

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
ROS-159-06.61
GREEN TOWNSHIP
ROSS COUNTY

ROS-159-06.61

PLAN NO. BR-26-

STRUCTURE IMPROVEMENT-BRIDGE MAJOR REPAIR

1989 SPECIFICATIONS

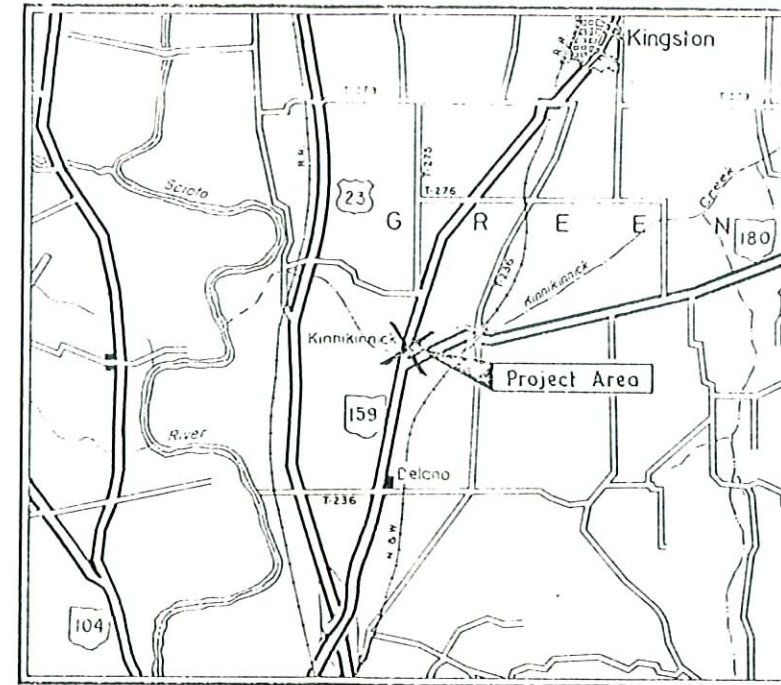
The standard specifications of the State of Ohio, Department of Transportation, including changes and supplemental specifications listed in the proposed project manual govern this improvement.

I hereby approve these plans and declare that the making of this improvement will not require the closing of traffic of the highway and that the maintenance and safety of traffic will be maintained as set forth on the plans and estimates.

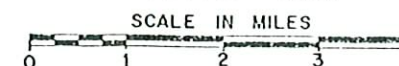
CONVENTIONAL SIGNS	
County Line	Limited Access (only) LA
Township Line	Right of Way (only) RW
Section Line	Limited Access & Right of Way LA & RW
Corporation Line	Existing Right of Way
Fence Line (existing) or (proposed)	Property Line (in existing fence)
Center Line 352 or 353	Railroad
Trees, Stumps,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

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Superstructure Details	10-12
Maintaining Traffic	13-16



LOCATION MAP



LINE DATA

Begin Project	Sta. 348 + 84.53
End Project	Sta. 350 + 33.05
Net Length of Project = 148.52 Lin. Ft. or 0.028 Miles	
Begin Work	Sta. 347 + 55.67
End Work	Sta. 351 + 30.67
Net Length of Work = 375.0 Lin. Ft. or 0.071 Miles	

UNDERGROUND UTILITIES
TWO WORKING DAYS
BEFORE YOU DIG
Call 800-362-2764 (Toll free)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

Portion to be improved: _____
State & Federal Routes _____
Other Roads _____

SCALES

Plan _____
Profile: _____ Horizontal _____ Vertical _____
Cross Section: Horizontal _____ Vertical _____

SUPPLEMENTAL SPECIFICATIONS	
802	5-4-88
853	6-26-78
956	6-26-78

Approved: *Keith C. Swearingen*
Date: 6-7-88 District Deputy Director of Transportation

Approved: *B. D. Harkness*
Date: 2-23-89 Engineer, Bureau of Bridges and Structural Design

Approved: *James R. Longenecker*
Date: 4-10-89 Deputy Director, Operations

Approved: *Bernard B. Hurst*
Date: 4-14-89 Director, Department of Transportation

Plan Prepared By:
DISTRICT NO. 9
OHIO DEPARTMENT OF
TRANSPORTATION

Project: ROS-159-06.61

Date of Letting: 19____, Contract No. _____

LD0300 Rev. 1-1-81

SEAL

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED:

DIVISION ADMINISTRATOR

DATE

GENERAL NOTES

FHWA REGION	STATE	PROJECT
5	OHIO	

ROS-159-06.61

BP-24-88

REFERENCE

Shall be made to Standard Drawing:
AS-1-81 Dated 11-27-81
BP-5 Dated 10-1-87
DBR-2-73 Dated 4-10-73
GR-1 Dated 1-11-85
GR-2B Dated 2-5-82
GR-3 Dated 1-21-85
GR-4 Dated 2-5-82
PSBD-1-81 Dated 9-18-81

DESIGN SPECIFICATIONS: This structure "Modification" conforms to "Standard Specifications for Highway Bridges" adopted by the American Association of State Highway and Transportation Officials, 1983 Incl the 1984 & 1985 Interim Specifications and the Ohio Supplement to these Specifications.

DESIGN DATA:

Design Loading - HS 20-44 and Alternate Military Loading
Concrete Class C-Fc = 4,000 psi for substructure.
Reinforcing Steel - ASTM A615, A616 or A617 Fy = 60,000 psi for substructure (Grade 40 may be used for Prestressed Beams)
Concrete for Prestressed Concrete Beams - Fc = 5,500 psi at 28 days (Min.)
Unit Stress - 2,200 psi Compression, 444 psi Tension.
Prestressing Strand - ASTM A416 - Fy = 270,000 psi Initial Stress 0.70 Fy.
Deck Protection Method: Membrane Waterproofing and Asphalt Concrete Overlay.

REMOVAL OF EXISTING STRUCTURE: When no longer needed to maintain traffic, the existing structure shall be removed. See sheet No. 10/16 for Phased Construction.

EXISTING STRUCTURE VERIFICATION: Details and dimensions shown on these plans pertaining to the existing structure have been obtained from plans of the existing structure and/or 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.

BRIDGE TERMINAL ASSEMBLY, TYPE B, MODIFIED, AS PER PLAN: Assembly shall be as per GR-3 except all posts encased in concrete shall be W6 x 15.5 Lbs. galvanized steel posts. Payment shall be included in the lump sum price bid for Item 606, Bridge Terminal Assembly, Type B, Modified, As Per Plan.

ITEM SPECIAL, SEALING OF CONCRETE SURFACES: A epoxy sealer, shall be applied to the concrete surfaces as shown on sheet No. 10/16. See Proposal Note for surface preparation requirements, application rates, materials requirements and application procedures.

ITEM 615, TEMPORARY PAVEMENT, AS PER PLAN: This Item shall conform to all requirements of 615, including permissible substitution of 402 materials for 404 and/or 301 materials; however, the nominal course make-up shall be as follows:

1 1/4" 404 Asphalt concrete
5" 301 Bituminous aggregate base

If acceptable to the Engineer, this material shall be left in place, otherwise suitable berm material shall be placed and included in the unit price bid for Item 614, Maintaining Traffic.

REPLACEMENT OF EXISTING REINFORCING STEEL: Any existing reinforcing bars which are to be incorporated into the new work and which are made unusable by the Contractor's concrete removal operations shall be replaced with new steel at his cost. Any existing reinforcing bars deemed by the Engineer to be unusable because of corrosion shall be replaced with new steel. An allowance of 275 pounds is included in Item 509 for this purpose.

BRIDGE SEAT REINFORCING: Reinforcing steel in the vicinity of the bridge seat shall be accurately placed to avoid interference with the drilling of anchor bar holes.

POROUS BACKFILL shall extend upward to the approach slab and laterally to the surface of the embankment slopes.

LAMINATED ELASTOMERIC BEARINGS: The laminated elastomeric bearing manufacturer shall proof load each laminated elastomeric bearing with a compressive load equal to 1.5 times the maximum design load as per Article 25.7, Bearing Tests and Acceptance Criteria, Division II, Construction of the 1985 Interim Specifications for the "Standard Specifications for Highway Bridges" adopted by the American Association of State Highway and Transportation Officials, Thirteenth Edition, 1983. The testing shall be included in the price bid for the bearings. Acceptance of the bearing shall be according to Level I acceptance criteria of Article 25.7 and 711.23 of the Construction and Material Specifications. The manufacturer shall furnish certified test data.

The maximum design load is 20,000 Lbs.

