Driven Vertical.



DETAIL OF 3-PILE CLUSTER

⅜"=1'-0"

NOTES

Three Piles to be Driven as Shown, Drawn Together at top and Wrapped With Three Turns of ¾" Dia. Cable at two Points. Cable Shall be Secured With ⅜" □ Staples and Cable Clamps. Cables and Fastenings to be Galvanized and Included as Hardware. Two Piles to be Driven Vertical; one Pile to be Battered as Shown.

NOTE

Quantities Shown are Approximate and are for Information Only. The Cost of all Items Except Piles Shall be Included in the Lump Sum Item Fender System Complete (Excluding Piles). Payment for Piles Shall be Made Under Treated Timber Piles (Fender System).

APPROXIMATE QUANTIES FOR ONE FENDER
(TWO REQUIRED)

TREATED TIMBER

ITEM	NO.	SIZE	SURFACE TO	LENGTH	M.B.F
WALES	98	10X10	S4S 9⅞" X 9⅞"	16'-0"	13.067
HEADERS	14	10X10	S4S 9⅞" X 9⅞"	7'-0"	817
SPACERS	174	8X8	S4S 7½" X 7½"	1'-0"	.928

TOTAL TREATED TIMBER = 14.812 M.B.F.

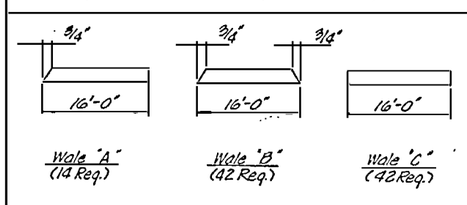
TREATED TIMBER PILES = No. 123 Lin.Ft. 6,857

HARDWARE

ITEM	NO.	SIZE	LENGTH	WEIGHT
DOME HEAD BOLTS	185	⅞" DIA.	25"	925
" " "	35	⅞" "	28"	193
" " "	35	⅞" "	34"	230
O.G. WASHERS	255	⅞" "		383
DOME HEAD DRIVE SPIKES	270	⅞" "	16"	810
CABLE		¾" "	1400'-0"	1400
CABLE CLAMPS	204			153
STAPLES	400	⅜" □		200
NAILS	800	6d		5
"	400	16d		8

TOTAL HARDWARE = 4307 lbs.

WALE CUTTING DIAGRAM
(FOR ONE FENDER - TWO REQUIRED)



NOTE

For Location of Sections "A-A" and "B-B", See Plate S-51.

RECORD DRAWING

DESIGNED BY: B.T.G.	CHECKED BY: M.A.M.	HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA
PREPARED BY:		U S ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA
PRINCIPAL OF FIRM HNTB		

ATLANTIC INTRACOASTAL WATERWAY

FENDER SYSTEM DETAILS-2

COINJOCK BRIDGE REPLACEMENT PROJECT

CURRITUCK COUNTY NORTH CAROLINA

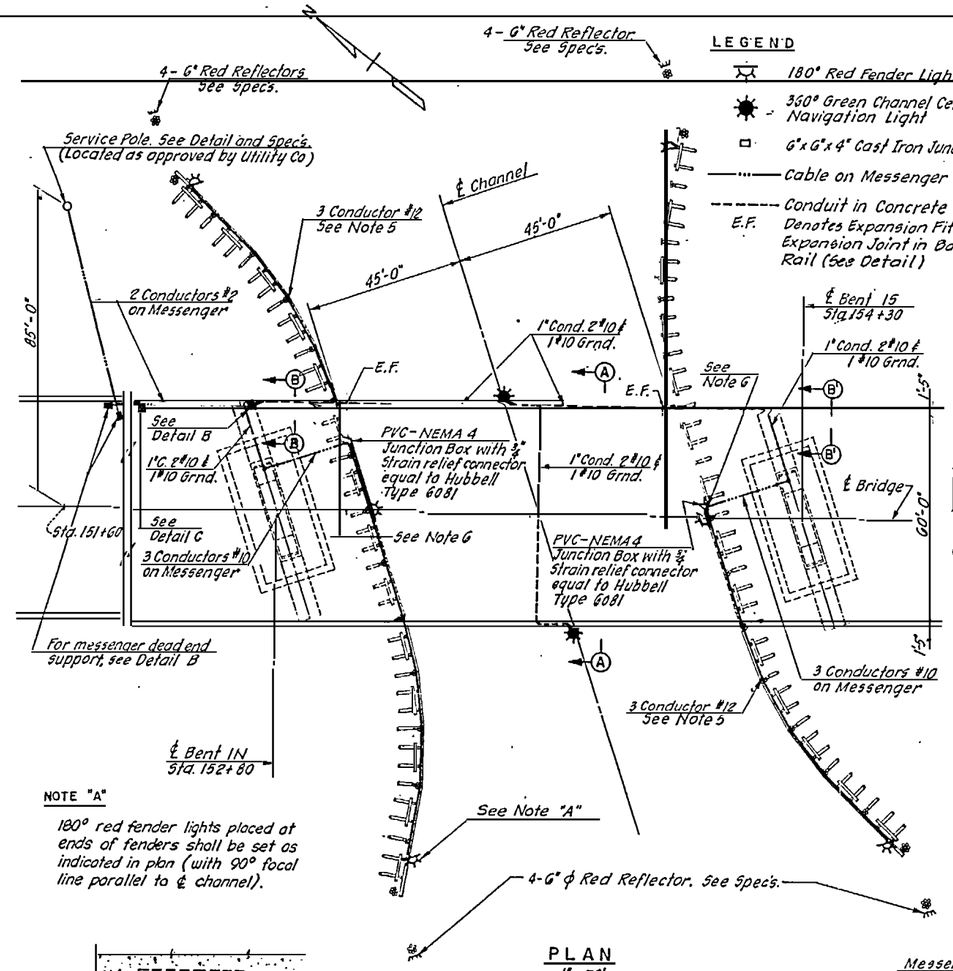
INVITATION NO.	SIZE	DRAWING NUMBER	PLATE NO.
DACW54-83-B-0014		BR104-06-17	S-52
SCALE AS NOTED	DATE 22 JULY 1983	SHEET 102 OF 126	

CORPS OF ENGINEERS

U. S. ARMY

N.C. STATE AID PROJECT NO

FEDERAL AID PROJECT NO | FED RD DIV NO



LEGEND

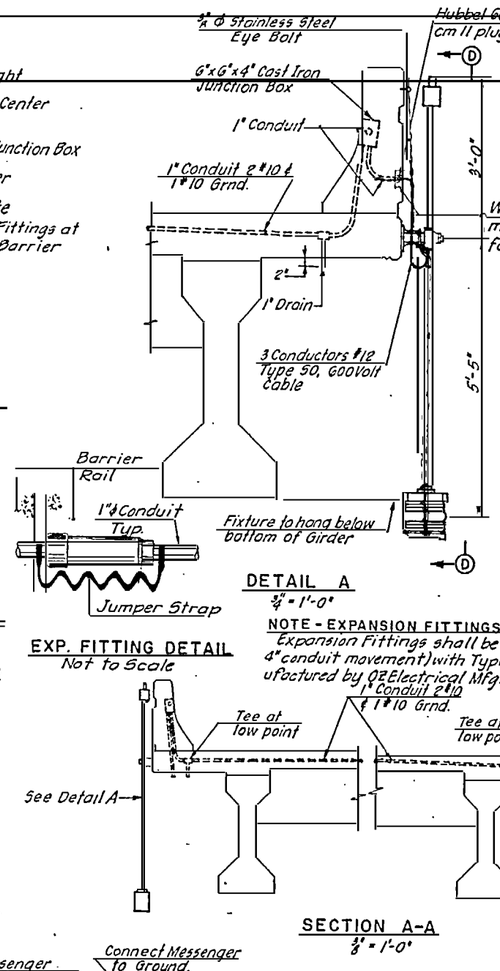
- 180° Red Fender Light
- 360° Green Channel Center Navigation Light
- 6"x6"x4" Cast Iron Junction Box
- Cable on Messenger
- Conduit in Concrete
- E.F. Denotes Expansion Fittings at Expansion Joint in Barrier Rail (See Detail)

NOTE "A"

180° red fender lights placed at ends of fenders shall be set as indicated in plan (with 90° focal line parallel to ℄ channel).

PLAN

1" = 20'



DETAIL A

¾" = 1'-0"

EXP. FITTING DETAIL

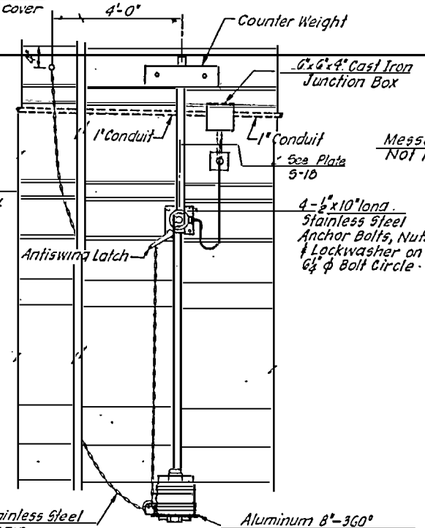
Not to Scale

NOTE - EXPANSION FITTINGS

Expansion Fittings shall be "O-2" Type "AX" (providing 4" conduit movement) with Type "BJ" Jumper Straps as manufactured by OZ Electrical Mfg. Co., Brooklyn, N.Y.

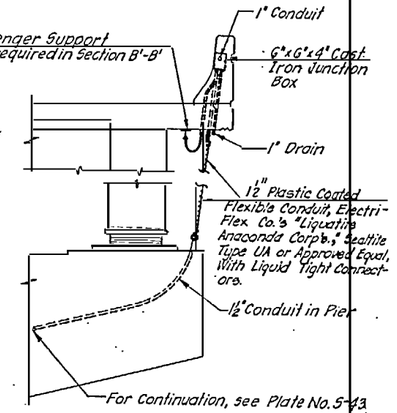
SECTION A-A

¾" = 1'-0"



SECTION D-D

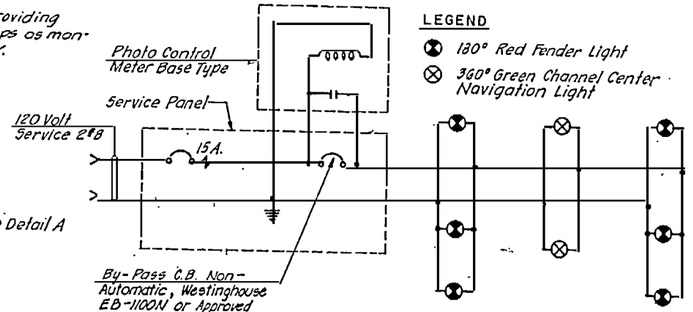
¾" = 1'-0"



SECTION B-B

SECTION B'-B'

¾" = 1'-0"

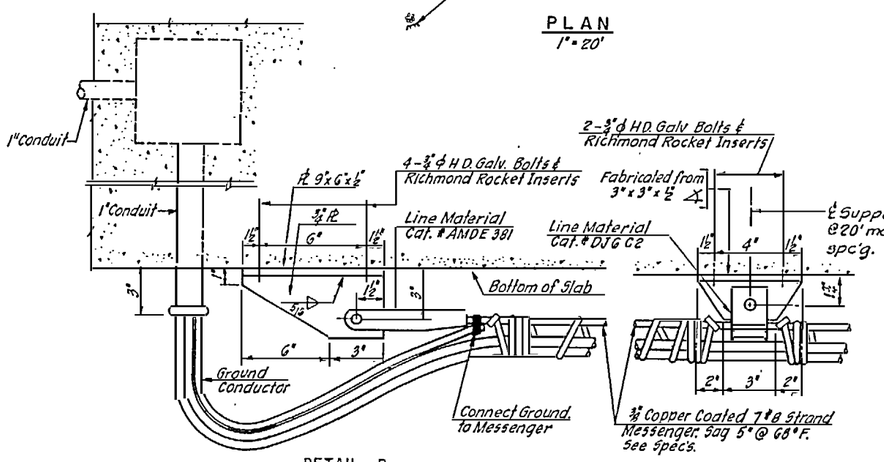


LEGEND

- 180° Red Fender Light
- 360° Green Channel Center Navigation Light

WIRING DIAGRAM

Not to Scale



DETAIL B

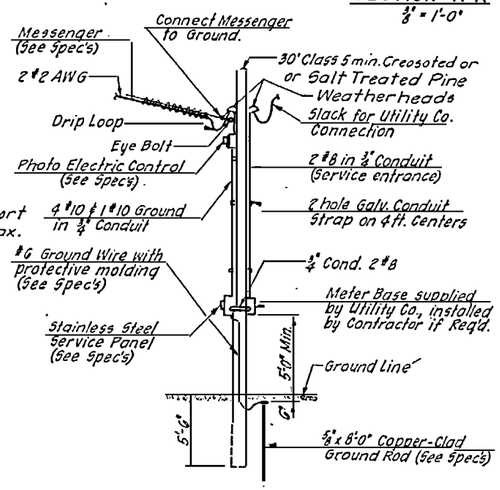
MESSENGER DEAD END SUPPORT

DETAIL C

MESSENGER INTERMEDIATE SUPPORT

INCOMING POWER CABLE INSTALLATION DETAIL

Not to Scale



SERVICE POLE

Not to Scale

NOTES

1. The navigation lighting shall be installed to conform to the following:
   a) Standard Specifications for Road and Bridge Construction, N.C. Department of Transportation.
   b) Current edition of the National Electric Code (1981).
   c) Federal Regulation Title 33, Part 8.
2. The Ground Conductor and all non-current carrying parts of the Navigation lighting system shall be connected to the service pole ground system via messenger cables.
3. Drains shall be installed in all junction boxes. Conduits should be connected to boxes with threaded hubs or approved threaded hub fittings.
4. All conduits should be heavy wall Hot Dipped Galvanized.
5. Wiring on fenders shall be 3 conductor #12 Cable. Fastened with approved clamps and stainless steel nails, on 18" centers. 18 inches of slack shall be provided at all wale splices.
6. Install eye bolt on wale for messenger cable.
7. See Plate No. 5-52 for fender lighting installation.
8. Wire splicing shall only be permitted in fully accessable junction boxes.
9. Manufactured items shown on this drawing may be substituted for with approved equals.

INDICATOR LIGHT

Not to Scale

NOTES - INDICATOR LIGHT

1. An Indicator Light shall be provided for each circuit and mounted on panel cover.
2. Indicator Light shall be a "Dialco" Cat. No. 95-0410-09-031 with stovepipe transparent lens as manufactured by Dialight Corp., Brooklyn, N.Y.
3. One spare light shall be supplied and stored in the service panel.

RECORD DRAWING

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY

NAVIGATION LIGHTING

COINJOCK BRIDGE REPLACEMENT PROJECT

CURRITUCK COUNTY NORTH CAROLINA

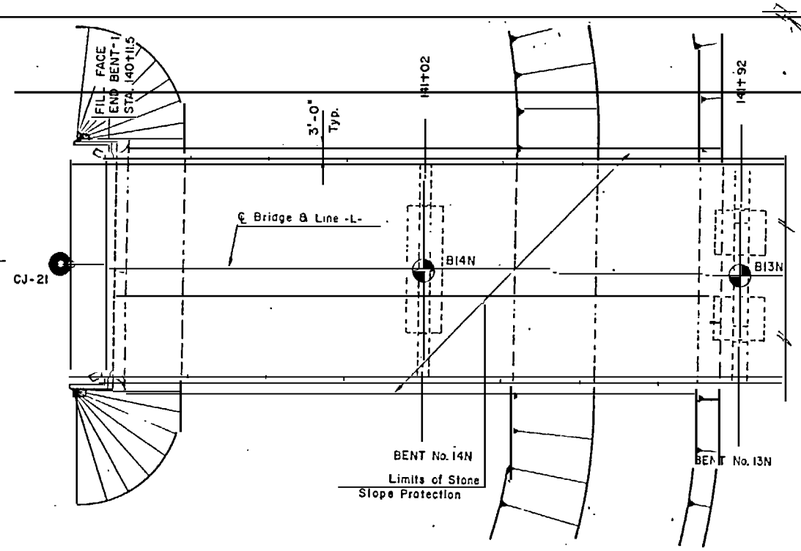
DESIGNED BY: P.G.P.	CHECKED BY: R.G.P.	INVITATION NO.	SIZE	DRAWING NUMBER	PLATE NO.
PREPARED BY:				BRI04-06-17	S-53
PRINCIPAL OF FIRM HNTB		SCALE AS NOTED	DATE 22 JULY 1983	SHEET 103 OF 126	

CORPS OF ENGINEERS

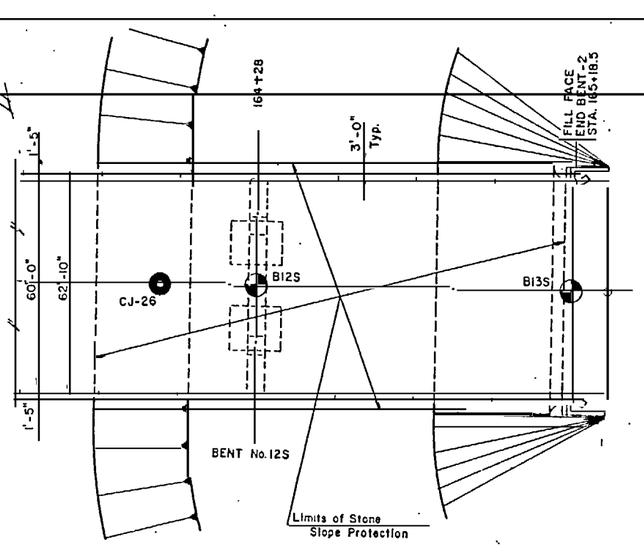
U. S. ARMY

N.C. STATE AID PROJECT NO.

