

DETOUR MAP

STATE OF OHIO DEPARTMENT OF TRANSPORTATION

CAR-39-(15.18) CARROLL COUNTY BR. NO. CAR-39-1985 WASHINGTON TOWNSHIP

	OHIO
	FHWA REGION 5
FR-39(9)	FEDERAL PROJECT

CAR-39-(15.18)

PLAN NO. 82-18-80

MICROFILMED
OCT 26 1987

CONVENTIONAL SIGNS

County Line ————	Limited Access (only) ———— LA
Township Line ————	Right of Way (only) ———— RW
Section Line ————	Limited Access & Right of Way ———— LA & RW
Corporation Line ———— or ————	Existing Right of Way ————
Fence Line (existing) — x — (proposed) — x —	Property Line — (in existing fence) — x —
Center Line ———— 352 ———— or ———— 353 ————	Railroad ———— or ————
Trees , Stumps , (to be removed)	Guardrail (existing) — o — o — (proposed) — o — o —
Utility Poles: Telephone ϕ , Power ϕ , Light ϕ .	

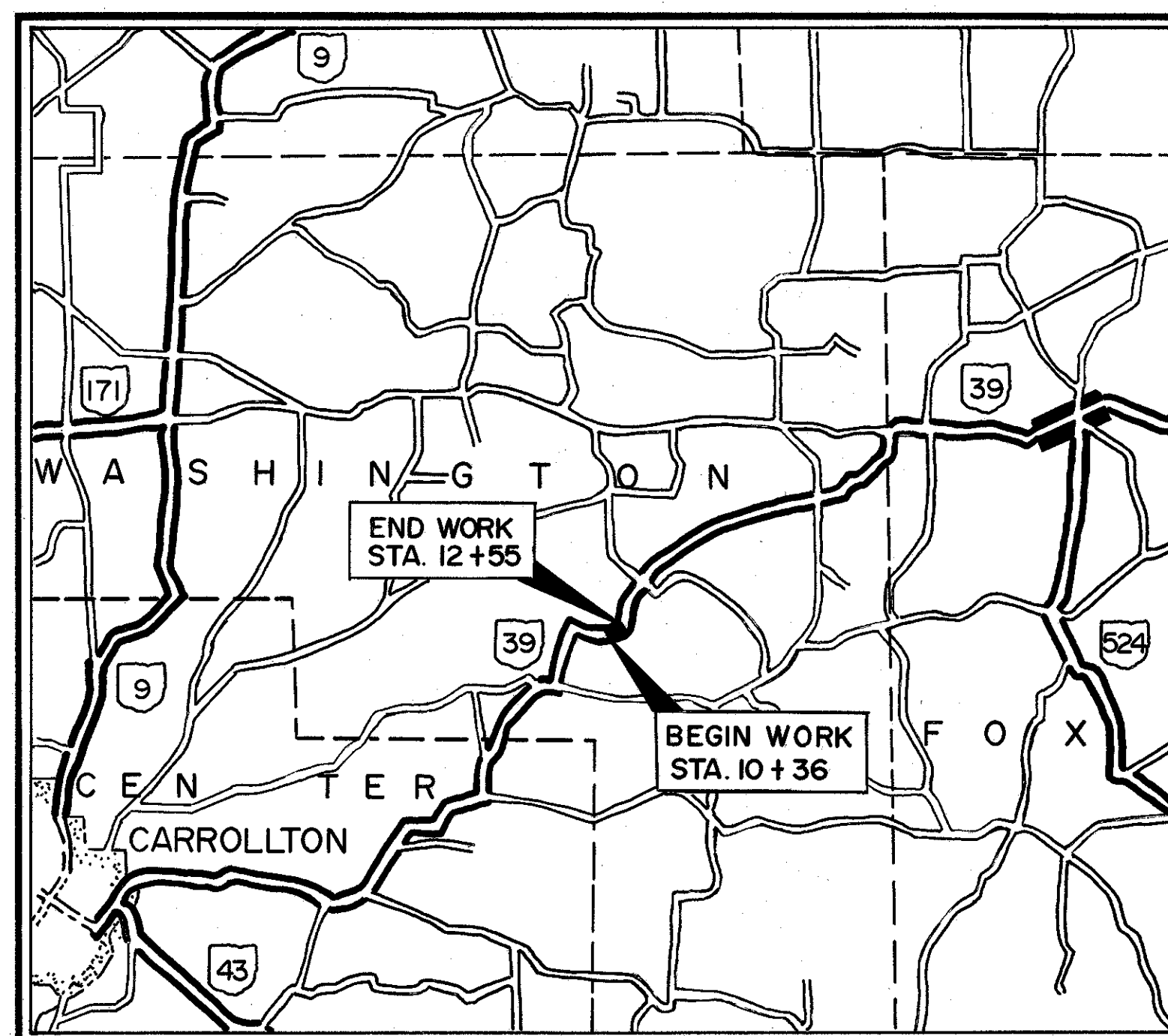
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Pier Details & Reinforcing List	5
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ADT = 2160

LINE DATA

Begin Work Sta. 10 + 36
End Work Sta. 12 + 55
Net Length of Work = 219 Lin. Ft. or 0.04 Mile
PROJECT LENGTH = 52.74 Lin. Ft. = 0.01 MILE



LOCATION MAP

SCALE IN MILES

Portion to be improved	—————
State & Federal Routes	—————
Other Roads	—————

SCALES

Plan	—————
Profile: Horizontal	—————, Vertical ————
Cross Section: Horizontal	—————, Vertical ————

SUPPLEMENTAL SPECIFICATIONS	
1001	1-3-77

1979 SPECIFICATIONS

The standard specifications of the State of Ohio, Department of Transportation, 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 require the closing to traffic of the highway and provisions for the maintenance and safety of traffic will be as set forth in these plans.

- Approved: Robert M. Slats
Date 3-14-80 District Deputy Director of Transportation
- DWI Approved: Robert B. Pfeiffer MPE
Date 6-10-80 Engineer, Bureau of Bridges and Structural Design
- QB Approved: Gerald E. Hann
Date 10-7-80 Chief Engineer, Planning and Design or Chief Engineer, Operations
- Approved: David L. Wein
Date 10-7-80 Director, Department of Transportation

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SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS			
BP-5	4-16-79		
GR-2B	12-6-76		
GR-3	12-6-76		
GR-4	12-6-76		
MC-3	6-1-73		
DBR-2-73	4-10-73		
PSBD-1-71	9-1-71		

Plan Prepared By: _____

SEAL

DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION	
APPROVED:	
DIVISION ADMINISTRATOR	DATE

Project: _____
Date of Letting: _____ 19____, Contract No. _____

BENCHMARK (Assumed)
 Mine Spike in Telephone Pole
 Sta. 11+00 35' Right
 Elevation 1100.00

FHWA REGION	STATE	PROJECT
5	OHIO	

2
7

CAR-39-(15.18)

PLAN NO. BE-18-80

GENERAL NOTES

WORK REQUIRED:

1. Remove existing superstructure and portions of abutments and pier as per plan.
2. Rebuild abutments and pier.
3. Erect prestressed concrete box beams and waterproof deck.
4. Perform surfacing operations and earthwork.
5. Install bridge railing and connect with guardrail.

DESIGN DATA:

Design Loading HS20-44
 Concrete Class C - unit stress 1333 p.s.i. for substructure.
 Reinforcing Steel - ASTM A615, A616, or A617; unit stress - 20,000 p.s.i.
 Concrete for Prestressed Concrete Beams, unit stress-2200 p.s.i. compression; 444 p.s.i. tension.
 Prestressing strands - ASTM A416 1/2 dia. 270⁰ A_s=0.154_{sq}.in.; Initial stress = 28,900 lbs. per strand

REFERENCE shall be made to Standard Drawings:

PSBD-1-71	Dated 9-1-71	GR-2B	Dated 12-6-76
DBR-2-73	Dated 4-10-73	GR-3	Dated 12-6-76
MC-3	Dated 6-1-73	GR-4	Dated 12-6-76
		BP-5	Dated 4-16-79

FIELD CHECK:

The Contractor shall verify dimensions and conditions at the project site to assure proper fit of prestressed concrete box beams.

MAINTENANCE OF TRAFFIC: Traffic shall be maintained on S.R. 39, except for a period not to exceed 35 working days. Traffic is to be maintained until the delivery date of the prestressed beams has been confirmed.

CENTERLINE REFERENCE: The Contractor will be required to reference the centerline of this project from the existing structure and roadway centerline, which can be determined from PK nails driven in existing pavement at 25 or 50 ft. intervals. Payment for above to be included under Item 623, Construction layout stakes.

