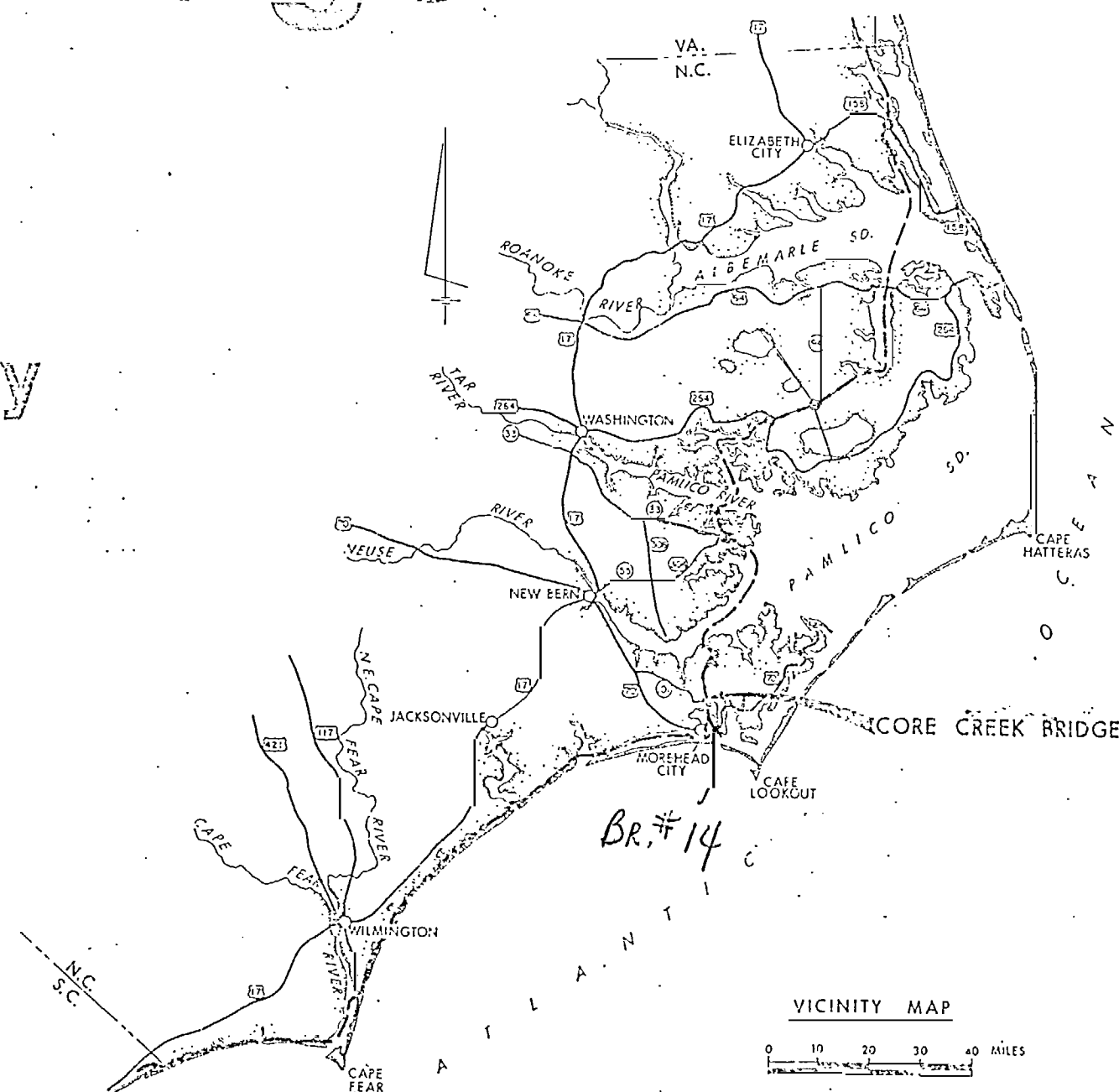


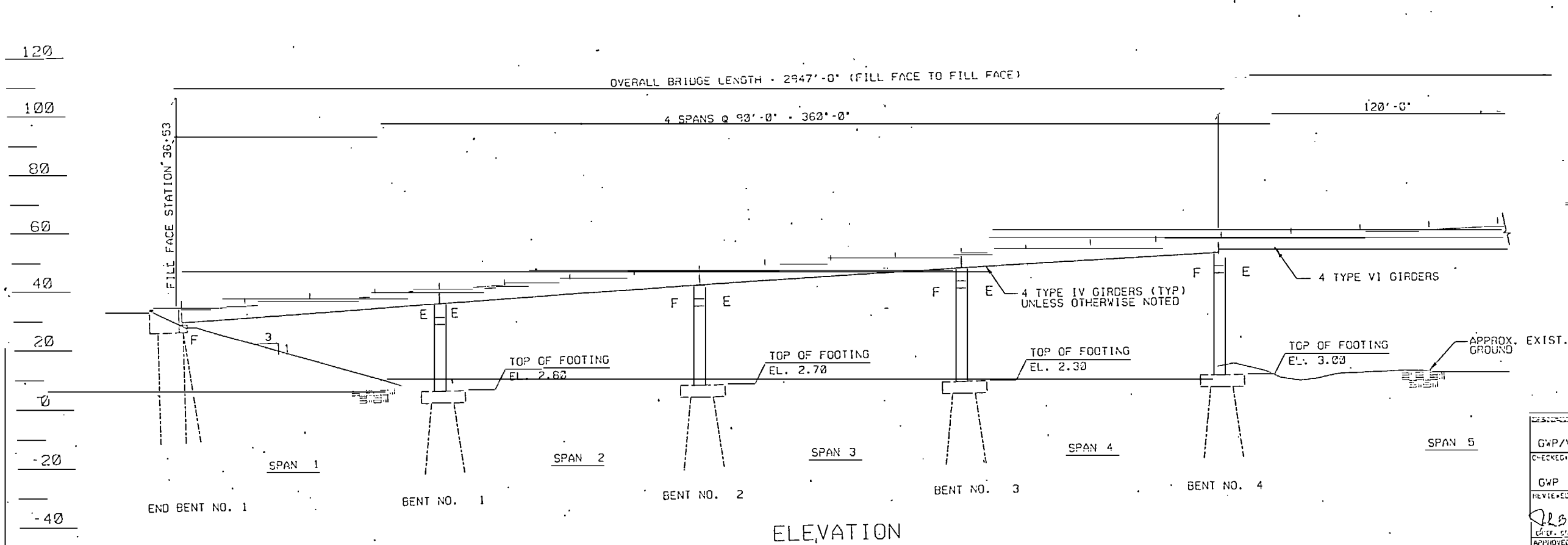
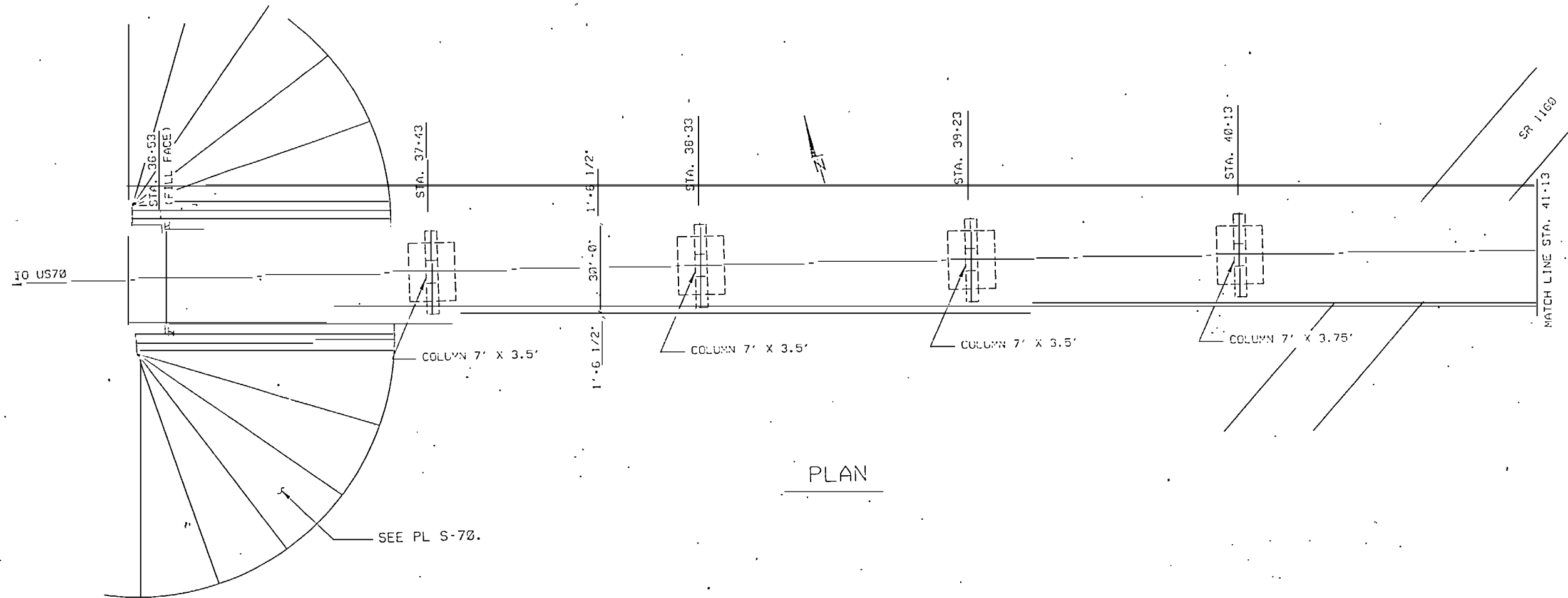
US Army Corps
of Engineers
Wilmington District

Core Creek Bridge Replacement

Atlantic Intracoastal Waterway
Carteret County
North Carolina

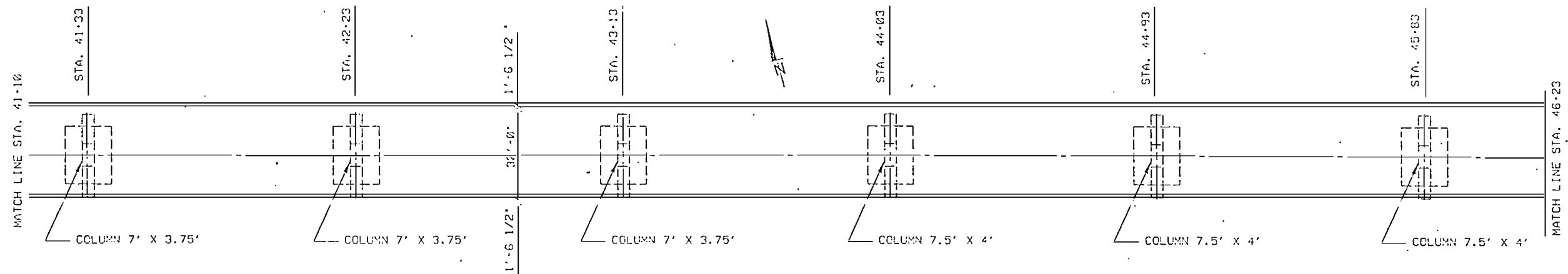
IFB No. DACW54-91-B-0011



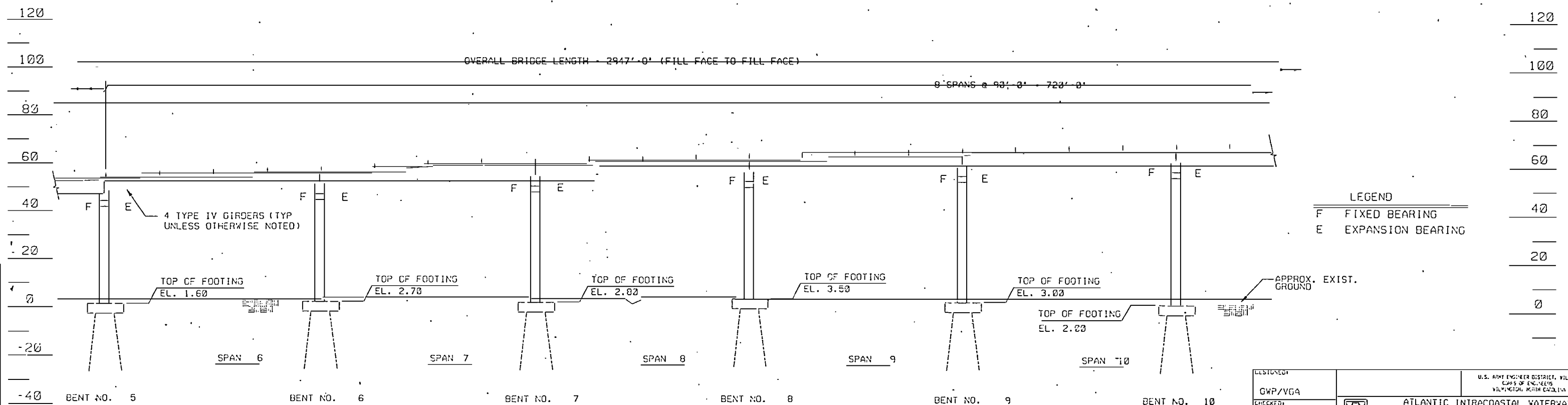


LEGEND
 F FIXED BEARING
 E EXPANSION BEARING

DESCRIPTION GWP/VGA CHECKED GWP REVIEWED J. Blanton, P.E. CHIEF, OPERATIONS SECTION APPROVED E. Lanier, P.E. CHIEF, DESIGN BRANCH		U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT GENERAL PLAN & ELEV. SHEET 1 OF 7	
SCALE	DRAWING CODE	PLATE NO.	
1" = 20'	BRI04-C6-23	S1	
CCPRO1	DATE: 31 MAY 91	SHEET 29 OF 138	



PLAN

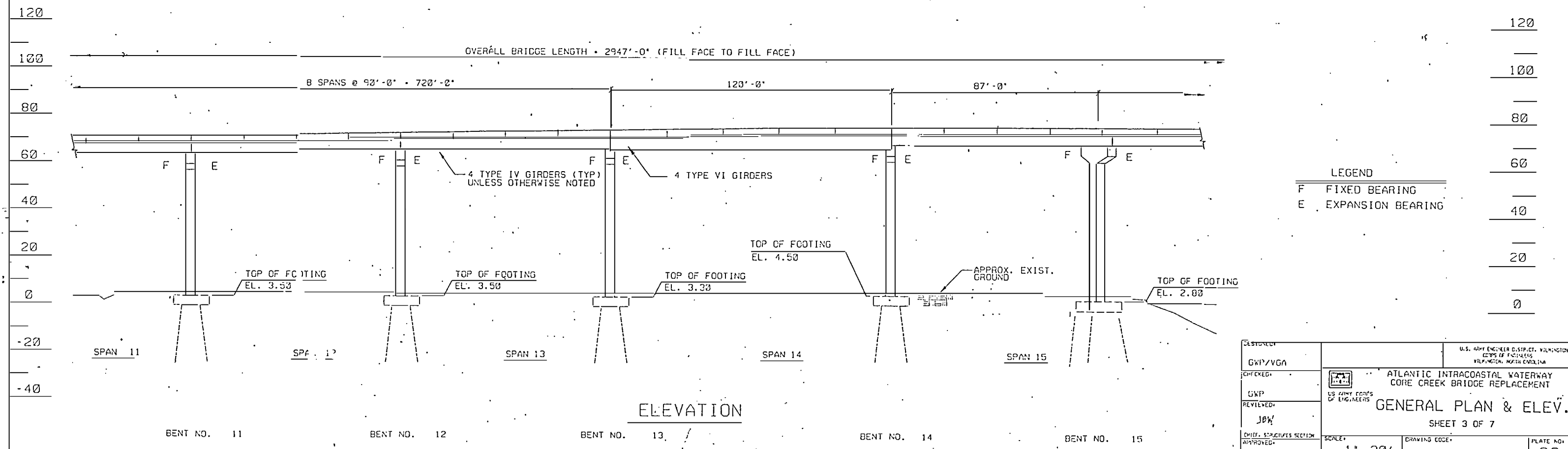
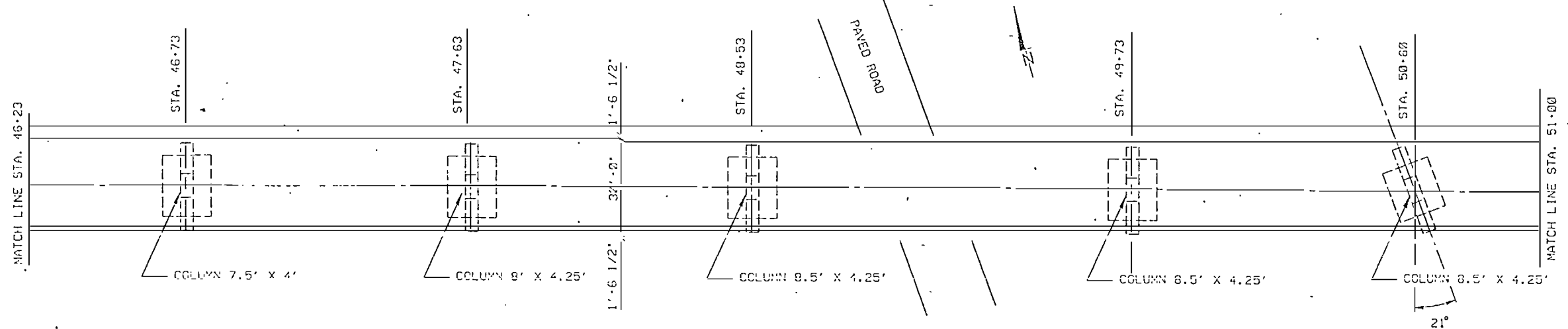


ELEVATION

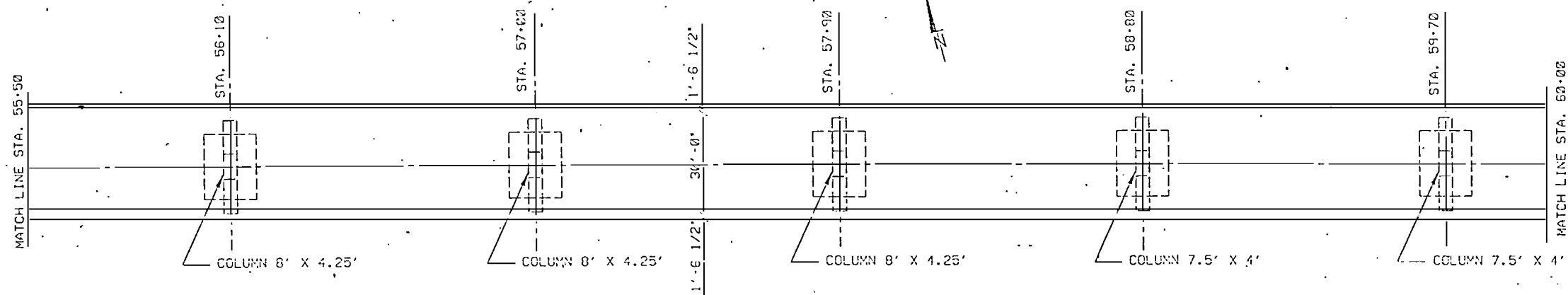
LEGEND
F FIXED BEARING
E EXPANSION BEARING

DESIGNED GWP/VGA	U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA	
CHECKED GWP	ATLANTIC INTRACOASTAL WATERWAY COREY CREEK BRIDGE REPLACEMENT	
REVIEWED JGW	GENERAL PLAN & ELEV.	
CHIEF, STRUCTURES SECTION	SCALE 1"=20'	DRAWING CODE BR104-06-23
APPROVED Ed Janier, P.E. CHIEF, DESIGN BRANCH	DATE 31 MAY 91	PLATE NO. S2
CCPR02.DGN		SHEET 30 OF 139

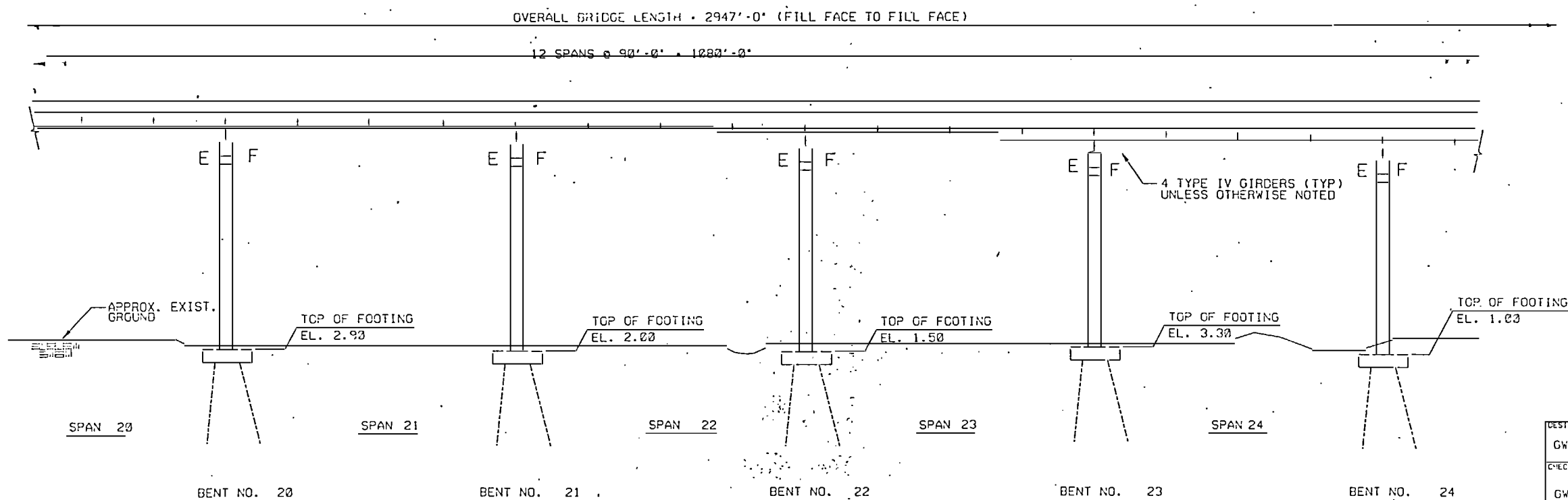
9/46



DESIGNED BY GWP/VGN		U.S. ARMY ENGINEER DISTRICT, WASHINGTON CORPS OF ENGINEERS WASHINGTON, NORTH CAROLINA	
CHECKED BY GWP	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT		
REVIEWED BY JBN	GENERAL PLAN & ELEV.		
CHIEF, STRUCTURES SECTION APPROVED E. J. Zander, P.E.	SCALE 1" = 20'	DRAWING CODE BR104-06-23	PLATE NO. S3
CHIEF, DESIGN BRANCH CCPR03	DATE 31 MAY 91	SHEET 31 OF 138	



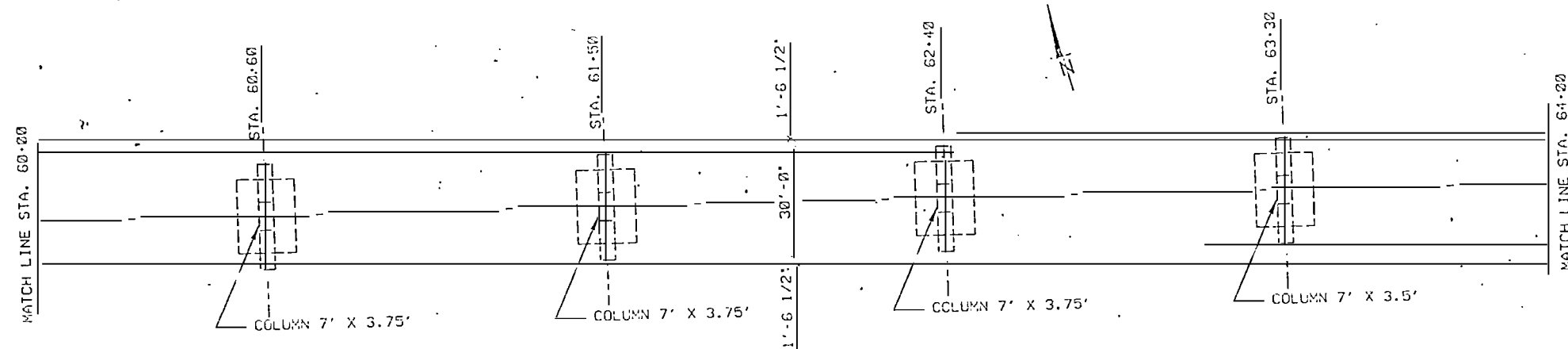
PLAN



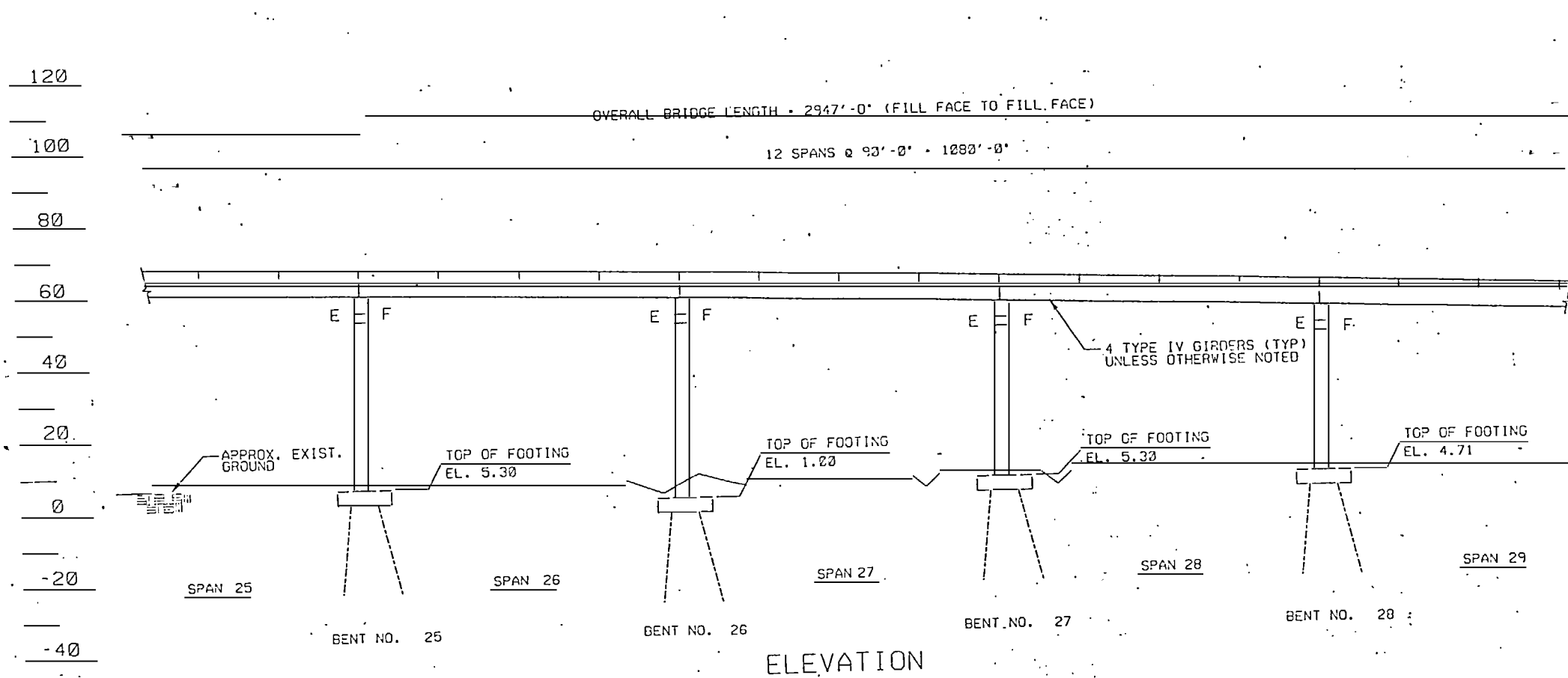
ELEVATION

LEGEND
F FIXED BEARING
E EXPANSION BEARING

DESIGNED GWP/VGA	U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA	
CHECKED GWP	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT	
REVIEWED JW	GENERAL PLAN & ELEV. SHEET 5 OF 7	
CHIEF, STRUCTURES SECTION APPROVED E. J. Davis, P.E.	SCALE 1" = 20'	DRAWING CODE BR104-CG-23
CHIEF, DESIGN BRANCH	DATE 31 MAY 91	PLATE NO. S5 SHEET 33 OF 130



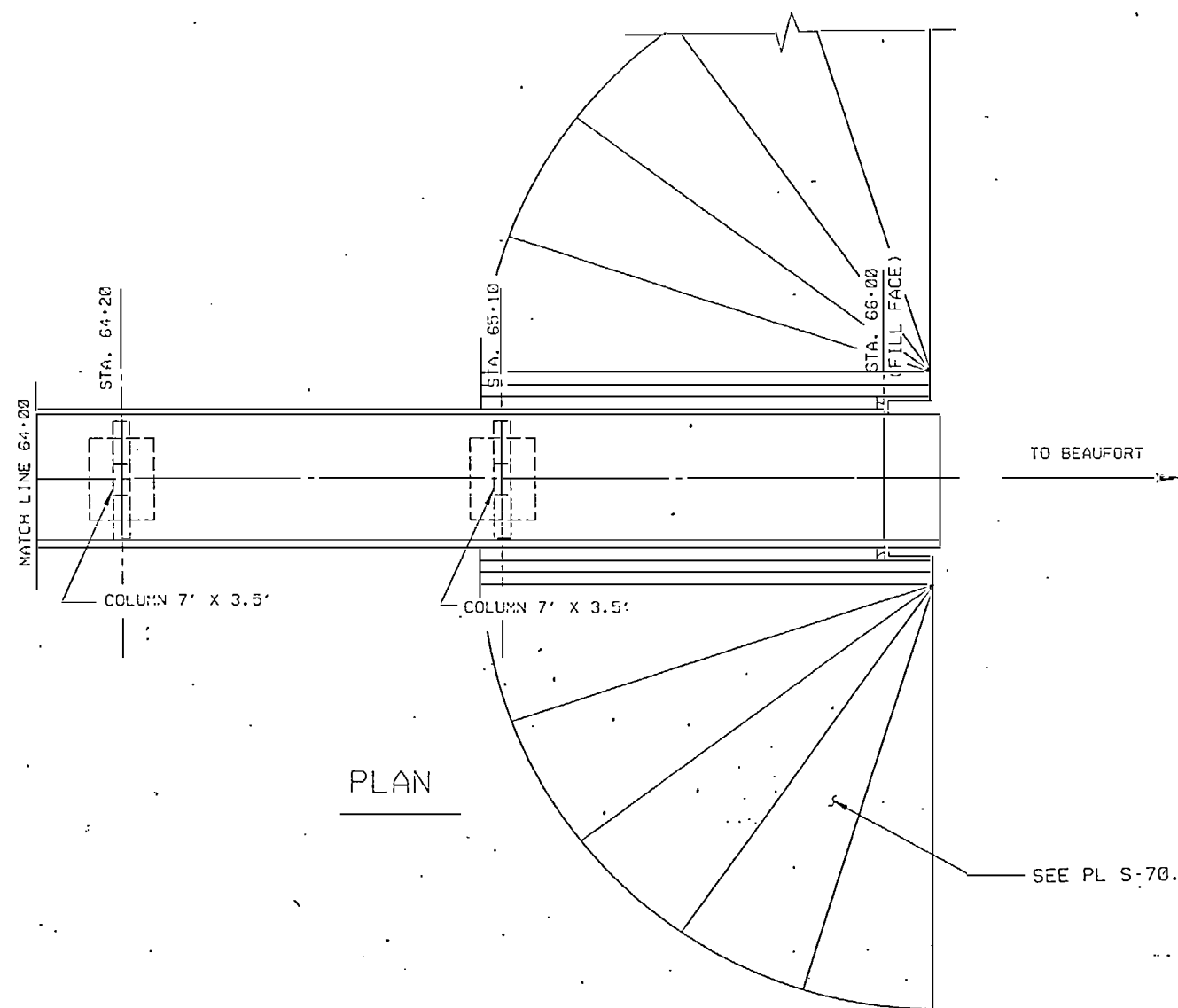
PLAN



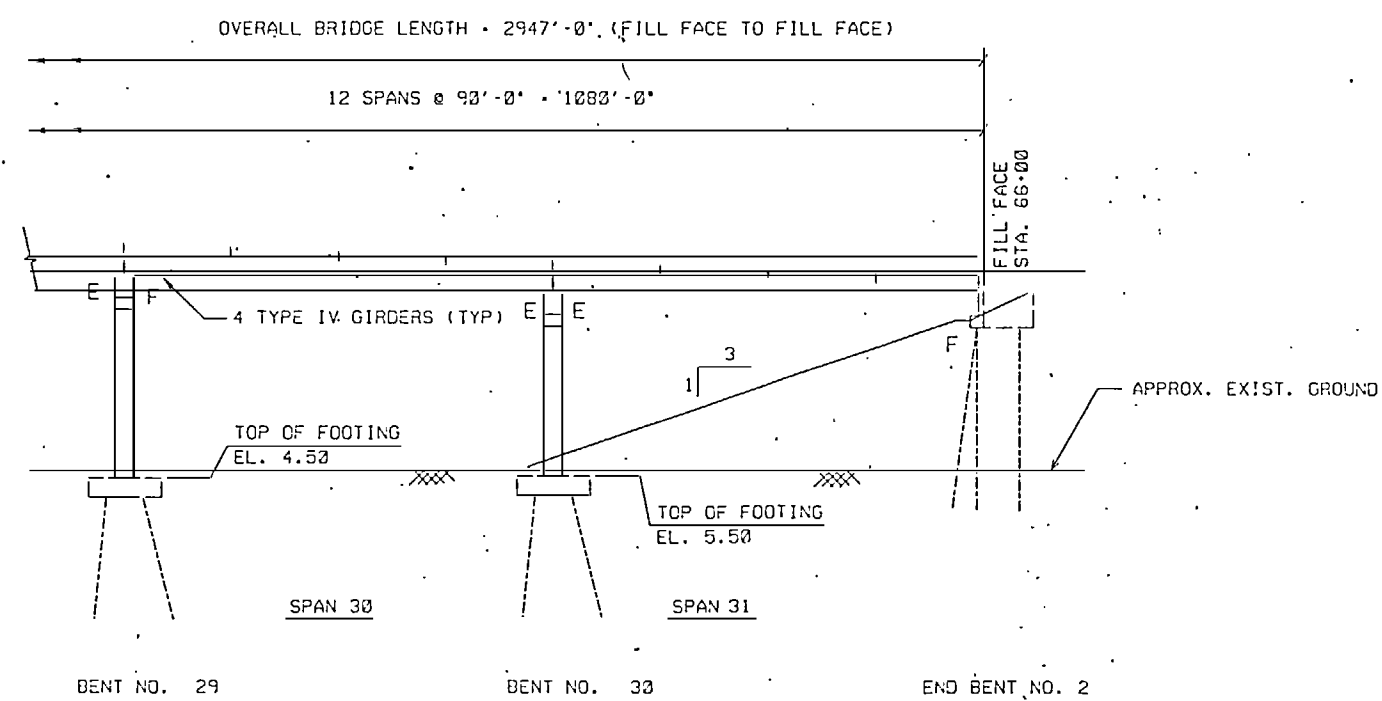
ELEVATION

LEGEND	
F	FIXED BEARING
E	EXPANSION BEARING

DESIGNED: GWP/VGA	U.S. NAVY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA		
CHECKED: GWP	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT		
REVIEWED: JGW	GENERAL PLAN & ELEV.		
CHIEF, STRUCTURES SECTION APPROVED: E. J. P. R. E.	SCALE: 1" = 20'	DRAWING CODE: BR104-06-23	PLATE NO: S6
CHIEF, DESIGN BRANCH	CCPR06	DATE: 31 MAY 91	SHEET 34 OF 139



120
100
80
60
40
20
0
-20
-40



PROFILE

120
100
80
60
40
20
0

LEGEND

F FIXED BEARING

E EXPANSION BEARING

DESIGNED: GWP/VGA3		U.S. ARMY ENGINEER DISTRICT, WASHINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA	
CHECKED: GWP	REVIEWED: JW	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT GENERAL PLAN & ELEV. SHEET 7 OF 7	
CHIEF, STRUCTURES SECTION APPROVED: EJ Lamer, P.E.	CHIEF, DESIGN BRANCH	SCALE: 1"=20'	DRAWING CODE: BR104-G5-23 DATE: 31 MAY 91
		SHEET 35	OF 138

BILL OF MATERIALS

	CAST-IN PLACE CONCRETE		REINFORCED CONC. DECK SLAB		REINFORCING STEEL	AASHTO TYPE IV GIRDERS	AASHTO TYPE VI GIRDERS	LAUNCHED PRESTRESSED CONCRETE GIRDERS	FOUNDATION EXCAVATION	NAVIGATION LIGHTING	ELASTOMERIC BEARINGS	STONE SLOPE PROTECTION	PRESTRESSED SQUARE CONCRETE PILES			TEST PILES	PILE LOAD TEST	COFFERCELLS	PREFORMED COMPRESSION JOINT SEAL	BARRIER RAIL		REMOVAL OF EXISTING BRIDGE	GROOVING BRIDGE DECK	ESTIMATED PILE TIP ELEVATIONS
	CLASS AA	CLASS S	NORMAL WT.	LIGHT WT.									12"	20"	24"	20"/24"	26"/24"			NORMAL WT.	LIGHT WT.			
	CU. YDS.	CU. YDS.	SO. FT.	SO. FT.		LIN. FT.	LIN. FT.	LIN. FT.	CU. YDS.	LUMP SUM	EACH.	SO. YDS.	LIN. FT.	LIN. FT.	LIN. FT.	IN. FT.	EACH	LUMP SUM	LIN. FT.	LIN. FT.	LIN. FT.	LUMP SUM	SO. FT.	FT.
SUBSTRUCTURE			94067	3364		10285	958	486												66	5687	203		
END BENT NO. 1	29.5				3266				60.0			4	295	708										-22
BENT NO. 1	71.5				13575				105.1			8		548										-50
BENT NO. 2	75.5				14354				105.1			8		547										-50
BENT NO. 3	79.4				15225				105.1			8		542										-50
BENT NO. 4	122.6				21659				160.5			8		700										-50
BENT NO. 5	129.1				22996				160.5			8		680										-50
BENT NO. 6	116.4				21266				147.3			8		646										-50
BENT NO. 7	119.1				22659				147.3			8		647										-50
BENT NO. 8	130.5				24176				150.2			8		656										-50
BENT NO. 9	133.6				24728				150.2			8		650										-50
BENT NO. 10	137.0				26385				153.8			8		637										-50
BENT NO. 11	137.4				25455				150.2			8		656										-50
BENT NO. 12	151.6				27745				156.1			8		707										-50
BENT NO. 13	189.9				34695				209.0			8		655										-50
BENT NO. 14	190.0				36316				209.0			8		856										-50
BENT NO. 15	170.2				33746				164.9			8		797										-50
BENT NO. 16	416.3	291.3			75200				0.0			4			1887									-55
BENT NO. 17	416.3	291.3			75200				0.0			4			1887									-55
BENT NO. 18	172.3				34038				164.9			8		773										-50
BENT NO. 19	156.2				28617				156.1			8		693										-50
BENT NO. 20	154.5				28244				156.1			8		698										-50
BENT NO. 21	154.2				28212				156.1			8		686										-50
BENT NO. 22	153.0				27941				156.1			8		679										-50
BENT NO. 23	136.4				25322				150.2			8		654										-50
BENT NO. 24	136.8				25375				150.2			8		624										-50
BENT NO. 25	120.7				22820				147.3			8		680										-50
BENT NO. 26	121.9				23185				147.3			8		624										-50
BENT NO. 27	115.0				20965				147.3			8		680										-50
BENT NO. 28	86.0				18097				105.1			8		569										-50
BENT NO. 29	83.2				16605				105.1			8		566										-50
BENT NO. 30	79.1				16005				105.1			8		577										-50
END BENT NO. 2	29.5				3266				60.0			4	420	823										-18
APPROACH SLABS (12)	24.2				5222																			
TOTALS	4538.1	582.6	94067	3364	842585	10285	958	486	4241	LUMP SUM	240	6715	1531	18627	3774	330 / 70	5 / 1	LUMP SUM	66	5687	203	LUMP SUM	82101	

NOTES:

QUANTITIES LISTED ARE FOR INFORMATION ONLY. ITEMS WILL BE PAID FOR AS INDICATED ON THE BID SCHEDULE.

REINFORCING STEEL & CONC. QUANTITIES INCLUDE SUBSTRUCTURE & APPROACH SLABS ONLY.

FOR FENDER SYSTEM QUANTITIES SEE PLATE S78.

Designed:	U.S. ARMY ENGINEER DISTRICT, WASHINGTON	
Checked:	CORPS OF ENGINEERS	
Reviewed:	JEW	
Chief, Structures Section	Scale:	Drawing Codes
Approved:	BR104-06-23	Plate No.
E. J. Lauer, P.E.	CCBILL	S8
Chief, Design Branch	Date: 31 MAY 91	Sheet 36 of 138

ATLANTIC INTRACOASTAL WATERWAY
HOBUCKEN BRIDGE REPLACEMENT PROJECT
BILL OF MATERIALS

DESIGN CRITERIA:

1. DESIGN LOADING

LIVE LOAD - AASHTO HS20-44 TRUCK LOADING

1000 KIP BARGE IMPACT ON BENTS 16 & 17

DEAD LOAD - INCLUDES 20 PSF DECK LOAD FOR FUTURE WEARING SURFACE AND 15.5 PSF FOR STAY-IN-PLACE METAL FORMS.

NORMAL WT. CONCRETE = 150 PCF
LIGHT WT. CONCRETE = 120 PCF

EXTERIOR GIRDER LOADING INCLUDES 40 PLF UTILITY LOADING.

2. DESIGN SPECIFICATIONS & GUIDANCE

AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES - THIRTEENTH EDITION 1983

NCODT DESIGN MANUAL - STRUCTURE DESIGN

3. ALLOWABLE PILE LOADINGS

12" PRESTRESS - 40 TONS

20" PRESTRESS - 75 TONS

24" PRESTRESS - 110 TONS

MATERIALS:

1. CONCRETE

PRESTRESSED GIRDERS - AS SHOWN ON GIRDER DETAILS. CONCRETE FOR PRESTRESSED GIRDERS SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR.

PRESTRESSED PILES - $f'_c = 5000$ psi. CONCRETE FOR 24" PILES SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR.

SEAL CONCRETE - CLASS S, $f'_c = 3000$ psi

SUBSTRUCTURE - CLASS AA, $f'_c = 4500$ psi

SUPERSTRUCTURE - CLASS AA, $f'_c = 4500$ psi

2. PRESTRESSING STRANDS - GRADE 270 7-WIRE LOW-RELAXATION STRAND FOR ALL GIRDERS. PRESTRESS PILES MAY BE MADE WITH EITHER STRESS RELIEVED OR LOW-RELAXATION STRAND.

3. ALL REINFORCING SHALL BE GRADE 60. REINFORCING STEEL IN THE FOLLOWING ITEMS SHALL BE EPOXY COATED: ALL BRIDGE DECKS, DIAPHRAGMS & PARAPET RAILS, GIRDER FIELD SPLICES, APPROACH SLABS, BENTS 16 AND 17.

4. FOR ADDITIONAL MATERIALS REQUIREMENTS SEE SPECIFICATIONS.

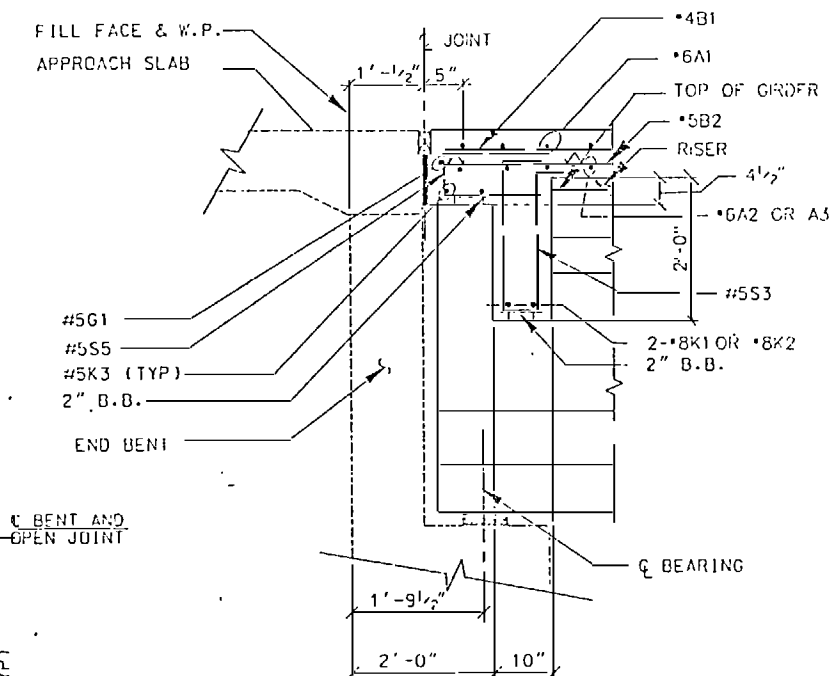
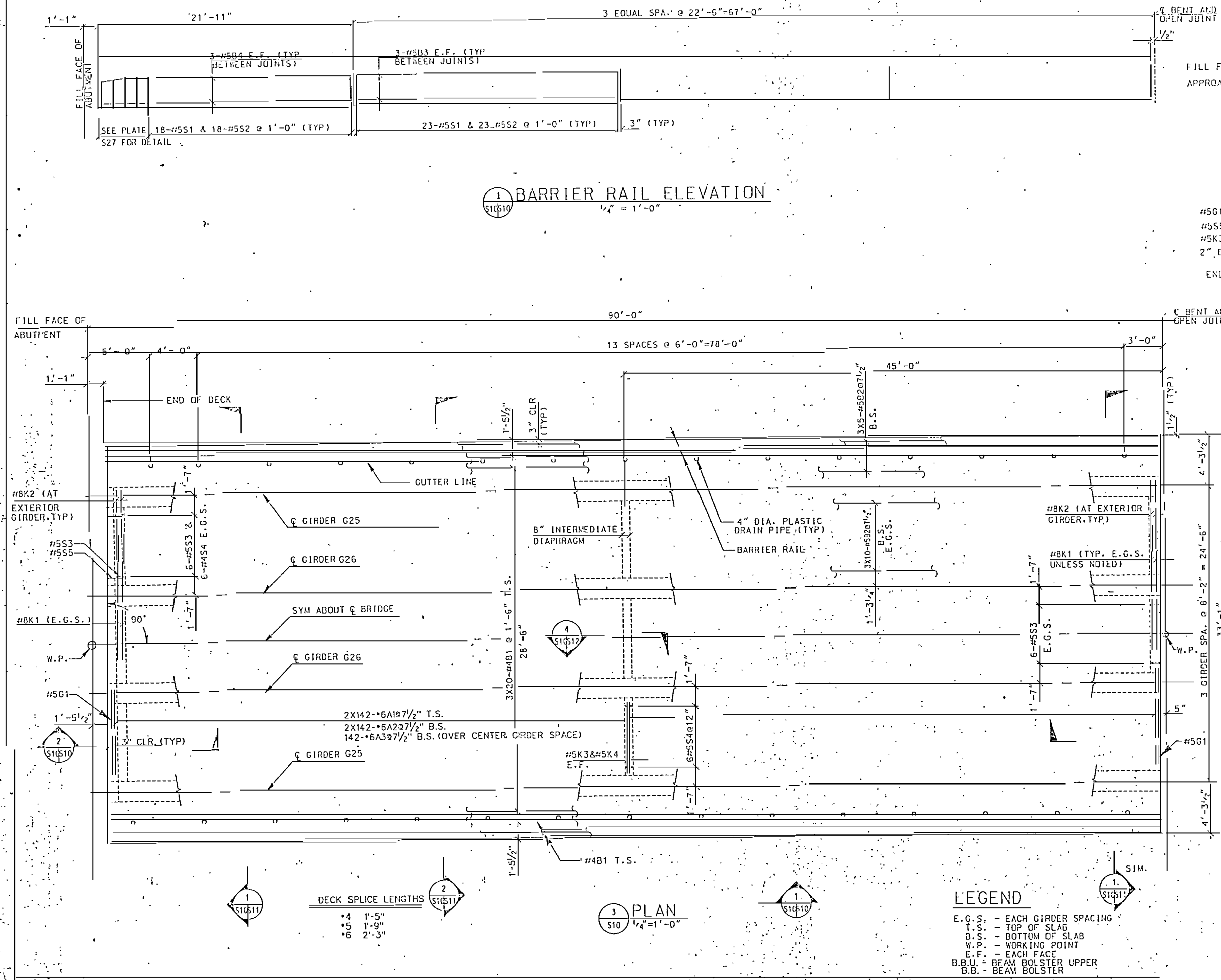
5. CONCRETE FOR DIAPHRAGMS, DECK, AND BARRIER RAIL OF THE DROP-IN PORTION OF SPAN 17 SHALL BE MADE USING LIGHT WEIGHT AGGREGATE.

GENERAL NOTES:

- ALL EXPOSED EDGES SHALL BE CHAMFERED $3/4"$.
- ALL DIMENSIONS ARE MEASURED HORIZONTALLY OR VERTICALLY UNLESS OTHERWISE NOTED.
- ALL ELEVATIONS REFER TO NATIONAL GEODETIC VERTICAL DATUM (NGVD).
- FOR ALL SPANS, BOTH INTERIOR GIRDERS SHALL BE PLACED BEFORE PLACING EXTERIOR GIRDERS. SEE PLATE S45.
- THE CONTRACTOR SHALL NOTIFY THE COAST GUARD 10 DAYS PRIOR TO BEGINNING ANY ACTIVITY WHICH WOULD INTERFERE WITH WATERWAY TRAFFIC.
- THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING NAVIGATION LIGHTING FOR ANY TEMPORARY STRUCTURES ERECTED IN THE WATERWAY AND FOR OBTAINING COAST GUARD PERMITS FOR SAME.
- THE EXISTING BRIDGE SHALL BE REMOVED ONLY AFTER TRAFFIC HAS BEEN TURNED ONTO THE NEW ALIGNMENT; HOWEVER, PORTIONS OF THE EXISTING FENDER SYSTEM MAY BE REMOVED AS NEEDED TO CLEAR NEW CONSTRUCTION.
- THE CONTRACTOR IS RESPONSIBLE FOR DESIGN OF COFFERCELLS. THE COFFERCELLS SHALL BE DETAILED TO CLEAR THE NEW FENDER SYSTEM.
- THE FENDER SYSTEM ADJACENT TO THE BENTS SHALL NOT BE CONSTRUCTED UNTIL THE BENT FOOTING IS IN PLACE.
- ALL PILES SHALL BE DRIVEN AS SHOWN ON THE DRAWINGS AND AS INDICATED IN THE SPECIFICATIONS.
- THE BRIDGE DECK SHALL BE PLACED ON THE GRADE OR VERTICAL CURVE AS SHOWN ON THE DRAWINGS AND ON THE DECK ELEVATION PROVIDED. THE CONTRACTOR SHALL ADJUST BUILD-UP DEPTH TO ACCOUNT FOR ALL DEAD LOAD DEFLECTIONS AND GIRDER CAMBER.
- GIRDER LENGTHS SHOWN DO NOT INCLUDE ALLOWANCE FOR SHRINKAGE OR CREEP. THESE SHALL BE ACCOUNTED FOR BY THE CONTRACTOR TO PROVIDE THE SPECIFIED IN-PLACE LENGTHS.
- ALL BAR SCHEDULES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO FABRICATION.

Designed: GAP	US ARMY ENGINEER DISTRICT, WASHINGTON CORPS OF ENGINEERS WASHINGTON, D.C. 20315		
Checked: GHC	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT		
Reviewed: JSH	GENERAL NOTES		
Chief, Structures Section Approved: Ed Lamin, P.E.	Scale:	Drawing Codes: BR104-06-23	Plate No: S9
Chief, Design Branch	COCOA/AS/EL/TM Date: 31 MAY 91 Sheet 37 of 133		

NOTE:
SEE JOINT DETAIL
A/S10/S69



SECTION
3/4"=1'-0"

LEGEND

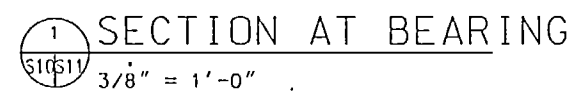
E.G.S. - EACH GIRDER SPACING
T.S. - TOP OF SLAB
B.S. - BOTTOM OF SLAB
W.P. - WORKING POINT
E.F. - EACH FACE
B.B.U. - BEAM BOLSTER UPPER
B.B. - BEAM BOLSTER

DECK SPLICE LENGTHS

4	1'-5"
5	1'-9"
6	2'-3"

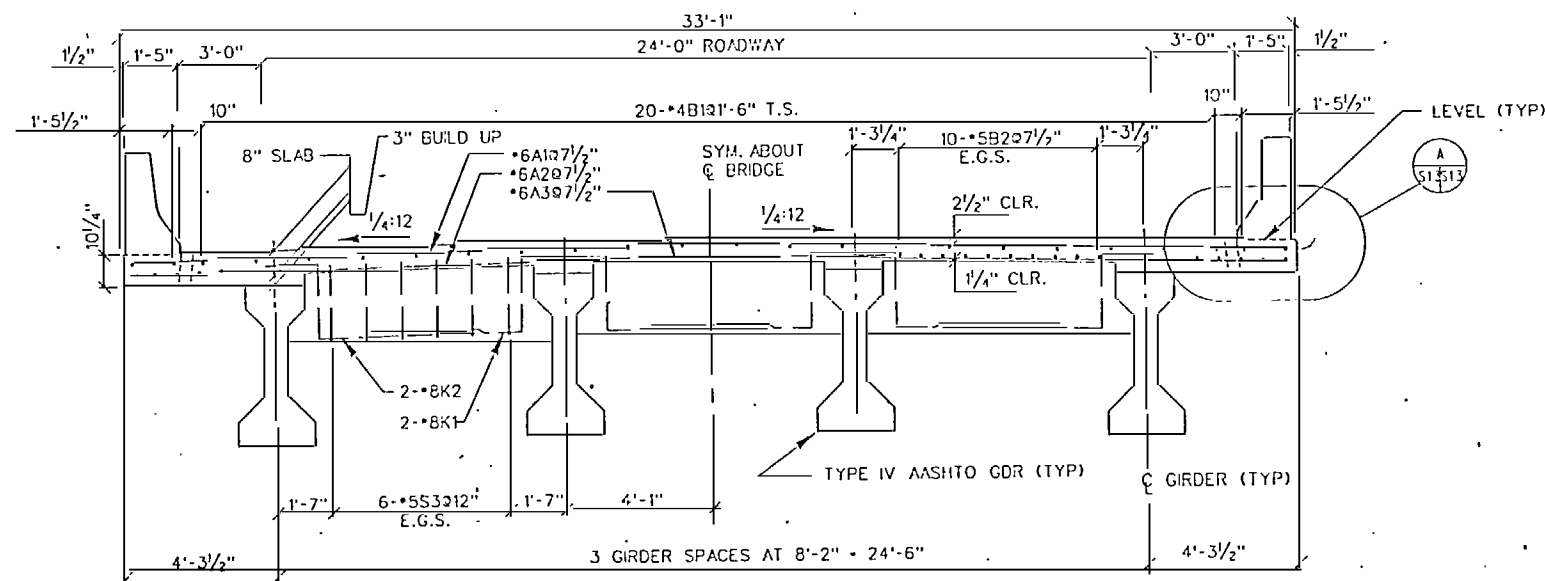
PLAN
1/4"=1'-0"

Designed: GAP	Checked: GMC	Reviewed: JFH	Chief, Structures Section Approved: E. J. Lamin, P.E.	Chief, Design Branch
U.S. Army Engineer District, Wilmington Corps of Engineers WILMINGTON, NORTH CAROLINA			ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT SUPERSTRUCTURE DECK PLAN SPANS 1 & 31	
Scale: AS SHOWN	Drawing Code: BR104-06-23	Plate No.: S10	Date: 31 MAY 91 Sheet 38 of 138	

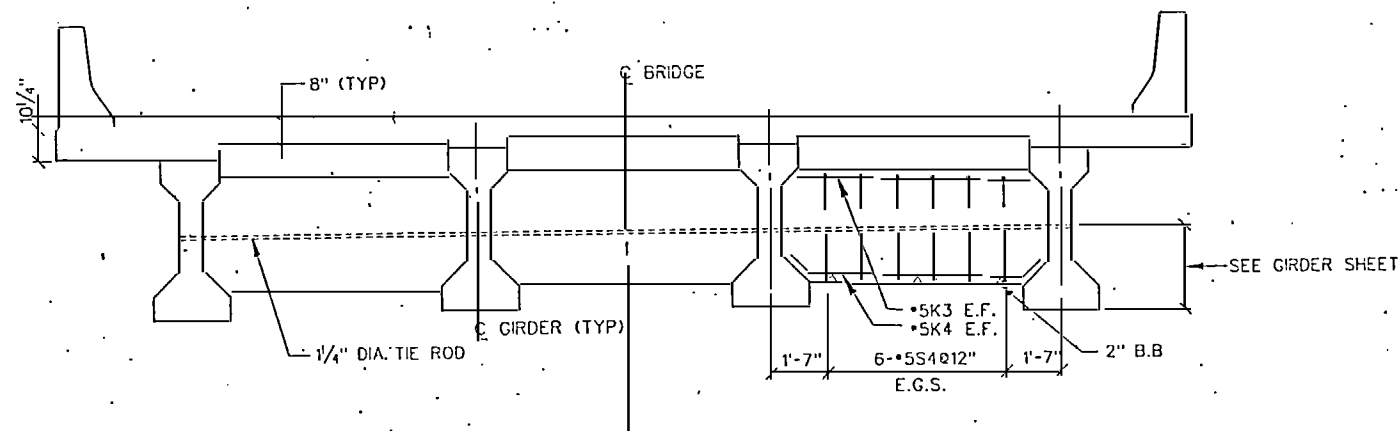


E.G.S. - EACH GIRDER SPACING
E.F. EACH FACE
B.B.U. - BEAM BOLSTER UPPER
B.B. - BEAM BOLSTER

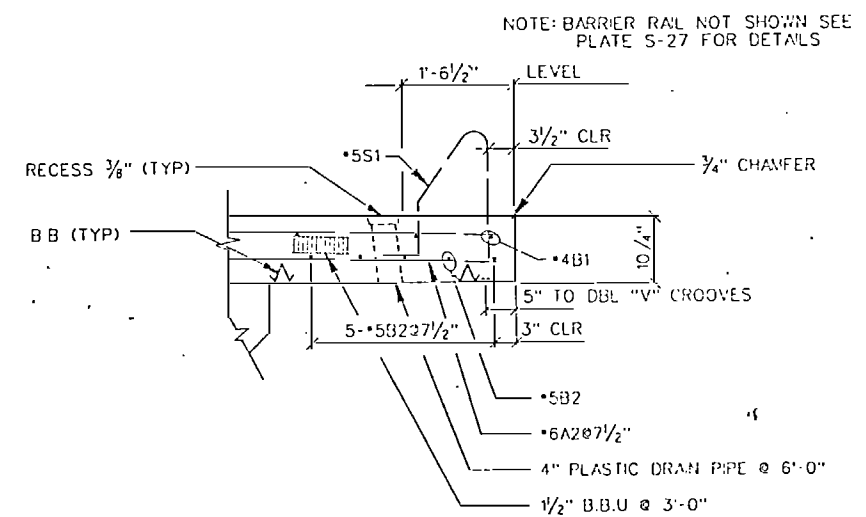
Drawing No. GWG Check No. GWG Project 36W City & Structural Section Dup over L E. J. Lanier, P.E. Chief, Design Branch	 U.S. Army Corps of Engineers of Engineers AS SHOWN RECORDED Date: 31 MAY 91	U.S. ARMY ENGINEER DISTRICT, WASHINGTON CORPS OF ENGINEERS WASHINGTON, NORTH CAROLINA ATLANTIC INTRACASTAL WATERWAY ORT. CRICK BRIDGE REPLACEMENT SUPERSTRUCTURE TYPICAL SECTION SPANS 1 & 31 Drawing Code BR104-06-23 Sheet 39 of 138	Plate No. S11
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1 SECTION AT BEARING
3/8" = 1'-0"



2 SECTION AT MIDSPAN
3/8" = 1'-0"



A DETAIL
3/4" = 1'-0"

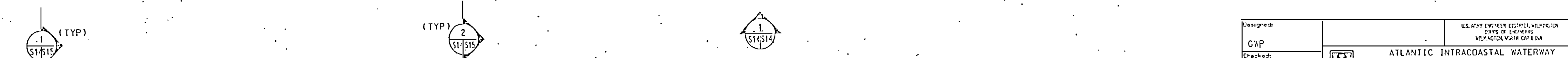
NOTE:
SEE PLATE S45 FOR DRAIN
PIPE DETAILS

LEGEND

E.G.S. - EACH GIRDER SPACING
E.F. - EACH FACE
B.B.U. - BEAM BOLSTER UPPER
B.B. - BEAM BOLSTER

Designed by: GWP	U.S. ARMY ENGINEER DISTRICT, WASHINGTON CORPS OF ENGINEERS WASHINGTON, NORTH CAROLINA		
Checked by: JMS	ATLANTIC INTRACOASTAL WATERWAY CORE CHECK BRIDGE REPLACEMENT SUPERSTRUCTURE TYPICAL SECTION SPANS 2 THRU 4, 6 THRU 13.20 THRU 30		
Reviewed by: JMN	Scale: AS SHOWN	Drawing Code: BR104-06-23	Plate No. S13
Chief, Structures Section Approved: E. J. Lauer, P.E. Chief, Design Branch	CSPP93	Date: 31 MAY 91	Sheet: 41 of 139

1/2" (TYP) OPEN JOINT

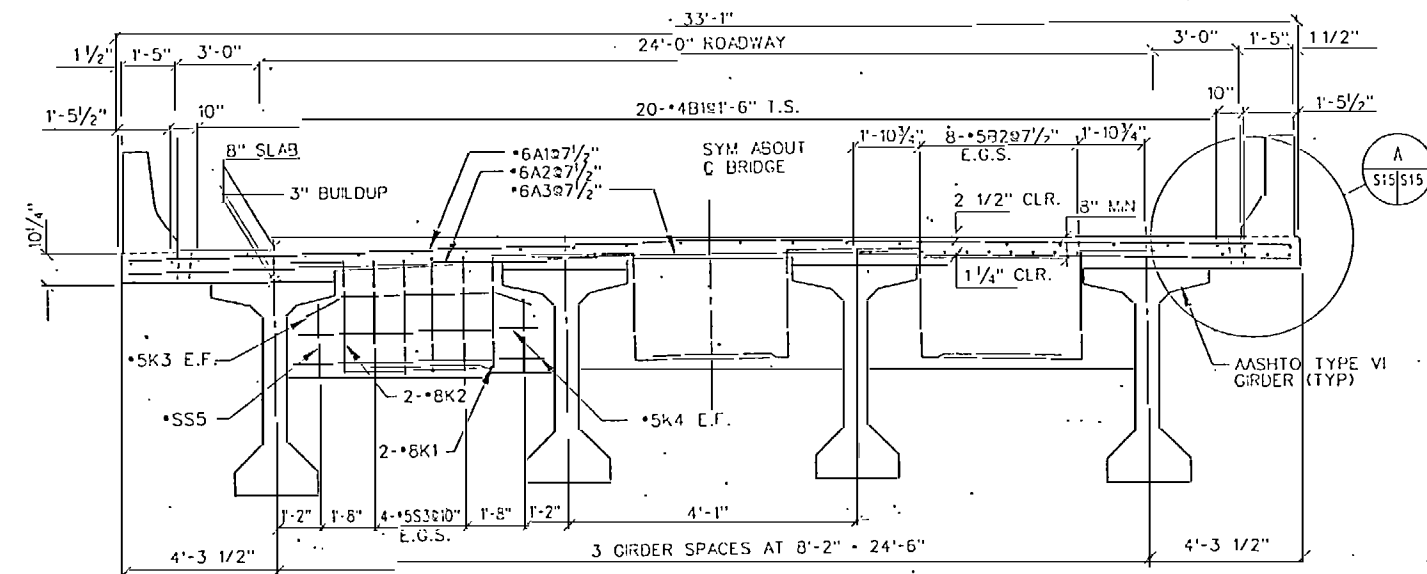


1	•4	1'-5"
	•5	1'-9"
	•6	2'-3"

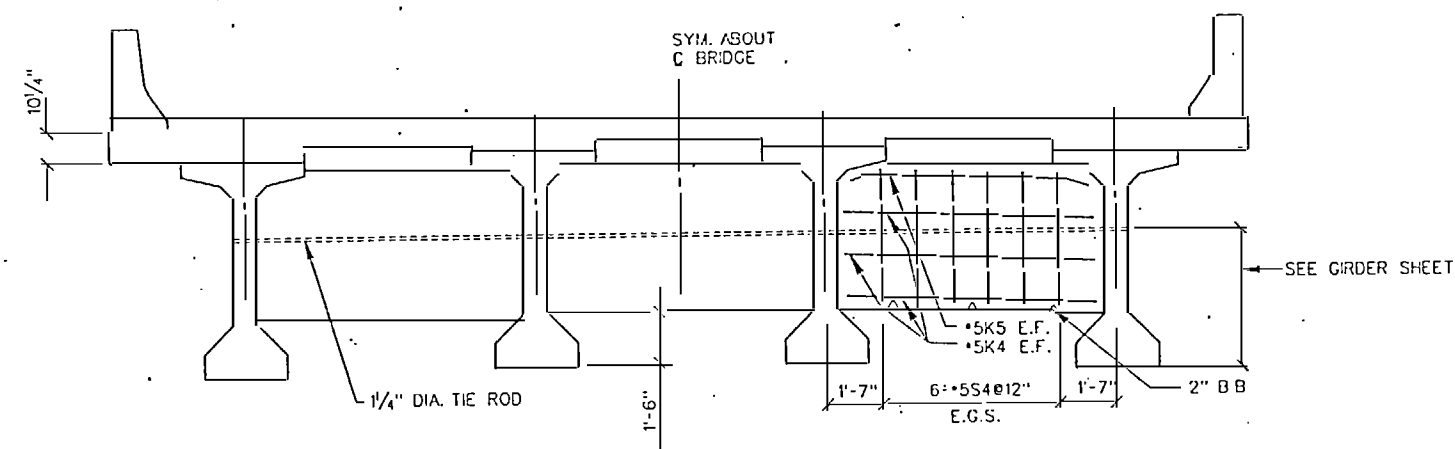
2 PLAN
S14 $1/4'' = 1' - 0''$

E.G.S. - EACH GIRDER SPACING
T.S. - TOP OF SLAB
B.S. - BOTTOM OF SLAB
W.P. - WORKING POINT
E.F. - EACH FACE
B.B.U. - BEAM BOLSTER UPPER
B.B. - BEAM BOLSTER

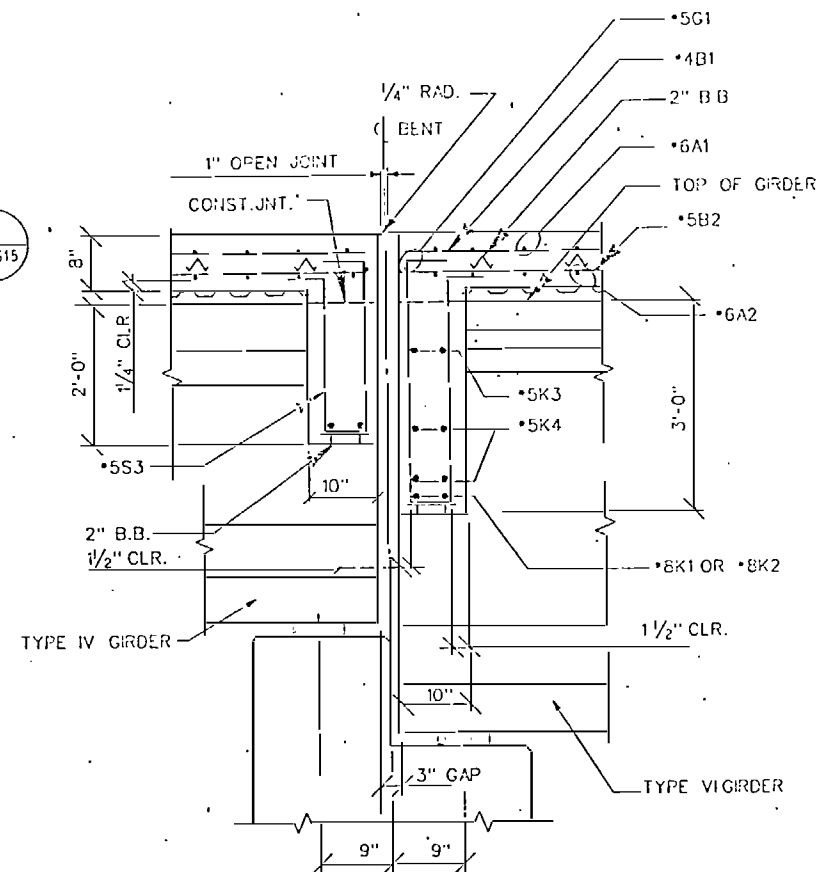
Designed:			U.S. ARMY ENGINEER DISTRICT, WASHINGTON CENTS OF ENGINEERS WASHINGTON, D.C. 20315	
CHKD:				
Checked:			ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT	
GNG	US Army Corps of Engineers		SUPERSTRUCTURE	
Revised:			DECK PLAN - SPANS 5 & 14	
	JPK			
Chief, Structures Section	Scales		Drawing Codes	Plate No:
Approved:	1/4" = 1'-0"		BR104-06-23	S14
E. J. Lamin, P.E.				
Chief, Design Branch	codeck12	Date:	31 MAY 91	Sheet 42 of 138



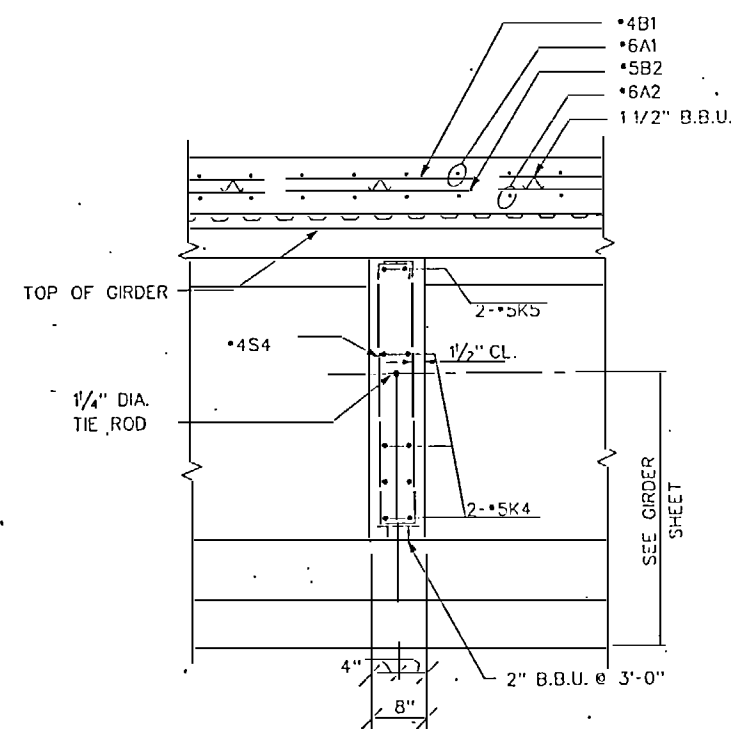
1 SECTION AT BEARING
S14/S15 3/8" = 1'-0"



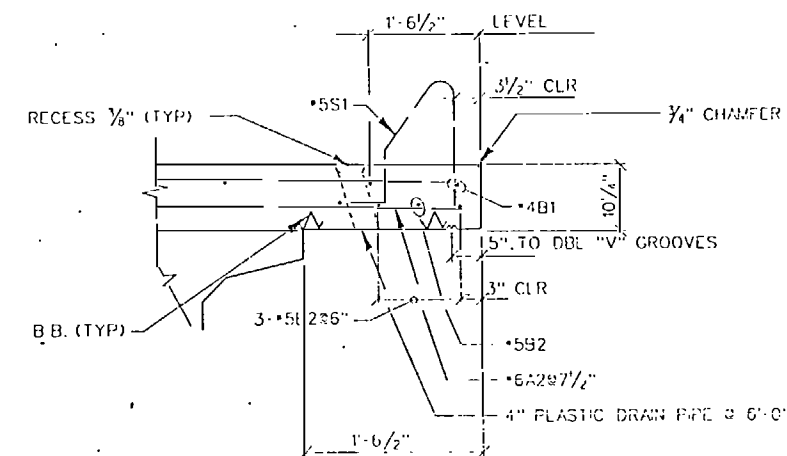
2 SECTION AT THIRD POINTS
S14/S15 3/8" = 1'-0"



3 SECTION
S14/S15 3/4" = 1'-0"



4 SECTION
S14/S15 3/4" = 1'-0"



NOTE: BARRIER RAIL NOT SHOWN SEE
PLATE S27 FOR DETAILS.

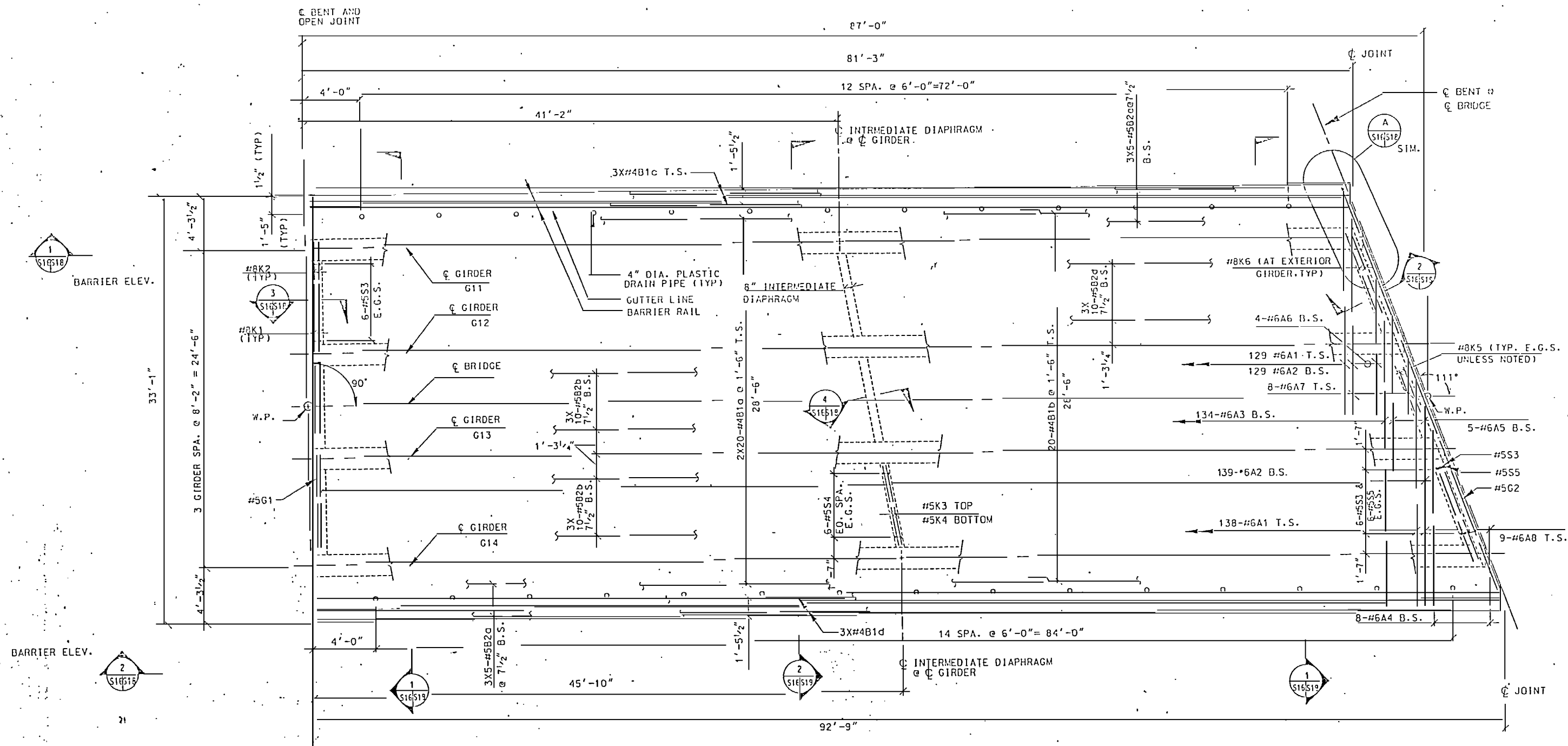
NOTE: SEE PLATE S45 FOR DRAIN
PIPE DETAILS.

