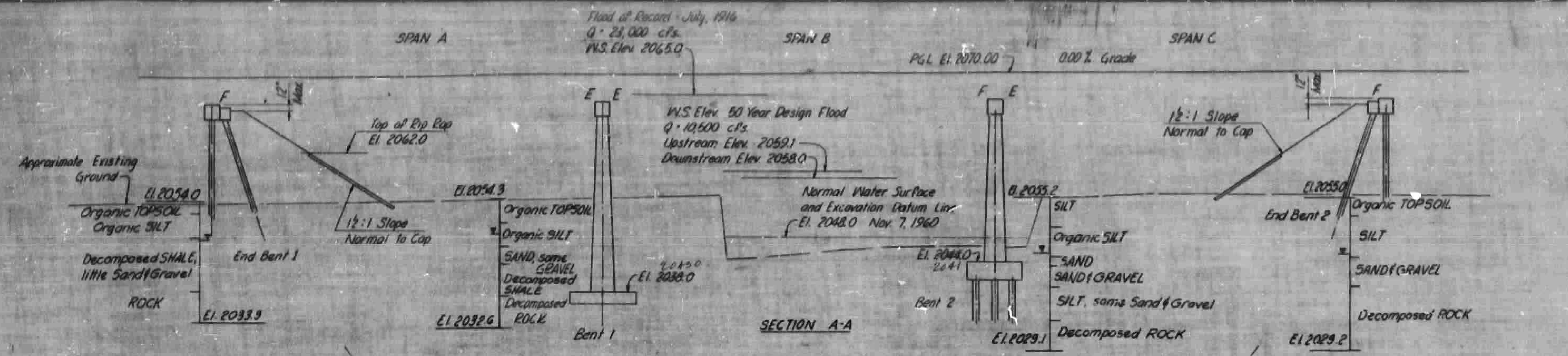
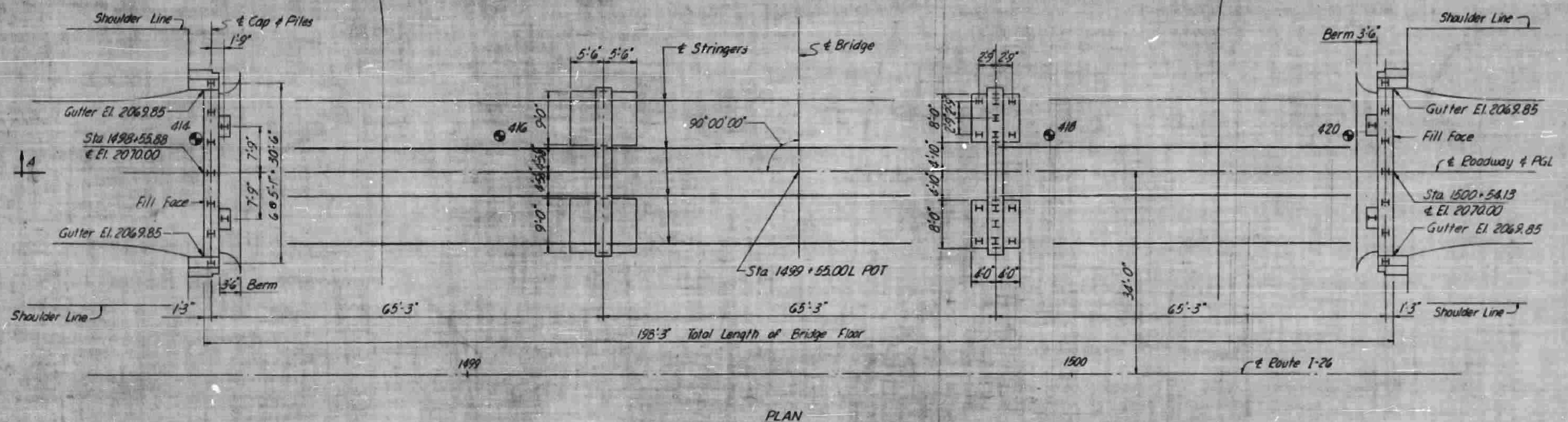
Fed. Road Dist. No.	State	Project No.
3	N. C.	8.19002
Fed. Aid Proj.	I-26-1(1)16	





NOTES

Loading: AASHO H20-S16-44 and BPR Modified Loading for Military Vehicles.

Future Surfacing: 20 lbs. per sq. ft.

Roadway Width: 28'-0" curb to curb.

For other design data and general notes see General Notes Sheet.

Concrete surfaces ~~shall be~~ given a surface finish in accordance with the Specifications.

Water Surface Elevation of Flood of Record (July, 1916) controlled by backwater from French Broad River.

The contractor ~~will be~~ required to drive one 12BP53 steel test pile, 20' long in place at Bent 2. The test ~~pile shall be paid for as linear feet of 12 BP53 Steel~~ Piles. The order lengths for all piles ~~shall be~~ given after the the test pile has been driven.

All piles at End Bents ~~shall be~~ driven through the roadway fill.

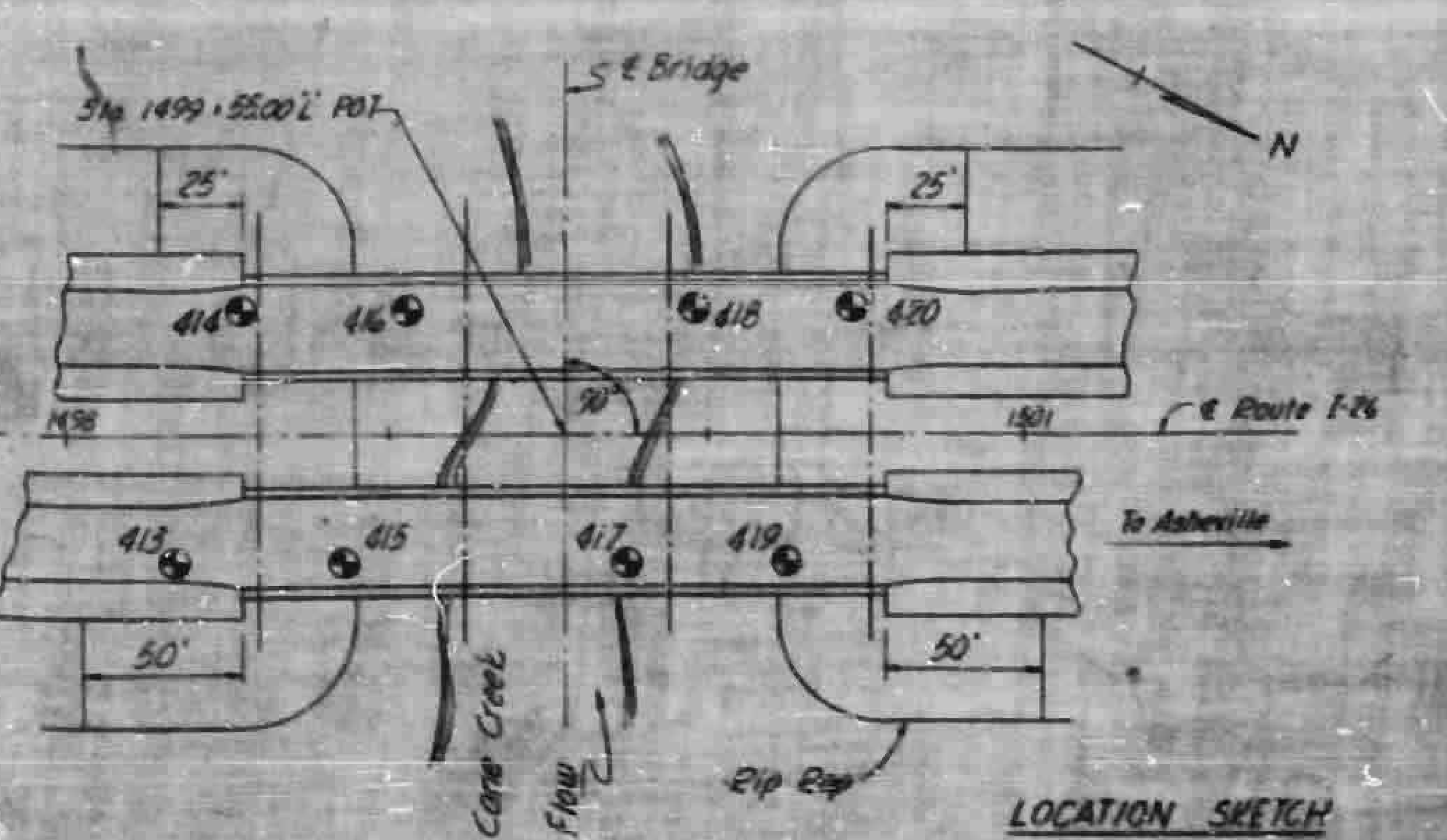
All piles ~~shall be~~ driven to a minimum bearing capacity of 30 tons.

Soil bearing footing at Bent 1 is designed for a bearing pressure of 3 tons per sq. foot.

● Indicates 2½" cased hole boring.

▼ Indicates ground water.

Benchmark: R.R. Spike in 8" Locust 150' Rt. Sta. 1499+00 Elevation 2057.09



I hereby certify that this structure was built according to revised plans

SIGNED, [signature]

RES. ENGR.

TOTAL BILL OF MATERIAL	Class "A" Concrete Cu. Yds.	Reinf. Steel Lbs.	Structural Steel Approx Lbs.	12 BP 53 Steel Piles No.	12 BP 53 Steel Piles Lin. Ft.	Excavation Cu. Yds. Wet	Excavation Cu. Yds. Dry	Metal Rails Lin. Ft.	Plain Rip Rap Sq. Yds.
Superstructure	196.0	42,388	158,100		~~20~~			390.83	
End Bent 1	16.0	2,805		9	~~230~~	[illegible]	[illegible]		~~229~~
Bent 1	42.8 ~~65.3~~	~~8,155~~ [illegible]				149	78		
Bent 2	38.0 ~~83.0~~	~~6,390~~ [illegible]		~~14~~	~~[illegible]~~	63			
End Bent 2	16.0	2,805		9	230	[illegible]			~~252~~
Approach Curbs	3.2	76							
	312.1	62,781		18	471.6	159.58	81.32		
TOTAL	~~[illegible]~~	~~86,729~~	158,100	~~32~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	390.83	~~581~~

Note: Plain Rip Rap for S.B. Bridge and N.B. Bridge Measured and Computed together (1215.0 Sq.Yd.) See Summary Sheet No. [illegible]

PROJECT NO. 8.19002

HENDERSON-BUNCOMBE COUNTY

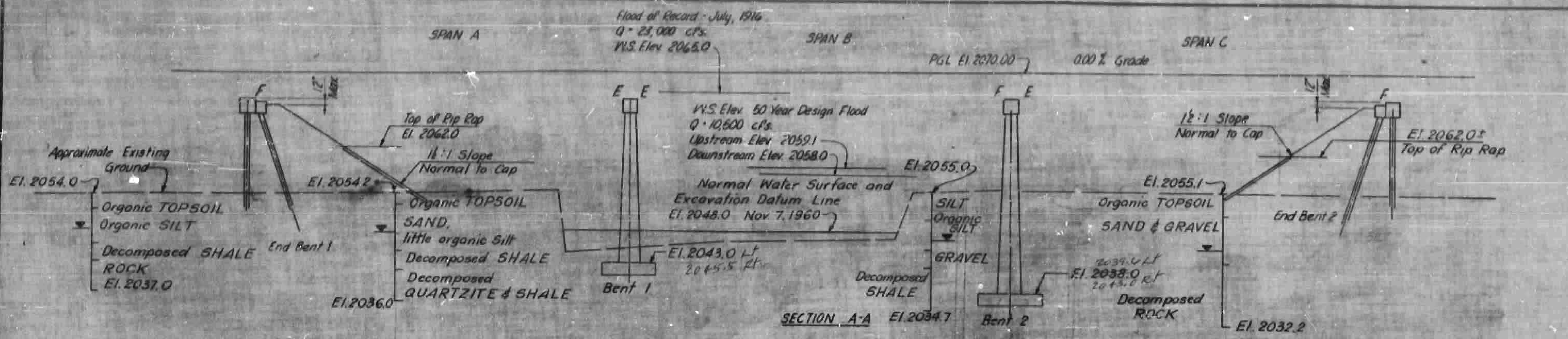
STATION 1499+55 L

S.B. Bridge

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

GENERAL DRAWING
BRIDGE OVER CANE CREEK
ON PROPOSED
SOUTHBOUND INTERSTATE ROUTE 26

Fed. Road Dist. No.	State	Project No.
8	N. C.	8.19002
Fed. Aid Proj.	1-26-1(10)6	



NOTES

Loading: AASHO H20-S16-44 and BPR Modified Loading for Military Vehicles.

Future Surfacing: 20 lbs. per sq. ft.

Roadway Width: 28'-0" curb to curb.

For other design data and general notes see General Notes Sheet.

Concrete surfaces ~~shall be~~ given a surface finish in accordance with the Specifications.

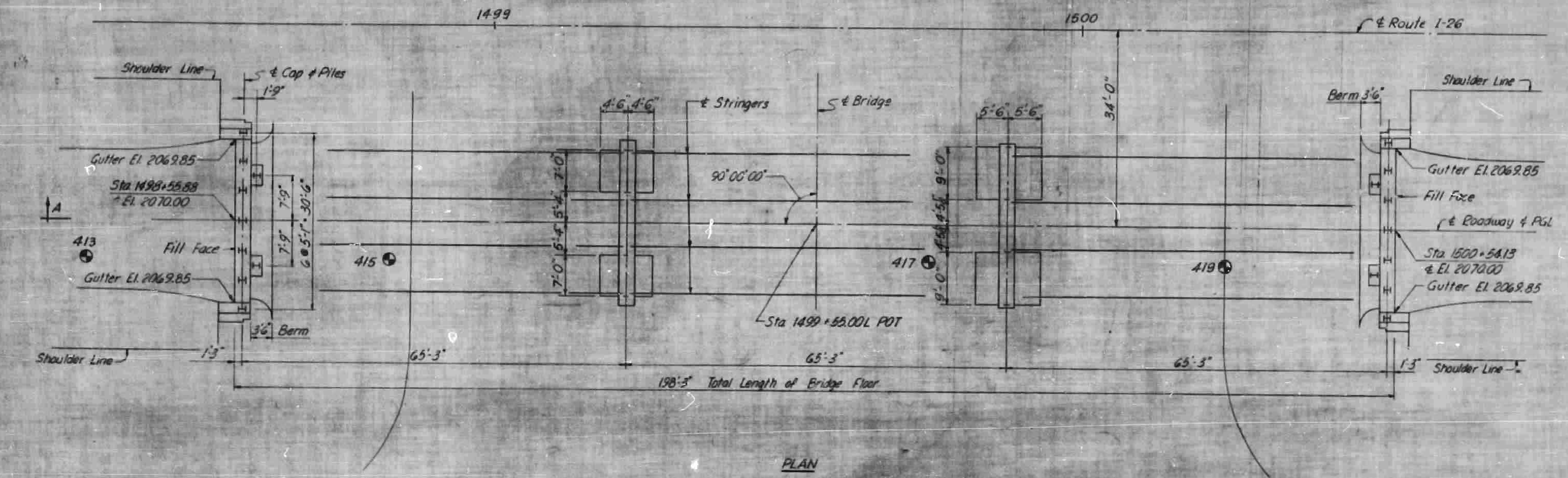
Water Surface Elevation of Flood of Record (July, 1916) controlled by backwater from French Broad River.

The contractor ~~will be~~ required to drive one 12 BP53 steel test pile, 35' long in place at End Bent 1. The test pile ~~shall be~~ paid for as linear feet of 12 BP53 Steel Piles. The order lengths for all piles ~~shall be~~ given after the the test pile has been driven.

All piles at End Bents ~~shall be~~ driven through the roadway fill.

All piles ~~shall be~~ driven to a minimum bearing capacity of 30 tons.