UTILITIES: All expenses involved in relocating any affected utilities shall be borne by the Owner(s). The Contractor and Owner(s) are requested to cooperate by arranging any work so as not to inconvenience the other. Following are owners known to be within the work limits:
 The General Telephone Company
 1121 Tuscarawas Avenue
 New Philadelphia, Ohio 44663

RAILING POSTS: The 1 1/2" dia. holes in the railing posts plates on Std. Dwg. DBR-2-73 shall be changed to 1 1/2" x 2 1/2" slotted holes for adjustment of railing

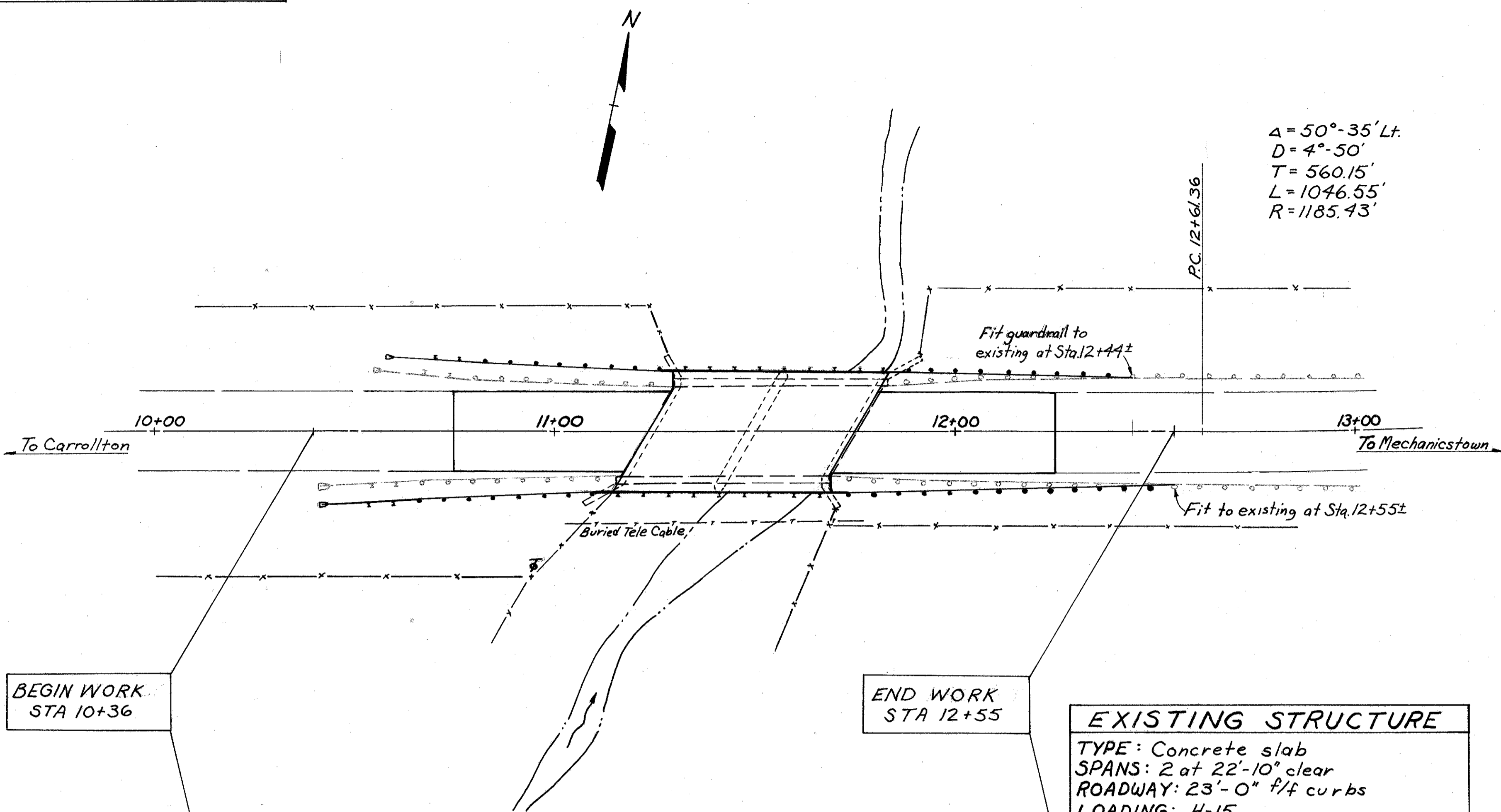
PAVEMENT REMOVAL shall be included in lump sum bid for Item 202, Portions of structure removed. The Contractor shall saw cut the pavement at Sta. 11+19 and Sta. 11+76.

ITEM 202 GUARDRAIL REMOVED FOR REUSE OR STORAGE shall include relocating existing guardrail to proposed plan locations. Additional rail elements of existing bridge terminal assemblies, not required for new connections, shall be stored at the project for removal by State forces.

ITEM 203 EMBANKMENT shall be placed to build up the shoulders after surface paving as directed by the Engineer.

ITEM 519 PATCHING CONCRETE STRUCTURES shall be as directed by the Engineer.

PAVEMENT ON APPROACHES: The 403 and 404 asphalt concrete courses shall extend off the bridge and be feathered to end 50± off each end of the bridge as shown on Std. Dwg. BP-5. *Butt Joint*
 Item 407, tack coat shall be applied for full length of feather, at 005 gal./sq. yd.

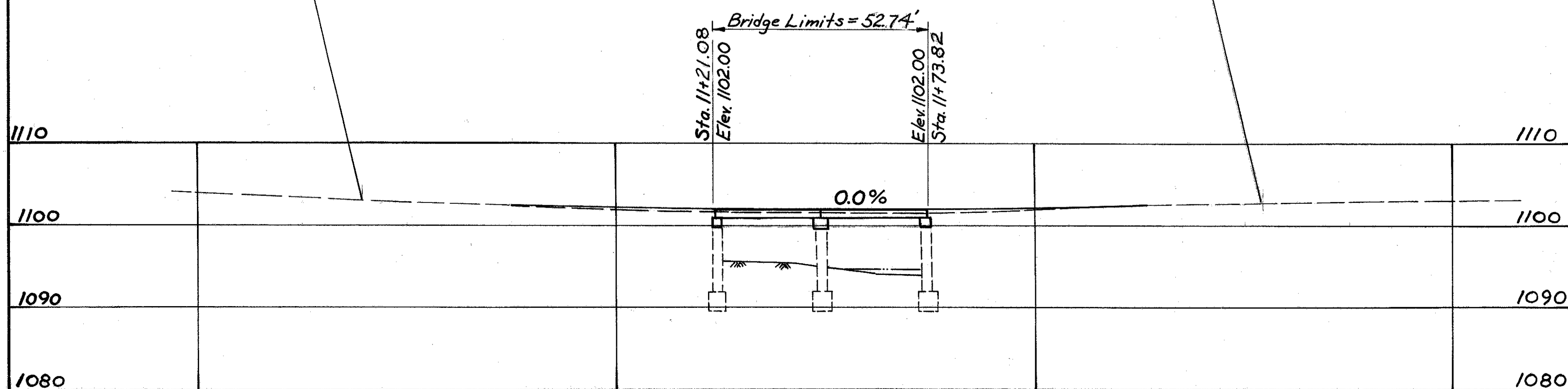


EXISTING STRUCTURE

TYPE: Concrete slab
 SPANS: 2 at 22'-10" clear
 ROADWAY: 23'-0" f/f curbs
 LOADING: H-15
 SKEW: 30° L.F.

PROPOSED STRUCTURE

TYPE: Prestressed concrete box beam
 SPANS: 2 at 22'-10" clear
 ROADWAY: 30'-0" f/f rail
 LOADING: HS-20-44
 WEARING SURFACE: Asphalt concrete
 SKEW: 30° L.F.
 DECK PROTECTIVE METHOD: Type "D" waterproofing with asphalt concrete overlay