A DETAIL
S14/S15 3/4" = 1'-0"

LEGEND

E.G.S. - EACH GIRDER SPACING
E.F. - EACH FACE
B.B.U. - BEAM BOLSTER UPPER
B.B. - BEAM BOLSTER

Designed: GWP	Checked: GMG	Reviewed: JEW	Chief, Structures Section Approved: E. J. Lander, P.E.	Chief, Design Branch	Scale: AS SHOWN	Drawing Code: BR104-06-23	Plate No.: S15
US ARMY ENGINEER DISTRICT, WILMINGTON DIVISION OF ENGINEERS WASHINGTON, D.C. 20315				ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT SUPERSTRUCTURE SECTIONS SPANS 5 & 14			
Date: 31 MAY 91				Sheet 43 of 138			



NOTE: ALL TRANSVERSE ("A") BARS
SPACED @ 7 1/2" EXCEPT AS NOTED

DECK SPLICE LENGTHS

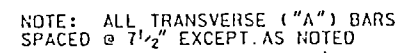
- *4 1'-5"
- *5 1'-9"
- *6 2'-3"

1 PLAN
S16 1/4"=1'-0"

LEGEND

E.G.S. - EACH GIRDER SPACING.
T.S. - TOP OF SLAB
B.S. - BOTTOM OF SLAB
W.P. - WORKING POINT
E.F. - EACH FACE
B.B.U. - BEAM BOLSTER UPPER
B.B. - BEAM BOLSTER

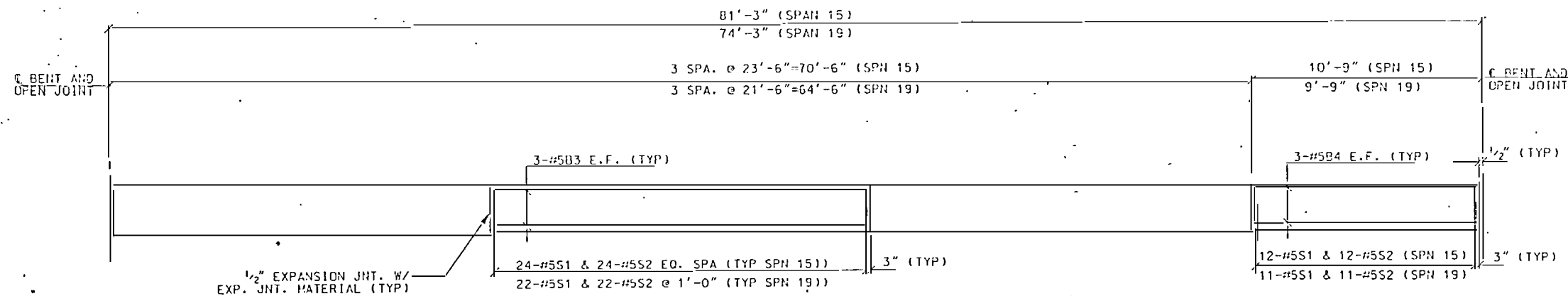
Designed: GAP	U.S. ARMY ENGINEER DISTRICT, WASHINGTON CORPS OF ENGINEERS WASHINGTON, NORTH CAROLINA	
Checked: GNG	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT	
Reviewed: JSH	SUPERSTRUCTURE SLAB PLAN-SPAN 15	
Chief, Structures Section Approved: E. J. Lancia, P.E. Chief, Design Branch	Scale: AS SHOWN	Drawing Code: BR104-06-23
cdDK15	Date: 31 MAY 91	Sheet 44 of 138



- 4 1'-5"
- 5 1'-9"
- 6 2'-3"

E.G.S. - EACH GIRDER SPACING
T.S. - TOP OF SLAB
B.S. - BOTTOM OF SLAB
W.P. - WORKING POINT
E.F. - EACH FACE
D.B.U. - BEAM BOLSTER UPPER
B.B. - BEAM BOLSTER

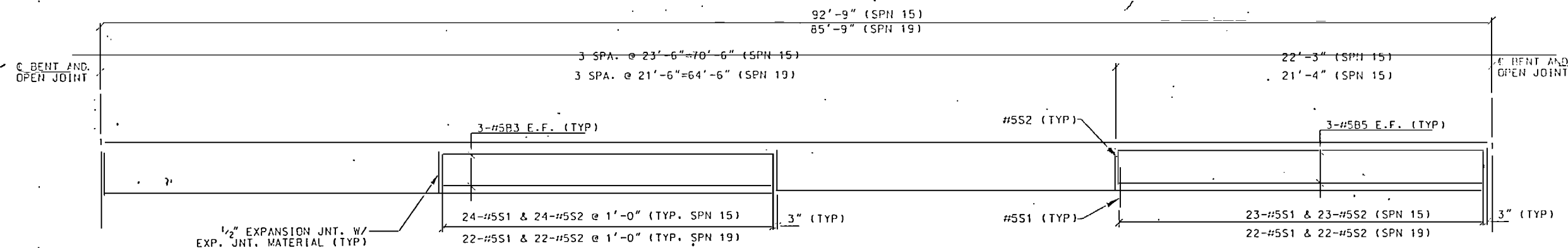
Designed:		U.S. ARMY ENGINEER DISTRICT, WASHINGTON DIVISION OF ENGINEERS WASHINGTON, NORTH CAROLINA	
GWEP			
Checked:		ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT	
GNB	US Army Corps of Engineers	SUPERSTRUCTURE	
Revised:		SLAB PANEL-SPAN 19	
JBN			
Chief, Structures Section Approved	Scale:	Drawing Codes	Plate No:
EY Langer, P.E.	AS SHOWN	BR104-06-23	S17
Chief, Design Branch	checked IN	Date: 31 MAY 91	Sheet 45 of 138



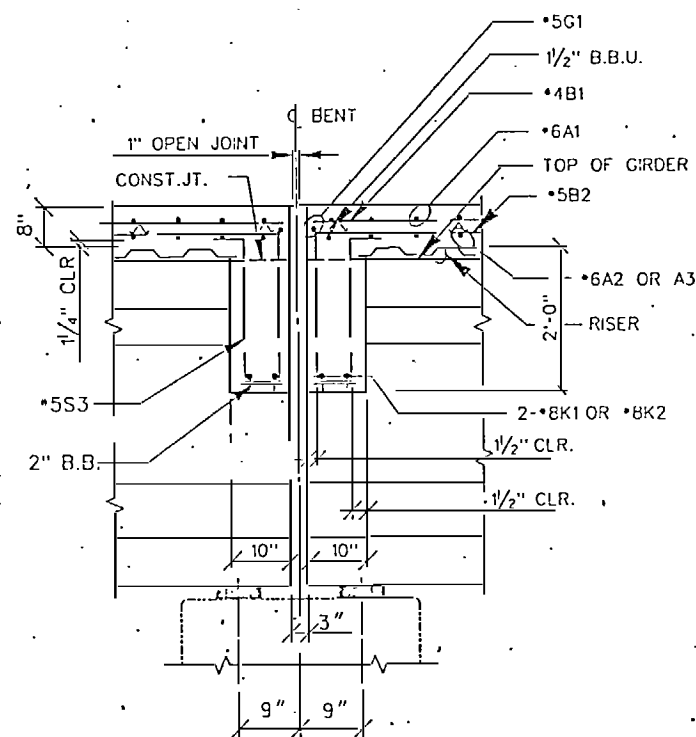
1 BARRIER RAIL ELEVATION
1/4"=1'-0"

LEGEND

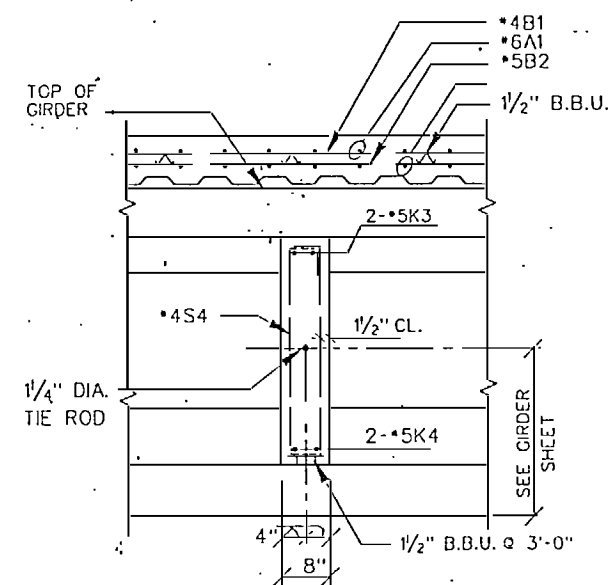
E.G.S. - EACH GIRDER SPACING
T.S. - TOP OF SLAB
B.S. - BOTTOM OF SLAB
W.P. - WORKING POINT
E.F. - EACH FACE
B.B.U. - BEAM BOLSTER UPPER
B.B. - BEAM BOLSTER



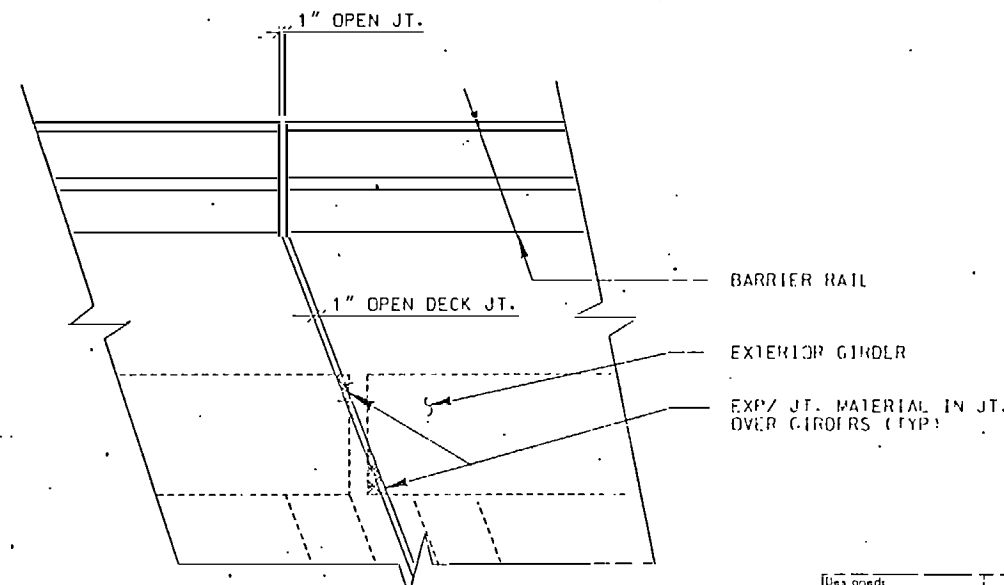
2 BARRIER RAIL ELEVATION
1/4"=1'-0"



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

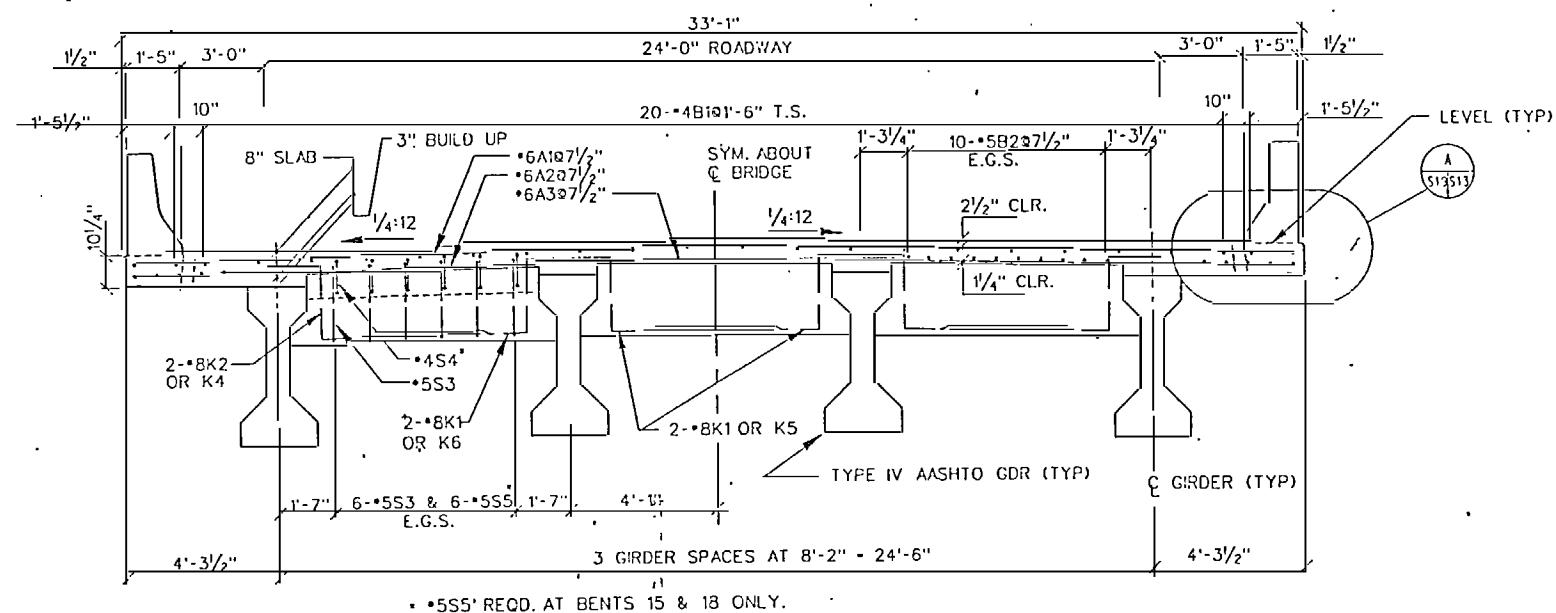


4 SECTION
3/4"=1'-0"

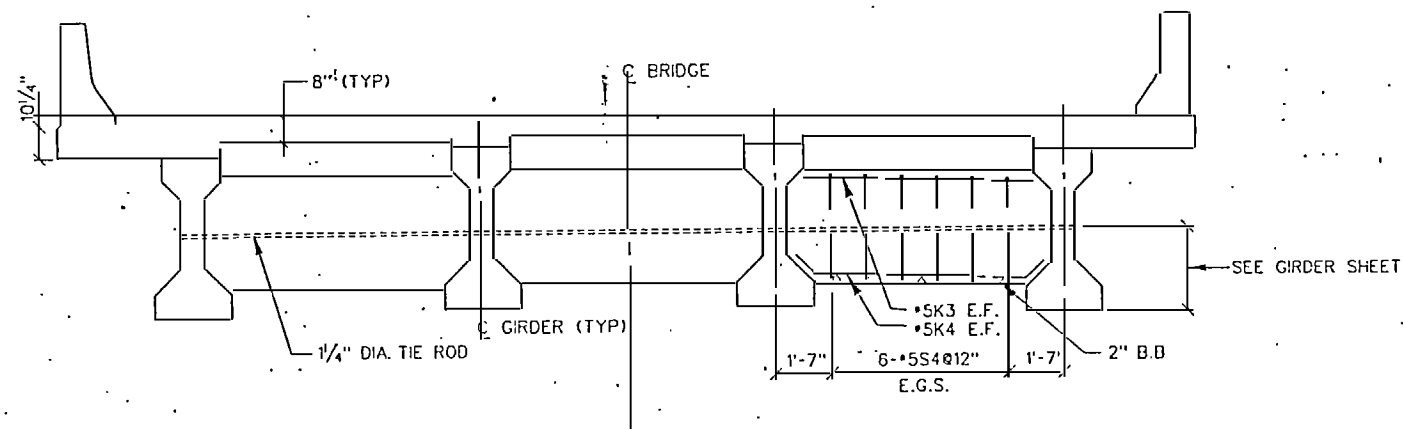


A JOINT PLAN
3/4"=1'-0"

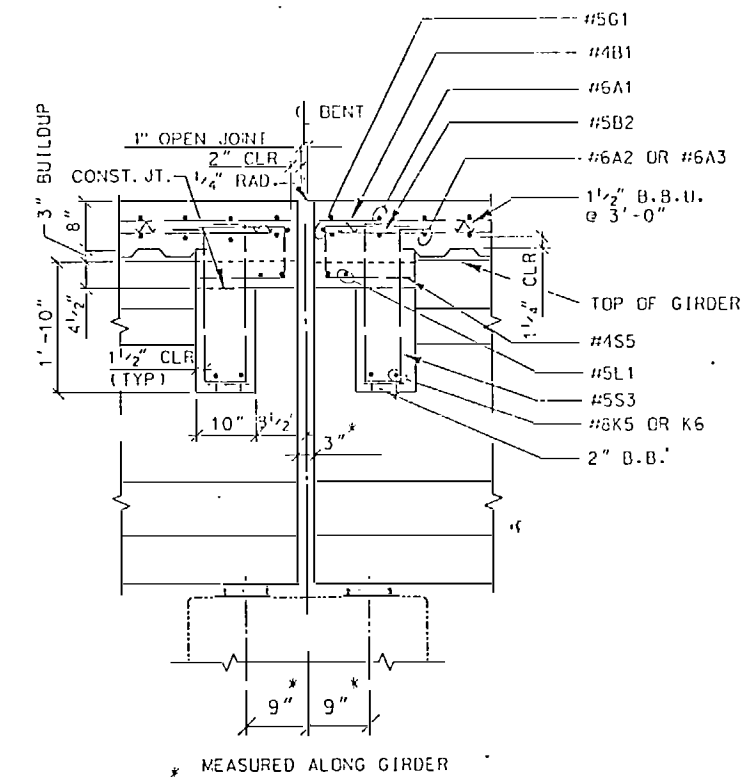
Des. by GAP, VCA3	Checked CMG	Reviewed JFW	Chief, Structures Section Approved Ed. Lavin, P.E.	Scale AS SHOWN	Drawing Code BR104-06-23	Plate No. S18
ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT SUPERSTRUCTURE SPAN 15 & 19 - DETAILS			US ARMY ENGINEER DISTRICT, WASHINGTON CORPS OF ENGINEERS WASHINGTON, NORTH CAROLINA			
Date: 31 MAY 91			Sheet 46 of 138			



1 SECTION AT BEARING
3/8" = 1'-0"



2 SECTION AT MIDSPAN
3/8" = 1'-0"

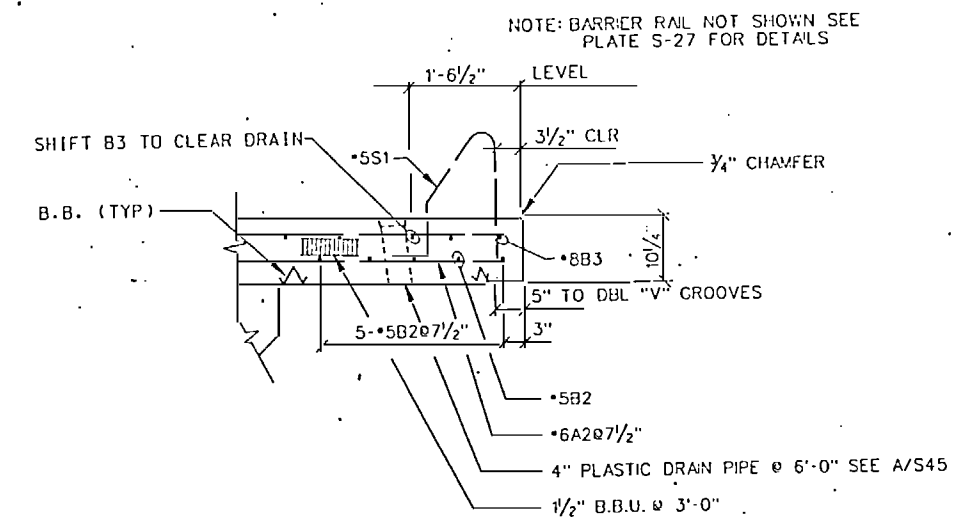
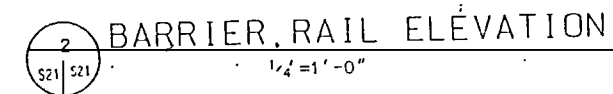


3 SECTION
3/4" = 1'-0"

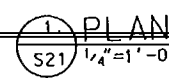
LEGEND

E.G.S. - EACH GIRDER SPACING
E.F. - EACH FACE
B.B.U. - BEAM BOLSTER UPPER
B.B. - BEAM BOLSTER

Designed:			U.S. ARMY ENGINEER DISTRICT HEADQUARTERS CORPS OF ENGINEERS FORT MONROE, VIRGINIA	
GWP	 ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT SUPERSTRUCTURE			
Checked:				
GMC				
Reviewed:	SPAN 15 & 19 - SECTIONS			
JBW				
Chief, Structures Section	Scale:	Drawing Code:	Plate No:	
Approved:	AS SHOWN	BR104-05-23	S19	
ED Janier, P.E.	CCDCK'SB	Date: 31 MAY 91	Sheet 47 of 138	
Chief, Design Branch				




 DETAIL
 N. T. S.

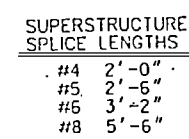
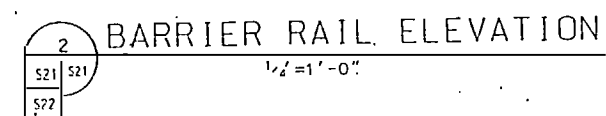


SUPERSTRUCTURE SPICE LENGTHS	
#4	2'-0"
#5	2'-6"
#6	3'-2"
#8	5'-6"

E.G.S. - EACH GIRDER SPACING
T.S. - TOP OF SLAB
B.S. - BOTTOM OF SLAB
W.P. - WORKING POINT
E.F. - EACH FACE

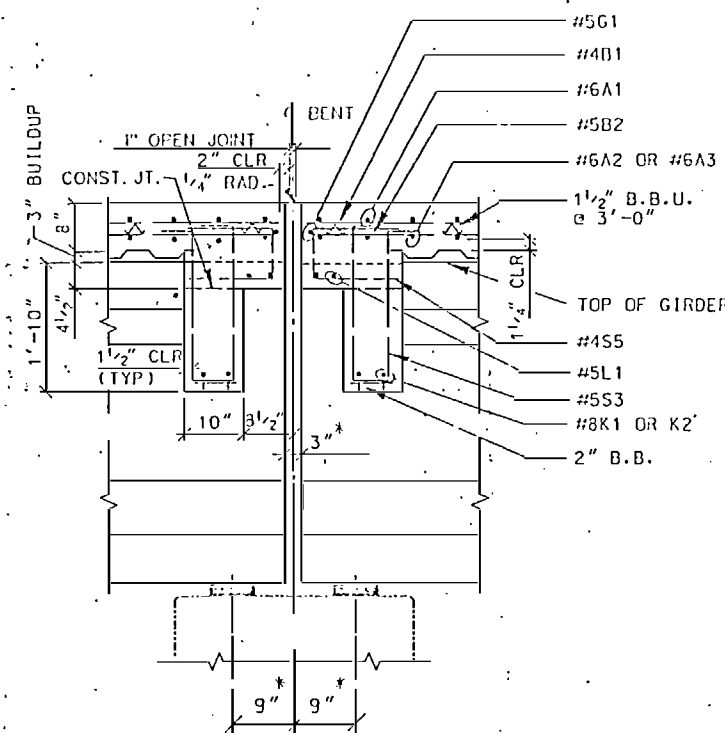
B.B.U. - BEAM BOLSTER UPPER
B.B. - BEAM BOLSTER

Designed:		U.S. ARMY ENGINEER DISTRICT, WASHINGTON COSTS OF ENGINEERS WASHINGTON NORTH DIVISION	
GWP		ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT	
Checked:	US Army Corps of Engineers	SUPERSTRUCTURE	
CMG		DECK PLAN - SPN. 16	
Reviewed:		SHEET 2 OF 2	
JBW			
Chief, Structures Section	Scale:	Drawing Code:	Plate No.
Approved:	AS SHOWN	BR104-06-23	S21
EJ Lanier, P.E. Chief, Design Branch	CCDK16B	Date: 31 MAY 91	Sheet 49 of 138



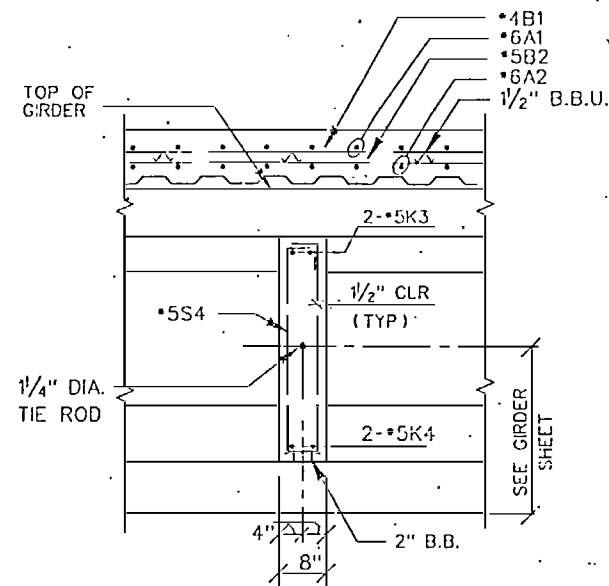
E.G.S. - EACH GIRDER SPACING
T.S. - TOP OF SLAB
B.S. - BOTTOM OF SLAB
W.P. - WORKING POINT
E.F. - EACH FACE
B.B.U. - BEAM BOLSTER UPPER
B.B. - BEAM BOLSTER

Designed:			U.S. ARMY ENGINEER DISTRICT, WASHINGTON CORPS OF ENGINEERS WASHINGTON, NORTH CAROLINA	
GWP				
Checked:				
GMG				
Reviewed:				
JAW				
Chief, Structures Section				
Approved:				
ED Hansen, P.E.				
Chief, Design Branch				

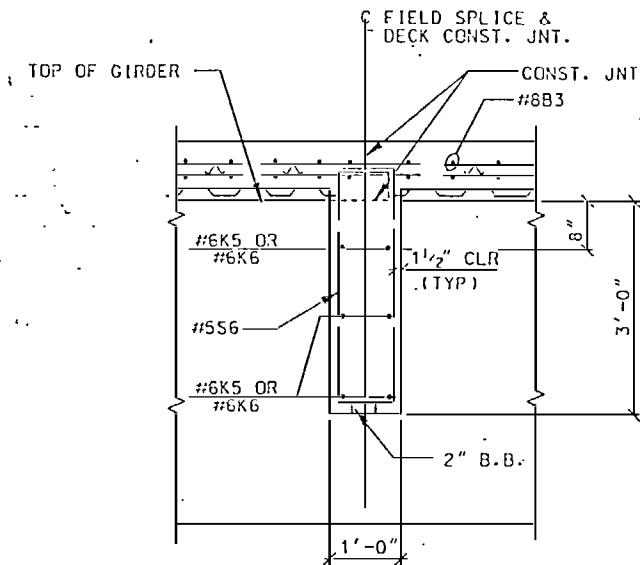


* MEASURED ALONG GIRDER

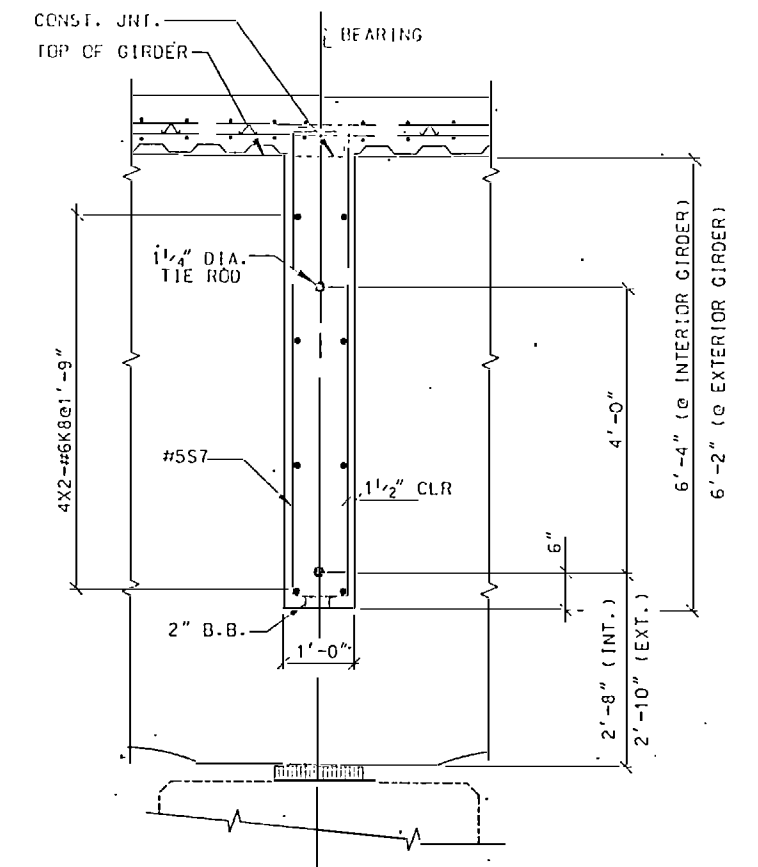
1 SECTION
S20/S24
S23 3/4"=1'-0"



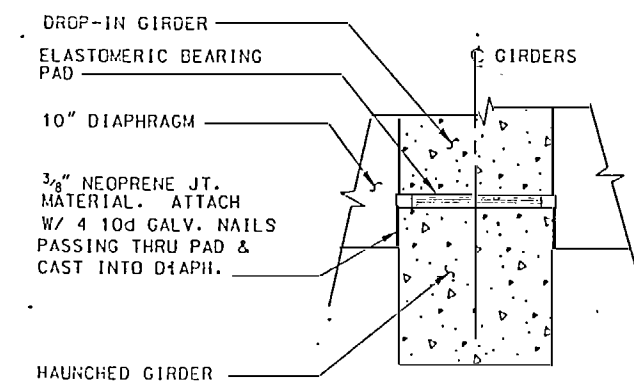
2 SECTION
S20/S24
S23 3/4"=1'-0"



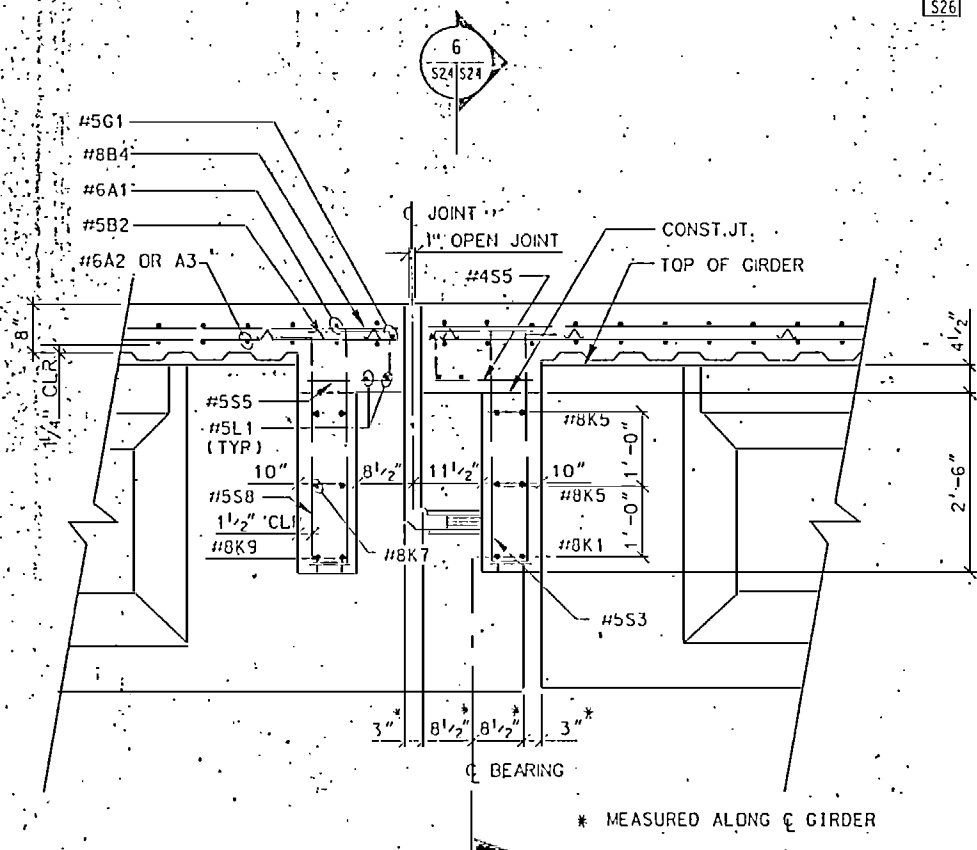
3 SECTION
S20/S24
S23 3/4"=1'-0"



4 SECTION
S21/S24
S22 3/4"=1'-0"

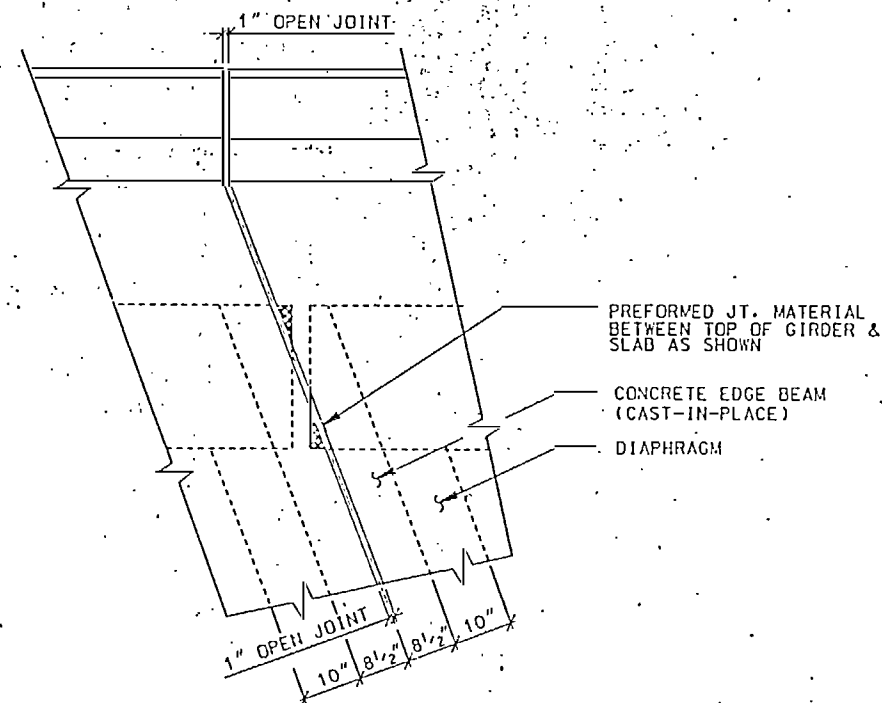


5 SECTION
S24/S24 3/4"=1'-0"



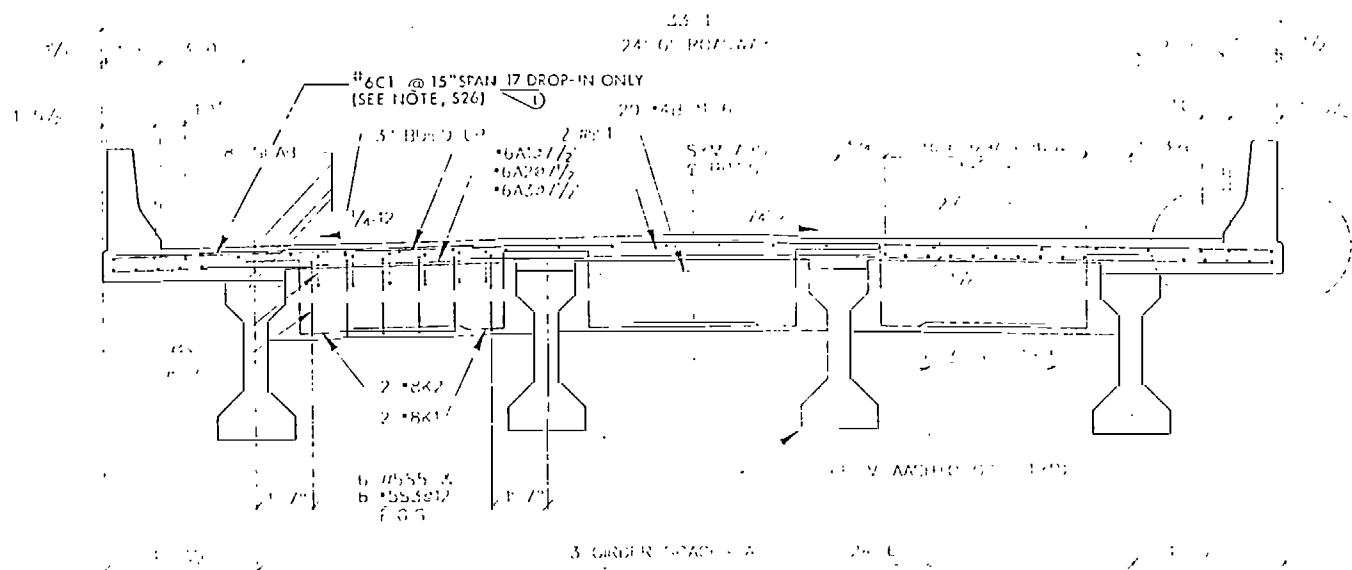
* MEASURED ALONG GIRDER

6 SECTION
S20/S24
S22 3/4"=1'-0"

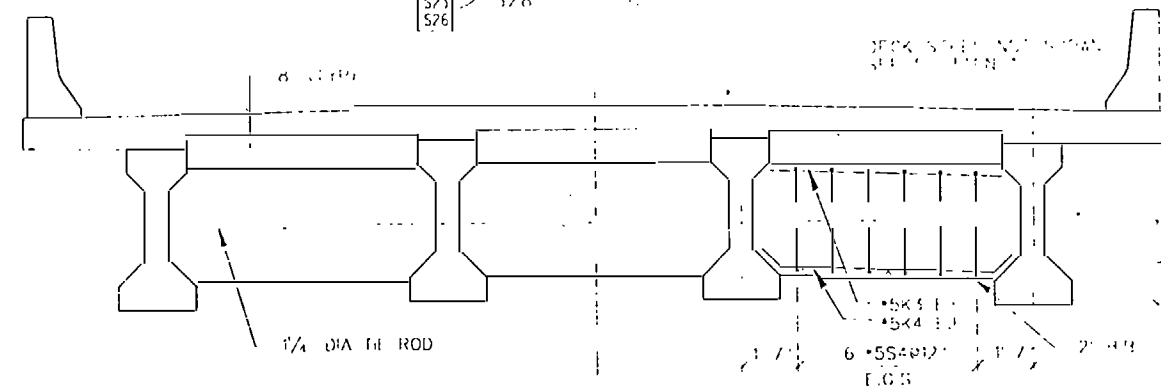


A DETAIL
S20/S24
S25 3/4"=1'-0"

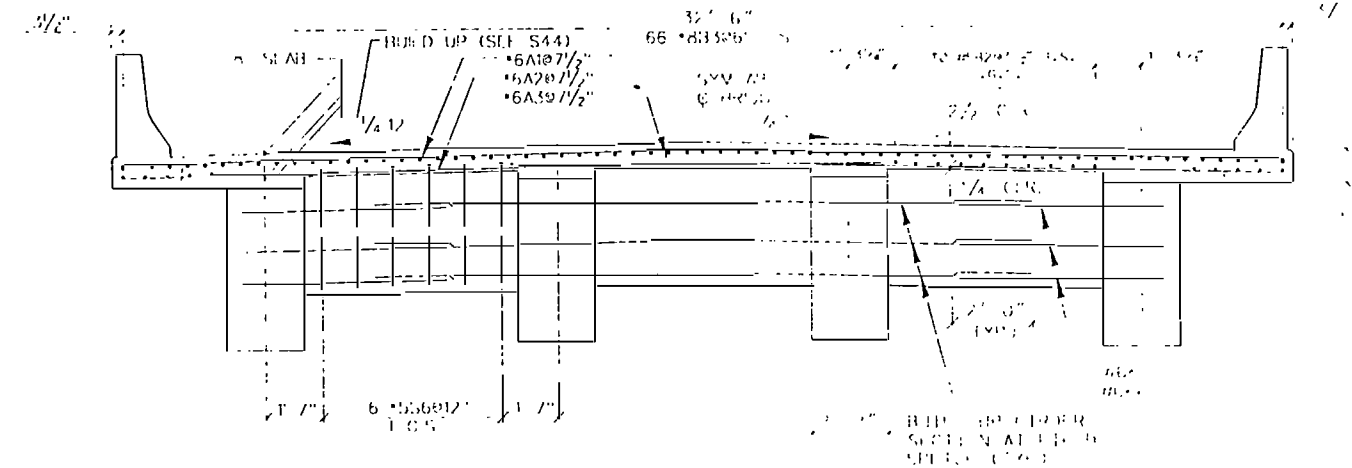
Designed: G. W. P.		U.S. ARMY ENGINEER DISTRICT, WASHINGTON CORPS OF ENGINEERS WASHINGTON, D.C. 20315	
Checked: G. M. G.		ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT	
Reviewed: JFW		SUPERSTRUCTURE TYPICAL SECTIONS SPNS. 16, 17 & 18 1 OF 2	
Chief, Structures Section Approved: E. J. Lanier, P.E. Chief, Design Branch		Scale: AS SHOWN	Drawing Code: BR104-06-23 Plate No: S24
CCOK160		Date: 31 MAY 91	Sheet 52 of 138



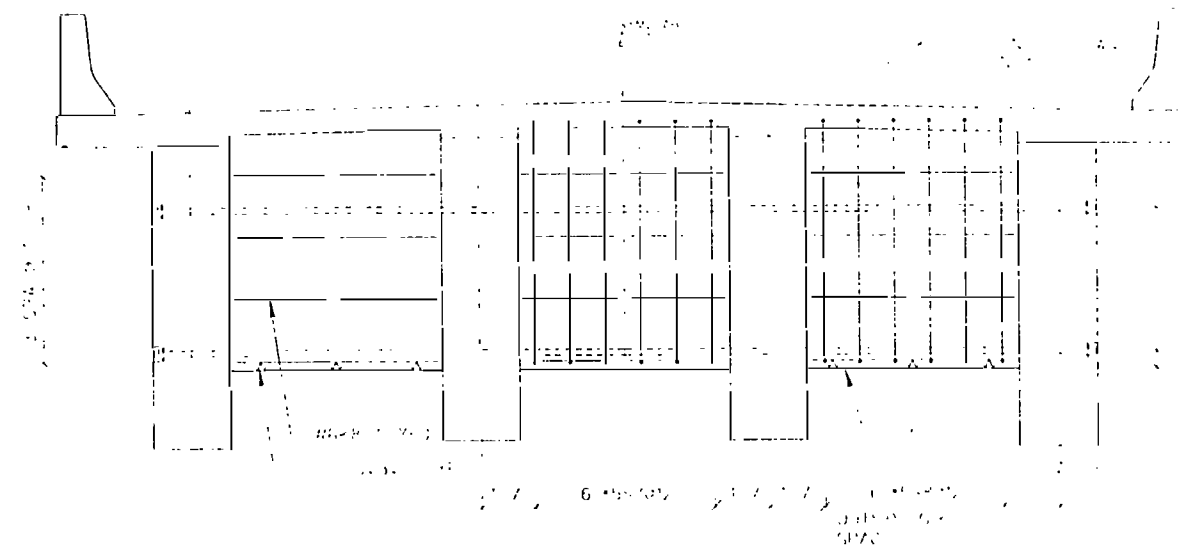
SECTION 1
5/8" - 1' 0"



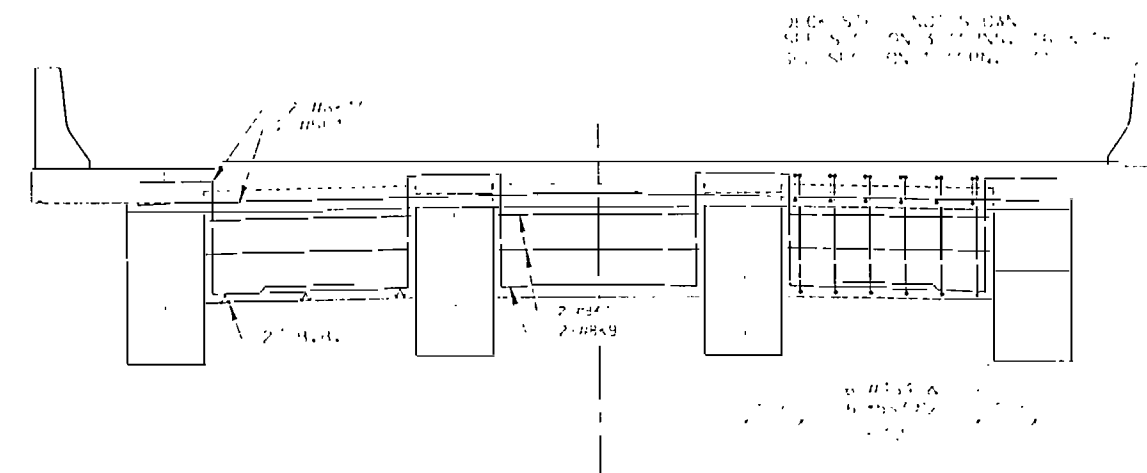
SECTION 2
5/8" - 1' 0"



SECTION 3
5/8" - 1' 0"



SECTION 4
5/8" - 1' 0"



SECTION 5
5/8" - 1' 0"

ENDING

1. 1/4\"/>

Symbol	Added	6C1 T S	Date	Approved
			4 JUN 93	GULP

REVISIONS

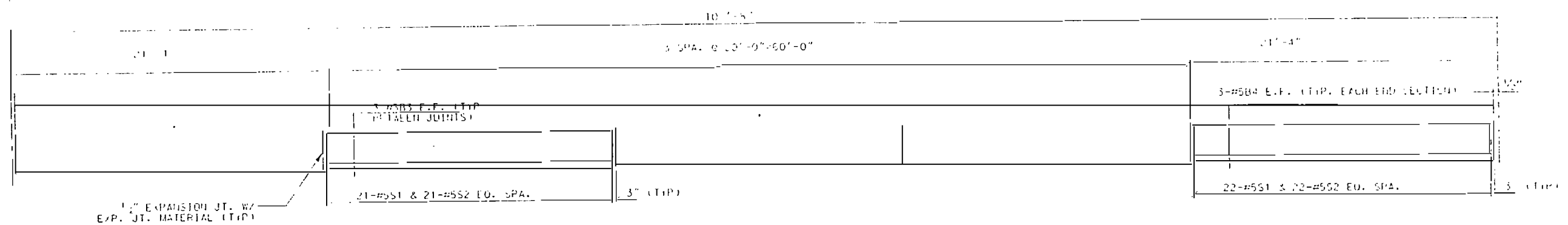
1. 1/4\"/>



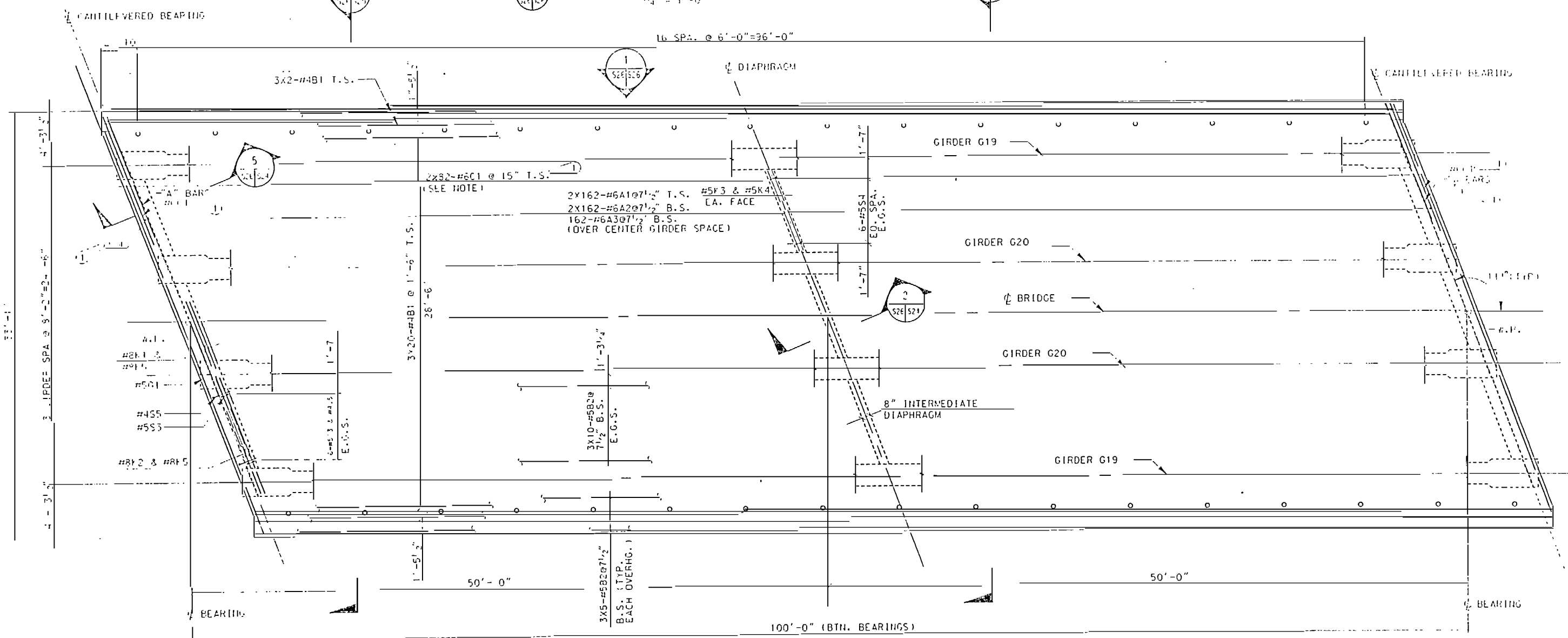
SUPERSTRUCTURE
TYPICAL SECTIONS SPNS 16, 17 & 18

Ed. J. J. J. J. J.

1/4\"/>



BARRIER RAIL ELEVATION
1/2" = 1'-0"



NOTE:
1. REINFORCING BARS FOR BARRIER RAIL SHALL BE 1/2\"/>

DECK SLAB LENGTHS

1	1'-5 1/2"
2	1'-5 1/2"
3	1'-5 1/2"

PLAN
1/2" = 1'-0"

LEGEND
E.G.S. - EACH GIRDER SPACING
T.S. - TOP OF SLAB
B.S. - BOTTOM OF SLAB
W.P. - WORKING POINT
E.F. - EACH FACE
B.B.H. - BEAM BOLSTER HEIGHT
B.B. - BEAM BOLSTER

Symbol	Descriptions	Date	Approved
(1)	APD #6C1 T.S.	1/11/93	GWP

Designed:
GWP
Checked:
GWP
Reviewed:
J. H. Williams, P.E.
Reviewed:
J. H. Williams, P.E.

ATLANTIC INTRACASTAL WATERWAY
CORE DEEP BRIDGE REPLACEMENT
**SUPERSTRUCTURE
DECK PLAN SPAN 17**
Scale: 1/4" = 1'-0"
Date: MAY 91
Sheet: S26

NOTES

THE BARRIER RAIL IN EACH SPAN SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 4500 PSI.

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

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

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

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

THE THREADED REINFORCING BARS ARE TO BE TIGHTENED BY HAND

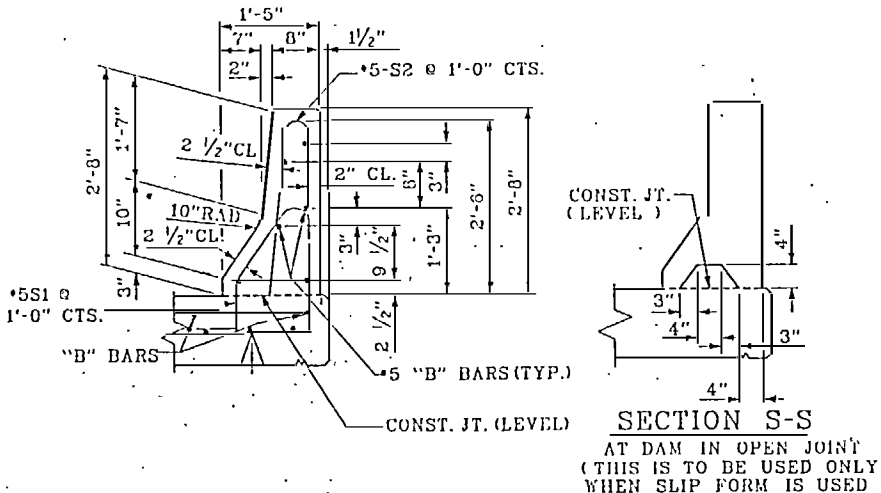
THE WIRE GAGE AND FERRULES SHALL BE OF SUFFICIENT STRENGTH TO ENSURE LOAD ANCHORING CAPACITY AS SPECIFIED IN THE AASHTO SPECIFICATIONS. A MANUFACTURER'S CERTIFICATION OF LOAD ANCHORING CAPACITY SHALL BE FURNISHED WITH EACH SHIPMENT OF BARRIER RAIL ANCHOR ASSEMBLIES.

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

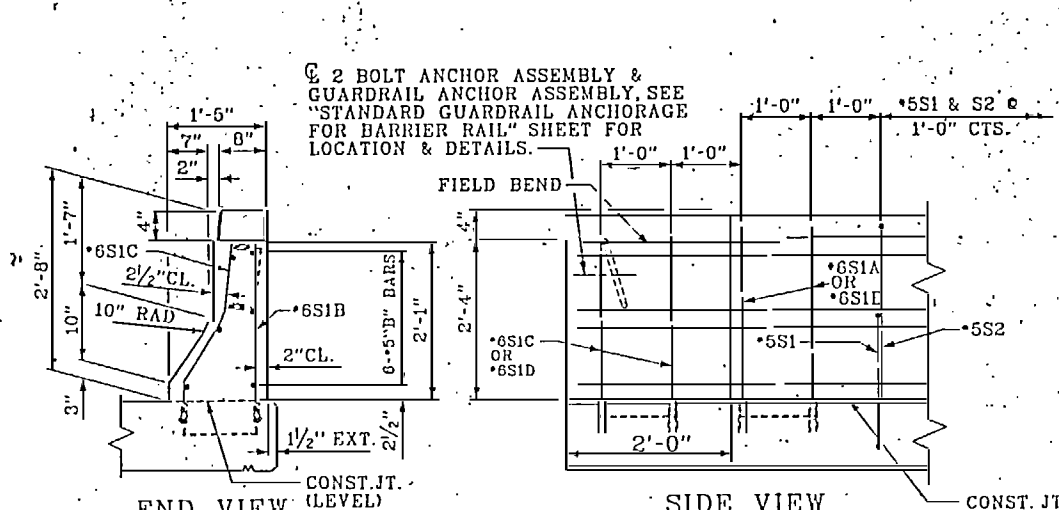
THE BARRIER RAIL ANCHOR ASSEMBLIES WITH THREADED REINFORCING BARS SHALL BE ASSEMBLED IN THE SHOP. REINFORCING BAR THREADS MAY BE RECUT AS NECESSARY.

ALL' REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED

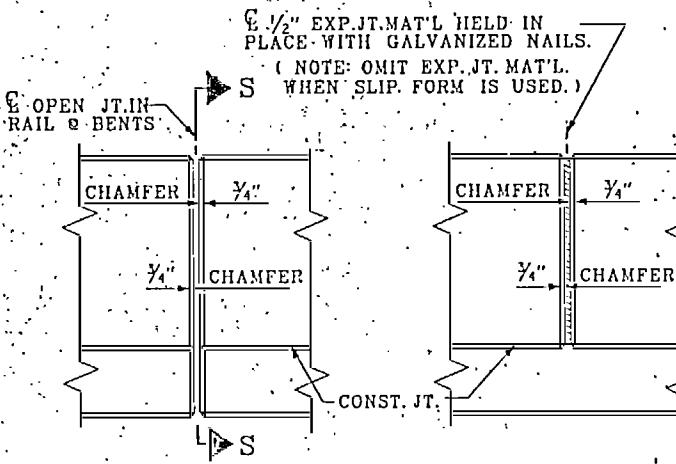
THE CONTRACTOR MAY AT HIS OPTION INSTALL BARS "6S1A","6S1B","6S1C" AND "6S1D" USING AN ADHESIVE ANCHORING SYSTEM AFTER SAWING THE JOINT. TESTING FOR THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.



SECTION THRU RAIL

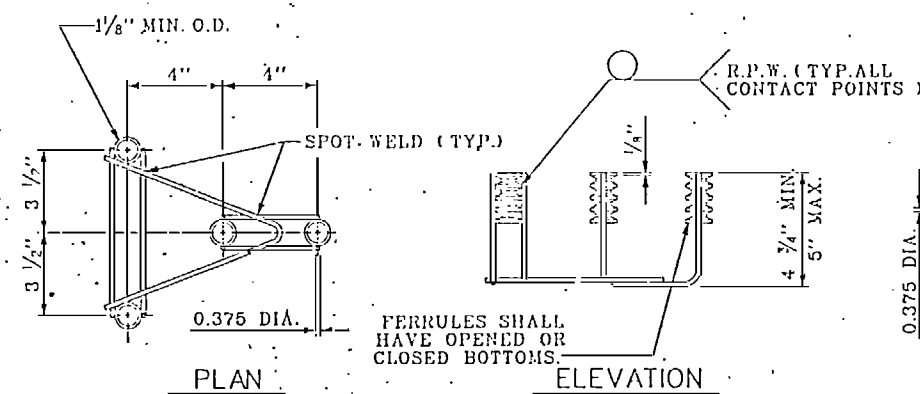


END VIEW (LEVEL) SIDE VIEW
BARRIER RAIL - END OF RAIL DETAILS



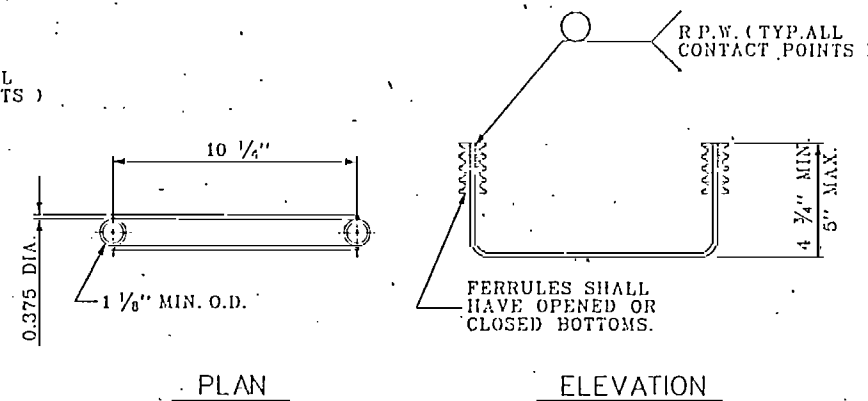
ELEVATION AT EXPANSION JOINTS
BARRIER RAIL DETAILS

Designed: GWP	U.S. ARMY ENGINEER DISTRICT WASHINGTON OFFICE OF THE VICE DISTRICT, NORTH CAROLINA	
Checked: GNG	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT	
Reviewed: JBN	CONCRETE BARRIER RAIL	
Chief, Structures Section	Scale:	Drawing Code:
Approved: E. J. Lauer, P.E.	N.T.S.	BR104-06-23
Chief, Design Branch	CCCCBRI.	Date: 31 MAY 91
		Sheet 55 of 138



GUARDRAIL ANCHOR ASSEMBLY

3" = 1'-0" SCALE



2 - BOLT ANCHOR ASSEMBLY

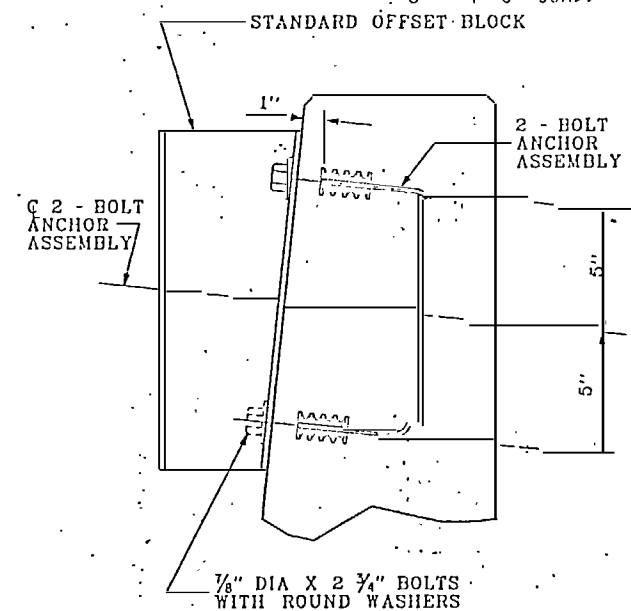
3" = 1'-0" SCALE

- NOTES
- THE GUARDRAIL ANCHOR ASSEMBLY AND THE 2-BOLT ANCHOR ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:
- FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF ASTM A108, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1 1/2".
 - 4 - 1/8" DIA X 2 3/4" BOLTS WITH WASHERS FOR GUARDRAIL ANCHOR ASSEMBLY AND 2 - 1/8" DIA X 2 3/4" BOLTS WITH WASHERS FOR 2-BOLT ANCHOR ASSEMBLY SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTORS OPTION, STAINLESS STEEL BOLTS WITH WASHERS MAY BE USED AS AN ALTERNATE FOR THE 1/8" DIA X 2 3/4" GALVANIZED BOLTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
 - WIRE STRUTS SHOWN IN THE ANCHOR ASSEMBLY ARE THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI.

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

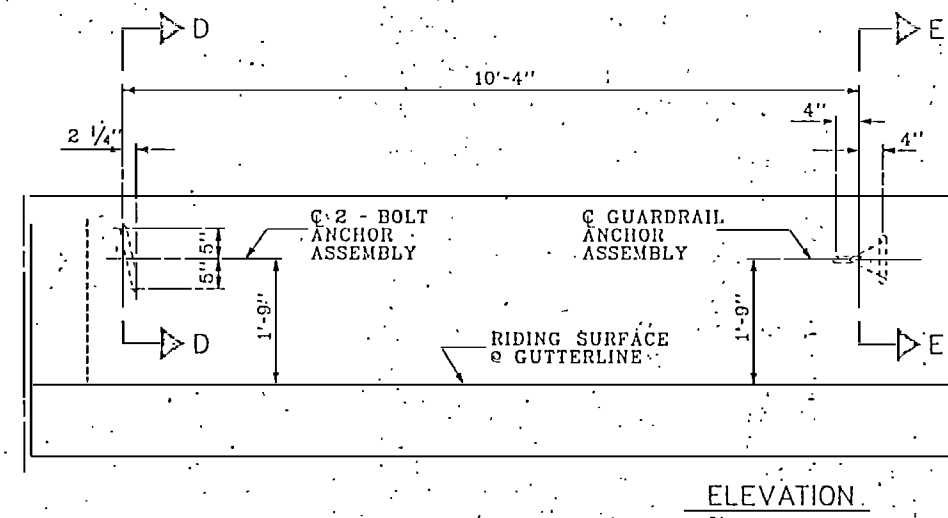
THE GUARDRAIL ANCHOR ASSEMBLY AND THE 2-BOLT ANCHOR ASSEMBLY ARE REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

THE CONTRACTOR MAY, AT HIS OPTION, USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF GUARDRAIL ANCHOR AND 2-BOLT ANCHOR ASSEMBLY. SEE SPECIAL PROVISIONS FOR "ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS". THE REQUIRED DESIGN LOAD OF THE 1/8" DIA. BOLT IS 12 KIPS. THE ANCHOR BOLTS SHALL BE COATED WITH A DEBONDING AGENT SO THAT THE ANCHOR BOLTS CAN BE EASILY REMOVED IF NECESSARY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT THE DEBONDING AGENT DOES NOT REDUCE THE STRENGTH OF THE ANCHOR SYSTEM. TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.



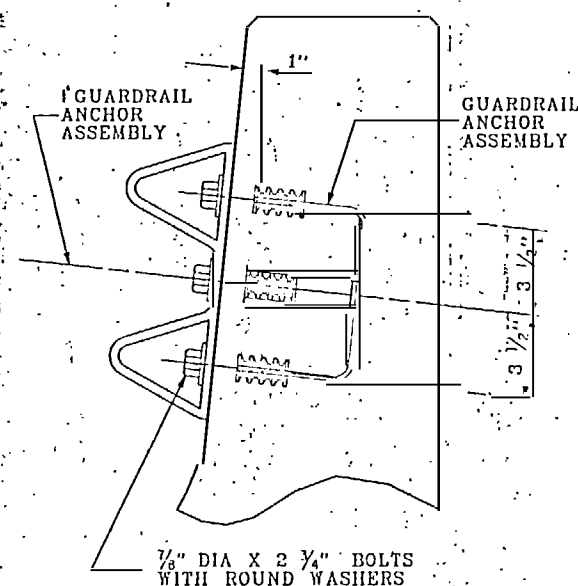
SECTION D-D

3" = 1'-0" SCALE



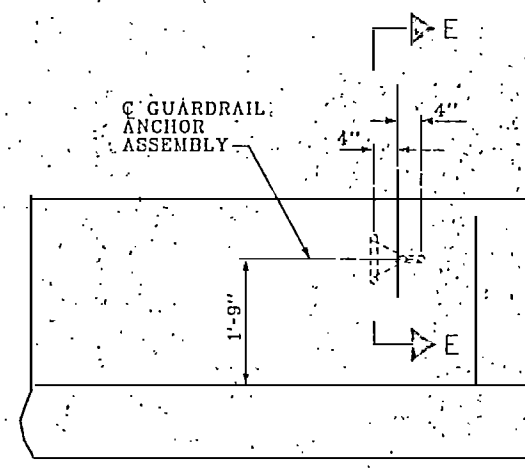
ELEVATION

3/4" = 1'-0" SCALE



SECTION E-E

3" = 1'-0" SCALE



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL AND OFFSET BLOCK

Designed: CWP, VGA3	U.S. ARMY ENGINEER DISTRICT, WILMINGTON CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA		
Checked: CWP	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT		
Reviewed: J&W	GUARDRAIL ANCHOR FOR BARRIER RAIL		
Chief, Structures Section	Scale: AS SHOWN	Drawing Code: BR104-06-23	Plate No: S28
Approved: Ed Janin, P.E.	Chief, Design Branch	Date: 31 MAY 91	Sheet 56 of 138

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

TIE ROD ASSEMBLY SHALL BE ASTM A-36 STRUCTURAL STEEL GALV 1 A W. SPECIFICATIONS.
ALL REINFORCING STEEL SHALL BE GRADE 60.
APPLY EPOXY PROTECTIVE COATING TO END OF GIRDER SURFACES

EMBEDDED PLATE "B-1", SOLE PLATE, BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE SPECIFICATIONS.
THE CONTRACTOR MAY SELECT OPTION "1" OR OPTION "2" FOR EMBEDDED PLATE "B-1".
STEEL SOLE PLATES, BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE SPECIFICATIONS.
BEVEL EDGES OF PLATE "B-1" TO GIVE CLOSE FIT BUT NOT TIGHT FIT TO STEEL CASTING FORM.
DEFORMED, ANCHOR STUDS SHALL CONFORM TO ASTM A-409.

ENDS OF ALL PRESTRESSED STRANDS SHALL BE RECESSED AND GROUTED.
GROUT TO BE NON-METALLIC, NON-SHRINK AND SHALL BE APPROVED BY THE CONTRACTING
OFFICER.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED THE SPECIFIED COMPRESSIVE STRENGTH.

AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGERTIGHT AND THEN BACKED OFF $\frac{1}{2}$ TURN THE THREAD OF THE NUT AND BOLT SHALL THEN BE DURRED WITH A SHARP POINTED TOOL.

THEN BE BURIED WITH A SHARP-POINTED TOOL
PRIOR TO WELDING. GRIND THE GALVANIZED SURFACE OF THE PORTION OF THE EMBEDDED
PLATE AND SOLE PLATE THAT ARE TO BE WELDED. AFTER WELDING, DAMAGED GALVANIZED
SURFACES SHALL BE REPAIRED IN ACCORDANCE WITH THE SPECIFICATIONS.

WHEN WELDING THE SOLE PLATE TO THE EMBEDDED PLATE IN THE GIRDER, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.

THE 1/2" Ø PIPE SLEEVE SHALL BE CUT FROM SCHEDULE 40 PVC PLASTIC PIPE THE PVC PLASTIC PIPE SHALL MEET THE REQUIREMENTS OF ASTM D1785.

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

NOTE: . . .
SEE PLATE S31 FOR
ADDITIONAL DETAILS.

FINAL CAMBER	+2.141
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AT 28 th DAYS.	6000
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BAR TYPES

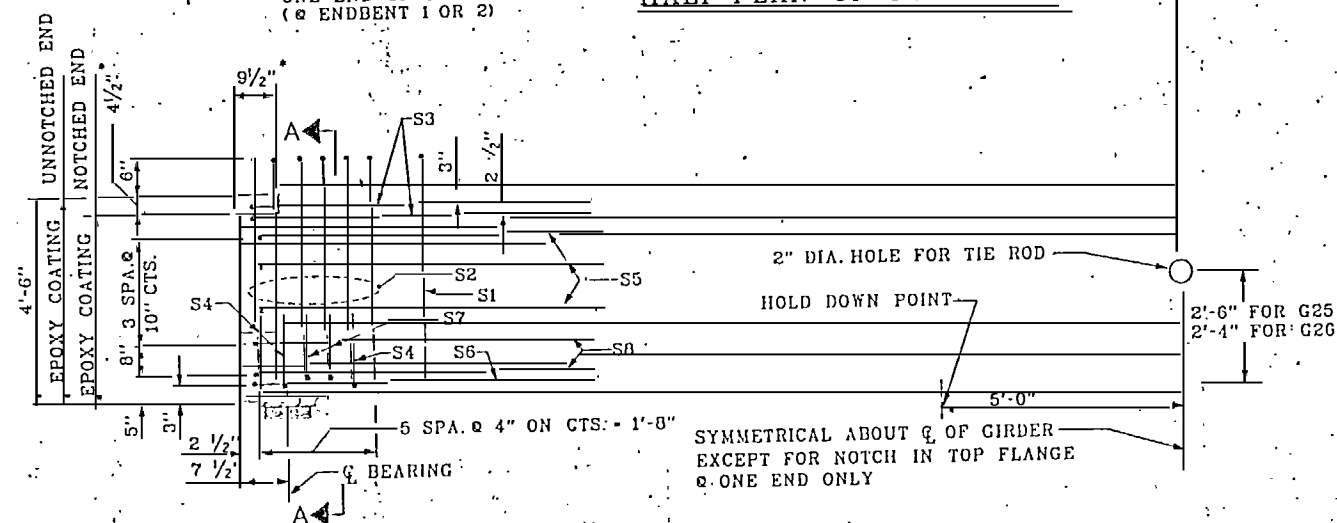
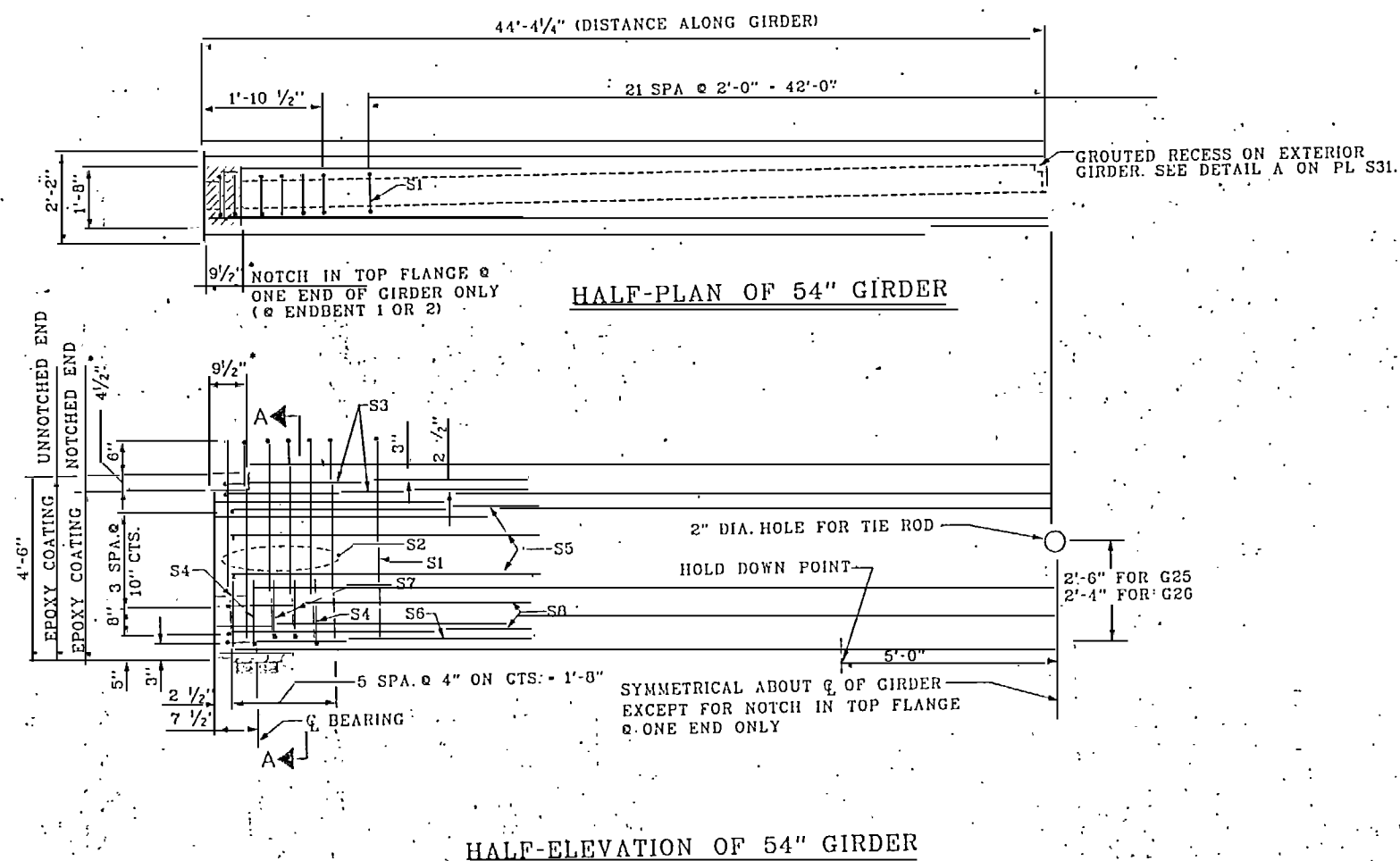
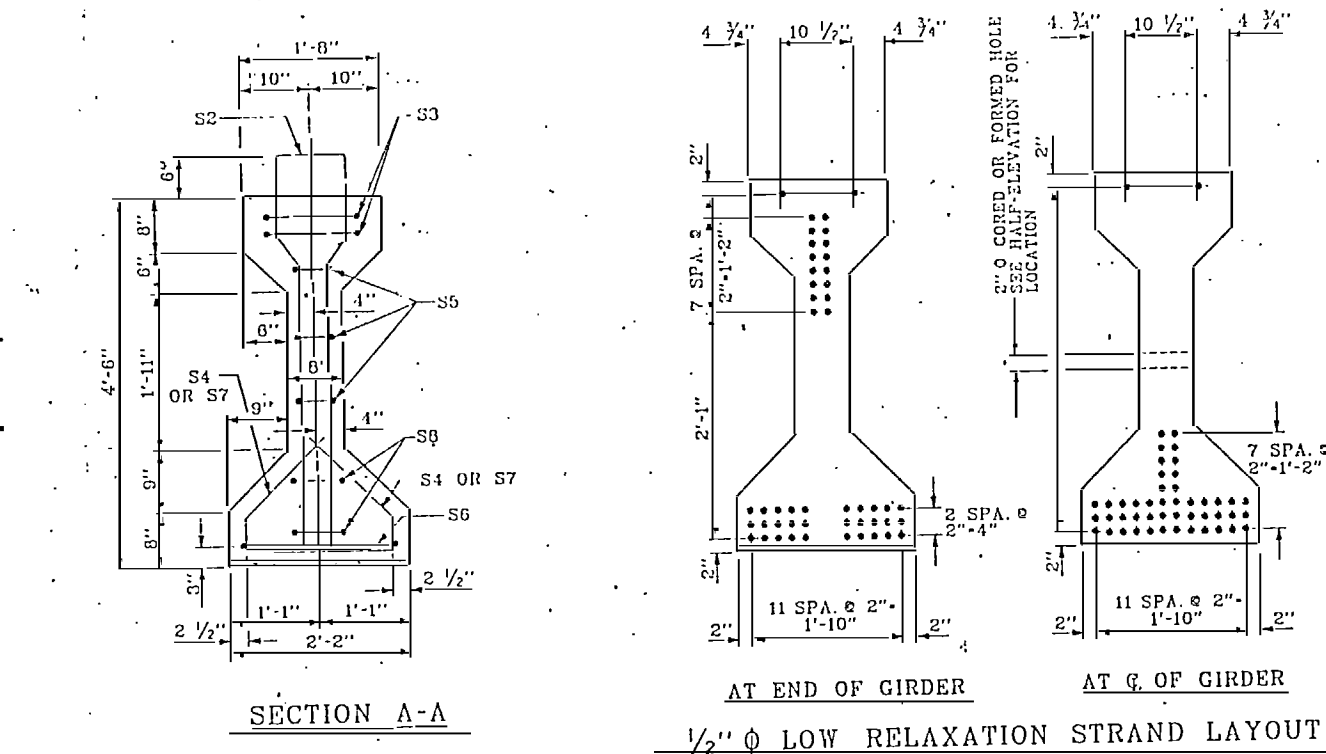
ALL BAR DIMENSIONS ARE OUT-TO-OUT

QUANTITIES FOR ONE GIRDER

	REINFORCING STEEL	6,000 PSI CONCRETE	1/2" Ø L. STRANDS
	LB.	CY.	No.
INTERIOR GRADES	636	18.0	48
EXTERIOR GRADES	636	18.0	48

SPANS	LENGTH (L)	EXTERIOR			INTERIOR		
		MK	NUMBER	TOT. LN.	MK	NUMBER	TOT. LN.
1,31	88'-0 1/2"	G25	4	354.83	G26	4	354.83

Designed: G. W. P.	U.S. ARMY ENGINEER DISTRICT, WASHINGTON D.C. 20315 WASHINGTON, NORTH CAROLINA	
Checked: G. M. G.	 US Army Corps of Engineers	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT SUPERSTRUCTURE GIRDER DETAILS (SPN 1 & 31)
Reviewed: JEW		
Chief, Structures Section Approved:	Scale:	Drawing Code: BR104-06-23
E. J. Lauer, P.E. Chief, Design Group	NOT TO SCALE CC541	Plate No.: S29
	Date: 31 MAY 91	Sheet 57 of 138



NOTES

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

DEBONDING OF STRANDS WILL NOT BE PERMITTED IN ANY OPTIONAL REDESIGN EXCEPT AS NOTED IN THE STANDARD PROVISIONS.

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

TIE ROD ASSEMBLY SHALL BE ASTM A-36 STRUCTURAL STEEL GALV. I.A.W. ASTM A-153. ALL REINFORCING STEEL SHALL BE GRADE 60. APPLY EPOXY PROTECTIVE COATING TO END OF GIRDER SURFACES.

EMBEDDED PLATE "B-1", SOLE PLATE, BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE SPECIFICATIONS

THE CONTRACTOR MAY SELECT OPTION "1" OR OPTION "2" FOR EMBEDDED PLATE "B-1". STEEL SOLE PLATES, BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE SPECIFICATIONS.

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

DEFORMED ANCHOR STUDS SHALL CONFORM TO ASTM A-496.

ENDS OF ALL PRESTRESSED STRANDS SHALL BE RECESSED AND GROUTED. GROUT TO BE NON-METALLIC, NON-SHRINK AND SHALL BE APPROVED BY THE CONTRACTING OFFICER.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED THE SPECIFIED COMPRESSIVE STRENGTH.

AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGERTIGHT AND THEN BACKED OFF 1/2 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

PRIOR TO WELDING, GRIND THE GALVANIZED SURFACE OF THE PORTION OF THE EMBEDDED PLATE AND SOLE PLATE THAT ARE TO BE WELDED. AFTER WELDING, DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED IN ACCORDANCE WITH THE SPECIFICATIONS.

WHEN WELDING THE SOLE PLATE TO THE EMBEDDED PLATE IN THE GIRDER, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.

THE 1/2" Ø PIPE SLEEVE SHALL BE CUT FROM SCHEDULE 40 PVC PLASTIC PIPE THE PVC PLASTIC PIPE SHALL MEET THE REQUIREMENTS OF ASTM D1705.

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

NOTE:
SEE PLATE S33 FOR
ADDITIONAL DETAILS.

