

**Appendix A**

**GORDON R. WHITTUM, PORTFOLIO OF BRIDGE DESIGNS  
FOR THE NEW HAMPSHIRE STATE HIGHWAY DEPARTMENT, 1934-1937**

## APPENDIX A

### Gordon R. Whittum, Portfolio of Bridge Designs for the New Hampshire State Highway Department, 1934-1937

#### A Note on How This List Was Compiled

The following table was compiled by review of New Hampshire Department of Transportation (NHDOT) bridge plan files at the main office in Concord. Unless otherwise noted, Gordon R. Whittum is attributed as the principal designer based on his initials entered in the “designed by” block of the plans. This list is believed to represent a majority of the projects designed by Whittum while working for the New Hampshire State Highway Department from 1934 to 1937, but it is not believed to be a comprehensive list. NHDOT retains plans for bridges that continue in service but does not always retain plans for bridges that are replaced. Plans for replaced bridges are typically sent to the state archives for storage. Stored plans were not readily accessible and may have been disposed of due to retention schedules.

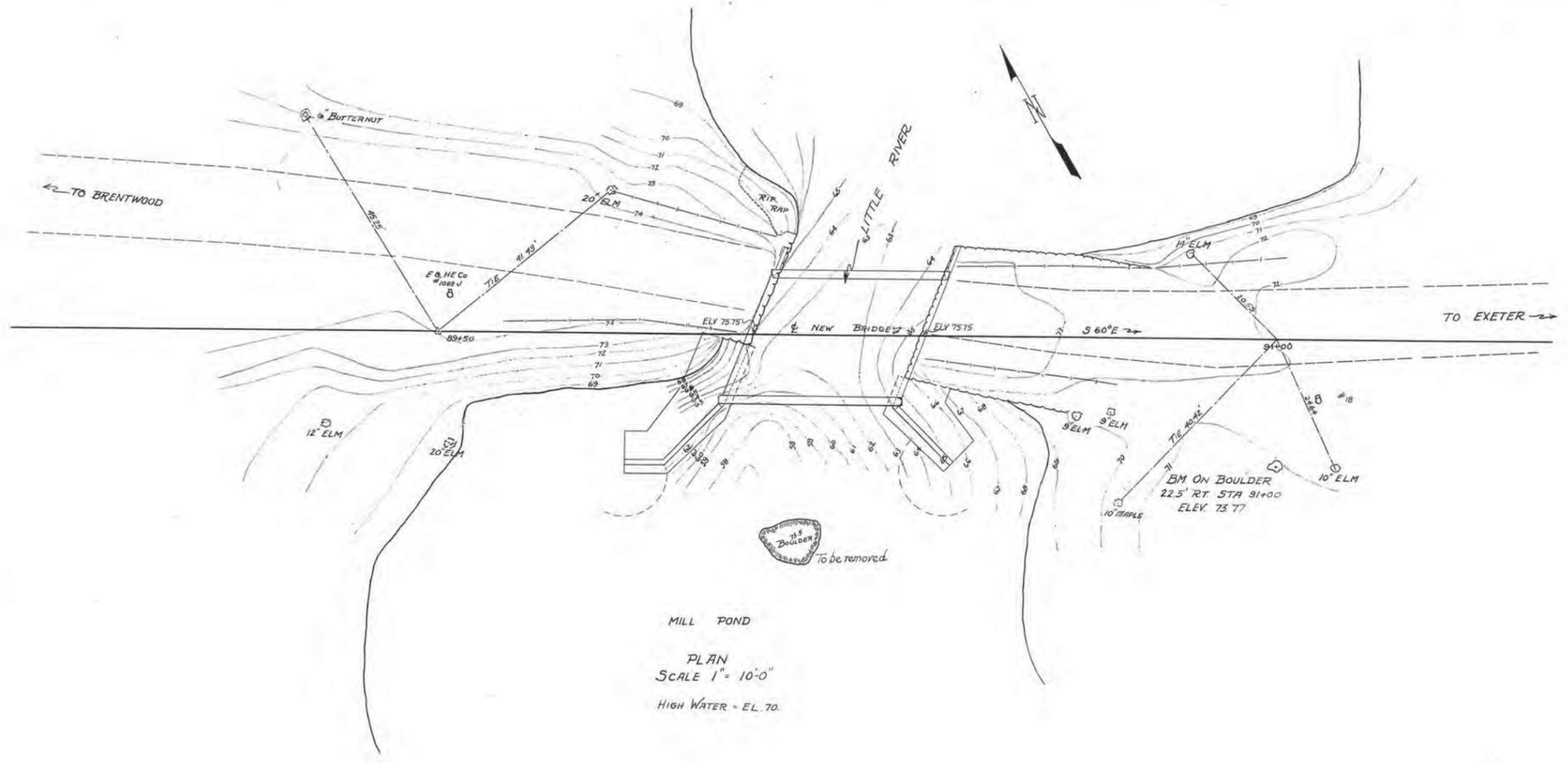
\* A representative selection of Whittum’s plan sheets have been selected for reproduction in this portfolio appendix. The plan sheets are presented in chronological order and follow the table. Special thanks go to the NHDOT bridge department for scanning the plans. An asterisk next to the town name in the table indicates that a plan sheet has been included in the portfolio.

Date	Town	Bridge/Structure	NHDOT Plan Number	Notes
1934	Andover*	Bridge No. 053/092, NH Route 11 over Blackwater River	P2	One-span, 36-foot-long, reinforced-concrete T beam.
1934	Exeter*	Bridge No. 075/078, Brentwood Road over Little River	P23	One-span, 30-foot-long, reinforced-concrete slab.
1934	Exeter	Bridge No. 103/073, Water and High Streets/NH Route 101 over Exeter River	P24	One-span, 65-foot-long, haunched reinforced-concrete T beam. Traced by Gordon Whittum, not designed.
1934	Littleton	Bridge over Dodge Brook, later replaced by culvert, no bridge number.	P36	Timber-stringer bridge on timber crib abutments.
1934	Londonderry*	Bridge No. 166/021, Mammoth Road over Beaver Brook	Q27	One-span, 28-foot-long, reinforced-concrete rigid frame.

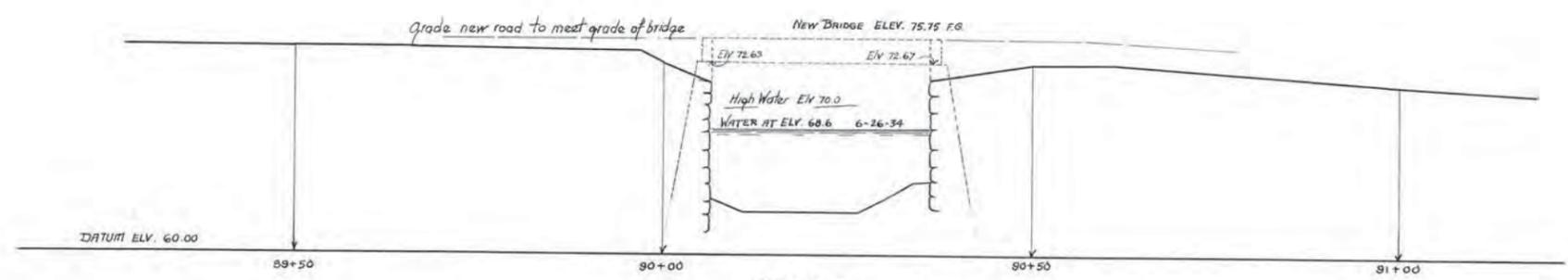
## APPENDIX A

Date	Town	Bridge/Structure	NHDOT Plan Number	Notes
1934	Marlborough*	Bridge No. 089/127, NH Route 44 over Robbins Brook	Q1	One-span, 27-foot-long, reinforced-concrete slab.
1934	Marlborough*	Bridge No. 113/132, NH Route 101 over Robbins Brook	Q5	Reinforced-concrete box culvert, 10-foot span.
1935	Alstead*	Bridge No. 073/163, NH Route 101 over Warren Pond Brook	T1	One-span, 37-foot-long, reinforced-concrete T beam. Whittum designed forms for balustrades; bridge designed by others.
1935	Croydon*	Bridge No. 112/069, Dartmouth College Road/NH Route 10 over Croydon Branch River	T10	One-span 58-foot-long, haunched reinforced-concrete T beam; horizontal curvature.
1935	Gilsum*	Bridge No. 097/129, Dartmouth College Road/NH Route 10 over Unnamed Stream	T18	Reinforced-concrete box culvert, 9-foot span.
1935	Winchester*	Bridge No. 152/181, Dartmouth College Road/NH Route 10 over Ashuelot River	U33	Three-span, 180-foot-long, continuous haunched steel multi-girder.
1936	Barrington*	Bridge No. 170/093, Barrington-Lee Road over Bellamy River	1-12-2-6	Rehabilitation of existing steel deck girder bridge.
1936	Gilford*	Bridge No. 138/137, Back of Mountain Road (N.H. Route 11-A) over Poor Farm Brook	1-11-2-6	One-span reinforced-concrete T beam, clear span of 30 ft.
1936	Greenville*	Bridge No. 071/101, Main Street over Souhegan River, Columbian Mills	1-15-2-1	One-span, 47-foot-long, reinforced-concrete rigid frame.
1936	Lebanon, N.H.- Hartford, Vt.*	Bridge No. 058/127, U.S. Route 4 over Connecticut River	1-10-2-1	Two-span through-truss and one-span pony truss, total length of 382 ft. Whittum designed rehabilitation of existing substructure units only.
1936	Lyme, N.H.-Thetford, Vt.*	Bridge No. 053/112, Lyme Road over Connecticut River	1-14-2-6	Two-span through-truss , total length of 463 ft. Whittum designed substructure units, only.
1936	Peterborough*	Bridge No. 087/087, Grove Street over Nubanusit River	1-9-1-1	One-span reinforced-concrete rigid frame with stone veneer.
1936	Peterborough*	Bridge No. 057/108, South Side Road/Union Street over Nubanusit River	1-13-3-2	One-span reinforced-concrete rigid frame with stone veneer.
1937	Newbury*	Bridge No. 116/085, NH Route 103 (Newbury Cut-off) over Andrews Brook	1-14-1-3	One-span 80-foot-long steel-plate deck girder



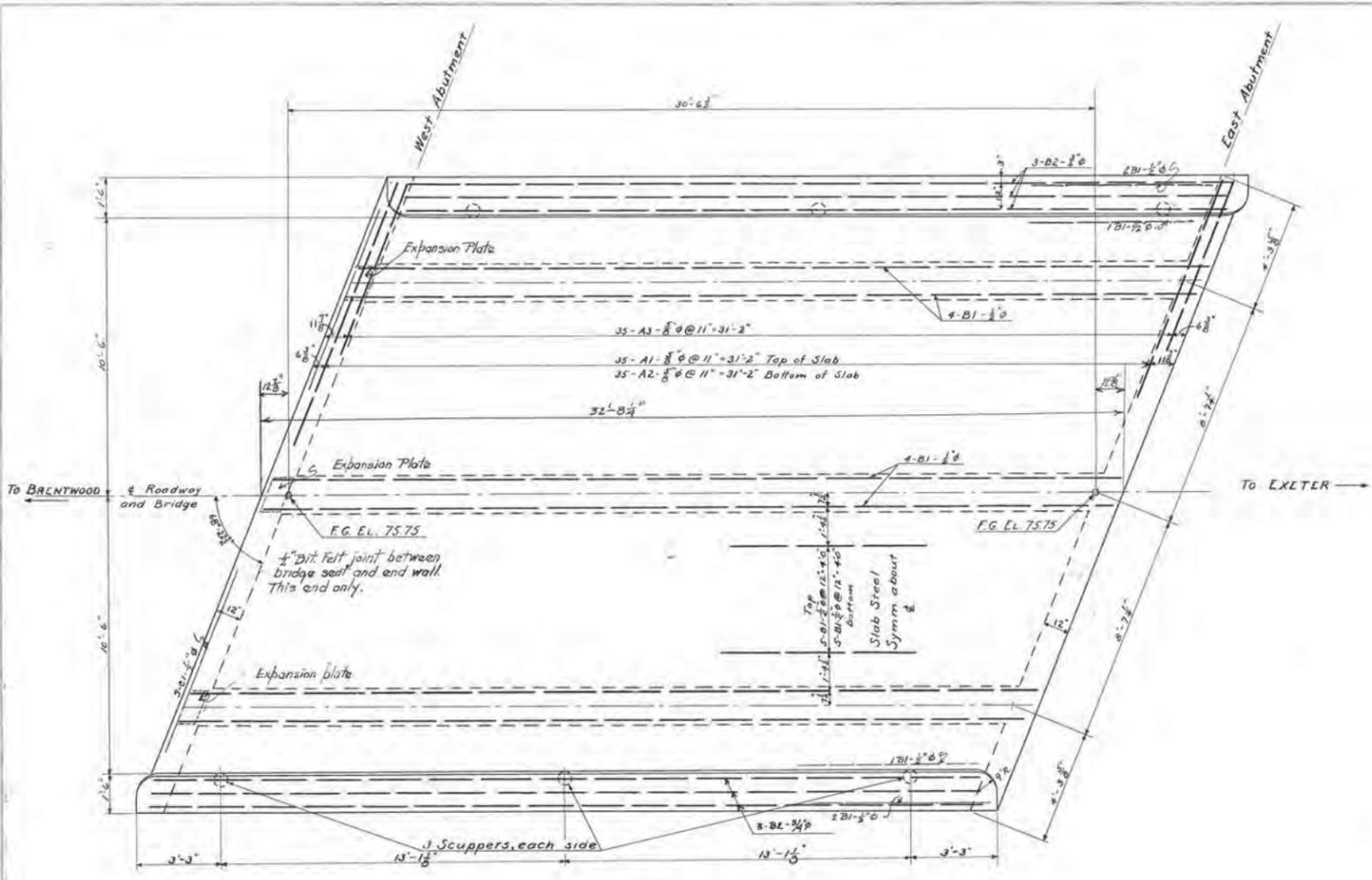


MILL POND  
 PLAN  
 SCALE 1" = 10'-0"  
 HIGH WATER = EL. 70.

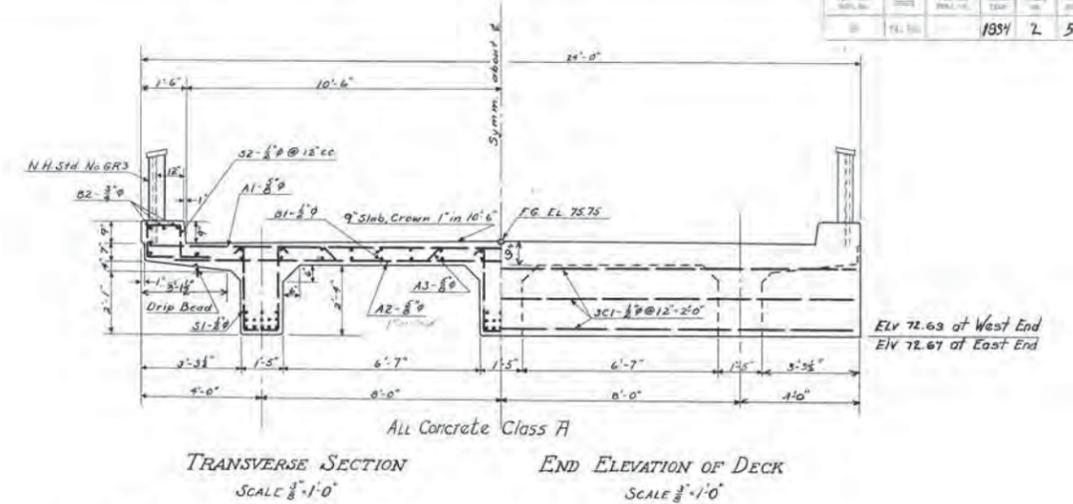


PROFILE  
 Horizontal Scale 1" = 10'-0"  
 Vertical Scale 1" = 5'-0"

STATE OF NEW HAMPSHIRE  
 HIGHWAY DEPARTMENT  
 TOWN: EXETER  
 PROJECT: S.A.B.  
 LOCATION: ROAD EXETER TO BRENTWOOD  
 STREAM: LITTLE RIVER  
 SURVEYED BY: R.H.R. DATE: 6-24-34  
 PLOTTED: H.P.D. DATE: 6-27-34  
 TRACED: S.H.W. DATE: 7-7-34  
 CHECKED: S.R.W. DATE: 8-9-34  
 SHEET 1 OF 5 SHEETS

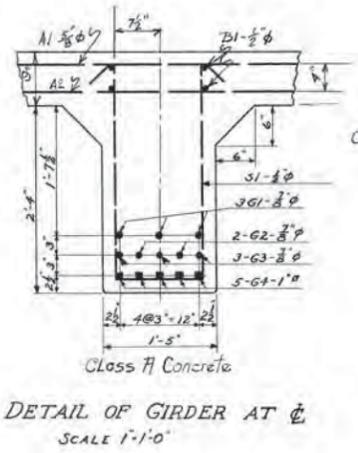


STEEL PLAN  
SCALE 3/8"=1'-0"

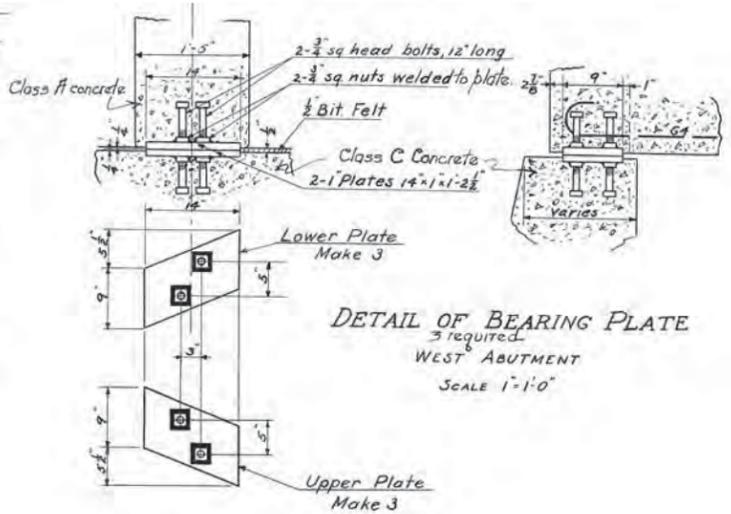


TRANSVERSE SECTION  
SCALE 3/8"=1'-0"

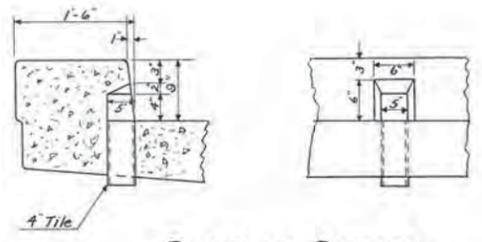
END ELEVATION OF DECK  
SCALE 3/8"=1'-0"



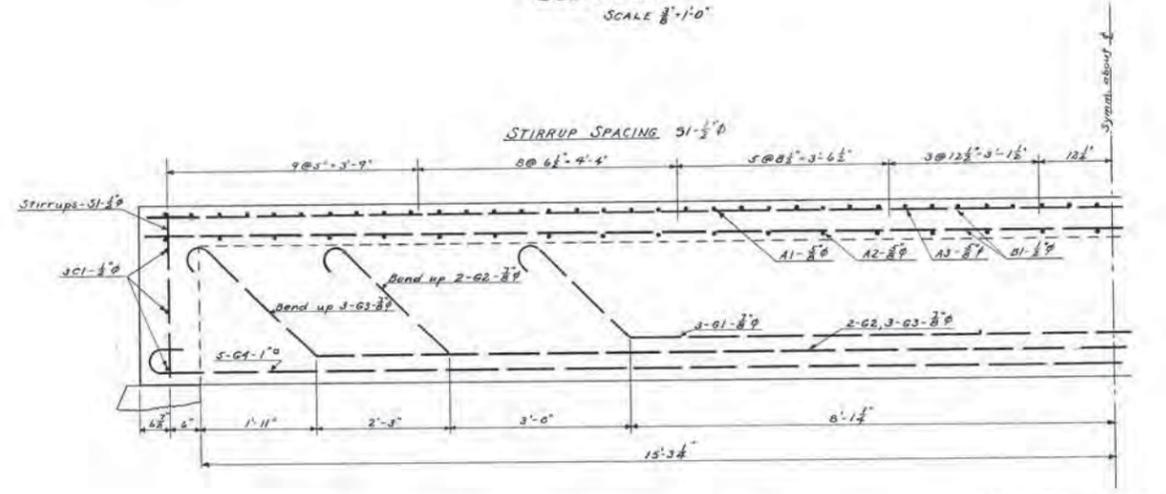
DETAIL OF GIRDER AT CENTER  
SCALE 1"=1'-0"



DETAIL OF BEARING PLATE  
SCALE 1"=1'-0"



DETAIL OF SCUPPER  
SCALE 1"=1'-0"



LONGITUDINAL SECTION THRU GIRDER  
SCALE 3/4"=1'-0"

NOTE: Spliced bars to lap 40 diameters

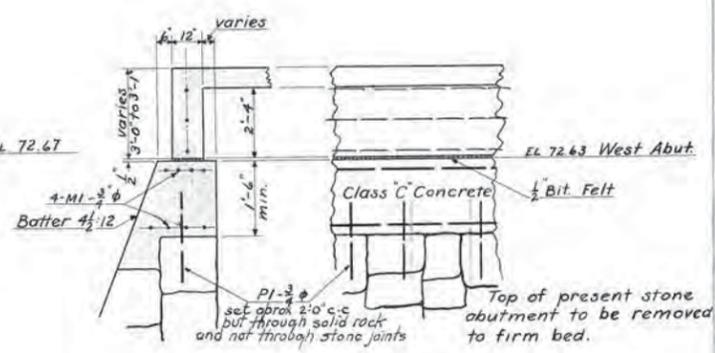
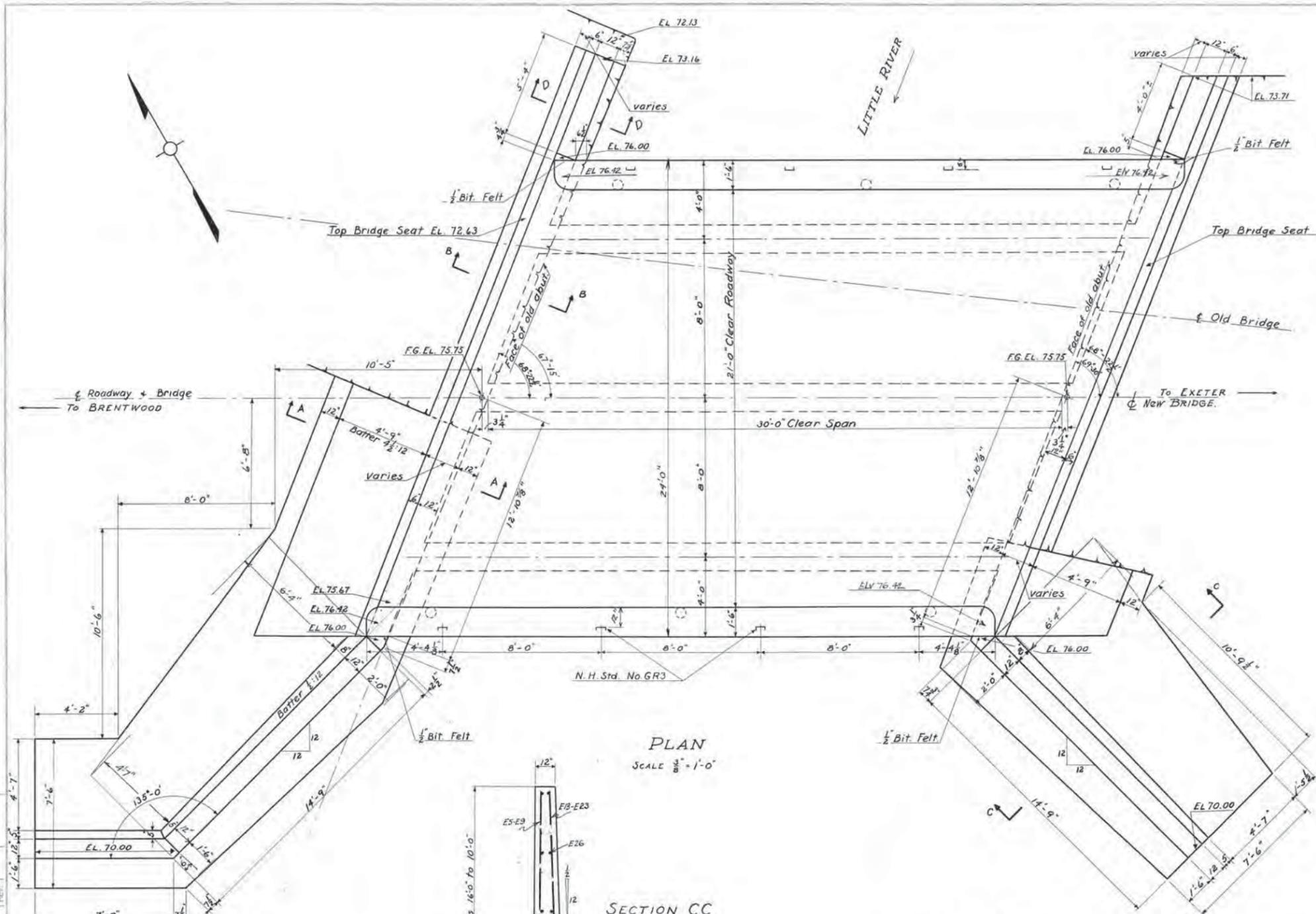
Notes:  
 No concrete to be placed until steel has been checked by engineer.  
 Edges of curbs to be rounded with edging tool.  
 All other exposed edges to be rounded with carborundum stone after concrete is thoroughly set.  
 All concrete in superstructure to be Class A (3000<sup>psi</sup>) with a minimum cement factor of 1.61.  
 Concrete in bridge seats and backwalls to be Class C (2000<sup>psi</sup>) with a minimum cement factor of 1.30.  
 Concrete in wingwalls to be Class A (3000<sup>psi</sup>) with a minimum cement factor of 1.61.  
 Concrete in footings to be Class A (3000<sup>psi</sup>) with a minimum cement factor of 1.61.

DATE	7-3-34	BY	G.R.W.
DATE	7-7-34	BY	G.R.W.
DATE	7-9-34	BY	G.R.W.
DATE	8-3-34	BY	H.W.

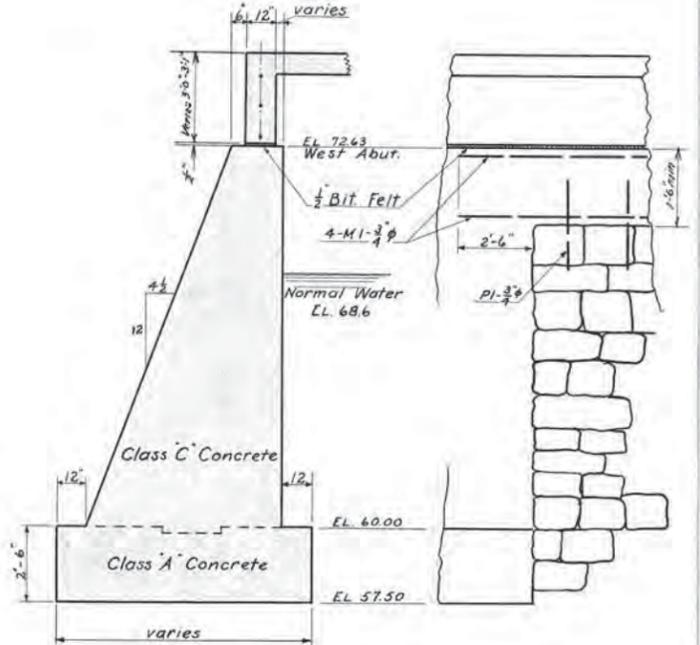
CORRECT BY John W. Child DATE 8-23-34  
 BRIDGE ENGINEER

APPROVED BY W. D. ... DATE 8-23-34  
 CHIEF ENGINEER

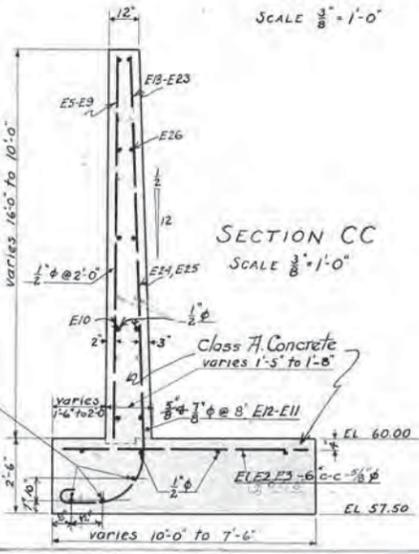
STATE OF NEW HAMPSHIRE  
 HIGHWAY DEPARTMENT  
 TOWN EXETER  
 PROJECT S.A.B. 1934  
 LOCATION  
 ROAD BRENTWOOD RD.  
 STREAM LITTLE RIVER  
 DESIGNED BY G.R.W. DATE 7-3-34  
 DRAWN " G.R.W. " 7-7-34  
 TRACED " G.R.W. " 7-9-34  
 CHECKED " H.W. " 8-3-34  
 SHEET 2 OF 5 SHEETS



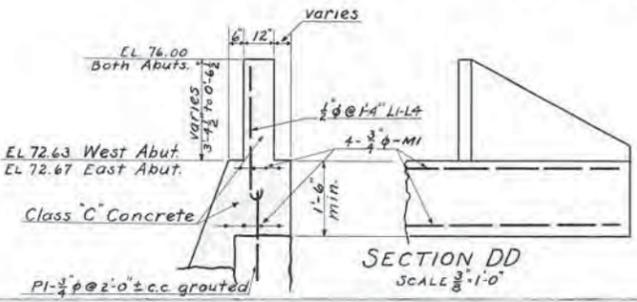
SECTION BB  
SCALE 3/8" = 1'-0"



SECTION AA  
SCALE 3/8" = 1'-0"



SECTION CC  
SCALE 3/8" = 1'-0"



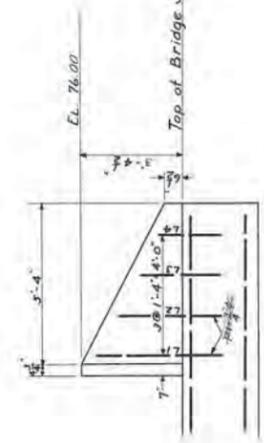
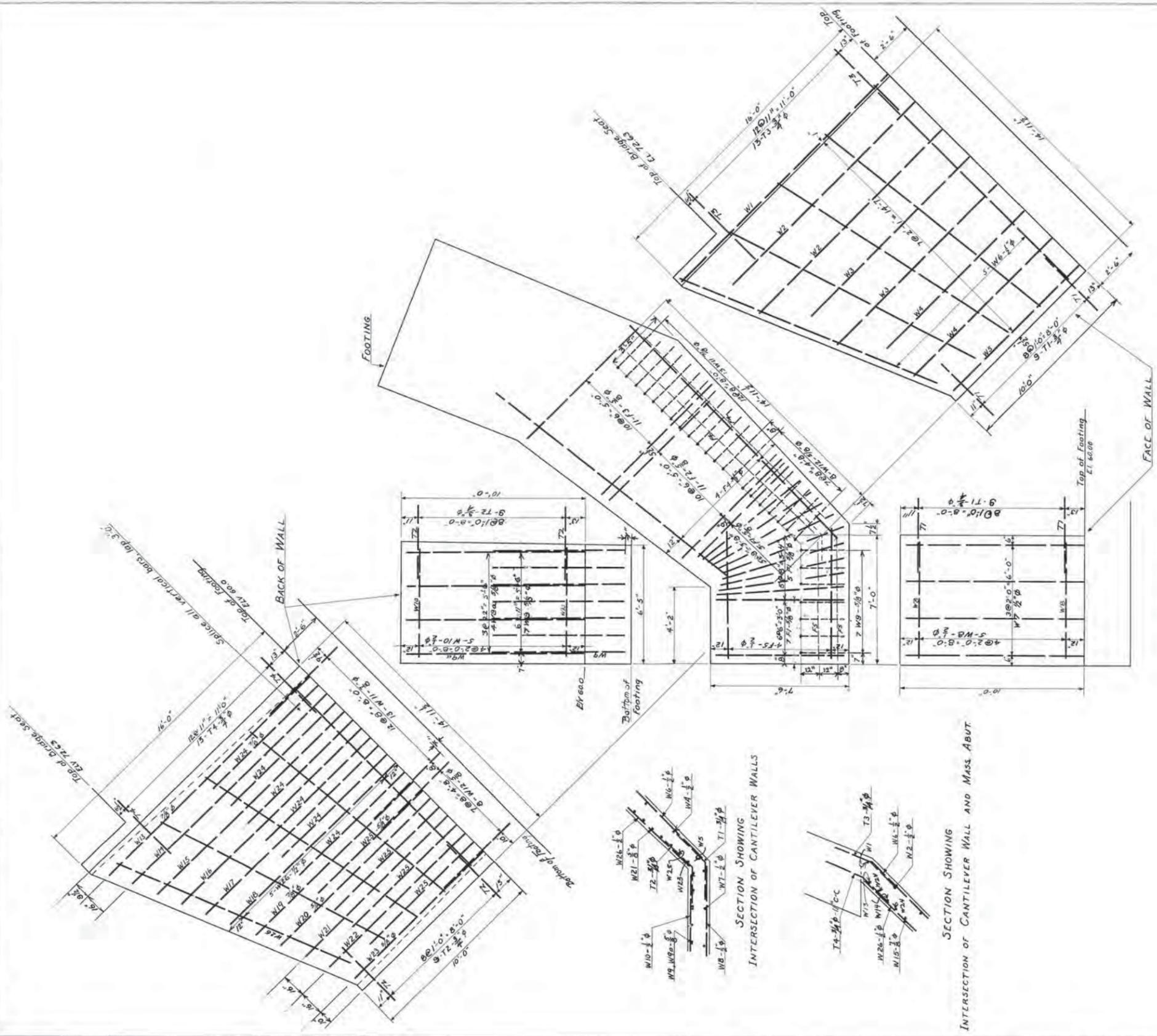
SECTION DD  
SCALE 3/8" = 1'-0"

ESTIMATE OF QUANTITIES	
STRUCTURE EXCAVATION	143 cuyd
CONCRETE, CLASS A	100 - -
CONCRETE, CLASS C	34 - -
REINFORCING STEEL	12,156 lbs.
CABLE GUARD RAIL	65 ft.
BEARING PLATES + BOLTS	6 pls.
DISMANTLE PRESENT SUPERSTRUCTURE	1
REMOVE STREAM BOULDER	1

STATE OF NEW HAMPSHIRE  
HIGHWAY DEPARTMENT  
TOWN EXETER  
PROJECT S.A.B. 1934  
LOCATION  
ROAD BRENTWOOD RD.  
STREAM LITTLE RIVER  
DESIGNED BY G.R.W. DATE 7-12-34  
DRAWN " G.R.W. " 7-18-34  
TRACED " G.R.W. " 7-19-34  
CHECKED " S.H.W. " 8-9-34  
SHEET 3 OF 5 SHEETS

DATE	BY	DATE	BY

NO. 1334	REV. 4	SHEET 5
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SOUTH WING WALL

STEEL DETAIL - WEST ABUTMENT  
SCALE 8 1/2" = 1'-0"

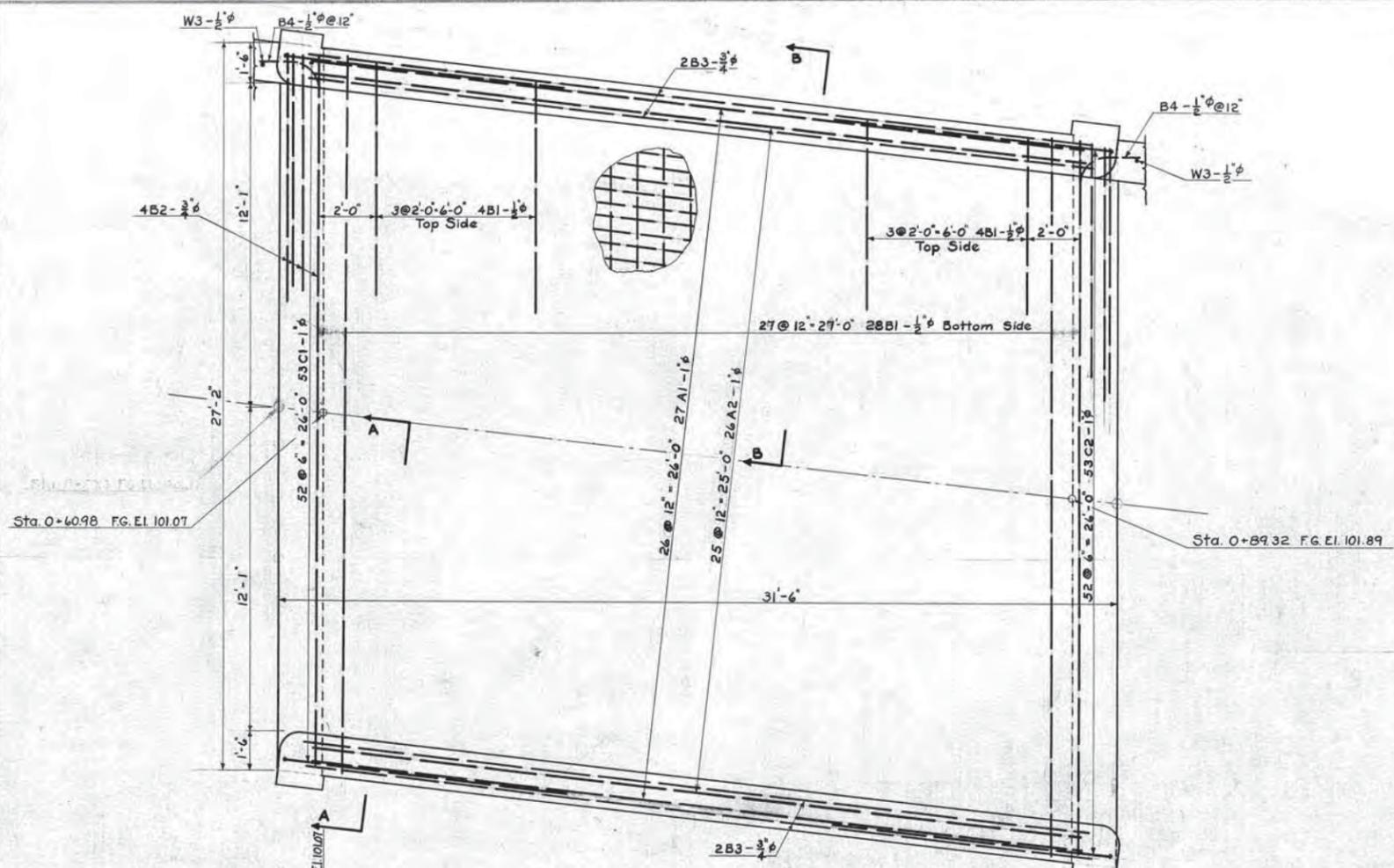
STATE OF NEW HAMPSHIRE HIGHWAY DEPARTMENT	
TOWN	EXETER
PROJECT	S.A.B. 1934
LOCATION	ROAD BRENTWOOD RD.
STREAM	LITTLE RIVER
DESIGNED BY	G.R.W. DATE 7-12-34
DRAWN	G.R.W. " 7-18-34
TRACED	G.R.W. " 7-25-34
CHECKED	S.H.W. " 8-3-34
SHEET 4 OF 5 SHEETS	

Drawn By	G.R.W.	Date	7-18-34
Checked By	S.H.W.	Date	8-3-34
Traced By	G.R.W.	Date	7-25-34
Other			
Rev.			