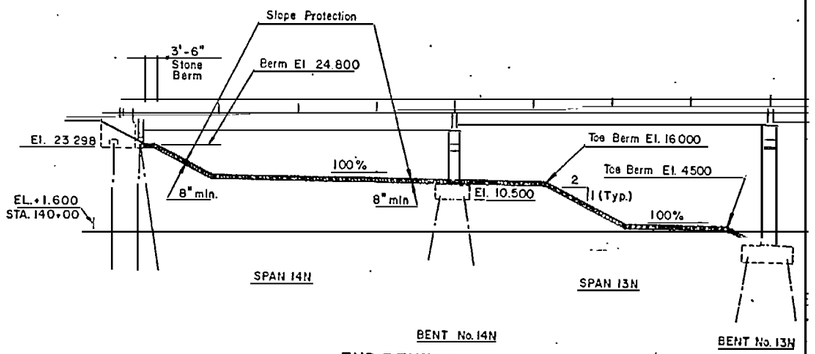
FEDERAL AID PROJECT NO. | FED. RD. DIV. NO.



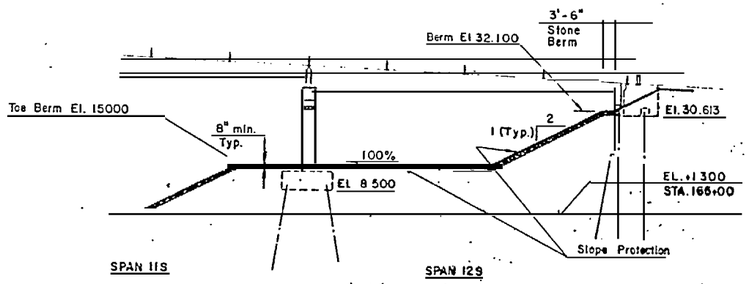
END BENT - 1



END BENT - 2



END BENT - 1



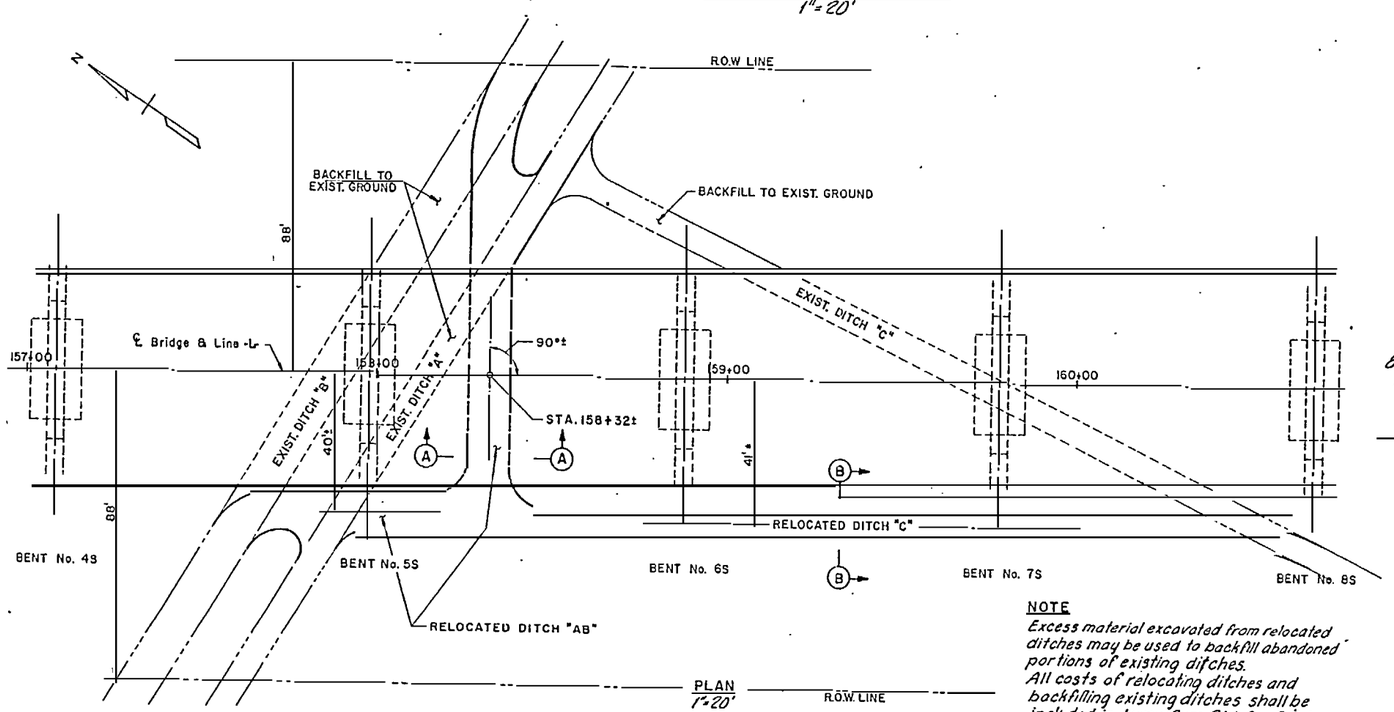
END BENT - 2

ELEVATION SLOPE PROTECTION

1"=20'

PLAN SLOPE PROTECTION

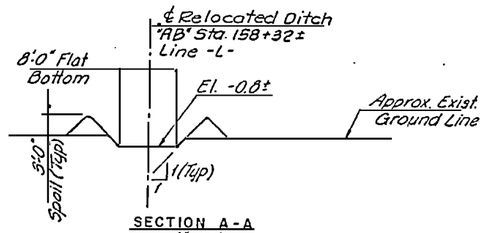
1"=20'

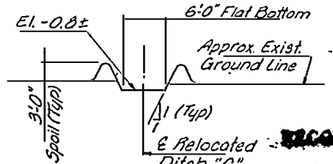


DITCH RELOCATION DETAILS

NOTE

Excess material excavated from relocated ditches may be used to backfill abandoned portions of existing ditches. All costs of relocating ditches and backfilling existing ditches shall be included in Lump Sum Bid for Bridge.





APPROX. QUANTITIES	
LOCATION	SQ. YDS.
END BENT 1	1380
END BENT 2	1149

SLOPE PROTECTION NOTES:

For Requirements of Subgrading, Stone Type, Stone Sizing and Herbicide Protection, see Special Provisions. Stone Slope Protection shall have a minimum uniform thickness of 8".

RECORD DRAWING

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY

SUBSTRUCTURE

STONE SLOPE PROTECTION DETAILS

COINJOCK BRIDGE REPLACEMENT PROJECT

CURRITUCK COUNTY NORTH CAROLINA

DESIGNED BY: M.A.M.	CHECKED BY: J.F.W.
PREPARED BY:	
PRINCIPAL OF FIRM HNTB	

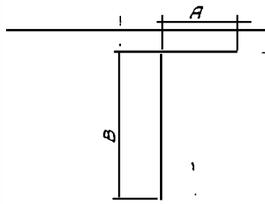
INVITATION NO.	SIZE	DRAWING NUMBER	PLATE NO.
DACW54-83-B-0014		BR104-06-17	S-54
SCALE AS NOTED	DATE 22 JULY 1983	SHEET 104 OF 126	

CORPS OF ENGINEERS

U. S. ARMY

N.C. STATE AID PROJECT NO.

FEDERAL AID PROJECT NO. | FED. RD. DIV. NO.



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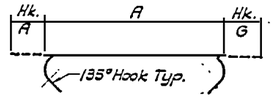

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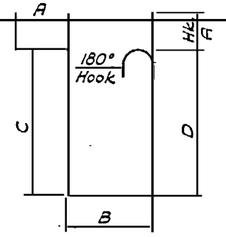

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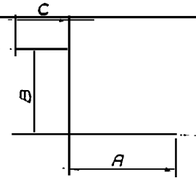

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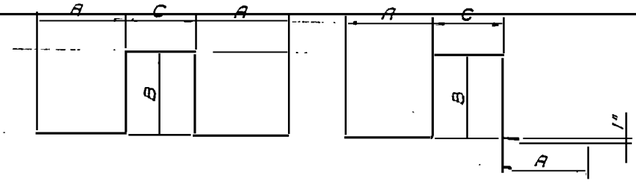
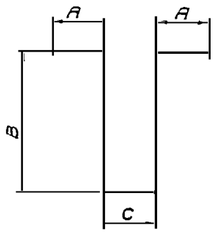


TYPE 5

TYPE 6



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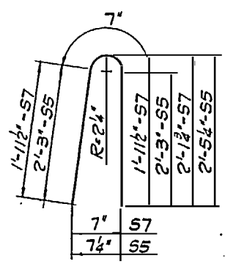

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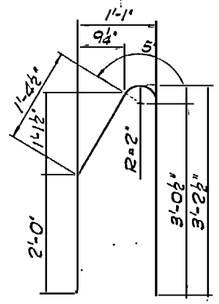

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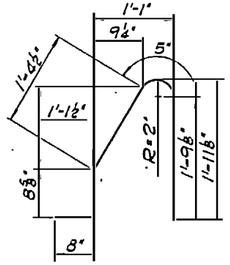

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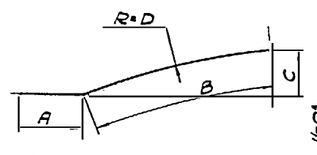

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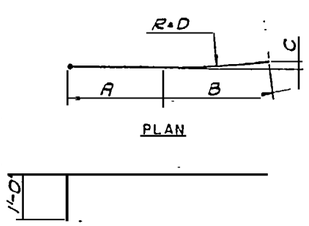

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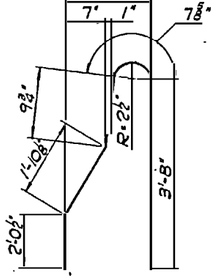

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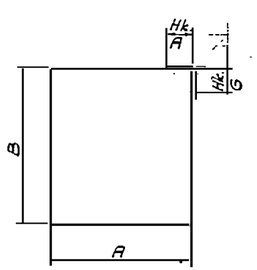

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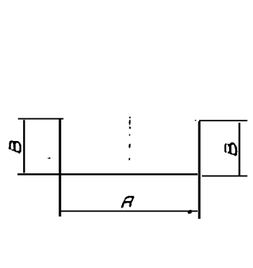

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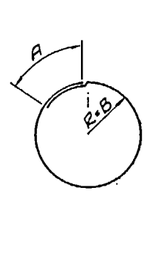

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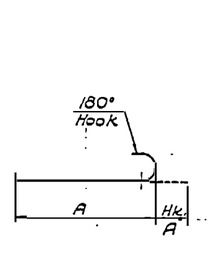

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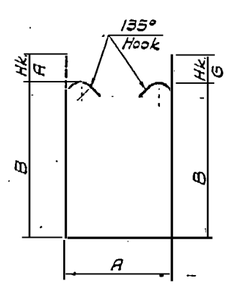

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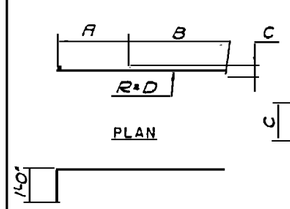

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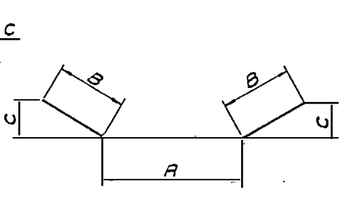

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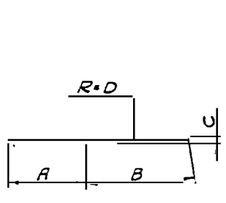

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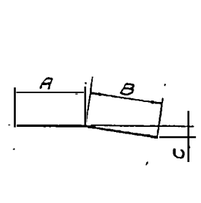

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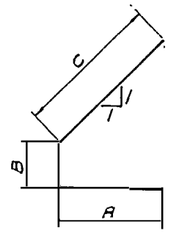

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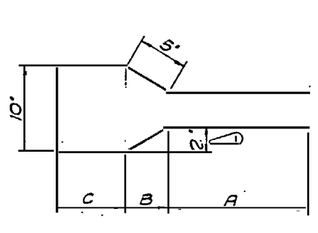
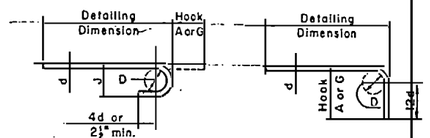


TYPE 24

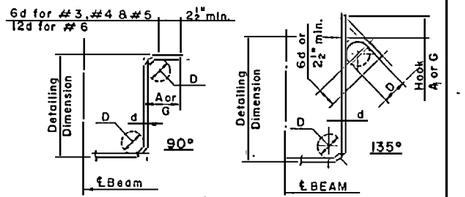
NOTES

1.) Unless otherwise noted, all dimensions are out to out.
2.) All radii are to inside of bar.
3.) Legend for bar mark system is shown on Plate S-55.

STANDARD BAR DETAILS



BAR SIZE	WEIGHT Lbs./Ft.	APPROX. DIAMETER	NOMINAL DIAMETER	END HOOKS 180° HOOK A or G	END HOOKS 180° d	END HOOKS 90° HOOK A or G
#3	0.376	7/16"	0.375	5"	3"	6"
#4	0.668	9/16"	0.500	6"	4"	8"
#5	1.043	11/16"	0.625	7"	5"	10"
#6	1.502	13/16"	0.750	8"	6"	1'-0"
#7	2.044	1"	0.875	10"	7"	1'-2"
#8	2.670	1⅛"	1.000	11"	8"	1'-4"
#9	3.400	1¼"	1.1128	1'-3"	11¼"	1'-7"
#10	4.303	1 3/16"	1.270	1'-5"	1'-0¾"	1'-10"
#11	5.313	1⅜"	1.410	1'-7"	1'-2¼"	2'-0"
#14	7.650	1⅝"	1.693	2'-3"	1'-6½"	2'-7"
#18	13.600	2¼"	2.257	3'-0"	2'-3"	3'-5"



D = 4d for #5 & Smaller
D = 5d for #6 to #8

BAR SIZE	D (in.)	STIRRUP or TIE 90° HOOK A or G	STIRRUP or TIE 135° HOOK A or G
#3	1½"	4"	4"
#4	2"	4½"	4½"
#5	2½"	6"	5½"
#6	4½"	1'-0"	7¾"

RECORD DRAWING

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY

BAR BENDING DIAGRAMS

COINJOCK BRIDGE REPLACEMENT PROJECT

CURRITUCK COUNTY NORTH CAROLINA

DESIGNED BY:	CHECKED BY:
J.A.L.	M.A.M.

PREPARED BY

PRINCIPAL OF FIRM HNTB

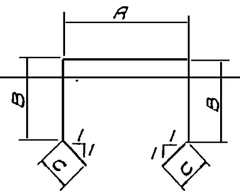
INVITATION NO.	SIZE	DRAWING NUMBER	PLATE NO.
DACW54-83-B-0014		BR104-06-17	S-55

SCALE NONE | DATE 22 JULY 1983. | SHEET 105 OF 126

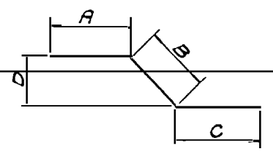
CORPS OF ENGINEERS

U. S. ARMY

N.C. STATE AID PROJECT NO.		
FEDERAL AID PROJECT NO.		FED RD DIV NO.



TYPE 25



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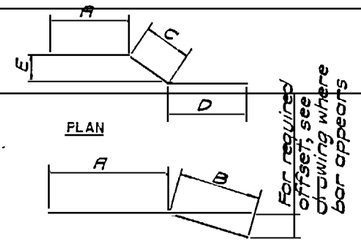

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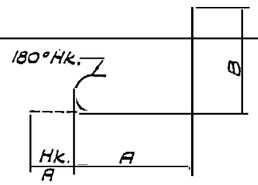
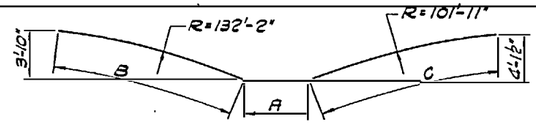
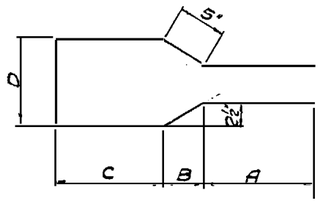


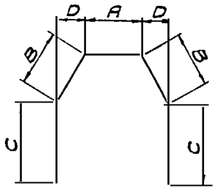
TYPE 28



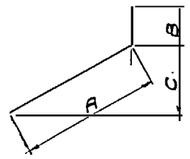
TYPE 29



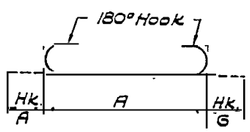
TYPE 30



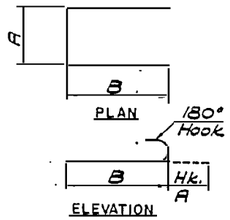
TYPE 31



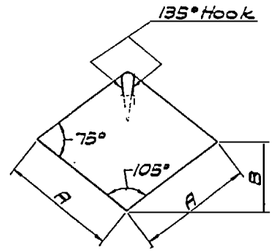
TYPE 32



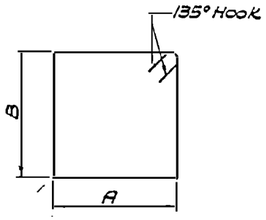
TYPE 33



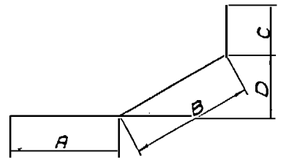
TYPE 34



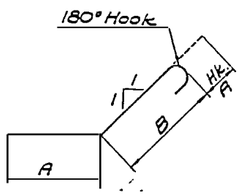
TYPE 35



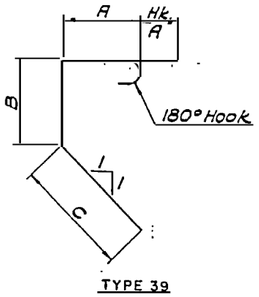
TYPE 36



TYPE 37

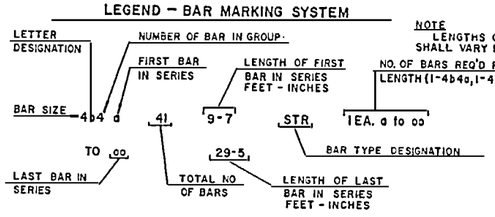


TYPE 38



TYPE 39

LEGEND – BAR MARKING SYSTEM



NOTE
LENGTHS OF BARS IN A SERIES, SHALL VARY IN EQUAL INCREMENTS.

