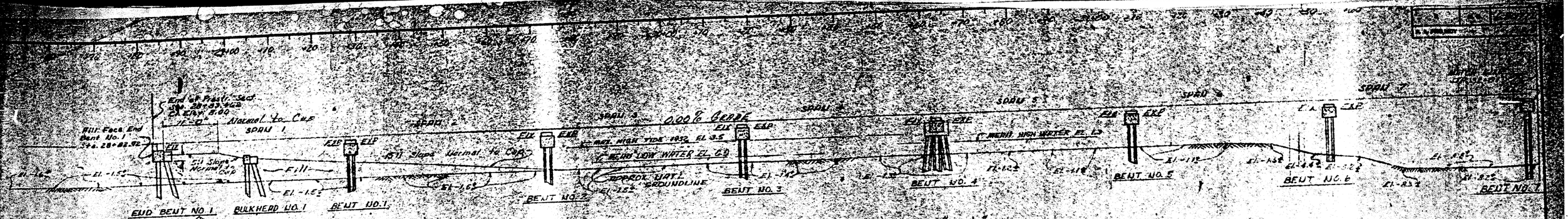
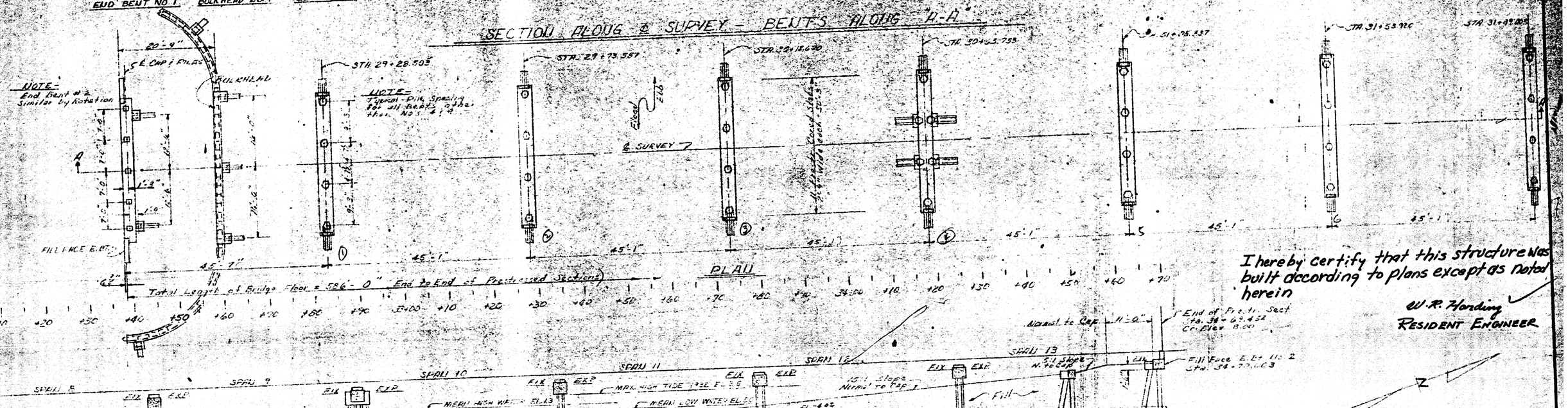
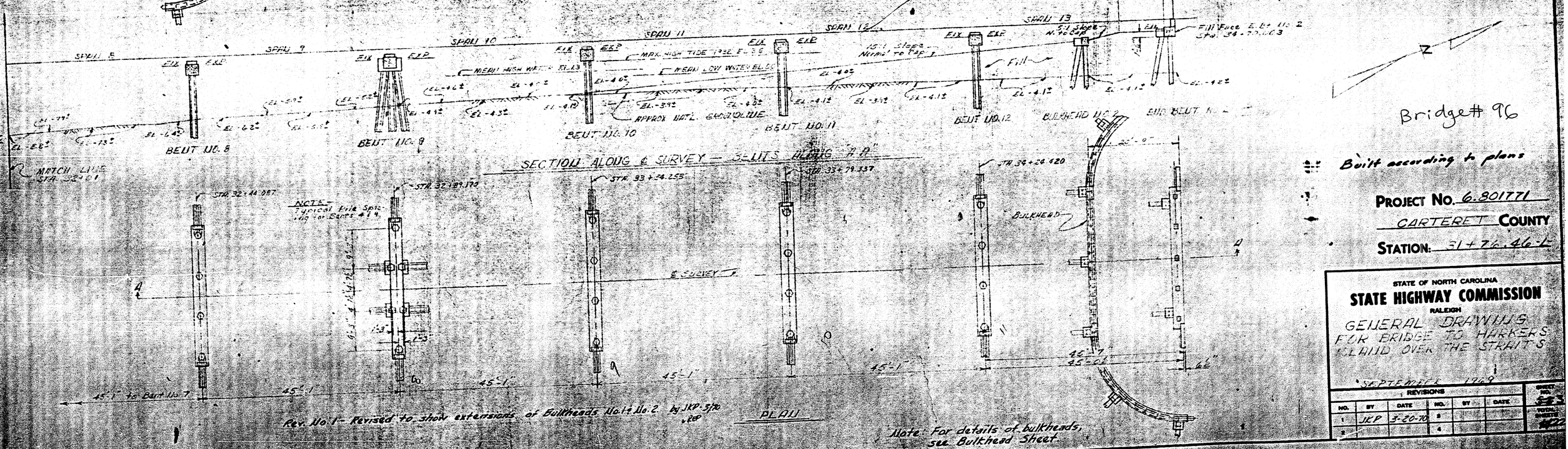


SECTION ALONG ℄ SURVEY – BENTS ALONG "A"



I hereby certify that this structure was built according to plans except as noted herein

W. R. Harding
RESIDENT ENGINEER



SECTION ALONG ℄ SURVEY – BENTS ALONG "B"

Rev. No. 1 – Revised to show extensions of Bulkheads No. 1 & No. 2 by JKP 5/70

Note: For details of bulkheads, see Bulkhead Sheet

Bridge # 96

Built according to plans

PROJECT NO. 6.801771

CARTERET COUNTY

STATION: 31+74.46-L

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

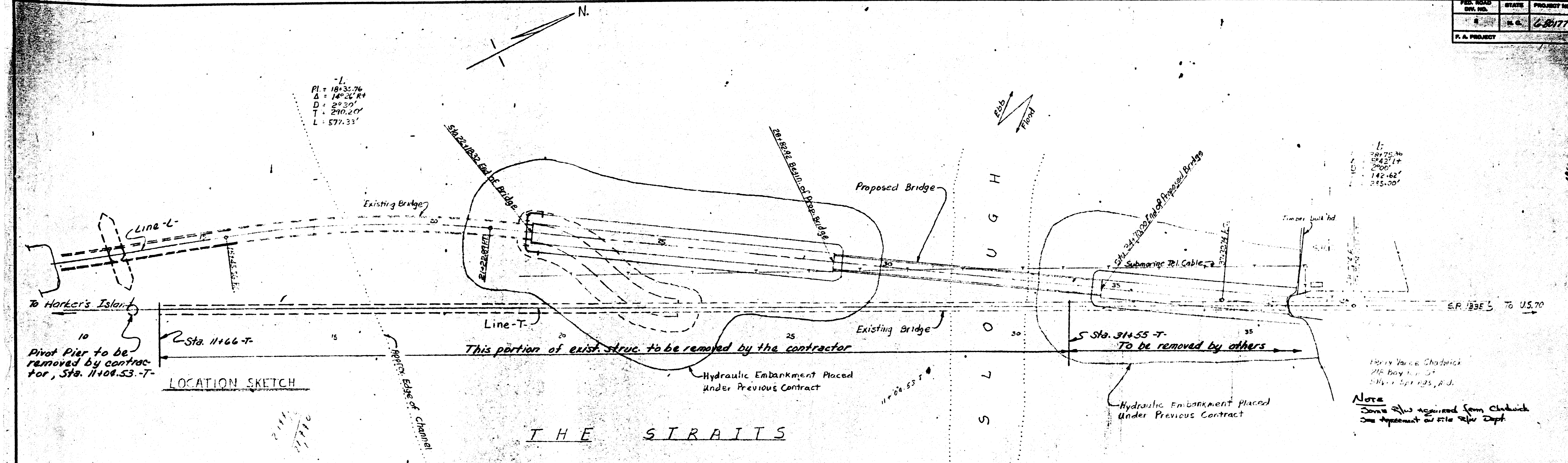
GENERAL DRAWINGS FOR BRIDGE TO HARKERS ISLAND OVER THE STRAITS

SEPTEMBER 1969

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	22
1	JKP	5-20-70	3			TOTAL SHEETS
2			4			40

