FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	I-IG-75-5(5)134	

1 / 289

ALLEN & HANCOCK COUNTIES
ALL-25-19.71 HAN-25-0.00

STATE OF OHIO
DEPARTMENT OF HIGHWAYS

ALL-25-19.71
HAN-25-0.00

RICHLAND TOWNSHIP, ALLEN COUNTY
ORANGE & UNION TOWNSHIPS, HANCOCK COUNTY
AND VILLAGE OF BLUFFTON —

GRADE CROSSING ELIMINATION WITH THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD

I-IG-75-5(5)134

LIMITED ACCESS

This improvement is especially designed for through traffic and has been declared a limited access highway or freeway by action of the Director of Highways in accordance with the provisions of Section 5511.02 of the Revised Code of Ohio.

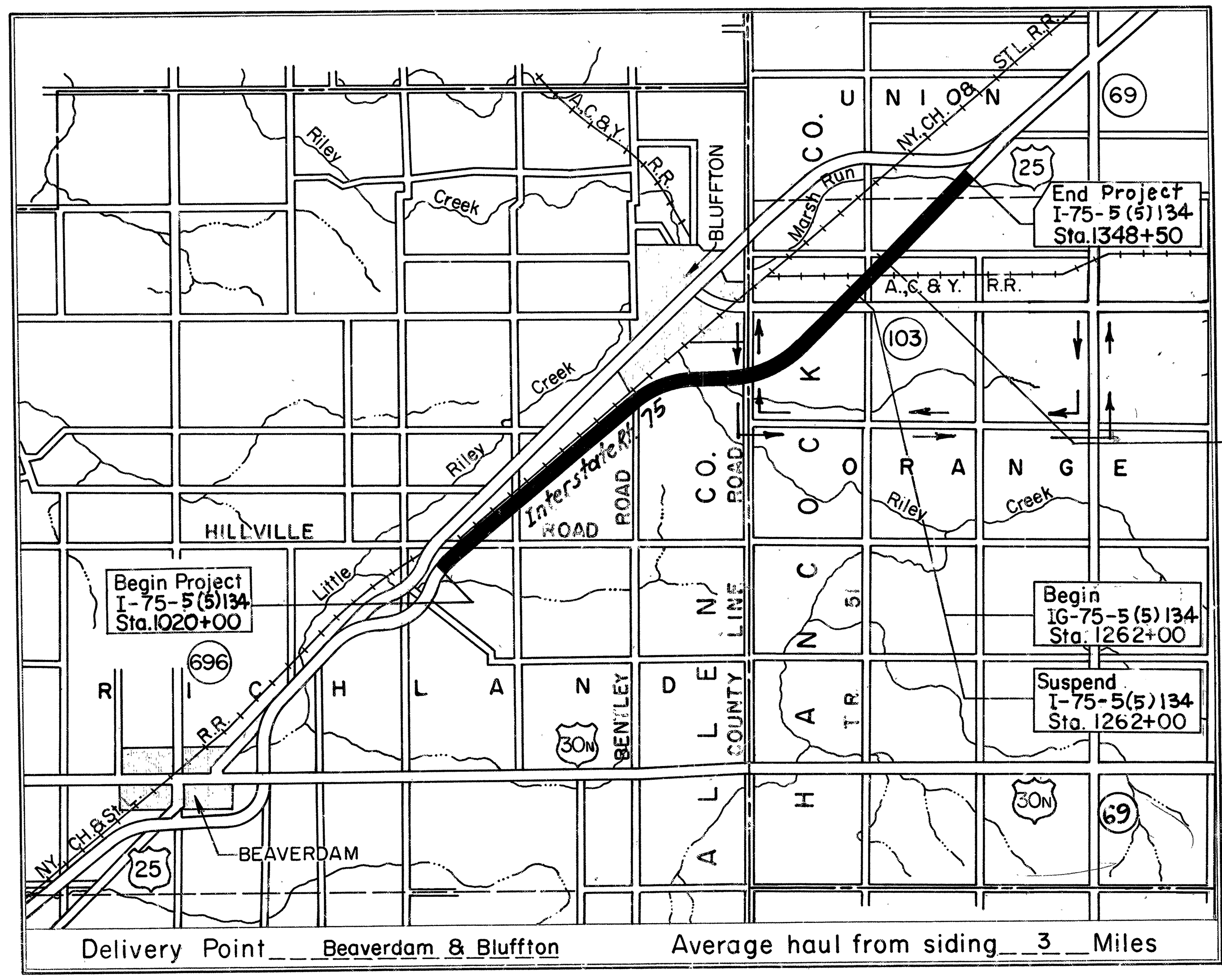
NOTE:
TOTAL SHEET NUMBERS APPEARING THROUGHOUT THE PLANS AS 289 SHALL BE CONSIDERED TO BE 293.

CONVENTIONAL SIGNS

- State Line
- County Line
- Township Line
- Section Line
- Corporation Line
- Fence Line
- Center Line
- Power Poles
- Telephone Poles
- Steam Railroad — or
- Guard Rail (proposed)
- Guard Rail (existing)
- Drain Pipe (proposed)
- Drain Pipe (existing)
- Property Line — P/L — or — P/L
- Right-of-Way — R/W
- Limited Access — LA
- Existing R/W & L/A
- Sanitary Sewer Pipe — S — S

Revised Sheets Nos. 14, 15 and 15-A R.E.C. 11-26-62

INDEX OF SHEETS



End IG-75-5(5)134
Resume I-75-5(5)134
Sta. 1287+00

LOCATION MAP

SCALE OF MILES 0 1 2 3

Portion to be improved
State Roads
Other Roads
Detour shown thus

SCALES

Plan — 1" = 50'
Profile: Horizontal — 1" = 50'
Profile: Vertical — 1" = 5'
Cross Sections — 1" = 10'

The standard specifications of the State of Ohio, Department of Highways, including changes and supplemental specifications listed in the proposal shall govern this improvement.

The right of way for this improvement will be provided by the State of Ohio.

I hereby, approve these plans and declare that the making of this improvement will not require the closing of the highway to traffic and that provisions for the maintenance and safety of traffic will be as set forth on the plans and estimates.

Approved ____ (signed)
Date 5-17-62 Division Deputy Director

Approved ____ (signed)
Date 8-17-62 Engineer of Bridges

Approved ____ (signed)
Date 8-21-62 Engineer of Location & Design

Approved ____ (signed)
Date 8-21-62 Deputy Director of Design & Construction

Approved ____
Date ____ Deputy Director of Right of Way

Approved ____ (signed)
Date 8-22-62 Deputy Director of Planning & Programming

Approved ____ G. A. Berry
Date 8-22-62 First Assistant Director

Approved ____ E. S. Preston
Date 8-22-62 Director of Highways

Approved ____ Chief Engineer
Date ____ Akron, Canton & Youngstown Railroad

Approved ____ Chief Engineer
Date ____ New York, Chicago & St. Louis Railroad

LINE DATA

I-75-5(5)134	Begin Project	Sta. 1020 + 00	
	Suspend Project	Sta. 1262 + 00	
	Gross Length		24,200.00 Lin. Ft.
	Resume Project	Sta. 1287 + 00	
	End Project	Sta. 1348 + 50	
	Gross Length		6,150.00 Lin. Ft.
	Gross Length Project		30,350.00 Lin. Ft.
	Adjust for Station Equations		-12.71 Lin. Ft.
	Sta. 1037 + 75.00 Bk. = Sta. 1037 + 70.04 Fwd. Add. (4.96')		
	Sta. 1174 + 75.00 Bk. = Sta. 1174 + 92.67 Fwd. Deduct (17.67')		
	Net Length Project		30,337.29 Lin. Ft. or 5.745 Miles
	Add for Transition 200.00 + 290.00 =		490.00 Lin. Ft.
	Net Length Work		30,827.29 Lin. Ft. or 5.838 Miles
	Add for Side Roads (See Sh. No. 10)		11,643.00 Lin. Ft.
	Total Net Length Work		42,470.29 Lin. Ft. or 8.043 Miles
IG-75-5(5)134	Begin Project	Sta. 1262 + 00	
	End Project	Sta. 1287 + 00	
	Net Length Work & Project		2,500.00 Lin. Ft. or 0.473 Miles
TOTAL	Net Length Project		32,837.29 Lin. Ft. or 6.219 Miles
	Net Length Work		44,970.29 Lin. Ft. or 8.517 Miles

File No. ALLEN COUNTY ALL-25-19.71
HANCOCK COUNTY HAN-25-0.00
Date of Letting ____ 196_
Contract No. ____

STANDARD DRAWINGS

DRAWING	DATE	DRAWING	DATE	DRAWING	DATE	DRAWING	DATE	DRAWING	DATE
B-T-70-71	11-15-60	I-1	11-15-60	L-1	4-1-50	AR-1-57	4-2-62	I-15 No.5	6-1-61
B-T-71R	3-2-53	I-8 C.B.No.4	7-1-58	L-3	4-1-50	AS-1-54	12-1-54	I-8C.B.No.2-2-A&B	3-2-59
DR-1	1-3-55	I-8 C.B.No.5	7-1-58	L-3-A	4-1-50	CS-1-54 Shts. 1&2	7-16-56	I-8C.B.Nos.2-3&2-4	1-26-59
F-1	9-1-59	I-12	7-1-54	L.J. No.1	7-1-55	CSB-1-47	8-25-49	FACI-1	12-27-61
F-3	9-1-59	I-14 G	1-22-52	RI-1	7-15-58	CSB-2-56 Shts. 2&3	2-2-59	FACI-2	12-27-61
G-7.07	6-1-56	I-15 No.2A	8-17-60	T-35	1-2-56	RB-1-55	2-2-59	I-21-23	8-1-56
HW-E	11-15-60	I-15 No.6	7-1-59	T.J.	9-12-60	SP-53	6-30-61	I-15 No.1	11-15-60

SUPPLEMENTAL SPECIFICATIONS

B-112	8-21-61	I-127	R 1-15-62
18	R 6-15-59	I-128	7-31-59
S-207.10	4-25-61	I-129	R 4-5-61
S-307	8-23-60	M-107.18	R 4-3-61
C.E. 101.04	5-22-56	M-109.28	R 8-12-59
I-125	R.6-26-61	I-212	R.6-23-61

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

APPROVED

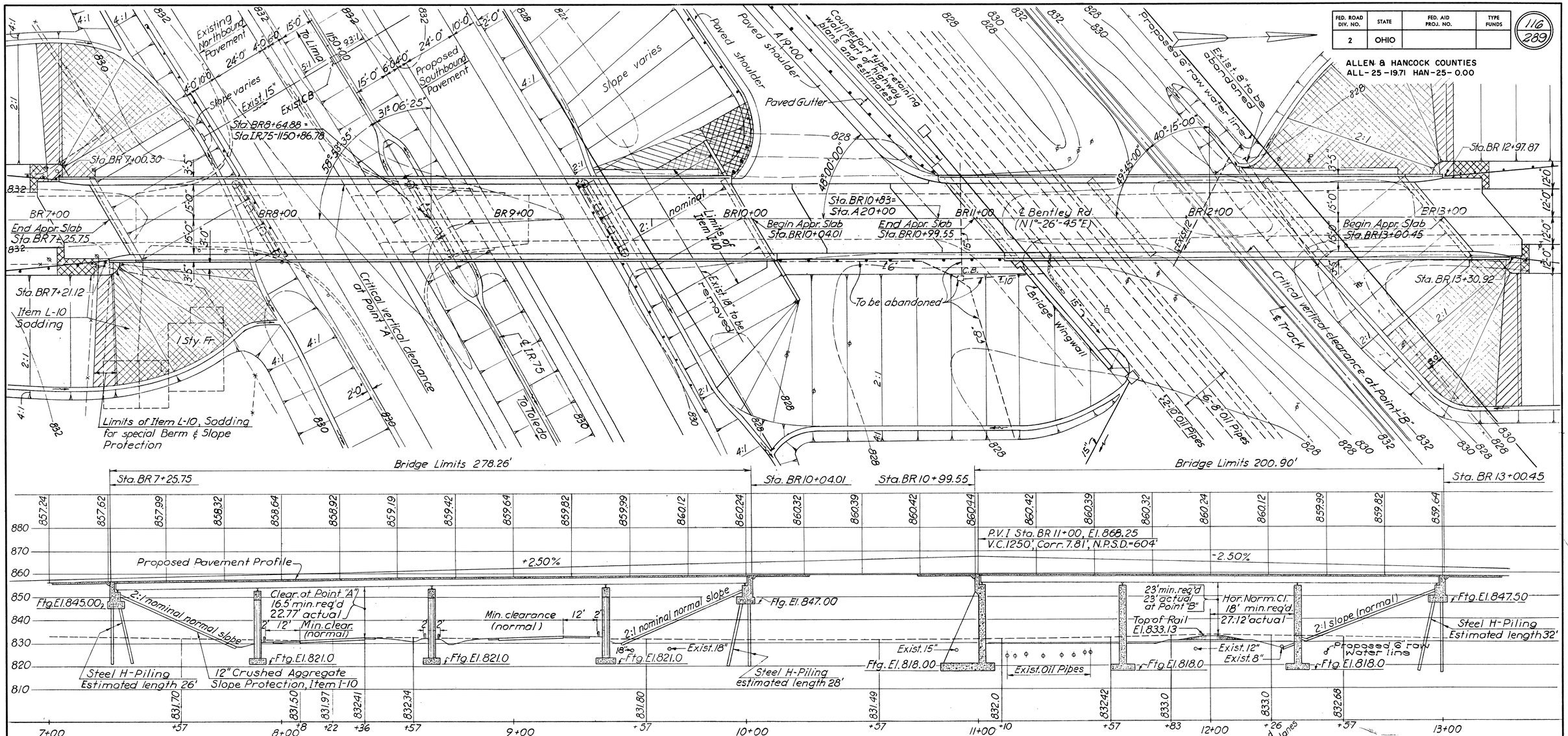
DIVISION ENGINEER ____ DATE ____

Rev. 9-10-62

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

116
289

ALLEN & HANCOCK COUNTIES
ALL-25-19.71 HAN-25-0.00



NOTES:

1. All stub abutments shall be supported on 10BP42 Steel H-Piles. Piers, counterfort type high abutment and retaining walls shall be supported on spread footings founded on bedrock.
2. Foundation design and foundation quantities are based on a study of rod soundings and soilsampling made at the site. This sounding information, the accuracy of which the State does not guarantee, may be inspected in the office of the Bureau of Bridges in Columbus or in the Division office.
3. Curbs and pavements of existing Bentley Road grade crossing shall be removed according to Highway plans.
4. For relocation of affected utilities and R/W fences see Highway Plans.
5. Items L-10 are included in Highway estimates. For construction details see Highway plans.

BENCH MARKS

Sta. BR 3 +04.79
160' Lt.
Spike in ℗
Elev. 830.40

Sta. BR 10 + 16.34
60' Rt.
Spike in ℗
Elev. 830.60

Sta. BR 19+18.34
19' Lt.
Spike in ℗
Elev. 843.21

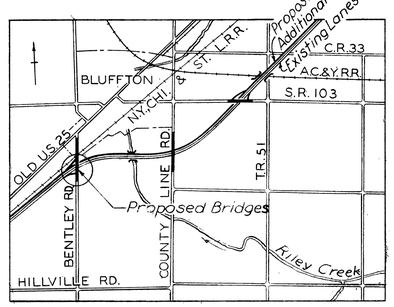
BRIDGE NO. ALL-25-2216

ALL-75-2212

TYPE: Continuous steel beam with reinf. conc. deck and reinf. conc. substructure
SPANS: 60'-8", 75'-10", 75'-10", 60'-8" c/c brgs.
ROADWAY: 30'-0" f/f of 2'-3" safety curbs
LOAD FREQUENCY: CF = 400 (57)
SKEW: 31°-06'-25" Rt. fwd.
WEARING SURFACE: 1" monolithic concrete
APPROACH SLAB: AS-1-54 (25' long)
ALIGNMENT: Tangent

BRIDGE NO. ALL-25-BENTLEY RD.

TYPE: Continuous steel beam with reinf. conc. deck and reinf. conc. substructure
SPANS: 60'-0", 75'-0", 60'-0" c/c brgs.
ROADWAY: 30'-0" f/f of 2'-3" safety curbs
LOAD FREQUENCY: CF = 400 (57)
SKEW: 40°-15'-00" Rt. fwd.
WEARING SURFACE: 1" monolithic concrete
APPROACH SLAB: AS-1-54 (25' long)
ALIGNMENT: Tangent
NO. OF TRACKS: One



LOCATION PLAN

I.R. 75 CURVE DATA

P.I. Sta. 1159+40.15

Δ = 39°-30' Rt.	L = 2962.50'
D = 1°-20'	P.C. 1143+97.30
R = 4297.18'	P.T. 1173+59.80
T = 1542.85'	E = 261.48'

FRANKLAND & LIENHARD
CONSULTING ENGINEERS
156 WILLIAM STREET NEW YORK, N.Y.

SITE PLAN ALL-75-2212

BRIDGE NO. ~~ALL-25-2216~~, BENTLEY ROAD OVER I.R. 75, I.R. 75 STA. 1150+86.78
BRIDGE NO. ALL-25-BENTLEY RD. BENTLEY RD. OVER N.Y., CHI. & ST. L.R.R., STA. BR. 12+00
ALLEN COUNTY SCALE: 1" = 20'
SEC. ALL-25-19.71 DATE:

PRESENT		TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
K.& K.	G.M.	A.Q.	M.V.	R.R.	

MAY 7 1998

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

117 289

ALLEN & HANCOCK COUNTIES
ALL-25-19.71 HAN-25-0.00

GENERAL NOTES FOR
BRIDGE NO. ALL-25-2216, BENTLEY RD. OVER I.R. 75 & BRIDGE NO. ALL-25-BENTLEY RD., BENTLEY RD. OVER NEW YORK, CHICAGO AND ST. LOUIS RAILROAD

1. DESIGN SPECIFICATIONS: These structures conform to the requirements of "Design Specifications for Highway Structures" of the State of Ohio, Department of Highways, dated 9-1-57 together with current revisions thereof.

2. REFERENCE shall be made to the following standard dwgs.
Continuous Steel Beam Bridge: CSB-2-56 sheets 2 and 3 revised Feb. 2, 1959.
Rockers and Bolsters: RB-1-55 revised Feb. 2, 1959
Aluminum Railing with Concrete Parapet: AR-1-57 revised **April 2, 1962.** Use Type A posts.

3. CONSTRUCTION PROCEEDURE:
A. Construct the South Abutment for Bridge No. ALL-25-Bentley Road and the adjacent retaining walls.
B. Place and compact the embankment up to the finished spill-thru slope and to the level of the subgrade for a distance of ±80 ft. back of the North Abutment of Bridge No. ALL-25-2216. From the above mentioned South Abutment the embankment shall be placed on a 1:1 slope starting from the Bridge seat (El. 855.67) until the level of the subgrade is met.
C. After the embankment is in place excavation for the North Abutment may be made and piles driven. The Contractor may then proceed to make the necessary excavation for the construction of Pier #3 of Bridge No. ALL-25-2216.

4. FOUNDATIONS ON ROCK: All substructures, except the three stub abutments shall be supported on spread footings founded on sound rock. Footings shall extend a minimum of 3" into undisturbed rock, or to the elevation shown, whichever is lower. Before construction, the open footing excavations shall be inspected in the field by a soil engineer or geologist, in order to insure that the excavations have been extended to sound rock throughout the entire founding area.

5. FOUNDATIONS ON PILES: All stub abutments shall be supported on 10BP42 steel piles. Piles shall be driven with a hammer of not less than 11,000 ft.-lbs. per blow to firm contact with rock. If the length of penetration is approximately equal to the depth of rock according to the bridge foundation investigation report, the firm contact shall be considered as attained when the capacity according to the formula in Sec. S-18.05 is not less than following value for a pile hammer of the indicated energy rating:
37 tons per pile using a 11,000 ft.-lb. hammer
32 tons per pile using a 15,000 ft.-lb. hammer or greater
If the energy rating of the hammer is between the ratings as shown above, the required formula capacity shall be determined by interpolation. The design load is 30 tons per pile.

6. EXCAVATION QUANTITIES include the removal of fill material required for construction of the stub abutments and the piers adjacent to the spill-thru slopes.

7. UTILITY LINES: All labor and expense involved in relocating and/or installing the affected utility lines shall be borne by the owners. The Contractors and Owners are requested to cooperate by arranging their work in such a manner that inconvenience to either will be held to a minimum.

8. CONCRETE DECK PLACING: In order to facilitate water curing of the concrete of the deck slab, the placing of concrete shall progress upgrade. The slab may be placed in sections, between transverse construction joints which are parallel to transverse reinforcing steel and are located near the center of any span.

9. WELDING of structural steel shall be Class "A" except as otherwise shown. Welds shown as field welds may, at the option of the Contractor, be made in the shop.

10. BEAM WEB WELDS: Butt welds in webs of beams may have convex reinforcement in accordance with Section S-7.22. Finishing flush by grinding is not required.

11. SHOP PAINTING STEEL: The surface preparation of all steel, requiring shop painting as per the Plans and Specifications, shall be accomplished by blast cleaning or power tool cleaning, except as noted in the Specifications regarding the use of Chromate Primers.

12. SHEET LEAD FOR ROCKERS AND BOLSTERS:
Sheet lead shall conform to the requirements of ASTM Designation B 29 without restriction to the Common Desilverized type.

13. DECK SLAB DEPTH: The dimension shown from the top of deck slab to top of steel beam is the nominal dimension. The quantity of deck concrete to be paid for shall be based on this dimension, even though deviation from it may be necessary because the top flange of the beam may not have the exact camber or conformation required to place it parallel to the finished grade.

14. DECK SLAB HAUNCH: The haunch in the deck slab adjacent to the top of steel beams, which is shown as 9" wide, may vary from this dimension with a minimum of 6" and maximum of 12". Maximum slope of haunch shall be one vertical to four horizontal. Payment for deck slab concrete shall be based on the 9" width.

15. MACHINE FINISH: The concrete bridge deck shall be machine finished as per Sec. S-1.23

GENERAL NOTES FOR
BRIDGE NO. ALL-25-BENTLEY RD., BENTLEY RD. OVER NEW YORK, CHICAGO & ST. LOUIS RAILROAD

1. CONSTRUCTION CLEARANCE of 20'-0" vertically above the top of the railroad rails and 8'-0" horizontally from the center of the track shall be maintained at all times.

2. PROTECTION OF EXCAVATION ADJACENT TO RAILROAD TRACK: Before construction is started, eight sets of prints showing details of the sheeting and bracing to be used for excavation adjacent to the railroad track shall be submitted to the Director for approval by the Department of Highways and by the Railroad Company.

3. ALIGNING RAILROAD TRACKS: After the Contractor has completed all excavation and backfill adjacent to the railroad track in compliance with Sec. E-2.04 and E-2.08 of the Construction and Material Specifications, subject to the supervision of the Railroad Company, nothing in Sec. E-2.04, E-2.08 or G-8.07 of the Specifications shall be construed to hold the Contractor liable for aligning and re-surfacing the railroad track.

4. EMBANKMENT for the North Abutment shall be placed and compacted up to the finished spill-thru slope and to the level of the subgrade for a distance of 200 ft. back of the abutment after which excavation shall be made for the abutment and piles driven. Excavation for Pier #2 shall not be made until after the piles have been driven.

5. FOUNDATION BEARING PRESSURE:
South Abut.: Max. Bearing Pressure = 5.5 Tons/Sq. Ft.
Piers : Max. Bearing Pressure = 5.25 Tons/Sq. Ft.

GENERAL NOTES FOR
BRIDGE NO. ALL-25-2216 BENTLEY RD. OVER I. R. 75

1. MAINTENANCE AND PROTECTION OF TRAFFIC: Two lanes of traffic with a minimum horizontal width of 36'-0", including shoulders shall be maintained on U.S. 25 at all times. The contractor shall safeguard the traveling public by providing platforms, nets or other suitable protection above the traveled lanes. A minimum vertical clearance of 15'-0" shall be provided at all times.

2. EMBANKMENT for the South Abutment shall be placed and compacted up to the finished spill-thru slope and to the level of the subgrade for a distance of 200 ft. back of the abutment after which excavation shall be made for the abutment and piles driven. Excavation for Pier #1 shall not be made until after the piles have been driven.

3. FOUNDATION BEARING PRESSURE:
Piers: Max. Bearing Pressure = 5 Tons/Sq. Ft.

ALL-75-2212

FRANKLAND & LIENHARD
CONSULTING ENGINEERS
156 WILLIAM STREET NEW YORK, N.Y.

GENERAL NOTES FOR
BRIDGE NO. ~~ALL-25-2216~~, BENTLEY ROAD OVER I.R. 75, I.R. 75 STA. 1150+86.78
BRIDGE NO. ALL-25-BENTLEY RD, BENTLEY RD. OVER N.Y. CHI. & ST. L. R.R., STA. BR. 12+00.00
ALLEN COUNTY
SEC. ALL-25-19.71 DATE:

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
A.Q.	J.E.	C.B.	R.R.	Y&H	5-4-62	

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

118 / 289

ALLEN & HANCOCK COUNTIES
ALL-25-19.71 HAN-25-0.00

ESTIMATED QUANTITIES									
ITEM	TOTAL	UNIT	DESCRIPTION	ABUT.	PIERS	SUPER.	GENERAL		
E-2	726	cu.yd.	Unclassified excavation for structures	237	489				
E-2	7	cu.yd.	Rock excavation		7				
E-2		L.S.	Cofferdams, cribs and sheeting				Lump		
S-1	322	cu.yd.	Class "C" concrete, superstructure			322			
Special	322	Each	Water reducing, set-retarding admixture *			322			
S-1	129	cu.yd.	Class "C" concrete, pier caps and columns		129				
S-1	118	cu.yd.	Class "E" concrete, abutments above footings	118					
S-1	171	cu.yd.	Class "E" concrete, footings	86	85				
S-4	162,077	lbs.	Reinforcing steel	13,327	68,610	80,140			
S-7	301,300	lbs.	Structural steel			301,300			
S-8	301,300	lbs.	Field painting of structural steel			301,300			
S-14	589	lin.ft.	Railing (aluminum rail & supports and concrete parapets)	39		550			
S-16		L.S.	First test pile **						
S-18	840	lin.ft.	Steel piling 10 BP 42	840					
S-29	39	cu.yd.	Porous backfill	39					
S-29	16	Each	Scuppers			16			
I-10	686	sq.yd.	Crushed aggregate slope protection	686					

* See Proposal Note

** Payment will be made for only one first test pile, Item S-16. It may be driven at either ALL-25-2216 or ALL-25-Bentley Rd.

