1972

CONVENTIONAL SIGNS

SECTION LINE	
COUNTY LINE	
TOWNSHIP LINE & CORPORATION LINE	
CENTER LINE	
PROPERTY LINE	P P
EXISTING RIGHT-OF-WAY	Ex. R/W 2
RIGHT-OF-WAY LINE	R/W
LIMITED ACCESS LINE	L/A
LIMITED ACCESS & RIGHT-OF-WAY LINE	L/A - R/W
TEMPORARY & CHANNEL EASEMENTS	
WORK LIMITS	
FENCE LINE (EXISTING, PROPOSED)	X X X
EXISTING GUARD RAIL	
GUARD RAIL (PROPOSED)	
POLE LINE (POWER, TELEPHONE, TELEGRAPH)	
UNDERGROUND UTILITIES (GAS, WATER, TELEPHONE)	-4G- -6W- -T-
TILE & DRAIN PIPE	6"VSP 12"CMP
EXISTING TREES, STUMPS	

INDEX OF SHEETS

Sheets No. 252, 253, 373, 374 not used

LINE DATA

	PROJECT LENGTH	WORK LENGTH
S.R. 2	1762+00 To 1850+05.96 = 26,135.45 Lin. Ft.	1759+95.00 To 1980+05.00 = 27,645.45 Lin. Ft.
	1838+29.49 Back = 00+00.00 Ahead	1850+05.96 Back = 1850+00 Ahead
S.R. 60		400+00.00 To 453+00.00 = 5,300.00 Lin. Ft.
West River Rd.		15+65.00 To 34+55.00 = 1,890.00 Lin. Ft.
Vermilion Rd.		15+00.00 To 34+43.00 = 1,943.00 Lin. Ft.
Vermilion Interchange Rd.		20+28.61 To 29+00.00 = 871.39 Lin. Ft.
Sunnyside Rd.		8+20.00 To 34+25.00 = 2,605.00 Lin. Ft.
Claus Rd.		14+00.00 To 39+25.00 = 2,525.00 Lin. Ft.
Baumhart Rd.		195+50.00 To 222+50.00 = 2,700.00 Lin. Ft.
Jerusalem Rd.		0+12.02 To 25+00.00 = 2,487.98 Lin. Ft.
Net Length	26,135.45 Lin. Ft.	47,967.82 Lin. Ft.
	4.949 Miles	9.084 Miles

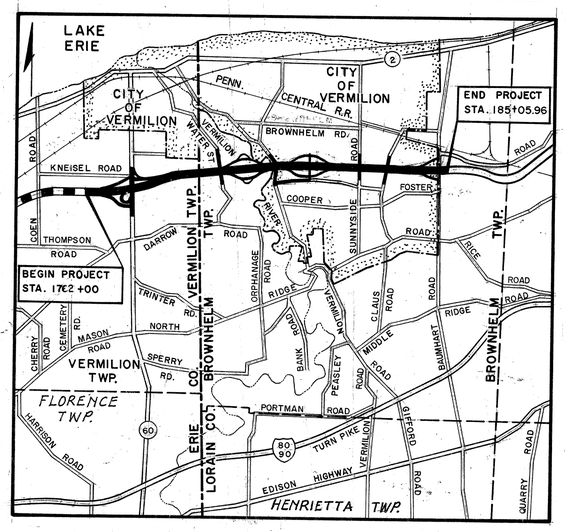
FILE NO.	ERIE AND LORAIN COUNTY ERI-2-29.12 LOR-2-0.00 DATE OF LETTING CONTRACT NO.

PREPARED AND RECOMMENDED BY
FRANKLIN ENGINEERING, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

RECEIVED APR 2 1972 REPRODUCTION ROLL FILM

MICROFILMED MAY 09 1979 APERTURE CARDS

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
ERI-2-29.12
LOR-2-0.00
CITY OF VERMILION
ERIE COUNTY LORAIN COUNTY
VERMILION TOWNSHIP BROWNHELM TOWNSHIP



LOCATION MAP

SCALE IN MILES

PORTION TO BE IMPROVED
STATE HIGHWAYS
OTHER ROADS

SCALES

PLAN	0' 50'
PROFILE-HORIZONTAL	0' 50'
PROFILE-VERTICAL	0' 5'
CROSS SECTIONS	0' 10'

RF-1115 (3)
State ISSUE No. 1

Federal No. F-1115(3) appearing throughout this plan shall be considered to read RF-1115(3).

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	RF-1115 (3)	

1/579

ERIE COUNTY
ERI-2-29.12
LORAIN COUNTY
LOR-2-0.00

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, REVISED CODE OF OHIO.

1971 SPECIFICATIONS

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 THESE PLANS AND ESTIMATES.

APPROVED: H. K. Reader
DATE: 1-20-70 DIVISION DEPUTY DIRECTOR

APPROVED: C. H. Albrecht
DATE: 4-9-71 ENGINEER OF BRIDGES

APPROVED: E. J. Schaefer
DATE: 4-8-71 ENGINEER OF LOCATION AND DESIGN

APPROVED: H L Kramer
DATE: 4-8-71 DEPUTY DIRECTOR OF DESIGN AND CONSTRUCTION

APPROVED: R. M. Jessinger
DATE: 4/26/71 DEPUTY DIRECTOR OF RIGHT-OF-WAY

APPROVED: William Bumbley
DATE: 4-26-71 DEPUTY DIRECTOR OF PLANNING AND PROGRAMMING

APPROVED: William P. McKenna
DATE: 4-26-71 FIRST ASSISTANT DIRECTOR

APPROVED: R Bumbley
DATE: 4/26/71 DIRECTOR OF HIGHWAYS

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED

DIVISION ENGINEER DATE

STANDARD CONSTRUCTION DRAWINGS

DRAWING NO.	DATE	DRAWING NO.	DATE	DRAWING NO.	DATE	DRAWING NO.	DATE	DRAWING NO.	DATE
BP-1	6-1-65	CB-3A	6-1-65	GR-2A	1-1-71	I-2A	6-6-69	FACI-1	4-20-71
BP-2	12-1-68	CB-4	9-1-69	GR-2B	11-9-71	L-1	6-1-65	FACI-2	4-20-71
BP-3	1-1-71	CB-5	9-1-69	GR-3	11-9-71	L-2	6-13-69	HW-E	6-1-65
BP-4	1-1-71	CB-6	6-1-65	GR-4	11-9-71	MC-1	6-13-69	MH-1	10-1-68
BP-5	6-1-72	CB-458A	6-6-68	GR-5	1-1-71	MC-3	6-20-69	MH-1A	10-1-68
BP-6	6-1-65	F-1	6-1-72	GR-6	1-1-71	MC-4	6-13-69	RRA-2	6-1-65
BP-7	1-1-66	F-2	1-1-71	HL-1	11-1-65	MC-6	6-1-65	RRA-3	6-1-65
BP-8	5-20-70	F-3	3-10-69	HL-2	11-1-65	MC-7	10-1-68	AS-1-67	6-12-69
CB-2-2-A & B	6-1-65	F-5	3-10-69	HL-3	11-1-65	MC-8	12-1-67	BR-1-67	10-15-71
CB-2-5 & 2-6	6-1-65	F-6	10-1-66	HL-4	1-1-66	SP-53	6-30-61	RB-1-55	2-2-59
BP-9	1-1-71							SD-1-69	6-12-69

SUPPLEMENTAL SPECIFICATIONS

SPECIFICATION NO.	DATE	SPECIFICATION NO.	DATE
801	1-1-69		
808	1-1-71		
814	1-1-69		
815	1-1-69		
816	1-1-69		
836	1-1-71		
1001	1-1-69		
941	11-25-70		
839	11-25-70		
939	12-15-69		

Sht. 17B Rev. 9-14-72 ANG

Rev. 7-11-72
Rev. 6-6-72
Rev. 9-15-71
Rev. 6-18-71

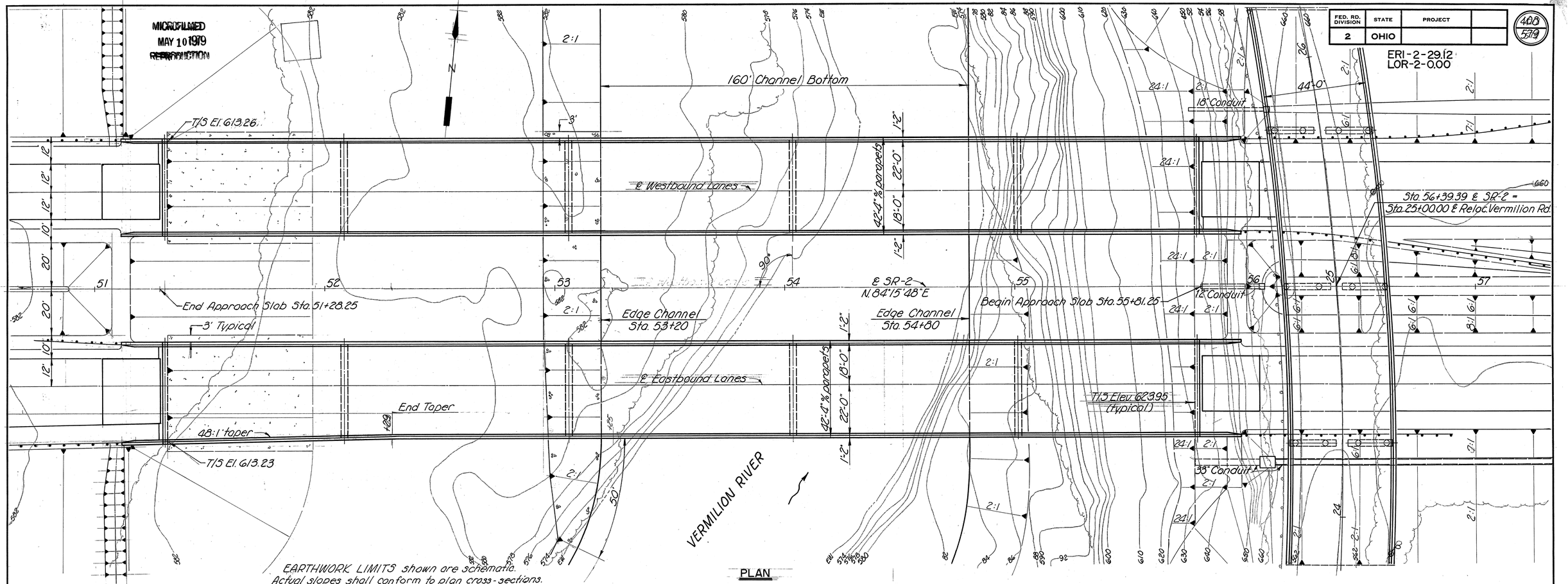
6-6-72

1972

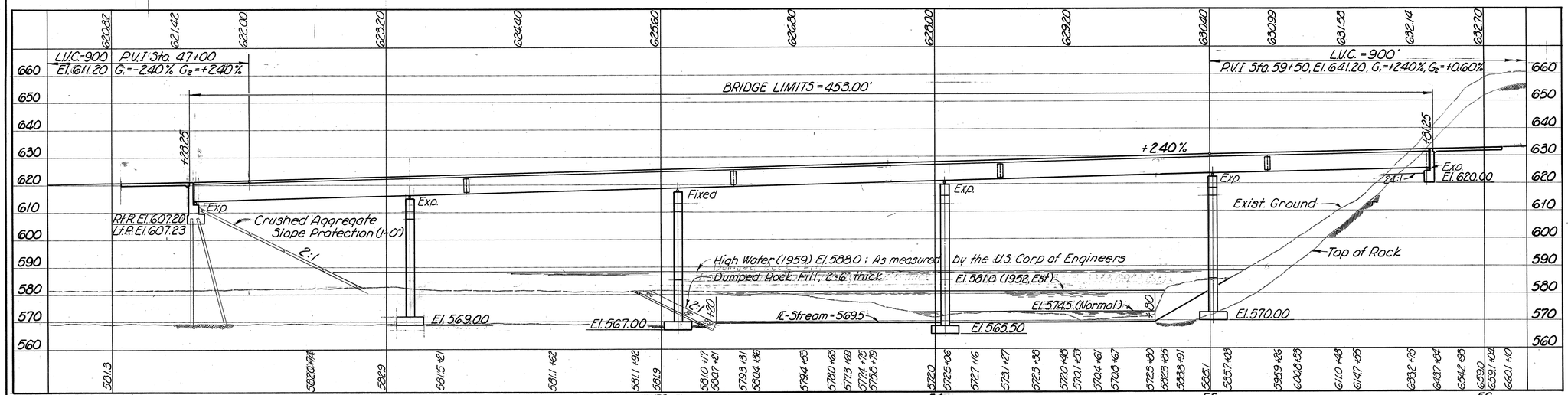
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

408
5179

ERI-2-29.12
LOR-2-0.00



PLAN



ESTIMATED AVERAGE PAY: LENGTH of HP10×42 piles at the rear abutment is 40 lin. ft.

PROFILE ALONG ℄ EASTBOUND LANES

6-6-72

DRAINAGE AREA = 263.30 mi.
Jan. 26, 1952 flood Q = 9820 c.f.s.
Jan. 21, 1959 flood Q_{100} = 20,500 c.f.s. ±

1 | 15

PROPOSED STRUCTURE

TYPE: Continuous steel girder bridge with reinforced concrete deck & substructures
SPANS: 78'-0"; 97'-6"; 97'-6"; 97'-6"; 78'-0" % brg.
ROADWAY: 40'-0" ff parapets Lt Br. Variable Rt Br.
LOADING: H 20-44
WEARING SURFACE: 1" monolithic concrete
SKEW: none
APPROACH SLAB: AS-1-67 (25'-0" long)
ALIGNMENT: tangent
SUPERELEVATION: none
AVERAGE DAILY TRAFFIC: 26,061 (1988)

FRANKLIN ENGINEERING, LIMITED
Consulting Engineers
COLUMBUS, OHIO

SITE PLAN

BRIDGE No. LOR-2-0098 L&R
over VERMILION RIVER

LORAIN COUNTY — SR-2
Sta. 51+28.25 — Sta. 55+81.25

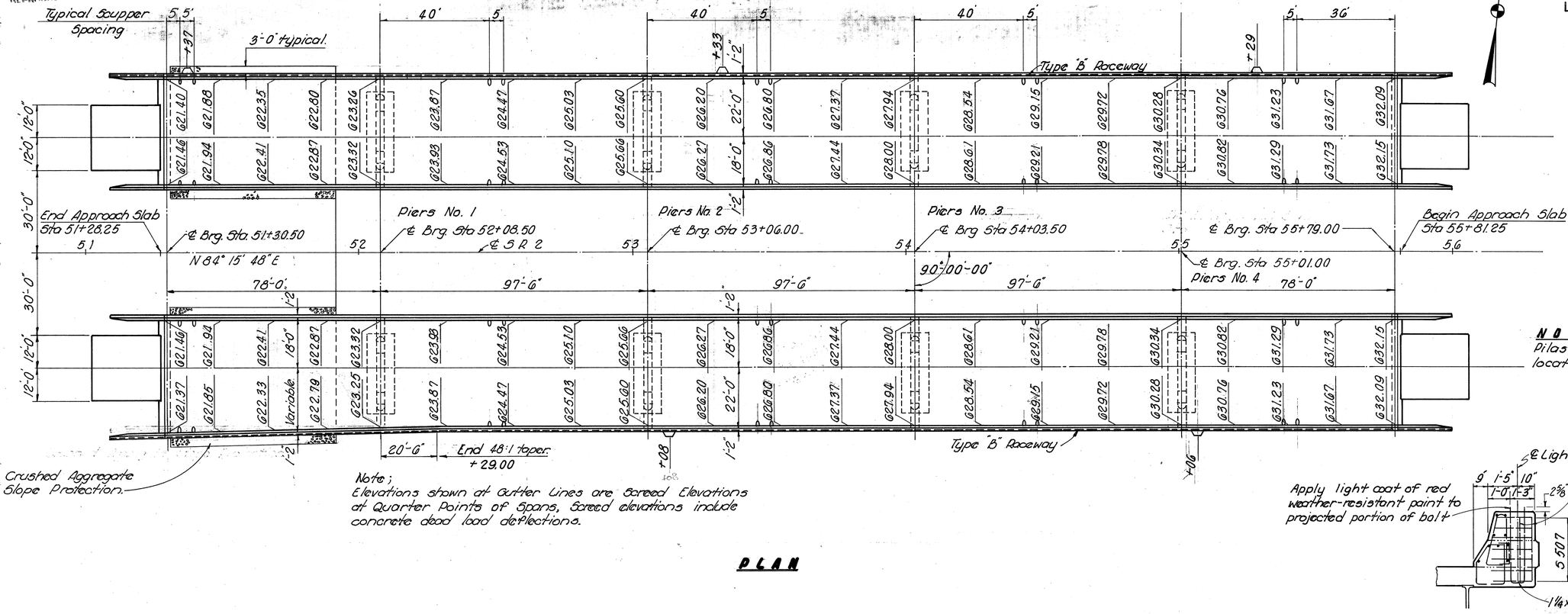
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
F.A.	[illegible]		SAS	JF	9/15-71	