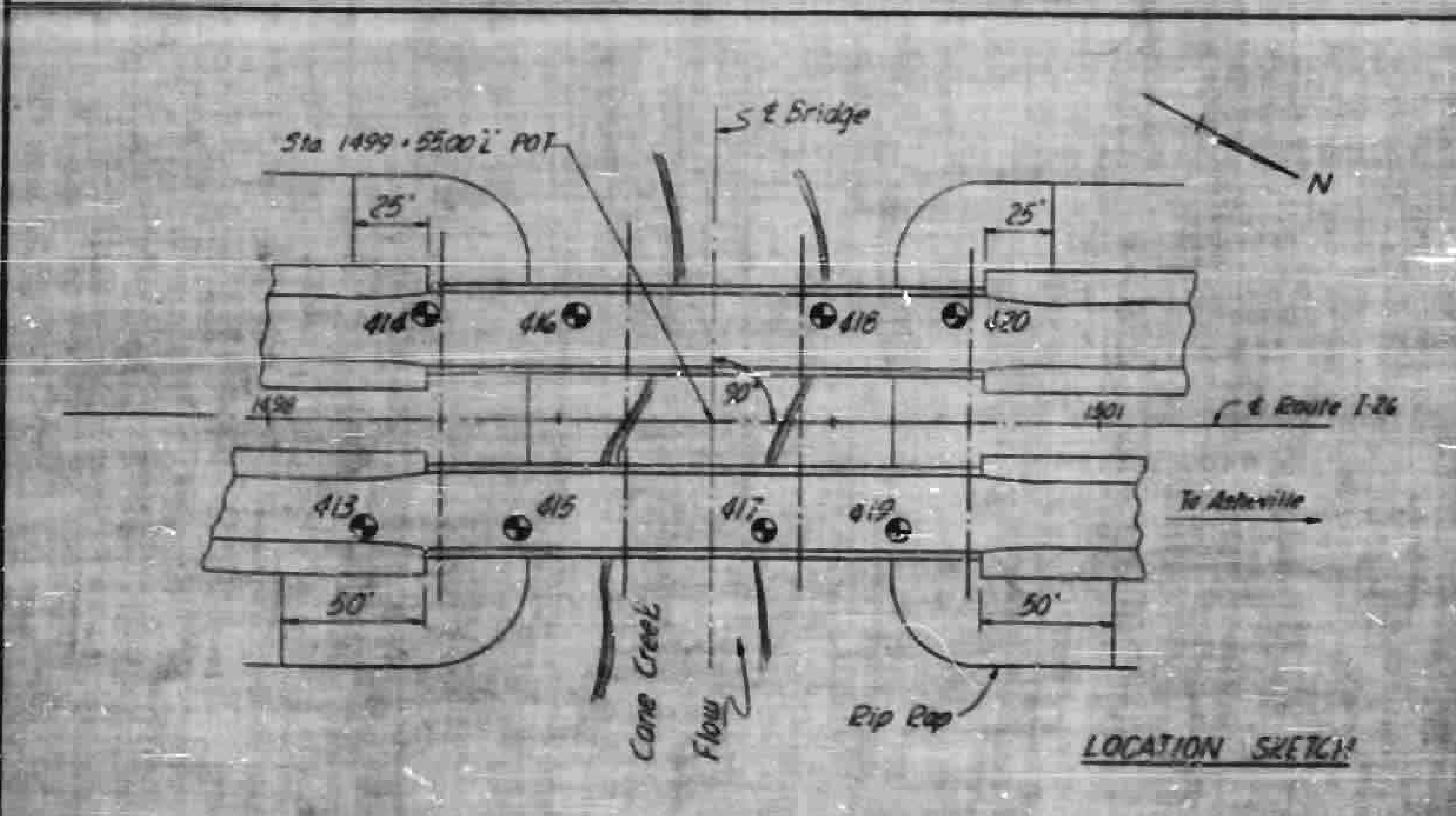
Soil bearing footings at Bents 1 & 2 are designed for a bearing pressure of 3 tons per sq. foot.



Indicates 2½" cased hole boring.

Indicates ground water.

Benchmark: R.R. Spike in 8" Locust 150' Rt. Sta. 1499+00 Elevation 2057.09



I hereby certify that this structure was built according to revised plans.

SIGNED

RES. ENGR.

TOTAL BILL OF MATERIAL	Class "A" Concrete Cu. Yds.	Reinf. Steel Lbs.	Structural Steel Approx. Lbs.	12 BP53 Steel Piles No.	12 BP53 Steel Piles Lin. Ft.	Excavation Cu. Yds. Wet	Excavation Cu. Yds. Dry	Metal Rails Lin. Ft.	Plain Rip Rap Sq. Yds.
Superstructure	196.0	42,398	158,100					390.83	
End Bent 1	16.0	2,805		9	270				351
Bent 1	[illegible]	6,828				62			
Bent 2	[illegible]	2,765				149	85		
End Bent 2	16.0	[illegible]		9	270				317
Approach Curbs	3.2	76							
	[illegible]	62,926							
TOTAL -	[illegible]	63,067	158,100	18	540	211	85	390.83	668

Note: Plain Rip Rap for S.B. Bridge and N.B. Bridge measured and computed together.

Pile splices = 3

PROJECT NO. 8.19002

HENDERSON-BUNCOMBE **COUNTY**

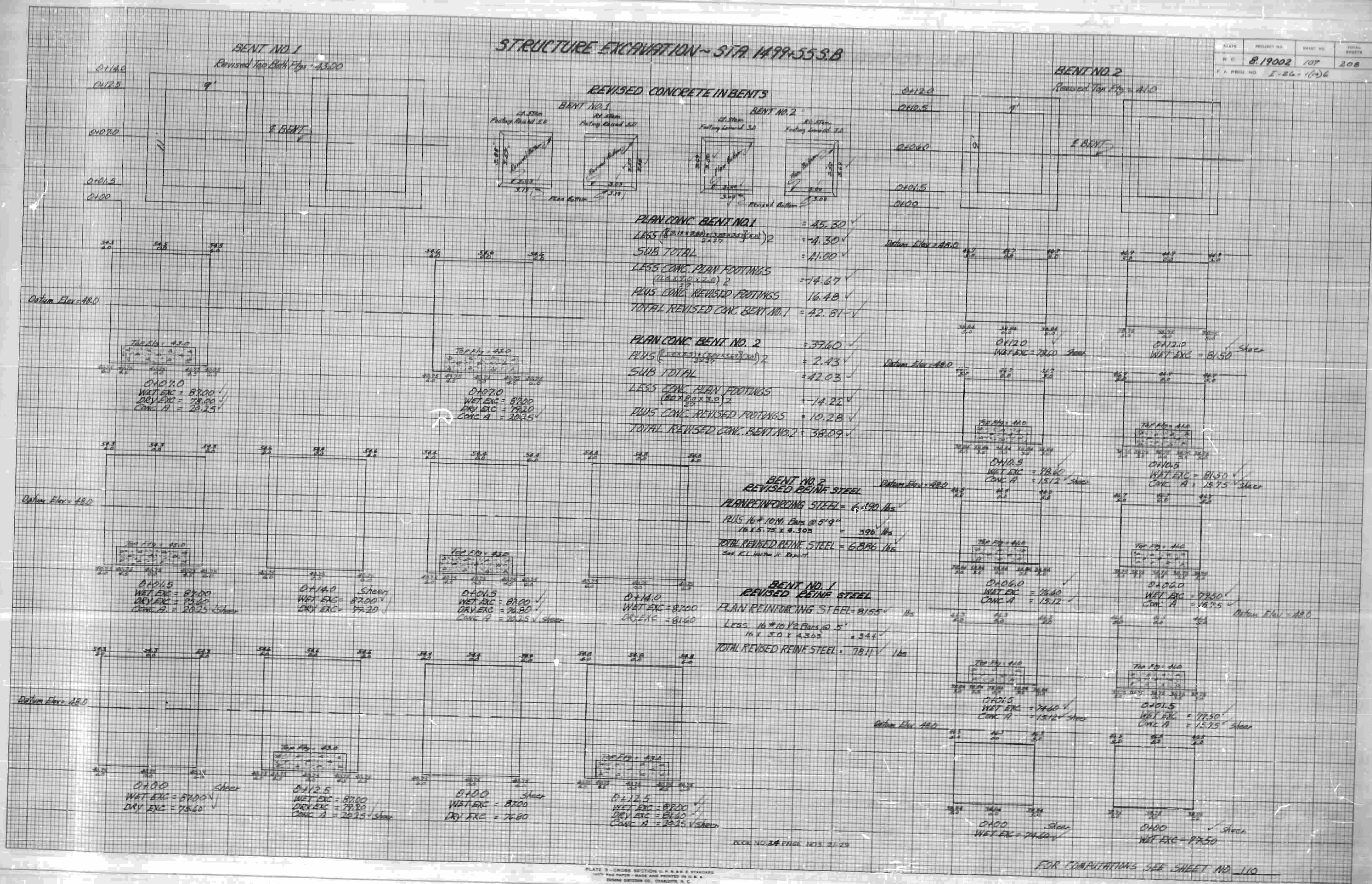
STATION 1499+55 L

N.B. Bridge

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

GENERAL DRAWING
BRIDGE OVER CANE CREEK
ON PROPOSED
NORTHBOUND INTERSTATE ROUTE 26

REVISIONS


STRUCTURE EXCAVATION ~ STA. 1499+55 S.B
STATE N.C. PROJECT NO. 8.19002 SHEET NO. 107 TOTAL SHEETS 208
F.A. PROJ. NO. I-26-1(14)6
BENT NO. 1
Revised Top Both Ftgs = 43.00
BENT NO. 2
Revised Top Ftg = 41.0
REVISED CONCRETE IN BENTS
PLAN CONC. BENT NO. 1 = 45.30
SUB TOTAL = 41.00
LESS CONC. PLAN FOOTINGS = -14.67
PLUS CONC. REVISED FOOTINGS 16.48
TOTAL REVISED CONC. BENT NO. 1 = 42.81
PLAN CONC. BENT NO. 2 = 39.60
SUB TOTAL = 42.03
LESS CONC. PLAN FOOTINGS = -14.22
PLUS CONC. REVISED FOOTINGS = 10.28
TOTAL REVISED CONC. BENT NO. 2 = 38.09
BENT NO. 2
REVISED REINF. STEEL
PLAN REINFORCING STEEL = 6490 lbs
PLUS 16 #10M Bars @ 5'9"
16 X 5.75 X 4.303 = 396 lbs
TOTAL REVISED REINF. STEEL = 6886 lbs
See K.L. Horton Jr Report
BENT NO. 1
REVISED REINF. STEEL
PLAN REINFORCING STEEL = 8155 lbs
LESS 16 #10 V2 Bars @ 5'
16 X 5.0 X 4.303 = 344
TOTAL REVISED REINF. STEEL = 7811 lbs
0+07.0
WET EXC = 87.00
DRY EXC = 78.00
CONC. A = 20.25
0+01.5
0+14.0
0+00
0+12.5
0+12.0
WET EXC = 78.00
0+12.0
WET EXC = 81.50
0+10.5
WET EXC = 78.60
CONC. A = 15.12
0+10.5
WET EXC = 81.50
CONC. A = 15.75
0+06.0
WET EXC = 76.40
CONC. A = 15.12
0+02.0
WET EXC = 79.50
CONC. A = 15.75
Datum Elev = 48.0
BOOK NO. 34 PAGE NOS. 21-29
FOR COMPUTATIONS SEE SHEET NO. 110
PLATE 3 - CROSS SECTION
EUGENE DIETZGEN CO. CHARLOTTE, N.C.

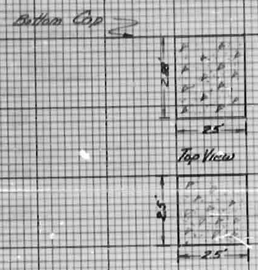

N.C. 8.19002 108
F.A. PROJ. NO. I-26-1(11)6
STRUCTURE EXCAVATION ~ STA 1499+55 N.B.
BENT NO. 1
Revised Top FTG. 43.00
0+12.0
0+10.5
0+06.0
0+01.5
0+00
℄ BENT
PLAN CONC.
7.0
9.0
REVISED CONCRETE IN BENTS
BENT NO. 1
Lt. Stem
Rt. Stem
Footing Raised 0.5'
Plan Conc.
Revised Bottom
Plan Bottom
BENT NO. 2
Footing Raised 1.6'
Footing Raised 5.0'
PLAN CONC. BENT NO. 1 = 35.50
LESS [(3.03x3.50)+(3.01x3.55)](0.5) / 2x27 = -0.20
REVISED CONC. BENT NO. 1 = 35.30
LESS CONC. PLAN FTG. 9.0x7.0x2.0 / 27 = -4.67
PLUS CONC. REVISED FOOTING = 5.06
TOTAL CONC. BENT NO. 1 = 35.69
PLAN CONC. BENT NO. 2 = 45.30
LESS [(3.17x3.88)+(3.14x3.78)](1.6) / 2x27 = -0.72
LESS [(3.17x3.88)+(3.05x3.57)](5.0) / 2x27 = -2.15
REVISED CONC. BENT NO. 2 42.43
LESS CONC. PLAN FOOTINGS (11.0x9.0x2.0) 2 / 27 = -14.67
PLUS CONC. REVISED FOOTINGS = 15.84
TOTAL CONC. BENT NO. 2 = 43.60
BENT NO. 1
Revised Reinf. Steel
Plan Reinf. Steel = 6,828
Less 8 #10 Bars @ 0.5 = 4 x 4.303 = 17
Total Revised Reinf. Steel 6,811
VOID
BENT NO. 2
Revised Reinf. Steel
Plan Reinf. Steel 8,155
Less 8 #10 @ 1.5 12 x 4.303 = [redacted]
Less 8 #10 @ 5.0 40 x 4.303 = 172
[redacted]
7,983
BENT NO. 2
Revised Top Ftg. 39.60
Revised Top Ftg. 43.00
0+14.0
0+12.5
0+07.0
0+01.5
0+0.0
9.0
11.0
℄ BENT
Datum Elev. = 48.0
0+12.0
WET EXC = 58.70
Sheer
Datum Elev. = 46.0
Top Ftg. = 43.00
0+10.5
WET EXC = 57.70
CONC. A = 15.19
Sheer
Datum Elev. = 48.0
Top Ftg. = 43.00
0+06.0
WET EXC = 55.70
CONC. A = 15.19
0+12.0
WET EXC = 57.00
Sheer
Datum Elev. 48.0
Top Ftg. = 43.00
0+01.5
WET EXC = 53.70
CONC. A = 15.19
Sheer
0+06.0
WET EXC = 55.00
Datum Elev. = 48.0
0+00
WET EXC = 53.70
Sheer
0+00
WET EXC = 53.00
BOOK NO. 24 PAGE NOS. 35-50
Datum Elev. = 48.0
Top Ftg. = 39.60
0+01.0
WET EXC = 126.72
DRY EXC = 85.20
CONC. A = 19.44
Top Ftg. = 43.00
0+07.0
WET EXC = 85.92
DRY EXC = 85.20
CONC. A = 19.44
Datum Elev. = 48.0
Top Ftg. = 39.60
0+01.5
WET EXC = 126.72
DRY EXC = 86.40
CONC. A = 19.44
0+14.0
WET EXC = 126.72
DRY EXC = 86.40
Sheer
Top Ftg. = 43.00
0+01.5
WET EXC = 85.92
DRY EXC = 84.00
CONC. A = 19.44
Sheer
0+14.0
WET EXC = 85.92
DRY EXC = 84.00
Datum Elev. 48.0
Top Ftg. = 39.60
0+00
WET EXC = 126.72
DRY EXC = 86.40
Sheer
0+12.5
WET EXC = 126.72
DRY EXC = 86.40
CONC. A = 19.44
Top Ftg. = 43.00
0+00
WET EXC = 85.92
DRY EXC = 84.00
Sheer
0+12.5
WET EXC = 85.92
DRY EXC = 84.00
CONC. A = 19.44
FOR COMPUTATIONS SEE SHEET NO. 110

STATE	PROJECT NO	SHEET NO	TOTAL SHEETS
N. C.	8.19002	109	208
F. A. PROJ. NO.	I-26-1(14)6		

STA 1099+53 N.B.

REVISED CONCRETE END BENT NO. 2

CONC. BUILDUP AROUND PILE NO. 6



CONCRETE PLAN END BENT = 16.00 Cu Yds ✓

PLUS $\frac{2.5 \times 2.5 \times 2.68}{27}$ = 0.67 ✓

TOTAL REVISED CONC. = 16.67 Cu Yds

ADD REINF. STEEL

PLAN REINF. STEEL = 2,805 ✓ lbs.

PLUS 4 #6 Bars @ 4' 10"

4 x 4.83 x 1.502 = 29 ✓ "

PLUS 4 #4 Bars @ 10"

4 x 0.83 x 0.668 = 2 ✓ "

TOTAL REINF. STEEL = 2,836 ✓ lbs.

BOOK NO. 24 PAGE NO. 32

STATE	PROJECT NO.	SHEET NO.	
N.C.	8.19002	110	2
F.A. PROJ. NO.	I-26-1(10)6		

STRUCTURE EXCAVATION ~ STA. 1499+55 S.B.

WET EXC. BENT NO. 1

Lt. Footing

STA.	DIST	AREA	AV. AREA	CU. YDS.	REMARKS
0+00		87.00			Sheer
0+01.5	1.5	87.00	87.00	4.83	
0+07.0	5.5	87.00	87.00	17.72	
0+12.5	5.5	87.00	87.00	17.72	
0+14.0	1.5	87.00	87.00	4.83	Sheer

BOOK NO. 24
PAGE NO. 14

Rt. Footing

STA.	DIST	AREA	AV. AREA	CU. YDS.	REMARKS
0+00		87.00			Sheer
0+01.5	1.5	87.00	87.00	4.83	
0+07.0	5.5	87.00	87.00	17.72	
0+12.5	5.5	87.00	87.00	17.72	
0+14.0	1.5	87.00	87.00	4.83	Sheer
TOTAL				90.20	

WET EXC. BENT NO. 2

Lt. Footing

STA.	DIST	AREA	AV. AREA	CU. YDS.	REMARKS
0+00		74.60			Sheer
0+01.5	1.5	74.60	74.60	4.14	
0+06.0	4.5	76.60	75.60	12.60	
0+10.5	4.5	78.60	77.60	12.93	
0+12.0	1.5	78.60	78.60	4.37	Sheer

BOOK NO. 24
PAGE NO. 14

Rt. Footing

STA.	DIST	AREA	AV. AREA	CU. YDS.	REMARKS
0+00		77.50			Sheer
0+01.5	1.5	77.50	77.50	4.31	
0+06.0	4.5	79.50	78.50	13.08	
0+10.5	4.5	81.50	80.50	13.42	
0+12.0	1.5	81.50	81.50	4.53	Sheer
TOTAL				69.38	

DRY EXC. BENT NO. 1

Lt. Footing

STA.	DIST	AREA	AV. AREA	CU. YDS.	REMARKS
0+00		75.60			Sheer
0+01.5	1.5	75.60	75.60	4.20	
0+07.0	5.5	78.00	76.80	15.64	
0+12.5	5.5	79.20	78.60	16.01	
0+14.0	1.5	79.20	79.20	4.40	Sheer

Rt. Footing

STA.	DIST	AREA	AV. AREA	CU. YDS.	REMARKS
0+00		76.80			Sheer
0+01.5	1.5	76.80	76.80	4.27	
0+07.0	5.5	79.20	78.00	15.89	
0+12.5	5.5	81.60	80.40	16.38	
0+14.0	1.5	81.60	81.60	4.53	Sheer
TOTAL				81.32	

BOOK NO. 24 PAGE NO. 15

CONCRETE ~ STA. 1499+55 S.B.

