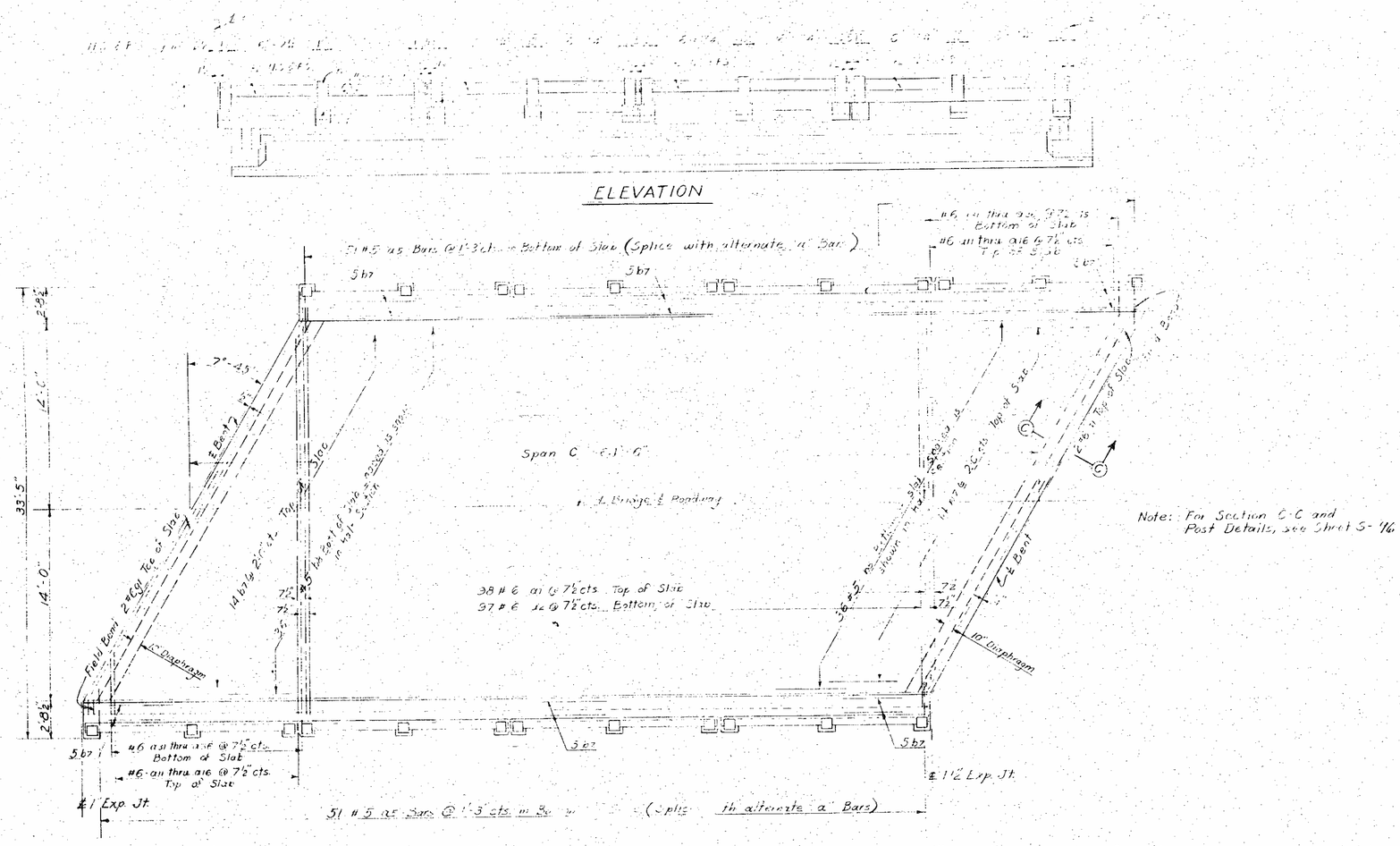
FED. ROAD REGION	STATE	PROJECT NO.
3	N. C.	8.17374

F. A. PROJECT F-111(17)

48 271



PROJECT NO. 8.17374

FORSYTH **COUNTY**

STATION: 371+17.69

SPAN "C"

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

PRESTRESSED CONCRETE GIRDERS
SUPERSTRUCTURE
WITH R.C. FLOOR & RAIL
1 @ 64'-6" SPAN
28' ROADWAY 7°-45' L.H. SKEW
MAY, 1961