1972

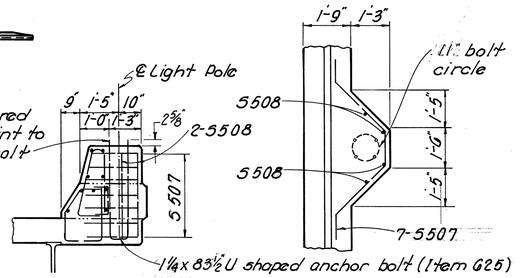
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

409/579

ERI-2-29.12
LOR-2-0.00

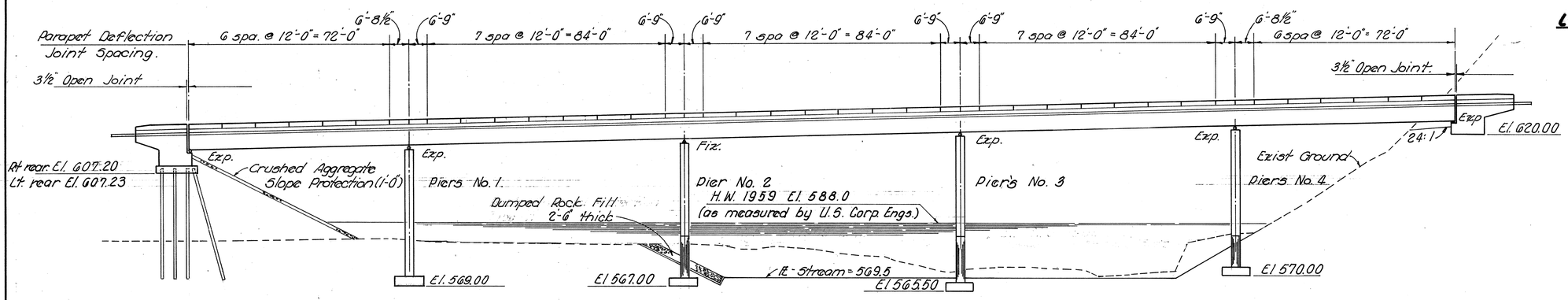


NOTE:
Pilasters shall be provided at locations as shown.



PLAN

LIGHT POLE PILASTER



ELEVATION

2/15

FRANKLIN ENGINEERING, LIMITED
Consulting Engineers
COLUMBUS, OHIO

GENERAL PLAN & ELEVATION

BRIDGE No LOR-2-0098 L&R
over VERMILION RIVER

LORAIN COUNTY S. R. 2

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
NLA	F.G.		SAS	JF	9/15-71	

6-6-72

1972

MICROFILMED
MAY 10 1979
RECORDS CONSERVATION

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

410
579

ERI-2-29.12
LOR-2-0.00

ESTIMATED QUANTITIES - TWO BRIDGES

ITEM	TOTAL BOTH BR.	TOTALS Left Br.	TOTALS Right Br.	UNIT	DESCRIPTION	SUPERSTR. Left Br.	SUPERSTR. Right Br.	ABUTMENTS Left Br.	ABUTMENTS Right Br.	PIERS Left Br.	PIERS Right Br.	GENERAL Left Br.	GENERAL Right Br.
503	Lump Sum			Lump Sum	Cofferdams, Cribs & Sheeting							Lump Sum	
503	992	494	498	cu.yds.	Unclassified Excavation			132	136	362	362		
503	430	215	215	cu.yds.	Rock Excavation			122	122	93	93		
505	Lump Sum	Lump Sum		Lump Sum	Test Pile							Lump Sum	
507	1200	600	600	lin.ft.	Steel Piles, HP 10x42			600	600				
509	705,254	351,534	353,720	lbs.	Reinforcing Steel	181,882	183,848	14,053	14,245	155,599	155,627		
511	347	172	175	cu.yds.	Class "C" Concrete, Abutments			172	175				
511	727	363	364	cu.yds.	Class "C" Concrete, Piers above Footings					363	364		
511	238	119	119	cu.yds.	Class "C" Concrete, Pier Footings					119	119		
511	*1274	636	638	cu.yds.	Class "C" Concrete, Superstructure	636	638						
513	899,160	449,384	449,776	lbs.	Structural Steel	449,384	449,776						
514	899,160	449,384	449,776	lbs.	Field Painting of Structural Steel	449,384	449,776						
518	40	20	20	each	Scuppers, including supports	20	20						
518	70	36	34	cu.yds.	Porous Backfill			36	34				
518	70	34	36	lin.ft.	6" Perforated Helical Corrugated Metal Pipe, Including specials, 707.01			34	36				
518	89	45	44	lin.ft.	6" Non-perforated Helical Corrugated Metal Pipe, 707.01			45	44				
601	768	376	392	sq.yds.	Crushed Aggregate Slope Protection							376	392
601	414	176	238	sq.yds.	Dumped Rock Fill, type "A" 2.5' thick							176	238
625					For 625 Lighting Items, see sheet no. 504								
808	1274	636	638	unit	Chemical Admixture for Concrete, type A, B or D	636	638						

* 59 cu.yds. of Class "C" Concrete, Superstructure, is non-participating for Federal Funds.

GENERAL NOTES

REFERENCE shall be made to Standard Drawings BA-1-67 (rev. 6-12-69), BR-1-67 (rev. 10-15-71) sheet 1 of 3, RB-1-55 (rev. 2-2-59), SD-1-69 (6-12-69) sheets 1, 2 and 3 of 3. Supplemental Specifications 808 (1-1-71) and 836 (1-1-71).

DESIGN SPECIFICATION - These bridges conform to the "Standard Specifications for Highway Bridges" adopted by the American Association of State Highway Officials, 1969, including the Ohio Supplement to these specifications.

DESIGN DATA

Design Loading ~ H S 20-44

Concrete Class "C" ~ Unit stress 1200 p.s.i. for Superstructure
Concrete Class ~ Unit stress 1333 p.s.i. for Substructures

Structural Steel ~ ASTM A 36 ~ Unit stress 20,000 p.s.i.
Reinforcing Steel ~ ASTM A615, A616, A617 ~ Unit stress 20,000 p.s.i. If bars in accordance with ASTM A616 are provided, they shall be subject to bend tests as per AASHO Designation M 42-70.

PROCEDURE ~ The embankment for the rear abutments shall be constructed to the level of subgrade for a minimum distance of 200 feet back of the abutments. After a minimum waiting period of 30 days, excavation shall be made for the rear abutments. The rear piers (piers no. 1) may be constructed after the embankment is in place.

EXCAVATION QUANTITY includes the removal of the fill material required for the construction of the abutment and piers.

FOUNDATION BEARING PRESSURE ~ Forward abutment footing and all pier footings are designed for a maximum bearing pressure of 6 tons per square foot.

PILES shall be driven with a hammer of not less than 11,000 foot pounds per blow to firm contact with bedrock. If the length of penetration is approximately equal to the depth to bedrock according to the bridge foundation investigation report, the firm contact shall be considered as attained when the capacity, according to the formula in 507.05 is not less than the following value for a pile hammer of the indicated energy rating:

Rear Abutment Piles
40 tons per pile using an 11,000 foot pound hammer
35 tons per pile using a 15,000 foot pound hammer or greater.

If the the energy rating of the hammer is between the ratings shown above, the required formula capacity shall be determined by interpolation. The design load is 35 tons per pile for the rear abutment piles.

ALL PIER FOOTINGS shall extend a minimum of 3' into bedrock or to the elevation shown, whichever is lower. *

SCUPPERS shall be in accordance with Standard Drawing SD-1-69 except that scupper pipes shall extend 8 inches below the bottom of the beams instead of 2 inches as shown.

FOR LIGHTING DETAILS not shown, see sheet number 504 and Standard Construction Drawing HL-4.

* **FOOTINGS** for pier No. 1 shall extend a minimum of 3' into bedrock. If necessary, the footings should be lowered. However, if the low point of the surface of the bedrock occurs 2 feet or more above plan elevation, the footings may be raised, after approval by the Director, but to an elevation not higher than 576.0. Stepping of individual footings will not be permitted unless shown on the plans.

END DAM ANCHOR BARS shall be placed 3 3/8" below the deck surface instead of 3" as shown on Std. Drwg. SD-1-69.

6-6-72

3/15

FRANKLIN ENGINEERING, LIMITED
Consulting Engineers
COLUMBUS, OHIO

ESTIMATED QUANTITIES & GENERAL NOTES
BRIDGE No. LOR-2-0098L&R
over VERMILION RIVER
LORAIN COUNTY SR-2

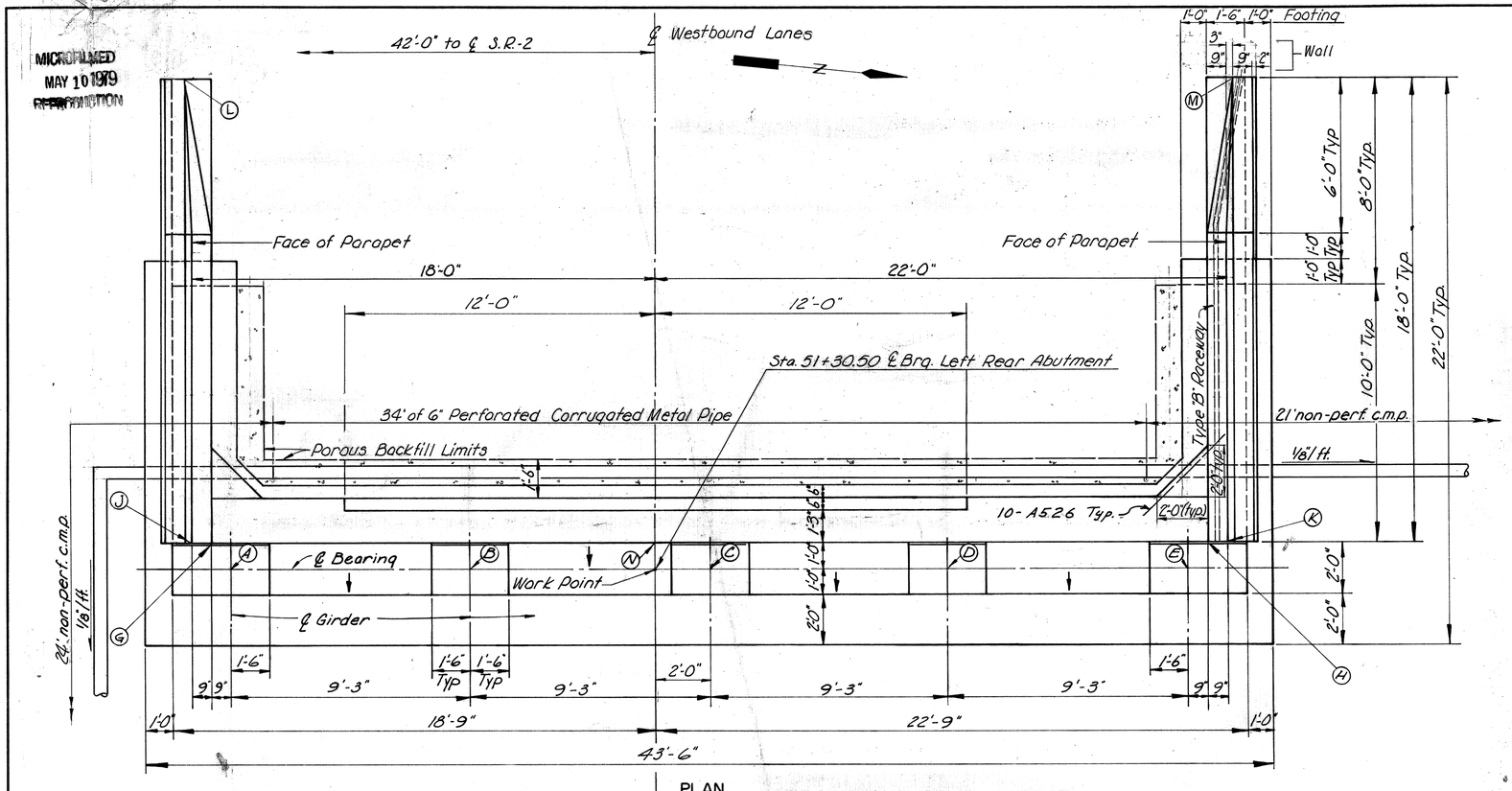
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
SAS	NLA		NLA	JF	9/15-71	12-17-71

1972

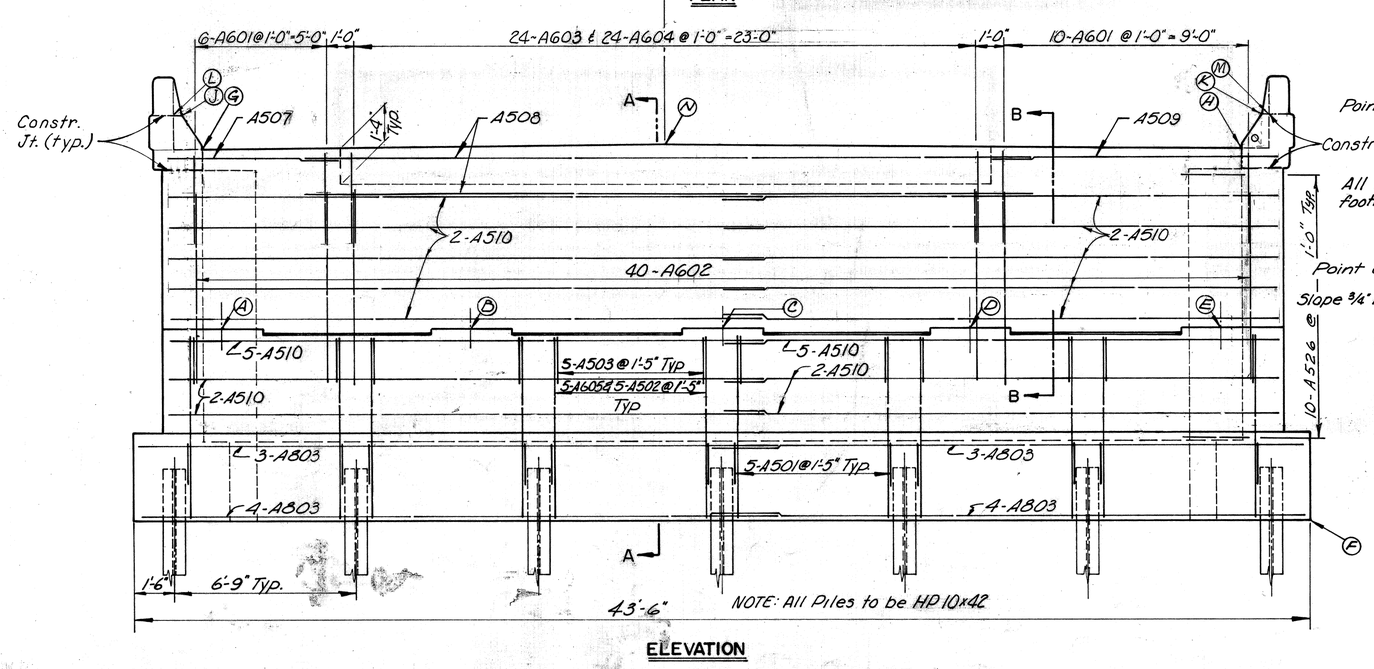
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

