

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

HIG - 247 - 0614
HIGHLAND COUNTY

HIGHLAND COUNTY	OHIO
HIG - 247-05.89	FHWA REGION 5
SR 997(2)	FEDERAL PROJECT

1/7

MICROFILMED
OCT 26 1987

PLAN No. 82-45-80

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-x-	Property Line	--- --- (in existing fence) -x-x-
Center Line	----- 352 ----- 353 -----	Railroad	-----
Trees	☉, Stumps	Guardrail (existing)	o-o-o (proposed)
Utility Poles: Telephone	φ		
Power	φ		
Light	φ		

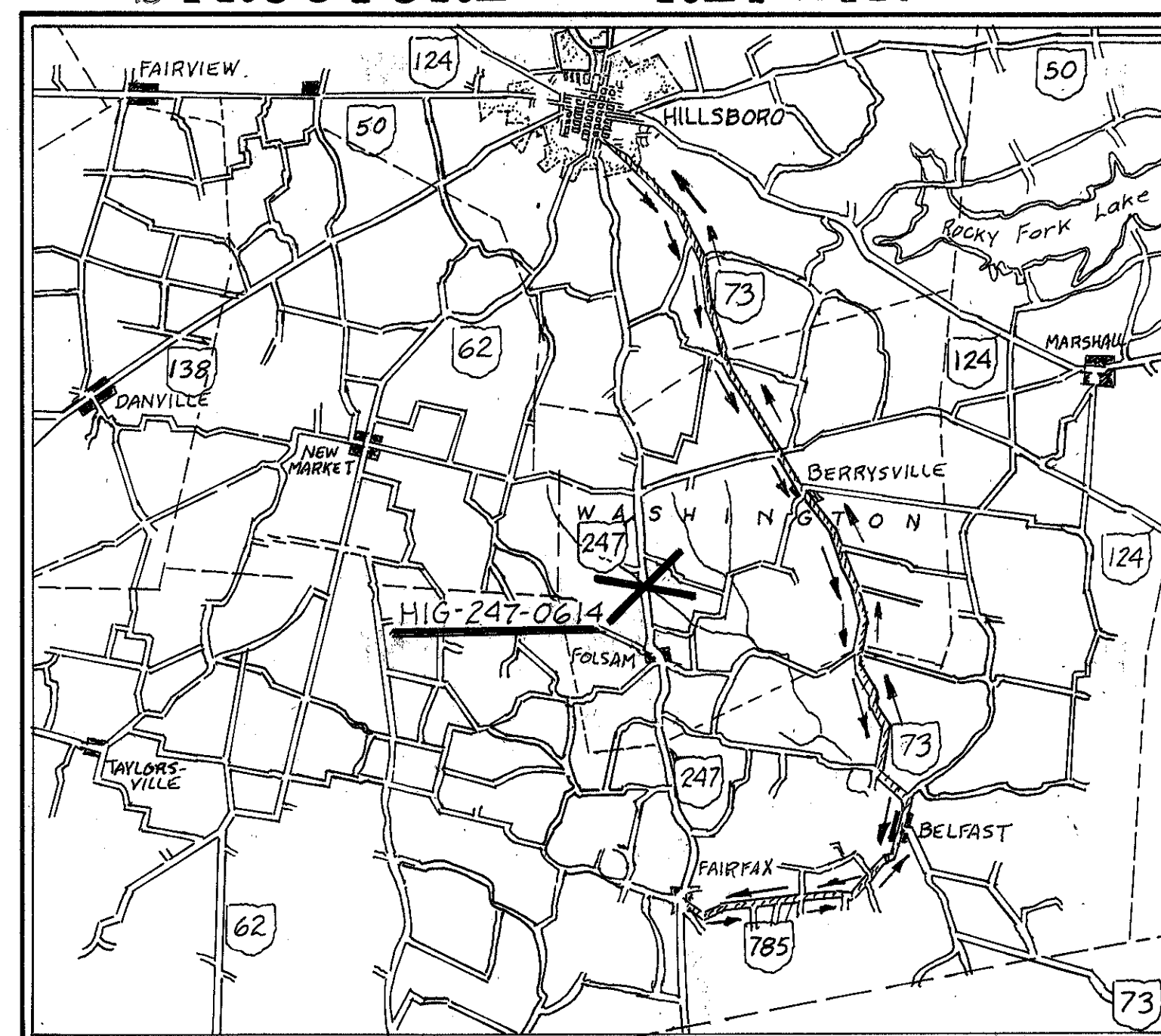
INDEX OF SHEETS

- Title Sheet
- General Notes, & Estimate of Quantities
- Plan & Profile & Work Procedure
- Superstructure Details
- Forward Abutment Repair Details
- Concrete Deck Details & Steel List
- Backwall Changes & Expansion Joint Details.

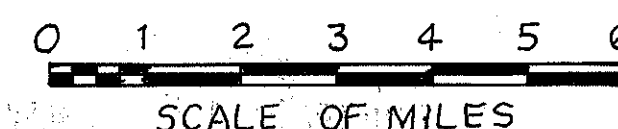
Page 7 Revised 3-26-81 RLE

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STRUCTURE - REPAIR



LOCATION AND DETOUR MAP



Portion to be improved	-----
State Roads	-----
Other Roads	-----

SCALES

Plan	-----
Profile: Horizontal	-----
Vertical	-----
Cross Section: Horizontal	-----
Vertical	-----

LINE DATA

Net Length of Project = 110.57 Ft. or 0.020 Mi.
Net Length of Work = 425 Ft. or 0.080 Mi.

1979 SPECIFICATIONS

The standard specifications of the State of Ohio, Department of Transportation, including changes and supplemental specifications 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 that detours will be provided as indicated on the plans.

Approved James Watkins
Date 7-30-80 District Deputy Director of Transportation

DWI Approved Robert B. Pfeiffer
Date 10-9-80 Engineer of Bridges

Approved _____
Date _____ Engineer of Maintenance

Approved Gerald E. Hann
Date 11-3-80 Chief Engineer, Operations

Approved _____
Date _____ Assistant Deputy Director, Program Development

Approved _____
Date _____ Chief Engineer, Construction

Approved _____
Date _____ Chief Engineer, Design

Approved _____
Date _____ Assistant Director, Department of Transportation

Approved David L. Main
Date 11-3-80 Director, Department of Transportation

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS

BP 5 dated 8-11-75			
GR 1 dated 12-6-76			
GR 2 B dated 12-6-76			
GR 3 dated 12-6-76			
MC 3 dated 6-1-73			
SD-1-69 dated 6-12-69			
DBR-2-73 dated 4-10-73			
GR-4 12-6-76			

SUPPLEMENTAL SPECIFICATIONS	
1001	1-3-77
836	3-12-75

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED: _____
DIVISION ADMINISTRATOR DATE

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

GENERAL NOTES

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MAR 7 1985

BR-45-80

STATE	PROJECT
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HIGHLAND COUNTY
#16-247-0589

REFERENCE shall be made to Standard Drawings:

- BP5 dated 8-11-75
- GR1 dated 12-6-76
- GR2B dated 12-6-76
- GR3 dated 12-6-76
- MC-3 dated 6-1-73
- SD-1-69 dated 6-12-69
- DBR-2-73 dated 4-10-73
- GR-4 " 12-6-76

DESIGN SPECIFICATIONS: This structure modification conforms to "Standard Specifications for Highway Bridges" adapted by the American Association of State Highway Officials, 1977, including interim specifications and the Ohio "Supplement to these specifications."

DESIGN DATA:

- Design Loading H5-20-44
- Concrete Class C - 4000 p.s.i. compressive strength.
- Structural Steel ASTM A36 - Unit Stress 20,000 p.s.i.
- Reinforcing Steel ASTM A615, A616 or A617 Grade 60 minimum yield strength 60,000 p.s.i. Top mat epoxy coated.

Existing Bridge Plans:

Detail Drawings of the existing bridge may be inspected in the District Office in Chillicothe, as built in 1955.