FRANKLAND & LIENHARD
CONSULTING ENGINEERS
156 WILLIAM STREET — NEW YORK, N.Y.

ESTIMATED QUANTITIES, GENERAL PLAN & ELEVATION (SHEET 1)

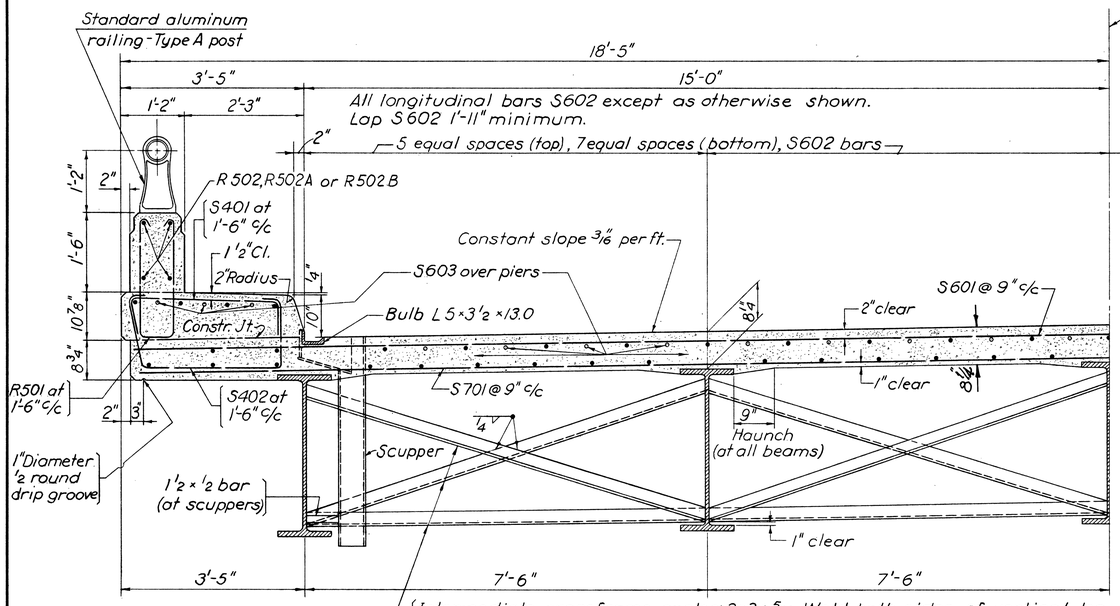
BRIDGE NO. ALL-~~25-2216~~
BENTLEY RD. OVER I.R. 75
ALLEN COUNTY — STA. 1150+86.78
SEC. ALL-25-19.71 — DATE:

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
A.Q.	O.M.	C.B.	R.R.	[illegible]	5-4-62	

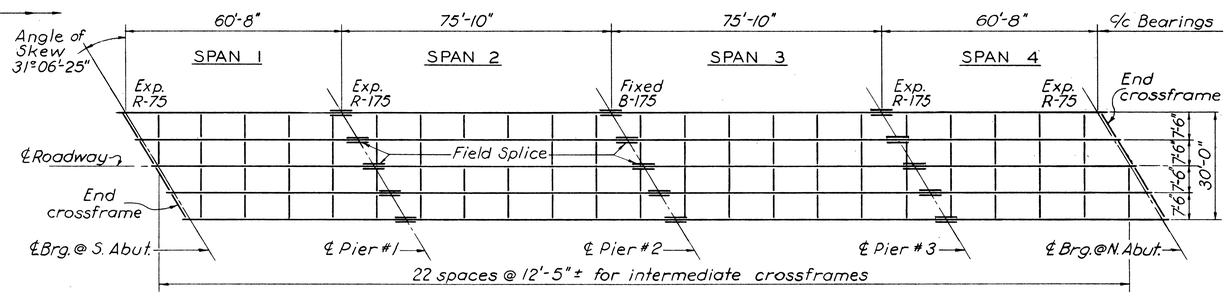
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

119
289

ALLEN & HANCOCK COUNTIES
ALL-25-19.71 HAN-25-0.00

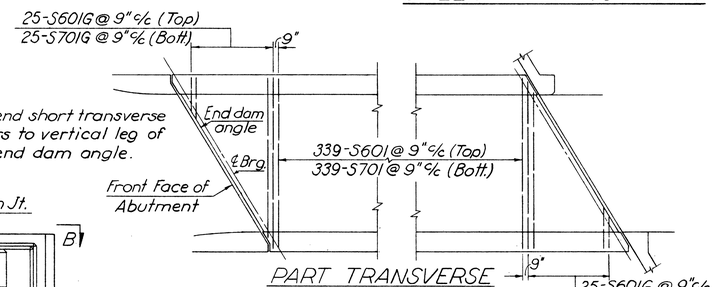


Symmetrical about ℄ Roadway



STEEL FRAMING PLAN

All beams 36 WF 182
Moment Plates:
At Piers 1 & 3 — Top plates 10 1/2 x 1/2 x 18'-8"; Bottom plates 13 1/2 x 9/16 x 18'-8"
At Pier 2 — Top plates 10 1/2 x 1/2 x 20'-10"; Bottom plates 13 1/2 x 9/16 x 20'-10"



PART TRANSVERSE REINFORCING STEEL LAYOUT

NOTES:

REFERENCE DRAWINGS

For details not shown see Standard Drawings listed on Sheet No. 117.

BEAM SPLICE WELDING PROCEDURE

1. Raise end of beam at second pier 2".
2. Butt-weld beam flange and web at first pier using the following sequence: make **one** pass on each flange, then two on the web; repeat, using one pass at each location, until welds are completed.
3. Weld top and bottom flange moment plates at first pier.
4. Lower end of beam at second pier.
5. Make splice at second and third piers in the same manner raising the end of the beams 2 1/8" at the third pier and 1 1/8" at the forward abutment.

CAMBER

No camber is required for beams in end spans and any curved beams shall be fabricated and erected with the convex flange up.

BAR MARKS

Bar marks followed by a suffix "G" (S601G and S701G) represent groups of bars of the same type, but of variable lengths with uniform increments. For details see Reinforcing Steel List.

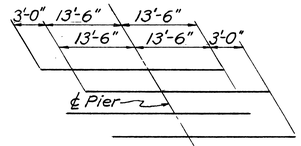
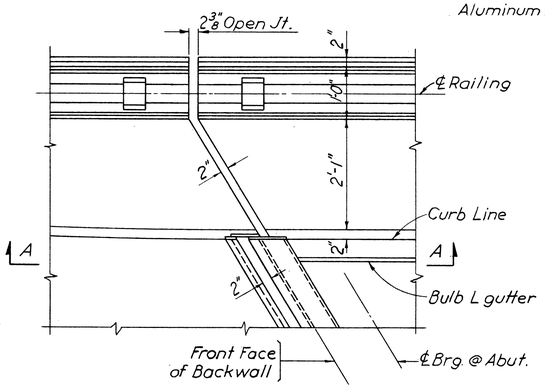


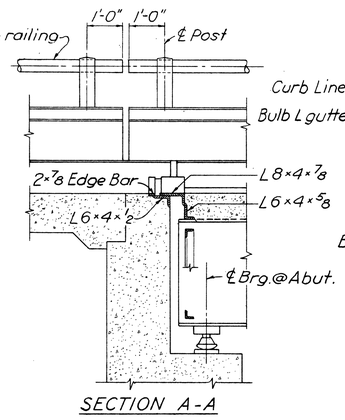
DIAGRAM SHOWING STAGGER OF S603 BARS OVER PIERS

HALF TRANSVERSE SECTION

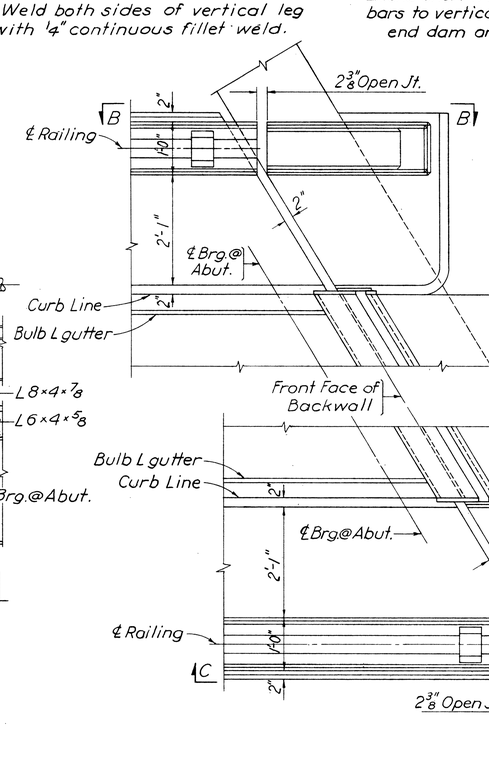
(Slab thickness shown includes 1" monolithic wearing surface.)



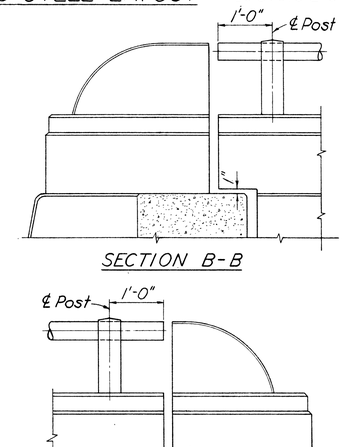
CORNER DETAIL @ SOUTH ABUTMENT



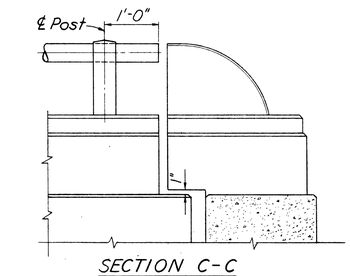
SECTION A-A



CORNER DETAIL @ NORTH ABUTMENT



SECTION B-B



SECTION C-C

DEFLECTIONS

LOCATION	END SPANS	INTERIOR SPANS
Deflection due to weight of steel	1/16"	1/8"
Deflection due to remaining dead load	5/16"	3/8"
Convexity required for vertical curve	1/4"	3/8"
Sum of deflection and convexity	5/8"	7/8"
Required camber	—	7/8"

FRANKLAND & LIENHARD
CONSULTING ENGINEERS
156 WILLIAM STREET NEW YORK, N.Y.

SUPERSTRUCTURE DETAILS

BRIDGE NO. ALL-25-2216

BENTLEY ROAD OVER I.R.75

ALLEN COUNTY STA. 1150+86.78
SEC. ALL-25-19.71 DATE:

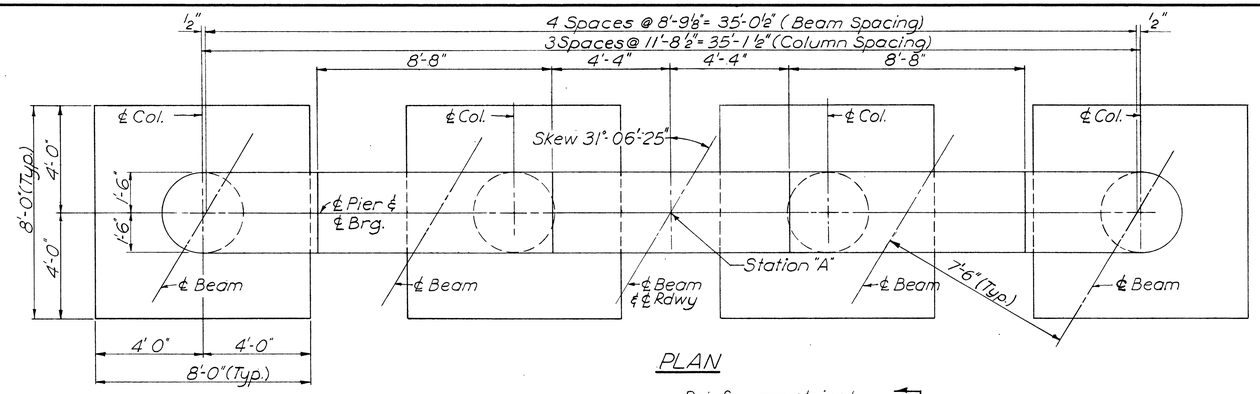
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
A.Q.	O.M.	C.B.	R.R.		5-4-62	

MAY 7 1962

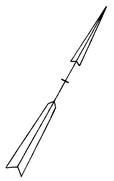
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

120
289

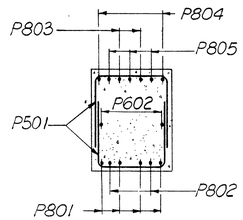
ALLEN & HANCOCK COUNTIES
ALL-25-19.71 HAN-25-0.00



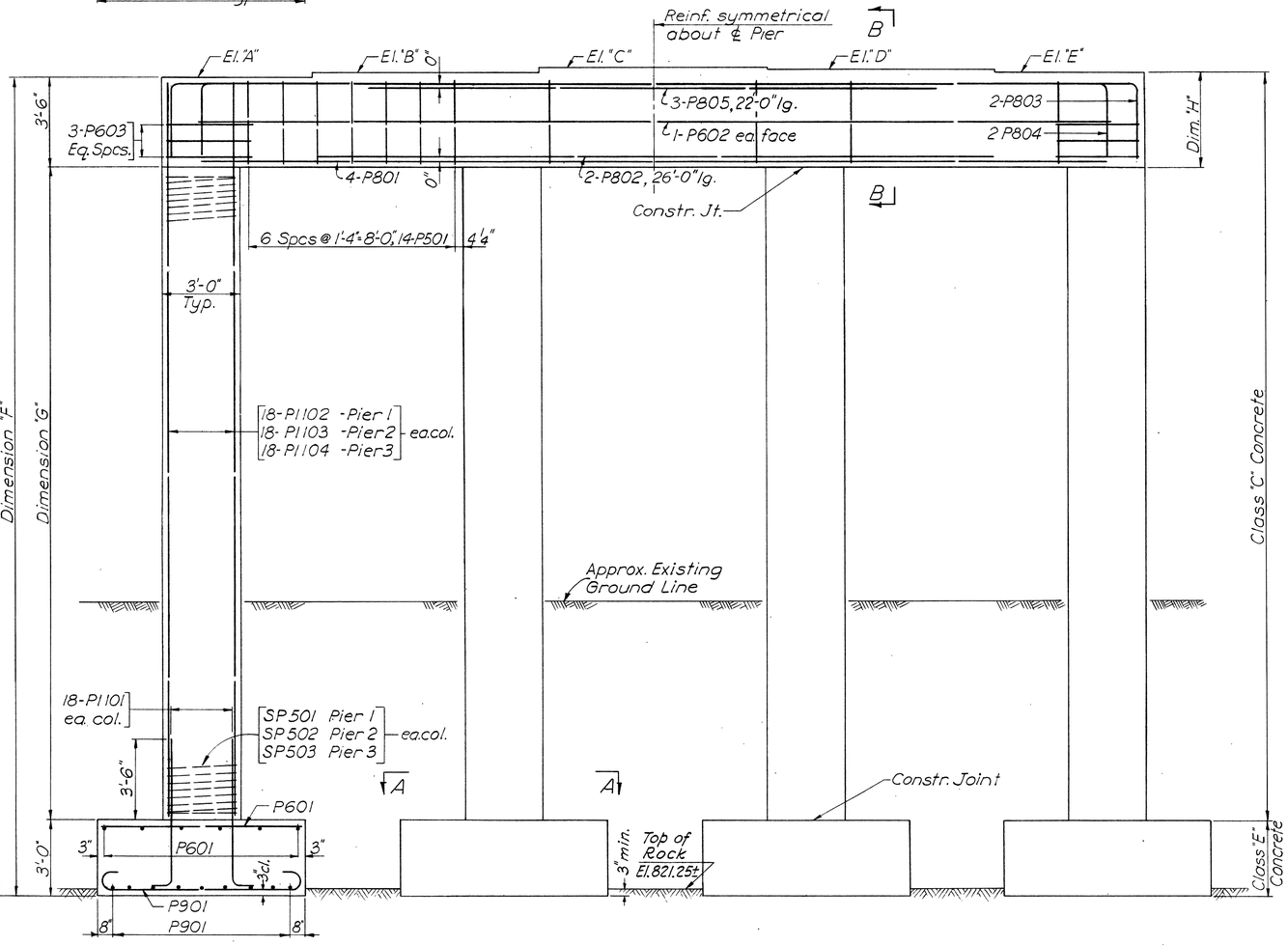
PLAN



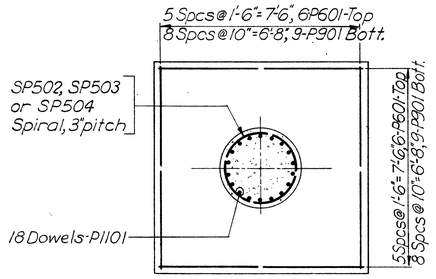
PIER	Station "A"	ELEVATIONS					DIMENSIONS		
		A	B	C	D	E	F	G	H
1	BR 7+89.05	853.12	853.30	853.47	853.41	853.35	32'-1⅛"	25'-7½"	3'-8¾"
2	BR 8+64.88	853.98	854.14	854.30	854.23	854.15	32'-1¾"	26'-5¾"	3'-8"
3	BR 9+40.71	854.61	854.75	854.90	854.81	854.72	33'-7⅜"	27'-1⅜"	3'-7⅜"



SECTION B-B



ELEVATION



SECTION A-A
(Typical for all footings and columns)

Notes
1- All reinforcing steel in pier shall be 2" clear from the face of concrete unless otherwise shown.

2- Placement of reinforcing steel in the bridge seat of Pier 2 shall be carefully checked so as to avoid interference with the bearing anchor bars.

3- For foundation notes and additional notes for piers see Sh. No. 117.

FRANKLAND & LIENHARD
CONSULTING ENGINEERS
156 WILLIAM STREET NEW YORK, N.Y.

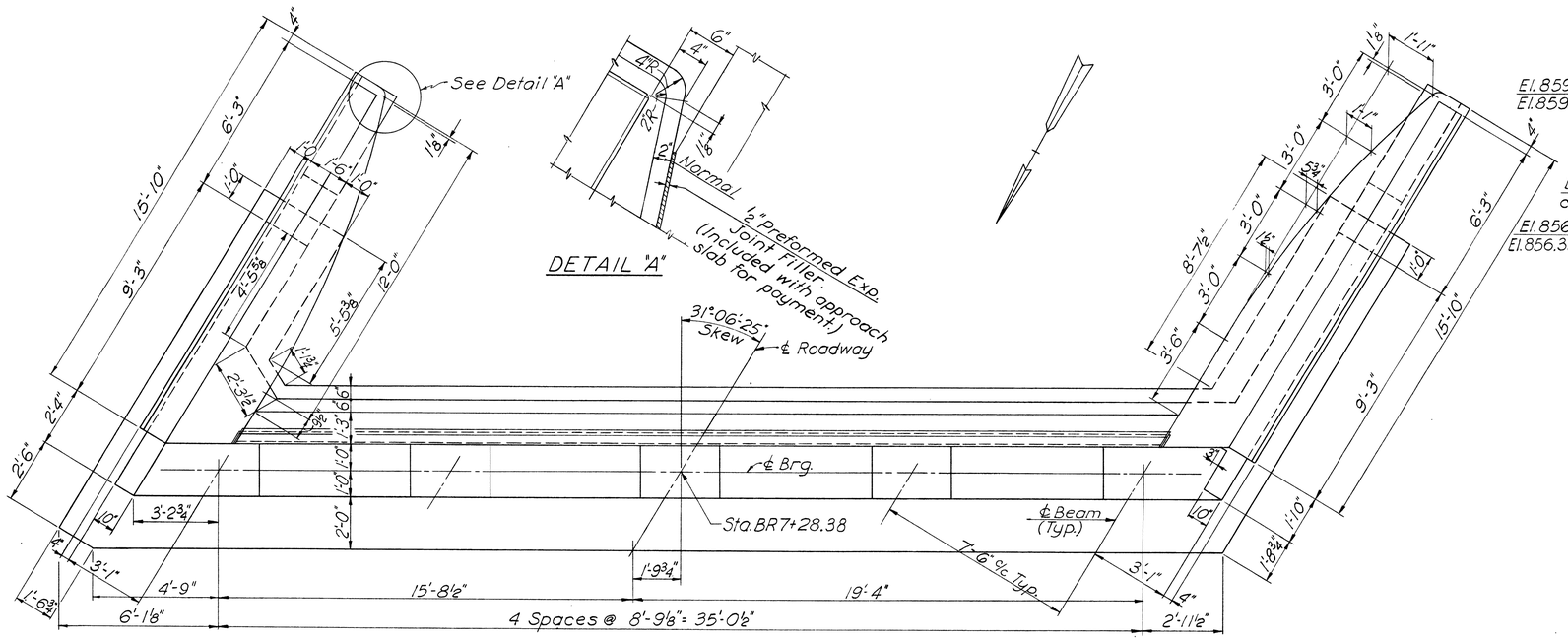
PIER DETAILS
BRIDGE NO. ALL-25-2216
BENTLEY RD. OVER I.R. 75
ALLEN COUNTY STA 1150+86.78
SEC. ALL-25-19.71 DATE:

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
R.R.	J.D.	C.B.	R.R.	YH	5-4-62	

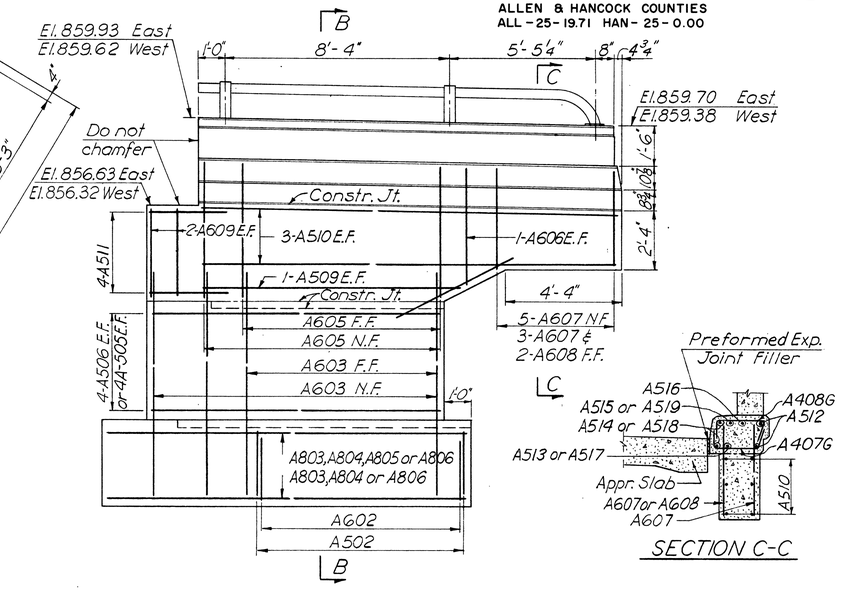
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

121
289

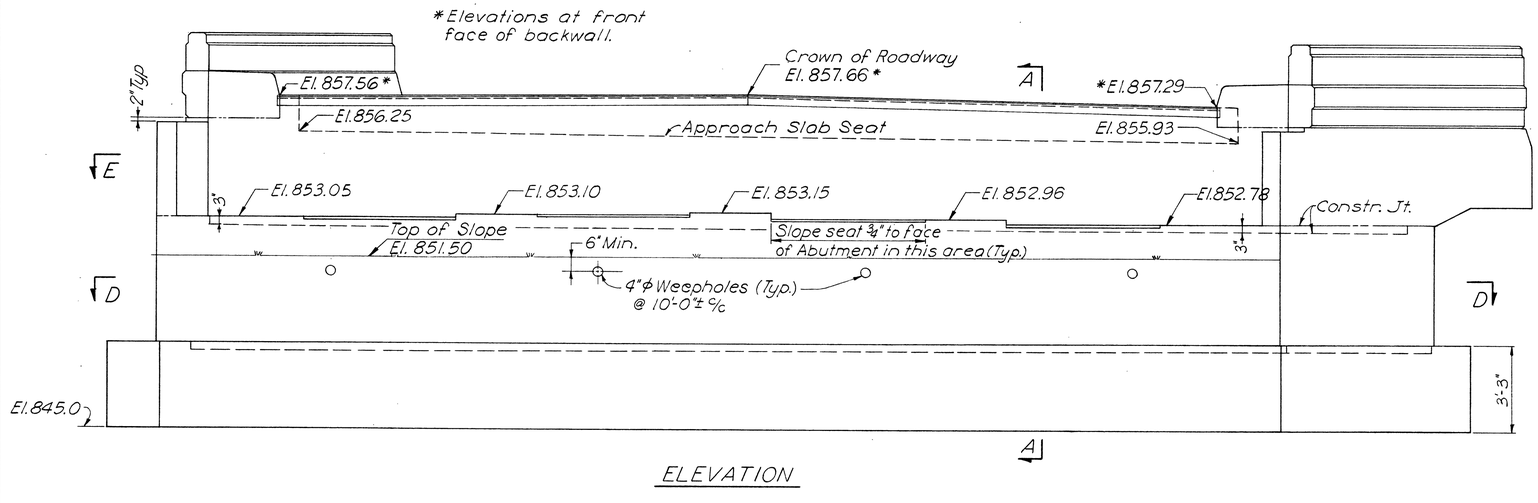
ALLEN & HANCOCK COUNTIES
ALL – 25 – 19.71 HAN – 25 – 0.00



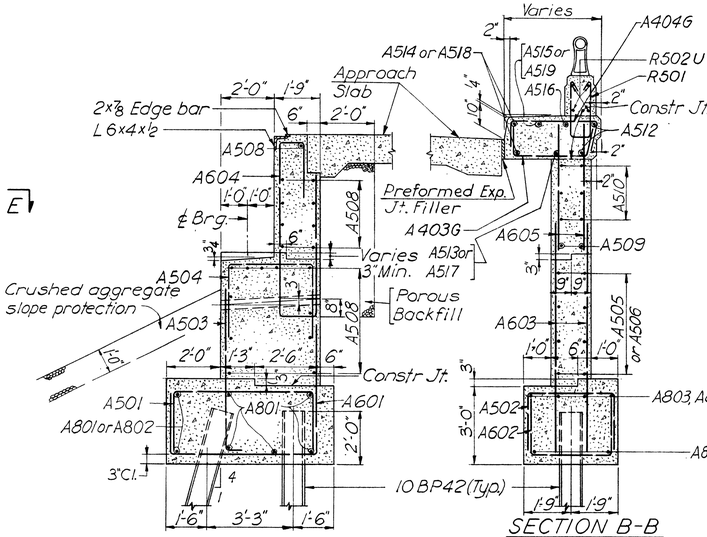
PLAN



END ELEVATION
WEST & EAST WINGWALLS



ELEVATION



SECTION A-A

SECTION B-B

Notes
For abutment notes see Sh. No. 117.
For sections D-D, E-E and additional details see Sh. No's. 122 & 123.

