No PID
C No 720425

F-1115 (6)

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	F-1115 (6)	

1/395

Sheet No. 279-B revised 10-6-72 EBL

ERIE COUNTY
ERI-2-22.24

STATE OF OHIO
DEPARTMENT OF HIGHWAYS

ERI - 2 - 22.24

GRADE SEPARATION WITH NORFOLK AND WESTERN RAILWAY

ERIE COUNTY

BERLIN AND VERMILION TOWNSHIPS

CONVENTIONAL SIGNS

COUNTY LINE
TOWNSHIP LINE & CORPORATION LINE
SECTION LINE
CENTER LINE
PROPERTY LINE — P —
EXISTING RIGHT-OF-WAY
RIGHT-OF-WAY LINE — R/W —
LIMITED ACCESS LINE — LA —
LIMITED ACCESS & RIGHT-OF-WAY LINE — LA-R/W —
TEMPORARY & CHANNEL EASEMENTS
WORK LIMITS
FENCE LINE (EXISTING, PROPOSED)
EXISTING GUARD RAIL
GUARD RAIL
POLE LINE (POWER, TELEPHONE, TELEGRAPH)
UNDERGROUND UTILITIES (GAS, WATER, TEL.) — G — — W — — T —
EXISTING TREES, STUMPS

TILE & DRAIN PIPES — 6"VP — — 12"VP —

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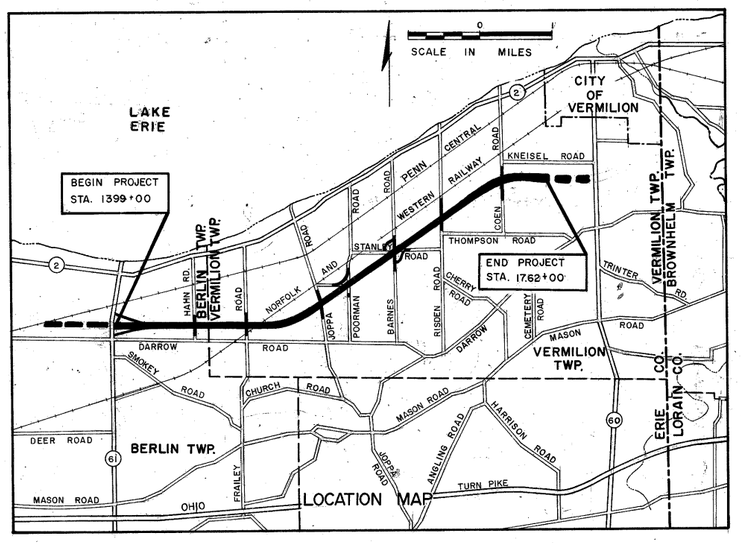
NOTE: Sheets no. 223 and 225 have been deleted.

LINE DATA

	PROJECT LENGTH	WORK LENGTH	
S.R. 2	1399+00 to 1762+00	1397+40 to 1762+00	36460 Lin. Ft.
Hahn Road		16+00 to 36+00	2000 Lin. Ft.
Frailey Road		16+50 to 31+50	1500 Lin. Ft.
Joppa Road		17+00 to 34+20	1720 Lin. Ft.
Ashmont-Poorman Road & Poorman Road		19+00 to 31+20 & 21+00 to 22+58	1378 Lin. Ft.
Access Road		26+85 to 29+90	305 Lin. Ft.
Barnes Road		17+00 to 34+00	1700 Lin. Ft.
Stanley Road West		1+75 to 11+17.45	942.45 Lin. Ft.
Stanley Road East		8+54.69 to 18+70	1015.31 Lin. Ft.
Risden Road		16+50 to 34+50	1800 Lin. Ft.
Coen Road		15+80 to 34+70	1890 Lin. Ft.
Net Length	36,300 Lin. Ft.		50,710.76 Lin. Ft.
	6.875 Miles		9.604 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'

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. H. Reader
DATE: 7/29/69 DIVISION DEPUTY DIRECTOR

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

APPROVED: E. J. Shafer
DATE: 9-10-71 ENGINEER OF LOCATION AND DESIGN

APPROVED: H. L. Kramer
DATE: 9/13/71 DEPUTY DIRECTOR OF DESIGN AND CONSTRUCTION

APPROVED: R. A. Nesbitt
DATE: 10/29/71 DEPUTY DIRECTOR OF RIGHT-OF-WAY

APPROVED: William Bentley
DATE: 10-29-71 DEPUTY DIRECTOR OF PLANNING AND PROGRAMMING

APPROVED: William P. McKenna
DATE: 11-2-71 FIRST ASSISTANT DIRECTOR

APPROVED: Phillip Richley
DATE: 11/2/71 DIRECTOR OF HIGHWAYS

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED :

DIVISION ENGINEER — DATE

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

FILE NO.	ERIE COUNTY
	ERI-2-22.24
	DATE OF LETTING
	CONTRACT NO.

STANDARD CONSTRUCTION DRAWINGS

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

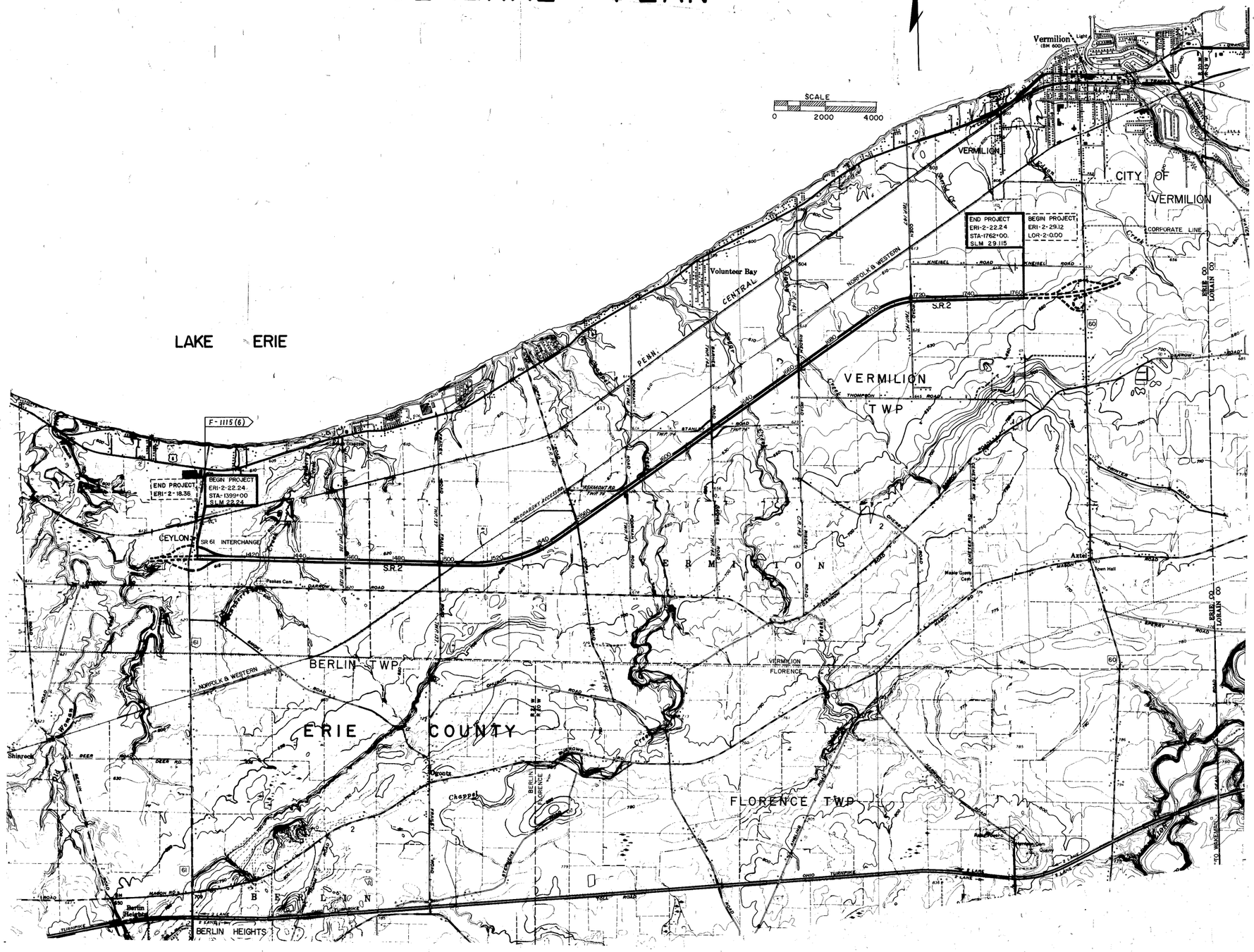
SUPPLEMENTAL SPECIFICATIONS

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

Rev. 2-4-72
Rev. 4-27-72
Rev. 12-2-71

GENERAL PLAN

ERIE COUNTY
ERI-2-22.24



GENERAL PLAN

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

3
395

ERIE COUNTY
ERI-2-22.24

0 200 400
SCALE IN FEET

F-1115(5) END PROJECT ERI-2-18.38

F-1115(6) BEGIN PROJECT ERI-2-2224 STA. 1399+00 SLM 22.24

DESIGN DESIGNATION	
1967 ADT	7,576
1988 ADT	18,039
DHV	1,515
D(Dir. Dist.)	0.55
T(% Trucks)	5%
V(Design Speed)	70mph

TRAFFIC FACTOR
Design Year 1988
Present Year 1967
Percent truck during DHV - 5%
Directional distribution factor - 0.55
1988 to 1967 projection factor - 0.42

NOTE: Traffic volumes shown were supplied by Ohio Department of Highways by letter October 11, 1967. Distribution, truck and present year factors were forwarded by letter July 28, 1966.

SR 61 INTERCHANGE

F.A.G.I. Sign
O'Rork Access Rd.
1988 ADT 3717
Begin Pav't 1400+25
P.I. 1401+76.24
53+92.93 ℄ Rel. SR 61
1397+81.20 ℄ RAMP C
Curtis Access Rd. (by Others)
RAMP C
RAMP B
Begin Work 1397+40
75°50'00" Temporary Pavement Connection to Ex. S.R.61
P.O.T. 1397+44.96 S.R.2
P.O.T. 20+00.00 S.R.61
D=4°
D=10°
D=12°
D=8°
D=1°30'
P.C.C.
P.T.
P.C.
P.I.
P.O.T. 1398+00.61 S.R.2
50+06.66 ℄ Rel. S.R.61
1397+99.79 ℄ S.R.2
50+00.00 ℄ Rel. S.R.61
46+66.47 ℄ Rel. S.R.61
1397+22.98 ℄ RAMP D
RAMP D
Begin Pav't 1400+00
D=0°
D=6°
RAMP A
RAMP Z
191°44'00"
N85°12'48"E
Rel. S.R.61
Ex. S.R.61
F.A.G.I. Sign
1988 ADT 2502
Temp. Runaround (by Others)
Carver Access Rd.
P.C."E" 1392+50.74
P.T. "E" 1411+01.74
DARROW RD.

