FED. ROAD DIV. NO.	STATE	COUNTY	FILE NO.	F. A. PROJ. NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S. C.	SPARTANBURG	42.542	RF-062-2(50)	29	1	31

INDEX OF SHEETS

SHEET NO. 1. TITLE SHEET
2. GUARD RAIL LUG DETAILS & SUMMARY OF QUANTITIES
2A. DETAILS OF CONSTRUCTION IDENTIFICATION SIGN
3. STANDARD WELDING SHEET
4. STANDARD NOTES
5. STANDARD DETAILS
6&7. ROAD PLAN AND PROFILE
8. ROAD CURB GRADES
9. BRIDGE PLAN AND PROFILE
9A. GENERAL CRIPPING DETAILS
10&11. END BENT DETAILS
12-16. INTERIOR PIER DETAILS
17. PIER BUILD-UP DETAILS
18. RETAINING WALL DETAILS FOR END SPANS
19-21. SUPERSTRUCTURE LAYOUTS FOR SPANS 1-5
22. SUPERSTRUCTURE DETAILS FOR SPANS 1-5
23. SUPERSTRUCTURE LAYOUT FOR SPAN 6
24. SUPERSTRUCTURE DETAILS FOR SPAN 6
25. BEAM, BEARING AND MISCELLANEOUS SUPERSTRUCTURE DETAILS-ALL SPANS
26-31. PLANS OF EXISTING BRIDGE

SOUTH CAROLINA
STATE HIGHWAY DEPARTMENT
COLUMBIA

PLAN AND PROFILE OF PROPOSED
STATE HIGHWAY

F.A.PROJ. NO. RF-062-2(50)

FILE NO. 42.542

U.S. ROUTE 29

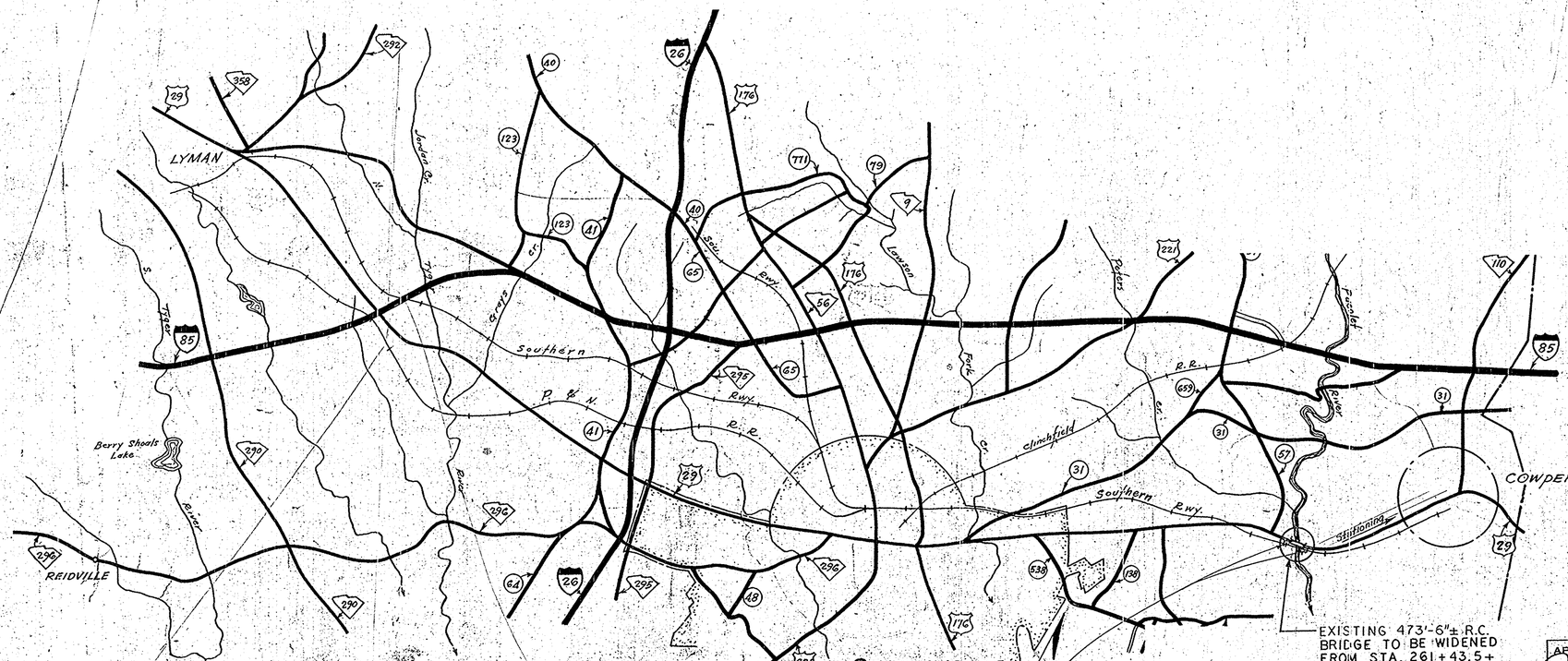
SPARTANBURG COUNTY

WIDENING BRIDGE OVER PACOLET RIVER

SUMMARY OF ESTIMATED QUANTITIES

DRY EXCAVATION	530 C.Y.
WET EXCAVATION	595 C.Y.
ROCK EXCAVATION	64 C.Y.
CLASS "A" CONCRETE	1430.2 C.Y.
REINFORCING STEEL	255,253 lbs.
STEEL SUPERSTRUCTURES	*NECESSARY LUMP SUM.
STEEL H. BEARING PILING (12BP53)	2220 L.F.
WATERPROOFING (SECOND METHOD-S.C.H.D. SPEC'S.)	22 S.Y.
*APPROXIMATELY	881,000 LBS.

NOTE:
Structural steel shall comply with the latest A.S.T.M. Specifications for A-36 steel for beams and cover plates. All other structural steel may be A-36 or A-373 steel.



LAYOUT

Scale: 1 inch = 5280 feet

EXISTING 473'-6"± R.C. BRIDGE TO BE WIDENED FROM STA. 261+43.5± TO STA. 266+17.0± WITH R.C. & S.S. SPANS.

CONSTRUCTION IDENTIFICATION SIGNS TO BE LOCATED APPROXIMATELY AS SHOWN, AT THE DIRECTION OF THE ENGINEER. SEE SH. 2A FOR DETAILS.

Net Length of Roadway	0.000 Miles
Net Length of Bridges	0.090 Miles
Net Length of Project	0.090 Miles
Length of Exceptions	0.000 Miles
Gross Length of Project	0.090 Miles

Equalities in Stationing

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
℄ and R.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

Note: All workmanship and materials on this project to conform with South Carolina State Highway Department Standard Specifications for Highway Construction dated 1964.

APPROVED: J. W. McMahan 1-4-71

STATE HIGHWAY ENGINEER — DATE

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

RECOMMENDED FOR APPROVAL:

DISTRICT ENGINEER — DATE

IMPERIAL PRECISION CLOTH — H. K. ELLIOTT CO., PGH., PA.

FED. ROAD DIV. NO.	STATE	COUNTY	FILE No.	PROJECT NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
	S.C.	Spartanburg	42.592	RF-062-2(60)	29	6	31

PLAN — SURVEYED, PLOTTED, ALIGNMENT CHECKED, P.I.'s OF PVMT CHECKED, NOTE BOOK, NO., BY, DATE

PROFILE — SURVEYED, PLOTTED, GRADES CHECKED, BY, NO., STRUCTURE NOTATIONS CHKD., NOTE BOOK, DATE

Surf. Treat. Road
20
10.8 Conc. Loading Platform
FRAME WAREHOUSE
See Preceding Sheet for Drainage Note
Poles Holding up Crane Runway
Runway
365
393
Surf. Treat. Rd.
Surf. Treat. Rd.
Surf. Treat. Rd.
Power Transformers
Brick Bldg.
4-STORY BRICK MILL
Pacolet River
Existing 473'-6"± R.C. Bridge to be widened from Sta. 261+43.5± to Sta. 266+17.0±
Pacolet River
CLIFTON MFG. CO.
Face of Curb
Face of Curb
Pres. 25'R/W
40' R/W
Construction ℄
N 76°27' E
Underground Elec. Wires
4" Cast Iron Water Main
Overhead Elec. Wires
Fence
Inactive Fence
Pond
Pond
Pond

FED. ROAD DIV. NO.	STATE	COUNTY	FILE NO.	PROJECT NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	Spartanburg	42.542	RF-062-2(50)	29	7	31

PLAN — SUBMITTED / APPROVED / ALIGNMENT CHECKED / RT. OF WAY CHECKED / NOTE BOOK / NO. / BY / DATE

PROFILE — SUBMITTED / APPROVED / GRADES CHECKED / B.M.'s NOTED / SURFACE DATA CHKD / NOTE BOOK / NO. / BY / DATE

TIE EQUALITY:
STA 266+99, LINE "C"=
22 LT. STA 266+99, ORIGINAL SURVEY

* Place 20'-18" R.C. Pipe
Construct Catch Basin Type 5

(72) CLIFTON MFG. CO.

TIE EQUALITY:
STA. 0+00 = CONNECTION
STA. 272+00, P.O.T. LINE "C"

* Place 40'-30" R.C. Pipe
Construct Catch Basin Type C.B. 1A

* Place 60'-24" R.C. Pipe

(73) LENNIE MORGAN HARRIS

* Place 40'-18" R.C. Pipe with 2-45° Bends
Construct Manhole

* Place 432'-24" R.C. Pipe

* Construct Catch Basin Type 6

Place Construction Identification Sign as directed by the Engineer
See Sh. 2A for details.

Prcs. Rte. 29
P.I. 268+50.9
Δ: 20°-00" Rt
D: 6°-00'
T: 168.4'
L: 333.3'
E: 14.1'

* Place 20'-18" R.C. Pipe
Construct Catch Basin Type 6

(72) CLIFTON MFG. CO.

* Place 364'-18" R.C. Pipe

Line "C"
P.I. 270+00.0
Δ: 3°-30.8'
D: 0°-30'
T: 350.1'
L: 700.0
E: 5.3'

Prcs. Rte. 29

Construct Connection as shown by shaded Area (See Grade to be used item)

"Connection"
P.I. 271+81.2
Δ: 76°-44'
D: 76°-00'
T: 55.2'
L: 78.3'
E: 19.6'
R: 75'

T.D. HOLLAND

* Construct Catch Basin Type 6

* Place 48"-24" R.C. Pipe

Relocate 44'-30" R.C. Pipe

TIE EQUALITY:
STA. 11+74.18, CONNECTION
STA. 272+06.3, PRES. RTE. 29

TIE EQUALITY:
STA. 3+99.5, OUTFALL DITCH
STA. 274+31, PRES. RTE. 29

P.I.: 3+00
Δ: 21°-18' Rt
D: None

TIE EQUALITY:
STA. 1+00.5, OUTFALL DITCH
STA. 275+50, LINE "C", RTE. 29

(73) LENNIE MORGAN HARRIS

(72) CLIFTON MFG. CO.

* BY OTHERS

B.M.# 28: Nail in Base Power Pole
85' Lt. Sta. 268+60 (Original Line) Elev. 655.18

B.M.# 29A: Nail in Base 8" Pine
75' Lt. Sta. 274+75 (Line B) Elev. 705.03

ROADWAY CURB GRADES (SEE SH. 8)

Connection Right Sta. 276+00

Base of connection Sta. 0+31

Pt. of Tan Sta. 1+75
El. 674.20

Pt. of Tan Sta. 2+20

Pt. of Tan El. 666.01

50' V.C.

Finished Grade

Profile Grade Line

Ground Line

Sta. 265 6 7 8 9 270 1 2 3 4 5 6 7 8 9 280

720 710 700 690 680 670 660 650 640 630

CO. RD. SYS. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
2	S.C.	SPARTANBURG	42.542	29	9	31

N

APPROX. TOE OF NEW FILL

New 16" Water Main to be placed by Spartanburg Water Works. See Utilities Note on Sh. No. 5

NOTE: IF GRADES ARE CHANGED IN THE FIELD, ALL ELEVATIONS NOTED IN THESE PLANS WILL NECESSARILY HAVE TO BE ADJUSTED.

36"ϕ R.C. Pipe (to be furnished and placed by others)

RIVER

EDGE NEW SHOULDER

℄ DRAINS

EDGE NEW BITUMINOUS SURFACING (BY OTHERS)

TYP. DRAIN SPACING 23'0"± FOR ALL 92'9" SPANS

TO SPARTANBURG

℄ NEW EXPANSION JOINTS AND ℄ NEW PIERS

℄ NEW EXPAN. JOINTS AND ℄ NEW PIERS

NEW CONSTRUCTION ℄

FUTURE ℄ RT. 29

14' ROUGH MEDIAN (BY OTHERS)

24'0" NEW ROW'Y (BY OTHERS)

R.C. CURB & GUTTER (BY OTHERS)

64'0" NEW ROW'Y

32'0"

22'0"

EXIST. STRUCT. (APPROACH SPANS) 20'0"± EXIST. ROW'Y 10'0"±

EXIST. STRUCT. (MAIN SPAN) 20'0"±

℄ EXISTING BRIDGE ℄ SURVEY

N 76°-27'E ℄ PRESENT RT. 29

JUNCTION NEW & EXISTING STRUCTURE

TO GAFFNEY

P.C. HORIZ. CURVE STA. 266+49.9 (D=6°00' RT.)

Ⓐ Silty or Clayey Gravel & Sand Ⓑ Silty soil, Ⓒ Stone fragments, Gravel & Sand * left of ℄ Survey

3'3½" EXIST. SW. (TYP.) (RETAIN)

Exist. SW. (RETAIN)

NOTE: PLUG EXISTING ROADWAY DRAINS ON SIDE ADJACENT TO NEW CONSTRUCTION (UPSTREAM SIDE) WITH CONCRETE

NOTE: Existing rail to be sandblasted and cleaned. All cost of this work to be included in unit price bid for Class 'A' Concrete.

PACOLET

FLOW

NOTE: RAILING, POSTS, POST BASES & PARAPET WALL TO BE CONSTRUCTED ON LEFT SIDE OF NEW PORTION NOT SHOWN ON THIS SHEET.
FOR DRAIN DETAILS SEE SHEET NO. 5
OMIT DRAINS OVER NEW END FILLS.
A.D.T. = 5,600
FOR R/W INFORMATION SEE SHEETS NO. 6 & 7.

NOTE: ALL NECESSARY HARDWARE FOR SUPPORT OF A PROPOSED 16" WATER MAIN TO BE SUPPORTED BY THE NEW BRIDGE STRUCTURE SHALL BE FURNISHED BY THE OWNER OF THE WATER MAIN (SPARTANBURG WATER WORKS) AND INSTALLED BY THE BRIDGE CONTRACTOR.

NOTE: NEW PLANS ARE BASED ON DIMENSIONS FROM FIELD SURVEY AND OLD PLANS OF THE EXISTING BRIDGE. IT IS SUGGESTED THAT THE EXISTING BRIDGE LENGTH AND WIDTHS BE CHECKED AND, IF FOUND DIFFERENT FROM THE OLD PLANS, THE REINFORCING STEEL BE ADJUSTED ACCORDINGLY.

TEST ON SAMPLES FROM FOUNDATION MATERIAL							
Location of Boring	40'*	40'*	35'*	35'*	35'*	29'*	29'*
Station	262+20	263+01	265+85	265+85	265+85	265+00	265+00
Sample Elevation	601.0'	596.0'	615.0'	611.0'	571.0'	595.0'	575.0'
% Pass #10, Ret #60	26	28	37	40	27	48	32
% Pass #60, Ret #200	36	52	29	32	23	24	33
% Silt	22	12	25	19	24	17	24
% Clay	16	8	9	9	26	11	11
AASHO Class	A-2-4	A-2-4	A-2-4	A-2-4	A-4(3)	A-1-b	A-2-4
Type soil	Ⓑ	Ⓑ	Ⓑ	Ⓑ	Ⓐ	Ⓒ	Ⓑ
Chemical Analysis							
Color	Tan	Tan W Grey	Lt. Tan	DK. Tan	Grey	Tan	Lt. Grey

NOTE: FOR SUMMARY OF QUANTITIES SEE SH. NO. 2.

MAINTENANCE OF TRAFFIC:
NO INTERFERENCE TO TRAFFIC WILL BE PERMITTED IN THE DRIVING OF PILES. DURING THE POURING OF CONCRETE, THE CONTRACTOR MAY REDUCE TRAFFIC TO ONE-WAY WITH ADEQUATE ADVANCE SIGNS, BARRICADES AND FLAGMEN SO AS TO SAFEGUARD TRAFFIC. AT ALL OTHER TIMES TWO-WAY TRAFFIC SHALL BE MAINTAINED AND THE EXISTING ROADWAY SHALL NOT BE REDUCED.

B.M. #27: NAIL IN BASE P.P. 36' LT. STA. 261+48, EL. = 633.43.

B.M. #28: NAIL IN BASE P.P. 85' LT. STA. 268+60, EL. = 659.18

217.4' V.C.

Av. Btm. Ftg. Elev. 594.8

SPAN NO. ① ② ③ ④ ⑤ ⑥

-5.12% 0.00% +6.00%

P.I. STA. 261+11.3
P.I. EL. = 641.257

12BP53 STEEL PILES

Av. Pile Tip El. 614.7
Plan Bearing 42T/P
Obt. " 54T/P
Av. Cut-offs 18.8

EXIST. 25'± RET. WALLS

EXIST. ABUT 'A'

RIP RAP (BY OTHERS)

P.T. OF V.C. STA. 262+20.

EXISTING PIER 'B'

EXISTING PIER 'C'

TAN TO GREY SAND & CLAY.

TAN TO GREY SAND & CLAY WITH SOME ORGANIC MATTER

BEGAN DRIVING

DISINTEGRATED ROCK OR BOULDER. EL. 596.9

TAN TO GREY SAND & CLAY WITH DISINTEGRATED ROCK FRAGMENTS.

DISINTEGRATED ROCK (VERY HARD TO AUGER)

BEGAN CORING.

BORING @ STA. 262+20, 40' LT. ℄ SURVEY

ROCK. CORED 6.0', RECOVERED 5.2'. TYP. CORE SAMPLE SUBMITTED WITH NOTES.

ROCK. CORED 5.2' WITH 100% RECOVERY TYP. CORE SAMPLE SUBMITTED WITH NOTES.

PINE LOG OR STUMP

EL. 582.0

EL. 576.8

EXISTING BRIDGE SHOWN DASHED IN OUTLINE

EXISTING PIER 'D'

WATER ELEV. = 594.48 (DEC. 4, 1969)

℄ EST. H.W. ELEV. FOR 50 YEAR FLOOD = 616.0

SAND & BOULDERS

PROFILE 40' LT. ℄ SURVEY (12/4/69)

BORING @ STA. 264+02, 35' LT. ℄ SURVEY

SAND WITH CLAY & DECOMPOSED ROCK

DISINTEGRATED ROCK (VERY HARD TO AUGER)

ROCK. CORED 5.0' WITH 99% RECOVERY. TYP. CORE SAMPLE SUBMITTED WITH NOTES.

BORING AT STA. 263+01, 40' LT. ℄ SURVEY

12BP53 STEEL PILES

GROUND LINE PROFILE ON ℄ SURVEY

ROCK OR BOULDER-UNABLE TO PENETRATE FURTHER. (MADE A NUMBER OF BORINGS IN AREA & FOUND ROCK @ APPROX. SAME ELEVATION.)

WASH BORINGS

SILTY CLAY & SAND WITH DISINTEGRATED ROCK & BOTTOM BORING UNABLE TO PENETRATE FURTHER

BORING @ STA. 264+00, 35' LT. ℄ SURVEY

EXIST. PIER 'E'

EXISTING 12BP53

RED TAN SILTY CLAY & SAND

BEGAN DRIVING 18.40'* CONT'D. DRIVING 35 IN 0.4'*

SILTY CLAY & SAND WITH DECOMPOSED ROCK

12BP53 STEEL PILES COMPLETELY DECOMPOSED ROCK WITH VERY HARD LEDGES - HARD TO AUGER

ELEV. 559.4

ROCK. CORED 5.4', RECOVERED 5.2' OF HARD ROCK.

BORING @ STA. 265+00, 29' LT. ℄ SURVEY

P.C. OF V.C. STA. 265+87.0

EXISTING ABUT 'G'

RED TAN SAND & CLAY.

TAN SILT WITH FINE SAND AND LEDGES OF WEATHERED ROCK WITH VERY HARD LEDGES - HARD TO AUGER

BEGAN DRIVING 30 IN 0.5'* 30 IN 0.5'* 40 IN 0.2'* 62 IN 0.2'*

VERY HARD LEDGE OF ROCK

BORING @ STA. 265+35, 35' LT. ℄ SURVEY

EL. 556.0

EXIST. 25'± RET. WALLS

12BP53 STEEL PILES

THIS FORMATION SEEMS TO BE A DECOMPOSED ROCK. WEATHERED ENOUGH FOR THE EARTH AUGER TO CUT WITH CARBIDE TEETH OR BITS. VERY HARD TO AUGER.

BORINGS PLOTTED BY: JRC
" CHECKED BY: RJS

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

PLAN AND PROFILE
FOR WIDENING BRIDGE OVER
PACOLET RIVER
SCALE: 1"= 20'

FILE NO.	COUNTY	ROUTE NO.	DATE
42.542	SPARTANBURG	29	1-70

JMB

JRC RJS 9-69

APPROVED BY
BRIDGE ENGINEER OF DESIGN

NOTE: 'F' DENOTES FIXED ENDS OF NEW SPANS AND 'X' DENOTES EXPANSION ENDS OF NEW SPANS.

@ REF. JUNE 1903 H.W. MARK ON COTTON MILL 300' UPSTREAM AS DECLARED BY MR. C.B. HOOD.

1903 H.W. ELEV. = 639.0

NOTE: THE DIVIDING LINE BETWEEN WET EXCAV. AND DRY EXCAV. TO BE ELEV. 594.48 REGARDLESS OF THE WATER ELEVATION.

NOTE: THE DEPARTMENT HAS NO INFORMATION ON THE EXISTING FOUNDATION ELEVATIONS; IT IS THEREFORE RECOMMENDED THAT THE NEW FOOTINGS BE SET AT APPROXIMATELY THE SAME ELEVATIONS AS THE EXISTING FOUNDATIONS IF, IN THE OPINION OF THE ENGINEER, THE SUPPORTING FOUNDATION MATERIALS ARE SUCH AS TO ADEQUATELY SUPPORT A MAXIMUM BEARING PRESSURE OF 4TONS/SQ.FT.
THE NEW PIER FOOTINGS MAY BE LOWERED A MAXIMUM OF 4'-0" BELOW THE ELEVATION OF THE BOTTOMS OF THE EXISTING FOUNDATIONS. IF ADEQUATE BEARING CANNOT BE OBTAINED AT THIS LOWER ELEVATION, A STEEL PILE FOOTING SIMILAR TO THOSE SHOWN IN THE PLANS FOR PIERS C&D SHALL BE SUBSTITUTED FOR THE SPREAD FOOTINGS AT PIER A OR B. ALL STEEL BEARING PILES TO BE DRIVEN TO A MINIMUM BEARING VALUE OF 42 TONS/PILE.
IF, IN THE OPINION OF THE ENGINEER, THE SUPPORTING FOUNDATION MATERIALS ARE ADEQUATE TO SUPPORT A MAXIMUM BEARING VALUE OF 4TONS/SQ.FT. AT NEW PIER C, D, OR E, A SPREAD FOOTING SIMILAR TO THOSE SHOWN IN THE PLANS FOR PIERS A&B MAY BE SUBSTITUTED FOR THE STEEL PILE FOOTINGS.

*THE NUMBER OF BLOWS PER FOOT OF PENETRATION SHOWN AT BORINGS WERE OBTAINED WITH A 140 LB. HAMMER FALLING 30 INCHES & DRIVING A 2" ϕ SPLIT-SPOON SAMPLER.

SECTION THRU NEW STRUCTURE ON CONSTRUCTION ℄

Piles Omitted

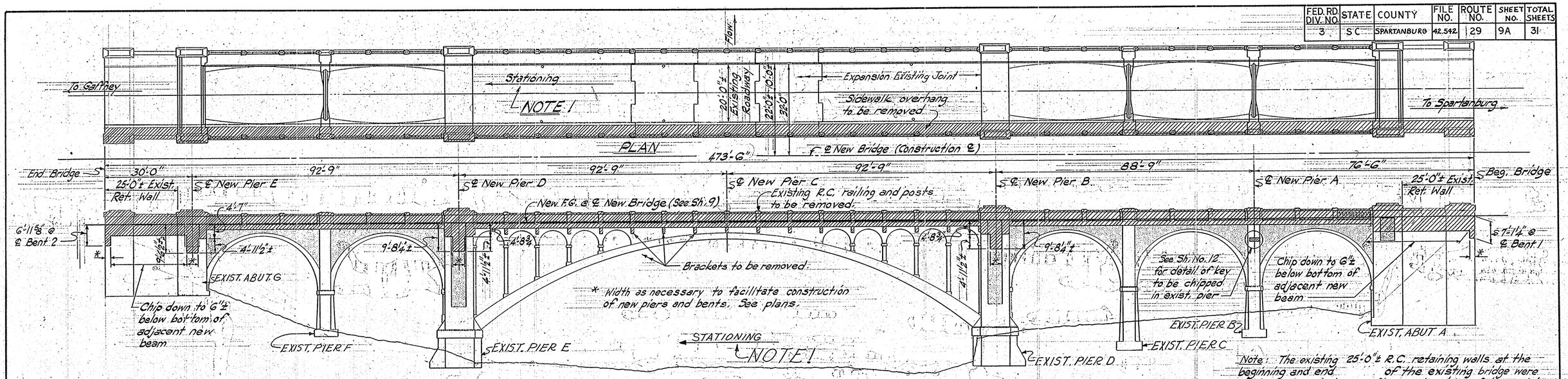
NEW PIER DESIGNATION — Ⓐ Ⓑ Ⓒ Ⓓ

HYDROLOGY DATA:
D.A. = 311 SQ. MI.
Q50 = 25,200 C.F.S.
OPENING FURNISHED UNDER EST. H.W. ELEV. 616.0 = 6,300 SQ. FT.
V50 = 4.0 FT./SEC.