Welded Stud Shear Connectors: Shall be in accordance with A.W.S. Structural Welding Code, D1.1, section 4, part F.

Field Painting of Existing Structural Steel shall be performed after all welding has been completed. The time of road closure shall not be extended for this purpose.

Disposition of Materials - Include in Pay Item 202.

Broken concrete from deck removal operations may be used as channel slope protection within the right of way limits if so directed by the Engineer. Otherwise all removed material shall become the property of the Contractor and shall be removed from the site by him, unless noted otherwise in the plans.

Drip Strip - A bent drip strip shall be installed on both sides for the full length of the deck ending at the steel end dam angle. Steel for galvanized strips shall be 6x0.105 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. Strips shall be placed in minimum lengths of ten feet (10') where possible, butted end to end and fastened within 3" of the joint. The strips shall be embedded in a 1/8" x 3" layer of silicone based sealant and shall be positioned below the bridge rail anchor bolts and fastened at 1'-6" max with power driven pins or #10 galvanized screws and expansion anchors, subject to the approval of the Engineer.

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.

Raise, Support and Lower Superstructure:

Before any replacement deck work is done the beams shall be raised sufficiently at the piers to perform the operations of preparing for & welding the moment plates as shown on Sheet No. 4, Superstructure Details. All of the above work and materials including the detaching of the existing bottom flange bearing plates & the subsequent grinding and other preparation for and rewelding of these plates after the moment plates are in place shall be included for payment in Item 513, raise, support and lower superstructure. See Sheet 4.

The Contractor shall verify and confirm all dimensions and elevations shown on the plans.

End Finish Expansion Joints:

The extruded steel clamp bars, bolts, threaded stud anchors, adhesive and washers shall be included for payment with Item 516 Elastomeric Sheet Joint Seals in Structural Steel as per plan. Also included shall be all necessary hardware & incidentals to complete the item.

Estimated Quantities:

Specific locations & usage of estimated quantities set upon this plan to be used as directed by the Engineer shall be made a matter of record by incorporation into the final change order governing completion of this project. Estimated quantities of material shall not be ordered for delivery to the project unless authorized by the Engineer.

Item 202 Guard Rail Removed For Storage:

Guard Rail, standard terminals, bridge railing & bridge posts designated for salvage shall be stored on project as directed by the Engineer for removal by State forces. Guard rail posts and miscellaneous hardware not designated for salvage becomes the property of the Contractor and shall be disposed of by him. Payment for the above shall be included in the Item 202 Guard Rail Removed for storage.

Item 202 Portions of Structures Removed:

The partial removal of the forward approach slab shall be included in the unit bid price for Item 202 Portions of Structures Removed.

Item 519 Patching Concrete Structures:

An estimated quantity of 30 square yards of patching has been provided to be used as directed by the Engineer, if needed.

Item 606 Bridge Terminal Assembly, Type B, As Per Plan:

Assembly shall be as per GR-3 except all posts encased in concrete shall be W6 x 15 lb. galvanized steel posts. Payment for the above shall be included in the unit price bid for Item 606 Bridge Terminal Assembly, Type B, As Per Plan.

Item 606 Location of Guardrails:

The location of guardrail runs, as shown in these plans are subject to adjustment to assure that the planned installations will afford maximum protection for traffic.

Special Berm Reshaping:

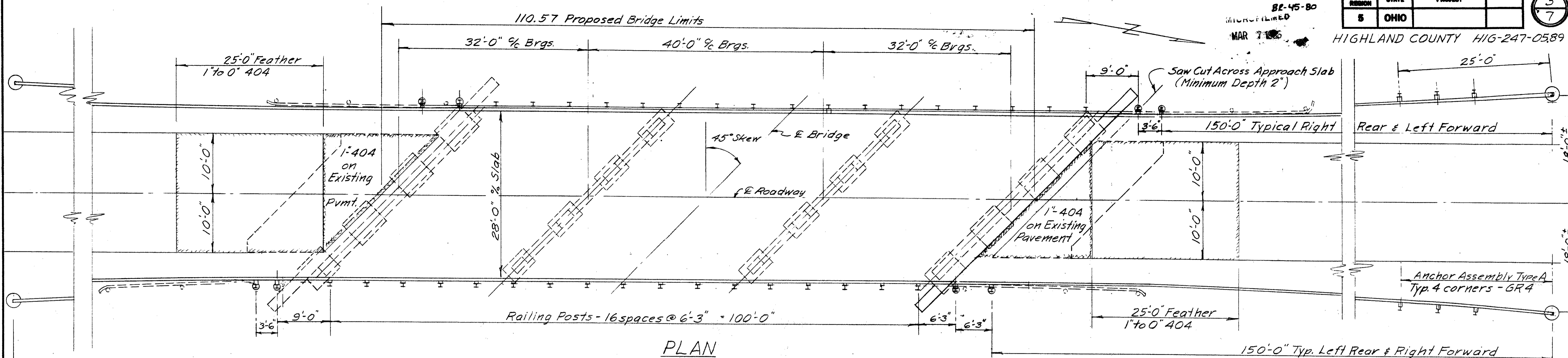
Berms at locations where existing guard rail is removed or where new guard rail is to be erected shall be reshaped as directed by the Engineer to insure a smooth surface free of all irregularities. Excess excavation resulting from reshaping berm shall be disposed of as directed by the Engineer. Payment for reshaping berms as described shall be included in the unit price bid per lineal foot for Item Special, Berm Reshaping.

ESTIMATED QUANTITIES				TYPE CODE X031
Item	Total	Unit	Description	
202	Lump	Sum	Portions of Structures Removed	
202	358	Lineal Ft.	Guard Rail Removed for Storage	
301	2	Cu. Yds.	Bituminous Aggregate Base	
404	3	Cu. Yds.	Asphalt Concrete, MC-20	
407	16	Gallons	Tack Coat, RS-1, MS-2, SS-1 or SS-1H	
407	1	Ton	Cover Aggregate	
503	7	Cu. Yds.	Unclassified Excavation	
509	9848	Pounds	Reinforcing Steel Grade 60	
Special	14,455	Pounds	Reinforcing Steel Epoxy Coated Grade 60 (See proposal note)	
510	68	Each	Dowel Holes	
511	100	Cu. Yds.	Class 5 Concrete, Superstructure and backwalls	
512	17	Sq. Yds.	Type D Waterproofing	
513	3,219	Pounds	Structural Steel End Finish	
513	1,653	Pounds	Structural Steel Moment Plates	
513	Lump	Sum	Raise, Support & Lower Stringers.	
513	1224	Each	Welded Stud Shear Connectors.	
514	Lump	Sum	Surface Preparation	
514	Lump	Sum	Spot Prime Painting	
514	Lump	Sum	Complete Coat Prime Painting	
514	Lump	Sum	Complete Coat Finish Painting	
516	79	Lineal Ft.	Elastomeric Sheet Joint Seals Including Structural Steel, as per plan.	
517	221.14	Lineal Ft.	Railing, Deep Beam Rail with Steel Tubular Backup, Type D Steel Posts & Bolts.	
518	7	Cu. Yds.	Porous Backfill	
518	50	Lineal Ft.	6" Perforated, Galvanized, Corrugated Metal Pipe, Including Specials.	
519	30	Sq. Ft.	Patching Concrete Structures	
606	4	Ea	Bridge Terminal Assembly, Type B as per plan.	
606	528.86	Lineal Ft.	Guardrail, Type 5	
606	4	Ea	Anchor Assemblies, Type A	
619	Lump	Sum	Field Office	
623	Lump	Sum	Construction Layout Stakes	
624	Lump	Sum	Mobilization	
Special	629	Lineal Ft.	Berm Reshaping	
Special	108	Sq. Ft.	Steel Drip Strip	
614	Lump	Sum	MAINTAINING TRAFFIC	
808	92	Units	Chemical Admixture for Concrete Type A, B or D	
Special	58	Sq. Yds.	Silane treatment, application 175 (See Proposal Note)	

