

MICROFILMED
SEP 21 1996

OHIO DEPARTMENT OF TRANSPORTATION

PLAN NO. BR-57-92

1
16

PART	COUNTY	ROUTE	BRIDGE NO.	PROJECT TERMINII		NET LENGTH FEET	TOWNSHIP	CITY	VILLAGE
				BEGIN	END				
1	SCI	73	SCI-73-1055	556+01.61	560+14.39	412.78	UNION		

BRIDGE DECK REPAIRS

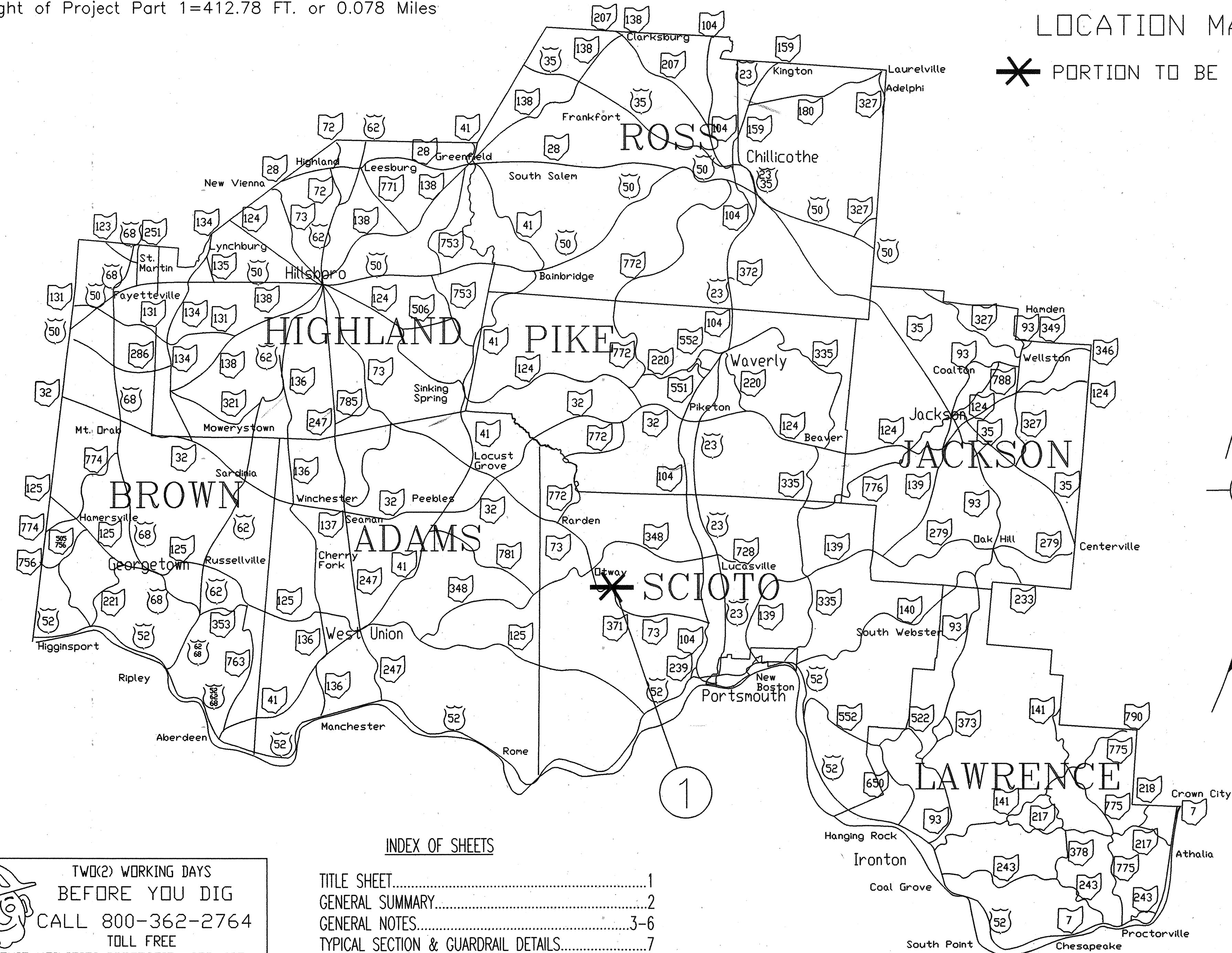
The Standard 1991 Specifications of the State of Ohio, Department of Transportation, including changes and Supplemental Specifications listed in the plans and proposal shall govern these improvements

I hereby approve these plans and declare that the making of these improvements will require the closing of the highways to traffic on Parts No. NONE and that detours will be provided by State forces. The closing to traffic of the highways will not be required on Parts No. 1 and provisions for the maintenance and safety of traffic will be as indicated in the proposal.

Net Length of Project Part 1=412.78 FT. or 0.078 Miles

LOCATION MAP

✱ PORTION TO BE IMPROVED



INDEX OF SHEETS

TITLE SHEET.....	1
GENERAL SUMMARY.....	2
GENERAL NOTES.....	3-6
TYPICAL SECTION & GUARDRAIL DETAILS.....	7
STRUCTURES OVER 20' SPAN.....	8-16



TWO(2) WORKING DAYS
BEFORE YOU DIG
CALL 800-362-2764
TOLL FREE
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS MUST BE CALLED DIRECTLY

Approved
Date 7-21-92

Approved
Date 9-17-92

Approved
Date 9-29-92

Approved
Date 9-29-92

J. S. Atkins
District Deputy Director of Transportation

B. D. Hankilammi DFT
Engineer, Bureau of Bridges and Structural Design

Alexander H. Hynds
Deputy Director, Operations

Jerry Wray
Director, Department of Transportation

STANDARD DRAWINGS		SUPPLEMENTAL SPECIFICATIONS	
AS-1-81	11-27-81		
DBR-2-73	4-10-73	836	11-12-85
EXJ-4-87	1-5-89		
RB-1-55	2-2-59		
SD-1-69	6-12-69		
BP-3.1	2-21-92		
GR-1.1	5-6-91		
GR-1.2	5-6-91		
GR-1.3	2-21-92		
GR-2.1	5-6-91		
GR-3.4	5-6-91		
GR-4.2	5-6-91		
PCB-91	4-24-92		
PCB-DD	4-24-92		
MT-96.11	9-9-88		
MT-96.20	9-9-88		
MT-96.25	9-9-88		
MT-97.11	10-4-89		

GENERAL SUMMARY
STRUCTURE OVER 20 FT. SPAN

CALC:	DATE:	FHWA REGION	STATE	PROJECT	
CHKD:	DATE:	5	OHIO		

2
16

SCI-73-10.55

ITEM	ABUTMENTS	PIERS	SUPERSTRUCTURE	GENERAL	ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION
202				LUMP	202	11203	LUMP		PORTIONS OF STRUCTURE REMOVED. OVER 20 FOOT SPAN, AS PER PLAN
202				2,959	202	38000	2,959	LIN. FT.	GUARDRAIL REMOVED
203				0.66	203	60500	0.66	MILE	LINEAR GRADING
404				522	404	20000	522	CU. YD.	ASPHALT CONCRETE, AC-20
503				LUMP	503	11100	LUMP		COFFERDAMS, CRIBS AND SHEETING
503				LUMP	503	21300	LUMP		UNCLASSIFIED EXCAVATION, AS PER PLAN
509	3,263		49,675		509	15800	52,938	POUND	EPOXY COATED REINFORCING STEEL, GRADE 60
510	128				510	11101	128	EACH	DOWEL HOLE
511			245		511	33404	245	CU. YD.	CLASS S CONCRETE, SUPERSTRUCTURE (USING SHRINKAGE COMPENSATING CEMENT), AS PER PLAN
511	28				511	45700	28	CU. YD.	CLASS C CONCRETE, ABUTMENT
512	37				512	44400	37	SQ. YD.	TYPE B WATERPROOFING
SPECIAL	115		250		SPECIAL	51267502	365	SQ. YD.	SEALING OF CONCRETE SURFACES, EPOXY
SPECIAL			81		SPECIAL	51273000	81	SQ. YD.	TREATING CONCRETE BRIDGE DECKS WITH HMWM RESIN
513	3,097 (ROCKERS)+(SHIMS)		1,190 (END CROSSFRAMES)		513	11100	4,287	POUND	STRUCTURAL STEEL, AISC CATEGORY I
SPECIAL					SPECIAL		LUMP		METALIZING STEEL STRUCTURES, AS PER PLAN
516	77				516	11210	77	LIN. FT.	STRUCTURAL EXPANSION JOINT INCLUDING ELASTOMERIC STRIP SEAL
517			437.50		517	72300	437.50	LIN. FT.	RAILING(DEEP BEAM RAIL W/STEEL TUBULAR BACKUP AND TYPE 2 ST. POSTS AND ANCHOR BOLTS)
518	27				518	21101	27	CU.YD.	POROUS BACKFILL WITH FILTER FABRIC
518	99				518		99	LIN. FT.	6" PERFORATED POLYVINYL CHLORIDE PLASTIC PIPE, 707.17
518	30				518		30	LIN. FT.	6" NON-PERFORATED POLYVINYL CHLORIDE PLASTIC PIPE, INCLUDING SPECIALS, 707.16
SPECIAL				418.50	SPECIAL	51822300	418.50	LIN. FT.	STEEL DRIP STRIP
SPECIAL	3				SPECIAL	53000600	3	SQ. FT.	STRUCTURE, MISC; POLYSTYRENE JOINT FILLER
SPECIAL	115		229		SPECIAL	53000800	344	SQ. YD.	STRUCTURE, MISC; SEALING OF CONCRETE SURFACES WITH A URETHANE TOP COAT
SPECIAL	4				SPECIAL	60436600	4	EACH	PRECAST REINFORCED CONCRETE OUTLET
606				2,712.50	606	13000	2,712.50	LIN. FT.	GUARDRAIL, TYPE 5
606				4	606	28000	4	EACH	ANCHOR ASSEMBLY, TYPE E
606				2	606	26500	2	EACH	ANCHOR ASSEMBLY, TYPE T
606				4	606	35140	4	EACH	BRIDGE TERMINAL ASSEMBLY, TYPE 4
611				200	611	10000	200	SQ. YD.	REINFORCED CONCRETE APPROACH SLAB (T=15"), AS PER PLAN
614					614	11000	LUMP		MAINTAINING TRAFFIC
619					619	16010	LUMP		FIELD OFFICE, TYPE B
623					623	10000	LUMP		CONSTRUCTION LAYOUT STAKES
624					624	10000	LUMP		MOBILIZATION
642				0.66	642	00102	0.66	MILE	EDGE LINE, TYPE 2
642				0.103	642	00302	0.103	MILE	CENTER LINE, TYPE 2
802				28	802	00300	28	EACH	BARRIER REFLECTOR, TYPE A2
SPECIAL			1037		SPECIAL	85050070	1037	SQ. YD.	BRIDGE DECK GROOVING, AS PER PLAN

NOTES:

- REMOVAL INCLUDES DECK, AND PORTIONS OF ABUTMENTS AS DETAILED IN THE PLAN
- ✱ SEE PROPOSAL NOTE

STATE OF OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 9 BRIDGE OFFICE					2/16
GENERAL SUMMARY STRUCTURE OVER 20' SPAN BRIDGE NO. SCI-73-10.55 S.R. 73 OVER BRUSH CREEK SCIOTO COUNTY					
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
N.L.H.	N.L.H.	N.L.H.	J.T.H.	Lawrence A. Wille	7/20/92

SC7310GS 1=1

S73GN1 1=1

FHWA REGION	STATE	PROJECT		3 16
5	OHIO			

SCI-73-1055

GENERAL NOTES

REFERENCE:

Reference shall be made to Standard Drawings:

AS-1-81 dated 11-1-82
SD-1-69 dated 6-12-69
DBR-2-73 dated 4-10-73
RB-1-55 dated 2- 2-59
EXJ-4-87 dated 1- 5-89

DESIGN SPECIFICATIONS:

This structure modification conforms to "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" adopted by the American Association of State Highway and Transportation Officials, 1992, and the Ohio "Supplement" to these specifications.

DESIGN DATA:

Design Loading - HS-20-44 & Alternate Military

Concrete Class C - 4000 psi compressive strength

Concrete Class S - 4500 psi compressive strength

Reinforcing Steel - ASTM A615, A616, or A617 Grade 60, yield strength 60,000 psi minimum

Structural Steel - A36, yield strength 36,000 psi

DECK PROTECTION METHOD - Epoxy coated top and bottom reinforcing mat.
Epoxy sealant on selected deck surfaces.
HMWM crack sealant on selected surfaces.

MONOLITHIC WEARING COURSE - Is assumed, for design purposes, to be 1" thick.

EXISTING STRUCTURE VERIFICATION:

Details and dimensions shown on these plans pertaining to the existing structure have been obtained from field observations and measurements. Consequently, they are indicative of the existing structure and the proposed work, but they shall be considered tentative and approximate. The Contractor is referred to CMS Sections 102.05, 105.02, and 513.02.

Contract bid prices shall be based upon a recognition of the uncertainties described above and upon a prebid examination of the existing structure by the Contractor. However, all project work shall be based upon actual details and dimensions which have been verified by the Contractor in the field.

EXISTING BRIDGE PLANS:

Detail drawings of the existing bridges may be inspected in the District Bridge Office in Chillicothe, or in the Bureau of Bridges at 25 South Front Street in Columbus, Ohio.

ITEM SPECIAL-BRIDGE DECK GROOVING:

Quantities include grooving of both bridge and approach slabs.

ITEM SPECIAL - SEALING OF CONCRETE SURFACES, EPOXY:

This item shall include all labor and material required to seal the concrete surfaces with epoxy sealer which shall be Federal Color Standard No. 26231 (Gray). The estimated quantities that are set up in the plan are to be used to seal the bridge concrete surfaces as follows:

DECK EDGES: Seal the exposed deck edges as detailed in the plan.

ABUTMENTS: Seal all exposed surfaces of the abutments including the backwalls, seats, breastwalls, and wingwalls down to the groundline.

WELDED ATTACHMENTS:

Welded attachments of supports for concrete deck finishing machines may be made to areas of the beam flanges designated "COMPRESSION". Attachments shall not be made to areas designated "TENSION". Fillet welds to compression flanges shall not be closer than 1" from the edge of the flange, be no more than 2" long, and not smaller than the minimum size required by AASHTO. See Sheet No. 9/16

ITEM SPECIAL - SEALING OF CONCRETE SURFACES WITH A URETHANE TOP COAT SEALER

This item shall consist of the application of a urethane top coat sealer over concrete areas coated with epoxy. These areas being noted in Item Special - Sealing of Concrete Surfaces, Epoxy. The color of the urethane coating shall be Federal Color Standard No. 37778 (Off-White).

The urethane coating shall be applied between 1 and 10 days after the application of the epoxy. The epoxy shall be clean and dry before the urethane is applied. Application shall be by airless spray.

All work shall be in accordance with the Manufacture's recommendations and as directed by the Engineer.