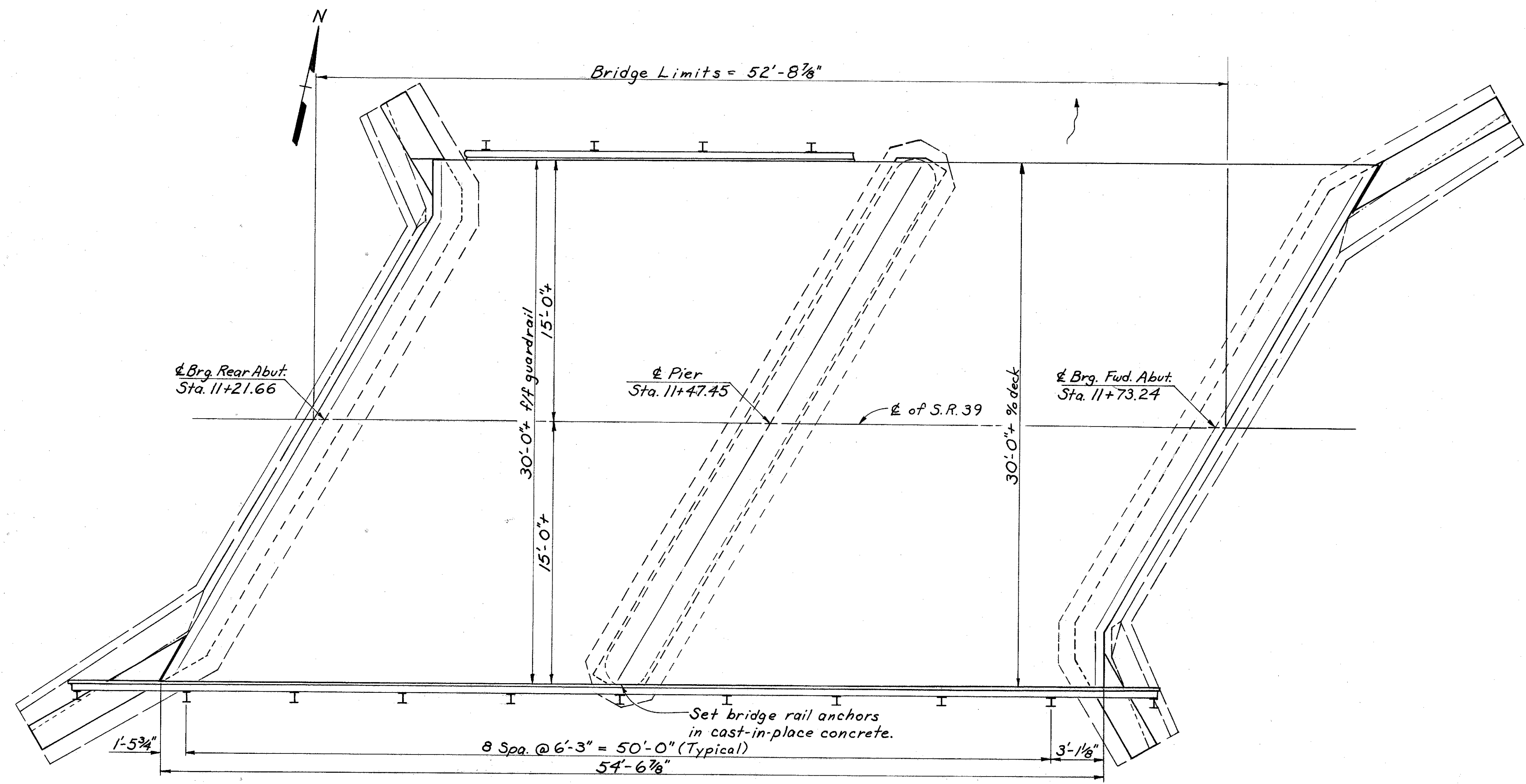


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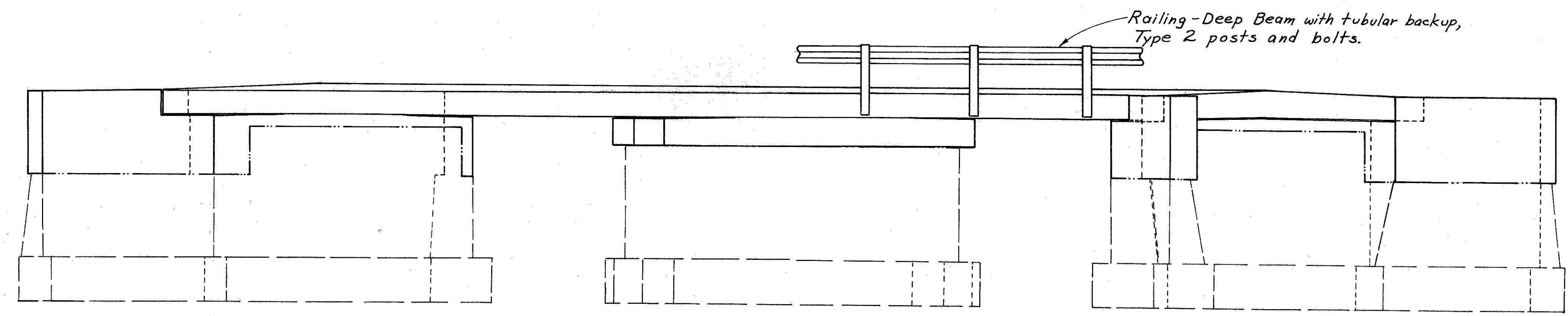
STATE OF OHIO DEPARTMENT OF TRANSPORTATION BUREAU OF MAINTENANCE		2/7
SITE PLAN & GENERAL NOTES		
BRIDGE NO. CAR-39-1985 over South Branch Friday Creek		
DESIGNED Dist. 11 ULH	DRAWN Dist. 11 JLO	TRACED Dist. 11 JLO
CHECKED Dist. 11 JLO	REVIEWED DATE 12-27-79	REVISED

CAR-39-(15.18)

PLAN NO. 82-18-80



PLAN



ELEVATION

GENERAL SUMMARY				TYPE CODE X080 UNLESS OTHERWISE NOTED	
ITEM	TOTAL	UNIT	DESCRIPTION		
202	Lump Sum	L.S.	Portions of structure removed		
202	300	Lin. ft.	Guardrail removed for re-use or storage		
203	10	Cu. yd.	Embankment		
305	7	Sq. yd.	Portland cement concrete base, t=9"		
403	12	Cu. yd.	Asphalt concrete AC-20		
404	12	Cu. yd.	Asphalt concrete AC-20		
407	11	Gals.	Tack coat, SS-1, SS-1H, MS-2, RS-1, or RC-250		
407	0.75	Ton	Cover aggregate		
503	17	Cu. yd.	Unclassified excavation		
509	3242	Lbs.	Reinforcing steel		
510	223	Each	Dowel holes		
511	12	Cu. yd.	Class "C" concrete, abutments		
511	9	Cu. yd.	Class "C" concrete, pier		
511	2	Cu. yd.	Class "C" concrete, superstructure		
512	184	Sq. yd.	Type "D" waterproofing		
515	12	Each	Prestressed concrete bridge members B 17-48		
515	4	Each	Prestressed concrete bridge members B 17-36		
516	17	Sq. ft.	1" preformed expansion joint filler		
516	180	Sq. ft.	1/2" preformed expansion joint filler		
516	64	Each	1/2" x 5" x 10" elastomeric bearing pads		
516	32	Each	1/8" x 5" x 10" preformed bearing pads		
517	105.48	Lin. ft.	Railing, deep beam with tubular backup, steel posts and bolts		
518	20	Cu. yd.	Porous backfill		
519	100	Sq. ft.	Patching concrete structures		
606	244.52	Lin. ft.	Guardrail, rebuilt, Type 5		
606	2	Each	Anchor assembly, rebuilt		
606	4	Each	Bridge terminal assembly, Type B		
614	Lump Sum	L.S.	Maintaining traffic		
623	Lump Sum	L.S.	Construction layout stakes		
624	Lump Sum	L.S.	Mobilization		
659	0.01	Ton	Commercial fertilizer	Y005	
659	0.05	Ton	Agricultural liming	Y005	
659	100	Sq. yd.	Seeding and mulching	Y005	
Special	83	Sq. ft.	Steel drip strip		

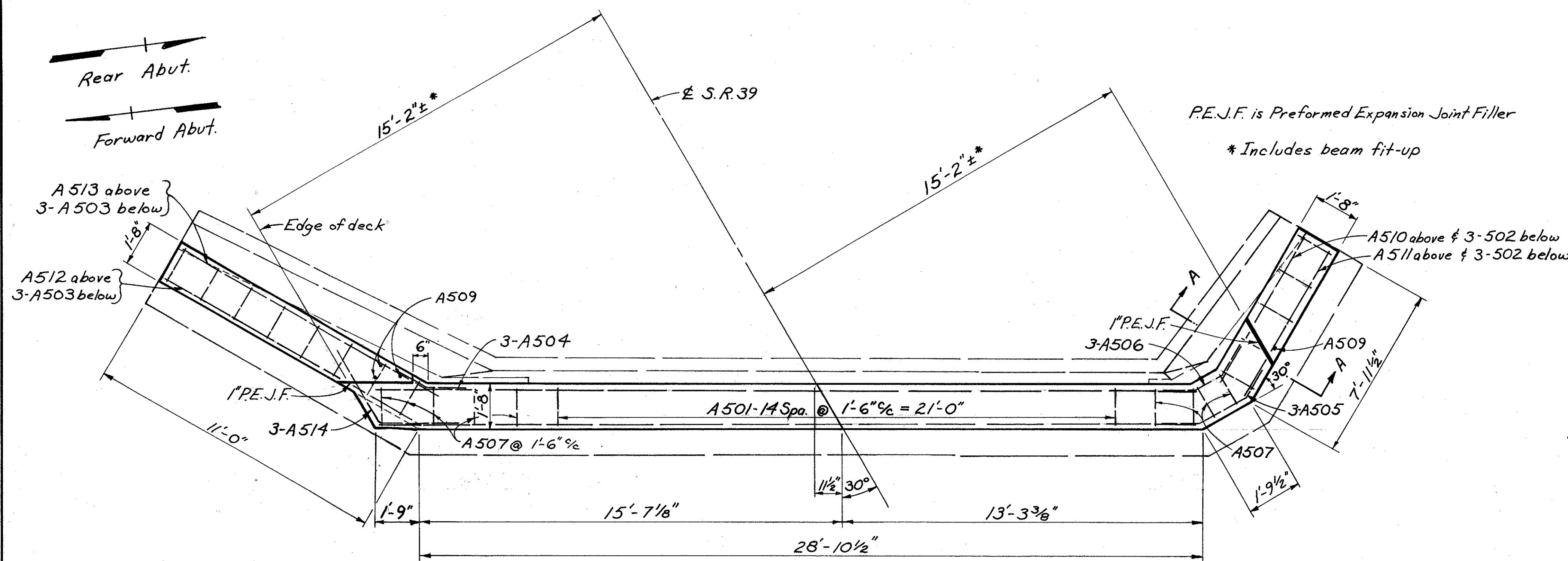
Calculated by:	Date	Checked by:	Date
L. Fair	3-4-80	J. Olsavsky	3-5-80

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JAN 27 1986

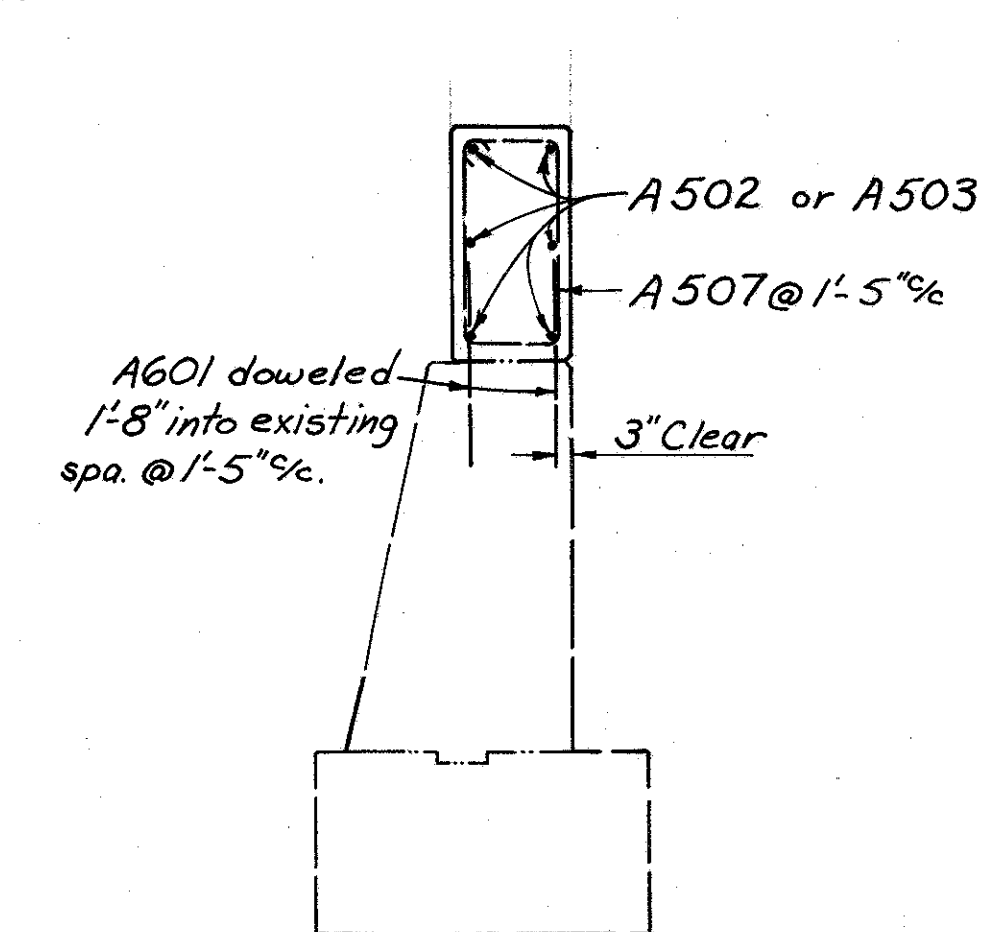
STATE OF OHIO DEPARTMENT OF TRANSPORTATION BUREAU OF MAINTENANCE		3	7
PLAN AND ELEVATION #GENERAL SUMMARY BRIDGE NO. CAR-39-1985 over South Branch of Friday Creek			
DESIGNED Dist. II ULH	DRAWN Dist. II JLO	TRACED	CHECKED Dist. II L. Fair 3-4-80
REVIEWED	DATE	REVISED	