Av. Pile Tip El. 618.0
Plan Bearing 42T/P
Obt. " 56T/P
Av. Cut-offs 17.1

(P.I. STA. 267+87 P.I. EL. = 641.257)

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	SPARTANBURG	42.542	29	9A	31



Note: The existing 25'-0"± R.C. retaining walls at the beginning and end of the existing bridge were added either during or after construction of the exist. structure. No plans of these walls are available as information to the Contractor.

LEFT SIDE ELEVATION OF EXISTING BRIDGE (LOOKING DOWNSTREAM) SHOWING AREAS TO BE REMOVED FROM EXISTING STRUCTURE

Note: Existing R.C. railing, posts, sidewalk, brackets and retaining wall between piers and abutments designated to be removed (indicated by hatching) may remain in place until prior to placement of new beams. Areas of abutments and piers so designated must be removed prior to the erection of the forms for the new pier and end bent caps.

A temporary rail suitable to the Engineer shall be provided for the protection of traffic and shall remain in place until the widening is completed.

Note: See Plans for additional information & details on chipping

REV.			
REV.			
REV.			
REV.			
REVIEWED IN CHARGE			
QUAN.			
TR.			
DR.	JRC	EJS	2-70
DES.			
	BY	CHK'D	DATE

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

GENERAL CHIPPING DETAILS

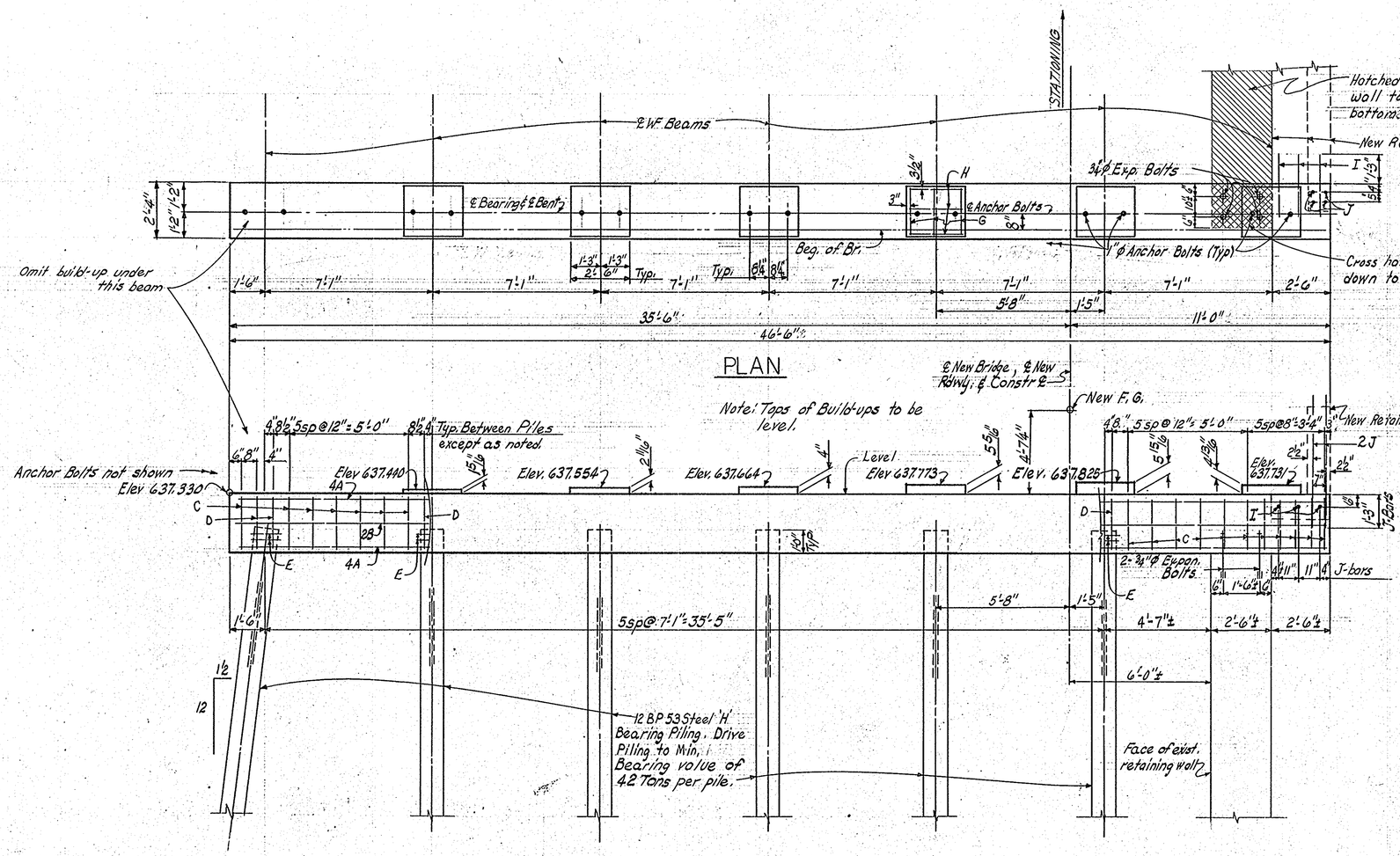
Scale: 1/16" = 1'-0"

FILE NO.	COUNTY	ROUTE NO.	DATE
42.542	SPARTANBURG	29	2-70

APPROVED BY _____ ASS'T. BRIDGE DESIGN & PLANS ENGR.

APPROVED BY DESIGN _____ BRIDGE ENGINEER

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S. C.	SPARTANBURG	42.542	29	10	31

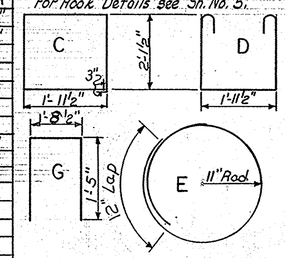


REINFORCING STEEL SCHEDULE

MARK	SIZE	D	BENT I NO. REQ'D.	BENT I LENGTH
A	8	S	8	46'0"
B	4	S	2	46'0"
C	4	B	42	8'8"
D	4	B	12	7'3"
E	4	B	12	6'9"
G	4	B	12	4'7
H	4	S	12	2'8"
I	5	S	3	2'6"
J	5	S	4	5'4"
Exp. Bolts	3/4" ø	-	4	2'0"

BENDING DETAILS

For Hook Details see Sh. No. 5.



No Scale

QUANTITIES

	Unit
Class 'A' Concrete 10.4	C.Y.
Reinforcing Steel* 1,581	Lbs.
12" BP 53# Steel 'H' Bearing Piling (See Summary Sh. No. 2.)	L.F.

*Includes 20 lbs. for Expansion Bolts & 77 lbs. for Anchor Bolt Assemblies. See Sh. No. 5 for Expan. Bolt Details & Anchor Bolt Details & Schedule.

Notes:
For Standard Notes, see sh. no. 4.
For Standard Details, see sh. no. 5.

Scale: 3/8" = 1'-0" unless noted.

REV.			
REV.			
REV.			
REV.			
REVIEWED		IN CHARGE	
QUAN.	PET	C.J.S	1-70
TR.			
DR.	RJS	JWB	12-69
DES.	RJS	JWB	12-69
	BY	CHK'D	DATE

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

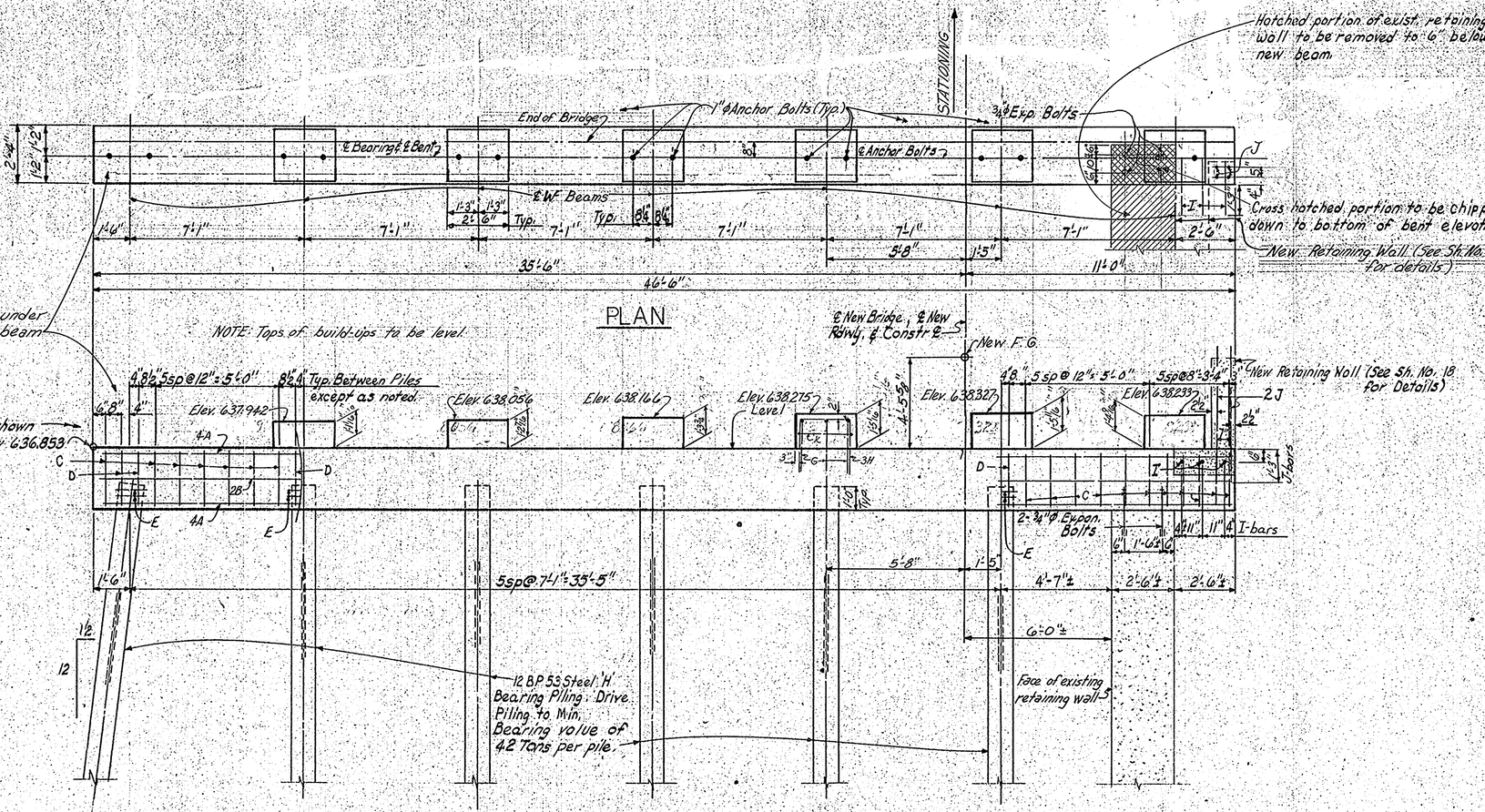
END BENT I
FOR WIDENING BRIDGE OVER PACOLET RIVER

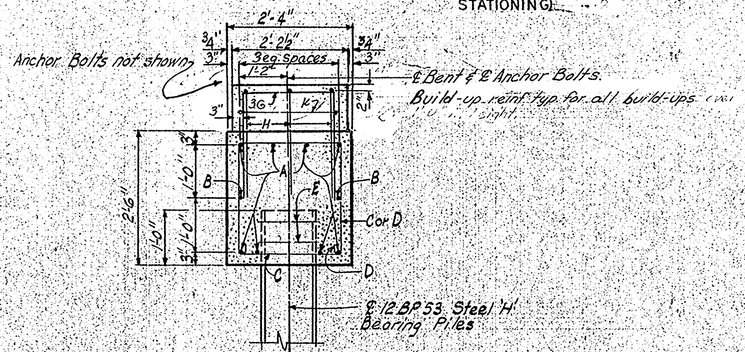
FILE NO.	COUNTY	ROUTE NO.	DATE
42.542	SPARTANBURG	29	12-69

APPROVED BY: L. T. Dunlap, Ass't. — BRIDGE DESIGN & PLANS ENGINEER
APPROVED BY: DESIGN W. E. Crum — BRIDGE ENGINEER

K&E ALBANENE 74888

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	SPARTANBURG	42.542	29	11	31



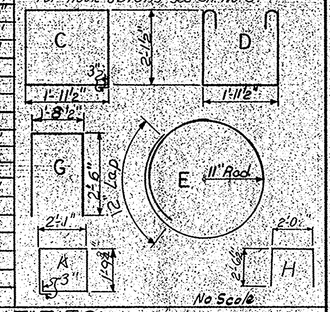


REINFORCING STEEL SCHEDULE

MARK	SIZE	D	BENT 2 NO. REQD.	BENT 2 LENGTH
A	8	S	8	46'0"
B	4	S	2	46'0"
C	4	B	42	8'8"
D	4	B	12	7'-3"
E	4	B	12	6'-9"
G	5	B	18	6'-9"
H	5	B	18	7'-1"
I	5	S	3	2'-6"
J	5	S	4	5'-4"
Exp. Bolts	¾"ø	-	4	2'-0"
K	4	B	6	8'-4"

BENDING DETAILS

For hook details see Sh. No. 5.



QUANTITIES

		Unit
Class 'A' Concrete	11.7	C.Y.
Reinforcing Steel*	1820	Lbs.
12"BP 53# Steel 'H' Bearing Piling (See Summary Sh. No. 2.)		L.F.

*Includes 20 lbs. for Expansion Bolts & 77 lbs. for Anchor Bolt Assemblies See Sh. No. 5 for Expan. Bolt Details & Anchor Bolt Details & Schedule

Notes:
For Standard Notes, see sh. no. 4.
For Standard Details, see sh. no. 5.

Scale: ⅜"=1'-0" unless noted.

	BY	CHK'D	DATE
REV.			
REV.			
REV.			
REV.			
REVIEWED JMB	IN CHARGE		
QUAN. RET	EJS		2-70
TR.			
DR. RJS	JWB		12-69
DES. RJS	JWB		12-69

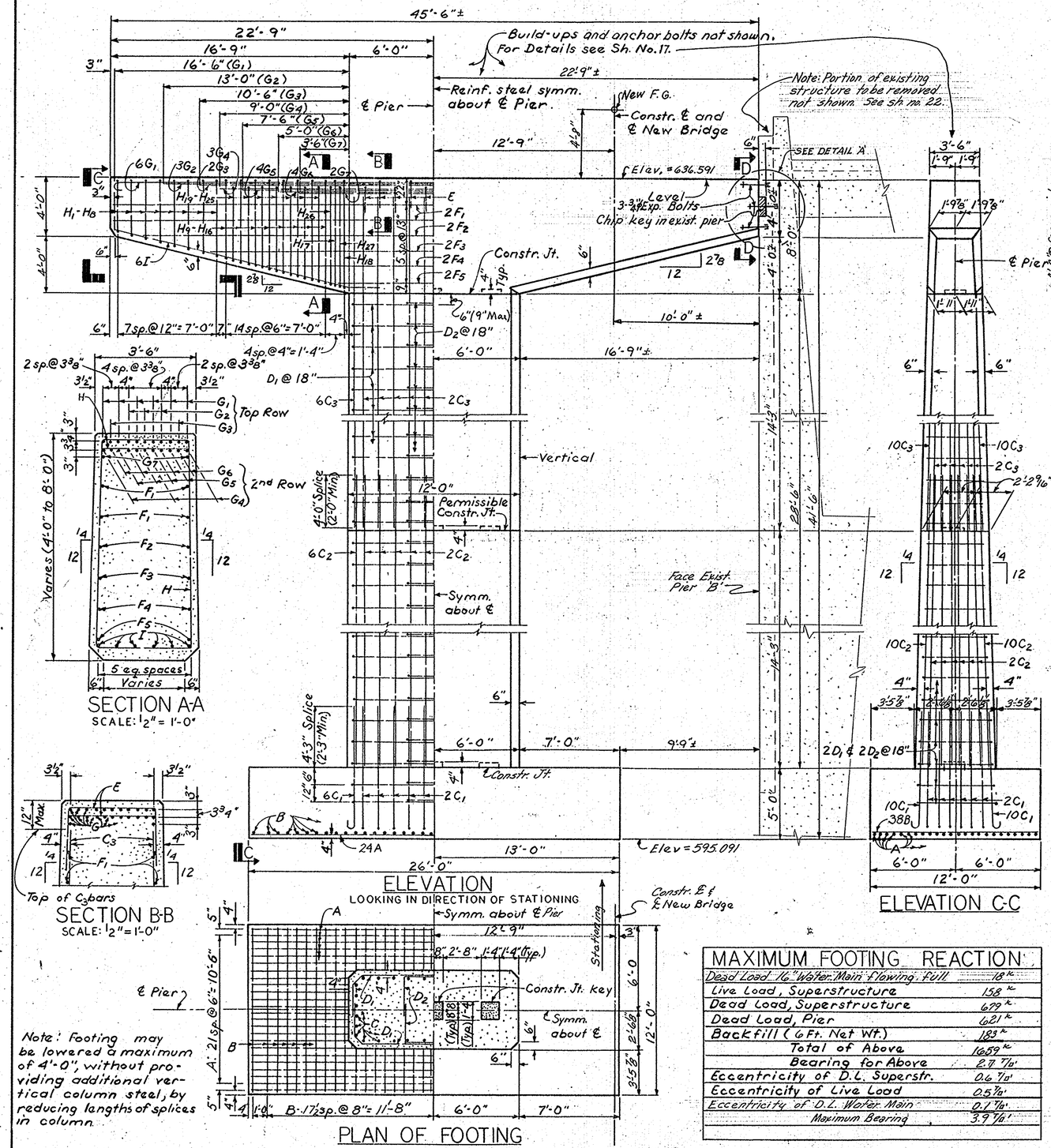
S.C. STATE HIGHWAY DEPARTMENT
BRIDGE DIVISION
COLUMBIA, S.C.

END BENT 2
FOR WIDENING BRIDGE OVER PACOLET RIVER

FILE NO.	COUNTY	ROUTE NO.	DATE
42.542	SPARTANBURG	29	12-69

APPROVED BY: J. L. Wilkie Ass't. BRIDGE DESIGN & PLANS ENGINEER
APPROVED BY: W. E. Cum DESIGN BRIDGE ENGINEER

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S. C.	SPARTANBURG	42.542	29	12	31

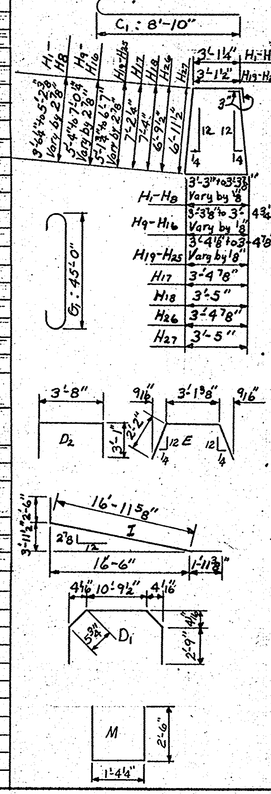


REINFORCING STEEL — PIER 'A'

MARK	SIZE	D	NO.	LENGTH
A	10	S	24	25'-6"
B	7	S	38	11'-6"
C1	9	B	32	9'-10"
C2	9	S	32	18'-3"
C3	8	S	32	21'-4"
D1	4	B	42	17'-3"
D2	4	B	42	9'-10"
E	4	B	10	7'-5"
F1	6	S	4	45'-0"
F2	6	S	2	39'-3"
F3	6	S	2	30'-3"
F4	6	S	2	21'-3"
F5	6	S	2	12'-3"
G1	11	B	6	47'-0"
G2	11	S	3	38'-0"
G3	11	S	2	33'-0"
G4	11	S	3	30'-0"
G5	11	S	4	27'-0"
G6	11	S	4	22'-0"
G7	11	S	2	19'-0"
H1-H8	5	B	2 ea.	13'-11⅞" to 19'-2" Vary by 5⅞"
H9-H16	6	B	2 ea.	17'-7⅛" to 21'-1" Vary by 5⅞"
H17	6	B	2	21'-5"
H18	6	B	2	21'-8"
H19-H25	6	B	2 ea.	17'-3⅛" to 20'-2" Vary by 5'-6"
H26	6	B	2	20'-7"
H27	6	B	2	21'-0"
I	9	B	12	21'-5"
K	4	S	18	2'-8"
M	4	B	27	6'-4"
Exp. Bolts	¾"ø	-	9	2'-0"

Build-up reinf. See Sh. No. 17.

BENDING DETAILS



SUMMARY OF QUANTITIES - PIER 'A'

DRY EXCAVATION	190 C.Y.
ROCK EXCAVATION	32 C.Y.
CLASS 'A' CONCRETE	154.1 C.Y.
REINFORCING STEEL *	16,562 LBS.

*Includes 154 Lbs for Anchor Bolt Assemblies & 45 Lbs for Expansion Bolt Assemblies.

NOTES:
For Standard Notes see Sh. No. 4.
For Standard Details including Hook Details, Anchor Bolt Details, and Anchor Bolt Schedule see Sh. No. 5.
For details of Expansion Bolts see Sh. No. 5.

MAXIMUM FOOTING REACTION

Dead Load 16" Water Main Flowing Full	18 k
Live Load, Superstructure	158 k
Dead Load, Superstructure	679 k
Dead Load, Pier	621 k
Backfill (6 Ft. Net Wt.)	183 k
Total of Above	1659 k
Bearing for Above	2.9 T/ft²
Eccentricity of D.L. Superstr.	0.6 ft.
Eccentricity of Live Load	0.5 ft.
Eccentricity of D.L. Water Main	0.1 ft.
Maximum Bearing	3.9 T/ft²

Live Load: H520-44
fs = 20,000 psi
fc = 1200 psi
n = 10
v = 225 psi
u = 180 psi, 240 psi & 300 psi
vc = 90 psi

No Scale unless noted.