The urethane top coat shall be one of the following products:

- 1) Ameron's AMERCOAT 450 HS
- 2) Poly-Carb's MARK 73
- 3) Tnemec's SERIES 70 ENDURA SHIELD
- 4) Dural's AQUATHANE/URETHANE 37722

The cost of all labor, equipment, and material to accomplish this item of work shall be paid under:

ITEM	UNIT	DESCRIPTION
SPECIAL	SQ.YD.	SEALING OF CONCRETE SURFACES WITH A URETHANE TOPCOAT SEALER

ITEM 503 - UNCLASSIFIED EXCAVATION, AS PER PLAN:

The backfill material for all excavation behind the abutments and under the approach slabs shall be Low Strength Mortar Backfill Material, Class LSM-50 within the limits of the approach slabs. The area for the Porous Backfill With Filter Fabric shall be formed up prior to the placement of the LSM Backfill and the filter fabric, perforated plastic pipe, and porous backfill shall be placed after the LSM Backfill has cured and the forms have been removed. See Proposal Note for LSM Backfill.

The cost of all labor, equipment, and material to place the LSM Backfill as described above shall be included in the Lump Sum bid price for Item 503 - Unclassified Excavation, As Per Plan.

COFFERDAMS, CRIBS AND SHEETING:

Any sheet piling required to construct the approach slabs half width while maintaining traffic in the adjacent lane shall be included in this Lump Sum Bid Item.

ITEM 611 - REINFORCED CONCRETE APPROACH SLAB, AS PER PLAN:

The approach slabs shall be constructed half width in order to maintain traffic as detailed in the plans. The reinforcing steel shall be epoxy coated and the transverse bars shall be joined with mechanical connectors at the construction joint similar to those used in the deck and abutments. All of this work shall be included for payment in Item 611 - Reinforced Concrete Approach Slab, As Per Plan.

DECK REINFORCING STEEL:

Transverse bar lengths used are for pay quantity. The lengths shall be adjusted to suit the specific approved mechanical connector provided.

ESTIMATED QUANTITIES:

Specific locations and usage of some of the estimated quantities set up on these plans to be used as directed by the Engineer shall be incorporated into the final change order governing completion of this project. Estimated quantities of materials shall not be ordered for delivery to the project unless authorized by the Engineer.

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN

When no longer needed to maintain traffic, the existing deck, approach slabs, abutment backwalls & wing walls, and deck railing shall be removed, as per plan. Suitable waste masonry may be placed on the slopes as directed by the Engineer. All other removed material shall become the property of the Contractor, unless otherwise indicated in these plans, and shall be removed from the site. This item is included for payment in Item 202. This item shall also include the removal and disposal of Rockers, Bolsters, Shims and Crossframes as specified in the plans.

STATE OF OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 9 BRIDGE OFFICE				3 16
GENERAL NOTES STRUCTURES OVER 20' SPAN BRIDGE NO. SCI-73-1055 OVER BRUSH CREEK				
DESIGNED NLH	DRAWN NLH	TRACED NLH	CHECKED JTH	REVIEWED DATE Lawrence A. Willis 7/20/92
				REVISED

S73GNI 1=1

FHWA REGION	STATE	PROJECT	
5	OHIO		

4

16

SCI-73-1055

GENERAL NOTES

ITEM SPECIAL - METALIZING STEEL STRUCTURES

This procedure governs the methods, requirements and procedures for applying thermal sprayed metal onto existing steel surfaces. The thermal spraying process consists of melting the metal and then spraying it onto a prepared surface by means of compressed gas. This item shall consist of furnishing all materials, labor, equipment, and incidentals for metalizing as specified including the surface preparation. All steel surfaces, except for galvanized steel, shall be metalized unless otherwise noted.

The prime Contractor shall obtain the services of one of the following to perform surface preparation, metalizing, and a clear phenolic top coat:

Akron Sandblast & Metalizing Co. 1031 Lambert St. Barberton, OH 44203	O.B. Cannon & Sons 5600 Woodland Ave. Philadelphia, OH 19143
Federal Industrial Services 12980 Inksler Road Redford, MI 48239	Cincinnati Thermal Spray, Inc. 5901 Creek Road Cincinnati, OH 45242
Metalizing Masters, Inc. 850 Spring Ave., N.E. P.O. Box 7375 Canton, OH 44705	Newsome & Work Metalizing Co. P.O. Box 2791 Akron, OH 44301
Tri-State Metal Spray & Blasting, Inc. 5676 Erie Ave., N.W. Canal Fulton, OH 44614	National Thermal Spray 117 Brook Ave. Deer Park, NY 44301

MATERIAL AND SPECIFICATIONS:

WIRE:

The wire used for the metalizing shall consist of 85% zinc and 15% aluminum.

THICKNESS:

The thickness of the metalized coating shall be 6-8 mils.

MANUFACTURER:

Sufficient identifiable characteristics other than a trade or brand name or designated number or symbol should be provided to permit laboratory test verification of metal identity. Each container or coil wrapping shall be examined to verify the presence of a proper label identifying component type, supplier, size, batch number, and wire lot number.

MATERIALS, HANDLING AND USE:

Each container or coil shall be examined for damage. Broken or bent coils shall be marked and segregated for return, and removed from the material area. Materials shall be promptly stocked and/or arranged in the controlled storage area.

PRIOR INSPECTION OF WORK:

Prospective bidders are required to make an inspection of the bridge in the field and to review the plans and specifications of the bridge in the field and to review the plans and specifications before submitting bids. See Section 102.05 of the "CONSTRUCTION AND MATERIAL SPECIFICATIONS".

POLLUTION CONTROL:

The Contractor shall contain, collect, store, evaluate and dispose of all blasting debris as specified in the Proposal Note entitled FIELD PAINTING OF EXISTING STEEL, SYSTEM OZEU. The cost shall be included with the metalizing for payment.

WORK LIMITATION:

All work shall be done between March 15 and October 15.

SURFACE PREPARATION:

Before any blasting is done, the Contractor will prepare a test section. The test section will be a representative area to be blasted. The Project Engineer and the Contractor will photograph the test section area after they agree that the area has been blasted according to plan requirements. Only after a test section has been approved and documented by photographs may the Contractor proceed with the blasting operation. The photographs shall be used in addition to the plan specifications to determine acceptance of blasting procedures.

All surfaces to be metalized shall be washed with water having a nozzle pressure at least 1,000 PSI and a delivery rate of not less than 4 gallons per minute. The Contractor shall provide equipment specifications to verify the pressure. The water shall contain a detergent at the rate specified by the manufacturer to remove oil, grease, salt, and dirt to the Engineer's satisfaction.

Before the surfaces dry, two rinses with no dry between, shall be used to remove all remaining detergent. The nozzle shall be held a maximum of twelve (12) inches from the surface being washed or rinsed. The metalizing shall be applied within one (1) month of washing the structure.

All dirt, sand, and debris shall be completely removed from the structural steel and all other sections of the bridge as directed by the Engineer. All dirt, sand, and debris from the above areas shall then be removed from the bridge work area.

To avoid a traffic hazard, the Contractor shall remove all sand from the roadway and shoulder areas each day.

Galvanized steel, adjacent concrete which has been coated or sealed, and other surfaces not intended to be metalized, shall be covered and protected to prevent damage from the blasting and metalizing operations. Any adjacent coatings damaged during the blasting operation shall be repaired at the Contractor's expense.

Unless otherwise specifically allowed, the abrasive shall be a recyclable steel grit. After each use and prior to reuse, the steel grit shall be cleaned of paint chips, rust, mill scale and other foreign material by equipment such as:

CAB SABAR Systems c/o Kotlyn, Inc. 6114 Paula Blvd. W. Ridgeville, OH 44039 (216) 327-8570	IPEC Quonset Pt. Davisville Ind. Pk. North Kingstown, RI 02854 (401) 295-8802
SPM Ecospan Surface Preparation Machinery Division of Transume, Inc. P.O. Box 988 Minneapolis, MN 55458 1-800-279-3623	Advanced Recycling Systems, Inc. 1089 N. Hubbard Road Lowellerville, OH 44436-9737 (216) 534-3330

All abrasives and residue shall be removed from surfaces to be metalized with a vacuum system equipped with a brush-type cleaning tool, or by double blowing. Double blowing shall consist of two completely separate passes. If the double blowing method is used, the top surfaces of all structural steel, including top and bottom flanges, longitudinal stiffeners, splice plates, hangers, etc. shall

be vacuumed after the double blowing operations are completed. All steel blast cleaned in any one day shall be kept dust free and metalized the same day. Failure to metalize the same day will require reblasting before the metalizing. No dust or abrasives from adjacent work shall be left on the clear phenolic top coat.

Abrasive blasting and metalizing may take place simultaneously on the bridge as long as abrasive blasting debris and/or dust by the blowing operation does not come into contact with the surfaces being metalized.

All steel to be metalized shall be blast cleaned to grade Sa 2-1/2 according to ASTM D2200 or DDPC-SP10 (SSPC VIS 1). The average surface profile shall be three (3) mils. The average surface profile shall be considered the average of three (3) separate readings in 2000 sq. ft.

Blasting shall not proceed when the steel temperature is within five (5) degrees of the dew point to prevent rust-back. All protruding fins, tears, slivers and burred or sharp edges that are present on any steel member after blasting shall be removed by grinding and the area reblasted.

The following tests shall be done to insure that the air and abrasives are not contaminated. Open the air valve for thirty (30) seconds and test the air cleanliness with a white blotter. Any oil or contaminants on the blotter requires corrective action. This test shall be done at the start of the shift and at four (4) hour intervals. Place a quantity of abrasives in a container of clean fresh water with a pH of seven (7). Test the solution with standard litmus paper. Stop blasting if an oil film or a pH other than seven (7) is recorded. Conduct the test on each batch or load of abrasive delivered.

APPLICATION:

Before any metalizing is done, the Contractor shall prepare a test section for each metal supplied. The Contractor shall submit to the Project Engineer a steel plate approximately 12" X 12" to which the metal has been deposited to the specified thickness, as checked with a magnetic or Eddy Current Gage, for acceptance by the Engineer as to grain size and texture of the sprayed metal. Solid plate will be used to determine the acceptance of the finished job. In the event the Contractor's coating is inferior to the sample, he shall be required to correct the coating by an acceptable repair method and do a job comparable to the specimen submitted. If the surface is degraded or contaminated subsequent to surface preparation and prior to metalizing, the surface shall be restored before metalizing. All surface preparation shall be approved by the Engineer prior to metalizing. In order to prevent the degradation or contamination of cleaned surfaces, the metalizing shall be applied the same day the surface has been cleaned. The seal coat shall also be applied the same day as the metalizing.

The Contractor is required to provide facilities to protect the finished metalized surface from damage during the blasting and thermal spraying work operations on adjacent areas. All damaged coated areas shall be properly repaired by the Contractor. Surfaces not intended to be metalized shall be suitably protected from the effects of cleaning and metalizing operations. If metalizing is done prior to deck placement, flanges to be embedded in concrete are to be metalized.

STATE OF OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 9 BRIDGE OFFICE					4 / 16
GENERAL NOTES STRUCTURES OVER 20' SPAN BRIDGE NO. SCI-73-1055 OVER BRUSH CREEK					
DESIGNED NLH	DRAWN NLH	TRACED NLH	CHECKED JTH	REVIEWED Lawrence A. Willis 7/20/92	DATE 7/20/92 REVISED

S73GN1 1=1

FHWA REGION	STATE	PROJECT		5 16
5	OHIO			

SCI-73-1055

GENERAL NOTES

ITEM SPECIAL – METALIZING STEEL STRUCTURES (CONT.)

TEMPERATURE:

Metalizing shall not be applied when the temperature of the steel or metal is below 40°F (4°C) or when the air temperature is below 40°F (4°C). Metalizing shall not be applied to steel which is at a temperature that will cause blistering or porosity or otherwise will be detrimental to the life of the metalizing.

MOISTURE:

Metalizing shall not be applied in rain, wind, snow, fog or mist, or when the steel surface temperature is less than 5°F (3°C) above the dew point. Metalizing shall not be applied to wet, damp or frosted surfaces. Metalizing shall not be applied when the relative humidity is above 85%.

DAMAGE:

Damaged areas of metalizing which are detrimental to the service life shall be removed. The surface shall again be prepared and re-metalized as before.

CONTINUITY:

To the maximum extent practical, metalizing shall be applied as a continuous film of uniform thickness free of pores. All thin spots or areas missed in the application shall be re-metalized.

THICKNESS AND DEDUCTION:

The Contractor shall call for inspection and acceptance daily of completed sections of coatings. The coatings shall be checked for thickness by means of an approved thickness gauge. The Contractor shall provide sufficient thickness gauges to make a through inspection of the completed surfaces. The Contractor shall be required to add metalizing within the same work day to any areas failing to register minimum thickness.

The metalizing unit shall be a gun manufactured by an established domestic company, (Such as METCO or TAFA). The gas or arc type are acceptable and recommended. The equipment shall be used in accordance with the manufacturer's recommendations. No surface shall be sprayed which shows any sign of rust, scale or moisture. At least one single layer of the coating must be applied within a maximum of four (4) hours of the blasting. Spraying shall be done in a block pattern not to exceed two feet square.

To produce the required thickness and uniformity, two passes are required, overlapping and at right angles to each other. The gun shall be held at such a distance from the work surfaces that the metal is still plastic on impact (Usually 5" – 9"). The coating shall be firmly adherent and free from uncoated spots, lumps or blisters, and have a fine sprayed texture. Each spray operator shall demonstrate to the Engineer his ability to metalize as specified. Any operator who does not demonstrate this ability shall not spray.

INSPECTION:

All work and materials supplied under this specification shall be subject to timely inspection by the Engineer. The Contractor shall correct such work or replace such material that is found defective under the specification.

Samples of the metalizing used under this specification shall be supplied upon request along with the supplier's name and identification of the materials.

The Contractor shall furnish and erect scaffolding meeting the approval of the Engineer to permit inspection of the steel prior to and after metalizing. Scaffolding shall be as specified in the Proposal Note entitled FIELD PAINTING OF EXISTING STEEL, SYSTEM OZEU.

The Engineer shall perform the following test for adhesion. He (or She) shall cut through the coating with a knife or chisel, if the coating or any part of it can be lifted from the base 1/4" or more ahead of cutting blade without actually cutting the metal, the surface preparation shall be deemed improper and the coating shall be considered unsatisfactory.

TESTING EQUIPMENT:

The testing equipment required by these specifications and as specified in the Proposal entitled FIELD PAINTING OF EXISTING STEEL, SYSTEM OZEU. The cost shall be include with the metalizing for payment.

SAFETY REQUIREMENTS AND PRECAUTIONS:

The Contractor is required to meet the applicable safety requirements of the Ohio Industrial Commission.

The materials specified on this project can be hazardous to the health of the applicator if not applied as per manufacturer's instructions.

The Contractor shall follow the recommendations contained on the Material Safety Data Sheet (MSDS), product data sheet and the label on the containers. These precautions shall include the use of respirators and eye and skin protection as specified.

The Material Safety Data Sheet shall be provided at the preconstruction meeting for all abrasives, wire, top coat, and other miscellaneous materials to be used under this specification on this project. No work shall start until the MSDS has been submitted for each material.

PROTECTION OF PERSONS AND PROPERTY:

The Contractor shall collect, remove and dispose of all discarded materials, leaving the job site in a clean condition. The Contractor shall protect against damage all portions of the structure which are to be metalized.

When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect or misconduct in the execution of the work, the Contractor shall restore at his own expense, such property to a condition similar or equal to that existing before such damage or injury was done. The Contractor shall repair, rebuild or otherwise restore as directed, or he shall make good such damage or injury in an acceptable manner.

TOP COAT:

An approved clear phenolic sealer shall be applied over the metalizing as per the manufacturer's requirements and included with the metalizing for payment.