DATA FOR S.R. 2 CURVE "E"	
P.I. = 1401+76.24	L = 1850.00'
Δ = 4°37'30" Rt.	T = 925.52'
D = 0°15'	E = 18.68
R = 22,918.31	S = Normal

DESIGN DESIGNATION	
1967 ADT	8,089
1988 ADT	19,260
DHV	1,619
D(Dir. Dist.)	0.55
T(% Trucks)	5%
V(Design Speed)	70mph

℄ Survey SR2
S 89°39'42" E
Median Crossover 1431+00
CRANBERRY CREEK
ERIE COUNTY
BERLIN ANNEXATION
BERLIN TOWNSHIP

Begin Taper 35+50
End Work 36+00
HAHN RD. 1988 ADT 87
ERI-2-2340 1459+80.95 ℄ S.R.2 25+00.00 ℄ HAHN RD.
88°01'30"
Begin Work 16+00
End Taper 16+10 Lt.
End Taper 16+80 Rt.
TWP. 135
13+60.46
BERLIN ANNEX
VERMILION TWP.
ERIE COUNTY
VERMILION TOWNSHIP
ERIE COUNTY
BERLIN ANNEXATION
BERLIN TOWNSHIP
DARROW RD.

End Work 31+50
End Taper 31+25
Begin Taper 29+25
End Full Width Pav't.
FRAILEY RD. 1988 ADT 220
ERI-2-2410 1497+45.66 ℄ S.R.2 25+00.00 ℄ FRAILEY RD.
88°24'48"
DITCH
RIGO
NORFOLK & WESTERN R.R.
P.C."F" 1510+18.60
35°55'47"
D=1°00'
ERI-2-2421 1504+50.73 ℄ S.R.2 25+00.00 ℄ M TRACK
19+98.92 ℄ FRAILEY RD.
16+46.50 ℄ M TRACK N.& R.R.= 11916+70 ℄ N.&W R.R.
End Taper 18+60
Begin Full Width Pav't
Begin Taper 16+75
Begin Work 16+60
13+73.25
10' Mainline
Sidetrack
TWP. 137

DATA FOR S.R. 2 CURVE "F"	
P.I. = 1528+73.50	L = 3587.78'
Δ = 35°52'40" Lt.	T = 1854.90'
D = 1°00'	E = 292.77'
R = 5729.58	S = .0322 ft/ft

SCHEMATIC PLAN & DESIGN DESIGNATION 1389 TO 1515

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

4
395

ERIE COUNTY
ERI-2-22.24

NORFOLK & WESTERN RAILWAY

1988 ADT 81

ASHMONT-POORMAN RD. TWP. 25

Begin Work
Begin Taper
19+00

ASHMONT-POORMAN RD.
C.H. 222

End Taper
P.C. 20+79.66 ℄ ASHMONT-POORMAN RD.

End Work
34+20

End Pav't
34+00

C.H. 140

S 89°02'45" E
25

End Work
29+90

P.T. 32+20.45 ℄ Rel. JOPPA RD.
362+21.14 ℄ Ex. JOPPA RD.

BEGIN WORK
STA. 26+85

℄ ACCESS RD.

110°28'35"

29+96.70℄ Access Rd.
30+02.93 ℄ Joppa Rd.

1988 ADT 278

Ex. P.T.

P.I. 26+86.38 ℄ Rel. JOPPA RD.
P.I. 356+85.46 ℄ Ex. JOPPA RD.
Δ = 8°33'40" LT.

D=0°48'

171°26'20"

Ex. P.C.

1515 1520 1525 1530 D=1°00 1535 1540 1545 1550 1555 1560 1565 1570 1575

N 54°27'38" E

P.T. "F" 1546+06.38

℄ Survey S.R. 2

114°34'42"

Ex.

Rel.

1556+29.96 ℄ S.R. 2
353+02.85 ℄ Ex. JOPPA RD.

ERI-2-2540
1556+20.59 ℄ S.R. 2
25+00.00 ℄ REL. JOPPA RD.

P.C. 21+50.31 ℄ Rel. JOPPA RD.

P.T. 21+30.79

0 200 400
SCALE IN FEET

S 89°39'42" E

N 54°27'38" E

P.I. "F" 1528+73.50

DATA FOR S.R. 2 CURVE "F"

P.I. = 1528+73.50'	L = 3587.78'
Δ = 35°52'40" Lt.	T = 1854.90'
D = 1°00'	E = 292.77'
R = 5729.58'	s = .0322 ft/ft

ERIE COUNTY
VERMILION TOWNSHIP

DATA FOR JOPPA RD. CURVE

P.I. = 26+86.38	L = 1070.14'
Δ = 8°33'40"	T = 536.07'
D = 0°48'	E = 20.03'
R = 7161.97'	S = 0.0156 Ft/Ft.

BINGHAM DITCH

175°41'20"

D=0°38'

JOPPA RD. 1988 ADT 278

Begin Work
Begin Pav't
17+00

P.I. 16+99.88 ℄ Rel.

Δ = 4°18'40" Lt.

POORMAN RD. TWP. 141

DATA FOR STANLEY RD. W. CURVE

P.I. = 4+69.35	L = 321.14'
Δ = 44°57'32"	T = 169.35'
D = 14°00'00"	E = 33.65'
R = 409.26'	S = .0833

DATA FOR STANLEY RD. W. CURVE

P.I. = 10+24.44	L = 111.44'
Δ = 42°33'57"	T = 58.43'
D = 38°11'50"	E = 10.98'
R = 150.00'	S = .0417

1988 ADT 116
STANLEY RD.

Begin Work
1+75

PC. 3+00

2+00.00 ℄ Rel. STANLEY RD.
2+00.00 ℄ Ex. STANLEY RD.
Begin Taper

End Taper
3+00

P.T. 4+21.14

P.I. 4+69.35

D=14° 5 Rel. STANLEY RD. W.

P.C. 9+66.01

P.I. 10+24.44

End Work
11+17.45

P.T. 10+77.85

End Work
End Taper
34+00

Begin Taper
33+25

TWP. 142
1988 ADT 429

28+20.00 ℄ BARNES RD.
11+27.85 ℄ Rel. STANLEY RD.

ERI-2-2680
1639+84.00 ℄ S.R. 2
10+00.00 ℄ Rel. SUGAR CREEK

ASHMONT-POORMAN RD. 24 D=10°

31+00 ℄ ASHMONT-POORMAN RD.

End Work
31+20

End Taper

P.T. 30+27.69

Begin Taper
29+80

CHAPPEL CREEK

ERI-2-2581
1581+80.00 ℄ S.R. 2
10+00.00 ℄ CHAPPEL CREEK

P.I. 8+25

94°

MEDIAN CROSSOVER
1603+00

57°58'27"

1580 1585 1590 1595 1600 1605 1610 1615 1620 1625 1630 1635

℄ Survey S.R. 2

1581+28.46 ℄ S.R. 2 =
25+00 ℄ Poorman Rd.

178°01'50"

112°5

P.I. 12+00

End Work
22+58

Beg. Work
21+00

TWP. 141

22+10.00
24" D=1°00
See Sheet No. 193

P.I. 24+19.62 ℄ POORMAN RD.

N 54°27'38" E

56°09'20"

127°5

P.I. 10+90

P.I. 15+47.08

Begin Taper
17+00

18+50 ℄ Rel. STANLEY RD.
18+50 ℄ Ex. STANLEY RD.
End Taper

P.C. 8+94.69

P.T. 10+14.49

30°

D=14°

Rel. STANLEY RD. E.

P.C. 13+76.13

P.T. 17+90.00

8+44.69 ℄ Rel. STANLEY RD.
21+80.00 ℄ BARNES RD.

ERI-2-2646
1622+37.30 ℄ S.R. 2
25+00.00 ℄ BARNES RD.

End Taper
17+50

Begin Taper
17+00

Beg. Work

BARNES RD. 1988 ADT 487

Beg. Work
8+54.69

P.I. 9+57.99

End Work
18+70

1988 ADT 220

STANLEY RD.
TWP. 144

SUGAR CREEK

DATA FOR ASHMONT-POORMAN CURVE

P.I. = 27+03.00	L = 943.08'
Δ = 94°48'30"	T = 623.18'
D = 10°00'00"	E = 273.58'
R = 572.96'	S = .0833

ERIE COUNTY
VERMILION TOWNSHIP

DATA FOR STANLEY RD. E. CURVE

P.I. = 9+57.99	L = 119.80'
Δ = 45°45'36"	T = 63.30'
D = 38°11'50"	E = 12.81'
R = 150.00'	S = .0417

DATA FOR STANLEY RD. E. CURVE

P.I. = 15+47.08	L = 323.87'
Δ = 45°20'31"	T = 170.95'
D = 14°00'00"	E = 34.27'
R = 409.26'	S = .0417

Rev. 12-2-71

SCHEMATIC PLAN & DESIGN DESIGNATION 1515 TO 1642

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

5
395

0 200 400
SCALE IN FEET

ERIE COUNTY
ERI-2-22.24

End Work
End Taper
34+50
Begin Taper
33+75

35
RISDEN RD
1988 ADT 470

30
Ex. R/W

ERI-2-2726
1664+52.57 ℄ S.R.2
25+00.00 ℄ RISDEN RD.

55°48'49"

1645 1650 1655 1660 1670 1675 1680 1685 1690 1695 1700 1705

℄ SURVEY SR.2

N 54° 27' 38" E

P.T. 23+41.10
180°25'15"
D=1°15'
P.I. 22+56.93
P.C. 21+72.76

P.C. 'G' 1709+53.16

CREEK

End Taper
17+30
Begin Work
16+50

30
CR 143
1988 ADT 470

15

DARBY

THOMPSON

ERIE COUNTY
VERMILION TOWNSHIP

End Taper
34+50
F.A.C.I. Sign

35
End Work
34+70
Begin Taper
34+00

30
COEN RD
1988 ADT 452

P.I. 'G' 1716+16

26+41.86 ℄ COEN RD.
Tan. S.R.2

92°17'00"

DATA FOR CURVE "G"	
P.I. = 1716+13.16	L = 2437.69
Δ = 35°45'10" Rt.	T = 1260.00'
D = 1°28'	E = 198.17'
R = 3906.53	S = .0472 ft/ft

1705 1710 1715 1720 1725 1730 1735 1740 1750 1755 1760 1765

D=1°28'

℄ Survey SR 2

S 89°47'12" E

ERI-2-2827
1717+35.58 ℄ S.R. 2
25+00.00 ℄ COEN RD.

