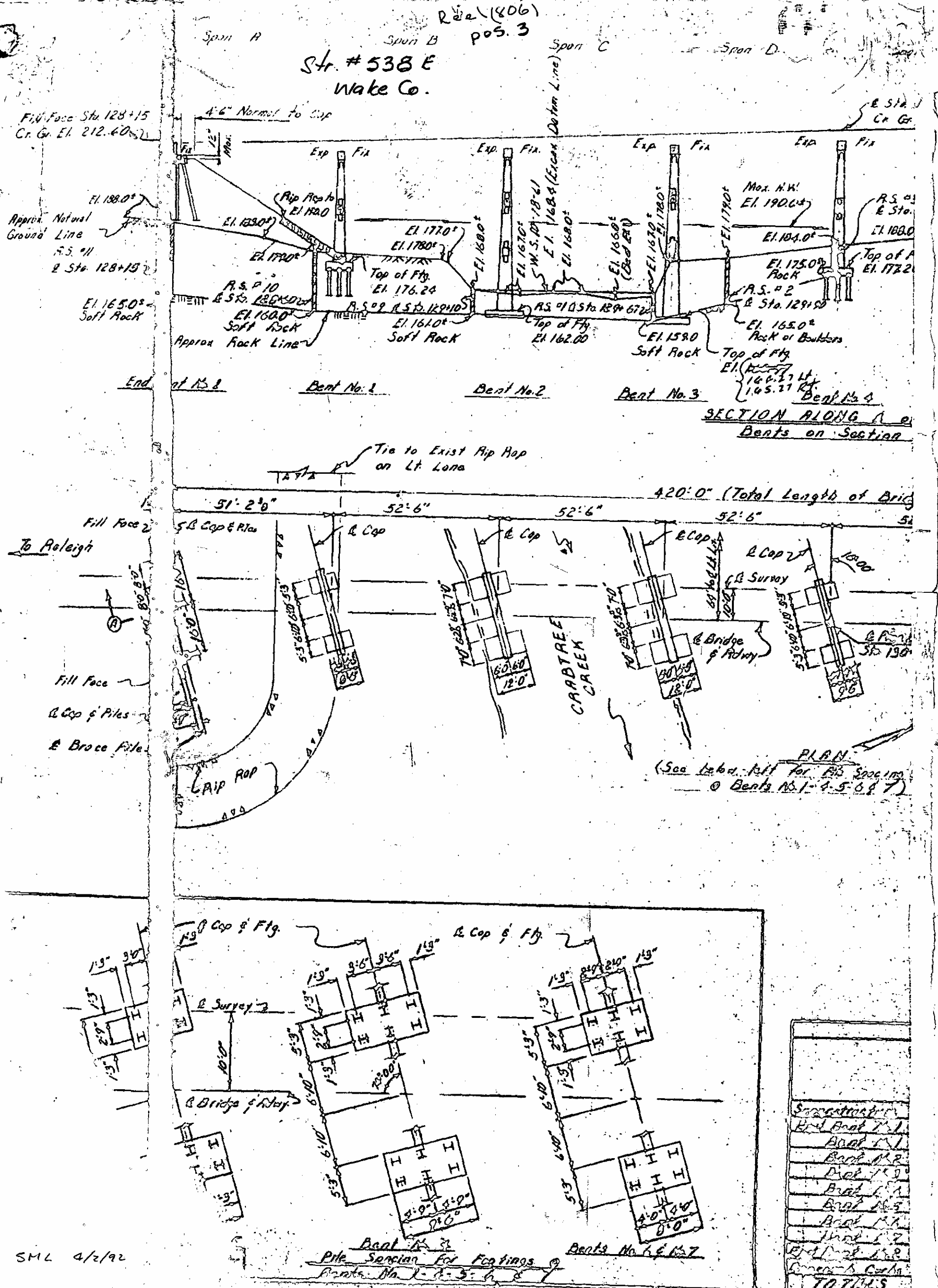
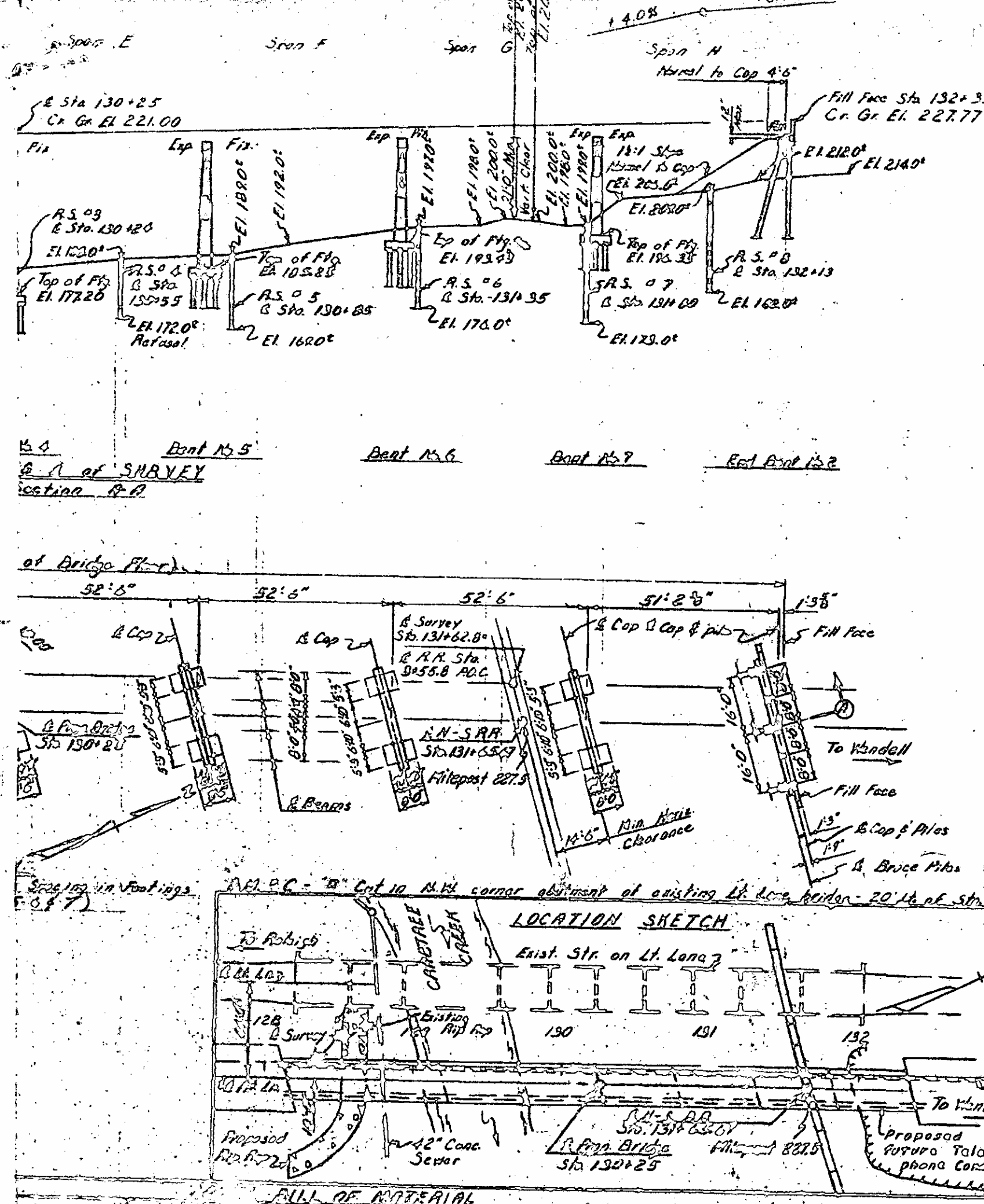
Rec'd (806)
POS. 3

Str. # 538 E
Wake Co.



SML 4/2/92



Assumed Live Loa

for other Desig

Computed Foundat
Computed foun
2 3/4 tons per

Footings into Ro
Footings for
into rock with

Test Piles:
The Contractor
steel test pi
one 25' long
and one 35'
be paid for as
order length
test piles ha

Pile Capacity:
All piles shall
capacity of

Piles Driven Thru
Piles for End
the roadway

Traffic over exis
maintained at
structure. S

BILL OF MATERIAL

Class D Conc.	Reinf. Steel	Structural Steel	12 H 53 Steel Piles	Plain Rip Rap Class 2	Excavation Wet	Excavation Dry	12 H 53 Steel Piles Lin. Ft. Cutoff
							28.3
				37.5			17.5
					93.2	53.3	
				198.25			
				10.00			
				22.50			17.00
				7.50			
				57.25	109.85		2.75
							199.00

to add 12" water line.

Assumed Live Load: H20 Std (44)

For other Design Data & General Notes See Sheet S-N

Computed Foundation Load:
Computed foundation load for Bents No 2 & No. 3 equals $2\frac{3}{4}$ tons per square ft.

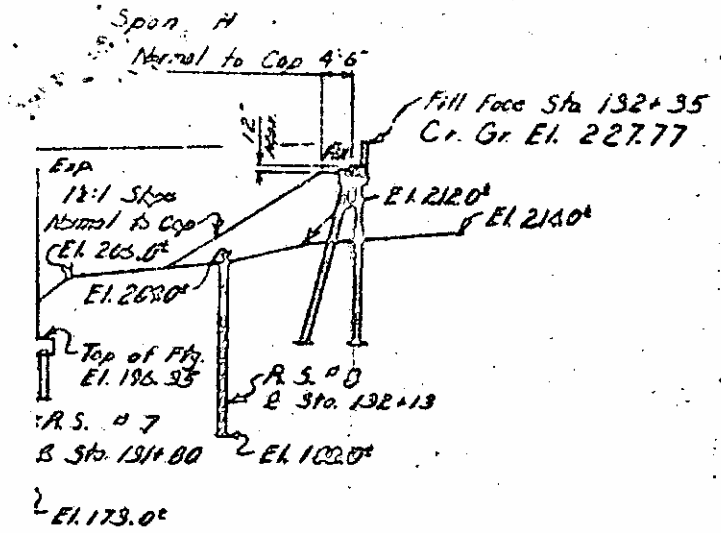
Footings into Rock:
Footings for Bents No 2 & No. 3 to be carried at least 6" into rock with minimum thickness as shown on plans.

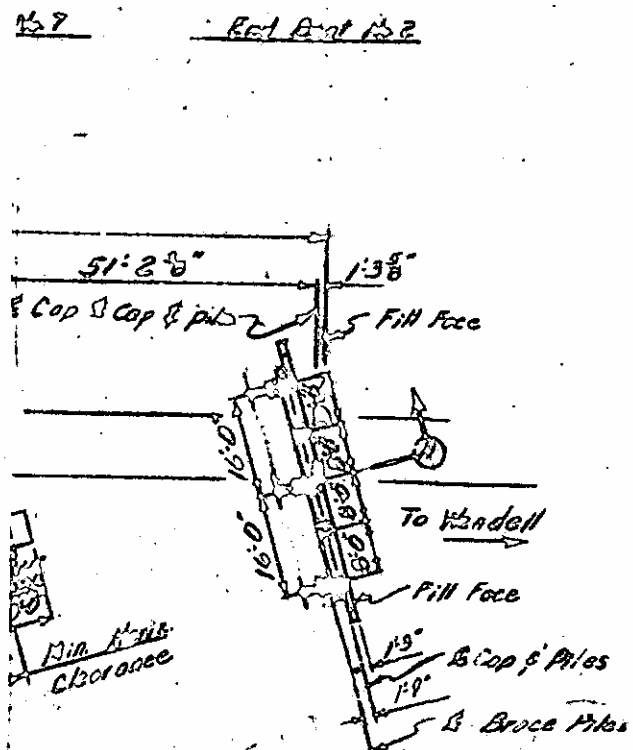
Test Piles:
The Contractor will be required to drive 4 - 12H53 steel test piles in places one 25' long for Bt #1, one 25' long for Bt. # 4, one 30' long for Bt. # 6, and one 35' long for Bt. # 7. The test piles shall be paid for as linear foot of 12H53 Steel Piles. The order length of all the piles will be given after the test piles have been driven

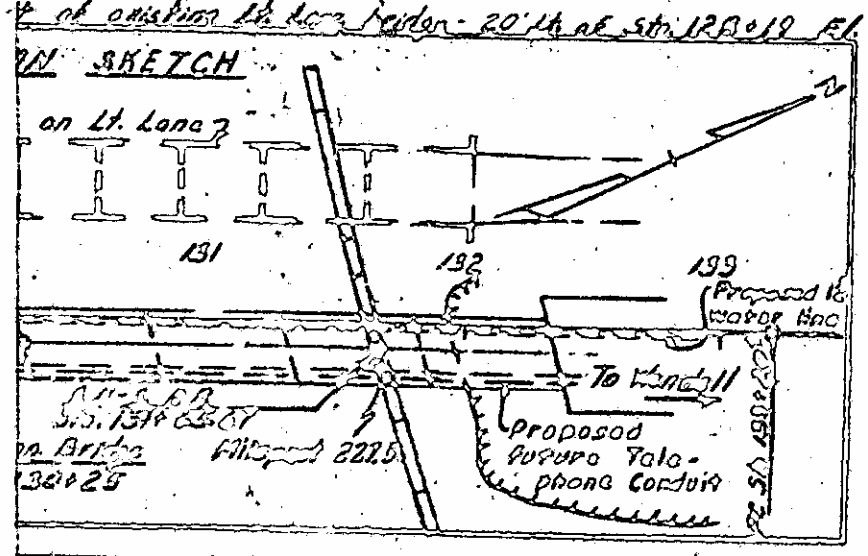
Pile Capacity:
All piles shall be driven to a minimum bearing capacity of 30 tons each.

Piles Driven Through Fill:
Piles for End Bents No. 1 & No 2 to be driven through the roadway fill.

Traffic over existing bridge and railway traffic to be maintained at all times during construction of proposed structure. See Special Provision.







	12 H 53 Steel Piles Lin. Ft. Cutoff
	18.5
	17.5
	[illegible]
	[illegible]
	24.00
	[illegible]
	2.75
	199.00

Equivalent Length of 24" 18" Water Line.

PROJECT No. 8.1421.1

WAKE COUNTY

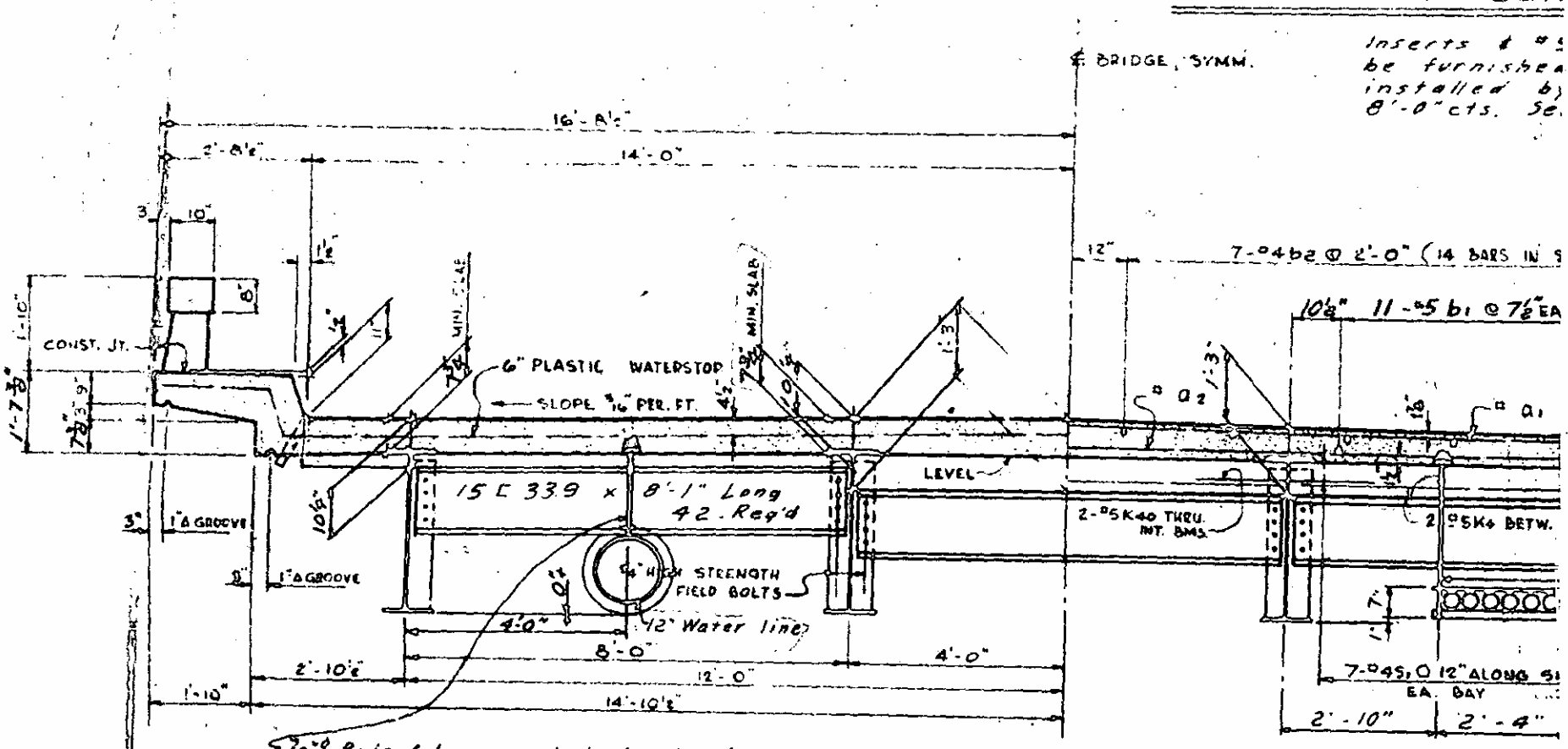
STATION: 130+25

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION

GENERAL DRAWING
BRIDGE OVER CSX
AND NORFOLK SOUTHERN
RAILWAY ON US
RALEIGH AND WAKE

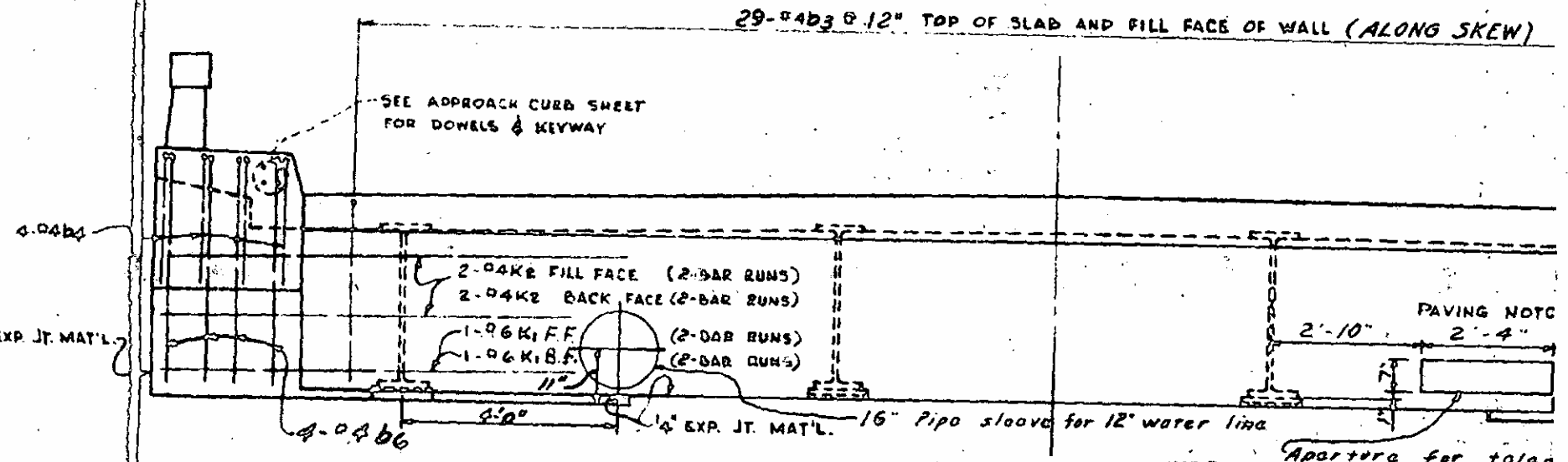
INSERT & BAR DET.