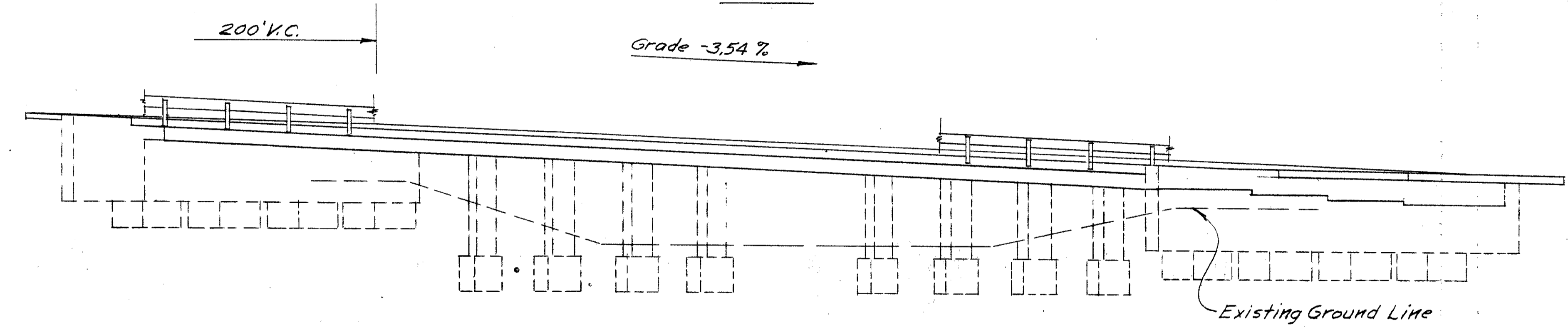
STATE OF OHIO		217
DISTRICT 9 DEPARTMENT OF TRANSPORTATION		BRIDGE OFF.
GENERAL NOTES		
WORK PROCEDURE		
ESTIMATED QUANTITIES		
BRIDGE NO. HIG-247-0614		
OVER OHIO BRUSH CREEK		
DESIGNED	DRAWN	TRACED
MSC	MSE	MSE
CHECKED	DATE	REVIS
AW	M.P.B. 07-80	

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HIGHLAND COUNTY HIG-247-0589



PLAN



ELEVATION

PROPOSED WORK PROCEDURE

1. After Detour has been set up close bridge to traffic. Refer to Plan Sheet No. 1.
2. Remove bridge railing & posts from bridge and guard rail & posts on approaches. Refer to Plan Sheet No. 3.
3. Remove reinforced concrete bridge deck, existing end finish and backwalls. Refer to Plan Sheets 4, 5 & 7.
4. Perform Concrete Patching as directed by the Engineer.
5. Raise & Support stringer beams, weld on moment plates top & bottom of stringer flanges at joints over piers. Weld on shear connectors. Refer to Plan Sheet 4.
6. Install new end finish metal at expansion joints and replace backwalls. Refer to Plan Sheet No. 7.
7. Form & place reinforced concrete bridge deck, apply curing compound & sealant & cure. Refer to Plan Sheet 6.
8. Install bridge rail and approach guard rail. Refer to Plan Sheet 3.
9. Apply Tack Coat and pave feather on approaches. Refer to Plan Sheet 7.
10. Open to traffic. - Paint Superstructure Metal.

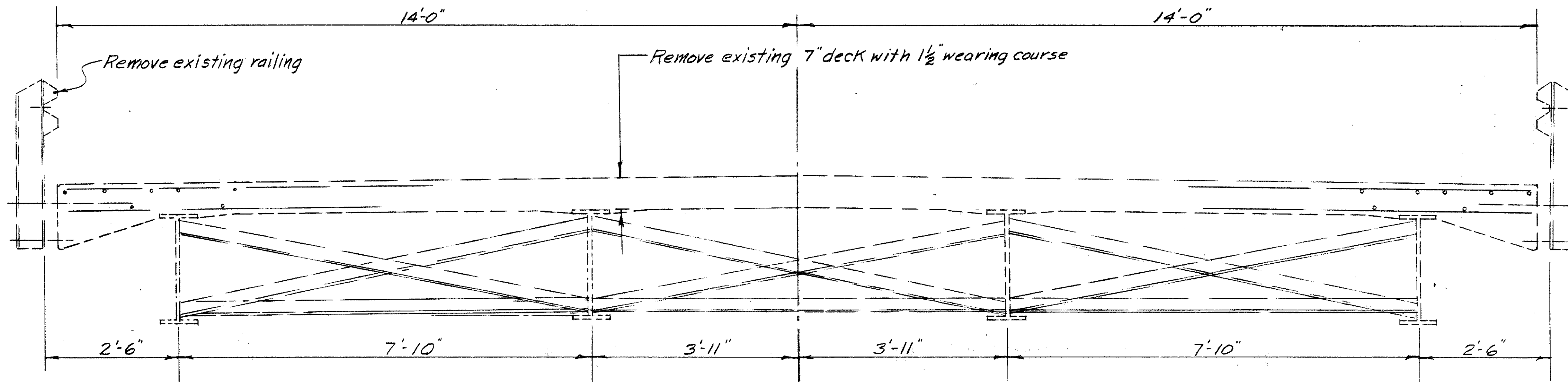
Bench Mark on Right Forward Wing,
Forward Corner - Assumed Elev. 100.0

PLAN & PROFILE
WORK PROCEDURE
BRIDGE NO. HIG-247-0614
OVER OHIO BRUSH CREEK

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
MSE	MSE	MSE	RAW	M.P.B.	07-80	

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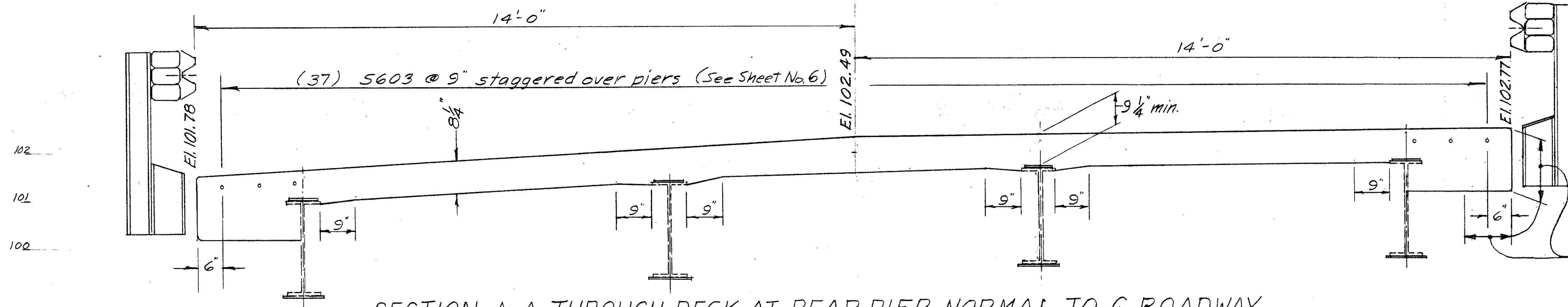


TYPICAL SECTION THROUGH SUPERSTRUCTURE
Showing Existing Concrete Deck & Railing To Be Removed