RECORD DRAWING

DESIGNED BY: J.A.L.	CHECKED BY: M.A.M.

PREPARED BY

PRINCIPAL OF FIRM HNTB

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY

BAR BENDING DIAGRAMS

COINJOCK BRIDGE REPLACEMENT PROJECT

CURRITUCK COUNTY NORTH CAROLINA

INVITATION NO.	SIZE	DRAWING NUMBER	PLATE NO.
DACW54-83-B-0014		BR104-06-17	S-56
SCALE NONE	DATE 22 JULY 1983	SHEET 106 OF 126	

AP 13040

CORPS OF ENGINEERS

U. S. ARMY

SUPERSTRUCTURE

SPAN 14N-SLAB

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
5a1	39	31-11	STR					
5a2	19	27-11	STR					
5a3	19	35-11	22	31- 2	4- 9	0- 2 1/2		
4b1	5	6- 3	1	1- 3	5- 0			
4b2	17	23- 6	STR					
5b3	13	45- 9	STR					
5b4	6	22- 5	STR					
4k1	4	22- 0	STR					
4k2	6	23- 6	STR					
4k3	5	18- 0	22	9- 0	9- 0	0- 4 1/2		
4k4	1	6- 0	22	3- 0	3- 0	0- 1 1/2		
4k5	2	7- 0	22	3- 6	3- 6	0- 1 3/4		
4k6	1	6- 6	22	3- 3	3- 3	0- 1 5/8		
4k7	6	6- 0	STR					
4k8	12	7- 0	STR					
4k9	6	6- 6	STR					
4k10	2	2- 3	STR					
4k11	6	2- 9	STR					
4k12	2	2- 6	STR					
6k13	2	2- 0	STR					
6k14	2	22-10	STR					
6k15	1	18- 0	22	9- 0	9- 0	0- 4 1/2		
6k16	1	5- 6	22	2- 9	2- 9	0- 1 3/8		
8k17	8	7- 9	4	4- 0	2- 1 1/4	1- 8		
8k18	16	15- 0	5	5- 0	2- 1 1/4	2- 9		
8k19	8	15- 0	6	4- 0	2- 1 1/4	2- 9		
5k20	14	6- 0	STR					
5k21	14	7- 6	20	5- 6	1- 0	0- 8 1/2		
6k22	6	5- 6	STR					
4s1	44	4- 9	39	1- 5	0-11	2- 0		
5s2	42	6-10	3	1- 0	0- 7	2- 4	2- 4	
4s3	42	7- 3	14	0- 5	2-10			
5s4	186	4-11	10					SEE BAR TYPE
5s5	186	5- 1	8					SEE BAR TYPE
5s6	4	6-10	9					SEE BAR TYPE
3s7	4	4- 6	8					SEE BAR TYPE

SPANS 13N THRU 3N-SLAB

5a1	388	31-11	STR					
5a2	194	27-11	STR					
5a3	194	35-11	22	31- 2	4- 9	0- 2 1/2		
4b2	172	23- 3	STR					
5b3	180	45- 6	STR					
5b4	44	22- 2	STR					
8k17	8	7- 9	4	4- 0	2- 1 1/4	1- 8		
8k18	16	15- 0	5	4- 0	2- 1 1/4	2- 9		
8k19	8	15- 0	6	4- 0	2- 1 1/4	2- 9		
5k20	14	6- 0	STR					
5k21	14	7- 6	20	5- 6	1- 0	0- 8 1/2		
5s2	84	6-10	3	1- 0	0- 7	2- 4	2- 4	
4s3	42	7- 3	14	0- 5	2-10			
5s4	184	4-11	10					SEE BAR TYPE
5s5	184	5- 1	8					SEE BAR TYPE

SPAN 2N-SLAB

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
5a1	295	31-11	STR					
5a2	148	27-11	STR					
5a3	148	35-11	22	31- 2	4- 9	0- 2 1/2		
5a4	42	39-11	22	31- 2	28- 9	1- 2 3/8		2 EA = TO u
TO u		32- 2		31- 2	1- 0	0- 1 1/2		
5a5 v	9	31- 2	STR					2 EA = TO t
TO t		20- 4						
5a6	1	33- 8	STR					
5a7	1	32- 6	STR					
5a8	2	19- 3	STR					
5a9	2	17- 7	STR					
5a10	2	18- 3	STR					
5a11	2	14- 9	STR					
5a12	2	14- 8	STR					
5a13	2	14- 6	STR					
5a14	2	13- 6	STR					
5a15	2	9- 8	STR					
5a16	2	9- 9	STR					
5a17	2	9-10	STR					
5a18	2	9-11	STR					
5a19	2	10- 0	STR					
5a20	2	10- 1	STR					
5a21	2	10- 2	STR					
4b2	84	30- 0	STR					
5b3	78	46- 0	STR					
4b4 s	41	9- 9	STR					1 EA = TO oo
TO oo		29- 7						
5b5 s	9	24- 1	STR					1 EA = TO i
TO i		25-11						
5b6 s	9	26-10	STR					1 EA = TO i
TO i		28- 8						
5b7 s	9	29- 6	STR					1 EA = TO i
TO i		31- 4						
5b8 s	9	32- 2	STR					1 EA = TO i
TO i		34- 0						
5b9 s	9	34-10	STR					1 EA = TO i
TO i		36- 8						
5b10 s	9	37- 6	STR					1 EA = TO i
TO i		39- 4						
5b11 s	9	40- 2	STR					1 EA = TO i
TO i		42- 0						
4b12	1	9- 4	STR					
4b13	1	29- 6	STR					
5b14	5	22-11	STR					
5b15	1	23- 3	STR					
5b16	5	43- 0	STR					
5b17	1	42- 9	STR					
5b18	48	21- 9	STR					
5b19	8	23- 7	STR					
8k17	4	7-10	4	4- 0	2- 1 1/4	1- 8		
8k18	8	15- 0	5	4- 0	2- 1 1/4	2- 9		
8k19	4	15- 0	6	4- 0	2- 1 1/4	2- 9		
5k20	14	6- 2	STR					
5k21	14	7- 8	20	5- 8	1- 0	0- 8 1/2		
8k22	4	8- 1	4	4- 3	2- 1 1/4	1- 9		
8k23	12	15- 8	5	4- 3	2- 1 1/4	2-11		
5s2	84	6-11	3	1- 0	0- 7 1/2	2- 4	2- 4	

SPAN 2N-SLAB (CONTINUED)

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
4s3	42	7- 4	14	0- 5 1/2	2-10			
5s4	163	4-11	10					SEE BAR TYPE
5s5	163	5- 1	8					SEE BAR TYPE

SPAN 1N-SLAB

5a1	666	33- 8	STR					
5a2	332	29- 6	STR					
5a3	332	37-11	22	32-11	5- 0	0- 2 1/2		
5a4	2	32- 6	STR					
4b2	129	22- 7	STR					
8b3	123	51- 6	STR					
5b4	123	23- 0	STR					
5b5	72	51- 0	STR					
5b6	78	46-0	STR					
5b7	36	40- 0	STR					
5b8	39	50- 0	STR					
5b9	80	21- 9	STR					
5b10	16	28-11	STR					
5k20	14	6- 2	STR					
5k21	14	7- 8	20	5- 8	1- 0	0- 8 1/2		
8k22	8	7-11	4	4- 0	2- 1 1/4	1-10		
8k23	24	15- 5	5	4- 0	2- 1 1/4	3- 2		
4k24	28	9- 6	STR					
4k25	56	5-10	STR					
5s2	84	6-11	3	1- 0	0- 7 1/2	2- 4	2- 4	
4s3	42	7- 4	14	0- 5 1/2	2-10			
5s4	290	4-11	10					SEE BAR TYPE
5s5	290	5- 1	8					SEE BAR TYPE
4s6	35	8-11	14	0- 9	3- 4			
5s7	42	5- 3	15	0- 7	2- 4			
4s8	6	14-11	14	0- 9 1/2	4- 4			
4s9	12	15- 3	14	0- 9 1/2	6- 6			
4s10	12	15- 9	14	0- 9 1/2	6- 9			
4s11	12	16- 3	14	0- 9 1/2	7- 0			

DROP-IN SPAN - SLAB

5a1	440	33- 8	STR					
5a2	220	29- 6	STR					
5a3	220	37-11	22	32-11	5- 0	0- 2 1/2		
5a4	2	32- 6	STR					
5a5	2	36- 8	22	31- 8	5- 0	0- 2 1/2		
4b2	172	23- 8	STR					
5b3	180	46- 4	STR					
5b4	80	18- 0	STR					
5k20	14	6- 2	STR					
5k21	14	7- 8	20	5- 8	1- 0	0- 8 1/2		
8k22	8	7-11	4	4- 0	2- 1 1/4	1-10		
8k23	24	15- 5	5	4- 0	2- 1 1/4	3- 2		
8k24	8	27- 1	STR					
8k25	4	10- 2	STR					
5s2	84	6-11	3	1- 0	0- 7 1/2	2- 4	2- 4	
4s3	42	7- 4	14	0- 5 1/2	2-10			
5s4	180	4-11	10					SEE BAR TYPE
5s5	180	5- 1	8					SEE BAR TYPE
4s6	84	1- 8	28	0- 5	0- 9			

N.C. STATE AID PROJECT NO.

FEDERAL AID PROJECT NO. | FED. NO. DIV. NO.

NOTE:
FOR BAR BENDING DIAGRAMS, SEE PLATE NUMBERS S-55 AND S-56.

RECORD DRAWING

DESIGNED BY: K.G. | CHECKED BY: M.A.M.

PREPARED BY:

PRINCIPAL OF FIRM HNTB

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U S ARMY ENGINEER DISTRICT WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY

REINFORCING BAR LIST

COINJOCK BRIDGE REPLACEMENT PROJECT

CURRITUCK COUNTY NORTH CAROLINA

INVITATION NO	SIZE	DRAWING NUMBER	PLATE NO.
DACW54-83-B-0014		BR104-06-17	S-57

SCALE NONE | DATE 22 JULY 1983 | SHEET 107 OF 126

AF 19648

CORPS OF ENGINEERS

U. S. ARMY

N.C. STATE AID PROJECT NO

FEDERAL AID PROJECT NO | FED RD DIV NO

SUPERSTRUCTURE

SPAN 1S-SLAB

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
5a1	666	33- 8	STR					
5a2	332	29- 6	STR					
5a3	332	37-11	22	32-11	5- 0	0- 2 1/2		
5a4	2	32- 6	STR					
4b2	129	22- 7	STR					
8b3	123	51- 6	STR					
5b4	123	25- 0	STR					
5b5	72	51- 0	STR					
5b6	78	46- 0	STR					
5b7	36	40- 0	STR					
5b8	39	50- 0	STR					
5b9	80	21- 9	STR					
5b10	16	28-11	STR					
5k20	14	6- 2	STR					
5k21	14	7- 8	20	5- 8	1- 0	0- 8 1/2		
8k22	8	7-11	4	4- 0	2- 1 1/4	1-10		
8k23	24	15- 5	5	4- 0	2- 1 1/4	3- 2		
6k24	28	9- 6	STR					
4k25	56	5-10	STR					
5s2	84	6-11	3	1- 0	0- 7 1/2	2- 4	2- 4	
4s3	42	7- 4	14	0- 5 1/2	2-10			
5s4	290	4-11	10					SEE BAR TYPE
5s5	290	5- 1	8					SEE BAR TYPE
4s6	35	8-11	14	0- 9	3- 4			
5s7	42	5- 3	15	0- 7	2- 4			
4s8	6	14-11	14	0- 9 1/2	6- 4			
4s9	12	15- 3	14	0- 9 1/2	6- 6			
4s10	12	15- 9	14	0- 9 1/2	6- 9			
4s11	12	16- 3	14	0- 9 1/2	7- 0			

SPAN 2S-SLAB

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
5a1	296	31-11	STR					
5a2	148	27-11	STR					
5a3	148	35-11	22	31- 2	4- 9	0- 2 1/2		
5a4 a	42	59-11	22	31- 2	28- 9	1- 2 3/8		2 EA a TO a
TO a		32- 2		31- 2	1- 0	0- 1 1/2		
5a5 a	9	31- 2	STR					2 EA a TO 1
TO 1		20- 4						
5a6	1	33- 8	STR					
5a7	1	32- 6	STR					
5a8	2	19- 3	STR					
5a9	2	17- 7	STR					
5a10	2	18- 3	STR					
5a11	2	14- 9	STR					
5a12	2	14- 8	STR					
5a13	2	14- 6	STR					
5a14	2	13- 6	STR					
5a15	2	9- 8	STR					
5a16	2	9- 9	STR					
5a17	2	9-10	STR					
5a18	2	9-11	STR					
5a19	2	10- 0	STR					
5a20	2	0- 1	STR					
5a21	2	10- 2	STR					
4b2	86	30- 0	STR					

SPAN 2S-SLAB (CONTINUED)

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
5b3	75	46- 0	STR					
4b4 a	41	9- 9	STR					1 EA a TO aa
TO aa		29- 7						
5b5 a	9	24- 1	STR					1 EA a TO 1
TO 1		25-11						
5b6 a	9	26-10	STR					1 EA a TO 1
TO 1		28- 8						
5b7 a	9	29- 6	STR					1 EA a TO 1
TO 1		31- 4						
5b8 a	9	32- 2	STR					1 EA a TO 1
TO 1		34- 0						
5b9 a	9	34-10	STR					1 EA a TO 1
TO 1		36- 8						
5b10 a	9	37- 6	STR					1 EA a TO 1
TO 1		39- 4						
5b11 a	9	40- 2	STR					1 EA a TO 1
TO 1		42- 0						
4b12	1	9- 4	STR					
4b13	1	29- 6	STR					
5b14	5	22-11	STR					
5b15	1	23- 3	STR					
5b16	5	43- 0	STR					
5b17	1	42- 9	STR					
5b18	48	21- 9	STR					
5b19	8	23- 7	STR					
8k17	4	7-10	4	4- 0	2- 1 1/4	1- 8		
8k18	8	15- 0	5	4- 0	2- 1 1/4	2- 9		
8k19	4	15- 0	6	4- 0	2- 1 1/4	2- 9		
5k20	14	6- 2	STR					
5k21	14	7- 8	20	5- 8	1- 0	0- 8 1/2		
8k22	4	8- 1	4	4- 3	2- 1 1/4	1- 9		
8k23	12	15- 8	5	4- 3	2- 1 1/4	2-11		
5s2	84	6-11	3	1- 0	0- 7 1/2	2- 4	2- 4	
4s3	42	7- 4	14	0- 5 1/2	2-10			
5s4	163	4-11	10					SEE BAR TYPE
5s5	163	5- 1	8					SEE BAR TYPE

SPANS 11S THRU 3S-SLAB

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
5a1	388	31-11	STR					
5a2	194	27-11	STR					
5a3	194	35-11	22	31- 2	4- 9	0- 2 1/2		
4b2	172	23- 3	STR					
5b3	150	45- 6	STR					
5b4	64	22- 2	STR					
8k17	8	7- 9	4	4- 0	2- 1 1/4	1- 8		
8k18	16	15- 0	5	4- 0	2- 1 1/4	2- 9		
8k19	8	15- 0	6	4- 0	2- 1 1/4	2- 9		
5k20	14	6- 0	STR					
5k21	14	7- 6	20	5- 6	1- 0	0- 8 1/2		
5s2	84	6-10	3	1- 0	0- 7	2- 4	2- 4	
4s3	42	7- 3	14	0- 5	2-10			
5s4	184	4-11	10					SEE BAR TYPE
5s5	184	5- 1	8					SEE BAR TYPE

SPAN 12S-SLAB

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
5a1	394	31-11	STR					
5a2	197	27-11	STR					
5a3	197	35-11	22	31- 2	4- 9	0- 2 1/2		
4b1	59	6- 3	1	1- 3	5- 0			
4b2	172	23- 8	STR					
5b3	150	45- 8	STR					
5b4	64	22- 5	STR					
4k1	4	22- 0	STR					
4k2	6	23- 6	STR					
4k3	5	18- 0	22	9- 0	9- 0	0- 4 1/2		
4k4	1	6- 0	22	3- 0	3- 0	0- 1 1/2		
4k5	2	7- 0	22	3- 6	3- 6	0- 1 3/4		
4k6	1	6- 6	22	3- 3	3- 3	0- 1 5/8		
4k7	6	6- 0	STR					
4k8	12	7- 0	STR					
4k9	6	6- 6	STR					
4k10	2	2- 3	STR					
4k11	6	2- 9	STR					
4k12	2	2- 6	STR					
6k13	2	2- 0	STR					
6k14	2	22-10	STR					
6k15	1	18- 0	22	9- 0	9- 0	0- 4 1/2		
6k16	1	5- 6	22	2- 9	2- 9	0- 1 3/8		
8k17	8	7- 9	4	4- 0	2- 1 1/4	1- 8		
8k18	16	15- 0	5	5- 0	2- 1 1/4	2- 9		
8k19	8	15- 0	6	4- 0	2- 1 1/4	2- 9		
5k20	14	6- 0	STR					
5k21	14	7- 6	20	5- 6	1- 0	0- 8 1/2		
6k22	6	5- 6	STR					
4s1	44	4- 9	39	1- 5	0-11	2- 0		
5s2	42	6-10	3	1- 0	0- 7	2- 4	2- 4	
4s3	42	7- 3	14	0- 5	2-10			
5s4	186	4-11	10					SEE BAR TYPE
5s5	186	5- 1	8					SEE BAR TYPE
5s6	4	6-10	9					SEE BAR TYPE
5s7	4	4- 6	8					SEE BAR TYPE

NOTE:
FOR BAR BENDING DIAGRAMS, SEE PLATE NUMBERS S-55 AND S-56.

RECORD DRAWING

DESIGNED BY: K.G. | CHECKED BY: M.A.M.