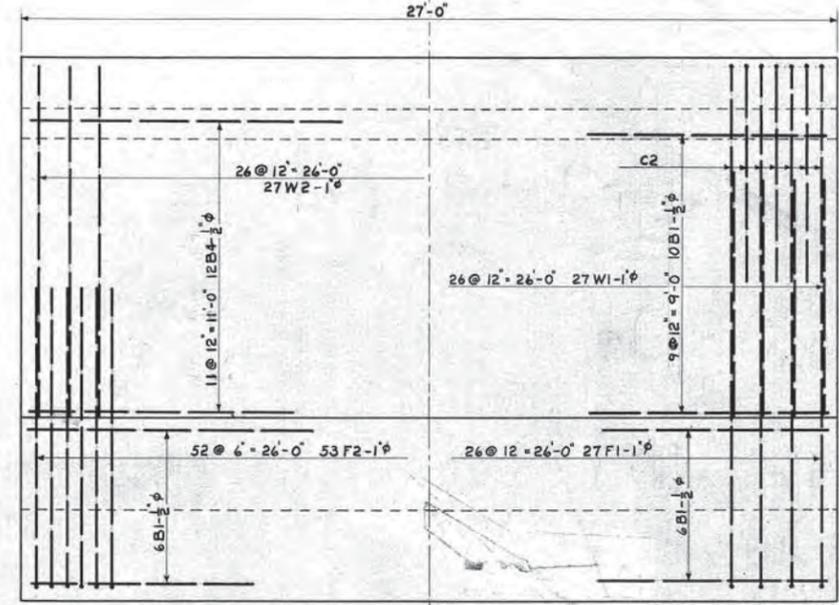




FED. ROAD DIST. NO.	STATE	FYD. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N. H.				

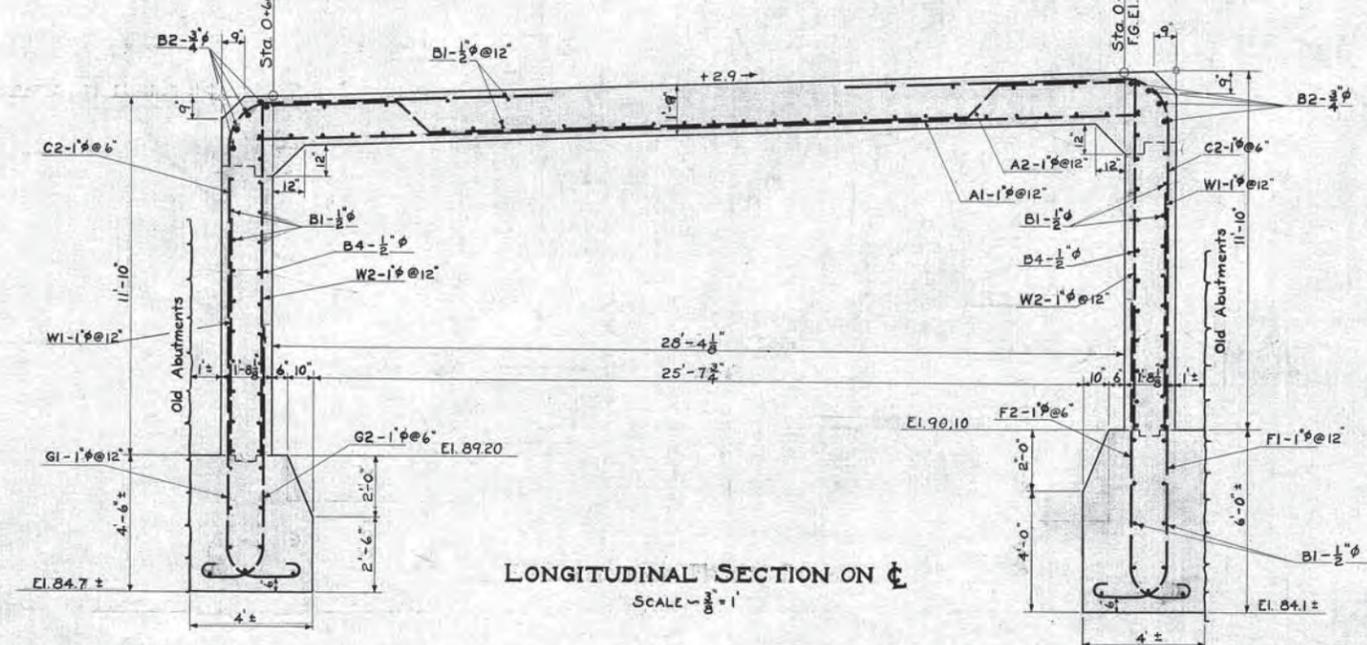


**PLAN OF SLAB STEEL**  
SCALE - 3/8" = 1'

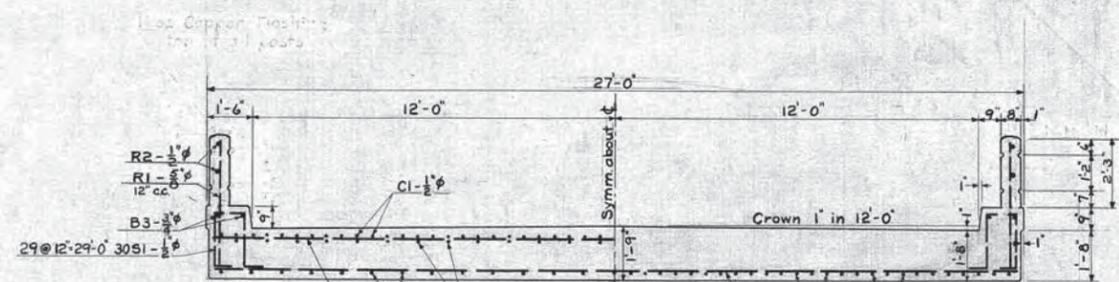


**STEEL DETAIL - NORTH ABUT. LEG**  
SCALE 3/8" = 1'

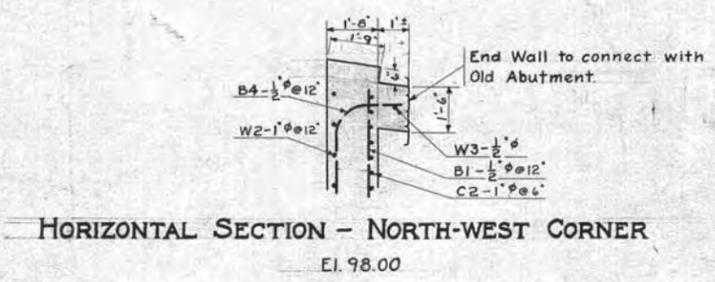
Note:  
South Abut. Leg is same as North except height of Footing,  
Length of G1 in Footing, and number of B1's in Footing



**LONGITUDINAL SECTION ON C-C**  
SCALE - 3/8" = 1'



**SECTION AA** and **SECTION BB**  
SCALE - 3/8" = 1'



**HORIZONTAL SECTION - NORTH-WEST CORNER**  
El. 98.00

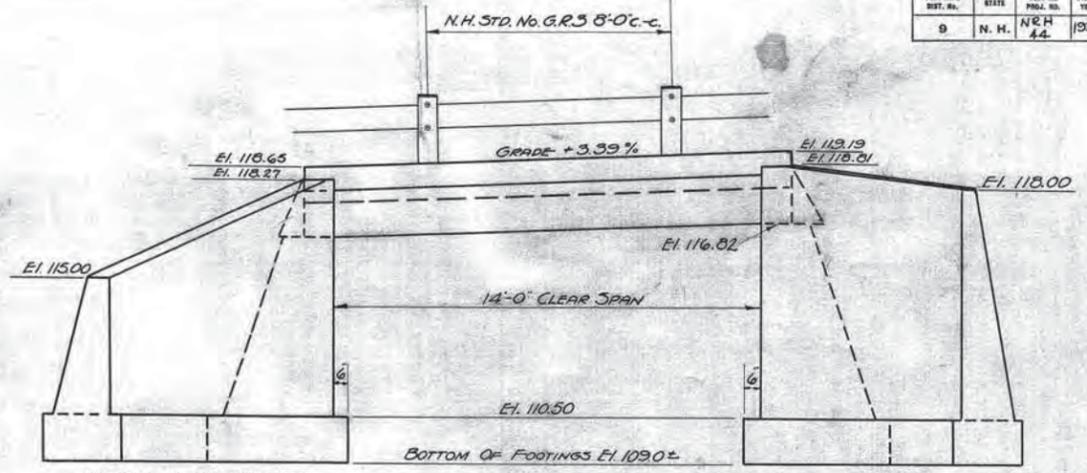
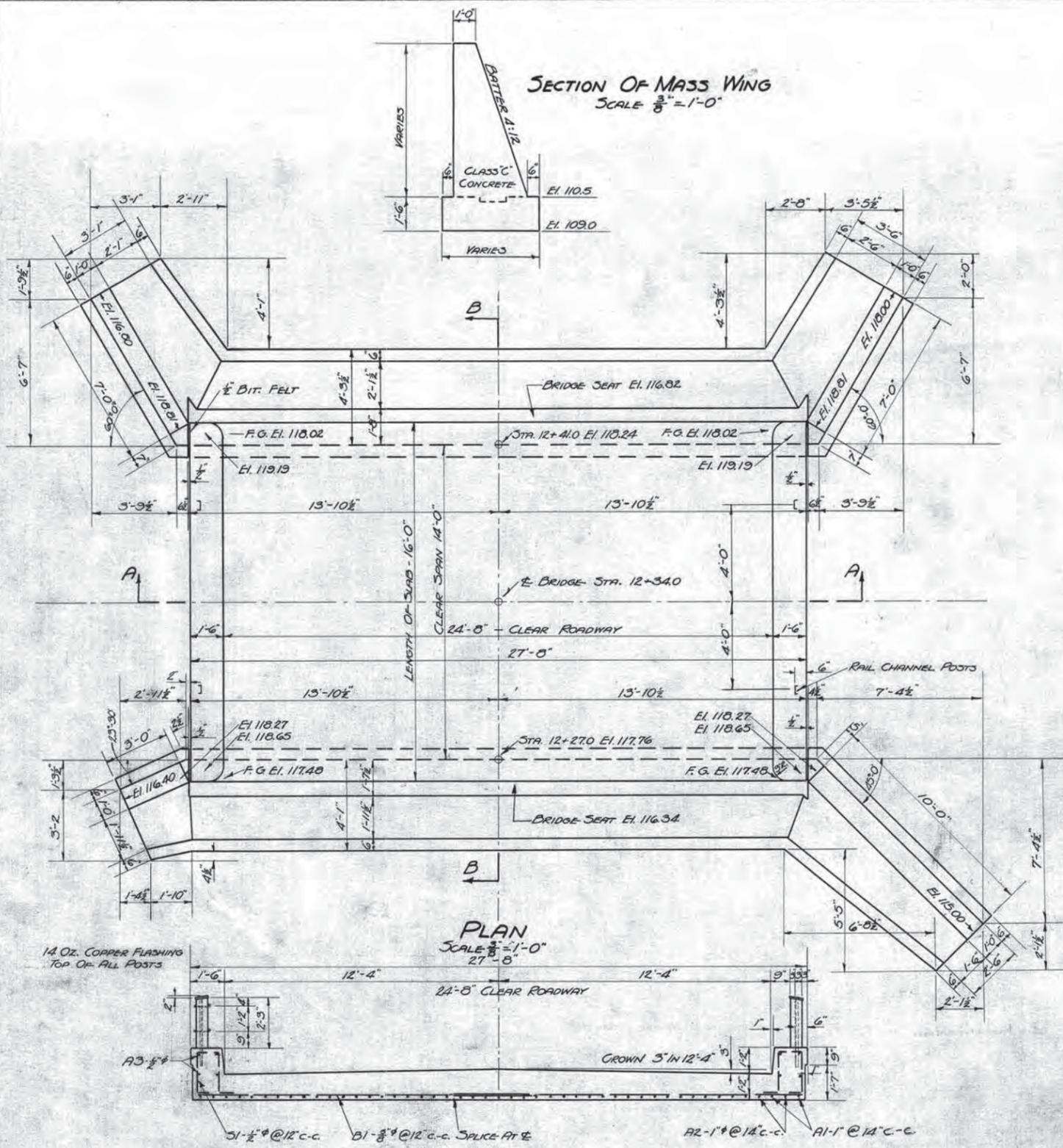
REVISIONS AFTER PROPOSAL		Date	Station	From	to
1	Rev.				
2	Orig.				
3	Orig.				
4	Orig.				
5	Orig.				
6	Orig.				
7	Orig.				
8	Orig.				
9	Orig.				
10	Orig.				

STATE OF NEW HAMPSHIRE  
HIGHWAY DEPARTMENT  
TOWN WINDHAM AND LONDONDERRY  
PROJECT S.A.B. 1934  
LOCATION AT TOWN LINE  
ROAD MAMMOTH RD.  
STREAM BEAVER BROOK  
DESIGNED BY G.R.W. DATE 9-12-34  
DRAWN G.R.W. 9-14-34  
TRACED G.R.W. 9-19-34  
CHECKED R.S.B. 10-6-34  
SHEET 3 OF 3 SHEETS

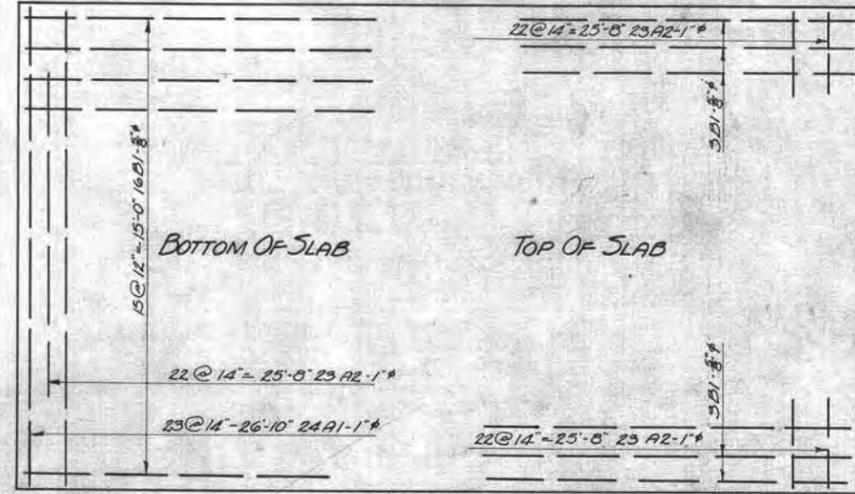


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N.H.	N.H. 44	1935	4	5

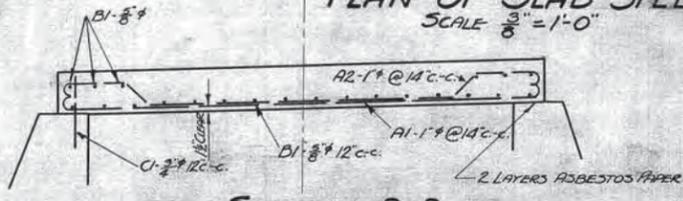
62



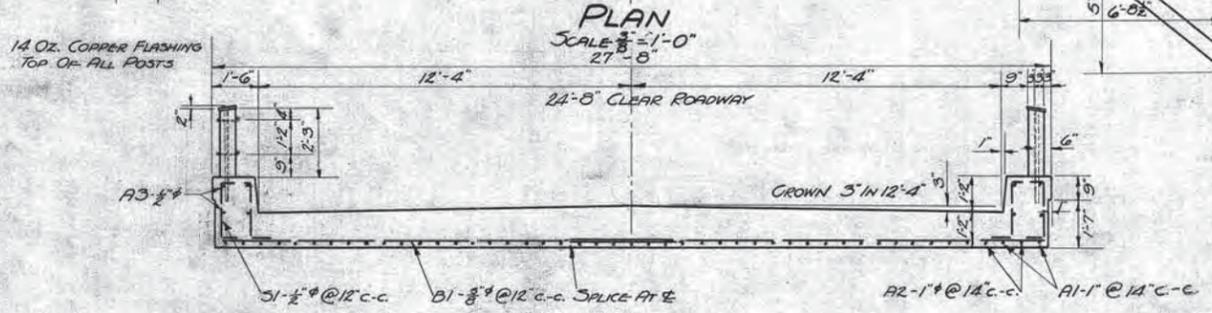
ELEVATION  
SCALE  $\frac{3}{8}'' = 1'-0''$



PLAN OF SLAB STEEL  
SCALE  $\frac{3}{8}'' = 1'-0''$



SECTION B-B  
SCALE  $\frac{3}{8}'' = 1'-0''$



SECTION A-A  
SCALE  $\frac{3}{8}'' = 1'-0''$

ESTIMATE OF QUANTITIES	
CONCRETE CLASS "A" 3000"	24 CUYDS
" CLASS "C" 2000"	69 "
REINFORCING STEEL	3195 LBS.
STRUCTURE EXCAVATION (UNCLASSIFIED)	110 CUYDS
CABLE BRIDGE RAIL	32 LIN. FT.
REMOVAL OF PRESENT SUPERSTRUCTURE	LUMP SUM
TEMPORARY BRIDGE	LUMP SUM

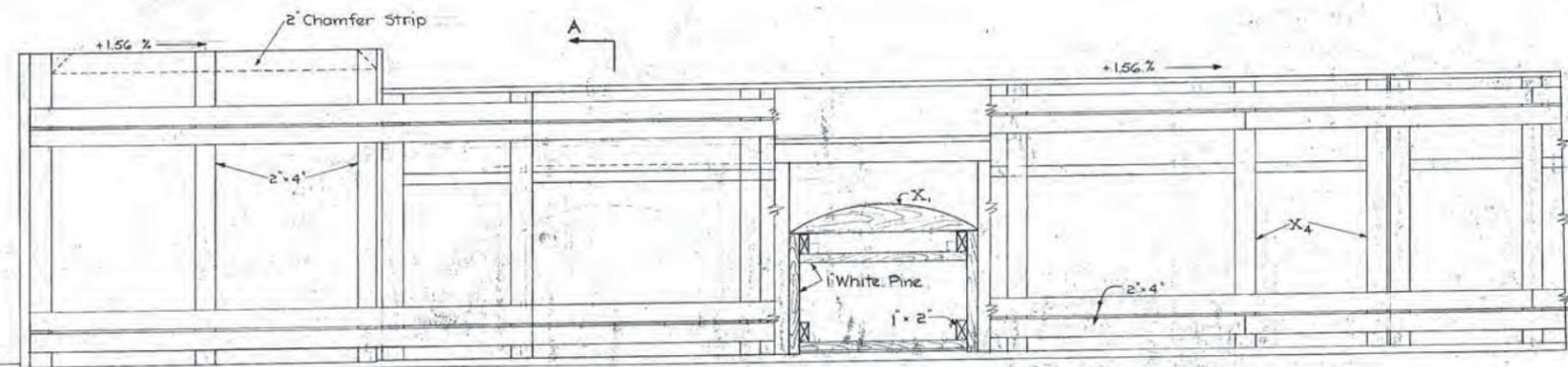
GENERAL NOTES:  
NO CONCRETE TO BE PLACED UNTIL STEEL HAS BEEN CHECKED BY ENGINEER.  
FOOTINGS TO BE CARRIED TO FIRM FOUNDATION AS DIRECTED BY ENGINEER.  
ALL EXPOSED CORNERS TO BE CAST SQUARE AND SLIGHTLY ROUNDED WITH CARBORUNDUM  
AFTER CONCRETE IS THOROUGHLY SET. TOP EDGES OF CURBS TO BE ROUNDED WITH EDGING TOOL  
4" TILE WEEPERS IN ABUTMENTS TO BE ABOUT 10'-0" c-c. AND AT SUCH ELEVATION AS  
WILL BEST DRAIN BACKFILL. BACKFILL AROUND WEEPERS TO BE MADE OF STONE-  
CONCRETE IN DECK SLAB TO BE CLASS "A" (3000) MINIMUM CEMENT FACTOR 1.61  
CONCRETE IN ABUTMENTS AND WINGS TO BE CLASS "C" (2000) MIN. CEMENT FACTOR 1.30

STATE OF NEW HAMPSHIRE HIGHWAY DEPARTMENT	
TOWN	MARLBORO
PROJECT	N.H. 44 - 1935
LOCATION	STA. 12+34.0
ROAD	SOUTH SIDE ROAD
STREAM	ROBBINS BROOK
DESIGNED BY	G.R.W. DATE 3-26-34
DRAWN	G.R.W. " 3-27-34
TRACED	W.J.B. " 12-21-34
CHECKED	R.S.B. " 10-28-34
SHEET 1 OF 1 SHEETS	

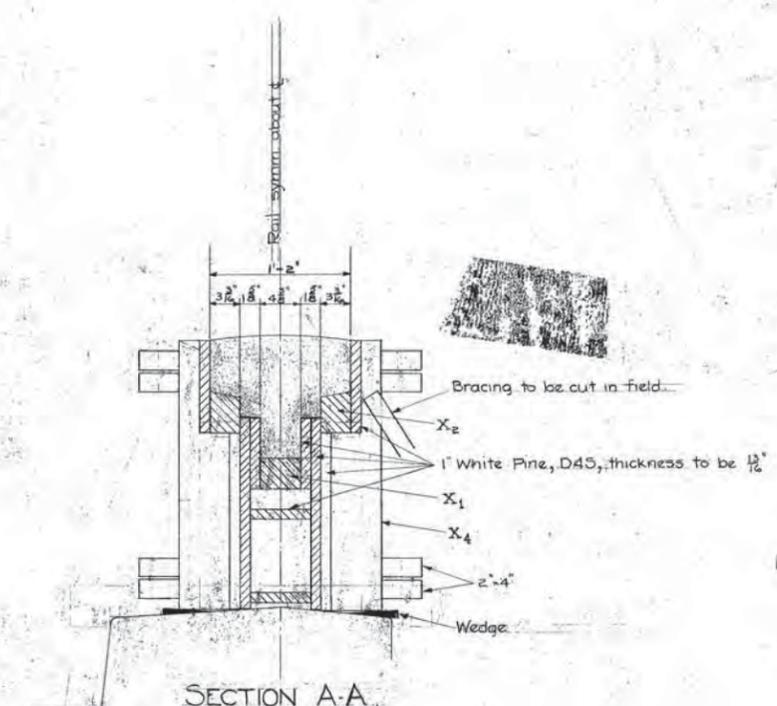
FILE NO. 2

REVISIONS AFTER PROPOSAL  
Date Station From or to  
Rev. Orig. Rev. Orig. Rev. Orig. Rev. Orig.  
Traced by W.J.B. Date 12/1/34  
Checked by B.S. Date 12/1/34

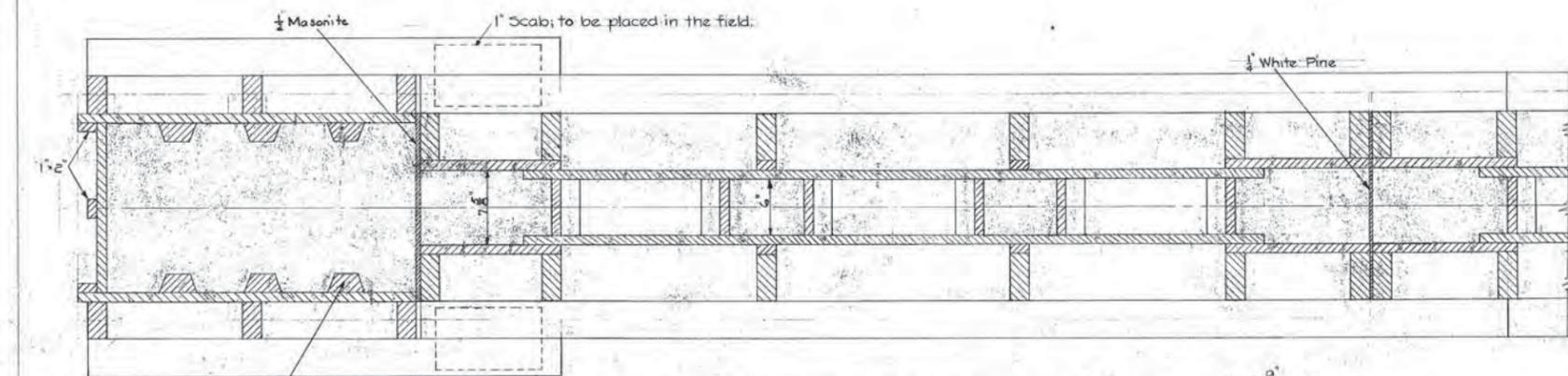




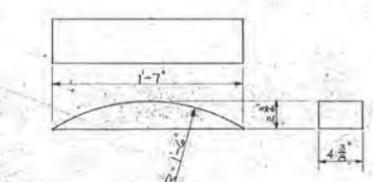
ELEVATION  
Scale 1 1/2" = 1'



SECTION A-A



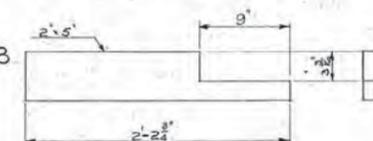
HORIZONTAL SECTION 6' ABOVE CURB  
Scale 1 1/2" = 1'



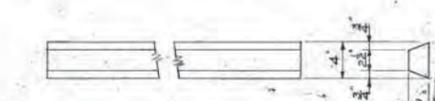
DETAIL OF X1  
Scale 1 1/2" = 1' 11 Pieces reqd.  
Dress to dimensions, all sides



DETAIL OF X2  
Scale 1 1/2" = 1' 42 Lin. Ft. reqd.  
Dress to dimensions, all sides



DETAIL OF X4  
Scale 1 1/2" = 1' 40 Pieces reqd.



DETAIL OF X3  
Scale 1 1/2" = 1' 42 Lin. Ft. reqd.  
Dress 4 sides

ESTIMATE OF QUANTITIES

Description	Quantity
X1, Spruce or Western Fir	11 Pieces 22 B.F.
X2	42 Lin. Ft. 85 "
X3	42 " 28 "
X4	40 Pieces 80 "
2x4	309 Lin. Ft. 226 "
1x2	50 Lin. Ft. 9 "
1 White Pine Sheathing, Dress 4 sides, thickness to be 1 3/8"	226 "
1/2 Masonite 2'4" x 2'0"	4 pos.
1/2 1'0" x 2'4"	4 "
2" Chamfer Strip	34 Lin. Ft.

FORMS FOR BRIDGE RAILING

STATE OF NEW HAMPSHIRE  
HIGHWAY DEPARTMENT

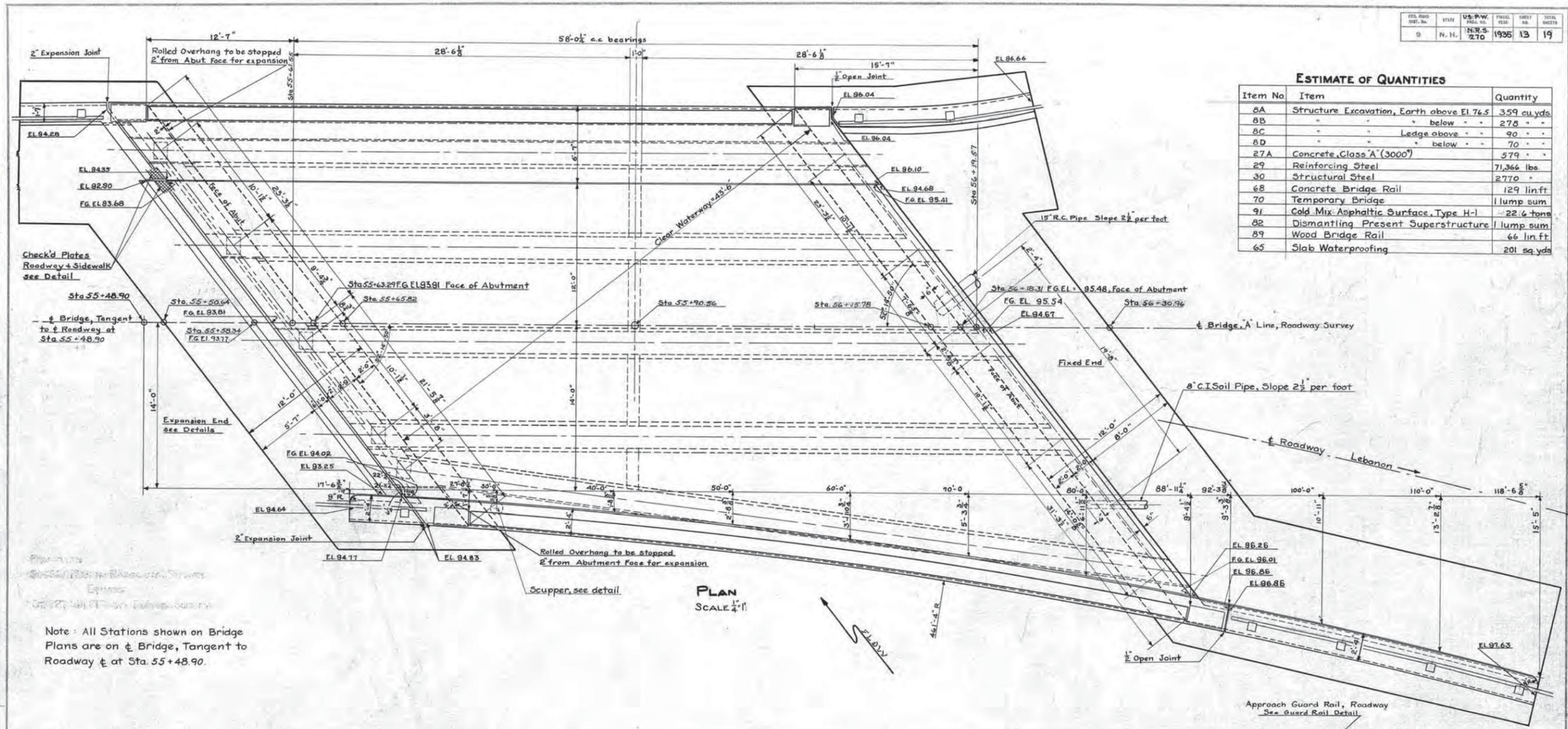
TOWN ALSTEAD  
PROJECT T.L.B.  
LOCATION Jct. E. ALSTEAD RD. & RT. 101  
ROAD ROUTE #101  
STREAM WARREN POND BROOK

DESIGNED BY G.W. DATE 8-19-35  
DRAWN G.W. 8-21-35

CHECKED C.W.C. 8-22-35  
SHEET 5A OF 6 SHEETS

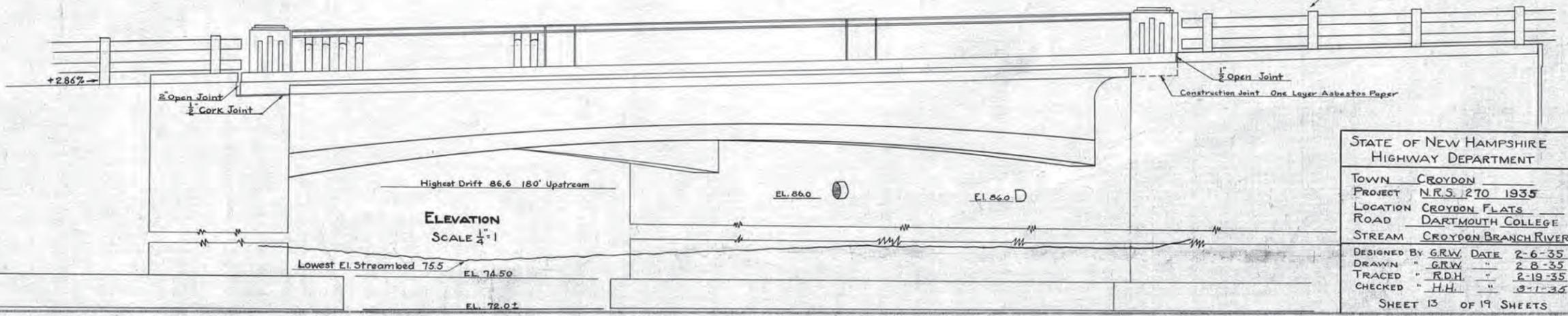
### ESTIMATE OF QUANTITIES

Item No	Item	Quantity
8A	Structure Excavation, Earth above El. 76.5	359 cu yds.
8B	" " " below " "	278 " "
8C	" " " Ledge above " "	90 " "
8D	" " " below " "	70 " "
27A	Concrete, Class 'A' (3000')	579 " "
29	Reinforcing Steel	71,366 lbs.
30	Structural Steel	2770 " "
68	Concrete Bridge Rail	129 lin ft.
70	Temporary Bridge	1 lump sum
91	Cold Mix Asphaltic Surface, Type H-1	22.4 tons
82	Dismantling Present Superstructure	1 lump sum
89	Wood Bridge Rail	66 lin ft.
65	Slab Waterproofing	201 sq yds.



PLAN  
SCALE 1/4" = 1'

Note: All Stations shown on Bridge Plans are on  $\perp$  Bridge, Tangent to Roadway  $\perp$  at Sta. 55+48.90.