REVISIONS

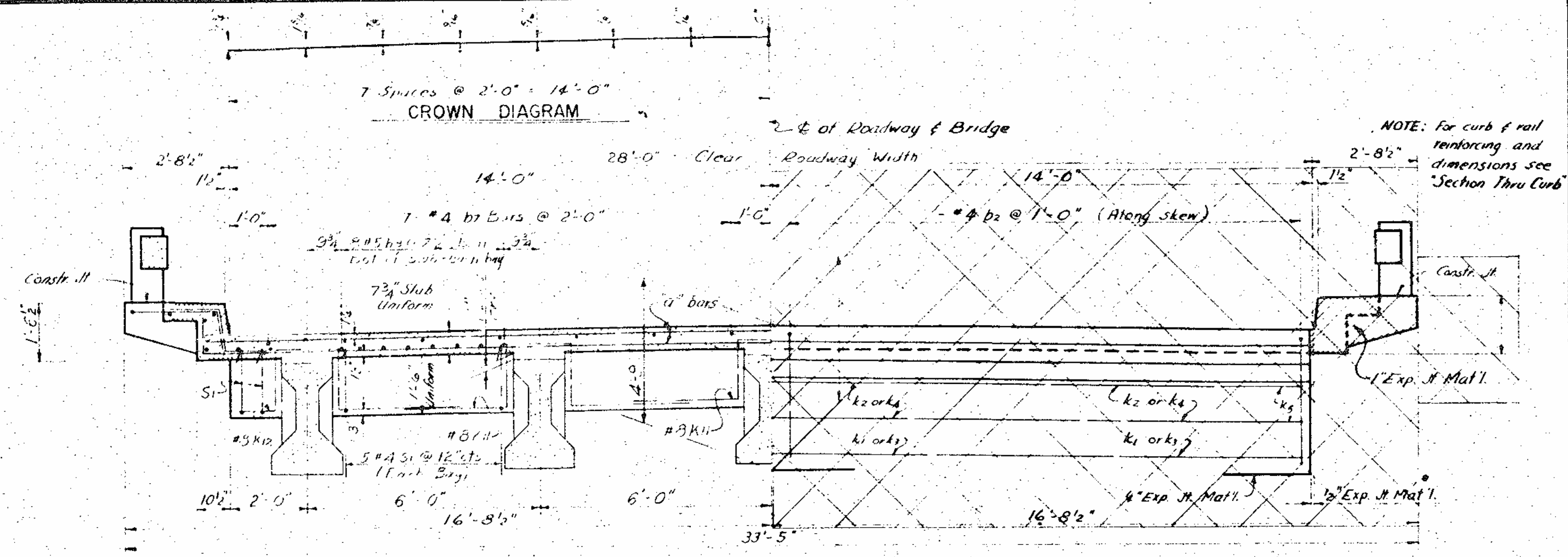
NO.	BY	DATE	NO.	BY	DATE

SHEET NO. S-4
TOTAL SHEETS 83

DRAWN BY Stan H. Mathis DATE May, 1961
CHECKED BY J. L. Hackney DATE

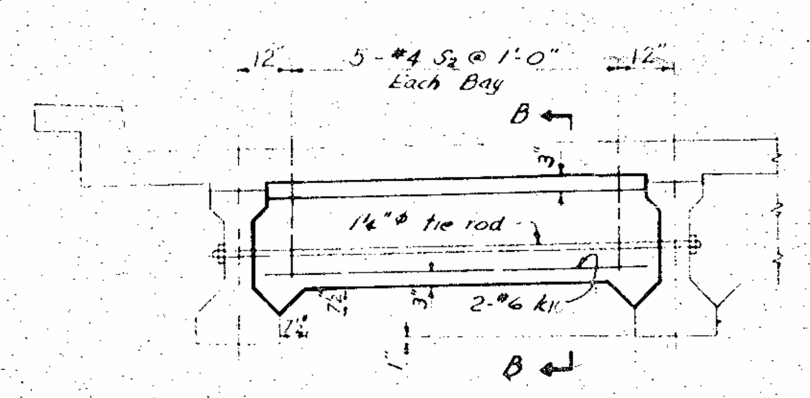
N.C. 8.17374 F.A. Proj. F-111 (17) 271

8.17374
COUNTY
... 17.69
...ROLINA
...COMMISSION
...TE GIRDERS
...RAIL
...SKEW
S-4
83

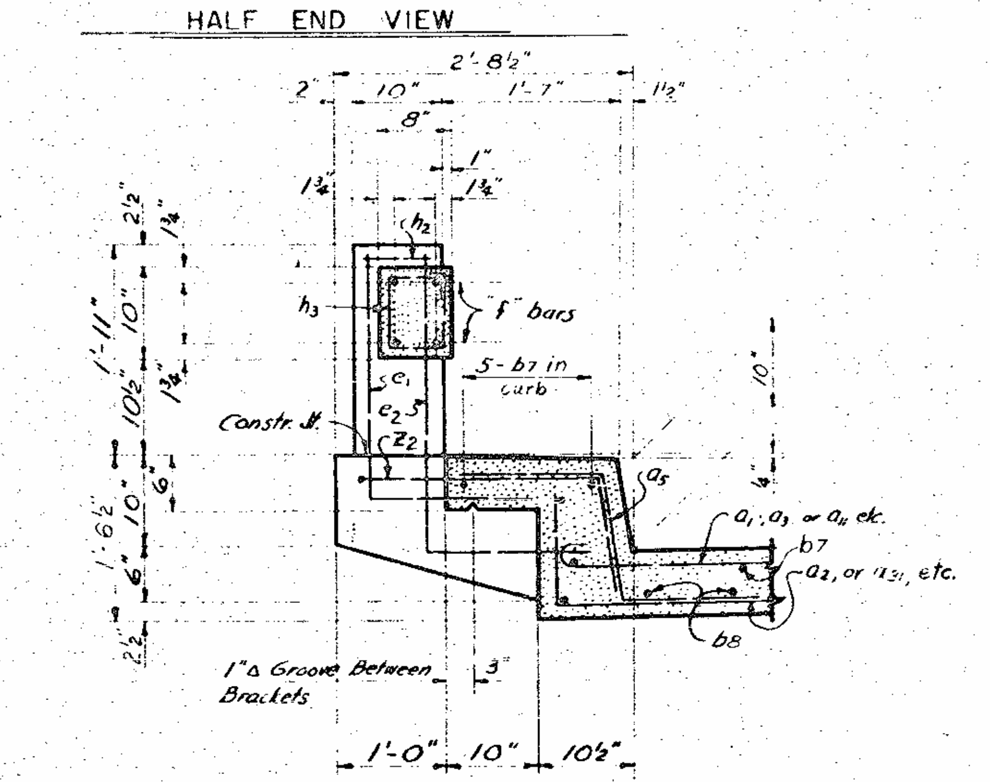


TYPICAL HALF SECTION