PILE DESIGN LOADS: The design load for the pier piles is 40 tons per pile.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
DISTRICT 9 BRIDGES

GENERAL NOTE

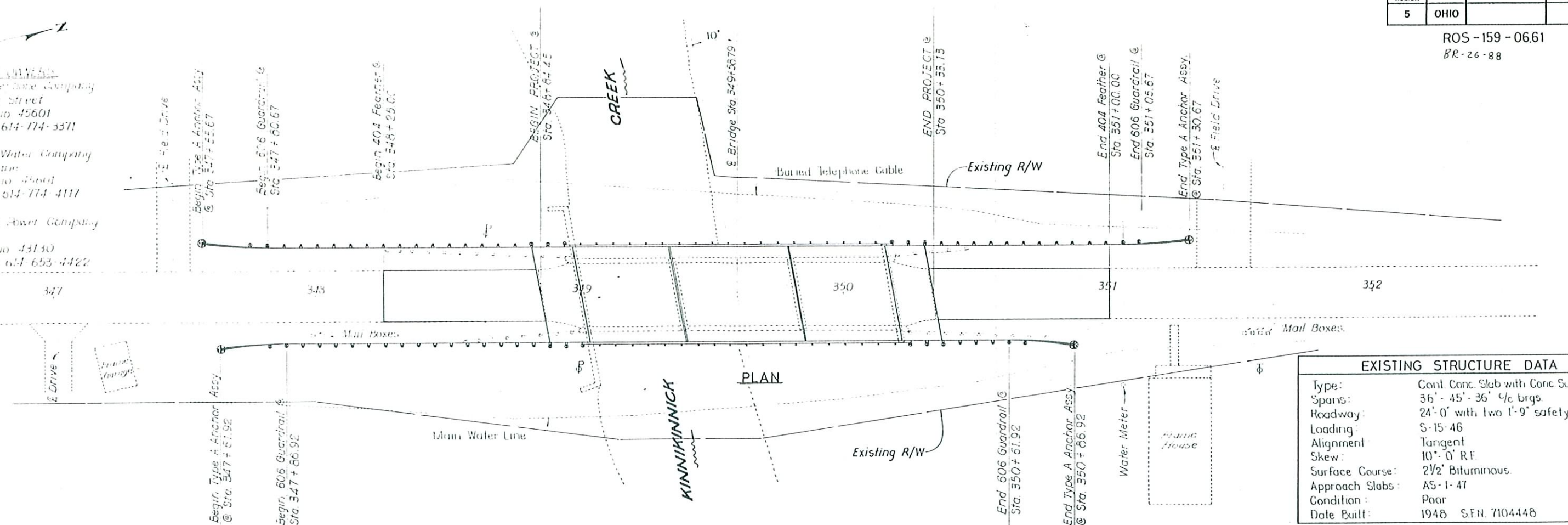
BRIDGE NO. ROS-159-0

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED
U.B.H.	U.B.H.	U.B.H.	GLB	AB 2

CHILlicothe
Chillicothe Telephone Company
28 East Main Street
Chillicothe, Ohio 45601
Telephone No. 614-774-3371

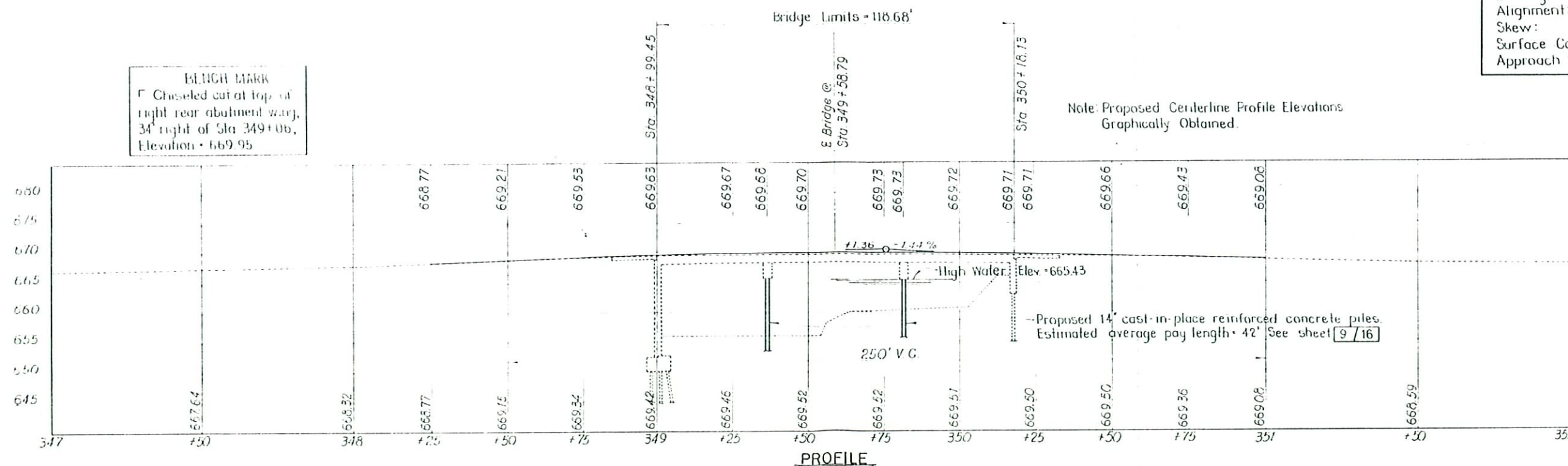
Ross County Water Company
Ingramm Lane
Chillicothe, Ohio 45601
Telephone No. 614-774-4117

South Central Power Company
Box 250
Lancaster, Ohio 43130
Telephone No. 614-653-4422



EXISTING STRUCTURE DATA	
Type:	Cont. Conc. Slab with Conc. Sills
Spans:	36'-0" - 45'-0" - 36'-0" c/brgs
Roadway:	24'-0" with two 1'-9" safety
Loading:	S-15-46
Alignment:	Tangent
Skew:	10° - 0' R.F.
Surface Course:	2 1/2" Bituminous
Approach Slabs:	AS-1-47
Condition:	Poor
Date Built:	1948 S.F.N. 7104448

PROPOSED STRUCTURE DATA	
Type:	Prestressed Non-Composite
Spans:	36'-0" f/f Guardrails
Roadway:	36'-0" f/f Guardrails
Loading:	HS 20-44 & Military Alter
Alignment:	Tangent
Skew:	10° - 0' R.F.
Surface Course:	2 1/2" Min. Asphalt Concrete
Approach Slabs:	AS-1-81 (15'-0" long)



BLANCH MARK
Chiseled cut at top of right rear abutment wing, 34' right of Sta. 349+06, Elevation 669.95

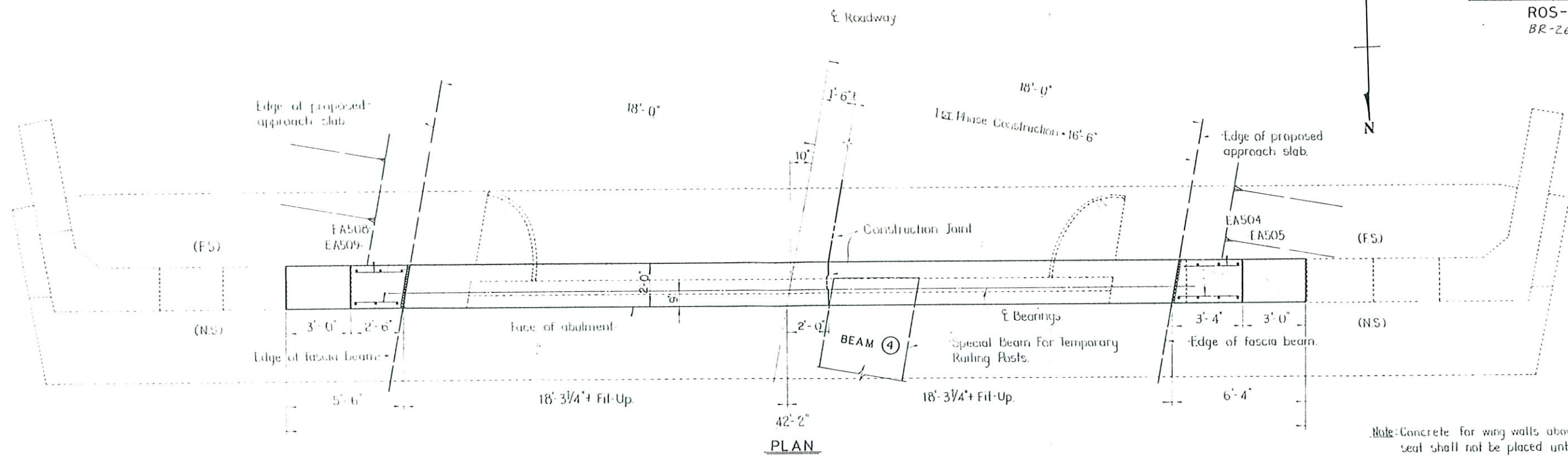
Note: Proposed Centerline Profile Elevations Graphically Obtained.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
DISTRICT 9, CINCINNATI

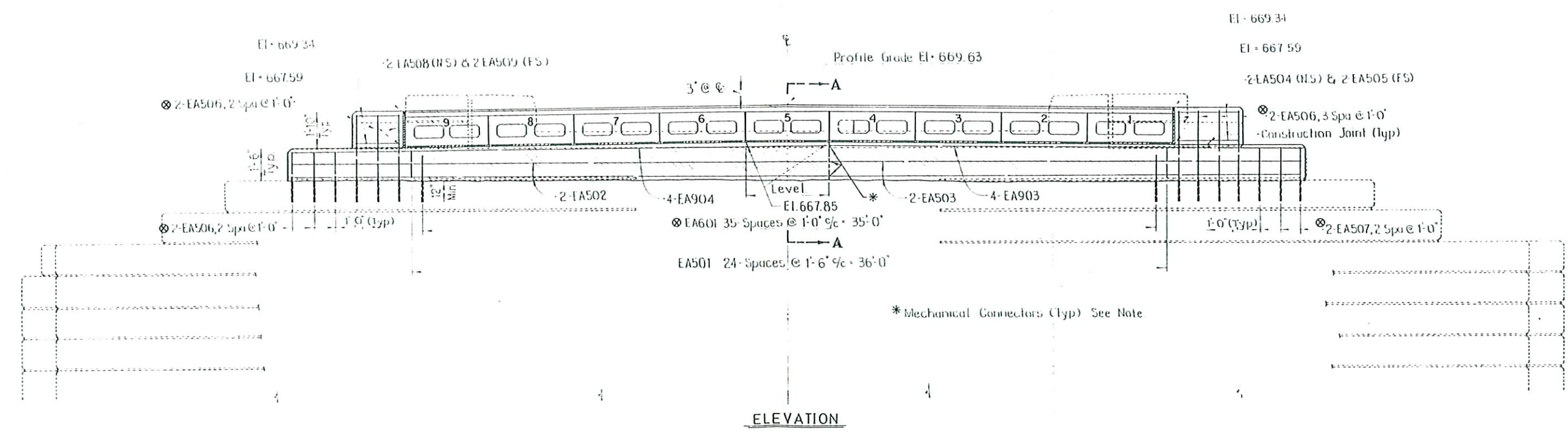
PLAN AND PROFILE

BRIDGE No. ROS-159-

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED
1/6/88	1/6/88	1/6/88	G.L.B.	DAB 2



Note: Concrete for wing walls above the level of the seat shall not be placed until after the bridge is erected.