Inserts & #5 be furnished installed by 8'-0" cts. Se.



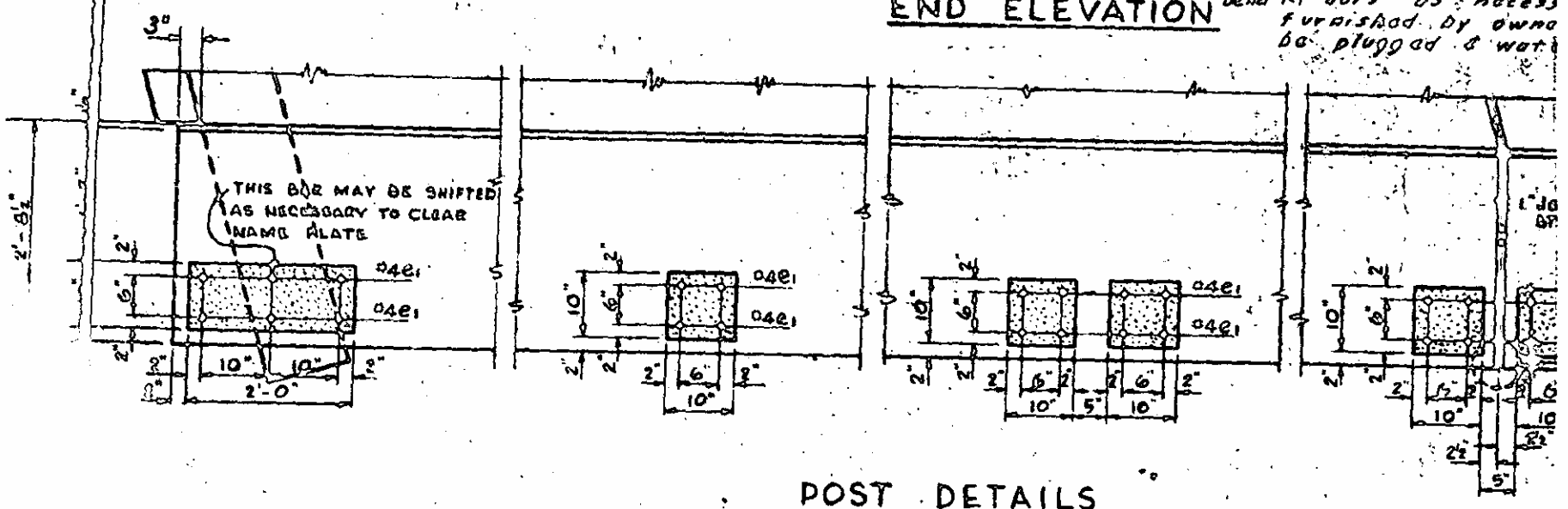
8"ϕ Rods & hangers to be furnished & placed in future by owner. Pipe flange shall not extend below exterior beam. Hangers to be spaced @ 8'-0" cts.

TYPICAL SECTION
SHOWING DIAPHRAGMS AT BENTS



END ELEVATION

NOTE: Bend K1 bars as necess furnished by owne be plugged & wat



POST DETAILS

	DATE Oct., 1962
	DATE Nov. 1962
13	DATE MAY 1962
11	DATE June, 1962

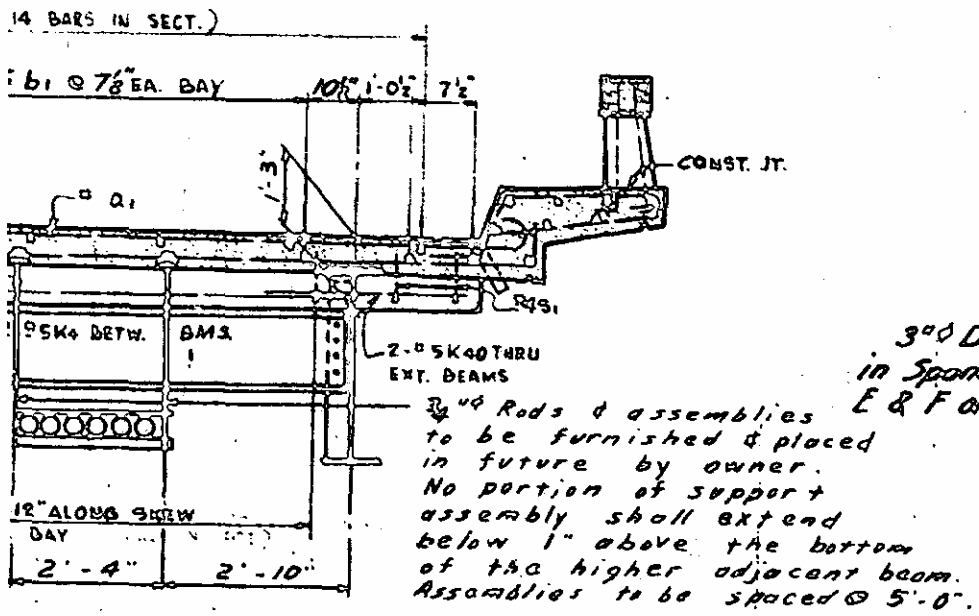
R DETAIL

...ts" & #5 b₁₀ bars are to ...urnished by owner & ...lled by contractor @ ...cts. See Special Provisions.

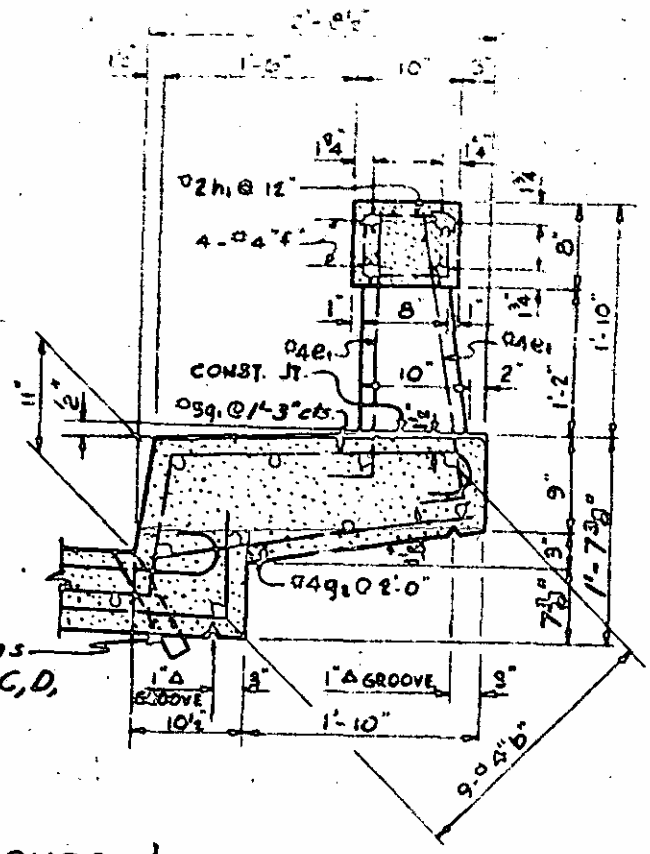
DRAIN DETAIL

80 Required

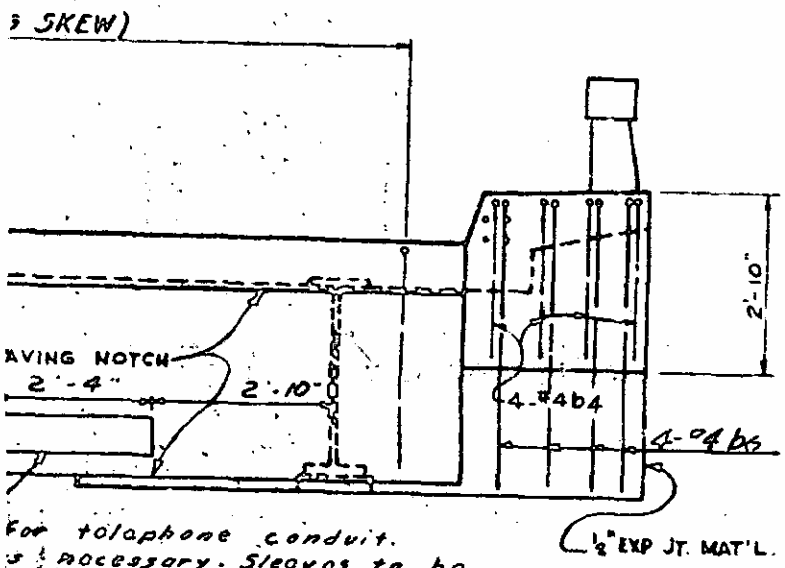
Drains to be std. wt. galvanized steel and field painted with 2 coats of aluminum paint.



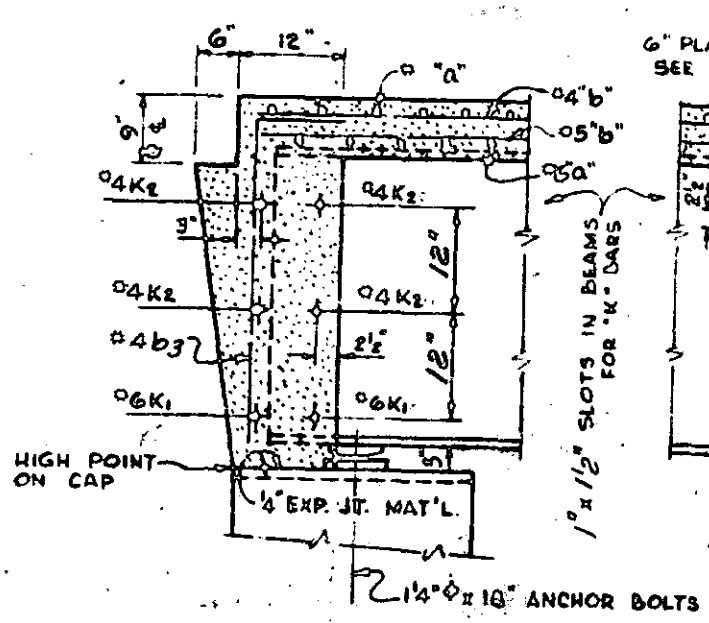
⅜"⌀ Rods & assemblies to be furnished & placed in future by owner. No portion of support assembly shall extend below 1" above the bottom of the higher adjacent beam. Assemblies to be spaced @ 5'-0".



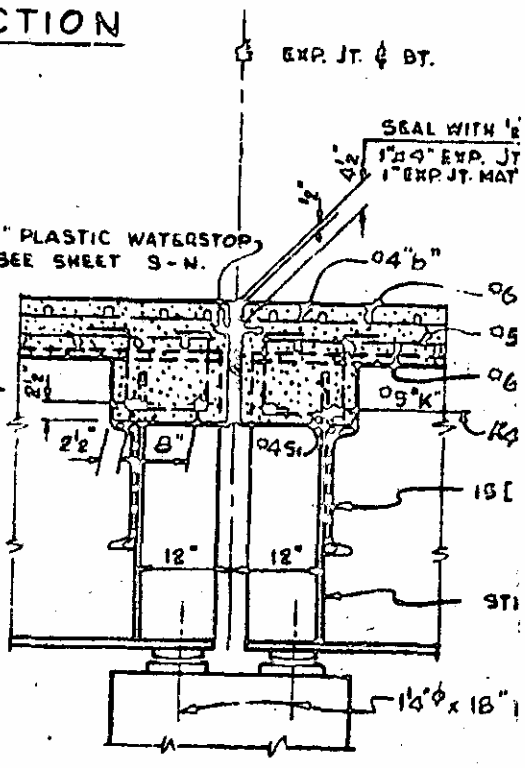
CURB & RAIL SECTION



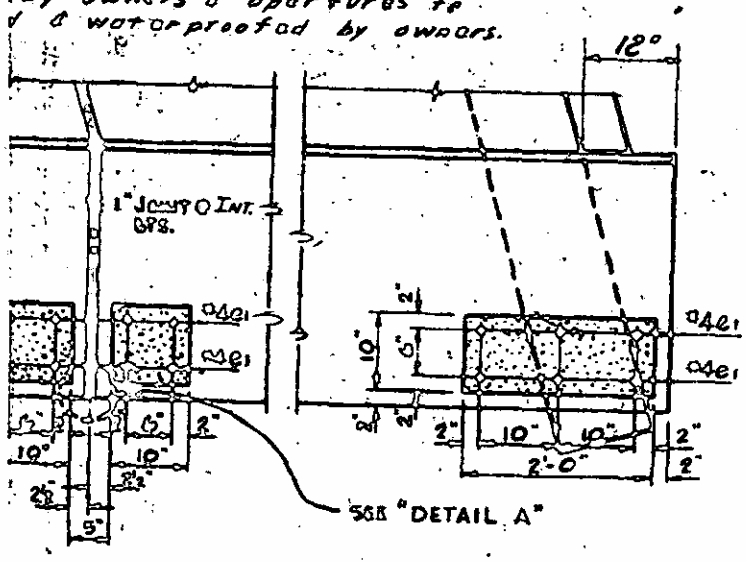
For telephone conduit. ...s necessary. Sleeves to be ...by owners & apertures to ...& waterproofed by owners.

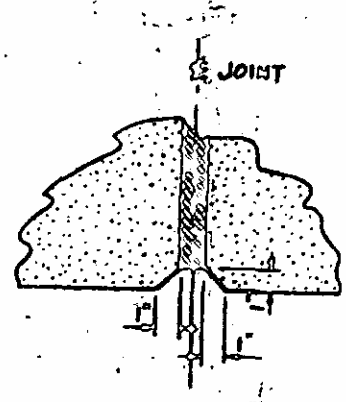


SECTION A-A



SECTION B-B





DETAIL A

Revision No. 2: Revised to change water line hanger rods from ¾"⌀ 5'-0" cts. to ⅞"⌀ 0'-0" cts.
Revision No. 1: Revised to add 12" water line.

REVISIONS					
2					
1					

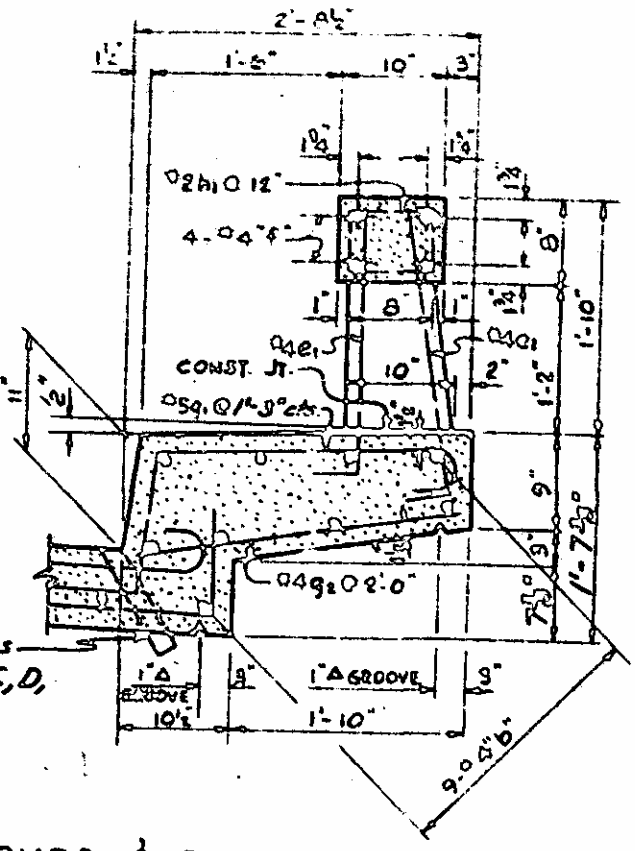
to be set ⅜" below surface of slab.

F.A. Proj. F-96-1(3)

145

TAIL

t. galvanized
nted with 2
aint.



