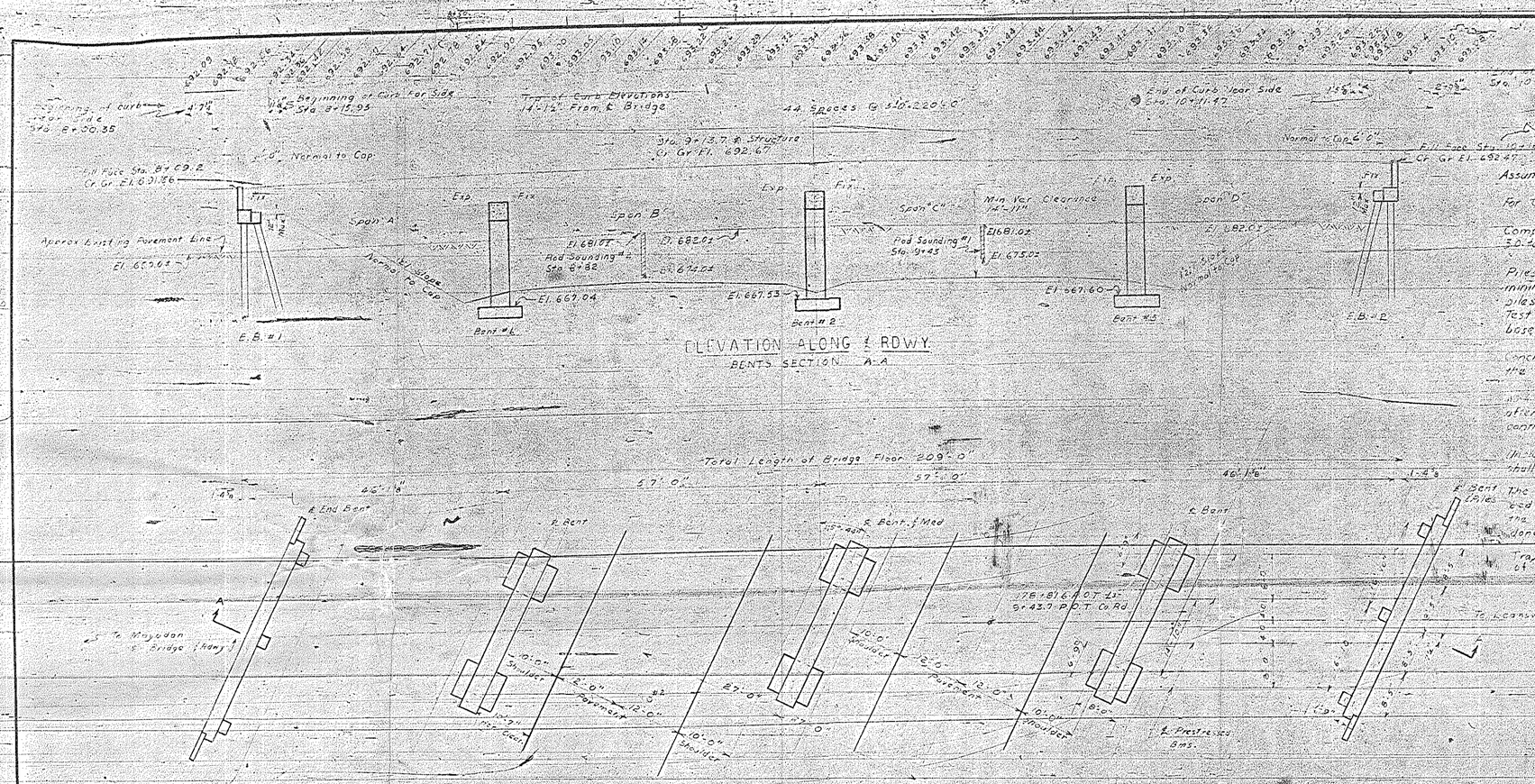
FED. ROAD DIV. NO.	STATE	PROJECT NO.
13	N. C.	6159.02

F.A. Proj. S-286(5)



GENERAL NOTES

Assumed Live Load (H15 S12 44)

For other design data and general notes see Sheet S.N.

Computed foundation load for bents #1, #2, and #3 equals 30 tons per square foot

Piles for end bents #1 and #2 shall be driven to a minimum bearing capacity of 30 tons each. End bent piles shall be driven through the roadway fill. Test piles will not be required. Order list to be based on piles 8 feet long.

Concrete surfaces shall be finished in accordance with the specifications.

Bent #3 will not be started on bent #2 or #3 until after roadway section has been excavated by the roadway contractor.

Minimum fixed structure elevation for bents #1, #2 and #3 shall be measured from surface of cut.

The existing pavement shall be removed and the road bed scarified to a minimum depth of 2.0 feet within the area of the end bent piles. This work shall be done by the roadway contractor.

Traffic shall be detoured over ramps during construction of this structure.

TOTAL BILL OF MATERIAL

	Class "A" Concrete Cu. Yds.	Reinforcing Steel Lbs.	Unclass. Str. Excavation Cu. Yds.	Prestressed Conc. Piles No.	Lin. Ft.	Prestressed Conc. Girders No.	Lin. Ft.
Superstructure	[illegible]	40,[illegible]					826.0
End Bent No. 1	31.1	2820		8	192		
Bent No. 1	36.7	5063	55				
Bent No. 2	36.7	5063	55				
Bent No. 3	36.7	5063	55				
End Bent No. 2	31.9	2820		8	192		
Approach Curb	32	74					
TOTAL	239.9	61,587	225	16	384		826.0

PROJECT No. 6159.02
ROCKINGHAM COUNTY
STATION: 178+81.6 POT Lt. 69+43.7 POT Co. Rd.