* Mechanical Connectors (Typ) See Note

LEGEND

- [] Removal Areas
- (NS) Denotes Near Side
- (FS) Denotes Far Side
- ⊗ Denotes Dowel Bars
- * Denotes Mechanical Connectors

Note: For Section A-A See Sheet No. 5

Note: Rebar lengths given are based upon the use of Lenton couplers. If another type or make of mechanical splice coupler is used, the rebar lengths shall be adjusted accordingly at no additional cost to the Department.

STATE OF OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 9 BRIDGES				
REAR ABUTMENT DE				
BRIDGE No. ROS-159				
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED
J.B.F.	J.B.F.	J.B.F.	G.L.B.	D.A.B.

FHWA REGION	STATE	PROJECT	
5	OHIO		

ROS - 159 - 06.61
BR - 26 - 88

Limit Of Type 'D' Water pro

and Abatement

Elev # 66971 @
Fwd Abutment

1. 2 1/2
1. Con

Existing App

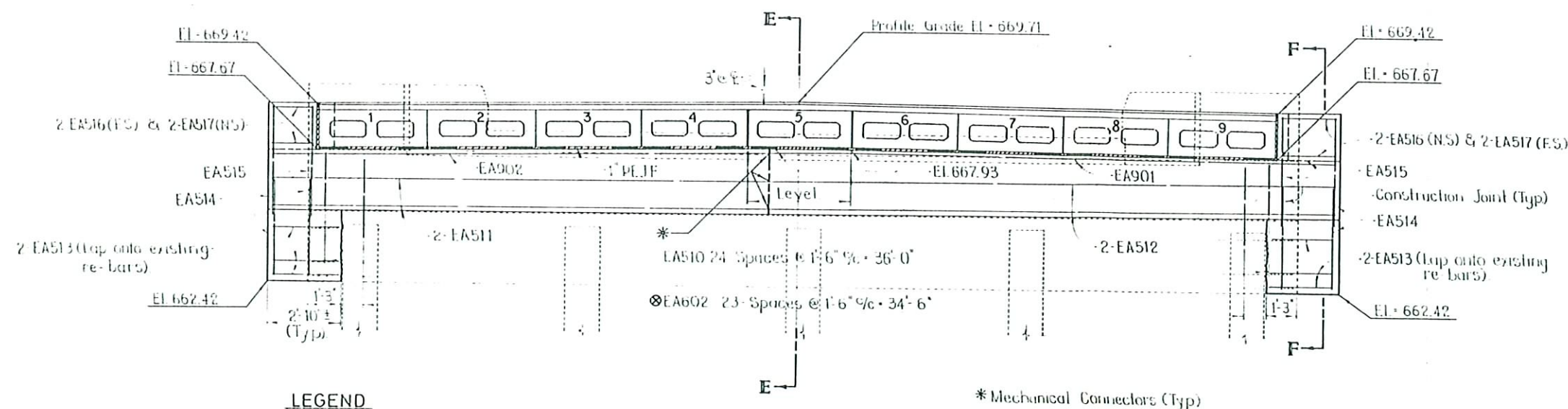
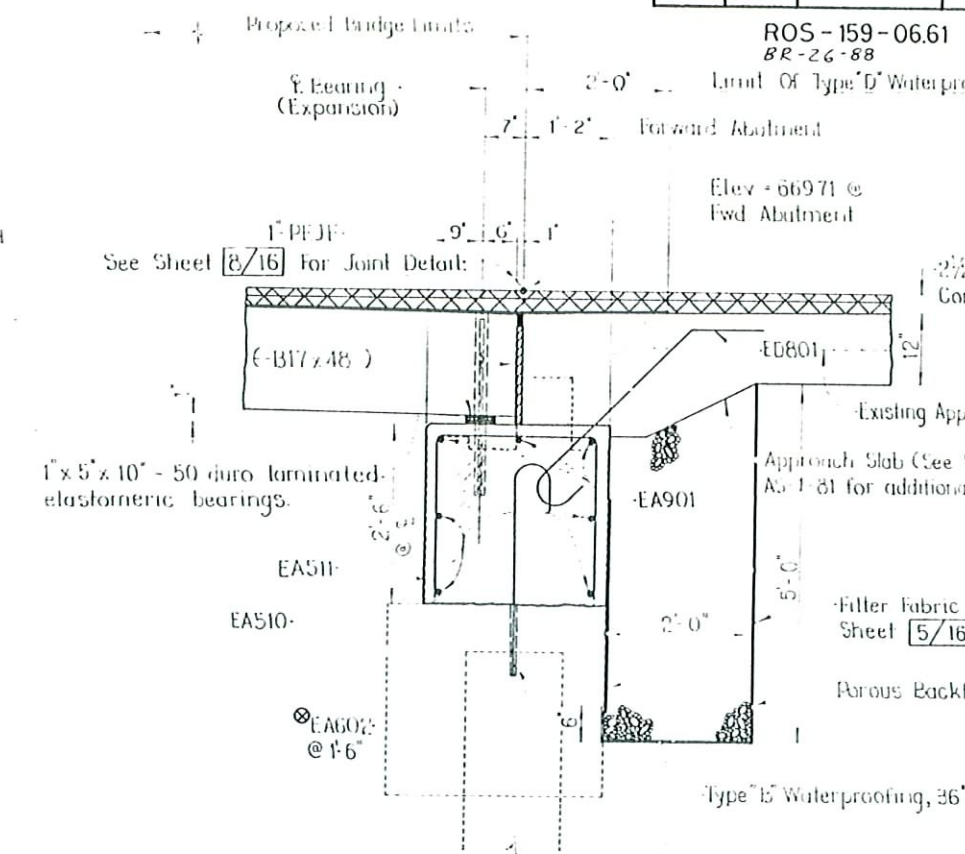
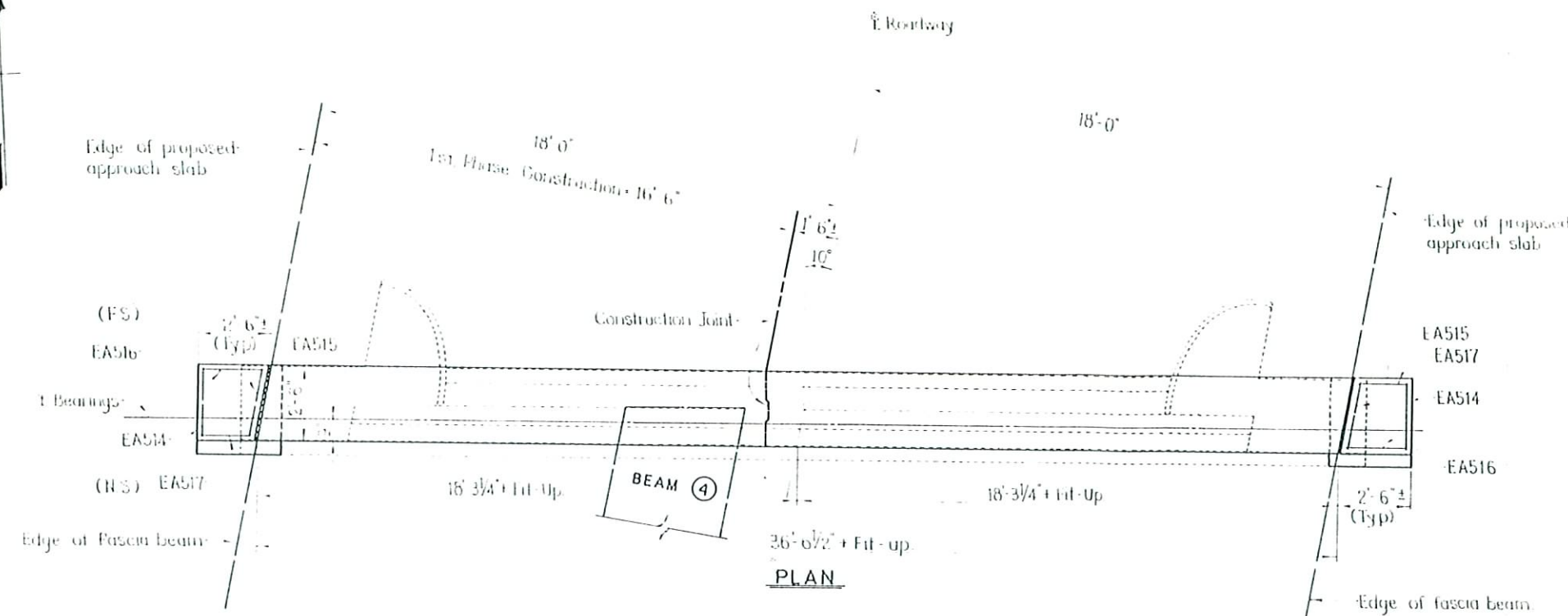
Approach Slab (See
AS-1-81 for additional

Sheet 5/16

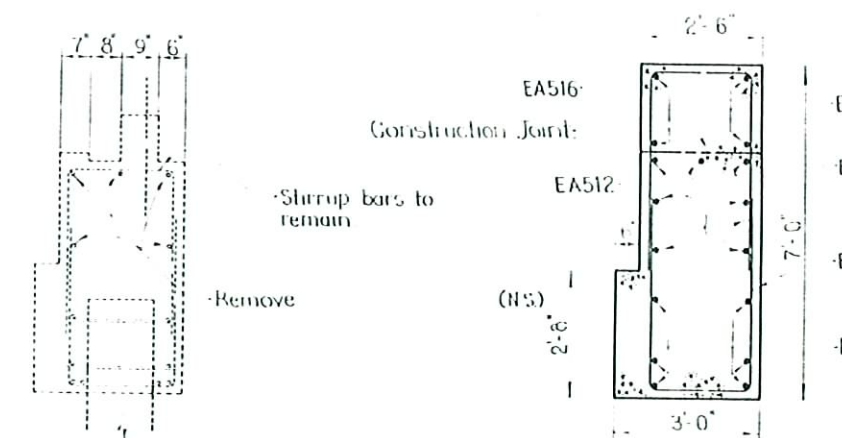
Porous Back

Type "B" Waterproofing, 36"

