

# INDEX OF SHEETS

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- 72 & 73 - DETAILS OF SPAN 20 - LINE "G"
- 74 - DETAILS OF HANDRAIL AND LIGHT BRACKETS

## SOUTH CAROLINA STATE HIGHWAY DEPARTMENT COLUMBIA

# PLAN AND PROFILE OF PROPOSED STATE HIGHWAY

F.A.P. NO. I-IG-26-4(26)

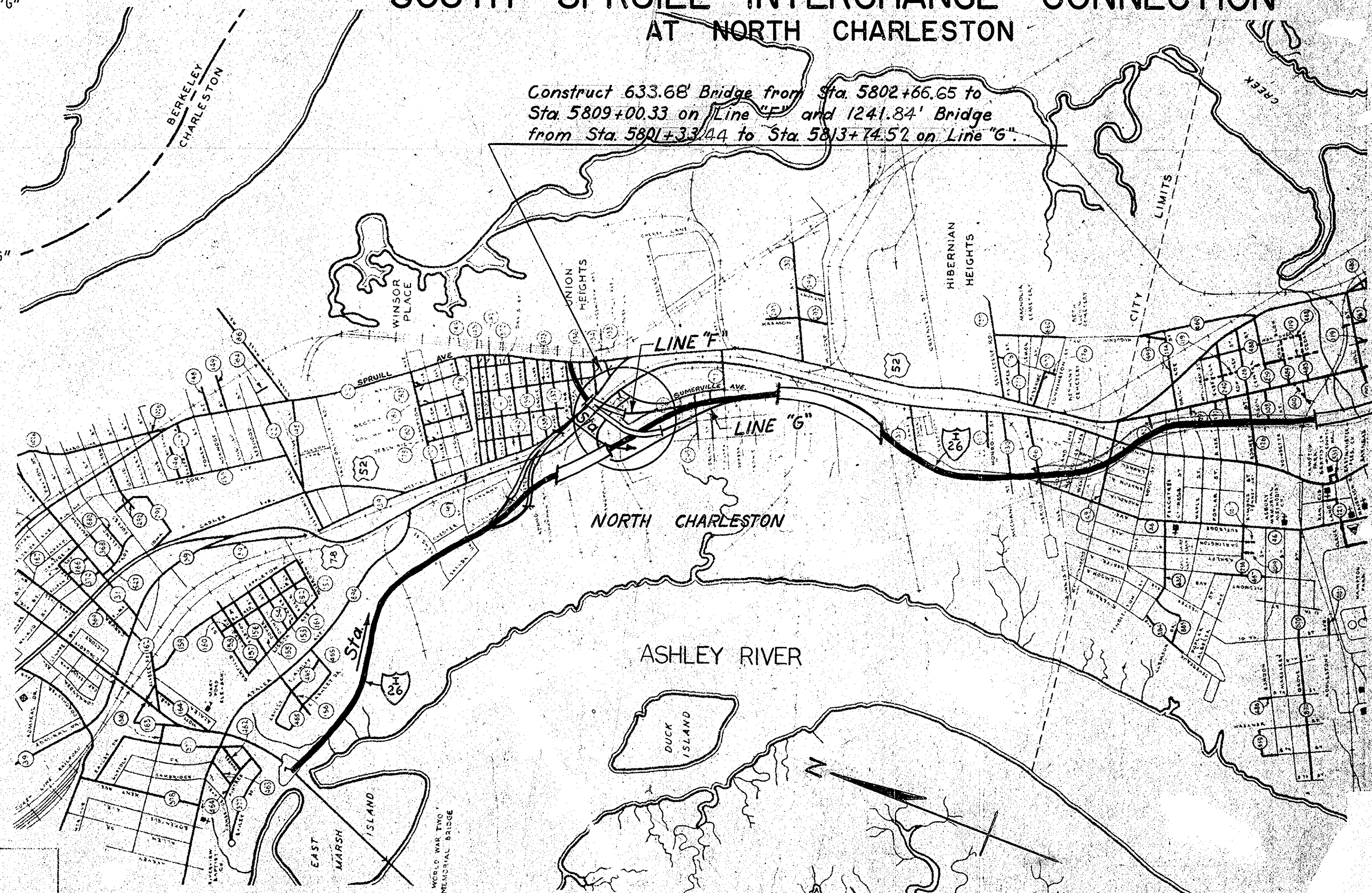
FILE NO. 10521.4

CHARLESTON COUNTY

ROUTE NO. I-26

UNDERPASS UNDER

SOUTH SPRUILL INTERCHANGE CONNECTION  
AT NORTH CHARLESTON



## SUMMARY OF ESTIMATED QUANTITIES

WET AND DRY EXCAVATION -----	1520 C.Y.
CONCRETE, CLASS "A" -----	2731.9 C.Y.
REINFORCING STEEL -----	597,189 LBS.
FABRICATED METAL HANDRAILING (ALUMINUM) (ALTERNATE 1) -----	3602 L.F.
FABRICATED METAL HANDRAILING (STEEL) (ALTERNATE 2) -----	3602 L.F.
STEEL SUPERSTRUCTURES -----	*NECESSARY LUMP SUM
CREOSOTED TIMBER PILING -----	21,280 L.F.
10 BP 42 STEEL BEARING PILING -----	1228 L.F.
LOAD TEST PILE -----	2 EA.

\*APPROXIMATELY 1,465,400 LBS.

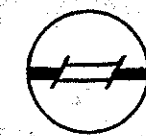
NOTE:  
STRUCTURAL STEEL SHALL COMPLY WITH THE LATEST A.S.T.M. SPECIFICATIONS FOR A-36 STEEL INSTEAD OF A-7 FOR BEAMS AND COVER PLATES ONLY. ALL OTHER STRUCTURAL STEEL MAY BE A-7 OR A-36.

## CONVENTIONAL SIGNS

State Line	Trolley Poles
County Line	Power Poles
City or Town Limits	Telephone or Telegraph Poles
Property Line	Marsh
Fence	Trees
Retaining Wall	Brush
Existing Road	Stumps
Q and P.O.W. Lines of	Buildings
Proposed Road	Bridge
Railroad	Concrete Box Culvert
Levee or Embankment	Pipe Culvert
Guard Rail	Drop Inlet and Culvert
Point of Intersection (P.I.)	Hub on Center Line

## LEGEND

PROPOSED PROJECT  
OTHER ROADS



Net Length of Roadway	0.000 Miles
Net Length of Bridges	0.000 Miles
Net Length of Project	0.000 Miles
Length of Intersections	0.000 Miles
Gross Length of Project	0.000 Miles

Equals in Stationing

NOTE: ALL WORKMANSHIP AND MATERIAL ON THIS PROJECT TO CONFORM WITH SOUTH CAROLINA STATE HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION EDITION OF 1964.

APPROVED: *[Signature]* 2/24/65  
STATE HIGHWAY ENGINEER DATE

DEPARTMENT OF COMMERCE  
BUREAU OF PUBLIC ROADS.  
APPROVED: *[Signature]* *[Signature]*  
DISTRICT ENGINEER DATE

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## SOUTH CAROLINA STATE HIGHWAY DEPARTMENT COLUMBIA

# PLAN AND PROFILE OF PROPOSED STATE HIGHWAY

F.A.P. NO. I-IG-26-4(26)

FILE NO. 10.521.4

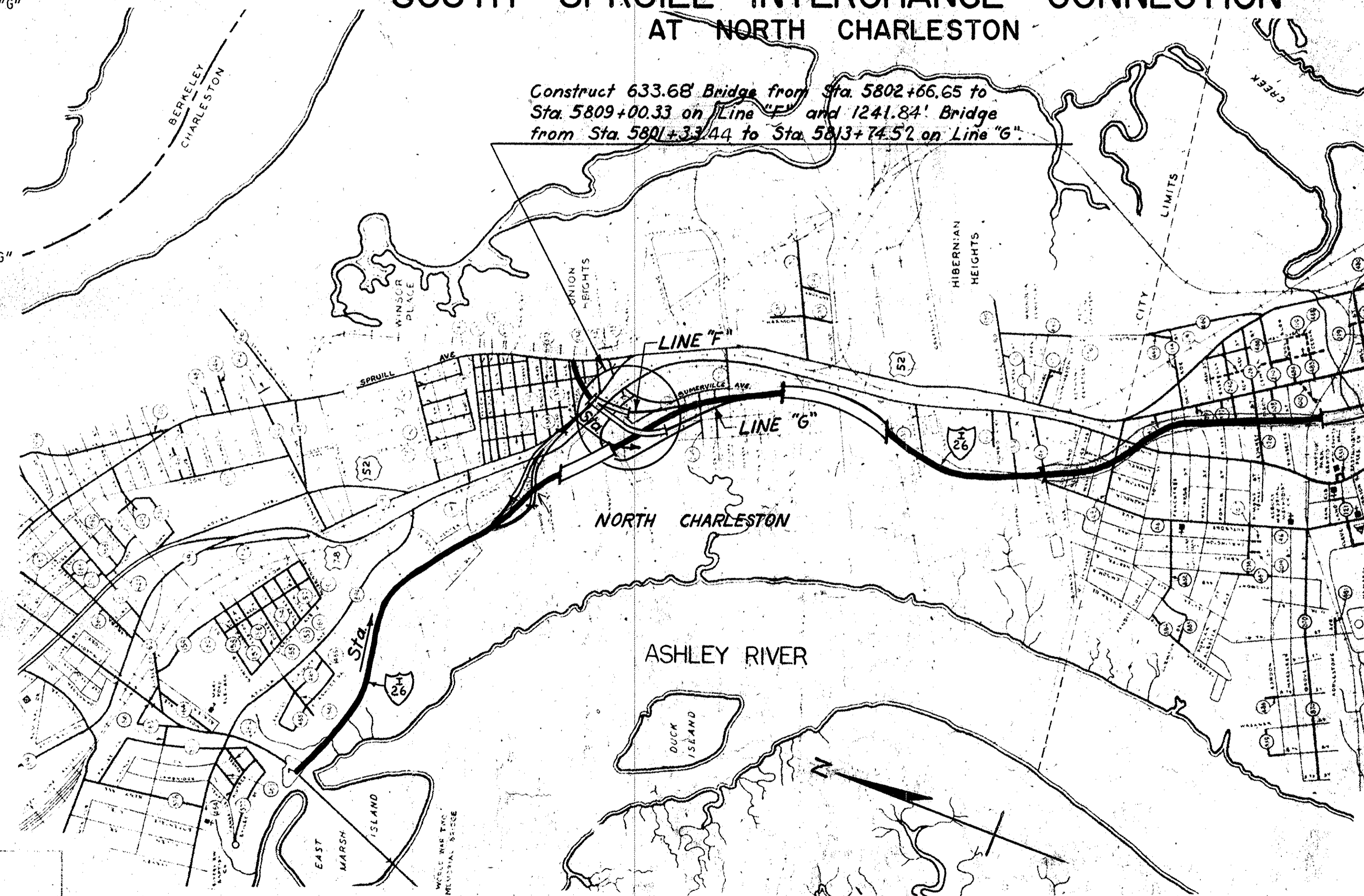
CHARLESTON COUNTY

ROUTE NO. I-26

UNDERPASS UNDER

SOUTH SPRUILL INTERCHANGE CONNECTION  
AT NORTH CHARLESTON

Construct 633.68' Bridge from Sta. 5802+66.65 to  
Sta. 5809+00.33 on Line "F" and 1241.84' Bridge  
from Sta. 5801+33.44 to Sta. 5813+74.52 on Line "G"



CHARLESTON

### CONVENTIONAL SIGNS

State Line	-----	Truck Poles	▲
County Line	-----	Power Poles	▲
City or Town Limit	-----	Telephone or Telegraph Poles	▲
Property Line	-----	Marsh	▲
Fence	-----	Trees	▲
Retaining Wall	-----	Brush	▲
Existing Road	-----	Stumps	▲
Proposed Road	-----	Buildings	▲
Grade and R.O.W. Lines of Proposed Road	-----	Bridge	▲
Levee or Embankment	-----	Concrete Box Culvert	▲
Guard Rail	-----	Pipe Culvert	▲
Point of Intersection (P.I.)	▲	Drop Inlet and Culvert	▲
		Hub on Center Line	▲

### LEGEND

PROPOSED PROJECT  
OTHER ROADS

Net Length of Right-of-Way	0.000 Miles
Net Length of Bridges	0.000 Miles
Net Length of Project	0.000 Miles
Length of Easements	0.000 Miles
Gross Length of Project	0.000 Miles

NOTE: ALL WORKMANSHIP AND MATERIAL ON THIS PROJECT TO CONFORM WITH SOUTH CAROLINA STATE HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION EDITION OF 1964.

FED. ROAD DIV. NO.	STATE	COUNTY	FILE NO.	PROJ. NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S. C.	CHARLESTON	10.521.4	I-IG-26-4(26)	I-26	1	74

### SUMMARY OF ESTIMATED QUANTITIES

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CONCRETE, CLASS "A" -----	2731.9 C.Y.
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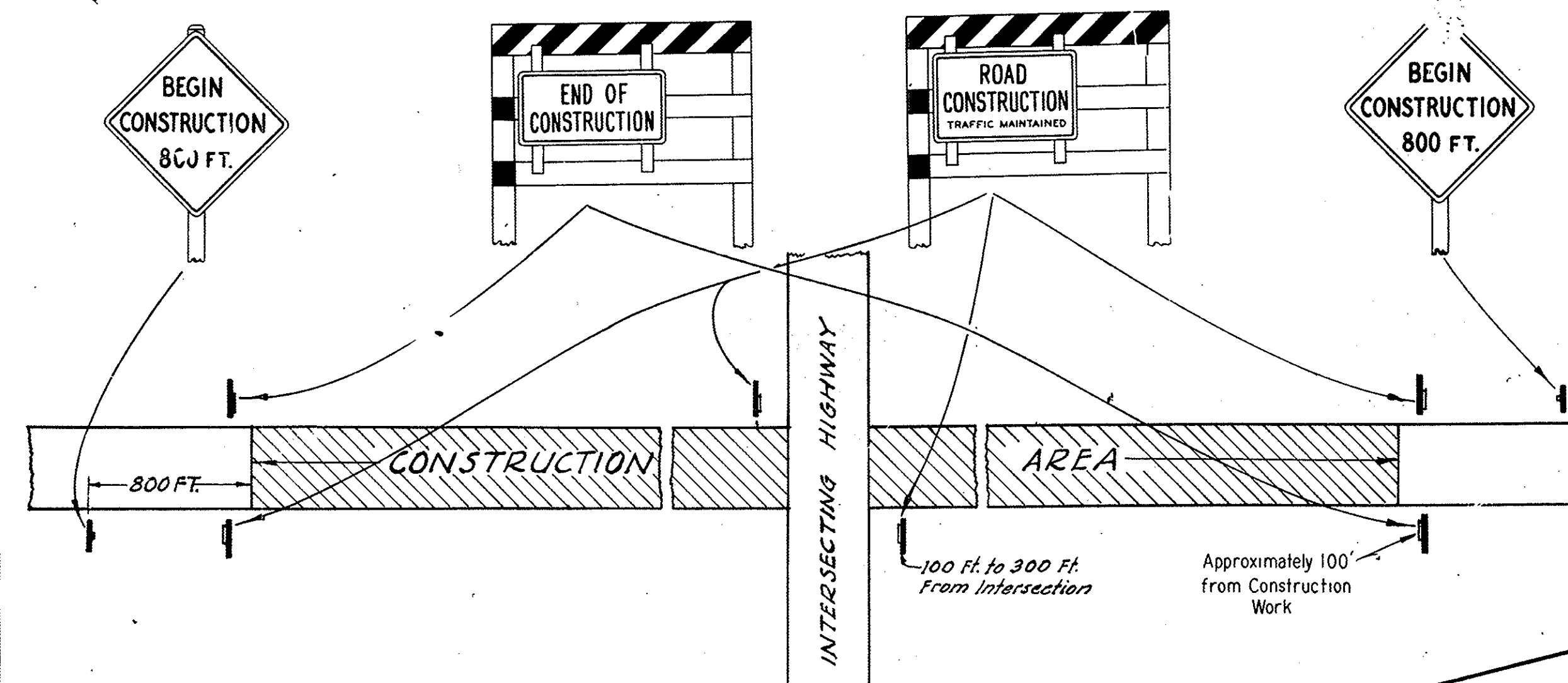
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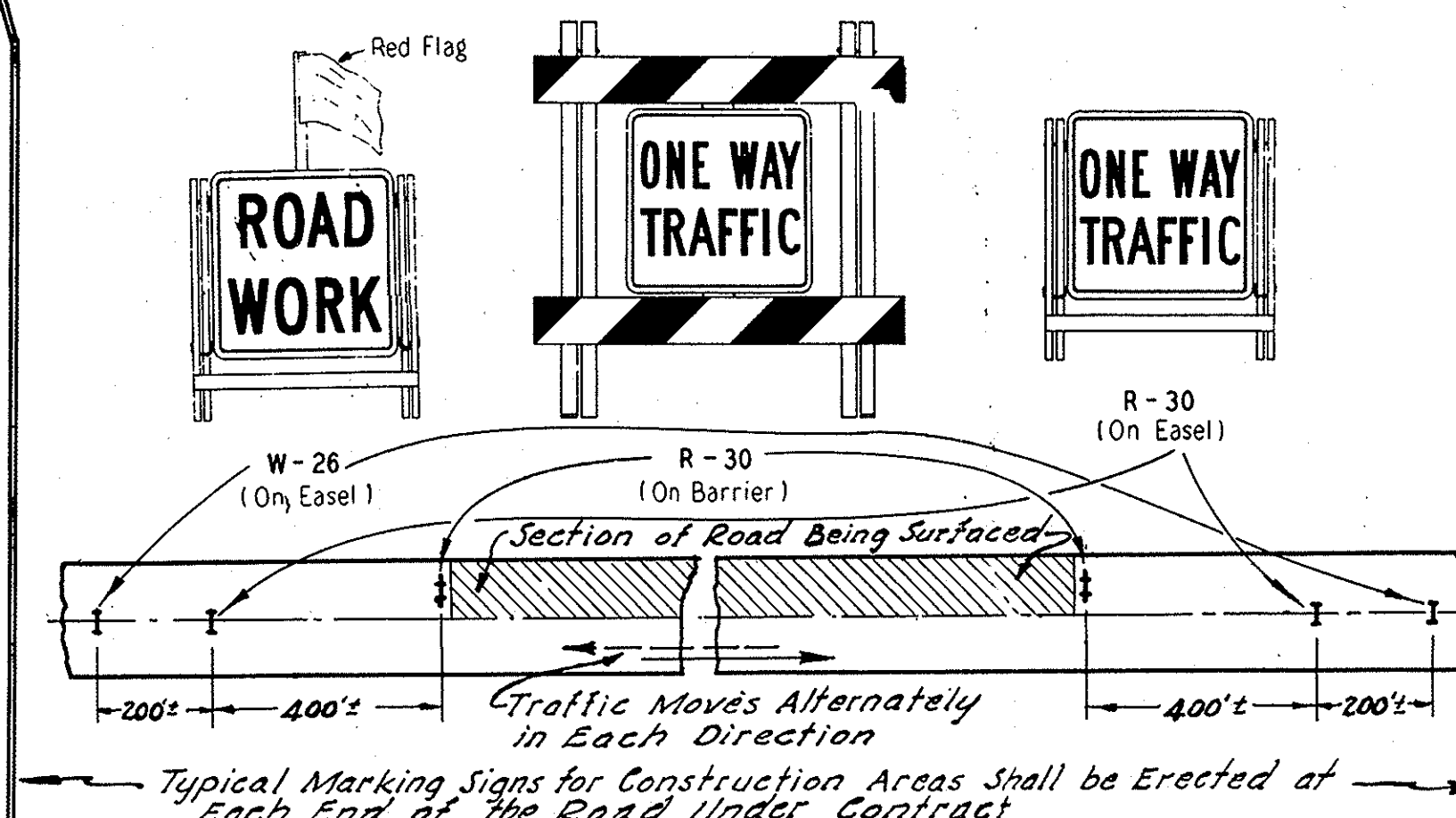
APPROVED: *[Signature]* 2/24/65  
STATE HIGHWAY ENGINEER DATE

DEPARTMENT OF COMMERCE  
BUREAU OF PUBLIC ROADS.  
APPROVED: *[Signature]* *[Signature]*  
DISTRICT ENGINEER DATE

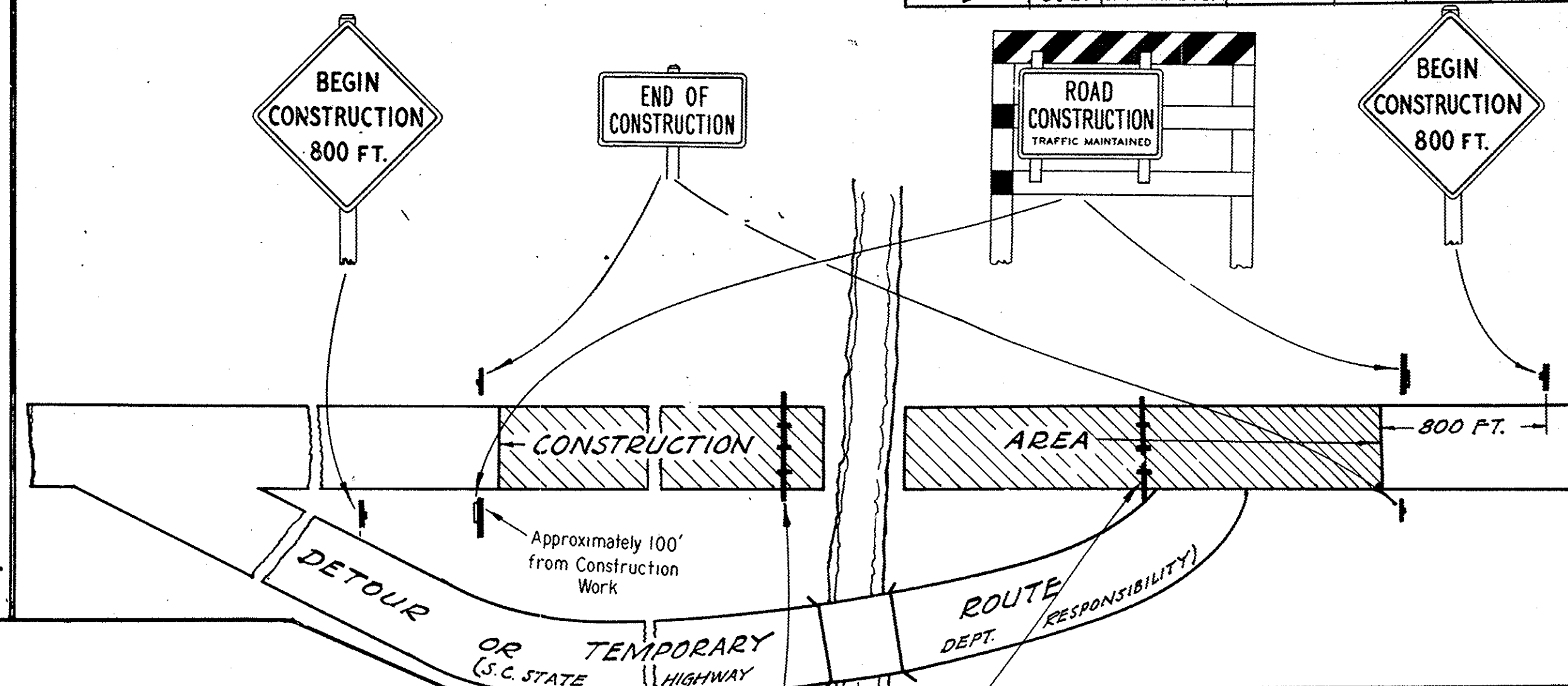
# TYPICAL MARKING FOR CONSTRUCTION AREAS



# APPLICATION OF STANDARD SIGNS WHEN ROADWAY IS BEING SURFACED

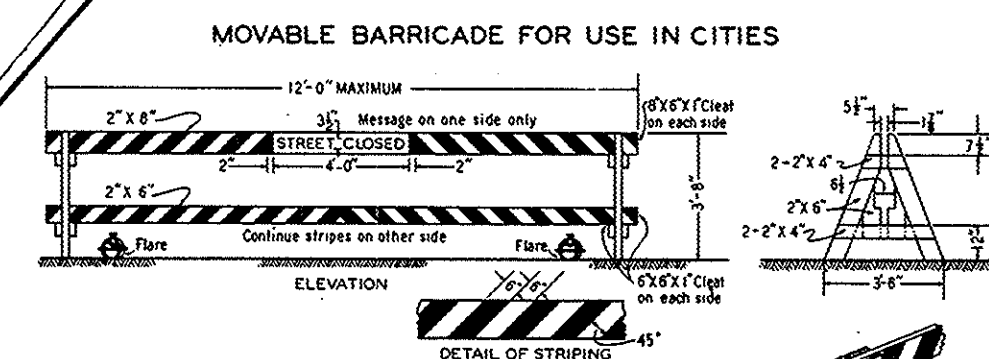
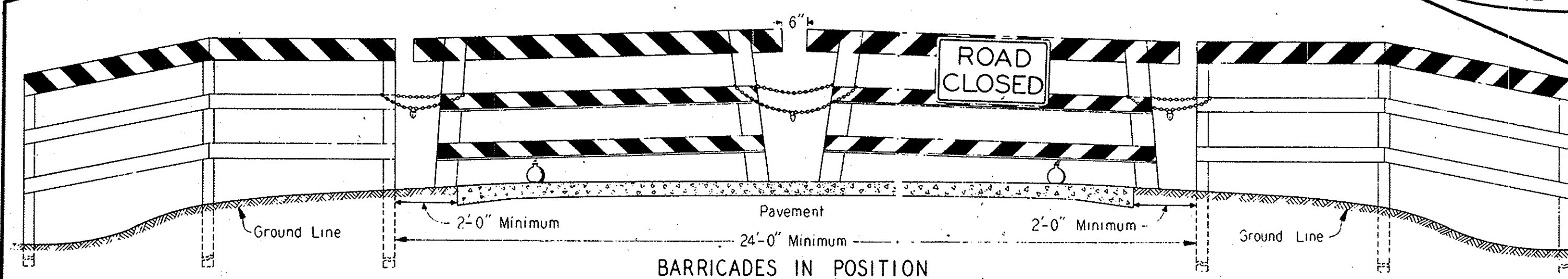


# TYPICAL MARKING FOR CONSTRUCTION AREAS



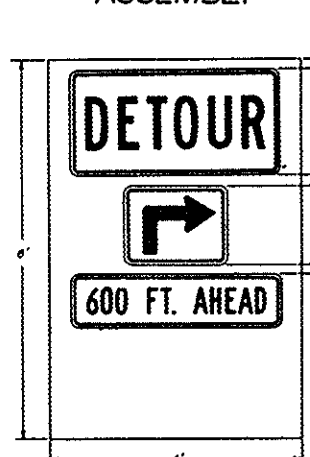
Red Book Div. No.	State	County	File No.	ROUTE No.	Sheet No.	Total Sheets
3	S.C.	CHARLESTON	10,521.4	1-26	2	74

# STANDARD BARRICADES

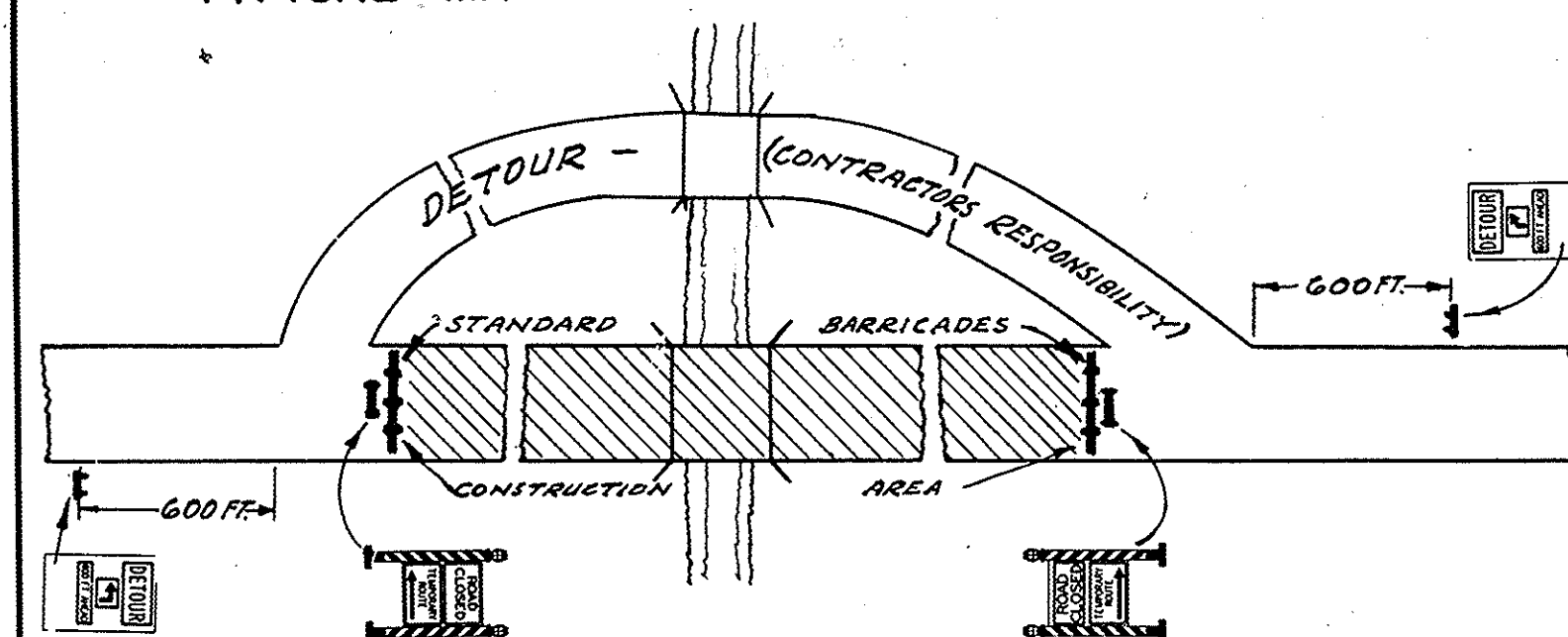


NOTE: The movable barricade should be used on streets which are closed to traffic. A sufficient number of barricades should be used to close the entire street width. The barricade may also be used when traffic is confined to one side of the street for the protection of the workmen, repairing, open trenches, etc., in which case the message 'STREET CLOSED' should be on the back.

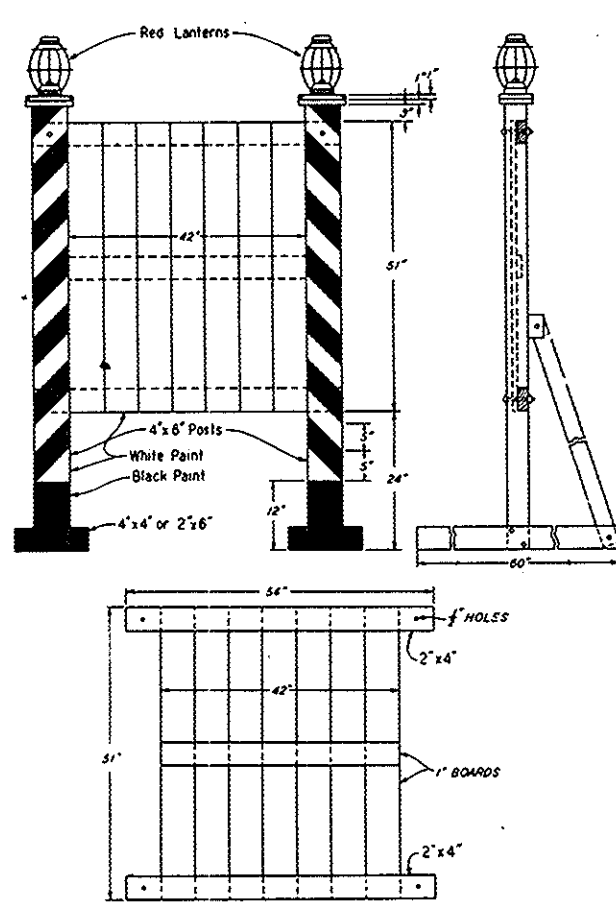
DETOUR 600 FT. AHEAD  
ASSEMBLY



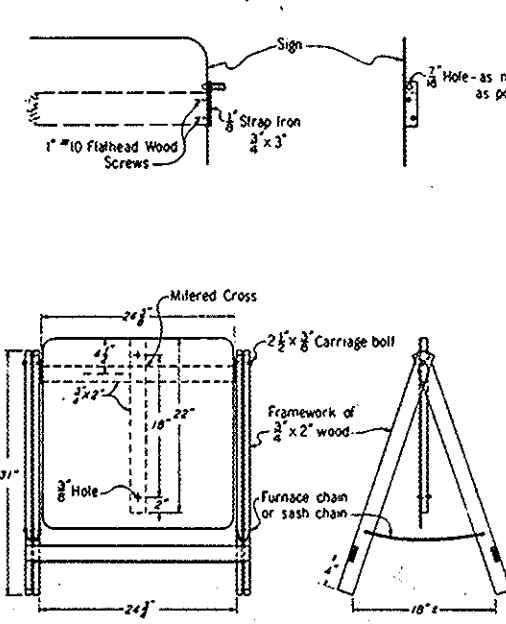
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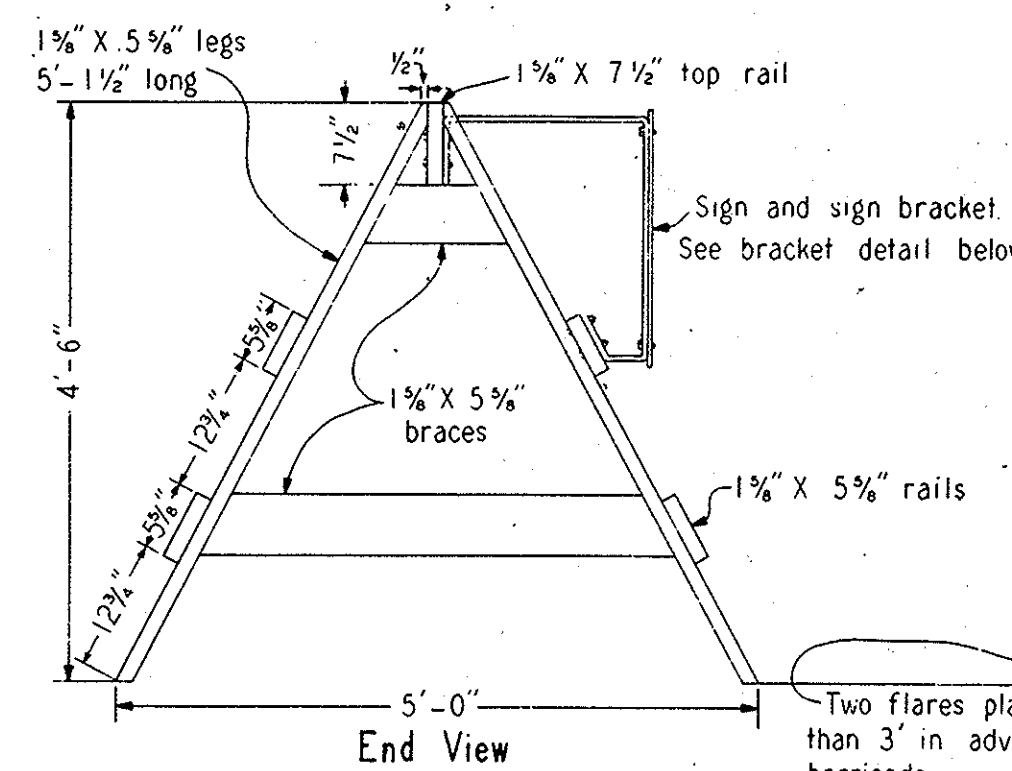
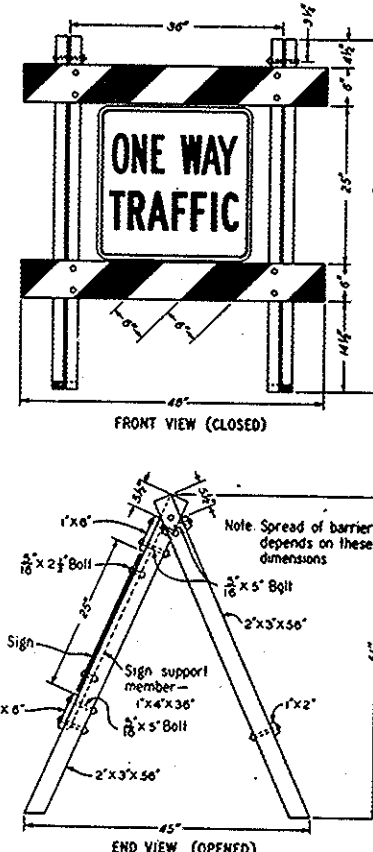
# ROAD CLOSED STANDARD



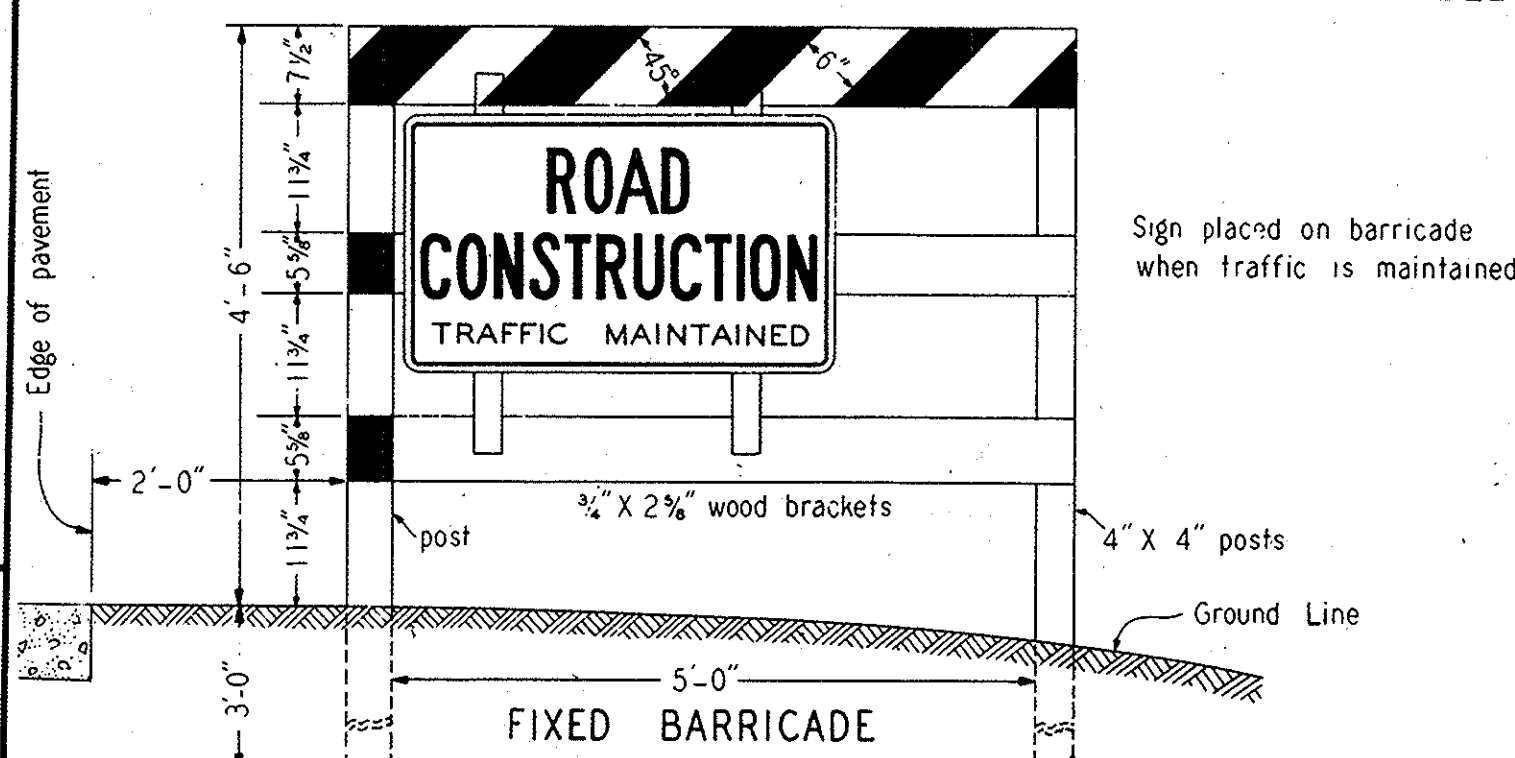
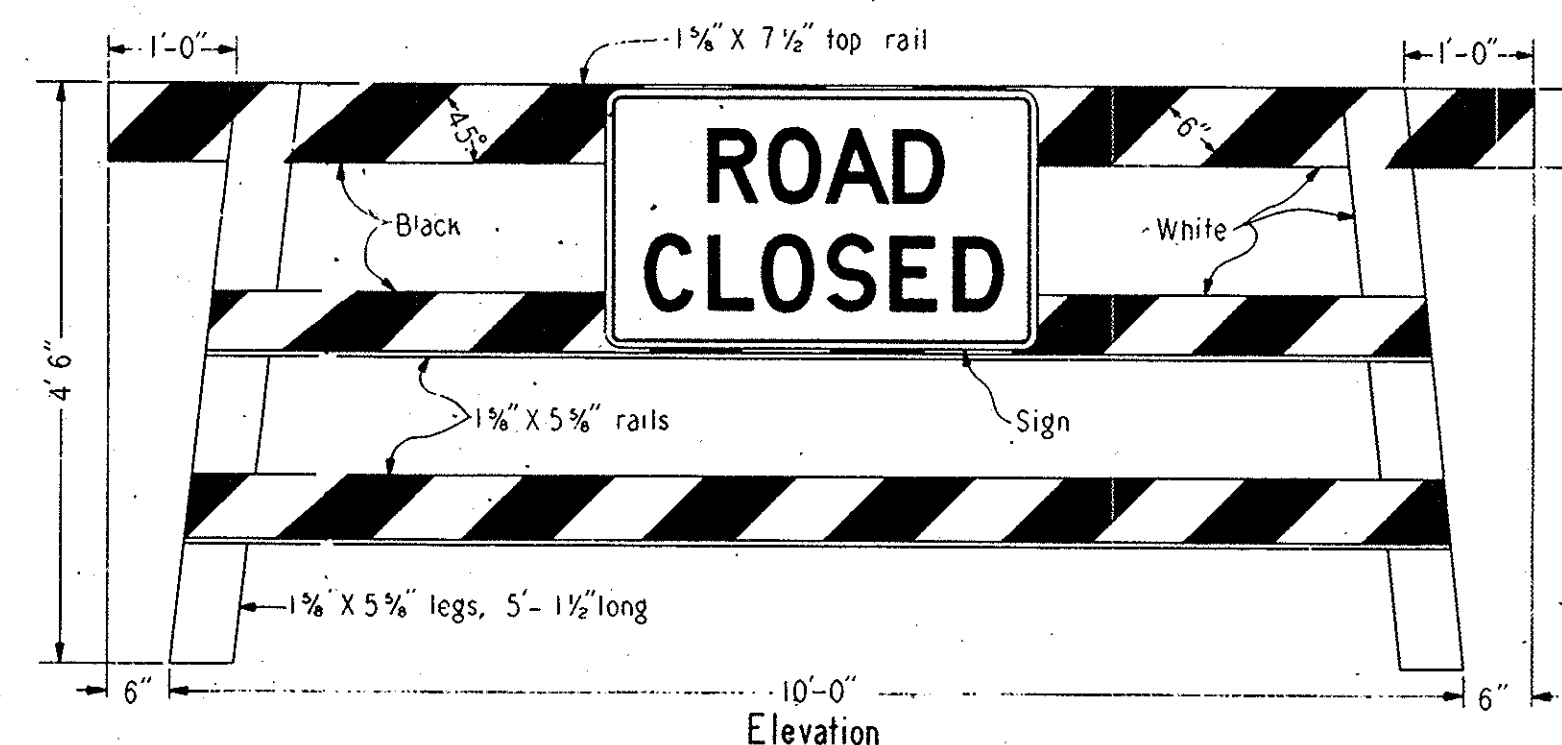
# STANDARD SIGN EASEL SWINGING TYPE



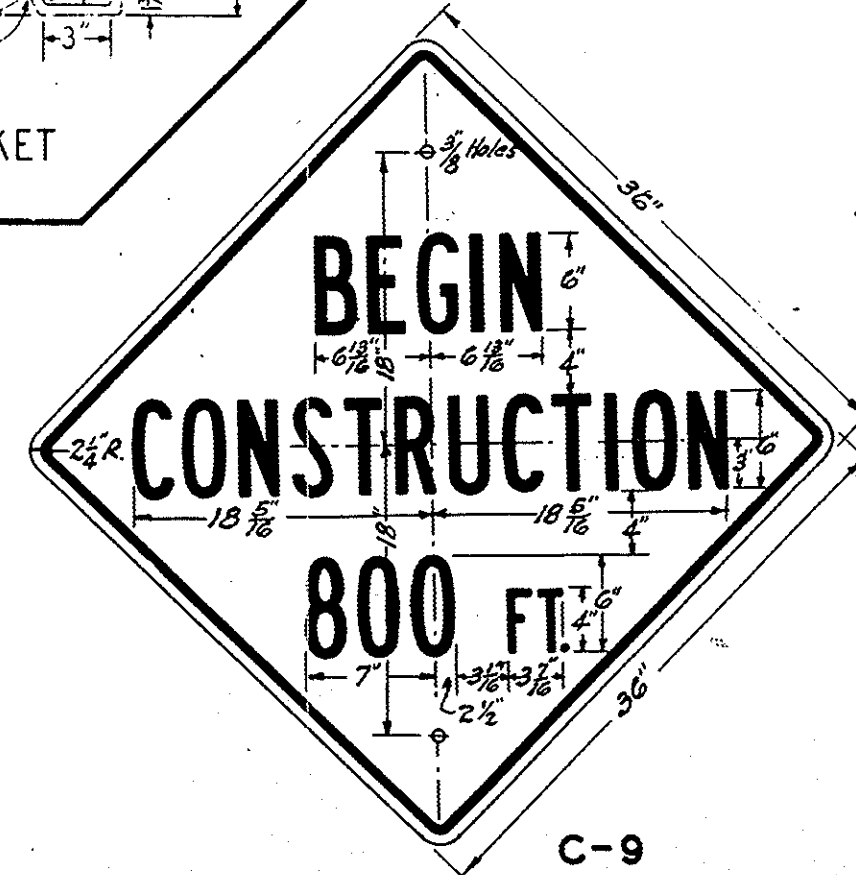
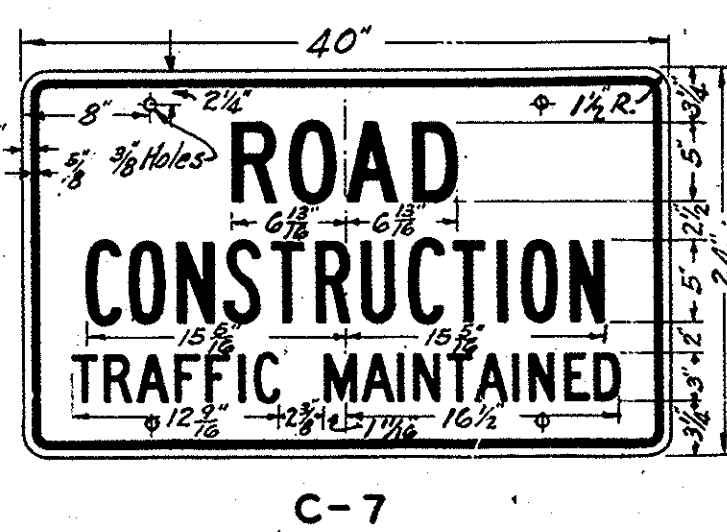
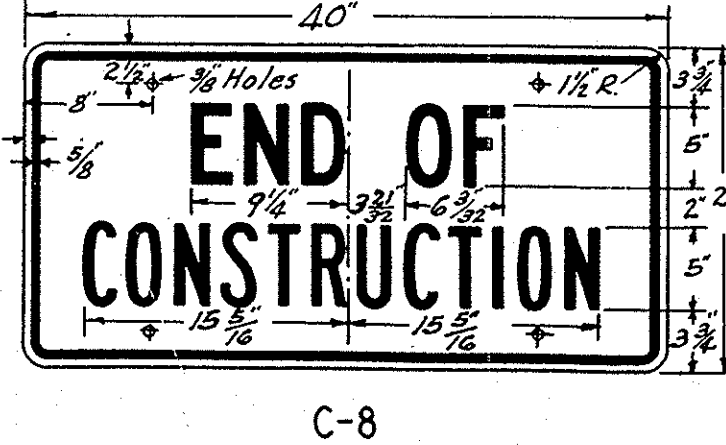
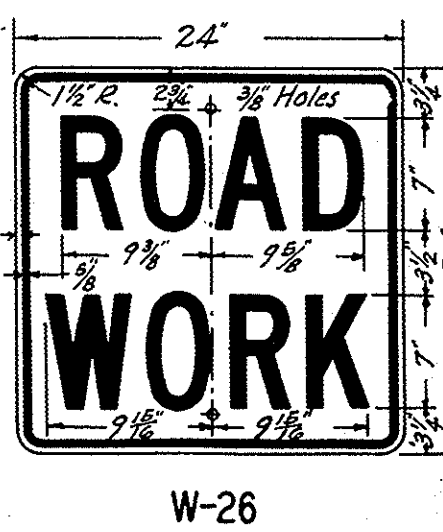
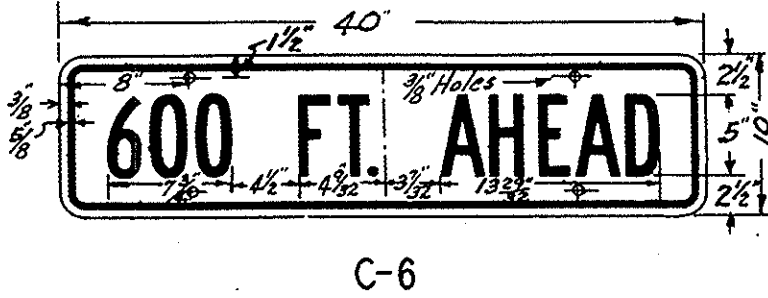
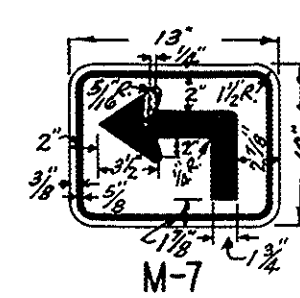
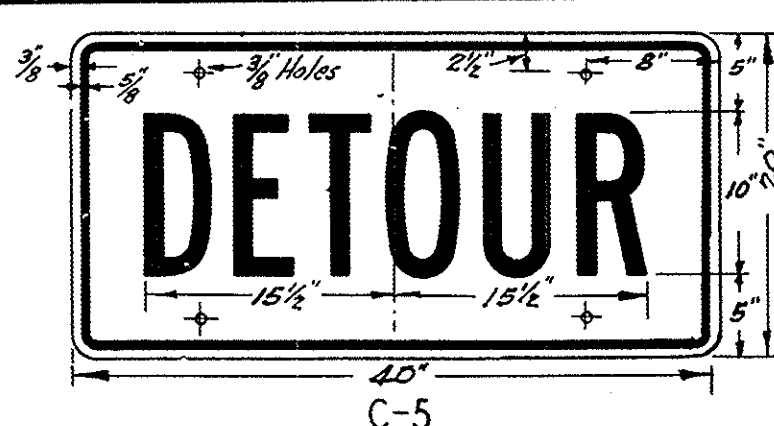
# STANDARD PORTABLE SIGN BARRIER



# MOVABLE BARRICADE



# DRAWINGS SHOWING DIMENSIONS OF SIGNS

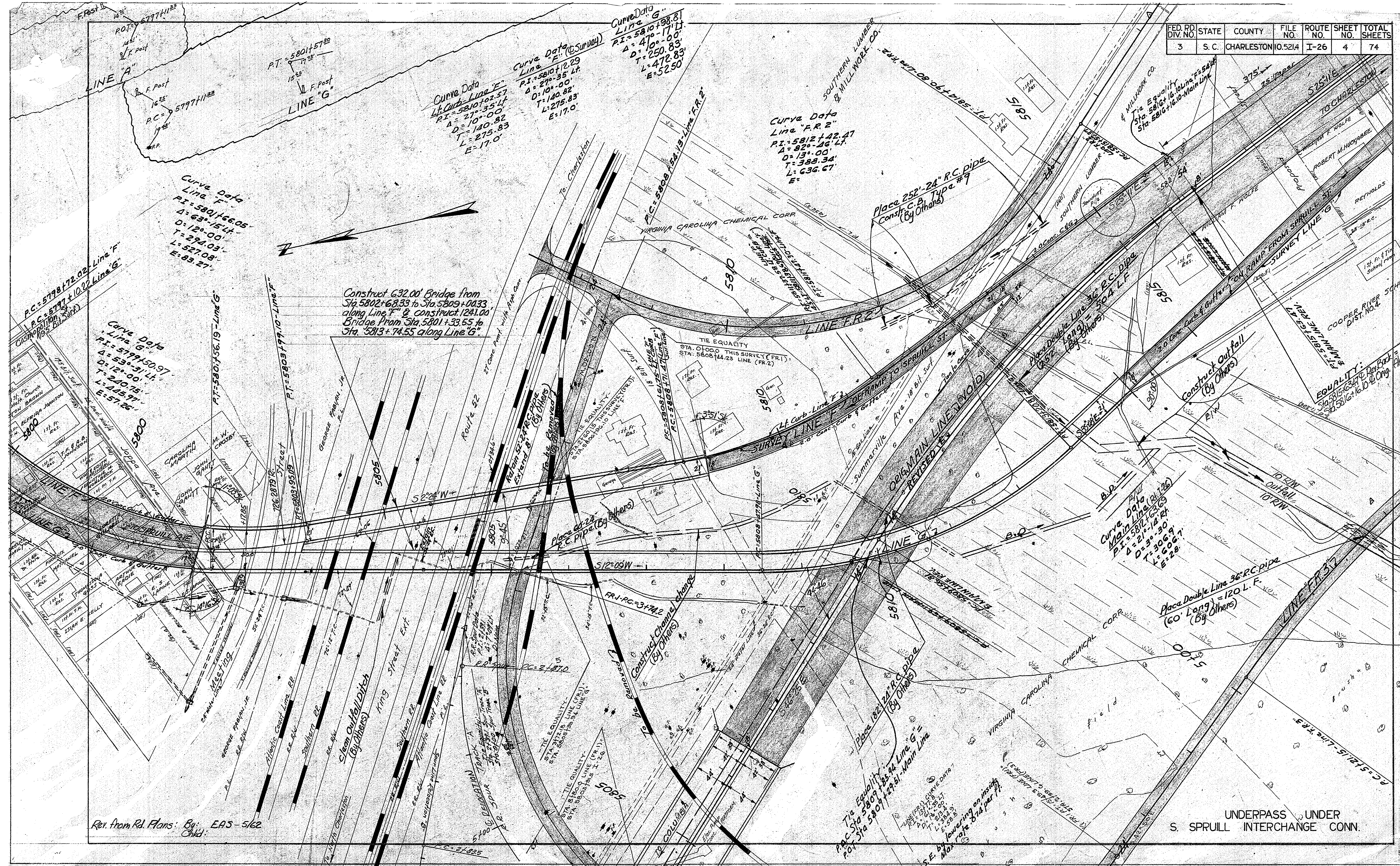


DETAILS  
SHOWING  
STANDARD SIGNS, BARRIERS, LIGHTS, AND  
BARRICADES TO BE FURNISHED, ERECTED,  
AND MAINTAINED BY THE CONTRACTOR  
WHERE APPLICABLE ON ALL ROAD OR  
BRIDGE CONTRACTS

APPROVED  
DATE  
STATE HIGHWAY ENGINEER



FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S. C.	CHARLESTON	10.5214	T-26	4	74



UNDERPASS UNDER  
S. SPRULL INTERCHANGE CONN.

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S. C.	CHARLESTON	10.521.4	I-26	5	74

## DESIGN DATA

SPECIFICATIONS: A.A.S.H.O. 1961 with rev. thru. 1963

LIVE LOAD: H S20-44 Includes provision for alternate loading of 2 axles 4' apart with each axle weighing 75% of rear loading for spans under 40'.

### UNIT STRESSES

STRUCTURAL STEEL & REINFORCED CONCRETE:  
 $f_s$  (struct) = 20,000 psi  
 $f_s$  (reinf) = 20,000 psi  
 CLASS "A" CONCRETE:  
 $f_c$  = 1200 psi;  $n$  = 10;  $v$  = 225 psi;  $u$  = 300 psi  
 CLASS "X" CONCRETE:  
 $f_c$  = 2,000 psi;  $n$  = 8;  $v$  = 375 psi;  $u$  = 350 psi  
 PRESTRESSED CONCRETE:  
 $f_c$  = 5,000 psi;  $f_{ci}$  = 4,000 psi;  $f_c$  = 2,000 psi  
 PRESTRESSING STEEL:  
 $f_s$  = 250,000 psi;  $f_y$  = 175,000 psi

## MATERIAL AND WORKMANSHIP

Except as may otherwise be specified on plans or in the Special Provisions, all material and workmanship shall be in accordance with the South Carolina Highway Department Standard Specifications for Highway Construction Edition of 1964.

## WIDENING EXISTING CONCRETE STRUCTURES

Existing structure is indicated on the plans by light lines, new structure by heavy lines. All dimensions of new construction are subject to existing conditions.

Connecting surfaces of the old concrete shall be thoroughly roughened, cleaned of loose material, wetted and flushed with 1:2 cement mortar immediately before pouring new concrete, except as noted on other sheets of these plans.

All reinforcing steel protruding beyond surface after chipping shall be left in place and imbedded in new concrete if feasible. Reinforcing steel which can not be imbedded in new concrete shall be cut off flush with surface of concrete where asphalt surfacing will cover. Where exposed the old reinforcing shall be cut off 12" below the exposed concrete surface and the hole patched with dry 1:3 mortar to the satisfaction of the Engineer.

The Contractor shall repair or replace at his own expense, and in a manner satisfactory to the Engineer, any portion of the existing structure damaged as a result of his carelessness or negligence.

The entire cost of the above work including all drilling and chipping and removing and disposing of portions of old structure necessary to construct new structure, shall be included in the unit price bid for Class "A" Concrete.

If expansion anchor bolts are called for they shall be similar and equal to Hawil's Multi-Calk Anchor or American Exp. Bolt and shall be installed in accordance with the manufacturer's directions.

Expansion anchor bolts will be paid for at unit price bid for reinforcing steel.

Unless otherwise specified in these plans or Special Provisions the Contractor shall provide necessary temporary supports for utilities attached to the bridge to maintain service during construction.

The owner will make all necessary changes in alignment and elevation of the utility and furnish permanent supports which shall be placed in the concrete by the Contractor.

All costs of the work to be performed by the Contractor shall be included in the unit price bid for Class "A" Concrete.

Any necessary repairs to the existing structure, in the opinion of the Engineer are to be paid for as extra work.

## SPECIAL NOTE

Generally, in case of discrepancy, this standard sheet of notes shall govern over the Specifications, but the remainder of the plans shall govern over notes hereon, and Special Provisions shall govern over all. See Standard Specifications paragraph 504.

## EXCAVATION FOR PILE TYPE END BENT

All cost of excavation necessary to construct end bents and to remove material under superstructure to an elevation 1'-0" below tops of end bent caps shall be included in the unit price bid for Class "A" Concrete.

### EXCAVATION FOR CONCRETE FTG. END BENT

If a concrete footing is used for the end bent, the excavation below that included for the cap and beam in the above paragraph will be paid for at the unit price bid for excavation. Excavation above this shall be included in the unit price bid for Class "A" Concrete.

## DRIVING PILES THROUGH FILL

Where piles occur in fill exceeding 10 ft. in height, the fill shall be in place before piles are driven.

## HAMMER FOR STEEL PILES

Steel piles where required bearing exceeds 30 tons shall be driven with a diesel, steam or air hammer having a minimum energy of 14,000 ft.-lbs.

## HAMMER FOR CONCRETE PILES

Concrete Piles shall be driven with steam or air single-acting hammer or diesel hammer of suitable size. The drop hammer allowed in para. 104.05 of the Standard Specifications may not be used.

## ALLOWANCE FOR DEAD LOAD DEFLECTION AND SETTLEMENT

Bridges shall be built on the grade or vertical curve shown on plans. Handrails, slabs and curbs shall conform to the grade or curve.

In setting forms for structural steel or prestressed concrete beam bridges, an allowance shall be made for dead load deflections in addition to the elevations shown.

In setting falsework and forms for reinforced concrete spans an allowance shall be made for dead load deflections, settlement of falsework, and permanent camber which shall be provided for in addition to the elevations shown. After removal of the falsework, the finished structure shall conform to the elevations shown plus the allowance for permanent camber specified by the Engineer.

## BRONZE EXPANSION PLATES

Bronze  $\mathcal{R}$ 's to be self-lubricating Exp.  $\mathcal{R}$ 's. Manufactured from rolled bronze alloy complying with A.S.T.M. B100 - Alloy 1, or A.S.T.M. B22 - Gr. B casting, and to have special inserts consisting of graphite and metallic substances with a lubricating binder in top face only. Installation of  $\mathcal{R}$ 's to be in accord with manufacture's directions. The Coef. of friction shall not exceed 0.1. The Bronze  $\mathcal{R}$ 's shall be similar to those manufactured by Merriman Bros., Inc., 183 Amory St., Boston 30, Mass., or Whiteley Bearing Corporation Chicago, Ill, or an approved equal.

## STRUCTURAL STEEL

Beams shall be cambered for vertical curve and dead load deflection either in mill or shop.

Layout dimensions and standard lengths of beams shown are horizontal dimensions and must have the additional lengths added for lengths along grade.

All rivets shall be  $\frac{7}{8}" \phi$  unless noted.

All high-tensile-strength bolts shall be  $\frac{7}{8}" \phi$  unless noted.

All holes shall be  $\frac{1}{16}" \phi$  unless noted.

Holes in all main member splices shall be sub-punched. The connecting members shall be assembled in their proper positions, and the holes reamed to full size while assembled.

Floor beam connections shall be reamed to a metal template.

All stiffeners of floor beams and at pier reactions shall have fills. All interior stiffeners between floor beams shall be crimped or filled.

Shims shall be placed between beam flange and rocker plate where required and shall be adjusted to bring top of beam to theoretical grade.

Bearing plates and rocker plates to be rolled steel.

Nuts on Anchor Bolts at Expansion Ends to be tightened  $\frac{1}{8}"$  clear to allow for movement.

Anchor bolt assemblies will be paid for as reinforcing steel and are included in the bent quantities.

Mill and shop inspection of the structural steel will be performed by Froehling & Robertson, Inc., 814 West Cary St., Richmond, Virginia. The contractor shall notify that company of the name and address of the fabricator of the structural steel as soon as the fabricator has been given the contract to fabricate so that the inspection procedure can be set up. The contractor shall also stipulate in his order to the fabricator that Froehling & Robertson, Inc., will perform the mill and shop inspection of the structural steel.

## COMPOSITE BEAMS

A 5 day interval shall be allowed between time of pouring slab and sidewalk.

Tops of beam flanges shall not be painted.

All equipment, materials and workmanship for electric arc welded stud shear connectors shall be in accordance with the recommendations of the manufacturer and Special Provisions.

Alternate for welded studs: an approved alternate method of securing composite action between beams and slab may be used, at no additional cost to the Dept. Details must be submitted for approval in advance of making the change.

$\frac{7}{8}" \phi$  studs may be substituted for  $\frac{3}{4}" \phi$  studs. The  $\frac{7}{8}" \phi$  studs shall be placed with the same number in each transverse row as the  $\frac{3}{4}" \phi$  studs. The pitch of the  $\frac{7}{8}" \phi$  studs shall be equal to 1.36 times the pitch of the  $\frac{3}{4}" \phi$  studs. The  $\frac{7}{8}" \phi$  studs must be welded within the recommended area of an approved arc stabilizer cart.

## PRESTRESSED BEAMS

Tops of beams shall be rough floated. At the approximate time of initial set, entire top of beam shall be scrubbed with a coarse wire brush to remove all laitance, and to produce a roughened surface for bonding slab.

Membrane curing compound shall not be used on tops or ends of beams.

Concrete in prestressed beams shall be class "X" as described in the Special Provisions.

The prestressing strands, wire or bars, must be thoroughly cleaned of any loose rust, dirt, grease, form lubricant, or other deleterious substances, to the satisfaction of the Engineer before the concrete is placed.

Beams shall not be transported to the bridge site until concrete has cured for at least 6 days.

Beam lengths given are based on horizontal span only. These lengths shall be increased to correct for concrete shrinkage, concrete shortening when the strands are cut, and for beams being on a grade.

## CONCRETE

All concrete shall be Class "A" unless noted below or on other sheets of these plans.

Build-ups on bent caps shall be cast monolithic with cap, except buildups over 3" high may be cast later with construction joint.

Top of each build-up shall be level.

Payment for Concrete in slab will be based on theoretical plan quantity.

Any necessary adjustment for Camber shall be at the Contractor's expense.

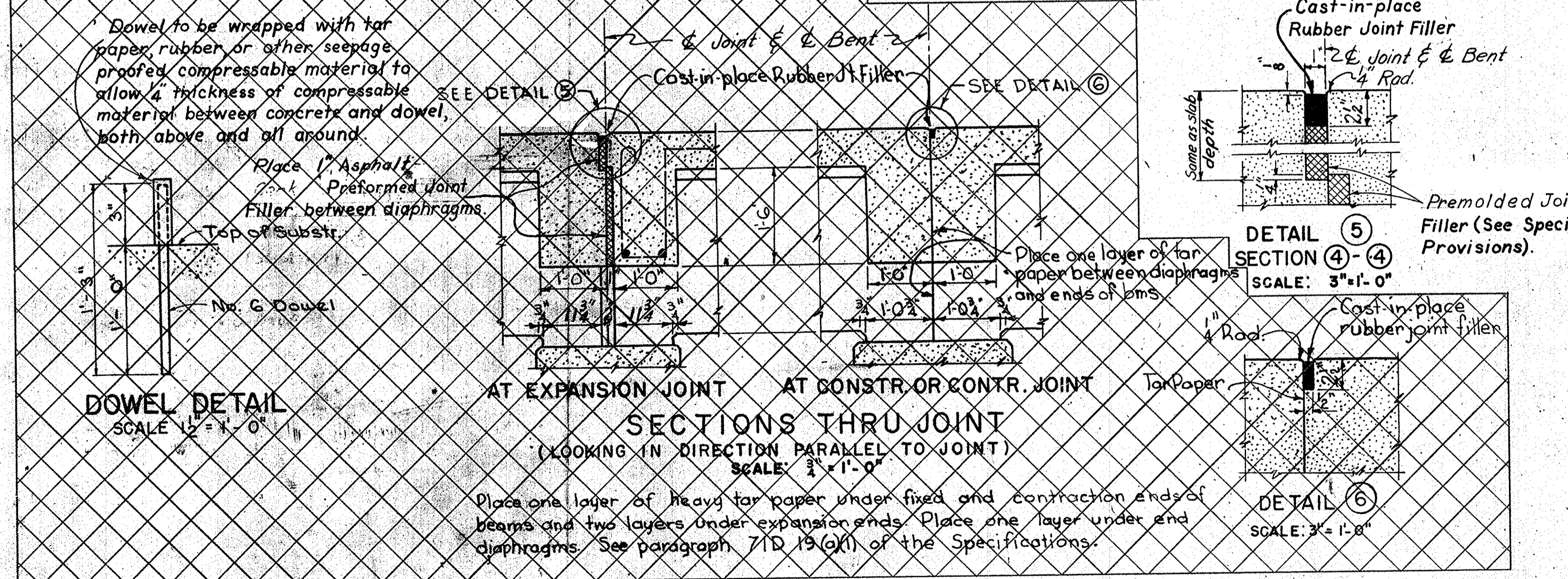
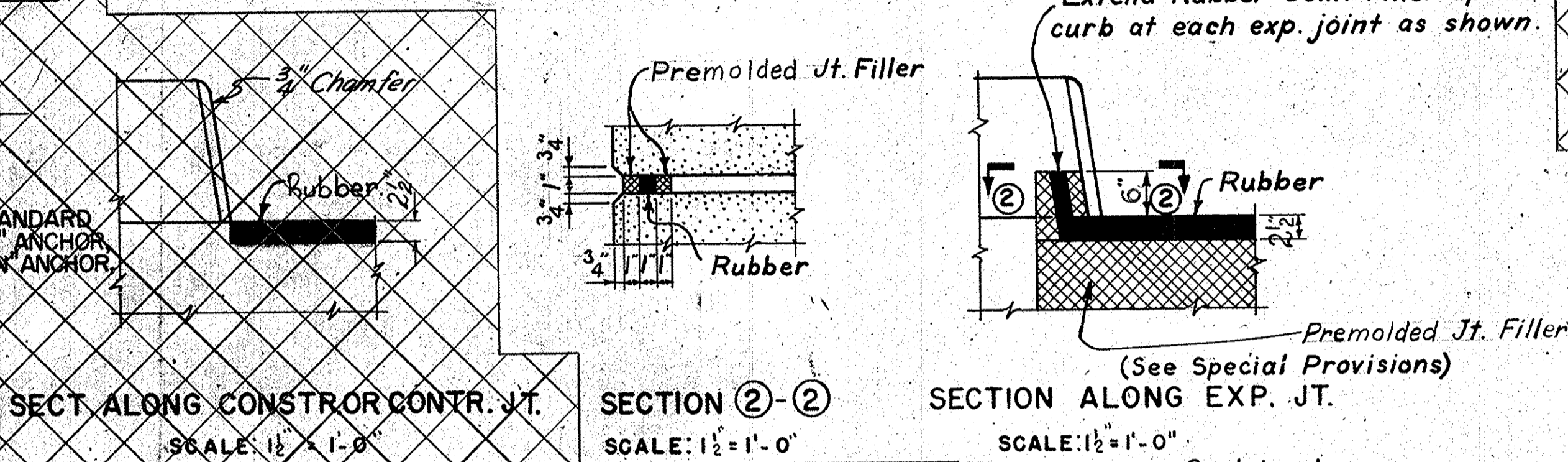
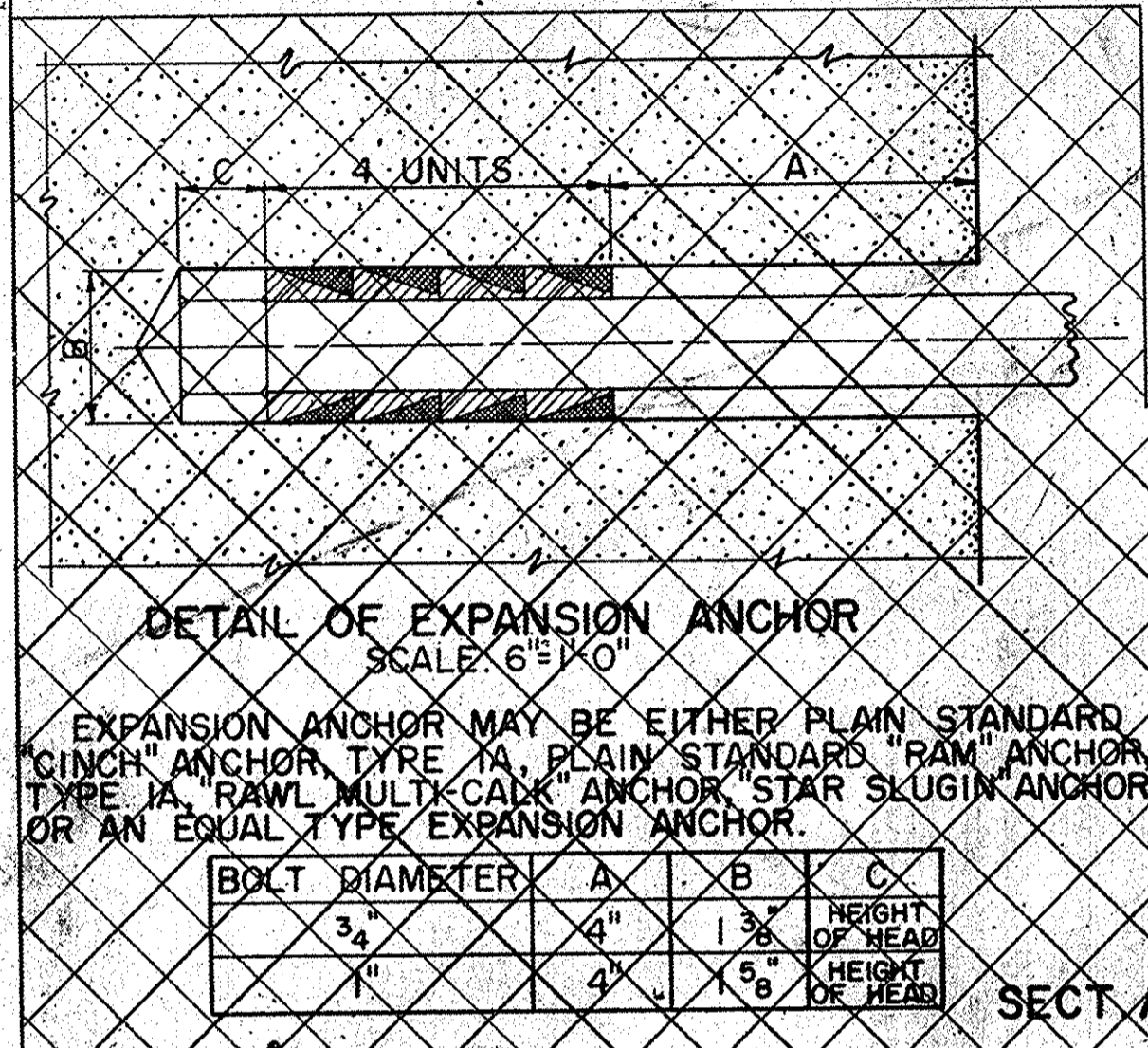
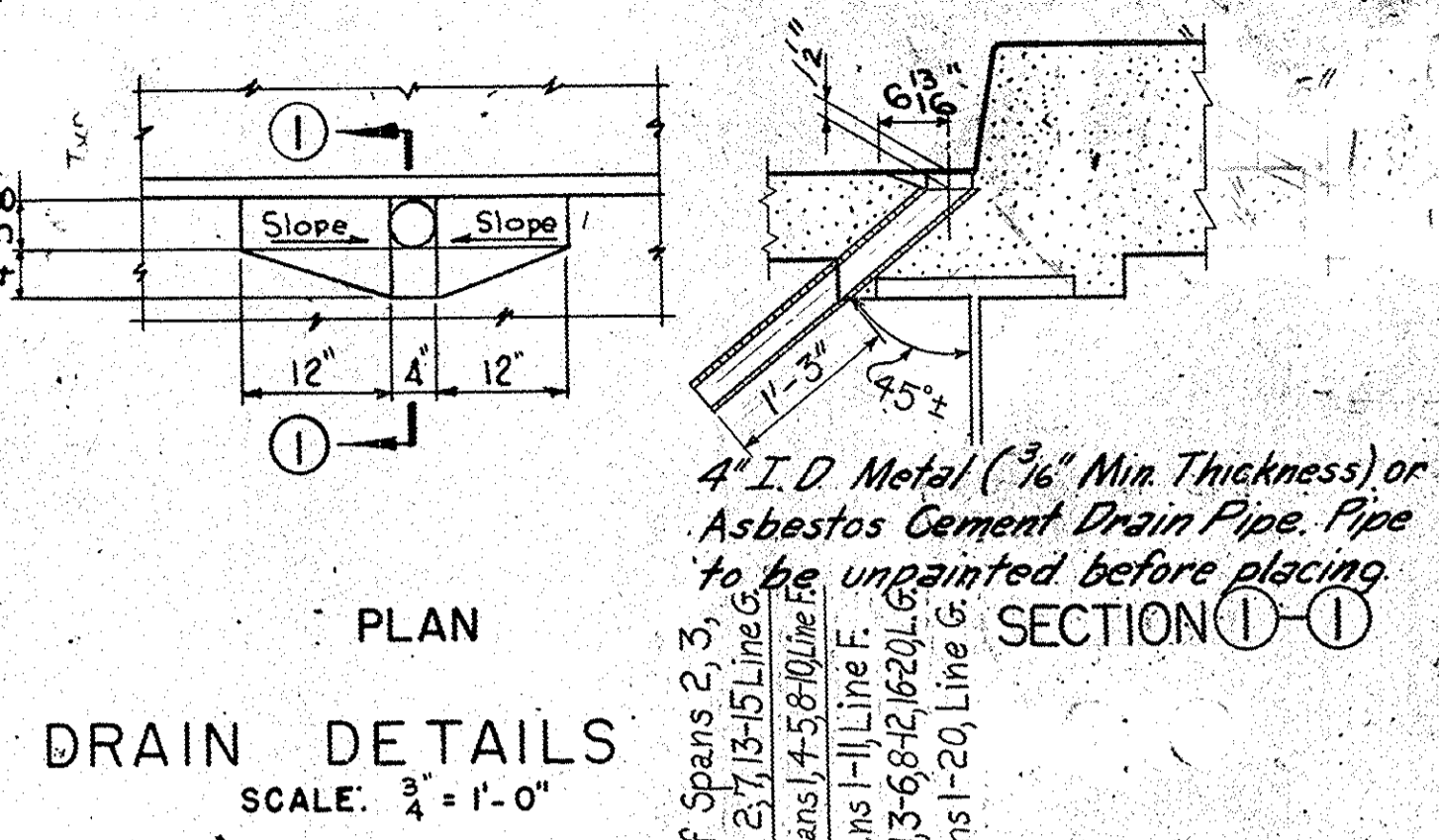
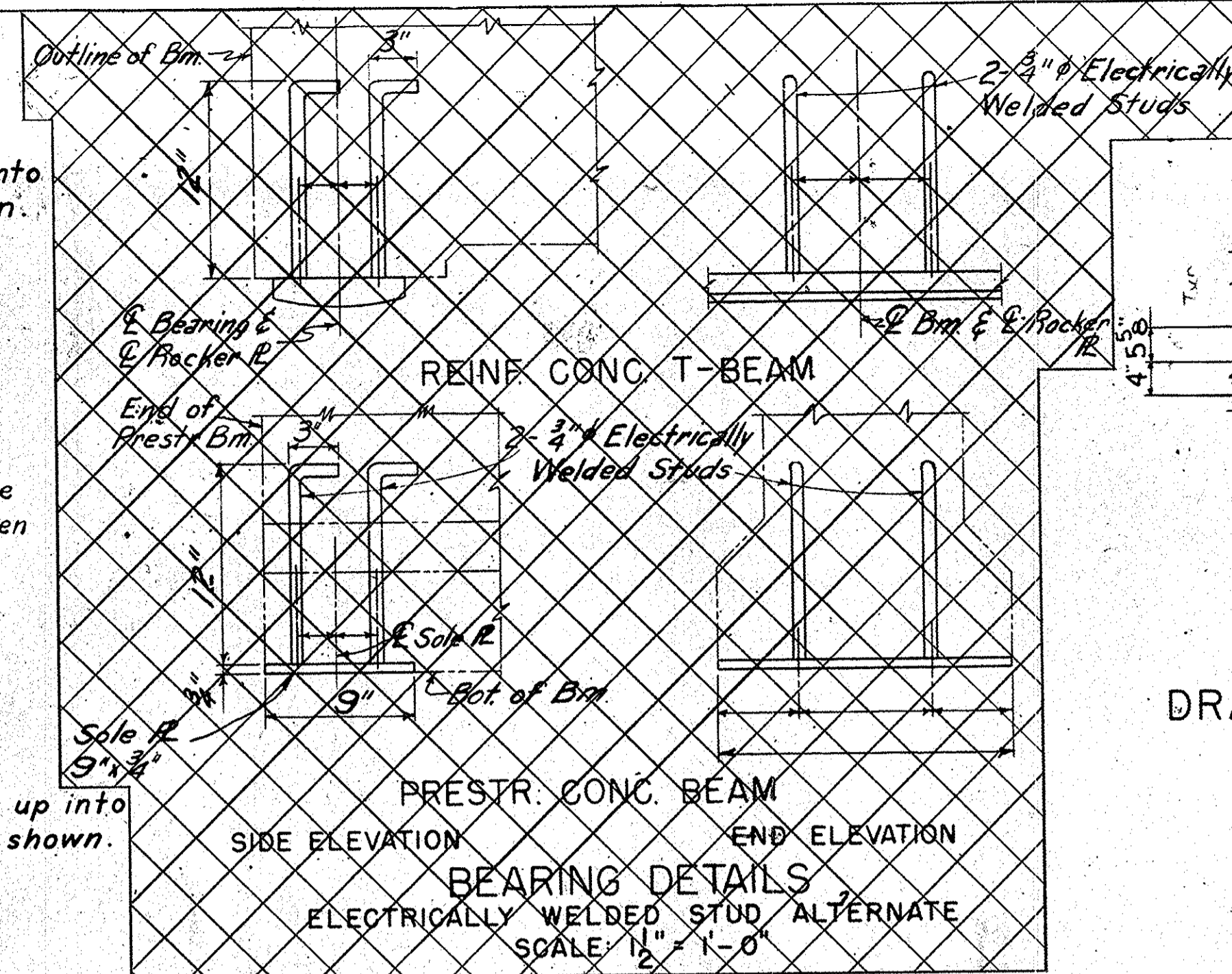
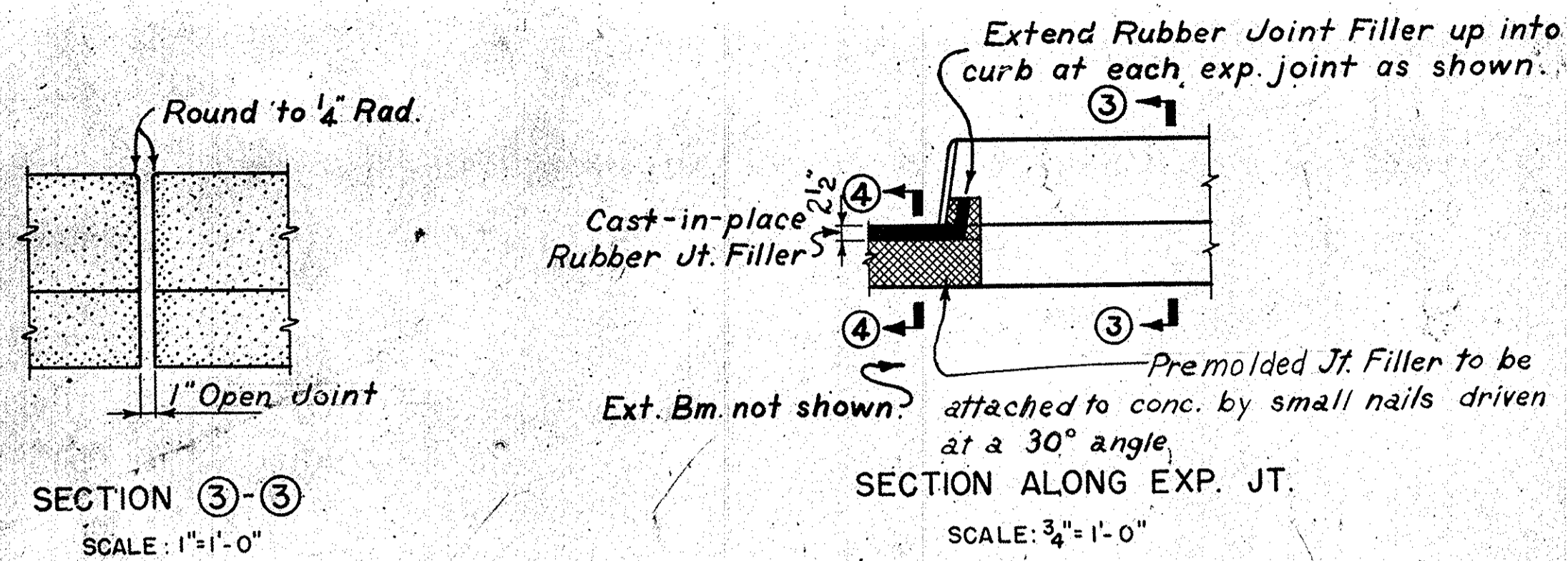
All exposed edges shall be chamfered  $\frac{3}{4}"$  unless otherwise noted.

For simple spans over 70 Ft. in length, the center portion (approximately  $\frac{2}{3}$  of the length) of the slab shall be poured first and allowed to cure for not less than 4 days before the remaining end sections are poured. However, when the temperature permits (in the opinion of the engineer) the entire slab may be poured provided a suitable retarding agent is used in such amounts that the slab concrete shall not have had its initial set prior to the completion of the casting of the slab concrete.

## BEARINGS

For concrete beams bearing on concrete, the top of caps, or tops of build-ups, under bearing areas of beams shall receive a steel trowel finish to insure a smooth and level bearing surface. See Standard Specifications paragraph 7102.2.

REV.		S.C. STATE HIGHWAY DEPARTMENT BRIDGE DIVISION COLUMBIA, S. C.			
REV.		STANDARD NOTES			
REV.					
REV.	PEP/RRS/10-64				
REV.	For File 10.521.4				
REVIEWED:					
	N. CHARGE	FILE NO.	COUNTY	ROUTE NO.	DATE
QUAN.		10.521.4	CHARLESTON	I-26	10-64
TR.	APD/RWH/4-61	APPROVED BY:		APPROVED BY:	
DR.	APD/RWH/4-61	DES. BY: CHODATE		BRIDGE ENGINEER	
DES.		BRIDGE DESIGN & PLANS ENGR.		BRIDGE ENGINEER	



Note: Bolsters shall be spaced so that they provide adequate support for the slab reinforcing steel. The BBU bolsters shall be spaced at approx. 3'-0" ctrs. The BB bolsters shall be placed with one row near each edge of slab & with a max. spacing of approx. 3'-0" between. Bolsters shall be equal to beam bolsters BB and BBU as Mfg'd by Meadow Steel Co. or Richmond Screw Anchor Co. The lengths of bolsters shown in reinforcing steel schedules are approximate. Weights are included in the reinforcing steel quantities and payment will be made at the unit price bid for Reinforcing Steel.

DETAIL OF ANCHOR BOLT  
SCALE: 1 1/2" = 1'-0"

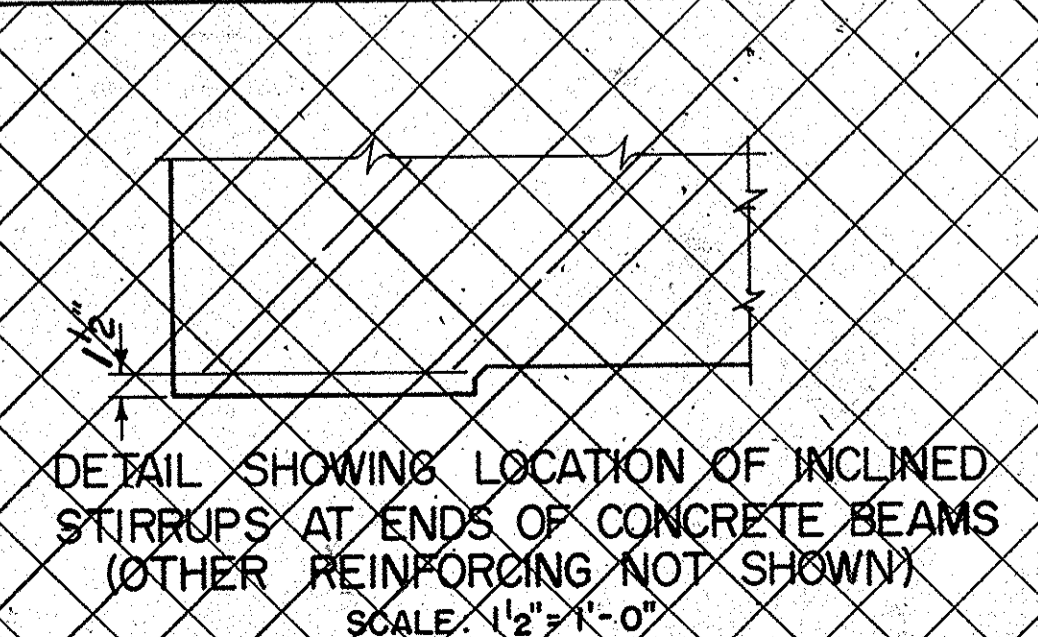
ANCHOR BOLT SCHEDULE				
Bent No.	No. per Bent	Size	Length	*Wt. per Bent Lbs.
1; Line F & G	16	1" φ	1'-4"	86
2; Line F & G	32	1" φ	1'-4"	171
3-10; Line F	16	1" φ	1'-4"	86
11; Line F	8	1" φ	1'-4"	43
3-20; Line G	16	1" φ	1'-4"	86
21; Line G	8	1" φ	1'-4"	43

\* Complete Assembly (Wt. one assembly = 5.35 Lbs. approximately).

HOOK DETAILS FOR STEEL REINFORCING BARS

Bar Size	Hook Length
1/2"	23"
3/4"	23"
1"	23"
1 1/4"	23"
1 1/2"	23"
2"	33"
2 1/2"	33"
3"	43"

For No. 4 and Smaller add 6" per hook  
For No. 5 and No. 6 add 8" per hook  
For No. 7 and larger add 12" per hook



REV. AMZ HDL 4-59	Bearing Detail	QUAN.	TR. WCF EAS 1/56	FILE NO.	COUNTY	ROUTE NO.	DATE
REV. WEB MDS 1/58	Drain Detail	DR.	JCW EAS 1/56	10.521.4	CHARLESTON	1-26	10-64
REV. AMZ RWH 1-58	Build-down Detail	DES.	WCF EAS 1/56	APPROVED BY: <i>[Signature]</i>			
REV. RWH ACH 1-57	Add Dowel Detail	BY: CHK DATE	BRIDGE DESIGN & PLANS ENG.	BRIDGE ENGINEER			

S.C. STATE HIGHWAY DEPARTMENT  
BRIDGE DIVISION  
COLUMBIA, S.C.

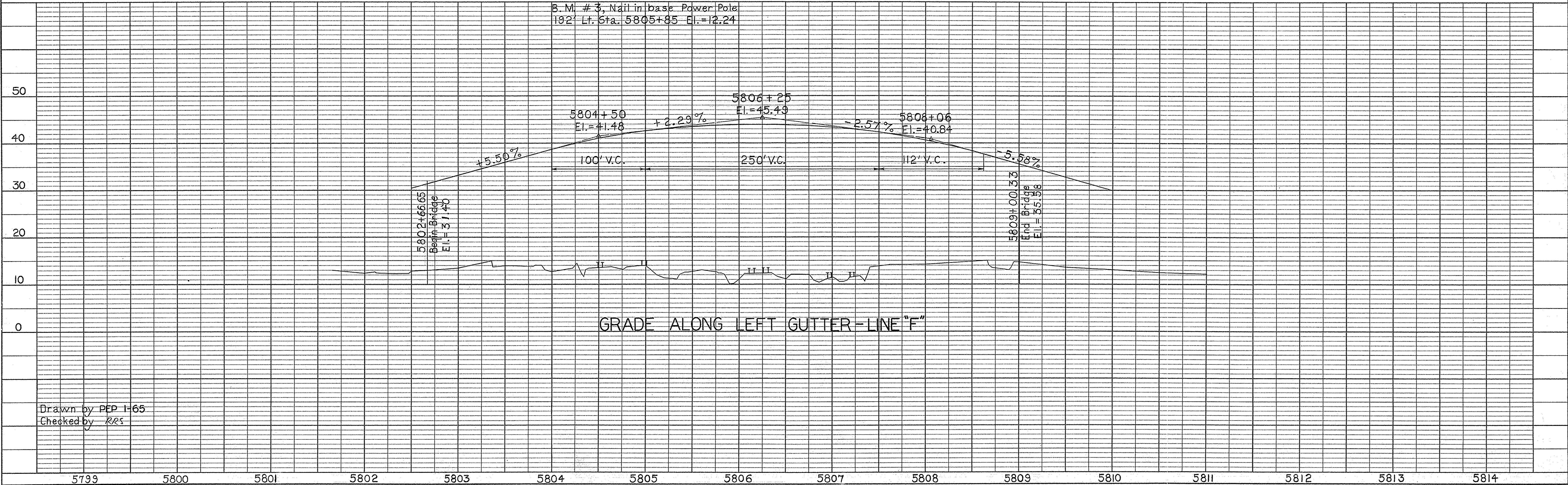
STANDARD DETAILS



FED. RD DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	10.5214	I-26	8	74

PLAN	NO.	NOTE BOOK	SURVEYED	BY	DATE	PLOTTER	CHECKED	RT. OF WAY CHECKED

PROFILE	NO.	NOTE BOOK	SURVEYED	BY	DATE	PLOTTER	CHECKED	STRUCTURE NOTING CH'G.