DESIGNED BY: J. K. PARRISH DATE: SEPT. 1969
CHECKED BY: E.G. ALFORD, JR. DATE: SEPT. 69

FED. ROAD DIV. NO.	STATE	PROJECT NO.
1	N.C.	6.801771
F. A. PROJECT		



B.M. U-163: Disk on steel rod 31' Lt. Sta. 40+32 -L-, El. = 6.52

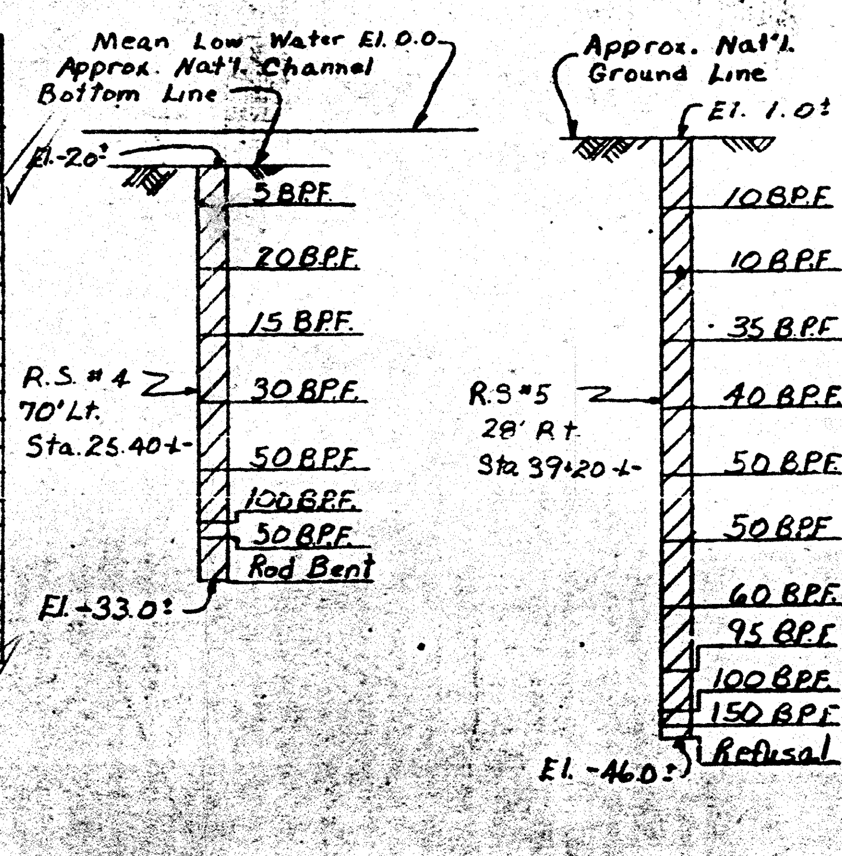
TOTAL BILL OF MATERIALS*

	Metal Railing	Class "A" Concrete	2'-9"x1'-3" Prestr. Concrete Cored Slabs		Reinforcing Steel	12" Prestr. Conc. Piles		20" Prestr. Concrete Octag. Piles		8"x24" Prestr. Concrete Sheet Piles		Method "D" Dampproofing	Bitum. Conc. Surf. Course Type I-2	Asphalt Cement Plant Mix	20" Prestr. Conc. Octag. Test Piles	Removal of Exist. Struct.	Removal of Exist. Struct.	Epoxy Resin Sealant for Bridge Deck - Sta. 31+76.46 -L-
	Lin. Ft.	Cu. Yds.	No.	Lin. Ft.	lbs.	No.	Lin. Ft.	No.	Lin. Ft.	No.	Lin. Ft.	Sq. Ft.	Tons	Tons	No.	Sta. 11+66 -T-	Sta. 11+04.53	Sq. Yds.
Superstructure	1166.0		143	6,435.0									188.5	12.818				1969.61
End Bent #1		9.3			1,930.0	7	308.0					296.1964						
Bent #1		8.7			2,144.0			4	192.0			242.0						
Bent #2		8.7			2,144.0			4	192.0			242.0						
Bent #3		8.7			2,144.0			** 4	144.0			242.0						
Bent #4		10.6			2,262.0			6	288.0			363.0						
Bent #5		8.7			2,144.0			4	192.0			242.0						
Bent #6		8.7			2,144.0			4	192.0			308.0						
Bent #7		8.7			2,144.0			4	192.0			396.0						
Bent #8		8.7			2,144.0			4	192.0			352.0						
Bent #9		10.6			2,262.0			6	288.0			462.0						
Bent #10		8.7			2,144.0			4	192.0			286.0						
Bent #11		8.7			2,144.0			** 4	144.0			286.0						
Bent #12		8.7			2,144.0			4	192.0			286.0						
End Bent #2		9.3			1,933.0	7	294.0					372.6136						
Bulkhead #1		11.6			1945.0	7	147			52	780.0	1440.858						
Bulkhead #2		11.6			1945.0	7	168			52	936.0	1717.52						
Bulkhead #1 & 2 Ex. Str.		30.9			5084.0		366				2406.0	11500.2368						
TOTAL	1166.0	180.9	143.0	6,435.0	39,006.0	28	1283.0	52	2400.0	104	4122.0	24,284.18 ÷ 9 = 2698.2422 Sq. Yds.	188.5	12.818	2	Lump Sum	Lump Sum	1969.61

* This bill does not include quantities shown for the extensions of Bulkhead #1 or #2 built originally under Proj. 5.16501. These quantities shown on Sheet S-10B.

** One pile in each Bent was driven as a test pile in permanent position.

* Paid for by E.W.O. 2-5B9



ROD SOUNDINGS

NOTES

For Epoxy Resin Sealant for Bridge Deck, See Special Provisions.

Removal of Exist. Structure at Sta. 11+04.53 -T- — For removal of existing pivot pier at Sta. 11+04.53 T, see Specifications and Special Provisions.

Removal of Exist. Structure at Sta. 11+66 -T- — The existing structure between Sta. 11+66 -T- and Sta. 31+55 -T-, consisting of 117 timber spans approx. 17' long with timber floor and timber stringers on timber pile bents with 18'-8" cl. rdwy. shall be removed according to the Specifications and the material shall be salvaged. The limits of this removal shall begin with and include the rest bent at Sta. 11+66 -T- and end with and include the bent at Sta. 31+55 -T-. Removal shall not begin until traffic is placed on the proposed structure or as directed by the Engineer.

The remainder of the existing structure will be removed by others.

Rev. No. 1 - Revised to show new quantities for Bulkheads No. 1 & No. 2 in Bill of Mat'l. by JKP 3/70 ✓ ESP

NOTES

Assumed Live Load: H.S. 15-44

For other design data and general notes see sheet S-11.

Care shall be taken to prevent reinforcing steel from getting wet with salt water. If, despite precautions, reinforcing steel becomes wet with salt water, it shall be thoroughly washed with fresh water before concrete is poured. See Special Provisions.

Traffic will be maintained by others over the existing highway bridge during construction. See Spec. Provisions.

Roadway work and hydraulic embankment to be done by others.

The contractor shall be required to maintain water traffic in a manner satisfactory to both the Engineer and the U.S. Coast Guard and in accordance with the Special Provisions.

Order lengths for prestressed concrete sheet piles shall be as follows:

- Bulkhead No. 1 - 15'
- Bulkhead No. 2 - 18'

These sheet piles shall be driven to grade.

Order lengths for 12" prestressed concrete piles in bulkheads shall be as follows:

- Bulkhead No. 1 - 21'
- Bulkhead No. 2 - 24'

These piles shall be driven to grade.

The contractor will be required to drive 20" Prestressed concrete test piles, not in place, at the following locations:

- Sta. 30+40 - 1 pile with a min. length of 66 ft.
- Sta. 33+10 - 1 pile with a min. length of 66 ft.

These piles to be driven and paid for as 20" Prestressed Concrete Test Piles. These test piles are to be pulled after they are driven.

Piles in the following bents to be driven to a minimum bearing capacity as follows:

- End Bents No. 1 and 2 - 26 tons each
- Bents No. 1-12 - 47 tons each

The lengths of piles shown in Bill of Material are approximate only. The actual length of all piles will be given after the test piles have been driven. See Spec. Provisions.

No rubbed surface finish will be required on any part of the structure except as specified in the Special Provisions.

Built according to plans

PROJECT NO. 6.801771

CARTERET COUNTY

STATION: 31+76.46 -L-

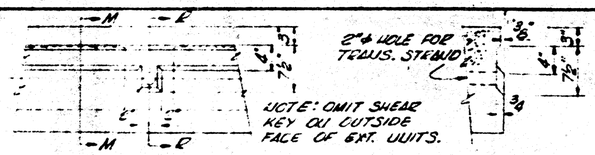
STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

GENERAL DRAWING FOR BRIDGE TO HARKER'S ISLAND OVER THE STRAITS

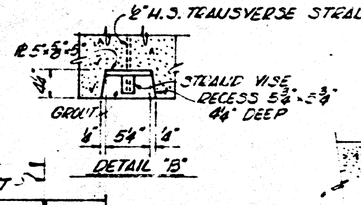
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1	JKP	3-20-70	3		
2			4		

DRAWN BY: A.B. NORWOOD, JR. DATE: SEPT. '69
CHECKED BY: E.G. ALFORD, JR. DATE: Oct. '69

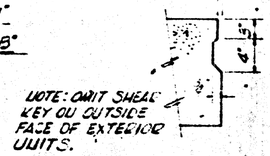
NUMBER OF SPANS	SECTIONS	LENGTH	TOTAL LIN. FEET
#1 [illegible]	13	11	45'-0"	6,435'-0"
#2 [illegible]			
TOTAL NUMBER OF SECT. = 143			



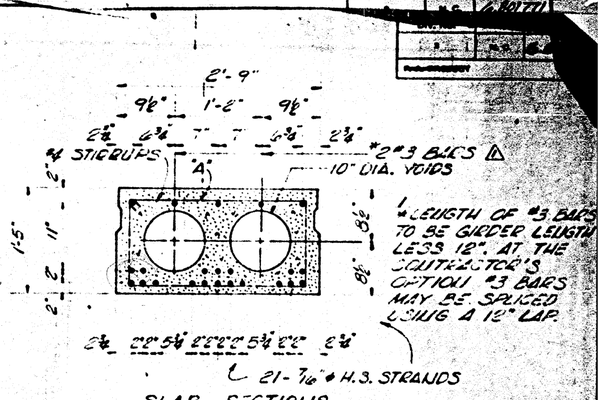
SHEAR KEY DETAIL



DETAIL "B"

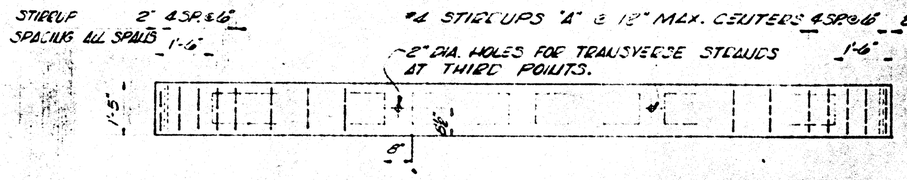


SECTION M-M

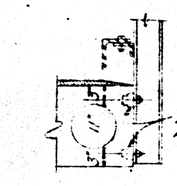


UOTE: LENGTH OF #3 BARS TO BE GIRDER LENGTH LESS 12". AT THE CONTRACTOR'S OPTION #3 BARS MAY BE SPLICED USING A 12" LAP.

