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NOV 14 1986

FED. RD. DIVISION	STATE	PROJECT	28
2	OHIO		

ATH - 329 - 3.66

3.9± miles northeast of Guysville

Nail & Cap in 15" Elm	Nail & Cap in 8" Box Elder	Nail & Cap in 18" Maple	Nail & Cap in 24" Stump
18.6'	13.8'	18.3'	18.3'
Sta 203+50		Sta 205+00	

PI = Sta. 209+87.7  
 $\Delta = 125^\circ 12' Lt.$   
 $D_c = 7^\circ 30'$   
 $L_s = 400'$   
 $T_s = 1690.00$   
 $E_s = 915.01$   
 $L_c = 1269.33$   
 2' Widening

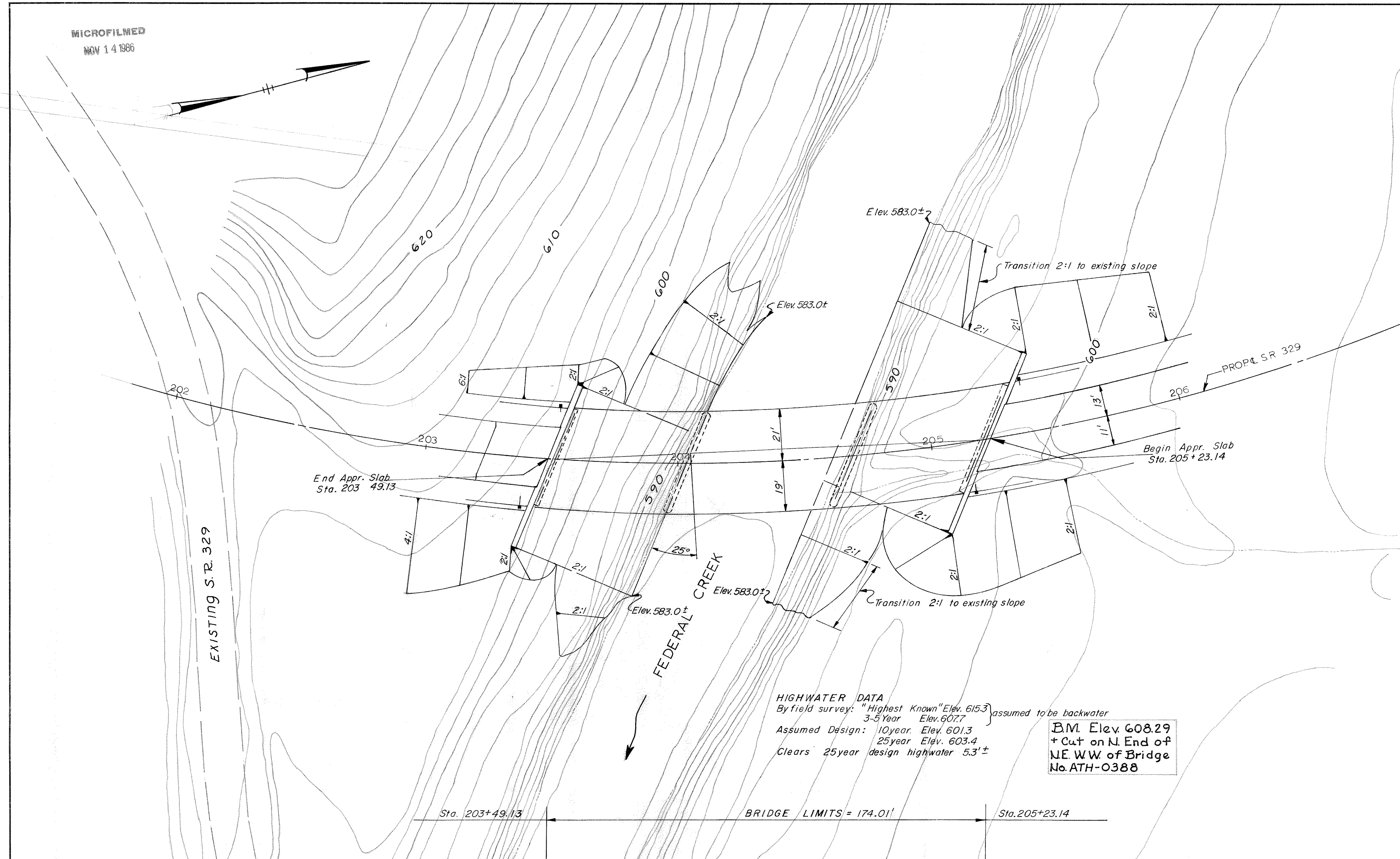
Drainage Area 145 Sq. Mi.  
**EXISTING BRIDGE DATA**  
 B.M. No: ATH-329-0388  
 Type: Pony Truss CG Floor  
 Span: 79'-6"  
 Roadway Width: 15'-6"  
 Loading: S-5.8-46 Legal loads reduced 15%  
 Condition: Fair  
 Suff Rating = 53%

1988 DESIGN TRAFFIC = 1110 ADT

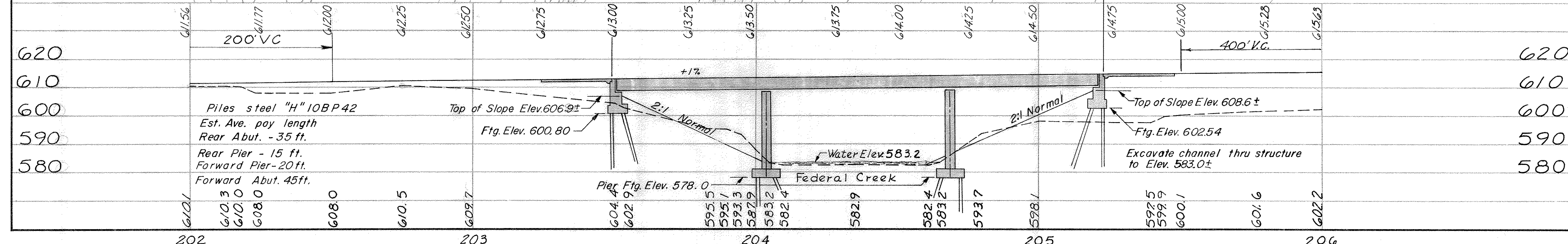
$Q_{25} = 11,300$  cfs.  
 $Q_{10} = 9,600$  cfs.

**PROPOSED STRUCTURE**  
 TYPE: Continuous steel beams with reinforced concrete deck and substructure.  
 SPANS: 52.0'-65.0'-52.0' % brgs.  
 ROADWAY: 40.0' 1/4 guard rail (21' left, 19' right)  
 LOADING: HS 20-44  
 SKEW: 25° L.F.  
 WEARING SURFACE: 1" monolithic concrete  
 APPROACH SLABS: AS-1-67 (25' long)  
 ALIGNMENT: 7°30' curve left  
 SUPERELEVATION: 0.083 1/4 ft.

STATE OF OHIO DEPARTMENT OF HIGHWAYS BUREAU OF BRIDGES		1 / 8
<b>SITE PLAN</b>		
BRIDGE NO.	ATH - 329 - 0386	
OVER	FEDERAL CREEK	
ATHENS CO	SR 329	
SEC. 388	STA. 203+49.13	
SCALE 1" = 20'	205+23.14	
PRESENT TOPOGRAPHY	PROPOSED WORK	
Surveyed	Drawn	Designed
W.K.D.	R.W.S.	D.H.S.
		Checked
		R.D.M.
		Reviewed
		P.E. S.