ALL STD

ERI-2-29.12 / LOR-2-0.00



PLAN

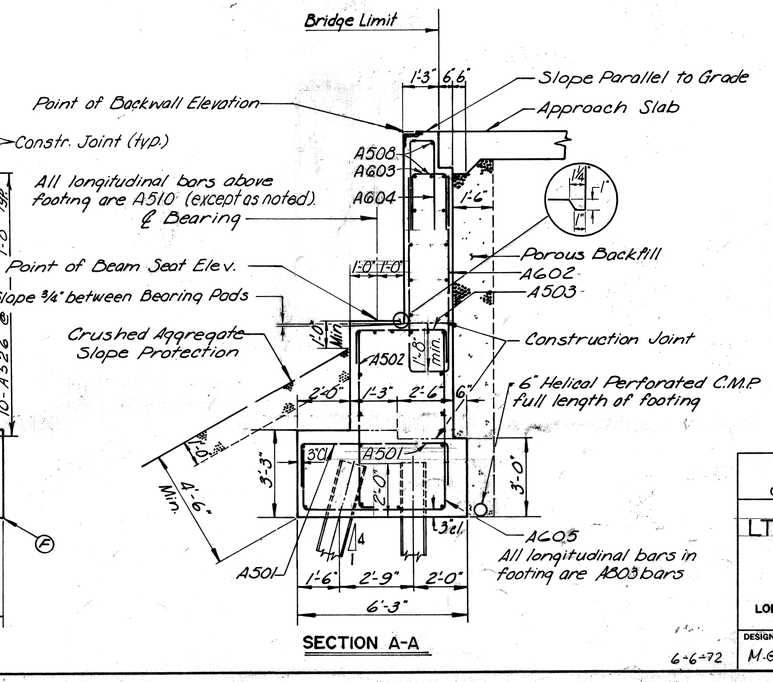


ELEVATION

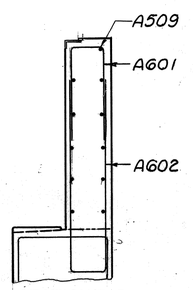
TABLE OF ELEVATIONS								
POINT	A	B	C	D	E	F	G	H
Rear Abutment	614.32	614.47	614.55	614.40	614.26	607.23	621.44	621.37

POINT	J	K	L	M	N
Rear Abutment	622.69	622.62	622.27	622.21	621.71

NOTE: See sheet 6 of 15 for the footing plan of the left rear abutment and wing wall details.



SECTION A-A



SECTION B-B

POROUS BACKFILL, 1.5 feet thick shall extend up to the plane of sub-grade and laterally to the ends of the wing walls.

4 | 15

FRANKLIN ENGINEERING, LIMITED
Consulting Engineers
COLUMBUS, OHIO

LT. REAR ABUTMENT DETAILS

BRIDGE NO LOR-2-0098 L&R
over VERMILION RIVER

LORAIN COUNTY SR2

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
M.G	J.C		J.A.D.	J.F.	2/18-69	12-17-71

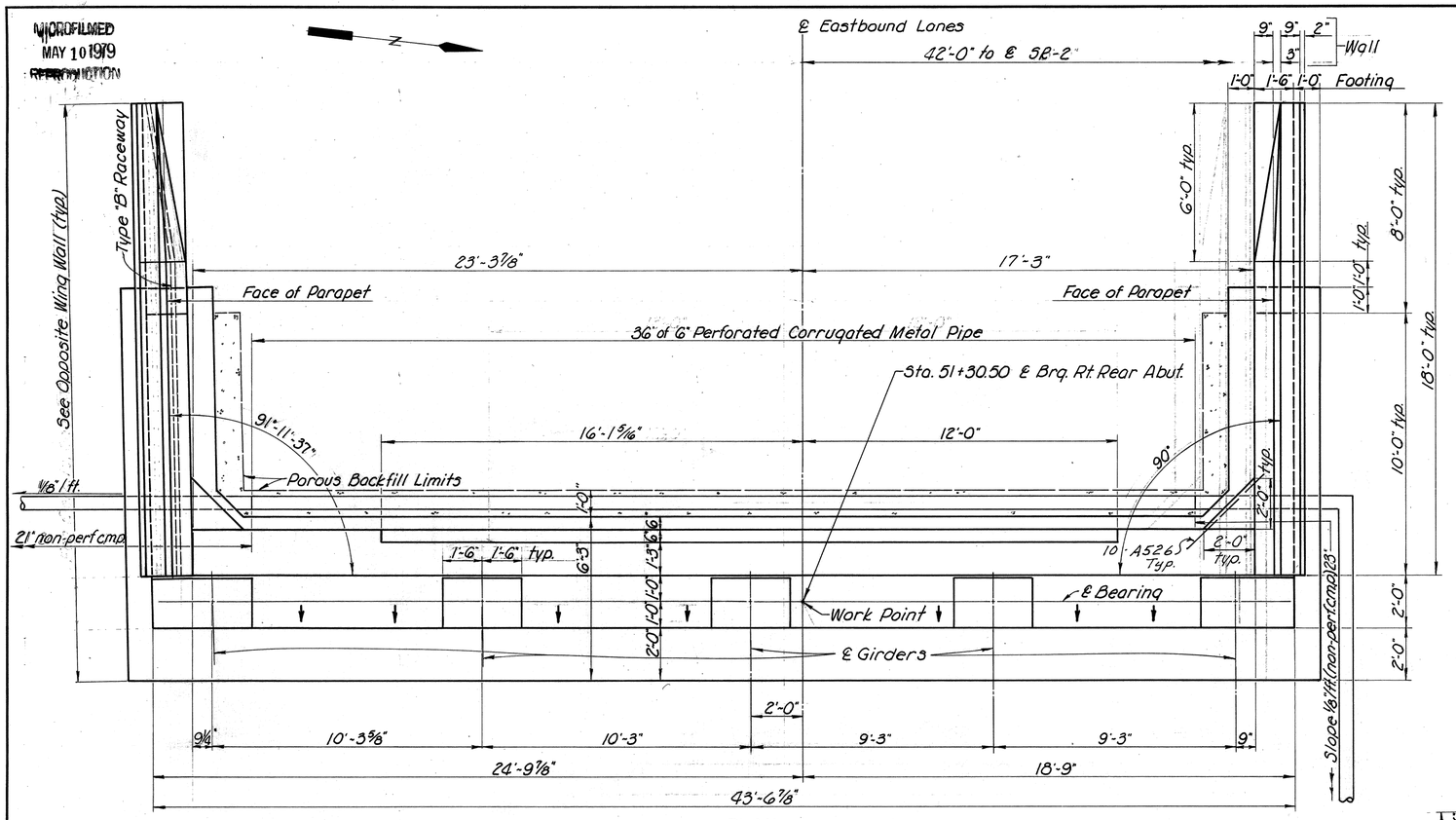
6-6-72

1972

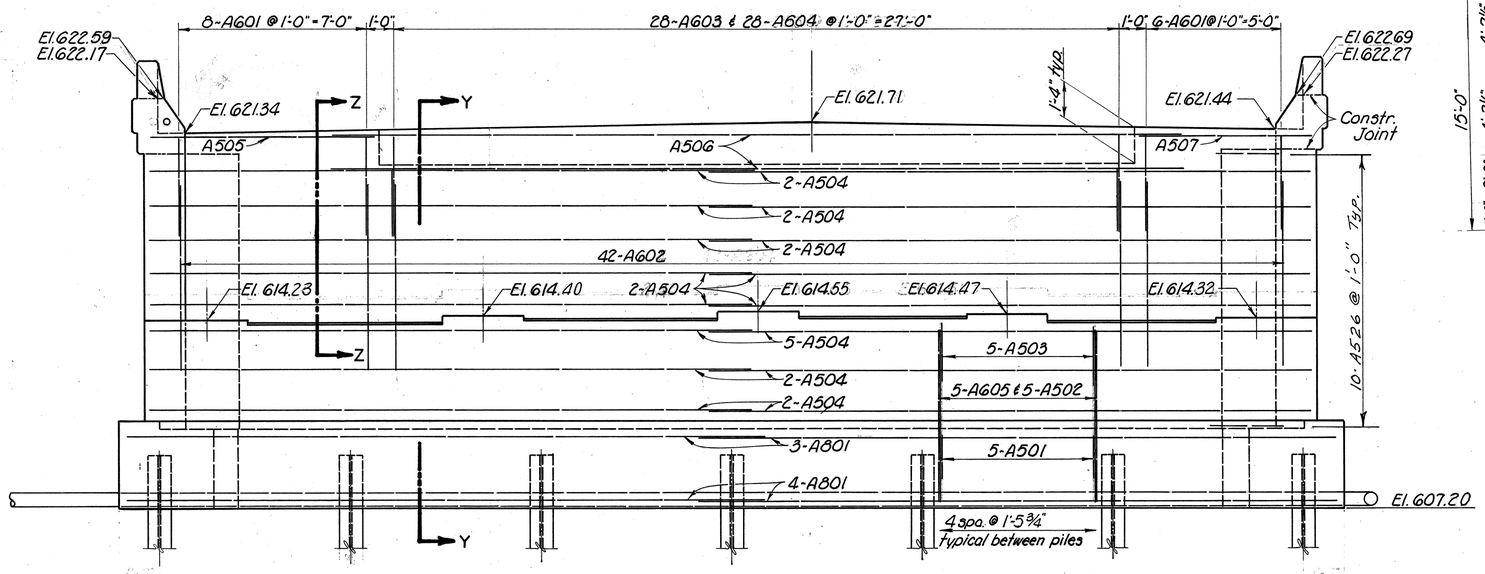
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

ERI-2-29.12
LOR-2-0.00

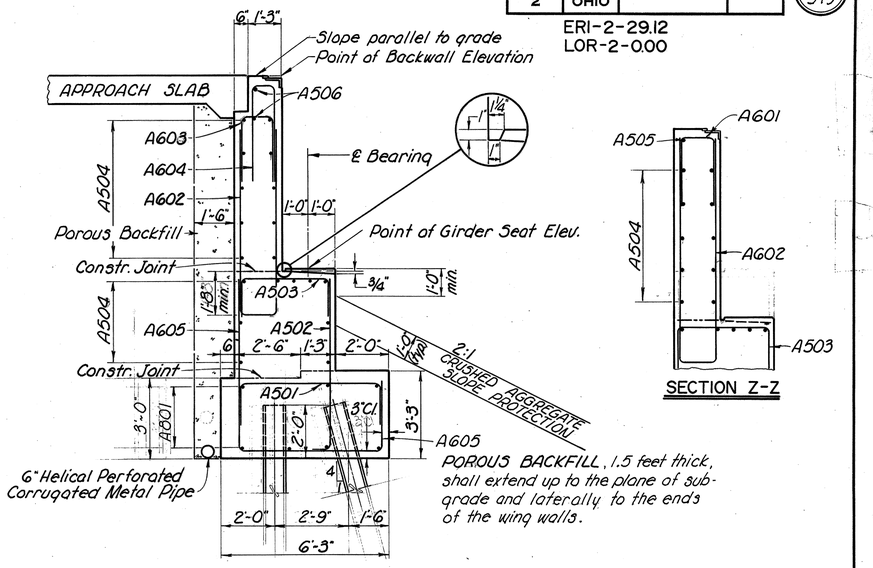
412
579



PLAN



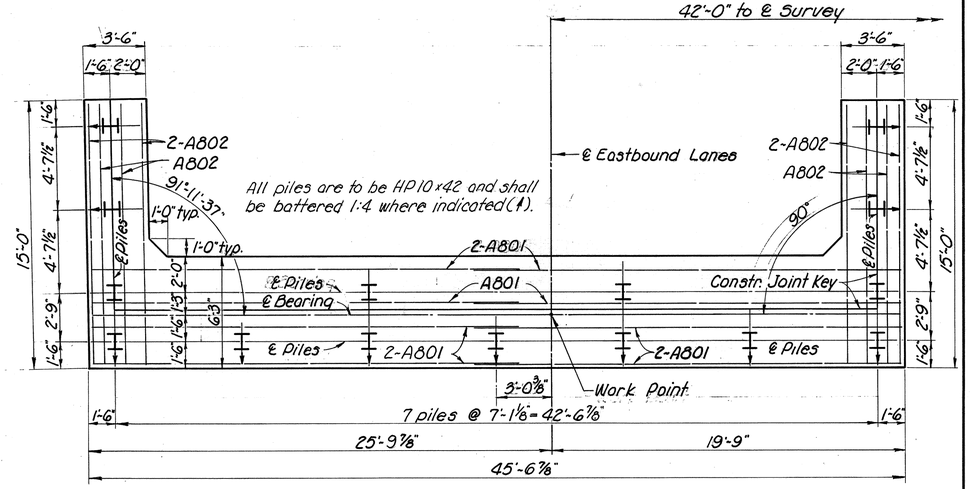
ELEVATION



SECTION Y-Y

POROUS BACKFILL, 1.5 feet thick, shall extend up to the plane of sub-grade and laterally to the ends of the wing walls.

SECTION Z-Z



FOOTING PLAN

Note: See sheet 6 of 15 for typical wing wall details.