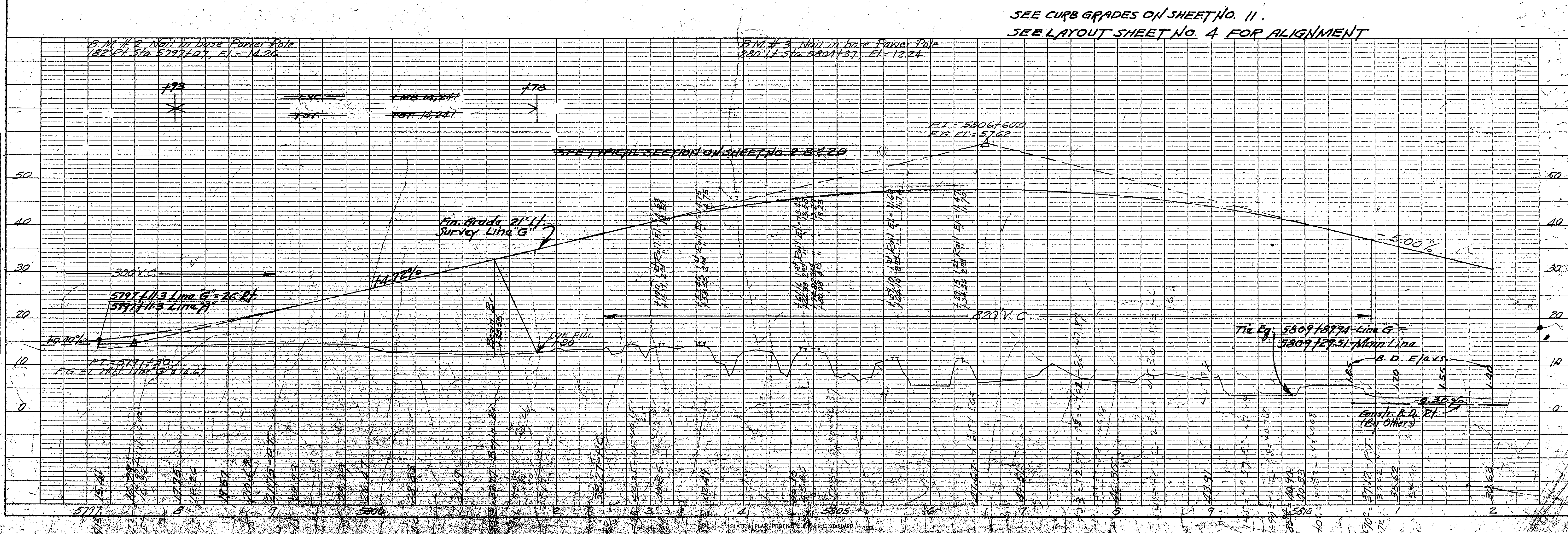


FED. ROAD DIV. NO.	STATE	COUNTY	FILE NO.	PROJECT NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S. C.	Charleston	10.5214	1-16-28	I-26	39	1747

LINE "G" -4(26)

PLAN	SURVEYED BY	DATE
NOTE BOOK	ALIGNMENT CHECKED	ST. OF WAY CHECKED

PROFILE	SURVEYED BY	DATE
NOTE BOOK	GRADES CHECKED	STRUCTURE NOTATION CHECKED

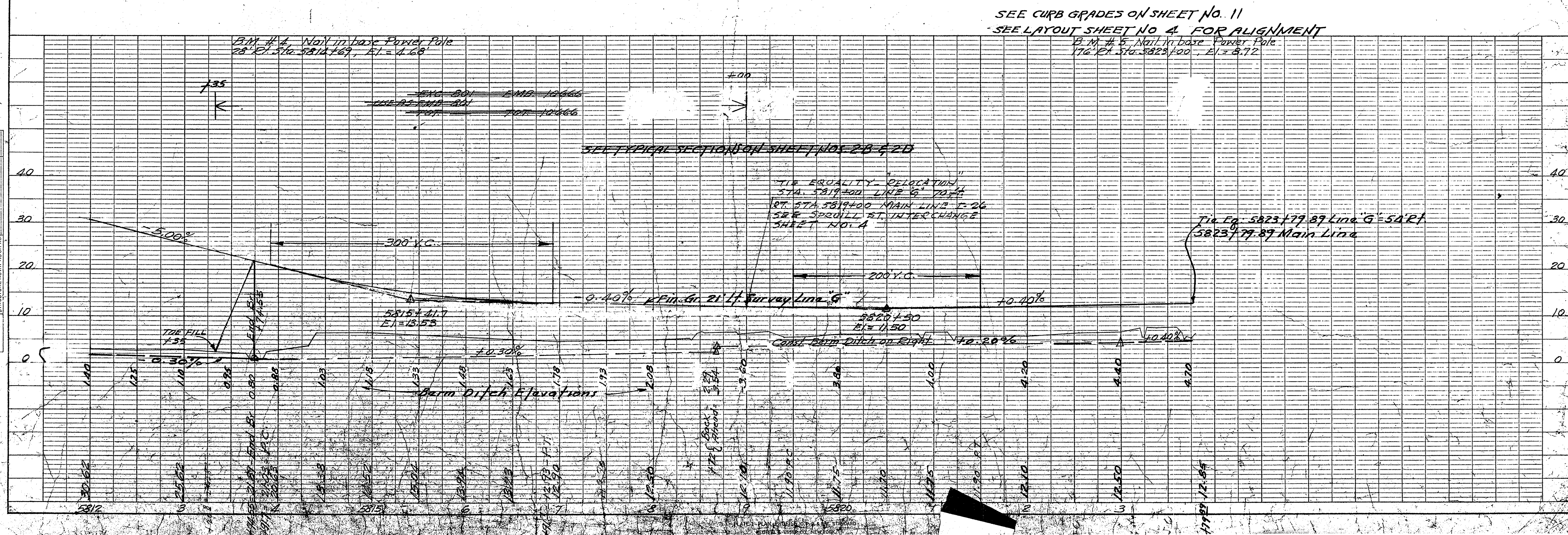


FED. ROAD DIV. NO.	STATE	COUNTY	FILE NO.	PROJECT NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S. C.	Charleston	10.521.4	146-26	I-26	10	74

LINE "G" 4(26)

PLAN	SURVEYED	DATE
	PLOTTED	BY
	NOTED	BY
	NO.	BY

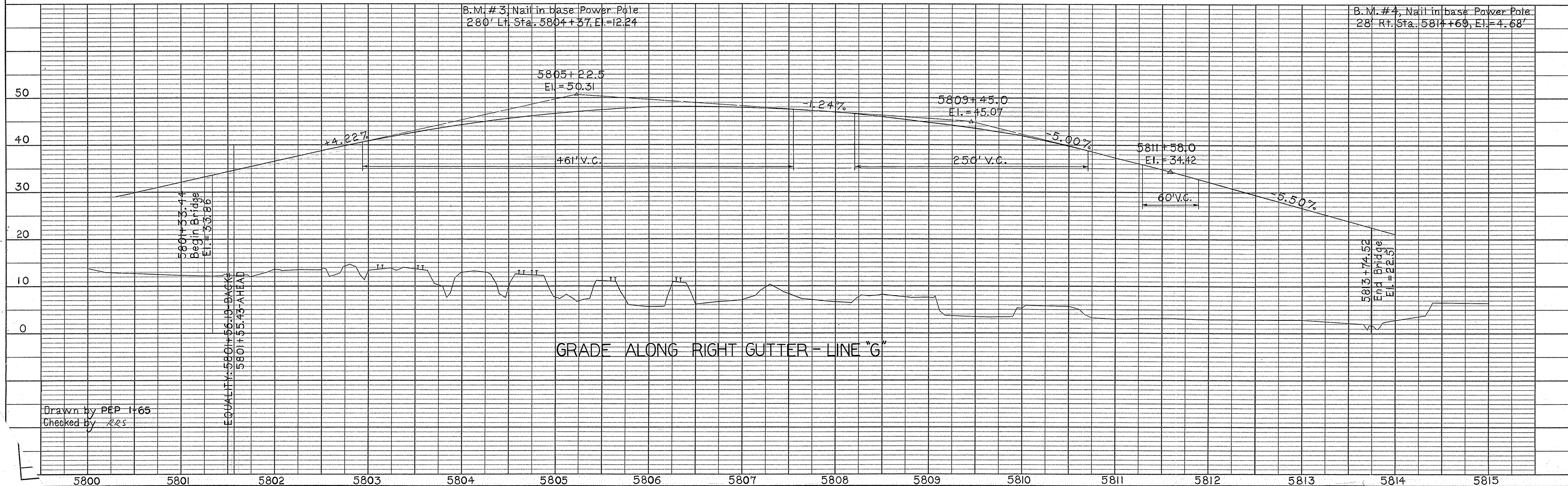
PROFILE	SURVEYED	DATE
	PLOTTED	BY
	NOTED	BY
	NO.	BY



FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	10.5214	I-26	11	74

PLAN	NO.	NOTE BOOK	SURVEYED PLOTTED	BY	DATE

PROFILE	NO.	NOTE BOOK	SURVEYED PLOTTED	BY	DATE

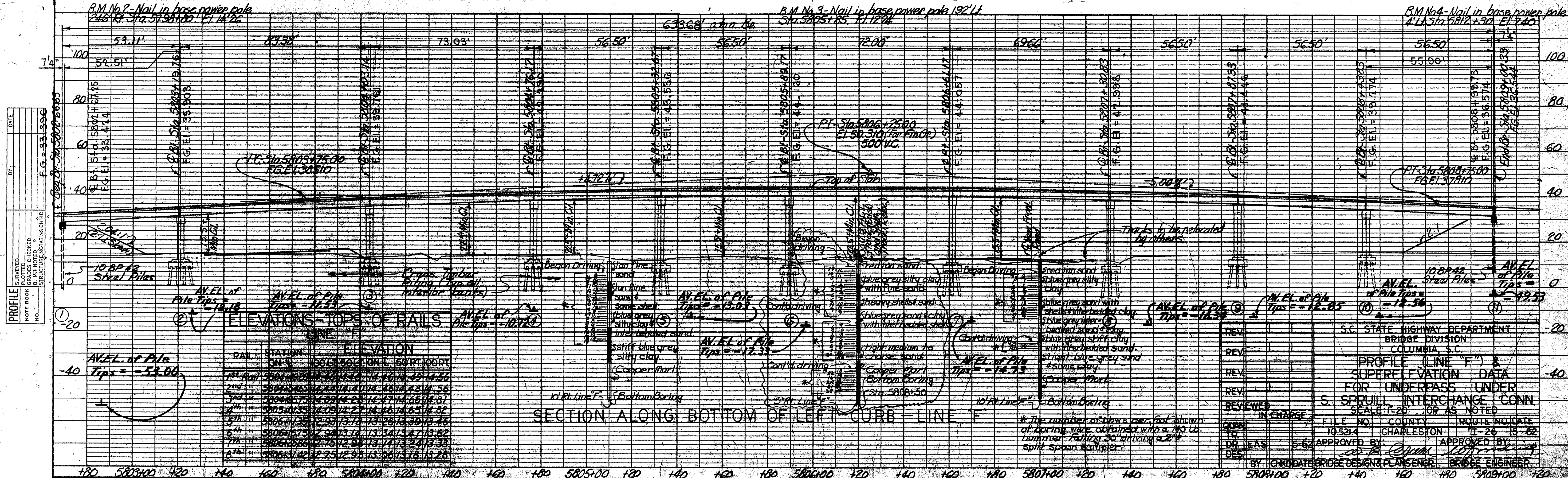


Drawn by PEP 1-65  
Checked by RRS

TEST ON SAMPLES FROM FOUNDATION MATERIAL						
Location of Boring	10' Rt. Line F	5' Lt. Line G	8' Lt. Line G	5' Lt. Line G	8' Lt. Line G	8' Lt. Line G
Station	5805+10	5803+35	5808+50	5803+35	5805+00	5807+00
Sample Elevation	-39.0	-4.0	-36.0	-14.0	-36.0	-36.0
% Pass #10 Ret #60	7	4	2	11	4	7
% Pass #60 Ret #200	26	88	41	24	32	37
% Silt	23	3	27	29	30	29
% Clay	44	5	30	36	34	27
AASHTO Class	A-7-5(17)	A-3	A-6(5)	A-6(8)	A-7-6(9)	A-6(6)
Type Soil	Clayey Soil	Fine Sand	Clayey Soil	Clayey Soil	Clayey Soil	Clayey Soil
Chemical Analysis	CaCO <sub>3</sub> 63.2%		CaCO <sub>3</sub> 62.0%		CaCO <sub>3</sub> 72.4%	CaCO <sub>3</sub> 59.6%
Rock						
Maximum Load						

TEST ON SAMPLES FROM FOUNDATION MATERIALS						
Location of Boring	20' Lt. Line G	5' Lt. Line G	10' Rt. Line F	5' Rt. Line F	5' Rt. Line F	Line G
Station	5801+80	5803+35	5807+00	5808+50	5808+50	5807+86
Sample Elevation	-37.0	-36.0	-38.0	-35.0	-37.0	
% Pass #10 Ret #60	3	8	6	14	14	7
% Pass #60 Ret #200	30	45	34	38	38	28
% Silt	41	32	43	26	30	43
% Clay	26	15	17	22	18	22
AASHTO Class	A-6(9)	A-4(2)	A-4(5)	A-7-6(4)	A-4(3)	A-7-6(9)
Type Soil	Clayey Soil	Silty Soil	Silty Soil	Clayey Soil	Silty Soil	Clayey Soil
Chemical Analysis	CaCO <sub>3</sub> 62.9%	CaCO <sub>3</sub> 72.6%	CaCO <sub>3</sub> 66.1%	CaCO <sub>3</sub> 68.6%	CaCO <sub>3</sub> 65.0%	CaCO <sub>3</sub> 60.2%
Rock						
Maximum Load						

SUMMARY OF QUANTITIES							
	WET & DRY EXCAVATION	CONCRETE CLASS "A"	REINFORCING STEEL	FABRICATED METAL HANDRAILING	STRUCTURAL STEEL	CREOSOTED TIMBER PILING	LOAD TEST PILE
	C.Y.	C.Y.	LBS.	L.F.	LBS.	L.F.	EACH
END BENT 1 - LINE "F" & "G"	1	14.0	1,874			600	
INT. BENT 2 - LINE "F" & "G"	1	135	82.6	11,010		1,840	1
INT. BENTS 3-10 - LINE "F"	8	390	318.8	44,463		5,760	
END BENT 11 - LINE "F"	1		6.0	855		328	
INT. BENTS 3-20 - LINE "G"	18	995	794.2	141,422		13,680	1
END BENT 21 - LINE "G"	1		6.0	855		300	
END SPAN 1 - LINE "F" & "G"	1		93.9	24,842	107	66,900	
INT. SPANS 2-9 - LINE "F"	8		423.4	109,920	1,043	431,900	
END SPAN 10 - LINE "F"	1		49.7	12,066	113	36,200	
INT. SPANS 2-19 - LINE "G"	18		892.4	236,546	2,231	897,500	
END SPAN 20 - LINE "G"	1		47.7	11,592	108	32,900	
LIGHT BRACKETS	16		3.2	1,744			
TOTALS	1,520	2,731.9	597,189	3,602	1,465,400	21,280	2



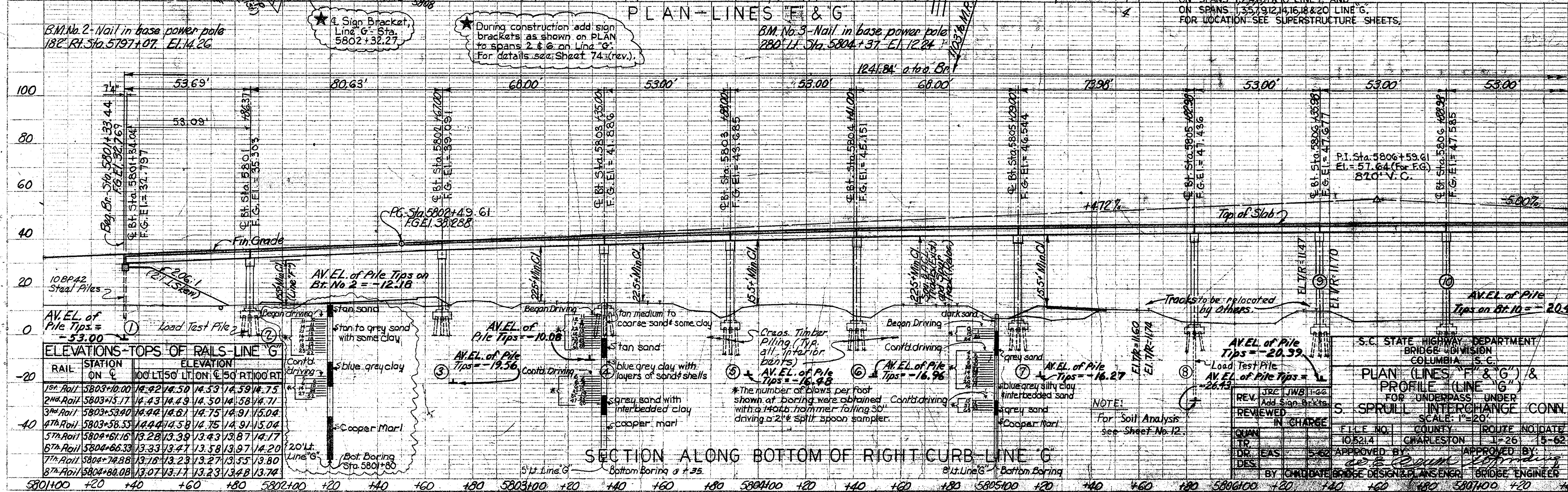
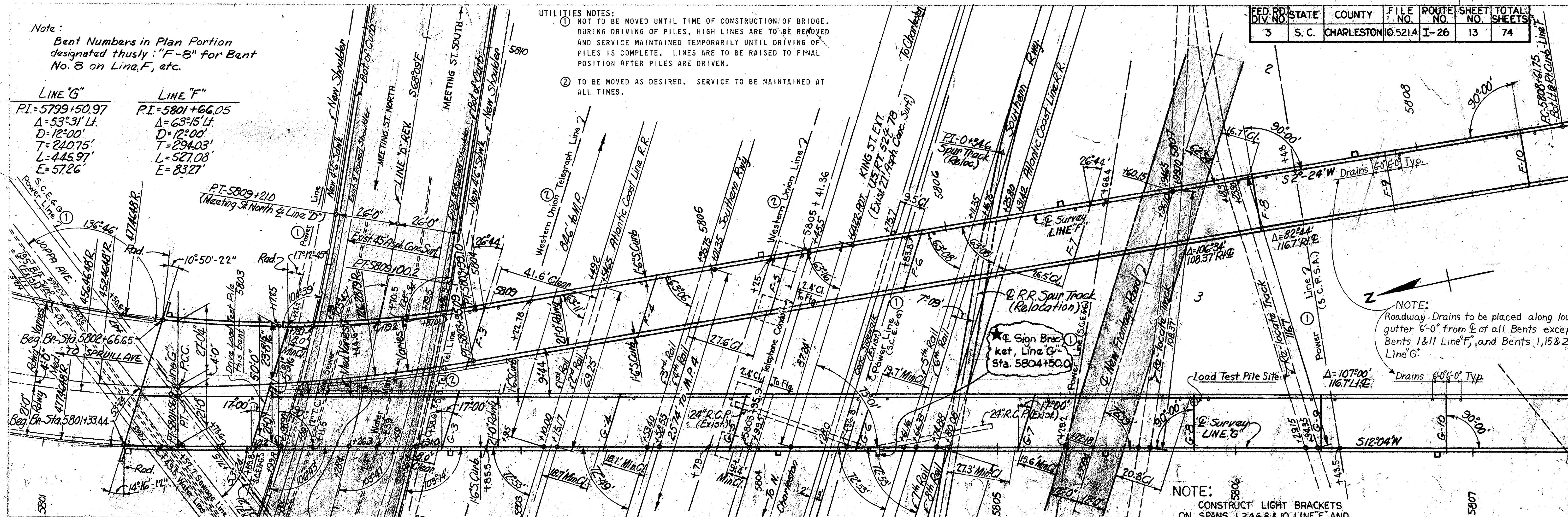
Note:  
Bent Numbers in Plan Portion designated thusly: "F-8" for Bent No. 8 on Line F, etc.

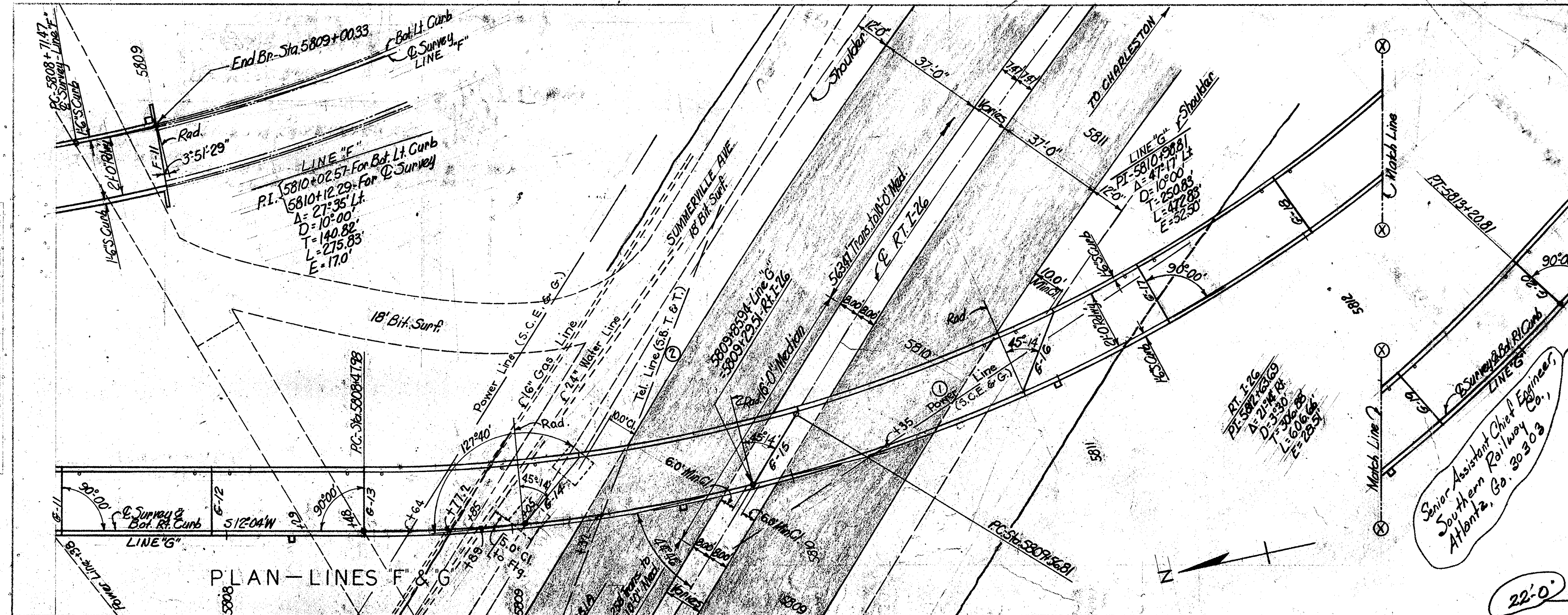
LINE "G"  
P.I.=5799+50.97  
 $\Delta=53^{\circ}31'14''$   
D=12'00"  
T=240.75'  
L=445.97'  
E=57.26'

LINE "F"  
P.I.=5801+66.05  
 $\Delta=63^{\circ}15'14''$   
D=12'00"  
T=294.03'  
L=527.08'  
E=83.27'

- UTILITIES NOTES:  
① NOT TO BE MOVED UNTIL TIME OF CONSTRUCTION OF BRIDGE. DURING DRIVING OF PILES, HIGH LINES ARE TO BE REMOVED AND SERVICE MAINTAINED TEMPORARILY UNTIL DRIVING OF PILES IS COMPLETE. LINES ARE TO BE RAISED TO FINAL POSITION AFTER PILES ARE DRIVEN.  
② TO BE MOVED AS DESIRED. SERVICE TO BE MAINTAINED AT ALL TIMES.

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S. C.	CHARLESTON	105214	I-26	13	74





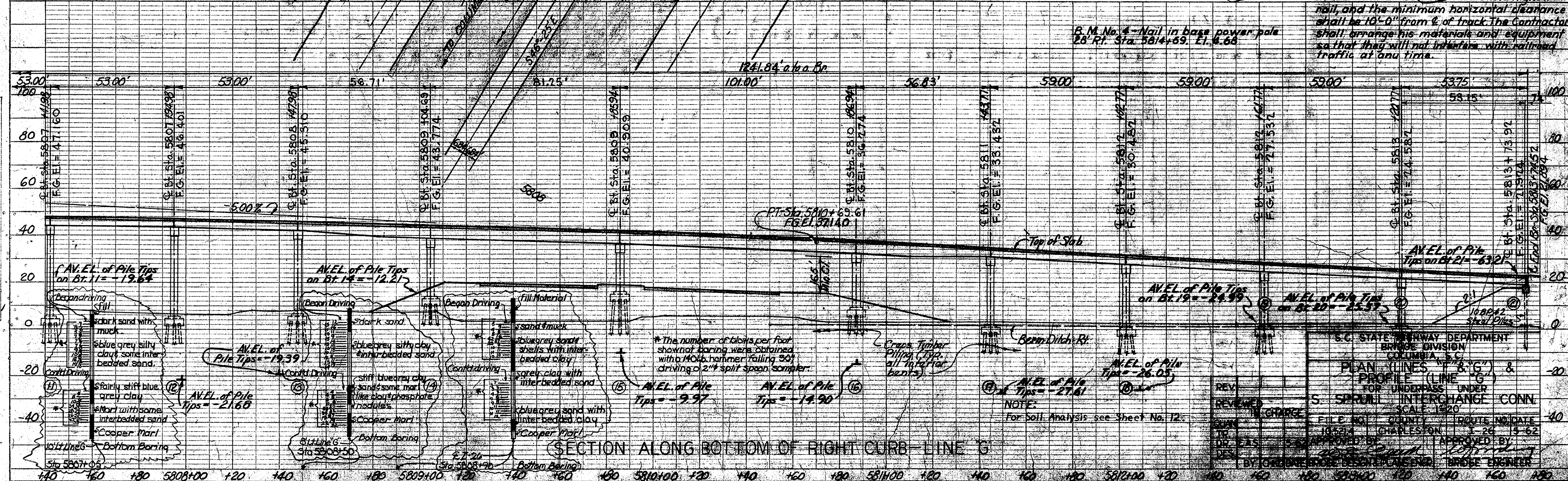
**NOTES:**

The Contractor shall notify the Chief Engineer of the A.C.L. Railroad Jacksonville, Fla. or the Chief Engineer, N.W. & S. Eastern Lines Southern Railway Co., Charlotte, N.C., whichever is affected, when he is ready to begin constructing the bents adjacent to the track, and when he is ready to erect the beams for the superstructure over the track, so that railway traffic may be adequately protected.

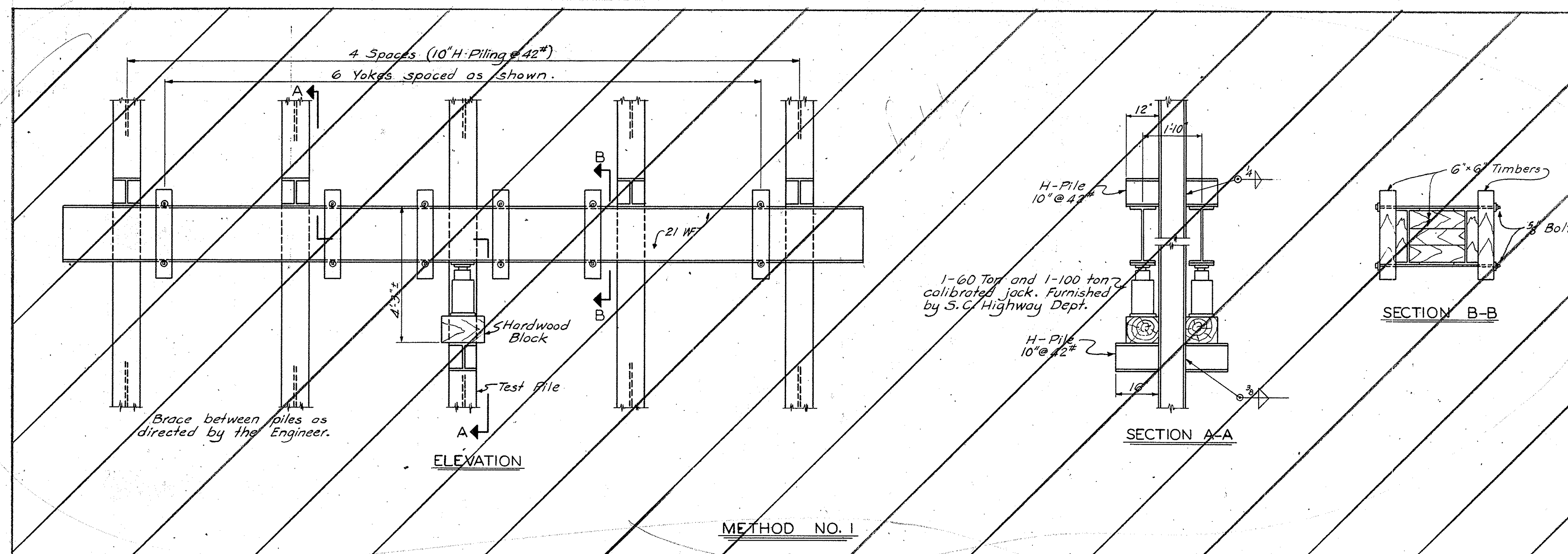
All work affecting the safety of trains during construction of this project shall be approved by the Southern Railway Co. or the A.C.L. Railroad Co., whichever is affected, prior to its performance.

Excavation for footings adjacent to the track shall not encroach on a theoretical slope of 1½:1 beginning at an elevation of top of adjacent cross-ties at a distance 8'-0" from the E of existing track. Otherwise a cofferdam, satisfactory to the railroad, shall be used in order to safeguard railroad traffic.

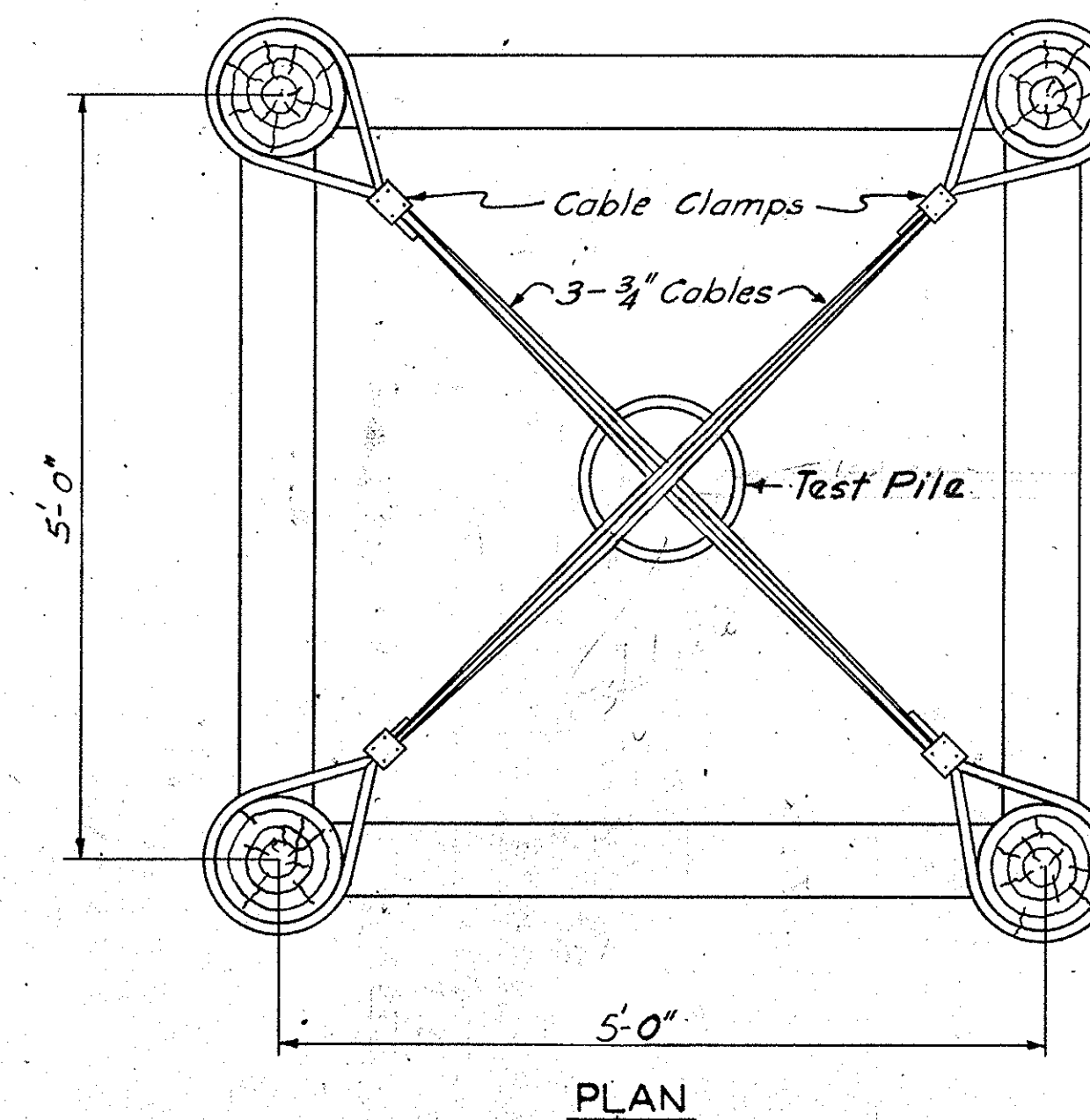
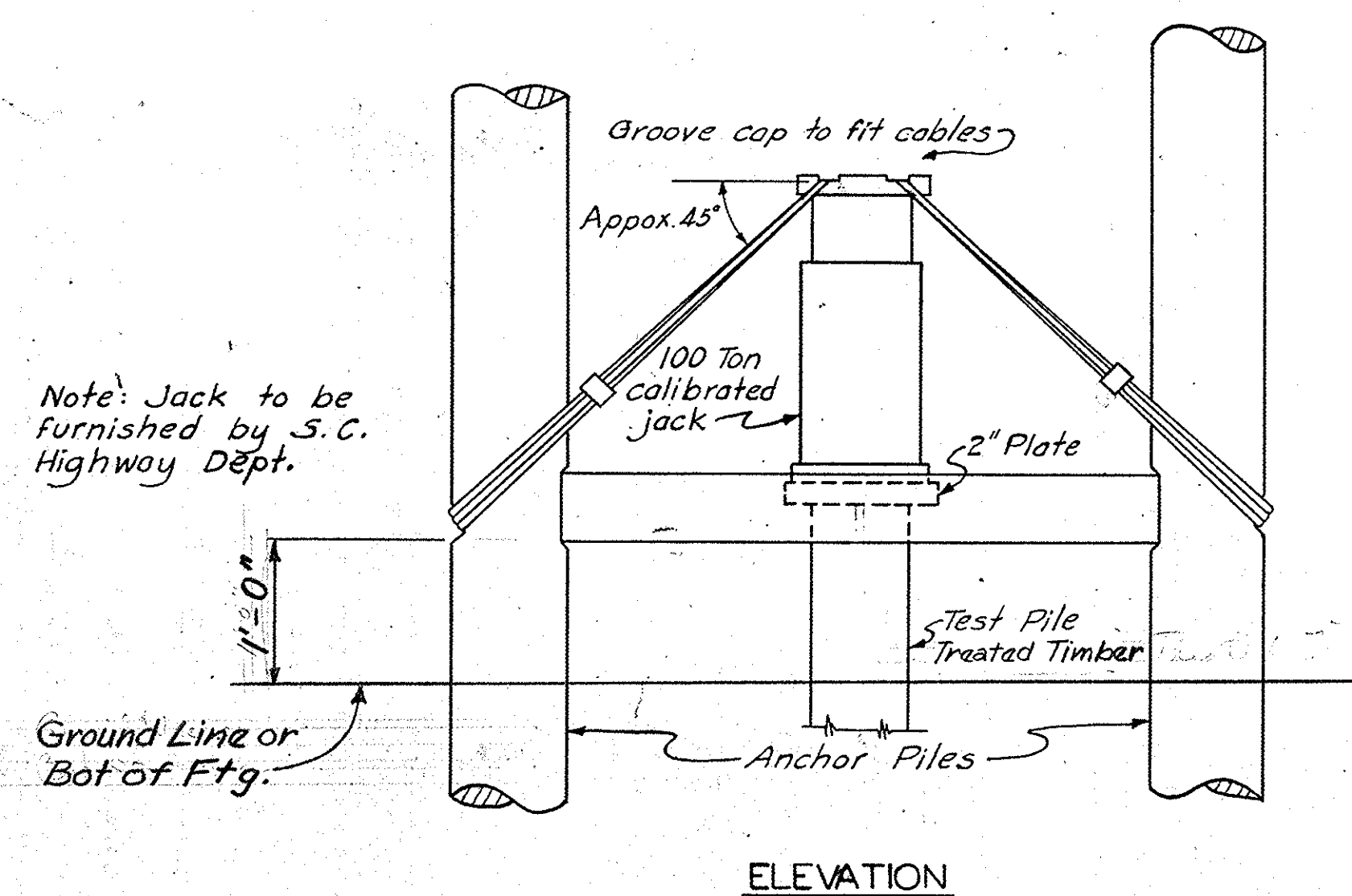
During construction the minimum vertical clearance shall be 20'-0" above the highest rail, and the minimum horizontal clearance shall be 10'-0" from E of track. The Contractor shall arrange his materials and equipment so that they will not interfere with railroad traffic at any time.



REV.	BY	DATE	DESCRIPTION
1	W. C. HARRIS	1-15-62	FOR UNDERPASS UNDER SPRUILL INTERCHANGE CONN.
2	W. C. HARRIS	1-15-62	FOR UNDERPASS UNDER SPRUILL INTERCHANGE CONN.
3	W. C. HARRIS	1-15-62	FOR UNDERPASS UNDER SPRUILL INTERCHANGE CONN.
4	W. C. HARRIS	1-15-62	FOR UNDERPASS UNDER SPRUILL INTERCHANGE CONN.



NOTE:- After tests are completed lugs shall be removed as directed by the Engineer.  
See Special Provisions regarding driving and loading test piles.



Note: Load Test Piles to be driven at Bent 2, Lines 'F' & 'G' and at Bent B, Line 'G'.

METHOD NO. 2

S. C. STATE HIGHWAY DEPARTMENT  
COLUMBIA

# SUGGESTED METHOD FOR LOADING TEST PILE

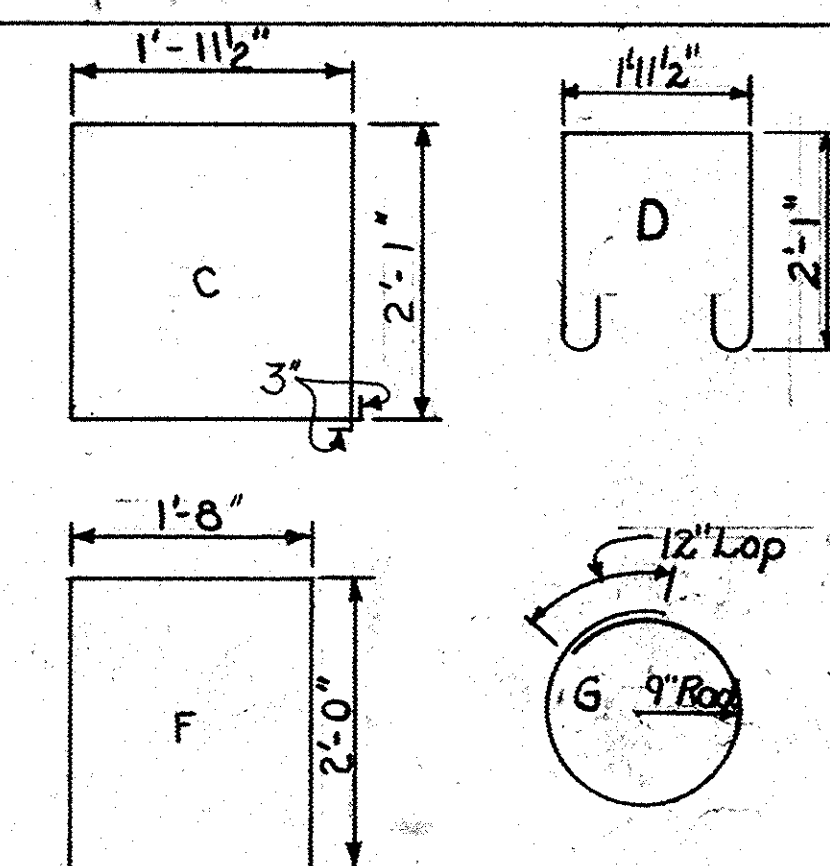
FILE NO. 10.521.4 ROUTE NO. I-26  
COUNTY: CHARLESTON DATE: 3-65

Rev.	JWB	JRC	3-65
For File	10.521.4		
Quon.			
Tr.	WFL	DFD	Oct. 20/50
Dr.	WFL		10/50
Des.			
By	CKD	Date	

# REINFORCING STEEL SCHEDULE

MARK NO.	SIZE	D	BENT 1	
			NO. REQ'D	LENGTH
A	8	S	8	59'-7"
B	4	S	2	59'-7"
C	4	B	55	8'-7"
E	4	S	18	2'-2"
F	4	B	18	5'-8"
D	4	B	16	7'-2"
G	3	B	16	5'-9"

# BENDING DETAILS



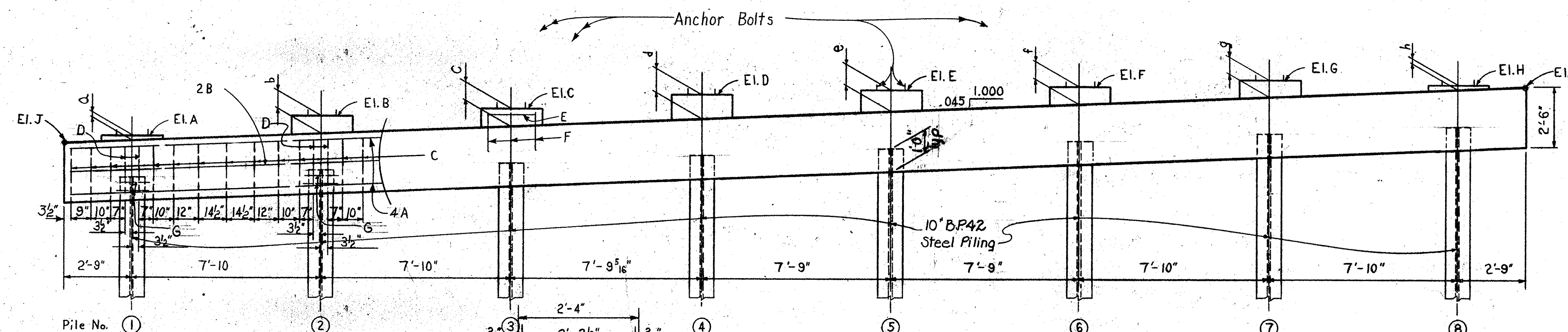
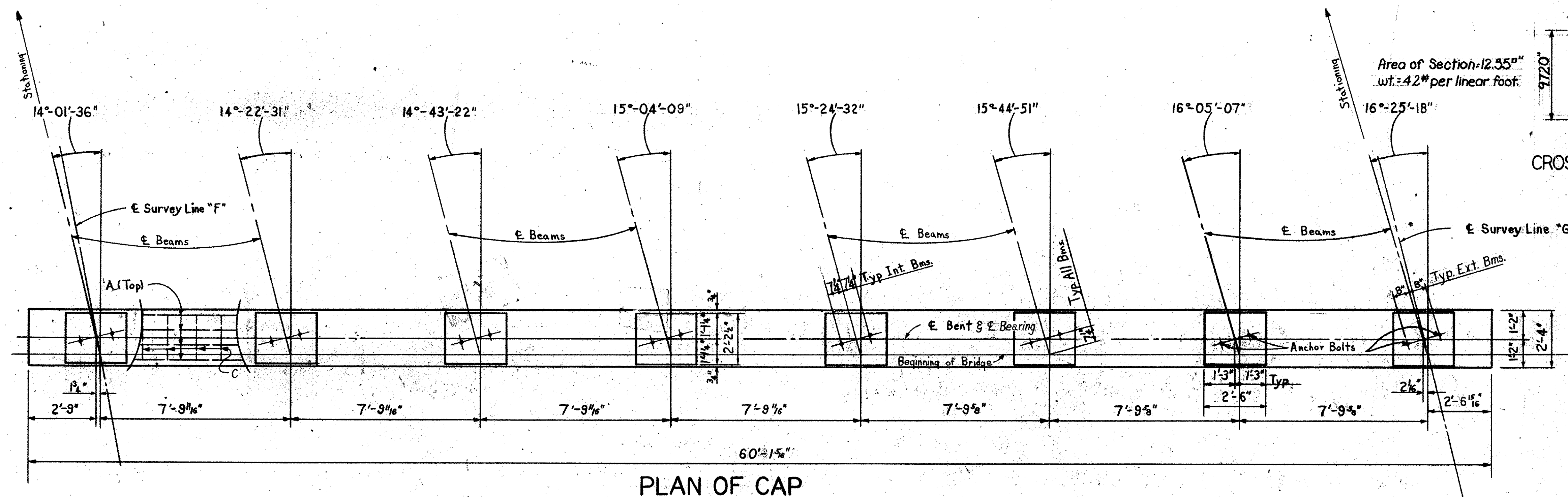
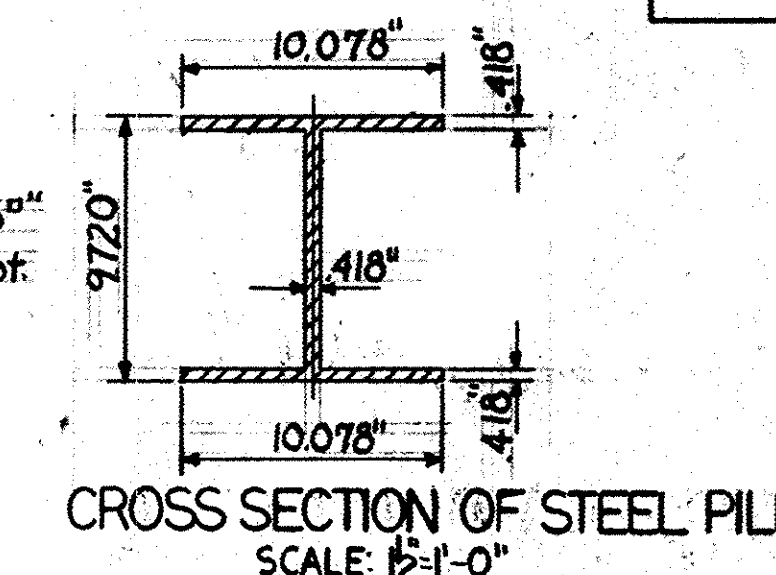
# QUANTITIES

ITEM	UNIT	BENT 1
CONCRETE CLASS "A"	C.Y.	14.0
REINFORCING STEEL	LBS.	1874
10" B.P. 42 STEEL BEARING PILING	LF	See Summary Sh. No. 12

① INCLUDES .86 LBS. FOR ANCHOR BOLT ASSEMBLIES

Notes  
For Standard Notes See Sheet No. 5.  
For Standard Details See Sheet No. 6.  
H 20-S16-44 Live Load  
Unit Stresses:  $f_s = 20,000$  psi.;  $f_c = 1200$  psi.;  $n = 10$   
Buildups to be poured monolithic with cap, except buildups over 3" high may be poured later with construction joint.

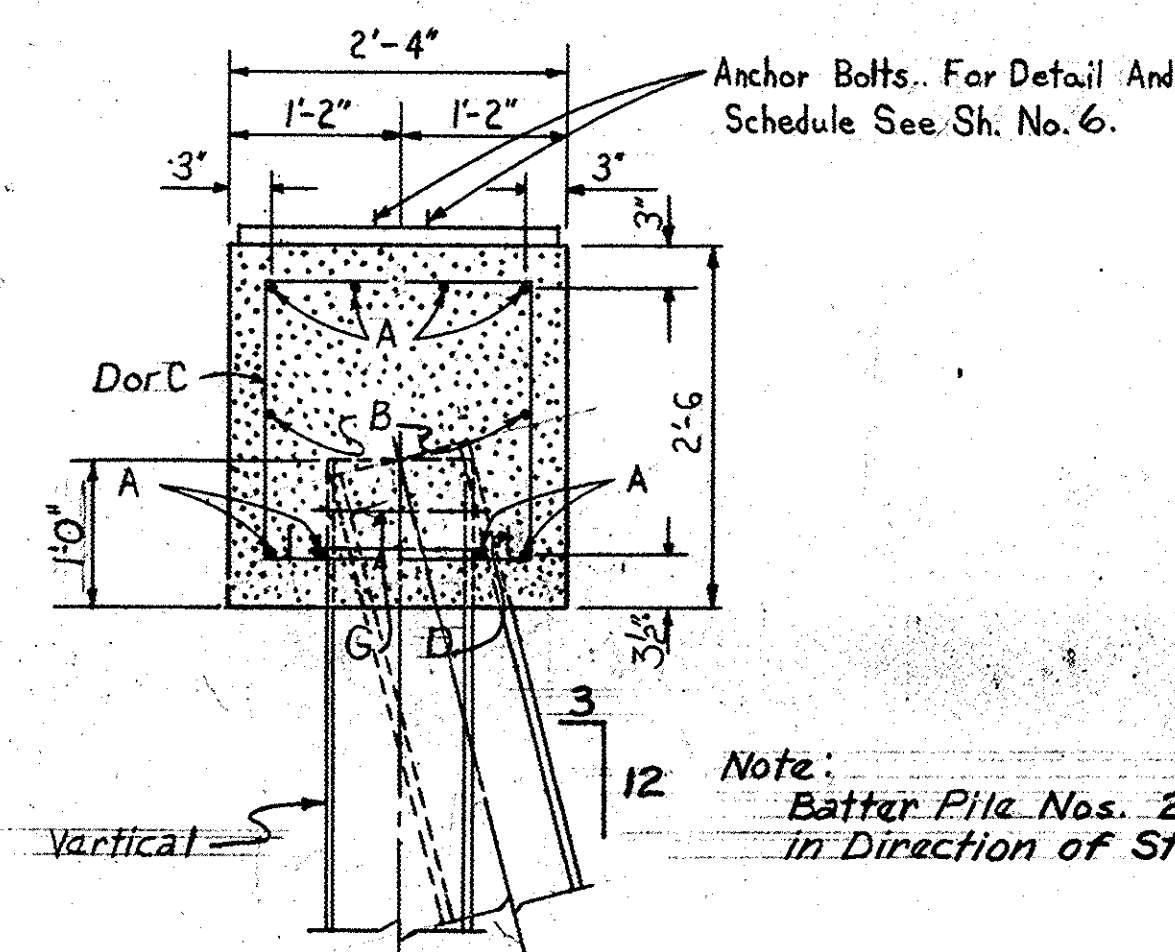
Drive Piles to a minimum penetration of 15' into Marl. Load per pile = 30 tons.  
No bearing value required by formula.



Drive Piles To a Minimum Bearing Value of 30 Tons per pile.  
Drive Piles 15' into Marl.

ELEVATIONS	
	BENT 1
A	27.414
B	28.353
C	28.832
D	29.314
E	29.541
F	29.744
G	30.042
H	29.881
I	29.865
J	27.148

DIMENSIONS	
	BENT 1
a	1 1/16"
b	8 3/4"
c	10 1/4"
d	11 1/8"
e	10 5/16"
f	8 1/2"
g	7 1/8"
h	1 1/16"



SECTION THRU CAP  
(SHOWING BUILD UP REINF. FOR BUILD UPS MORE THAN 3" HIGH)  
SCALE: 3/4" = 1'-0"

Note:  
Batter Pile Nos. 2 & 7  
in Direction of Stationing

SECTION THRU CAP  
SCALE: 3/4" = 1'-0"

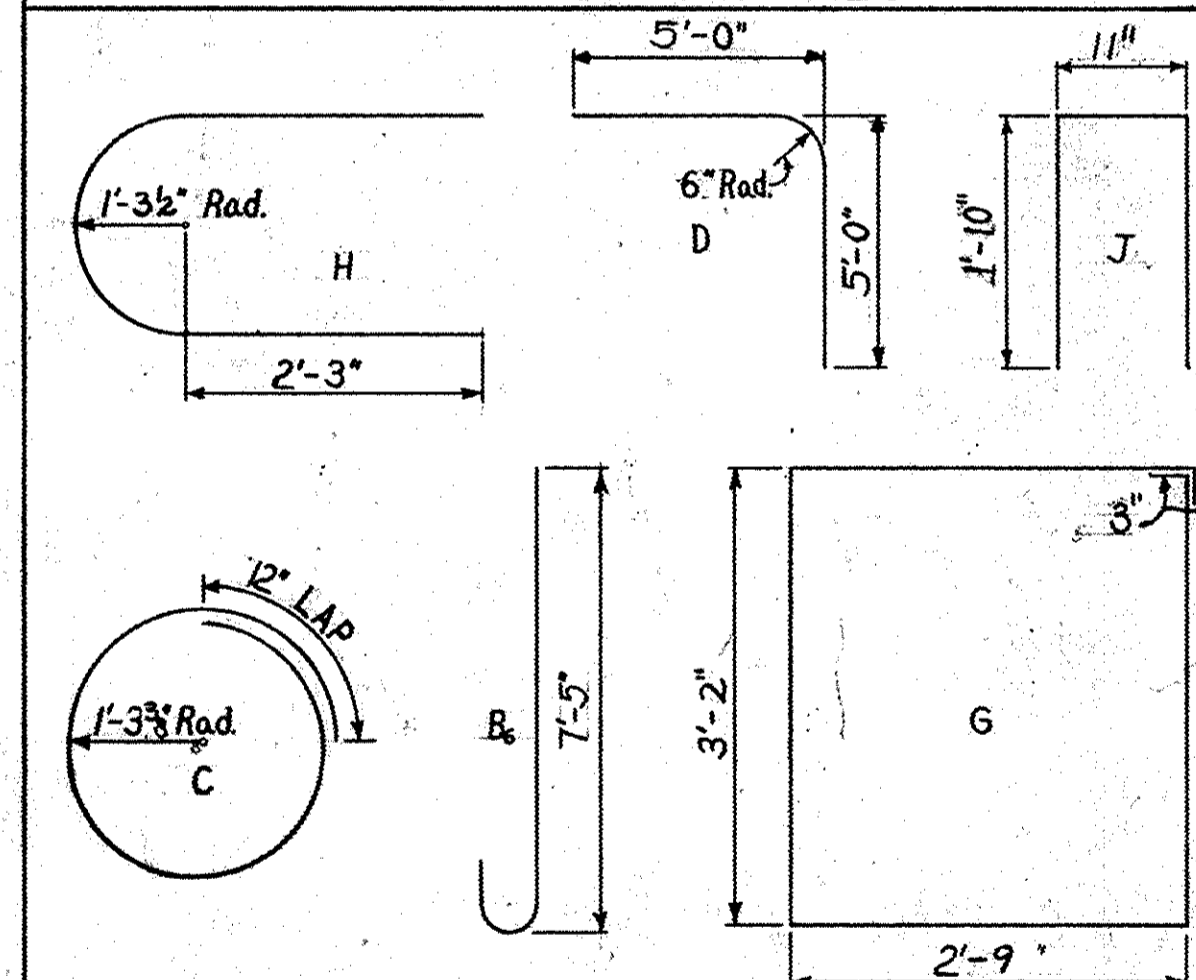
REV.		S.C. STATE HIGHWAY DEPARTMENT BRIDGE DIVISION COLUMBIA S.C.	
REV.		DETAILS OF BENT I LINES F & G FOR UNDERPASS UNDER	
REV.		S. SPRUILL INTERCHANGE CONN. AT N. CHARLESTON	
REV. 1/22 JWB/S-65 For 10 B.P. 42 Piles	DESIGNED BY	FILE NO.	COUNTY
REVIEWED RRS	IN CHARGE	10.5214	CHARLESTON
QUAN. WCG LDH/11-63	TR.	ROUTE NO.	DATE
DES. WCG LDH/11-63	APPROVED BY	I-26	11-63
BY CHK/D	DATE	BRIDGE DESIGN & PLANS ENGINEER	BRIDGE ENGINEER



# REINFORCING STEEL SCHEDULE

MARK	SIZE NO	D	BENT 2	
			NO. REQD	LENGTH
A <sub>1</sub>	4	S	76	7'-6"
A <sub>2</sub>	5	S	100	10'-0"
B <sub>1</sub>	11	S	8	18'-3"
B <sub>2</sub>	11	S	8	18'-10"
B <sub>3</sub>	11	S	8	19'-6"
B <sub>4</sub>	11	S	8	20'-1"
B <sub>5</sub>	11	B	32	8'-5"
C	3	B	48	9'-1"
D	10	B	6	9'-9"
E <sub>1</sub>	11	S	2	53'-4"
E <sub>2</sub>	11	S	2	55'-7"
E <sub>3</sub>	11	S	4	12'-0"
E <sub>4</sub>	11	S	4	10'-0"
E <sub>5</sub>	10	S	2	12'-10"
E <sub>6</sub>	10	S	2	10'-10"
E <sub>7</sub>	10	S	4	14'-3"
E <sub>8</sub>	10	S	4	12'-3"
E <sub>9</sub>	10	S	2	53'-4"
E <sub>10</sub>	10	S	2	55'-7"
F	4	S	2	53'-4"
G	5	B	63	12'-4"
H	6	B	6	8'-7"
I <sub>1</sub>	4	S	16	1'-9"
I <sub>2</sub>	4	S	6	2'-3"
J	4	B	33	4'-7"

# BENDING DETAILS



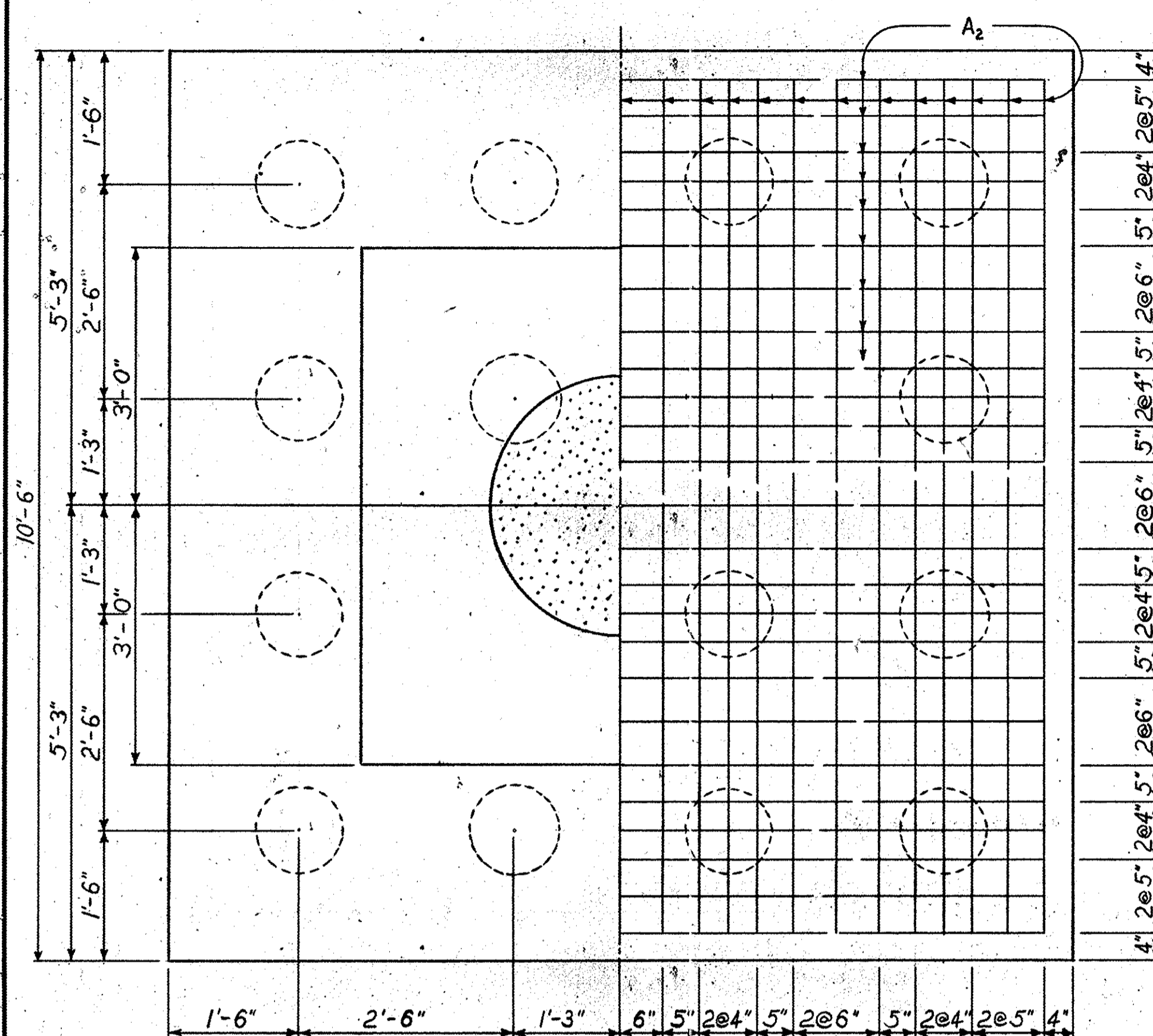
# SUMMARY OF QUANTITIES

ITEM	UNIT	BENT 2
WET & DRY EXCAVATION	C.Y.	135
CONCRETE CLASS "A"	C.Y.	82.6
REINFORCING STEEL	LBS.	*11,010
CREOS. TIMBER PILING	L.F.	See Summary Sh. 12

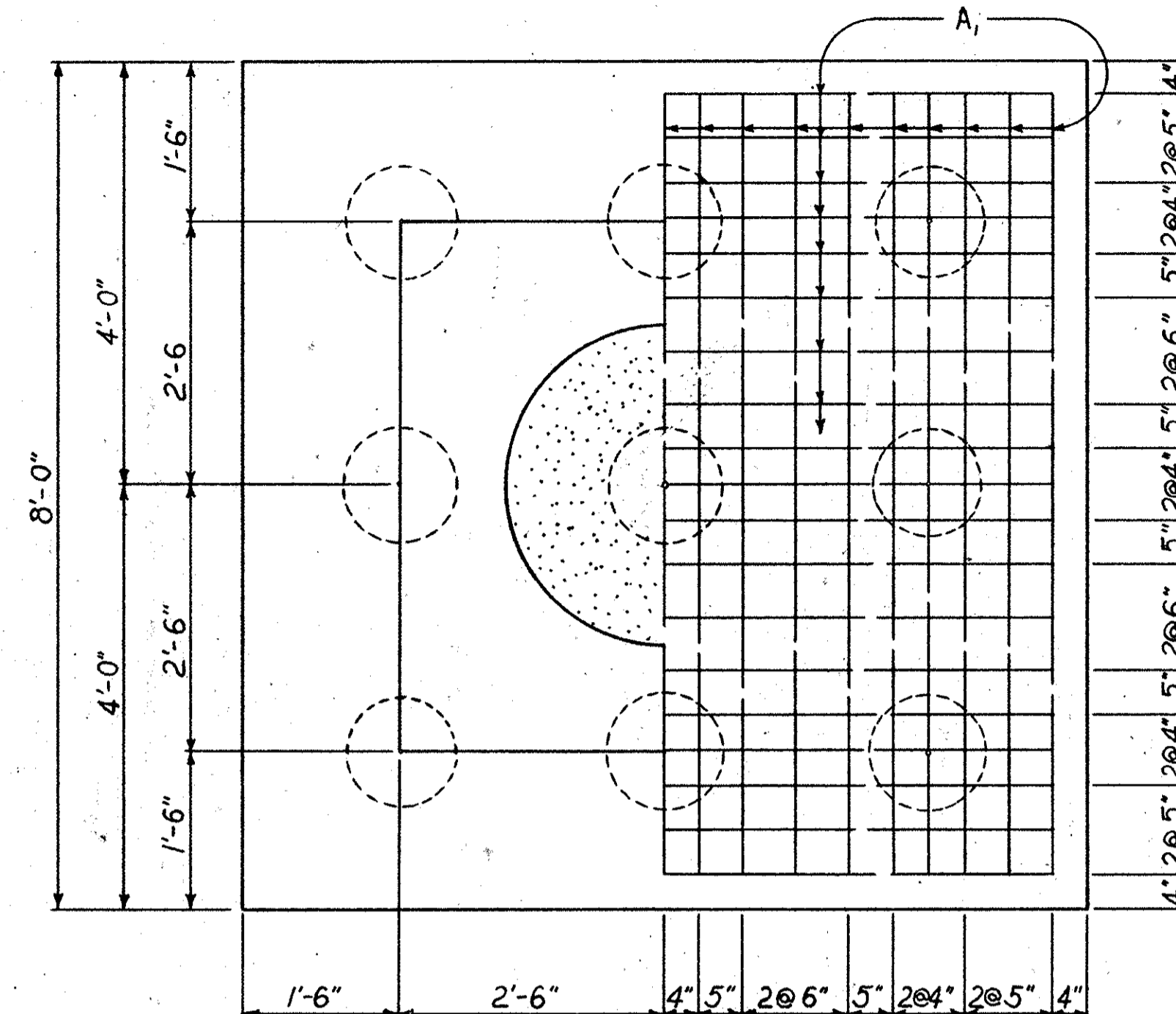
\*Includes 171 Lbs. for Anchor Bolt Assemblies.

THIS SHEET TO ACCOMPANY SHEET NO. 17

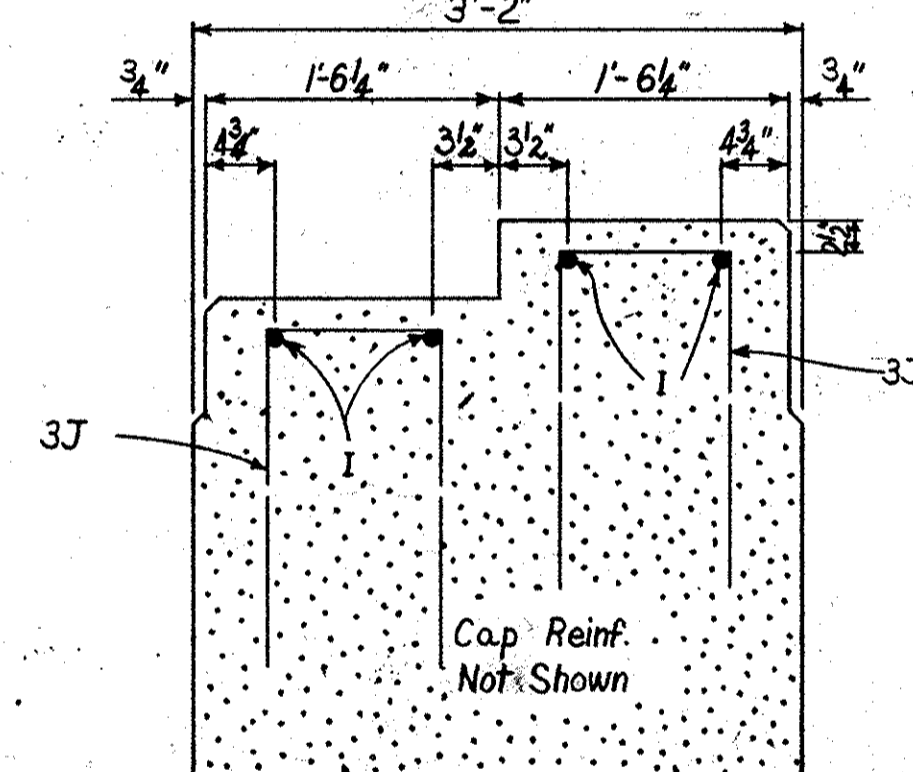
REV.		S. C. STATE HIGHWAY DEPARTMENT
REV.		BRIDGE DIVISION
REV.		COLUMBIA S. C.
REV.		DETAILS OF BENT 2 LINES "F" & "G"
REV.		FOR UNDERPASS UNDER
REV.		S. SPRUILL INTERCHANGE CONN.
REV.		(AT N. CHARLESTON)
REVIEWED	R.R.S.	IN CHARGE
QUAN. REK	JWB/12-63	FILE NO.
TR.		10.5214
DR. WCG	10-12-63	COUNTY
DES. JWB	10-11-63	CHARLESTON
BY	CHK'D DATE	ROUTE NO.
		I-26
		DATE
		12-63
		APPROVED BY
		APPROVED BY
		BRIDGE DESIGN & PLANS ENGINEER
		BRIDGE ENGINEER



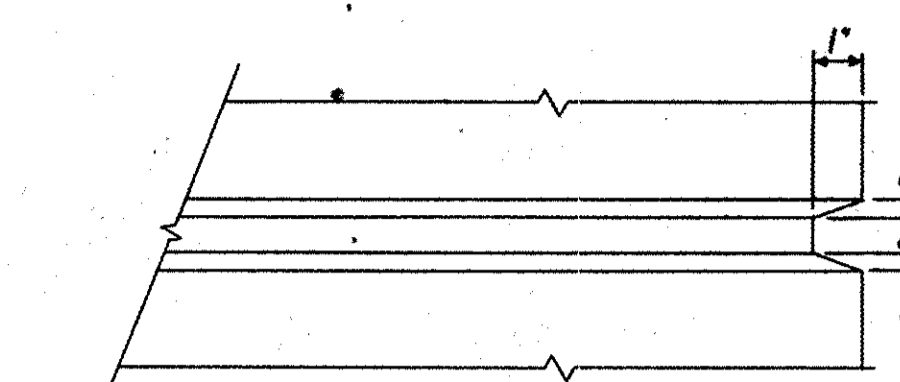
PLAN OF FOOTING 2 OR 3  
SCALE: 3/4" = 1'-0"



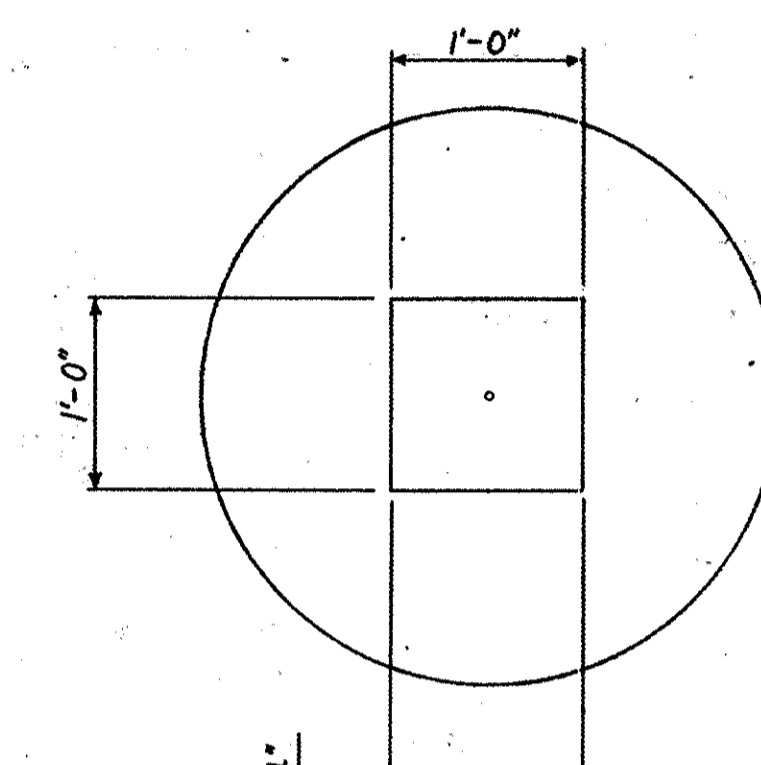
PLAN OF FOOTING 1 OR 4  
SCALE: 3/4" = 1'-0"



SECTION THRU CAP (SHOWING BUILD UP REINF FOR BUILD UP MORE THAN 3' HIGH)  
SCALE: 3/4" = 1'-0"



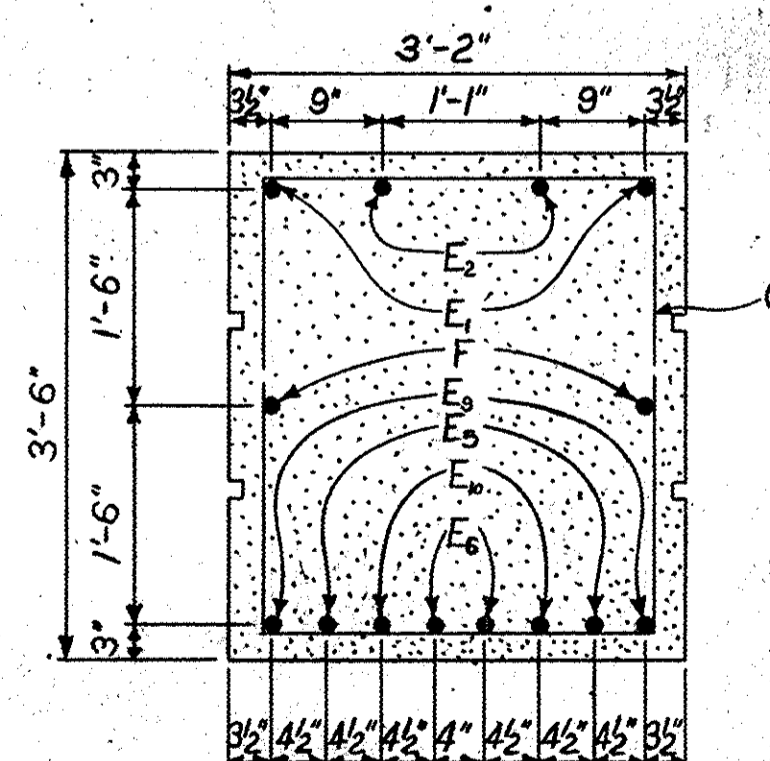
DETAIL OF CAP INSERT  
SCALE: 3/4" = 1'-0"



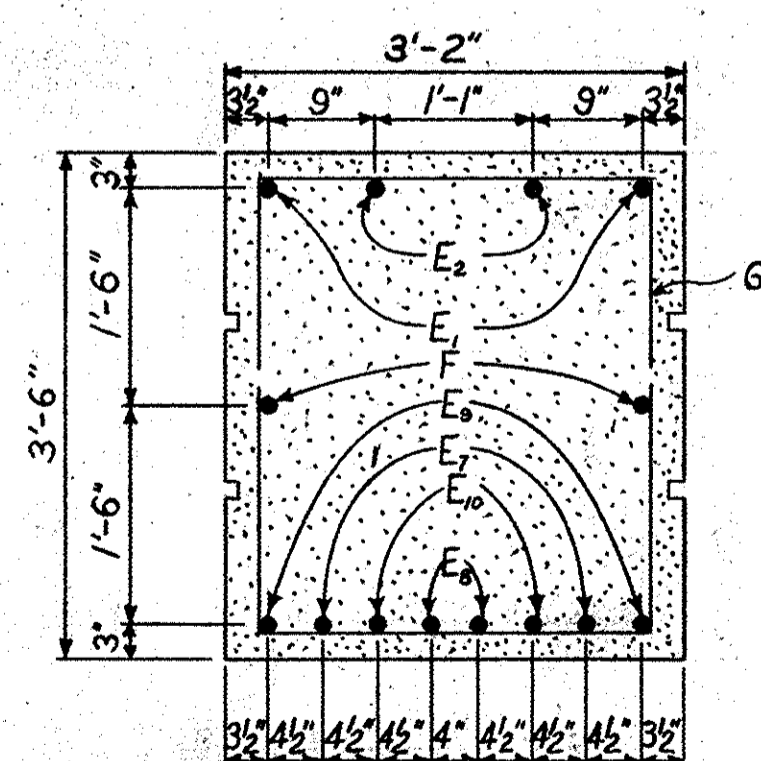
COL. CONSTR. JOINT DETAIL  
SCALE: 1/2" = 1'-0"

Notes:  
For Standard Notes see Sh. No. 5  
For Standard Details including Hook Detail, Detail of Anchor Bolt & Anchor Bolt Schedule see Sh. No. 6  
Footings may be lowered a maximum of 2'-0" without providing additional vertical column steel by reducing length of Splices at bottom of Columns.  
Design Data:  
Unit Stresses:  $f_s$  (Reinf.) = 20,000 p.s.i.,  $f_c$  1200 p.s.i.,  $n = 10$ .

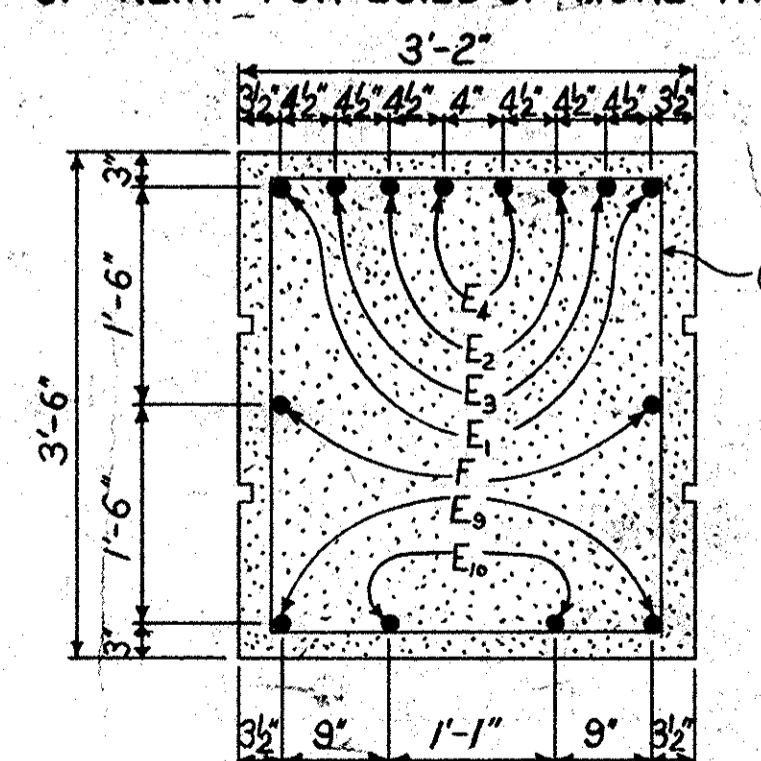
MAXIMUM FOOTING REACTIONS		
	EXT. FTG.	INT. FTG.
Dead Load-Bent	55 <sup>k</sup>	90 <sup>k</sup>
Dead Load-Superstructure	129 <sup>k</sup>	186 <sup>k</sup>
Live Load-Superstructure	55 <sup>k</sup>	133 <sup>k</sup>
Backfill (3 ft. Net Wt)	18 <sup>k</sup>	34 <sup>k</sup>
Totals of Above	257 <sup>k</sup>	443 <sup>k</sup>
Average Bearing	14.3 <sup>7</sup> /pile	15.8 <sup>7</sup> /pile
MAXIMUM PILE BEARING DUE TO WIND		
Wind	7.0 <sup>7</sup> /pile	3.8 <sup>7</sup> /pile
MAXIMUM CONDITION		
Wind	14.3 <sup>7</sup> /pile	15.8 <sup>7</sup> /pile
Total (125% of Normal Pressure)	21.3 <sup>7</sup> /pile	19.6 <sup>7</sup> /pile
Normal Pressure	17.0 <sup>7</sup> /pile	15.7 <sup>7</sup> /pile



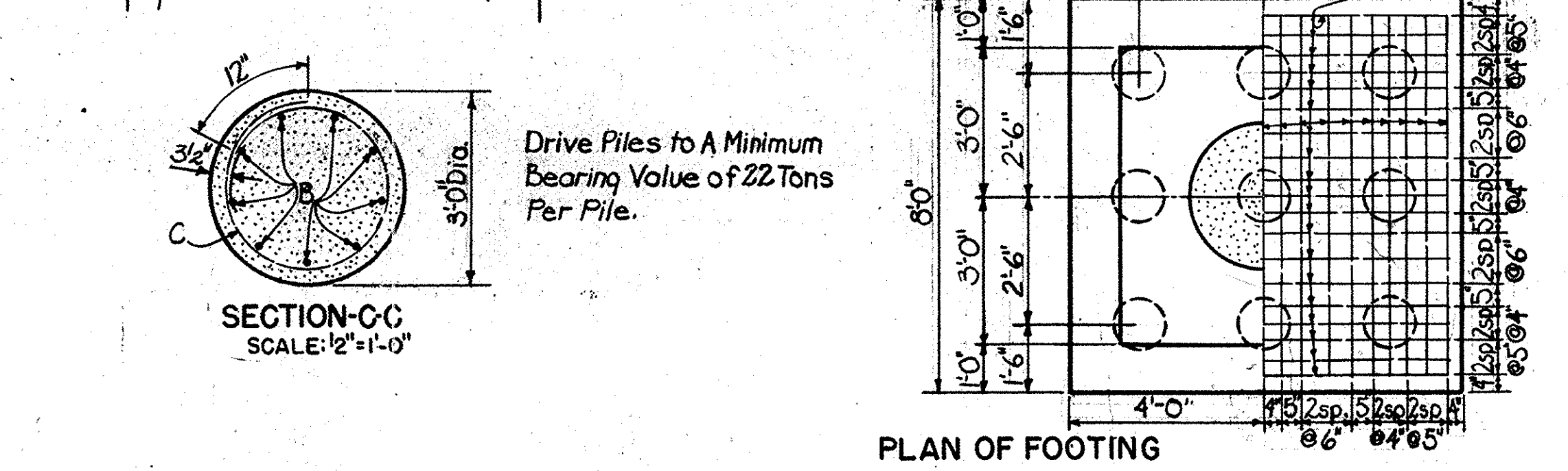
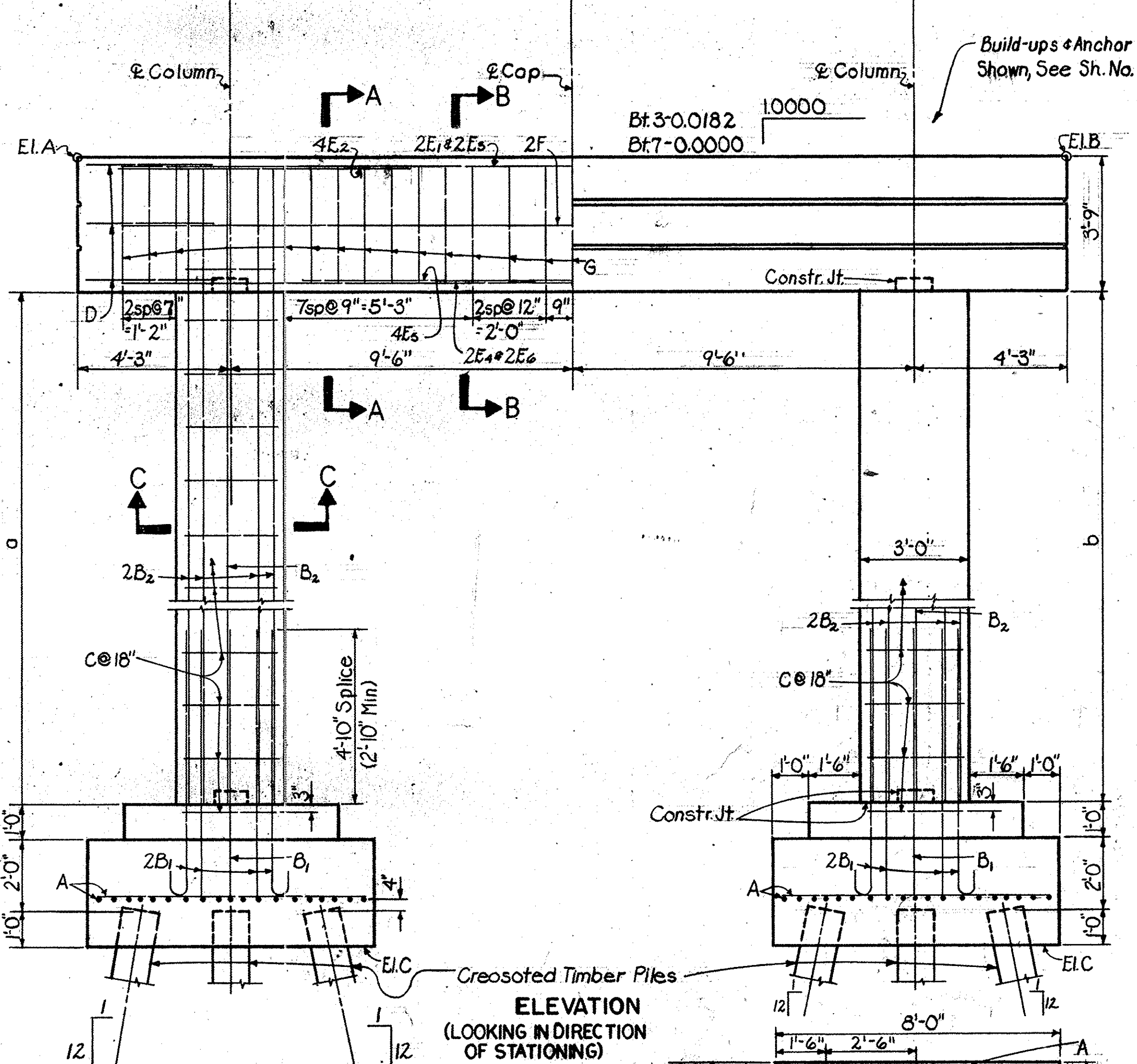
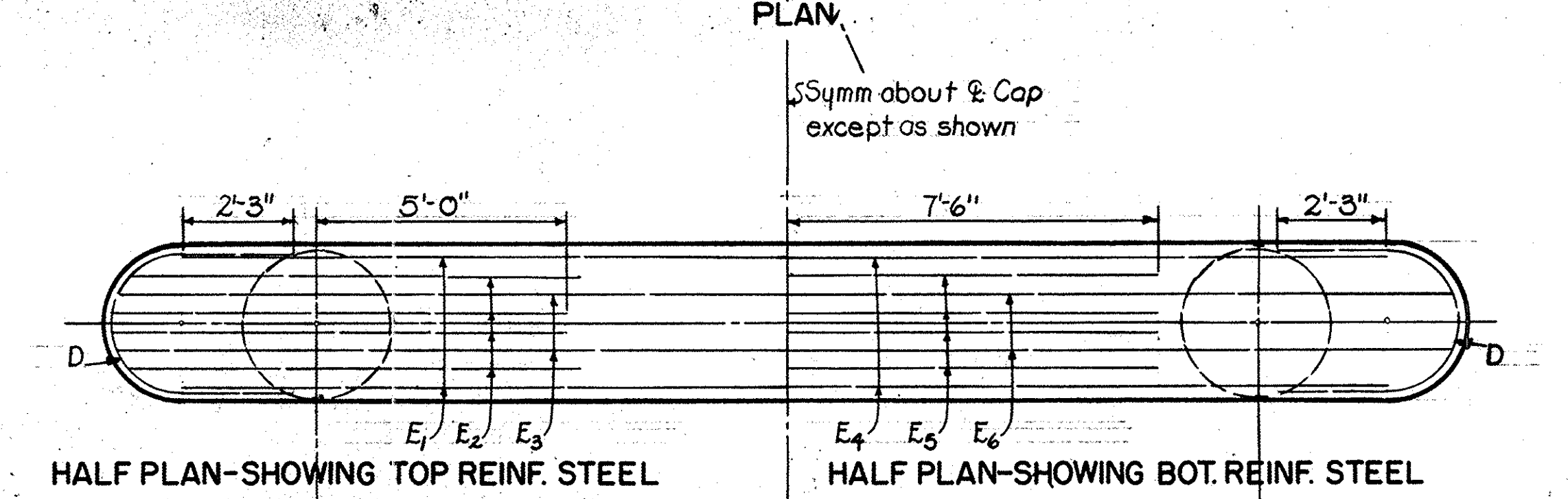
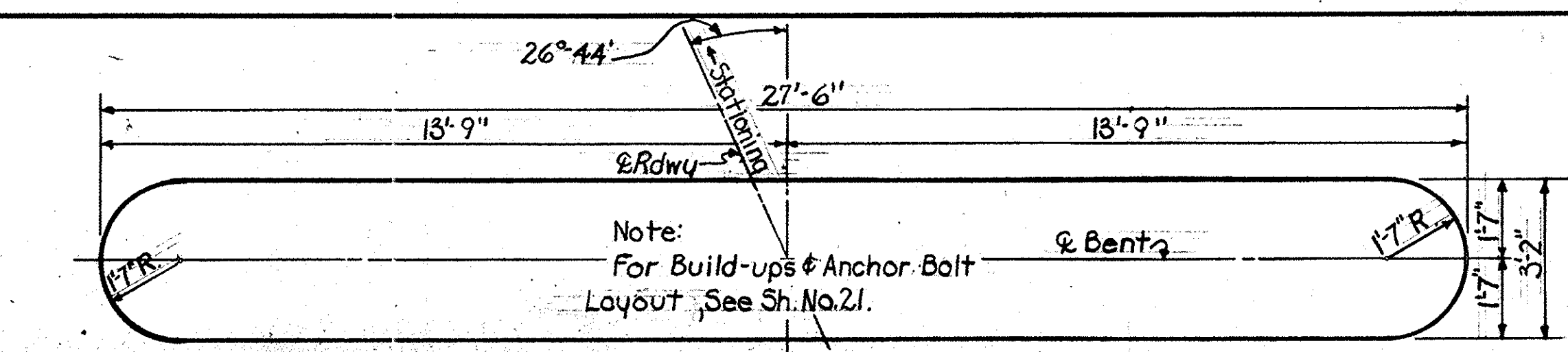
SECTION A-A  
SCALE: 3/4" = 1'-0"



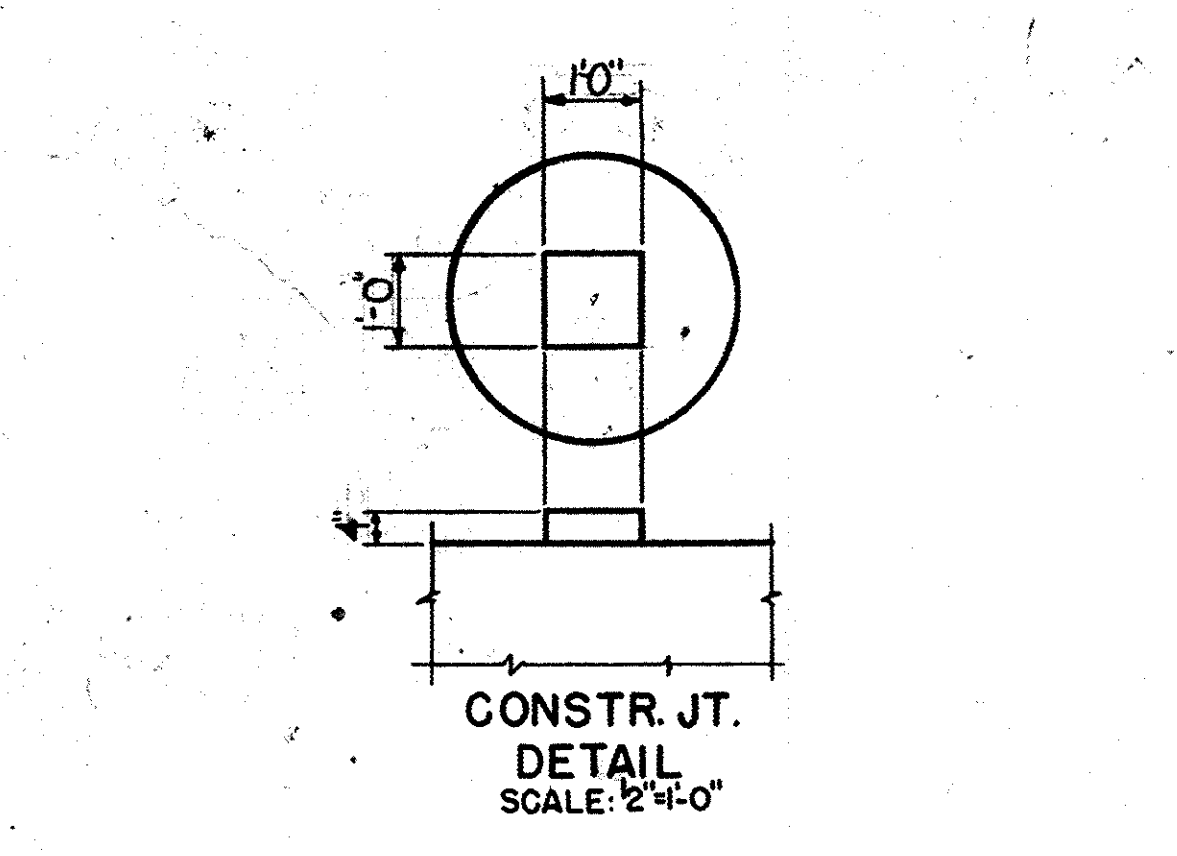
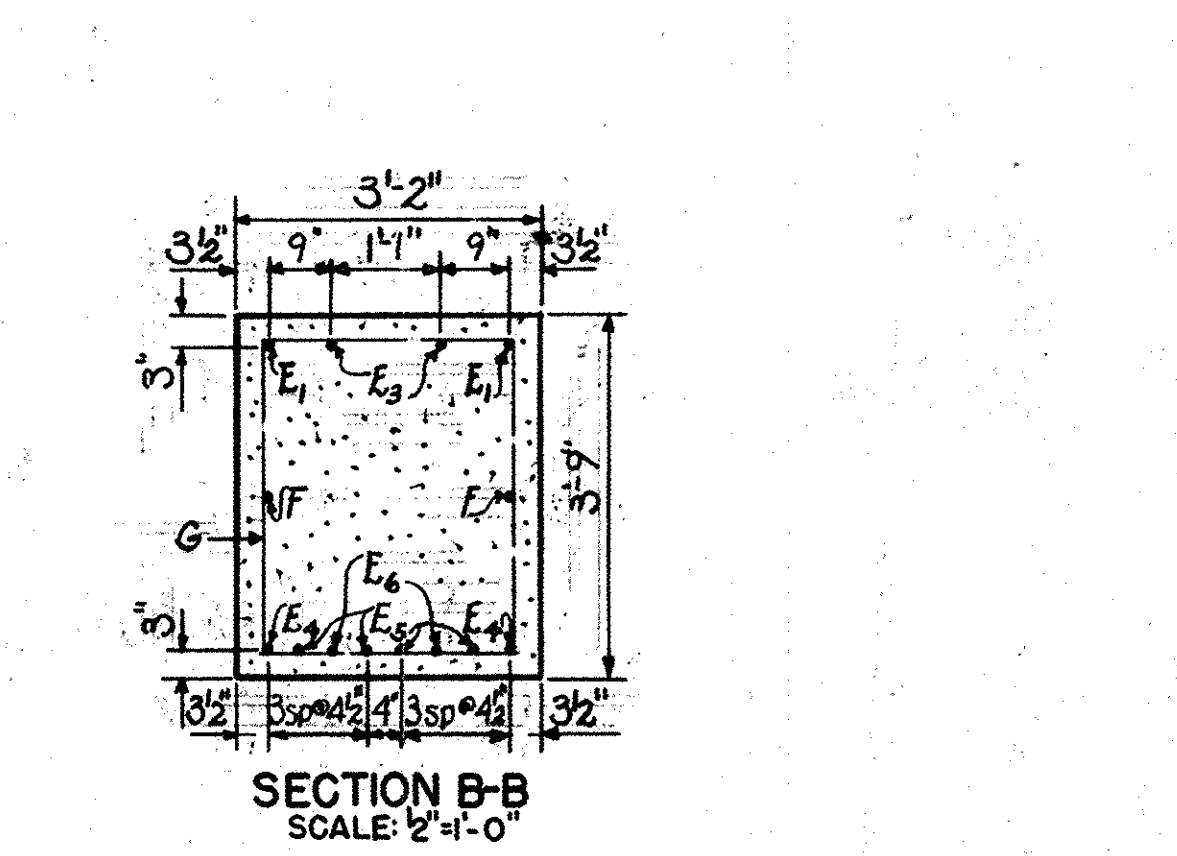
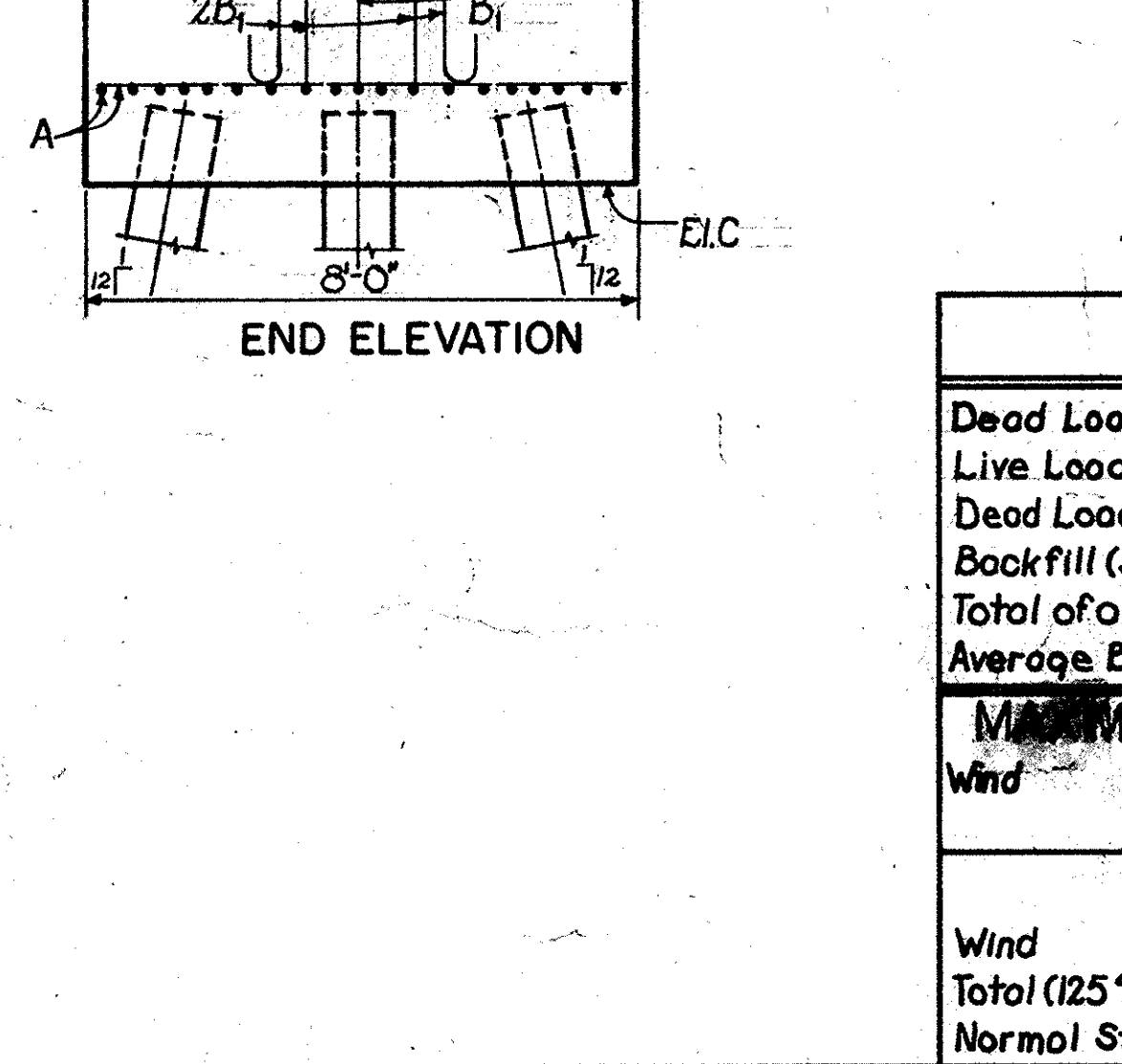
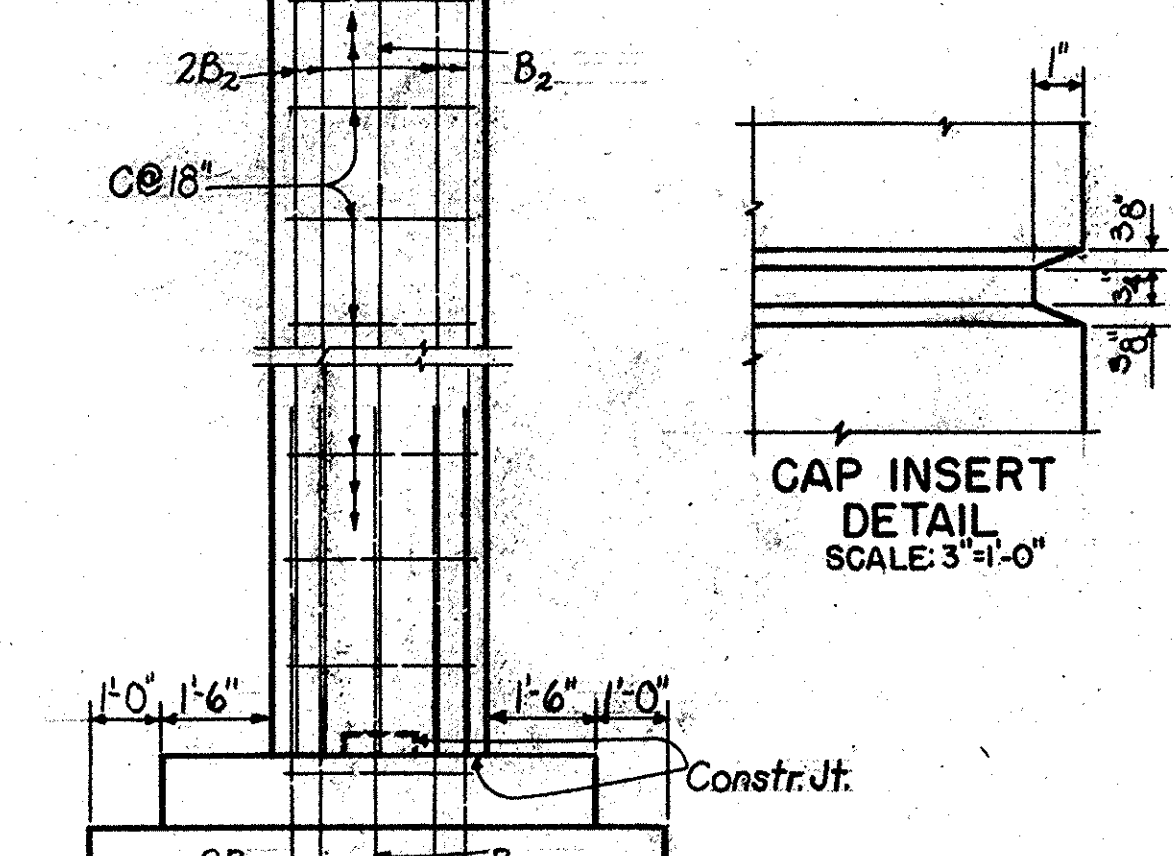
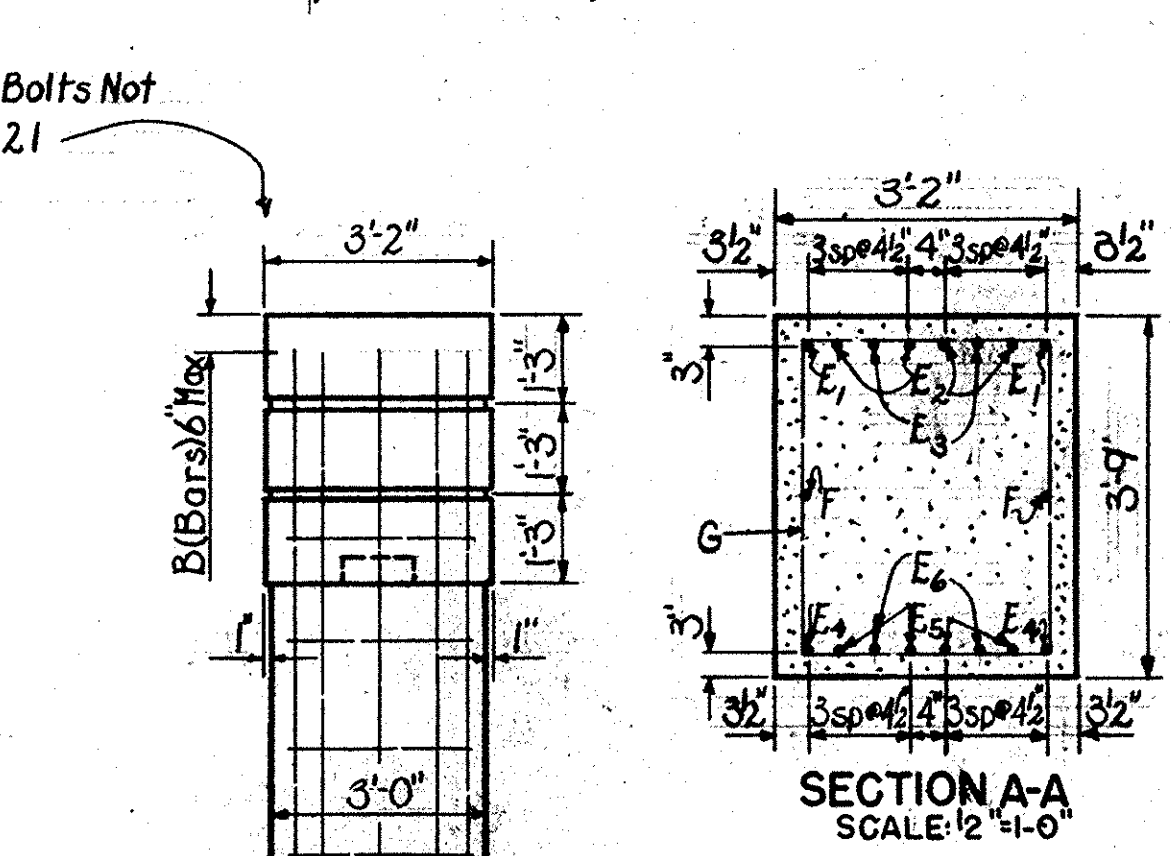
SECTION C-C  
SCALE: 3/4" = 1'-0"



SECTION B-B  
SCALE: 3/4" = 1'-0"



Note:  
For Anchor Bolt Detail  
& Schedule, see Sh. No. 6.