**HIGHWATER DATA**  
 By field survey: "Highest Known" Elev. 615.3 } assumed to be backwater  
 3-5 Year Elev. 607.7  
 Assumed Design: 10 year Elev. 601.3  
 25 year Elev. 603.4  
 Clears 25 year design highwater 5.3'±

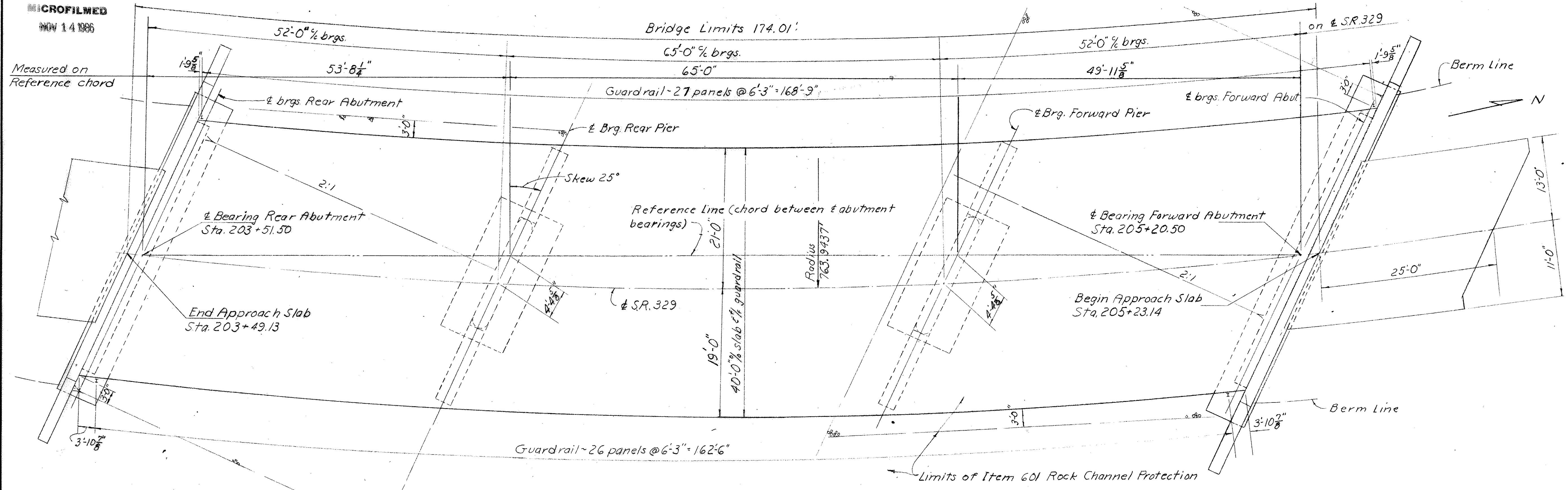


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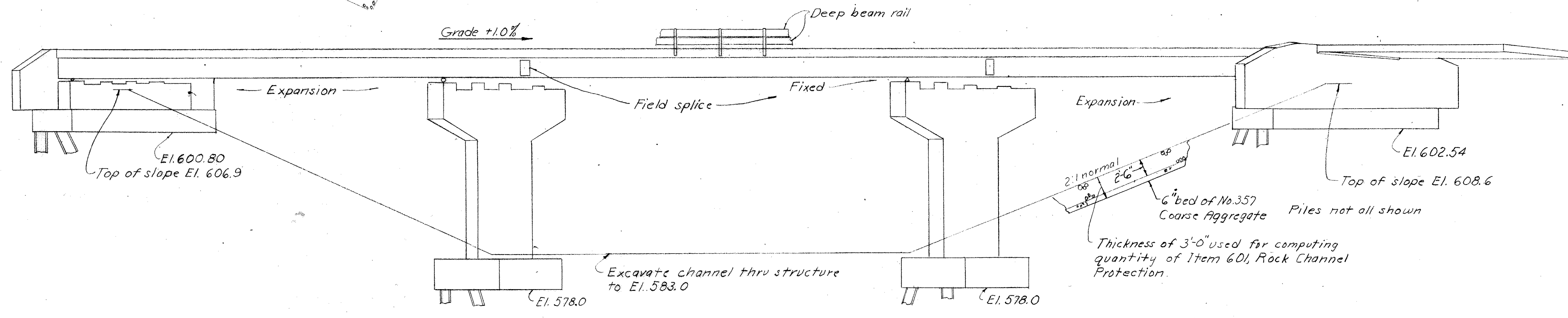
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2	OHIO		

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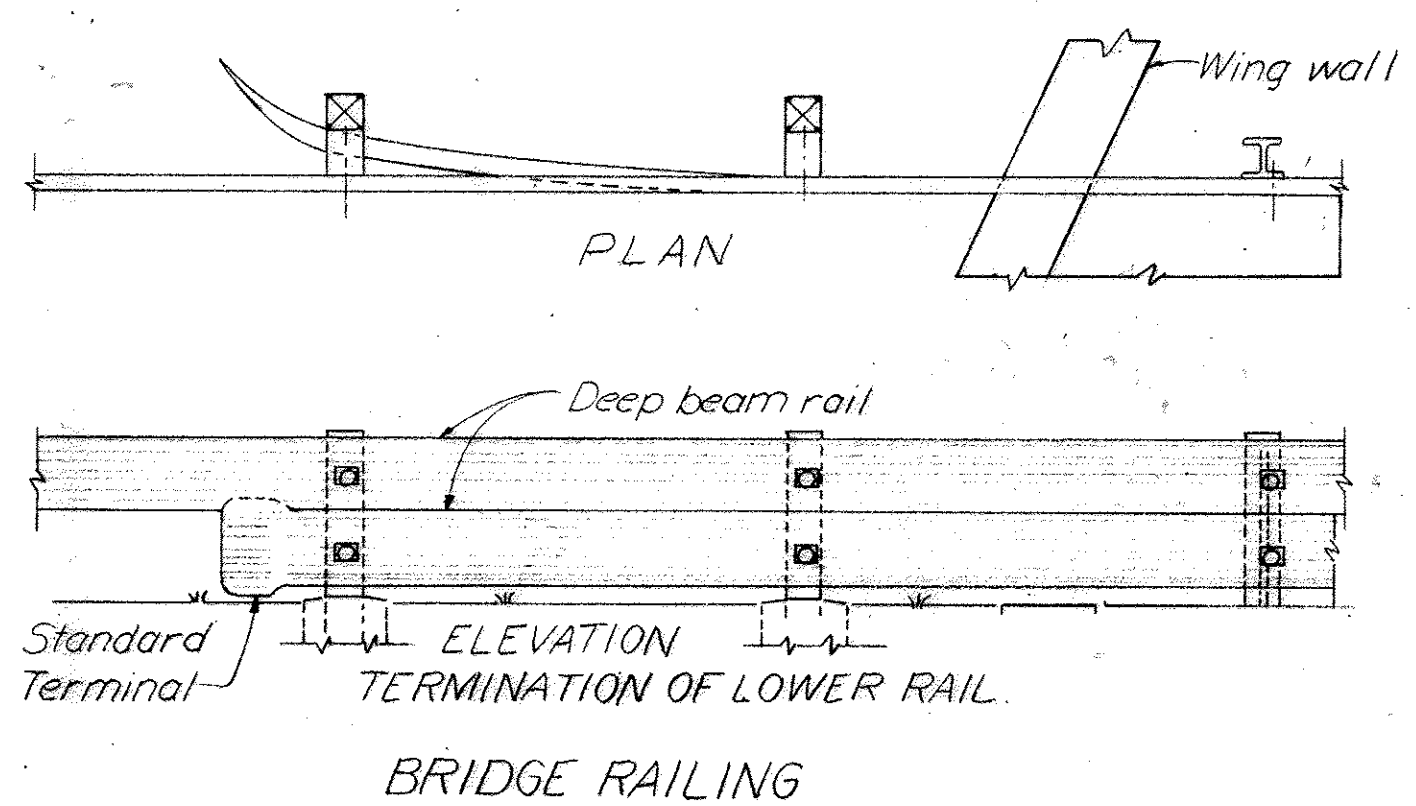
ATH-329-3.66



GENERAL PLAN



ELEVATION



1 1/2 x 1 1/2 oval hole, same shape as post bolt shoulder.