ITEM 511 - CLASS S CONCRETE, AS PER PLAN SUPERSTRUCTURE (USING SHRINKAGE COMPENSATING CEMENT), AS PER PLAN

This item shall include IPANEX, an admixture for waterproofing and increasing durability of the concrete. IPANEX shall be added at a rate of 13 oz. per 94 lbs. of cement. The water/cement ratio shall be between .42 – .48. IPANEX, by its product formulation, will add 1% air entrainment to the final mix design so adjustments need to be made in order to meet design criteria.

IPANEX is available from:

Municipal & Contractor Supply, Inc.
10 N. Mill Street
Lexington, Ohio 44904
1-800-537-5800

Item shall include all labor, equipment, materials and incidentals to complete the above work in addition to that specified in the Proposal Note. Payment for the above shall be included in the cubic yard price bid for Item 511 – Class S Concrete, Superstructure (Using Shrinkage Compensating Cement), As Per Plan.

ITEM 606 ANCHOR ASSEMBLY, TYPE E:

This item shall consist of furnishing and installing an ET-2000, option "C", guardrail end terminal as manufactures by Syro Steel Company, 1170 N. State Street, Girard, Ohio 44420 (Telephone: 216-545-4373).

The Anchor Assembly shall be placed in accordance with the manufacturer's specifications and at the locations shown in the plans.

Payment for the above work shall be made at the unit bid price for item 606, each, Anchor Assembly, Type E. Payment shall include all labor, tools, equipment and materials necessary to construct the 25' long Anchor Assembly, including all related hardware, not seperately specified, as required by the manufacturer to construct a complete and functional anchor assembly. This item shall also include payment over and above the cost of standard Type 5 guardrail for installing Type 1 breakaway posts (as per standard construction drawing GR-1.3) at the following locations: 1) at the point where the Anchor Assembly and the guardrail run meet; and 2) at the next three (3) post locations into the guardrail run.

STATE OF OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 9 BRIDGE OFFICE				5 16
GENERAL NOTES STRUCTURES OVER 20' SPAN BRIDGE NO. SCI-73-1055 OVER BRUSH CREEK				
DESIGNED NLH	DRAWN NLH	TRACED NLH	CHECKED JTH	REVIEWED DATE 7/20/92 REVISD

GENERAL NOTES

ITEM 203 LINEAR GRADING

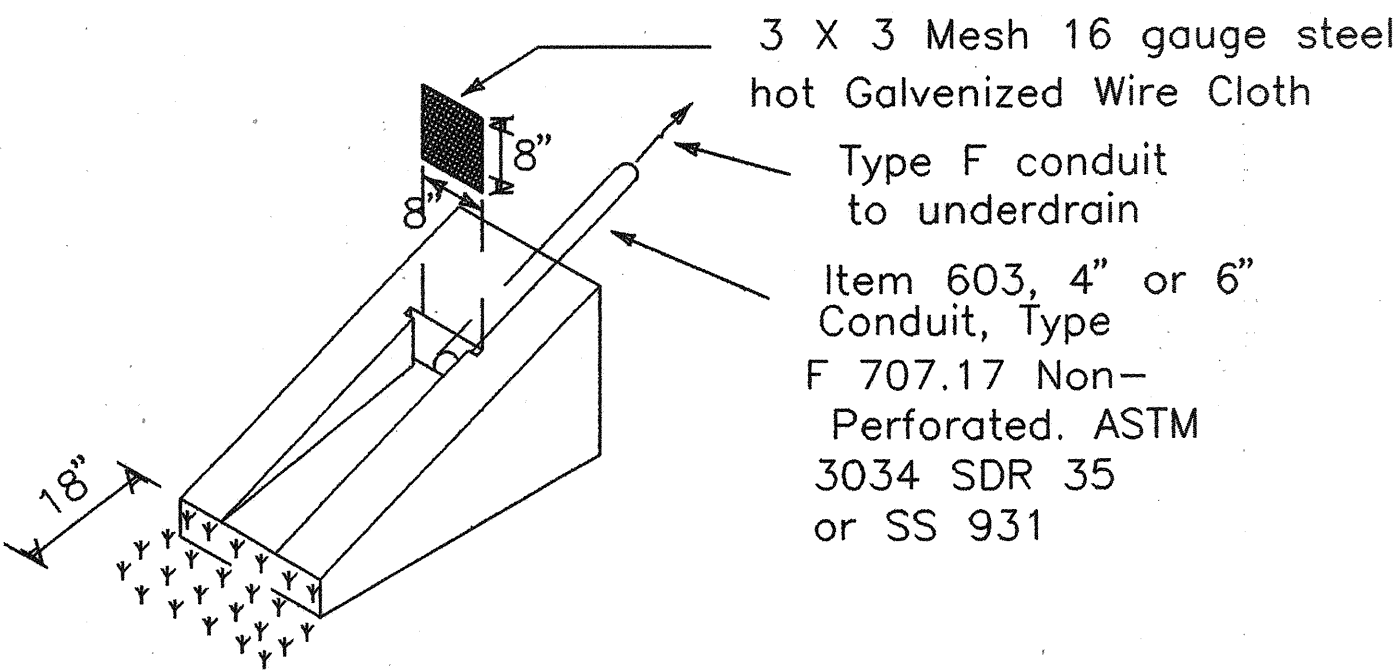
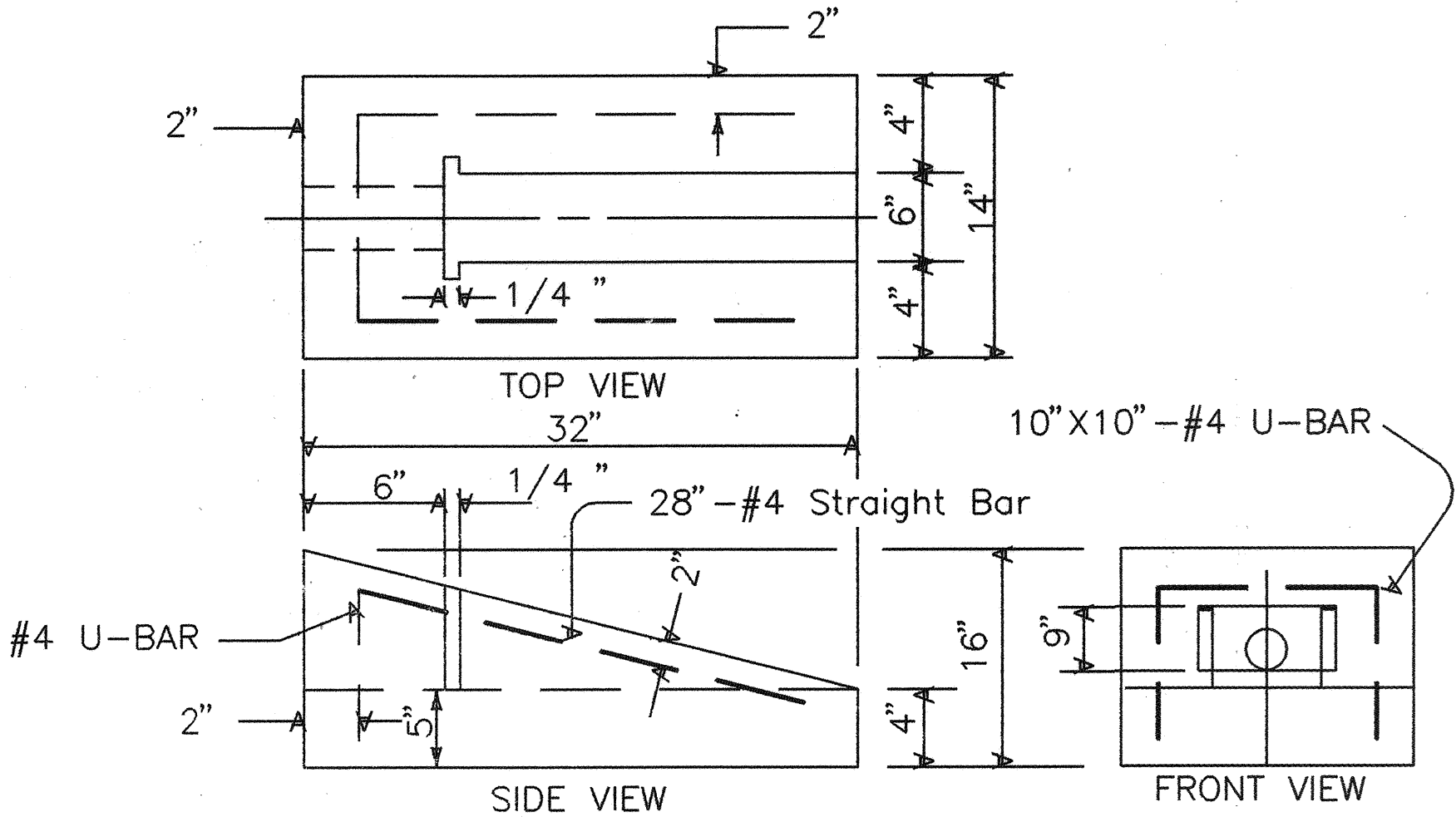
This work shall consist of preparing a subgrade for the shoulder paving by excavating the existing shoulder material to the depth shown on the plan, or as directed by the Engineer to remove any unstable material and by shaping and compacting the subgrade. The unsound or broken edge of bituminous pavements shall first be trimmed to a line established by the Engineer. The existing shoulder then shall be excavated and the subgrade shaped and compacted. Compaction shall be carried out to the satisfaction of the Engineer by means of a trench roller, 401.11. Areas graded in excess of depth specified or directed by Engineer shall be backfilled to desired grade using 617 Compacted Aggregate at the contractor's expense. Excavated material shall be used to backfill where required. The rest of the excavated material shall be disposed of as directed by the Engineer.

PAVED SHOULDERS:

The contractor shall arrange his paved shoulder operation to one side of the road at one time and such that no open trench exists at the end of each work day. 403/404 asphalt concrete for paved shoulders may be placed in the same operation as the mainline pavement as long as the slope is maintained. The contractor shall arrange his operations so that traffic is not directed onto the paved shoulder. Any damages that occur to the paved shoulder before the project is accepted shall be repaired by the contractor at his expense.