FRANKLAND & LIENHARD
CONSULTING ENGINEERS
156 WILLIAM STREET NEW YORK, N. Y.

SOUTH ABUTMENT DETAILS SHEET 1

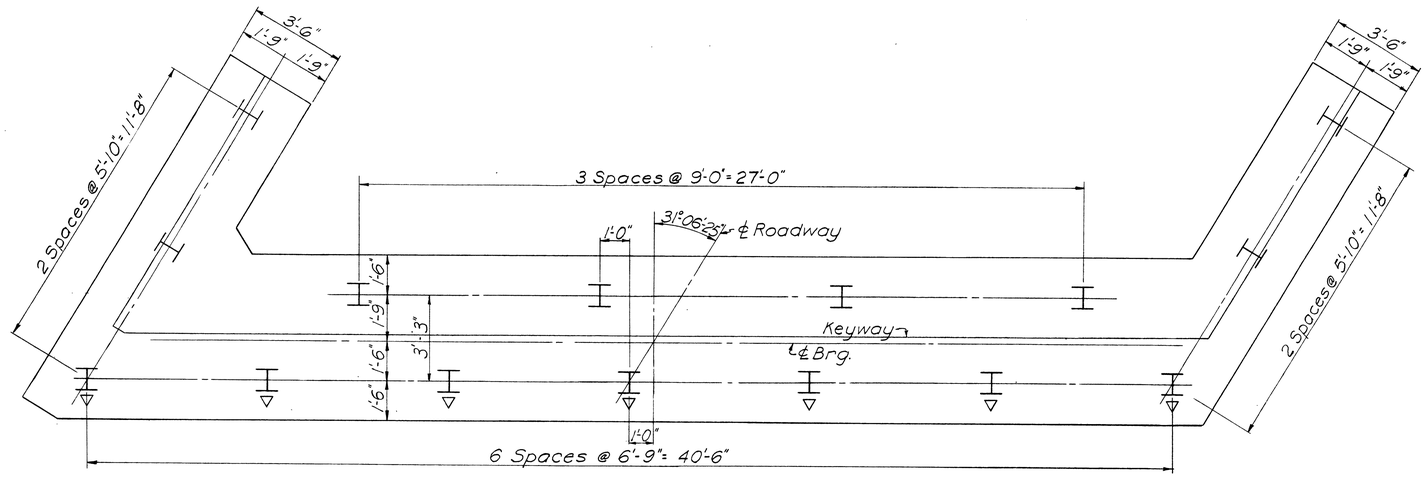
BRIDGE NO. ALL ~~-25-2216~~
BENTLEY RD. OVER I.R. 75
ALLEN COUNTY STA. 1150+86.78
SEC. ALL – 25 – 19.71 DATE:

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
P.L.	J.D.	C.B.	R.R.	YH	5·4·62	

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

122
289

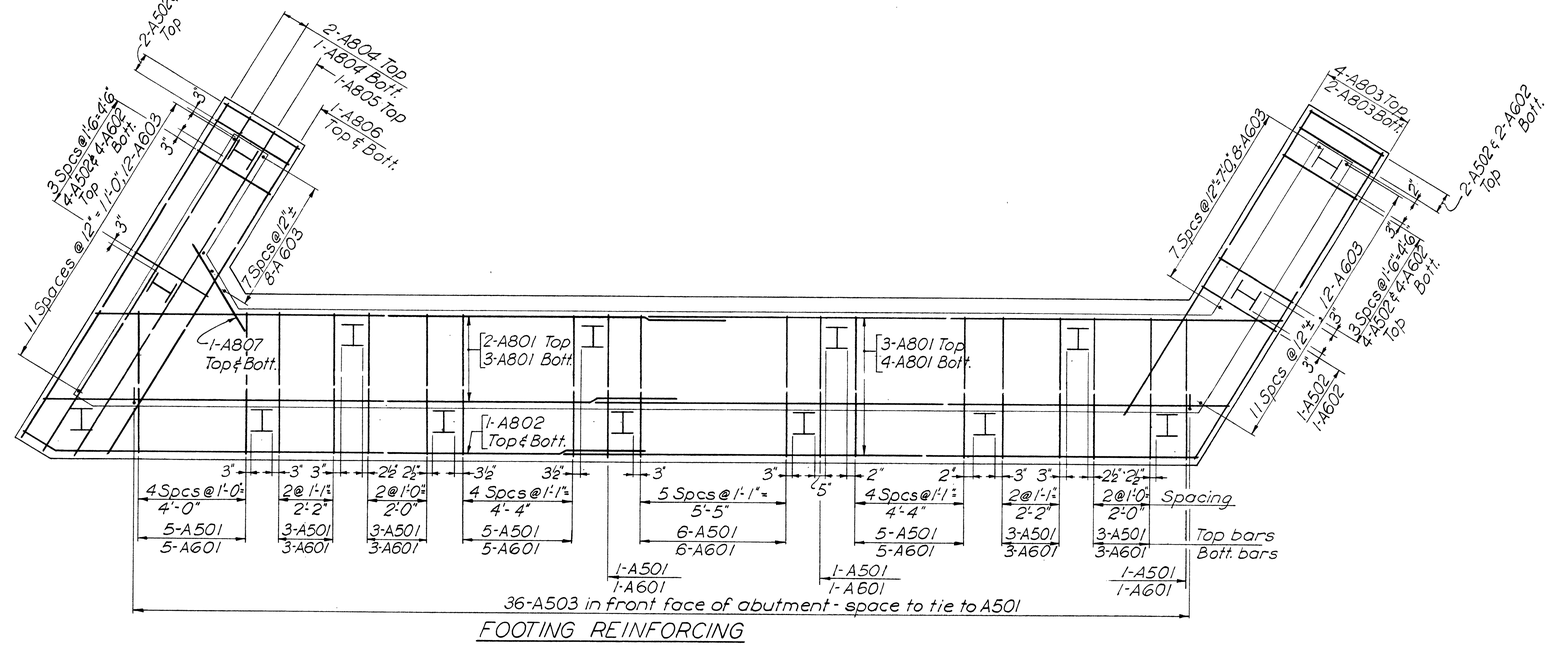
ALLEN & HANCOCK COUNTIES
ALL-25-19.71 HAN-25-0.00



PILE PLAN
All piles: 10BP42

Vertical Piles

Battered Piles (1 horiz., 4 vert.)



FOOTING REINFORCING

NOTES

1- All concrete shall be Class "E".

2- All reinforcing steel in abutments shall be 2" clear from the face of the concrete unless otherwise shown.

3- For details of end dam on abutment see Std. Dwg. CSB-2-56, revised Feb. 2, 1959, Sh. 2.

4- Porous backfill shall extend upward to the approach slab between the inside face of the wingwalls. Excavation therefor, in excess of that required for construction of the abutment, shall be considered as paid for in the bid price per cu. yd. paid for porous backfill.

FRANKLAND & LIENHARD
CONSULTING ENGINEERS
156 WILLIAM STREET NEW YORK, N.Y.

SOUTH ABUTMENT DETAILS SHEET 2

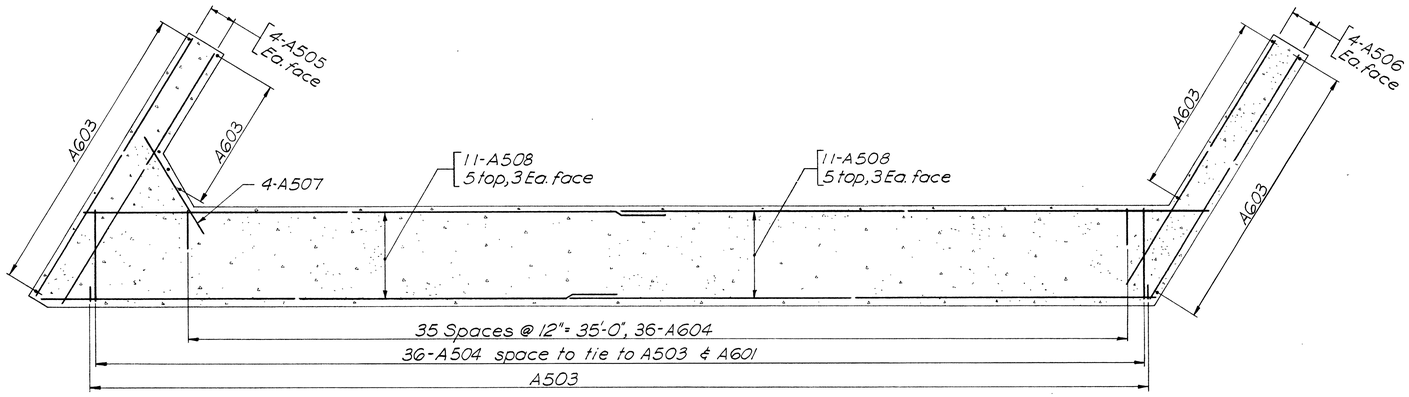
BRIDGE NO. ALL-25-2216
BENTLEY RD OVER I.R. 75
ALLEN COUNTY STA 1150+86.78
SEC ALL-25-19.71 DATE:

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
P.L.	J.D.	C.B.	R.R.	[illegible]	5-4-62	

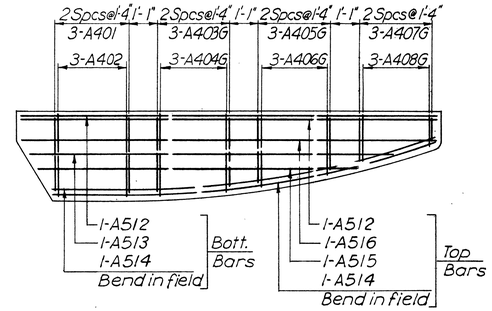
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

123
289

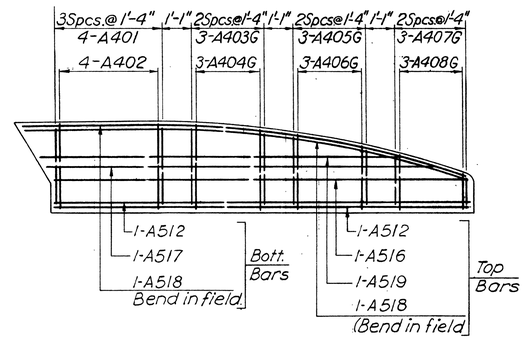
ALLEN & HANCOCK COUNTIES
ALL-25-19.71 HAN-25-0.00



SECTION D-D

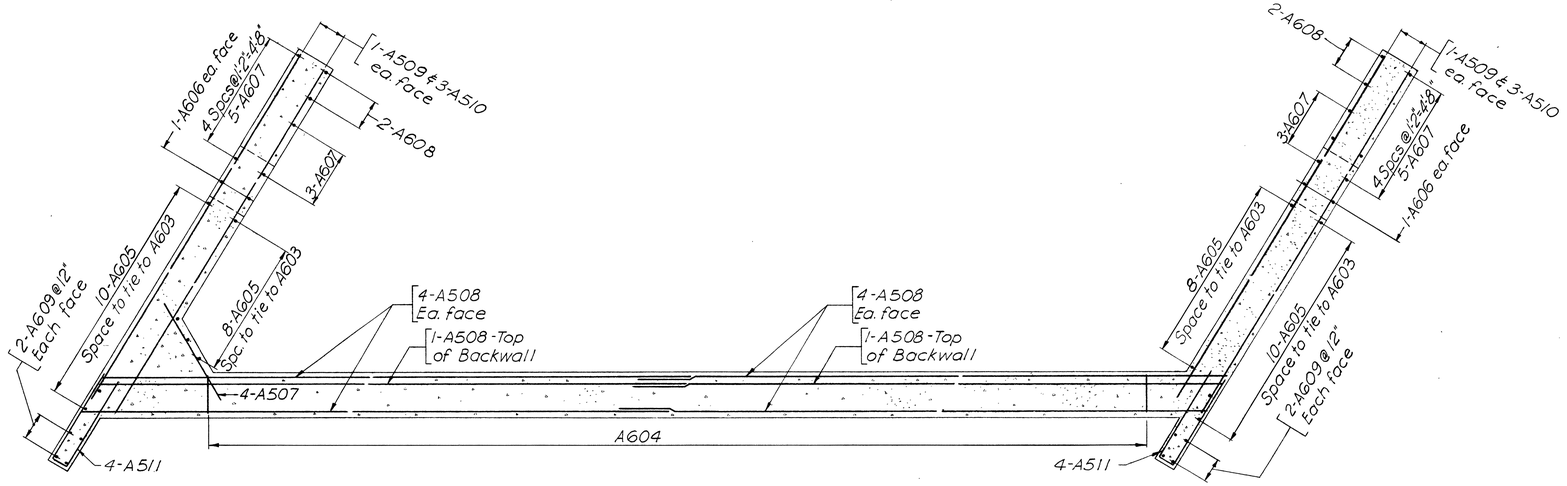


EAST WINGWALL



WEST WINGWALL

SAFETY CURB REINFORCEMENT PLANS



SECTION E-E

Note:
For location of Sections D-D & E-E,
see Sh. No. 121.

FRANKLAND & LIENHARD
CONSULTING ENGINEERS
156 WILLIAM STREET NEW YORK, N.Y.

SOUTH ABUTMENT DETAILS SHEET 3

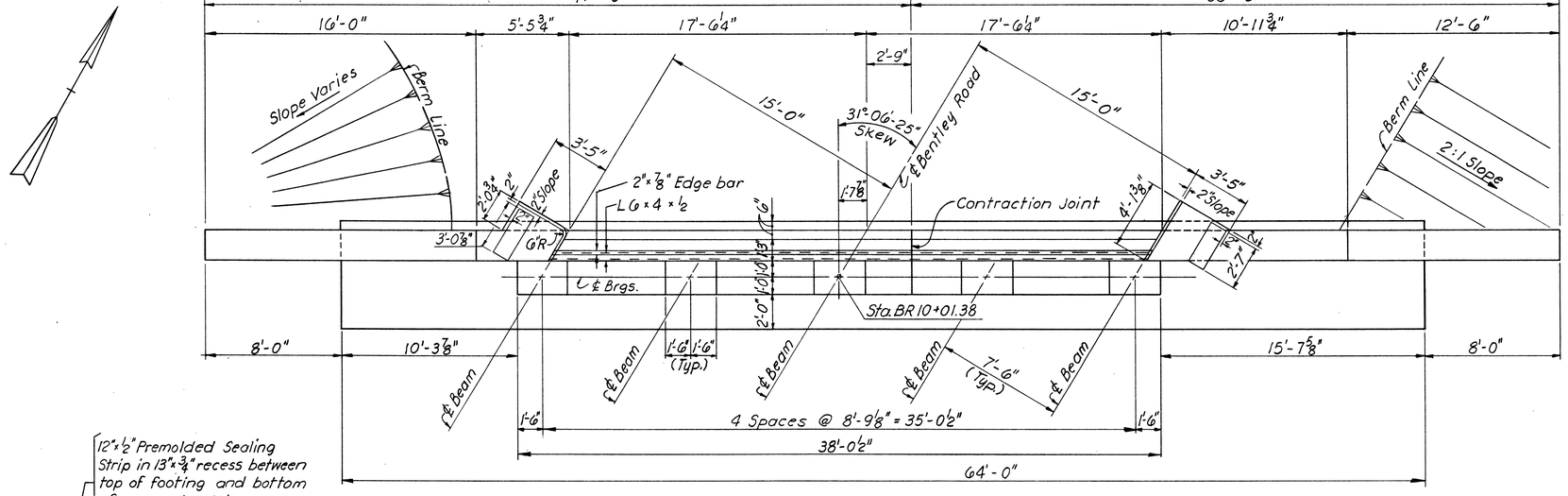
BRIDGE NO. ALL-25-2216
BENTLEY RD. OVER I.R.75
ALLEN COUNTY STA. 1150+86.78
SEC. ALL-25-19.71 DATE:

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
P.L.	J.D.	C.B.	R.R.		5-4-62	

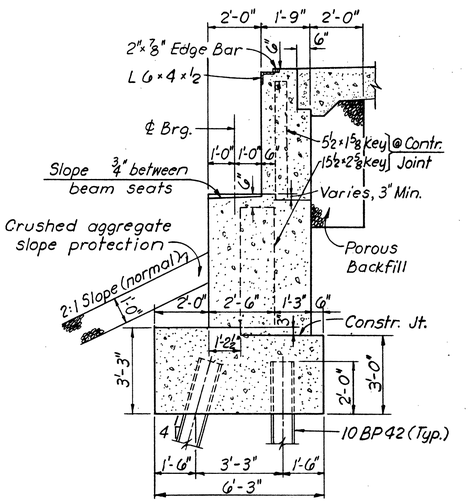
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

124
289

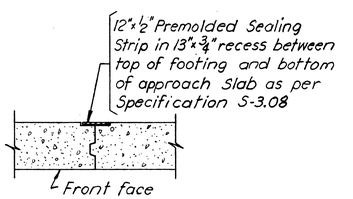
ALLEN & HANCOCK COUNTIES
ALL-25-19.71 HAN-25-0.00



PLAN

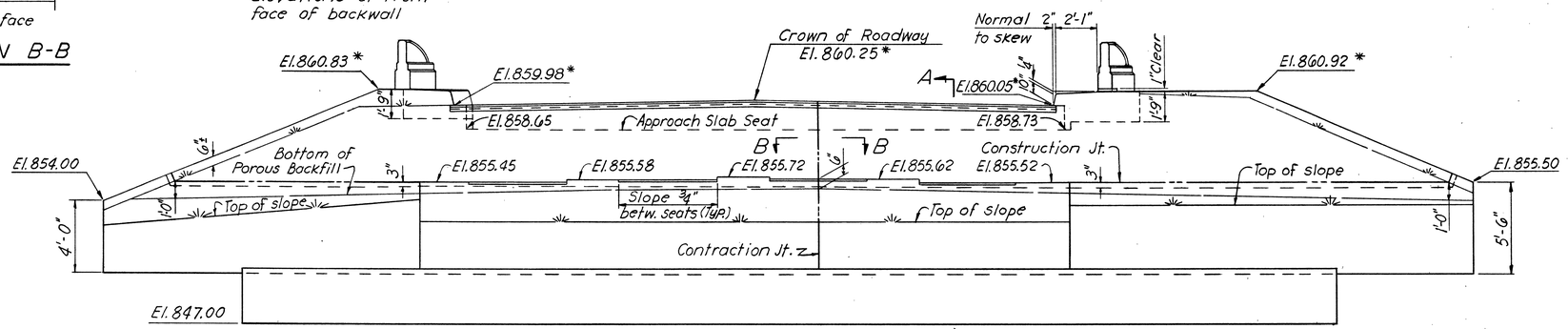


SECTION A-A

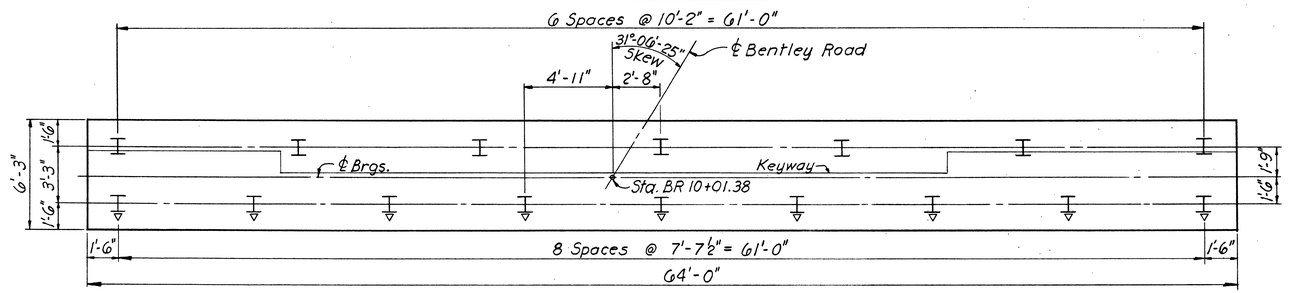


SECTION B-B

* Elevations at front face of backwall



ELEVATION



PILE PLAN

NOTES

1. All concrete shall be Class "E".
2. The portion of the end dam attached to the backwall shall be placed in segments not less than 6'-0" in length except the one between the apex of the crown and the contraction joint where butted joints must be provided. For additional details of end dam see Standard Drawing CSB-2-56 revised Feb. 2, 1959, Sheet 2.
3. Porous backfill shall extend upward to the approach slab and to the surface of the earth shoulders, and outward to the surface of the embankment slopes as shown. Excavation therefor, in excess of that required for construction of the abutment, shall be considered as paid for in the bid price per cu.yd. paid for porous backfill.
4. For additional notes on abutment see Sheet No. 117.

LEGEND

I Vertical piles

I Battered piles (1 horizontal, 4 vertical)

All piles to be 10 BP 42 steel piles

FRANKLAND & LIENHARD
CONSULTING ENGINEERS
156 WILLIAM STREET NEW YORK, N.Y.