CAR-39-(15.18)

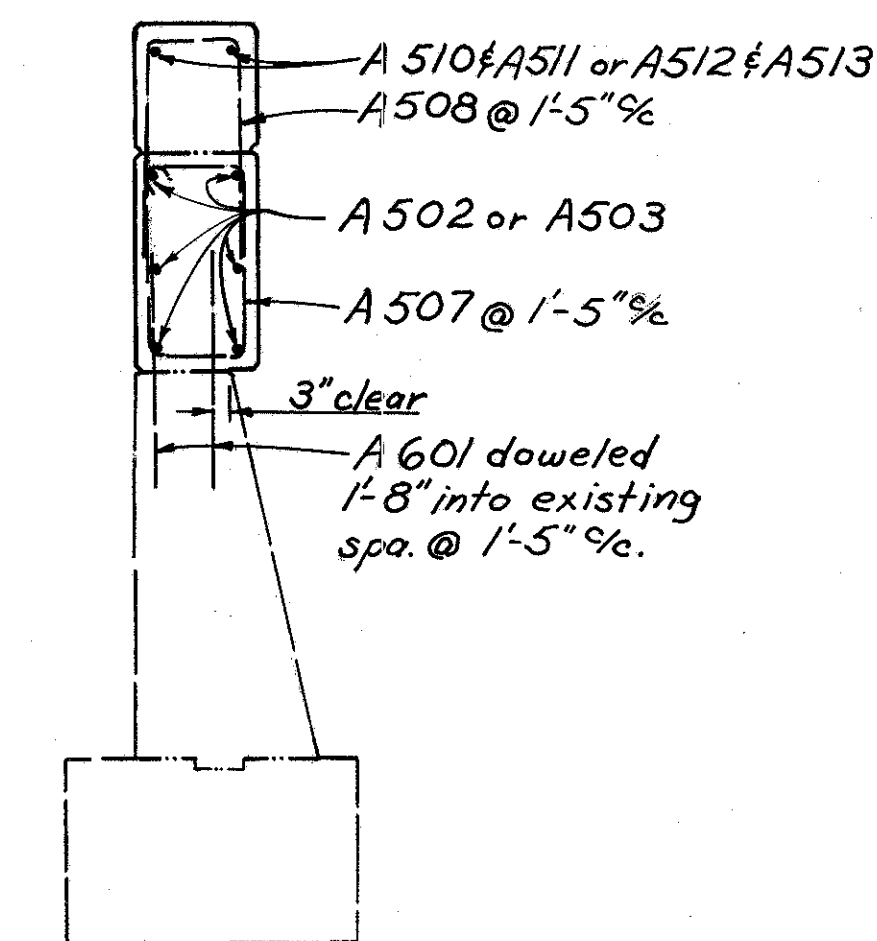
PLAN NO. BR-18-80



PLAN



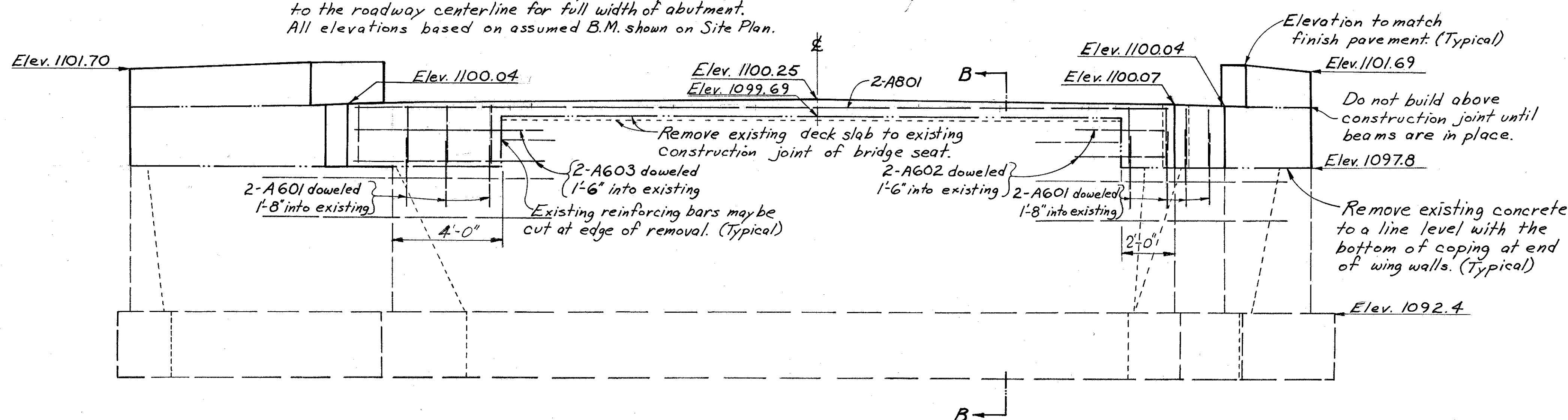
SECTION A-A



TYPICAL WINGWALL END VIEW

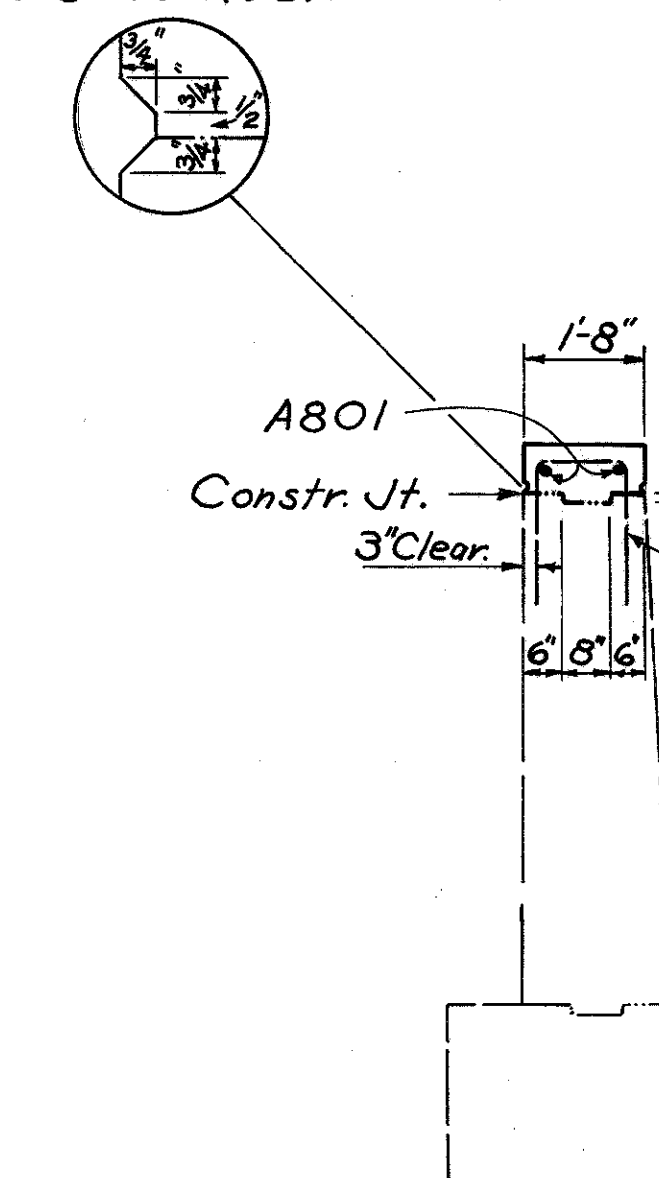
~~Item Special-Epoxy Grout Injection: Vertical cracks in the existing abutments and pier shall be completely filled with epoxy grout as directed by the Engineer. Placement of epoxy grout shall be by those experienced in this work and as per manufacturer's specifications and recommendations. Payment for labor and materials to actually place the epoxy grout will be the bid price for Item Special-Gallons-Epoxy grout injection.~~

Elevations shown are at face of the abutment
Elevations are based on a 3/8" per ft slope normal to the roadway centerline for full width of abutment.
All elevations based on assumed B.M. shown on Site Plan.