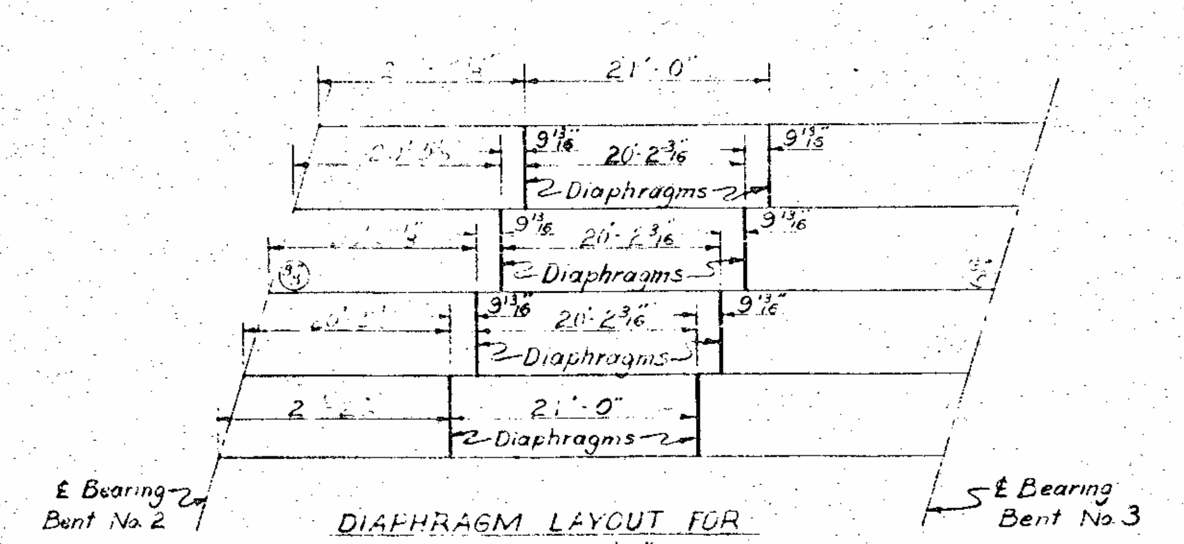
HALF END VIEW



MID SPAN DIAPHRAGM



SECTION THRU CURB

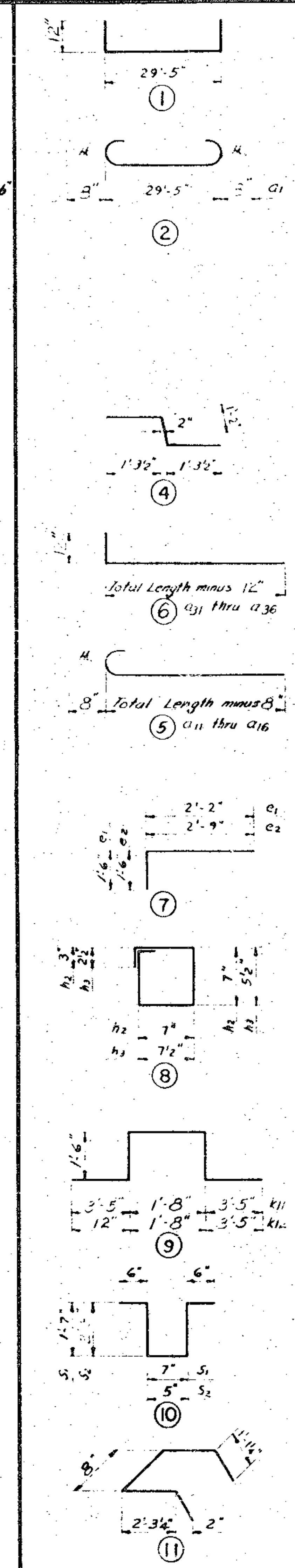


DIAPHRAGM LAYOUT FOR SPAN "C"

Fill Plates Shown ⑮

BEAM DEFLECTIONS

	INT	EXT
Girder alone in place	½ ↑	9/16 ↑
Deflection due to Superimposed D.L.	½ ↓	5/8 ↓
Final Deflection	0	1/16 ↓
Vertical Curve Ordinate	3/8	3/8



Bar dimensions are out to out.