NORTH ABUTMENT DETAILS SHEET 1

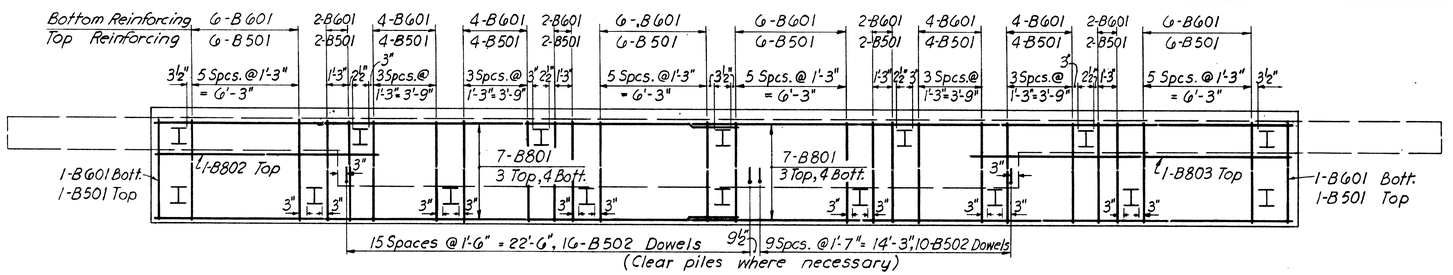
BRIDGE NO. ALL-25-2216
BENTLEY ROAD OVER I.R.75
ALLEN COUNTY STA. 1150+86.78
SEC. ALL-25-19.71 DATE:

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
P.L.	M.L.	C.B.	R.R.		5-4-62	

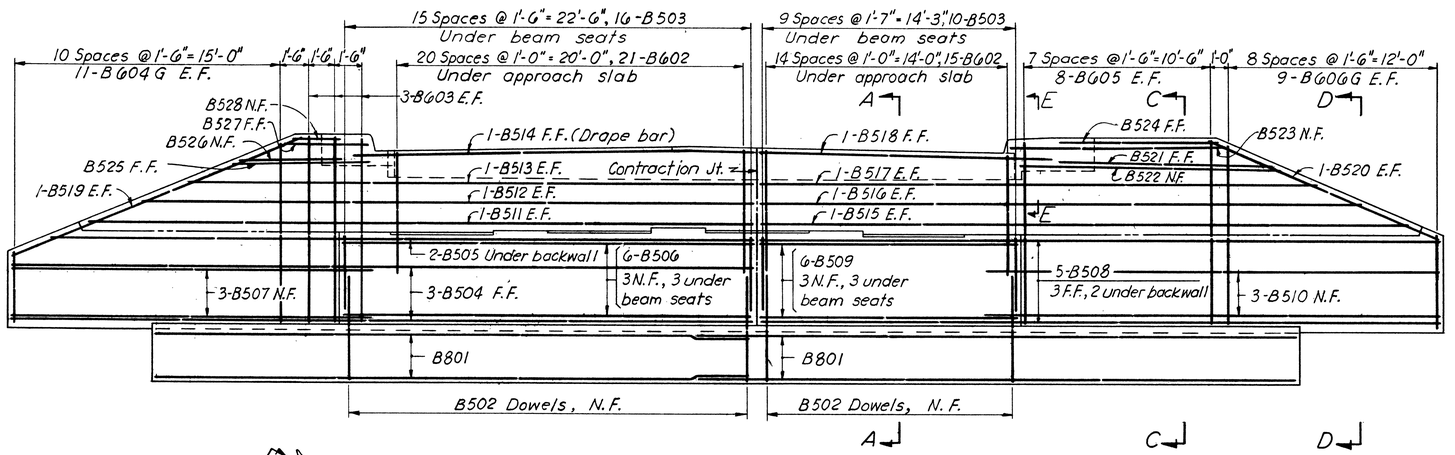
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

125
289

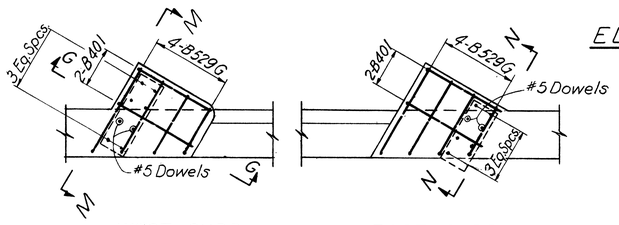
ALLEN & HANCOCK COUNTIES
ALL-25-19.71 HAN-25-0.00



FOOTING REINFORCEMENT PLAN

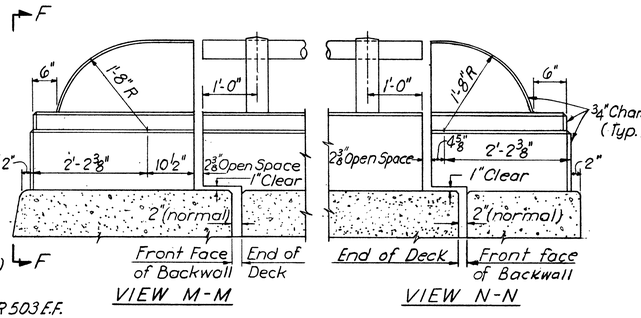


ELEVATION



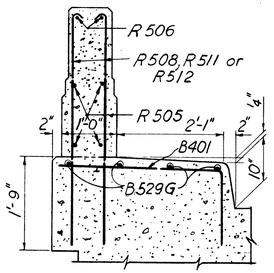
WEST CURB EAST CURB

SAFETY CURBS REINFORCEMENT PLAN

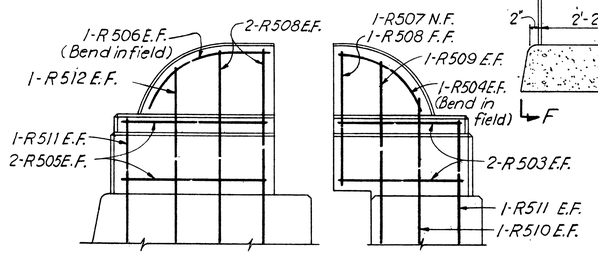


VIEW M-M VIEW N-N

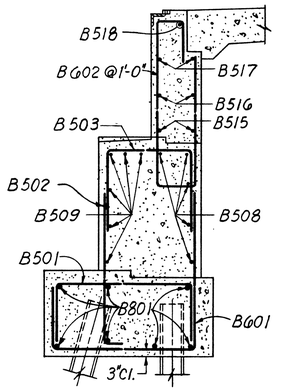
PARAPETS ELEVATION



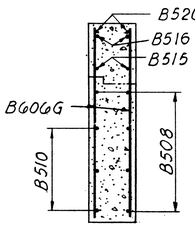
SECTION G-G



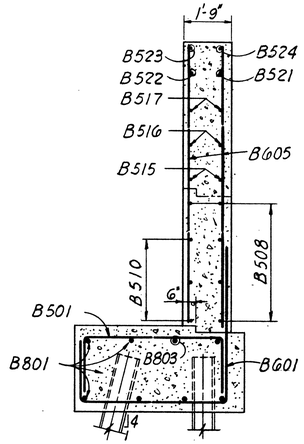
PARAPETS REINFORCEMENT DETAILS



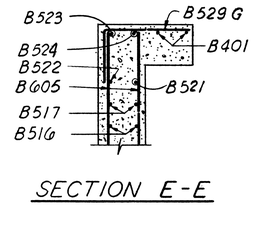
SECTION A-A



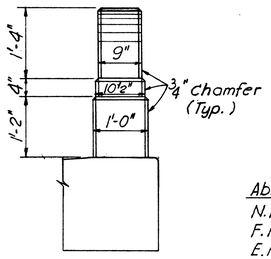
SECTION D-D



SECTION C-C



SECTION E-E



ELEVATION F-F

NOTES

1. All reinforcing steel shall be 2" clear from the face of concrete, unless otherwise shown.
2. Bar mark followed by a suffix "G", for example B604G, indicates a group of bars of the same type but of variable lengths with uniform increment. For details of such bars see Reinforcing Steel List.

Abbreviation Note:
N.F. = Near Face
F.F. = Far Face
E.F. = Each Face

FRANKLAND & LIENHARD
CONSULTING ENGINEERS
156 WILLIAM STREET NEW YORK, N.Y.

NORTH ABUTMENT DETAILS SHEET 2

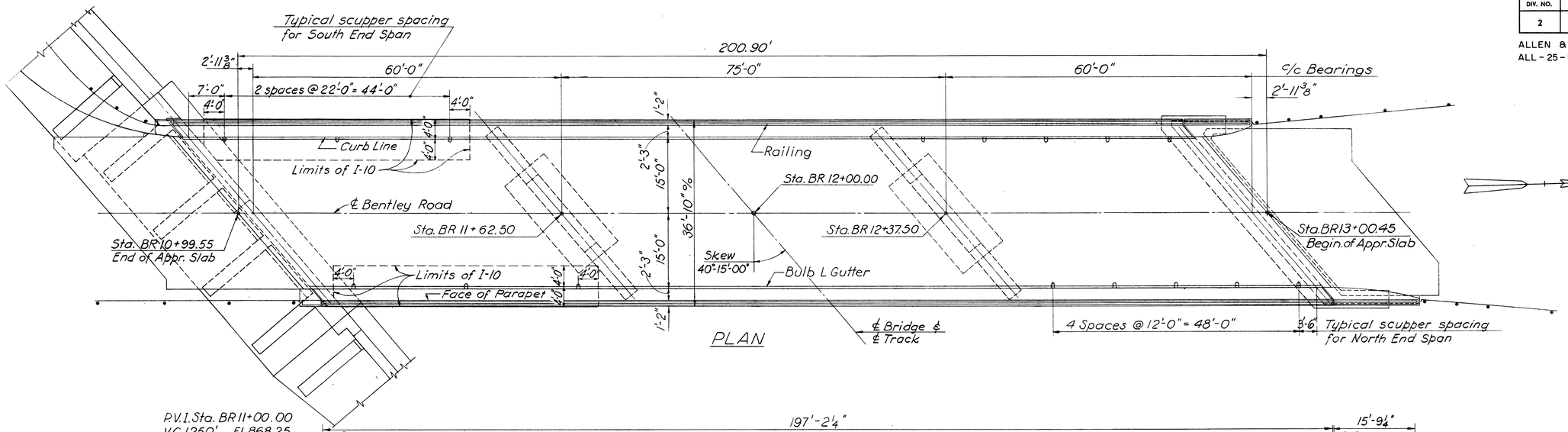
BRIDGE NO. ALL-25-2216
BENTLEY ROAD OVER I.R.75
ALLEN COUNTY STA. 1150+86.78
SEC. ALL-25-19.71 DATE:

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
P.L.	M.L.	C.B.	R.R.		5-4-62	

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

127
289

ALLEN & HANCOCK COUNTIES
ALL - 25 - 19.71 HAN - 25 - 0.00



ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	ABUT.	PIERS	SUPER.	GENERAL		
E-2	1,746	cu.yd.	Unclassified excavation for structures	1,417	329				
E-2	26	cu.yd.	Rock excavation	22	4				
E-2		L.S.	Cofferdams, cribs and sheeting				Lump		
S-1	231	cu.yd.	Class "C" concrete, superstructure			231			
Special	231	Each	Water reducing, set-retarding admixture *			231			
S-1	162	cu.yd.	Class "C" concrete, pier walls		162				
S-1	55	cu.yd.	Class "E" concrete, stub abutment above footing	55					
S-1	514	cu.yd.	Class "E" concrete, counterfort type abutment & wingwall above ftg.	514					
S-1	347	cu.yd.	Class "E" concrete, footings	296	51				
S-3	40	lin.ft.	Waterproofing, premolded sealing strip	40					
S-4	156,537	lbs.	Reinforcing steel	75,498	23,512	57,527			
S-7	215,750	lbs.	Structural steel			215,750			
S-8	215,750	lbs.	Field painting of structural steel			215,750			
S-9	160	sq.ft.	1" Preformed expansion joint filler	160					
S-14	431	lin.ft.	Railing (aluminum rail & supports & concrete parapets)	36		395			
S-18	520	lin.ft.	Steel piling 10 BP 42	520					
S-29	195	cu.yd.	Porous backfill	195					
S-29	16	Each	Scuppers			16			
I-10	536	sq.yd.	Crushed aggregate slope protection	446			90		

* See Proposal Note

FRANKLAND & LIENHARD
CONSULTING ENGINEERS
156 WILLIAM STREET NEW YORK, N.Y.

GENERAL PLAN & ELEVATION & ESTIMATED QUANTITIES

BRIDGE NO. ALL-25-BENTLEY RD.
BENTLEY RD. OVER N.Y., CHI. & ST. L. RR.
ALLEN COUNTY. STA. BR 12+00.00
SEC. ALL-25-19.71 DATE:

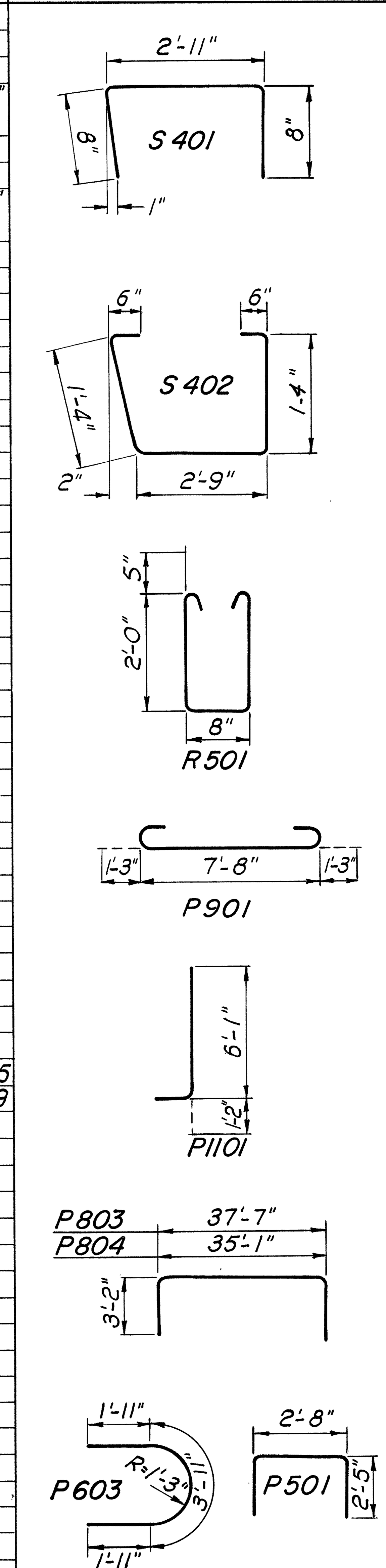
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
A.Q.	O.M.	C.B.	R.R.	Y&F	5-4-62	

REINFORCING STEEL LIST

MARK	NO.	LENGTH	WEIGHT	SHP.	REMARKS
SUPERSTRUCTURE					
S 701	339	36'-2"	25,060	S	
S 701G	50	AV.18'-2"	1,857	S	Varies from 3'-2" to 33'-2". Incr. 1'-3". 2 Each.
S 601	339	36'-2"	18,415	S	
S 601G	50	AV.18'-2"	1,364	S	Varies from 3'-2" to 33'-2". Incr. 1'-3". 2 Each.
S 602	488	35'-0"	25,654	S	
S 603	72	30'-0"	3,244	S	
S 401	368	4'-1"	1,004	B	
S 402	368	6'-1"	1,495	B	
R 501	368	5'-4"	2,047	B	
Total for Superstructure			80,140		
PIERS					
P 1101	216	7'-3"	8,320	B	
P 1102	72	28'-10"	11,030	S	Pier 1
P 1103	72	29'-8"	11,349	S	Pier 2
P 1104	72	30'-4"	11,603	S	Pier 3
P 901	216	10'-2"	7,466	B	
P 801	12	35'-1"	1,124	S	
P 802	6	26'-0"	417	S	
P 803	6	43'-7"	698	B	
P 804	6	41'-1"	658	B	
P 805	9	22'-0"	529	S	
P 601	144	7'-8"	1,658	S	
P 602	6	35'-1"	316	S	
P 603	18	7'-9"	210	B	
P 501	126	7'-4"	964	B	
Spirals*					
SP 501	4	25'-7½"	3,693	SP	No. of turns 105
SP 502	4	26'-5¾"	3,812	SP	No. of turns 109
SP 503	4	27'-1⅜"	3,901	SP	No. of turns 111
Spacer	16	25'-7½"	279		For SP. 501
	16	26'-5¾"	288		For SP. 502
	16	27'-1⅜"	295		For SP. 503
Total for Piers			68,610		
ABUTMENTS					
South Abutment					
A 801	12	23'-11"	766	S	
A 802	2	23'-5"	125	B	
A 803	6	13'-6"	216	S	
A 804	3	14'-9"	118	S	
A 805	1	14'-3"	38	S	
A 806	2	13'-5"	72	S	
A 807	2	4'-6"	24	S	
A 601	36	13'-10"	748	B	
A 602	13	8'-2"	159	B	

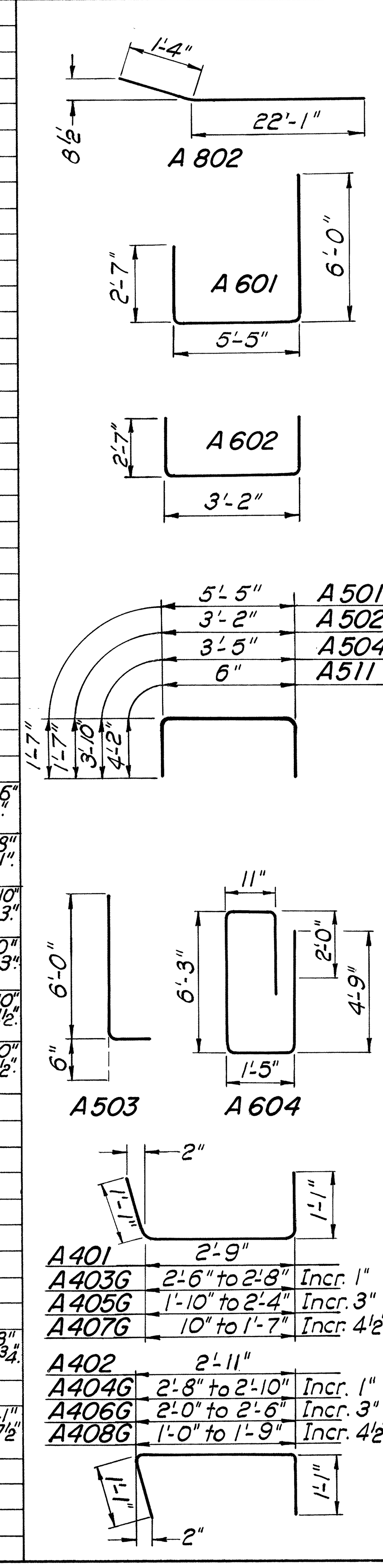
* Spirals: Pitch = 3"
Core Diameter (% Spiral) = 2'-8"

BENDING DIAGRAM



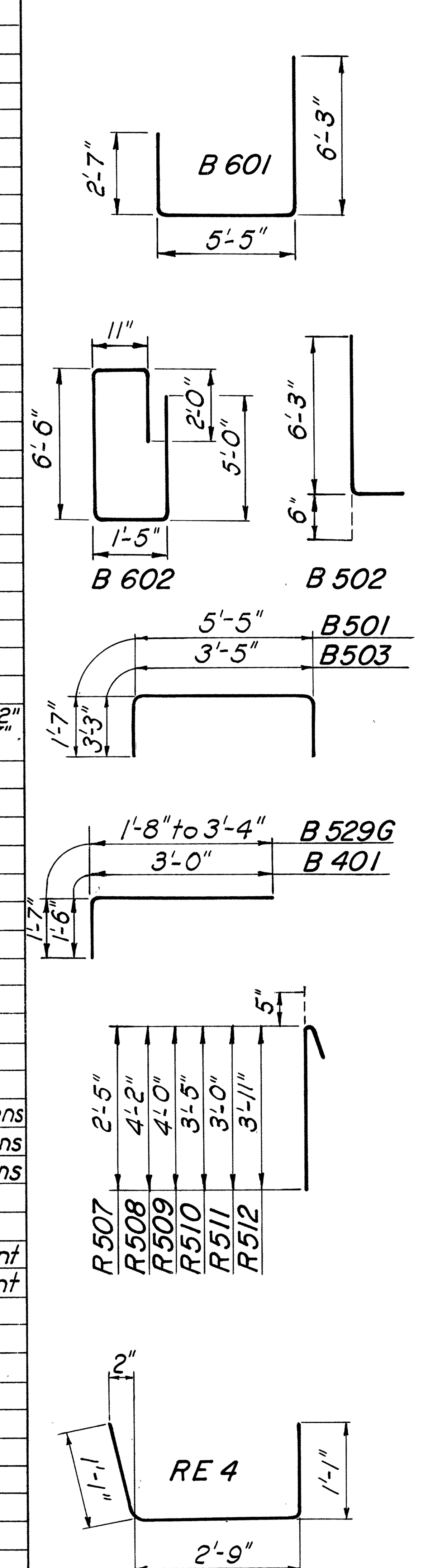
MARK	NO.	LENGTH	WEIGHT	SHP.	REMARKS
A 603	40	8'-1"	486	S	
A 604	36	15'-0"	811	B	
A 605	36	4'-10"	261	S	
A 606	4	4'-3"	26	S	
A 607	16	3'-7"	86	S	
A 608	4	2'-0"	12	S	
A 609	8	3'-4"	40	S	
A 501	36	8'-5"	316	B	
A 502	13	6'-2"	84	B	
A 503	36	6'-6"	244	B	
A 504	36	10'-11"	410	B	
A 505	8	10'-11"	91	S	
A 506	8	10'-9"	90	S	
A 507	8	4'-6"	38	S	
A 508	40	21'-8"	904	S	
A 509	4	9'-0"	38	S	
A 510	12	15'-6"	194	S	
A 511	8	8'-8"	72	B	
A 512	4	15'-6"	65	S	
A 513	1	13'-10"	14	S	
A 514	2	14'-5"	30	S	
A 515	1	11'-8"	12	S	
A 516	2	15'-0"	31	S	
A 517	1	14'-3"	15	S	
A 518	2	16'-11"	35	S	
A 519	1	12'-7"	13	S	
R 501	22	5'-4"	122	B	
A 401	7	4'-9"	22	B	
A 402	7	4'-11"	23	B	
A 403G	6	AV.4'-7"	18	B	Varies from 4'-6" to 4'-8" Incr. 1". 2 Each.
A 404G	6	AV.4'-9"	19	B	Varies from 4'-8" to 4'-10" Incr. 1". 2 Each.
A 405G	6	AV.4'-1"	16	B	Varies from 3'-10" to 4'-4" Incr. 3". 2 Each.
A 406G	6	AV.4'-3"	17	B	Varies from 4'-0" to 4'-6" Incr. 3". 2 Each.
A 407G	6	AV.3'-2½"	13	B	Varies from 2'-10" to 3'-7" Incr. 4½". 2 Each.
A 408G	6	AV.3'-4½"	14	B	Varies from 3'-0" to 3'-9" Incr. 4½". 2 Each.
North Abutment					
B 801	14	33'-1"	1,237	S	
B 802	1	12'-8"	34	S	
B 803	1	18'-0'	48	S	
B 601	50	14'-1"	1,058	B	
B 602	36	15'-6"	838	B	
B 603	6	10'-5"	94	S	
B 604G	22	AV.6'-11"	229	S	Varies from 3'-8" to 10'-2" Incr. 7¾". 2 Each.
B 605	16	10'-6"	252	S	
B 606G	18	AV.7'-7½"	206	S	Varies from 5'-1" to 10'-2" Incr. 7½" 2 Each.
B 501	50	8'-5"	439	B	
B 502	26	6'-9"	183	B	
B 503	26	9'-9"	264	B	

BENDING DIAGRAM



MARK	NO.	LENGTH	WEIGHT	SHP.	REMARKS
B 504	3	41'-5"	130	S	
B 505	2	38'-10"	81	S	
B 506	6	23'-1"	144	S	
B 507	3	19'-7"	61	S	
B 508	5	37'-11"	198	S	
B 509	6	14'-3"	89	S	
B 510	3	24'-10"	78	S	
B 511	2	37'-0"	77	S	
B 512	2	34'-0"	71	S	
B 513	2	31'-3"	65	S	
B 514	1	22'-5"	23	S	
B 515	2	37'-2"	78	S	
B 516	2	34'-1"	71	S	
B 517	2	31'-0"	65	S	
B 518	1	16'-4"	17	S	
B 519	2	17'-4"	36	S	
B 520	2	13'-5"	28	S	
B 521	1	13'-8"	14	S	
B 522	1	14'-8"	15	S	
B 523	1	11'-8"	12	S	
B 524	1	10'-8"	11	S	
B 525	1	7'-6"	8	S	
B 526	1	6'-6"	7	S	
B 527	1	5'-0"	5	S	
B 528	1	4'-0"	4	S	
B 529G	8	AV.4'-0"	33	B	Varies from 3'-2" to 4'-10". Incr. 7". 2 Each.
B 401	4	4'-5"	12	B	
R 508	5	4'-7"	24	B	
R 509	2	4'-5"	9	B	
R 510	2	3'-10"	8	B	
R 511	4	3'-5"	14	B	
R 512	2	4'-4"	9	B	
Total for Abutments			13,327		
CONCRETE PARAPETS					
Deck					
R 502	112	16'-1"		S	2 Panel Sections
R 502A	16	7'-10"		S	1 Panel Sections
R 502B	16	13'-4"		S	1½ Panel Sections
Wingwalls					
R502U	8	15'-2"		S	South Abutment
R 503	4	2'-2"		S	North Abutment
R 504	2	2'-3"		S	" "
R 505	4	2'-8"		S	" "
R 506	2	2'-9"		S	" "
R 507	1	2'-10"		B	" "
REPLACEMENT BARS					
RE 11	3	7'-7"		S	
RE 9	1	6'-10"		S	
RE 8	1	6' 6"		S	
RE 7	2	6'-3"		S	
RE 6	3	5'-11"		S	
RE 5	1	5'-7"		S	
RE 4	1	4'-9"		B	

BENDING DIAGRAM



NOTES:

DIMENSIONS FOR BENT BARS shown on the bending diagrams are out-to out dimensions. Lengths of bars listed in the columns under "Length" represent the lengths along the center line of bars.

CONCRETE PARAPET: Reinforcing bars listed under the title "Concrete Parapet" are included with the railing Item S-14, for payment.

REPLACEMENT BARS: If reinforcing bars are fabricated from stock which has previously been tested and approved by the Ohio Highway Testing Laboratory, test samples as provided in Sec. S-4.02 need not be furnished and replacement bars will not be required.

SPIRAL REINFORCING BARS: The "Length" shown in the steel list for spiral bars is the distance from the top of the footing to the bottom of the pier cap. The "No. of Turns" shown is the "Length" divided by the pitch, plus 3 turns (total number of closed coils), expressed as the nearest whole number. Spiral reinforcing bars shall not have deformations but shall in other respects conform to Item S-4. 1½ closed coils shall be provided at the ends of each spiral unit.

Four steel channel, tee or angle spacers, weighting approximately 0.68 lb. per lin. ft. of spacer, shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. The number of pounds of these spacers, based on 0.68 lb. per lin. ft. will be paid for as reinforcing steel and is included in tabulated quantity of spiral bars.

BAR SIZE is indicated in the bar mark. The first digit where three digits are used, and the first two digits where four are used, indicate the bar size number. For example, A700 is a No. 7 size bar and A1014 is a No. 10 size.