8 ga.

SPECIAL WASHER. Use under head of all post bolts.

STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES						
GENERAL PLAN & ELEVATION BRIDGE NO. ATH-329-0386 OVER FEDERAL CREEK						
DESIGNED FPK	DRAWN FPK	TRACED	CHECKED WICK	REVIEWED BFG	DATE 5-27-69	REVISED



GENERAL NOTES

ATH-329-3.66

REINFORCING STEEL LIST

Mark	No.	Length	Weight	Shp.	Bending Diagrams	Mark	No.	Length	Weight	Shp.	
<b>Superstructure</b>											
S601	534	21'-0"	16843	S		A538	0	7'-10"	49	S	
S602	534	21'-0"	16843	FB		A539	2	7'-0"	14	S	
S603	20	6'-0"	1329	FB		A540	2	6'-0"	12	S	
S604	70	38'-3"				A541	2	5'-0"	10	S	
S605	6	6'-0"	54	S		A542	6	10'-9"	67	S	
S606	8	6'-9"	81	S		A543	2	16'-2"	34	B	
S607	60	26'-0"	2343	S		A544	6	10'-4"	65	S	
S501	385	30'-0"	12047	S		A545	2	9'-6"	20	S	
S502	77	29'-1"	2336	S		A546	2	8'-6"	18	S	
<b>Piers</b>											
P1101	12	23'-7"	1504	B		A547	2	7'-9"	16	S	
P1102	12	24'-3"	1546	B		A548	2	7'-0"	14	S	
P1103	16	22'-5"	1906	S		A549	2	6'-0"	12	S	
P1104	16	23'-1"	1962	S		A550	2	5'-0"	10	S	
P901	68	12'-0"	2774	B		A551	2	16'-9"	35	S	
P801	70	5'-2"	966	B	A552	6	18'-0"	113	S		
P601	40	24'-1"	1447	S	A553	1	11'-6"	12	S		
P602	8	22'-4"	268	S	A554	1	11'-0"	11	FB		
P603	8	21'-6"	258	S	<b>Forward Abutment</b>						
P604	2	30'-6"	92	S	A801	14	29'-8"	1109	S		
P605	2	29'-0"	87	S	A601	44	14'-4"	947	B		
P606	48	7'-2"	517	B	A602	28	14'-10"	624	B		
P607	16	7'-6"	180	B	A603	17	15'-2"	387	B		
P608	32	8'-8"	417	B	A501	44	8'-4"	382	B		
P609	32	9'-4"	449	B	A502	34	7'-0"	248	B		
P610	22	13'-6"	446	B	A503	34	10'-8"	378	B		
P611	30	10'-0"	451	S	A504	12	23'-0"	288	S		
P501	24	15'-0"	375	S	A505	13	12'-0"	163	S		
P502	24	16'-6"	413	S	A506	5	13'-0"	68	S		
P503	44	6'-4"	291	B	A507	4	34'-4"	143	S		
P504	36	9'-3"	347	B	A508	4	33'-4"	139	S		
P505	12	6'-1"	76	B	A509	4	30'-6"	127	S		
P506	16	9'-8"	161	B	A510	2	31'-4"	65	S		
P507	14	20'-6"	299	S	A511	1	5'-0"	5	S		
P508	8	14'-10"	124	B	A512	1	13'-0"	14	S		
<b>Rear Abutment</b>											
A802	14	26'-0"	972	S	A513	2	8'-7"	18	B		
A601	44	14'-4"	947	B	A514	8	7'-10"	65	S		
A602	26	14'-10"	579	B	A515	2	7'-3"	15	S		
A603	14	15'-2"	319	B	A516	2	6'-6"	13	S		
A501	44	8'-4"	382	B	A517	2	5'-9"	12	S		
A502	35	7'-0"	256	B	A518	4	5'-0"	21	S		
A503	35	10'-8"	389	B	A519	6	15'-3"	95	S		
A531	12	21'-0"	263	S	A520	1	12'-8"	13	FB		
A532	18	12'-0"	225	S	A521	2	15'-3"	32	B		
A533	4	31'-4"	131	S	A522	4	10'-4"	43	S		
A534	4	30'-3"	127	S	A523	2	10'-0"	21	S		
A535	4	27'-1"	113	S	A524	2	9'-2"	19	S		
A536	2	24'-10"	52	FB	A525	2	8'-4"	17	S		
A537	2	9'-3"	19	B	A526	2	7'-6"	16	S		
<b>Replacement Bars</b>											
RE1101	1	8'-6"		S	A527	2	6'-8"	14	S		
RE901	1	7'-10"		S	A528	2	5'-10"	12	S		
RE801	1	7'-6"		S	A529	6	17'-0"	106	S		
RE601	3	6'-11"		S	A530	2	15'-6"	32	S		
RE501	2	6'-7"		S							

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.

FB = Field Bend

REFERENCE shall be made to Standard Drawings RB-1-55 revised 2-2-59 and SD-1-65 sheets 1, 2 and 3 dated 11-8-65 and to Supplemental Specifications 808, 811 and 825, dated 1-1-69.

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 - HS20-44  
 Concrete Class C - unit stress 1200 p.s.i. for superstructure  
 unit stress 1333 p.s.i. for substructure.  
 Structural Steel - ASTM A36 - unit stress 20,000 p.s.i.  
 Reinforcing Steel - ASTM A615, A616 or A617 - unit stress 20,000 p.s.i.

REMOVAL OF EXISTING STRUCTURE: When no longer needed to maintain traffic the existing structure shall be removed. Suitable waste masonry may be placed as Rock Channel Protection as directed by the Engineer.

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 for the Forward Pier.

END DAM PAINTING: Portions of end dams which will be in contact with steel or with concrete shall not be painted. All other portions shall be cleaned and painted in accordance with 514.

PILES shall be driven 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:

For the abutment piles  
 45 tons per pile using an 11000 ft. lb. hammer  
 35 tons per pile using an 15000 ft. lb. or greater hammer.

For the pier piles  
 55 tons per pile using an 11000 ft. lb. hammer  
 50 tons per pile using a 15000 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.