5 | 15

FRANKLIN ENGINEERING, LIMITED
Consulting Engineers
COLUMBUS, OHIO

RT. REAR ABUTMENT DETAILS

BRIDGE NO. LOR-2-0098 L℄R
over VERMILION RIVER

LORAIN COUNTY SR-2

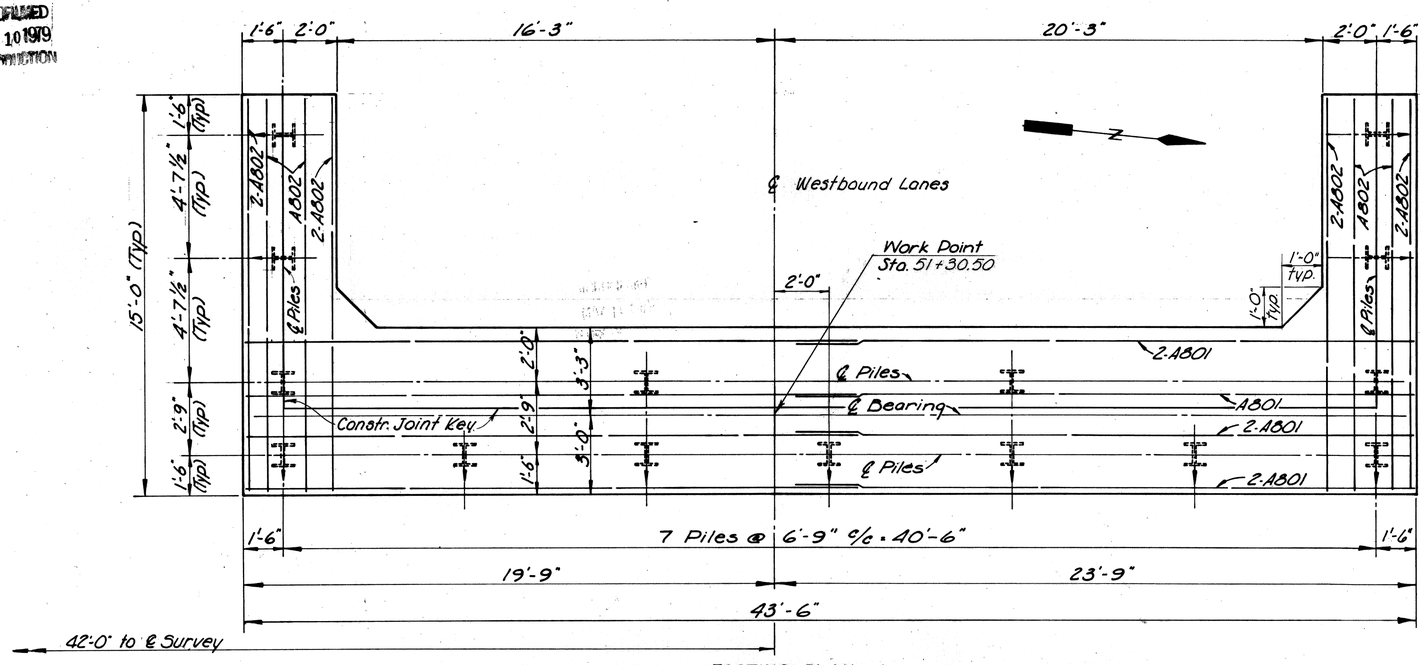
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JAS	W.L.A.		W.L.A.	JF	9/15-71	12-17-71

6-6-72

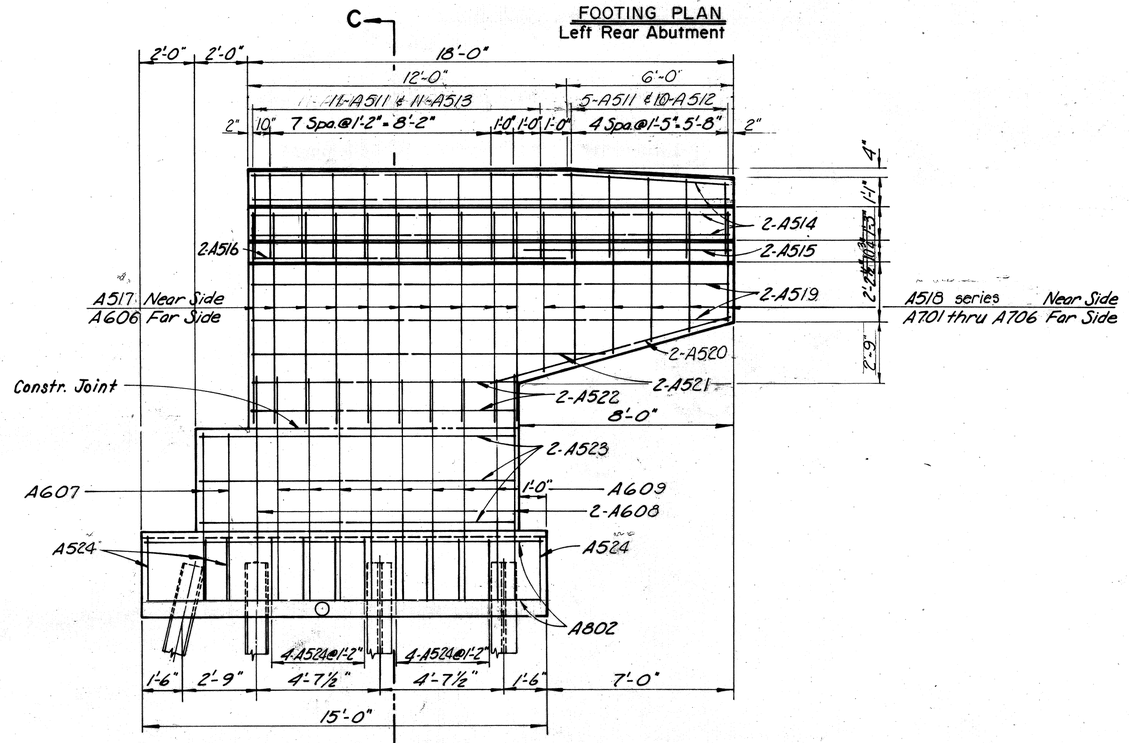
1972

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

ER1-2-29.12/LOR-2-0.00

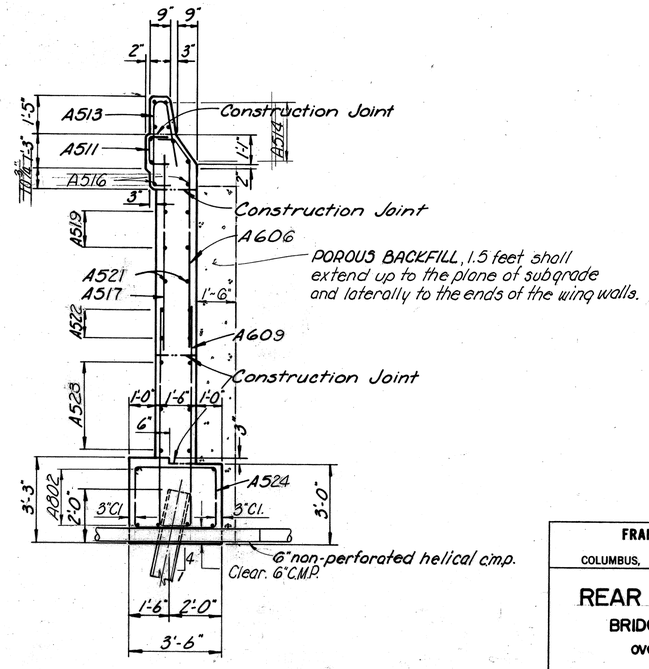


FOOTING PLAN
Left Rear Abutment



REAR WINGWALL FOR LEFT AND RIGHT BRIDGES

NOTE: All Piles are to be HP10x42 and shall be battered 1:4 where indicated (1).



SECTION C-C

6-6-72

6 | 15

FRANKLIN ENGINEERING, LIMITED
Consulting Engineers
COLUMBUS, OHIO

REAR ABUTMENT DETAILS

BRIDGE NO. LOR-2-0098 L&R
over VERMILION RIVER

LORAIN COUNTY SR2

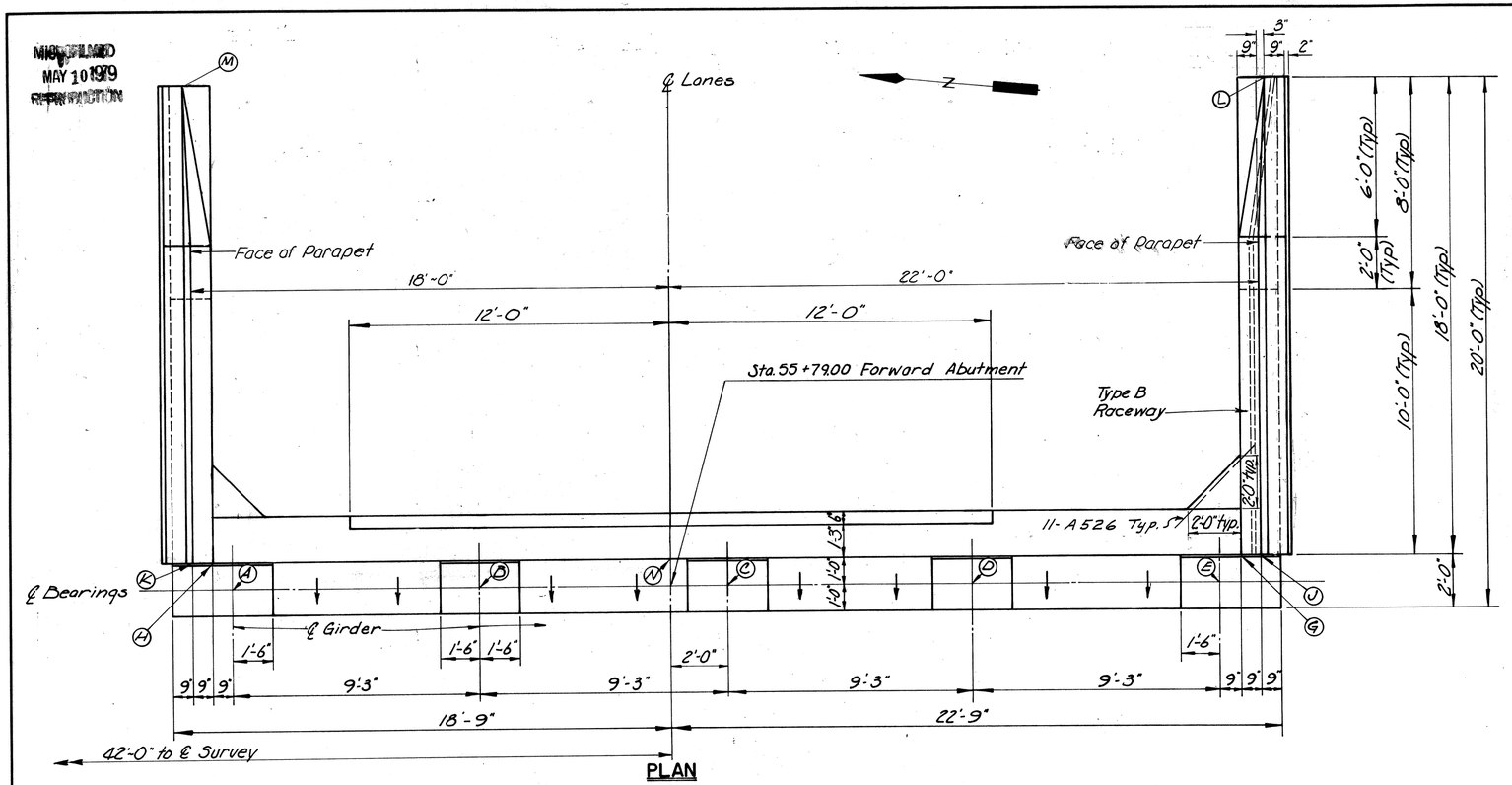
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
M.G.	J.C.		J.A.D.	FF	2/1977	

1972

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

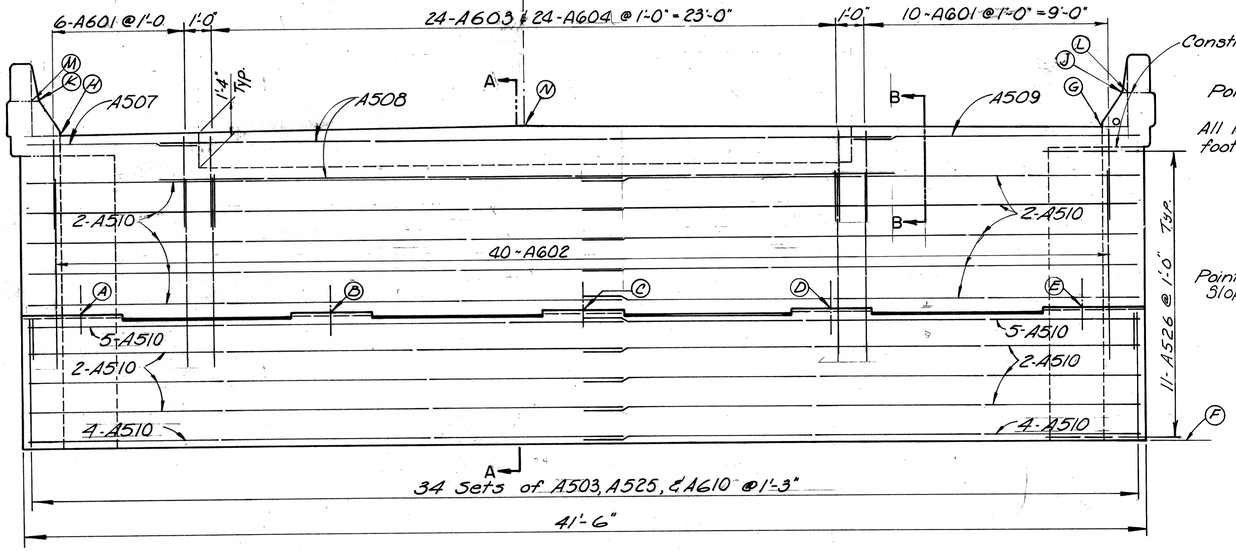
414
579

ERI-2-29.12 / LOR-2-0.00



PLAN

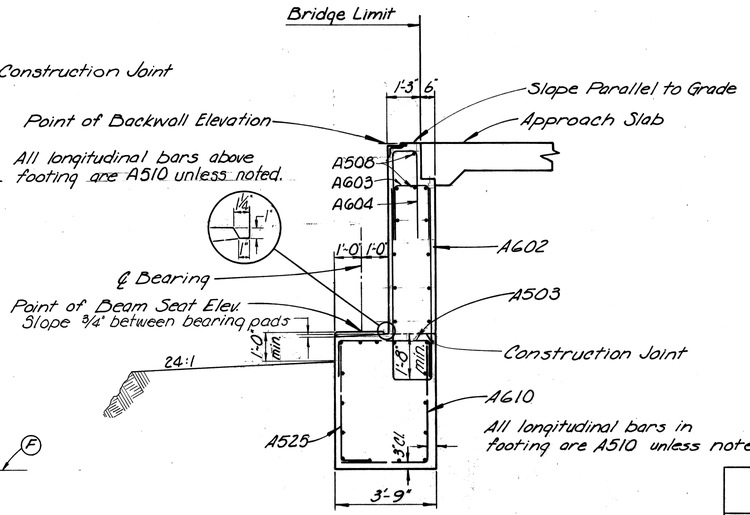
FORWARD ABUTMENT RIGHT BRIDGE - SHOWN
FORWARD ABUTMENT LEFT BRIDGE - OPPOSITE HAND



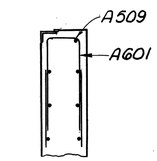
ELEVATION

TABLE OF ELEVATIONS								
POINT	A	B	C	D	E	F	G	H
Forward Abutment	625.01	625.16	625.24	625.10	624.95	620.00	632.11	632.17
POINT	J	K	L	M	N			
Forward Abutment	633.36	633.42	633.75	633.81	632.44			

The concrete of the Forward Abutments may be poured into the excavation directly. No formwork is required under the level of the existing rock.