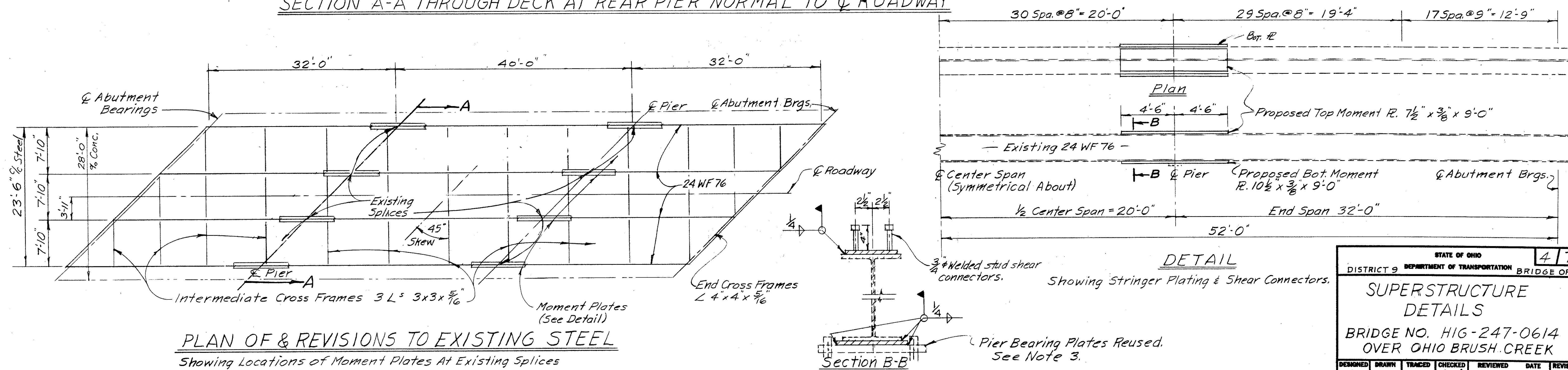
Location & Bearing	Left Edge 19.80 L@ 45°	℄ Profile	Right Edge 19.80 R@ 45°	Dead Load Deflection
Rear Abut.	102.91	103.62	103.90	0"
1/4	102.63	103.34	103.62	5/32"
1/2	102.35	103.06	103.34	3/16"
3/4	102.07	102.78	103.06	3/32"
Pier No. 1	101.78	102.49	102.77	0"
1/4	101.43	102.14	102.42	5/32"
1/2	100.08	101.79	102.07	9/32"
3/4	100.72	101.43	101.71	5/32"
Pier No. 2	100.37	101.08	101.36	0"
1/4	100.08	100.79	101.07	3/32"
1/2	99.80	100.51	100.79	3/16"
3/4	99.50	100.23	100.51	5/32"
Fwd Abut.	99.24	99.95	100.23	0"

- Notes:
- The Contractor may vary the slope of the 9" haunch.
 - The quantity of concrete for the pay item is based on the deck thickness and the haunch as detailed although additional haunch depth may be necessary to adjust to field camber of the stringers to establish the proposed finished concrete deck elevations.
 - The existing bottom flange bearing plates at the piers are to be reused. They shall be separated from the bottom flange, then the proposed bottom plates welded on to the bottom flange after which the bottom bearing plates shall be rewelded on to the bottom plate.

Silane treatment (both edges).
Apply prior to placing drip strips.



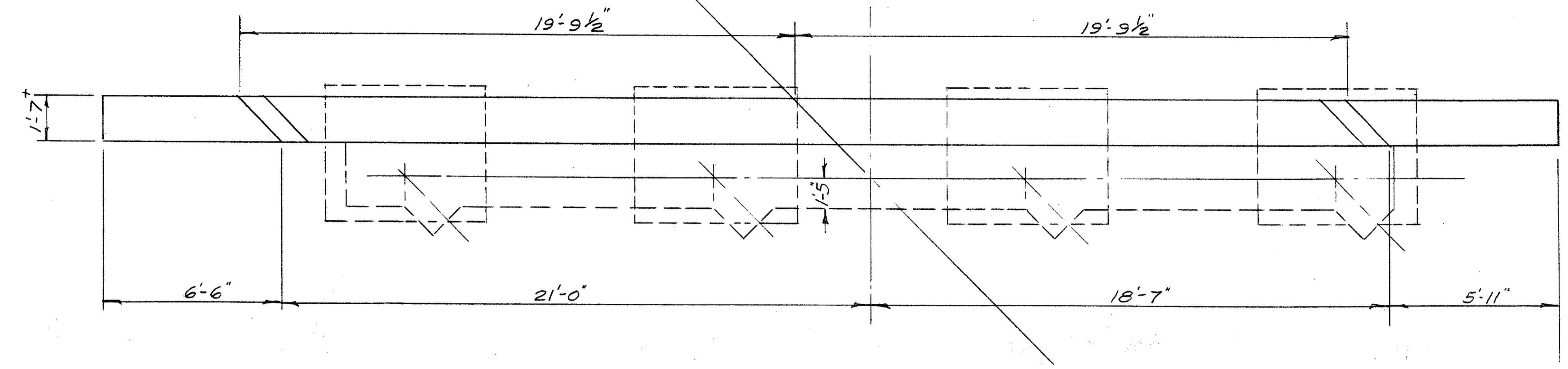
SECTION A-A THROUGH DECK AT REAR PIER NORMAL TO ROADWAY



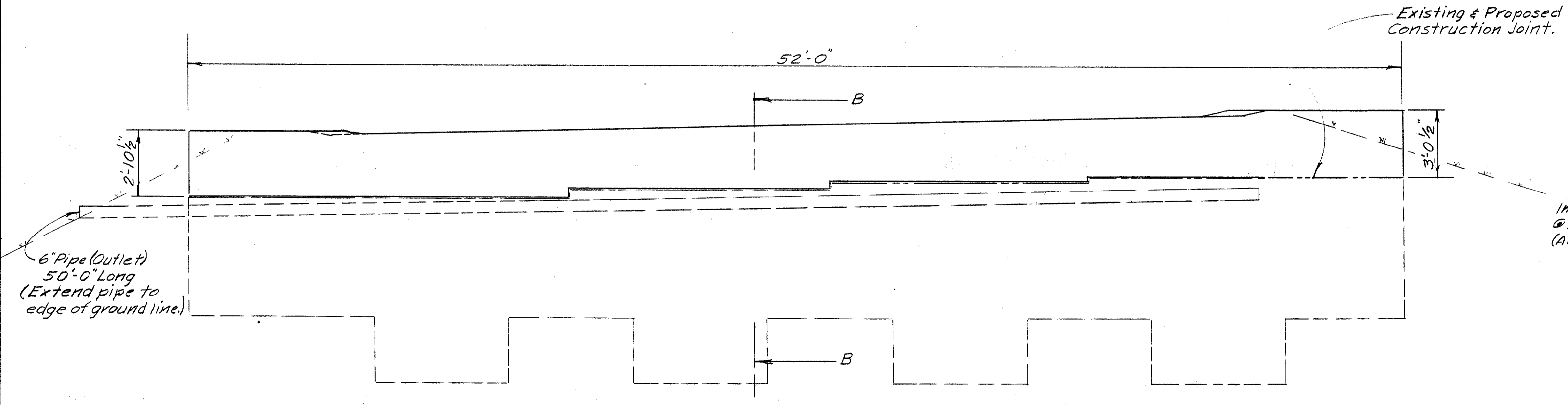
PLAN OF & REVISIONS TO EXISTING STEEL
Showing Locations of Moment Plates At Existing Splices

STATE OF OHIO		4	7
DISTRICT 9 DEPARTMENT OF TRANSPORTATION BRIDGE OFC.			
SUPERSTRUCTURE DETAILS			
BRIDGE NO. HIG-247-0614 OVER OHIO BRUSH CREEK			
DESIGNED	DRAWN	TRACED	CHECKED
PA.W			
REVIEWED	DATE	REVISED	