P.T. 'G' 1727+90.85

End Taper
17+00

Match Line
F.A.C.I. Sign
Begin Work
15+80

Begin Taper
16+00

15
20
TWP 147
1988 ADT 452

End Taper 17+00
Match Line

Median Crossover
1755+00

End Work
1762+00

Begin Taper
1763+00.00

F-1115(6)	F-1115(3)
END PROJECT	BEGIN PROJECT
ERI-2-22.24	ERI-2-29.12
STA. 1762+00	LOR-2-0.00
SLM 29.115	

ERIE COUNTY
VERMILION TOWNSHIP

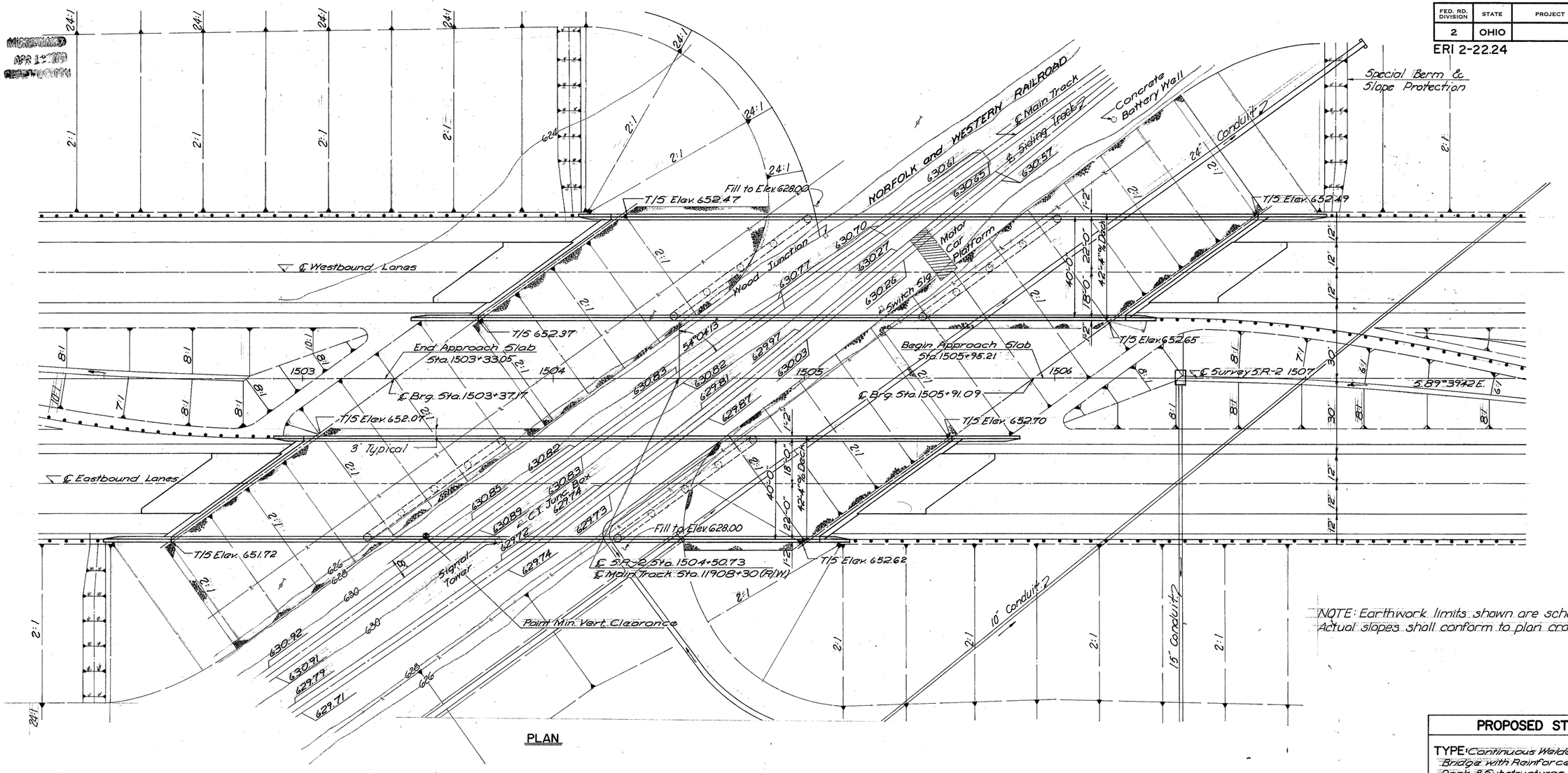
SCHEMATIC PLAN & DESIGN DESIGNATION 1642 TO 1765

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

ERI 2-22.24

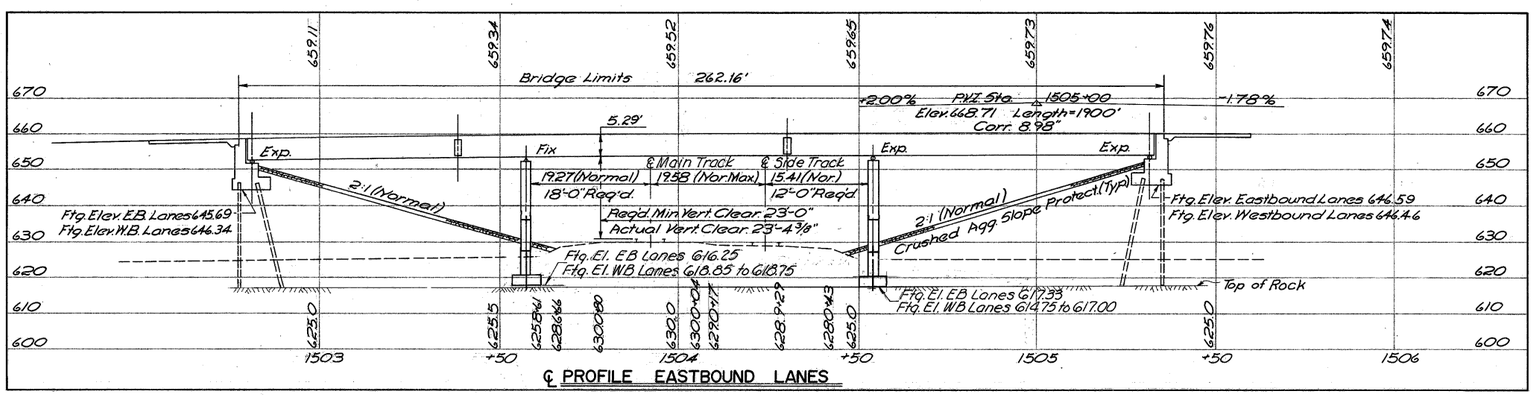
288
395

RECEIVED
APR 1 1968
HIGHWAY ENGINEER



NOTE: Earthwork limits shown are schematic. Actual slopes shall conform to plan cross sections

PLAN



℄ PROFILE EASTBOUND LANES

Estimated average pay length of 10BP42 Abutment Piles is 30 feet.

1 / 11

PROPOSED STRUCTURE

TYPE: Continuous Welded Steel Girder Bridge with Reinforced Concrete Deck & Substructures
SPANS: 78'-2", 97'-7", 78'-2" Ctr./Ctr. Brg.
ROADWAY: 40'-0" f/f Parapet
LOAD FREQUENCY: H 5 20-44
WEARING SURFACE: 1" Monolithic Concrete
SKEW: 54°04'13" L.F.
APPROACH SLAB: A5-1-67 (25'-0" Long)
ALIGNMENT: Tangent
SUPERELEVATION: None
AVERAGE DAILY TRAFFIC: 21,623 (1988)

FRANKLIN ENGINEERING, LIMITED
Consulting Engineers
COLUMBUS, OHIO

SITE PLAN

BRIDGE № ERI-2-242IL&R over NORFOLK & WESTERN RAILROAD

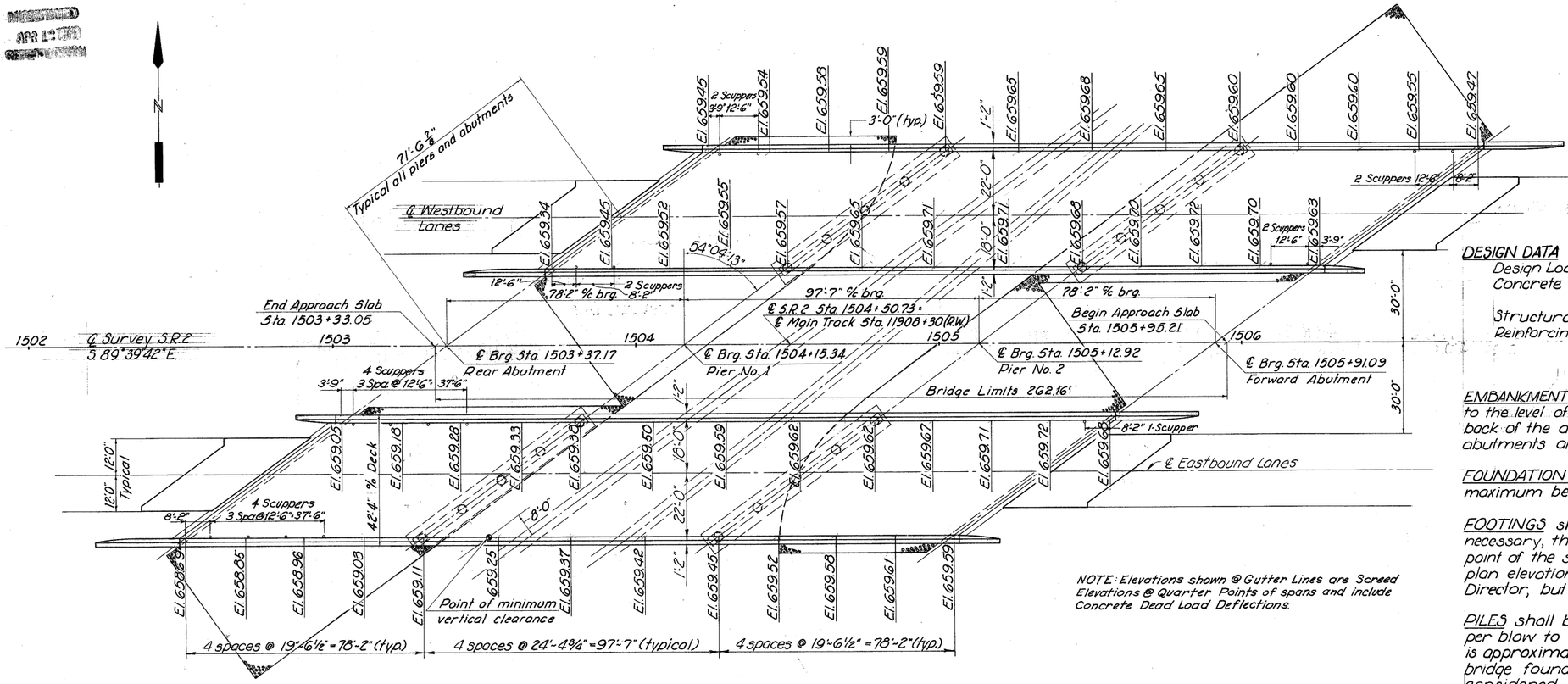
ERIE COUNTY SR-2
Sta. 1503+37.17 Sta. 1505+95.21

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JBG	MG	MG	HM	JG	9/15-67	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

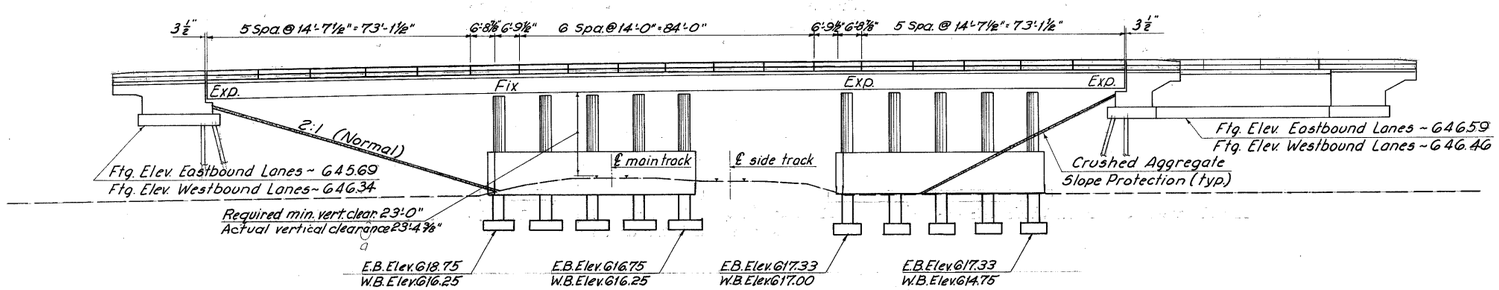
289
395

ERI-2-22.24



NOTE: Elevations shown @ Gutter Lines are Screed Elevations @ Quarter Points of spans and include Concrete Dead Load Deflections.

GENERAL PLAN



ELEVATION

GENERAL NOTES

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

DESIGN SPECIFICATIONS - This structure conforms to "Standard Specifications for Highway Bridges" adopted by the American Association of State Highway Officials, 1965, including the Ohio "Supplement" to these specifications.