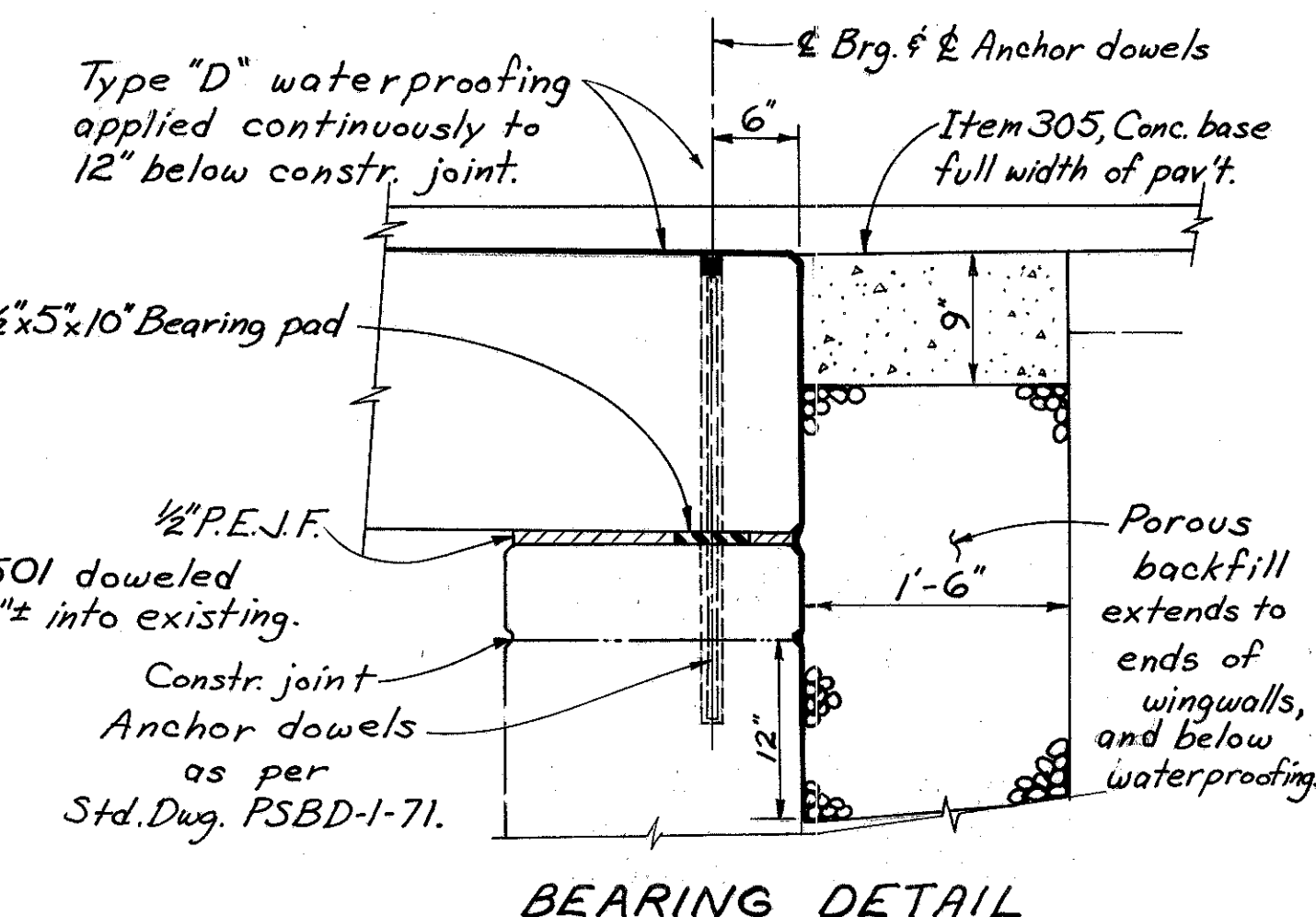


ELEVATION
(Not all reinforcing steel shown)

TYPICAL CONSTRUCTION JOINT



SECTION B-B



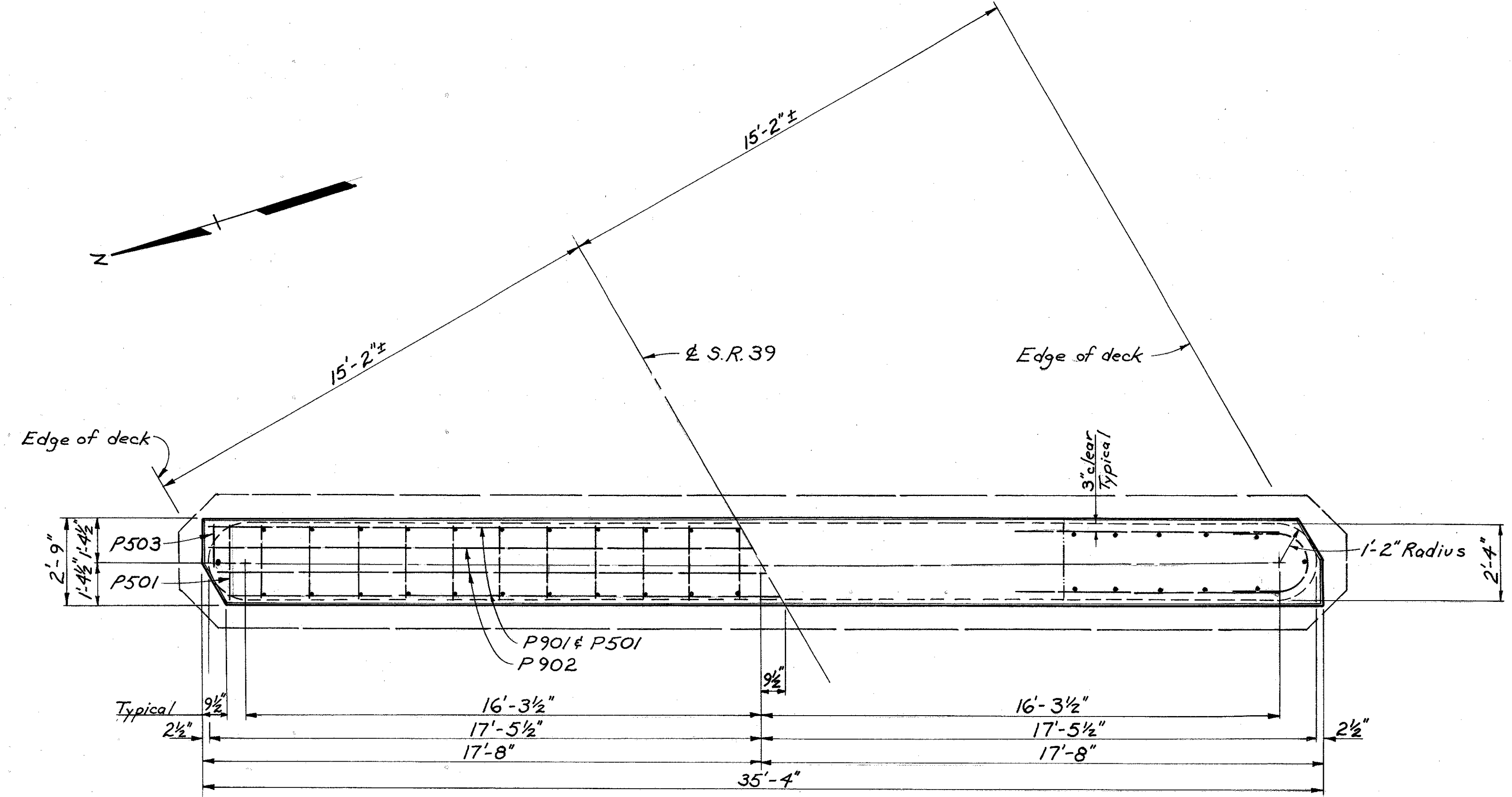
BEARING DETAIL

Note: Reinforcing steel shall be carefully placed to avoid interference with the drilling of anchor dowel holes for prestressed beams.

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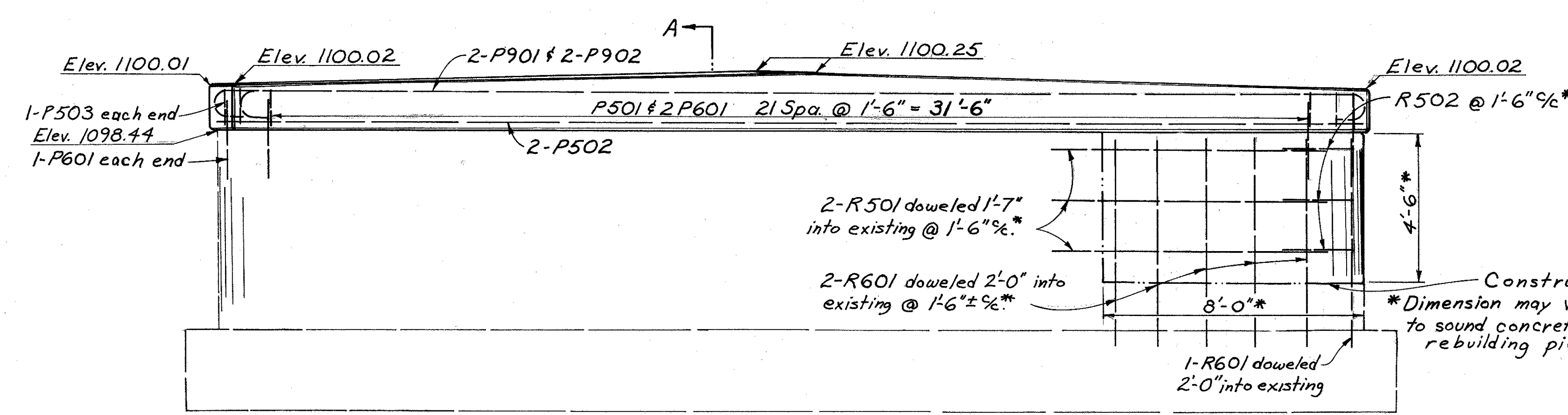
ABUTMENT DETAILS
BRIDGE NO. CAR-39-1985
over South Branch Friday Creek

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
ULH	ULH	JLO	JLB			



HALF PLAN
(Showing reinforcing steel for pier cap)

HALF PLAN
(Showing reinforcing steel for repair of pier)



ELEVATION

Elevations shown are at west face of pier. All elevations based on assumed B.M. shown on Site Plan [176].