SECTION A-A



SECTION B-B

7 | 15

FRANKLIN ENGINEERING, LIMITED
Consulting Engineers
COLUMBUS, OHIO

FORWARD ABUTMENT DETAILS

BRIDGE NO. LOR-2-0098 L℄R
over VERMILION RIVER

LORAIN COUNTY SR2

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
M.G	JC		J.A.D.	JF	2/14/69	12-17-71

6-6-72

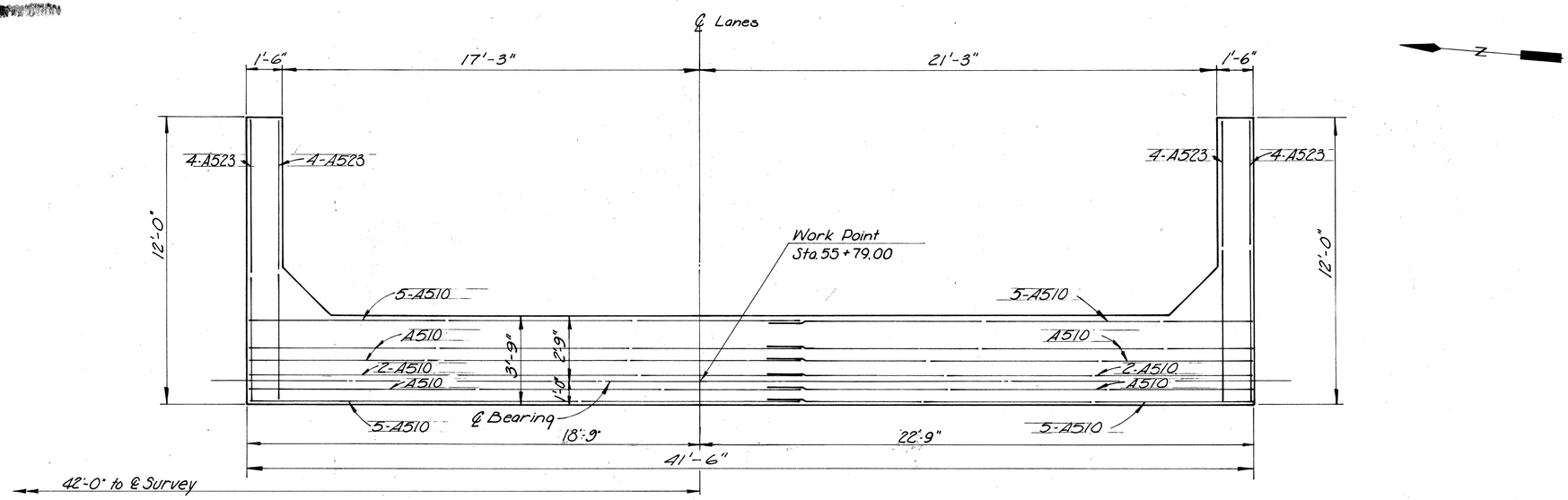
1972

MICROFILMED
MAY 10 1989

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

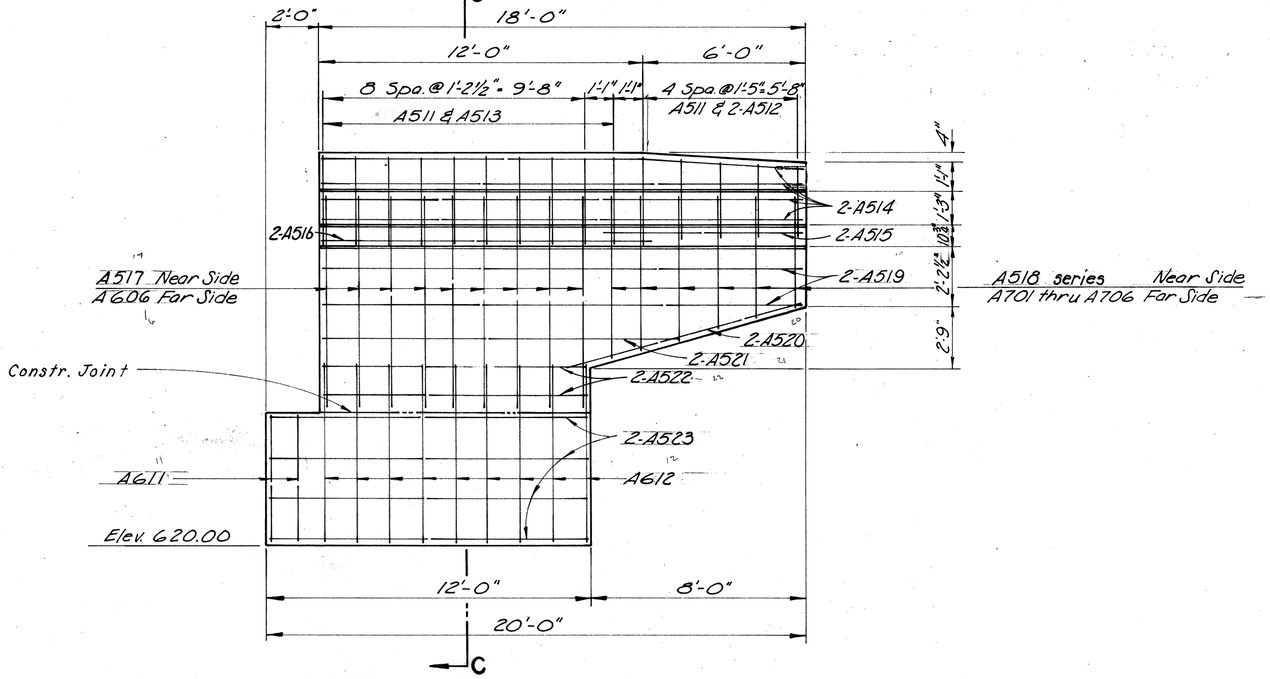
415
570

ERI-2-29.12/LOR-2-0.00



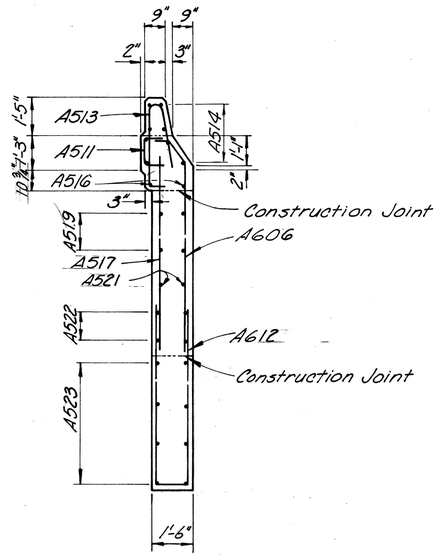
FOOTING PLAN

FORWARD ABUTMENT - RIGHT BRIDGE - SHOWN
FORWARD ABUTMENT - LEFT BRIDGE - OPPOSITE HAND



WINGWALL FOR LEFT AND RIGHT BRIDGES

FORWARD ABUTMENT



SECTION C-C

8 | 15

FRANKLIN ENGINEERING, LIMITED
Consulting Engineers
COLUMBUS, OHIO

FORWARD ABUTMENT DETAILS

BRIDGE NO. LOR-2-0098 L&R
over VERMILION RIVER

LORAIN COUNTY SR2

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
M.G.	J.C.		J.N.O.	JF	2/14-69	

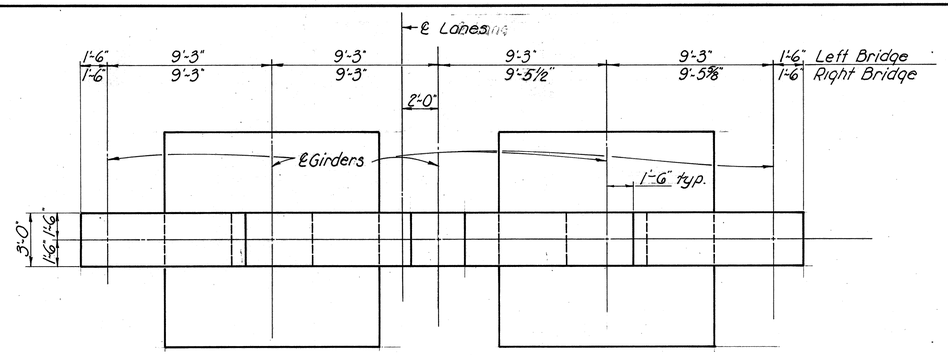
6-6-72

1972

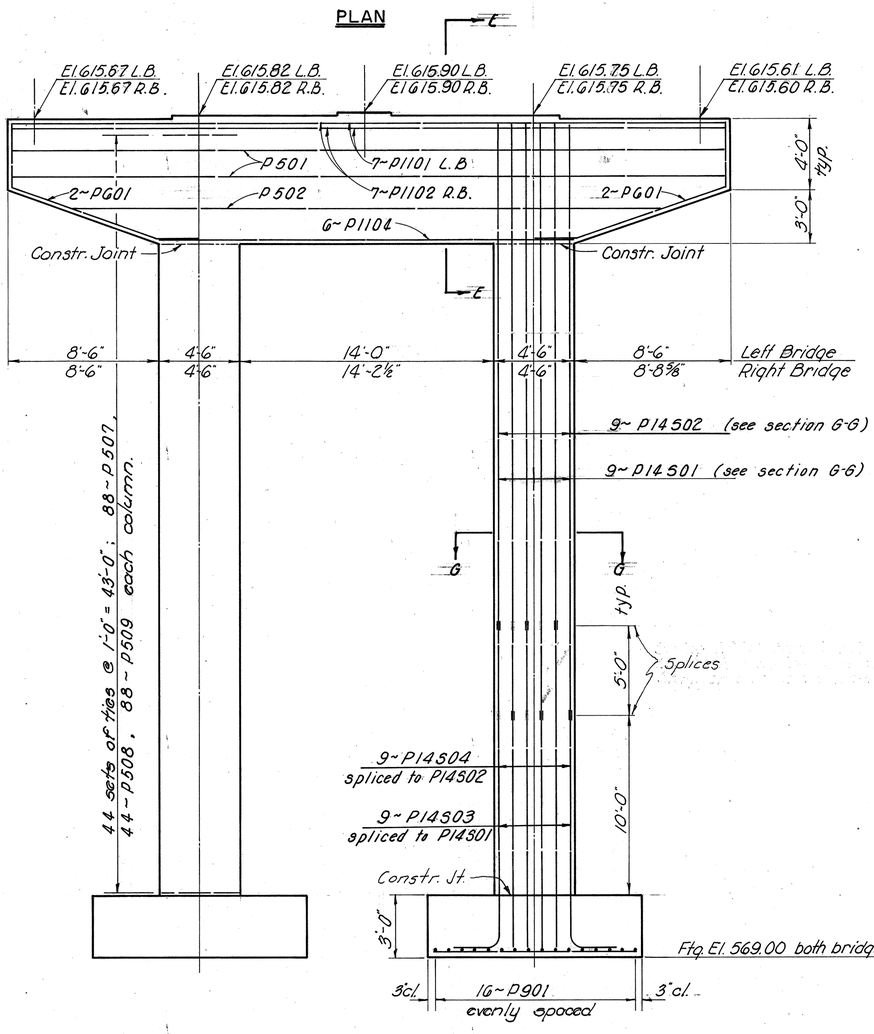
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

416
579

ERI-2-29.12
LOR-2-0.00



PLAN



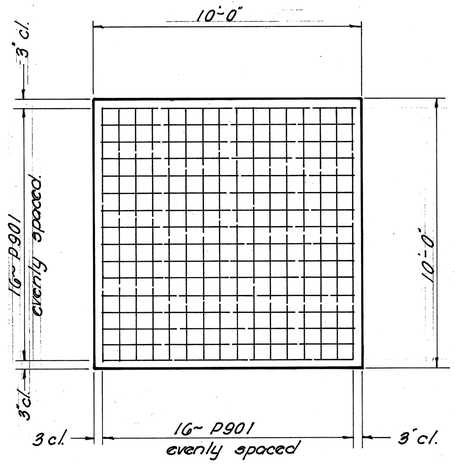
PIER NO. 1
ELEVATION

NOTES:

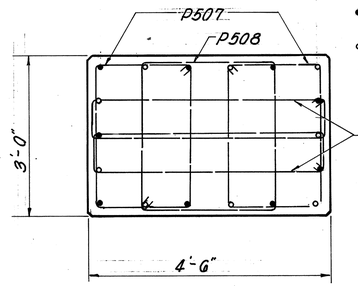
Right bridge shown, left bridge opposite hand.

Vertical reinforcement in cap is typical for all piers, see sheet 11 of 15

Mechanical splices are required for the No.14S reinforcing bars.