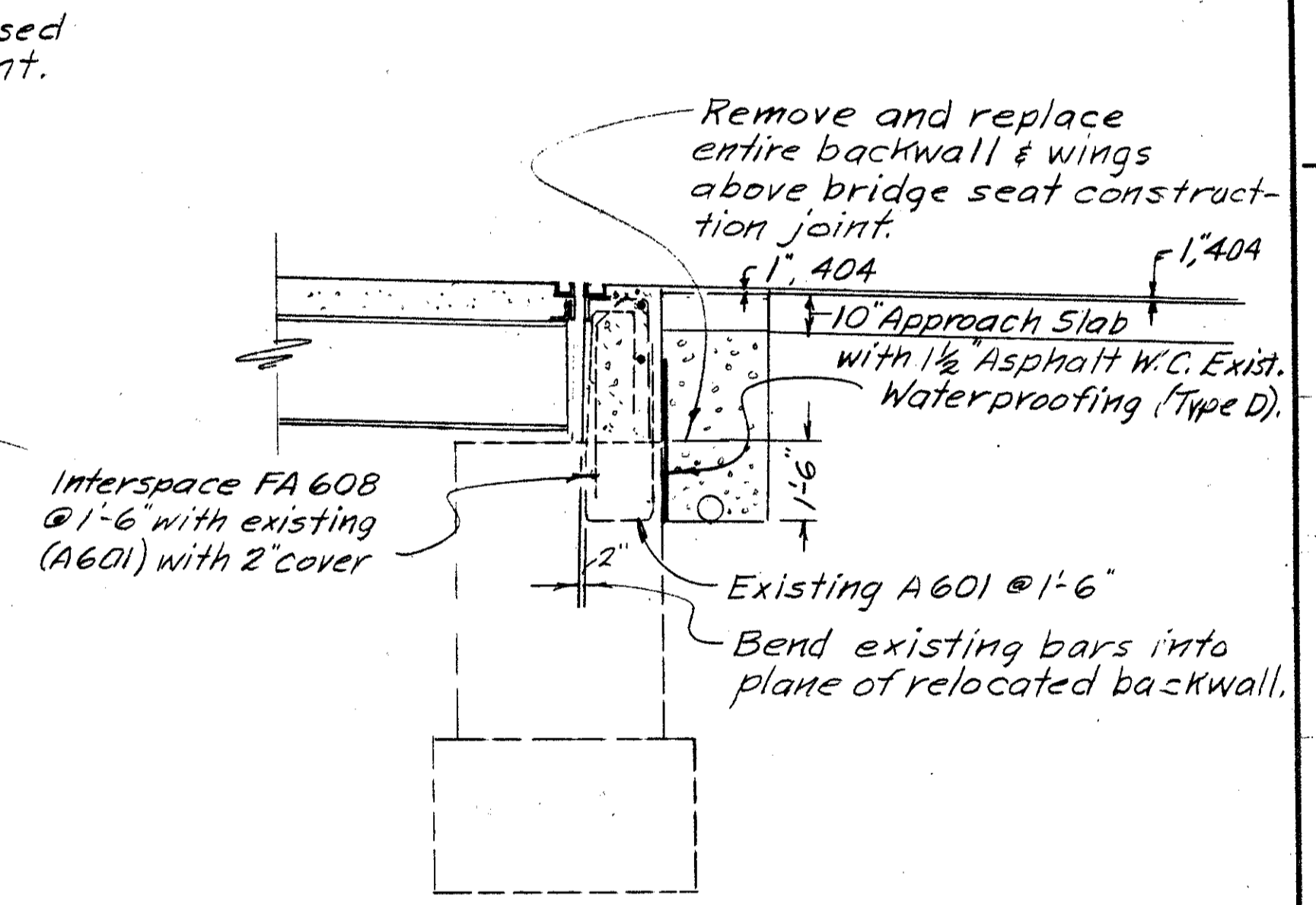
HIGHLAND COUNTY
HIG-247-05.89
BR-45-80



ABUTMENT PLAN



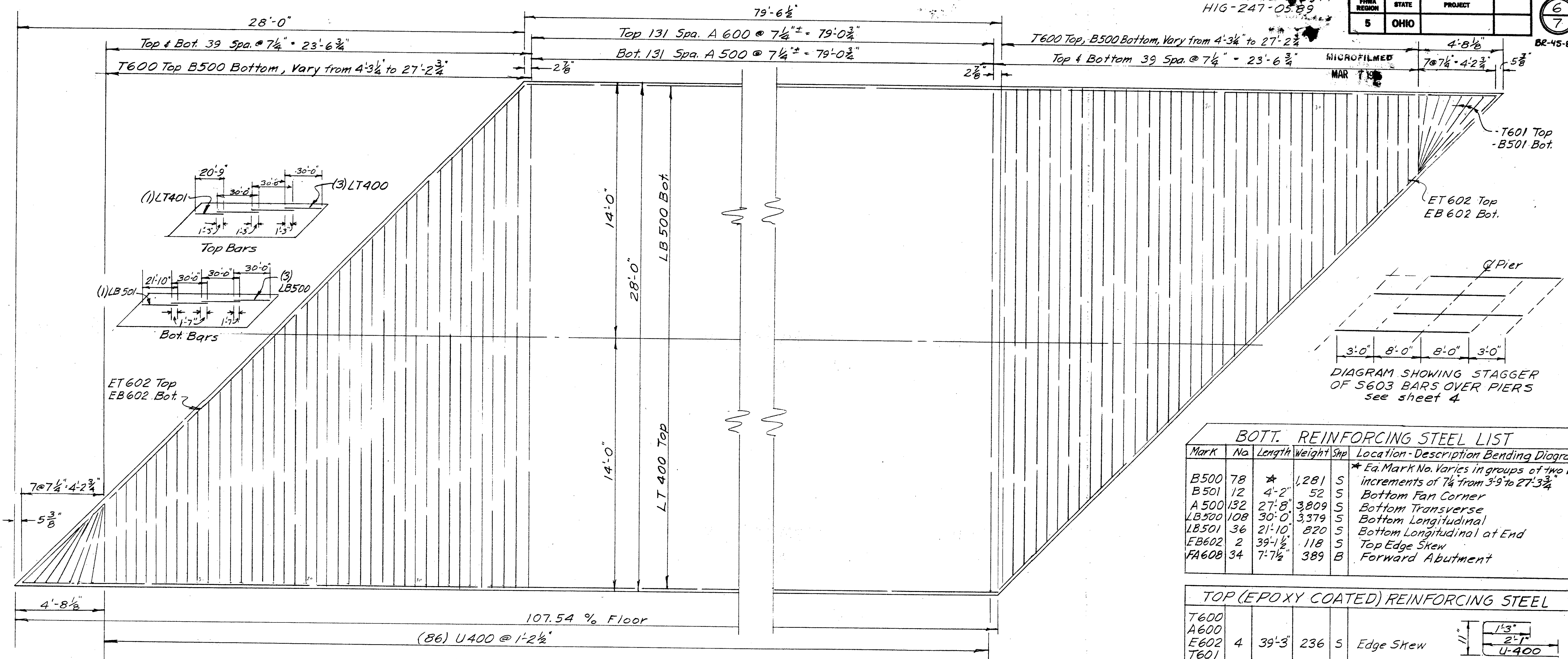
ELEVATION OF FORWARD ABUTMENT



SECTION B-B

Note: Work this sheet with Plan Sheet No. 7

STATE OF OHIO		5/7	
DISTRICT 9 DEPARTMENT OF TRANSPORTATION BRIDGE OFC.			
FORWARD ABUTMENT REPAIR DETAILS			
BRIDGE NO. HIG-247-0614 OVER OHIO BRUSH CREEK			
DESIGNED	DRAWN	TRACED	CHECKED
W.S.C.	M.S.E.	M.S.E.	R.A.W.
REVIEWED	DATE	REVISED	
M.P.B.	07-80		