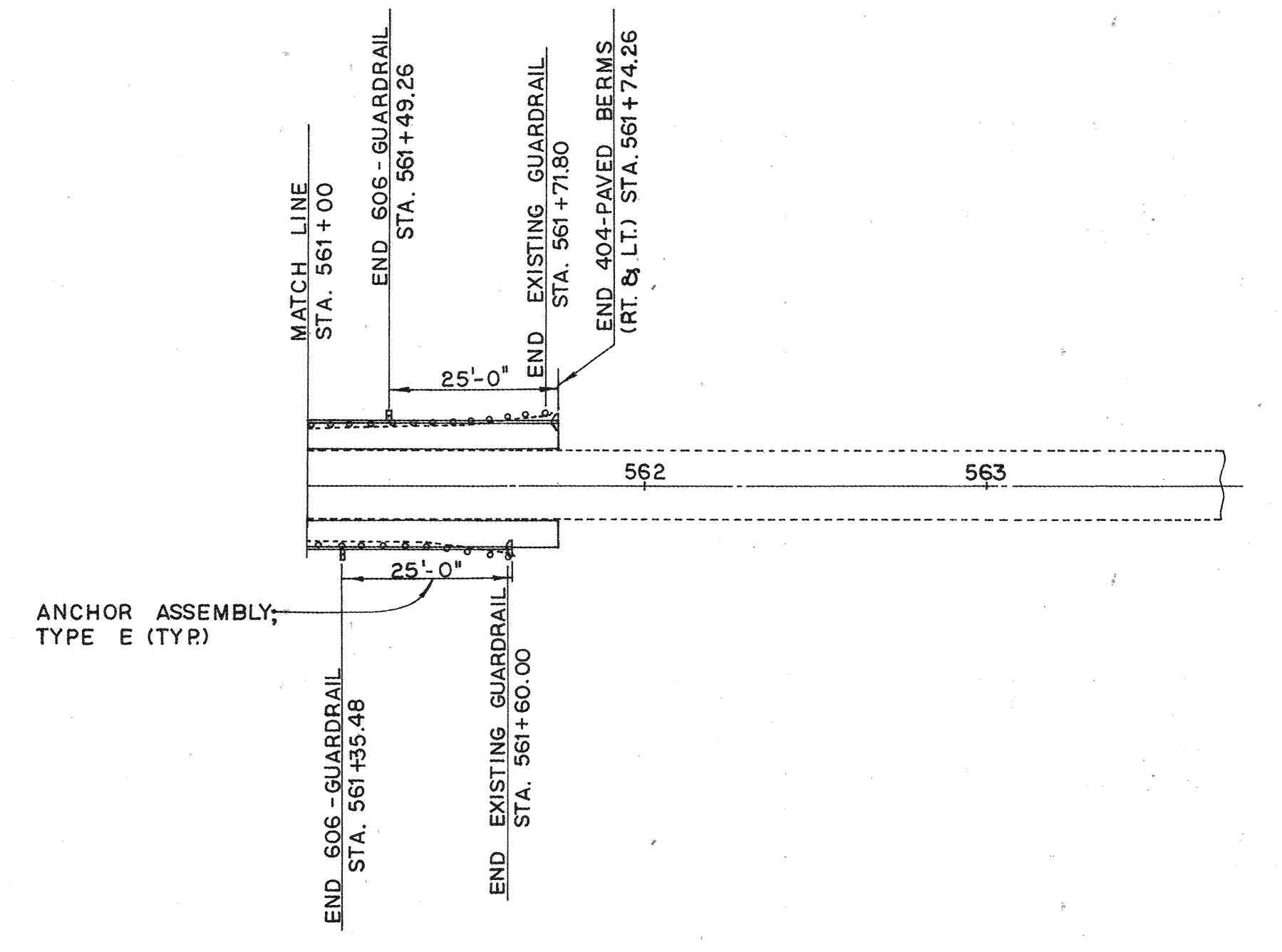
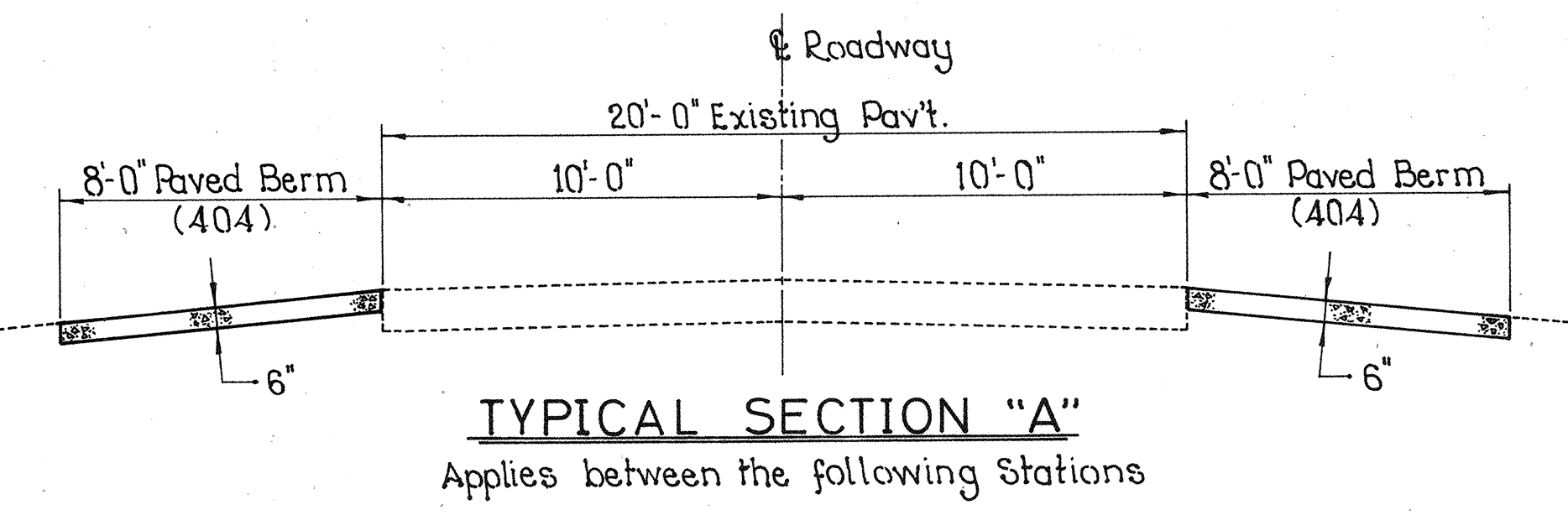
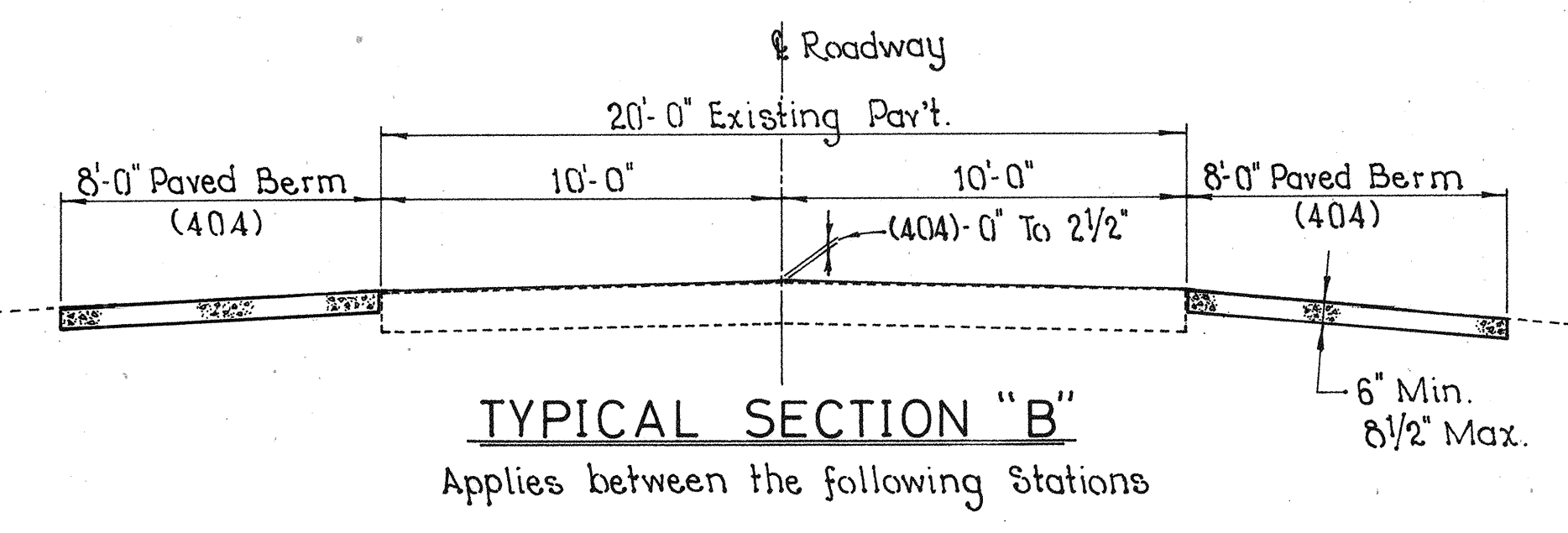
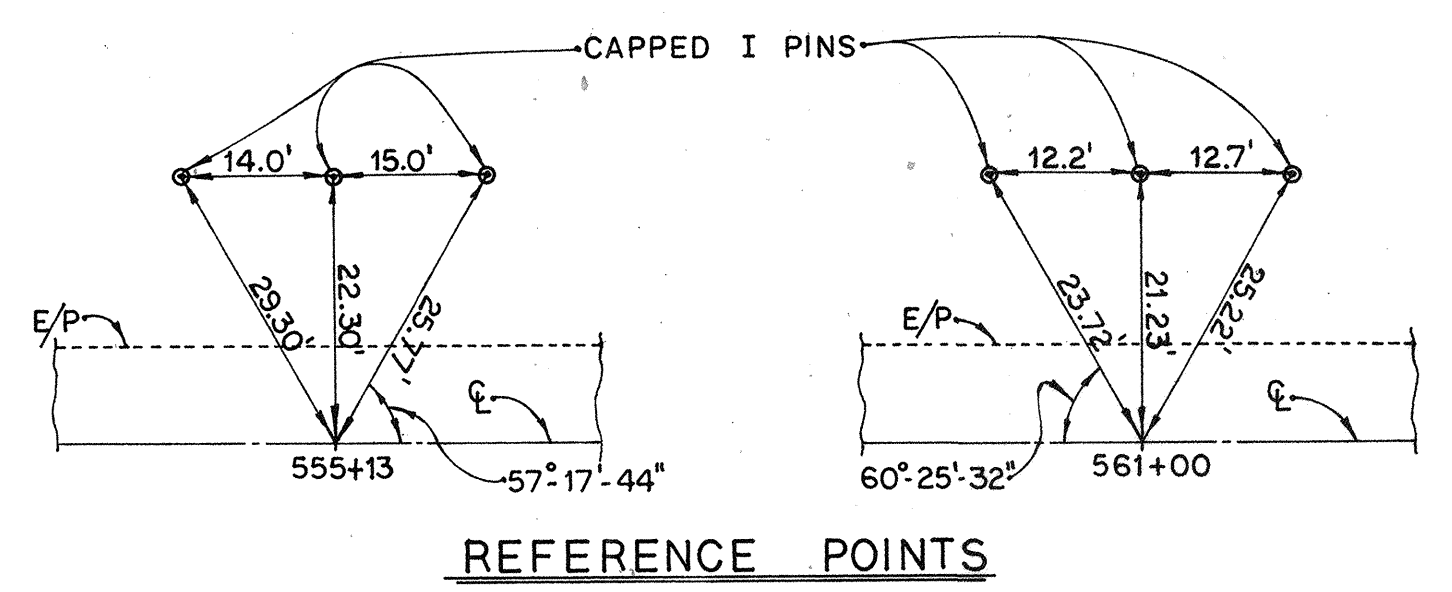
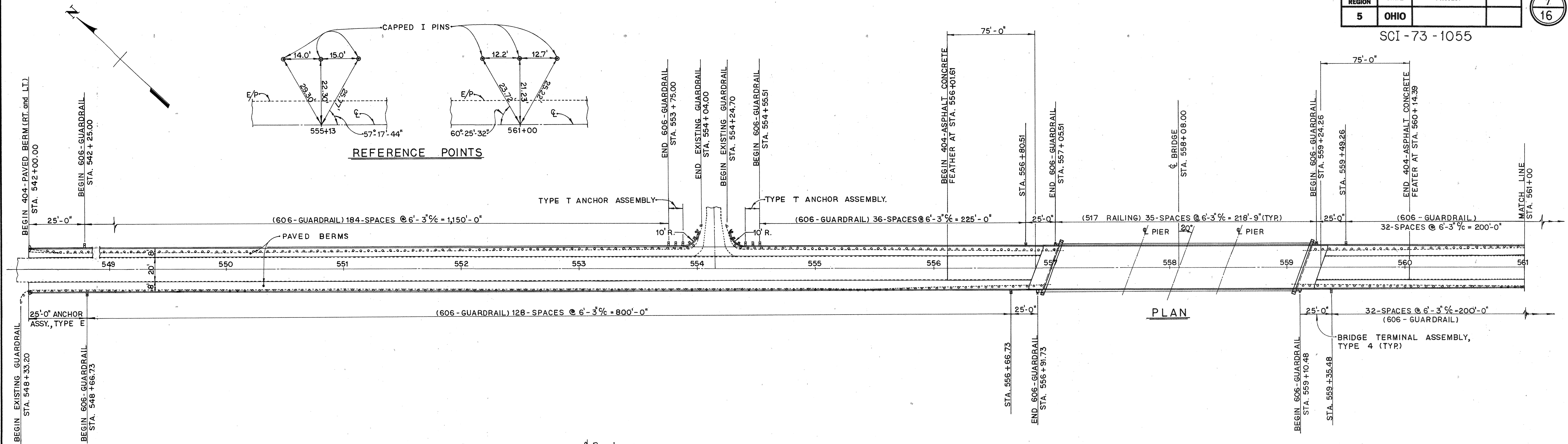
ITEM SPECIAL- PRECAST REINFORCED CONCRETE OUTLET

The Concrete outlet shall meet the requirements of Item 604 in the Construction & Materials Specifications. Payment shall be made on an Each basis. Payment shall include the cost of the Sod & Wire Cloth.



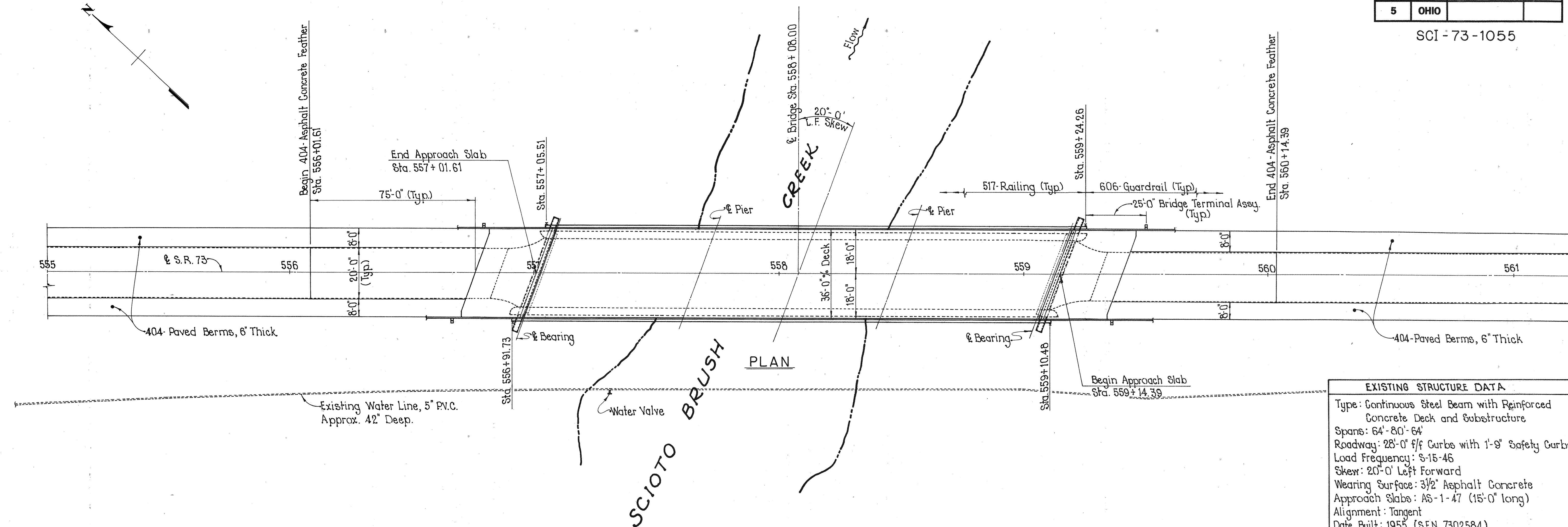
NOTE: The Sod shall be in accordance with Item 660 and staked at each corner approximately 3 inches in from the edge.

SCI - 73 - 1055



STATE OF OHIO		7 / 16	
DEPARTMENT OF TRANSPORTATION DISTRICT 3 BRIDGES			
TYPICAL SECTION AND GUARDRAIL DETAILS			
BRIDGE No. SCI-73-1055 OVER SCIOTO BRUSH CREEK			
DESIGNED <i>[Signature]</i>	DRAWN <i>[Signature]</i>	TRACED <i>[Signature]</i>	CHECKED J.T.H.
REVIEWED <i>[Signature]</i>		DATE 7-20-92	REVISED

SCI-73-1055

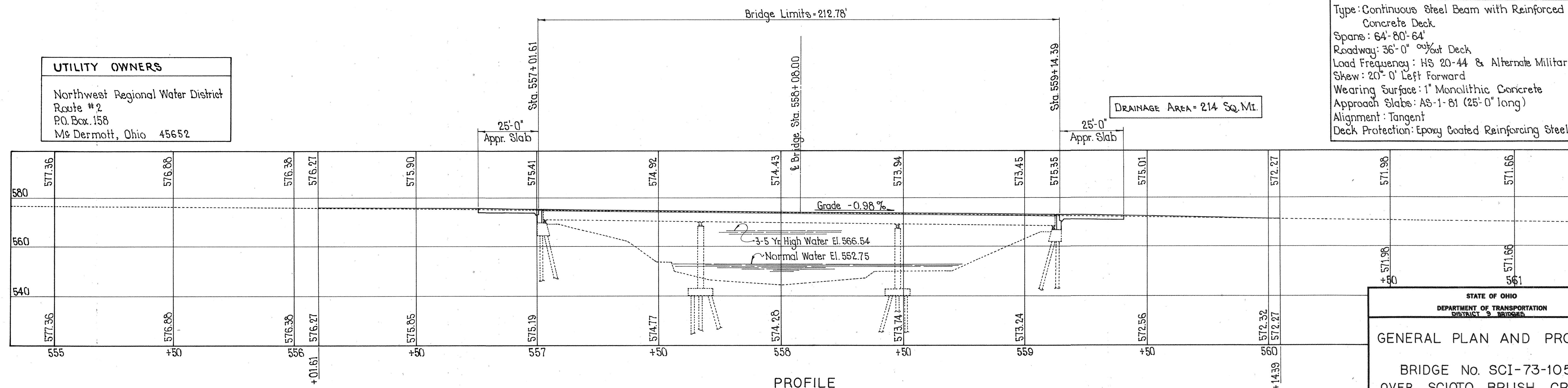


EXISTING STRUCTURE DATA
Type: Continuous Steel Beam with Reinforced Concrete Deck and Substructure
Spans: 64'-80'-64'
Roadway: 28'-0" f/f Curbs with 1'-9" Safety Curbs
Load Frequency: S-15-46
Skew: 20'-0" Left Forward
Wearing Surface: 3/2" Asphalt Concrete
Approach Slabs: AS-1-47 (15'-0" long)
Alignment: Tangent
Date Built: 1955 (S.F.N. 7302584)