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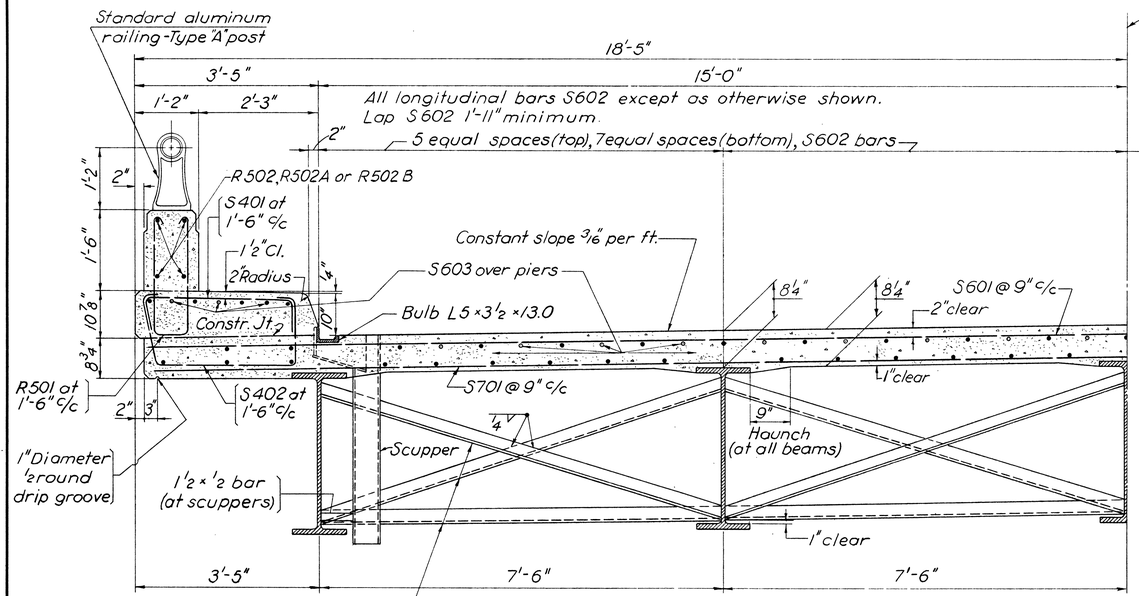
REINFORCING STEEL LIST
BRIDGE NO. ALL-25-~~22 16~~
BENTLEY ROAD OVER I.R. 75
ALLEN COUNTY STA. 1150+86.78
SEC. ALL-25-19.71 DATE:

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
M.L.	O.S.	C.B.	P.T.W.	YH	5-4-62	

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

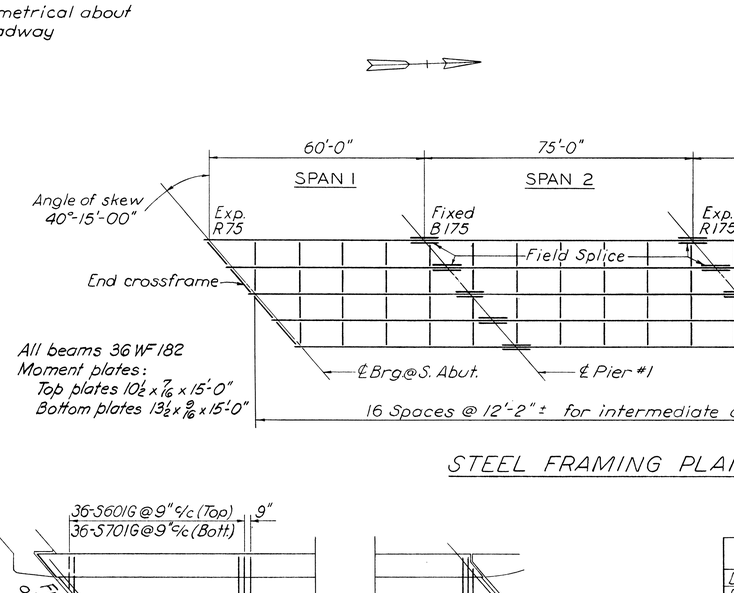
128
289

ALLEN & HANCOCK COUNTIES
ALL-25-19.71 HAN-25-0.00

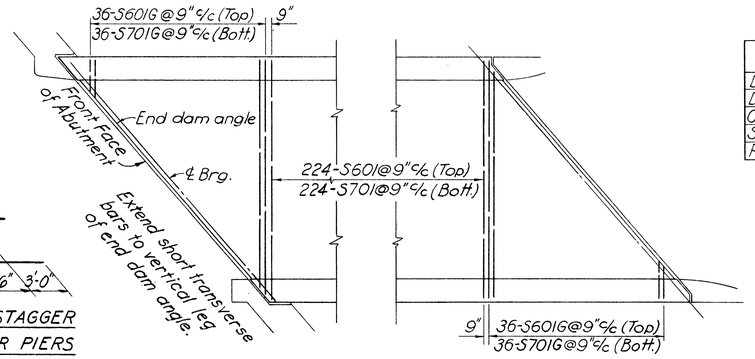


HALF TRANSVERSE SECTION

(Slab thickness shown includes 1" monolithic wearing surface.)



STEEL FRAMING PLAN



PART TRANSVERSE REINFORCING STEEL LAYOUT

DEFLECTIONS & CAMBER

Location	End Spans	Middle Span
Deflection due to weight of steel	1/16"	5/16"
Deflection due to remaining dead load	1/8"	3/8"
Convexity required for vertical curve	3/16"	3/8"
Sum of deflection & convexity	3/8"	1 1/16"
Required camber	—	1 1/16"

DIAGRAM SHOWING STAGGER OF S603 BARS OVER PIERS

NOTES:

REFERENCE DRAWINGS:

For details not shown see Standard Drawings listed on Sheet No. 117.

BEAM SPLICE WELDING PROCEDURE:

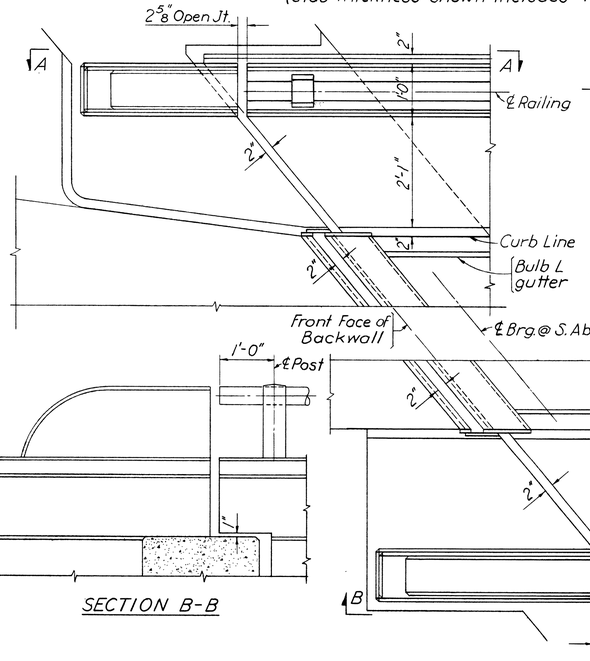
1. Raise the abutment ends of the beams 1 1/2".
2. Butt-weld the beam flanges and web, using the following sequence: make **one** pass on each flange, then two on the web; repeat, using one pass at each location, until welds are completed.
3. Weld the bottom and top moment plates.
4. Lower the beam ends to final position.

CAMBER:

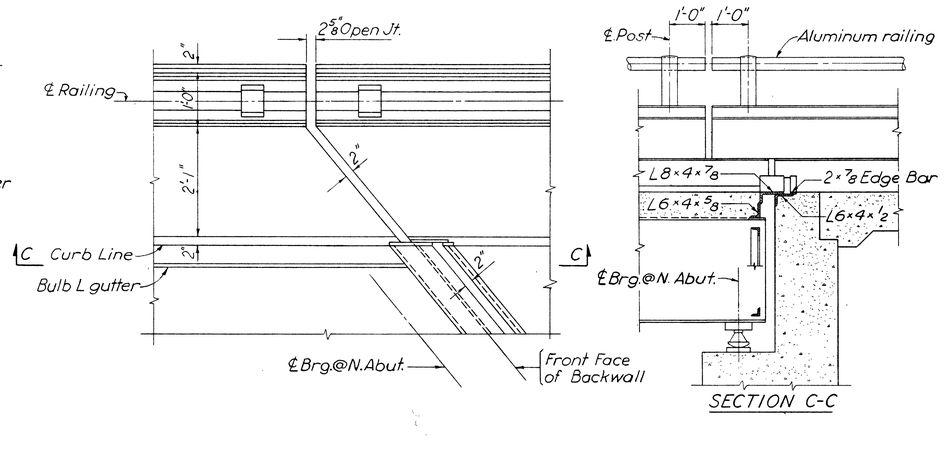
No camber is required for the end span beams. Any curved beams thereof shall be fabricated and erected with the convex flange up.

BAR MARKS:

Bar marks followed by a suffix "G" (S601G and S701G) represent groups of bars of the same type, but of variable lengths with uniform increments. For details see Reinforcing Steel List.



CORNER DETAIL @ SOUTH ABUTMENT



CORNER DETAIL @ NORTH ABUTMENT

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SUPERSTRUCTURE DETAILS
BRIDGE NO. ALL-25-BENTLEY RD.
BENTLEY RD. OVER N.Y., CH. & ST.L.RR.
ALLEN COUNTY STA. BR 12+00.00
SEC. ALL-25-19.71 DATE:

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
C.Y.L.	O.M.	C.B.	RR.		5-4-62	

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

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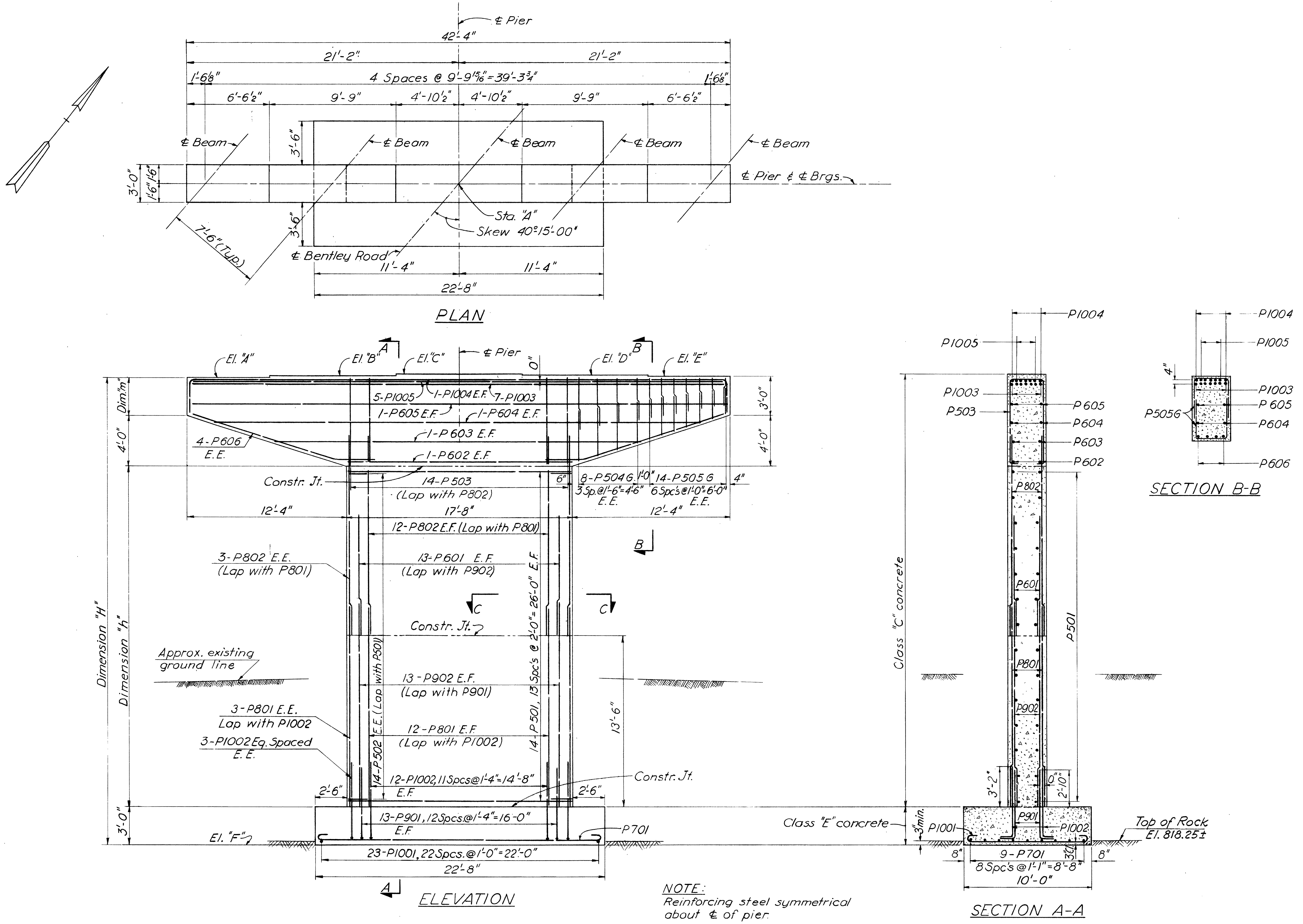
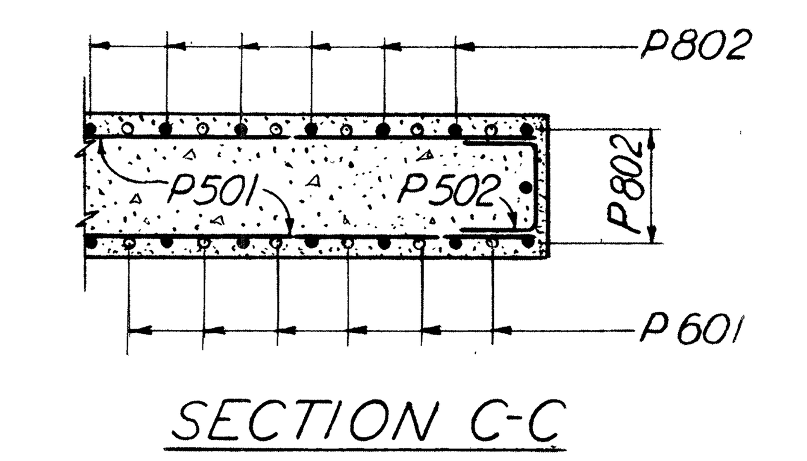
ALLEN & HANCOCK COUNTIES
ALL-25-19.71 HAN-25-0.00





NOTES:

1. All reinforcing steel shall be 2" clear from face of concrete unless otherwise noted.
2. Bar mark followed by a suffix "G", for example P 504 G, indicates a group of bars of the same type but of variable lengths with uniform increment. For details of such bars see Reinforcing Steel List.
3. Placement of reinforcing steel in the bridge seat of Pier 1 shall be carefully checked so as to avoid interference with the bearing anchor bolts.
4. For foundation notes see Sh. No. 117.

NOTE:
Reinforcing steel symmetrical about ¢ of pier.

Struct.	Station "A"	Elevation "A"	"B"	"C"	"D"	"E"	"F"	Dimension "H"	"h"	"m"
Pier 1	11+62.50	855.12	855.23	855.33	855.20	855.06	818.00	37'-1½"	27'-0¾"	3'-0¾"
Pier 2	12+37.50	854.86	854.95	855.03	854.88	854.72	818.00	36'-10⅜"	26'-8¾"	3'-1⅝"

ABBREVIATION:
E.F. = Each face
E.E. = Each end

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PIER DETAILS

BRIDGE NO. ALL-25-BENTLEY RD.
BENTLEY RD. OVER N.Y., CH. & ST. L. R.R.
ALLEN COUNTY STA. BR 12+00.00
SEC. ALL-25-19.71 DATE:

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
P.L.	G.M.	C.B.	R.R.	YH	5-4-62	

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

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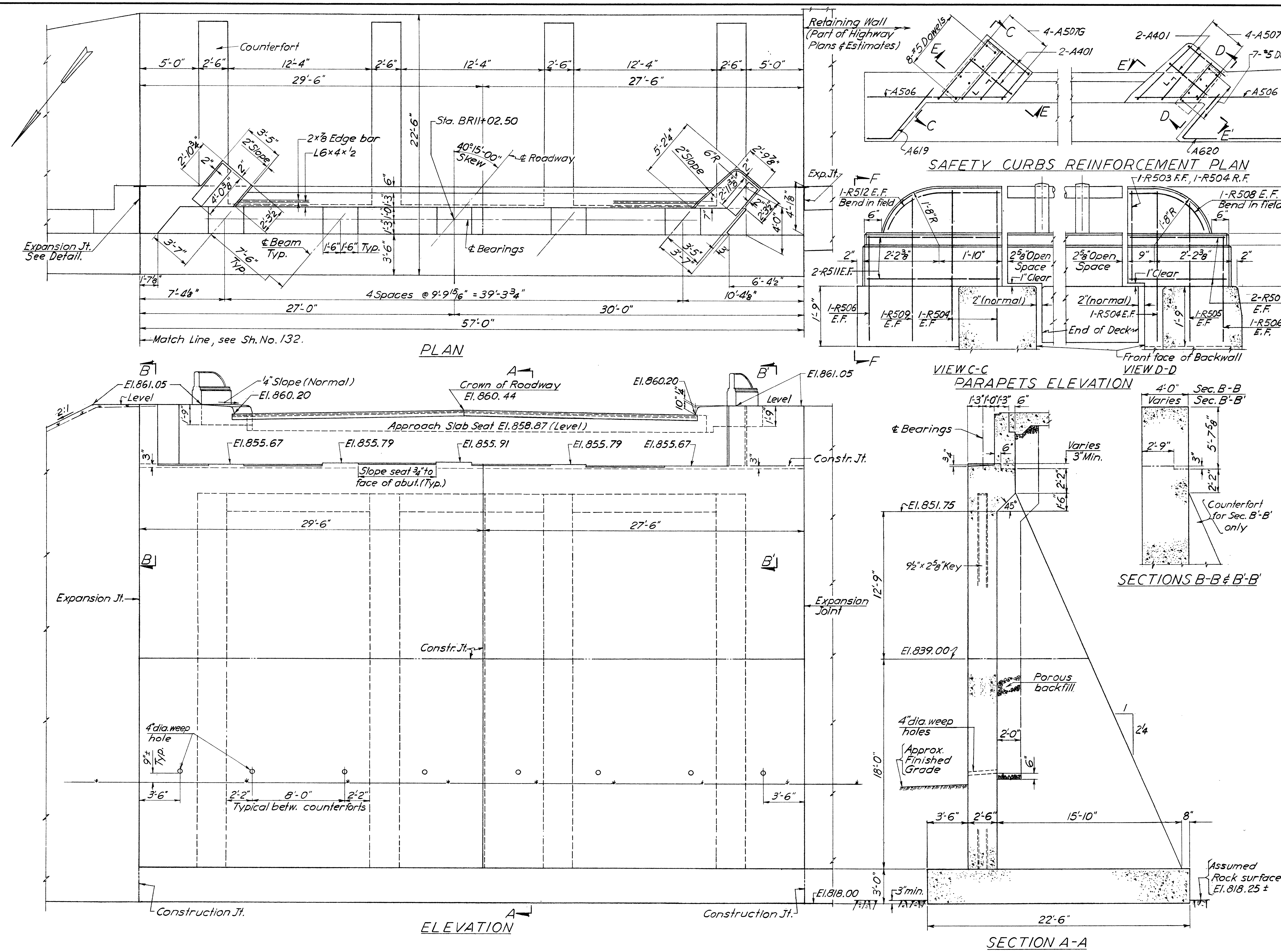
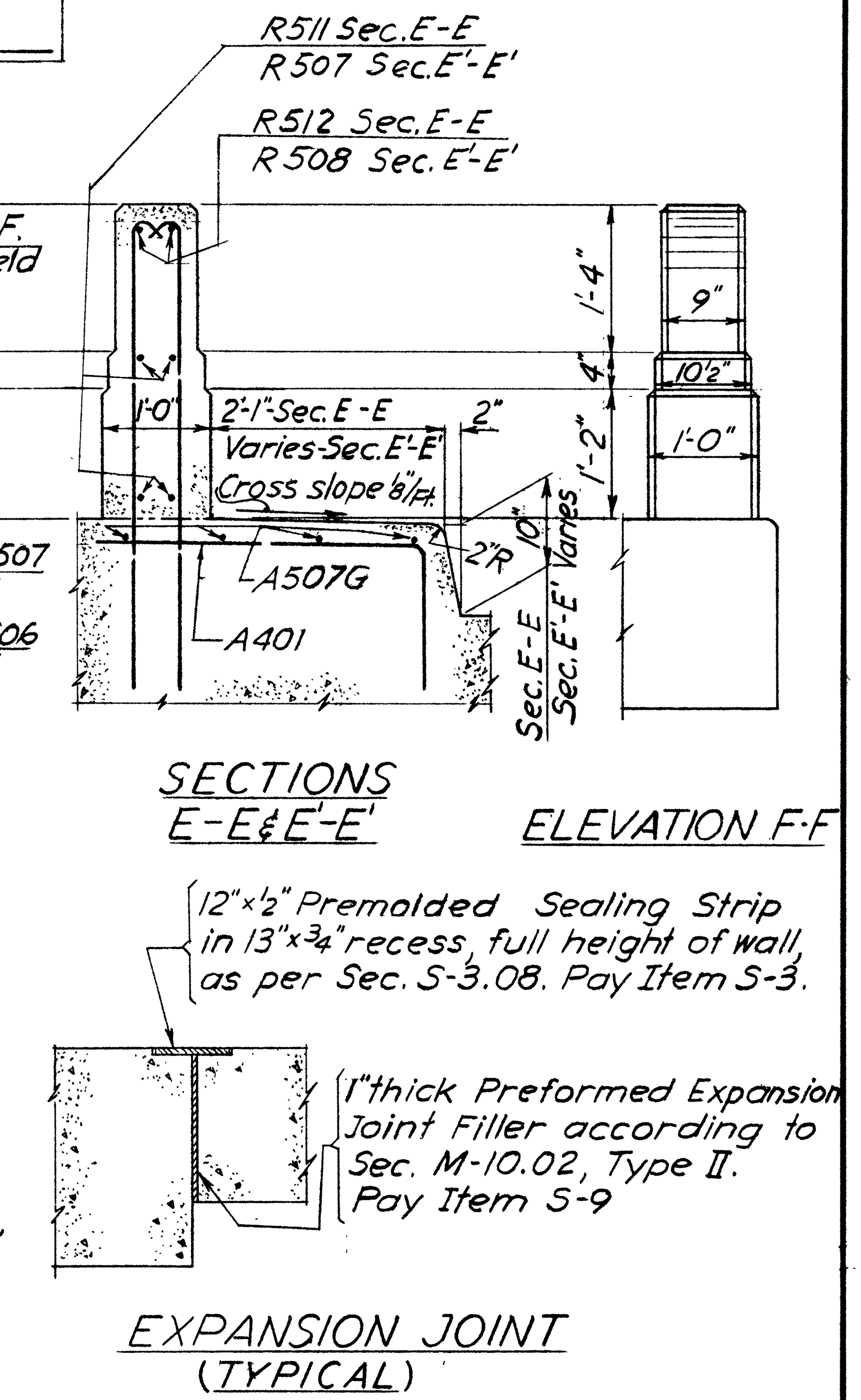
ALLEN & HANCOCK COUNTIES
ALL-25-19.71 HAN-25-0.00





NOTES:

1. Before the backwall (above El. 855.67) is poured the embankment shall be placed and compacted up to the level of the subgrade with a 1:1 slope from the bridge seat to the subgrade.
2. All concrete shall be Class "E"
3. For details of end dam on abutment see Standard Drawing CSB-2-56 revised Feb. 2, 1959, Sheet 2.
4. For foundation notes see Sheet No. 117.
5. For additional reinforcing steel details see next drawing.