BENT NO. 1

Lt. Footing

STA.	DIST	AREA	AV. AREA	CU. YDS.	REMARKS
0+01.5		20.25			Sheer
0+07.0	5.5	20.25	20.25	4.12	
0+12.5	5.5	20.25	20.25	4.12	Sheer

BOOK NO. 24
PAGE NO. 15

Rt. Footing

STA.	DIST	AREA	AV. AREA	CU. YDS.	REMARKS
0+01.5		20.25			Sheer
0+07.0	5.5	20.25	20.25	4.12	
0+12.5	5.5	20.25	20.25	4.12	Sheer
TOTAL				16.48	

BENT NO. 2

Lt. Footing

STA.	DIST	AREA	AV. AREA	CU. YDS.	REMARKS
0+01.5		15.12			Sheer
0+06.0	4.5	15.12	15.12	2.52	
0+10.5	4.5	15.12	15.12	2.52	Sheer

BOOK NO. 24
PAGE NO. 16

Rt. Footing

STA.	DIST	AREA	AV. AREA	CU. YDS.	REMARKS
0+01.5		15.75			Sheer
0+06.0	4.5	15.75	15.75	2.62	
0+10.5	4.5	15.75	15.75	2.62	Sheer
TOTAL				10.28	

BOOK NO. 24
PAGE NO. 16

STRUCTURE EXCAVATION ~ STA. 1499+55 N.B.

WET EXC. BENT NO. 1

Lt. Footing

STA.	DIST	AREA	AV. AREA	CU. YDS.	REMARKS
0+00		53.70			Sheer
0+01.5	1.5	53.70	53.70	2.98	
0+06.0	4.5	55.70	54.70	9.12	
0+10.5	4.5	57.70	56.70	9.45	
0+12.0	1.5	58.70	58.20	3.23	Sheer

BOOK NO. 24
PAGE NO. 16

Rt. Footing

STA.	DIST	AREA	AV. AREA	CU. YDS.	REMARKS
0+00		53.00			Sheer
0+06.0	6.0	55.00	54.00	12.00	
0+12.0	6.0	57.00	56.00	12.44	Sheer
TOTAL				49.22	

WET EXC. BENT NO. 2

Lt. Footing

STA.	DIST	AREA	AV. AREA	CU. YDS.	REMARKS
0+00		126.72			Sheer
0+01.5	1.5	126.72	126.72	7.04	
0+07.0	5.5	126.72	126.72	25.81	
0+12.5	5.5	126.72	126.72	25.81	
0+14.0	1.5	126.72	126.72	7.04	Sheer

BOOK NO. 24
PAGE NO. 17

Rt. Footing

STA.	DIST	AREA	AV. AREA	CU. YDS.	REMARKS
0+00		85.92			Sheer
0+01.5	1.5	85.92	85.92	4.77	
0+07.0	5.5	85.92	85.92	17.50	
0+12.5	5.5	85.92	85.92	17.50	
0+14.0	1.5	85.92	85.92	4.77	Sheer
TOTAL				110.24	

DRY EXC. BENT NO. 2

Lt. Footing

STA.	DIST	AREA	AV. AREA	CU. YDS.	REMARKS
0+00		86.40			Sheer
0+01.5	1.5	86.40	86.40	4.80	
0+07.0	5.5	85.20	85.80	17.48	
0+12.5	5.5	86.40	85.80	17.48	
0+14.0	1.5	86.40	86.40	4.80	Sheer

BOOK NO. 24
PAGE NO. 17

Rt. Footing

STA.	DIST	AREA	AV. AREA	CU. YDS.	REMARKS
0+00		84.00			Sheer
0+01.5	1.5	84.00	84.00	4.67	
0+07.0	5.5	85.20	84.60	17.23	
0+12.5	5.5	84.00	84.60	17.23	
0+14.0	1.5	84.00	84.00	4.67	Sheer
TOTAL				88.36	

CONCRETE ~ STA. 1499+55 N.B.

BENT NO. 1

Lt. Footing

STA.	DIST	AREA	AV. AREA	CU. YDS.	REMARKS
0+01.5		15.19			Sheer
0+06.0	4.5	15.19	15.19	2.53	
0+10.5	4.5	15.19	15.19	2.53	Sheer
TOTAL				5.06	

BOOK NO. 24
PAGE NO. 18

BENT NO. 2

Lt. Footing

STA.	DIST	AREA	AV. AREA	CU. YDS.	REMARKS
0+01.5		19.44			Sheer
0+07.0	5.5	19.44	19.44	3.96	
0+12.5	5.5	19.44	19.44	3.96	Sheer

BOOK NO. 24
PAGE NO. 18

Rt. Footing

STA.	DIST	AREA	AV. AREA	CU. YDS.	REMARKS
0+01.5		19.44			Sheer
0+07.0	5.5	19.44	19.44	3.96	
0+12.5	5.5	19.44	19.44	3.96	Sheer
TOTAL				15.84	

SUMMARY - Wet & Dry EXCAVATION

WET EXCAVATION STA 1499+55 N.B & S.B.

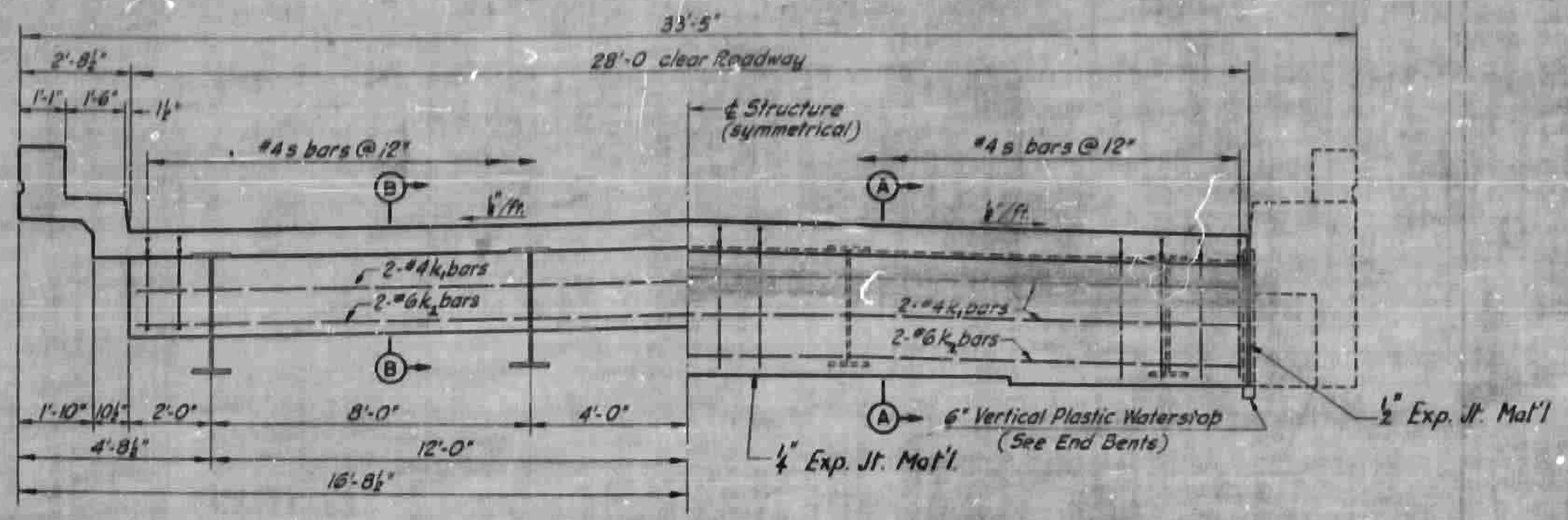
Bent No. 1 S.B.	90.20	Cu. Y
Bent No. 2 S.B.	69.38	"
Bent No. 1 N.B.	49.22	"
Bent No. 2 N.B.	110.24	"
TOTAL	319.04	Cu. Yd

Book No. 24
Page No. 26

Dry EXCAVATION STR 1499+55 N.B & S.B

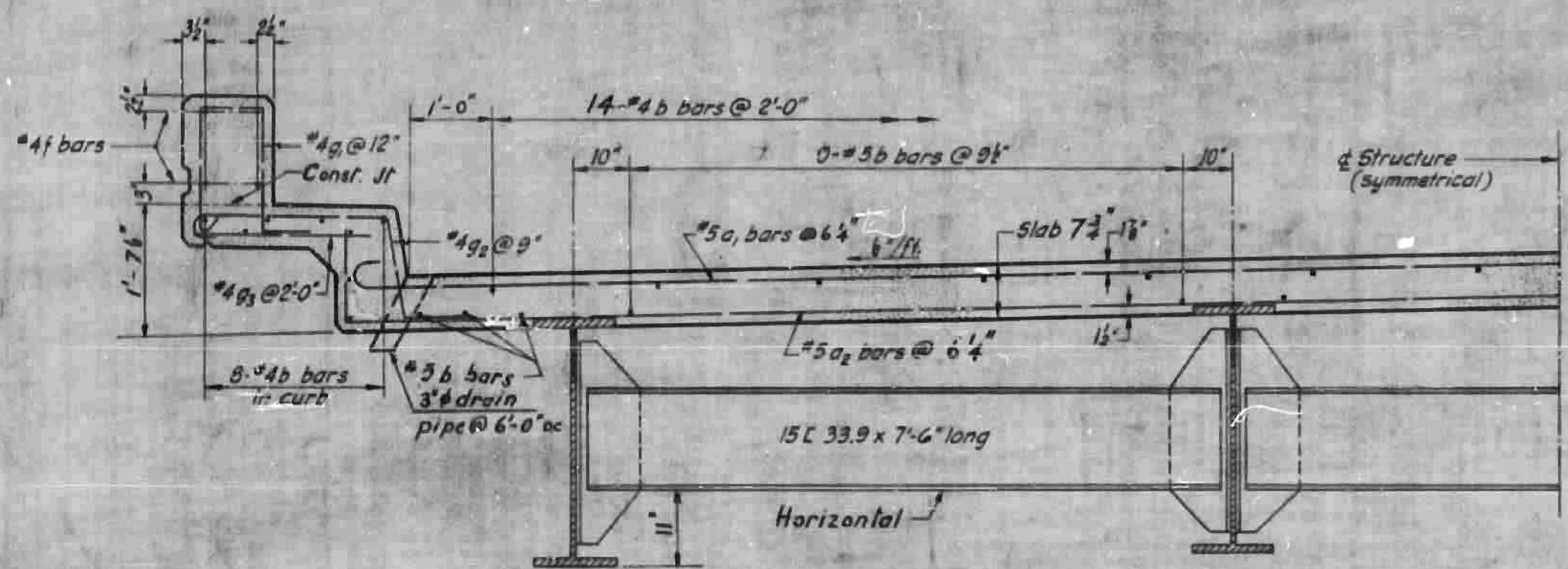
Bent No. 1 S.B	81.32	Cu. Yd
Bent No. 2 N.B	88.36	" "
TOTAL	169.68	Cu. Yds

FED. ROAD DIST. NO.	STATE	PROJECT NO.
3	N.C.	8.19002
FED. AID PROJ. I-26-1(10)6		



HALF SECTION AT INTERMEDIATE BENTS

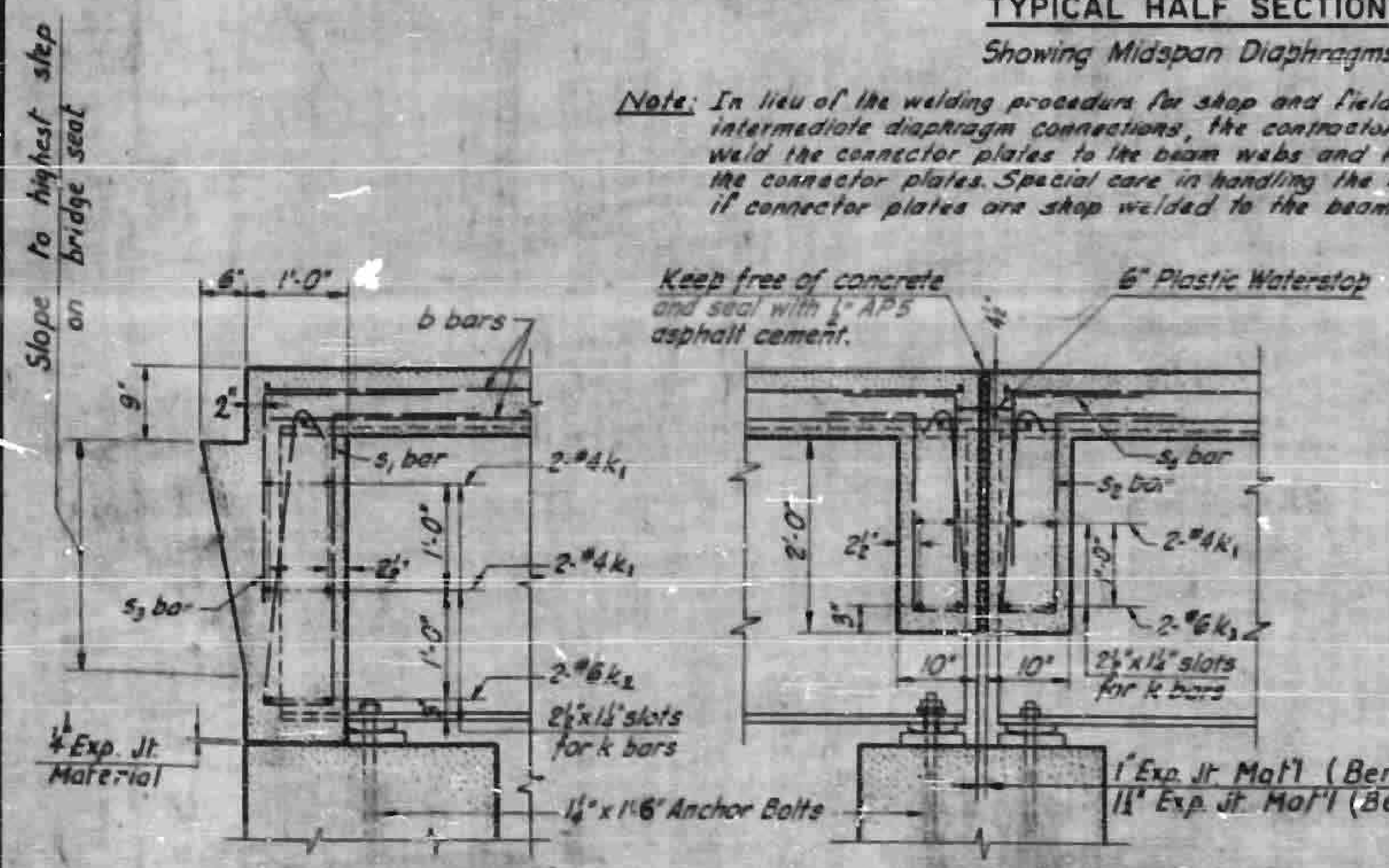
HALF SECTION AT END BENTS



TYPICAL HALF SECTION

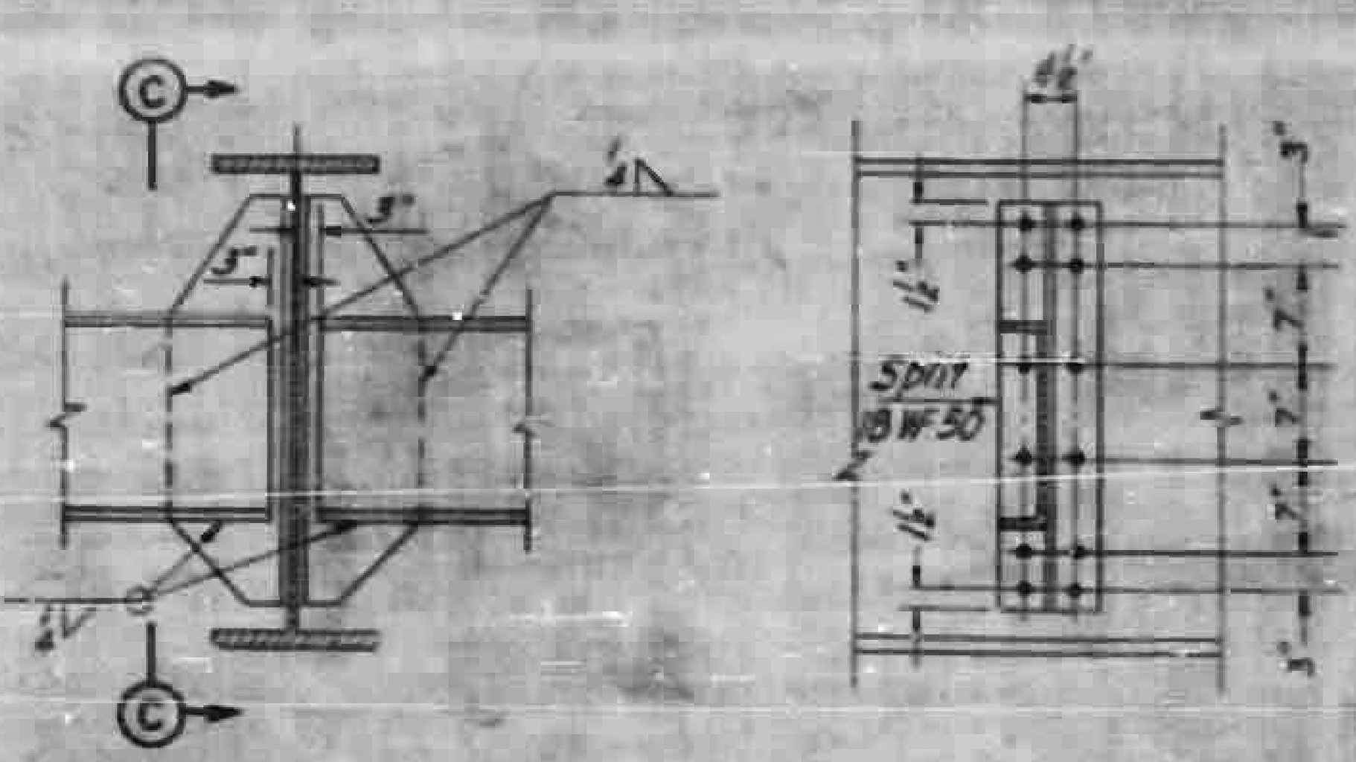
Showing Midspan Diaphragms

Note: In lieu of the welding procedure for shop and field welds indicated for the intermediate diaphragm connections, the contractor may, at his option, shop weld the connector plates to the beam webs and field weld the channels to the connector plates. Special care in handling the beams must be observed if connector plates are shop welded to the beam webs.