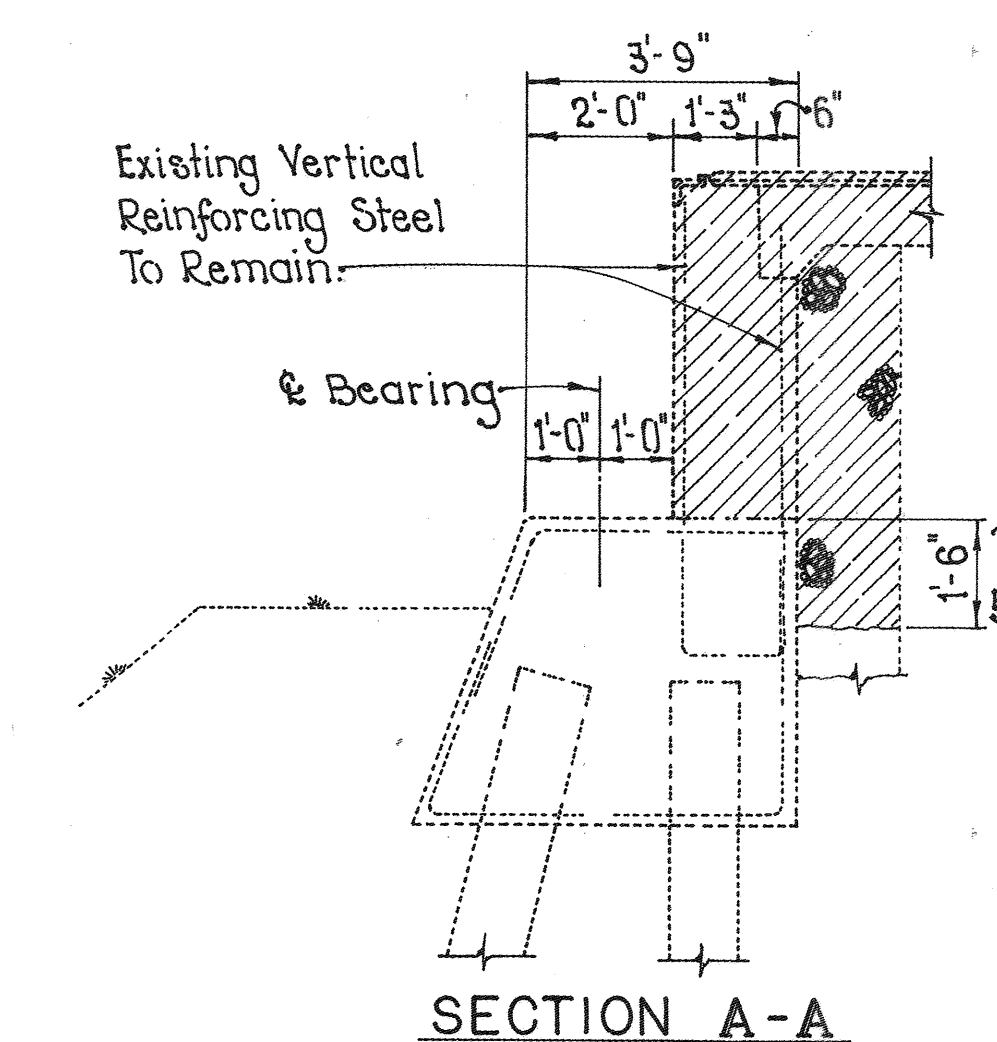
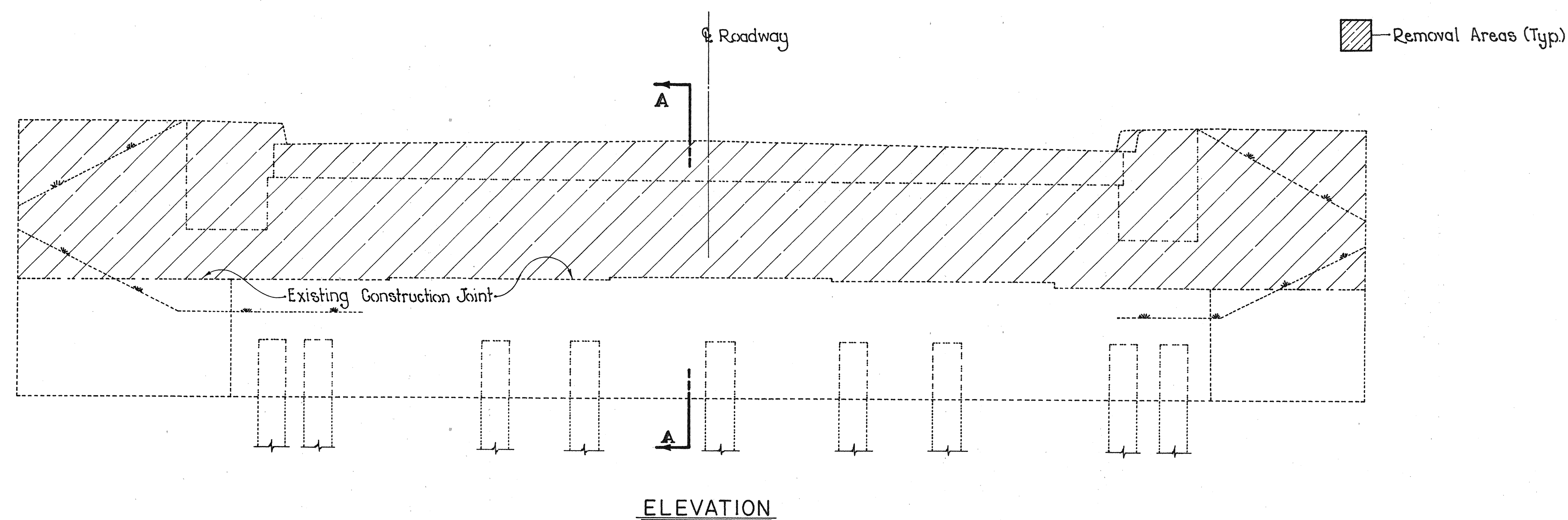
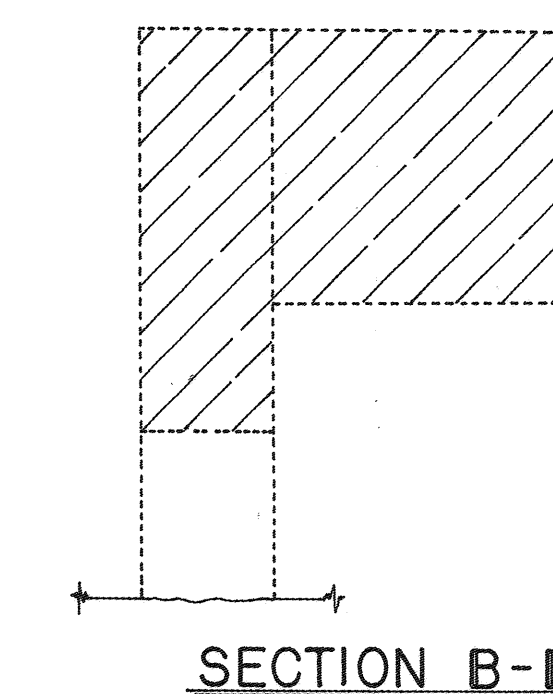
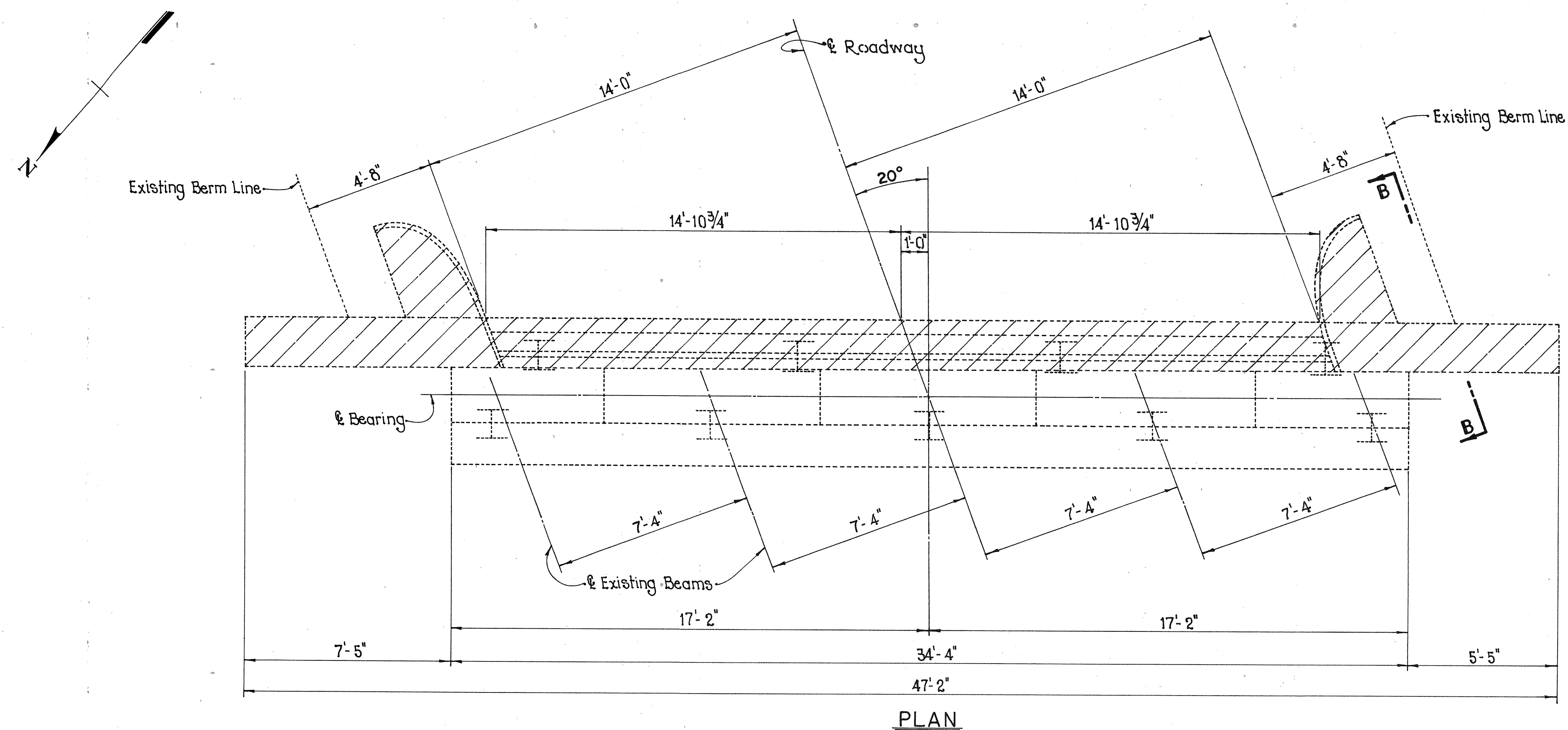
PROPOSED STRUCTURE DATA
Type: Continuous Steel Beam with Reinforced Concrete Deck
Spans: 64'-80'-64'
Roadway: 36'-0" ^{out} Deck
Load Frequency: HS 20-44 & Alternate Military
Skew: 20'-0" Left Forward
Wearing Surface: 1" Monolithic Concrete
Approach Slabs: AS-1-81 (25'-0" long)
Alignment: Tangent
Deck Protection: Epoxy Coated Reinforcing Steel

UTILITY OWNERS
Northwest Regional Water District Route #2 P.O. Box 158 Mt. Carmel, Ohio 45652

DRAINAGE AREA = 214 Sq. Mi.



STATE OF OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 3 BRIDGES						
GENERAL PLAN AND PROFILE						
BRIDGE No. SCI-73-1055 OVER SCIOTO BRUSH CREEK						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
W.B.H.	W.B.H.	W.B.H.	J.T.H.	Theresa A. Wells	7-20-92	



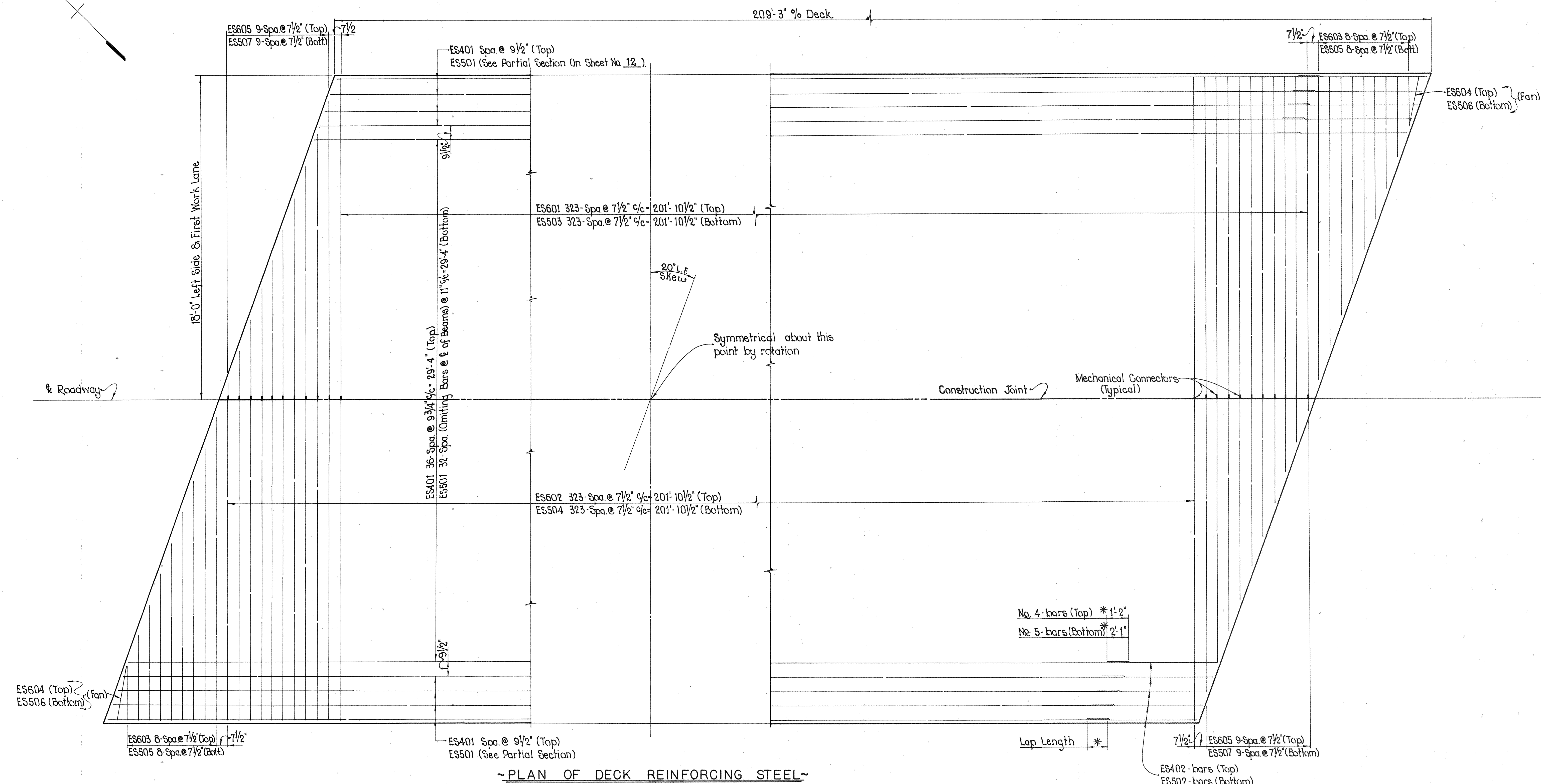
HILL'S CO. 1000 #10-7155 11-79

Note: Each longitudinal reinforcing line shall be 7- ES401 & 1- ES402 Top and
7- ES501 & 1- ES502 Bottom