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

GENERAL DRAWING FOR BRIDGE OVER PROJECT ON COUNTY ROAD BETWEEN MAYODAN AND LEAKSVILLE APRIL 1958

REVISIONS | DATE | BY

SUBMITTED BY: ASSISTANT CHIEF ENGINEER - BRIDGES
APPROVED BY: CHIEF ENGINEER — DATE

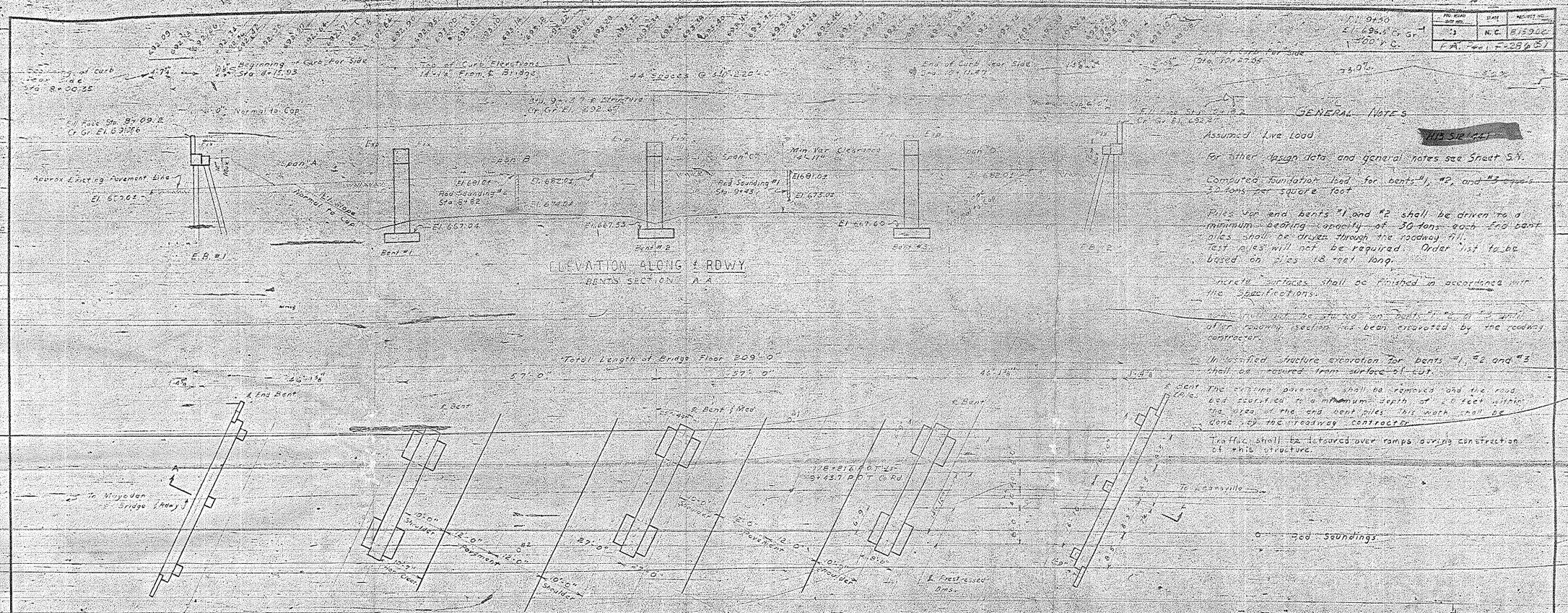
SHEET NO. S-26
TOTAL SHEETS

SPECIAL

DESIGNED BY: W. F. Dudley — DATE April-58
DRAWN BY — DATE
TRACED BY — DATE
CHECKED BY — DATE

Reel 715 135-51-20
Pos. 2
ROCKINGHAM

PROJ. REFERENCE NO.	STATE	PROJECT NO.
	N.C.	B-1590C
	F.A. Proj. F-28(B5)	



GENERAL NOTES

Assumed Live Load [redacted]

For other design data and general notes see Sheet S-1.

Computed foundation load for bents #1, #2, and #3 [illegible] tons per square foot.

Piles for end bents #1 and #2 shall be driven to a minimum bearing capacity of 30 tons each. End bent piles shall be driven through the roadway fill. Test piles will not be required. Order list to be based on piles 18 feet long.

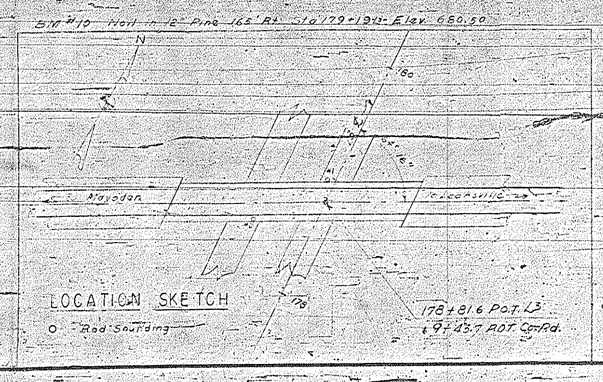
Neat lines surfaces shall be finished in accordance with the Specifications.

[illegible] shall not be started on [illegible] fill after roadway section has been excavated by the roadway contractor.

Unclassified structure excavation for bents #1, #2 and #3 shall be measured from surface of cut.

The existing pavement shall be removed and the roadway bed scarified to a minimum depth of 1.0 feet within the area of the end bent piles. This work shall be done by the roadway contractor.

Traffic shall be detoured over ramps during construction of this structure.



LOCATION SKETCH

○ Rod Soundings

178+81.6 P.O.T. L3
℄ 97+43.7 P.O.T. ℄ Rd.

TOTAL BILL OF MATERIAL

	Class A Concrete Cu. Yds.	Reinforcing Steel Lbs.	Unclass. Str. Excavation Cu. Yds.	Prestressed Conc. Piles No.	Lin. Ft.	45" Prestressed Conc. Girders No.	Lin. Ft.
Superstructure	200.0	40,150					820.0
End Bent No. 1	13.1	2,820		8	192		
Bent No. 1	36.7	5,063	4[illegible]				
Bent No. 2	36.7	5,063	5[illegible]				
Bent No. 3	36.7	5,063	5[illegible]				
End Bent No. 2	12.9	2,820		8	192		
Approach Curb	3.2	76					
TOTAL	339.9	61,587	[illegible]	16	384	76	820.0

PROJECT No. B-1590C

ROCKINGHAM **COUNTY**

STATION: 178+81.6 P.O.T. L3
97+43.7 P.O.T. ℄ Rd.

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

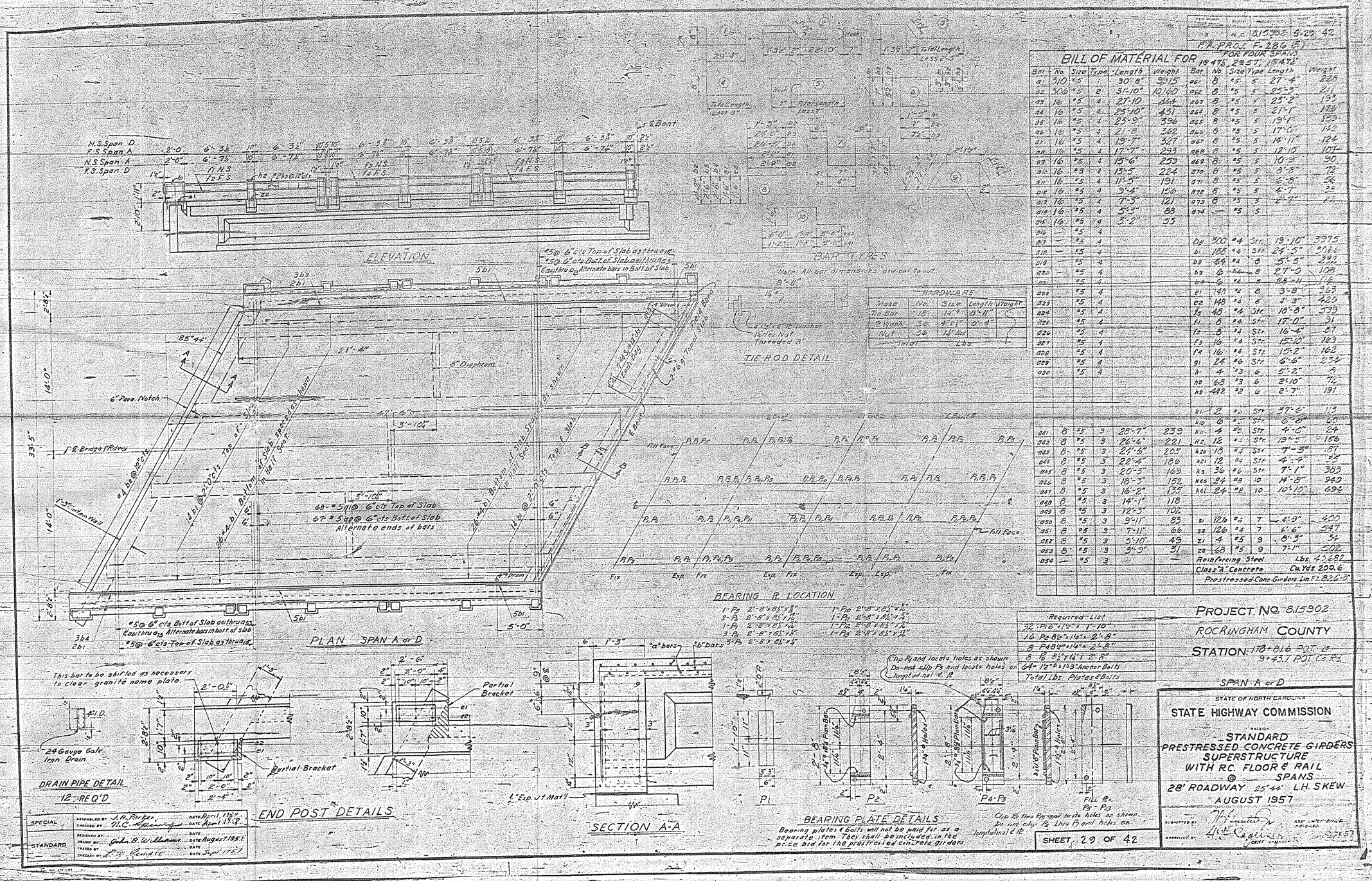
GENERAL DRAWING FOR BRIDGE OVER PROJECT ON COUNTY ROAD BETWEEN MAYODAN AND LEAKSVILLE
APRIL 1958