SECTION E-E (PROPOSED)



SECTION E-E (EXISTING)



SECTION F F

LEGEND

 Removal Areas
(NS) Denotes Near Side
(FS) Denotes Far Side
 Denotes Dowel Bars
*—Denotes Mechanical Connectors

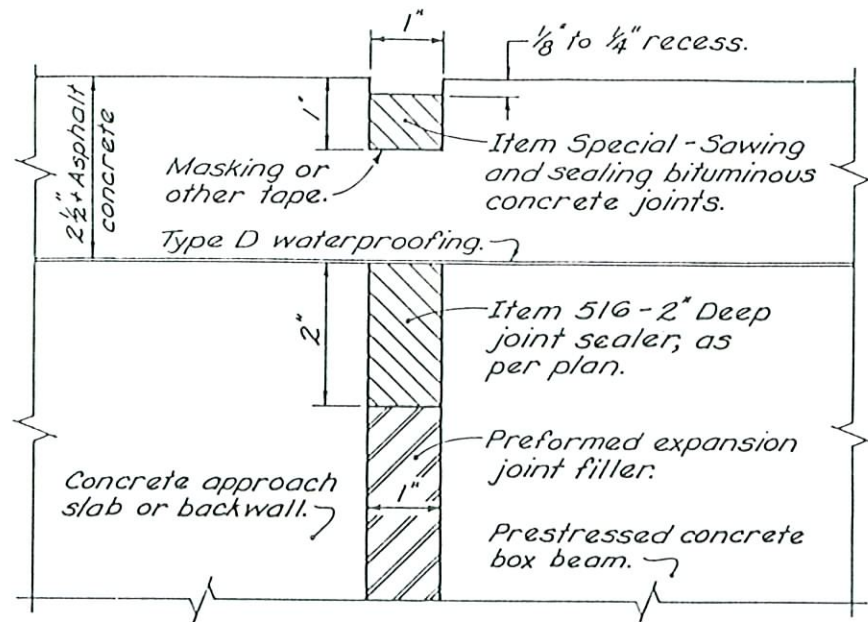
Note: Concrete for wingwalls above the level of the bridge seat shall not be placed until after the beams are erected.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
DISTRICT 9 BRIDGES

FORWARD ABUTMENT

BRIDGE No. ROS-159-

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED
J.G.H.	J.G.H.	J.G.H.	G.L.B.	O.A.B.



SEALING OF JOINTS AT ABUTMENTS

ITEM SPECIAL - SAWING AND SEALING BITUMINOUS CONCRETE JOINTS

1) Description:

This work shall consist of cutting and sealing transverse joints on the new bituminous concrete overlay of box beam bridges. Bituminous concrete joints shall be constructed directly over, and in line with, the existing underlying transverse abutment joint of the box beams.

2) Materials:

The joint sealant shall meet the requirements of ASTM Specification D3405, Joint sealants, Hot-poured, for Concrete and Asphalt Pavements. Acceptable alternate materials are:

Roof-Flex 176, polyurethane, as produced by the Carboline Company, 350 Hanley Industrial Court, St. Louis, Missouri 63144 (Roger Zubal, 614-877-3406); a silicone sealant meeting Federal Specifications TT-S-001543A Class A (one-part silicone sealants) and TT-S-00230C Class A (one-component sealants), such as those manufactured by General Electric, Silicone Products Division, 6155 Rockside Rd., Rockside Square I, Independence, Ohio 44131 (John Fromholtz, 216-447-1750) or Dow Corning, 3737 Park East, Beachwood, Ohio 44122 (Robert Ruppel, 216-464-2330); or Sof-Seal, a cold-applied, low-modulus, two-component polymeric compound horizontal sealant as manufactured by W. R. Meadows, Inc., P.O. Box 543, Elgin, Illinois 60121 (Robert Cameron, 312-683-4500). Sealant will be accepted on the basis of the manufacturer's certification that it conforms to the requirements of these specifications.

3) Construction Details:

A) General: The contractor shall conduct his operation so that the cutting, cleaning and sealing of transverse joints is a continuous operation that will be performed as soon as practical after the paving, but no later than four (4) days after placement of the asphalt concrete surface course. Traffic shall not be allowed to knead together or damage the joint cut prior to sealing.

B) Cutting of Transverse Joints: The contractor shall saw or rout transverse joints to the dimensions shown in the details on this sheet. The cut joints shall lie directly above each box beam abutment joint. The joint location shall be marked on the new asphalt surface with a chalk line, or by some other acceptable method, before cutting. Details of the method for locating and accurately marking the proposed cuts shall be subject to the approval of the Engineer prior to starting any surfacing or paving operations.

The blade or blades shall be of such size that the full width and depth of the cut can be made with one pass. Dry or wet cutting will be allowed. Joints shall extend the full width of the bridge.

C) Cleaning Joints: Dry sawed joints shall be thoroughly cleaned with a sufficient amount of compressed air to remove any dirt, dust, or deleterious matter. Wet sawed joints shall be washed clean of all cuttings by flushing with a jet of water and with other tools as necessary. After flushing, the joint shall be blown out with compressed air. When the surfaces are thoroughly clean and dry, and just prior to placing the joint sealer, compressed air having a pressure of at least 90 p.s.i. shall be used to blow out the joint and remove all traces of dust.

In the event freshly cut joints become contaminated before they are sealed, they shall be recleaned of all foreign material by high pressure water jet.

D) Sealing Joints: The joint shall be thoroughly dried before the sealant is placed. After cleaning and drying, a bond-breaker (tape) shall be applied to the bottom of the groove.

Hot-poured joint sealant material shall be heated in a kettle or melter constructed as a double boiler, with the space between the inner and outer shells filled with oil or other heat transfer medium. Positive temperature control and mechanical agitation shall be provided. Heating must be in strict accordance with the manufacturer's recommendation. Joint sealer material shall never be kept heated at the pouring temperature for more than four (4) hours and shall never be reheated. Sealer left in the applicator at the end of a day's work shall be removed and discarded.

Hot-poured sealant shall be applied immediately through a nozzle, which must project into the sawed joint, filling from the bottom up. The seal shall completely fill the joint in such a manner that, after cooling, the level of the sealer will not be higher than 1/8" below the pavement surface. Any depression in the cooled seal greater than 3/16" shall be brought up to the specified limit by further addition of hot-poured sealant. Care shall be taken in the sealing of the joints so that the final appearance will present a neat fine line.

The cold applied sealant materials (polyurethane, silicone, and polymeric compounds) shall be installed as per manufacturers' recommendations, or as directed by the Engineer. The sealant shall be installed when the ambient temperature is 40 degrees F or higher. Traffic shall not be allowed on the joint for one hour after application of the sealant.

4) Method of Measurement:

The quantity to be paid for under this item will be the number of linear feet of joints sawed and sealed as per the above requirements.

5) Basis of Payment:

The unit price per linear foot for Item Special - "Sawing and sealing bituminous concrete joints" shall include the cost of all labor, materials, and equipment necessary to complete the work, including the furnishing and placing of the joint sealer material.

ITEM 516 - 2" DEEP JOINT SEALER, AS PER PLAN

This item shall meet the material (para. 2) and sealing (para. 3D) specifications of Item Special - Sawing and sealing bituminous concrete joints.

REVISIONS					STATE OF OHIO DEPARTMENT OF TRANSPORTATION BUREAU OF BRIDGES AND STRUCTURAL				
2-8-84					ABUTMENT JOINTS BITUMINOUS CONCR BOX BEAM BRIDG BRIDGE NO. ROS-159-0				
3-10-87									
4-14-87									
6-16-87									
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED					
JEB	MJB		WTF	WJJ					

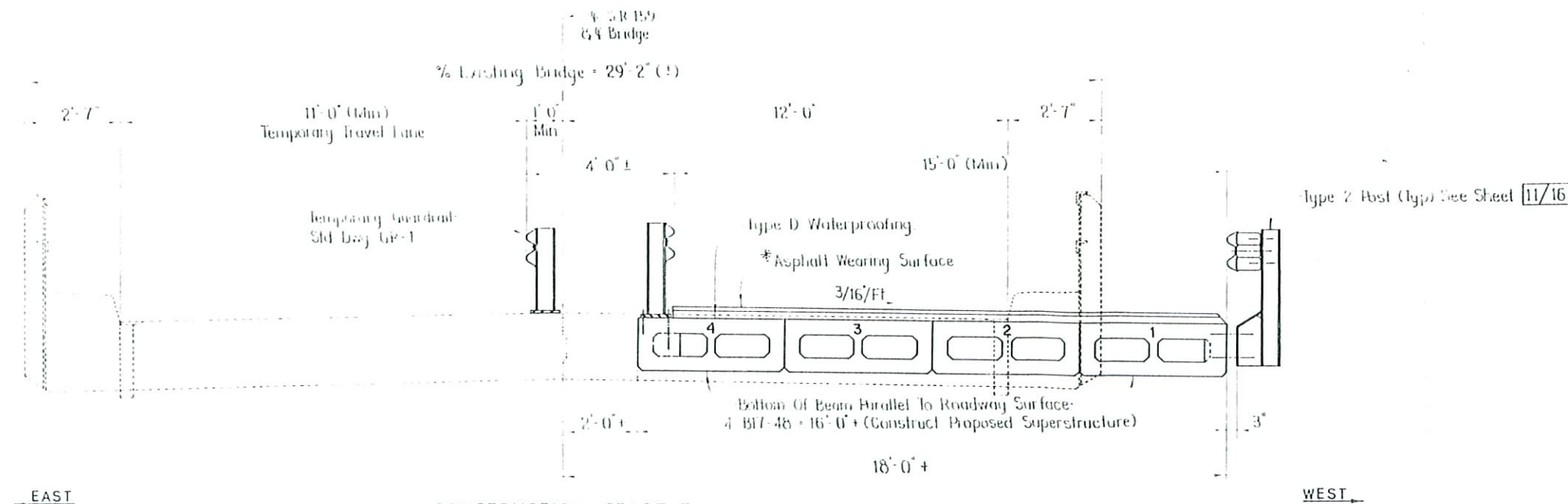
BRIDGE CONSTRUCTION SEQUENCE

STAGE I:

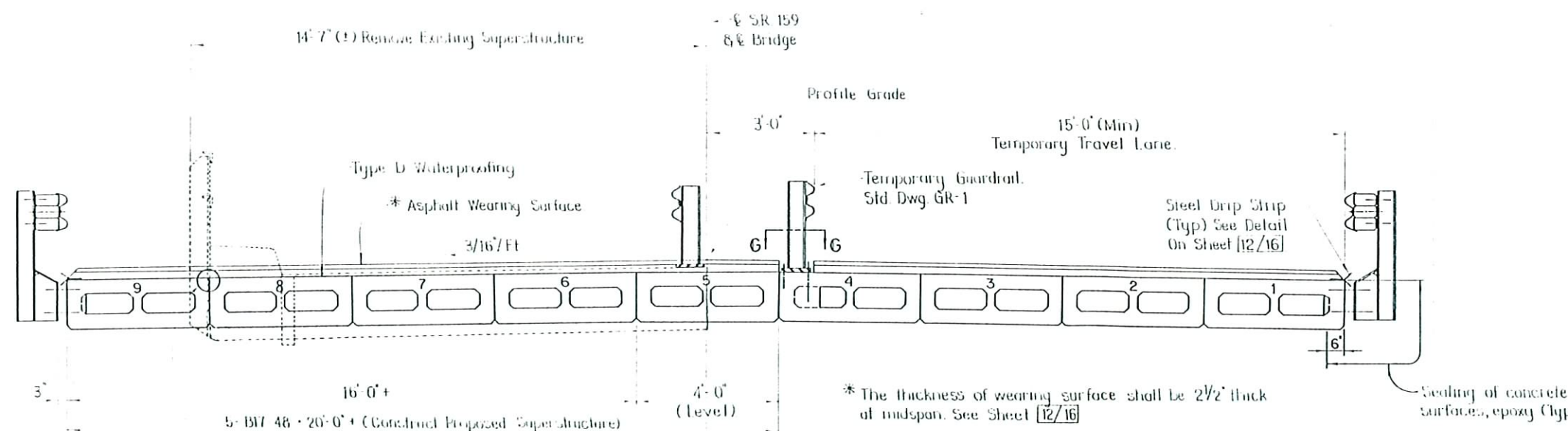
1. Erect temporary railing on existing bridge. Temporary guardrail, including posts and anchors, shall conform to bridge plans and cost shall be included in the lump sum price bid for Item 614, Maintaining Traffic.
2. Maintain one lane, two-way traffic on East side of existing bridge.
3. Remove West side of existing superstructure, rear abutment and forward abutment back walls. The Contractor shall erect temporary sheeting needed to retain fill for supporting bridge approach pavement. Payment for temporary sheeting shall be included in the lump sum price bid for Item 614, Maintaining Traffic.
4. Construct West side of the rear and forward abutment new bridge and pier seats.
5. Erect prestressed concrete box beams 1 thru 4, 10 thru 13 and 19 thru 22. See Sheet No. 11/16.
6. Construct West side of both approach slabs.
7. Erect permanent and temporary railing on West side of proposed bridge.
8. Place asphalt concrete wearing surface on West side of proposed bridge.

STAGE II:

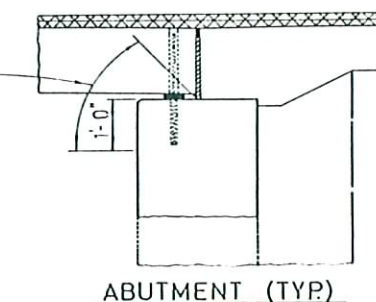
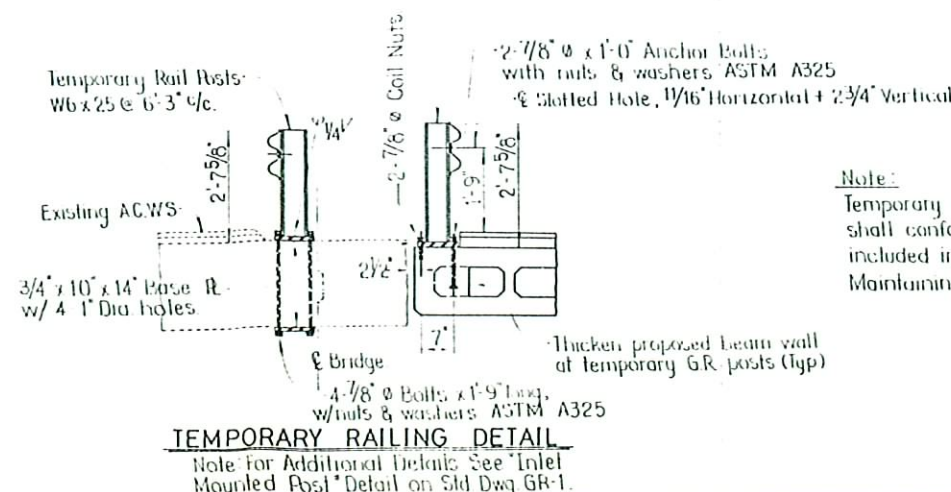
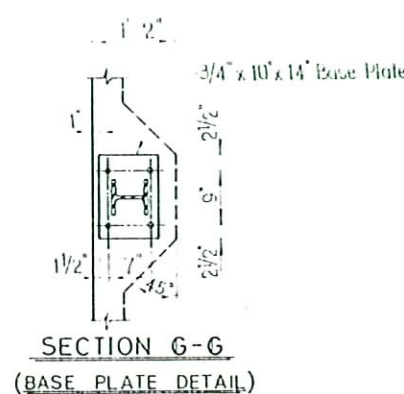
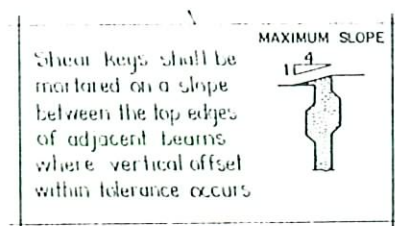
9. Transfer traffic to and maintain one lane, two-way traffic on West side of proposed bridge.
10. Remove East side of existing superstructure, rear abutment and forward abutment back walls.
11. Construct East side of rear and forward abutments new bridge seats and pier seats.
12. Erect prestressed concrete box beams 5 thru 9, 14 thru 18 and 23 thru 27. See Sheet No. 11/16.
13. Construct East side of both approach slabs.
14. Erect permanent railing on East side of proposed bridge.
15. Remove temporary railing.
16. Place asphalt concrete wearing surface on East side of proposed bridge.



CONSTRUCTION STAGE I
(Looking South)



CONSTRUCTION STAGE II
(Looking South)



Note:
Temporary guardrail, including posts and anchors, shall conform to bridge plans and the cost shall be included in lump sum price bid for Item 614, Maintaining Traffic.

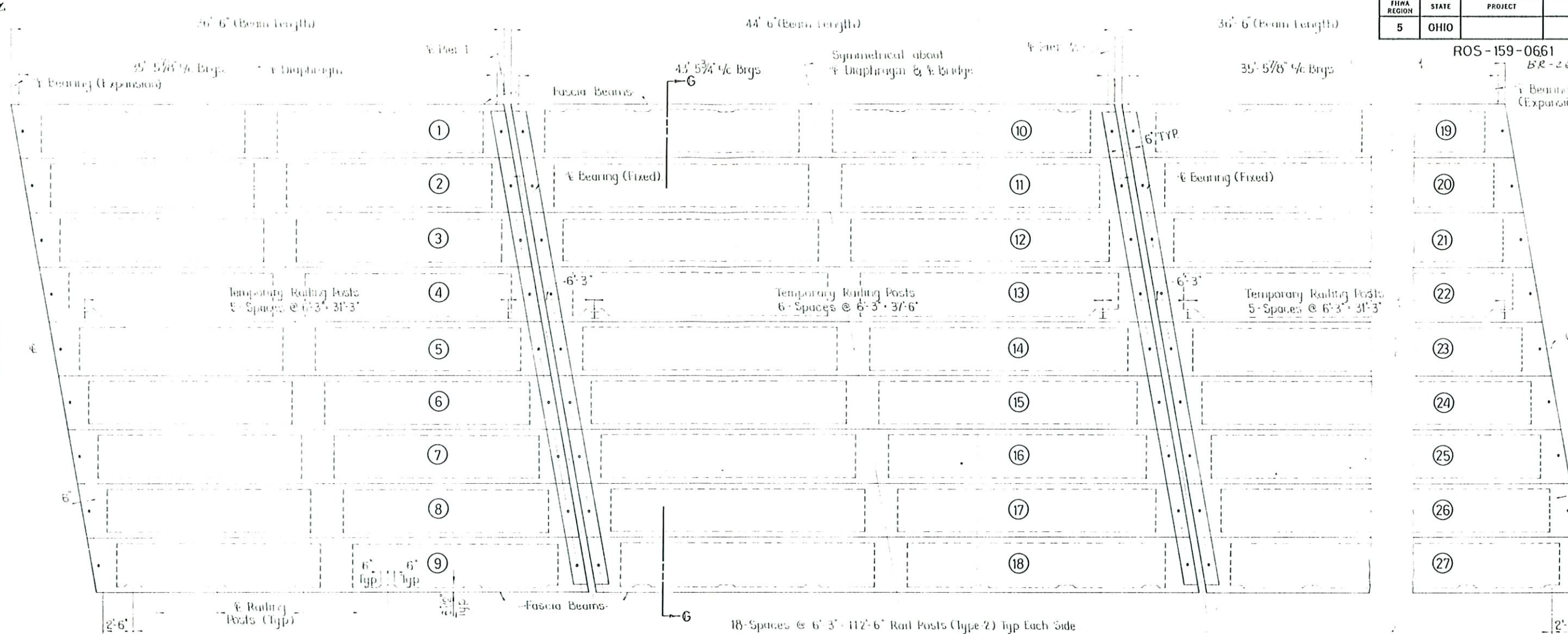
STATE OF OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 9 BRIDGES				
CONSTRUCTION SEQUENCE				
BRIDGE No. ROS-159-				
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED
J.C.G.	J.C.G.	J.C.G.	G.L.B.	D.A.B.