MAX. FOOTING REACTION	
Dead Load-Superstructure	177K
Live Load-Superstructure	76K
Dead Load-Bent	76K
Backfill (3')	17K
Total of above	346K
Average Bearing	19.27/pile
MAXIMUM PILE BEARING DUE TO WIND	
Wind	8.37/pile
MAX. CONDITION:	
Wind	19.27/pile
Total (125% of Normal Stress)	27.57/pile
Normal Stress	22.07/pile

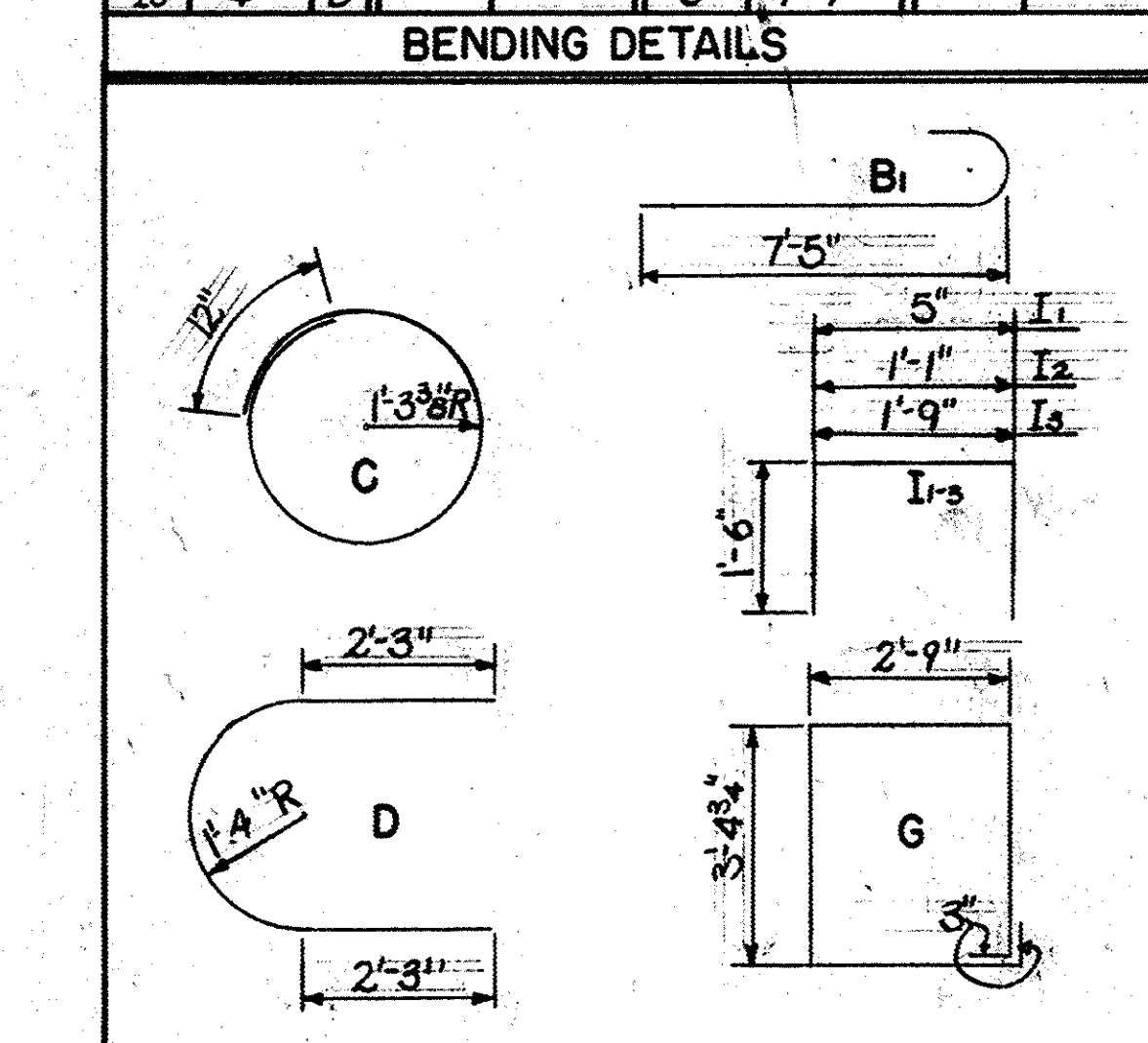
ELEVATIONS			
	BENT 3	BENT 7	
A	34.570	39.601	
B	35.070	39.601	
C	7.564	6.601	

DIMENSIONS			
	BENT 3	BENT 7	
a	19'-4"	25'-3"	
b	19'-8'6"	25'-3"	

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S. C.	CHARLESTON	10.521.4	I-26	19	74

REINFORCING STEEL SCHEDULE							
MARK	SIZE NO.	D	BENT NO 3	NO. REQD	LENGTH	BENT NO 7	NO. REQD
A	4	S	76	7'-6"		76	7'-6"
B	11	B	18	8'-5"		18	8'-5"
B <sub>2</sub>	11	S	18	22'-0"		18	28'-9"
C	3	B	28	9'-0"		36	9'-0"
D	6	B	6	8'-8"		6	8'-8"
E <sub>1</sub>	10	S	2	24'-4"		2	24'-4"
E <sub>2</sub>	10	S	8	9'-11"		8	9'-11"
E <sub>3</sub>	10	S	2	26'-10"		2	26'-10"
E <sub>4</sub>	9	S	2	24'-4"		2	24'-4"
E <sub>5</sub>	9	S	4	15'-0"		4	15'-0"
E <sub>6</sub>	9	S	2	26'-10"		2	26'-10"
F	6	S	2	24'-4"		2	24'-4"
G	5	B	27	12'-10"		27	12'-10"
H <sub>1</sub>	4	S				5	3'-2"
H <sub>2</sub>	4	S				5	3'-6"
I <sub>1</sub>	4	B				5	3'-5"
I <sub>2</sub>	4	B				5	4'-1"
I <sub>3</sub>	4	B				5	4'-9"



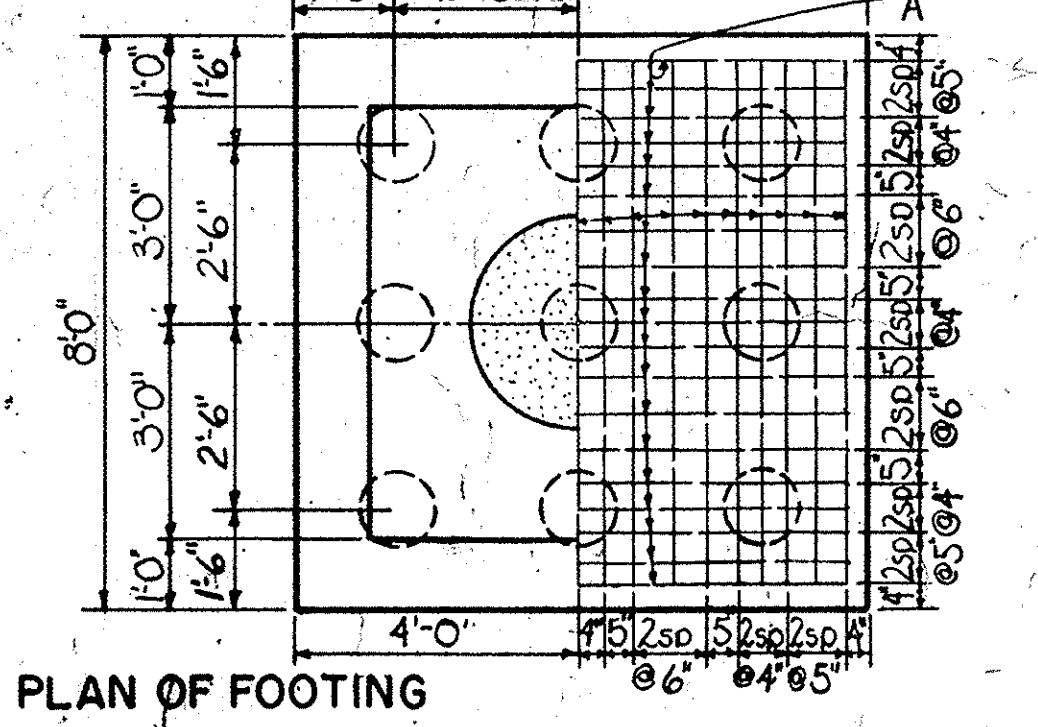
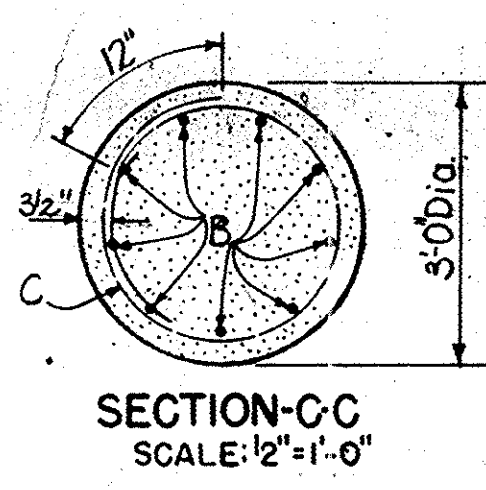
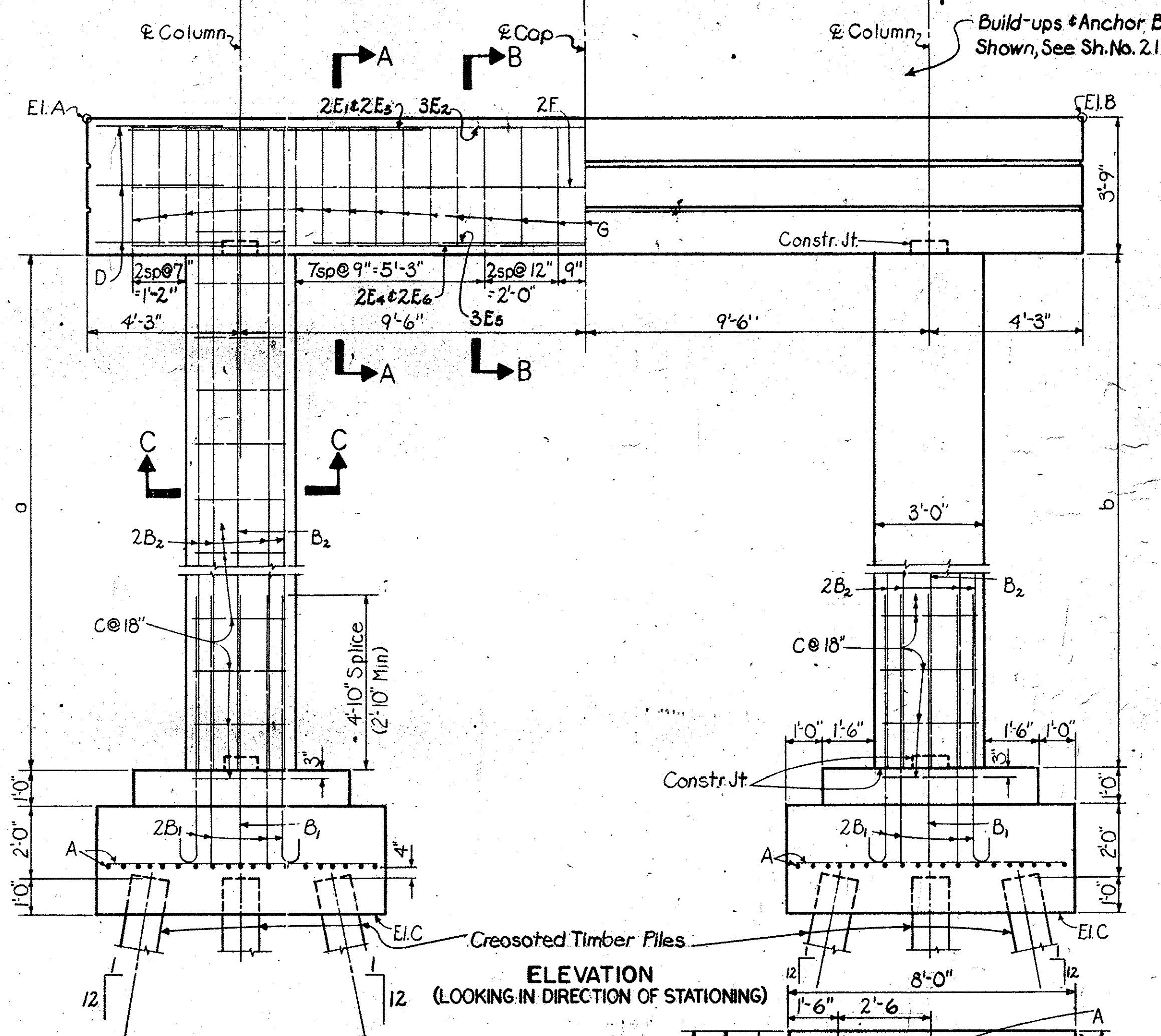
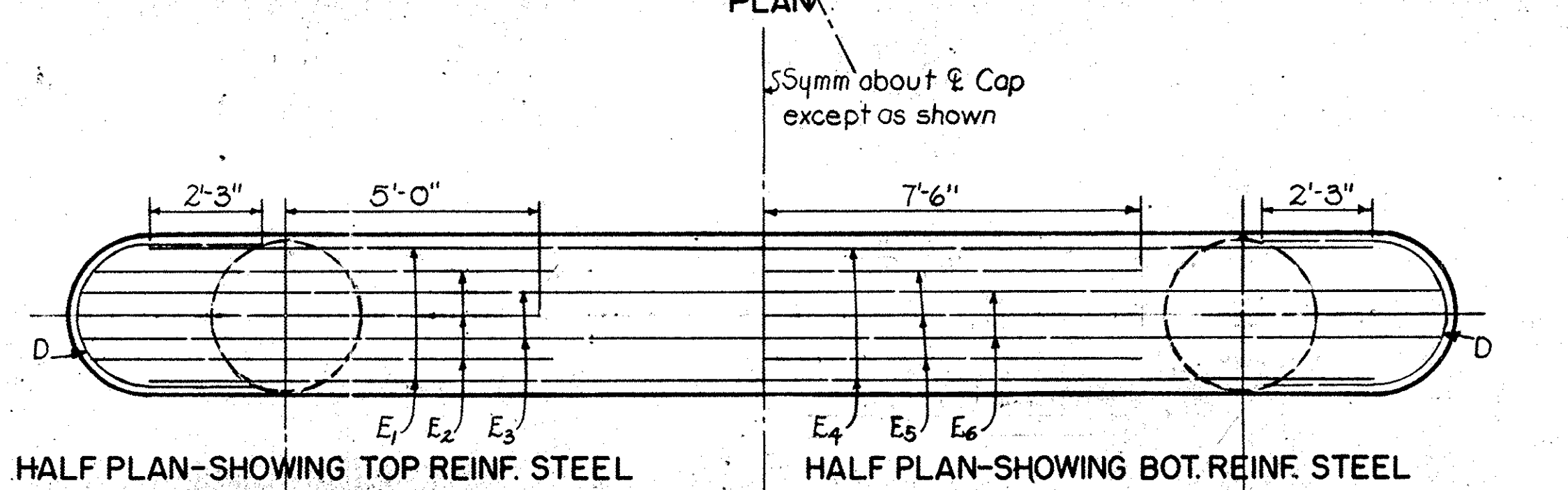
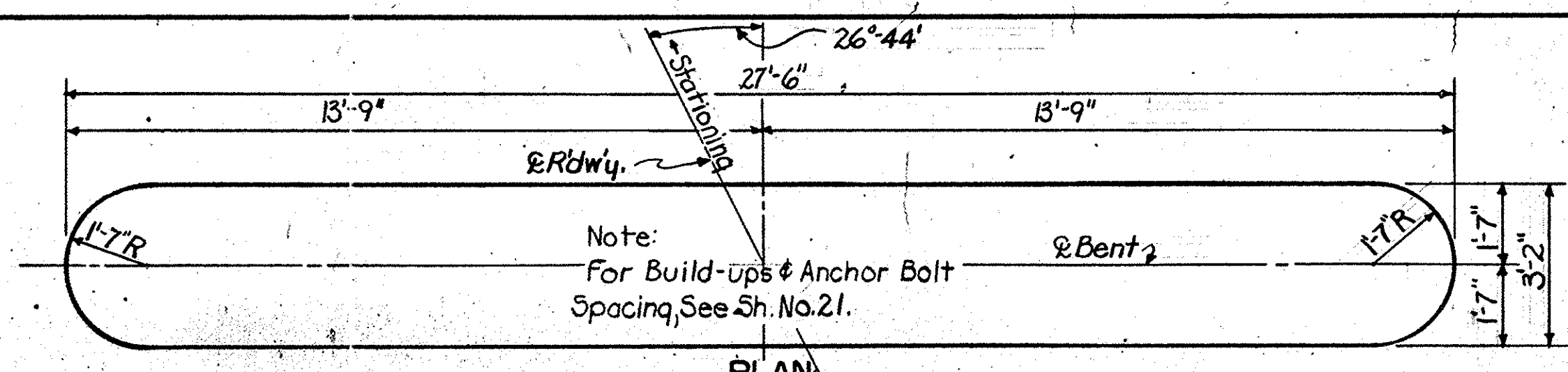
QUANTITIES			
	Unit	Bent 3	Bent 7
Class "A" Concrete	C.Y.	38.6	41.7
Reinforcing Steel	Lbs.	5367	6024
Wet & Dry Excavation	C.Y.	45	50
Cross Timber Piling	L.F.	See Summary Sh. 12	

Includes 86 lbs for Anchor Bolt Assemblies

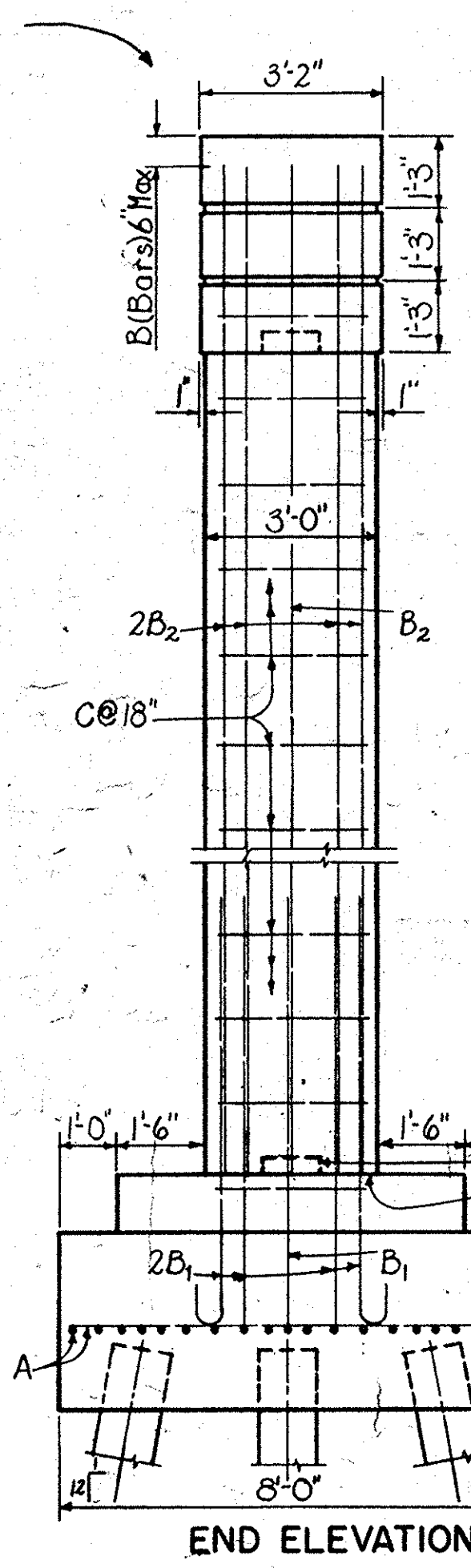
Design Data:  $f_c = 1200 \text{ psi}$ ;  $f_s = 20,000 \text{ psi}$

Notes:  
For Standard Notes, See Sh. No. 5.  
For Standard Details, See Sh. No. 6.  
Footings may be lowered a maximum of 2'-0" without providing additional vertical steel by reducing the length of the splices.

This Sheet to Accompany Sh. No. 21.			
S. C. STATE HIGHWAY DEPARTMENT BRIDGE DIVISION COLUMBIA S. C.			
DETAILS OF BENTS 387, LINE "F" FOR OVERPASS OVER S. SPRUILL INTERCHANGE CONN. (AT N. CHARLESTON)			
REV.	FILE NO.	COUNTY	ROUTE NO. DATE
REV.	10.521.4	CHARLESTON	I-26 3-63
REV.			
REV.			
REV.			
REVIEWED	IN CHARGE	APPROVED BY	APPROVED BY
QUAN. REQ.	PEP 3-64	BRIDGE DESIGN & PLANS ENGINEER	BRIDGE ENGINEER
TR.	DR. R.E.K. RRS 3-64		
DES.	R.R.S. AGW 2-64		
BY	CHK'D DATE		



Note:  
For Anchor Bolt Detail  
& Schedule, see Sh. No. 6.



Drive Piles to A Minimum Bearing  
Value of 22 Tons Per Pile.

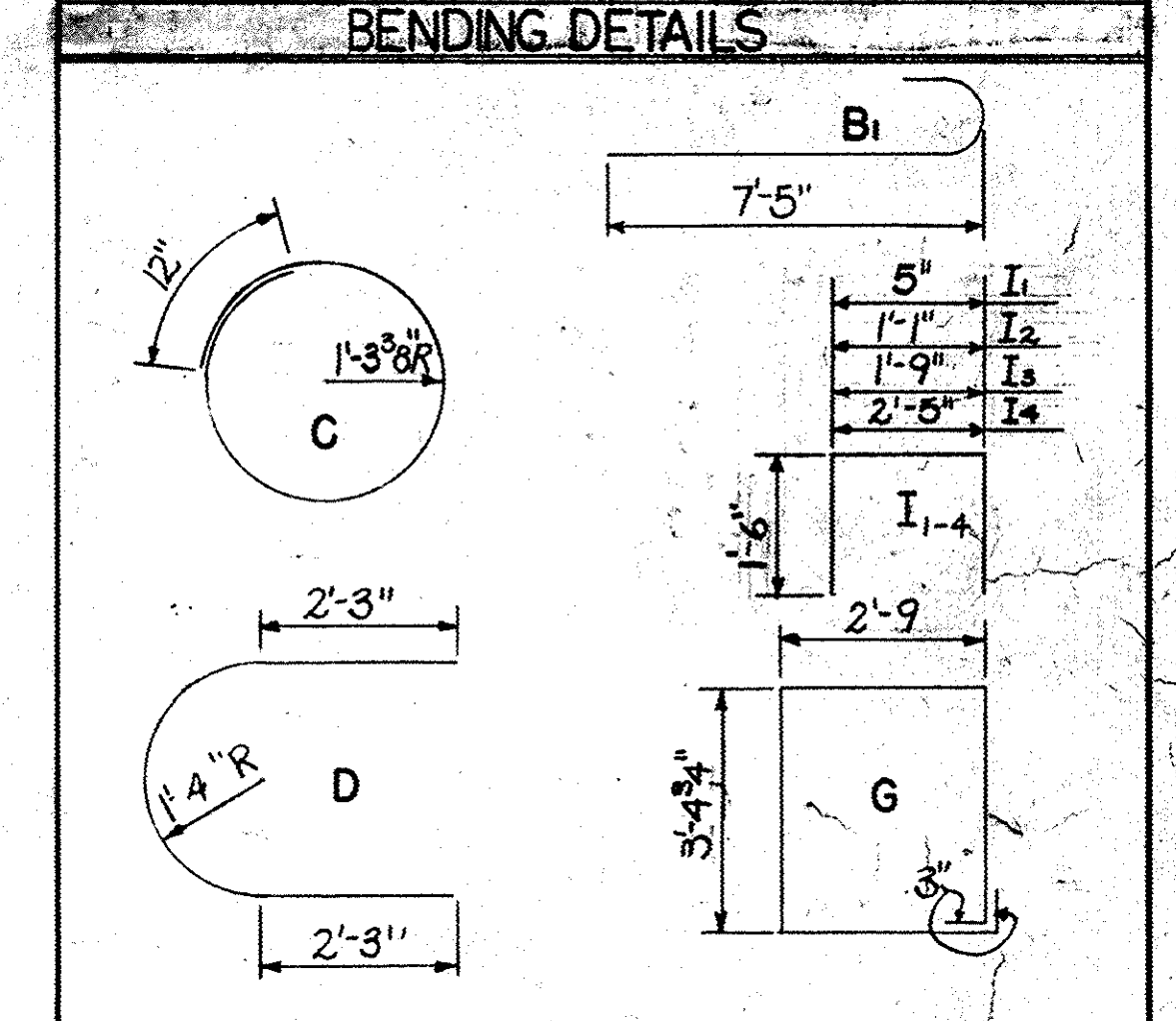
ELEVATIONS			
	BENT 4	BENT 5	BENT 6
A	37.766	39.168	39.680
B	37.766	39.168	39.680
C	7.766	6.168	5.680

DIMENSIONS			
	BENT 4	BENT 5	BENT 6
a	22'-3"	25'-3"	26'-3"
b	22'-3"	25'-3"	26'-3"

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	10.5214	1-26	20	74

REINFORCING STEEL SCHEDULE								
MARK	SIZE NO.	D	BENT NO. 4		BENT NO. 5		BENT NO. 6	
			NO. REQD	LENGTH	NO. REQD	LENGTH	NO. REQD	LENGTH
A	4	S	76	7'-6"	76	7'-6"	76	7'-6"
B <sub>1</sub>	11	B	18	8'-5"	18	8'-5"	18	8'-5"
B <sub>2</sub>	11	S	18	25'-8"	18	28'-8"	18	29'-8"
C	3	B	32	9'-0"	36	9'-0"	38	9'-0"
D	6	B	6	8'-8"	6	8'-8"	6	8'-8"
E <sub>1</sub>	10	S	2	24'-4"	2	24'-4"	2	24'-4"
E <sub>2</sub>	10	S	6	9'-11"	6	9'-11"	6	9'-11"
E <sub>3</sub>	10	S	2	26'-10"	2	26'-10"	2	26'-10"
E <sub>4</sub>	9	S	2	24'-4"	2	24'-4"	2	24'-4"
E <sub>5</sub>	9	S	3	15'-0"	3	15'-0"	3	15'-0"
E <sub>6</sub>	9	S	2	26'-10"	2	26'-10"	2	26'-10"
F	6	S	2	24'-4"	2	24'-4"	2	24'-4"
G	5	B	27	12'-10"	27	12'-10"	27	12'-10"
H <sub>1</sub>	4	S	2	3'-2"	6	3'-2"	4	3'-2"
H <sub>2</sub>	4	S	2	3'-6"	—	—	4	3'-6"
I <sub>1</sub>	4	B	2	3'-5"	—	—	4	3'-5"
I <sub>2</sub>	4	B	2	4'-1"	—	—	4	4'-1"
I <sub>3</sub>	4	B	2	4'-9"	—	—	4	4'-9"
I <sub>4</sub>	4	B	—	—	6	5'-5"	—	—



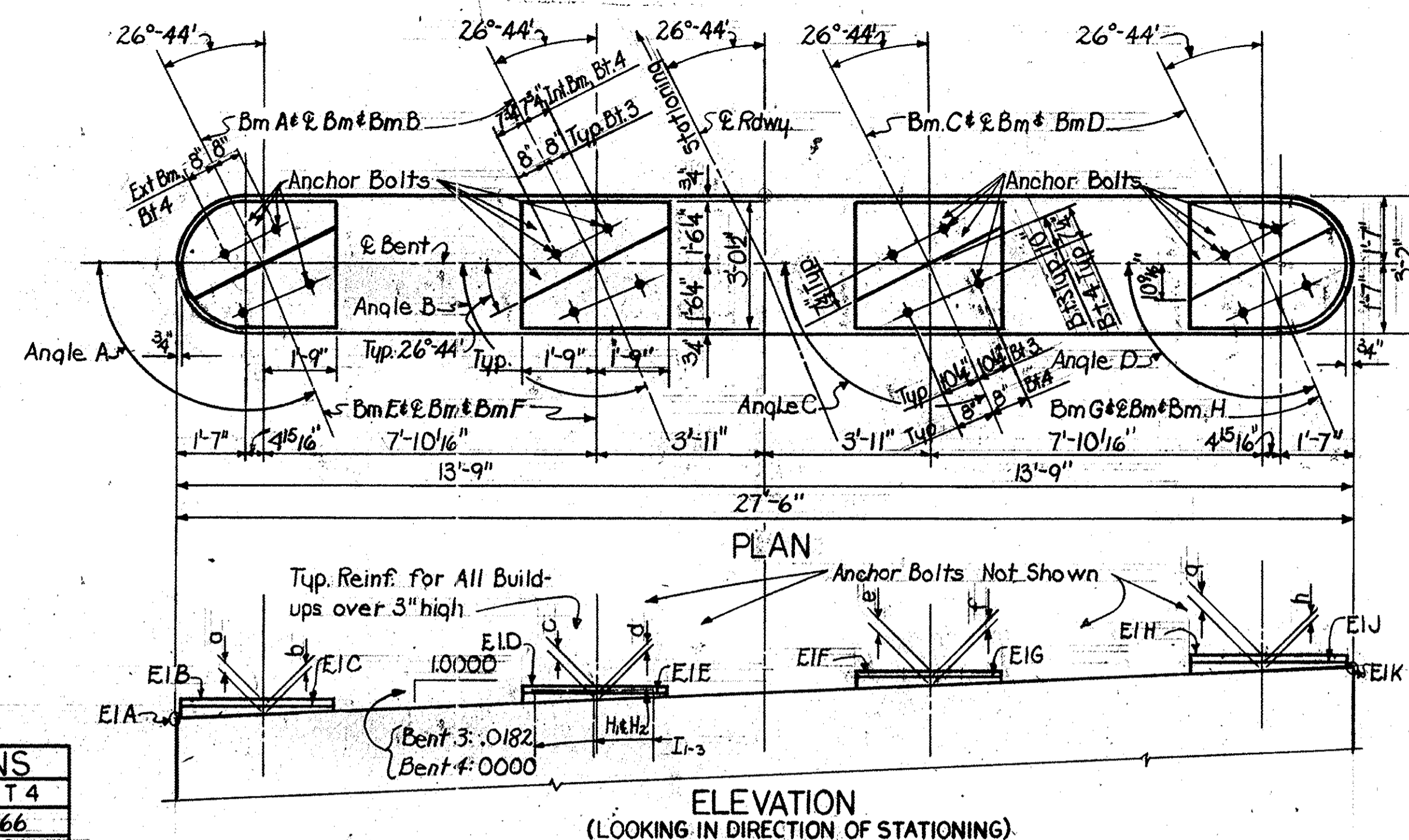
QUANTITIES				
	Unit	Bent 4	Bent 5	Bent 6
Class "A" Concrete	C.Y.	40.1	41.7	42.3
Reinforcing Steel	Lbs.	5548	5858	5976
Wet Dry Excavation	C.Y.	50	50	50
Creos. Timber Piling	L.F.	See Summary Sh. 12.		

① Includes 86 lbs. for Anchor Bolt Assemblies  
② Includes 86 lbs. for Anchor Bolt Assemblies  
Design Data:  
fc = 1200 psi; fs = 20,000 psi

Notes:  
For Standard Notes, See Sh. No. 5.  
For Standard Details, See Sh. No. 6.  
Footings may be lowered a maximum of 2'-0" without providing additional vertical steel by reducing the length of the splices.

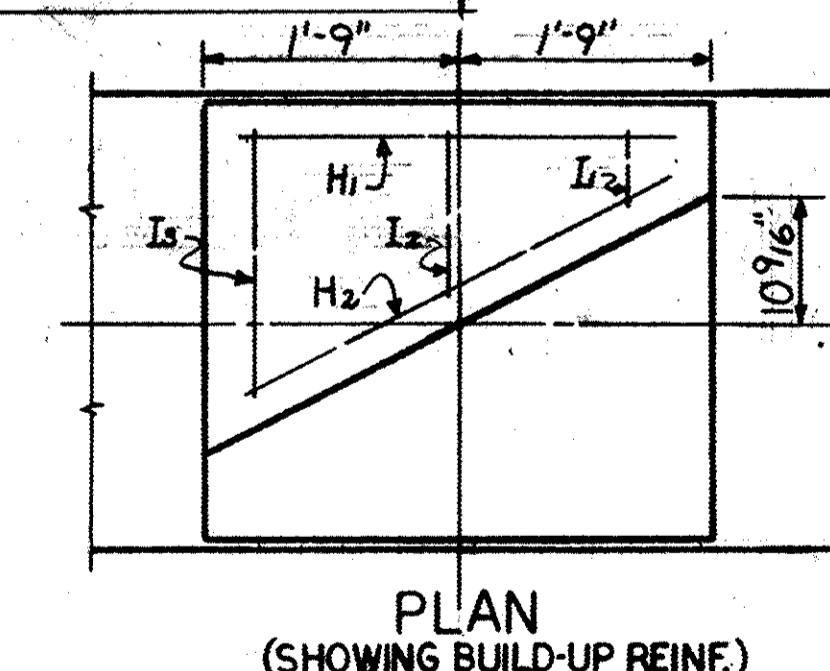
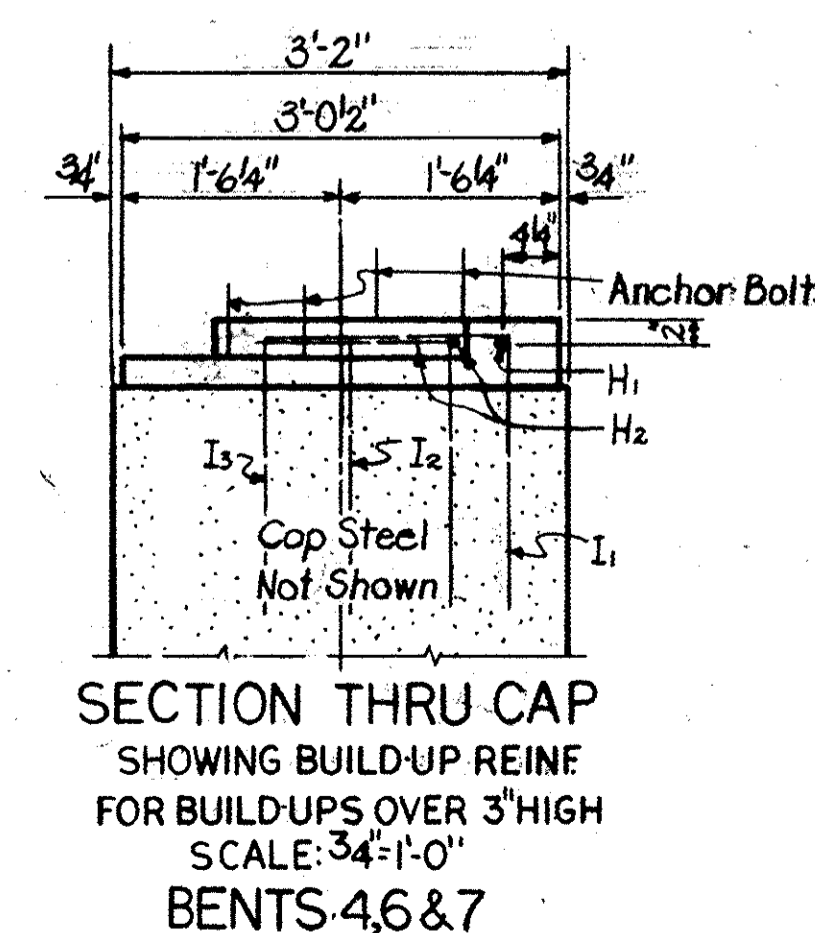
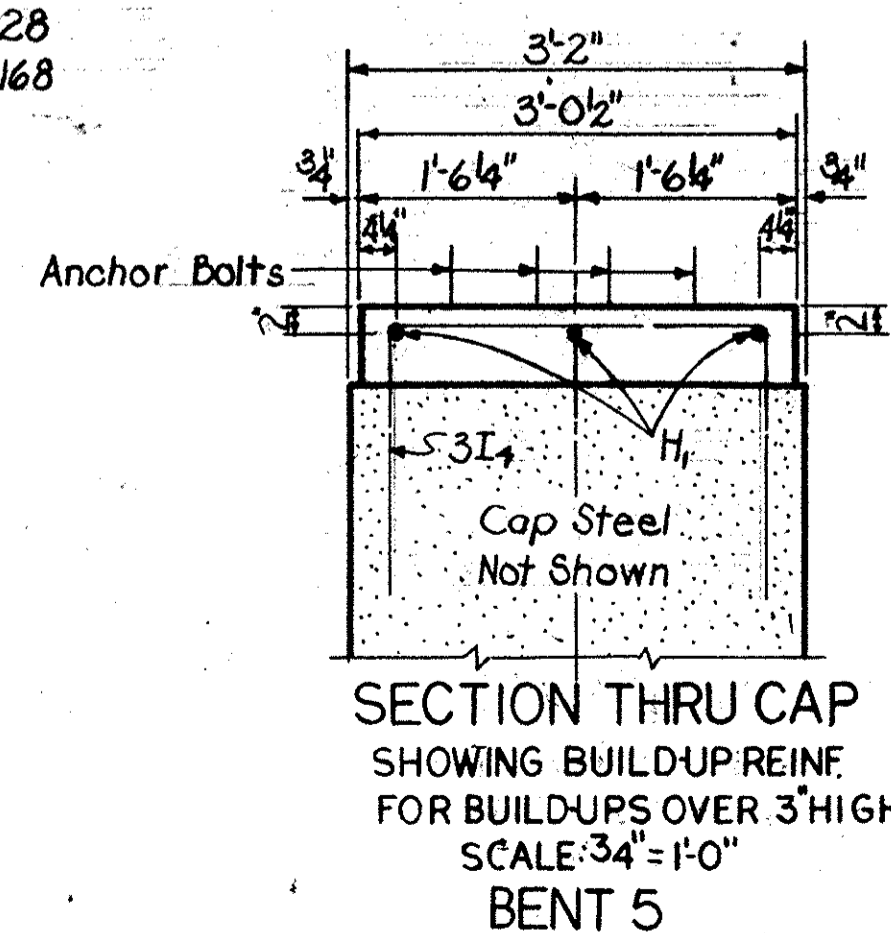
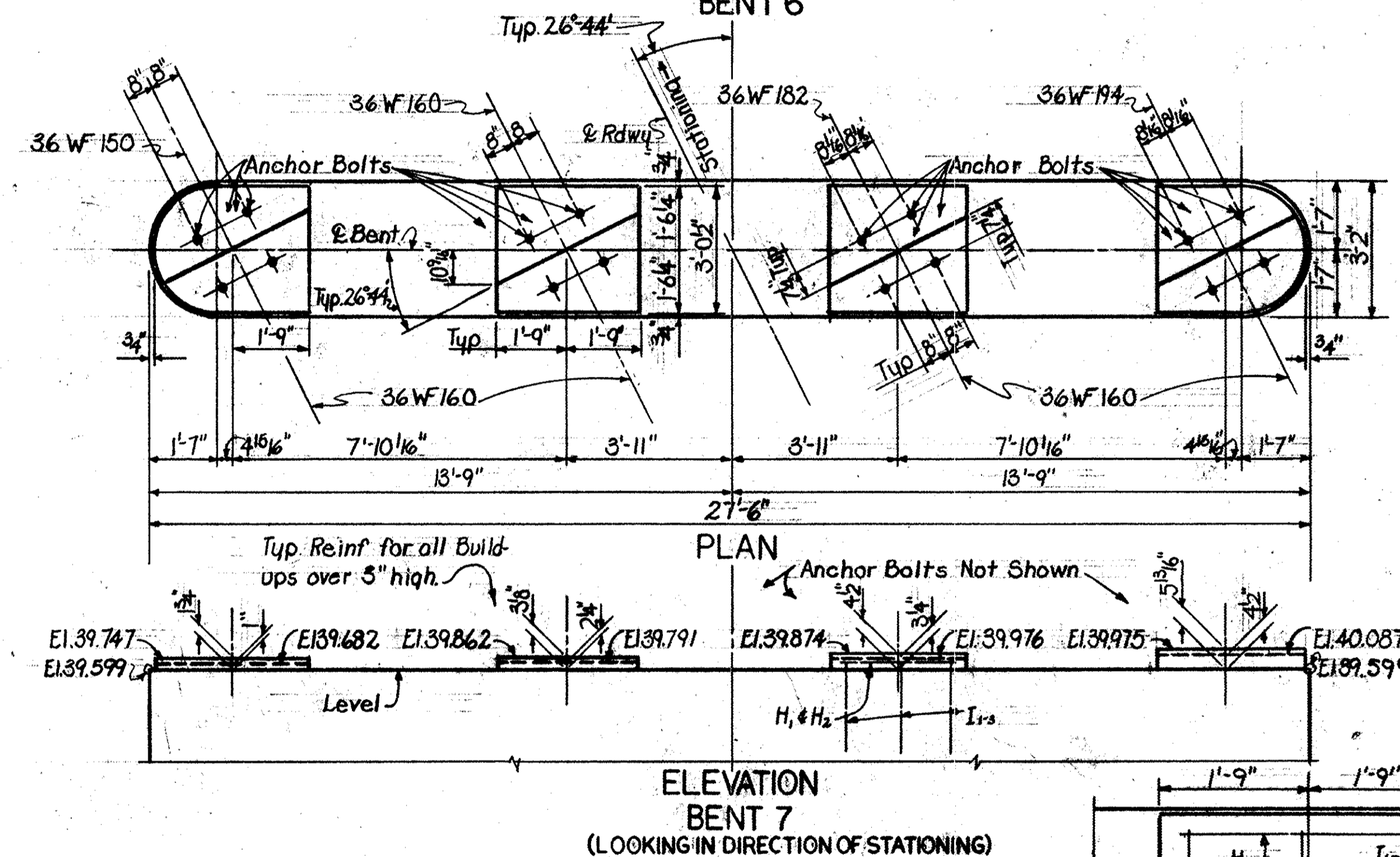
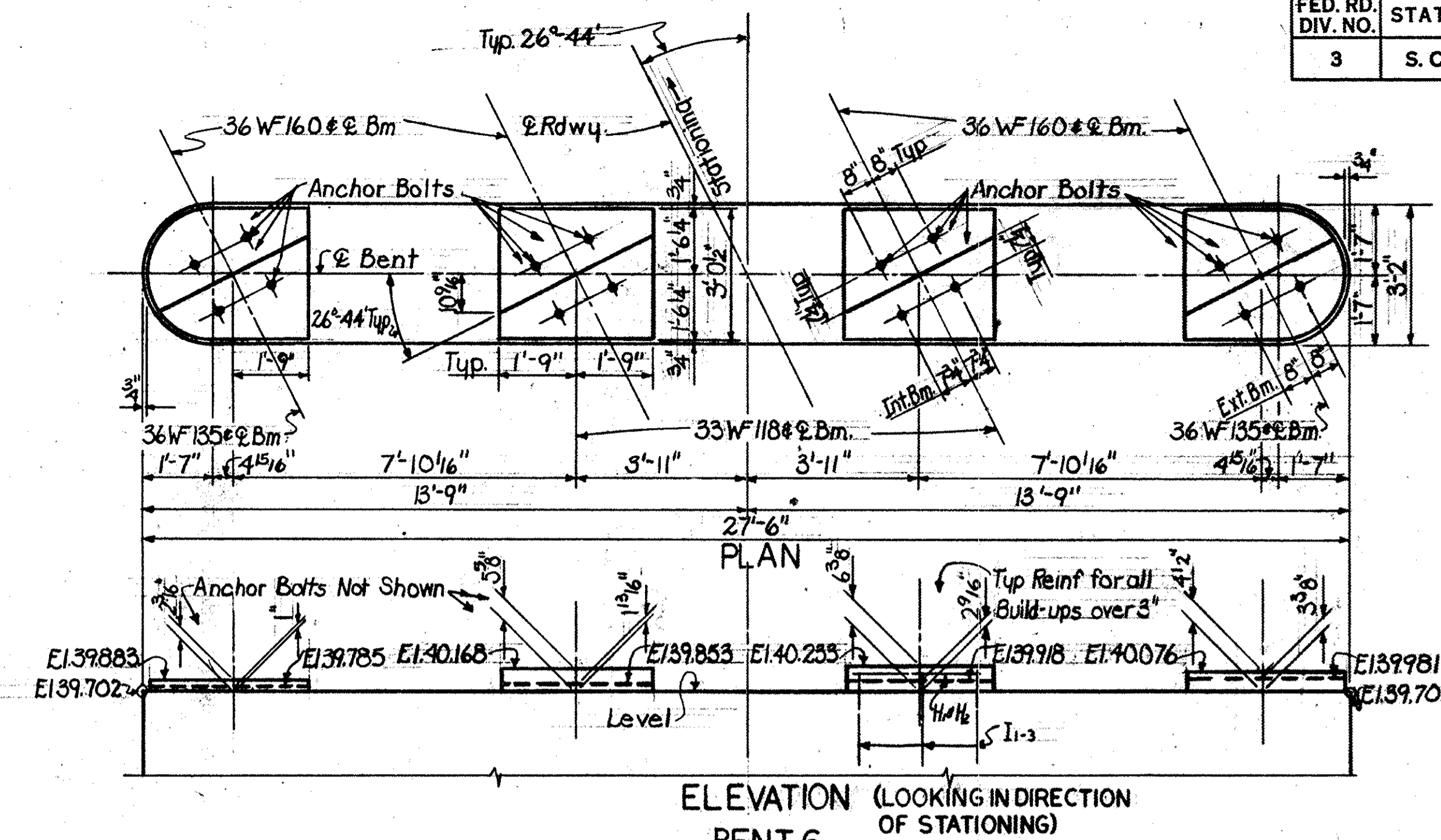
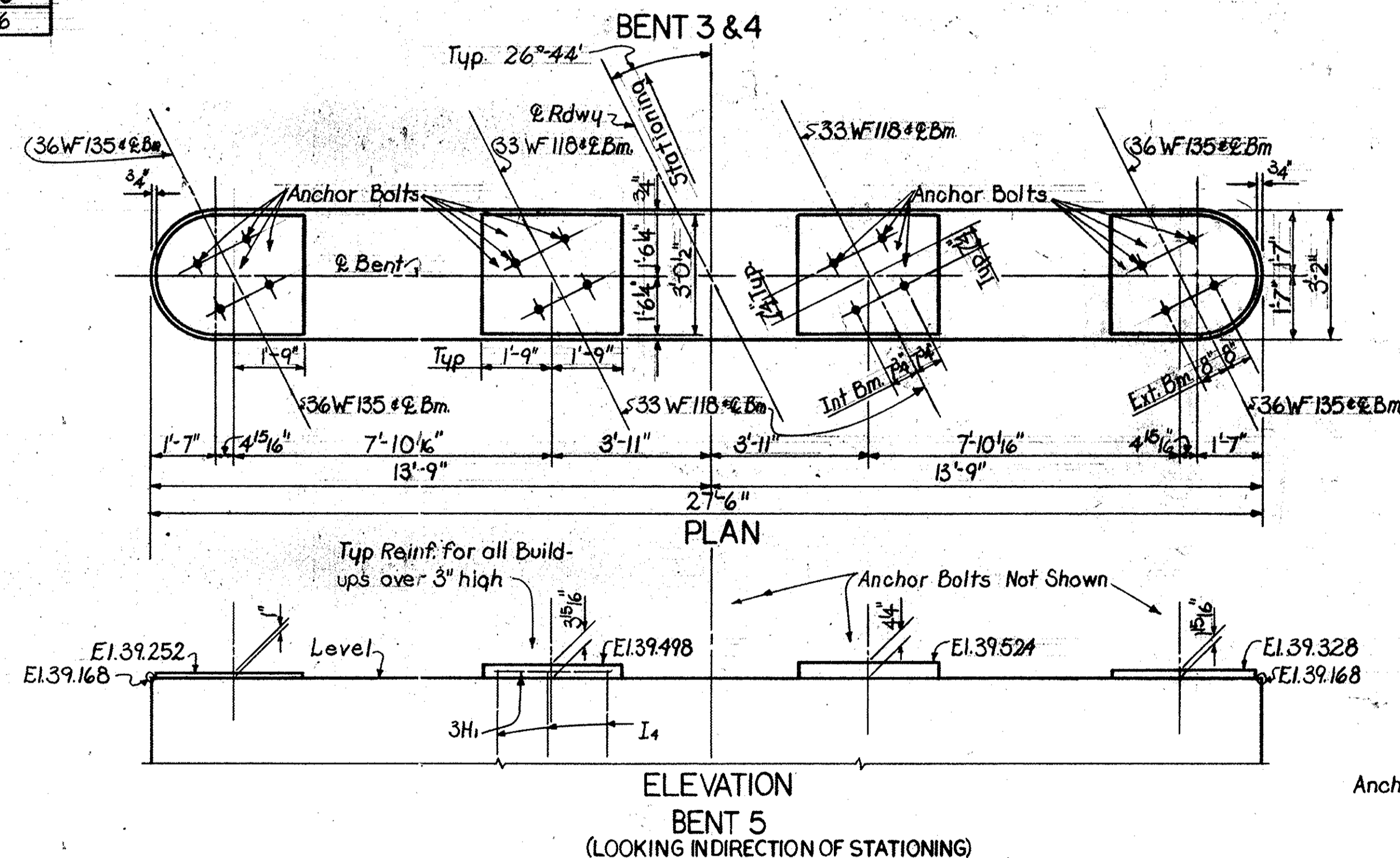
MAX. FOOTING REACTION	
Dead Load-Superstructure	137K
Live Load-Superstructure	67K
Dead Load-Bent	76K
Backfill (3')	17K
Total of above	297K
Average Bearing	16.5 <sup>3</sup> /pile
MAXIMUM PILE BEARING DUE TO WIND	
Wind	11.0 <sup>7</sup> /pile
MAX. CONDITION:	
Wind	16.5 <sup>5</sup> /pile
Total (125 % of Normal Stress)	27.5 <sup>5</sup> /pile
Normal Stress	22.0 <sup>5</sup> /pile

This Sheet to Accompany Sh. No. 21.			
S.C. STATE HIGHWAY DEPARTMENT BRIDGE DIVISION COLUMBIA S.C.			
DETAILS OF BENTS 45&6, LINE "F" FOR OVERPASS OVER S. SPRUILL INTERCHANGE CONN. (AT N. CHARLESTON)			
REV.		FILE NO.	ROUTE NO. DATE
REV.		10.5214	CHARLESTON 1-26 3-63
REV.		APPROVED BY	APPROVED BY
REV.		DES. R.R.S. AGW/2-64	BRIDGE DESIGN & PLANS ENGINEER
REVIEWED	R.R.S. IN CHARGE	BY	CHK'D DATE
QUAN. REK	PEP/3-64		
TR.			
DR. R.E.K.	R.R.S. 3-64		
DES. R.R.S.	AGW/2-64		
BY	CHK'D DATE		



ELEVATIONS	
BENT 3	BENT 4
A 34.570	37.766
B 34.881	37.996
C 34.752	37.855
D 34.987	38.210
E 34.864	37.850
F 35.127	38.209
G 35.007	37.850
H 35.295	37.996
J 35.180	37.856
K 35.070	37.766

BEAMS								ANGLES				DIMENSIONS								
	A	B	C	D	E	F	G	H	A	B	C	D	a	b	c	d	e	f	g	h
BENT 3	36W160	36W160	36W160	36W160	36W230	36W230	36W230	36W230	112°12'17"	112°36'04"	113°13'41"	113°11'00"	3'6"	3'6"	2'8"	3'8"	2'4"	1'8"	2'8"	1'6"
BENT 4	36W135	33W118	33W118	36W135	36W160	36W160	36W160	36W160	116°44'	116°44'	116°44'	116°44'	2'8"	1'8"	5'4"	1'5"	1'5"	2'4"	1'6"	1'6"



REV.		This Sheet to Accompany Sheets 19420.	
REV.		S.C. STATE HIGHWAY DEPARTMENT BRIDGE DIVISION COLUMBIA S.C.	
REV.		BUILDUP DETAILS BENTS 3,4,5,6 & 7, LINE "F" FOR OVERPASS OVER S. SPRUILL INTERCHANGE CONN. (AT N. CHARLESTON)	
REV.			
REVIEWED	RRS	FILE NO.	COUNTY
IN CHARGE		ROUTE NO.	DATE
QUAN.		10.5214	CHARLESTON
TR.		I-26	3-64
DR.	REK RRS 3-64	APPROVED BY	APPROVED BY
DES.		BY CHK'D DATE	BRIDGE DESIGN & PLANS ENGINEER
		BRIDGE ENGINEER	

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	10.521.4	1-26	22	74

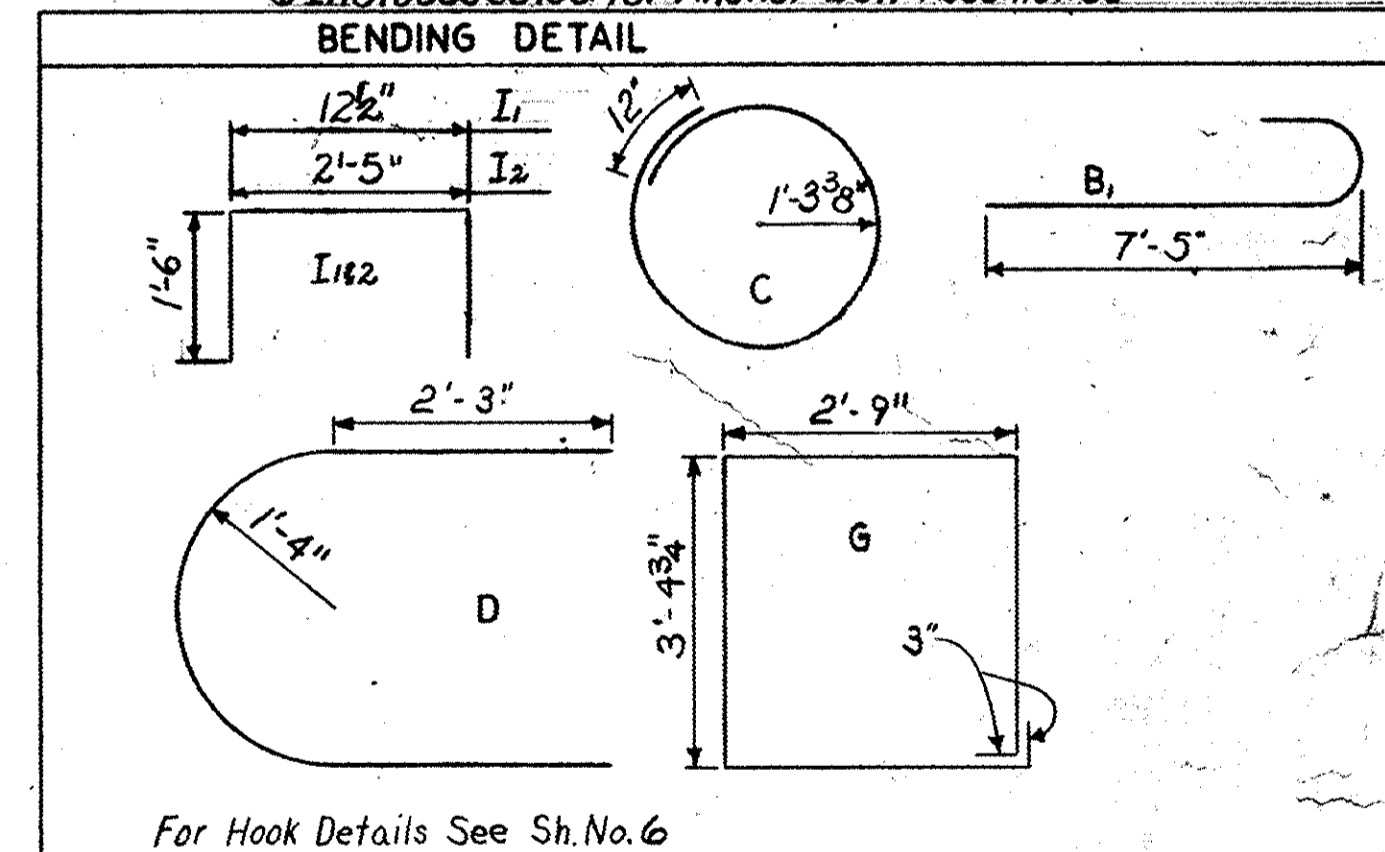
REINFORCING STEEL SCHEDULE									
MARK	SIZE	D	BENT NO. 8	BENT NO. 9	BENT NO. 10				
			NO. REQD	NO. REQD	NO. REQD	LENGTH			
A	4	S	76	76	76	7'-6"			
B <sub>1</sub>	11	B	18	18	18	8'-5"			
B <sub>2</sub>	11	S	18	18	18	23'-9"			
C	3	B	36	30	26	9'-0"			
D	6	B	6	6	6	8'-8"			
E <sub>1</sub>	10	S	2	2	2	24'-4"			
E <sub>2</sub>	10	S	6	6	6	7'-9"			
E <sub>3</sub>	10	S	2	2	2	21'-10"			
E <sub>4</sub>	9	S	3	3	3	13'-0"			
E <sub>5</sub>	9	S	2	2	2	21'-10"			
E <sub>6</sub>	9	S	2	2	2	24'-4"			
F	6	S	2	2	2	21'-10"			
G	5	B	24	24	24	12'-10"			
H	4	S	8	9	9	1'-8"			
I <sub>1</sub>	4	B	12			4'-1"			
I <sub>2</sub>	4	B		9	9	5'-5"			

ELEVATIONS			
	BENT 8	BENT 9	BENT 10
A	38.623	37.100	34.643
B	38.623	37.100	34.643
C	6.123	9.100	10.143

DIMENSIONS			
	BENT 8	BENT 9	BENT 10
a	24'-9"	20'-3"	16'-9"
b	24'-9"	20'-3"	16'-9"

QUANTITIES			
	BENT 8	BENT 9	BENT 10
Class "A" Concrete	C.Y. 40.3	37.9	36.2
Reinforcing Steel	Lbs. 5646	5196	4848
Wet & Dry Excavation	C.Y. 50	45	50
Creos. Timber Piling	L.F. See Summary Sh. 12		

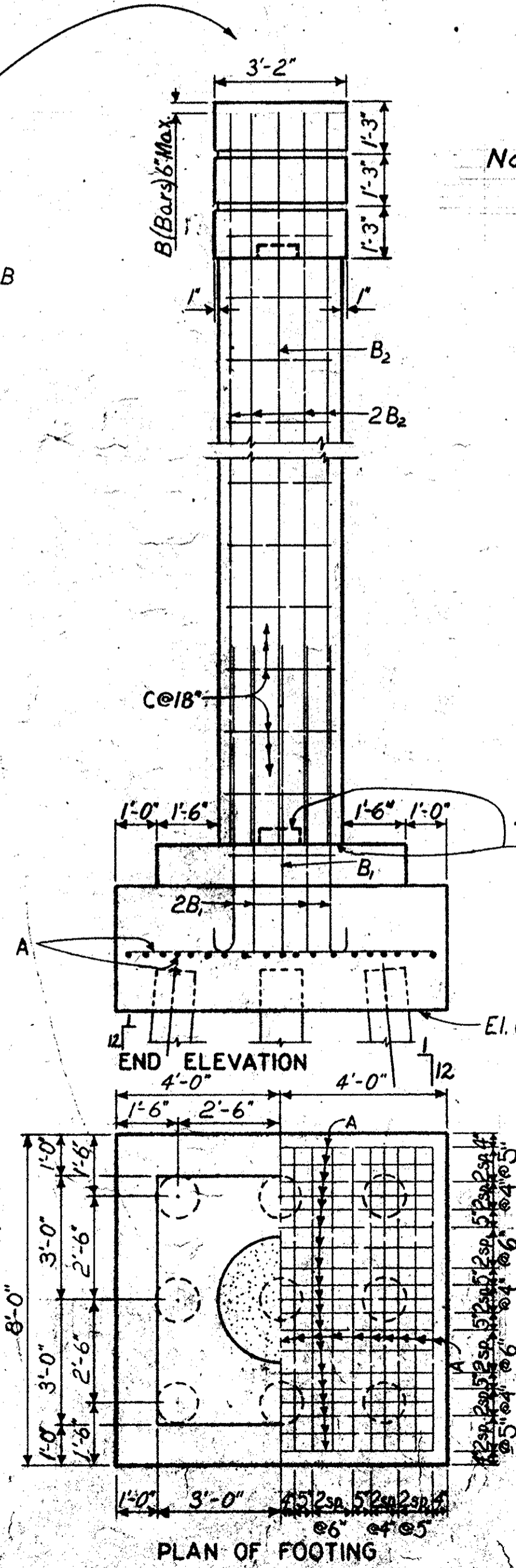
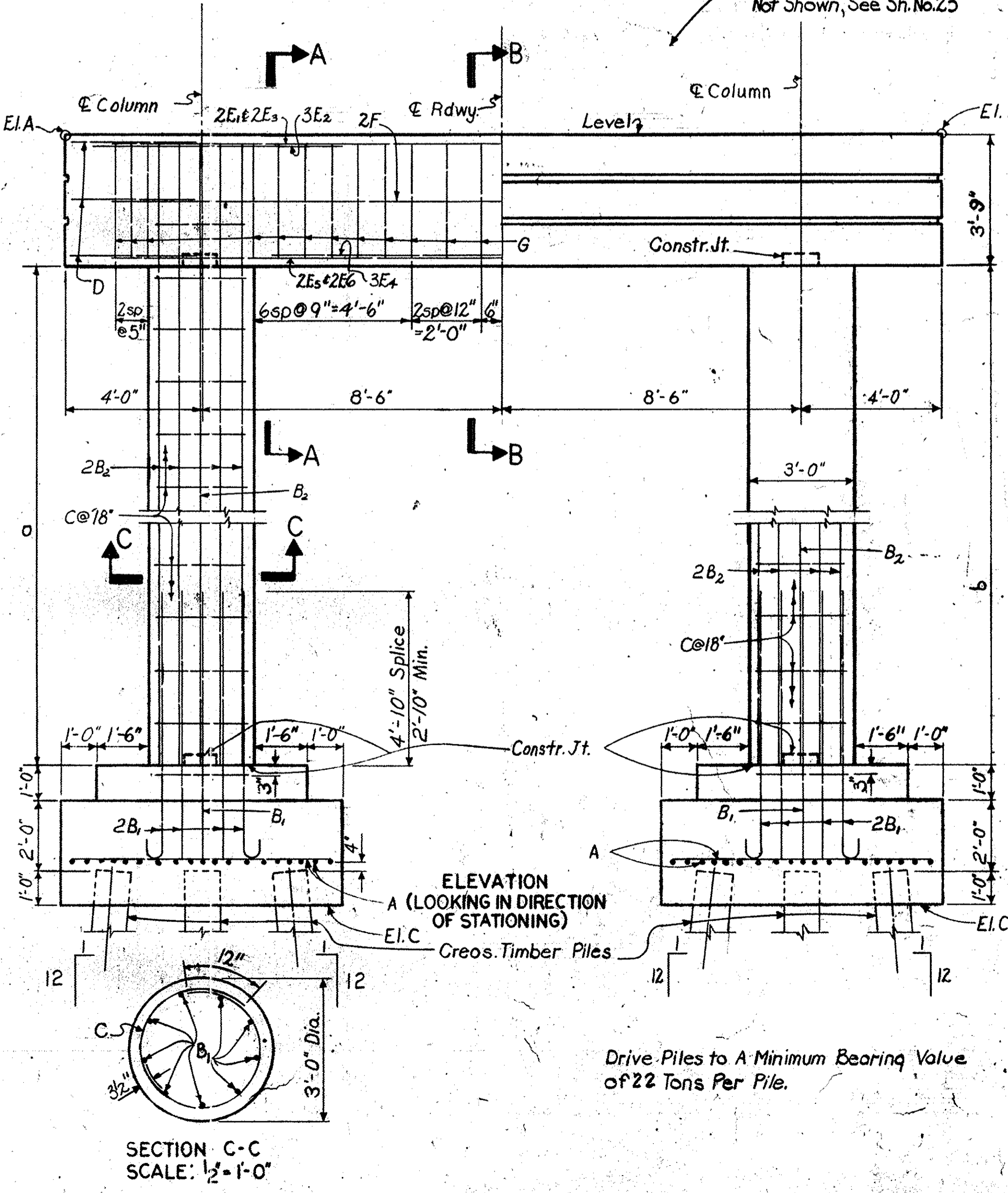
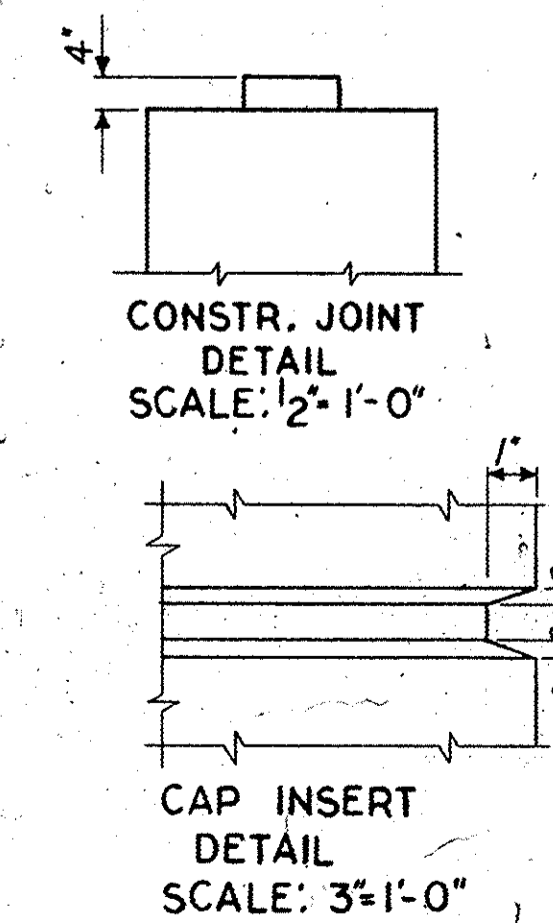
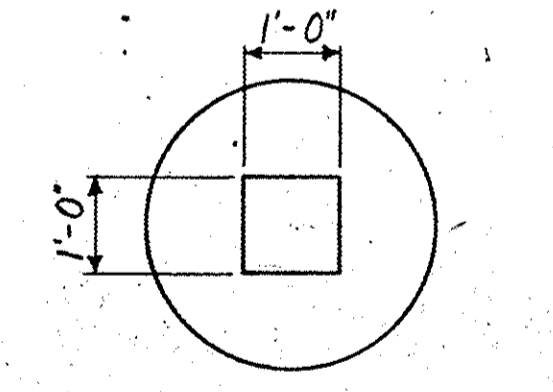
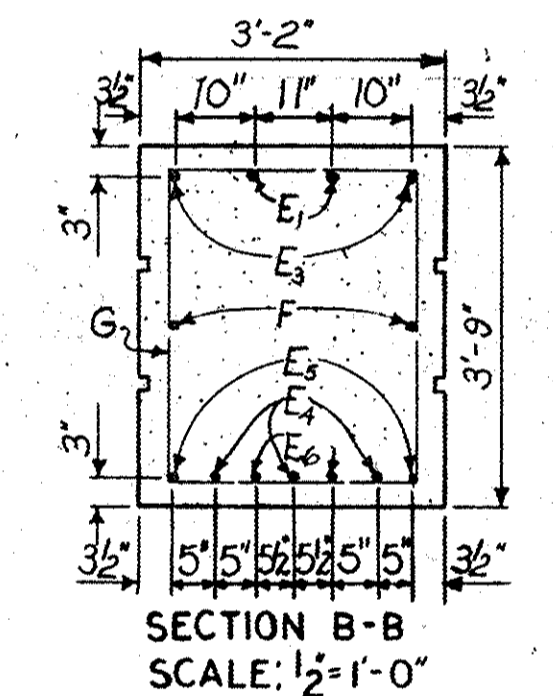
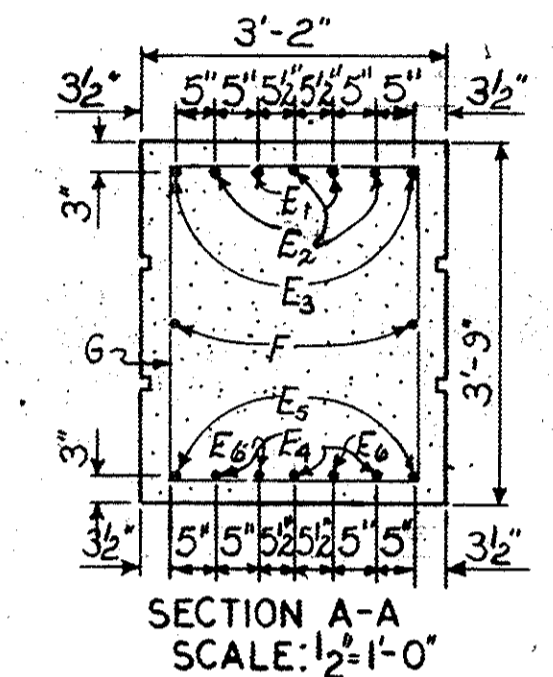
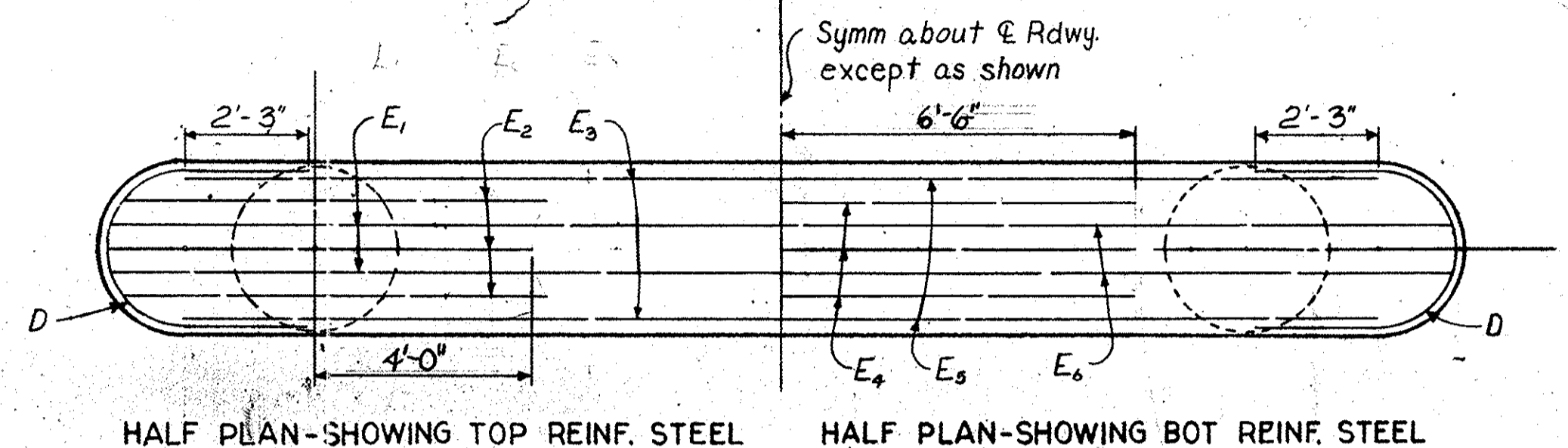
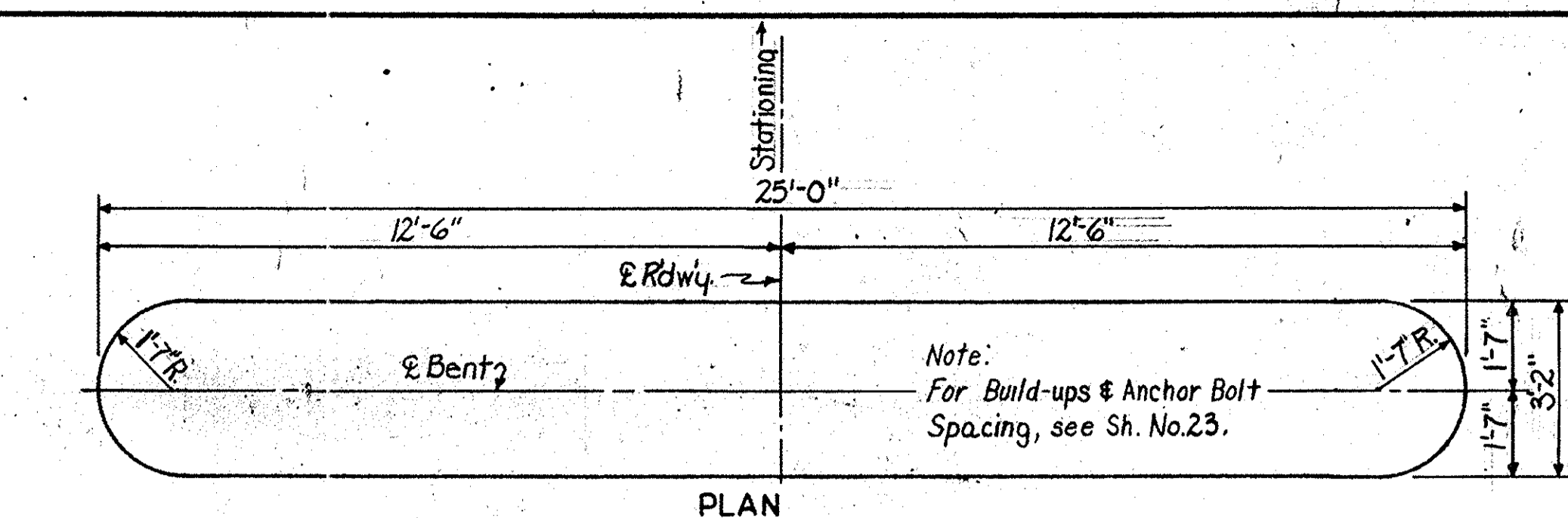
0 Includes 86 lbs for Anchor Bolt Assemblies



Notes:  
For Standard Notes See Sh. No. 5  
For Standard Details See Sh. No. 6  
Footing May be Lowered a maximum of 2'-0" without providing additional vertical Column Steel by reducing length of Splices. This Sheet to Accompany Sh. No. 23

S.C. STATE HIGHWAY DEPARTMENT BRIDGE DIVISION COLUMBIA S.C.			
DETAILS OF BENTS 8, 9 & 10, LINE "F" FOR UNDERPASS UNDER S. SPRUILL INTERCHANGE CONN. (AT N. CHARLESTON)			
REV.		FILE NO.	10.521.4
REV.		COUNTY	CHARLESTON
REV.		ROUTE NO.	1-26
REV.		DATE	2-64
REVIEWED	RRS	IN CHARGE	PEP 2-64
QUAN. REK	2-64	APPROVED BY	2-64
DR. REK	2-64	APPROVED BY	2-64
DES. RRS	AGW	APPROVED BY	2-64
BY	CHK'D DATE	BRIDGE DESIGN & PLANS ENGINEER	BRIDGE ENGINEER

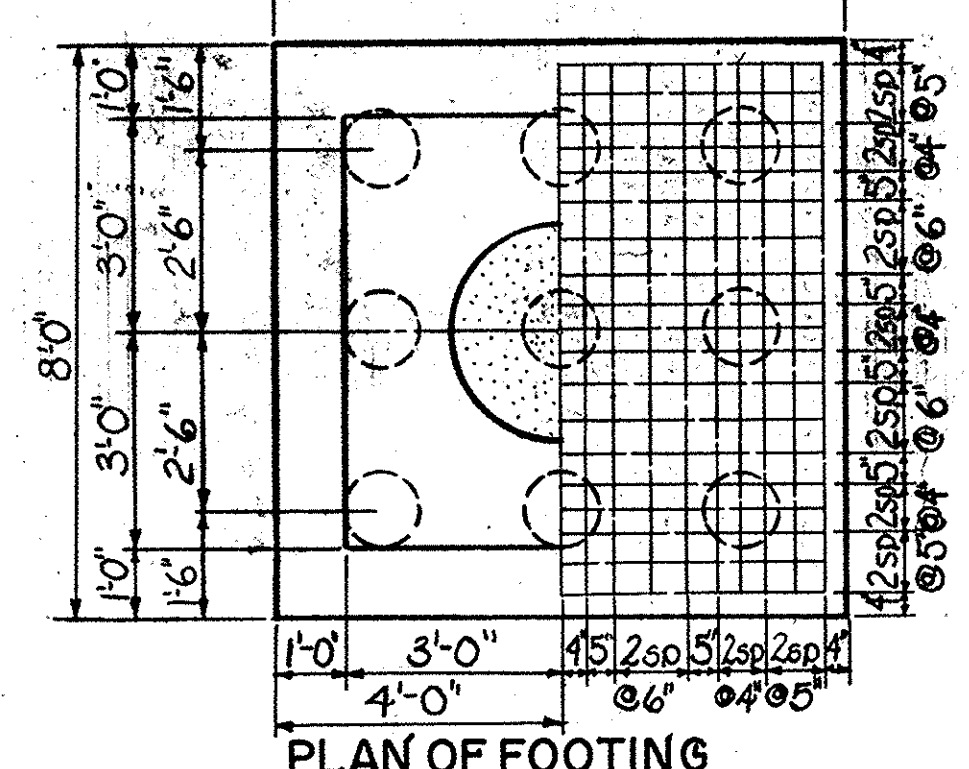
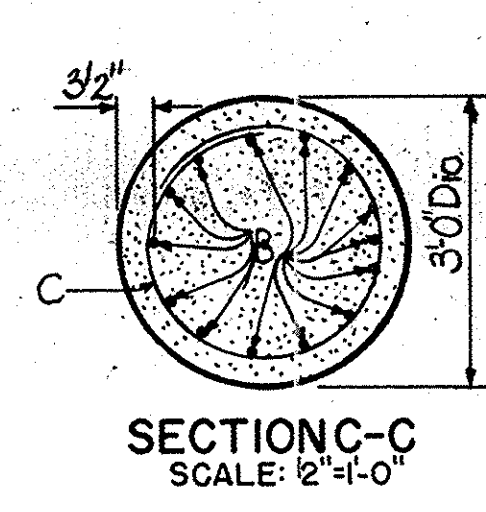
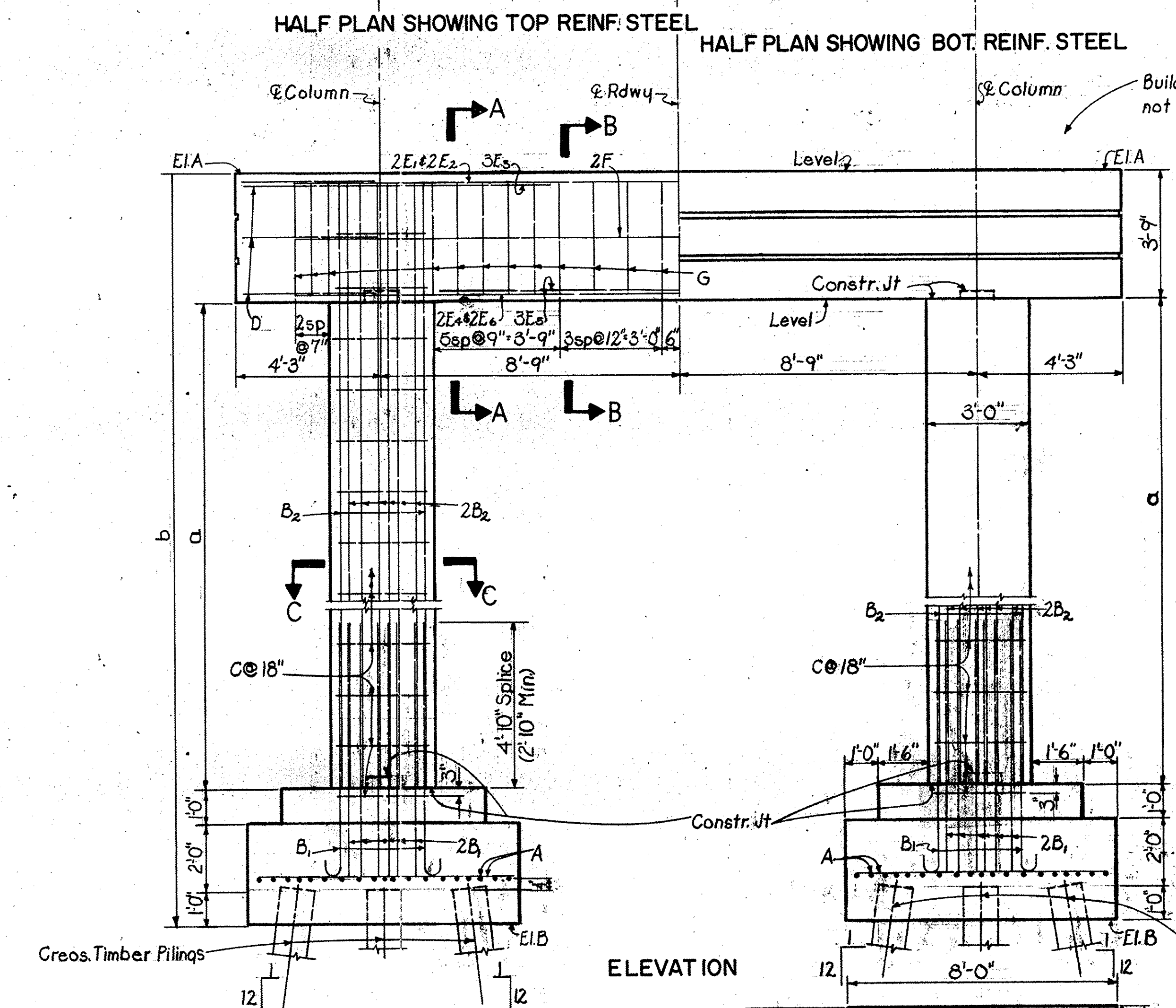
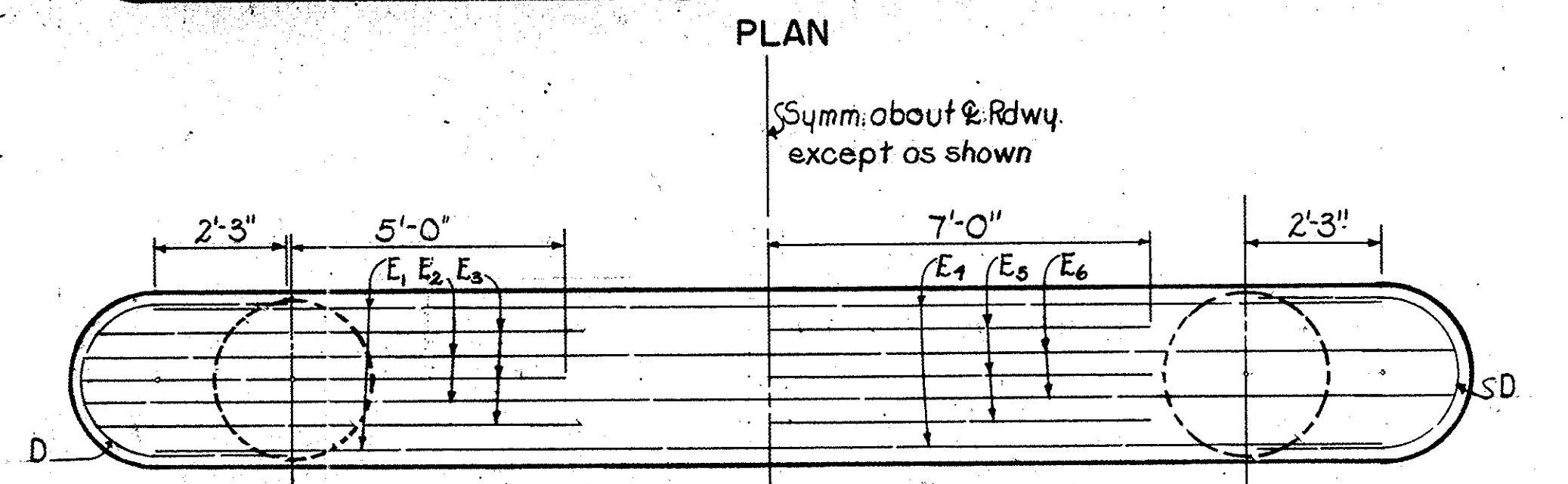
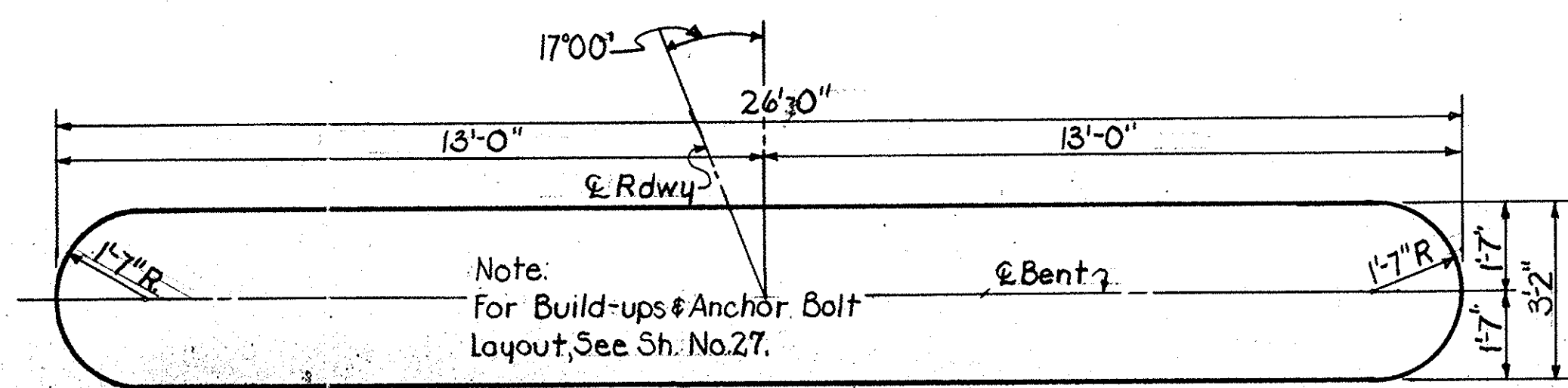
MAX. FOOTING REACTION		
	BENT 8	BENT 9 & 10
Dead Load + Superstructure	14.5K	11.6K
Live Load - Superstructure	70K	62K
Dead Load - Bent	74K	74K
Backfill (3')	17K	17K
Total of above	306K	269K
Average Bearing	17.07 pile	14.97 pile
MAXIMUM PILE BEARING DUE TO WIND		
Wind	8.27 pile	7.27 pile
MAX. CONDITION		
Wind	17.07 pile	14.97 pile
Total (125% of Normal Stress)	25.27 pile	22.17 pile
Normal Stress	20.27 pile	17.77 pile



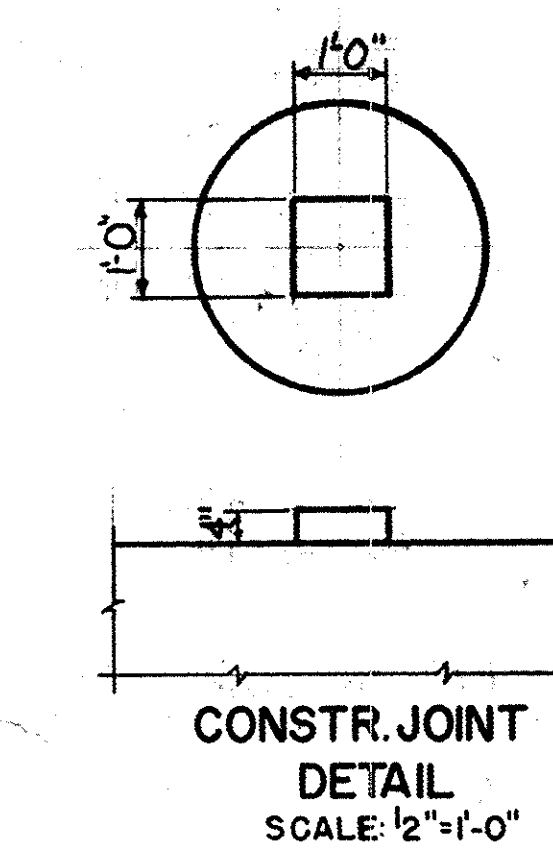
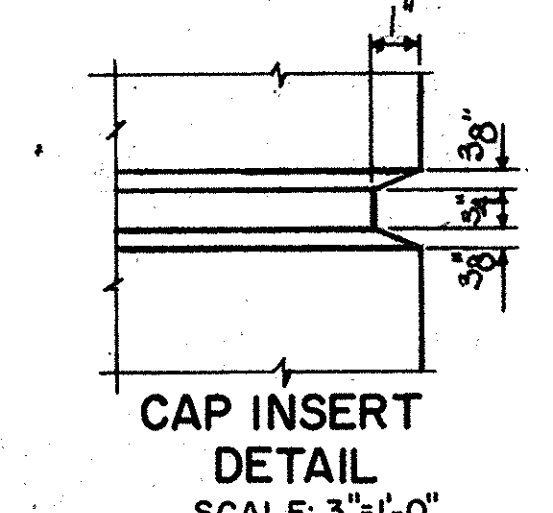
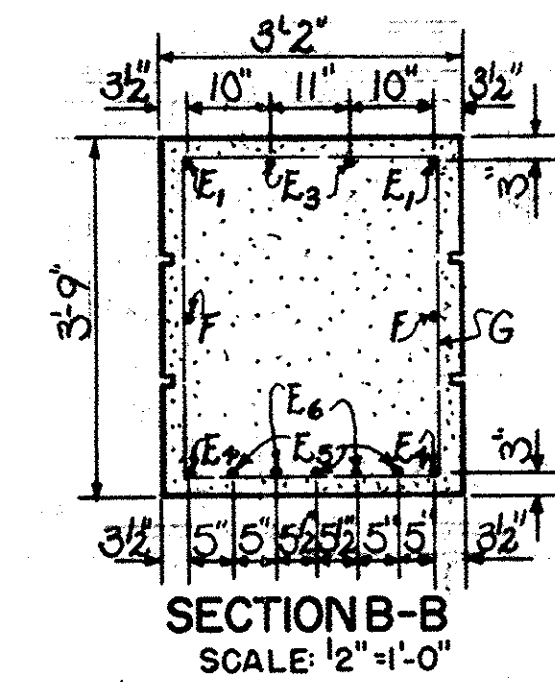
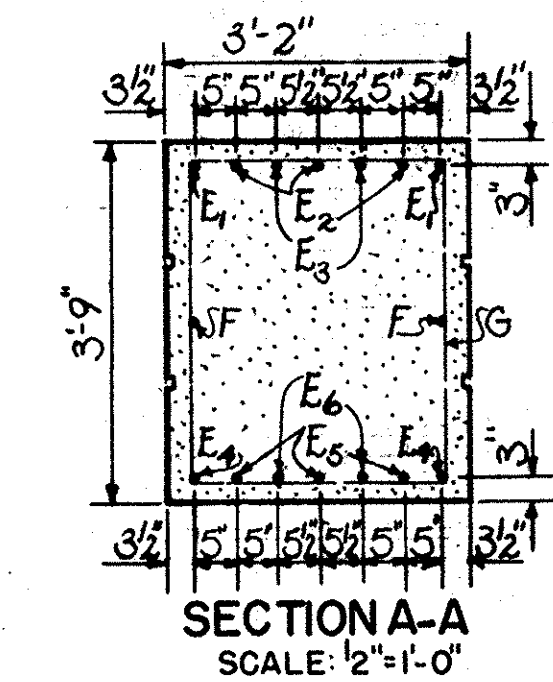
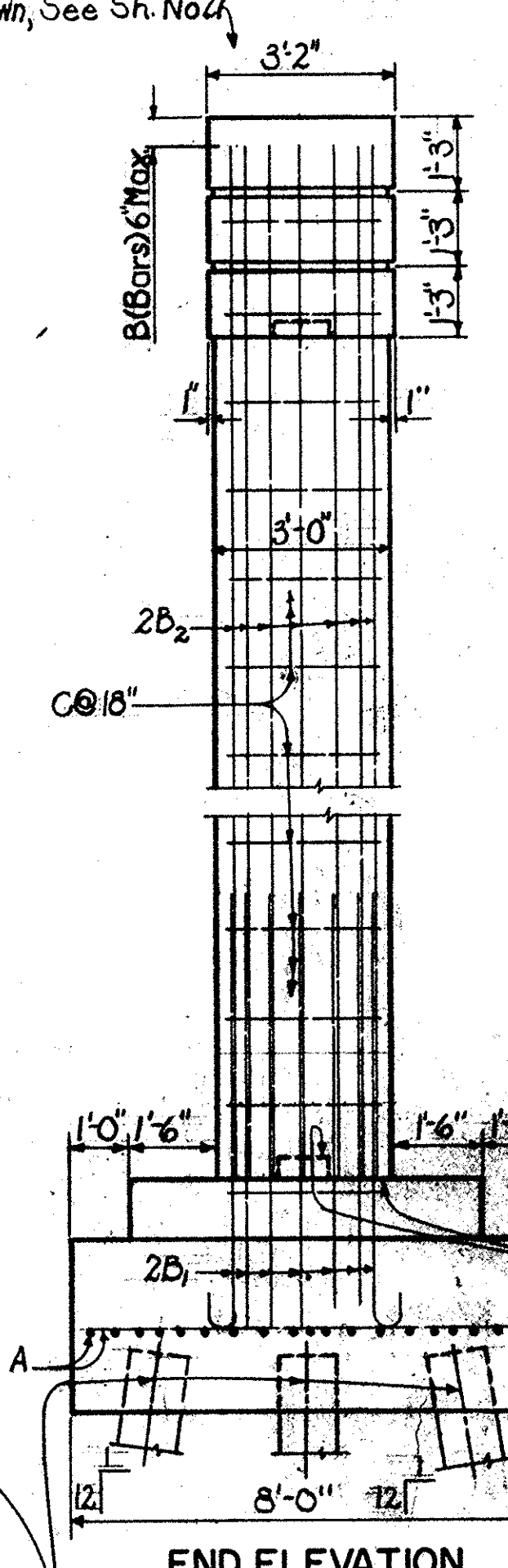
Drive Piles to A Minimum Bearing Value of 22 Tons Per Pile.