STATE OF NEW HAMPSHIRE  
HIGHWAY DEPARTMENT

TOWN CROYDON  
PROJECT N.R.S. 270 1935  
LOCATION CROYDON FLATS  
ROAD DARTMOUTH COLLEGE  
STREAM CROYDON BRANCH RIVER

DESIGNED BY GRW DATE 2-6-35  
DRAWN GRW " 2-8-35  
TRACED R.D.H. " 2-19-35  
CHECKED H.H. " 3-1-35

SHEET 13 OF 19 SHEETS  
File No. T-10

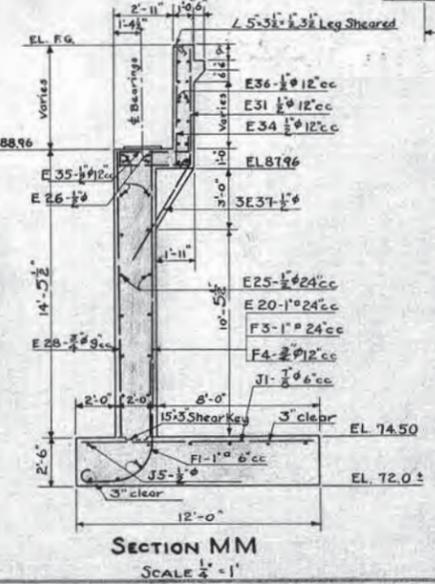
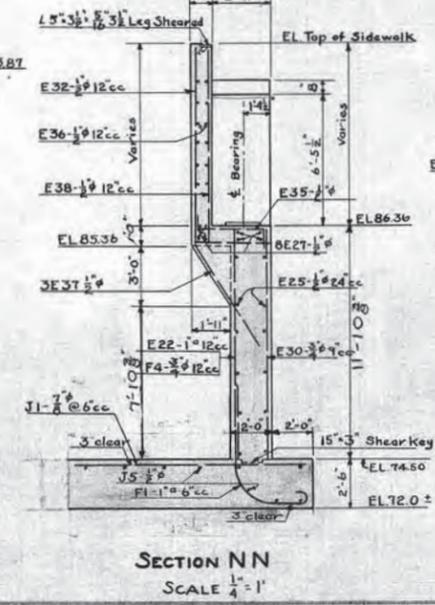
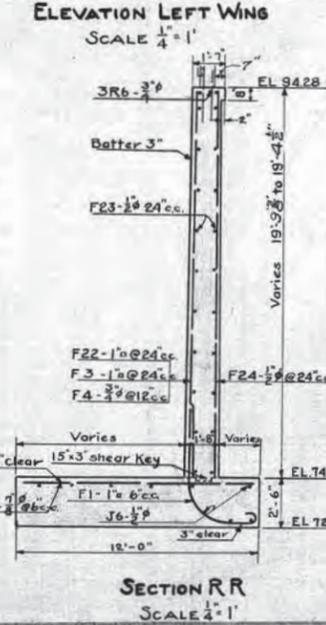
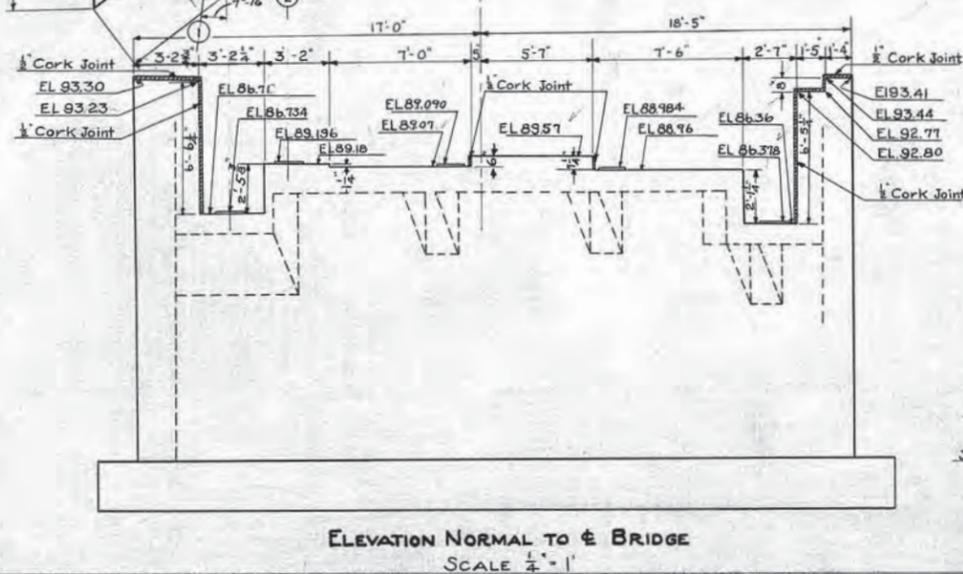
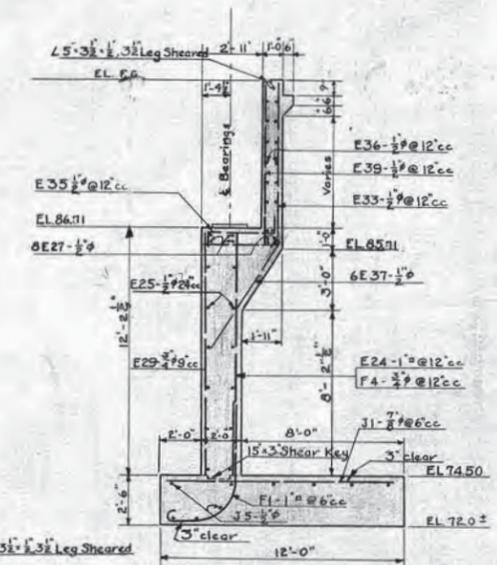
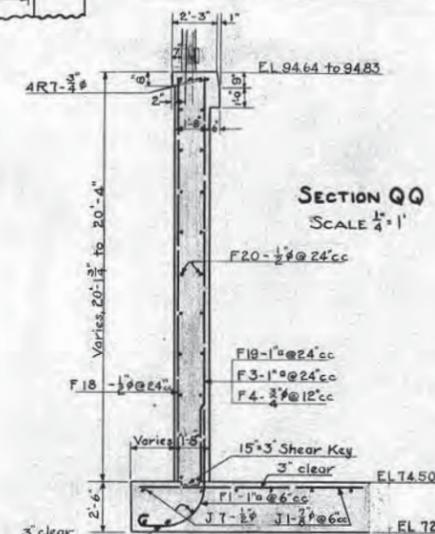
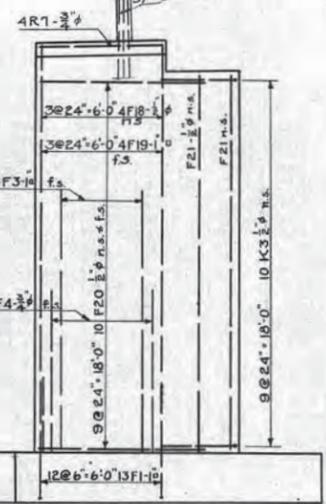
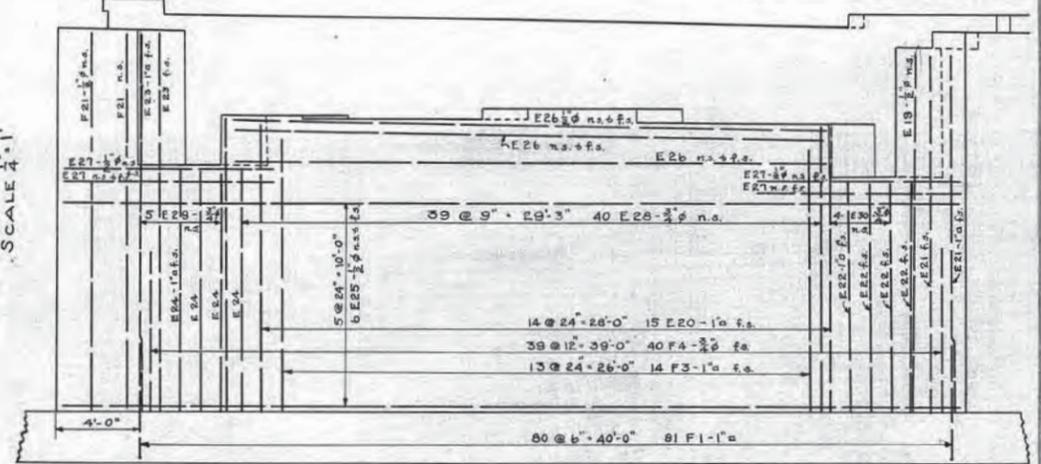
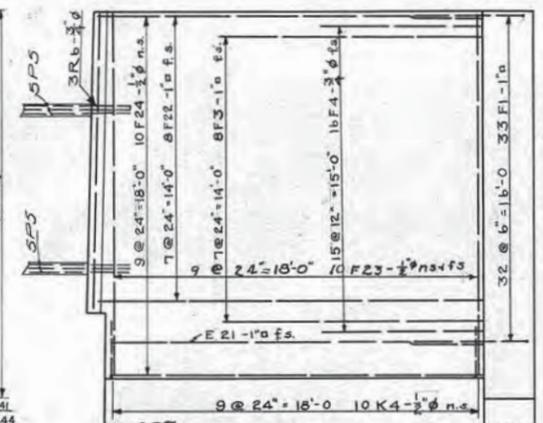
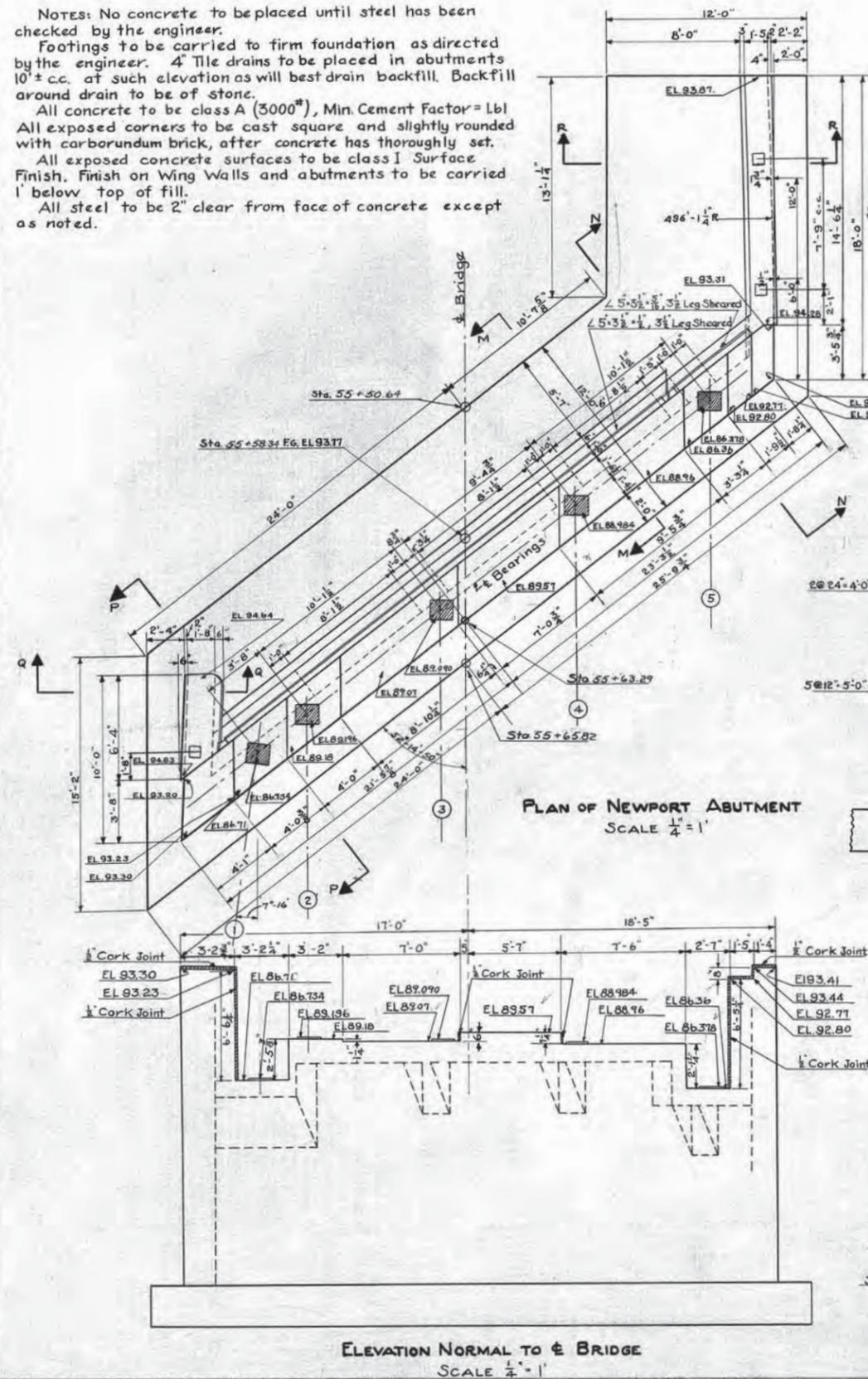
REVISIONS - AFTER PROPOSAL

Rev.	Date	Station	From	To

Traced by R.D.H. Date 2-19-35  
Checked by H.H. Date 3-1-35



NOTES: No concrete to be placed until steel has been checked by the engineer.  
 Footings to be carried to firm foundation as directed by the engineer. 4" tile drains to be placed in abutments 10" c.c. at such elevation as will best drain backfill. Backfill around drain to be of stone.  
 All concrete to be class A (3000\*), Min. Cement Factor = 161  
 All exposed corners to be cast square and slightly rounded with carborundum brick, after concrete has thoroughly set.  
 All exposed concrete surfaces to be class I Surface Finish. Finish on Wing Walls and abutments to be carried 1' below top of fill.  
 All steel to be 2" clear from face of concrete except as noted.



REVISIONS AFTER PROPOSAL	DATE	STATION	FROM	TO

STATE OF NEW HAMPSHIRE  
 HIGHWAY DEPARTMENT  
 TOWN CROYDON  
 PROJECT NRS 270 1935  
 LOCATION CROYDON FLATS  
 ROAD DARTMOUTH COLLEGE  
 STREAM CROYDON BRANCH RIVER  
 DESIGNED BY G.R.W. DATE 2-6-35  
 DRAWN G.R.W. DATE 2-10-35  
 TRACED R.D.H. DATE 2-21-35  
 CHECKED R.H.W. DATE 2-20-35  
 SHEET 15 OF 19 SHEETS

NOTES: No concrete to be placed until steel has been checked by the engineer.  
 Footings to be carried to firm foundation as directed by the engineer.  
 4" Tile drains to be placed in abutments 10'± c.c. at such elevations as will best drain backfill. Backfill around drains to be of stone.  
 All concrete to be of class A (3000<sup>psi</sup>), Minimum Cement Factor = 1.61  
 All exposed corners to be cast square and slightly rounded with carborundum brick after concrete has thoroughly set.  
 All steel to be 2' clear from face of concrete except as noted.  
 All exposed concrete surfaces to be Class I Surface Finish. Finish on Wing Walls and Abutments to be carried 1' below top of Fill.

ELEVATION LEFT WING  
 SCALE 1/4" = 1'

ELEVATION RIGHT WING  
 SCALE 1/4" = 1'

PLAN, LEBANON ABUTMENT  
 SCALE 1/4" = 1'

ELEVATION, FACE OF ABUTMENT  
 SCALE 1/4" = 1'

SECTION JJ  
 SCALE 1/4" = 1'

SECTION GG  
 SCALE 1/4" = 1'

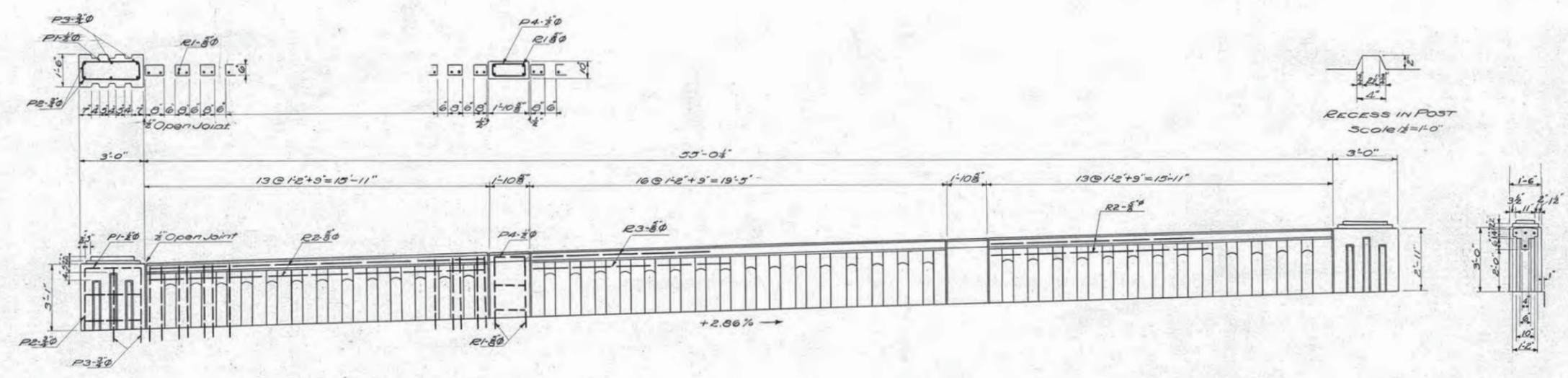
SECTION HH  
 SCALE 1/4" = 1'

REVISIONS AFTER PROPOSAL	
Date	Station

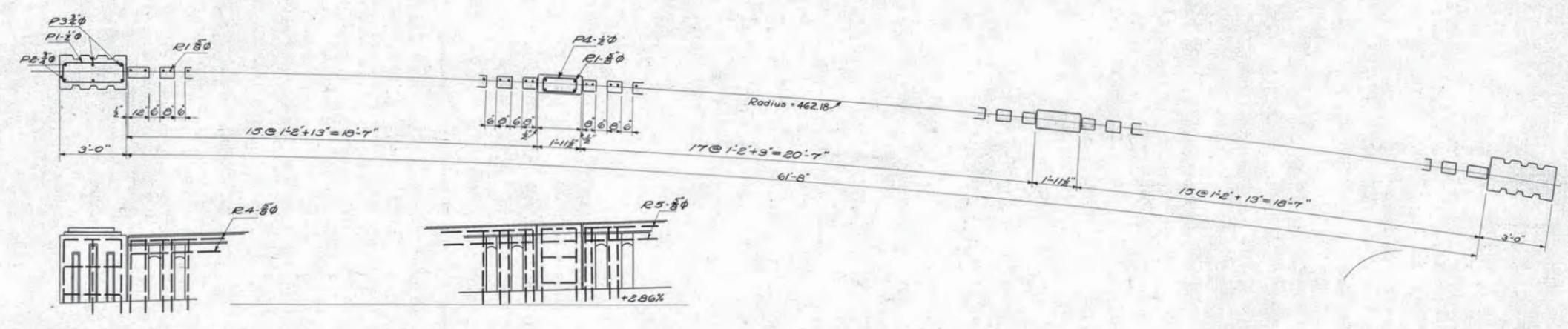
Traced by R. D. H. Date 2-14-35  
 Checked by \_\_\_\_\_ Date \_\_\_\_\_

STATE OF NEW HAMPSHIRE HIGHWAY DEPARTMENT	
TOWN	CROYDON
PROJECT	NRS 270 1935
LOCATION	CROYDON FLATS
ROAD	DARTMOUTH COLLEGE
STREAM	CROYDON BRANCH RIVER
DESIGNED BY	G. R. W. DATE 1-30-35
DRAWN	G. R. W.
TRACED	R. D. H. 2-14-35
CHECKED	H. G. H. 2-18-35
SHEET 16 OF 19 SHEETS	
File No. 710	

FED. ROAD DIST. NO.	STATE	U.S. HWY. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N. H.	270	1935	17	19



DETAIL OF DOWNSTREAM RAIL  
Scale 1/8" = 1'-0"



DETAIL OF UPSTREAM RAIL  
Scale 1/8" = 1'-0"

REVISIONS AFTER PROPOSAL		Station	From	Of
Orig.	Rev.			

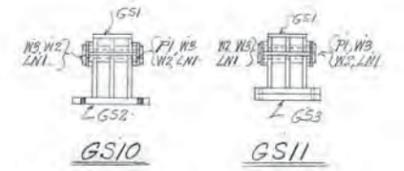
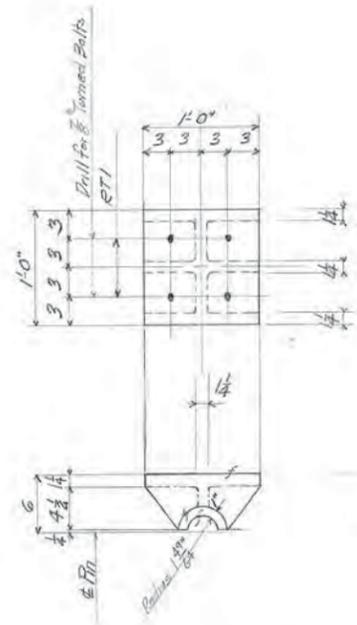
Prepared by	Date
Checked by	Date

STATE OF NEW HAMPSHIRE  
HIGHWAY DEPARTMENT  
TOWN Croydon  
PROJECT N.R.S. 270, 1935  
LOCATION Croydon Flats  
ROAD Dartmouth College  
STREAM Croydon Branch River  
DESIGNED BY GEW DATE 2-15-1935  
DRAWN " B.H.R. " DATE 2-9-1935  
TRACED " B.H.W. " DATE 2-25-1935  
CHECKED " H.G.H. " DATE 2-28-1935  
SHEET OF SHEETS

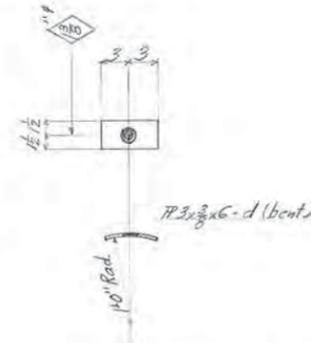
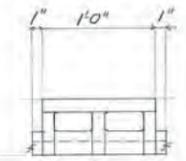
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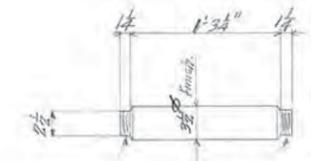




ASSEMBLY DIAGRAM GIRDER SHOES  
Use G510 & G511 as shipping marks



WASHER 3x3/8x6" W1  
Structural Steel



PIN P1  
Cold Rolled Steel

AB1	3 1/2	2 1/2	10"
AB2	3 1/2	2 1/2	10"
AB3	3 1/2	2 1/2	10"

ANCHOR BOLTS AB1 AB2 AB3  
WASHER 2 1/2 x 1 1/2 Hole - W4  
Structural Steel

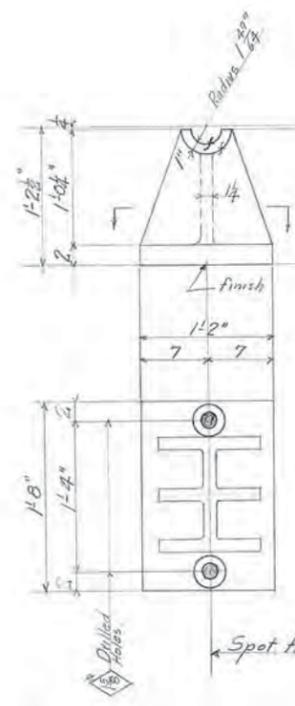
TOP GIRDER SHOE G51 (Pattern No A2554)  
Cast Steel

Finish all over.  
PIN WASHER - W2  
Structural Steel

Finish all over.  
PIN RING W3  
Structural Steel

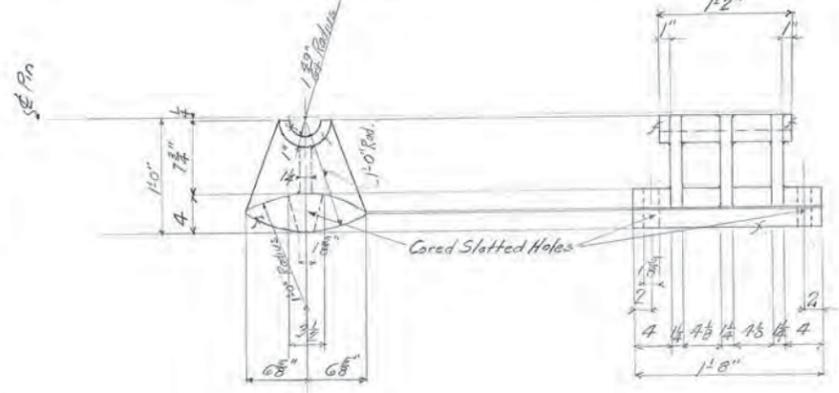
Top U.S. Standard 6 threads per inch.  
Finish  
LOMAS NUT LNI (Cast Steel)  
Steel; Pattern No. P3

No.	Part	Description	REMARKS
5	G51	Girder Shoe	
4	G52	" "	
4	G53	" "	
4	BP1	Base Plate	
8	W1	Washer	
8	P1	Pin	
16	LNI	Lomas Nut	
16	W2	Washer	
16	W3	Pin Ring	
8	BP2	Base Plate	
8	AB1	Swedge Bolt	
8	AB2	" "	
8	AB3	" "	
32	W4	Washer	
32	T1	Turn Bolts	

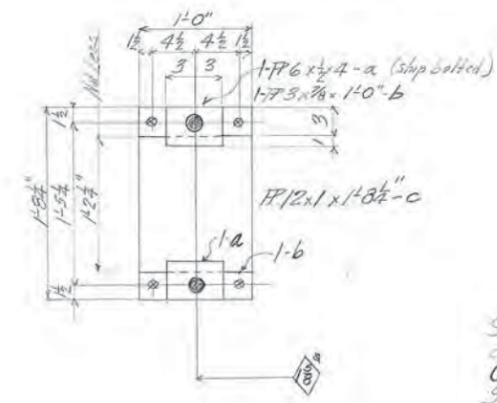


FIXED BOTTOM GIRDER SHOE G54 (Pattern No A2555)  
Cast Steel

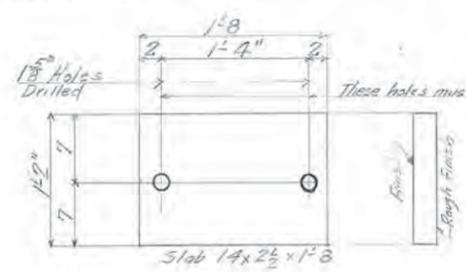
1 Bolt 3/8 Turned Bolt  
1 Washer 2 1/2 x 3/8  
1 Hex. Nut  
Turned Bolts - T1



EXPANSION BOTTOM GIRDER SHOE G53 (Pattern No A2556)  
Cast Steel



BASE PLATE BP2  
Structural Steel



BASE PLATE BP1  
Structural Steel

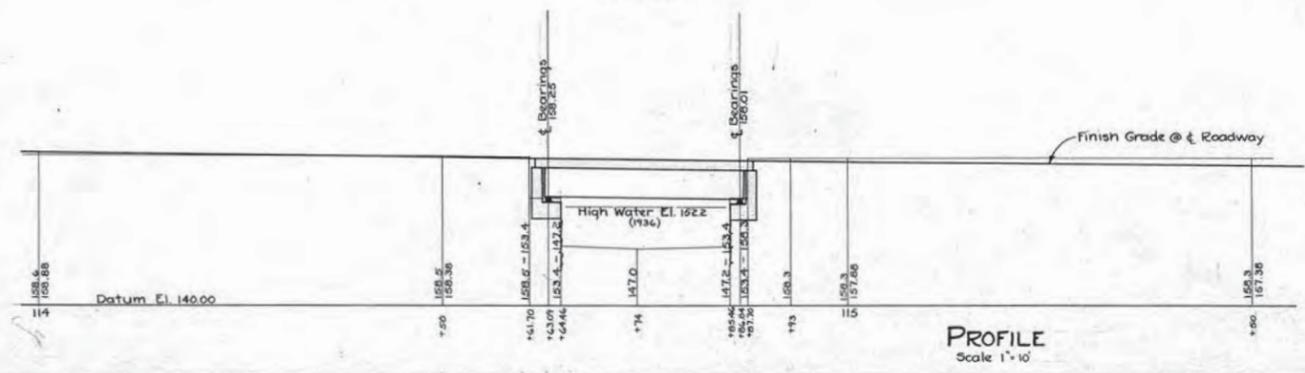
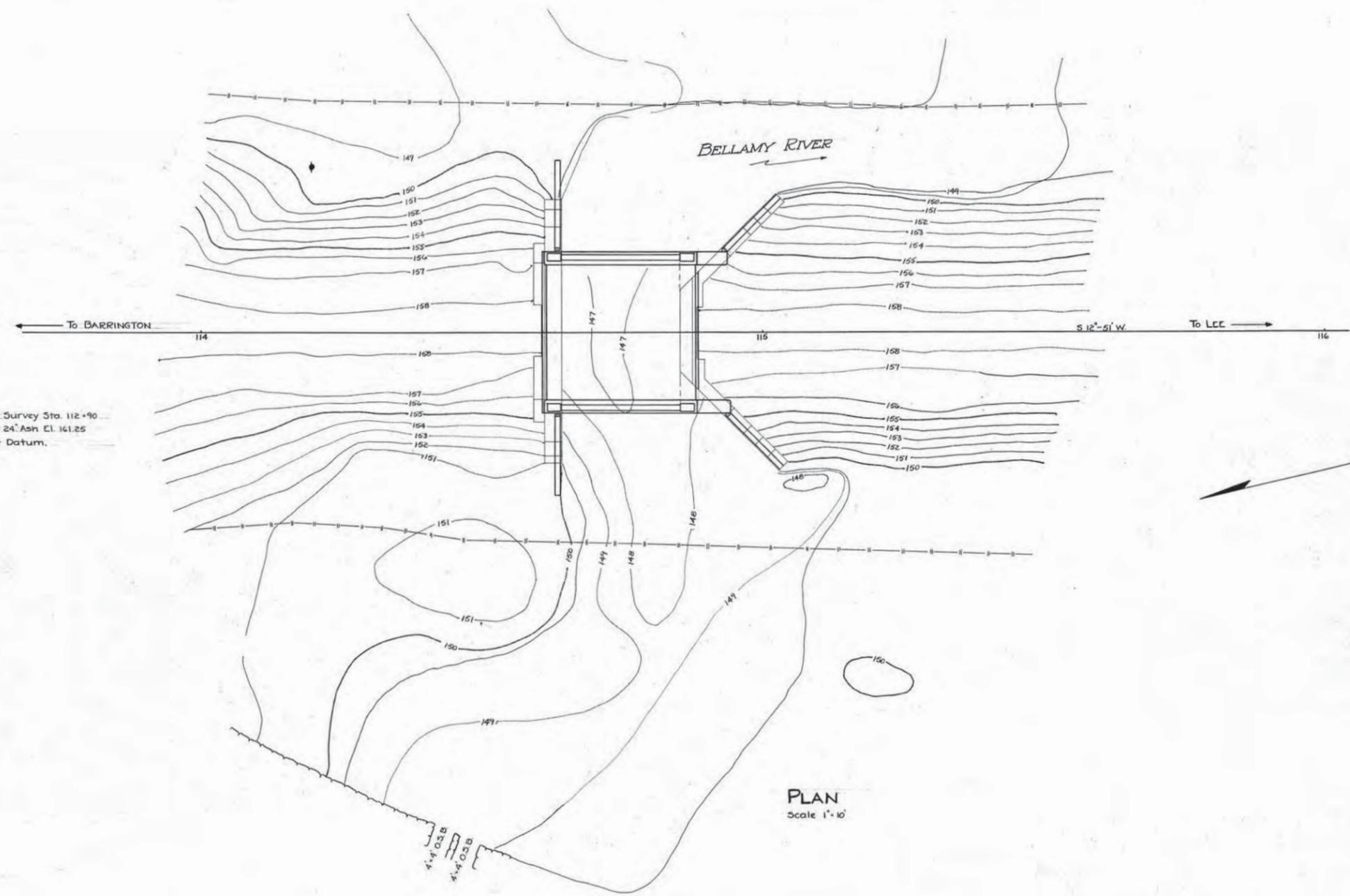
Steel Castings shall conform to the current Standard Specifications for Steel Castings, ASTM A27-24 as revised to date. Steel Castings shall be Class B medium grade annealed. All corners of castings to be filleted. All finishing and drilling to be done at Bottom. Girder Shoes shipped assembled. See Sketch.

GIRDER SHOES & MASONRY DETAILS  
BRIDGE OVER ASHUELOT RIVER  
WINCHESTER, N. H.  
R. H. NEWELL - CONTRACTOR  
3  
GJ 2088

As noted  
One Shop Cast Red Lead  
except parts finished which should  
be given coat of "No-oxide"

FED. ROAD DIST. NO.	STATE	U.S. HIGHWAY NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N.H.	W.P.S.S. 274	1935	7	59

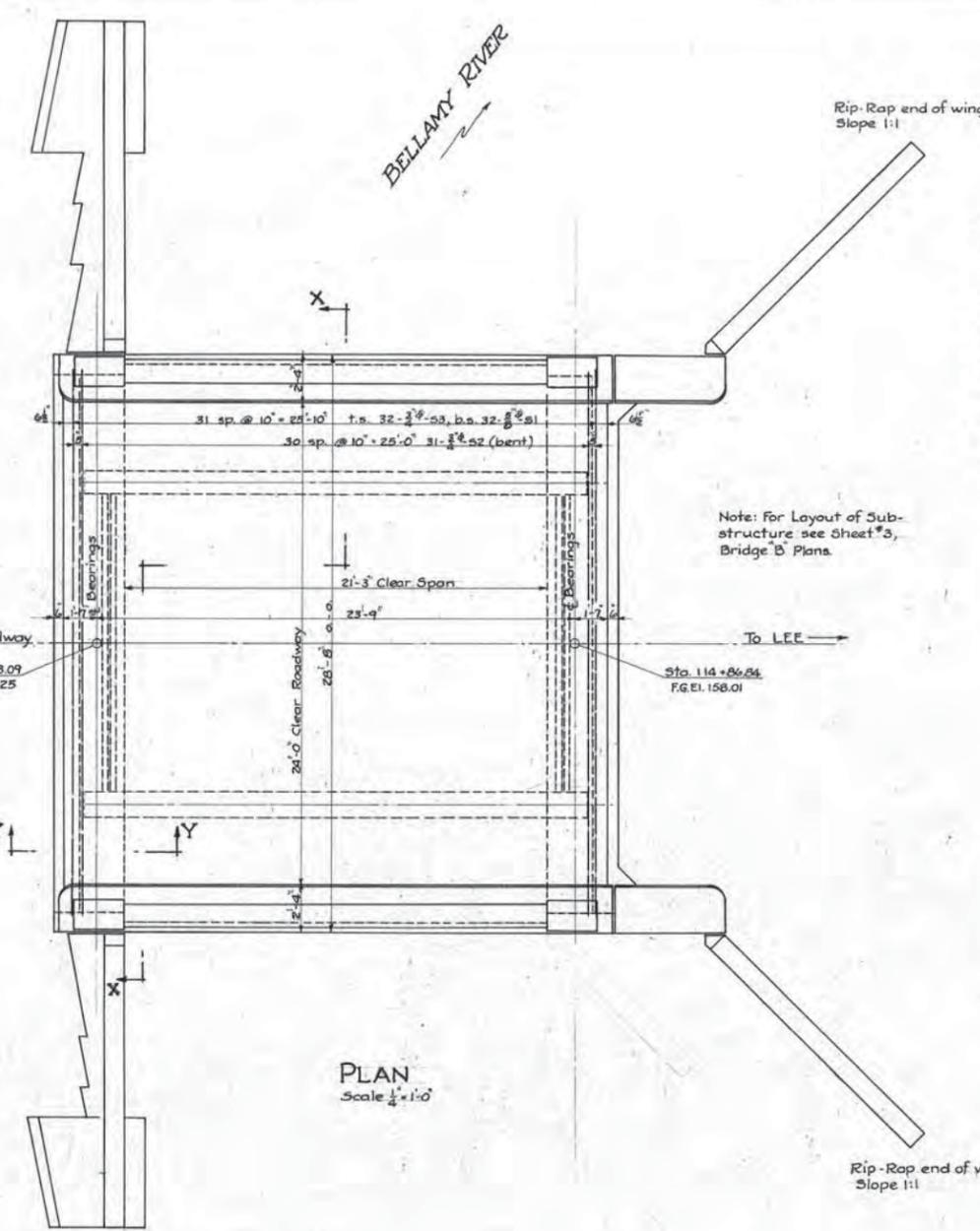
B.M. #11 of Road Survey Sta. 112+90  
50' Mt. Spike Root 24' Ash El. 161.25  
Geological Survey Datum.