ESTIMATED QUANTITIES

Item	Total	Unit	Description	Abuts	Piers	Super.	Gen'l	As-Built
202	Lump	Sum	Existing structure removed				Lump	
503	Lump	Sum	Cofferdams, cribs and sheeting				Lump	
503	380	Cu.Yd.	Unclassified excavation	250	130			
505	Lump	Sum	First test pile				Lump	
507	1610	Lin.ft.	Steel piles 10 BP42 12 BP53	1120	490			
509	82424	Lb.	Reinforcing steel	10937	17356	54131		
511	192	Cu.Yd.	Class C concrete, superstructure			192		
511	116	Cu.Yd.	Class C concrete, piers above footing		116			
511	115	Cu.Yd.	Class C concrete, abutments above footing	115				
511	117	Cu.Yd.	Class C concrete, footings	78	39			
513	176000	Lb.	Structural steel			176000		-4545180,545
514	176000	Lb.	Field painting of structural steel			176000		-4545180,545
517	34823	Lin.ft.	Railing (two deep beam rails with steel posts and bolts)			34823		
518	80	Cu.Yd.	Porous backfill	80				
518	112	Lin.ft.	6" perforated, helical corrugated metal pipe including specials, 707.01			112		
518	56	Lin.ft.	6" non-perforated helical corrugated metal pipe, 707.01	56				+8 64LF
601	770	Cu.Yd.	Rock channel protection, Type A				770	+84 854
808	192	Units	Water-reducing, set-retarding admixture			192		
825	826	Sq.Yd.	Concrete surface treatment	21		805		

STATE OF OHIO  
 DEPARTMENT OF HIGHWAYS  
 DIVISION OF DESIGN AND CONSTRUCTION  
 BUREAU OF BRIDGES

REINFORCING STEEL LIST  
 ESTIMATED QUANTITIES  
 GENERAL NOTES  
 BRIDGE NO. ATH-329-0386  
 OVER FEDERAL CREEK

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FPK		T.G.C.	WCK	BFG	5-23-69	

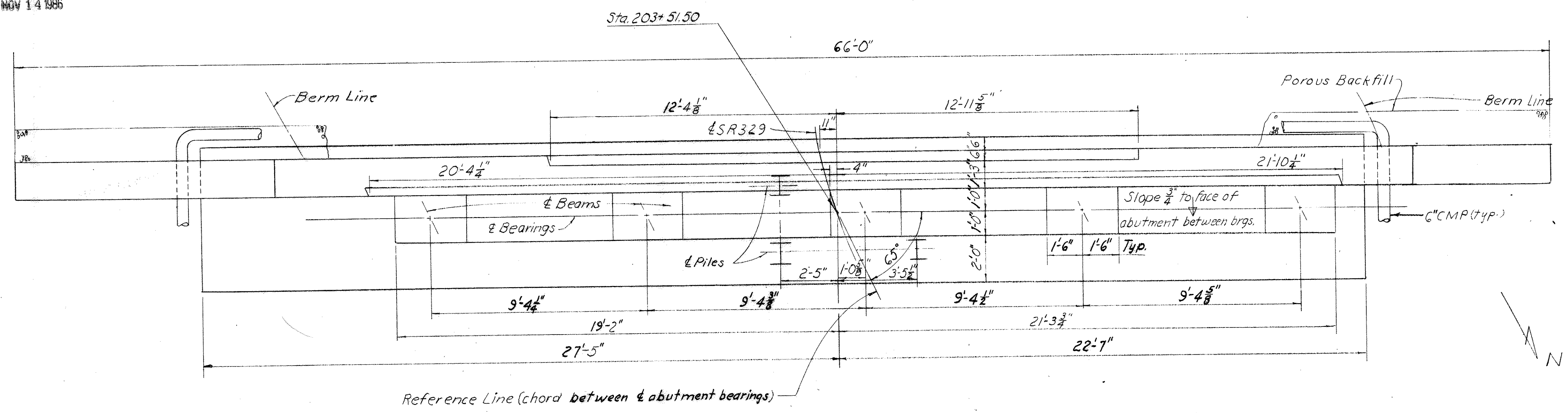


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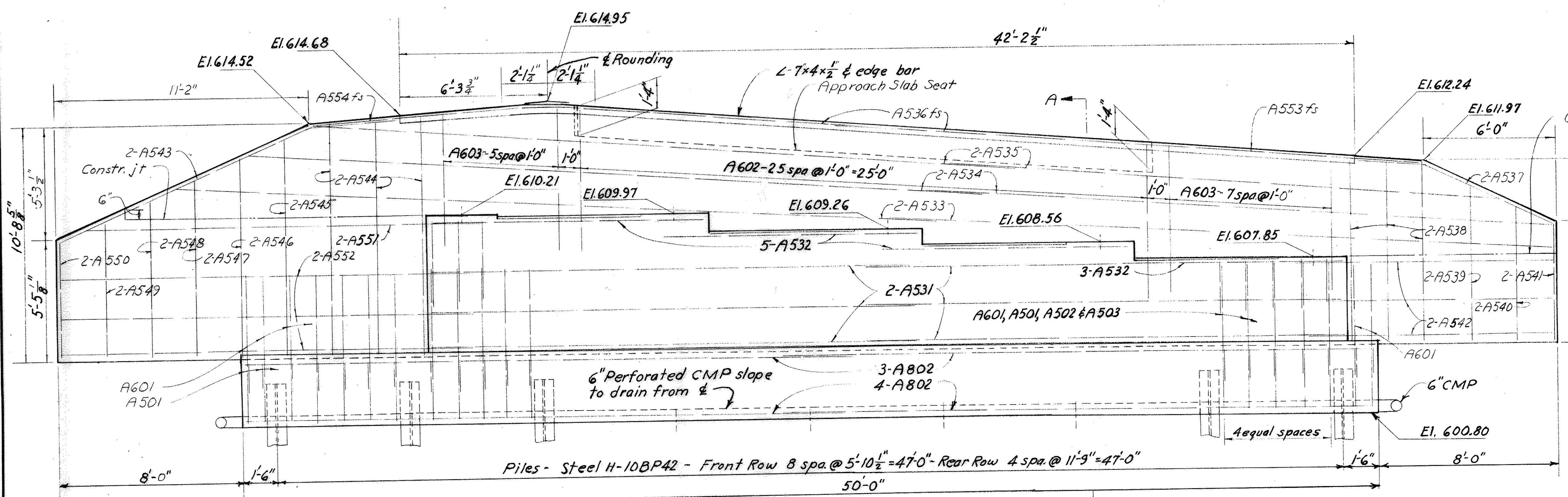
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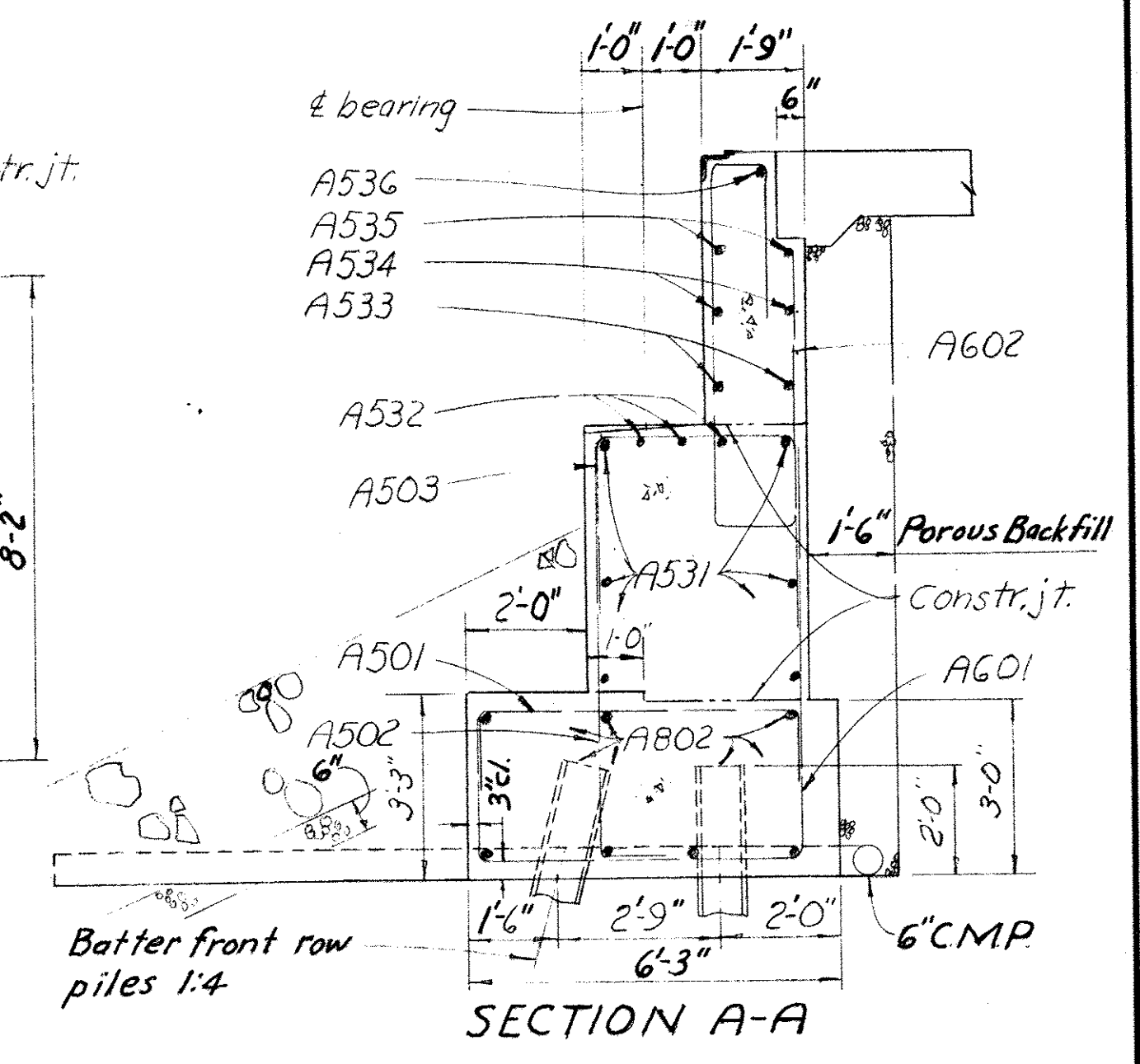