FOOTING PLAN
Piers No. 1



- P14301 spliced to P14303
- P14302 spliced to P14304

SECTION G G

9 | 15

FRANKLIN ENGINEERING, LIMITED
Consulting Engineers
COLUMBUS, OHIO

No. 1 PIER DETAILS

BRIDGE Nº. LOR-2-0098 L℄R
over VERMILION RIVER

LORAIN COUNTY SR-2

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
F.A.			SAS	JF	3/15-71	

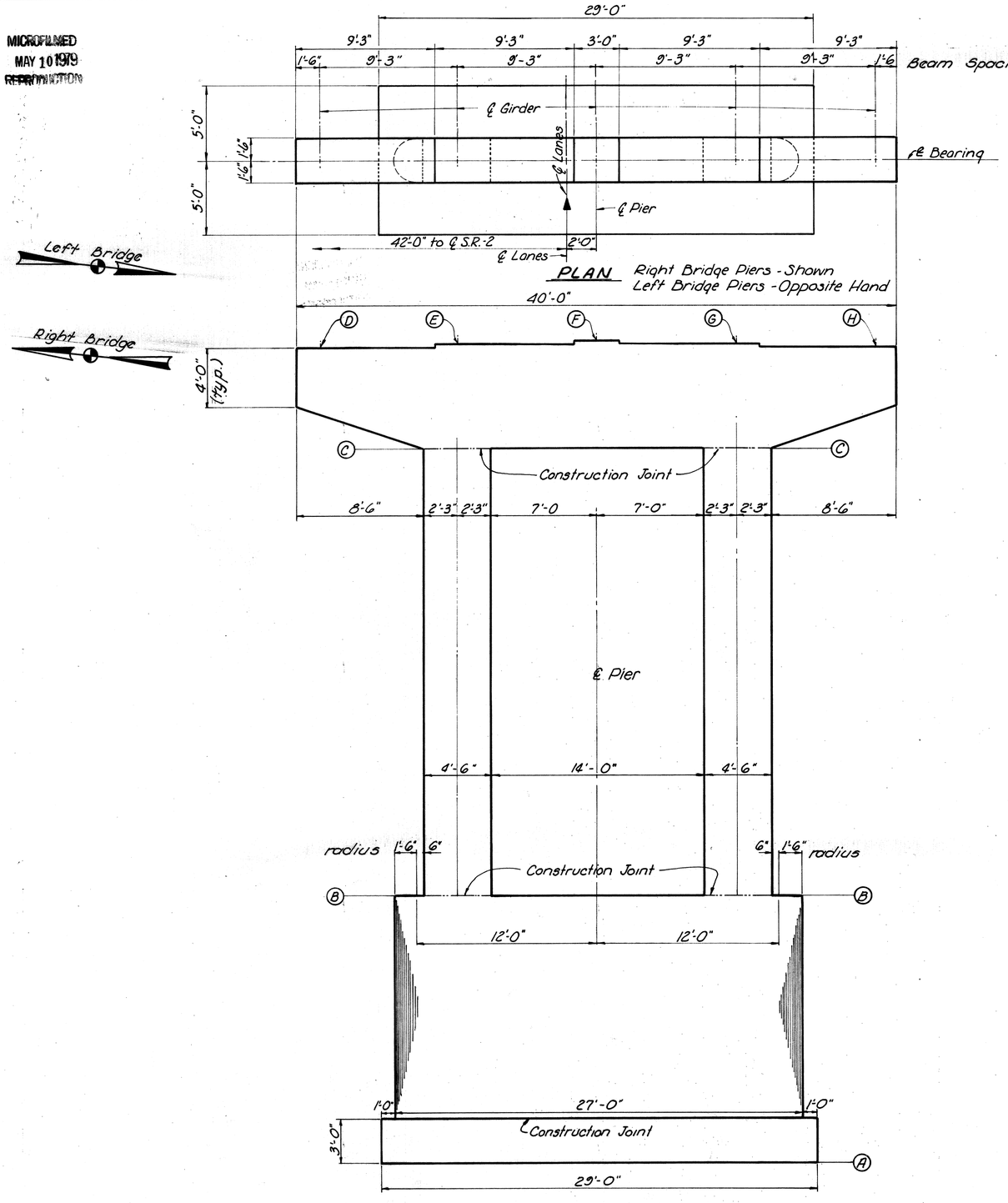
6-6-72

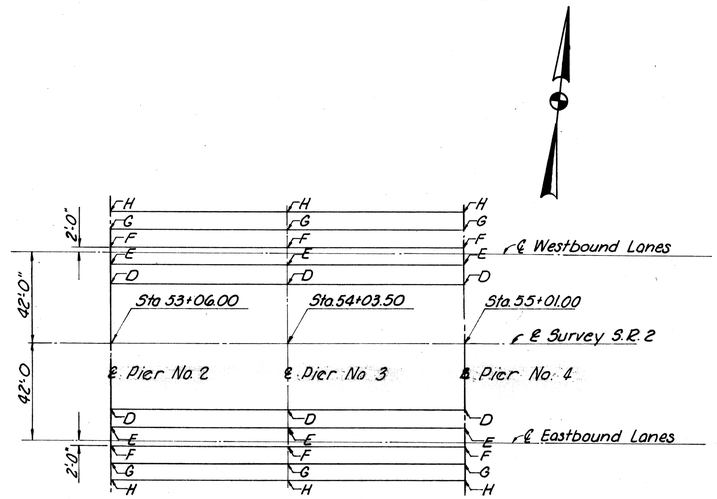
1972

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

417
579

ERI-2-29.12/LOR-2-0.00





PIER LAYOUT

TABLE OF ELEVATIONS								
Point	A	B	C	D	E	F	G	H
Piers # 2	567.00	585.00	611.20	617.99	618.13	618.21	618.07	617.92
Piers # 3	565.50	585.00	613.50	620.33	620.47	620.55	620.41	620.26
Piers # 4	570.00	585.00	615.80	622.69	622.84	622.92	622.78	622.63

NOTE:
See sheet No. 9 of 15 for details and elevations pertinent to Pier No. 1.

Pier No. 2
For structure grounding see Standard Construction Drawing H L-4.

6-6-72

10 | 15

FRANKLIN ENGINEERING, LIMITED
Consulting Engineers
COLUMBUS, OHIO

PIER DETAILS NO. 2, NO. 3 & NO. 4
BRIDGE No. LOR-2-0098 L/R
over VERMILION RIVER

Lordin County SR-2

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
M.G.			V.A.D.	J.F.	2/14-69	

1972

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

419
579

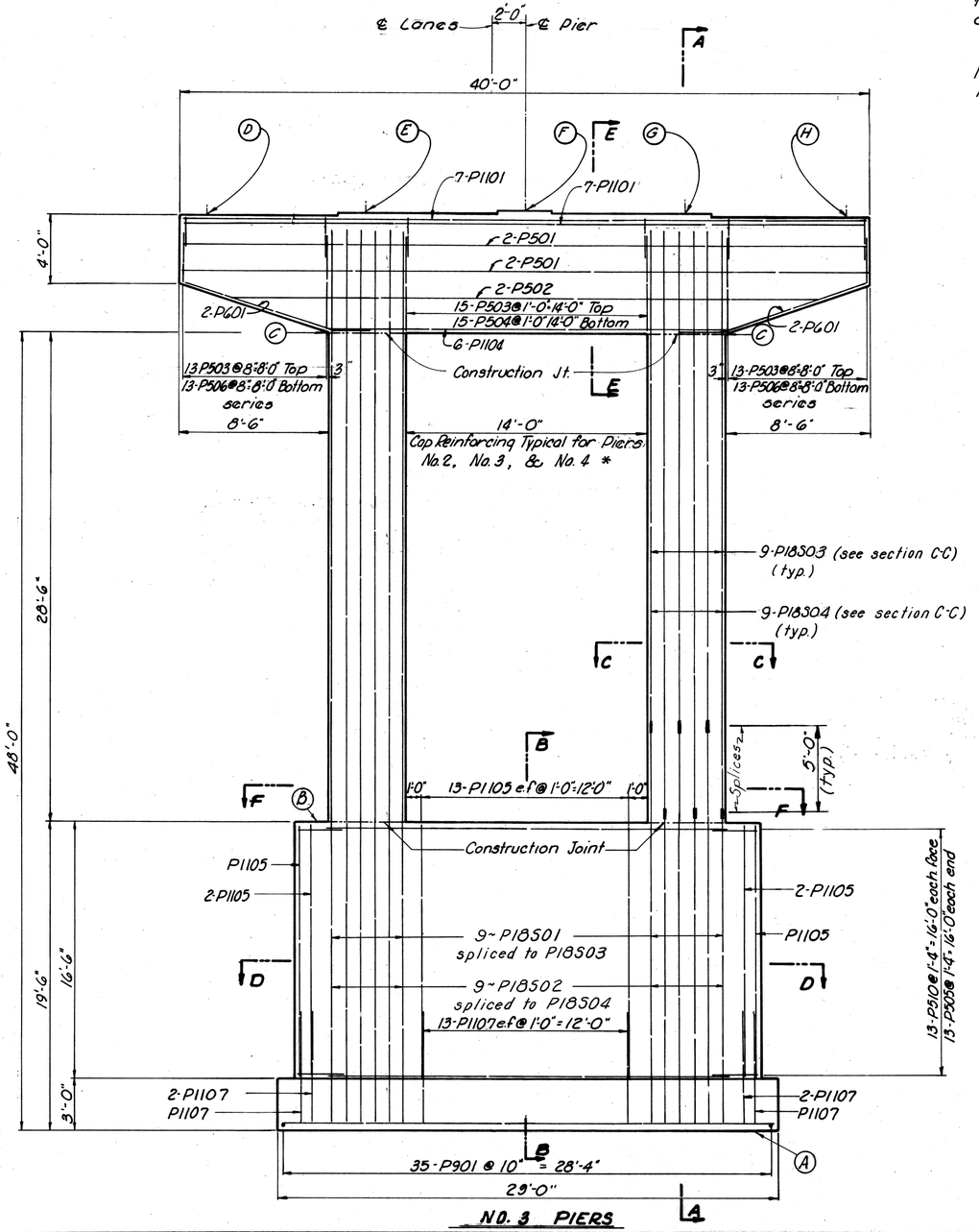
ERI-2-29.12 / LOR-2-0.00

PIERS NO. 2

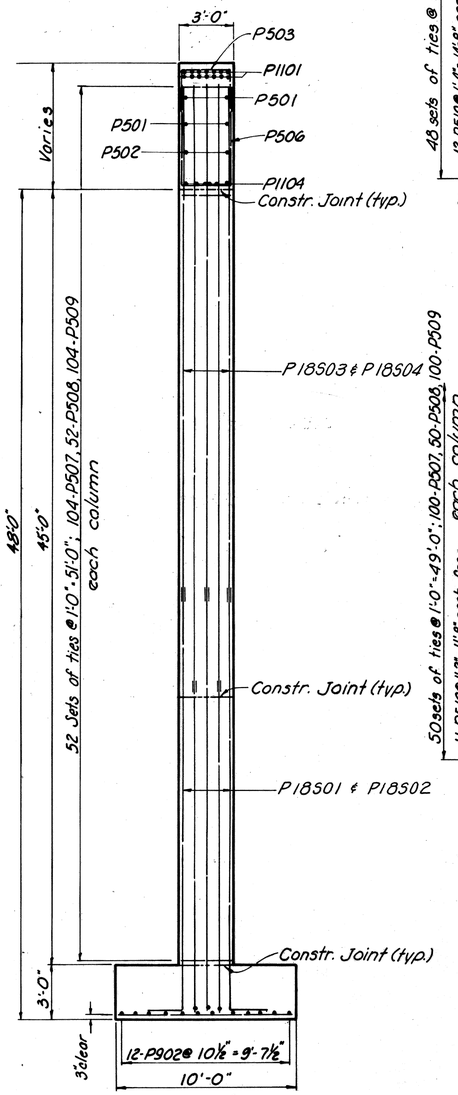
Bridge Seat Reinforcing: Special care shall be taken in placing reinforcing steel in vicinity of the bridge seat to avoid interference with the drilling of anchor bar holes.

* Vertical reinforcement in cap shall be the same for all the piers. See sheet 10 of 15 for other cap reinforcement in Piers No. 1
Right bridge shown, left bridge is opposite hand.

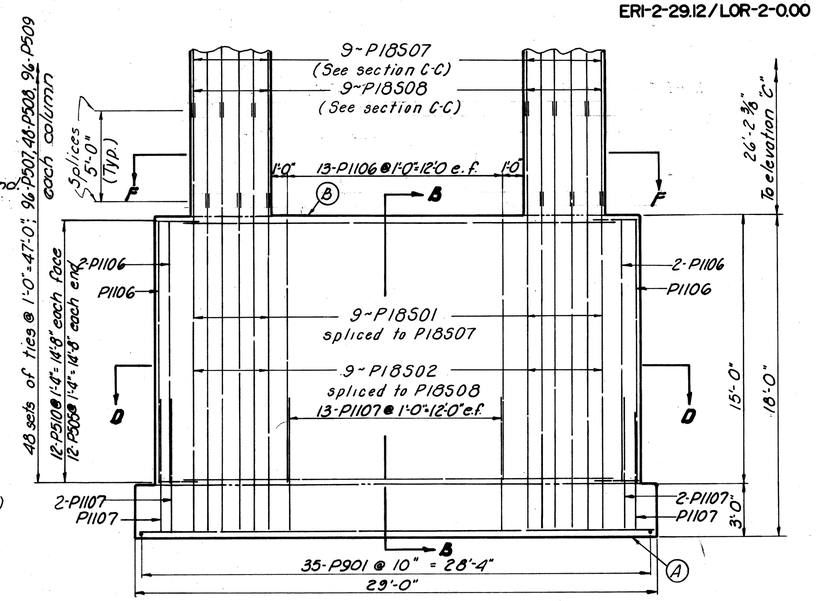
Mechanical splices are required for the №18S reinforcing bars.



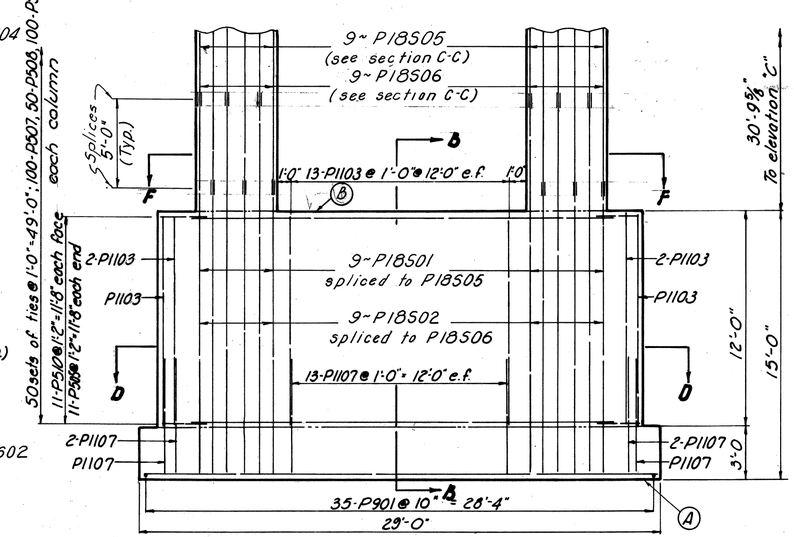
NO. 3 PIERS



SECTION A-A



NO. 2 PIERS



NO. 4 PIERS

NOTE: All detailed section are shown on Sheet-№ 12/15
See Sheet No. 9 of 15 for table of elevations.

11 | 15

FRANKLIN ENGINEERING, LIMITED
Consulting Engineers
COLUMBUS, OHIO

PIER DETAILS

BRIDGE No. LOR-2-0098 L&R
over VERMILION RIVER

Lorain County — SR-2

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
M.G			D.B.D.		6/14/69	

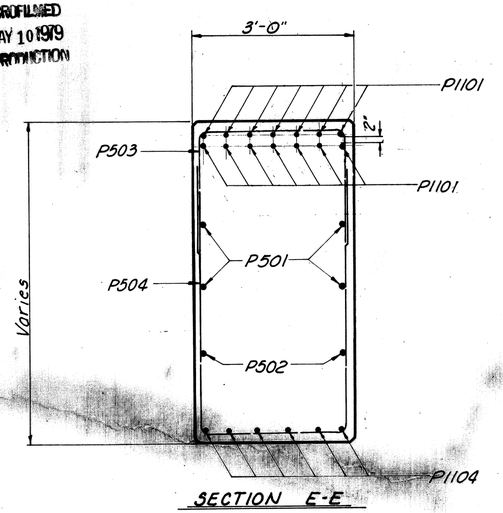
6-6-72

1972

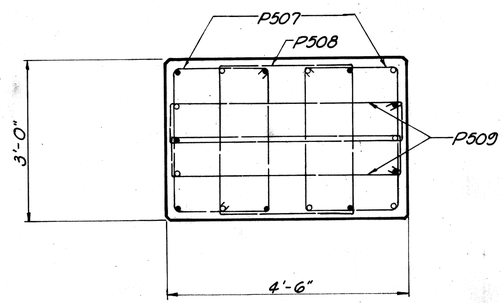
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

419
590

ERI-2-29.12/LOR-2-0.00



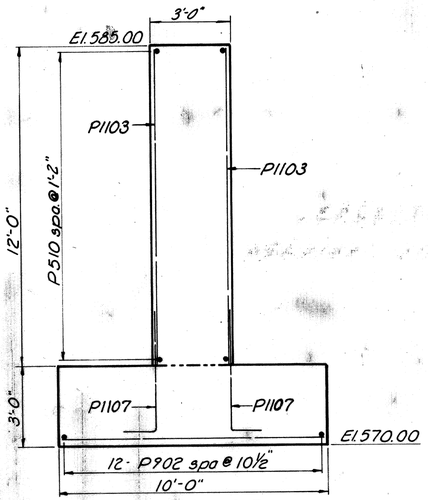
SECTION E-E



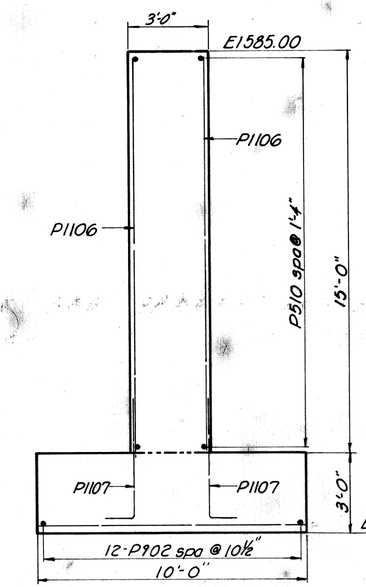
SECTION C-C

- Pier # 2 - P18307 spliced to P18301
  Pier # 3 - P18303 spliced to P18301
  Pier # 4 - P18305 spliced to P18301