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SOUTH ABUTMENT DETAILS
SHEET 1

BRIDGE NO. ALL-25-BENTLEY ROAD
BENTLEY RD. OVER N.Y., CH. & ST.L. R.R.
ALLEN COUNTY STA. BR12+00.00
SEC. ALL-25-19.71 DATE:

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
A.Q.	M.V.	C.B.	R.R.	[illegible]	5-4-62	

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

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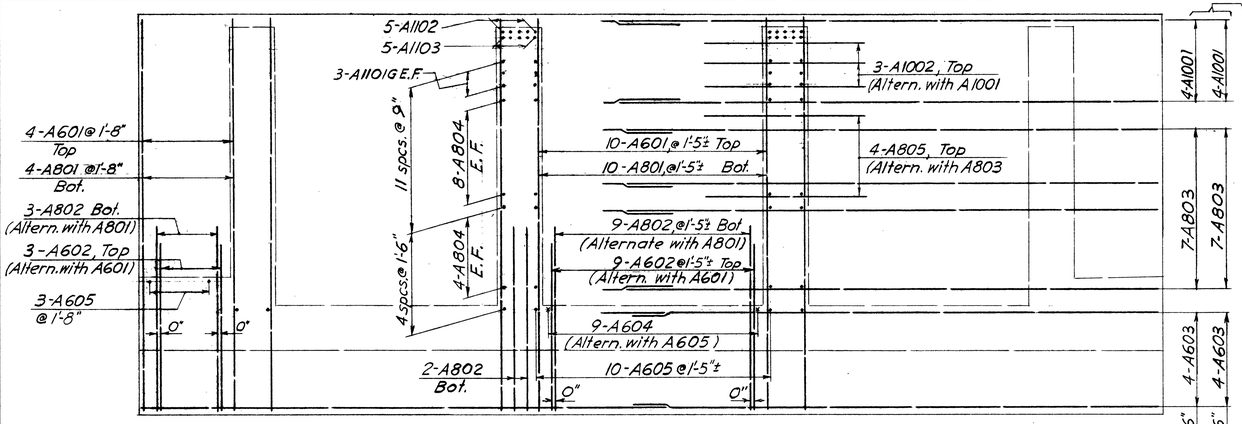
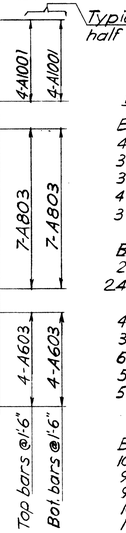
289

ALLEN & HANCOCK COUNTIES
ALL-25-19.71 HAN-25-0.00

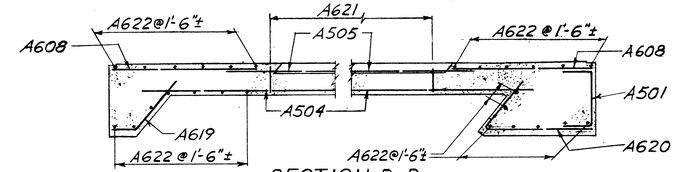


FOOTING PLAN

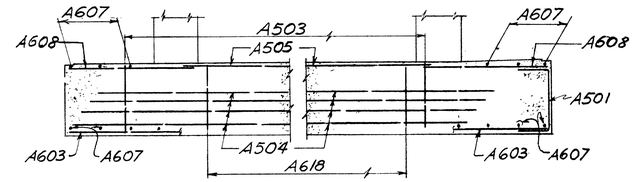


TYPICAL REINFORCEMENT NOTES:

FOOTING		WALL
Bars: 4-A601, 3-A602, 3-A605, 4-A801, 3-A802	Typical for each end of the footing.	
Bars: 2-A802, 24-A804; 4-A805, 3-A1002, 6-A1101G, 5-A1102, 5-A1103	Typical for each one of the 4 counterforts.	Bars: 22-A614G, 12-A616, 12-A617 (in wall)
Bars: 10-A601, 9-A602, 9-A604, 10-A605, 10-A801, 9-A802	Typical for each one of the 3 areas between the counterforts	Bars: 20-A606, 20-A607



SECTION D-D



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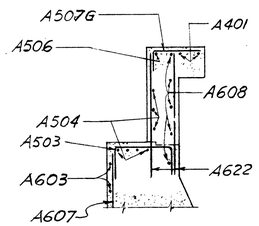
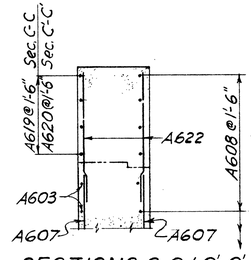
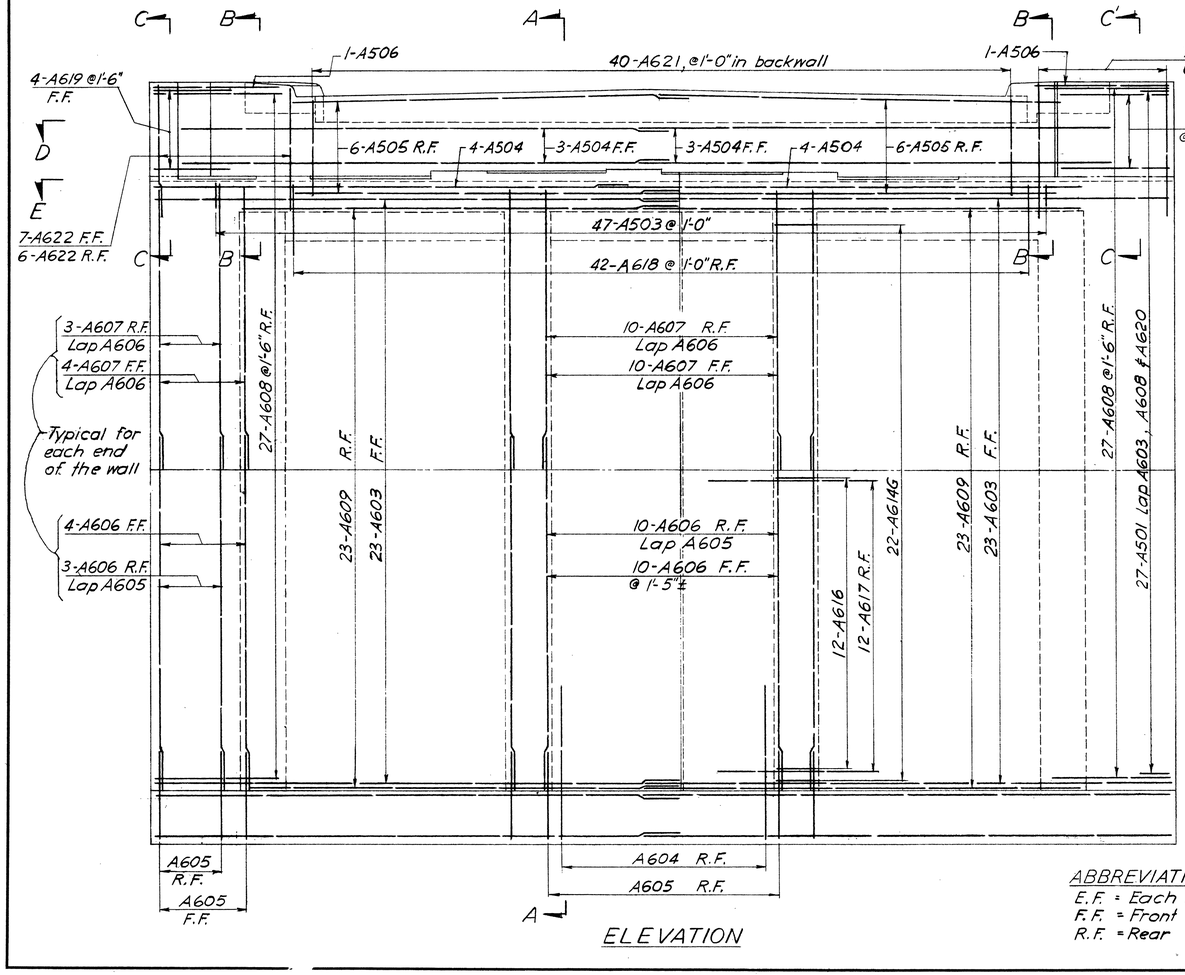


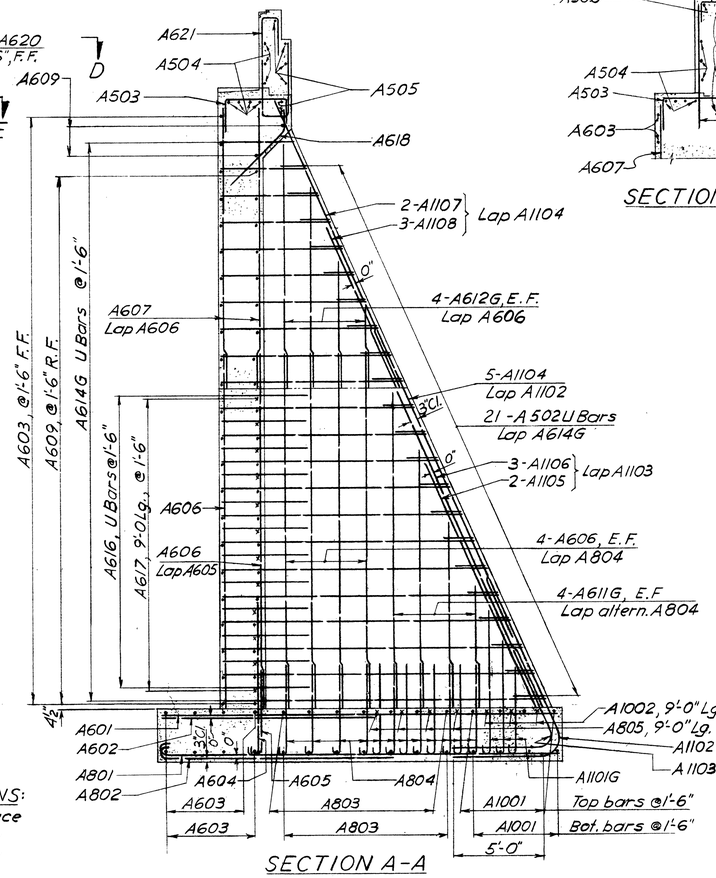
SECTION B-B



SECTIONS C-C & C'-C'



ELEVATION



SECTION A-A

ABBREVIATIONS:
E.F. = Each Face
F.F. = Front "
R.F. = Rear "

NOTES:

1. All reinforcing steel shall be 2" clear from the face of concrete, unless otherwise shown.
2. Bar mark followed by a suffix "G", for example A611G, indicates a group of bars of the same type but of variable lengths with uniform increment. For details of such bars see Reinforcing Steel List.

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SOUTH ABUTMENT DETAILS SHEET 2

BRIDGE NO. ALL-25-BENTLEY ROAD
BENTLEY RD. OVER N.Y., CH. & ST.L. R.R.
ALLEN COUNTY STA. BR 12+00.00
SEC. ALL-25-19.71 DATE:

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
A.Q.	M.V.	C.B.	R.R.		5-1-62	

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

132
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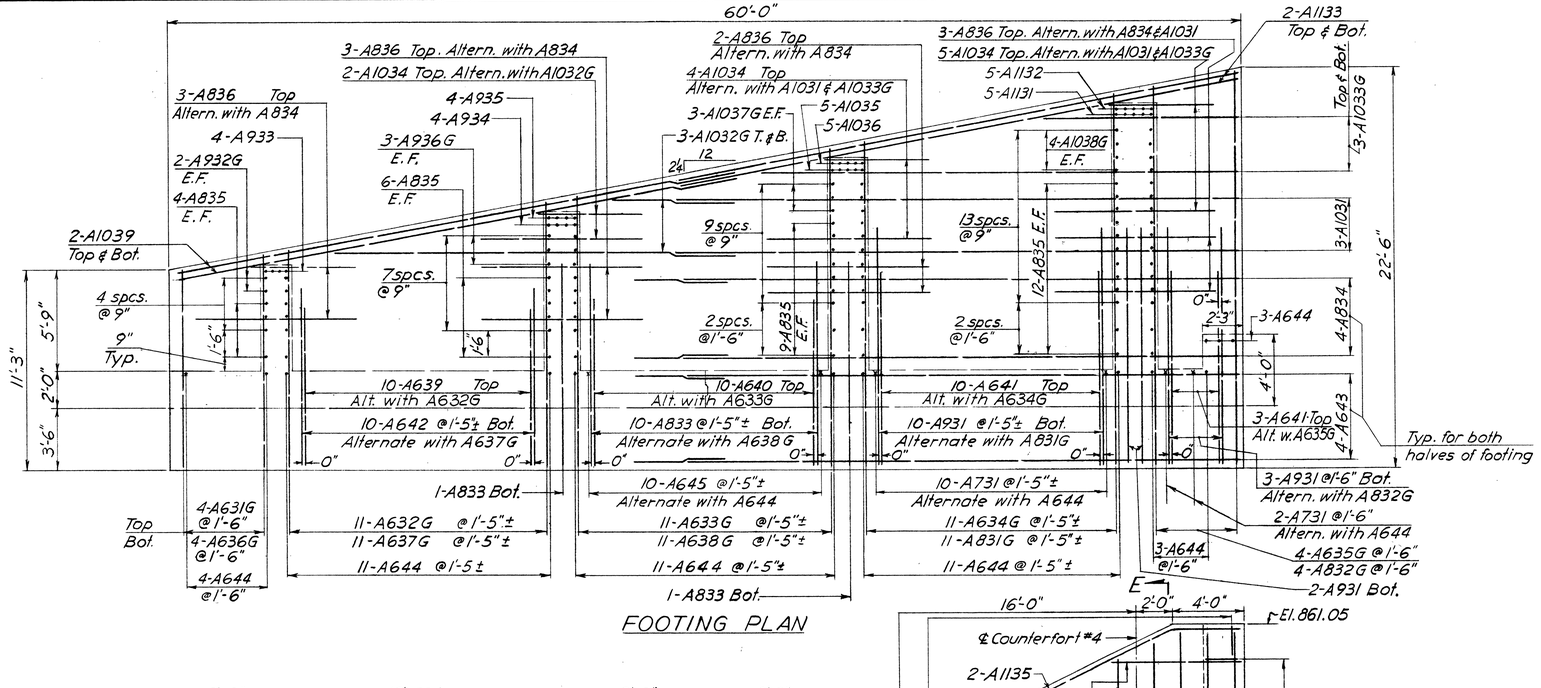
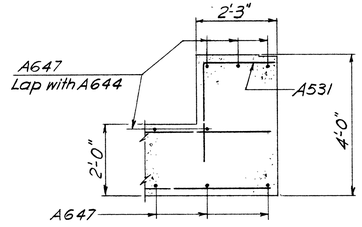
ALLEN & HANCOCK COUNTIES
ALL-25-19.71 HAN-25-0.00





SECTION A-A

NOTES:
1. For Notes see Detail Sheets 1 & 2.
2. For Secs. B-B to E-E see Detail Sheet 4.

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SOUTH ABUTMENT DETAILS SHEET 3

BRIDGE NO. ALL-25-BENTLEY ROAD
BENTLEY RD. OVER N.Y., CH. & ST. L. RR.
ALLEN COUNTY STA. BR12+00.00
SEC. ALL-25-19.71 DATE:

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
A.Q.	M.V.	C.B.	R.R.		5-4-62	

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

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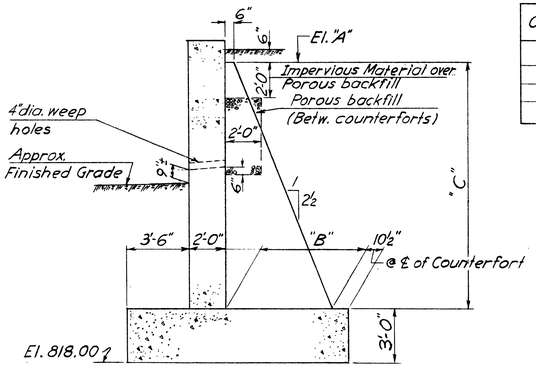
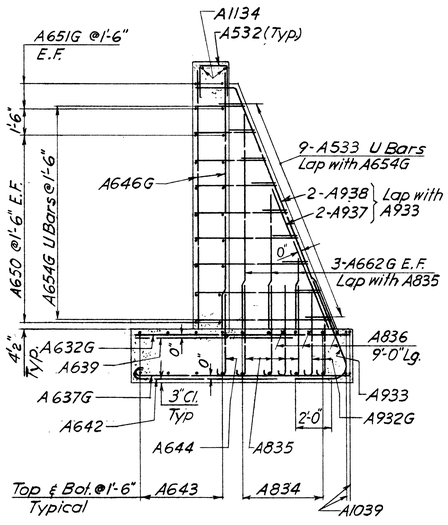
ALLEN & HANCOCK COUNTIES
ALL-25-19.71 HAN-25-0.00

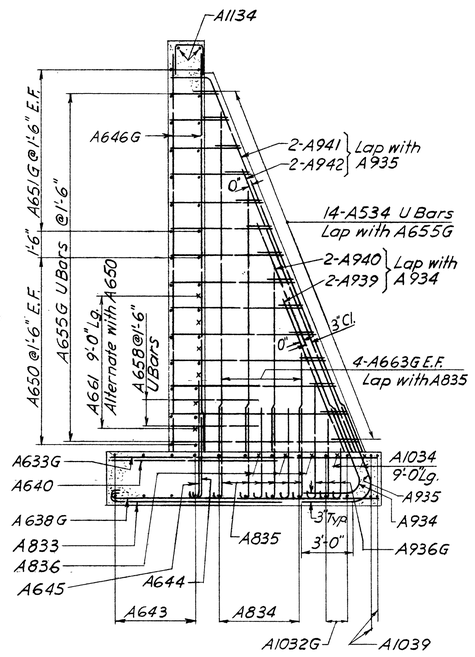
Counterfort	Elevation "A"	Dimensions "B"	Dimensions "C"
#1	834.75	6'-0"	13'-9"
#2	842.25	9'-0"	21'-3"
#3	849.75	12'-0"	28'-9"
#4	857.25	15'-0"	36'-3"



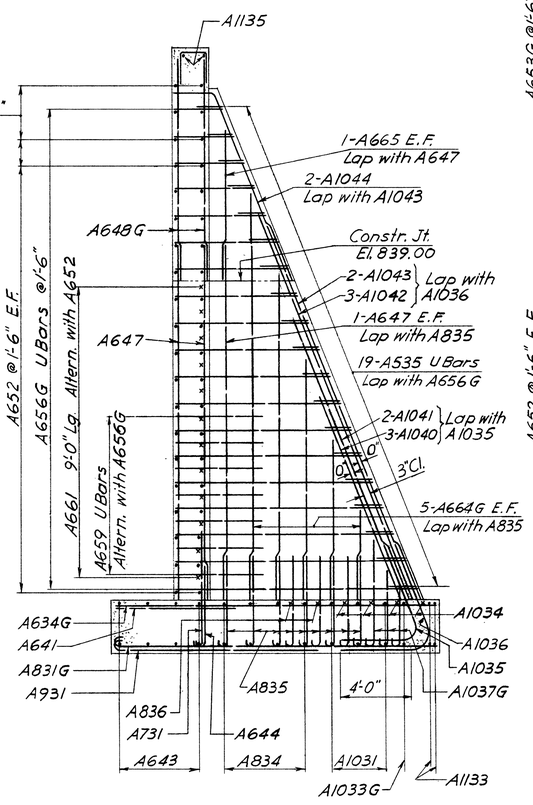
TYPICAL CROSS SECTION



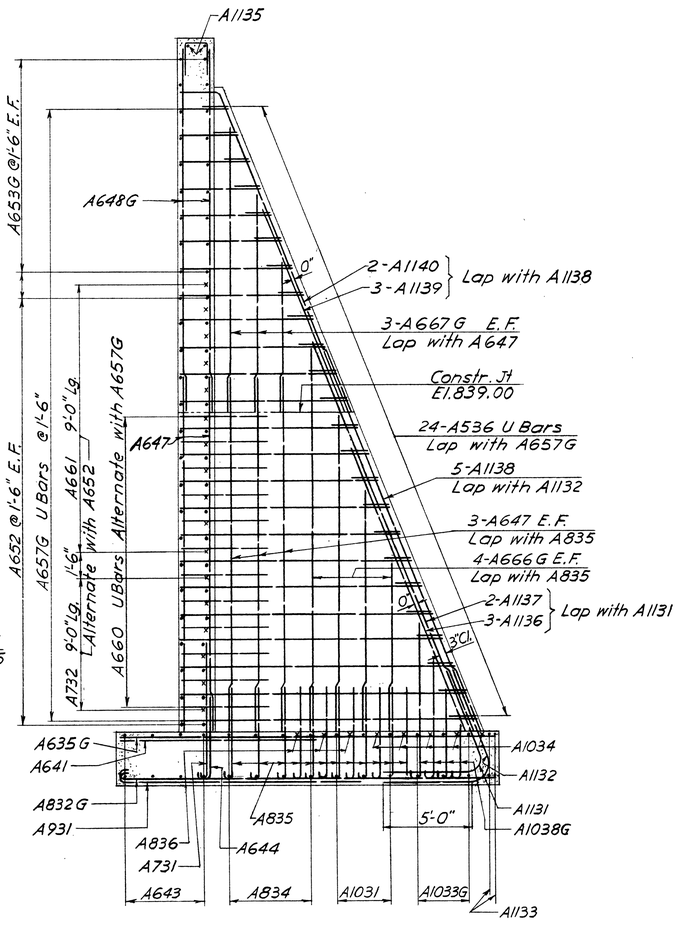
SECTION B-B



SECTION C-C



SECTION D-D



SECTION E-E

NOTES:

1. For Notes see Detail Sheets 1 & 2.
2. For Location of Sections B-B to E-E see Detail Sheet 3.

FRANKLAND & LIENHARD
CONSULTING ENGINEERS
156 WILLIAM STREET NEW YORK, N.Y.

SOUTH ABUTMENT DETAILS SHEET 4

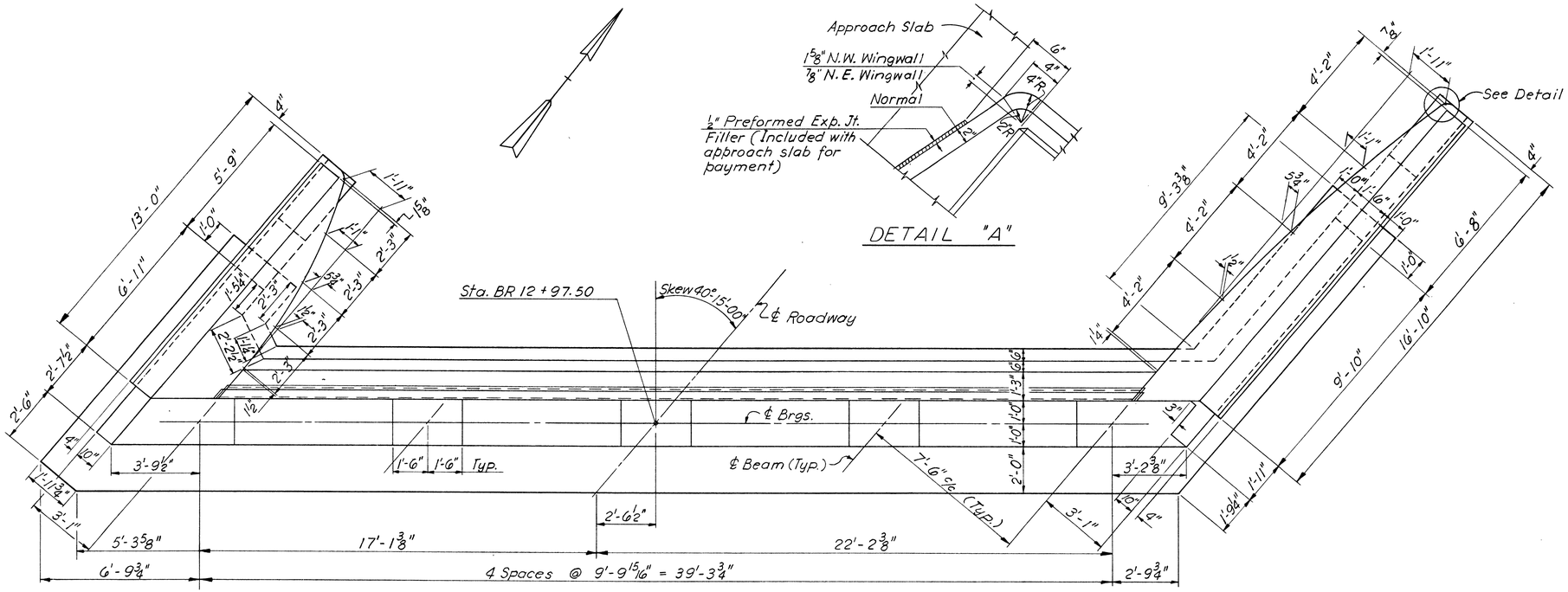
BRIDGE NO. ALL-25-BENTLEY ROAD
BENTLEY RD. OVER N.Y., CH. & ST. L.R.R.
ALLEN COUNTY STA. BR 12+00.00
SEC. ALL-25-19.71 DATE

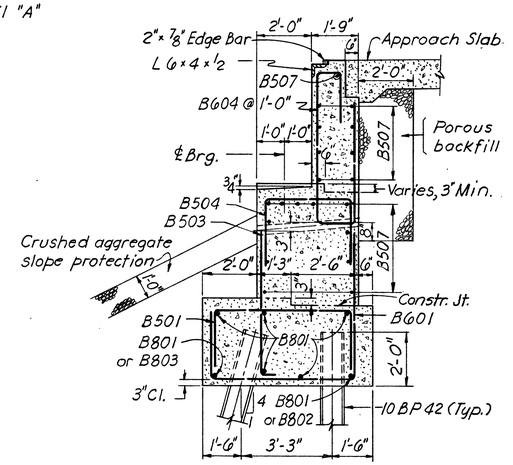
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
A.Q.	M.V.	C.B.	R.R.	YFH	5-4-62	

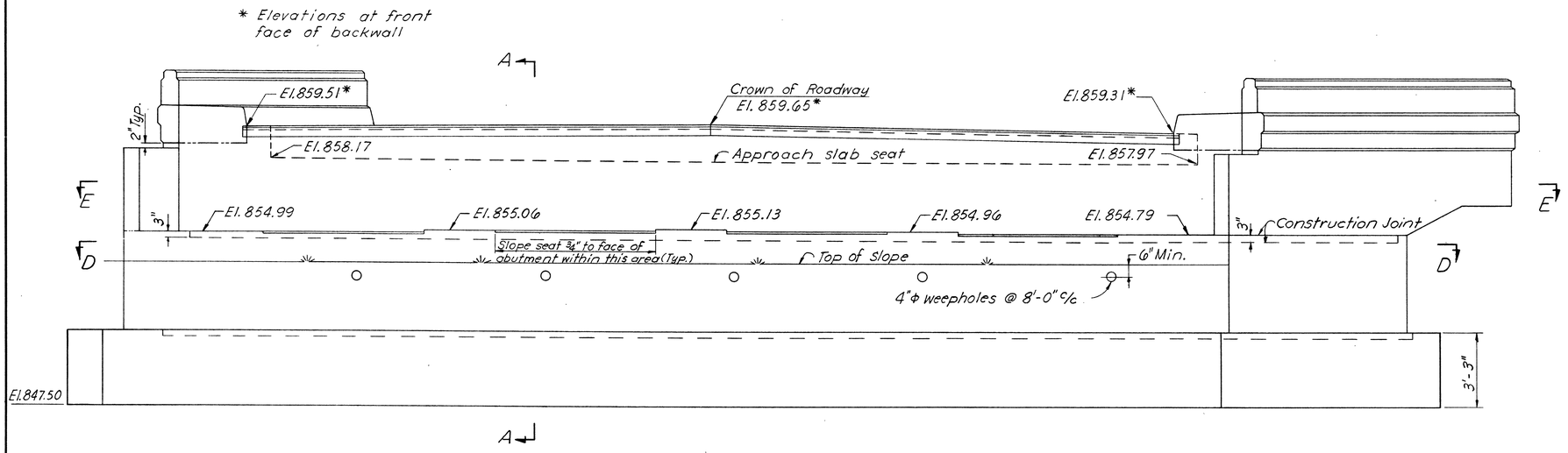
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

134
289

ALLEN & HANCOCK COUNTIES
ALL-25-19.71 HAN-25-0.00







NOTES:

1. All concrete shall be Class "E".
2. All reinforcing steel in abutments shall be 2" clear from the face of concrete unless otherwise shown.
3. For details of end dam on abutment see Std. dwg. CSB-2-56 revised Feb. 2, 1959, Sh. 2.
4. Porous backfill shall extend upward to the approach slab between the inside face of wingwalls. Excavation therefor, in excess of that required for construction of the abutment, shall be considered as paid for in the bid price per cu. yd. paid for porous backfill.
5. For Sections D-D, E-E and additional details, see Sh. Nos. 135 & 136.