GRADE 270 STRANDS

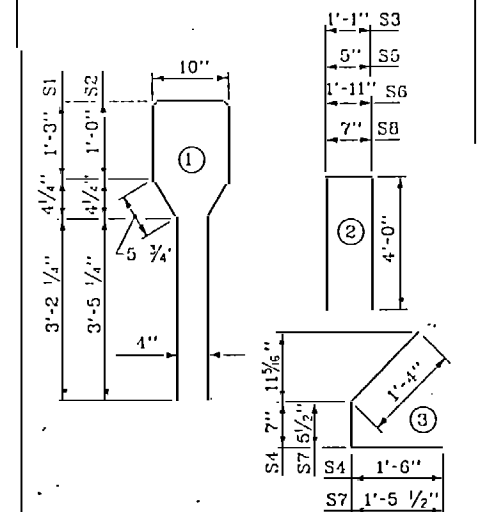
AREA (SQUARE INCHES)	W.P.I.E.
0.153	
ULTIMATE STRENGTH (KIPS PER STRAND)	41,300
APPLIED PRESTRESS (KIPS PER STRAND)	30,980

REINFORCING STEEL - ONE GIRDER

	BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
INTERIOR GDL	S1	43	*4	1	10'-8"	306
EXTERIOR COR	S1	43	*4	1	10'-8"	306
	S2	12	*6	1	10'-8"	192
	S3	4	*4	2	9'-1"	24
	S4	12	*4	3	3'-5"	27
	S5	6	*4	2	8'-5"	34
	S6	2	*4	2	9'-11"	13
	S7	8	*4	3	3'-3"	17
	S8	4	*4	2	8'-7"	23

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR ONE GIRDER

	REINFORCING STEEL (LB.)	CONCRETE (CY.)	1/2" Ø L.R. STRANDS (No.)
INTERIOR GIRDER	636	18.2	48
EXTERIOR GIRDER	636	18.2	48

GIRDER LENGTHS

SPANS	LENGTH (L)	MK	EXTERIOR NUMBER TOT. LN.	INTERIOR NUMBER TOT. LN.
2,3	89'-10"	G1	4	359.3'
4,6,9,24-30	89'-9 1/2"	G3	24	2155.0'
10-13,20-23	89'-9"	G5	16	1436.0'

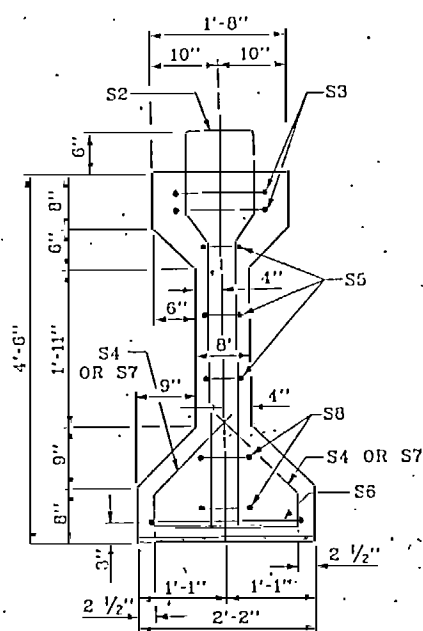
C.C. =

CAMBER & DEFLECTION AT MIDSPAN (INCHES)

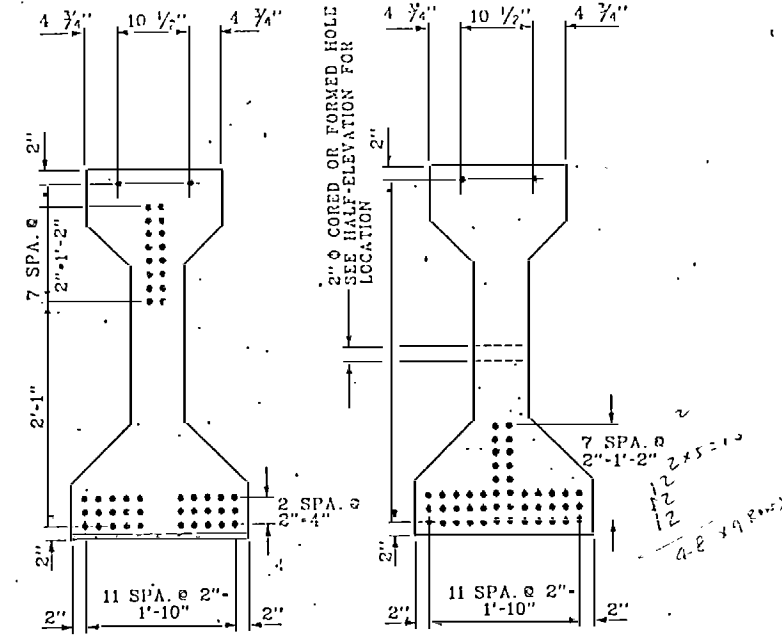
CAMBER - GIRDER ALONE IN PLACE	+3.524
DEFLECTION DUE TO SUPERIMPOSED DL & FUTURE WEARING SURFACE	-1.465
FINAL CAMBER	+2.059

CONCRETE STRENGTH (PSI)

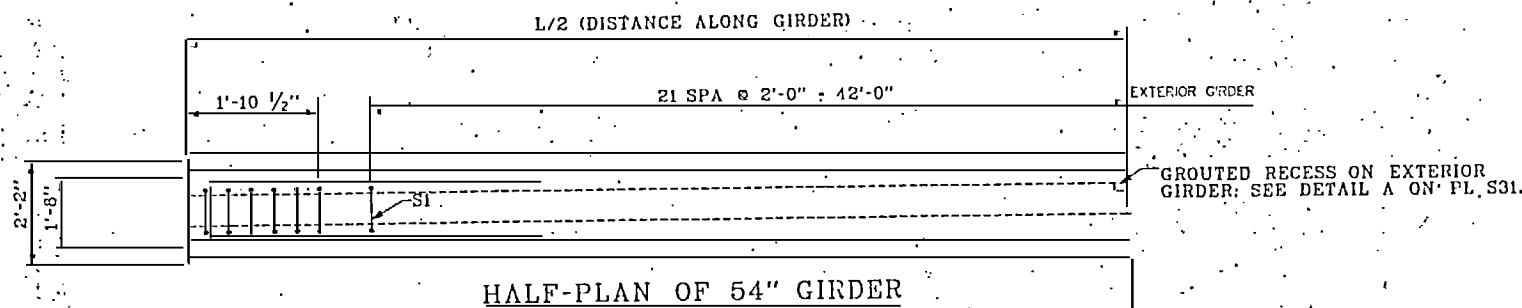
AT RELEASE	5200
AT 28 DAYS	6000



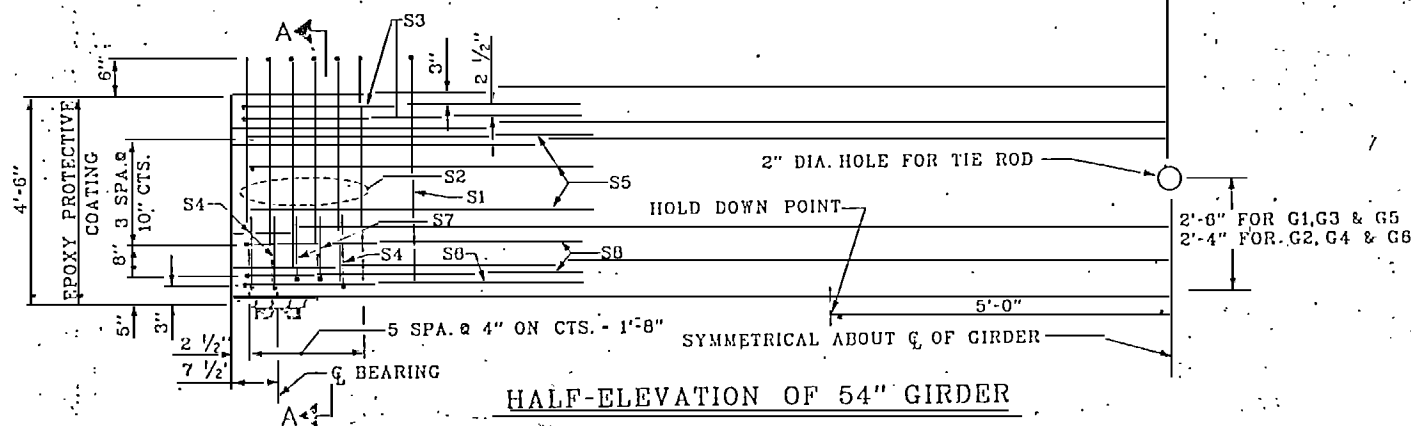
SECTION A-A



AT END OF GIRDER
AT C. OF GIRDER
1/2" Ø LOW RELAXATION STRAND LAYOUT

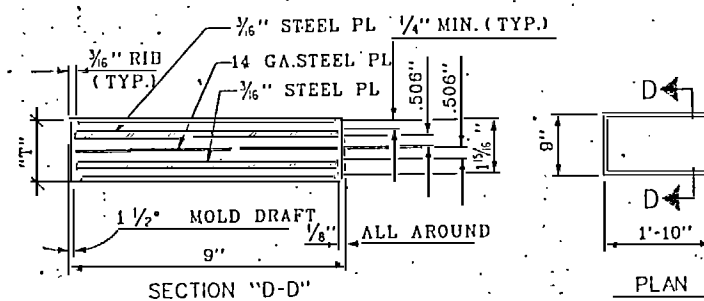
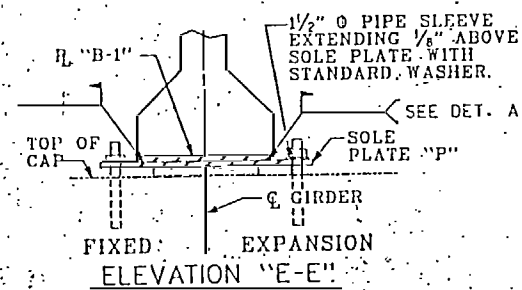
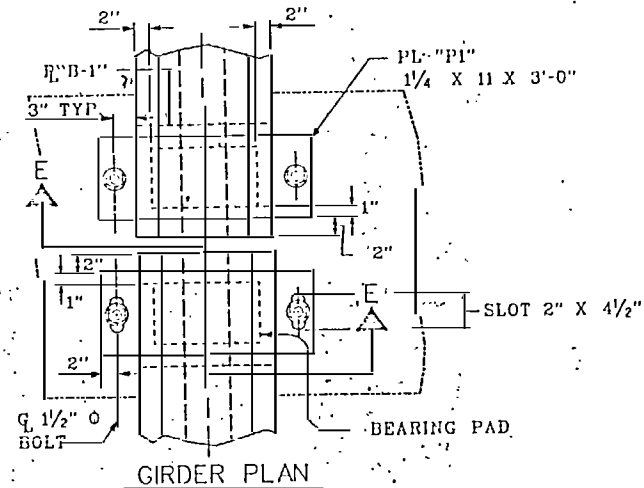


HALF-PLAN OF 54" GIRDER

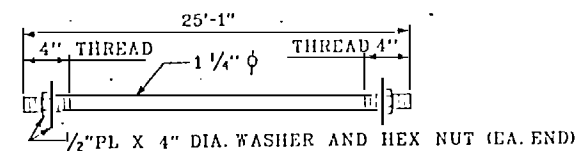
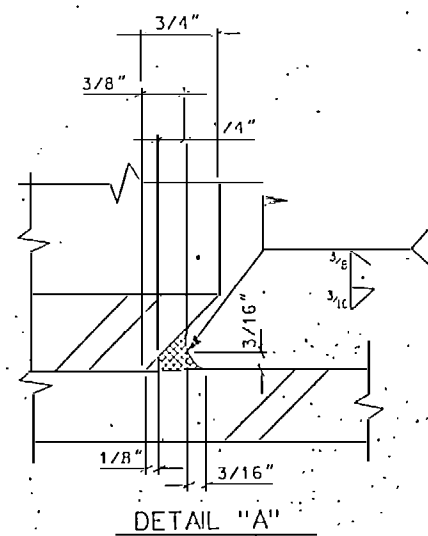


HALF-ELEVATION OF 54" GIRDER

Designed: G.W.P.	US ARMY ENGINEER DISTRICT, WASHINGTON CORPS OF ENGINEERS WASHINGTON, NORTH CAROLINA
Checked: G.H.G.	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT
Reviewed: JGW	SUPERSTRUCTURE GIRDER DETAILS (SPN 2-4, 6-13, & 20-30)
Chief, Structures Section Approved: E.J. Jamier, P.E.	Scale: NOT TO SCALE
Chief, Design Branch	Drawing Code: BR104-06-23
	Plate No: S30
	cc54pcg Date: 31 MAY 91 Sheet 58 of 138

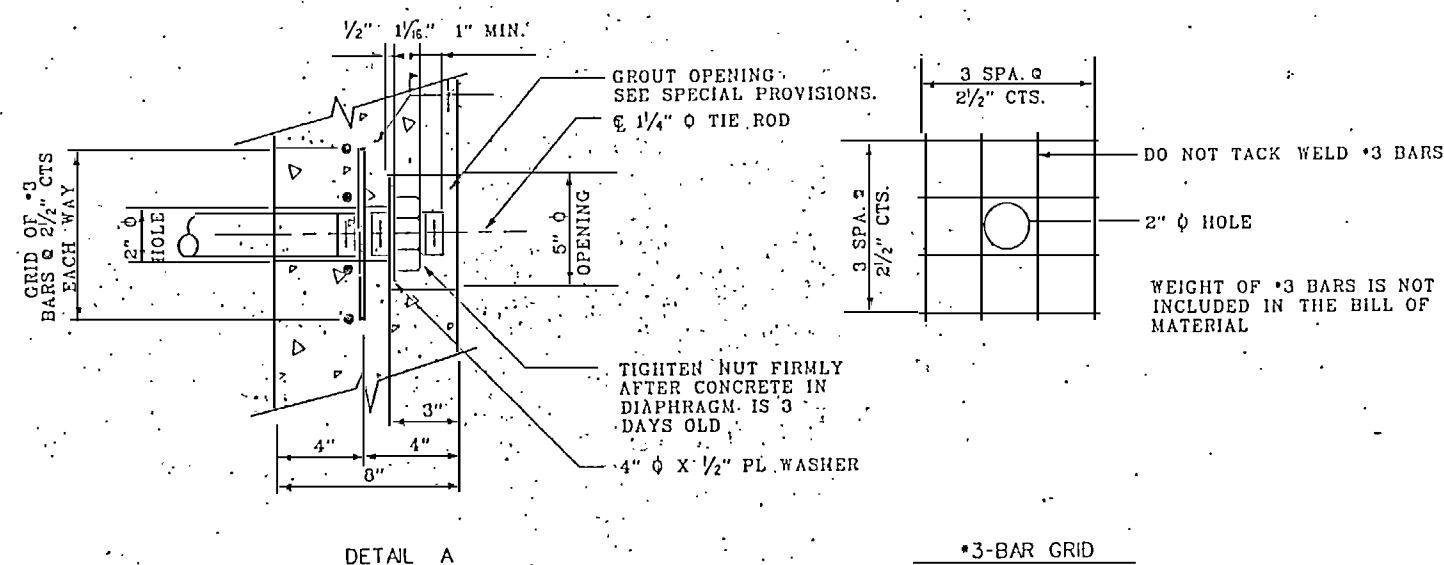


SPANS	% GRADE	"T"	NUMBER RQD
1,2	4.5-5.0	2 7/8"	16
3,4,29-31	3.5-4.5	2 7/8"	40
6-9,24-28	2.5-3.5	2 7/8"	72
10-12,22,23	1.5-2.5	2 7/8"	40
13,20,21	0.5-1.5	2"	24

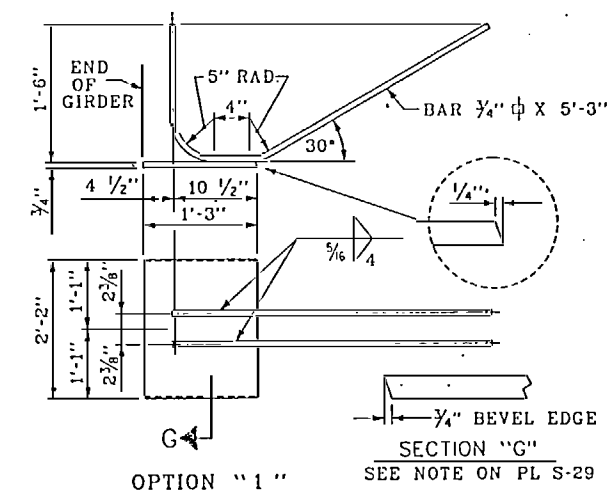
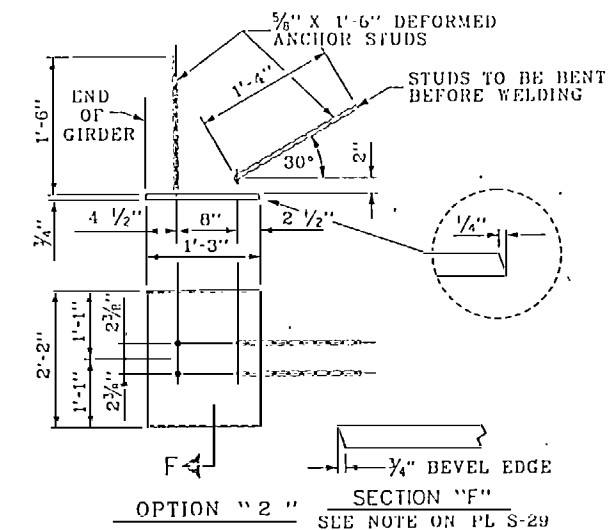


1 1/4" Ø TIE ROD ASSEMBLY

(24 COMPLETE ASSEMBLIES REQUIRED)

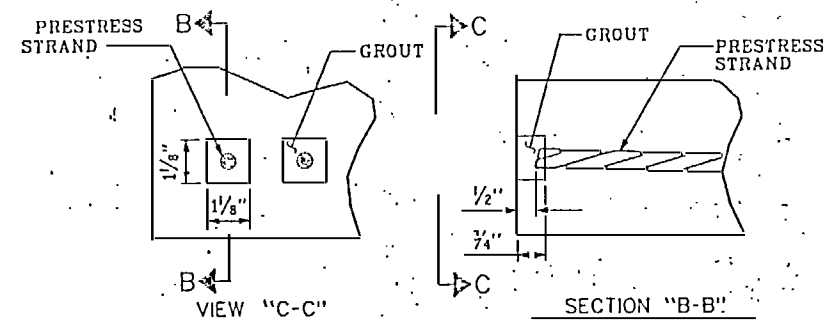


GROUTED RECESS FOR END OF TIE ROD



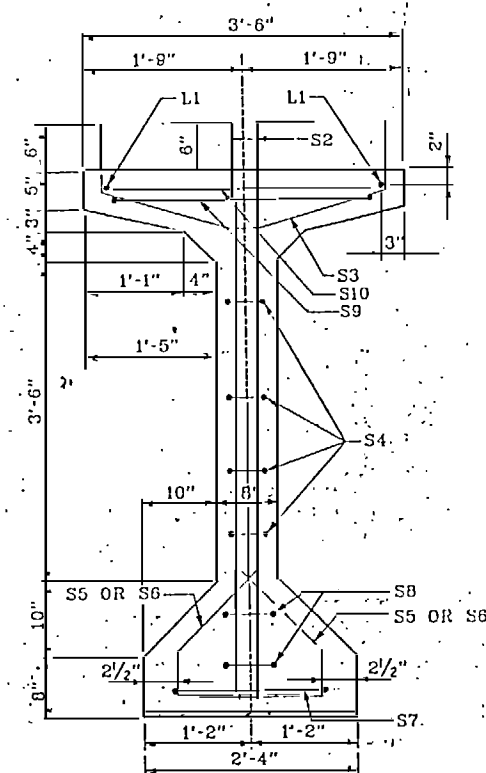
EMBEDDED PLATE "B-1"

TWO EMBEDDED PLATES "B-1"
ARE REQUIRED FOR EACH GIRDER.

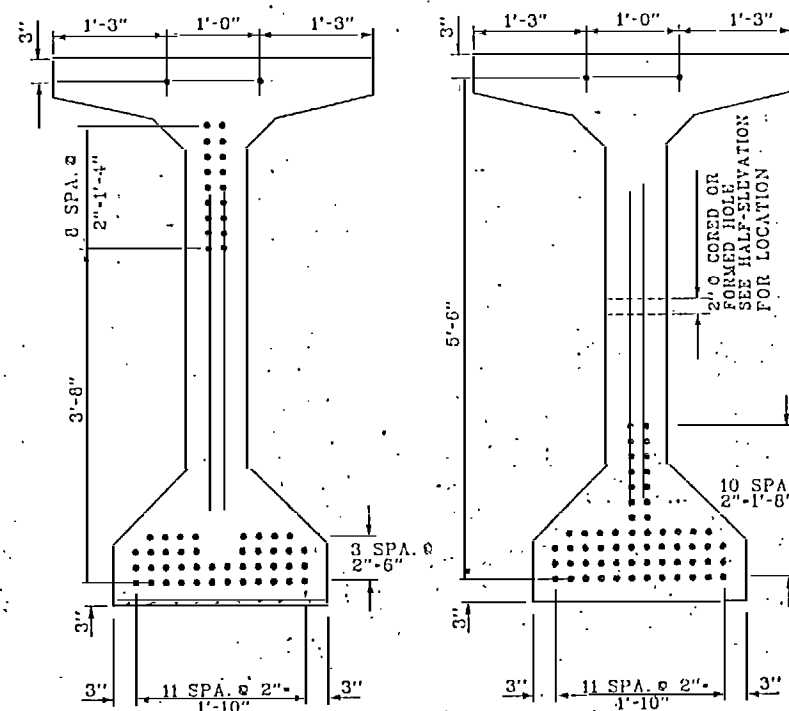


GRAUTED RECESS AT END OF STRAND

Designed: G. W. P.	U.S. Army ENGINEER DISTRICT, WASHINGTON DISTRICT OF ENGINEERS WILMINGTON, NORTH CAROLINA	
Checked: G. M. G.	 ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT	
Reviewed:	US Army Corps of Engineers	
JFW	SUPERSTRUCTURE GIRDER DETAILS (SPN 1-4, 6-13, & 20-31)	
Chief, Structures Section Approvals	Scale: NOT TO SCALE	Drawing Code: BR104-06-23
Ed Lanier, P.E. Chief, Design Branch	cc541pccq	Date: 31 MAY 91 Sheet 59 of 138



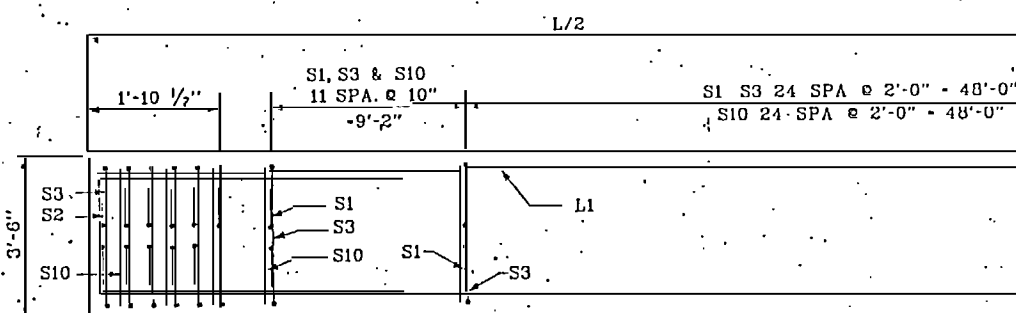
SECTION A-A



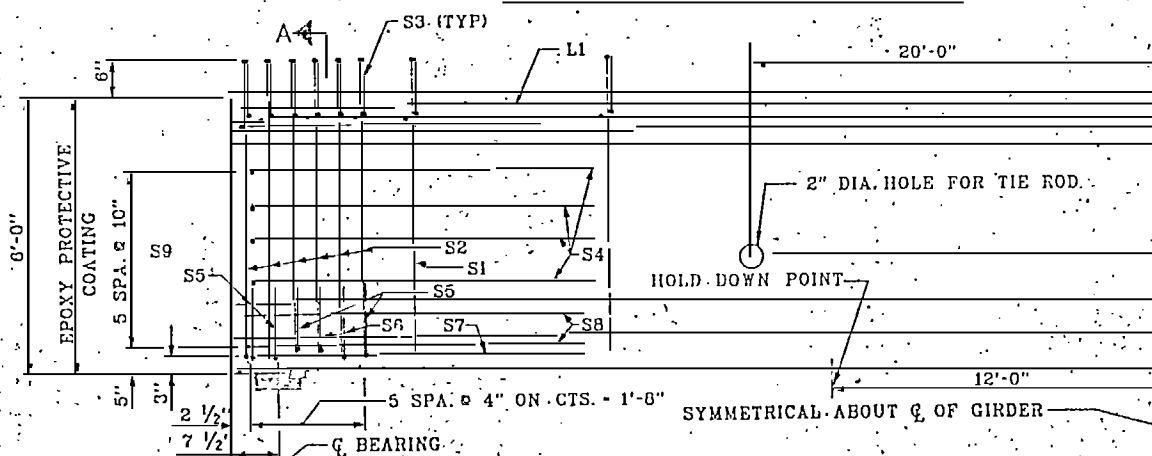
AT END OF GIRDER

AT Q. OF GIRDER

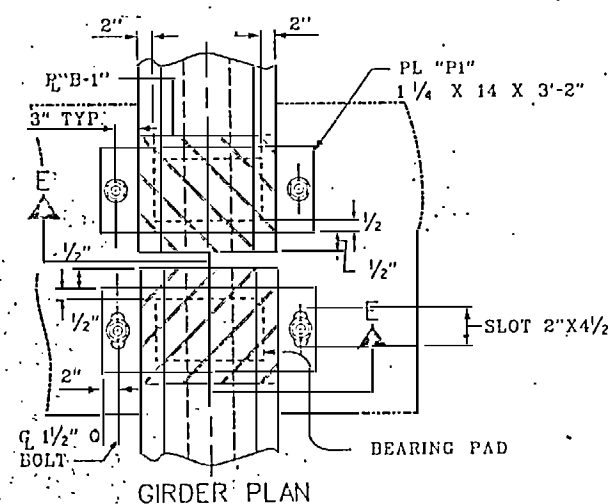
1/2" Ø LOW RELAXATION STRAND LAYOUT



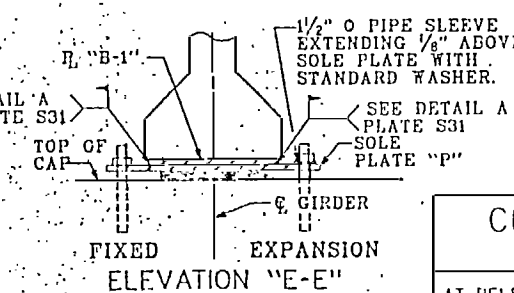
HALF-PLAN OF 72" GIRDER



HALF-ELEVATION OF 72" GIRDER



GIRDER PLAN



FIXED ELEVATION "E-E"

NOTES:

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

DEBONDING OF STRANDS WILL NOT BE PERMITTED IN ANY OPTIONAL REDESIGN EXCEPT AS NOTED IN THE STANDARD PROVISIONS.

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

TIE ROD ASSEMBLY SHALL BE ASTM A-36 STRUCTURAL STEEL GALV. I.A.W. ASTM A-153. ALL REINFORCING STEEL SHALL BE GRADE 60.

APPLY EPOXY PROTECTIVE COATING TO END OF GIRDER SURFACES.

EMBEDDED PLATE "B-1", SOLE PLATE, BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE SPECIFICATIONS.

THE CONTRACTOR MAY SELECT OPTION "1" OR OPTION "2" FOR EMBEDDED PLATE "B-1". STEEL SOLE PLATES, BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE SPECIFICATIONS.

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

DEFORMED ANCHOR STUDS SHALL CONFORM TO ASTM A-428.

ENDS OF ALL PRESTRESSED STRAND SHALL BE RECESSED AND GROUTED. GROUT TO BE NON-METALLIC, NON-SHRINK AND SHALL BE APPROVED BY THE CONTRACTING OFFICER.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED THE SPECIFIED COMPRESSIVE STRENGTH.

AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGERTIGHT AND THEN BACKED OFF 1/2 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURIED WITH A SHARP POINTED TOOL.

PRIOR TO WELDING, GRIND THE GALVANIZED SURFACE OF THE PORTION OF THE EMBEDDED PLATE AND SOLE PLATE THAT ARE TO BE WELDED AFTER WELDING, DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED IN ACCORDANCE WITH THE SPECIFICATIONS.

WHEN WELDING THE SOLE PLATE TO THE EMBEDDED PLATE IN THE GIRDER, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.

THE 1/2" Ø PIPE SLEEVE SHALL BE CUT FROM SCHEDULE 40 PVC PLASTIC PIPE. THE PVC PLASTIC PIPE SHALL MEET THE REQUIREMENTS OF ASTM D1765.

ENDS OF PRESTRESSED STRAND SHALL BE RECESSED AND GROUTED. GROUT SHALL BE NON-METALLIC AND NON-SHRINK.

CAMBER & DEFLECTION AT MIDSPAN (INCHES)

CAMBER - GIRDER ALONE IN PLACE +3.800

DEFLECTION DUE TO SUPERIMPOSED DL & FUTURE WEARING SURFACE -1.572

FINAL CAMBER +2.228

QUANTITIES FOR ONE GIRDER

REINFORCING STEEL LB.	6,000 PSI CONCRETE CY.	1/2" Ø L.R. STRANDS No.
2147	33.4	62

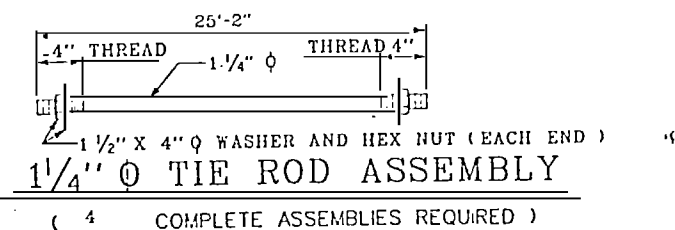
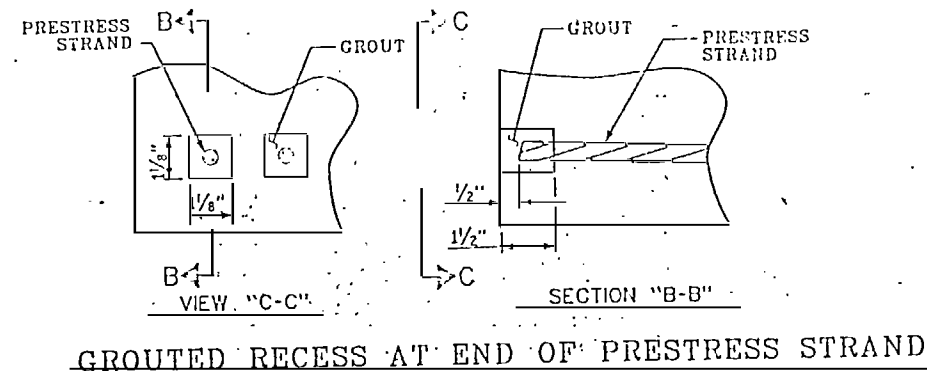
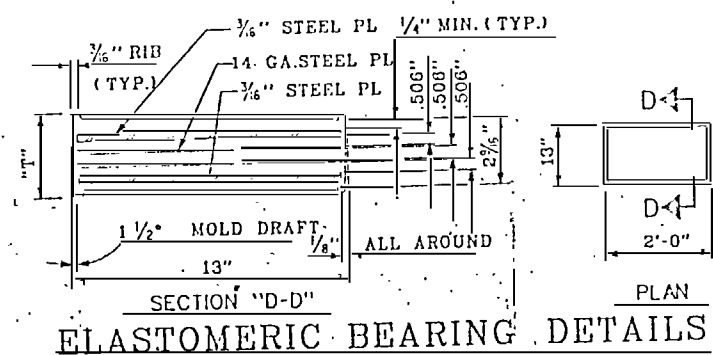
GIRDER LENGTHS

SPANS	LENGTH (L)	EXTERIOR		INTERIOR	
		NUMBER	TOT. LN.	NUMBER	TOT. LN.
5	119'-10"	2	239.7'	2	239.7'
14	119'-9"	2	239.5'	2	239.5'

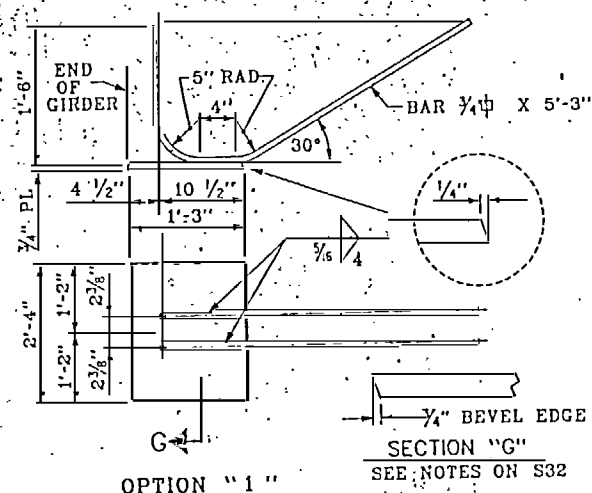
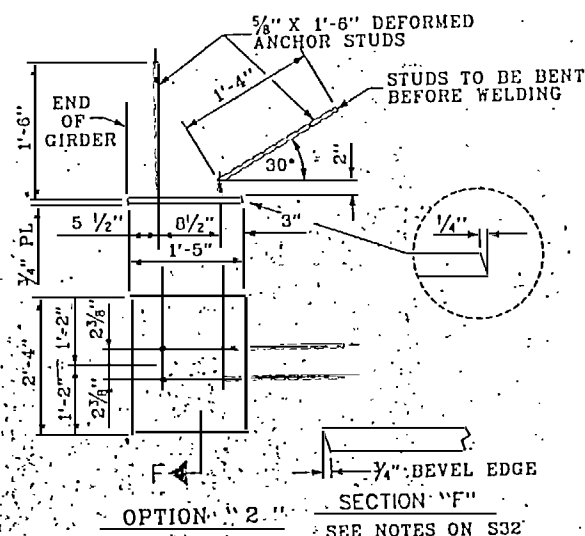
CONCRETE STRENGTH (PSI)

AT RELEASE	5000
AT 28 DAYS	6000

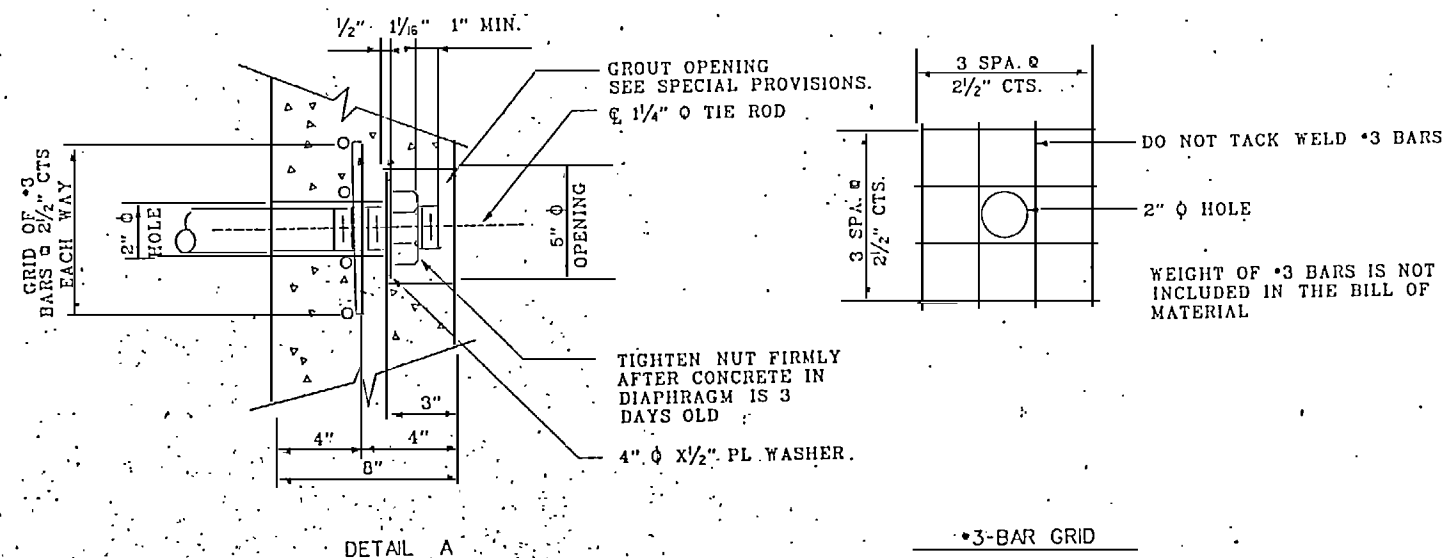
Designed: G.W.P.	US Army Corps of Engineers VIRGINIA NORTH CAROLINA
Checked: G.M.C.	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT SUPERSTRUCTURE GIRDER DETAILS SPANS 5 & 14 1 OF 2
Reviewed: J.B.W.	Scale: NOT TO SCALE
Chief, Structures Section Approved: E.L. Smith, P.E. Chief, Design Branch	Drawing Code: BR104-06-23
	Plate No: S32
	cc72pcg Date: 31 MAY 91 Sheet 60 of 138



SPANS	% GRADE	"T"	NUMBER ROD
5	4.0	3 1/16"	8
14	1.0	2 7/16"	8



EMBEDDED PLATE "B-1" DETAILS
TWO EMBEDDED PLATES "B-1" ARE REQUIRED FOR EACH GIRDER.



GROUTED RECESS FOR END OF TIE ROD

Designed: G.W.P.	US Army Engineer District, VAWMOTON COVES OF ENGINEERS VALENTIA, NORTH CAROLINA	
Checked: G.M.G.	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT US Army Corps of Engineers SUPERSTRUCTURE GIRDER DETAILS SPANS 5 & 14 SHEET 2 OF 2	
Reviewed: JBN	Scale: NOT TO SCALE	Drawing Code: BR104-06-23
Approved: Ed Lavin, P.E. Chief, Design Branch	cc72pcg2 Date: 31 MAY 91	Plate No: S33 Sheet 61 of 138

NOTES

THE SAME TYPE AND SIZE OF STRANDS WILL BE USED FOR ALL GIRDERS IN THE STRUCTURE.
DEBONDING OF STRANDS WILL NOT BE PERMITTED IN ANY OPTIONAL REDESIGN EXCEPT AS NOTED IN THE STANDARD PROVISIONS.
ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW-RELAXATION GRADE 270 STRAND AND SHALL CONFORM TO ASTM A-416 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

TIE ROD ASSEMBLY SHALL BE ASTM A-36 STRUCTURAL STEEL GALV. I.A.W. ASTM A-153.
ALL REINFORCING STEEL SHALL BE GRADE 60
APPLY EPOXY PROTECTIVE COATING TO END OF GIRDER SURFACES.

EMBEDDED PLATE "B-1", SOLE PLATE, BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE SPECIFICATIONS.
THE CONTRACTOR MAY SELECT OPTION "1" OR OPTION "2" FOR EMBEDDED PLATE "B-1".
STEEL SOLE PLATES, BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE SPECIFICATIONS.
BEVEL EDGES OF PLATE "B-1" TO GIVE CLOSE FIT BUT NOT TIGHT FIT TO STEEL CASTING FORM.
DEFORMED ANCHOR STUDS SHALL CONFORM TO ASTM A-496.

ENDS OF ALL PRESTRESSED STRANDS SHALL BE RECESSED AND GROUTED.
GROUT TO BE NON-METALLIC, NON-SHRINK AND SHALL BE APPROVED BY THE CONTRACTING OFFICER.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED THE SPECIFIED COMPRESSIVE STRENGTH.

AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGERTIGHT AND THEN BACKED OFF 1/2 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

PRIOR TO WELDING, GRIND THE GALVANIZED SURFACE OF THE PORTION OF THE EMBEDDED PLATE AND SOLE PLATE THAT ARE TO BE WELDED. AFTER WELDING, DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED IN ACCORDANCE WITH THE SPECIFICATIONS.

WHEN WELDING THE SOLE PLATE TO THE EMBEDDED PLATE IN THE GIRDER, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.

THE 1/2" Ø PIPE SLEEVE SHALL BE CUT FROM SCHEDULE 40 PVC PLASTIC PIPE. THE PVC PLASTIC PIPE SHALL MEET THE REQUIREMENTS OF ASTM D1785.

ENDS OF PRESTRESSED STRAND SHALL BE RECESSED AND GROUTED. GROUT SHALL BE NON-METALLIC, AND NON-SHRINK.

NOTE:
SEE PLATE S37 FOR
ADDITIONAL DETAILS.

GIRDER LENGTHS & QUANTITIES

GIRDER MK.	LENGTH (L)	REINFORCING (LBS.)	CONCRETE (CY)	STRANDS
G11	82'-0 1/2"	608	16.64	46
G12	85'-2 1/4"	622	17.29	46
G13	88'-3 3/4"	636	17.92	46
G14	91'-5 1/2"	636	18.56	50

CAMBER & DEFLECTION AT MIDSPAN (INCHES)

	G11	G12	G13	G14
CAMBER - GIRDER ALONE IN PLACE	+3.039	+3.132	+3.209	+3.827
DEFLECTION DUE TO SUPERIMPOSED DL & FUTURE WEARING SURFACE	-0.981	-1.106	-1.279	-1.520
FINAL CAMBER	+2.057	+2.026	+1.929	+2.307

CONCRETE STRENGTH (PSI)

AT RELEASE	5200
AT 28 DAYS	6500

GRADE 270 STRANDS

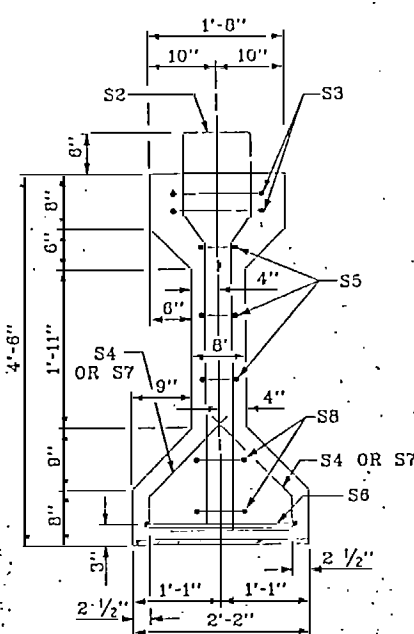
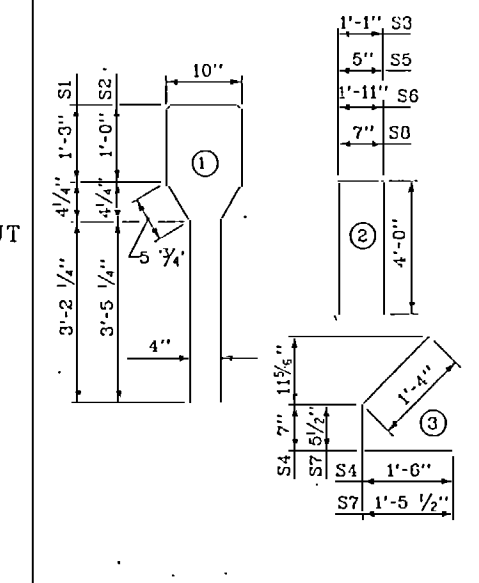
AREA (SQUARE INCHES)	1/2" Ø L R
0.153	
ULTIMATE STRENGTH (LBS PER STRAND)	41,300
APPLIED PRESTRESS (LBS PER STRAND)	30,980

REINFORCING STEEL - ONE GIRDER

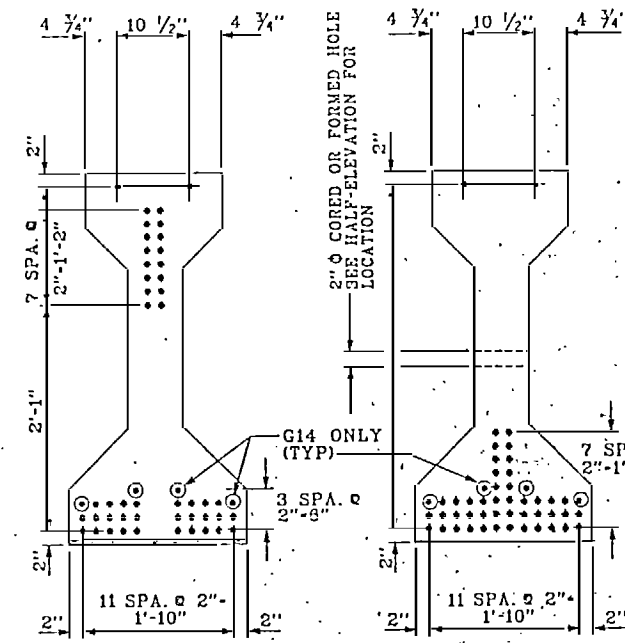
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
G11	S1	39	*4	1	10'-8"
G12	S1	41	*4	1	10'-8"
G13	S1	43	*4	1	10'-8"
G14	S1	43	*4	1	10'-8"
	S2	12	*6	1	10'-8"
	S3	4	*4	2	9'-11"
	S4	12	*4	3	3'-5"
	S5	6	*4	2	8'-5"
	S6	2	*4	2	9'-11"
	S7	8	*4	3	3'-3"
	S8	4	*4	2	8'-7"

BAR TYPES

ALL BAR DIMENSIONS ARE GUN-TO-TO



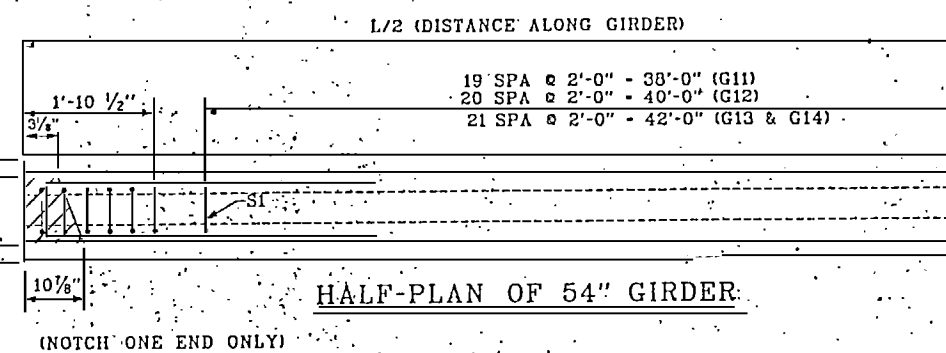
SECTION A-A



AT END OF GIRDER

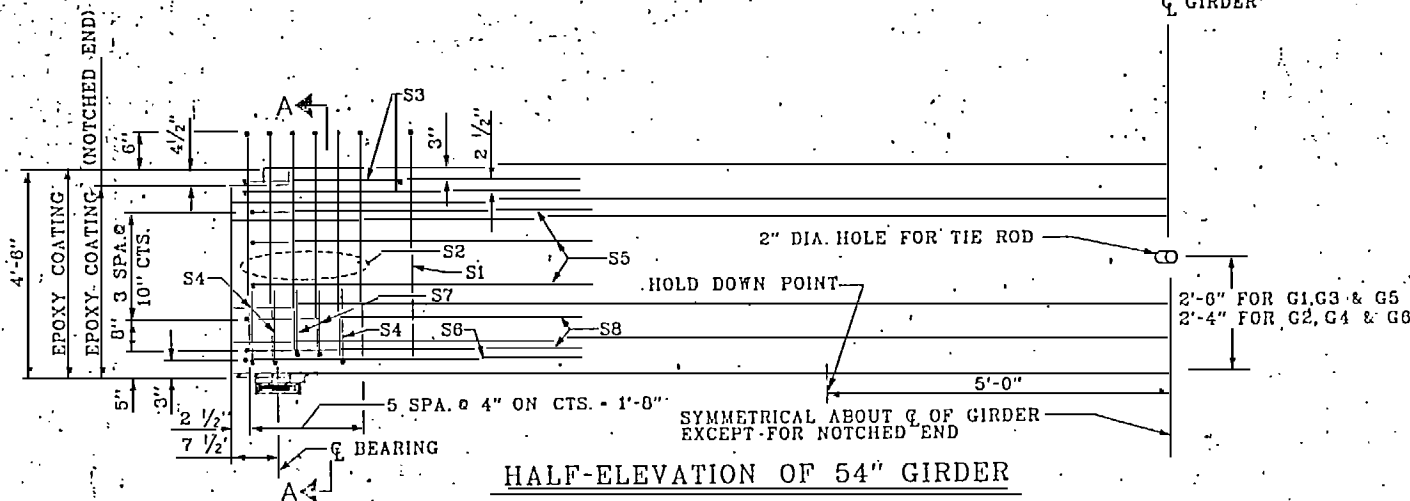
AT C. OF GIRDER

1/2" Ø LOW RELAXATION STRAND LAYOUT



HALF-PLAN OF 54" GIRDER

(NOTCH ONE END ONLY)



HALF-ELEVATION OF 54" GIRDER

Designed G. W. P.	US ARMY ENGINEER DISTRICT, WASHINGTON OFFICE OF ENGINEERING WASHINGTON, D.C. 20315	
Checked G. M. C.	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT	
Reviewed JEW	SUPERSTRUCTURE GIRDER DETAILS SPAN 15	
Chief, Structures Section Approved E. J. Lanier, P.E.	Scale NOT TO SCALE	Drawing Codes BR104-06-23
Chief, Design Branch	CCPCG15	Date: 31 MAY 91 Sheet 62 of 134

NOTES

THE SAME TYPE AND SIZE OF STRANDS WILL BE USED FOR ALL GIRDERS IN THE STRUCTURE.
DEBONDING OF STRANDS WILL NOT BE PERMITTED IN ANY OPTIONAL REDESIGN EXCEPT AS NOTED IN THE STANDARD PROVISIONS.
ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW-RELAXATION GRADE 270 STRAND AND SHALL CONFORM TO ASTM A-418 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

TIE ROD ASSEMBLY SHALL BE ASTM A-36 STRUCTURAL STEEL GALV. I.A.W. ASTM A-153
ALL REINFORCING STEEL SHALL BE GRADE 60.
APPLY EPOXY PROTECTIVE COATING TO END OF GIRDER SURFACES.

EMBEDDED PLATE "B-1", SOLE PLATE, BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE SPECIFICATIONS.
THE CONTRACTOR MAY SELECT OPTION "1" OR OPTION "2" FOR EMBEDDED PLATE "B-1".
STEEL SOLE PLATES, BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE SPECIFICATIONS.
BEVEL EDGES OF PLATE "B-1" TO GIVE CLOSE FIT BUT NOT TIGHT FIT TO STEEL CASTING FORM.
DEFORMED ANCHOR STUDS SHALL CONFORM TO ASTM A-498.

ENDS OF ALL PRESTRESSED STRANDS SHALL BE RECESSED AND GROUTED.
GROUT TO BE NON-METALLIC, NON-SHRINK AND SHALL BE APPROVED BY THE CONTRACTING OFFICER.
THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED THE SPECIFIED COMPRESSIVE STRENGTH.
AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGERTIGHT AND THEN BACKED OFF 1/2 TURN THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURIED WITH A SHARP POINTED TOOL.
PRIOR TO WELDING, GRIND THE GALVANIZED SURFACE OF THE PORTION OF THE EMBEDDED PLATE AND SOLE PLATE THAT ARE TO BE WELDED AFTER WELDING, DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED IN ACCORDANCE WITH THE SPECIFICATIONS.
WHEN WELDING THE SOLE PLATE TO THE EMBEDDED PLATE IN THE GIRDER, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.
THE 1/2" Ø PIPE SLEEVE SHALL BE CUT FROM SCHEDULE 40 PVC PLASTIC PIPE. THE PVC PLASTIC PIPE SHALL MEET THE REQUIREMENTS OF ASTM D1705.
ENDS OF PRESTRESSED STRANDS SHALL BE RECESSED AND GROUTED.
GROUT SHALL BE NON-METALLIC AND NON-SHRINK

NOTE:
SEE PLATE S37 FOR
ADDITIONAL DETAILS.

GIRDER LENGTHS & QUANTITIES

GIRDER MK	LENGTH (L)	REINFORCING (LBS.)	CONCRETE (CY)	STRANDS
G21	84'-6 1/2"	622	17.14	42
G22	81'-3 3/4"	608	16.50	42
G23	78'-2 1/4"	594	15.85	34
G24	75'-0 1/2"	579	15.22	34

CAMBER & DEFLECTION AT MIDSPAN (INCHES)

	G21	G22	G23	G24
CAMBER - GIRDER ALONE IN PLACE	+3.012	+2.926	+2.221	+2.152
DEFLECTION DUE TO SUPERIMPOSED DL & FUTURE WEARING SURFACE	-1.147	-0.955	0.8160	-0.712
FINAL CAMBER	+1.865	+1.970	+1.406	+1.440

CONCRETE STRENGTH (PSI)

AT RELEASE	5000
AT 28 DAYS	6000

GRADE 270 STRANDS

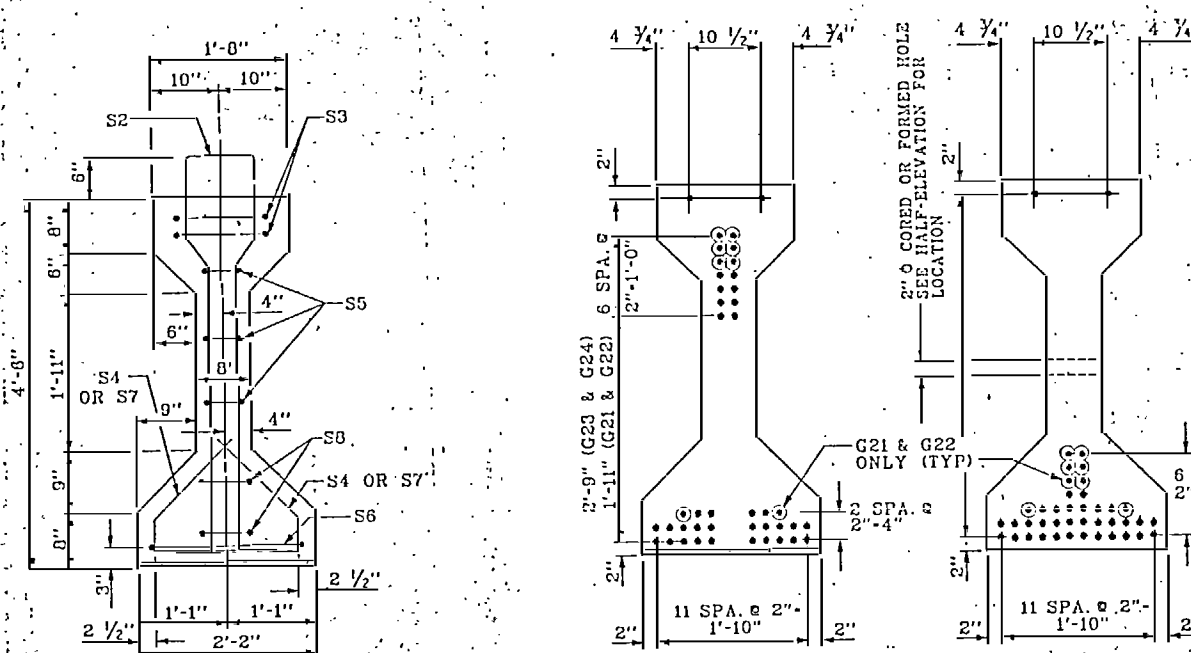
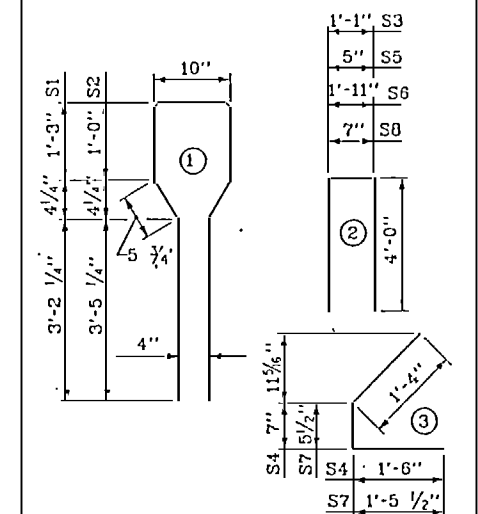
AREA (SQUARE INCHES)	1/2" Ø L R
ULTIMATE STRENGTH (LBS PER STRAND)	0.153
APPLIED PRESTRESS (LBS PER STRAND)	41,300
	30,900

REINFORCING STEEL - ONE GIRDER

	BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
G21	S1	41	*4	1	10'-8"	292
G22	S1	39	*4	1	10'-0"	270
G23	S1	37	*4	1	10'-8"	264
G24	S1	35	*4	1	10'-8"	249
	S2	12	*6	1	10'-8"	192
	S3	4	*4	2	9'-1"	24
	S4	12	*4	3	3'-5"	27
	S5	6	*4	2	8'-5"	34
	S6	2	*4	2	9'-11"	13
	S7	8	*4	3	3'-3"	17
	S8	4	*4	2	8'-7"	23

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



SECTION A-A

AT END OF GIRDER

AT C. OF GIRDER

1/2" Ø LOW RELAXATION STRAND LAYOUT

L/2 (DISTANCE ALONG GIRDER)

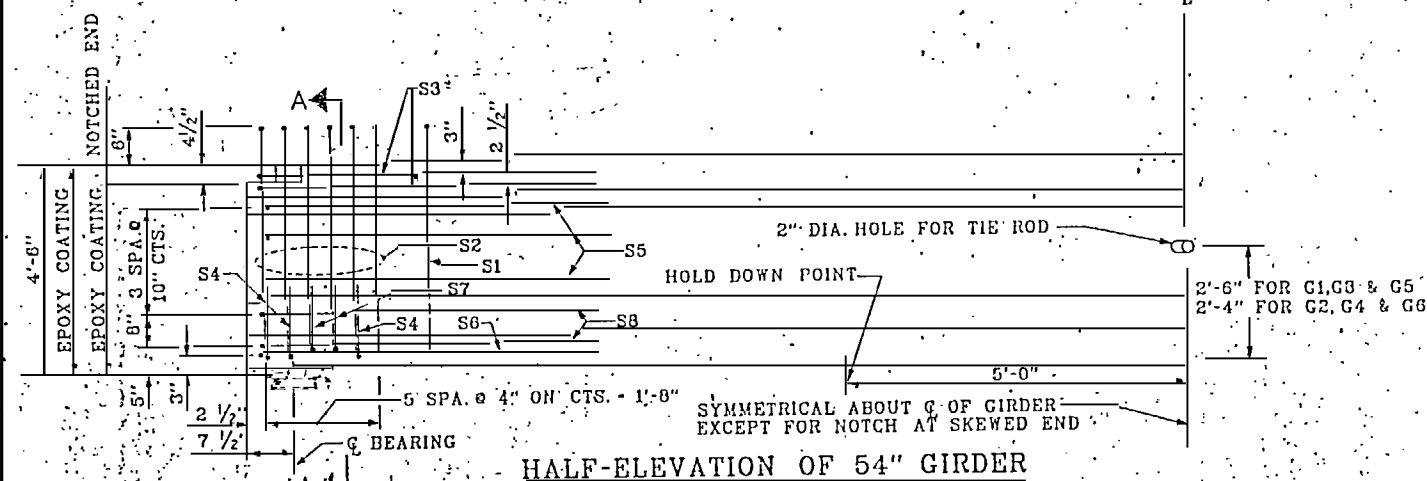
20 SPA. @ 2'-0" = 40'-0" (G21)
19 SPA. @ 2'-0" = 38'-0" (G22)
18 SPA. @ 2'-0" = 36'-0" (G23)
17 SPA. @ 2'-0" = 34'-0" (G24)

GROUTED RECESS THIS SIDE FOR G11
OPPOSITE SIDE FOR G14 SEE DETAIL A
PLATE S37

HALF-PLAN OF 54" GIRDER

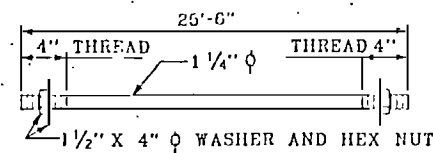
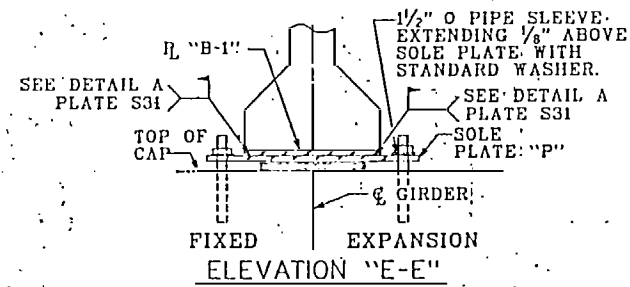
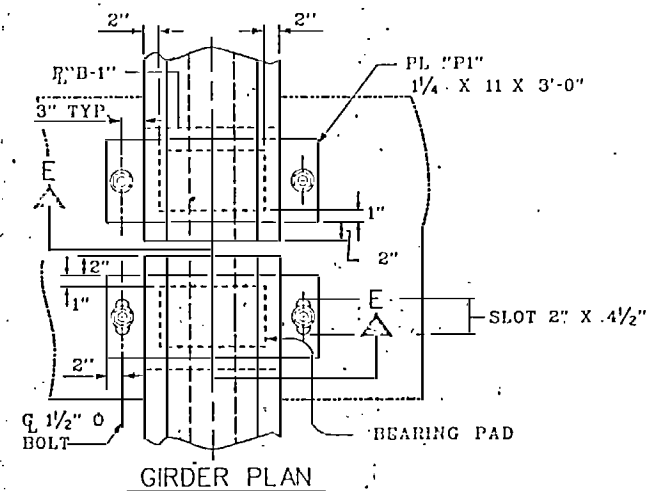
(NOTCH ONE END ONLY)

C GIRDER



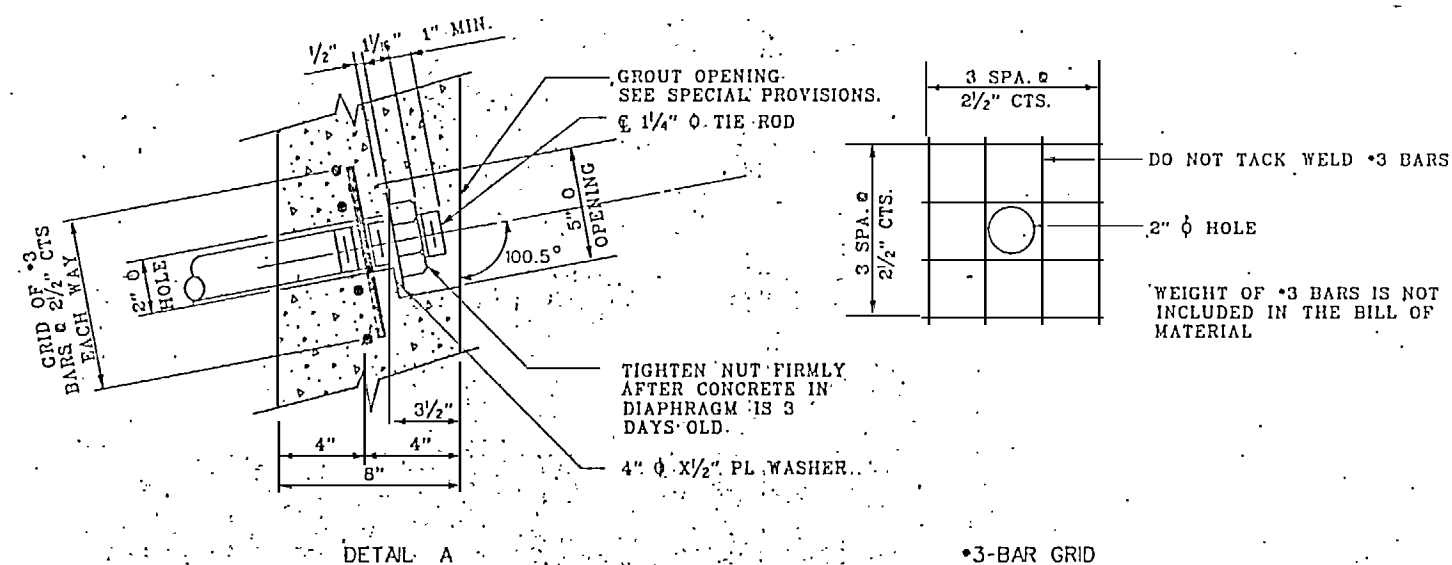
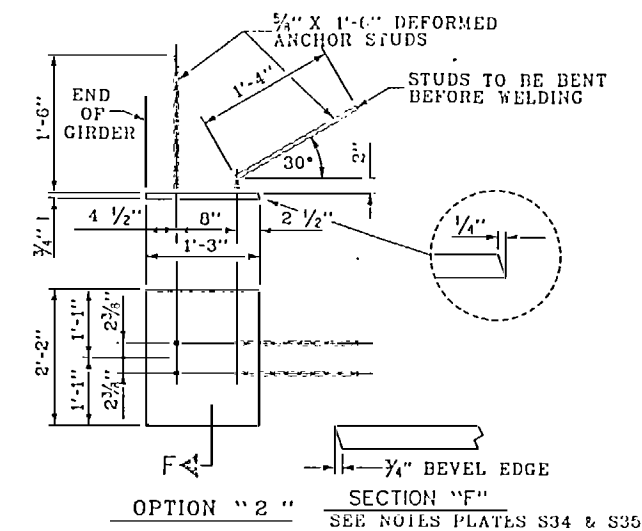
HALF-ELEVATION OF 54" GIRDER

Designed: G. W. P.	U.S. ARMY ENGINEER DISTRICT, WASHINGTON CORPS OF ENGINEERS WASHINGTON, D.C. 20315	
Checked: G. M. G.	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT	
Reviewed: J.S.W.	SUPERSTRUCTURE GIRDER DETAILS SPAN 19	
Chief, Structures Section Approved: C. J. Lamer, P.E. Chief, Design Branch	Scale: NOT TO SCALE	Drawing Code: BR104-06-23
	Sheet: 63 of 138	Plate No: S35

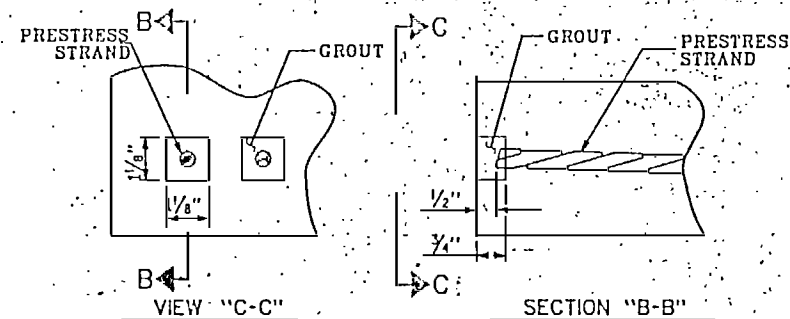
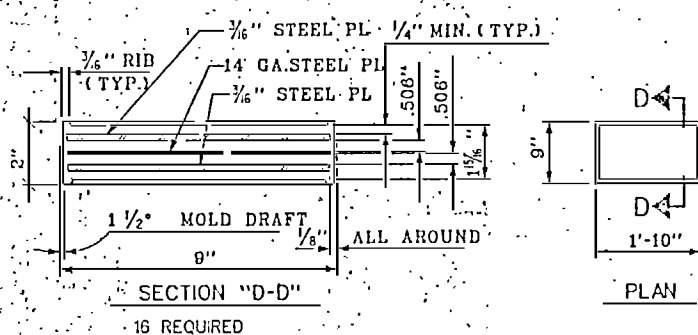


1 1/4" Ø TIE ROD ASSEMBLY

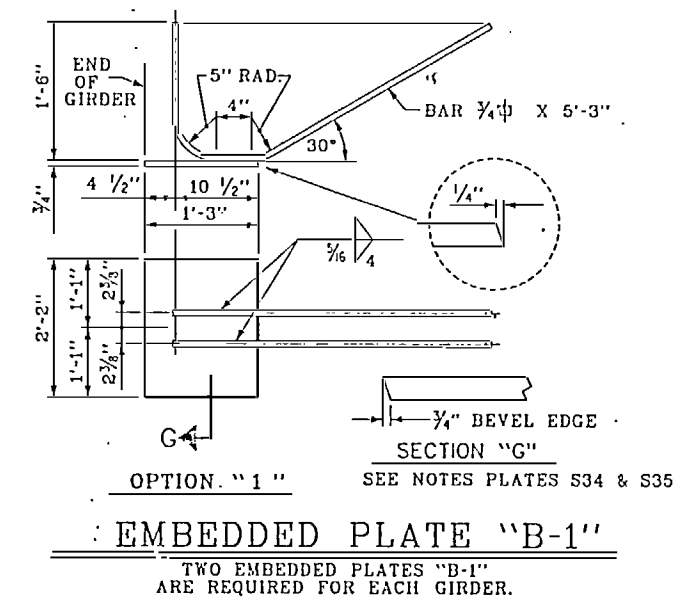
(2 COMPLETE ASSEMBLIES REQUIRED)



GROUTED RECESS FOR END OF TIE ROD

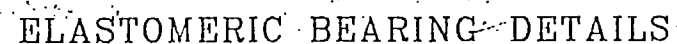


GROUTED RECESS AT END OF STRAND



: EMBEDDED PLATE "B-1"

TWO EMBEDDED PLATES "B-1"
ARE REQUIRED FOR EACH GIRDER.



Designed: G.W.P.	US ARMY ENGINEER DISTRICT, WASHINGTON DIVISION OF STRUCTURES WASHINGTON, D.C. 20315	
Checked: G.M.G.	 US Army Corps of Engineers	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT
Reviewed: JEW	SUPERSTRUCTURE GIRDER DETAILS SPANS 15 & 19	
D. of Structures Section	Scale:	Plate No.
Approved: E. J. Danier, P.E. Chief, Eastern Branch	NOT TO SCALE	BR104-06-23
	CCPCG15A	31 MAY 91
	Sheet 64	of 130

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

DEBONDING OF STRANDS WILL NOT BE PERMITTED IN ANY OPTIONAL REDESIGN EXCEPT AS NOTED IN THE STANDARD PROVISIONS

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

TIE ROD ASSEMBLY SHALL BE ASTM A-36 STRUCTURAL STEEL GALV. I.A.W. ASTM A-153. ALL REINFORCING STEEL SHALL BE GRADE 60.

APPLY EPOXY PROTECTIVE COATING TO END OF GIRDER SURFACES.

EMBEDDED PLATE "B-1", SOLE PLATE, BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE SPECIFICATIONS.

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

STEEL SOLE PLATES, BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE SPECIFICATIONS.

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

DEFORMED ANCHOR STUDS SHALL CONFORM TO ASTM A-496.

ENDS OF ALL PRESTRESSED STRANDS SHALL BE RECESSED AND GROUTED.
GROUT TO BE NON-METALLIC, NON-SHRINK AND SHALL BE APPROVED BY THE CONTRACTING OFFICER.

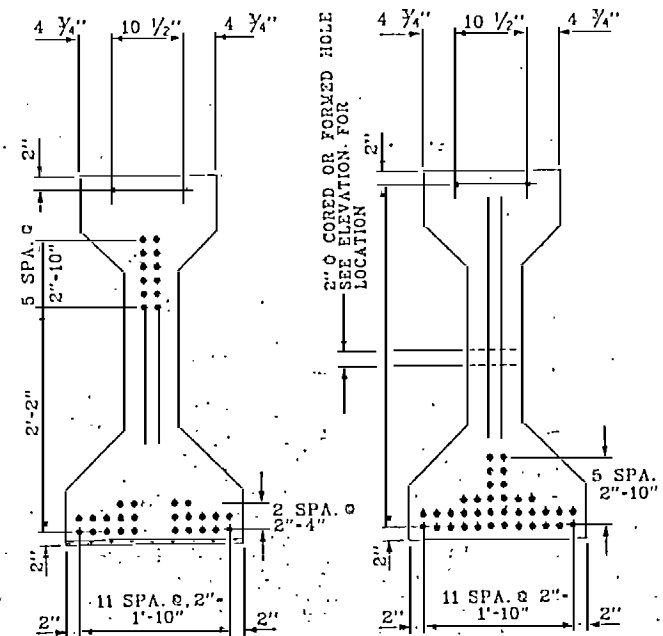
THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED THE SPECIFIED COMPRESSIVE STRENGTH.

AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGERTIGHT AND THEN BACKED OFF $\frac{1}{2}$ TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURVED WITH A SHARP POINTED TOOL.

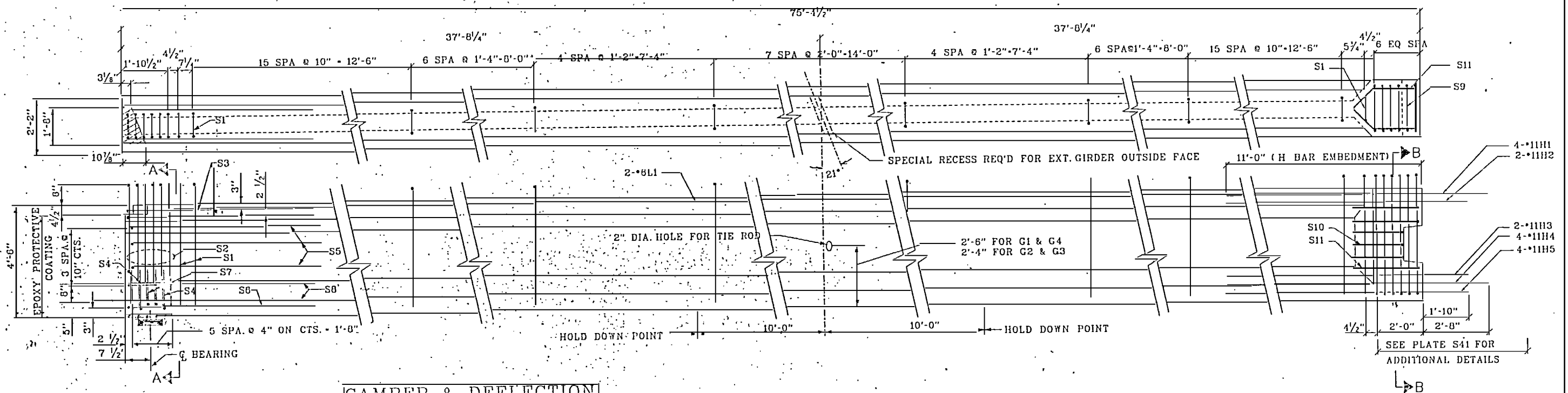
PRIOR TO WELDING, GRIND THE GALVANIZED SURFACE OF THE PORTION OF THE EMBEDDED PLATE AND SOLE PLATE THAT ARE TO BE WELDED. AFTER WELDING, DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED IN ACCORDANCE WITH THE SPECIFICATIONS.

WHEN WELDING THE SOLE PLATE TO THE EMBEDDED PLATE IN THE GIRDER, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.

THE $\frac{1}{4}$ " O PIPE SLEEVE SHALL BE CUT FROM SCHEDULE 40 PVC PLASTIC PIPE. THE PVC PLASTIC PIPE SHALL MEET THE REQUIREMENTS OF ASTM D1785.



AT END OF GIRDER AT C. OF GIRDER

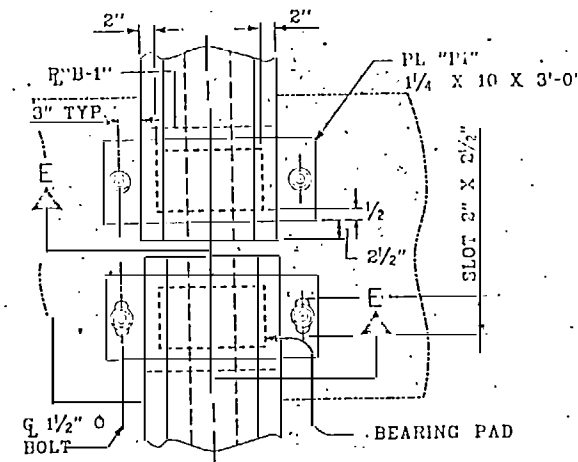


CAMBER & DEFLECTION AT MIDSPAN:	
CAMBER (GIRDER ALONE IN PLACE)	2.55d
DEFLECTION DUE TO SUPERIMPOSED DL (INCLUDES FUTURE WEARING SURFACE)	
FINAL CAMBER	

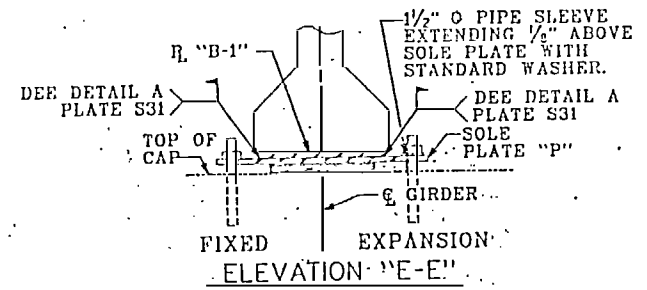
CONCRETE STRENGTH (PSI)	
AT RELEASE	5600
AT 28 DAYS	6500

• SEE S44

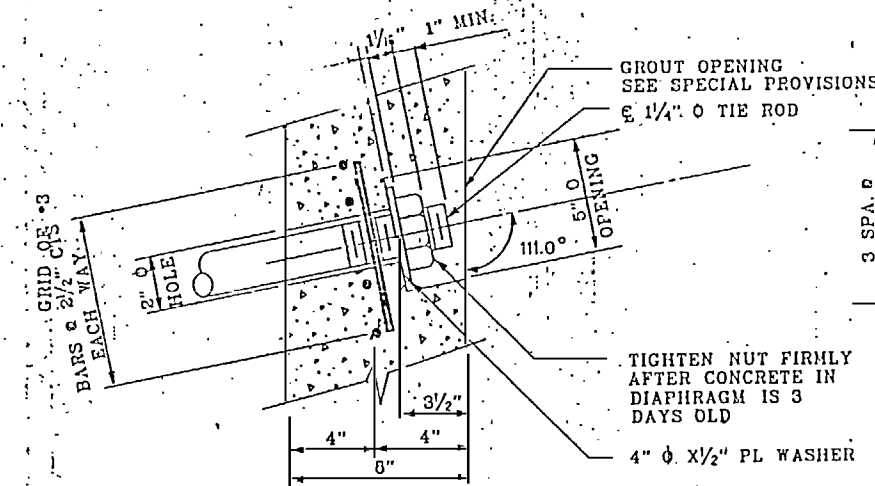
Designed:			U.S. ARMY ENGINEER DISTRICT, WASHINGTON CORPS OF ENGINEERS VLM, VIRGINIA NORTH CAROLINA	
G.W.P.				
Checked:				
G.W.P.				
Reviewed:				
JSW				
Chief, Structures Section				
Approved:				
ED Davis, P.E.				
Chief, Canine Branch				
Scale:	Drawing Code:		Plate No:	
NOT TO SCALE	BR104-06-23		S37	
cc54anch	Date:	31 MAY 91	Sheet 65	of 138



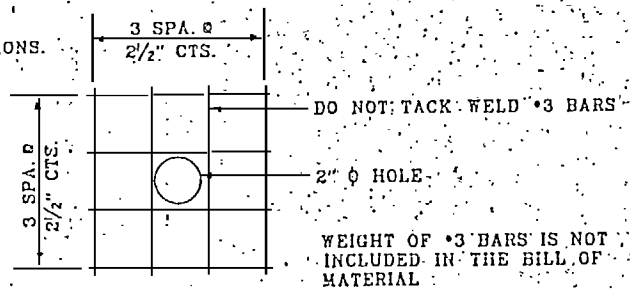
GIRDER PLAN



ELEVATION 'E-E'

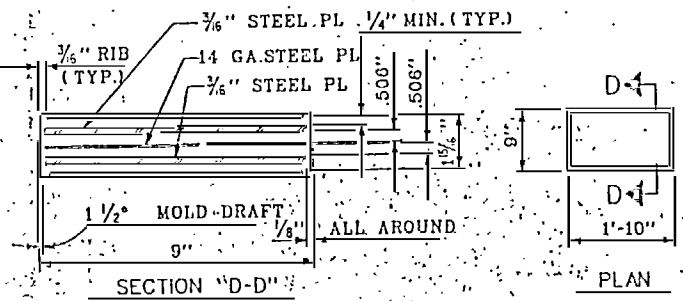


DETAIL A



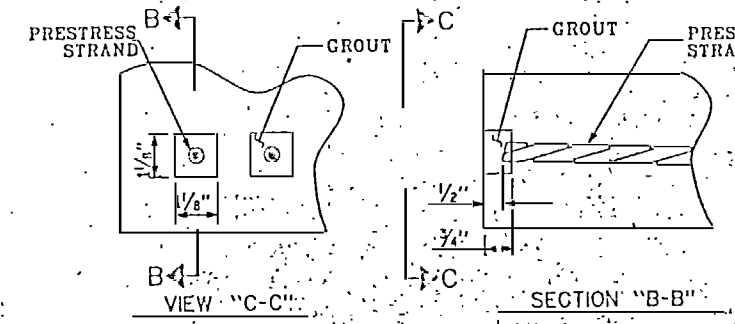
*3-BAR GRID

GROUTED RECESS FOR END OF TIE ROD



ELASTOMERIC BEARING DETAILS

(8 REQUIRED)

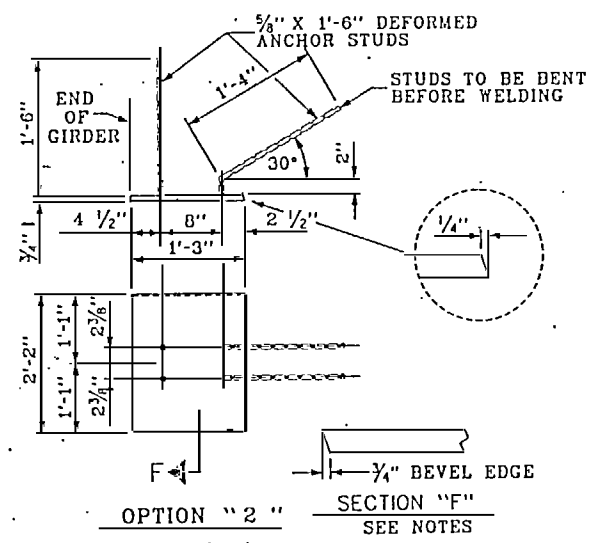
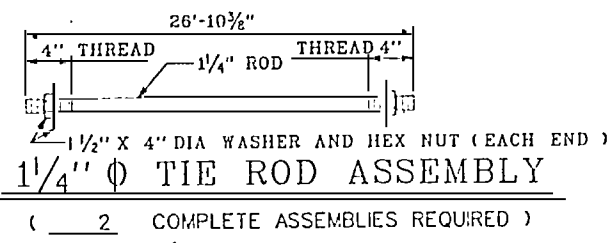


GROUTED RECESS AT END OF PRESTRESS STRAND

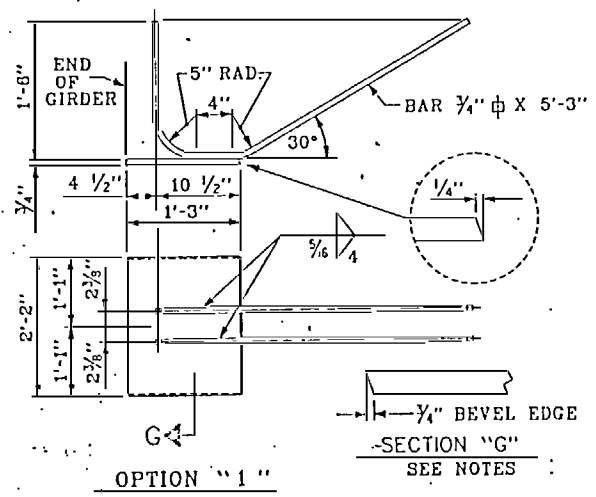
SYMBOL	REVISIONS DESCRIPTIONS	DATE	APPROVED
Q	AMENDMENT NO. 0001	26 JUL 91	GWP

QUANTITIES FOR ONE GIRDER			
GIRDER	REINFORCING STEEL LB	5,000 PSI CONCRETE CY.	1/2" Ø L.R. STRANDS No.
G15	2024	15.4	38
G16	2024	15.4	38

GIRDERS REQUIRED			
GIRDER	NUMBER	LENGTH	TOTAL LENGTH
G15	4	75'-4 1/2"	301'-6"
G16	4	75'-4 1/2"	301'-6"



OPTION "2"



OPTION "1"

EMBEDDED PLATE "B-1" DETAILS

ONE EMBEDDED PLATES "B-1" ARE REQUIRED FOR EACH GIRDER.

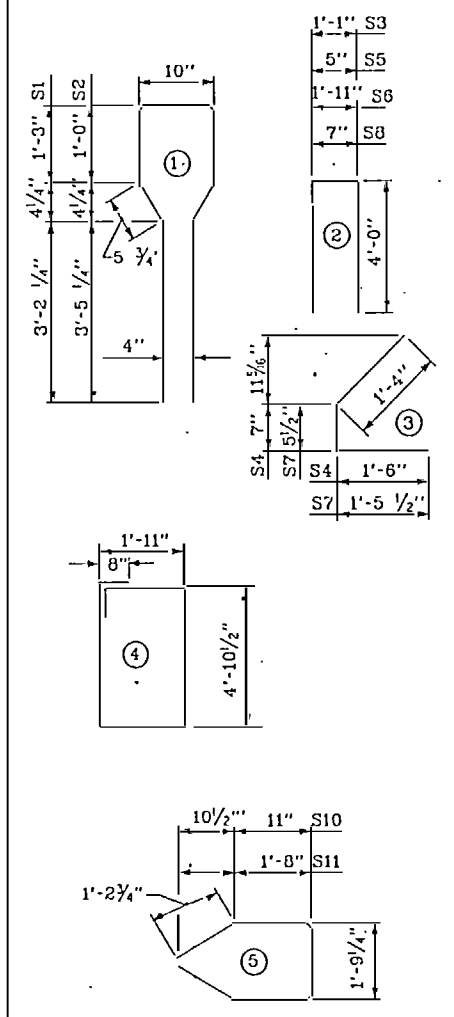
GRADE 270 STRANDS

AREA (SQUARE INCHES)	1/2" Ø L.R.
0.153	
ULTIMATE STRENGTH (LBS. PER STRAND)	41,300
APPLIED PRESTRESS (LBS. PER STRAND)	30,800

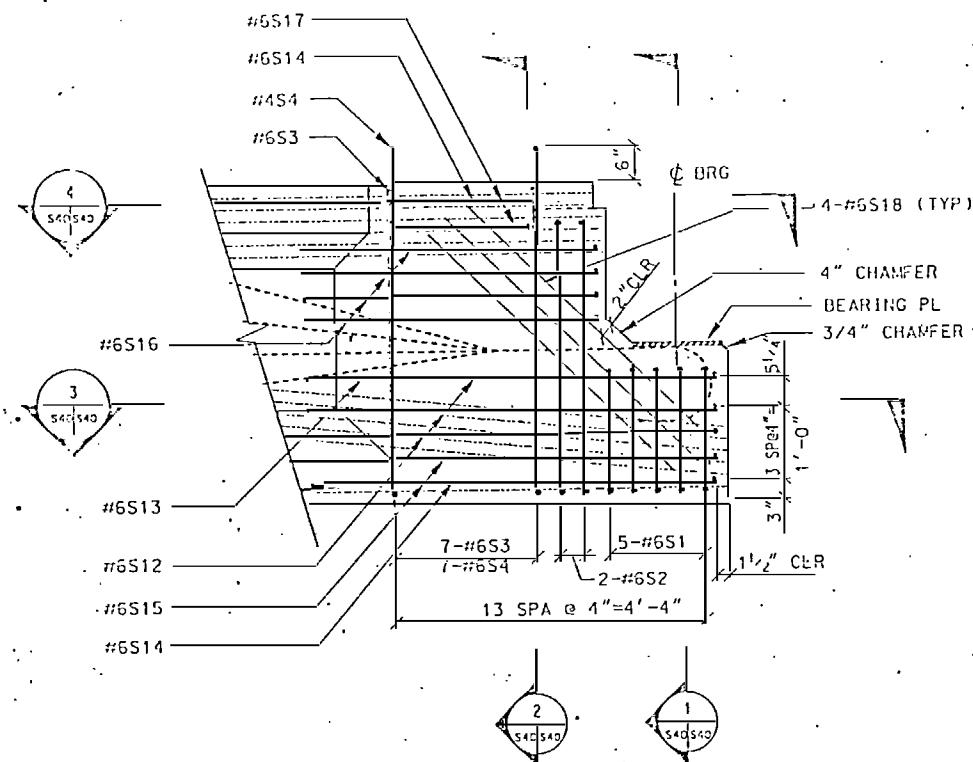
REINFORCING STEEL - ONE GIRDER

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	60	*4	1	10'-8"	428
S2	5	*6	1	10'-8"	80
S3	2	*4	2	9'-1"	12
S4	3	*4	3	3'-5"	7
S5	3	*4	2	8'-5"	17
S6	1	*4	2	9'-11"	7
S7	2	*4	3	3'-3"	4
S8	2	*4	2	8'-7"	12
S9	6	*6	4	14'-11"	67
S10	3	*5	5	6'-1"	12
S11	3	*5	5	7'-8 1/4"	15
H1	4	*11	STR	13'-8"	290
H2	2	*11	STR	12'-10"	136
H3	2	*11	STR	12'-10"	136
H4	4	*11	STR	13'-8"	290
H5	4	*11	STR	12'-10"	273
L1	4	6	STR	39'-7"	238

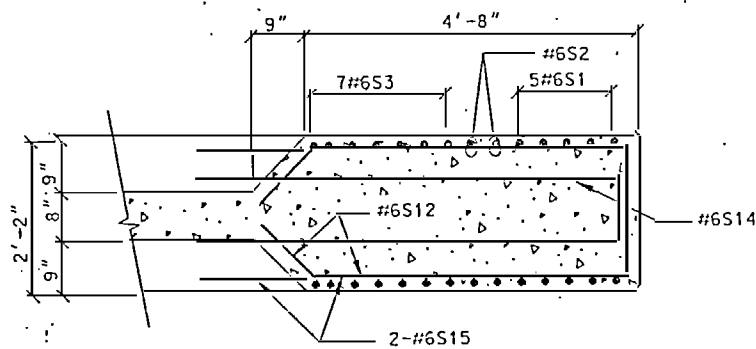
ALL BAR DIMENSIONS ARE OUT-TO-OUT
BAR TYPES



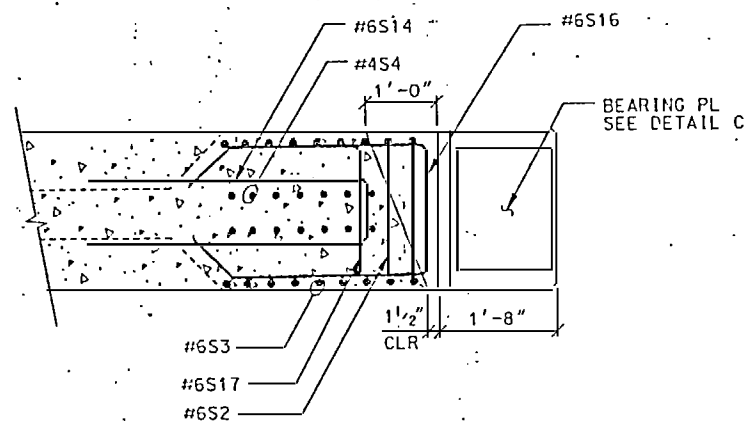
Designed G.W.P.	U.S. ARMY ENGINEER DISTRICT, WASHINGTON, D.C.		
Checked G.W.P.	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT		
Reviewed JGW	SUPERSTRUCTURE GIRDER DETAILS SPANS 16 & 18) 2 OF 2		
Chief, Structures Section Approved E. J. ... P.E. Chief, Design Branch	Scale: NOT TO SCALE	Drawing Codes: BR104-06-23	Plate No: S38
CCANCH2	Date: 31 MAY 91	Sheet 67 of 138	



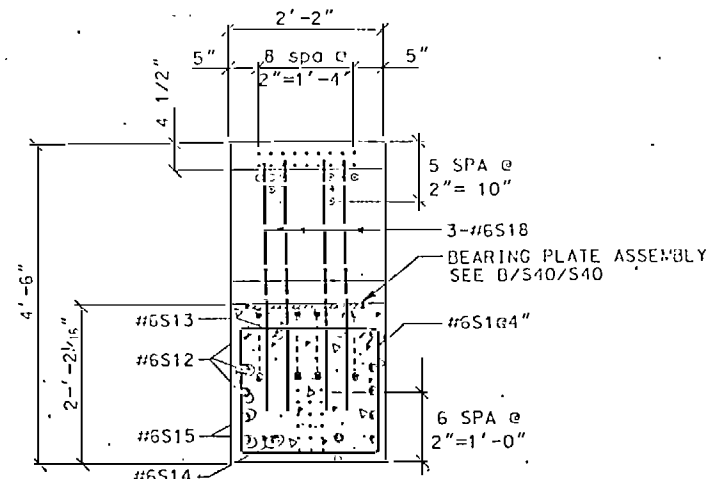
DETAIL
3/4" = 1'-0"



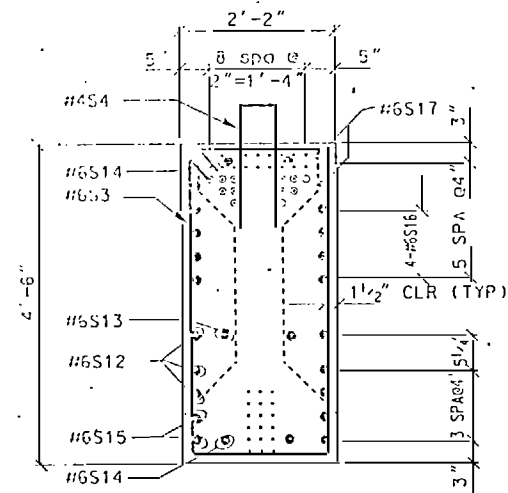
SECTION
3/4" = 1'-0"



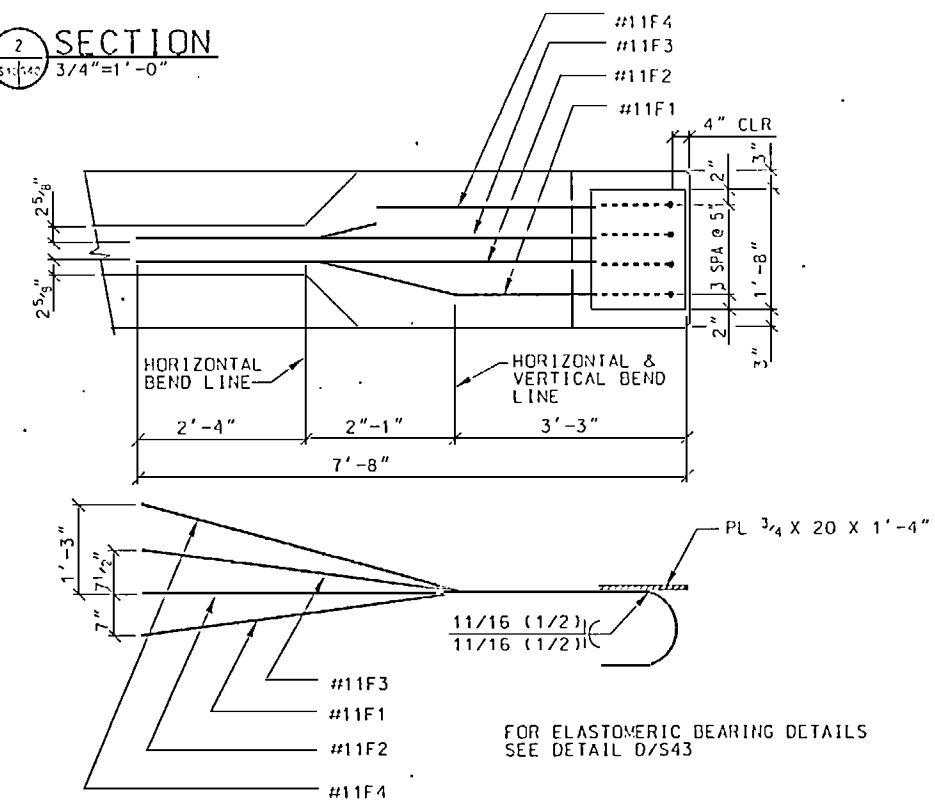
SECTION
3/4" = 1'-0"



SECTION
3/4" = 1'-0"

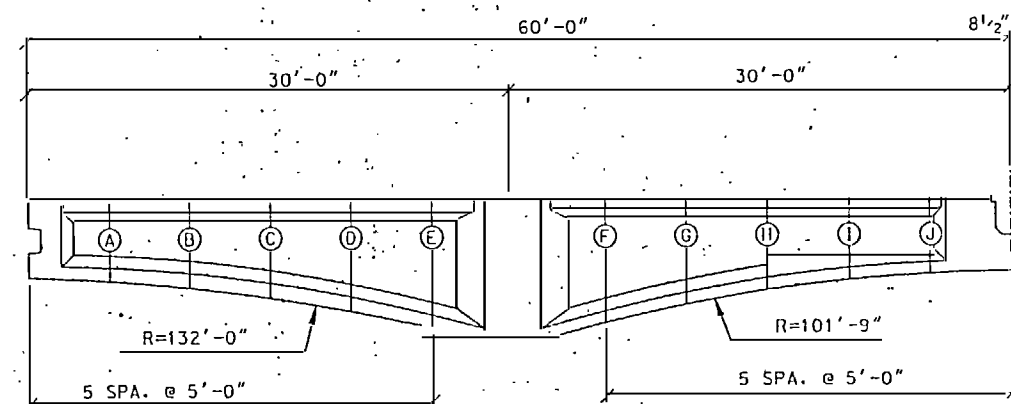


SECTION
3/4" = 1'-0"



NOTE: PLATE SHALL BE A36 STEEL
GALVANIZED IN ACCORDANCE
WITH ASTM A123

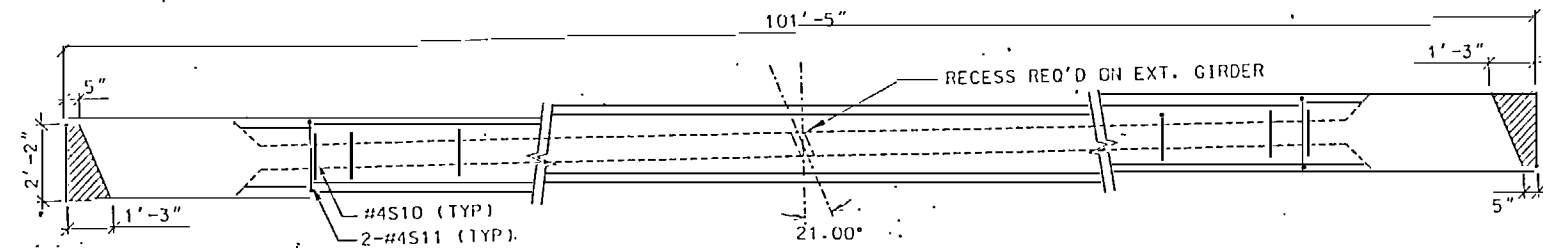
BEARING PLATE DETAIL
N.T.S.