REVISIONS					
NO.	BY	DATE	NO.	BY	DATE

SUBMITTED BY: ASSISTANT CHIEF ENGINEER - BRIDGES
APPROVED BY: CHIEF ENGINEER — DATE

SHEET NO. S-28
TOTAL SHEETS

SPECIAL		
DESIGNED BY:		DATE
DRAWN BY: D. L. Dudley		DATE April 1958
TRACED BY:		DATE
CHECKED BY:		DATE



BILL OF MATERIAL FOR FOR FOUR SPANS 1@47'-2", 2@57'-1", 1@47'-2"

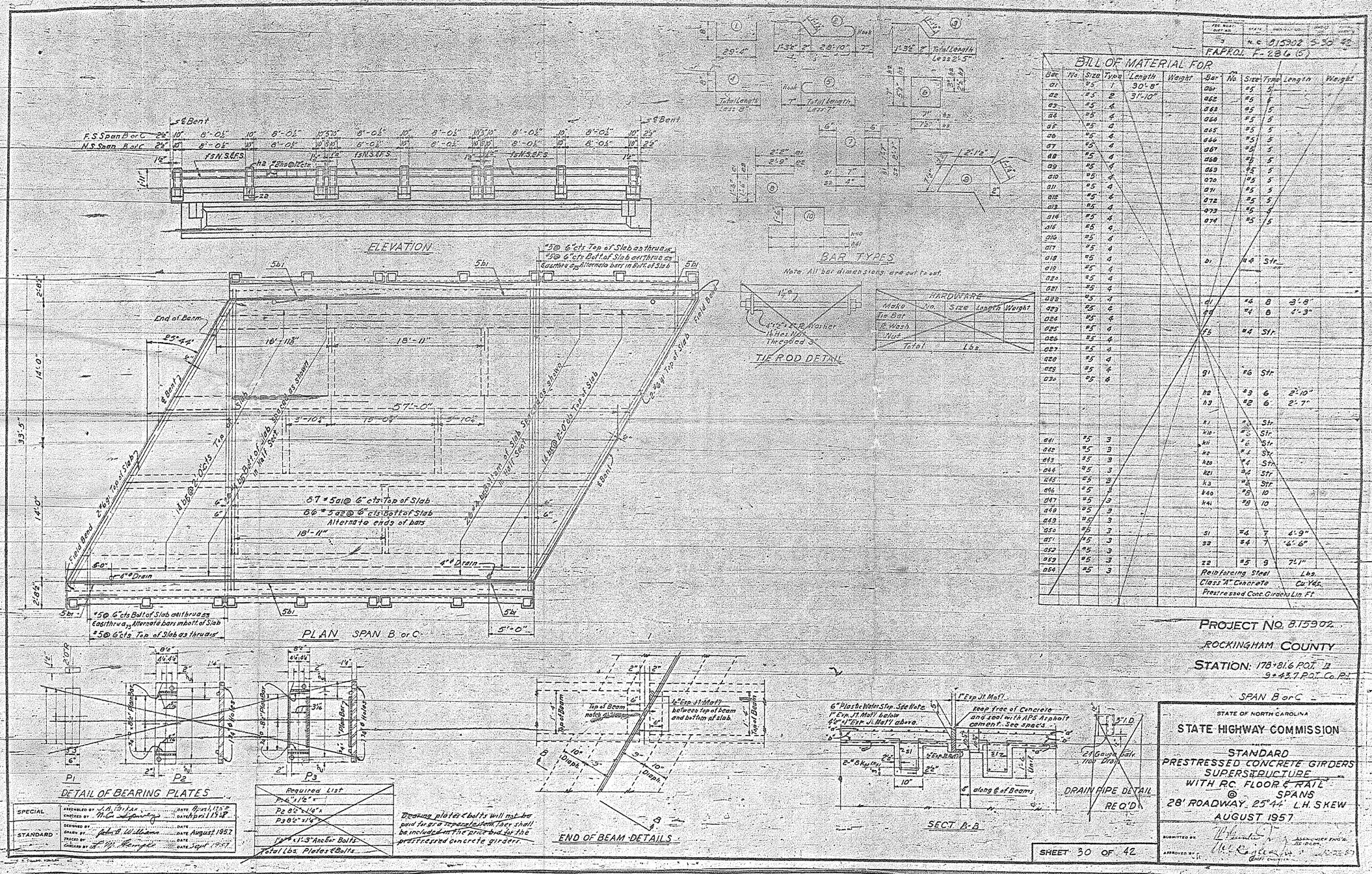
Bar	No.	Size	Type	Length	Weight
a1	310	#5	1	30'-8"	3915
a2	306	#5	2	31'-10"	10,160
a3	16	#5	4	27'-10"	464
a4	16	#5	4	25'-10"	431
a5	16	#5	4	23'-9"	396
a6	16	#5	4	21'-8"	362
a7	16	#5	4	19'-7"	327
a8	16	#5	4	17'-7"	293
a9	16	#5	4	15'-6"	259
a10	16	#5	4	13'-5"	224
a11	16	#5	4	11'-5"	191
a12	16	#5	4	9'-4"	156
a13	16	#5	4	7'-3"	121
a14	16	#5	4	5'-3"	88
a15	16	#5	4	3'-2"	53
a16	—	#5	4		
a17	—	#5	4		
a18	—	#5	4		
a19	—	#5	4		
a20	—	#5	4		
a21	—	#5	4		
a22	—	#5	4		
a23	—	#5	4		
a24	—	#5	4		
a25	—	#5	4		
a26	—	#5	4		
a27	—	#5	4		
a28	—	#5	4		
a29	—	#5	4		
a30	—	#5	4		
a41	8	#5	3	28'-7"	239
a42	8	#5	3	26'-6"	221
a43	8	#5	3	24'-6"	205
a44	8	#5	3	22'-4"	186
a45	8	#5	3	20'-3"	169
a46	8	#5	3	18'-3"	152
a47	8	#5	3	16'-2"	135
a48	8	#5	3	14'-1"	118
a49	8	#5	3	12'-3"	102
a50	8	#5	3	9'-11"	83
a51	8	#5	3	7'-11"	66
a52	8	#5	3	5'-10"	49
a53	8	#5	3	3'-9"	31
a54	—	#5	3		—