PREPARED BY:

PRINCIPAL OF FIRM HNTB

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY

REINFORCING BAR LIST

COINJOCK BRIDGE REPLACEMENT PROJECT

CURRITUCK COUNTY NORTH CAROLINA

INVITATION NO.	SIZE	DRAWING NUMBER	PLATE NO
DACW54-83-B-0014		BR 104-06-17	S-58

SCALE NONE | DATE 22 JULY 1983 | SHEET 108 OF 126

CORPS OF ENGINEERS

U. S. ARMY

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
SUPERSTRUCTURE								
SPANS 14N THRU 3N GIRDERS G1 THRU G8								
NO. SHOWN IS FOR (1) GIRDER, (8) REQUIRED OF EACH FOR (12) SPANS								
4s1	61	10-10	24	3- 4	0- 4 1/4	1- 3		
6s2	12	10-10	24	3- 7	0- 4 1/4	1- 0		
4s3	4	8-11	15	0-11	4- 0			
4s4	12	3- 5	23	1- 6	0- 7	1- 4		
4s5	10	8- 5	15	0- 4 1/2	4- 0			
6s6	2	9-10	15	1-10	4- 0			
4s7	8	3- 3	23	1- 5 1/2	0- 5 1/2	1- 4		
6s8	1	10- 1	24	3- 7	0- 4 1/4	0- 7 1/2		
5s9	4	45- 6	STR					
SPAN 2N-GIRDERS G1 THRU G4								
4s1	45	10-10	24	3- 4	0- 4 1/4	1- 3		GIRDER G 1
6s2	11	10-10	24	3- 7	0- 4 1/4	1- 0		
4s3	4	8-11	15	0-11	4- 0			
4s4	12	3- 5	23	1- 6	0- 7	1- 4		
4s5	10	8- 5	15	0- 4 1/2	4- 0			
6s6	2	9-10	15	1-10	4- 0			
4s7	8	3- 3	23	1- 5 1/2	0- 5 1/2	1- 4		
6s8	1	10- 1	24	3- 7	0- 4 1/4	0- 7 1/2		
5s9	4	34-10	STR					
4s1	47	10-10	24	3- 4	0- 4 1/4	1- 3		GIRDER G 2
6s2	11	10-10	24	3- 7	0- 4 1/4	1- 0		
4s3	4	8-11	15	0-11	4- 0			
4s4	12	3- 5	23	1- 6	0- 7	1- 4		
4s5	10	8- 5	15	0- 4 1/2	4- 0			
6s6	2	9-10	15	1-10	4- 0			
4s7	8	3- 3	23	1- 5 1/2	0- 5 1/2	1- 4		
6s8	1	10- 1	24	3- 7	0- 4 1/4	0- 7 1/2		
5s9	4	36- 2	STR					
4s1	49	10-10	24	3- 4	0- 4 1/4	1- 3		GIRDER G 3
6s2	11	10-10	24	3- 7	0- 4 1/4	1- 0		
4s3	4	8-11	15	0-11	4- 0			
4s4	12	3- 5	23	1- 6	0- 7	1- 4		
4s5	10	8- 5	15	0- 4 1/2	4- 0			
6s6	2	9-10	15	1-10	4- 0			
4s7	8	3- 3	23	1- 5 1/2	0- 5 1/2	1- 4		
6s8	1	10- 1	24	3- 7	0- 4 1/4	0- 7 1/2		
5s9	4	37- 6	STR					
4s1	51	10-10	24	3- 4	0- 4 1/4	1- 3		GIRDER G 4
6s2	11	10-10	24	3- 7	0- 4 1/4	1- 0		
4s3	4	8-11	15	0-11	4- 0			
4s4	12	3- 5	23	1- 6	0- 7	1- 4		
4s5	10	8- 5	15	0- 4 1/2	4- 0			
6s6	2	9-10	15	1-10	4- 0			
4s7	8	3- 3	23	1- 5 1/2	0- 5 1/2	1- 4		
6s8	1	10- 1	24	3- 7	0- 4 1/4	0- 7 1/2		
5s9	4	38-11	STR					

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
SPAN 2N-GIRDERS G5 THRU G8								
4s1	53	10-10	24	3- 4	0- 4 1/4	1- 3		GIRDER G 5
6s2	11	10-10	24	3- 7	0- 4 1/4	1- 0		
4s3	4	8-11	15	0-11	4- 0			
4s4	12	3- 5	23	1- 6	0- 7	1- 4		
4s5	10	8- 5	15	0- 4 1/2	4- 0			
6s6	2	9-10	15	1-10	4- 0			
4s7	8	3- 3	23	1- 5 1/2	0- 5 1/2	1- 4		
6s8	1	10- 1	24	3- 7	0- 4 1/4	0- 7 1/2		
5s9	4	40- 3	STR					
4s1	55	10-10	24	3- 4	0- 4 1/4	1- 3		GIRDER G 6
6s2	11	10-10	24	3- 7	0- 4 1/4	1- 0		
4s3	4	8-11	15	0-11	4- 0			
4s4	12	3- 5	23	1- 6	0- 7	1- 4		
4s5	10	8- 5	15	0- 4 1/2	4- 0			
6s6	2	9-10	15	1-10	4- 0			
4s7	8	3- 3	23	1- 5 1/2	0- 5 1/2	1- 4		
6s8	1	10- 1	24	3- 7	0- 4 1/4	0- 7 1/2		
5s9	4	41- 7	STR					
4s1	57	10-10	24	3- 4	0- 4 1/4	1- 3		GIRDER G 7
6s2	11	10-10	24	3- 7	0- 4 1/4	1- 0		
4s3	4	8-11	15	0-11	4- 0			
4s4	12	3- 5	23	1- 6	0- 7	1- 4		
4s5	10	8- 5	15	0- 4 1/2	4- 0			
6s6	2	9-10	15	1-10	4- 0			
4s7	8	3- 3	23	1- 5 1/2	0- 5 1/2	1- 4		
6s8	1	10- 1	24	3- 7	0- 4 1/4	0- 7 1/2		
5s9	4	42-11	STR					
4s1	59	10-10	24	3- 4	0- 4 1/4	1- 3		GIRDER G 8
6s2	11	10-10	24	3- 7	0- 4 1/4	1- 0		
4s3	4	8-11	15	0-11	4- 0			
4s4	12	3- 5	23	1- 6	0- 7	1- 4		
4s5	10	8- 5	15	0- 4 1/2	4- 0			
6s6	2	9-10	15	1-10	4- 0			
4s7	8	3- 3	23	1- 5 1/2	0- 5 1/2	1- 4		
6s8	1	10- 1	24	3- 7	0- 4 1/4	0- 7 1/2		
5s9	4	44- 3	STR					
SPAN IN-SEGMENT INa — GIRDERS								
4s1	64	10-10	24	3- 4	0- 4 1/4	1- 3		TYPICAL FOR
6s2	5	10-10	24	3- 7	0- 4 1/4	1- 0		G1 THRU G8
4s3	2	9- 0	15	1- 0	4- 0			
4s4	38	3- 5	23	1- 6	0- 7	1- 4		
4s5	5	8- 5	15	0- 4 1/2	4- 0			
6s6	1	9- 9	15	1- 9	4- 0			
4s7	4	3- 3	23	1- 5 1/2	0- 5 1/2	1- 4		
6s8	1	10- 1	24	3- 4	0- 4 1/4	0- 7 1/2		
5s9	4	35- 6	STR					
4s10	10	10-11	30	3- 4	0- 4 1/4	1- 3	0-11	
5s11	6	14- 7	14	1-11	4-11			
10s12	4	9- 3	STR					
10s13	4	10- 3	STR					
11s14	5	8- 9	STR					
11s15	5	7- 9	STR					
5s16	2	8- 0	25	1- 9 1/2	1-10	1- 3		
5s17	3	6- 6	25	1- 9 1/2	1- 1	1- 3		

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
SPAN IN SPLICE - GIRDERS								
5s1	12	14- 6	14	1-11	4-10			TYP. AT EA.
5s2	8	8- 7	31	1- 3	1- 8	2- 0	0- 2	SPL. G1 -G8
5s3	6	14- 4	14	1- 5	5- 3			
5s4	4	3- 9	STR					
3s5	9	2- 7	2	1-11				
SPAN IN-SEGMENT INb - GIRDERS								
4s1	116	3- 7	23	1- 8	0- 5	1- 6		TYPICAL FOR
6s2	6	10-11	7	1- 0	4- 0	0-11 1/2		G1 THRU G9 U.N.
6s3	6	13-10	14	1-11	4- 5			
6s4	1	14- 2	14	1- 5	5- 1			
5s5 a	15	11- 1	24	3- 5	0- 4 1/4	1- 3 1/2		1 EA a to o
to o		12- 5		4- 1	0- 4 1/4	1- 3 1/2		
5s6 a	15	12- 7	24	4- 2	0- 4 1/4	1- 3 1/2		1 EA a to o
to o		13- 1		5- 5	0- 4 1/4	1- 3 1/2		
5s7 a	8	13- 3	24	5- 6	0- 4 1/4	1- 3 1/2		1 EA a to h
to h		17- 9		6- 9	0- 4 1/4	1- 3 1/2		
5s8 a	3	18- 3	24	7- 0	0- 4 1/4	1- 3 1/2		1 EA a to c
to c		18- 9		7- 3	0- 4 1/4	1- 3 1/2		
5s9	7	21- 2	14	1-11	8- 2			
5s10 a	3	18- 1	24	6-11	0- 4 1/4	1- 3 1/2		1 EA a to c
to c		18- 9		7- 3	0- 4 1/4	1- 3 1/2		
5s11 a	6	13- 5	24	5- 7	0- 4 1/4	1- 3 1/2		1 EA a to f
to f		17- 5		6- 7	0- 4 1/4	1- 3 1/2		
5s12 a	8	13- 3	24	4- 6	0- 4 1/4	1- 3 1/2		1 EA a to h
to h		15- 3	24	5- 6	0- 4 1/4	1- 3 1/2		
5s13 a	23	10- 9	24	3- 3	0- 4 1/4	1- 3 1/2		1 EA a to w
to w		12-11	24	4- 4	0- 4 1/4	1- 3 1/2		
6s14	18	8- 1	15	1-11	3- 1			
6s15	5	12- 3	7	1- 0	4-10	0- 7		
6s16	5	8- 8	14	1-11	1-10			
6s17	5	12- 8	25	1- 9 1/2	4- 5	1- 0		
5s18	3	9- 4	25	1- 9 1/2	2- 9	1- 0		
5s19	2	5- 5	20	3- 5	1- 0	0- 5		
11s20	1	7- 6	27	3- 9	3- 9	1- 7	2- 2	E=0-61/8
11s21	1	7- 6	27	3- 9	3- 9	1- 6	2- 3	E=0-11/8
11s22	1	7- 6	27	3- 9	3- 9	1- 6	2- 3	E=0-11/8
11s23	1	7- 6	26	3- 9	1- 7	2- 2	0- 6 1/8	
9s24	2	39-10	29	4- 0	26-10	29- 0		
9s25	3	44-10	29	4- 0	21-10	19- 0		
4s26	7	3- 9	15	0- 6 1/2	1- 7			
10s27	4	8- 9	STR					
10s28	4	7- 9	STR					
11s29	3	9- 3	STR					
11s30	3	10- 3	STR					
11s31	2	9- 3	26	4- 6	2- 3	2- 6	0- 4	
11s32	2	10- 3	26	5- 6	2- 3	2- 6	0- 1 1/2	
5s33	2	8- 0	25	1- 9 1/2	1-10	1- 3		
5s34	3	6- 6	25	1- 9 1/2	0- 1	1- 3		
6s35	1	12- 8	14	1- 5	4- 4			
5s36	16	9- 3	20	3- 5	2-11	1- 1 1/2		
6s37	5	11-10	14	0-11	4- 5			
5s38	3	4- 7	36	0- 9	1- 1			BARS 5s38
5s39	4	5-11	15	1- 1	2- 5			THRU 5s40
5s40	3	5- 6	15	0- 7 1/2	2- 5			ARE REQ'D AT
5s41	3	6- 8	15	1-10	2- 5			G1 & G8 ONLY

NOTE:
FOR BAR BENDING DIAGRAMS, SEE PLATE NUMBERS S-55 AND S-56.

RECORD DRAWING

DESIGNED BY: K.G. | CHECKED BY: M.A.M.

PREPARED BY: [signature]

PRINCIPAL OF FIRM HNTB

HNTB ARCHITECTS ENGINEERS PLANNERS — HOWARD NEEDLES TAMMEN & BERGENDOFF — ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT WILMINGTON — CORPS OF ENGINEERS — WILMINGTON, NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY — COASTAL A

REINFORCING BAR LIST

COINJOCK BRIDGE REPLACEMENT PROJECT

CURRITUCK COUNTY — NORTH CAROLINA

INVITATION NO. DACW54-83-B-0014 | SIZE | DRAWING NUMBER BR104-06-17 | SHEET NO. S-59

SCALE NONE | DATE 22 JULY 1983 | SHEET 126 OF 128

N.C. STATE AID PROJECT NO

FEDERAL AID PROJECT NO | DIV NO

CORPS OF ENGINEERS

U. S. ARMY

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
SUPERSTRUCTURE								
DROP-IN SPAN - GIRDERS								
4s1	84	10-10	24	3- 4	0- 4 1/4	1- 3		8 REQUIRED
4s2	6	4- 9	15	1-11	1- 5			
4s3	6	4-11	15	1-11	1- 6			
4s4	4	6- 6	7	0- 6	2- 5	0- 7 1/2		
3s5	22	2- 7	2	1-11				
4s6	10	11- 2	7	0- 6	4- 9	0- 7 1/2		
4s7	14	13- 6	14	1-11	4- 3			
4s8	4	7- 2	7	0- 6	2- 9	0- 7 1/2		
4s9	4	8- 3	14	1- 7	1-11 1/4			
4s10	2	3- 7	25	1- 5	0- 7	0- 6		
6s11	2	12- 0	14	1- 2	4- 3			
4s12	34	4- 3	25	1- 5	0- 7	0-10		
4s13	28	3- 7	25	1-11	0- 7	1- 3		
9s14	2	5-10	26	2- 7	2- 2	1- 1	1- 6 1/2	
9s15	2	6- 6	26	3- 3	2- 2	1- 1	1- 6 1/2	
9s16	4	19- 8	STR					
9s17	4	19- 3	STR					
6s18	20	11- 0	14	1- 4	3- 7			
5s19	8	4- 7	26	1-10	1- 6	1- 3	1- 1	
11s20	2	7- 6	27	2- 9	4- 9	1- 7	3- 2	E=0-61/8
11s21	2	7- 6	27	2- 9	4- 9	1- 6	3- 3	E=0-11/8
11s22	2	7- 6	27	2- 9	4- 9	1- 6	3- 3	E=0-11/8
11s23	2	7- 6	27	2- 9	4- 9	1- 7	3- 2	E=0-61/8
5s24	2	40- 0	STR					
SPAN IS-SEGMENT ISb - GIRDERS								
4s1	116	3- 7	23	1- 8	0- 5	1- 6		TYPICAL FOR
6s2	6	10-11	7	1- 0	4- 0	0-11 1/2		G1 THRU G8 UN
6s3	6	13-10	14	1-11	4- 5			
6s4	1	14- 2	14	1- 5	5- 1			
5s5 a	15	11- 1	24	3- 5	0- 4 1/4	1- 3 1/2		1 EA a to o
to o		12- 5		4- 1	0- 4 1/4	1- 3 1/2		
5s6 a	15	12- 7	24	4- 2	0- 4 1/4	1- 3 1/2		1 EA a to o
to o		13- 1		5- 5	0- 4 1/4	1- 3 1/2		
5s7 a	8	15- 3	24	5- 6	0- 4 1/4	1- 3 1/2		1 EA a to h
to h		17- 9		6- 9	0- 4 1/4	1- 3 1/2		
5s8 a	3	18- 3	24	7- 0	0- 4 1/4	1- 3 1/2		1 EA a to c
to c		18- 9		7- 3	0- 4 1/4	1- 3 1/2		
5s9	7	21- 2	14	1-11	8- 2			
5s10 a	3	18- 1	24	6-11	0- 4 1/4	1- 3 1/2		1 EA a to c
to c		18- 9		7- 3	0- 4 1/4	1- 3 1/2		
5s11 a	6	15- 5	24	5- 7	0- 4 1/4	1- 3 1/2		1 EA a to f
to f		17- 5		6- 7	0- 4 1/4	1- 3 1/2		
5s12 a	8	13- 3	24	4- 6	0- 4 1/4	1- 3 1/2		1 EA a to h
to h		15- 3	24	5- 6	0- 4 1/4	1- 3 1/2		
5s13 a	23	10- 9	24	3- 3	0- 4 1/4	1- 3 1/2		1 EA a to w
to w		12-11	24	4- 4	0- 4 1/4	1- 3 1/2		
6s14	18	8- 1	15	1-11	3- 1			
6s15	5	12- 3	7	1- 0	4-10	0- 7		
6s16	5	8- 8	14	1-11	1-10			
4s17	5	12- 8	25	1- 9 1/2	4- 5	1- 0		
5s18	3	9- 4	25	1- 9 1/2	2- 9	1- 0		
5s19	2	5- 5	20	3- 5	1- 0	0- 5		
11s20	1	7- 6	27	3- 9	3- 9	1- 7	2- 2	E=0-61/8
11s21	1	7- 6	27	3- 9	3- 9	1- 6	2- 3	E=0-11/8