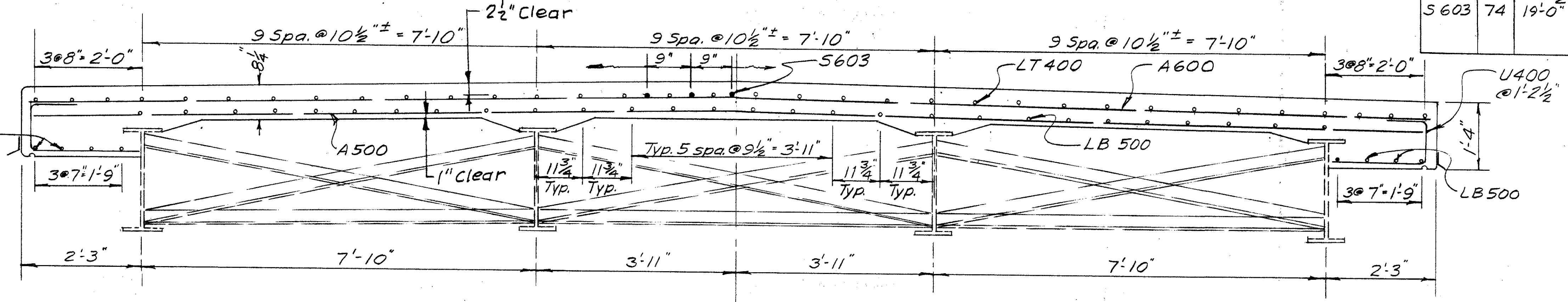
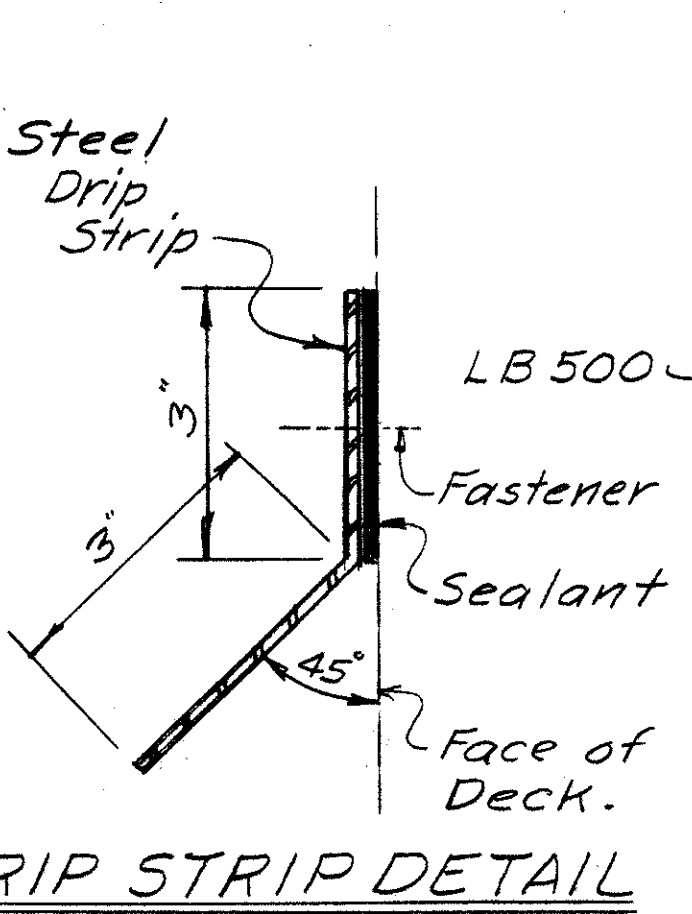


BOTT. REINFORCING STEEL LIST

Mark	No	Length	Weight	Shp	Location-Description Bending Diagrams
B500	78	*	1,281	S	* Ea. Mark No. Varies in groups of two by increments of 7 1/4" from 3'-9" to 27'-3 3/4"
B501	12	4'-2"	52	S	Bottom Fan Corner
A500	132	27'-8"	3,809	S	Bottom Transverse
LB500	108	30'-0"	3,379	S	Bottom Longitudinal
LB501	36	21'-10"	820	S	Bottom Longitudinal at End
EB602	2	39'-1 1/2"	118	S	Top Edge Skew
FA608	34	7'-7 1/2"	389	B	Forward Abutment

TOP (EPOXY COATED) REINFORCING STEEL

Mark	No	Length	Weight	Shp	Location-Description
T600					
A600					
E602	4	39'-3"	236	S	Edge Skew
T601					
U400	172	4'-0"	460	B	Right & Left Deck Edges
LT400	102	30'-0"	2,044	S	Top Longitudinal
LT401	34	20'-9"	471	S	Top Longitudinal @ End
ET602	2	39'-1 1/2"	118	S	Bot-Edge Skew
S603	74	19'-0"	2,112	S	Negative Moment Steel Over Pier (See Sheet 4)



TRANSVERSE SECTION THRU DECK

STATE OF OHIO
DISTRICT 9 DEPARTMENT OF TRANSPORTATION BRIDGE OFC.

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**CONCRETE DECK
DETAILS & STEEL LIST**
BRIDGE NO. HIG-247-0614
OVER OHIO BRUSH CREEK

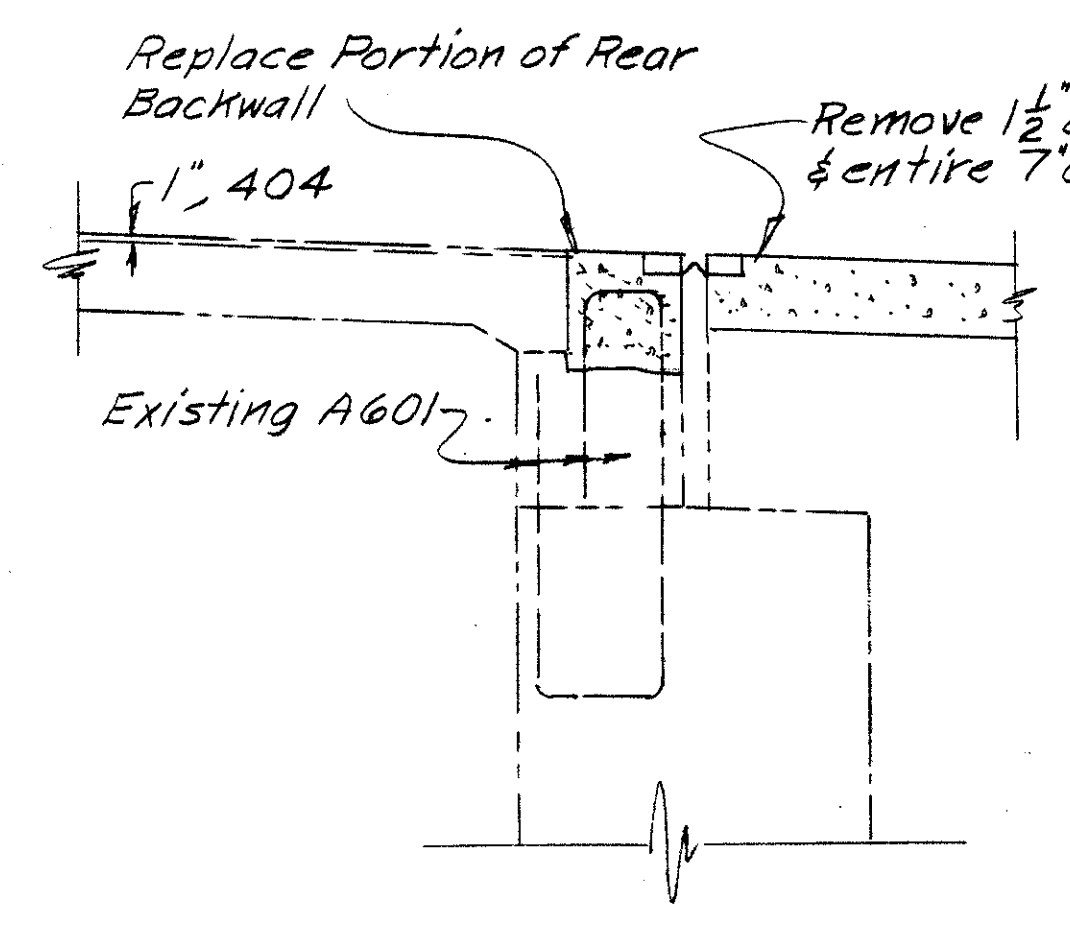
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
MSE	MSE	MSE	BAW	M.P.B.	07-80	