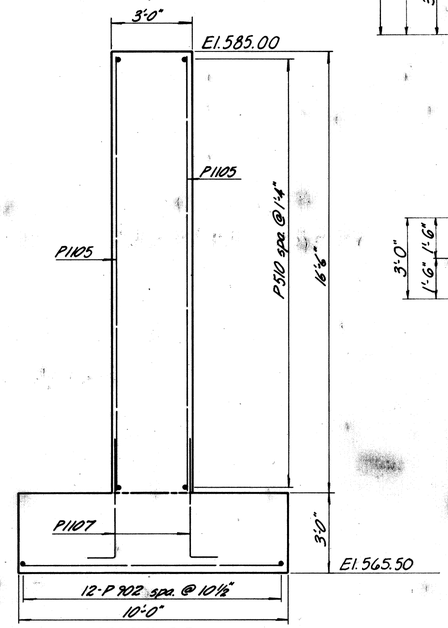
- Pier # 2 - P18308 spliced to P18302
  Pier # 3 - P18304 spliced to P18302
  Pier # 4 - P18306 spliced to P18302



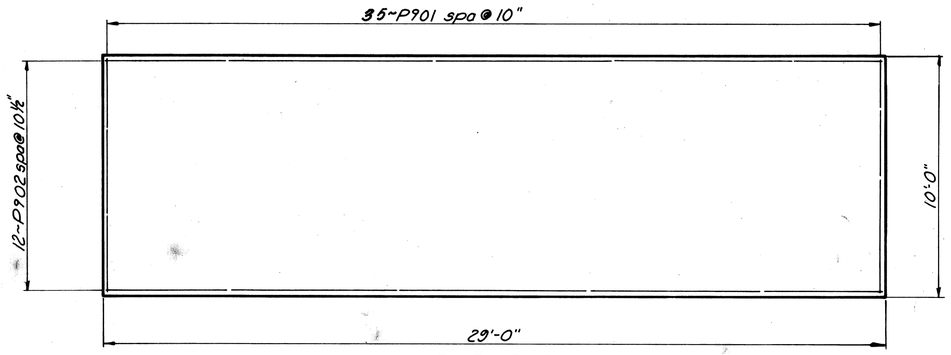
SECTION B-B
Piers No. 4



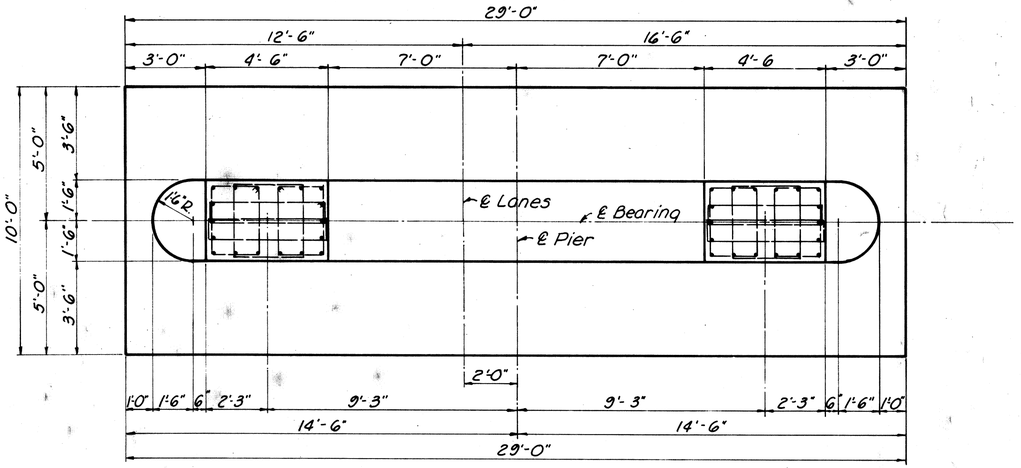
SECTION B-B
Piers No. 2



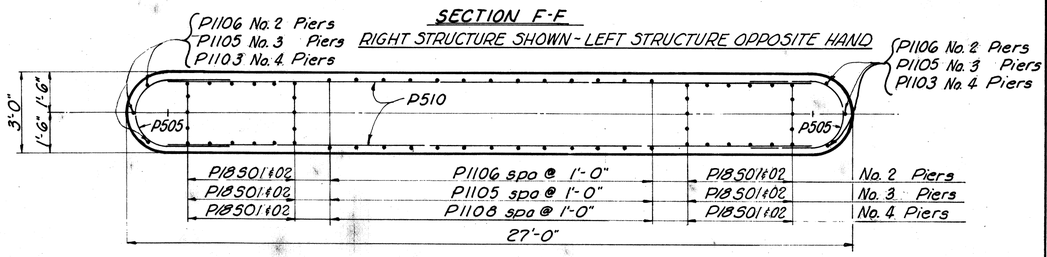
SECTION B-B
Piers No. 3



FOOTING PLAN
(Piers No. 2, No. 3, & No. 4)



SECTION F-F



SECTION D-D

12 15

FRANKLIN ENGINEERING, LIMITED
Consulting Engineers
COLUMBUS, OHIO

PIER DETAILS

BRIDGE No. LOR-2-0098 L/R
over VERMILION RIVER

Lorain County SR-2

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
M.G.			W.B.D.		3/14-69	

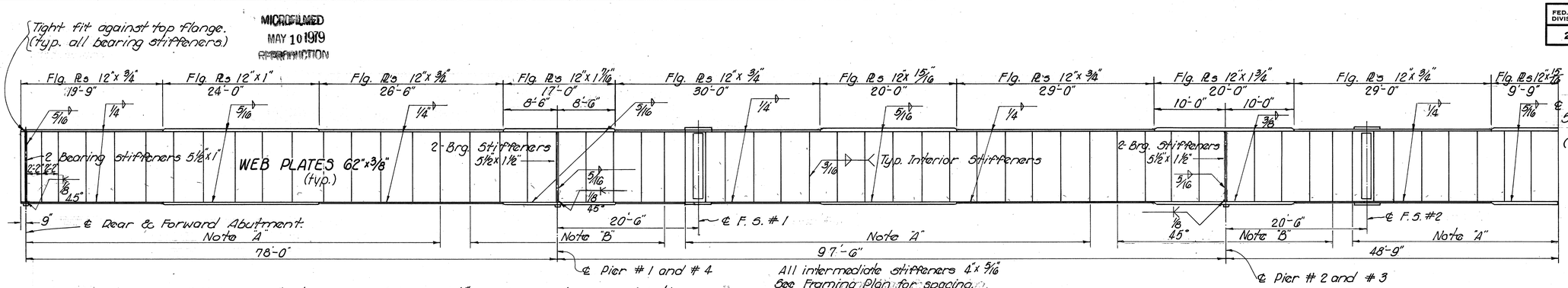
6-6-72

1972

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

420
579

ERI-2-29.12
LOR-2-0.00

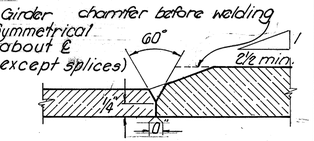


Note "A": Stiffeners shall have contact bearing at top and 1/8" maximum clearance at bottom.

Note "B" Stiffeners shall have contact bearing at bottom and 1/8" maximum clearance at top.

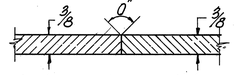
GIRDER ELEVATION

℄ Girder chamfer before welding Symmetrical about ℄ (except splices)



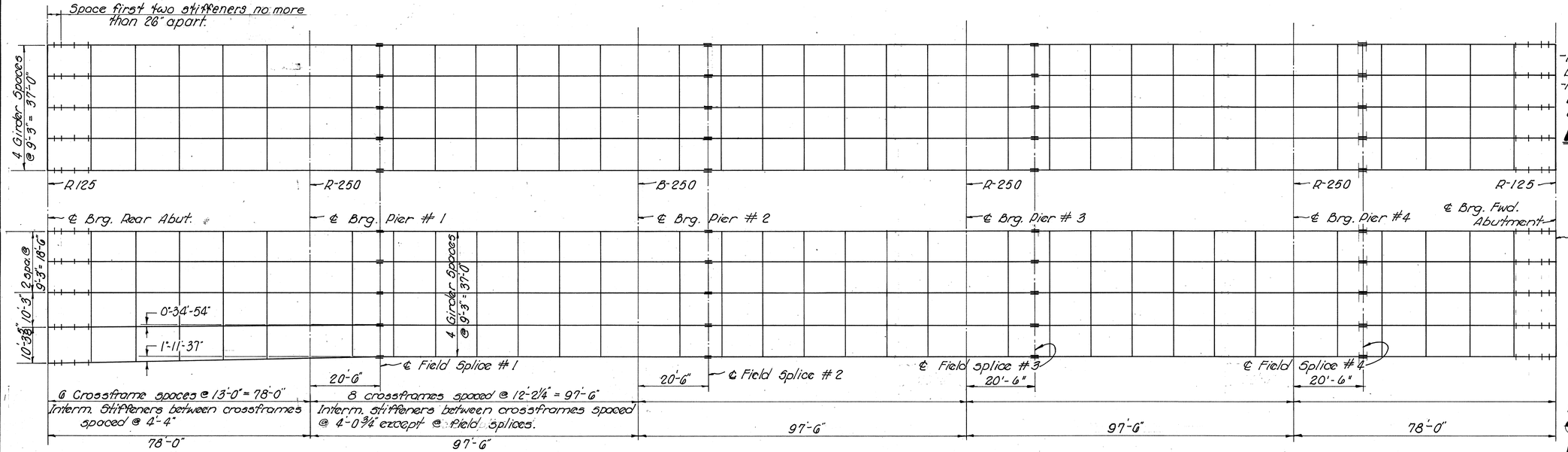
Butt welds shall be back-gouged and welded after welding far side. Welds shall be ground flush, the finish grinding being parallel to the direction of stress.

FLANGE BUTT WELD



Optional shop splices will be permitted in the webs of the girders but their locations shall be submitted to the Director for approval. Welds must be centered on joint and welded on both sides.

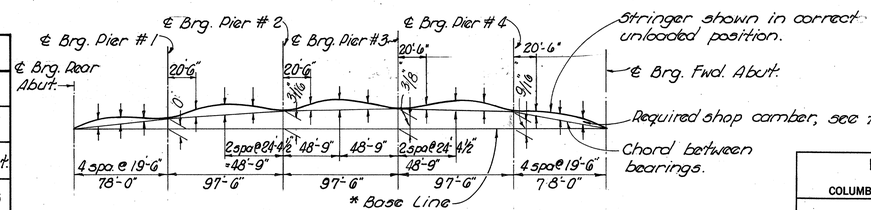
WEB SPLICE WELD



FRAMING PLAN

DEFLECTION AND CAMBER TABLE

	INTERIOR GIRDER															EXTERIOR GIRDER														
	Span 1			Span 2			Span 3			Span 4			Span 5			Span 1			Span 2			Span 3			Span 4			Span 5		
	1/4 pt.	1/2 pt.	3/4 pt.	spl. pt.	1/2 pt.	3/4 pt.	spl. pt.	1/2 pt.	3/4 pt.	spl. pt.	1/2 pt.	3/4 pt.	spl. pt.	1/2 pt.	3/4 pt.	1/4 pt.	1/2 pt.	3/4 pt.	spl. pt.	1/2 pt.	3/4 pt.	spl. pt.	1/2 pt.	3/4 pt.	spl. pt.	1/2 pt.	3/4 pt.	spl. pt.	1/2 pt.	3/4 pt.
Deflection due to weight of steel	1/16	1/16	1/16	1/16	1/8	1/16	1/16	1/8	1/16	1/16	1/8	1/16	1/16	1/16	1/16	1/16	1/16	1/16	1/16	1/8	1/16	1/16	1/8	1/16	1/16	1/8	1/16	1/16	1/16	1/16
Deflection due to remaining dead load.	5/16	3/8	3/16	1/4	7/16	1/4	1/4	7/16	1/4	1/4	7/16	1/4	3/16	3/8	5/16	1/4	5/16	1/8	1/4	7/16	1/4	1/4	3/8	1/4	1/4	7/16	1/4	1/8	5/16	1/4
Adjustment required for Vert. Curve	0	0	0	0	0	0	0	0	0	0	0	0	1/8	3/16	1/8	0	0	0	0	0	0	0	0	0	0	0	0	1/8	3/16	1/8
Required Shop Camber	3/8	7/16	1/4	5/16	9/16	5/16	5/16	9/16	5/16	5/16	9/16	5/16	3/8	5/8	1/2	5/16	3/8	3/16	5/16	9/16	5/16	5/16	1/2	5/16	5/16	9/16	5/16	5/16	9/16	7/16



LAYOUT DIAGRAM

* Base line is a line from bottom of girder web @ ℄ brg. Rear Abutment to bottom of girder web @ ℄ Brg. Forward Abutment.

6-6-72

13 | 15

FRANKLIN ENGINEERING, LIMITED
Consulting Engineers
COLUMBUS, OHIO

GIRDER ELEVATION & FRAMING PLAN

BRIDGE No LOR-2-0098L&R over VERMILION RIVER

LORAIN COUNTY S R-2

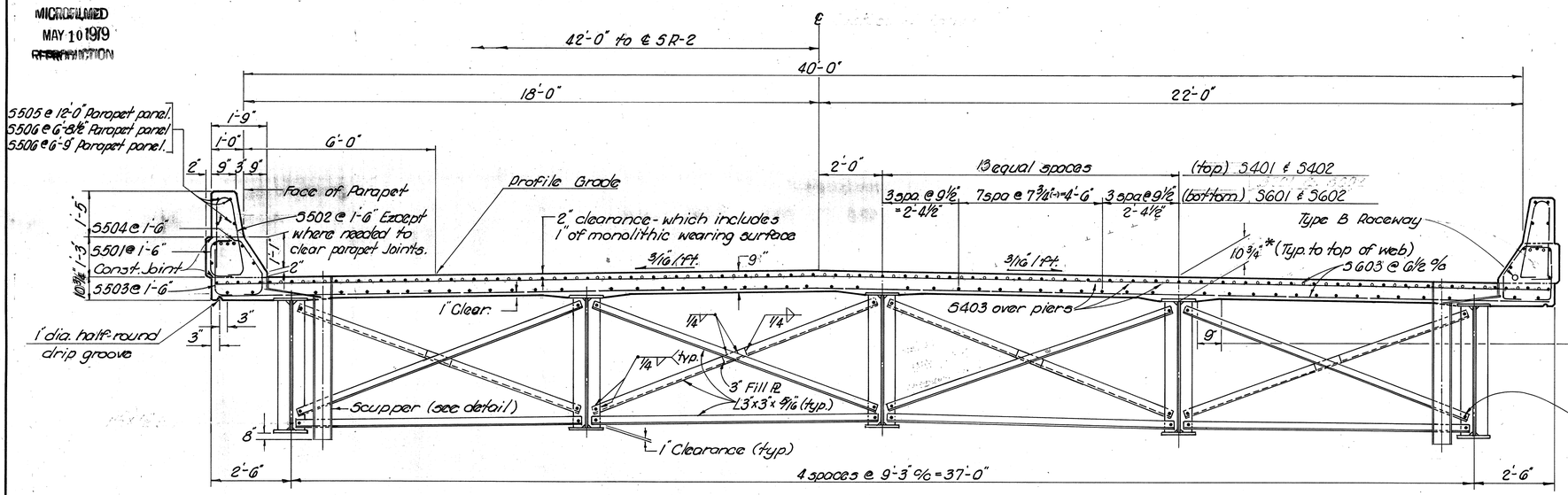
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
F.A.	F.G.		SAS	JF	9/13-71	