SECTION A-A

SECTION B-B



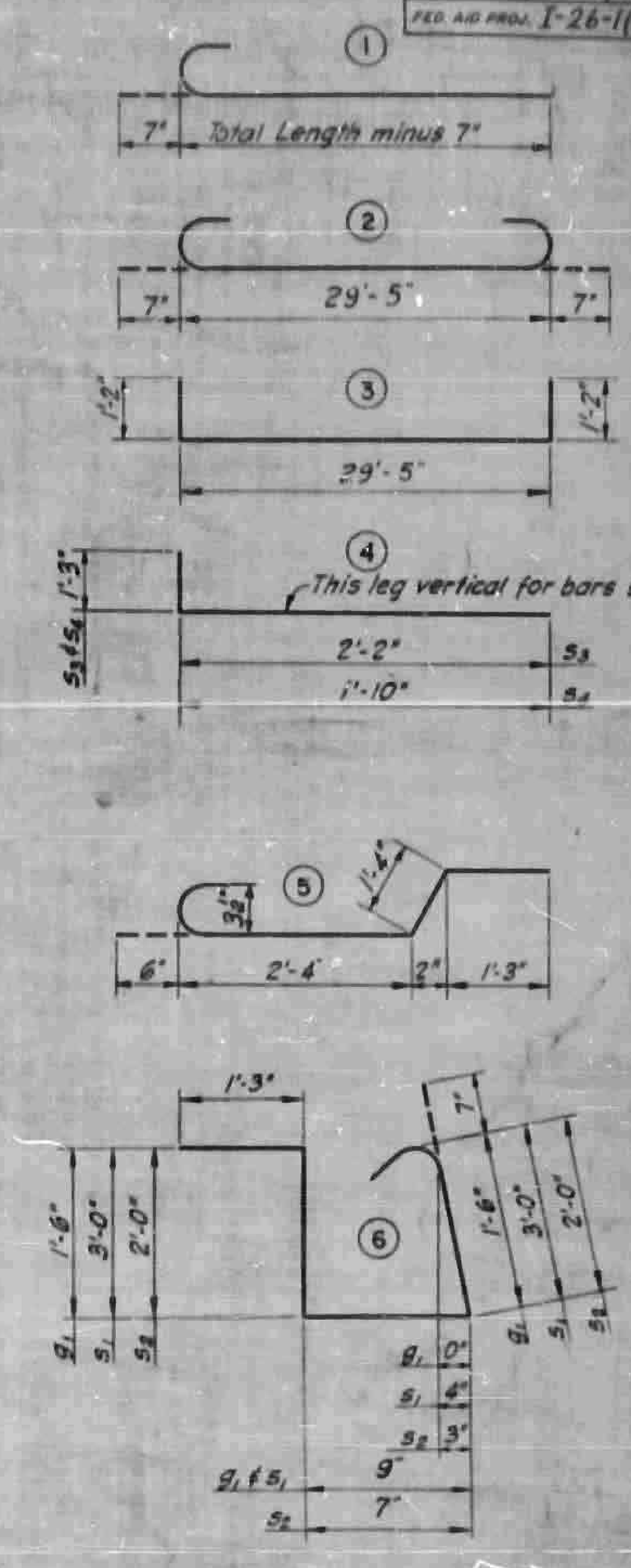
DETAIL OF DIAPHRAGM CONNECTIONS

SECTION C-C

BILL OF MATERIALS — 3 SPANS

BAR	NUMBER OF BARS: SPAN A	SPAN B	SPAN C		TOTAL	SIZE	TYPE	LENGTH	WEIGHT
a_1	124	126	124		374	5	2	30-7	11,930
a_2	123	125	123		371	5	3	31-9	12,286
a_3	10	—	10		20	5	str.	27-8	577
b_1	66	—	66		132	5	str.	34-0	4,680
b_2	32	—	32		64	4	str.	32-6	1,389
b_3	—	66	—		66	5	str.	33-4	2,295
b_4	28	—	28		56	4	str.	33-9	1,263
b_5	—	60	—		60	4	str.	33-1	1,326
f_1	16	—	16		32	4	str.	32-6	695
f_2	—	16	—		16	4	str.	33-1	354
g_1	130	132	130		392	4	6	5-7	1,461
g_2	172	176	172		520	4	5	5-5	1,883
g_3	66	68	66		200	4	str.	2-4	311
k_1	6	4	6		16	4	str.	27-7	294
k_2	4	4	4		12	6	str.	27-7	497
s_1	28	—	28		56	4	6	8-7	318
s_2	28	56	28		112	4	6	6-5	480
s_3	28	—	28		56	4	4	3-5	128
s_4	28	56	28		112	4	4	3-1	231

Southbound Structure		Northbound Structure	
Reinforcing Steel	42,398 lbs	Reinforcing Steel	42,398 lbs
Class "A" Concrete	196.0 cu. yds.	Class "A" Concrete	196.0 cu. yds.
Structural Steel	158,100 Lbs.	Structural Steel	158,100 Lbs.
Metal Rails	390.83 Lin. Ft.	Metal Rails	390.83 Lin. Ft.



BENT BAR TYPES

(All dimensions are out-to-out of bar)

PROJECT NO. 8.19002

Henderson- Buncombe COUNTY

STATION 1499 + 55 L

N.B or S.B. Bridge

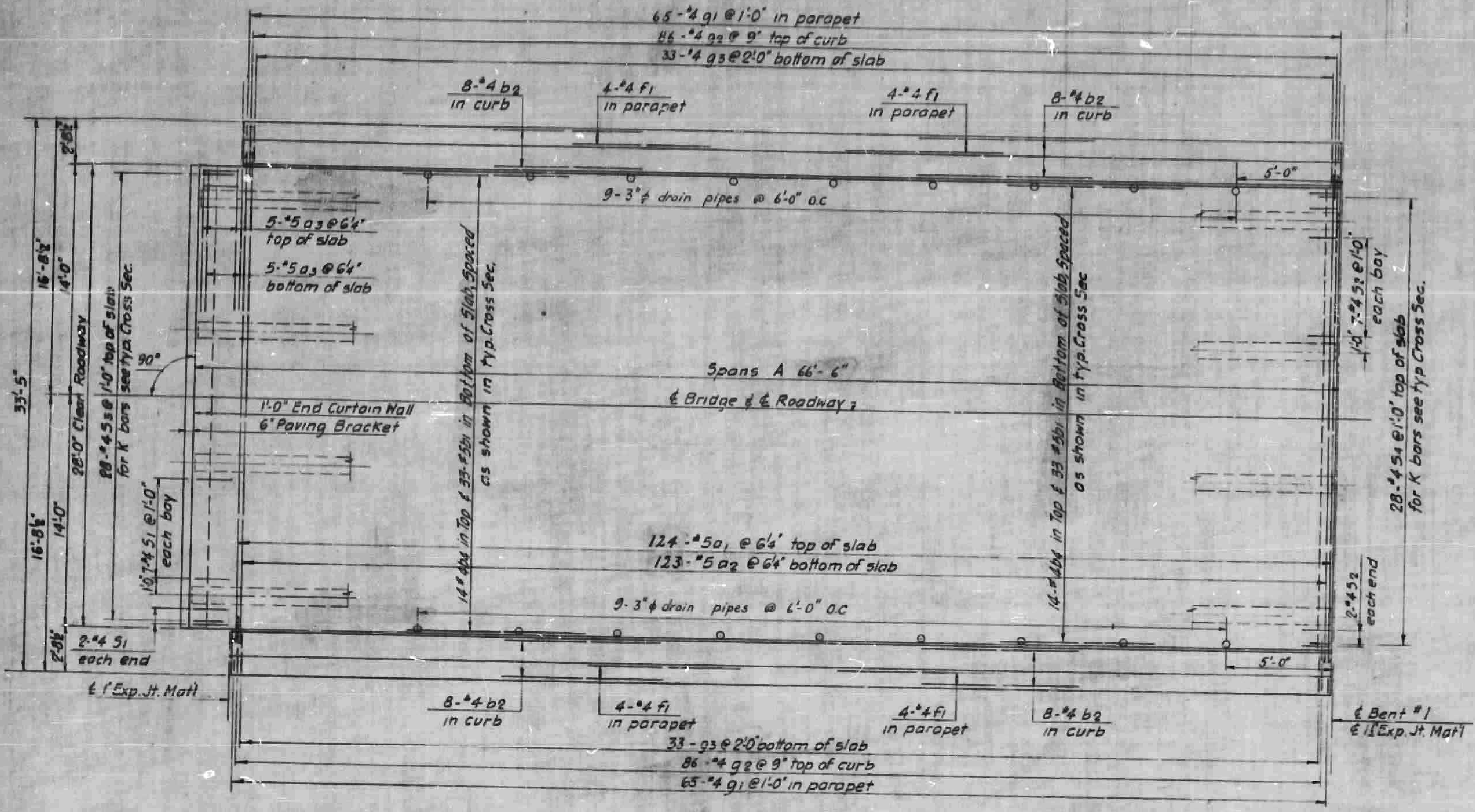
STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

SUPERSTRUCTURE CROSS SECTIONS

REVISIONS: NO.	BY	DATE	NO.	BY	DATE
1	[illegible]	9-26-63	3		
2			4		

Revision No. 1 - Revised to turn hook up on a_1 bars [illegible]

FED. ROAD DIST. NO.	STATE	PROJECT NO.
5	N. C.	8.19002
FED. AID PROJ. I-26-1(10)6		



PLAN

PROJECT NO. 8.19002

HENDERSON-BUNCOMBE COUNTY

STATION 1499+55±

S.B or N.B. BRIDGE

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

SUPERSTRUCTURE
SPAN A

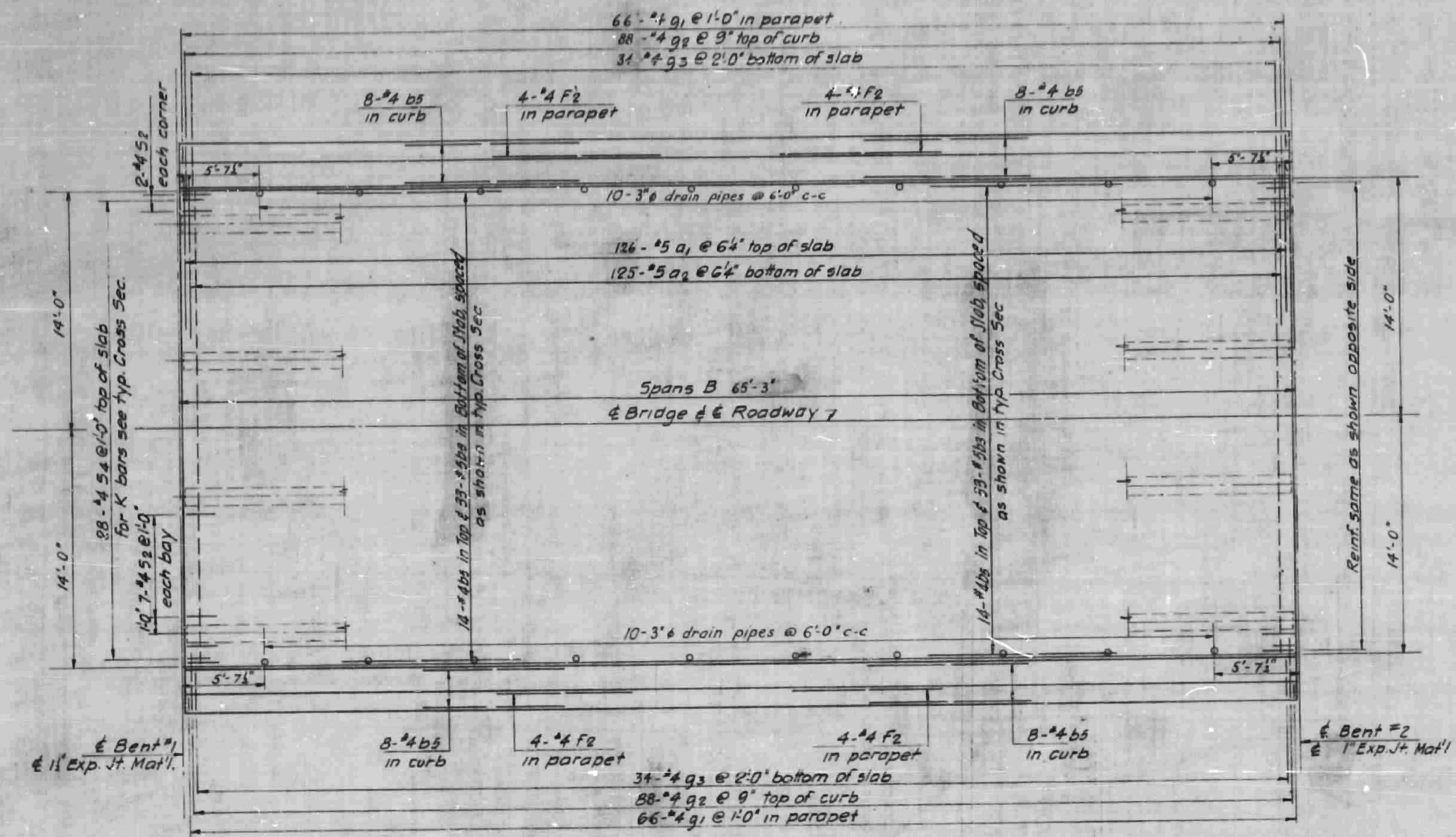
REVISIONS			
NO.	BY	DATE	
1			
2			
3			
4			