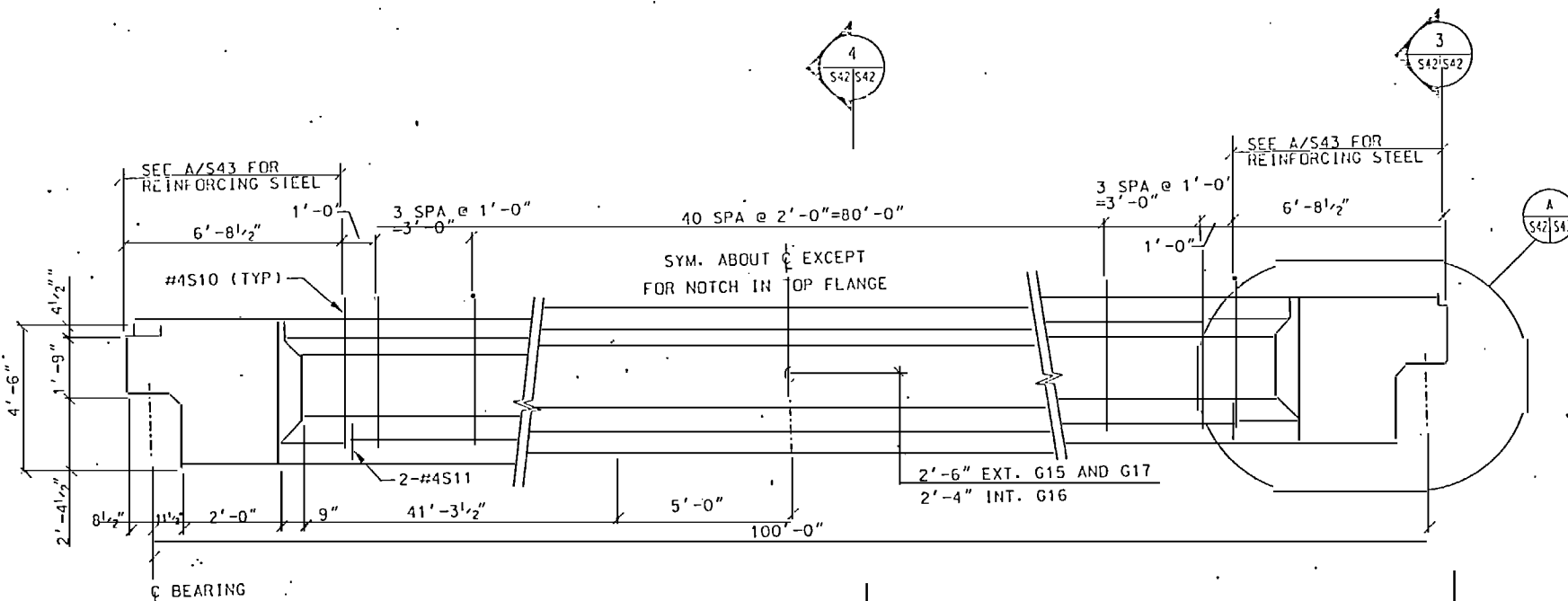
PROFILE
N.T.S.

GIRDER DEPTHS	
LOCATION	DEPTH
A	4'-9 3/4"
B	5'-3"
C	5'-10 1/2"
D	6'-8 3/4"
E	7'-8 3/4"
F	7'-7 1/2"
G	6'-5 1/2"
H	5'-7 3/4"
I	5'-0"
J	4'-7"

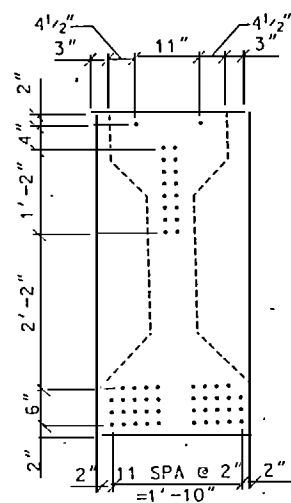
Designed: G.W.P.	U.S. Army Engineer District, Vicksburg District Engineer
Checked: G.W.P.	U.S. Army Corps of Engineers
Reviewed: JFW	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT SUPERSTRUCTURE HAUNCH GIRDER 2 OF 3
Chief, Studies and Section	Scale: AS SHOWN
Approved: E.L. Lerner, P.E.	Drawing Code: BR104-06-23
Chief, Design Branch	Photo No: S40
CHANCE2	Date: 31 MAY 91
Sheet 68	of 138



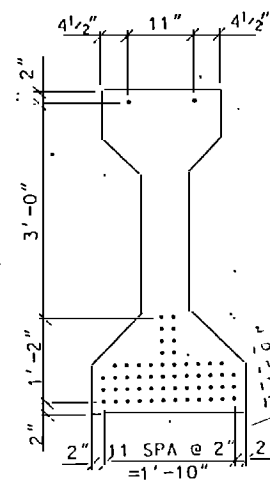
1 PLAN
3/8" = 1'-0"



2 PROFILE
3/8" = 1'-0"



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

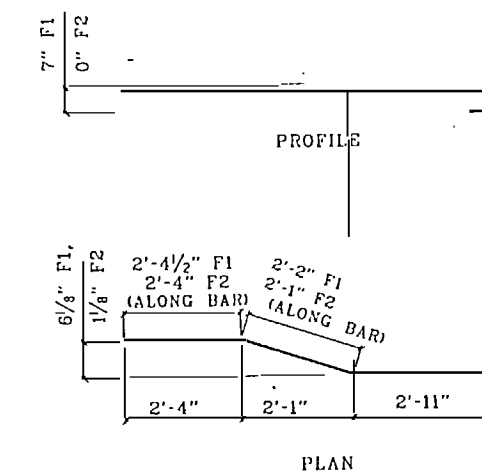


4 SECTION
3/4" = 1'-0"

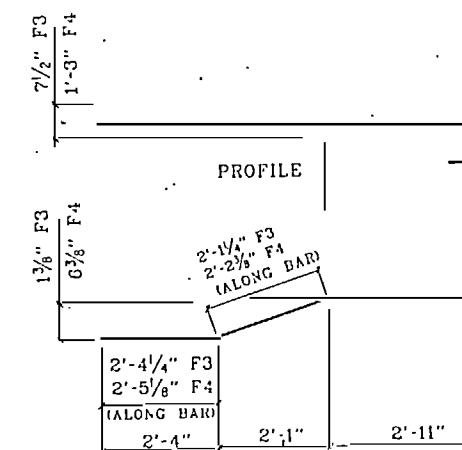
NOTE:
REINFORCING NOT SHOWN.
SEE S43

QUANTITIES FOR ONE GIRDER			
GIRDER	REINFORCING STEEL LB	CONCRETE CY.	1/2" O L R STRANDS No
G19	2173	21.2	51
G20	2173	21.2	51
GIRDERS REQUIRED			
GIRDER	NUMBER	LENGTH	TOTAL LENGTH
G19	2	101'-5"	202.83'
G20	2	101'-5"	202.83'

GRADE 270 STRANDS					
AREA (SQUARE INCHES)					0.153
ULTIMATE STRENGTH (LBS PER STRAND)					41,300
APPLIED PRESTRESS (LBS PER STRAND)					30,980
REINFORCING STEEL - ONE GIRDER					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	6	*6	4	7'-11 1/2"	72
S2	4	*6	4	6'-2"	49
S3	18	*6	4	14'-11"	403
S4	10	*6	2	8'-5"	126
S5	18	*6	2	9'-11"	268
S6	4	*6	2	9'-9 1/4"	59
S7	6	*6	5	9'-10"	89
S8	6	*6	5	6'-6"	59
S9	4	*6	2	9'-9 1/4"	59
S10	55	*4	1	10'-7"	389
S11	16	*4	3	3'-5"	37
S12	24	*6	STR	5'-0"	180
F1	2	*11	6	9'-0 7/8"	96
F2	2	*11	6	8'-11"	95
F3	2	*11	7	8'-11 1/2"	95
F4	2	*11	7	9'-1 1/8"	97
BAR TYPES					
ALL BAR DIMENSIONS ARE OUT-TO-OUT					



PLAN



PLAN

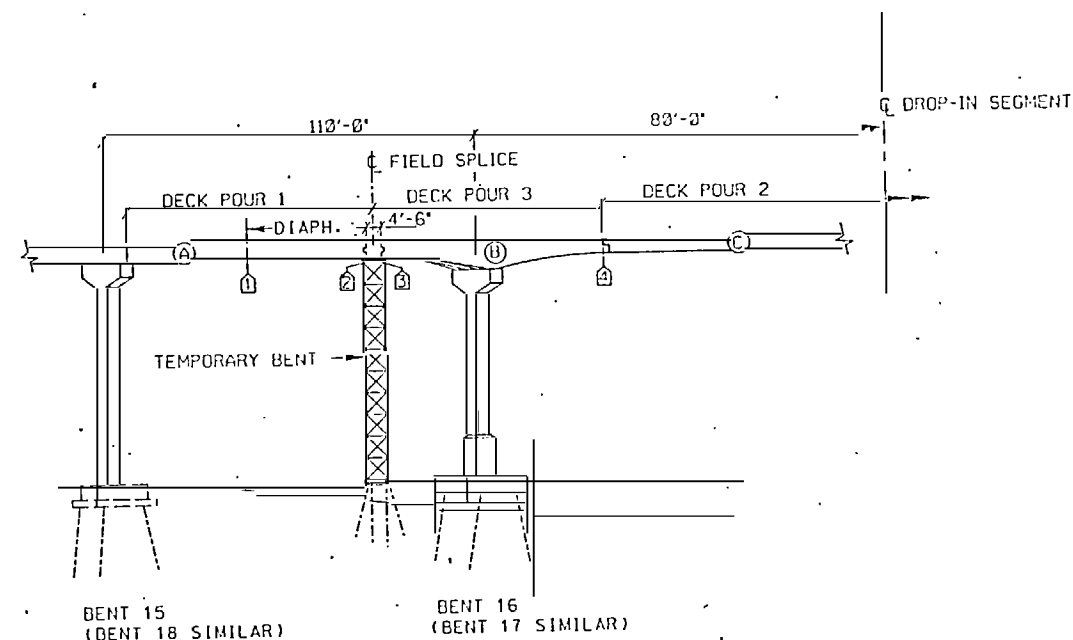
Designed:		US ARMY ENGINEER DISTRICT, WASHINGTON ENGINEER IN CHARGE WASHINGTON, NORTH CAROLINA	
GWP		ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT SUPERSTRUCTURE DROP-IN GIRDER 1 OF 2	
Checked:			
GWP			
Reviewed:			
JBW			
Chief, Structures Section Approved:	Scale:	Drawing Code:	Plate No.
Ed Lanier, P.E.	AS SHOWN	BR104-06-23	S42
Chief, Design Branch	COORDIN	Date: 31 MAY 91	Sheet 70 of 138

CAMBER & DEFLECTION AT MIDSPAN

CAMBER - GIRDER ALONE IN PLACE	+4.456"
DEFLECTION DUE TO SUPERIMPOSED DL & FUTURE WEARING SURFACE	+1.763"
FINAL CAMBER	+2.690"

CONCRETE STRENGTH (PSI)

AT RELEASE	6000
AT 28 DAYS	7000



CONSTRUCTION SEQUENCE

1. ERECT BENTS 15 & 16 (18 & 17).
2. ERECT TEMPORARY BENT 77'-9" FROM BENT 15 (18).
3. PLACE ALL (A) & (B) GIRDERS.
4. CAST ALL CONCRETE SPLICES AND DIAPHRAGMS.
5. INSTALL ALL TENSION BARS.
6. PLACE ALL DROP-IN GIRDERS (C).
7. CAST ALL REMAINING DIAPHRAGMS.
8. INSTALL REMAINING TENSION BARS.
9. CAST DECK OVER SEGMENT (A) EXTENDING TO THE Q OF SPLICE.
10. CAST DECK FOR DROP-IN SEGMENT (C) WITH LIGHT WEIGHT CONCRETE.
11. CAST REMAINING DECK SEGMENTS. (B)

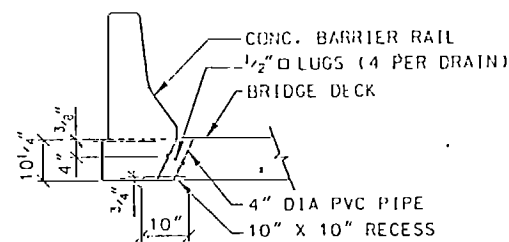
ERECTION NOTES

1. THE CONTRACTOR SHALL FURNISH PLANS AND BACKUP CALCULATIONS FOR THE TEMPORARY BENT PRIOR TO ERECTION.
2. THE TEMPORARY BENT SHALL REMAIN IN PLACE UNTIL THE SPLICE CONCRETE ATTAINS A STRENGTH OF 4500 PSI.
3. CONCRETE FOR THE DECK BARRIER RAILS AND DIAPHRAGMS ON THE DROP-IN SEGMENT (C) AS WELL AS FOR THE DIAPHRAGM AT THE CANTILEVER END OF SEGMENT (B) SHALL BE LIGHT WEIGHT
4. AS AN ALTERNATE, GIRDER SEGMENTS (A) & (B) MAY BE SPliced AT GROUND LEVEL OR AT THE PLANT AND ERECTED AS ONE PIECE TO ELIMINATE THE NEED FOR A TEMPORARY BENT.
5. BUILDUP OVER THE GIRDERS SHALL BE 3" AT ALL BENT LOCATIONS UNLESS OTHERWISE INDICATED OR DIRECTED. BUILDUP ALONG EACH GIRDER SHALL VARY AS NEEDED TO ACHIEVE THE REQUIRED DECK GRADE AFTER INCLUDING ALL GIRDER CAMBER, AND DEAD LOAD DEFLECTIONS. THE TABULATED VALUES SHOWN SHALL BE FIELD VERIFIED BY THE CONTRACTOR BY TAKING & RECORDING ELEVATIONS ALONG EACH GIRDER AFTER EACH STAGE OF CONSTRUCTION & ADJUSTMENTS SHALL BE MADE FOR THE FOLLOWING STAGE.

CAMBER & DEFLECTIONS

LOCATION	①	②	③	④
ANCHOR GIRDER ALONE SUPPORTED AT EACH END	+2.76			
HAUNCH GIRDER ALONE, RESTING ON CENTER ONLY			+0.87	+0.57
HAUNCH AND ANCHOR IN PLACE WITH SUPPORTS @ SPLICE	+2.75			+1.44
SPLICE CAST, DIAPH. IN PLACE & TEMPORARY SUPPORT REMOVED	-0.92	-0.96	-0.89	+0.93
SUBTOTAL	+1.83	-0.96	-0.87	+2.37
DROP-IN GIRDER WITH DIAPH.	+1.16	+1.32	+1.23	-1.76
SUBTOTAL	+2.99	+0.36	+0.36	+0.61
NCDL ON ANCHOR GIRDER (POUR 1)	-1.98	-1.74	-1.58	+1.68
SUBTOTAL	+1.01	-1.38	-1.22	+2.29
NCDL ON DROP-IN (POUR 2)	+0.55	+0.73	+0.71	-1.17
SUBTOTAL	+1.56	-0.65	-0.51	+1.12
NCDL ON HAUNCH (POUR 3)	-0.02	-0.02	-0.02	-0.07
SUBTOTAL	+1.54	-0.67	-0.53	+1.05
COMPOSIT DEAD LOAD	-0.11	-0.04	-0.03	-0.14
TOTAL	+1.43	-0.71	-0.56	+0.91

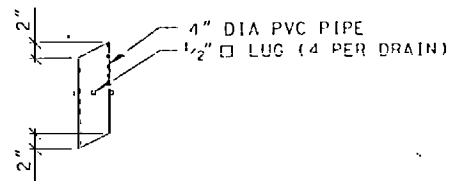
Designed G. W. P.	US Army Engineer District, Wilmington Corps of Engineers WILMINGTON, NORTH CAROLINA	
Checked [Signature]	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT	
Reviewed [Signature]	SUPERSTRUCTURE MAIN SPAN ERECTIONLS	
Chief, Structures Section Approved: E. J. Lauer, P.E.	Scale: AS SHOWN	Drawing Code: BR104-06-23
Chief, Design Branch	CC1A101C3	Sheet 72 of 138



ELEVATION

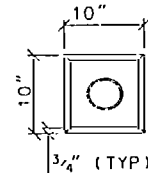
1/2" = 1'-0"

NOTES:
DRAINS SHALL BE OF 4" DIA PVC PIPE.
TOP OF PVC DRAIN SHALL BE SET 3/8"
BELOW DECK SURFACE.
BOTTOM OF DRAIN SHALL BE FLUSH
WITH BOTTOM OF DECK.
THE 4 1/2" LUGS SHALL BE GLUED TO
THE PIPE AT EQUAL SPACES AROUND PIPE.



PIPE DETAIL

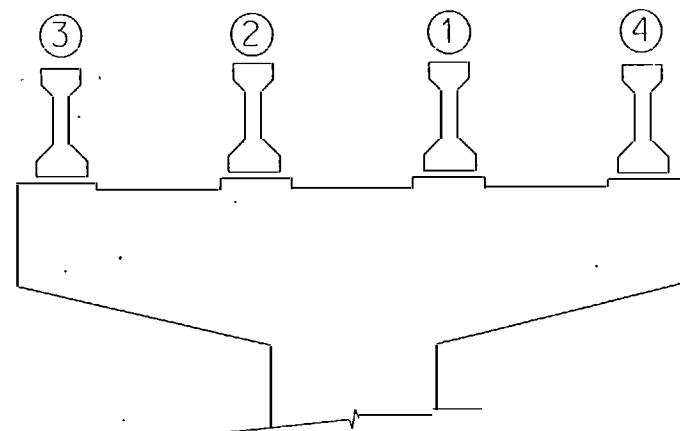
1" = 1'-0"



RECESS PLAN

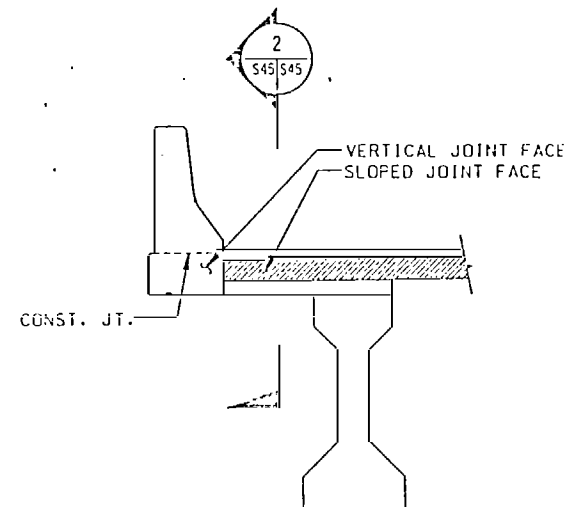
1" = 1'-0"

A DRAIN DETAIL
S45 SCALE AS SHOWN



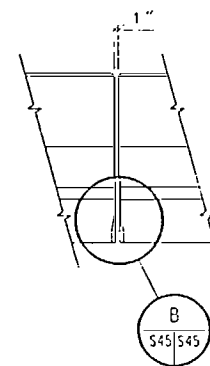
NOTE:
GIRDERS SHALL BE PLACED IN THE
SEQUENCE SHOWN (TYP EACH SPAN)

C GIRDER ERECTION
S45 1/4" = 1'-0"

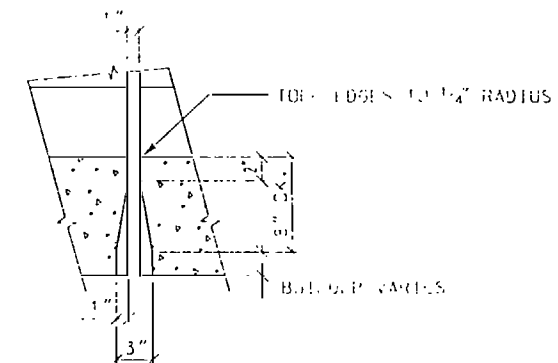


SECTION ALONG
OPEN JOINT

1/2" = 1'-0"



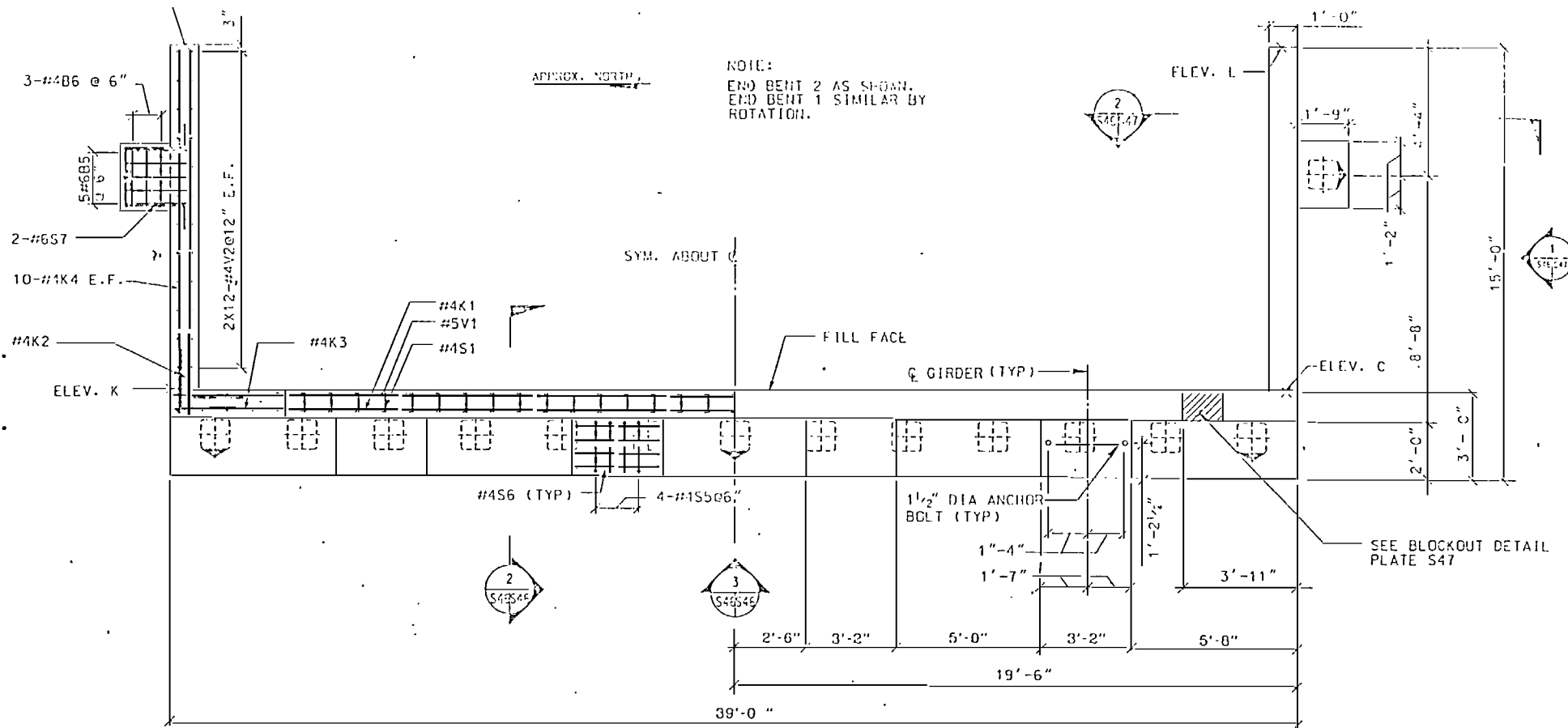
2 SECTION
S45/S45 1/2" = 1'-0"



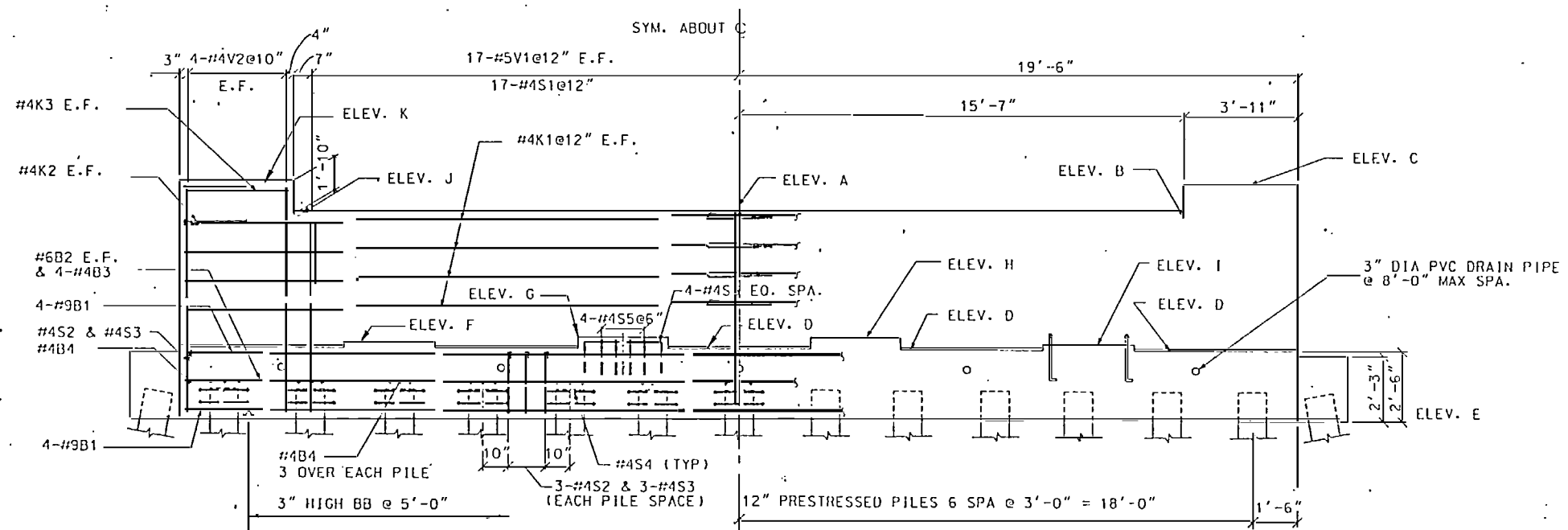
B DETAIL
S45/S45 1/2" = 1'-0"

GIRDER END REACTIONS (KIPS)			
SPANS OR GIRDERS	LIVE LOAD + IMPACT	DEAD LOAD INTERIOR GIRDER	DEAD LOAD EXTERIOR GIRDER
1 & 31	53.2	96.3	99.4
2-4, 6-13 & 20-30	53.7	79.4	100.5
5 & 14	53.9	142.0	115.4
HAUNCH GIRDER	117.8	353.0	359.0
DROP-IN GIRDERS	53.8	96.9	99.6
ANCHOR GIRDERS	54.0	83.9	86.0
SPAN 15			
G11	53.7	-	90.3
G12	53.7	90.8	-
G13	53.7	91.2	-
G14	53.7	-	100.8
SPAN 19			
G21	53.6	-	91.6
G22	53.6	88.2	-
G23	53.6	84.8	-
G24	53.6	-	81.1

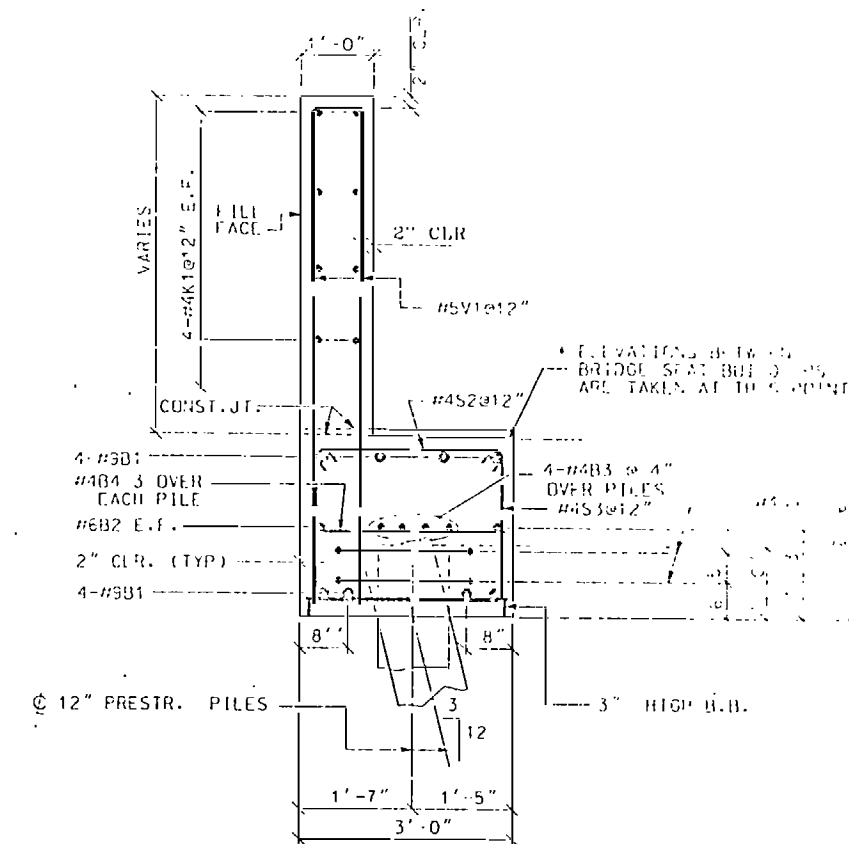
GAP		US AIR FORCE ENGINEERING CENTER CROSS OF ENGINEERS WASHINGTON, D.C.	
GAP		ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT	
JBW		SUPERSTRUCTURE MISC. DETAILS	
AS SHOWN		BR104-06-23	
31 MAY 91		Sheet 13 of 138	



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



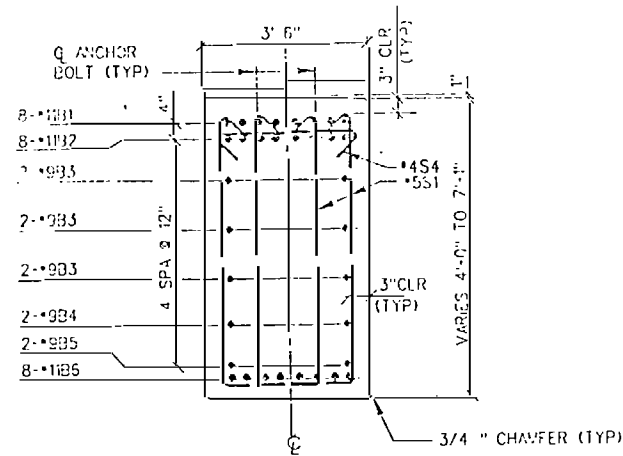
3 ELEVATION
3/8" = 1'-0"



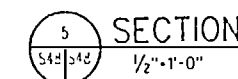
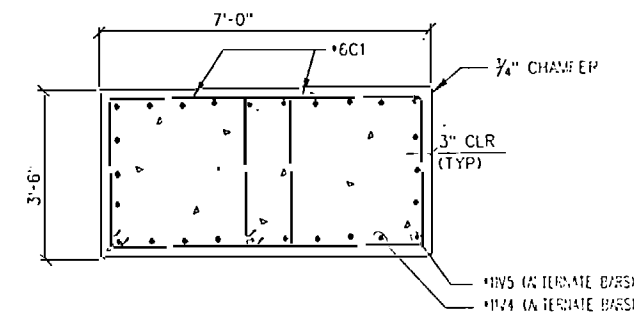
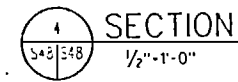
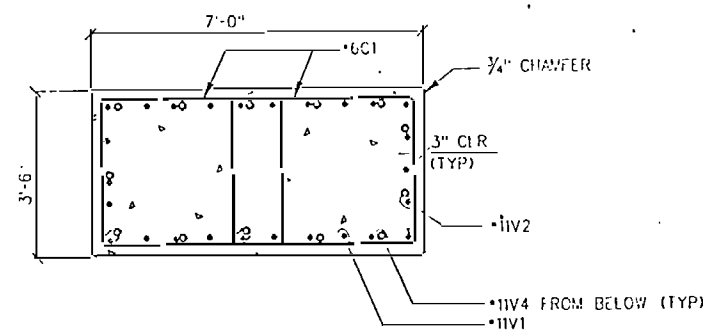
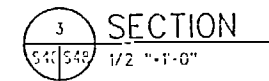
2 SECTION
3/4" = 1'-0"

ELEVATIONS		
POINT	END BENT NO.	
	1	2
A	30.584	42.688
B	30.638	42.363
C	32.505	44.209
D	26.195	37.494
E	23.698	35.494
F	24.302	38.232
G	26.413	38.245
H	25.414	38.166
I	26.332	37.956
J	30.658	42.670
K	32.505	44.505
L	31.100	42.790
M	31.100	43.110

GWP/C H Checked CWP Drawn JBW (See Structure Section) R. J. J. Chief, Bridge Division	U.S. ARMY ENGINEER DISTRICT, WASHINGTON, D.C. U.S. ARMY ENGINEER DISTRICT, WASHINGTON, D.C. ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT SUBSTRUCTURE END BENTS 1 & 2 1 OF 2 AS SHOWN Drawing Code BR104-06-23 Plate No. S46	CCEB1 Date 31 MAY 91 Sheet 74 of 138
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PUMP NO.	BRANCH	CL 1	CL 2	CL 3	CL 4
1	WEST	33.7155	33.7155	33.7155	33.7155
	EAST	33.7181	33.7181	33.7181	33.7181
2	WEST	34.8592	34.8592	34.8592	34.8592
	EAST	34.8594	34.8594	34.8594	34.8594
3	WEST	34.8765	34.8767	34.8766	34.8765
	EAST	34.8762	34.8763	34.8763	34.8763
28	WEST	43.5289	43.5281	43.5261	43.5260
	EAST	43.4733	43.4433	43.4449	43.4473
29	WEST	45.2621	45.2577	45.2577	45.2621
	EAST	45.2555	45.2555	45.2555	45.2555
30	WEST	41.7405	41.7327	41.7320	41.7353
	EAST	41.6335	41.6325	41.6320	41.6339

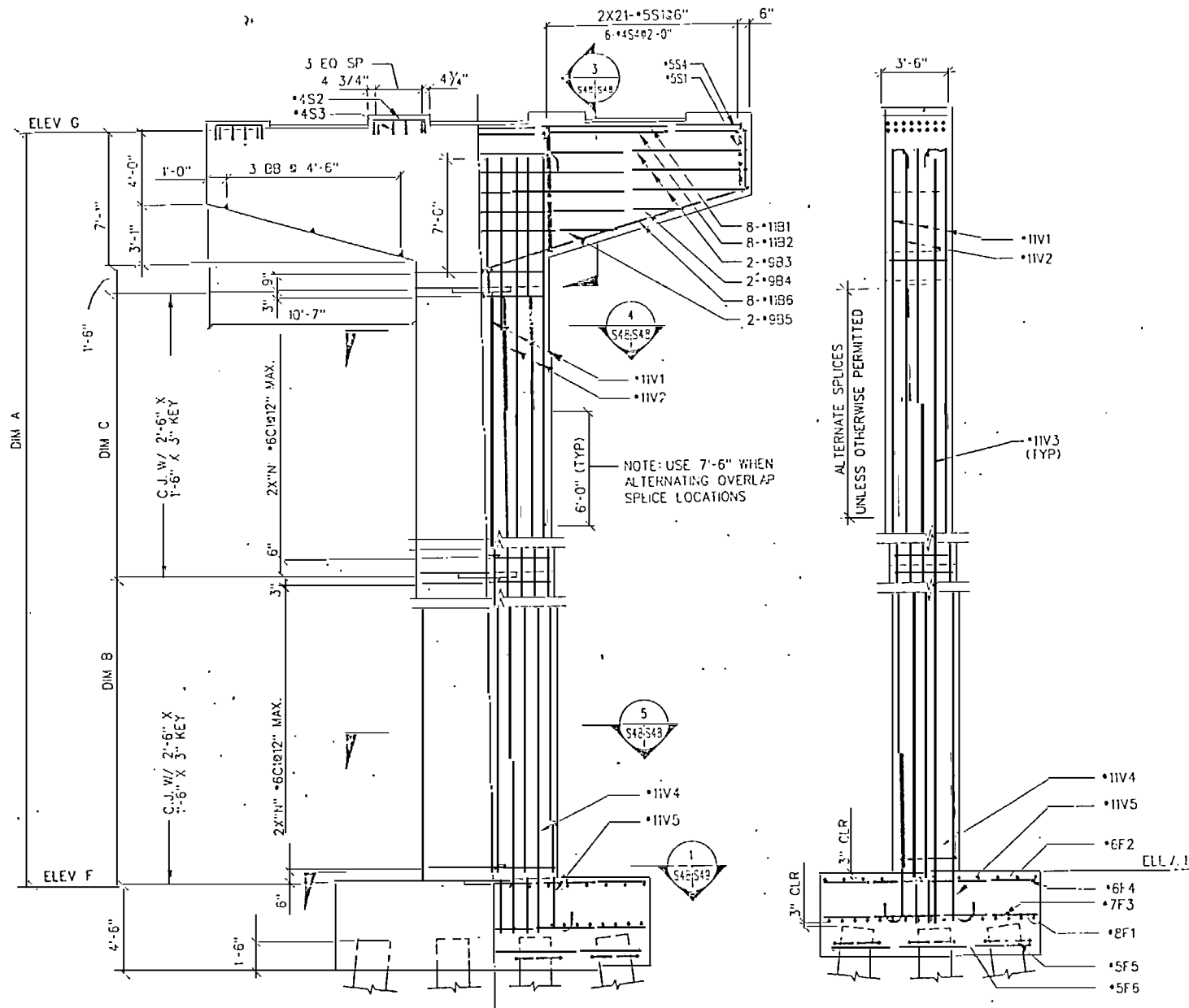


NOTES

NUMBER OF SPLICES AND LOCATION MAY BE REDUCED OR MODIFIED THROUGH THE USE OF GRADE BASE, CONTACT OR FURNISHED SHOP DRAWINGS WITH COMPLETE DETAIL. CONTRACTOR DETAILS WILL BE PROVIDED. ALL REINFORCING MUST RUN CONTINUOUSLY THROUGH CONJUNCTION JOINTS. SPLICES ARE NOT PERMITTED TO PASS THROUGH CONSTRUCTION JOINTS.

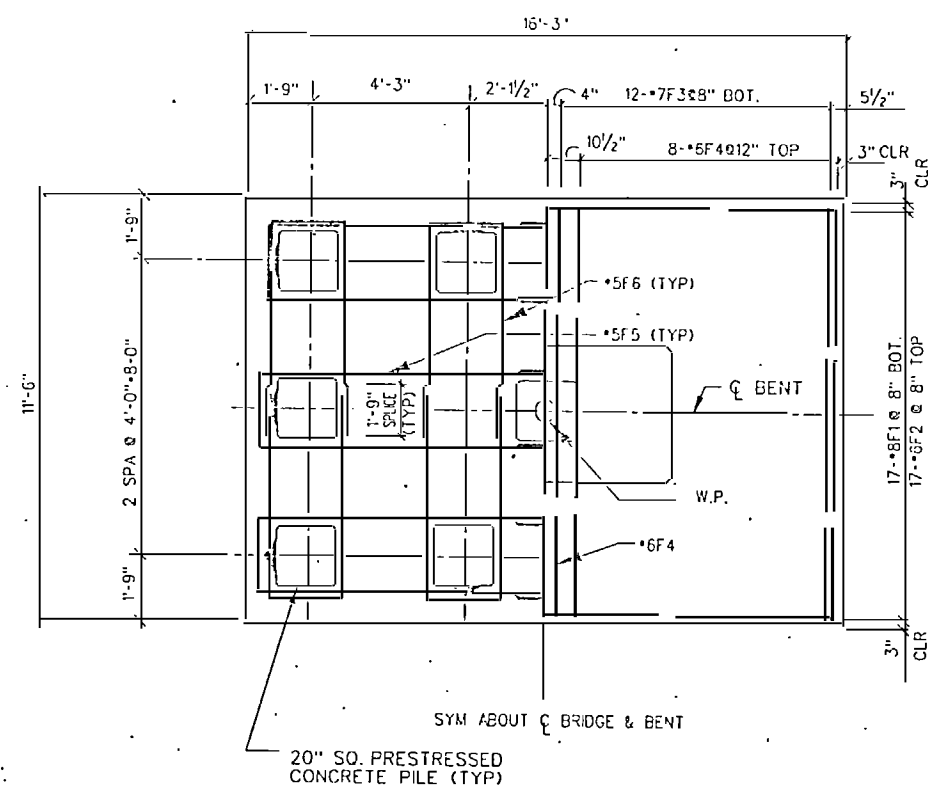
LEGEND

▲ 3 PLAIN HO S EX (HS)
 W 2 WIRE FOLD
 C J CONSTRUCTION HO/H



2 ELEVATIONS
S48 1/4" x 1'-0"

drawing title CW101/1-1	U.S. ARMY ENGINEERING CENTER CENTER OF EXCELLENCE WASHINGTON, DISTRICT OF COLUMBIA		
drawing no. GUG	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT 		
revision 1	SUBSTRUCTURE BENTS 1-3 & 28-30 SHEET 1 OF 2		
name of architect or engineer E. J. Janney, P.E.	drawing AS SHOWN	drawing date BR104-06-23	sheet no. S48
chief, issuing branch C. J. J. J.	date 31 MAY 91	sheet no. of total 76 of 134	



1 FOOTING PLAN
S48 S49 3/8" x 1'-0"

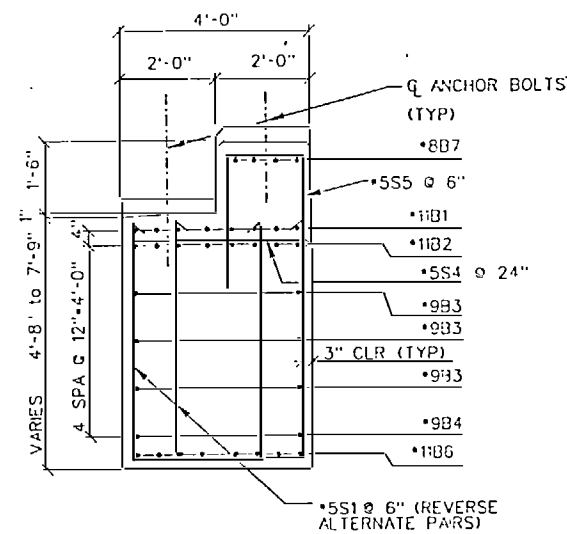
LEGEND

 BATTERED PILE 2:12 IN DIRECTION OF ARROW

 VERTICAL PILE

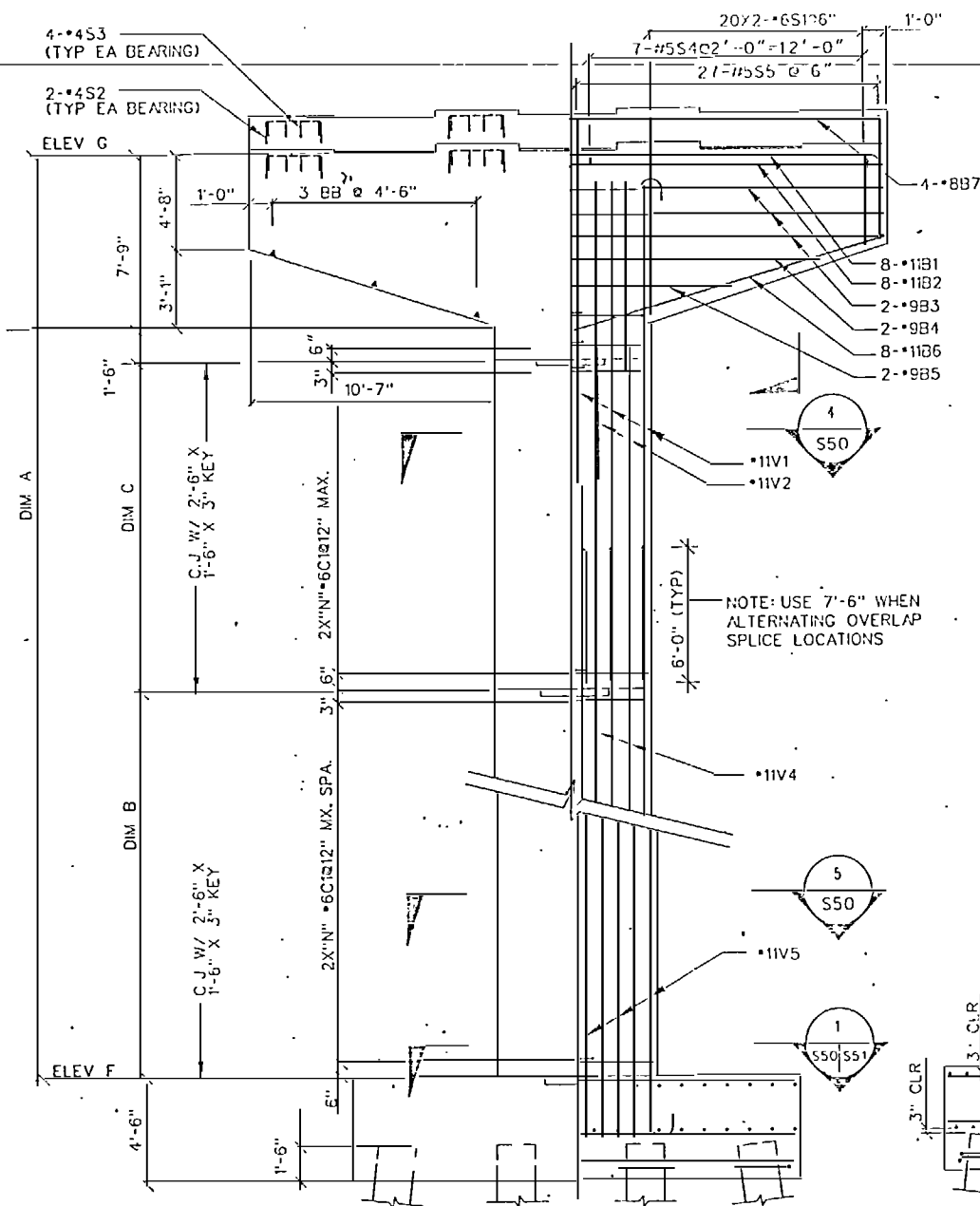
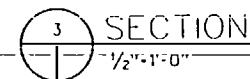
W.P. WORK POINT

Designed: GWP	U.S. ARMY ENGINEER DISTRICT, WASHINGTON CHIEF OF ENGINEERS WATERWAYS DIVISION	
Checked: G.M.C.	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT	
Reviewed: J.S.Y.	SUBSTRUCTURE BENTS 1-3 & 28-30 2 OF 2	
Chief, Structures Section	Scale: AS SHOWN	Drawing Code: BR104-05-23
Approved: Ed. L. L. L. P.E.	Sheet: CCB'S	Plate No: S49
Chief, Division Branch	Date: 31 MAY 91	Sheet 77 of 133

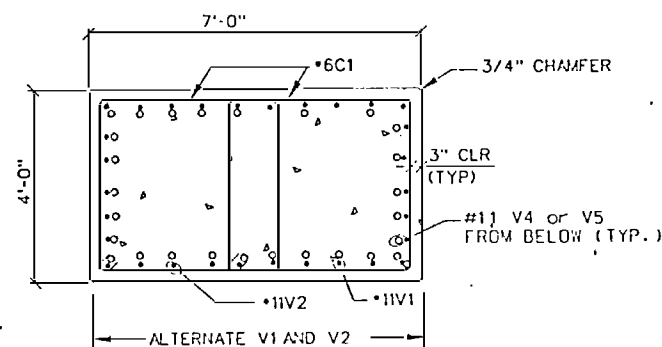


PAID EVALUATION					
BLNT NO	BEARING	CON	GR 1	GR 2	GR 3
1	WEST	42.6027	42.7729	42.7729	42.6027
	EAST	41.1106	41.2807	41.2807	41.1106
5	WEST	45.6097	45.7799	45.7799	45.6097
	EAST	47.2158	47.3859	47.3859	47.2158

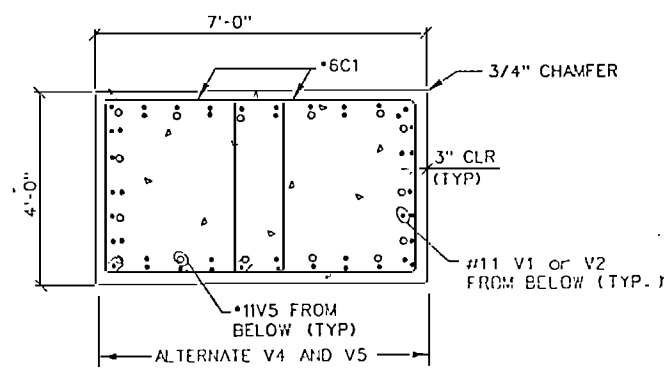
COLUMN TIES & BENT DIMENSIONS						
BENT NO.	"N"	DIM A	DIM B	DIM C	ELEV F	ELEV G
4	15	31'-11 7/8"	14'-4 1/2"	14'-4 1/2"	3.00	40.986
5	18	43'-10 5/8"	17'-3 1/2"	17'-3 1/2"	160	45.485



2 BENT ELEVATIONS
550 | 550 1/4 "-1'-0"



4 SECTION
S50 $\frac{1}{2}'' = 1' - 0''$

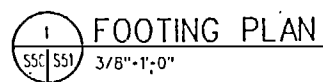


5 SECTION
S50 $\frac{1}{2}" = 1' - 0"$

A	3" BEAM BOLSTER (BB)
WP	WORK POINT
C.J.	CONSTRUCTION JOINT
GL	GIRDER LINE

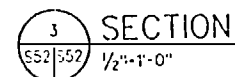
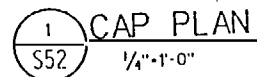
NUMBER OF SPLICES AND LOCATIONS MAY BE REDUCED OR MODIFIED THROUGH THE USE OF LONGER BARS. CONTRACTOR FURNISHED SHOP DRAWINGS WITH COMPLETE REINFORCING DETAILS WILL BE REQUIRED. ALL REINFORCING MUST RUN CONTINUOUSLY THROUGH CONSTRUCTION JOINTS. SPLICES ARE NOT PERMITTED TO PASS THROUGH CONSTRUCTION JOINTS.

Issued by:	U.S. Army Corps of Engineers WATERWAYS EXPERIMENTAL DIVISION	
C.W.P.		
Checked:	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT	
G.M.G.	SUBSTRUCTURE	
Revised:	BENTS 4 & 5	
16W		
Dist. Structure Section		
Approved:	AS SHOWN	BR104-06-23
By: L. J. Davis, P.E.	S50	
Chief, District Project	CCB14	31 MAY 91
	Sheet	78 of 138

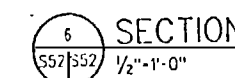
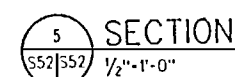
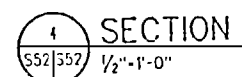
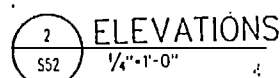


W P. WORK POINT

Designed:			U.S. ARMY ENGINEER DISTRICT, WASHINGTON CORPS OF ENGINEERS WASHINGTON, WORTH DISTRICT	
G.W.P.	 ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT SUBSTRUCTURE BENTS 4 & 5			
Checked:				
G.M.G.				
Reviewed:	U.S. Army Corps of Engineers			
JEW				
Chief Structures Section	Scale:	Drawing Codes:	Plate No.:	
Approved:	AS SHOWN	BR104-06-23	S51	
Ed Lerner, P.E., Chief, Design Branch	CCBT4A	Date: 31 MAY 91	Sheet 79	of 138



PAD ELEVATIONS					
BENT NO.	BEARING	CL. 1	CL. 2	CL. 3	CL. 4
6	WEST	50 2752	50 4463	50 4463	50 2752
	EAST	50 3259	50 4960	50 4960	50 3259
7	WEST	53 1293	53 2995	53 2995	53 1293
	EAST	53 1747	53 3448	53 3448	53 1747
25	WEST	56 7501	56 9203	56 9203	56 7501
	EAST	56 7109	56 8811	56 8811	56 7109
26	WEST	54 2700	54 4402	54 4402	54 2700
	EAST	54 2265	54 3966	54 3966	54 2265
27	WEST	51 5287	51 6988	51 6988	51 5287
	EAST	51 4808	51 6509	51 6509	51 4808



BENT NO.	"H"	"D.M.A"	"D.M.B"	"D.M.C"	"FLEV.F"	"ELEV.G"
6	20	47'-5 $\frac{1}{8}$ "	19'-2"	19'-2 $\frac{1}{8}$ "	2.70	50.15
7	21	50'-2 $\frac{1}{2}$ "	20'-0 $\frac{1}{2}$ "	20'-7"	2.80	53.00
25	21	51'-3 $\frac{3}{8}$ "	21'-1"	21'-1 $\frac{1}{8}$ "	5.30	56.59
26	22	53'-1 $\frac{1}{4}$ "	22'-1 $\frac{1}{8}$ "	22'-1 $\frac{1}{8}$ "	1.00	54.10
27	19	46'-5 $\frac{1}{8}$ "	13'-6"	18'-5 $\frac{5}{8}$ "	5.30	51.36

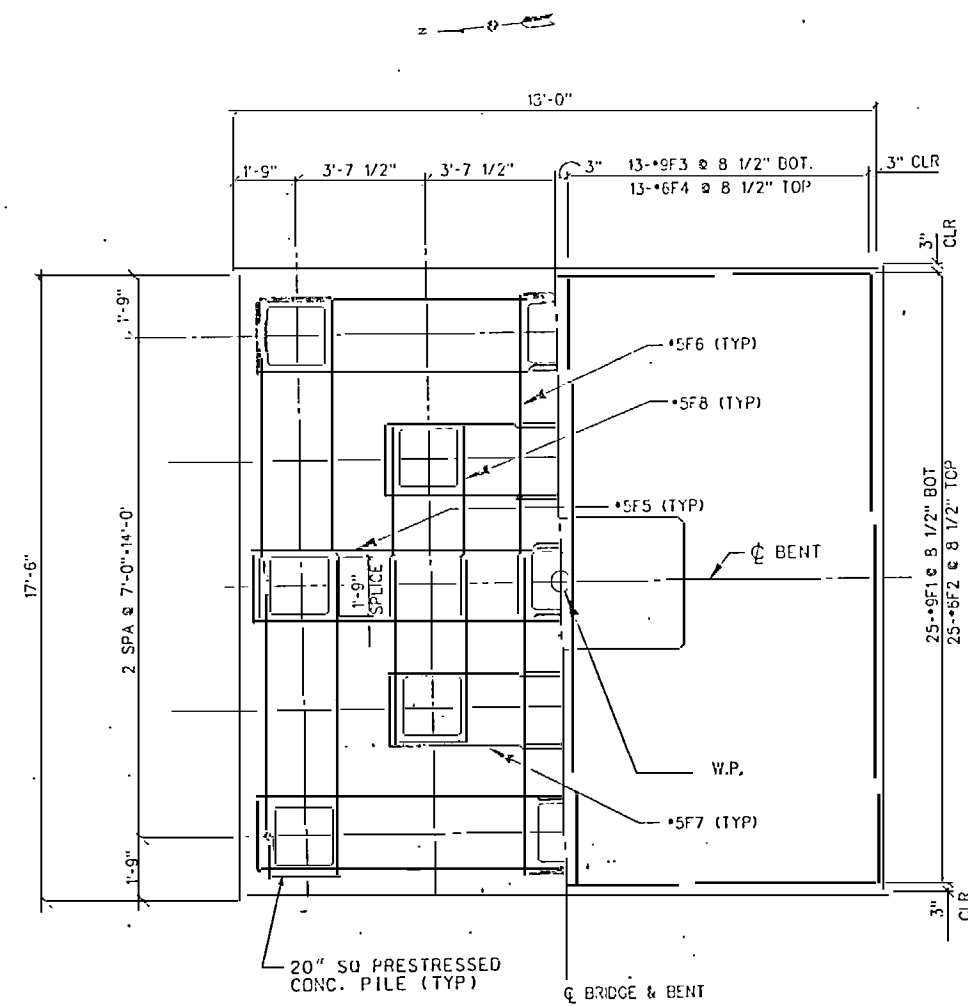
NOTE

NUMBER OF SPLICES AND LOCATIONS MAY BE REDUCED OR MODIFIED THROUGH THE USE OF LONGER BARS. CONTRACTOR FURNISHED SHOP DRAWINGS WITH COMPLETE REINFORCING DETAILS WILL BE REQUIRED. ALL REINFORCING MUST RUN CONTINUOUSLY THROUGH CONSTRUCTION JOINTS. SPLICES ARE NOT PERMITTED TO PASS THROUGH CONSTRUCTION JOINTS.

LEGEND

- ▲ 3" BEAM BOLSTER (BB)
W.P. WORK POINT
C J CONSTRUCTION JOINT
G.L. GROUND LINE

Designed by CLH	U.S. Army Corps of Engineers WATERWAYS DIVISION WASHINGTON, D. C. 20315	
Checked by GWC	 U.S. Army Corps of Engineers	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT SUBSTRUCTURE BENTS 6, 7 & 25-27 SHEET 1 OF 2
Reviewed by JBW	Date of Structure Section Approved: _____ AS SHOWN BR104-06-23	
E. J. Larson, P.E. Chief Engineer	Date: 3 MAY 91 CCB5A	Sheet 80 of 138 S52

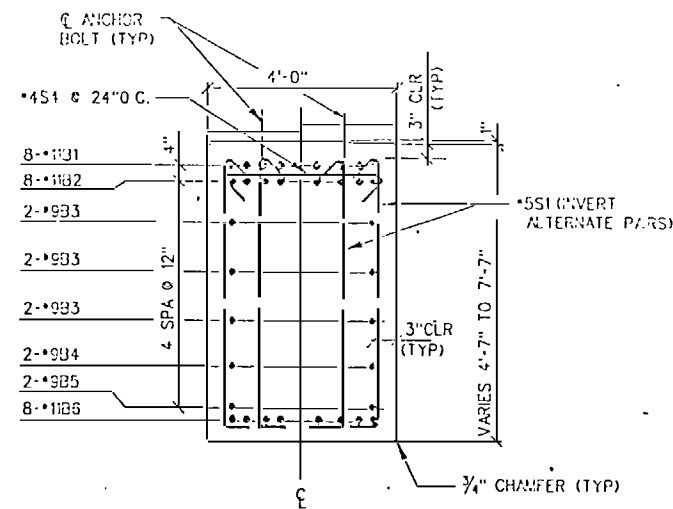


1
S52 S53
FOOTING PLAN
3/8" = 1'-0"

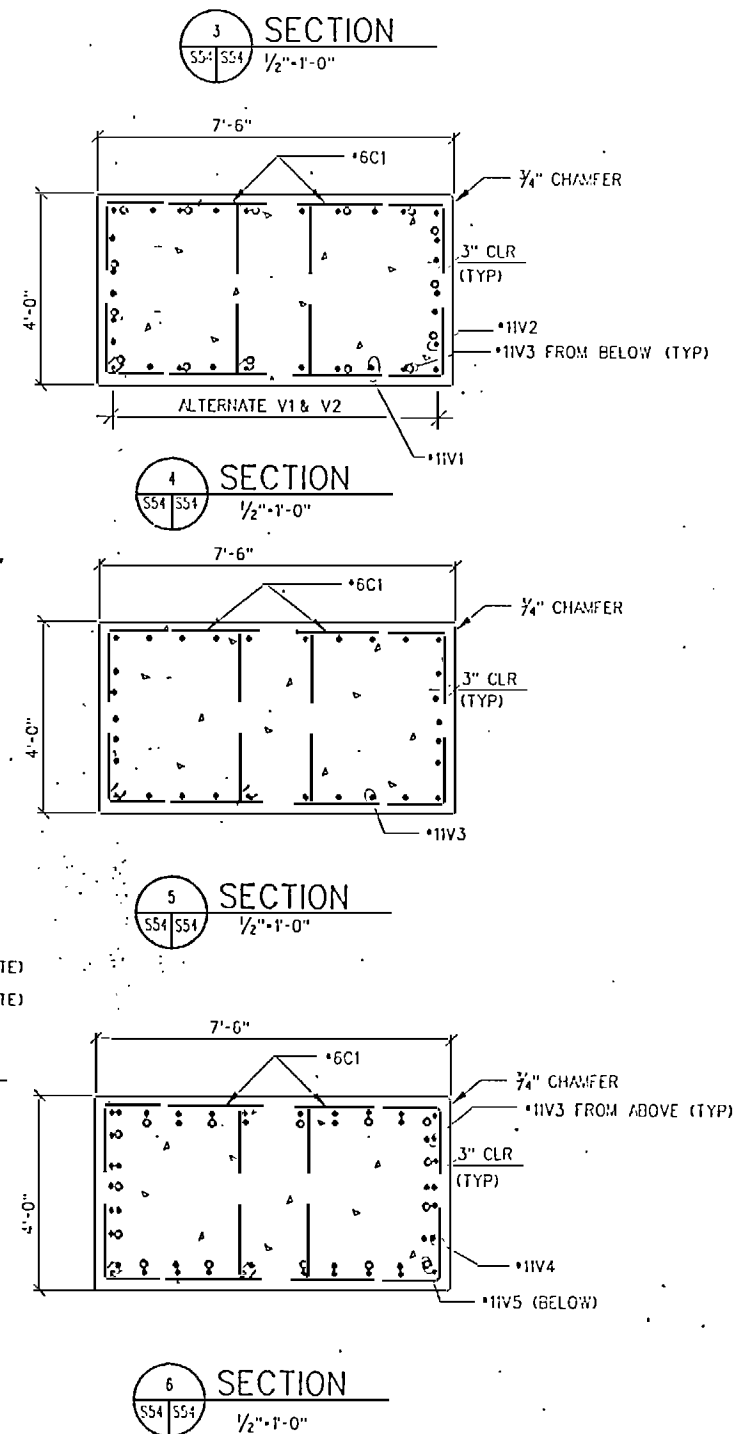
LEGEND

- BATTERED PILE 2:12 IN DIRECTION OF ARROW
- VERTICAL PILE
- W.P., WORK POINT

Designed: CLH	U.S. Army Engineer District, Vicksburg Corps of Engineers Mississippi River Division	
Checked: GMC	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT	
Reviewed: JBLW	SUBSTRUCTURE BENTS 6, 7 & 25-27	
Drawn: S52 S53	Series: AS SHOWN	Drawing Code: BR104-06-23
Approved: EJ Lanier, P.E.	CCBGB	Date: 31 MAY 91
Chief, Design Branch	Sheet 81	of 119



PAD ELEVATIONS					
BENT NO	BEARING	CL. 1	CL. 2	CL. 3	CL. 4
8	WEST	55 7212	55 8913	55 8913	55 7212
	EAST	55 7622	55 9323	55 9323	55 7622
9	WEST	59 0517	59 2219	59 2219	59 0517
	EAST	58 0884	58 2585	58 2585	58 0884
10	WEST	60 1210	60 2912	60 2912	60 1210
	EAST	60 1533	60 3234	60 3234	60 1533
11	WEST	61 9290	62 0991	62 0991	61 9290
	EAST	61 9569	62 1271	62 1271	61 9569
23	WEST	60 9264	61 0966	61 0966	60 9264
	EAST	60 8959	61 0661	61 0661	60 8959
24	WEST	58 9689	59 1391	59 1391	58 9689
	EAST	58 9341	59 1042	59 1042	58 9341



COLUMN TIES & BENT DIMENSIONS						
BENT NO.	"N"	DIM A	DIM B	DIM C	ELEV. F	ELEV. G
8	22	52'-1 $\frac{1}{8}$ "	21'-6"	21'-6 $\frac{1}{8}$ "	3.50	55.536
9	23	54'-11 $\frac{1}{8}$ "	22'-11"	22'-11 $\frac{1}{5}$ "	3.00	57.927
10	25	58'-0"	24'-5 $\frac{1}{2}$ "	24'-5 $\frac{1}{2}$ "	2.00	59.996
11	25	58'-3 $\frac{5}{8}$ "	24'-7 $\frac{1}{4}$ "	24'-7 $\frac{1}{8}$ "	3.50	61.604
23	25	57'-5 $\frac{5}{8}$ "	24'-2 $\frac{7}{8}$ "	24'-2 $\frac{1}{4}$ "	3.30	60.771
24	25	57'-9 $\frac{3}{4}$ "	24'-4 $\frac{3}{8}$ "	24'-4 $\frac{1}{8}$ "	1.00	58.609

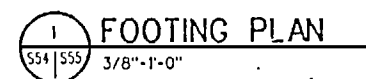
NOTE.

NUMBER OF SPLICES AND LOCATIONS MAY BE REDUCED OR MODIFIED THROUGH THE USE OF LONGER BARS. CONTRACTOR FURNISHED SHOP DRAWINGS WITH COMPLETE REINFORCING DETAILS WILL BE REQUIRED. ALL REINFORCING MUST RUN CONTINUOUSLY THROUGH CONSTRUCTION JOINTS. SPLICES ARE NOT PERMITTED TO PASS THROUGH CONSTRUCTION JOINTS.

LEGEND

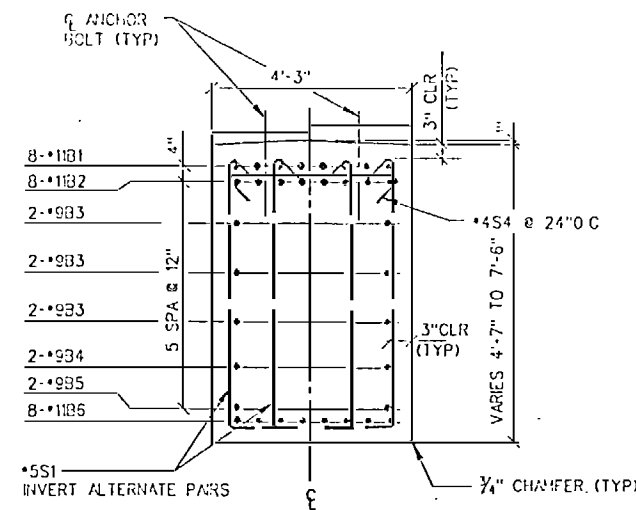
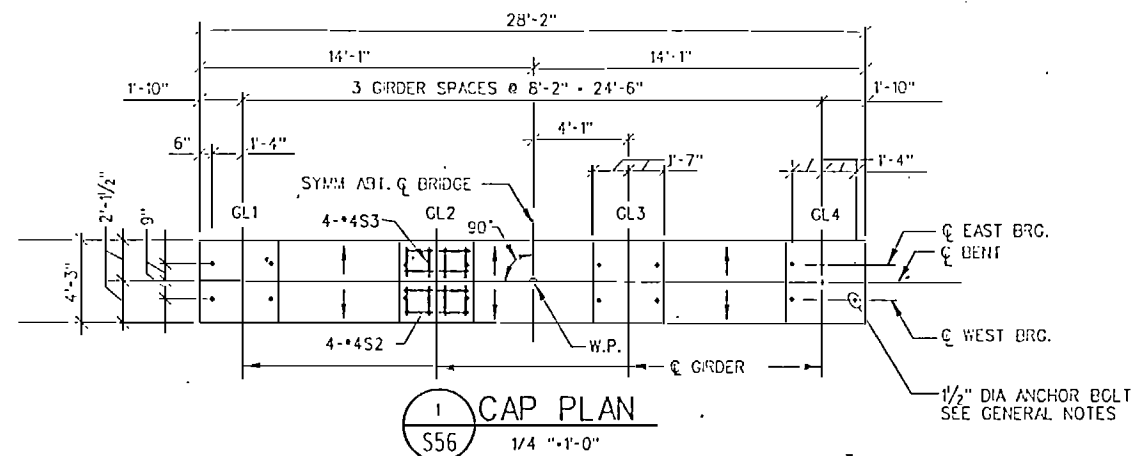
- ▲ 3" BEAM BOLSTER (BB)
- W.P. WORK POINT
- C.J. CONSTRUCTION JOINT
- G.L. GRIDER LINE

Designed:	US ARMY ENGINEER DISTRICT, WASHINGTON CORPS OF ENGINEERS WASHINGTON, D.C. 20315	
CLH		
Checked:	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT	
GUG		
Reviewed:	US Army Corps of Engineers	
JBW	SUBSTRUCTURE BENTS 8-11 & 23-24	
Chief Structures Section	SHEET 1 OF 2	
Approved:	Scale:	Drawing Code:
E. J. Daniels, P.E.	AS SHOWN	BR104-06-23
Chief, District Branch	CCBBA	Plate No: S54
	Date: 31 MAY 91	Sheet 82 of 133

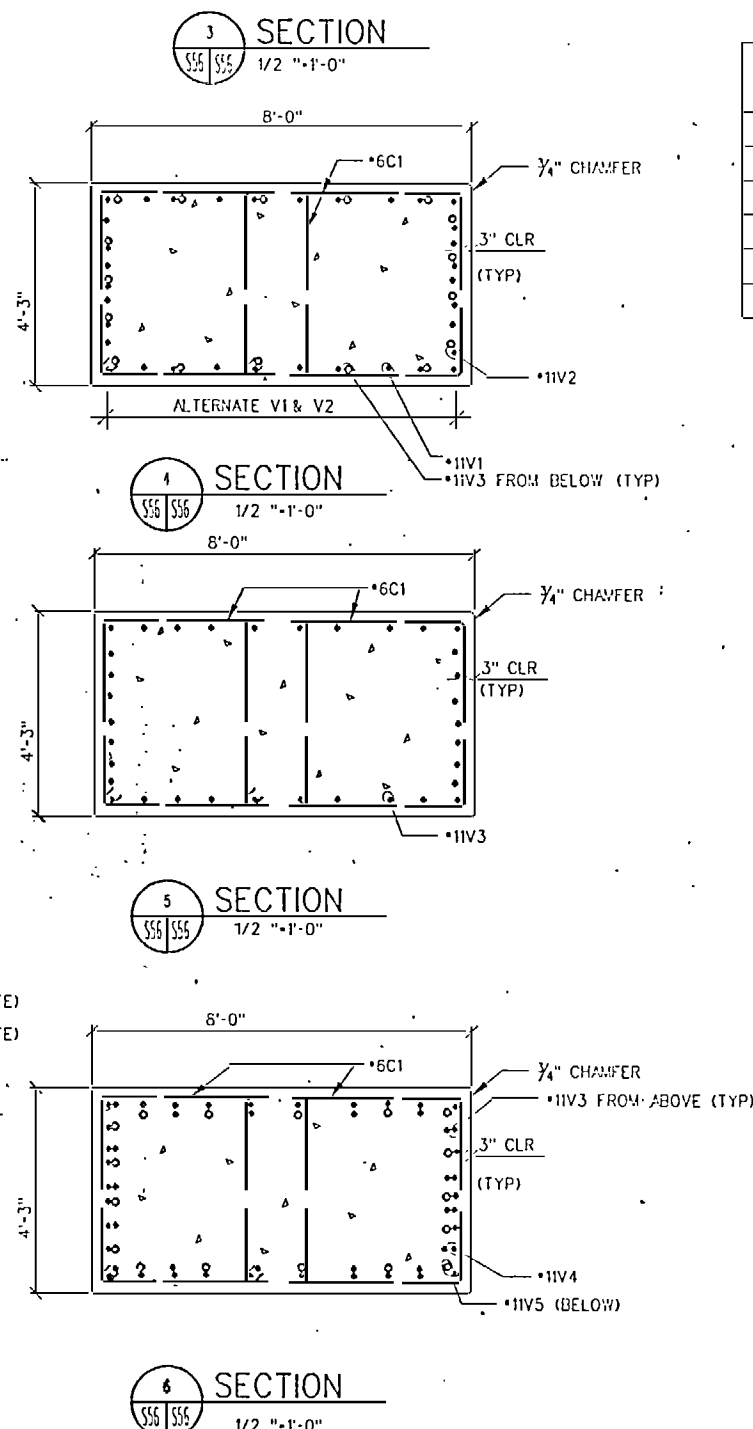
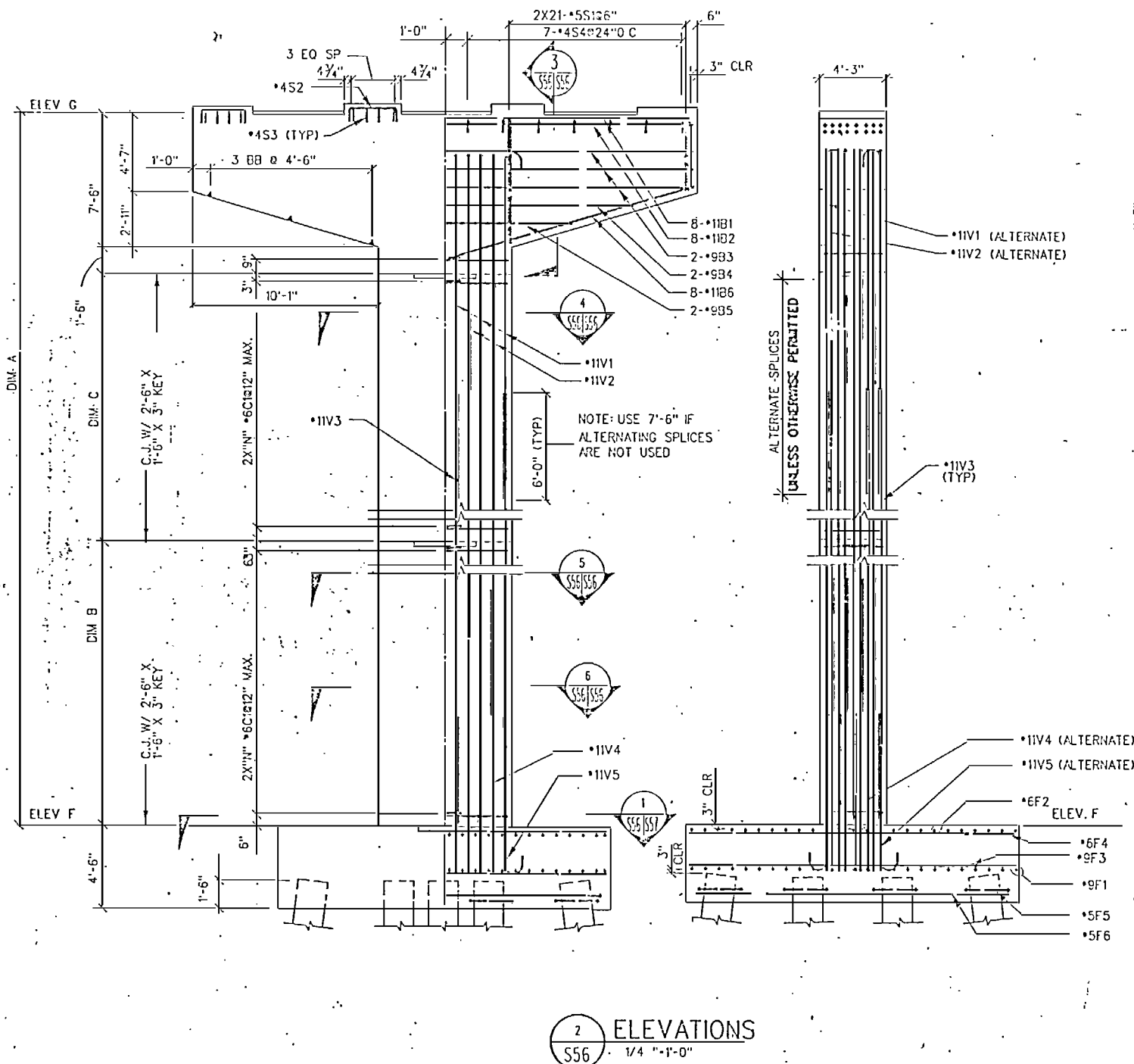


☐ BATTERED PILE 2 1/2 IN DIRECTION OF ARROW
☐ VERTICAL PILE
 W.P. WORK POINT

Designed:			U.S. ARMY ENGINEER DISTRICT, WASHINGTON DIVISION OF ENGINEERS WASHINGTON, D.C. 20315	
CLH				
Checked:	 U.S. Army Corps of Engineers		ATLANTA INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT	
G.M.C.			SUBSTRUCTURE BENTS 8-11 & 23-24 2 OF 2	
Reviewed:				
JBW				
Submittal Status:	Scale:	Drawing Date:	Plate No.:	
Approved:	AS SHOWN	BR104-06-23	S55	
Ed Lauer, P.E.	CCBBB	Date: 31 MAY 91	Sheet 83 of 153	
Chief, Design Branch				



PAD ELEVATIONS				
BENT NO	BEARING	CL 1	CL 2	CL 3
12	WEST	63.1757	63.6459	63.6458
	EAST	63.4993	63.6694	63.4993
19	WEST	66.1435	66.3136	66.3136
	EAST	66.1305	66.1005	66.3006
20	WEST	65.2312	65.4013	65.4013
	EAST	65.2138	65.3832	65.3832
21	WEST	64.0575	64.2277	64.2277
	EAST	61.0358	64.2059	64.2059
22	WEST	62.6226	62.7928	62.7928
	EAST	62.5955	62.7665	62.7665



COLUMN TIES & BENT DIMENSIONS						
BENT NO.	"N"	DIM A	DIM B	DIM C	ELL. V. F	ELEV. G
12	25	59'-10 1/4"	25'-5 5/8"	25'-5 5/8"	3.50	63.351
19	28	63'-6 5/8"	27'-3 3/8"	27'-3"	2.50	66.005
20	27	62'-2 1/4"	26'-7 7/8"	26'-7 7/8"	2.90	65.089
21	27	61'-10 1/2"	26'-5 1/2"	25'-5 1/2"	2.00	63.911
22	26	60'-11 5/8"	25'-11 7/8"	25'-11 7/8"	1.50	62.472

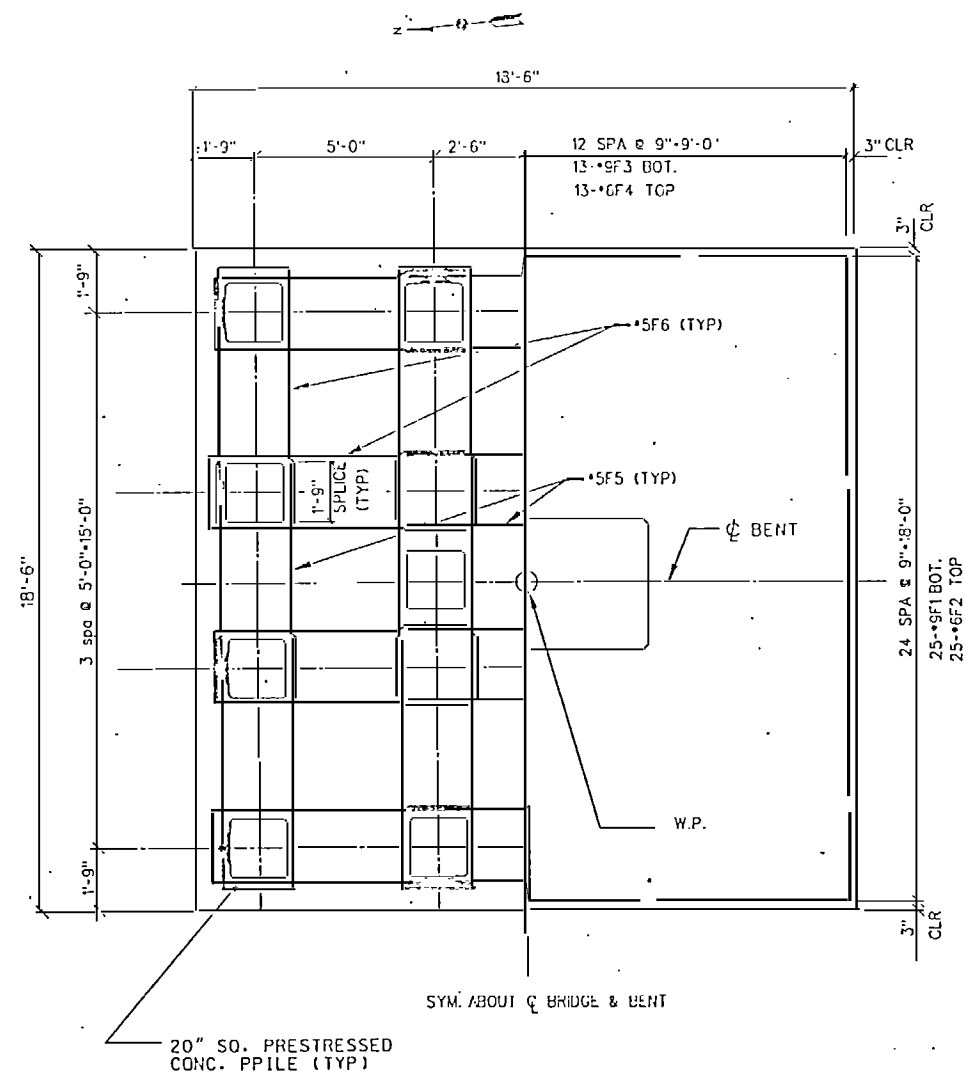
NOTE

NUMBER OF SPLICES AND LOCATIONS MAY BE REDUCED OR MODIFIED THROUGH THE USE OF LONGER BARS. CONTRACTOR FURNISHED SHOP DRAWINGS WITH COMPLETE REINFORCING DETAILS WILL BE REQUIRED. ALL REINFORCING MUST RUN CONTINUOUSLY THROUGH CONSTRUCTION JOINTS. SPLICES ARE NOT PERMITTED TO PASS THROUGH CONSTRUCTION JOINTS.