Note:  
For Anchor Bolt Detail  
& Schedule, see Sh. No. 6.



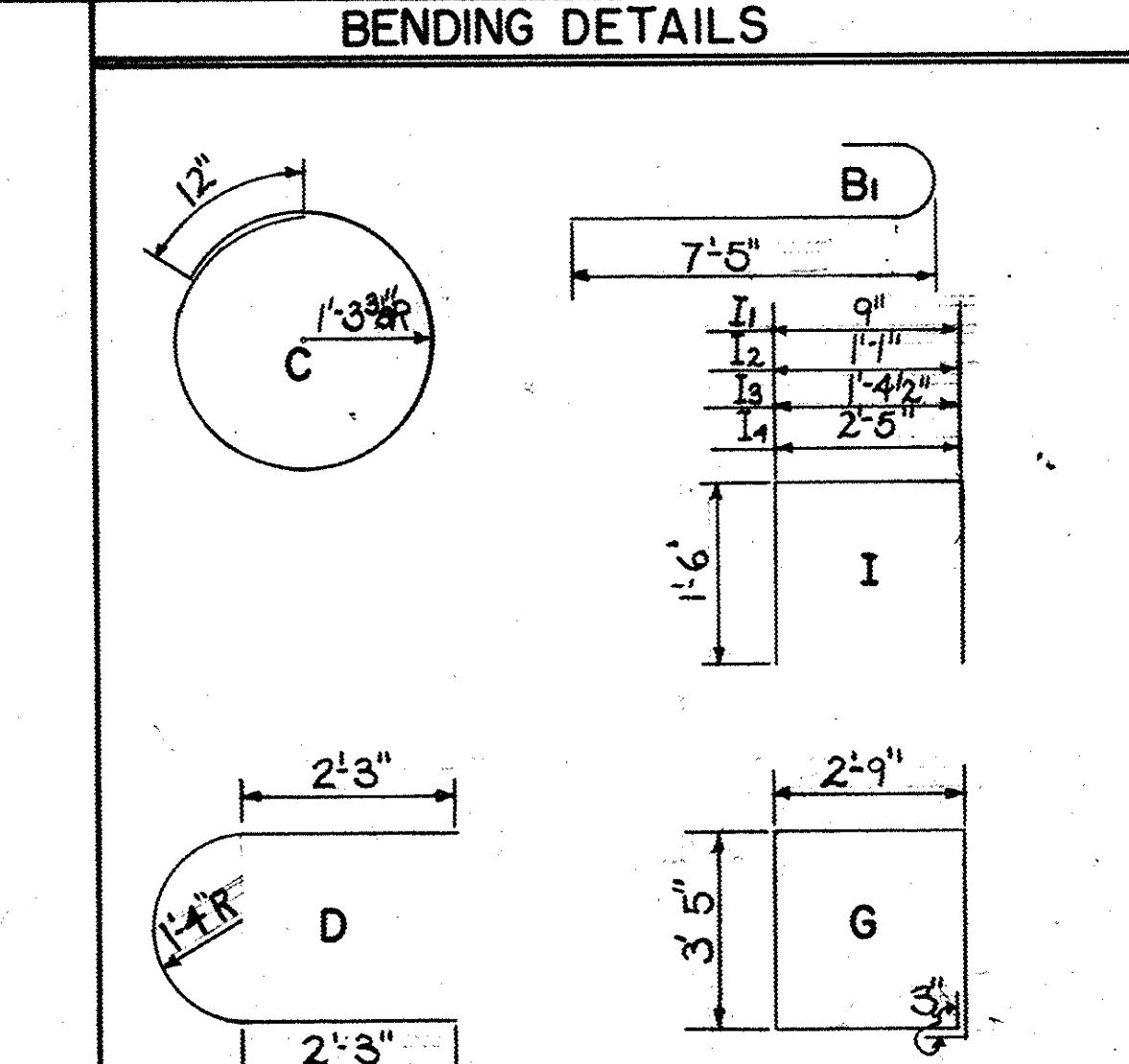
Drive Piles to a Minimum  
bearing value of 22 Tons  
per pile.

MAX. FOOTING REACTION	
Dead Load-Superstructure	160K
Live Load-Superstructure	74
Dead Load-Bent	83
Backfill (3')	17
Total of Above	334K
Average Bearing	18.67/pile
MAX. BEARING AT EDGE OF FOOTING DUE TO WIND	
Wind	8.97/pile
MAX. CONDITION:	
Wind	18.67/pile
Total (125% of Normal Stress)	27.57/pile
Normal Stress	22.07/pile

ELEVATIONS	
BENT 3	BENT 7
A 35.112	42.595
B 7.112	2.595
DIMENSIONS	
BENT 3	BENT 7
a 20'-3"	32'-3"
b 28'-0"	40'-0"

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S. C.	CHARLESTON	10.521.4	I-26	25	74

REINFORCING STEEL SCHEDULE									
MARK	SIZE	D	BENT NO. 3	BENT NO. 7	NO. REQD.	LENGTH	NO. REQD.	LENGTH	
A	4	S	76	76	76	7'-6"			
B <sub>1</sub>	11	B	28	8'-5"	28	8'-5"			
B <sub>2</sub>	11	B	28	23'-8"	28	35'-8"			
C	3	B	30	9'-1"	46	9'-1"			
D	6	B	6	8'-8"	6	8'-8"			
E <sub>1</sub>	10	S	2	22'-10"	2	22'-10"			
E <sub>2</sub>	10	S	2	25'-4"	2	25'-4"			
E <sub>3</sub>	10	S	3	9'-0"	3	9'-0"			
E <sub>4</sub>	9	S	2	22'-10"	2	22'-10"			
E <sub>5</sub>	10	S	3	14'-0"	3	14'-0"			
E <sub>6</sub>	9	S	2	25'-4"	2	25'-4"			
F	6	S	2	25'-4"	2	25'-4"			
G	5	B	24	12'-10"	24	12'-10"			
H	4	S	6	2'-1"	3	2'-1"			
I <sub>1</sub>	4	B	3	3'-9"					


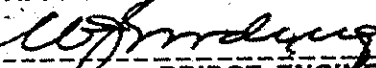


QUANTITIES				
	UNIT	BENT 3	BENT 7	
CLASS "A" CONCRETE	C.Y.	38.4	44.5	
REINFORCING STEEL	LBS.	26889	28711	
WET & DRY EXCAVATION	C.Y.	60	55	
CREOS. TIMBER PILING	L.F.	See Summary Sh. 12		

① Includes 86 lbs. for Anchor Bolt Assemblies  
② Includes 86 lbs. for Anchor Bolt Assemblies

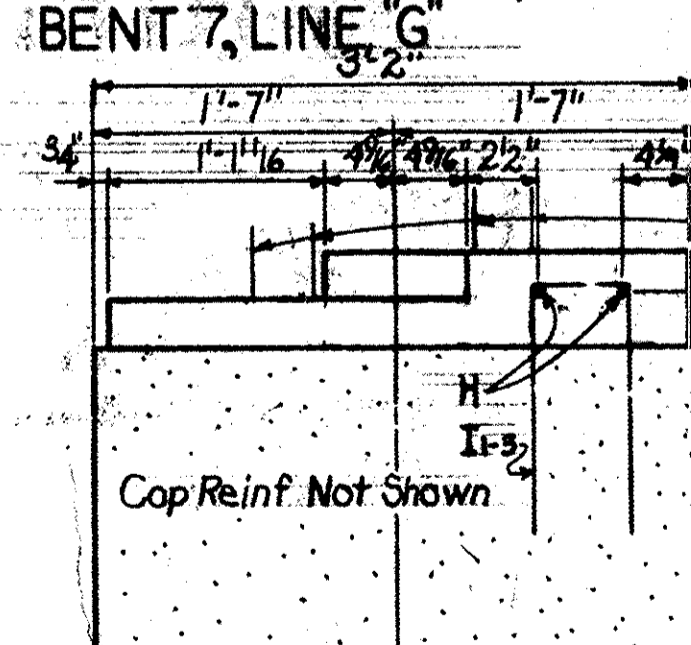
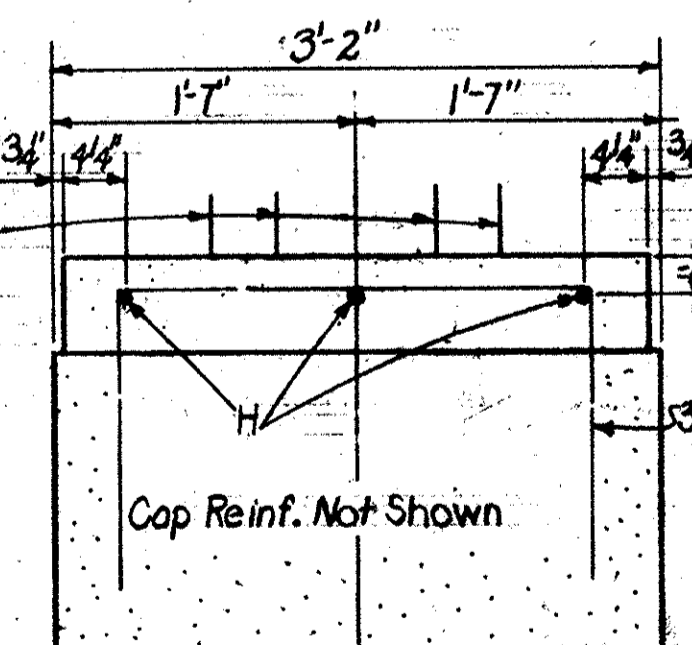
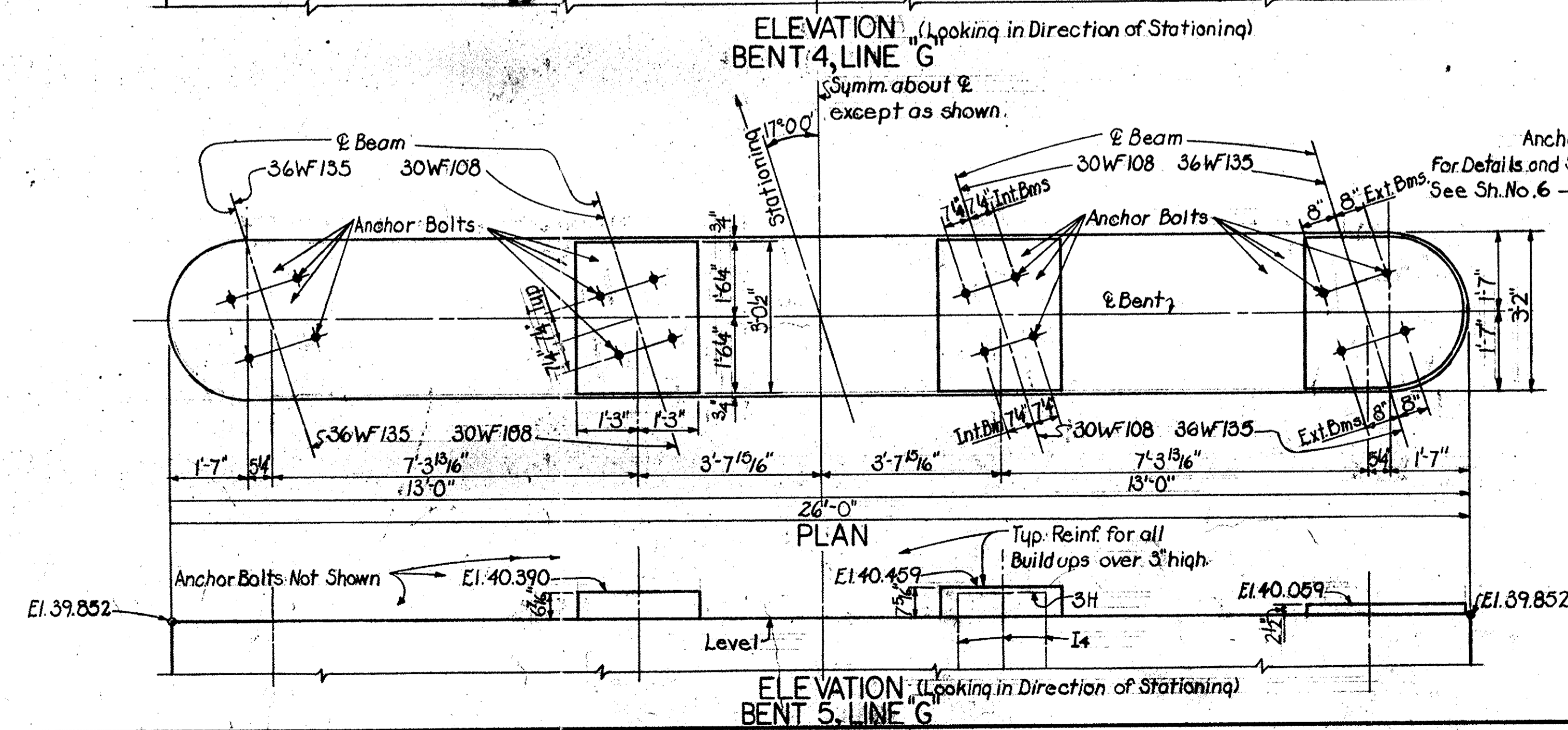
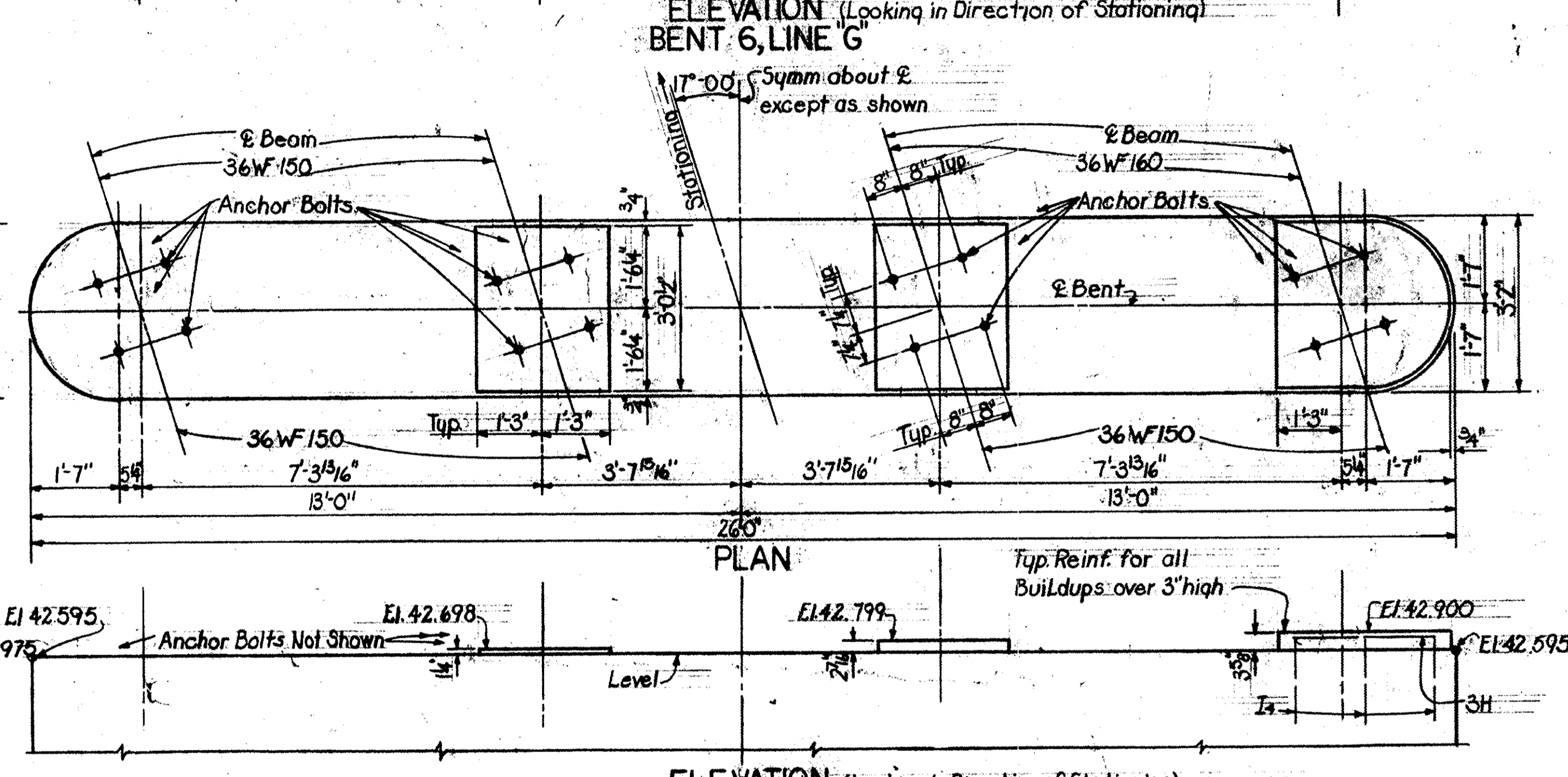
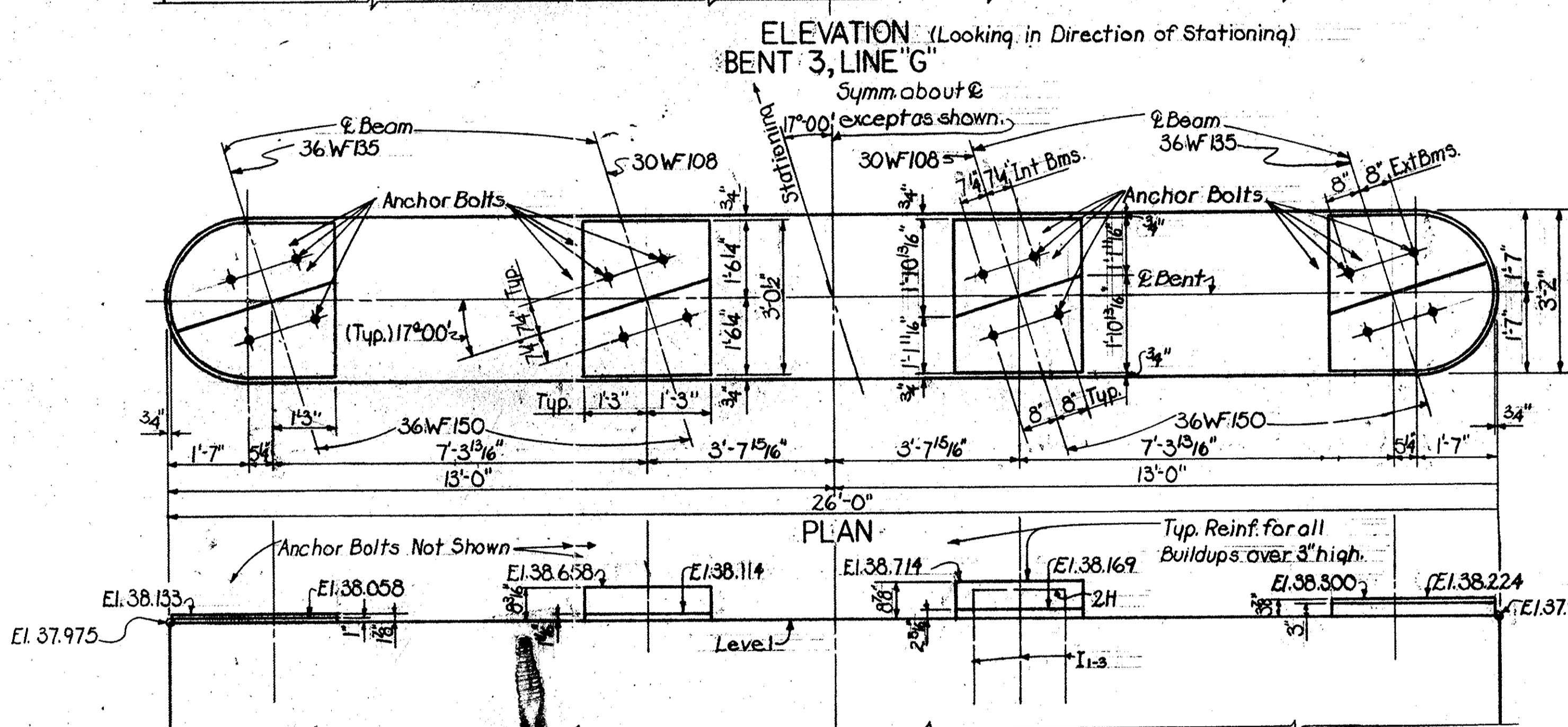
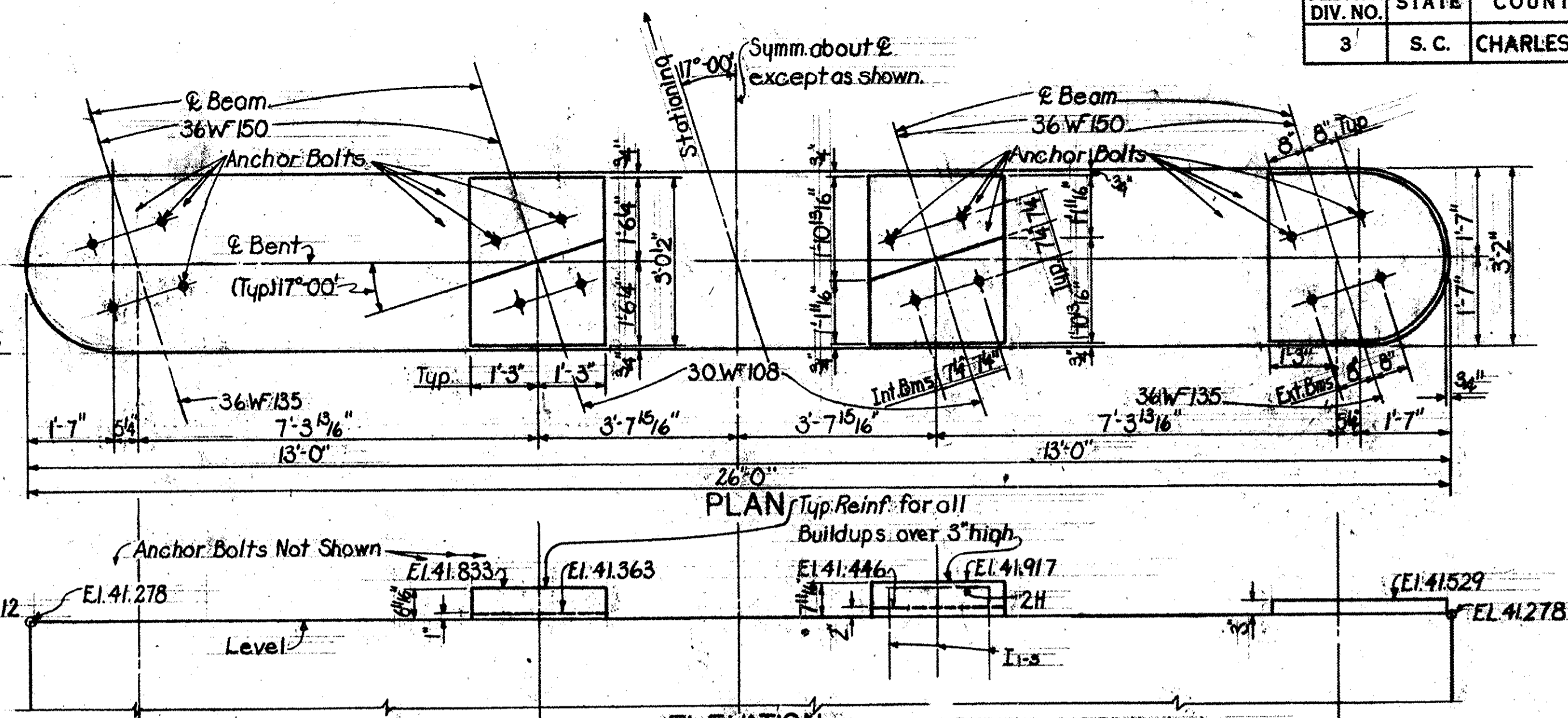
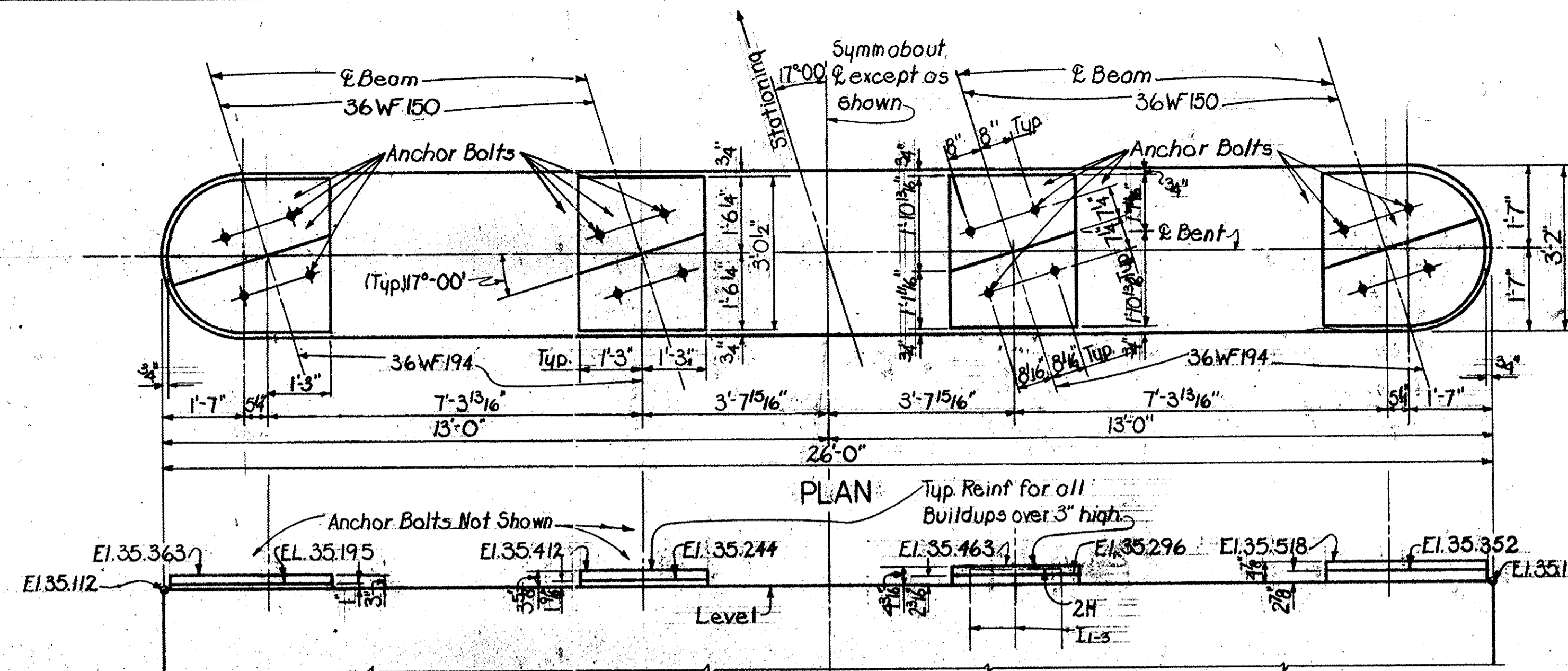
Design Data:  
fc=1,200psi; fs=20,000psi

Notes:  
For Standard Notes, See Sh. No. 5.  
For Standard Details, See Sh. No. 6.  
Footings may be lowered a maximum of 2'-0" without providing additional vertical steel by reducing the length of the splice.

This Sheet to Accompany Sh.No.27																			
<table><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>												S. C. STATE HIGHWAY DEPARTMENT BRIDGE DIVISION COLUMBIA S. C.							
DETAILS OF BENTS 3&7, LINE "G" FOR OVERPASS OVER S. SPRUILL INTERCHANGE CONN. (AT N. CHARLESTON)																			
RRS																			
IN CHARGE																			
K	PEPI	1-65	FILE NO. 10.521.4		COUNTY CHARLESTON		ROUTE NO. I-26		DATE 2-64										
K	RRS	2-64	APPROVED BY 		APPROVED BY 														
RS	AGW	1-64	BRIDGE DESIGN & PLANS ENGINEER		BRIDGE ENGINEER														
Y	CHK'D	DATE																	



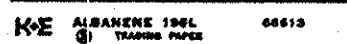
FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	10.521.4	I-26	27	74



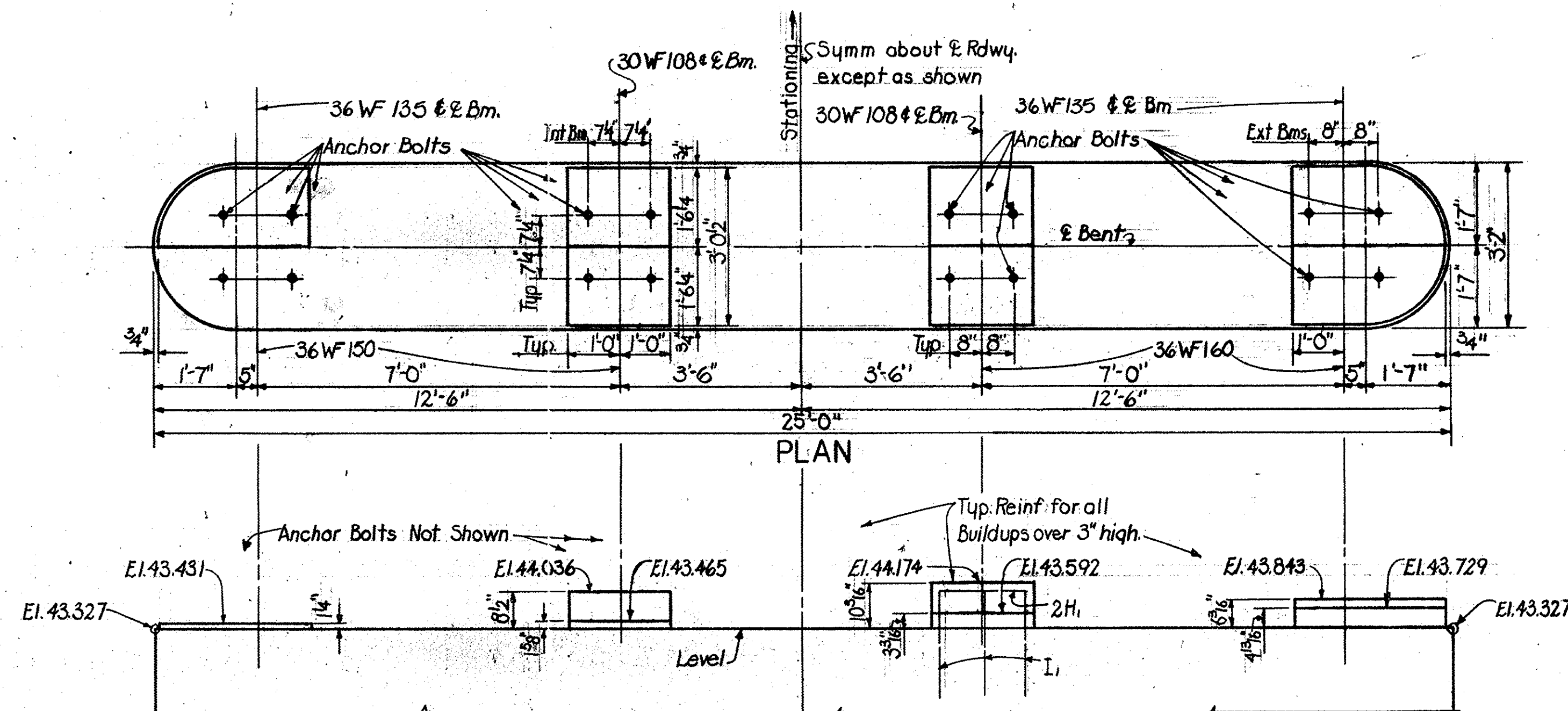
For Standard Notes, See Sh. No. 5  
For Standard Details, See Sh. No. 6

This Sheet to Accompany Sheets 25#26					
S.C. STATE HIGHWAY DEPARTMENT BRIDGE DIVISION COLUMBIA S.C.					
BUILD-UP DETAIL BENTS 3, 4, 5, 6 & 7 LINE "G" S. SPRUILL INTERCHANGE CONN. (AT N. CHARLESTON)					
REV.		FILE NO.	COUNTY	ROUTE NO.	DATE
REV.		10.521.4	CHARLESTON	I-26	1-64
REV.					
REV.					
REVIEWED	RDS	APPROVED BY			
QUAN.		BRIDGE DESIGN & PLANS ENGINEER			
TR.		APPROVED BY			
DR. REK	RDS 1-64	BRIDGE ENGINEER			
DES.					
BY	CHK'D DATE				

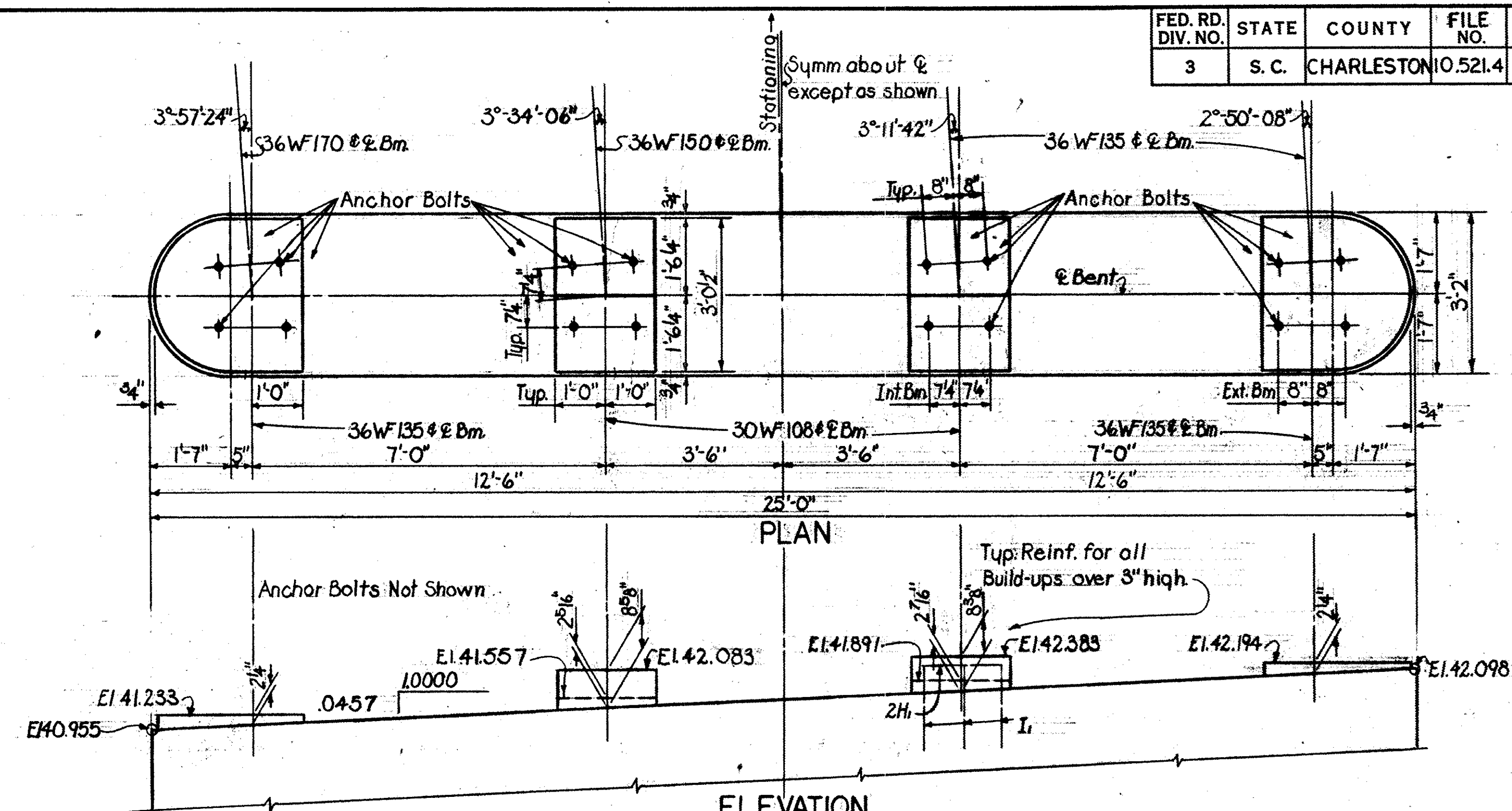




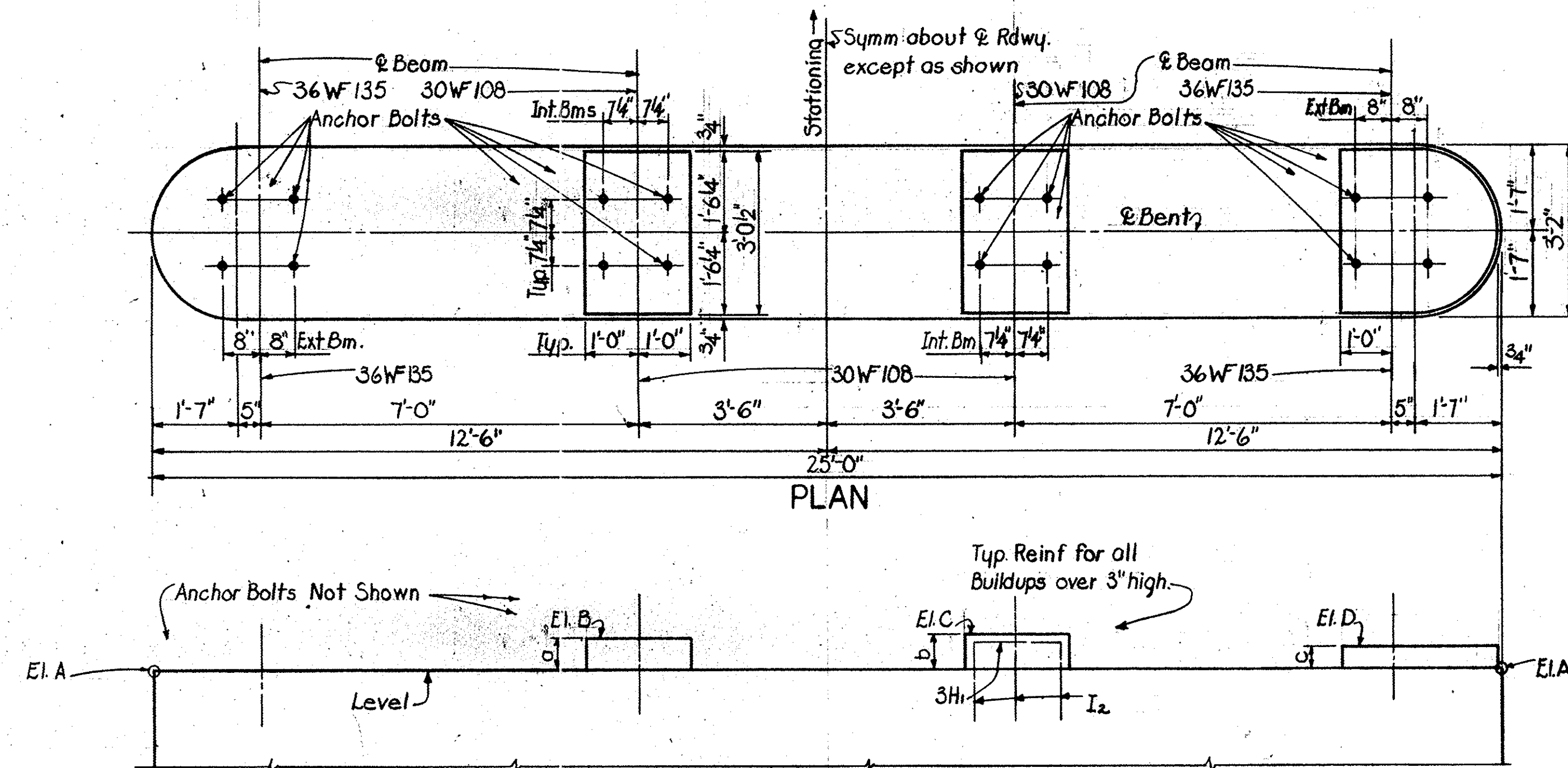
FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S. C.	CHARLESTON	10.521.4	I-26	30	74



ELEVATION  
BENT 8, LINE "G"  
(LOOKING IN DIRECTION OF STATIONING)

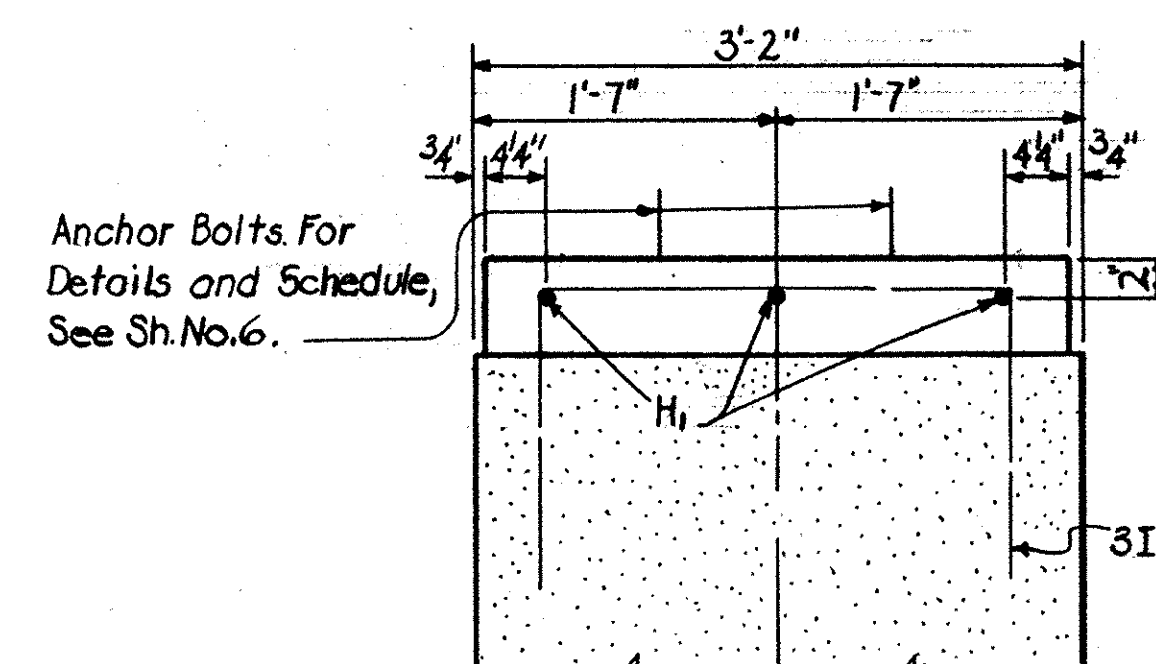


ELEVATION  
BENT 13, LINE "G"  
(LOOKING IN DIRECTION OF STATIONING)

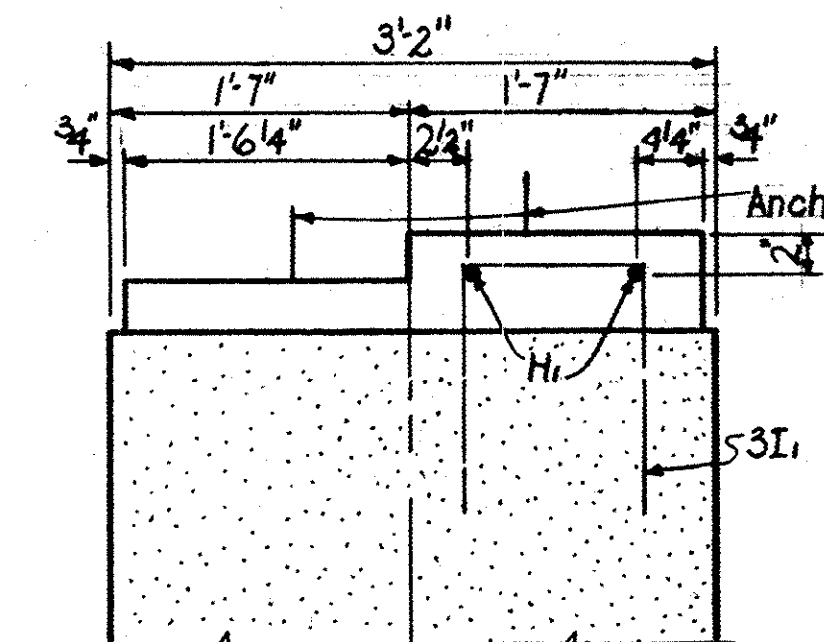


ELEVATION  
BENTS 9, 10, 11 & 12, LINE "G"  
(LOOKING IN DIRECTION OF STATIONING)

	DIMENSIONS			ELEVATIONS			
	a	b	c	A	B	C	D
Bent 9	7'9 1/2"	8'1 1/2"	5"	43.666	44.273	44.411	44.081
Bent 10	7'5 1/2"	9"	5"	43.511	44.180	44.319	43.990
Bent 11	7'5 1/2"	9"	5'1 1/2"	43.142	43.752	43.892	43.564
Bent 12	7'3 1/4"	9'7 1/8"	6'3 1/8"	42.381	43.027	43.205	42.913



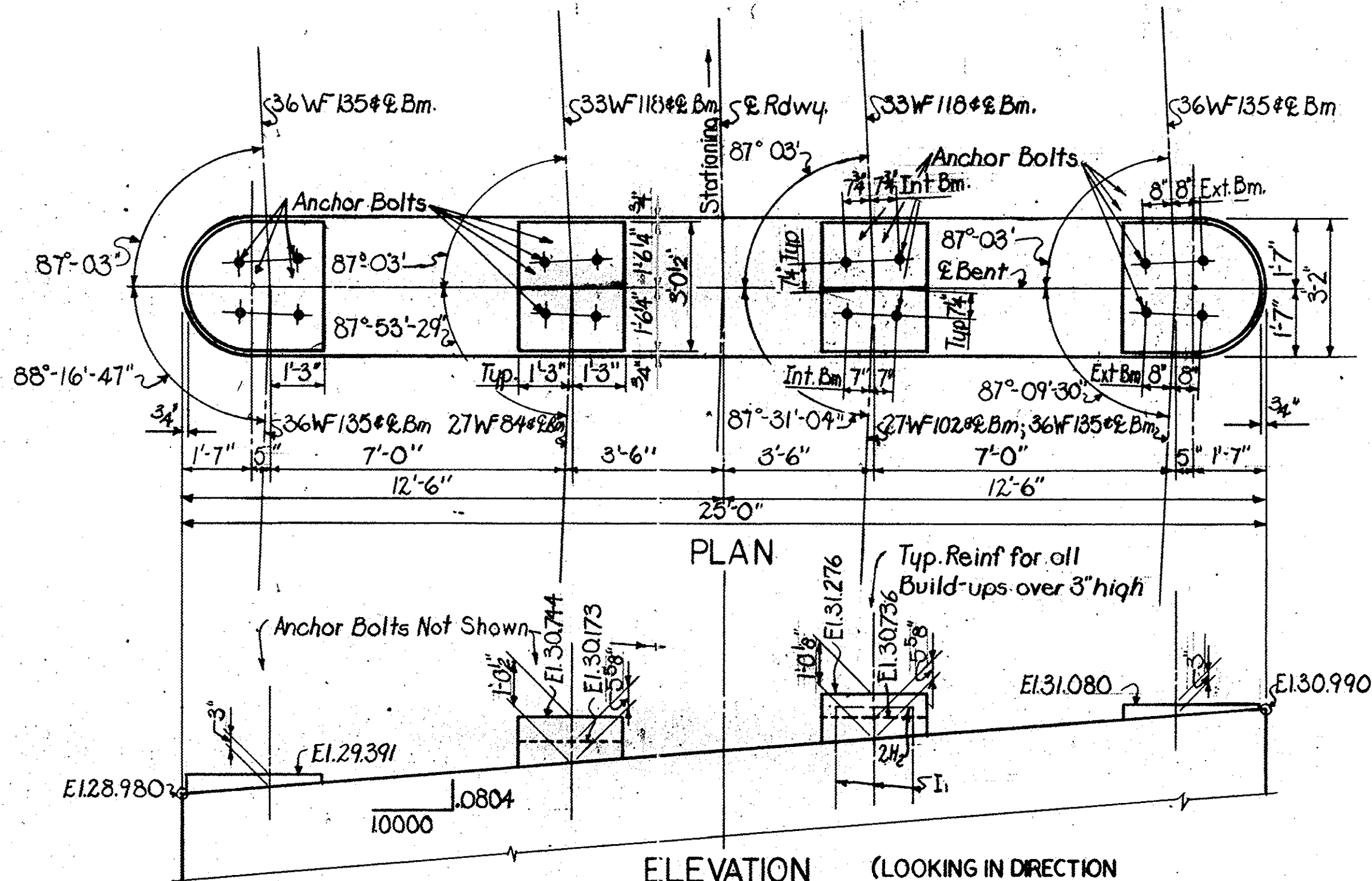
SECTION THRU CAP  
SHOWING BUILD-UP REINF. FOR  
BUILD-UPS OVER 3" HIGH  
SCALE: 1"=1'-0"  
BENTS 9, 10, 11 & 12



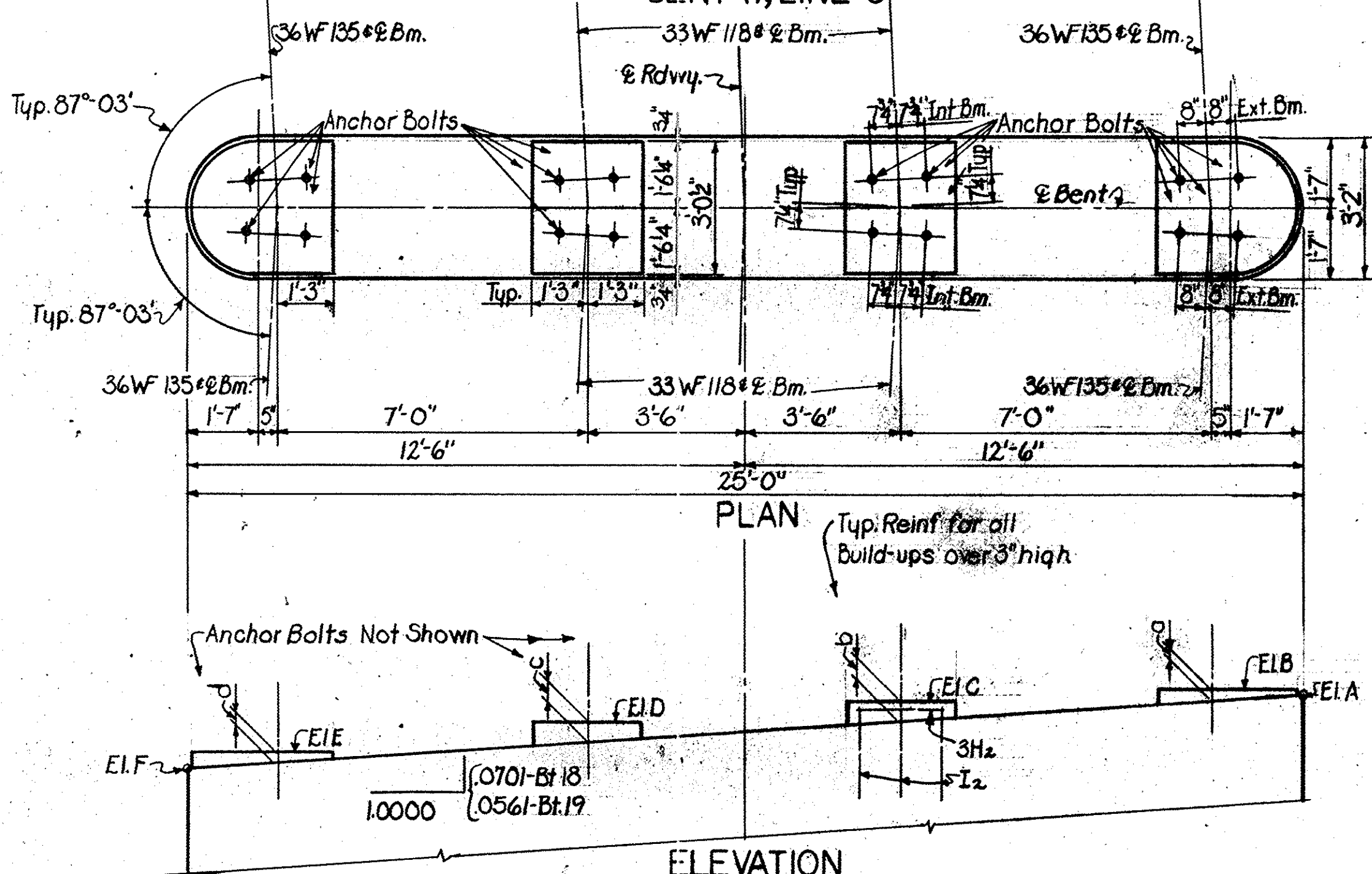
SECTION THRU CAP  
SHOWING BUILD-UP REINF. FOR  
BUILD-UPS OVER 3" HIGH  
SCALE: 1"=1'-0"  
BENTS 8 & 13

This Sheet to Accompany Sheets 28 & 29			
REV.		S. C. STATE HIGHWAY DEPARTMENT	
REV.		BRIDGE DIVISION	
REV.		COLUMBIA S. C.	
REV.		BUILD-UP DETAIL	
REV.		BENTS 8, 9, 10, 11 & 12 LINE "G"	
REV.		S. SPRUILL INTERCHANGE CONN.	
REV.		(AT N. CHARLESTON)	
REVIEWED	RRS	FILE NO.	COUNTY
IN CHARGE		10.521.4	CHARLESTON
QUAN.		ROUTE NO.	DATE
TR.		I-26	I-64
DES.	DR. REK RRS 1-64	APPROVED BY	APPROVED BY
BY	CHK'D DATE	BRIDGE DESIGN & PLANS ENGINEER	BRIDGE ENGINEER

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S. C.	CHARLESTON	10.5214	126	31	74

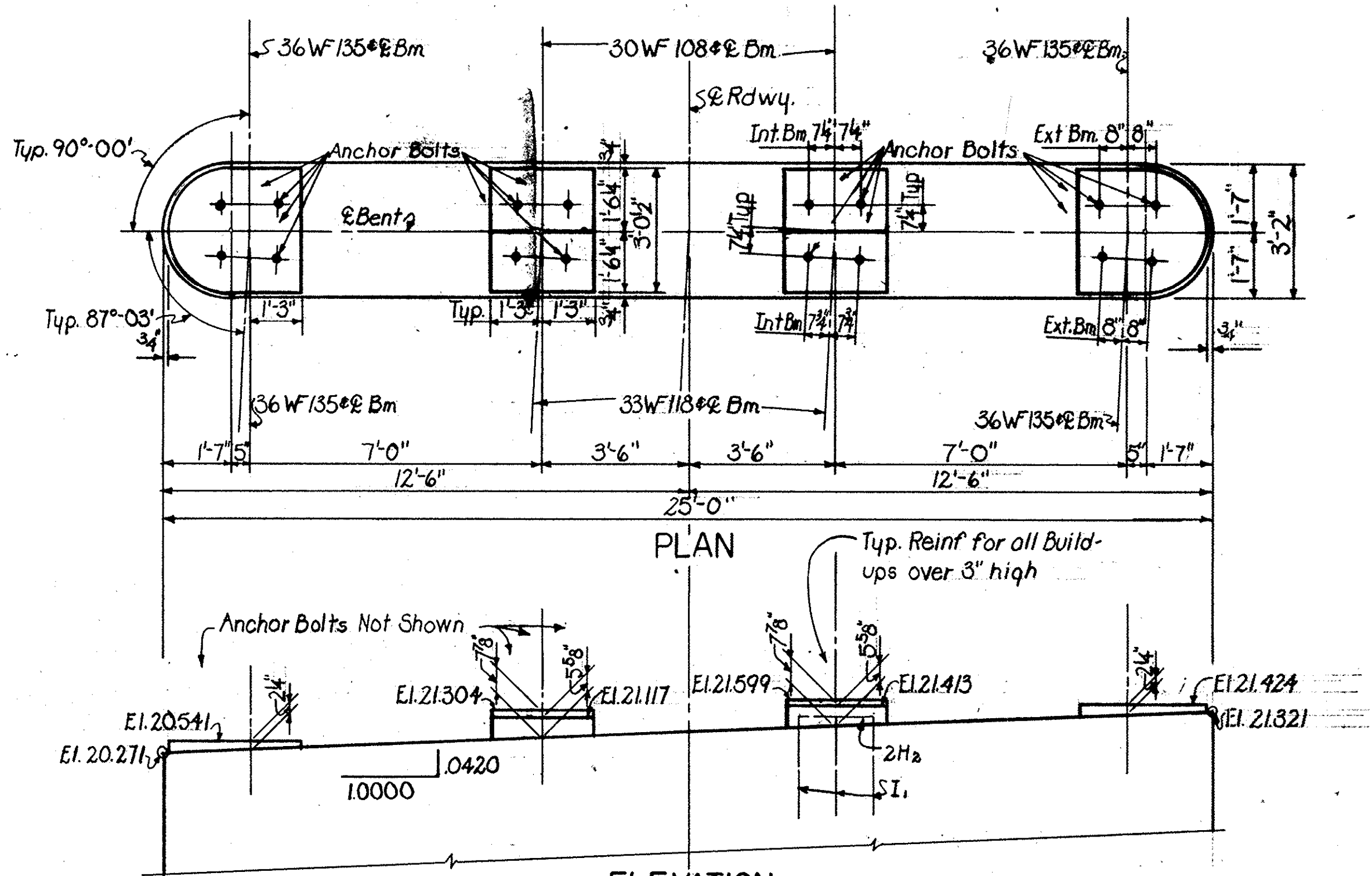


ELEVATION  
BENT 17, LINE "G"  
(LOOKING IN DIRECTION  
OF STATIONING)

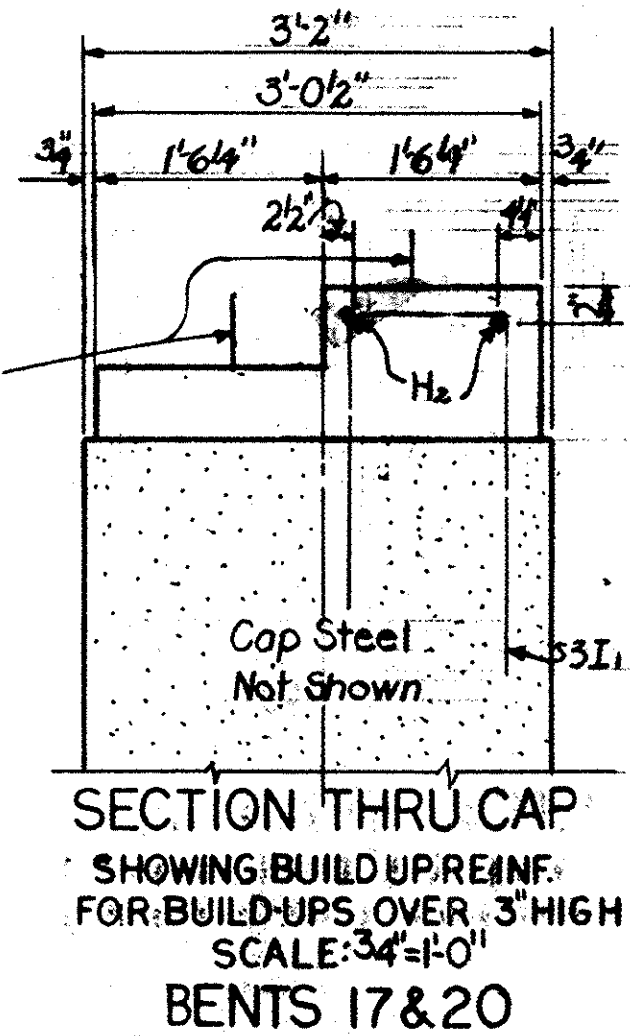
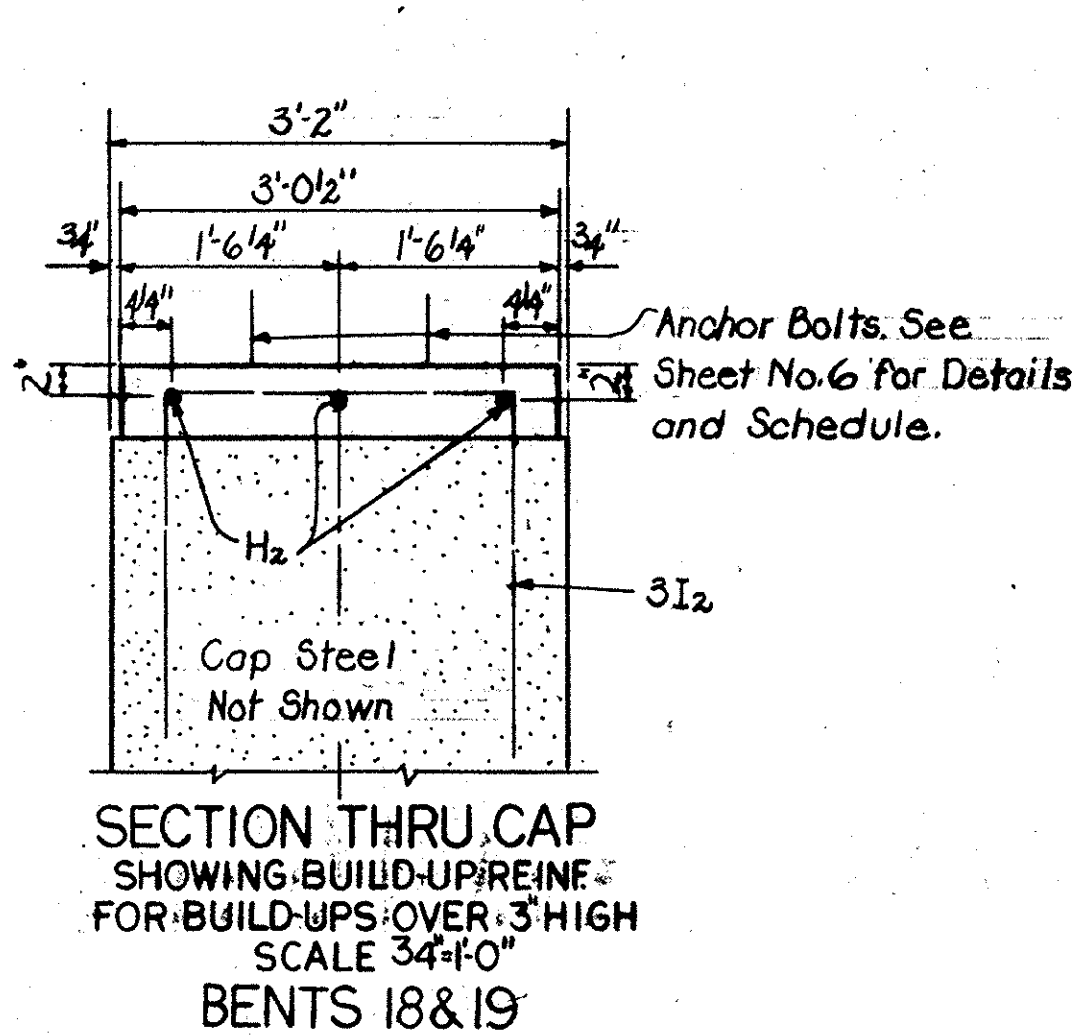


ELEVATION  
BENTS 18 & 19, LINE "G"  
(LOOKING IN DIRECTION OF STATIONING)

ELEVATIONS		
	Bent 18	Bent 19
A	27.825	24.573
B	27.914	24.669
C	27.612	24.495
D	27.151	24.103
E	26.441	23.491
F	26.073	23.170
DIMENSIONS		
	Bent 18	Bent 19
a	2'4"	2'2"
b	5'8"	5'8"
c	5'8"	5'8"
d	2'4"	2'2"

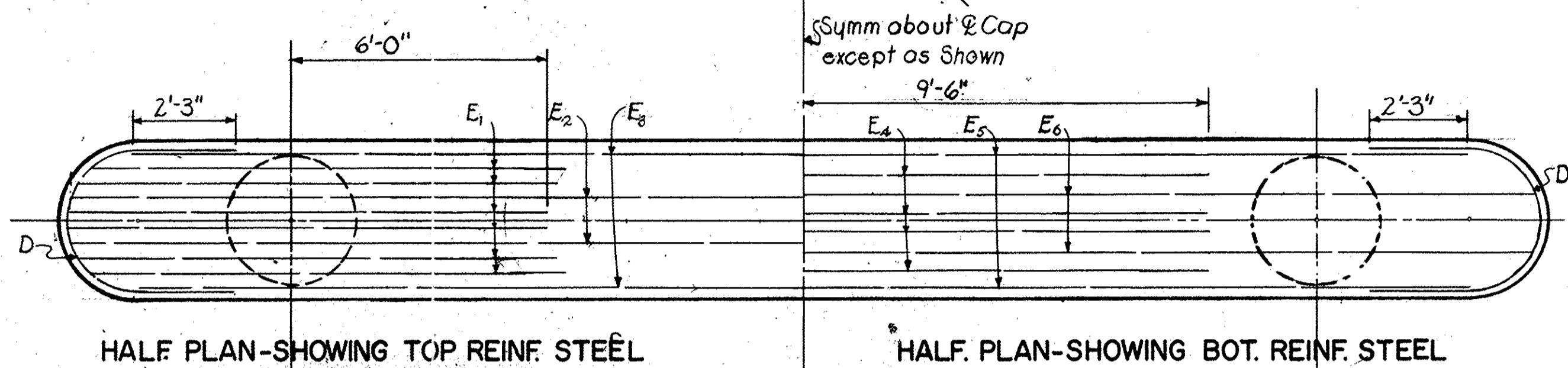


ELEVATION  
BENT 20, LINE "G"  
(LOOKING IN DIRECTION OF STATIONING)



This Sheet to Accompany Sh. No. 29

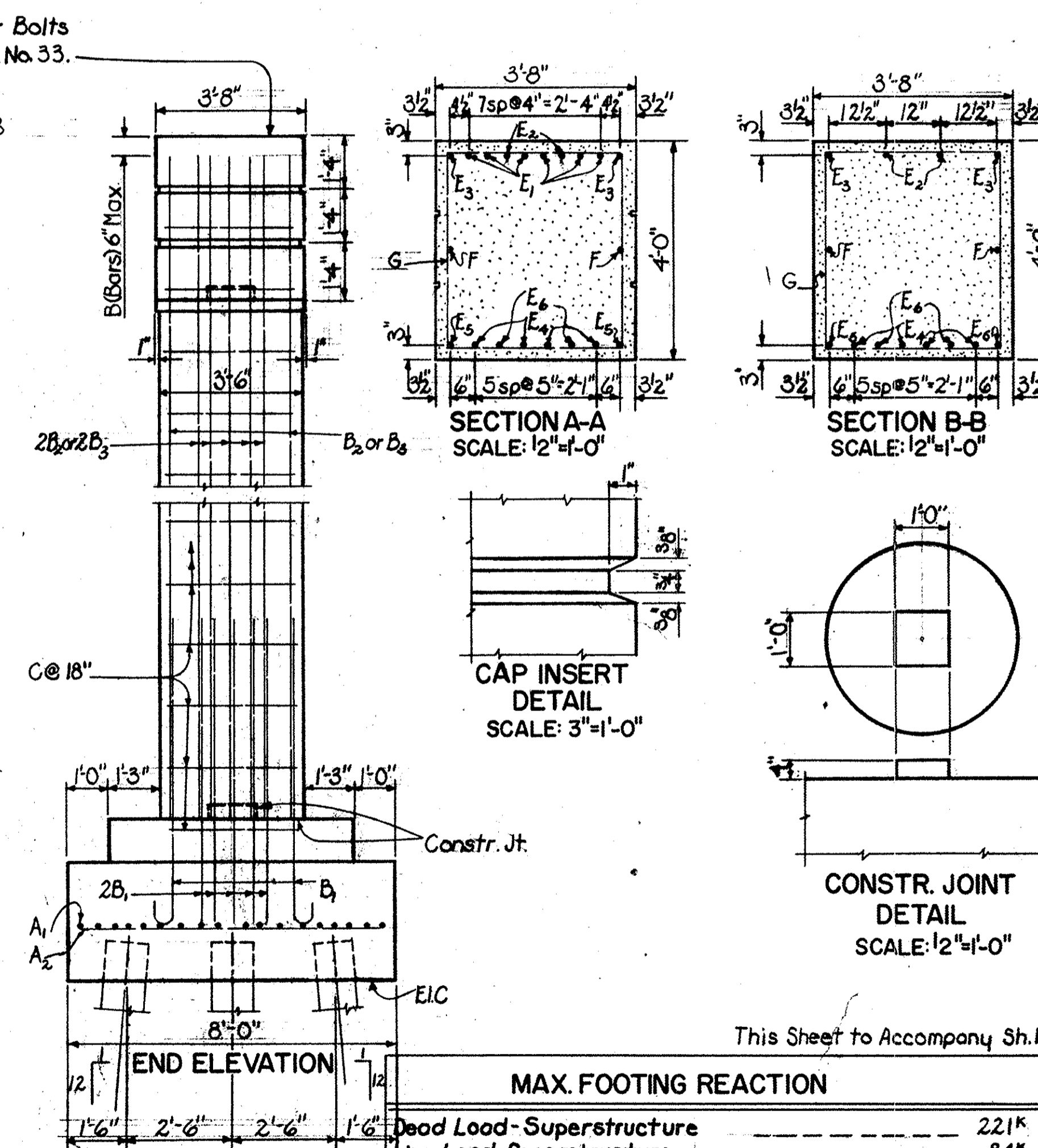
S. C. STATE HIGHWAY DEPARTMENT BRIDGE DIVISION COLUMBIA S. C.			
BUILD-UP DETAIL BENTS 17, 18, 19 & 20, LINE "G" S. SPRUILL INTERCHANGE CONN. (AT N. CHARLESTON)			
REV.		FILE NO.	COUNTY
REV.		10.5214	CHARLESTON
REV.		ROUTE NO.	DATE
REV.		126	2-64
REVIEWED	RRS	APPROVED BY	APPROVED BY
IN CHARGE		DR. REK	DES.
QUAN.		BY	CHK'D DATE
TR.		BRIDGE DESIGN & PLANS ENGINEER	BRIDGE ENGINEER



FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE	SHEET NO.	TOTAL SHEETS
3	S. C.	CHARLESTON	10,521,4	I-26	32	74

MARK	SIZE	D	BENT NO. 14		BENT NO. 15		BENT NO. 16			
			NO. REQD	LENGTH	NO. REQD	LENGTH	NO. REQD	LENGTH		
A <sub>1</sub>	5	S	38	10'-0"	38	10'-0"	38	10'-0"		
A <sub>2</sub>	4	S	22	7'-6"	22	7'-6"	22	7'-6"		
B <sub>1</sub>	11	B	24	8'-5"	24	8'-5"	24	8'-5"		
B <sub>2</sub>	11	S	12	24'-3"	12	19'-3"	12	21'-6"		
B <sub>3</sub>	11	S	12	25'-10"	12	21'-2"	12	23'-9"		
C	3	B	33	10'-8"	27	10'-8"	31	10'-8"		
D	6	B	6	9'-6"	6	9'-6"	6	9'-6"		
E <sub>1</sub>	11	S	12	11'-2"	12	11'-2"	12	11'-2"		
E <sub>2</sub>	11	S	2	34'-2"	2	34'-2"	2	34'-2"		
E <sub>3</sub>	11	S	2	31'-2"	2	31'-2"	2	31'-2"		
E <sub>4</sub>	10	S	4	19'-0"	4	19'-0"	4	19'-0"		
E <sub>5</sub>	10	S	2	31'-2"	2	31'-2"	2	31'-2"		
E <sub>6</sub>	10	S	2	34'-2"	2	34'-2"	2	34'-2"		
F	6	S	2	31'-2"	2	31'-2"	2	31'-2"		
G	5	B	32	14'-4"	32	14'-4"	32	14'-4"		
H <sub>1</sub>	4	S	12	3'-0"	12	3'-0"	—	—		
H <sub>2</sub>	4	S	—	—	—	—	4	2'-9"		
H <sub>3</sub>	4	S	—	—	—	—	4	4'-0"		
I <sub>1</sub>	4	B	12	5'-5"	12	5'-5"	—	—		
I <sub>2</sub>	4	B	—	—	—	—	4	6'-9"		
I <sub>3</sub>	4	B	—	—	—	—	4	5'-7"		
I <sub>4</sub>	4	B	—	—	—	—	4	4'-5"		



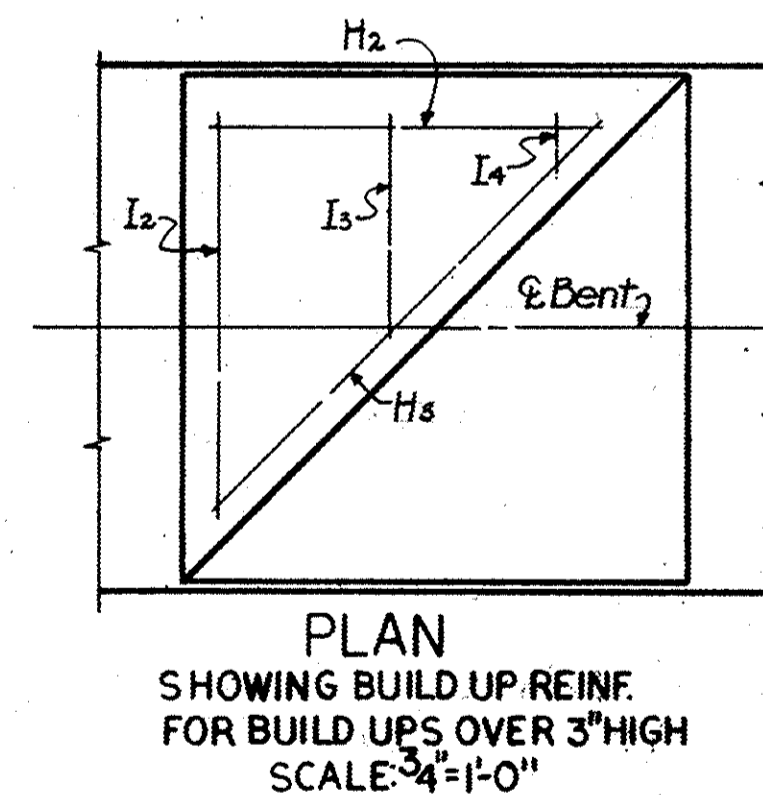
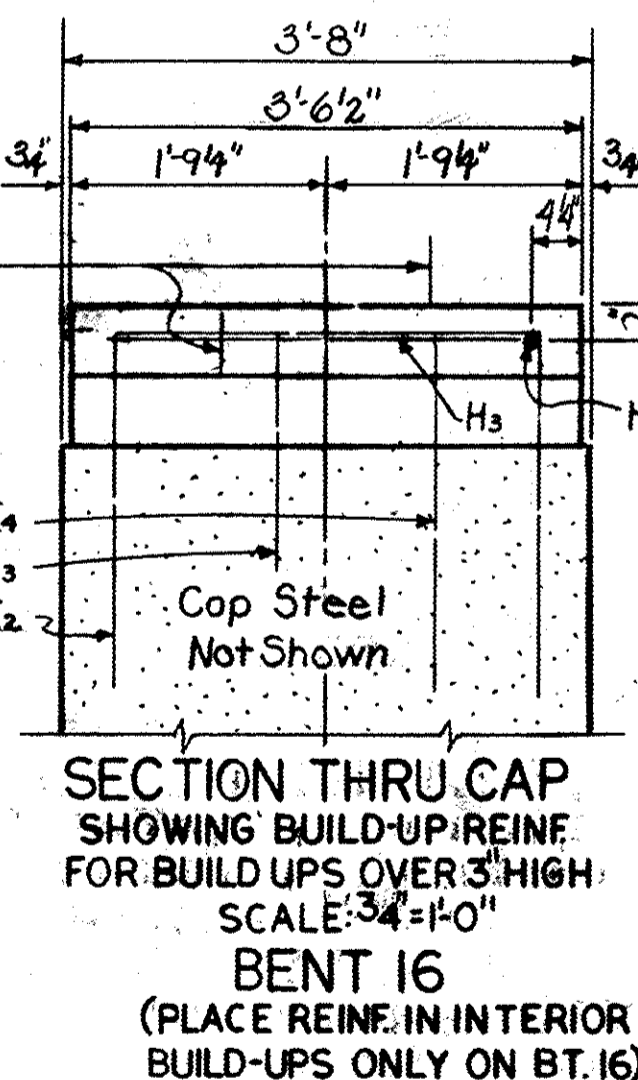
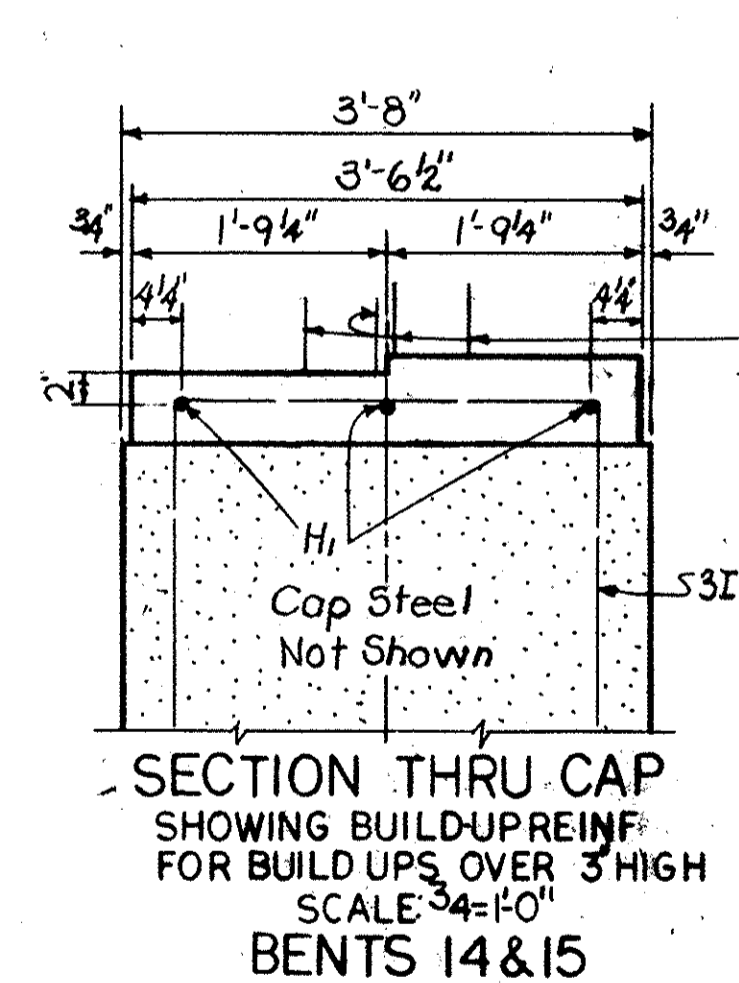
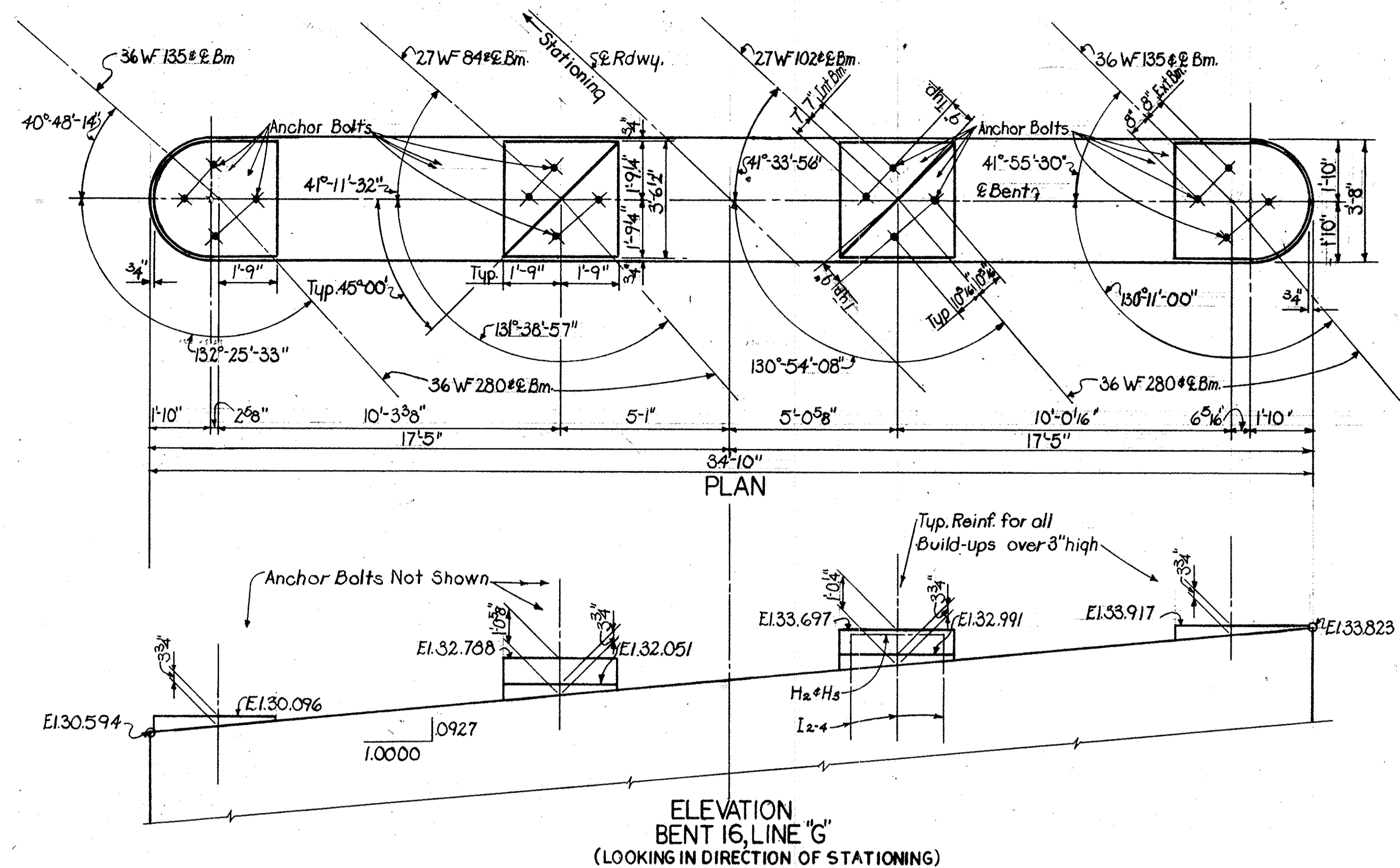
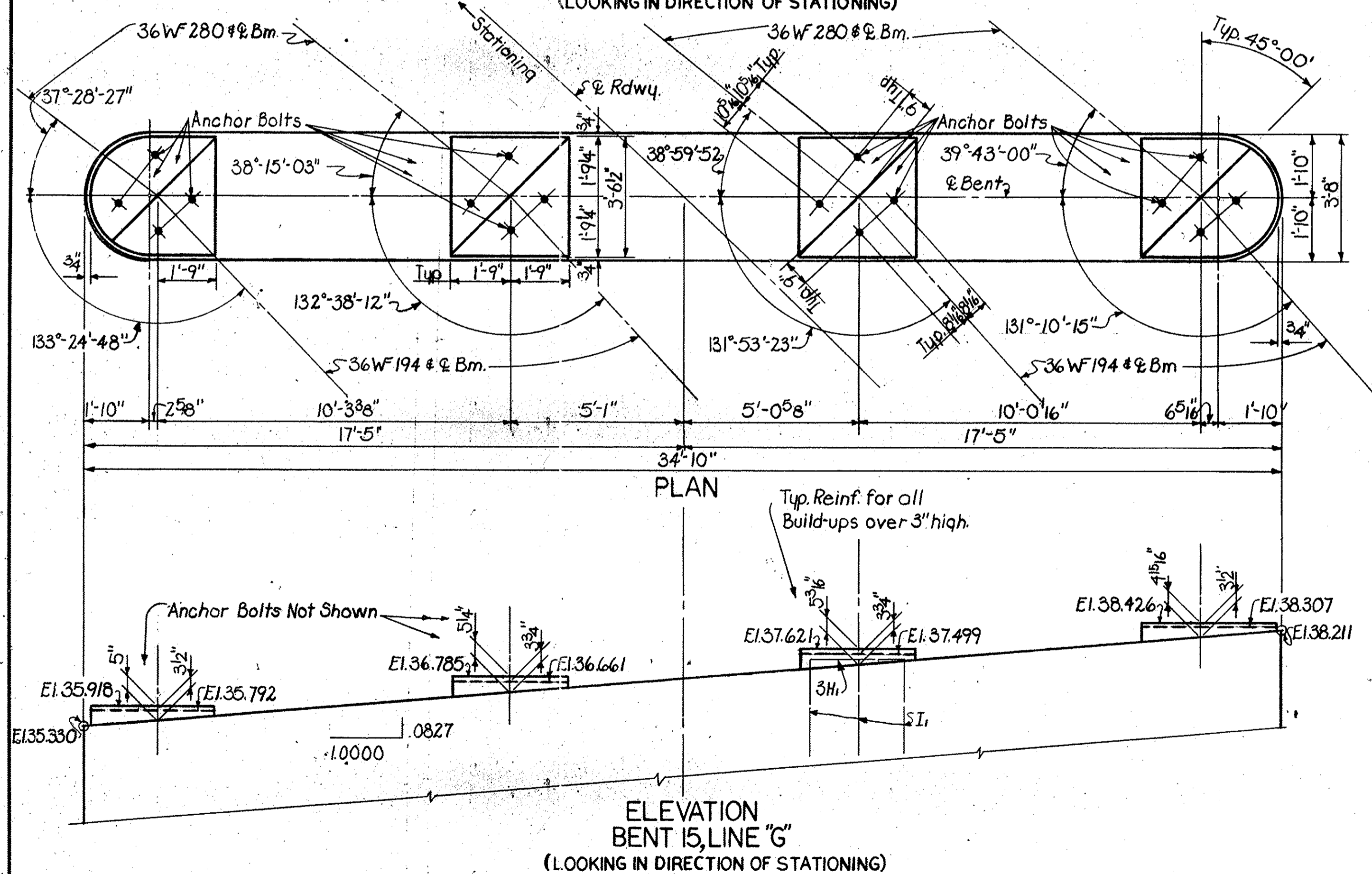
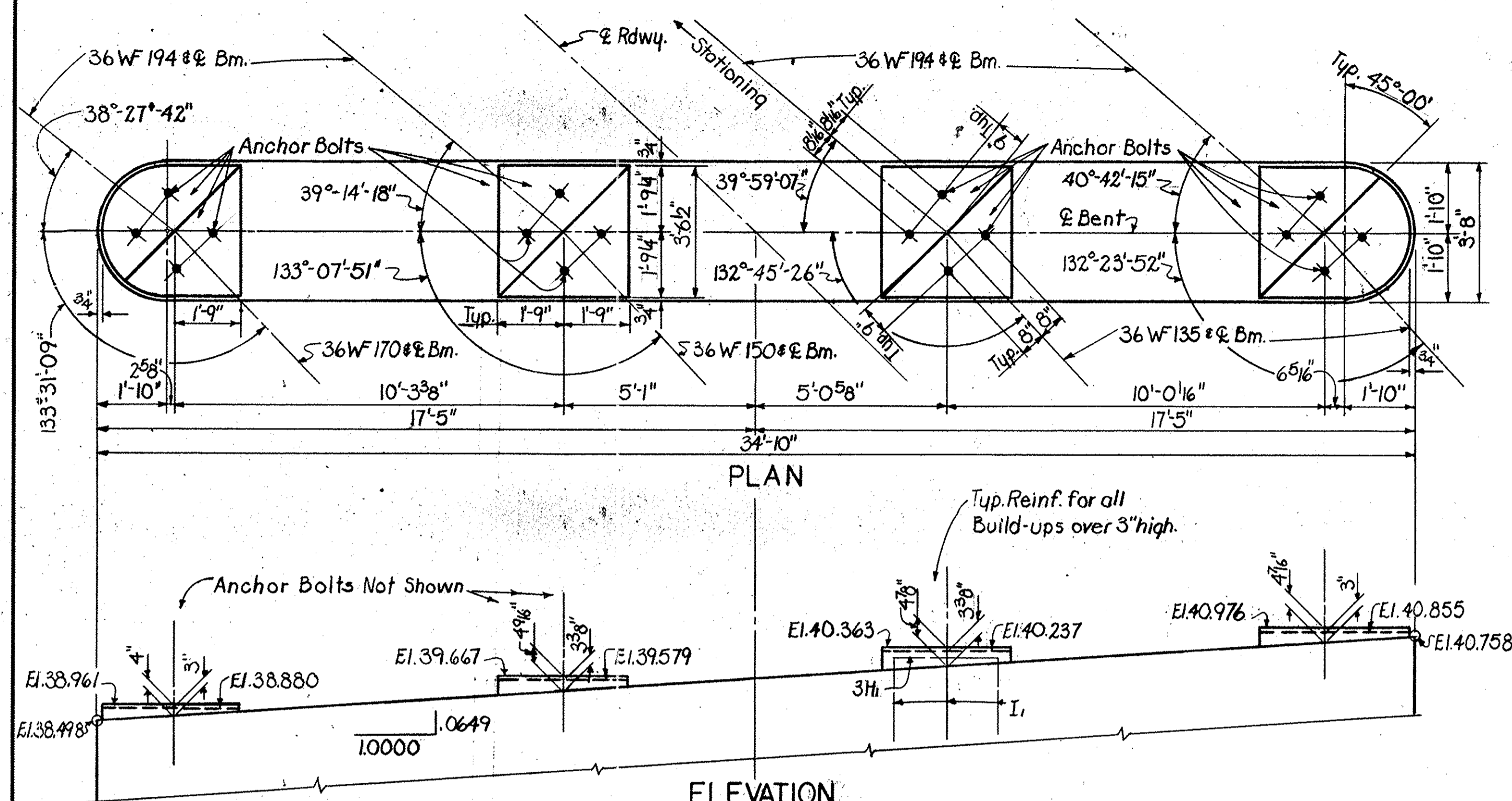
QUANTITIES				
CLASS "A" CONCRETE	C.Y.	55.6	52.2	54.2
REINFORCING STEEL	LBS.	8012	7366	7691
WET & DRY EXCAVATION	C.Y.	70	65	75
CREOS. TIMB. PILING	L.F.	See Summary Sh.12.		
	UNIT	BENT 14	BENT 15	BENT 16

① Includes 86 lbs. for Anchor Bolt Assemblies.  
 ② Includes 86 lbs. for Anchor Bolt Assemblies.  
 Design Data:  $f_c = 1200 \text{ psi}$ ;  $f_s = 20,000 \text{ psi}$   
 Notes:  
 For Standard Notes, See Sh. No. 5.  
 For Standard Details, See Sh. No. 6.  
 Footings may be lowered a maximum of 2'-0" without providing additional vertical column steel by reducing length of Splices.

MAX. FOOTING REACTION	
Dead Load-Superstructure	221K
Live Load-Superstructure	84K
Dead Load-Bent	96K
Backfill (3')	23K
Total of Above	424K
Average Bearing	17.7psi
MAX. BEARING AT EDGE OF FOOTING DUE TO WIND	
Wind	9.8 psi
MAX. CONDITION:	
Wind	17.7psi
Total (125 % of Normal Stress	9.8psi
Normal Stress	27.5psi
	23.0psi

REV.			S. C. STATE HIGHWAY DEPARTMENT BRIDGE DIVISION COLUMBIA S.C.				
REV.			DETAILS OF BENTS 14, 15 & 16, LINE "G" FOR OVERPASS OVER S. SPRUILL INTERCHANGE CONN. (AT N. CHARLESTON)				
REV.							
REV.							
REVIEWED	RRS						
	IN CHARGE						
QUAN.	REK	PEP	2-64	FILE NO.	COUNTY	ROUTE NO.	DATE
TR.				10.5214	CHARLESTON	I-26	2-64
DR.	REK		2-64	APPROVED BY	APPROVED BY		
DES.	RRS		1-64	<i>RRS</i>	<i>RRS</i>		
BY	CHECKED			BRIDGE DESIGN & PLANS ENGINEER		BRIDGE ENGINEER	

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S. C.	CHARLESTON	10.521.4	I-26	33	74

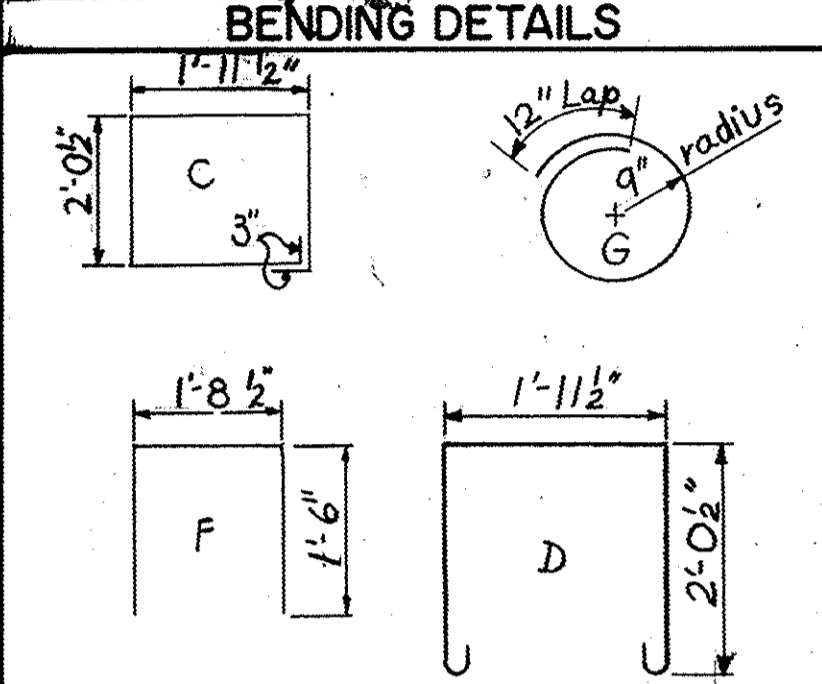


This Sheet to Accompany Sh. No. 32						
S. C. STATE HIGHWAY DEPARTMENT BRIDGE DIVISION COLUMBIA S. C.						
BUILD-UP DETAILS BENTS 14, 15 & 16, LINE "G" S. SPRUILL INTERCHANGE CONN. (AT N. CHARLESTON)						
REV.						
REV.						
REV.						
REV.						
REVIEWED	RRS					
IN CHARGE						
QUAN.						
TR.						
DR. REK	RRS	2-64				
DES.						
BY	CHK'D	DATE				
			FILE NO. 10.521.4		COUNTY CHARLESTON	ROUTE NO. I-26
			APPROVED BY		DATE 2-64	
			BRIDGE DESIGN & PLANS ENGINEER		BRIDGE ENGINEER	

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S. C.	CHARLESTON	10.521.4	1-26	34	74

ELEVATIONS		
	BENT 21	
A	17.708	
B	17.914	
C	18.590	
D	18.796	
E	18.534	
F	18.490	
DIMENSIONS		
	BENT 21	
a	1'2"	
b	7'8"	
c	7'8"	
d	1'2"	

REINFORCING STEEL SCHEDULE					
MARK	SIZE NO.	D	END BENT-21 NO. REQD.	LENGTH	
A	8	S	8	26'2"	
B	4	S	2	26'2"	
C	4	B	24	8'-6"	
E	4	S	6	2'-2"	
F	4	B	6	4'-9"	
D	4	B	8	7'-1"	
G	3	B	8	5'-9"	



QUANTITIES	
CLASS "A" CONCRETE	6.0 C.Y.
REINFORCING STEEL	855 LBS.
10 BP 42 Steel Bearing Piling (See Summary, Sheet L.F.)	

① INCLUDES 42 LBS. FOR ANCHOR BOLT ASSEMBLIES.

NOTES

FOR STANDARD NOTES SEE SH. NO. 5.

FOR STANDARD DETAILS SEE SH. NO. 6.

H20-S16-44 LIVE LOAD

UNIT STRESSES;  $f_s = 20,000 \text{ psi}$ ;  $f_c = 1,200 \text{ p.s.i.}$ ;  $p = 1\%$

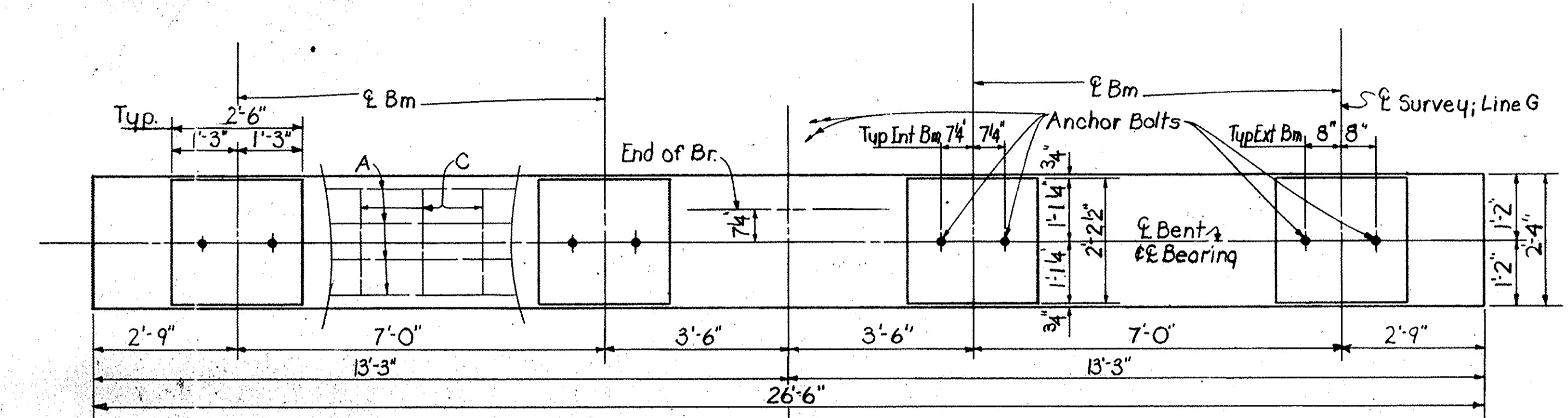
BUILDUPS TO BE POURED MONOLITHIC WITH CAP, EXCEPT BUILDUPS OVER 3' HIGH MAY BE POURED LATER WITH CONSTRUCTION JOINT.