BAR DETAILS

Fed. Road Dist. No.	State	Project No.
3	N.C.	8.17374

49 271 F.A. Proj. F-111 (17)

BILL OF MATERIAL FOR 1 SPAN @ 64'-5"

Bar	Nº	Size	Det'l	Length	Weight
a1	98	#6	2	30'-9"	4,526
a2	97	#6	1	31'-5"	4,577
a3	—	# —	3	—	—
a4	—	# —	2	—	—
a5	102	#5	4	3'-9"	393
a11	2	#6	5	26'-1"	78
a12	2	#6	5	21'-6"	65
a13	2	#6	5	16'-11"	51
a14	2	#6	5	12'-4"	37
a15	2	#6	5	7'-8"	23
a16	2	#6	5	3'-2"	10
a17	—	#	5	—	—
a18	—	#	5		—
a19	—	# —	5		—
a20	—	# —	5	—	—
a21	—	# —	5	—	—
a22	—	# —	5	—	—
a23	—	# —	5	—	—
a24	—	# —	5	—	—
a25	—	# —	5		
a31	2	#6	6	28'-6"	85
a32	2	#6	6	24'-1"	72
a33	2	#6	6	19'-6"	59
a34	2	#6	6	14'-11"	45
a35	2	#6	6	10'-4"	31
a36	2	#6	6	5'-9"	17
a37	—	# —	6	—	—
a38	—	# —	6	—	—
a39	—	# —	6	—	—
a40	—	# —	6	—	—
a41	—	# —	6	—	—
a42	—	# —	6	—	—
a43	—	#	6	—	—
a44	—	#	6	—	—
a45	—	# —	6	—	—

Bar	Nº	Size	Det'l	Length	Weight
b1	—	#4	Str.	—	—
b2	—	#4	7	—	—
b4	—	#4	Str.	—	—
b5	—	#4	Str.	—	—
b6	—	#4	Str.	—	—
b7	72	#4	Str.	22'-9"	1094
b8	72	#5	Str.	33'-0"	2478
e1	48	#4	7	3'-8"	118
e2	48	#4	7	4'-3"	136
f1	—	#4	Str.	—	—
f2	32	#4	Str.	15'-8"	335
f3	—	#4	Str.	—	—
g1	—	#6	*Str.	—	—
h2	24	#3	8	2'-10"	26
h3	128	#2	8	2'-7"	55
k1	—	#6	Str.	—	—
k2	—	#4	Str.	—	—
k3	—	#6	Str.	—	—
k4	—	#4	Str.	—	—
k5	—	#6	Str.	—	—
k10	16	#6	Str.	5'-1"	122
k11	12	#8	9	11'-6"	368
k12	8	#8	9	9'-1"	194
s1	48	#4	10	4'-9"	15[illegible]
s2	40	#4	10	6'-[illegible]	160
z2	24	#5	11	7'-5"	186

Reinforcing Steel 15,520 Lbs.
Class "A" Concrete 65.3 Cu. Yds.
Prestressed Concrete Beams (45") 5 = No. 320.83 = Lin. Ft.

*Field bend

PROJECT Nº 8.17374
FORSYTH COUNTY
STATION: 371 + 17.69

SPAN "C"

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

PRESTRESSED
TYPICAL SECTIONS
28' ROADWAY - 18" CURBS

NOVEMBER 1959

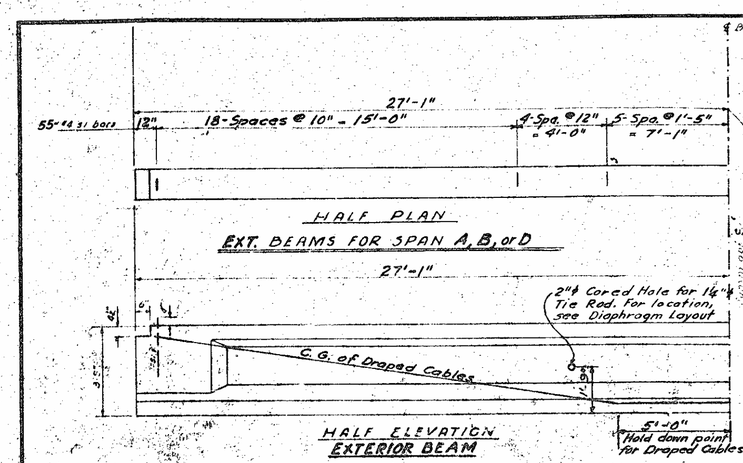
Sheet No. S-5
Total Sheets 83

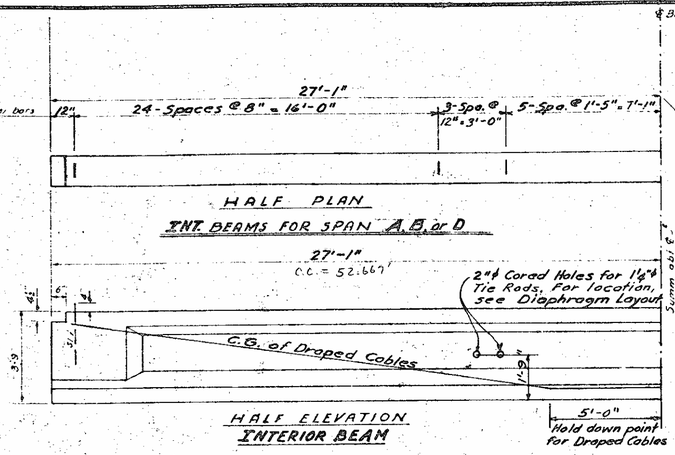
SPECIAL
Designed by
Drawn by Gerry Page — Date Nov. 1959
Assembled by Glen J. Marks — Date [illegible] 1961
Checked by J.L. Blackmon — Date May 1961

FED. ROAD DIST. NO.	STATE	PROJECT NO.
3	N. C.	B.17374

F.A. Proj. F-111 (1)

50 271





NOTE

All prestress strands to be "Stress Relieved Cables. Each cable to be prestressed at 18900 lbs.