1972

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

420A
579

ERI-2-29.12
LOR-2-0.00

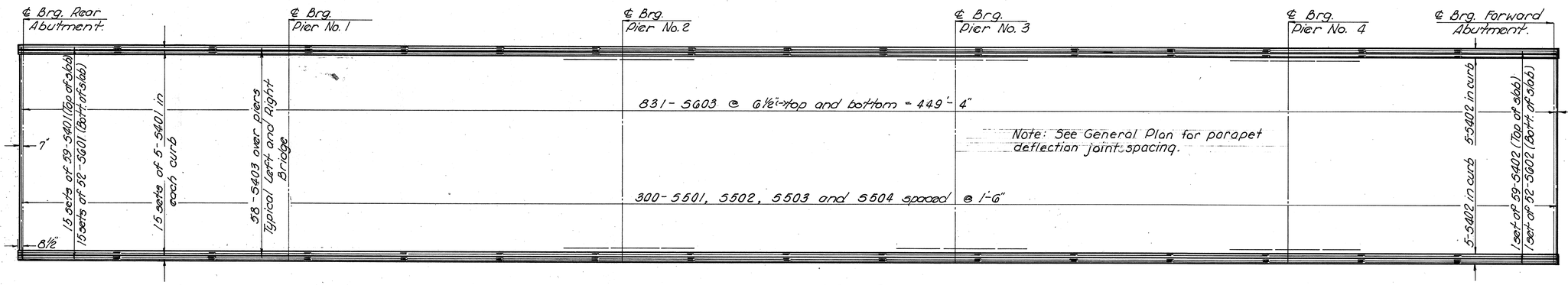


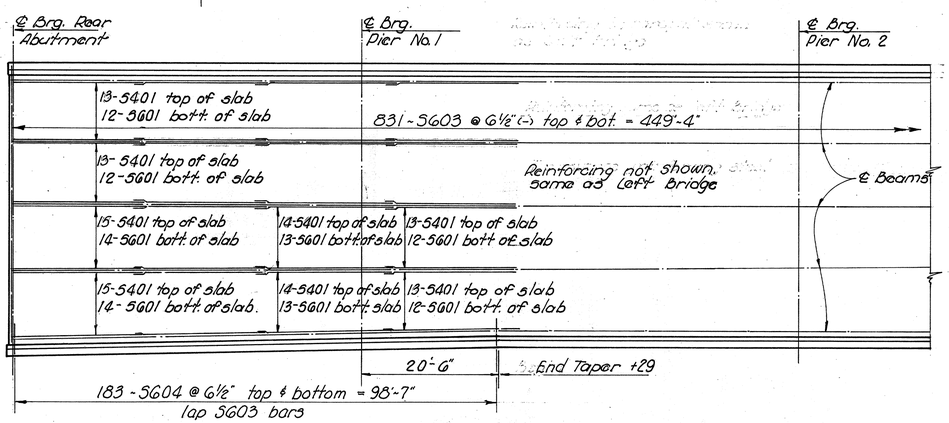
* This is a nominal dimension. The quantity of deck concrete to be paid for shall be based on this dimension even though deviation from it may be necessary because the top flange of the girder may not have the exact camber or conformation required to place it parallel to the finished grade. Deductions shall be made for the volume of encased steel plates as per Section 511.18 of the Construction and Material Specifications.

A typical haunch width of 9" shall be used for computing quantity of concrete. However the haunch width may vary between 6" & 12" provided that the slope shall be not more than 1:4 for a haunch less than 9" in width

7/8" diameter erection bolts - if left in place, nuts must be tack welded.

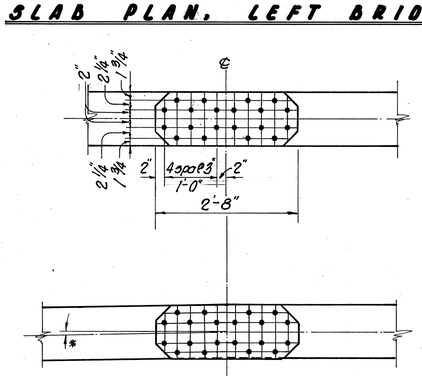
TRANSVERSE SECTION, LEFT BRIDGE



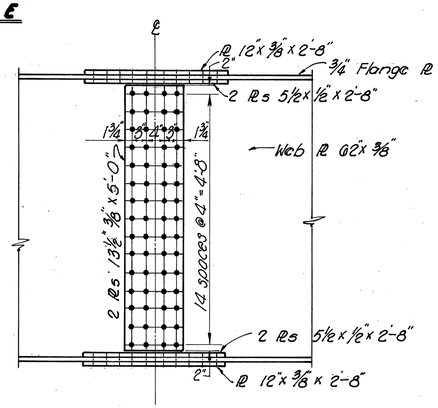


SLAB PLAN RIGHT BRIDGE

SLAB PLAN, LEFT BRIDGE

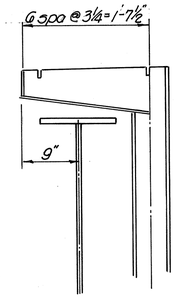


All dimensions except taper as above.
* See framing plan for deflection angles



TYPICAL FIELD SPLICE

1" H. S. Bolts.



Note: for details not shown see S D 1-69 sheet 3 of 4

SCUPPER DETAIL

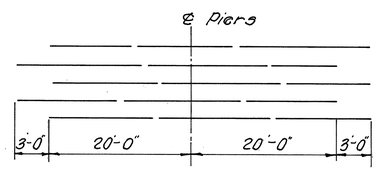


DIAGRAM SHOWING STAGGER OF 5403 BARS OVER PIERS

14/15

FRANKLIN ENGINEERING, LIMITED
Consulting Engineers
COLUMBUS, OHIO

TRANSVERSE SECTION SLAB PLAN & DETAILS

BRIDGE No. LOR-2-0098 L & R
over VERMILION RIVER

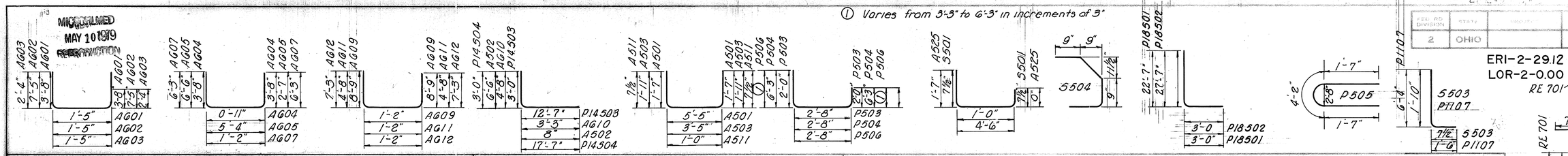
LORAIN COUNTY S R-2

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
F.A	F.G.		SAS	JH	3/15-71	

6-6-72

1972

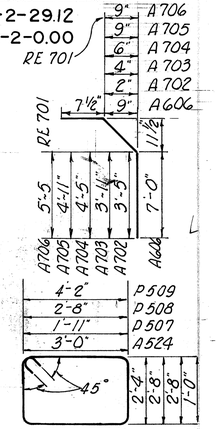
① Varies from 3'-3" to 6'-3" in increments of 3"

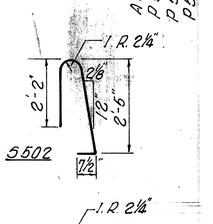


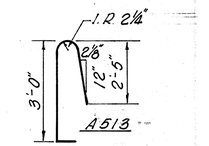
FED. RD. DIVISION	STATE		
2	OHIO		

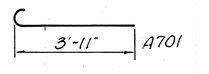
420B 579

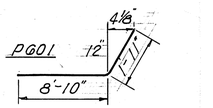
ERI-2-29.12
LOR-2-0.00
RE 701

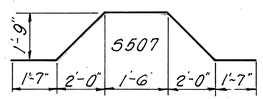












ABUTMENTS

Mark	No.	Length	Weight	Shp.	Rear Rt.	Rear Lt.	Fwd. Rt.	Fwd. Lt.
A801	14	23'-10"	891	Str.	14			
A802	24	14'-6"	926	Str.	12	12		
A803	14	22'-9"	850	Str		14		
A701	8	4'-9"	78	B	2	2	2	2
A702	8	5'-2"	84	B	2	2	2	2
A703	8	5'-8"	93	B	2	2	2	2
A704	8	6'-2"	101	B	2	2	2	2
A705	8	6'-8"	109	B	2	2	2	2
A706	8	7'-3"	119	B	2	2	2	2
A601	62	8'-5"	783	B	14	16	16	16
A602	162	15'-11"	3873	B	42	40	40	40
A603	100	5'-9"	863	B	28	24	24	24
A604	100	7'-11	1188	B	28	24	24	24
A605	60	14'-1"	1267	B	30	30		
A606	76	9'-1"	1035	B	20	20	18	18
A607	8	13'-4"	160	B	4	4		
A608	16	8'-9"	210	Str.	8	8		
A609	32	18'-4"	880	B	16	16		
A610	68	7'-9"	792	B			34	34
A611	8	10'-2"	122	B			4	4
A612	36	15'-4	829	B			18	18
A501	60	8'-4"	520	B	30	30		
A502	60	7'-0"	437	B	30	30		
A503	128	7'-0"	935	B	30	30	34	34
A504	38	22'-5"	889	Str.	38			
A505	1	8'-5"	9	Str.	1			
A506	2	31'-8"	66	Str.	2			
A507	4	6'-5"	27	Str.	1	1	1	1
A508	6	27'-6"	172	Str.		2	2	2
A509	3	10'-5"	33	Str.		1	1	1
A510	138	21'-5"	3083	Str.		38	50	50
A511	124	2'-0"	259	B	32	32	30	30
A512	80	3'-0"	250	Str.	20	20	20	20
A513	84	6'-3"	550	B	22	22	20	20
A514	64	17'-8"	1179	Str.	16	16	16	16
A515	16	7'-5"	125	Str.	4	4	4	4
A516	16	11'-10"	197	Str.	4	4	4	4
A517	76	7'-6"	595	Str.	20	20	18	18
A518	8sets 6	3'-6" to 6'-0"	240	Str.	2set of 6	2set of 6	2set of 6	2set of 6
A519	32	17'-8"	588	Str.	8	8	8	8
A520	16	9'-0"	150	Str.	4	4	4	4
A521	16	13'-8"	228	Str.	4	4	4	4
A522	32	9'-8"	322	Str.	8	8	8	8
A523	56	11'-8"	680	Str.	12	12	16	16
A524	48	11'-2"	559	B	24	24		
A525	68	6'-0"	426	B			34	34
A526	84	6'-0"	526	Str.	20	20	22	22
		Rt. Bridge	14,245					
		Lt. Bridge	14,053					
		Total	28,298					

6" increments

SUPERSTRUCTURE

Mark	No.	Length	Weight	Shp.	Rt. Br.	Lt. Br.
5601	1566	30'-0"	70,564	Str.	786	780
5602	104	28'-9"	4491	Str.	52	52
5603	3324	41'-8"	208,027	Str.	1662	1662
5604	366	4'-0"	2,199	Str.	366	0
5501	1200	2'-0"	2503	B	600	600
5503	1200	2'-4"	2920	B	600	600
5504	1200	3'-3"	4068	B	600	600
5401	2076	30'-0"	41,603	Str.	1041	1035
5402	138	18'-1"	1,667	Str.	69	69
5403	464	43'-0"	13,328	Str.	232	232
		Railing Bars				
5502	1200	5'-4"	6075	B	600	600
5505	528	11'-8"	6,425	Str.	264	264
5506	128	6'-4"	846	Str.	64	64
5507	35	9'-7"	350	B	14	21
5508	20	3'-1"	64	Str.	8	12
		Lt. Bridge	181,882			
		Rt. Bridge	183,848			
		Total	365,730			

field bent

Replacement Bars

RE 1B501	8	2'-6"	Str.
RE 1A501	2	2'-6"	Str.
RE 1101	3	8'-6"	Str.
RE 901	1	7'-10"	Str.
RE 801	1	7'-6"	Str.
RE 705	1	7'-3"	B
RE 601	15	6'-11"	Str.
RE 501	4	6'-7"	Str.
RE 401	3	6'-3"	Str.

141,836
123,142
Total 265,620

PIERS

Mark	No	Length	Weight	Shp	No.1 Rt	No.1 Lt	No.2 Rt.	No.2 Lt.	No.3 Rt.	No.3 Lt.	No.4 Rt.	No.4 Lt.
P1B501	108	25'-0"	36,720	B			18	18	18	18	18	18
P1B502	108	30'-0"	44,064	B			18	18	18	18	18	18
P1B503	36	31'-2"	15,259	Str.					18	18		
P1B504	36	26'-2"	12,811	Str.					18	18		
P1B505	36	28'-11"	14,158	Str.							18	18
P1B506	36	23'-11"	11,710	Str.							18	18
P1B507	36	27'-5"	13,423	Str.			18	18				
P1B508	36	22'-5"	10,975	Str.			18	18				
P1101	98	39'-8	20653	Str.		14	14	14	14	14	14	14
P1102	14	40'-1"	2,981	Str.	14							
P1103	64	11'-10"	4024	Str.							32	32
P1104	48	22'-8"	5,781	Str.	6	6	6	6	6	6	6	6
P1105	64	16'-4"	5,554	Str.					32	32		
P1106	64	14'-10"	5044	Str.			32	32				
P1107	192	7'-6"	7651	B			32	32	32	32	32	32
P901	338	9'-6"	10,917	Str.	64	64	35	35	35	35	35	35
P902	72	28'-6"	6,977	Str.			12	12	12	12	12	12
PG01	32	10'-9"	517	B	4	4	4	4	4	4	4	4
P501	32	39'-8"	1324	Str.	4	4	4	4	4	4	4	4
P502	16	34'-0"	567	Str.	2	2	2	2	2	2	2	2
P503	328	6'-5"	2195	B	41	41	41	41	41	41	41	41
P504	120	14'-11"	1867	B	15	15	15	15	15	15	15	15
P505	144	7'-4"	1101	B			24	24	26	26	22	22
P506	16 of 13	14'-11" to 8'-11"	2594	B	2	2	2	2	2	2	2	2
P507	1552	9'-8"	15647	B	176	176	192	192	208	208	200	200
P508	776	11'-2"	9041	B	88	88	96	96	104	104	100	100
P509	1552	10'-10"	17536	B	176	176	192	192	208	208	200	200
P510	144	24'-0"	3,605	Str.			24	24	26	26	22	22
P14501	36	33'-2"	9,134	Str.	18	18						
P14502	36	28'-2"	7,757	Str.	18	18						
P14503	36	15'-0"	4,131	B	18	18						
P14504	36	20'-0"	5,508	B	18	18						
		Rt. Bridge	155627									
		Lt. Bridge	155599									
		Total	311,226									

NOTES

SPIRAL REINFORCING BARS The "Length" shown in the steel list for the 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 three turns (total number of closed coils), expressed as the nearest whole number. Two closed coils shall be provided at the ends of each spiral unit. Four steel channels, tee or angle spacers weighing approximately 0.80 lbs per lin ft of spacers, 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 0.80 lbs per lin ft, will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.

BAR SIZE. The bar size is indicated in the bar mark. The first digit where three digits are used the first two digits where four are used, indicate the bar size number. For example A506 is a No. 5 size bar and P1101 is a No. 11 size bar.

6-6-72

15/15

FRANKLIN ENGINEERING, LIMITED
Consulting Engineers
COLUMBUS,

REINFORCING STEEL

BRIDGE No. LOR-2-0098 L & R
over VERMILION RIVER

DESIGNED	DRAWN	TRACED	CHECKED	REVISED
SAS	F.G.		N.L.A.	JF 9/15-71 12-17-71