SHEET NO. 318½

TOTAL SHEETS 512

FED. ROAD DIST. NO.	STATE	PROJECT NO.
5	N. C.	8.13002

FED. AID PROJ. I-26-1(10)6



PLAN

PROJECT NO. 8.13002

HENDERSON-BUNCOMBE COUNTY

STATION 1499+55L

S.B. or N.B. BRIDGE

STATE OF NORTH CAROLINA

STATE HIGHWAY COMMISSION

RALEIGH

SUPERSTRUCTURE

SPAN B

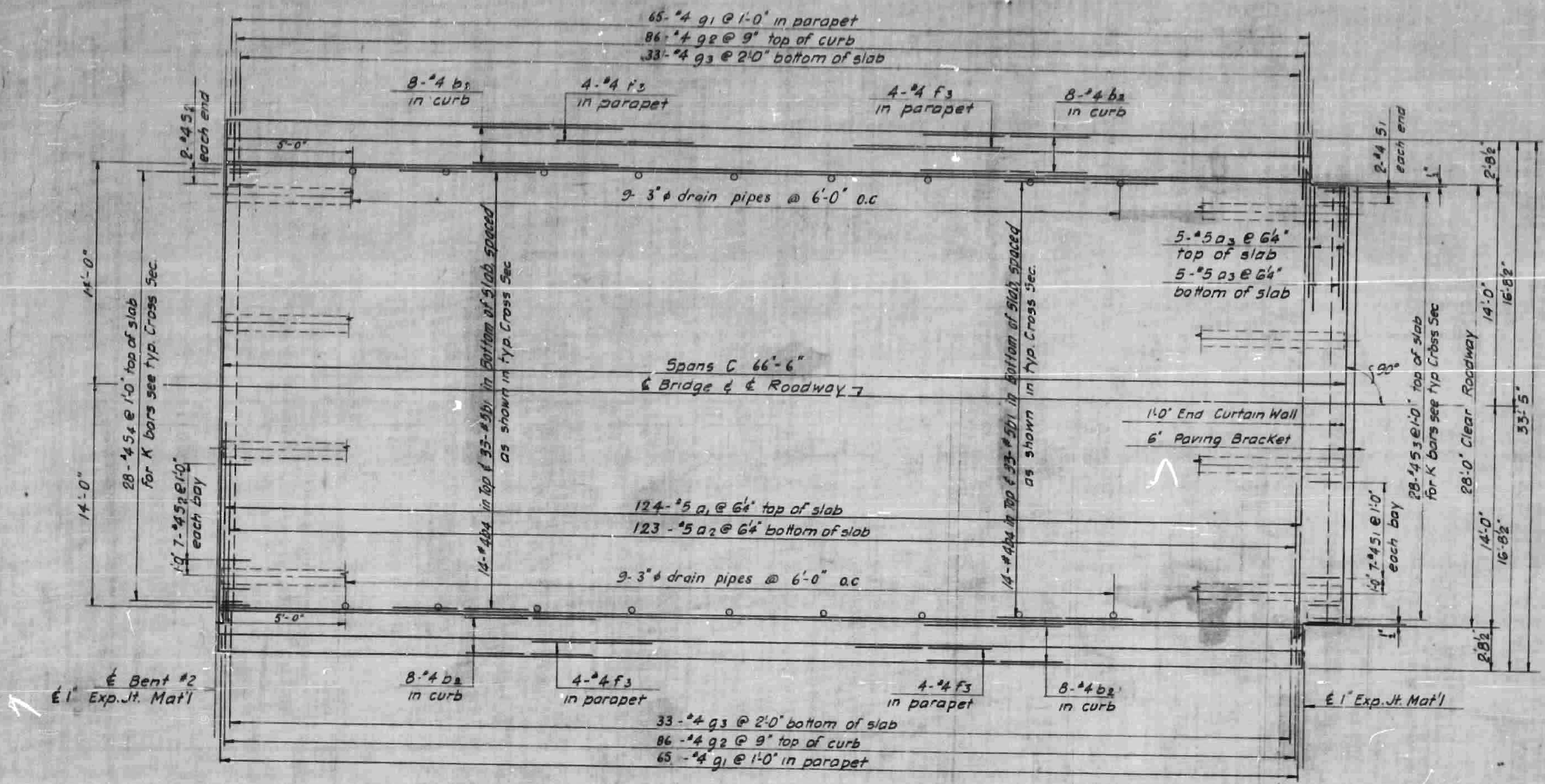
REVISIONS

SHEET NO. 81/13

TOTAL SHEETS 81/32

FED. ROAD DIST. NO.	STATE	PROJECT NO.
5	N.C.	8.19002

FED. AID PROJ. I-26-1(10)6



PLAN

PROJECT NO. 8.19002

HENDERSON-BUNCOMBE COUNTY

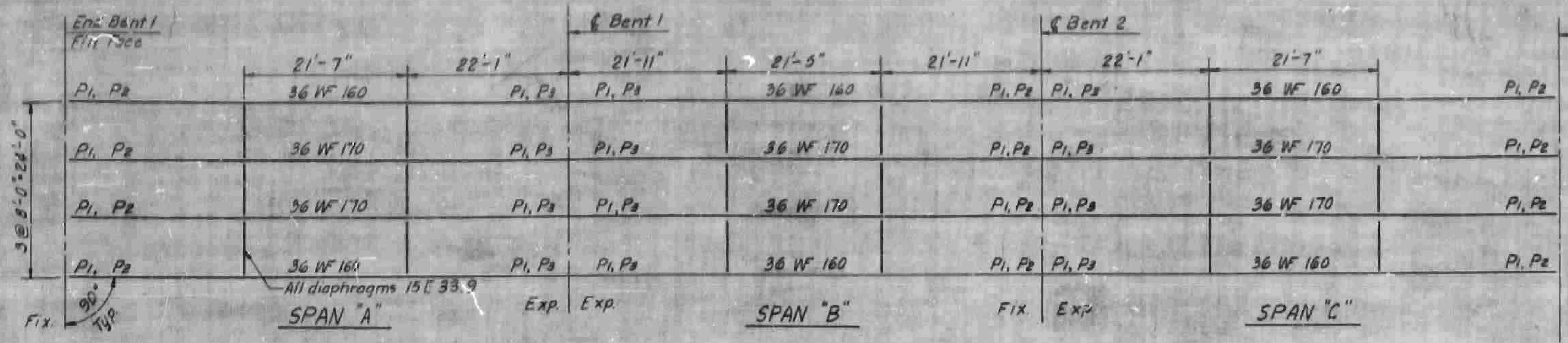
STATION 1499+55 L
S.B. or N.B. BRIDGE

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

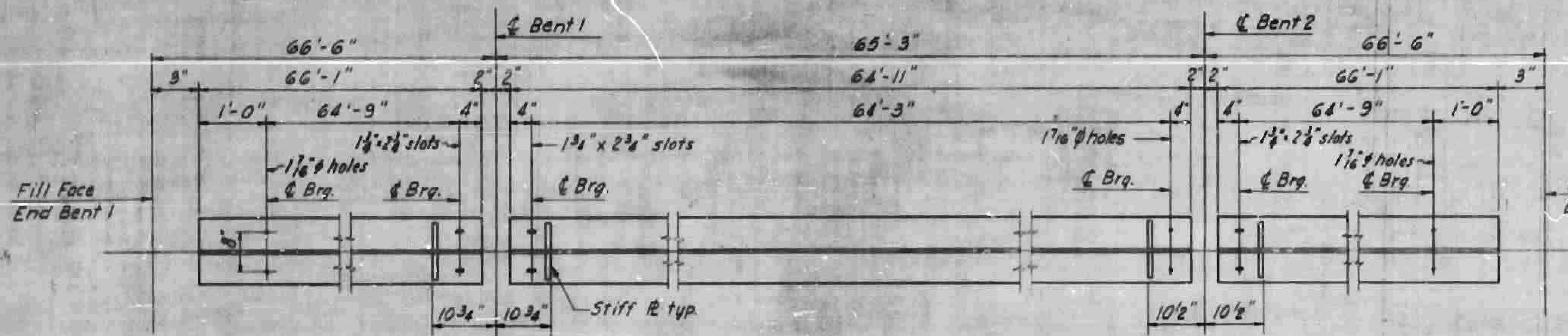
SUPERSTRUCTURE
SPAN C

FED. ROAD DIST. NO.	STATE	PROJECT NO.
3	N. C.	8.19002

FED. AID PROJ. I-26-1(10)6



FRAMING PLAN

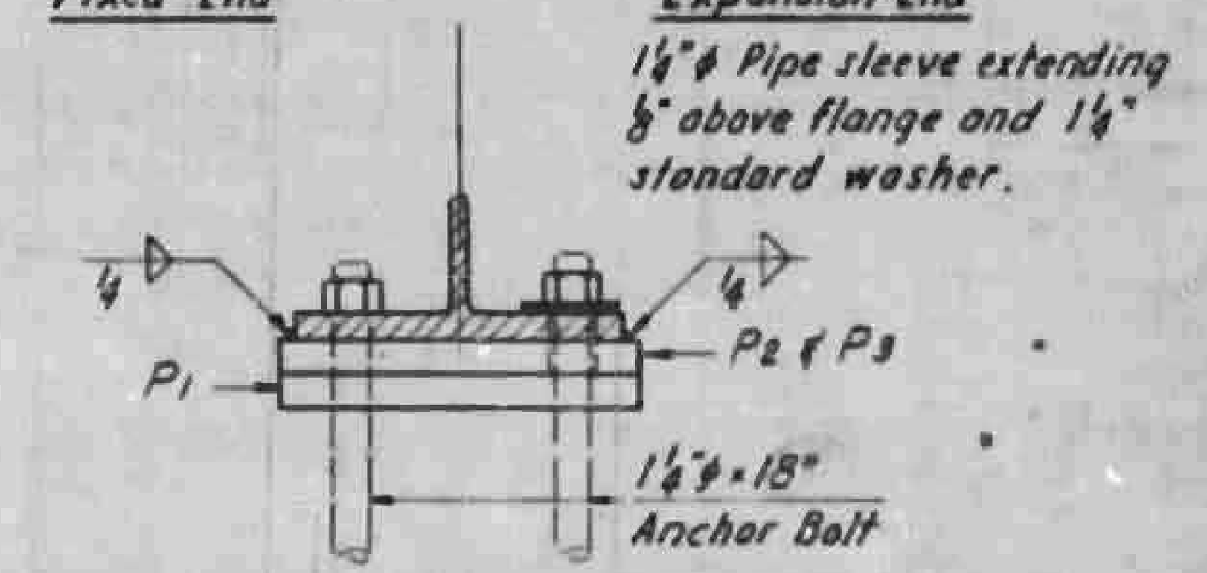


PLAN OF BOTTOM FLANGE

Fixed End

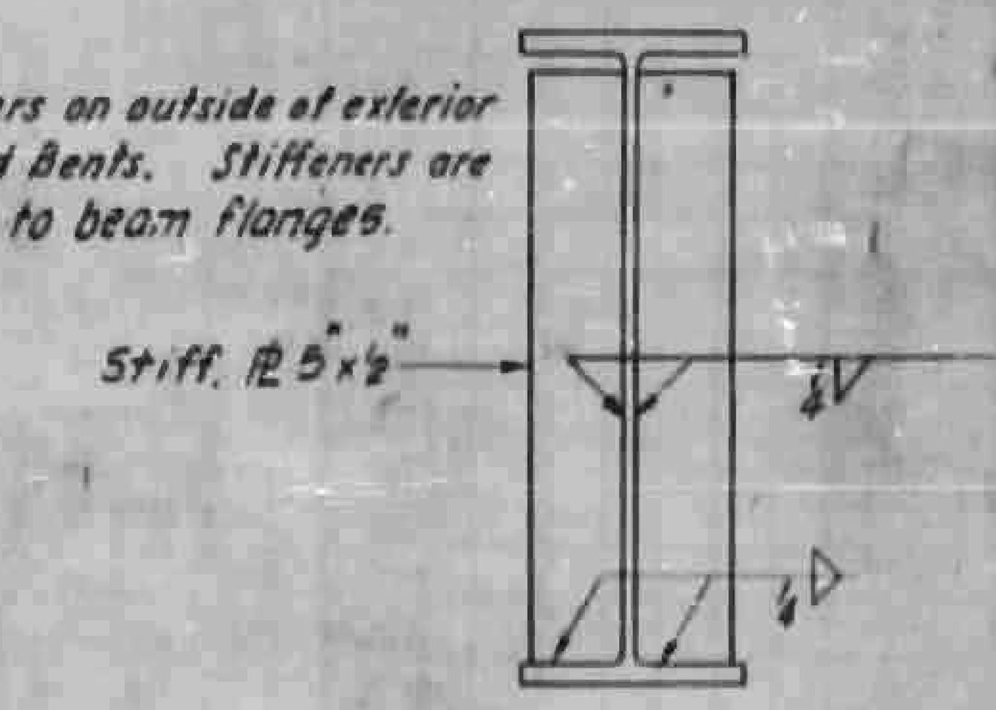
Expansion End

1 1/2" ϕ Pipe sleeve extending 1/8" above flange and 1 1/4" standard washer.

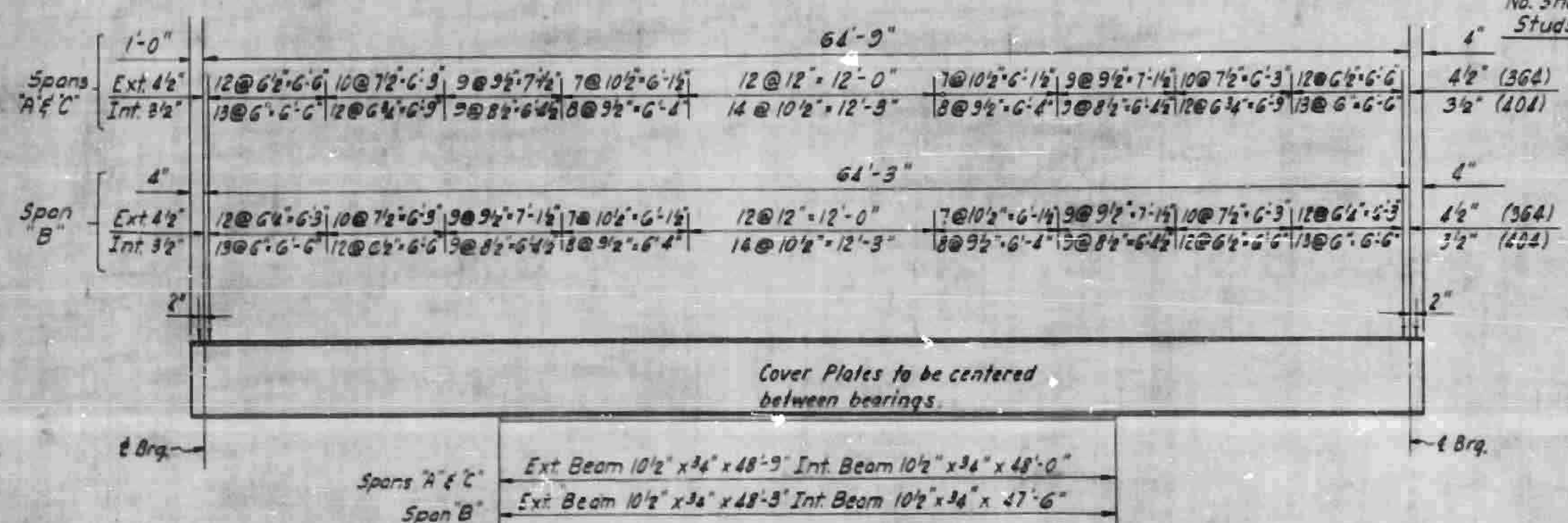


SECTION THRU BEARING

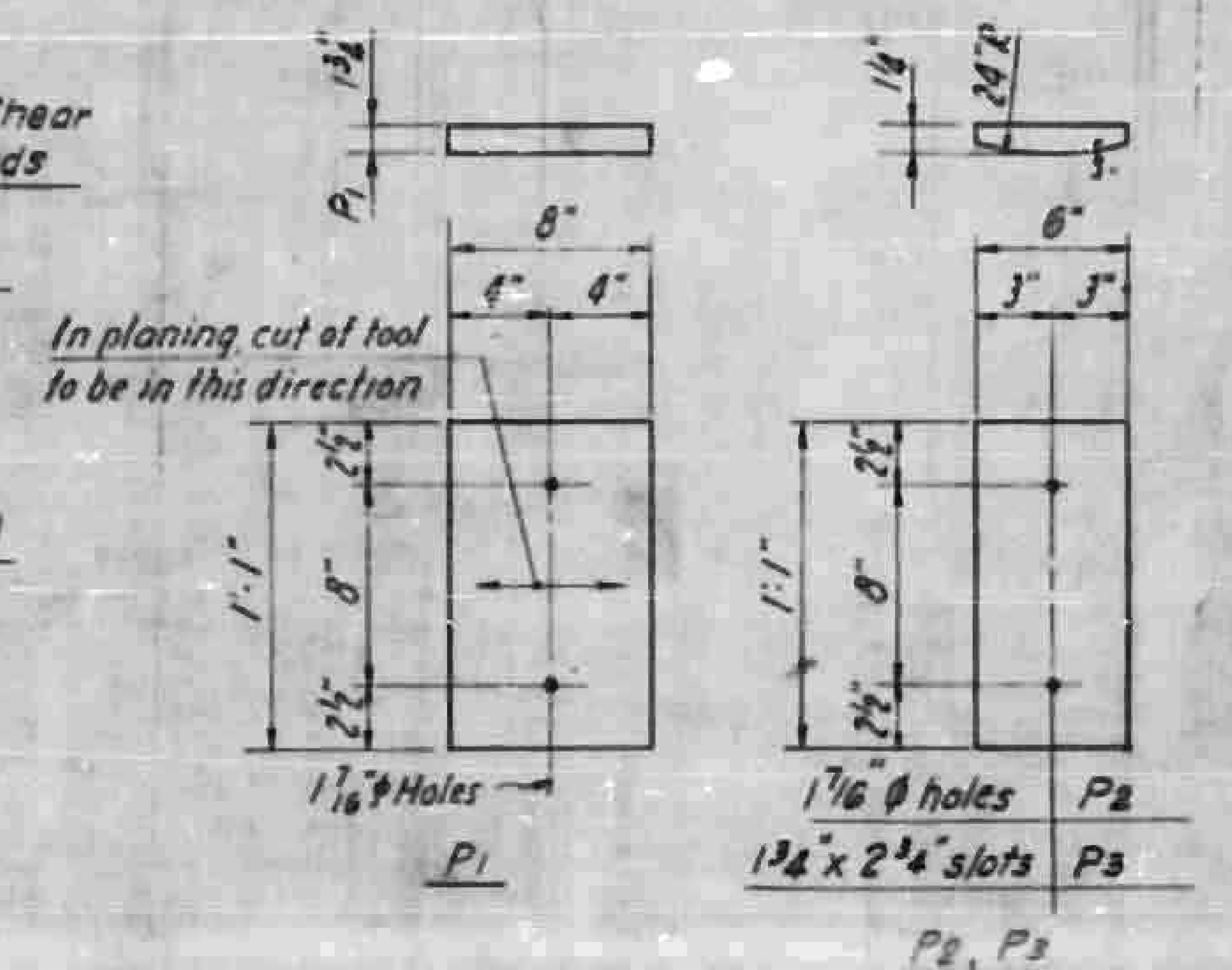
Note: Omit stiffeners on outside of exterior beams & at End Bents. Stiffeners are to be normal to beam flanges.