DESIGN DATA

Design Loading	H S 20-44
Concrete Class 'C'	Unit Stress 1200 psi for Superstructure
	Unit Stress 1333 psi for Substructure
Structural Steel	ASTM A36 - Unit Stress 20,000 psi
Reinforcing Steel	ASTM A615, A616 † for A617 - Unit Stress 20,000 psi. Spiral reinforcement may be plain bars A306, A499, A615 or A82.

EMBANKMENT CONSTRUCTION: The embankments shall be constructed to the level of the subgrade for a minimum distance of 200 feet back of the abutments. Excavation shall then be made for the abutments and the piers.

FOUNDATION BEARING PRESSURE - Pier footings are designed for a maximum bearing pressure of 5 tons per sq. ft.

FOOTINGS shall extend a minimum of 3 inches 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 624.20

PILES shall be driven with a hammer of not less than 11,000 ft. lbs. per blow to firm contact with bedrock. If the length of penetration is approximately equal to the depth of 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:

For the Abutment Piles
43 Tons Per Pile Using An 11,000 Ft. Lb. Hammer
38 Tons Per Pile Using A 15,000 Ft. Lb. or Greater Hammer

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 35 tons per pile for the abutment piles.

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

WELDS on non-stress-carrying members are shown thus: N ▽ 1/4

RAILROAD AERIAL LINES will be relocated by the Railroad. The Contractor shall use all precautions necessary to see that the lines are not disturbed during the construction stage and shall cooperate with the Railroad in the relocation of these lines. The cost of the relocation shall be included in the railroad force account work.

† If bars in accordance with ASTM A616 are provided they shall be subject to bend tests as per AASHO Designation M42-70.

2 | 11

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Consulting Engineers
COLUMBUS, OHIO

GENERAL PLAN, ELEVATION, and GENERAL NOTES
BRIDGE No. ERI-2-2421 L & R
over NORFOLK & WESTERN RAILROAD
ERIE COUNTY S.R.-2

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
S	S	—	S.Y.	FJ	12-69	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

290
395

ERI-2-22.24

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	Lump	Sum	Cofferdams, Cribs and Sheeting					Lump	Sum		
503	1,763	912	851	Cu.Yds.	Unclassified Excavation			404	404	508	447		
505	Lump Sum	Lump		Sum	Test Pile							Lump	
507	2,640	1,320	1,320	Lin.Ft.	Steel Piles HP10x42 *			1,320	1,320				
509	335,150	167,575	167,575	Lbs.	Reinforcing Steel	113,007	113,007	20,563	20,563	34,005	34,005		
511	676	338	338	Cu.Yds.	Class "C" Concrete, Superstructure	338	338						
511	622	311	311	Cu.Yds.	Class "C" Concrete, Abutment			311	311				
511	136	68	68	Cu.Yds.	Class "C" Concrete, Pier Footing					68	68		
511	435	220	215	Cu.Yds.	Class "C" Concrete, Pier above Footing					220	215		
513	568,500	284,250	284,250	Lbs.	Structural Steel	284,250	284,250						
518	17	8	9	Each	Scuppers including Supports	8	9						
518	124	62	62	Cu.Yds.	Porous Backfill			62	62				
518	248	124	124	Lin.Ft.	6" Perforated Helical Corrugated Metal Pipe including Special 707.01			124	124				
518	180	90	90	Lin.Ft.	6" Non-Perforated Helical Metal Pipe 707.01			90	90				
601	2,901	1,447	1,454	Sq.Yds.	Crushed Aggregate Slope Protection							1,447	1,454
808	676	338	338	Unit	Chemical admixture for concrete, Type A, B or D	338	338						
514	568,500	284,250	284,250	Lbs.	Field Painting of Structural Steel	284,250	284,250						

* HP10x42 piles formerly designated 10BP42.

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FRANKLIN ENGINEERING, LIMITED
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ESTIMATED QUANTITIES

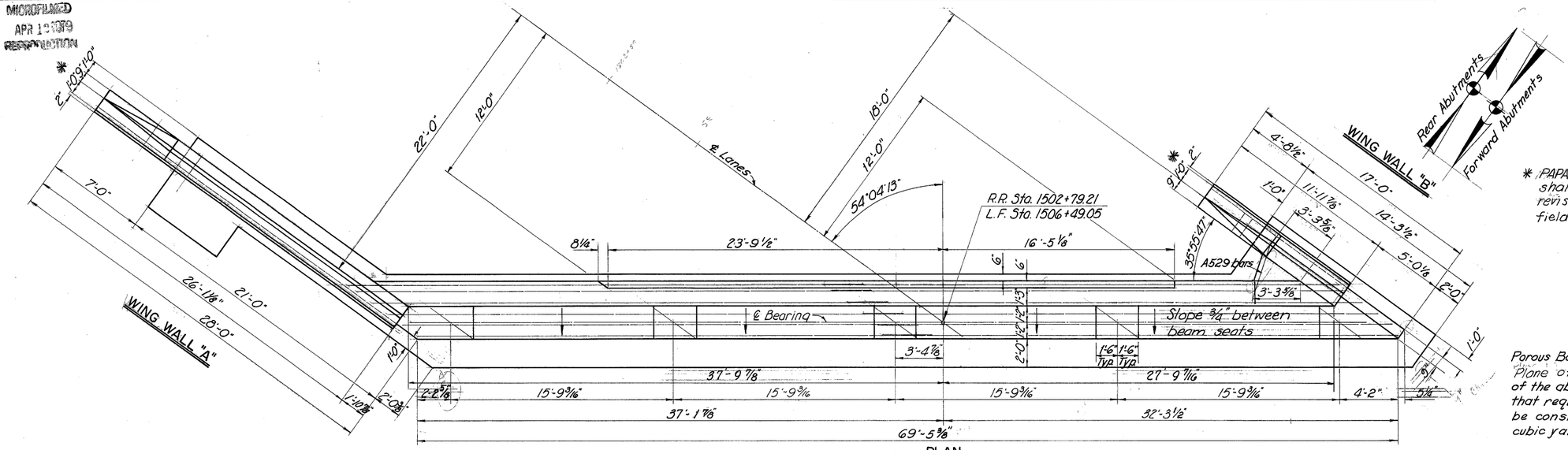
BRIDGE No. ERI-2-2421 L&R
over NORFOLK & WESTERN RAILROAD

ERIE COUNTY SR-2

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
	J.C.		2-28-69 S.Y.	J.F.	4/28/69	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

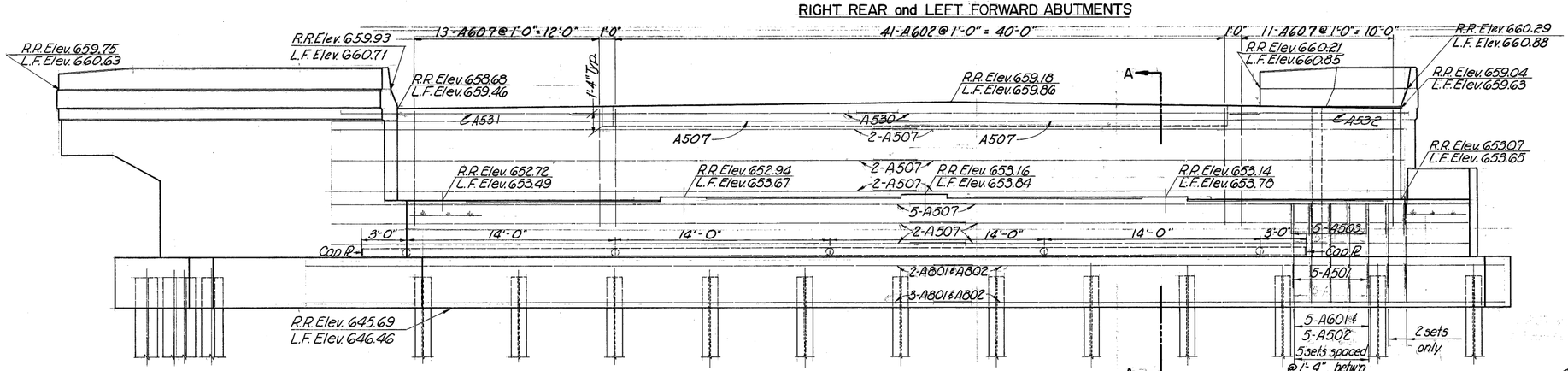
ERI-2-22.24

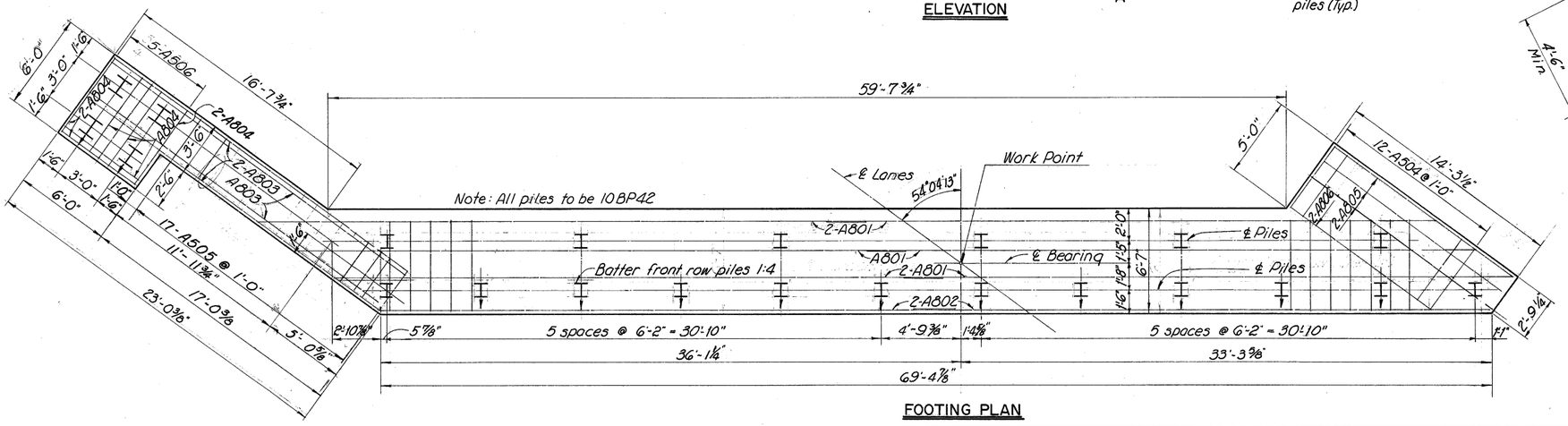


* PARAPET TRANSITIONS AND WINGWALL ENDS shall be as shown on Std. Drwg. BR-1-67 revised 10-15-71. Reinforcing steel shall be field bent or cut to fit the revised shape.

LEGEND
L.F. = Left Forward
R.R. = Right Rear

Porous Backfill 1'-6" thick shall extend upward to the plane of the subgrade for the full length of the abutment. Excavation, therefore, in excess of that required for construction of the abutment, shall be considered as paid for in the bid price per cubic yard for porous backfill.





Note: All long bars in footing are A601's except those marked All long bar above footings are A507 unless otherwise noted.