REAR ABUTMENT PLAN



ELEVATION

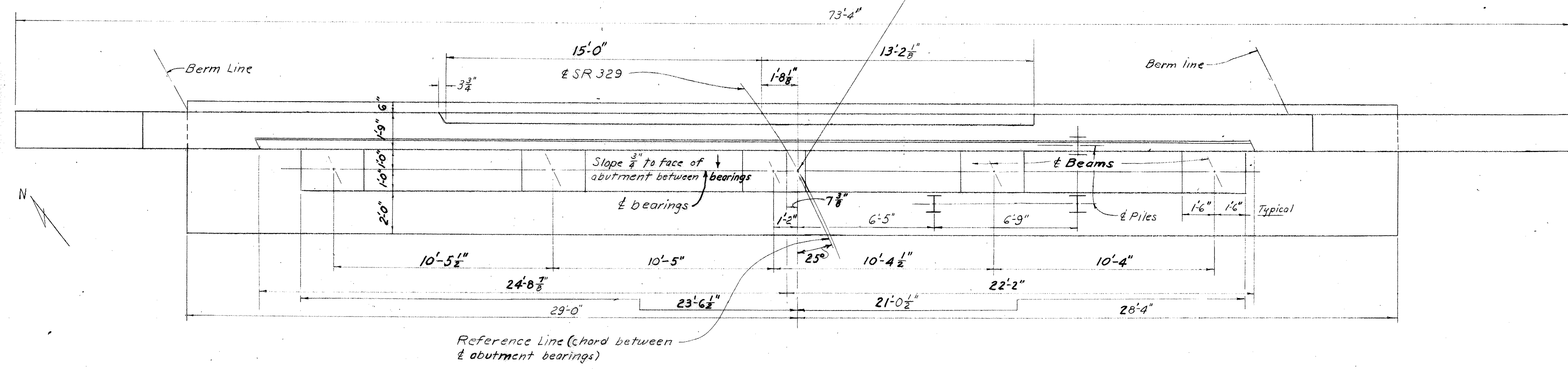
ADJUSTABLE TYPE ELBOWS meeting specification requirements for gage and coating are acceptable for making bends in perforated corrugated metal pipe. Elbows need not be perforated.



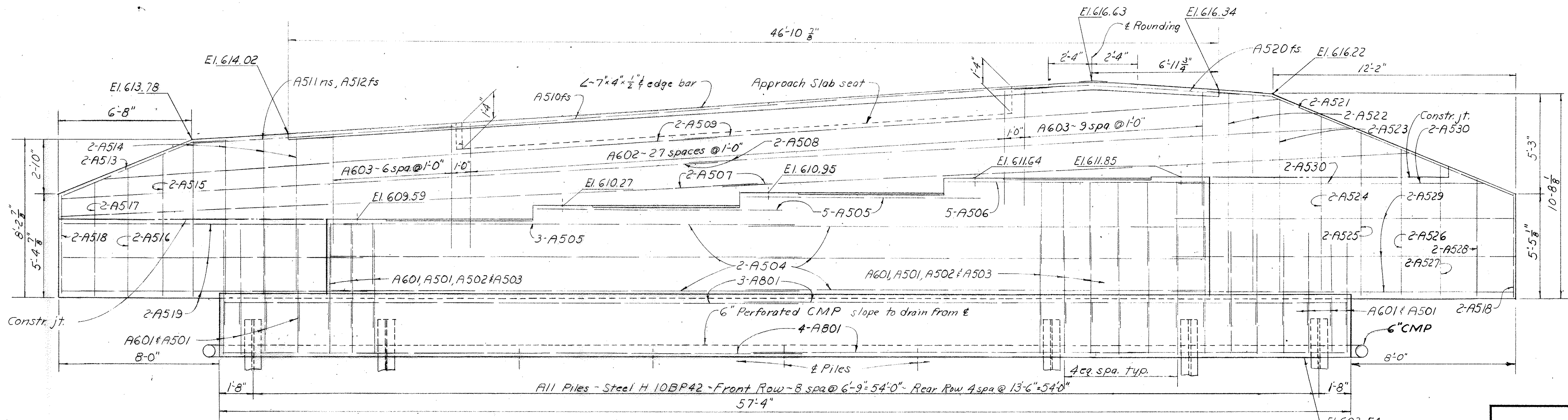
SECTION A-A

STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES						
REAR ABUTMENT DETAILS BRIDGE NO. ATH-329-0386 OVER FEDERAL CREEK						
DESIGNED FPK	DRAWN FPK	TRACED	CHECKED WCK	REVIEWED BFG	DATE 5-27-69	REVISED

Sta. 205+20.50



FORWARD ABUTMENT PLAN



ELEVATION

ns = near side  
fs = far side

POROUS BACKFILL 1'-6" thick full length of abutment and wings, and 1'-0" thick behind footing, shall extend up to the subgrade or to the finished ground surface.