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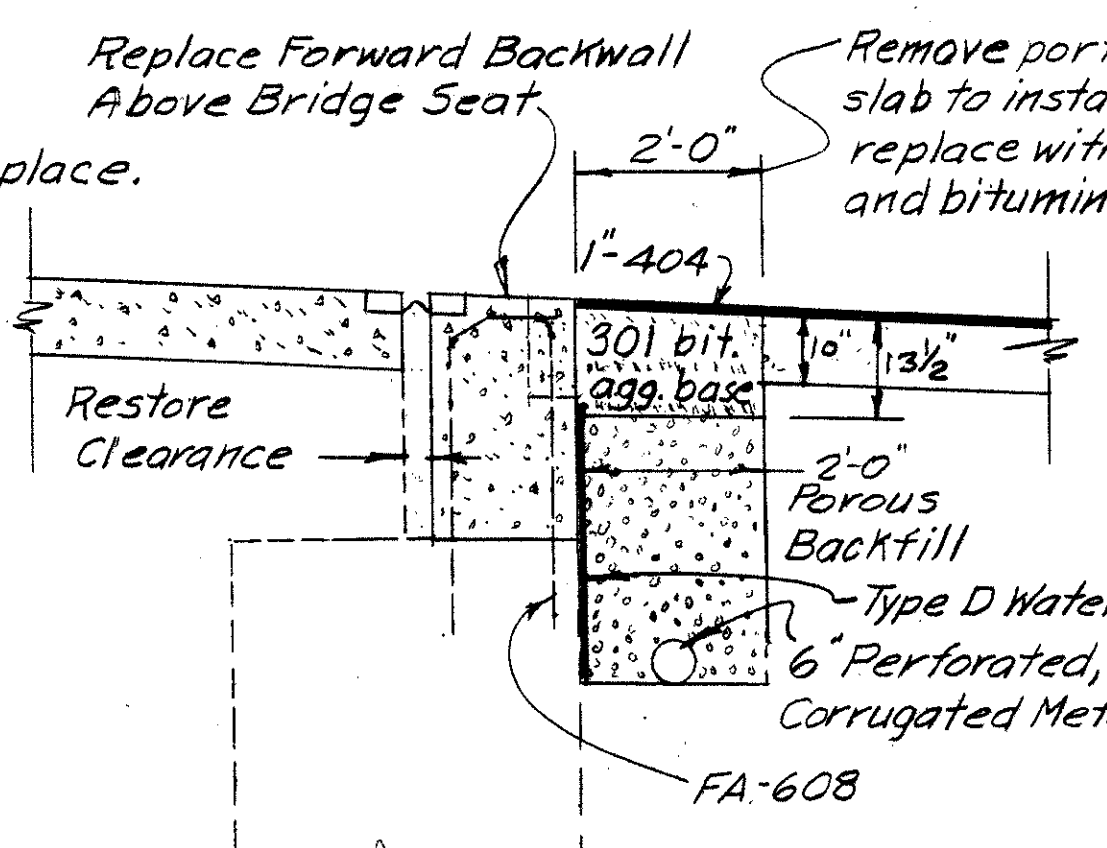
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HIGHLAND COUNTY
HIG-247-05.89

BR-45-80

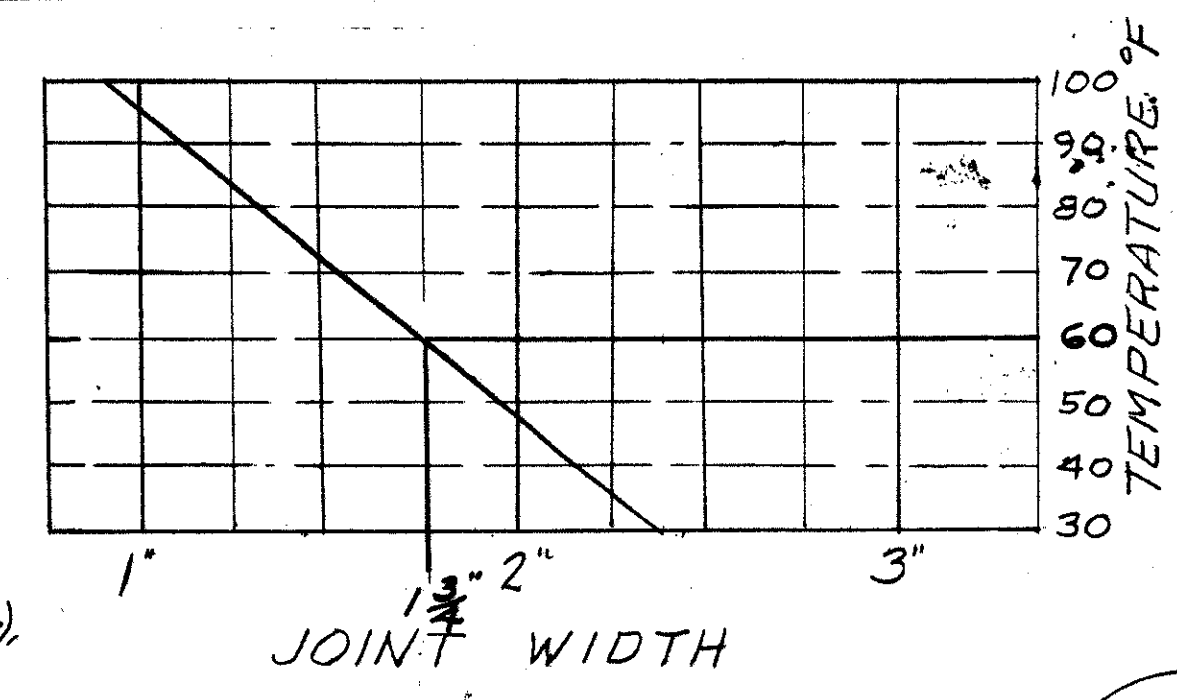


Remove 1 1/2" existing bit. w/s & entire 7" conc. deck & replace.



Replace Forward Backwall Above Bridge Seat

Remove portion of approach slab to install backwall & replace with porous backfill and bituminous material.



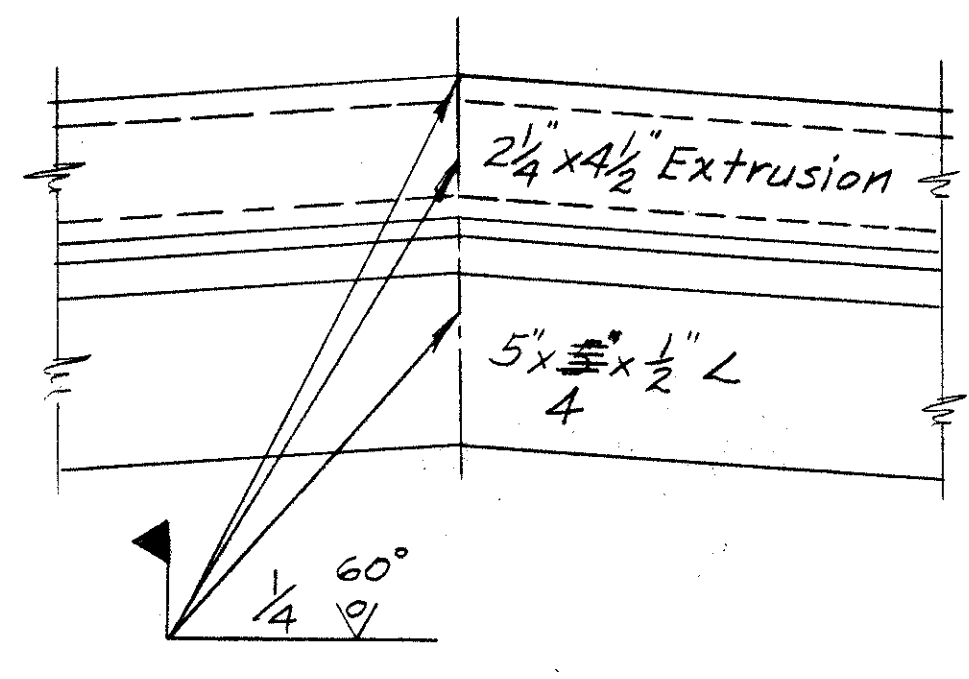
Backwall & End Finish Procedure:

Rear Backwall:

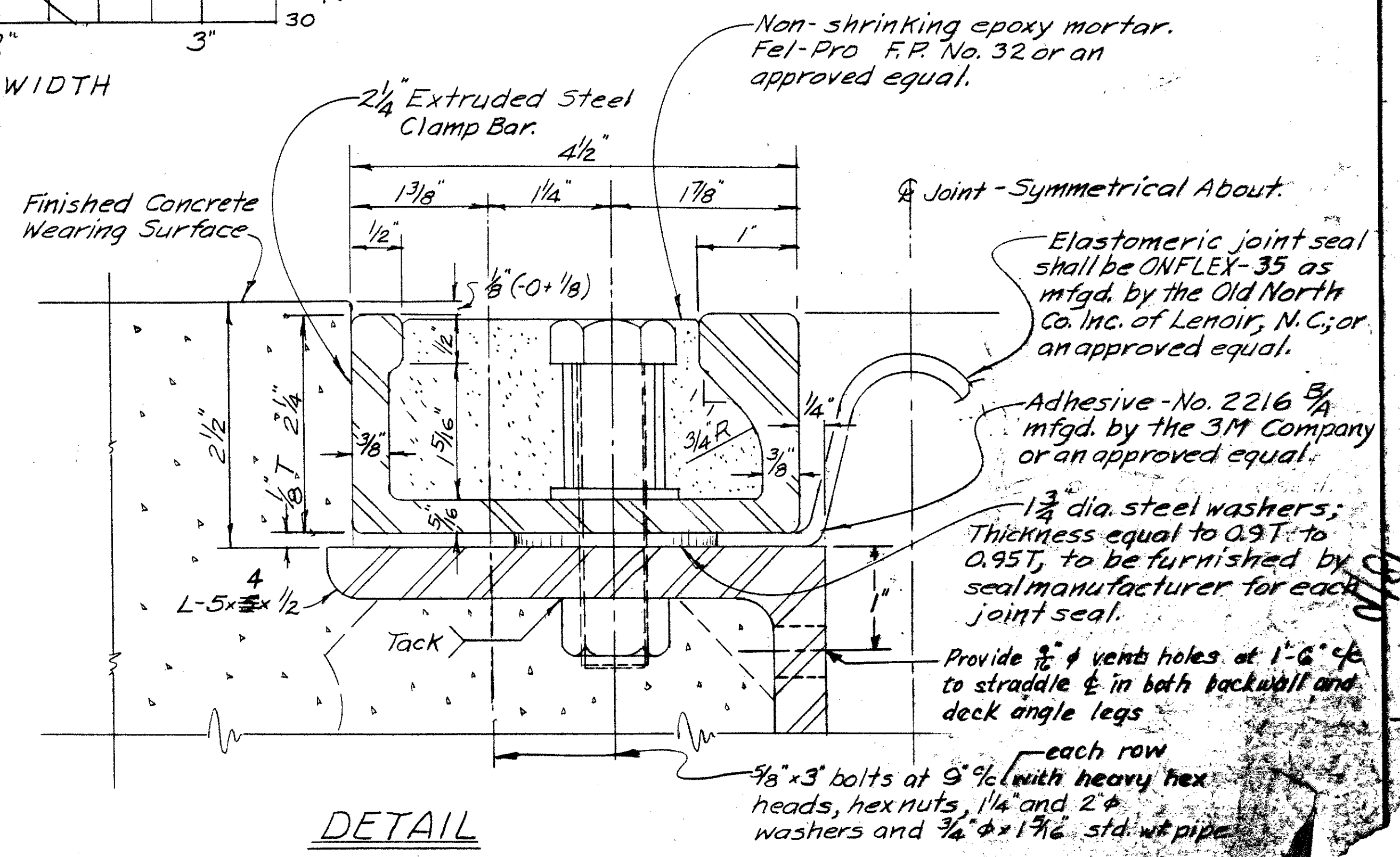
Remove damaged portion of backwall as directed by the Engineer to the minimum dimensions shown without disturbing the approach slab. Save reinforcing steel in place and cast in proposed backwall.

Forward Backwall:

Remove entire backwall down to construction joint at bridge seat. Save all reinforcing steel in place which can be bent away from the backwall face to establish a 2" minimum cover. Install additional bars (FA-608) by grouting into dowel holes drilled 1'-0" (-0'+2") into existing bridge seat and placed to provide a 2" minimum cover of concrete. Locate front face of backwall to reestablish 3" minimum clearance from end of stringers. Steel end finish, after being installed as per plan, shall be used as a template to establish the grade of the top of the backwall allowing for the 3.54% grade (+at rear, -at forward).



WELD BUTT JOINT-END FINISH AT ROADWAY



DETAIL

Non-shrinking epoxy mortar. Fel-Pro F.P. No. 32 or an approved equal.

Joint - Symmetrical About.

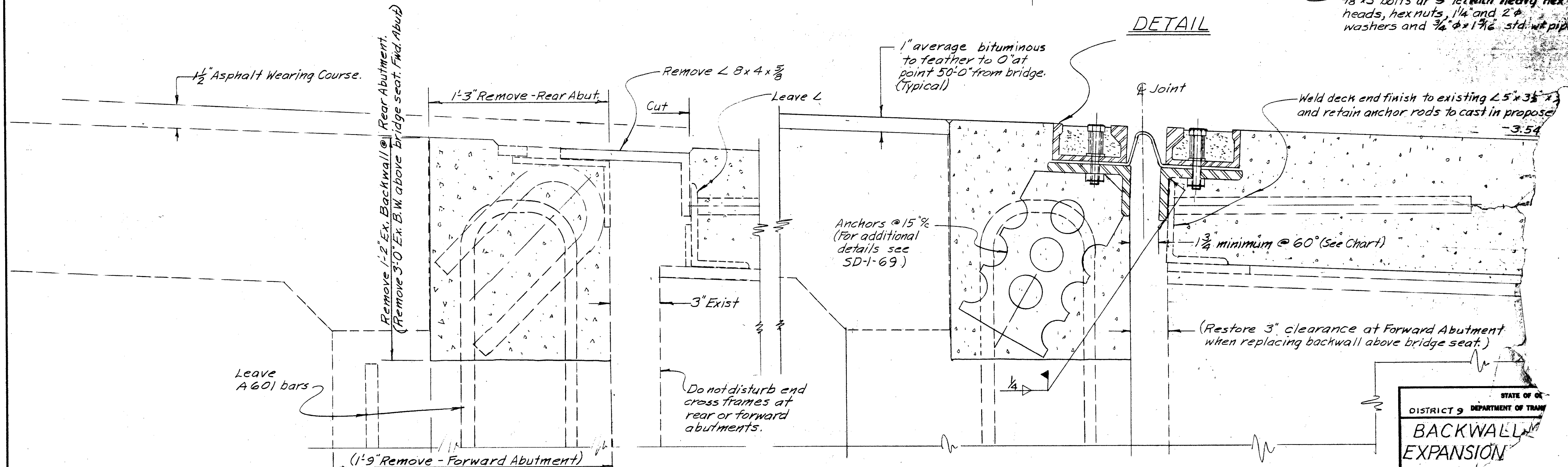
Elastomeric joint seal shall be ONFLEX-35 as mfgd. by the Old North Co. Inc. of Lenoir, N.C.; or an approved equal.

Adhesive - No. 2216 3/4 mfgd. by the 3M Company or an approved equal.

1 1/2" dia. steel washers; Thickness equal to 0.95T, to be furnished by seal manufacturer for each joint seal.

Provide 3/8" dia. vent holes at 1'-6" c/c to straddle & in both backwall and deck angle legs

each row 3/8" x 3" bolts at 9" c/c with heavy hex heads, hex nuts, 1/4" and 2" washers and 3/4" dia x 1 7/8" std. w/ pipe



SECTION THROUGH EXISTING END FINISH

Rear Abutment Shown - Forward Abut. Similar but Opposite Hand.

SECTION THROUGH PROPOSED END FINISH

Rear Abutment Shown - Forward Abut. Similar but Opposite Hand.

STATE OF OHIO
DISTRICT 9 DEPARTMENT OF TRANSPORTATION
BACKWALL EXPANSION BRIDGE OVER

Revised 3-26-81 RLE