FRANKLIN ENGINEERING, LIMITED
Consulting Engineers
COLUMBUS, OHIO

ABUTMENT DETAILS

BRIDGE NO. ERI-2-2421 L℄R
over NORFOLK & WESTERN RAILROAD
ERIE COUNTY SR-2

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
M. G.	M.G.		S.Y.	S.Y.	4/28/69	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

ERI-2-22.24

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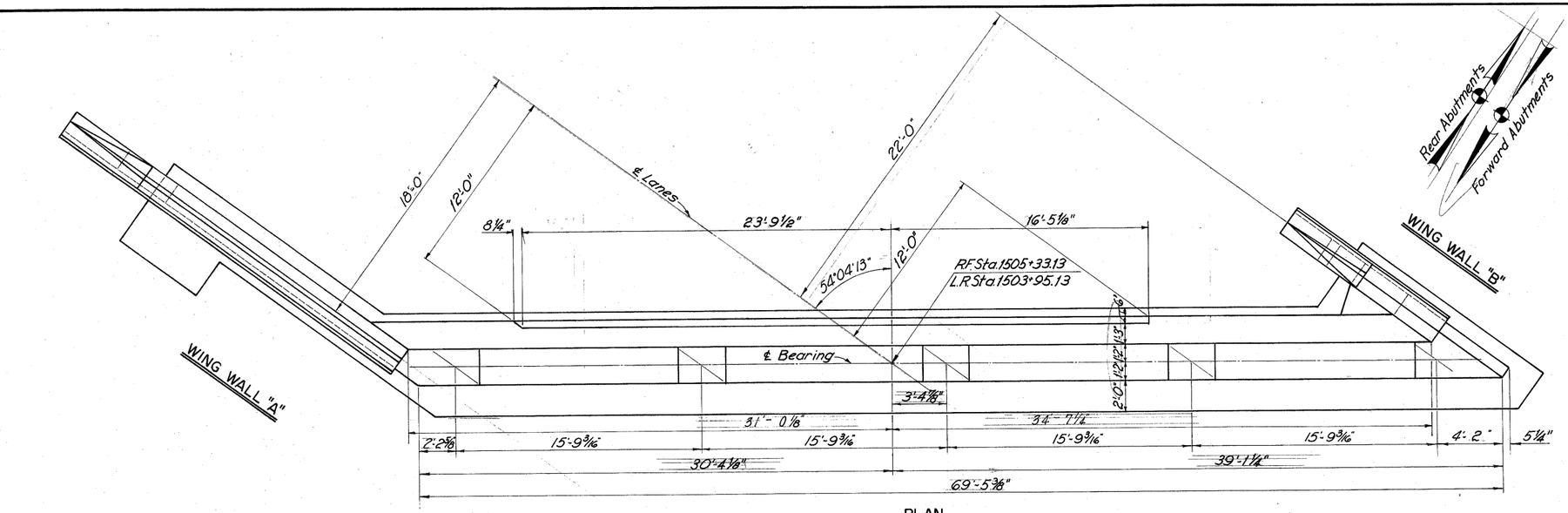
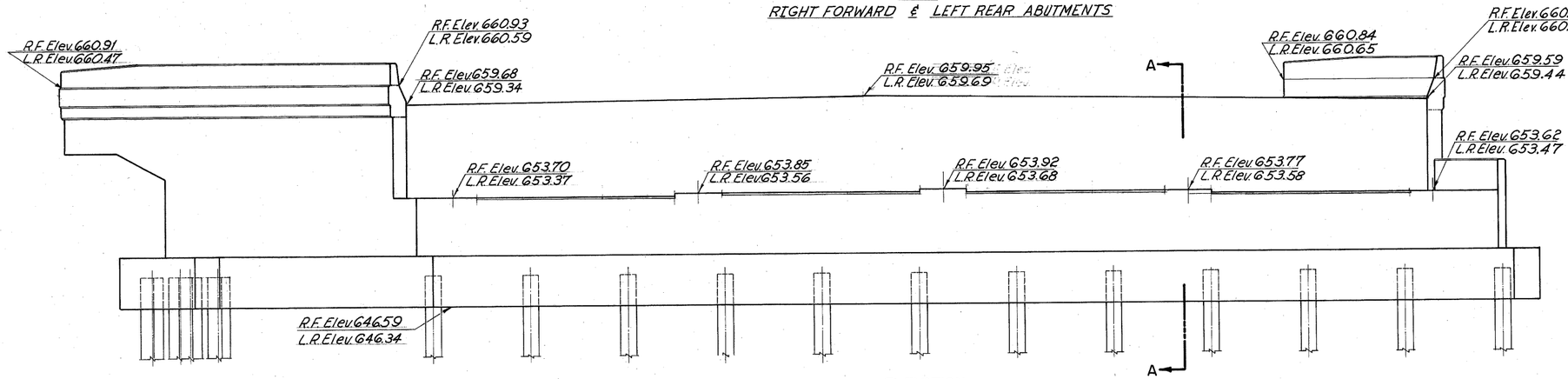
All dimensions and notes of the previous abutment sheet are applicable to this sheet with the exception of the dimensions and elevations shown.

For Reinforcing Steel not shown see sheet 4/11

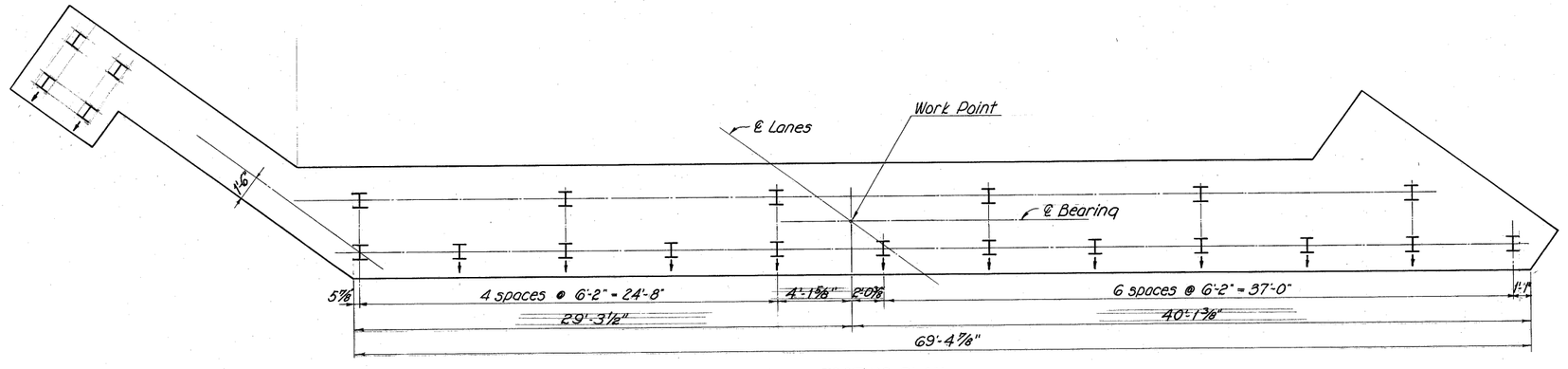


PLAN

RIGHT FORWARD ℄ LEFT REAR ABUTMENTS



ELEVATION



FOOTING PLAN

LEGEND
R.F. = Right Forward
L.R. = Left Rear

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FRANKLIN ENGINEERING, LIMITED
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COLUMBUS, OHIO

ABUTMENT DETAILS

BRIDGE No. ERI-2-2421 L&R
over NORFOLK & WESTERN RAILROAD

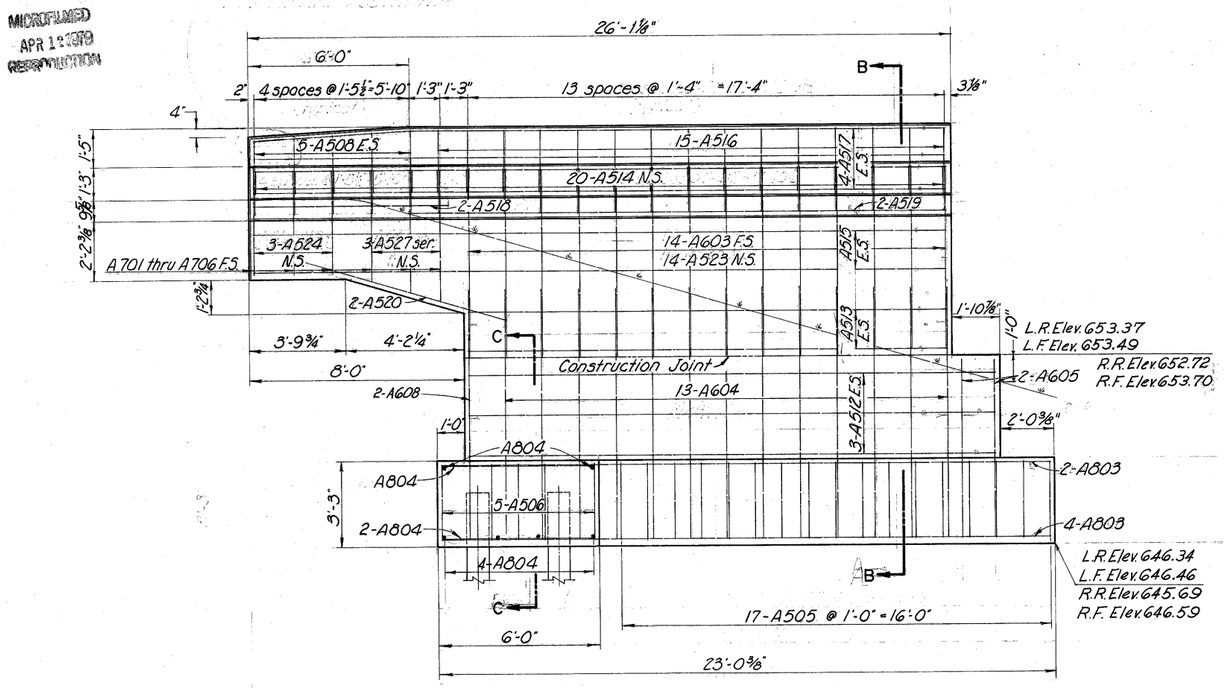
ERIE COUNTY SR-2

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
M.G	[illegible]		S.Y.	JF	5/28-69	

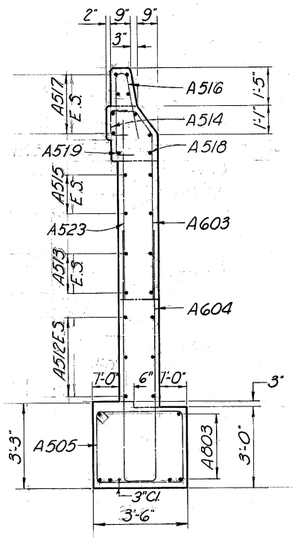
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