Bridge 15	
STATE OF NEW HAMPSHIRE HIGHWAY DEPARTMENT	
TOWN	DARRINGTON
PROJECT	W.P.S.S. 274
LOCATION	Sta 114+75±
ROAD	
STREAM	BELLAMY RIVER
Surveyed by	W.H.E. Date 4-10-36
Plotted	H.A.E. 4-13-36
Traced	G.R.W. 6-1-36
Checked	
Sheet 7 of 3 Sheets	

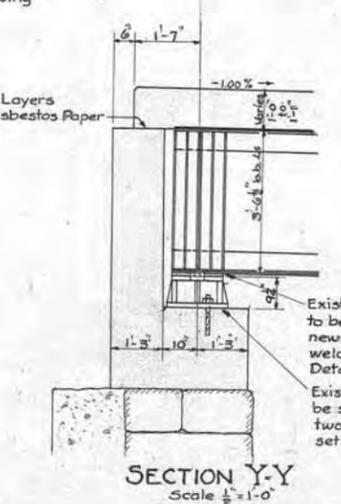
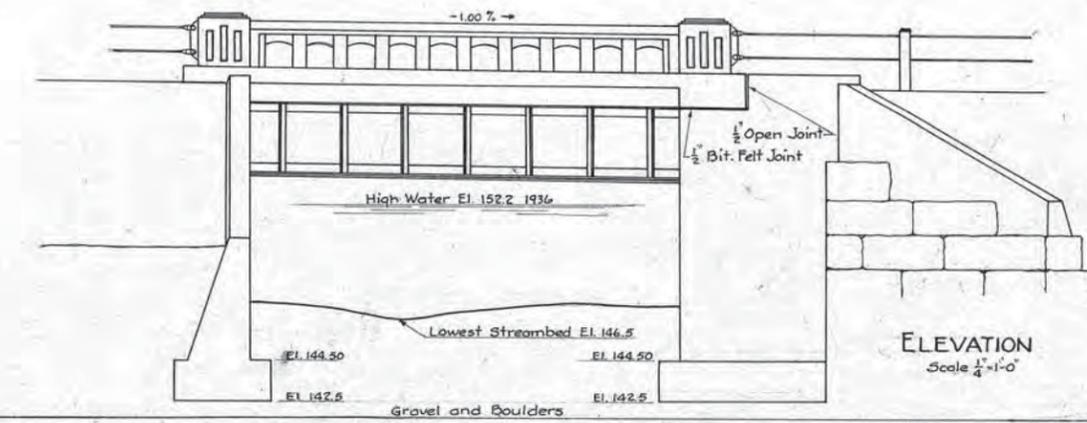
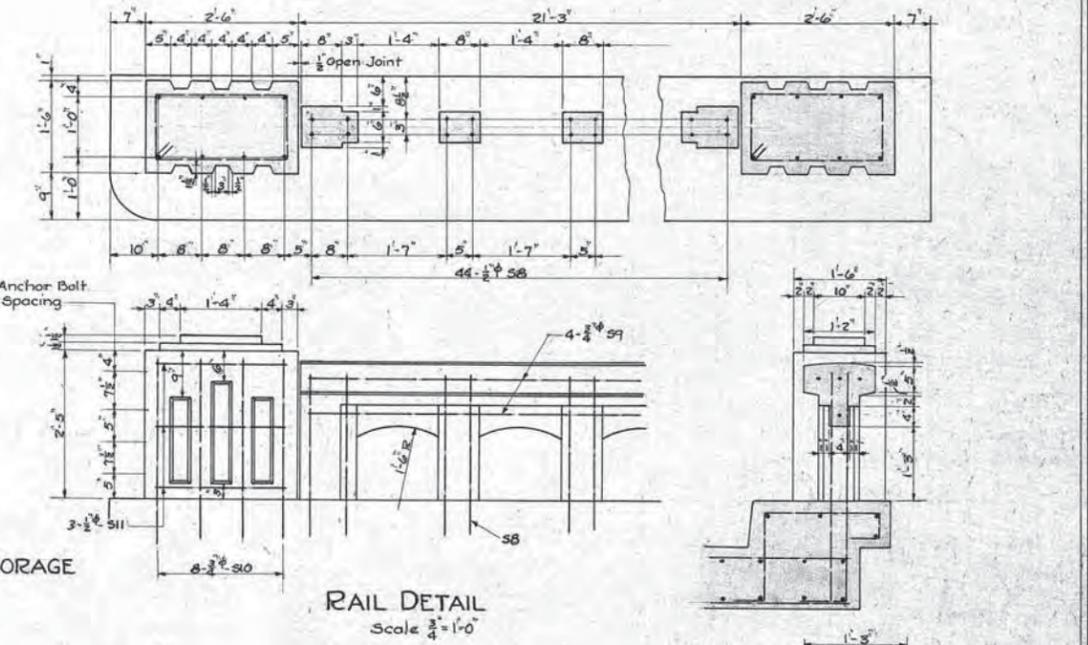
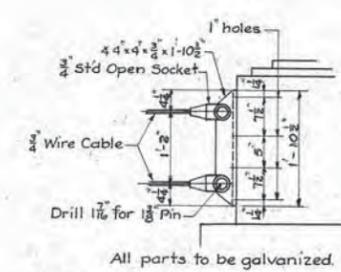
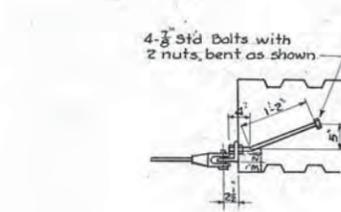
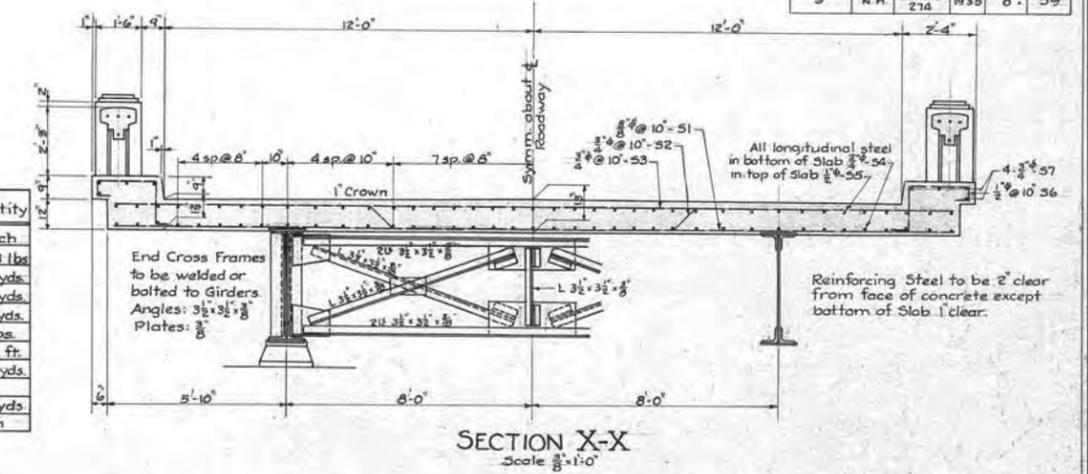
Correct by *John W. Childs* Date 6-8-36  
Bridge Engineer

1-72-2-6

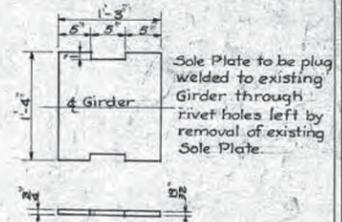


ESTIMATE OF QUANTITIES

No.	Item	Quantity
29	Anchorage for Cable Rail	4 each
33	Reinforcing Steel	9993 lbs
34	Concrete Class 'A' (3000')	80 cu. yds.
36	" " 'C' (2000)	20 cu. yds.
78	Rip-Rap 'C'	20 cu. yds.
80	Structural Steel	2160 lbs.
83	Bridge Railing 'B'	53 lin. ft.
98	Structure Excavation, Unclass.	45 cu. yds.
109	Removing Substructure	36 cu. yds.
3128	Remov. + Re-erecting Structural Steel	1 each



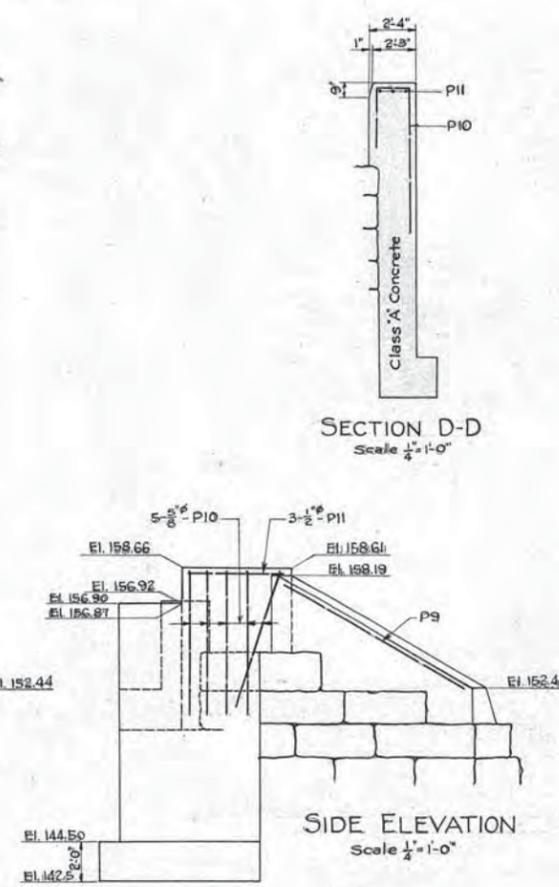
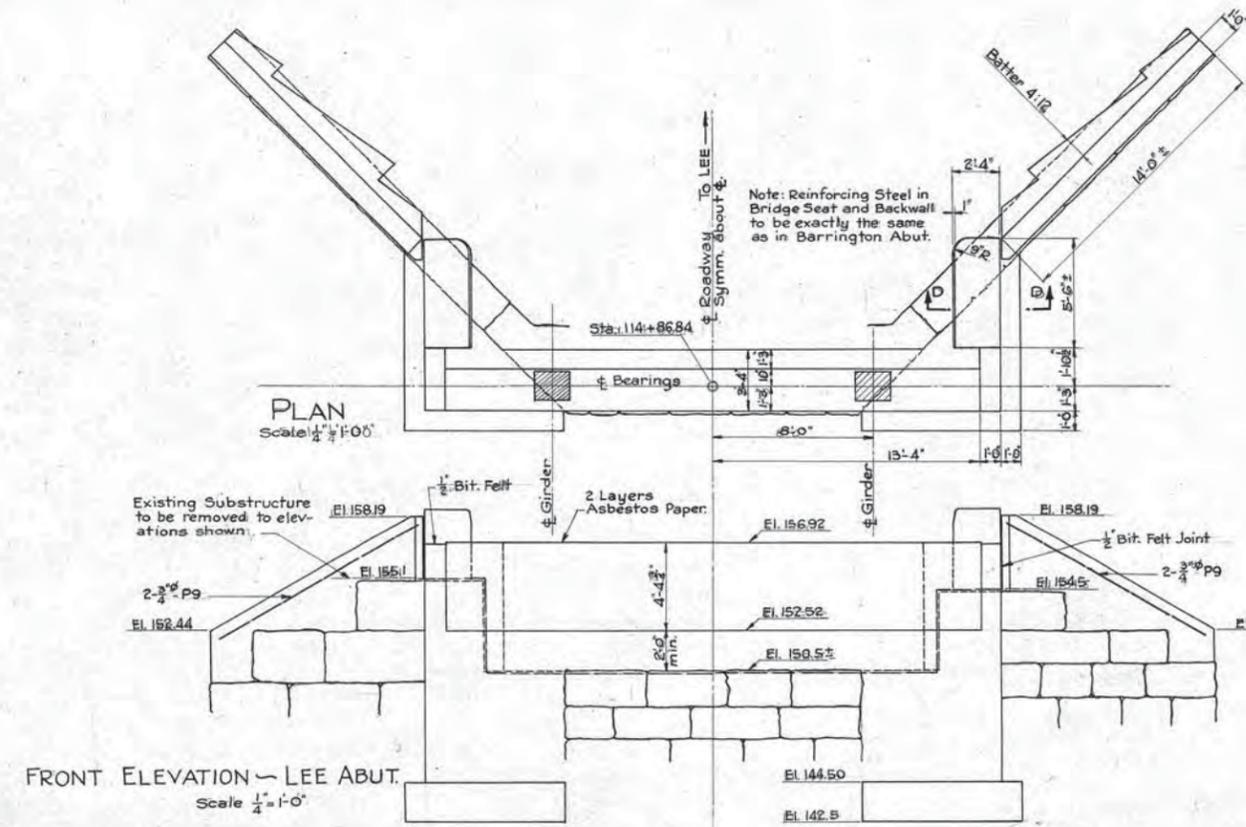
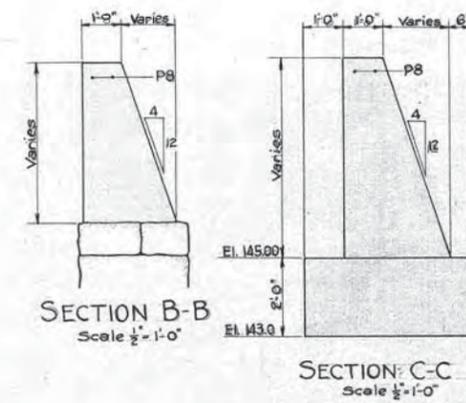
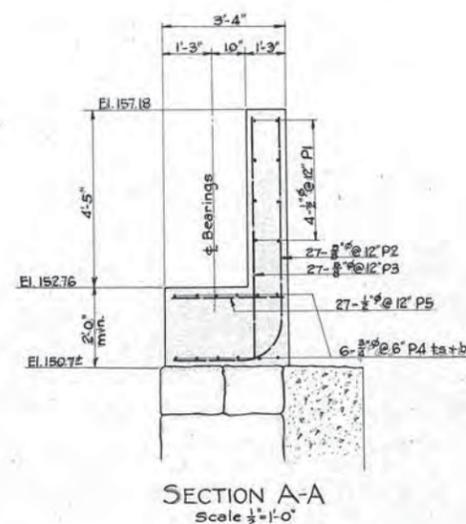
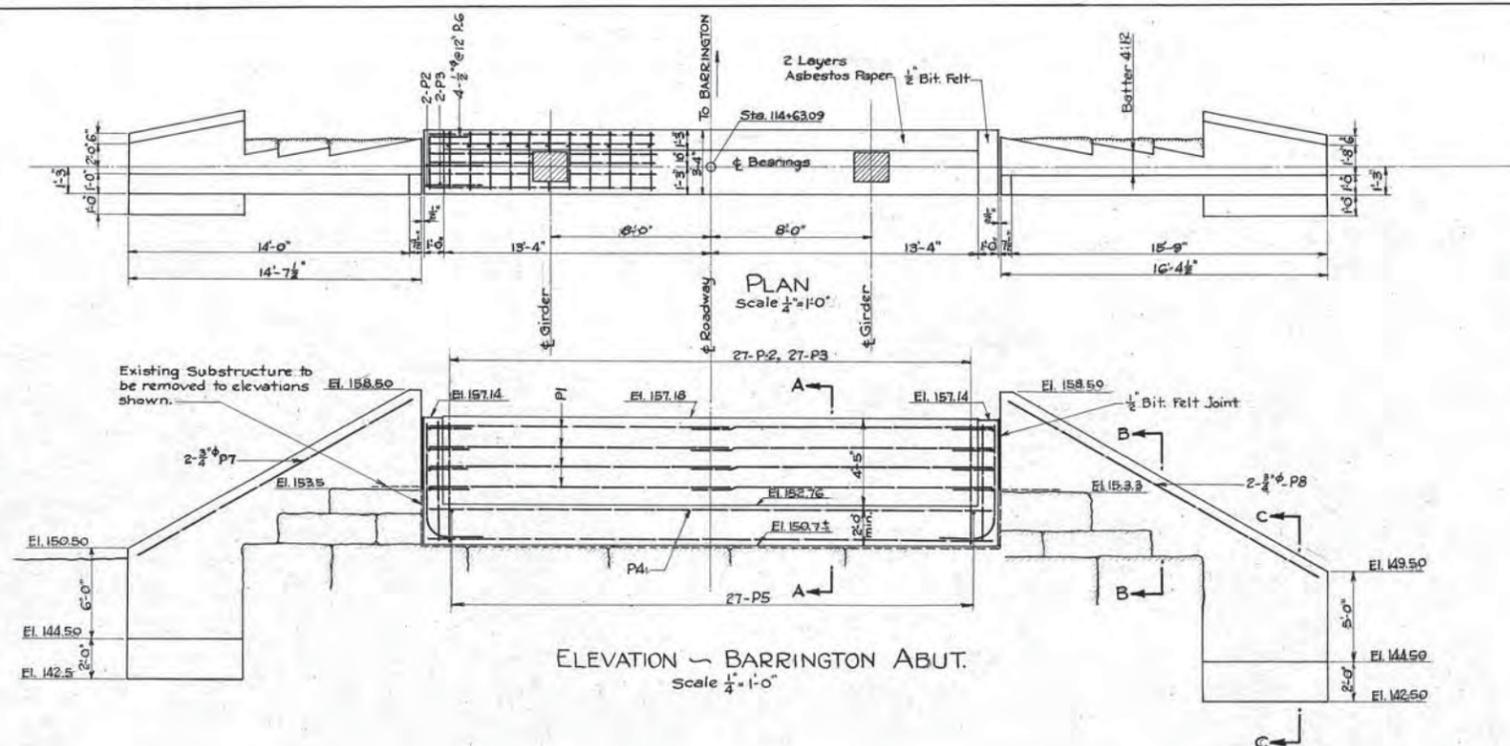
Notes:  
Specifications: A.A.S.H.O. 1935 and N.H.H.D. 1935. Design Loading H15.  
All concrete in Superstructure to be Class 'A' (3000') with a minimum cement factor = 1.60. Max. size coarse aggregate = 1 1/2".  
The Contractor shall make measurements necessary for the fabrication of all new Structural Steel.  
Rivets or Bolts -  $\frac{3}{8}$ " Holes -  $\frac{1}{16}$ "  
Field Connections to Girders to be welded or bolted. All other Field Connections to be bolted. Bolted connections to be made with turned bolts and Anco nuts or equivalent.  
Shop Paint: One coat red lead.  
Field Paint: Two coats approved green.  
No concrete to be poured until steel and forms have been checked by the engineer.  
All exposed corners in concrete to be cast square and slightly rounded with carborundum brick after concrete has thoroughly set.  
All bracing and gusset plates in existing superstructure to be removed except gusset plates in end cross frames.



BRIDGE 'B'

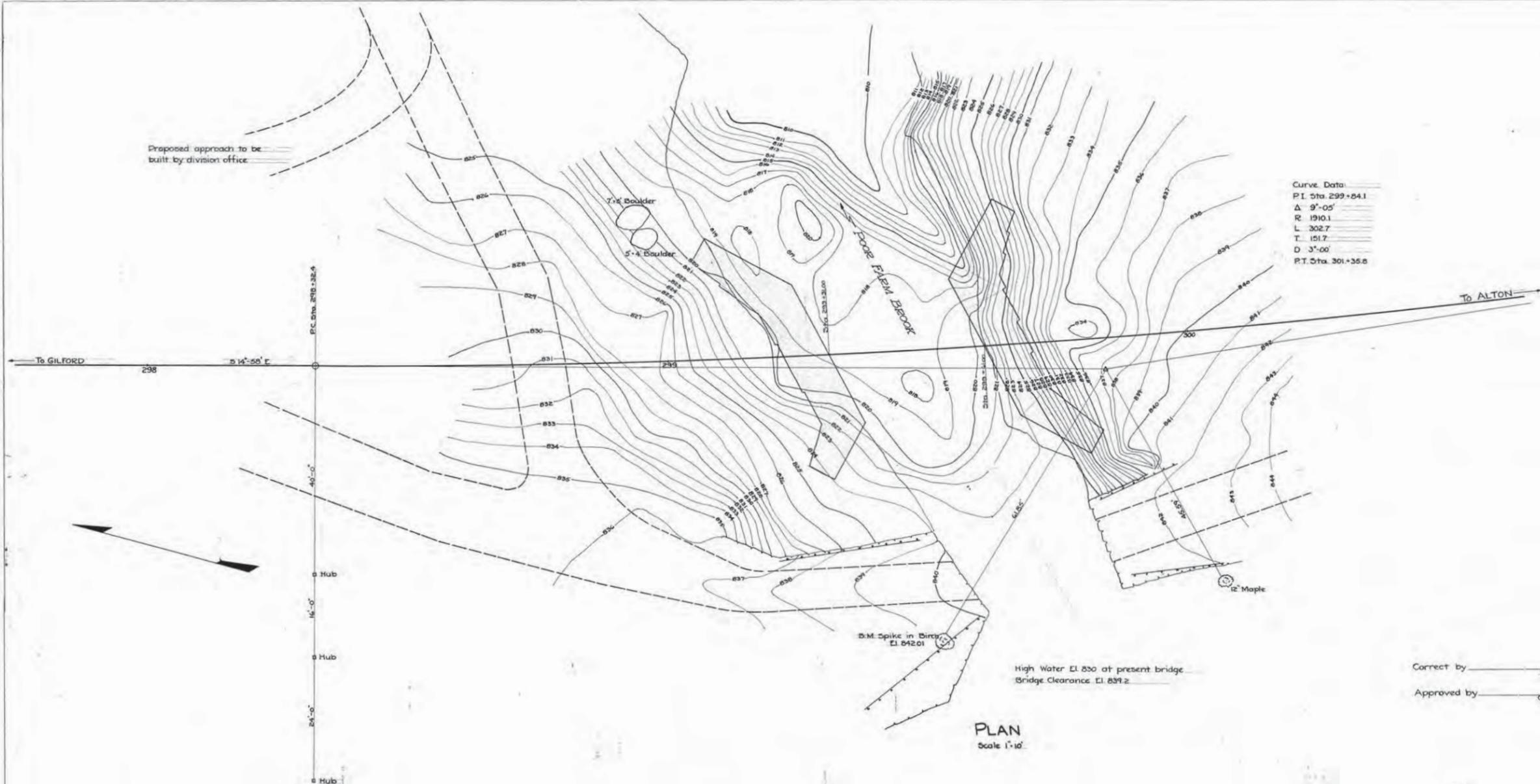
STATE OF NEW HAMPSHIRE HIGHWAY DEPARTMENT	
TOWN	BARRINGTON
PROJECT	W.P.S.S. 274
LOCATION	STA. 114+75 ±
ROAD	
STREAM	BELLAMY RIVER
DESIGNED BY	G.R.W. DATE 5-26-36
DRAWN	DATE 5-28-36
TRACED	
CHECKED	R.R.K. DATE 6-3-36
SHEET 2 OF 3 SHEETS	

FED. ROAD DIST. NO.	STATE	U.S.W.P.H. PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N.H.	W.P.S.S. 274	1935	9	59

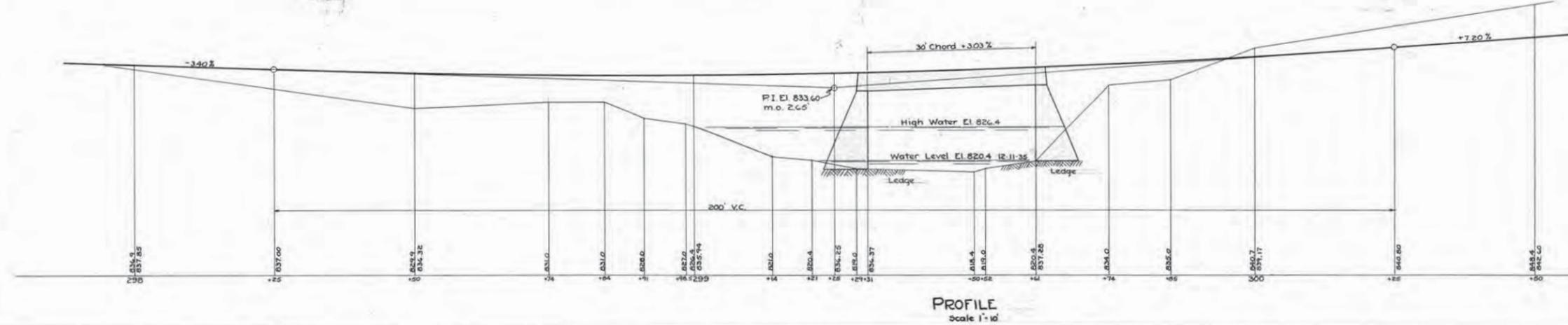


Notes:  
 All concrete in bridge seats and backwalls to be Class 'A' (3000').  
 All concrete in wings to be Class 'C' (2000').  
 Minimum Cement Factors:  
 Class 'A' 1.60.  
 Class 'C' 1.30.  
 No concrete to be poured until steel and forms have been checked by the engineer.  
 Shaded areas on bridge seats to be dressed to exact elevation and finished to a true, smooth surface.  
 Top of backwalls to be finished level, smooth and to elevations shown.  
 Backwalls to be poured after steel is erected.  
 Footings to be carried to firm foundation as directed by the engineer.

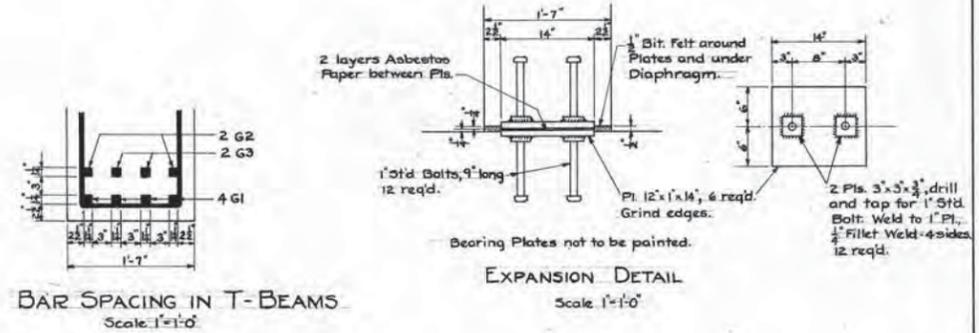
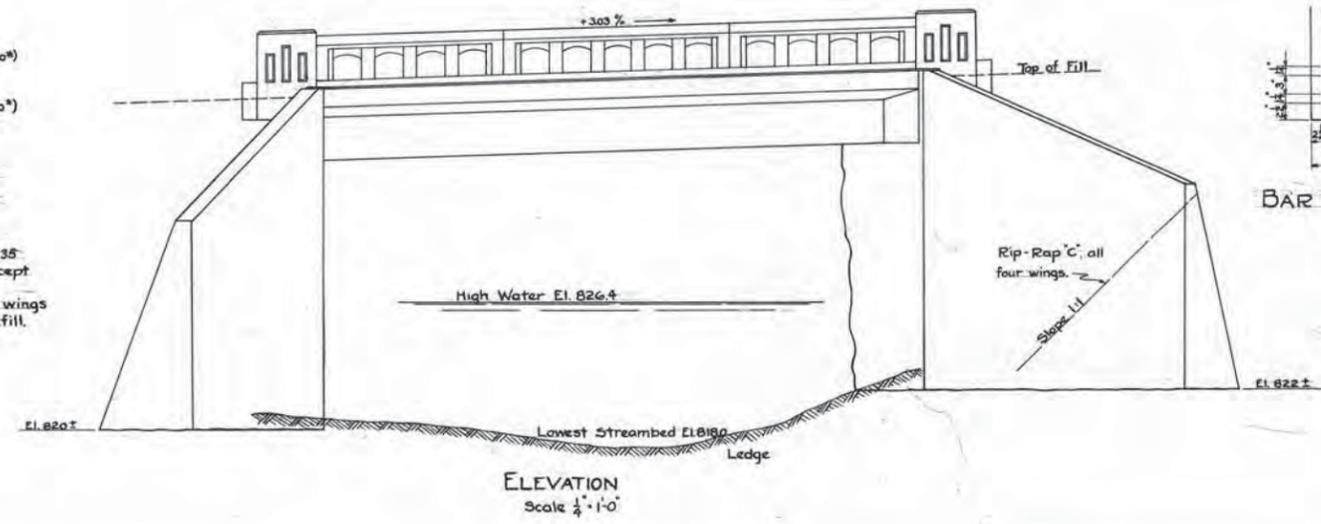
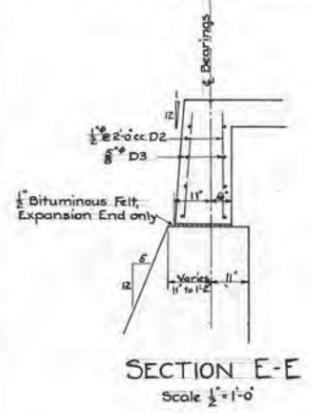
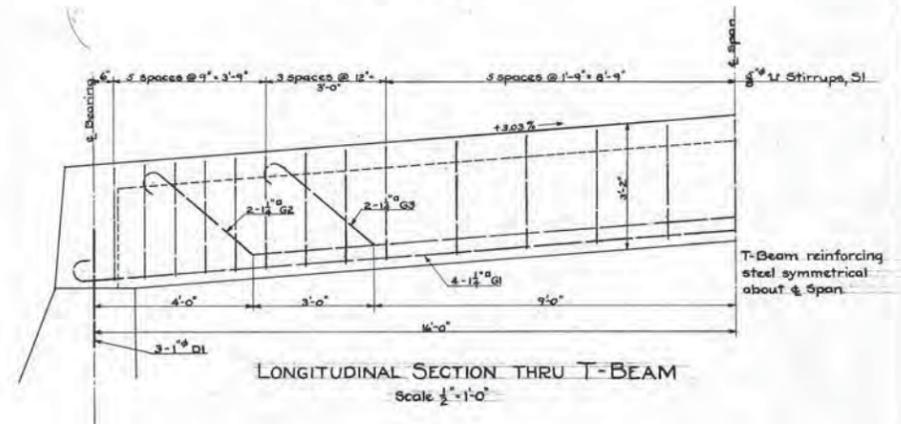
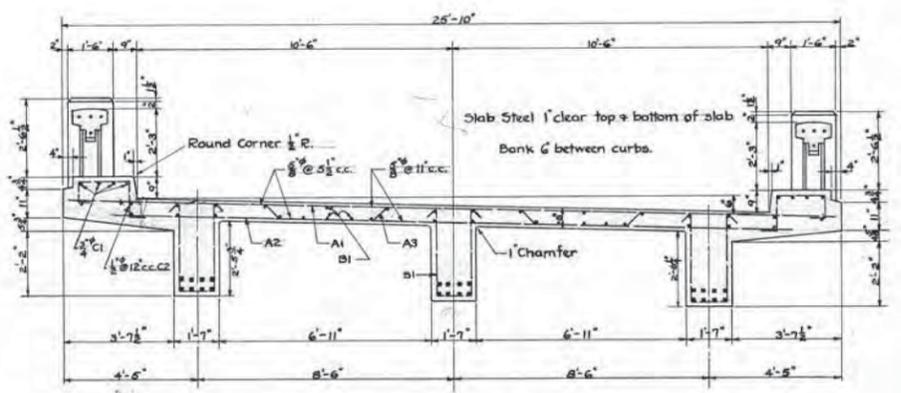
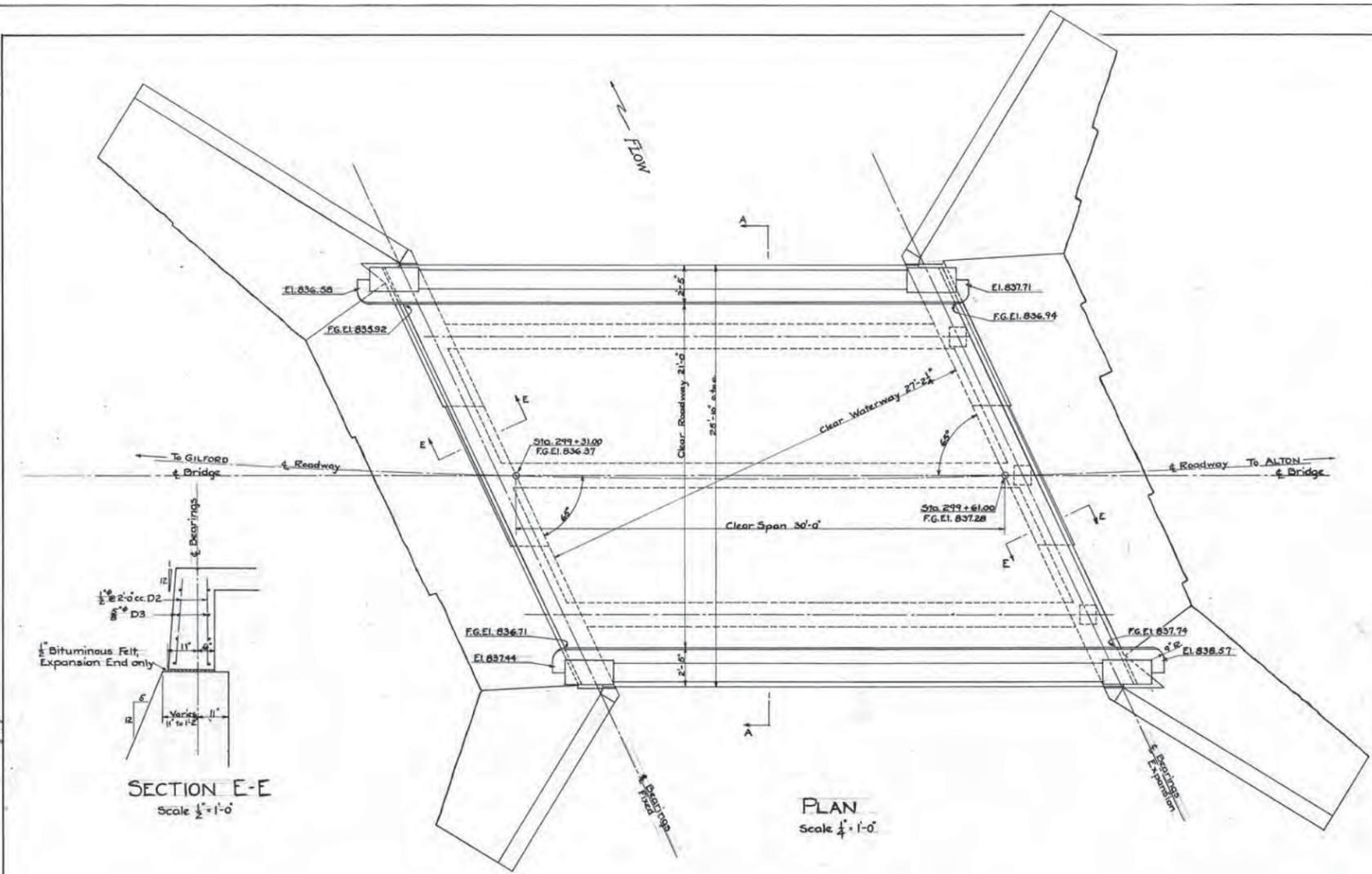
BRIDGE 'B'	
STATE OF NEW HAMPSHIRE HIGHWAY DEPARTMENT	
TOWN:	BARRINGTON
PROJECT:	W.P.S.S. 274
LOCATION:	Sta. 114+75±
ROAD:	
STREAM:	BELLAMY RIVER
DESIGNED BY G.R.W.	DATE 5-26-36
DRAWN	5-27-36
TRACED	R.H.R. 10-27-36
CHECKED	R.R.K. 6-4-36
SHEET 3 OF 3 SHEETS	
8-8-1-2 1-12-2-6	



Correct by \_\_\_\_\_ Bridge Engineer \_\_\_\_\_ Date \_\_\_\_\_  
 Approved by \_\_\_\_\_ Chief Engineer \_\_\_\_\_ Date \_\_\_\_\_



STATE OF NEW HAMPSHIRE HIGHWAY DEPARTMENT	
Town:	GILFORD
Project:	S.A.D. 1936
Location:	Sta. 299+31 to Sta. 299+61
Road:	BACK OF MOUNTAIN ROAD
Stream:	POOR FARM BROOK
Surveyed by:	R.H.R. Date 12-11-35
Plotted:	H.J.A. & H.A.E. 12-17-35
Traced:	G.R.W. 3-14-36
Checked:	T.H.M. 4-1-36
Sheet 1 of 4 Sheets	



**NOTES:**

- No concrete to be poured until steel and forms have been checked by the engineer.
- All concrete in superstructure to be Class 'A' (3000<sup>#</sup>) with a minimum cement factor = 1.60. Maximum size coarse aggregate = 1 1/2".
- All concrete in substructure to be Class 'C' (2000<sup>#</sup>) with a minimum cement factor = 1.30. Maximum size coarse aggregate = 2 1/2".
- All exposed surfaces of concrete to be Class I Surface Finish. All corners to be cast square and slightly rounded with carborundum brick after concrete has thoroughly set.
- Design Loading H-15.
- Specifications: A.A.S.H.O. 1935 and N.H.H.D. 1935.
- All steel to be 2" clear from face of concrete except as noted.
- 4" Tile Drains to be placed in abutments and wings 10' ± c.c. at such elevation as will best drain backfill. Backfill around drains to be stone.