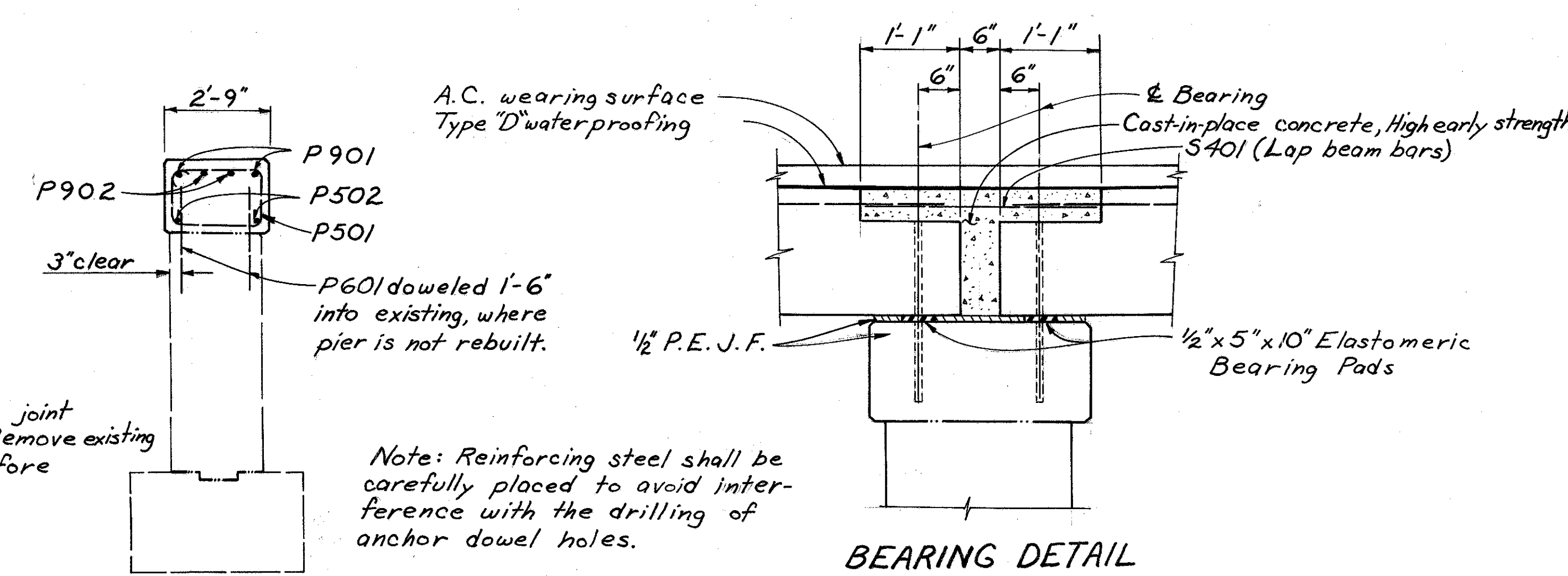
The existing pier shall be removed, under Item 202, to the bottom of the 1'-3" coping and as required for repair of the south end. These locations are not construction joints and there is no reinforcing steel in the pier.

REINFORCING STEEL LIST									
ABUTMENTS									
MARK	NUMBER			LENGTH	WEIGHT	SHP.			
	REAR	FWD.	TOTAL						
A501	15	15	30	4'-4"	136	Bent			
A502	6	6	12	7'-9"	97	St.			
A503	6	6	12	10'-9"	135	St.			
A504	3	3	6	4'-0"	25	Bent			
A505	3	3	6	5'-4"	33	Bent			
A506	3	3	6	4'-7"	29	Bent			
A507	21	21	42	8'-7"	376	Bent			
A508	9	9	18	7'-0"	131	Bent			
A509	4	4	8	3'-0"	25	St.			
A510	1	1	2	3'-6"	7	St.			
A511	1	1	2	4'-3"	9	St.			
A512	1	1	2	7'-3"	15	St.			
A513	1	1	2	9'-6"	20	St.			
A514	3	3	6	5'-0"	31	Bent			
A601	40	40	80	3'-3"	391	St.			
A602	4	4	8	3'-0"	36	St.			
A603	4	4	8	6'-9"	81	St.			
A801	2	2	4	30'-3"	323	St.			

PIER									
MARK	NO.	LENGTH	WEIGHT	SHP.					
P501	24	7'-9"	194	Bent					
P502	2	34'-0"	71	St.					
P503	2	5'-9"	12	Bent					
P601	50	2'-8"	200	St.					
P901	4	20'-1"	273	Bent					
P902	4	20'-3"	275	Bent					
R501*	6	8'-5"	53	St.					
R502*	3	6'-2"	19	Bent					
R601*	11	6'-4"	105	St.					

SUPERSTRUCTURE									
MARK	NO.	LENGTH	WEIGHT	SHP.					
S401	44	3'-0"	88	St.					
S601	8	2'-4"	28	St.					
S602	8	2'-0"	24	St.					

*Dimensions may vary, due to existing field conditions.



BEARING DETAIL

SECTION A-A

Note: Reinforcing steel shall be carefully placed to avoid interference with the drilling of anchor dowel holes.

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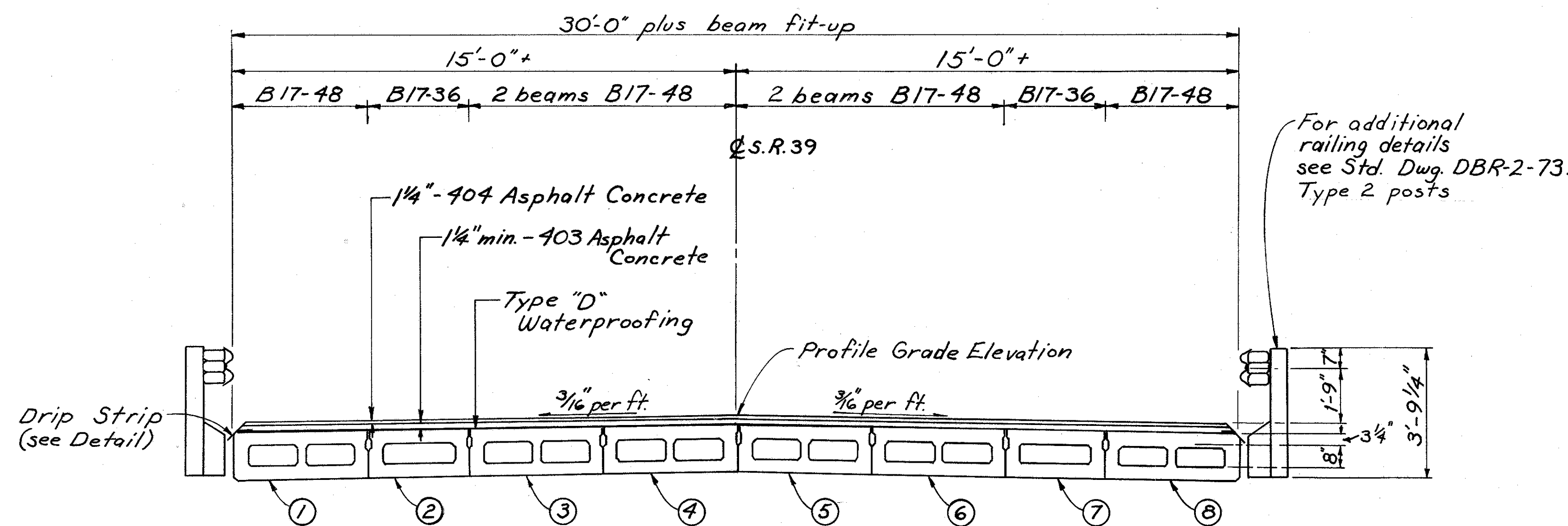
STATE OF OHIO DEPARTMENT OF TRANSPORTATION BUREAU OF MAINTENANCE						5 / 7
PIER DETAILS & REINFORCING STEEL LIST BRIDGE NO. CAR-39-1985 over South Branch of Friday Creek						
DESIGNED Dist. II JLO	DRAWN Dist. II JLO	TRACED	CHECKED Dist. II L. Fair 3-4-80	REVIEWED	DATE	REVISED

FHWA REGION	STATE	PROJECT	
5	OHIO		

6
7

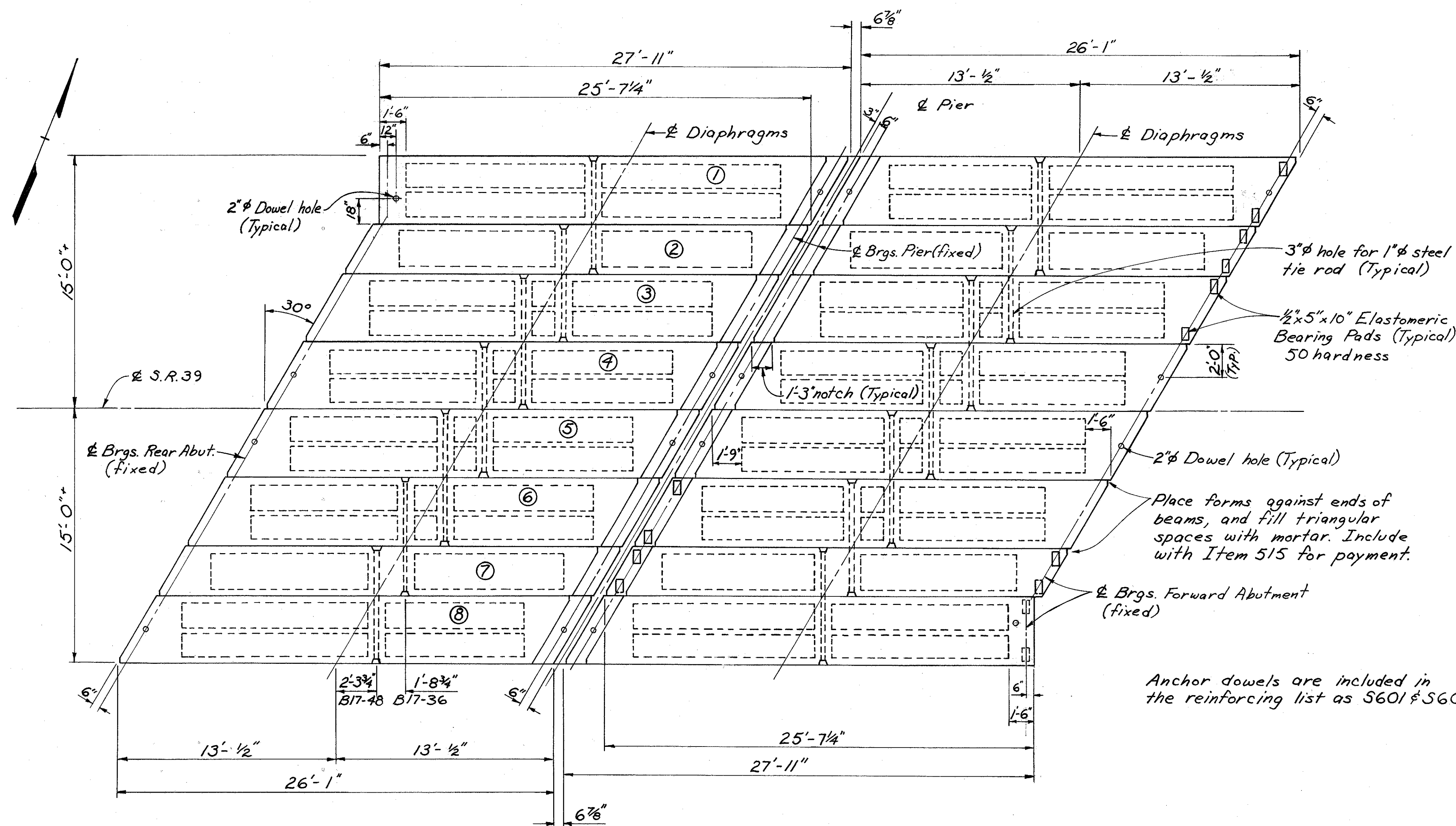
CAR-39-(15.18)