REV.			
REV.			
REV.			
REV.	JRC	RJS	2-70
	REINF. QUAN.		
REVIEWED	IN CHARGE		

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

DETAILS OF PIER 'A'
FOR WIDENING BRIDGE OVER
PACOLET RIVER

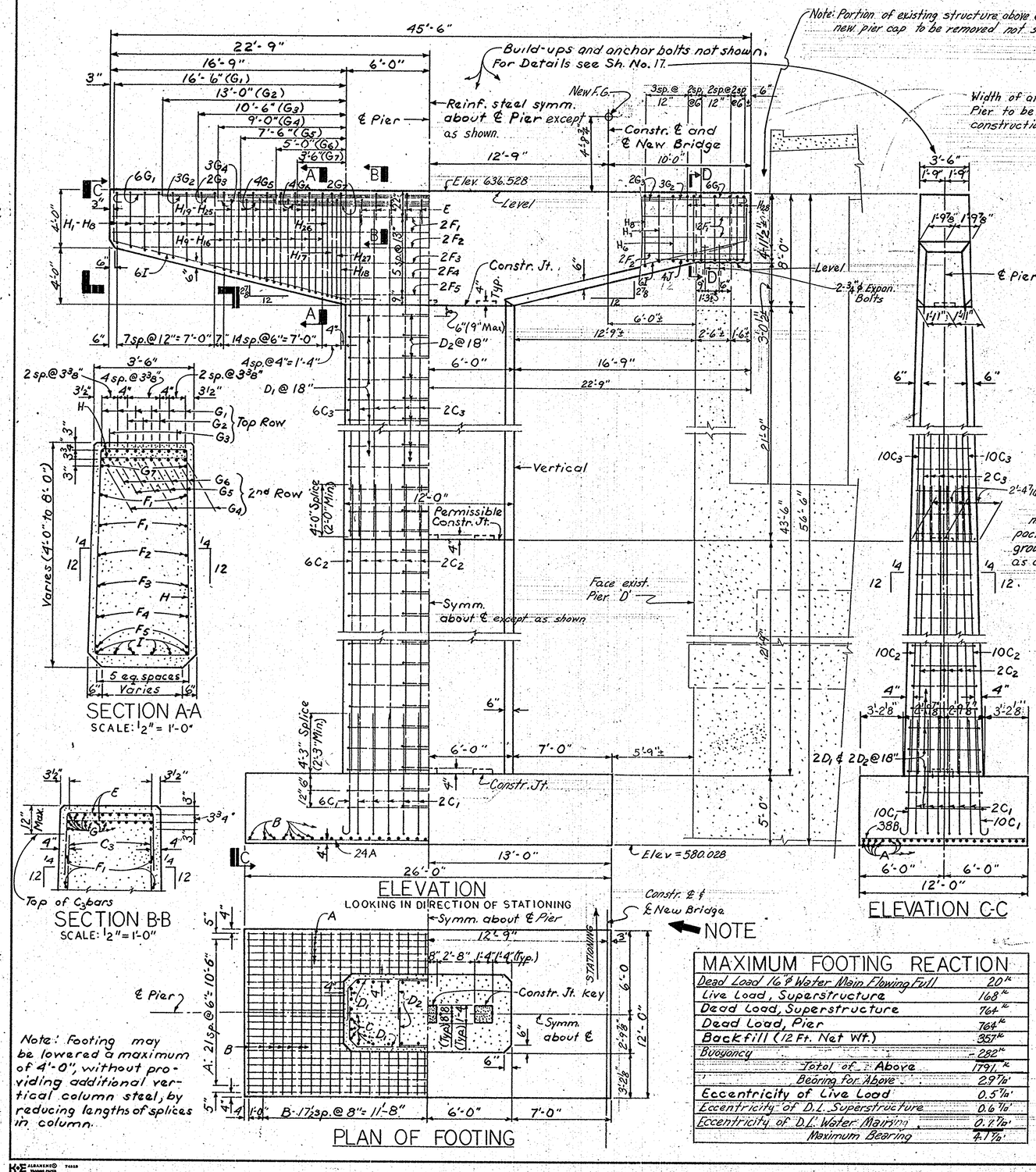
QUAN.	RET	MNB	2-70
TR.			
DR.	RJS	JRC	2-70
DES.	JRC	JWB	1-70
	BY	CHK'D	DATE

FILE NO.	COUNTY	ROUTE NO.	DATE
42.542	SPARTANBURG	29	1-70

APPROVED BY _____ BRIDGE DESIGN & PLANS ENGINEER
APPROVED BY DESIGN _____ BRIDGE ENGINEER

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S. C.	SPARTANBURG	42.542	29	13	31

Live load: HS 20-44
f_s = 20,000 psi
f_c = 1,200 psi
n = 10
v = 225 psi
u_1 = 180 psi, 240 psi ; 300 psi
v_c = 90 psi



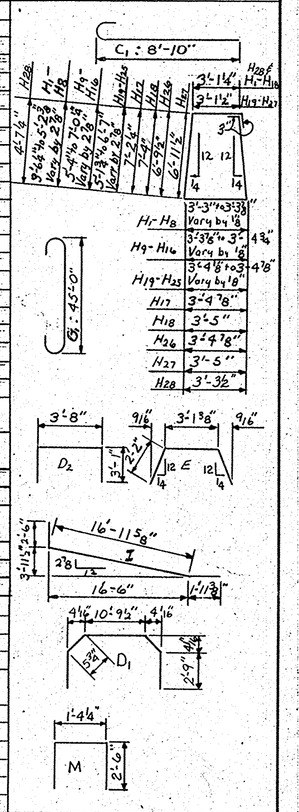
MAXIMUM FOOTING REACTION

Dead Load 16"ϕ Water Main Flowing Full	20ᵏ
Live Load, Superstructure	168ᵏ
Dead Load, Superstructure	764ᵏ
Dead Load, Pier	764ᵏ
Backfill (12 Ft. Net Wt.)	357ᵏ
Buoyancy	-282ᵏ
Total of Above	1791ᵏ
Bearing for Above	2.9 T/□'
Eccentricity of Live Load	0.5 T/□'
Eccentricity of D.L. Superstructure	0.6 T/□'
Eccentricity of D.L. Water Main in	0.4 T/□'
Maximum Bearing	4.1 T/□'

REINFORCING STEEL — PIER 'B'

MARK	SIZE	D	NO.	LENGTH
A	10	S	24	25'-6"
B	7	S	38	11'-6"
C_1	9	B	32	9'-10"
C_2	9	S	32	25'-9"
C_3	8	S	32	28'-10"
D_1	4	B	62	17'-3"
D_2	4	B	62	9'-10"
E	4	B	10	7'-5"
F_1	6	S	4	45'-0"
F_2	6	S	2	39'-3"
F_3	6	S	2	30'-3"
F_4	6	S	2	21'-3"
F_5	6	S	2	12'-3"
G_1	11	B	6	47'-0"
G_2	11	S	3	38'-0"
G_3	11	S	2	33'-0"
G_4	11	S	3	30'-0"
G_5	11	S	4	27'-0"
G_6	11	S	4	22'-0"
G_7	11	S	2	19'-0"
H_1-H_8	5	B	2 ea.	16'-4"to 17'-2" Vary by 5/8"
H_9-H_{16}	6	B	2 ea.	17'-7"to 21'-1" Vary by 5/8"
H_{17}	6	B	2	21'-5"
H_{18}	6	B	2	21'-8"
H_{19}-H_{25}	6	B	2 ea.	17'-3"to 20'-2" Vary by 5/8"
H_{26}	6	B	2	20'-9"
H_{27}	6	B	2	21'-0"
H_{28}	5	B	7	16'-1"
I	9	B	12	21'-5"
J	5	S	4	6'-0"
K	4	S	22	2'-8"
M	4	B	3.3	6'-4"
H_3-H_5	5	B	1 ea.	13'-11"to 15'-11" Vary by 5/8"
Exp. Bolts	¾" ϕ	-	4	2'-0"

BENDING DETAILS



SUMMARY OF QUANTITIES - PIER 'B'

WET EXCAVATION	200	C.Y.
DRY EXCAVATION	120	C.Y.
ROCK EXCAVATION	32	C.Y.
CLASS 'A' CONCRETE	189.7	C.Y.
REINFORCING STEEL	* 18,453	LBS.

*Includes 154 Lbs for Anchor Bolt Assemblies & 20 Lbs. for Expansion Bolt Assemblies.

NOTES
For Standard Notes see Sh. No. 4.
For Standard Details including Hook Details, Anchor Bolt Details, and Anchor Bolt Schedule see Sh. No. 5.
For details of Expansion Bolts see Sh. No. 5.

No Scale unless noted.

REV.			
REV.			
REV.			
REV.	JRC	EJS	7-70
	REINF. QUAN.		
REVIEWED	IN CHARGE		

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

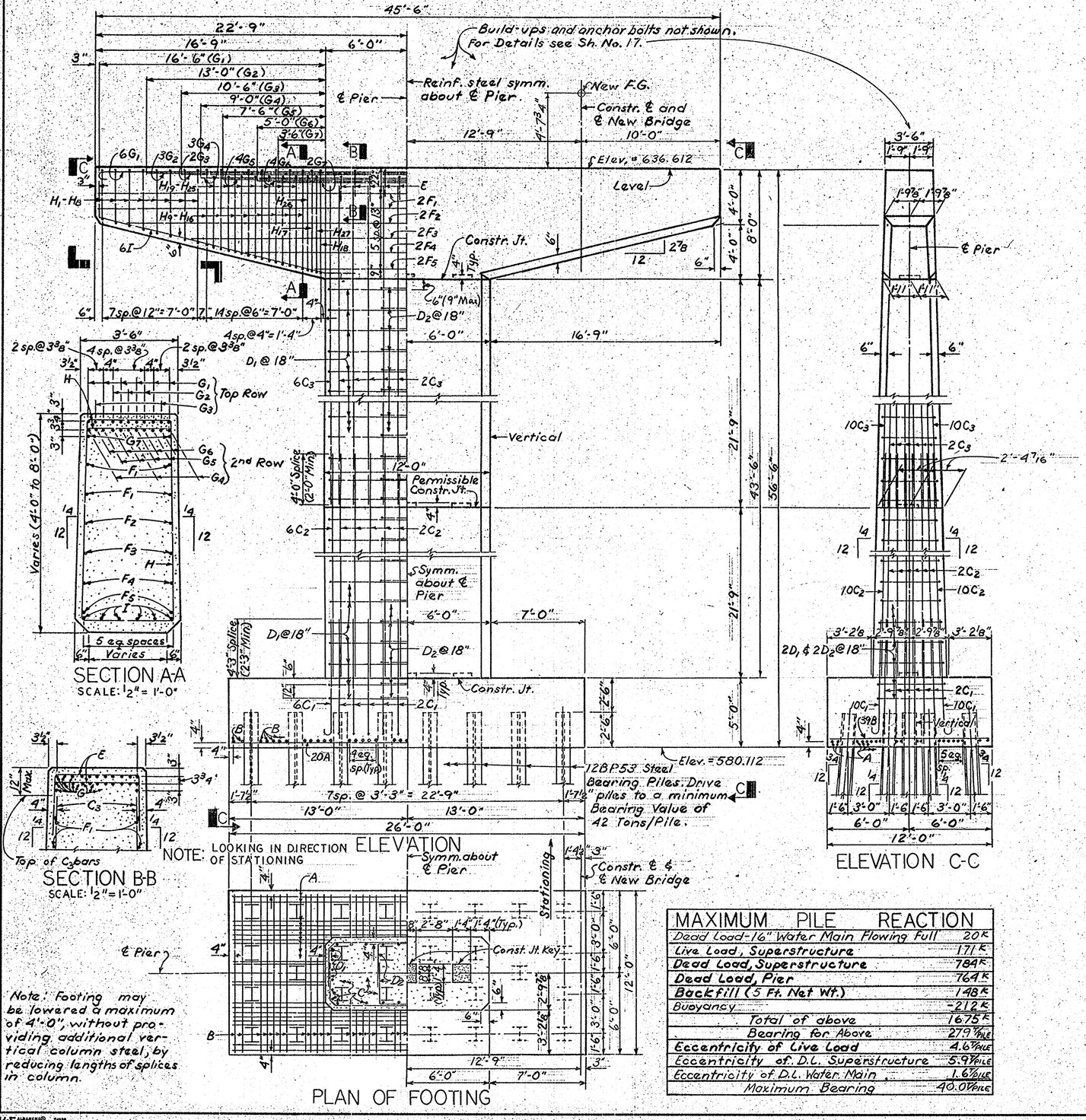
DETAILS OF PIER 'B'
FOR WIDENING BRIDGE OVER
PACOLET RIVER

QUAN.	RET	M.N.	2-70
TR.			
DR.	EJS	JRC	2-70
DES.	JRC	JWB	1-70
BY		CHK'D	DATE

FILE NO.	COUNTY	ROUTE NO.	DATE
42.542	SPARTANBURG	29	1-70

APPROVED BY: J. D. Wood, ASS'T. BRIDGE DESIGN & PLANS ENGINEER
APPROVED BY: DESIGN E. E. Cain, BRIDGE ENGINEER

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	SPARTANBURG	42.542	29	14	31



MAXIMUM PILE REACTION	
Dead Load-16" Water Main Flowing Full	20K
Live Load, Superstructure	171K
Dead Load, Superstructure	78K
Dead Load, Pier	76K
Backfill (5 Ft. Net Wt.)	148K
Buoyancy	-21.2K
Total of above	167.5K
Bearing for Above	279 T/PILE
Eccentricity of Live Load	4.6 T/PILE
Eccentricity of D.L. Superstructure	5.9 T/PILE
Eccentricity of D.L. Water Main	1.6 T/PILE
Maximum Bearing	40.0 T/PILE

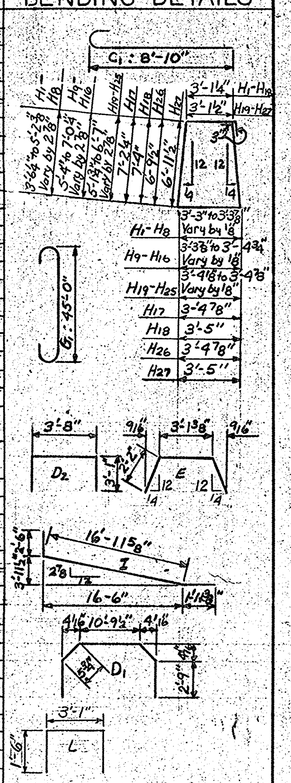
Live Load - H520 - 44
fs = 20,000 psi
fc = 1200 psi
n = 10
v = 225 psi
u = 180 psi
240 psi
300 psi
Vc = 90 psi

REINFORCING STEEL ONE PIER - PIER 'C'

MARK	SIZE	D	NO	LENGTH
A	10	S	20	25'-6"
B	6	S	39	11'-6"
C	9	B	32	9'-10"
C1	9	S	32	25'-9"
C11	8	S	32	28'-10"
D1	4	B	62	17'-3"
D2	4	B	62	9'-10"
E	4	B	10	7'-5"
F	6	S	4	45'-0"
F1	6	S	2	39'-3"
F11	6	S	2	30'-3"
F2	6	S	2	21'-3"
F3	6	S	2	12'-3"
G1	11	B	6	47'-0"
G2	11	S	3	38'-0"
G21	11	S	2	33'-0"
G4	11	S	3	30'-0"
G5	11	S	4	27'-0"
G6	11	S	4	22'-0"
G7	11	S	2	19'-0"
H1-H8	5	B	2 ea.	13'-11 1/2" to 17'-2" vary by 5/8"
H9-H11	6	B	2 ea.	17'-7" to 21'-1" vary by 5/8"
H17	6	B	2	21'-5"
H18	6	B	2	21'-8"
H25-H25	6	B	2 ea.	17'-3" to 20'-2" Vary by 5/8"
H26	6	B	2	20'-7"
H27	6	B	2	21'-0"
I	9	B	12	21'-5"
K	4	S	12	2'-8"
L	4	B	12	6'-1"

Build-up Reinf. See Sh. No. 17

BENDING DETAILS



SUMMARY OF QUANTITIES - PIER 'C'

WET EXCAVATION	160	C.Y.
CLASS 'A' CONCRETE	188.8	C.Y.
REINFORCING STEEL *	17,601	LBS.
12 BP 53 STEEL BEARING PILES - See Summary, Sh. No. 2		L.F.

*Includes 154 Lbs for Anchor Bolt Assemblies.

NOTES:
For Standard Notes see Sh. No. 4.
For Standard Details, including Hook Details, Anchor Bolt Details, and Anchor Bolt Schedule see Sh. No. 5.

No Scale unless noted.

REV.			
REV.			
REV.			
REV.	JRC	JC.	7-70
	REINF. QUAN.		
REVIEWED	IN CHARGE		
QUAN.	PET	MNE	6-70
TR.			
DR.	JC.	JRC	2-70
DES.	JRC	JWB	1-70
	BY	CHK'D	DATE

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

DETAILS OF PIER 'C'
FOR WIDENING BRIDGE OVER
PACOLET RIVER

FILE NO.	COUNTY	ROUTE NO.	DATE
42.542	SPARTANBURG	29	1-70

APPROVED BY: J. Edwards, ASS'T. BRIDGE DESIGN & PLANS ENGINEER
APPROVED BY: DESIGN W. E. Baum BRIDGE ENGINEER

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S. C.	SPARTANBURG	42.542	29	15	31

Note: See Sh. No. 13 For SECTION D-D

Build-ups and anchor bolts not shown. For Details see Sh. No. 17.

Reinf. steel symm. about ℄ Pier except as shown.

New A.G. Constr. ℄ and ℄ New Bridge

Elev. = 636.528

Level

Constr. Jt.

Vertical

Face existing Pier 'E'

Elev. = 580.028

12BP53 Steel Bearing Piles

Permissible Constr. Jt.

Top Row

2nd Row

Varies (4'-0" to 8'-0")

5 eq spaces

Varies

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

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

Top of C₃ bars

ELEVATION (LOOKING IN DIRECTION OF STATIONING) ← NOTE 1

ELEVATION C-C

PLAN OF FOOTING

Symm. about ℄ Pier

Constr. ℄ & ℄ New Bridge

Stationing

Const. Jt. Key

Note: Footing may be lowered a maximum of 4'-0", without providing additional vertical column steel, by reducing lengths of splices in column.

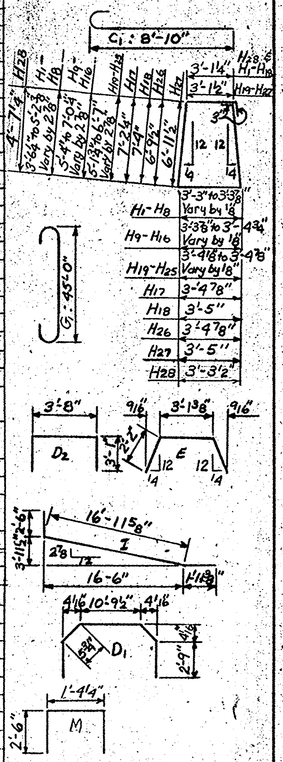
Note: Drive piles to a Min. Bearing Value of 42 TONS/pile.

Build-up Reinf. See Sh. No. 17

MAXIMUM PILE REACTION	
Dead Load-16" Water Main Flowing Full	20ᵏ
Live Load, Superstructure	171ᵏ
Dead Load, Superstructure	784ᵏ
Dead Load, Pier	764ᵏ
Backfill (7 Ft. Net Wt.)	207ᵏ
Buoyancy	-243ᵏ
Total of above	1703ᵏ
Bearing for Above	28.4 Tons/pile
Eccentricity of Live Load	4.6"/pile
Eccentricity of D.L. Superstructure	5.9"/pile
Eccentricity of D.L. Water Main	1.6"/pile
Maximum Bearing	40.5 Tons/pile

REINFORCING STEEL BENDING DETAILS — ONE PIER — PIER 'D'

MARK	SIZE	D	NO	LENGTH
A	10	S	20	25'-6"
B	6	S	39	11'-6"
C₁	9	B	32	9'-10"
C₂	9	S	32	25'-9"
C₃	8	S	32	28'-10"
D₁	4	B	62	17'-3"
D₂	4	B	62	9'-10"
E	4	B	10	7'-5"
F₁	6	S	4	45'-0"
F₂	6	S	2	39'-3"
F₃	6	S	2	30'-3"
F₄	6	S	2	21'-3"
F₅	6	S	2	12'-3"
G₁	11	B	6	47'-0"
G₂	11	S	3	38'-0"
G₃	11	S	2	33'-0"
G₄	11	S	3	30'-0"
G₅	11	S	4	27'-0"
G₆	11	S	4	22'-0"
G₇	11	S	2	19'-0"
H₁-H₈ / H₈	5	B	2 ea.	16'-4 7/16" to 17'-2 1/4" vary by 5/8"
H₉-H₁₆	6	B	2 ea.	17'-7 to 21'-1" vary by 5/8"
H₁₇	6	B	2	21'-5"
H₁₈	6	B	2	21'-8"
H₁₉-H₂₅	6	B	2 ea.	17'-3 to 20'-2" Vary by 5/8"
H₂₆	6	B	2	20'-7"
H₂₇	6	B	2	21'-0"
H₂₈	5	B	7	16'-1"
I	9	B	12	21'-5"
J	5	S	4	6'-0"
K	4	S	22	2'-8"
M	4	B	33	6'-4"
H₁'' / H₈	5	B	1 ea.	13'-11 5/16 to 15'-1 1/16" vary by 5/8"
EXP. BOLTS	3/4" Ø	-	4	2'-0"



SUMMARY OF QUANTITIES - PIER 'D'

WET EXCAVATION	235 C.Y.
DRY EXCAVATION	10 C.Y.
CLASS 'A' CONCRETE	189.4 C.Y.
REINFORCING STEEL *	17,019 LBS.
12 BP 53 STEEL BEARING PILES - See Summary, Sh. No. 2	L.F.

*Includes 154 Lbs for Anchor Bolt Assemblies and 20 lbs. for Expansion Bolt Assemblies.

NOTES
For Standard Notes see Sh. No. 4.
For Standard Details including Hook Details, Anchor Bolt Details, and Anchor Bolt Schedule see Sh. No. 5.
For Expansion Bolt Details see Sh. No. 5.

No Scale unless noted.

REV.				
REV.				
REV.				
REV.	JRC	J.C.	7-70	
	REINF. QUAN.			
REVIEWED	IN CHARGE			
QUAN.	RET	MNZ	2-70	
TR.				
DR.	JC.	JRC	2-70	
DES.	JRC	JWB	1-70	
	BY	CHK'D	DATE	

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

DETAILS OF PIER 'D'
FOR WIDENING BRIDGE OVER
PACOLET RIVER

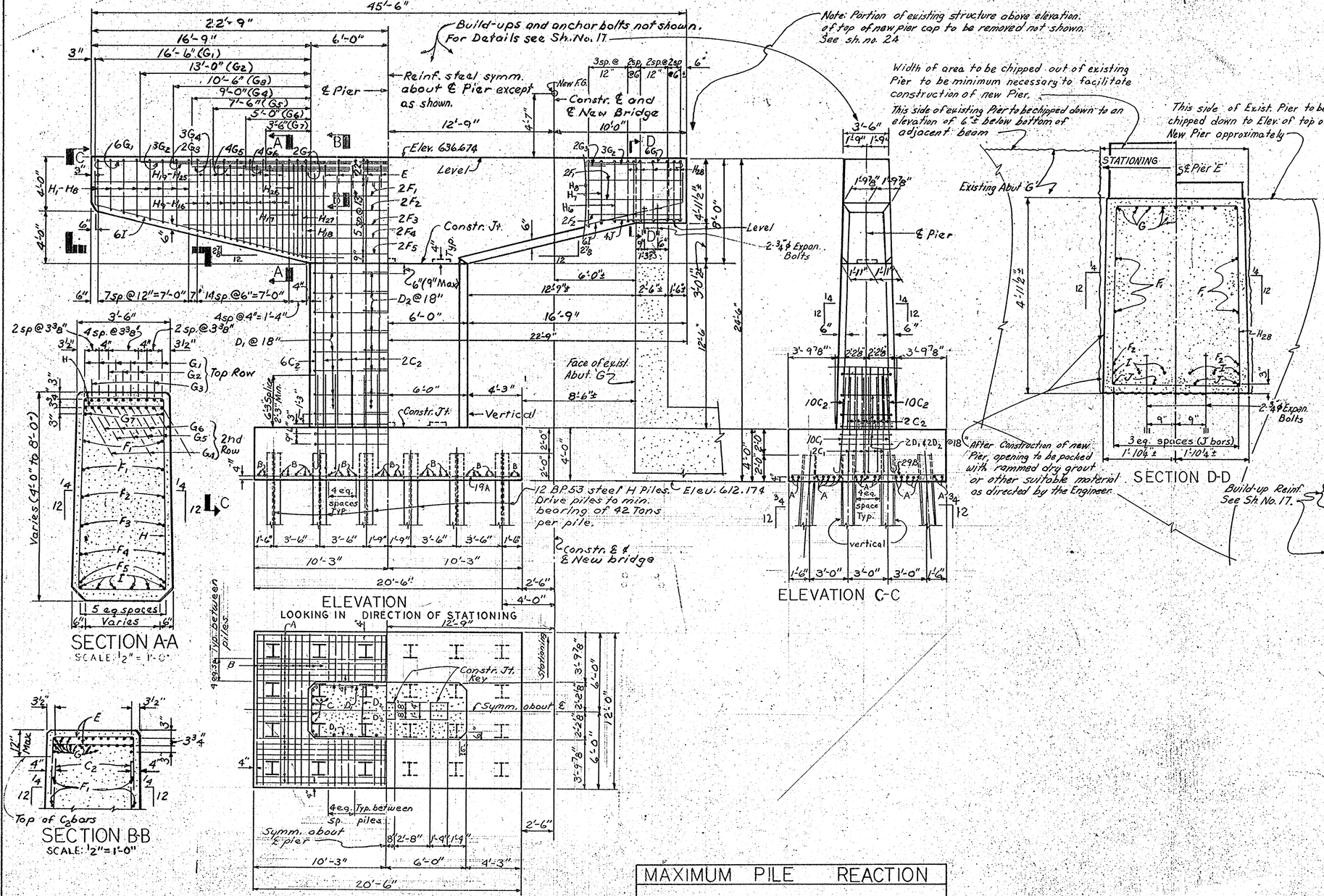
FILE NO.	COUNTY	ROUTE NO.	DATE
42.542	SPARTANBURG	29	1-70

APPROVED BY: J. J. Arbuckle, ASS'T. BRIDGE DESIGN & PLANS ENGINEER

APPROVED BY: DESIGN — W. E. Crum, BRIDGE ENGINEER

live load: H-20-44
fs = 20,000 psi
fc = 1,200 psi
n = 10
v = 255 psi
vc = 80 psi; 240 psi; 300 psi

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S. C.	SPARTANBURG	42.542	29	16	31



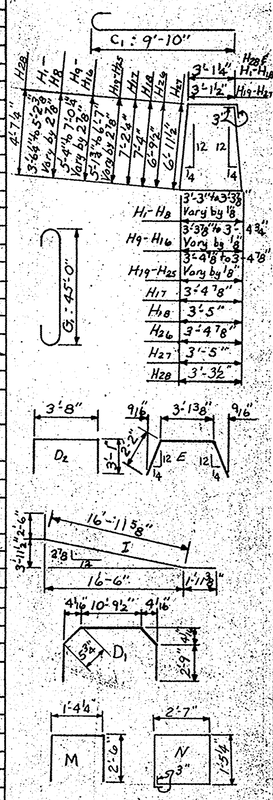
Note: Footing may be lowered a maximum of 4'-0", without providing additional vertical column steel, by reducing lengths of splice at base of column.

MAXIMUM PILE REACTION

Live Load, Superstructure	131ᵏ
Dead Load, Superstructure	500ᵏ
Dead Load, Pier	401ᵏ
Backfill (.6 Ft Net Wt.)	141ᵏ
Dead load 16" Water Main Flowing full	13ᵏ
Total of Above	1186ᵏ
Bearing for Above	24.7 T/pile
Eccentricity of Live Load	5.2"/pile
Eccentricity of D.L. Superstructure	7.6"/pile
Eccentricity of D.L. Water Main	1.5"/pile
Maximum Bearing	39.0 T/pile

REINFORCING STEEL BENDING DETAILS — PIER 'E'

MARK	SIZE	D	NO.	LENGTH
A	8	S	19	20'-0"
B	7	S	29	11'-6"
C_1	9	B	32	10'-10"
C_2	9	S	32	19'-7"
D_1	4	B	22	17'-3"
D_2	4	B	22	9'-10"
E	4	B	10	7'-5"
F_1	6	S	4	45'-0"
F_2	6	S	2	39'-3"
F_3	6	S	2	30'-3"
F_4	6	S	2	21'-3"
F_5	6	S	2	12'-3"
G_1	11	B	6	47'-0"
G_2	11	S	3	38'-0"
G_3	11	S	2	33'-0"
G_4	11	S	3	30'-0"
G_5	11	S	4	27'-0"
G_6	11	S	4	22'-0"
G_7	11	S	2	19'-0"
H_6-H_8	5	B	2 ea.	16'-4" to 17'-4" Vary by 5⅞"
H_9-H_{16}	6	B	2 ea.	17'-7" to 21'-1" Vary by 5⅞"
H_{17}	6	B	2	21'-5"
H_{18}	6	B	2	21'-8"
H_{19}-H_{25}	6	B	2 ea.	17'-3" to 20'-2" Vary by 5⅞"
H_{24}	6	B	2	20'-7"
H_{27}	6	B	2	21'-0"
H_{28}	5	B	7	16'-1"
I	9	B	12	21'-5"
J	5	S	4	6'-0"
K	4	S	20	2'-8"
M	4	B	30	6'-4"
H_1-H_5	5	B	1 ea.	13'-11" to 16'-11" Vary by 5⅞"
Exp. Bolt	¾" ø	-	4	2'-0"
N	4	B	6	8'-7"



SUMMARY OF QUANTITIES - PIER 'E'

DRY EXCAVATION	180 C.Y.
CLASS 'A' CONCRETE	100.8 C.Y.
REINFORCING STEEL *	12,892 LBS.
12 BP 53 STEEL BEARING PILES - See Summary Sh. No. 2	L.F.