**ESTIMATE OF QUANTITIES**

No.	Item	Quantity
29	Anchorage for Cable Rail	4 each
33	Reinforcing Steel	10,491 lbs.
34	Concrete, Class 'A' (3000 <sup>#</sup> )	49 cu. yds.
36	" " 'C' (2000 <sup>#</sup> )	275 " "
78	Rip-Rap 'C'	35 " "
80	Structural Steel	350 lbs.
83	Bridge Railing 'B'	72 lin. ft.
96	Structure Excavation, Earth	80 cu. yds.
97	" " " " " " " "	30 " "
108	Removing Superstructure	1 each

**STATE OF NEW HAMPSHIRE  
HIGHWAY DEPARTMENT**

Town **GILFORD**  
Project **S.A.B. 1936**  
Location **Sta. 299+31 to Sta. 299+61**  
Road **BACK OF MOUNTAIN ROAD**  
Stream **FOUR FARM BROOK**

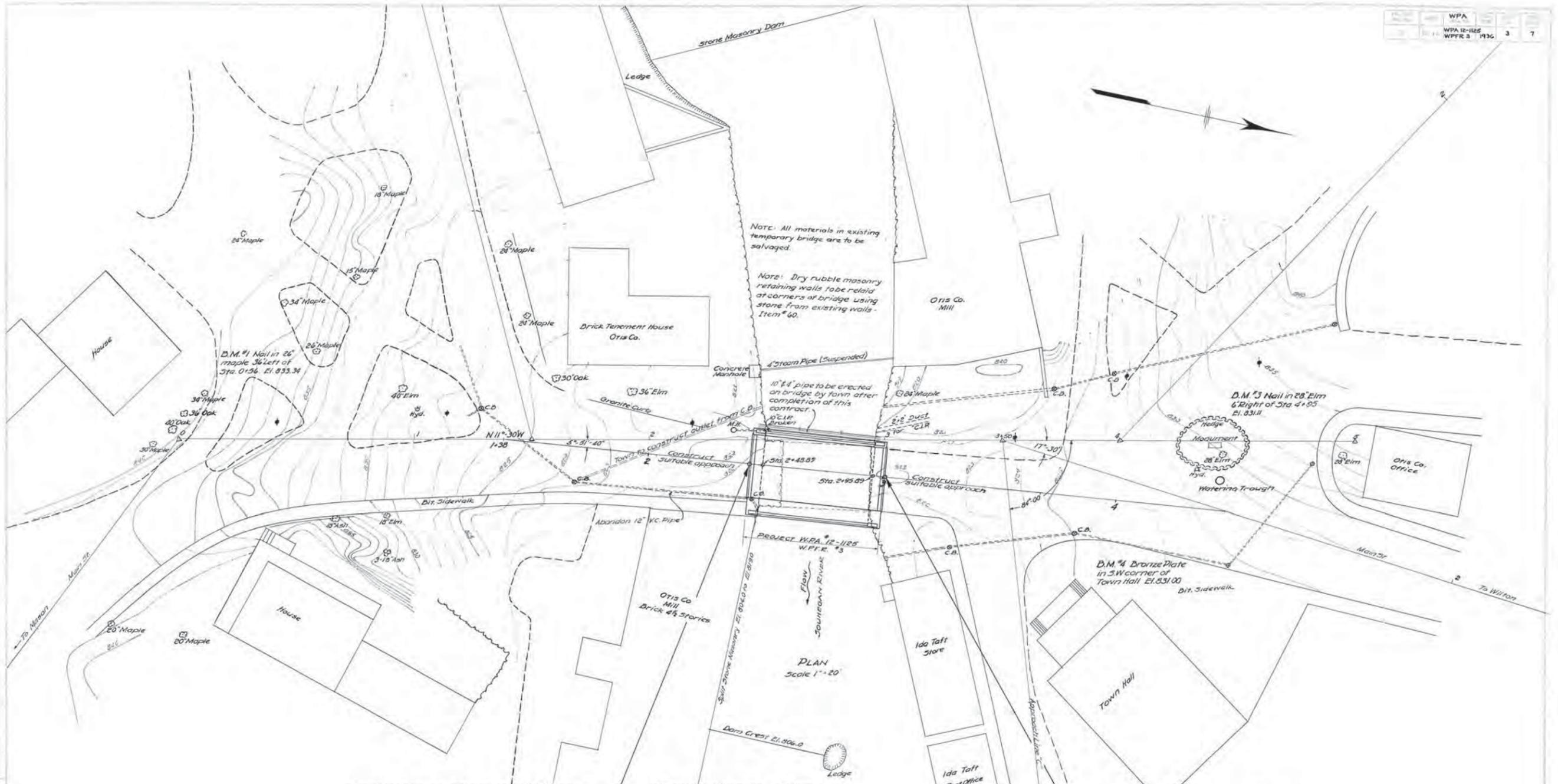
Designed by G.R.W. Date 2-25-36  
Drawn - G.R.W. - 2-26-36  
Traced - R.M.A. - 4-8-36  
Checked - J.H.M. - 4-1-36

Sheet 2 of 4 Sheets



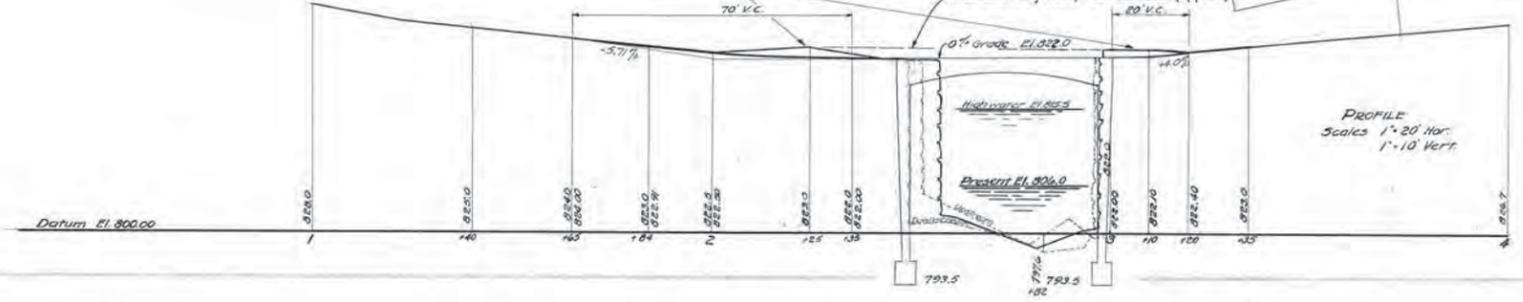






BEGINNING OF PROJECT Sta. 2+43.39 W.P.F.R. No. 3 WPA No. 12-1125

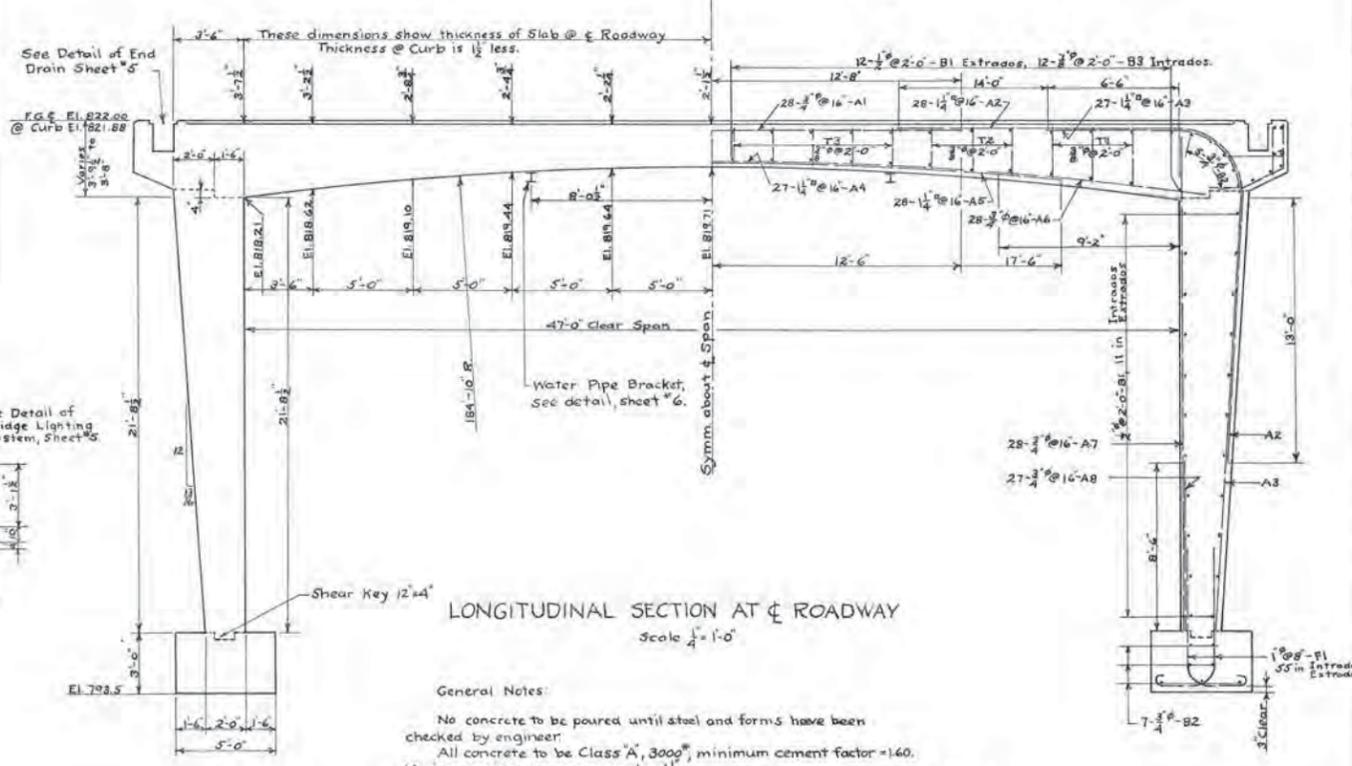
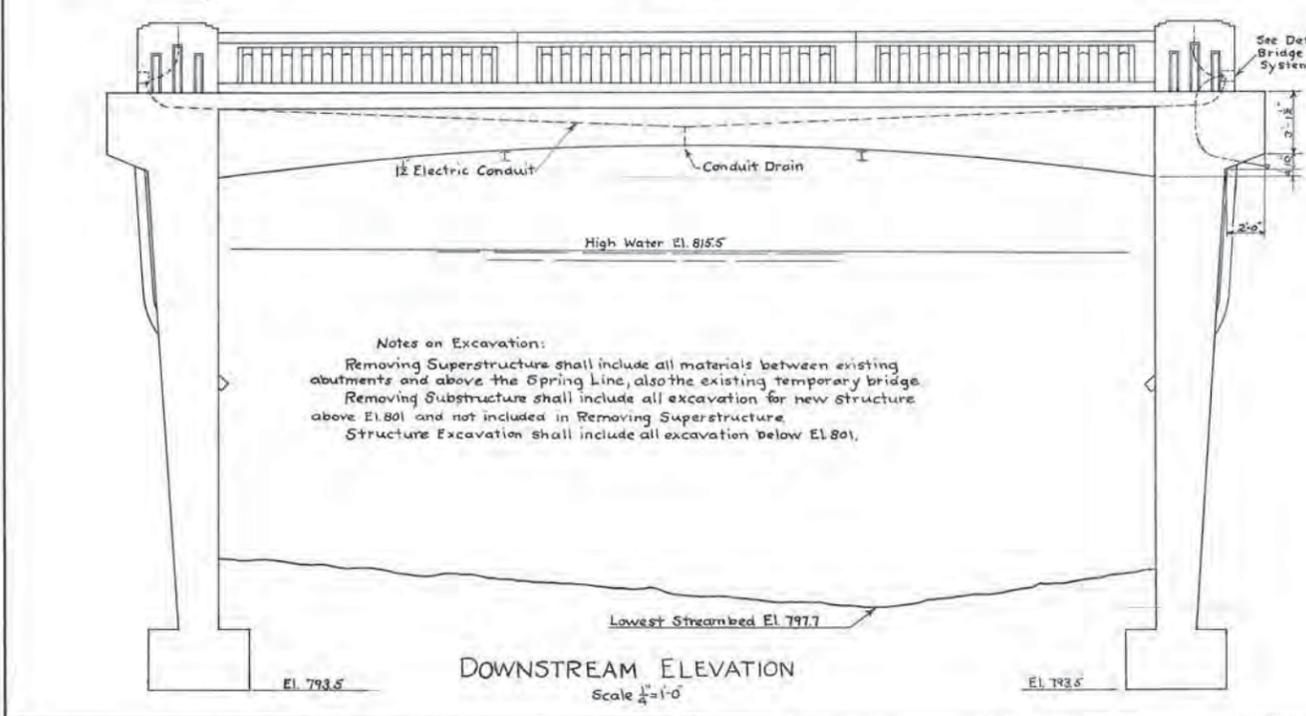
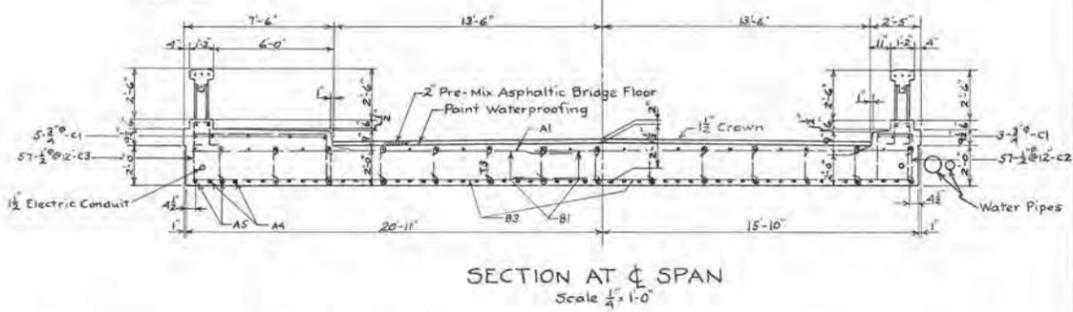
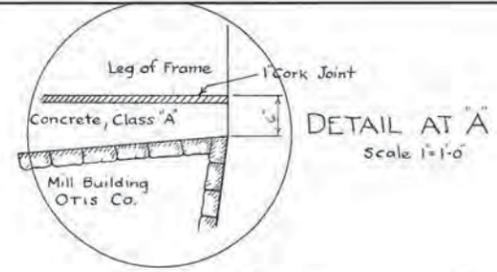
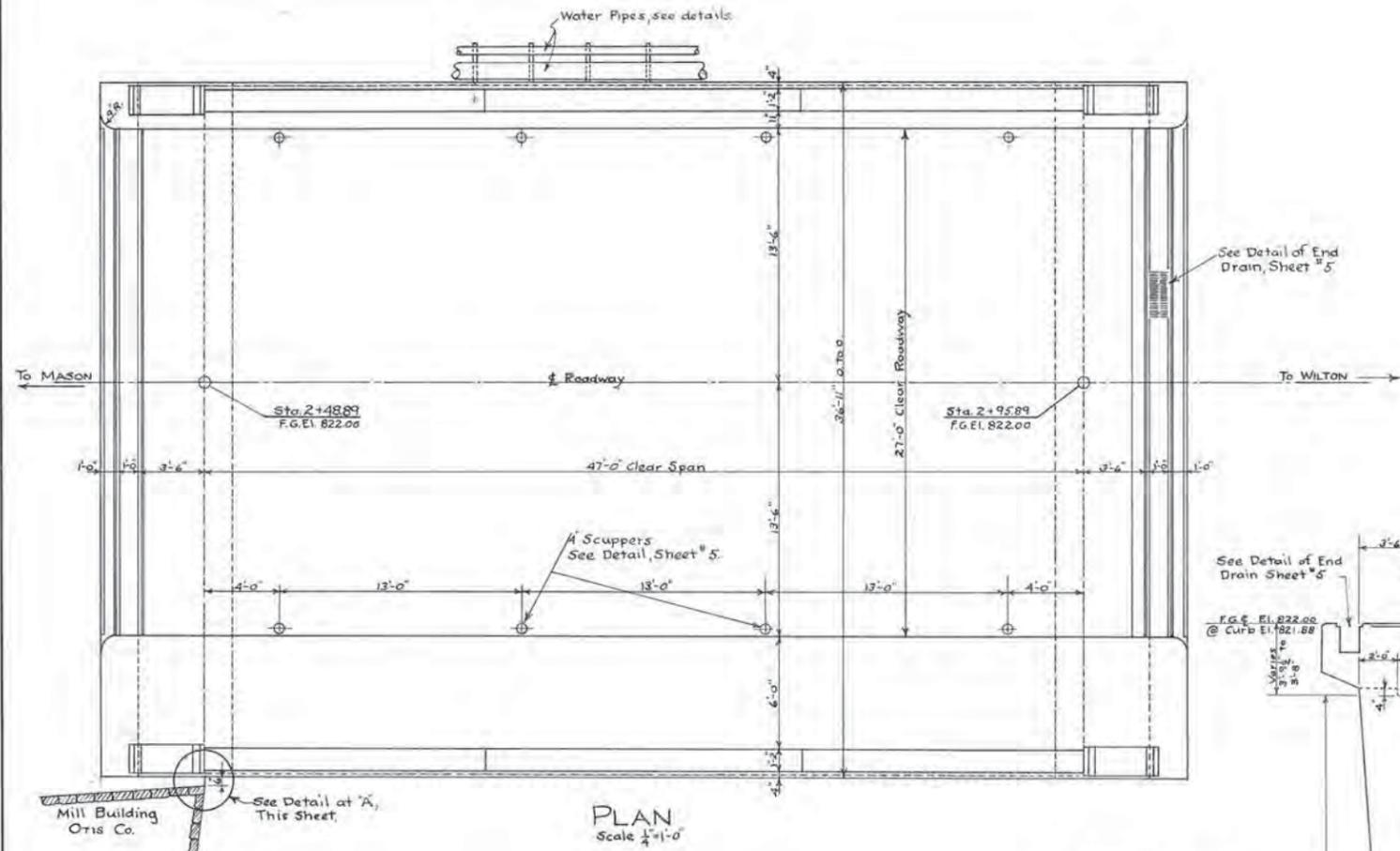
END OF PROJECT Sta. 3+01.39 W.P.F.R. No. 3 WPA No. 12-1125



Ramps to Existing Temporary Bridge. To be removed as directed by the Engineer and paid for as Removing Substructure, Item #109, Estimated Quantity - 35 cu. yds.

STATE OF NEW HAMPSHIRE HIGHWAY DEPARTMENT	
TOWN	Greenville
PROJECT	WPA 12-1125 W.P.F.R. 3
LOCATION	Columbian Mills
ROAD	Main Street
STREAM	Souhegan River
Surveyed by	E.B.H. Date 5-11-36
Plotted	H.A.E. 5-20-36
Traced	W.B. 7-28-36
Checked	J.R.W. 8-7-36
SHEET 3 OF 7 SHEETS	

FED. ROAD DIST. NO.	STATE	WPA PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	N.H.	WPA 12-1125 WPR 3	1934	4	7



General Notes:

No concrete to be poured until steel and forms have been checked by engineer.

All concrete to be Class "A", 3000#, minimum cement factor = 140.

Maximum size coarse aggregate = 1 1/2".

Backfill shall be placed at both ends of bridge simultaneously and top of backfill shall be at same elevation at both ends of bridge at all times.

Bridge Railing shall not be built until falsework centering has been removed and backfill placed and compacted.

4" Tile Drains to be placed in abutments 10' cc. at such elevation as will best drain backfill. Backfill around drains to be of stone.

Footings to be carried to firm foundation as directed by the engineer.

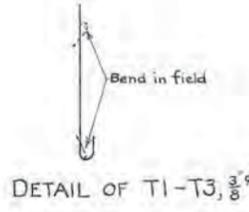
Design Loading: H-15. Specifications: AASHTO 1935 and N.H.D. 1935.

All steel to be 2" clear from face of concrete unless otherwise noted.

Exposed Structural Steel in Water Pipe Bracket to be painted.

Shop Paint - one coat red lead.

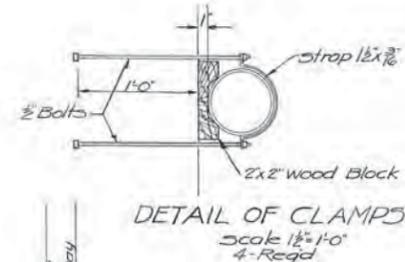
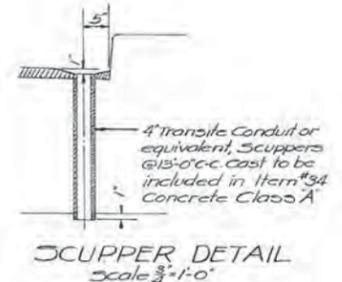
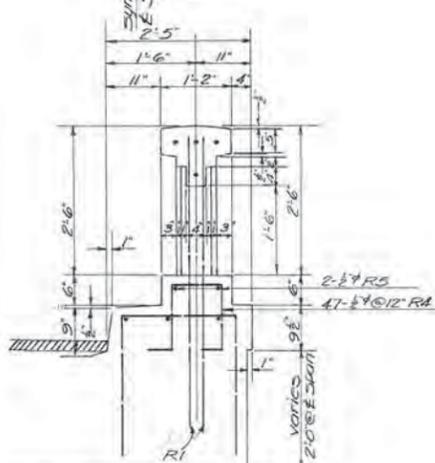
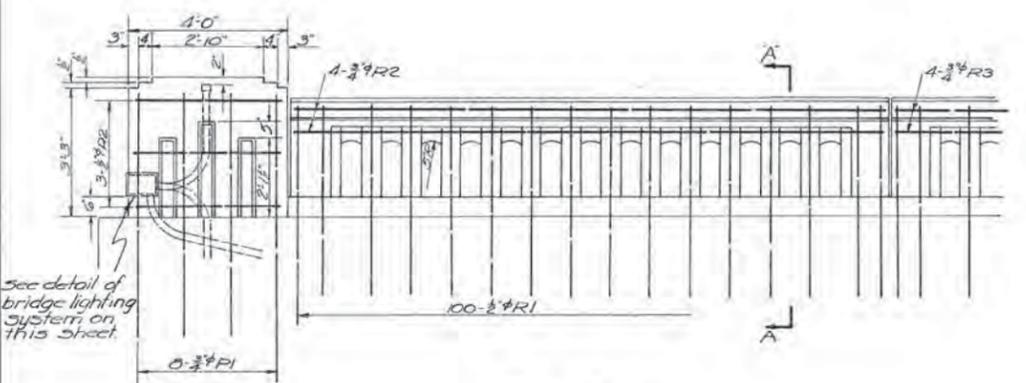
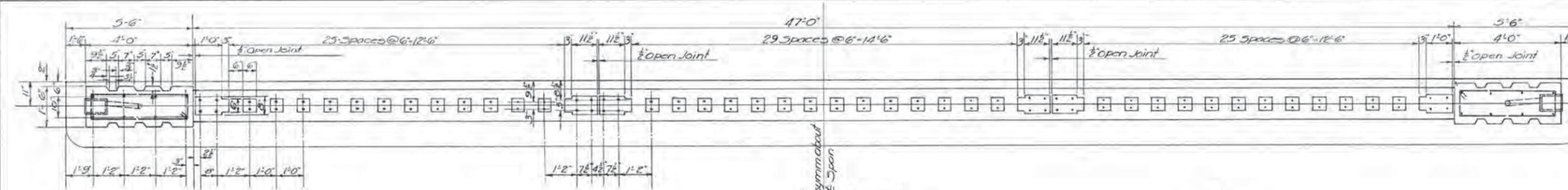
Field Paint - two coats approved aluminum.



STATE OF NEW HAMPSHIRE HIGHWAY DEPARTMENT	
Town	GREENVILLE
Project	WPA 12-1125 WPR 3
Location	COLUMBIAN MILLS
Road	MAIN STREET, GREENVILLE
Stream	SOUHEGAN RIVER
Designed by	G.R.W. Date 7-10-36
Drawn	" " " 7-14-36
Traced	" L.W.H. " 10-23-36
Checked	" " " 8-7-36
Sheet 4 of 7 Sheets	

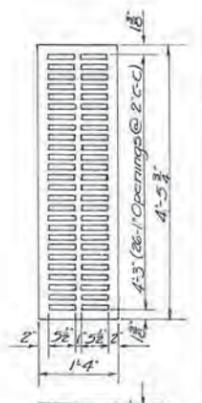
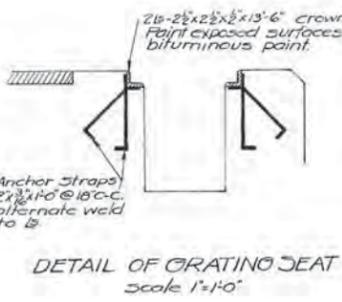
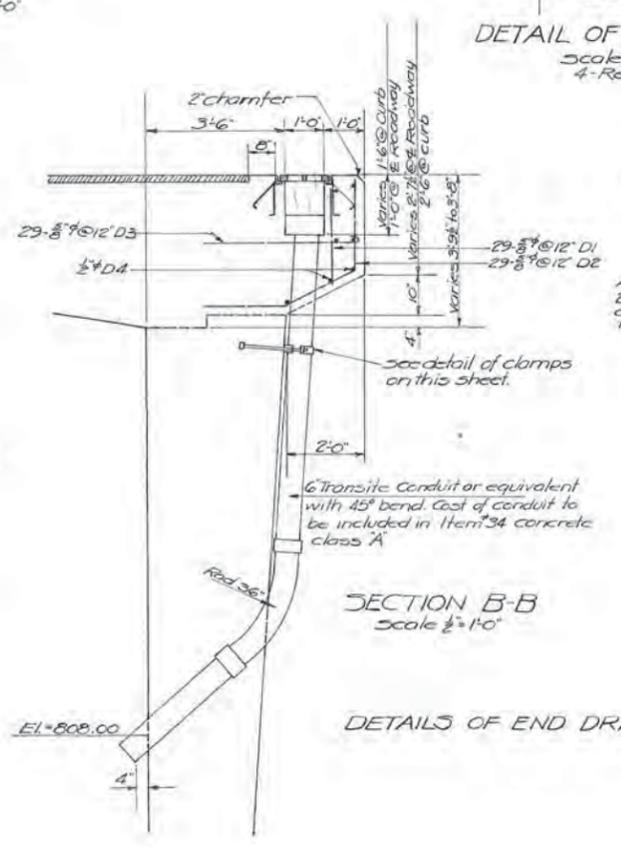
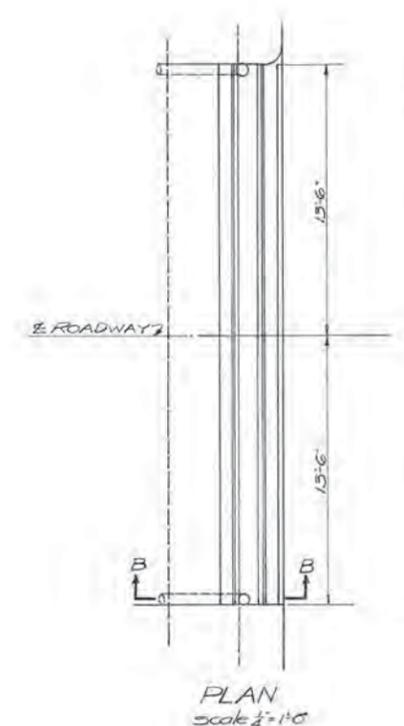
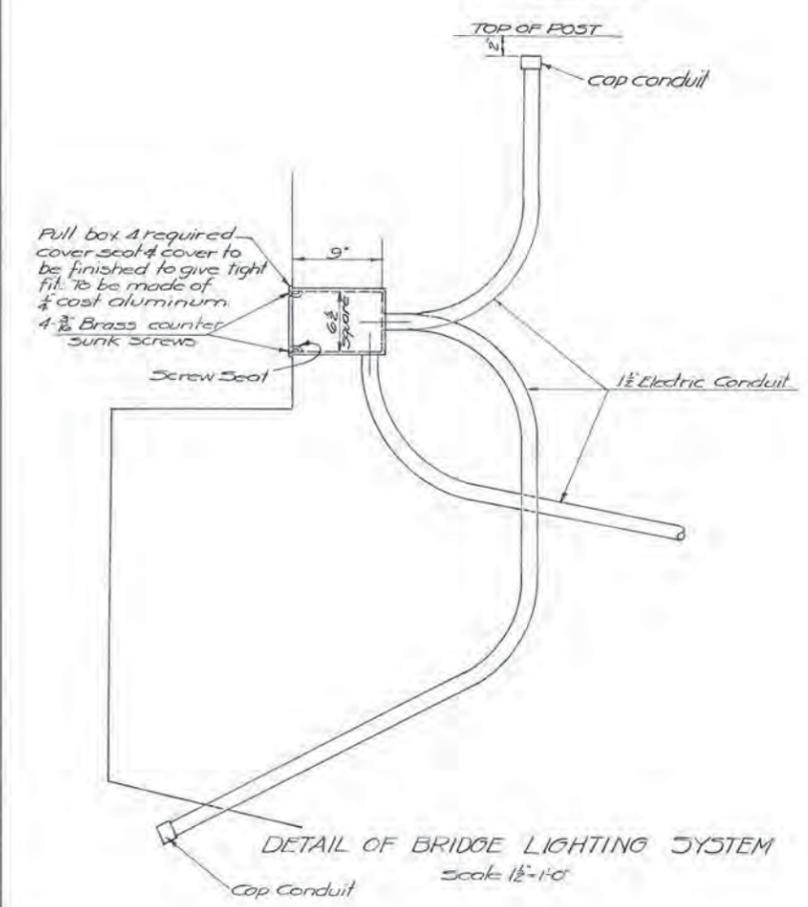
CORRECT BY \_\_\_\_\_ DATE \_\_\_\_\_  
Bridge Engineer

FED. ROAD DIST. NO.	STATE	WT. N. PROJ. YEAR	TOTAL SHEETS	TOTAL SHEETS
9	N.H.	WFR#3	7	7



**ESTIMATE OF QUANTITIES**

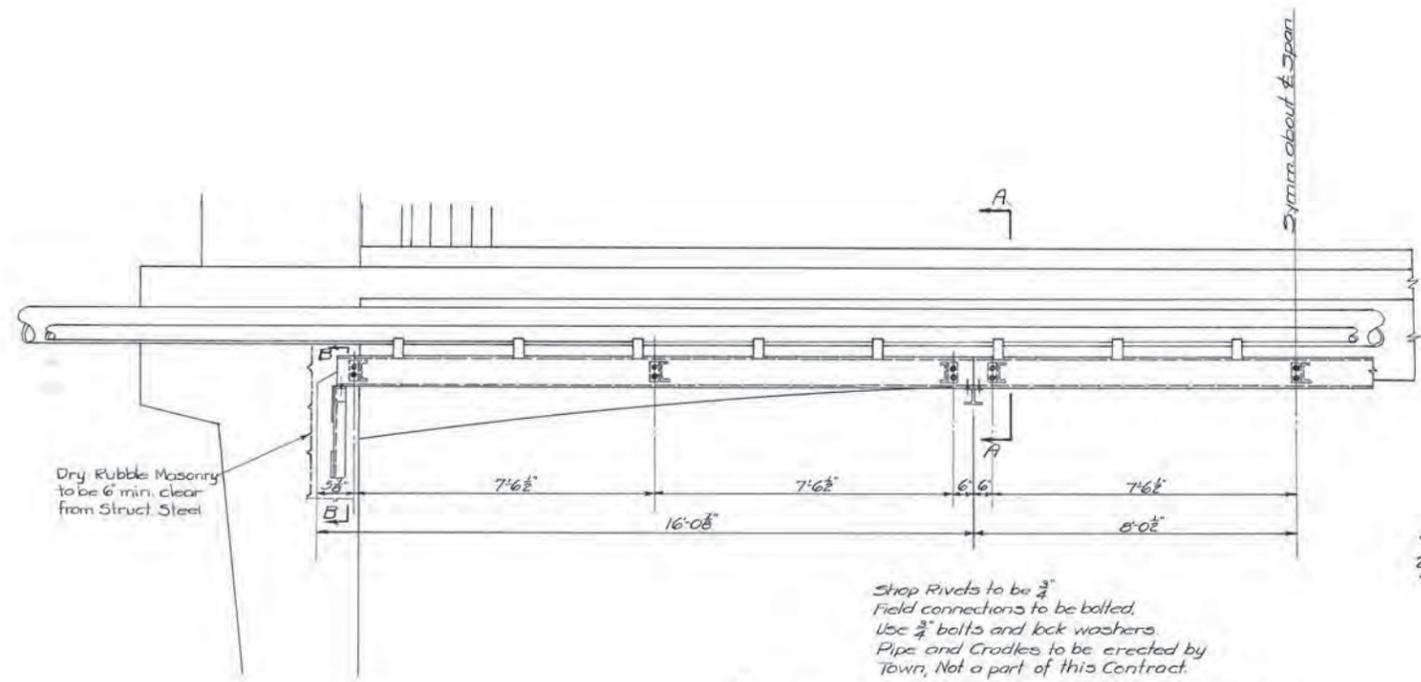
No.	Item	Quantity
33	Reinforcing Steel	43,429 lbs
34	Concrete Class A (3000')	438 C.Y.
80	Structural Steel	6440 lbs
83	Bridge Railing 'B'	110 Lin. Ft.
88	Pre-Mix Asphaltic Bridge Floor	19 Tons
89	Paint Waterproofing	158 Sq. Yds.
91	Bridge Lighting System	1 Each
98	Structure Excavation (Unclass)	152 C.Y.
107	Temporary Bridge	1 Each
108	Removing Superstructure	1 Each
109	Substructure	560 C.Y.
10	Gravel Base Course	25 "
13	Gravel Surface Course	44 "
60	Dry Rubble Masonary	110 "



STATE OF NEW HAMPSHIRE  
HIGHWAY DEPARTMENT  
TOWN GREENVILLE  
PROJECT WPA 12-125 WFR#3  
LOCATION COLUMBIAN MILLS  
ROAD MAIN STREET  
STREAM SOUHEGAN RIVER  
DESIGNED BY GRW DATE 7-15-36  
DRAWN BY GRW DATE 7-15-36  
TRACED BY H.L.A. DATE 10-25-36  
CHECKED BY H.C.M. DATE 8-7-36  
SHEET 5 OF 7 SHEETS

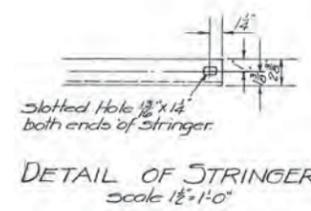
28-210 1-15-21

FED. ROAD DIST. NO.	STATE	W.P.A. PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N.H.	WPA 12-1125 WFR#3	1936	6	7

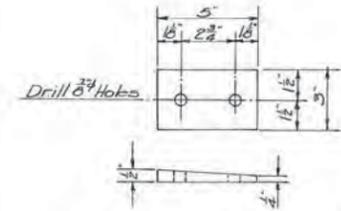


DETAIL OF WATER PIPE BRACKETS  
Scale 1/2"=1'-0"

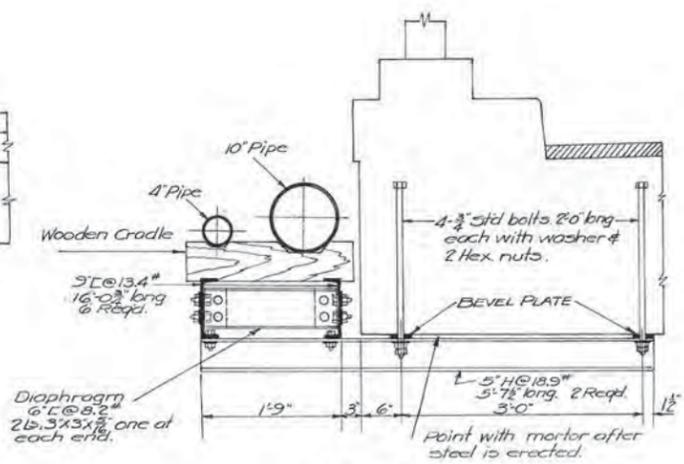
Shop Rivets to be 3/4"  
Field connections to be bolted,  
Use 3/4" bolts and lock washers.  
Pipe and Cradles to be erected by  
Town, Not a part of this Contract.



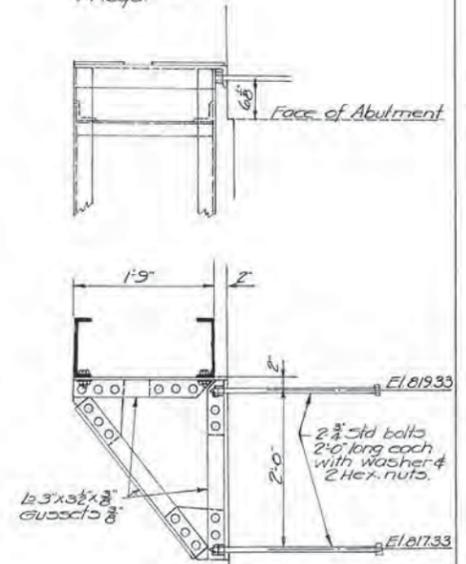
DETAIL OF STRINGER  
Scale 1 1/2"=1'-0"



DETAIL OF BEVEL PLATE  
Scale 3"=1'-0"  
4 Reqd.