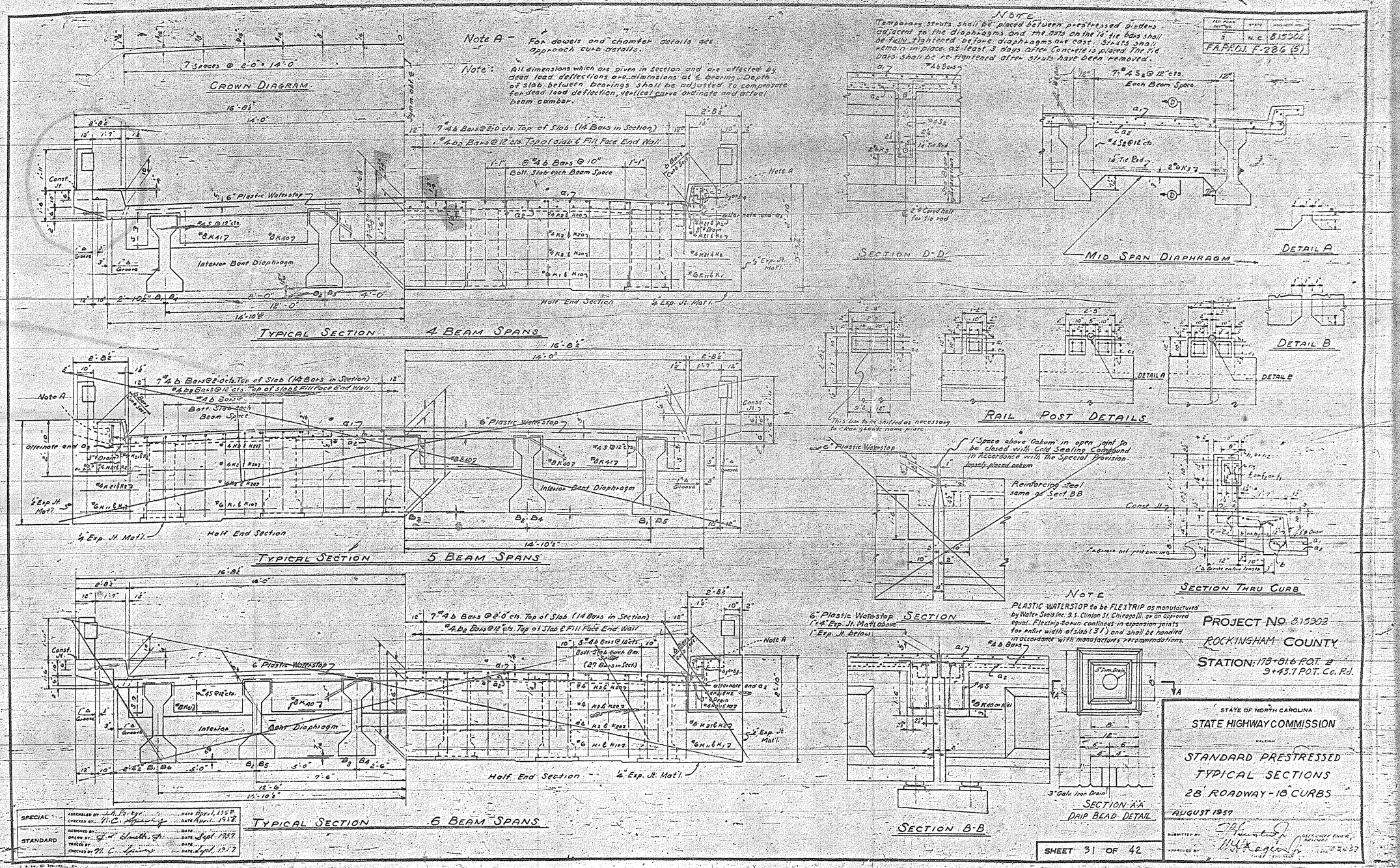
Bar	No.	Size	Type	Length	Weight
a61	8	#5	5	27'-4"	228
a62	8	#5	5	25'-3"	211
a63	8	#5	5	23'-2"	193
a64	8	#5	5	21'-1"	176
a65	8	#5	5	19'-1"	159
a66	8	#5	5	17'-0"	142
a67	8	#5	5	14'-11"	124
a68	8	#5	5	12'-10"	107
a69	8	#5	5	10'-9"	90
a70	8	#5	5	8'-8"	72
a71	8	#5	5	6'-8"	56
a72	8	#5	5	4'-7"	38
a73	8	#5	5	2'-7"	22
a74	—	#5	5		
b2	300	#4	Str.	18'-10"	3975
b1	188	#4	Str.	24'-5"	3066
b2	64	#4	8	5'-5"	232
b3	6	#4	8	27'-0"	109
b4	6	#4	8	28'-11"	116
b1	143	#4	8	3'-8"	353
b2	148	#4	8	5'-9"	420
b3	48	#4	Str.	18'-8"	539
b1	6	#4	Str.	17'-0"	51
b2	8	#4	Str.	16'-4"	87
b3	16	#4	Str.	15'-10"	169
b4	16	#4	Str.	15'-2"	162
b1	24	#6	Str.	6'-6"	234
h	4	#3	6	5'-2"	5
h2	68	#3	6	21'-0"	72
h3	442	#3	6	21'-7"	191
k1	2	#4	Str.	37'-6"	113
k10	6	#4	Str.	8'-8"	20
k11	4	#4	Str.	4'-0"	24
k2	12	#4	Str.	19'-5"	156
k20	18	#4	Str.	7'-3"	87
k21	12	#4	Str.	4'-4"	35
k3	36	#6	Str.	7'-1"	383
k30	84	#8	10	14'-8"	943
k31	84	#8	10	10'-10"	696
s1	126	#4	7	4'-9"	400
s2	126	#4	7	6'-6"	547
z1	4	#5	9	8'-3"	54
z2	68	#5	9	7'-1"	502