ERI-2-22.24

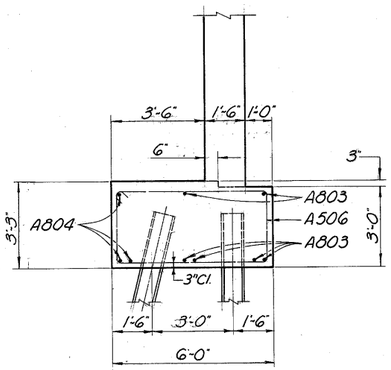
293
345



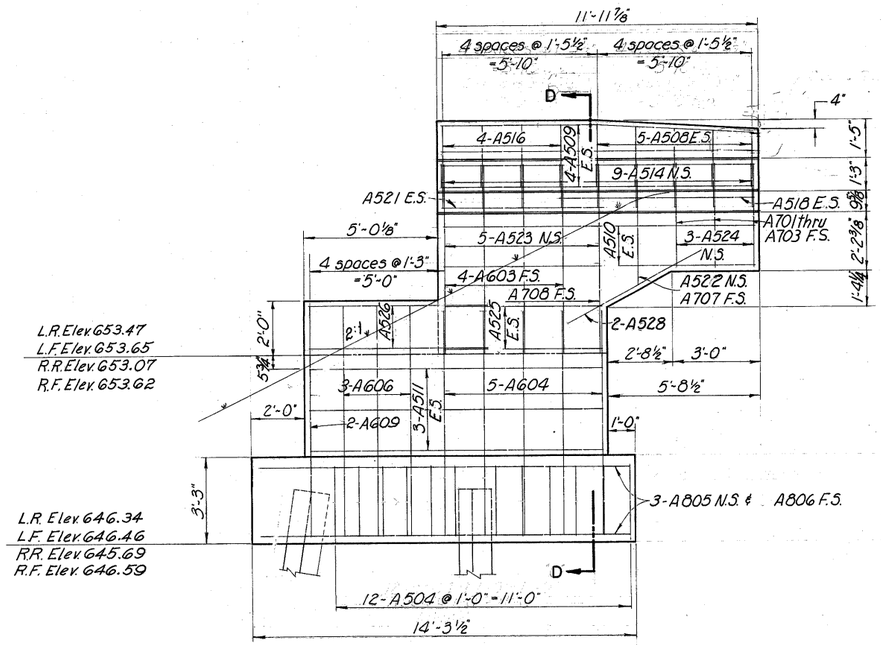
WING WALL "A"



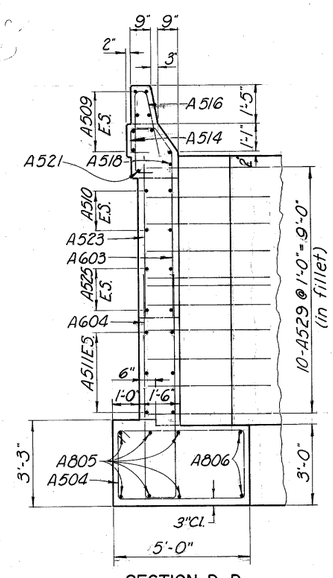
SECTION B-B



SECTION C-C



WING WALL "B"



SECTION D-D

See PARAPET TRANSITION note, sh. 4/11

See PARAPET TRANSITION note, sh. 7/11

LEGEND
N.S. - Near Side
F.S. - Far Side
E.S. - Each Side

6/11

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COLUMBUS, OHIO

WING WALL DETAILS

BRIDGE No. ERI-2-2421 L&R.
over NORFOLK & WESTERN RAILROAD
ERIE COUNTY S.R.-2

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
M.C	[illegible]		S.Y.	JH	2/28/69	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

ERI-2-22.24

294
395

℄ Eastbound Lanes ℄ Pier ℄ Westbound Lanes
See General Plan 2 / 11 for tangent

3'-4 7/16" 3'-4 7/16"

A: SP401 L.F. SP406 R.F. SP411 L.R. SP416 R.R.
B: SP402 L.F. SP407 R.F. SP412 L.R. SP417 R.R.
C: SP403 L.F. SP408 R.F. SP413 L.R. SP418 R.R.
D: SP404 L.F. SP409 R.F. SP414 L.R. SP419 R.R.
E: SP405 L.F. SP410 R.F. SP415 L.R. SP420 R.R.

A: 8-P1002 L.F. 8-P1007 R.F. 12-P1102 L.R. 12-P1107 R.R.
B: 8-P1003 L.F. 8-P1008 R.F. 12-P1103 L.R. 12-P1108 R.R.
C: 8-P1004 L.F. 8-P1009 R.F. 12-P1104 L.R. 12-P1109 R.R.
D: 8-P1005 L.F. 8-P1010 R.F. 12-P1105 L.R. 12-P1110 R.R.
E: 8-P1006 L.F. 8-P1011 R.F. 12-P1106 L.R. 12-P1111 R.R.

1'-9" 4 spa. @ 15'-9 3/16" = 63'-0 3/4" 1'-9"

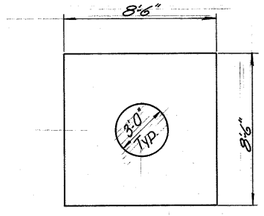
B — B
P601 E.F. P601 E.F. P601
A A
5-P602@2'-0" % E.F. 5-P602@2'-0" % E.F.
33-P601@2'-0" % E.F.
5-P603@2'-0" Typ Each End
F F G

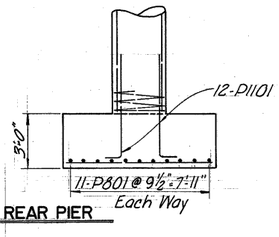
Construction Joint Typical

H J K L M

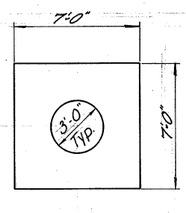
PIER ELEVATION

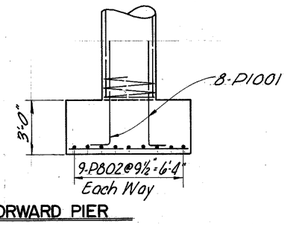
PIERS	A	B	C	D	E	F	G	H	J	K	L	M
Left, Forward	653.10	653.26	653.41	653.33	653.18	636.00	627.00	614.75	615.31	615.87	616.43	617.00
Right, Forward	653.12	653.25	653.30	653.13	652.96	636.00	627.00	617.33	617.33	617.33	617.33	617.33
Left, Rear	653.09	653.22	653.35	653.24	653.07	636.00	627.00	616.25	616.25	616.25	616.25	616.25
Right, Rear	652.88	652.98	653.01	652.81	652.61	636.00	627.00	616.75	617.25	617.75	618.25	618.75



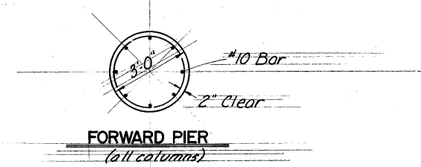


FOOTINGS REAR PIER

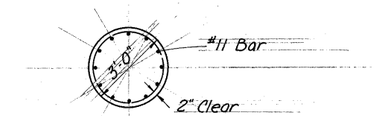




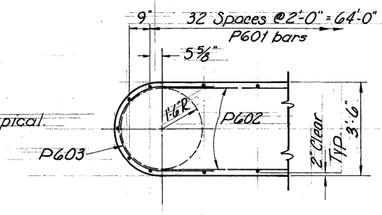
FOOTINGS FORWARD PIER



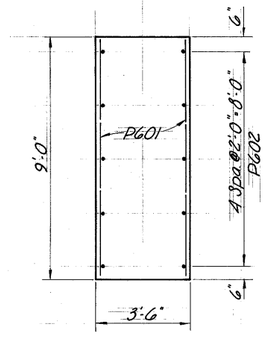
FORWARD PIER
(all columns)



REAR PIER
(all columns)



SECTION A-A



SECTION B-B

Legend:
E.F. = Each face
L.F. = Left Forward Pier
R.F. = Right Forward Pier
L.R. = Left Rear Pier
R.R. = Right Rear Pier

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FRANKLIN ENGINEERING, LIMITED
Consulting Engineers
COLUMBUS, OHIO

PIER DETAILS

BRIDGE No. ERI-2-2421 L / R
over NORFOLK & WESTERN RAILROAD

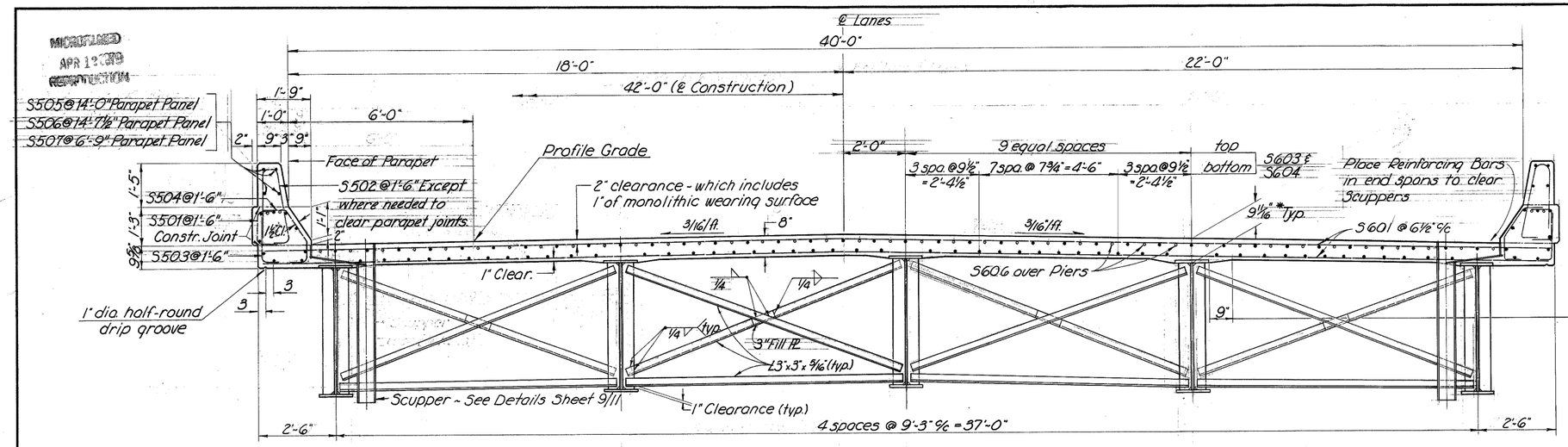
Erie County SR-2

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JJ	JC LZ		S.Y.	JJ	4/28/69	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

295
385

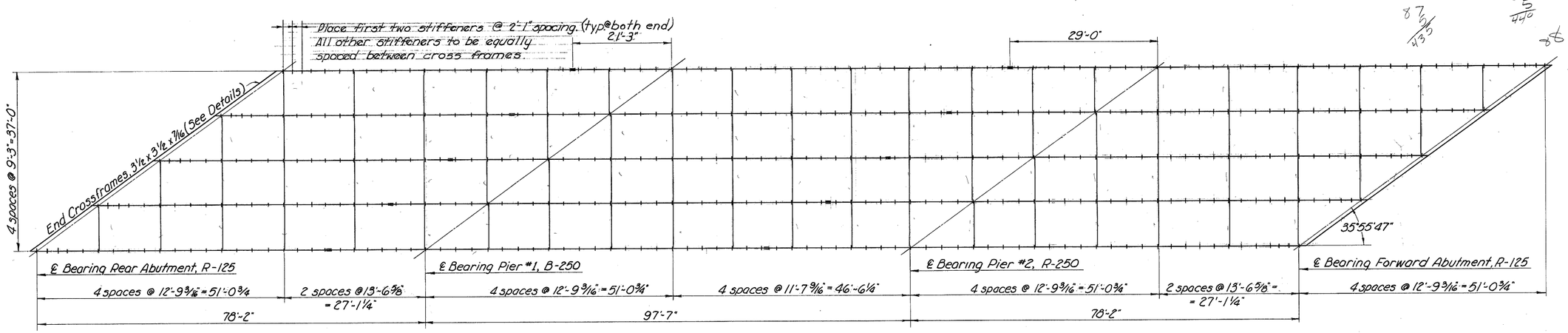
ERI-2-22.24



TRANSVERSE SECTION - RIGHT BRIDGE
LEFT BRIDGE, OPPOSITE HAND

* 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. Deduction 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.