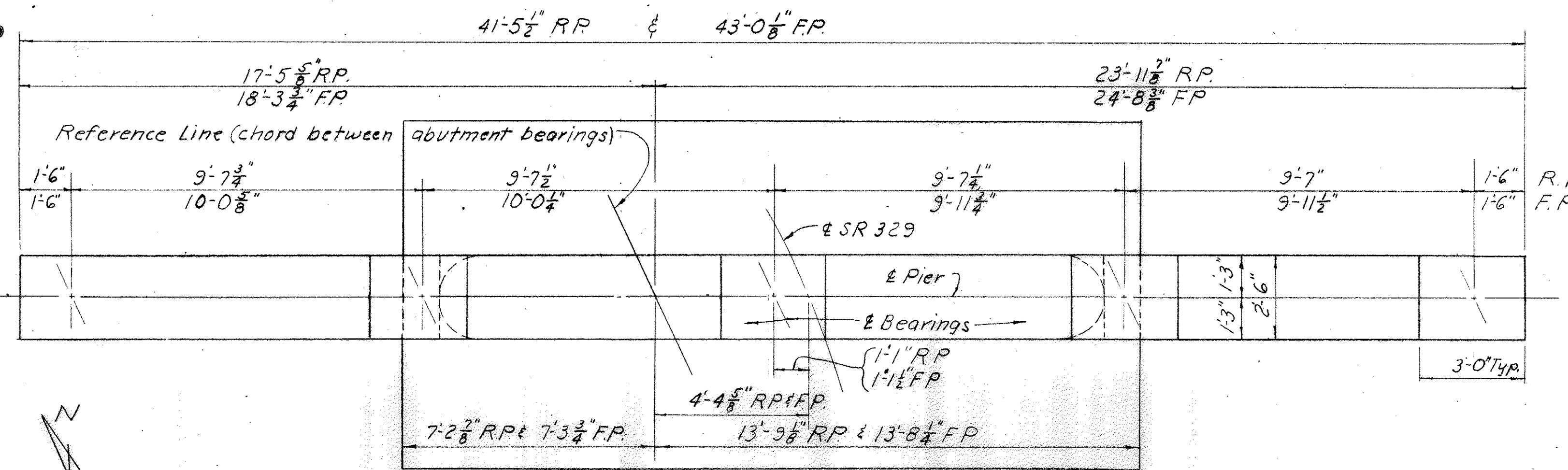
STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES						5/8
FORWARD ABUTMENT DETAILS						
BRIDGE NO. ATH-329-0386 OVER FEDERAL CREEK						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FPR	FPR		WCK	BFG	5-27-69	



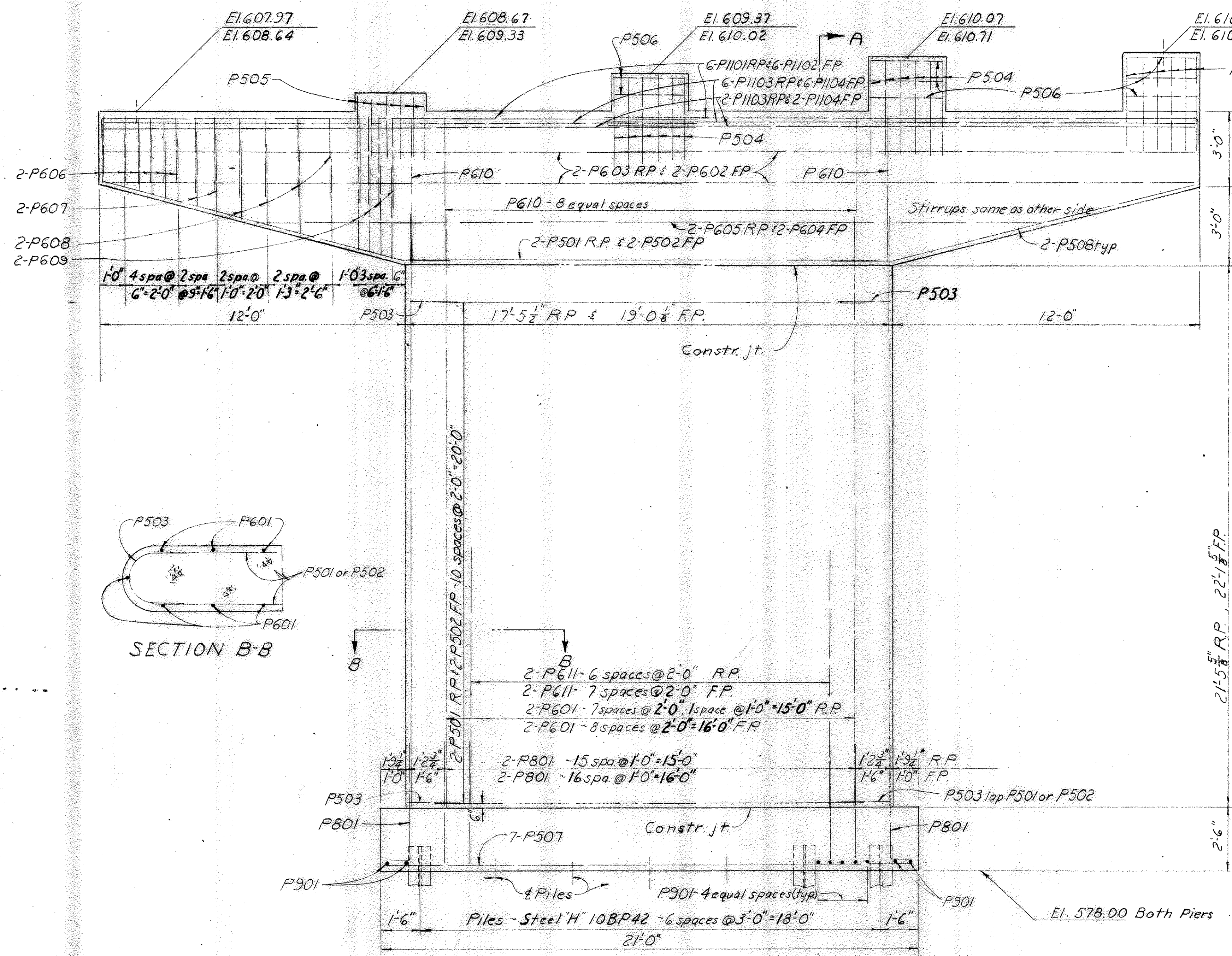
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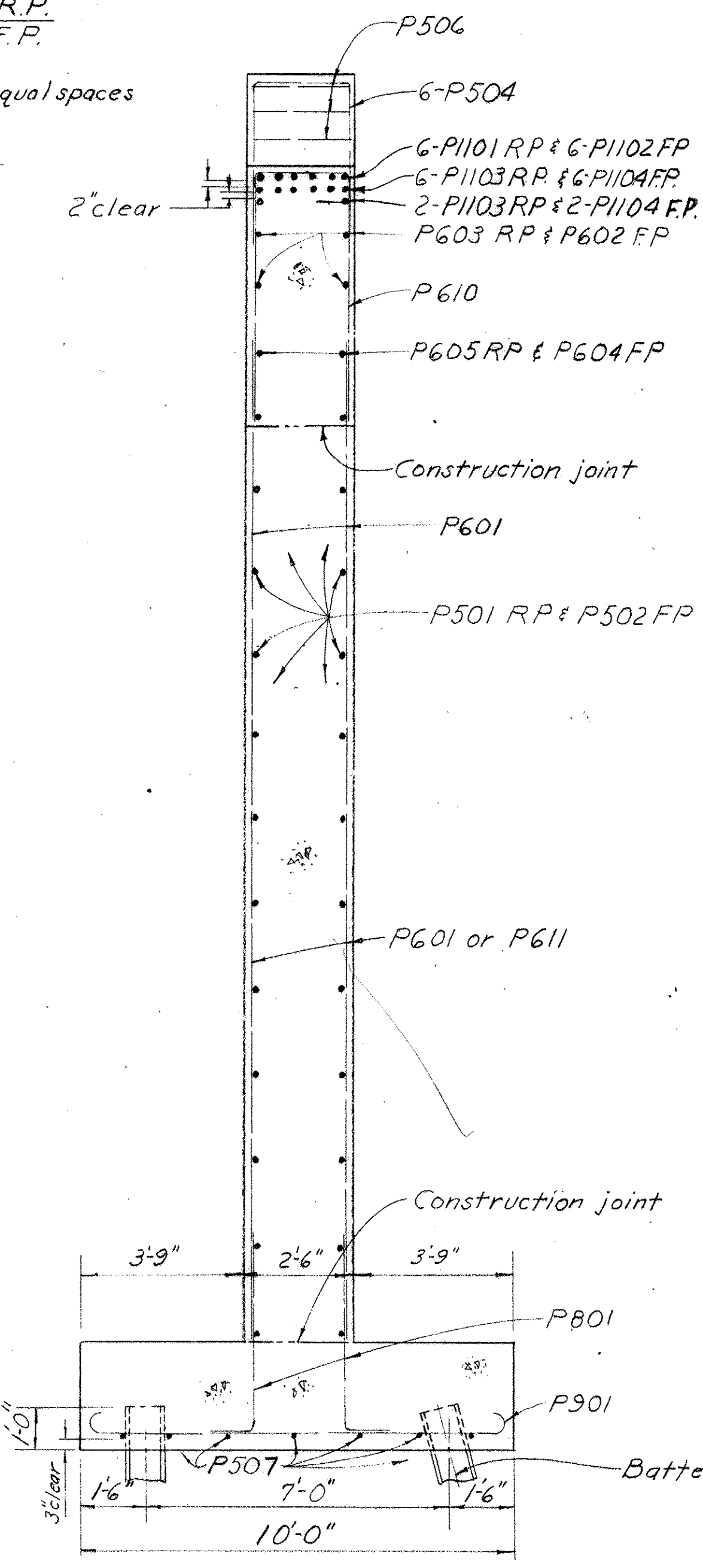
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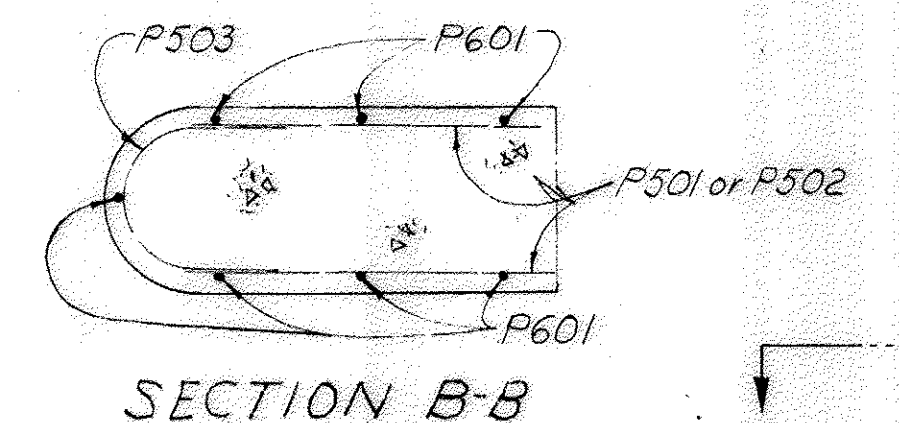
PLAN