CURB & RAIL SECTION

NOTES

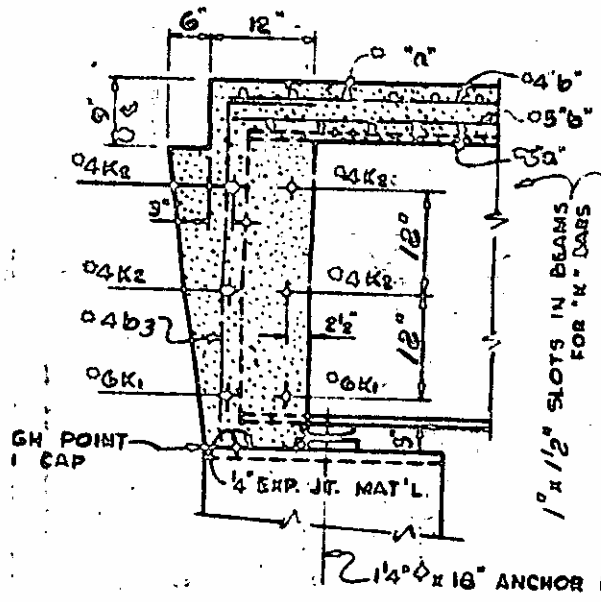
ASSUMED LIVE LOAD = H20-S16-44 (1.3)

CONCRETE IN COMPRESSION [illegible]
REINFORCING STEEL IN TENSION [illegible]
STRESS IN EXTREME FIBER OF
STRUCTURAL STEEL [illegible]

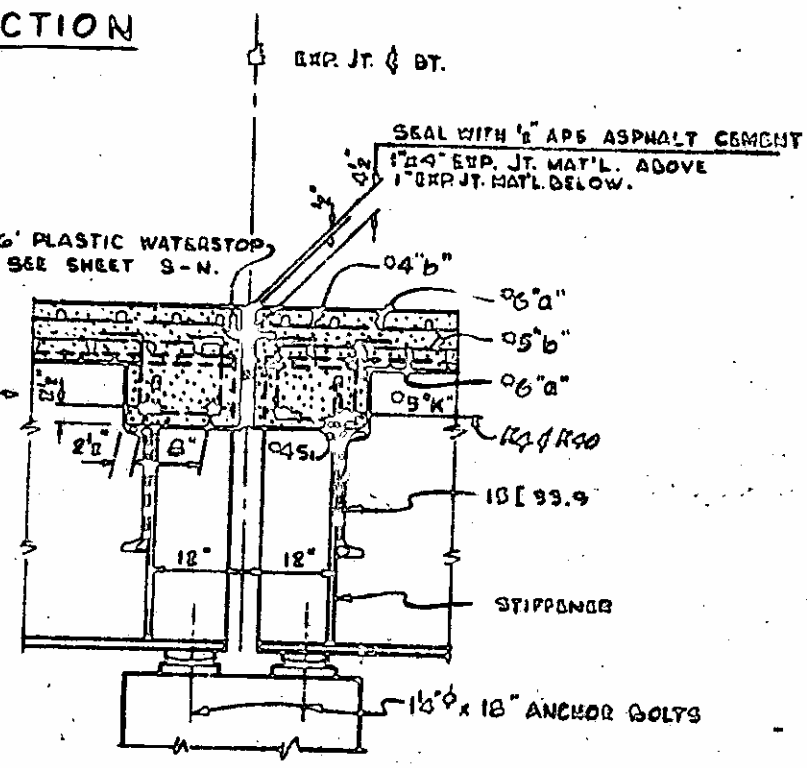
FOR OTHER DESIGN DATA AND GENERAL [illegible]
SEE SHEET 6-N.

FOR BARS INDICATED AND NO BAR MARK [illegible]
SEE CONCRETE PLAN FOR THE DIFFERENT [illegible]

EXPANSION JOINTS TO BE KEPT FREE OF [illegible]
AND SEALED WITH APS ASPHALT CEMENT.

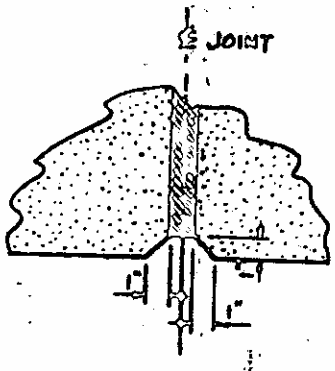


SECTION A-A



SECTION B-B

PROJECT NO.
WAKE
STATION:



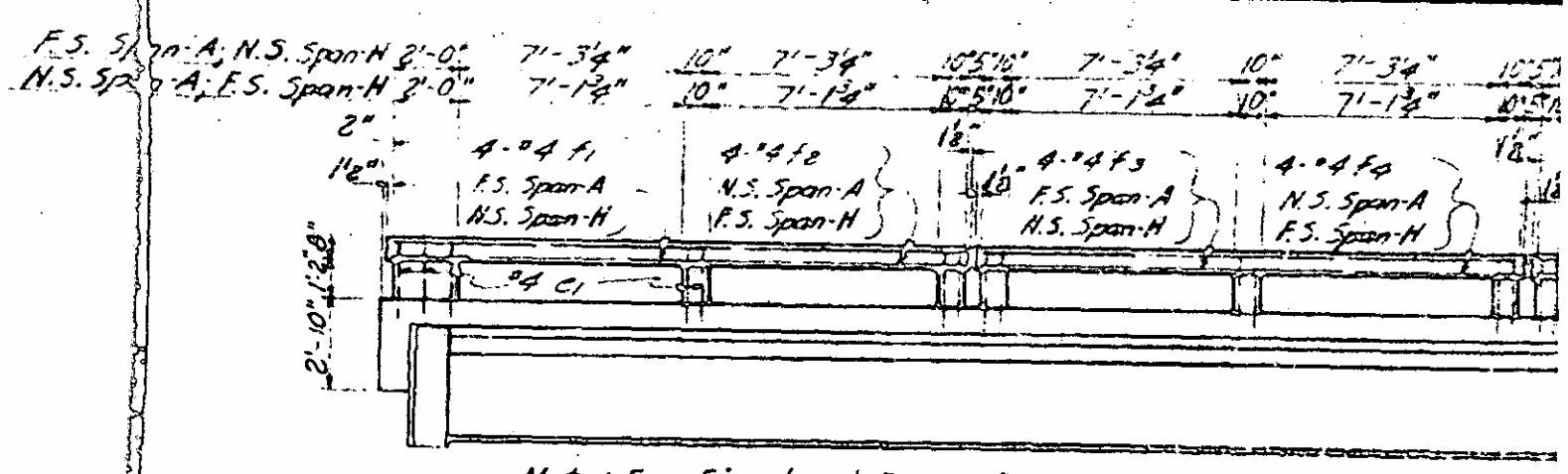
DETAIL A

REVISIONS						
NO.	BY	DATE	NO.	BY	DATE	
1	BRY	5-63				
2		11-63				

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
DIVISION

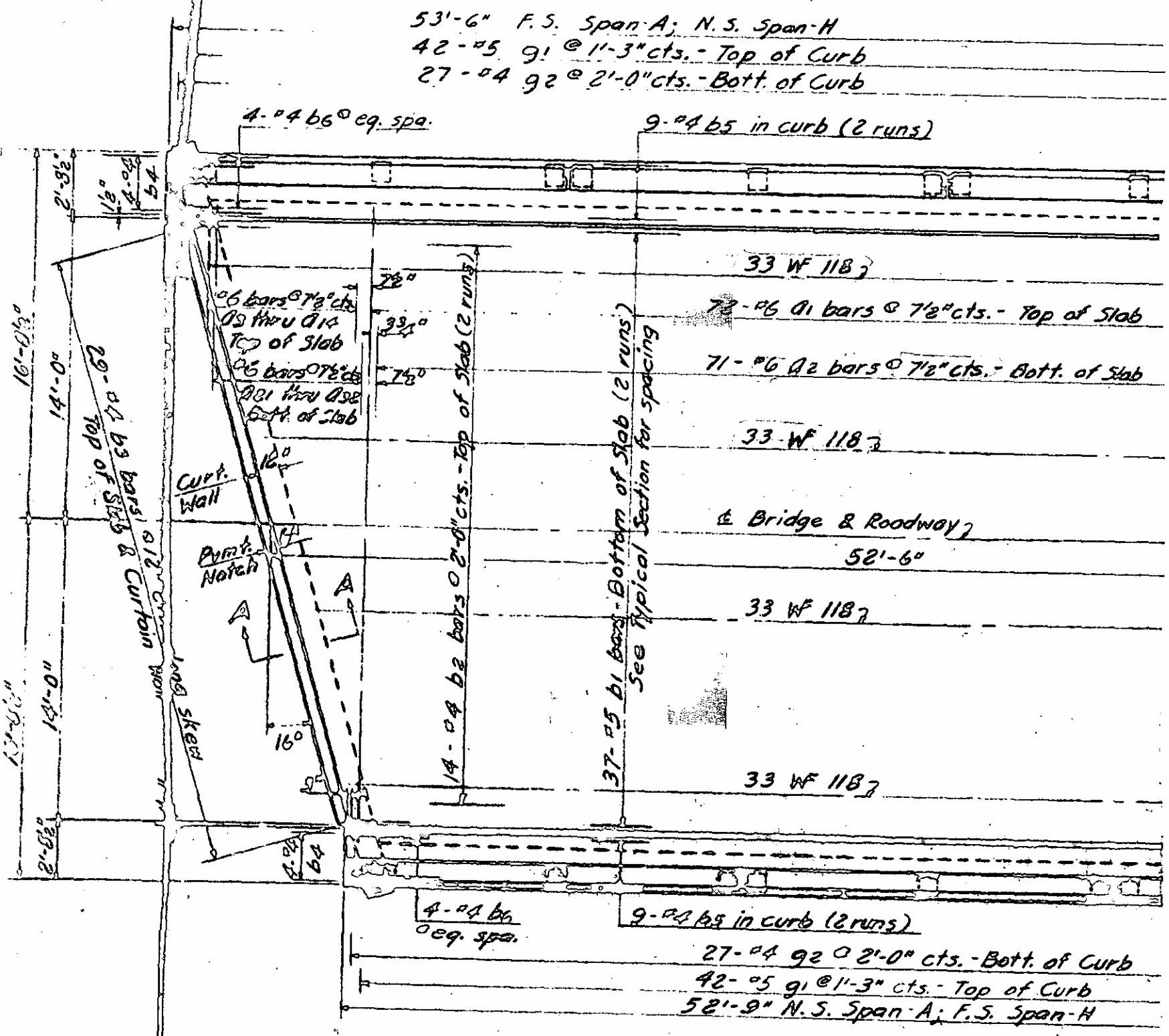
STANDARD TYPICAL
28' ROADWAY – 18" CURBS –
4 STEEL BEAMS –
[illegible]
MAY 1960

Revised to change water line hanger rods 5'-0" cts. to "B" @ 0'-0" cts.
Revised to add 12" water line.

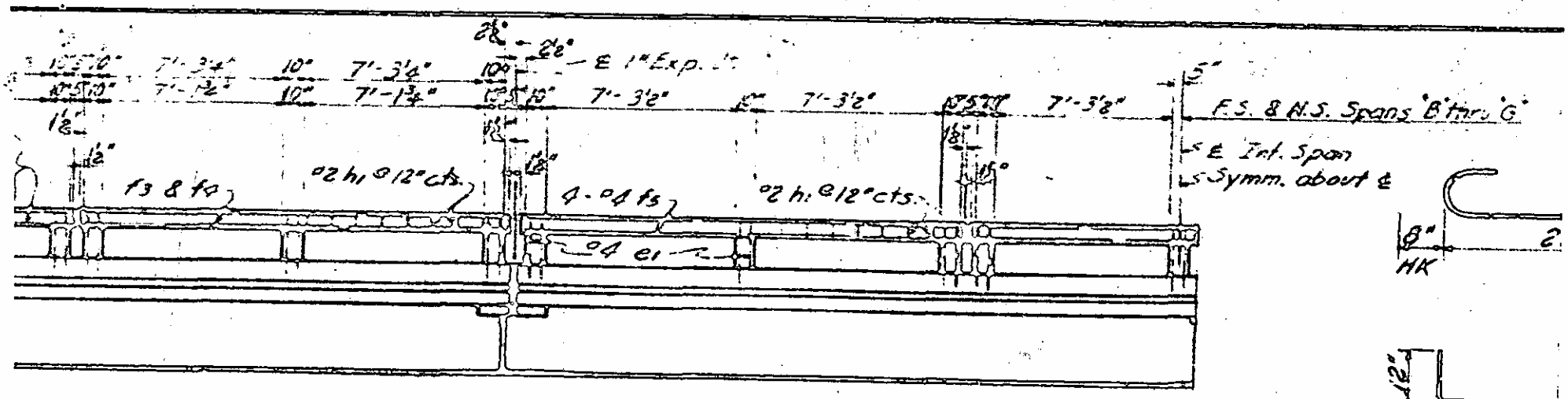


Note: For Fixed and Expansion ends of beams, see General Drawing.

SPANS-A & H



SPANS A & H

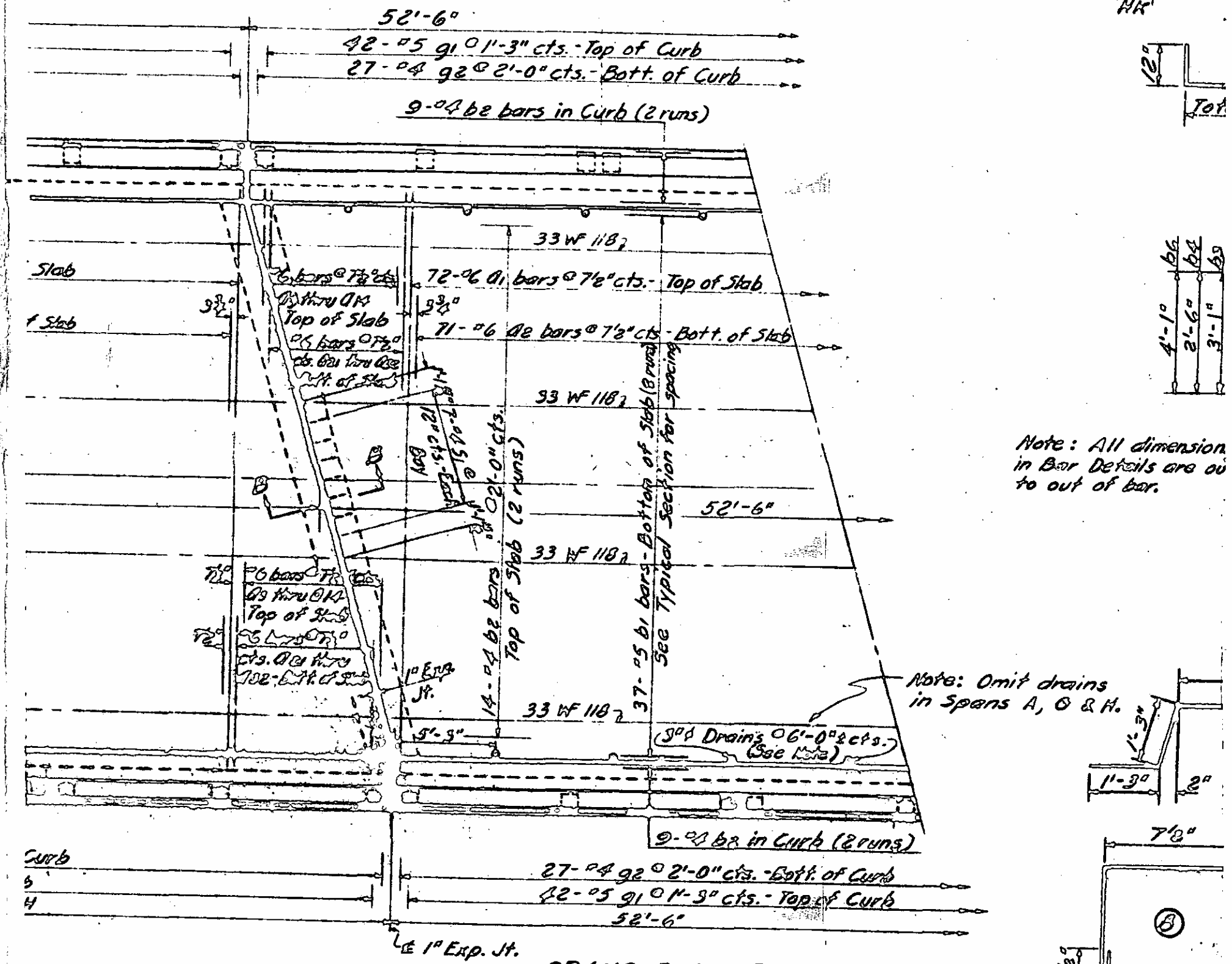


I & H

RAIL ELEVATION

SPANS-B THRU G

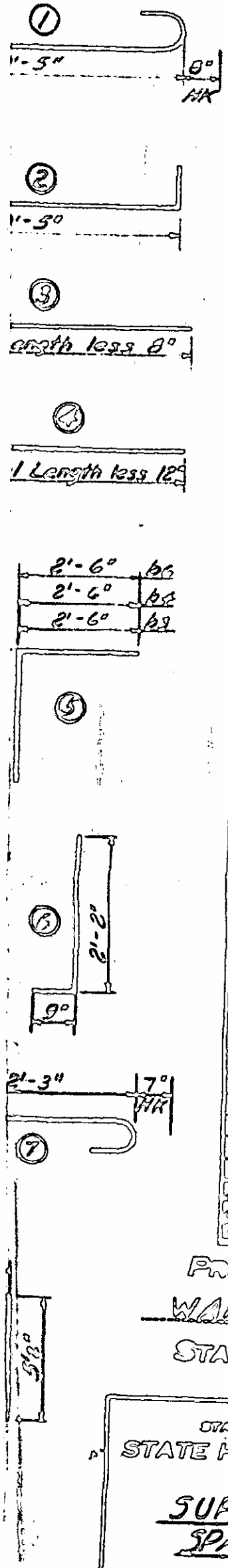
Note: Concrete rail posts are to be constructed normal to the grade of the bridge curbs and rails are to be built parallel to the grade of the curbs.

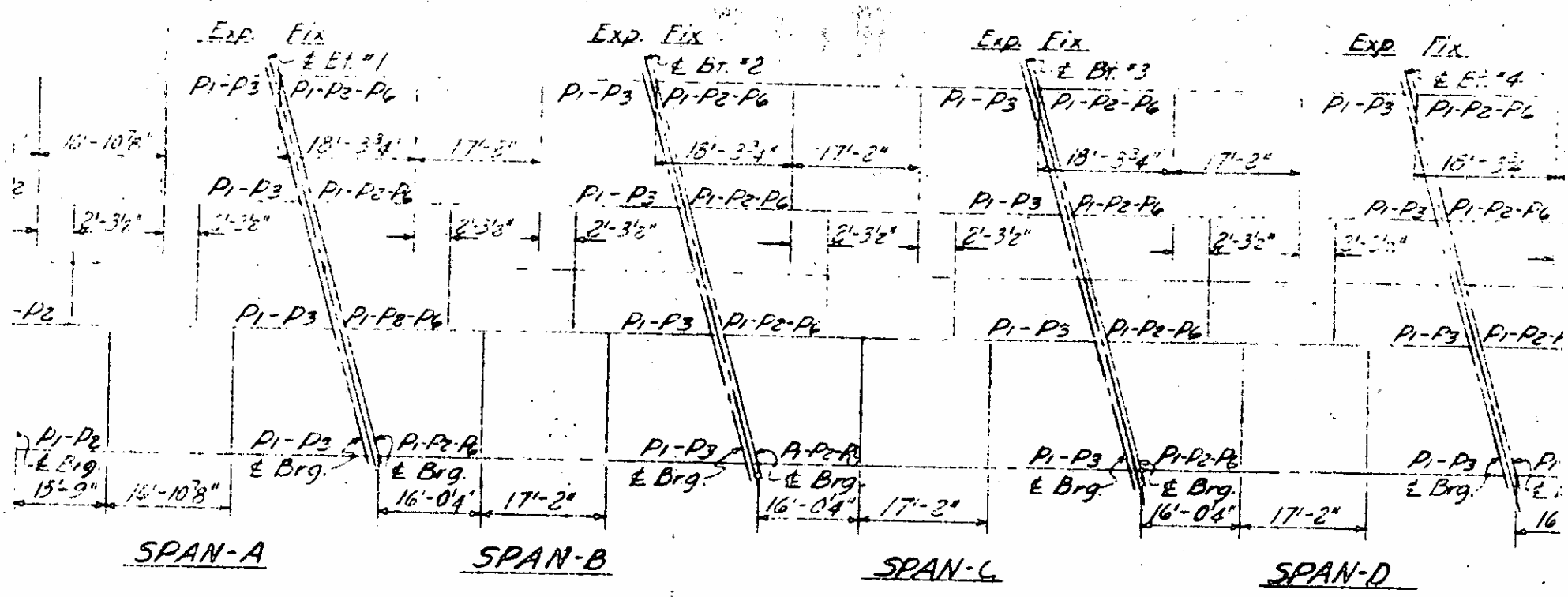


Note: All dimension in Bar Details are ou to out of bar.