FRAMING PLAN

8 | 11

FRANKLIN ENGINEERING, LIMITED
Consulting Engineers
COLUMBUS, OHIO

SUPERSTRUCTURE (I)

BRIDGE Nº ERI-2-2421 L&R. over NORFOLK & WESTERN RAILROAD

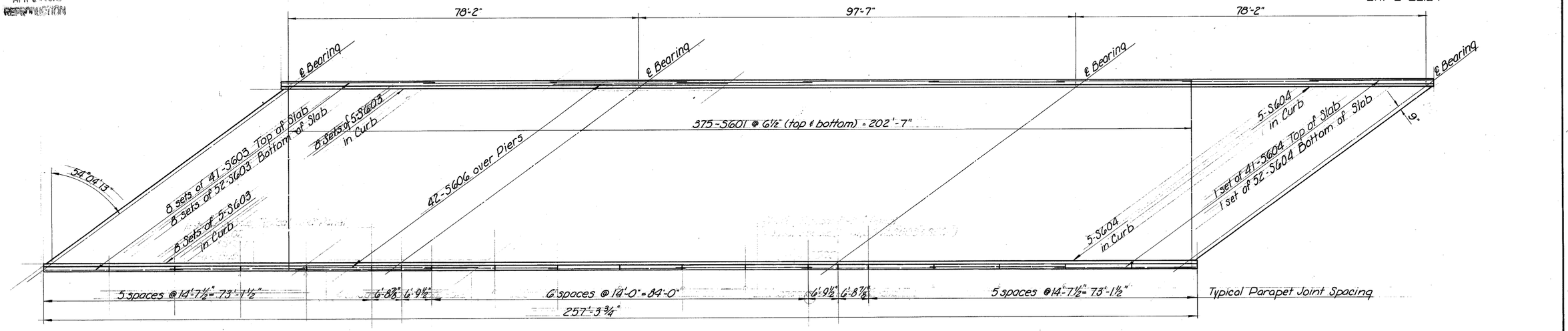
ERIE COUNTY S.R.-2

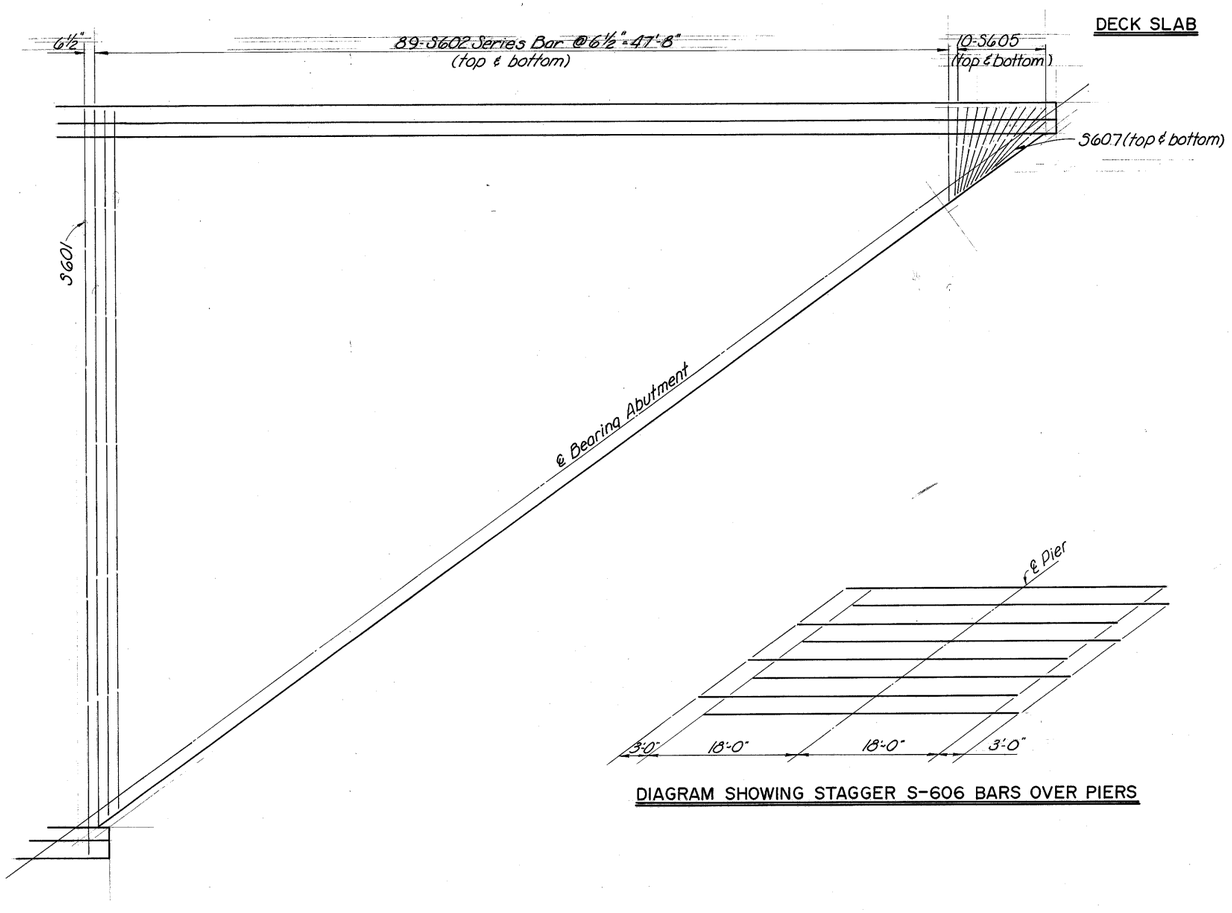
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JF	APBOB		HM	JF	2/28-69	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

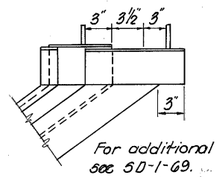
ERI-2-22.24

296
395

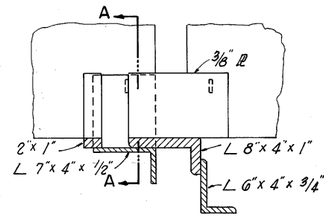




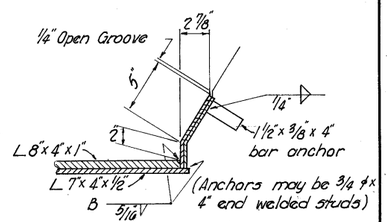
DECK SLAB



PARTIAL DECK PLAN

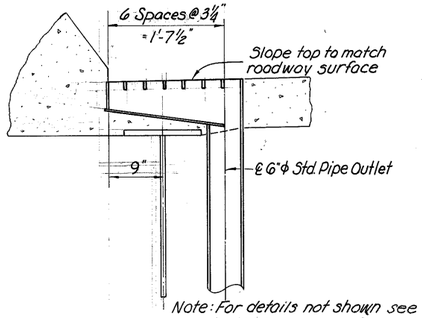


SECTION thru END DAM
CURB DETAIL of END DAM



SECTION A-A

DIAGRAM SHOWING STAGGER S-606 BARS OVER PIERS



Note: For details not shown see SD-1-69, sheet 3 of 4 except that scupper pipes shall extend 8" below the bottom of the girders, instead of 2".

SCUPPER DETAIL

NOTE: Scuppers, including support angles, shall be galvanized according with 711.02. The contractor shall provide adequate support during construction.

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FRANKLIN ENGINEERING, LIMITED
Consulting Engineers
COLUMBUS, OHIO

DECK SLAB & SCUPPER DETAILS

BRIDGE No. ERI-2-2421 L & R
over NORFOLK & WESTERN RAILROAD

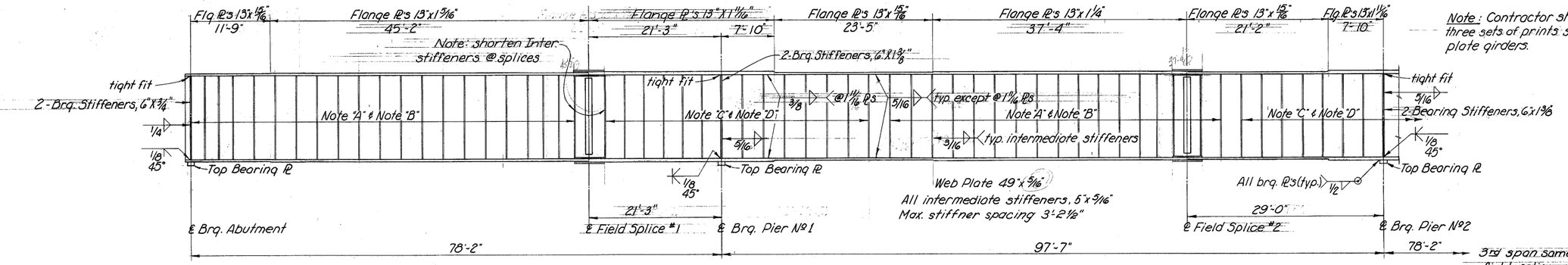
ERIE COUNTY S.R.-2

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JF		APPLB	AM	JF	3/28/69	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

ERI-2-22.24

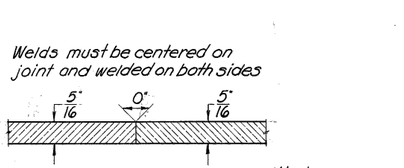
297
345



Note: Contractor shall submit to the Director for approval three sets of prints showing his proposed erection of the plate girders.

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

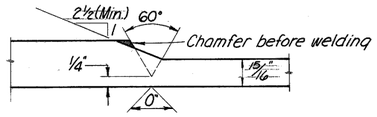
GIRDER ELEVATION



Welds must be centered on joint and welded on both sides

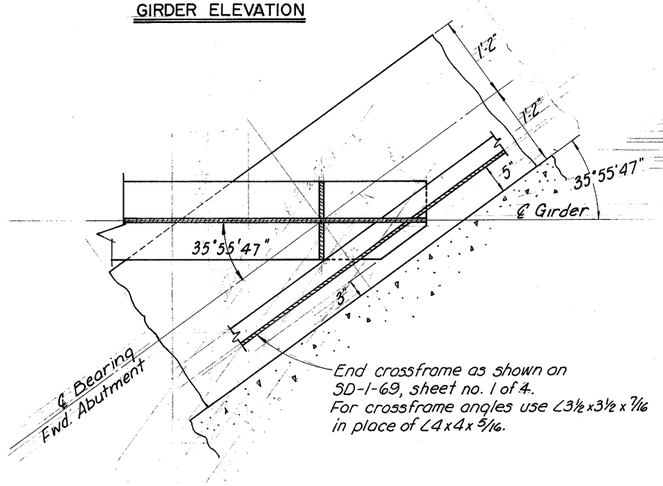
Optional shop splices will be permitted in the webs of the girder but their location shall be submitted to the Director for approval.

WEB SPLICE WELD



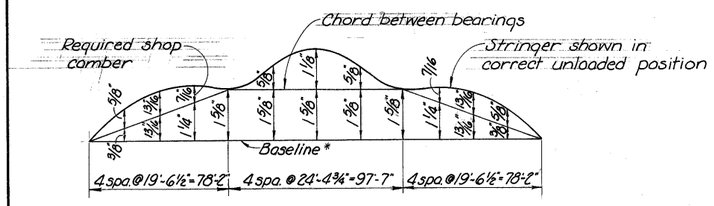
The above penetration weld shall be back-gouged and welded after welding for side. Butt welds shall be ground flush, the finish grinding being parallel to the direction of the stress.