*Includes 154 Lbs for Anchor Bolt Assemblies & 20 Lbs for Expansion Bolt Assemblies.

NOTES
For Standard Notes see Sh. No. 4.
For Standard Details including Hook Details, Anchor Bolt Details; and Anchor Bolt Schedule see Sh. No. 5.
For details of Expansion Bolts see Sh. No. 5

No Scale unless noted.

REV.			
REV.			
REV.			
REV.	VRC	RJS	1-70
REVIEWED	Rev. Quant.		
QUAN.	RET	MNZ	2-70
TR.			
DR.	RJS	JRC	2-70
DES.	JR.	JWB	1-70
	BY	CHK'D	DATE

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

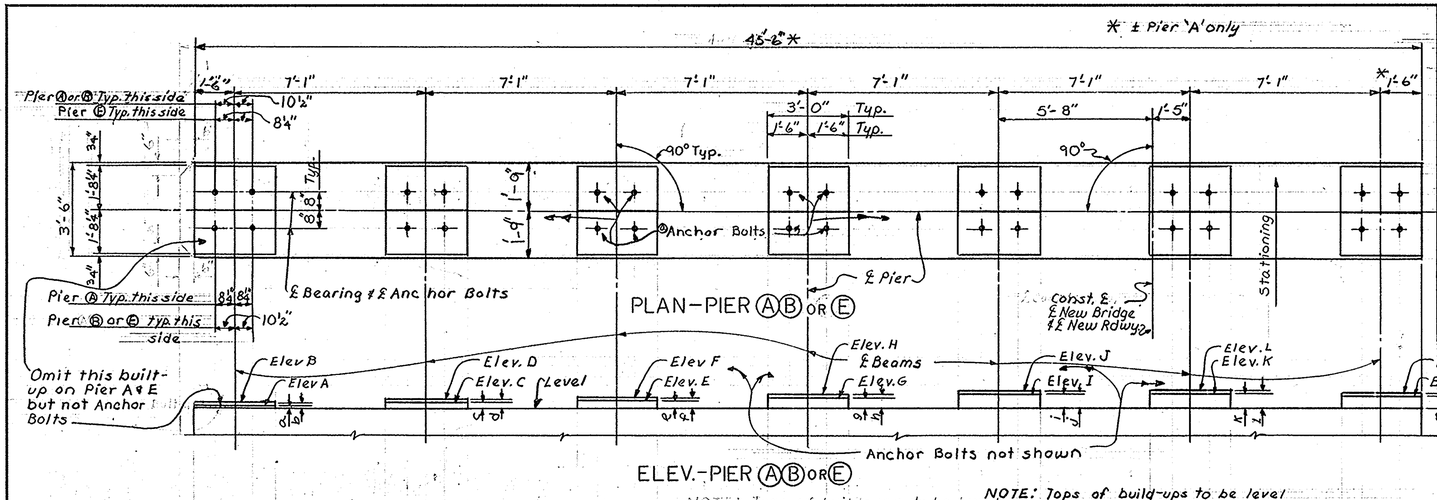
DETAILS OF PIER 'E'
FOR WIDENING BRIDGE OVER
PACOLET RIVER

FILE NO.	COUNTY	ROUTE NO.	DATE
42.542	SPARTANBURG	29	1-70

APPROVED BY: A. J. Duke Jr. 1-70
BRIDGE DESIGN & PLANS ENGINEER

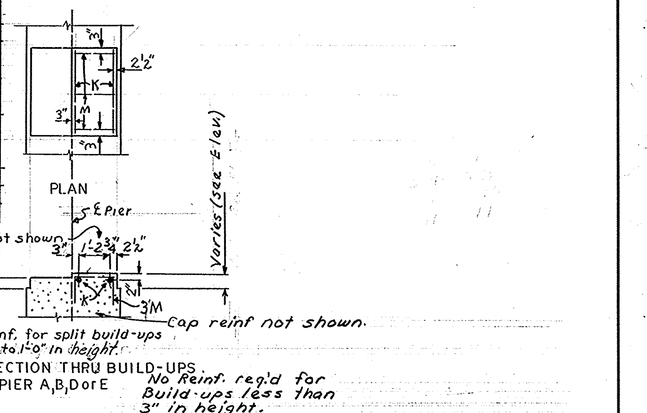
APPROVED BY: DESIGN
BRIDGE ENGINEER

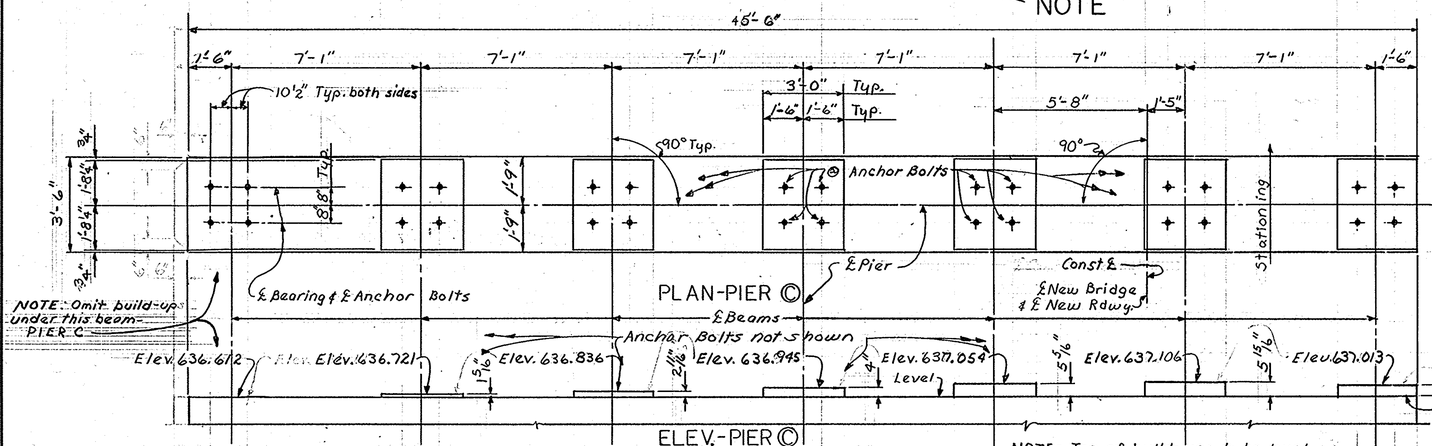
FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S. C.	SPARTANBURG	42.542	29	17	31

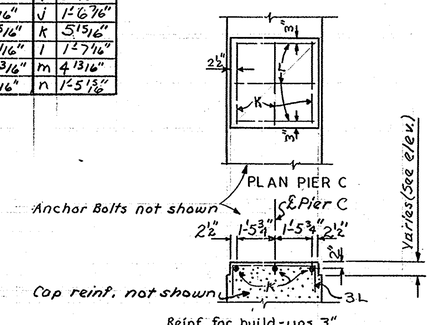


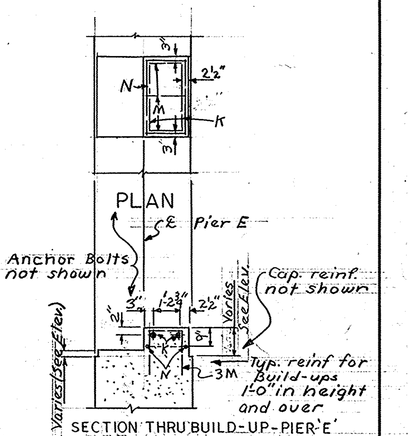
ELEVATION PIER A, B, & E			
	PIER A	PIER B	PIER E
Elev. A	———	636.612	———
Elev. B	636.674	636.674	636.789
Elev. C	636.700	636.721	636.783
Elev. D	636.783	636.783	637.877
Elev. E	636.815	636.836	636.898
Elev. F	636.898	636.898	637.992
Elev. G	636.924	636.945	637.007
Elev. H	637.007	637.007	638.101
Elev. I	637.033	637.054	637.117
Elev. J	637.117	637.117	638.211
Elev. K	637.085	637.106	637.169
Elev. L	637.169	637.169	638.263
Elev. M	636.992	637.013	637.075
Elev. N	637.075	637.075	638.169
Elev. P	636.591	636.528	636.674

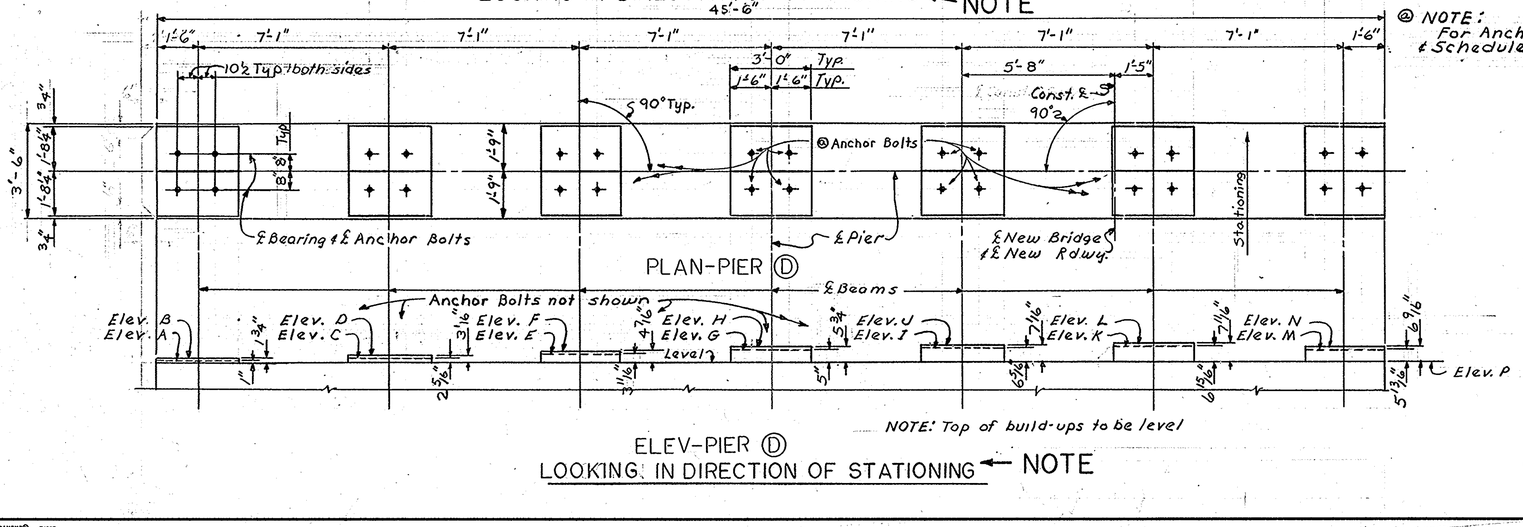
TABLE OF DIMENSIONS					
PIER A		PIER B		PIER E	
a	———	a	1"	a	———
b	1"	b	1 3/4"	b	1 3/8"
c	1 5/16"	c	2 5/16"	c	1 5/16"
d	2 5/16"	d	3 1/16"	d	1'-2 7/16"
e	2 11/16"	e	3 11/16"	e	2 11/16"
f	3 11/16"	f	4 7/16"	f	1'-3 13/16"
g	4"	g	5"	g	4"
h	5"	h	5 3/4"	h	1'-5 1/8"
i	5 5/16"	i	6 5/16"	i	5 5/16"
j	6 5/16"	j	7 1/16"	j	1'-6 7/16"
k	5 15/16"	k	6 15/16"	k	5 15/16"
l	6 15/16"	l	7 11/16"	l	1'-7 1/16"
m	4 13/16"	m	5 13/16"	m	4 13/16"
n	5 13/16"	n	6 9/16"	n	1'-5 15/16"











② NOTE: For Anchor Bolt Details & Schedule See Sh. No. 5

ELEVATIONS PIER D	
Elev. A	636.612
Elev. B	636.674
Elev. C	636.721
Elev. D	636.783
Elev. E	636.836
Elev. F	636.898
Elev. G	636.945
Elev. H	637.007
Elev. I	637.054
Elev. J	637.117
Elev. K	637.106
Elev. L	637.169
Elev. M	637.013
Elev. N	637.075
Elev. P	636.528

NOTES: For Standard Notes see Sh. No. 4
For Standard Details see Sh. No. 5
This sheet to accompany Sh. Nos. 12-16

REV.				
REV.				
REV.				
REV.				
REVIEWED IN CHARGE				
QUAN.				
TR.				
DR.	RET	RJS	12-69	
DES.				
	BY	CHK'D	DATE	

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

BUILD UPS DETAILS FOR PIERS "A" THRU "E"
FOR WIDENING BRIDGE OVER
PACOLET RIVER
SCALE: 3/8" = 1'-0"

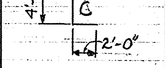
FILE NO.	COUNTY	ROUTE NO.	DATE
42.542	SPARTANBURG	29	12-69

APPROVED BY _____ Asst't BRIDGE DESIGN & PLANS ENGINEER
APPROVED BY DESIGN _____ BRIDGE ENGINEER

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S. C.	SPARTANBURG	42,542	29	18	31

REINFORCING STEEL ONE-WALL

MARK	SIZE	D	NO	LENGTH	BENDING DETAIL
A	5	S	24	4'-10"	
B	4	S	8	24'-8"	
C	5	B	24	4'-10"	
D	4	S	3	22'-11"	
Exp. Bolts	3/4" Ø	-	2	12'-0"	



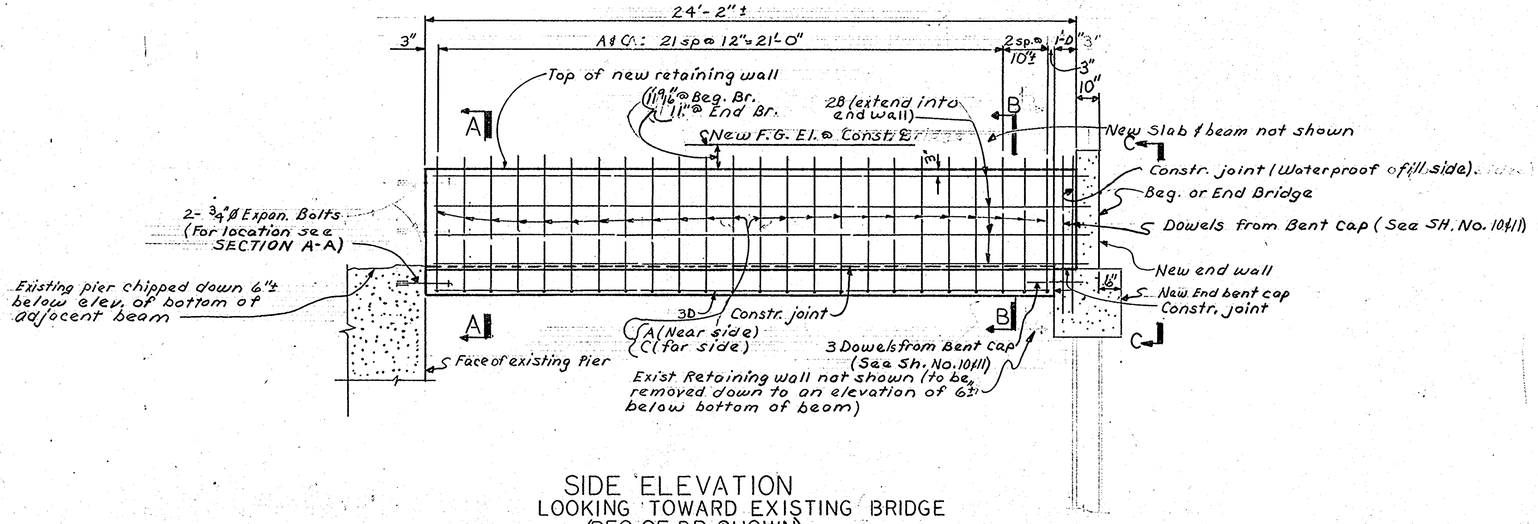
NO SCALE

QUANTITIES

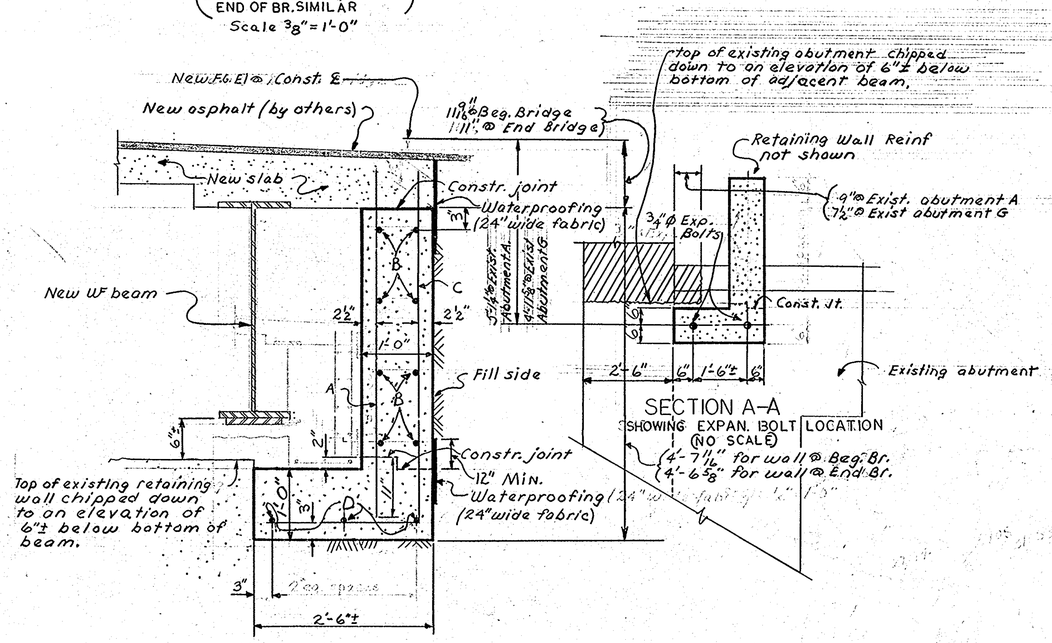
ITEM	Beg Br.	End Br.	Unit
DRY EXCAVATION	15	15	C.Y.
CLASS 'A' CONCRETE	5.4	5.3	C.Y.
REINFORCING STEEL *	480	480	Lbs.
WATERPROOFING for Exp.	11	11	S.Y.

* Includes 10 lbs. for expansion bolts/wall

NOTES:
All cracks that occur before backfilling & all construction joints above top of footing shall be waterproofed according to S.C.H.D. specifications "Second Method." Fabric to be 24" Wide.
For standard notes see sh. no. 4.
For standard Details incld. Expansion Bolt Details see sh. no. 5.

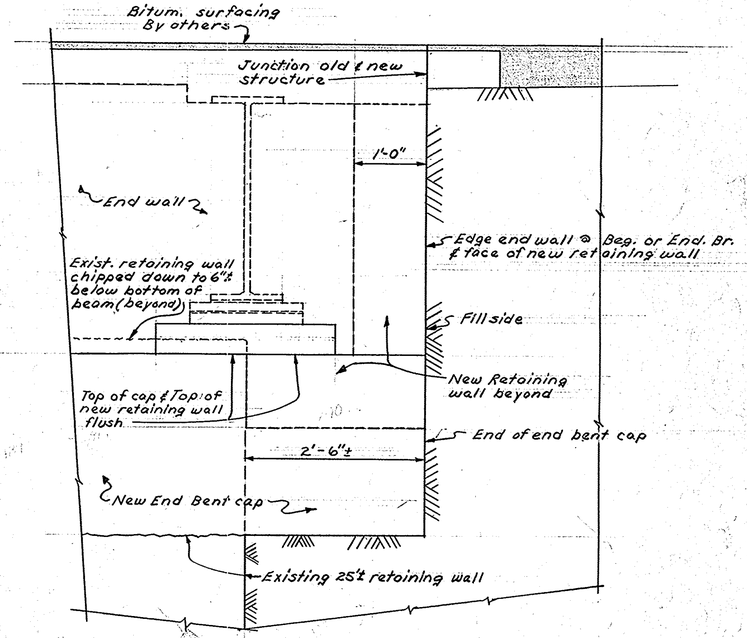


SIDE ELEVATION
LOOKING TOWARD EXISTING BRIDGE
(BEG. OF BR. SHOWN)
END OF BR. SIMILAR
Scale 3/8" = 1'-0"



SECTION A-A
SHOWING EXPAN. BOLT LOCATION
(NO SCALE)
(4'-7 1/16" for wall @ Beg. Br.
(4'-6 5/8" for wall @ End Br.

SECTION B-B
Scale 1" = 1'-0"



ELEVATION C-C
(BEG. BR. SHOWN - END BR. SIMILAR)
SCALE 1" = 1'-0"

REV.			
REV.			
REV.			
REV.			
REVIEWED		IN CHARGE	
QUAN.	RET	R.J.S.	1-70
TR.			
DR.	RET	R.J.S.	12-69
DES.	JRC		12-69
	BY	CHK'D	DATE

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

RETAINING WALL DETAILS
FOR WIDENING BRIDGE OVER
PACOLET RIVER

FILE NO.	COUNTY	ROUTE NO.	DATE
42.542	SPARTANBURG	29	12-69

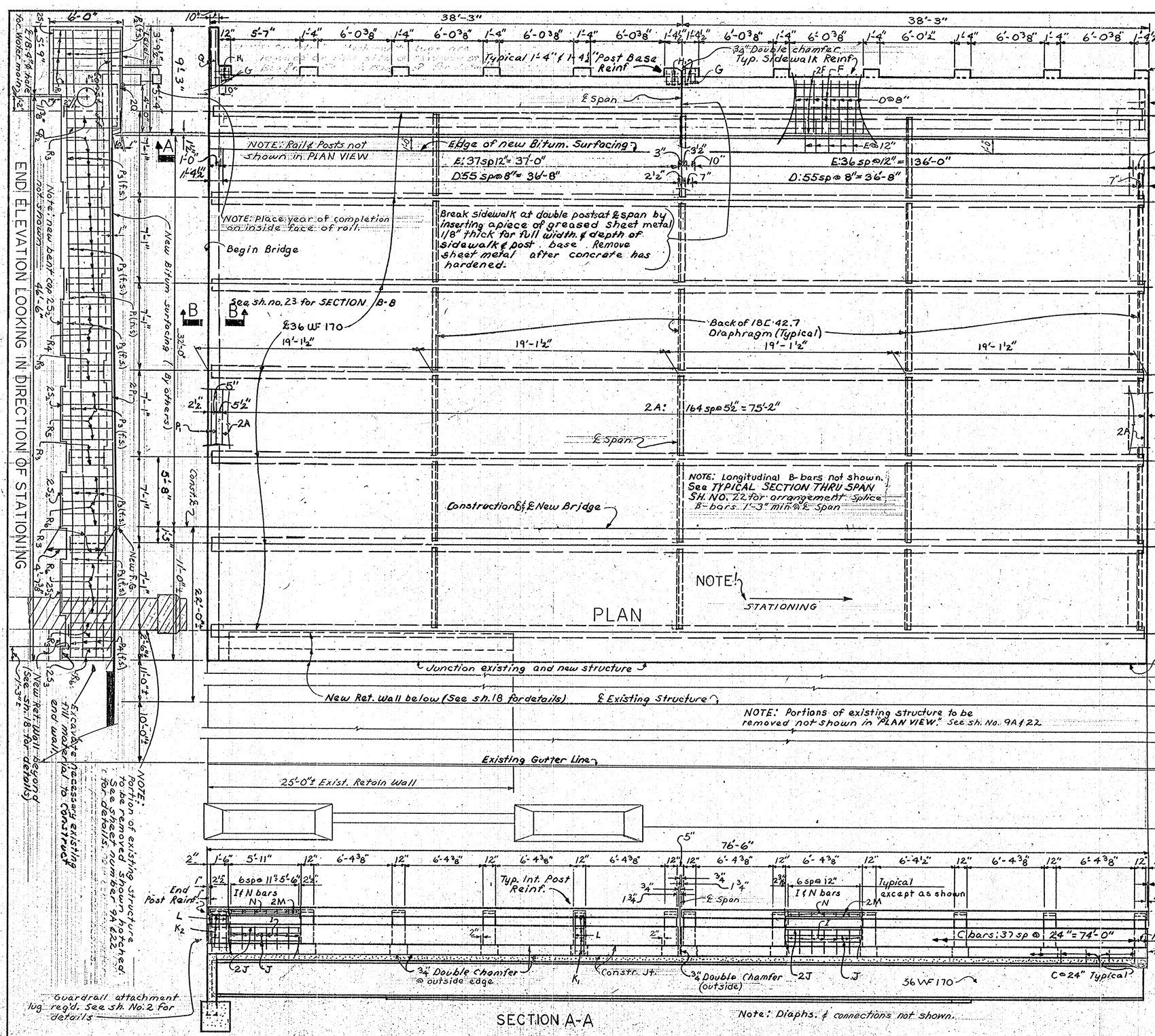
APPROVED BY _____ ASS'T. BRIDGE DESIGN & PLANS ENGINEER

APPROVED BY DESIGN _____ BRIDGE ENGINEER

K&E ALBANENE TRACING PAPER 74288

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	SPARTANBURG	42.542	29	19	31