LEGEND

- 3" BEAM BOLSTER (BB)
- W.P. WORK POINT
- C.J. CONSTRUCTION JOINT
- GL. GIRDER LINE

Checked: GMG J&W Chief, Design Branch	U.S. Army Corps of Engineers WASHINGTON, NORTH CAROLINA ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT SUBSTRUCTURE BENTS 12 & 19-22 SHEET 1 OF 2 Scale: AS SHOWN Drawing Code: BR104-06-23 Date: 31 MAY 91	Plate No: S56 Sheet 84 of 138
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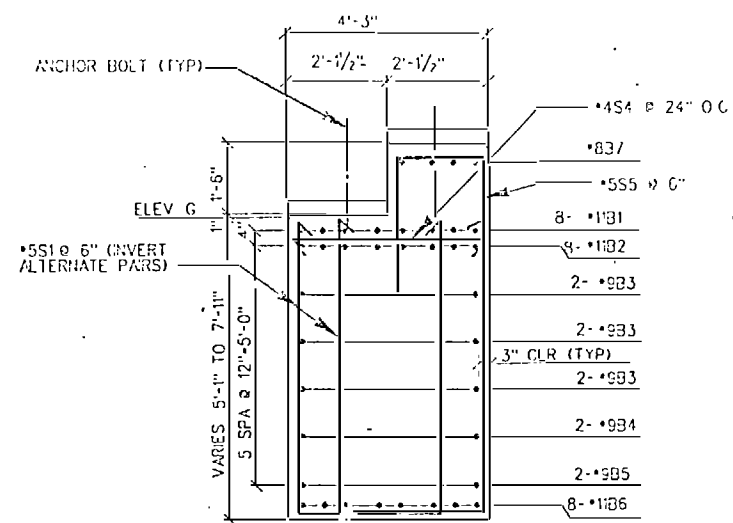


FOOTING PLAN
S57 3/8"-1'-0"

LEGEND

- BATTERED PILE 2-12 IN DIRECTION OF ARROW
- VERTICAL PILE
- W.P. WORK POINT

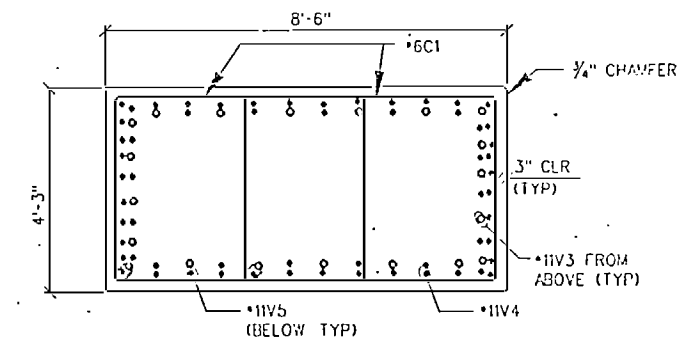
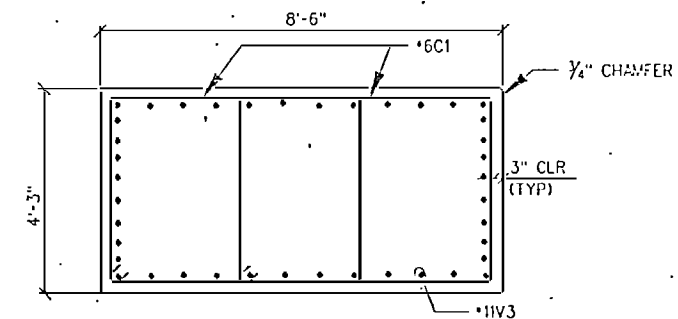
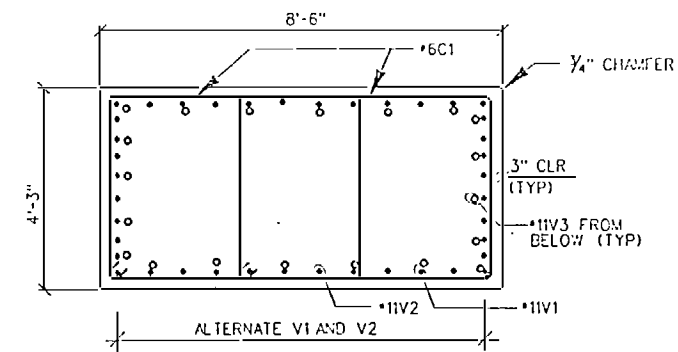
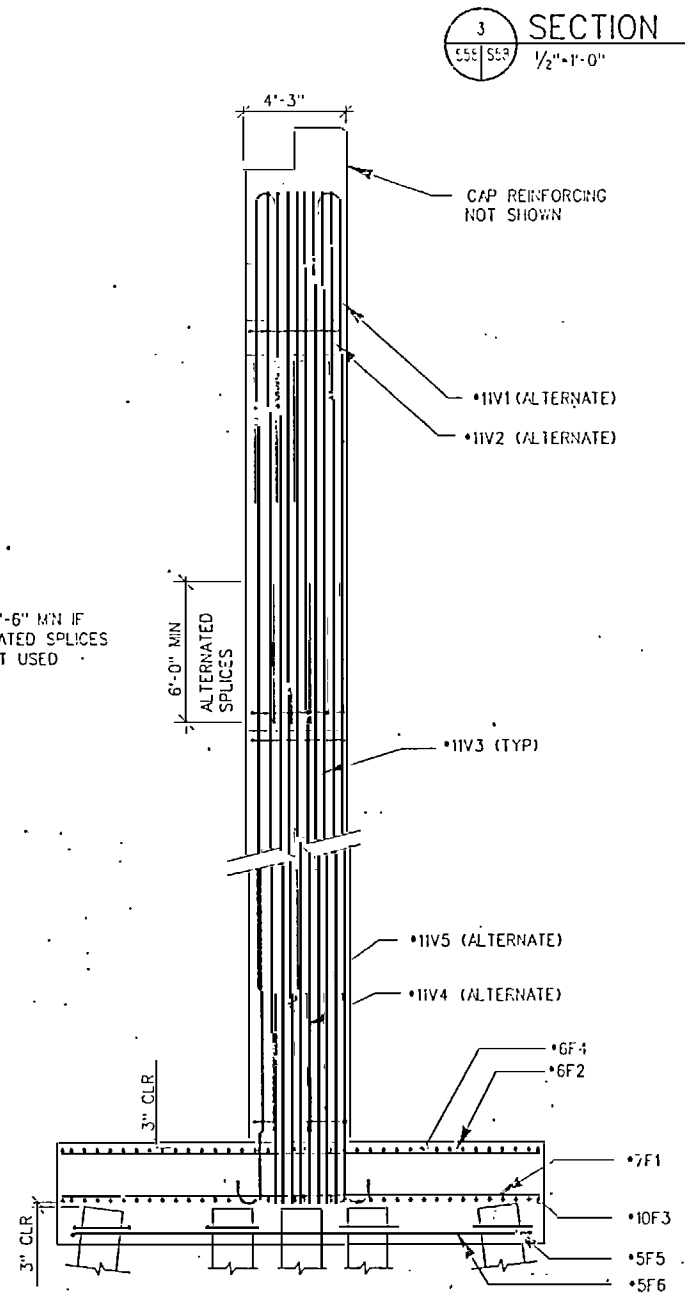
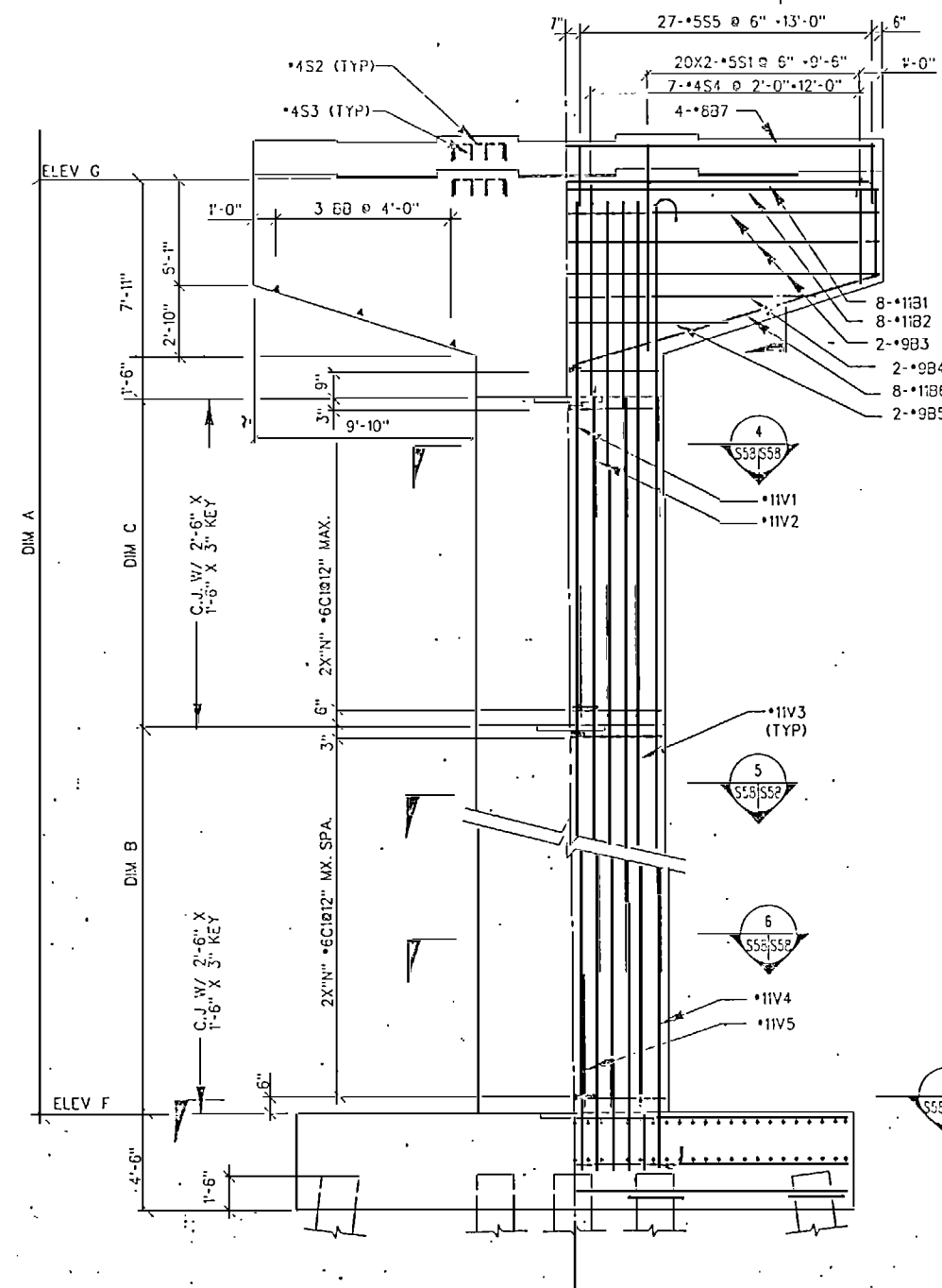
Designed: CLH	U.S. ARMY ENGINEER DISTRICT, WILMINGTON COMB OF ENGINEERS WILMINGTON, NORTH CAROLINA		
Checked: GMC	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT		
Reviewed: JBW	SUBSTRUCTURE BENTS 12 & 19-22 SHEET 2 OF 2		
Chief Engineer Section: Approved EJ. J. J. J., P.E.	Scale: AS SHOWN	Drawing Code: BR104-06-23	Plate No: S57
Chief, Design Branch	C1112B	Date: 1 FEBRUARY 91	Sheet 85 of 138



PAD ELEVATIONS					
BENT NO	BEARING	GDR 1	GDR 2	GDR 3	GDR 4
13	WEST	64 7611	64 9312	64 5112	64 7611
	EAST	63 2283	63 3634	63 3284	63 2283
14	WEST	64 5155	64 6367	64 6857	64 5155
	EAST	66 0819	66 2521	66 2521	66 0819

BENT NO.	"N"	DIM. A	DIM. B	DIM. C
13	26	59'-9 1/2"	75'-2 1/2"	25'-2 1/2"
14	26	59'-0 1/2"	75'-2 1/2"	25'-3 1/2"

ELEVATIONS		
BENT NO	CLEV F	CLEV G
13	3.39	63.03
14	4.50	61.52



LEGEND

- ▲ 3" BEAM BOLSTER (BB)
W.P. WORKING POINT
C.J. CONSTRUCTION JOINT

NOTE

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2 BENT ELEVATIONS
558 1/4"-1'-0"

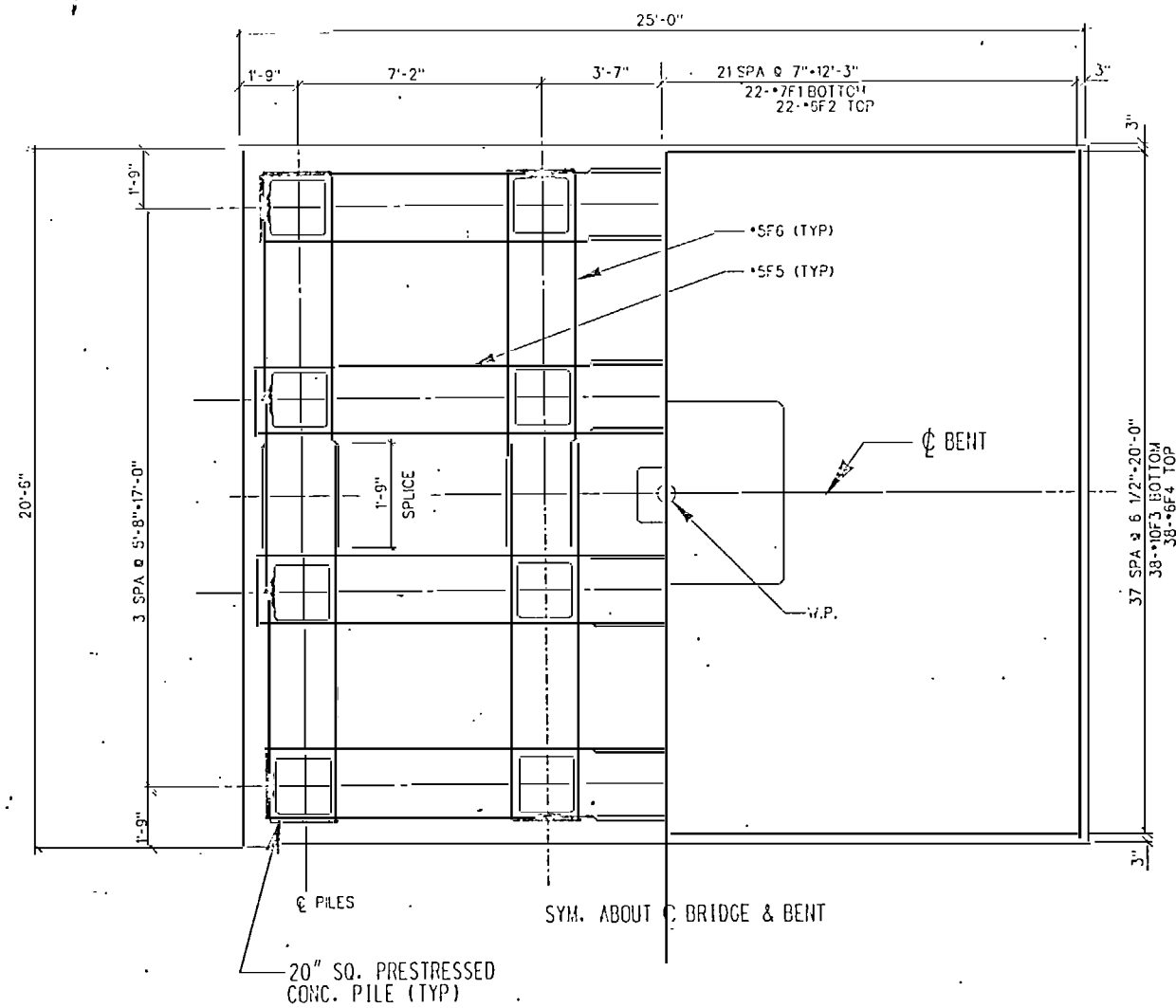
3 SECTION
556 559 1/2" x 1'-0"

SECTION
1/2" = 1'-0"

5 SECTION
553 1/2" x 1'-0"

6 SECTION
S53 | S53 1/2" - 1'-0"

Designed:			US Army Corps of Engineers, WASHINGTON OFFICE OF DISTRICT ENGINEER WASHINGTON FIELD OFFICE	
C.L.H.				
Checked:			ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT	
G.M.C.	US Army Corps of Engineers		SUBSTRUCTURE BENTS 13 & 14	
Reviewed:			1 OF 2	
J.B.W.				
Chief, Riverine Section				
Approved:	Scale:	Drawing Code:	Plate No:	
E.J. Lavin, P.E.	AS SHOWN	BR104-06-23	S58	
Chief, Design Branch	CCB13	Date: 31 MAY 91	Sheet 86	of 136

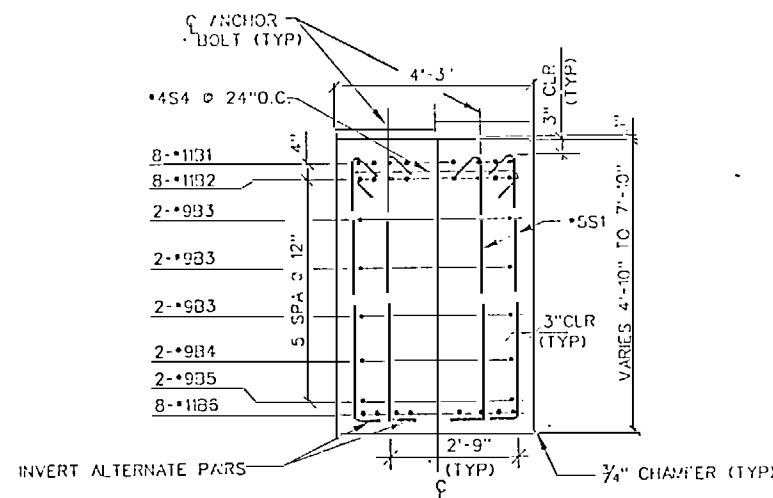
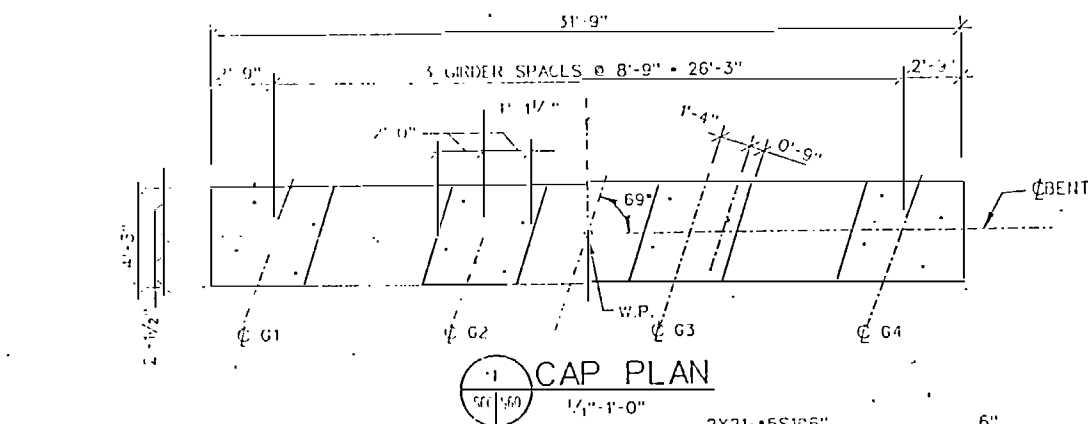


3 FOOTING PLAN
558 559 3/8"=1'-0"

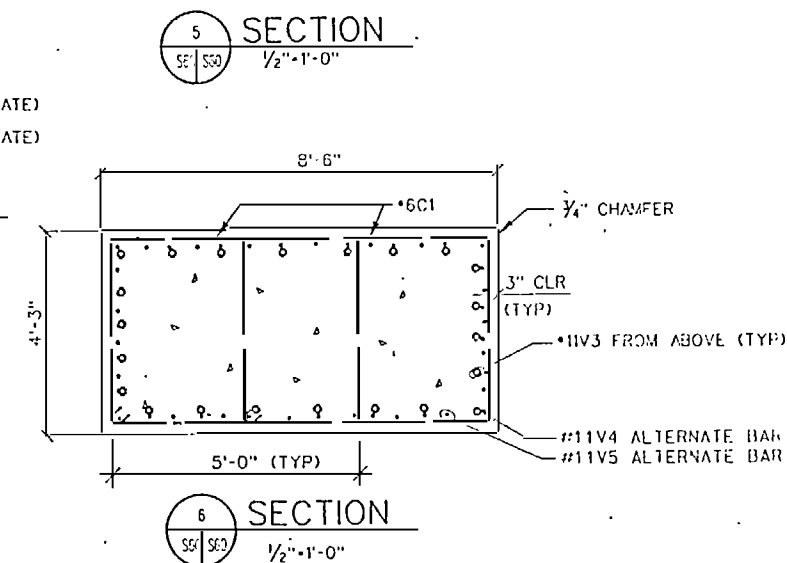
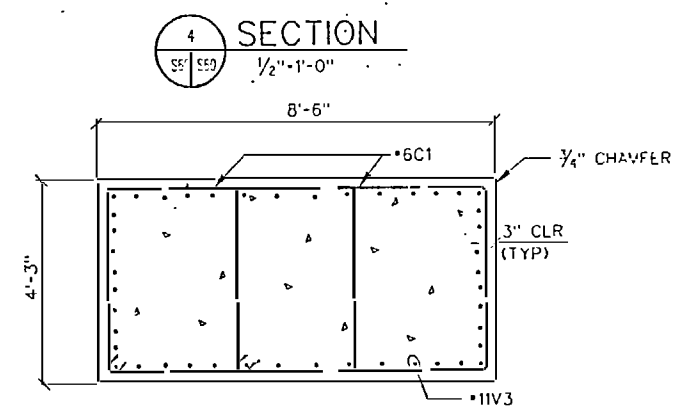
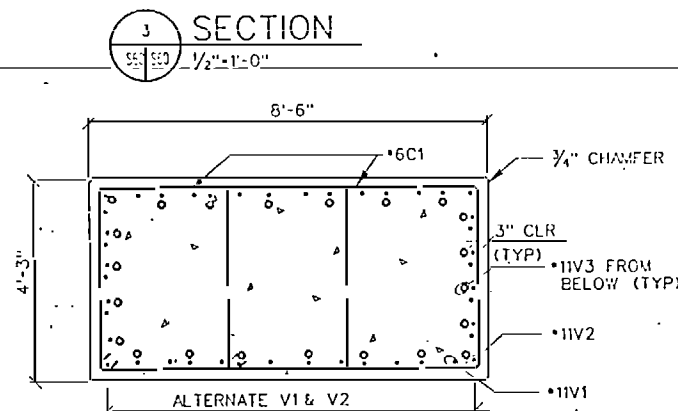
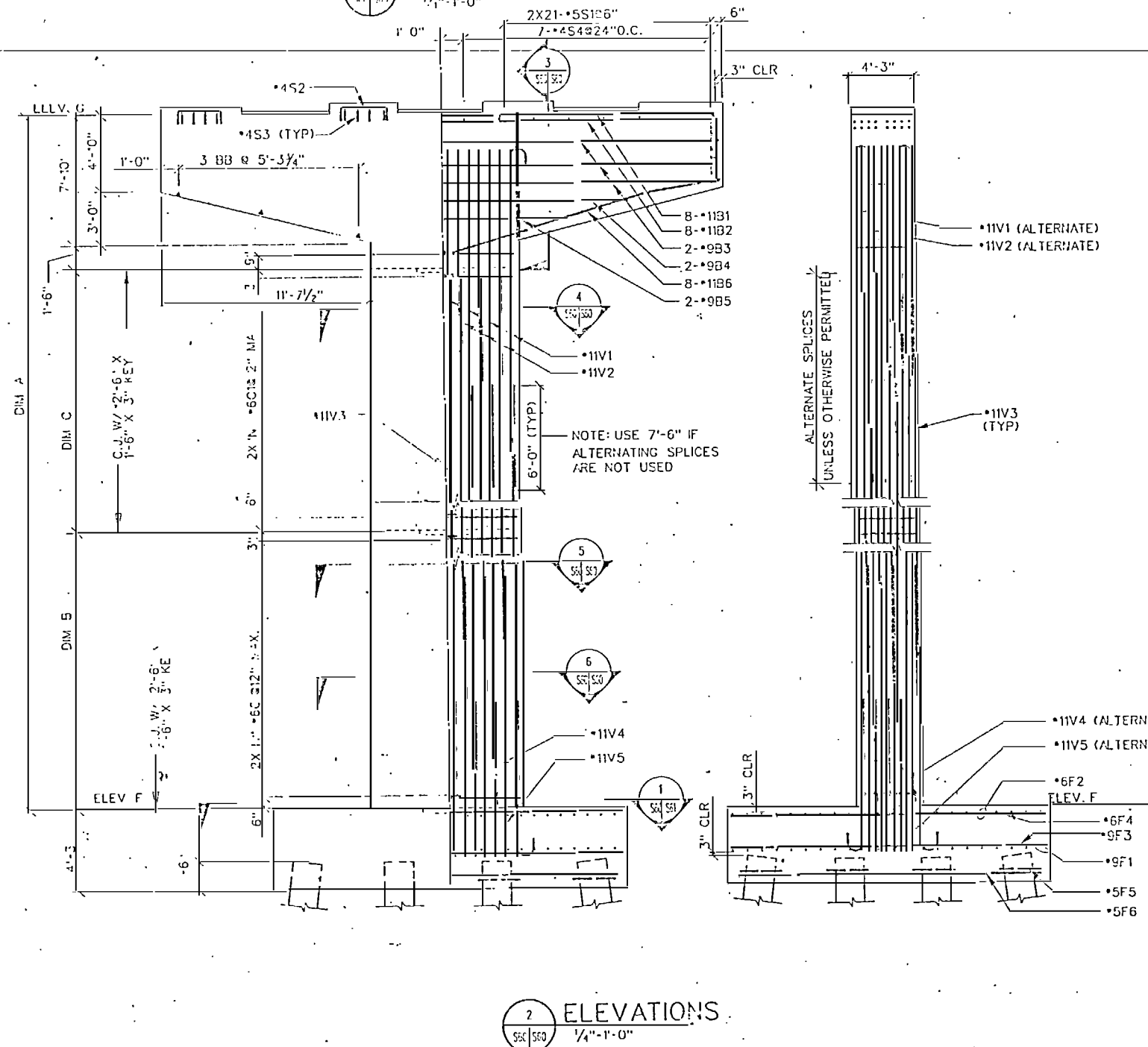
LEGEND

- BATTERED PILE 2 1/2" IN DIRECTION OF ARROW
- VERTICAL PILE
- W.P. WORKING POINT

Designed CLH	U.S. ARMY ENGINEER DISTRICT, WASHINGTON CORPS OF ENGINEERS WASHINGTON, DISTRICT OFFICE		
Checked: G.M.C.	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT		
Reviewed: J.B.W.	SUBSTRUCTURE BENTS 13 & 14 2 OF 2		
Chief, Structures Section Approved: E.Y. Janney, P.E.	Scale: AS SHOWN	Drawing Code: BR104-06-23	Plate No. S59
Chief, Design Branch	CCB13A	Date: 31 MAY 91	Sheet 87 of 135



PAD ELEVATIONS					
BENT NO	BEARING	GL. 1	GL. 2	GL. 3	GL. 4
15	WEST	66.6836	66.8861	66.9057	66.7545
	EAST	66.8955	66.8864	66.9057	66.7545
18	WEST	66.7545	66.9057	66.8864	66.6836
	EAST	66.7545	66.9057	66.8864	66.6836



COLUMN TIES & BENT DIMENSIONS						
BENT NO.	"N"	DIM A	DIM B	DIM C	ELEV. F	ELEV. G
15	28	63'-9 1/4"	27'-2 5/8"	27'-2 5/8"	2.80	66.5712
18	28	65'-4"	28'-0"	28'-0"	1.30	66.6295

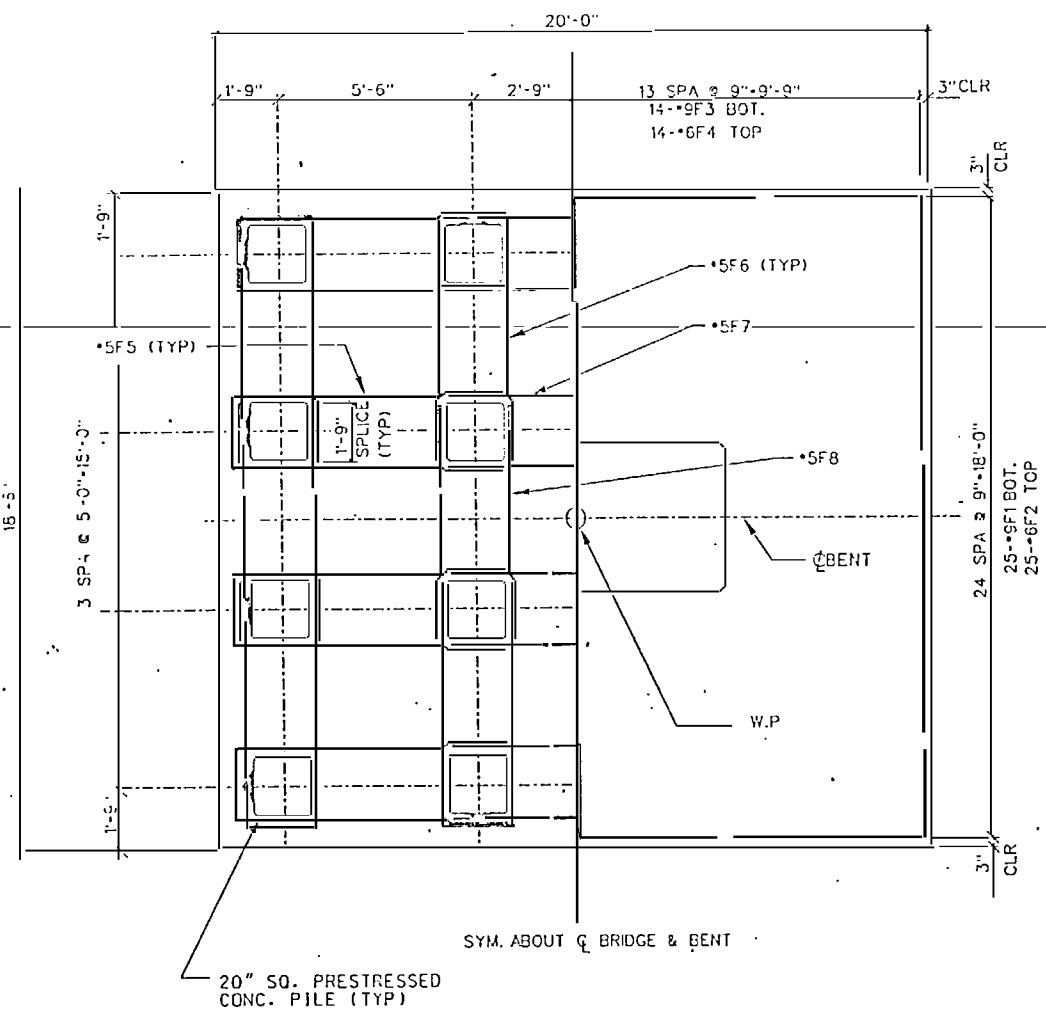
NOTE

1. NUMBER OF SPLICES AND LOCATIONS MAY BE REDUCED OR MODIFIED THROUGH THE USE OF LONGER BARS. CONTRACTOR FURNISHED SHOP DRAWINGS WITH COMPLETE REINFORCING DETAILS WILL BE REQUIRED. ALL REINFORCING MUST RUN CONTINUOUSLY THROUGH CONSTRUCTION JOINTS. SPLICES ARE NOT PERMITTED TO PASS THROUGH CONSTRUCTION JOINTS.

LEGEND

- ▲ 3" BEAM BOLSTER (BB)
- W.P. WORK POINT
- C.J. CONSTRUCTION JOINT
- GL GRIDLINE

Designed: CLH	U.S. Army Engineer District, Vicksburg DIVISION OF ENGINEERS VICKSBURG, MISSISSIPPI		
Checked: GNG	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT		
Reviewed: J&W	SUBSTRUCTURE BENTS 15 & 18 SHEET 1 OF 2		
Chief Structural Engineer: E. J. Lanier, P.E.	Scale: AS SHOWN	Drawing Code: BR104-06-23	Plate No.: S60
Chief, Design Branch:	CCB15A	Date: 31 MAY 91	Sheet: 28 of 138



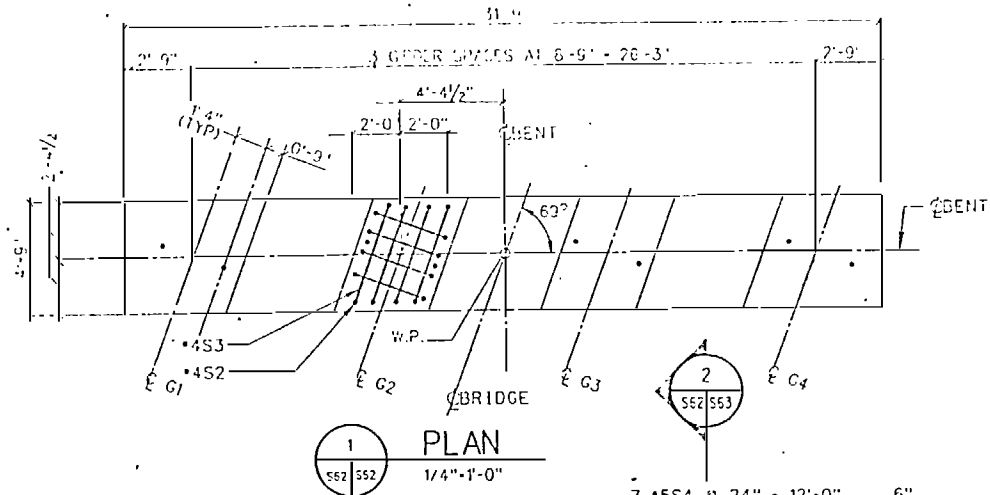
1
S5C S61
3/8"-1'-0"

FOOTING PLAN

LEGEND

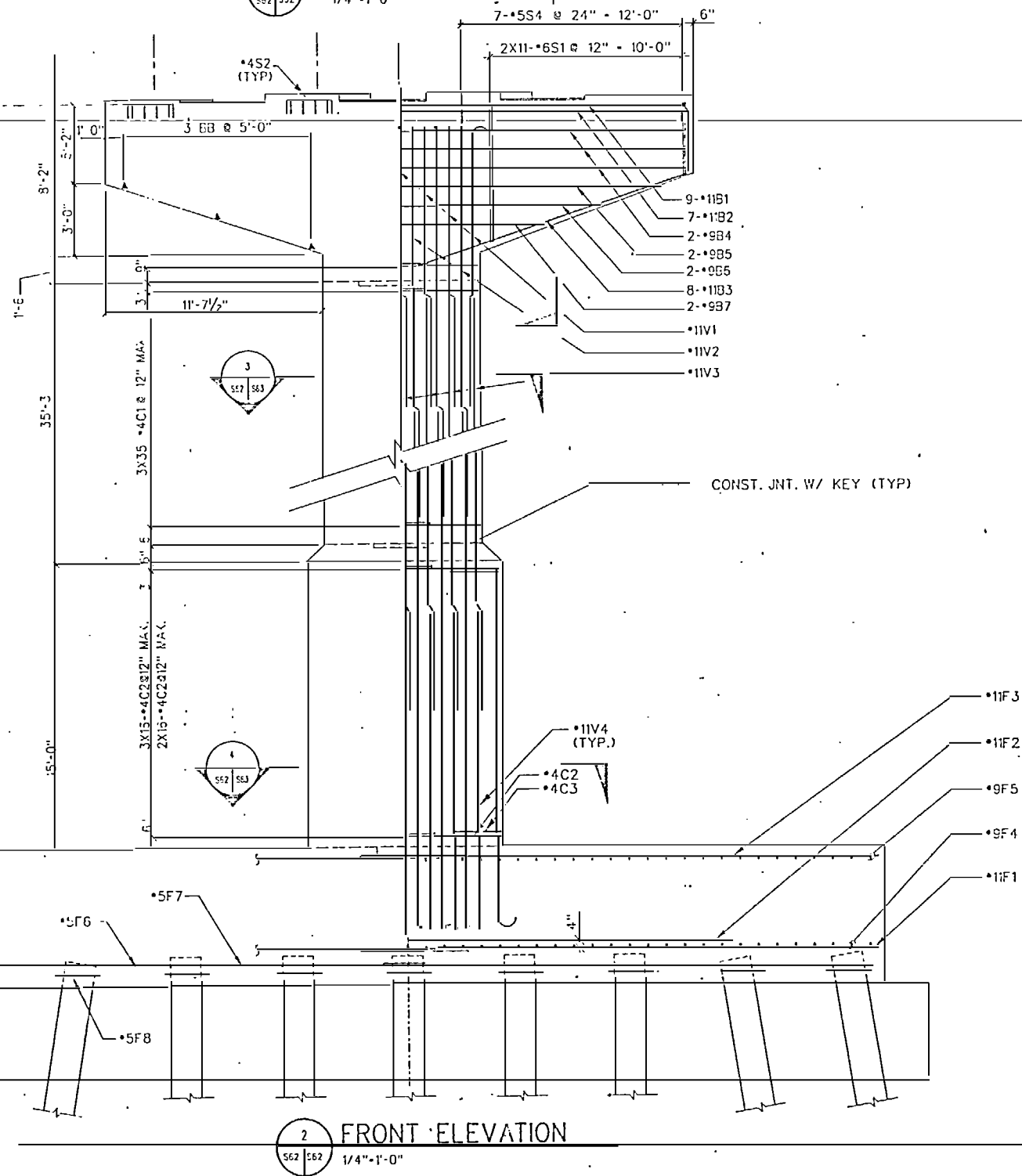
- BATTERED PILE 2 12 IN DIRECTION OF ARROW
- VERTICAL PILE
- W.P. WORK POINT

Designed: C.L.H.	U.S. ARMY ENGINEER DISTRICT, WASHINGTON CORPS OF ENGINEERS WATERWAYS DIVISION		
Drawn by: G.W.P.	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT		
Inspected: J.B.W.	SUBSTRUCTURE BENTS 15 & 18		
Approved: Ed Janier, P.E. Chief, Design Branch	Scale AS SHOWN	Drawing Title BR104-06-23	Plate No. S61
CCB15B Date: 31 MAY 91 Sheet 89 of 135			



PAD ELEVATIONS				
BENT NO	CDR. 1	CDR. 2	CDR. 3	CDR. 4
16	63.1811	63.3595	63.3577	63.2054
17	63.2054	63.3577	63.3595	63.1811

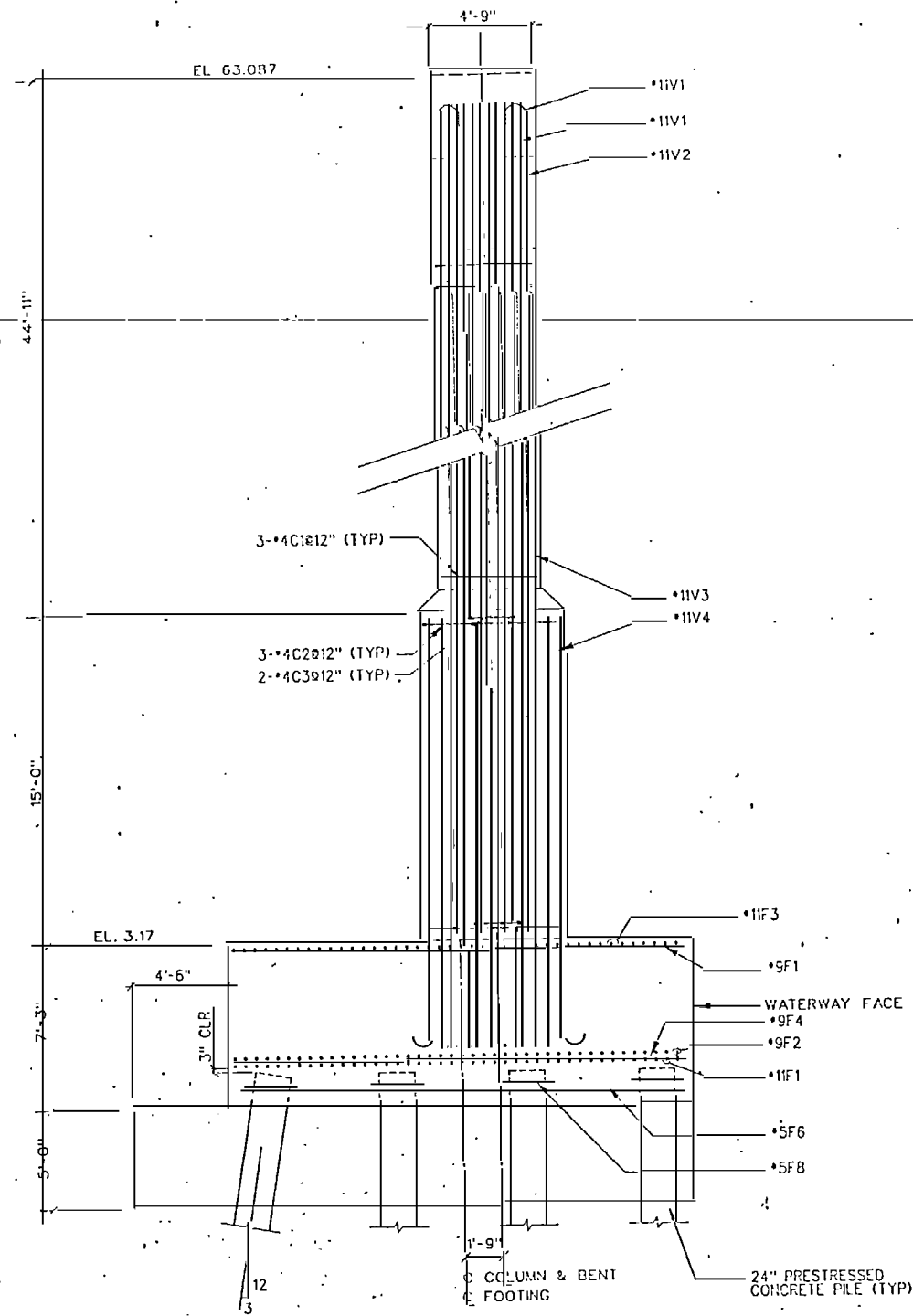
EL. 63.087



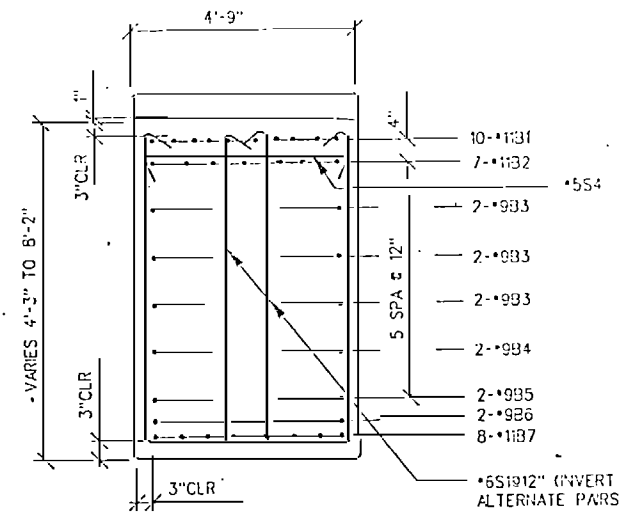
LEGEND

- ▲ 3" BEAM BOLSTER (BB)
- W.P. WORKING POINT
- C.J. CONSTRUCTION JOINT

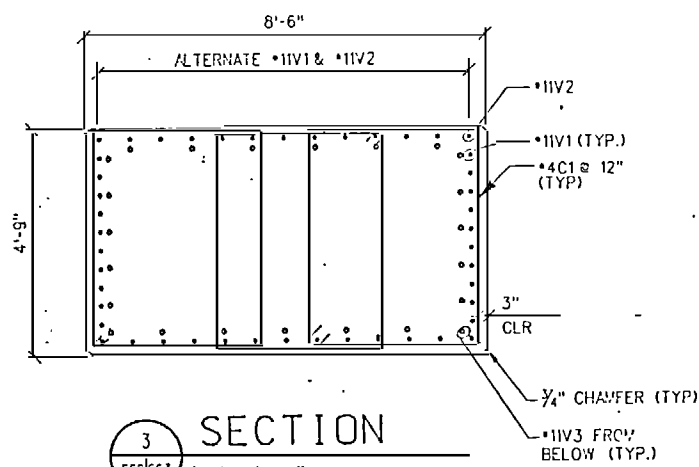
Designed: CLH	US ARMY ENGINEER DISTRICT, WASHINGTON CORPS OF ENGINEERS WASHINGTON, D.C. 20315		
Checked: GWP	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT		
Reviewed: JBW	SUBSTRUCTURE BENTS 16 & 17 1 OF 3		
Chief, Structures Section Approved: C. J. Daniel, P.E.	Sealer: AS SHOWN	Drawing Leader: BR104-06-23	Plate No: S62
Chief, Design Branch	CCB17A	Date: 31 MAY 91	Sheet 90 of 138



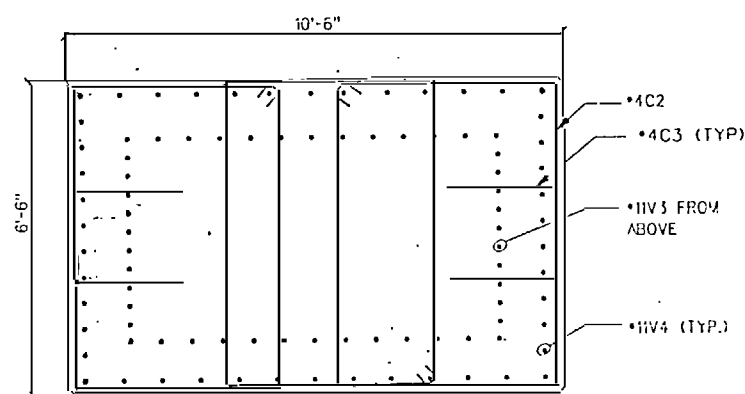
1 SIDE ELEVATION
S63 1/4"=1'-0"



2 SECTION
S63 1/2"=1'-0"

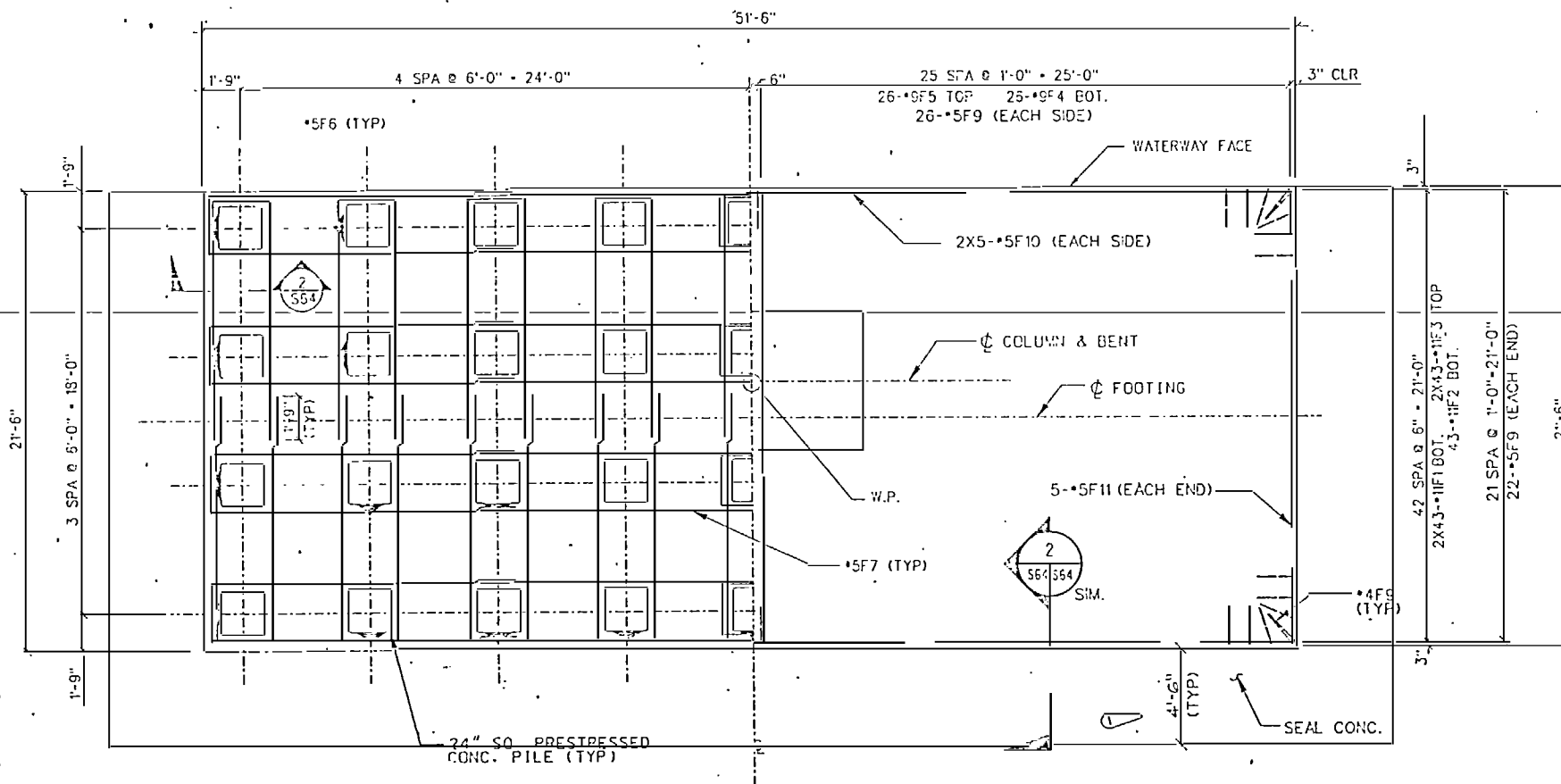


3 SECTION
S63 1/2"=1'-0"



4 SECTION
S63 1/2"=1'-0"

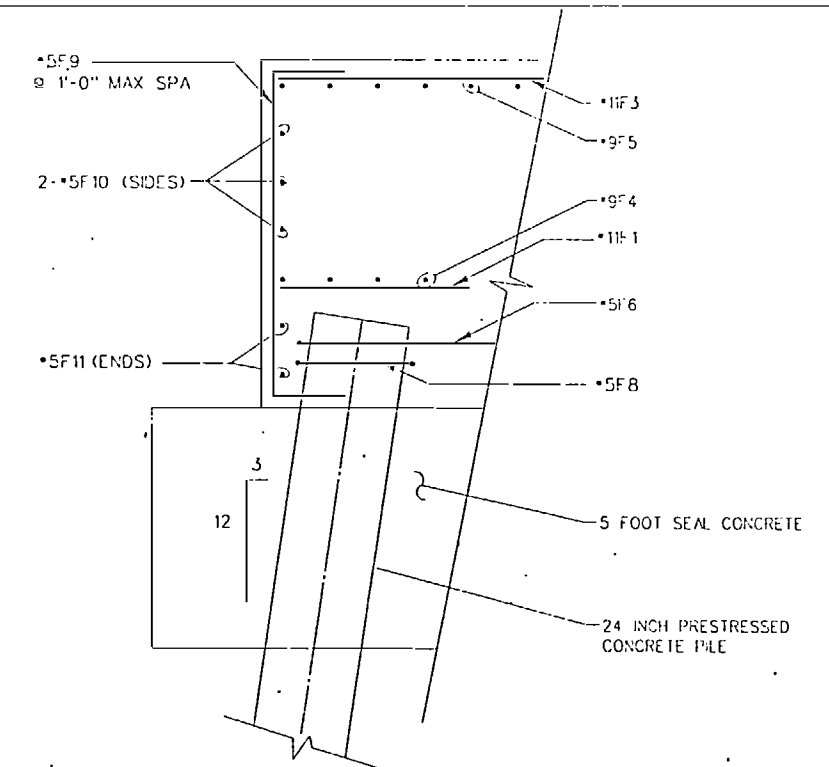
Designed: CLH/GWP	U.S. ARMY ENGINEER DISTRICT, WASHINGTON CORPS OF ENGINEERS VIRGINIA BEACH OFFICE		
Checked: GWP	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT SUBSTRUCTURE BENTS 16 & 17 2 OF 3		
Reviewed: JWW	Scale: AS SHOWN	Drawing Code: BR104-06-23	Plate No.: S63
Chief, Structural Section Approved: Ed Lerner, P.E.	CCB17B	Date: 31 MAY 91	Sheet 91 of 138



1 FOOTING PLAN
S64 1/4"=1'-0"

LEGEND

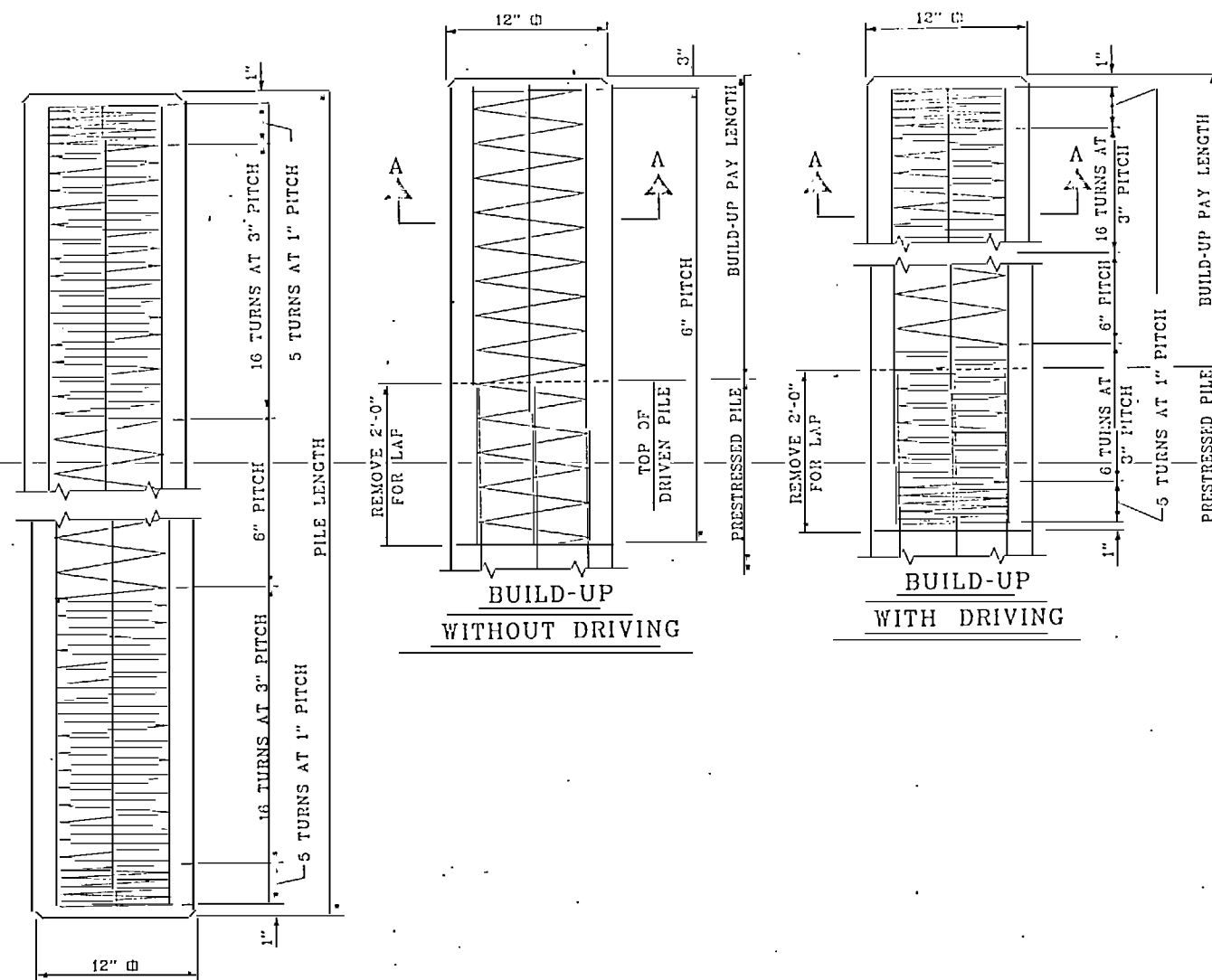
- HAILED PILE 3/4" IN DIRECTION OF ARROW
- VERTICAL PILE
- W.P. WORK POINT



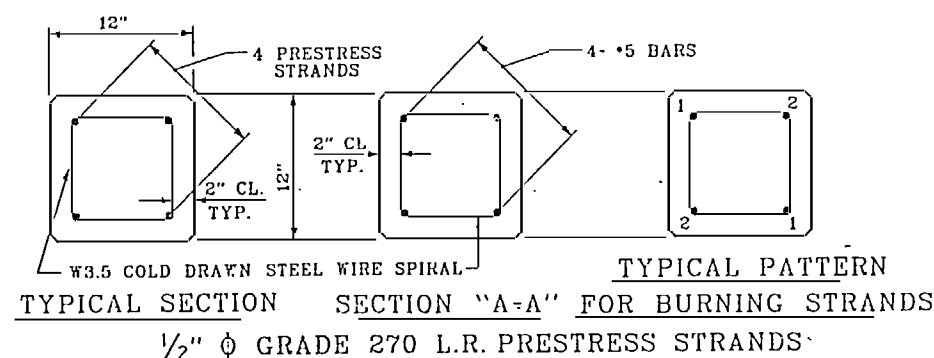
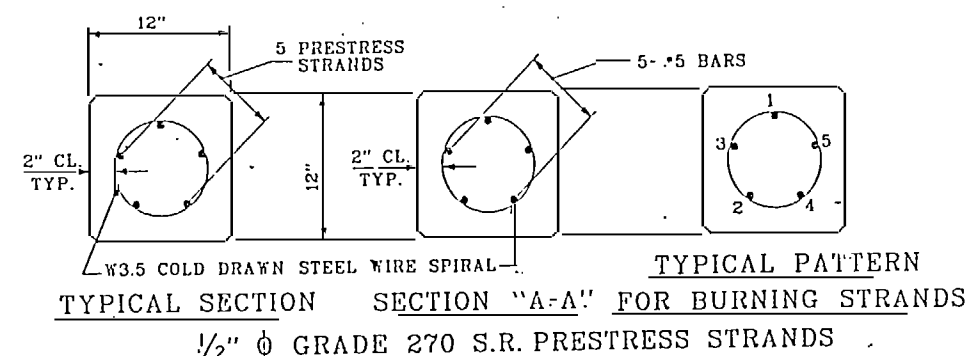
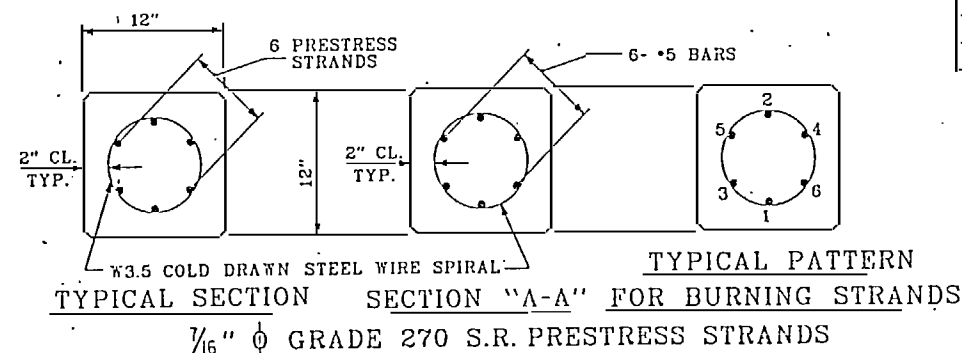
2 SECTION
S64 1/2"=1'-0"

REVISIONS			
SYMBOL	DESCRIPTIONS	DATE	APPROVED
(1)	AMENDMENT NO. 0001	26 JUL 91	GWP

Designed: GWP/CLH	US Army Engineer District, HOBOKEN DIVISION OF ENGINEERS	
Checked: GAP	ATLANTIC INTRACOASTAL WATERWAY HOBOKEN BRIDGE REPLACEMENT PROJECT	
Reviewed: JEW	SUBSTRUCTURE BENTS 16 & 17 3 OF 3	
Chief, Design Branch	Scale: AS SHOWN	Drawing Date: BR104-06-23
Approved: P. J. L. P. E.	Sheet: CCB17C	Date Plotted: S64
	31 MAY 91	Sheet 92 of 138



ELEVATION



QUANTITIES FOR ONE 12" PRESTRESSED PILE						
LENGTH	CONCRETE CU. YDS.	PILE WT. TONS	ONE PICK-UP POINT		TWO PICK-UP POINT	
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' - 0"	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' - 4 1/2"	32' - 3"
60' - 0"	2.19	4.44			12' - 5"	35' - 2"
65' - 0"	2.37	4.81			13' - 5 1/2"	38' - 1"
70' - 0"	2.56	5.18			14' - 6"	41' - 0"

NOTES

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

IMPACT IN HANDLING = 50%

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE PILE SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 3,500 PSI.

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

DEVICES FOR LIFTING THE PILES SHALL BE APPROVED BY THE CONTRACTING OFFICER. LOOPS OF STRANDS 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 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 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 STANDARD SPECIFICATIONS.

THE CONTRACTOR MAY, AT HIS OPTION, USE EITHER OF THE THREE TYPES OF STRAND LISTED BELOW:

SIZE	GRADE	NUMBER OF STRANDS	AREA	ULTIMATE STRENGTH	APPLIED PRESTRESS FORCE
1/6"	270 S.R.	6	0.115	31,000* PER STRAND	21,700* PER STRAND
1/2"	270 S.R.	5	0.153	41,300* PER STRAND	28,900* PER STRAND
1/2"	270 L.R.	4	0.153	41,300* PER STRAND	30,980* PER STRAND

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

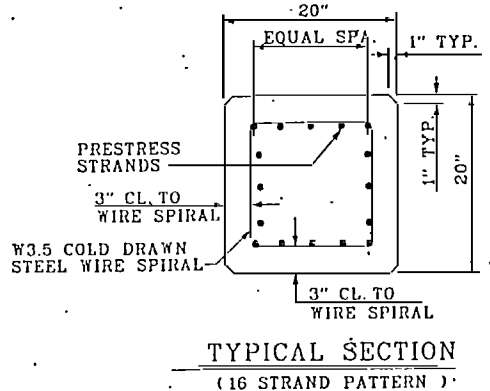
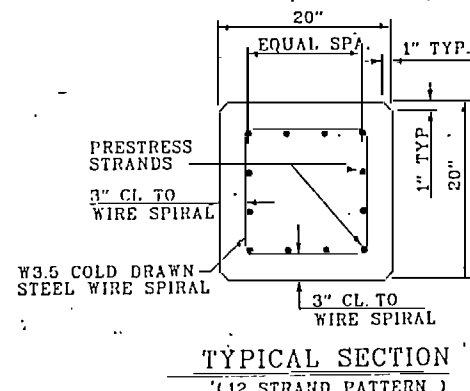
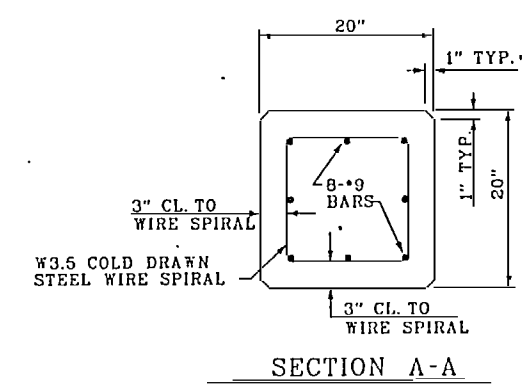
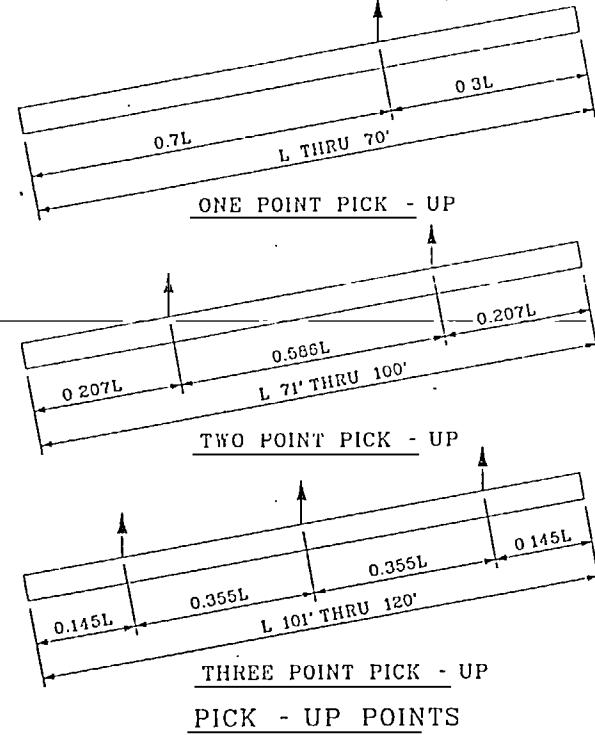
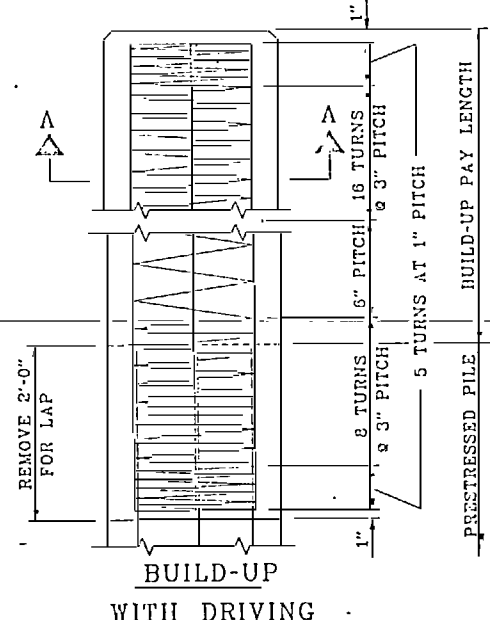
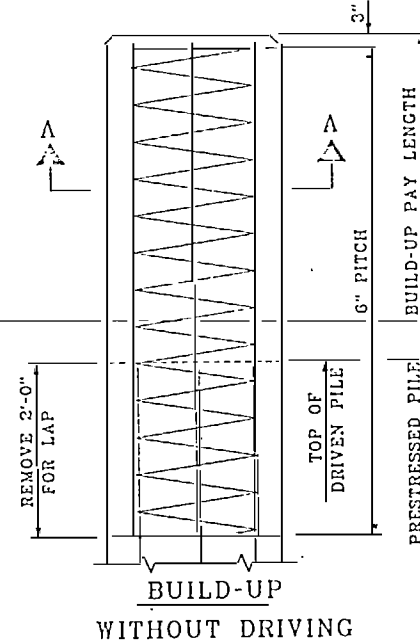
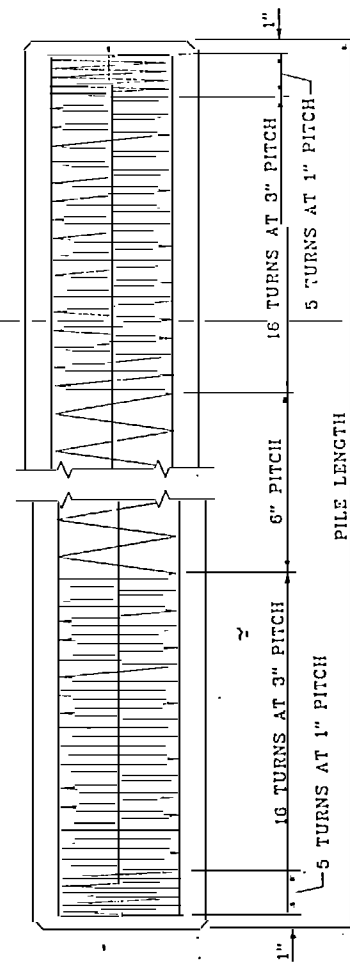
IF STRAND STRESS IS RELIEVED BY BURNING, THE STRANDS SHALL BE BURNED IN PAIRS, EXCEPT WHERE 5 STRANDS ARE USED THE LAST STRAND MAY BE BURNED SINGLY, ACCORDING TO BURNING PATTERNS SHOWN. NOT MORE THAN 4 STRANDS MAY BE BURNED AT ANY ONE SECTION BEFORE THE SAME STRANDS ARE BURNED AT BOTH ENDS OF THE BED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

BUILD-UPS SHALL BE '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 PSI AND UNTIL A PERIOD OF SEVEN DAYS HAS ELAPSED SINCE CASTING OF THE BUILD-UP.

ALL CORNERS TO BE CHAMFERED 1/4".

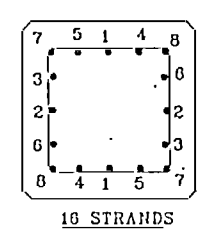
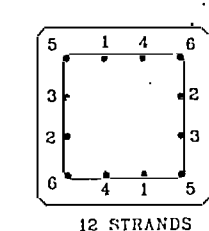
WHERE CAST - IN - PLACE LIFTING DEVICES ARE NOT USED, PICK-UP POINTS TO BE INDICATED WITH A BLACK MARK 2" WIDE.

Designed	U.S. NAVY ENGINEER DISTRICT, WASHINGTON CORPS OF ENGINEERS WASHINGTON, D.C. 20376	
Checked GWP	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT	
Reviewed JBY	12" PRESTRESSED CONCRETE PILE	
Chief, Structures Section Approved E. H. L. P. E.	Scales N.T.S.	Drawing Codes BR104-06-23
Chief, Design Branch	CCPCPI	Sheet 93 of 138



TYPICAL SECTION
(12 STRAND PATTERN)

TYPICAL SECTION
(16 STRAND PATTERN)



TYPICAL PATTERN FOR BURNING STRANDS

QUANTITIES FOR ONE 20" SQUARE PILE						
LENGTH	CONCRETE CU. YDS.	PILE WT. TONS	ONE PICK-UP POINT		TWO PICK-UP POINTS	
			0.3L	0.7L	0.207L	0.586L
25' - 0"	2.57	5.21	7' - 0"	17' - 6"		
30' - 0"	3.09	6.25	9' - 0"	21' - 0"		
35' - 0"	3.60	7.29	10' - 6"	24' - 6"		
40' - 0"	4.12	8.33	12' - 0"	28' - 0"		
45' - 0"	4.63	9.38	13' - 6"	31' - 0"		
50' - 0"	5.14	10.41	15' - 0"	35' - 0"		
55' - 0"	5.68	11.46	16' - 6"	38' - 0"		
60' - 0"	6.17	12.50	18' - 0"	42' - 0"		
65' - 0"	6.69	13.54		13' - 5 1/2"	38' - 1"	
70' - 0"	7.20	14.58		14' - 6"	41' - 0"	
75' - 0"	7.72	15.63		15' - 6 1/2"	43' - 11"	
80' - 0"	8.23	16.67		16' - 0 1/2"	46' - 11"	
85' - 0"	8.75	17.71		17' - 7"	49' - 10"	
90' - 0"	9.28	18.75		18' - 7 1/2"	52' - 9"	

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 CONTRACTING OFFICER BE USED, WHEREBY THE HEAD OF THE PILE IS NOT DAMAGED.

DEVICES FOR LIFTING THE PILES SHALL BE AS APPROVED. LOOPS OF STRANDS 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 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.

THE CONTRACTOR MAY, AT HIS OPTION, USE EITHER OF THE THREE TYPES OF STRAND LISTED BELOW:

SIZE	GRADE	NUMBER OF STRANDS	AREA	ULTIMATE STRENGTH	APPLIED PRESTRESS FORCE
3/8"	270 SR	16	0.115	31,000* PER STRAND	21,700* PER STRAND
1/2"	270 SR	12	0.153	41,300* PER STRAND	28,900* PER STRAND
1/2"	270 LR	12	0.153	41,300* PER STRAND	30,980* PER STRAND

STRANDS SHALL BE EQUALLY SPACED AS SHOWN IN THE 'TYPICAL SECTION'.

A CIRCULAR STRAND PATTERN SHALL NOT BE PERMITTED.

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

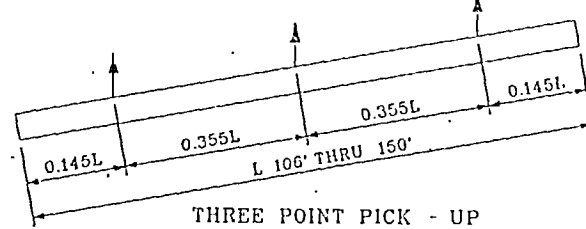
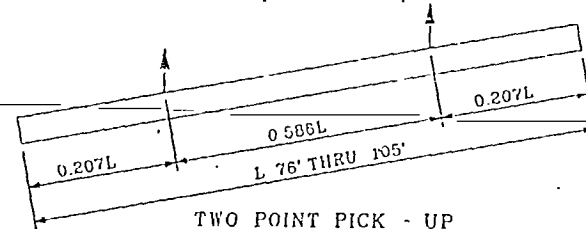
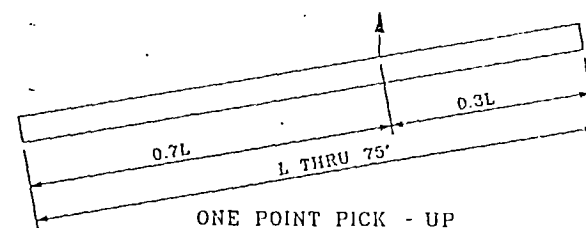
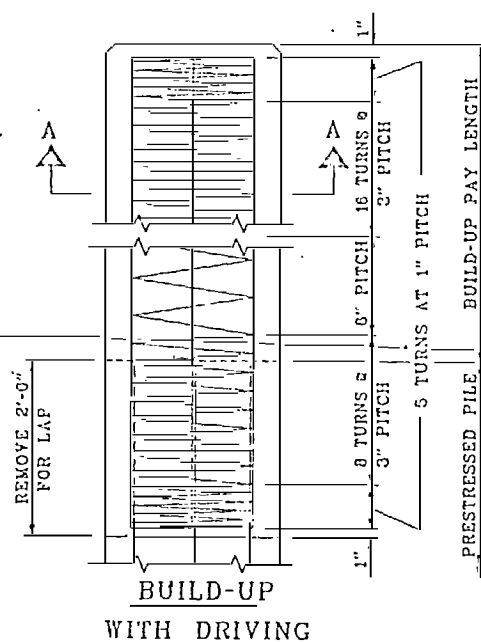
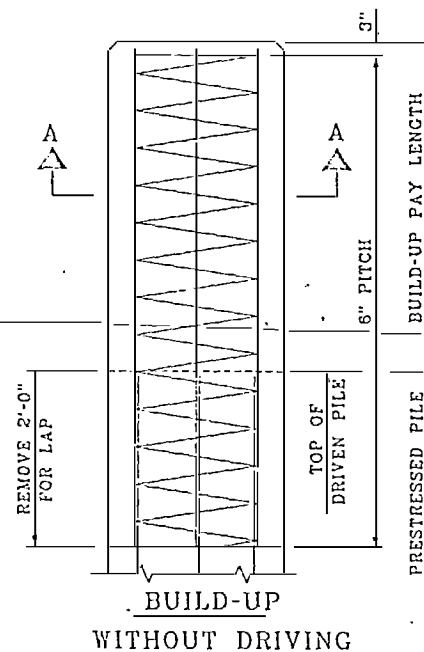
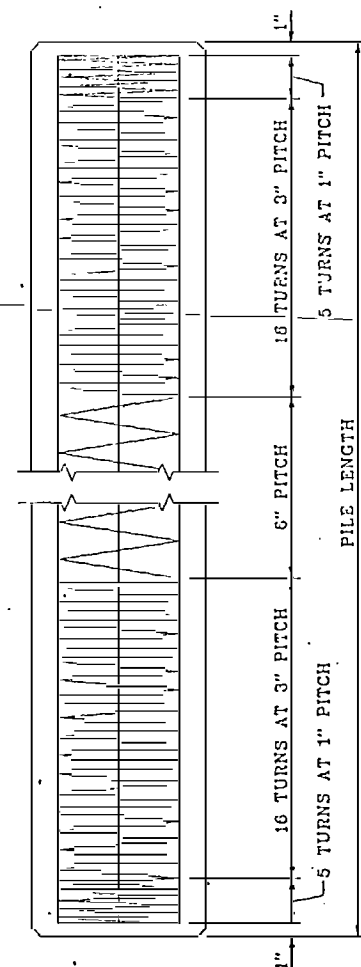
IF STRAND STRESS IS RELIEVED BY BURNING, THE STRANDS SHALL BE BURNED IN OPPOSITE PAIRS AS INDICATED IN THE TYPICAL PATTERN SHOWN. FOR ANY NUMBER OF STRANDS BURN IN OPPOSITE PAIRS AND SYMMETRICAL ABOUT BOTH VERTICAL AND HORIZONTAL AXES, STRANDS 1-1 SHALL BE BURNED BEFORE 2-2, ETC. NOT MORE THAN 4 STRANDS,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

BUILD-UPS SHALL BE OF 'CLASS AA' 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.

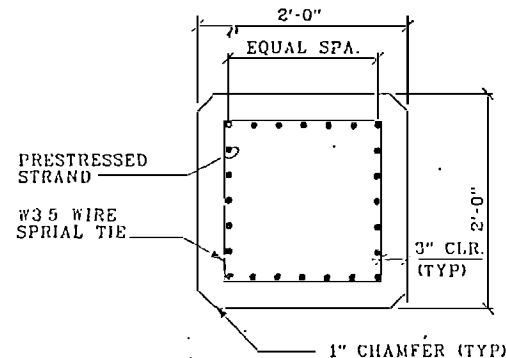
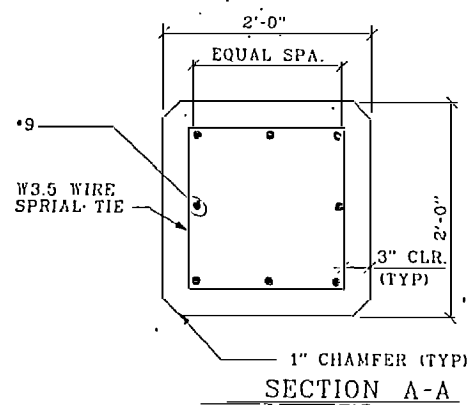
ALL PRESTRESSING STRANDS SHALL BE 7-WIRE STRESS RELIEVED OR LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO ASTM A-416 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE PILE SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 3500 PSI.