FLANGE PLATE BUTT WELD



SECTION B-B (SD-1-65)

DEFLECTION and CAMBER TABLE						
	End Spans			Center Span		
	1/4 Pt.	1/2 Pt.	3/4 Pt.	1/4 Pt.	1/2 Pt.	3/4 Pt.
Deflection due to weight of steel.	1/16	1/8	1/16	1/16	1/8	1/16
Deflection due to remaining dead load.	7/16	1/2	1/4	3/8	11/16	3/8
Adjustment required for vertical curve.	1/8	3/16	1/8	3/16	5/16	3/16
Required shop camber	5/8	13/16	7/16	5/8	1 1/8	5/8

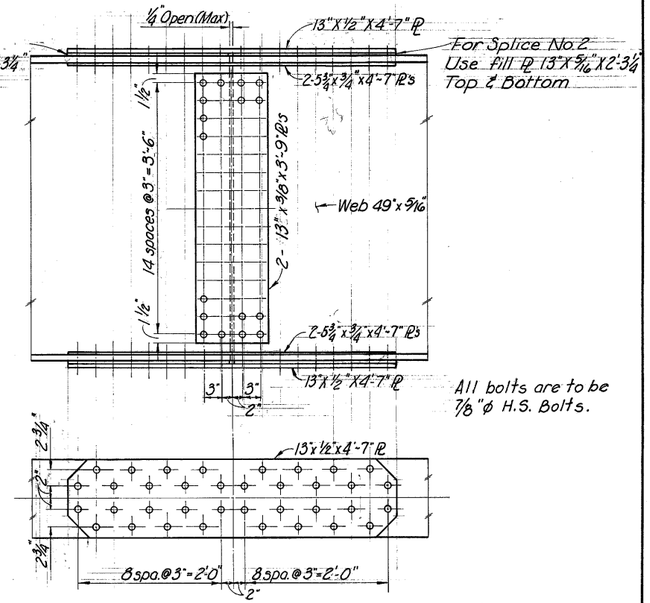


*Baseline is a line from the bottom of girder web at ℄ of bearing of rear abutment to the bottom of girder web at ℄ of bearing at the forword abutment.

LAYOUT DIAGRAM

For Splice No.1
Use Fill Pl 13"X 3/8 X 2'-3 3/4"
Top & Bottom

For Splice No.2
Use Fill Pl 13"X 5/16"X 2'-3 3/4"
Top & Bottom



All bolts are to be 7/8" ø H.S. Bolts.

TYPICAL FIELD SPLICE

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FRANKLIN ENGINEERING, LIMITED
Consulting Engineers
COLUMBUS, OHIO

SUPERSTRUCTURE (2)

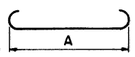
BRIDGE No. ERI-2-2421 L & R
over NORFOLK & WESTERN RAILROAD

ERIE COUNTY S.R.-2

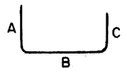
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JF	[illegible]		HM	JF	2/28/69	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

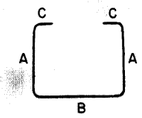
ERI-2-22.24



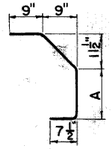
TYPE 1



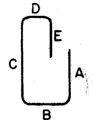
TYPE 2



TYPE 3



TYPE 4



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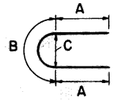

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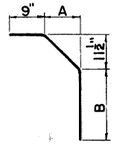
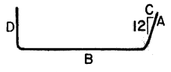
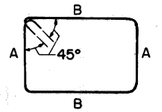


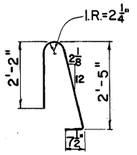
TYPE 7



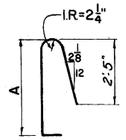
TYPE 8



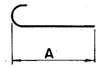
TYPE 9



TYPE 10



TYPE 11



TYPE 12

ABUTMENTS (two bridges)

MARK	NO.	LENGTH	TYPE	A	B	C	D	E	WEIGHT
A601	40	38'-4"	Str.						4094
A602	16	36'-0"	Str.						1538
A603	24	22'-6"	Str.						1442
A604	36	5'-8"	Str.						545
A605	24	14'-0"	Str.						807
A606	8	10'-10"	Str.						231
A701	8	4'-4"	Str.						71
A702	8	4'-9"	7	2 1/4"	3'-2"				78
A703	8	4'-10"	7	4"	3'-2"				79
A704	4	5'-0"	7	6"	3'-3"				41
A705	4	5'-5"	7	9"	3'-7"				44
A706	4	5'-9"	7	9"	3'-11"				47
A707	4	5'-6"	7	9"	3'-8"				45
A708	4	8'-0"	7	9"	6'-2"				65
A601	208	14'-6"	2	2'-7"	5'-9"	6'-6"			4530
A602	164	17'-8"	5	6'-1"	1'-5"	7'-5"	11"	2'-6"	4352
A603	72	8'-0"	7	9"	6'-2"				865
A604	72	18'-4"	2	8'-9"	1'-2"	8'-9"			1983
A605	16	6'-7"	Str.						158
A606	12	14'-11"	2	6'-7"	8'-6"	0			269
A607	96	15'-11"	2	7'-5"	1'-5"	7'-5"			2295
A608	8	8'-9"	Str.						105
A609	8	6'-7"	Str.						79
A501	208	8'-8"	2	1'-7"	5'-9"	1'-7"			1880
A502	208	6'-11"	2	8"	6'-5"	0"			1501
A503	208	7'-6"	2	2'-0"	3'-9"	2'-0"			1627
A504	48	14'-6"	9	2'-7"	4'-6"				726
A505	68	11'-6"	9	2'-7"	3'-0"				816
A506	20	16'-6"	9	2'-7"	5'-6"				344
A507	128	35'-6"	Str.						4739
A508	80	2'-11"	Str.						243
A509	32	11'-8"	Field bend where necessary.						389
A510	16	11'-8"	Str.						195
A511	24	11'-0"	Str.						275
A512	24	19'-8"	Str.						492
A513	16	17'-10"	Str.						298
A514	116	2'-0"	2	7 1/2"	1'-0"	7 1/2"			242
A515	16	25'-9"	Str.						430
A516	76	6'-3"	11	3'-0"					495
A517	32	25'-9"	Field bend where necessary.						859
A518	16	7'-5"	Str.						124
A519	8	19'-9"	Str.						165
A520	8	7'-9"	Str.						65
A521	8	5'-8"	Str.						47
A522	4	3'-6"	Str.						15
A523	76	6'-6"	Str.						515
A524	24	3'-0"	Str.						75
A525	16	5'-11"	Str.						99
A526	8	6'-8"	Str.						56
A527	12	Varies	Str. 4 sets of 3, varies from 3'-1" to 3'-9" by 4"						43
A528	8	5'-8"	Str.						47
A529	40	4'-0"	Str.						167
A530	8	21'-9"	Str.						181
A531	4	18'-0"	Str.						75
A532	4	11'-3"	Str.						47
								Total	41,126

PIERS (two bridges)

MARK	NO.	LENGTH	TYPE	A	B	C	D	E	WEIGHT
P1101	120	7'-6"	2	1'-6"	6'-4"	0			4782
P1102	12	33'-8"	Str.						2146
P1103	12	33'-9"	Str.						2152
P1104	12	33'-11"	Str.						2162
P1105	12	33'-10"	Str.						2157
P1106	12	33'-7"	Str.						2141
P1107	12	32'-11"	Str.						2099
P1108	12	32'-6"	Str.						2072
P1109	12	32'-1"	Str.						2046
P1110	12	31'-4"	Str.						1998
P1111	12	30'-8"	Str.						1955
P1001	80	7'-1"	2	1'-5"	6'-0"	0			2438
P1002	8	35'-2"	Str.						1211
P1003	8	34'-9"	Str.						1196
P1004	8	34'-4"	Str.						1182
P1005	8	33'-8"	Str.						1159
P1006	8	33'-0"	Str.						1136
P1007	8	32'-7"	Str.						1122
P1008	8	32'-9"	Str.						1127
P1009	8	32'-9"	Str.						1127
P1010	8	32'-7"	Str.						1122
P1011	8	32'-5"	Str.						1116
P801	220	8'-2"	Str.						4797
P802	180	6'-8"	Str.						3204
P601	288	8'-8"	Str.						3749
P602	80	32'-6"	Str.						3905
P603	40	8'-8"	6	2'-0"	4'-7 1/8"	3'-0"			521
SP401	1	35'-2"	13	4 1/2"	97	32"			646
SP402	1	34'-9"	13	4 1/2"	96	32"			639
SP403	1	34'-4"	13	4 1/2"	95	32"			631
SP404	1	33'-8"	13	4 1/2"	93	32"			619
SP405	1	33'-0"	13	4 1/2"	91	32"			607
SP406	1	32'-7"	13	4 1/2"	90	32"			600
SP407	1	32'-9"	13	4 1/2"	90	32"			603
SP408	1	32'-9"	13	4 1/2"	90	32"			603
SP409	1	32'-7"	13	4 1/2"	90	32"			600
SP410	1	32'-5"	13	4 1/2"	89	32"			597
SP411	1	33'-6"	13	4 1/2"	93	32"			619
SP412	1	33'-9"	13	4 1/2"	93	32"			621
SP413	1	33'-11"	13	4 1/2"	93	32"			624
SP414	1	33'-10"	13	4 1/2"	93	32"			622
SP415	1	33'-7"	13	4 1/2"	93	32"			618
SP416	1	32'-11"	13	4 1/2"	91	32"			606
SP417	1	32'-6"	13	4 1/2"	90	32"			598
SP418	1	32'-1"	13	4 1/2"	89	32"			591
SP419	1	31'-4"	13	4 1/2"	87	32"			578
SP420	1	30'-8"	13	4 1/2"	85	32"			566
								Total	68,010

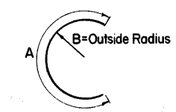
SUPERSTRUCTURES (two bridges)

MARK	NO.	LENGTH	TYPE	A	B	C	D	E	WEIGHT
S601	1500	41'-8"	Str.						93875
S602	①	②	Str.						24062
S603	1648	30'-0"	Str.						74259
S604	206	32'-4"	Str.						10004
S605	80	5'-0"	Str.						601
S606	168	39'-0"	Str.						9841
S607	8	4'-0"	Str.						48
S501	688	2'-0"	2	7 1/2"	1'-0"	7 1/2"			1435
S502	688	5'-4"	10						3827
S503	688	2'-2"	2	7 1/2"	1'-8"	0"			1555
S504	688	3'-3"	4	9"					2332
S505	96	13'-8"	Str.						1368
S506	160	14'-3"	Str.						2378
S507	64	6'-5"	Str.						428
								Total	226,014

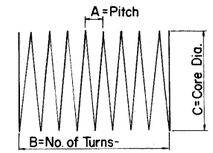
① 8 Sets 89
② Varies from 5'-3" to 39'-9" in increments of 4 1/16"

REPLACEMENT BARS

RE1101	2	8'-7"	Str.						
RE1001	1	8'-3"	Str.						
RE801	1	7'-6"	Str.						
RE704	1	5'-0"	7	6"	3'-3"				
RE601	12	6'-11"	Str.						
RE501	2	6'-7"	Str.						
RE401	1	6'-3"	14	6'-3"	1'-4"				



TYPE 14



TYPE 13

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.

1 1/2 closed coils shall be provided at the ends of each spiral unit. Four steel channels, tee or angle spacers, weighing approximatly 0.68 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 0.68 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.

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FRANKLIN ENGINEERING, LIMITED
Consulting Engineers
COLUMBUS, OHIO

REINFORCING STEEL

BRIDGE No. ERI-2-2421 L&R.
over NORFOLK & WESTERN RAILROAD

ERIE COUNTY S.R.-2

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
	J.C.		S.Y.		2/28/69	