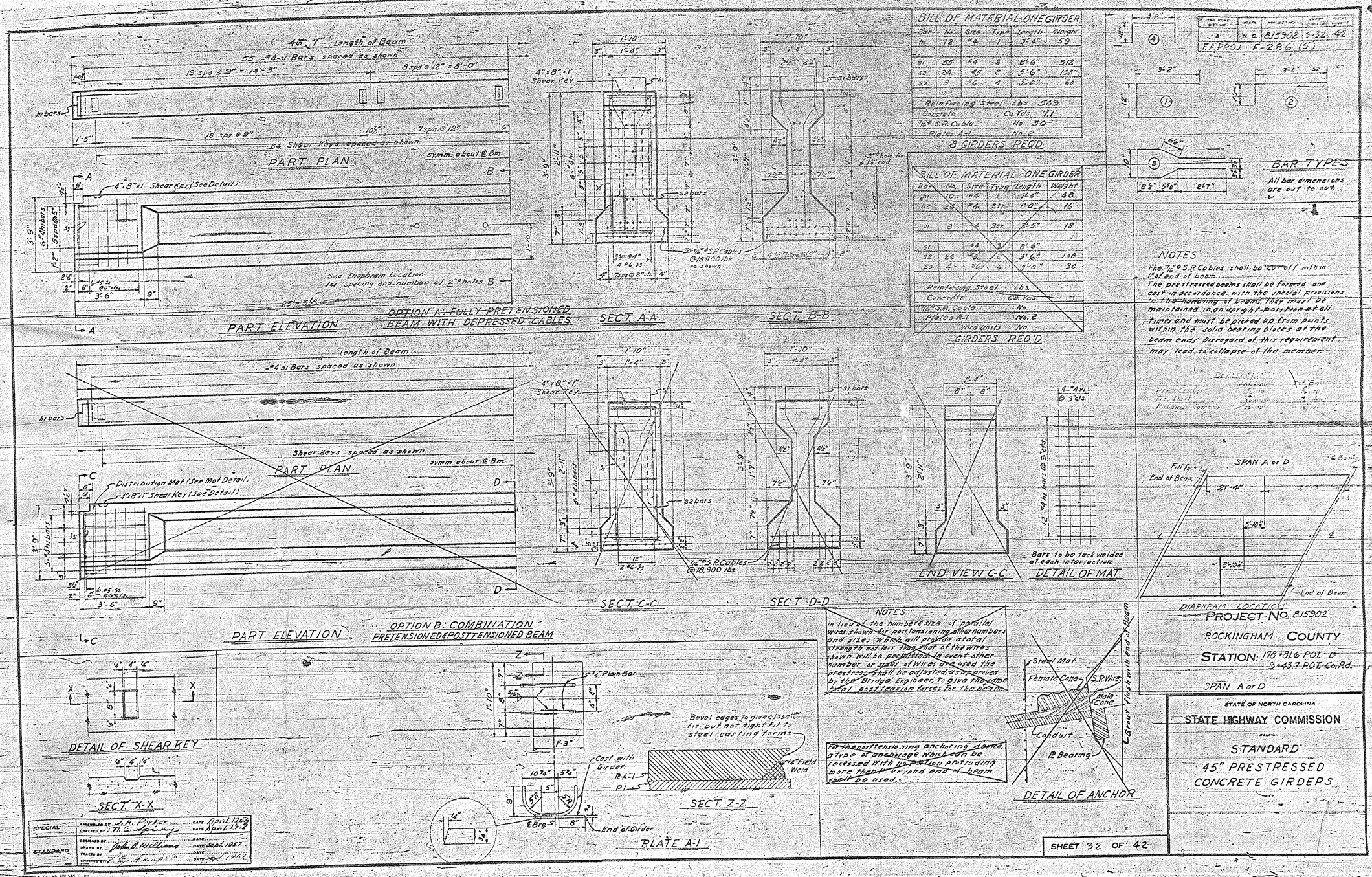
HARDWARE

Make	No.	Size	Length	Weight
Tie Bar	18	1½"	8'-11"	
ℙ Washer	36	3"x3"x½"	0'-9"	
Nut	36	1½" Hex		
Total			Lbs.	

N.C. 8.15902 S-29-42
F.A. PROJ. F-286 (5)


ELEVATION
PLAN SPAN B or C
DETAIL OF BEARING PLATES
END OF BEAM DETAILS
SECT B-B
DRAIN PIPE DETAIL
BAR TYPES
TIE ROD DETAIL
HARDWARE
BILL OF MATERIAL FOR
F.A.P.R.D.I. F-286 (5)
PROJECT No. 8.15902
ROCKINGHAM COUNTY
STATION: 178+81.6 P.O.T. B
9+43.7 P.O.T. Co. R-1
SPAN B or C
STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
STANDARD
PRESTRESSED CONCRETE GIRDERS
SUPERSTRUCTURE
WITH R.C. FLOOR & RAIL
@ SPANS
28' ROADWAY 25°44' L.H. SKEW
AUGUST 1957
SHEET 30 OF 42
Drawing plates & bolts will not be paid for as a separate item. Cost shall be included in the price bid for the prestressed concrete girders.


Note A - For dowels and chamfer details see approach curb details.
Note: All dimensions which are given in section and are affected by dead load deflections are dimensions at ℄ bearing. Depth of slab between bearings shall be adjusted to compensate for dead load deflection, vertical curve ordinate and actual beam camber.
NOTE
Temporary struts shall be placed between prestressed girders adjacent to the diaphragms and the nuts on the 1¼" tie bars shall be fully tightened before diaphragms are cast. Struts shall remain in place at least 3 days after concrete is placed. The tie bars shall be re-tightened after struts have been removed.
FED. ROAD DIST. NO. 3
STATE N.C.
B-15902
F.A. PROJ. F-286 (5)
7 Spaces @ 2'-0" = 14'-0"
CROWN DIAGRAM
7 #4 b Bars @ 2'-0" cts. Top of Slab (14 Bars in Section)
#4 b2 Bars @ 12" cts. Top of slab & Fill Face End Wall
8 #4 b Bars @ 10" Bott. Slab each Beam Space
6" Plastic Waterstop
#5 S @ 12" cts.
#8 K 41.7
#8 K 20.7
Interior Beam Diaphragm
Half End Section
½" Exp. Jt. Mat'l.
TYPICAL SECTION 4 BEAM SPANS
5 #4 b Bars @ 12" cts. Bott. Slab each Bm. Space (27 Bars in Sect.)
TYPICAL SECTION 5 BEAM SPANS
TYPICAL SECTION 6 BEAM SPANS
SECTION D-D
MID SPAN DIAPHRAGM
7 #4 S5 @ 12" cts. Each Beam Space
#4 S5 @ 12" cts.
1¼" Tie Rod
DETAIL A
DETAIL B
RAIL POST DETAILS
This dim. to be shifted as necessary to clear grade name plate.
1" Space above datum in open joint to be closed with Cold Sealing Compound in Accordance with the Special Provision. Loosely placed datum
Reinforcing Steel same as Sect BB
SECTION
SECTION B-B
SECTION A-A
DRIP BEAD DETAIL
3" Galv. Iron Drain
SECTION THRU CURB
NOTE
PLASTIC WATERSTOP to be FLEXTRIP as manufactured by Water Seals Inc. 9 S. Clinton St. Chicago Ill. or an approved equal. Flextrip to run continuous in expansion joints for entire width of slab (31') and shall be handled in accordance with manufacturers recommendations.
PROJECT NO. B-15902
ROCKINGHAM COUNTY
STATION: 178+81.6 P.O.T. ⊕ 9+43.1 P.O.T. Co. Rd.
STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH
STANDARD PRESTRESSED TYPICAL SECTIONS
28' ROADWAY - 18" CURBS
AUGUST 1957
SUBMITTED BY
APPROVED BY
SPECIAL
STANDARD
ASSEMBLED BY
CHECKED BY
DESIGNED BY
DRAWN BY
TRACED BY
DATE April, 1958
DATE Sept. 1957
SHEET 31 OF 42



BILL OF MATERIAL - ONE GIRDER

Bar	No.	Size	Type	Length	Weight
hi	12	#4	1	7'-4"	59
s1	55	#4	3	8'-6"	312
s2	24	#5	2	5'-6"	138
s3	8	#6	4	5'-0"	60
Reinforcing Steel				Lbs.	569
Concrete				Cu. Yds.	7.1
7/16" ϕ S.R. Cable				No.	30
Plates A-1				No.	2

8 GIRDERS REQ'D.

~~BILL OF MATERIAL ONE GIRDER~~

Bar	No.	Size	Type	Length	Weight
hi	10	#6	1	7'-4"	48
h2	2	#4	Str.	11'-0"	16
v1	8	#4	Str.	8'-5"	18
s1		#4	3	8'-6"	
s2	24	#5	2	5'-6"	138
s3	4	#6	4	5'-0"	30
Reinforcing Steel				Lbs.	
Concrete				Cu. Yds.	
7/16" ϕ S.R. Cable				No.	
Plates A-1				No. 2	
Wire Units				No.	