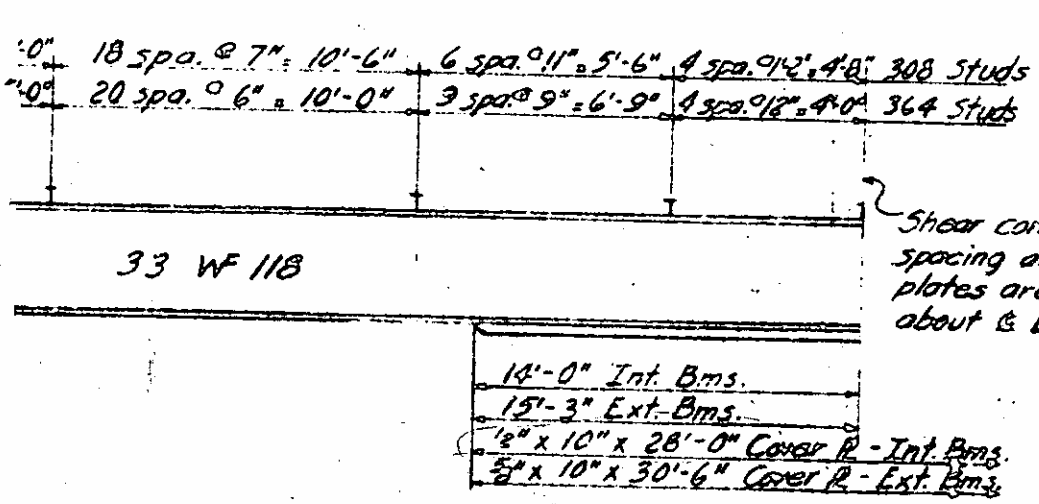
SPANS B, C, D, E, F & G

CONCRETE QUANTITIES	
Span	Cu. Yds.
A	55.1
B	50.7
C	50.7
D	50.7
E	50.7


1
1'-5"
8°
HK
2
1'-5"
3
Length less 8°
4
Length less 12°
2'-6"
2'-6"
2'-6"
5
6
21-2"
9°
2'-3"
7°
HK
7
5½°

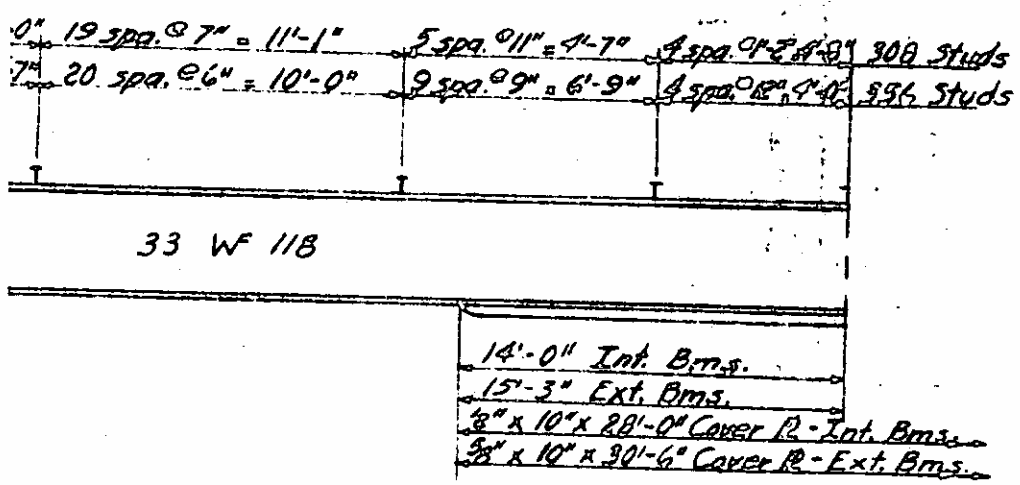


LAYOUT SHOWING LOCAT
& BEARING PL

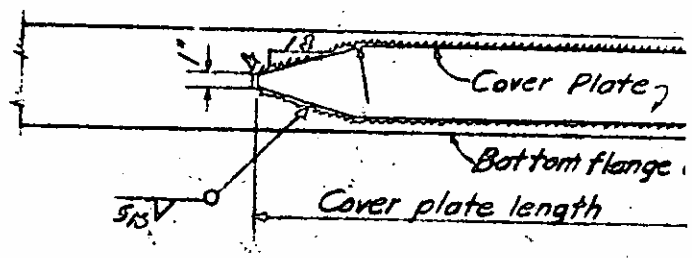


Shear connector spacing and cover plates are symmet. about ℄ bet. brgs.

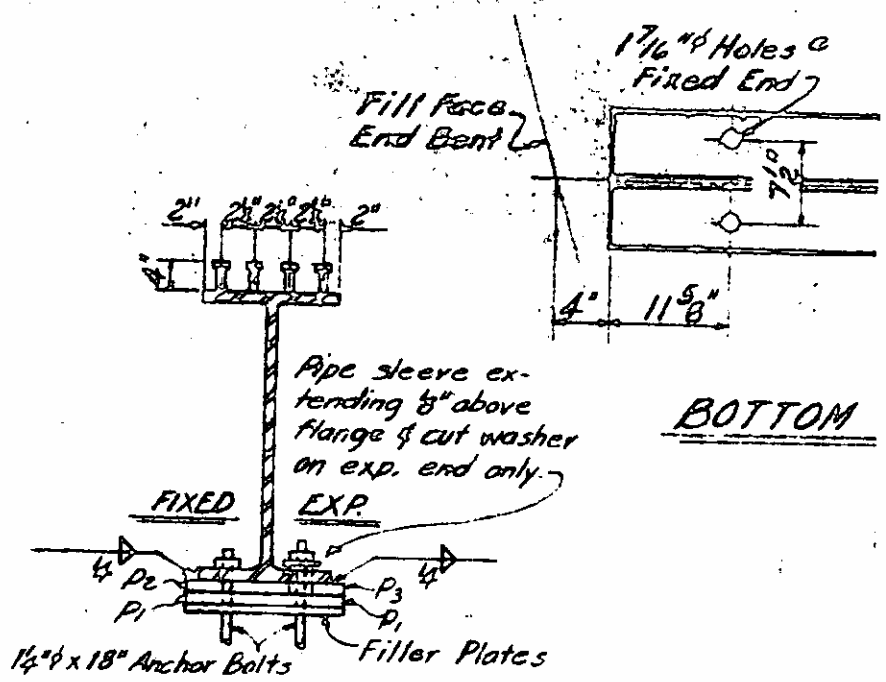
SPANS B-C-D-E-F & G



SPANS A & H



COVER PL WELD DETAIL

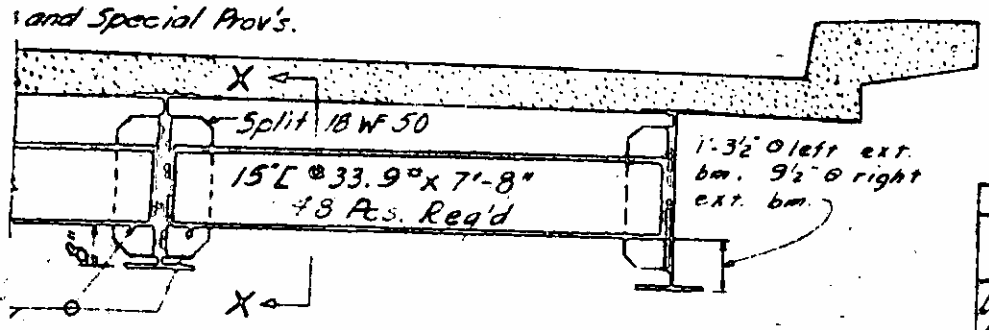


BOTTOM

SECTION THRU BEAM

SHEAR CONNECTOR SPACING

s of diaphragms
d using ¾" high
once with the
and Special Prov's.



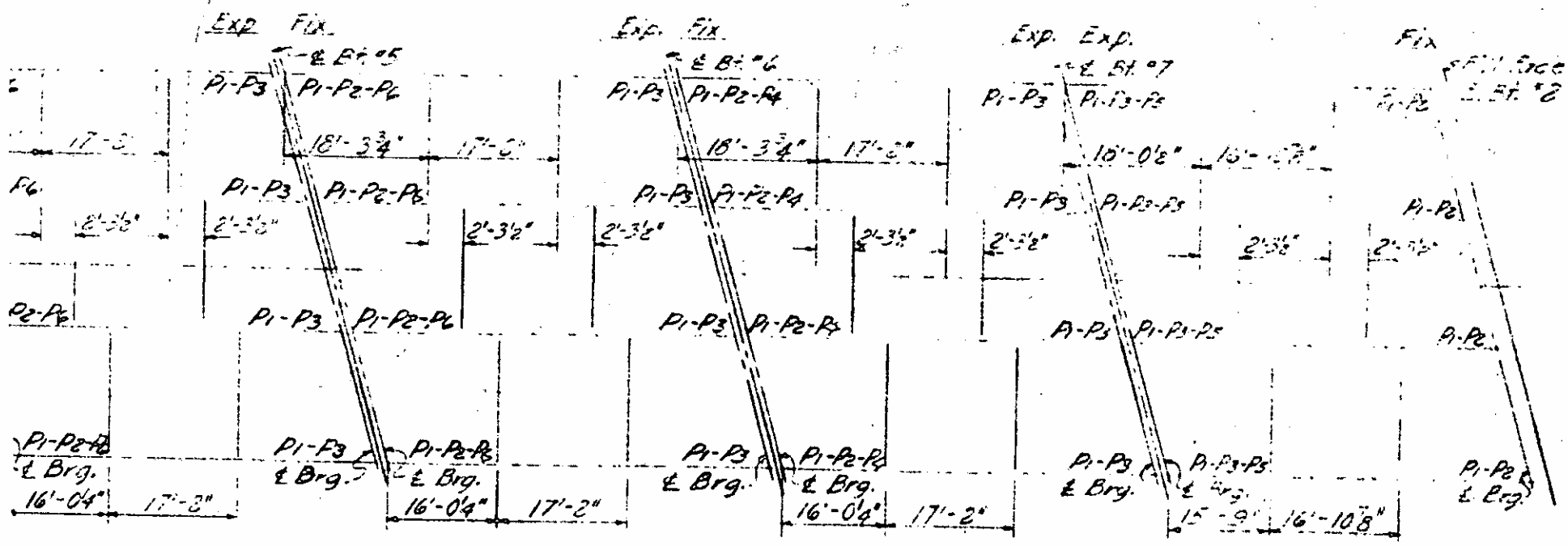
NOTES

All beams, cover plates (and channel shear connectors if used shall be of ASTM A-36 grade structural steel. See Sheet S-

At the Contractor's option, 3" @ 6# channel may be used in lieu of the stud shear connectors. See Sheet S-N.

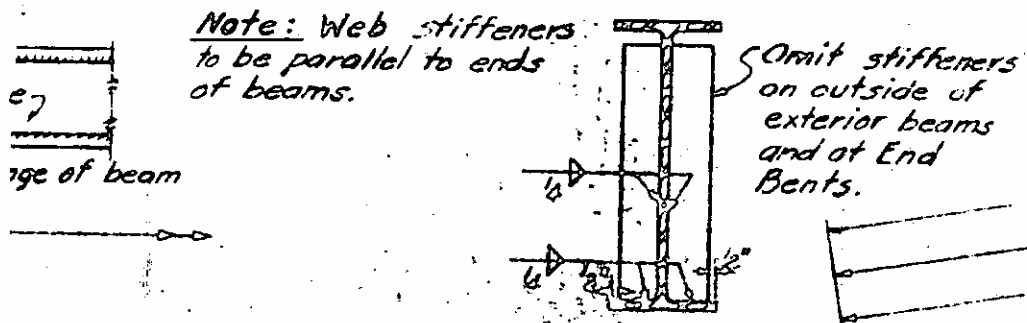
DEFLECTION TABLE

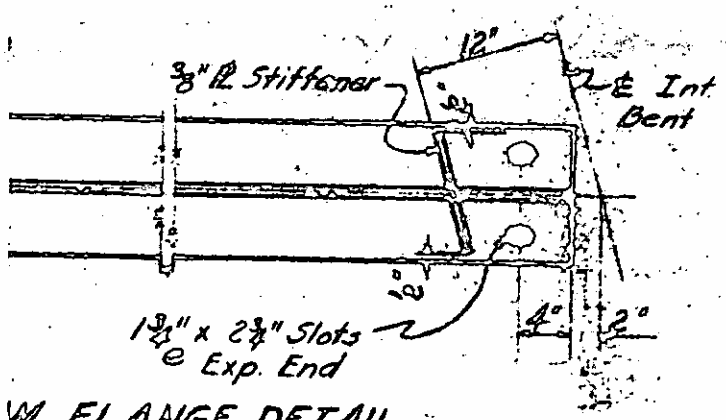
	Span A, B, C or D		Span E, F, G or H	
	Int. Bm.	Ext. Bm.	Int. Bm.	Ext. Bm.
Deflection due to bm. weight	⅛"	⅛"	⅛"	⅛"
Defl. due to superimposed D.L.	11/16"	13/16"	11/16"	13/16"