FHWA REGION	STATE	PROJECT
5	OHIO	

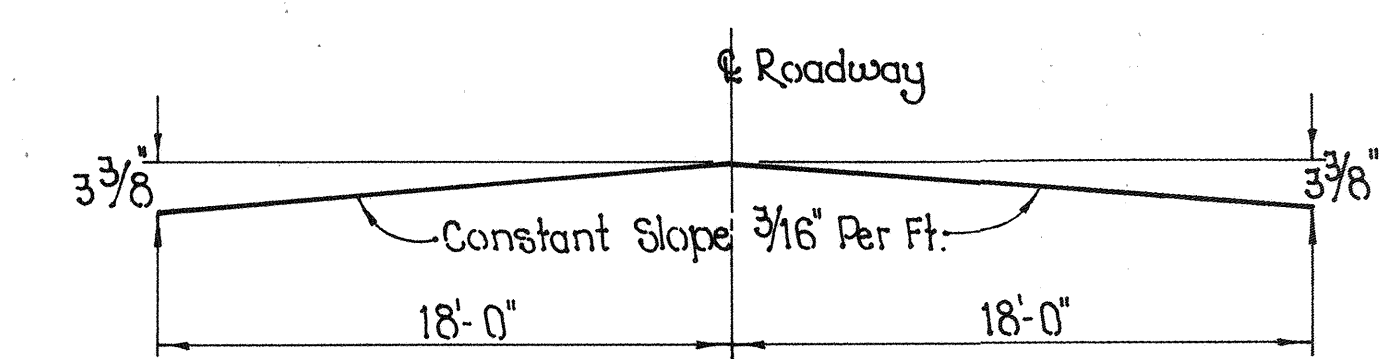
12
16

SCI - 73 - 1055



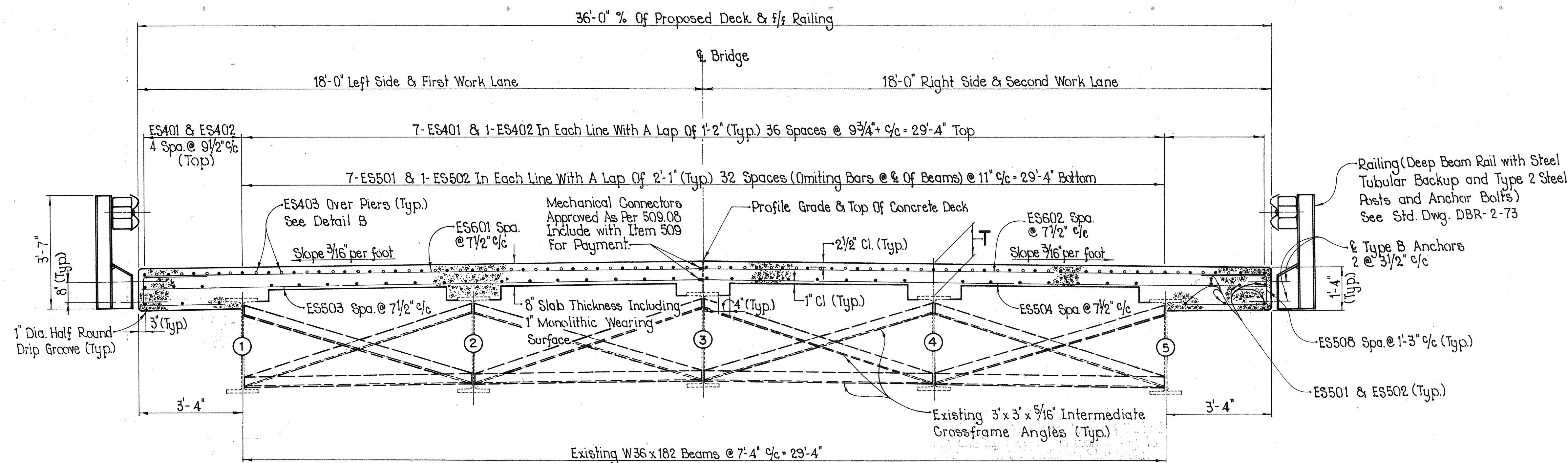
~ PLAN OF DECK REINFORCING STEEL ~

Note:
See sheet No. 12/16 for spacing of
No. 5 re-bars in bottom of deck.



~ BRIDGE ROADWAY CROWN ~

STATE OF OHIO						12 / 16
DEPARTMENT OF TRANSPORTATION						
DISTRICT 9 BRIDGES						
SUPERSTRUCTURE DETAILS						
BRIDGE No. SCI-73-1055						
OVER SCIOTO BRUSH CREEK						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
M. B. F.	M. B. F.	M. B. F.	J. T. H.	Thomson	7-20-92	



TRANSVERSE DECK SECTION (TYP)
(LOOKING SOUTH WITH STATIONING)

T = Deck Thickness Over Existing Beams At Abutments
Rear = 13 3/4"
Fwd = 13"

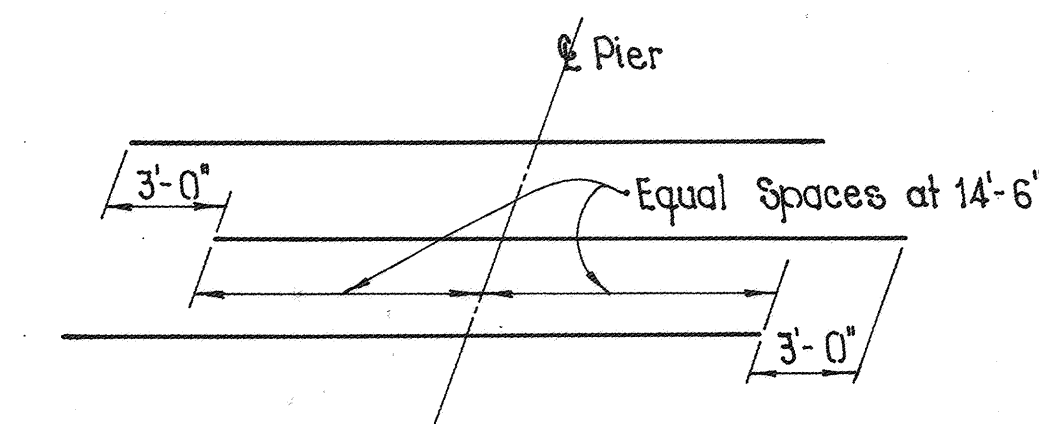
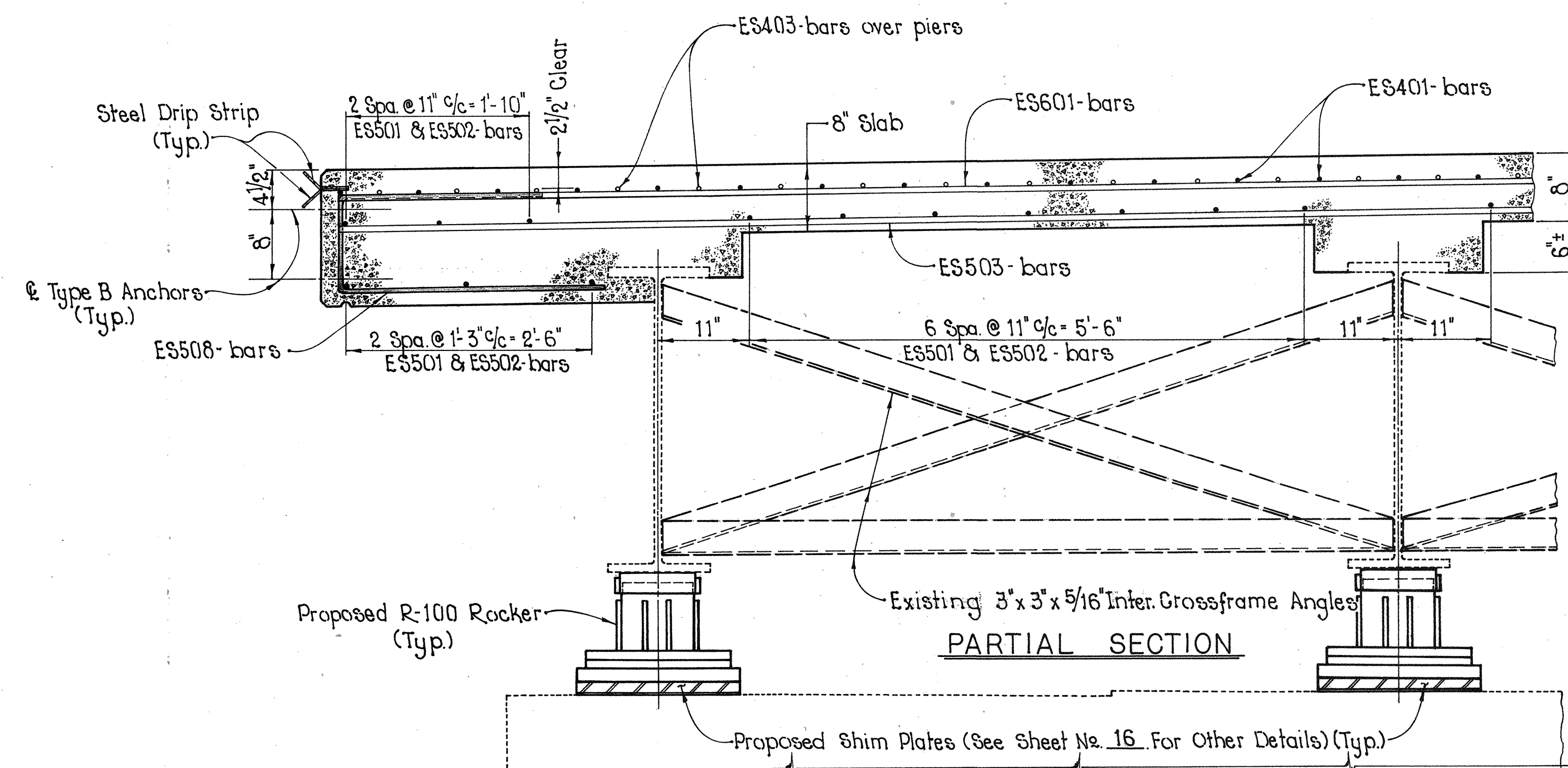
NOTE:

Deck Slab Depth:

The distance shown from the top of the deck slab to top of steel beam is the design 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 be parallel to the finished grade.

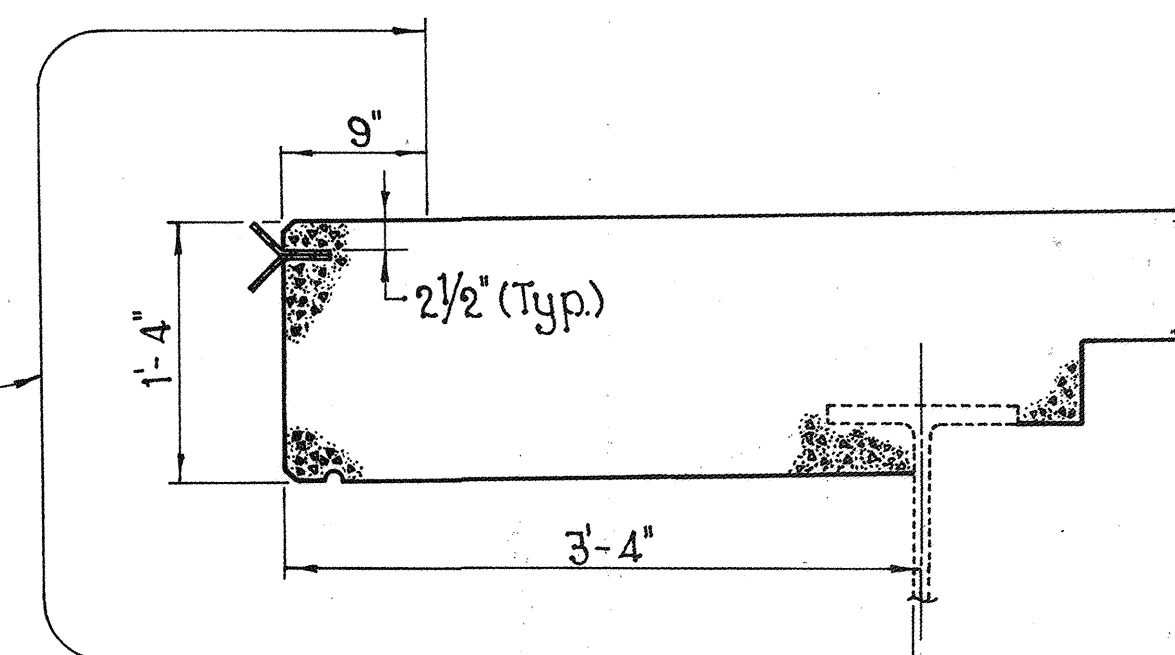
Haunch Width:

The quantity of deck concrete to be paid for shall be based on the haunch widths shown above.



DETAIL B

Showing Stagger Of ES403 Bars Over Piers
(ES403 Bars Shall Be Equally Spaced Between ES401)