FHWA REGION	STATE	PROJECT
5	OHIO	

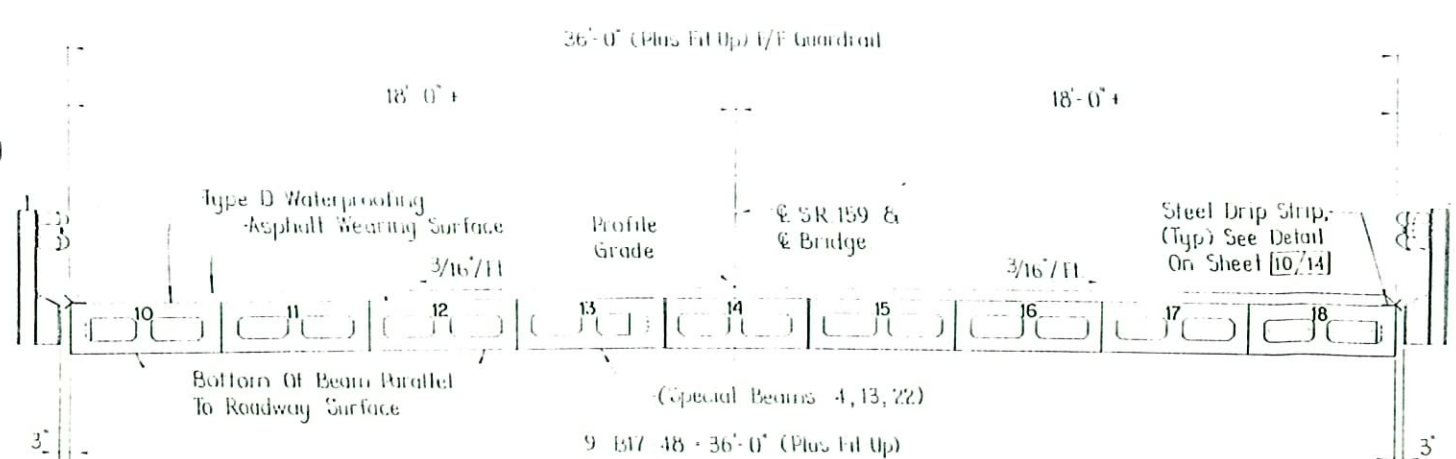
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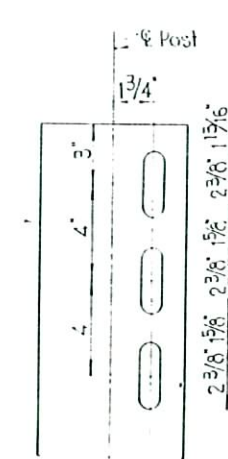
1/2" Bearing (Expansion)



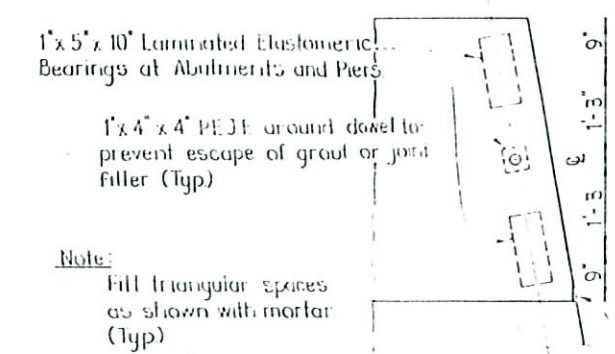
DECK PLAN



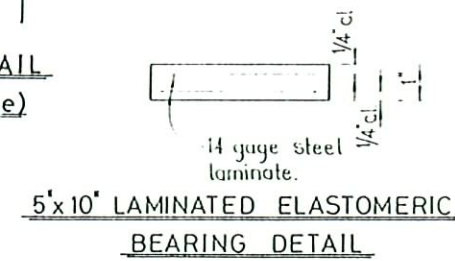
TRANSVERSE SECTION G-G



POST DETAIL (On Bridge)



BEARING DETAILS

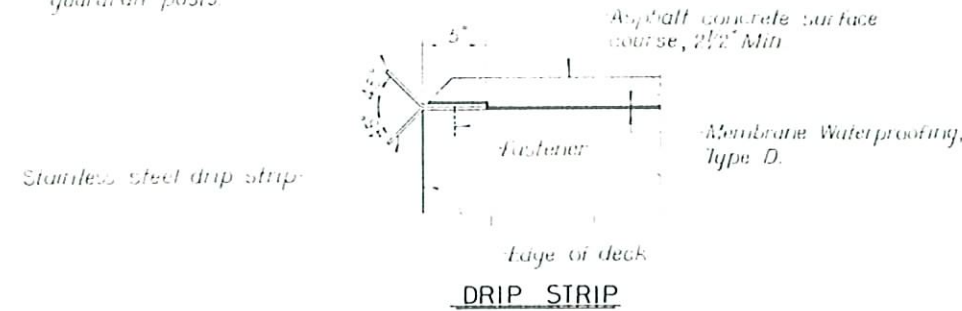


STATE OF OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 9 BRIDGES				
SUPERSTRUCTURE DETAIL				
BRIDGE NO. ROS-159-				
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED
J.G.H.	J.G.H.	J.G.H.	G.L.B.	O.A.B.

FHWA REGION	STATE	PROJECT
5	OHIO	

ROS-159-0661
BR-26-88

Additional drip strip 12' long, centered at all quadrant posts.



Drip Strip: Prior to applying deck membrane waterproofing, a bent drip strip shall be installed along the edges of the deck as shown. The strips shall be fastened at 1'-6\"/>

Asphalt Concrete Surface Course: Shall consist of a variable thickness of 403 and 1 1/4\"/>

Additional Details: See Standard Drawing P&BD-1-81, sheets 1, 2, 3, 4 or 4 for beam lifting inserts, end details of transverse tie rod anchorage, normal crown treatment at centerline of roadway, beam dimensional tolerances, anchor dowels, details and reinforcement of beam ends and transverse tie rods.

Calculated Camber: at time of paving, including allowance for camber growth due to creep, is 2/4\"/>

Non-Shrinking Mortar: Mortar or grout for keyways between prestressed concrete box beams, for tie rod recesses and for anchor dowel holes shall be a non-shrinking non-metallic mortar having a minimum compressive strength at 28 days of 5000 psi according to the Corps of Engineers Specification CRD-C621-83 when prepared to a moderate fluidity (124-145 % Flow table Flow). The mortar or grout shall also meet all other requirements of Specification CRD-C621-83. The mortar shall be prepared, placed and cured in accordance with the manufacturer's recommendations, against surfaces as specified below.

Preparation Of Concrete Surfaces In Contact With Non-Shrinking Mortar: The keyway surfaces shall be given a medium sandblast at the plant within four days before the beams leave the plant. Before mortaring, the keyways shall be thoroughly clean of all dirt, dust and other foreign matter. The keyway surfaces shall be wetted, but no free water shall be allowed to remain in the keyways.

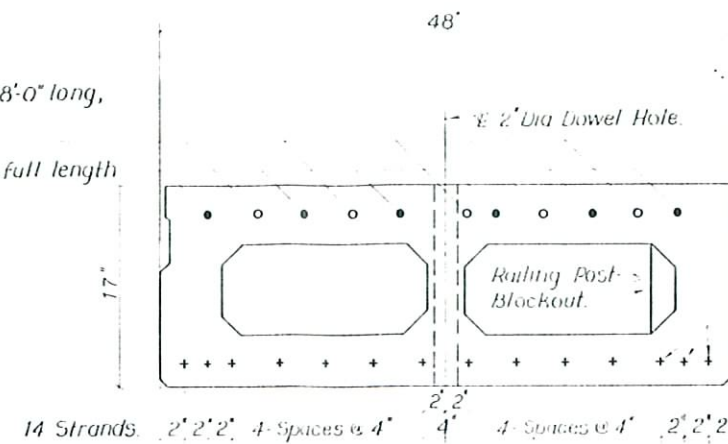
Bearing Pad Shims: Two (2) 1/8\"/>

Concrete Stresses: Minimum concrete strength at 28 days $F_c = 5,500$ psi. Min. concrete strength at time of initial prestress $F_{ci} = 4,000$ psi (For Prestressed Beams).