SLAB SECTIONS

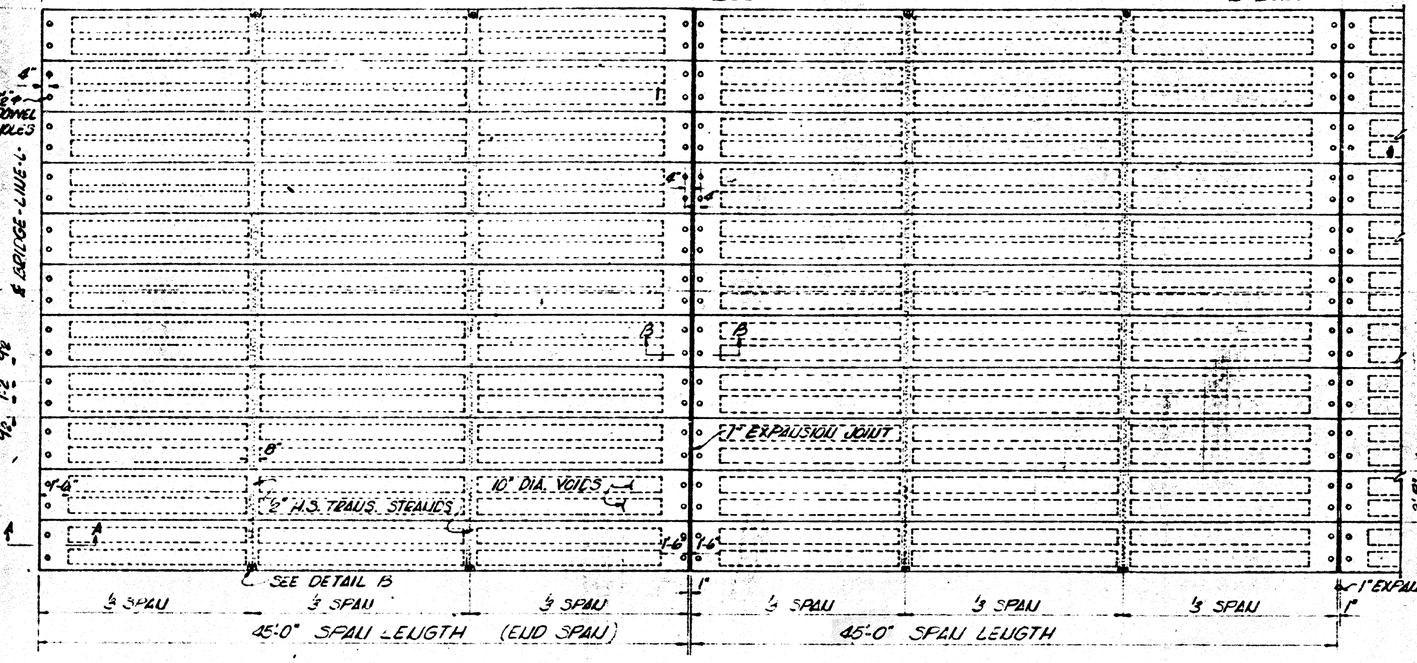


SLAB ELEVATION

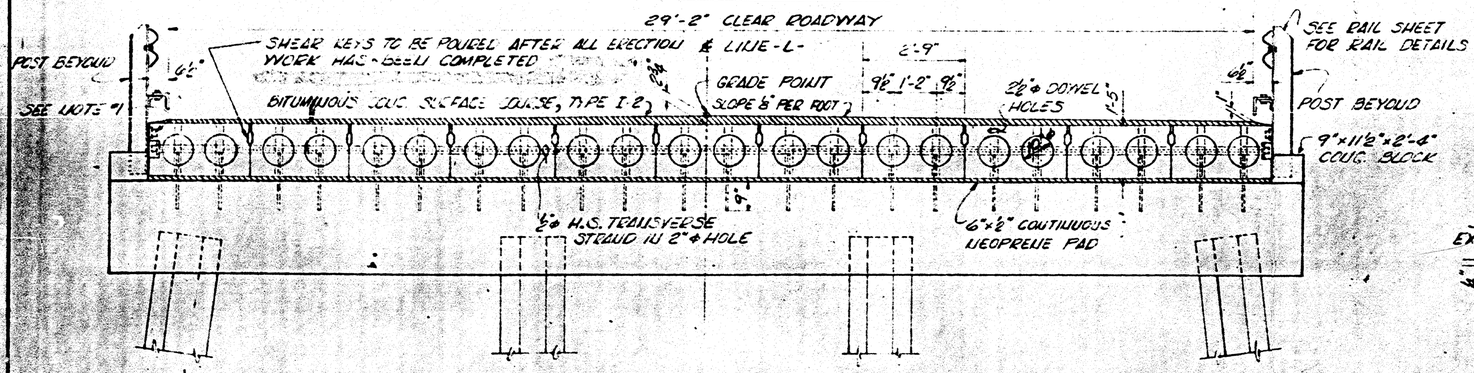


INSERT DETAIL

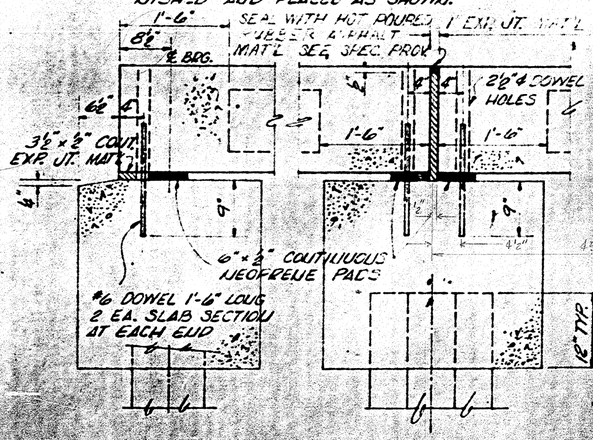
UOTE #1: INSERTS FOR ATTACHING RAIL POST TO SLABS. (4 INSERTS REQUIRED PER POST) - RICHMOND ADJUSTABLE INSERTS #18 USAGE OR AN APPROVED EQUAL TO BE FURNISHED AND PLACED AS SHOWN.



PLAN



TYPICAL SECTION



SECTION A-A

SECTION B-B

Approximate Quantities for Unit Accessories & Appurtenances
See page 5 and 16-19, Pay Record Book #1

BITUMINOUS CONCRETE SURFACE COURSE, TYPE I-2 - ~~188~~ 188.5 TONS
ASPHALT CEMENT - ~~12~~ 12.0 TONS

J.M.P.	SCALE "=1'-0"	DATE JAN. 1968
CHECKED BY	J. M. McCLELLAN	DATE Feb. 1968
	C. Arnett & R.G.A.	