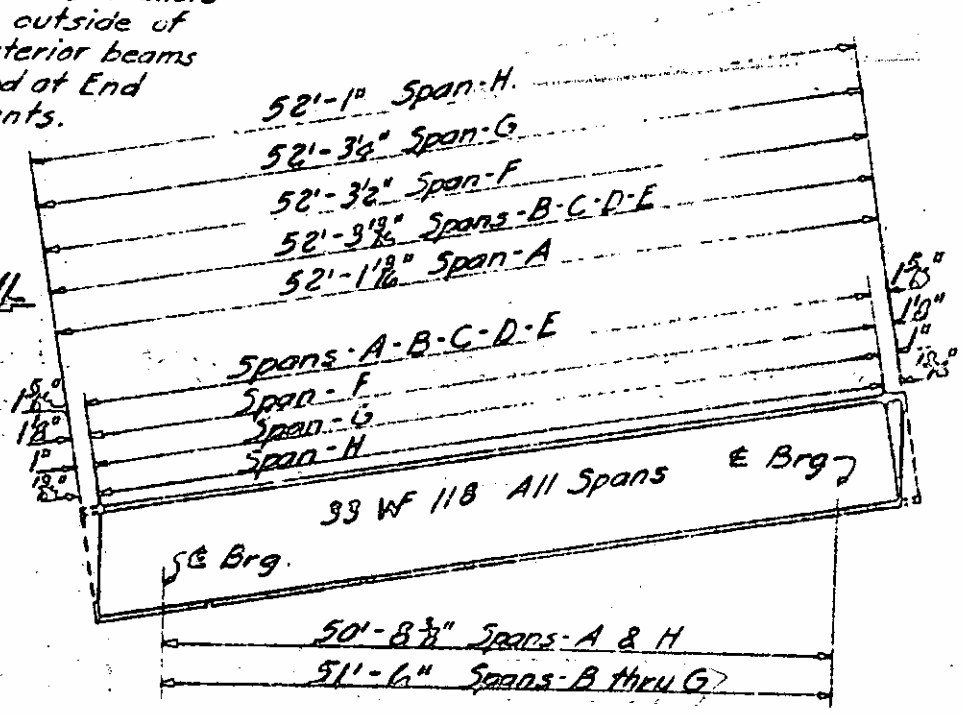
SPAN-E SPAN-F SPAN-G SPAN-H

ATION OF STEEL DIAPHS
PLATES

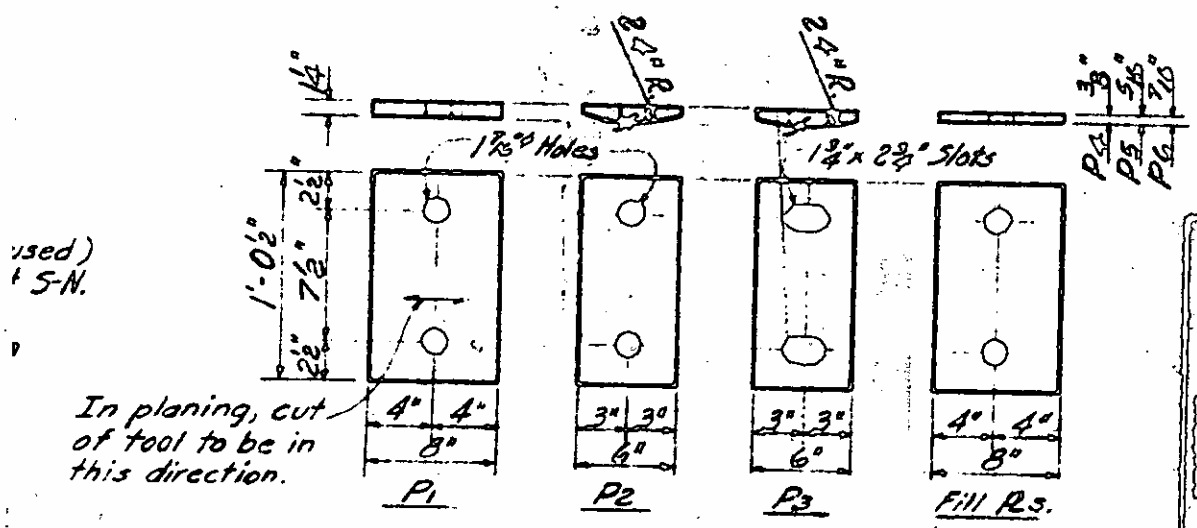




W FLANGE DETAIL



BEAM BEVEL DETAIL

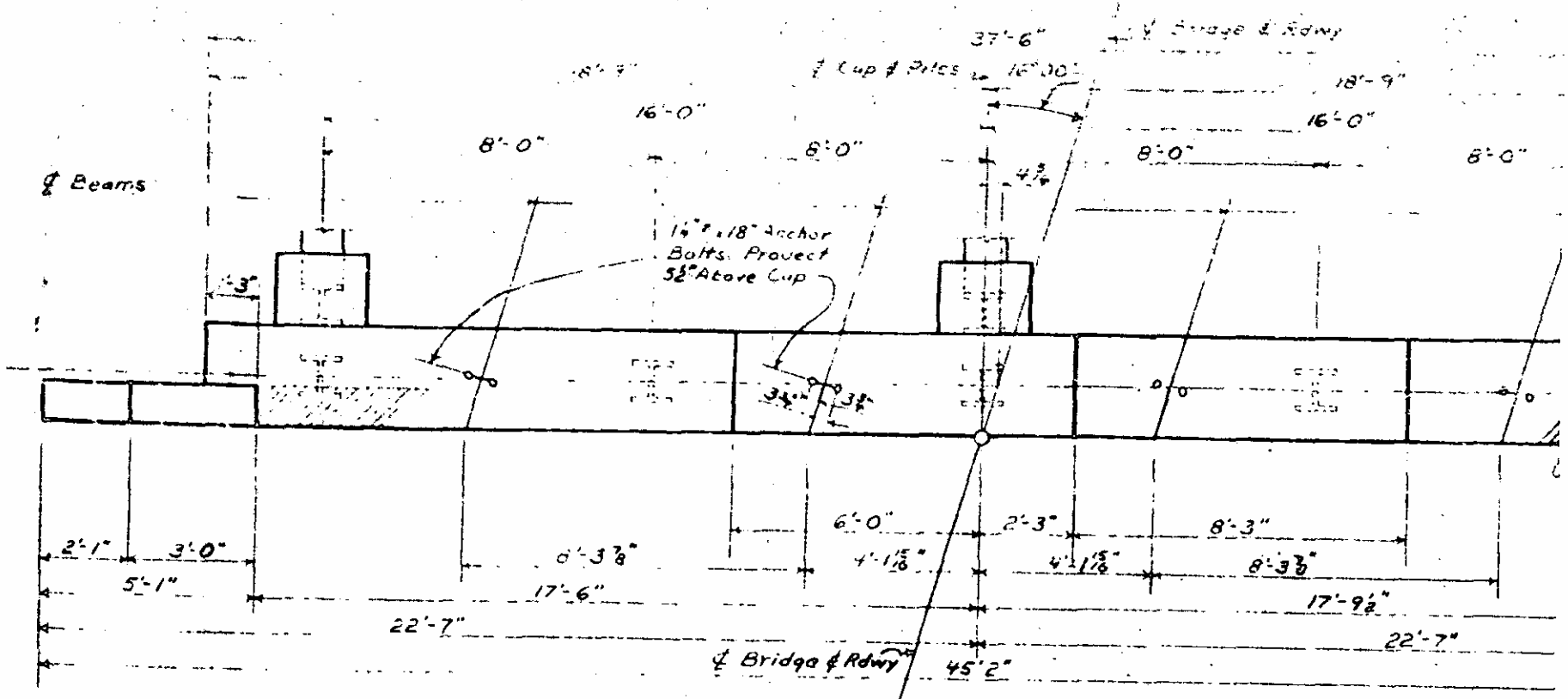


BEARING PLATE DETAILS

Project No. 8.1490
WAKE
Station 130+25

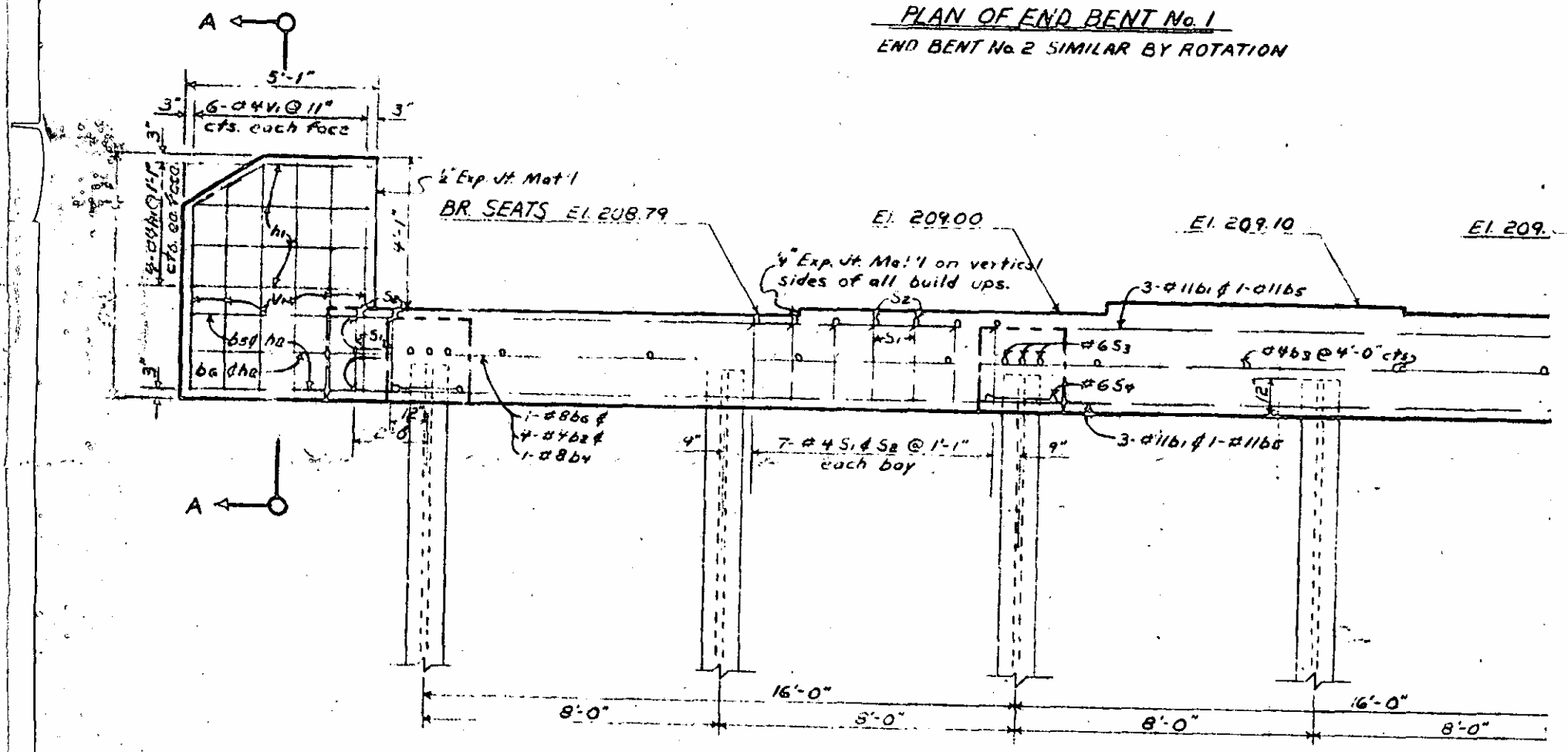
STATE

STRUCTURAL STEEL DETAILS

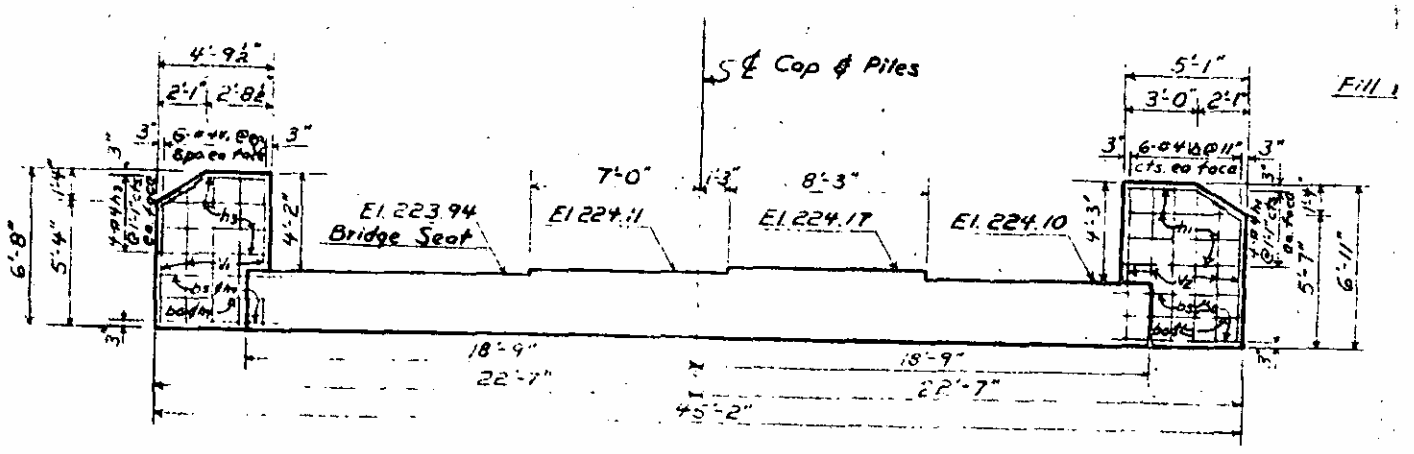


PLAN OF END BENT No. 1

END BENT No. 2 SIMILAR BY ROTATION

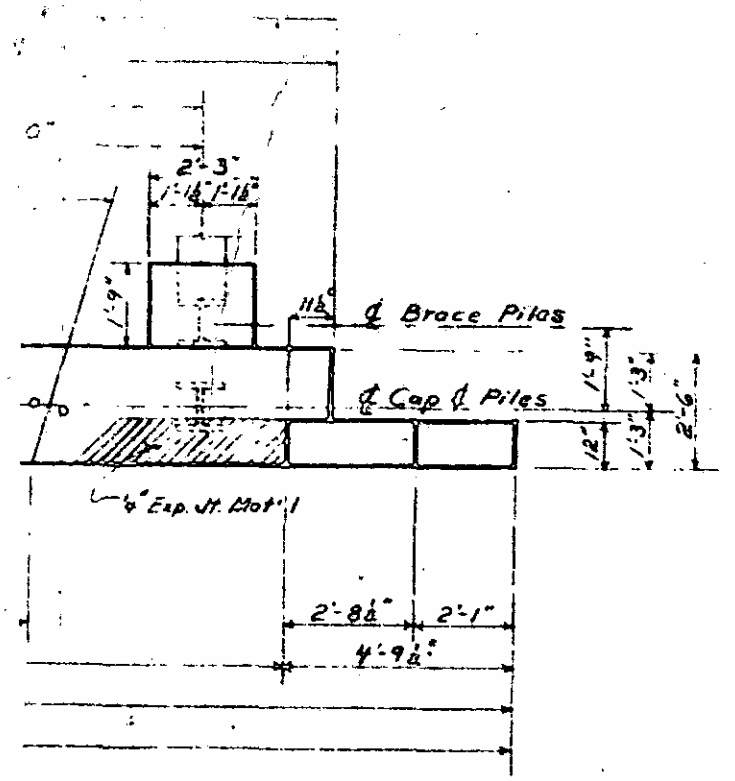


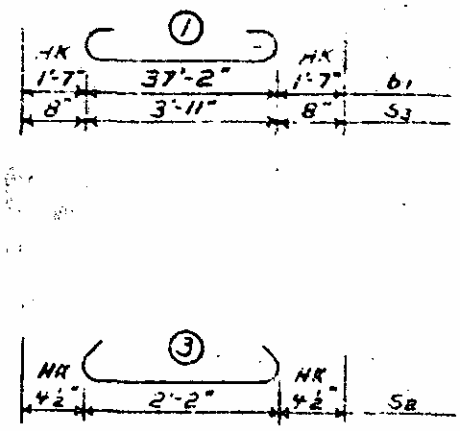
ELEVATION OF END BENT No. 1

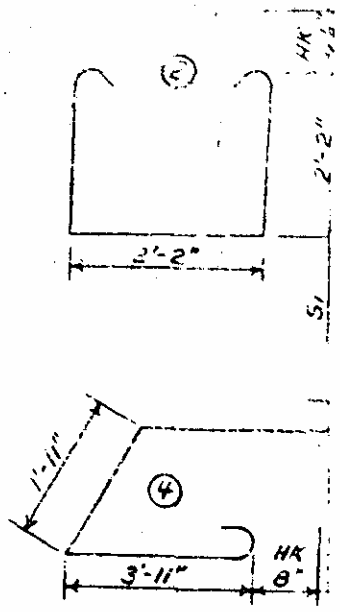


ELEVATION OF END BENT No. 2

CAP REINFORCING STEEL, PILE SPACING, ETC. SAME AS FOR END BENT No. 1

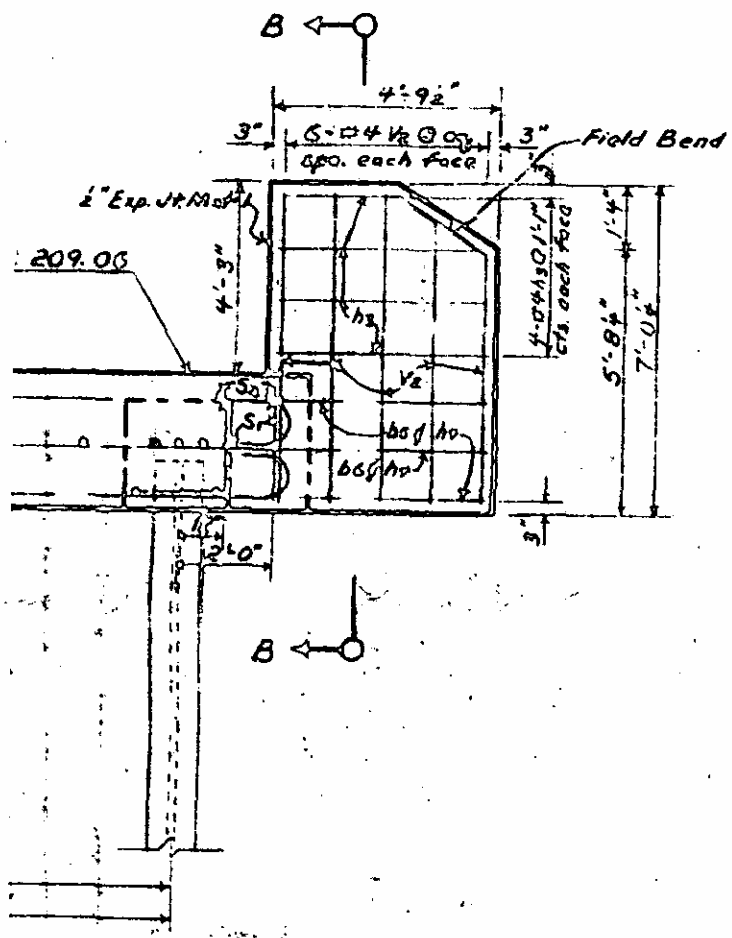


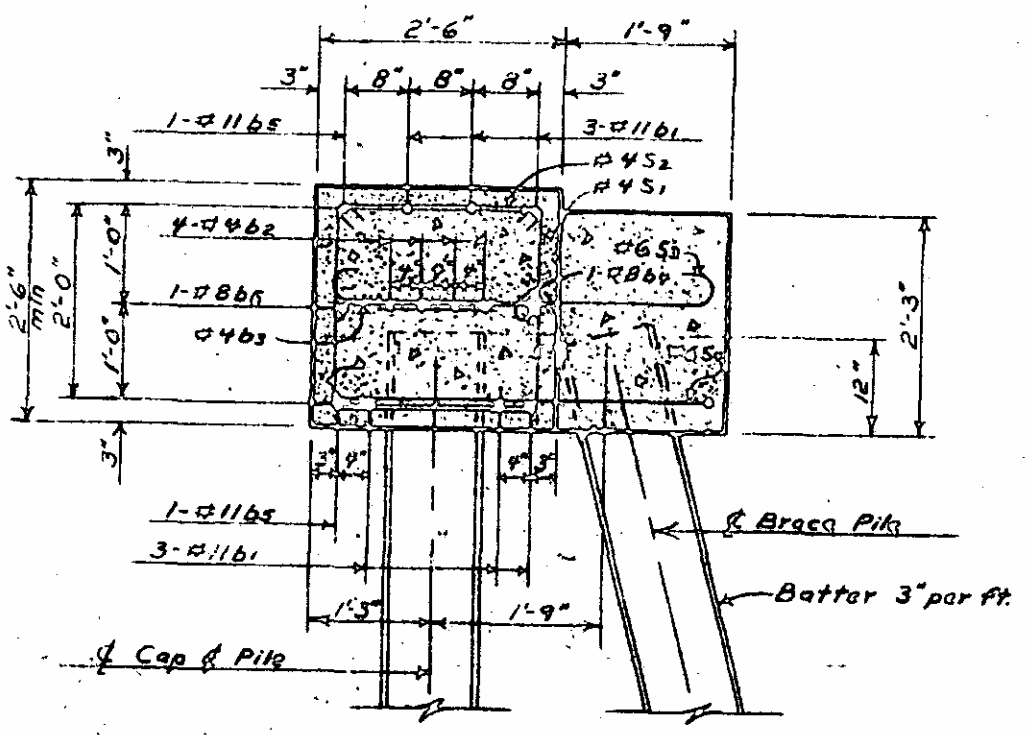




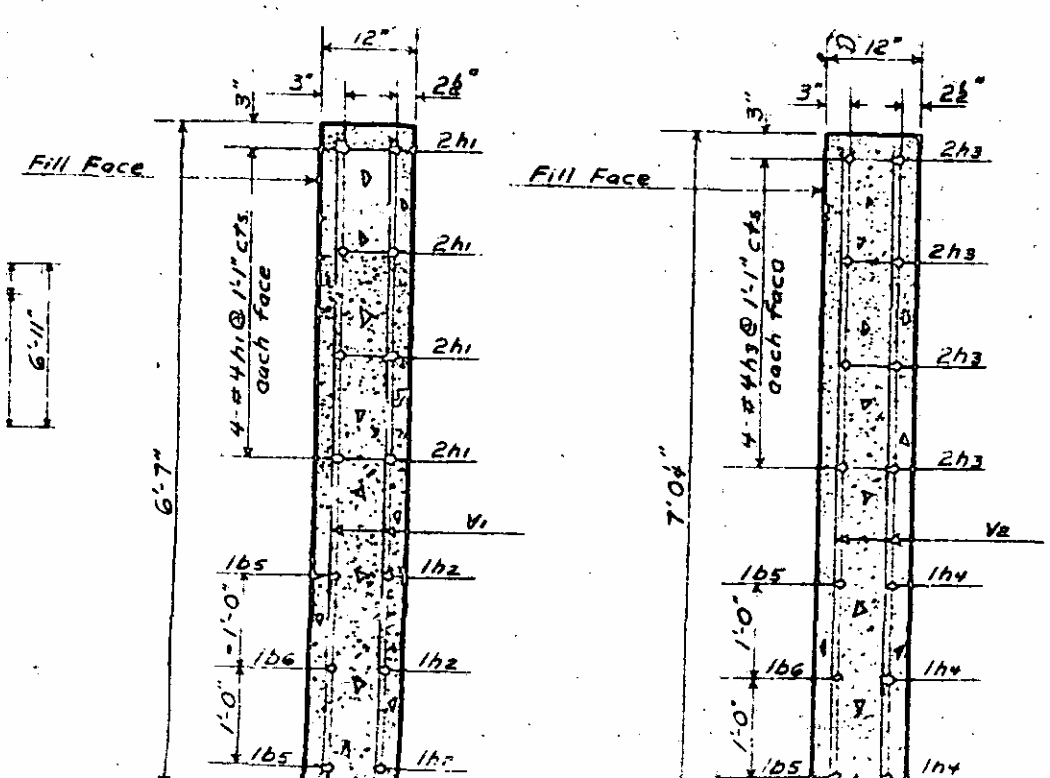
BAR TYPES

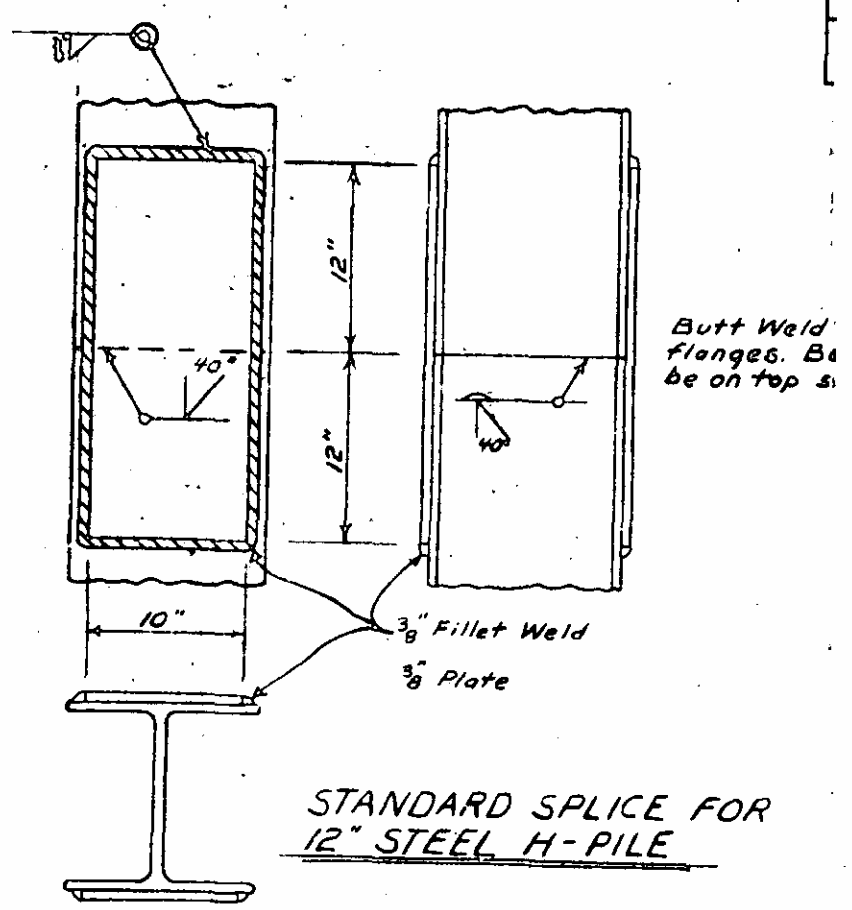
All dimensions are out to out





SECTION THROUGH CAP





STANDARD SPLICE FOR 12" STEEL H-PILE

3	N.C.	B-14906
F.A. PROJECT F-36-1(5)		

140

BILL OF MATERIAL

FOR ONE BENT - 2 - REQ'D

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
a1	6	#11	1	40'-4"	1206
b2	8	#4	str	19'-3"	103
b3	10	#4	str	2'-2"	14
b4	1	#8	str	37'-2"	99
b5	2	#11	str	44'-10"	476
b6	1	#8	str	44'-10"	120
h1	8	#4	str	4'-9"	25
h2	3	#4	str	5'-1"	10
h3	8	#4	str	4'-6"	24