~~GIRDERS REQ'D.~~

FED. ROAD DIST. NO.	STATE	PROJECT NO.	SHEET	TOTAL SHEETS
13	N.C.	815902	32	42

F.A. PROJ. F-286 (5)

NOTES

The 7/16" ϕ S.R. Cables shall be cut off within 1" of end of beam.

The prestressed beams shall be formed and cast in accordance with the special provisions. In the handling of beams, they must be maintained in an upright position at all times and must be picked up from points within the solid bearing blocks at the beam ends. Disregard of this requirement may lead to collapse of the member.

NOTES

In lieu of the number & size of parallel wires shown for posttensioning other numbers and sizes which will provide a total strength not less than that of the wires shown will be permitted in event other number or sizes of wires are used the prestress shall be adjusted as approved by the Bridge Engineer to give the same total posttension forces for the beam.

For the posttensioning anchorage device, a type of anchorage which can be recessed with no portion protruding more than 4" beyond end of beam shall be used.

PROJECT NO. 815902

ROCKINGHAM COUNTY

STATION: 178+81.6 POT. 13
9+43.7 P.O.T. Co. Rd.

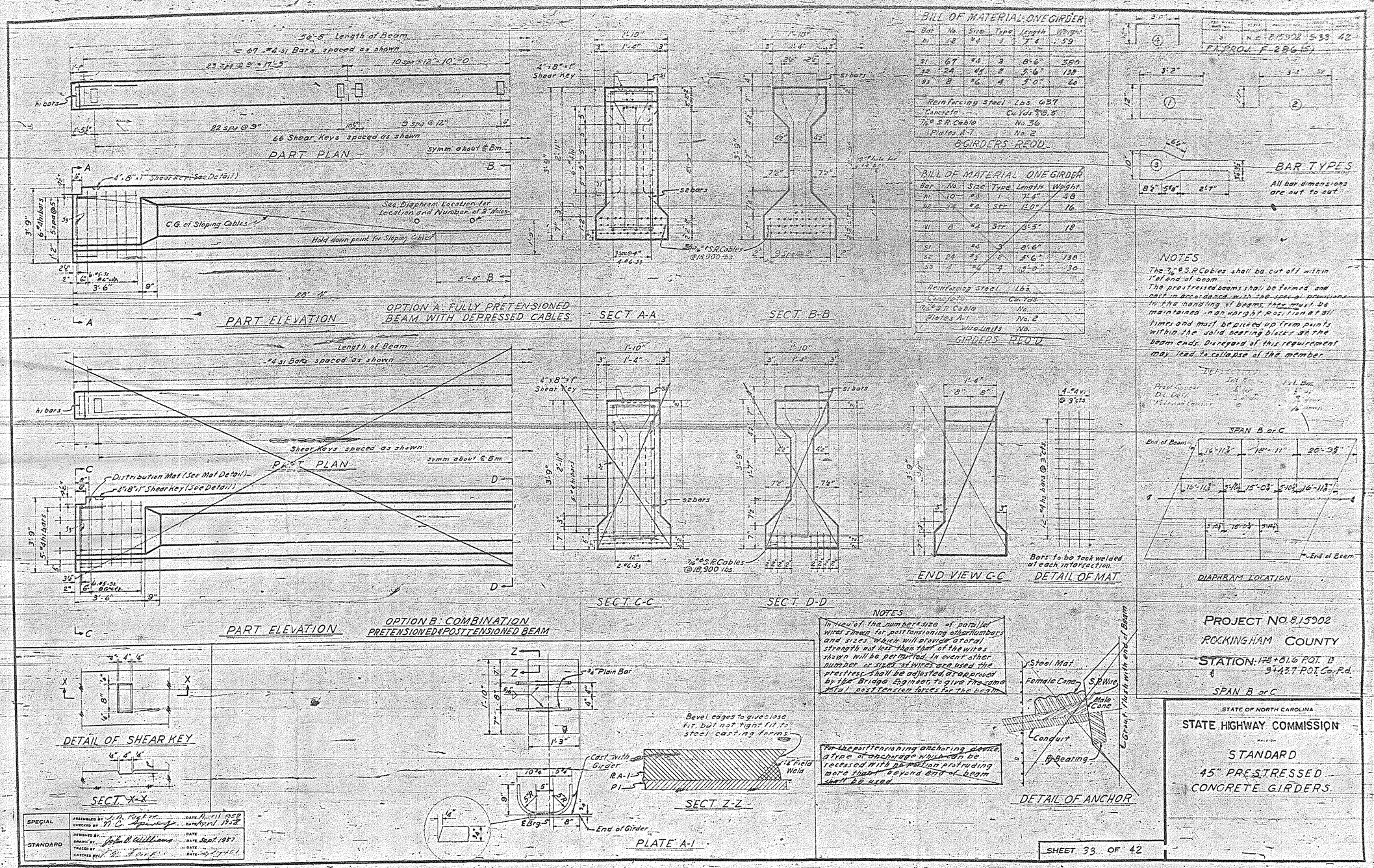
SPAN A or D

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

STANDARD
45" PRESTRESSED CONCRETE GIRDERS

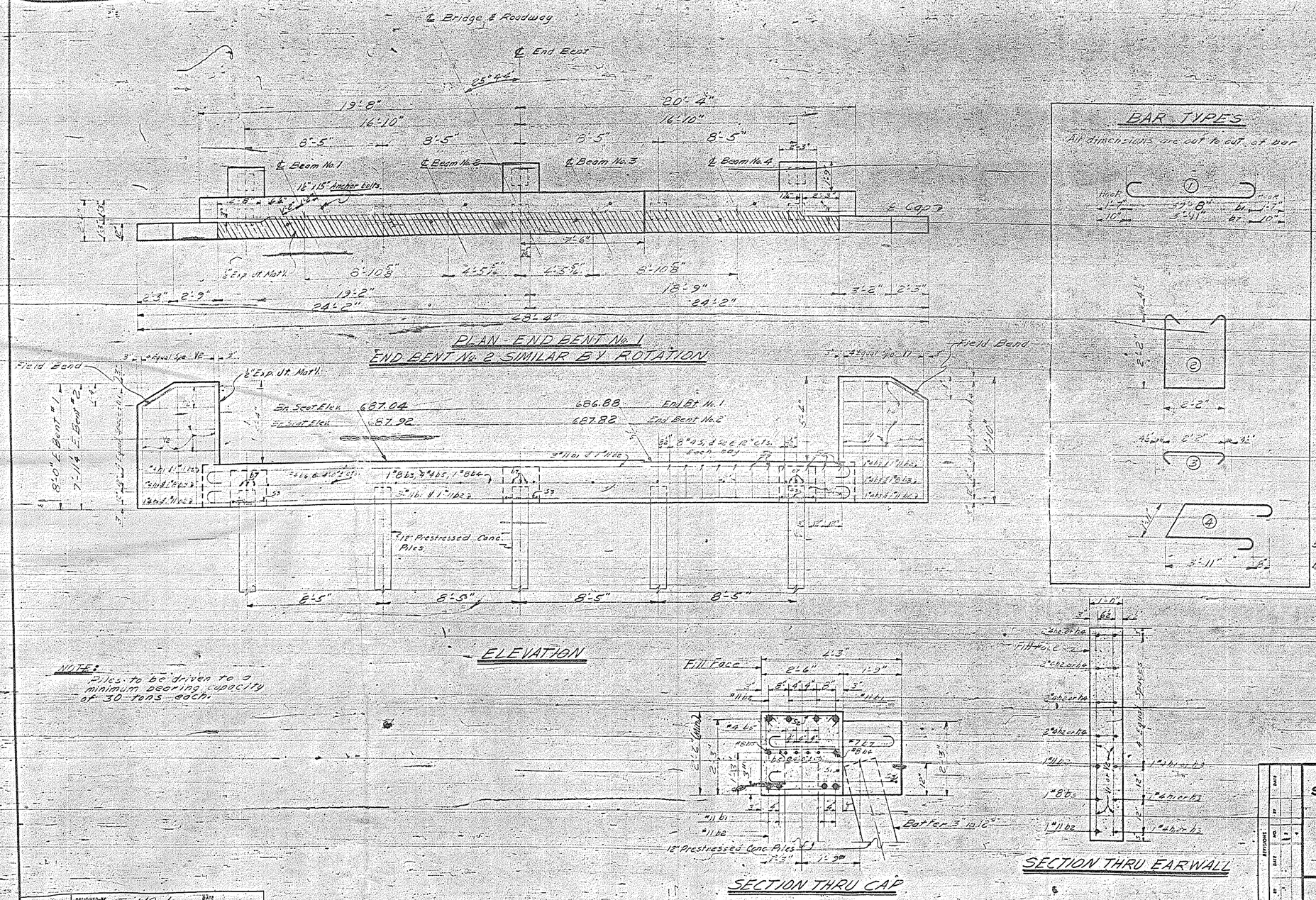
SHEET 32 OF 42

SPECIAL	APPROVED BY J. A. Parker	DATE April 1968
	CHECKED BY T. C. Spivey	DATE April 1968
STANDARD	DESIGNED BY	DATE
	DRAWN BY John B. Williams	DATE Sept. 1967
	TRACED BY	DATE
	CHECKED BY T. C. Spivey	DATE April 1968


PART PLAN
PART ELEVATION
OPTION A: FULLY PRETENSIONED BEAM WITH DEPRESSED CABLES
SECT. A-A
SECT. B-B
PART PLAN
PART ELEVATION
OPTION B: COMBINATION PRETENSIONED & POSTTENSIONED BEAM
SECT. C-C
SECT. D-D
END VIEW C-C
DETAIL OF MAT
DETAIL OF SHEAR KEY
SECT. X-X
SECT. Z-Z
PLATE A-1
DETAIL OF ANCHOR
BAR TYPES
All bar dimensions are out to out
DIAPHRAM LOCATION
SPAN B or C
NOTES
The 7/16" S.R. Cables shall be cut off within 1" of end of beam.
The prestressed beams shall be formed and cast in accordance with the specified provisions.