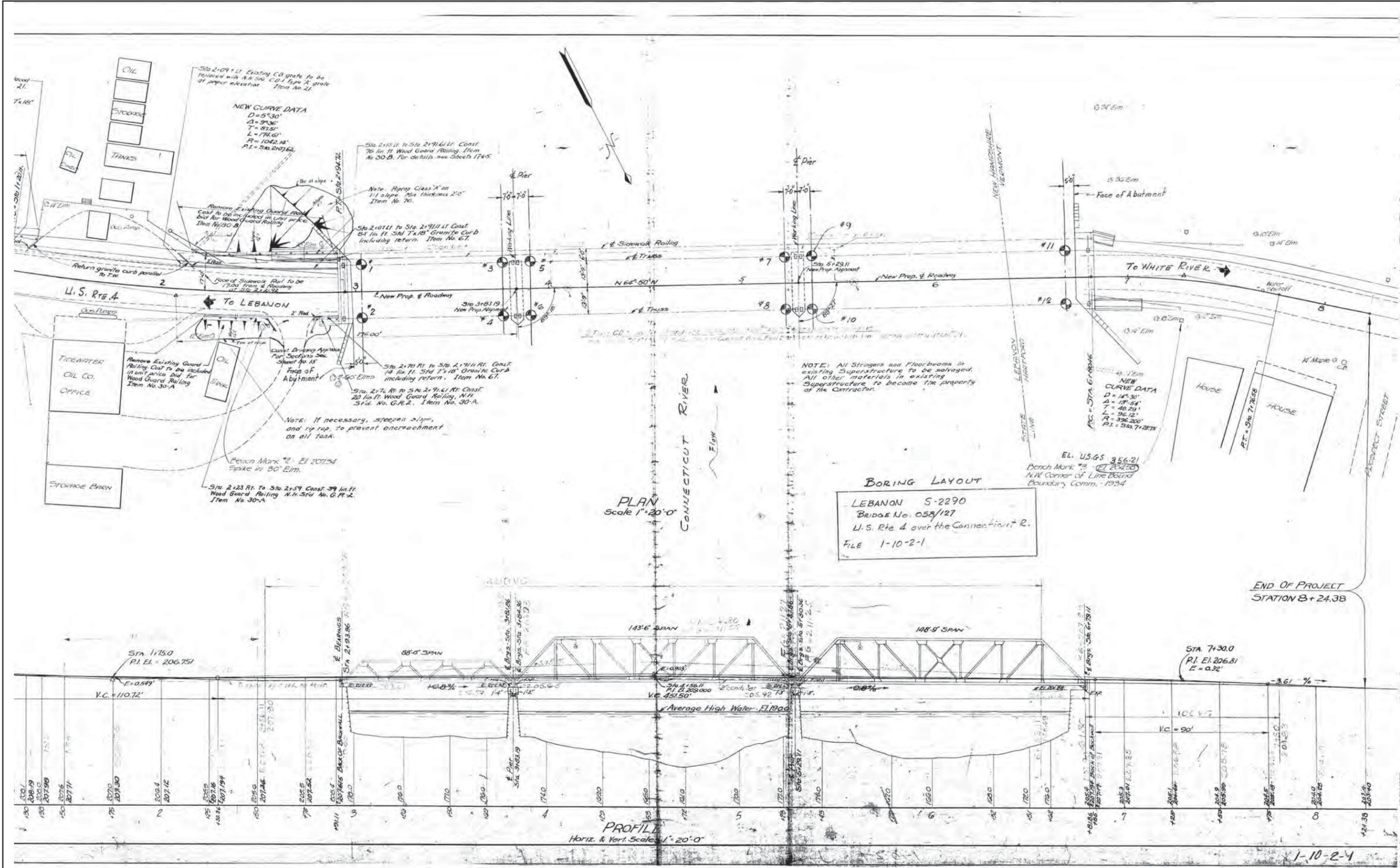
SECTION A-A  
Scale 1"=1'-0"



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

STATE OF NEW HAMPSHIRE  
HIGHWAY DEPARTMENT  
TOWN GREENVILLE  
PROJECT WPA 12-1125 WFR#3  
LOCATION COLUMBIAN MILLS  
ROAD MAIN STREET  
STREAM SOUHEGAN RIVER  
DESIGNED BY G.R.W. DATE 8-4-36  
DRAWN " G.R.W. " 8-4-36  
TRACED - H.J.A. " 10-23-36  
CHECKED " HEN " 8-7-36  
SHEET 6 OF 7 SHEETS

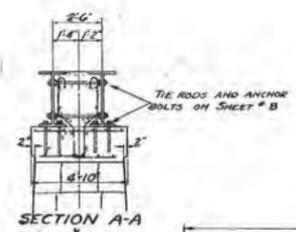
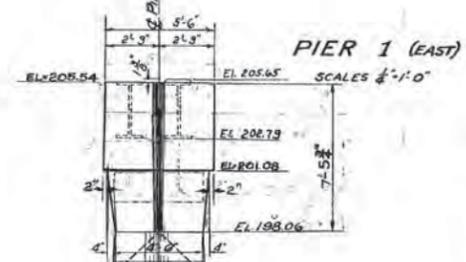
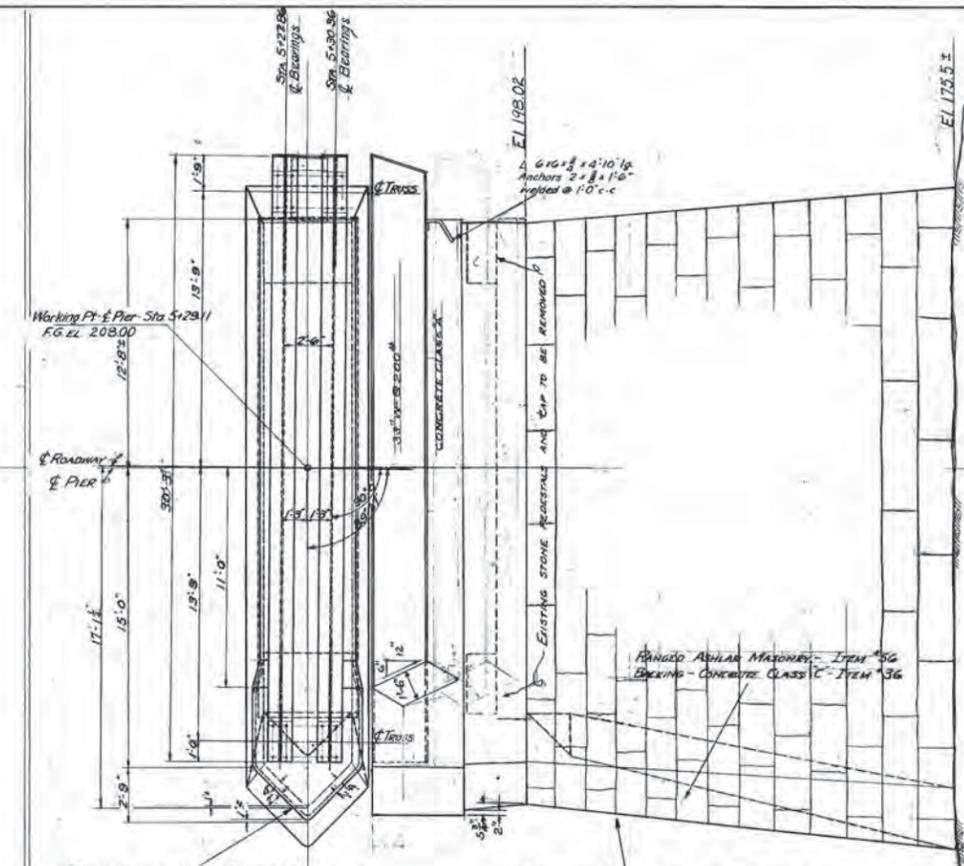
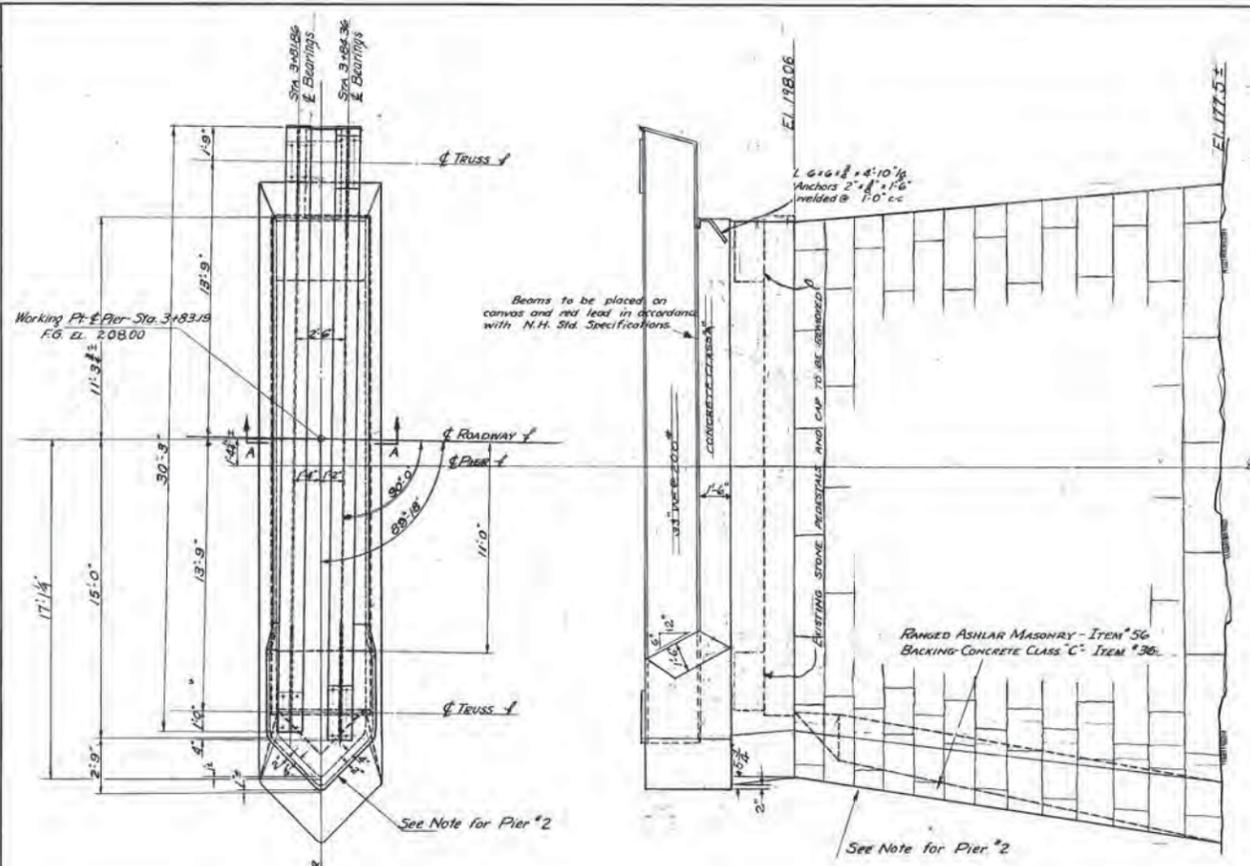
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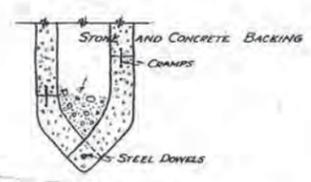
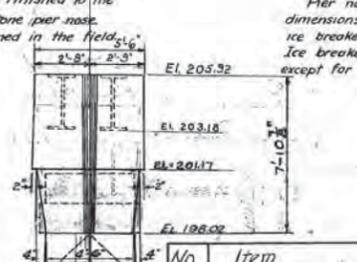




FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N.H.	E.R. 10	1936	7	21



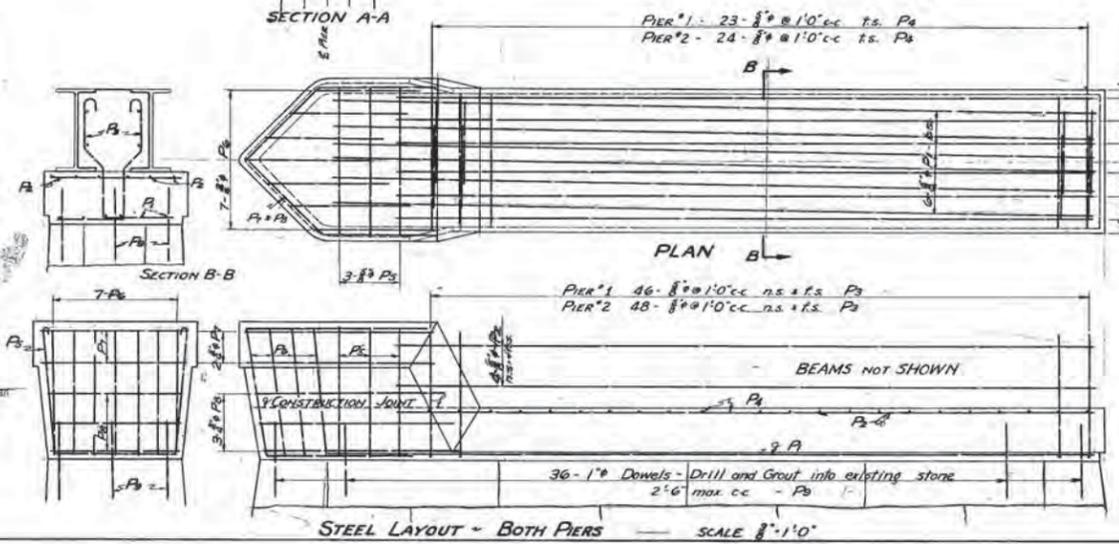
NOTE: DETAILS OF STRUCTURAL STEEL BEAMS ON SHEET \* B BEARING DETAILS AT PIERS ON SHEET \* 12



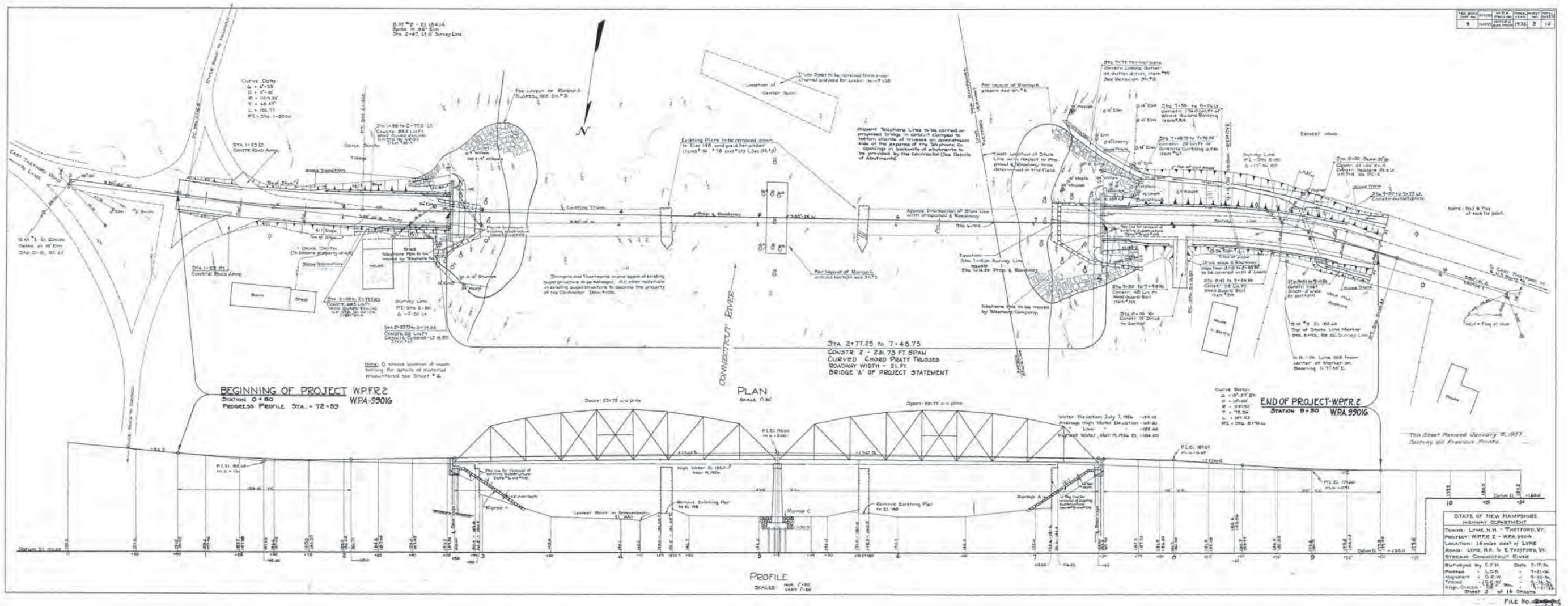
No.	Item	Quantity
33	Reinforcing Steel	2767 lbs.
34	Concrete Cl. A	38 cu. yds.
36	Cl. C	5 "
56	Ashlar Masonry	33 "
80	Structural Steel	25,700 lbs.
109	Removing Substructure	55 cu. yds.
318	Repainting Stone Masonry	257 sq. yds.

Estimate of Quantities this sheet

- GENERAL NOTES**
- CONCRETE PIER CAPS SHALL BE CONCRETE CLASS A (3000) MIN. GEN. FACTOR 1.60. MAX. SIZE AGGREGATE 2"
  - BACKING SHALL BE CONCRETE CLASS C (2000). MIN. GEN. FACTOR 1.50. MAX. SIZE AGGREGATE 3"
  - STONES ON PRESENT PIER NOSES ARE TIED TOGETHER WITH VERTICAL DOWELS AND CRAMPS. (SEE SKETCH)
  - ALL STONES LAID IN NEW WORK SHALL BE RANGED ASHLAR MASONRY - ITEM 56
  - STONES LAID ON BOTH PIER NOSES SHALL BREAK JOINTS WITH ADJACENT STONES FOR A DISTANCE PREFERABLY NOT LESS THAN THEIR DEPTH.
  - STONE REMOVED MAY BE USED IN NEW WORK. IF ANY STONE IS SO USED, THE QUANTITY USED SHALL BE DEDUCTED FROM ITEM 109. (REMOVING SUBSTRUCTURE) AND PAID FOR AS ITEM 56 (RANGED ASHLAR MASONRY).
  - THICKNESS OF STONE SHALL NOT BE LESS THAN THE DEPTH.
  - SURFACE FINISH OF STONE TO BE THE SAME AS AT PRESENT.
  - STONES SHALL BE THOROUGHLY CLEANED OF OLD MORTAR BEFORE PLACING CONCRETE OR LAYING NEW STONE.
  - EDGES OF CONCRETE EXPOSED TO ACTION OF ICE OR DRIFT SHALL BE ROUNDED TO 1/2" RADIUS. OTHER EDGES TO BE SMOOTHLY ROUNDED WITH A CARBORUNDUM STONE.
  - REINFORCING STEEL TO BE NOT LESS THAN 2" CLEAR FROM INSIDE OF FORMS.
  - NO CONCRETE SHALL BE PLACED UNTIL FORMS AND STEEL HAVE BEEN CHECKED BY THE ENGINEER.
  - EXISTING STONE MASONRY TO BE PAINTED UP AS DIRECTED BY THE ENGINEER.

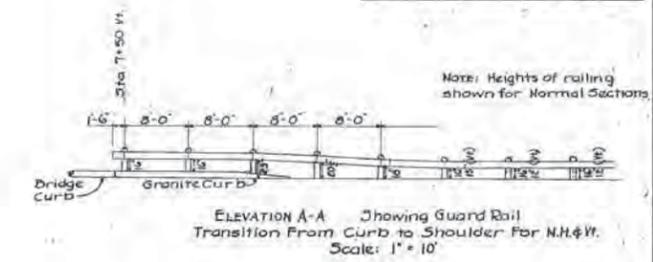


STATE OF NEW HAMPSHIRE  
 HIGHWAY DEPARTMENT  
 TOWN - LEBANON, N.H. - HARTFORD, VT.  
 PROJECT - E.R. NO 10  
 LOCATION - WEST LEBANON  
 ROAD - U.S. 4  
 STREAM - CONNECTICUT RIVER  
 Designed by W.E.H. Date 8-22-36  
 Drawn by W.E.H. Date 8-24-36  
 Design Chk'd by G.R.W. Date 7-16-36  
 Details by G.R.W. Date 7-16-36  
 SHEET 7 OF 21 SHEETS

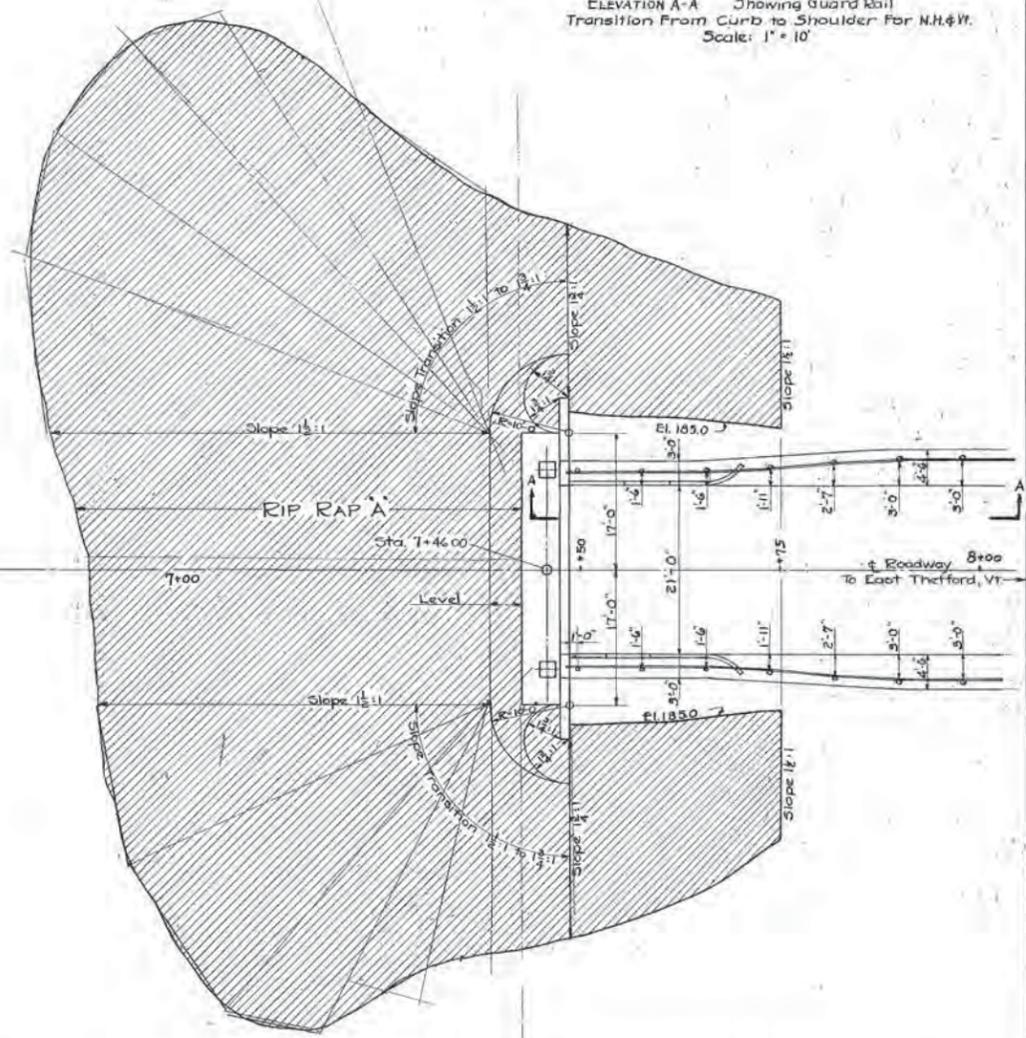
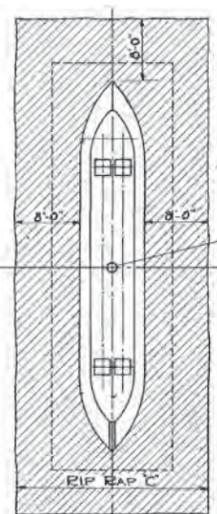
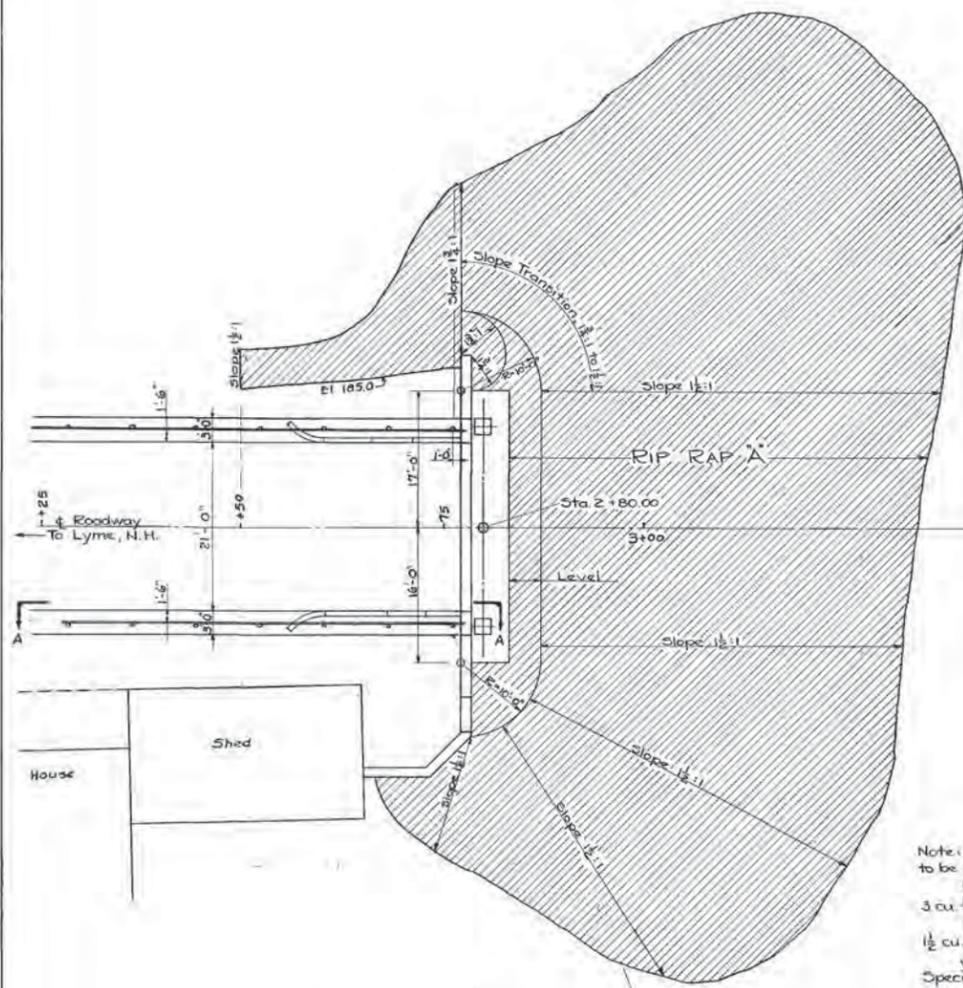




FED. ROAD DIST. NO.	STATE	W.P.A. PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N.H.-VT.	W.P.A. 99016	1936	5	14

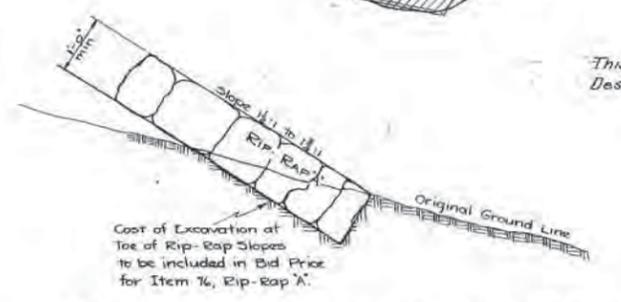
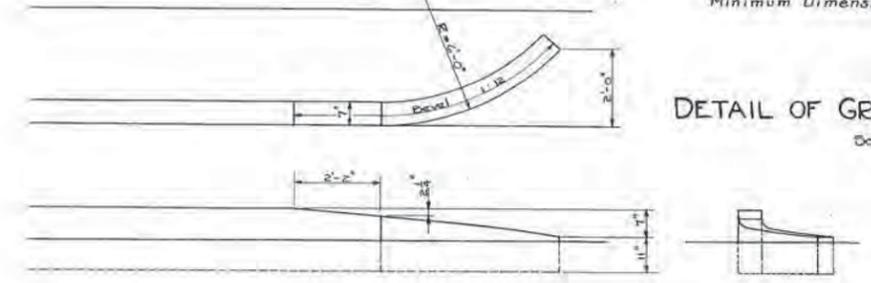


DETAIL OF RIP RAP A+C  
Scale 1" = 10'-0"



Note: Stone from existing Piers and Abutments to be used for Rip Rap A+C.  
Min. Volume of stone for Rip Rap A shall be 3 cu. ft. except stone used to fill voids.  
Min. Volume of stone for Rip Rap C shall be 1 1/2 cu. ft. except stone used to fill voids.  
See Amendment to New Hampshire Standard Specifications, Section 517.  
All Stone used for Rip Rap shall have a Minimum Dimension of 9 inches.

DETAIL OF GRANITE CURB RETURN  
Scale 1/2" = 1'-0"



DETAIL AT TOE OF RIP RAP SLOPE

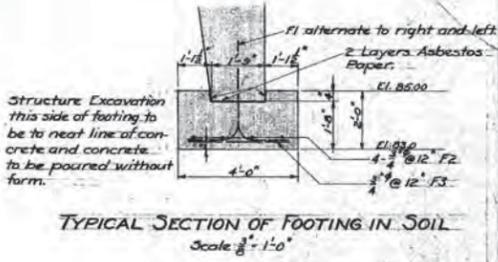
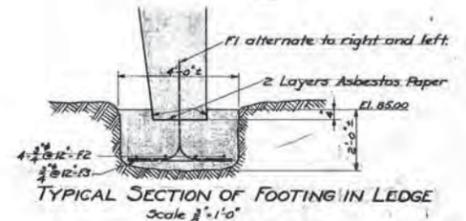
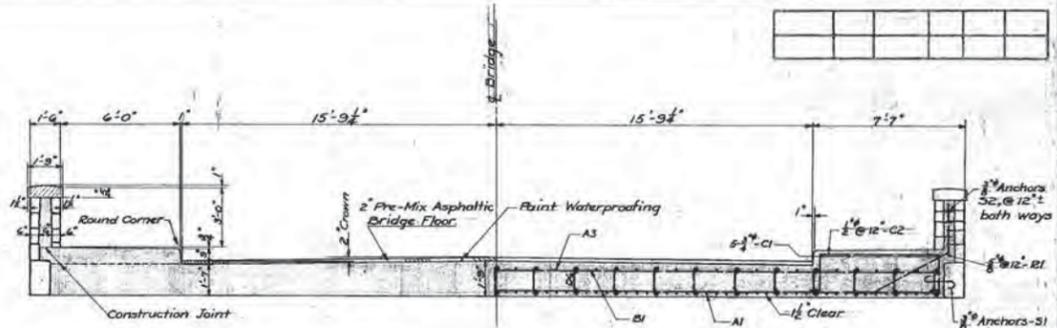
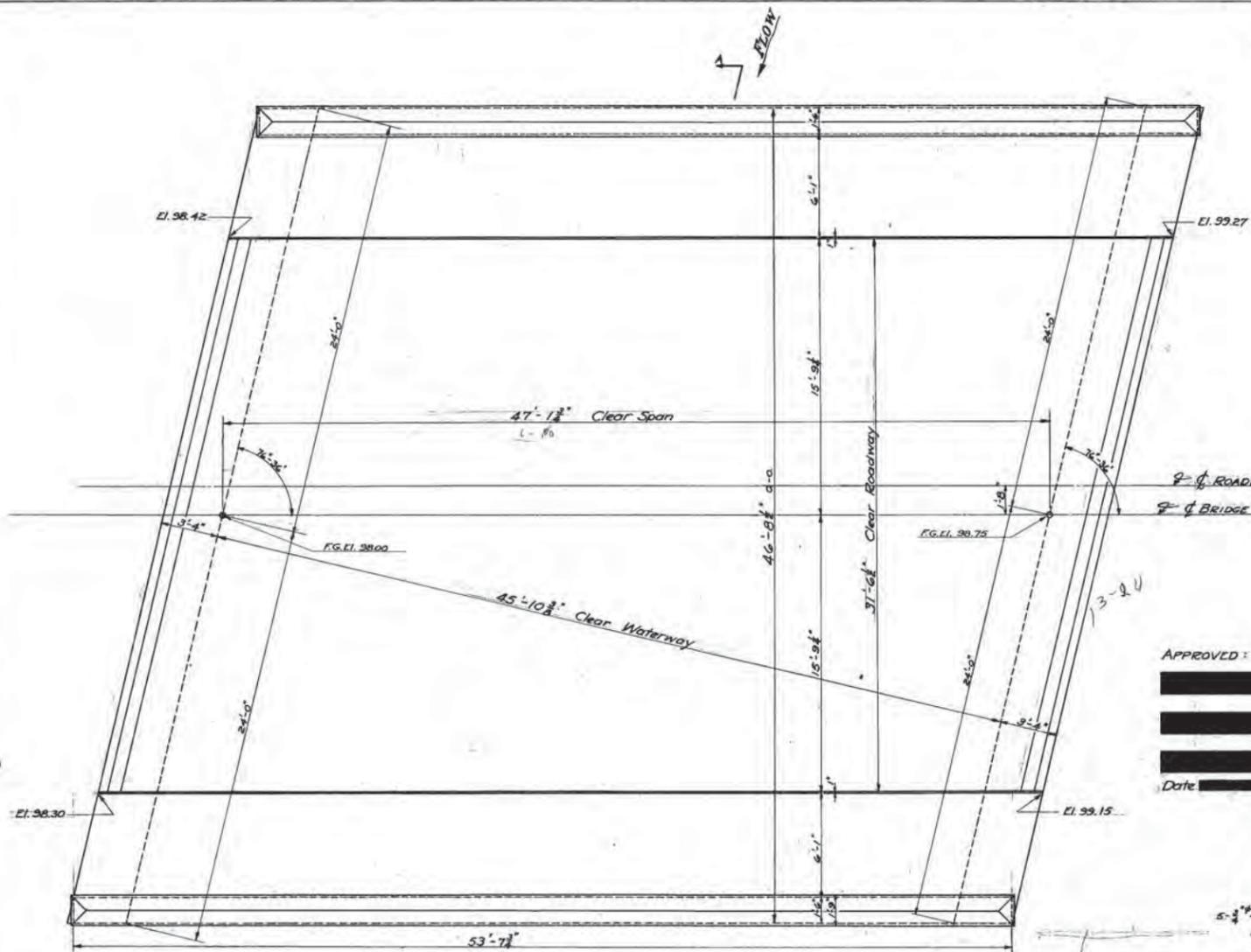
This Sheet Revised January 8, 1937  
Destroy all Previous Prints.

STATE OF NEW HAMPSHIRE HIGHWAY DEPARTMENT	
TOWNS: LYME, N.H. - THETFORD, VT.	PROJECT: W.P.F.R. 2 - W.P.A. 99016
LOCATION: About 1/4 miles west of LYME, N.H.	ROAD: LYME, N.H. to E. THETFORD, VT.
STREAM: CONNECTICUT RIVER	Designed by G.R.W. Date 10-30-36
	Drawn " " " 10-30-36
	Traced " " " 12-21-36
	Checked " " " 12-21-36
Sheet 5 of 14 Sheets	
File No. 1-18-2-6	

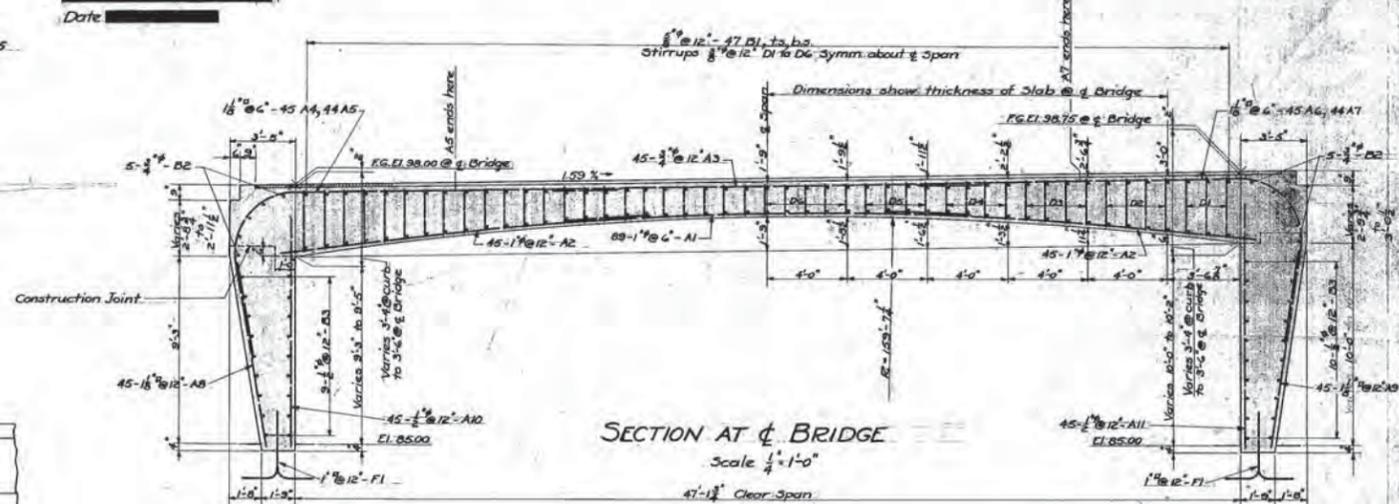








APPROVED: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 Date: \_\_\_\_\_  
 SELECTMEN OF PETERBOROUGH



ESTIMATE OF QUANTITIES

Item	Quantity
Reinforcing Steel	46,232 lbs.
Concrete, Class A (3000*)	370 cu. yds.
Cap Stone for Bridge Rail	107 lin. ft.
Pre-Mix Asphaltic Bridge Floor	21 tons
Paint Waterproofing	174 sq. yds.
Mortar Squared Stone Masonry	12 cu. yds.
Arch Ring Stone	9 cu. yds.

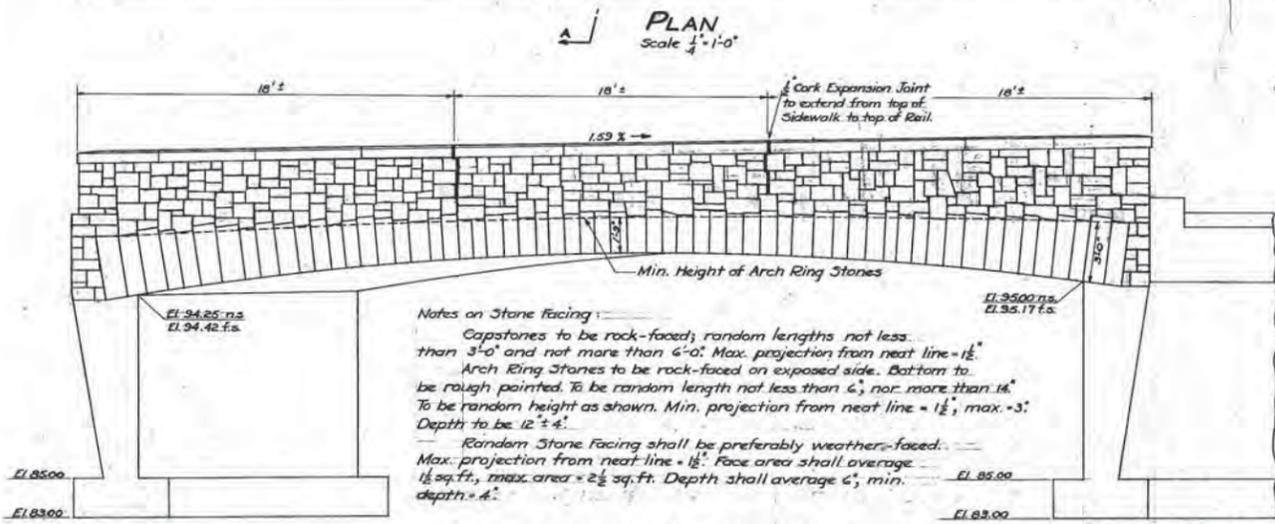
General Notes:  
 Specifications: A.A.S.H.O. 1935, N.H.H.D. 1935.  
 Design Loading: H15.  
 All concrete to be Class A (3000\*). No concrete to be placed until steel and forms have been checked by the engineer. Min. Cement Factor, Class A Concrete = 160.  
 \* Tile Drains to be placed in Abutments 10' of c.c. at such elevation as will best drain backfill. Backfill around drains to be of stone.  
 Reinforcing Steel to be 2" clear from face of concrete except as noted. Max. size coarse aggregate = 1 1/2".  
 Bridge Rail shall not be built until falsework has been removed.