250 STP

Cables to be cut off within 1" of end of beam.

No surface finish will be required for prestressed concrete beams. However the outside face of exterior beams shall be carefully cleaned of drippings and other discolorations.

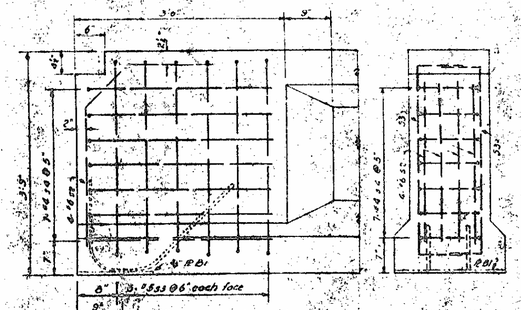
If cable stress is relieved by burning, the following order of burning shall be strictly adhered to:

(1) Bottom Cables 1-1
(2) Draped Cables 2-2
(3) Draped Cables 3-3
(4) Bottom Cables 4-4
(5) Draped Cables 5-5
(6) Top Cables 6-6
(7) Release Hold Downs

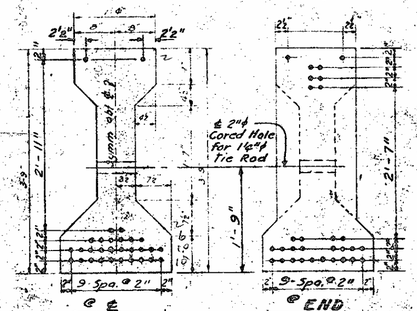
} Interior Beam (Ext. Bm. similar.)

Each pair of cables 1-1 thru 16-16 shall be burned at ends of bed and between all girders before burning any of the next pair of cables.

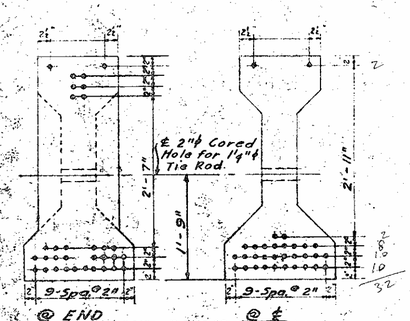
SECTION SHOWING PATTERN FOR BURNING CABLES See Specifications and Errata Sheets.



END BLOCK DETAIL

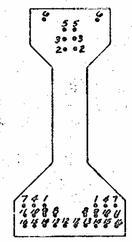


EXT. BEAM



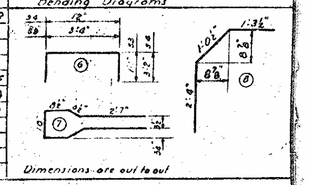
INT. BEAM

PRESTRESS CABLE LAYOUT

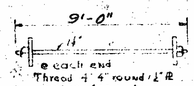


	Bar	No.	Size	Type	Length	Weight
Int. Beam	S1	65	#4	7	8'-6"	369
Ext. Beam	S1	55	#4	7	8'-6"	312
Beam	S1		#4	7	8'-6"	
Beam	S1		#4	7	8'-6"	
	S2	8	#6	8	9'-8"	56
	S3	24	#5	6	5'-6"	138
	S4	14	#4	6	7'-0"	69

Bending Diagrams



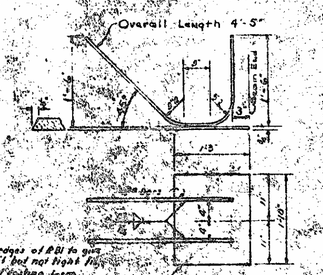
Dimensions are out to out



@ each end
Thread 4" 4" round 1/2" R washer - hex nut

14" TIE ROD

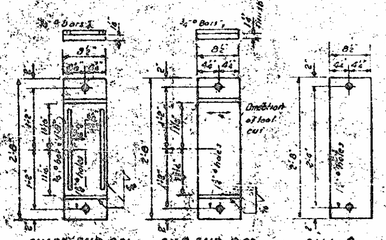
Required 18 Complete assemblies as detailed



EMBEDDED R B1

Required 2 each beam

OPTION 1

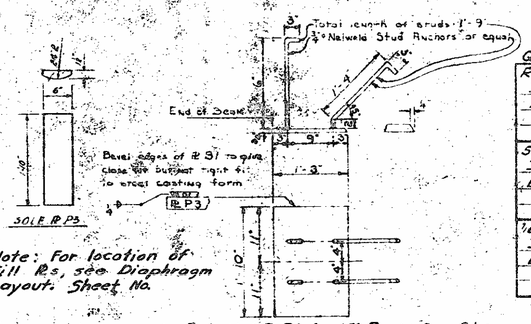


FIXED END R P1 EXP. END R P2 FILL R

BEARING PLATE DETAIL

Each beam requires 1 Fixed End R P1
1 Exp. End R P2
2 Sole R's P3
4 - 1½" x 15" Anchor bolts w/hex nuts

Note: For location of Fill R's, see Diaphragm Layout. Sheet No.



Embedded R B1 for 45" Prestr. Conc. Gdrs.