NOTE:

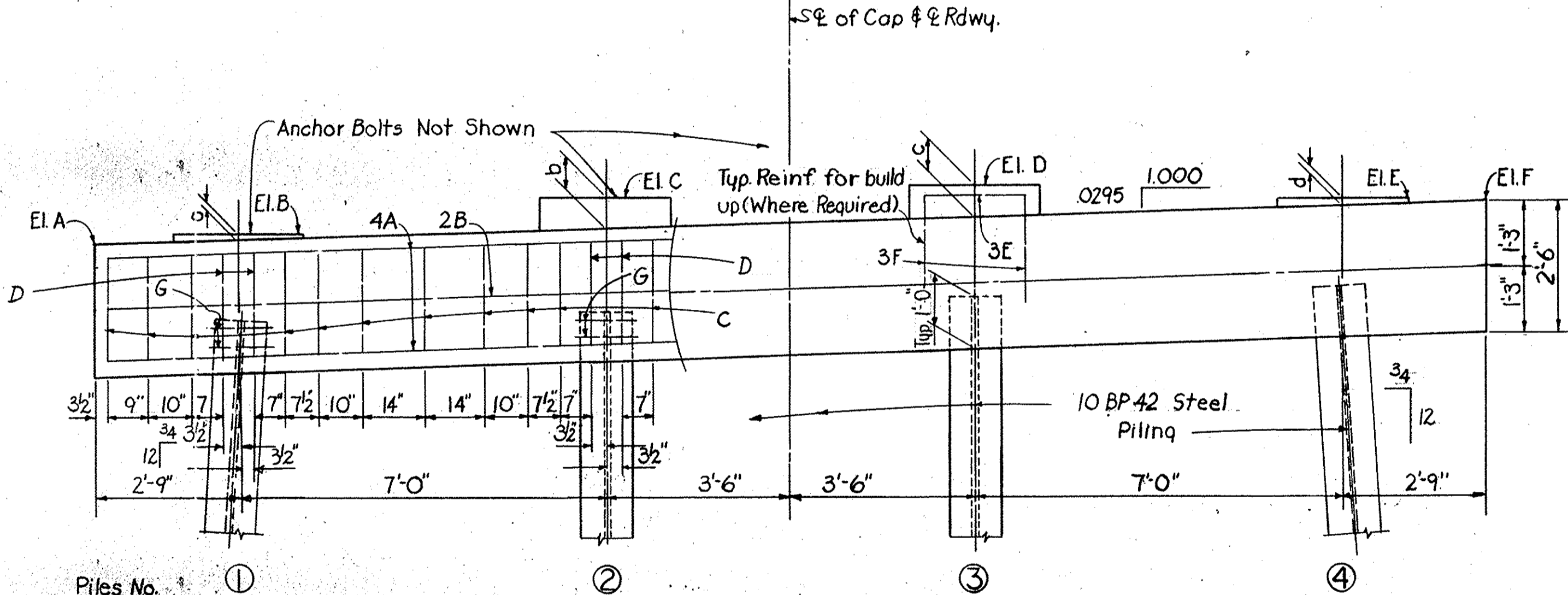
Drive Piles to a minimum penetration of 15' into Marl. Load per pile = 30 tons. No bearing value required by formula.

NOTE:

For section thru steel pile see Sheet No. 16

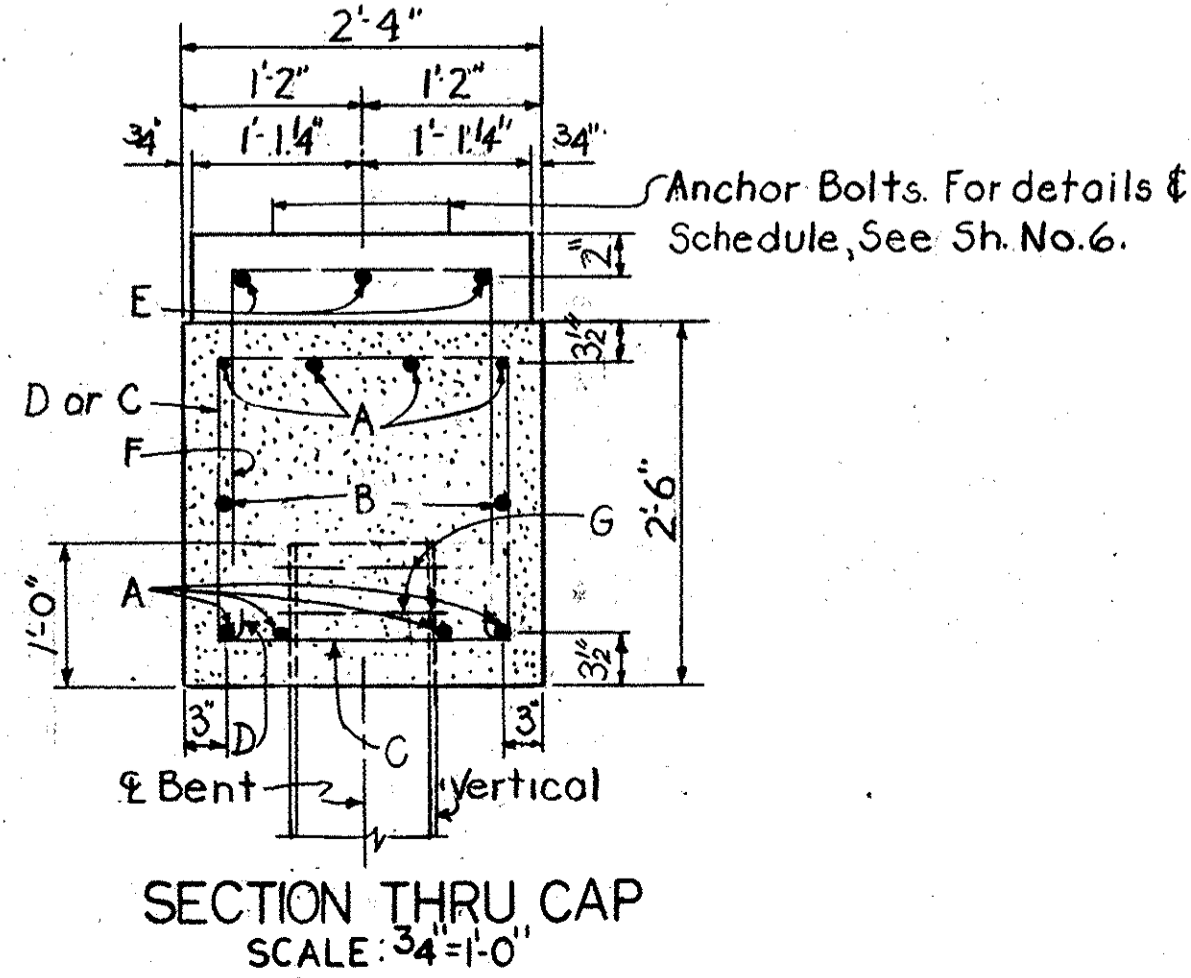


PLAN OF CAP



ELEVATION  
(LOOKING IN DIRECTION OF STATIONING)

Drive Piles To A Minimum Bearing Value of 30-Tons per pile.  
Drive Piles 15' into Marl.



SECTION THRU CAP  
SCALE: 3/4"=1'-0"

REV.		S. C. STATE HIGHWAY DEPARTMENT BRIDGE DIVISION COLUMBIA S. C.
REV.		DETAILS OF BENT 21, LINE "G" FOR UNDERPASS UNDER S. SPRULL INTERCHANGE CONN. (AT N. CHARLESTON)
REV.		
REV.	JRC JWB 3-65 For 10BP42 Piles	
REVIEWED	R.R.S.	
IN CHARGE		
QUAN. R.E.K. AGW 11-63	FILE NO. 10.521.4	COUNTY CHARLESTON
TR.		ROUTE NO. I-26
DR. R.E.K. AGW 11-63	APPROVED BY	DATE 11-63
DES.		
BY CHK'D DATE	BRIDGE DESIGN & PLANS ENGINEER	BRIDGE ENGINEER



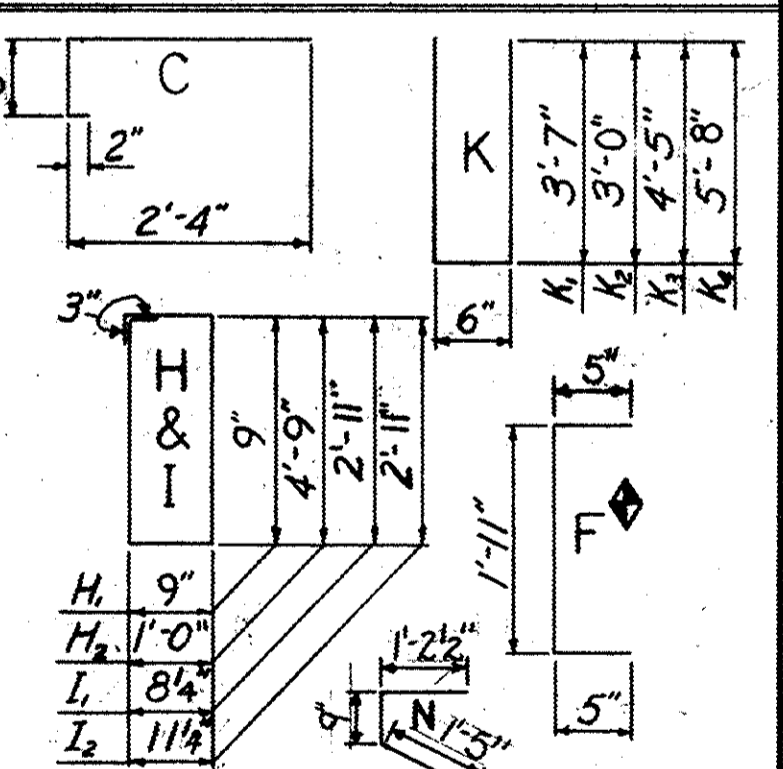
FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	10.521.4	I-26	36	74

# \*REINFORCING STEEL

Mark	Size	D	No. Reqd.	Length
A <sub>1</sub>	5	S	258	29'-2"
A <sub>2</sub>	5	S	86	29'-9"
A <sub>3</sub>	5	S	86	30'-1"
A <sub>4</sub>	5	S	86	31'-1"
B <sub>1</sub>	5	S	50	53'-0"
B <sub>2</sub>	5	S	51	52'-8"
C	4	B	107	3'-0"
D	4	S	6	53'-4"
D <sub>2</sub>	4	S	6	52'-8"
E	5	S	108	0'-10"
F	5	B	90	2'-9"
G	4	S	30	7'-11"
H	2	B	60	3'-6"
H <sub>2</sub>	2	B	10	12'-0"
I	5	B	24	7'-9"
I <sub>2</sub>	5	B	14	8'-3"
J	5	S	1	26'-4"
J <sub>2</sub>	5	S	1	27'-2"
K	4	B	30	7'-8"
K <sub>2</sub>	4	B	12	6'-6"
K <sub>3</sub>	4	B	4	9'-4"
K <sub>4</sub>	4	B	4	11'-10"
L	4	S	3	34'-3"
L <sub>2</sub>	4	S	3	38'-1"
L <sub>3</sub>	4	S	21	7'-7"
L <sub>4</sub>	4	S	14	4'-10"
L <sub>5</sub>	4	S	4	5'-7"
L <sub>6</sub>	4	S	8	7'-0"
L <sub>7</sub>	4	S	4	8'-1"
L <sub>8</sub>	4	S	6	8'-2"
M	4	S	1	54'-0"
N	4	B	#2	3'-5"

Mesh #8	Reqd.	53'-10"
BB	Reqd.	1185'
BBU	Reqd.	1105'

# \*BENDING DETAILS



# \*QUANTITIES

① Concrete, Class "A"	C.Y.	93.9
② Reinforcing Steel	Lbs.	24,842
③ Structural Steel	Lbs.	66,900
④ Fab. Metal Handrail	L.F.	107

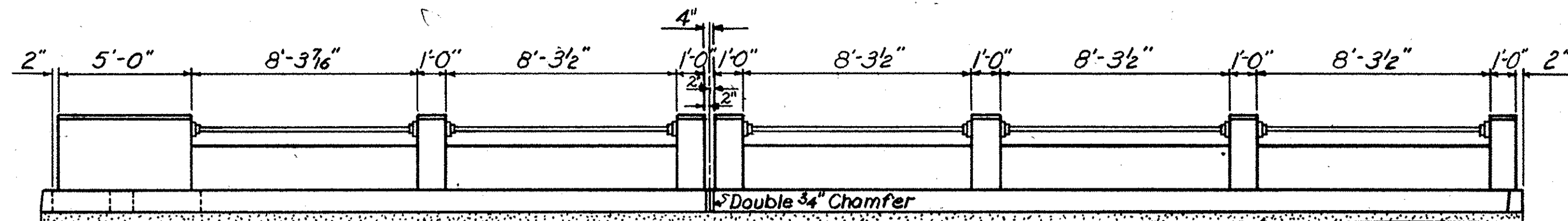
★♦ For notes affecting Constr. Changes see Sh. No. 37.

\*Note:  
Does Not Include Reinforcing Steel & Quantities for Light Brackets. See Sh. No. 74 for Details, Reinforcing Steel Schedule, & Quantities.

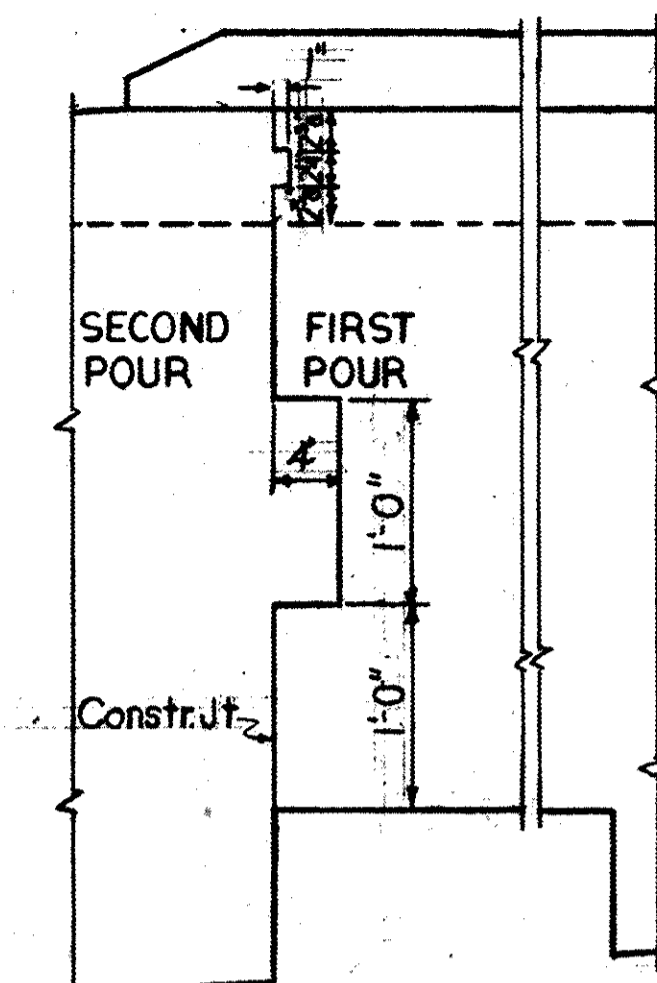
- NOTES:
- ① INCLUDES 3.4% FOR MEDIAN, BUT DOES NOT INCLUDE 5.4% IN PARAPET WALL AND POSTS.
  - ② INCLUDES 765 LBS. FOR BOLSTERS, AND 97 LBS. FOR MEDIAN.
  - ③ INCLUDES 1652 LBS. FOR STUD SHEAR CONNECTORS.
  - ④ THE UNIT PRICE FOR FABRICATED METAL HANDRAILING SHALL INCLUDE ALL THAT PORTION OF THE RAILING ABOVE THE SIDEWALK EXCEPT THAT ALL REINFORCING STEEL SHALL BE MEASURED AND PAID FOR AT THE UNIT PRICE BID FOR THAT ITEM.

NOTES:  
FOR STANDARD NOTES SEE SHEET NO. 5.  
FOR STANDARD DETAILS SEE SHEET NO. 6.  
THIS SHEET TO ACCOMPANY SHEET NOS. 35 & 37.

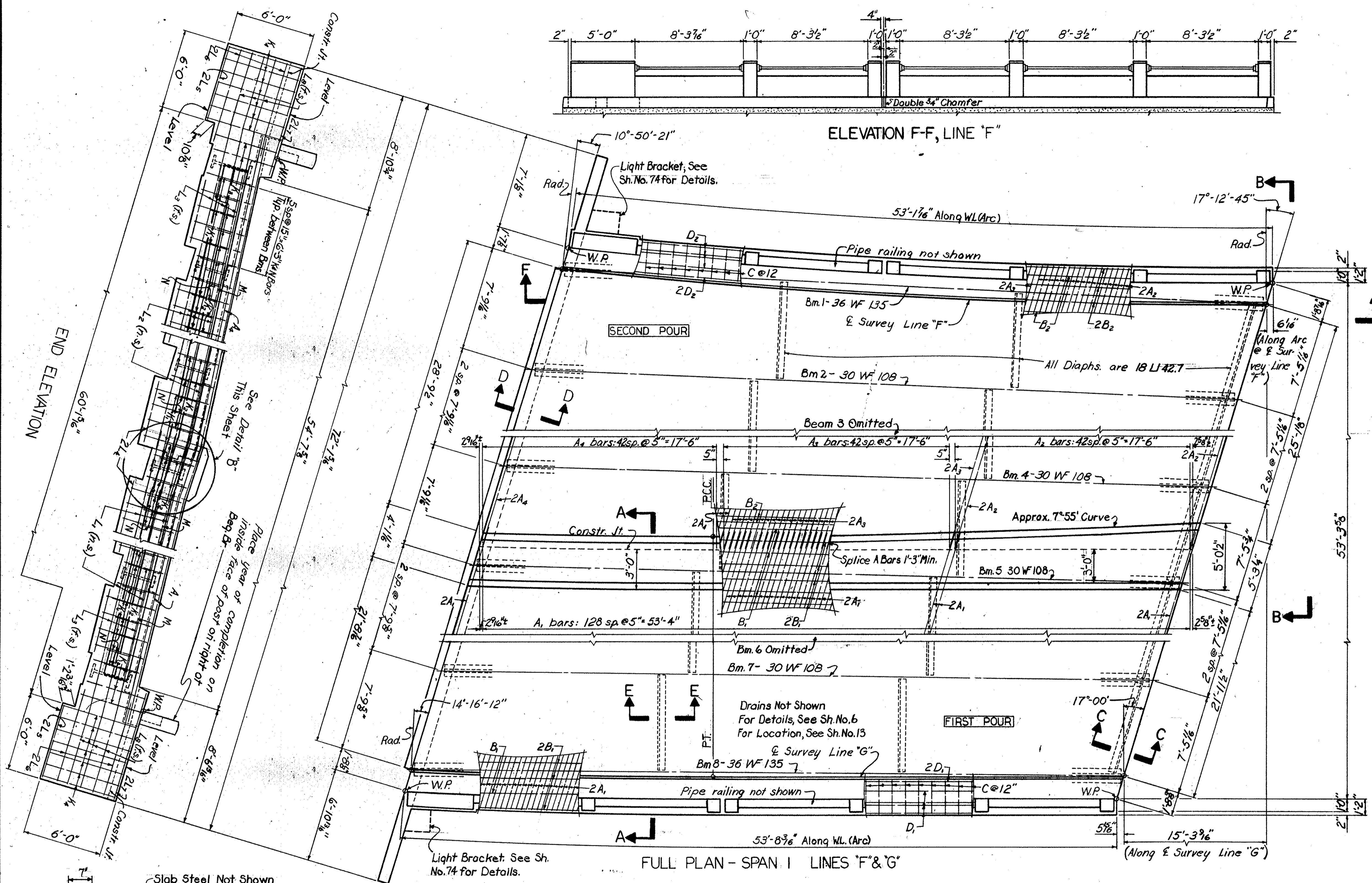
REV.		S.C. STATE HIGHWAY DEPARTMENT
REV.		BRIDGE DIVISION
REV.		COLUMBIA S.C.
REV.		53'-9 1/2" SPAN SUPERSTRUCTURE
REV.		FOR UNDERPASS UNDER
REV.		S. SPRUILL INTERCHANGE CONN.
REV.		(AT N. CHARLESTON)
REV.		SPAN LINES F & G
REVIEWED	R.R.S.	FILE NO.
IN CHARGE	PEPIS-63	COUNTY
TR.	10.521.4	CHARLESTON
DR.	8-63	ROUTE NO.
DES.	8-63	I-26
BY	CHK'D DATE	DATE
		8-63
	APPROVED BY	APPROVED BY
	BRIDGE DESIGN & PLANS ENGINEER	BRIDGE ENGINEER



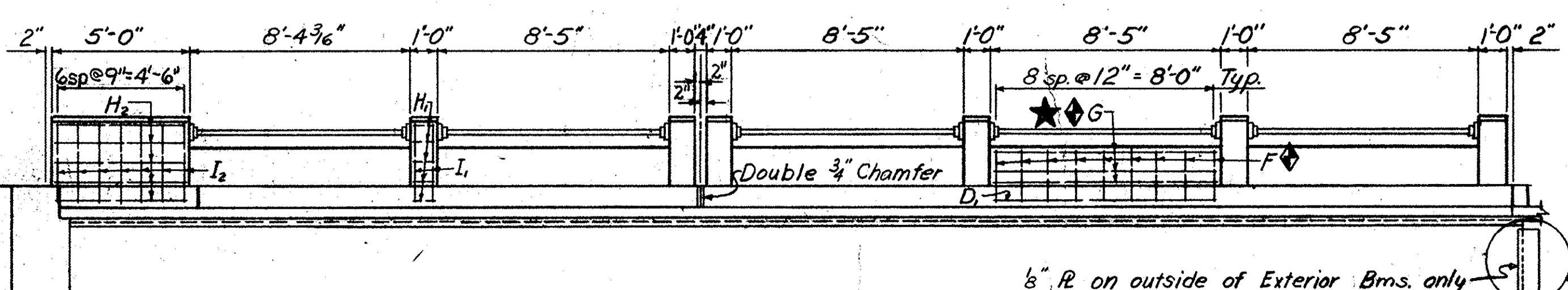
ELEVATION F-F, LINE "F"



DETAIL B  
SCALE: 1"=1'-0"



FULL PLAN - SPAN I LINES "F" & "G"

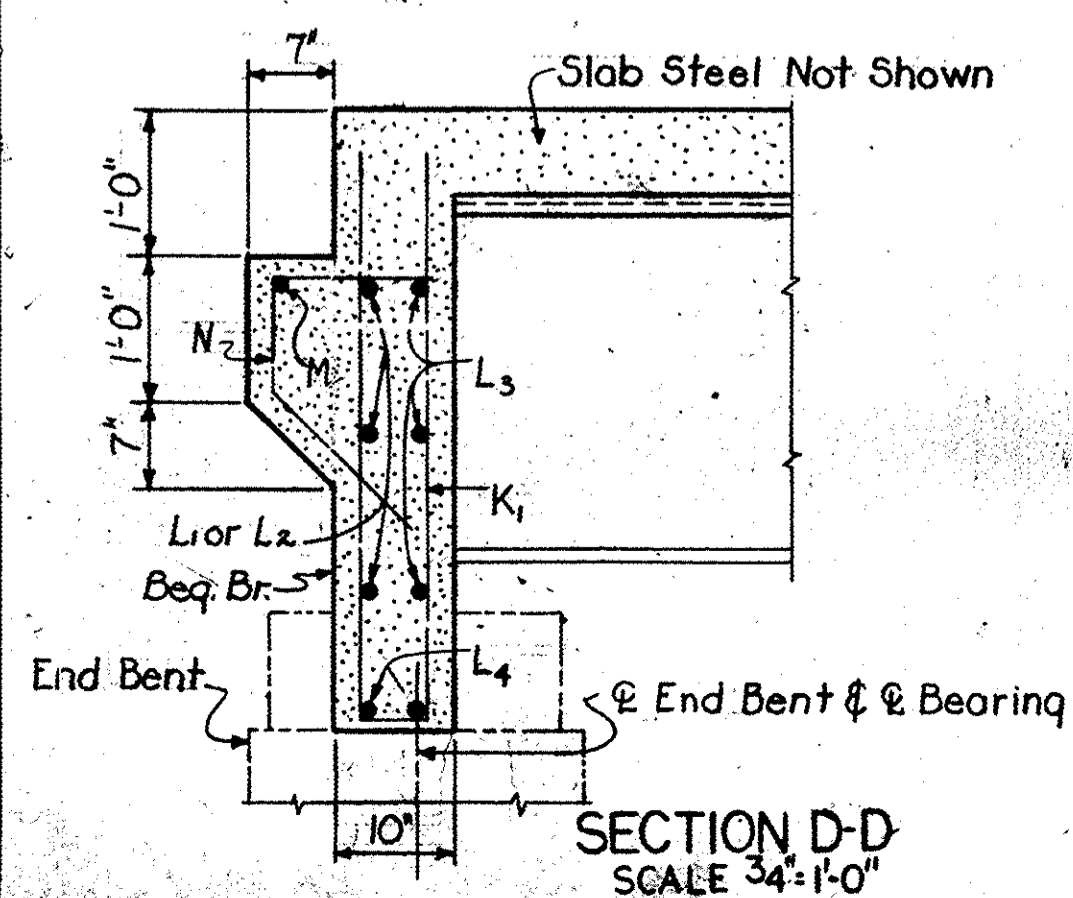


FULL ELEVATION LINE "G"

Design Datq:

UNIT STRESSES:  
f<sub>s</sub> (STRUCT.) = 20,000 p.s.i.  
f<sub>s</sub> (REINF.) = 20,000 p.s.i.  
f<sub>c</sub> = 1200 p.s.i. n = 10  
(CLASS "A" CONCRETE)

See Detail "A" Sh. no. 37

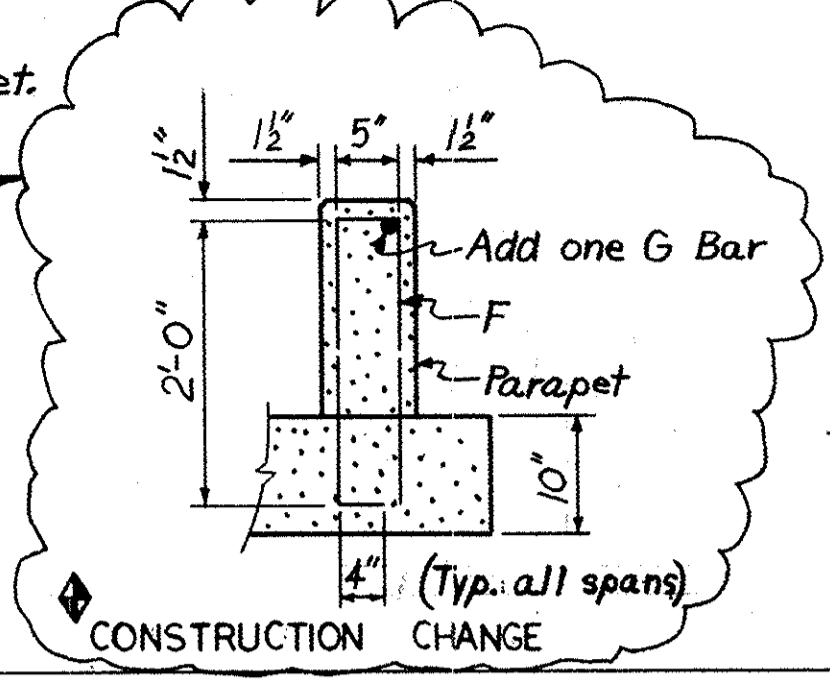


SECTION D-D  
SCALE 3/4"=1'-0"

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	10.521.4	I-26	37	74

★ During construction, extend G bars thru interior posts and 10" into posts at ends of rail. Reinforcing steel quantities to be adjusted on final estimate. (Typ. all spans).

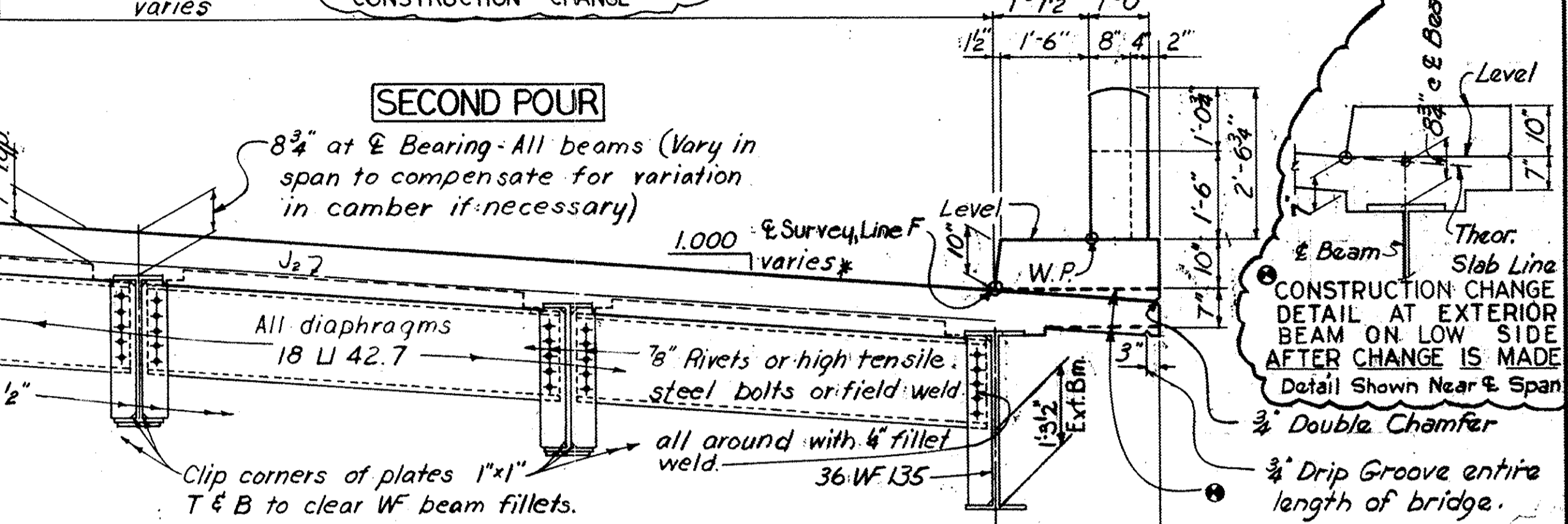
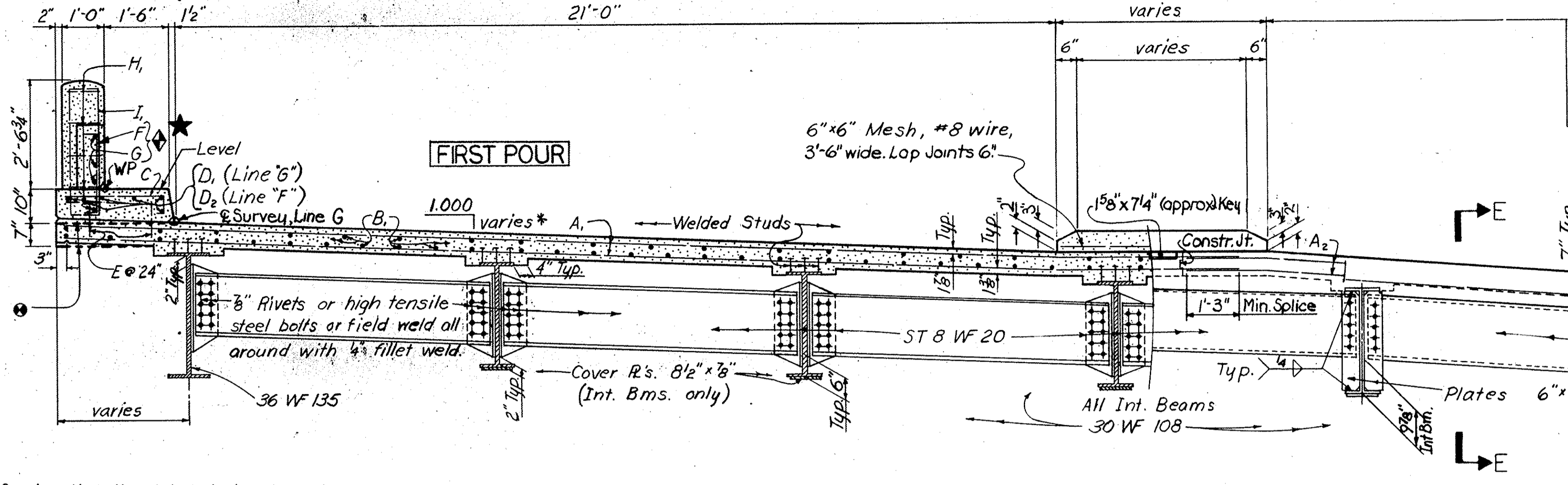
◆ During construction F bars to be changed as shown and one G bar added in top back face of the parapet. Reinforcing Steel to be increased accordingly.



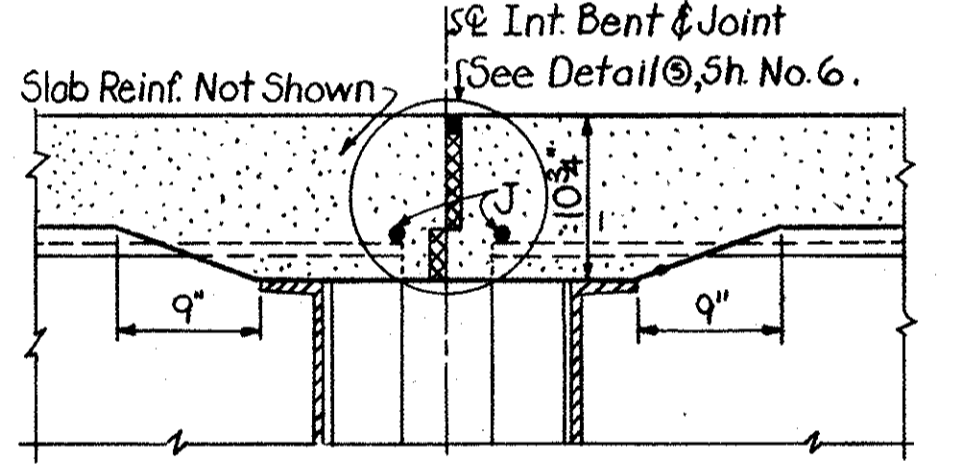
NOTES:  
FOR STANDARD NOTES, SEE SHEET NO. 5.  
FOR STANDARD DETAILS, SEE SHEET NO. 6.

DESIGN DATA:  
f.s. (STRUCT.) = 20,000 P.S.I.; f.s. (REINF.) = 20,000 P.S.I.;  
f.c. = 1,200 P.S.I.;  $n = 10$

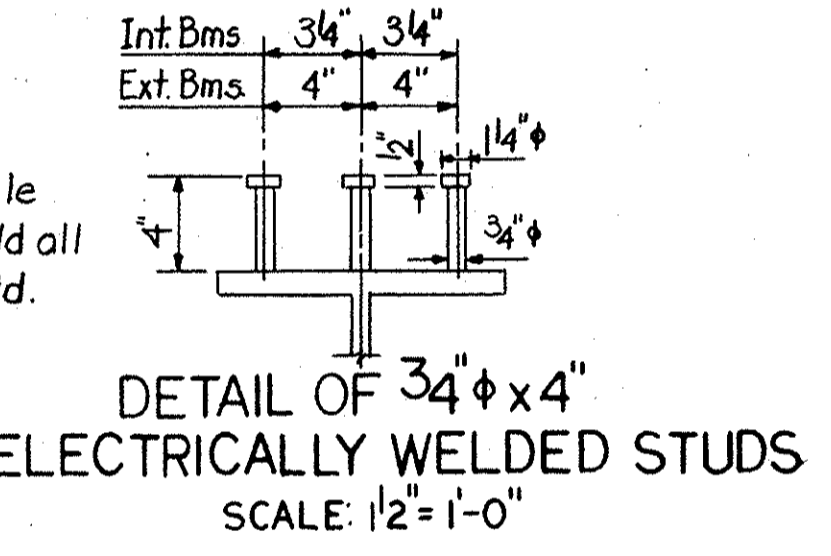
THIS SHEET TO ACCOMPANY SHEET NOS. 35 & 36.



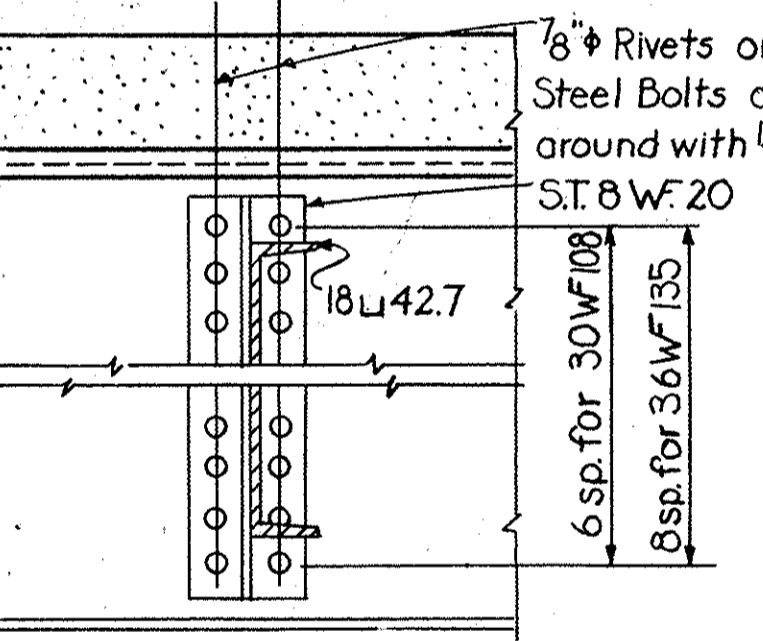
ELEVATION B-B



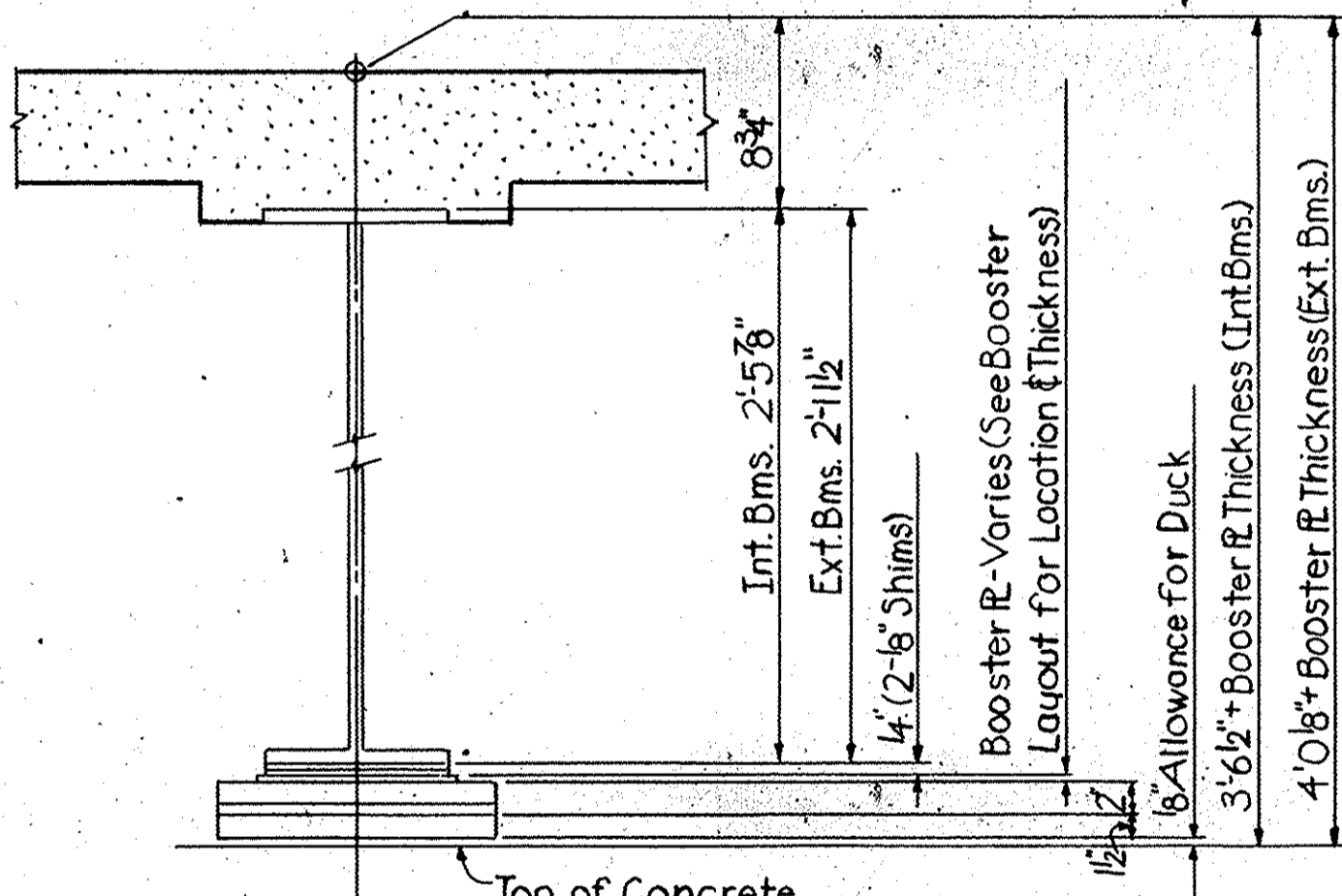
SECTION C-C  
SCALE: 1" = 1'-0"



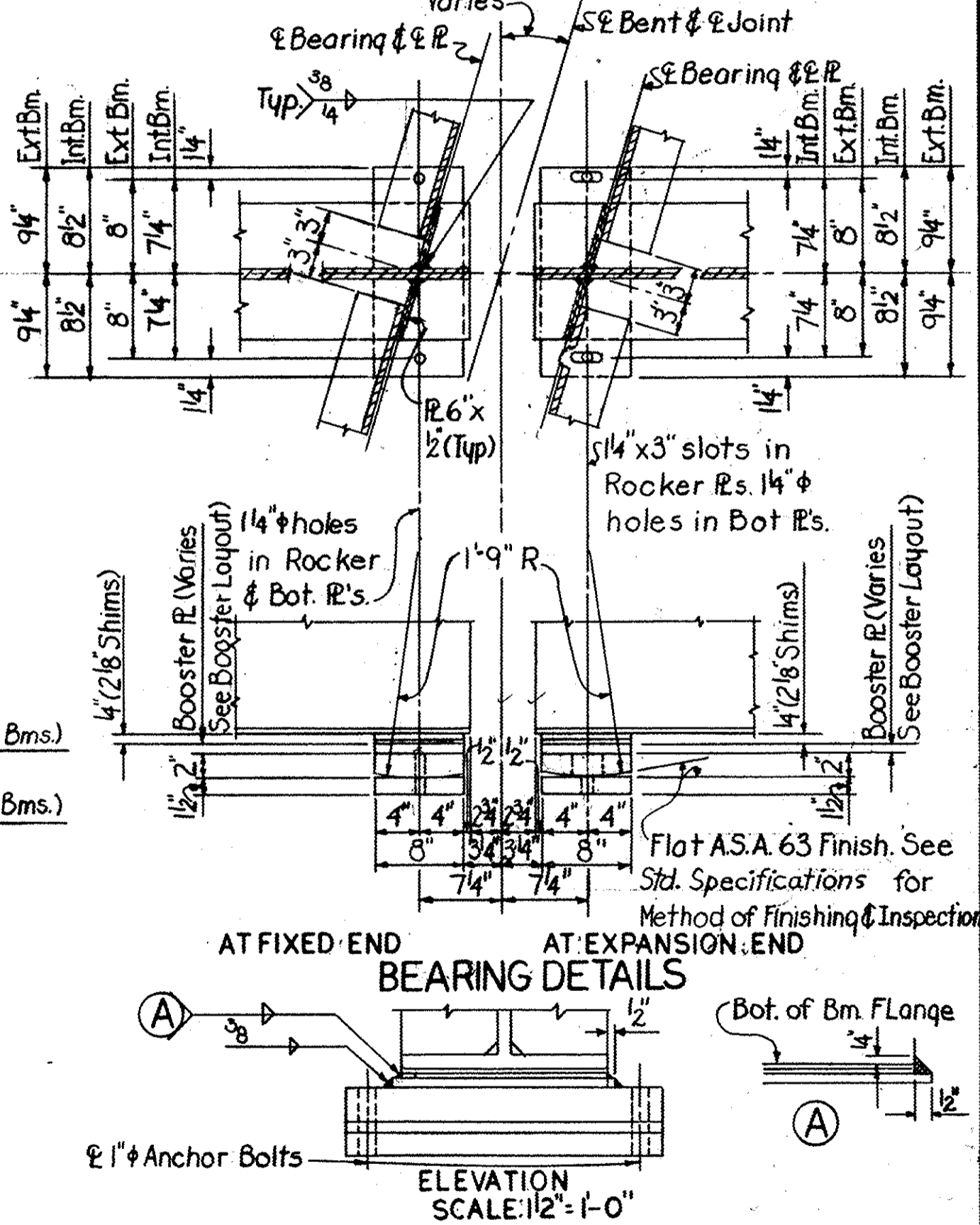
DETAIL OF 3/4" x 4" ELECTRICALLY WELDED STUDS  
SCALE: 1/2" = 1'-0"



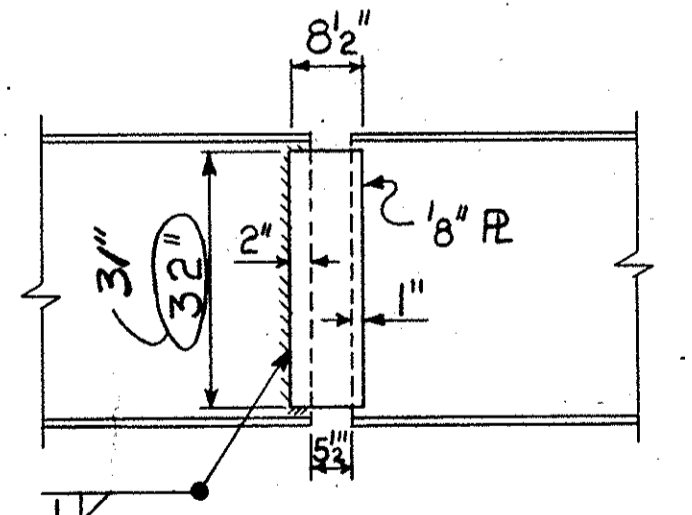
SECTION E-E  
SCALE: 1" = 1'-0"



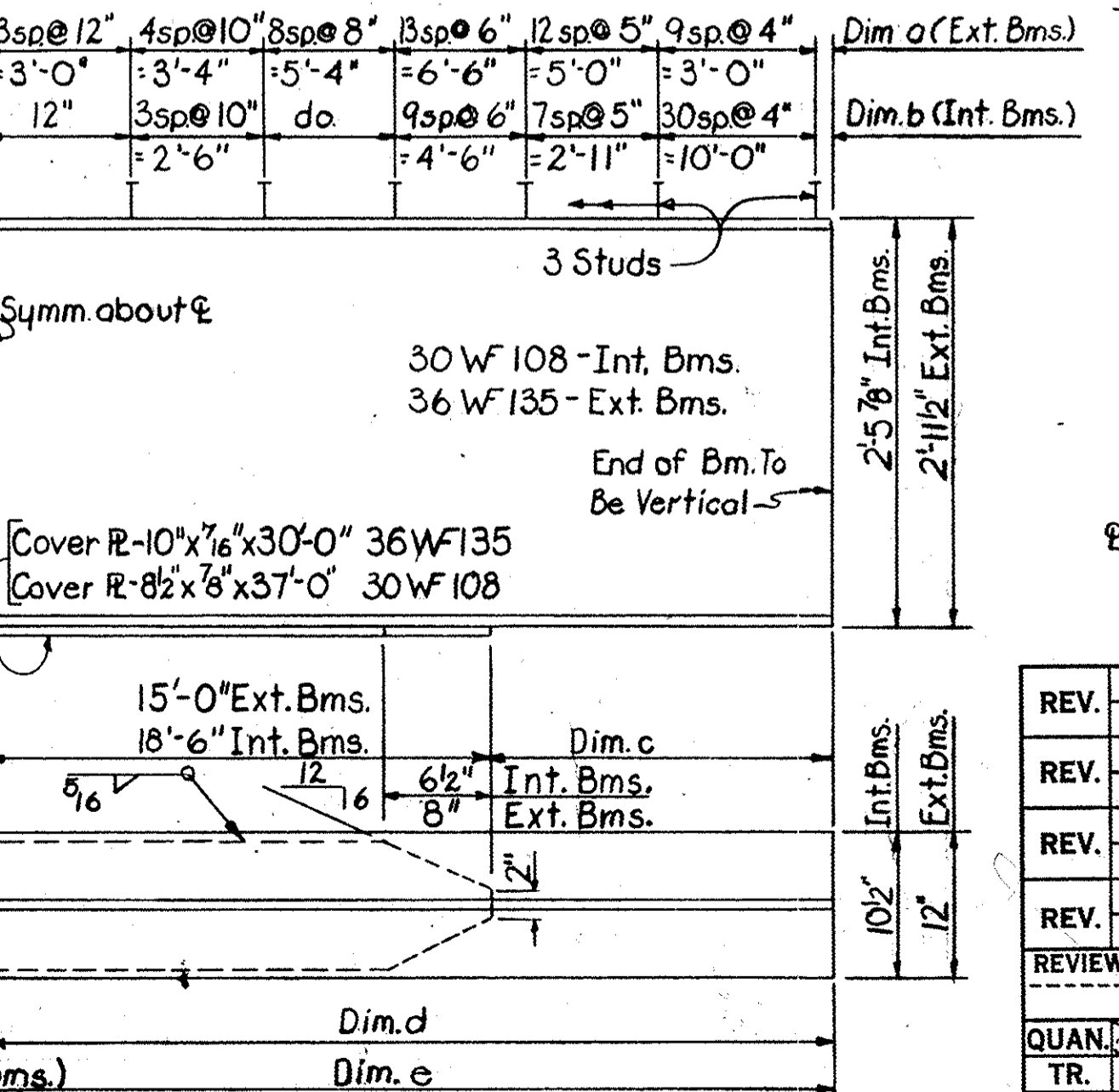
SKETCH FOR COMPUTING BEAM SEAT ELEVATIONS AT BEARING  
SCALE: 1" = 1'-0"



ELEVATION  
SCALE: 1/2" = 1'-0"



DETAIL "A"  
SCALE: 1/2" = 1'-0"



BEAM DETAILS  
NO SCALE

	53'-9 3/16" Span
Ext. Bm.	11' 16"
Int. Bm.	7' 8"

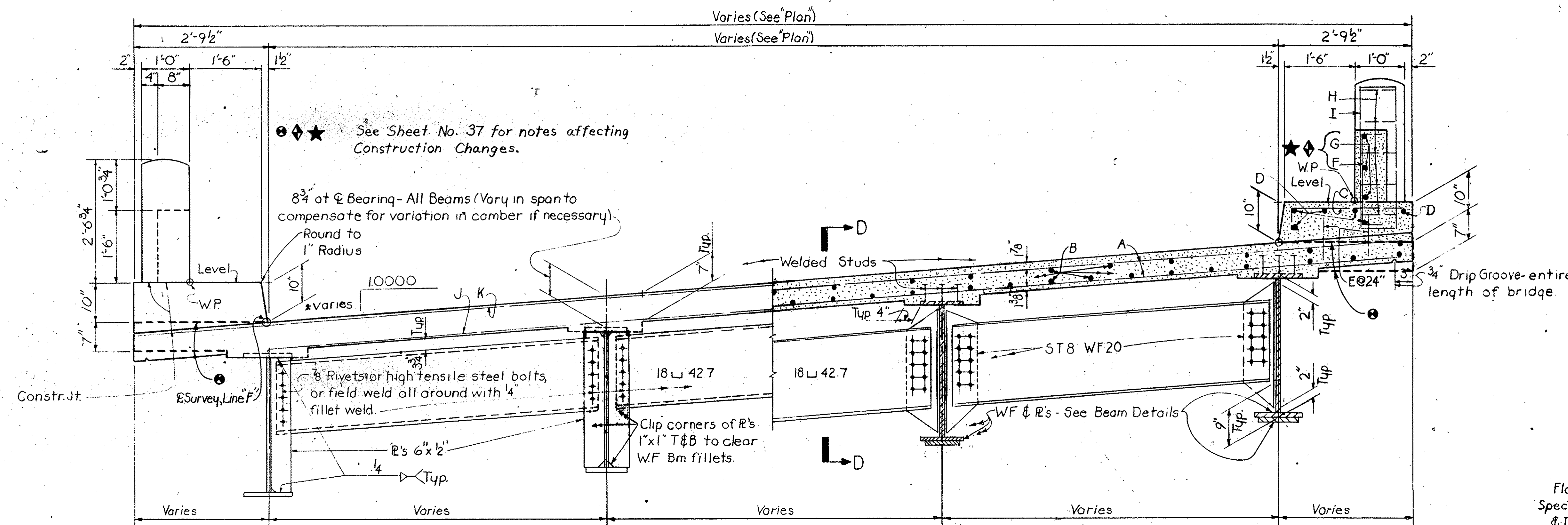
		53'-9 3/16" Span		
Ext. Bm.	Bm, Diaph, etc.	.15 K/Ft.	1' 8"	
	Slab	.70 K/Ft.	1' 2"	
	Sdwk, Rail, etc.	.25 K/Ft.	1' 16"	
	Total	1.10 K/Ft.	1' 16"	
Int. Bm.	Bm, Diaph, etc.	.13 K/Ft.	1' 8"	
	Slab	.70 K/Ft.	3' 4"	
	Total	.83 K/Ft.	7' 8"	

DEAD LOAD DEFLECTION & CAMBER  
DIAGRAM  
NO SCALE

	a	b	c	d	e
Bm. 1	1' 3 1/4"		11'-3 3/4"	26'-3 3/4"	52'-7 7/8"
Bm. 2		1' 4"	7'-10 1/4"	26'-4 1/4"	52'-8 1/8"
Bm. 3		1' 5 1/4"	7'-10 3/4"	26'-4 3/4"	52'-9 1/16"
Bm. 4		2' 4"	7'-11 1/4"	26'-5 1/4"	52'-10 1/16"
Bm. 5		2' 3 1/4"	7'-11 3/4"	26'-5 3/4"	52'-11 1/2"
Bm. 6		3' 5 1/8"	8'-0 1/8"	26'-6 1/8"	53'-0 9/16"
Bm. 7		3' 13 1/16"	8'-0 13/16"	26'-6 13/16"	53'-1 5/8"
Bm. 8	5' 3 3/8"		11'-7 3/8"	26'-7 3/8"	53'-2 3/4"

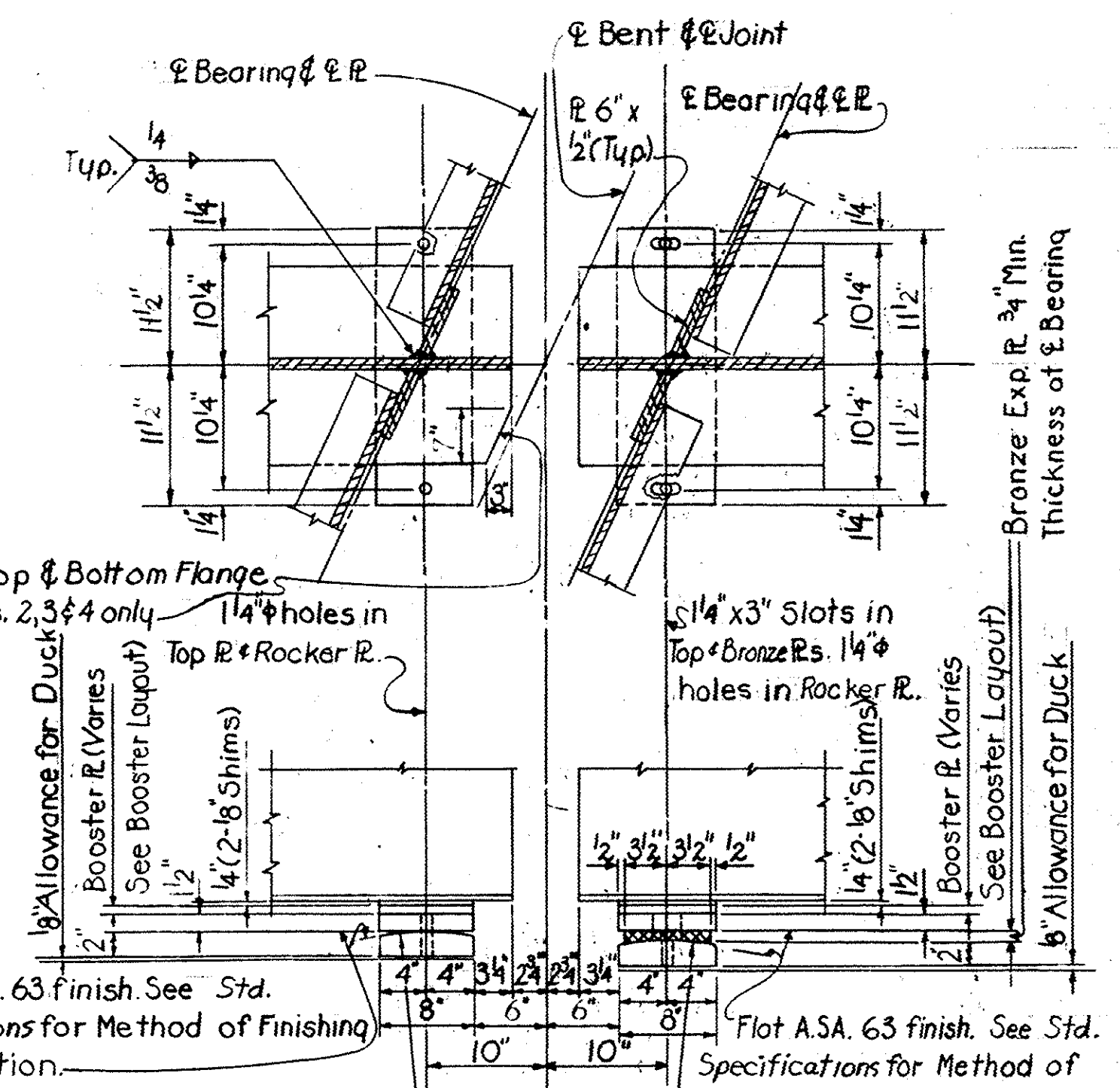
REV.		S.C. STATE HIGHWAY DEPARTMENT
REV.		BRIDGE DIVISION
REV.		COLUMBIA S.C.
REV.		53'-9 3/16" SPAN SUPERSTR. DETAILS
REV.		FOR UNDERPASS UNDER
REV.		S. SPRUILL INTERCHANGE CONN.
REV.		(AT N. CHARLESTON)
REV.		SPAN LINES F&G
QUAN.	REV. PEP 9-63	FILE NO. COUNTY ROUTE NO. DATE
TR.	DES. JWB RDS 8-63	10.521.4 CHARLESTON I-26 8-63
DES.	BY CHK'D DATE	APPROVED BY BRIDGE DESIGN & PLANS ENGINEER
		APPROVED BY BRIDGE ENGINEER





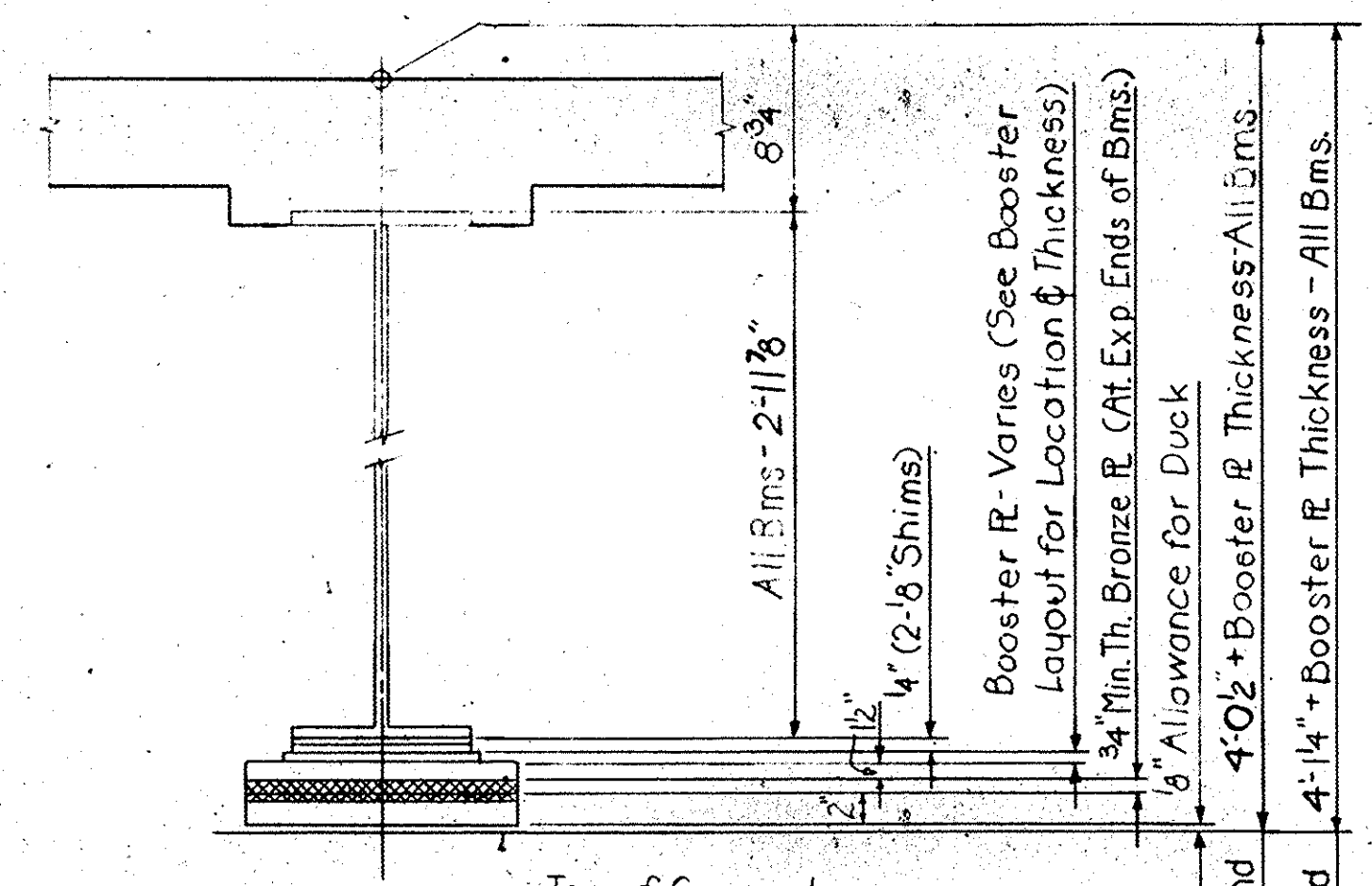
ELEVATION B-B

SECTION A-A



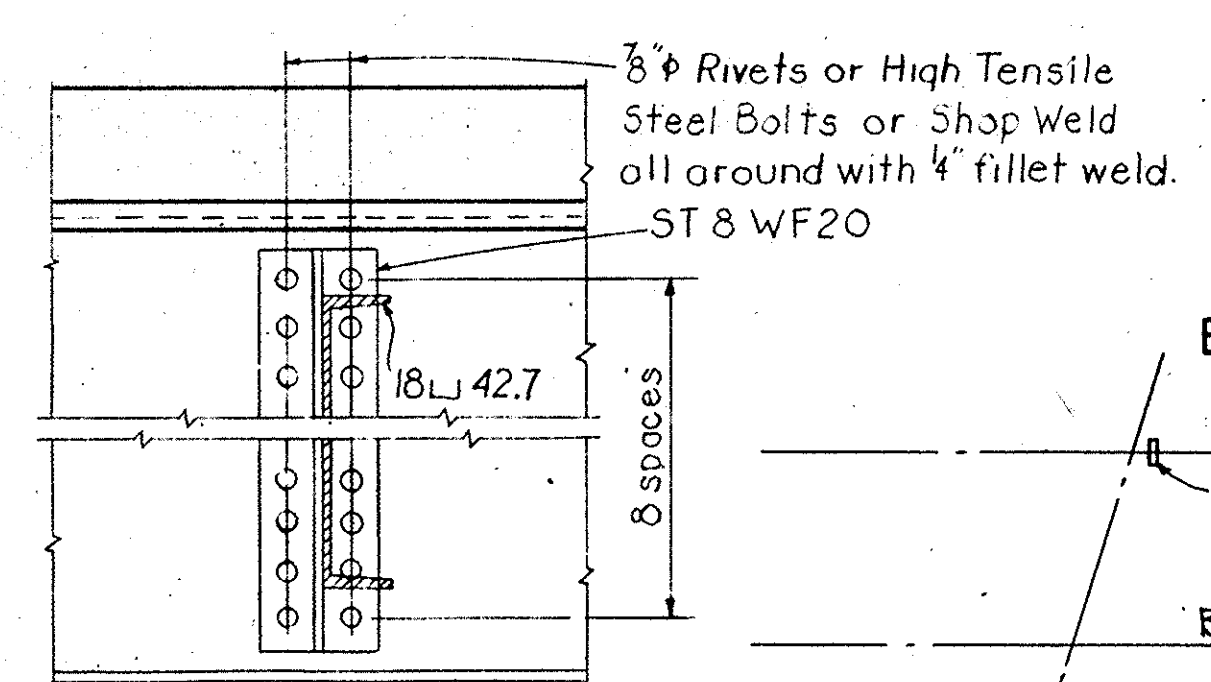
AT BENT 2

BEARING DETAILS AT BENT 3



SKETCH FOR COMPUTING BEAM SEAT ELEVATIONS AT  $\phi$  BEARING

SCALE: 1"=1'-0"



DETAIL OF 3/4" x 4" ELECTRICALLY WELDED STUDS

SCALE: 1/2"=1'-0"

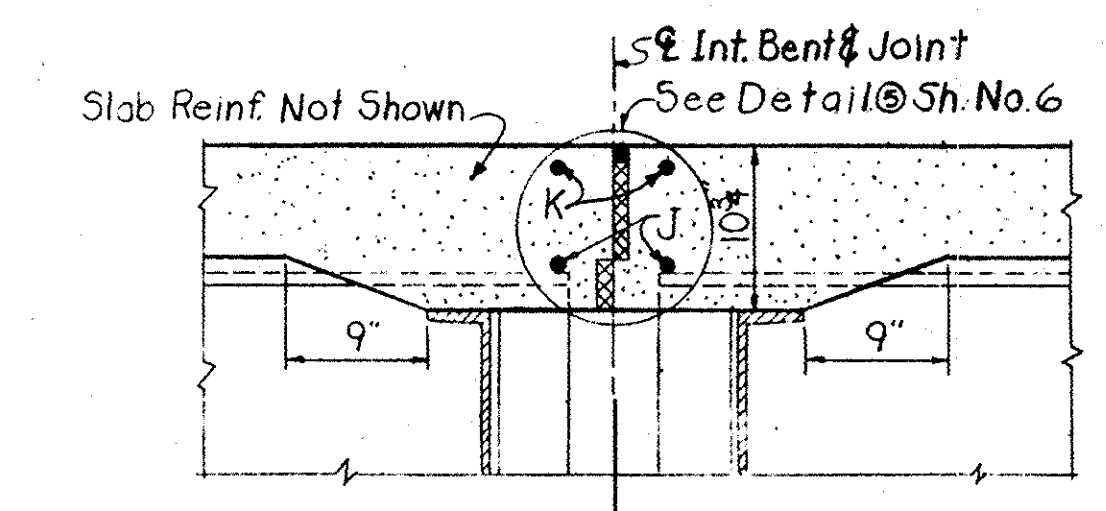
SECTION D-D

SCALE: 1"=1'-0"

BOOSTER LAYOUT

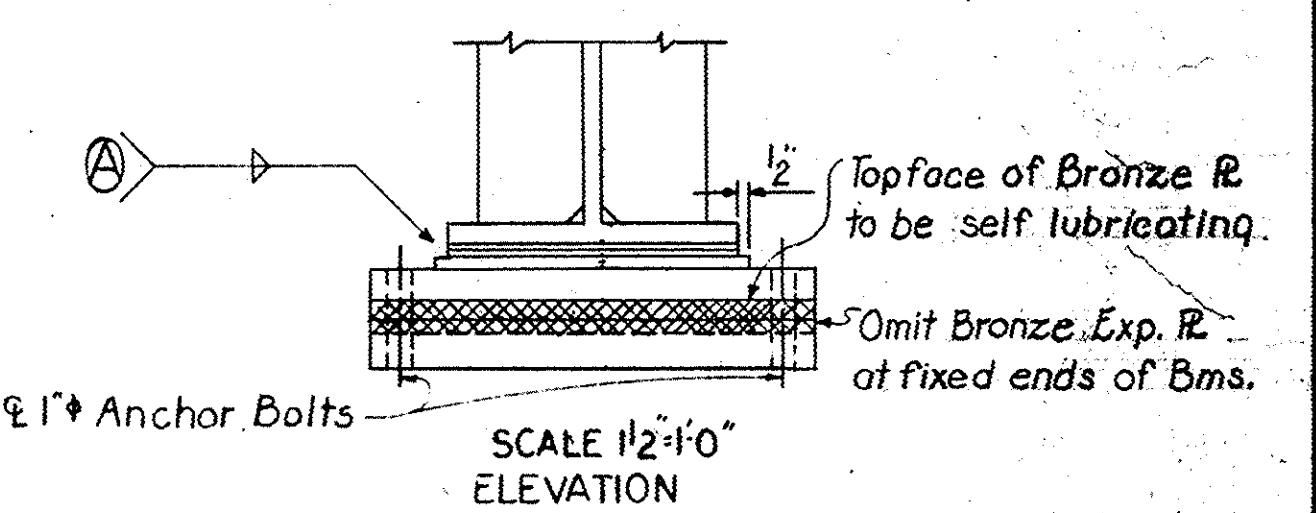
BOOSTER LAYOUT

	Bm. 1	Bm. 2	Bm. 3	Bm. 4
a	2'-8"	4'-3"	5'-10"	6'-2"
b	15'-7 7/8"	15'-9 8/8"	15'-10 5/8"	15'-11 1/2"



SECTION C-C

SCALE: 1"=1'-0"



SCALE 1/2"=1'-0"

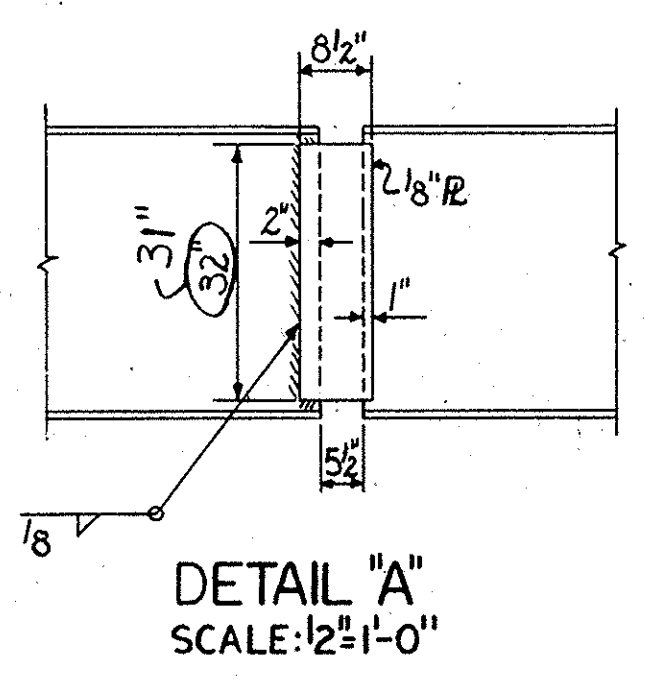
ELEVATION

NOTES:  
FOR STANDARD NOTES SEE SHEET NO. 5  
FOR STANDARD DETAILS SEE SHEET NO. 6  
DESIGN DATA:  
 $f_s$  (STRUCT.) = 20,000 P.S.I.,  $f_s$  (REINF.) = 20,000 P.S.I.  
 $f_c$  = 1200 PSI;  $n$  = 10

	83'-4 9/16" Span
Ext. Bm	1/2"
Int. Bm	1"

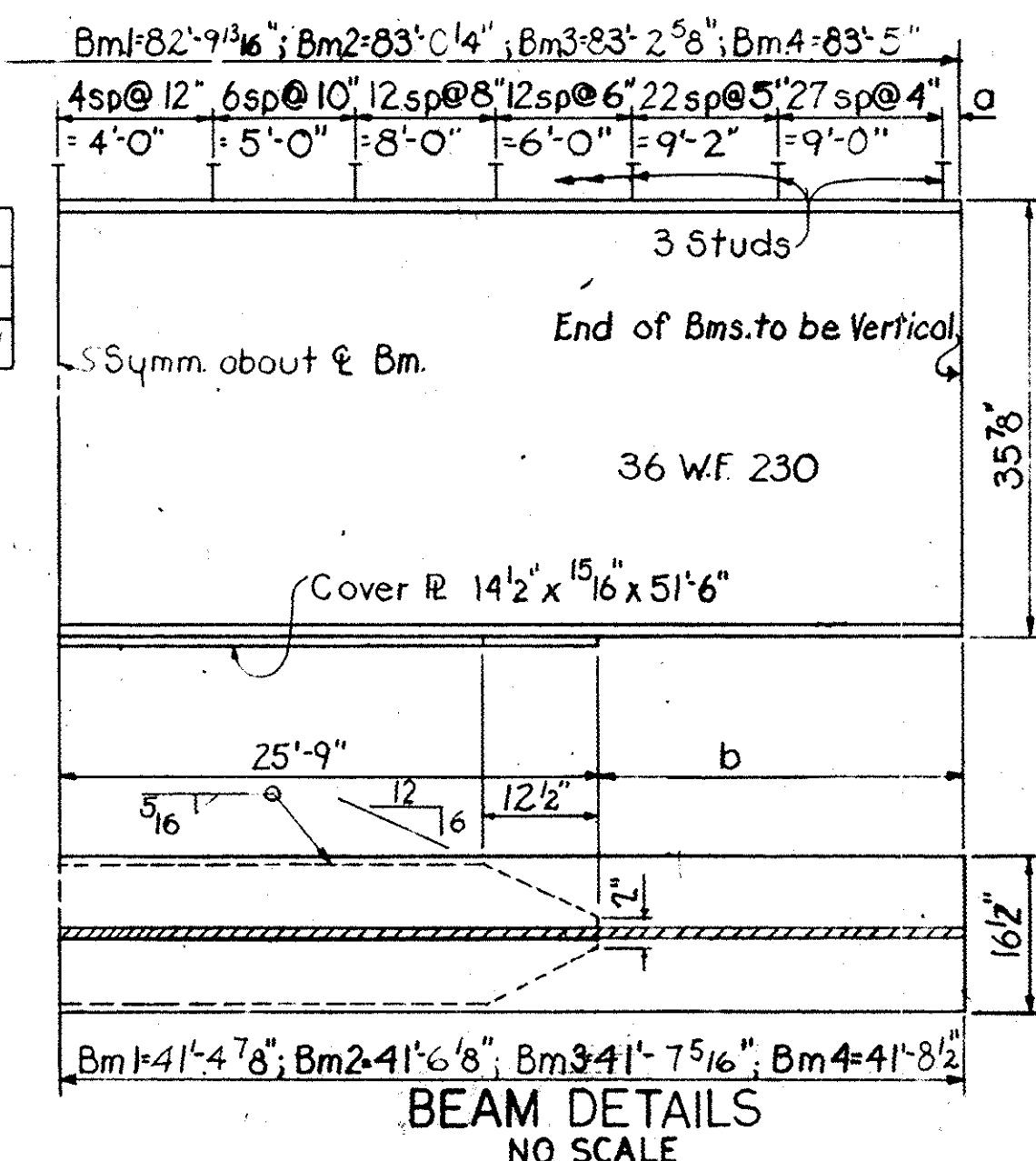
DEAD LOAD DEFLECTION & CAMBER

DIAGRAM NO SCALE



DETAIL "A"

SCALE: 2 1/2"=1'-0"

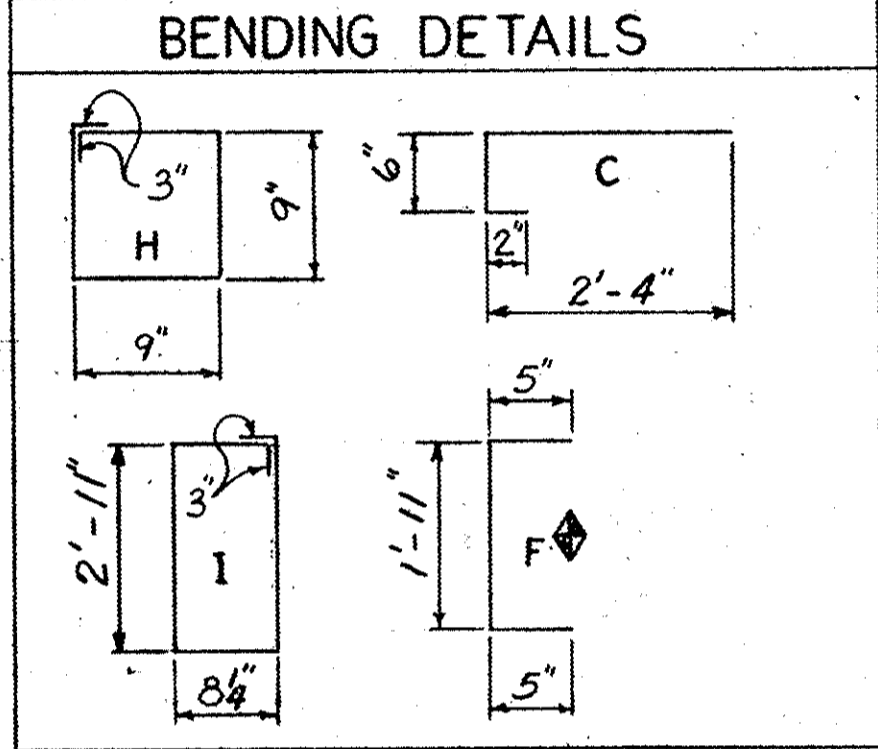


BEAM DETAILS

NO SCALE

REV.		S.C. STATE HIGHWAY DEPARTMENT	
REV.		BRIDGE DIVISION	
REV.		COLUMBIA S.C.	
REV.		83'-4 9/16" SPAN SUPERSTR. DETAILS	
REV.		FOR UNDERPASS UNDER	
REV.		S. SPRUILL INTERCHANGE CONN.	
REV.		(AT N. CHARLESTON)	
REV.		SPAN 2, LINE "F"	
REVIEWED	RRS	FILE NO.	COUNTY
QUAN. 1/26	PEP 1-65	10 521.4	CHARLESTON
TR.	JWB	ROUTE NO.	DATE
DR. REK	JWB 8-63	I-26	8-63
DES. JWB	RRS 8-63	APPROVED BY	APPROVED BY
BY	CHK'D DATE	BRIDGE DESIGN & PLANS ENGINEER	BRIDGE ENGINEER

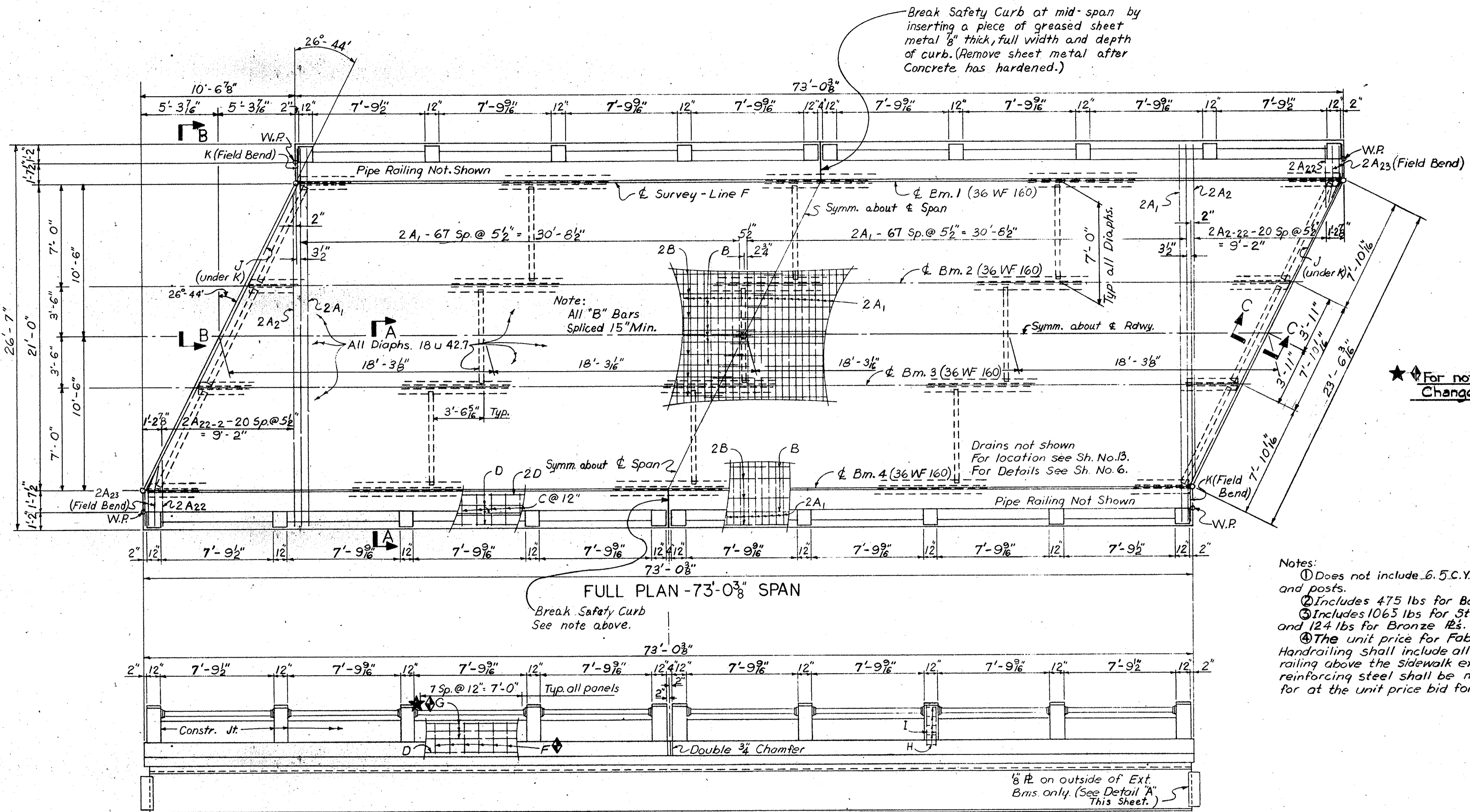
REINFORCING STEEL SCHEDULE						
MARK	SIZE	INT. SPAN	REQD. LENGTH			D
A <sub>1</sub>	5	272	26'-2"			S
A <sub>2</sub>	5	4 ea.	22'-11" to 4'-7" varies by 11"			S
A <sub>23</sub>	5	8	4'-5"			S
B	5	98	36'-11"			S
C	4	144	3'-0"			B
D	4	24	36'-2"			S
E	5	148	0'-10"			S
F	5	128	2'-9"			B
G	4	48	7'-5"			S
H	2	100	3'-6"			B
I	5	40	7'-9"			B
J	5	2	23'-6"			S
BB	1"		730'			—
BBU	1 1/2"		690'			—
K	5	2	28'-8"			S



QUANTITIES			
ITEM	UNIT	ONE 73'-0 3/8" INT. SPAN	
CLASS A CONCRETE	C.Y.	① 58.0	
REINFORCING STEEL	LBS.	② 15,006	
STRUCTURAL STEEL	LBS.	③ 61,400	
FAB. METAL HANDRAIL	L.F.	④ 146	

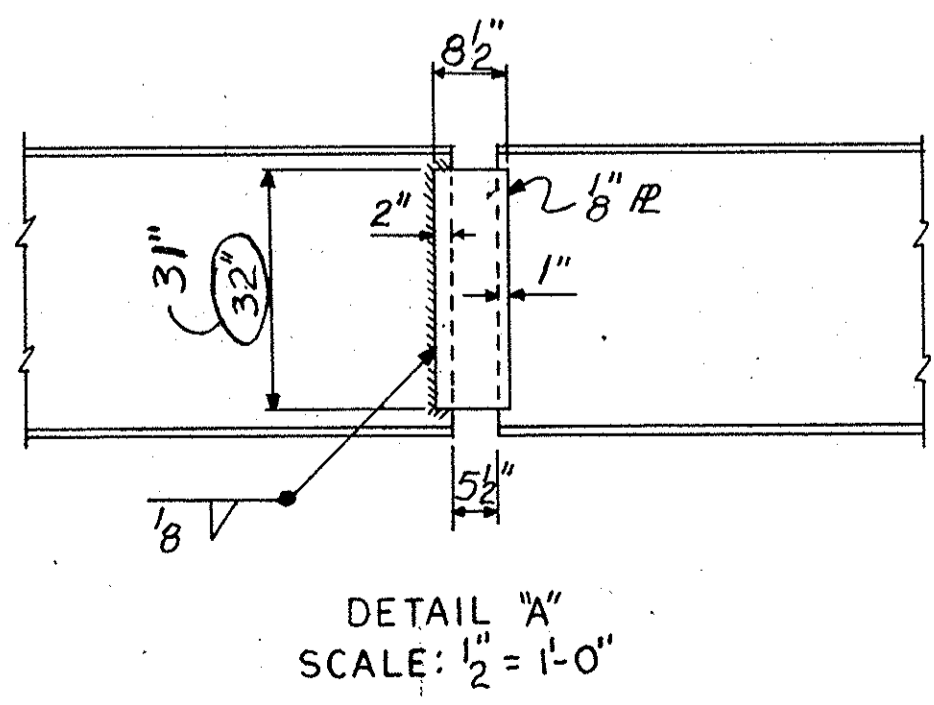
Notes:  
For Standard Notes, See Sh. No. 5.  
For Standard Details, See Sh. No. 6.

Design Data:  
f<sub>s</sub> (Struct.) = 20,000 p.s.i.; f<sub>s</sub> (Reinf.) = 20,000 p.s.i.; f<sub>c</sub> = 1200 p.s.i.; n = 10



★ For notes affecting Constr. Changes see Sh. No. 37.

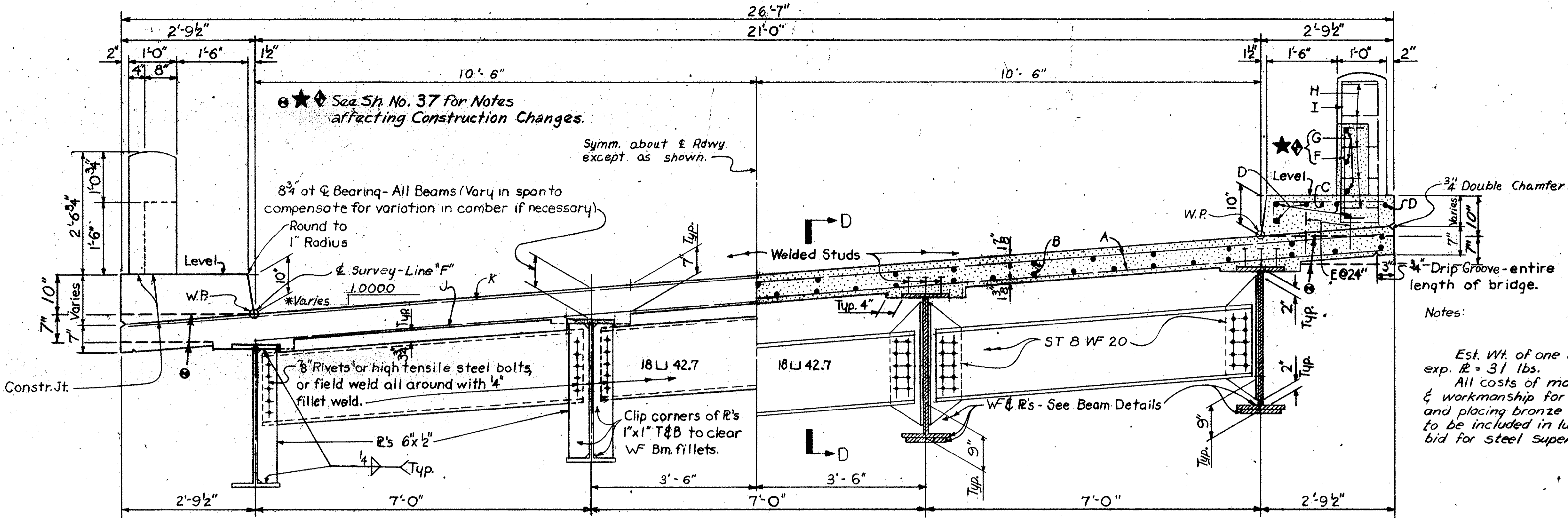
Notes:  
① Does not include 6.5 C.Y. in parapet wall and posts.  
② Includes 475 lbs for Bolsters.  
③ Includes 1065 lbs for Stud Shear Connectors, and 124 lbs for Bronze 12s.  
④ The unit price for Fabricated Metal Handrailing shall include all that portion of the railing above the sidewalk except that all reinforcing steel shall be measured and paid for at the unit price bid for that item.