STIFFENER DETAIL



SHEAR STUD SPACING AND COVER PLATE LENGTH



BEARING PLATE DETAILS

DEFLECTION TABLE	Ext. Bm.	Int. Bm.
Steel	1/4"	1/4"
Concrete	1 3/16"	15/16"
Total DL Defl.	1 7/16"	1 3/16"
Vertical Curve	—	—
Total Camber	1 7/16"	1 3/16"

Note: All beams and cover plates for this structure may be of either A-373 or A-36 steel. Stress in extreme fiber of structural steel = 18,000 p.s.i. See Standard Notes sheet for further requirements.

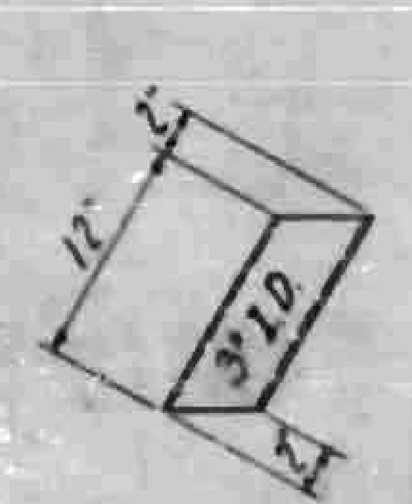
PROJECT NO. 8.19002

HENDERSON-BUNCOMBE COUNTY

STATION 1455+55 L

N.B. or S.B. Bridge

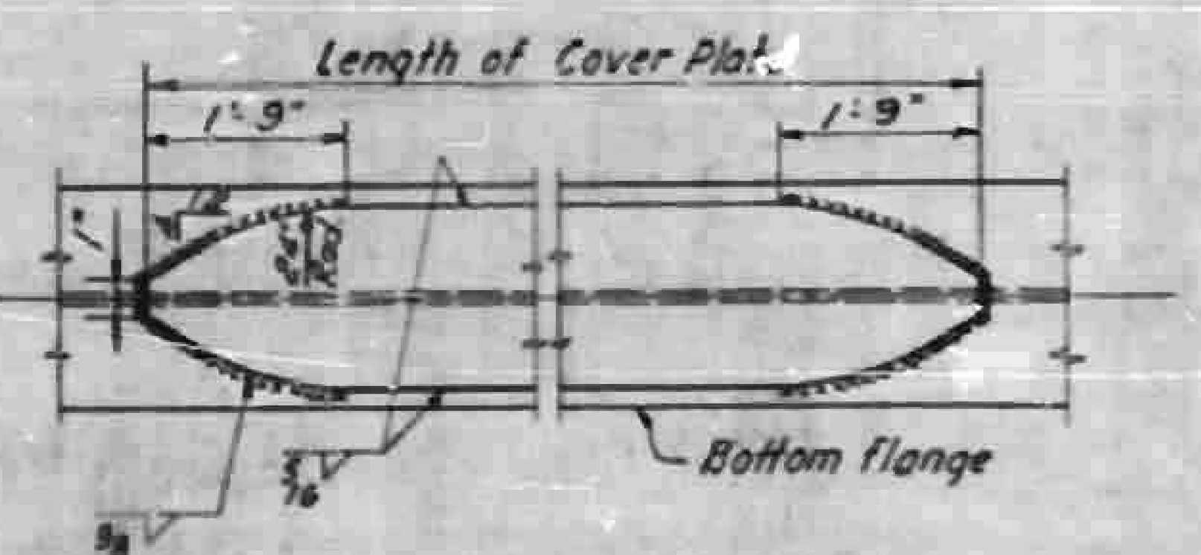
Tops of floor drains are to be set 3/8" below the surface of the slab.



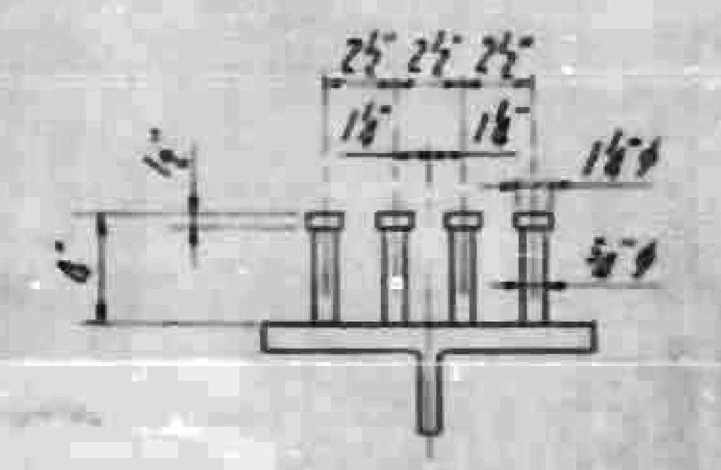
Drains to be std. wt. galv. steel pipe. Drains to be painted with two field coats of Aluminum paint.

DRAIN DETAIL

No. required -56



COVER PLATE DETAIL



SHEAR STUD DETAIL

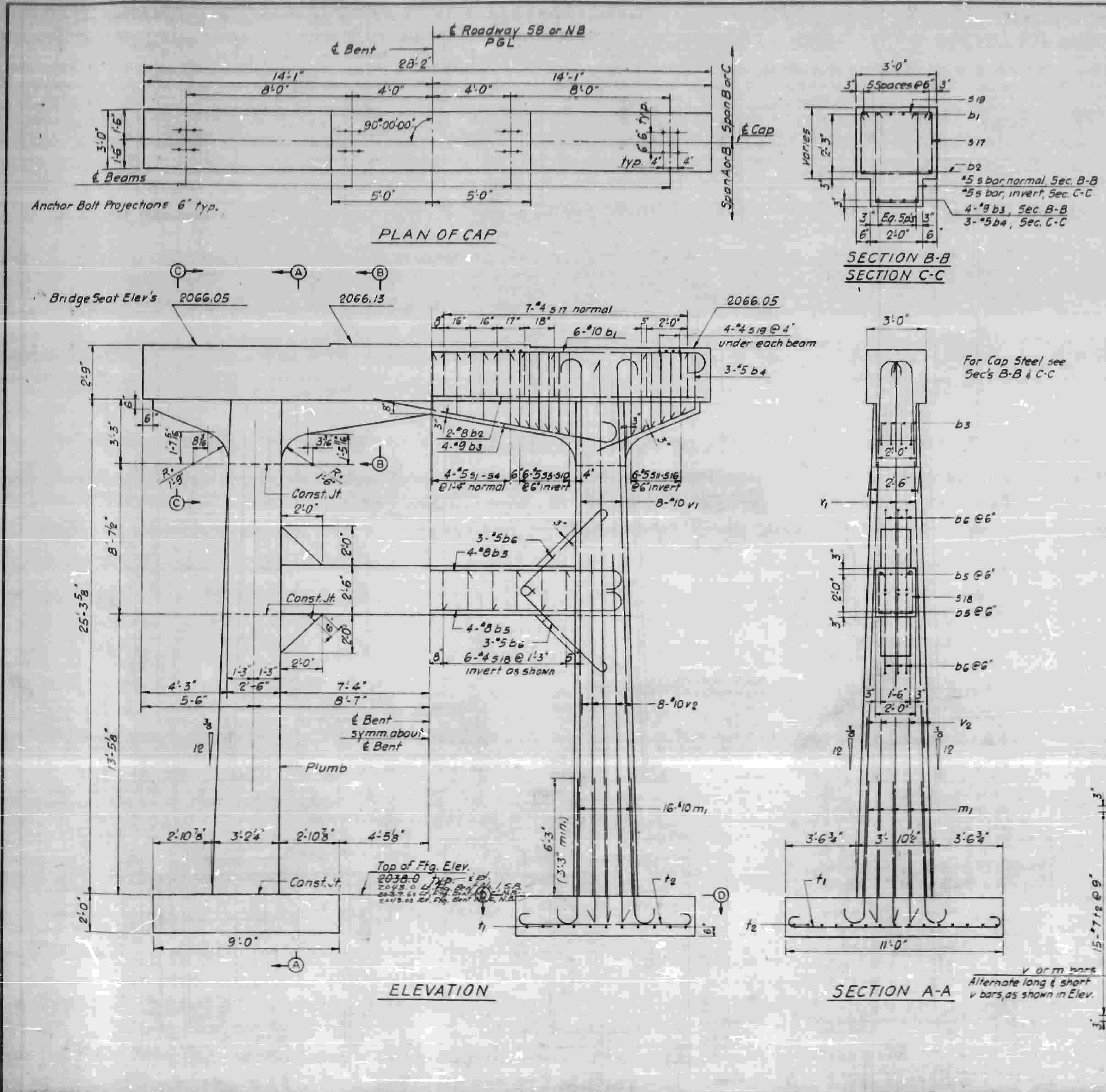
STATE OF NORTH CAROLINA

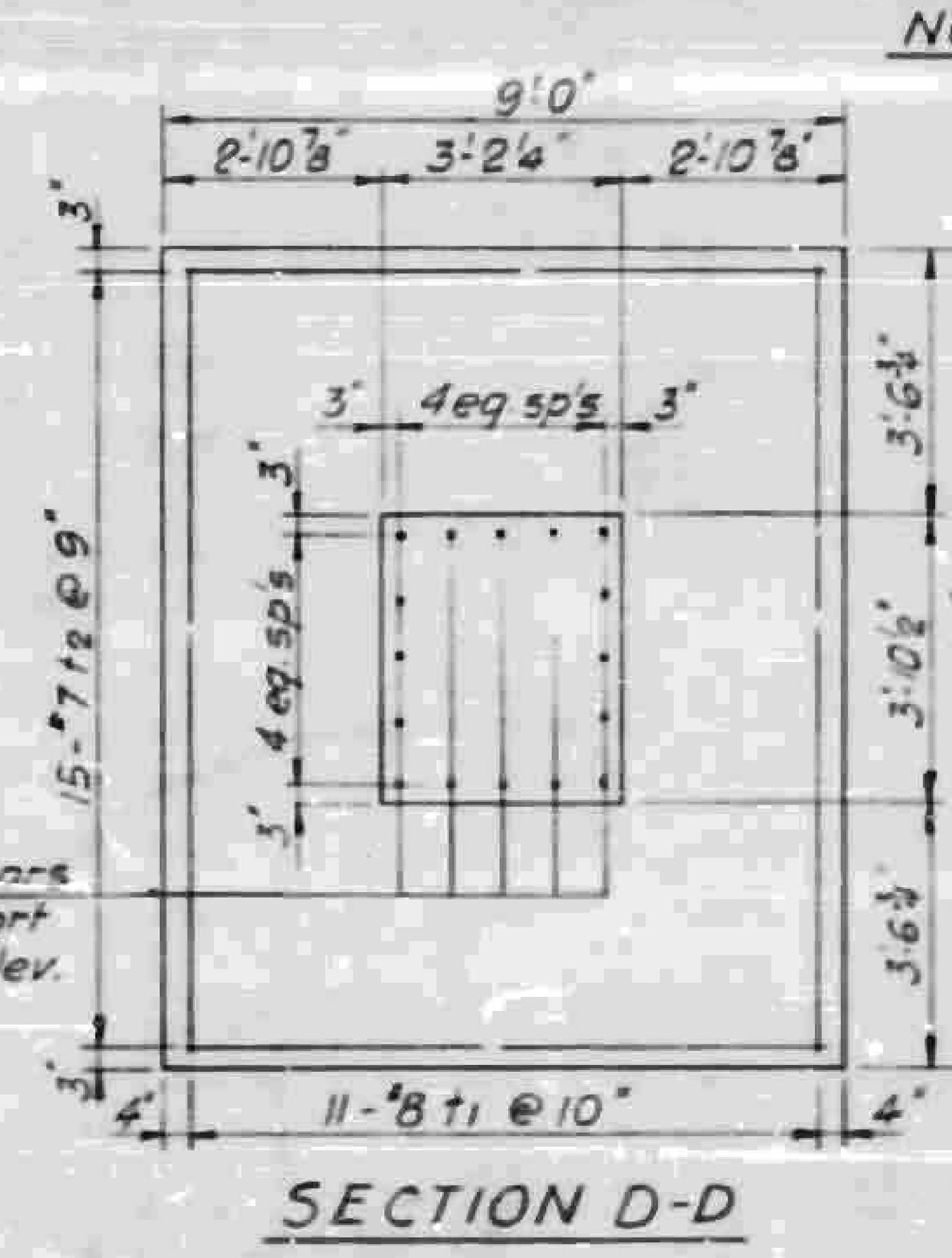
STATE HIGHWAY COMMISSION

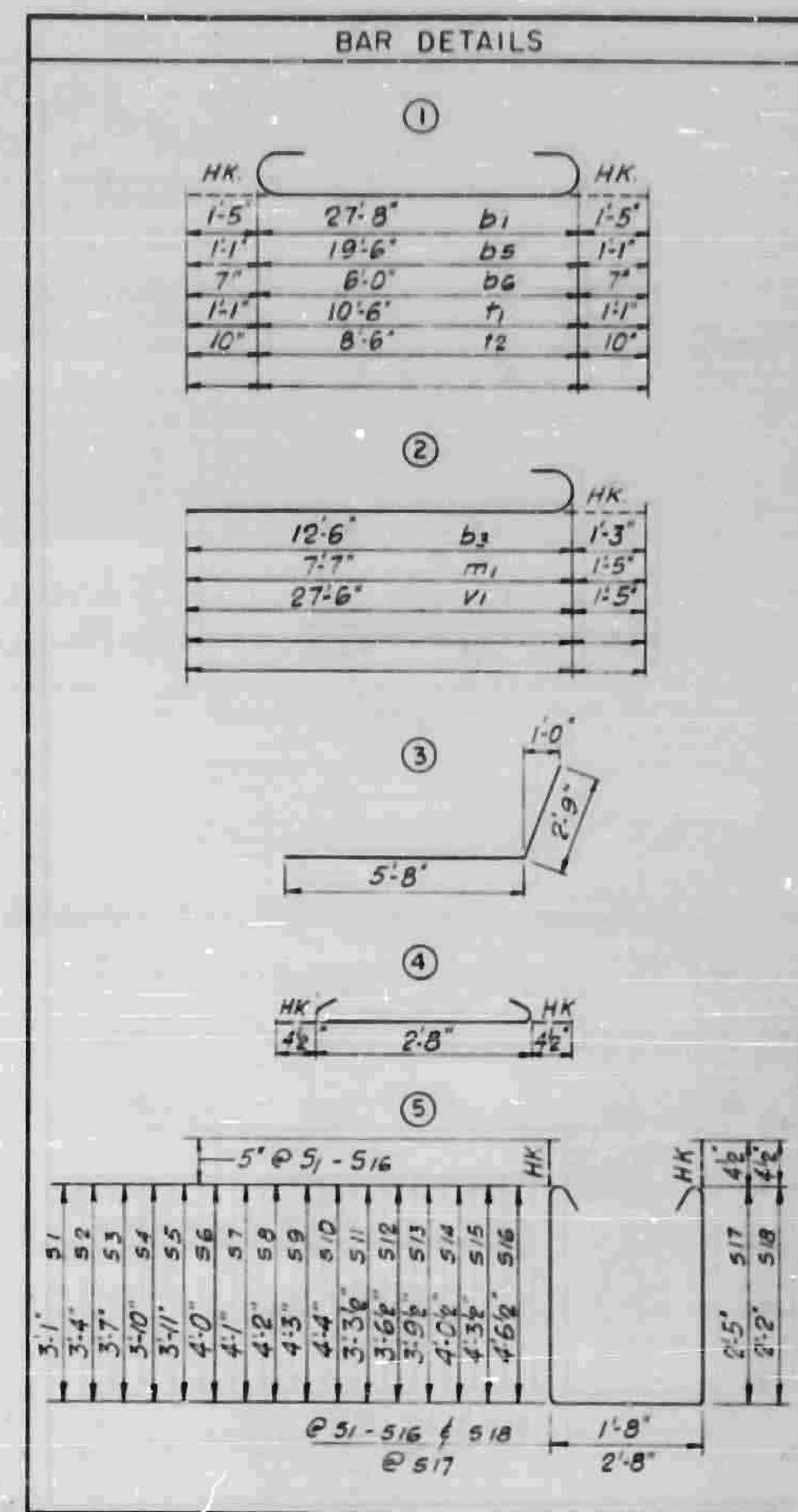
RALEIGH

STRUCTURAL STEEL

REVISIONS







BILL OF MATERIAL

for one bent, 2 required

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
b1	6	10	1	30-6	787
b2	2	8	Str	27-8	148
b3	8	9	2	13-9	374
b4	6	5	3	8-5	53
b5	8	8	1	21-8	463
b6	12	5	1	7-2	90
m1	32	10	2	9-0	1239
s1	1	5	5	8-8	9
s2	2			9-2	19
s3	2			9-8	20
s4	2			10-2	21
s5	2			10-4	22
s6	2			10-6	22
s7	2			10-8	22
s8	2			10-10	23
s9	2			11-0	23
s10	2			11-2	23
s11	2			9-1	19
s12	2			9-7	20
s13	2			10-1	21
s14	2			10-7	22
s15	2			11-1	23
s16	2	5		11-7	24
s17	14	4		8-3	77
s18	12	4	5	6-9	54
s19	16	4	4	3-5	37
t1	22	8	1	12-8	744
t2	30	7	1	10-2	623
v1	16	10	2	28-11	1991
v2	16	10	Str	16-7	1142

Bent 1 S.B.			7811
Reinforcing Steel		Lbs	~~8155~~
Class A Concrete		Cu. Yds.	~~45.3~~
			42.81
Bent 2 N.B.			7983
Reinforcing Steel		Lbs	8155
Class A Concrete		Cu. Yds.	~~45.3~~
			43.60

NOTE: All bar dimensions are out to out. Reinforcing in top of cap may be shifted as necessary to clear Anchor Bolts.