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

SUPERSTRUCTURE

SLAB DETAILS

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

GENERAL NOTES

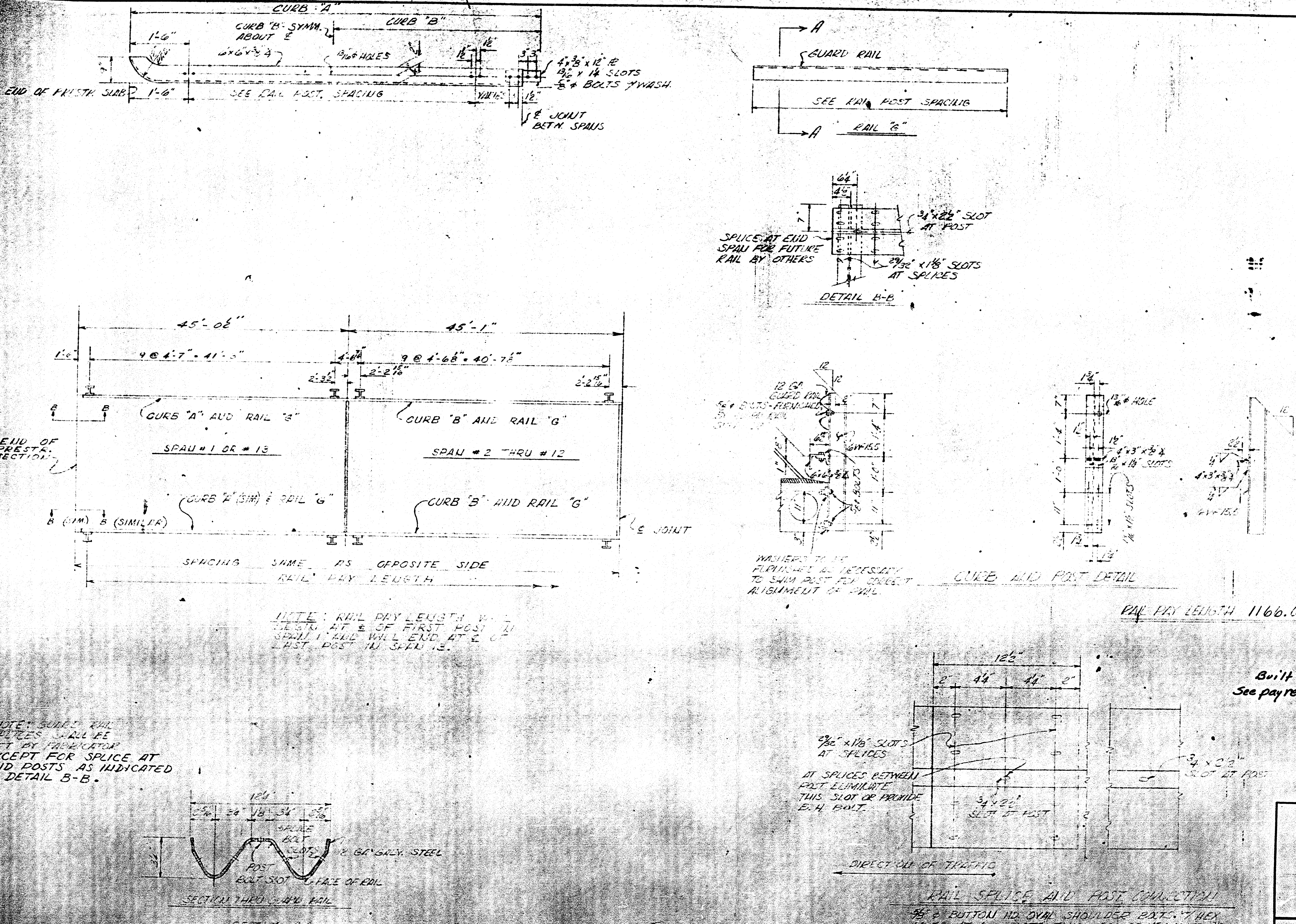
ASSUMED LIVE LOAD : H 15-44
LIVE LOAD DISTRIBUTION: IN ACCORDANCE WITH SECTION 1.3.2(c) OF THE "AASHO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES"
CONCRETE: f'_c = 3000 psi (MIN. COMP. STRENGTH AT 28 DAYS
f'_{ci} = 4000 psi (MIN. COMP. STRENGTH AT TRANSFER OF STRESSING FORCE)
ALL PRESTRESSING STRANDS SHALL MEET THE REQUIREMENTS OF ASTM-A416.
ALL PRESTRESSING STRANDS SHALL BE 7-WIRE HIGH STRENGTH STRESS RELIEVED CABLES IN ACCORDANCE WITH THE SPECIFICATIONS.

SIZE	TYPE	AREA	ULTIMATE STRENGTH	APPLIED PRESTRESS
7/16" ϕ	H.S.	0.1153"	31,000 # PER CABLE	21,700 # PER CABLE
2" ϕ	H.S.	0.1537"	41,300 # PER CABLE	28,900 # PER CABLE

ALL MATERIAL AND WORKMANSHIP AS PER THE SPECIFICATIONS OF THE NORTH CAROLINA STATE HIGHWAY COMMISSION.

EXPANSION JOINT MATERIAL SHALL MEET THE REQUIREMENTS OF AASHO SPECIFICATION M163 TYPE III OR M153 TYPE I OR TYPE II.
2½" ϕ DOWEL HOLES AT ENDS OF SLAB SECTIONS TO BE GROUTED AT FIXED ENDS AND FILLED WITH ASPHALT MASTIC SIMILAR TO ROOF CEMENT AT EXP. ENDS

PROJECT NO. 6.801771
CARTERET COUNTY
STATION: 31+76.76



NOTES

MINIMUM LENGTH OF GUARD RAIL AND CURB ANGLE = ONE POST SPACING.

STRUCTURAL STEEL ITEMS SHALL BE OF A GRADE CONFORMING TO EITHER ASTM A7, A36, A373.

STRUCTURAL STEEL SUPPLIER TO FURNISH RAIL POSTS AND CURB ANGLE WITH BOLTS.

ALL RAIL PARTS TO BE GALVANIZED TO ASTM SPECIFICATIONS AS FOLLOWS:

POSTS & CURB ANGLE	A-123
GUARD RAIL	A-525
HARDWARE	A-153

ALL GALVANIZING TO BE DONE AFTER FABRICATION WHERE FABRICATION IS REQUIRED.

ALL BOLTS, NUTS, WASHERS, PLATES, AND CURB ANGLES ARE CONSIDERED AS PART OF THE RAIL FOR PAYMENT. INSERTS WILL BE SUPPLIED BY CORED SLAB FABRICATOR.

RAIL PAY LENGTH 1166.00 FT.

Built according to plans
See pay record Book #1 page 15

PROJECT No. 6.801771
CARTERET COUNTY
STATION: 21+76.46 -L-

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

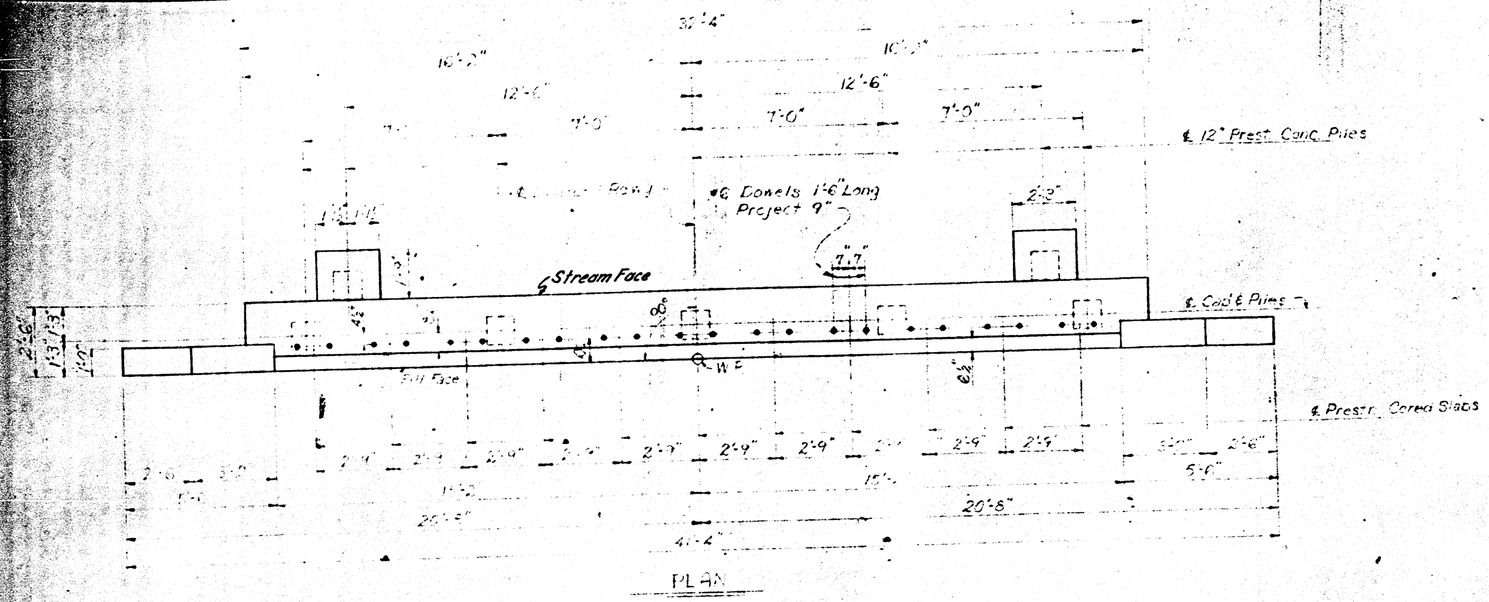
CURB AND RAIL DETAILS

SEPTEMBER 1969

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

DRAWN BY: [illegible] DATE: [illegible]
CHECKED BY: E.G. ALFORD, JR. DATE: SEPT. 69

FED. ROAD DIV. NO.	STATE	PROJECT NO.
3	N.C.	6.801771

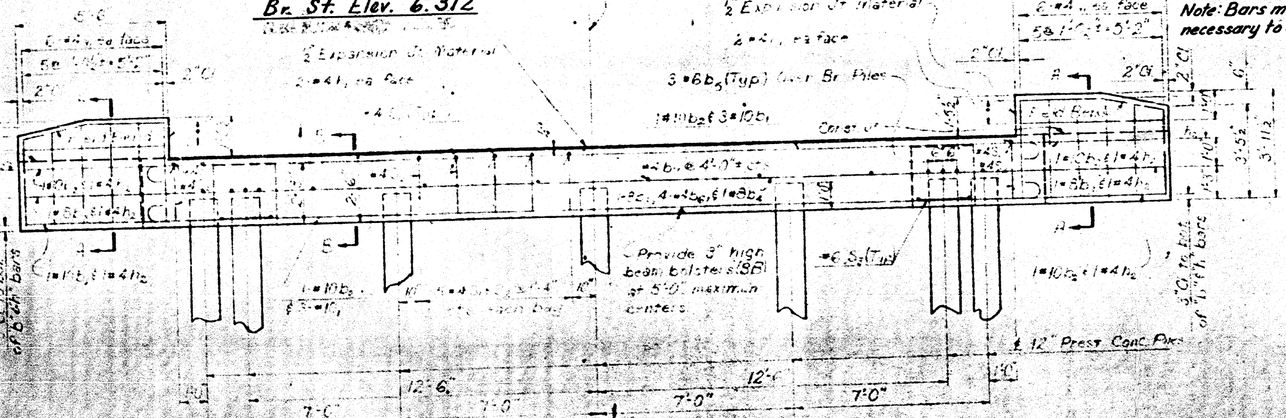


PLAN

NOTE
See Superstructure for information on Neoprene Pad on right cap.