ELEVATION



SECTION A-A



SECTION B-B

RP = Rear Pier  
FP = Forward Pier

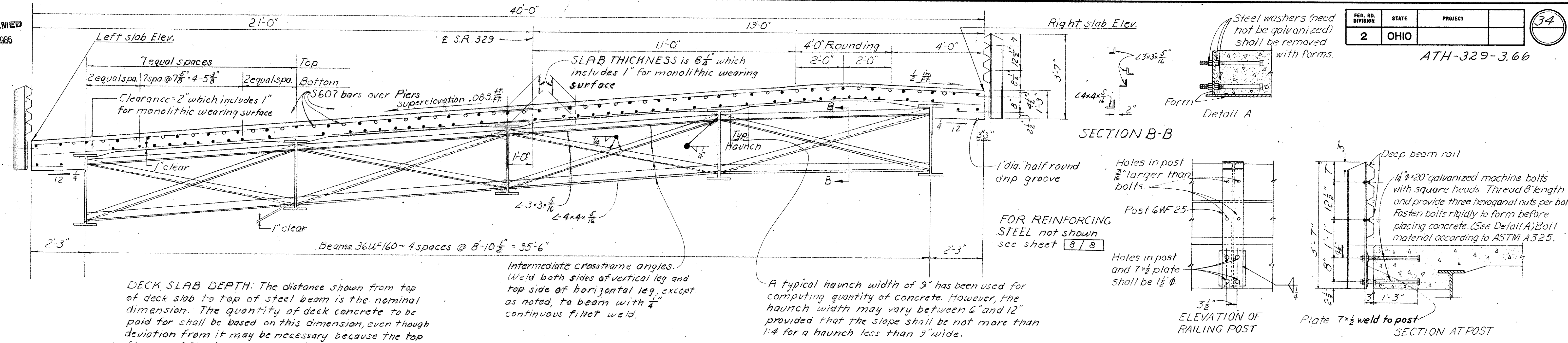
BRIDGE SEAT REINFORCING: Special care shall be used in placing reinforcing steel in the Forward Pier bridge seat so as to avoid interference with the drilling of anchor bar holes.

STATE OF OHIO  
DEPARTMENT OF HIGHWAYS  
DIVISION OF DESIGN AND CONSTRUCTION  
BUREAU OF BRIDGES

PIER DETAILS  
BRIDGE NO ATH-329-0386  
OVER FEDERAL CREEK

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FRK	FRK		WCK	BFG	5-27-69	



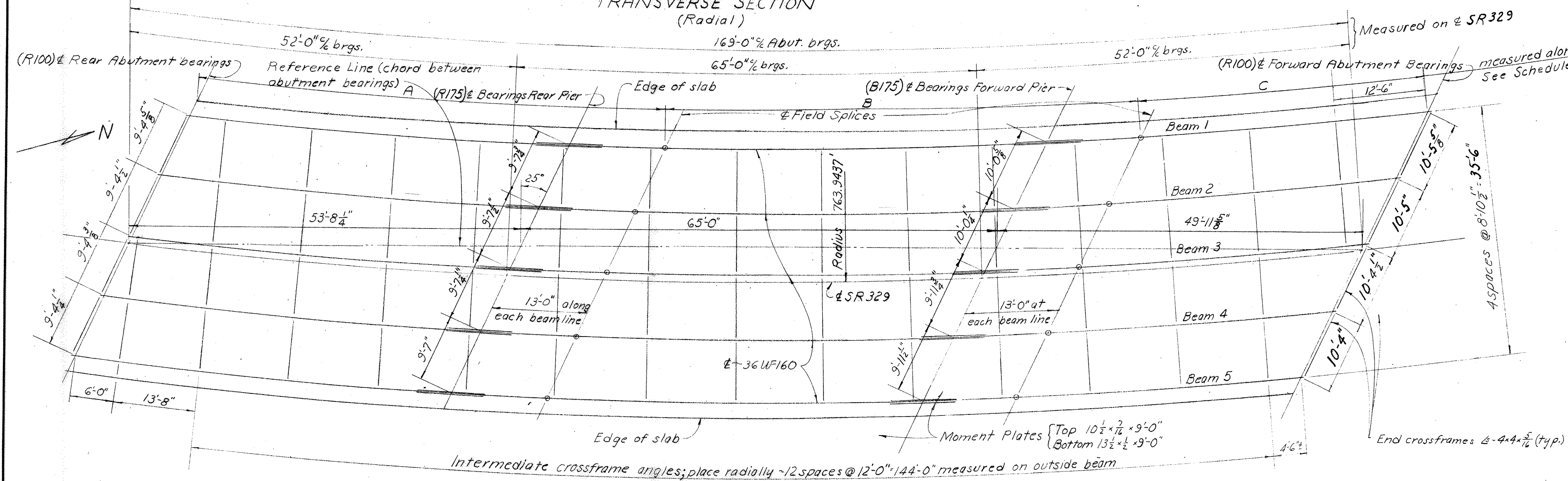


**DECK SLAB DEPTH:** The distance shown from top of deck slab to top of steel beam is the nominal dimension. The quantity of deck concrete to be paid for shall be based on this dimension, even though deviation from it may be necessary because the top flange of the beam may not have the exact camber or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

**Intermediate crossframe angles:** Weld both sides of vertical leg and top side of horizontal leg, except as noted, to beam with 1/4" continuous fillet weld.