PROJECT NO. 8.19002
HENDERSON-BUNCOMBE COUNTY
STATION 1499+55 L

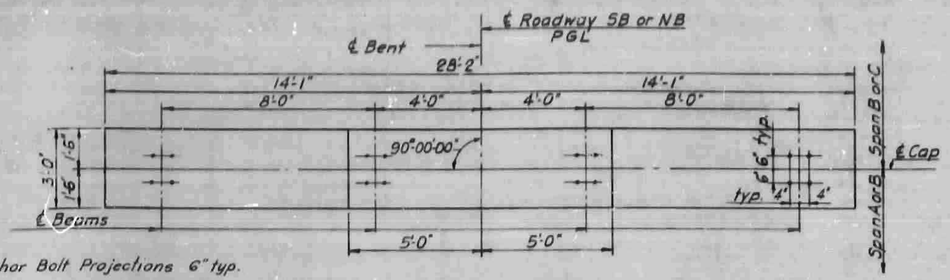
STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

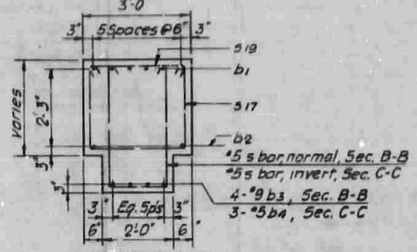
BENTS 1 S.B. & 2 N.B.

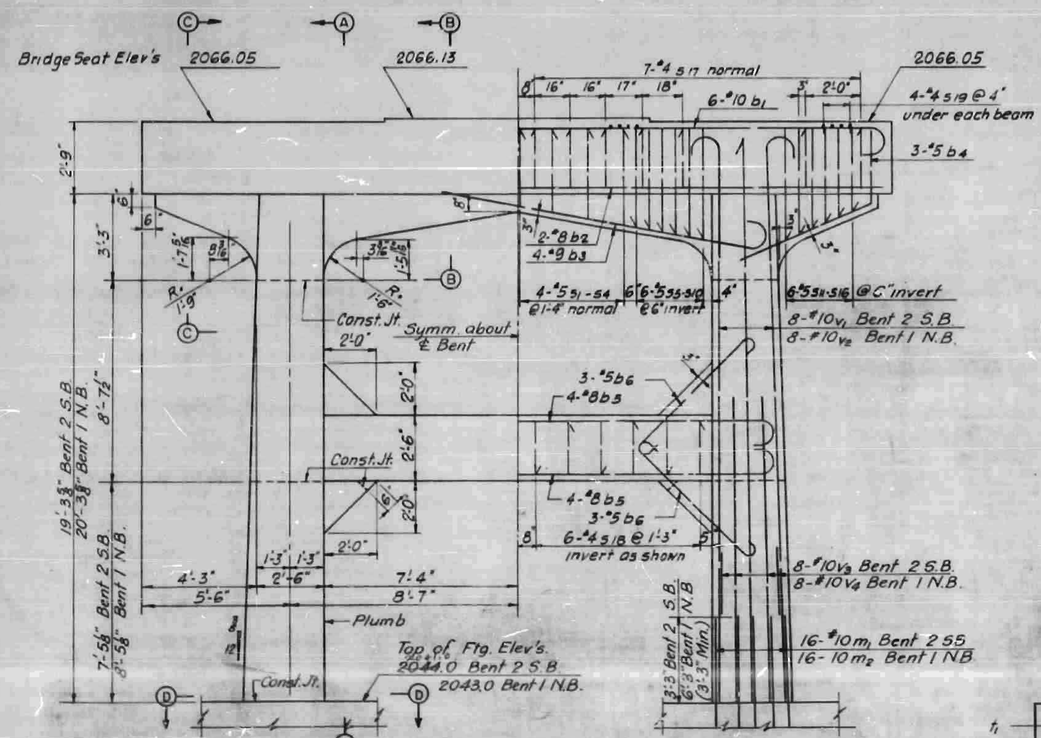
STATE	PROJECT NO.
N.C.	8.19002

FED. AID PROJ. I-26-1(10)6

SHEET S22







FED. ROAD DIST. NO.	STATE	PROJECT NO.
8	N.C.	8.19002
FED. AID PROJ. I-26-1(10)6		

BILL OF MATERIAL

for one bent, 2 required

	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
	b1	6	10	1	30-6	787
	b2	2	8	Str	27-8	148
	b3	8	9	2	13-9	374
	b4	6	5	3	8-5	53
	b5	8	8	1	21-8	463
	b6	12	5	1	7-2	90
Bent 2SB	m1	32	10	2	6-6	895
Bent 1NB	m2	32	10	2	9-0	1239
	s1	1	5	5	8-8	9
	s2	2			9-2	19
	s3	2			9-8	20
	s4	2			10-2	21
	s5	2			10-4	22
	s6	2			10-6	22
	s7	2			10-8	22
	s8	2			10-10	23
	s9	2			11-0	23
	s10	2			11-2	23
	s11	2			9-1	19
	s12	2			9-7	20
	s13	2			10-1	21
	s14	2			10-7	22
	s15	2			11-1	23
	s16	2	5		11-7	24
	s17	14	4		8-3	77
	s18	12	4	5	6-9	54
	s19	16	4	4	3-5	37
Bent 2SB	t1	46	7	1	9-2	862
" 1NB	t2	22	7	1	10-2	457
" 1NB	t3	34	5	1	7-8	272
" 2SB	v1	16	10	2	22-11	1578
Bent 1NB	v2	16	10	2	23-11	1647
" 2SB	V3	16	10	Str.	10-7	729
" 1N.B.	V4	16	10	Str.	11-7	797

Bent 2 S.B.		6864
Reinforcing Steel	Lbs	~~6400~~
Class A Concrete	Cu. Yds.	~~35.2~~
~~12BP53 Steel Piles~~	~~No.~~	~~14~~
~~12BP53 Steel Piles~~	~~Lin. Ft~~	~~166~~
Bent 1 N.B.		
Reinforcing Steel	Lbs	6828
Class A Concrete	Cu. Yds.	~~35.5~~
		35.69

NOTE: All bar dimensions are out to out.
Reinforcing in top of cap may be
shifted as necessary to clear Anchor Bolts.

PROJECT NO. 8.19002

HENDERSON-BUNCOMBE COUNTY

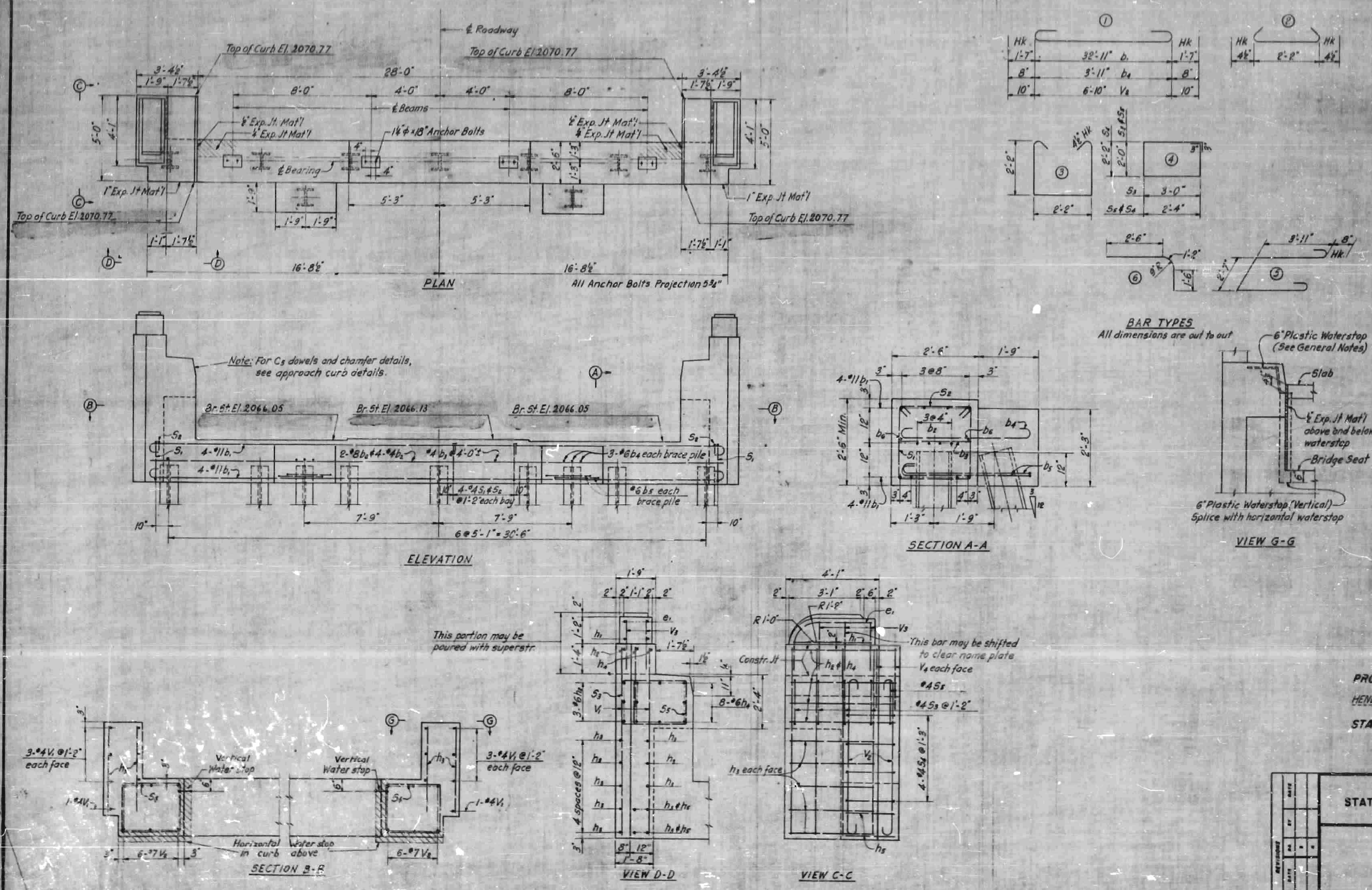
STATION 1499 + 55 L

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

BENTS 1 N.B. & 2 S.B.

REVISIONS | BY | DATE

SHEET NO. 523117
87208



FED AID PROJ I-26-1(10)

BILL OF MATERIAL					
FOR ONE END BENT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
b_1	8	#11	1	36'-1"	1534
b_2	4	#4	Str.	32'-11"	88
b_3	9	#4	Str.	2'-2"	13
b_4	6	#6	1	5'-3"	47
b_5	4	#6	5	11'-9"	71
b_6	2	#8	Str.	32'-11"	176
e_1	4	#4	6	5'-2"	14
h_1	4	#4	Str.	3'-5"	9
h_2	8	#6	Str.	3'-9"	45
h_3	20	#4	Str.	3'-9"	50
h_4	20	#6	Str.	4'-8"	161
h_5	4	#4	Str.	2'-3"	6
S_1	26	#4	3	7'-3"	126
S_2	26	#4	2	2'-11"	51
S_3	8	#4	4	10'-6"	56
S_4	8	#4	4	9'-6"	51
S_5	2	#4	4	9'-2"	12
V_1	14	#4	Str.	8'-2"	76
V_2	12	#7	1	8'-6"	208
V_3	12	#4	Str.	2'-3"	18
V_4	8	#4	Str.	2'-6"	13
Total Quantities for one End Bent:					
Reinforcing Steel				lbs.	2805
Class "A" Concrete*				cu. yds.	16.0
12 BP 53 Steel Piles				no.	9
12 BP 53 Steel Piles				lin. ft.	270
Total Quantities for 4 End Bents:					
Reinforcing Steel				lbs.	11,220
Class "A" Concrete*				cu. yds.	64.0
12 BP 53 Steel Piles				no.	36
12 BP 53 Steel Piles				lin. ft.	927.64

*Concrete displaced by pile heads has been deducted.

PROJECT NO. 8.19002

HENDERSON-BUNCOMBE COUNTY

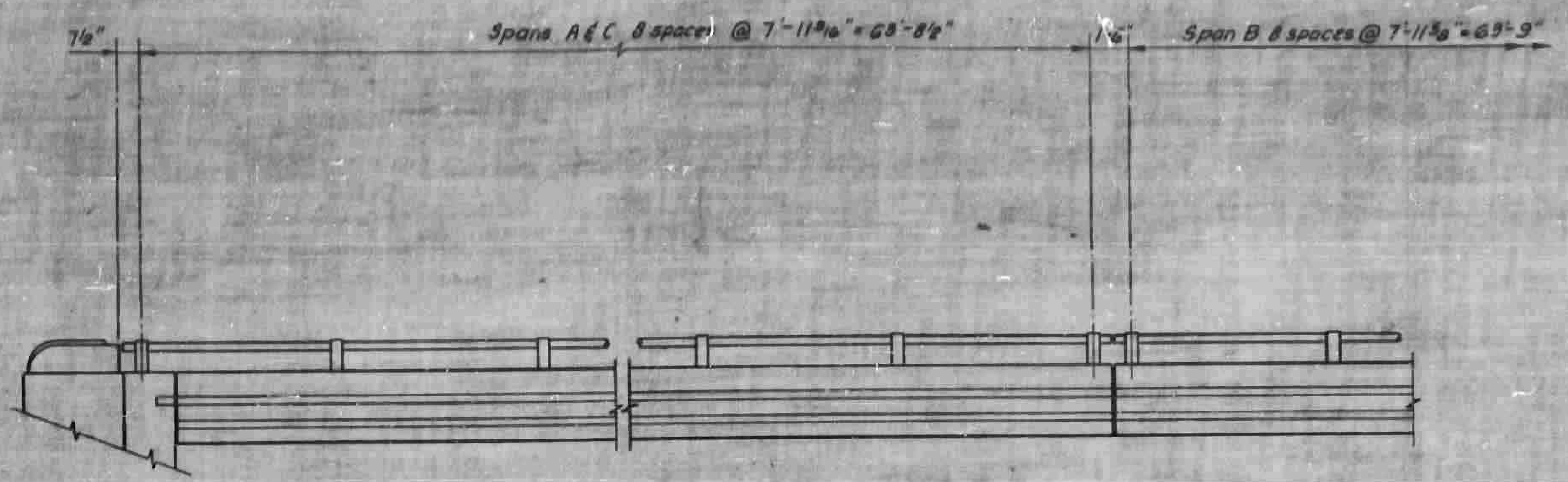
STATION 1499+55L

S.B. or N.B. BRIDGE

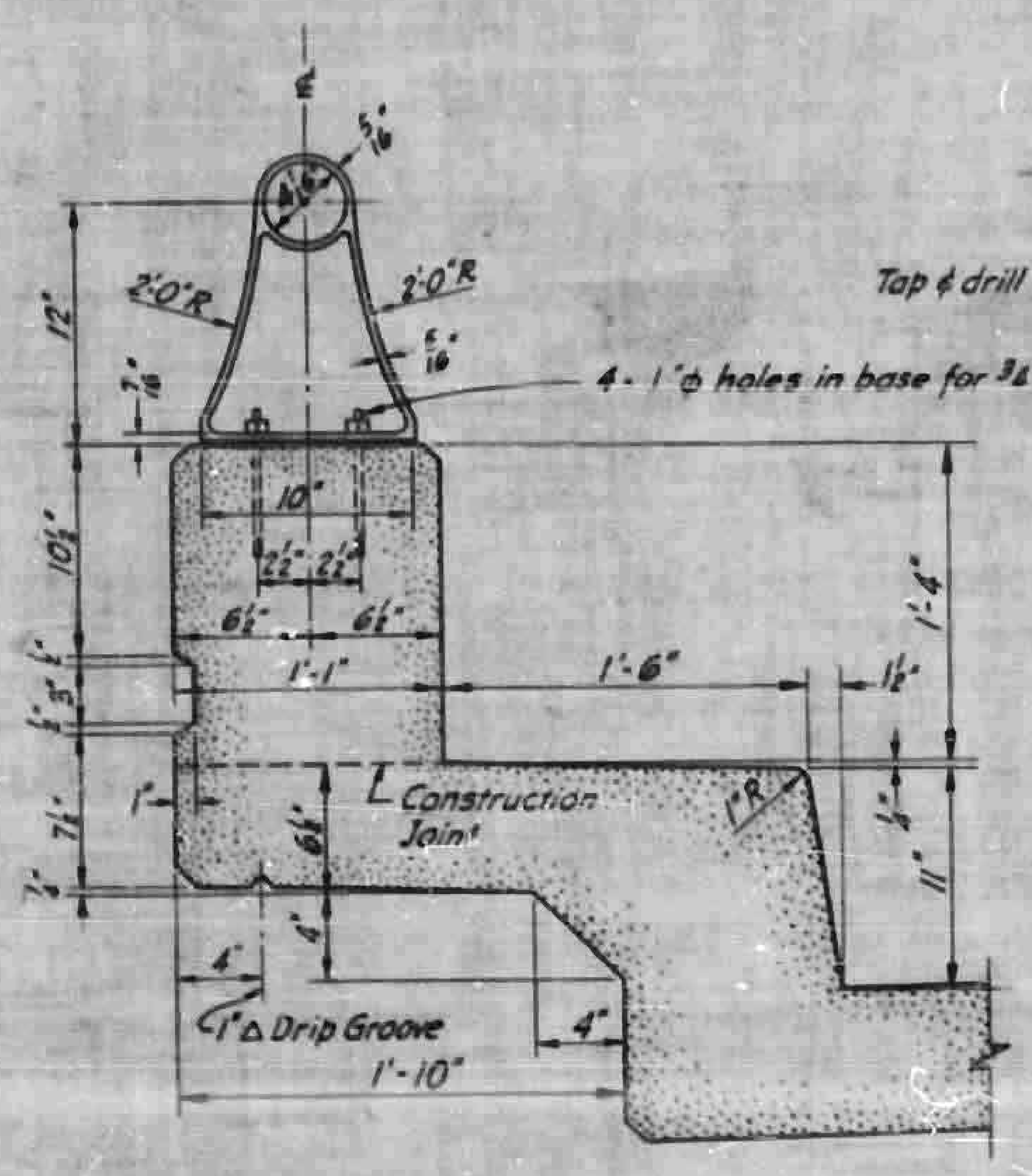
STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