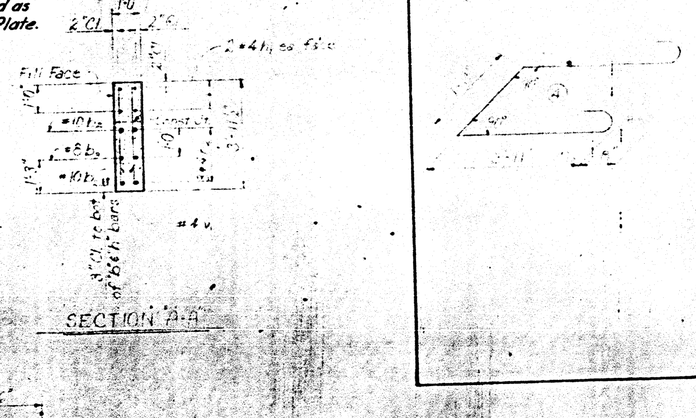
Concrete Slope Cont. to be placed after prestressed conductors are set.

Br. St. Elev. 6.312

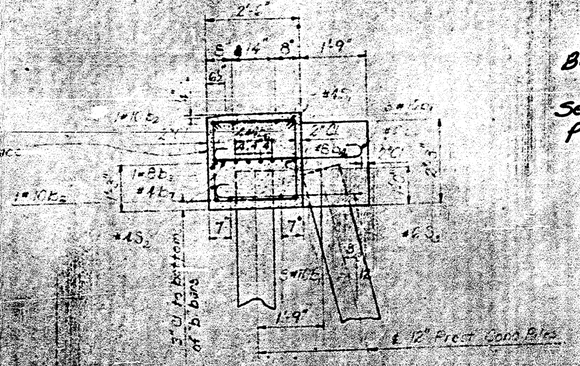


ELEVATION

Note: Bars may be shifted as necessary to clear Name Plate.



SECTION A-A



SECTION B-B

BILL OF MATERIAL

For Two End Bents - Five Required

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
b_1	2	#10	1	54'-10"	899
b_2	1	#11	1	41'-2"	353
b_3	1	#8	1	21'-0"	109
b_4	1	#8	1	10'-0"	85
b_5	6	#6	1	13'-9"	47
b_{11}	8	#4	1	16'-8"	89
S_1	6	#4	Str	2'-2"	12
S_2	6	#4	Str	5'-2"	28
S_3	6	#4	Str	5'-9"	23
S_4	12	#4	2	2'-11"	43
S_5	12	#4	3	7'-2"	105
S_6	12	#6	4	11'-7"	93
V_1	24	#3	Str	3'-7"	57
d_1	22	#6	Str	15'-6"	50

REINFORCING STEEL 1933 Lbs.

CLASS "A" CONCRETE 73 Cu. Yds.

12" PRESTRESSED CONCRETE PILES

No.
Lin. Ft. E. Bt. #1 ~~3510~~ 308.0
E. Bt. #2 ~~3510~~ 294.0

Built according to plans

See Pay Record Book No. 2 Pages 6, 19, 51

PROJECT NO. 6.801771

CARTERET COUNTY

STATION: 31+76.46 -L-

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

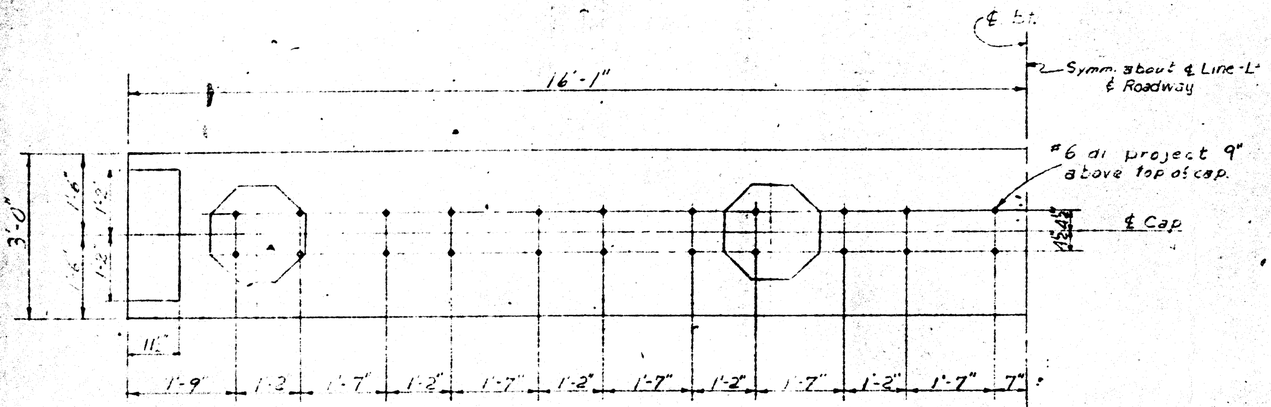
END BENT NO. 1
AND BENT NO. 2 SIMILAR BY
ROTATION

February 1968

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

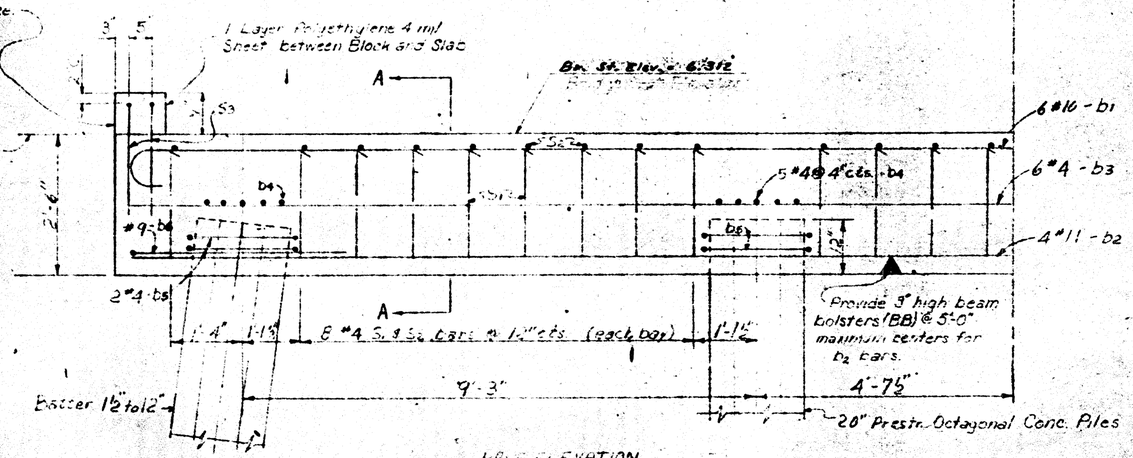
J.K.P. / E.G.A. Sept. '67
T. Neiss DATE 4-11-68
S.S.S. SANTO-TOMAS DATE 4-11-68

FED. ROAD DIV. NO.	STATE	PROJECT NO.
3	N.C.	6.801721
F. A. PROJECT		

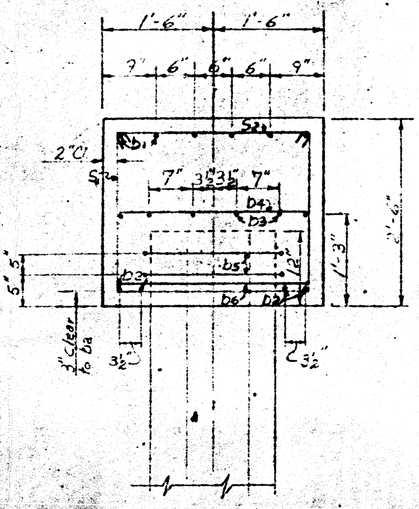


HALF PLAN

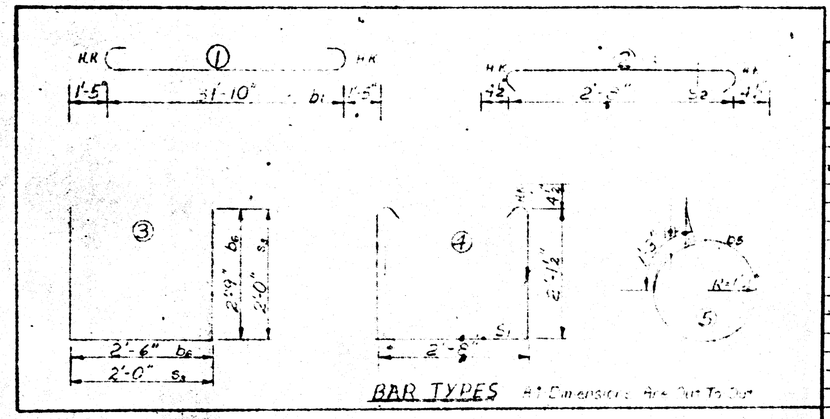
NOTE: This Block to be poured after Superstructure Slabs are in place.