END ELEVATION LOOKING IN DIRECTION OF STATIONING



REV.			
REV.			
REV.			
REV.			
REVIEWED		IN CHARGE	
QUAN.			
TR.			
DR.	RET	JWB	10-69
DES.			
	BY	CH'K'D	DATE

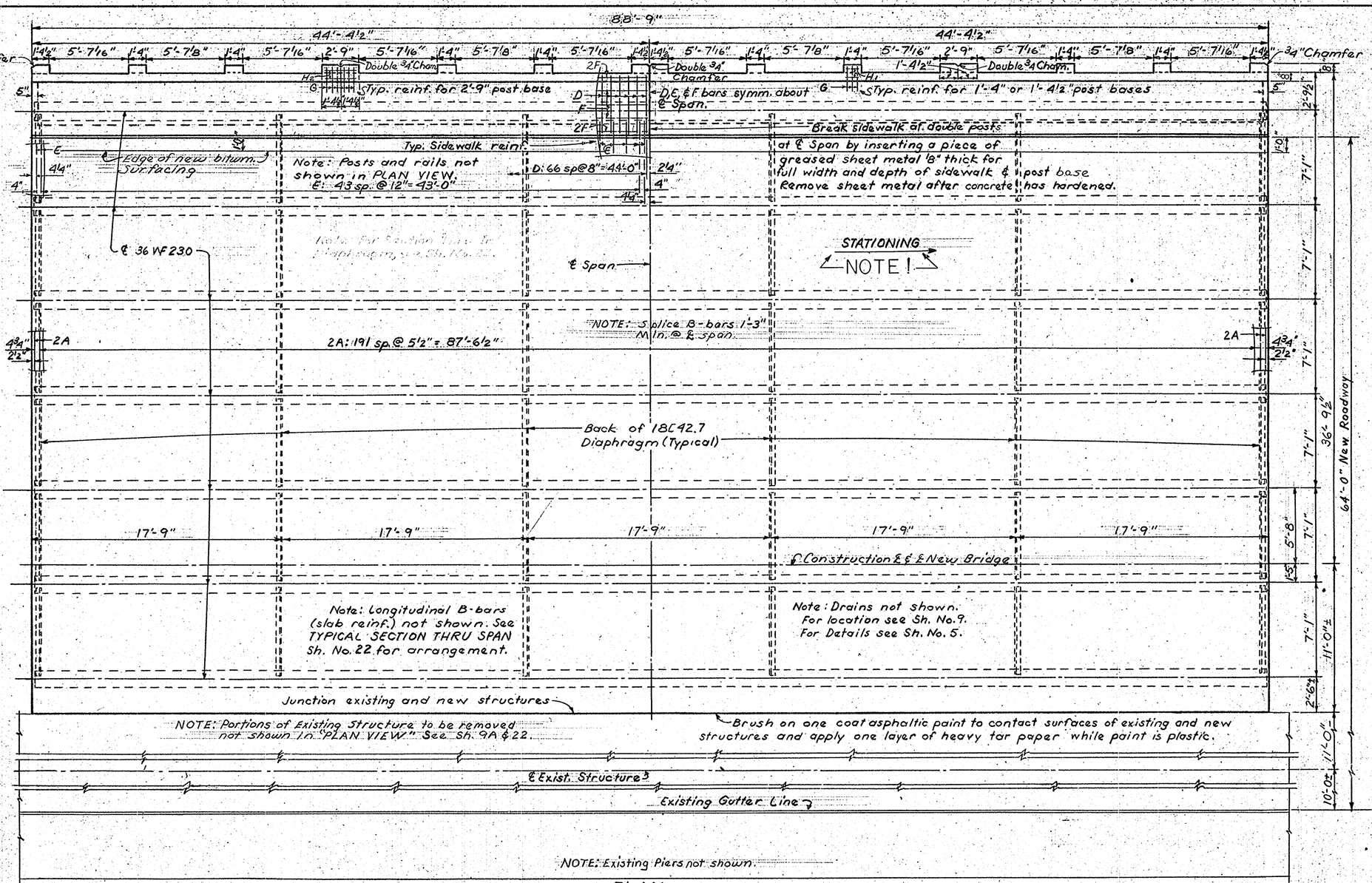
S.C. STATE HIGHWAY DEPARTMENT
BRIDGE DIVISION
COLUMBIA S.C.

76'-6" SPAN NO. 1
SUPERSTRUCTURE LAYOUT
FOR WIDENING BRIDGE OVER
PACOLET RIVER

FILE NO.	COUNTY	ROUTE NO.	DATE
42.542	SPARTANBURG	29	10-69

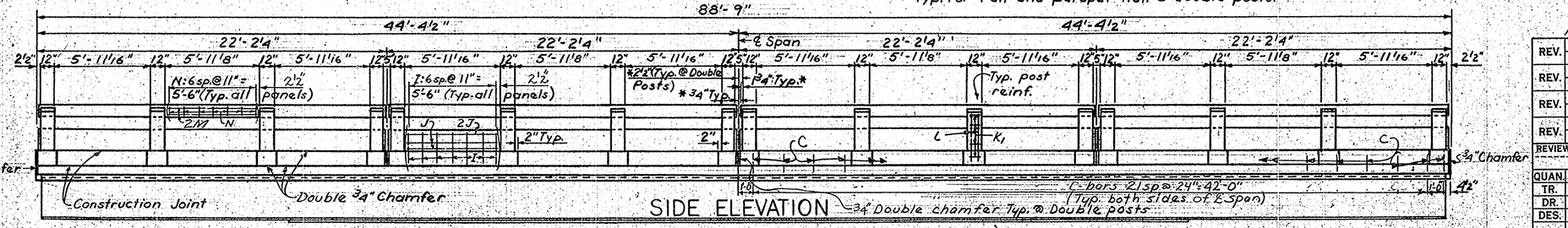
APPROVED BY: D. F. Anker Jr. ASST — BRIDGE DESIGN & PLANS ENGINEER
APPROVED BY DESIGN: W. E. Crum — BRIDGE ENGINEER

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S. C.	SPARTANBURG	42542	29	20	31



PLAN

* Typ. for rail and parapet wall @ double posts.



SIDE ELEVATION

NOTE: For Section Thru End Diaphragm See Sh. No. 25.

Notes!
For Standard Notes, see Sh. No. 4.
For Standard Details, see Sh. No. 5.
For Reinf. Steel Schedule, Bending Details and Summary of Quantities, see Sh. No. 23.
For beam, cover R and bearing details, see Sh. No. 25.
This sheet to accompany Sheets No. 22, 23 & 25.

No Scale.

REV.			
REV.			
REV.			
REV.			
REVIEWED	IN CHARGE		
QUAN.			
TR.			
DR.	J.C.	JWB	10-69
DES.			
	BY.	CHK'D	DATE

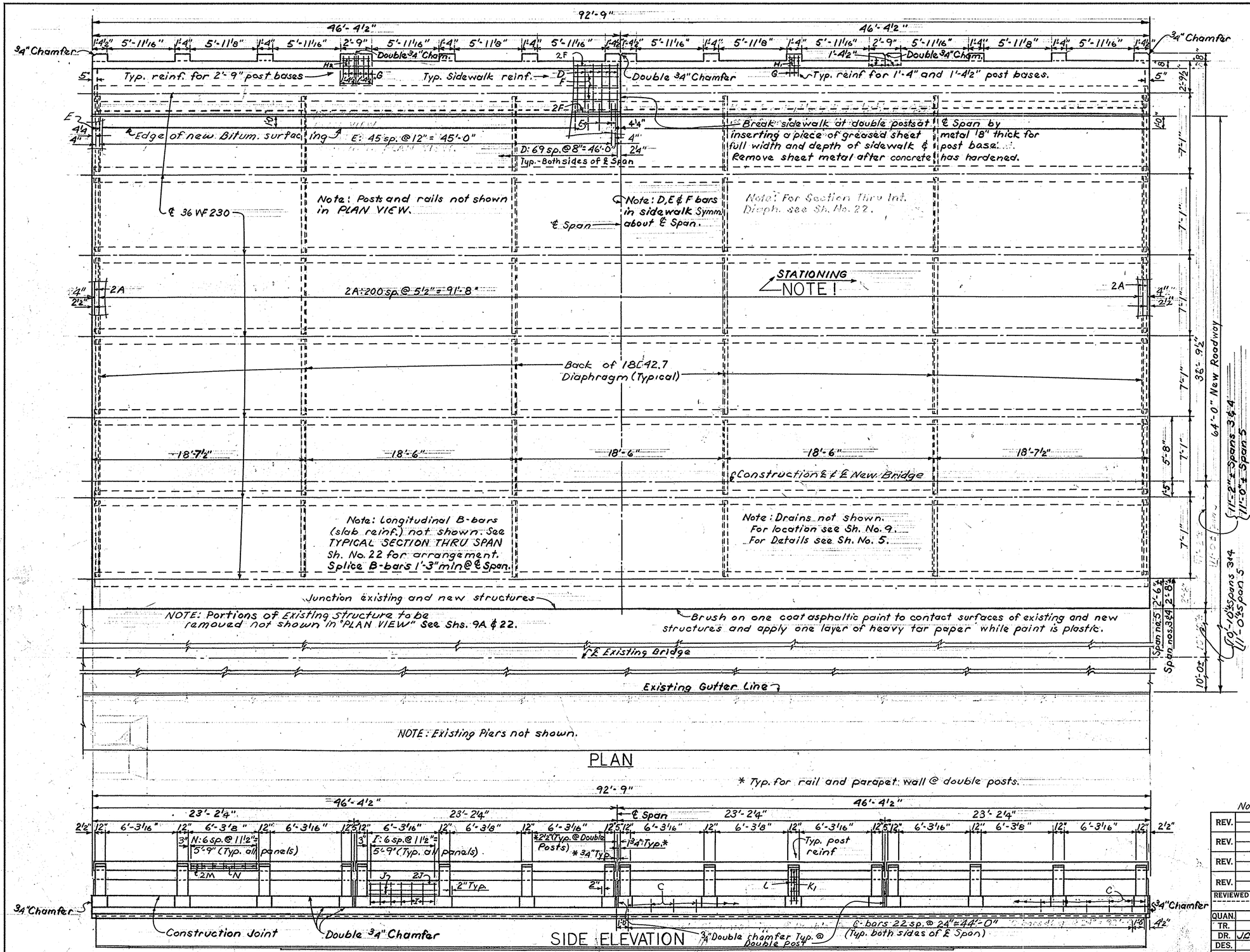
S. C. STATE HIGHWAY DEPARTMENT
BRIDGE DIVISION
COLUMBIA S. C.

88'-9" SPAN NO. 2
SUPERSTRUCTURE LAYOUT
FOR WIDENING BRIDGE OVER
PACOLET RIVER

FILE NO.	COUNTY	ROUTE NO.	DATE
42.542	SPARTANBURG	U.S. 29	10-69

APPROVED BY ASS'T BRIDGE DESIGN & PLANS ENGINEER
APPROVED BY DESIGN BRIDGE ENGINEER

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S. C.	SPARTANBURG	42.542	29	21	31



Note: For Section Thru End Diaphragm See Sh. No. 25.

Notes:
For Standard Notes, see Sh. No. 4.
For Standard Details, see Sh. No. 5.
For Reinf. Steel Schedule, Bending Details and Summary of Quantities, see Sh. No. 23.
For beam, cover ℄ and bearing details, see Sh. No. 25.
This sheet to accompany Sheets No. 22, 23 & 25.

SPAN NO. 3 SHOWN

No. Scale: 1/4" = 1'-0"

REV.			
REV.			
REV.			
REV.			
REVIEWED	JWB	IN CHARGE	
QUAN.			
TR.			
DR.	JC.	JWB	10-69
DES.			
	BY	CHK'D	DATE

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

92'-9" SPAN NOS. 3, 4, & 5 SUPERSTRUCTURE LAYOUT FOR WIDENING BRIDGE OVER PACOLET RIVER

FILE NO.	COUNTY	ROUTE NO.	DATE
42.542	SPARTANBURG	U.S. 29	10-69

APPROVED BY J. J. Anke, Jr. ASS'T. BRIDGE DESIGN & PLANS ENGINEER

APPROVED BY DESIGN BRIDGE ENGINEER

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S. C.	Spartanburg	42.542	29	22	31

TYPICAL SECTION THRU SPAN

NOTE! LOOKING IN DIRECTION OF STATIONING

TYPICAL END ELEVATION AT INTERIOR PIER

NOTE! LOOKING IN DIRECTION OF STATIONING

SECTION THRU INT. DIAPHRAGM

Scale: 3"=1'-0"

SECTION THRU SIDEWALK

Scale: 3"=1'-0"

PARTIAL SECTION AT EXISTING ABUT. 'A'

NOTE! LOOKING IN DIRECTION OF STATIONING

PARTIAL SECTION THRU EXISTING PIER 'B','C' OR 'F'

LOOKING IN DIRECTION OF STATIONING NOTE!

Note: For Standard Notes see Sheet No. 4.
For Standard Details see Sheet No. 5.
For Reinf. Steel Schedule, Bending Details and Summary of Quantities see Sheet No. 23.
This sheet to accompany Sheets No. 19-21.
For beam, cover @ and bearing details, see Sh. No. 25.
For General Chipping Details see Sh. No. 9A

Scale this sheet: 3/8"=1'-0" unless otherwise noted.

REV.			
REV.			
REV.			
REV.			
REVIEWED	JWB	IN CHARGE	
QUAN.			
TR.			
DR.	JRC	JWB	1-70
DES.	JRC	JWB	1-70
	BY	CHK'D	DATE

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

SUPERSTRUCTURE DETAILS
FOR SPANS NO. 1 - 5
FOR WIDENING BRIDGE OVER
PACOLET RIVER

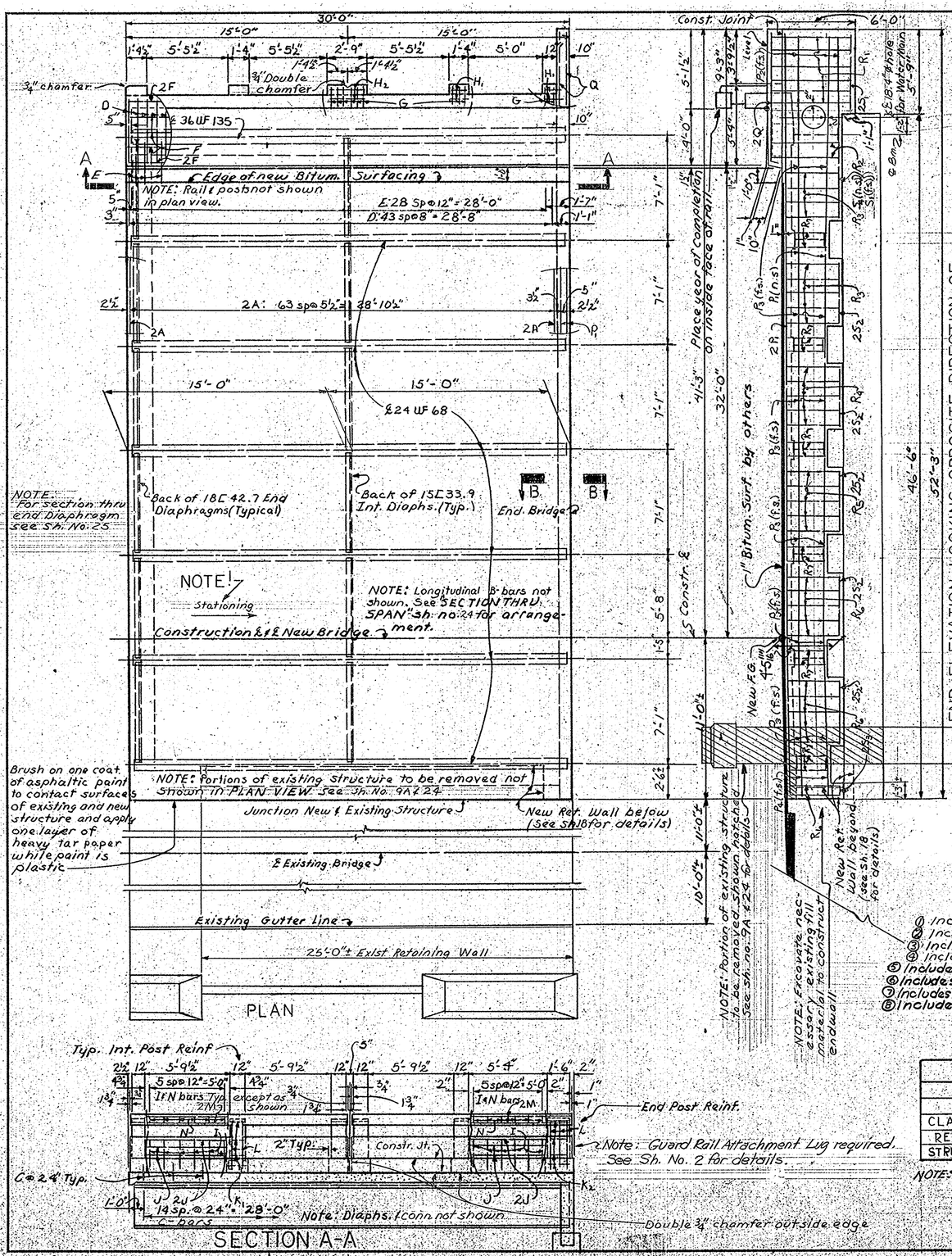
FILE NO.	COUNTY	ROUTE NO.	DATE
42.542	SPARTANBURG	29	10-69

APPROVED BY: J. W. Dawkins Jr. ASS'T. BRIDGE DESIGN & PLANS ENGINEER
APPROVED BY: DESIGN W. E. Crum BRIDGE ENGINEER

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	SPARTANBURG	42.542	29	23	31

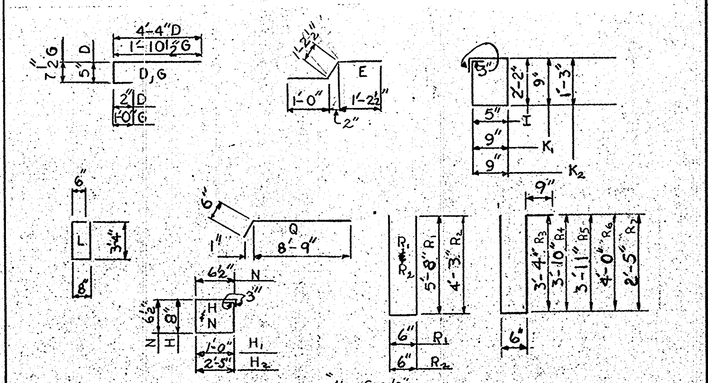
REINFORCING STEEL SCHEDULE

			SPAN 1		SPAN 2		SPAN 3		SPAN 4		SPAN 5		SPAN 6	
Mark	Size	D	No.	Length	No.	Length	No.	Length	No.	Length	No.	Length	No.	Length
A	5	S	330	47'-5"	388	47'-5"	406	47'-7"	406	47'-7"	406	47'-5"	128	47'-5"
B	5	S	184	38'-8"	184	44'-10"	184	46'-10"	184	46'-10"	184	46'-10"	92	29'-8"
C	5	S	38	0'-10"	46	0'-10"	48	0'-10"	48	0'-10"	48	0'-10"	15	0'-10"
D	3	B	114	4'-11"	134	4'-11"	140	4'-11"	140	4'-11"	140	4'-11"	44	4'-11"
E	4	B	77	3'-5"	92	3'-5"	96	3'-5"	96	3'-5"	96	3'-5"	29	3'-5"
F	4	S	14	37'-11"	14	44'-0"	14	46'-0"	14	46'-0"	14	46'-0"	7	29'-8"
G	5	B	36	3'-6"	48	3'-6"	48	3'-6"	48	3'-6"	48	3'-6"	18	3'-6"
H_1	3	B	24	3'-10"	24	3'-10"	24	3'-10"	24	3'-10"	24	3'-10"	8	3'-10"
H_2	3	B	—	———	4	6'-8"	4	6'-8"	4	6'-8"	4	6'-8"	2	6'-8"
I	4	B	70	5'-8"	84	5'-8"	84	5'-8"	84	5'-8"	84	5'-8"	24	5'-8"
J	4	S	8	37'-9"	16	21'-8"	16	22'-8"	16	22'-8"	16	22'-8"	8	14'-6"
K_1	3	B	94	3'-6"	64	3'-6"	64	3'-6"	64	3'-6"	64	3'-6"	20	3'-6"
K_2	3	B	4	4'-6"	—	———	—	———	—	———	—	———	4	4'-6"
L	6	B	25	7'-10"	32	7'-10"	32	7'-10"	32	7'-10"	32	7'-10"	13	7'-10"
M	5	S	8	37'-9"	16	21'-8"	16	22'-8"	16	22'-8"	16	22'-8"	8	14'-6"
N	3	B	70	2'-8"	84	2'-8"	84	2'-8"	84	2'-8"	84	2'-8"	24	2'-8"
P_1	5	S	5	51'-11"	—	———	—	———	—	———	—	———	4	51'-11"
P_2	4	S	3	7'-0"	—	———	—	———	—	———	—	———	3	7'-0"
P_3	4	S	18	6'-9"	—	———	—	———	—	———	—	———	12	6'-9"
P_4	4	S	3	2'-2"	—	———	—	———	—	———	—	———	2	2'-2"
Q	4	B	2	9'-3"	—	———	—	———	—	———	—	———	2	9'-3"
R_1	4	B	6	11'-10"	—	———	—	———	—	———	—	———	6	11'-10"
R_2	4	B	2	9'-0"	—	———	—	———	—	———	—	———	2	9'-0"
R_3	4	B	21	7'-11"	—	———	—	———	—	———	—	———	9	7'-11"
R_4	4	B	5	8'-11"	—	———	—	———	—	———	—	———	5	8'-11"
R_5	4	B	5	9'-1"	—	———	—	———	—	———	—	———	5	9'-1"
R_6	4	B	12	9'-3"	—	———	—	———	—	———	—	———	12	9'-3"
S_1	4	S	2	5'-5"	—	———	—	———	—	———	—	———	3	5'-5"
S_2	4	S	8	4'-3"	—	———	—	———	—	———	—	———	10	4'-3"
S_3	4	S	2	1'-0"	—	———	—	———	—	———	—	———	2	1'-0"
S_4	4	S	—	———	—	———	—	———	—	———	—	———	1	12'-9"
R_7	4	B	—	———	—	———	—	———	—	———	—	———	12	6'-1"
BBU	2"HT	—	Reqd	1235'	Reqd	1425'	Reqd	1520'	Reqd	1520'	Reqd	1520'	Reqd	520'
BB	1"HT.	—	Reqd	1300'	Reqd	1510'	Reqd	1575'	Reqd	1575'	Reqd	1575'	Reqd	510'



① Includes 849 Lbs. for Bolsters.
② Includes 982 Lbs. for Bolsters.
③ Includes 1020 Lbs. per span for Bolsters.
④ Includes 350 Lbs. for Bolsters.
⑤ Includes 1330 Lbs. for studs and 233 lbs. for Bronze R's.
⑥ Includes 1459 Lbs. for studs and 288 lbs. for Bronze R's.
⑦ Includes 1434 Lbs. per span for Studs and 283 lbs. per span for Bronze R's.
⑧ Includes 677 Lbs. for studs.

BENDING DETAILS (NO SCALE)



"No Scale"

QUANTITIES

ITEM	SPAN 1	SPAN 2	SPAN 3	SPAN 4	SPAN 5	SPAN 6
CLASS 'A' CONCRETE - C.Y.	102.4	113.3	118.7	118.7	118.3	43.1
REINFORCING STEEL - LBS.	①27,459	②31,360	③32,832	⑤32,832	⑥32,761	④11,047
STRUCTURAL STEEL - LBS.	⑤115,600	⑥176,000	⑦189,300	⑦189,300	⑦189,300	⑧21,500

NOTES: For Standard Notes See Sh. No. 4
For Standard Details See Sh. No. 5
For Beam & Bearing Details, see sh. no. 25
This sheet to accompany Sh. 24 & 25

CONC. & STRUCT. STEEL QUAN.	J.C.	JRC	2-70
REINFORCING STEEL QUAN.	R.E.T.	EJS	2-70
DR.	R.E.T.	JWB	11-69
DES.			

BY	CHK'D	DATE

REV.
REV.
REV.
REV.
REVIEWED IN CHARGE

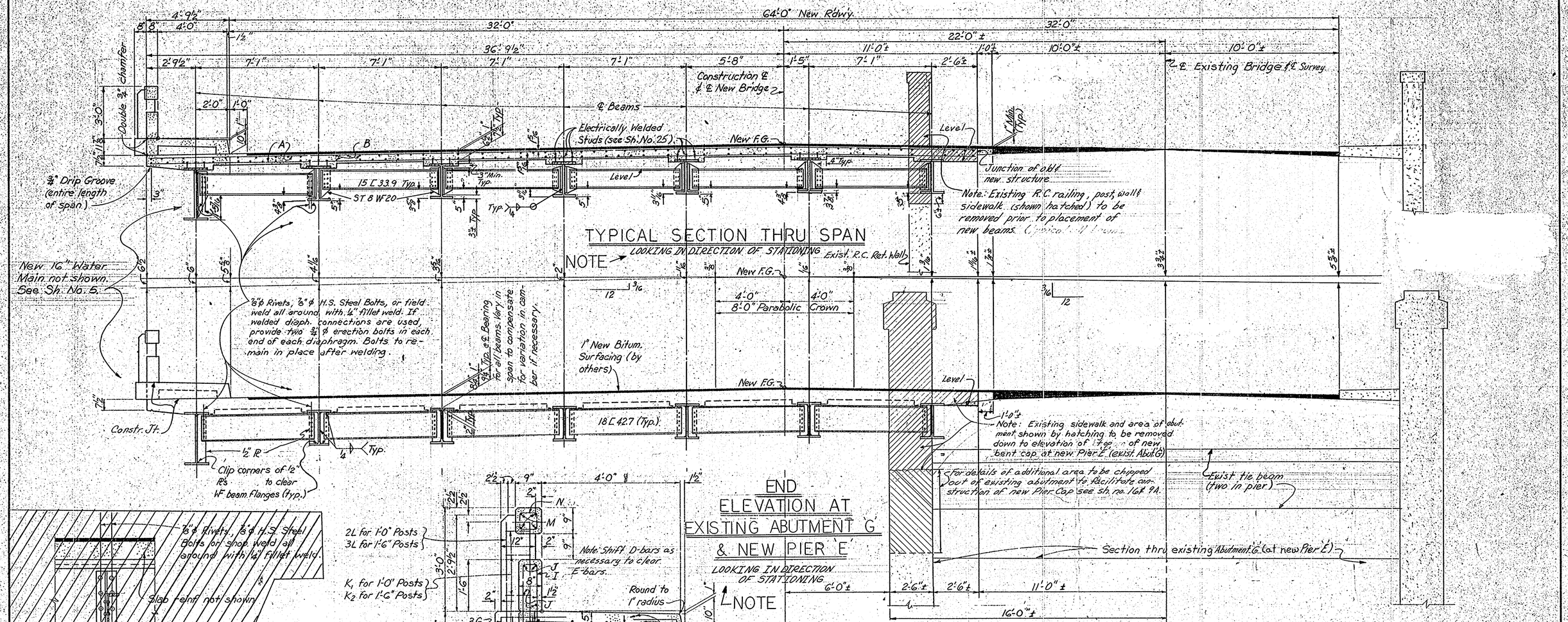
S. C. STATE HIGHWAY DEPARTMENT
BRIDGE DIVISION
COLUMBIA, S.C.