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
SPAN IS-SEGMENT ISb - GIRDERS (Continued)								
11s22	1	7- 6	27	3- 9	3- 9	1- 6	2- 3	E=0-11/8
11s23	1	7- 6	26	3- 9	1- 7	2- 2	0- 6 1/8	
9s24	2	39-10	29	4- 0	26-10	29- 0		
9s25	3	44-10	29	4- 0	21-10	19- 0		
4s26	7	3- 9	15	0- 6 1/2	1- 7			
10s27	4	8- 9	STR					
10s28	4	7- 9	STR					
11s29	3	9- 3	STR					
11s30	3	10- 3	STR					
11s31	2	9- 3	26	4- 6	2- 3	2- 6	0- 4	
11s32	2	10- 3	26	5- 6	2- 3	2- 6	0- 1 1/2	
5s33	2	8- 0	25	1- 9 1/2	1-10	1- 3		
5s34	3	6- 6	25	1- 9 1/2	0- 1	1- 3		
6s35	1	12- 8	14	1- 5	4- 4			
5s36	16	9- 3	20	3- 5	2-11	1- 1 1/2		
6s37	5	11-10	14	0-11	4- 5			
FOR CONTINUATION, SEE LISTING IN LOWER RIGHT CORNER								
SPAN IS-SPLICE-GIRDERS								
5s1	12	14- 6	14	1-11	4-10			TYP. AT EA.
5s2	8	8- 7	31	1- 3	1- 8	2- 0	0- 2	SPL. G1 -G8
5s3	6	14- 4	14	1- 5	5- 3			
5s4	4	3- 9	STR					
3s5	9	2- 7	2	1-11				
SPAN IS-SEGMENT ISa - GIRDERS								
4s1	44	10-10	24	3- 4	0- 4 1/4	1- 3		TYPICAL FOR
6s2	5	10-10	24	3- 7	0- 4 1/4	1- 0		G1 THRU G8
4s3	2	9- 0	15	1- 0	4- 0			
4s4	38	3- 5	23	1- 6	0- 7	1- 4		
4s5	5	8- 5	15	0- 4 1/2	4- 0			
6s6	1	9- 9	15	1- 9	4- 0			
4s7	4	3- 3	23	1- 5 1/2	0- 5 1/2	1- 4		
6s8	1	10- 1	24	3- 4	0- 4 1/4	0- 7 1/2		
5s9	4	35- 6	STR					
4s10	10	10-11	30	3- 4	0- 4 1/4	1- 3	0-11	
5s11	6	14- 7	14	1-11	4-11			
10s12	4	9- 3	STR					
10s13	4	10- 3	STR					
11s14	5	8- 9	STR					
11s13	5	7- 9	STR					
5s16	2	8- 0	25	1- 9 1/2	1-10	1- 3		
5s17	3	6- 6	25	1- 9 1/2	1- 1	1- 3		
SPAN 2S - GIRDER G1								
4s1	59	10-10	24	3- 4	0- 4 1/4	1- 3		GIRDER G 1
6s2	11	10-10	24	3- 7	0- 4 1/4	1- 0		
4s3	4	8-11	15	0-11	4- 0			
4s4	12	3- 5	23	1- 6	0- 7	1- 4		
4s5	10	8- 5	15	0- 4 1/2	4- 0			
6s6	2	9-10	15	1-10	4- 0			
4s7	8	3- 3	23	1- 5 1/2	0- 5 1/2	1- 4		
6s8	1	10- 1	24	3- 7	0- 4 1/4	0- 7 1/2		
5s9	4	44- 3	STR					

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
SPAN 2S-GIRDERS G2 THRU G6								
4s1	57	10-10	24	3- 4	0- 4 1/4	1- 3		GIRDER G 2
6s2	11	10-10	24	3- 7	0- 4 1/4	1- 0		
4s3	4	8-11	15	0-11	4- 0			
4s4	12	3- 5	23	1- 6	0- 7	1- 4		
4s5	10	8- 5	15	0- 4 1/2	4- 0			
6s6	2	9-10	15	1-10	4- 0			
4s7	8	3- 3	23	1- 5 1/2	0- 5 1/2	1- 4		
6s8	1	10- 1	24	3- 7	0- 4 1/4	0- 7 1/2		
5s9	4	42-11	STR					
4s1	55	10-10	24	3- 4	0- 4 1/4	1- 3		GIRDER G 3
6s2	11	10-10	24	3- 7	0- 4 1/4	1- 0		
4s3	4	8-11	15	0-11	4- 0			
4s4	12	3- 5	23	1- 6	0- 7	1- 4		
4s5	10	8- 5	15	0- 4 1/2	4- 0			
6s6	2	9-10	15	1-10	4- 0			
4s7	8	3- 3	23	1- 5 1/2	0- 5 1/2	1- 4		
6s8	1	10- 1	24	3- 7	0- 4 1/4	0- 7 1/2		
5s9	4	41- 7	STR					
4s1	53	10-10	24	3- 4	0- 4 1/4	1- 3		GIRDER G 4
6s2	11	10-10	24	3- 7	0- 4 1/4	1- 0		
4s3	4	8-11	15	0-11	4- 0			
4s4	12	3- 5	23	1- 6	0- 7	1- 4		
4s5	10	8- 5	15	0- 4 1/2	4- 0			
6s6	2	9-10	15	1-10	4- 0			
4s7	8	3- 3	23	1- 5 1/2	0- 5 1/2	1- 4		
6s8	1	10- 1	24	3- 7	0- 4 1/4	0- 7 1/2		
5s9	4	40- 3	STR					
4s1	51	10-10	24	3- 4	0- 4 1/4	1- 3		GIRDER G 5
6s2	11	10-10	24	3- 7	0- 4 1/4	1- 0		
4s3	4	8-11	15	0-11	4- 0			
4s4	12	3- 5	23	1- 6	0- 7	1- 4		
4s5	10	8- 5	15	0- 4 1/2	4- 0			
6s6	2	9-10	15	1-10	4- 0			
4s7	8	3- 3	23	1- 5 1/2	0- 5 1/2	1- 4		
6s8	1	10- 1	24	3- 7	0- 4 1/4	0- 7 1/2		
5s9	4	38-11	STR					
4s1	49	10-10	24	3- 4	0- 4 1/4	1- 3		GIRDER G 6
6s2	11	10-10	24	3- 7	0- 4 1/4	1- 0		
4s3	4	8-11	15	0-11	4- 0			
4s4	12	3- 5	23	1- 6	0- 7	1- 4		
4s5	10	8- 5	15	0- 4 1/2	4- 0			
6s6	2	9-10	15	1-10	4- 0			
4s7	8	3- 3	23	1- 5 1/2	0- 5 1/2	1- 4		
6s8	1	10- 1	24	3- 7	0- 4 1/4	0- 7 1/2		
5s9	4	37- 6	STR					
SPAN IS-SEGMENT ISb - GIRDERS (Continued)								
5s38	3	4- 7	36	0- 9	1- 1			BARS 5s38
5s39	4	5-11	15	1- 1	2- 5			THRU 5s39
5s40	3	5- 6	15	0- 7 1/2	2- 5			ARE REQ'D AT
5s41	3	6- 8	15	1-10	2- 5			G1 & G8 ONLY

N.C. STATE AID PROJECT NO

FEDERAL AID PROJECT NO. FED RD DIV NO

NOTE:
FOR BAR BENDING DIAGRAMS, SEE PLATE NUMBERS S-55 AND S-56.

RECORD DRAWING

DESIGNED BY: K.G. CHECKED BY: M.A.M.

PREPARED BY:

PRINCIPAL OF FIRM HNTB

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY

REINFORCING BAR LIST

COINJOCK BRIDGE REPLACEMENT PROJECT

CURRITUCK COUNTY NORTH CAROLINA

INVITATION NO.	SIZE	DRAWING NUMBER	PLATE NO.
DACW54-83-B-0014		BR104-06-17	S-60

SCALE NONE DATE 22 JULY 1983 SHEET 110 OF 126

CORPS OF ENGINEERS

U. S. ARMY

N.C. STATE AID PROJECT NO

FEDERAL AID PROJECT NO | FED NO (DOT NO.)

SUPERSTRUCTURE

SPAN 2S – GIRDERS G7 AND G8

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
4s1	47	10-10	24	3- 4	0- 4 1/4	1- 3		GIRDER G 7
6s2	11	10-10	24	3- 7	0- 4 1/4	1- 0		
4s3	4	8-11	15	0-11	4- 0			
4s4	12	3- 5	23	1- 6	0- 7	1- 4		
4s5	10	8- 5	15	0- 4 1/2	4- 0			
6s6	2	9-10	15	1-10	4- 0			
4s7	8	3- 3	23	1- 5 1/2	0- 5 1/2	1- 4		
6s8	1	10- 1	24	3- 7	0- 4 1/4	0- 7 1/2		
5s9	4	34- 2	STR					
4s1	45	10-10	24	3- 4	0- 4 1/4	1- 3		GIRDER G 8
6s2	11	10-10	24	3- 7	0- 4 1/4	1- 0		
4s3	4	8-11	15	0-11	4- 0			
4s4	12	3- 5	23	1- 6	0- 7	1- 4		
4s5	10	8- 5	15	0- 4 1/2	4- 0			
6s6	2	9-10	15	1-10	4- 0			
4s7	8	3- 3	23	1- 5 1/2	0- 5 1/2	1- 4		
6s8	1	10- 1	24	3- 7	0- 4 1/4	0- 7 1/2		
5s9	4	34-10	STR					

SPANS 3S THRU 12S – GIRDERS G1 THRU G8

NO. SHOWN IS FOR (1) GIRDER; (8) REQUIRED OF EACH FOR (10) SPANS

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
4s1	41	10-10	24	3- 4	0- 4 1/4	1- 3		
6s2	12	10-10	24	3- 7	0- 4 1/4	1- 0		
4s3	4	8-11	15	0-11	4- 0			
4s4	12	3- 5	23	1- 6	0- 7	1- 4		
4s5	10	8- 5	15	0- 4 1/2	4- 0			
6s6	2	9-10	15	1-10	4- 0			
4s7	8	3- 3	23	1- 5 1/2	0- 5 1/2	1- 4		
5s8	4	45- 6	STR					

SUBSTRUCTURE

END BENT 1

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
4s1	64	7- 3	18	2- 2	2- 1 1/2			
4s2	64	2-11	2	2- 2				
10b1	16	38- 4	17	37- 2				
8b2	4	36- 1	STR					
4b3	12	23- 8	STR					
4b4	4	10- 8	STR					
4b5	20	5- 2	15	2- 2	1- 6			
6b6	9	5- 3	33	3-11				
6b7	3	11- 1	34	1-11	3-11			
4b8	18	2- 2	STR					
6b9	2	9- 1	34	1-11	2- 5			
6b10	6	3- 9	33	2- 5				
4b11	8	7- 8	STR					
4h1	12	12- 2	STR					
4h2	24	11- 8	1	1- 0	10- 8			
4h3	12	3- 8	15	0- 8	2- 6			
4h4	4	2- 0	STR					
4v1	36	7- 9	STR					
4v2	4	4- 2	15	0- 8	1- 9			

BENT 14N

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
11b1	12	33- 2	1	2- 0	31- 2			
11b2	28	19-10	STR					
5b3	4	59- 8	STR					
5b4	2	52- 8	STR					
5b5	8	15- 1	37	1- 6	11- 0	2- 7	1-11 3/4	
5b6	2	44- 1	STR					
4b7	4	2- 8	STR					
4b8	36	17-11	STR					
7s1	36	6- 9	1	2- 0	4- 9			
7s2	34	9- 9	1	2- 0	6- 9			
7s3	6	6-10	32	2- 0	4-10	0- 9 1/2		
5s1 a	84	11- 9	36	1- 7 1/2	3- 9 1/4			4 EA a to u
to u		15- 4		1- 7 1/2	5- 7			
5s2	19	5- 0	15	2- 6	1- 3			
4s3	90	3-11	28	2- 9	0- 8			
4s4	18	7- 8	15	2- 8	2- 6			
4s5	8	5- 5	15	2- 4 1/2	1- 6			
4s6	8	4- 3	15	0- 9	1- 9			
4s7	24	5- 7	15	2- 7	1- 6			
4s8	24	5- 6	15	2- 6	1- 6			
10t1	45	9- 6	STR					
6t2	11	35- 6	STR					
5t3	4	35- 6	STR					
5t4	12	11- 4	15	2- 2	4- 7			
7v1	34	12-10	STR					
7v2	36	12- 6	STR					
7v3	4	10- 3	STR					
7v4	10	13- 0	STR					

BENT 13N

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
11b1	10	46- 2	20	38- 0	4-11	0- 8 3/4		
11b2	6	30- 0	STR					
11b3	2	40- 0	STR					
8b4	2	57- 3	STR					
8b5	4	59- 6	STR					
11b6	8	22- 9	STR					
11b7	4	31- 4	STR					
11b8	16	27- 9	STR					
11b9	16	32- 8	1	2- 0	31- 1			
5b10	8	10- 6	32	7-11	2- 7	1- 5		
4b11	4	3- 8	STR					
11b12	8	8- 6	STR					
4c1	112	10- 1	36	0-11	3- 9			
4c2	56	15- 9	36	3- 9	3- 9			
11s1	20	11- 0	17	9- 5				
11s2	20	16- 1	17	14- 6				
11s3	12	7- 6	38	2- 0	3-11			
11s4	4	5- 0	STR					
4s1	16	9- 9	36	2- 6	2- 0			
4s2	16	7- 5	35	1- 8	1- 0			
4s3 a	6	7- 9	36	2- 6	1- 0			2 EA a to c
to c		11- 9		2- 6	3- 0			
5s4	8	5- 8	15	3- 8 1/4	1- 0			
4s5	8	4- 8	15	0- 8	2- 0			
5s6	88	17- 4	36	2- 6	5- 8			
4s7	24	5-10	15	2- 6	1- 8			

BENT 13N (Continued)

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
4s8	24	6- 4	15	3- 0	1- 8			
5s9 a	72	17- 2	36	2- 6	5- 7			4 EA a to r
to r		13- 8		2- 6	3-10			
11t1	26	15- 2	33	12- 0				
11t2	32	17- 2	33	14- 0				
6t3	30	12- 0	STR					
4t4	26	14- 0	STR					
11t5	4	12- 0	STR					
11t6	4	14- 0	STR					
5t7	16	10-10	15	2- 6	4- 2			
5t8	4	15-10	15	2- 2	6-10			
5t9	8	10- 4	15	2- 2	4- 1			
11v1	20	33- 0	17	31- 7				
11v2	20	28- 1	17	26- 6				

BENT 12N

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
11b1	10	46- 2	20	38- 0	4-11	0- 8 3/4		
11b2	6	30- 0	STR					
11b3	2	40- 0	STR					
8b4	2	57- 3	STR					
8b5	4	59- 6	STR					
11b6	8	29- 9	STR					
11b7	4	31- 4	STR					
11b8	16	27- 9	STR					
11b9	16	32- 8	1	2- 0	31- 1			
5b10	8	10- 6	32	7-11	2- 7	1- 5		
4b11	4	3- 8	STR					
11b12	8	8- 9	STR					
4c1	136	10- 1	36	0-11	3- 9			
4c2	68	15- 9	36	3- 9	3- 9			
11s1	20	11- 0	17	9- 5				
11s2	20	16- 1	17	14- 6				
11s3	12	7- 6	38	2- 0	3-11			
11s4	4	5- 0	STR					
4s1	16	9- 9	36	2- 6	2- 0			
4s2	16	7- 5	35	1- 8	1- 0			
4s3 a	6	7- 9	36	2- 6	1- 0			2 EA a to c
to c		11- 9		2- 6	3- 0			
5s4	8	5- 8	15	3- 8 1/4	1- 0			
4s5	8	4- 8	15	0- 8	2- 0			
5s6	88	17- 4	36	2- 6	5- 8			
4s7	24	5-10	15	2- 4	1- 8			
4s8	24	6- 4	15	3- 0	1- 8			
5s9 a	72	17- 2	36	2- 6	5- 7			4 EA a to r
to r		13- 8		2- 6	3-10			
11t1	26	15- 2	33	12- 0				
11t2	32	17- 2	33	14- 0				
6t3	30	12- 0	STR					
6t4	26	14- 0	STR					
11t5	4	12- 0	STR					
11t6	4	14- 0	STR					
5t7	16	10-10	15	2- 6	4- 2			
5t8	4	15-10	15	2- 2	6-10			
5t9	4	10- 4	15	2- 2	4- 1			
11v1	40	20- 0	STR					
11v2	20	22- 0	17	20- 5				
11v3	20	16-11	17	15- 4				

NOTE:
FOR BAR BENDING DIAGRAMS, SEE PLATE NUMBERS S-55 AND S-56.

RECORD DRAWING

DESIGNED BY: K.G. | CHECKED BY: M.A.M.