STATE OF NEW HAMPSHIRE  
 HIGHWAY DEPARTMENT

TOWN: PETERBOROUGH  
 PROJECT: TOWN 1936  
 LOCATION: ROAD GROVE STREET  
 STREAM: NUBANUSIT RIVER

Designed by: W.E.H. Date: 5-7-36  
 Drawn: G.E.W. Date: 5-11-36  
 Traced: G.E.W. Date: 5-20-36  
 Checked: T.H.M. Date: 5-14-36

Sheet 1 of 1 Sheets  
 1-9-1-1



Notes on Stone Facing:  
 Capstones to be rock-faced; random lengths not less than 3'-0" and not more than 6'-0". Max. projection from neat line = 1 1/2".  
 Arch Ring Stones to be rock-faced on exposed side. Bottom to be rough pointed. To be random length not less than 6"; nor more than 14". To be random height as shown. Min. projection from neat line = 1 1/2"; max. = 3". Depth to be 12" ± 4".  
 Random Stone Facing shall be preferably weather-faced.  
 Max. projection from neat line = 1 1/2". Face area shall average 1 1/2 sq. ft., max. area = 2 1/2 sq. ft. Depth shall average 6"; min. depth = 4".

90  
 76-30  
 13-24



FILE NO.	DATE	E. R. NO.	PROJECT	SHEET NO.	TOTAL SHEETS
10	N. H.	ER 6		1	10

**INDEX OF SHEETS**

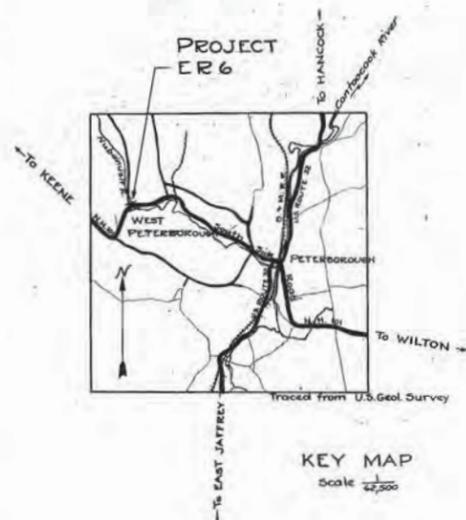
- SHEET NO 1 TITLE PAGE
- " " 2 TYPICAL SECTION OF IMPROVEMENT
- " " 3 PLAN AND PROFILE
- " " 4 CROSS SECTIONS
- " " 5-9 BRIDGE PLANS
- " " 10 STANDARDS

STATE OF NEW HAMPSHIRE  
STATE HIGHWAY DEPARTMENT

PLAN AND PROFILE OF PROPOSED  
**EMERGENCY RELIEF PROJECT**  
NO - ER 6  
**SOUTH SIDE**  
ROAD

SCALES { PLAN, 1"=20'-0"  
PROFILE, VERT: 1"=20'-0" HOR: 1"=20'-0"  
CROSS SECTION, VERT: 1"=5'-0" HOR: 1"=5'-0"

NOTE. This project to be constructed in accordance with standard specifications on file with the Bureau of Public Roads.

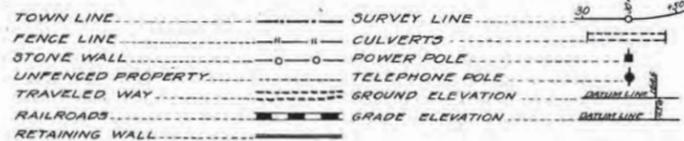


FOR LAYOUT  
SEE SHEET NO-3

**TOWN OF PETERBOROUGH  
HILLSBORO COUNTY**

**LAYOUT**  
SCALE 1"=20'-0"

**CONVENTIONAL SIGNS**



Plans drawn by G.R.W.  
Plans traced by .....  
Plans checked by .....

APPROVED: *W. O. Dickerson*  
CHIEF ENGINEER

APPROVED: *J. B. Couett*  
HIGHWAY COMMISSIONER

RECOMMENDED FOR APPROVAL: [Redacted]

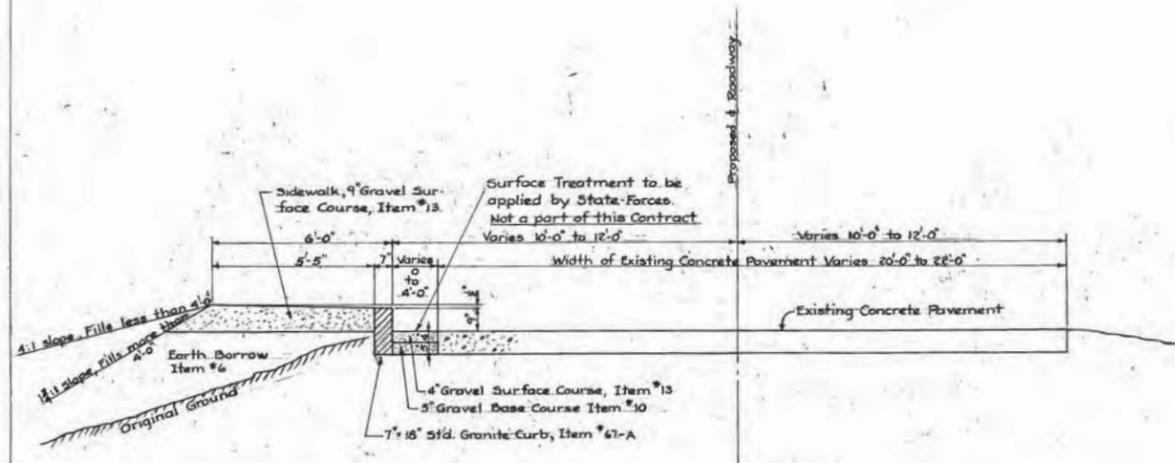
DISTRICT ENGINEER, BUREAU OF PUBLIC ROADS.  
RECOMMENDED FOR APPROVAL: [Redacted]

CHIEF ENGINEER, BUREAU OF PUBLIC ROADS.  
APPROVED: [Redacted]

DIRECTOR, BUREAU OF PUBLIC ROADS.

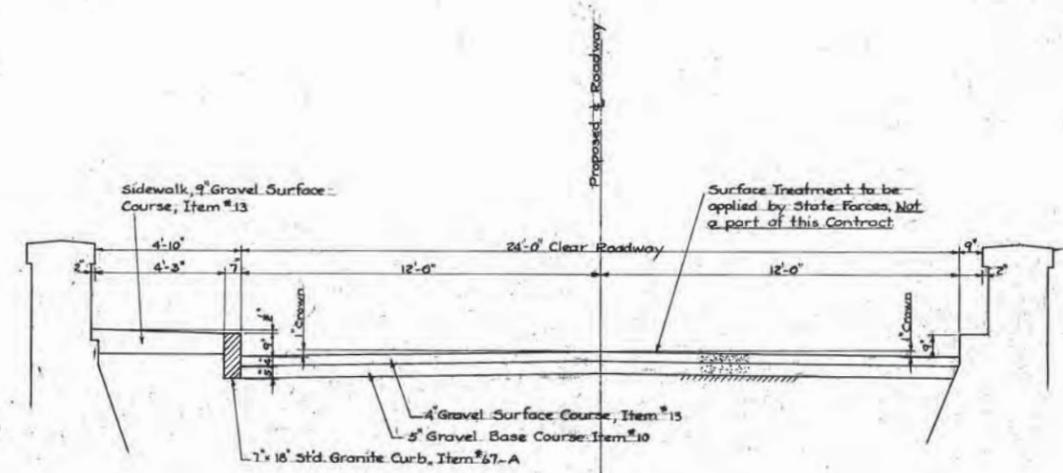
1-13-3-2

FED. ROAD DIST. NO.	STATE	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N.H.	ER 6	2	10



TYPICAL SECTION OF IMPROVEMENT

SCALE  $\frac{3}{8}'' = 1'-0''$



TYPICAL SECTION ADJACENT TO BRIDGE

(Existing Concrete Pavement to be removed Sta. 0+86 to 2+86)

SCALE  $\frac{3}{8}'' = 1'-0''$

Note: Roadway areas surfaced with Gravel in this contract shall be resurfaced by the State with Concrete Pavement as soon as the embankments have settled sufficiently. Not a part of this contract.

05/108  
BRIDGE No. 176 AM

STATE OF NEW HAMPSHIRE HIGHWAY DEPARTMENT	
TOWN	WEST PETERBOROUGH
PROJECT	ER 6
LOCATION	3 mi. west of PETERBOROUGH
ROAD	SOUTH SIDE, ROUTE N.H. 101
STREAM	NUBANUSIT RIVER
DESIGNED BY	G.R.W. DATE 6-23-36
DRAWN	" " " "
TRACED	" " " "
CHECKED	" " " " 8-18-36
SHEET 2 OF 10 SHEETS	

1-13-3-2



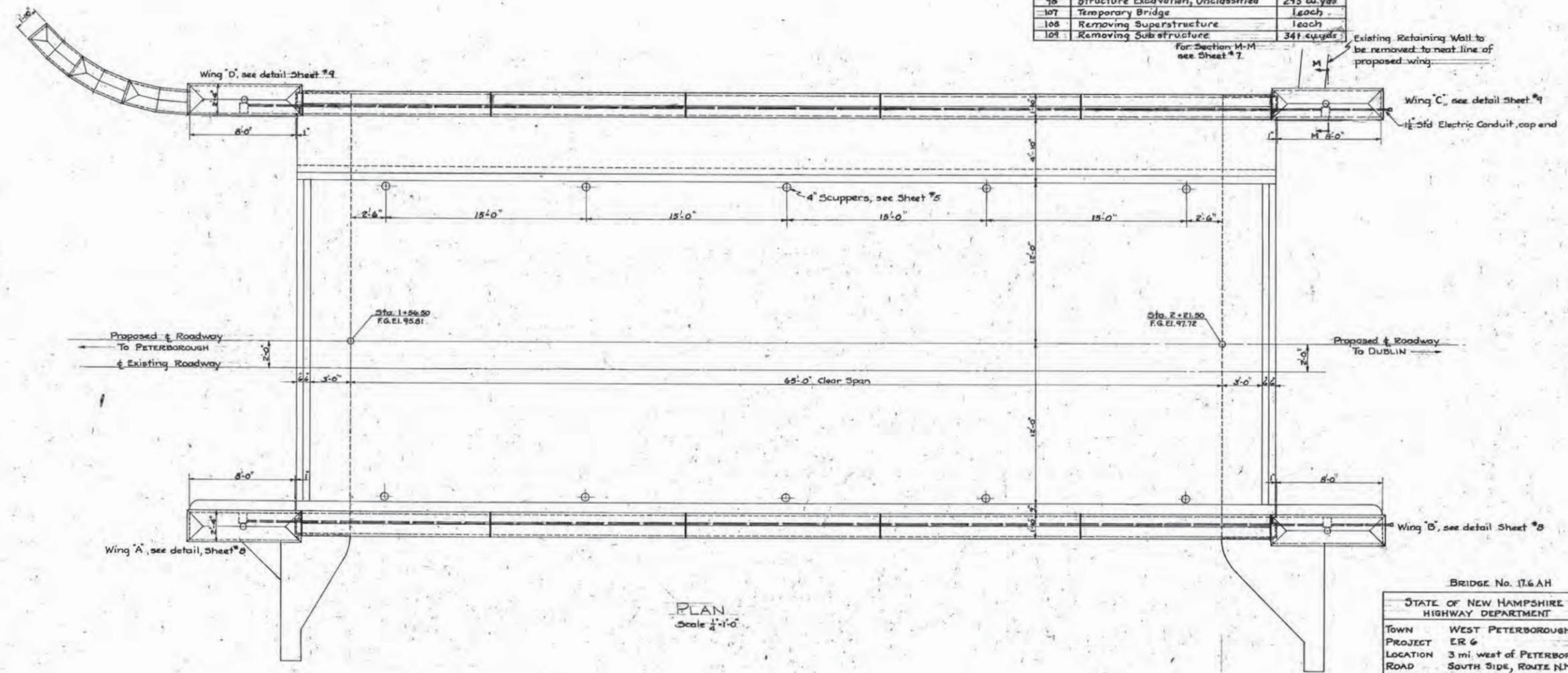




FED. ROAD DIST. NO.	STATE	F.R. PROJ. NO.	YEAR	SHEET NO.	TOTAL SHEETS
3	N.H.	ER 6		6	10

ESTIMATE OF BRIDGE QUANTITIES

No.	Item	Quantity
33	Reinforcing Steel	60,416 lbs.
34	Concrete, Class "A" (3000')	400 cu. yds.
36	Concrete, Class "C" (2000')	174 cu. yds.
37-A	Mortar Squared Stone Masonry (Arch Rib)	20 cu. yds.
37-B	" " " " (6" depth)	4 cu. yds.
37-C	" " " " (6" depth)	6 cu. yds.
37-D	" " " " (12" depth)	4 cu. yds.
47-B	Granite Curbing (7'x10')	13 lin. ft.
47-C	" " (13'x10')	89 lin. ft.
317	Grouted Rubble Apron for Stream Bed	326 sq. yds.
82	Bridge Railing "A"	190 lin. ft.
88	Pre-Mix Asphaltic Bridge Floor	24 tons
89	Waterproofing, Paint	190 sq. yds.
91	Bridge Lighting System	1 each
98	Structure Excavation, Unclassified	293 cu. yds.
107	Temporary Bridge	1 each
108	Removing Superstructure	1 each
109	Removing Substructure	341 cu. yds.

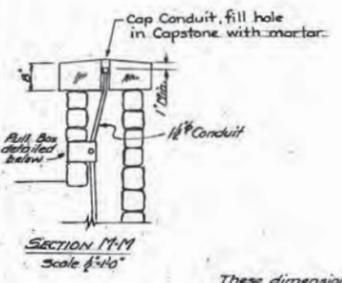
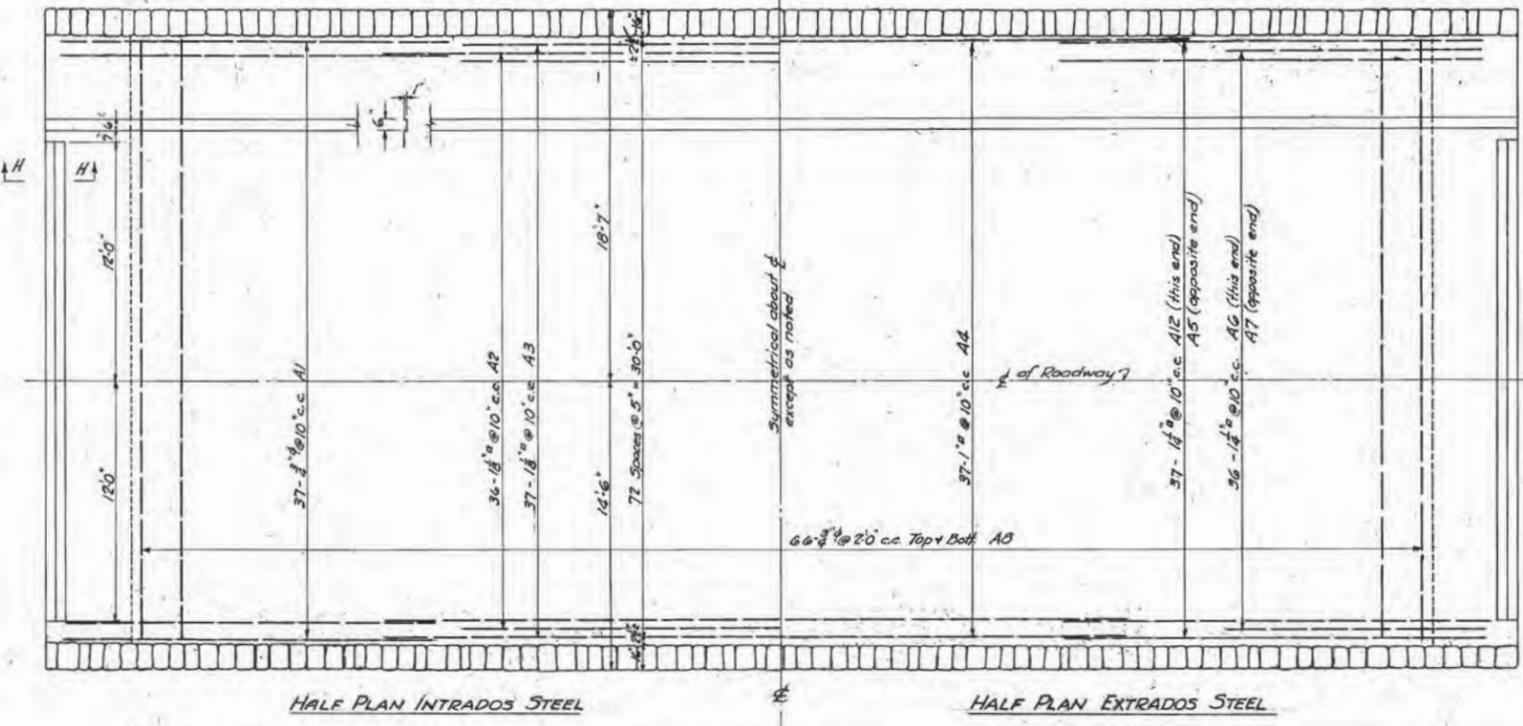
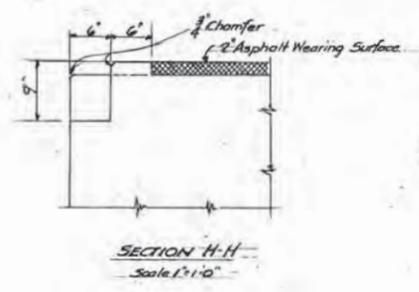


PLAN  
Scale 1/4"=1'-0"

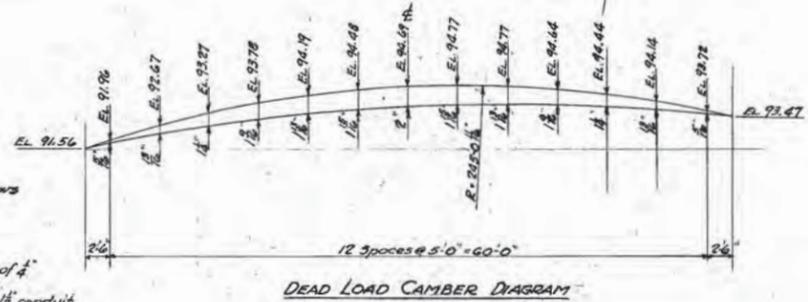
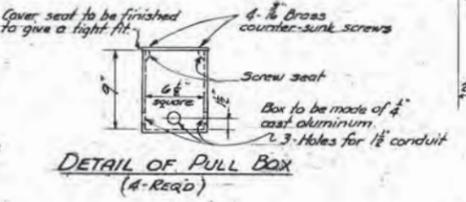
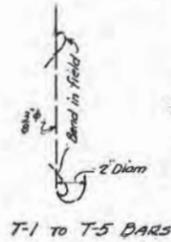
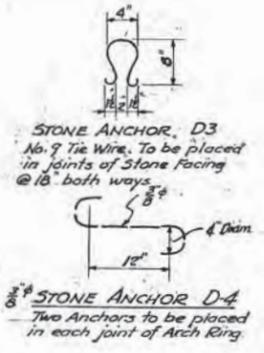
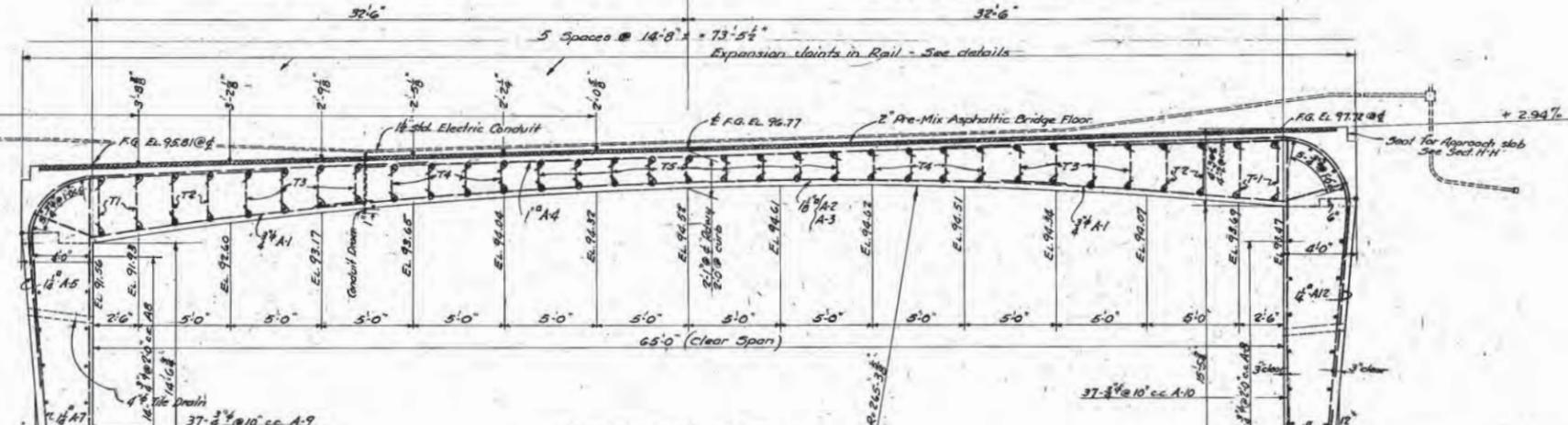
BRIDGE No. 17.6 AH	
STATE OF NEW HAMPSHIRE HIGHWAY DEPARTMENT	
TOWN	WEST PETERBOROUGH
PROJECT	ER 6
LOCATION	3 mi. west of PETERBOROUGH
ROAD	SOUTH SIDE, ROUTE N.H. 101
STREAM	NUBANUSIT RIVER
Designed by	G.R.W. Date 6-12-36
Drawn	" " " "
Traced	" " " "
Checked	FGA " " 8-18-36
Sheet 6 of 10 Sheets	

1-13-3-2

FED. ROAD DIST. NO.	STATE	E. R. PROJ. NO.	TOTAL YEAR	SHEET NO.	TOTAL SHEETS
9	N.H.	ER-6		7	10



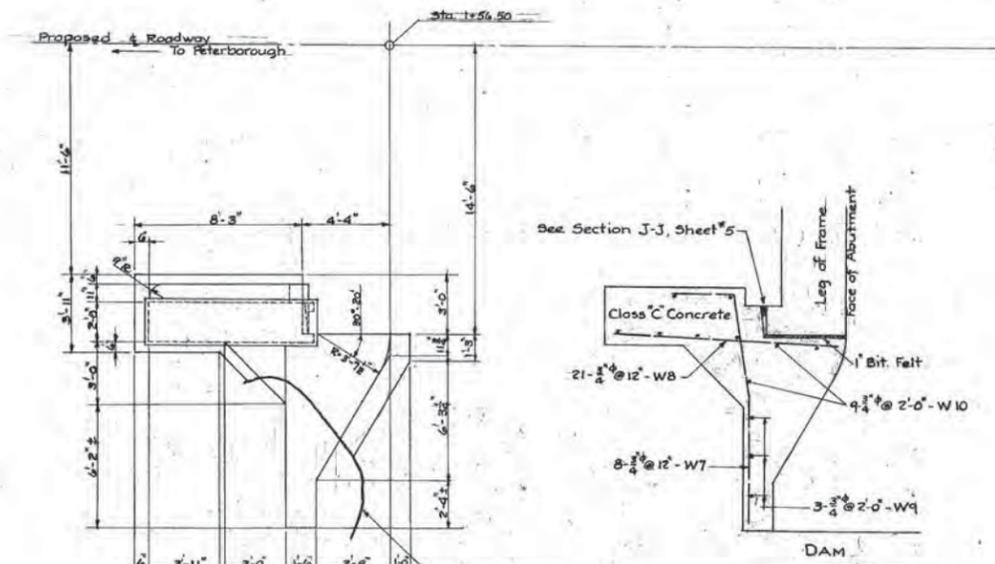
These dimensions show thickness of Slab @ Curb, add 1" for crown @ Roadway.



BRIDGE No. 116.4H	
STATE OF NEW HAMPSHIRE HIGHWAY DEPARTMENT	
TOWN	WEST PETERBOROUGH
PROJECT	ER-6
LOCATION	3 mi. west of PETERBOROUGH
ROAD	SOUTH SIDE, ROUTE N.H. 101
STREAM	NUBANUSIT RIVER
Designed by	R.D.F.A.M.W. Date 7-11-36
Drawn by	R.I.P.G.R.W. Date 6-5-36
Traced	70%
Checked	8-18-36
Sheet 7 of 10 Sheets	

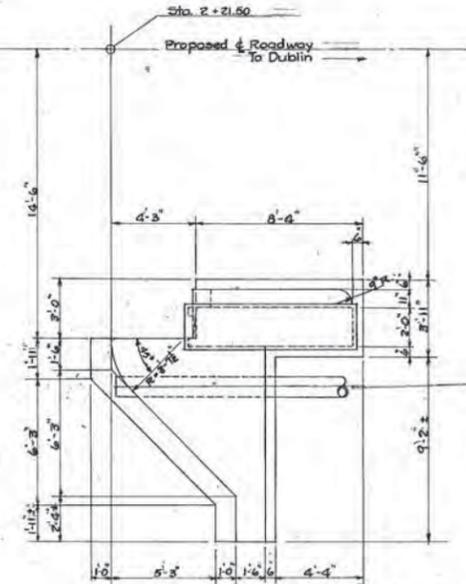
1-13-3-2

FED. ROAD DIST. NO.	STATE	E. R. PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	N.H.	ER 6		8	10



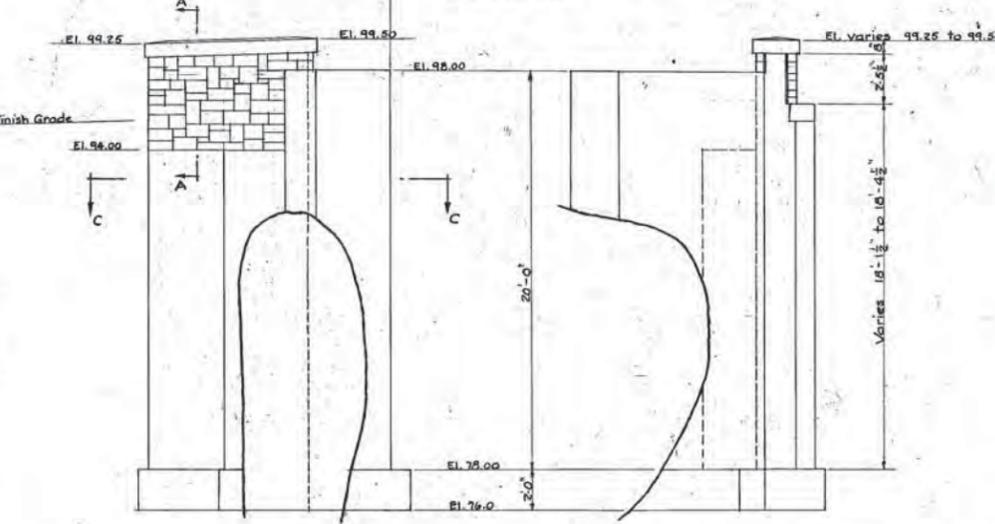
Large Boulder, not to be moved. Drill and Grout 3-#4 @ 3'-0" long @ 2'-0" - W11 for bond with Wing. El. top of Boulder 89.8.

**SECTION C-C**  
Scale 1/4" = 1'-0"

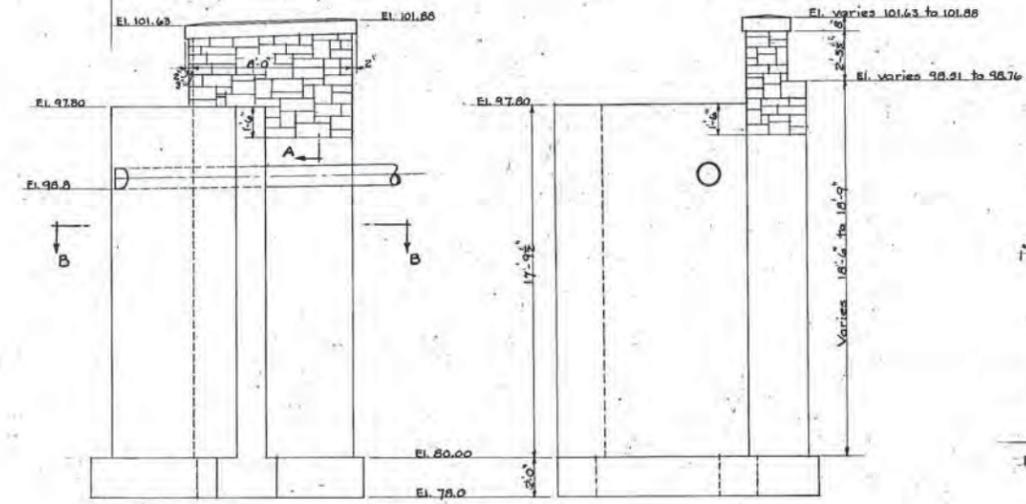


12" V.C.P. to be extended through Wing Wall using 12" RCP. Cost to be included in Item #36, Concrete, Class C. Line and Grade of existing pipe to be extended through new pipe.

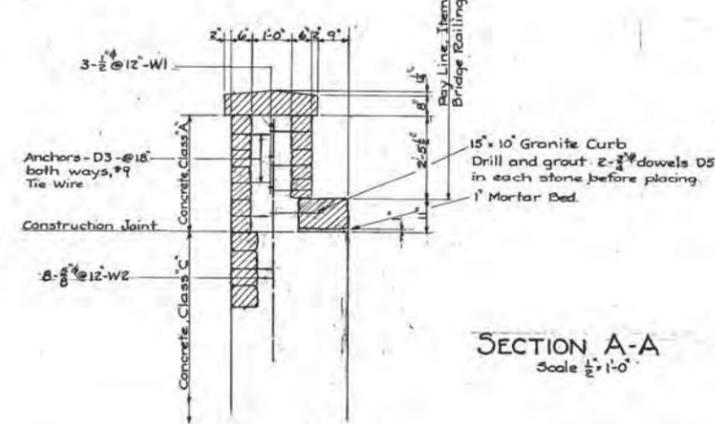
**SECTION B-B**  
Scale 1/4" = 1'-0"



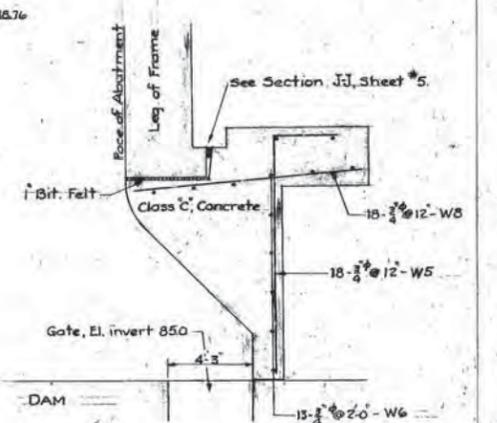
**DETAIL OF WING A**  
Scale 1/4" = 1'-0"



**DETAIL OF WING B**  
Scale 1/4" = 1'-0"



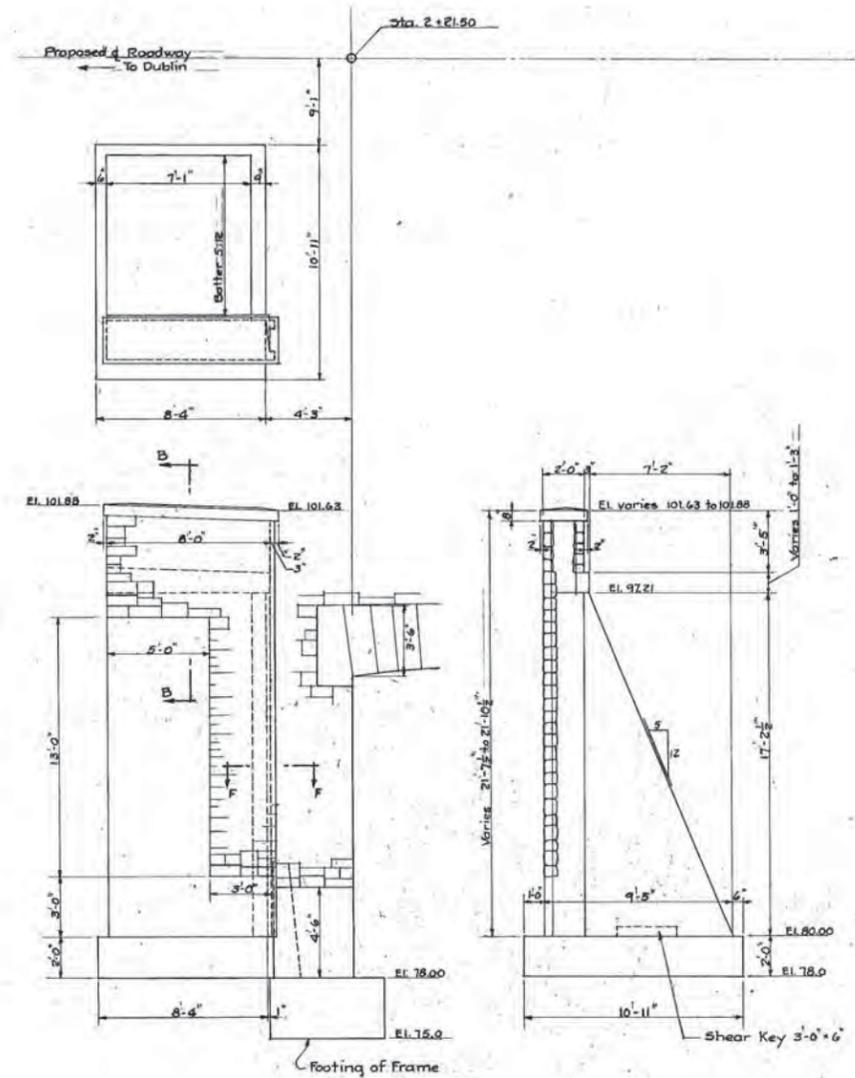
**SECTION A-A**  
Scale 1/2" = 1'-0"



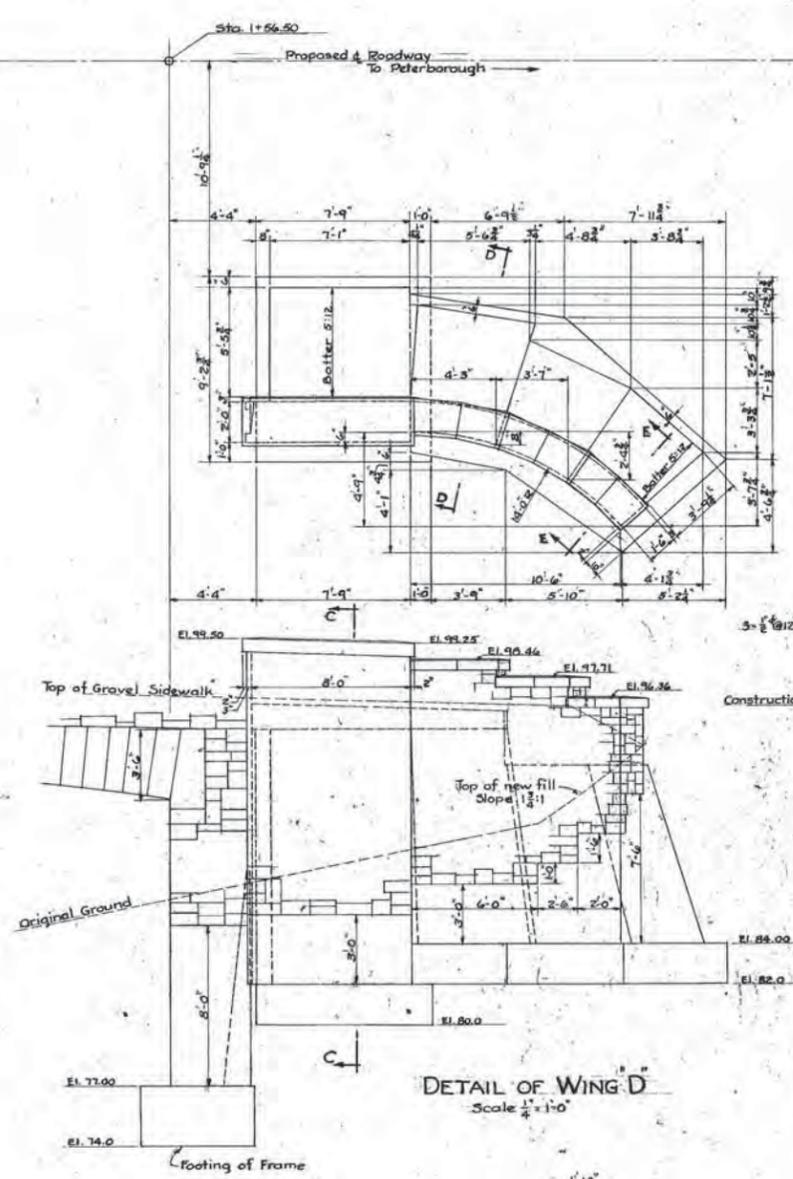
BRIDGE No. 17.6 AH

STATE OF NEW HAMPSHIRE	
HIGHWAY DEPARTMENT	
TOWN	WEST PETERBOROUGH
PROJECT	ER 6
LOCATION	3mi. west of PETERBOROUGH
ROAD	SOUTH SIDE, ROUTE N.H. 101
STREAM	NUBANUSIT RIVER
Designed by G.R.W.	Date 6-8-36
Drawn	6-9-36
Traced	
Checked	8-18-36
Sheet 8 of 10 Sheets	