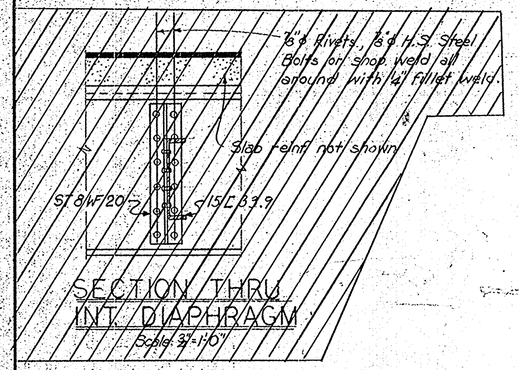
30'-0" SPAN NO. 6 SUPERSTRUCTURE LAYOUT FOR WIDENING BRIDGE OVER PACOLET RIVER

FILE NO.	COUNTY	ROUTE NO.	DATE
42.542	SPARTANBURG	29	11-69

APPROVED BY: A. L. Lewis, ASST. BRIDGE DESIGN & PLANS ENGINEER
APPROVED BY: DESIGN W. E. Crum BRIDGE ENGINEER

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S. C.	Spartanburg	42542	29	22	31





Note:
For Standard Notes see Sheet No. 4.
For Standard Details see Sheet No. 5.
For Reinf. Steel Schedule, Bending Details and Summary of Quantities see Sheet No. 23.
This sheet to accompany Sheet No. 23.
For beam, [illegible] and bearing details, see Sh. No. 25.
For General Chipping Details see Sh. No. 9A.

Scale this sheet: ¾" = 1'-0" unless otherwise noted.

REV.			
REV.			
REV.			
REV.			
REVIEWED		IN CHARGE	
QUAN.			
TR.			
DR.	JRC	JWB	1-70
DES.	JRC	JWB	1-70
	BY	CHK'D	DATE

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

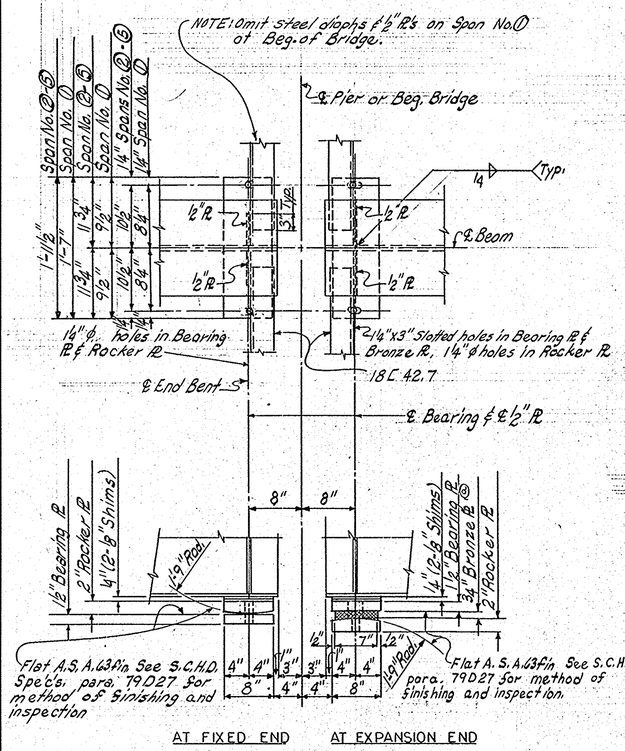
SUPERSTRUCTURE DETAILS FOR SPAN NO. 6 FOR WIDENING BRIDGE OVER PACOLET RIVER

FILE NO.	COUNTY	ROUTE NO.	DATE
42.542	SPARTANBURG	29	1-70

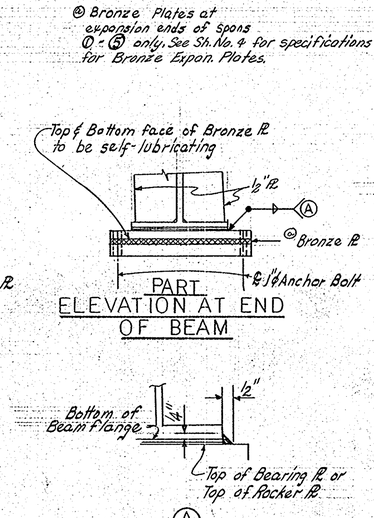
APPROVED BY [signature] ASST. BRIDGE DESIGN & PLANS ENGINEER

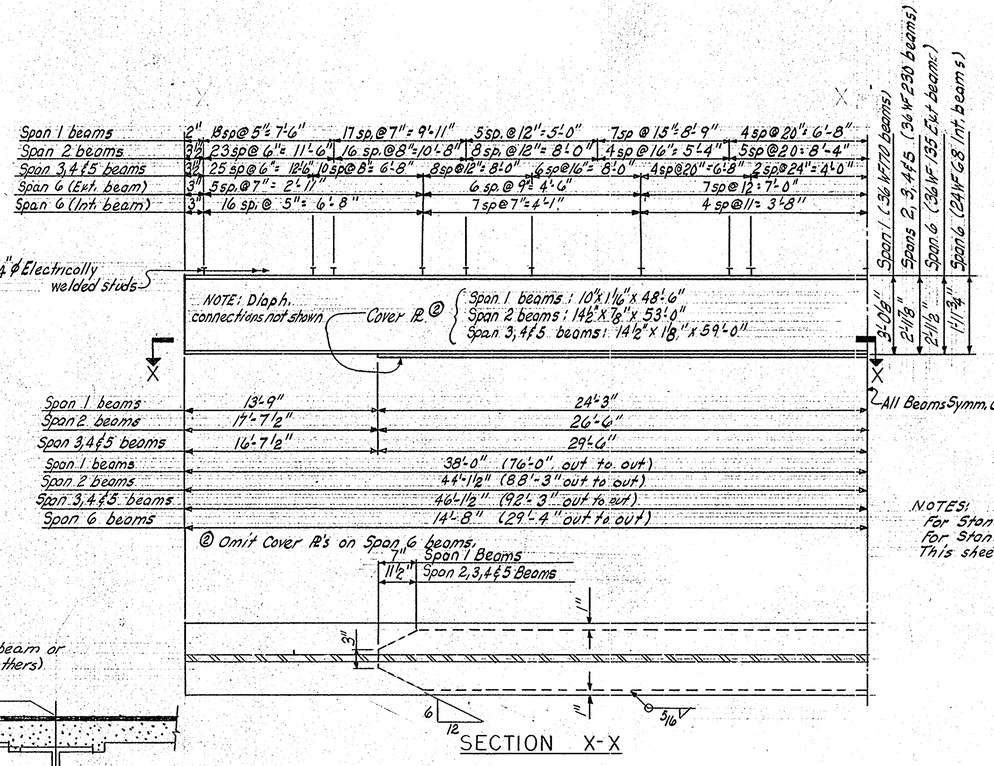
APPROVED BY DESIGN [signature] BRIDGE ENGINEER

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S. C.	SPARTANBURG	42.542	US-29	25	31



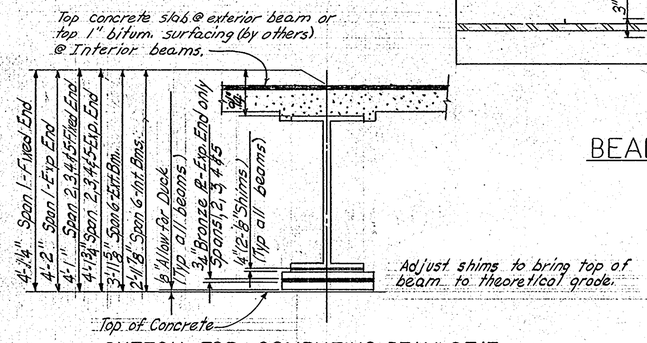
BEARING DETAILS - SPANS 1-5



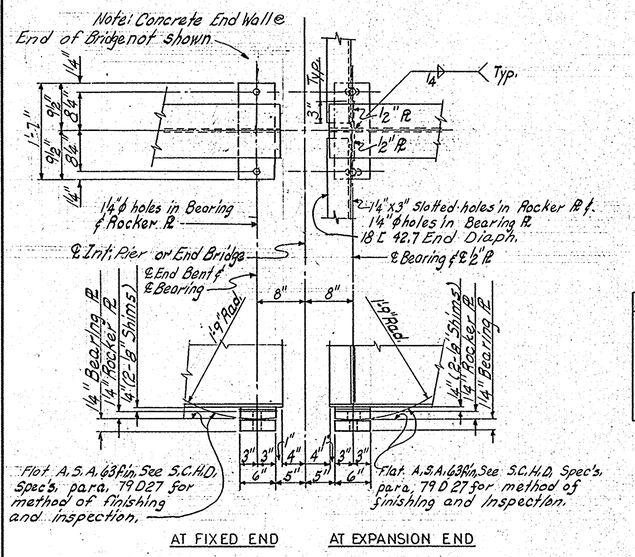


BEAM DETAILS

NOTES:
For Standard Notes see Sh. No. 4
For Standard Details See Sh. No. 5
This sheet to accompany Sh. Nos. 19-24.



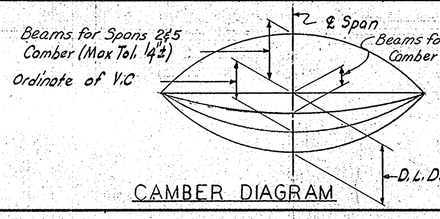
SKETCH FOR COMPUTING BEAM SEAT ELEVATION AT ℄ BEARING



BEARING DETAILS - SPAN 6

NOTE: All cost of furnishing and placing of Bronze Expan. ℓ's shall be included in the LUMP SUM BID for steel superstructures.
Est. wt. for one Bronze ℓ = 33 Lbs. for Span ①
Est. wt. for one Bronze ℓ = 41 Lbs. for span ②③④ or ⑤.

Beam D. L. Deflections	Span ① (all beams)		Span ② (all beams)		Span ③④ & ⑤ (all beams)		Span ⑥ (Ext. Beams)		Span ⑥ (Int. Beams)	
	D. L.	D. L. Defl.	D. L.	D. L. Defl.	D. L.	D. L. Defl.	D. L.	D. L. Defl.	D. L.	D. L. Defl.
Beam, Diaph, etc.	0.206 K/Ft.	3/8"	0.273 K/Ft.	11/16"	0.286 K/Ft.	13/16"	0.135 K/Ft.	0"	0.068 K/Ft.	0"
Slab	0.621 K/Ft.	1 1/8"	0.631 K/Ft.	1 9/16"	0.631 K/Ft.	1 3/4"	0.619 K/Ft.	1/16"	0.611 K/Ft.	3/16"
Sdw'k, rail, etc.	0.161 K/Ft.	3/16"	0.163 K/Ft.	1/4"	0.162 K/Ft.	5/16"	0.162 K/Ft.	0"	0.162 K/Ft.	0"
Totals	0.988 K/Ft.	1 7/16"	1.067 K/Ft.	2 1/2"	1.079 K/Ft.	2 7/8"	0.916 K/Ft.	1/16"	0.841 K/Ft.	3/16"

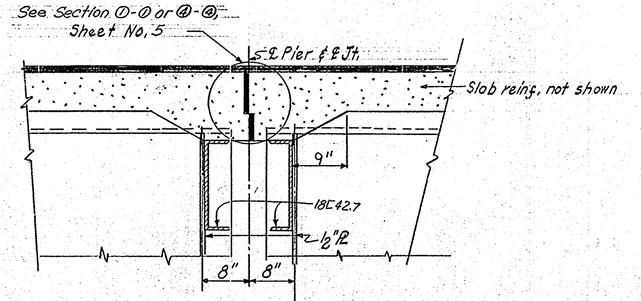


CAMBER DIAGRAM

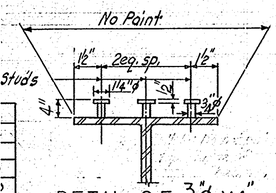
TABLE OF BEAM CAMBERS

	V.C. Ord.	D.L. Defl.	Camber
Span ① (all beams)	2 1/16"	1 7/16"	3/8" down
Span ② (all beams)	—	2 1/2"	2½" up
Span ③, ④ & ⑤ (all beams)	—	2 7/8"	2⅞" up
* Span ⑥ (Ext. beams)	3/16"	1/16"	⅛" down
* Span ⑥ (Int. beams)	3/16"	3/16"	0"

* These Beams to be furnished with any natural camber down.



SECTION THRU END DIAPHRAGM



DETAIL OF ¾"ϕ x 4" ELECTRICALLY WELDED STUDS

This sheet not drawn to scale.

REV.			
REV.			
REV.			
REV.			
REVIEWED	IN CHARGE		
QUAN.			
TR.			
DR.	RJS	JWB	11-69
DES.	JRC	JWB	10-69
	BY	CHK'D	DATE

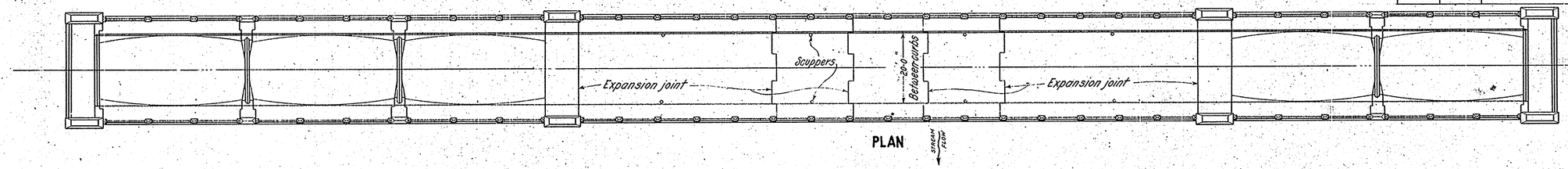
S. C. STATE HIGHWAY DEPARTMENT
BRIDGE DIVISION
COLUMBIA S. C.

BEAM, BEARING & MISCELLANEOUS SUPERSTRUCTURE DETAILS
FOR WIDENING BRIDGE OVER
PACOLET RIVER

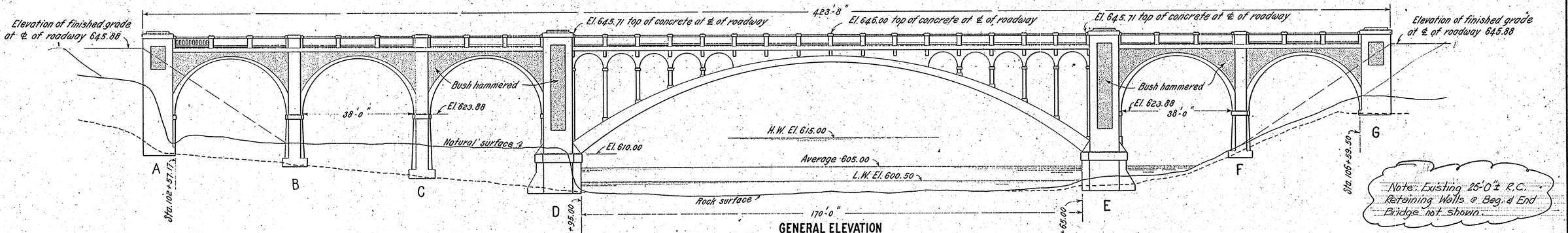
FILE NO.	COUNTY	ROUTE NO.	DATE
42.542	SPARTANBURG	US-29	11-69

APPROVED BY: J. J. Dukes Jr. ASS'T. BRIDGE DESIGN & PLANS ENGINEER
APPROVED BY DESIGN: W. E. Crum BRIDGE ENGINEER

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	SPARTANBURG	42.542	29	26	31



PLAN



GENERAL ELEVATION

Note: Existing 25'-0"± R.C. Retaining Walls @ Beg. & End Bridge not shown.

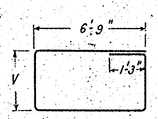
LIST OF REINFORCEMENT

BARS ARE STRAIGHT EXCEPT THOSE INDICATED OTHERWISE

MARK	NO.	SIZE	LENGTH	WEIGHT	DESCRIPTION
A1	252	1" ▫	40'-0"	34272	MAIN REINFORCEMENT - 170' ARCH
A2	56	1" ▫	30'-0"	5712	" " " "
A3	56	1" ▫	10'-0"	1904	" " " "
A5	345	3/4" ◇	40'-0"	20728	" " 38' ARCHES
A6	207	3/4" ◇	20'-0"	6218	" " " "
A7	23	3/4" ◇	15'-0"	518	" " " "
A8	390	3/8" ◇	22'-4"	3275	TRANSVERSE - 38' ARCH RINGS
B1	51	3/8" ◇	19'-6"	2033	FLOOR BEAMS
B2	102	5/8" ◇	10'-6"	1117	SMALL POSTS 170 SPAN
B3	102	5/8" ◇	8'-8"	922	" " " "
B4	77	3/8" ◇	10'-0"	290	STIRRUPS IN FLOOR BEAMS
B5	28	3/8" ◇	8'-5"	88	STIRRUPS IN FLOOR BEAMS AT EXPANSION JOINTS.
B6	14	3/8" ◇	9'-6"	50	STIRRUPS IN END FLOOR BEAMS
B7	60	3/4" ◇	20'-0"	1802	SPANDREL ARCHES
C1	48	3/4" ◇	34'-0"	2451	VERTICAL IN SPANDREL COLUMN NO. 1
C2	48	3/4" ◇	26'-0"	1874	" " " " " 2
C3	48	3/4" ◇	20'-0"	1442	" " " " " 3
C4	48	3/4" ◇	15'-0"	1081	" " " " " 4
C5	48	3/4" ◇	10'-0"	721	" " " " " 5
C6	48	3/4" ◇	7'-0"	505	" " " " " 6
C7	48	3/4" ◇	5'-0"	360	" " " " " 7
C8	68	3/8" ◇	15'-0"	384	HOOPS IN COLUMN NO. 1
C9	132	3/8" ◇	14'-4"	711	HOOPS IN COLUMNS
D1	30	7/8" ◇	20'-0"	1226	VERTICAL OVER PIERS B, C AND F
E1	12	1" ▫	36'-0"	1469	" BEAM - ABUTMENT A
E2	36	3/4" ◇	22'-0"	1190	" " " A AND G
E3	28	3/4" ◇	12'-0"	505	" IN POSTS OVER ABUTMENTS A AND G

MARK	NO.	SIZE	LENGTH	WEIGHT	DESCRIPTION
E4	62	1" ◇	9'-8"	400	HORIZONTAL OVER ABUTMENTS A AND G
H1	4	1" ◇	23'-1"	35	V = 4'-2"
H2	4	1" ◇	22'-9"	34	4'-0"
H3	4	1" ◇	22'-6"	34	3'-10½"
H4	4	1" ◇	22'-2"	33	3'-8½"
H5	4	1" ◇	21'-11"	33	3'-7"
H6	4	1" ◇	21'-7"	32	3'-5"
H7	4	1" ◇	21'-4"	32	3'-3½"
H8	4	1" ◇	21'-1"	32	3'-2"
H9	4	1" ◇	20'-11"	31	3'-1"
H10	4	1" ◇	20'-8"	31	2'-11½"
H11	4	1" ◇	20'-5"	31	2'-10"
H12	4	1" ◇	20'-3"	30	2'-9"
H13	4	1" ◇	20'-1"	30	2'-8"
H14	4	1" ◇	19'-11"	30	2'-7"
H15	4	1" ◇	19'-9"	30	2'-6"
H16	4	1" ◇	19'-7"	29	2'-5"
H17	4	1" ◇	19'-5"	29	2'-4"
H18	4	1" ◇	19'-4"	29	2'-3½"
H19	4	1" ◇	19'-3"	29	2'-3"
H20	4	1" ◇	19'-2"	29	2'-2½"
H21	4	1" ◇	19'-1"	29	2'-2"
H22	4	1" ◇	19'-0"	29	2'-1½"
H23	4	1" ◇	18'-11"	28	2'-1"
H24	8	1" ◇	18'-10"	57	2'-0½"
H25	16	1" ◇	18'-9"	113	2'-0"
H26	32	1" ◇	18'-8"	201	1'-11½"
H27	34	1" ◇	18'-7"	237	1'-11"
P1	106	2¼" ◇	21'-0"	3343	VERTICAL IN CURTAIN WALL OVER PIERS D AND E
P2	32	2¼" ◇	30'-0"	641	HORIZONTAL " " " " D E
P4	52	2¼" ◇	9'-6"	330	" IN SIDE " " " D E
P5	12	2¼" ◇	34'-0"	426	VERTICAL OVER PIERS D AND E
P6	80	2¼" ◇	4'-6"	240	HORIZONTAL " D E
P7	28	2¼" ◇	8'-0"	234	VERTICAL IN LARGE POSTS OVER PIERS D AND E

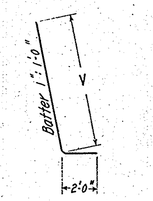
HOOPS IN 170 FT. SPAN ARCH RIBS



MARK	NO.	SIZE	LENGTH	WEIGHT	DESCRIPTION
P8	8	2¼" ◇	39'-0"	325	VERTICAL IN SIDE WALLS OVER PIERS D AND E
P9	8	2¼" ◇	33'-0"	275	" " " " " D E
P10	12	2¼" ◇	28'-0"	350	" " " " " D E
R1	256	3/4" ◇	10'-1"	970	HORIZONTAL IN RAILING - 170 FT. SPAN
R2	618	3/4" ◇	3'-6"	813	VERTICAL IN RAILING SPINDLES
R3	50	2½" ◇	5'-10"	195	TOPS OF SMALL POSTS TO CONNECT VERTICAL BARS.
R4	150	5/8" ◇	5'-5"	848	VERTICAL IN POSTS - 38 FT. SPANS
R5	120	5/8" ◇	6'-0"	751	VERTICAL IN SMALL POSTS - 38 FT. SPANS
R6	30	5/8" ◇	8'-0"	250	VERTICAL IN LARGE POSTS - 38 FT. SPANS.
R7	240	3/8" ◇	12'-5"	1121	HORIZONTAL IN RAILING OVER 38 FT. SPANS
* S2	40	3/4" ◇	35'-0"	2103	LONGITUDINAL IN ROADWAY SLAB
S3	40	3/4" ◇	23'-9"	1427	LONGITUDINAL IN ROADWAY SLAB
S4	76	3/4" ◇	23'-6"	2683	LONGITUDINAL IN ROADWAY SLAB - STRAIGHT
S5	76	3/4" ◇	34'-0"	3881	" " " "
S6	288	2½" ◇	8'-0"	1539	SIDEWALK SLAB
S7	32	2½" ◇	23'-0"	492	SIDEWALK SLAB - LONGITUDINAL
S8	32	2½" ◇	34'-0"	727	" " "
S9	106	3/4" ◇	9'-0"	1433	SLAB OVER PIERS D AND E - LONGITUDINAL
S10	14	2½" ◇	28'-0"	262	" " " D E - TRANSVERSE
S11	790	2½" ◇	7'-0"	3694	SIDEWALK SLAB 38 FT. SPANS - TRANSVERSE
S12	70	2½" ◇	39'-2"	1831	SIDEWALK SLAB - 38 FT. SPANS - LONGITUDINAL
S13	30	3/4" ◇	12'-0"	541	SIDEWALK SLAB OVER PIERS B, C & F
† T1	24	1" ▫	22'-6"	1795	STRUT BETWEEN ARCH RIBS - 170 FT. SPAN
T2	32	1" ◇	36'-0"	2355	TIE BEAMS OVER ABUTMENTS A AND G
T3	24	2" ◇	28'-0"	1374	TIE RODS - PIERS B, C AND F
† S14	60	3/4" ◇	21'-7"	1945	LONGITUDINAL IN ROADWAY SLAB
† S15	114	3/4" ◇	21'-2"	3625	LONGITUDINAL IN ROADWAY SLAB - STRAIGHT
† S16	48	2½" ◇	21'-2"	678	" " SIDEWALK

MARK	NO.	SIZE	LENGTH	WEIGHT	DESCRIPTION
T4	12	2" ◇	3'-8"	90	ANCHORS FOR TIE RODS - PIERS B, C AND F
W1	100	2½" ◇	19'-0"	2854	V = 17'-0"
W2	40	2½" ◇	18'-0"	1031	16'-0"
W3	20	2½" ◇	16'-6"	496	14'-6"
W4	20	2½" ◇	15'-6"	466	13'-6"
W5	20	2½" ◇	14'-6"	436	12'-6"
W6	20	2½" ◇	13'-6"	406	11'-6"
W7	20	2½" ◇	13'-0"	391	11'-0"
W8	40	2½" ◇	12'-0"	721	10'-0"
W9	20	2½" ◇	11'-6"	345	9'-6"
W10	20	2½" ◇	11'-0"	330	9'-0"
W11	20	2½" ◇	10'-6"	315	8'-6"
W12	20	2½" ◇	10'-0"	300	8'-0"
W13	20	2½" ◇	9'-6"	285	7'-6"
W14	20	2½" ◇	9'-3"	278	7'-3"
W15	20	2½" ◇	8'-6"	255	6'-6"
W16	20	2½" ◇	8'-0"	240	6'-0"
W17	20	2½" ◇	7'-6"	225	5'-6"
W18	20	2½" ◇	6'-9"	141	4'-9"
W19	20	2½" ◇	6'-3"	130	4'-3"
W20	20	2½" ◇	6'-0"	185	4'-0"
W21	40	2½" ◇	5'-6"	229	3'-6"
W22	20	2½" ◇	5'-0"	104	3'-0"
W23	70	2½" ◇	4'-9"	347	2'-9"
W24	20	2½" ◇	40'-8"	543	HORIZONTAL IN SPANDREL WALLS OF 38 FT. SPANS
W25	20	2½" ◇	16'-0"	214	" " " " " "
W26	20	2½" ◇	12'-0"	160	" " " " " "
W27	20	2½" ◇	9'-0"	120	" " " " " "
W28	20	2½" ◇	7'-6"	100	" " " " " "
* S17	160	2½" ◇	30'-10"	3295	TRANSVERSE IN ROADWAY AND SIDEWALK SLAB

VERTICAL IN SPANDREL WALLS OF 38 FT. SPANS



EXISTING BRIDGE FOR INFORMATION ONLY

DESIGNED BY H. P. Linton DATE June/1920
DRAWN BY P.C. Lamoureux DATE 20
TRACED BY P.C. Lamoureux DATE June 29, 20
CHECKED BY C. H. Gordon DATE July 1920

U.S. BUREAU OF PUBLIC ROADS
WASHINGTON, D.C.