PREPARED BY: PRINCIPAL OF FIRM HNTB

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY

REINFORCING BAR LIST

COINJOCK BRIDGE REPLACEMENT PROJECT

CURRITUCK COUNTY NORTH CAROLINA

INVITATION NO	SIZE	DRAWING NUMBER	PLATE NO
DACW54-83-B-0014		BR104-06-17	S-61

SCALE NONE E N | DATE 22 JULY 1983 | SHEET 111 OF 126

CORPS OF ENGINEERS

U. S. ARMY

N.C. STATE AID PROJECT NO			
FEDERAL AID PROJECT NO			FED RD DIV NO

SUBSTRUCTURE

BENT 11N

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
11b1	10	46- 2	20	38- 0	4-11	0- 8 3/4		
11b2	6	30- 0	STR					
11b3	2	40- 0	STR					
8b4	2	57- 3	STR					
8b5	4	59- 6	STR					
11b6	8	29- 9	STR					
11b7	4	31- 4	STR					
11b8	16	27- 9	STR					
11b9	16	32- 8	1	2- 0	31- 1			
5b10	8	10- 6	32	7-11	2- 7	1- 5		
4b11	4	3- 8	STR					
11b12	8	8- 9	STR					
4c1	144	10- 1	36	0-11	3- 9			
4c2	72	15- 9	36	3- 9	3- 9			
11a1	20	11- 0	17	9- 5				
11a2	20	16- 1	17	14- 6				
11a3	12	7- 6	38	2- 0	3-11			
11a4	4	5- 0	STR					
4s1	16	9- 9	36	2- 6	2- 0			
4s2	16	7- 5	35	1- 8	1- 0			
4s3 a	6	7- 9	36	2- 6	1- 0			2 EA a to c
to c		11- 9		2- 6	3- 0			
5s4	8	5- 8	15	3- 8 1/4	1- 0			
4s5	8	4- 8	15	0- 8	2- 0			
5s6	88	17- 4	36	2- 6	5- 8			
4s7	24	5-10	15	2- 6	1- 8			
4s8	24	6- 4	15	3- 0	1- 8			
5s9 a	72	17- 2	36	2- 6	5- 7			4 EA a to r
to r		13- 8		2- 6	3-10			
11t1	26	15- 2	33	12- 0				
11t2	32	17- 2	33	14- 0				
6t3	30	12- 0	STR					
6t4	26	14- 0	STR					
11t5	4	12- 0	STR					
11t6	4	14- 0	STR					
5t7	16	10-10	15	2- 6	4- 2			
5t8	4	15-10	15	2- 2	6-10			
5t9	8	10- 4	15	2- 2	4- 1			
11v1	40	21-10	STR					
11v2	20	23-10	17	22- 3				
11v3	20	18- 9	17	17- 2				

BENT 10N

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
11b1	10	46- 2	20	38- 0	4-11	0- 8 3/4		
11b2	6	30- 0	STR					
11b3	2	40- 0	STR					
8b4	2	57- 3	STR					
8b5	4	59- 6	STR					
11b6	8	22- 9	STR					
11b7	4	31- 4	STR					
11b8	16	27- 9	STR					
11b9	16	32- 8	1	2- 0	31- 1			
5b10	8	10- 6	32	7-11	2- 7	1- 5		
4b11	4	3- 8	STR					
11b12	8	8- 9	STR					
4c1	160	10- 1	36	0-11	3- 9			
4c2	80	15- 9	36	3- 9	3- 9			
11a1	20	11- 0	17	9- 5				
11a2	20	16- 1	17	14- 6				
11a3	12	7- 6	38	2- 0	3-11			
11a4	4	5- 0	STR					
4s1	16	9- 9	36	2- 6	2- 0			
4s2	16	7- 5	35	1- 8	1- 0			
4s3 a	6	8- 5	36	2- 6	1- 4			2 EA a to c
to c		12- 5		2- 6	3- 4			
5s4	8	5- 8	15	3- 8 1/4	1- 0			
4s5	8	4- 8	15	0- 8	2- 0			
5s6	88	17- 4	36	2- 6	5- 8			
4s7	24	5-10	15	2- 6	1- 8			
4s8	24	6- 4	15	3- 0	1- 8			
5s9 a	72	17- 1	36	2- 6	5- 7			4 EA a to r
to r		13- 7		2- 6	3-10			
11t1	26	15- 2	33	12- 0				
11t2	32	17- 2	33	14- 0				
6t3	30	12- 0	STR					
6t4	26	14- 0	STR					
11t5	4	12- 0	STR					
11t6	4	14- 0	STR					
5t7	16	10-10	15	2- 6	4- 2			
5t8	4	15-10	15	2- 2	6-10			
5t9	4	10- 4	15	2- 2	4- 1			
11v1	40	23- 5	STR					
11v2	20	25- 5	17	23-10				
11v3	20	20- 3	17	18- 8				

BENT 9N

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
11b1	10	46- 2	20	39- 0	3- 7	0- 8		
11b2	2	29- 0	STR					
11b3	6	40- 0	STR					
8b4	2	58- 0	STR					
8b5	4	59- 6	STR					
11b6	8	22- 9	STR					
11b7	16	27- 9	STR					
11b8	20	33- 1	1	2- 0	31- 1			
5b9	8	10- 6	32	7-10 1/2	2- 7	1- 5 3/4		
4b10	4	3- 8	STR					
4c1	176	13- 9	36	1- 9	4- 9			
4c2	88	19- 9	36	4- 9	4- 9			
11a1	24	11- 0	17	9- 5				
11a2	24	16- 1	17	14- 6				
5s1	84	18- 7	36	3- 1 3/4	5- 7 3/4			
5s2 a	56	14- 8	36	3- 1 3/4	3- 8 3/4			4 EA a to n
to n		18- 5		3- 1 3/4	5- 7			
4s3	24	6- 6	15	3- 0	1- 9			
4s4	24	6- 0	15	2- 6	1- 9			
4s5	8	4- 6	15	0- 8	1-11			
5s6	8	7- 6	15	4- 5 3/4	1- 6			
4t1	8	15-10	15	2- 2	6-10			
5t2	6	27- 6	STR					
11t3	27	17- 2	33	14- 0				
7t4	13	29- 2	33	27- 6				
6t5	27	15- 4	33	14- 0				
11t6	13	30- 8	33	27- 6				
11t7	2	14- 0	STR					
11t8	2	27- 6	STR					
6t9	2	14- 0	STR					
11t10	2	27- 6	STR					
11v1	48	25- 4	STR					
11v2	24	27- 2	17	25- 7				
11v3	24	22- 1	17	20- 6				

BENT 8N

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
11b1	10	46- 2	20	39- 0	3- 7	0- 8		
11b2	2	29- 0	STR					
11b3	6	40- 0	STR					
8b4	2	56- 0	STR					
8b5	4	59- 6	STR					
11b6	8	22- 9	STR					
11b7	16	27- 9	STR					
11b8	20	33- 1	1	2- 0	31- 1			
5b9	8	10- 6	32	7-10 1/2	2- 7	1- 5 3/4		
4b10	4	3- 8	STR					
4c1	184	13- 9	36	1- 9	4- 9			
4c2	92	19- 9	36	4- 9	4- 9			
11a1	24	11- 0	17	9- 5				
11a2	24	16- 1	17	14- 6				
5s1	84	18- 7	36	3- 1 3/4	5- 7 3/4			
5s2 a	56	14- 8	36	3- 1 3/4	3- 8 3/4			4 EA a to n
to n		18- 5		3- 1 3/4	5- 7			
4s3	24	6- 6	15	3- 0	1- 9			
4s4	24	6- 0	15	2- 6	1- 9			
4s5	8	4- 6	15	0- 8	1-11			
5s6	8	7- 6	15	4- 5 3/4	1- 6			
4t1	8	15-10	15	2- 2	6-10			
5t2	6	27- 6	STR					
11t3	27	17- 2	33	14- 0				
7t4	13	29- 2	33	27- 6				
6t5	27	15- 4	33	14- 0				
11t6	13	30- 8	33	27- 6				
11t7	2	14- 0	STR					
11t8	2	27- 6	STR					
6t9	2	14- 0	STR					
11t10	2	27- 6	STR					
11v1	48	26- 4	STR					
11v2	24	28- 3	17	26- 8				
11v3	24	23- 2	17	21- 7				

NOTE:
FOR BAR BENDING DIAGRAMS, SEE PLATE NUMBERS S-55 AND S-56.

RECORD DRAWING

DESIGNED BY: K.G.	CHECKED BY: M.A.M.
PREPARED BY:	
PRINCIPAL OF FIRM HNTB	

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U S ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY

REINFORCING BAR LIST

COINJOCK BRIDGE REPLACEMENT PROJECT

CURRITUCK COUNTY NORTH CAROLINA

INVITATION NO	SIZE	DRAWING NUMBER	PLATE NO
DACW54-83-B-0014	22"x36"	BR104-06-17	S-62

SCALE--NONE DATE 22 JULY 1983 SHEET 112 OF 126

CORPS OF ENGINEERS

U. S. ARMY

N.C. STATE AID PROJECT NO

FEDERAL AID PROJECT NO | FED. RD. DIV. NO

SUBSTRUCTURE

BENT 7N

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
11b1	10	46- 2	20	39- 0	3- 7	0- 8		
11b2	2	29- 0	STR					
11b3	6	40- 0	STR					
8b4	2	56- 0	STR					
8b5	4	59- 6	STR					
11b6	8	22- 9	STR					
11b7	16	27- 9	STR					
11b8	20	33- 1	1	2- 0	31- 1			
5b9	8	10- 6	32	7-10 1/2	2- 7	1- 5 3/4		
4b10	4	3- 8	STR					
4c1	192	13- 9	36	1- 9	4- 9			
4c2	96	19- 9	36	4- 9	4- 9			
11a1	24	11- 0	17	9- 5				
11a2	24	16- 1	17	14- 6				
5s1	84	18- 7	36	3- 1 3/4	5- 7 3/4			
5s2 a	56	14- 8	36	3- 1 3/4	3- 8 3/4			4 EA a to n
to n		18- 5		3- 1 3/4	5- 7			
4s3	24	6- 6	15	3- 0	1- 9			
4s4	24	6- 0	15	2- 6	1- 9			
4s5	8	4- 6	15	0- 8	1-11			
5s6	8	7- 6	15	4- 5 3/4	1- 6			
4t1	8	15-10	15	2- 2	6-10			
5t2	6	27- 6	STR					
11t3	27	17- 2	33	14- 0				
7t4	13	29- 2	33	27- 6				
6t5	27	15- 4	33	14- 0				
11t6	13	30- 8	33	27- 6				
11t7	2	14- 0	STR					
11t8	2	27- 6	STR					
6t9	2	14- 0	STR					
11t10	2	27- 6	STR					
11v1	48	27- 5	STR					
11v2	24	29- 4	17	27- 9				
11v3	24	24- 3	17	22- 8				

BENT 6N

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
11b1	10	46- 2	20	39- 0	3- 7	0- 8		
11b2	2	29- 0	STR					
11b3	6	40- 0	STR					
8b4	2	56- 0	STR					
8b5	4	59- 6	STR					
11b6	8	22- 9	STR					
11b7	16	27- 9	STR					
11b8	20	33- 1	1	2- 0	31- 1			
5b9	8	10- 6	32	7-10 1/2	2- 7	1- 5 3/4		
4b10	4	3- 8	STR					
4c1	200	13- 9	36	1- 9	4- 9			
4c2	100	19- 9	36	4- 9	4- 9			
11a1	24	11- 0	17	9- 5				
11a2	24	16- 1	17	14- 6				
5s1	84	18- 7	36	3- 1 3/4	5- 7 3/4			
5s2 a	56	14- 8	36	3- 1 3/4	3- 8 3/4			4 EA a to n
to n		18- 5		3- 1 3/4	5- 7			
4s3	24	6- 6	15	3- 0	1- 9			
4s4	24	6- 0	15	2- 6	1- 9			

BENT 6N (Continued)

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
4s5	8	4- 6	15	0- 8	1-11			
5s6	8	7- 6	15	4- 5 3/4	1- 6			
4t1	8	15-10	15	2- 2	6-10			
5t2	6	27- 6	STR					
11t3	27	17- 2	33	14- 0				
7t4	13	29- 2	33	27- 6				
6t5	27	15- 4	33	14- 0				
11t6	13	30- 8	33	27- 6				
11t7	2	14- 0	STR					
11t8	2	27- 6	STR					
6t9	2	14- 0	STR					
11t10	2	27- 6	STR					
11v1	48	29- 0	STR					
11v2	24	30-10	17	29- 3				
11v3	24	25- 9	17	24- 2				

BENT 5N

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
11b1	10	46- 2	20	39- 0	3- 7	0- 8		
11b2	2	29- 0	STR					
11b3	6	40- 0	STR					
8b4	2	56- 0	STR					
8b5	4	59- 6	STR					
11b6	2	22- 9	STR					
11b7	16	27- 9	STR					
11b8	20	33- 1	1	2- 0	31- 1			
5b9	8	10- 6	32	7-10 1/2	2- 7	1- 5 3/4		
4b10	4	3- 8	STR					
5b11 a	24	26-11	15	3- 3	11-10			4 EA a to f
to f		28- 9		3- 3	12- 9			
4b12	8	3- 0	STR					
11b13	8	26- 6	33	23- 4				
4c1	208	13- 9	36	1- 9	4- 9			
4c2	90	19- 9	36	4- 9	4- 9			
11a1	24	17- 1	17	15- 6				
11a2	24	22- 2	17	20- 7				
5s1	84	18- 7	36	3- 1 3/4	5- 7 3/4			
5s2 a	56	14- 8	36	3- 1 3/4	3- 8 3/4			4 EA a to n
to n		18- 5		3- 1 3/4	5- 7			
4s3	24	6- 6	15	3- 0	1- 9			
4s4	24	6- 0	15	2- 6	1- 9			
4s5	8	4- 6	15	0- 8	1-11			
5s6	8	7- 6	15	4- 5 3/4	1- 6			
5s7	26	14- 3	15	3- 3	5- 6			
5s8	12	14- 1	15	3- 1	5- 6			
4t1	8	17- 2	15	2- 2	7- 6			
4t2	2	11- 2	15	2- 2	4- 6			
5t3	6	27- 6	STR					
11t4	20	30- 8	33	27- 6				
11t5	2	15- 6	STR					
11t6	29	18- 8	33	15- 6				
11t7	2	27- 6	STR					
5t8	26	15- 2	15	3- 2	6- 0			
5t9	12	15- 0	15	3- 0	6- 0			
11v1	48	27- 8	STR					
11v2	24	29- 6	17	27-11				
11v3	24	24- 5	17	22-10				

BENT 4N

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
11b1	10	46- 2	20	39- 0	3- 7	0- 8		
11b2	2	29- 0	STR					
11b3	6	40- 0	STR					
8b4	2	56- 0	STR					
8b5	4	59- 6	STR					
11b6	2	22- 9	STR					
11b7	16	27- 9	STR					
11b8	20	33- 1	1	2- 0	31- 1			
5b9	8	10- 6	32	7-10 1/2	2- 7	1- 5 3/4		
4b10	4	3- 8	STR					
5b11 a	24	25- 7	15	3- 3	11- 2			4 EA a to f
to f		27- 7		3- 3	12- 2			
4b12	8	3- 0	STR					
11b13	8	25- 3	33	22- 1				
4c1	224	13- 9	36	1- 9	4- 9			
4c2	106	19- 9	36	4- 9	4- 9			
11a1	24	17- 1	17	15- 6				
11a2	24	22- 2	17	20- 7				
5s1	84	18- 7	36	3- 1 3/4	5- 7 3/4			
5s2 a	56	14- 8	36	3- 1 3/4	3- 8 3/4			4 EA a to n
to n		18- 5		3- 1 3/4	5- 7			
4s3	24	6- 6	15	3- 0	1- 9			
4s4	24	6- 0	15	2- 6	1- 9			
4s5	8	4- 6	15	0- 8	1-11			
5s6	8	7- 6	15	4- 5 3/4	1- 6			
5s7	26	14- 3	15	3- 3	5- 6			
5s8	12	14- 1	15	3- 1	5- 6			
4t1	8	17- 2	15	2- 2	7- 6			
4t2	2	11- 2	15	2- 2	4- 6			
5t3	6	27- 6	STR					
11t4	20	30- 8	33	27- 6				
11t5	2	15- 6	STR					
11t6	29	18- 8	33	15- 6				
11t7	2	27- 6	STR					
5t8	26	15- 2	15	3- 2	6- 0			
5t9	12	15- 0	15	3- 0	6- 0			
11v1	48	39- 6	STR					
11v2	24	31- 4	17	29- 9				
11v3	24	26- 3	17	24- 8				

NOTE:
FOR BAR BENDING DIAGRAMS, SEE PLATE NUMBERS S-55 AND S-56.

REVISED DRAWING
RECORD DRAWING

DESIGNED BY: K.G. | CHECKED BY: M.A.M.

PREPARED BY:

PRINCIPAL OF FIRM HNTB

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF
ARCHITECTS ENGINEERS PLANNERS
ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT, WILMINGTON
CORPS OF ENGINEERS
WILMINGTON, NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY

REINFORCING BAR LIST

COINJOCK BRIDGE REPLACEMENT PROJECT
CURRITUCK COUNTY NORTH CAROLINA

INVITATION NO.	SIZE	DRAWING NUMBER	PLATE NO
DACW54-83-B-0014		BR104-06-17	S-63

SCALE NONE | DATE 22 JULY 1983 | SHEET 113 OF 126

CORPS OF ENGINEERS

U. S. ARMY

SUBSTRUCTURE

BENT 3N

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
11b1	10	46- 2	20	39- 0	3- 7	0- 8		
11b2	2	29- 0	STR					
11b3	4	40- 0	STR					
8b4	2	56- 0	STR					
8b5	4	59- 6	STR					
11b6	2	22- 9	STR					
11b7	14	27- 9	STR					
11b8	20	33- 1	1	2- 0	31- 1			
5b9	8	10- 6	32	7-10 1/2	2- 7	1- 5 3/4		
4b10	4	3- 8	STR					
5b11 a	24	34-11	15	3- 3	10-10			4 EA a to f
to f		26-11		3- 3	11-10			
4b12	8	3- 0	STR					
11b13	8	24- 8	33	21- 6				
4c1	232	13- 9	36	1- 9	4- 9			
4c2	110	19- 9	36	4- 9	4- 9			
11a1	24	17- 1	17	15- 6				
11a2	24	22- 2	17	20- 7				
5s1	84	18- 7	36	3- 1 3/4	5- 7 3/4			
5s2 s	36	14- 8	36	3- 1 3/4	3- 8 3/4			4 EA s to n
to n		18- 5		3- 1 3/4	5- 7			
4s3	24	6- 6	15	3- 0	1- 9			
4s4	24	6- 0	15	2- 6	1- 9			
4s5	8	4- 6	15	0- 8	1-11			
5s6	8	7- 6	15	4- 5 3/4	1- 6			
5s7	26	14- 3	15	3- 3	5- 6			
5s8	12	14- 1	15	3- 1	5- 6			
4t1	8	17- 2	15	2- 2	7- 6			
4t2	2	11- 2	15	2- 2	4- 6			
5t3	6	27- 6	STR					
11t4	20	30- 8	33	27- 6				
11t5	2	15- 6	STR					
11t6	29	18- 8	33	15- 6				
11t7	2	27- 6	STR					
5t8	24	15- 2	15	3- 2	6- 0			
5t9	12	15- 0	15	3- 0	6- 0			
11v1	48	30- 5	STR					
11v2	24	32- 3	17	30- 8				
11v3	24	27- 2	17	25- 7				

BENT 2N

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
11b1	10	48- 2	20	41- 0	3- 6 3/4	0- 7 1/4		
11b2	2	28- 0	STR					
11b3	4	40- 0	STR					
8b4	2	58- 2	STR					
8b5	4	25- 0	STR					
8b6	4	41- 0	STR					
11b7	12	25- 2	STR					
11b8	12	30- 2	STR					
5b9	8	12- 1	32	9- 6	2- 7	1- 7 1/2		
4b10	4	4-11	STR					
5b11 e	24	26- 3	15	3- 3	11- 6			4 EA e to f
to f		28- 3		3- 3	12- 6			
4b12	8	3- 0	STR					
11b13	8	24- 0	33	22-10				