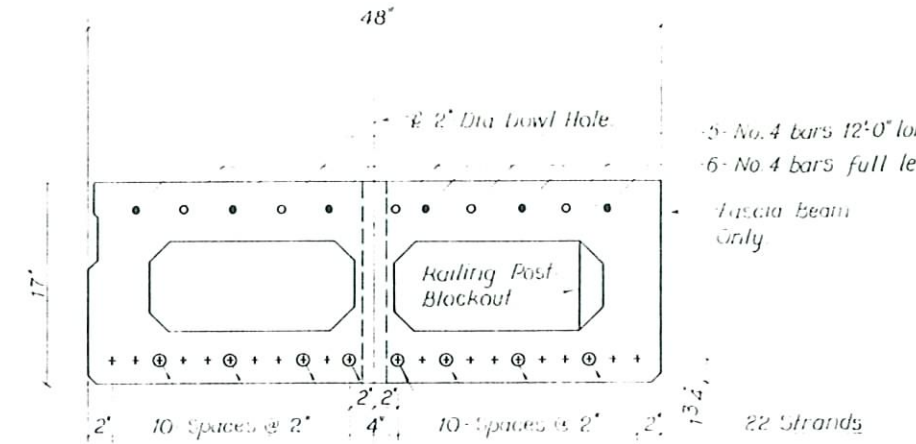
Prestressing Strands: 1/2\"/>

5-No 4 bars 8'-0\"/>

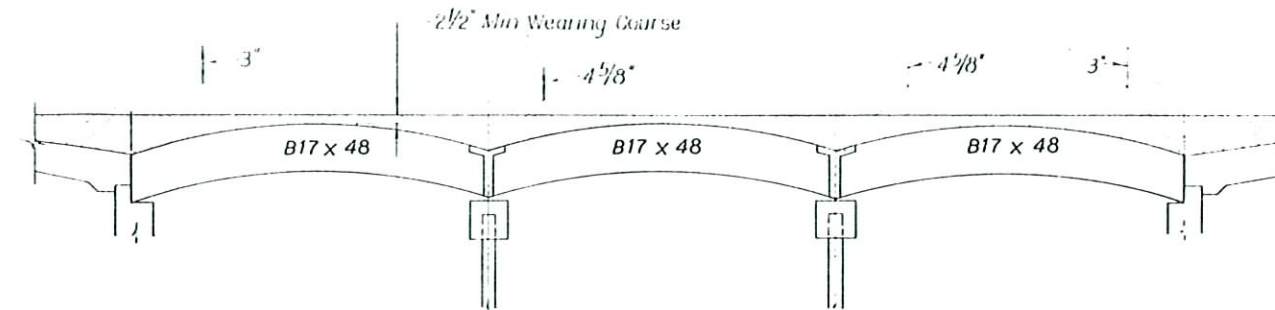
6-No 4 bars full length



Prestressing Strand Spacing
(No Debonding Strands)
**TYPICAL BEAM SECTION
(END SPANS)**



Prestressing Strand Spacing
**TYPICAL BEAM SECTION
(CENTER SPAN)**



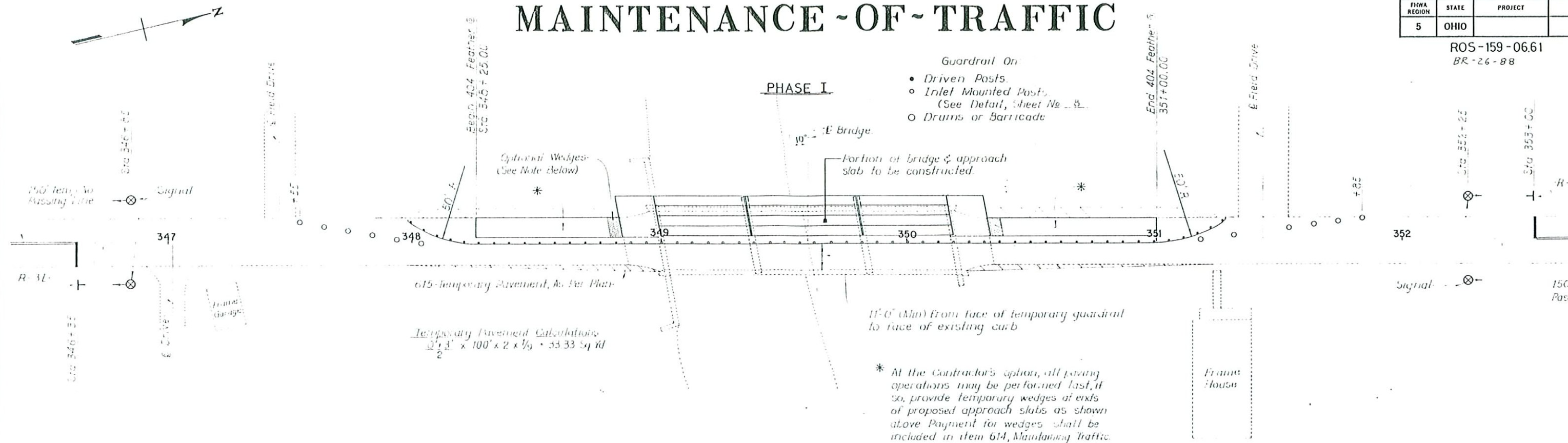
SCHEMATIC DIAGRAM

STATE OF OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 9 BRIGLES				
SUPERSTRUCTURE DETAIL				
BRIDGE No. ROS-159-				
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED
U.G.H.	U.G.H.	U.G.H.	G.L.B.	O.A.B.

MAINTENANCE - OF - TRAFFIC

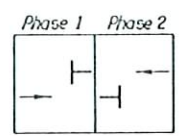
FHWA REGION	STATE	PROJECT
5	OHIO	

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BR-26-88

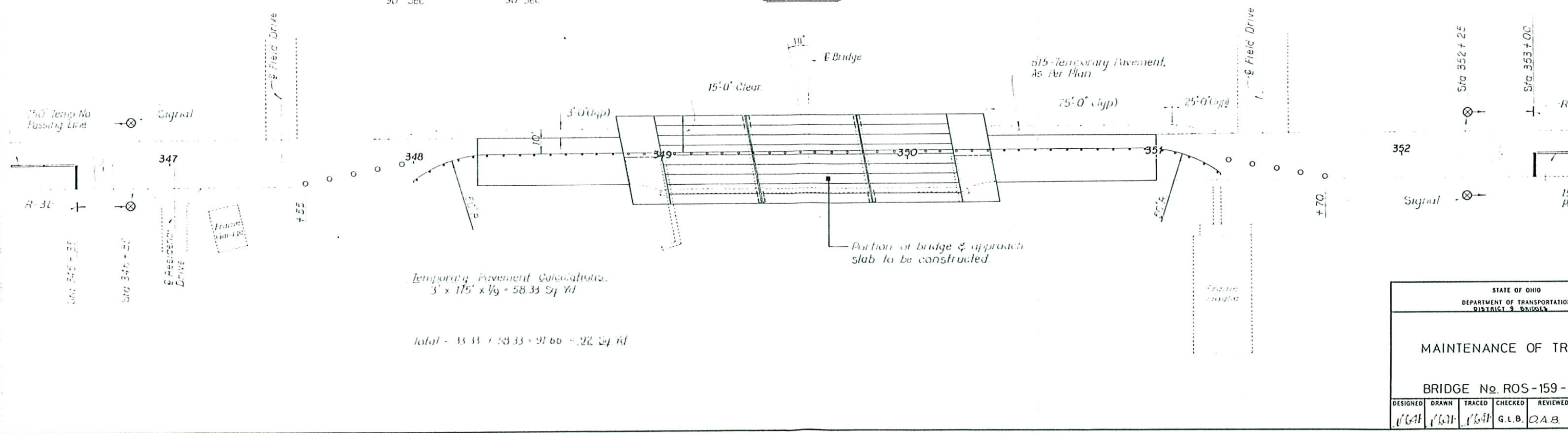


(Signal Timing)

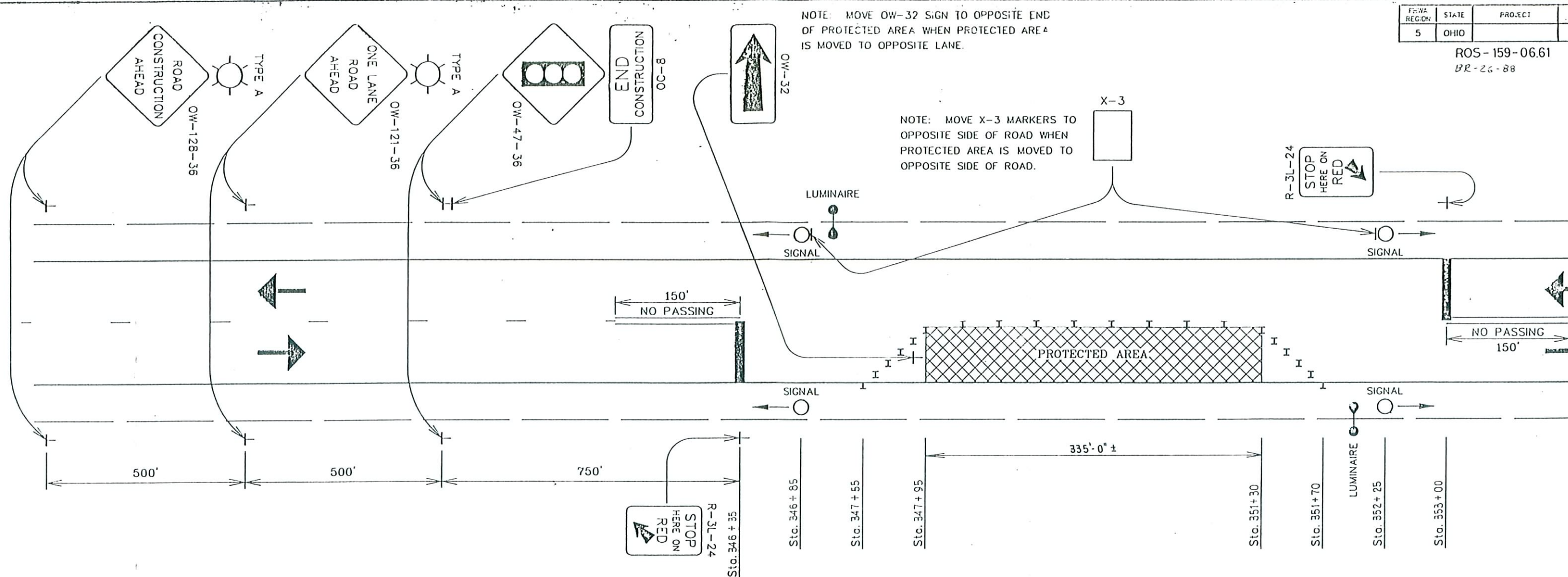
Phase 1	Phase 2
20 Sec Green	20 Sec Red
4 Sec Y	4 Sec R
21 Sec R	21 Sec R
20 Sec R	20 Sec Gr.
4 Sec R	4 Sec Y
21 Sec R	21 Sec R
90 Sec	90 Sec



PHASE II



STATE OF OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 9 CHAIRMAN				
MAINTENANCE OF TRAFFIC				
BRIDGE No. ROS-159-0				
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED
J.G.H.	J.G.H.	J.G.H.	G.L.B.	O.A.B.