HALF ELEVATION



SECTION A-A



BAR TYPES All Dimensions Are Out To Out

BILL OF MATERIAL

For One Bent - 2 Tem. Required

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
b1	6	#10	1	34'-8"	875
b2	4	#11	Str.	31'-8"	673
b3	12	#4	Str.	16'-7"	133
b4	20	#4	Str.	2'-8"	36
b5	8	#4	5	8'-7"	46
b6	2	#9	3	8'-0"	54
s1	26	#4	4	7'-2"	133
s2	26	#4	2	3'-5"	59
s3	4	#4	3	6'-0"	16
di	44	#6	Str	1'-6"	99

Reinforcing Steel (lbs) 2144
Class A Conc. (cu yds) * 8.7
20" Octagonal Prestressed Concrete Piles See Chart

* Concrete displaced by Pile Heads has been deducted.

20" OCT. PRES. CONC. PILES		
BENT NO.	NO.	LIN. FT.
1	4	~~220~~ 192.0
2	4	~~220~~ 192.0
3	4 3	~~220~~ 144*
5	4	~~220~~ 192.0
6	4	~~220~~ 192.0
7	4	~~220~~ 192.0
8	4	~~220~~ 192.0
10	4	~~220~~ 192.0
11	4 3	~~220~~ 144*
12	4	~~220~~ 192.0

* Note: Test piles driven in place. Prior agreement documented by letter dated 3-3-70 from Mr. L.C. Dillard

Built according to plans
See Pay Record Book No 2 pages
7,8,9, 11-19, 16-18, 51

NOTES:

For Neoprene pads on bent caps, see Superstructure.

For Method D, dampproofing on piles, see Standard 20" prestressed Octagonal Concrete Pile Sheet.

PROJECT NO. 6.801721
CARTERET COUNTY
STATION: 131+76.46 -L-

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

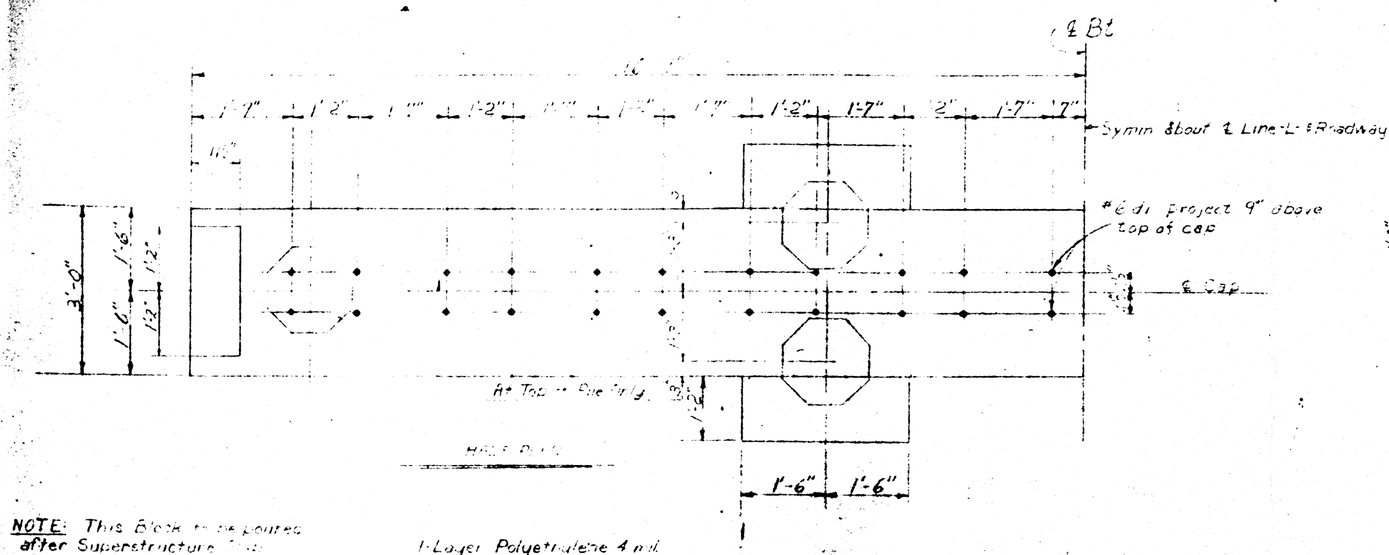
SUBSTRUCTURE PILE BENTS NO 1, 2, 3, 5, 6, 7, 8, 10, 11, 12

Gelo Bo...

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

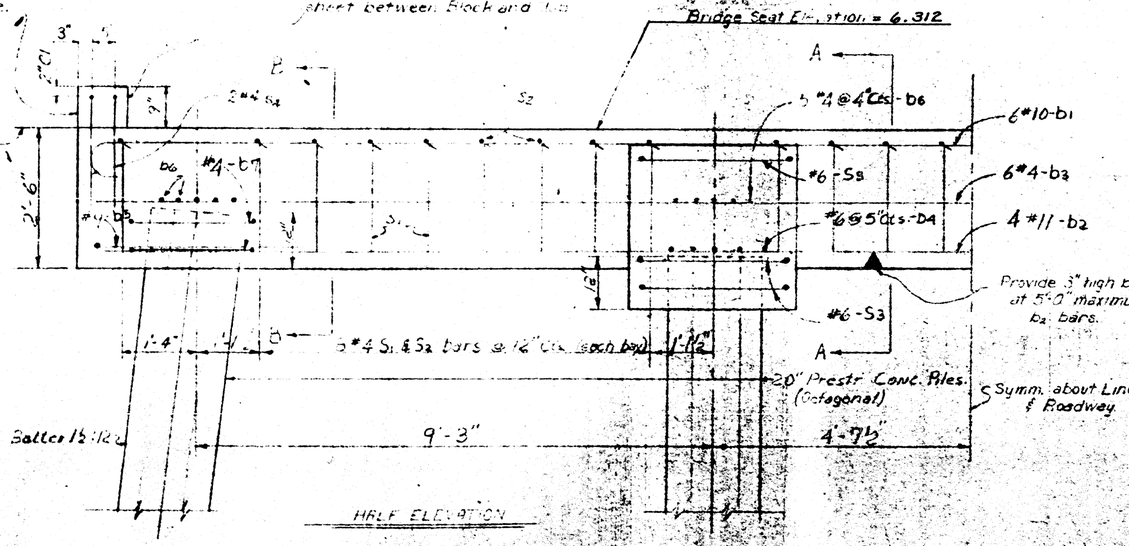
DRAWN - E.G.L. SEPT. '69
Reverted to Bent Detail 10-5-87
CHECKED R.A. DIERKER JR. DATE 3-5-87

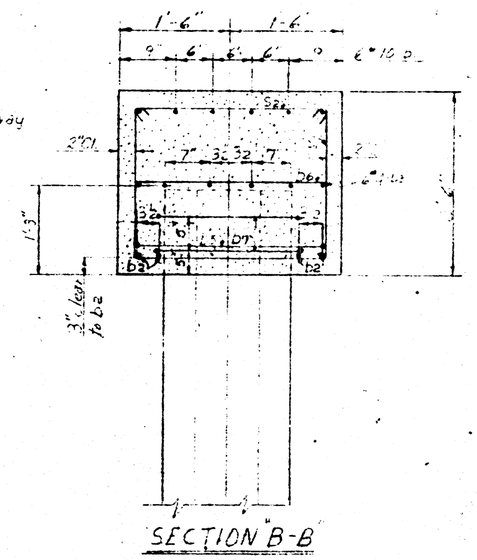
FED. ROAD DIV. NO.	STATE	PROJECT NO.
3	N. C.	6.801771
F. A. PROJECT		



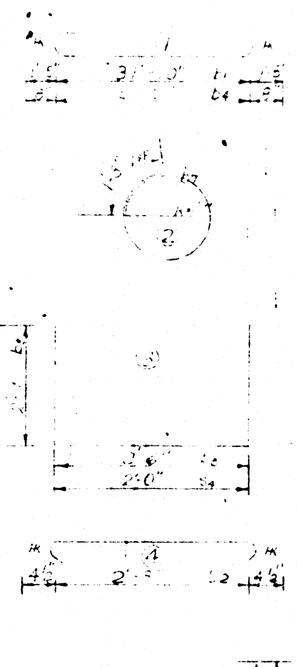
NOTE: This Block to be poured after Superstructure is in place.

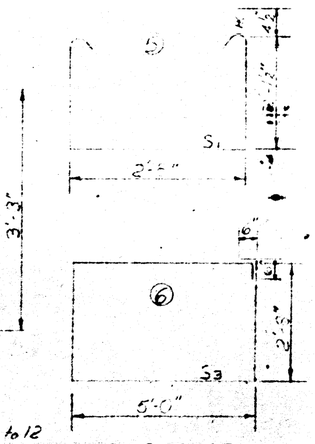
1-Layer Polyethylene 4 mil sheet between Block and Cap





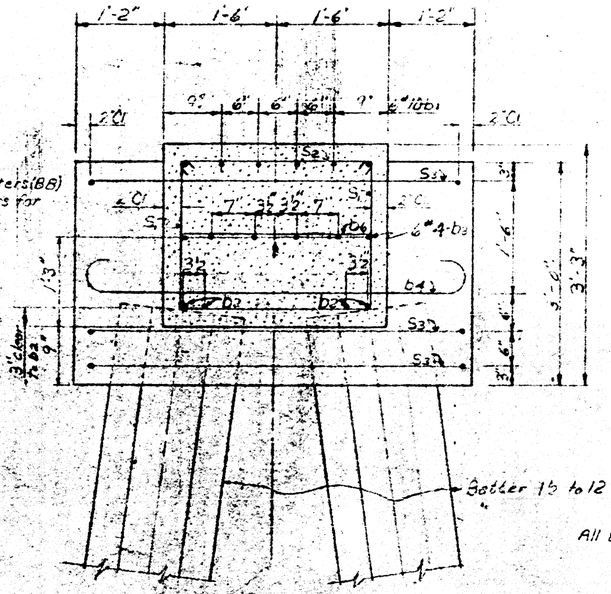
SECTION "B-B"





BAR TYPES

All Dimensions Are Out To Out



SECTION "A-A"

BILL OF MATERIAL					
FOR ONE BENT - TWO REQUIRED					
BAR	NO	SIZE	TYPE	LENGTH	WEIGHT
b1	6	#10	1	34'-8"	895
b2	4	#11	Str	31'-8"	643
b3	12	#4	Str	16'-7"	133
b4	10	#6	1	6'-4"	95
b5	2	#11	2	8'-0"	54
b6	20	#4	Str	2'-3"	36
b7	4	#4	2	5'-7"	23
S1	26	#4	5	7'-8"	133
S2	26	#4	4	3'-5"	59
S3	6	#6	6	16'-4"	147
S4	4	#4	3	6'-0"	16
a1	44	#6	Str	1'-6"	99

Reinforcing Steel (lbs) 2363
Class "A" conc. (Cu. yds.) *10.6

"Octagonal Prestr. Conc. Piles"		
Size	No.	Lin. Ft.
14	6	~~280.0~~ 288.0
9	2	~~320.0~~ 288.0

* Concrete displaced by Pile Heads has been deducted.