In the handling of beams they must be maintained in an upright position at all times and must be picked up from points within the solid bearing blocks at the beam ends. Disregard of this requirement may lead to collapse of the member.
NOTES
In lieu of the number & size of parallel wires shown for post tensioning other numbers and sizes which will provide a total strength not less than that of the wires shown will be permitted. In event other number or size of wires are used the prestress shall be adjusted, as approved by the Bridge Engineer, to give the same total post tension forces for the beam.
For the post tensioning anchoring device, a type of anchorage which can be recessed with the wire not protruding more than 1" beyond end of beam shall be used.
BILL OF MATERIAL-ONE GIRDER
Reinforcing Steel Lbs. 637
Concrete Cu. Yds. 9.5
7/16" S.R. Cable No. 36
Plates A-1 No. 2
8 GIRDERS REQ'D.
BILL OF MATERIAL ONE GIRDER
Reinforcing Steel Lbs.
Concrete Cu. Yds.
7/16" S.R. Cable No. 2
Plates A-1 No. 2
Wire Units No.
GIRDERS REQ'D.
PROJECT NO. 8.15902
ROCKINGHAM COUNTY
STATE HIGHWAY COMMISSION
STANDARD
45" PRESTRESSED CONCRETE GIRDERS.
SHEET 33 OF 42
SPECIAL
STANDARD
DESIGNED BY
DRAWN BY John B. Williams
TRACED BY
CHECKED BY
DATE Sept. 1957

FED. ROAD DIST. NO.	STATE	PROJECT NO.
1	N.C.	8.153202

F.A. Proj. F-2-3



BILL OF MATERIAL

FOR ONE END BENT - TWO REQUIRED

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
L1	5	#11	1	42'-10"	1265
L2	2	#11	Str.	48'-0"	510
L3	1	#8	Str.	48'-8"	129
L4	1	#8	Str.	51'-8"	136
L5	8	#2	Str.	20'-6"	110
L6	10	#4	Str.	2'-2"	14
L7	9	#7	1	5'-7"	103
L8	3	#4	Str.	2'-3"	11
L9	8	#4	Str.	4'-8"	25
L10	7	#4	Str.	2'-7"	12
L11	8	#4	Str.	3'-1"	27
S1	38	#6	2	7'-3"	84
S2	7	#4	3	2'-11"	14
S3	5	#6	4	11'-1"	70
V1	10	#4	Str.	4'-6"	30
V2	10	#4	Str.	5'-1"	51

Reinforcing Steel - Lbs. 2820

End Bent #1 Class "A" Concrete - Cu. Yds. 13.1

End Bent #2 Class "A" Concrete - Cu. Yds. 12.9

12" Prestressed Piles No. 2 Lin. Ft. 144

PROJECT NO. 8.153202

ROCKINGHAM COUNTY

STATION: 1787 S.L. & P.T.L. 9+43.7 P.O.T. Co. Rd.