This Sheet to accompany Sh. No. 41

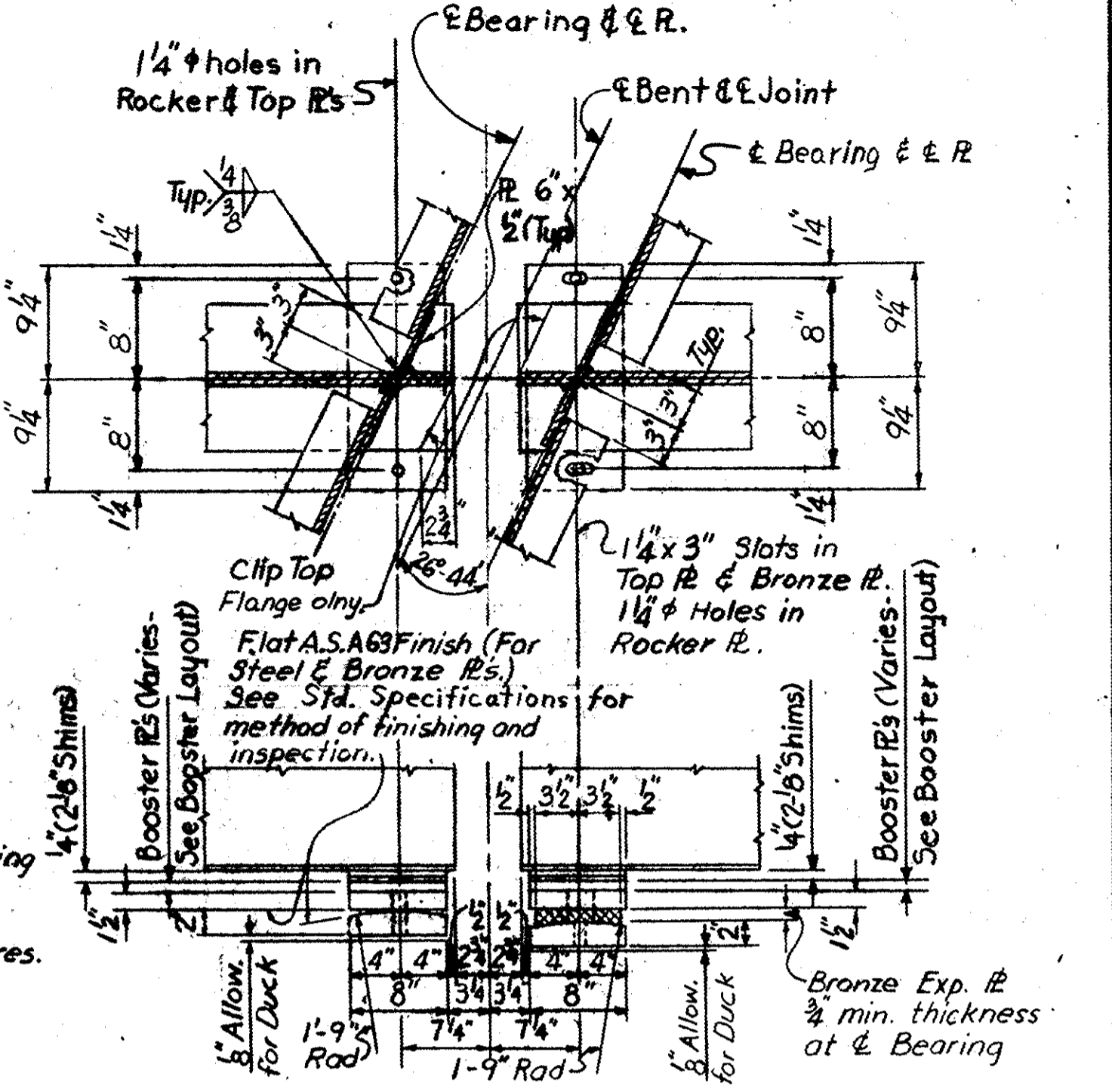
S.C. STATE HIGHWAY DEPARTMENT BRIDGE DIVISION COLUMBIA S.C.			
73'-0 3/8" SPAN SUPERSTRUCTURE FOR UNDERPASS UNDER S. SPRUILL INTERCHANGE CONN. AT N. CHARLESTON SPAN 3 LINE "F"			
REV.		FILE NO.	ROUTE NO. DATE
REV.		10.521.4	CHARLESTON I-26 8-63
REV.		APPROVED BY	APPROVED BY
REV.		DES. JWB	DES. JWB
REV.		BY CHK'D DATE	BRIDGE DESIGN & PLANS ENGINEER

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S. C.	CHARLESTON	10521.4	1-26	41	74

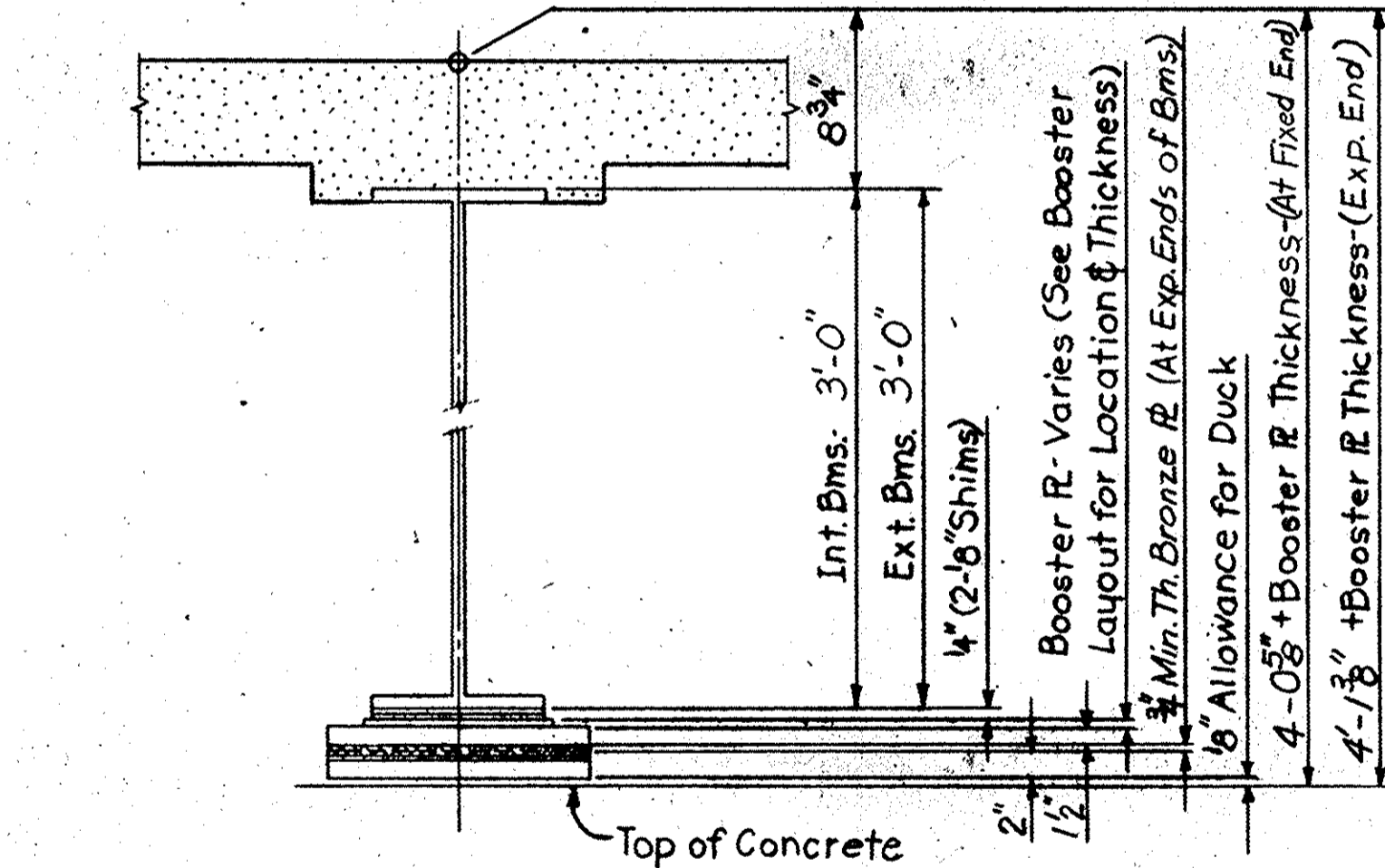


ELEVATION B-B

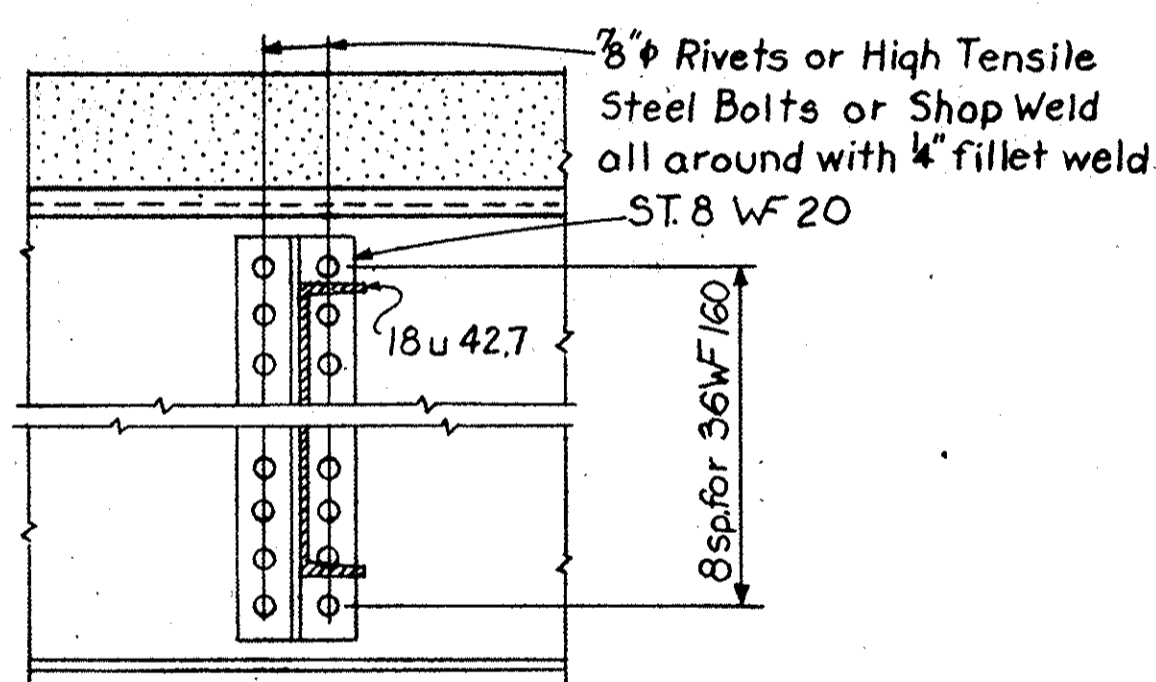
SECTION A-A



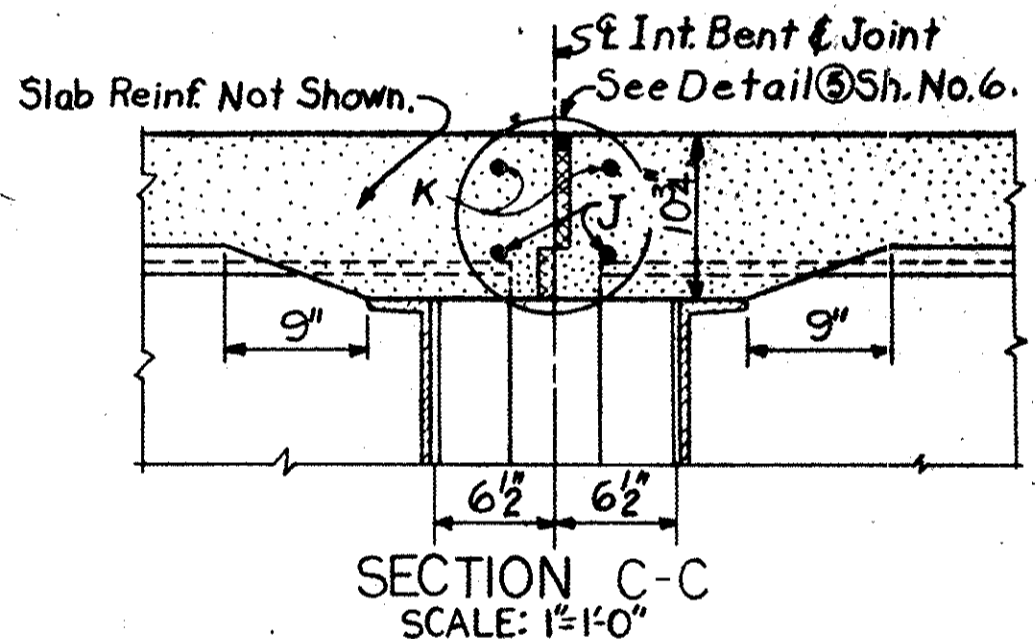
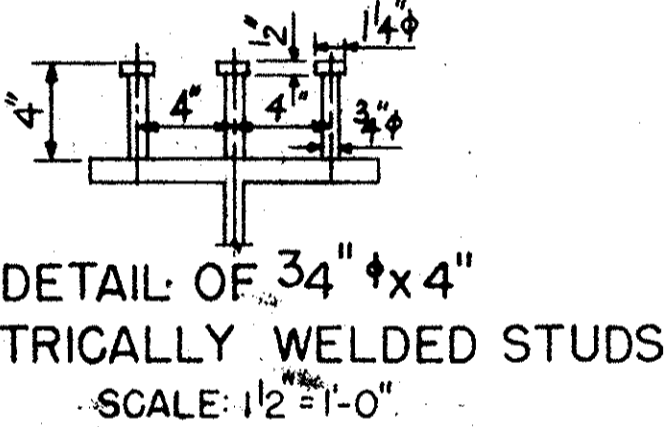
BEARING DETAILS  
SCALE: 1"=1'-0"



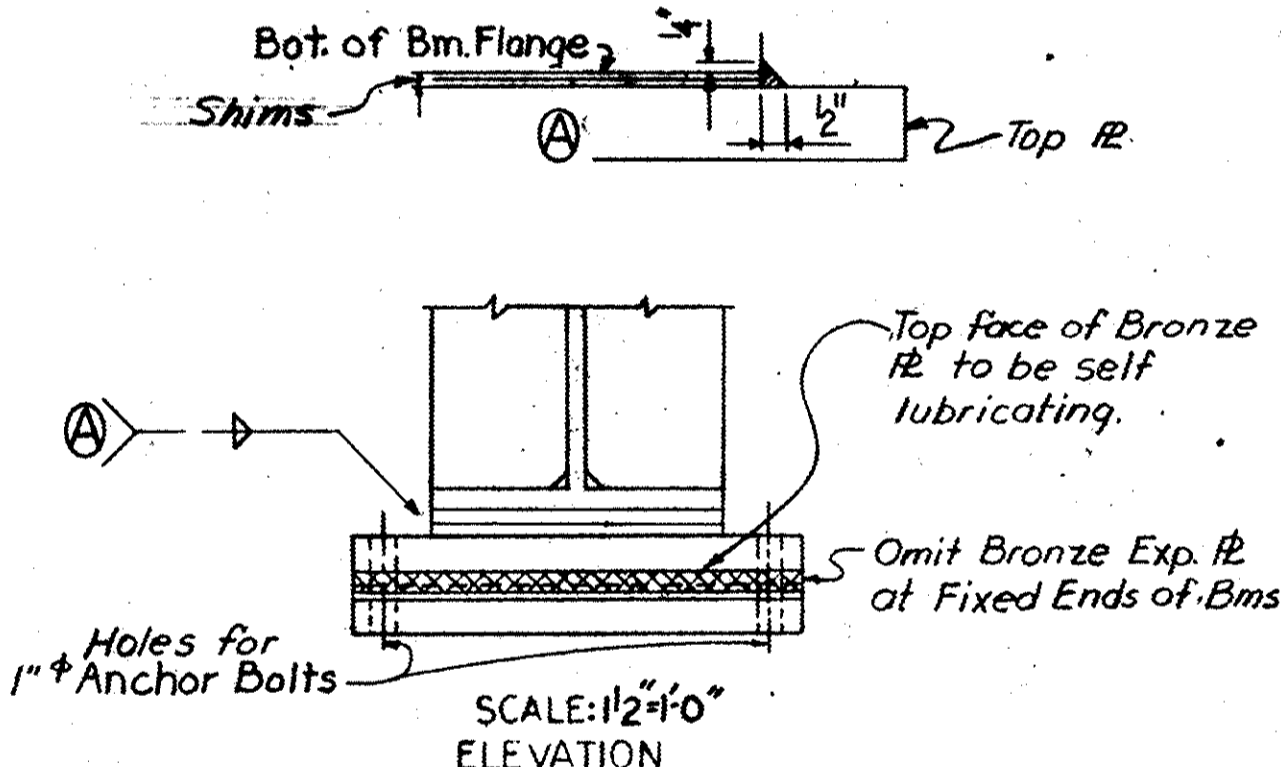
SKETCH FOR COMPUTING BEAM  
SEAT ELEVATIONS AT & BEARING  
SCALE: 1"=1'-0"



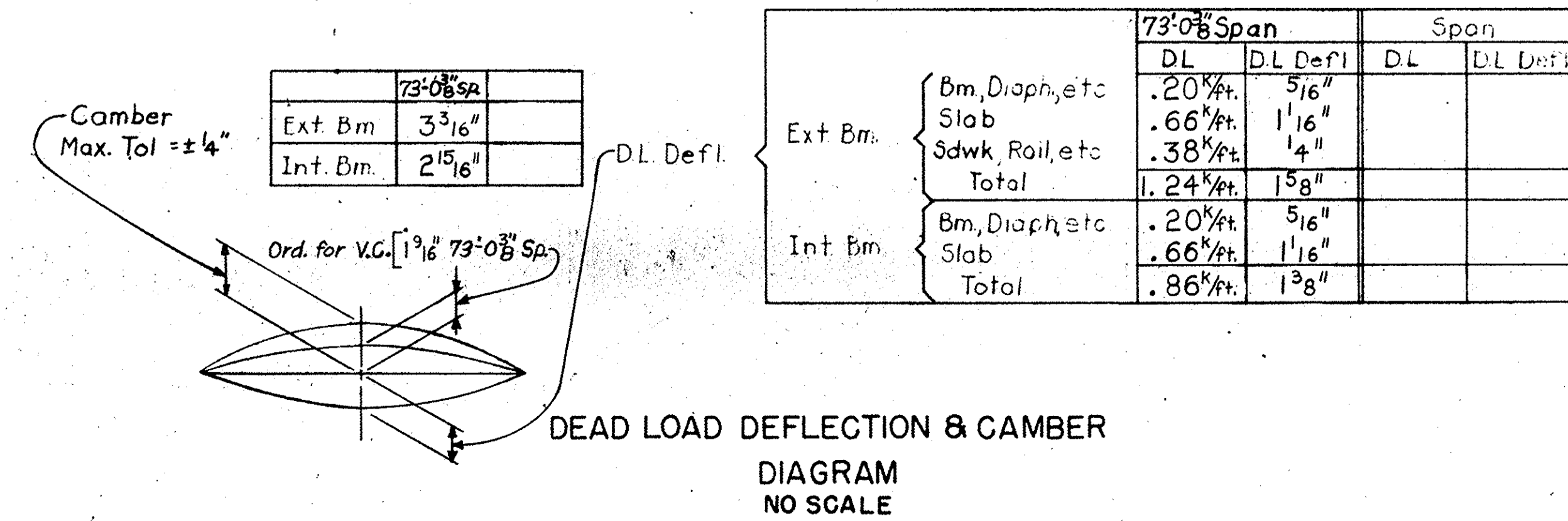
SECTION D-D  
SCALE: 1"=1'-0"



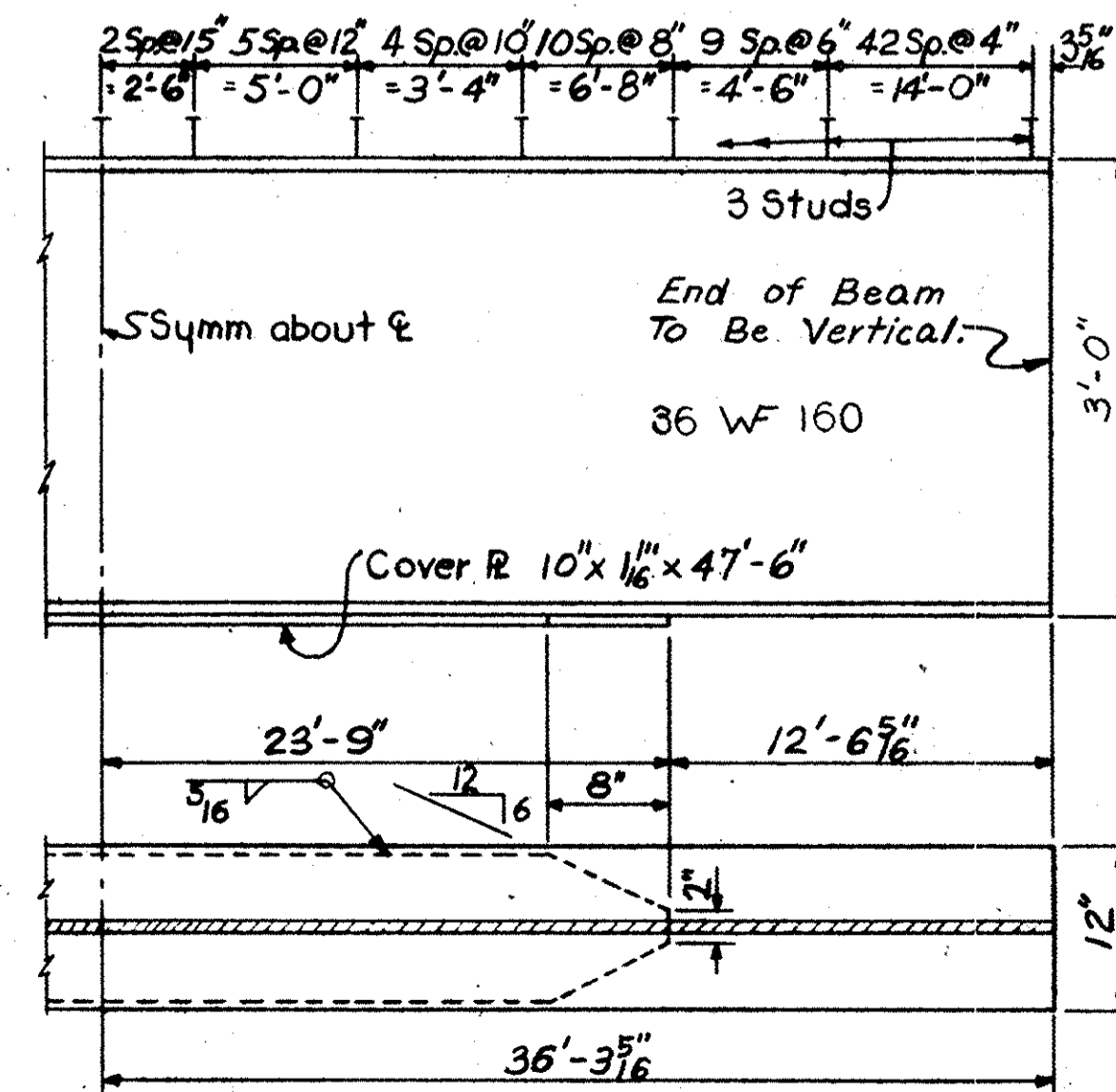
SECTION C-C  
SCALE: 1"=1'-0"



ELEVATION  
SCALE: 1/2"=1'-0"



DEAD LOAD DEFLECTION & CAMBER  
DIAGRAM  
NO SCALE



BEAM DETAILS  
NO SCALE

NOTES:  
FOR STANDARD NOTES SEE SHEET NO. 5.  
FOR STANDARD DETAILS SEE SHEET NO. 6.

DESIGN DATA:  
F<sub>s</sub> (STRUCT.) = 20,000 P.S.I.; F<sub>s</sub> (REINF.) = 20,000 P.S.I.  
F<sub>c</sub> = 1200 P.S.I. - N = 10

SCALE: 3/8"=1'-0" OR AS SHOWN.  
THIS SHEET TO ACCOMPANY SHEET NO. 40.

REV.		S. C. STATE HIGHWAY DEPARTMENT BRIDGE DIVISION COLUMBIA S. C.			
REV.					
REV.					
REV.					
REVIEWED	RDS	73'-0 3/8" SPAN SUPERSTR. DETAILS FOR UNDERPASS UNDER S. SPRUILL INTERCHANGE CONN. (AT N. CHARLESTON) SPAN 3 LINE "F"			
QUAN. LDH	9-63				
TR.					
DR.	LDH 9-63				
DES.	JWB 9-63	FILE NO.	COUNTY	ROUTE NO.	DATE
BY	CHK'D DATE	10.521.4	CHARLESTON	1-26	8-63
		APPROVED BY JWB 9-63			
		APPROVED BY JWB 9-63			
		BRIDGE DESIGN & PLANS ENGINEER			
		BRIDGE ENGINEER			

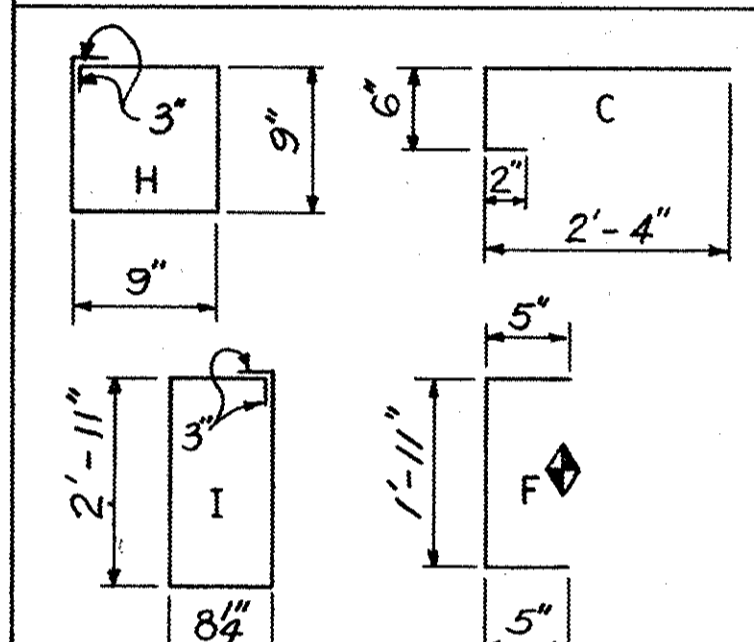
# \* REINFORCING STEEL SCHEDULE

MARK	SIZE	INT. SPAN NO. REQD	LENGTH	D
A <sub>1</sub>	5	200	26'-2"	S
A <sub>2</sub> to A <sub>23</sub>	5	4ea	22'-10" to 4'-6" Varies by 1'	S
A <sub>23</sub>	5	8	4'-4"	S
B	5	49	56'-1"	S
C	4	114	3'-0"	B
D	4	12	56'-1"	S
E	5	116	0'-10"	S
F	5	96	2'-9"	B
G	4	36	7'-8"	S
H	2	80	3'-6"	B
I	5	32	7'-9"	B
J	5	2	23'-6"	S
BB	1"	—	565'	—
BBU	1"	—	530'	—
K	5	2	28'-8"	S

\*Note:  
Does not include reinforcing steel and quantities for light bracket on Span No. 4. See Sh. No. 14 for Details, Reinforcing Steel Schedule and Quantities.

★♦ For notes affecting Construction Changes see Sheet No. 37.

## BENDING DETAILS



## \* QUANTITIES

ITEM	UNIT	ONE 56'-6" INT SPAN
CONCRETE-CLASS "A"	C.Y.	③ 44.9
REINFORCING STEEL	LBS.	① 11,577
STRUCTURAL STEEL	LBS.	② 37,400
FAB METAL HANDRAIL	L.F.	④ 113

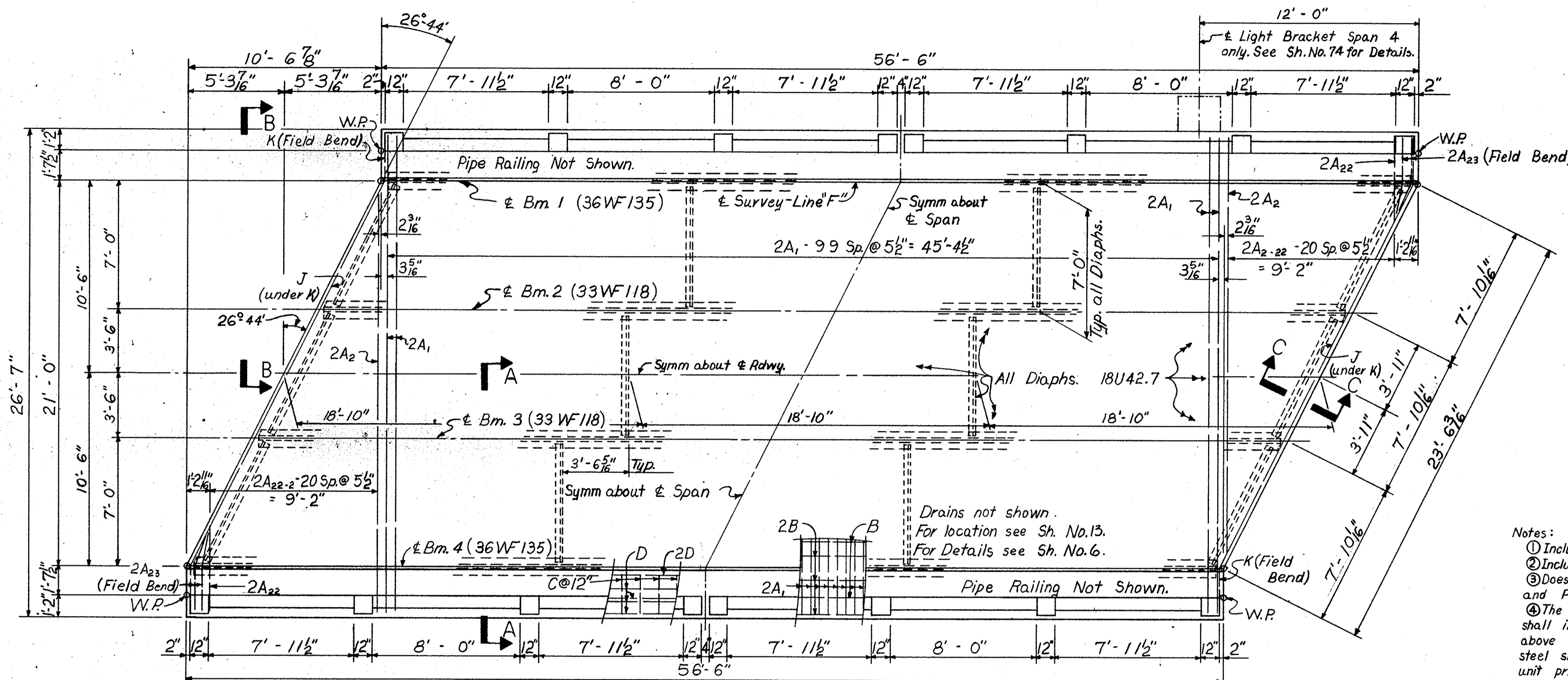
Notes:  
For Standard Notes, See Sh. No. 5.  
For Standard Details, See Sh. No. 6.

Design Data:

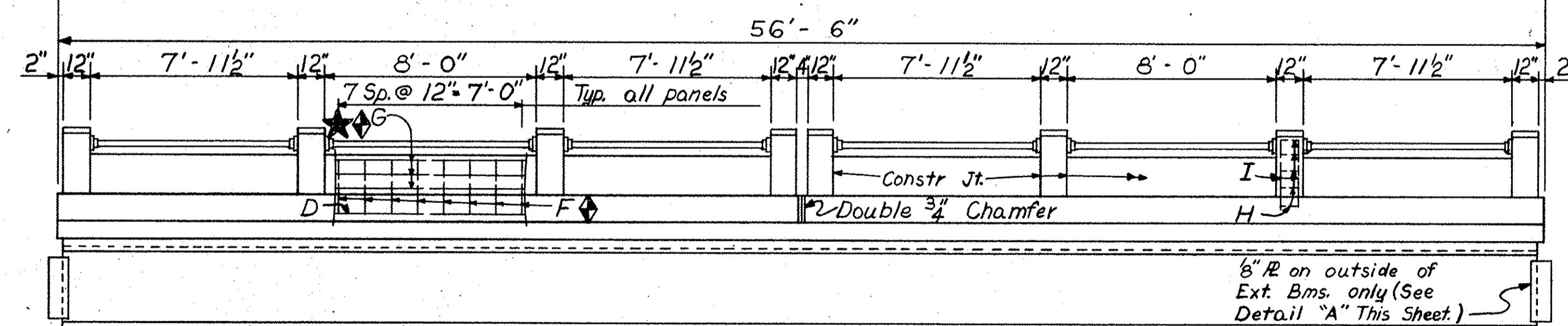
f.s. (Struct.) = 20,000 p.s.i., f.s. (Reinf.) = 20,000 p.s.i., f.c. = 1200 p.s.i., n = 10

This Sheet to accompany Sh. No. 43.

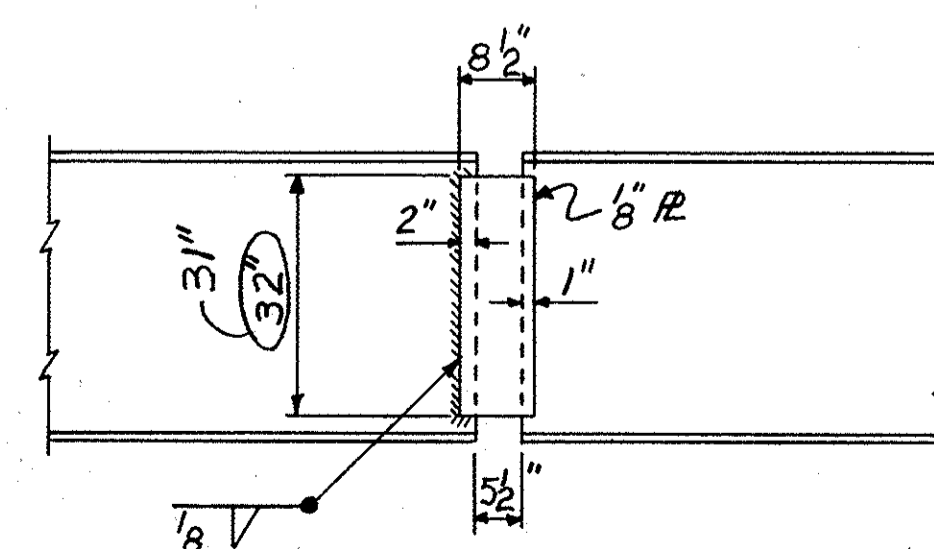
REV.		S.C. STATE HIGHWAY DEPARTMENT BRIDGE DIVISION COLUMBIA S.C.			
REV.		56'-6" SPAN SUPERSTRUCTURE FOR UNDERPASS UNDER S. SPRUILL INTERCHANGE CONN. (AT N. CHARLESTON) SPANS 4 & 5 LINE "F"			
REV.		FILE NO.	COUNTY	ROUTE NO.	DATE
REV.		105214	CHARLESTON	I-26	8-63
REVIEWED	R.R.S.	IN CHARGE			
QUAN. LDH	ASW	10-63			
TR.	LDH	ASW	8-63	APPROVED BY	
DR.	JWB	R.R.S.	8-63	APPROVED BY	
DES.	JWB	R.R.S.	8-63	APPROVED BY	
BY	CHK'D	DATE	BRIDGE DESIGN & PLANS ENGINEER		



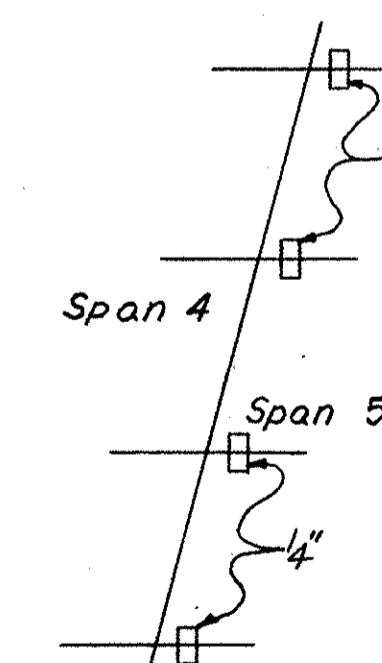
FULL PLAN- 56'-6" SPAN



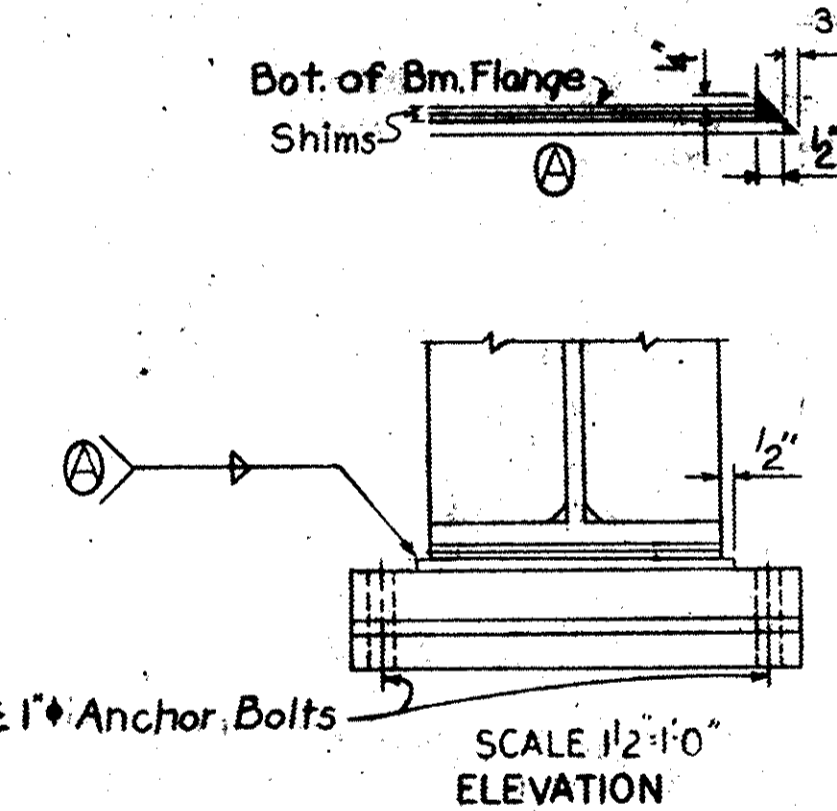
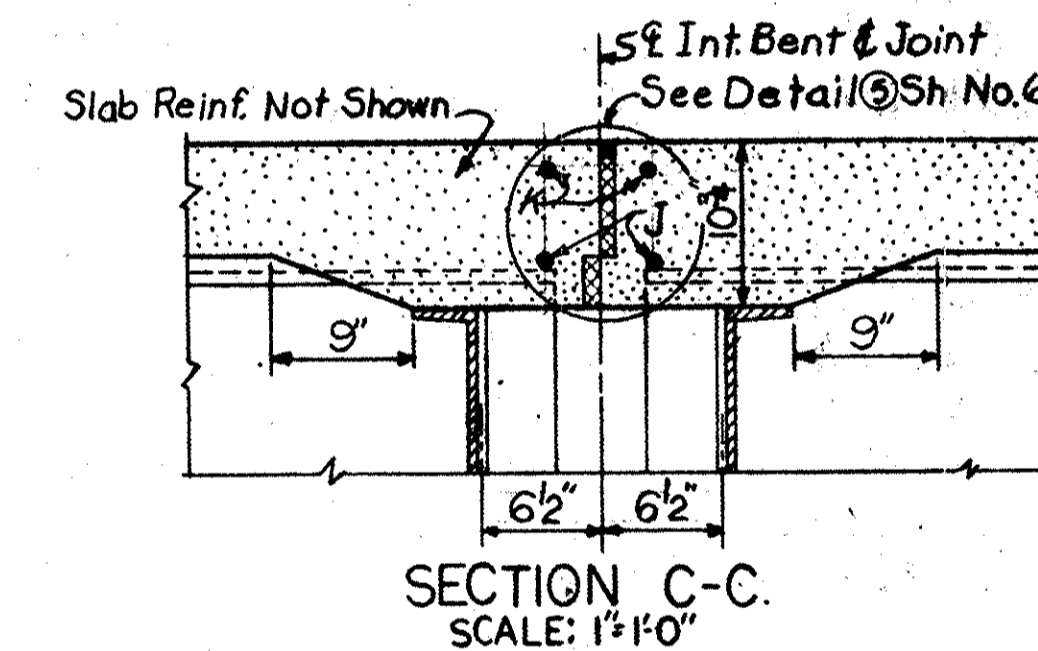
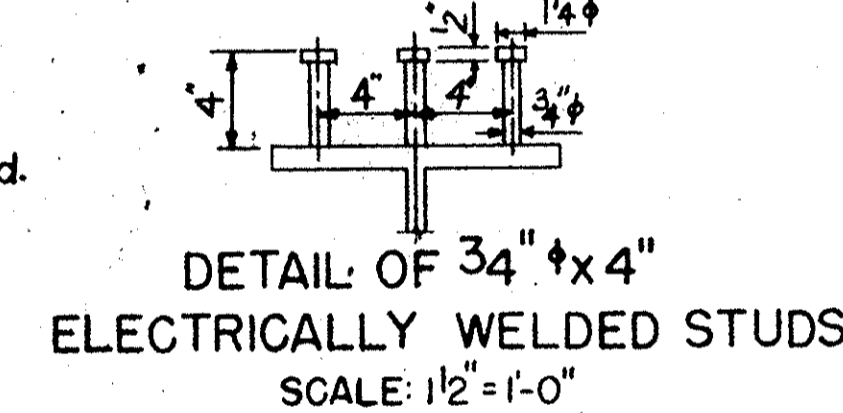
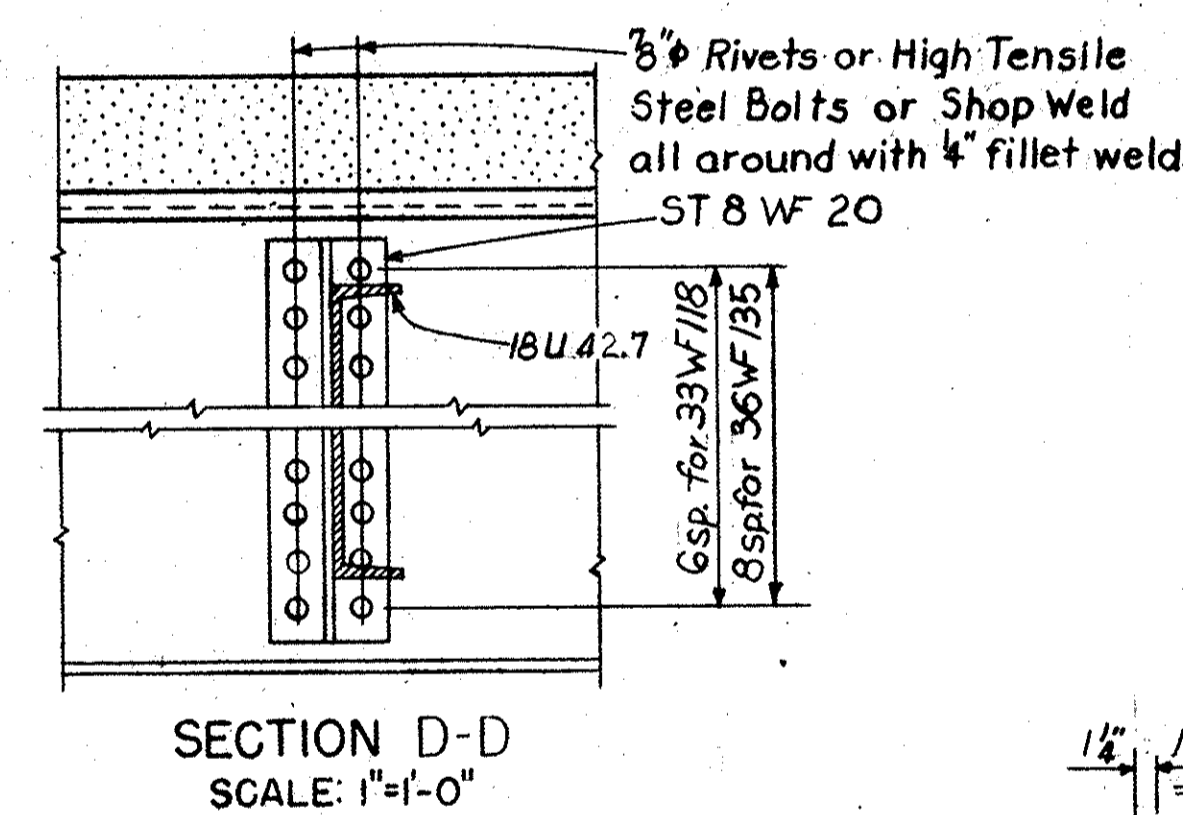
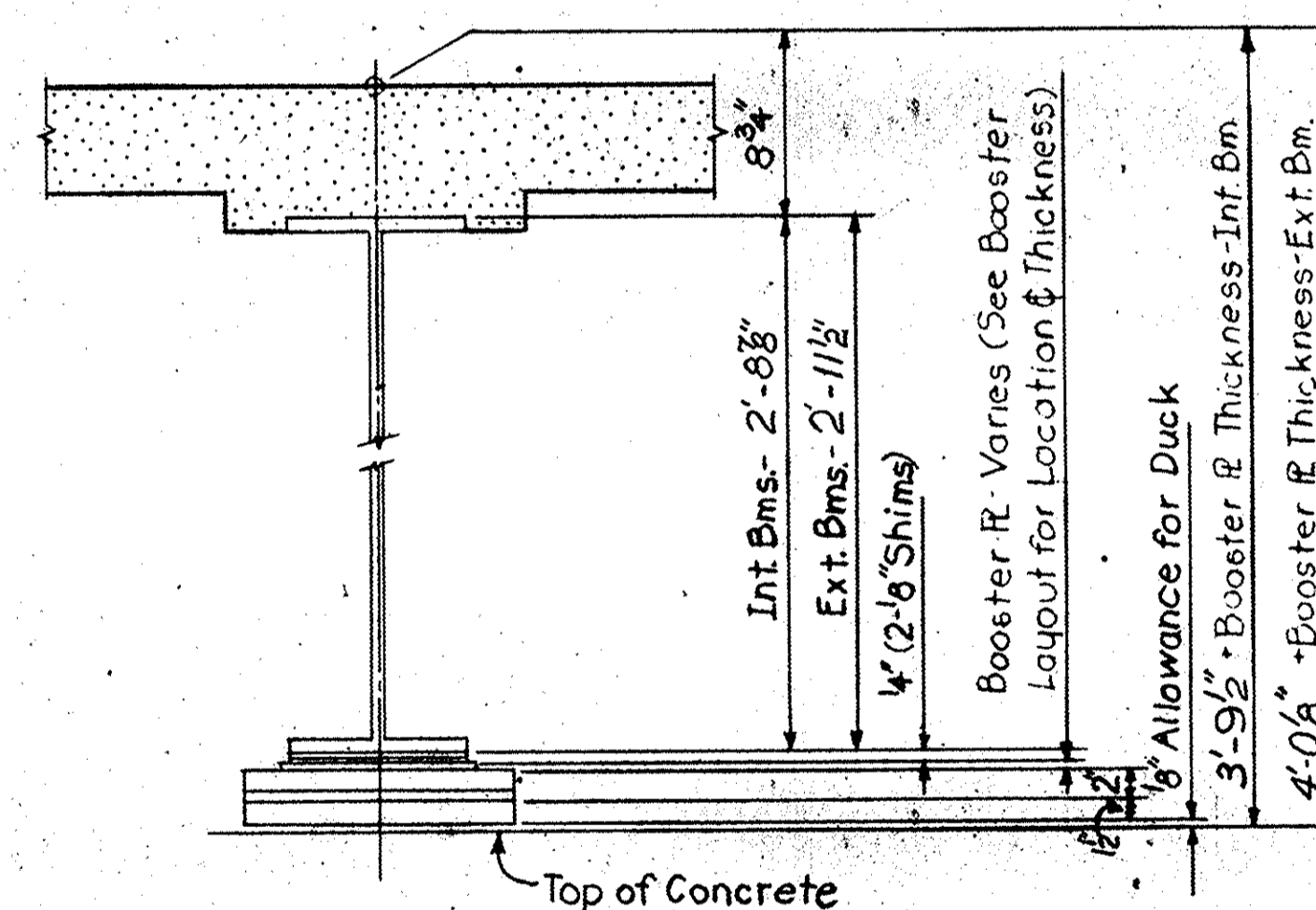
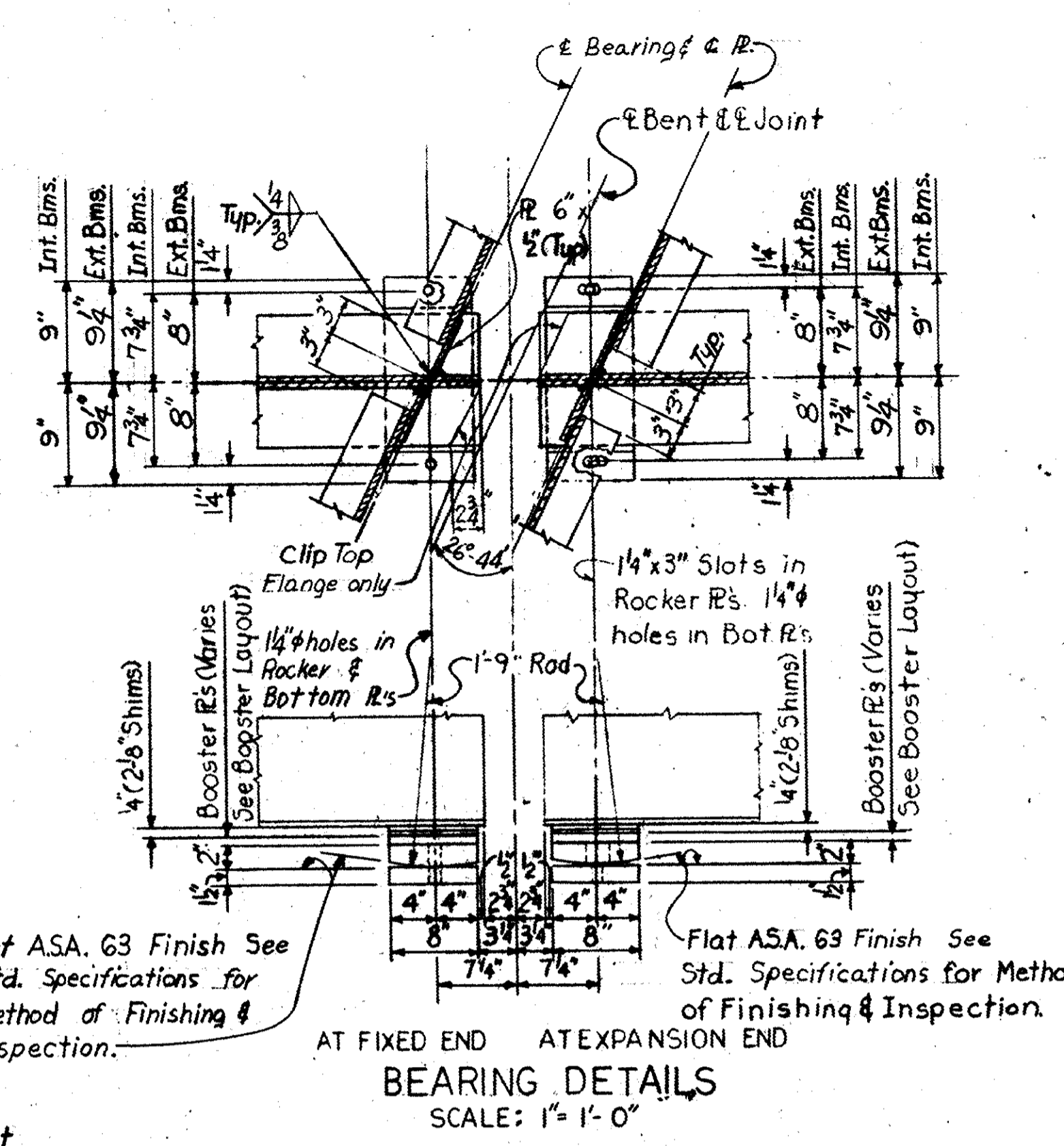
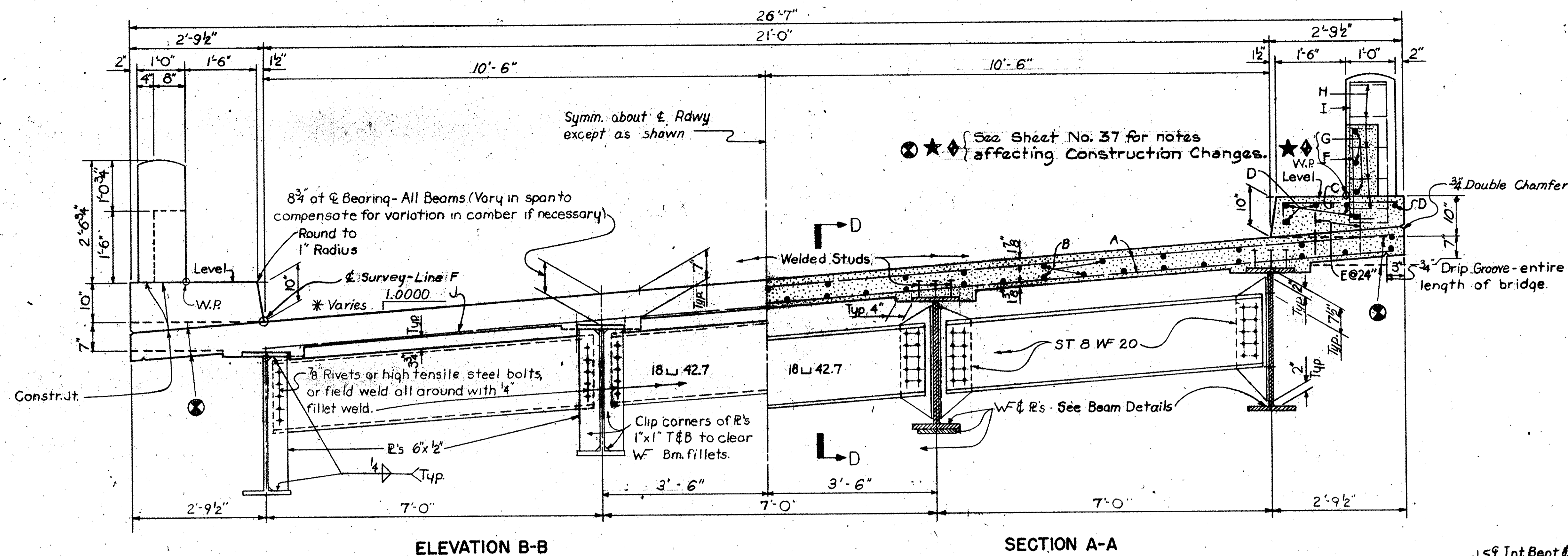
SIDE ELEVATION  
SCALE: 1/4" = 1'-0"



DETAIL "A"  
SCALE: 1/2" = 1'-0"



BENT 5  
BOOSTER LAYOUT  
NO SCALE



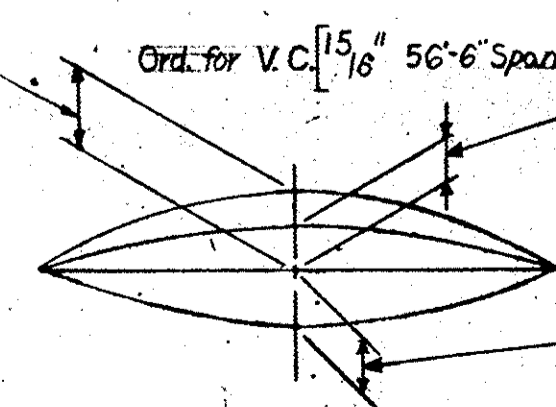
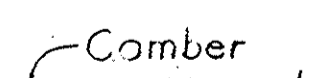
NOTES:  
FOR STANDARD NOTES SEE SHEET NO.5  
FOR STANDARD DETAILS SEE SHEET NO.6.

DESIGN DATA:

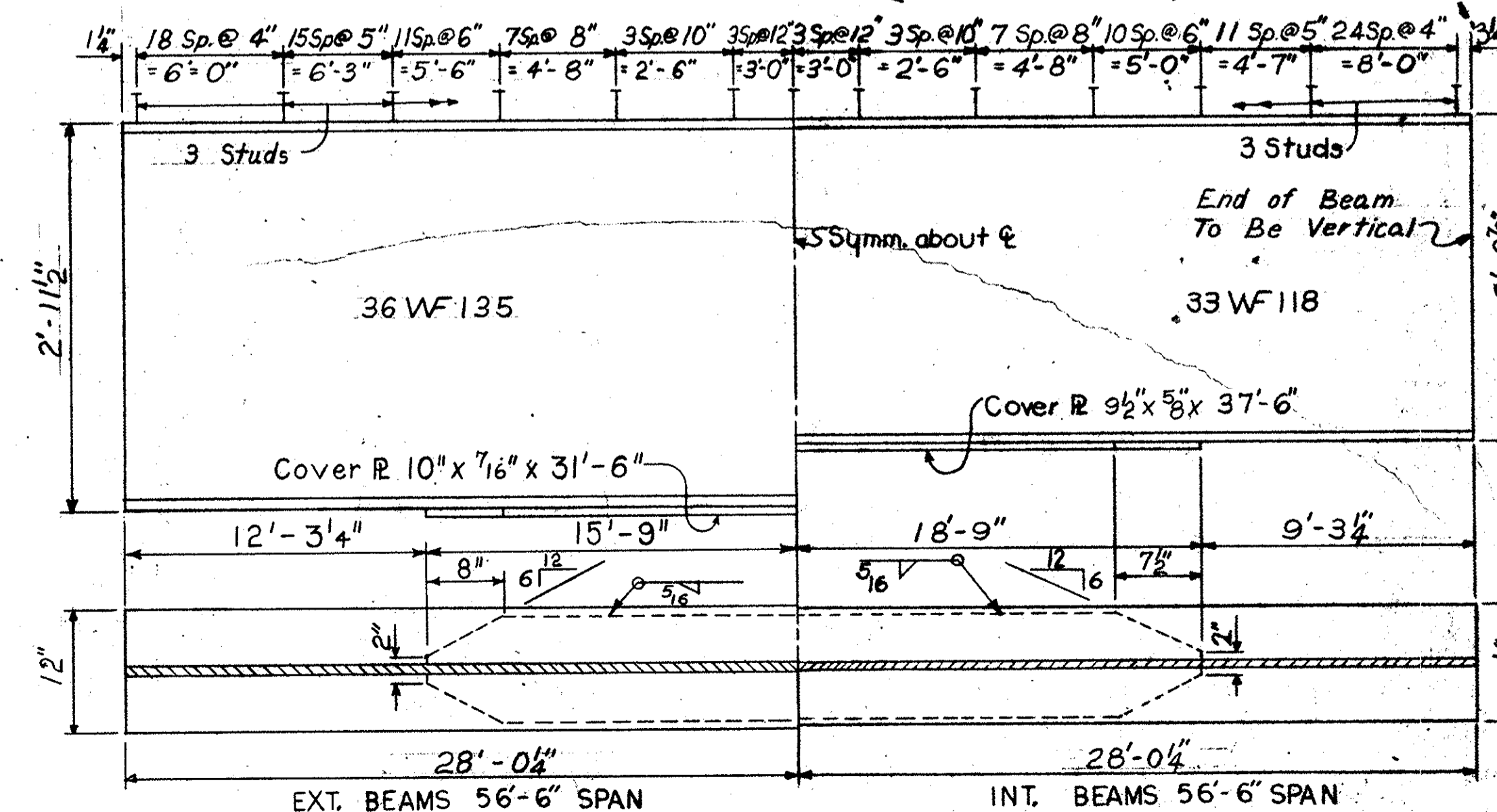
$f_s$  (STRUCT.) = 20,000 P.S.I.;  $f_s$  (REINF.) = 20,000 P.S.I.  
 $f_c$  = 1200 P.S.I.;  $N$  = 10

	56'63 span	span
Ext. Bm	13'4"	
Int. Bm.	13'4"	

		56'-6" Span		Span	
		DL	DL Defl	DL	DL Defl
Ext. Bm.	Bm., Diaph, etc.	.15 $\frac{1}{2}$ ft.	8"		
	Slab	.66 $\frac{1}{2}$ ft.	9 $\frac{16}{16}$ "		
	Sdwk., Rail, etc.	.38 $\frac{1}{2}$ ft.	8"		
	Total	1.19 $\frac{1}{2}$ ft.	13 $\frac{16}{16}$ "		
Int. Bm.	Bm., Diaph, etc.	.14 $\frac{1}{2}$ ft.	8"		
	Slab	.65 $\frac{1}{2}$ ft.	11 $\frac{16}{16}$ "		
	Total	.79 $\frac{1}{2}$ ft.	13 $\frac{16}{16}$ "		



DEAD LOAD DEFLECTION & CAMBER  
DIAGRAM  
NO SCALE



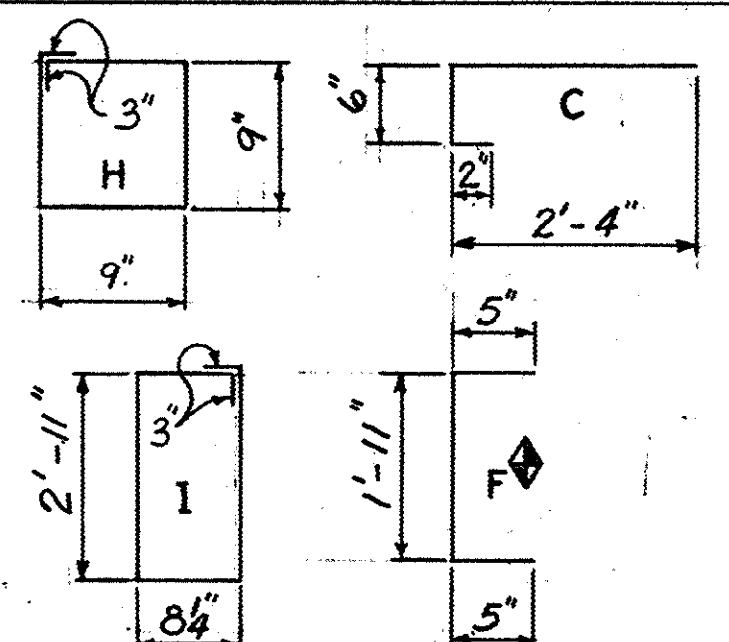
REV.		S.C. STATE HIGHWAY DEPARTMENT BRIDGE DIVISION COLUMBIA S.C.				
REV.						
REV.						
REV.						
REV.						
REVIEWED	RDS	56'-6" SPAN SUPERSTR. DETAILS FOR UNDERPASS UNDER S. SPRUILL INTERCHANGE CONN. (AT N.CHARLESTON) SPANS 4 & 5 LINE "F"				
	IN CHARGE					
QUAN.	LDH		FILE NO.	COUNTY	ROUTE NO.	DAT
TR.	ASW		10.5214	CHARLESTON	1-26	8-6
DR.	LDH		ASW	9-63		
DES.	JWE	RDS	8-63			
	BY	CHK	DATE	APPROVED BY		
				<i>W. E. Patten</i>		
				BRIDGE ENGINEER		
				<i>W. E. Patten</i>		
				BRIDGE ENGINEER		

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	10521.4	I-26	44	74

# \* REINFORCING STEEL SCHEDULE

MARK	SIZE	INT. SPAN	REQD. LENGTH	D
A <sub>1</sub>	5	268	26'-2"	S
A <sub>2</sub>	5	4 ea.	22'-10" to 4'-6"	S
A <sub>23</sub>	5	8	4'-4"	S
B	5	98	36'-5"	S
C	4	144	3'-0"	B
D	4	24	35'-8"	S
E	5	144	0'-10"	S
F	5	128	2'-9"	B
G	4	48	7'-4"	S
H	2	100	3'-6"	B
I	5	40	7'-9"	B
J	5	2	23'-6"	S
BB	1"	—	720'	—
BBU	1"	—	640'	—
K	5	2	28'-8"	S

## BENDING DETAILS



## \* QUANTITIES

ITEM	UNIT	ONE 72' INT. SPAN
CLASS 'A' CONCRETE	C.Y.	① 57.2
REINFORCING STEEL	LBS.	② 14,798
STRUCTURAL STEEL	LBS.	③ 60,000
FAB METAL HANDRAIL	L.F.	④ 144

Notes:  
For Standard Notes, See Sh. No. 5.  
For Standard Details, See Sh. No. 6.

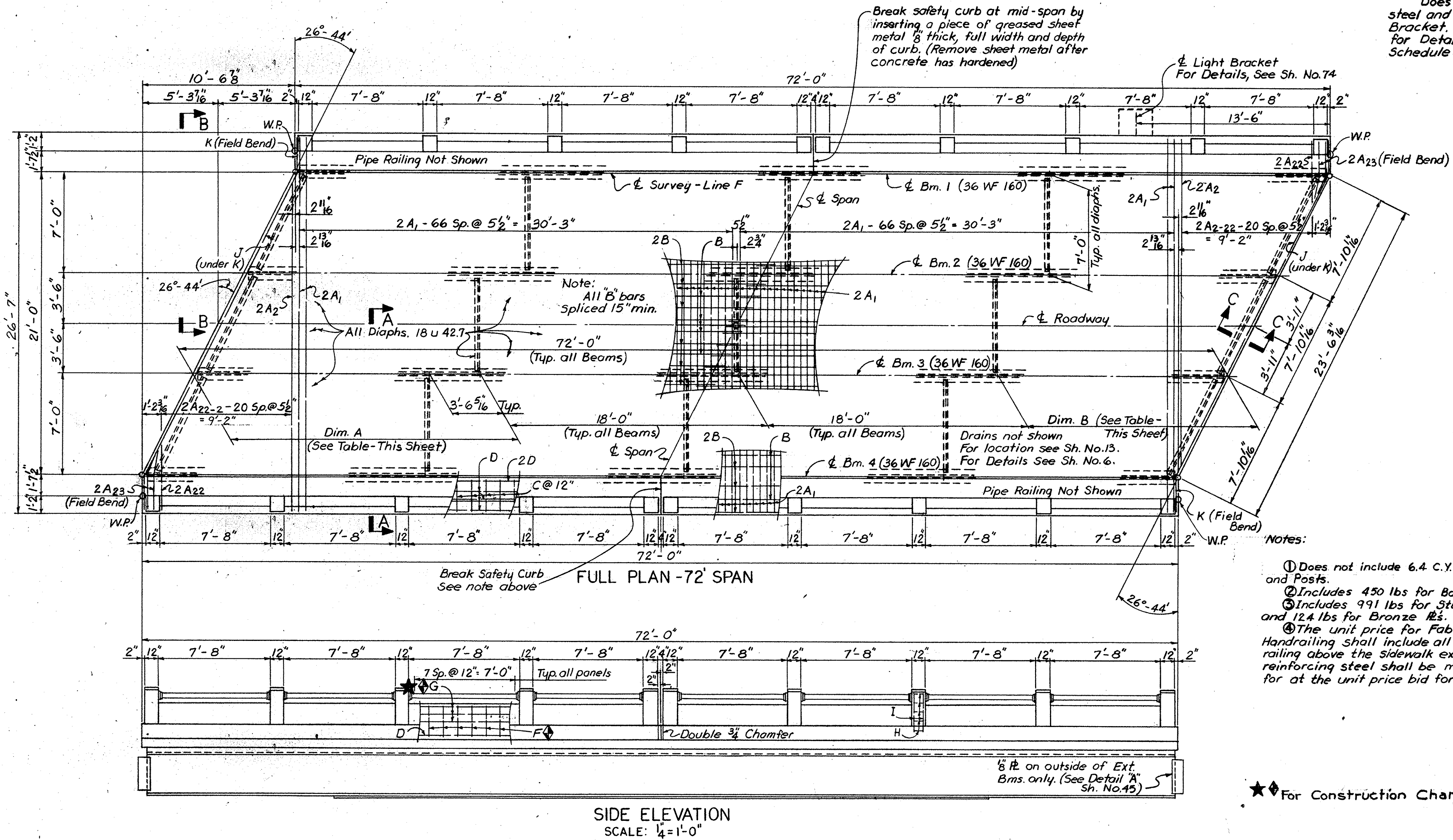
Design Data:

f<sub>s</sub> (Struct.) = 20,000 p.s.i., f<sub>s</sub> (Reinf.) = 20,000 p.s.i., f<sub>c</sub> = 1200 p.s.i., n = 10

★ For Construction Changes see Sh. # 37.

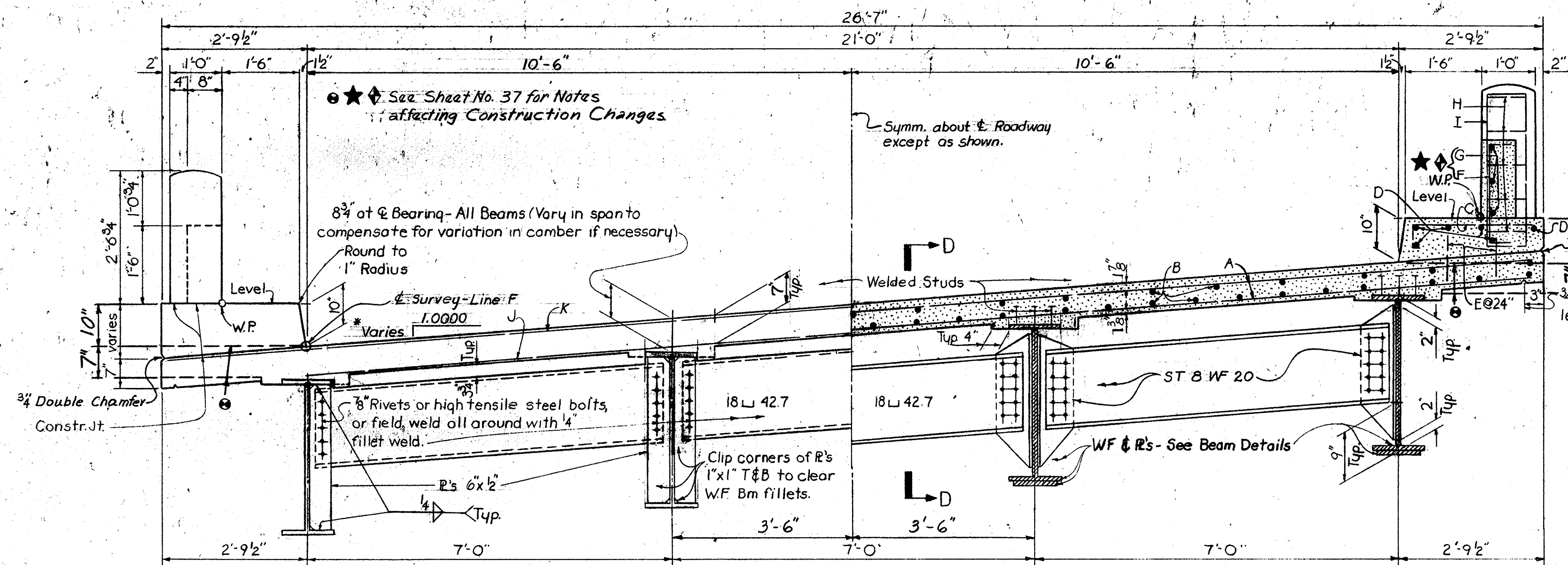
This Sheet to accompany Sh. No. 45

REV.		S.C. STATE HIGHWAY DEPARTMENT BRIDGE DIVISION COLUMBIA S.C.
REV.		72' SPAN SUPERSTRUCTURE FOR UNDERPASS UNDER S. SPRUILL INTERCHANGE CONN.
REV.		AT N. CHARLESTON SPAN 6 LINE "F"
REV.		
REVIEWED	RRS	IN CHARGE
QUAN. AGW	8-63	FILE NO. COUNTY ROUTE NO. DATE
TR.	8-63	10521.4 CHARLESTON I-26 8-63
DR. AGW	8-63	APPROVED BY
DES. JWB	8-63	APPROVED BY
BY	CHK'D DATE	BRIDGE DESIGN & PLANS ENGINEER
		BRIDGE ENGINEER



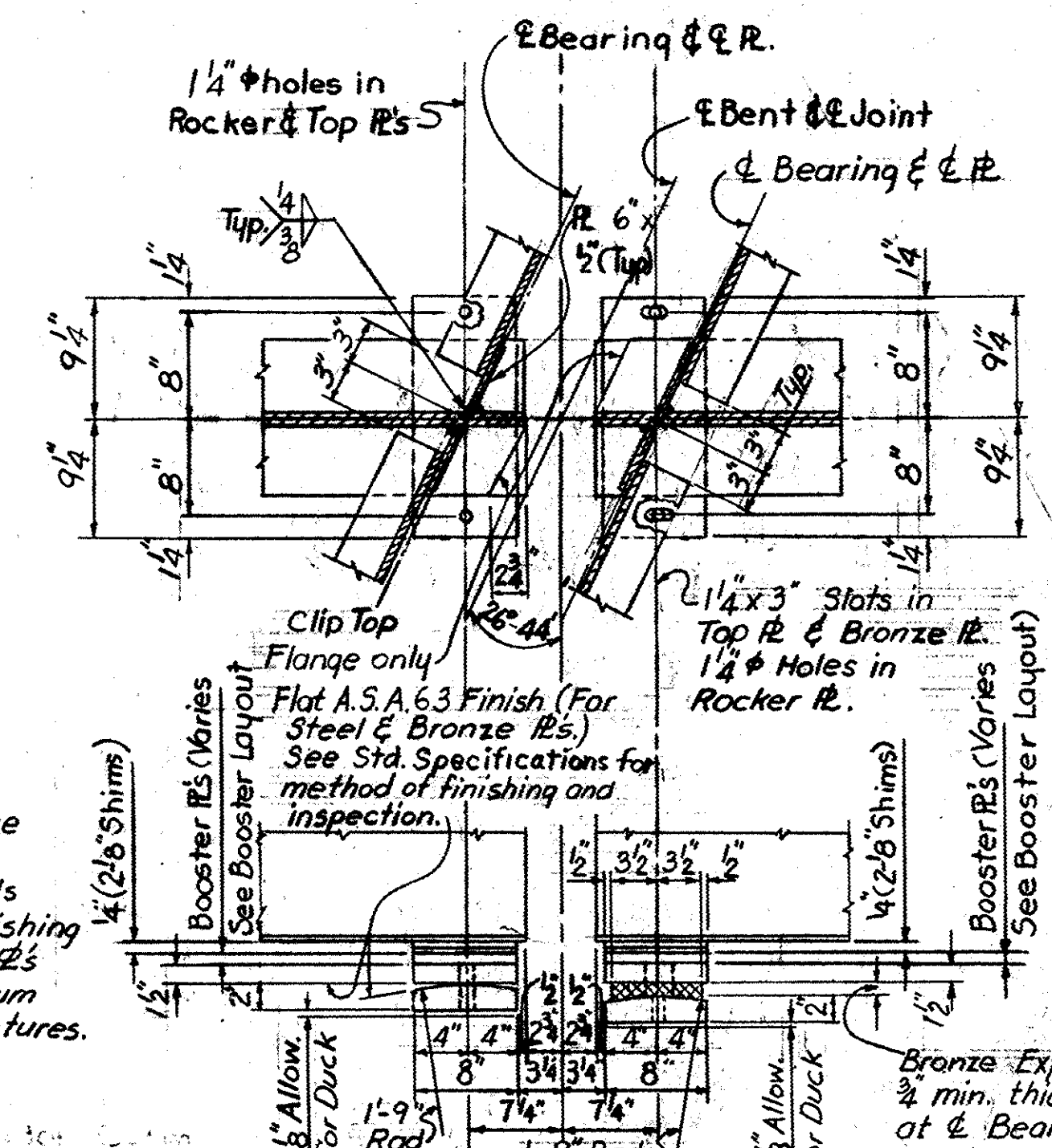
	DIM. A	DIM. B
BEAM NO. 1	16'-2 3/8"	19'-9 3/8"
BEAM NO. 2	19'-9 3/8"	16'-2 3/8"
BEAM NO. 3	19'-9 3/8"	16'-2 3/8"
BEAM NO. 4	19'-9 3/8"	16'-2 3/8"

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	105214	I-26	45	74

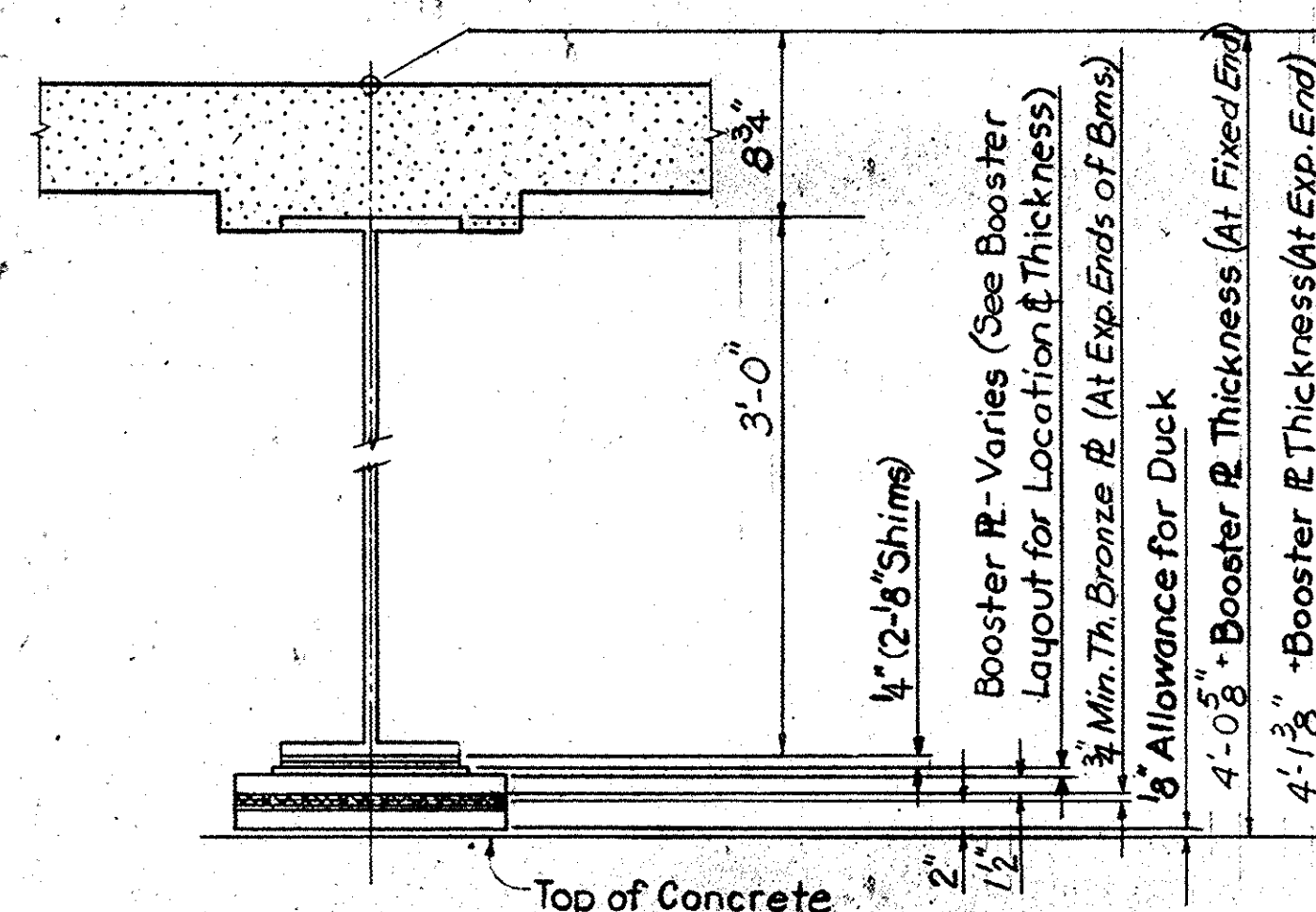


ELEVATION B-B

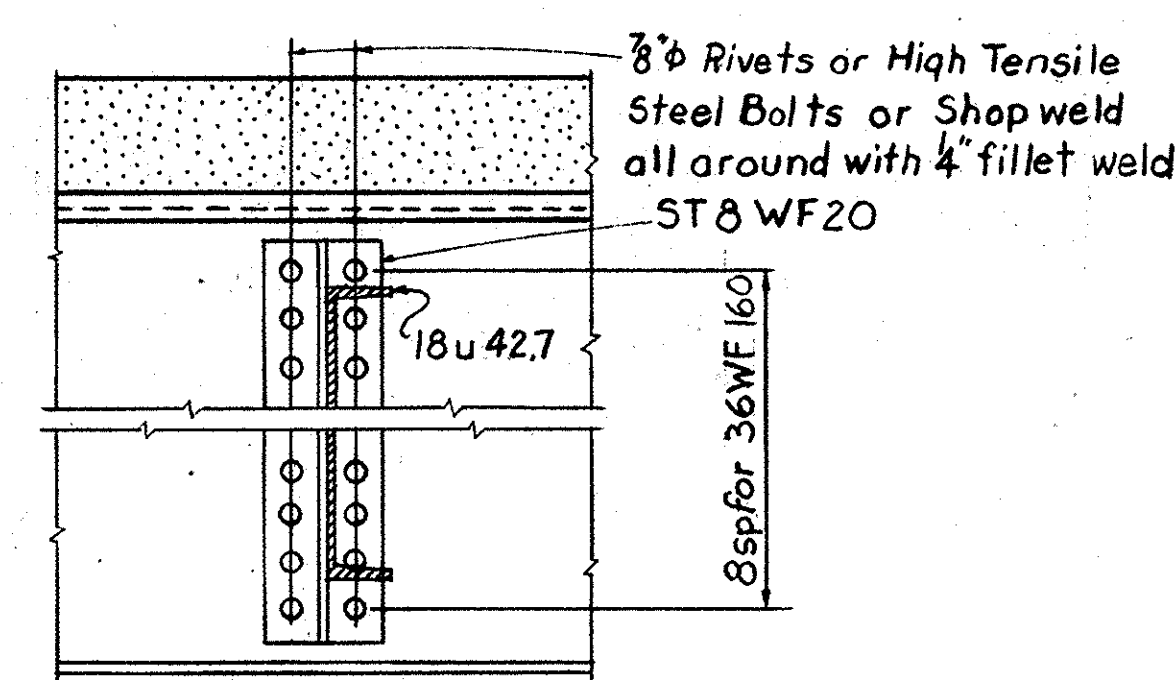
SECTION A-A



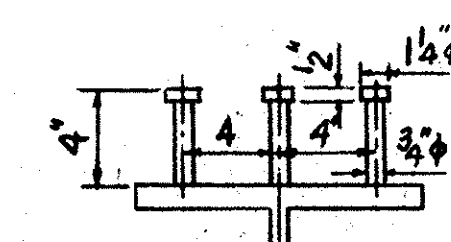
BEARING DETAILS  
SCALE: 1" = 1'-0"



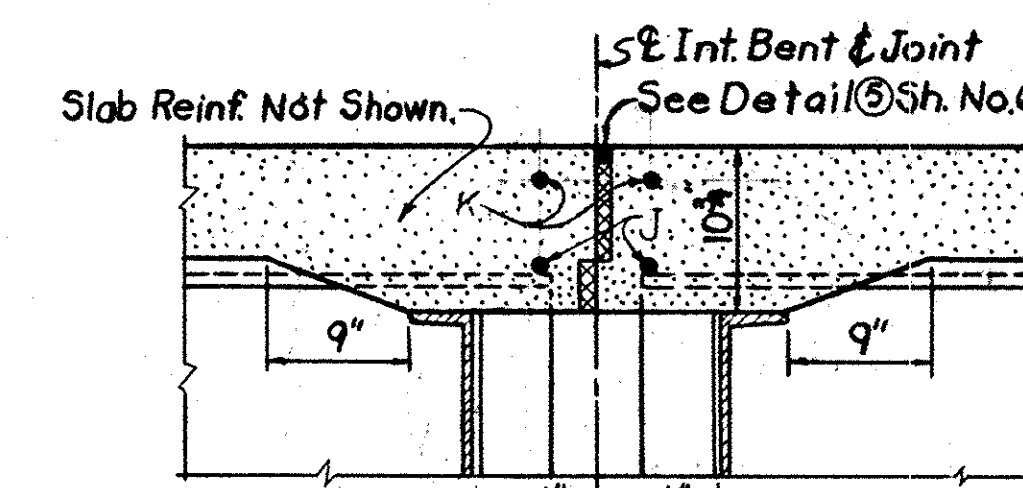
SKETCH FOR COMPUTING BEAM SEAT ELEVATIONS AT & BEARING  
SCALE: 1" = 1'-0"



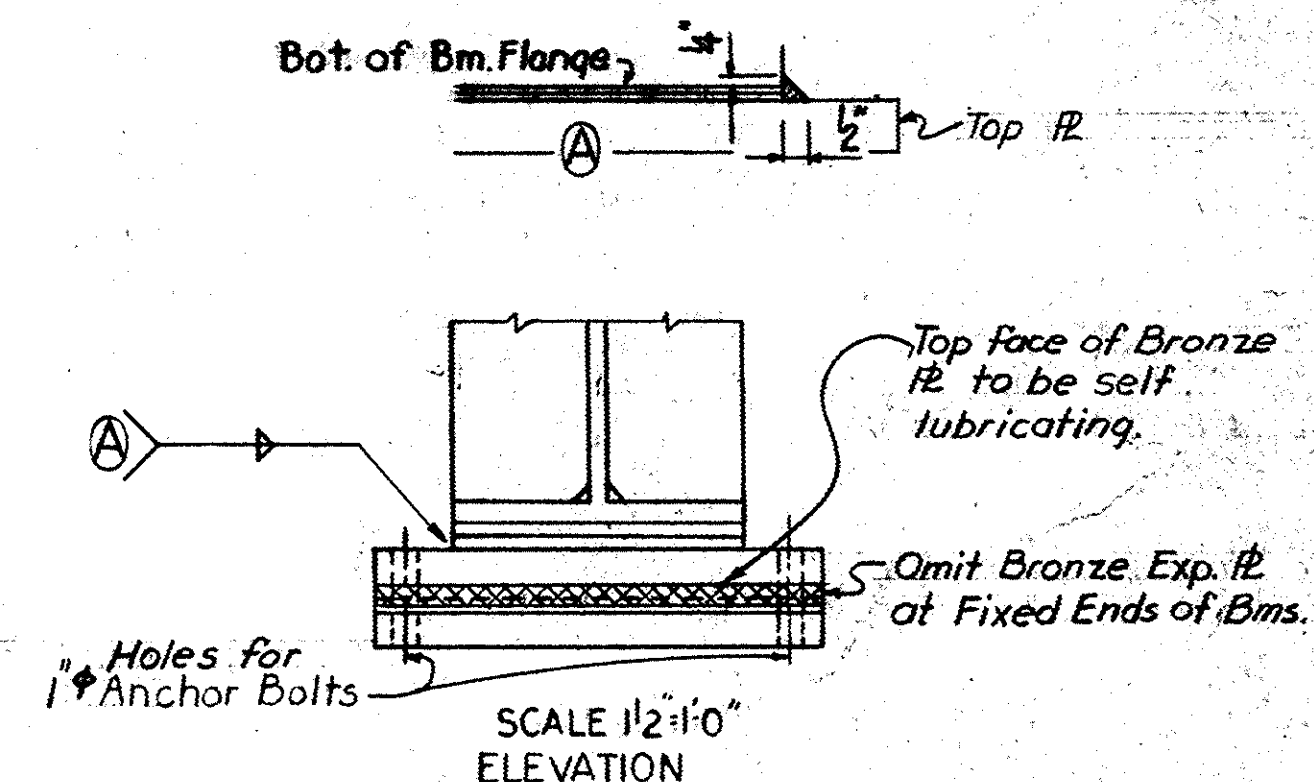
SECTION D-D  
SCALE: 1" = 1'-0"



DETAIL OF 3/4" x 4" ELECTRICALLY WELDED STUDS  
SCALE: 1/2" = 1'-0"



SECTION C-C  
SCALE: 1" = 1'-0"

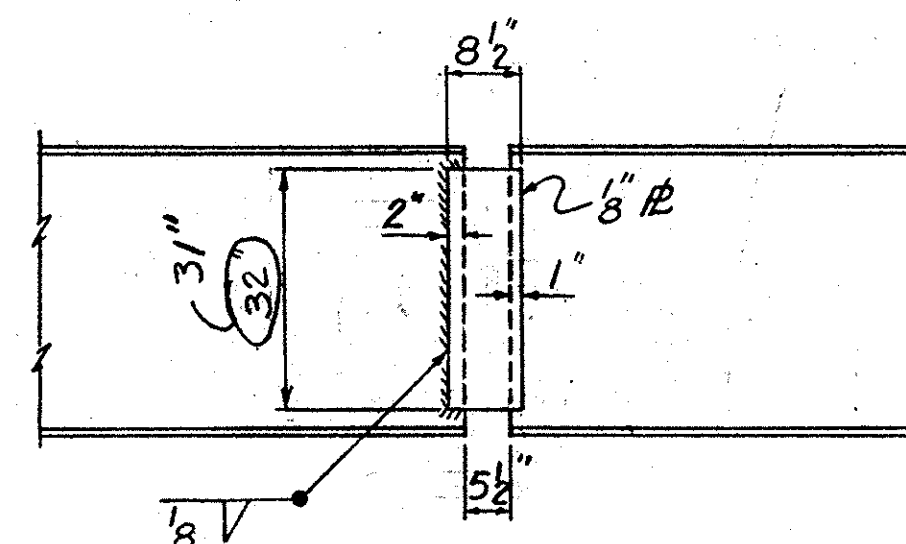


NOTES:  
FOR STANDARD NOTES SEE SHEET NO. 5.  
FOR STANDARD DETAILS SEE SHEET NO. 6.  
DESIGN DATA:  
F<sub>s</sub> (STRUCT.) = 20,000 P.S.I., F<sub>s</sub> (REINF.) = 20,000 P.S.I.  
F<sub>c</sub> = 1200 P.S.I., n = 10

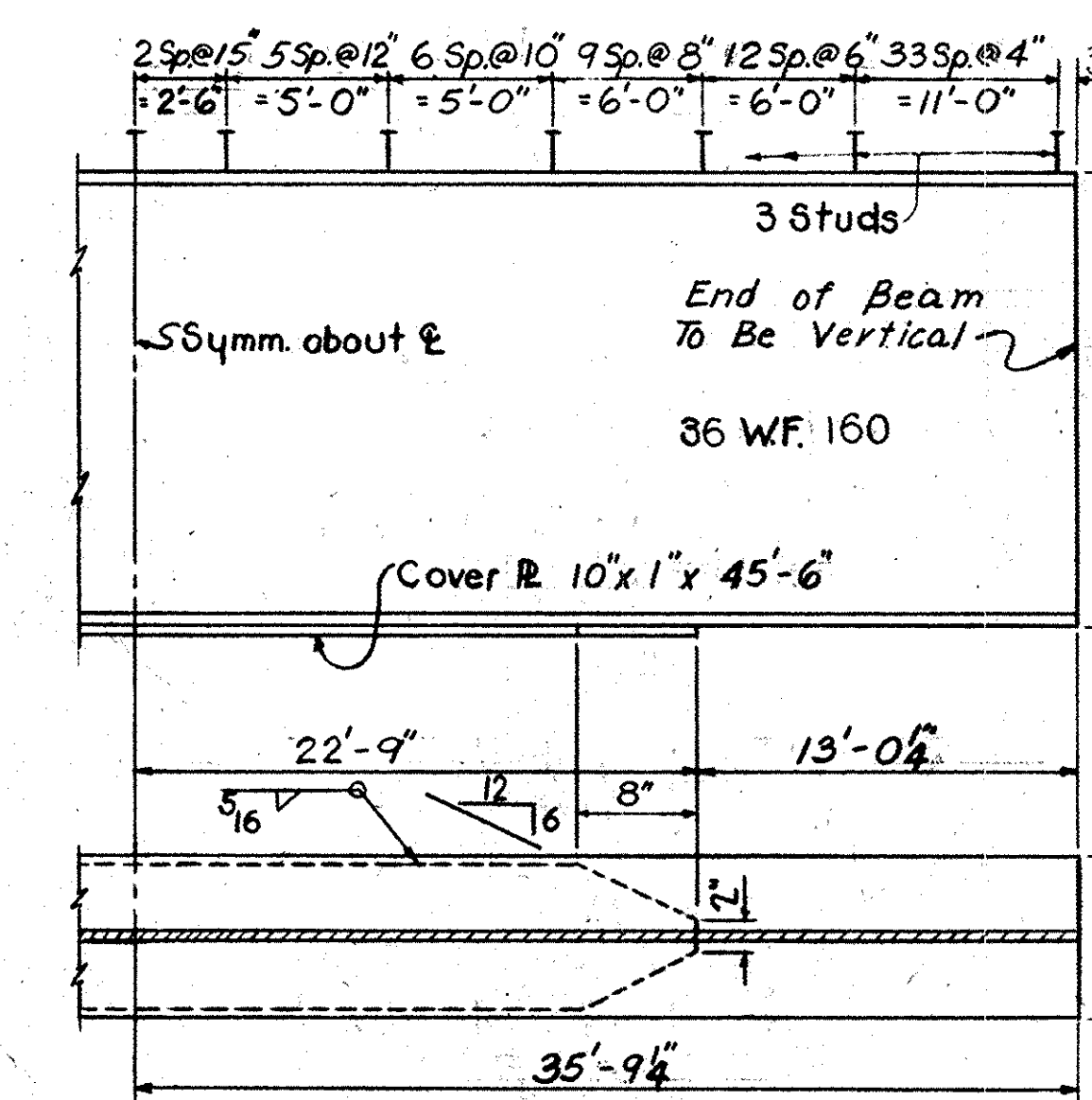
	72' span	span
Ext. Bm.	3 1/4"	
Int. Bm.	2 3/8"	

		72' span		Span	
		DL	DL Defl.	DL	DL Defl.
Ext. Bm.	Bm, Diaph, etc.	.19 1/4"/ft.	5 1/4"		
	Slab	.66 1/4"/ft.	11 1/4"		
	Sdwk, Rail, etc.	.38 1/4"/ft.	38"		
	Total	1.23 1/4"/ft.	13 1/4"		
Int. Bm.	Bm, Diaph, etc.	.19 1/4"/ft.	5 1/4"		
	Slab	.66 1/4"/ft.	11 1/4"		
	Total	.85 1/4"/ft.	13 1/4"		

DEAD LOAD DEFLECTION & CAMBER  
DIAGRAM  
NO SCALE



DETAIL 'A'  
SCALE: 1/2" = 1'-0"



BEAM DETAILS  
NO SCALE

THIS SHEET TO ACCOMPANY SHEET NO. 44.							
REV.		S.C. STATE HIGHWAY DEPARTMENT					
REV.		BRIDGE DIVISION					
REV.		COLUMBIA S.C.					
REV.		72' SPAN SUPERSTR. DETAILS					
REV.		FOR UNDERPASS UNDER					
REV.		S. SPRUILL INTERCHANGE CONN.					
REV.		(AT N. CHARLESTON)					
REV.		SPAN 6 LINE "F"					
REVIEWED	R.R.S.						
	IN CHARGE						
QUAN.	AGW	DR	8-63	FILE NO.	COUNTY	ROUTE NO.	DATE
TR.		DR		105214	CHARLESTON	I-26	8-63
DR.	AGW	DR	8-63	APPROVED BY		APPROVED BY	
DES.	JWB	R.R.S.	8-63	BRIDGE DESIGN & PLANS ENGINEER		BRIDGE ENGINEER	
	RY	CHK'D	DATE				

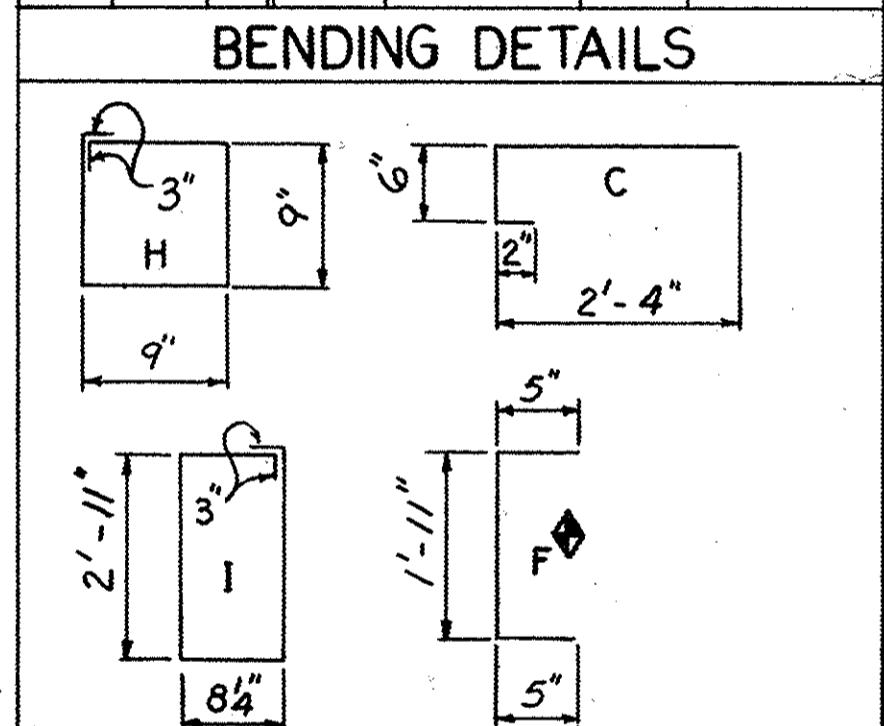
FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	Charleston	10.521.4	1-26	46	74

DIMENSIONS			
BEAM NO.	DIM. A	DIM. B	DIM. C
BEAM NO. 1	69'-8"	9'-5 3/4"	20'-0 3/4"
BEAM NO. 2	73'-2 3/8"	13'-0 1/16"	20'-0 3/4"
BEAM NO. 3	76'-8 3/8"	16'-6 3/8"	20'-0 3/4"
BEAM NO. 4	80'-2 3/8"	20'-0 3/4"	20'-0 3/4"

REINFORCING STEEL SCHEDULE			
MARK	SIZE	D	1 INT. SPAN
NO.	REQD	LENGTH	
A <sub>1</sub>	5 S	304	26'-2"
A <sub>2</sub> to A <sub>22</sub>	5 S	2 ea.	22'-10 3/4" to 4'-6" Varies by 11"
A <sub>23</sub>	5 S	4	4'-4"
B <sub>1</sub>	5 S	49	35'-0"
B <sub>2</sub>	5 S	5	35'-7"
B <sub>3</sub>	5 S	5	36'-9"
B <sub>4</sub>	5 S	3	37'-7"
B <sub>5</sub>	5 S	5	38'-10"
B <sub>6</sub>	5 S	5	40'-3"
B <sub>7</sub>	5 S	3	41'-1"
B <sub>8</sub>	5 S	5	42'-4"
B <sub>9</sub>	5 S	5	43'-9"
B <sub>10</sub>	5 S	3	44'-7"
B <sub>11</sub>	5 S	5	45'-10"
B <sub>12</sub>	5 S	5	46'-2"
C	4 B	150	3'-0"
D <sub>1</sub>	4 S	12	39'-9"
D <sub>2</sub>	4 S	12	34'-6"
E	5 S	150	0'-10"
F	5 B	128	2'-9"
G <sub>1</sub>	4 S	24	8'-4"
G <sub>2</sub>	4 S	24	7'-0"
H	2 B	100	3'-6"
I	5 B	40	7'-9"
J <sub>1</sub>	5 S	1	23'-6"
BB	1"	—	750'
BBU	1 3/8"	—	690'
K	5 S	1	28'-8"
J <sub>2</sub>	5 S	1	21'-0"

★ for Construction Changes see Sh. # 37.

- Notes:
- Does not include 6.6 C.Y. in the parapet wall and posts.
  - Includes 480 lbs for Bolsters
  - Includes 1024 lbs for Stud Shear Connectors, and 124 lbs for Bronze R.S.
  - The unit price for Fabricated Metal Handrailing shall include all that portion of the railing above the sidewalk except that all reinforcing steel shall be measured and paid for at the unit price bid for that item.

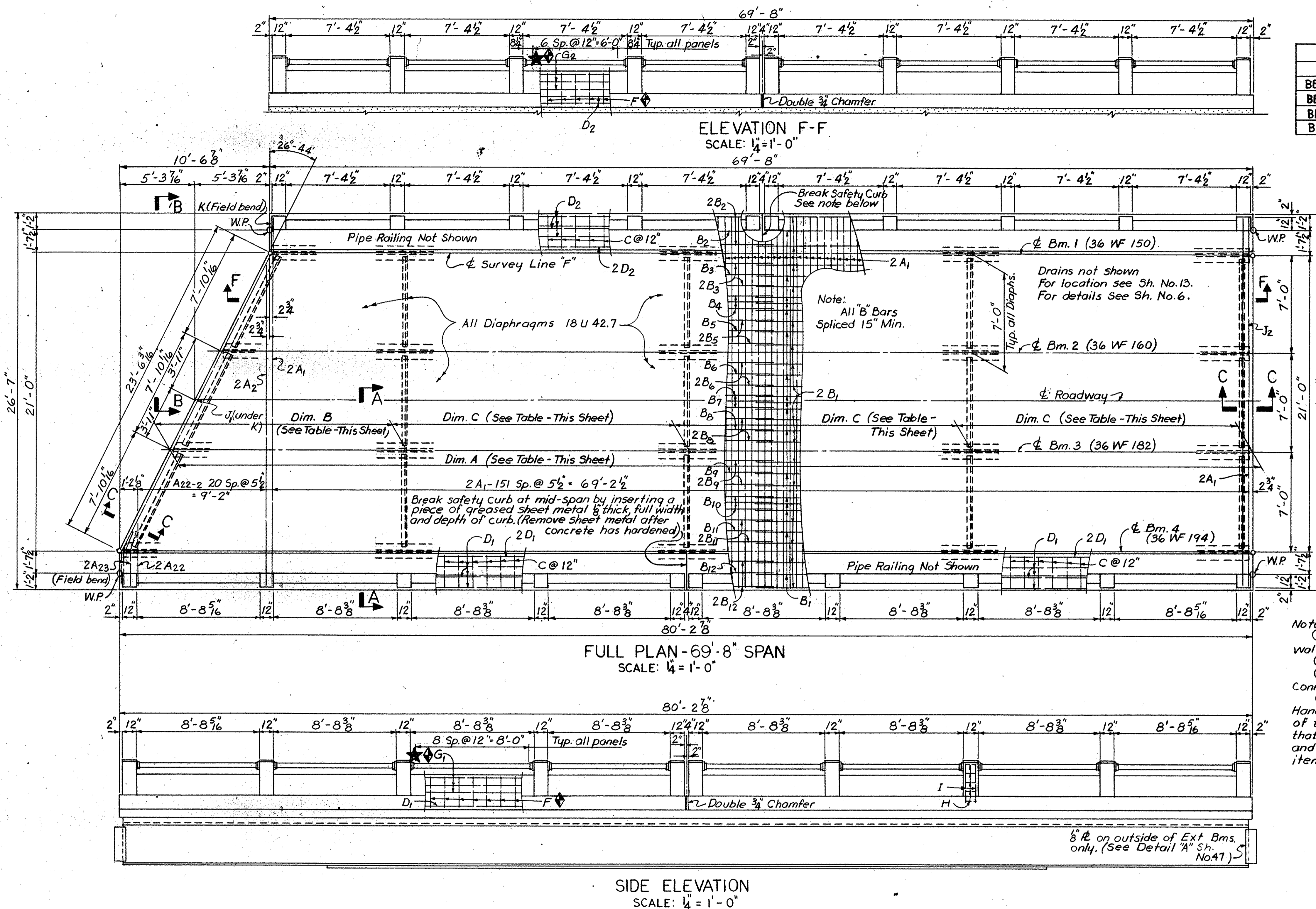


QUANTITIES			
ITEM	UNIT	ONE 69'-8" INT. SPAN	
CLASS 'A' CONCRETE	C.Y.	① 59.5	
REINFORCING STEEL	LBS.	② 15,333	
STRUCTURAL STEEL	LBS.	③ 66,400	
FAB METAL HANDRAIL	L.F.	④ 150	

Notes:  
 For Standard Notes See Sheet No. 5.  
 For Standard Details See Sheet No. 6.  
 Design Data:  
 $f_s$  (Struct.) = 20,000 p.s.i.,  $f_s$  (Reinf.) = 20,000 p.s.i.  
 $f_c$  = 1200 p.s.i.,  $n$  = 10

This Sheet to accompany Sheet No. 47.