PROJECT NO. 6.801771

CARTERET COUNTY

STATION: 31+76.46 -L-

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH
SUBSTRUCTURE
FOR BENT NO. 4 of 9
October, 1968

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

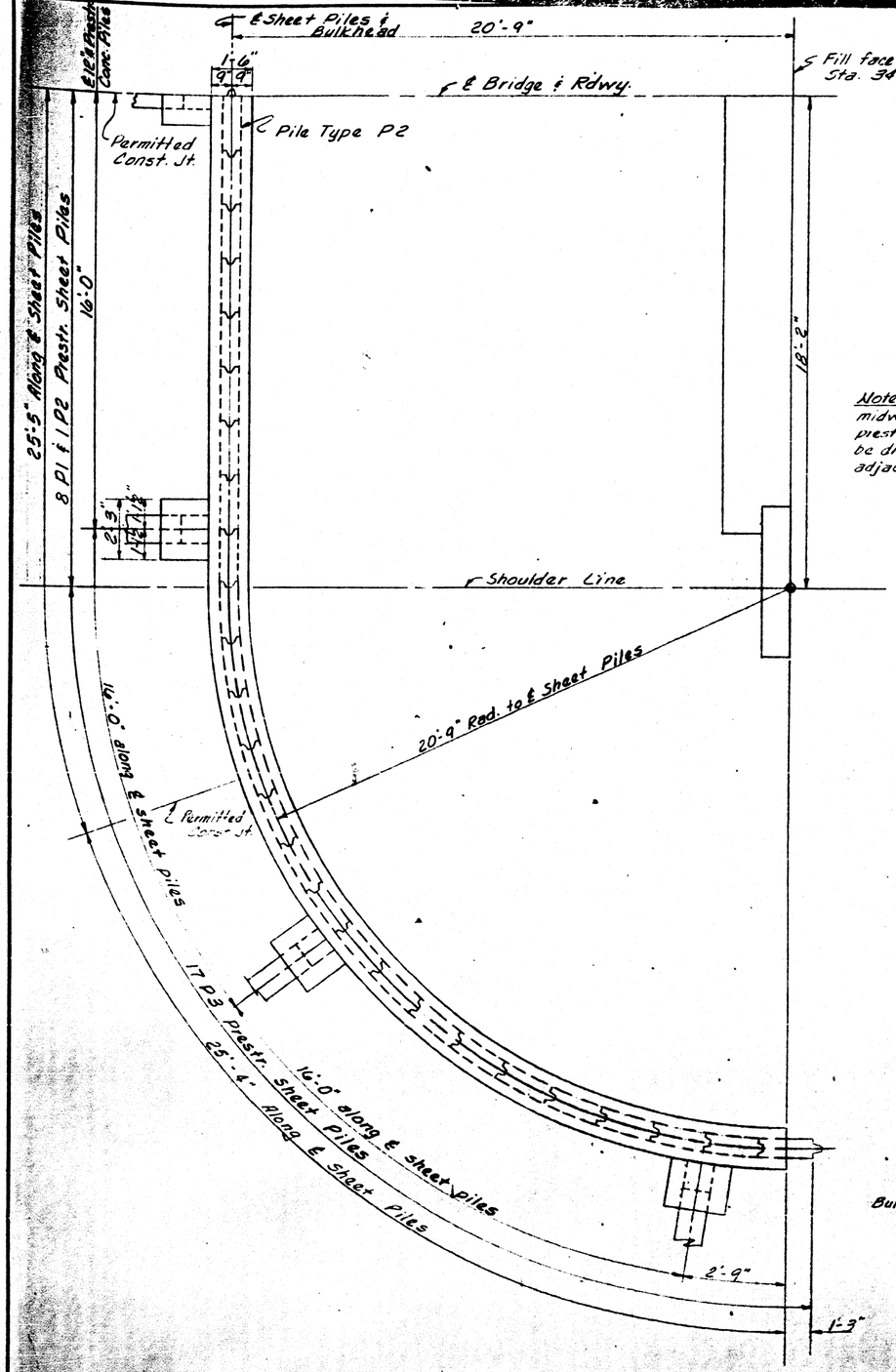
Built according to plans
See Pay Record Book No 2 page 10, 15, 51

NOTES:
For Neoprene pads on bent caps, see Superstructure.

For Method "D" demonstration on piles see standard "20" prestressed Octagonal Concrete Pile Sheet.

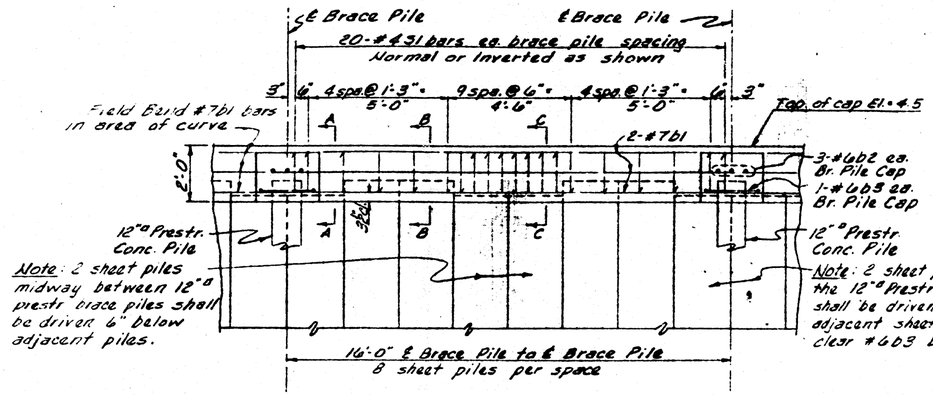
DESIGNED - B.G.A. SEPT. '67
DETAILED - Kenneth Sunderburke 10-3-67
CHECKED BY - R.D. ALFORD, JR. DATE 3-0-68

FED. ROAD DIV. NO.	STATE	PROJECT NO.
3	N. C.	G 801771
F. A. PROJECT		

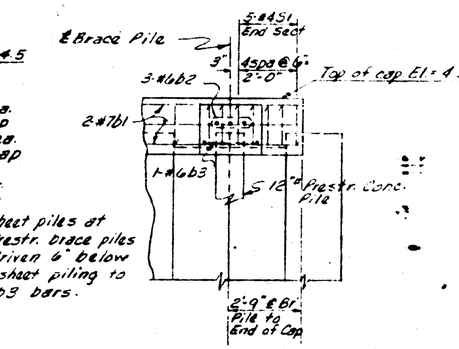


HALF PLAN

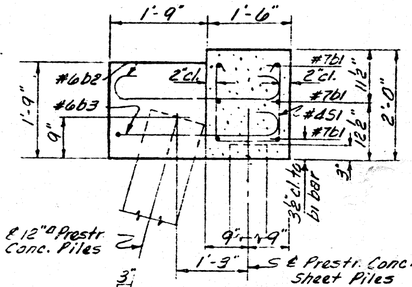
Symm. about ℄ Bridge & Roadway for dimensions
For location of sheet piles, see sketch



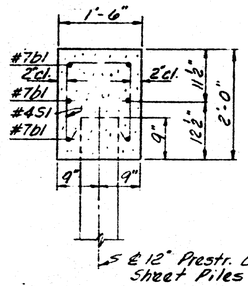
TYPICAL ELEVATION BETWEEN BRACE PILE SPACING



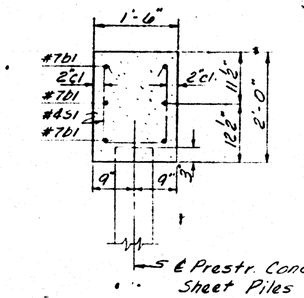
TYPICAL ELEVATION AT END OF BULKHEAD



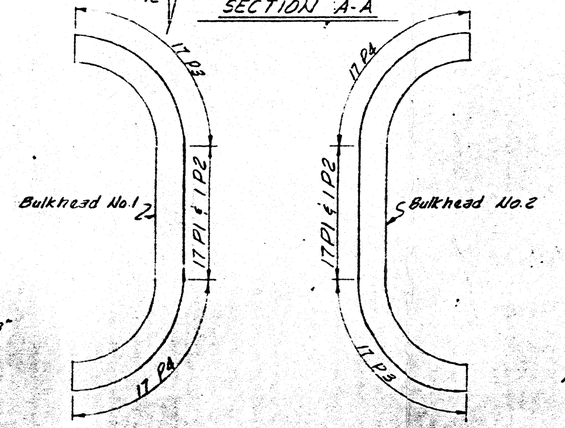
SECTION A-A



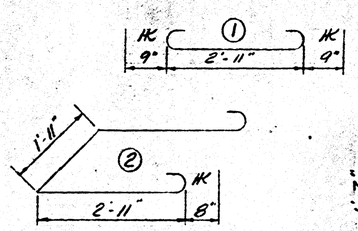
SECTION B-B



SECTION C-C



SKETCH SHOWING LOCATION OF SHEET PILES



BAR TYPES

All dimensions are from out to out.