FRANKLAND & LIENHARD
CONSULTING ENGINEERS
156 WILLIAM STREET NEW YORK, N.Y.

NORTH ABUTMENT DETAILS SHEET 1

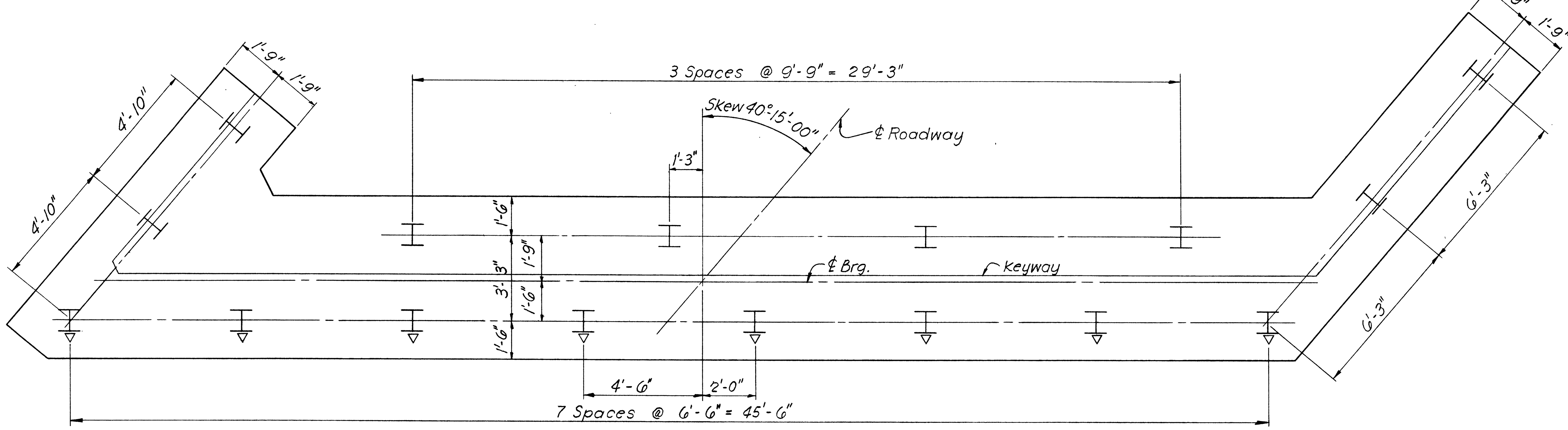
BRIDGE NO. ALL-25-BENTLEY RD.
BENTLEY RD. OVER N.Y.,CH. & ST. L.R.R.
ALLEN COUNTY STA. BR 12+00.00
SEC. ALL-25-19.71 DATE:

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
M.L.	M.L.	C.B.	R.R.		5.4.62	

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

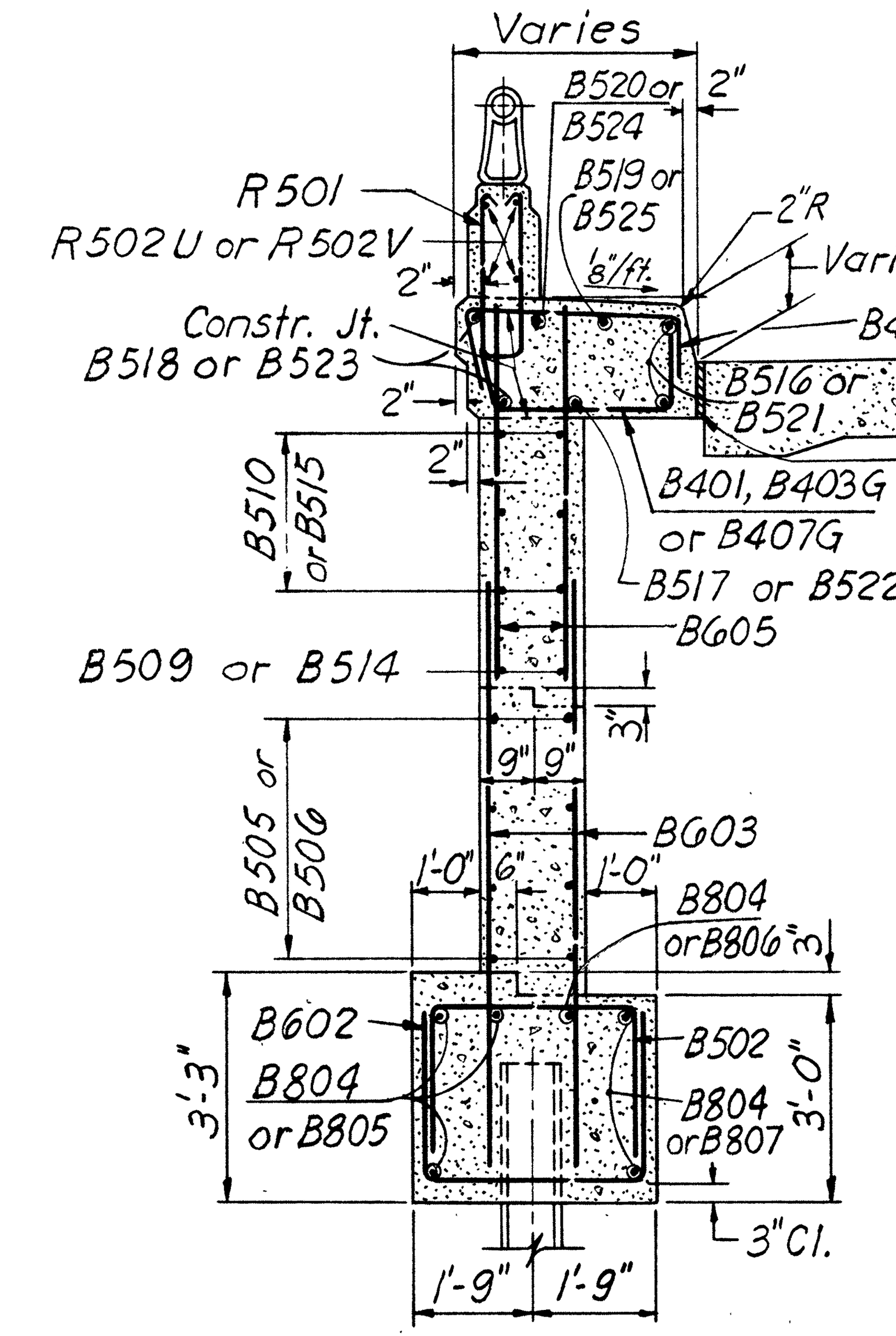
135
289

ALLEN & HANCOCK COUNTIES
ALL-25-19.71 HAN-25-0.00

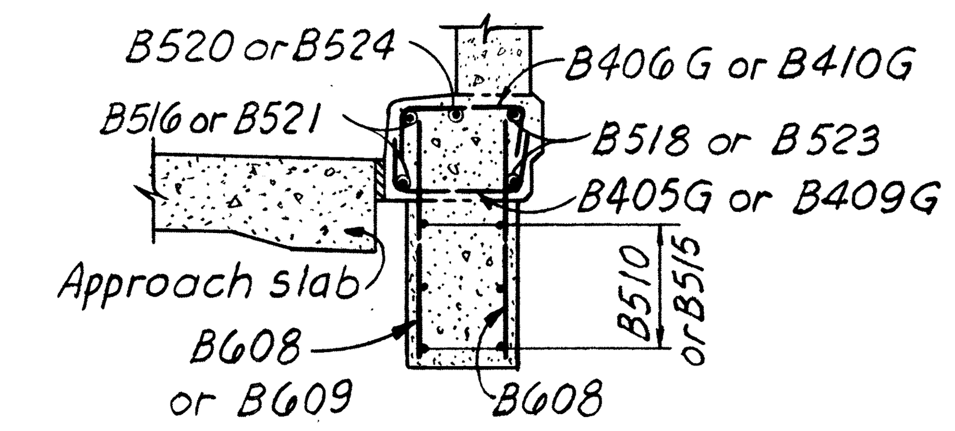


PILE PLAN
All Piles to be 10BP42

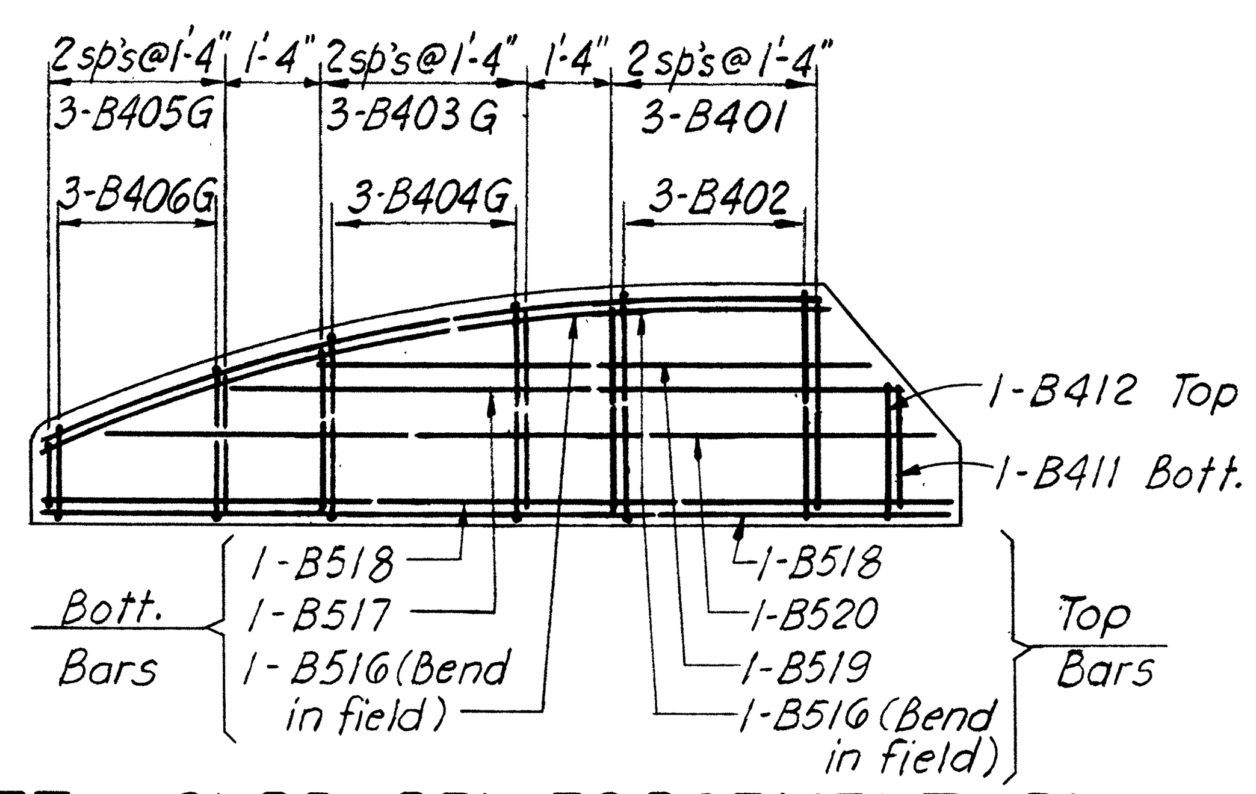
Vertical Piles
Battered Piles (1 horiz, 4 vert.)



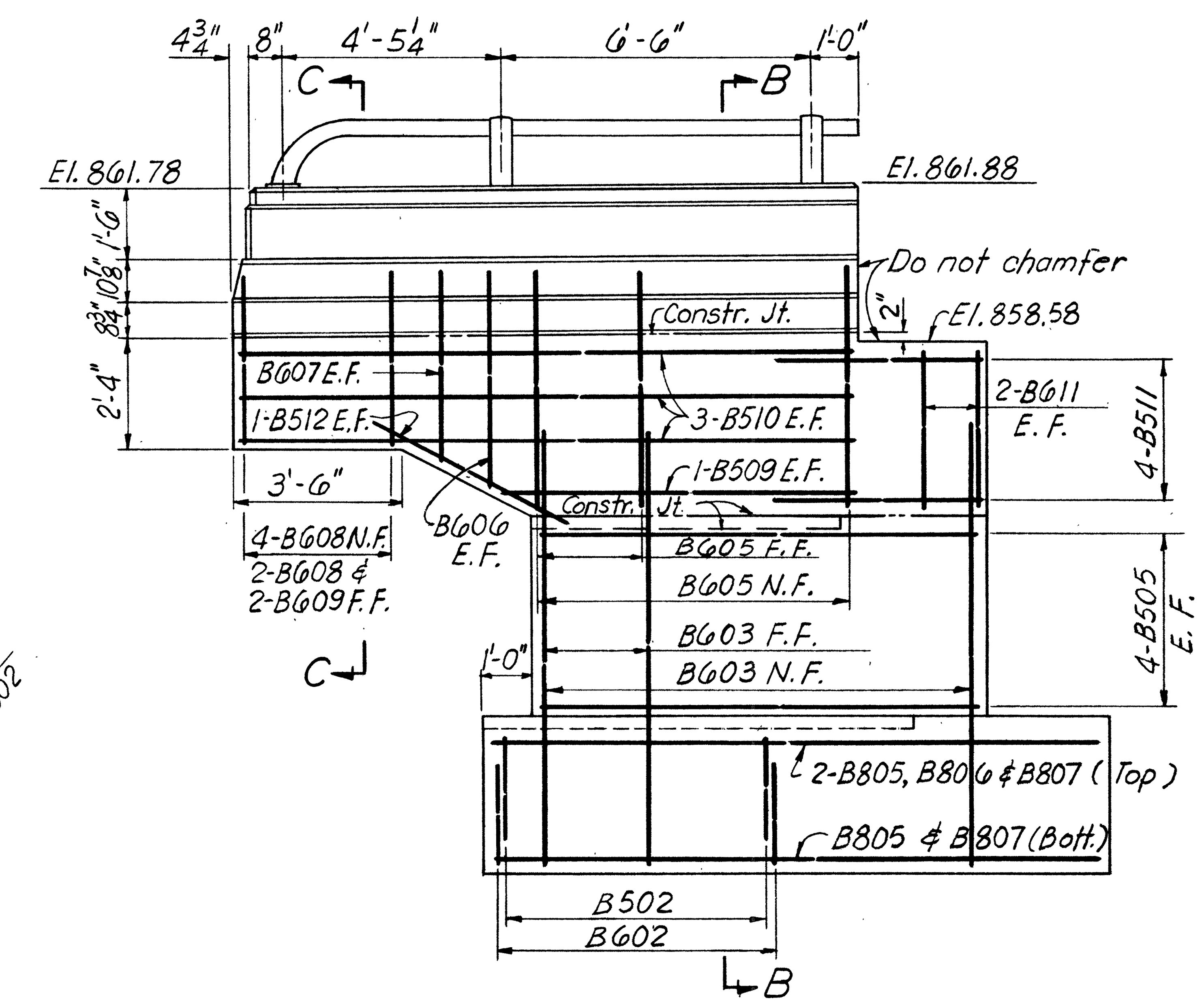
SECTION B-B



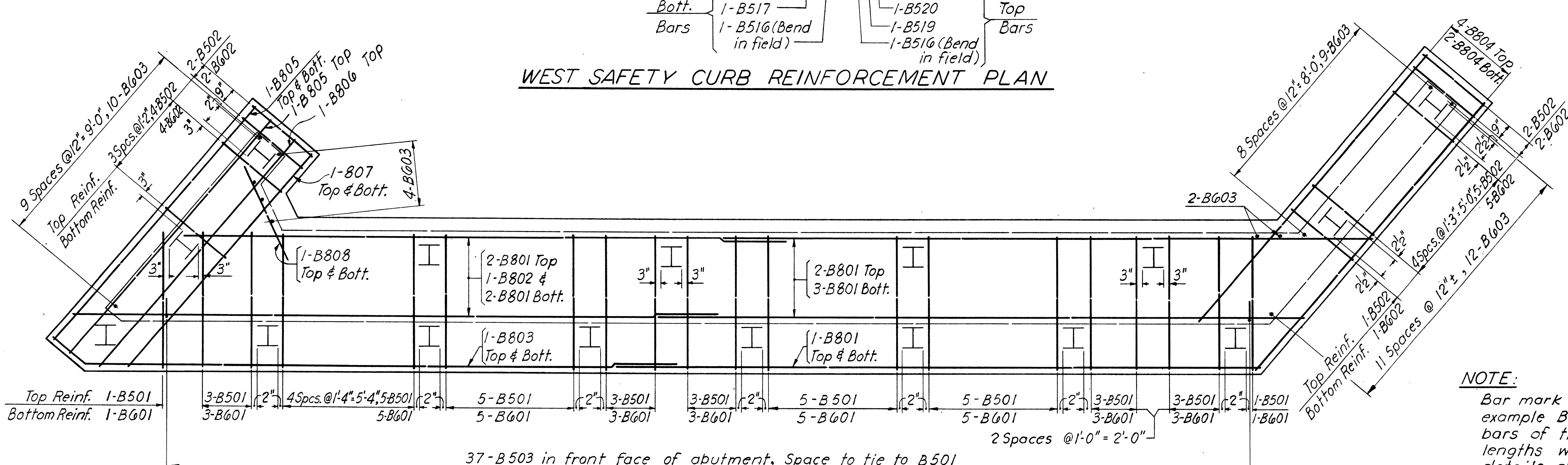
SECTION C-C



WEST SAFETY CURB REINFORCEMENT PLAN



WEST WINGWALL ELEVATION



FOOTING REINFORCEMENT PLAN

NOTE:
Bar mark followed by a suffix "G", for example B405G, indicates a group of bars of the same type but of variable lengths with uniform increment. For details of such bars see Reinforcing Steel List.

Abbreviation Note:
N.F. = Near Face
F.F. = Far Face
E.F. = Each Face

FRANKLAND & LIENHARD
CONSULTING ENGINEERS
156 WILLIAM STREET NEW YORK, N.Y.

NORTH ABUTMENT DETAILS
SHEET 2

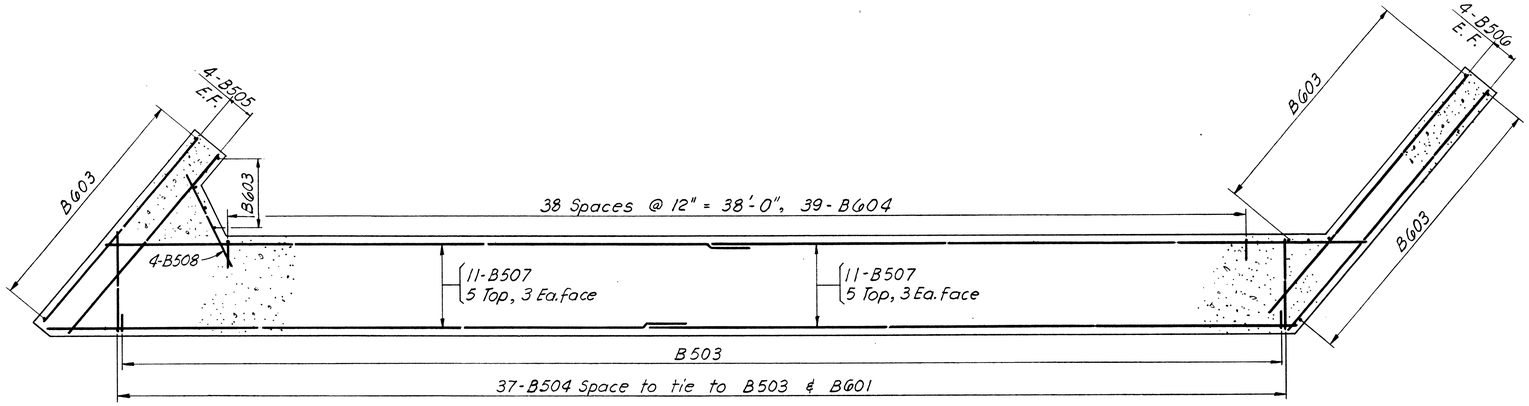
BRIDGE NO. ALL-25-BENTLEY RD.
BENTLEY RD. OVER N.Y.CH. & ST.L.R.R.
ALLEN COUNTY STA. BR 12+00.00
SEC. ALL-25-19.71 DATE:

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
M.L.	M.L.	C.B.	R.R.	YM	5-4-62	

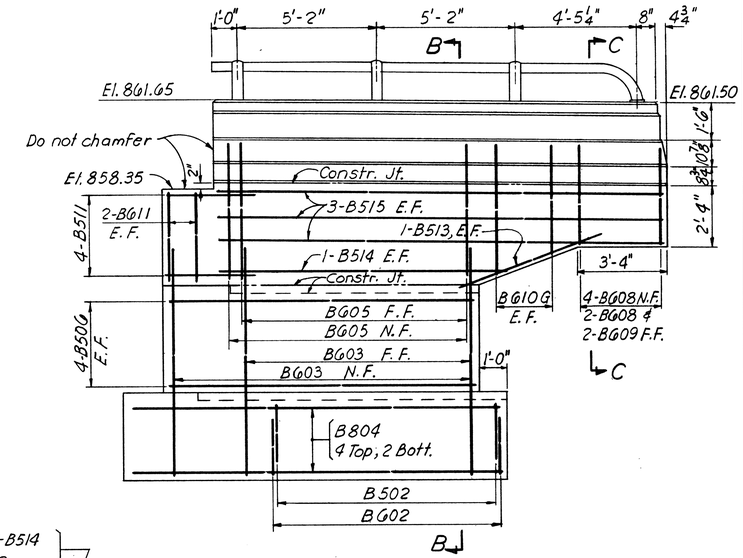
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

136
289

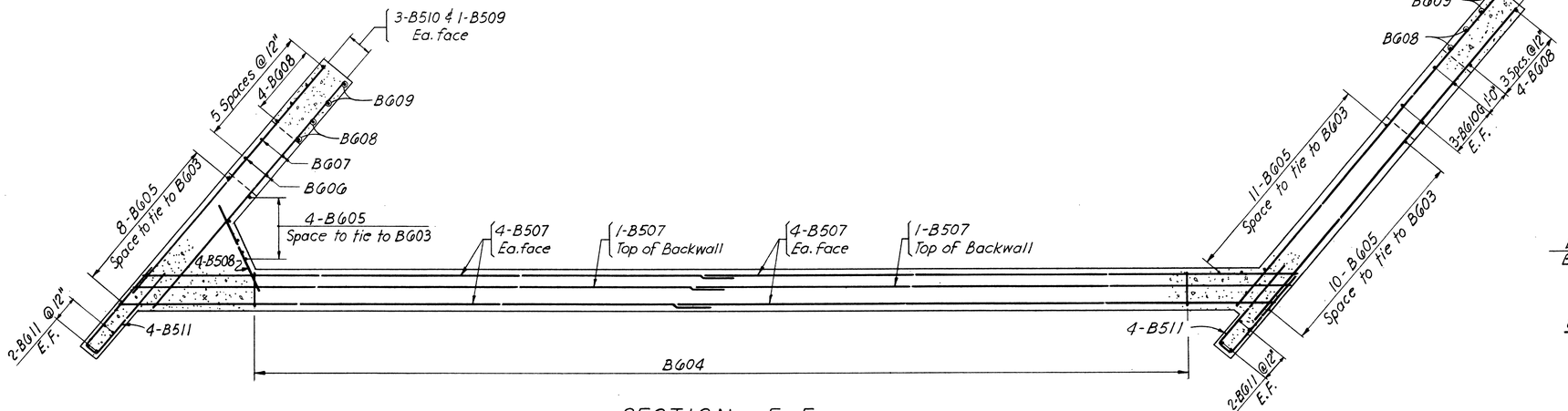
ALLEN & HANCOCK COUNTIES
ALL-25-19.71 HAN-25-0.00



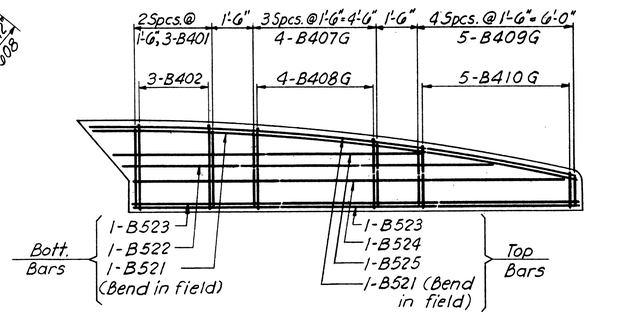
SECTION D-D



EAST WINGWALL ELEVATION



SECTION E-E



EAST SAFETY CURB REINFORCEMENT PLAN

Notes:
For details of Sections B-B & C-C see Sh. No. 135.
For location of Sections D-D & E-E, see Sh. No. 134.

FRANKLAND & LIENHARD
CONSULTING ENGINEERS
156 WILLIAM STREET NEW YORK, N.Y.