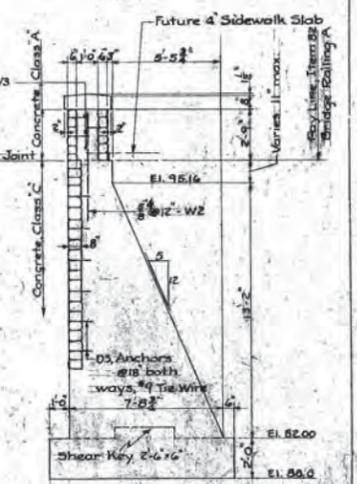
FED. ROAD DIST. NO.	STATE	F.R. PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	N.H.	ER 6		9	10



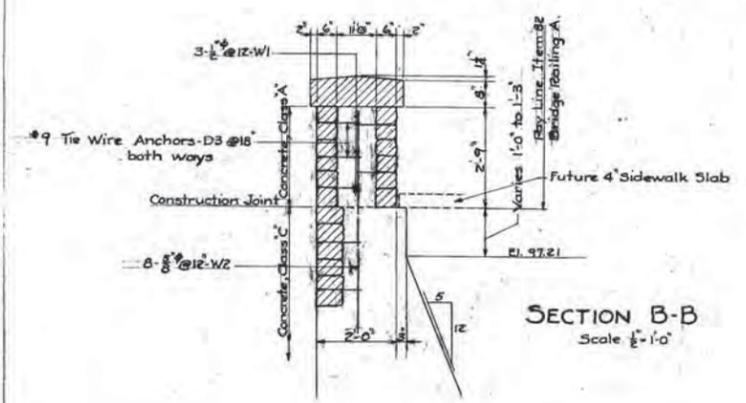
DETAIL OF WING C  
Scale 1/2" = 1'-0"



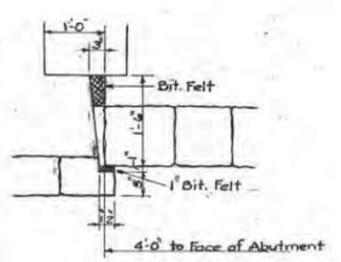
DETAIL OF WING D  
Scale 1/2" = 1'-0"



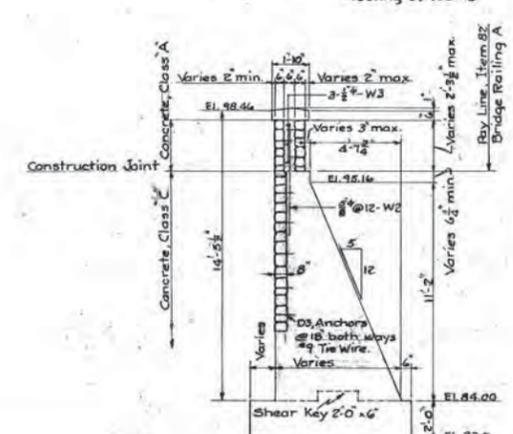
SECTION C-C  
Scale 1/4" = 1'-0"



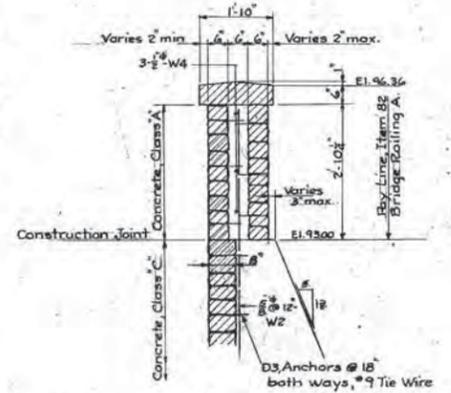
SECTION B-B  
Scale 1/2" = 1'-0"



SECTION F-F  
Scale 3/4" = 1'-0"



SECTION D-D  
Scale 1/2" = 1'-0"

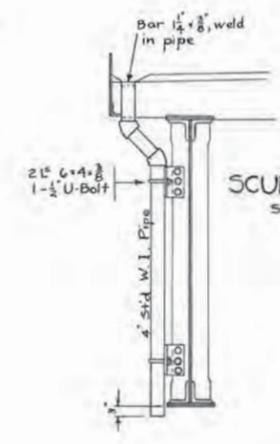
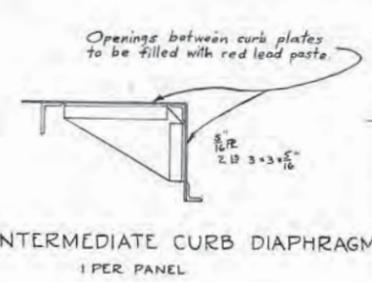
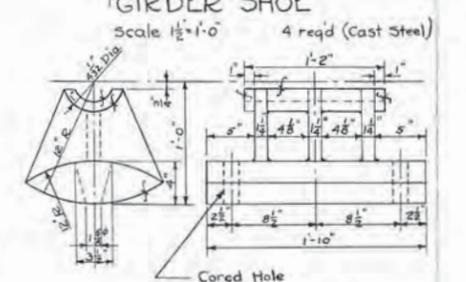
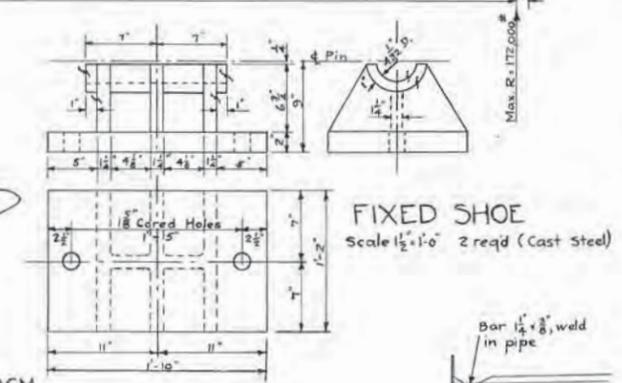
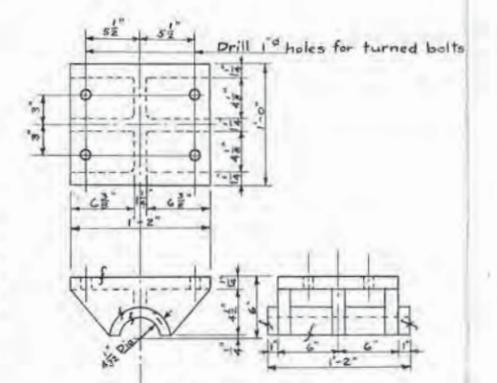
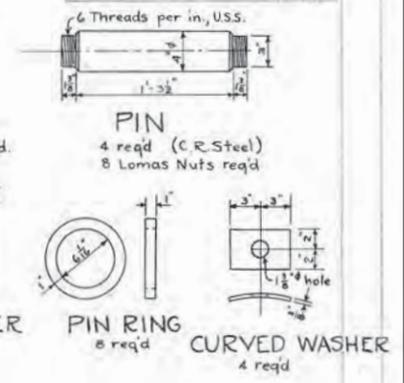
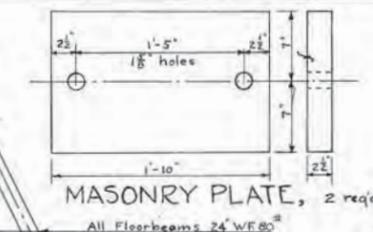
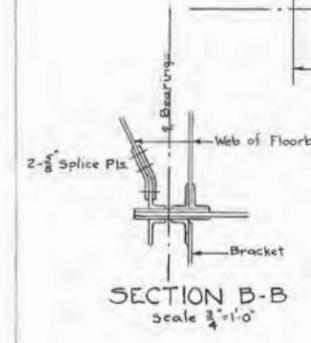
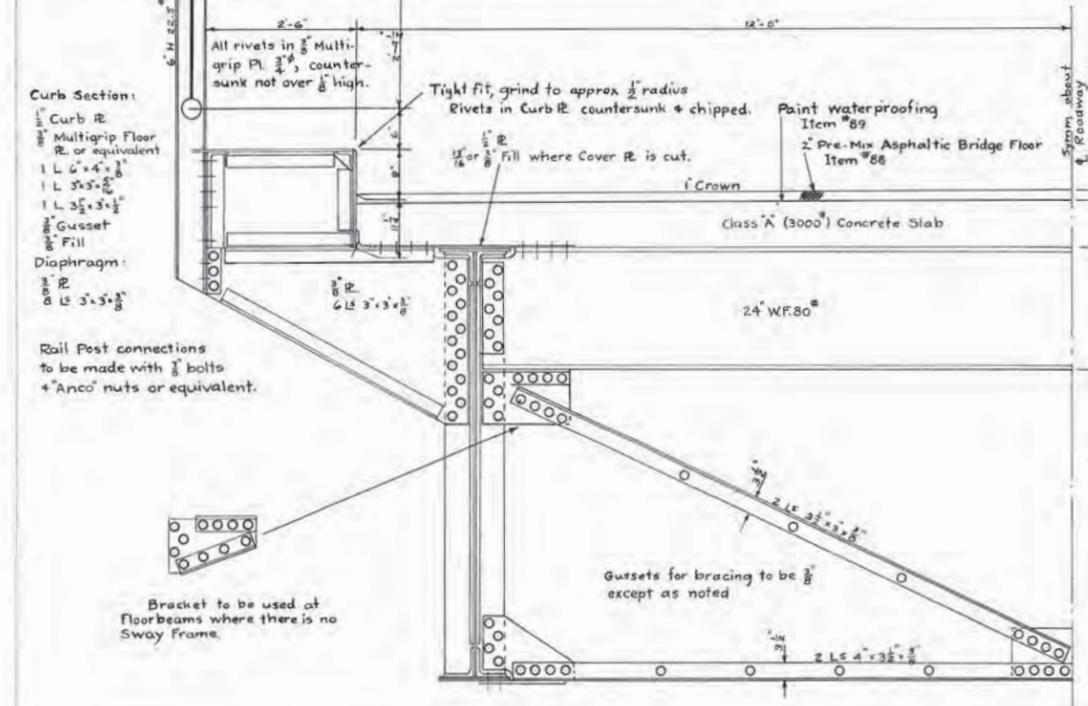
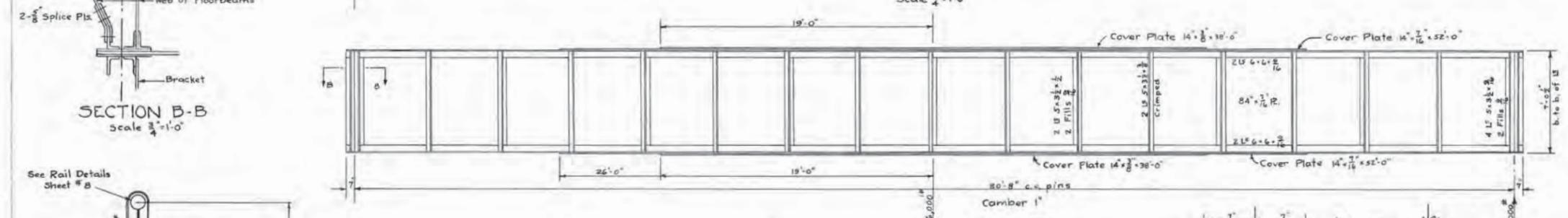
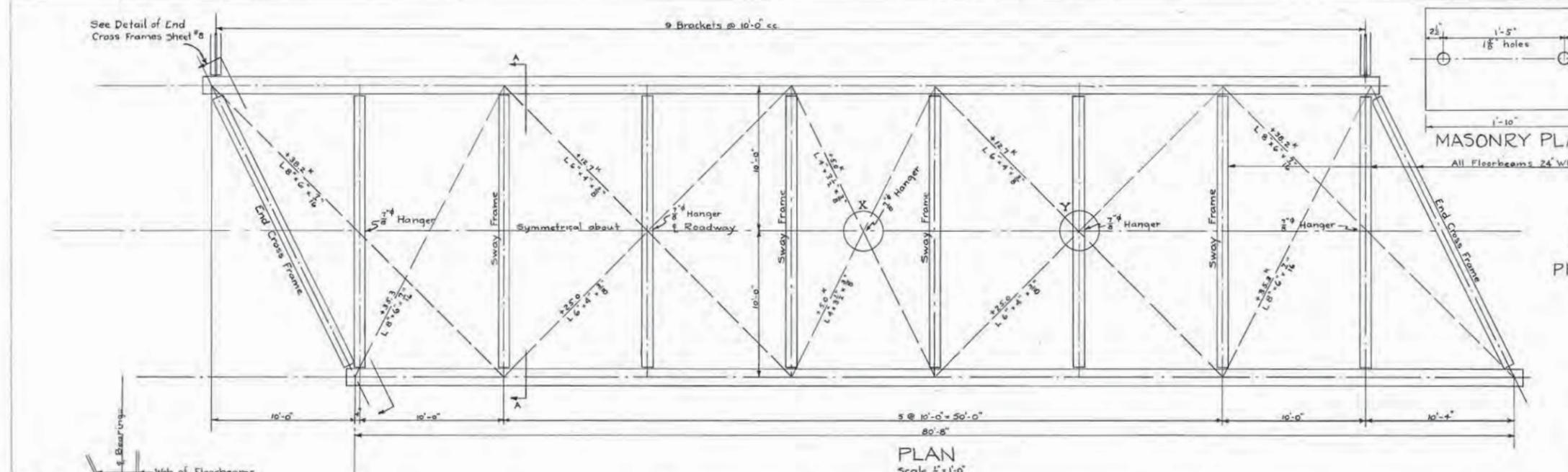


SECTION E-E  
Scale 1/2" = 1'-0"

BRIDGE No. 176 AH	
STATE OF NEW HAMPSHIRE HIGHWAY DEPARTMENT	
TOWN	WEST PETERBOROUGH
PROJECT	ER 6
LOCATION	3 mi west of PETERBOROUGH
ROAD	SOUTH SIDE, ROUTE N.H. 101
STREAM	NUBANUSIT RIVER
Designed by G.R.W.	Date 6-10-36
Drawn	6-11-36
Traced	
Checked	6-18-36
Sheet 9 of 10 Sheets	

1-1-3-3-2

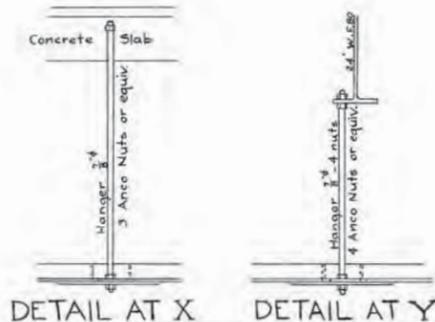




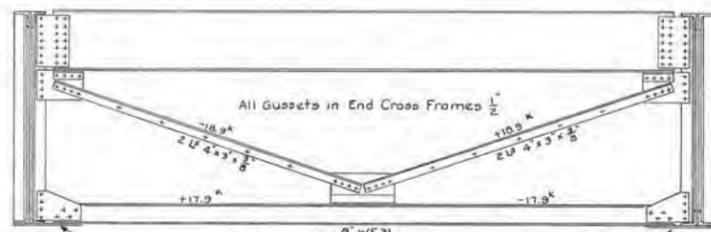
ANCHOR BOLTS  
4 reqd 1 1/2" x 1'-4" (Fixed)  
4 reqd 1 1/2" x 1'-5" (Exp)  
4 cut washers (Fixed)

STATE OF NEW HAMPSHIRE HIGHWAY DEPARTMENT	
TOWN	NEWBURY
PROJECT	FA 208 C
LOCATION	NEWBURY CUT-OFF
ROAD	CENTRAL ROAD ROUTE 103
STREAM	ANDREW BROOK
Designed by	G.R.W. Date 4-23-37
Drawn	- - - - - 4-26-37
Traced	- - - - -
Checked	- - - - - 6-30-37
Sheet 7 of 46 Sheets	

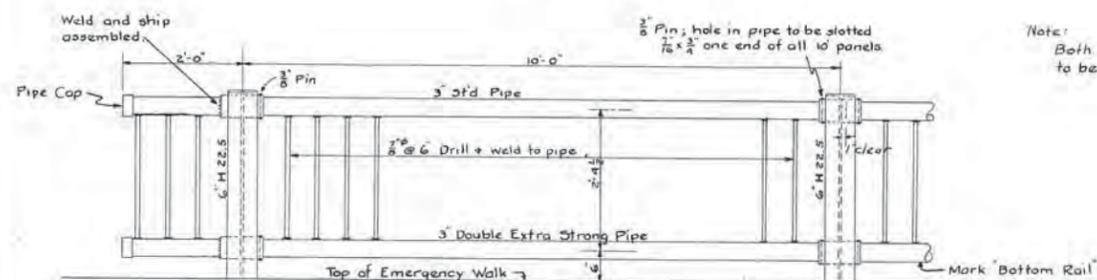
Note:  
Concrete Slab to be poured flush with bottom of flange of floorbeams and Bracket Angles



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	NH	FA 208C	1936	8	46

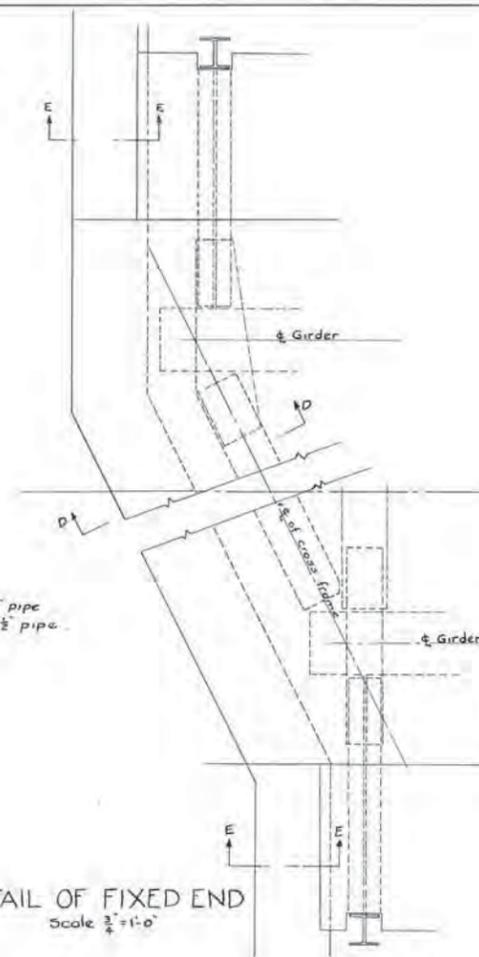


DETAIL OF END CROSS FRAMES  
Scale  $\frac{3}{8} = 1'-0"$

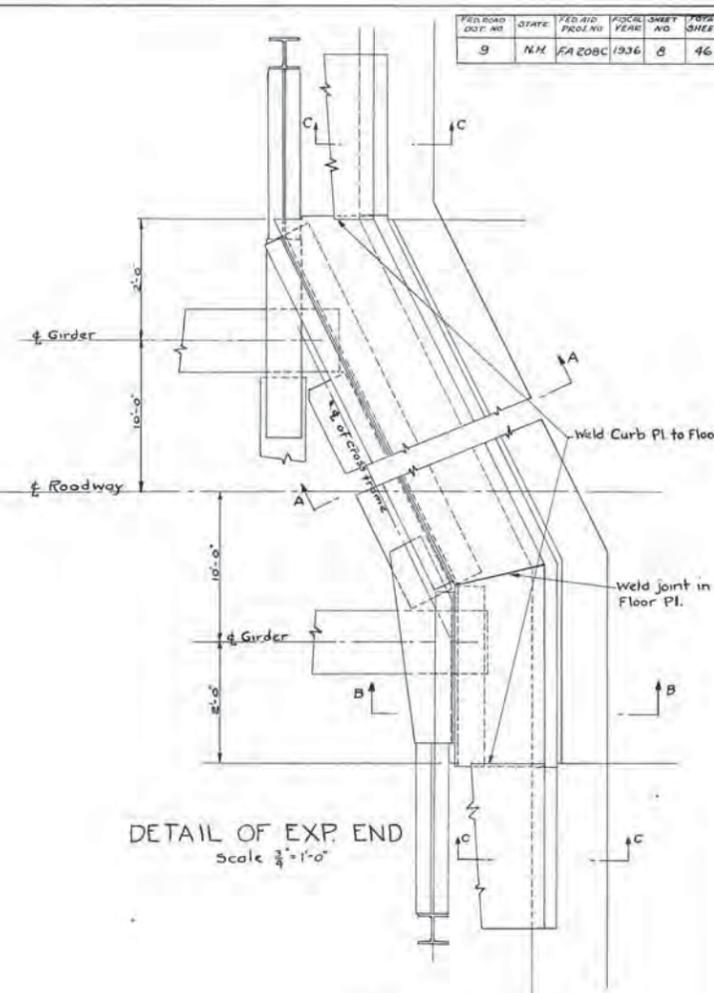


RAIL DETAIL  
Scale  $\frac{3}{4} = 1'-0"$

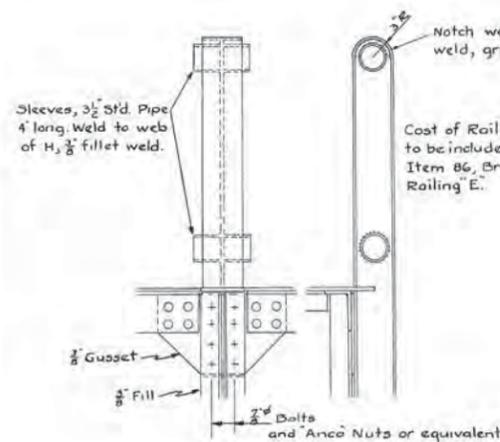
Note: Both ends of all 3" pipe to be fitted into 3 1/2" pipe.



DETAIL OF FIXED END  
Scale  $\frac{3}{4} = 1'-0"$



DETAIL OF EXP. END  
Scale  $\frac{3}{4} = 1'-0"$



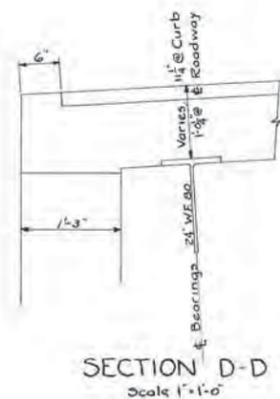
DETAIL OF RAIL POST  
Scale 1'-1'-0"

Notch web, bend flanges, weld, grind smooth.  
Cost of Rail Posts to be included in Item 86, Bridge Railing 'E'.

ESTIMATE OF QUANTITIES, SUPERSTRUCTURE  
These quantities included in Total Estimate for Bridge, Sheet #6.

No.	Item	Quantity
33	Reinforcing Steel	13,113 lbs
34	Concrete, Class 'A' (3000*)	65 cu. yds.
80	Structural Steel	117,500 lbs.
86	Bridge Railing 'E'	168 lin. ft.
88	Pre-Mix Asphaltic Bridge Floor	27 tons
89	Paint Waterproofing	220 sqyds.

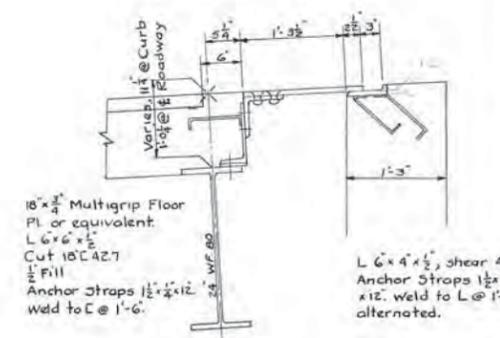
Notes:  
Rivets:  $\frac{1}{2}"$  except in sidewalk plate  $\frac{3}{4}"$   
Holes:  $\frac{11}{16}"$  and  $\frac{13}{16}"$   
Shop Point: One coat red lead except surfaces which are to be in contact with concrete shall not be painted.  
Field Point: Two coats green, second coat to be dark olive green, first coat to be lighter shade readily distinguished from second coat sample to be submitted for approval.  
Contractor shall furnish the Bridge Engineer, N.H.D.R. with the following before final payment is made:  
1. Mill Test Reports in triplicate in lieu of mill inspection.  
2. One copy of itemized weights of structural steel.  
3. Tracings of Shop Drawings.  
Structural Steel Shoes and Pedestals may be submitted for approval in place of Cast Steel.



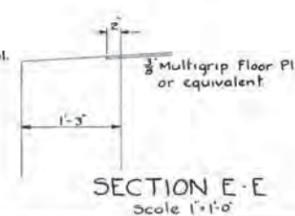
SECTION D-D  
Scale 1'-1'-0"



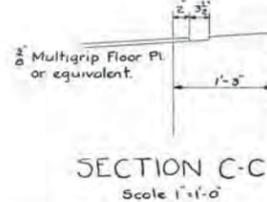
SECTION B-B  
Scale 1'-1'-0"



SECTION A-A  
Scale 1'-1'-0"



SECTION E-E  
Scale 1'-1'-0"

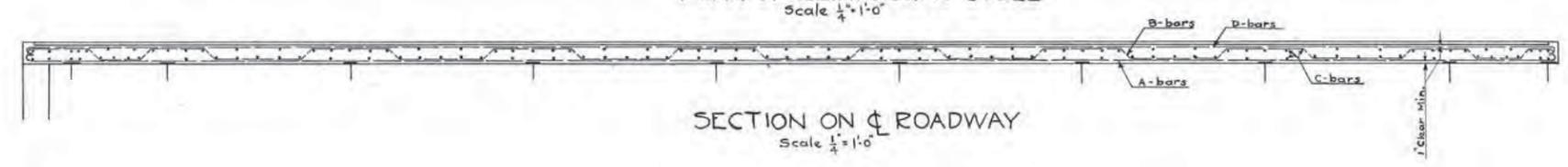
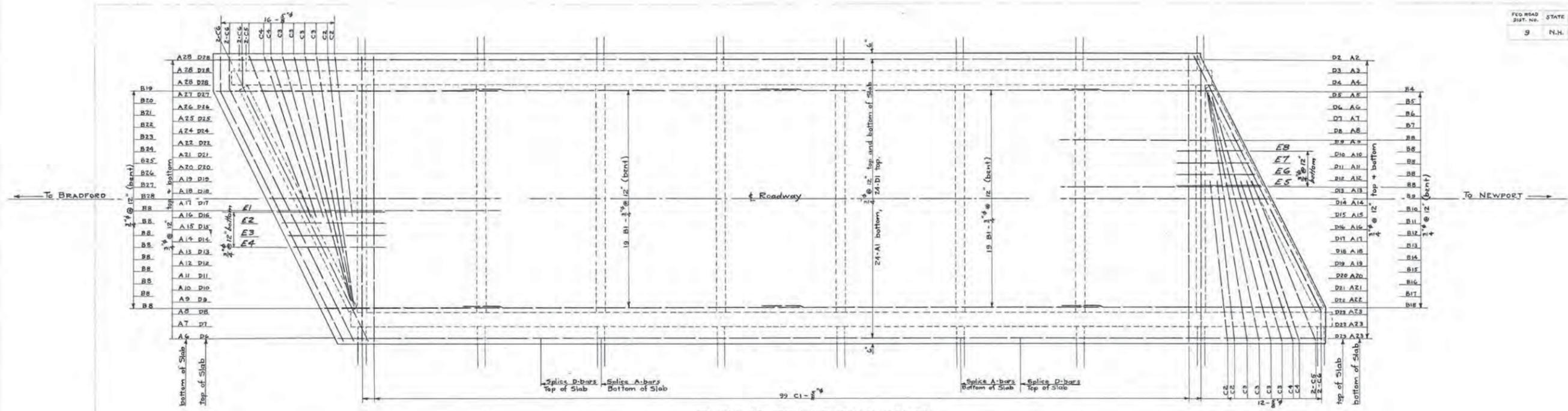


SECTION C-C  
Scale 1'-1'-0"

STATE OF NEW HAMPSHIRE  
HIGHWAY DEPARTMENT  
TOWN NEWBURY  
PROJECT F.A. 208C  
LOCATION NEWBURY CUTOFF STA 5+052  
ROAD CENTRAL ROAD ROUTE 103  
STREAM ANDREW BROOK  
DESIGNED BY G.R.W. DATE 4-23-37  
DRAWN " " " 4-24-37  
TRACED " BHD " " 2-2-38  
CHECKED " " " 6-30-37  
SHEET 8 OF 46 SHEETS

NH Proj. No. P40

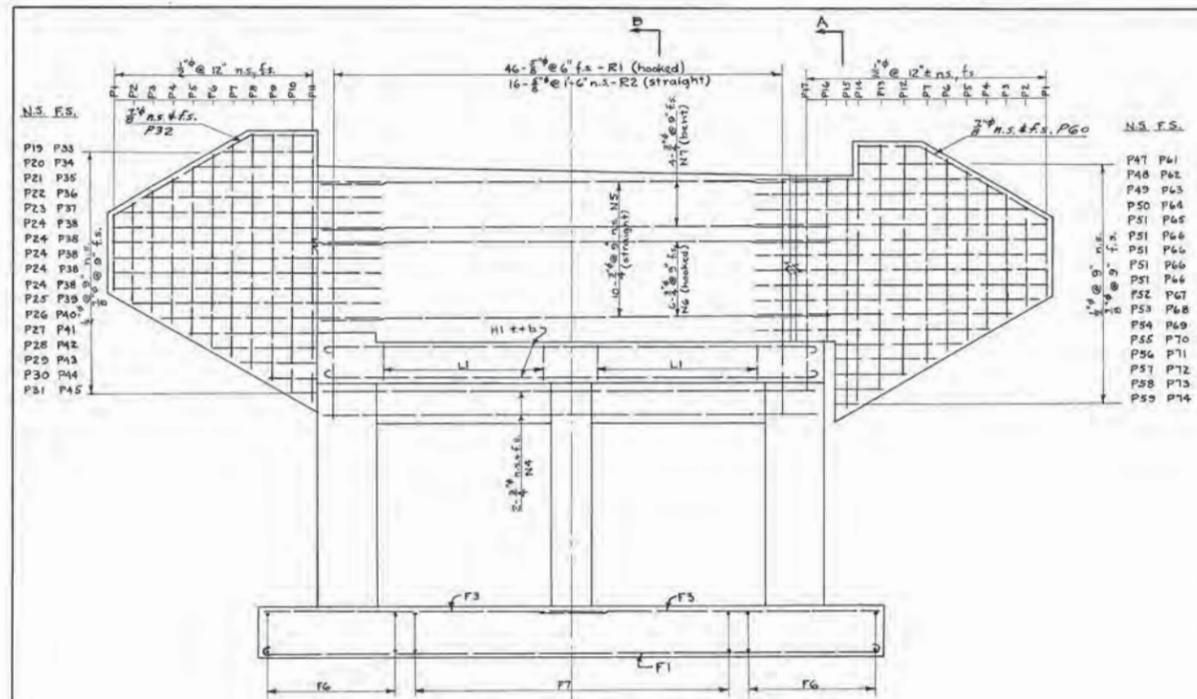
FILE No. 1-12-1-3  
210-29



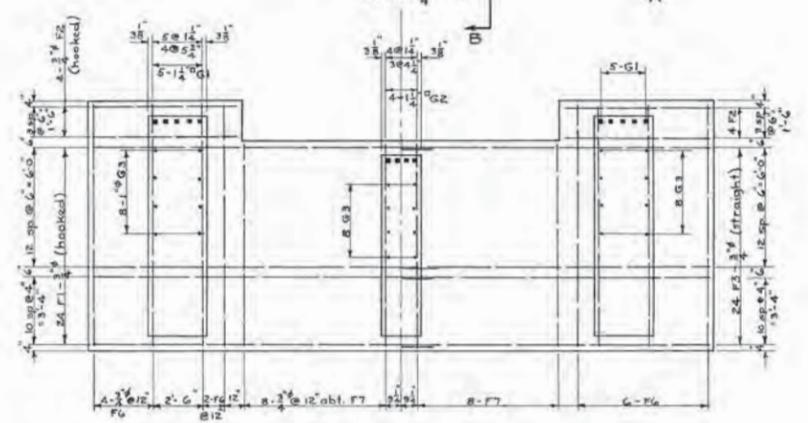
STATE OF NEW HAMPSHIRE  
HIGHWAY DEPARTMENT  
TOWN NEWBURY  
PROJECT F.A. 208 C  
LOCATION NEWBURY CUTOFF STA. 5+85+  
ROAD CENTRAL ROAD ROUTE 103  
STREAM ANDREW BROOK  
DESIGNED BY G.R.W. DATE 4-23-37  
DRAWN " " " "  
TRACED " " " "  
CHECKED - *Amv* " 6-30-37  
SHEET 9 OF 46 SHEETS  
FILE NO. ~~2-16-279~~  
1-14-1-3

"E" bars added  
Rev. 7-12-37 AMW  
NH Proj. No. P40

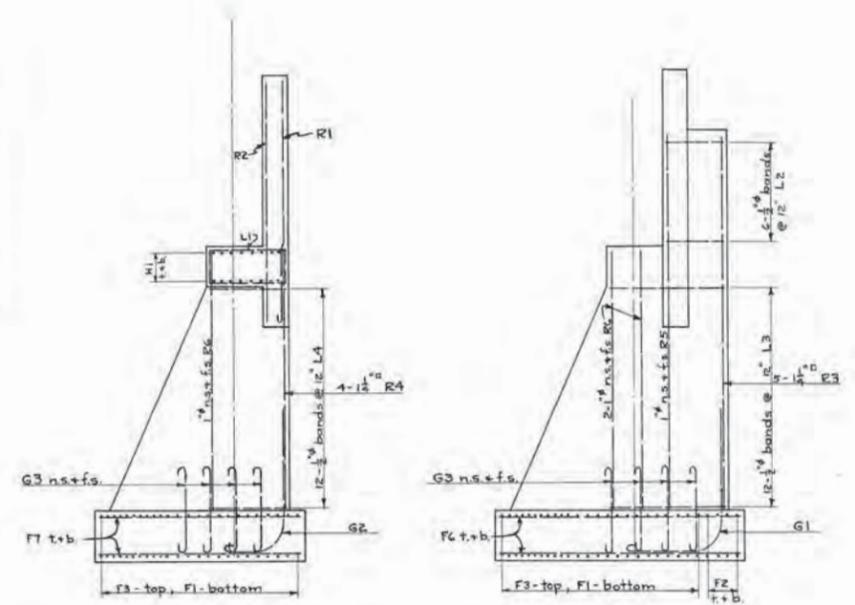
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N.H.	FA 208C	1936	13	46



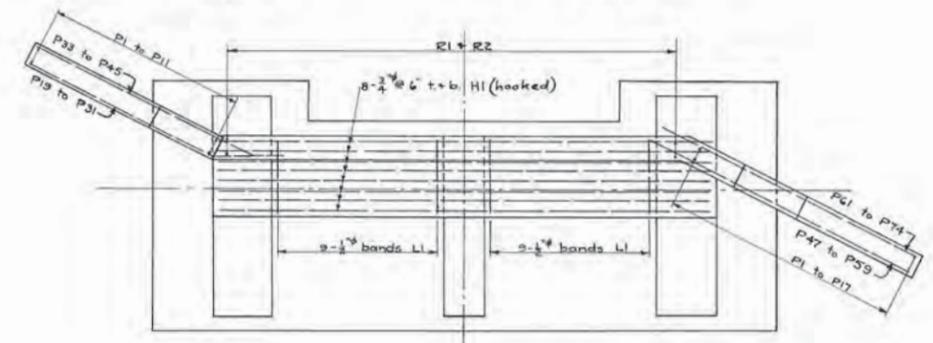
ELEVATION (DEVELOPED)  
Scale 1/4" = 1'-0"



HALF PLAN BOTTOM      HALF PLAN TOP  
FOOTING REINFORCEMENT  
Scale 1/4" = 1'-0"



SECTION B-B      SECTION A-A  
Scale 1/4" = 1'-0"



PLAN  
Scale 1/4" = 1'-0"

SOUTH ABUTMENT

STATE OF NEW HAMPSHIRE HIGHWAY DEPARTMENT	
Town	NEWBURY
Project	FA 208C
Location	NEWBURY CUT-OFF
Road	CENTRAL ROAD, ROUTE 103
Stream	ANDREW BROOK
Design by	G.R.W.      Date 5-28-37
Drawn	"      "      "
Traced	"      "      "
Checked	Ann      6-30-37
Sheet 13 of 46 Sheets	

P32 & P60 bars revised.  
Rev. 7-12-37 A.M.W.

N.H. Proj. No. P10

FILE NO. 6-18-6-3