h4	3	#4	str	5'-1"	10
V1	12	#4	str	6'-4"	51
V2	12	#4	str	6'-8"	53
S1	32	#4	2	7'-3"	155
S2	32	#4	3	2'-11"	62
S3	9	#6	1	5'-3"	71
S4	3	#6	4	11'-1"	50

	Reinforcing Steel - Lbs. 2609
End Bent #1	Class "A" Concrete - Cu. Yds. 11.5
End Bent #2	Class "A" Concrete - Cu. Yds. 11.3
End Bent #1	12 H 53 Steel Piles - No. 0 Lin. Ft. 360
End Bent #2	12 H 53 Steel Piles - No. 0 Lin. Ft. 400

Weld web and
es. Bevel shall
top section

PROJECT No. 8.14906

WAKE COUNTY

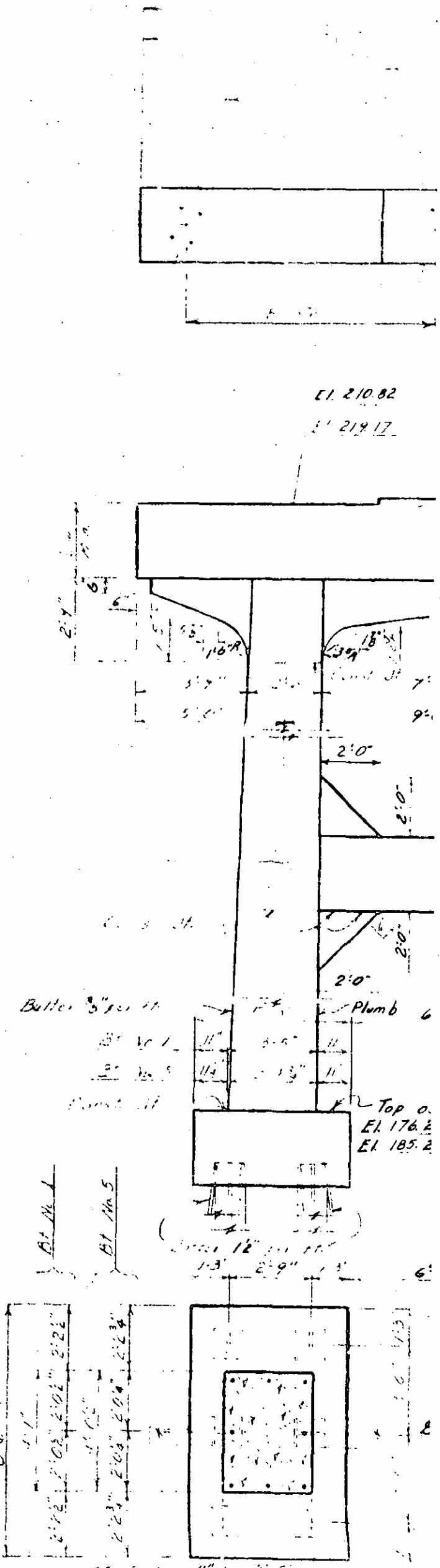
STATION: 130 + 25

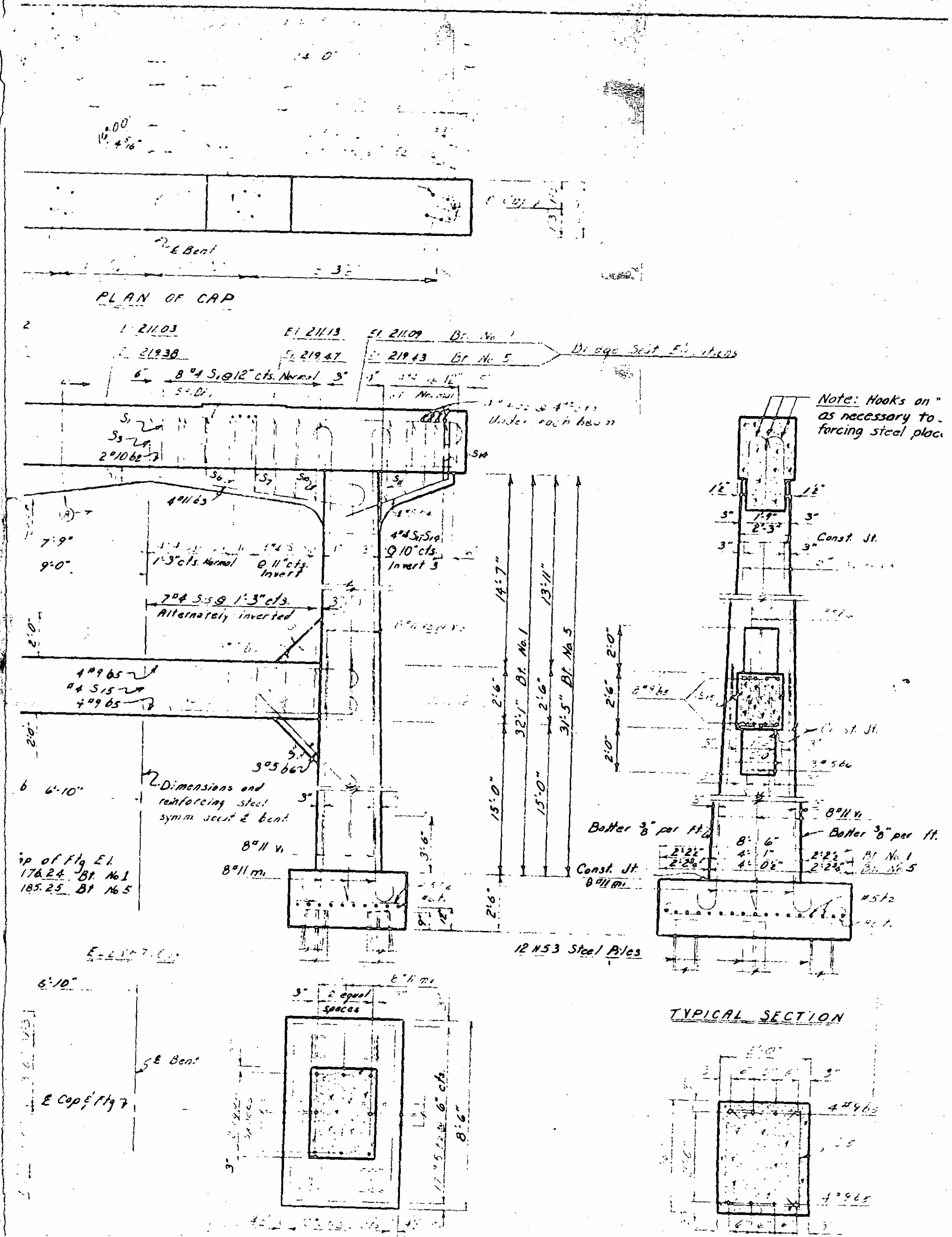
STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION

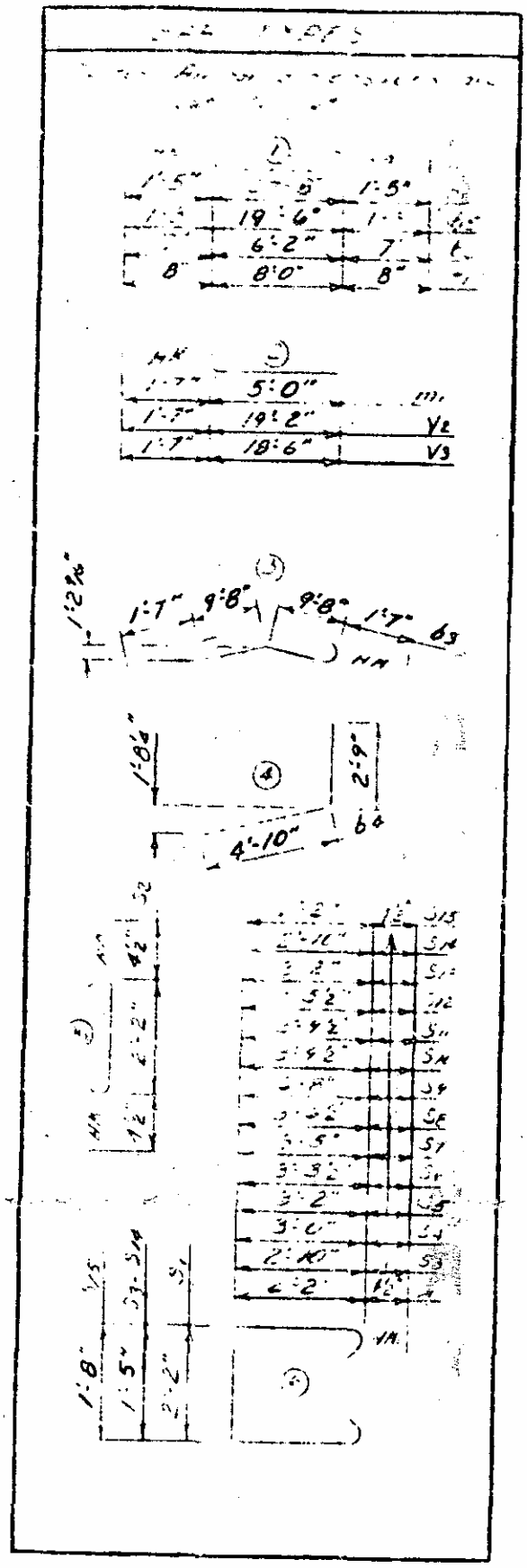
END BENTS No. 1 OR 2

NOV. 1962

REVISIONS					
NO.	BY	DATE	NO.	BY	DATE




PLAN OF CAP
℄ Bent
Bridge Seat Elevations
Bt. No. 1
Bt. No. 5
8 #4 S1 @ 12" cts. Normal
Under each beam
Note: Hooks on
as necessary to
forcing steel
Const. Jt.
7 #4 S5 @ 1'-3" cts.
Alternately inverted
1'-3" cts. Normal
@ 11" cts. Invert
4 #4 S11 S14 @ 10" cts. Invert 3
Dimensions and reinforcing steel symm about ℄ bent
8 #11 V1
8 #11 m1
Batter 3/8" per ft.
Bt. No. 1
Bt. No. 5
12 HS3 Steel Piles
TYPICAL SECTION
℄ Cap & Ftg 7
℄ Bent
3" ℄ equal spaces



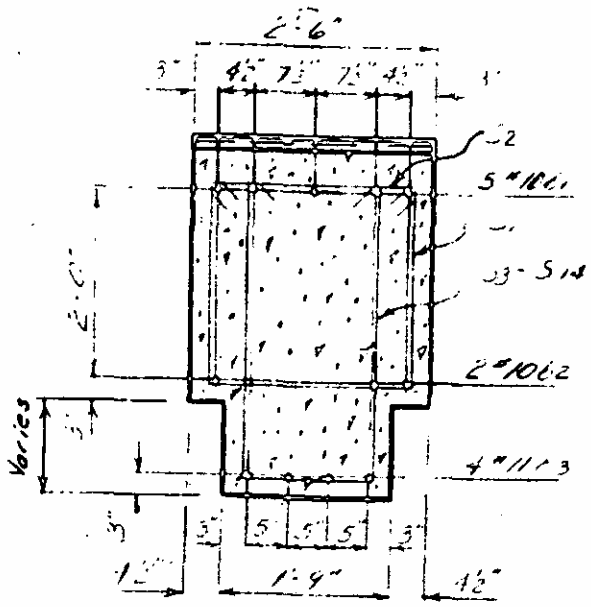
1" bars may be turned suit concrete and reinforcement.

BILL OF MATERIAL

FOR ONE BENT (2 Req'd.)