DETAIL OF DECK EDGE SEALING

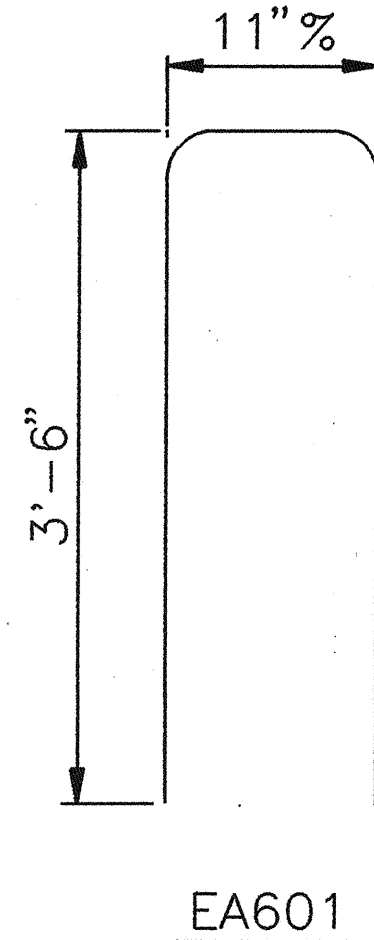
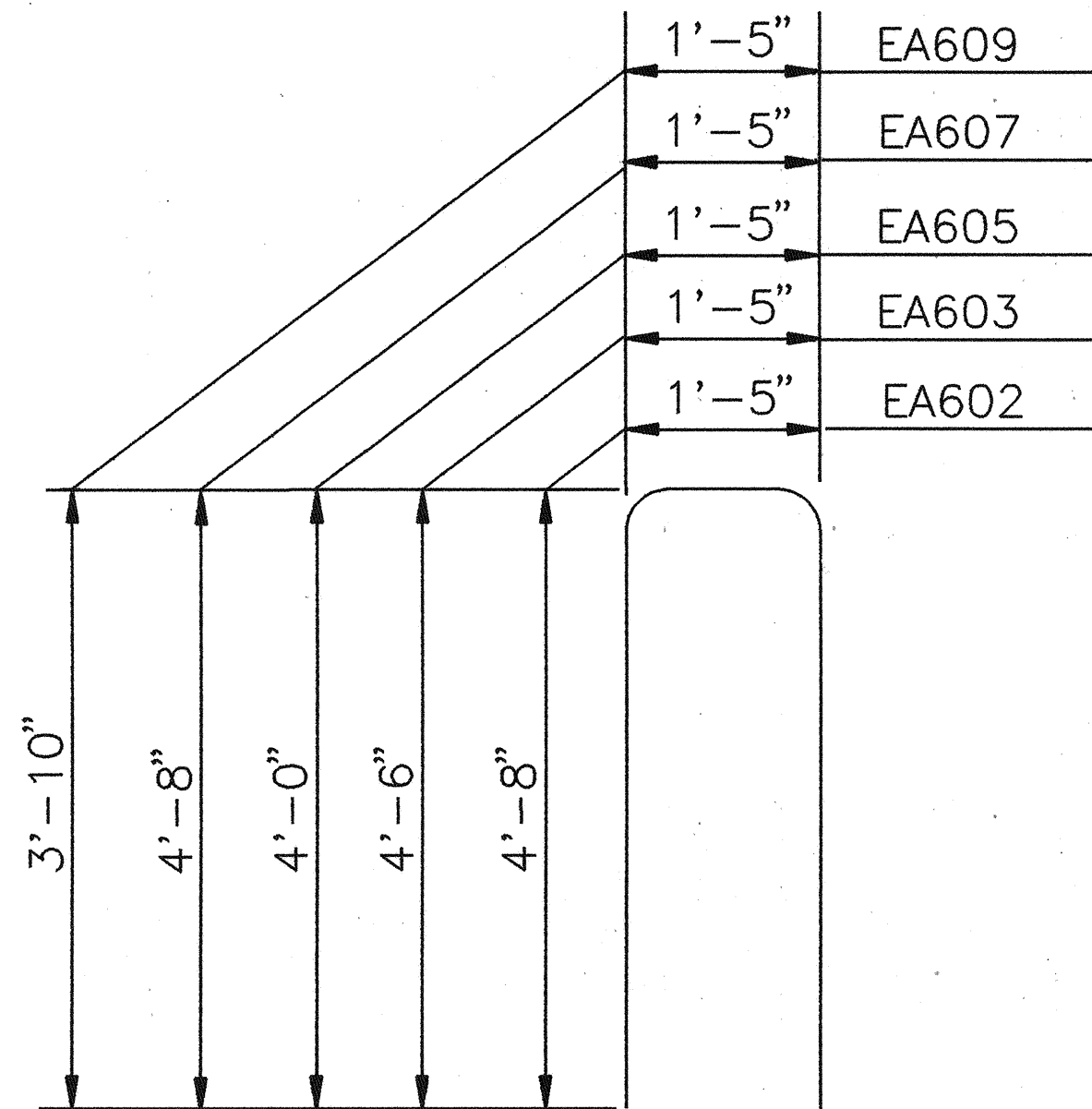
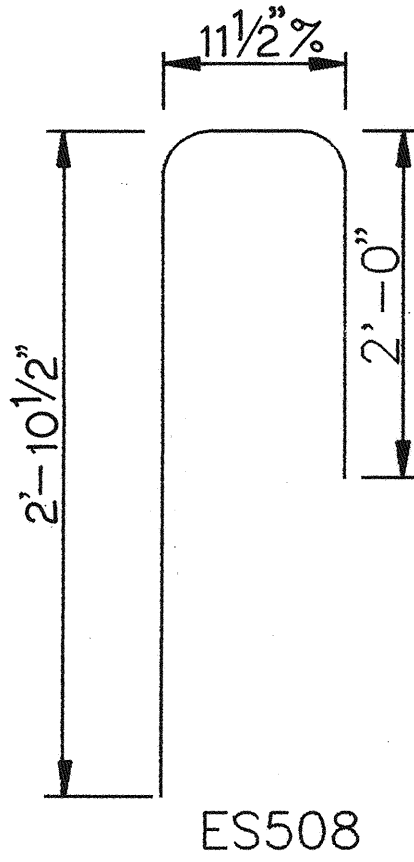
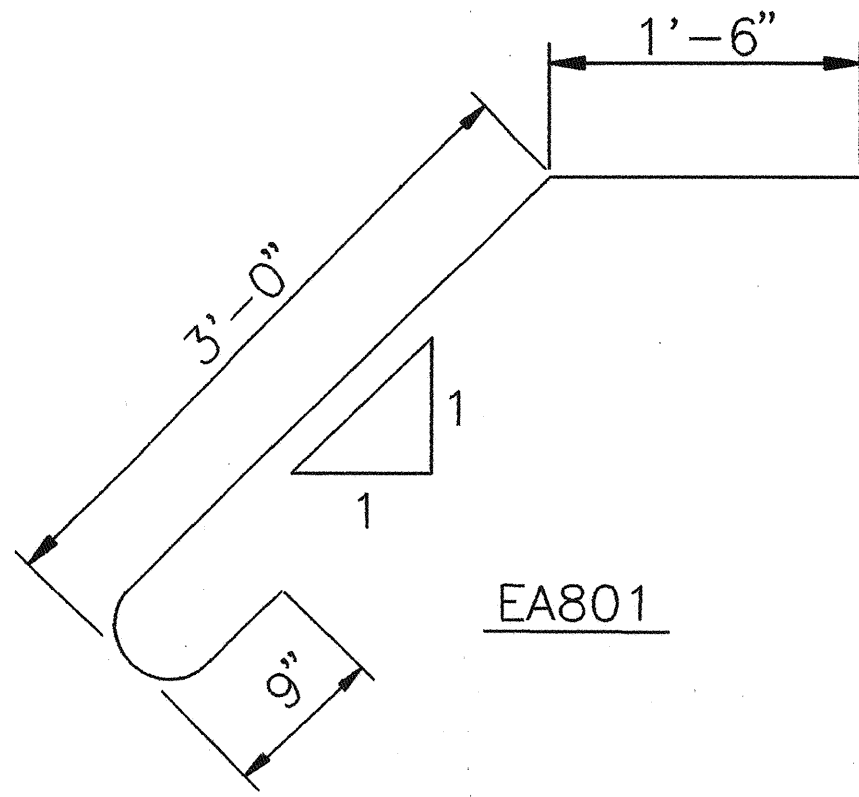
STATE OF OHIO					
DEPARTMENT OF TRANSPORTATION					
DISTRICT 9 BRIDGES					
SUPERSTRUCTURE DETAILS					
BRIDGE No. SCI-73-1055					
OVER SCIOTO BRUSH CREEK					
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
W.S.G.	W.S.G.	W.S.G.	J.T.H.	W.S.G.	7-20-92

SCI7310S 1=8'

REINFORCING STEEL LIST FOR STRUCTURES							
ABUTMENTS							
MARK NO.	REAR	FWD.	TOTAL NO.	LENGTH	SHP.	WEIGHT	LOCATION
EA501	1	1	2	18'-10 9/16"	S	39	BACKWALL
EA502	7	7	14	23'-3 11/16"	S	340	BACKWALL
EA503	1	1	2	18'-11"	S	40	BACKWALL
EA504	7	7	14	23'-5 7/8"	S	343	BACKWALL
EA505	1	1	2	4'-1"	S	9	WINGWALL
EA506	1	1	2	4'-8"	S	10	WINGWALL
EA507	1	1	2	4'-3"	S	9	WINGWALL
EA508	1	1	2	3'-8"	S	8	WINGWALL
EA601	26	26	52	7'-7"	B	592	BACKWALL
EA602	26	26	52	10'-5"	B	814	BACKWALL
EA603	2	2	4	10'-1"	B	61	WINGWALL
EA604	2	2	4	1'-3"	S	8	WINGWALL
EA605	1	1	2	9'-1"	B	27	WINGWALL
EA606	6	6	12	4'-0"	S	72	WINGWALL
EA607	2	2	4	10'-5"	B	63	WINGWALL
EA608	2	2	4	1'-9"	S	11	WINGWALL
EA609	1	1	2	8'-9"	B	26	WINGWALL
EA610	6	6	12	3'-9"	S	68	WINGWALL
EA801	25	25	50	5'-5"	B	723	BACKWALL & APP. SLAB
SUPERSTRUCTURE							
ES401			315	30'-0"	S	6313	TOP MAT
ES402			45	7'-1"	S	213	TOP MAT
ES403			88	32'-0"	S	1881	OVER PIERS
ES501			273	30'-0"	S	8542	BOTTOM MAT
ES502			39	13'-6"	S	549	BOTTOM MAT
ES503			324	17'-8 11/16"	S	5990	BOTTOM MAT
ES504			324	17'-10 7/8"	S	6051	BOTTOM MAT
ES505			18	2-SERIES OF 9, 3'-0" TO 16'-10" Ⓢ	S	183	BOTTOM MAT
ES506			2	3'-1"	S	6	FAN BARS
ES507			20	2-SERIES OF 10, 0'-10 3/4" TO 15'-10 3/4" Ⓢ	S	175	BOTTOM MAT
ES508			334	5'-6"	B	1916	DECK EDGE
ES601			324	17'-8 3/8"	S	8613	TOP MAT
ES602			324	17'-11"	S	8719	TOP MAT
ES603			18	2-SERIES OF 9, 3'-0" TO 16'-10" Ⓢ	S	263	TOP MAT
ES604			2	3'-1"	S	9	FAN BARS
ES605			20	2-SERIES OF 10, 0'-10 3/4" TO 15'-10 3/4" Ⓢ	S	252	TOP MAT
TOTAL = 52,938 Lbs.							

NOTE: All reinforcing bars shall be epoxy coated.

① VARIES BY 1'-8" INCREMENTS

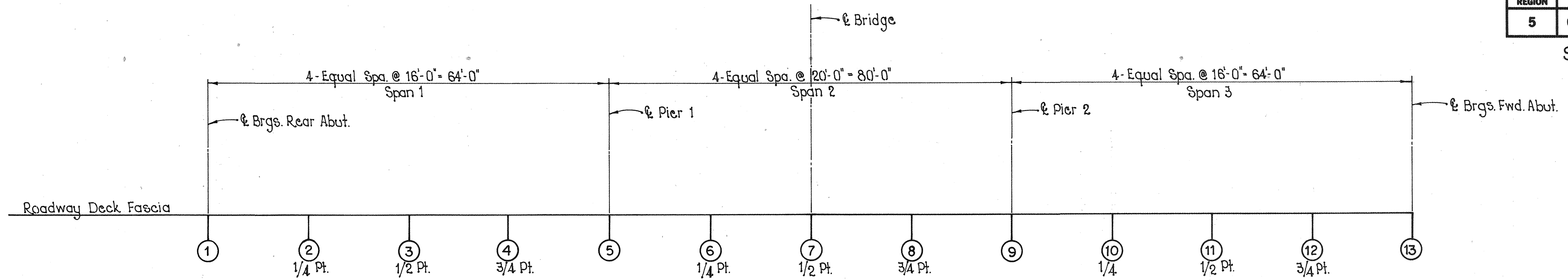


DIVISION	STATE FED. RD.	PROJECT
2	OHIO	

14
16

SCI-73-10.55

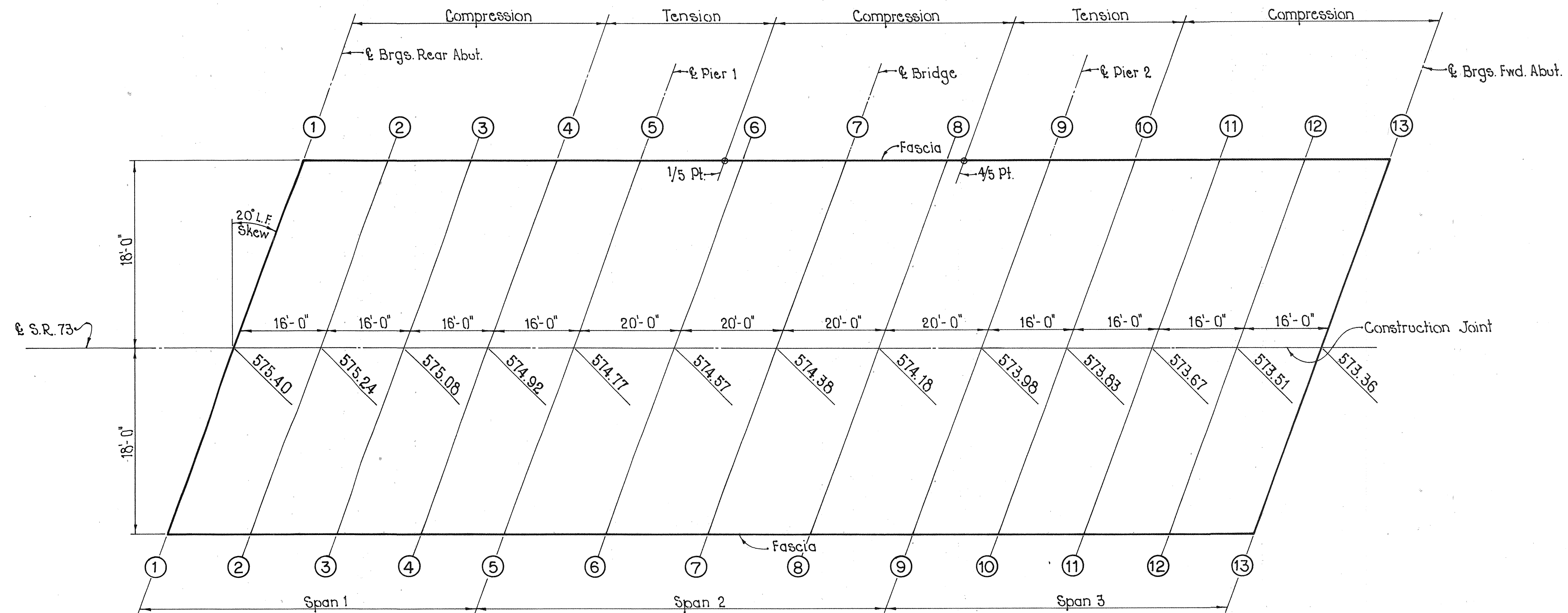
STATE OF OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 9 BRIDGE OFFICE							14/16
SUPERSTRUCTURE DETAILS AND REINFORCING STEEL LIST BRIDGE NO. SCI-73-10.55 S.R. 73 OVER BRUSH CREEK							
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED	
N.L.H.	N.L.H.	N.L.H.	JTH	Thomas A. Wells	7-20-92		



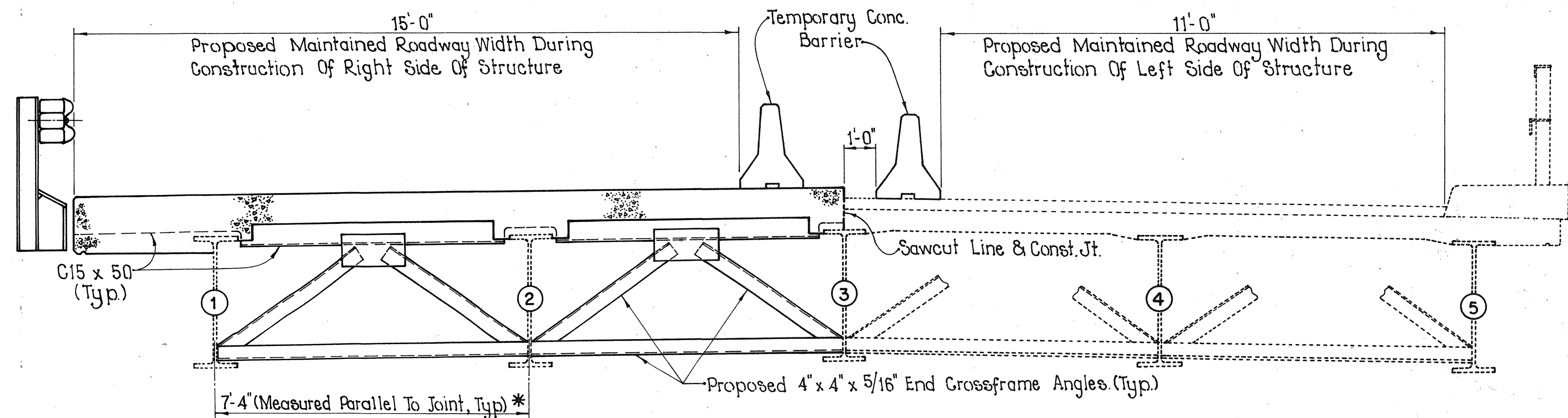
POINT	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬
Left Edge	575.04	574.88	574.72	574.56	574.41	574.21	574.02	573.82	573.62	573.47	573.31	573.15	573.00
& Roadway	575.40	575.24	575.08	574.92	574.77	574.57	574.38	574.18	573.98	573.83	573.67	573.51	573.36
Right Edge	575.17	575.01	574.85	574.69	574.54	574.34	574.15	573.95	573.75	573.60	573.44	573.28	573.13
* Dead Load Deflections	0"	7/16"	1/2"	7/32"	0"	5/16"	19/32"	5/16"	0"	7/32"	1/2"	7/16"	0"

* Raise Screed At Points Indicated To Compensate For Deflection Due To Weight Of Concrete.