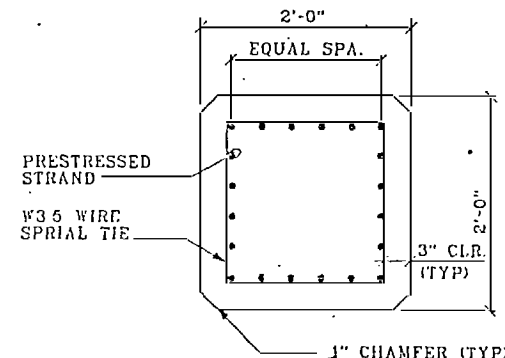
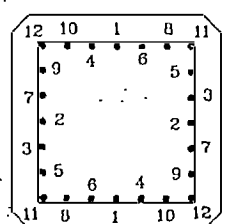
Designed:	U.S. ARMY ENGINEER DISTRICT, WASHINGTON	
Checked:	CROSS OF ENGINEERS	
CWP	WILLIAMSON, CALIFORNIA	
Reviewed:	ATLANTIC INTRACOASTAL WATERWAY	
Chief, Structures Section	CORE CREEK BRIDGE REPLACEMENT	
Approved:	20" PRESTRESSED CONCRETE PILE	
Chief, Design Branch	AS SHOWN	DR104-06-23
	CCPCP3	31 MAY 91
		Sheet 94 of 138



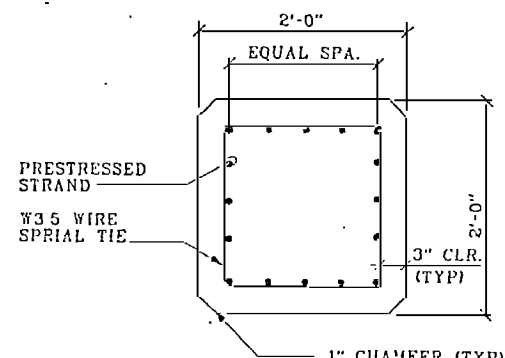
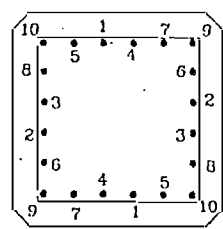
PICK - UP POINTS



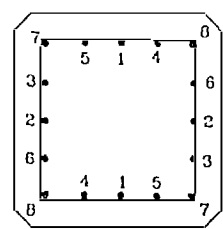
TYPICAL SECTION
(24 STRAND PATTERN)



TYPICAL SECTION
(20 STRAND PATTERN)



TYPICAL SECTION
(16 STRAND PATTERN)



TYPICAL PATTERN FOR BURNING STRANDS

QUANTITIES FOR ONE 24" SQUARE PILE		
LENGTH	CONCRETE CU. YDS.	PILE WT. TONS
45' - 0"	6.64	13.45
50' - 0"	7.38	14.95
55' - 0"	8.12	16.44
60' - 0"	8.86	17.94
65' - 0"	9.60	19.43
70' - 0"	10.33	20.93
75' - 0"	11.07	22.42
80' - 0"	11.81	23.92
85' - 0"	12.55	25.41
90' - 0"	13.29	26.91

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 CONTRACTING OFFICER BE USED, WHEREBY THE HEAD OF THE PILE IS NOT DAMAGED.

DEVICES FOR LIFTING THE PILES SHALL BE AS APPROVED. LOOPS OF STRANDS 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 CLAPS OR SLINGS MAY BE USED. WHERE 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.

THE CONTRACTOR MAY, AT HIS OPTION, USE EITHER OF THE THREE TYPES OF STRAND LISTED BELOW:

SIZE	GRADE	NUMBER OF STRANDS	AREA	ULTIMATE STRENGTH PER STRAND	APPLIED PRESTRESS FORCE PER STRAND
7/8"	270 SR	24	0.115	31,000*	21,700*
1/2"	270 SR	20	0.153	41,300*	28,900*
1/2"	270 LR	16	0.153	41,300*	30,900*

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

A CIRCULAR STRAND PATTERN SHALL NOT BE PERMITTED.

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

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

BUILD-UPS SHALL BE OF "CLASS AA" 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 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 STANDARD SPECIFICATIONS.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE PILE SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 3500 PSI.

Designed:	U.S. Army Corps of Engineers WATERWAYS DIVISION NORTH CAROLINA	
Checked:	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT	
Reviewed:	24" PRESTRESSED CONCRETE PILE	
Chief, Structures Section	AS SHOWN	BR104-06-23
Approved:	CCPILF24	31 MAY 91
Chief, Design Branch	Sheet 95 of 130	

NOTES

THE OPENING SHOWN IS BASED ON A NOMINAL UNCOMPRESSED SEAL WIDTH OF 3".

THE JOINT SHALL BE SAWED PRIOR TO THE CASTING OF THE CONCRETE CURB TO THE CONSTRUCTION JOINT AND THE BARRIER RAIL FOR LOCATION OF CONSTRUCTION JOINT SEE CURB DETAILS.

THE 6" COMP. A.B.C IS TO EXTEND 10'-0" BEYOND THE SLAB AS SHOWN
AND 1'-0" OUTSIDE OF EACH EDGE OF SLAB.

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

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

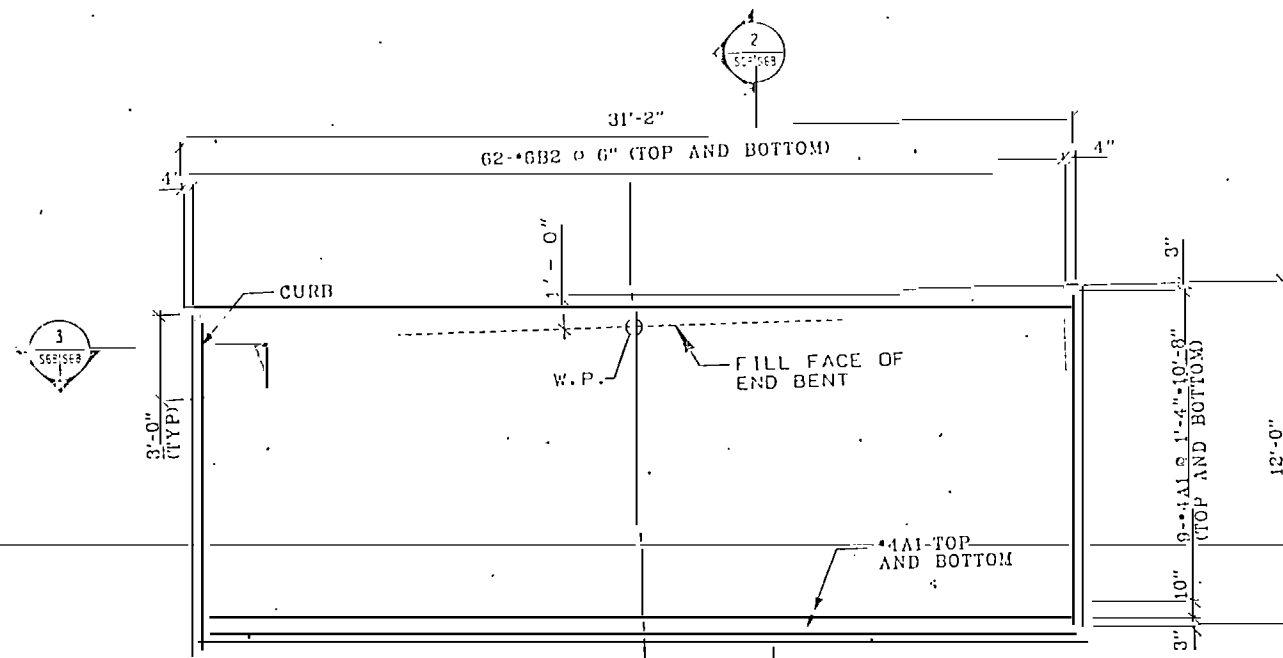
THE 1" EXPANSION JOINT MATERIAL IS TO BE HELD IN PLACE WITH GALVANIZED NAILS.

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

TEMPORARY DRAINAGE WILL BE
PAID FOR UNDER THE LUMP SUM PRICE FOR BRIDGE APPROACH SLAB.

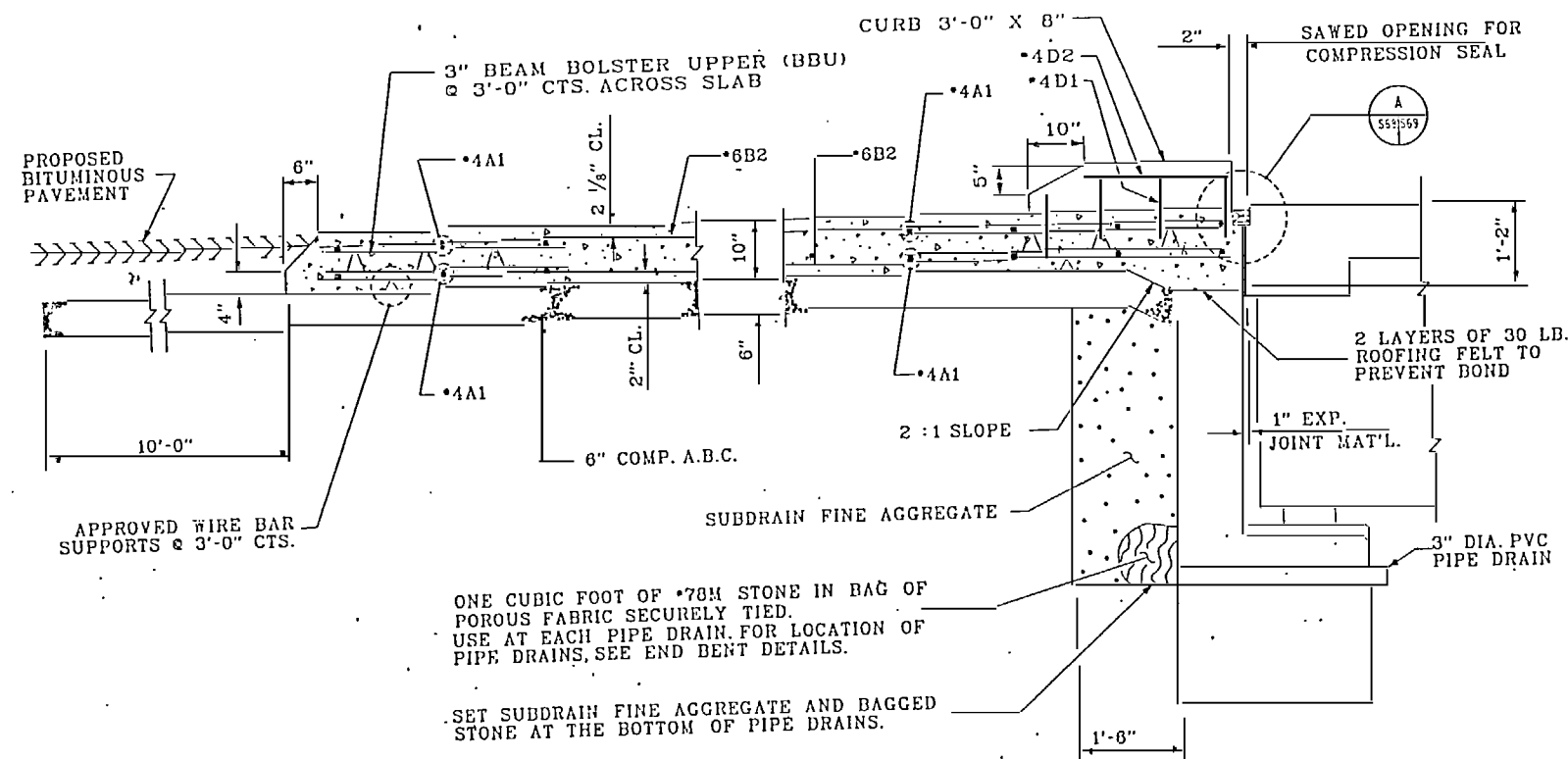
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE.

REINFORCING STEEL SHALL BE EPOXY COATED.

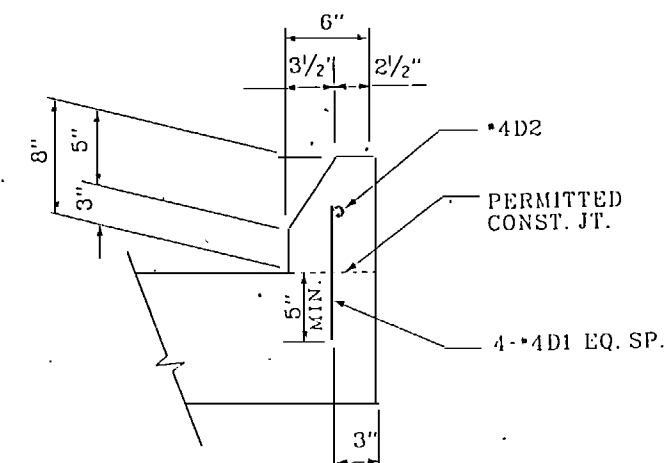


PLAN
N.T.S.

BAR LIST			
BAR	NUMBER	LENGTH	WEIGHT
*4A1	20	31'-10"	425
*6B2	124	11'- 8"	2173
*4D1	8	2'- 2"	12
*4D2	2	0'-10"	1
TOTAL PER SLAB			2611

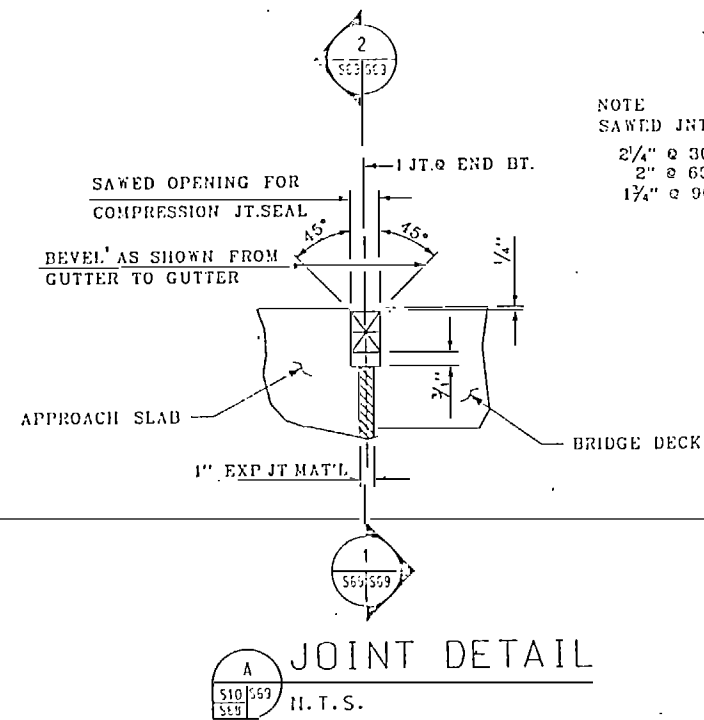


SECTION
2
562563
N.T.S.

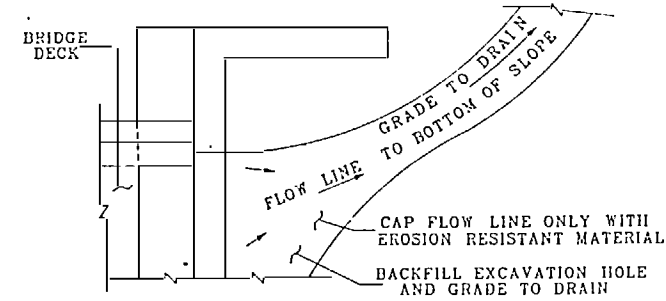


3 SECTION
58 N.T.S.

Designed:			U.S. Army ENGINEER DISTRICT WASHINGTON U.S. OF ENGINEERS WASHINGTON, D.C. 20315	
GWP				
Checked:			ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT	
GWP	US Army Corps of Engineers		APPROACH SLAB 1 OF 2	
Issued:	JBL			
Chief, Structures Section	Drawn		Plate No.	
Approved:	AS SHOWN		BR104-06-23	
Ed Laniel, P.E.	CCRAS2		Date: 31 MAY 91	Sheet 96 of 136
Chief, Structures Branch			S68	

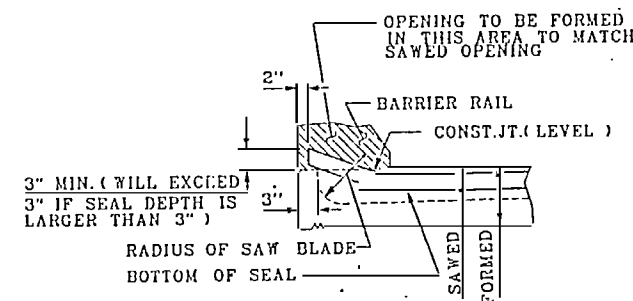


NOTE
SAWED JNT. OPENING SHALL BE:
2 1/4" @ 30°F
2" @ 60°F
1 1/4" @ 90°F

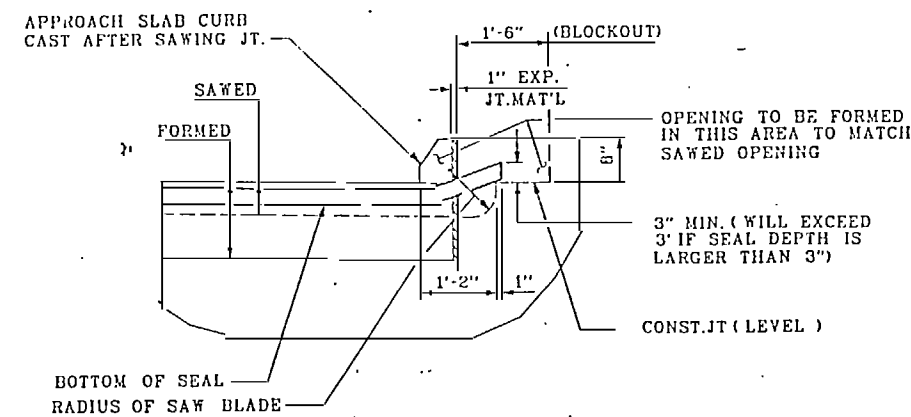


NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL



SECTION
N.T.S.



SECTION
N.T.S.

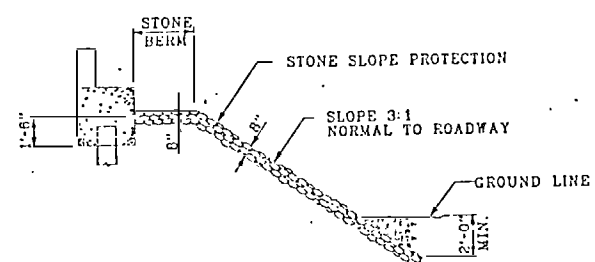
Designed: G&P	US ARMY ENGINEER DISTRICT, WASHINGTON, D.C.	
Checked:	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT	
Reviewed: JBLW	US Army Corps of Engineers	
Chief, Structures Section	Scale: NOT TO SCALE	Drawing Code: BR104-05-23
Approved: C. H. Lanier, P.E. Chief, District Branch	Sheet: 31 MAY 91	Plate No. S69
CCBAS3 Page 31 MAY 91 Sheet 97 of 138		



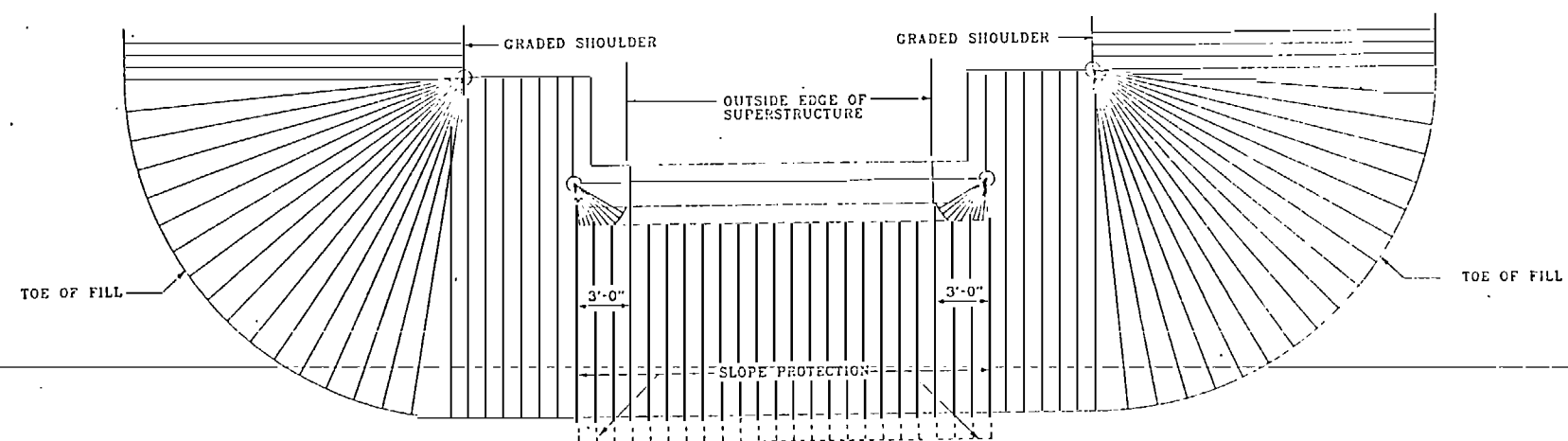
NOTE:

Diagram illustrating a cross-section of a slope protection structure. The structure consists of a vertical pile wall on the left, transitioning into a stone armor layer on the right. The stone armor is composed of multiple layers of stones, with a vertical dimension of 8" indicated. The top surface of the stone armor is labeled "STONE SLOPE PROTECTION".

SECTION A-A

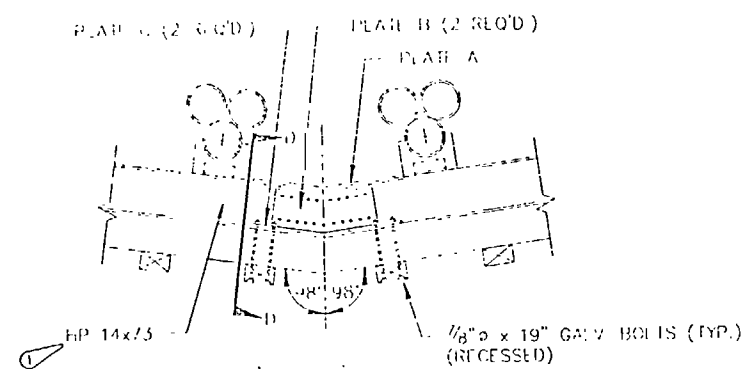


SECTION B-B

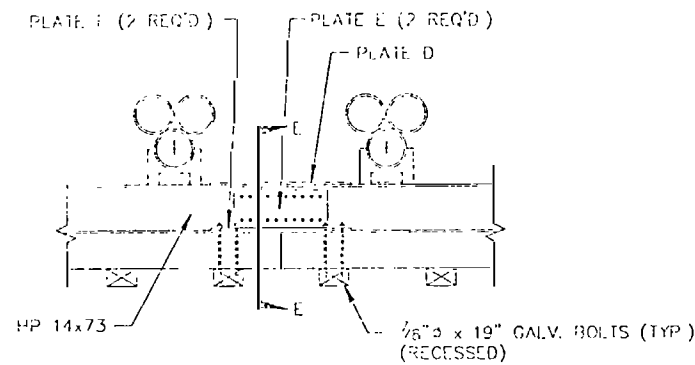


PLAN - END BENT WITH SWEEP BACK WINGS - 90°

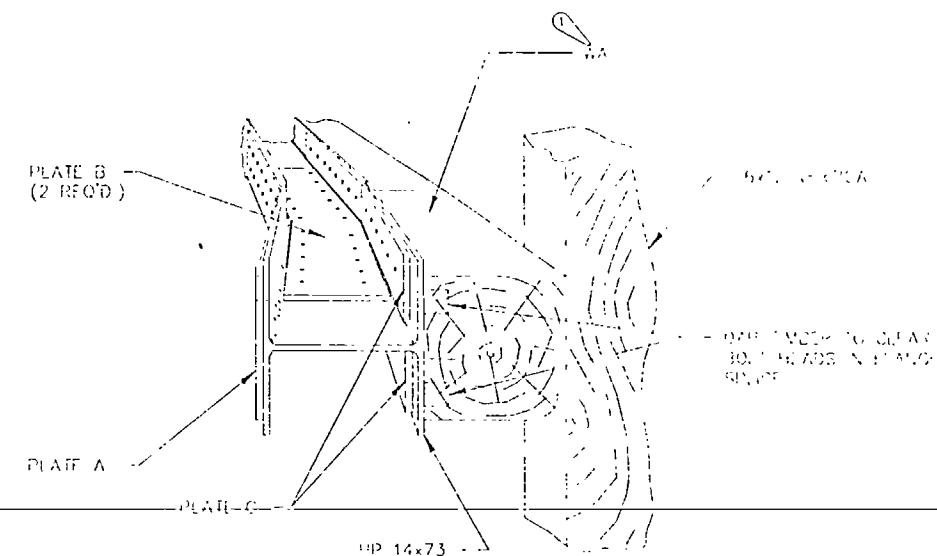
Designer GNP	U.S. #142-200 DISTRICT, WASHINGTON DIVISION OF HIGHWAYS 4210 15th Avenue, N.E.	
Checked GNP	 115 Adams, License of Washington	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT
Approved JBN	SLOPE PROTECTION	
Chief, Structures Section Approved J. S. Adams, P.E. Chief, Design Division	Scale N.T.S.	Drawing Number BR104-06-23
	(CSHP)	Date: 31 MAY 91 Sheet 90 of 138



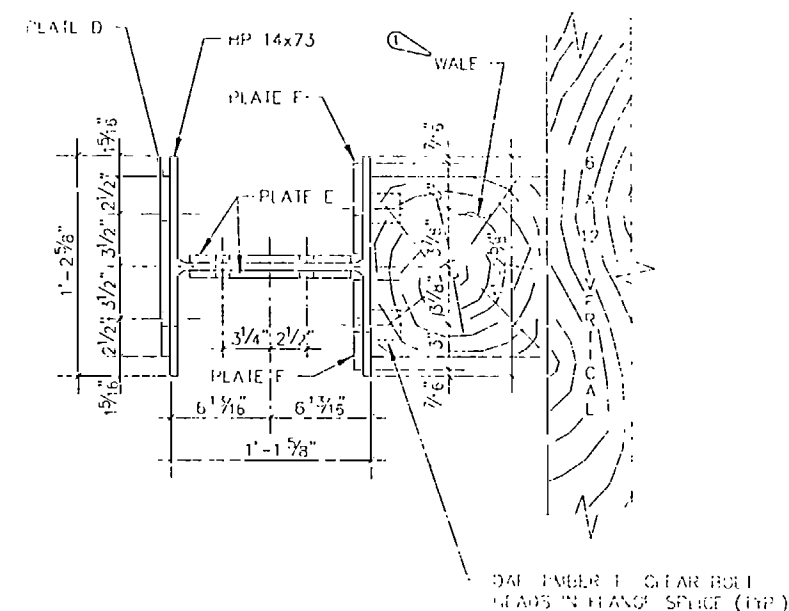
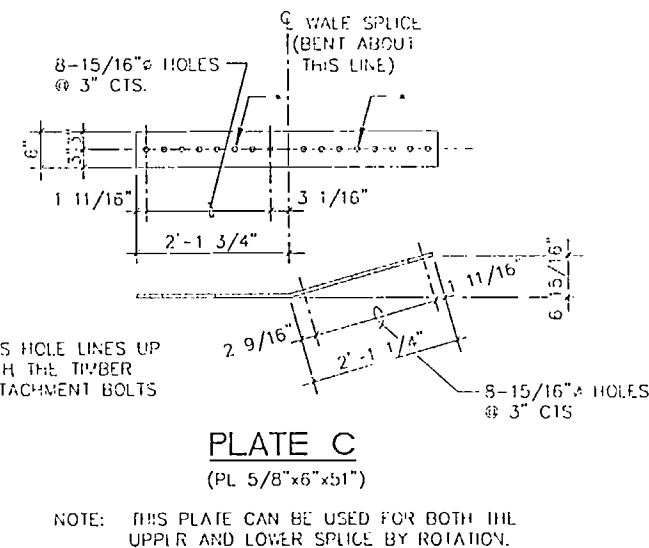
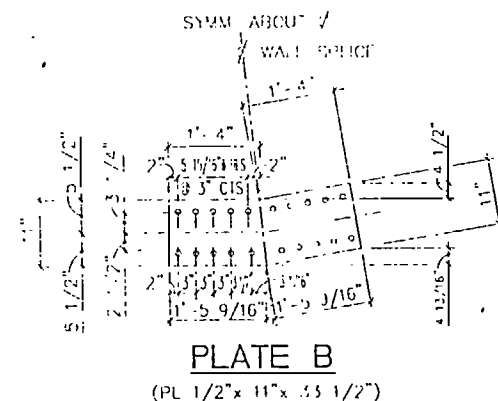
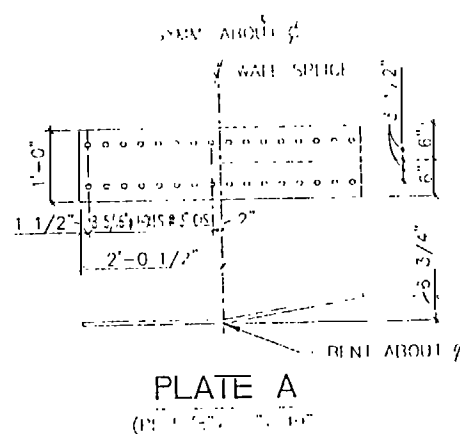
A WALE CORNER SPLICE DETAIL
NTS



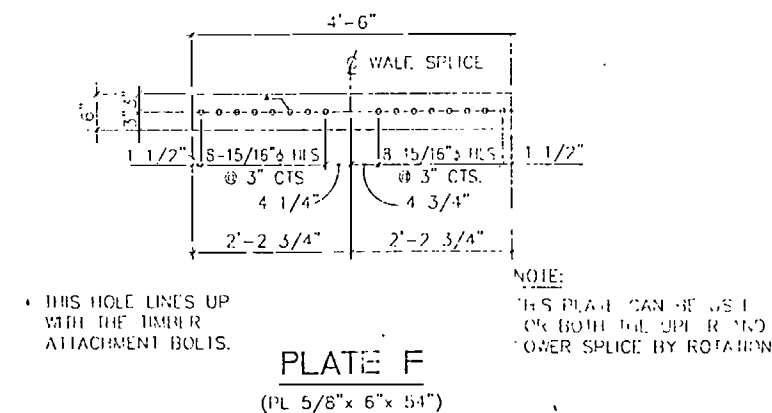
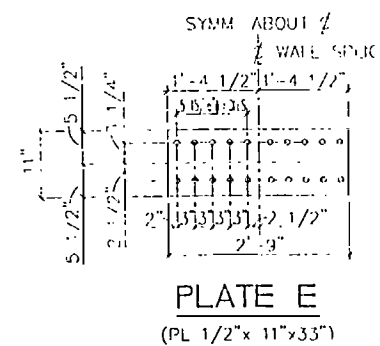
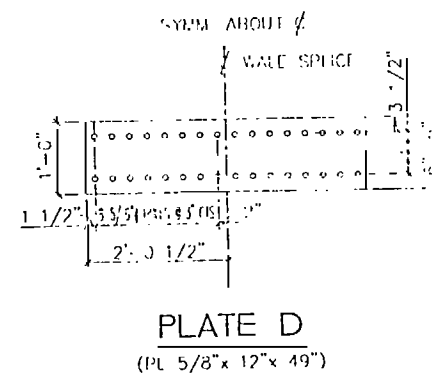
B WALE SPLICE DETAIL
NTS



SECTION D-D
USE 7/8" H.S. BOLTS FOR SPLICE (EXCLUDING 1/8" x 19" GALV. TIMBER ATTACHMENT BOLTS)

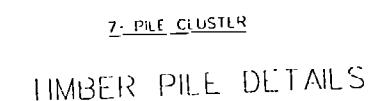
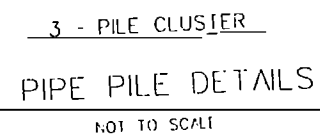
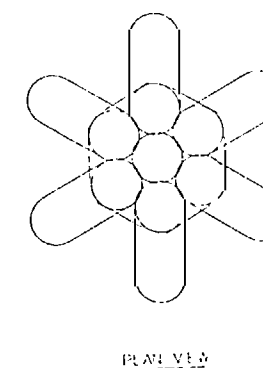
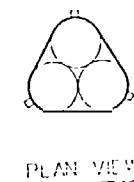
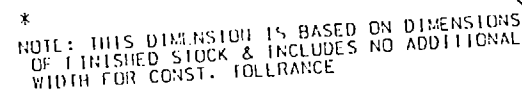
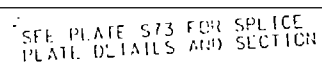


SECTION E-E
USE 7/8" H.S. BOLTS FOR SPLICE (EXCLUDING 1/8" x 19" GALV. TIMBER ATTACHMENT BOLTS)



SHEET 3 OF 8

DESIGNED GWC	US ARMY CORPS OF ENGINEERS ATLANTIC INTRACOASTAL WATERWAY CON. CHALK BRIDGE REPLACEMENT		
CHECKED GWC	FENDER SYSTEM DETAILS		
DRAWN JOW	AS SHOWN	HR104-06-23	DATE 5/7/91
APPROVED Ed Lianer, P.E.	DATE 22 JAN 92	BY GWC	SCALE 1" = 1'-0"



NOTES

- NOTES
- 1 IN THE 3 PILE CLUSTER, EACH OF THE THREE PILES SHALL BE DRIVEN VERTICALLY AND AS CLOSE TOGETHER AS POSSIBLE AS SHOWN IN THE PLAN VIEW. AFTER THE THREE PILES HAVE BEEN DRIVEN, THEY SHALL BE DRAWN TOGETHER AND WRAPPED WITH FIVE TURNS OF 3/4" ϕ WIRE ROPE AT THREE POINTS THE WIRE ROPE SHALL BE SECURED WITH TWO CABLE CLAMPS AT EACH END.
 - 2 ALL STEEL PIPE PILES SHALL BE FILLED WITH SAND FROM PILE TOP TO ELEVATION -0.5 TO ELEVATION -1.0' AND FILLED WITH CLASS "A" CONCRETE FROM ELEVATION -0.5 TO ELEVATION +9.58 SEE SPECIAL PROVISIONS

NOTE.

NOTE: IN THE 7-PILE CLUSTER (MOOPHUS), THE CENTER PILE SHALL BE
DRIVEN VERTICALLY AND THE SIX OUTSIDE PILES SHALL BE DRIVEN
AT AN 1/2" IN 12" PITCH WITH THE FNA POSITION OF THE TOP
OF THE BEAM AS CLOSE AS POSSIBLE TO THE TOP OF THE CENTER
OF THE PILE. THE PILES SHALL BE DRAGN TOGETHER AT THE TOP AND
WRAPPED WITH FIVE TURNS OF 3/4" X 1/2" WIRE ROPE AT THREE POINTS
THE WIRE ROPE SHALL BE SECURED WITH TWO CABLE CLIPS AT
EACH END AND WITH ONE 3/8" STAPLE PER WRAP PER PILE.
FASTENINGS SHALL BE GALVANIZED AND INCLUDED AS INVOICED
HARDWARE

REVISIONS		DATE	APPROVED
SYMB.	DESCRIPTION		
		2. APR 12	GWP
(1)	REDUCE FENDER WALE SIZE AND RECONSTRUCT PILE ASSEMBLY ALONG FOOTING TO PROVIDE CLEARANCE.		

UNITED STATES OF AMERICA
NAVY
ENGINEERING DIVISION
WASHINGTON, D.C. 20376-5000

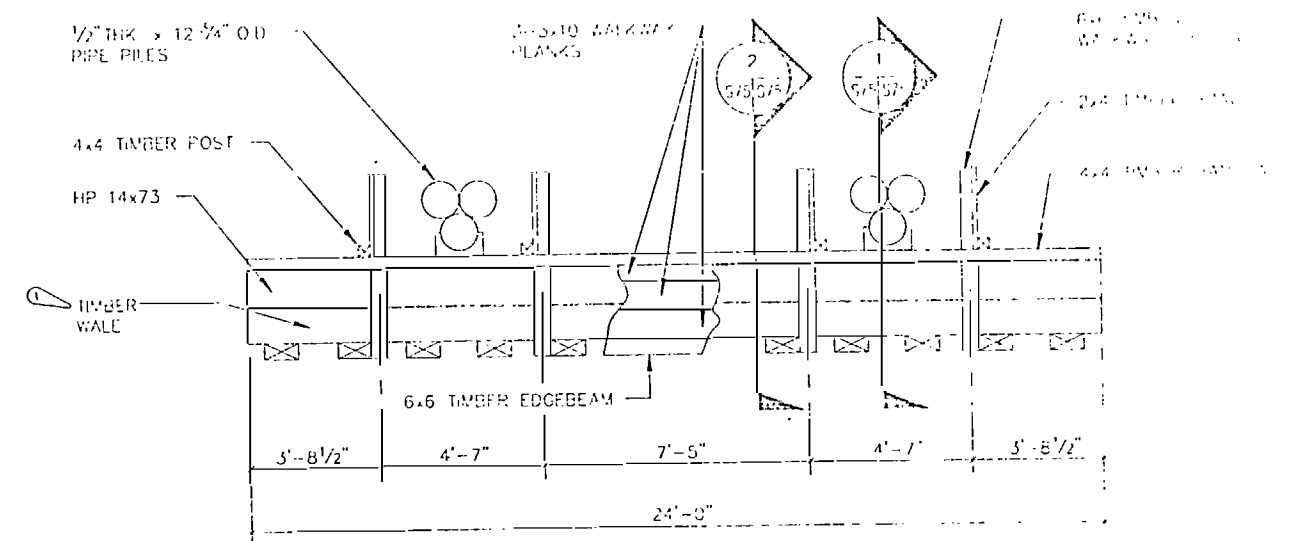
ATLANTIC INTRACOASTAL WATERWAY
CORK CREEK BRIDGE REPLACEMENT

FENDER SYSTEM DETAILS

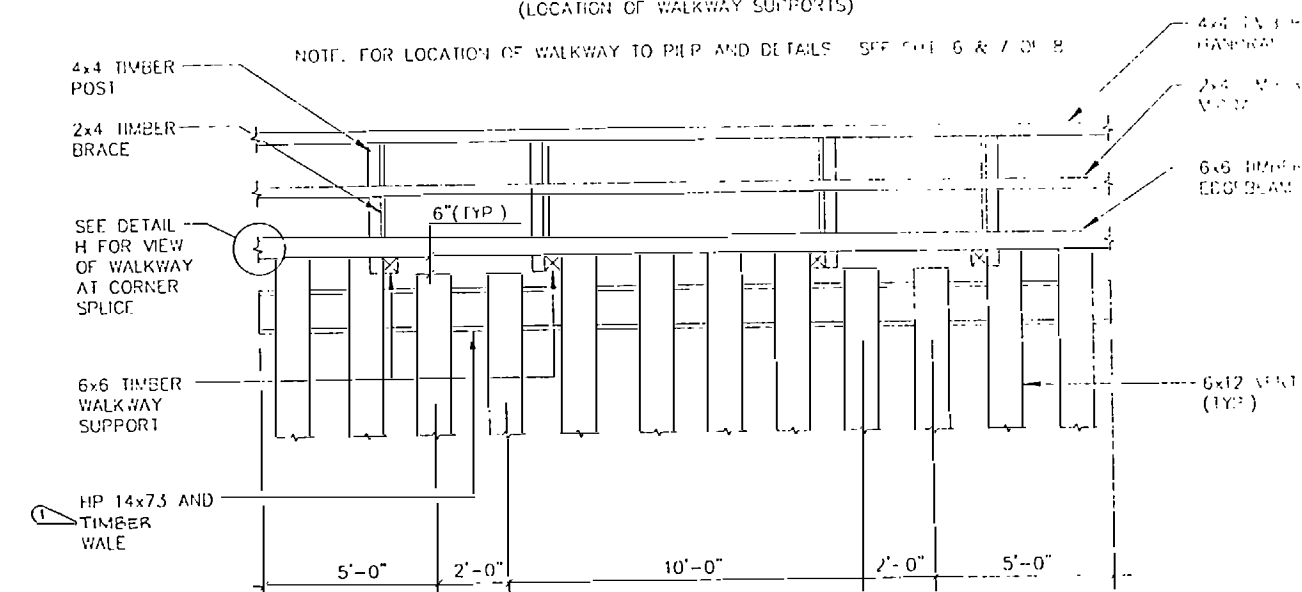
Scale: AS SHOWN Drawing No. DR104-05-23 Sheet 103 of 104

CCFB Date: 31 MAY 91

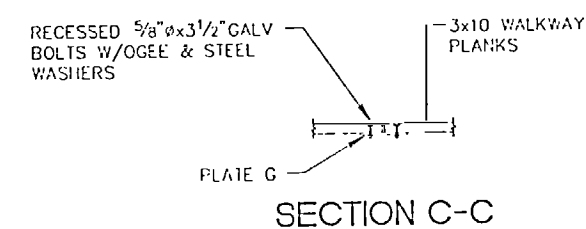
Chief Design Engineer



PLAN
(LOCATION OF WALKWAY SUPPORTS)



ELEVATION
(LOCATION OF SHORT 6x12 VERTICALS)



SECTION C-C

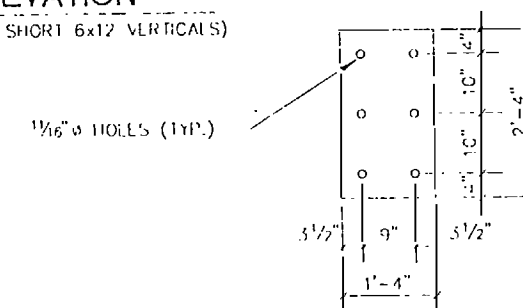
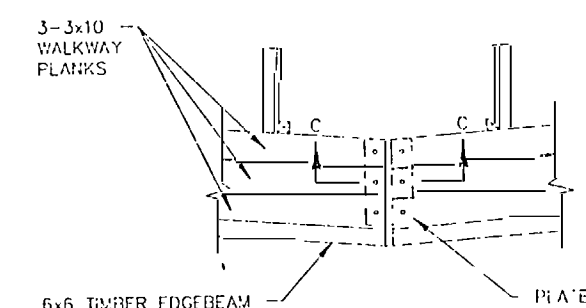
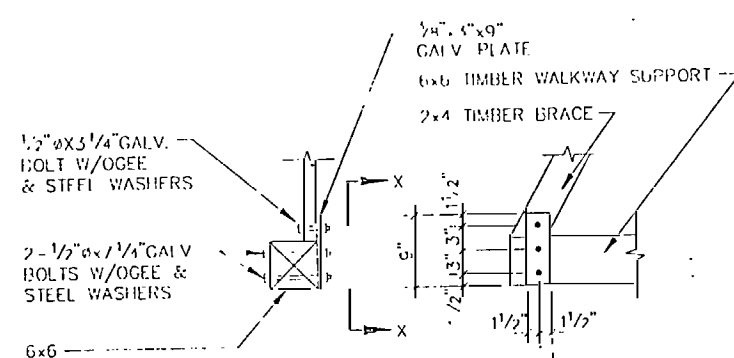


PLATE "G"
(PL 7/8" x 16" x 28")

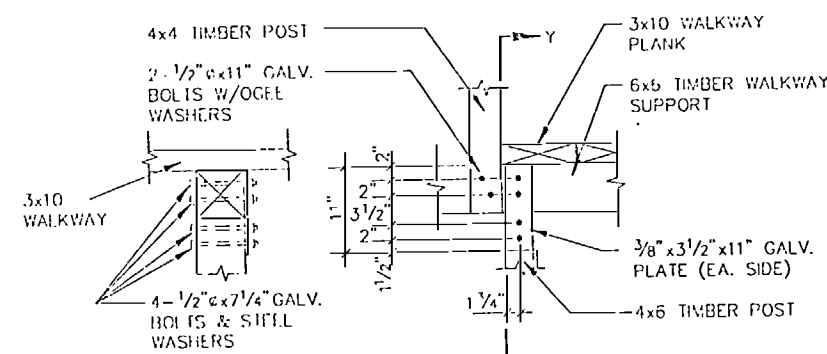


DETAIL "H"
 (WALKWAY CORNER SPICE ONLY)



VIEW X-X ELEVATION.

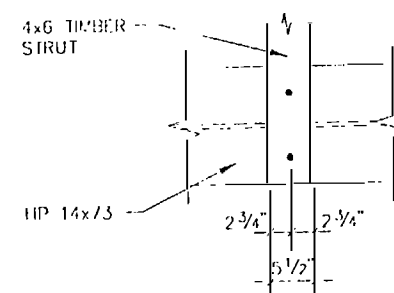
DETAIL "E"



VIEW Y-Y

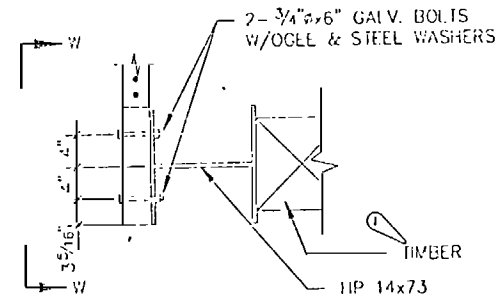
ELEVATION

DETAIL "F"



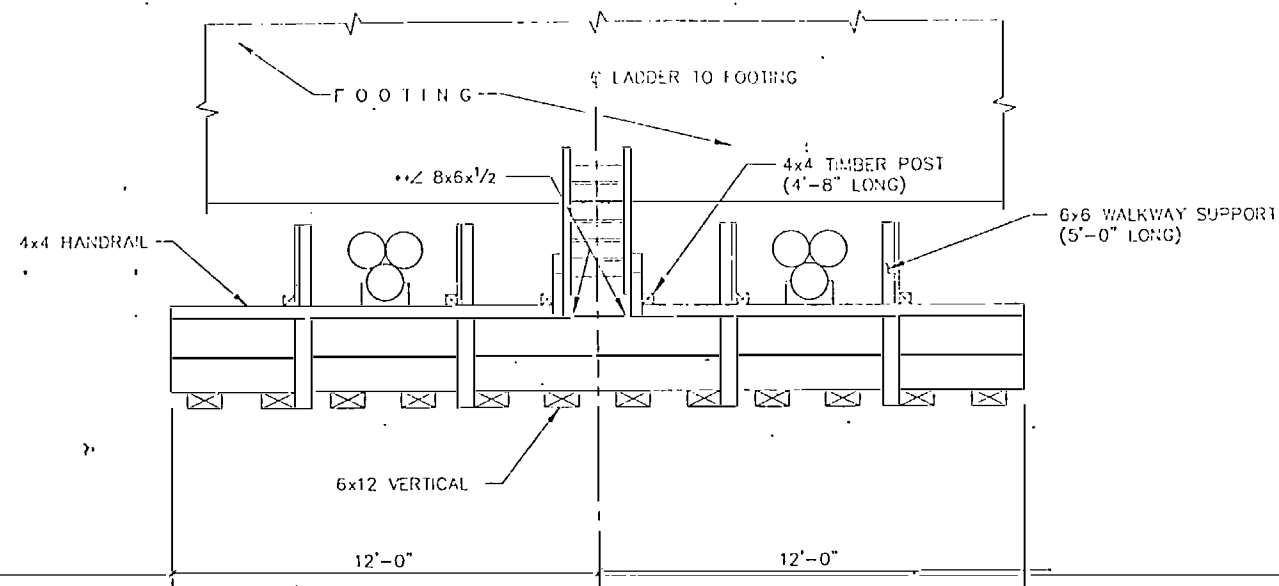
VIEW W--W

DETAIL "G"



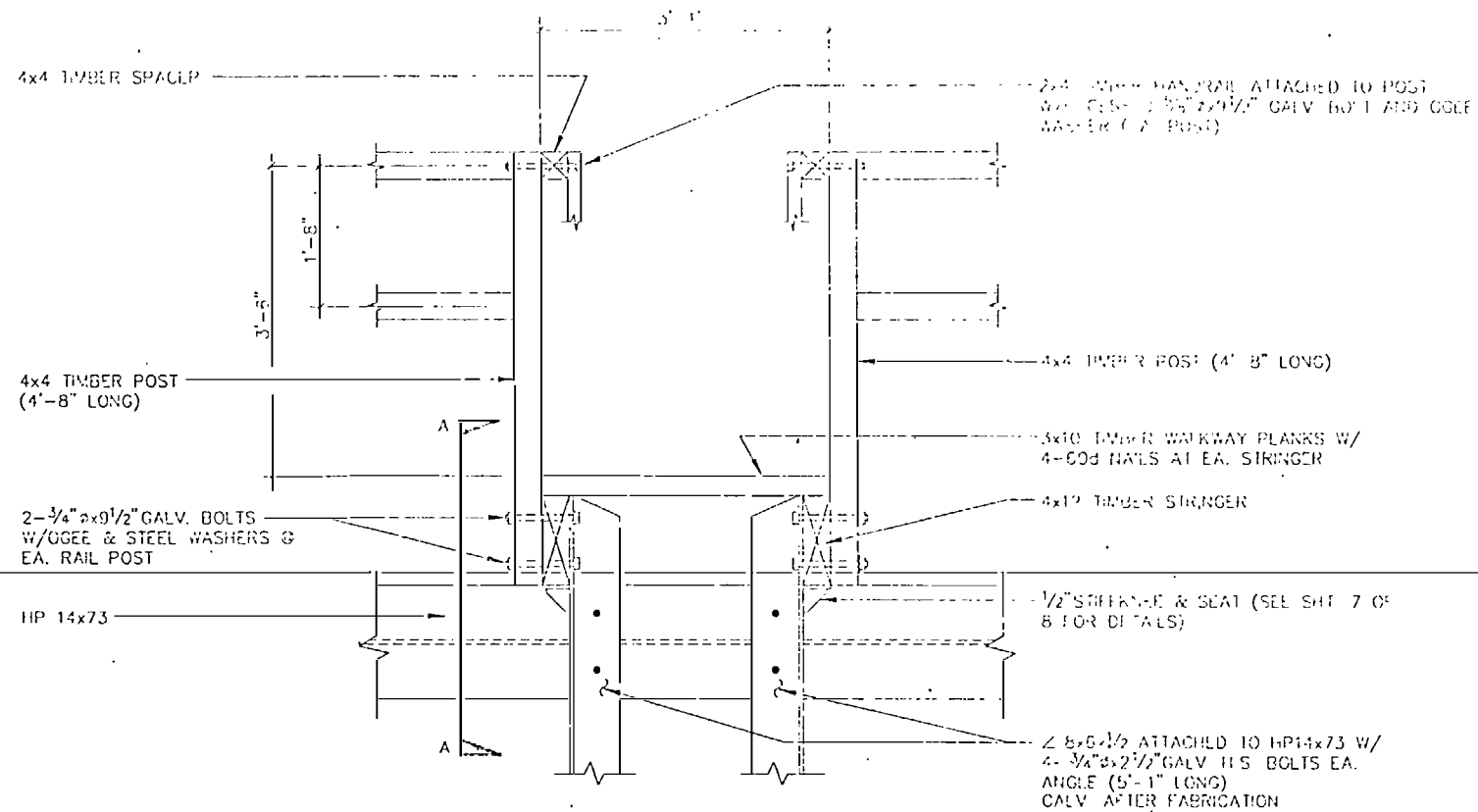
ELEVATION

SHEET 5 OF 8		 TIMBER WALK CHANGE		12 JAN 92		CM
DESIGNED GMC		 ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT		US ARMY ENGINEER DISTRICT, ALBUQUERQUE OFFICE OF THE DISTRICT ALBUQUERQUE, NEW MEXICO 87154		
CHECKED GMC				FENDER SYSTEM WALKWAY DETAILS		
REVIEWED ISW						
Chief Structures Section Approved <i>Edmund J. E.</i>		Scale		Drawing Code		Revision
Chief Plans Section		NTS		BR104-CS-23		1
Date: _____		DATE: 11 MAY 91		Sheet 103		of 103

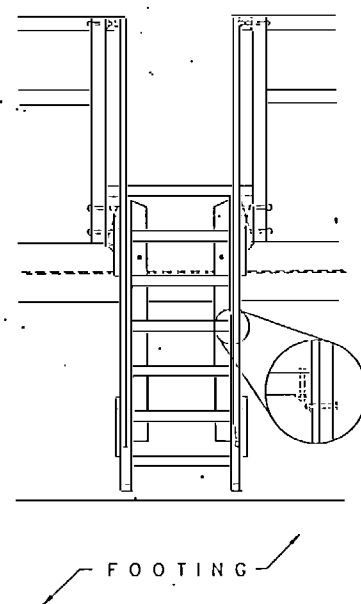


PLAN
(LOCATION OF WALKWAY TO PIER)

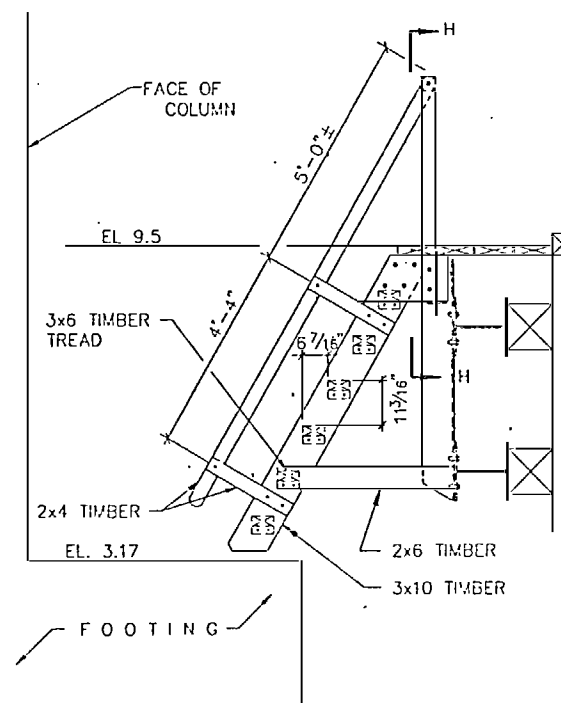
NOTE: 3x10 WALKWAY PLANKS OMITTED FOR CLARITY



SECTION H-H



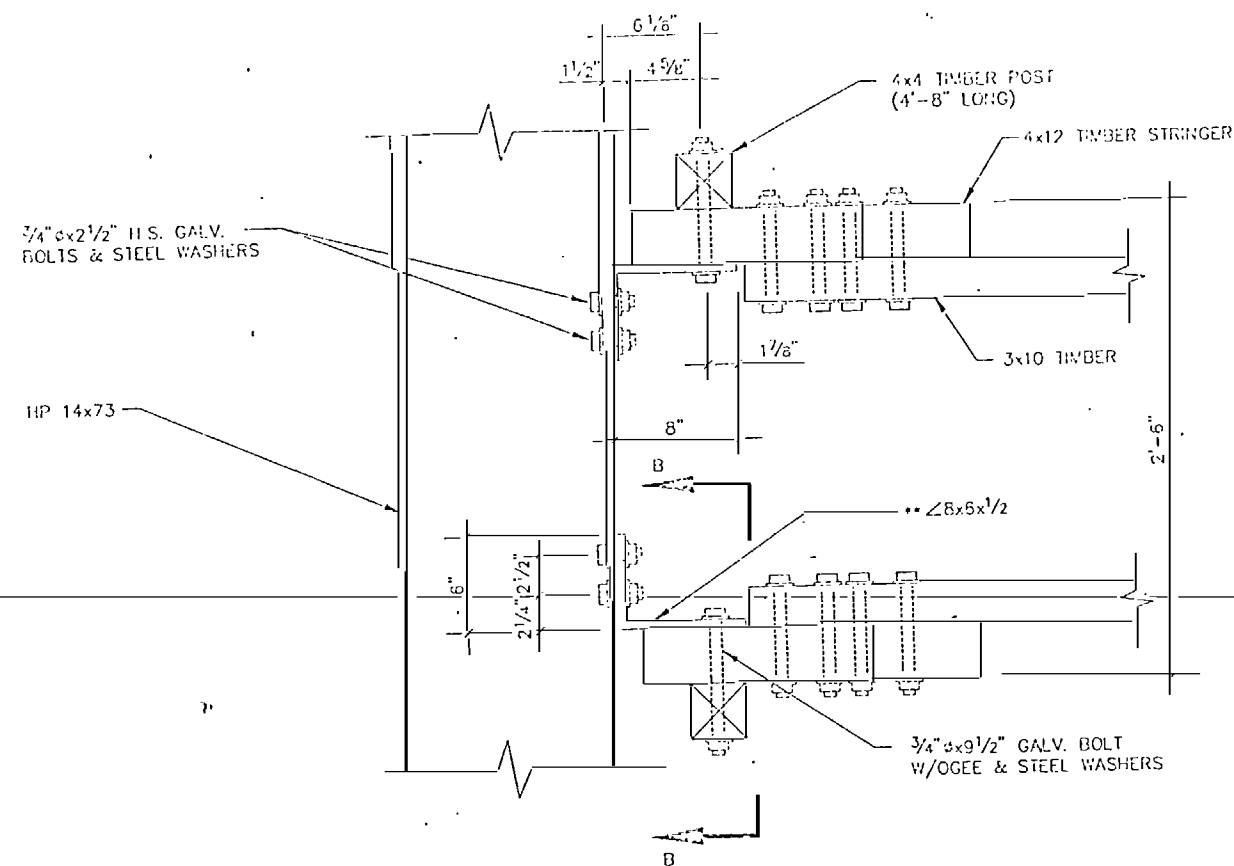
FRONT ELEVATION



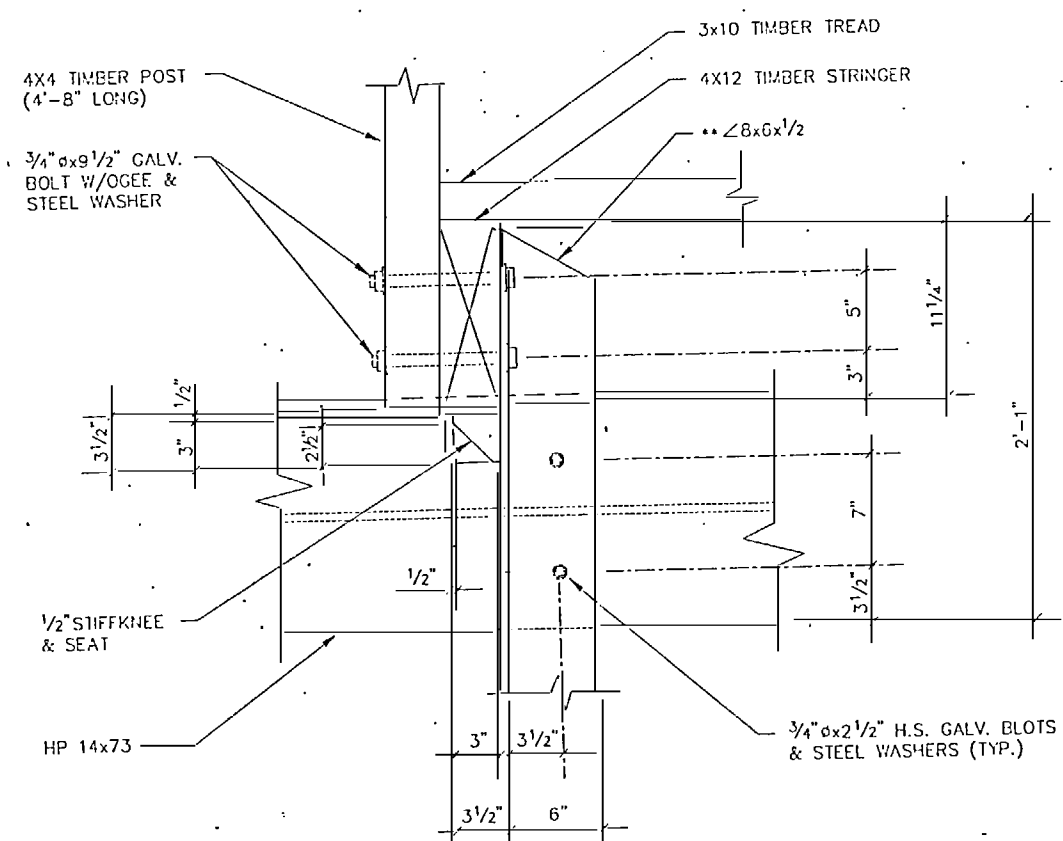
SIDE ELEVATION

SHEET 6 OF 8

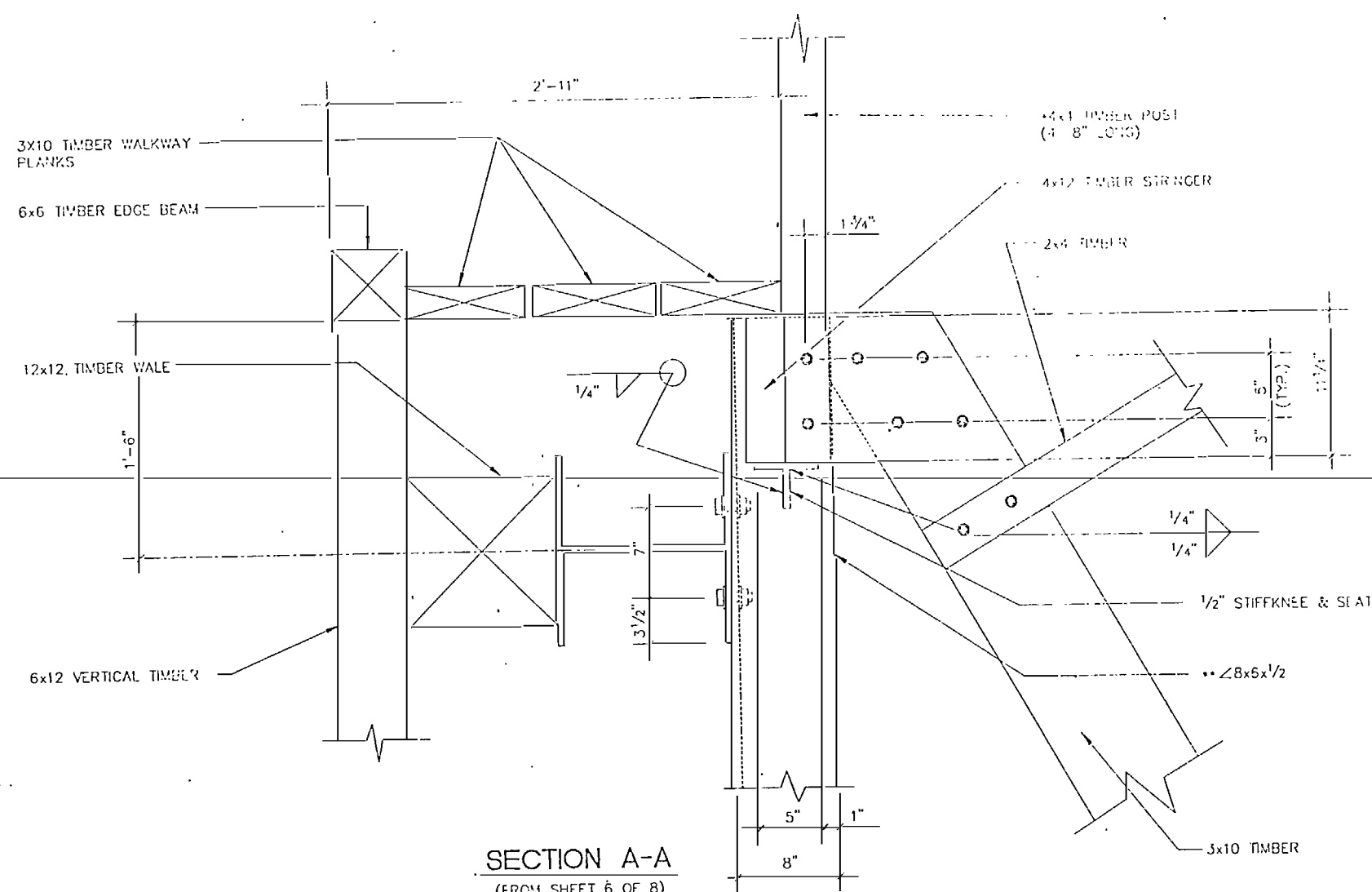
Designed CMG	U.S. ARMY ENGINEER DISTRICT WASHINGTON, D.C. CORPS OF ENGINEERS KINSTON, NORTH CAROLINA		
Checked CWP	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK REPLACEMENT PROJECT		
Reviewed JBY	FENDER SYSTEM ACCESS LADDER DETAILS		
Drawn JBY	Scale N.T.S.	Drawing Code BR104-06-23	Note No. S76
Approved E. J. L. P. E.	Sheet 104 of 134	Date 31 MAY 91	Sheet 104 of 134



PLAN VIEW OF CONNECTION OF
4x12 TIMBER WALKWAY STRINGER TO HP 14x73



SECTION B-B



SECTION A-A
(FROM SHEET 6 OF 8)

NOTE: THE 3/4" x 9 1/2" GALV. BOLTS SHALL BE USED FOR
CONNECTING THE 4x4 TIMBER POST (4'-8" LONG)
WITH THE 4x12 TIMBER STRINGER ON WALKWAY
EXCEPT AS INDICATED ON PLANS

•• 2x8x1/2" ANGLE & 1/2" PLATES TO BE GALVANIZED
AFTER FABRICATION.

SHEET 7 OF 8

Designed GWC	US ARMY ENGINEER DISTRICT, WASHINGTON CORPS OF ENGINEERS WILSON, NORTH CAROLINA		
Checked GWP	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT		
Reviewed JBW	FENDER SYSTEM ACCESS LADDER DETAILS		
Approved By Lania, P.E.	Scale 2" = 1'-0"	Drawing Code BR104-06-23	Plate No. S77
Chief Design Engineer	31 MAY 91	Sheet 105 of 138	

DETAILED TIMBER					
ITEM	QTY	SIZE	SURFACE TO	LENGTH	MBF
VERTICAL	100	6x12	S4S 5 1/2" x 11 1/2"	6'-0"	2.64
VERTICALS	20	6x12	S4S 5 1/2" x 11 1/2"	8'-6"	4.08
WALFS	36	12x12	S4S 11 1/2" x 11 1/2"	24'-0"	10.37
HANGING (L)	24	6x12	S4S 5 1/2" x 11 1/2"	24'-0"	3.46
		4x4	S4S 4 1/2" x 4 1/2"	12'-0"	0.67
BRACE	12	4x4	S4S 4 1/2" x 4 1/2"	1'-1"	0.22
PIERCE (L)	1	4x4	S4S 4 1/2" x 4 1/2"	5'-0"	0.14
POST	30	4x4	S4S 4 1/2" x 4 1/2"	4'-2"	0.44
SUPPORT (WALKWAY)	20	6x6	S4S 5 1/2" x 9 1/2"	5'-0"	1.20
STRUT	30	4x6	S4S 4 1/2" x 9 1/2"	1'-7 1/8"	0.27
EDGE BEAM (L)		6x6	S4S 5 1/2" x 9 1/2"	480'-0"	1.44
WALKWAY PLATE (L)		4x10	S4S 4 1/2" x 9 1/2"	1'-09'-0"	3.95
CHURCH	1	14x12	S4S 9 1/2" x 11 1/2"	23'-0"	0.37
POST (WALKWAY TO PIER)	12	4x4	S4S 4 1/2" x 4 1/2"	4'-8"	0.07
TOTAL ESTIMATED MBF					

3552

TIMBER HARDWARE (GALV.)			
ITEM	UNIT WT	NO	WEIGHT
1/8" x 19" GALV BOLT W/WASHERS & OGEE WASHERS	5.205	1440	7495
3/4" x 1'-7 1/2" GALV BOLT W/OGEE WASHERS	4.577	160	732
3/4" x 9 1/2" GALV BOLT W/WASHERS	2.461	8	20
3/4" x 6" GALV BOLT W/WASHERS & OGEE WASHERS	2.045	160	327
1/2" x 8" GALV BOLT W/OGEE WASHERS	1.912	94	183
1/2" x 3 1/2" GALV BOLT W/WASHERS & OGEE WASHERS	1.055	72	77
1/2" x 11" GALV BOLT W/OGEE WASHERS	1.294	160	207
1/2" x 7 1/4" GALV BOLT W/WASHERS	0.534	320	171
1/2" x 6 3/4" GALV BOLT W/OGEE WASHERS	1.065	80	85
1/2" x 3 1/4" GALV BOLT W/WASHERS & OGEE WASHERS	0.600	80	48
1/2" x 9" GALV BOLT W/OGEE WASHERS	1.186	16	19
1/2" x 7 1/4" GALV BOLT W/WASHERS & OGEE WASHERS	0.813	160	130
1/2" x 12" LAG SCREW W/OGEE WASHERS	0.855	80	71
7/8" x 3" GALV BOLT W/WASHER	1.036	1872	1928
20H NAILS	0.034	376	13
60H NAILS	0.100	1392	139
1/8" x 3 1/2" x 11" PLATE	4.101	160	656
3/8" x 3" x 9" PLATE	2.876	80	230
3/8" x 16" x 28" PLATE	47.713	12	573
1/2" STAPLE	0.510	360	184
TOTAL ESTIMATED WEIGHT (LBS.) =			

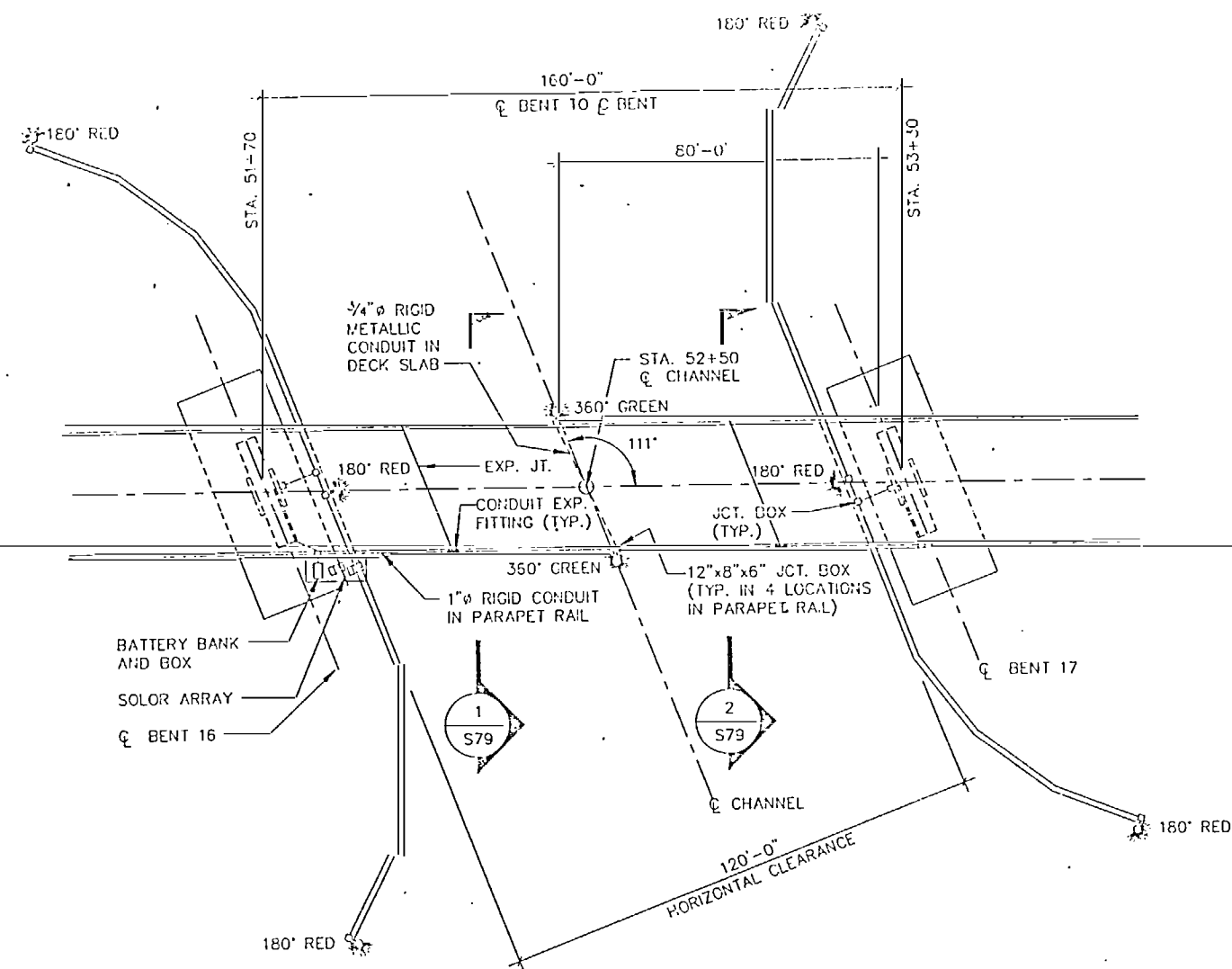
13288

NOTE: WEIGHT OF TIMBER HARDWARE SHOWN FOR INFORMATION ONLY. COST OF TIMBER HARDWARE TO BE INCLUDED IN THE CONTRACT LUMP SUM BID PRICE FOR THE FENDER SYSTEM. THE CONTRACTOR SHALL VERIFY ALL QUANTITIES LISTED PRIOR TO ORDERING OR FABRICATION.

FENDER SYSTEM BILL OF MATERIAL		
ITEM	UNIT OF MEASUREMENT	TOTAL
12 1/4" (O.D.) STEEL PIPE PILES - No = 176	LINE FT	7921.0
CLASS "A" CONCRETE	CU YDS	49.1
STRUCTURAL STEEL	TONS	158,000 (Approx) #
DETAILED STRUCTURAL TIMBER	MBF	3552
SAND FILL FOR PIPE PILES	CU YDS	169.4
TREATED TIMBER PILES - No = 3	LINE FT	1260.0
REMOVAL OF EXISTING FENDER SYSTEM	LUMP SUM	LUMP SUM

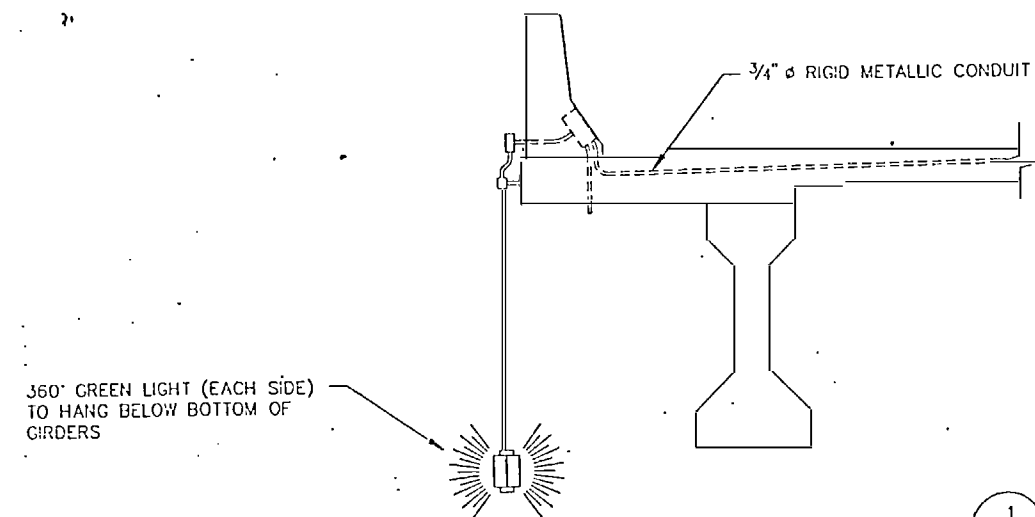
* INCLUDES TOP 14x7.5 CONNECTIONS AND MISCELLANEOUS STEEL (WIRE ROPES, CLIPS, KLEPPER ANGLES AND CABLE CLAMPS)

				approved	Scale	Drawing Code	BR104 06-23	\$75
①	CHANGE 12X12 TO 6X12 & RECONFIGURE PILE ASSEMBLY TO PROVIDE CLEARANCE	22 JAN 92	GWP	ET Lancer, P.E.	Client: Bureau of Reclamation	1 SubM 1, 1	Date 31 MAY 91	Sheet 105 of 114

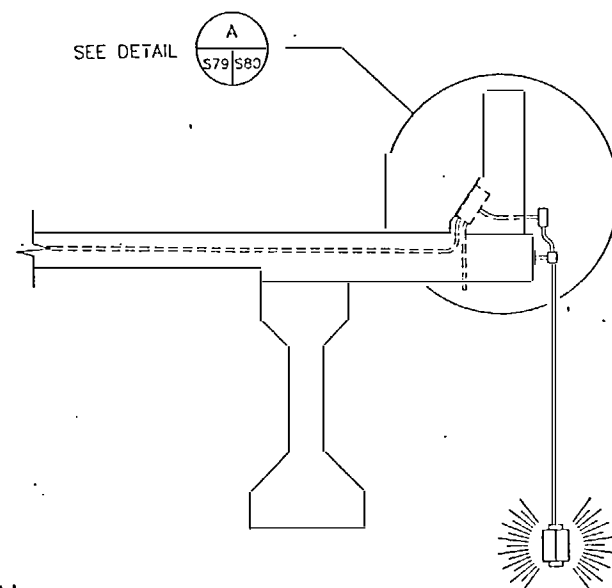


NAVIGATIONAL LIGHTING PLAN

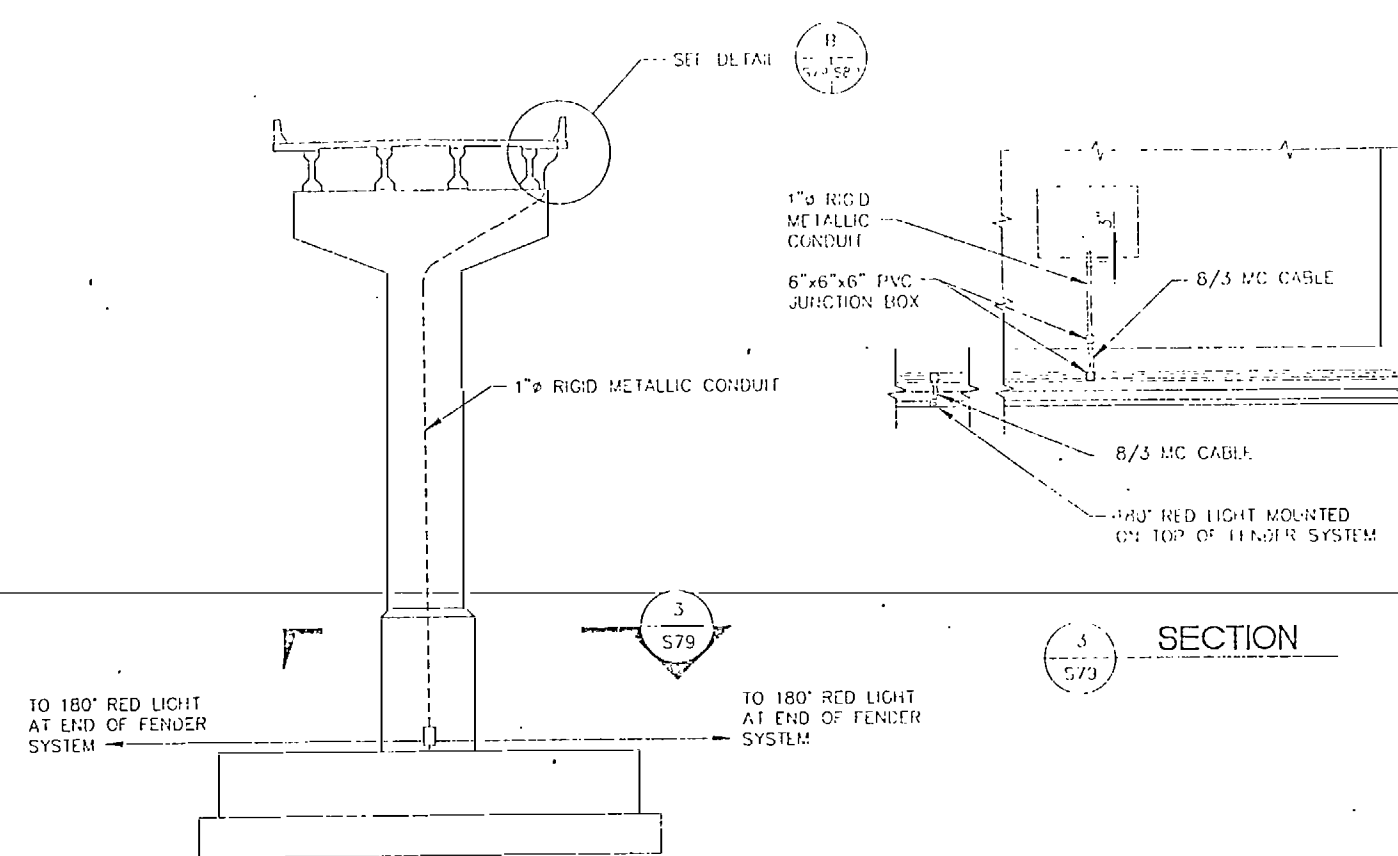
INSTALLATION AND ORIENTATION TO BE IN ACCORDANCE WITH
FEDERAL REGULATIONS, TITLE 33, PART 118 AND THE U.S.
COAST GUARD APPROVED LIGHTING PLAN FOR THIS BRIDGE.



1
SECTION
S79



2
SECTION
S79



3
SECTION
S79

NOTE

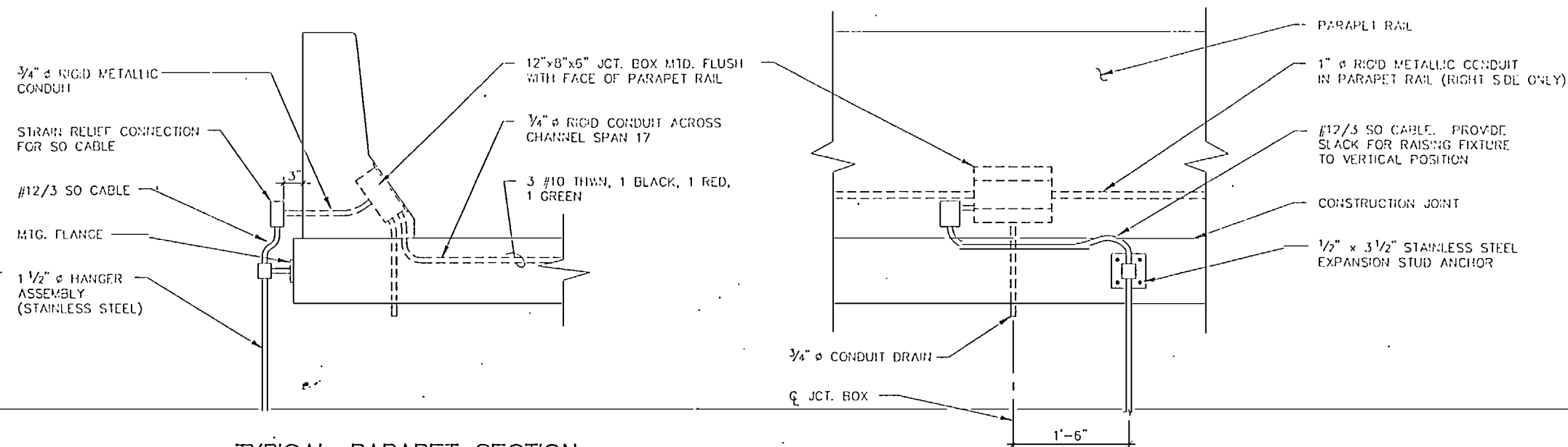
FOR ADDITIONAL DETAILS OF NAVIGATIONAL LIGHTING ON THE
FENDER SYSTEM, SEE PLATE S82.