	BAR	NO	SIZE	TYPE	LENGTH	WEIGHT
	[illegible]	[illegible]	#10	1	30'-6"	656
	[illegible]	[illegible]	#10	[illegible]	27'-8"	238
	[illegible]	[illegible]	#11	3	22'-6"	478
	[illegible]	[illegible]	#5	4	7'-7"	[illegible]
	[illegible]	[illegible]	#9	1	22'-0"	598
	[illegible]	12	#5	1	7'-4"	92
	V1	[illegible]	#11	[illegible]	18'-6"	1573
Bt. No. 1	V2	16	#11	2	20'-9"	1764
Bt. No. 5	V3	16	#11	2	20'-1"	1707
	[illegible]	16	#11	2	[illegible]'-7"	560
	[illegible]	[illegible]	#5	1	9'-4"	280
	[illegible]	34	#5	[illegible]	4'-9"	168
	[illegible]	24	#4	6	7'-3"	116
	S2	16		5	2'-11"	91
	S3	1		6	7'-10"	5
	[illegible]	2			9'-2"	11
	[illegible]				9'-6"	11
	[illegible]				9'-9"	12
	[illegible]				9'-0"	12
	[illegible]				9'-3"	12
	[illegible]				9'-6"	13
	[illegible]				9'-9"	13
	[illegible]				9'-9"	13
	[illegible]				9'-1"	12
	[illegible]				8'-6"	11
	[illegible]	2			7'-10"	10
	[illegible]	13	#4	6	6'-9"	57

Bt. No. 1	Class "A" Concrete Cu. Yds. 42.0 Reinforcing Steel Lbs. 6811 12 H 53 Steel Piles No. 12 Lin. Ft. 845
Bt. No. 5	Class "A" Concrete Cu. Yds. 41.3 Reinforcing Steel Lbs. 6750 12 H 53 Steel Piles No. 12 Lin. Ft. 840



SECTION A-A

PROJECT NO. 8.14906

WAKE COUNTY

STATION: 130+25

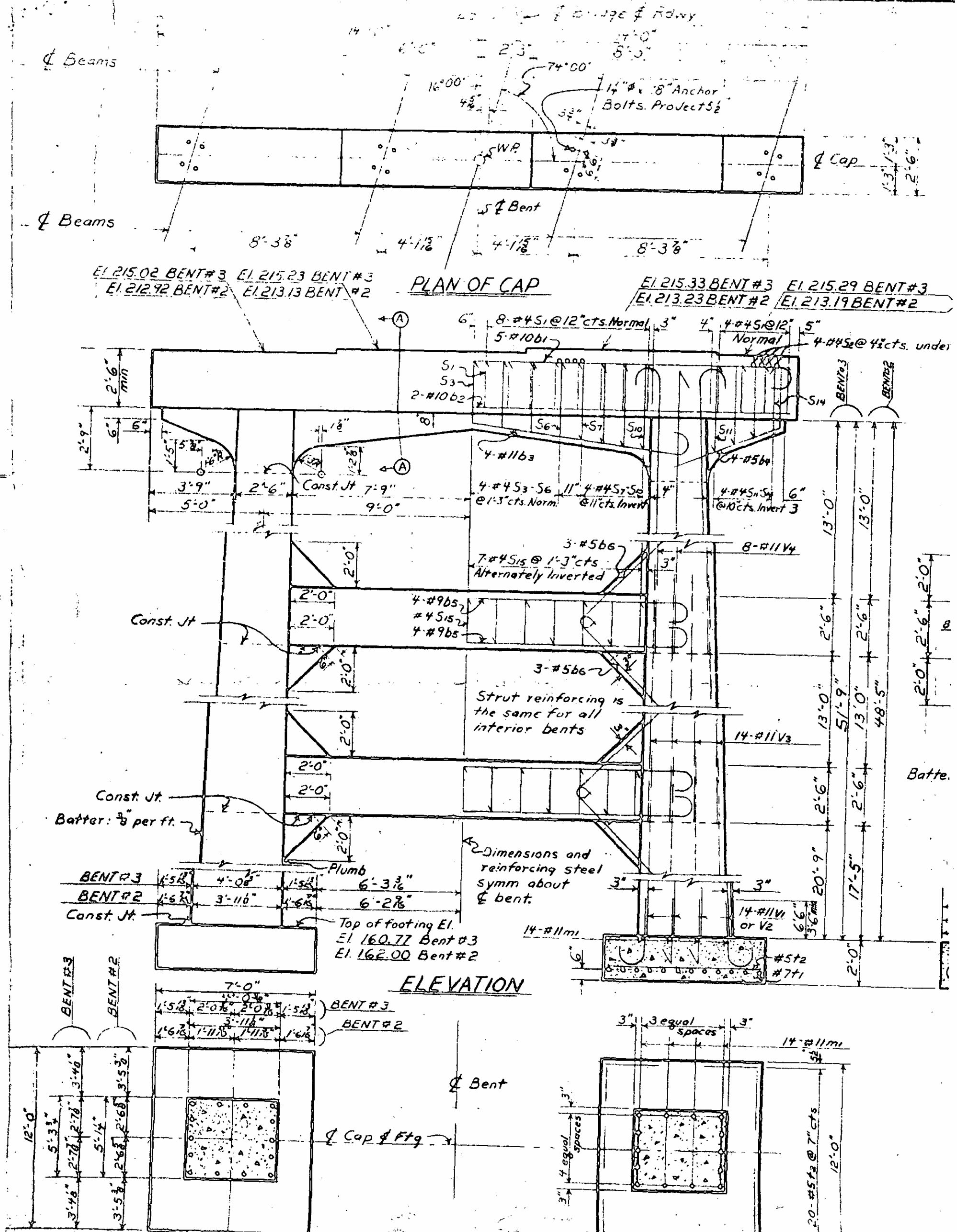
STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

SUBSTRUCTURE
BENTS No. 1 & No. 5

Nov. 1962

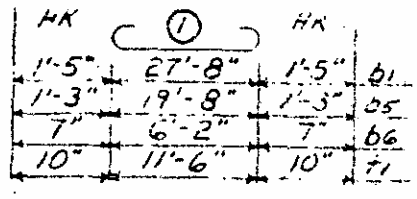
REVISIONS

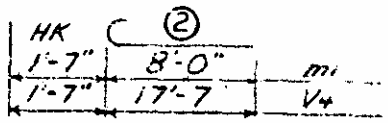
SHEET

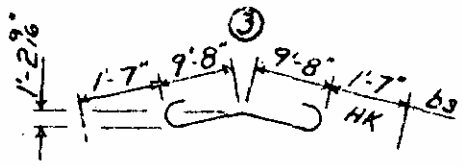

PLAN OF CAP
ELEVATION
℄ Beams
℄ Cap
℄ Bent
℄ Cap & Ftg
1¼"ø × 18" Anchor Bolts. Project 5½"
Strut reinforcing is the same for all interior bents
Dimensions and reinforcing steel symm about ℄ bent.
Batter: ⅜" per ft.
Const. Jt.
Plumb
Top of footing El.
El. 160.77 Bent #3
El. 162.00 Bent #2
El. 215.02 BENT #3
El. 212.92 BENT #2
El. 215.23 BENT #3
El. 213.13 BENT #2
El. 215.33 BENT #3
El. 213.23 BENT #2
El. 215.29 BENT #3
El. 213.19 BENT #2
8-#4S1 @ 12" cts. Normal
5-#10b1
4-#4S2 @ 4½" cts. under
2-#10b2
4-#11b3
4-#5b4
4-#4S3-S6 @ 1'-3" cts. Norm.
4-#4S7-S10 @ 11" cts. Invert
4-#4S11-S14 @ 10" cts. Invert 3
3-#5b6
8-#11V4
7-#4S15 @ 1'-3" cts Alternately Inverted
4-#9b5
#4S15
14-#11V3
14-#11V1 or V2
14-#11m1
#5t2
#7t1
20-#5t2 @ 7" cts
3 equal spaces
4 equal spaces
BENT #3
BENT #2
Batter

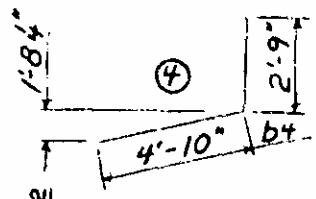
BAR TYPES

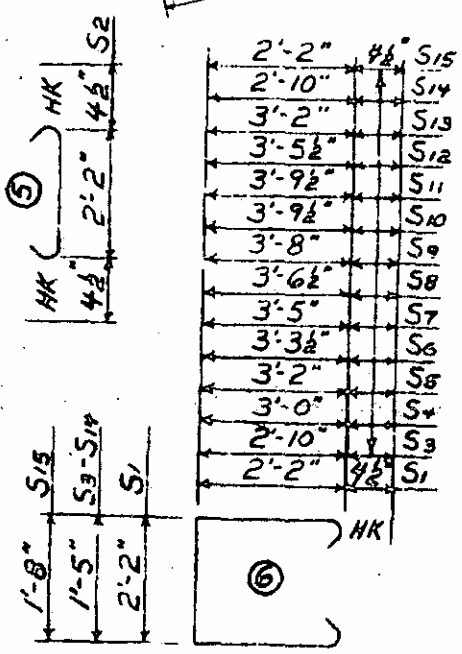
Note: All bar dimensions are out to out.









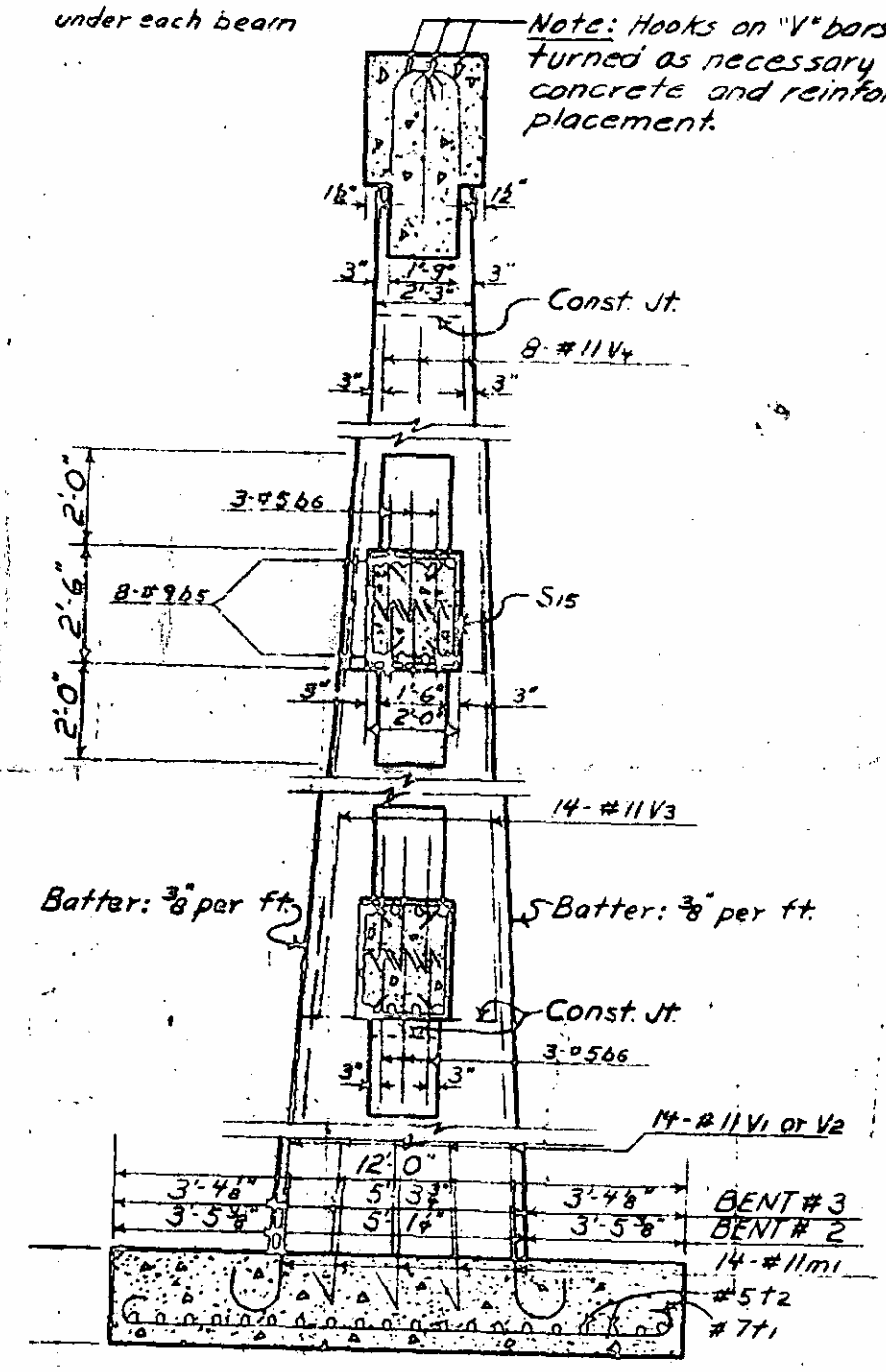


B+ 2 & 3

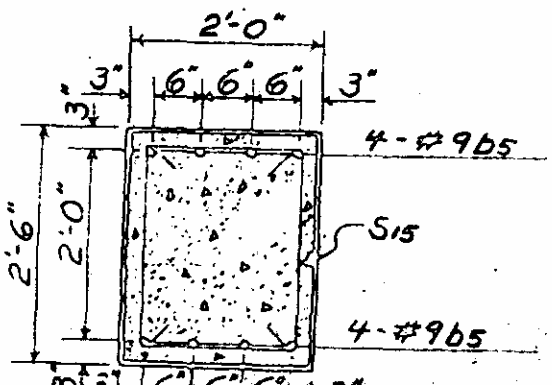
#3
2 BRIDGE SEATS

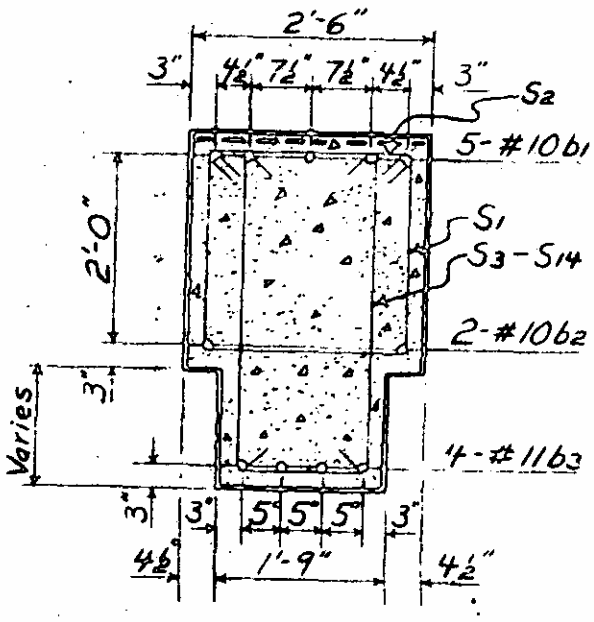
under each beam

Note: Hooks on "V" bars may be turned as necessary to suit concrete and reinforcing steel placement.



TYPICAL SECTION

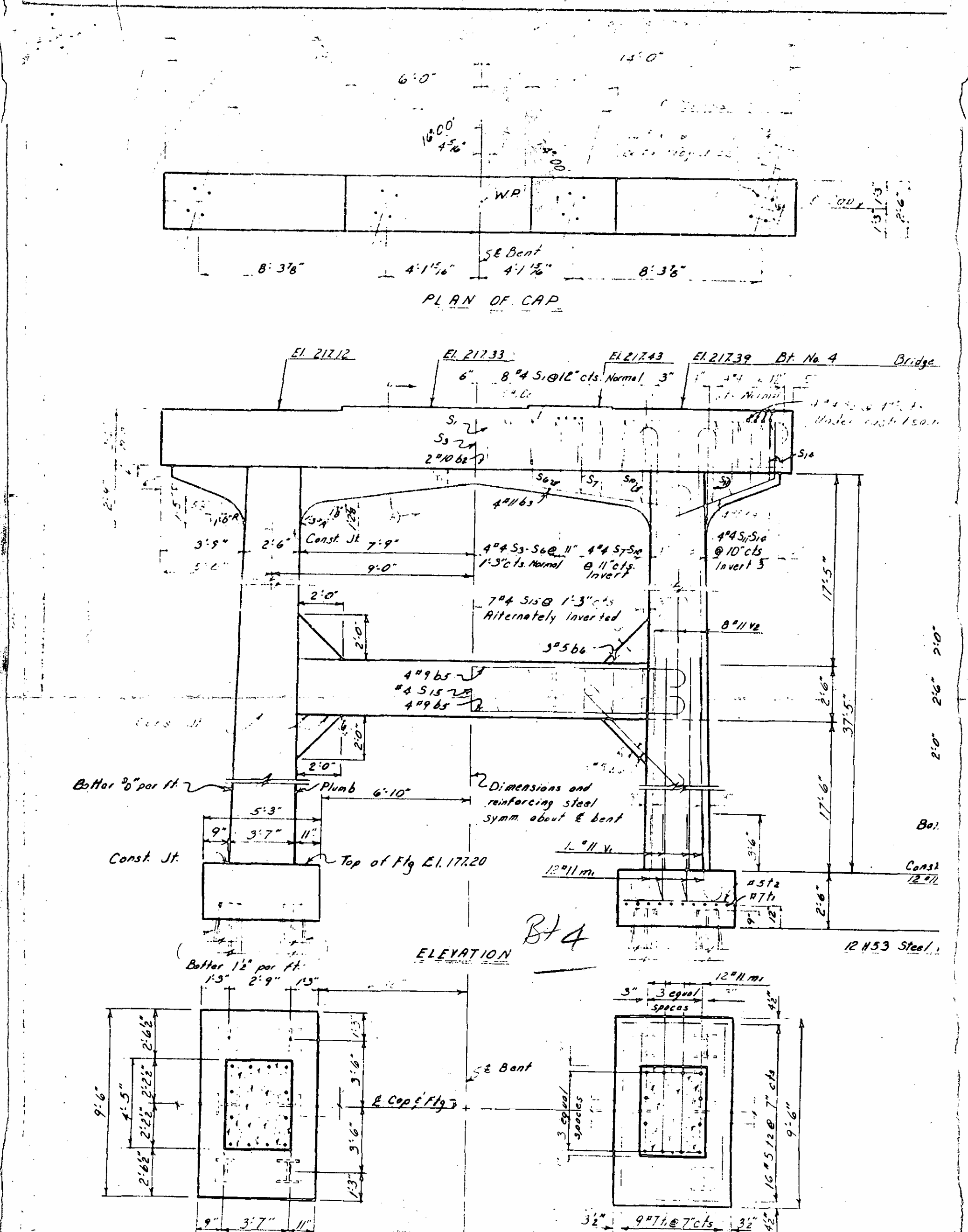




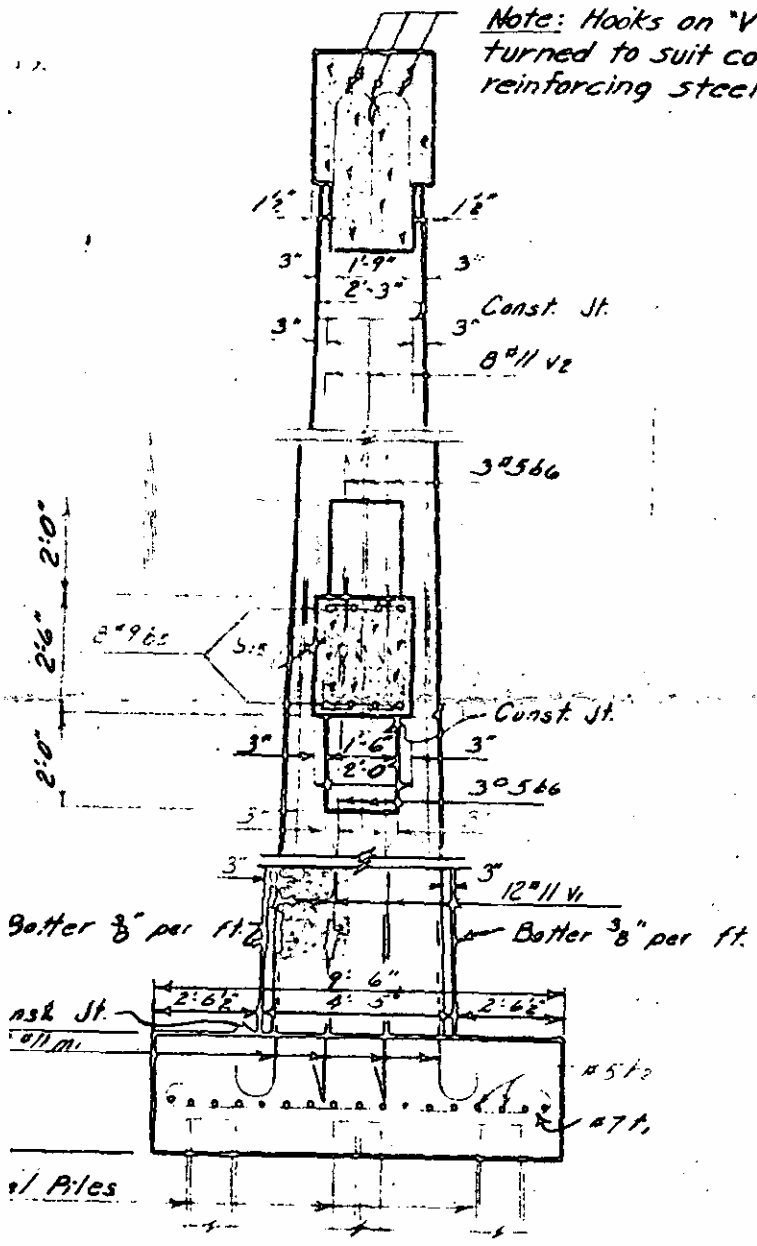
BENT #

BENT #

STA

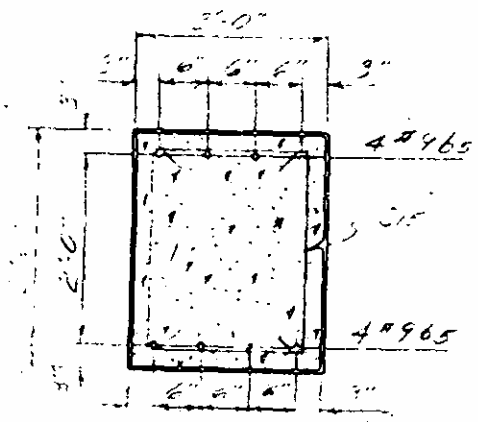

PLAN OF CAP
W.P.
℄ Bent
8' 3⅞"
4' 1 15/16"
4' 1 15/16"
8' 3⅞"
6'-0"
14'-0"
16'-0"
4 5/16"
ELEVATION
El. 217.12
El. 217.33
El. 217.43
El. 217.39
Bt. No. 4
Bridge
Const. Jt.
Top of Ftg El. 177.20
Batter 0" per ft.
Plumb
Dimensions and reinforcing steel symm. about ℄ bent
Batter 1½" per ft.
℄ Cap & Ftg
3 equal spaces
12 #53 Steel
Bt 4