BRIDGE OVER PACOLET RIVER

CONVERSE, SPARTANBURG CO., S. CAROLINA

GENERAL VIEWS & LIST OF REINFORCEMENT

SCALE 1/16 = 1'-0"

CORRECT ..... BRIDGE ENGINEER

APPROVED ..... CHIEF ENGINEER

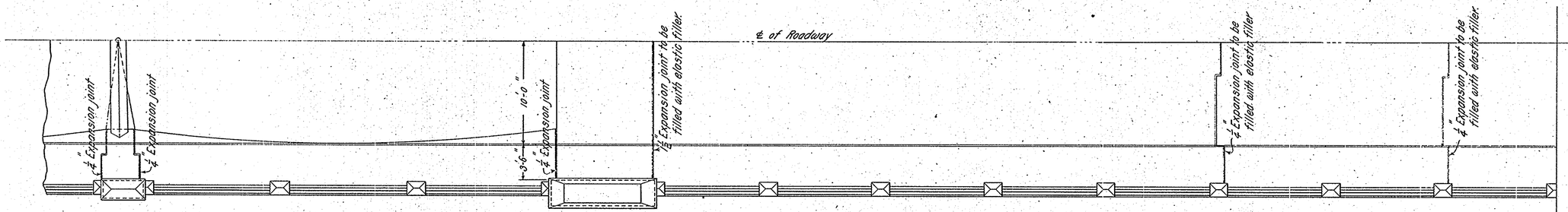
Revised April 3, 1922

Revised Aug. 17, 1920

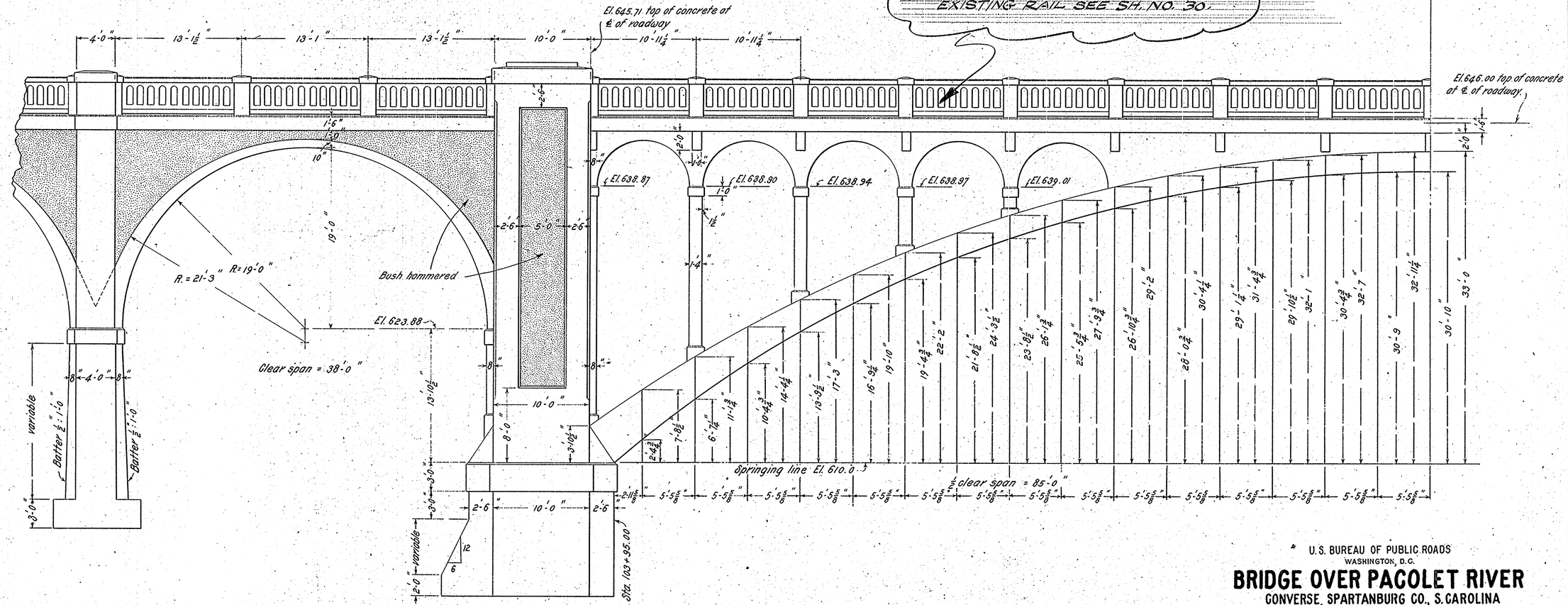
G-71

SHEET 1 OF 6 SHEETS

FED. RD DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	SPARTANBURG	42,542	29	27	31



NOTE: THIS TYPE RAILING NOT CONSTRUCTED. FOR SECTION THRU EXISTING RAIL, SEE SH. NO. 30.



EXISTING BRIDGE · FOR INFORMATION ONLY

U.S. BUREAU OF PUBLIC ROADS
WASHINGTON, D.C.

BRIDGE OVER PACOLET RIVER

CONVERSE, SPARTANBURG CO., S. CAROLINA

PART PLAN & ELEVATION

SCALE 3/16" = 1'-0"

DESIGNED BY H. P. Ranton DATE June 1920
DRAWN BY W. E. Ainsworth DATE 11-20
TRACED BY W. E. Ainsworth DATE 6-30-22
CHECKED BY A. E. Gordon DATE July 1920

CORRECT O. L. Green
BRIDGE ENGINEER

APPROVED C. H. McLeod
CHIEF ENGINEER

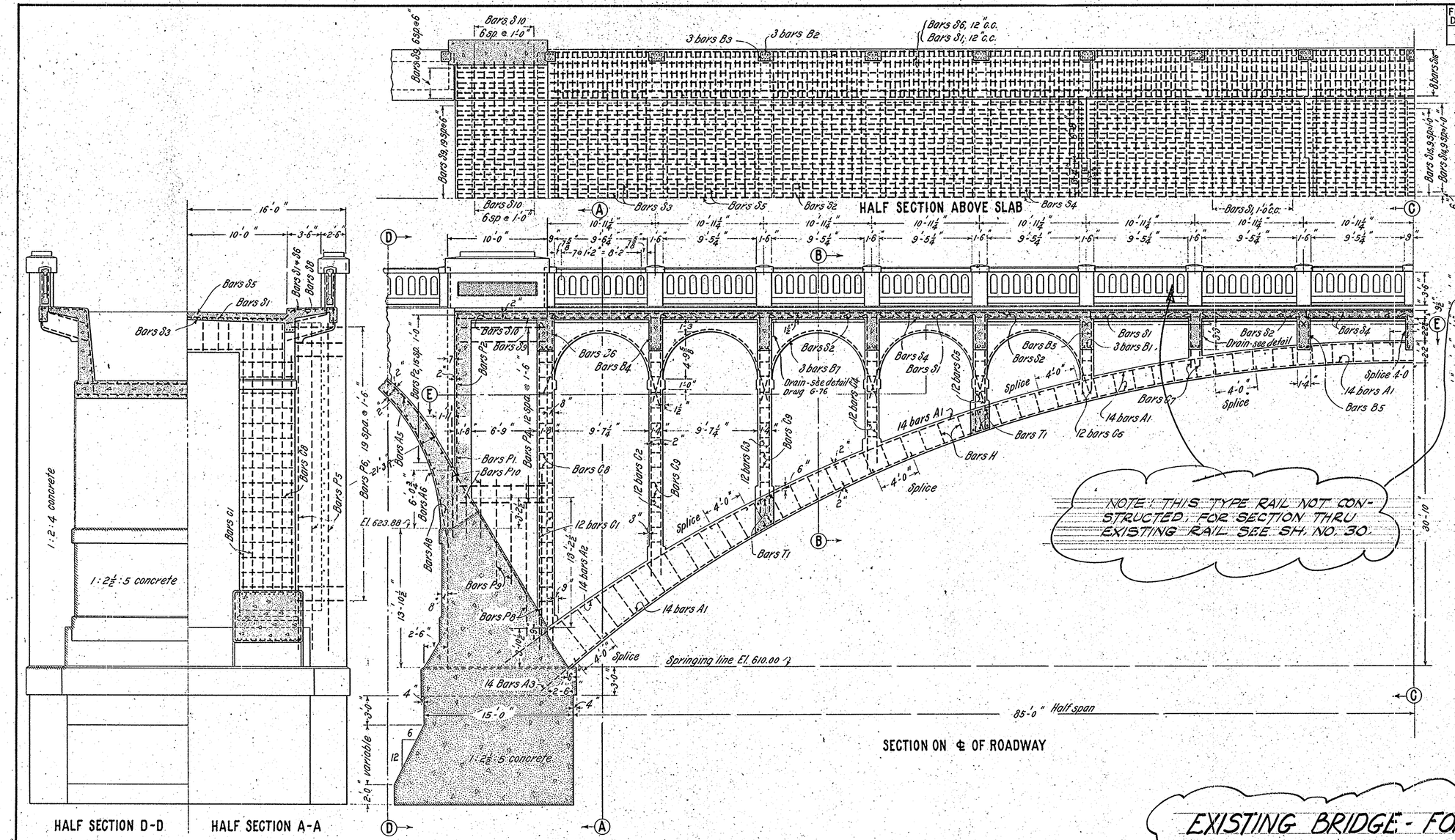
Revised April 3, 1922

Revised Aug. 17, 1920

G-72

SHEET 2 OF

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	SPARTANBURG	42.542	29	28	31



EXISTING BRIDGE - FOR INFO. ONLY

U.S. BUREAU OF PUBLIC ROADS
WASHINGTON, D.C.

BRIDGE OVER PACOLET RIVER

CONVERSE, SPARTANBURG CO., S. CAROLINA

DETAILS OF MAIN ARCH

SCALE 3/16" = 1'-0"

DESIGNED BY W. P. Linton DATE June 1920
DRAWN BY P.E. Unsworth DATE " '20
TRACED BY P.E. Unsworth DATE June 17, '20
CHECKED BY C. H. Gordon DATE July 1920

CORRECT O. L. Graves BRIDGE ENGINEER

APPROVED T. H. J. Mclean CHIEF ENGINEER

Revised April 3, 1922

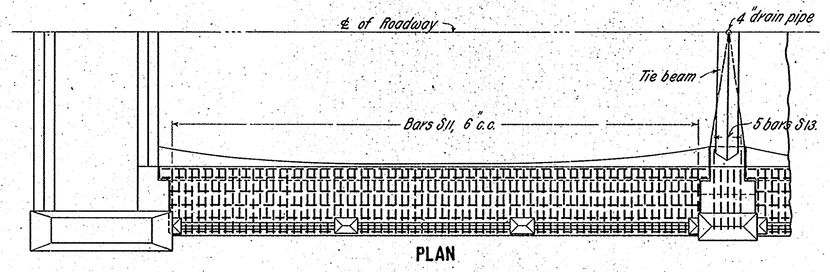
Revised Aug. 17, 1920

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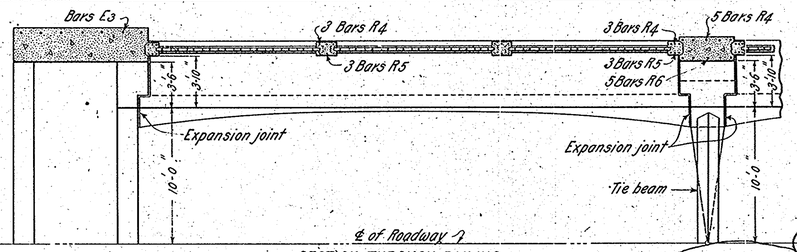
SHEET 3 OF 6 SHEETS

FED. RD. DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	SPARTANBURG	42.542	29	29	31

* Note:
Extrados of approach arches and inside faces of spandrel walls also bulkhead walls at piers D and E. to be waterproofed.
French drains to be placed as per specifications

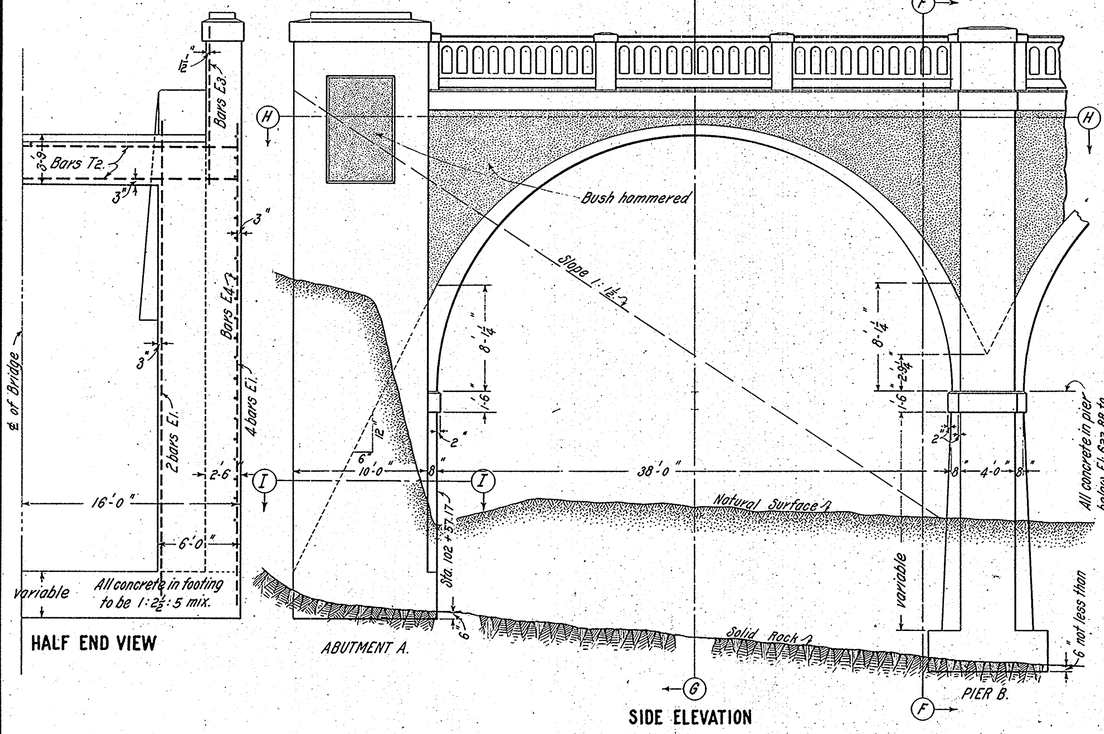


PLAN



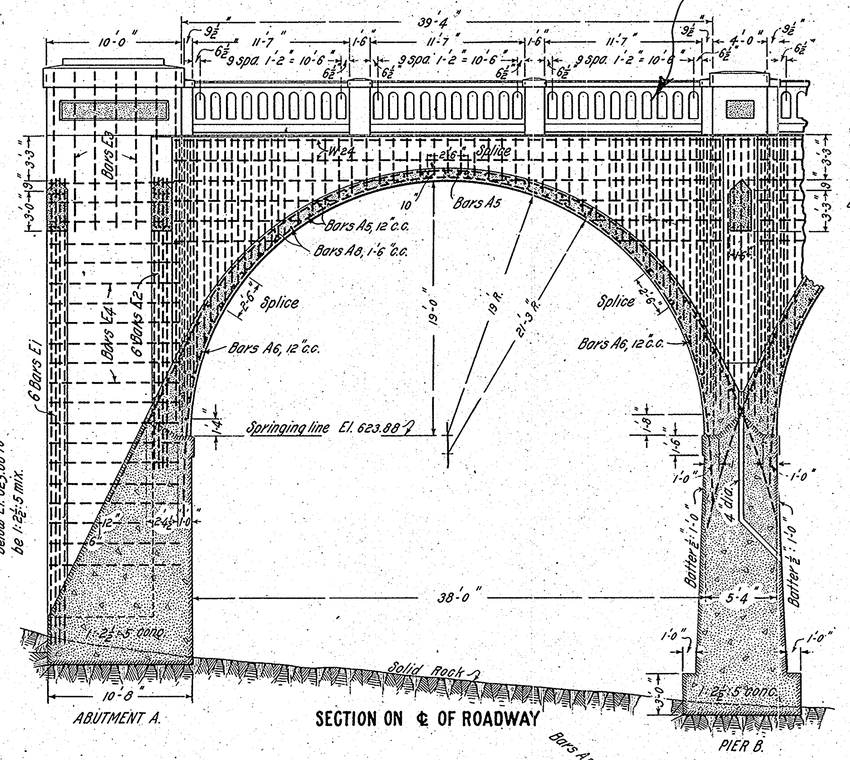
SECTION THROUGH RAILING

NOTE: THIS TYPE RAIL NOT CONSTRUCTED FOR SECTION THRU EXISTING RAIL SEE SH. NO. 30.

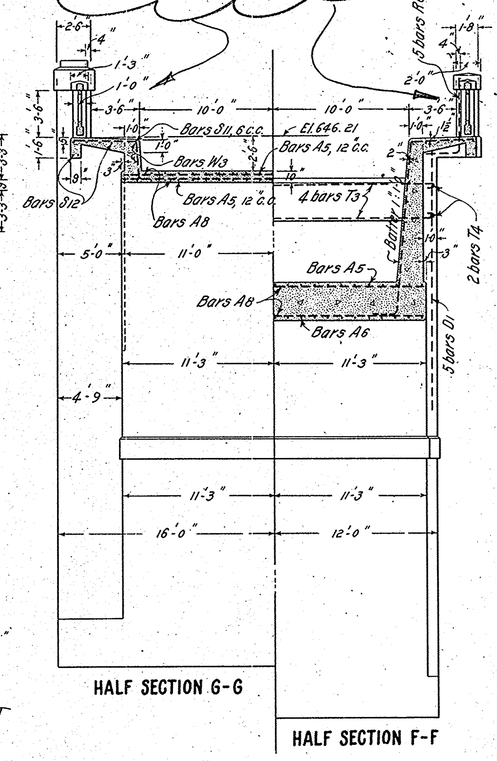


HALF END VIEW

SIDE ELEVATION

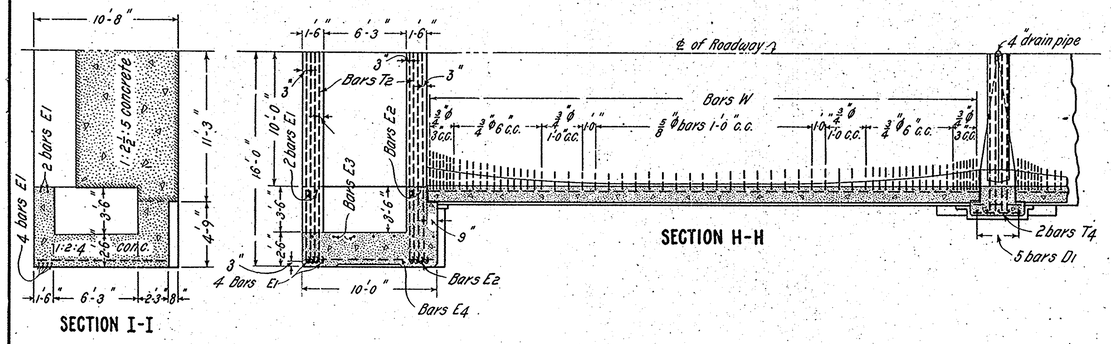


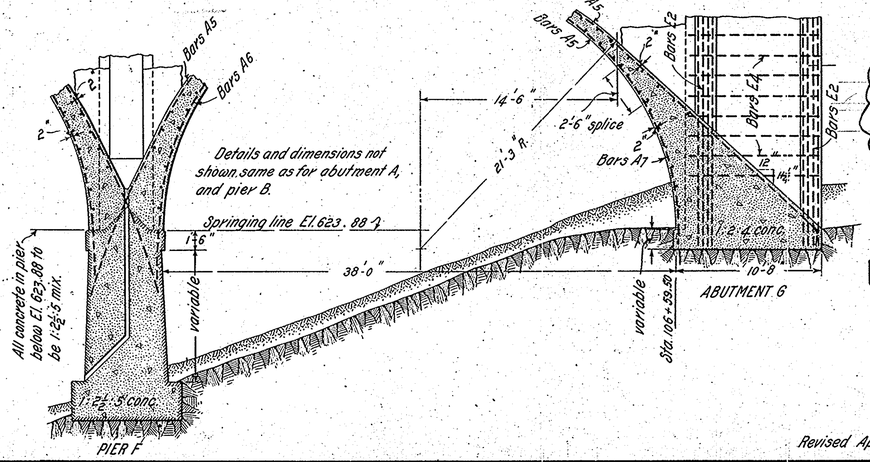
SECTION ON ℄ OF ROADWAY



HALF SECTION G-G

HALF SECTION F-F





EXISTING BRIDGE - FOR INFORMATION ONLY

U.S. BUREAU OF PUBLIC ROADS
WASHINGTON, D.C.