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

**TRANSVERSE SECTION (Radial)**



**PLAN OF STEEL FRAMING**

Bearings to be parallel to Reference Line

**POST DETAILS**

**REFERENCE** shall be made to Standard Drawing SD-1-65 sheets 1, 2 & 3 for End Dams (use data for CF2000), End Crossframes, Moment Plates and Bolted Beam Splices, and Std. Dwg. RB-1-55 for Rockers & Bolsters.

**JOINT SEALER:** Item 828 joint sealer including bond breaker, shown in Section A-A of Std. Dwg. SD-1-65, sheet 1, shall be omitted.

**BEAM CURVATURE:** The beams shall have a smooth continuous curve. Before Work begins, the Fabricator shall submit to the Director for approval the method to be used in curving the beams.

**BEAM SCHEDULE**

Beam No.	A	B	C
1	65'-2 1/8"	65'-4 3/8"	39'-5 1/8"
2	65'-1 1/8"	65'-2 1/8"	39'-2 1/8"
3	65'-0 1/8"	65'-0 1/8"	39'-0 1/8"
4	64'-11 1/8"	64'-10 1/8"	38'-10"
5	64'-10 1/8"	64'-8 1/8"	38'-7 1/8"

**SLAB ELEVATIONS \***

Station	Left Elev.	Right Elev.
203+50	612.16	614.74
+75	612.43	615.01
204+00	612.66	615.24
+25	612.93	615.52
+50	613.18	615.75
+75	613.42	615.99
205+00	613.68	616.24
+25	613.91	616.49

\*Slab Elevations before placement of concrete and includes allowance for dead load deflection.

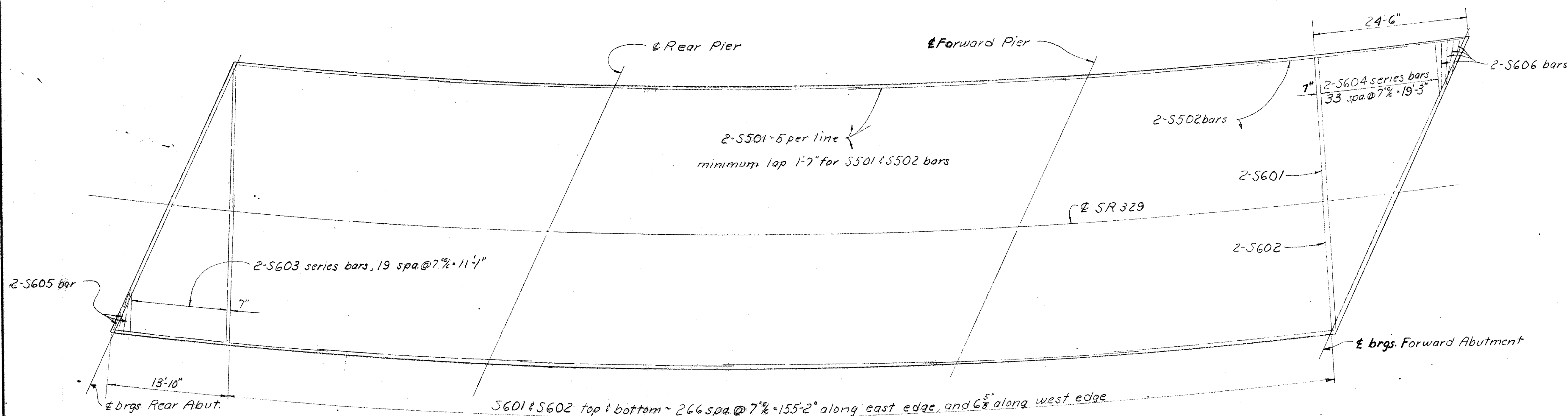
STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES						7 / 8
<b>SUPERSTRUCTURE DETAILS</b>						
BRIDGE NO. ATH-329-0386						
OVER FEDERAL CREEK						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FPR	FPR		WCK	BFG	5-21-69	

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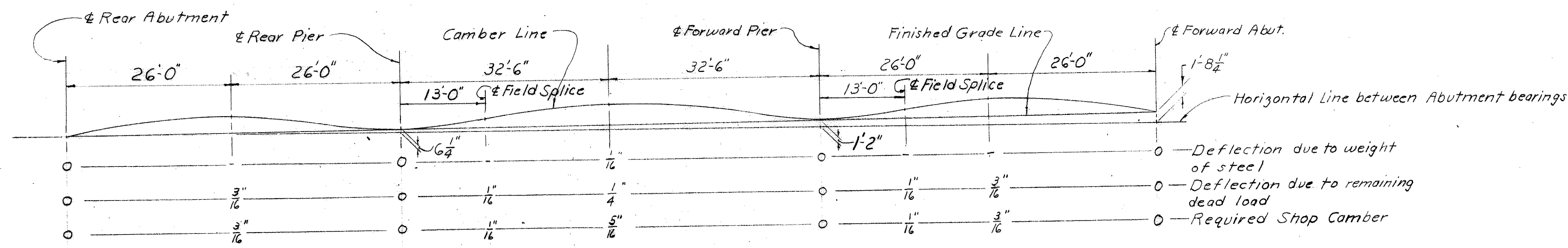
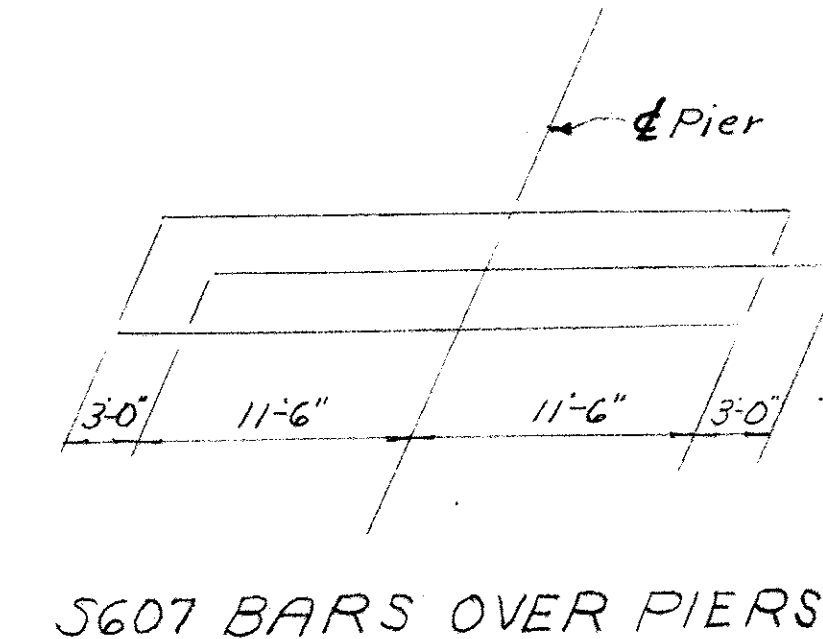
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PLAN OF DECK REINFORCING STEEL



DEFLECTION AND CAMBER

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SUPERSTRUCTURE DETAILS								
BRIDGE NO. ATH-329-0386								
OVER FEDERAL CREEK								
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED		
FPR	FPR		WCK	BFG	5-27-69			