SHEET 1 OF 2

Designed JGP	U.S. ARMY ENGINEER DISTRICT NEW ORLEANS CORPS OF ENGINEERS ALBUQUERQUE, NEW MEXICO		
Checked WBD	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT		
Reviewed John S. Powell Chief, ELEC/INSTR Section	NAVIGATIONAL LIGHTING PLAN		
Approved Ed Lanier, P.E. Chief, Design Division	Scale NTS	Drawing Code BR101-06-23	Plate No. S79
NAVLITL2		Date 31 MAY 91	Sheet 107 of 138

NOTES

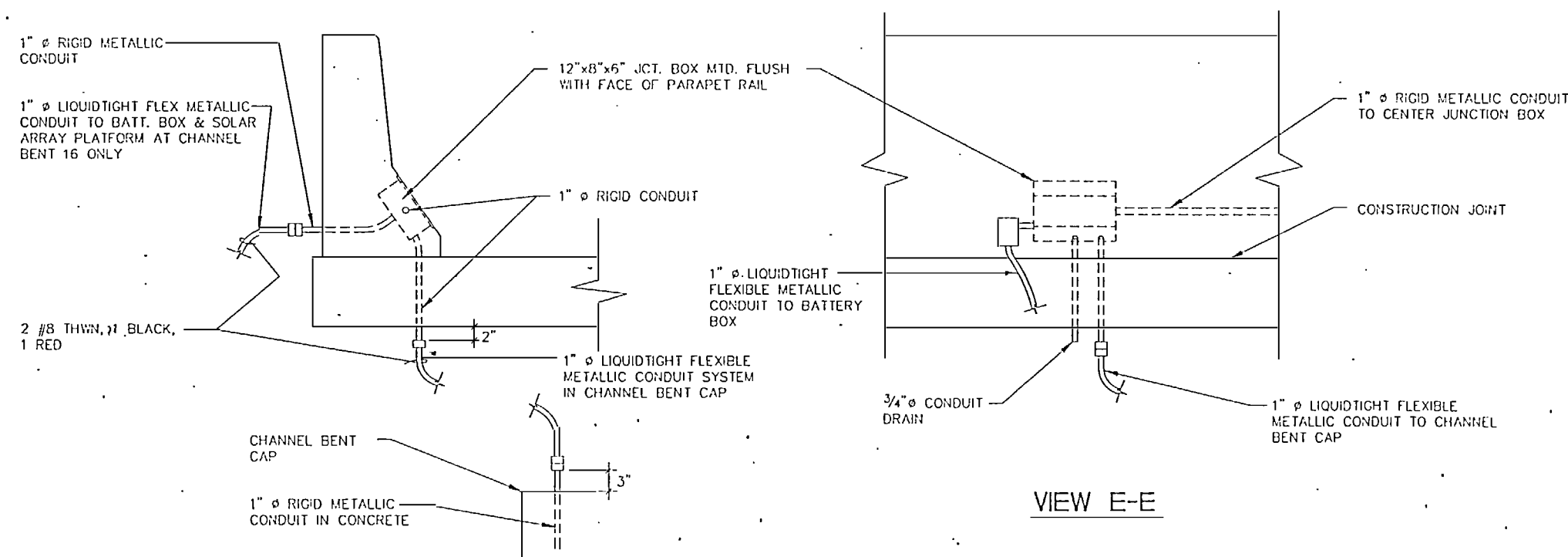
1. FOR NAVIGATIONAL LIGHTING AND CONDUIT/CABLING SYSTEM SPECIFICATIONS, SEE SPECIAL PROVISIONS
2. ALL RIGID METALLIC CONDUIT SHALL BE GALVANIZED
3. ALL JUNCTION BOXES IN PARAPET RAIL SHALL BE OZ TYPE "YR" CAST IRON (4 REQUIRED)
4. ALL JUNCTION BOXES TO BE BOSSED FOR ELECTRICAL CONDUITS AND DRAINS
5. ALL RIGID CONDUIT EMBEDDED IN CONCRETE SHALL HAVE A MINIMUM OF 3" COVER
6. FOR ADDITIONAL DETAILS OF NAVIGATIONAL LIGHTING ON THE FENDER SYSTEM, SEE PLATE 552.



TYPICAL PARAPET SECTION

VIEW D-D

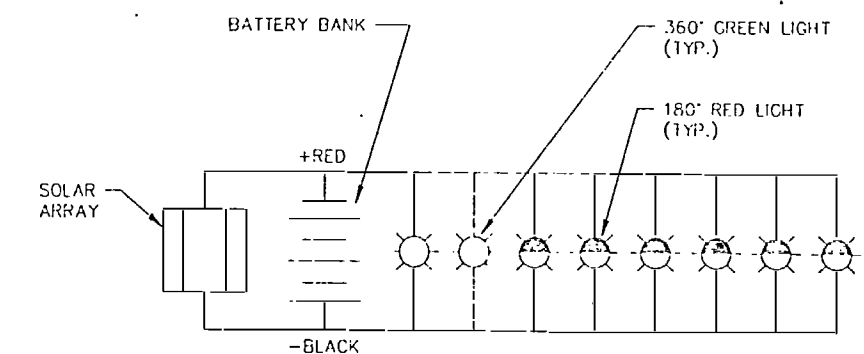
DETAIL - JUNCTION BOX IN PARAPET RAIL AT CHANNEL LIGHTS



TYPICAL PARAPET SECTION

VIEW E-E

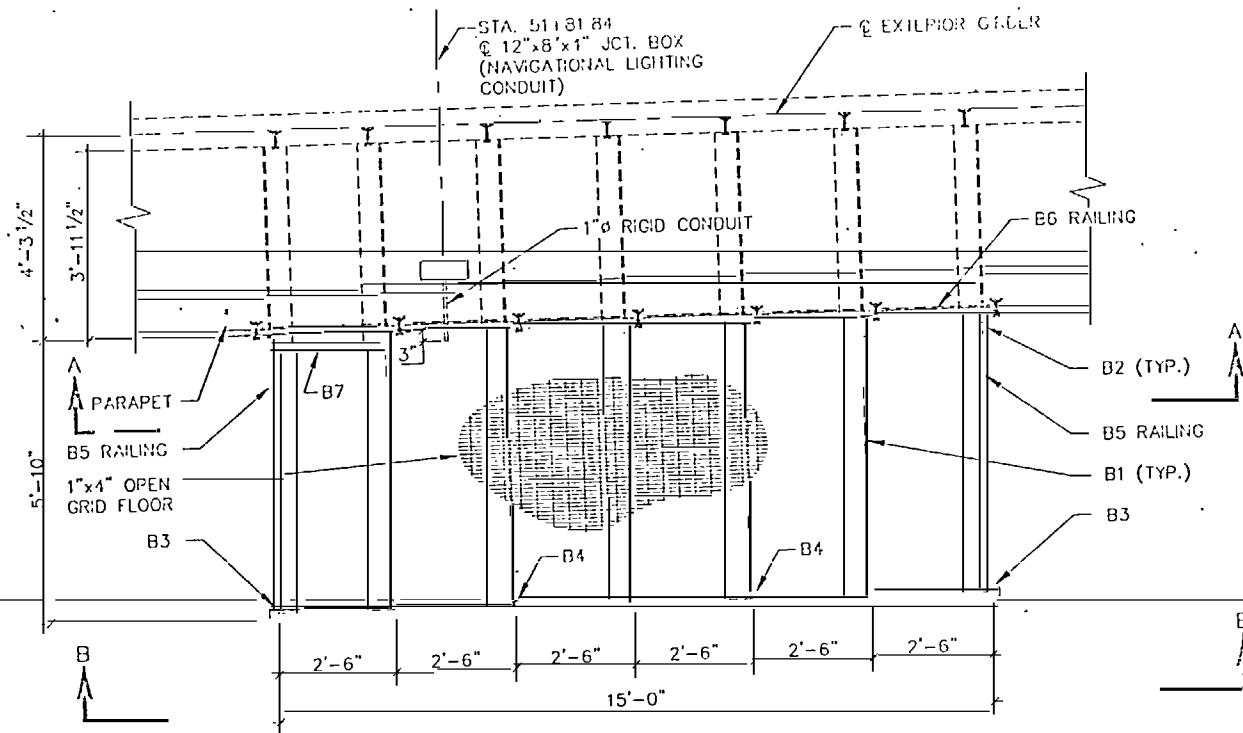
DETAIL - JUNCTION BOX IN PARAPET RAIL AT CHANNEL BENTS



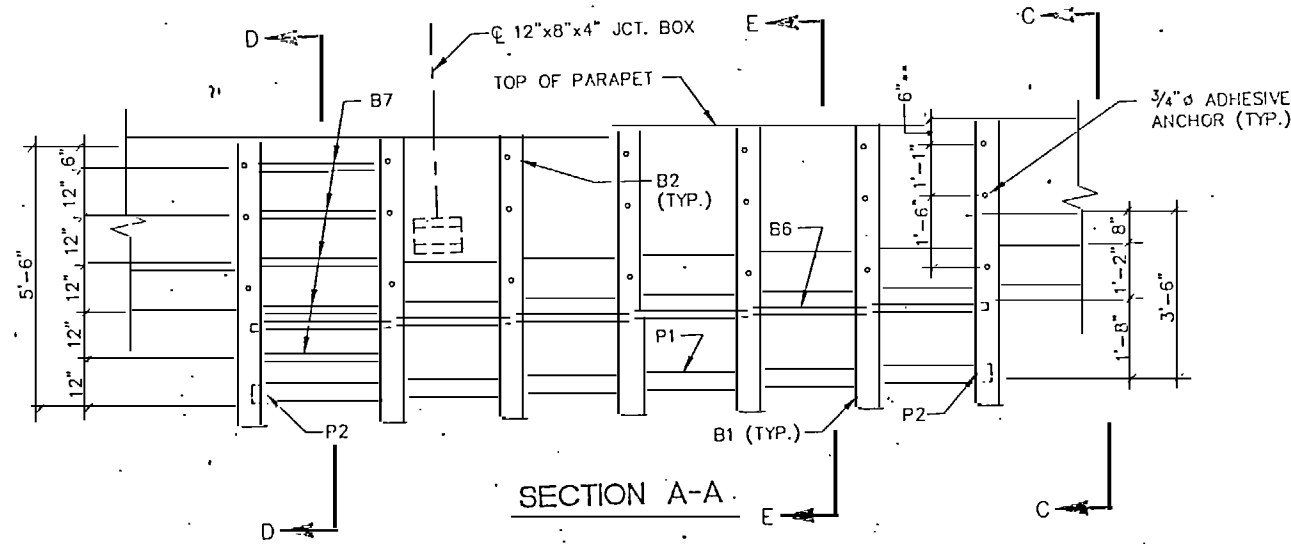
SOLAR SYSTEM SCHEMATIC

SHEET 2 OF 2

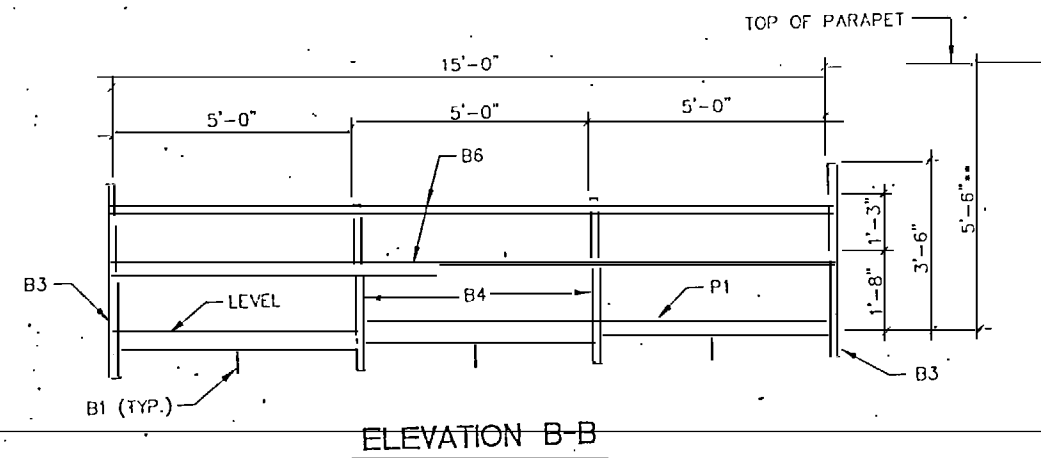
Designed JGP	U.S. Army Corps of Engineers WATERWAYS DIVISION NEW ORLEANS, LOUISIANA		
Checked WBD	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT		
Drawn J. J. Lavell 2nd, ELEC / MECH Section	NAVIGATIONAL LIGHTING PLAN		
Approved E. J. Lavin, P.E. Chief, Electrical Division	Scale N.T.S.	Drawing Code BR104-06-23	Plate No. S80
NAVJAG 1111	Date 31 MAY 91	Sheet 105 of 138	



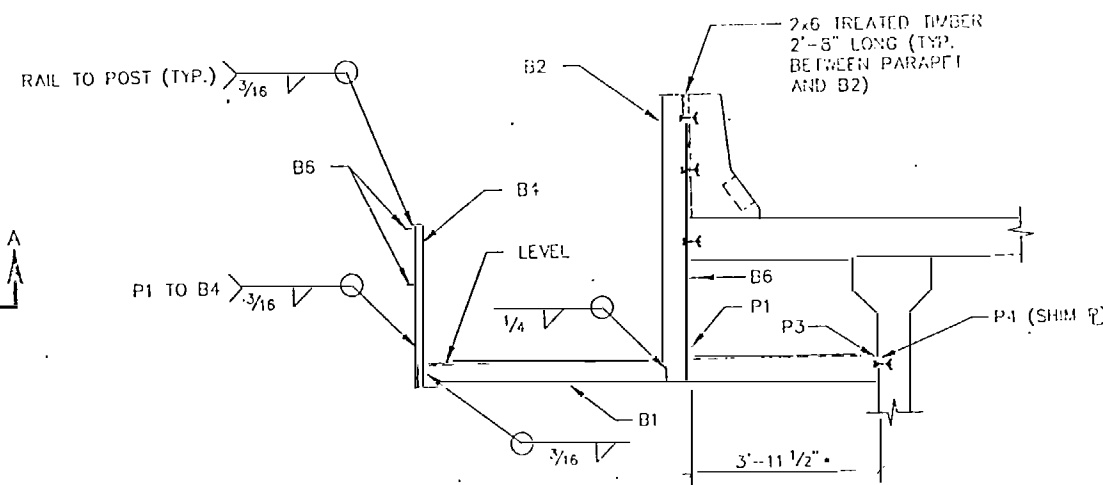
PLAN



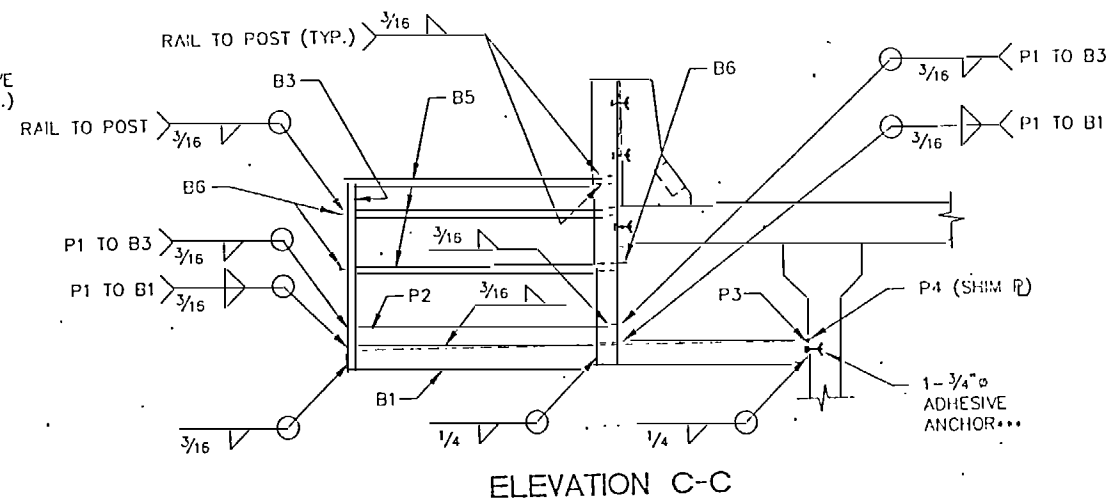
SECTION A-A



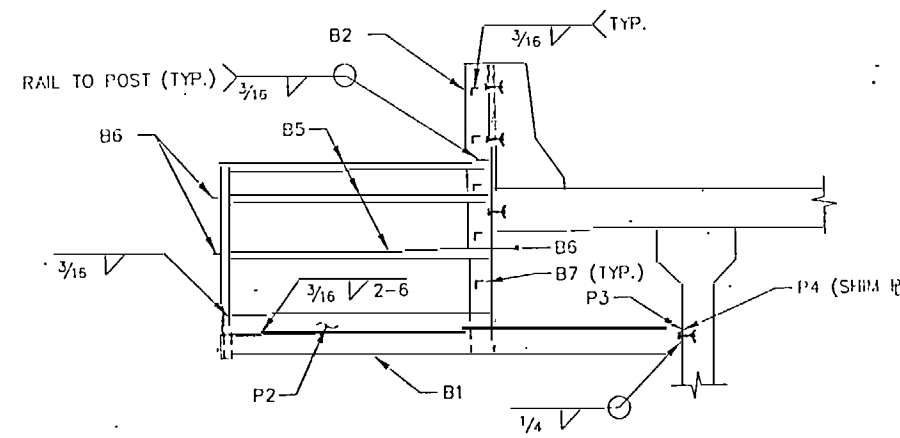
ELEVATION B-B



SECTION E-E



ELEVATION C-C



SECTION D-D

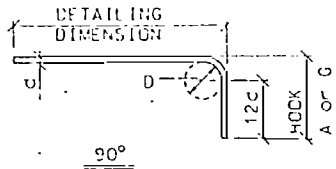
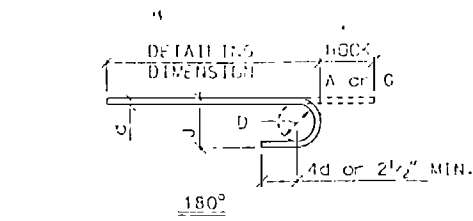
ITEM	QUANTITY	DESCRIPTION	UNIT
B1	7	6 x 6 x 1/2	9'-9 1/2"
B2	7	6 x 6 x 1/2	6'-0"
B3	7	2 x 2 x 1/4	4'-0"
B4	2	2 x 2 x 1/4	3'-5"
B5	6	2 x 2 x 1/4	5'-8"
B6	3	2 x 2 x 1/4	15'-4"
B7	5	2 x 2 x 1/4	2'-6"
P1	2	R 4 1/2 x 1/4	15'-4"
P2	2	R 4 1/2 x 1/4	5'-8"
P3	7	R 7 x 3/8	0'-7"
P4	AS REQ'D	R 1 x 1/8	0'-7"
TREATED WOODER	7	2 x 6	2'-8"

NOTES

- ALL STRUCTURAL STEEL SHALL BE ASTM A-36
 - ALL STRUCTURAL MEMBERS, INCLUDING OPEN GRID FLOOR, SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION SEE STANDARD SPECIFICATIONS
 - ALL FABRICATION SHALL CONFORM TO THE APPLICABLE SECTION OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES, JAN. 1, 1990.
 - OPEN GRID FLOOR SHALL BE WELDED SECURELY TO EACH HORIZONTAL FLOOR MEMBER (B1)
 - FOR DETAILS OF NAVIGATIONAL LIGHTING, SEE NAVIGATIONAL LIGHTING PLAN.
 - FOR SOLAR ARRAY SUPPORT PLATFORM, SEE SPECIAL PROVISIONS FOR ADHESIVE ANCHOR SYSTEM, SEE SPECIAL PROVISION FOR ANCHOR BOLTS AND DOWELS, DRILLED INTO EXISTING CONCRETE.
- DIMENSION TO BE CHECKED IN THE FIELD BEFORE FABRICATION. P4 SHIM PLATES MAY BE USED AS REQUIRED. MAXIMUM THICKNESS OF SHIM PLATES SHALL BE 3/8" TOTAL.
- VARY TO MAINTAIN LEVEL GRADE ON PLATFORM.
- EXTREME CARE SHOULD BE TAKEN TO ACCURATELY LOCATE THESE ANCHORS TO DIMENSIONS SHOWN ON THE PLANS IN ORDER TO AVOID CONFLICT WITH DRAPED STRANDS IN PRESTRESSED GIRDERS.

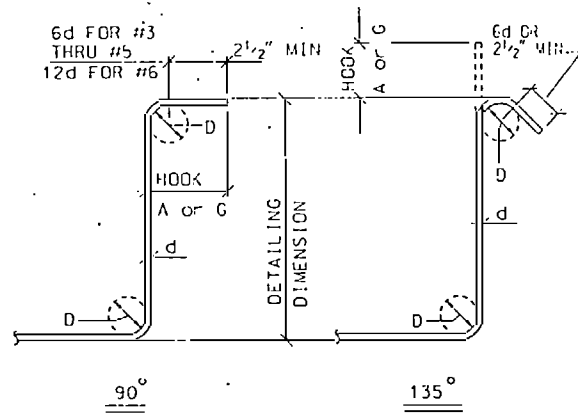
Designed	GAG	U.S. Army Engineer District, Atlantic City
Checked	GWP	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK REPLACEMENT PROJECT
Reviewed	JBN	SOLAR ARRAY SUPPORT PLATFORM
Chief Structures Section	None	Sheet 109 of 134
Approved	E. J. Janice, P.E.	BR104-06-23
Chief Design Branch	SOLPLAT	Date 31 MAY 91

STANDARD BAR DETAILS



D = 6d FOR #3 THRU #8
D = 8d FOR #9 THRU #11

BAR SIZE	WEIGHT lbs./ft.	APPROX. DIAMETER	NOMINAL DIAMETER	END HOOKS		
				180°	90°	90°
				A or G	J	A or G
#4	0.668	3/16"	0.500	6"	4"	6"
#5	1.043	1/8"	0.625	7"	5"	10"
#6	1.502	1/4"	0.750	8"	6"	1'-0"
#7	2.044	1"	0.875	10"	7"	1'-2"
#8	2.670	1 1/8"	1.000	11"	8"	1'-4"
#9	3.400	1 1/4"	1.128	1'-3"	11 1/2"	1'-7"
#10	4.303	1 1/2"	1.270	1'-5"	1'-0 3/4"	1'-10"
#11	5.313	1 5/8"	1.410	1'-7"	1'-2 1/2"	2'-0"

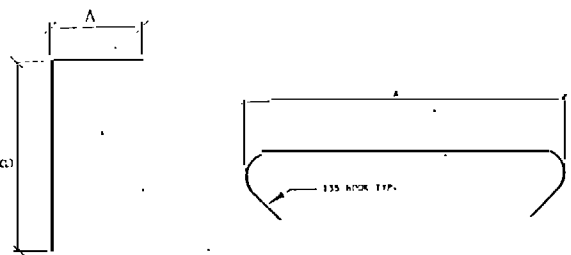


BAR SIZE	D	STIRRUP OR TIE	
		90°	135°
		A or G	A or G
#4	2"	4 1/2"	4 1/2"
#5	2 1/2"	6"	5 1/2"
#6	4 1/2"	1'-0"	7 3/4"

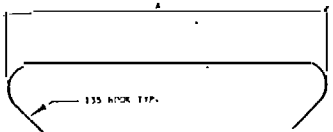
NOTES:
ALL DIMENSIONS ARE OUT TO OUT
UNLESS OTHERWISE NOTED.
ALL RADII ARE TO INSIDE OF BAR.

NOTE:
FOR TYPES 19 & 20 THE CONTRACTOR MAY
USE AN EPOXY ANCHORING SYSTEM INSTEAD OF
THE THREADED ROD SYSTEM SHOWN.
SEE PLATE S27

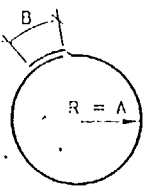
Designed: C.L.H./G.W.P.	US ARMY ENGINEER DISTRICT, WASHINGTON CORPS OF ENGINEERS WASHINGTON, NORTH CAROLINA
Checked: G.M.C.	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT
Reviewed: JBW	US Army Corps of Engineers
Chief, Structures Section Approved: Ed Lanier, P.E.	BAR BENDING DIAGRAM 1 OF 2
Chief, Design Branch	Scale: N.T.S. Drawing Code: BR 104-06-23 Plate No: S83
	CCBAR1 Date: 31 MAY 91 Sheet 111 of 138



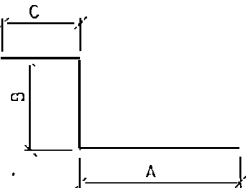
TYPE 1



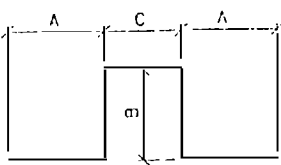
TYPE 2



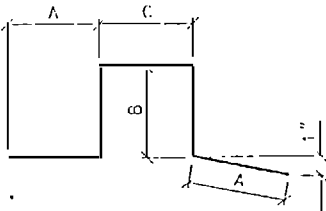
TYPE 3



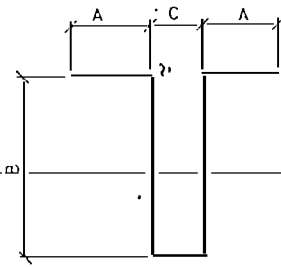
TYPE 4



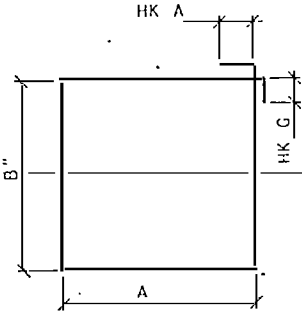
TYPE 5



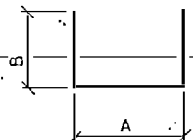
TYPE 6



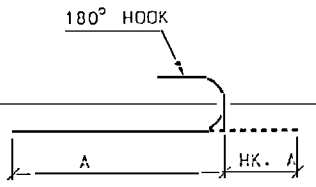
TYPE 7



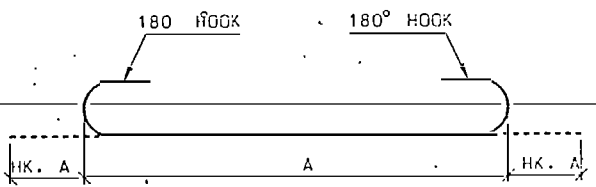
TYPE 8



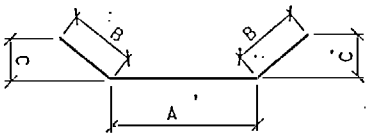
TYPE 9



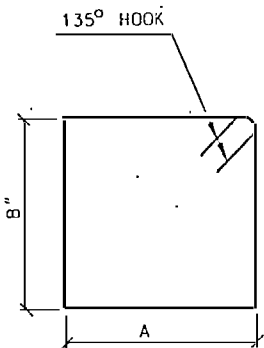
TYPE 10



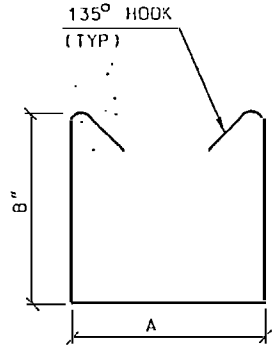
TYPE 11



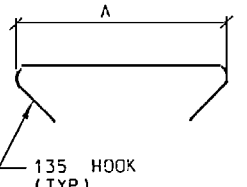
TYPE 12



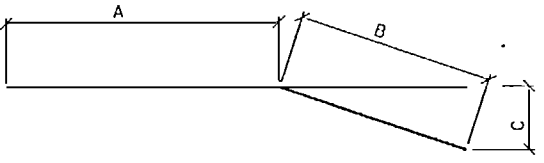
TYPE 13



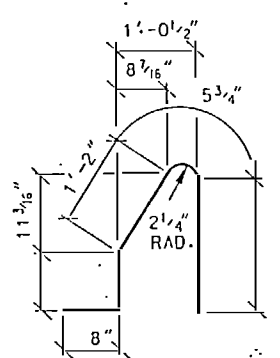
TYPE 14



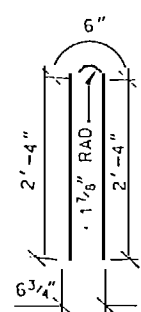
TYPE 15



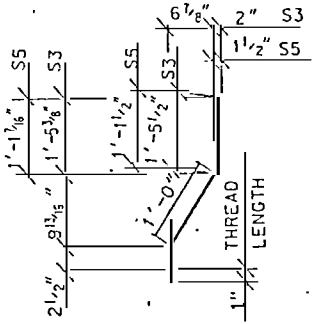
TYPE 16



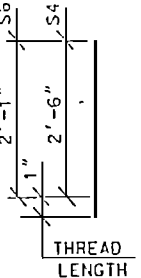
TYPE 17



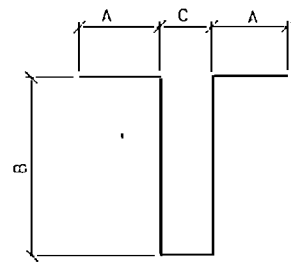
TYPE 18



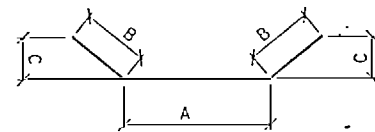
TYPE 19



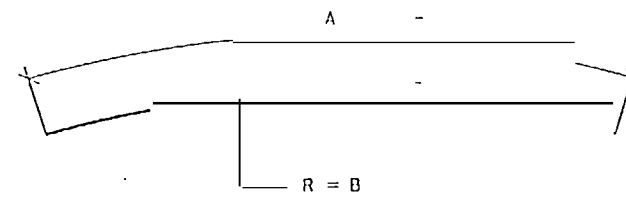
TYPE 20



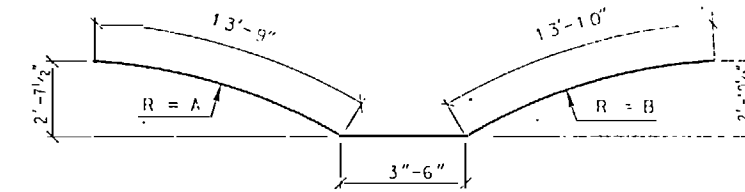
TYPE 21



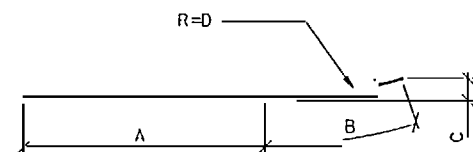
TYPE 22



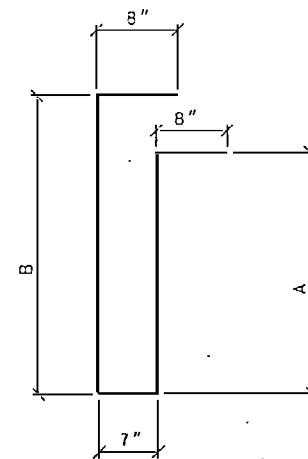
TYPE 23



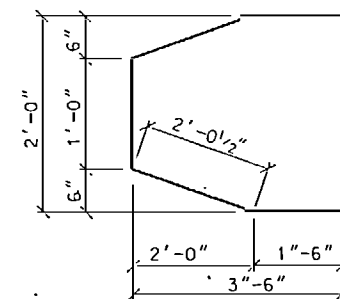
TYPE 24



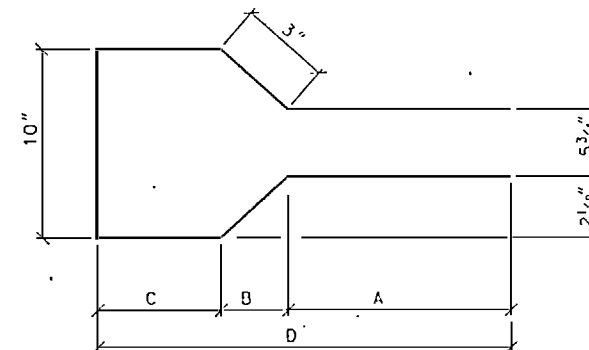
TYPE 25



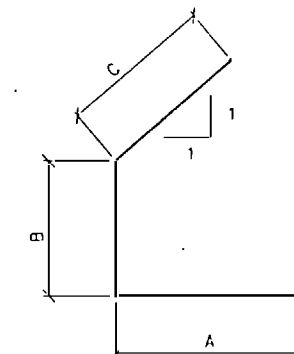
TYPE 26



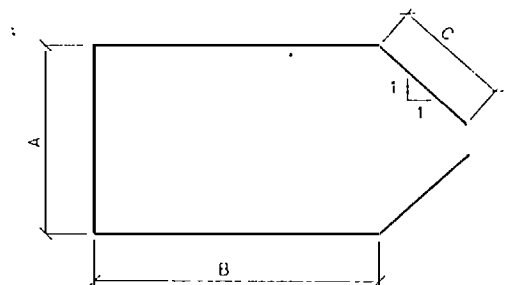
TYPE 27



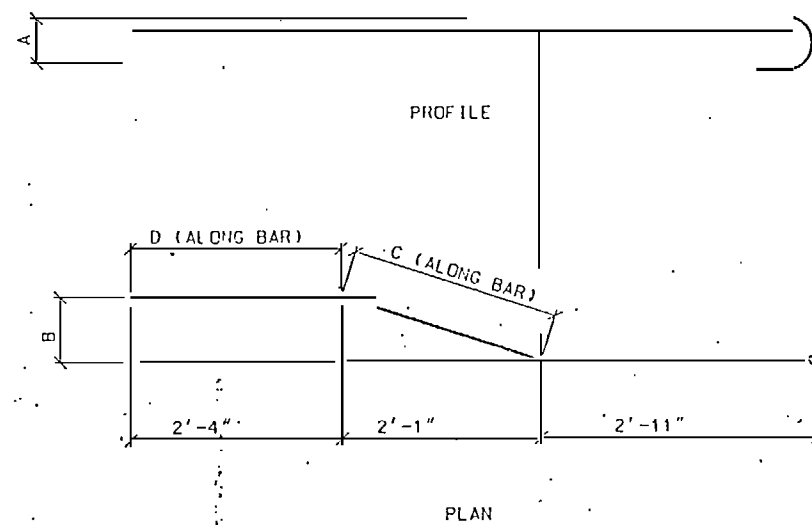
TYPE 28



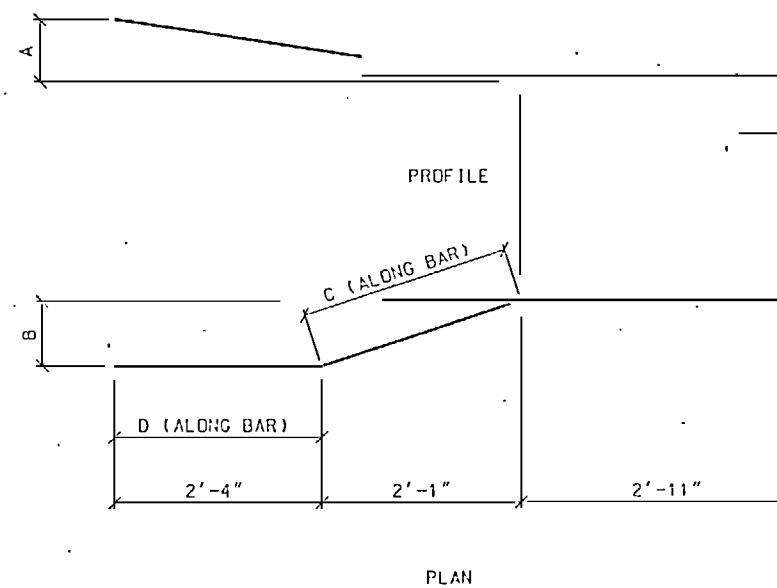
TYPE 29



TYPE 30



TYPE 31



TYPE 32

Designed: C.L.H./G.W.P.	US ARMY ENGINEER DISTRICT/12TH AVN CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA	
Checked: GWP	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT	
Reviewed: JBW	BAR BENDING DIAGRAM	
Chief, Structures Section Approved: E. J. Sanner, P.E. Chief, Design Branch	Scale: N.T.S.	2 OF 2 Drawing Code: BR 104-06-23 Plate No: S84
CCBAR2	Date: 31 MAY 91	Sheet 113 of 138

BAR MARK	NO.	TYPE	DIMENSIONS				BAR LENGTH (ft)	WEIGHT (lbs)	REMARKS
			A (ft-in)	B (ft-in)	C (ft-in)	D (ft-in)			
6S1	5	13	1 - 11	1 - 8	-	-	6 - 9 1/2	51.0	
6S2	2	13	1 - 11	3 - 9 3/4	-	-	12 - 9	38.3	
6S2	7	13	1 - 11	4 - 3 3/4	-	-	13 - 9	144.6	
4S4	14	9	0 - 6	0 - 9	-	-	2 - 0	18.7	
5S5	15	28	3 - 1 3/4	0 - 2 1/4	1 - 5	4 - 9	10 - 5 1/2	171.3	LN. VARIES BY EQ. INCR.
1c			3 - 7 3/4			5 - 3	11 - 5 1/2		
4S6	88	29	1 - 9	0 - 5	1 - 6	-	3 - 7	210.6	
5S7a	1	28	3 - 7 3/4	0 - 2 1/4	1 - 5	5 - 3	11 - 5 1/2	12.0	
b	1	28	3 - 9 3/4	0 - 2 1/4	1 - 5	5 - 5	11 - 9 1/2	12.3	
c	1	28	4 - 0 1/4	0 - 2 1/4	1 - 5	5 - 7 1/2	12 - 2 1/2	12.7	
d	1	28	4 - 3 1/4	0 - 2 1/4	1 - 5	5 - 10 1/2	12 - 8 1/2	13.3	
e	1	28	4 - 6 1/4	0 - 2 1/4	1 - 5	6 - 1 1/2	13 - 2 1/2	13.8	
f	1	28	4 - 9 3/4	0 - 2 1/4	1 - 5	6 - 5	13 - 9 1/2	14.4	
g	1	28	5 - 1 1/4	0 - 2 1/4	1 - 5	6 - 8 1/2	14 - 4 1/2	15.0	
h	1	28	5 - 4 1/4	0 - 2 1/4	1 - 5	6 - 11 1/2	14 - 10 1/2	15.5	
i	1	28	5 - 9 1/4	0 - 2 1/4	1 - 5	7 - 4 1/2	15 - 8 1/2	16.4	
j	1	28	6 - 1 1/4	0 - 2 1/4	1 - 5	7 - 8 1/2	16 - 4 1/2	17.1	
k	1	28	6 - 7 1/4	0 - 2 1/4	1 - 5	8 - 2 1/2	17 - 4 1/2	18.1	
5S8	6	9	1 - 8 3/8	8 - 3	-	-	20 - 10 3/4	127.1	LN. VARIES BY EQ. INCR. 2 EA. LN.
1c			0 - 10 3/8	8 - 6		-	19 - 8 3/4		
5S9	7	a	2 - 11	8 - 4	-	-	23 - 6	191.0	
5S10a	1	28	3 - 11 1/2	0 - 2 1/4	1 - 5	5 - 6 1/2	12 - 0 1/2	12.6	
b	1	28	4 - 0 3/4	0 - 2 1/4	1 - 5	5 - 8	12 - 3 1/2	12.8	
c	1	28	4 - 3 1/4	0 - 2 1/4	1 - 5	5 - 10 1/2	12 - 8 1/2	13.3	
d	1	28	4 - 6 1/4	0 - 2 1/4	1 - 5	6 - 1 1/2	13 - 2 1/2	13.8	
e	1	28	4 - 9 1/4	0 - 2 1/4	1 - 5	6 - 4 1/2	13 - 8 1/2	14.3	
f	1	28	4 - 11 3/4	0 - 2 1/4	1 - 5	6 - 7	14 - 1 1/2	14.7	
g	1	28	5 - 3 1/4	0 - 2 1/4	1 - 5	6 - 10 1/2	14 - 8 1/2	15.3	
h	1	28	5 - 6 3/4	0 - 2 1/4	1 - 5	7 - 2	15 - 3 1/2	15.9	
i	1	28	5 - 10 1/4	0 - 2 1/4	1 - 5	7 - 5 1/2	15 - 10 1/2	16.6	
j	1	28	6 - 1 3/4	0 - 2 1/4	1 - 5	7 - 9	16 - 5 1/2	17.2	
k	1	28	6 - 4 3/4	0 - 2 1/4	1 - 5	8 - 0	16 - 11 1/2	17.7	
l	1	28	6 - 7 3/4	0 - 2 1/4	1 - 5	8 - 3	17 - 5 1/2	18.2	
5S11	8	28	3 - 1 3/4	0 - 2 1/4	1 - 5	4 - 9	10 - 5 1/2	91.4	LN. VARIES BY EQ. INCR. 1 EA. LN.
1c			12 - 7 3/4			5 - 3	11 - 5 1/2		
6S12	3	30	1 - 9 1/2	4 - 6	1 - 0	-	12 - 9 1/2	57.6	
6S13	1	30	0 - 10	4 - 5	0 - 5	-	10 - 6	15.8	
6S14	2	9	0 - 10	6 - 0	-	-	12 - 10	38.6	
6S15	2	9	1 - 9 1/2	6 - 0	-	-	13 - 9 1/2	41.4	
6S16	4	30	1 - 9 1/2	2 - 10	1 - 0	-	9 - 5 1/2	56.8	
6S17	2	30	1 - 9 1/2	1 - 10	0 - 5	-	6 - 3 1/2	18.9	
6S18	12	STR	-	-	-	-	4 - 9	85.6	
6S19	6	8	1 - 11	4 - 10	-	-	14 - 6	130.7	
5S20	3	30	1 - 9 1/2	1 - 1	1 - 0	-	5 - 11 1/2	18.6	
5S21	3	30	1 - 9 1/2	1 - 10	1 - 0	-	7 - 5 1/2	23.3	
5S22	16	22	3 - 6	2 - 6	0 - 11 3/4	-	8 - 5	140.5	
11H1	4	STR	-	-	-	-	12 - 10	272.7	
11H2	2	STR	-	-	-	-	13 - 8	145.2	

BAR MARK	NO.	TYPE	DIMENSIONS				BAR LENGTH (ft)	WEIGHT (lbs)	REMARKS
			A (ft-in)	B (ft-in)	C (ft-in)	D (ft-in)			
11H3	2	16	4 - 6	9 - 0	0 - 8	-	3 - 8	145.2	
11H4	4	16	3 - 10	9 - 0	0 - 8	-	2 - 10	272.7	
11H5	4	16	4 - 8	9 - 0	0 - 8	-	3 - 8	290.4	
11H6	4	24	102 - 0	132 - 3	-	-	51 - 1	660.6	
11H7	4	24	102 - 9	133 - 0	-	-	51 - 1	660.6	
11H8	4	23	17 - 5	102 - 0	-	-	17 - 5	370.1	
11H9	4	23	17 - 5	132 - 3	-	-	17 - 5	370.1	
11F1	1	31	0 - 7	0 - 6 1/8	2 - 2	2 - 4 1/4	9 - 0 1/8	47.9	
11F2	1	31	0 - 0	0 - 1 1/8	2 - 1	2 - 4	8 - 11	47.4	
11F3	1	32	0 - 7 1/2	0 - 1 3/8	2 - 1 1/4	2 - 4 1/4	8 - 11 1/2	47.6	
11F4	1	32	1 - 3	0 - 6 3/8	2 - 2 3/4	2 - 5 1/8	9 - 1 7/8	48.6	
5394.1 TOTAL EACH GIRDER									

NOTE: QUANTITIES LISTED ARE FOR
ONE GIRDER. (8 GIRDERS REQD)

BAR DESIGNATION

6S1
BAR #  BAR MARK

Designed: GWP	US Army Corps of Engineers WATERWAYS DIVISION	
Checked:	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT	
Reviewed: JBW	REINF. BAR LIST HAUNCHED GIRDERS	
Chief, Structures Section	Dates: 31 MAY 91	Drawing Editor: S85
Approved: E. J. L. P.E.	DR104-06-23	
Chief, Design Branch	CHARGE	Sheet 113 of 138

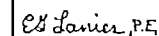
BAR MARK	NO.	TYPE	DIMENSIONS				BAR LENGTH (ft)	WEIGHT (lbs)	REMARKS
			A (ft-in)	B (ft-in)	C (ft-in)	D (ft-in)			
SPANS 1 AND 31									
6A1	284	STR	-	-	-	-	7 - 6	7464.9	
6A2	284	STR	-	-	-	-	3 - 5	5723.1	
6A3	142	STR	-	-	-	-	10 - 2	2168.4	
4B1	72	STR	-	-	-	-	30 - 6	1466.9	
5B2	120	STR	-	-	-	-	30 - 9	3848.7	
5B3	36	STR	-	-	-	-	22 - 2	832.3	BARRIER RAIL
5B4	12	STR	-	-	-	-	21 - 7	270.1	BARRIER RAIL
5G1	4	STR	-	-	-	-	17 - 3	72.0	
5S1	174	17	-	-	-	-	4 - 9 1/4	865.9	BARRIER RAIL
6S1A	4	19	-	-	-	-	2 - 9	16.5	BARRIER RAIL
6S1B	4	20	-	-	-	-	2 - 7	15.5	BARRIER RAIL
6S1C	4	19	-	-	-	-	2 - 5	14.5	BARRIER RAIL
6S1D	4	20	-	-	-	-	2 - 2	13.0	BARRIER RAIL
5S2	174	18	-	-	-	-	5 - 2	937.7	BARRIER RAIL
5S3	36	26	1 - 11 1/4	2 - 0	-	-	5 - 10 1/4	219.8	
5S4	18	8	0 - 5	2 - 11	-	-	7 - 8	143.9	
5S5	18	9	0 - 10	1 - 3	-	-	3 - 4	62.6	
8K1	8	6	4 - 10	2 - 0 3/4	2 - 4	-	16 - 1 1/2	344.4	
8K2	8	4	4 - 10	2 - 0 3/4	2 - 4	-	9 - 2 3/4	197.1	
5K3	6	STR	-	-	-	-	6 - 6	40.7	
5K4	6	12	6 - 6	0 - 11	0 - 8	-	8 - 4	52.1	
								24770.3	SPAN TOTAL
								49540.5	TOTAL - 2 SPANS
SPANS 2 THRU 4, 6 THRU 13 AND 20 THRU 30									
6A1	288	STR	-	-	-	-	17 - 6	7570.1	
6A2	288	STR	-	-	-	-	13 - 5	5803.7	
6A3	144	STR	-	-	-	-	10 - 2	2198.9	
4B1	72	STR	-	-	-	-	31 - 0	1491.0	
5B2	120	STR	-	-	-	-	31 - 0	3880.0	
5B3	48	STR	-	-	-	-	22 - 2	1109.8	BARRIER RAIL
5G1	4	STR	-	-	-	-	17 - 3	72.0	
5S1	184	17	-	-	-	-	4 - 9 1/4	915.6	BARRIER RAIL
5S2	184	18	-	-	-	-	5 - 2	991.5	BARRIER RAIL
5S3	36	26	1 - 11 1/4	2 - 0	-	-	5 - 10 1/2	218.7	
5S4	18	8	0 - 5	2 - 11	-	-	7 - 8	143.9	
8K1	8	6	4 - 10	2 - 0 3/4	2 - 4	-	16 - 10 1/2	344.4	
8K2	8	4	4 - 10	2 - 0 3/4	2 - 4	-	9 - 2 3/4	197.1	
5K3	6	STR	-	-	-	-	6 - 6	40.7	
5K4	6	12	6 - 0	0 - 11	0 - 8	-	8 - 4	52.1	
								25029.6	SPAN TOTAL
								550650.1	TOTAL 22 SPANS

BAR MARK	NO.	TYPE	DIMENSIONS				BAR LENGTH (ft)	WEIGHT (lbs)	REMARKS
			A (ft-in)	B (ft-in)	C (ft-in)	D (ft-in)			
SPANS 5 AND 14									
6A1	382	STR	-	-	-	-	17 - 6	10040.9	
6A2	382	STR	-	-	-	-	13 - 5	7698.0	
6A3	191	STR	-	-	-	-	10 - 2	2916.6	
4B1	96	STR	-	-	-	-	31 - 0	1988.0	
5B2	128	STR	-	-	-	-	31 - 3	4172.0	
5B3	60	STR	-	-	-	-	23 - 8	1481.1	BARRIER RAIL
5G1	4	STR	-	-	-	-	17 - 3	72.0	
5S1	250	17	-	-	-	-	4 - 9 1/4	1244.0	BARRIER RAIL
5S2	250	18	-	-	-	-	5 - 2	1347.2	BARRIER RAIL
5S3	24	26	2 - 11 1/4	3 - 0	-	-	7 - 10 1/4	196.6	
5S4	36	8	0 - 5	3 - 10	-	-	9 - 6	356.7	
5S5	12	8	0 - 5	2 - 2	-	-	6 - 2	77.2	
8K1	8	6	3 - 11	3 - 4	4 - 2	-	18 - 8	398.7	
8K2	8	4	3 - 11	3 - 4	4 - 2	-	11 - 5	243.9	
5K3	12	12	4 - 6	1 - 2	0 - 3	-	6 - 10	85.5	
5K4	60	STR	-	-	-	-	7 - 3	453.7	
5K5	12	12	5 - 2	0 - 9	0 - 3	-	6 - 8	83.4	
								32855.5	SPAN TOTAL
								65711.0	TOTAL 2 SPANS
SPAN 15									
6A1	267	STR	-	-	-	-	17 - 6	7018.1	
6A2	268	STR	-	-	-	-	13 - 5	5400.7	
6A3	134	STR	-	-	-	-	10 - 2	2046.2	
6A4	8	STR	-	-	-	-	VARIES	92.4	VAR. 2'-0" TO 13'-4 1/2" BY 1'-7 1/2" EA.
6A5	5	STR	-	-	-	-	VARIES	53.8	VAR. 3'-11" TO 10'-5" BY 1'-7 1/2" EA.
6A6	4	STR	-	-	-	-	VARIES	57.7	VAR. 7'-2" TO 12'-0 1/2" BY 1'-7 1/2" EA.
6A7	8	STR	-	-	-	-	VARIES	123.4	VAR. 4'-7" TO 15'-11 1/2" BY 1'-7 1/2" EA.
6A8	9	STR	-	-	-	-	VARIES	114.9	VAR. 2'-0" TO 15'-0" BY 1'-7 1/2"
4B1a	40	STR	-	-	-	-	28 - 0	748.2	
4B1b	20	STR	-	-	-	-	VARIES	447.6	VAR. 28'-0" TO 39'-0" BY 6 1/2" EA.
4B1c	6	STR	-	-	-	-	28 - 1	112.6	
4B1d	6	STR	-	-	-	-	31 - 9	127.3	
5B2a	15	STR	-	-	-	-	32 - 0	500.6	
5B2b	30	STR	-	-	-	-	31 - 6	985.6	
5B2c	30	STR	-	-	-	-	30 - 5	951.7	
5B2d	30	STR	-	-	-	-	29 - 4	917.8	
5B2e	15	STR	-	-	-	-	28 - 6	445.9	

NOTE: WEIGHTS LISTED ARE PER SPAN

BAR DESIGNATION

6S1
BAR #  BAR MARK

Designed: GWP	US Army Engineer District, Vicksburg CORPS OF ENGINEERS Vicksburg, Mississippi
Checked: GWP	 ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT SUPERSTRUCTURE BAR LIST 1 OF 3
Reviewed: JBW	
Chief, Structures Section Approved:  E. J. Lanier, P.E. Chief, Design Branch	Scale: GCR1 Drawing Code: BR104-06-23 Plot No: S86 Date: 31 MAY 91 Sheet 114 of 138

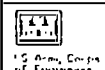
BAR MARK	NO.	TYPE	DIMENSIONS				BAR LENGTH (ft)	WEIGHT (lbs)	REMARKS
			A (ft-in)	B (ft-in)	C (ft-in)	D (ft-in)			
SPAN 15 (CONT.)									
5d3	36	STR	-	-	-	-	23 - 2	869.9	BARRIER RAIL
5b4	6	STR	-	-	-	-	10 - 5	65.2	BARRIER RAIL
5b5	6	STR	-	-	-	-	21 - 11	137.2	BARRIER RAIL
5G1	2	STR	-	-	-	-	17 - 7	36.7	
5G2	2	STR	-	-	-	-	18 - 10	39.3	
5S1	179	17	-	-	-	-	4 - 9 1/4	890.7	BARRIER RAIL
5S2	179	18	-	-	-	-	5 - 2	964.6	BARRIER RAIL
5S3	36	26	1 - 11 1/4	2 - 0	-	-	5 - 10 1/4	219.8	
5S4	18	8	0 - 5	2 - 11	-	-	7 - 8	143.9	
5S5	10	9	0 - 10	1 - 3	-	-	3 - 6	65.7	
6K1	4	6	4 - 10	2 - 0 3/4	2 - 4	-	16 - 1 1/2	172.2	
6K2	4	4	4 - 10	2 - 0 3/4	2 - 4	-	9 - 2 3/4	98.6	
5K3	6	STR	-	-	-	-	6 - 7	41.2	
5K4	6	12	6 - 7	0 - 11	0 - 8	-	8 - 5	52.7	
6K5	4	6	5 - 1	2 - 3 3/8	2 - 6	-	19 - 8 3/4	210.7	
6K6	4	4	5 - 1	2 - 3 3/8	2 - 6	-	9 - 10 3/8	105.4	
								24258.2	SPAN TOTAL
SPANS 16 AND 18 (INCLUDES CANTILEVERED PORTION OF SPAN 17)									
6A1	444	STR	-	-	-	-	18 - 10	12559.7	
6A2	444	STR	-	-	-	-	14 - 5	9614.3	
6A3	222	STR	-	-	-	-	10 - 11	3640.1	
4D1	52	STR	-	-	-	-	30 - 11	1073.9	
5B2	160	STR	-	-	-	-	36 - 8	6118.9	
6B3	132	STR	-	-	-	-	43 - 5	15301.8	
5B4	156	STR	-	-	-	-	9 - 8	1572.8	BARRIER RAIL
5B5	12	STR	-	-	-	-	8 - 11	111.6	BARRIER RAIL
5G1	4	STR	-	-	-	-	18 - 10	78.6	
5S1	306	17	-	-	-	-	4 - 9 1/4	1522.7	BARRIER RAIL
5S2	306	18	-	-	-	-	5 - 2	1649.0	BARRIER RAIL
5S3	18	26	1 - 11 1/4	2 - 0	-	-	5 - 10 1/4	109.9	
5S4	18	8	0 - 5	2 - 11	-	-	7 - 8	143.9	
5S5	36	9	0 - 10	1 - 5	-	-	3 - 8	137.7	
5S6	18	8	0 - 9	3 - 4 1/4	-	-	9 - 2	172.1	
6S7	18	8	0 - 9	6 - 5	-	-	15 - 6	744.9	
5S8	18	26	3 - 2 3/4	3 - 4	-	-	8 - 5 3/4	159.2	
6K1	4	6	5 - 1	2 - 3 3/8	2 - 6	-	19 - 8 3/4	210.7	
6K2	4	4	5 - 1	2 - 3 3/8	2 - 6	-	9 - 10 3/8	105.4	
5K3	6	STR	-	-	-	-	7 - 0	43.8	
5K4	6	22	7 - 0	0 - 10	0 - 7	-	8 - 8	54.2	
6K5	12	STR	-	-	-	-	10 - 9	193.8	
6K6	12	STR	-	-	-	-	6 - 4	114.2	
6K7	12	STR	-	-	-	-	6 - 3	200.2	
6K8	24	STR	-	-	-	-	6 - 3	225.3	
6K9	4	6	5 - 1	3 - 3 1/2	2 - 6	-	19 - 3	194.9	
6K10	4	4	5 - 1	3 - 3 1/2	2 - 6	-	10 - 10 1/2	116.1	
5L1	8	STR	-	-	-	-	18 - 10	157.1	
								56326.9	SPAN TOTAL

BAR MARK	NO.	TYPE	DIMENSIONS				BAR LENGTH (ft)	WEIGHT (lbs)	REMARKS
			A (ft-in)	B (ft-in)	C (ft-in)	D (ft-in)			
FIELD GIRDER SPLICE (SPANS 16 & 18)									QUANTITIES ARE FOR ONE SPLICE. 6 SPLICES REQUIRED
5S1	13	8	1 - 11	4 - 10	-	-	14 - 6	196.6	
5S2	4	27	-	-	-	-	8 - 1	33.7	
5S3	6	8	1 - 3	5 - 6 3/4	-	-	14 - 7 1/2	91.5	
5S4	4	STR	-	-	-	-	4 - 2	17.4	
5S5	9	2	1 - 11	-	-	-	2 - 10	26.6	
								365.8	TOTAL ONE SPLICE
								2926.7	TOTAL 6 SPLICES
SPAN 17 (DROP-IN)									
6A1	324	STR	-	-	-	-	18 - 9	9124.6	
6A2	324	STR	-	-	-	-	14 - 4	6975.3	
6A3	162	STR	-	-	-	-	10 - 11	2656.3	
4B1	72	STR	-	-	-	-	34 - 9	1671.3	
5B2	120	STR	-	-	-	-	35 - 0	4380.6	
5B3	36	STR	-	-	-	-	19 - 8	738.4	BARRIER RAIL
5B4	24	STR	-	-	-	-	21 - 0	525.7	BARRIER RAIL
5G1	4	STR	-	-	-	-	18 - 10	78.6	
5S1	214	17	-	-	-	-	4 - 9 1/4	1064.9	BARRIER RAIL
5S2	214	18	-	-	-	-	5 - 2	1153.2	BARRIER RAIL
5S3	36	26	3 - 2 3/4	3 - 4	-	-	8 - 5 3/4	318.4	
5S4	18	8	0 - 5	2 - 11	-	-	7 - 8	143.9	
6K1	8	6	5 - 1	3 - 3 1/2	2 - 6	-	19 - 3	389.8	
6K2	8	4	5 - 1	3 - 3 1/2	2 - 6	-	10 - 10 1/2	232.3	
5K3	6	STR	-	-	-	-	7 - 0	43.8	
5K4	6	12	7 - 0	0 - 10	0 - 7	-	8 - 8	54.2	
6K5	24	STR	7 - 0	0 - 10	0 - 7	-	6 - 3	400.5	
								29951.9	SPAN TOTAL
SPAN 19									
6A1	243	STR	-	-	-	-	17 - 6	6387.3	
6A2	244	STR	-	-	-	-	13 - 5	4917.0	
6A3	122	STR	-	-	-	-	10 - 2	1863.0	
6A4	8	STR	-	-	-	-	VARIES	92.4	VAR. 2'-0" TO 13'-4 1/2" BY 1'-7 1/2" EA.
6A5	5	STR	-	-	-	-	VARIES	53.8	VAR 3'-11" TO 10'-5" BY 1'-7 1/2" EA.
6A6	4	STR	-	-	-	-	VARIES	57.7	VAR. 1'-2" TO 12'-0 1/2" BY 1'-7 1/2" EA.
6A7	8	STR	-	-	-	-	VARIES	123.4	VAR. 4'-7" TO 15'-11 1/2" BY 1'-7 1/2" EA.
6A8	9	STR	-	-	-	-	VARIES	114.9	VAR. 2'-0" TO 15'-0" BY 1'-7 1/2"

NOTE: WEIGHTS ARE PER SPAN

BAR DESIGNATION

BAR #  BAR MARK

Designed: GWD	U.S. ARMY ENGINEER DISTRICT, WASHINGTON CORPS OF ENGINEERS WASHINGTON, D.C. 20315
Checked: GWD	 ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT
Reviewed: JBW	SUPERSTRUCTURE BAR LIST 2 OF 3
Chief, Structure Section: Approved: E.J. Panier, P.E.	Scale: Drawing Code: BR104-06-23
Chief, Design Branch	Sheet: 116 of 138 Date: 31 MAY 91 Plot No: S87

[illegible]

6S1
BAR # ——— BAR MARK

Designed: GWP	U.S. ARMY ENGINEER DISTRICT, WASHINGTON DEPT. OF THE ARMY WASHINGTON, D.C. 20315	
Checked: GWP	 ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT	U.S. ARMY ENGINEER DISTRICT, WASHINGTON DEPT. OF THE ARMY WASHINGTON, D.C. 20315
Reviewed: JBW	SUPERSTRUCTURE BAR LIST	
Chief, Design Branch	3 OF 3	
Approved: Lt. J. J. Jones, P.E.	Serial: _____ Drawing Code: BR104-06-23	Plate No: S88
Chief, Design Branch	1. BR13 2. SUPERBAR	Date: 31 MAY 91 Sheet: 116 of 139

BAR MARK	NO.	TYPE	DIMENSIONS				BAR LENGTH (ft)	WEIGHT (lbs)	REMARKS
			A (ft-in)	B (ft-in)	C (ft-in)	D (ft-in)			
BENT 6									
5S1	84	14	2 - 4 1/2	4 - 0	-	-	17 - 3 1/2	1281.3	LENGTH VARIES BY EQUAL INCREMENTS 4 EACH LENGTH
TO				7 - 1			11 - 1 1/2		
4S2	16	9	2 - 6	1 - 0	-	-	4 - 6	49.9	
4S3	16	9	3 - 3	1 - 0	-	-	5 - 3	56.1	
4S4	14	15	3 - 3	-	-	-	4 - 0	37.4	
11B1	8	9	27 - 8	4 - 0	-	-	35 - 0	1487.6	
11B2	8	STR		-	-	-	27 - 8	1175.9	
9B3	6	STR		-	-	-	27 - 8	564.4	
9B4	2	STR		-	-	-	20 - 10	141.7	
9B5	2	STR		-	-	-	14 - 0	95.2	
11B6	16	STR		-	-	-	14 - 5	1225.5	
11V1	14	10	19 - 6	-	-	-	21 - 1	1568.2	
11V2	14	10	13 - 6	-	-	-	15 - 1	1121.9	
11V4	14	10	35 - 2	-	-	-	36 - 9	2733.5	
11V5	14	10	41 - 2	-	-	-	42 - 9	3179.8	
6C1	82	13	3 - 9	3 - 3	-	-	15 - 3 1/2	1883.4	
9F1	25	STR		-	-	-	17 - 6	1487.5	
6F2	25	STR		-	-	-	17 - 6	657.1	
9F3	26	STR		-	-	-	17 - 0	1502.8	
6F4	26	STR		-	-	-	17 - 0	663.9	
5F5	6	9	2 - 2	9 - 2 1/2	-	-	20 - 7	128.8	
5F6	6	9	2 - 2	7 - 11 1/2	-	-	18 - 1	113.2	
5F7	4	9	2 - 2	5 - 7	-	-	13 - 4	55.6	
5F8	4	9	2 - 2	5 - 5 1/2	-	-	13 - 1	54.6	
								21265.5	TOTAL BENT
BENT 7									
5S1	84	14	2 - 4 1/2	4 - 0	-	-	17 - 3 1/2	1281.3	LENGTH VARIES BY EQUAL INCREMENTS 4 EACH LENGTH
TO				7 - 1			11 - 1 1/2		
4S2	16	9	2 - 8	1 - 0	-	-	4 - 8	49.9	
4S3	16	9	3 - 3	1 - 0	-	-	5 - 3	56.1	
4S4	14	15	3 - 3	-	-	-	4 - 0	37.4	
11B1	8	9	27 - 8	4 - 0	-	-	35 - 0	1487.6	
11B2	8	STR		-	-	-	27 - 8	1175.9	
9B3	6	STR		-	-	-	27 - 8	564.4	
9B4	2	STR		-	-	-	20 - 10	141.7	
9B5	2	STR		-	-	-	14 - 0	95.2	
11B6	16	STR		-	-	-	14 - 5	1225.5	
11V1	14	10	19 - 6	-	-	-	21 - 1	1568.2	

NOTE: WEIGHTS ARE FOR 60% OF TOTAL WEIGHT

BAR # 651 BAR MARK

Designed: CLH/GWP	U.S. Army Engineer District Vicksburg Corps of Engineers Vicksburg, North Carolina	
Checked: GWP	 ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT SUBSTRUCTURE REINFORCING BAR LIST 2 OF 9	
Reviewed: JBW		
Chief, Section	Scale	Plate No.
Approved: EJ Lanier, P.E.	Drawing Code: BR104-06-23	S90
Chief, Design Branch	CORR6 RI-CCSUBBAR	Date 31 MAY 91 Sheet 118 of 138

BAR MARK	NO.	TYPE	DIMENSIONS				BAR LENGTH (ft)	WEIGHT (lbs)	REMARKS
			A (ft-in)	B (ft-in)	C (ft-in)	D (ft-in)			
11V2	14	10	13 - 6	-	-	-	15 - 1	1121.9	
11V3	28	STR			-	-	18 - 0	2677.8	
11V4	14	10	25 - 11	-	-	-	27 - 6	2045.5	
11V5	14	10	31 - 11	-	-	-	33 - 6	2491.8	
6C1	86	13	3 - 9	3 - 3	-	-	15 - 6	1975.3	
9F1	25	STR		-	-	-	17 - 6	1487.5	
6F2	25	STR		-	-	-	17 - 6	657.1	
9F3	26	STR		-	-	-	17 - 0	1502.8	
6F4	26	STR		-	-	-	17 - 0	663.9	
5F5	6	9	2 - 2	9 - 2 1/2	-	-	20 - 7	4128.8	
5F6	6	9	2 - 2	7 - 11 1/2	-	-	18 - 1	113.2	
5F7	4	9	2 - 2	5 - 7	-	-	13 - 4	55.6	
5F8	4	9	2 - 2	5 - 5 1/2	-	-	13 - 1	54.6	
								22659.1	TOTAL BENT

BENT 8									
5S1	84	14	2 - 7	4 - 1	-	-	17 - 6	1533.2	LENGTH VARIES BY EQUAL INCREMENTS
10				7 - 1			11 - 6		4 EACH LENGTH
4S2	16	9	2 - 8	1 - 0	-	-	4 - 8	49.9	
4S3	16	9	3 - 6	1 - 0	-	-	5 - 6	58.8	
4S4	14	15	3 - 6	-	-	-	4 - 3	39.7	
11B1	8	9	27 - 8	4 - 0	-	-	35 - 8	1516.0	
11B2	8	STR		-	-	-	27 - 8	1175.9	
9B3	6	STR		-	-	-	27 - 8	564.4	
9B4	2	STR		-	-	-	20 - 9 1/2	141.4	
9B5	2	STR		-	-	-	13 - 11	94.6	
11B6	16	STR	14 - 5	-	-	-	14 - 5	1225.5	
11V1	15	10	19 - 6	-	-	-	21 - 1	1680.2	
11V2	15	10	13 - 6	-	-	-	15 - 1	1202.1	
11V3	30	STR		-	-	-	18 - 0	2869.0	
11V4	15	10	27 - 10	-	-	-	29 - 5	2344.4	
11V5	15	10	33 - 10	-	-	-	35 - 5	2822.5	
6C1	90	13	4 - 0	3 - 6	-	-	16 - 3 1/2	2202.4	
9F1	25	STR		-	-	-	18 - 0	1530.0	
6F2	25	STR		-	-	-	18 - 0	675.9	
9F3	25	STR		-	-	-	17 - 0	1445.0	
6F4	25	STR		-	-	-	17 - 0	638.3	
5F5	6	9	2 - 2	9 - 5 1/2	-	-	21 - 1	131.9	
5F6	6	9	2 - 2	8 - 11 1/2	-	-	20 - 1	125.7	
5F7	4	9	2 - 2	5 - 8 1/2	-	-	13 - 7	56.7	
5F8	4	9	2 - 2	5 - 5 1/2	-	-	13 - 1	54.6	
								24178.2	TOTAL BENT

BENT 9									
5S1	84	14	2 - 7	1 - 1	-	-	17 - 6	1533.2	LENGTH VARIES BY EQUAL INCREMENTS
10				7 - 1			11 - 6		4 EACH LENGTH
4S2	16	9	2 - 8	1 - 0	-	-	4 - 8	49.9	
4S3	16	9	3 - 6	1 - 0	-	-	5 - 6	58.8	

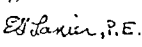
BAR MARK	NO.	TYPE	DIMENSIONS				BAR LENGTH (ft)	WEIGHT (lbs)	REMARKS
			A (ft-in)	B (ft-in)	C (ft-in)	D (ft-in)			
4S4	14	15	3 - 6	-	-	-	4 - 3	39.7	
11B1	8	9	27 - 8	4 - 0	-	-	35 - 8	1516.0	
11B2	8	STR		-	-	-	27 - 8	1175.9	
9B3	6	STR		-	-	-	27 - 8	564.4	
9B4	2	STR		-	-	-	20 - 9 1/2	141.4	
9B5	2	STR		-	-	-	13 - 11	94.6	
11B6	16	STR		-	-	-	14 - 5	1225.5	
11V1	15	10	19 - 6	-	-	-	21 - 1	1680.2	
11V2	15	10	13 - 6	-	-	-	15 - 1	1202.1	
11V3	30	STR		-	-	-	24 - 0	3825.4	
11V4	15	10	24 - 8	-	-	-	25 - 3	2092.0	
11V5	15	10	30 - 8	-	-	-	32 - 3	2570.2	
6C1	94	13	4 - 0	3 - 6	-	-	16 - 3 1/2	2300.2	
9F1	25	STR		-	-	-	18 - 0	1530.0	
6F2	25	STR		-	-	-	18 - 0	675.9	
9F3	25	STR		-	-	-	17 - 0	1445.0	
6F4	25	STR		-	-	-	17 - 0	638.3	
5F5	6	9	2 - 2	9 - 5 1/2	-	-	21 - 1	131.9	
5F6	6	9	2 - 2	8 - 11 1/2	-	-	20 - 1	125.7	
5F7	4	9	2 - 2	5 - 8 1/2	-	-	13 - 7	56.7	
5F8	4	9	2 - 2	5 - 5 1/2	-	-	13 - 1	54.6	
								24727.7	TOTAL BENT

BENT 10									
5S1	84	14	2 - 7	4 - 1	-	-	17 - 6	1533.2	LENGTH VARIES BY EQUAL INCREMENTS
TO				7 - 1			11 - 6		4 EACH LENGTH
4S2	16	9	2 - 8	1 - 0	-	-	4 - 8	49.9	
4S3	16	9	3 - 6	1 - 0	-	-	5 - 6	58.8	
4S4	14	15	3 - 6	-	-	-	4 - 3	39.7	
11B1	8	9	27 - 8	4 - 0	-	-	35 - 8	1516.0	
11B2	8	STR		-	-	-	27 - 8	1175.9	
9B3	6	STR		-	-	-	27 - 8	564.4	
9B4	2	STR		-	-	-	20 - 9 1/2	141.4	
9B5	2	STR		-	-	-	13 - 11	94.6	
11B6	16	STR		-	-	-	14 - 5	1225.5	
11V1	15	10	25 - 6	-	-	-	27 - 1	2158.4	
11V2	15	10	19 - 6	-	-	-	21 - 1	1680.2	
11V3	30	STR		-	-	-	24 - 0	3825.4	
11V4	15	10	21 - 10	-	-	-	23 - 5	1866.2	
11V5	15	10	27 - 10	-	-	-	29 - 5	2344.4	
6C1	102	13	4 - 0	3 - 6	-	-	16 - 3 1/2	2496.0	
9F1	25	STR	18 - 0	-	-	-	18 - 0	1530.0	

NOTE: WEIGHTS ARE PER BENT

BAR DESIGNATION

6S1
BAR #  BAR MARK

Designed: CLH/GWP	US Army Engineer District, WASHINGTON CORPS OF ENGINEERS WASHINGTON, NORTH CAROLINA	
Checked: GWP	 ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT SUBSTRUCTURE REINFORCING BAR LIST 3 OF 9	
Reviewed: JFW	Scale:	Drawing Code: BR104-06-23
Chief, Structures Section: Approved:  P.E.	Chief, Design Branch:	Plotted by: S91
CCBRG Date: 31 MAY 91 Sheet 119 of 138 RF=CCSUBBAR		

BAR MARK	NO.	TYPE	DIMENSIONS				BAR LENGTH (ft)	WEIGHT (lbs)	REMARKS
			A (ft-in)	B (ft-in)	C (ft-in)	D (ft-in)			
BENT 10 (CONTINUED)									
6F2	25	STR	18 - 0	-	-	-	18 - 0	675.9	
9F3	25	STR	17 - 0	-	-	-	17 - 0	1445.0	
6F4	25	STR	17 - 0	-	-	-	17 - 0	638.3	
5F5	6	9	2 - 2	9 - 5 1/2	-	-	21 - 1	131.9	
5F6	6	9	2 - 2	8 - 11 1/2	-	-	20 - 1	125.7	
5F7	4	9	2 - 2	5 - 8 1/2	-	-	13 - 7	56.7	
5F8	4	9	2 - 2	5 - 5 1/2	-	-	13 - 1	54.6	
								25428.2	
BENT 11									
5S1	84	14	2 - 7	4 - 1	-	-	17 - 6	1533.2	LENGTH VARIES BY EQUAL INCREMENTS 4 EACH LENGTH
TO				7 - 1			11 - 6		
4S2	16	9	2 - 8	1 - 0	-	-	4 - 8	49.9	
4S3	16	9	3 - 6	1 - 0	-	-	5 - 6	58.8	
4S4	14	15	3 - 6	-	-	-	4 - 3	39.7	
11B1	8	9	27 - 8	4 - 0	-	-	35 - 8	1516.0	
11B2	8	STR		-	-	-	27 - 8	1175.9	
9B3	6	STR		-	-	-	27 - 8	564.4	
9B4	2	STR		-	-	-	20 - 9 1/2	141.4	
9B5	2	STR		-	-	-	13 - 11	94.6	
11B6	16	STR		-	-	-	14 - 5	1225.5	
11V1	15	10	25 - 6	-	-	-	27 - 1	2158.4	
11V2	15	10	19 - 6	-	-	-	21 - 1	1680.2	
11V3	30	STR		-	-	-	24 - 0	3825.4	
11V4	15	10	22 - 0	-	-	-	23 - 7	1879.5	
11V5	15	10	28 - 0	-	-	-	29 - 7	2357.6	
6C1	102	13	4 - 0	3 - 6	-	-	16 - 3 1/2	2496.0	
9F1	25	STR		-	-	-	18 - 0	1530.0	
6F2	25	STR		-	-	-	18 - 0	675.9	
9F3	25	STR		-	-	-	17 - 0	1445.0	
6F4	25	STR		-	-	-	17 - 0	638.3	
5F5	6	9	2 - 2	9 - 5 1/2	-	-	21 - 1	131.9	
5F6	6	9	2 - 2	8 - 11 1/2	-	-	20 - 1	125.7	
5F7	4	9	2 - 2	5 - 8 1/2	-	-	13 - 7	56.7	
5F8	4	9	2 - 2	5 - 5 1/2	-	-	13 - 1	54.6	
								25454.7	TOTAL BENT
BENT 12									
5S1	84	14	2 - 6	4 - 1	-	-	17 - 3	1511.3	LENGTH VARIES BY EQUAL INCREMENTS 4 EACH LENGTH
TO				7 - 0			11 - 5		
4S2	16	9	2 - 8	1 - 0	-	-	4 - 8	49.9	
4S3	16	9	3 - 9	1 - 0	-	-	5 - 9	61.5	
4S4	14	15	3 - 9	-	-	-	4 - 6	42.1	
11B1	8	9	27 - 8	4 - 0	-	-	35 - 8	1516.0	
11B2	8	STR		-	-	-	27 - 8	1175.9	
9B3	6	STR		-	-	-	27 - 8	564.4	
9B4	2	STR		-	-	-	20 - 9	141.1	
9B5	2	STR		-	-	-	13 - 10	94.1	

BAR MARK	NO.	TYPE	DIMENSIONS				BAR LENGTH (ft)	WEIGHT (lbs)	REMARKS
			A (ft-in)	B (ft-in)	C (ft-in)	D (ft-in)			
11B6	16	STR		-	-	-	14 - 4 1/2	1222.2	
11V1	17	10	25 - 6	-	-	-	27 - 1	2446.2	
11V2	17	10	19 - 6	-	-	-	21 - 1	1904.3	
11V3	34	STR		-	-	-	24 - 0	4335.4	
11V4	17	10	23 - 8	-	-	-	25 - 3	2280.6	
11V5	17	10	29 - 8	-	-	-	31 - 3	2822.5	
6C1	105	13	4 - 4	3 - 9	-	-	17 - 5 1/2	2779.5	
9F1	25	STR		-	-	-	18 - 0	1530.0	
6F2	25	STR		-	-	-	18 - 0	675.9	
9F3	25	STR		-	-	-	18 - 0	1530.0	
6F4	25	STR		-	-	-	18 - 0	675.9	
5F5	16	STR		-	-	-	6 - 9	112.6	
5F6	16	9	2 - 2	7 - 1 1/2	-	-	16 - 5	274.0	
								27745.3	TOTAL BENT
BENT 13									
5S1	80	14	2 - 9	7 - 5	-	-	18 - 10 1/2	1338.5	LENGTH VARIES BY EQUAL INCREMENTS
TO				4 - 7			13 - 2 1/2		4 EACH LENGTH
4S2	16	9	3 - 2	1 - 0	-	-	5 - 2	55.2	
4S3	32	9	1 - 7 1/2	1 - 0	-	-	3 - 7 1/2	77.5	
4S4	14	15	3 - 9	-	-	-	4 - 6	42.1	
5S5	40	9	1 - 7 1/2	2 - 10	-	-	7 - 3 1/2	304.2	
11B1	8	9	27 - 8	4 - 3	-	-	36 - 2	1537.2	
11B2	8	STR		-	-	-	27 - 8	1175.9	
9B3	6	STR		-	-	-	27 - 8	564.4	
9B4	2	STR		-	-	-	20 - 9	141.1	
9B5	2	STR		-	-	-	13 - 10	94.1	
11B6	16	STR		-	-	-	14 - 4 1/4	1220.3	
11V1	20	10	25 - 6	-	-	-	27 - 1	2877.9	
11V2	20	10	19 - 6	-	-	-	21 - 1	2240.3	
11V3	40	STR		-	-	-	24 - 0	5100.5	
11V4	20	10	23 - 8	-	-	-	25 - 3	2683.1	
11V5	20	10	29 - 8	-	-	-	31 - 3	3320.6	
6C1	106	13	5 - 2	3 - 9	-	-	19 - 1 1/2	3044.9	
7F1	43	STR		-	-	-	20 - 0	1757.8	
6F2	43	STR		-	-	-	20 - 0	1291.7	
10F3	38	STR		-	-	-	24 - 6	4006.1	
6F4	38	STR		-	-	-	24 - 6	1398.4	
5F5	8	9	2 - 2	12 - 8 1/2	-	-	27 - 7	230.2	
5F6	8	9	2 - 2	10 - 5 1/2	-	-	23 - 1	192.6	
								34694.7	TOTAL BENT

Designed: CLH/GWP	U.S. Army Engineer District, Baltimore CORPS OF ENGINEERS WASHINGTON, NORTH CAROLINA	
Drawn: GWP	ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT SUBSTRUCTURE REINFORCING BAR LIST 4 OF 9	
Reviewed: JJSW	Scale	Drawing Code BR104-06-23
Chief, Structures Section Approved: B. J. Daniel, P.E.	Sheet CCBR7	Printed By S92
Chief, Design Branch	Date: 31 MAY 91	Sheet 120 of 138
RF=CCSUBBAR		

BAR MARK	NO.	TYPE	DIMENSIONS				BAR LENGTH (ft)	WEIGHT (lbs)	REMARKS
			A (ft-in)	B (ft-in)	C (ft-in)	D (ft-in)			
BENT 14									
5S1	80	14	2 - 9	7 - 5	-	-	18 - 10 1/2	1336.5	LENGTH VARIES BY EQUAL INCREMENTS
TO				4 - 7			13 - 2 1/2		4 EACH LENGTH
4S2	16	9	3 - 2	1 - 0	-	-	5 - 2	55.2	
4S3	32	9	1 - 7 1/2	1 - 0	-	-	3 - 7 1/2	77.5	
4S4	14	15	3 - 9	-	-	-	4 - 6	42.1	
5S5	40	9	1 - 7 1/2	2 - 10	-	-	7 - 3 1/2	304.2	
11B1	8	9	27 - 8	4 - 3	-	-	36 - 2	1537.2	
11B2	8	STR		-	-	-	27 - 8	1175.9	
9B3	6	STR		-	-	-	27 - 8	564.4	
9B4	2	STR		-	-	-	20 - 9	141.1	
9B5	2	STR		-	-	-	13 - 10	94.1	
11B6	16	STR					14 - 4 1/4	1220.3	
11V1	20	10	25 - 6	-	-	-	27 - 1	2877.9	
11V2	20	10	19 - 6	-	-	-	21 - 1	2240.3	
11V3	40	STR		-	-	-	24 - 0	5100.5	
11V4	20	10	23 - 9	-	-	-	25 - 4	2691.9	
11V5	20	10	29 - 9	-	-	-	31 - 4	3329.5	
6C1	106	13	5 - 2	3 - 9	-	-	19 - 1 1/2	3044.9	
9F1	43	STR		-	-	-	20 - 0	2924.0	
6F2	43	STR		-	-	-	20 - 0	1291.7	
11F3	35	STR		-	-	-	24 - 6	4555.9	
6F4	35	STR		-	-	-	24 - 6	1288.0	
5F5	8	9	2 - 2	12 - 8 1/2	-	-	27 - 7	230.2	
5F6	8	9	2 - 2	10 - 5 1/2	-	-	23 - 1	192.6	
								36317.9	TOTAL BENT
BENT 15									
5S1	84	14	2 - 9	7 - 4	-	-	18 - 10 1/2	1343.4	LENGTH VARIES BY EQUAL INCREMENTS
TO				4 - 4			13 - 2 1/2		4 EACH LENGTH
4S2	16	9	3 - 6	1 - 0	-	-	5 - 6	58.8	
4S3	16	9	3 - 9	1 - 0	-	-	5 - 9	61.5	
4S4	14	15	3 - 9	-	-	-	4 - 6	42.1	
11B1	8	9	31 - 3	4 - 4	-	-	36 - 11	1569.1	
11B2	8	STR		-	-	-	31 - 3	1328.2	
9B3	6	STR		-	-	-	31 - 3	637.5	
9B4	2	STR		-	-	-	23 - 6	159.8	
9B5	2	STR		-	-	-	15 - 9	107.1	
11B6	16	STR		-	-	-	15 - 11	1353.0	
11V1	22	10	25 - 6	-	-	-	27 - 1	3165.7	
11V2	22	10	19 - 6	-	-	-	21 - 1	2464.3	
11V3	44	STR		-	-	-	30 - 0	7013.2	
11V4	22	10	21 - 9	-	-	-	23 - 4	2727.3	
11V5	22	10	27 - 9	-	-	-	29 - 4	3428.7	
6C1	114	13	5 - 0	3 - 9	-	-	18 - 9 1/2	3217.7	
9F1	25	STR		-	-	-	19 - 6	1657.5	
6F2	25	STR		-	-	-	19 - 6	732.2	

BAR MARK	NO.	TYPE	DIMENSIONS				BAR LENGTH (ft)	WEIGHT (lbs)	REMARKS
			A (ft-in)	B (ft-in)	C (ft-in)	D (ft-in)			
9F3	27	STR		-	-	-	18 - 0	1652.4	
6F4	27	STR		-	-	-	18 - 0	730.0	
5F5	8	9	2 - 2	6 - 5 1/2	-	-	17 - 3	143.9	
5F6	8	9	2 - 2	6 - 11 1/2	-	-	18 - 3	152.3	
5F7	8	STR		-	-	-	7 - 3	60.5	
5F8	8	STR		-	-	-	6 - 9	56.3	
								33745.7	TOTAL BENT
BENTS 16 & 17									
6S1	44	14	2 - 6 1/2	4 - 8	-	-	13 - 2	1068.4	LENGTH VARIES BY EQUAL INCREMENTS
TO				7 - 8			19 - 2		4 EACH LENGTH
4S2	16	9	3 - 6	1 - 0	-	-	5 - 6	58.8	
4S3	16	9	4 - 3	1 - 0	-	-	6 - 3	65.8	
5S4	14	15	4 - 3	-	-	-	5 - 2	75.4	
11B1	10	9	31 - 3	3 - 9	-	-	38 - 9	2058.8	
11B2	8	STR		-	-	-	31 - 3	1328.2	
9B3	6	STR		-	-	-	31 - 3	637.5	
9B4	2	STR		-	-	-	25 - 3	171.7	
9B5	2	STR		-	-	-	19 - 3	130.9	
9B6	2	STR		-	-	-	13 - 3	90.1	
11B7	16	STR		-	-	-	16 - 8	1416.8	
11V1	23	10	34 - 6	-	-	-	36 - 1	4409.3	
11V2	23	10	28 - 6	-	-	-	30 - 1	3676.2	
11V3	46	STR		-	-	-	29 - 9 1/2	7160.4	
11V4	46	10	20 - 3	-	-	-	21 - 10	5336.0	
4C1	108	13	3 - 6	4 - 3	-	-	16 - 3	1172.3	
4C2	48	13	4 - 3 1/2	6 - 0	-	-	21 - 4	684.0	
11F1	86	STR		-	-	-	29 - 3	13364.9	
11F2	43	STR		-	-	-	35 - 6	8110.3	
11F3	86	STR		-	-	-	29 - 3	13364.9	
9F4	52	STR		-	-	-	21 - 0	3712.8	
9F5	52	STR		-	-	-	21 - 0	3712.8	
5F6	8	9	2 - 6	20 - 1 1/2	-	-	42 - 9	356.7	
5F7	8	STR		-	-	-	25 - 9	214.9	
5F8	18	9	2 - 6	11 - 1 1/2	-	-	24 - 9	464.7	
5F9	146	9	6 - 9	2 - 0	-	-	10 - 9	1637.0	
5F10	20	STR		-	-	-	21 - 0	438.1	
5F11	10	STR		-	-	-	27 - 0	281.6	
									(ALL BARS EPOXY COATED)
								75200.2	TOTAL EACH BENT FOR BENTS 16 & 17)
BENT 18									
5S1	84	14	2 - 9	4 - 4	-	-	18 - 10 1/2	1343.4	LENGTH VARIES FROM 3'-6" TO 6'-7"
TO				7 - 4			13 - 2 1/2		IN 6 INCH INCREMENTS

NOTE: WEIGHTS ARE PER BENT

BAR DESIGNATION

6S1
BAR # 1 BAR MARK

Designed: CLH/G&P	U.S. ARMY ENGINEER DISTRICT, WASHINGTON CORPS OF ENGINEERS WASHINGTON, NORTH CAROLINA	
Checked:	 ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT	
Reviewed: J&W	SUBSTRUCTURE REINFORCING BAR LIST 5 OF 9	
Chief Structures Section Approved: E. J. LARSEN, P.E.	Scales:	Drawing Code: BR104-06-23
Chief, Design Branch	CCDRR Date: 31 MAY 91	Plate No: S93 Sheet 121 of 138
RF=CCS09BAR		

BAR MARK	NO.	TYPE	DIMENSIONS				BAR LENGTH (ft)	WEIGHT (lbs)	REMARKS
			A (ft-in)	B (ft-in)	C (ft-in)	D (ft-in)			
BENT 16 (CONTINUED)									
4S2	16	9	3 - 6	1 - 0	-	-	5 - 6	58.8	
4S3	16	9	3 - 9	1 - 0	-	-	5 - 9	61.5	
4S4	14	15	3 - 9	-	-	-	4 - 6	42.1	
11B1	8	9	31 - 3	4 - 4	-	-	36 - 11	1569.1	
11B2	8	STR	-	-	-	-	31 - 3	1328.2	
9B3	6	STR	-	-	-	-	31 - 3	637.5	
9B4	2	STR	-	-	-	-	23 - 6	159.8	
9B5	2	STR	-	-	-	-	15 - 9	107.1	
11B6	16	STR	-	-	-	-	15 - 11	1353.0	
11V1	22	10	25 - 6	-	-	-	27 - 1	3165.7	
11V2	22	10	19 - 6	-	-	-	21 - 1	2464.3	
11V3	44	STR	-	-	-	-	30 - 0	7013.2	
11V4	22	10	23 - 0	-	-	-	24 - 7	2873.4	
11V5	22	10	29 - 0	-	-	-	30 - 7	3574.8	
6C1	114	13	5 - 0	3 - 9	-	-	18 - 9 1/2	3217.7	
9F1	25	STR	-	-	-	-	19 - 6	1657.5	
6F2	25	STR	-	-	-	-	19 - 6	732.2	
9F3	27	STR	-	-	-	-	18 - 0	1652.4	
6F4	27	STR	-	-	-	-	18 - 0	730.0	
5F5	8	9	2 - 2	6 - 5 1/2	-	-	17 - 3	143.9	
5F6	8	9	2 - 2	6 - 11 1/2	-	-	18 - 3	152.3	
5F7	8	STR	-	-	-	-	7 - 3	60.5	
5F8	8	STR	-	-	-	-	6 - 9	56.3	
								34037.9	TOTAL BENT
BENT 19									
5S1	84	14	2 - 6	4 - 1	-	-	7 - 3	1511.3	LENGTH VARIES BY EQUAL INCREMENTS
TO				7 - 0	-	-	1 - 5		4 EACH LENGTH
4S2	16	9	2 - 8	1 - 0	-	-	4 - 8	49.9	
4S3	16	9	3 - 9	1 - 0	-	-	5 - 9	61.5	
4S4	14	15	3 - 9	-	-	-	4 - 6	42.1	
11B1	8	9	27 - 8	4 - 0	-	-	35 - 8	1516.0	
11B2	8	STR	-	-	-	-	27 - 8	1175.9	
9B3	6	STR	-	-	-	-	27 - 8	564.4	
9B4	2	STR	-	-	-	-	20 - 9	141.1	
9B5	2	STR	-	-	-	-	13 - 10	94.1	
11B6	16	STR	-	-	-	-	14 - 4 1/2	1222.2	
11V1	17	10	25 - 6	-	-	-	27 - 1	2446.2	
11V2	17	10	19 - 6	-	-	-	21 - 1	1904.3	
11V3	34	STR	-	-	-	-	24 - 0	4335.4	
11V4	17	10	27 - 4	-	-	-	28 - 11	2611.8	
11V5	17	10	33 - 4	-	-	-	34 - 11	3153.7	
6C1	114	13	4 - 4	3 - 9	-	-	17 - 5 1/2	2989.3	
9F1	25	STR	-	-	-	-	18 - 0	1530.0	
6F2	25	STR	-	-	-	-	18 - 0	675.9	
9F3	25	STR	-	-	-	-	18 - 0	1530.0	
6F4	25	STR	-	-	-	-	18 - 0	675.9	
5F5	16	STR	-	-	-	-	6 - 9	112.6	
							</		

BAR MARK	NO.	TYPE	DIMENSIONS				BAR LENGTH (ft)	WEIGHT (lbs)	REMARKS
			A (ft-in)	B (ft-in)	C (ft-in)	D (ft-in)			
5F5	16	STR	-	-	-	-	6 - 9	112.6	
5F6	16	9	2 - 2	7 - 1 1/2	-	-	16 - 5	274.0	
								28617.4	TOTAL BENT
BENT 20									
5S1	84	14	2 - 6	4 - 1	-	-	7 - 3	1511.3	LENGTH VARIES BY EQUAL INCREMENTS
TO				7 - 0	-	-	1 - 5		4 EACH LENGTH
4S2	16	9	2 - 8	1 - 0	-	-	4 - 8	49.9	
4S3	16	9	3 - 9	1 - 0	-	-	5 - 9	61.5	
4S4	14	15	3 - 9	-	-	-	4 - 6	42.1	
11B1	8	9	27 - 8	4 - 0	-	-	35 - 8	1516.0	
11B2	8	STR	-	-	-	-	27 - 8	1175.9	
9B3	6	STR	-	-	-	-	27 - 8	564.4	
9B4	2	STR	-	-	-	-	20 - 9	141.1	
9B5	2	STR	-	-	-	-	13 - 10	94.1	
11B6	16	STR	-	-	-	-	14 - 4 1/2	1222.2	
11V1	17	10	25 - 6	-	-	-	27 - 1	2446.2	
11V2	17	10	19 - 6	-	-	-	21 - 1	1904.3	
11V3	34	STR	-	-	-	-	24 - 0	4335.4	
11V4	17	10	25 - 10	-	-	-	27 - 5	2476.3	
11V5	17	10	31 - 10	-	-	-	33 - 5	3018.2	
6C1	110	13	4 - 4	3 - 9	-	-	17 - 5 1/2	2884.4	
9F1	25	STR	-	-	-	-	18 - 0	1530.0	
6F2	25	STR	-	-	-	-	18 - 0	675.9	
9F3	25	STR	-	-	-	-	18 - 0	1530.0	
6F4	25	STR	-	-	-	-	18 - 0	675.9	
5F5	16	STR	-	-	-	-	6 - 9	112.6	
5F6	16	9	2 - 2	7 - 1 1/2	-	-	16 - 5	274.0	
								28241.58	TOTAL BENT
BENT 21									
5S1	84	14	2 - 6	4 - 1	-	-	7 - 3	1511.3	LENGTH VARIES BY EQUAL INCREMENTS
TO				7 - 0	-	-	1 - 5		4 EACH LENGTH
4S2	16	9	2 - 8	1 - 0	-	-	4 - 8	49.9	
4S3	16	9	3 - 9	1 - 0	-	-	5 - 9	61.5	
4S4	14	15	3 - 9	-	-	-	4 - 6	42.1	
11B1	8	9	27 - 8	4 - 0	-	-	35 - 8	1516.0	
11B2	8	STR	-	-	-	-	27 - 8	1175.9	
9B3	6	STR	-	-	-	-	27 - 8	564.4	
9B4	2	STR	-	-	-	-	20 - 9	141.1	
9B5	2	STR	-	-	-	-	13 - 10	94.1	
11B6	16	STR	-	-	-	-	14 - 4 1/2	1222.2	
11V1	17	10	25 - 6	-	-	-	27 - 1	2446.2	

NOTE: WEIGHTS ARE PER BENT.