PLAN NO. BR-18-80



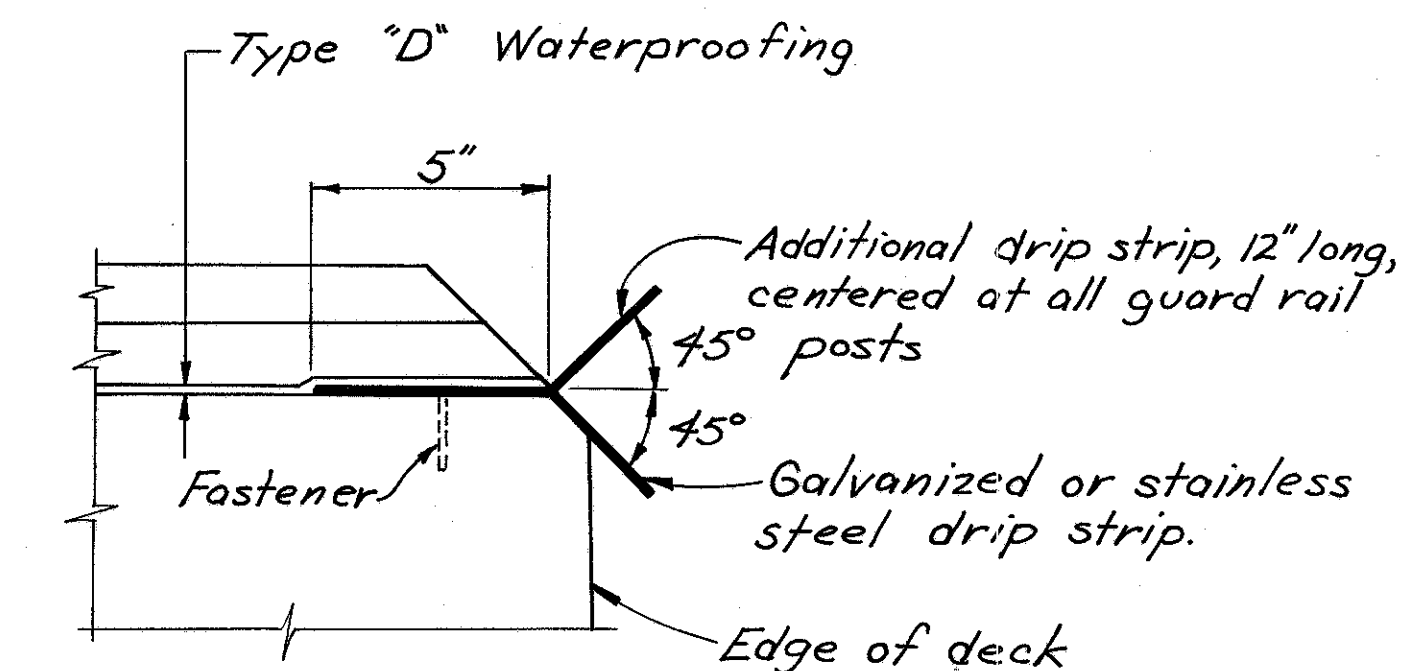
Erect beams 4 and 5 first.

TYPICAL DECK SECTION



Anchor dowels are included in the reinforcing list as S601 & S602 bars.

DECK PLAN



DRIP STRIP DETAIL

DRIP STRIP: Prior to applying deck waterproofing, a bent drip strip shall be installed along the edges of the deck as shown. The strips shall be fastened at 1'-6" maximum with power driven pins or #10 galvanized screws and expansion anchors, subject to the approval of the Engineer. The strips shall be placed the full length of the deck, ending at the face of the abutment wingwall. Where splices are required a 3" (min.) lap shall be used with a fastener through the lap. Steel for galvanized strips shall be 8"x0.105" and shall meet the requirements of ASTM A568. Galvanizing shall be in accordance with 711.02. Stainless steel shall be 20 gauge ASTM A167, Type 304, mill finish. Payment shall be at the contract price bid for Item Special- Sq. Ft. Steel Drip Strip, which shall include all materials, labor, tools and incidentals necessary to complete the item.

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STATE OF OHIO DEPARTMENT OF TRANSPORTATION BUREAU OF MAINTENANCE						6/7
SUPERSTRUCTURE DETAILS						
BRIDGE NO. CAR-39-1985 over South Branch Friday Creek						
DESIGNED Dist. II	DRAWN Dist. II	TRACED Dist. II	CHECKED Dist. II	REVIEWED	DATE	REVISED
ULH	ULH	JLO	JLO		12-28-79	

NOTES

Prestressing strands are ASTM A416 1/2 in. 7-wire uncoated, stress-relieved strands with an ultimate strength of 270,000 p.s.i. and an initial tension of 28,900 lbs. per strand.

Concrete stresses:
 Minimum concrete strength at 28 days $f'_c = 5500$ p.s.i.
 Minimum concrete strength at time of initial prestress $f'_{ci} = 4000$ p.s.i.

Refer to Standard Drawing PSBD-1-71 for the following details:

- Beam lifting inserts
- Details & reinforcement of beam ends
- Anchor dowels
- End details of transverse tie rod anchorage
- Beam dimensional tolerances
- Wall thickening at guardrail anchors
- Typical plans of diaphragms and transverse tie rods
- Normal crown treatment at roadway

Calculated camber at time of paving, including allowance for camber growth due to creep, is 1".

Net final camber of beams is 1". This is 1" in excess of the amount required to place the top of the beam parallel to profile grade. This excess amount shall be compensated for by thickening the 403 leveling course from 1 1/4" at the center of spans to 2 1/4" at bearings.

Asphalt concrete surface course shall consist of a variable thickness of 403 and a 1 1/4" thickness of 404. The 403 shall be placed in two operations. The first course shall be of 1 1/4" uniform thickness. The second course shall be feathered to place the surface parallel to and 1/4" below final pavement surface elevation.

1/8" x 5" x 10" preformed bearing pad shims shall be provided for under Item 516, Elastomeric bearing pads, for the proper seating of the prestressed beams. Two shims per beam shall be supplied. Unused shims shall become the property of the State.

The reinforcing steel used for the prestressed concrete box beams is to be included with the unit price bid for the beams as per 515.09. However the fabricator's shop drawings shall show complete reinforcing details.

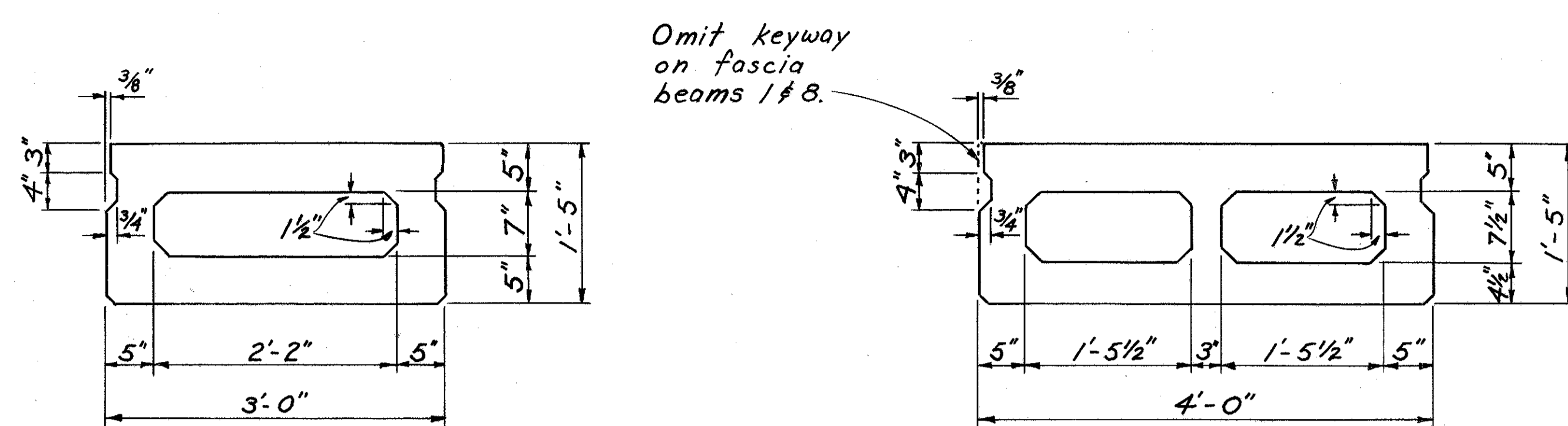
Non-shrinking grout used to fill the beam shear keys, tie rod recesses in the fascia beams, and the dowel holes shall be included with Item 515 for payment.