BENT 2N (Continued)

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
11b14	20	33- 6	17	31- 6				
4c1	236	13-11	36	1-10 1/2	4- 9			
4c2	112	19- 9	36	4- 9	4- 9			
11a1	48	22- 2	17	20- 7				
11a2	48	17- 1	17	15- 6				
5s1	98	18- 6	36	3- 1 3/4	5- 7 3/4			
5s2 s	92	14- 8	36	3- 1 3/4	3- 8 3/4			4 EA s to w
to w		18- 5		3- 1 3/4	5- 7			
4s3	28	7- 7	15	3- 9	1-11			
4s4	28	7- 3	15	3- 5	1-11			
4s5	8	4- 8	15	0- 8	2- 0			
5s6	8	7- 9	15	4- 8 1/2	1- 6			
5s7	26	13-11	15	3- 3	5- 4			
5s8	12	13- 8	15	3- 0	5- 4			
4t1	8	17- 4	15	2- 2	7- 7			
4t2	2	11- 4	15	2- 2	4- 7			
5t3	6	27- 6	STR					
11t4	20	30- 8	33	27- 6				
11t5	2	15- 6	STR					
11t6	29	18- 8	33	15- 6				
11t7	2	27- 6	STR					
5t8	26	15- 3	15	3- 3	6- 0			
5t9	12	15- 0	15	3- 0	6- 0			
11v1	192	23- 0	STR					
11v2	48	18- 9	17	17- 2				
11v3	48	23-10	17	22- 3				

BENT 1N

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
5b1	32	34-11	15	5- 7	14- 8			
11b2	14	28- 2	STR					
11b3	2	18- 1	15	5- 9	6- 2			
4b4	112	6- 7	28	5- 8	0- 4 1/2			
10b5	20	34- 0	1	2- 0	32- 0			
10b6	12	31- 7	STR					
10b7	28	26- 7	STR					
8b8	8	33- 1	STR					
11b9	8	31- 0	STR					
11b10	10	35- 0	STR					
11b11	10	50- 6	20	41- 0	4- 9			
5b12	8	10- 6	32	8- 0	2- 6	2- 0		
8b13	4	32- 3	STR					
8b14	4	28- 6	STR					
4c1	200	13- 8	36	4- 9	1- 8 1/2			
4c2	100	19- 9	36	4- 9	4- 9			
10a1	34	10- 3	STR					
10a2	34	7- 0	STR					
10a3	34	11- 0	STR					
10a4	34	14- 3	STR					
11a5	24	11- 2	STR					
11a6	24	16- 3	STR					
5s7	29	7- 5	15	5- 5	1- 0			
6s1	112	21-11	36	3- 3 1/2	6- 8			
6s2a	64	17- 4	36	3- 3 1/2	4- 8 1/2			4 EA a to p
to p		21- 3		3- 3 1/2	6- 8			
6s3a	16	15- 4	36	3- 3 1/2	3- 9 1/2			4 EA a to p
tod		16-11		3- 3 1/2	4- 7			

BENT 1N (Continued)

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
5s4	6	6- 4	15	4- 9	1- 0			
4s5	4	4-11	STR					
4s6	12	5- 2	15	0- 8	2- 3			
4s7a	10	4- 9	1	1- 6	3- 3			2EA a to e
to e		6- 0	"	1- 6	4- 6			
4s8	6	7- 9	15	4- 9	1- 6			
4s9	2	5-11	1	1- 6	4- 5			
4s10	30	6- 8	15	3- 8	1- 6			
4s11	24	7- 9	15	4- 9	1- 6			
6t1	19	36-10	STR					
11t2	22	36-10	STR					
6t3	38	17- 6	STR					
8t4	38	17- 6	STR					
4t5	12	19- 2	15	2- 2	8- 6			
4t6	10	10- 2	15	2- 2	4- 0			
4t7	8	36- 0	STR					
11v1	48	27- 7	STR					
11v2	24	30- 8	17	29- 1				
11v3	24	25- 8	17	24- 1				

NOTE:
FOR BAR BENDING DIAGRAMS, SEE PLATE NUMBERS S-55 AND S-56.

N.C. STATE AID PROJECT NO.

FEDERAL AID PROJECT NO. | FED. AID DIV. NO.

RECORD DRAWING

DESIGNED BY: K.G. | CHECKED BY: M.A.M.

PREPARED BY: [signature]

PRINCIPAL OF FIRM HNTB

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY

REINFORCING BAR LIST

COINJOCK BRIDGE REPLACEMENT PROJECT

CURRITUCK COUNTY NORTH CAROLINA

INVITATION NO	SIZE	DRAWING NUMBER	PLATE NO.
DACW54-83-B-0014		BR104-06-17	S-54

SCALE NONE | DATE 22 JULY 1983 | SHEET 114 OF 126

CORPS OF ENGINEERS

U. S. ARMY

SUBSTRUCTURE

BENT 1S

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
5b1	40	34-11	15	5- 7	14- 8			
11b2	14	28- 2	STR					
11b3	2	18- 1	15	5- 9	6- 2			
4b4	140	6- 7	28	5- 8	0- 4 1/2			
10b5	20	34- 0	1	2- 0	32- 0			
10b6	12	31- 7	STR					
10b7	28	26- 7	STR					
8b8	8	33- 1	STR					
11b9	8	31- 0	STR					
11b10	10	35- 0	STR					
11b11	10	50- 6	20	41- 0	4- 9			
5b12	8	10- 6	32	8- 0	2- 6	2- 0		
8b13	4	32- 3	STR					
8b14	4	28- 6	STR					
4c1	200	13- 8	36	4- 9	1- 8 1/2			
4c2	100	19- 9	36	4- 9	4- 9			
10m1	34	10- 3	STR					
10m2	34	7- 0	STR					
10m3	34	14- 6	STR					
10m4	34	17- 9	STR					
11m5	24	11- 2	STR					
11m6	24	16- 3	STR					
5m7	29	7- 5	15	5- 5	1- 0			
6s1	112	21-11	36	3- 3 1/2	6- 8			
6s2 a	64	17- 4	36	3- 3 1/2	4- 8 1/2			4 EA a to p
to p		21- 3		3- 3 1/2	6- 8			
6s3 a	16	15- 4	36	3- 3 1/2	3- 9 1/2			4 EA a to d
to d		16-11		3- 3 1/2	4- 7			
5s4	6	6- 9	15	4- 9	1- 0			
4s5	4	4-11	STR					
4s6	12	5- 2	15	0- 8	2- 3			
4s7 a	10	4- 9	1	1- 6	3- 3			2 EA a to e
to e		6- 0		1- 6	4- 6			
4s8	6	7- 9	15	4- 9	1- 6			
4s9	2	5-11	1	1- 6	4- 5			
4s10	30	6- 8	15	3- 8	1- 6			
4s11	24	7- 9	15	4- 9	1- 6			
4t1	19	36-10	STR					
11t2	22	36-10	STR					
6t3	38	17- 6	STR					
8t4	38	17- 6	STR					
4t5	12	19- 2	15	2- 2	8- 6			
4t6	10	10- 2	15	2- 2	4- 0			
4t7	8	36- 0	STR					
11v1	48	27- 1	STR					
11v2	24	30- 8	17	29- 1				
11v3	24	25- 8	17	24- 1				

BENT 2S

11b1	10	48- 2	20	41- 0	3- 6 3/4	0- 7 1/4		
11b2	2	28- 0	STR					
11b3	4	40- 0	STR					
8b4	2	58- 3	STR					
8b5	4	25- 0	STR					
11b6	4	41- 0	STR					
11b7	12	23- 2	STR					
11b8	12	30- 2	STR					
5b9	8	12- 1	32	9- 6	2- 7	1- 7 1/2		
4b10	4	4-11	STR					
5b11 a	24	25-11	15	3- 3	11- 4			4 EA a to f
to f		27-11		3- 3	12- 4			
4b12	8	3- 0	STR					
11b13	8	25- 7	33	22- 5				
11b14	20	33- 6	17	31- 6				
4c1	236	13-11	36	1-10 1/2	4- 9			
4c2	112	19- 9	36	4- 9	4- 9			
11m1	48	22- 2	17	20- 7				
11m2	48	17- 1	17	15- 6				
5s1	98	10- 6	36	3- 1 3/4	5- 7 3/4			
5s2 a	92	14- 8	36	3- 1 3/4	3- 8 3/4			4 EA a to w
to w		18- 5		3- 1 3/4	5- 7			
4s3	28	7- 7	15	3- 9	1-11			
4s4	28	7- 3	15	3- 5	1-11			
4s5	8	4- 8	15	0- 8	2- 0			
5s6	8	7- 9	15	4- 8 1/2	1- 6			
5s7	26	13-11	15	3- 3	5- 4			
5s8	12	13- 8	15	3- 0	5- 4			
4t1	8	17- 4	15	2- 2	7- 7			
4t2	2	11- 4	15	2- 2	4- 7			
5t3	6	27- 6	STR					
11t4	20	30- 8	33	27- 6				
11t5	2	15- 6	STR					
11t6	29	18- 8	33	15- 6				
11t7	2	27- 6	STR					
5t8	26	15- 3	15	3- 3	6- 0			
5t9	12	15- 0	15	3- 0	6- 0			
11v1	192	23- 0	STR					
11v2	48	19- 9	17	18- 2				
11v3	48	24-10	17	23- 3				

BENT 3S

11b1	10	46- 2	20	39- 0	3- 7	0- 8		
11b2	2	29- 0	STR					
11b3	6	40- 0	STR					
8b4	2	56- 0	STR					
8b5	4	59- 6	STR					
11b6	2	22- 9	STR					
11b7	16	27- 9	STR					
11b8	20	33- 1	1	2- 0	31- 1			
5b9	8	10- 6	32	7-10 1/2	2- 7	1- 5 3/4		
4b10	4	3- 8	STR					
5b11 a	24	24- 3	15	3- 3	10- 6			4 EA a to f
to f		26- 3		3- 3	11- 6			
4b12	8	3- 0	STR					
11b13	8	23-10	33	20-11				
4c1	240	13- 9	36	1- 9	4- 9			
4c2	114	19- 9	36	4- 9	4- 9			
11m1	24	17- 1	17	15- 6				
11m2	24	22- 2	17	20- 7				
5s1	84	18- 7	36	3- 1 3/4	5- 7 3/4			
5s2 a	56	14- 8	36	3- 1 3/4	3- 8 3/4			4 EA a to n
to n		18- 5		3- 1 3/4	5- 7			
4s3	24	6- 6	15	3- 0	1- 9			

BENT 3S (Continued)

4s4	24	6- 0	15	2- 6	1- 9			
4s5	8	4- 6	15	0- 8	1-11			
5s6	8	7- 6	15	4- 5 3/4	1- 6			
5s7	26	14- 6	15	3- 3	5- 6			
5s8	12	14- 2	15	3- 1	5- 6			
4t1	8	17- 2	15	2- 2	7- 6			
4t2	2	11- 2	15	2- 2	4- 6			
5t3	6	27- 6	STR					
11t4	20	30- 8	33	27- 6				
11t5	2	15- 6	STR					
11t6	29	18- 8	33	15- 6				
11t7	2	27- 6	STR					
5t8	26	15- 2	15	3- 2	6- 0			
5t9	12	15- 0	15	3- 0	6- 0			
11v1	48	31- 5	STR					
11v2	24	33- 4	17	31- 9				
11v3	24	28- 3	17	26- 8				

BENT 4S

11b1	10	46- 2	20	39- 0	3- 7	0- 8		
11b2	2	29- 0	STR					
11b3	6	40- 0	STR					
8b4	2	56- 0	STR					
8b5	4	59- 6	STR					
11b6	2	22- 9	STR					
11b7	16	27- 9	STR					
11b8	20	33- 1	1	2- 0	31- 1			
5b9	8	10- 6	32	7-10 1/2	2- 7	1- 5 3/4		
4b10	4	3- 8	STR					
5b11 a	24	24-11	15	3- 3	10-10			4 EA a to f
to f		26-11		3- 3	11-10			
4b12	8	3- 0	STR					
11b13	8	24- 7	33	21- 5				
4c1	232	13- 9	36	1- 9	4- 9			
4c2	110	19- 9	36	4- 9	4- 9			
11m1	24	17- 1	17	15- 6				
11m2	24	22- 2	17	20- 7				
5s1	84	18- 7	36	3- 1 3/4	5- 7 3/4			
5s2 a	56	14- 8	36	3- 1 3/4	3- 8 3/4			4 EA a to n
to n		18- 5		3- 1 3/4	5- 7			
4s3	24	6- 6	15	3- 0	1- 9			
4s4	24	6- 0	15	2- 6	1- 9			
4s5	8	4- 6	15	0- 8	1-11			
5s6	8	7- 6	15	4- 5 3/4	1- 6			
5s7	26	14- 3	15	3- 3	5- 6			
5s8	12	14- 1	15	3- 1	5- 6			
4t1	8	17- 2	15	2- 2	7- 6			
4t2	2	11- 2	15	2- 2	4- 6			
5t3	6	27- 6	STR					
11t4	20	30- 8	33	27- 6				
11t5	2	15- 6	STR					
11t6	29	18- 8	33	15- 6				
11t7	2	27- 6	STR					
5t8	26	15- 2	15	3- 2	6- 0			
5t9	12	15- 0	15	3- 0	6- 0			
11v1	48	31- 6	STR					
11v2	24	32- 2	17	30- 7				
11v3	24	27- 1	17	25- 6				

NC STATE AID PROJECT NO

FEDERAL AID PROJECT NO. | FED RD DIV NO.

NOTE:
FOR BAR BENDING DIAGRAMS, SEE PLATE NUMBERS S-55 AND S-56.

RECORD DRAWING

DESIGNED BY: K.G. | CHECKED BY: M.A.M.

PREPARED BY:

PRINCIPAL OF FIRM HNTB

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U S ARMY ENGINEER DISTRICT WILMINGTON, NORTH CAROLINA
CORPS OF ENGINEERS

ATLANTIC INTRACOASTAL WATERWAY

REINFORCING BAR LIST

COINJOCK BRIDGE REPLACEMENT PROJECT

CURRITUCK COUNTY NORTH CAROLINA

INVITATION NO	SIZE	DRAWING NUMBER	PLATE NO
DACW54-83-B-0014		BR104-06-17	S-65
SCALE NONE	DATE 22 JULY 1983	SHEET 16 OF 127	

CORPS OF ENGINEERS

U. S. ARMY

N/C STATE AID PROJECT NO

FEDERAL AID PROJECT NO | FED. HWY. DIV. NO.

SUBSTRUCTURE

BENT 5S

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
11b1	10	46- 2	20	39- 0	3- 7	0- 8		
11b2	2	29- 0	STR					
11b3	6	40- 0	STR					
8b4	2	56- 0	STR					
8b5	4	59- 6	STR					
11b6	2	22- 9	STR					
11b7	16	27- 9	STR					
11b8	20	33- 1	1	2- 0	31- 1			
5b9	8	10- 6	32	7-10 1/2	2- 7	1- 5 3/4		
4b10	4	3- 8	STR					
5b11 a	24	25- 6	15	3- 3	11- 2			4 EA a to f
to f		27- 6		3- 3	12- 2			
4b12	8	3- 0	STR					
11b13	8	25- 8	33					
4c1	224	13- 9	36	1- 9	4- 9			
4c2	106	19- 9	36	4- 9	4- 9			
11m1	24	17- 1	17	15- 6				
11m2	24	22- 2	17	20- 7				
5s1	84	18- 7	36	3- 1 3/4	5- 7 3/4			
5s2 a	56	14- 8	36	3- 1 3/4	3- 8 3/4			4 EA a to n
to n		18- 5		3- 1 3/4	5- 7			
4s3	24	6- 6	15	3- 0	1- 9			
4s4	24	6- 0	15	2- 6	1- 9			
4s5	8	4- 6	15	0- 8	1-11			
5s6	8	7- 6	15	4- 5 3/4	1- 6			
5s7	26	14- 3	15	3- 3	5- 6			
5s8	12	14- 1	15	3- 1	5- 6			
4t1	8	17- 2	15	2- 2	7- 6			
4t2	2	11- 2	15	2- 2	4- 6			
5t3	6	27- 6	STR					
11t4	20	30- 8	33	27-				
11t5	2	15- 6	STR					
11t6	29	18- 8	33	15- 6				
11t7	2	27- 6	STR					
5t8	26	15- 2	15	3- 2	6- 0			
5t9	12	14- 6	15	3- 0	6- 0			
11v1	48	29- 5	STR					
11v2	24	31- 3	17	29- 8				
11v3	24	26- 3	17	24- 8				

BENT 6S

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
11b1	10	46- 2	20	39- 0	3- 7	0- 8		
11b2	2	29- 0	STR					
11b3	6	40- 0	STR					
8b4	2	56- 0	STR					
8b5	4	59- 6	STR					
11b6	8	22- 9	STR					
11b7	16	27- 9	STR					
11b8	20	33- 1	1	2- 0	31- 1			
5b9	8	10- 6	32	7-10 1/2	2- 7	1- 5 3/4		
4b10	4	3- 8	STR					
4c1	216	13- 9	36	1- 9	4- 9			
4c2	108	19- 9	36	4- 9	4- 9			
11m1	24	11- 0	17	9- 5				
11m2	24	16- 1	17	14- 6				
5s1	84	18- 7	36	3- 1 3/4	5- 7 3/4			
5s2 a	56	14- 8	36	3- 1 3/4	3- 8 3/4			4 EA a to n
to n		18- 5		3- 1 3/4	5- 7			
4s3	24	6- 6	15	3- 0	1- 9			
4s4	24	6- 0	15	2- 6	1- 9			
4s5	8	4- 6	15	0- 8	1-11			
5s6	8	7- 6	15	4- 5 3/4	1- 6			
4t1	8	15-10	15	2- 2	6-10			
5t2	6	27- 6	STR					
11t3	27	17- 2	33	14- 0				
7t4	13	29- 2	33	27- 6				
6t5	27	15- 4	33	14- 0				
11t6	13	30- 8	33	27- 6				
11t7	2	14- 0	STR					
11t8	2	27- 6	STR					
6t9	2	14- 0	STR					
11t10	2	27- 6	STR					
11v1	48	29- 5	STR					
11v2	24	31- 4	17	29- 9				
11v3	24	26- 3	17	24- 8				