REV.		S.C. STATE HIGHWAY DEPARTMENT BRIDGE DIVISION COLUMBIA S.C.			
REV.		69'-8" SPAN SUPERSTRUCTURE FOR UNDERPASS UNDER S. SPRUILL INTERCHANGE CONN. AT N. CHARLESTON SPAN 7 LINE "F"			
REV.		FILE NO. COUNTY ROUTE NO. DATE			
REV.		10.521.4 CHARLESTON 1-26 9-63			
REVIEWED	RRS	APPROVED BY			
IN CHARGE	RRS	APPROVED BY			
QUAN. AGW	9-63	BRIDGE DESIGN & PLANS ENGINEER			
TR. AGW	9-63	BRIDGE ENGINEER			
DES. RRS	8-63				
BY CHK'D	DATE				





















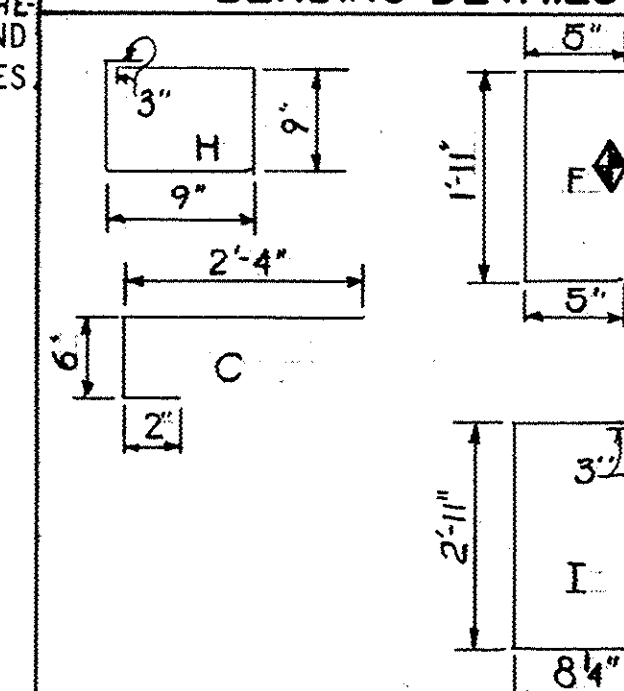
FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S. C.	CHARLESTON	105214	I-26	56	74

# \* REINFORCING STEEL SCHEDULE

MARK	SIZE NO.	D	NO. REQD.	LENGTH	NO. REQD.	LENGTH
A	5	S	232	27'-5"		
B	5	S	49	52'-7"		
C	4	B	106	3'-0"		
D	4	S	12	52'-7"		
E	5	S	108	0'-10"		
F	5	B	96	2'-9"		
G	4	S	36	7'-0"		
H	2	B	80	3'-6"		
I	5	B	32	7'-9"		
J	5	S	2	22'-0"		
BB	1"	-	REQD	530'		
BBU	1/8"	-	REQD	505'		

NOTE: DOES NOT INCLUDE REINFORCING STEEL AND QUANTITIES FOR LIGHT BRACKET ON SPAN 5. SEE SH. NO. 74 FOR DETAILS REINFORCING STEEL SCHEDULE AND QUANTITIES

## BENDING DETAILS



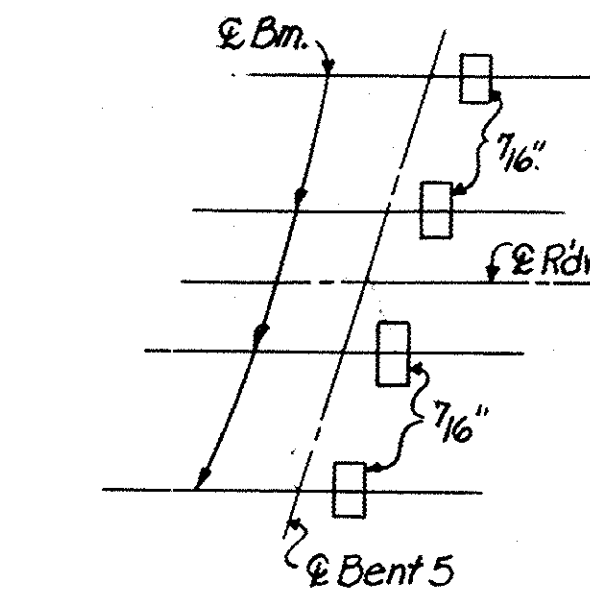
## \*QUANTITIES

①	CLASS "A" CONCRETE	42.0 CY.
②	REINFORCING STEEL	11192 LBS.
③	STRUCTURAL STEEL	33,400 LBS.
④	FAB. METAL HANDRAIL	106 LF.

NOTES:  
 ① DOES NOT INCLUDE 4.8 C.Y. IN PARAPET WALL AND POSTS.  
 ② INCLUDES 347 LBS. FOR BOLSTERS.  
 ③ INCLUDES 749 LBS. FOR STUD SHEAR CONNECTORS.  
 ④ THE UNIT PRICE FOR FABRICATED METAL HANDRAILING SHALL INCLUDE ALL THAT PORTION OF THE RAILING ABOVE THE SIDEWALK EXCEPT THAT ALL REINFORCING STEEL SHALL BE MEASURED AND PAID FOR AT THE UNIT PRICE BID FOR THAT ITEM.

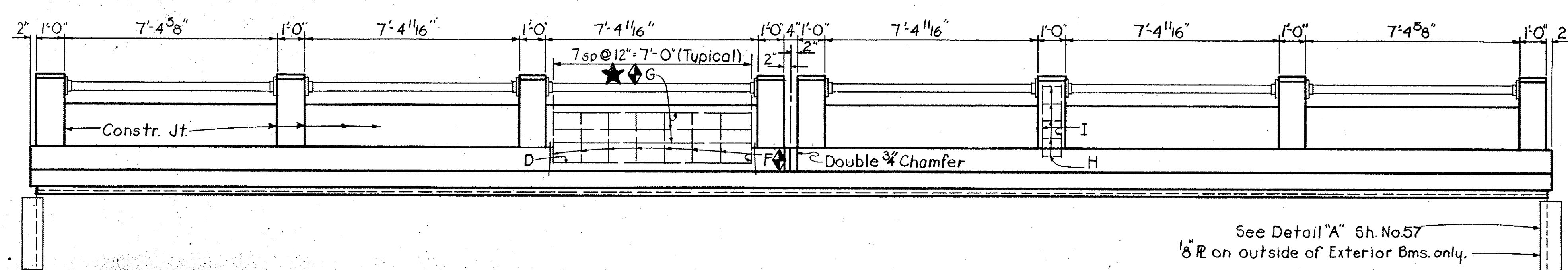
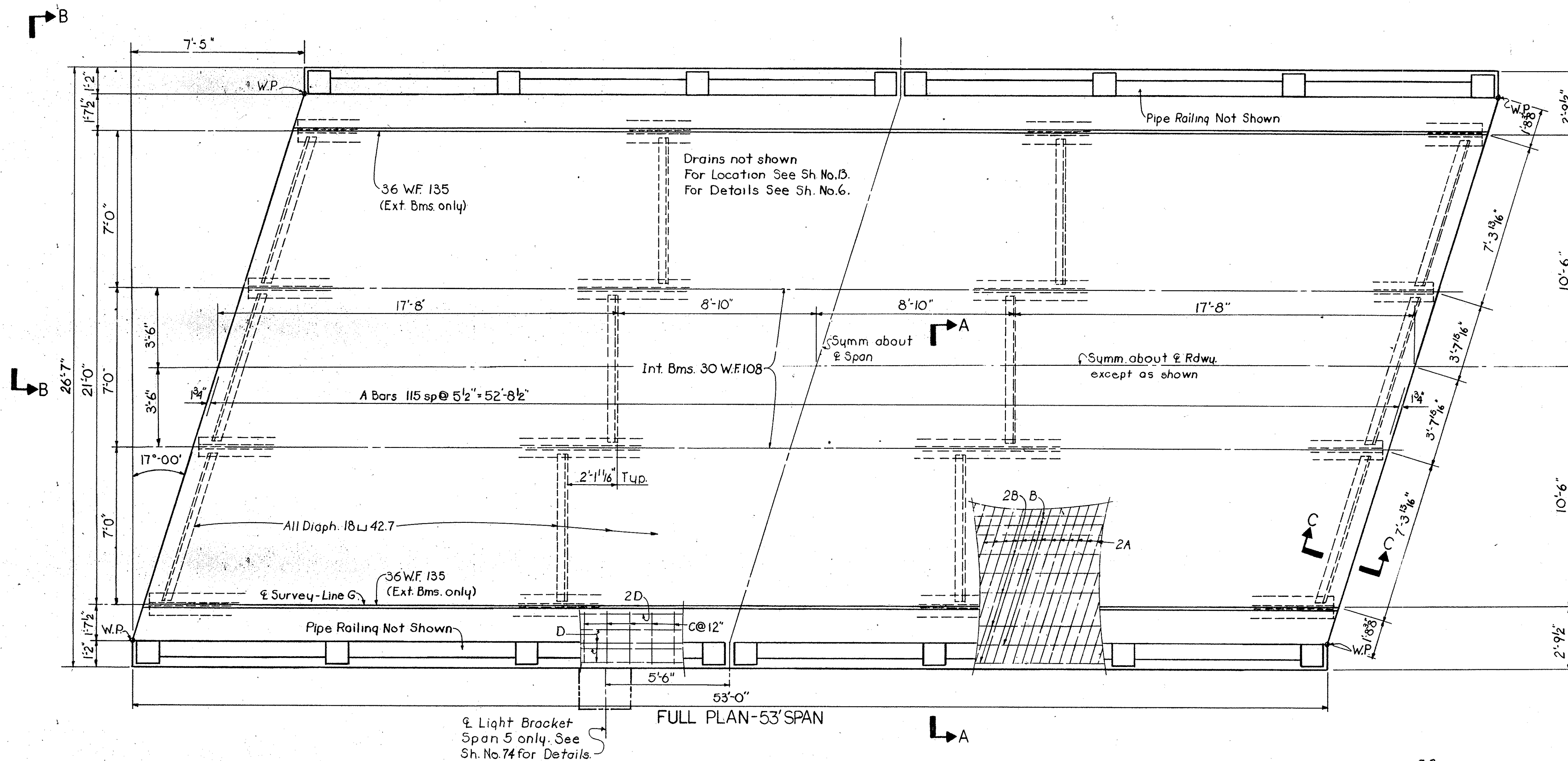
FOR STANDARD NOTES, SEE SHEET NO. 5.  
 FOR STANDARD DETAILS, SEE SHEET NO. 6.

DESIGN DATA:  
 $f_s$  (STRUCT.) = 20,000 PSI;  $f_s$  (REINF.) = 29,000 PSI  
 $f_c$  = 4,200 PSI  $n=10$  CLASS "A" CONCRETE



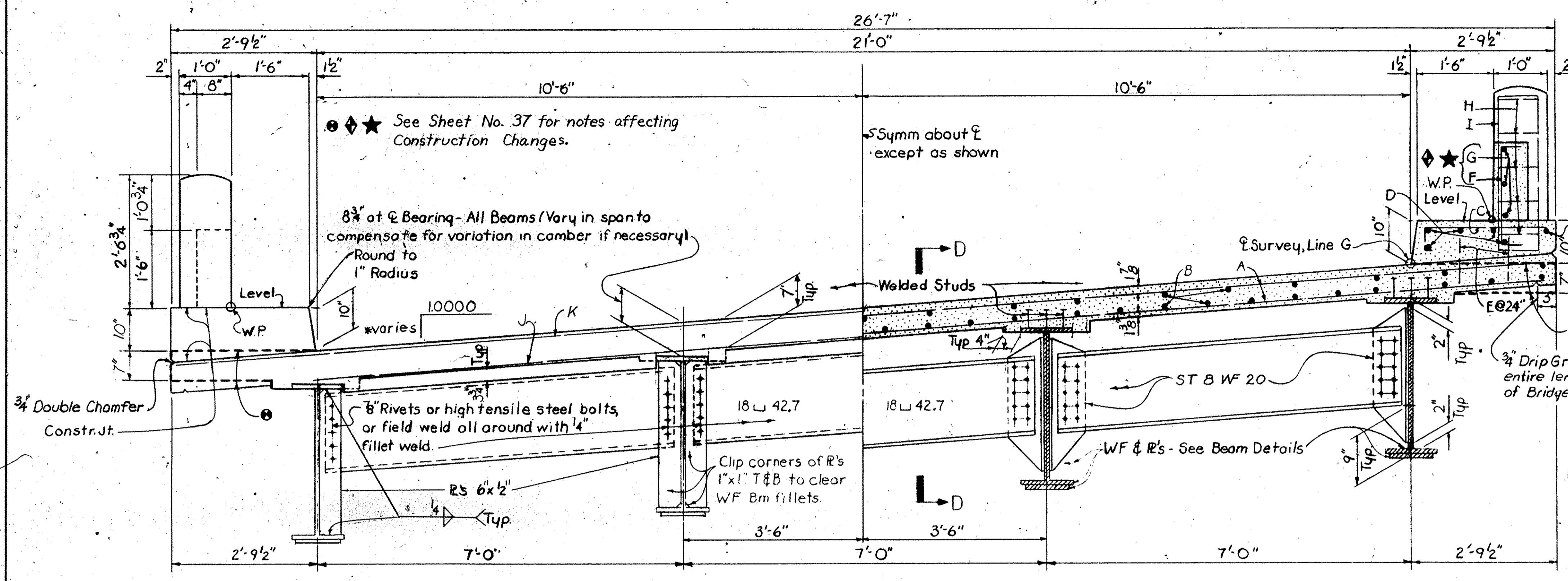
BOOSTER LAYOUT  
 NO SCALE  
 This sheet to accompany Sh. No. 57.

REV.		S. C. STATE HIGHWAY DEPARTMENT
REV.		BRIDGE DIVISION
REV.		COLUMBIA S. C.
REV.		53'-0" SPAN SUPERSTRUCTURE
REV.		FOR UNDERPASS UNDER
REV.		S. SPRUILL INTERCHANGE CONN.
REV.		AT N. CHARLESTON
REV.		SPANS 4 & 5 LINE "G"
REVIEWED	RRS	IN CHARGE
QUAN. REK	JWB 1063	FILE NO. COUNTY ROUTE NO. DATE
TR.		105214 CHARLESTON I-26 8-63
DR. REK	JWB 863	APPROVED BY
DES. JWB	RRS 8-63	APPROVED BY
BY	CHK'D DATE	BRIDGE DESIGN & PLANS ENGINEER
		BRIDGE ENGINEER



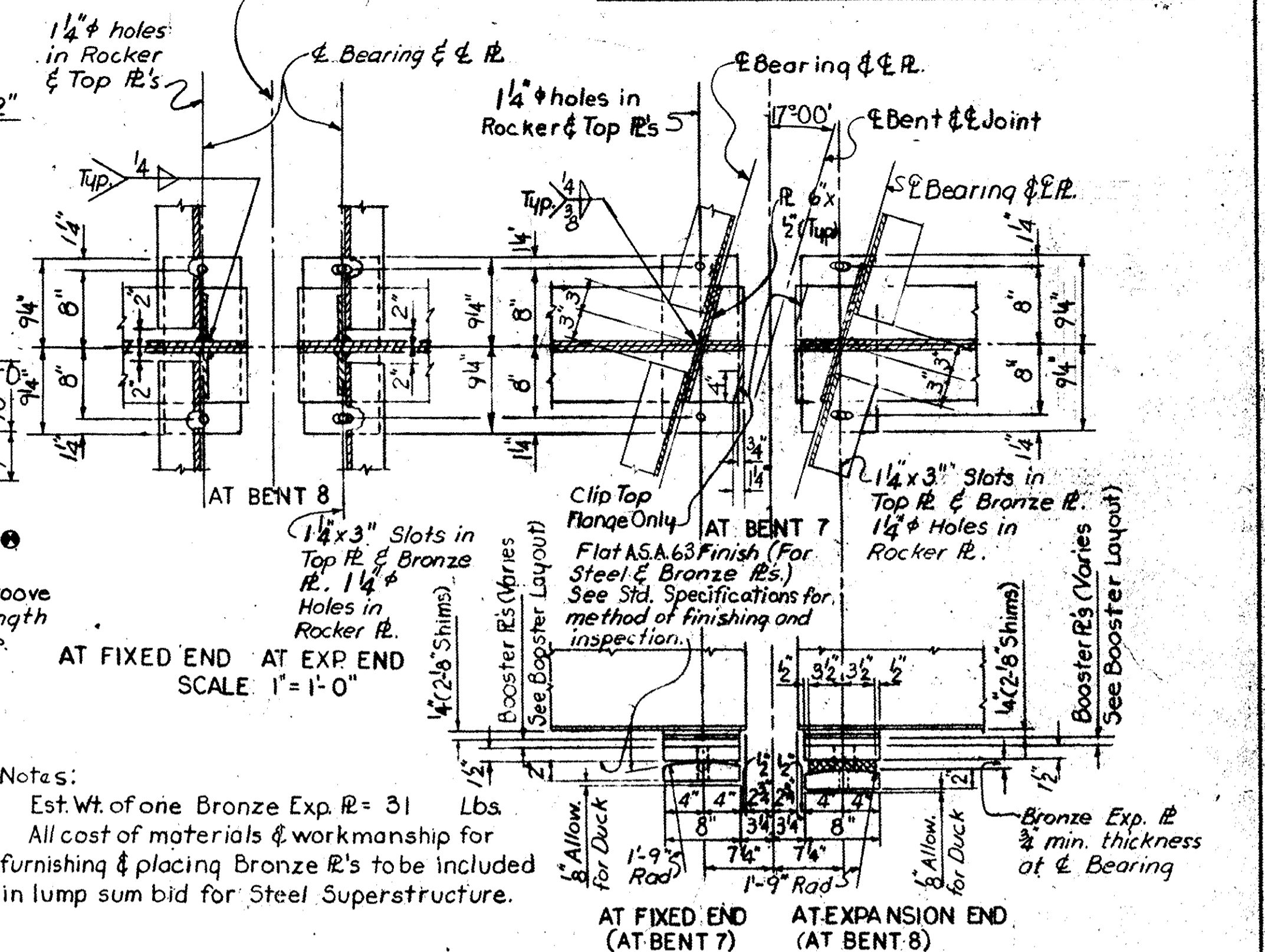




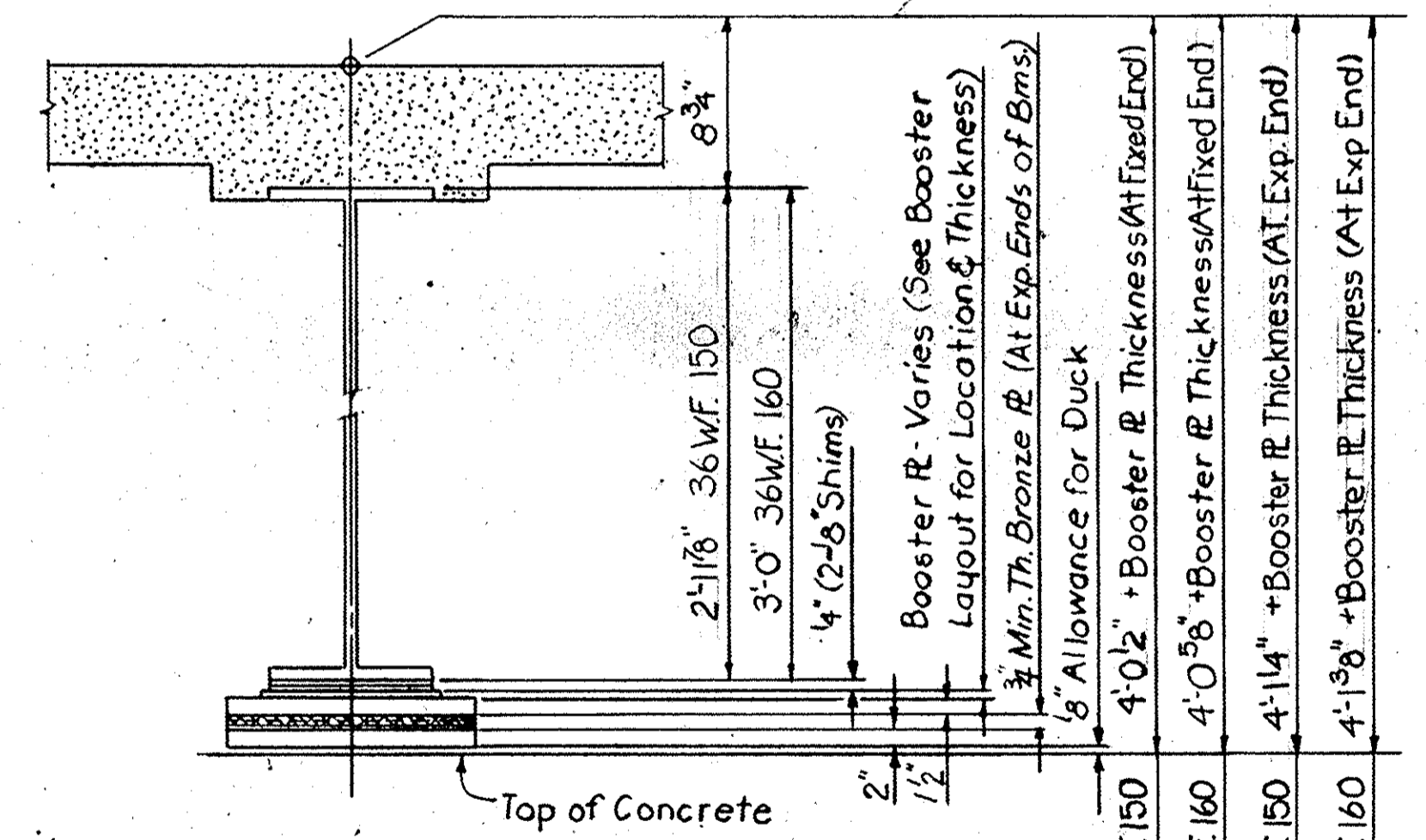


ELEVATION B-B

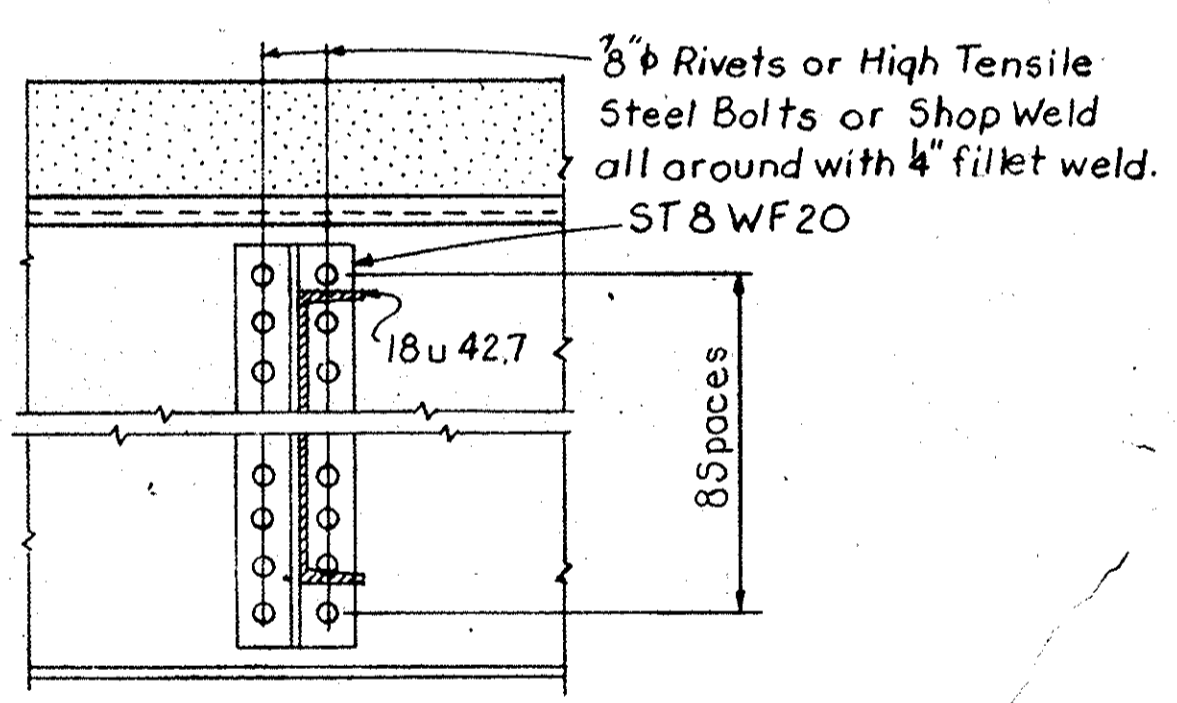
SECTION A-A



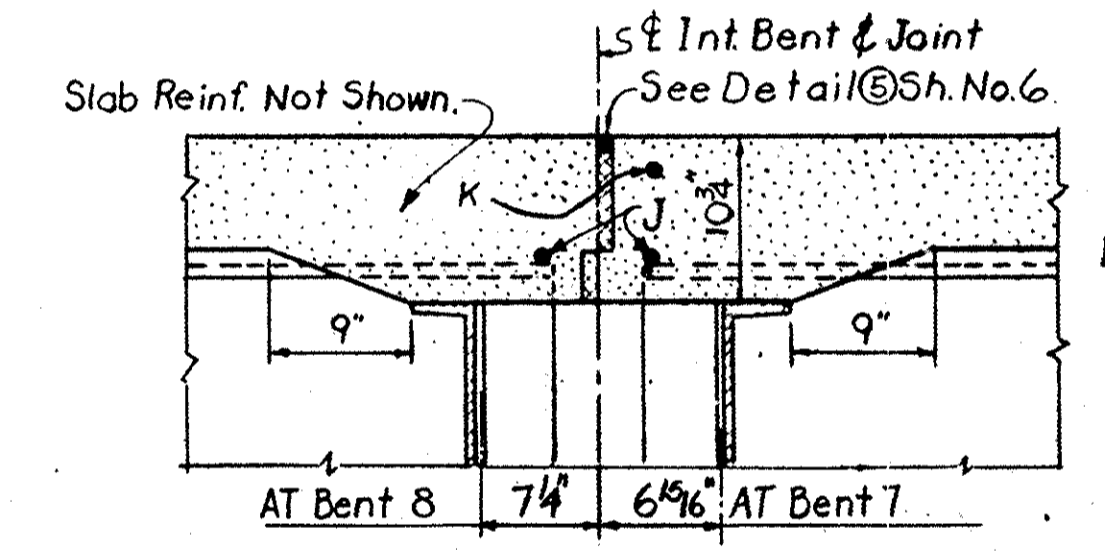
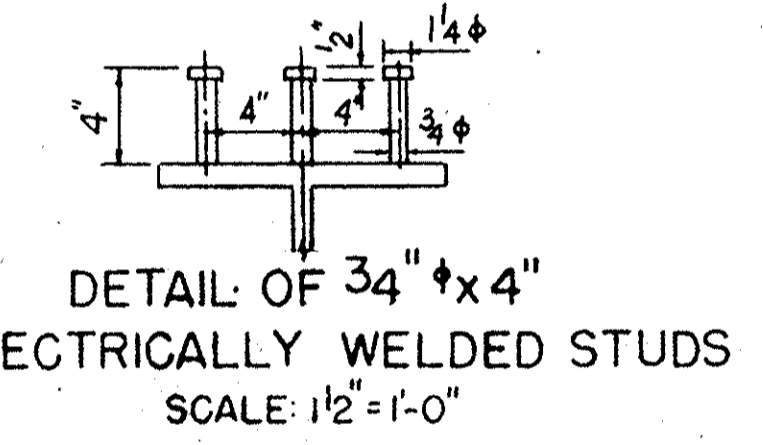
BEARING DETAILS



SKETCH FOR COMPUTING BEAM SEAT ELEVATIONS AT Q BEARING

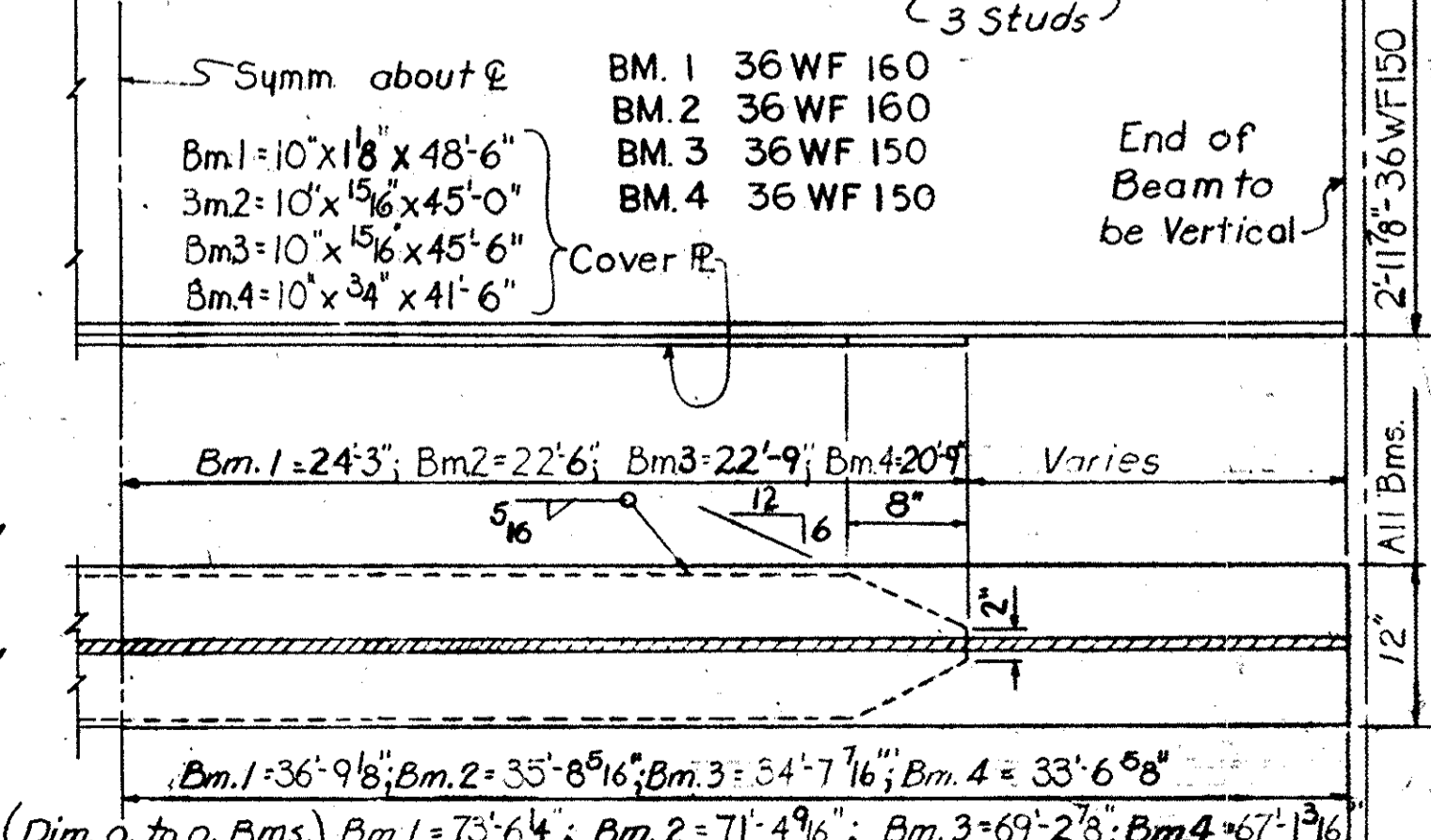


SECTION D-D



SECTION C-C

Beam	20' x 14' 4 Sp @ 12"	6 Sp @ 10"	9 Sp @ 8"	12 Sp @ 6"	20 Sp @ 5"	15 Sp @ 4"	1 1/2"
Bm. 1	20' x 14' 4 Sp @ 12"	6 Sp @ 10"	9 Sp @ 8"	12 Sp @ 6"	20 Sp @ 5"	15 Sp @ 4"	1 1/2"
Bm. 2	do	do	do	do	19 Sp @ 5"	13 Sp @ 4"	1 1/2"
Bm. 3	do	do	do	do	21 Sp @ 5"	do	2 1/2"
Bm. 4	do	do	do	do	20 Sp @ 5"	14 Sp @ 4"	2 1/2"



BEAM DETAILS

Ext. Beams	Int. Beams
Bm. 1	Bm. 2
Bm. 4	Bm. 3
2 1/2"	2 1/2"
2 1/2"	2 1/2"

DEAD LOAD DEFLECTION & CAMBER

DIAGRAM

NO SCALE

NOTES:  
FOR STANDARD NOTES SEE SHEET NO. 5  
FOR STANDARD DETAILS SEE SHEET NO. 6

DESIGN DATA  
f<sub>c</sub> (STRUCT.) = 20,000 P.S.I.;  
f<sub>s</sub> (Reinf.) = 20,000 P.S.I.;  
f<sub>c</sub> = 1200 P.S.I.; n = 10

This Sheet to accompany Sheet No. 58

REV.					S. C. STATE HIGHWAY DEPARTMENT BRIDGE DIVISION COLUMBIA S.C.			
REV.					73'-11 <sup>3</sup> / <sub>4</sub> " SPAN SUPERSTR. DETAILS FOR UNDERPASS UNDER S. SPRUILL INTERCHANGE CONN. (AT N. CHARLESTON) SPAN 7 LINE 'G'			
REV.								
REV.								
REVIEWED				RRS				
				IN CHARGE				
QUAN.	REK	LDH	9-63		FILE NO.	COUNTY	ROUTE NO.	DATE
TR.					10.5214	CHARLESTON	1-26	9-63
DR.	REK	LDH	8-63		APPROVED BY		APPROVED BY	
DES.	JWB	RRS	8-63		[Signature]		[Signature]	
	BY	CHK'D	DATE		BRIDGE DESIGN & PLANS ENGINEER		BRIDGE ENGINEER	

S. C. STATE HIGHWAY DEPARTMENT  
BRIDGE DIVISION  
COLUMBIA S. C.  
73'-11 3/4" SPAN SUPERSTR. DETAILS  
FOR UNDERPASS UNDER  
S. SPRUILL INTERCHANGE CONN.  
(AT N. CHARLESTON)  
SPAN 7 LINE 6"

APPROVED BY  
JWB  
BRIDGE DESIGN & PLANS ENGINEER  
APPROVED BY  
JWB  
BRIDGE ENGINEER

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S. C.	CHARLESTON	105214	I-26	60	74

*REINFORCING STEEL SCHEDULE						
MARK	SIZE	NO. REQD.	INT. SPAN LENGTH	NO. REQD.	LENGTH	D
A	5	232	26'-2"			S
B	5	49	52'-7"			S
C	4	106	3'-0"			B
D	4	12	52'-7"			S
E	5	108	0'-10"			S
F	5	96	2'-9"			B
G	4	36	7'-0"			S
H	2	80	3'-6"			B
I	5	32	7'-9"			B
J	5	2	21'-0"			S
BB	1"	Reqd	530'			—
BBU	1/8"	Reqd	605'			—

**BOOSTER LAYOUT**  
 NO SCALE  
 DOES NOT INCLUDE REINFORCING STEEL AND QUANTITIES FOR LIGHT BRACKETS ON SPANS 9 AND 12. SEE SHEET NO. 74 FOR DETAILS, REINFORCING STEEL SCHEDULE, AND QUANTITIES.

BENDING DETAILS		

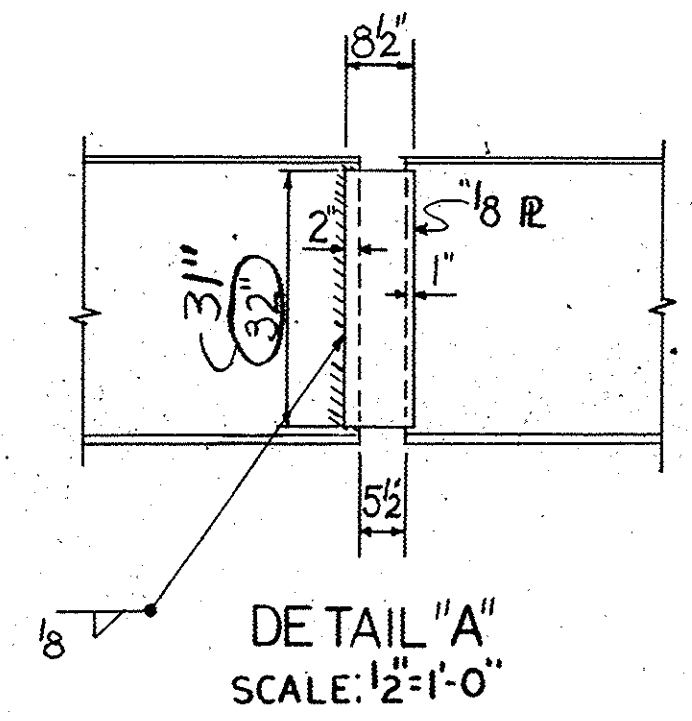
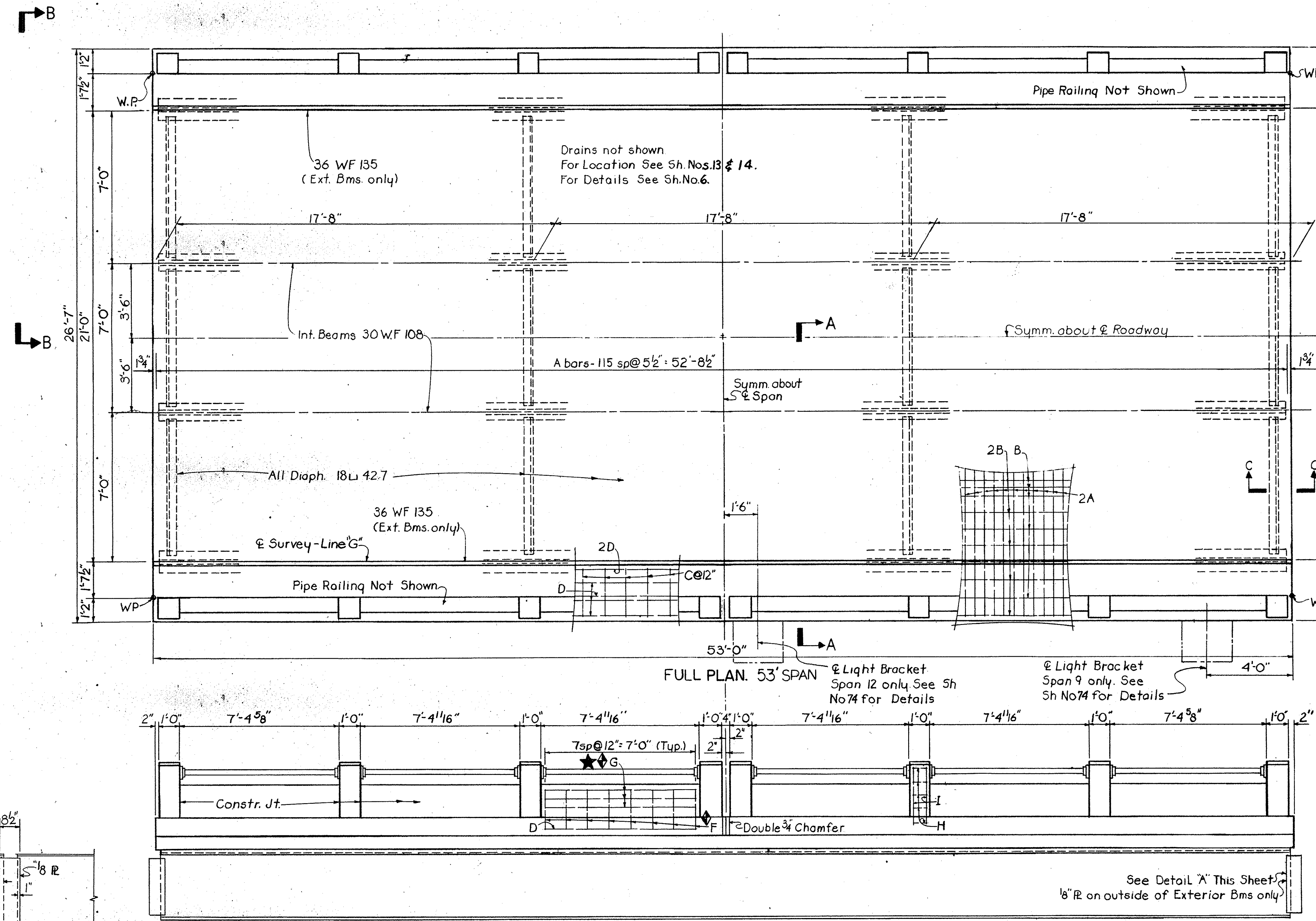
*QUANTITIES		
① CLASS "A" CONCRETE	42.0	C.Y.
② REINFORCING STEEL	10,887	LBS.
③ STRUCTURAL STEEL	33,400	LBS.
④ FAB. METAL HANDRAIL	106	L.F.

NOTES:  
 ① DOES NOT INCLUDE 4.8 C.Y. IN PARAPET WALL AND POSTS.  
 ② INCLUDES 347 LBS. FOR BOLSTERS.  
 ③ INCLUDES 749 LBS. FOR STUD SHEAR CONNECTORS.  
 ④ THE UNIT PRICE FOR FABRICATED METAL HANDRAILING SHALL INCLUDE ALL THAT PORTION OF THE RAILING ABOVE SIDEWALK EXCEPT THAT ALL REINFORCING STEEL SHALL BE MEASURED AND PAID FOR AT THE UNIT PRICE BID FOR THAT ITEM.

NOTES:  
 FOR STANDARD NOTES SEE SHEET NO. 5  
 FOR STANDARD DETAILS SEE SHEET NO. 6

DESIGN DATA:  
 $f_s$  (STRUCT.) = 20,000 psi;  $f_s$  (REINF.) = 20,000 psi;  
 $f_c$  = 1,200 psi;  $n$  = 10; CLASS "A" CONCRETE

This Sheet to accompany Sheet No. 61.			
REV.		S. C. STATE HIGHWAY DEPARTMENT BRIDGE DIVISION COLUMBIA S. C.	
REV.		53' SPAN SUPERSTRUCTURE FOR UNDERPASS UNDER	
REV.		S. SPRULL INTERCHANGE CONN. (AT N. CHARLESTON)	
REV.		SPANS 8, 9, 10, 11, & 12 LINE "G"	
REVIEWED	R.R.S.	FILE NO.	COUNTY
IN CHARGE	JWB	10521.4	CHARLESTON
QUAN. R.E.K.	JWB	8-63	ROUTE NO. DATE
TR.			I-26 8-63
DR. REK	JWB	8-63	APPROVED BY
DES. JWB	R.R.S.	8-63	APPROVED BY
BY	CHK'D	DATE	BRIDGE DESIGN & PLANS ENGINEER
			BRIDGE ENGINEER



SIDE ELEVATION  
 SCALE: 3/8" = 1'-0"

★ For Construction Changes see Sh. No. 37.



FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S. C.	CHARLESTON	10521.4	I-26	62	74

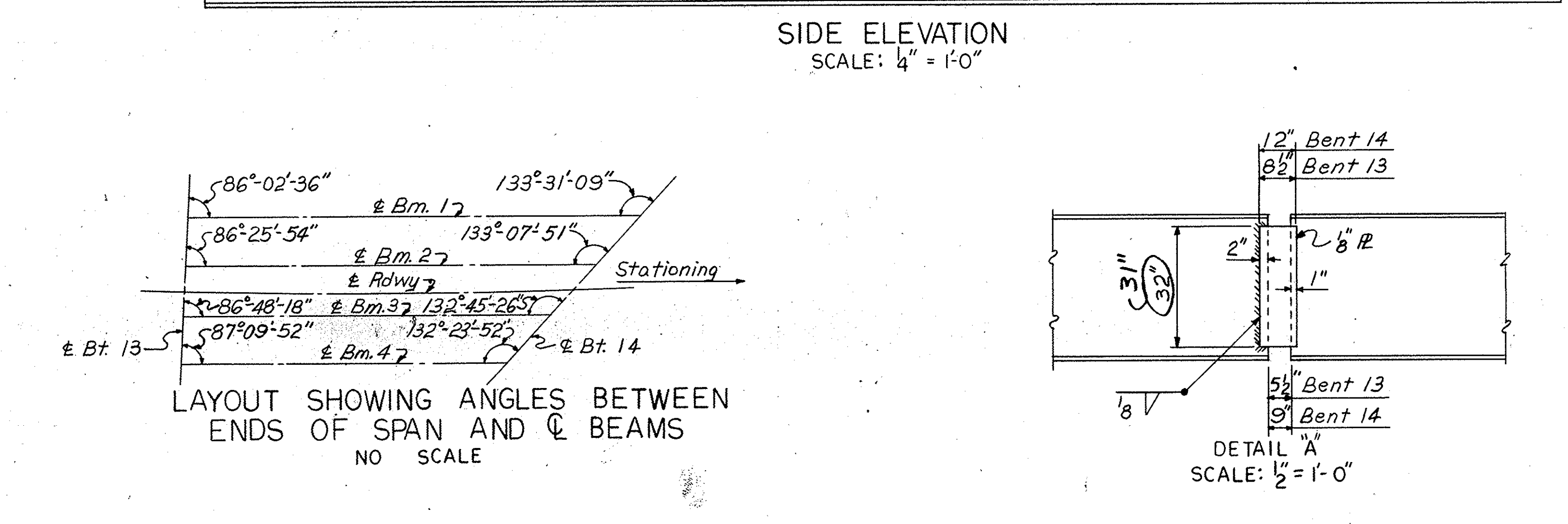
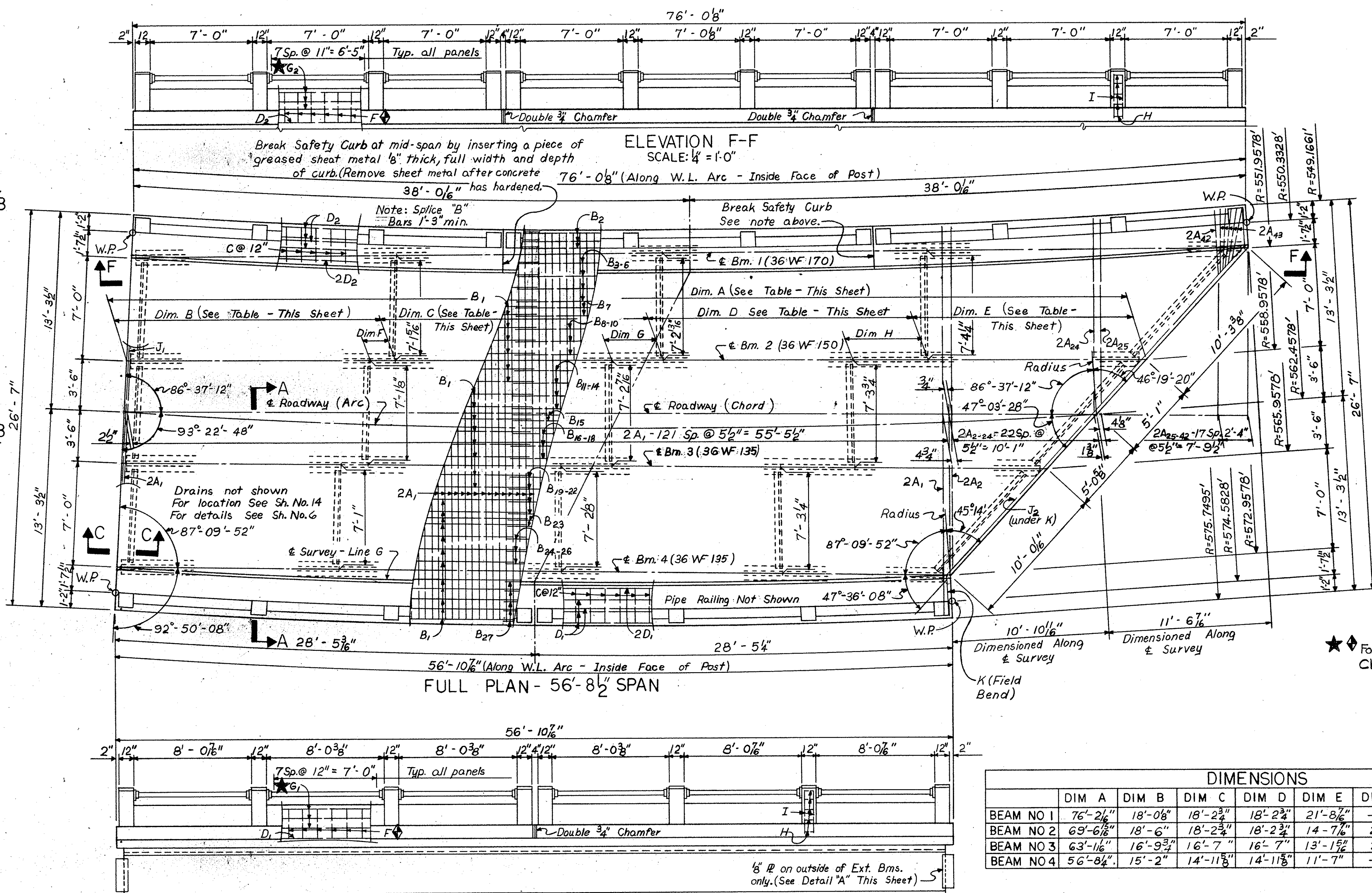
REINFORCING STEEL SCHEDULE						
MARK	SIZE NO	D	ONE INT. SPAN			
			REQ'D LENGTH			
A <sub>1</sub>	5	S	244	26'-2"		
A <sub>2-24</sub>	5	S	2 ea.	23'-4" to 13'-0" Varies by 5'		
A <sub>25-42</sub>	5	S	2 ea.	12'-6" to 4'-9" Varies by 5'		
A <sub>43</sub>	5	S	10	4'-4"		
B <sub>1</sub>	5	S	54	27'-5"		
B <sub>2</sub>	5	S	5	49'-8"		
B <sub>3-10</sub>	5	S	Number Req'd at Rt. 49'-1" to 43'-5" Varies by 9'	2 ea. - B <sub>3</sub> ; B <sub>7</sub> ; B <sub>8</sub> & B <sub>9</sub> 1 ea. - B <sub>4</sub> ; B <sub>6</sub> & B <sub>9</sub>		
B <sub>11-18</sub>	5	S	Number Req'd at Rt. 42'-6" to 36'-10" Varies by 9'	2 ea. - B <sub>11</sub> ; B <sub>13</sub> ; B <sub>15</sub> ; B <sub>16</sub> & B <sub>18</sub> 1 ea. - B <sub>12</sub> ; B <sub>14</sub> & B <sub>17</sub>		
B <sub>19-26</sub>	5	S	Number Req'd at Rt. 35'-11" to 30'-3" Varies by 9'	2 ea. - B <sub>19</sub> ; B <sub>21</sub> ; B <sub>23</sub> ; B <sub>24</sub> & B <sub>26</sub> 1 ea. - B <sub>20</sub> ; B <sub>22</sub> & B <sub>25</sub>		
B <sub>27</sub>	5	S	10	30'-3"		
C	4	B	133	3'-0"		
D <sub>1</sub>	4	S	6	56'-4"		
D <sub>2</sub>	4	S	18	25'-0"		
E	5	S	136	0'-10"		
F	5	B	120	2'-9"		
G <sub>1</sub>	4	S	18	7'-8"		
G <sub>2</sub>	4	S	27	6'-8"		
H	2	B	100	3'-6"		
I	5	B	40	7'-9"		
J <sub>2</sub>	5	S	1	30'-5"		
K	5	S	1	35'-7"		
J <sub>1</sub>	5	S	1	21'-0"		
BB	1"			665'		
BBU	1 1/8"			610'		

BENDING DETAILS		

QUANTITIES		
ITEM	UNIT	ONE INT. SPAN
CLASS A CONCRETE	C.Y.	① 52.8
REINFORCING STEEL	LBS.	② 13,997
STRUCTURAL STEEL	LBS.	③ 52,300
FAB. METAL HANDRAIL	L.F.	④ 133

- ① Does not include 6.0 C.Y. in parapet wall and posts.
- ② Includes 424 lbs. for Bolsters.
- ③ Includes 911 lbs. for Stud Shear Connectors.
- ④ The unit price for fabricated metal handrailing shall include all that portion of the railing above the sidewalk except that all reinforcing steel shall be measured and paid for at the unit price bid for that item.

This sheet to accompany Sheet No. 63			
S.C. STATE HIGHWAY DEPARTMENT BRIDGE DIVISION COLUMBIA S.C.			
56'-8 1/2" SPAN SUPERSTRUCTURE FOR UNDERPASS UNDER S. SPUILL INTERCHANGE CONN. AT N. CHARLESTON SPAN 13 LINE "G"			
REV.		FILE NO.	COUNTY
REV.		10.521.4	CHARLESTON
REV.		ROUTE NO.	I-26
REV.		DATE	11-63
REVIEWED	RRS	IN CHARGE	
QUAN. LDH	11-63	APPROVED BY	
TR.		DES.	JWB/11-63
DES.	RRS	BY	CHK'D DATE
BRIDGE DESIGN & PLANS ENGINEER		BRIDGE ENGINEER	



For Standard Notes, See Sh. No. 5.  
For Standard Details, See Sh. No. 6.

	DIM A	DIM B	DIM C	DIM D	DIM E	DIM F	DIM G	DIM H
BEAM NO 1	76'-2 1/8"	18'-0 1/8"	18'-2 3/4"	18'-2 3/4"	21'-8 1/8"			
BEAM NO 2	69'-6 1/8"	18'-6"	18'-2 3/4"	18'-2 3/4"	14'-7 1/8"	2'-1"	3'-9 1/4"	5'-4"
BEAM NO 3	63'-1 1/8"	16'-9 3/4"	16'-7"	16'-7"	13'-1 1/8"	2'-0 1/2"	3'-8"	5'-3 1/2"
BEAM NO 4	56'-8 1/4"	15'-2"	14'-11 1/8"	14'-11 1/8"	11'-7"			

★ See Sh. No. 37 for Notes  
affecting Construction

Est. wt of one Bronze Exp. R = 31 Lbs.  
All cost of materials & workmanship for furnishing  
and placing Bronze Exp. Rs to be included in  
lump sum bid for Steel Superstructures.

Technical drawing of a bridge cross-section, showing dimensions and structural details. The drawing includes the following annotations and dimensions:

- Overall Dimensions:**
  - Top width:  $21'-0"$
  - Bottom width:  $26'-7"$
  - Span length:  $10'-6"$  (two segments)
  - End overhangs:  $2'-9\frac{1}{2}"$  (each end)
- Structural Details:**
  - Chord:**  $11\frac{3}{4}"$  @  $\Phi$  Chord,  $0"$  @ Ends of Chord.
  - Welded Studs:** Indicated along the chord.
  - ST 8 WF 20:** Steel beam section.
  - WF  $\Phi$  R's:** See Beam Details.
  - Rivets:**  $\frac{7}{8}"$  Rivets or high tensile steel bolts, or field weld all around with  $\frac{1}{4}"$  fillet weld.
  - Clip corners of R's:**  $1" \times 1" T \& B$  to clear WF Bm fillets.
  - Reinforcement:** R's  $6" \times \frac{1}{2}"$ ,  $4$  Typ.
  - Survey Line:**  $\Phi$  Survey - Line G.
  - Level:** W.P. (Water Plane) Level.
  - Radius:** Round to  $1"$  Radius.
  - Chord:**  $11\frac{3}{4}"$  @  $\Phi$  Chord,  $0"$  @ Ends of Chord.
  - Welded Studs:** Indicated along the chord.
  - ST 8 WF 20:** Steel beam section.
  - WF  $\Phi$  R's:** See Beam Details.
  - Rivets:**  $\frac{7}{8}"$  Rivets or high tensile steel bolts, or field weld all around with  $\frac{1}{4}"$  fillet weld.
  - Clip corners of R's:**  $1" \times 1" T \& B$  to clear WF Bm fillets.
  - Reinforcement:** R's  $6" \times \frac{1}{2}"$ ,  $4$  Typ.
  - Survey Line:**  $\Phi$  Survey - Line G.
  - Level:** W.P. (Water Plane) Level.
  - Radius:** Round to  $1"$  Radius.
- Other Annotations:**
  - $\Phi$  Rdwy. (Arc)
  - $\Phi$  Survey - Line G
  - $\Phi$  Level
  - $\Phi$  W.P.
  - $\Phi$  R's
  - $\Phi$  T
  - $\Phi$  B
  - $\Phi$  D
  - $\Phi$  L
  - $\Phi$  R
  - $\Phi$  S
  - $\Phi$  F
  - $\Phi$  for
  - $\Phi$  Drip Groove - entire length of bridge.
  - $\Phi$  Typ
  - $\Phi$  Varies
  - $\Phi$  Constr. Jt.
  - $\Phi$  Level
  - $\Phi$  W.P.
  - $\Phi$  Radius
  - $\Phi$  Chord
  - $\Phi$  Welded Studs
  - $\Phi$  ST 8 WF 20
  - $\Phi$  WF  $\Phi$  R's - See Beam Details
  - $\Phi$  Rivets
  - $\Phi$  Clip corners
  - $\Phi$  Re
  - $\Phi$  Survey
  - $\Phi$  Level
  - $\Phi$  Radius

Bent at Joint. (on Radius)  
 Bearing at Joint  
 1/4" holes in Rocker & Top Pls  
 1/4" x 3" Slots in Top Pl & Bronze Pl. 1/4" Holes in Rocker Pl.  
 Clip Top Flange only.  
 1/4" (2 - 18 Shimms)  
 Booster Pls (Varies See Booster Layout)  
 Bronze Exp. Pl 3/4" min. thickness at Bearing.  
 1/4" Allow. for Duck  
 1/4" Allow. for Duck  
 AT FIXED END  
 AT EXPANSION END

Diagram illustrating the cross-section of a T-beam structure, showing dimensions and reinforcement details.

**Dimensions:**

- Top Flange Width: 8 3/4"
- Web Height (from Top of Concrete): 36 W F 170 - 3' - 0 1/8"
- Web Height (from Top of Concrete): 36 W F 150 - 2' - 11 3/8"
- Web Height (from Top of Concrete): 36 W F 135 - 2' - 11 1/2"
- Bottom Reinforcement Bar: 4" Q-6 Shims
- Reinforcement Bar Spacing: 3/4" Min. Th. Bronze Pl. (At Exp. Ends of Bms)
- Allowance for Duck: 8"
- Reinforcement Bar Thickness (At Fixed End): 4" O-3/4" + Booster Pl. Thickness (At Fixed End)
- Reinforcement Bar Thickness (At Fixed End): 4" O-1/2" + Booster Pl. Thickness (At Fixed End)
- Reinforcement Bar Thickness (At Fixed End): 4" O-1/8" + Booster Pl. Thickness (At Fixed End)
- Reinforcement Bar Thickness (At Exp. End): 4" O-1/2" + Booster Pl. Thickness (At Exp. End)
- Reinforcement Bar Thickness (At Exp. End): 4" O-1/4" + Booster Pl. Thickness (At Exp. End)
- Reinforcement Bar Thickness (At Exp. End): 4" O-3/8" + Booster Pl. Thickness (At Exp. End)

**Reinforcement Details:**

- Top of Concrete
- Reinforcement Bar: 36 W F 170, 36 W F 150, 36 W F 135
- Reinforcement Bar: 4" Q-6 Shims
- Reinforcement Bar: 3/4" Min. Th. Bronze Pl. (At Exp. Ends of Bms)
- Reinforcement Bar: 8" Allowance for Duck
- Reinforcement Bar: 4" O-3/4" + Booster Pl. Thickness (At Fixed End)
- Reinforcement Bar: 4" O-1/2" + Booster Pl. Thickness (At Fixed End)
- Reinforcement Bar: 4" O-1/8" + Booster Pl. Thickness (At Fixed End)
- Reinforcement Bar: 4" O-1/2" + Booster Pl. Thickness (At Exp. End)
- Reinforcement Bar: 4" O-1/4" + Booster Pl. Thickness (At Exp. End)
- Reinforcement Bar: 4" O-3/8" + Booster Pl. Thickness (At Exp. End)

DETAIL OF  $\frac{3}{4}$ "  $\times$  4"  
ELECTRICALLY WELDED STUDS  
SCALE:  $1\frac{1}{2}$ " = 1'-0"

Bot. of Bm. Flange

$1\frac{1}{2}$

Top R.

A

Top Face of Bronze R. to be self lubricating.

Omit Bronze Exp. R. at Fixed Ends of Bms.

Holes for

*Bm.1* 3Sp@14 3Sp@12 6Sp@10 12Sp@8 8Sp@6 17Sp@5 21Sp@4 r2 6  
 = 3'-6" = 3'-0" = 5'-0" = 8'-0" = 4'-0" = 7'-1" = 7'-0" r2 6  
*Bm.2* 15p@14 4Sp@12 do 13Sp@8 9Sp@6 do 13Sp@4 r2 6  
 = 1'-2" = 4'-0" = 10'-8" = 4'-6" = 6'-0" r2 6  
*Bm.3* do 3Sp@12 5Sp@10 9Sp@8 do 14Sp@5 19Sp@4 r2 6  
 = 3'-0" = 4'-2" = 6'-0" = 5'-10" = 6'-4" r2 6  
*Bm.4* do 2Sp@12 do do 13Sp@6 12Sp@5 13Sp@4 r2 6  
 = 2'-0" = 6'-6" = 5'-0" = 3'-0" r2 6

Symm about  $\bar{C}$

Beam 1 - 36WF170  
 Beam 2 - 36WF150  
 Beam 3 - 36WF135  
 Beam 4 - 36WF135

Beam 1 - Cover Pl  $10'' \times \frac{1}{8}'' \times 50'-6''$   
 Beam 2 - Cover Pl  $10'' \times \frac{1}{8}'' \times 45'-0''$   
 Beam 3 - Cover Pl  $10'' \times \frac{1}{16}'' \times 41'-6''$   
 Beam 4 - Cover Pl  $10'' \times \frac{1}{16}'' \times 31'-6''$

End of Beam To Be Vertical

Varies

$Bm.1 = 25'-3''$ ;  $Bm.2 = 22'-6''$ ;  $Bm.3 = 20'-9''$ ;  $Bm.4 = 15'-9''$

$5'-6''$   $12'$   $6''$   $8''$

$12''$

$Bm.1 = 37'-9\frac{7}{8}''$ ;  $Bm.2 = 34'-5\frac{5}{8}''$ ;  $Bm.3 = 31'-2\frac{5}{8}''$ ;  $Bm.4 = 28'-0\frac{1}{2}''$   
 to c. Bms)  $Bm.1 = 75'-6\frac{3}{8}''$ ;  $Bm.2 = 68'-11\frac{1}{16}''$ ;  $Bm.3 = 62'-5\frac{1}{8}''$ ;  $Bm.4 = 56'-1''$

Camber  
Max. Tol. =  $\pm \frac{1}{4}"$

Ext. Beams		Int. Beams	
Bm. 1	Bm. 4	Bm. 2	Bm. 3
2"	$\frac{7}{8}"$	$1\frac{3}{8}"$	$1\frac{1}{16}"$

D.L. Defl.

2" Ord. for V.C.  
& S.E. Correction

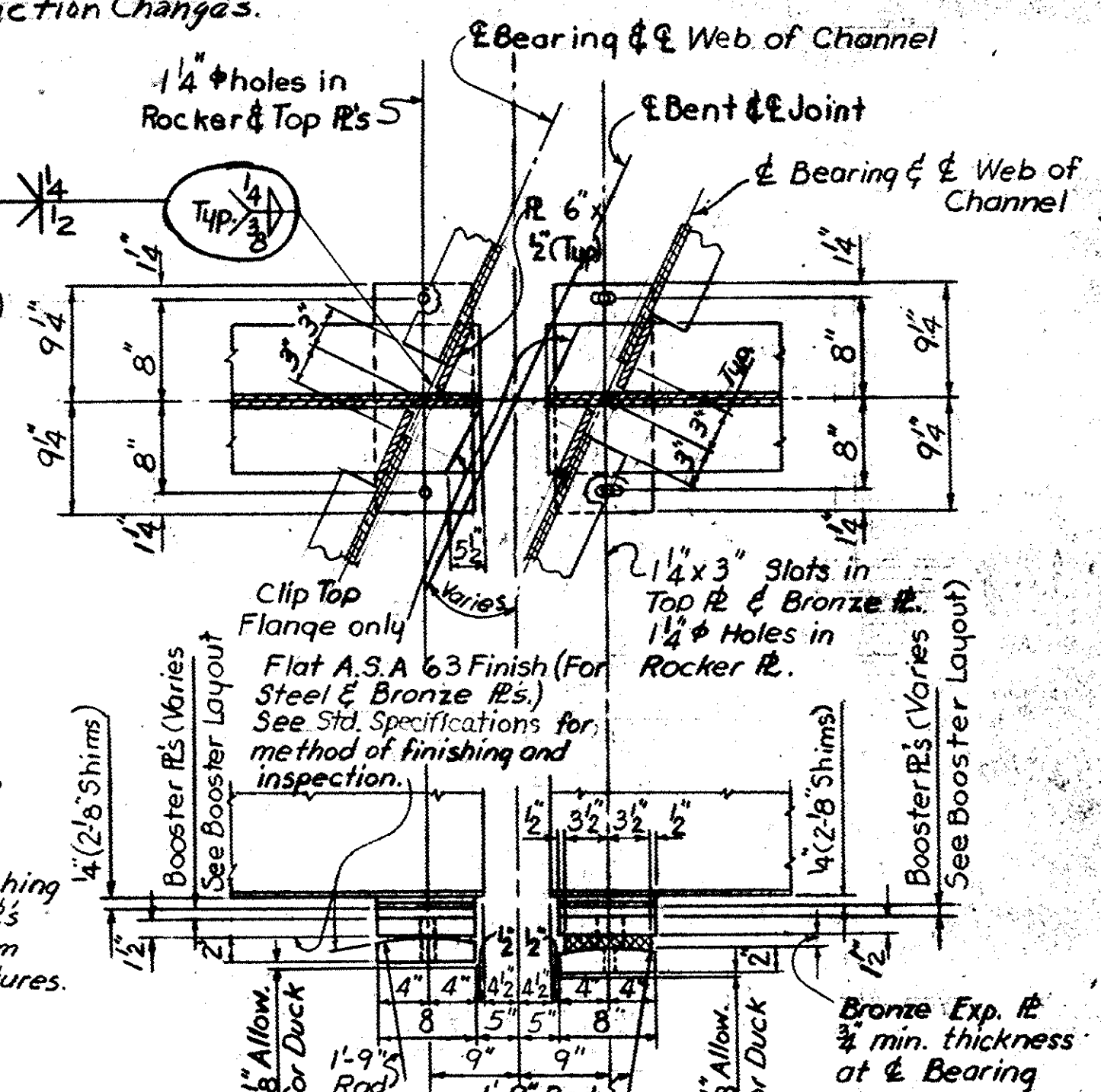
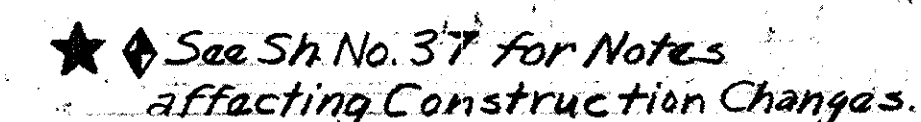
Bm. 1 =  $\frac{3}{16}"$   
Bm. 2 =  $\frac{9}{16}"$   
Bm. 3 =  $\frac{5}{16}"$   
Bm. 4 =  $\frac{1}{16}"$

DEAD LOAD

		Beam 1		Beam 2		Beam 3		Beam 4	
		D.L.	D.L. Defl.	D.L.	D.L. Defl.	D.L.	D.L. Defl.	D.L.	D.L. Defl.
Ext. Bm.	Bm., Diaph., etc.	21%	3 <sup>5</sup> / <sub>8</sub> "	—	—	—	—	15 <sup>5</sup> / <sub>8</sub> "	6"
	Slab	.66%	13 <sup>5</sup> / <sub>8</sub> "	—	—	—	—	.66%	9 <sup>1</sup> / <sub>8</sub> "
	Sdwk., Rail, etc.	38%	4 <sup>5</sup> / <sub>8</sub> "	—	—	—	—	38%	6 <sup>5</sup> / <sub>8</sub> "
	Total	1.25%	11 <sup>3</sup> / <sub>8</sub> "	—	—	—	—	1.19%	13 <sup>1</sup> / <sub>8</sub> "
Int. Bm.	Bm., Diaph., etc.	—	—	.18%	1 <sup>1</sup> / <sub>8</sub> "	.16%	3 <sup>5</sup> / <sub>8</sub> "	—	—
	Slab	—	—	.66%	1"	.66%	3 <sup>5</sup> / <sub>8</sub> "	—	—
	Total	—	—	.84%	14"	.82%	15 <sup>5</sup> / <sub>8</sub> "	—	—

REV				S. C. STATE HIGHWAY DEPARTMENT BRIDGE DIVISION COLUMBIA S.C.			
REV				56'-8 1/2" SPAN SUPERSTR. DETAILS FOR UNDERPASS UNDER S. SPRUILL INTERCHANGE CONN. (AT N.CHARLESTON) SPAN 13 LINE "G"			
REV							
REV							
REVIEWED		RRS IN CHARGE					
QUAN	LDH	NO. OF PIERS	II-63	FILE NO.	COUNTY	ROUTE NO.	DATE
.TR	LDH	RRS	II-63	105214	CHARLESTON	I-26	8-63
DR	LDH	RRS	II-63	APPROVED BY <i>W.E. Cowan</i>		APPROVED BY <i>W. J. ...</i>	
DES	LDH	RRS	II-63	BY CHK'D DATE		BRIDGE DESIGN & PLANS ENGINEER BRIDGE ENGINEER	

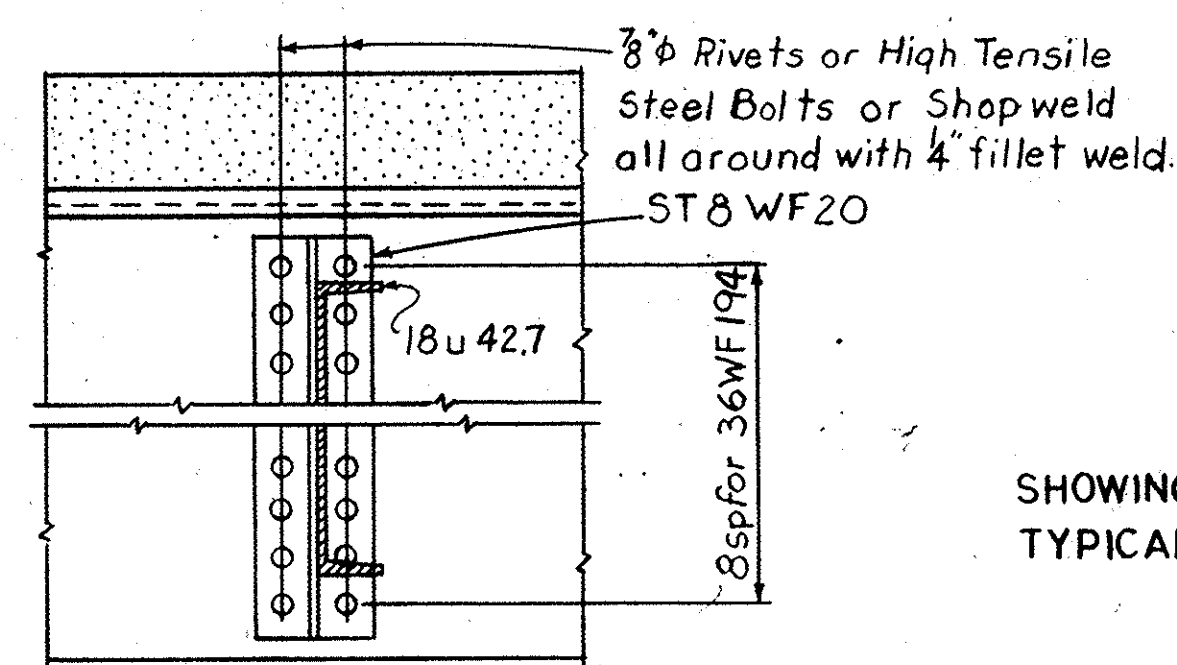




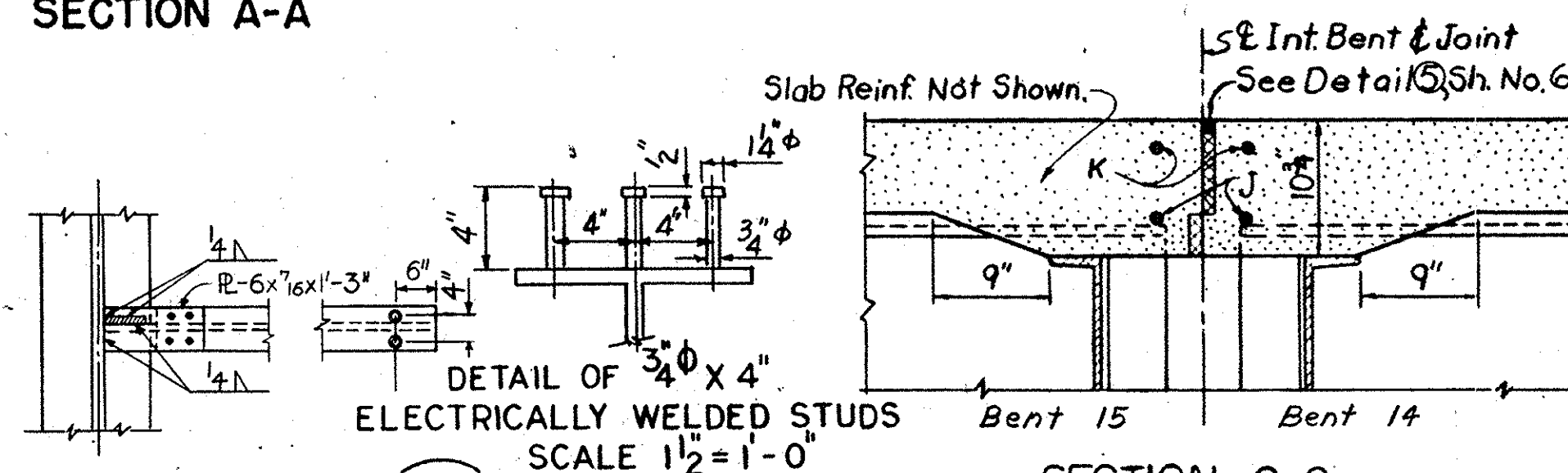
Notes:

Est. Wt. of one bronze  
exp.  $\text{\$}$  = 31 lbs.  
All costs of materials  
& workmanship for furnishing  
and placing bronze exp.  $\text{\$}$ 's  
to be included in lump sum  
bid for steel superstructures.

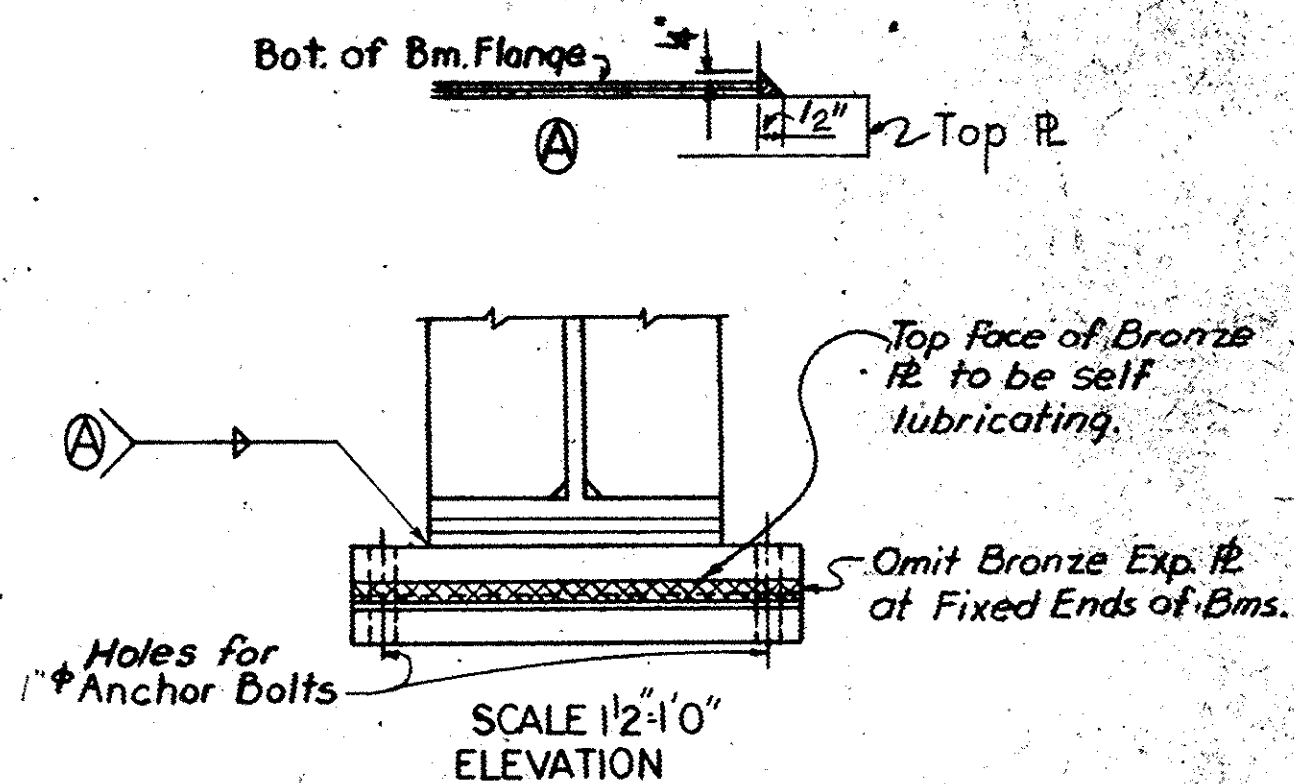
SECTION A-A



TOP VIEW  
SHOWING  $\frac{7}{16}$ " R ON BRACKET  
TYPICAL FOR ALL BRACKETS



SECTION C-C  
SCALE 1"=1'-0"



NOTES:  
FOR STANDARD NOTES SEE SHEET NO.5.  
FOR STANDARD DETAILS SEE SHEET NO.6.

DESIGN DATA:

$f_s$  (STRUCT.) = 20,000 P.S.I.,  $f_s$  (REINF.) = 20,000 P.S.I.  
 $f_c$  = 1200 P.S.I.,  $N$  = 10

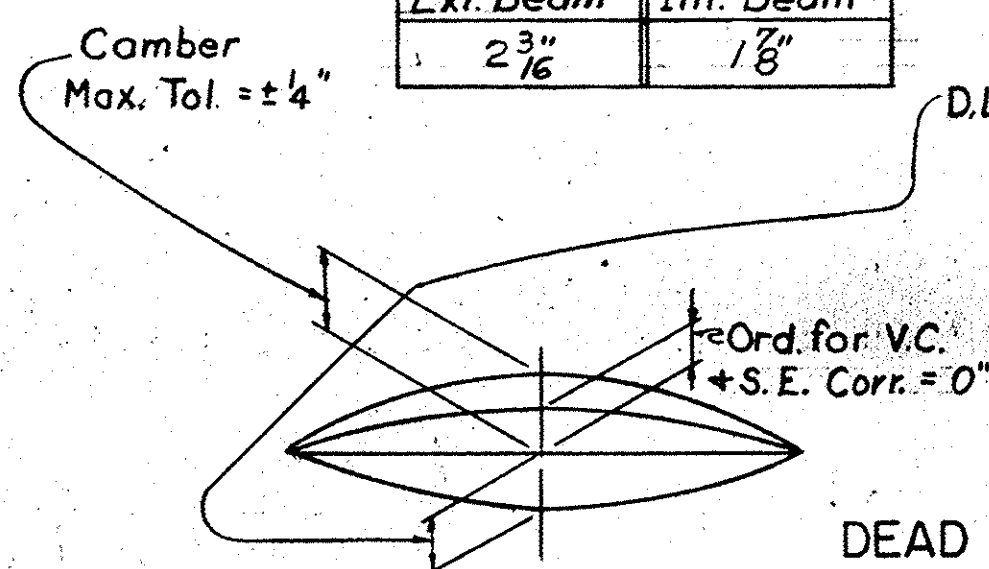
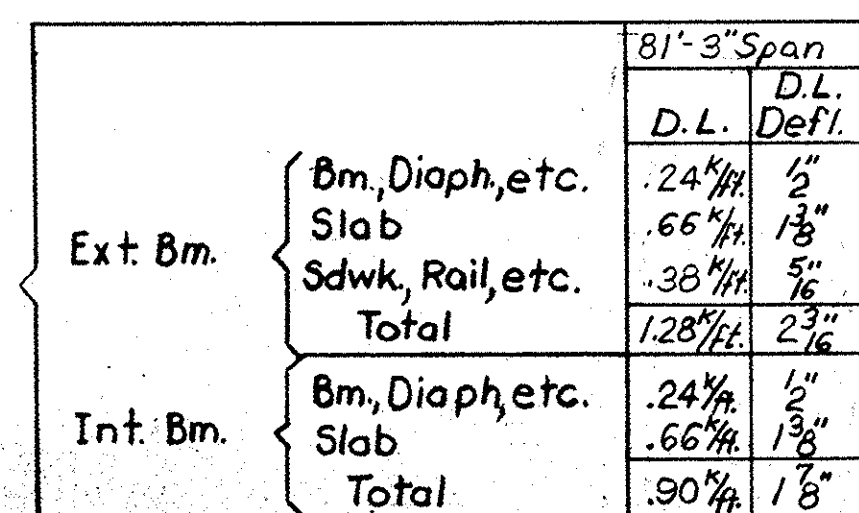
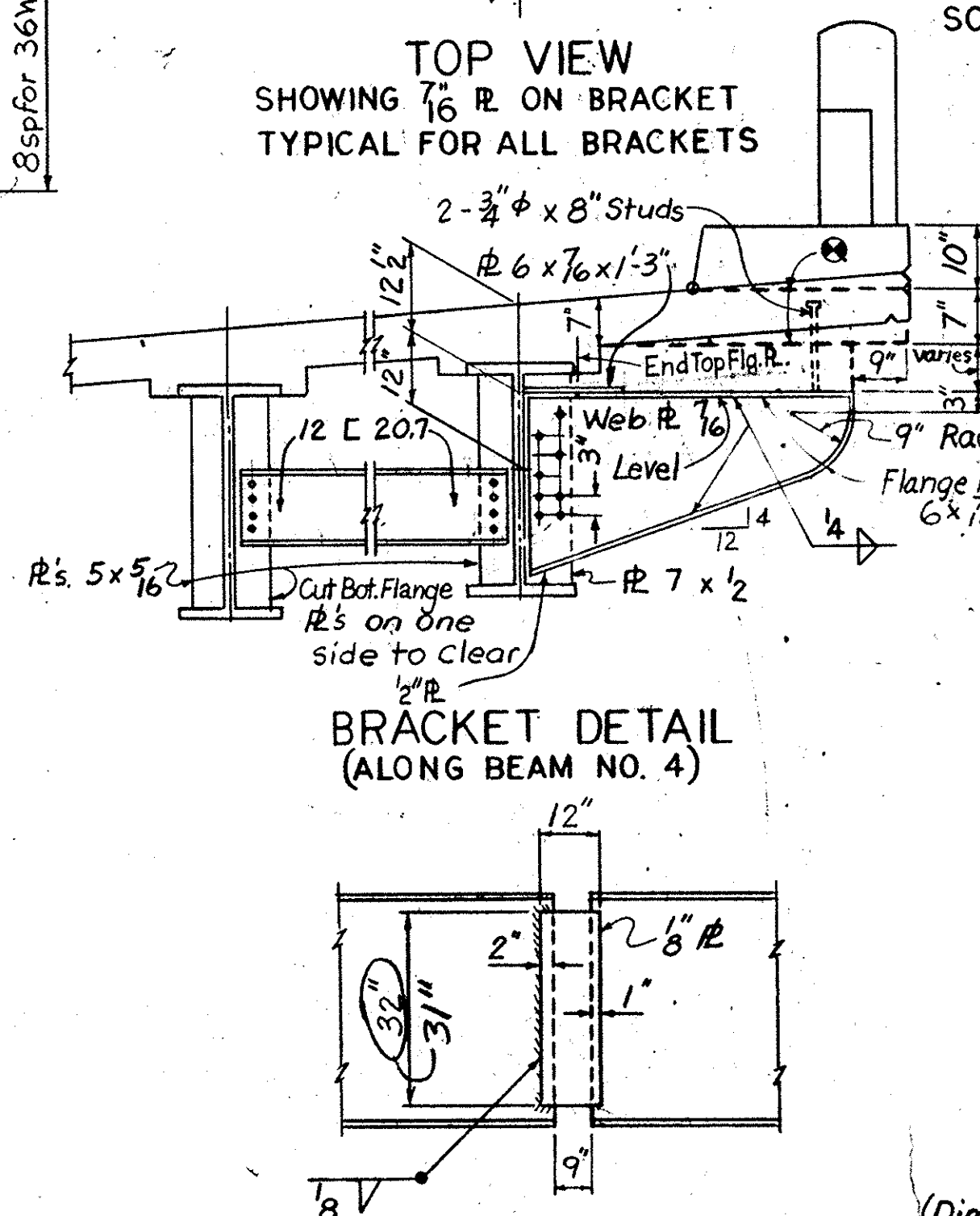
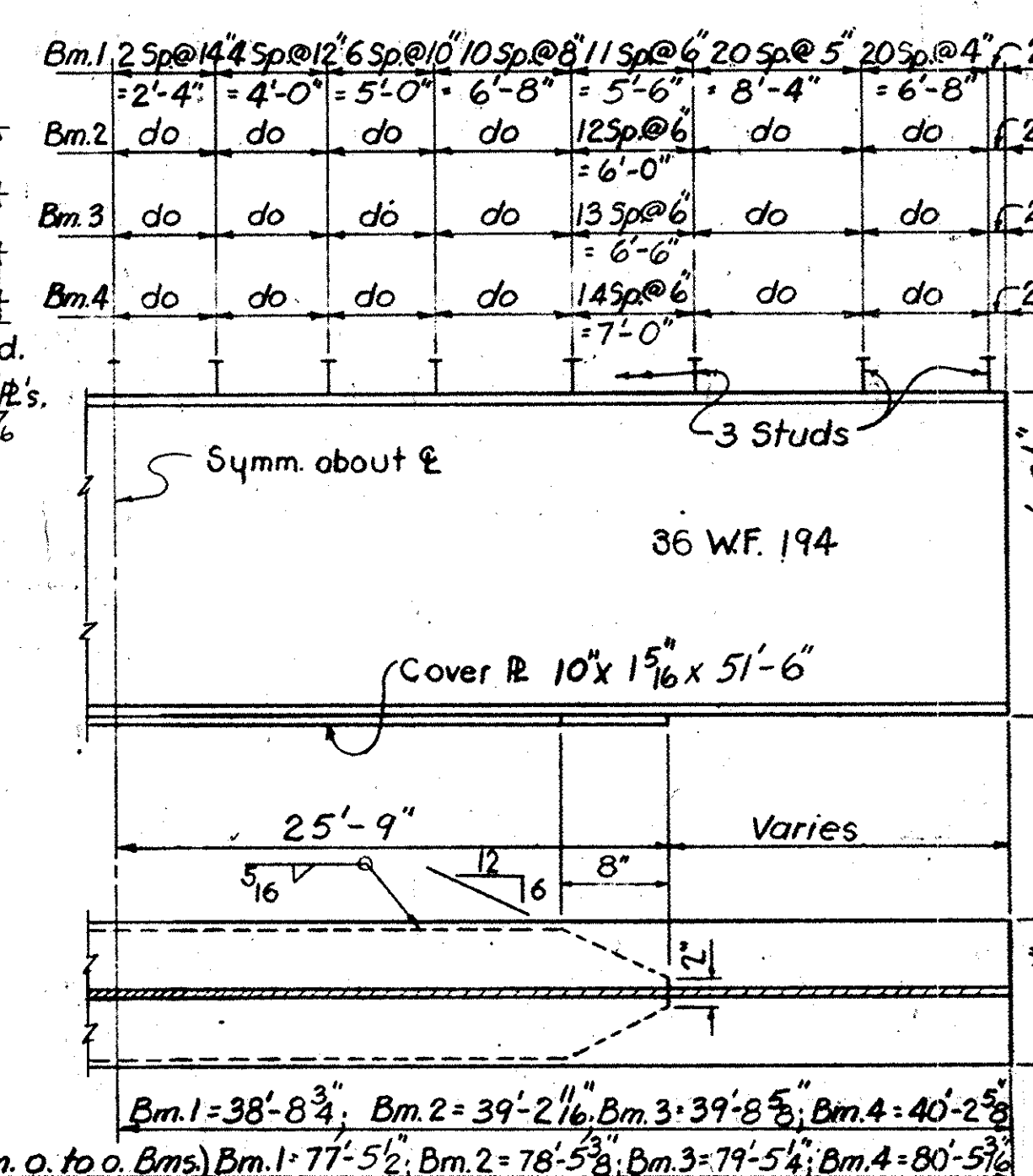


DIAGRAM  
NO SCALE





BRACKET DETAIL  
(ALONG BEAM NO. 4)

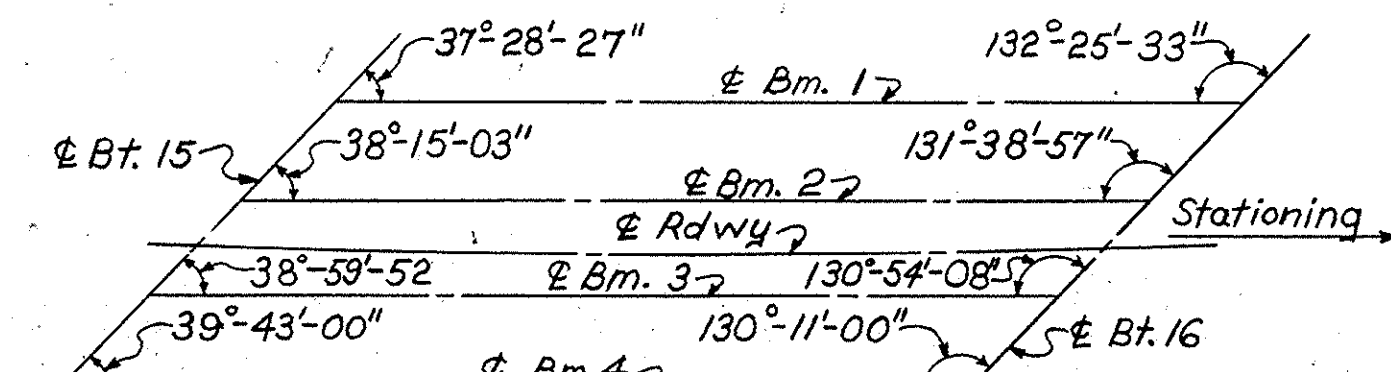
DETAIL "A"  
SCALE:  $\frac{1}{2}'' = 1'-0''$



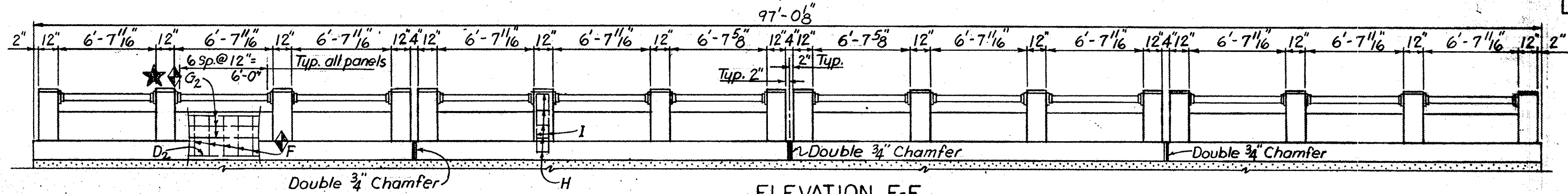
BEAM DETAILS  
NO SCALE

THIS SHEET TO ACCOMPANY SHEET NO. 64.									
REV.			S. C. STATE HIGHWAY DEPARTMENT BRIDGE DIVISION COLUMBIA S.C.						
REV.			81'-3" SPAN SUPERSTR. DETAILS FOR UNDERPASS UNDER S. SPRUILL INTERCHANGE CONN. (AT N. CHARLESTON) SPAN 14 LINE "G"						
REV.									
REV.									
REVIEWED			<div> <div>RRS</div> <div>IN CHARGE</div> </div>						
QUANTITY	AGW	REP	LDH	8-63	FILE NO.	COUNTY	ROUTE NO.	DATE	
TR.					10.5214	CHARLESTON	1-26	8-63	
DR.	AGW	LDH	8-63	APPROVED BY			APPROVED BY		
DES.	JWB	RRS	8-63						
	RY	CHK'D	DATE	BRIDGE DESIGN & PLANS ENGINEER			BRIDGE ENGINEER		

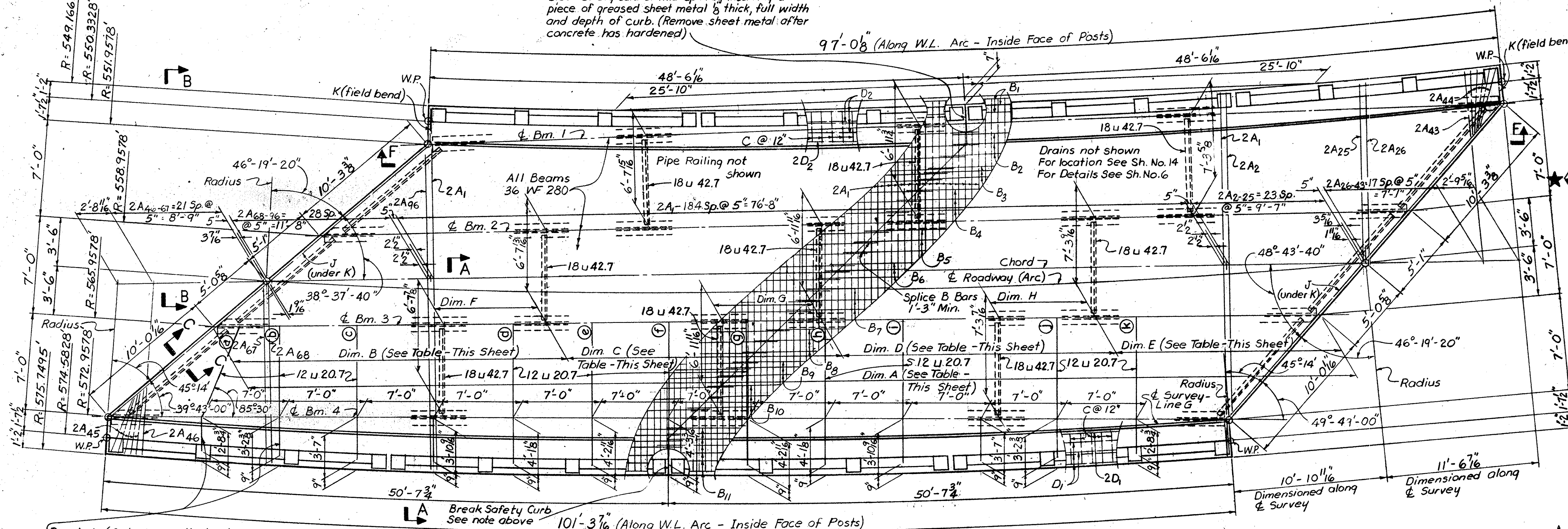
FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	105214	1-26	66	74



LAYOUT SHOWING ANGLES BETWEEN ENDS OF SPAN AND BEAMS  
NO SCALE



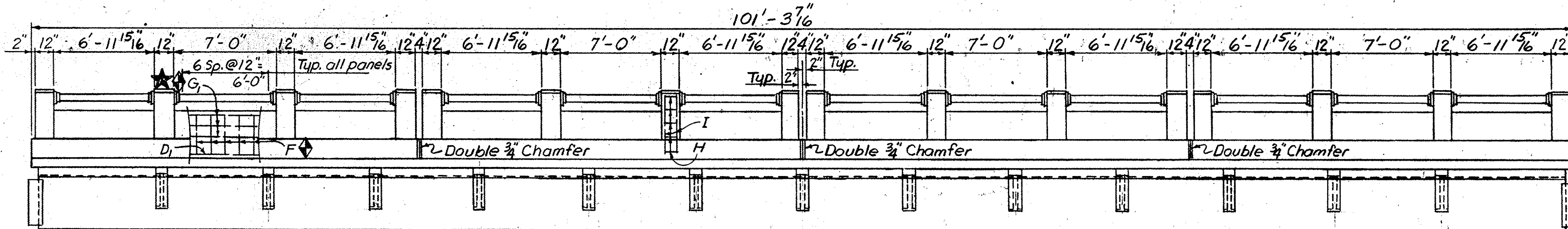
ELEVATION F-F



FULL PLAN 101'-0\"/>

Brackets (Set perpendicular to Beam. Dimensions are C. to C. Bracket Conn. R's) See Sheet No. 67 for Details.

★♦ For notes affecting Construction Changes see Sh. No. 37.