Built according to plans
See Pay Record Book N°2 pages 20 thru 32, 52, 54

Rev. No. 1 - This is a new sheet and represents a revision for extending Bulkheads No. 1 & No. 2. This sheet replaces Sheet S-9

BILL OF MATERIAL

FOR 1 CAP (2 REQ'D)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
D1	12	#7	STR	51'-9"	1249
D2	21	#6	1	4'-5"	139
D3	7	#6	5	9'-1"	96
S1	130	#4	3	5'-1"	441

Reinforcing Steel, lbs.	1975
Class "A" Conc., Cu Yds.	11.6
12" Prestr. Conc. Piles	
No. 7	Lin. Ft.
Bulkhead No. 1	147
Bulkhead No. 2	108

PROJECT NO. 6.801771

CARTERET COUNTY

STATION: 31+76.46 -L-

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

BULKHEAD

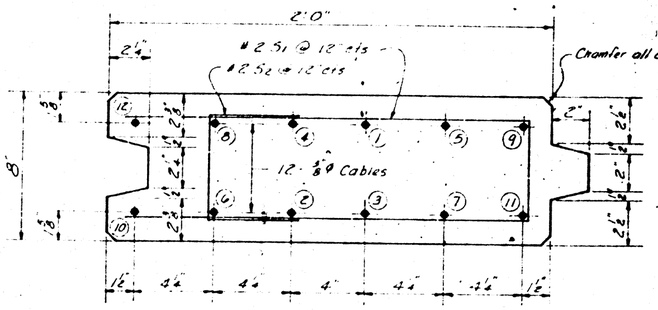
MARCH 1970

REVISIONS						SHEET NO. 17
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS 23
1	JKP	3-70	3			
2			4			

DRAWN BY	J.K. PARRISH	DATE MARCH '70
CHECKED BY	R.E. PARNELL	DATE 3-70

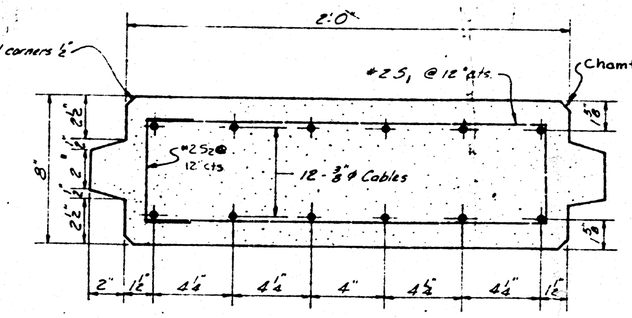
FED. ROAD

FED. ROAD DIV. NO.	STATE	PROJECT NO.
8	N. C.	6.801771
F. A. PROJECT		

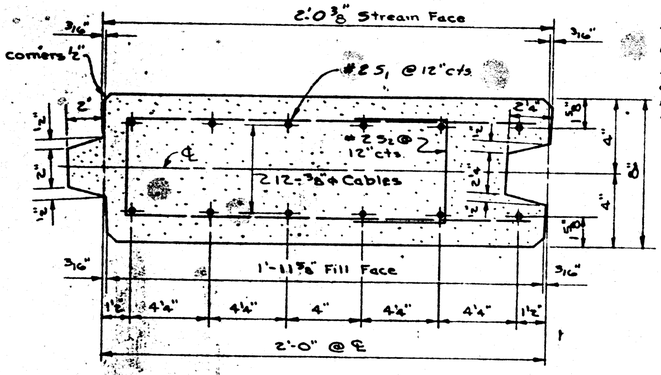


○ Denotes order of burning cables - Cables for all sheet piles P1 & P2 to be released by a similar pattern

TYPE P1



TYPE P2



TYPE P3

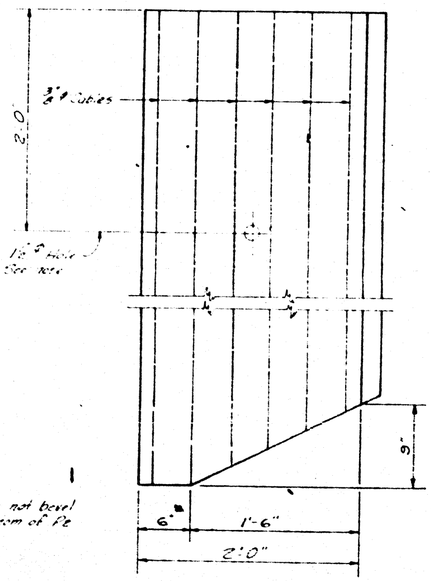
(Type P4 opposite hand to P3)

NOTES

All prestress strands to be ½ ϕ Stress Relieved Cables. Each cable to be prestressed at 14,000 lbs

Concrete f'c = 5,000 lbs per sq inch

Prestressed concrete sheet piles shall be manufactured, driven and paid for in accordance with the requirements for prestressed concrete piles in Section 807-A of the Specifications



ELEVATION

Note -

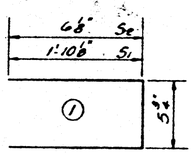
For convenience in handling the sheet piles the contractor will be permitted to form a hole not to exceed 1½ ϕ, two feet down from the top of the sheet pile. The holes shall be formed by wood plugs. Remove plugs before concrete has reached final set or by the use of some non-corrosive material. These holes to serve as drains

REINFORCING STEEL FOR ONE SHEET PILE

	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
P1	S1	15	#2	1	4'-2"	10
P1	S2	15	#2	1	1'-6"	4
P2	S1	15	#2	1	4'-2"	10
P2	S2	15	#2	1	1'-6"	4
P3	S1	15	#2	1	4'-2"	10
P3	S2	15	#2	1	1'-6"	4
P4	S1	15	#2	1	4'-2"	10
P4	S2	15	#2	1	1'-6"	4

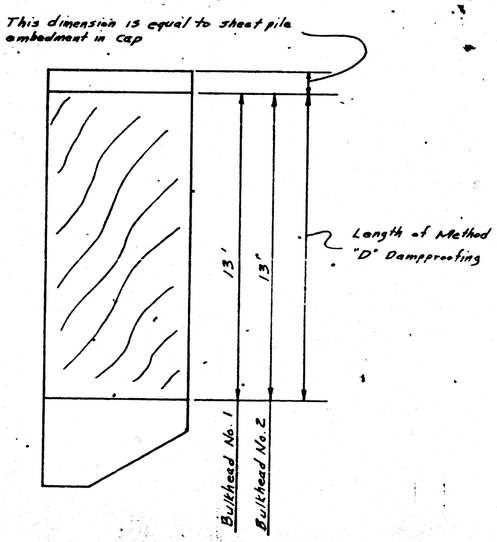
SUMMARY OF PRESTRESSED CONCRETE SHEET PILES

	MARK	NO.	SIZE	LENGTH	LIN. FEET
BULKHEAD No. 1	P1	17	8"x24"	15'-0"	255'-0"
	P2	1	8"x24"	15'-0"	15'-0"
	P3	17	8"x24"	15'-0"	255'-0"
	P4	17	8"x24"	15'-0"	255'-0"
BULKHEAD No. 2	P1	17	8"x24"	18'-0"	306'-0"
	P2	1	8"x24"	18'-0"	18'-0"
	P3	17	8"x24"	18'-0"	306'-0"
	P4	17	8"x24"	18'-0"	306'-0"
TOTAL LINEAR FEET =					1716'-0"



BAR TYPES

All dimensions are from out to out.



PRESTRESSED CONCRETE SHEET PILE AREA TO BE DAMPPROOFED

LOCATION	METHOD "D" DAMPPROOFING SQ. YDS.
BULKHEAD No. 1	~~435~~ 3918.1064 S.F. 435.35 Sq. Yds.
BULKHEAD No. 2	~~435~~ 3918.1064 S.F. 435.35 Sq. Yds.

Rev. No. 1 - This is a new sheet and represents a revision for Sheet Piles for extending Bulkhead no. 1 & no. 2. This sheet replaces Sheet 31D

3918.1064 S.F.
300.5496
22 18.6560

Built according to plans
See Pay Record Book No. 2 Page 52.

PROJECT NO. 6.801771
CARTERET COUNTY
STATION: 31+76.46 -L-

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

DETAILS OF 8" x 2'-0" PRESTR. CONC. SHEET PILES FOR BULKHEADS

FEBRUARY 1968

REVISIONS						SHEET NO. 13
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS 22
1	CBT	3-70	3			
2			4			

ASSEMBLED BY C.B. Taylor DATE 3-70
CHECKED BY R.E. Powell DATE 3-70
DRAWN BY S.L. SANTO-TOMAS DATE FEB 1968
CHECKED BY R.E. POWELL DATE FEB 1968

SOUTHERLAND GRAPHIC CO. CHARLOTTE, N. C.

DRAWN BY ____ DATE ____
CHECKED BY R.E. Powell DATE 3/70

SHEETS 10 & 11

LOCATION OF SHEET PILES