BRIDGE OVER PACOLET RIVER

CONVERSE, SPARTANBURG CO., S. CAROLINA

DETAILS OF 38 FT. SPAN ARCHES

SCALE 3/16" = 1'-0"

DESIGNED BY W. P. Linton DATE June 1920
DRAWN BY P.D. Ainsworth DATE " 20
TRACED BY P.D. Ainsworth DATE 6-9-20
CHECKED BY O. L. Gordon DATE July 1920

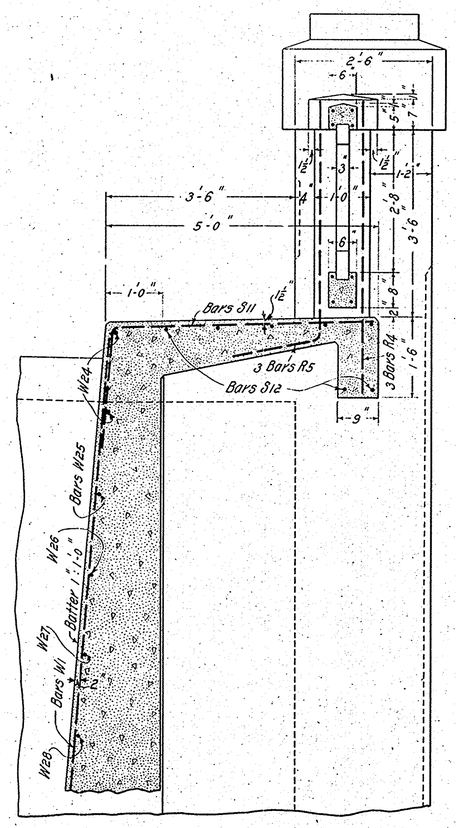
CORRECT O. L. Gordon BRIDGE ENGINEER
APPROVED P. H. Mc Lean CHIEF ENGINEER

Revised April 3, 1922
Revised Aug. 17, 1920

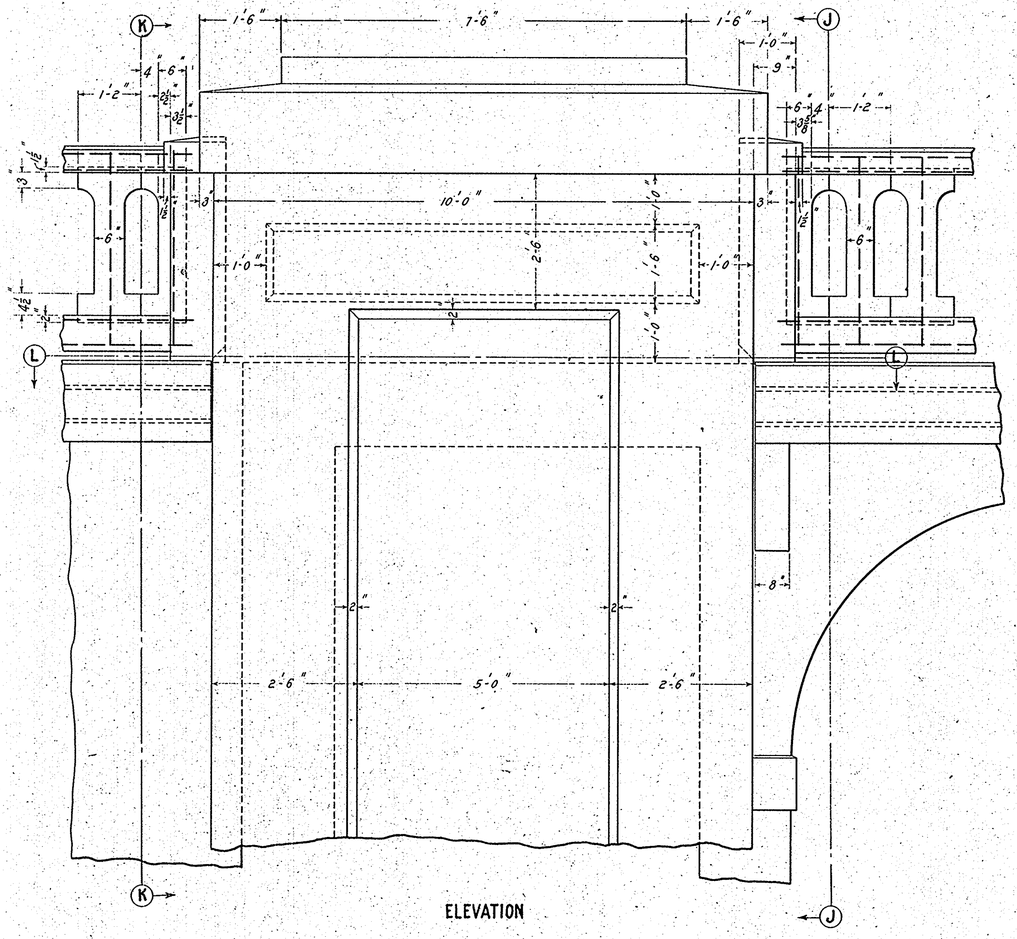
G-74

SHEET 4 OF 6 SHEETS

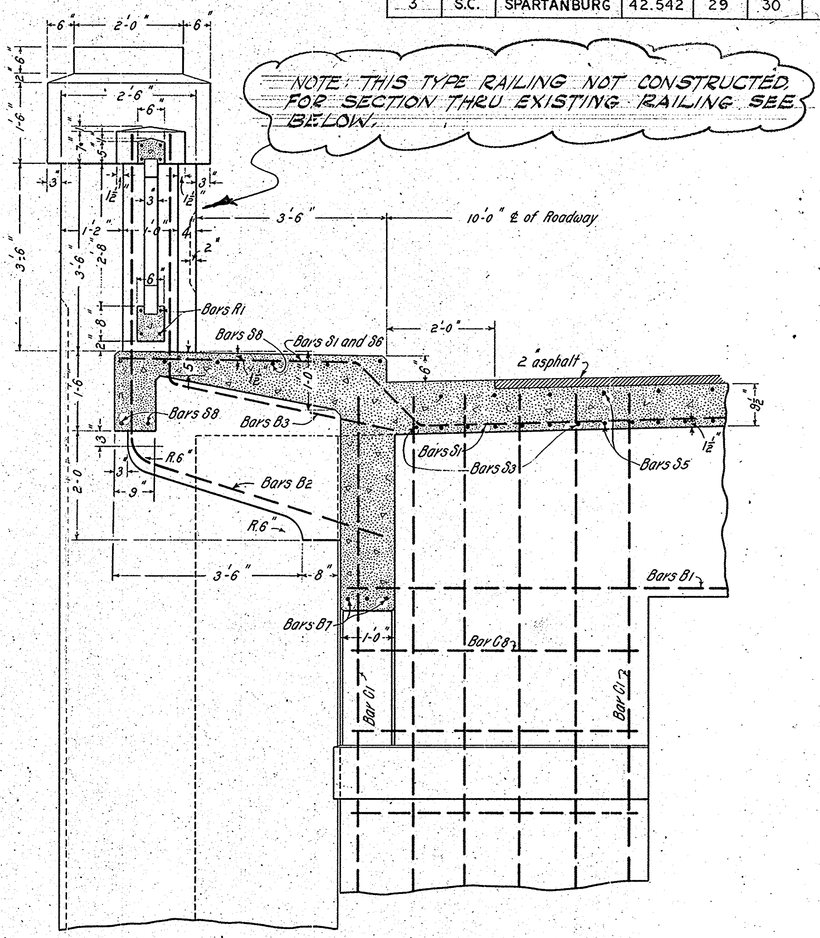
FED. RD DIV. NO	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	SPARTANBURG	42.542	29	30	31



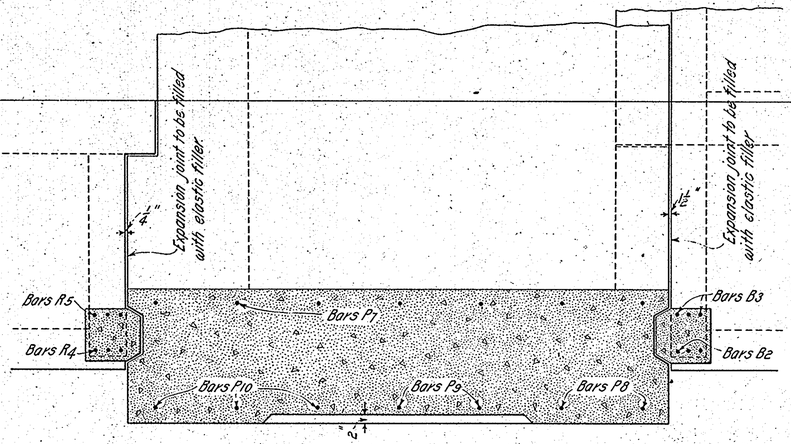
SECTION K-K.



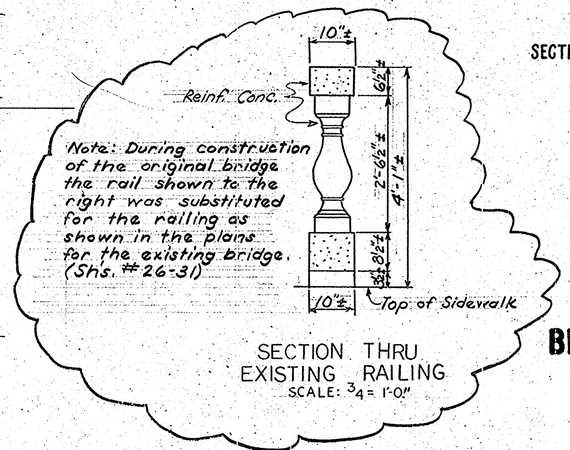
ELEVATION



SECTION J-J.



SECTION L-L.



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

EXISTING BRIDGE - FOR INFO. ONLY

U. S. BUREAU OF PUBLIC ROADS
WASHINGTON, D.C.

BRIDGE OVER PACOLET RIVER

CONVERSE, SPARTANBURG CO., S. CAROLINA

DETAILS OF EXPANSION JOINT & RAILING NEAR END OF MAIN SPAN

SCALE 3/4" = 1'-0"

DESIGNED BY W. P. Linton DATE June 1920
DRAWN BY T. E. Ainsworth DATE " 20
TRACED BY T. E. Ainsworth DATE June 11-20
CHECKED BY A. G. Gordon DATE July 1920

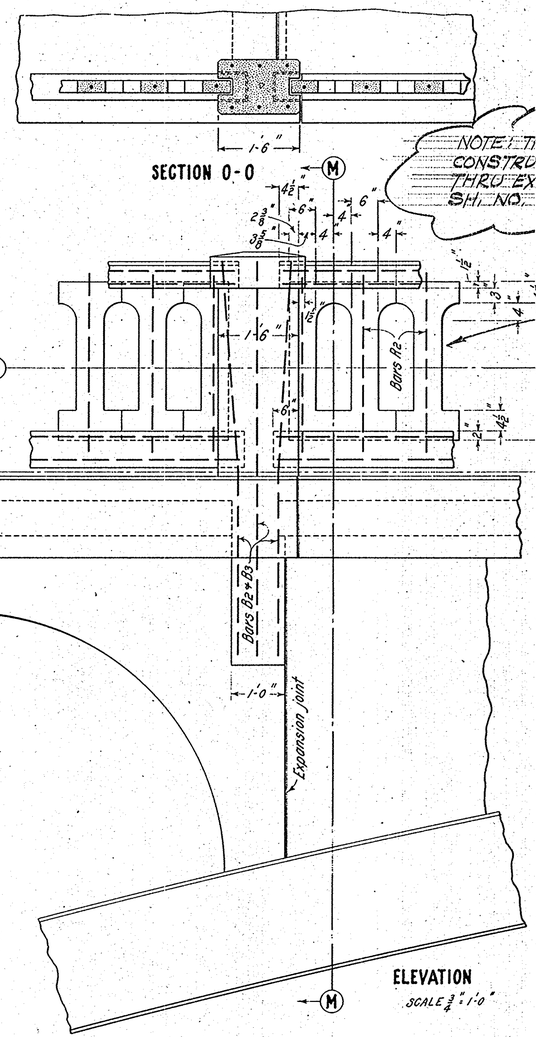
CORRECT: O. K. Gravn
BRIDGE ENGINEER
APPROVED: Thos. H. MacDonald
CHIEF ENGINEER

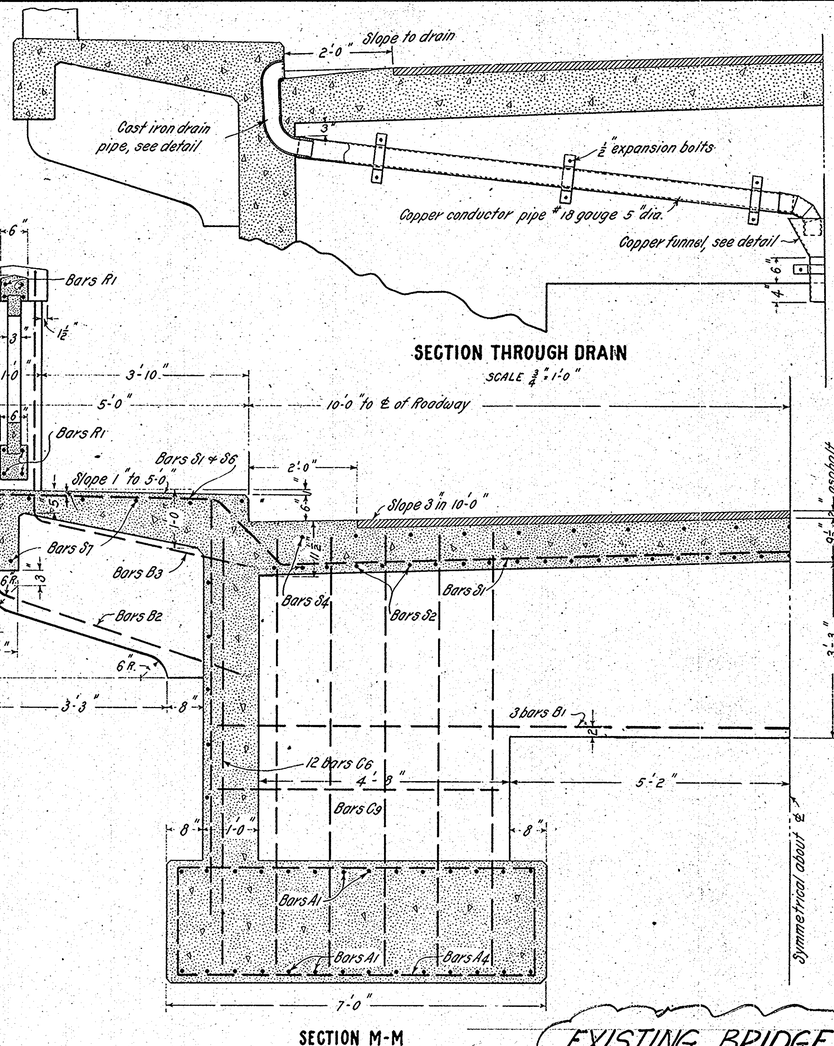
Revised April 3, 1922

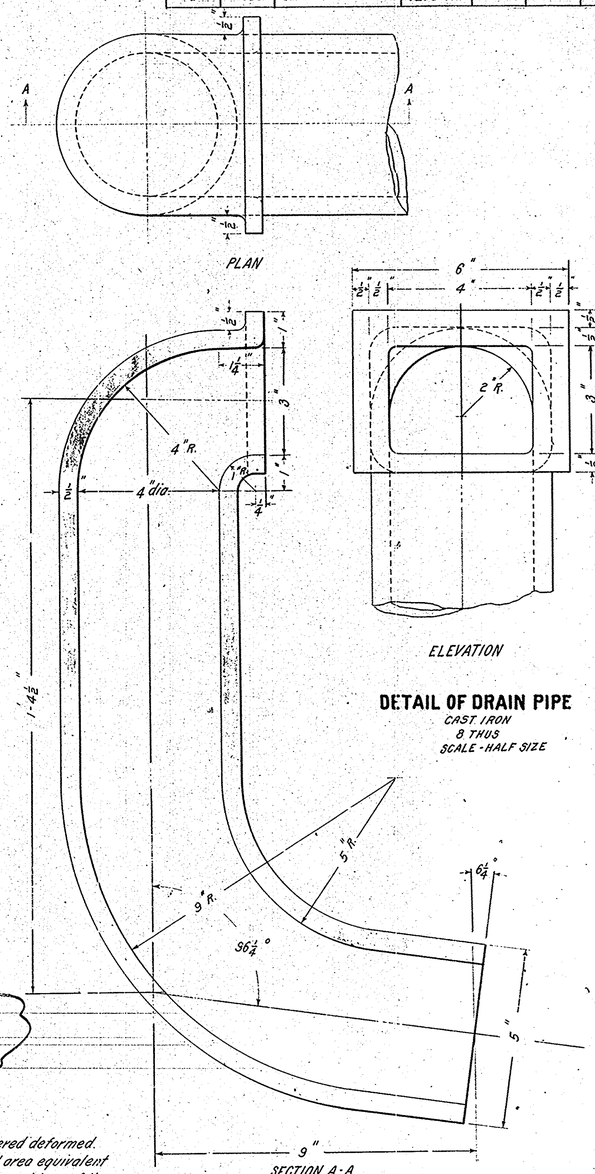
G-75

Revised Aug. 17, 1920

FED. RD DIV. NO.	STATE	COUNTY	FILE NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	SPARTANBURG	42.542	.29	31	31

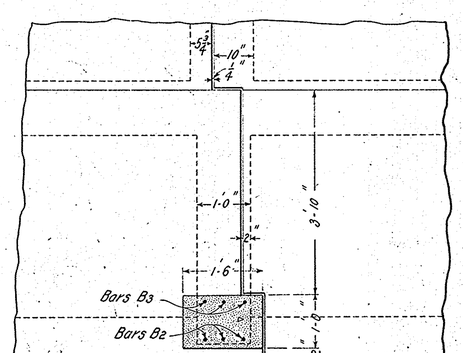


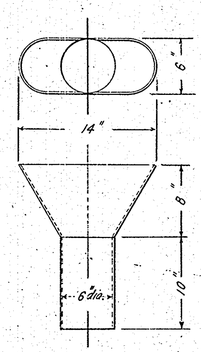




DETAIL OF DRAIN PIPE

CAST IRON
8 THUS
SCALE - HALF SIZE





EXISTING BRIDGE - FOR INFO. ONLY

NOTES

DESIGN LOADING:
- D.L. - Earth 110 # per cu.ft. concrete 150 # per cu.ft.
- L.L. - 125 # per sq.ft. or 2-15 ton typical trucks.
- Impact 30% of live load.
- Temperature change + 30°F and - 40°F.

UNIT STRESSES:
- Steel - Tension 16000 # per sq.in.
  - Tension including temperature 18000 # per sq.in.
  - Compression, 15 times concrete stress.
- Concrete - Tension, nothing.
  - Compression, 650 # per sq.in.
  - Compression including temperature 750.#
  - Shear, 120 # per sq.in (for reinforced concrete)

CONCRETE MIXTURES:
- Piers and abutments 1:2½:5.
- All other parts of structure 1:2:4.
- Maximum size of course aggregate for all 1:2½:5 concrete, 2½ in.
- For railing, ¾ in.
- For all other parts of structure, 1½ in.

REINFORCEMENT:
- All reinforcement to be deformed bars.
- Square twisted bars are not to be considered deformed.
- All bars are to have a net cross sectional area equivalent to the cross sectional area of square or round bars of the sizes shown.
- All dimensions relating to reinforcement are to the centers of bars. Where splicing of reinforcement is necessary bars shall be lapped 40 diameters.

ELEVATIONS:
- Footings are to rest on solid rock.
- The exact elevations will be determined by the Engineer during construction.

COMPLETE PERMANENT RECORDS shall be kept showing the depth of foundation excavation and any modification of this design.

WATERPROOFING:
- Extrados of approach arches, inside faces of spandrel walls and bulkhead walls to be waterproofed by the membrane method.

FRENCH DRAINS:
- French drains to be placed as per specifications.

U.S. BUREAU OF PUBLIC ROADS
WASHINGTON, D.C.

BRIDGE OVER PACOLET RIVER

CONVERSE, SPARTANBURG CO., S. CAROLINA

DETAILS OF EXPANSION JOINT & RAILING NEAR CENTER OF MAIN SPAN

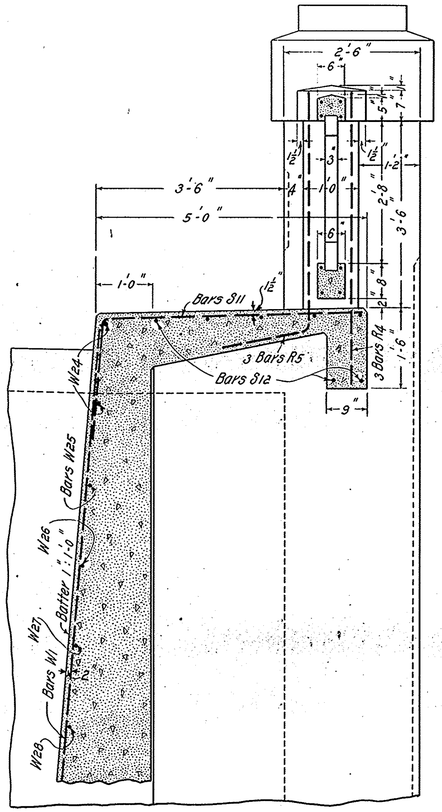
SCALE AS INDICATED

DESIGNED BY H.D. Linton DATE June 1920
DRAWN BY T.E. Linnenkohl DATE " 20
TRACED BY T.E. Linnenkohl DATE Jan 19, 20
CHECKED BY O.L. Goodson DATE July 1920

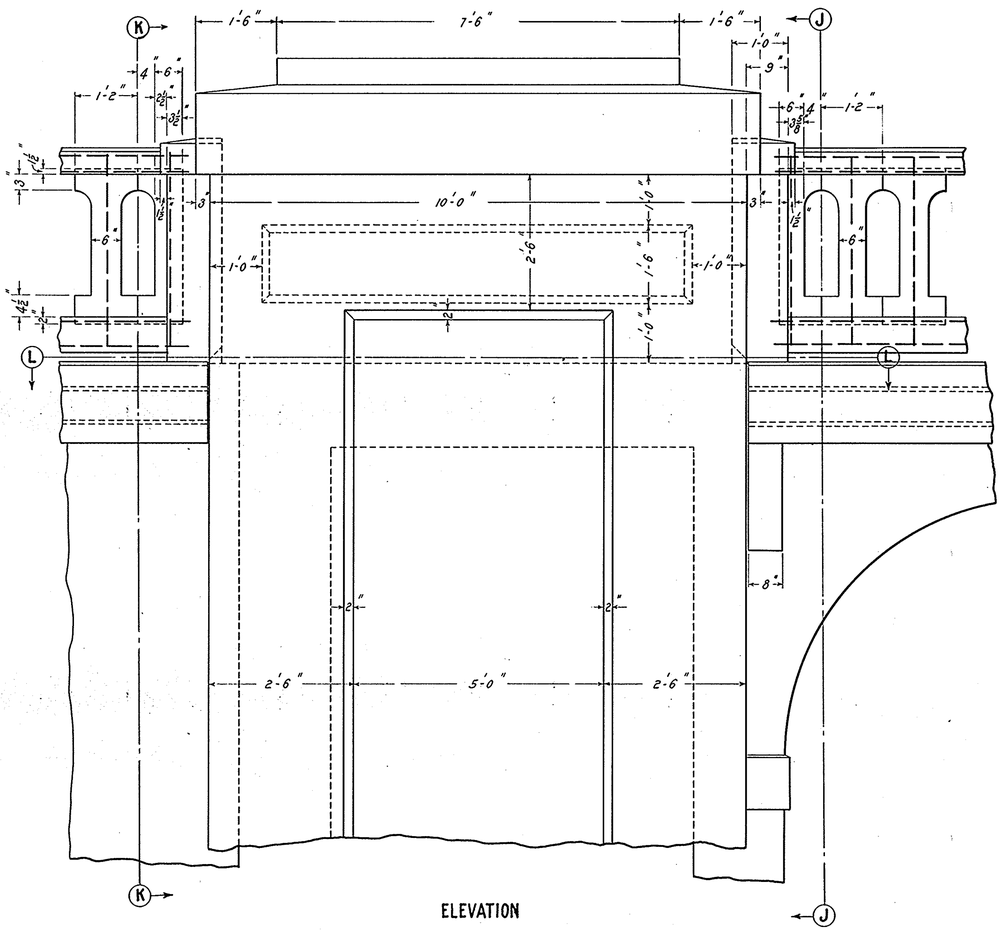
CORRECT O.L. Groover BRIDGE ENGINEER
APPROVED P.D. Wilson CHIEF ENGINEER

G-76

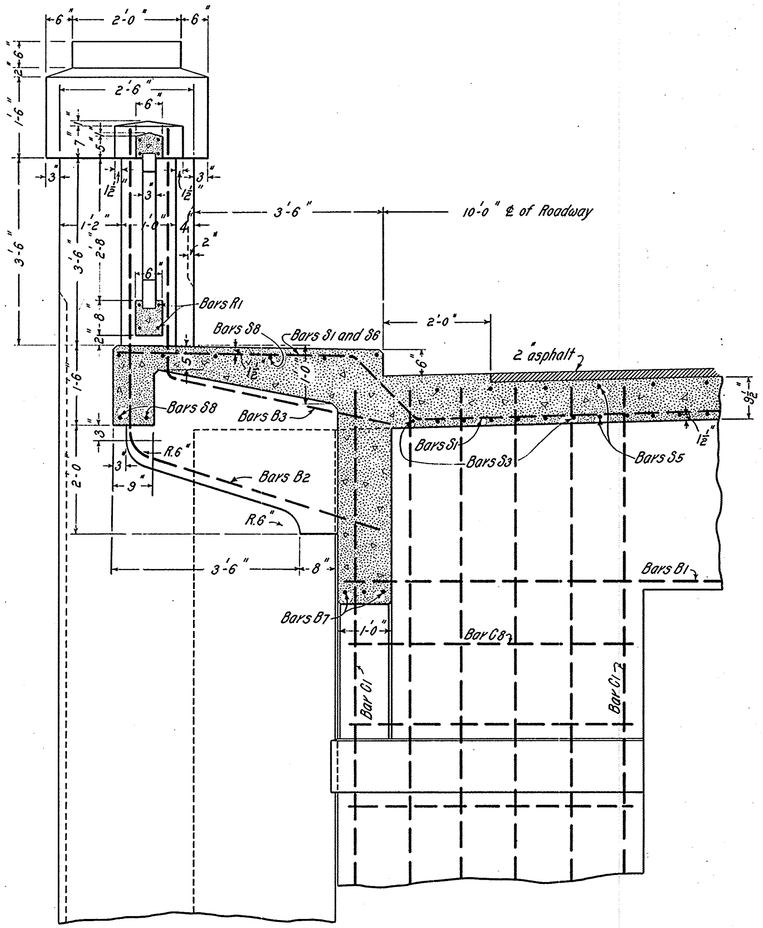
Revised April 3, 1922 Revised Aug 17, 1920



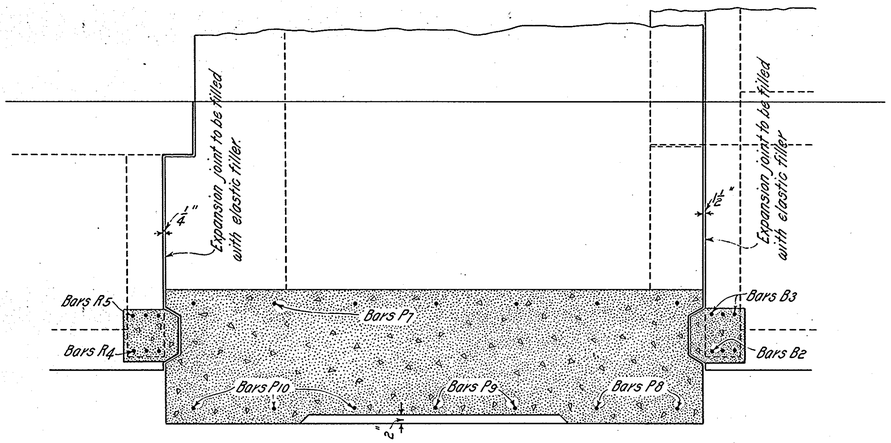
SECTION K-K.



ELEVATION



SECTION J-J.



SECTION L-L.

DESIGNED BY W. D. Pinton ... DATE June 1920
DRAWN BY P. L. Unsworth ... DATE " 20
TRACED BY P. L. Unsworth ... DATE Jan. 9, 20
CHECKED BY A. E. Gordon ... DATE July 1920

U.S. BUREAU OF PUBLIC ROADS
WASHINGTON, D.C.

BRIDGE OVER PACOLET RIVER

CONVERSE, SPARTANBURG CO., S. CAROLINA

DETAILS OF EXPANSION JOINT & RAILING NEAR END OF MAIN SPAN

SCALE 3/4" = 1'-0"

CORRECT: O. K. Green ... BRIDGE ENGINEER
APPROVED: B. F. Mclaren ... CHIEF ENGINEER

Revised April 3, 1922
Revised Aug. 17, 1920

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SHEET 5 OF 6 SHEETS