Non-shrinking mortar: In lieu of the requirements for non-shrinking mortar and grout given on Std. Dwg. PSBD-1-71, non-shrinking mortar shall be made with materials and proportions as follows:

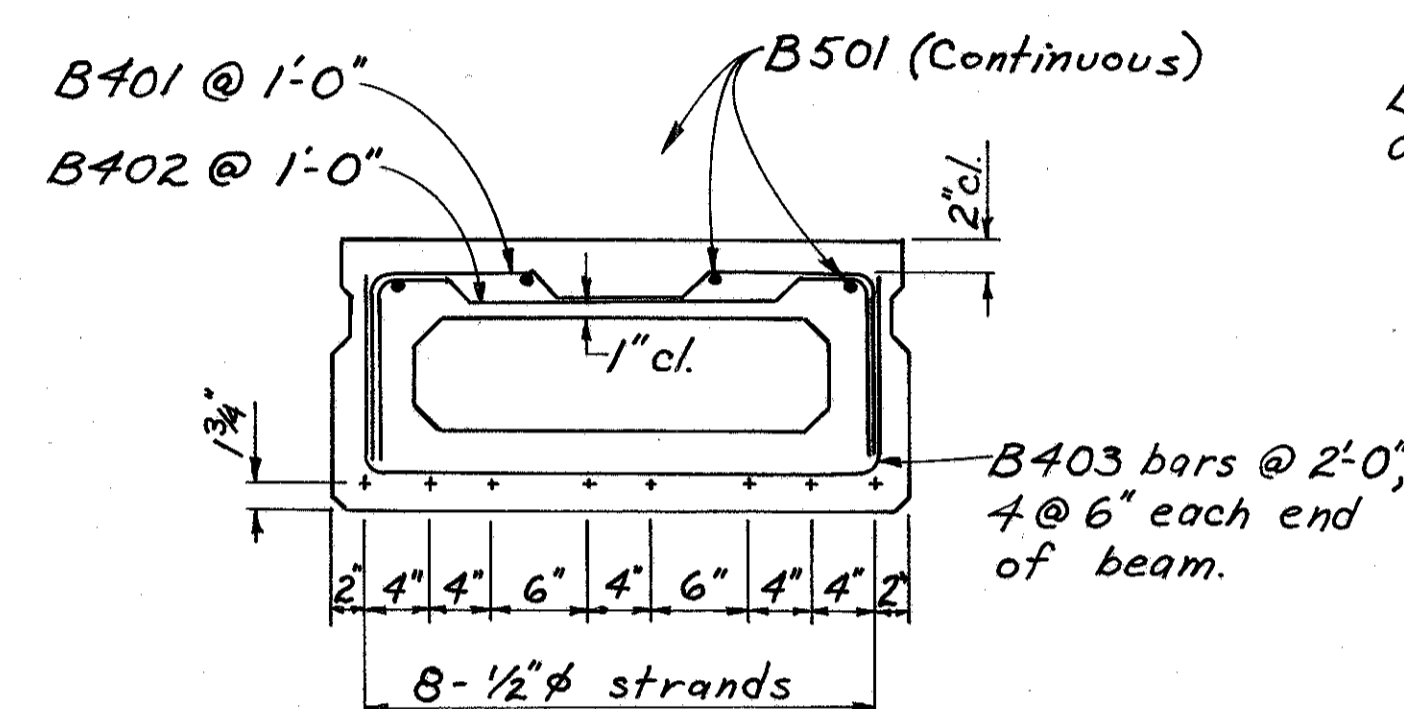
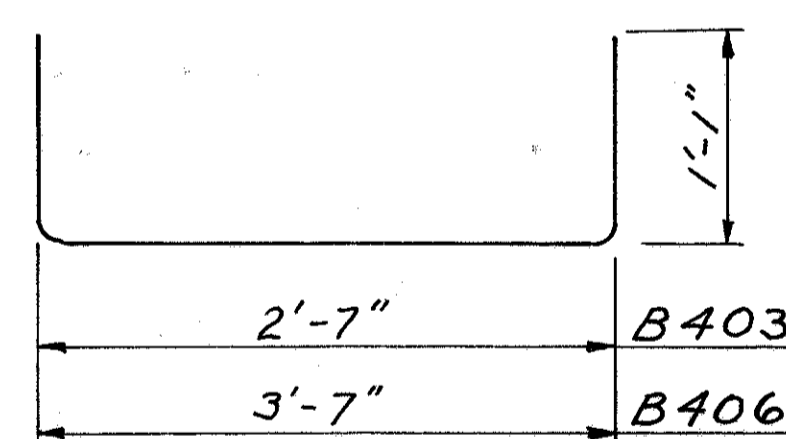
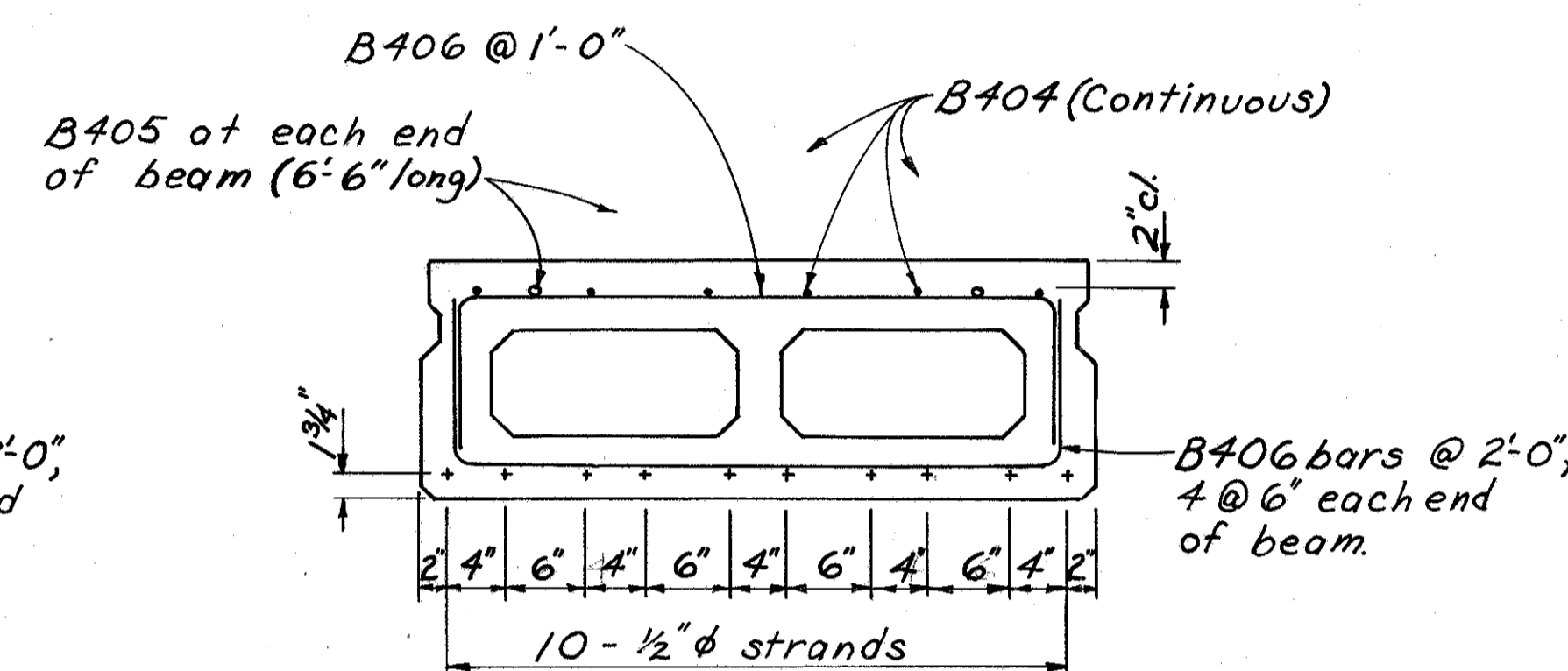
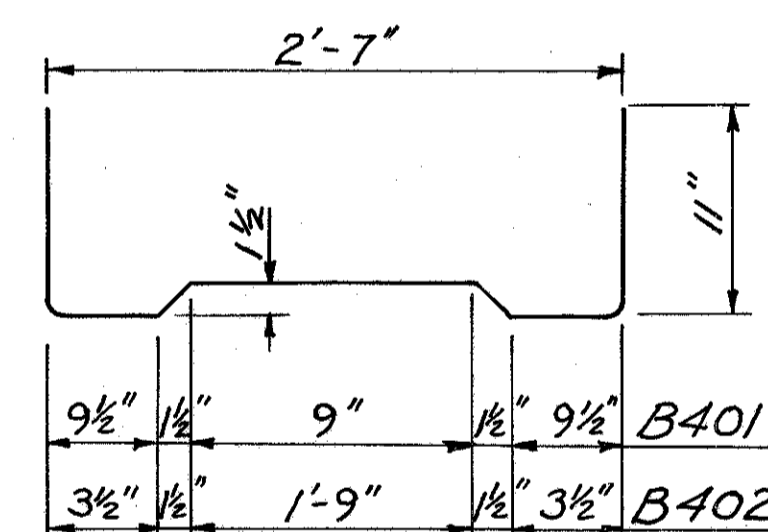
2680 lbs. sand, 703.02, @ 6% moisture
 9 bags cement, 701.02 or 701.05
 40 gallons water, 499.02

9 lbs. expanding grouting aid admixture, Interplast-N by Sika Chemical Corporation or approved equal.

The cement, sand and water shall be mixed first, after which the admixture shall be added. Batch size shall be limited so that placement can be completed within 30 minutes. Water shall not be added to increase flow ability of mortar which has been delayed in placement.



Omit keyway on fascia beams 1#8.


BEAM B17-36

B403 & B406

BEAM B17-48

B401 & B402

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 JAN 27 1986

SUPERSTRUCTURE DETAILS

BRIDGE NO. CAR-39-1985
 over South Branch Friday Creek

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
Dist. II	Dist. II	Dist. II	Dist. II			
ULH	ULH	JLO	JLO			