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

SUBSTRUCTURE
END BENTS 1 & 2

APRIL 1958

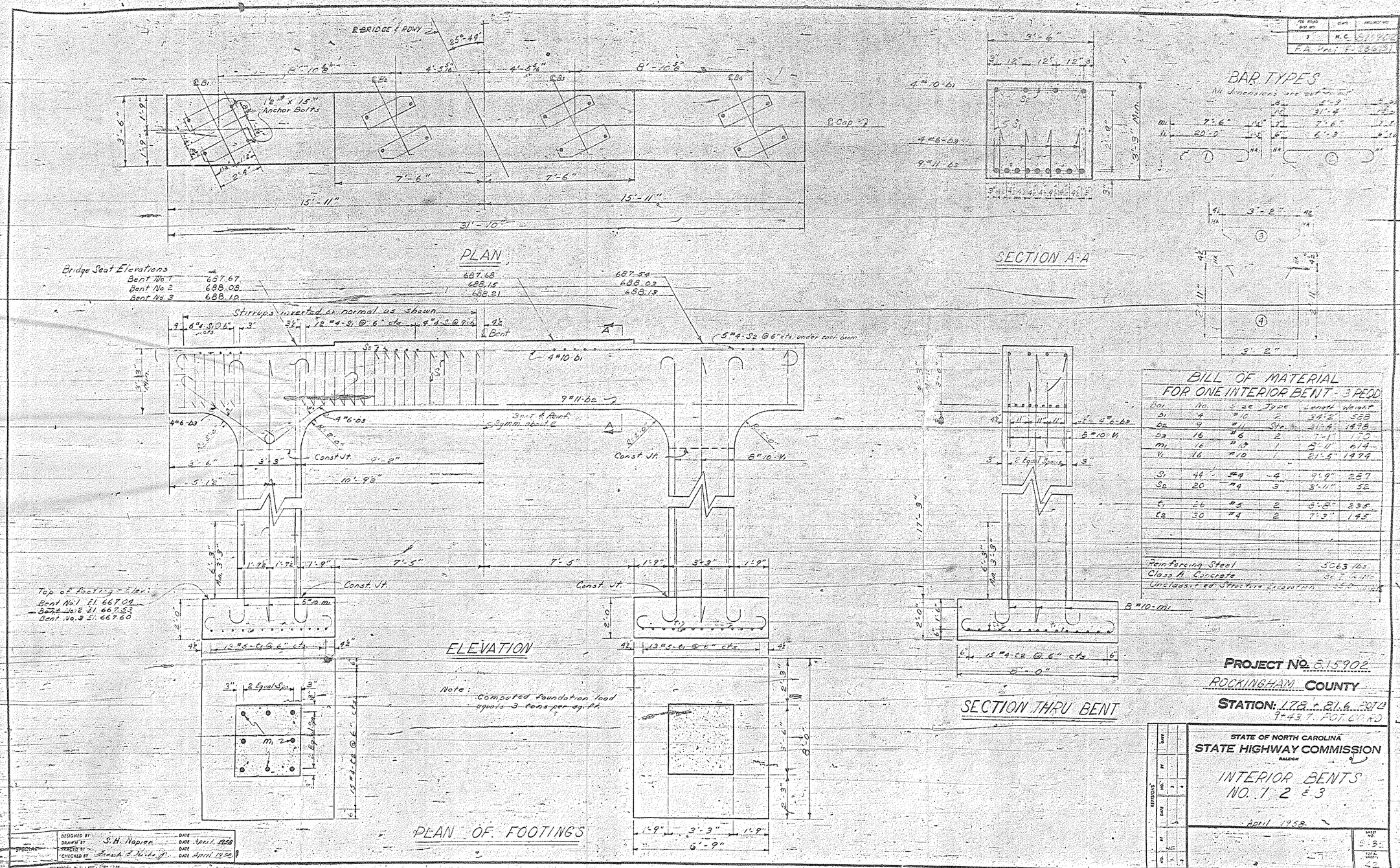
NO.	BY	DATE	REVISIONS	NO.	BY	DATE

SHEET NO. S-34

TOTAL SHEETS 42

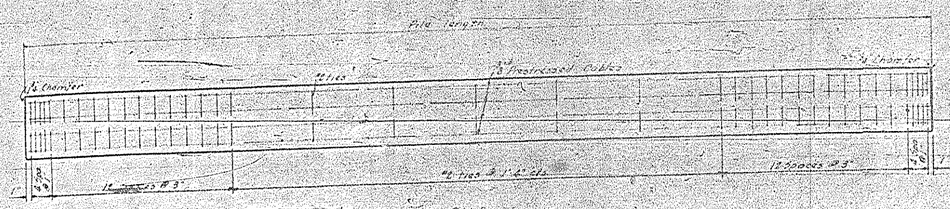
SPECIAL

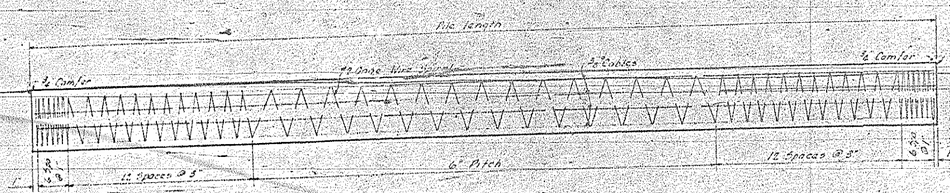
DESIGNED BY Kenneth Johnson DATE April 1958
DRAWN BY DATE
TRACED BY DATE
CHECKED BY Frank D. Hedrick Jr. DATE April 1958

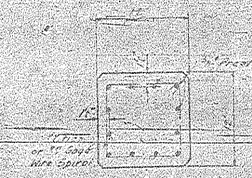

PLAN
SECTION A-A
BAR TYPES
ELEVATION
PLAN OF FOOTINGS
SECTION THRU BENT
BILL OF MATERIAL
FOR ONE INTERIOR BENT - 3 REQD.
Reinforcing Steel 5063 lbs
Class A Concrete
Unclassified Structure Excavation
PROJECT No. 8.15902
ROCKINGHAM COUNTY
STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
INTERIOR BENTS NO. 1 2 & 3
April 1958
Bridge Seat Elevations
Bent No 1 687.67
Bent No 2 688.08
Bent No 3 688.10
Stirrups inverted or normal as shown
Top of Footing Elev.
Bent No. 1 El. 667.04
Bent No. 2 El. 667.53
Bent No. 3 El. 667.60
Note: Computed foundation load equals 3 tons per sq. ft.
DESIGNED BY
DRAWN BY S.H. Napier DATE April 1958
TRACED BY DATE
CHECKED BY DATE April 1958

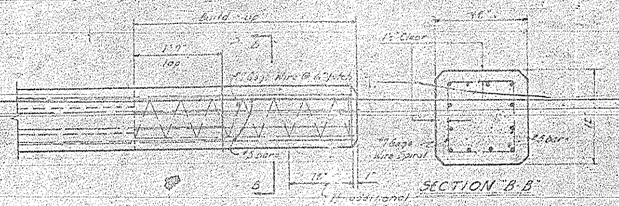
3	N.C.	8.15902	5-36	42

F.A. Proj. F-286 (5)









NOTES

In driving piles, a method approved by the Engineer shall be used, whereby the head of the piles is not damaged.

All material and workmanship as per the Specifications of North Carolina State Highway Commission and the Special Provisions.

The contractor may use either #6 ties or #4 single Wire Spiral as shown.

Build up where necessary shall be done in accordance with the specifications, except that the reinforcing steel required in the build ups shall be included in the contract unit price per foot for the pile and will not be paid for as reinforcing steel.

DESIGN DATA:
Concrete: f'c = 5,000 psi
fc = 2,000 psi
Tension = None
Cables: Tensile (Ultimate) = 240,000 psi
(Applied) = 175,000 psi
(Design) = 140,000 psi
Impact in handling = 100%

Devices for lifting the piles from the casting beds shall be approved by the Engineer. Where piles will be exposed to view in the structure, inserts set in the piles to receive threaded eye bolts or similar approved devices shall be used. Loops of cable cast in the pile will not be permitted except for piles for end bents and foundations which will not be exposed to view. The use of satisfactory clamps or slings will be permitted where this is practicable without the use of lifting devices cast in the piles. After eye bolts or other attachments have been removed, the openings shall be repaired in a satisfactory manner before delivery to the bridge site in order to obtain a uniform appearance. It will not be necessary to remove loops of cable or other lifting devices in piles for end bents and foundations which will not be exposed to view.

	No.	Size	Length	Lin. Ft.
Sta. 178+81.6 ℄	16	12"	18'-0"	288