c. Seat Elevations

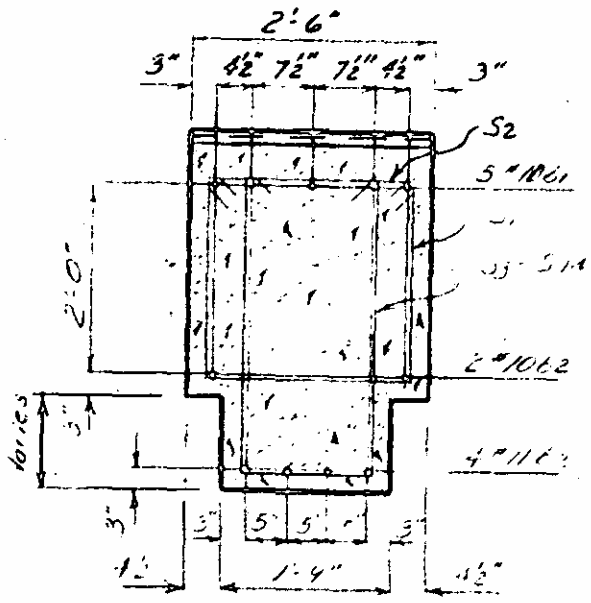


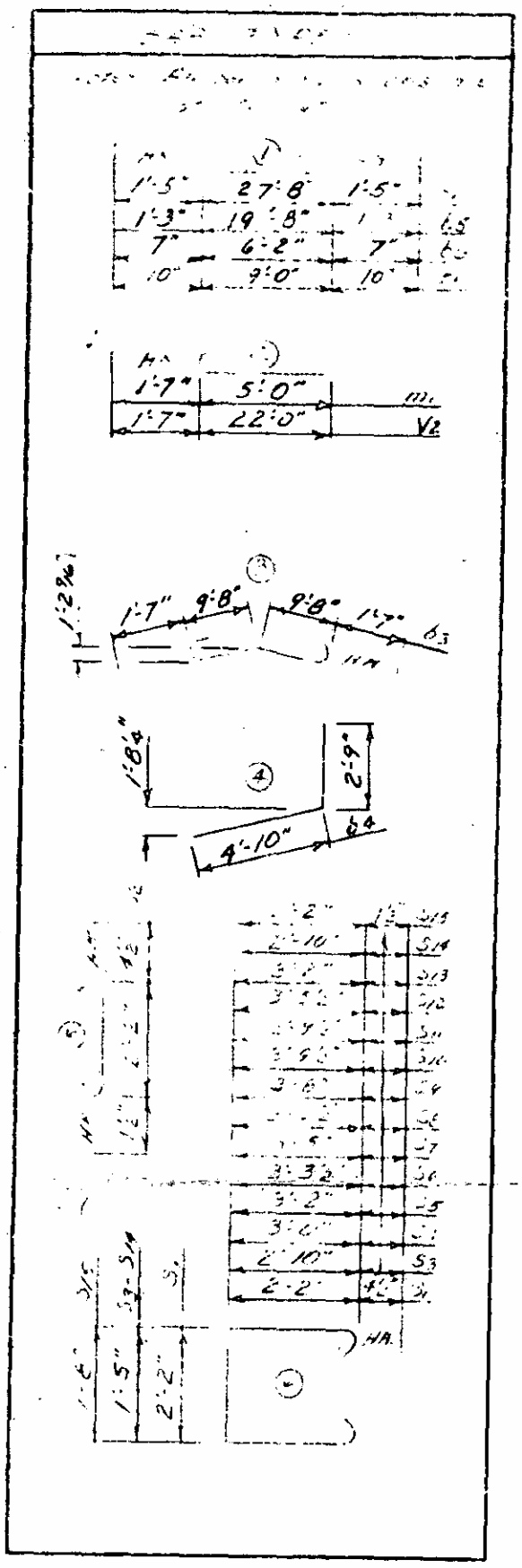
Note: Hooks on "V" bars may be turned to suit concrete and reinforcing steel placement.

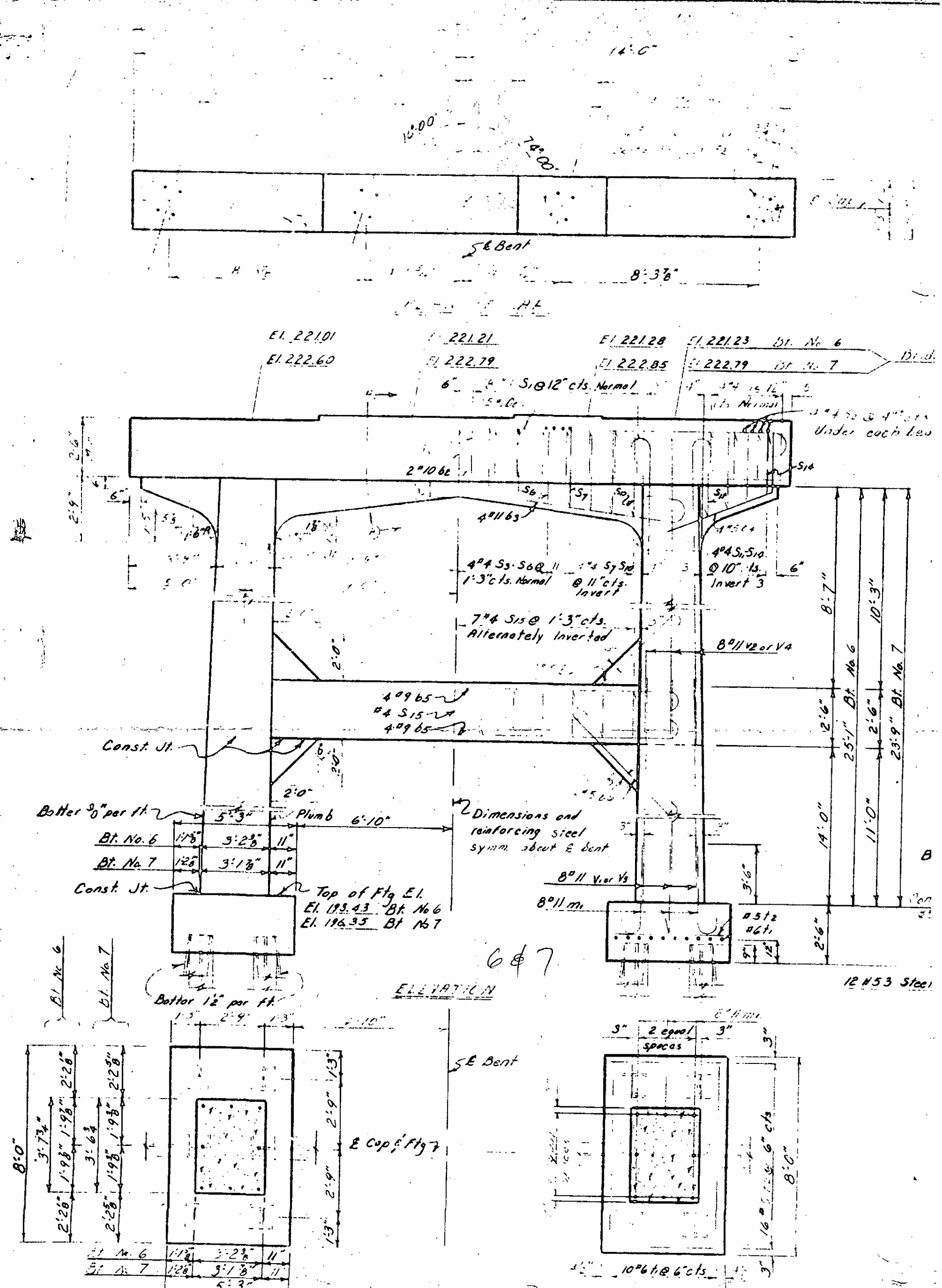
TYPICAL SECTION



SECTION THRU STRUT

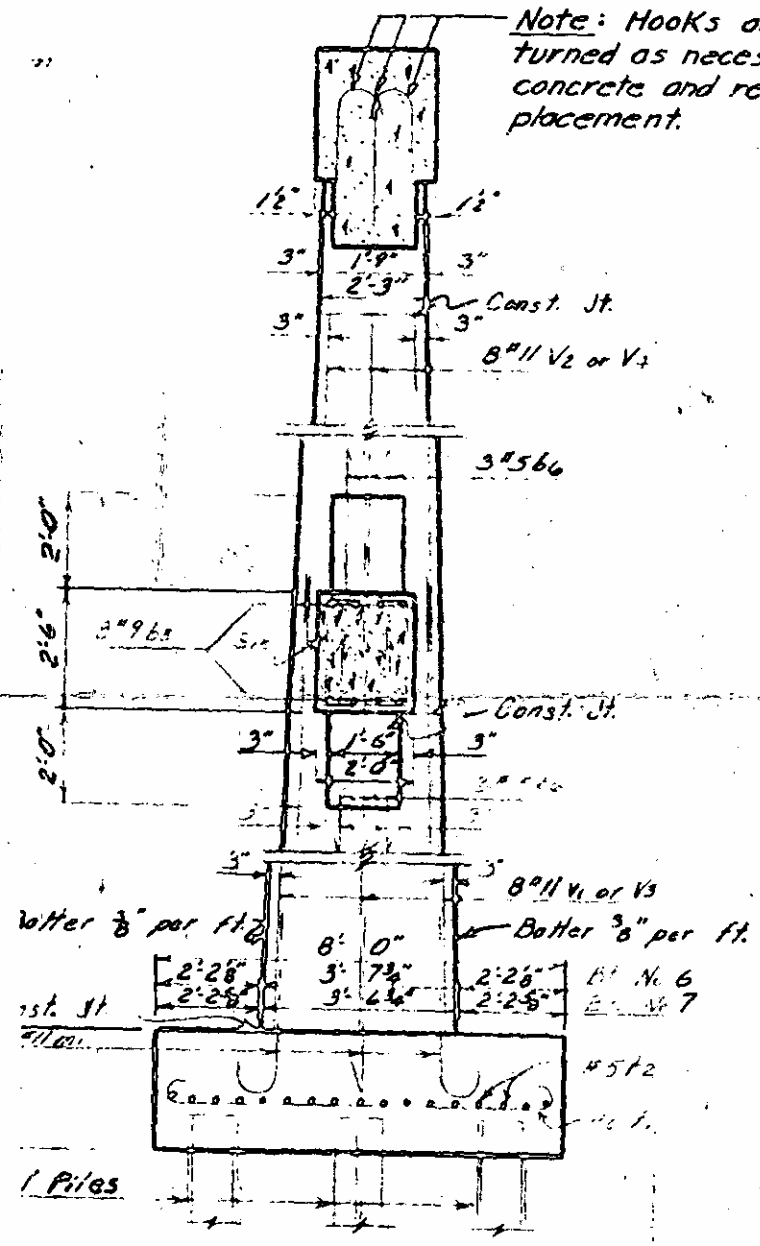




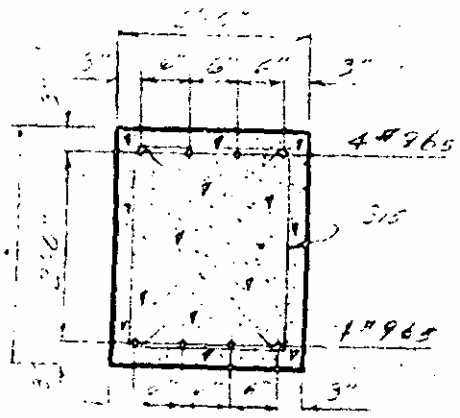
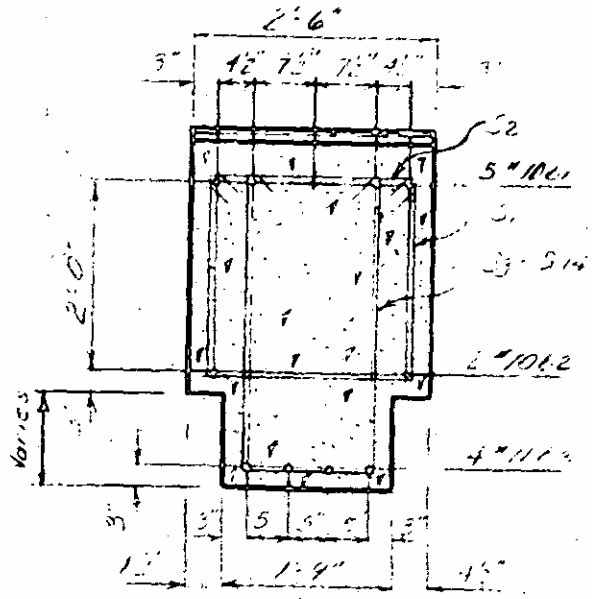
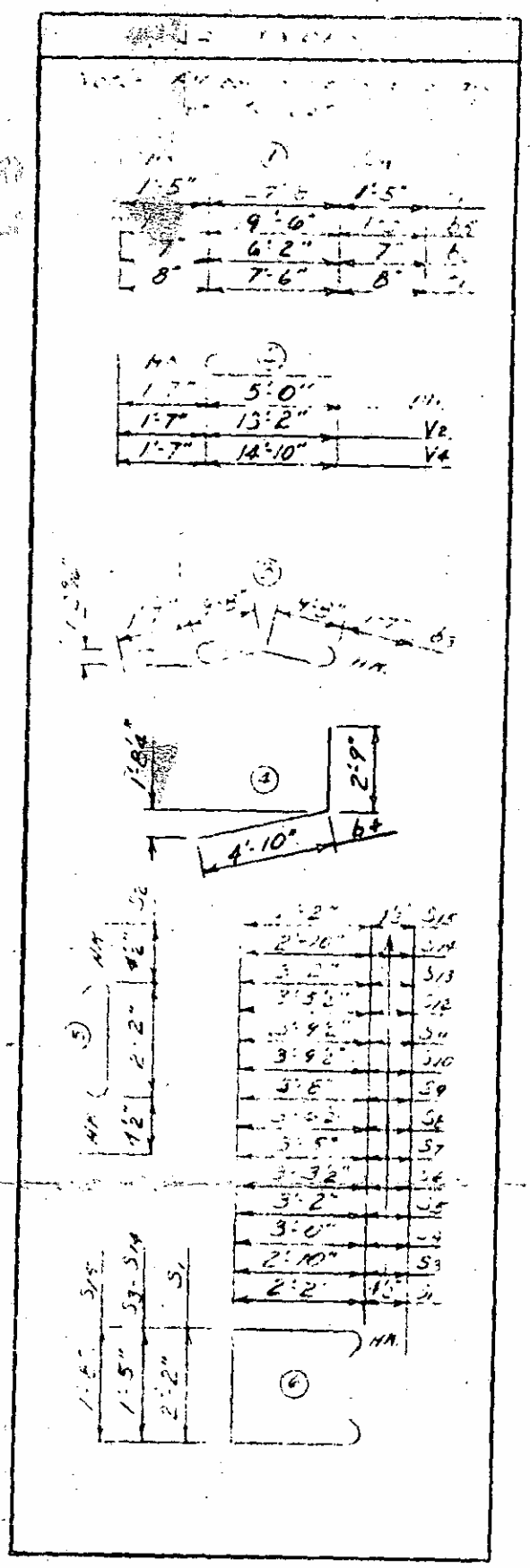

14'-0"
16'-0"
74°-8"
℄ Bent
8'-3⅞"
El. 221.01
El. 222.60
El. 221.21
El. 222.79
El. 221.28
El. 222.85
El. 221.23 Bt. No. 6
El. 222.79 Bt. No. 7
Bridge
6" S1 @ 12" cts. Normal
Under cocktiles
2#10 b2
S14
S6
S7
S10
S11
4#11 b3
4#4 S3-S6 @ 1'-3" cts. Normal
4#4 S7-S10 @ 11" cts. Invert
4#4 S11-S14 @ 10" cts. Invert 3
7#4 S15 @ 1'-3" cts. Alternately Inverted
8#11 V2 or V4
4#9 b5
#4 S15
4#9 b5
Const. Jt.
Batter 3/8" per ft.
5'-3"
Plumb
6'-10"
Dimensions and reinforcing steel symm. about ℄ bent
Bt. No. 6
Bt. No. 7
Top of Ftg El.
El. 193.43 Bt. No 6
El. 196.35 Bt. No 7
8#11 V1 or V3
8#11 m1
#5 t2
#6 t1
12 #5 3 Steel
Batter 1/2" per ft.
ELEVATION
℄ Bent
℄ Cap & Ftg 7
2 equal spaces
10#6 t1 @ 6" cts
8'-0"
8'-7"
10'-3"
25'-1"
23'-9"
14'-0"
11'-0"
12'-6"
2'-6"
3'-6"
2'-6"

6 & 7

Note: Hooks on "V" bars may be turned as necessary to suit concrete and reinforcing steel placement.



TYPICAL SECTION



SECTION THRU STRUT