BAR DESIGNATION

BAR # ^{6S1}  BAR MARK

Designed: CLH/GWP	US Army Engineer District, Vicksburg Mississippi, North Carolina	
Checked: GWP	ATLANTIC INTRACASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT	
Reviewed: JEW	SUBSTRUCTURE REINFORCING BAR LIST	
Chief, Structures Section Approved: E.H. Lander, P.E. Chief, Design Division	Scales: Drawing Code: BR104-06-23	Plate No: S94
CCBR9 Date: 31 MAY 91 Sheet 122 of 139 RF=CCSUBBAR		

BAR MARK	NO.	TYPE	DIMENSIONS				BAR LENGTH (ft)	WEIGHT (lbs)	REMARKS
			A (ft-in)	B (ft-in)	C (ft-in)	D (ft-in)			
BENT 21 (CONTINUED)									
11V2	17	10	19 - 6	-	-	-	21 - 1	1904.3	
11V3	34	STR		-	-	-	24 - 0	4335.4	
11V4	17	10	25 - 8	-	-	-	27 - 3	2461.2	
11V5	17	10	31 - 8	-	-	-	33 - 3	3003.2	
6C1	110	13	4 - 4	3 - 9	-	-	17 - 5 1/2	2884.4	
9F1	25	STR		-	-	-	18 - 0	1530.0	
6F2	25	STR		-	-	-	18 - 0	675.9	
9F3	25	STR		-	-	-	18 - 0	1530.0	
6F4	25	STR		-	-	-	18 - 0	675.9	
5F5	16	STR		-	-	-	6 - 9	112.6	
5F6	16	9	2 - 2	7 - 1 1/2	-	-	16 - 5	274.0	
								28211.5	TOTAL BENT
BENT 22									
5S1	84	14	2 - 6	4 - 1	-	-	17 - 3	1511.3	LENGTH VARIES BY EQUAL INCREMENTS
10				7 - 0	-	-	11 - 5		4 EACH LENGTH
4S2	16	9	2 - 8	1 - 0	-	-	4 - 8	49.9	
4S3	16	9	3 - 9	1 - 0	-	-	5 - 9	61.5	
4S4	14	15	3 - 9	-	-	-	4 - 6	42.1	
11B1	8	9	27 - 8	4 - 0	-	-	35 - 8	1516.0	
11B2	8	STR		-	-	-	27 - 8	1175.9	
9B3	6	STR		-	-	-	27 - 8	564.4	
9B4	2	STR		-	-	-	20 - 9	141.1	
9B5	2	STR		-	-	-	13 - 10	94.1	
11B6	16	STR		-	-	-	14 - 4 1/2	1222.2	
11V1	17	10	25 - 6	-	-	-	27 - 1	2446.2	
11V2	17	10	19 - 6	-	-	-	21 - 1	1904.3	
11V3	34	STR	0	-	-	-	24 - 0	4335.4	
11V4	17	10	24 - 9	-	-	-	26 - 4	2378.5	
11V5	17	10	30 - 9	-	-	-	32 - 4	2920.4	
6C1	106	13	4 - 4	3 - 9	-	-	17 - 5 1/2	2779.5	
9F1	25	STR		-	-	-	18 - 0	1530.0	
6F2	25	STR		-	-	-	18 - 0	675.9	
9F3	25	STR		-	-	-	18 - 0	1530.0	
6F4	25	STR		-	-	-	18 - 0	675.9	
5F5	16	STR		-	-	-	6 - 9	112.6	
5F6	16	9	2 - 2	7 - 1 1/2	-	-	16 - 5	274.0	
								27941.0	TOTAL BENT
BENT 23									
5S1	84	14	2 - 7	4 - 1	-	-	17 - 6	1533.2	LENGTH VARIES BY EQUAL INCREMENTS
10				7 - 1	-	-	11 - 6		4 EACH LENGTH
4S2	16	9	2 - 8	1 - 0	-	-	4 - 8	49.9	
4S3	16	9	3 - 6	1 - 0	-	-	5 - 6	58.8	
4S4	14	15	3 - 6	-	-	-	4 - 3	39.7	
11B1	8	9	27 - 8	4 - 0	-	-	35 - 8	1516.0	
11B2	8	STR		-	-	-	27 - 8	1175.9	
9B3	6	STR		-	-	-	27 - 8	564.4	
9B4	2	STR		-	-	-	20 - 9 1/2	141.4	

BAR MARK	NO.	TYPE	DIMENSIONS				BAR LENGTH (ft)	WEIGHT (lbs)	REMARKS
			A (ft-in)	B (ft-in)	C (ft-in)	D (ft-in)			
9B5	2	STR		-	-	-	13 - 11	94.6	
11B6	16	STR		-	-	-	14 - 5	1225.5	
11V1	15	10	25 - 6	-	-	-	27 - 1	2158.4	
11V2	15	10	19 - 6	-	-	-	21 - 1	1680.2	
11V3	30	STR		-	-	-	24 - 0	3825.4	
11V4	15	10	21 - 2	-	-	-	22 - 9	1813.1	
11V5	15	10	27 - 2	-	-	-	28 - 9	2291.2	
6C1	102	13	4 - 0	3 - 6	-	-	16 - 3 1/2	2496.0	
9F1	25	STR		-	-	-	18 - 0	1530.0	
6F2	25	STR		-	-	-	18 - 0	675.9	
9F3	25	STR		-	-	-	17 - 0	1445.0	
6F4	25	STR		-	-	-	17 - 0	638.3	
5F5	6	9	2 - 2	9 - 5 1/2	-	-	21 - 1	131.9	
5F6	6	9	2 - 2	8 - 11 1/2	-	-	20 - 1	125.7	
5F7	4	9	2 - 2	5 - 8 1/2	-	-	13 - 7	56.7	
5F8	4	9	2 - 2	5 - 5 1/2	-	-	13 - 1	54.6	
								25321.9	TOTAL BENT
BENT 24									
5S1	84	14	2 - 7	4 - 1	-	-	17 - 6	1533.2	LENGTH VARIES BY EQUAL INCREMENTS
10				7 - 1	-	-	11 - 6		4 EACH LENGTH
4S2	16	9	2 - 8	1 - 0	-	-	4 - 8	49.9	
4S3	16	9	3 - 6	1 - 0	-	-	5 - 6	58.8	
4S4	14	15	3 - 6	-	-	-	4 - 3	39.7	
11B1	8	9	27 - 8	4 - 0	-	-	35 - 8	1516.0	
11B2	8	STR		-	-	-	27 - 8	1175.9	
9B3	6	STR		-	-	-	27 - 8	564.4	
9B4	2	STR		-	-	-	20 - 9 1/2	141.4	
9B5	2	STR		-	-	-	13 - 11	94.6	
11B6	16	STR		-	-	-	14 - 5	1225.5	
11V1	15	10	25 - 6	-	-	-	27 - 1	2158.4	
11V2	15	10	19 - 6	-	-	-	21 - 1	1680.2	
11V3	30	STR		-	-	-	24 - 0	3825.4	
11V4	15	10	21 - 6	-	-	-	23 - 1	1839.6	
11V5	15	10	27 - 6	-	-	-	29 - 1	2317.8	
6C1	102	STR		3 - 6	-	-	16 - 3 1/2	2496.0	
9F1	25	STR		-	-	-	18 - 0	1530.0	
6F2	25	STR		-	-	-	18 - 0	675.9	
9F3	25	STR		-	-	-	17 - 0	1445.0	
6F4	25	STR		-	-	-	17 - 0	638.3	
5F5	6	9	2 - 2	9 - 5 1/2	-	-	21 - 1	131.9	
5F6	6	9	2 - 2	8 - 11 1/2	-	-	20 - 1	125.7	

NOTE: WEIGHT LISTED IS PER BENT

BAR DESIGNATION

6S1
BAR # 12 BAR MARK

Designed: CLH/GWP	US Army Engineer District, WASHINGTON CORPS OF ENGINEERS WASHINGTON, NORTH CAROLINA		
Checked: GWP	 ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT SUBSTRUCTURE REINFORCING BAR LIST 7 OF 9		
Reviewed: JFW	Chief, Structures Section	Scale:	Drawing Code: BR104-06-23
Approved: P. J. Davis, P.E.	Chief, Design Branch	Date: 31 MAY 91	Sheet 123 of 138
RF=CCSUBBAR			

BAR MARK	NO.	TYPE	DIMENSIONS				BAR LENGTH (ft)	WEIGHT (lbs)	REMARKS
			A (ft-in)	B (ft-in)	C (ft-in)	D (ft-in)			
5F7	4	9	2 - 2	5 - 5 1/2	-	-	13 - 7	56.7	
5F8	4	9	2 - 2	5 - 5 1/2	-	-	13 - 1	54.6	
								25375.0	TOTAL BENT
BENT 25									
5S1	84	14	2 - 4 1/2	4 - 0	-	-	17 - 3 1/2	1281.3	
TO				7 - 1	-	-	11 - 1 1/2		
4S2	16	9	2 - 8	1 - 0	-	-	4 - 8	49.9	
4S3	16	9	3 - 3	1 - 0	-	-	5 - 3	56.1	
4S4	14	15	3 - 3	-	-	-	4 - 0	37.4	
11B1	8	9	27 - 8	4 - 0	-	-	35 - 0	1487.6	
11B2	8	STR	-	-	-	-	27 - 8	1175.9	
9B3	6	STR	-	-	-	-	27 - 8	564.4	
9B4	2	STR	-	-	-	-	20 - 10	141.7	
9B5	2	STR	-	-	-	-	14 - 0	95.2	
11B6	16	STR	-	-	-	-	14 - 5	1225.5	
11V1	14	10	19 - 6	-	-	-	21 - 1	1568.2	
11V2	14	10	13 - 6	-	-	-	15 - 1	1121.9	
11V3	28	STR	-	-	-	-	18 - 0	2677.8	
11V4	14	10	27 - 0	-	-	-	28 - 7	2126.1	
11V5	14	10	33 - 0	-	-	-	34 - 7	2572.4	
6C1	86	13	3 - 9	3 - 3	-	-	15 - 3 1/2	1975.3	
9F1	25	STR	-	-	-	-	17 - 6	1487.5	
6F2	25	STR	-	-	-	-	17 - 6	657.1	
9F3	26	STR	-	-	-	-	17 - 0	1502.8	
6F4	26	STR	-	-	-	-	17 - 0	663.9	
5F5	6	9	2 - 2	9 - 2 1/2	-	-	20 - 7	128.8	
5F6	6	9	2 - 2	7 - 11 1/2	-	-	18 - 1	113.2	
5F7	4	9	2 - 2	5 - 7	-	-	13 - 4	55.6	
5F8	4	9	2 - 2	5 - 5 1/2	-	-	13 - 1	54.6	
								22820.3	TOTAL BENT
BENT 26									
5S1	84	14	2 - 4 1/2	4 - 0	-	-	17 - 3 1/2	1281.3	LENGTH VARIES BY EQUAL INCREMENTS
TO				7 - 1	-	-	11 - 1 1/2		4 EACH LENGTH
4S2	16	9	2 - 8	1 - 0	-	-	4 - 8	49.9	
4S3	16	9	3 - 3	1 - 0	-	-	5 - 3	56.1	
4S4	14	15	3 - 3	-	-	-	4 - 0	37.4	
11B1	8	9	27 - 8	4 - 0	-	-	35 - 0	1487.6	
11B2	8	STR	-	-	-	-	27 - 8	1175.9	
9B3	6	STR	-	-	-	-	27 - 8	564.4	
9B4	2	STR	-	-	-	-	20 - 10	141.7	
9B5	2	STR	-	-	-	-	14 - 0	95.2	
11B6	16	STR	-	-	-	-	14 - 5	1225.5	
11V1	14	10	19 - 6	-	-	-	21 - 1	1568.2	
11V2	14	10	13 - 6	-	-	-	15 - 1	1121.9	
11V3	28	STR	-	-	-	-	24 - 0	3570.3	
11V4	14	10	22 - 10	-	-	-	24 - 5	1816.2	
11V5	14	10	28 - 10	-	-	-	30 - 5	2262.5	
6C1	90	13	3 - 9	3 - 3	-	-	15 - 3 1/2	2067.2	

BAR MARK	NO.	TYPE	DIMENSIONS				BAR LENGTH (ft)	WEIGHT (lbs)	REMARKS
			A (ft-in)	B (ft-in)	C (ft-in)	D (ft-in)			
9F1	25	STR	-	-	-	-	17 - 6	1487.5	
6F2	25	STR	-	-	-	-	17 - 6	657.1	
9F3	26	STR	-	-	-	-	17 - 0	1502.8	
6F4	26	STR	-	-	-	-	17 - 0	663.9	
5F5	6	9	2 - 2	9 - 2 1/2	-	-	20 - 7	128.8	
5F6	6	9	2 - 2	7 - 11 1/2	-	-	18 - 1	113.2	
5F7	4	9	2 - 2	5 - 7	-	-	13 - 4	55.6	
5F8	4	9	2 - 2	5 - 5 1/2	-	-	13 - 1	54.6	
								23184.9	TOTAL BENT
BENT 27									
5S1	84	14	2 - 4 1/2	4 - 0	-	-	17 - 3 1/2	1281.3	LENGTH VARIES BY EQUAL INCREMENTS
TO				7 - 1	-	-	11 - 1 1/2		4 EACH LENGTH
4S2	16	9	2 - 8	1 - 0	-	-	4 - 8	49.9	
4S3	16	9	3 - 3	1 - 0	-	-	5 - 3	56.1	
4S4	14	15	3 - 3	-	-	-	4 - 0	37.4	
11B1	8	9	27 - 8	4 - 0	-	-	35 - 0	1487.6	
11B2	8	STR	-	-	-	-	27 - 8	1175.9	
9B3	6	STR	-	-	-	-	27 - 8	564.4	
9B4	2	STR	-	-	-	-	20 - 10	141.7	
9B5	2	STR	-	-	-	-	14 - 0	95.2	
11B6	16	STR	-	-	-	-	14 - 5	1225.5	
11V1	14	10	19 - 6	-	-	-	21 - 1	1568.2	
11V2	14	10	13 - 6	-	-	-	15 - 1	1121.9	
11V4	14	10	33 - 9	-	-	-	35 - 4	2628.1	
11V5	14	10	39 - 9	-	-	-	41 - 4	3074.4	
6C1	78	13	3 - 9	3 - 3	-	-	15 - 3 1/2	1791.5	
9F1	25	STR	-	-	-	-	17 - 6	1487.5	
6F2	25	STR	-	-	-	-	17 - 6	657.1	
9F3	26	STR	-	-	-	-	17 - 0	1502.8	
6F4	26	STR	-	-	-	-	17 - 0	663.9	
5F5	6	9	2 - 2	9 - 2 1/2	-	-	20 - 7	128.8	
5F6	6	9	2 - 2	7 - 11 1/2	-	-	18 - 1	113.2	
5F7	4	9	2 - 2	5 - 7	-	-	13 - 4	55.6	
5F8	4	9	2 - 2	5 - 5 1/2	-	-	13 - 1	54.6	
								20962.9	TOTAL BENT
BENT 28									
5S1	84	14	2 - 2 1/2	3 - 6	-	-	16 - 3 1/2	1157.2	LENGTH VARIES BY EQUAL INCREMENTS
TO				6 - 7	-	-	10 - 1 1/2		4 EACH LENGTH
4S2	16	9	2 - 8	1 - 0	-	-	4 - 8	49.9	
4S3	16	9	3 - 0	1 - 0	-	-	5 - 0	53.4	
4S4	42	15	3 - 0	-	-	-	3 - 9	105.2	

NOTE: WEIGHTS LISTED ARE PER BENT

BAR DESIGNATION

6S1
BAR #  BAR MARK

Designed: CLH/GWP	U.S. Army Corps of Engineers ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT SUBSTRUCTURE REINFORCING BAR LIST 8 OF 9	U.S. Army Corps of Engineers ENGINEERING DIVISION WASHINGTON, D.C.
Checked: GWP	Scale: 	Plotting Code: BR104-C6-23
Reviewed: JRW	Chief, Structures Section: E. J. Lavin, P.E.	Sheet 124 of 138
Approved: E. J. Lavin, P.E.	Chief, Design Branch:	RF=CCSUBBAR

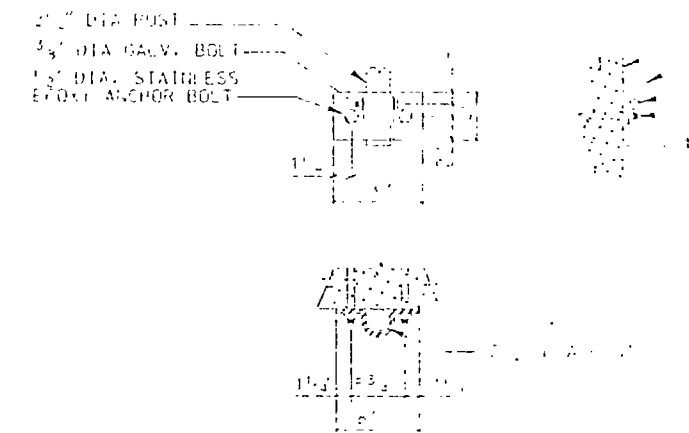
[illegible]

NOTE: WEIGHTS LISTED ARE PER BENT

BAR DESIGNATION

BAR # 651 BAR MARK

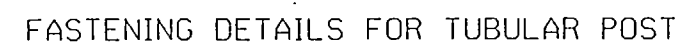
Designed:			U.S. ARMY ENGINEER DISTRICT, WASHINGTON, D.C. CORPS OF ENGINEERS WASHINGTON, D.C. 20315	
CLH/GWP				
Checked:			ATLANTIC INTRACOASTAL WATERWAY CORE CREEK BRIDGE REPLACEMENT	
GWP	US Army Corps of Engineers		SUBSTRUCTURE REINFORCING BAR LIST	
Reviewed:			9 OF 9	
JEW				
Chief, Structures Section	Scale:		Drawing Code:	Plate No:
Approved:	BR104-06-23		S97	
<i>P.J. Lanier, P.E.</i>				
Chief, Design Branch	CCBR12	Date: 31. MAY 91	Sheet 125	of 138
	RF=CCSUBBAR			



 3/8" = 1'-0"



3/8" = 1' - 0"



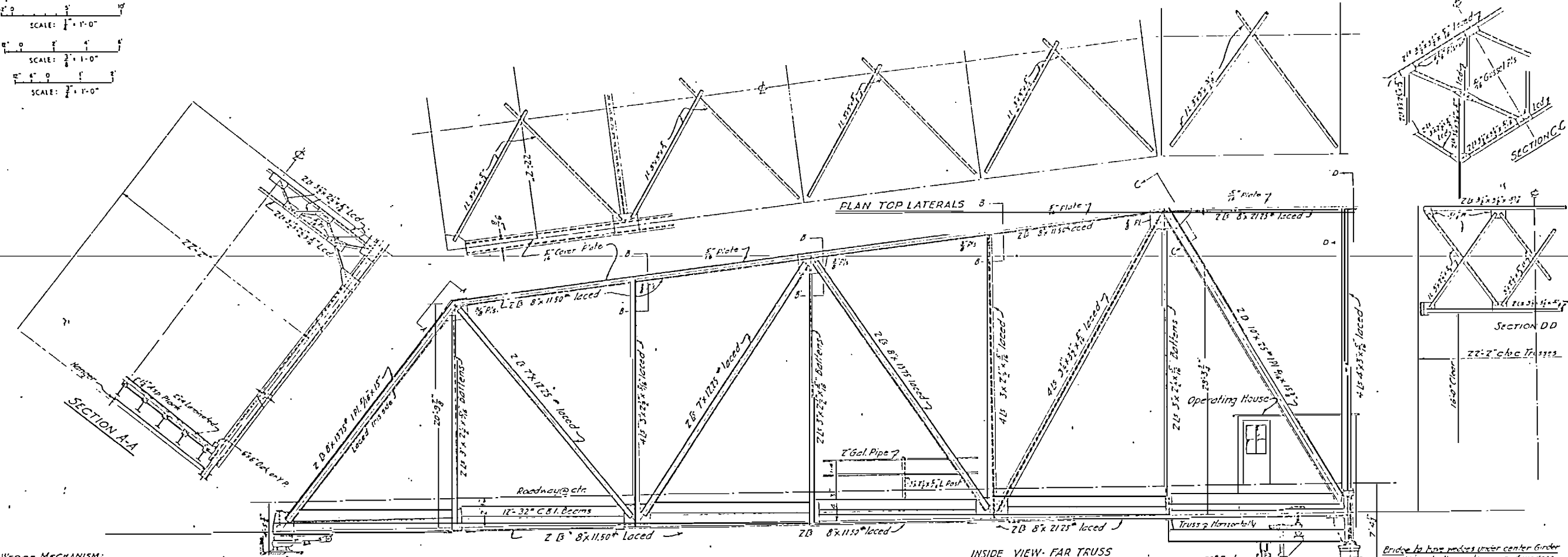
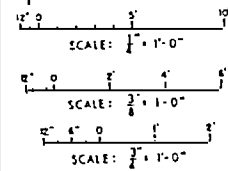
1. CHAIN LINK FENCING SHALL CONFORM TO FEDERAL SPECIFICATION 100-100-01.
2. WOVEN FABRIC SHALL BE TYPE 1 ZINC COATED. MIN. COATING WEIGHT OF 2 OUNCES OF ZINC PER SQUARE FOOT OF COATED SURFACE. FABRIC SHALL BE MADE OF 1/4" DIA. GALV. STEEL IN 2" MESH. (FS RR-191/31).
3. GATES SHALL BE OF CLASS 1 GRADE A UR B GATE. ALL POSTS SHALL BE SIZE SP2 (FS RR-F-191/3).
4. POST SHALL BE OF CLASS 1 GRADE A UR B GATE. ALL POSTS SHALL BE SIZE SP2 (FS RR-F-191/3).
5. BRACES SHALL BE OF ZINC-COATED CLASS 1 GRADE A UR B GATE. ALL POSTS SHALL BE SIZE SP1 (FS RR-F-191/3).
6. FERROUS ACCESSORIES SHALL BE ZINC COATED. TURNBUCKLES FOR TRUSS RODS SHALL BE PROVIDED W/ TURNBUCKLES. THE WIRE FOR ATTACHING FABRIC TO POST SHALL BE 9 GAUGE STEEL WIRE.
7. A PADLOCK W/ 2 KEYS SHALL BE FURNISHED FOR EACH GATE. PADLOCK SHALL BE PO1, GRADE 2, SIZE 1 1/4".
8. FABRICATED POST BRACKETS SHALL BE HOT DIP GALVANIZED STEEL. ALL WELDS SHALL BE FULL PENETRATION.
9. ANCHOR BOLTS SHALL BE STAINLESS STEEL AND SHALL BE INSTALLED INTO THE PARAPET WITH AN EPOXY ADHESIVE. THE BOLTS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS.
10. POST SPACING IS APPROXIMATE AND MAY BE ADJUSTED TO FIT THE PLATFORM COMPONENTS.
11. GATE SHALL OPEN TOWARD THE ROADWAY & SHALL BE CAPABLE OF BEING HELD OPEN OR CLOSED.

REVISIONS

REVISED					
SYMB.	DESCRIPTION	DATE	APPROVED		
WORK SHEET NO.					
CITY					
STREET					
STATE					
ZIP CODE					
		ATLANTIC INTRACOASTAL WATERWAY COLUMBIA RIVER BRIDGE REPLACEMENT			
		SOLAR ARRAY FENCE			
					S98

81-0056-2

NAVY DEPARTMENT.

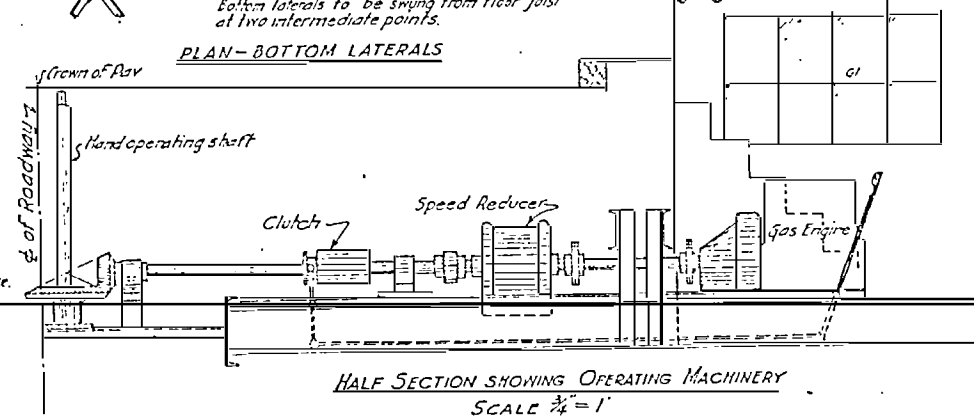
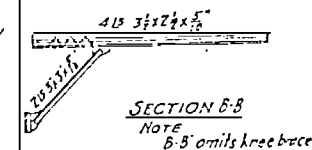
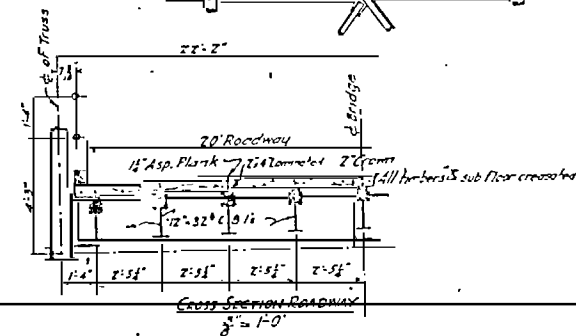
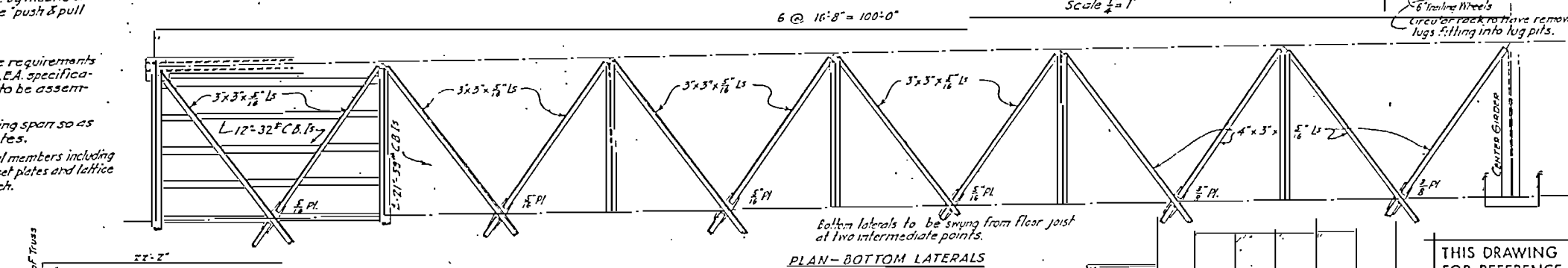
THIS DRAWING
HAS BEEN
REDUCED

WEDGE MECHANISM:
The wedge operation shall be by means of shaft & worm gear, and not the 'push & pull' type.

MACHINERY:
Machinery shall meet all the requirements of the latest edition of the A.R.E.A. specifications. Machinery and shafts to be assembled on steel in shop.

Bevel angle on ends of swing span so as to pass under expansion plates.

The thickness of all structural members including webs of beams and channels, gusset plates and lattice bars shall be not less than $\frac{3}{8}$ inch.

THIS DRAWING
FOR REFERENCE
ONLY.

$\frac{3}{8}$ " Rivets unless noted.
 $\frac{3}{8}$ " PL do.

INLAND WATERWAY FROM NORFOLK, VA. TO BEAUFORT INLET, N.C.
PROPOSED HIGHWAY BRIDGE TO REPLACE EXISTING
CORE CREEK BRIDGE
NEAR BEAUFORT, N.C.
— HALF SPAN DETAILS —
IN 7 SHEETS SHEET No. 3. SCALES AS SHOWN.

U.S. ENGINEER OFFICE, WILMINGTON, N.C. NOV 23, 1934.
SUBMITTED: APPROVED:
CIVIL ENGINEER CIVIL ENGINEER
DRAM & PACIO LEM
CHIEF

PLATE 14

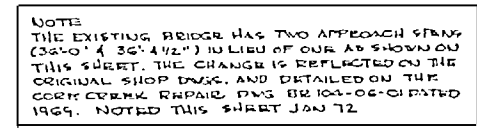
R1

18/13

Bearing on field rivets - $\begin{cases} \text{Single Shear } 20,000 \text{ lbs. sq. in.} \\ \text{Double Shear } 22,000 \text{ lbs. sq. in.} \end{cases}$

70% of Dead Load taken as effective in counteracting Live Load.
(When of opposite sign & D.L. Smaller.)

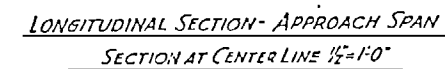




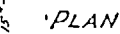
SECTION
ARCH SPAN
"-0"

1:1.5 "Overhang of Swing Span & Clearance."

Floor level of Approach & Swing Span on $\frac{1}{2}$ EL. 21.342

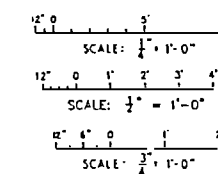


SECTION A-A



DETAIL OF SHOE C.S.
1/4 SIZE
18 REQD.

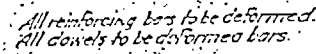
THIS DRAWING
HAS BEEN
REDUCED



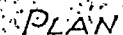
THIS DRAWING
FOR REFERENCE
ONLY

INLAND WATERWAY FROM NORFOLK, VA. TO BEAUFORT INLET, N.C.
PROPOSED HIGHWAY BRIDGE TO REPLACE EXISTING
CORE CREEK BRIDGE
NEAR BEAUFORT, N.C.
APPROACH SPAN DETAILS
IN 7 SHEETS SHEET No. 4. SCALES AS SHOWN

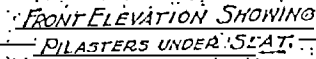
U.S. ENGINEER OFFICE, WILMINGTON, N.C. Nov. 23, 1934.
SUBMITTED: APPROVED:
CIVIL ENGINEER LEO J. SAMPSON, JR., ENGINEER.



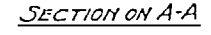
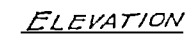
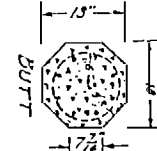
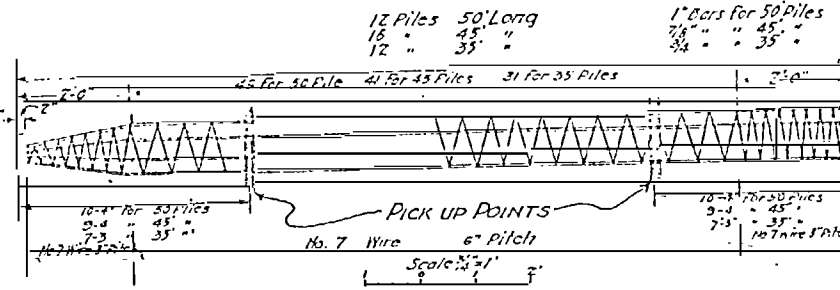
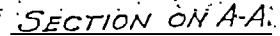
REAR ELEVATION



ABUTMENT NO. 1
CLASS "A" CONCRETE.

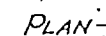


FRONT ELEVATION SHOWING
PILASTERS UNDER SEAT.



ABUTMENT No. 2.

Scale $\frac{3}{8} = 1"$ CLASS B CONCRETE.



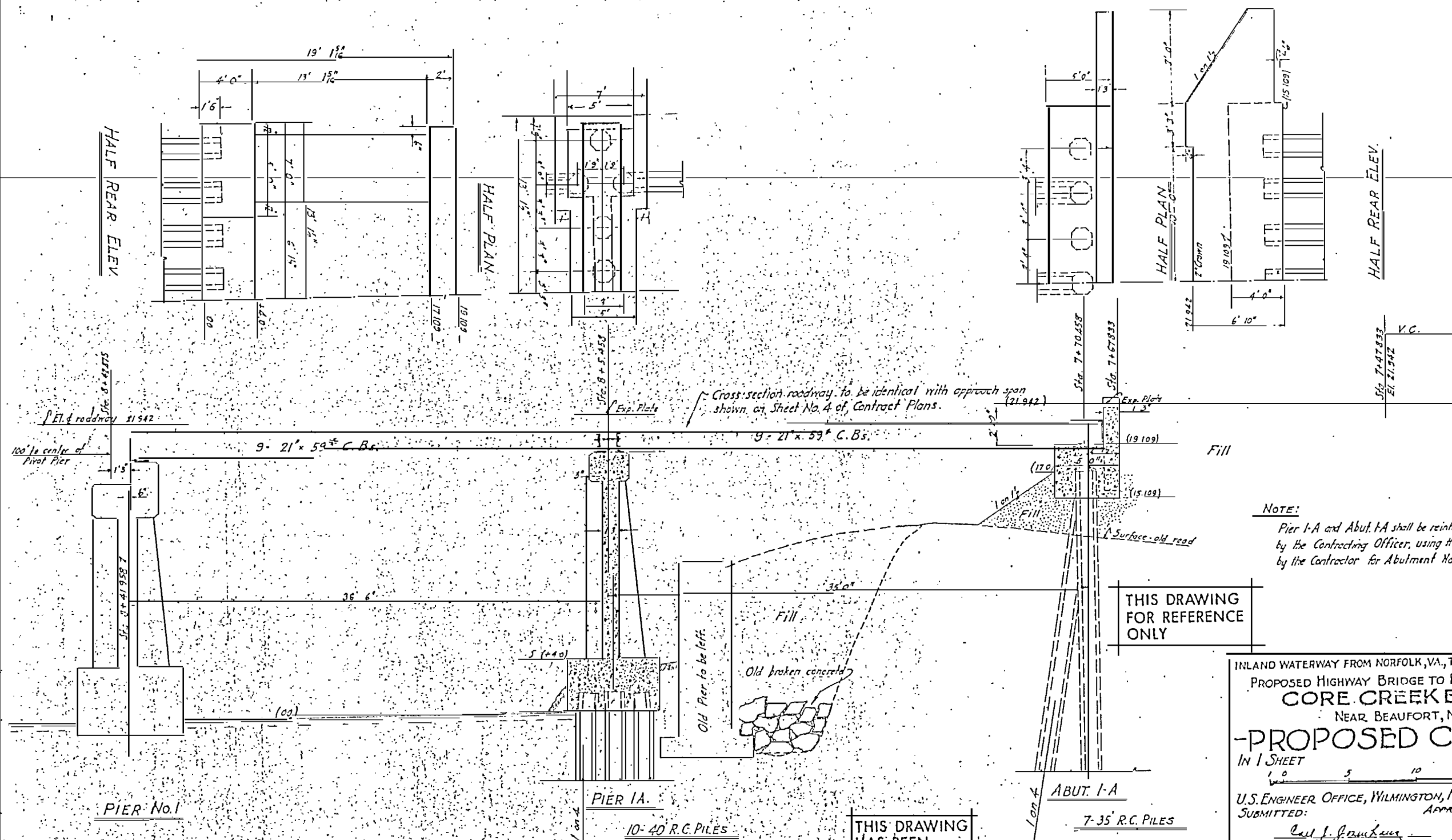
THIS DRAWING FOR REFERENCE ONLY

INLAND WATERWAY FROM NORFOLK, VA. TO BEAUFORT INLET, N.C.
PROPOSED HIGHWAY BRIDGE TO REPLACE EXISTING
CORE CREEK BRIDGE
NEAR BEAUFORT, N.C.
ABUTMENT DETAILS
IN 7 SHEETS SHEET No. 6 SCALES AS SHOWN

U.S. ENGINEER OFFICE, WILMINGTON, N.C. NOV. 23, 1934.
SUBMITTED: APPROVED: *[Signature]*
Cecil E. Beckwith
CHIEF ENGINEER.
LT. COL. U.S. ARMY.
ENVELOPE L.L.M. CIVIL ENGINEER.
PACKED -
CHICAGO

~~PLATE 13~~

R-4



NOTE:

Pier I-A and Abut. I-A shall be reinforced as directed by the Contracting Officer, using the steel purchased by the Contractor for Abutment No. 1 of original plan.

THIS DRAWING FOR REFERENCE ONLY

INLAND WATERWAY FROM NORFOLK, VA., TO BEAUFORT INLET, N.C.
PROPOSED HIGHWAY BRIDGE TO REPLACE EXISTING
CORE CREEK BRIDGE
NEAR BEAUFORT, N.C.

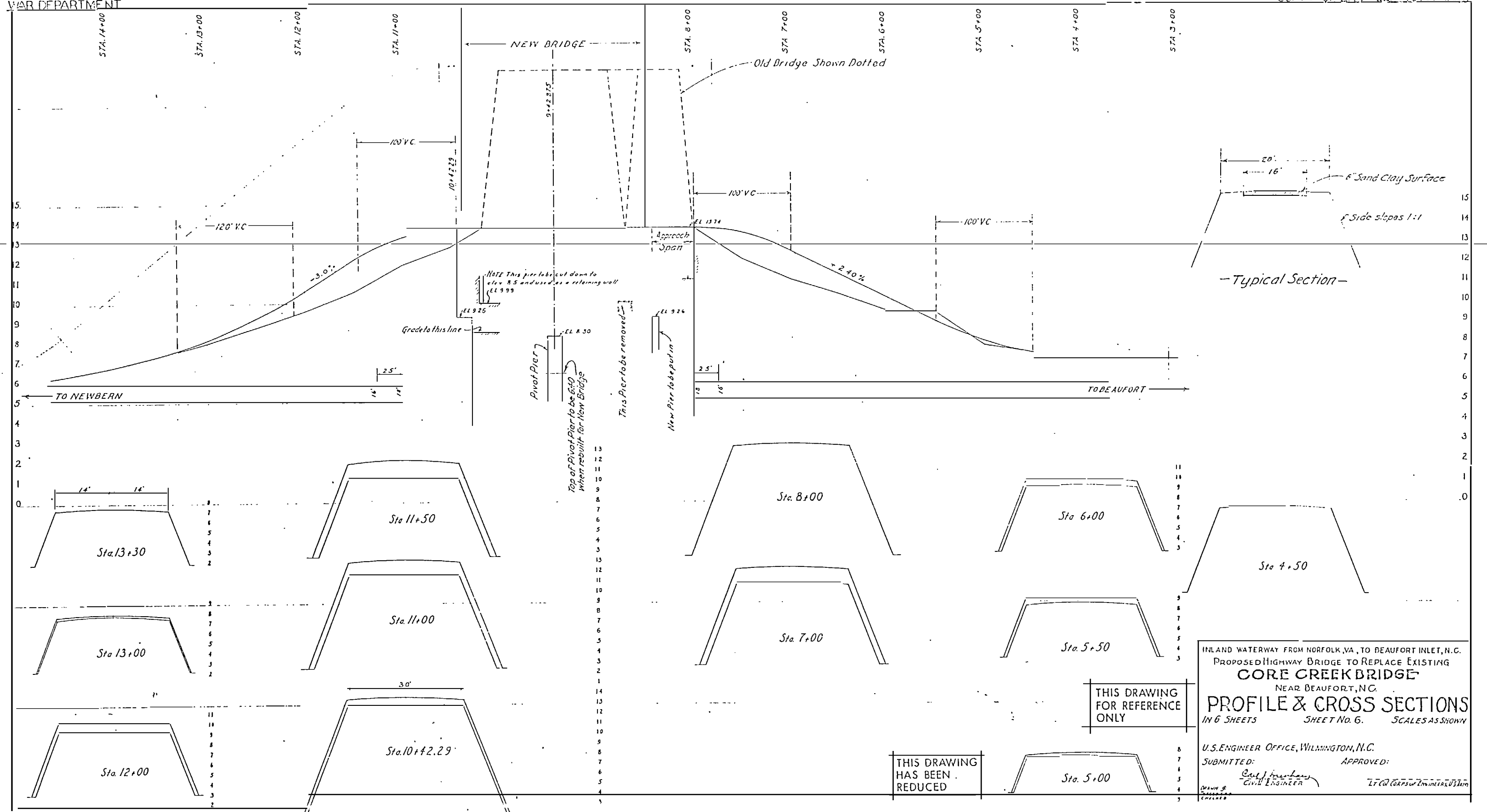
-PROPOSED CHANGES-

IN 1 SHEET SCALE 1/4" = 1' 20/ft

U.S. ENGINEER OFFICE, WILMINGTON, N.C. JUNE 11, 1935
SUBMITTED: APPROVED:

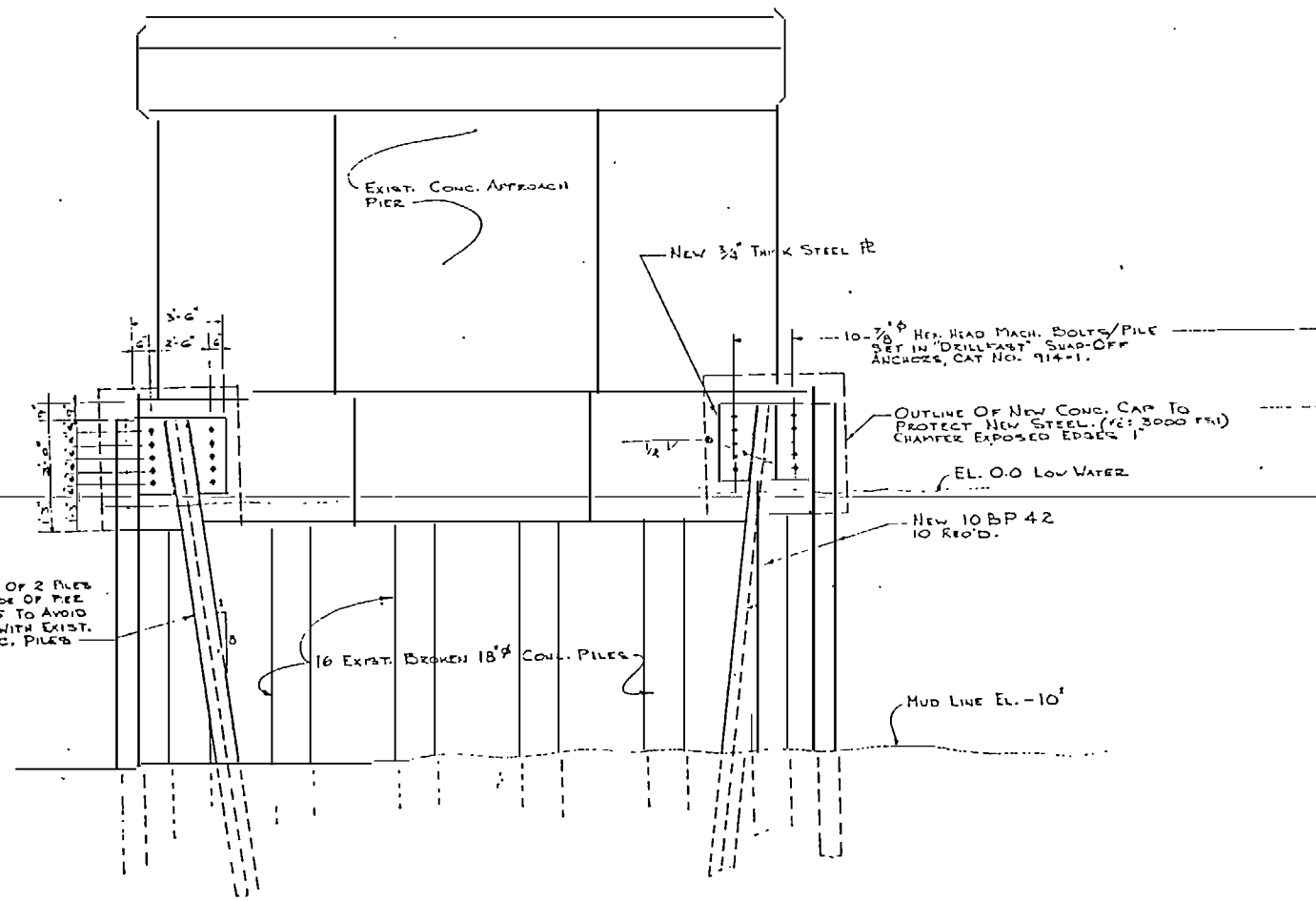
Carl J. Frank
CIVIL ENGINEER
To accompany change order No. 1 to the Tidewater Construction Corp. dated 6-12-1935

THIS DRAWING HAS BEEN REDUCED



NOTE:

REDUCE BATTER OF 2 PILES ON BEAUFORT SIDE OF PIER TO APPROX. 1:15 TO AVOID INTERFERENCE WITH EXIST. BATTERED CONC. PILES



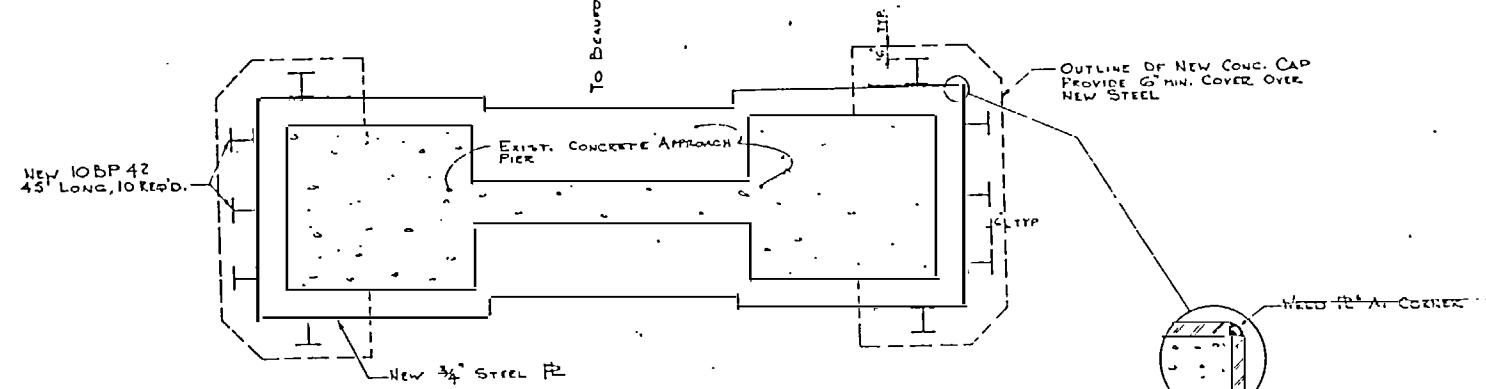
FRONT ELEVATION—LOOKING TOWARDS BEAUFORT N.C.
SCALE: 3/8"=1'-0"

SIDE ELEVATION
SCALE: 3/8"=1'-0"

NOTE:

IF PIER DOES NOT REMAIN IN POSITION WHEN JACKS ARE REMOVED PROVIDE ADEQUATE STEEL STRUTS TO CENTER APPROACH SPAN PIER.

AS BUILT: TWO STEEL STRUTS WERE ADDED AS PER ABOVE NOTE. NOTED THIS SHEET DEC. 1971.



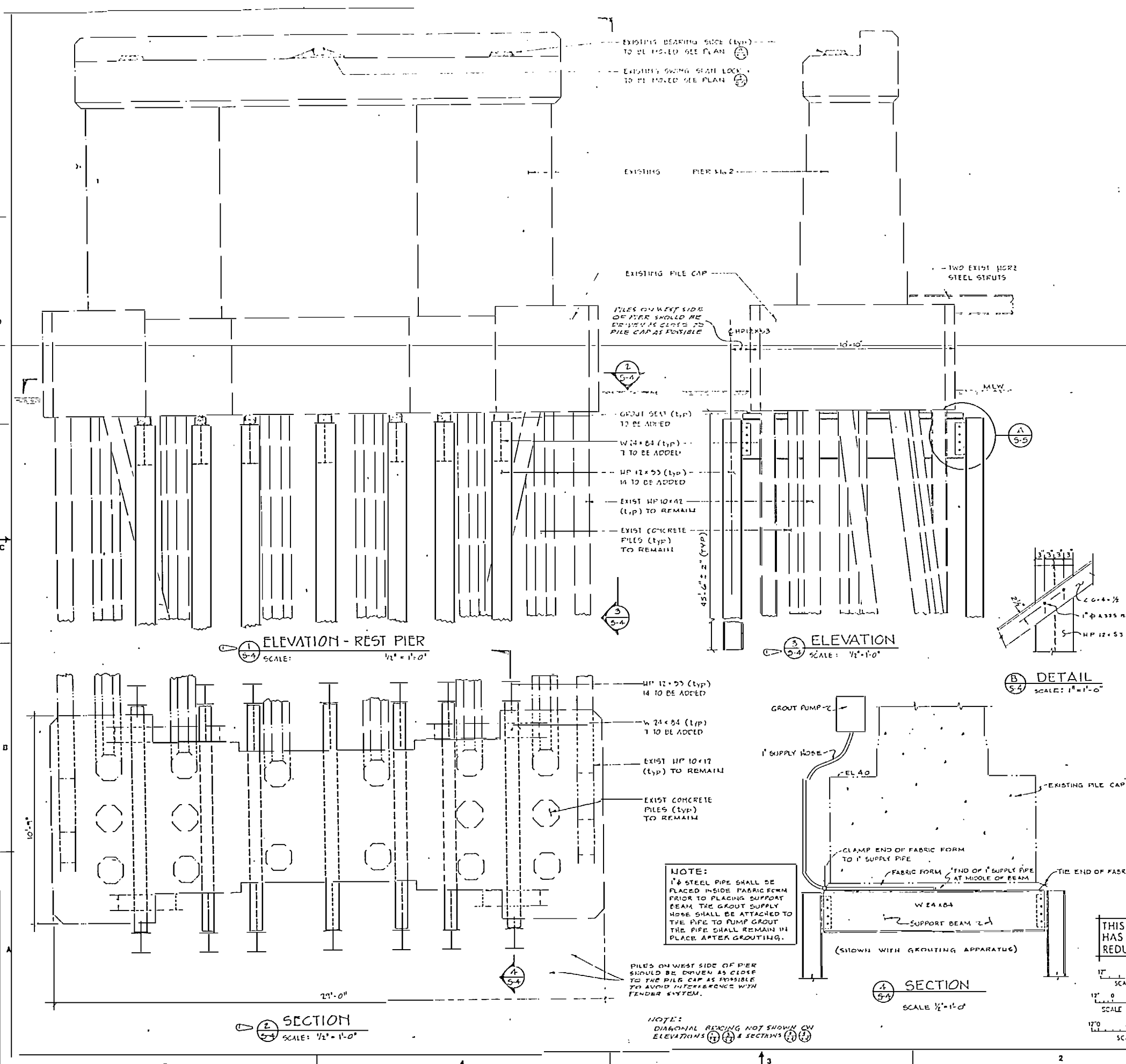
PLAN
SCALE: 3/8"=1'-0"

THIS DRAWING
HAS BEEN
REDUCED

THIS DRAWING
FOR REFERENCE
ONLY

ATLANTIC INTERCOASTAL WATERWAY
BETWEEN
WYOMING, VA. AND THE ST. JOHN'S RIVER, FL. (WILMINGTON DISTRICT)
**REPAIRS TO APPROACH SPAN
PIER:
CORE CREEK BRIDGE**
DAMAGED BY TWO GATES AND BARGE DINGHO
2 APRIL 1959

RECOMMENDED: *[Signature]*
CAPT, U.S. ARMY
DESN BY 1 DES
APPROVED: *[Signature]*
COL, CORPS OF ENGINEERS
DATE: 1971



- EXISTING CONDITIONS:**
- DIMENSIONS SHOWN ON ELEVATIONS ARE GIVEN AT APPROXIMATE VALUES AND ALL CRITICAL VALUES SHOWN ON ELEVATIONS ARE GIVEN AT APPROXIMATE VALUES.
 - LOCATION OF EXISTING PILES AS SHOWN ARE GIVEN FOR ORIGINAL DESIGN DRAWINGS AND ARE NOT TO BE CONSIDERED THE ACTUAL LOCATION OF THESE PILES.
 - REST PIER BEARING SOLE OF THE ORIGINAL IS REINFORCED CONCRETE.
 - PILES AND AN ADDITIONAL 10 HP 12x53 STEEL PILES.
 - ALL SURFACES OF THE REST PIER SHALL BE COVERED WITH A THICK LAYER OF 4" THICK GROUT.
 - THE GROUND LINE AT THE REST PIER VARIES FROM 10 TO 15 FEET BELOW MLW.
 - TIDAL FLOW AT CORE CREEK BRIDGE MAY EXCEED 5 FEET PER SECOND.
 - CONTRACTOR'S OPERATIONS SHALL BE CONDUCTED IN SUCH A MANNER TO INSURE PROTECTION OF EXISTING FACILITIES.

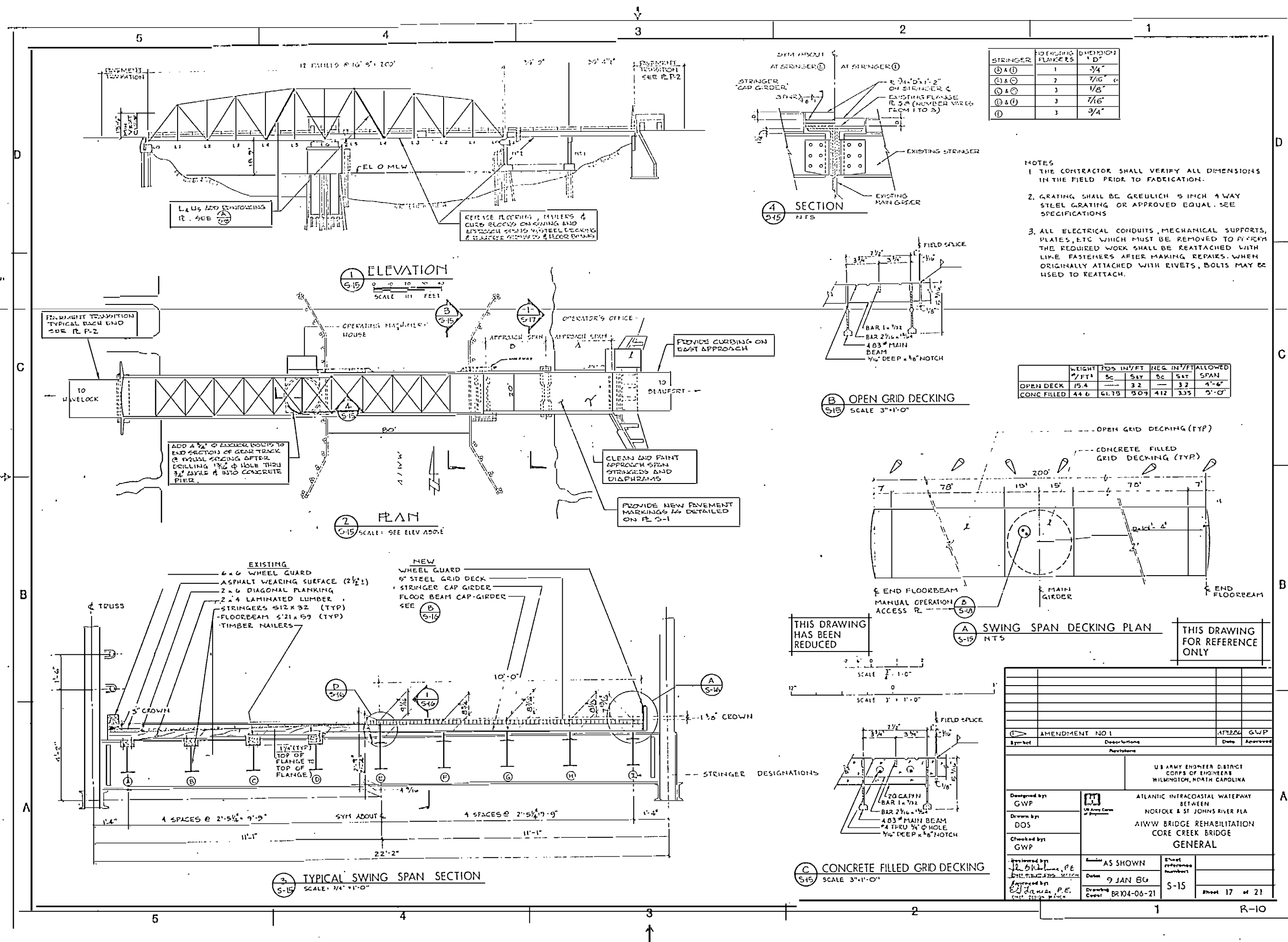
- SUMMARY OF ACCIDENT REPAIR WORK**
- REMOVE PORTION OF FENDER SYSTEM AS SHOWN BY ELEVATION 1-2.
 - REMOVE THE EXISTING HORIZONTAL STEEL STRUTS AS SHOWN ON ELEVATION 1-2.
 - CLEAN UNDERSIDE OF PILE CAP ON REST PIER.
 - PLACE SUPPORT BEAMS UNDER EACH PILE CAP ON REST PIER.
 - DRIVE 14 PILES ON WEST SIDE OF REST PIER AND CONNECT TO BEAMS UNDER PILE CAP.
 - CLOSE BRIDGE TO VEHICULAR TRAFFIC AND REMOVE APPROACH SPAN ROADWAY SEE PLATE 5-2.
 - DRIVE 7 W-PILES ON EAST SIDE OF REST PIER AND CONNECT TO BEAMS UNDER PILE CAP.
 - PLACE GROUT BETWEEN EXISTING PILE CAP AND SUPPORT BEAMS AS SHOWN. THE CONTRACTOR SHALL PERFORM A TEST GROUT PROGRAM AS REQUIRED BY THE SPECIFICATIONS.
 - PERFORM REPAIRS TO APPROACH SPANS AS DETAILED ON 5-1, 5-2, AND 5-3. REPLACE APPROACH SPANS.
 - ADJUST SWING SHOT LOCK AND BEARING SHORS ON REST PIER.
 - BRIDGE CAN NOW BE OPENED TO VEHICULAR TRAFFIC.
 - RESTORE FENDER SYSTEM AS SHOWN ON PLATE 5-4.

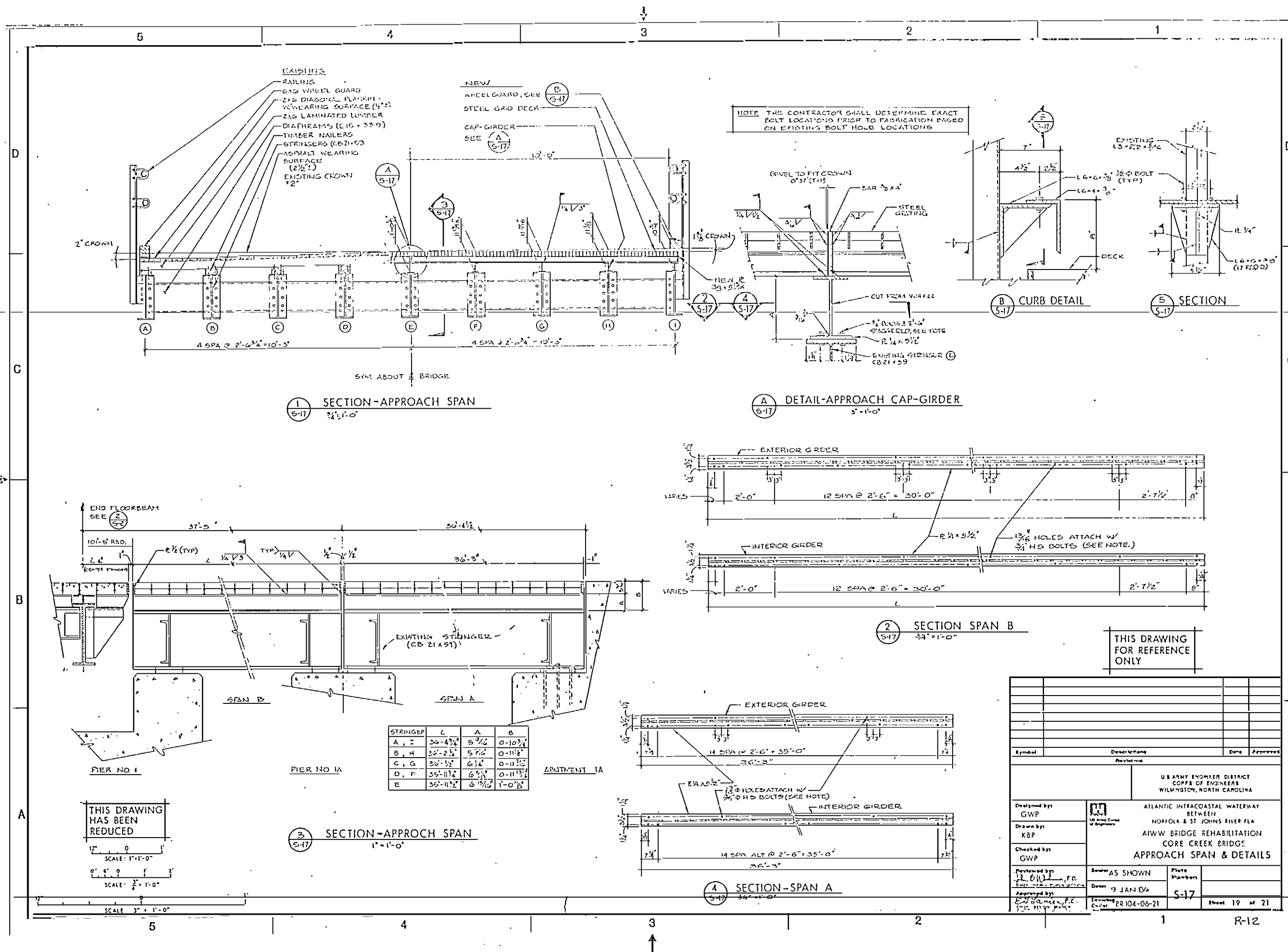
- NOTES**
- UNDERSIDE OF PILE CAP SHALL BE CLEANED AT ALL SURFACES THAT SHALL BE IN CONTACT WITH THE SUPPORT BEAMS. THE SURFACE SHALL BE FREE OF ALL MAKING GROUT AND LOOSE CONCRETE.
 - THE SUPPORT BEAMS SHALL BE PLACED PRIOR TO ANY OF THE PILES BEING DRIVEN TO ALLOW FOR POSITIONING BETWEEN EXISTING PILES. THE EXACT ALIGNMENT OF THE SUPPORT BEAMS CAN NOT BE ESTABLISHED PRIOR TO ACTUALLY PLACING THEM UNDER THE PILE CAP.
 - IT IS NOT REQUIRED THAT THE SUPPORT BEAMS BE EXACTLY PARALLEL TO THE CENTERLINE OF THE ROADWAY BUT IT IS REQUIRED THAT THE BEAMS BE PLACED IN THE AREA BETWEEN THE EXISTING PILES AS SHOWN.
 - THE 14 HP 12x53 PILES SHALL BE MADE OF ASTM A-50 STEEL AND SHALL BE DRIVEN TO 41'-0" DEPTH AT MINIMUM. THE BOTTOM OF THE EXISTING PILE CAP PILES SHALL NOT BE DRIVEN OFF OF THE BRIDGE OR APPROACH SPANS. PILES SHALL NOT BE PLACED USING VIBRATORY EQUIPMENT.
 - THE 7 WEST SUPPORT BEAMS SHALL BE MADE OF ASTM A-50 STEEL AND SHALL BE 12' LONG.

THIS DRAWING FOR REFERENCE ONLY

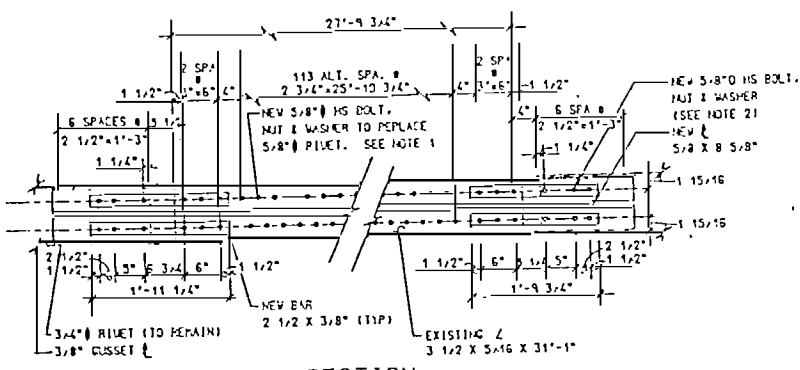
REVISION	DATE	DESCRIPTION	BY
1	11 APR 83	PIER NO. 2 REPAIR DETAILS	BR 104-06-18

U. S. ARMY ENGINEER DISTRICT, WILMINGTON	
CORPS OF ENGINEERS	
WILMINGTON NORTH CAROLINA	
PROJECT	ATLANTIC INTERCOASTAL WATERWAY
LOCATION	BRIDGE VA AND ST. JOHNS RIVER, FLA.
REPAIRS TO AIWW BRIDGES	
PIER NO. 2 REPAIR DETAILS	
CORE CREEK BRIDGE	
DRAWING NUMBER	BR 104-06-18
PLATE NO.	5-4
SHEET 4 OF 13	

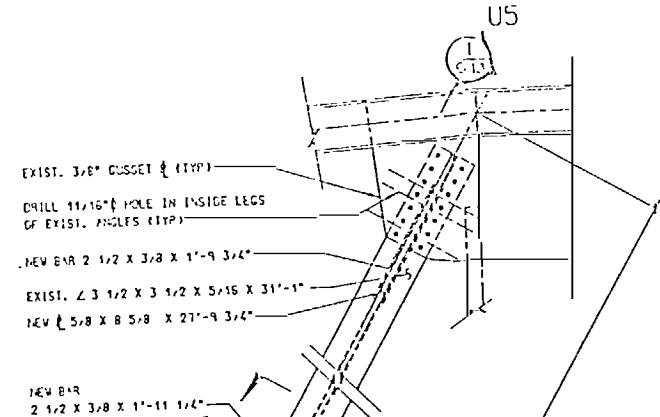




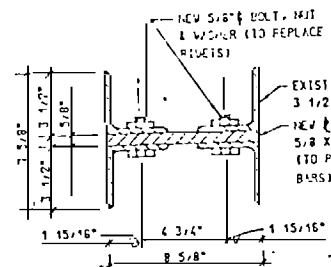
Symbol	Description	Date	Approved
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA			
ATLANTIC INTRACOASTAL WATERWAY BETWEEN NORFOLK & ST. JOHNS RIVER FLA AIWW BRIDGE REHABILITATION CORE CREEK BRIDGE APPROACH SPAN & DETAILS			
Designed by GWP		Scale: AS SHOWN	Plate Number:
Drawn by KBP		Date: 9 JAN 86	S-17
Checked by GWP		Reviewed by: PR104-06-21	Sheet 19 of 21
Prepared by R. O. [unclear] Date: [unclear] Approved by E. J. [unclear] Date: [unclear]			



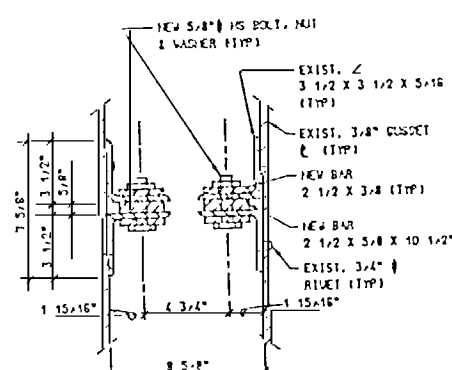
SECTION 1
S-18



TRUSS MEMBER L4U5 (TYPICAL)
S-18



SECTION 2
S-18



SECTION 3
S-18

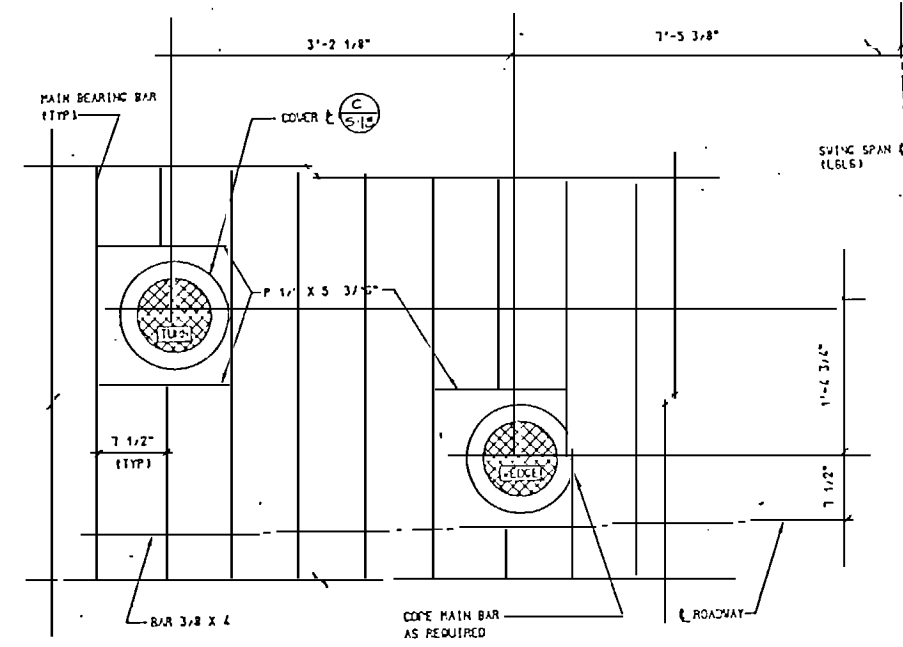
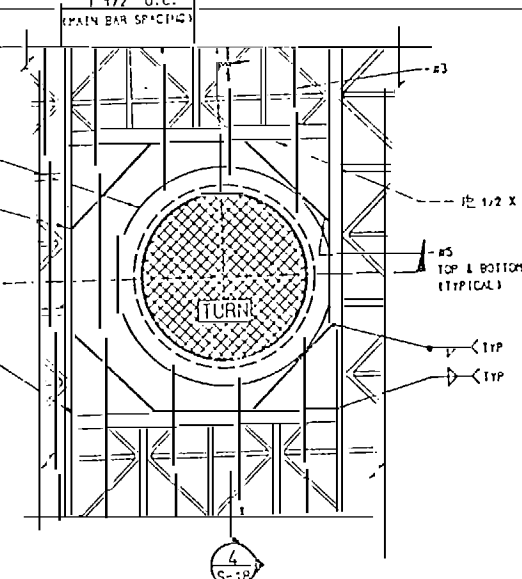
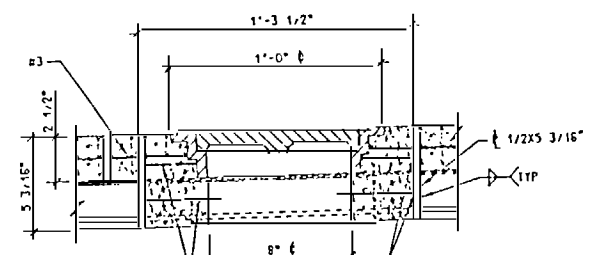


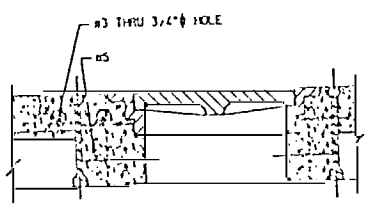
PLATE LOCATION
S-18



DECK PLATE DETAIL
S-18



SECTION 4
S-18



SECTION 5
S-18

- NOTES:
1. THE CONTRACTOR SHALL FIRST REMOVE ALL 5/8" ϕ RIVETS SHOWN AND REPLACE WITH 5/8" ϕ HS BOLTS. THIS MAY BE DONE WITHOUT STOPPING TRAFFIC PROVIDED NO MORE THAN TWO RIVETS ARE REMOVED BEFORE REPLACING WITH BOLTS.
 2. DRILL 11/16" ϕ HOLE THRU ANGLE LEGS AS SHOWN.
 3. AFTER CLOSING THE BRIDGE TO ROADWAY AND WATERWAY TRAFFIC, THE CONTRACTOR SHALL REMOVE BOLTS, PLATES & LACING BARS. ANGLES SHALL BE SANDBLASTED AND PRIMED IN AREAS THAT ARE RUSTED PRIOR TO INSTALLING NEW PLATES AS SHOWN.
 4. MANHOLE FRAME & LID SHALL CATALOG NO. R-6014 AS MANUFACTURED BY KEEHAW FOUNDRY (KEEHAH, VA 424-725-3041) OR APPROVED EQUAL. THEY SHALL BE CAST IN DUCTILE IRON.
 5. DETAIL C/S-18 IS BASED ON USING GREULICH 5 IN. 4 WAY DECKING. DETAIL CHANGES MAY BE REQUIRED IF OTHER DECKING IS USED.
 6. DETAIL C/S-18 IS FOR "TURN" PLATE "WEDGE" PLATE SIMILAR.

THIS DRAWING FOR REFERENCE ONLY

THIS DRAWING HAS BEEN REDUCED

AMENDMENT NO 1		ISSUED	GWP
Symbol	Description	Date	Approved
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS WILMINGTON, NORTH CAROLINA			
Designed by GWP	ATLANTIC INTRACOASTAL WATERWAY BETWEEN NORFOLK & ST. JOHNS RIVER FLA AIWW BRIDGE REHABILITATION CORE CREEK BRIDGE L4U5 & DECK ACCESS DETAIL		
Drawn by JBB			
Checked by GWP			
Reviewed by J. B. Williams, P.E. J. H. Williams, P.E. Approved by J. H. Williams, P.E.	Scale AS SHOWN	Sheet 9 JAN 86	Plate S-18
Drawn by J. H. Williams, P.E.	Drawn by BR104-06-21	Sheet 20 of 21	