PROPOSED DECK PLACEMENT ELEVATIONS AT THE QUARTER POINTS



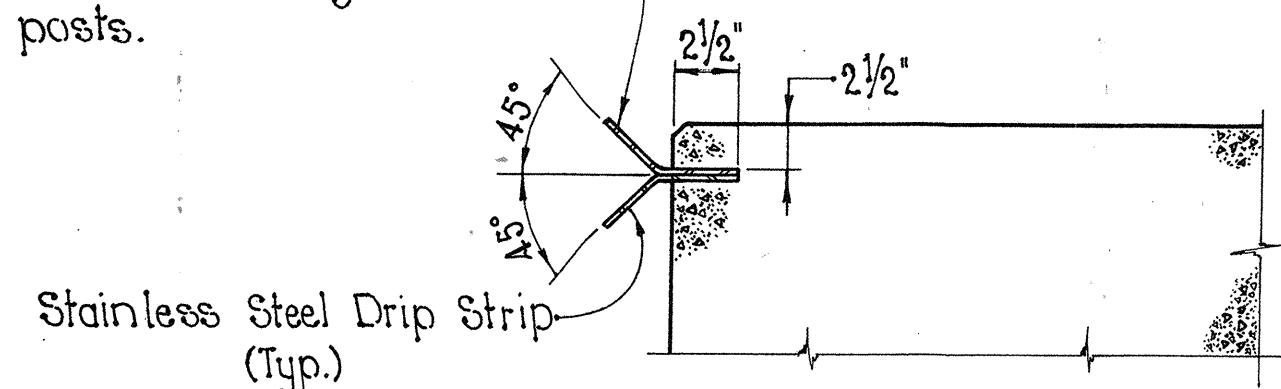
PLAN



* For additional end crossframe details, see Standard Drawing SD-1-69, sheet 1 of 4, EXJ-4-87, sheet 1 of 5 and Section A-A, sheet No. 11/16

PROPOSED TRAFFIC LANES DURING CONSTRUCTION OF BRIDGE

Additional drip strip, 12" long, centered at all guardrail posts.



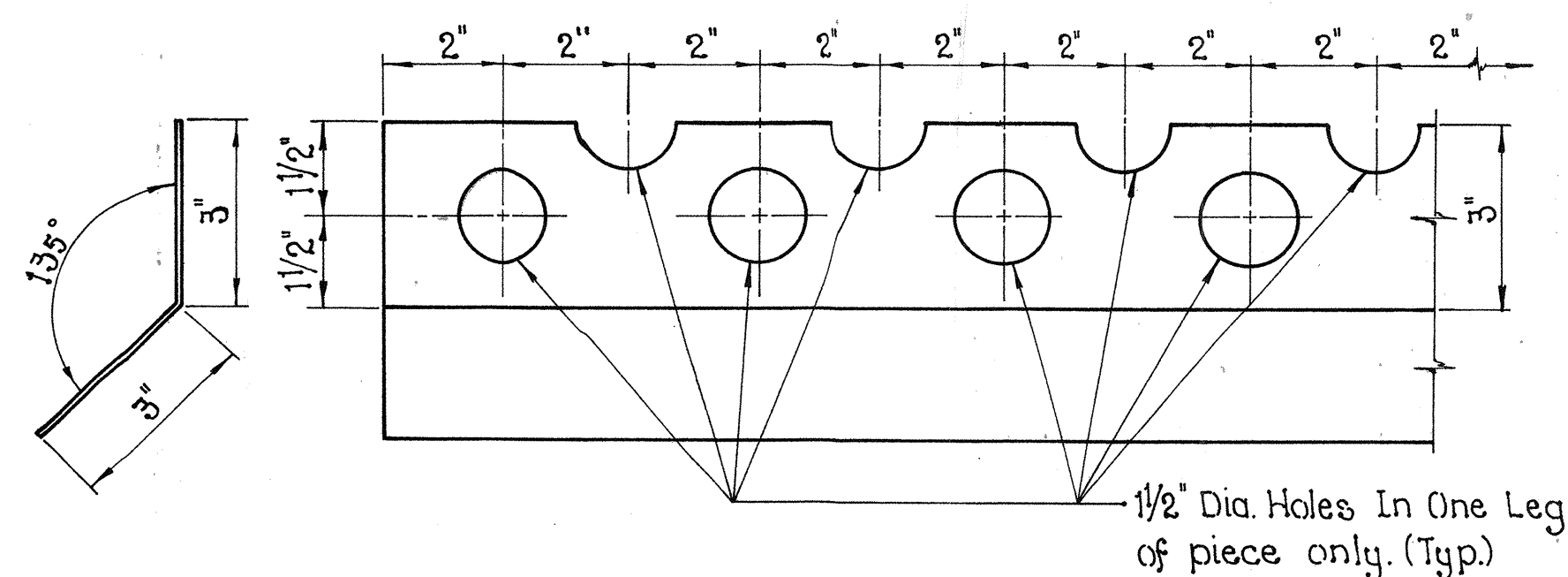
TYPICAL SECTION OF DRIP STRIP

STEEL DRIP STRIP

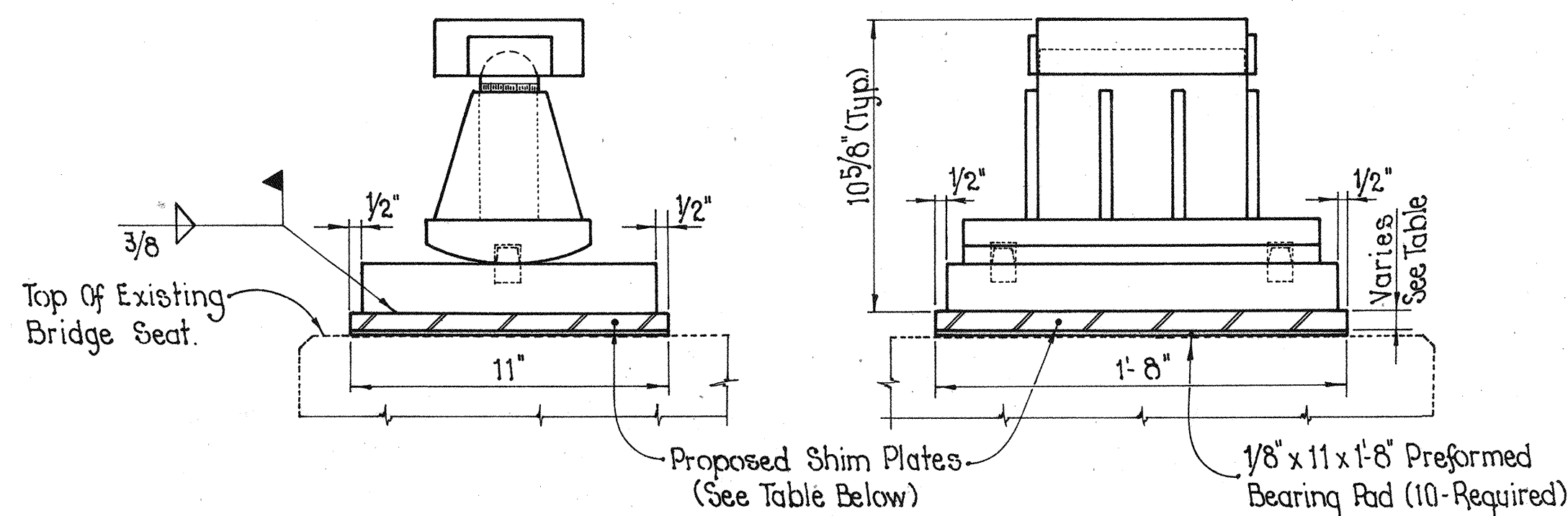
A folded stainless steel assembly shall be placed at 90° inside the deck form along the edges of the deck. It shall be installed along the full length of each side of the bridge. Laps shall be 3" Min. Place 12" lengths also bent down at 90° at each post. Stainless steel shall be 20 gauge ASTM A167, Type 304, mill finish. After the concrete has fully cured, the drip strips shall be re-bent at 45° as shown in detail above.

The final pay quantity shall be the actual overall length of drip strip. All laps and additional strips at posts shall not be measured for payment.

Payment shall be at the contract price bid for Item Special, Lin. Ft. Steel Drip Strip, and shall include all materials, labor, tools and incidentals necessary to complete the item.



STAINLESS STEEL DRIP STRIP DETAIL

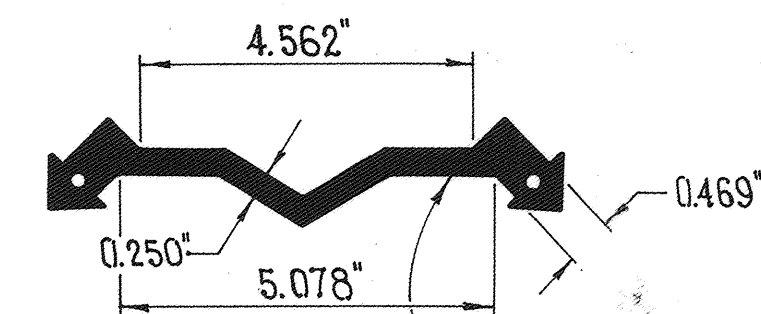


PROPOSED STRUCTURAL STEEL ROCKER

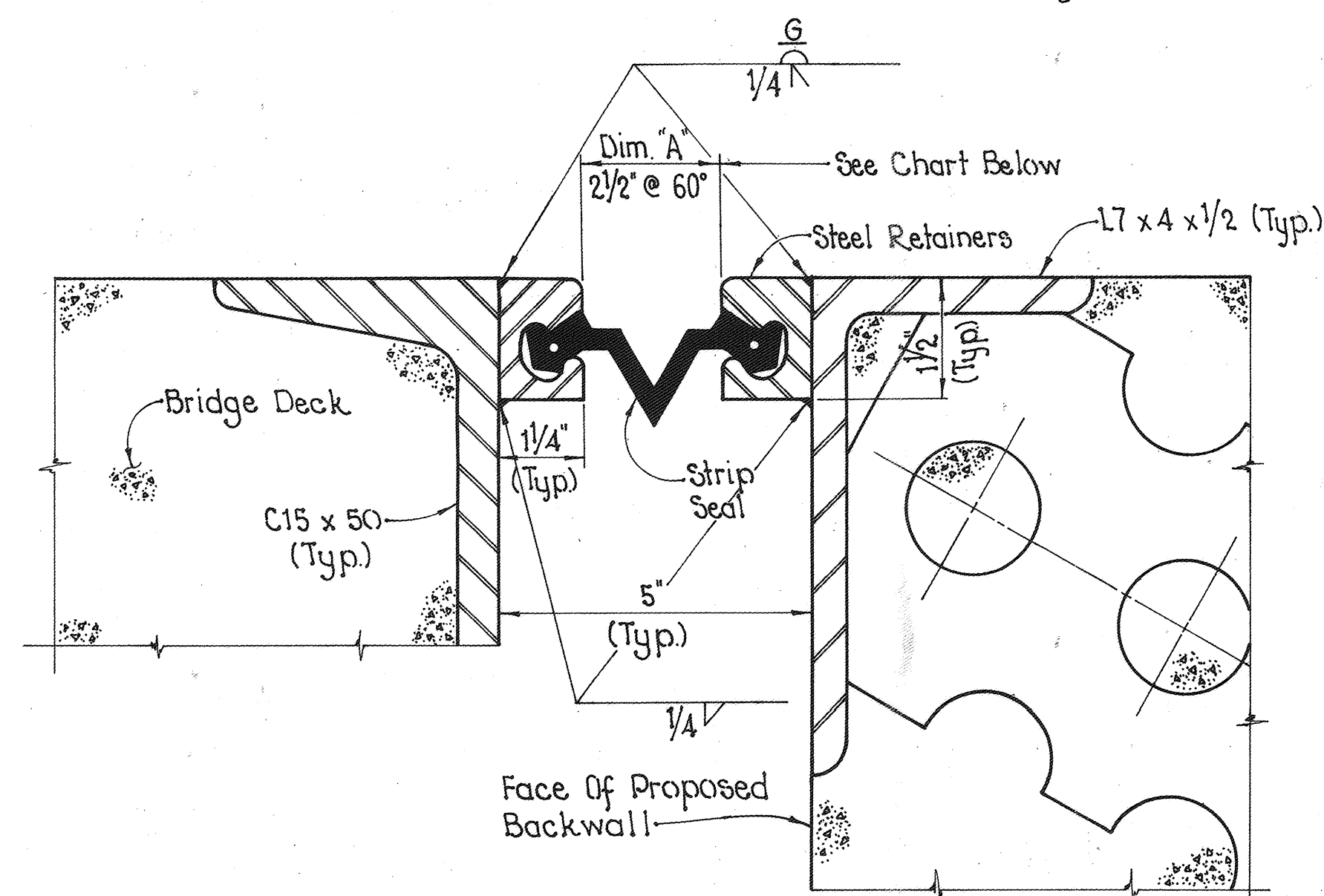
(10 - REQUIRED)

PROPOSED SHIM PLATES AT REAR ABUTMENT					
(11" x 1'-8")					
LOCATION	①	②	③	④	⑤
THICKNESS	1"	3/4"	3/4"	1 1/8"	1"

PROPOSED SHIM PLATES AT FORWARD ABUTMENT					
(11" x 1'-8")					
LOCATION	①	②	③	④	⑤
THICKNESS	1 1/8"	1 1/2"	1"	3/4"	5/8"



(Shown) The D.S. Brown Co. S5400 (Gland) Or An Approved Equal. (Movement Rating = 4 In.)



TYPICAL SECTION THRU EXPANSION JOINT

For Additional Details See Std. Dwg. EXJ-4-87 Sheets 1 Thru 5 Dated 1-5-89, For Dimension "A" See Table Below.

AMBIENT (°F) TEMPERATURE	DIM. "A"
110	2 1/32"
100	2 1/8"
90	2 7/32"
80	2 5/16"
70	2 13/32"
60	2 1/2"
50	2 19/32"
40	2 11/16"
30	2 25/32"
20	2 7/8"
10	2 31/32"
0	3 1/16"

STATE OF OHIO		16 / 16
DEPARTMENT OF TRANSPORTATION		
DISTRICT 3 BRIDGES		
MISCELLANEOUS DETAILS		
BRIDGE No. SCI-73-1055		
OVER SCIOTO BRUSH CREEK		
DESIGNED	DRAWN	TRACED
CHECKED	REVIEWED	DATE
J.T.H.	7-20-92	