Required 2 each beam

OPTION 2

Note: The contractor may select Option 1 or 2 for Embedded R B1

Rev. 2 To show options on Embedded R B1

QUANTITIES ONE (1) BEAM

Reinforcing Steel			
Int.	Beam	632	lbs
Ext.	Beam	575	lbs
	Beam		lbs
	Beam		lbs
5000 psi Concrete			
Int.	Beam	8.19	CY
Ext.	Beam	8.19	CY
	Beam		CY
	Beam		CY
1/6 S.R. Cables			
Int.	Beam	32	No.
Ext.	Beam	30	No.
	Beam		No.
	Beam		No.

BEAMS REQUIRED

12	@ 54'-2"	length	650	LF
	@	length		LF
	@	length		LF
	@	length		LF

PROJECT NO. B.17374
FORSYTH COUNTY
STATION: 371 + 17.69

INT. & EXT. BEAMS
SPANS A-B-D

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

STANDARD
45" PRESTRESSED
CONCRETE BEAM

MAY 1958

REVISIONS	DATE

Assembly	DESIGNED BY	DATE
By B.S. Eng.	DRAWN BY Jon. Bacon	DATE Nov. 5-1958
Check	TRACED BY	DATE
Date	CHECKED BY Mark Underwood	DATE 4-1-1960

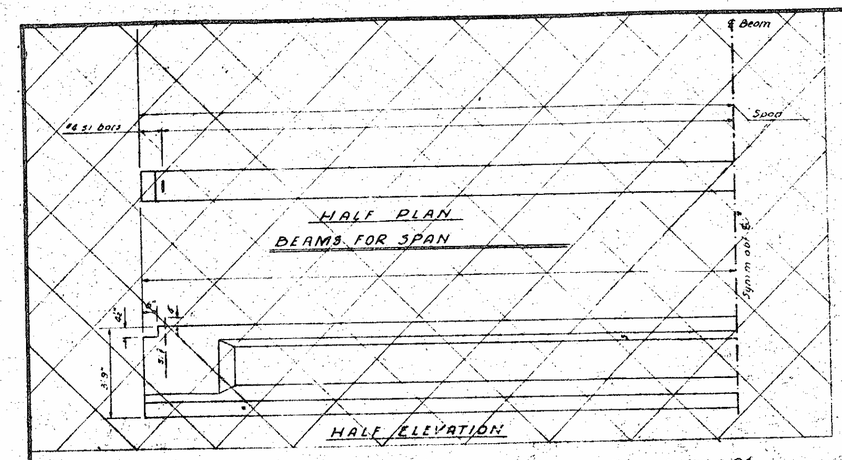
Revise to add notes and sketch regarding burning of cables, and to eliminate sheet lap. Jan. 6, 1960 J.R.W. ✓ BMW

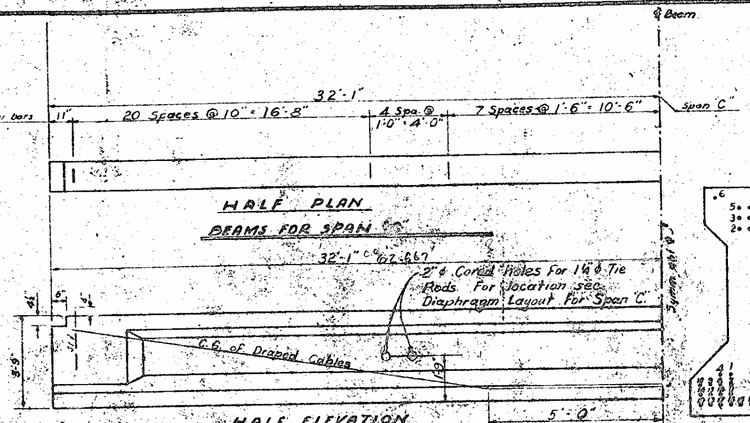
Sheet Ref.

FED. ROAD DIST. NO.	STATE	PROJECT NO.
3	N. C.	8.17374

F.A. Proj. F-111 (17)

51 271





NOTE

All prestress strands to be ½" Stress Relieved Cables. Each cable to be prestressed at 18900 lbs.

Cables to be cut off within 1" of end of beam.

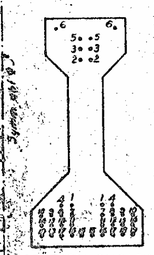
No surface finish will be required for prestressed concrete beams. However the outside face of exterior beams shall be carefully cleaned of drippings and other discolorations.

If cable stress is relieved by burning, the following order of burning shall be strictly adhered to:

(1) Bottom Cables 1-1
(2) Draped Cables 2-2
(3) Draped Cables 3-3
(4) Bottom Cables 4-4
(5) Draped Cables 5-5
(6) Top Cables 6-6
(7) Release Hold Downs

} Interior and Exterior Beams

Each pair of cables 1-1 thru 19-19 shall be burned at ends of bed and between all girders before burning any of the first pair of cables. See Specifications and Errata Sheets.