BENT 6S (Continued)

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
5s1	84	18- 7	36	3- 1 3/4	5- 7 3/4			
5s2 a	56	14- 8	36	3- 1 3/4	3- 8 3/4			4 EA a to n
to n		18- 5		3- 1 3/4	5- 7			
4s3	24	6- 6	15	3- 0	1- 9			
4s4	24	6- 0	15	2- 6	1- 9			
4s5	8	4- 6	15	0- 8	1-11			
5s6	8	7- 6	15	4- 5 3/4	1- 6			
4t1	8	15-10	15	2- 2	6-10			
5t2	6	27- 6	STR					
11t3	27	17- 2	33	14- 0				
7t4	13	29- 2	33	27- 6				
6t5	27	15- 4	33	14- 0				
11t6	13	30- 8	33	27- 6				
11t7	2	14- 0	STR					
11t8	2	27- 6	STR					
6t9	2	14- 0	STR					
11t10	2	27- 6	STR					
11v1	48	29- 5	STR					
11v2	24	31- 4	17	29- 9				
11v3	24	26- 3	17	24- 8				

BENT 7S

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
11b1	10	46- 2	20	39- 0	3- 7	0- 8		
11b2	2	29- 0	STR					
11b3	6	40- 0	STR					
8b4	2	56- 0	STR					
8b5	4	59- 6	STR					
11b6	8	22- 9	STR					
11b7	16	27- 9	STR					
11b8	20	33- 1	1	2- 0	31- 1			
5b9	8	10- 6	32	7-10 1/2	2- 7	1- 5 3/4		
4b10	4	3- 8	STR					
4c1	208	13- 9	36	1- 9	4- 9			
4c2	104	19- 9	36	4- 9	4- 9			
11m1	24	11- 0	17	9- 5				
11m2	24	16- 1	17	14- 6				
5s1	84	18- 7	36	3- 1 3/4	5- 7 3/4			
5s2 a	56	14- 8	36	3- 1 3/4	3- 8 3/4			4 EA a to n
to n		18- 5		3- 1 3/4	5- 7			
4s3	24	6- 6	15	3- 0	1- 9			
4s4	24	6- 0	15	2- 6	1- 9			
4s5	8	4- 6	15	0- 8	1-11			
5s6	8	7- 6	15	4- 5 3/4	1- 6			
4t1	8	15-10	15	2- 2	6-10			
5t2	6	27- 6	STR					
11t3	27	17- 2	33	14- 0				
7t4	13	29- 2	33	27- 6				
6t5	27	15- 4	33	14- 0				
11t6	13	30- 8	33	27- 6				
11t7	2	14- 0	STR					
11t8	2	27- 6	STR					
6t9	2	14- 0	STR					
11t10	2	27- 6	STR					
11v1	48	29- 5	STR					
11v2	24	31- 4	17	29- 9				
11v3	24	26- 3	17	24- 8				

BENT 8S (Continued)

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
11b1	10	46- 2	20	39- 0	3- 7	0- 8		
11b2	2	29- 0	STR					
11b3	6	40- 0	STR					
8b4	2	56- 0	STR					
8b5	4	59- 6	STR					
11b6	8	22- 9	STR					
11b7	16	27- 9	STR					
11b8	20	33- 1	1	2- 0	31- 1			
5b9	8	10- 6	32	7-10 1/2	2- 7	1- 5 3/4		
4b10	4	3- 8	STR					
4c1	192	13- 9	36	1- 9	4- 9			
4c2	96	19- 9	36	4- 9	4- 9			
11m1	24	11- 0	17	9- 5				
11m2	24	16- 1	17	14- 6				
5s1	84	18- 7	36	3- 1 3/4	5- 7 3/4			
5s2 a	56	14- 8	36	3- 1 3/4	3- 8 3/4			4 EA a to n
to n		18- 5		3- 1 3/4	5- 7			
4s3	24	6- 6	15	3- 0	1- 9			
4s4	24	6- 0	15	2- 6	1- 9			
4s5	8	4- 6	15	0- 8	1-11			
5s6	8	7- 6	15	4- 5 3/4	1- 6			
4t1	8	15-10	15	2- 2	6-10			
5t2	6	27- 6	STR					
11t3	27	17- 2	33	14- 0				
7t4	13	29- 2	33	27- 6				
6t5	27	15- 4	33	14- 0				
11t6	13	30- 8	33	27- 6				
11t7	2	14- 0	STR					
11t8	2	27- 6	STR					
6t9	2	14- 0	STR					
11t10	2	27- 6	STR					
11v1	48	27- 7	STR					
11v2	24	29- 6	17	27-11				
11v3	24	24- 5	17	22-10				

NOTE:
FOR BAR BENDING DIAGRAMS, SEE PLATE NUMBERS S-55 AND S-56.

RECORD DRAWING

DESIGNED BY: K.G. | CHECKED BY: M.A.M.

PREPARED BY:

PRINCIPAL OF FIRM HNTB

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U S ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY

REINFORCING BAR LIST

COINJOCK BRIDGE REPLACEMENT PROJECT

CURRITUCK COUNTY NORTH CAROLINA

INVITATION NO.	SIZE	DRAWING NUMBER	PLATE NO.
DACW54-83-B-0014		BR104-06-17	S-66

SCALE NONE | DATE 22 JULY 1983 | SHEET 116 OF 126

CORPS OF ENGINEERS

U. S. ARMY

N.C. STATE AID PROJECT NO

FEDERAL AID PROJECT NO | FED HD OAY NO

SUBSTRUCTURE

BENT 9S

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
11b1	10	46- 2	20	39- 0	3- 7	0 8		
11b2	2	29- 0	STR					
11b3	6	40- 0	STR					
8b4	2	56- 0	STR					
8b5	4	59- 6	STR					
11b4	8	22- 9	STR					
11b7	16	27- 9	STR					
11b8	20	33- 1	1	2- 0	31- 1			
5b9	8	10- 6	32	7-10 1/2	2- 7	1- 5 3/4		
4b10	4	3- 8	STR					
4c1	176	13- 9	36	1- 9	4- 9			
4c2	88	19- 9	36	4- 9	4- 9			
11m1	24	11- 0	17	9- 5				
11m2	24	16- 1	17	14- 6				
5s1	84	18- 7	36	3- 1 3/4	5- 7 3/4			
5s2 a	56	14- 8	36	3- 1 3/4	3- 8 3/4			4 EA a to n
to n		18- 5		3- 1 3/4	5- 7			
4s3	24	6- 6	15	3- 0	1- 9			
4s4	24	6- 0	15	2- 6	1- 9			
4s5	8	4- 6	15	0- 8	1-11			
5s6	8	7- 6	15	4- 5 3/4	1- 6			
4t1	8	15-10	15	2- 2	6-10			
5t2	6	27- 6	BTR					
11t3	27	17- 2	33	14- 0				
7t4	13	29- 2	33	27- 6				
6t5	27	15- 4	33	14- 0				
11t6	13	30- 8	33	27- 6				
11t7	2	14 0	STR					
11t8	2	27- 6	STR					
6t9	2	14- 0	STR					
11t10	2	27- 6	STR					
11v1	48	25- 9	STR					
11v2	24	27- 7	17	26- 0				
11v3	24	22- 7	17	21- 0				

BENT 10S

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
11b1	10	46- 2	20	38- 0	4-11	0- 8 3/4		
11b2	6	30- 0	STR					
11b3	2	40- 0	STR					
8b4	2	57- 3	STR					
8b5	4	59- 6	STR					
11b6	8	22- 9	STR					
11b7	4	31- 4	STR					
11b8	16	27- 9	STR					
11b9	16	32- 8	1	2- 0	31- 1			
5b10	8	10- 6	32	7-11	2- 7	1- 5		
4b11	4	3- 8	STR					
11b12	8	8- 6	STR					
4c1	160	10- 1	36	0-11	3- 9			
4c2	80	15- 9	36	3- 9	3- 9			
11m1	20	11- 0	17	9- 5				
11m2	20	16- 1	17	14- 6				
11m3	12	7- 6	38	2- 0	3-11			
11m4	4	5- 0	STR					
4s1	16	9- 9	36	2- 6	2- 0			
4s2	16	7- 5	35	1- 8	1- 0			
4s3 a	6	7- 9	36	2- 6	1- 0			2 EA a to c
to c		11- 9		2- 6	3- 0			
5s4	8	5- 8	15	3- 8 1/4	1- 0			
4s5	8	4- 8	15	0- 8	2- 0			
5s6	88	17- 4	36	2- 6	5- 8			
4s7	24	5-10	15	2- 6	1- 8			
4s8	24	6- 4	15	1- 0	1- 8			
5s9 a	72	17- 2	36	2- 6	5- 7			4 EA a to r
to r		13- 8		2- 6	3-10			
11t1	26	15- 2	33	12- 0				
11t2	32	17- 2	33	14- 0				
6t3	30	12- 0	STR					
6t4	26	14- 0	STR					
11t5	4	12- 0	STR					
11t6	4	14- 0	STR					
5t7	16	10-10	15	2- 6	4- 2			
5t8	4	15-10	15	2- 2	6-10			
5t9	8	10- 4	15	2- 2	4- 1			
11v1	40	23-11	STR					
11v2	20	25-10	17	24- 3				
11v3	20	20- 9	17	19- 2				

BENT 11S

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
11b1	10	46- 2	20	38- 0	4-11	0- 8 3/4		
11b2	6	30- 0	STR					
11b3	2	40- 0	STR					
8b4	2	57- 3	STR					
8b5	4	59- 6	STR					
11b6	8	22- 9	STR					
11b7	4	31- 4	STR					
11b8	16	27- 9	STR					
11b9	16	32- 8	1	2- 0	31- 1			
5b10	8	10- 6	32	7-11	2- 7	1- 5		
4b11	4	3- 8	STR					
11b12	8	8- 6	STR					
4c1	144	10- 1	36	0-11	3- 9			
4c2	72	15- 9	36	3- 9	3- 9			
11m1	20	11- 0	17	9- 5				
11m2	20	16- 1	17	14- 6				
11m3	12	7- 6	38	2- 0	3-11			
11m4	4	5- 0	STR					
4s1	16	9- 9	36	2- 6	2- 0			
4s2	16	7- 5	35	1- 8	1- 0			
4s3 a	6	7- 9	36	2- 6	1- 0			2 EA a to c
to c		11- 9		2- 6	3- 0			
5s4	8	5- 8	15	3- 8 1/4	1- 0			
4s5	8	4- 8	15	0- 8	2- 0			
5s6	88	17- 4	36	2- 6	5- 8			
4s7	24	5-10	15	2- 6	1- 8			
4s8	24	6- 4	15	3- 0	1- 8			
5s9 a	72	17- 2	36	2- 6	5- 7			4 EA a to r
to r		13- 8		2- 6	3-10			
11t1	26	15- 2	33	12- 0				
11t2	32	17- 2	33	14- 0				
6t3	30	12- 0	STR					
6t4	26	14- 0	STR					
11t5	4	12- 0	STR					
11t6	4	14- 0	STR					
5t7	16	10-10	15	2- 6	4- 2			
5t8	4	15-10	15	2- 2	6-10			
5t9	8	10- 4	15	2- 2	4- 1			
11v1	40	22- 1	STR					
11v2	20	24- 1	17	22- 6				
11v3	20	19- 0	17	17- 5				

BENT 12S

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
11b1	10	46- 2	20	38- 0	4-11	0- 8 3/4		
11b2	6	30- 0	STR					
11b3	2	40- 0	STR					
8b4	2	57- 3	STR					
8b5	4	59- 6	STR					
11b6	8	22- 9	STR					
11b7	4	31- 4	STR					
11b8	16	27- 9	STR					
11b9	16	32- 8	1	2- 0	31- 1			
5b10	8	10- 6	32	7-11	2- 7	1- 5		
4b11	4	3- 8	STR					
11b12	8	8- 6	STR					
4c1	72	10- 1	36	0-11	3- 9			
4c2	36	15- 9	36	3- 9	3- 9			
11m1	20	11- 0	17	9- 5				
11m2	20	16- 1	17	14- 6				
11m3	12	7- 6	38	2- 0	3-11			
11m4	4	5- 0	STR					
4s1	16	9- 9	36	2- 6	2- 0			
4s2	16	7- 5	35	1- 8	1- 0			
4s3 a	6	7- 9	36	2- 6	1- 0			2 EA a to c
to c		11- 9		2- 6	3- 0			
5s4	8	5- 8	15	3- 8 1/4	1- 0			
4s5	8	4- 8	15	0- 8	2- 0			
5s6	88	17- 4	36	2- 6	5- 8			
4s7	24	5-10	15	2- 6	1- 8			
4s8	24	6- 4	15	3- 0	1- 8			
5s9 a	72	17- 2	36	2- 6	5- 7			4 EA a to r
to r		13- 8		2- 6	3-10			
11t1	26	15- 2	33	12- 0				
11t2	32	17- 2	33	14- 0				
6t3	30	12- 0	STR					
6t4	26	14- 0	STR					
11t5	4	12- 0	STR					
11t6	4	14- 0	STR					
5t7	16	10-10	15	2- 6	4- 2			
5t8	4	15-10	15	2- 2	6-10			
5t9	8	10- 4	15	2- 2	4- 1			
11v1	20	23- 1	17	21- 6				
11v2	20	18- 0	17	16- 5				

NOTE:
FOR BAR BENDING DIAGRAMS, SEE PLATE NUMBERS S-55 AND S-56.

RECORD DRAWING

DESIGNED BY: K.G. | CHECKED BY: M.A.M.

PREPARED BY:

PRINCIPAL OF FIRM HNTB

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA

U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY

REINFORCING BAR LIST

COINJOCK BRIDGE REPLACEMENT PROJECT

CURRITUCK COUNTY NORTH CAROLINA

INVITATION NO.	SIZE	DRAWING NUMBER	PLATE NO
DACW54-83-B-0014		BR104-06-17	S-67

SCALE NONE | DATE 22 JULY 1983 | SHEET 117 OF 126

CORPS OF ENGINEERS | U. S. ARMY

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS
SUBSTRUCTURE								
END BENT 2								
4s1	64	7- 3	18	2- 2	2- 1 1/2			
4s2	64	2-11	2	2- 2				
10b1	16	38- 6	17	37- 2				
8b2	4	36- 1	STR					
4b3	12	23- 8	STR					
4b4	4	10- 8	STR					
4b5	20	5- 2	15	2- 2	1- 6			
6b6	9	5- 3	33	3-11				
6b7	3	11- 1	34	1-11	3-11			
4b8	18	2- 2	STR					
6b9	2	9- 1	34	1-11	2- 5			
6b10	6	3- 9	33	2- 5				
4b11	8	7- 8	STR					
4h1	12	12- 2	STR					
4h2	24	11- 8	1	1- 0	10- 8			
4h3	12	5- 8	15	0- 8	2- 6			
4h4	4	2- 0	STR					
4v1	56	7- 9	STR					
4v2	4	4- 2	15	0- 8	1- 9			
NORTHEAST AND SOUTHWEST END BLOCKS								
5c1	6	8- 2	13					SEE BAR TYPE
6c2	1	5- 7	21	2- 0	3- 7	1- 2 1/4	5- 2 5/8	NE AND SW
6c3	1	5- 9	21	2- 0	3- 9	1- 3 1/8	5- 4 5/8	2 REQUIRED
6c4	1	6- 1	21	2- 0	4- 1	1- 4 3/8	5-10 3/4	
6c5	3	5- 5	21	2- 0	3- 5	1- 1 1/2	5- 0	
6c8	2	6- 7	19	1- 6	4- 1	1- 4 3/8	5-10 3/4	
6c9	2	5-11	19	1- 6	3- 5	1- 1 1/2	5- 0	
SOUTHEAST AND NORTHWEST END BLOCKS								
5c1	6	8- 2	13					SEE BAR TYPE
6c2	1	5- 7	21	2- 0	3- 7	1- 2 1/4	5- 2 5/8	SE AND NW
6c3	1	5- 9	21	2- 0	3- 9	1- 3 1/8	5- 4 5/8	2 REQUIRED
6c4	1	6- 1	21	2- 0	4- 1	1- 4 3/8	5-10 3/4	
6c5	3	5- 5	21	2- 0	3- 5	1- 1 1/2	5- 0	
6c6	2	6- 7	19	1- 6	4- 1	1- 4 3/8	5-10 3/4	
6c7	2	5-11	19	1- 6	3- 5	1- 1 1/2	5- 0	
NORTH APPROACH SLAB								
4a1	28	30- 6	STR					
6b1	120	9- 2	STR					
6b2	120	9- 7	STR					
SOUTH APPROACH SLAB								
4a1	28	30- 6	STR					
6b1	120	9- 2	STR					
6b2	120	9- 7	STR					

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS

BAR MARK	NO.	L'GTH	TYPE	DIMENSIONS A	B	C	D	REMARKS

N.C. STATE AID PROJECT NO
FEDERAL AID PROJECT NO | FED. RD. DIV. NO.

NOTE:
FOR BAR BENDING DIAGRAMS, SEE PLATE NUMBERS S-55 AND S-56.

NOTE: REFERENCE DRAWINGS OF OLD BRIDGE (Sheets 119-126) ARE NOT INCLUDED.

RECORD DRAWING

DESIGNED BY: K.G. | CHECKED BY: M.A.M.
PREPARED BY: [signature]
PRINCIPAL OF FIRM HNTB

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS ATLANTA, GEORGIA
U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA

ATLANTIC INTRACOASTAL WATERWAY

REINFORCING BAR LIST

COINJOCK BRIDGE REPLACEMENT PROJECT
CURRITUCK COUNTY — NORTH CAROLINA

INVITATION NO. DACW54-83-[illegible] | SIZE [illegible] | DRAWING NUMBER BR104-06-17 | PLATE NO. S-68
SCALE NONE | DATE 22 JULY 1983 | SHEET 118 OF 126