NORTH ABUTMENT DETAILS SHEET 3

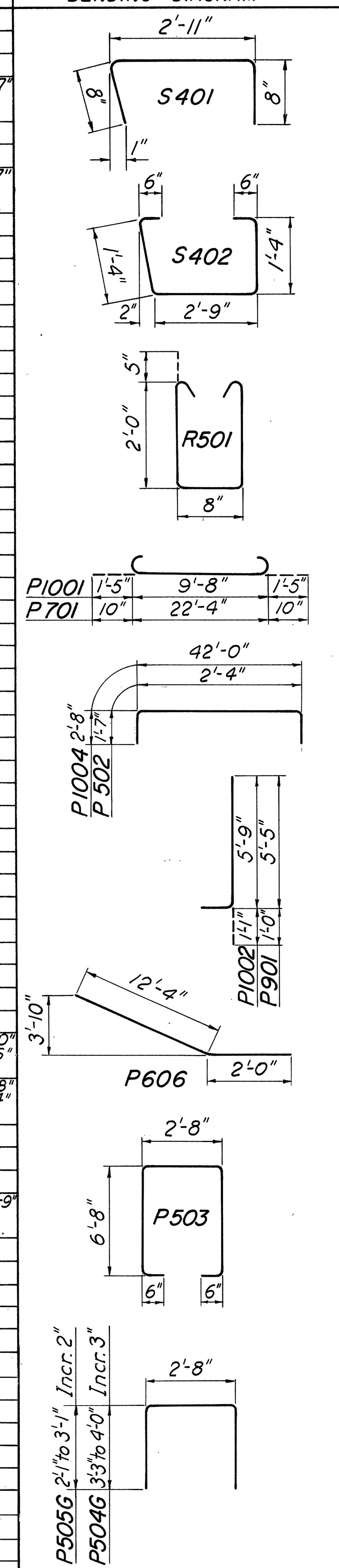
BRIDGE NO. ALL-25-BENTLEY RD.
BENTLEY RD. OVER N.Y., CH. & ST. L.R.R.
ALLEN COUNTY STA. BR 12+00.00
SEC. ALL-25-19.71 DATE:

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
M.L.	M.L.	C.B.	R.R.	Y.H.	5-4-62	

REINFORCING STEEL LIST

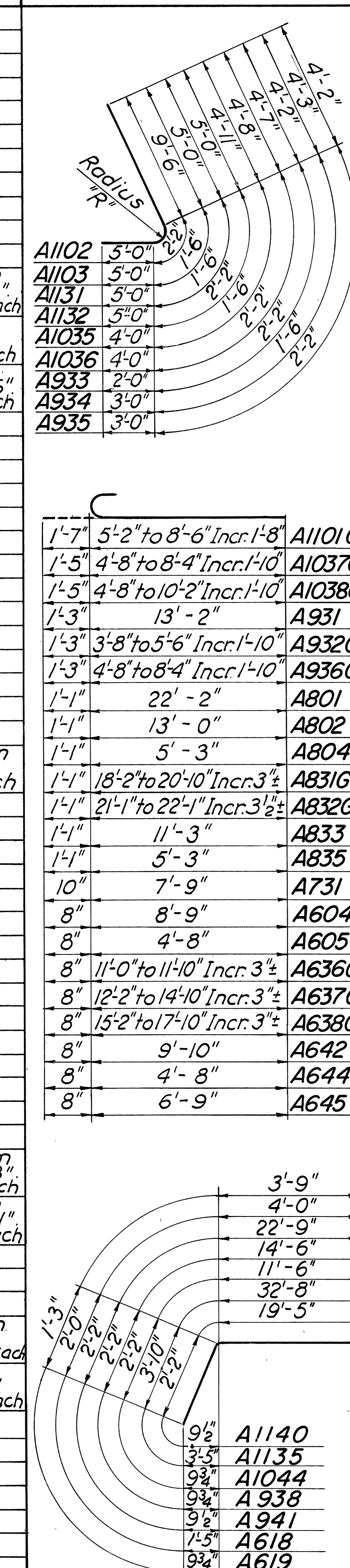
MARK	NO.	LENGTH	WEIGHT	SHP.	REMARKS
SUPERSTRUCTURE					
S 701	224	36'-2"	16,559	S	
S 701G	72	Av.18'-1"	2,661	S	Varies from 2'-7" to 33'-7" Incr. 10½"± 2 Each.
S 601	224	36'-2"	12,168	S	
S 601G	72	Av.18'-1"	1,956	S	Varies from 2'-7" to 33'-7" Incr. 10½"± 2 Each.
S 602	305	41'-0"	18,783	S	
S 603	48	30'-0"	2,163	S	
S 401	262	4'-1"	715	B	
S 402	262	6'-1"	1,065	B	
R 501	262	5'-4"	1,457	B	
Total for Superstructure			57,527		
PIERS					
P 1001	46	12'-6"	2,474	B	
P 1002	60	6'-10"	1,764	B	
P 1003	14	41'-8"	2,510	S	
P 1004	4	47'-0"	809	B	
P 1005	10	42'-0"	1,807	S	
P 901	52	6'-5"	1,134	B	
P 902	52	15'-5"	2,726	S	
P 801	60	16'-0"	2,563	S	
P 802	60	15'-2"	2,430	S	
P 701	18	24'-0"	883	B	
P 601	52	9'-6"	742	S	
P 602	4	17'-8"	106	S	
P 603	4	27'-4"	164	S	
P 604	4	37'-2"	223	S	
P 605	4	41'-8"	250	S	
P 606	16	14'-4"	344	B	
P 501	56	17'-4"	1,012	S	
P 502	56	5'-4"	311	B	
P 503	28	16'-8"	487	B	
P 504G	32	Av.9'-9"	325	B	Varies from 9'-0" to 10'-6" Incr. 6" 8 Each.
P 505G	56	Av.7'-8"	448	B	Varies from 6'-8" to 8'-8" Incr. 4" 8 Each.
Total for Piers			23,512		
SOUTH ABUTMENT					
A 1101G	24	Av.8'-5"	1,073	B	Varies from 6'-9" to 10'-1" Incr. 1'-8" 8 Each.
A 1102	20	16'-8"	1,771	B	R=1'-1"
A 1103	20	11'-6"	1,222	B	R=9"
A 1104	20	19'-0"	2,019	S	
A 1105	8	15'-0"	638	S	
A 1106	12	19'-1"	1,217	S	
A 1107	8	17'-4"	737	S	
A 1108	12	9'-10"	627	S	
A 1001	16	29'-11"	2,060	S	
A 1002	12	9'-0"	465	S	
A 801	38	23'-3"	2,359	B	
A 802	41	14'-1"	1,542	B	
A 803	28	29'-7"	2,212	S	
A 804	96	6'-4"	1,623	B	

BENDING DIAGRAM



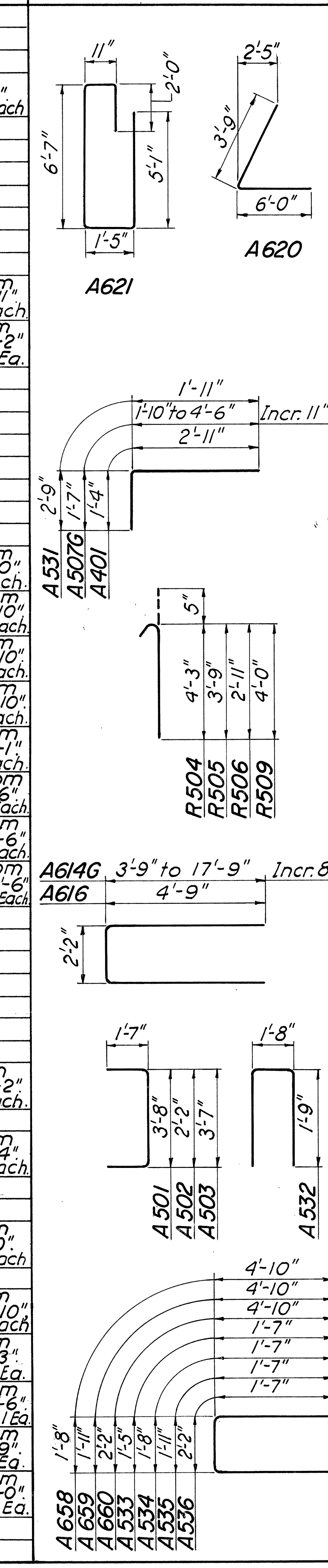
MARK	NO.	LENGTH	WEIGHT	SHP.	REMARKS
A 805	16	9'-0"	384	S	
A 601	38	22'-2"	1,265	S	
A 602	33	12'-0"	595	S	
A 603	62	29'-4"	2,732	S	
A 604	27	9'-5"	382	B	
A 605	36	5'-4"	288	B	
A 606	74	19'-11"	2,214	S	
A 607	74	15'-10"	1,760	S	
A 608	54	7'-2"	581	S	
A 609	46	24'-5"	1,687	S	
A 611G	32	Av.12'-6"	601	S	Varies from 7'-6" to 17'-6" Incr. 3'-4" 8 Each
A 612G	32	Av.9'-2"	441	S	Varies from 4'-2" to 14'-2" Incr. 3'-4" 8 Each
A 614G	88	Av.23'-6"	3,106	B	Varies from 9'-6" to 37'-6" Incr. 1'-4" 4 Each
A 616	48	11'-6"	829	B	
A 617	48	9'-0"	649	S	
A 618	42	6'-0"	379	B	
A 619	4	5'-0"	30	B	
A 620	4	9'-8"	58	B	
A 621	40	15'-8"	941	B	
A 622	26	8'-0"	312	S	
A 501	27	6'-8"	188	B	
A 502	84	5'-2"	453	B	
A 503	47	6'-7"	323	B	
A 504	14	26'-9"	391	S	
A 505	12	22'-6"	282	S	
A 506	2	8'-0"	17	S	
A 507G	8	Av.4'-8"	39	B	Varies from 3'-4" to 6'-0" Incr. 11", 2 Each
A 401	4	4'-2"	11	B	
SOUTH ABUTMENT WINGWALL					
A 1131	5	11'-6"	305	B	R=9"
A 1132	5	12'-1"	321	B	R=1'-1"
A 1133	4	32'-0"	680	S	
A 1134	2	33'-3"	353	S	
A 1135	2	36'-5"	387	B	
A 1136	3	17'-0"	271	S	
A 1137	2	23'-9"	252	S	
A 1138	5	23'-0"	611	S	
A 1139	3	12'-3"	195	S	
A 1140	2	21'-5"	228	B	
A 1031	6	31'-5"	811	S	
A 1032G	6	Av.14'-8"	379	S	Varies from 6'-8" to 22'-8" Incr. 8'-0" 2 Each
A 1033G	6	Av.18'-11"	488	S	Varies from 10'-11" to 26'-11" Incr. 8'-0" 2 Each
A 1034	11	9'-0"	426	S	
A 1035	5	10'-2"	219	B	R=9"
A 1036	5	10'-9"	231	B	R=1'-1"
A 1037G	6	Av.7'-11"	204	B	Varies from 6'-1" to 9'-9" Incr. 1'-10" 2 Each
A 1038G	8	Av.8'-10"	304	B	Varies from 6'-1" to 11'-7" Incr. 1'-10" 2 Each
A 1039	4	32'-0"	551	S	
A 1040	3	12'-3"	158	S	
A 1041	2	17'-0"	146	S	
A 1042	3	23'-4"	301	S	
A 1043	2	22'-8"	195	S	
A 1044	2	13'-7"	117	B	
A 931	15	14'-5"	735	B	
A 932G	4	Av.5'-10"	79	B	Varies from 4'-11" to 6'-9" Incr. 1'-10" 2 Each

BENDING DIAGRAM

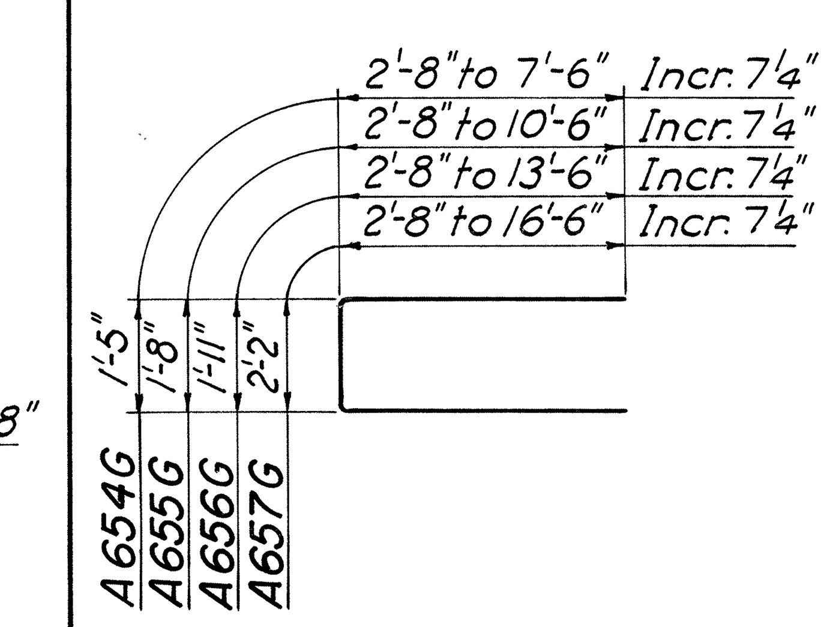


MARK	NO.	LENGTH	WEIGHT	SHP.	REMARKS
A 933	4	8'-4"	113	B	R=1'-1"
A 934	4	8'-9"	119	B	R=9"
A 935	4	9'-4"	127	B	R=1'-1"
A 936G	6	Av.7'-9"	158	B	Varies from 5'-11" to 9'-7" Incr. 1'-10" 2 Each
A 937	2	8'-8"	59	S	
A 938	2	16'-8"	113	B	
A 939	2	9'-6"	65	S	
A 940	2	13'-9"	94	S	
A 941	2	24'-10"	169	B	
A 942	2	17'-3"	117	S	
A 831G	11	Av.20'-7"	605	B	Varies from 19'-3" to 21'-11" Incr. 3"± 1 Each
A 832G	4	Av.22'-8"	242	B	Varies from 22'-2" to 23'-2" Incr. 3½"± 1 Ea.
A 833	12	12'-4"	395	B	
A 834	16	31'-1"	1,328	S	
A 835	62	6'-4"	1,048	B	
A 836	11	9'-0"	264	S	
A 731	12	8'-7"	211	B	
A 732	6	9'-0"	110	S	
A 631G	4	Av.11'-5"	69	S	Varies from 11'-0" to 11'-10" Incr. 3"± 1 Each
A 632G	11	Av.13'-6"	223	S	Varies from 12'-2" to 14'-10" Incr. 3"± 1 Each
A 633G	11	Av.16'-6"	273	S	Varies from 15'-2" to 17'-10" Incr. 3"± 1 Each
A 634G	11	Av.19'-6"	322	S	Varies from 18'-2" to 20'-10" Incr. 3"± 1 Each
A 635G	4	Av.21'-7"	130	S	Varies from 21'-1" to 22'-1" Incr. 4"± 1 Each
A 636G	4	Av.12'-1"	73	B	Varies from 11'-8" to 12'-6" Incr. 3"± 1 Each
A 637G	11	Av.14'-2"	234	B	Varies from 12'-10" to 15'-6" Incr. 3"± 1 Each
A 638G	11	Av.17'-2"	284	B	Varies from 15'-10" to 18'-6" Incr. 3"± 1 Each
A 639	10	8'-10"	133	S	
A 640	10	9'-4"	140	S	
A 641	13	10'-10"	212	S	
A 642	10	10'-6"	158	B	
A 643	16	30'-9"	739	S	
A 644	43	5'-4"	344	B	
A 645	10	7'-5"	111	B	
A 646G	40	Av.19'-1"	1,147	S	Varies from 12'-0" to 26'-2" Incr. 9"± 2 Each
A 647	52	19'-11"	1,556	S	
A 648G	36	Av.15'-1"	816	S	Varies from 8'-10" to 21'-4" Incr. 9"± 2 Each
A 649	8	21'-10"	262	S	
A 650	16	29'-10"	717	S	
A 651G	18	Av.17'-0"	460	S	Varies from 5'-0" to 29'-0" Incr. 3'-0" 2 Each
A 652	34	31'-9"	1,621	S	
A 653G	18	Av.19'-10"	536	S	Varies from 7'-10" to 31'-10" Incr. 3'-0" 2 Each
A 654G	9	Av.11'-5"	154	B	Varies from 6'-7" to 16'-3" Incr. 1'-3"± 1 Ea.
A 655G	14	Av.14'-8"	308	B	Varies from 6'-10" to 22'-6" Incr. 1'-3"± 1 Ea.
A 656G	19	Av.17'-11"	511	B	Varies from 7'-1" to 28'-9" Incr. 1'-3"± 1 Ea.
A 657G	24	Av.21'-2"	763	B	Varies from 7'-7" to 34'-9" Incr. 1'-3"± 1 Ea.
A 658	2	11'-2"	34	B	
A 659	7	11'-5"	120	B	

BENDING DIAGRAM



MARK	NO.	LENGTH	WEIGHT	SHP.	REMARKS
A 660	12	11'-8"	210	B	
A 661	29	9'-0"	392	S	
A 662G	6	Av.8'-6"	77	S	Varies from 4'-9" to 12'-3" Incr. 3'-9" 2 Each
A 663G	8	Av.13'-3"	159	S	Varies from 7'-7" to 18'-11" Incr. 3'-9" 2 Each
A 664G	10	Av.15'-1"	227	S	Varies from 7'-7" to 22'-7" Incr. 3'-9" 2 Each
A 665	2	8'-7"	26	S	
A 666G	8	17'-0"	204	S	Varies from 11'-5" to 22'-7" Incr. 3'-9" 2 Each
A 667G	6	Av.12'-9"	115	S	Varies from 9'-0" to 16'-6" Incr. 3'-9" 2 Each
A 531	26	4'-7"	124	B	
A 532	41	5'-0"	214	B	
A 533	9	4'-5"	41	B	
A 534	14	4'-8"	68	B	
A 535	19	4'-11"	97	B	
A 536	24	5'-2"	129	B	
R 504	7	4'-8"	34	B	
R 505	2	4'-2"	9	B	
R 506	4	3'-4"	14	B	
R 509	2	4'-5"	9	B	



Note: See Sh. 2 for Notes regarding reinforcing steel.

FRANKLAND & LIENHARD
CONSULTING ENGINEERS
156 WILLIAM STREET NEW YORK, N.Y.

REINFORCING STEEL LIST- SH. I
BRIDGE NO. ALL-25-BENTLEY ROAD,
BENTLEY ROAD OVER N.Y., CHICAGO & ST. LOUIS R.R.
ALLEN COUNTY STA. BR 12 + 00.00
SEC. ALL-25-19.71 DATE:

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
M.L.	O.M.	O.M.	R.R.	YH	5-4-62	

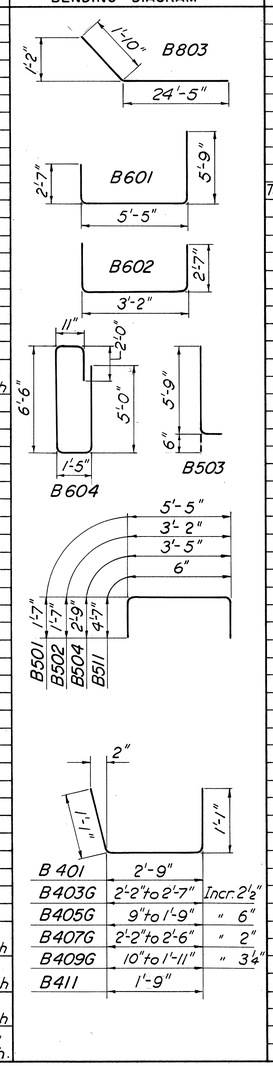
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

138
289

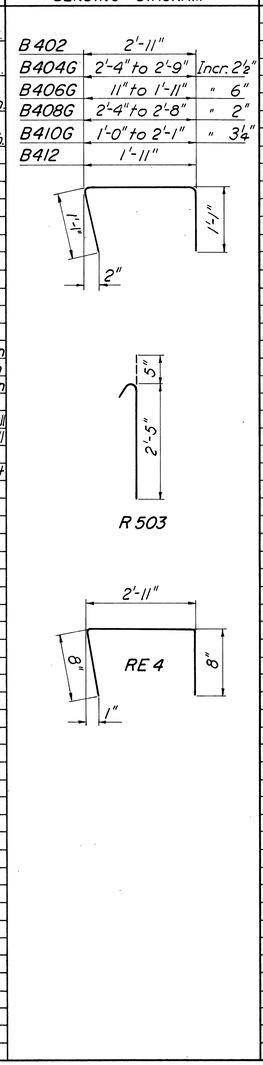
ALLEN & HANCOCK COUNTIES
ALL-25-19.71 HAN-25-0.00

REINFORCING STEEL LIST

MARK	NO.	LENGTH	WEIGHT	SHP.	REMARKS
NORTH ABUTMENT					
B 801	11	25'-6"	749	S	
B 802	1	23'-5"	63	S	
B 803	2	26'-3"	140	B	
B 804	6	14'-4"	230	S	
B 805	3	12'-8"	101	S	
B 806	1	12'-5"	33	S	
B 807	2	11'-6"	61	S	
B 808	2	4'-0"	21	S	
B 601	37	13'-7"	755	B	
B 602	14	8'-2"	172	B	
B 603	37	9'-3"	514	S	
B 604	39	15'-6"	908	B	
B 605	33	5'-0"	248	S	
B 606	2	4'-6"	14	S	
B 607	2	4'-0"	12	S	
B 608	12	3'-7"	65	S	
B 609	4	2'-0"	12	S	
B 610G	6	Av.4'-4"	39	S	Varies from 4'-0" to 4'-8" Incr.4" 2 Each
B 611	8	3'-4"	40	S	
B 501	37	8'-5"	325	B	
B 502	14	6'-2"	90	B	
B 503	37	6'-3"	241	B	
B 504	37	8'-9"	338	B	
B 505	8	8'-9"	73	S	
B 506	8	11'-7"	97	S	
B 507	40	24'-7"	103	S	
B 508	8	4'-0"	33	S	
B 509	2	6'-6"	14	S	
B 510	6	12'-4"	77	S	
B 511	8	9'-6"	79	B	
B 512	2	4'-0"	8	S	
B 513	2	5'-0"	10	S	
B 514	2	9'-11"	21	S	
B 515	6	16'-6"	103	S	
B 516	2	11'-1"	23	S	
B 517	1	10'-6"	11	S	
B 518	2	12'-8"	26	S	
B 519	1	8'-9"	9	S	
B 520	1	12'-1"	13	S	
B 521	2	18'-2"	38	S	
B 522	1	14'-3"	15	S	
B 523	2	16'-6"	34	S	
B 524	1	16'-0"	17	S	
B 525	1	12'-0"	13	S	
B 401	6	4'-9"	19	B	
B 402	6	4'-11"	20	B	
B 403G	3	Av.4'-4½"	9	B	Varies from 4'-2" to 4'-7" Incr. 2½" 2 Each
B 404G	3	Av.4'-6½"	9	B	Varies from 4'-4" to 4'-9" Incr. 2½" 2 Each
B 405G	3	Av.3'-3"	7	B	Varies from 2'-9" to 3'-9" Incr. 6" 2 Each
B 406G	3	Av.3'-5"	7	B	Varies from 2'-11" to 3'-11" Incr. 6" 2 Each.



MARK	NO.	LENGTH	WEIGHT	SHP.	REMARKS
B 407G	4	Av.4'-4"	12	B	Varies from 4'-2" to 4'-6" Incr. 2" 2 Each.
B 408G	4	Av.4'-6"	12	B	Varies from 4'-4" to 4'-8" Incr. 2" 2 Each.
B 409G	5	Av.3'-4½"	11	B	Varies from 2'-10" to 3'-11" Incr. 3¼" 2 Each.
B 410G	5	Av.3'-6½"	12	B	Varies from 3'-0" to 4'-1" Incr. 3¼" 2 Each.
B 411	1	3'-9"	3	B	
B 412	1	3'-11"	3	B	
Total for Abutments			7549g		
CONCRETE PARAPETS					
DECK					
R 502	80	15'-10"		S	2 Panel Section
R 502A	8	7'-9"		S	1 Panel Section
R 502B	16	12'-10"		S	1½ Panel Section
WINGWALLS					
R 502U	4	16'-2"		S	Northeast Wingwall
R 502V	4	12'-4"		S	Northwest Wingwall
CONCRETE END POSTS					
R 503	1	2'-10"		B	South Abutment
R 507	4	2'-7"		S	" "
R 508	2	2'-4"		S	" "
R 511	4	3'-8"		S	" "
R 512	2	3'-7"		S	" "
REPLACEMENT BARS					
RE 11	2	7'-7"		S	
RE 10	2	7'-3"		S	
RE 9	1	6'-10"		S	
RE 8	2	6'-6"		S	
RE 7	3	6'-3"		S	
RE 6	4	5'-11"		S	
RE 5	1	5'-7"		S	
RE 4	1	4'-1"		B	



MARK	NO.	LENGTH	WEIGHT	SHP.	REMARKS

BENDING DIAGRAM

NOTES :

DIMENSIONS FOR BENT BARS shown on the bending diagrams are out to out dimensions. Lengths of bars listed in the columns under "Length" represent the lengths along the center line of bars.

BAR SIZE is indicated in the bar mark. The first digit where three digits are used, and the first two digits where four are used, indicate the bar size number. For example, A 700 is a No.7 size bar and A1014 is a No.10 size.

REPLACEMENT BARS: If reinforcing bars are fabricated from stock which has previously been tested and approved by the Ohio Highway Testing Laboratory, test samples as provided in Sec.S-4.02 need not be furnished and replacement bars will not be required.

CONCRETE PARAPET: Reinforcing bars listed under the title "Concrete Parapet" are included with the railing Item S-14, for payment.

FRANKLAND & LIENHARD
CONSULTING ENGINEERS
156 WILLIAM STREET NEW YORK, N.Y.

REINFORCING STEEL LIST-SH.2
BRIDGE NO. ALL-25-BENTLEY ROAD,
BENTLEY ROAD OVER N.Y.,
CHICAGO & ST. LOUIS R.R.
ALLEN COUNTY STA. BR 12+00.00
SEC. ALL-25-19.71 DATE:

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
M.L.	O.M.	O.M.	R.R.		5-4-62	