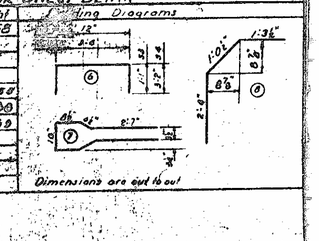


SECTION SHOWING PATTERN FOR BURNING CABLES

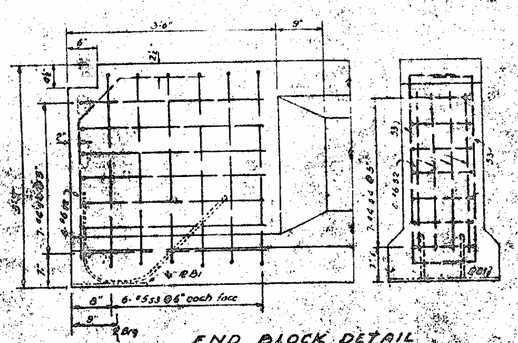
REINFORCING STEEL FOR ONE (1) BEAM

	Bar	No.	Size	Type	Length	Weight
Int. & Ext. Beam	31	63	#4	7	47'-6"	358
Beam	31		#4	7		
Beam	31		#4	7		
Beam	31		#4	7		
	32	8	#6	10		58
	33	24	#5	6		150
	34	14	#4	8		69

Bending Diagrams

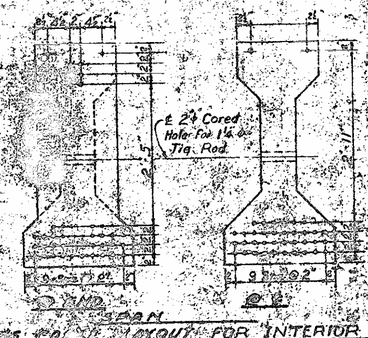


Dimensions are out to out

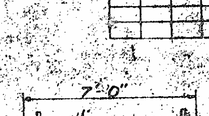


END BLOCK DETAIL

BEAM SECTION



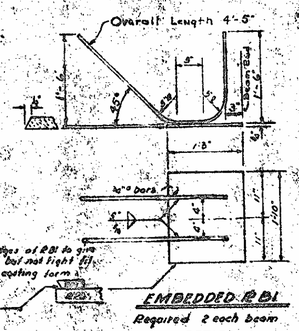
2ND SPAN
BEAMS ON LAYOUT FOR INTERIOR & EXTERIOR BEAMS

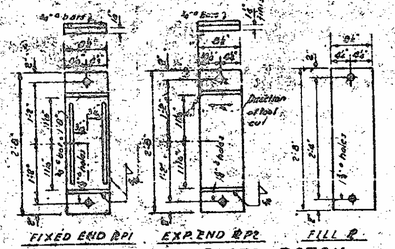


@ each end Thread 4'-4" round ½" ϕ washer, hex nut

1½" TIE ROD

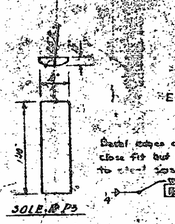
Required (A) Complete assemblies as detailed



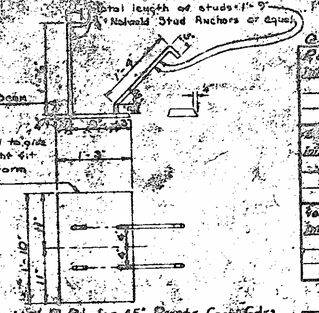


BEARING PLATE DETAIL

Each beam requires
1 Fixed End PB1
1 Exp. End PB2
2 Sole PS P3
4 - 1½" x 15" Anchor bolts w/hex. nuts



Note: For location of Fill Plates, see Diaphragm Layout.



Embedded PB1 for 45° Prestr. Conc. Girders

Required 2 each beam

Note: The contractor may select Option 1 or 2 for Embedded PB1

Provision to show options on Embedded PB1 required

QUANTITIES ONE (1) BEAM

Reinforcing Steel			
Int. & Ext.	Beam	621	lbs
	Beam		lbs
	Beam		lbs
	Beam		lbs
4,000 psi Concrete			
Int. & Ext.	Beam	9.63	CY
	Beam		CY
	Beam		CY
	Beam		CY
90" S.R. Cables			
Int. & Ext.	Beam	38	No.
	Beam		No.
	Beam		No.
	Beam		No.

BEAMS REQUIRED

5	@	6'-6"	Length 320.0	LF
	@		Length	LF
1	@		Length	LF
56	@		Length	LF

PROJECT NO. 8.17374
FORSYTH COUNTY
STATION: 371+17.69 ℄ Med.

SPAN "C"
INTERIOR AND EXTERIOR BEAMS

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

STANDARD
45" PRESTRESSED CONCRETE BEAM

MAY 1959

7

Assembly Group

Designed by		Date
Drawn by		Date May 2-1960
Checked by		Date
Approved by		Date July 1959