SIDE ELEVATION  
NO SCALE

DIMENSIONS FOR 12 u 20.7 DIAPHRAGMS									
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(k)
6'-5 3/8"	6'-5 3/8"	6'-6 1/8"	6'-9 1/8"	6'-10 1/8"	6'-11 3/8"	7'-0 3/8"	7'-1 1/4"	7'-2 5/8"	7'-4 3/8"

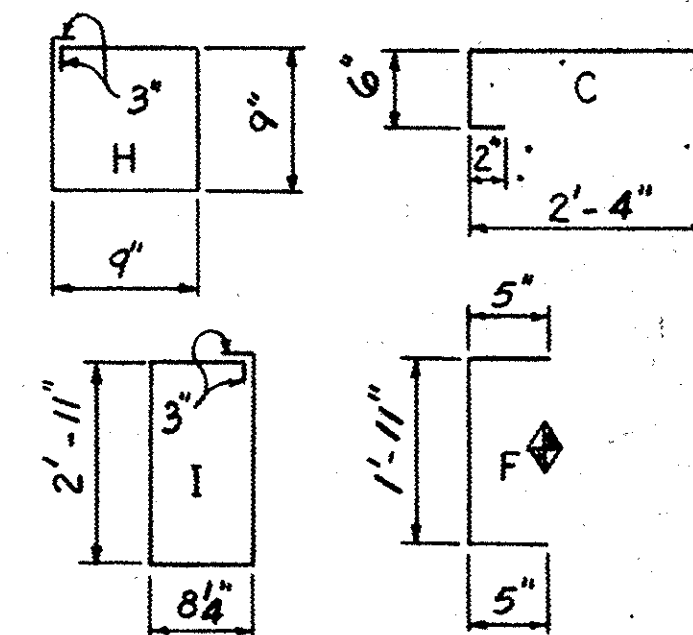
DIMENSIONS								
	DIM. A	DIM. B	DIM. C	DIM. D	DIM. E	DIM. F	DIM. G	DIM. H
BEAM NO. 1	97'-2 1/8"	20'-4 1/2"	24'-5 3/8"	24'-5 3/8"	27'-10 1/2"	—	—	—
BEAM NO. 2	98'-4 8"	28'-6"	24'-5 3/8"	24'-5 3/8"	21'-0 8"	7'-8 3/4"	7'-5 1/2"	7'-2 1/4"
BEAM NO. 3	99'-7 5/8"	28'-8"	24'-8 1/2"	24'-8 1/2"	21'-6 5/8"	7'-6"	7'-1 1/2"	6'-9 1/4"
BEAM NO. 4	100'-10 7/8"	28'-11 1/4"	25'-0 3/4"	25'-0 3/4"	21'-9 1/4"	—	—	—

REINF. STEEL SCHEDULE-CONT'D			
MARK	SIZE	D	ONE INT. SPAN REQD. LENGTH
B11	5	5	28 50'-10"
BB	1"	—	990'
BBU	1 1/8"	—	905'

8" R on outside of Ext. Bms. only. See Detail 'A' Sh. No. 67

REINFORCING STEEL SCHEDULE			
MARK	SIZE	D	ONE INT. SPAN REQD. LENGTH
A1	5	5	370 26'-2"
A2-25	5	5	2ea. 23'-3" to 13'-1" Vary by 5 1/2"
A26-43	5	5	2ea. 5'-4" to 5'-4" Vary by 5 1/2"
A44	5	3	10 4'-11"
A45	5	3	10 4'-6"
A46-67	5	5	2ea. 4'-11" to 12'-8" Vary by 4 1/2"
A48-96	5	5	2ea. 23'-3" to 13'-1" Vary by 4 1/2"
B1-10	5	5	No. 10ea. B1-B2, B4 50'-8" to 10ea. B3-B5, B6, B7, B8, B9, B10 Vary by 2"
C	4	B	198 3'-0"
D1	4	S	12 50'-3"
D2	4	S	12 48'-2"
E	5	S	200 0'-10"
F	5	B	168 2'-9"
G1	4	S	36 6'-8"
G2	4	S	36 6'-4"
H	2	B	160 3'-6"
I	5	B	64 7'-9"
J	5	S	2 30'-5"
K	5	S	2 35'-8"

BENDING DETAILS



QUANTITIES

ITEM	UNIT	ONE 101' INT. SPAN
CLASS "A" CONCRETE	C.Y. (1)	80.4
REINFORCING STEEL	LBS. (2)	22,537
STRUCTURAL STEEL	LBS. (3)	143,700
FAB. METAL HANDRAIL	L.F. (4)	198

- Does not include 9.1 C.Y. in Parapet Wall and Posts.
- Includes 630 lbs for Bolsters.
- Includes 1067lbs for Stud Shear Connectors & 154 lbs for Bronze Plates.
- The unit price for fabricated metal handrailing shall include all that portion of the railing above the sidewalk except that all reinforcing steel shall be measured and paid for at the unit price bid for that item.

Notes:  
For Standard Notes See Sheet No. 5  
For Standard Details See Sheet No. 6  
Design Data:

f.s. (Struct.) = 20,000 p.s.i., f.s. (Reinf.) = 20,000 p.s.i.  
f.c. = 1200 p.s.i., n = 10

This Sheet to accompany Sheet No. 67

S.C. STATE HIGHWAY DEPARTMENT BRIDGE DIVISION COLUMBIA S.C.			
101' SPAN SUPERSTRUCTURE FOR UNDERPASS UNDER S. SPRUILL INTERCHANGE CONN. AT N. CHARLESTON SPAN 15 LINE "G"			
REV.		FILE NO.	ROUTE NO. DATE
REV.		10.521.4	CHARLESTON 1-26 10-63
REV.		DES. RRS	IN CHARGE
REV.		QUAN. AGW	LDH 10-63
REV.		TR.	10-63
REV.		DR. AGW	DES. RRS
REV.		BY	CHKD
REV.		DATE	BRIDGE DESIGN & PLANS ENGINEER
REV.		DATE	BRIDGE ENGINEER

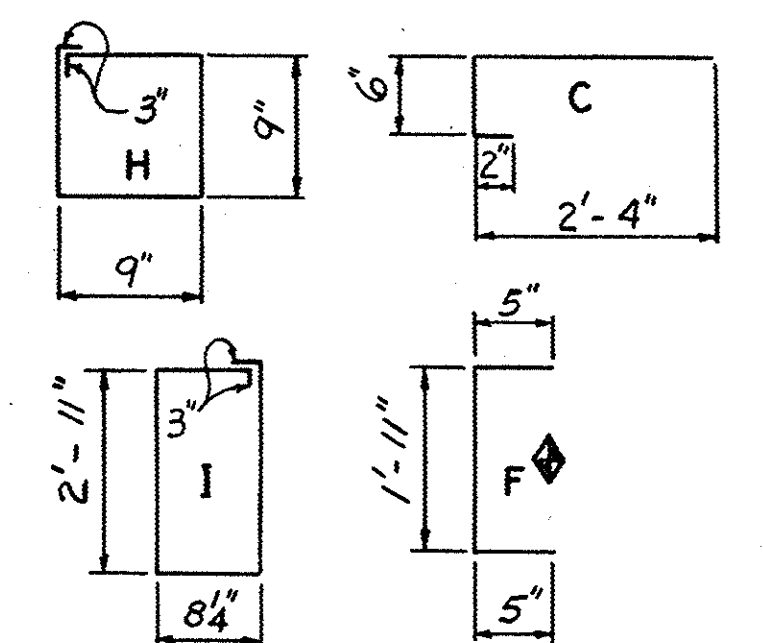


FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	105214	I-26	68	74

# \* REINFORCING STEEL SCHEDULE

MARK	SIZE	D	ONE INT. SPAN	REQD LENGTH
A <sub>1</sub>	5	S	146	26'-2"
A <sub>2-26</sub>	5	S	2 ea.	23'-4" to 13'-4" Vary by 5'
A <sub>27-46</sub>	5	S	2 ea.	12'-10" to 4'-11" Vary by 5'
A <sub>47</sub>	5	S	10	4'-6"
B <sub>1</sub>	5	S	5	32'-8"
B <sub>2-9</sub>	5	S	Number Req'd. at Rt. Vary by 11'	33'-5" to 40'-0" 2 ea. - B <sub>2</sub> , B <sub>4</sub> , B <sub>5</sub> , B <sub>7</sub> & B <sub>9</sub> 1 ea. - B <sub>3</sub> , B <sub>6</sub> & B <sub>8</sub>
B <sub>10-17</sub>	5	S	Number Req'd. at Rt. Vary by 11'	41'-5" to 48'-0" 2 ea. - B <sub>10</sub> , B <sub>12</sub> , B <sub>13</sub> , B <sub>15</sub> , B <sub>17</sub> 1 ea. - B <sub>11</sub> , B <sub>14</sub> , & B <sub>16</sub>
B <sub>18-25</sub>	5	S	Number Req'd. at Rt. Vary by 11'	49'-4" to 55'-9" 2 ea. - B <sub>18</sub> , B <sub>20</sub> , B <sub>21</sub> , B <sub>23</sub> , B <sub>25</sub> 1 ea. - B <sub>19</sub> , B <sub>22</sub> & B <sub>24</sub>
B <sub>26</sub>	5	S	10	56'-5"
C	4	B	90	3'-0"
D <sub>1</sub>	4	S	6	56'-6"
D <sub>2</sub>	4	S	6	32'-8"
E	5	S	92	0'-10"
F	5	B	76	2'-9"
G <sub>1</sub>	4	S	18	7'-10"
G <sub>2</sub>	4	S	12	6'-3"
H	2	B	70	3'-6"
I	5	B	28	7'-9"
J <sub>1</sub>	5	S	1	30'-5"
BB	1"	—	—	450'
BBU	1"	—	—	450'
K	5	S	1	35'-8"
J <sub>2</sub>	5	S	1	21'-0"

# BENDING DETAILS



# \* QUANTITIES

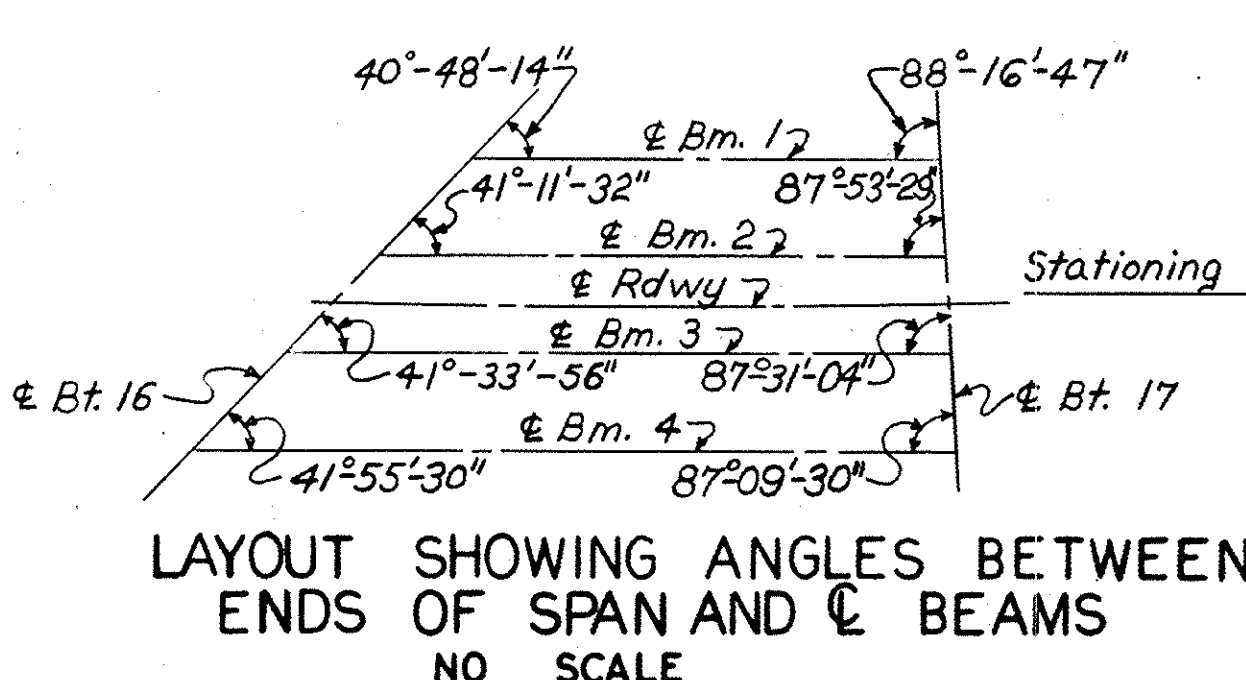
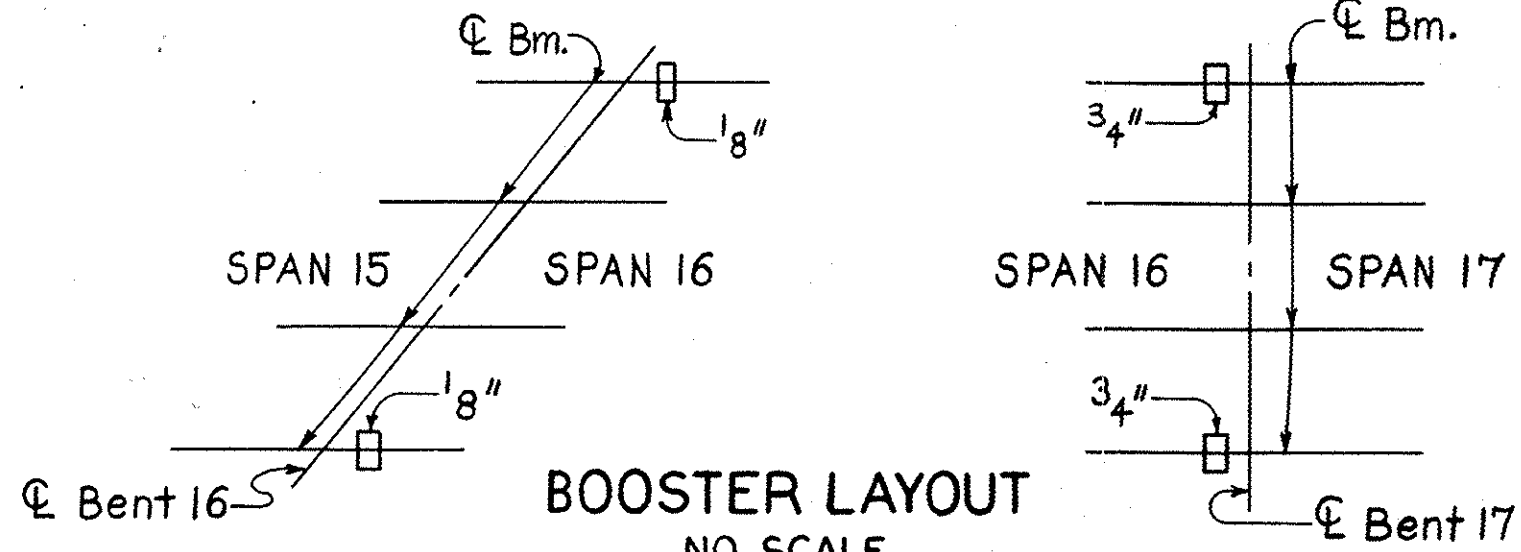
ITEM	UNIT	ONE INT. SPAN
CLASS A CONCRETE	C.Y.	① 36.0
REINFORCING STEEL	LBS.	② 9576
STRUCTURAL STEEL	LBS.	③ 28,200
FAB. METAL HANDRAIL	L.F.	④ 90

- ① Does not include 4.1 C.Y. in Parapet Wall and Posts.
- ② Includes 305 lbs for Bolsters.
- ③ Includes 701 lbs for Stud Shear Connectors.
- ④ The unit price for fabricated metal handrailing shall include all that portion of the railing above the sidewalk except that all reinforcing steel shall be measured and paid for at the unit price bid for that item.

This sheet to accompany Sheet No. 69

REV.		S.C. STATE HIGHWAY DEPARTMENT
REV.		BRIDGE DIVISION
REV.		COLUMBIA S.C.
REV.		56'-10" SPAN SUPERSTRUCTURE
REV.		FOR UNDERPASS UNDER
REV.		S. SPRUILL INTERCHANGE CONN.
REV.		AT N. CHARLESTON
REV.		SPAN 16 LINE "G"
REVIEWED	RRS	IN CHARGE
QUAN. AGW	10-63	FILE NO. 105214
TR.		COUNTY CHARLESTON
DR. AGW	10-63	ROUTE NO. I-26
DES. JWB	10-63	DATE 10-63
BY	CHK'D DATE	APPROVED BY
		BRIDGE DESIGN & PLANS ENGINEER
		BRIDGE ENGINEER

DIMENSIONS						
	DIM. A	DIM. B	DIM. C	DIM. D	DIM. E	DIM. F
BEAM NO. 1	33'-1 1/16"	8'-5 1/4"	12'-4 3/4"	12'-3 11/16"	—	—
BEAM NO. 2	41'-1 5/8"	16'-3"	12'-4 1/2"	12'-6 8"	5'-0 4"	2'-4 3/4"
BEAM NO. 3	49'-0 4"	18'-10 4"	15'-0"	15'-2"	4'-10 4"	2'-4"
BEAM NO. 4	56'-9 3/4"	21'-4 1/2"	17'-7 3/4"	17'-9 1/2"	—	—

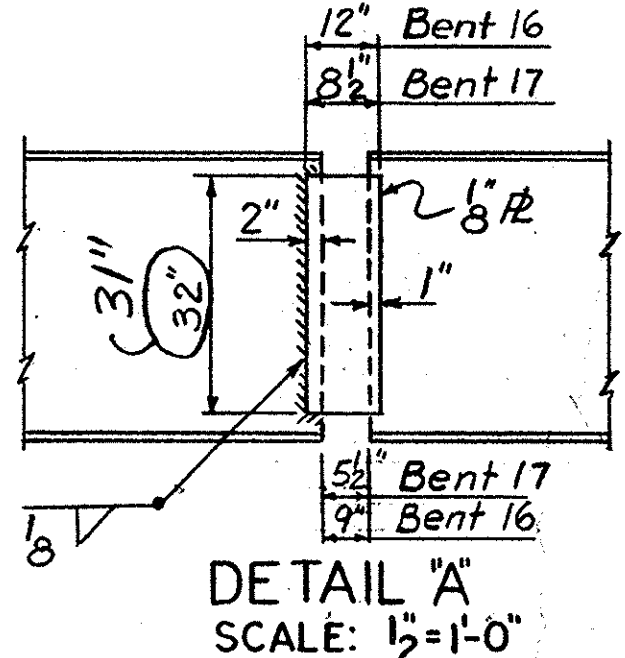
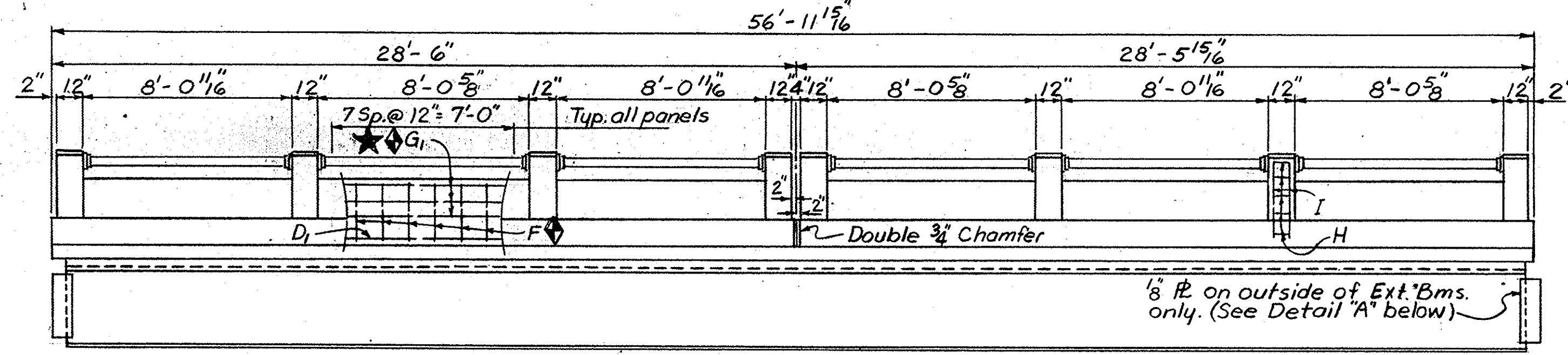
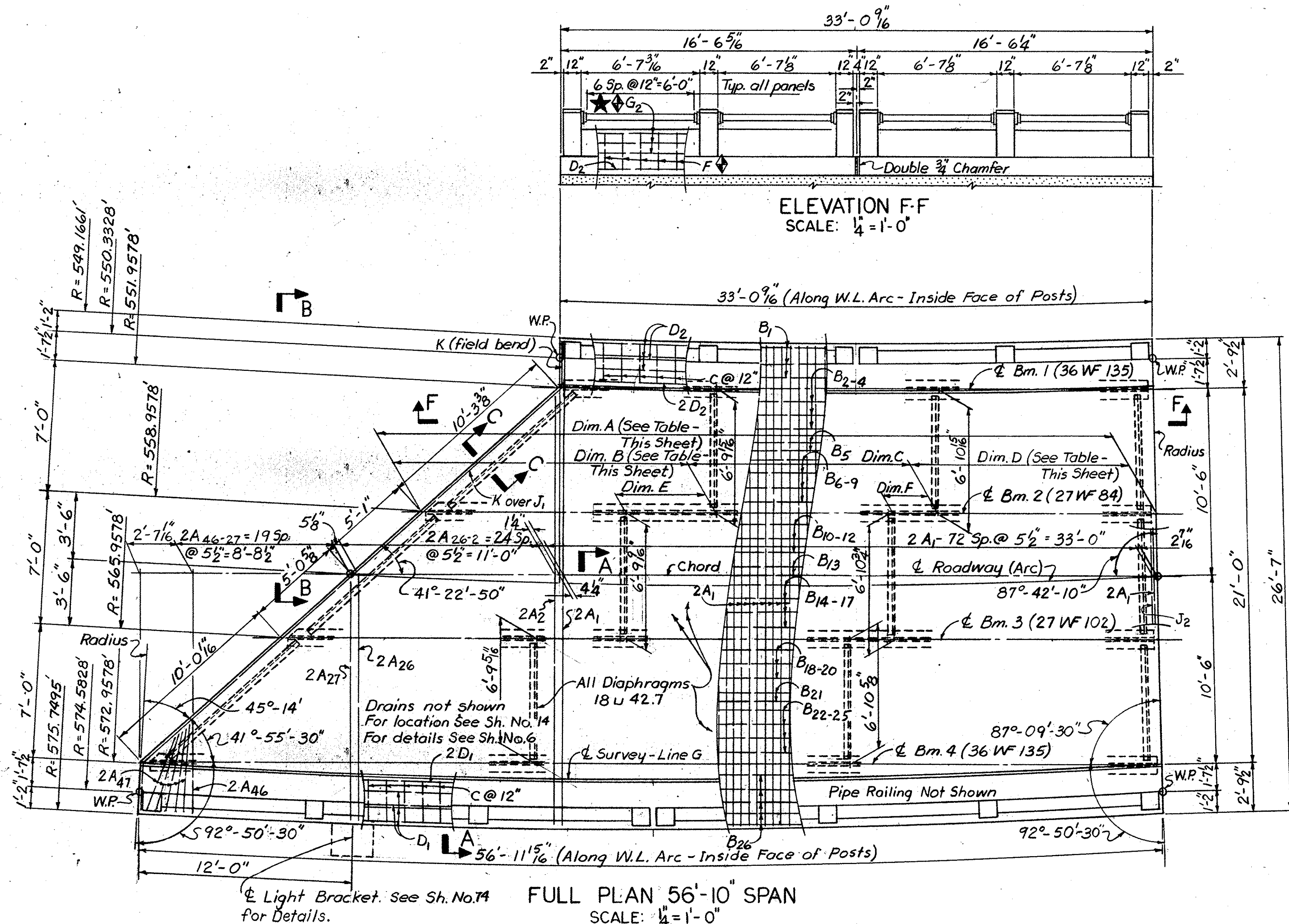


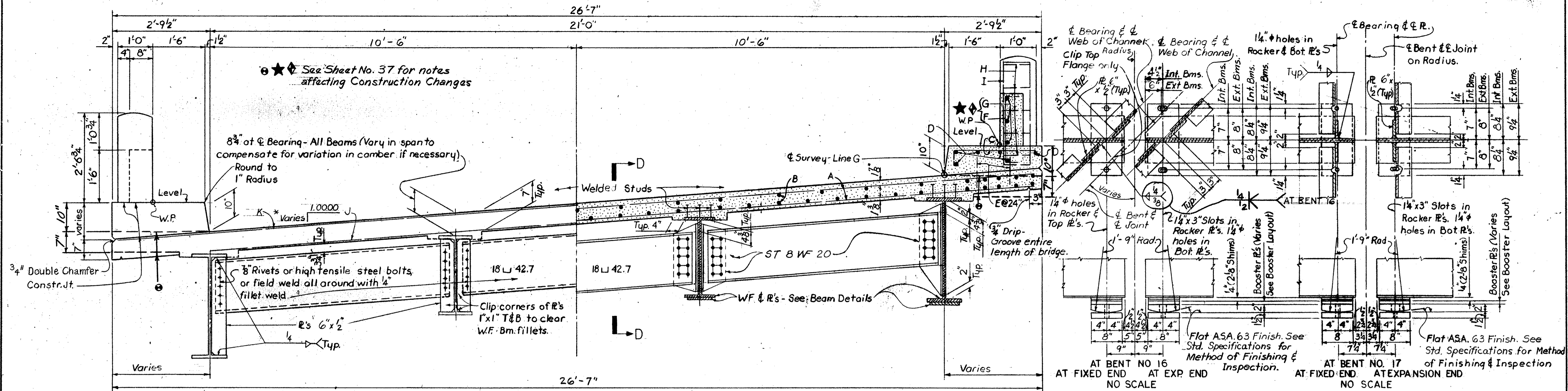
For notes affecting Constr. Changes see Sh. #37.

\* Note:  
Does not include reinforcing steel and quantities for Light Bracket. See Sheet No. 74 for Details, Reinforcing Steel Schedule and Quantities.

Notes:  
For Standard Notes See Sheet No. 5  
For Standard Details See Sheet No. 6  
Design Data:

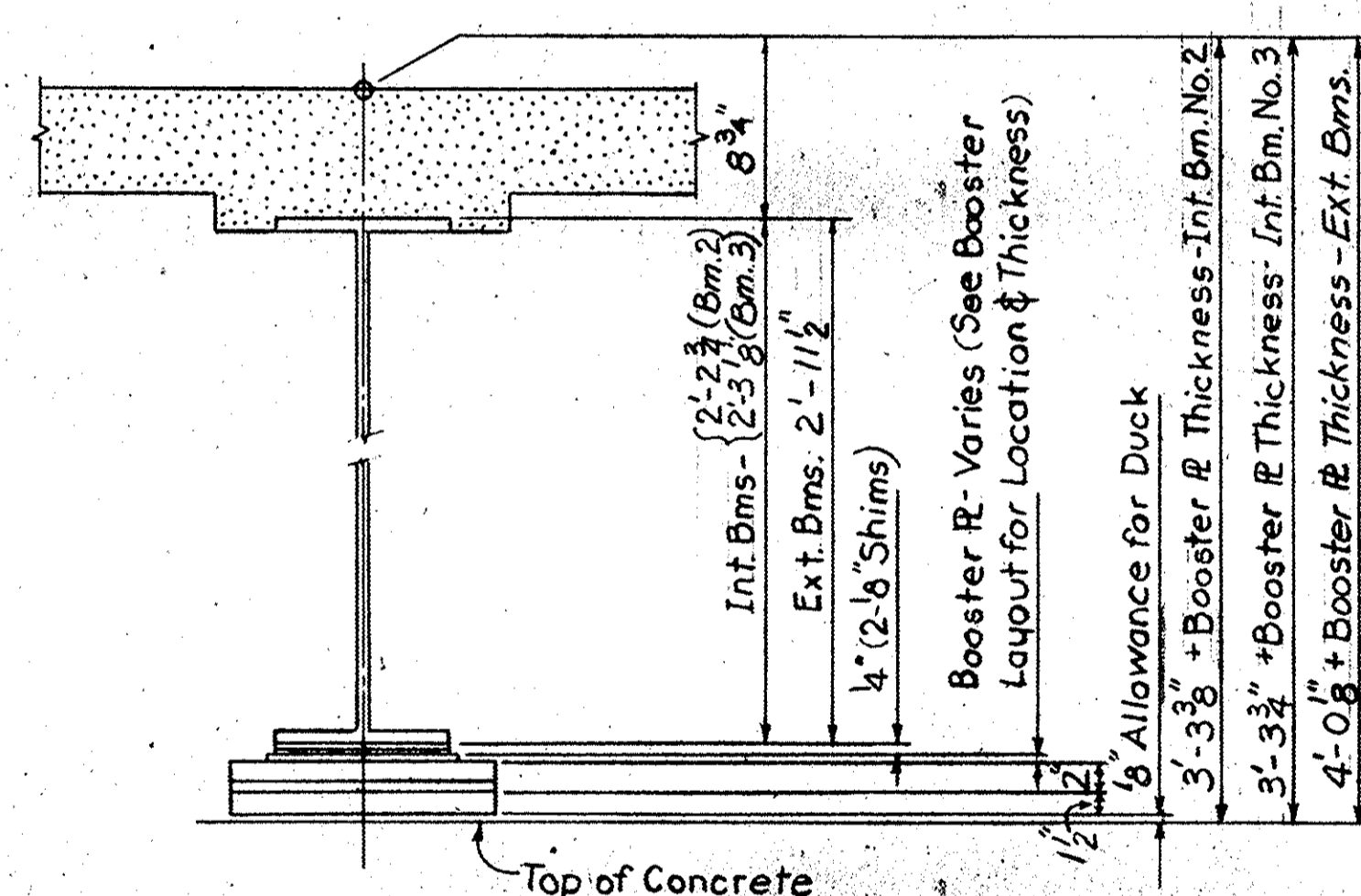
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f.c. = 1200 p.s.i., n = 10,



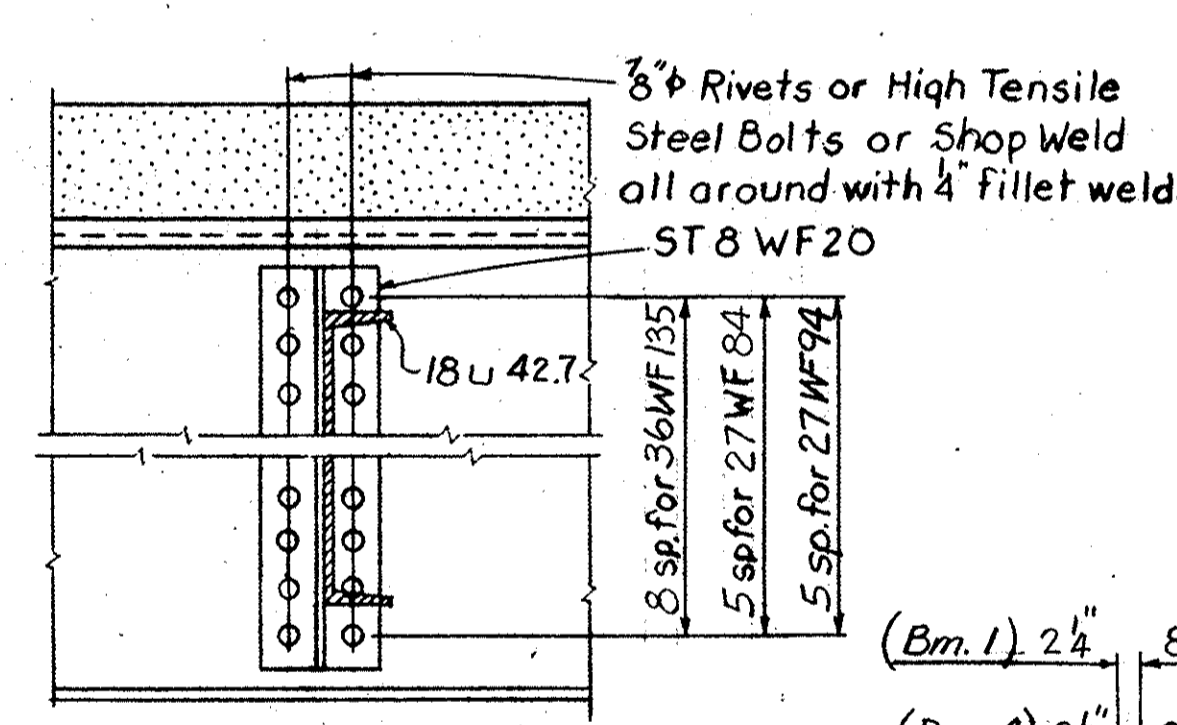


ELEVATION B-B

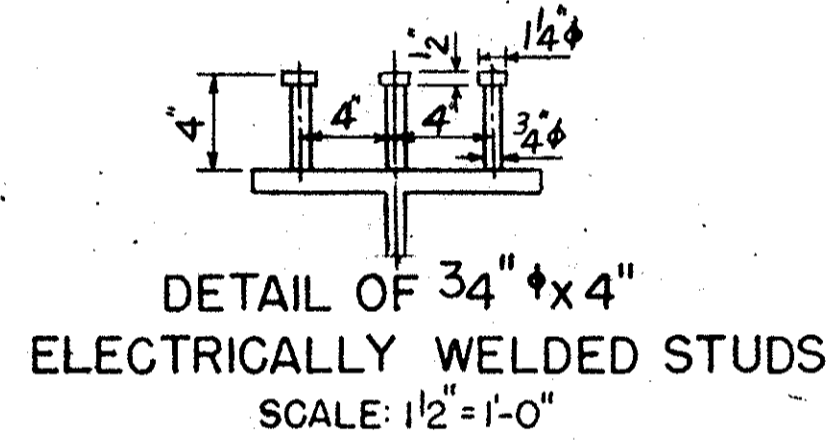
SECTION A-A



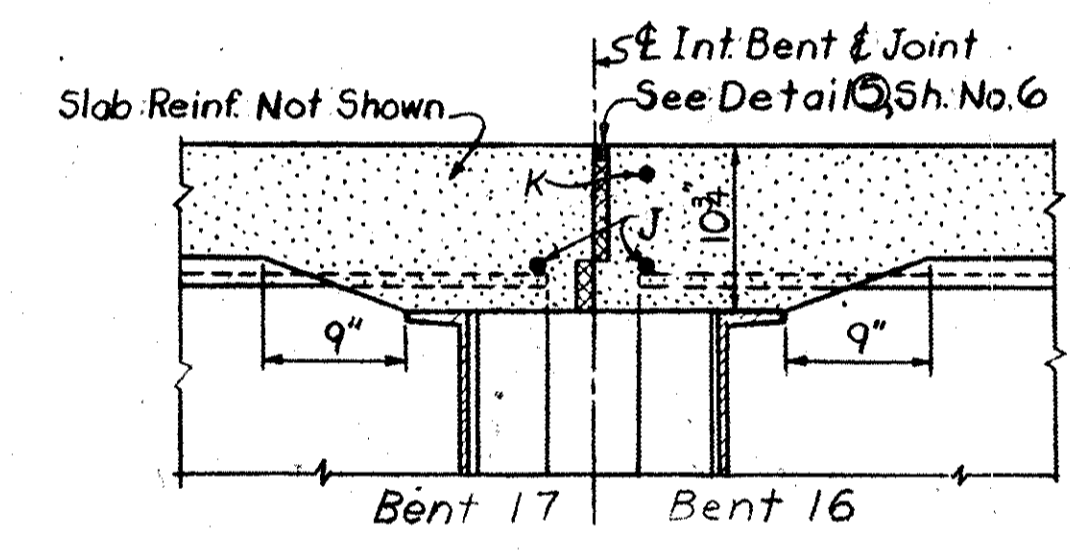
SKETCH FOR COMPUTING BEAM SEAT ELEVATIONS AT BEARING  
SCALE: 1"=1'-0"



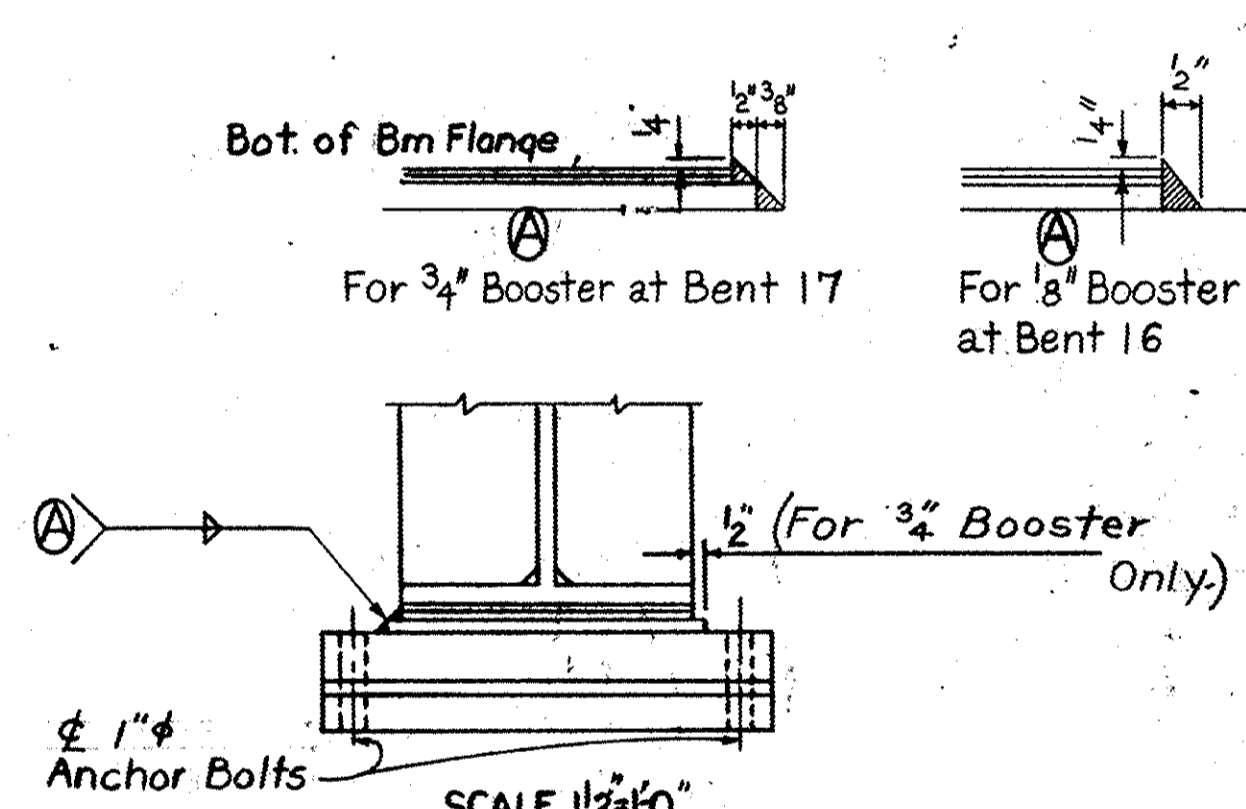
SECTION DD  
SCALE: 1"=1'-0"



DETAIL OF 3/4" x 4" ELECTRICALLY WELDED STUDS  
SCALE: 1/2"=1'-0"



SECTION C-C  
SCALE: 1"=1'-0"



BEARING DETAILS  
SCALE: 1/2"=1'-0"

NOTES:  
FOR STANDARD NOTES SEE SHEET NO. 5  
FOR STANDARD DETAILS SEE SHEET NO. 6  
DESIGN DATA:  
FS (STRUCT.) = 20,000 P.S.I., FS (REINF.) = 20,000 P.S.I.,  
FC = 1200 P.S.I. - N=10

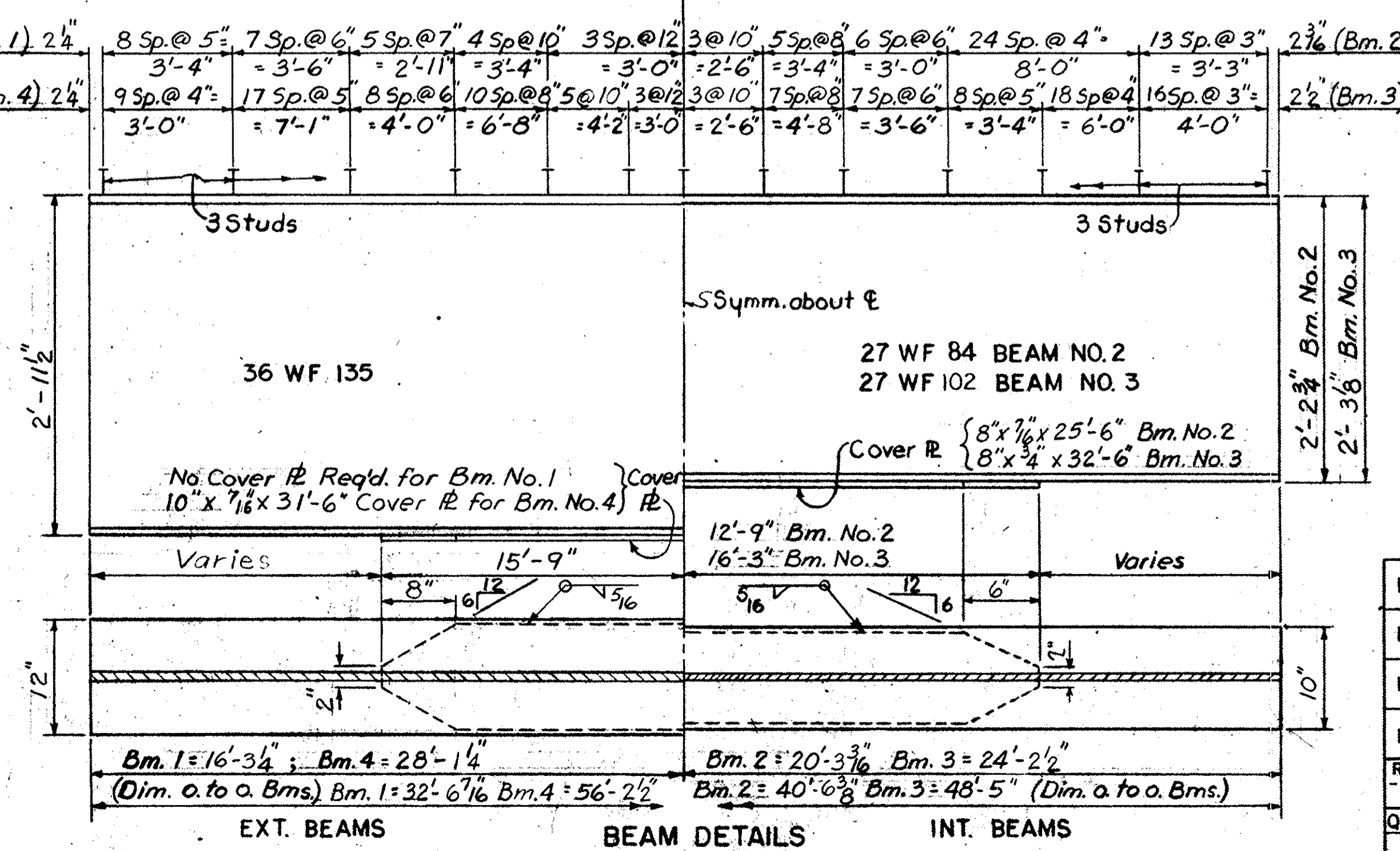
EXT. BEAMS	EXT. BEAMS	EXT. BEAMS	EXT. BEAMS
BM. 1	BM. 4	BM. 2	BM. 3
-3/16"	+3/16"	+1/8"	+3/16"

D.L. Defl.

EXTERIOR BEAMS				INTERIOR BEAMS			
BEAM NO. 1	BEAM NO. 4	BEAM NO. 2	BEAM NO. 3	BEAM NO. 1	BEAM NO. 4	BEAM NO. 2	BEAM NO. 3
D.L.	D.L.	D.L.	D.L.	D.L.	D.L.	D.L.	D.L.
.14 1/4"	.15 1/4"	.10 1/4"	.12 1/4"	.10 1/4"	.12 1/4"	.10 1/4"	.12 1/4"
.66 1/4"	.66 1/4"	.65 1/4"	.66 1/4"	.65 1/4"	.66 1/4"	.65 1/4"	.66 1/4"
.38 1/4"	.38 1/4"	.38 1/4"	.38 1/4"	.38 1/4"	.38 1/4"	.38 1/4"	.38 1/4"
1.18 1/4"	1.19 1/4"	.75 1/4"	.78 1/4"	.75 1/4"	.78 1/4"	.75 1/4"	.78 1/4"

BM, DIAPH, ETC.  
SLAB  
SDWK, RAIL, ETC.  
TOTAL

DEAD LOAD DEFLECTION & CAMBER  
DIAGRAM  
NO SCALE



EXT. BEAMS

BEAM DETAILS  
NO SCALE

INT. BEAMS

THIS SHEET TO ACCOMPANY SHEET NO. 68

REV.		S. C. STATE HIGHWAY DEPARTMENT
REV.		BRIDGE DIVISION
REV.		COLUMBIA S. C.
REV.		56'-10" SPAN SUPERSTR. DETAILS
REV.		FOR UNDERPASS UNDER
REV.		S. SPRUILL INTERCHANGE CONN.
REV.		(AT N. CHARLESTON)
REV.		SPAN 16 LINE "G"

QUAN.	AGW	10-63	FILE NO.	COUNTY	ROUTE NO.	DATE
TR.	AGW	10-63	10,521.4	CHARLESTON	1-26	8-63
DES.	JWB	10-63	APPROVED BY			
BY	CHK'D	DATE	APPROVED BY			

BRIDGE DESIGN & PLANS ENGINEER

The diagram illustrates the bending details of a reinforced concrete slab. It consists of two main parts: a plan view and a cross-section view.

**Plan View:** Shows a rectangular slab with overall dimensions of 9' by 2' - 4". The slab is divided into two sections, labeled 'H' and 'C'. Section 'H' is a square with side dimensions of 3' and 3'. Section 'C' is a rectangle with a width of 2' - 4" and a height of 2'. The dimensions are indicated by arrows and text labels.

**Cross-section View:** Shows the vertical profile of the slab. The total thickness is 6". The reinforcement is shown as a grid of bars. The top bars are spaced at 3" intervals, and the bottom bars are spaced at 2" intervals. The dimensions are indicated by arrows and text labels.

- ① Does not include 5.1 C.Y. in parapet wall and posts.
- ② Includes 372 lbs for Bolsters.
- ③ Includes 874 lbs for Stud Shear Connectors.
- ④ The unit price for Fabricated Metal Handrailing shall include all that portion of the railing above the sidewalk except that all reinforcing steel shall be measured and paid for at the unit price bid for that item.

\* Note:  
Does not include reinforcing steel  
and quantities for Light Bracket on  
Span 18. See Sheet No. 74 for Details.  
Reinforcing Steel Schedule and Quantities.

f.s. (Struct.) = 20,000 p.s.i., f.s. (Reinf.) = 20,000 p.s.i.  
f.c. = 1200 p.s.i.,  $n = 10$



REV.		S. C. STATE HIGHWAY DEPARTMENT BRIDGE DIVISION COLUMBIA S.C. /  59' SPAN SUPERSTRUCTURE FOR UNDERPASS UNDER S. SPRUILL INTERCHANGE CONN. AT N. CHARLESTON SPANS 17, 18 & 19 LINE "G"			
REV.					
REV.					
REV.					
REVIEWED	<u>RRS</u>				
	IN CHARGE				
QUAN	<u>AGW</u> <u>TWE</u>	FILE NO.	COUNTY	ROUTE NO.	DATE
TR.	LDH 9-63	10,521-4	CHARLESTON	I-26	8-63
DR.	AGW LDH 8-63	APPROVED BY	APPROVED BY		
DES.	JWB RRS 8-63	<u>W.E. Owen</u>	<u>W. J. Ford</u>		
	BY CHK'D DATE	BRIDGE DESIGN & PLANS ENGINEER		BRIDGE ENGINEER	

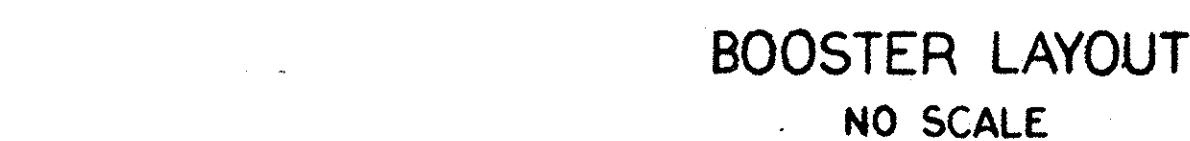
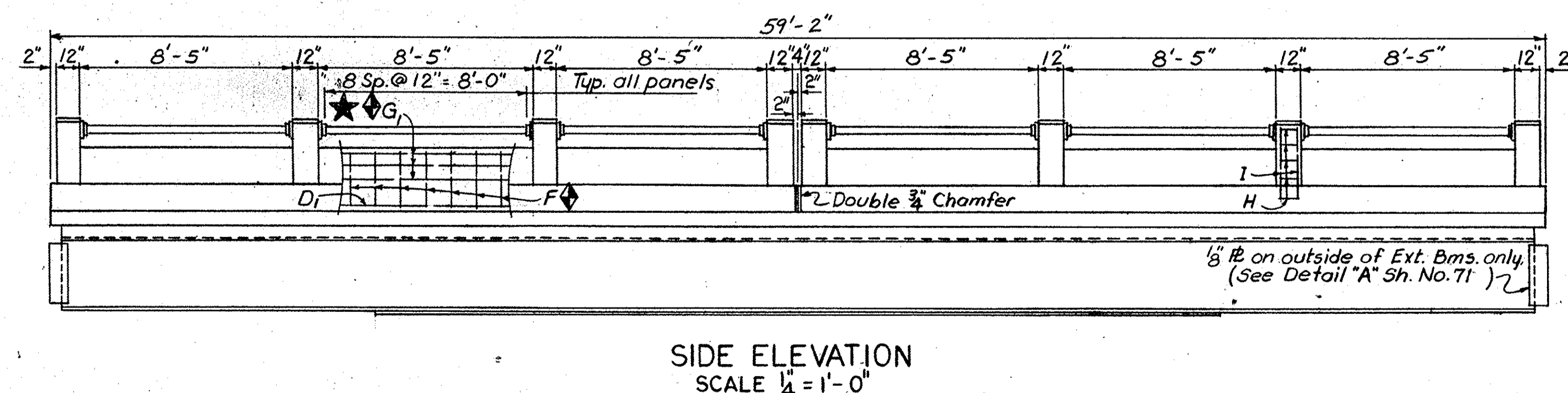
*This sheet to accompany Sheet No.71.*

S. C. STATE HIGHWAY DEPARTMENT  
BRIDGE DIVISION  
COLUMBIA S. C. /

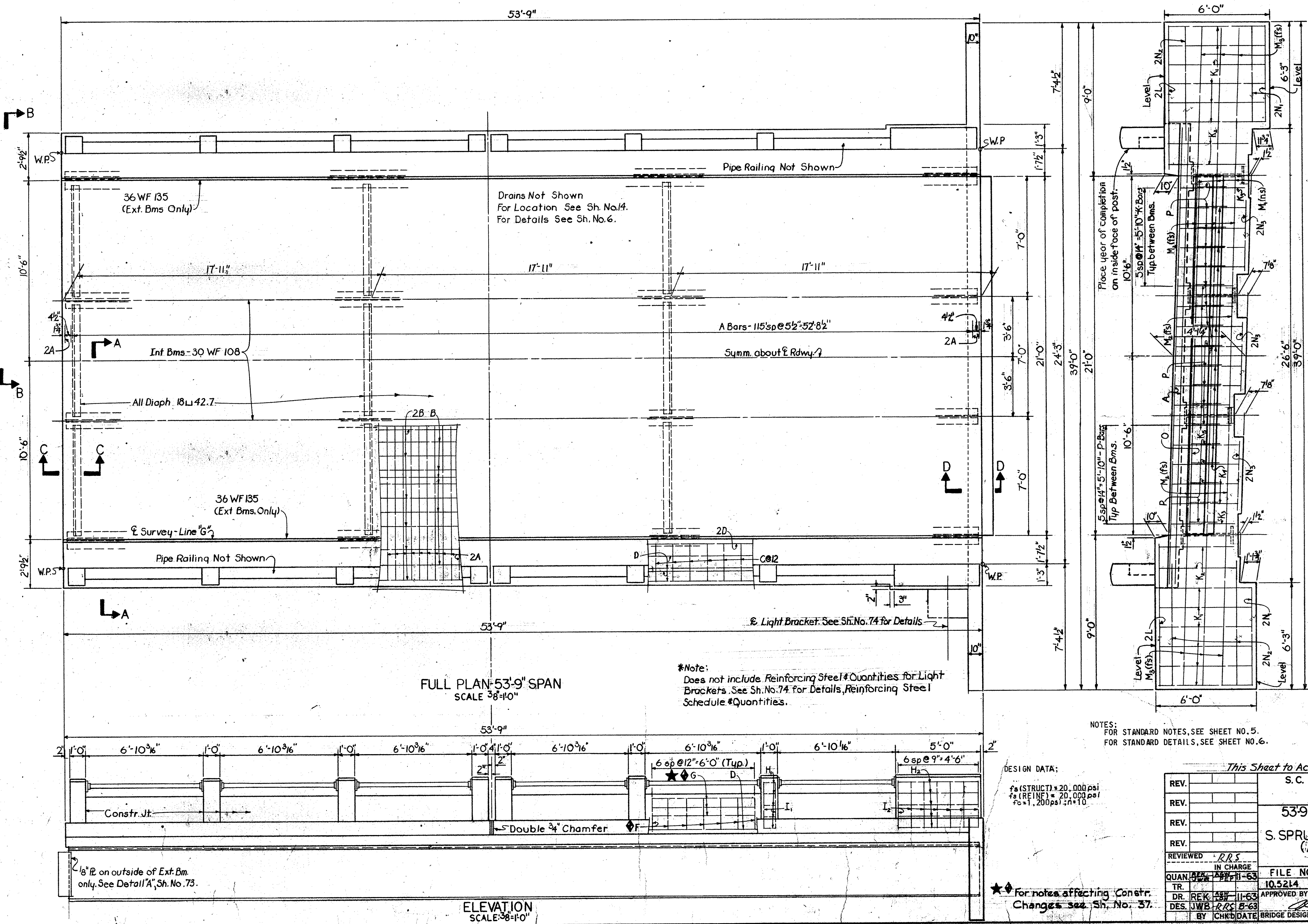
59' SPAN SUPERSTRUCTURE  
FOR UNDERPASS UNDER  
S. SPRUILL INTERCHANGE CONN.  
AT N. CHARLESTON  
SPANS 17, 18 & 19 LINE "G"

3	FILE NO.	COUNTY	ROUTE NO.	DATE
	105214	CHARLESTON	1-26	8-6

3	APPROVED BY	APPROVED BY
3		
E	BRIDGE DESIGN & PLANS ENGINEER	BRIDGE ENGINEER







**\*REINFORCING STEEL**

MARK	SIZE	NO.	D	I END	SPAN
				NO. REQD	LENGTH
A	5	S	236		26'-2"
B	5	S	49		53'-4"
C	4	B	108		3'-0"
D	4	S	12		53'-4"
E	5	S	108		0'-10"
F	5	B	84		2'-9"
G	4	S	36		6'-6"
H	2	B	70		3'-6"
I	2	B	10		12'-0"
J	5	B	28		7'-9"
K	5	B	14		8'-3"
L	5	S	1		21'-0"
M	4	B	12		11'-10"
N	4	B	4		9'-4"
O	4	B	2		7'-8"
P	4	B	12		8'-0"
Q	4	B	4		6'-10"
R	4	S	4		8'-5"
S	4	S	3		38'-7"
T	4	S	9		6'-8"
U	4	S	6		8'-8"
V	4	S	6		5'-10"
W	4	S	6		7'-4"
X	4	S	6		4'-2"
Y	4	S	1		20'-8"
Z	4	B	18		3'-5"
BB	1"		540'		Req'd
BBU	1/8"		505'		Req'd

**\*BENDING DETAILS**

**\*QUANTITIES**

1	CLASS 'A' CONCRETE	477 CY
2	REINFORCING STEEL	11,592 LBS
3	STRUCTURAL STEEL	32,900 LBS
4	FAB. METAL HANDRAIL	108 LF

NOTES:  
1 DOES NOT INCLUDE 5.5 C.Y. IN PARAPET WALL AND POSTS.  
2 INCLUDES 600 LBS. FOR STUD SHEAR CONNECTORS.  
3 INCLUDES 349 LBS. FOR BOLSTERS.  
4 THE UNIT PRICE BID FOR FABRICATED METAL HANDRAILING SHALL INCLUDE ALL THAT PORTION OF THE RAILING ABOVE THE SIDEWALK EXCEPT THAT ALL REINFORCING STEEL SHALL BE MEASURED AND PAID FOR AT THE UNIT PRICE BID FOR THAT ITEM.

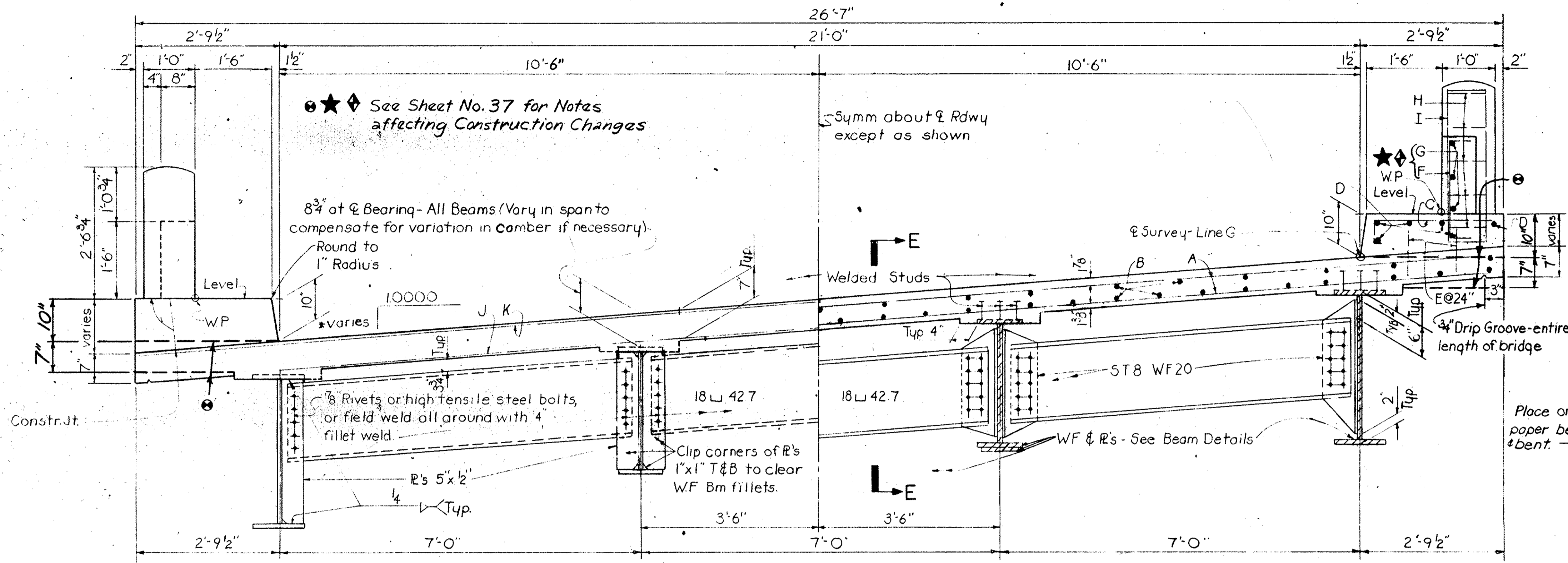
NOTES:  
FOR STANDARD NOTES, SEE SHEET NO. 5.  
FOR STANDARD DETAILS, SEE SHEET NO. 6.

DESIGN DATA:  
 $f_s$  (STRUCT) = 20,000 psi  
 $f_s$  (REINF) = 20,000 psi  
 $f_c$  = 1,200 psi;  $n$  = 10

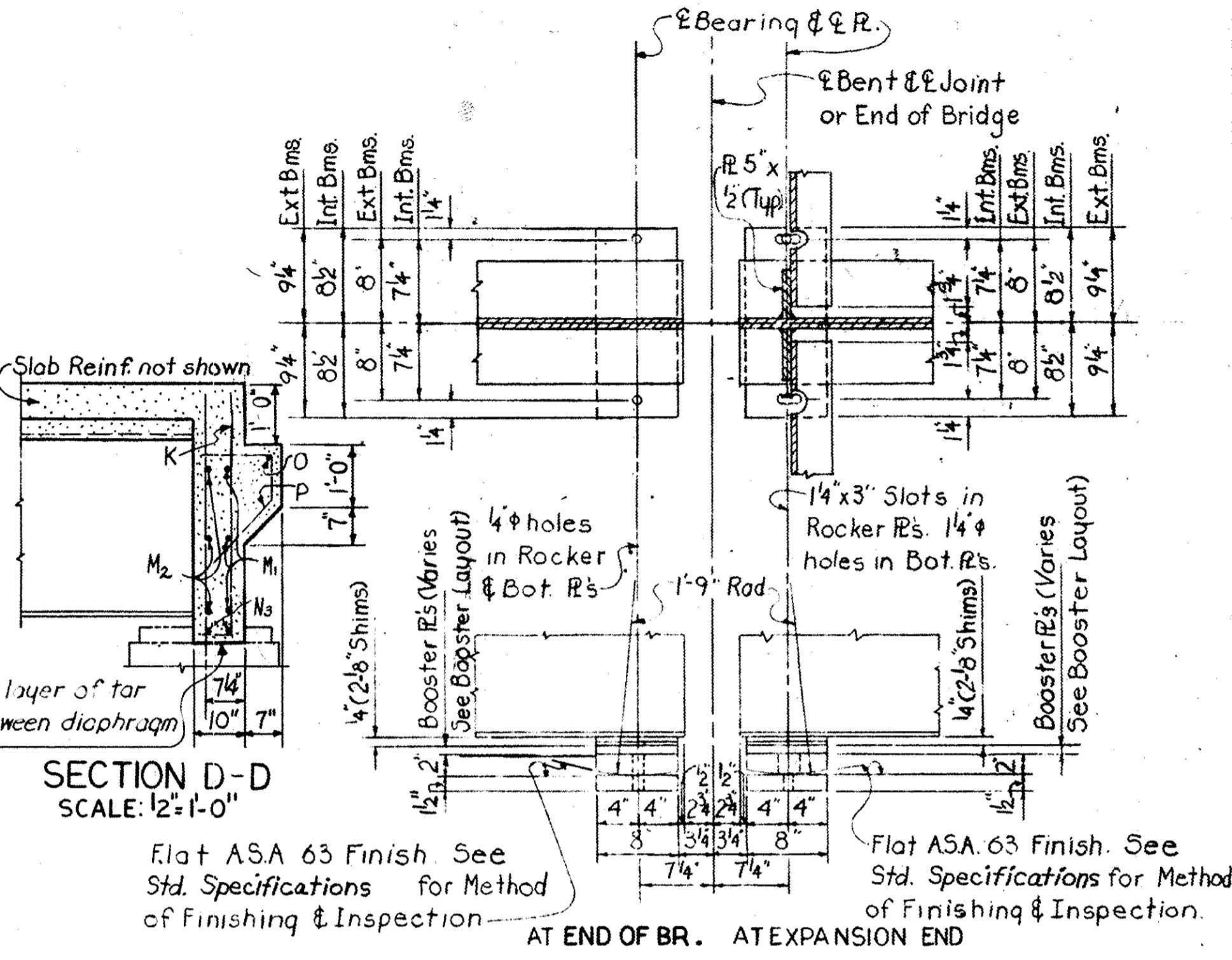
This Sheet to Accompany Sheet No. 73.

REV.		S. C. STATE HIGHWAY DEPARTMENT
REV.		BRIDGE DIVISION
REV.		COLUMBIA S.C.
REV.		53'-9" SPAN SUPERSTRUCTURE
REV.		FOR UNDERPASS UNDER
REV.		S. SPRUILL INTERCHANGE CONN.
REV.		(AT N. CHARLESTON)
REV.		SPAN 20, LINE "G"
REVIEWED	RRS	FILE NO.
IN CHARGE	RRS	COUNTY
QUAN. BY	RRS	ROUTE NO.
TR.	RRS	DATE
DR. REK	RRS	105214
DES. JWB	RRS	CHARLESTON
BY	RRS	I-26
DATE	RRS	11-63
BRIDGE DESIGN & PLANS ENGINEER		
BRIDGE ENGINEER		

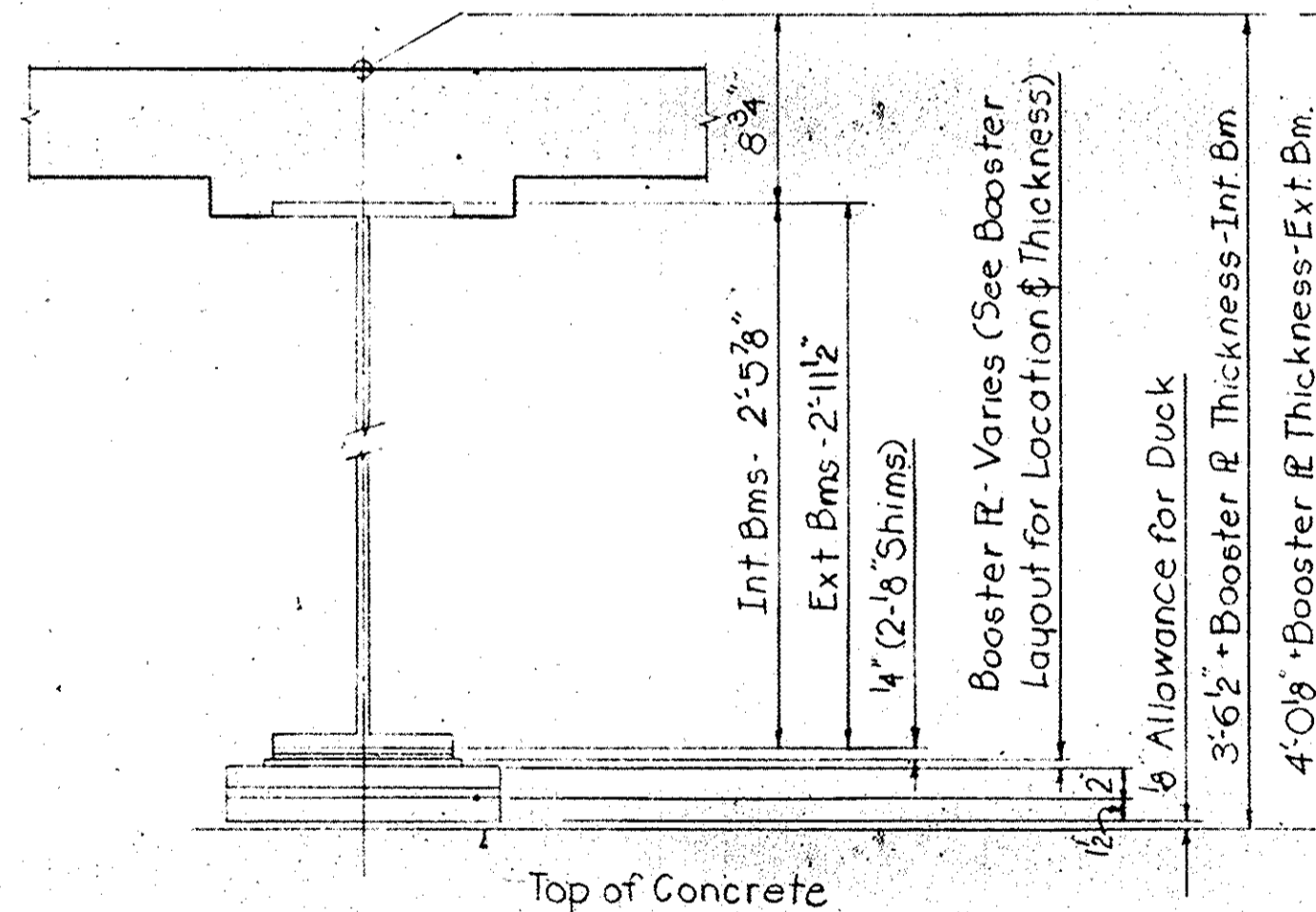
For notes affecting Constr. Changes see Sh. No. 37.



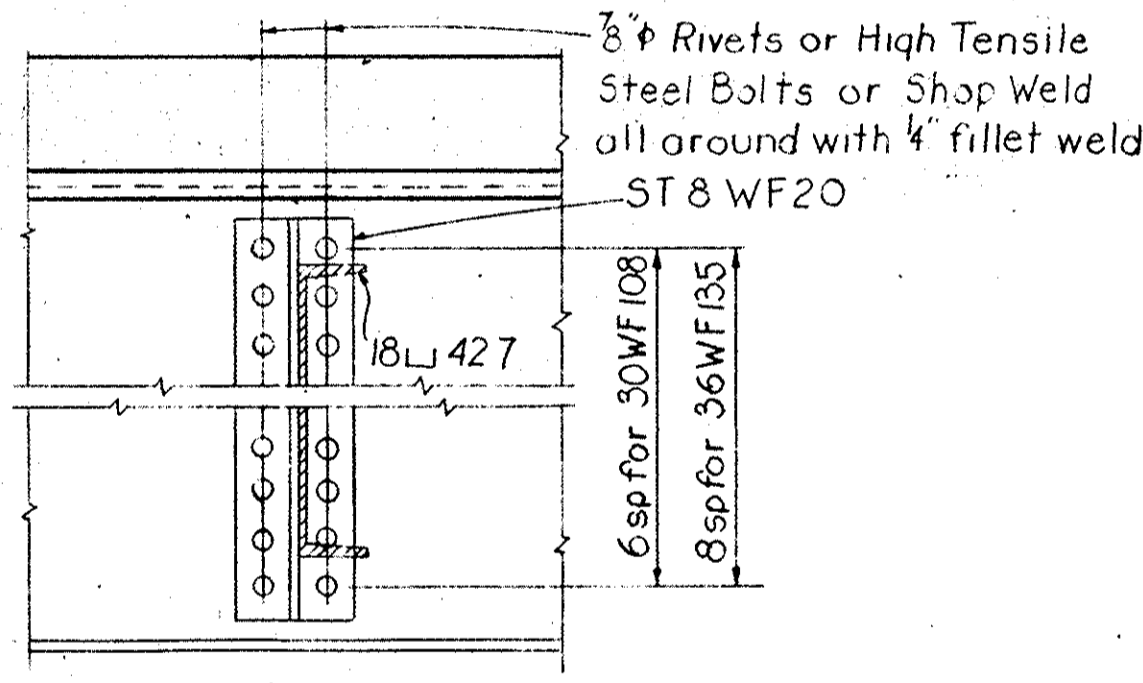
ELEVATION B-B



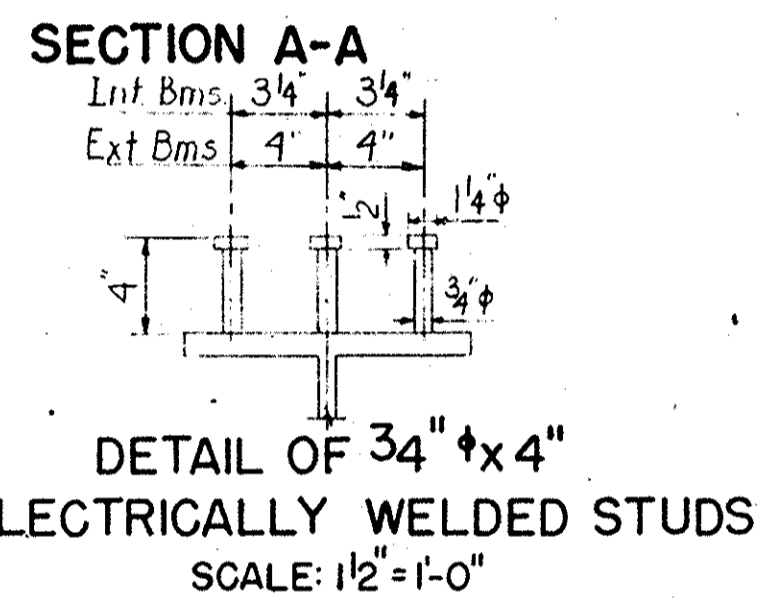
BEARING DETAILS  
SCALE 1"=1'-0"



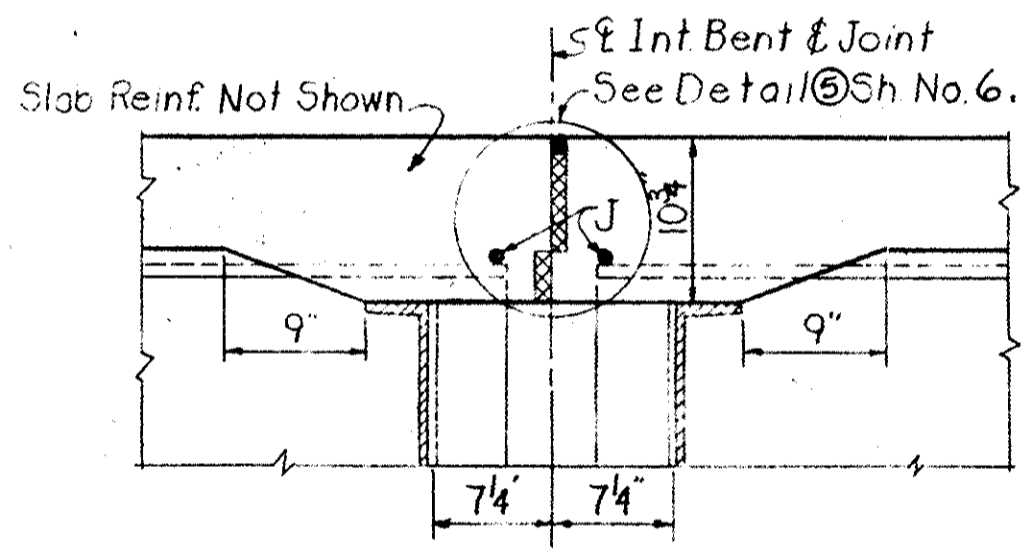
SKETCH FOR COMPUTING BEAM SEAT ELEVATIONS AT  $\phi$  BEARING  
SCALE: 1"=1'-0"



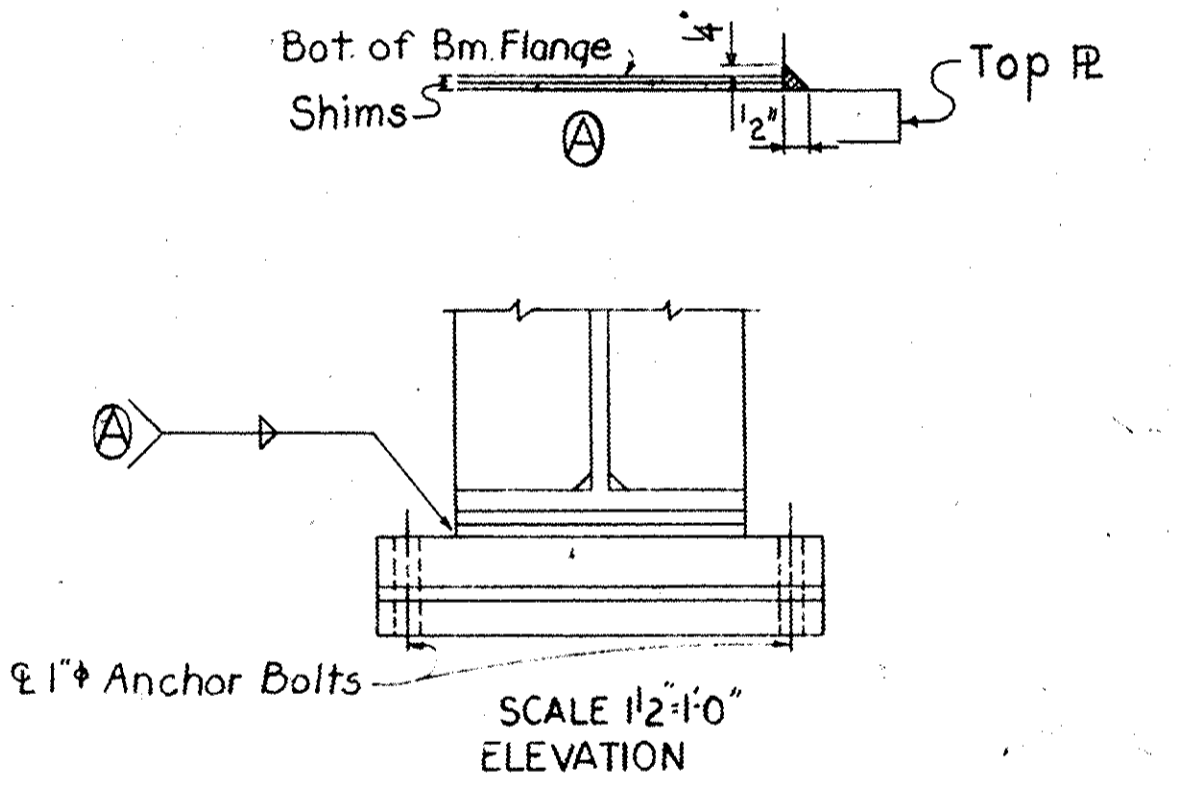
SECTION E-E  
SCALE: 1"=1'-0"



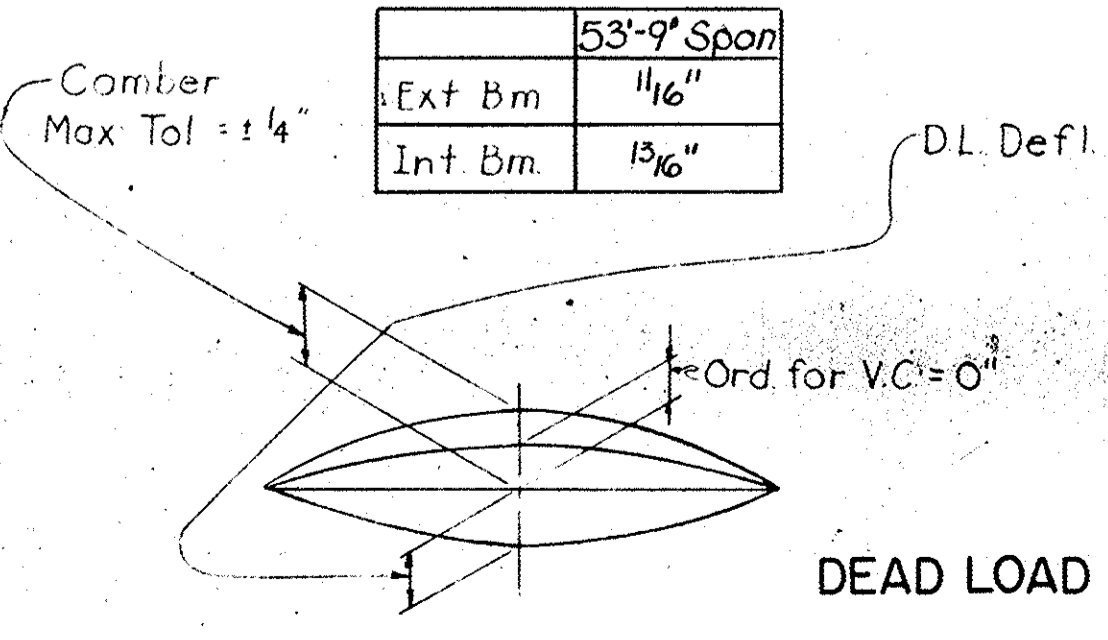
DETAIL OF 3/4" x 4" ELECTRICALLY WELDED STUDS  
SCALE: 1/2"=1'-0"



SECTION C-C  
SCALE: 1/2"=1'-0"

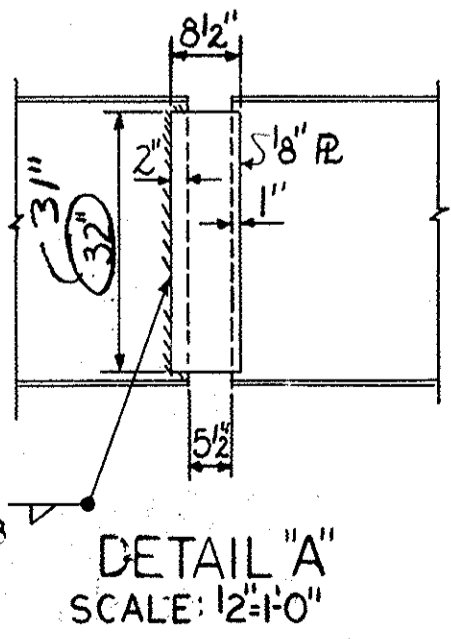


NOTES:  
FOR STANDARD NOTES SEE SHEET NO. 5.  
FOR STANDARD DETAILS SEE SHEET NO. 6.  
DESIGN DATA:  
F<sub>s</sub> (STRUCT.) 20,000 P.S.I., F<sub>s</sub> (REINF.) 20,000 P.S.I.  
F<sub>c</sub> 1200-PSI n=10

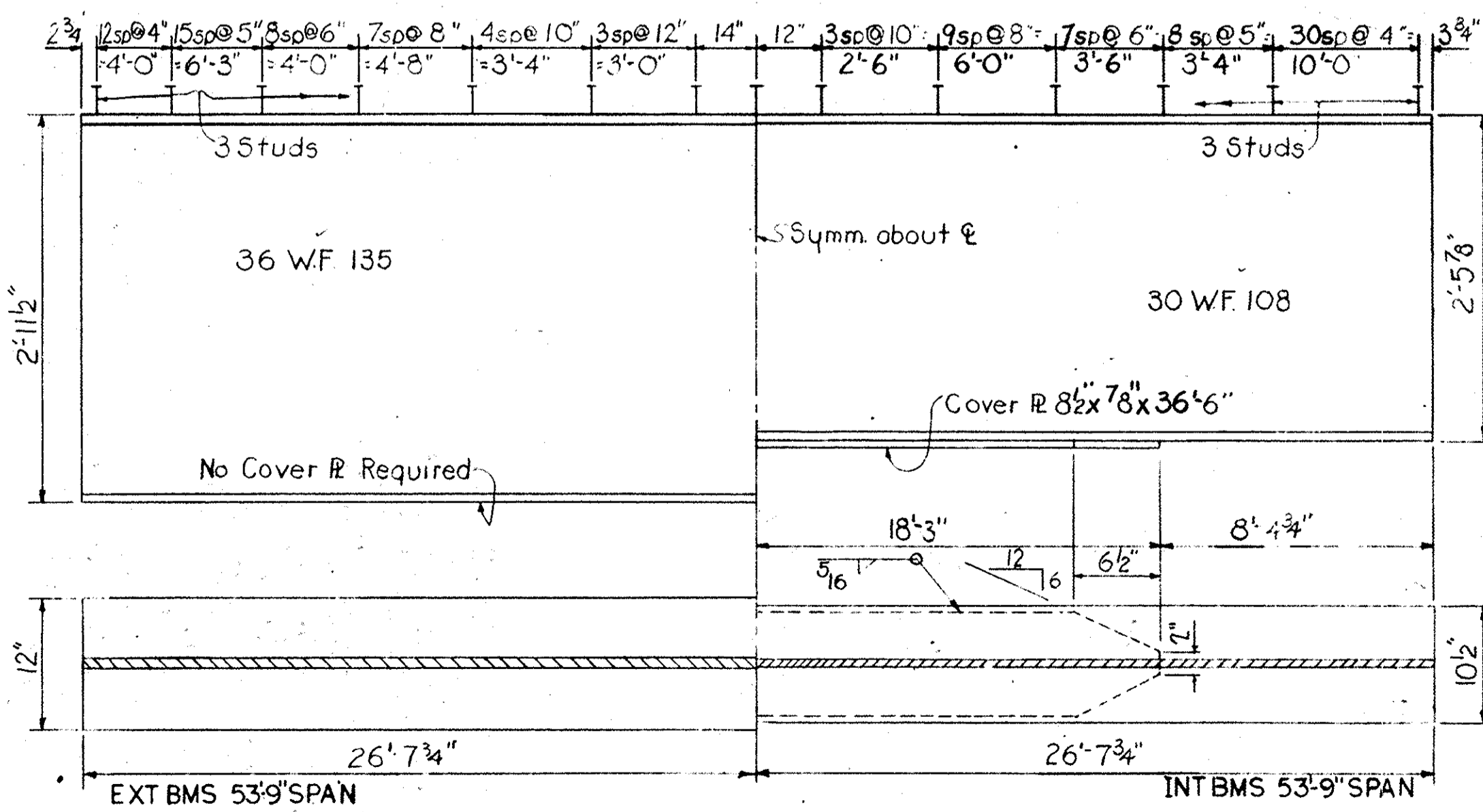


DEAD LOAD DEFLECTION & CAMBER  
DIAGRAM  
NO SCALE

53'-9" Span			
	Ext Bm.	Int Bm.	DL Defl.
Bm, Diaph, etc.	1.15 K/ft.	1.15 K/ft.	1.15 K/ft.
Slab	.66 K/ft.	.66 K/ft.	.66 K/ft.
Sdwk, Rail, etc.	.38 K/ft.	.38 K/ft.	.38 K/ft.
Total	1.19 K/ft.	1.19 K/ft.	1.19 K/ft.
Bm, Diaph, etc.	1.13 K/ft.	1.13 K/ft.	1.13 K/ft.
Slab	.65 K/ft.	.65 K/ft.	.65 K/ft.
Total	.78 K/ft.	.78 K/ft.	.78 K/ft.



DETAIL "A"  
SCALE: 1/2"=1'-0"



BEAM DETAILS  
NO SCALE

THIS SHEET TO ACCOMPANY SHEET NO. 72.			
REV.		S.C. STATE HIGHWAY DEPARTMENT BRIDGE DIVISION COLUMBIA S.C.	
REV.		53'-9" SPAN SUPERSTR. DETAILS FOR UNDERPASS UNDER S. SPRUILL INTERCHANGE CONN. (AT N. CHARLESTON) SPAN 20, LINE "G"	
REV.			
REV.			
REVIEWED	RRS	FILE NO.	COUNTY
QUAN.	10.521.4	10.521.4	CHARLESTON
TR.	8-63	ROUTE NO.	DATE
DR. REK	8-63	APPROVED BY	APPROVED BY
DES. JWB	8-63	BRIDGE DESIGN & PLANS ENGINEER	BRIDGE ENGINEER
BY	CHK'D DATE		

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	10521.4	I-26	74	74

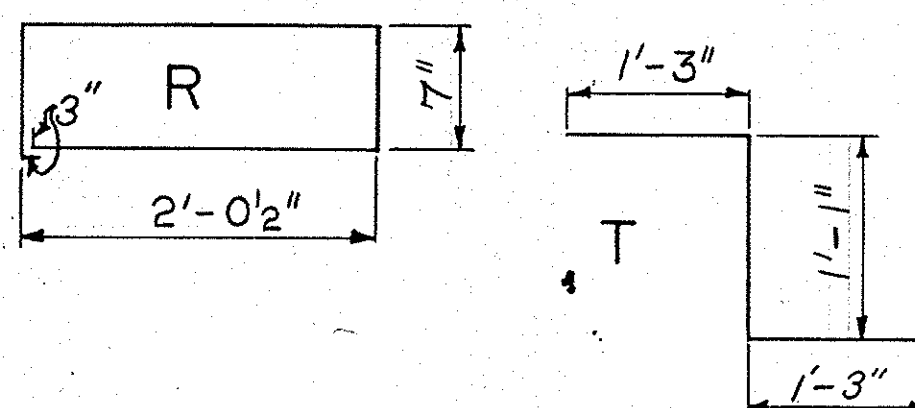
FOR USE WITH SAFETY CURBS

Parapet = 0.03704 C.Y./ft  
1-End Post = 0.584 C.Y.  
1-Int. Post = 0.093 C.Y.

## LIGHT BRACKET REINFORCING STEEL SCHEDULE

MARK	SIZE	D	Span 1 - Line F & G		Spans 2, 4, 6, 8 & 10 - Line F		Spans 3, 5, 7, 9, 12, 14, 16, 18 & 20 - Line G	
			NO. REQD.	LENGTH	NO. REQD.	LENGTH	NO. REQD.	LENGTH
R	5	B	7	5'-9"	7	5'-9"	7	5'-9"
S	6	S	8	4'-4"	8	4'-4"	8	4'-4"
T	5	B	4	3'-7"	4	3'-7"	4	3'-7"

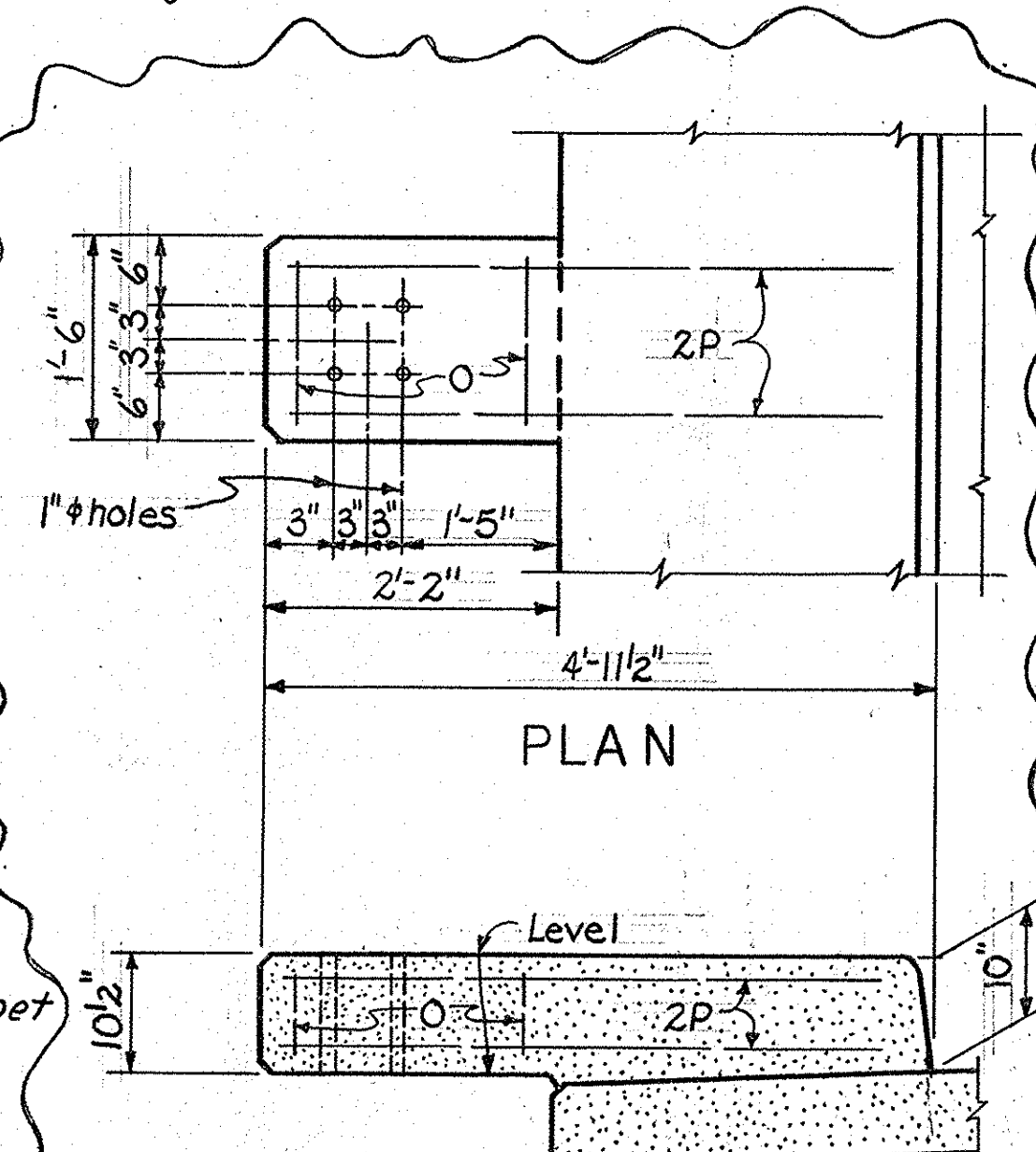
## BENDING DETAILS



## ESTIMATED QUANTITIES (ONE BRACKET)

	Span 1 - Line F & G	Spans 2, 4, 6, 8 & 10 - Line F	Spans 3, 5, 7, 9, 12, 14, 16, 18 & 20 - Line G
CONCRETE - CL. "A", C.Y.	0.2	0.2	0.2
REINF. STEEL, LBS.	109	109	109

NOTE:  
For location of Light Brackets see Sh. No.



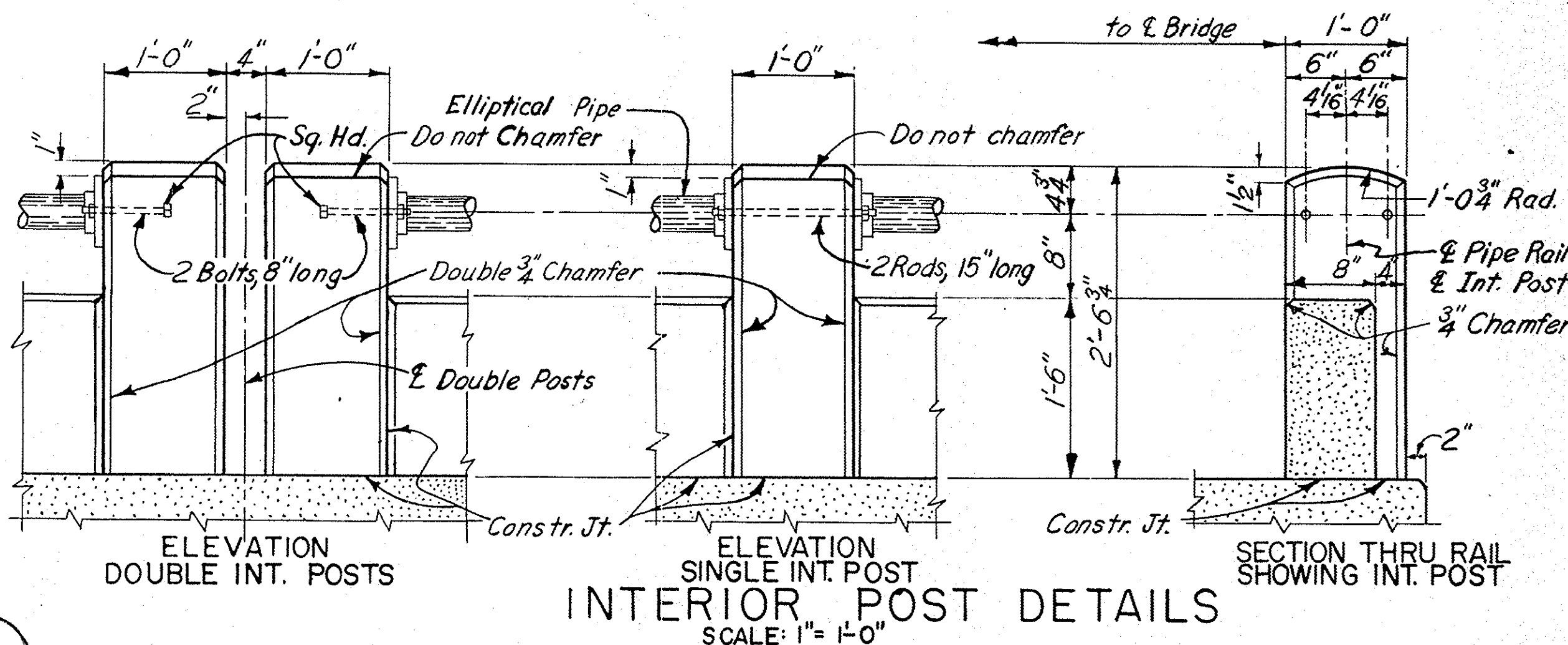
## SECTION THRU SIGN BRACKET ★ SIGN BRACKET DETAILS (SEE SH. NO. 13 FOR LOCATION)

NOTES:  
For Standard Notes see Sh. No.  
No construction joints other than those shown shall be permitted.  
All castings, extruded tube and shims shall be aluminum alloy and all bolts, nuts and set screws shall be stainless steel. See "Special Provisions" for Fabricated Metal Handrailing (Aluminum).  
The unit price for Fabricated Metal Handrailing shall include all that portion of the Railing above the top of Safety Curb or Sidewalk except that all reinforcing steel shall be measured and paid for at the unit price bid for that item.

REINFORCING STEEL SCHEDULE (ONE SIGN BRACKET)					
MARK	SIZE	D	NO. REQD.	LENGTH	BENDING DETAILS
O	4	B	2	4'-0"	1'-2"
P	5	S	4	4'-4"	0

ESTIMATED QUANTITIES (ONE SIGN BRACKET)		
CONCRETE CLASS "A"	C.Y.	0.1
REINFORCING STEEL	LBS.	23

## HANDRAIL DETAILS



## INTERIOR POST DETAILS

REV.	DESCRIPTION	FILE NO.	COUNTY	ROUTE NO.	DATE
REV.	REK JRC II-66 ADD SIGN BRACKET	10521.4	CHARLESTON	I-26	I-65
REV.	PEP RRS II-65 For File 10521.4				
REV.	DR.R.R.W.R. 4-63 FROM SDWK RAIL				
REVIEWED	RRS IN CHARGE				
QUAN.	TR. DRR.RWR 3-63	10521.4	CHARLESTON	I-26	I-65
DES.	DR. A.P.D. E.A.S.I-61				
BY	CHK'D DATE				

## DETAILS OF HANDRAIL AND LIGHT BRACKETS

SCALE AS NOTED

## LIGHT BRACKET DETAILS

SCALE: 3/4" = 1'-0"

★ CONSTRUCTION CHANGE