END BENTS

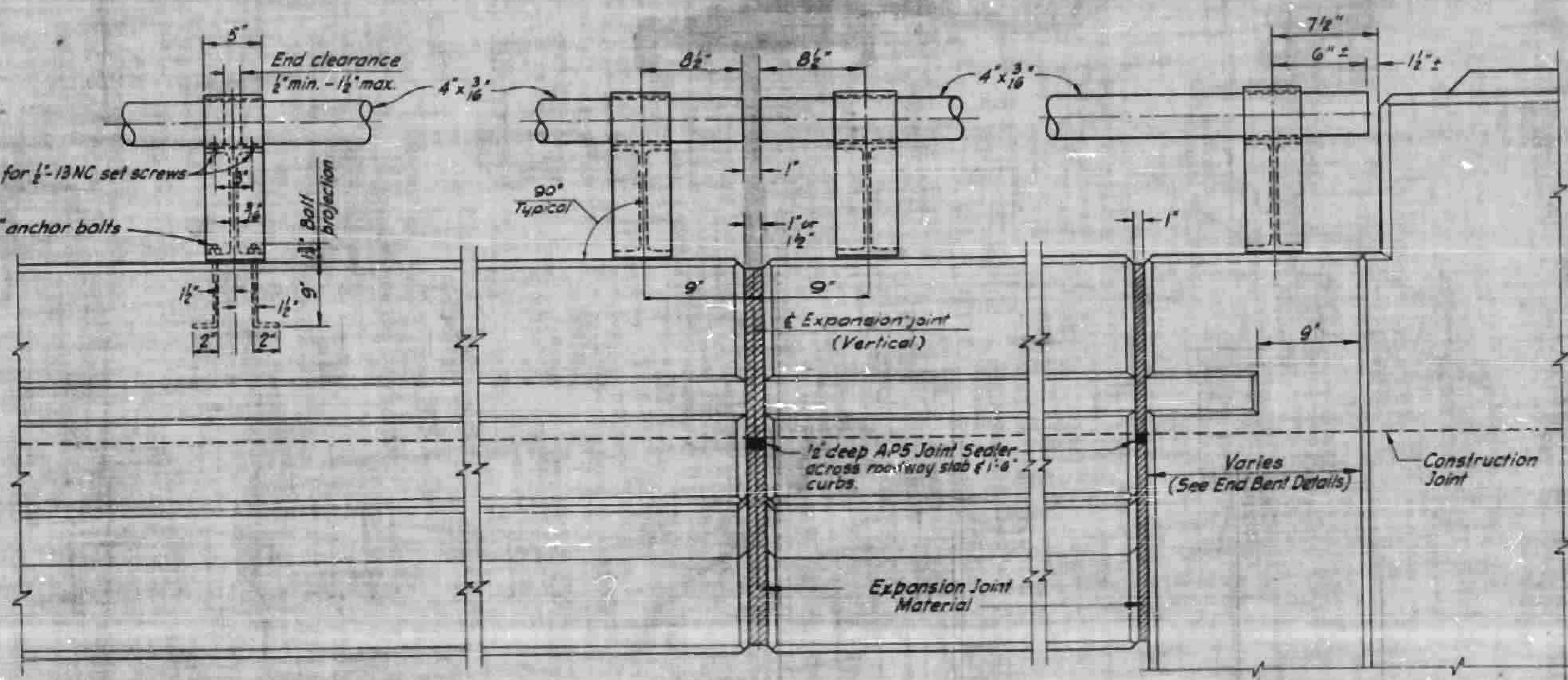
FED. AID PROJ. I-26-1(10)6



PARAPET AND RAILING ELEVATION



TYPICAL SECTION



ELEVATION

JOINT DETAILS AT BENTS

JOINT DETAILS AT END BENTS

NOTES:

Unless noted on the plans, maximum length section to be two panels plus stick thru.

End of rail to clear face of concrete End Post by 1 1/2".

For double panel runs of rail, set screws shall be set tight at center post and snug at ends to allow for expansion.

For single panel runs, set screws shall be set tight at one end and snug at the other.

3/4" ⌀ Anchor Bolts - hex. nuts and washers are steel galvanized in accordance with ASTM A-153 and painted with 2 coats of aluminum paint after erection.

Cast posts to be as shown or an approved equal.

Certified Mill reports are required for rails and posts. Shop inspection is not required.

Metal Rail Posts to be set normal to curb grade

Method of measurement for Metal Rails:
Unless otherwise stated, the length of Metal rails to be paid for shall be the continuous horizontal length measured from end to end of rail, excepting concrete posts, but without deductions for spaces between rail sections.

PARAPET AND RAILING DETAILS

At the Contractors option metal rail may be either Aluminum or Galvanized Steel in accordance with the requirements of the general notes and the following specifications for the alternate materials; however, the Contractor will be required to use the same rail material on all structures on the project for which metal rail is designated.

ALUMINUM RAILS

Aluminum alloys are to be as follows:

Cast Rail Posts	A356-T6
Round Tubular Rail	6061-T6 or 6062-T6
Set Screws	2024-T4
Closure Plates	6061-T6 or 6062-T6

Round Tubular Rails are to be of 4" O.D. with a 1/8" minimum wall thickness.

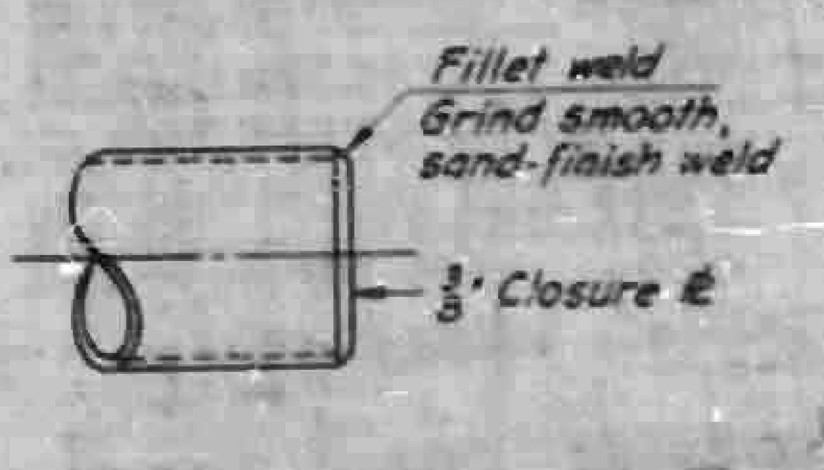
The base of rail posts, or any other aluminum surface in contact with concrete shall be thoroughly coated with an aluminum impregnated caulking compound of approved quality.

GALVANIZED STEEL RAIL

Material and galvanizing are to conform to the following specifications:

Cast Rail Post	Malleable cast Iron, ASTM A47 Grade 35018, Galvanized to ASTM A123. or Cast Steel, AASHO M192-60 Class 70. Galvanized to ASTM A-123.
4" O.D. Rail	Standard 3 1/2" Galvanized Steel Pipe, ASTM A-53
Closure Plates & Shims	Steel, ASTM A-285 Grade C, Galvanized to ASTM A-123.
Set Screws	Standard Steel Cap Screws, Galvanized to ASTM A-153

The cut ends of galvanized pipe railing, the end closure plate weld after grinding smooth and areas adjacent to the weld where spelter coating has been burned by welding shall be thoroughly cleaned by wire brushing to remove all traces of welding flux and loose or cracked spelter after which these cleaned areas shall be given two coats of Zinc paint meeting the requirements of Federal Specification MIL-P26915 (USAF) Type I.



DETAIL END CLOSURE

Note: Aluminum posts are to be furnished with test coupons attached and are to be in accordance with the requirements of AASHO Specification M 193-60.

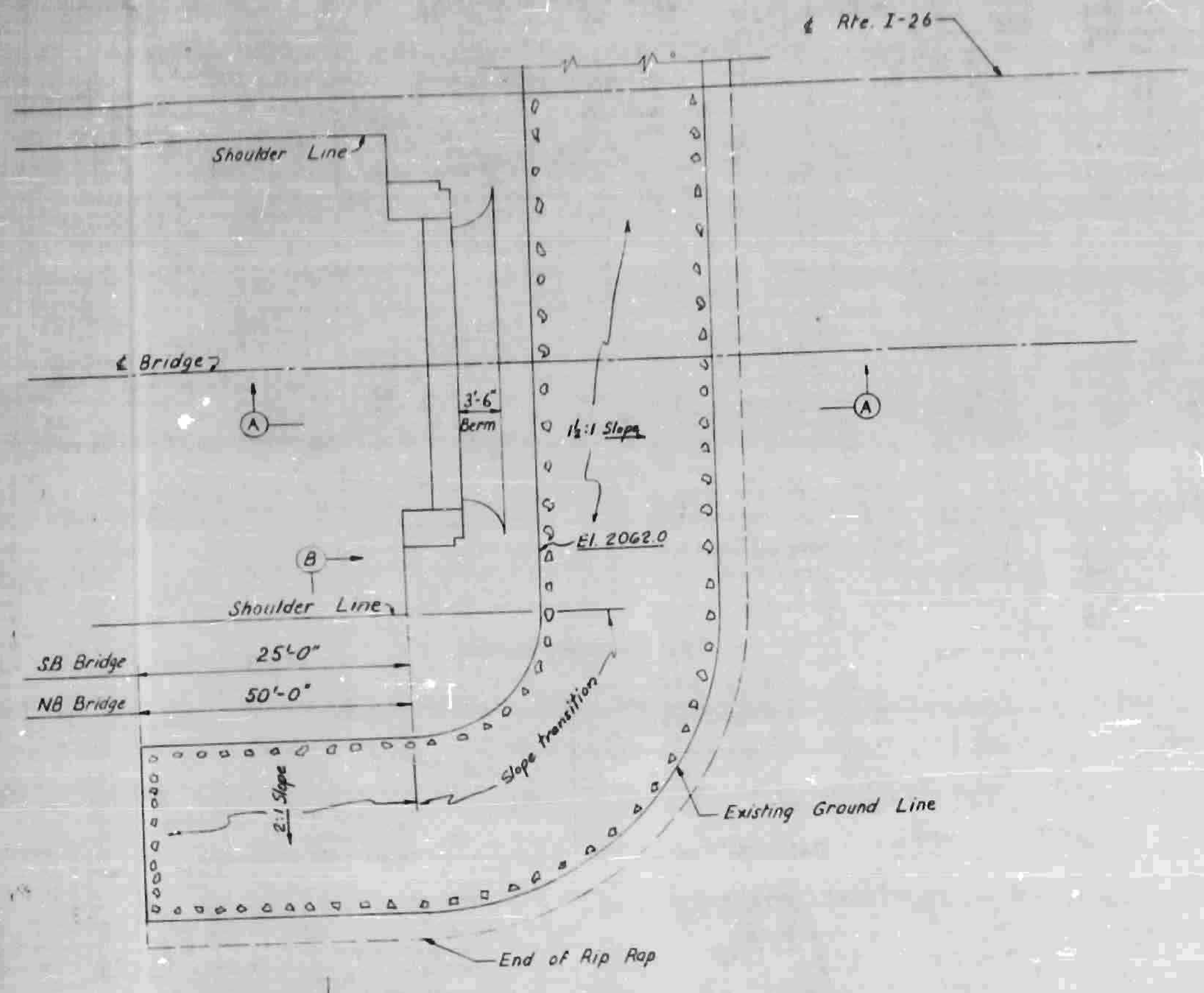
PROJECT NO. 8.19002
HENDERSON-BUNCOMBE COUNTY
STATION 1493+55 L
N.B. or S.B. BRIDGE

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

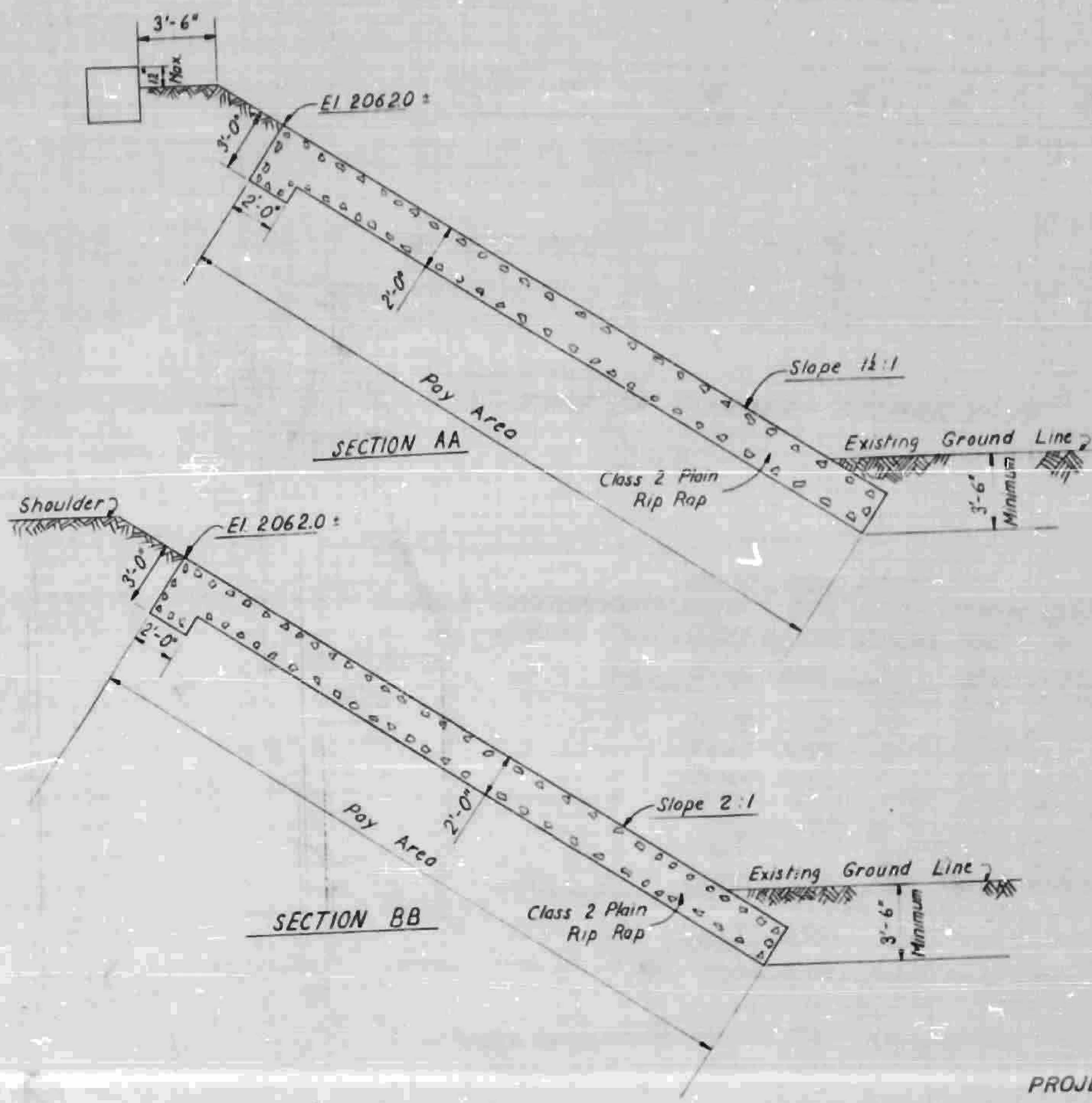
PARAPET AND RAILING DETAILS

Fed. Road Dist. No.	State	Project No.
	N. C.	8.19002

Fed Aid Proj I-26-1(18)



PLAN AT END BENT 1 NB ROADWAY
similar at other end bents



PROJECT NO. 8.19002
HENDERSON-BUNCOMBE COUNTY
STATION 1499+55 L
NB & SB Bridge

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

RIP-RAP DETAILS