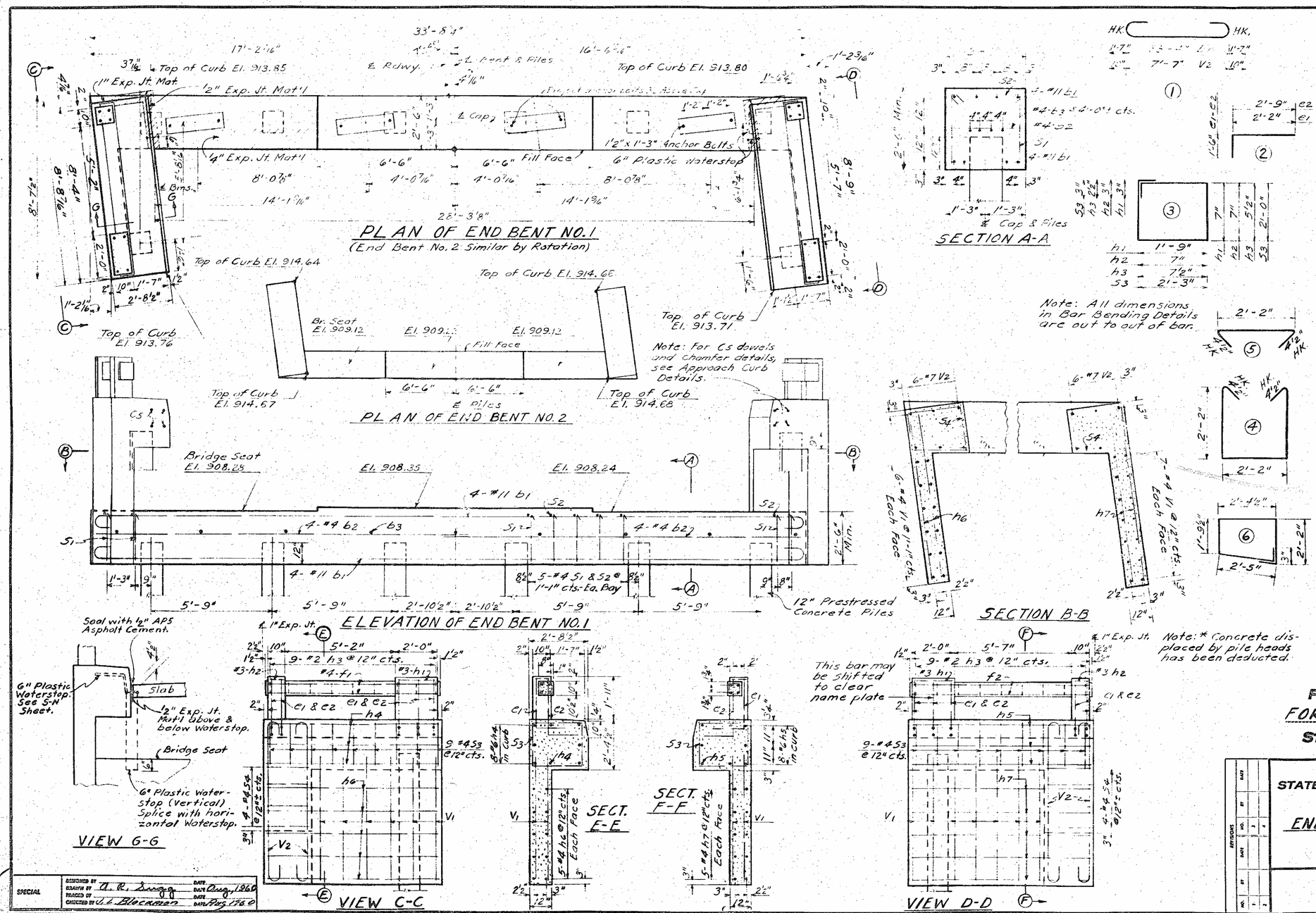
Revise to add notes and sketch regarding burning of cables. Sketch for Elevation Change. J.E.M. 5-2-1960 J.E.M.

FED. ROAD DIST. NO.	STATE	PROJECT NO.
3	N. C.	8.17374

F.A. Proj. F-111(17)

52 271

TWO REQUIRED



BILL OF MATERIAL

ONE END BENT

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
b1	8	#11	1	36'-6"	1551
b2	8	#4	Str.	17'-5"	93
b3	9	#4	Str.	2'-2"	13
c1	10	#4	2	3'-8"	24
c2	10	#4	2	4'-3"	28
f1	4	#4	Str.	8'-0"	21
f2	4	#4	Str.	8'-5"	22
h1	2	#3	3	5'-2"	4
h2	2	#3	3	2'-10"	2
h3	18	#2	3	2'-7"	8
S1	29	#4	4	7'-3"	140
S2	29	#4	5	2'-11"	57
S3	18	#4	3	9'-0"	108
S4	8	#4	6	9'-3"	49
V1	26	#4	Str.	7'-7"	132
V2	12	#7	1	9'-3"	227
h4	8	#6	Str.	8'-0"	96
h5	8	#6	Str.	8'-5"	101
h6	10	#4	Str.	8'-0"	53
h7	10	#4	Str.	8'-5"	56

Reinforcing Steel, Lbs.: 2785
Class "A" Conc., Cu. Yds.: 16.4
12" Prestressed Conc. Piles:
No.: 8
Lin. Ft.: ~~216~~

E.B. No. 1	IN PLACE	188.78
	PAY CUT-OFF	27.22
	No. CUT	6
E.B. No. 2	IN PLACE	208.54
	PAY CUT-OFF	7.46
	No. CUT	4

PROJECT NO. 8.17374
FORSYTH COUNTY
STATION: 371+17.69
℄ Median

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

END BENTS #1 & #2

AUG., 1960

S-8
83

REVISIONS					
NO.	BY	DATE	NO.	BY	DATE

SPECIAL		
DESIGNED BY		DATE
DRAWN BY	A. R. Swagg	DATE Aug. 1960
TRACED BY		DATE
CHECKED BY	J. J. Blackburn	DATE Aug. 1960

COURTESY PHOTO PRINT & SUPPLY CO. GREENSBORO, N.C.