GENERAL NOTES:

1. SIGNAL TIMING SHALL BE APPROVED BY THE ENGINEER.
2. SIGNALS SHALL BE INSTALLED AND OPERATED IN ACCORDANCE WITH THE REQUIREMENTS OF PART 6 OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
3. DRUMS OR BARRICADES ON THE ADVANCE AND RETURN TAPERS SHALL BE SPACED AT 10' CENTER TO CENTER. DRUMS OR BARRICADES SHALL BE SPACED AT 50' TO 60' CENTER TO CENTER WITHIN THE WORK AREA EXCEPT THAT WHERE TEMPORARY GUARDRAIL, RAILING, OR BARRIER IS PROVIDED, AS SPECIFIED ELSEWHERE IN THE PLANS, DRUMS OR BARRICADES SHALL NOT BE PROVIDED WITHIN THAT PART OF THE WORK AREA WHERE TEMPORARY GUARDRAIL, RAILING OR BARRIER IS IN PLACE.
4. ADEQUATE AREA ILLUMINATION TO CLEARLY IDENTIFY BOTH ENDS OF THE WORK AREA AT NIGHT FOR LONG TERM OPERATIONS SHALL BE PROVIDED BY USING 150 WATT MINIMUM HIGH PRESSURE SODIUM LUMINAIRES OR 250 WATT MINIMUM MERCURY LUMINAIRES. LUMINAIRES SHALL BE LOCATED ADJACENT TO ONE SIGNAL FOR EACH DIRECTION OF TRAFFIC. THE MOUNTING HEIGHT FOR TEMPORARY LUMINAIRES SHALL BE A MINIMUM

OF 27 FEET ABOVE THE PAVEMENT AND THE OVERHEAD CONDUCTOR CLEARANCE SHALL BE A MINIMUM OF 15 FEET ABOVE THE PAVEMENT. LIGHTING MATERIAL SHALL COMPLY WITH SPECIFICATION 625.

5. TWENTY-FOUR (24) INCH STOP LINES SHALL BE INSTALLED AND WHERE NO-PASSING LINES ARE NOT ALREADY IN PLACE THEY SHALL BE ADDED. REMOVABLE PAVEMENT MARKINGS MAY BE USED. EXISTING CONFLICTING PAVEMENT MARKINGS AND RAISED PAVEMENT MARKER REFLECTORS BETWEEN THE PROTECTED AREA AND THE STOP LINE SHALL BE REMOVED. AFTER COMPLETION OF THE WORK THE STOP LINES AND ADDED NO-PASSING LINES SHALL BE REMOVED IN ACCORDANCE WITH 621.134 AND THE RAISED PAVEMENT MARKER REFLECTORS SHALL BE REPLACED IN KIND.
6. THE TYPE A FLASHING BARRICADE WARNING LIGHTS SHOWN ON THE "ROAD CONSTRUCTION AHEAD" AND THE "ONE LANE ROAD AHEAD" SIGNS ARE REQUIRED WHENEVER A NIGHT LANE CLOSURE IS NECESSARY.
7. TYPE C STEADY BURNING BARRICADE WARNING LIGHTS SHALL BE ERECTED ON ALL DRUMS OR BARRICADES FOR NIGHT LANE CLOSURES. THE MAXIMUM SPACING SHALL BE IDENTICAL TO THE CHANNELIZING DEVICE SPACING REQUIREMENTS DESCRIBED IN NOTE 3.

8. THE HORIZONTAL OR VERTICAL ALIGNMENT OF THE ROADWAY MAY REQUIRE ADJUSTMENTS IN THE LOCATION OF THE ADVANCE WARNING SIGNS (THE DISTANCES SHOWN FOR ADVANCE WARNING SIGN SPACINGS ARE MINIMUMS). THE VERTICAL ALIGNMENT OF THE ROADWAY MAY REQUIRE ADJUSTMENTS IN THE HEIGHT OF THE SIGNAL HEADS WITHIN THE RANGE SPECIFIED IN THE TYPICAL POLE SUPPORTED SIGNAL DETAIL.
9. ALL TRAFFIC SIGNALS AND EQUIPMENT USED IN THIS TRAFFIC SIGNAL INSTALLATION, SUCH AS SIGNAL CABLE AND SIGNAL HEADS, SHALL BE IN CONFORMANCE WITH SPECIFICATIONS 632 AND 732, AS MODIFIED BY 614.03(E). THE CONTROLLER, FLASHERS, LOAD SWITCHES, CONFLICT MONITOR, AND OTHER CONTROLLER ACCESSORIES SHALL COMPLY WITH SPECIFICATIONS 633 AND 733, EXCEPT THAT THE REQUIREMENTS OF 633.03 AND 633.05 ARE WAIVED. USED EQUIPMENT MEETING CURRENT ODOT SPECIFICATIONS IS ACCEPTABLE. CONFLICT MONITORS SHALL BE FURNISHED AT ALL LOCATIONS UNLESS AN ELECTROMECHANICAL PRETIMED CONTROLLER WITH CAMSHAFT IS PROVIDED.
10. WHEN THE SIGNAL IS CHANGED TO A FLASH CONDITION EITHER MANUALLY OR AUTOMATICALLY, RED SHALL BE FLASHED TO BOTH APPROACHES.

OHIO DEPARTMENT
OF TRANSPORTATION

SIGNALIZED CLOSING
1 LANE OF A 2 LANE
HIGHWAY

ROS-159-0661

DR: CKD:

FHWA REGION	STATE	PROJECT
5	OHIO	

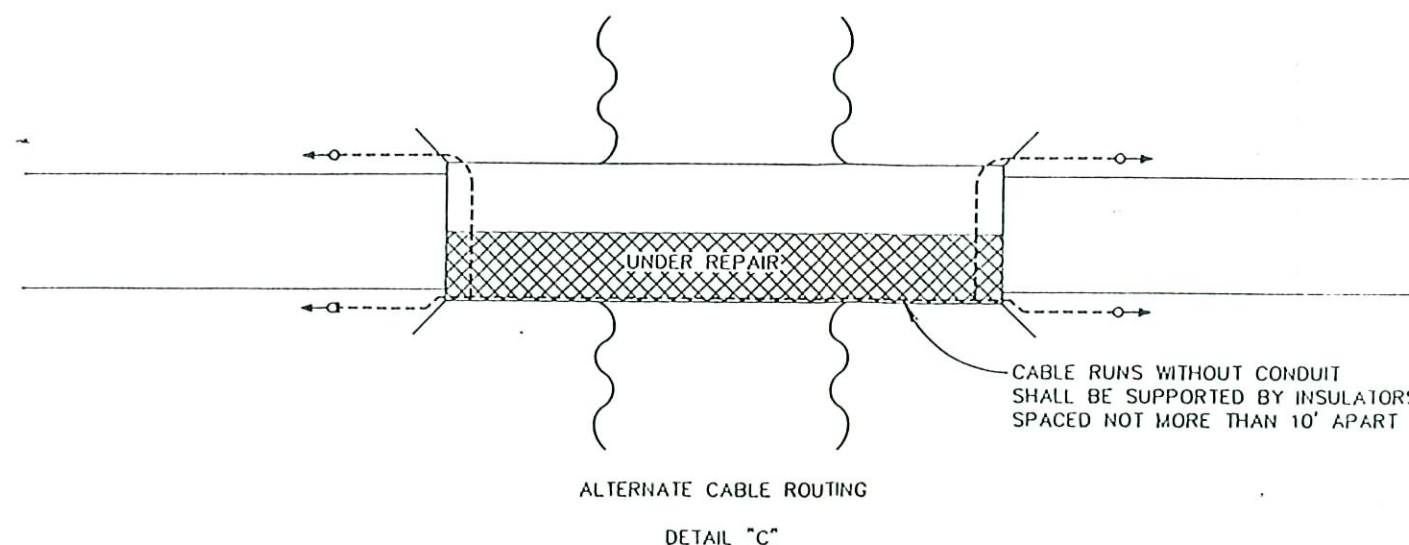
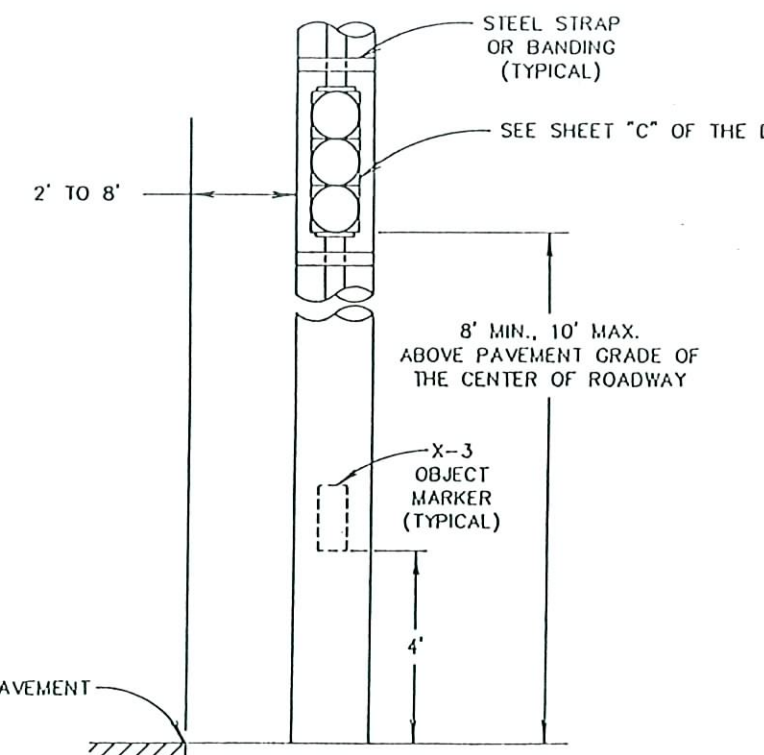
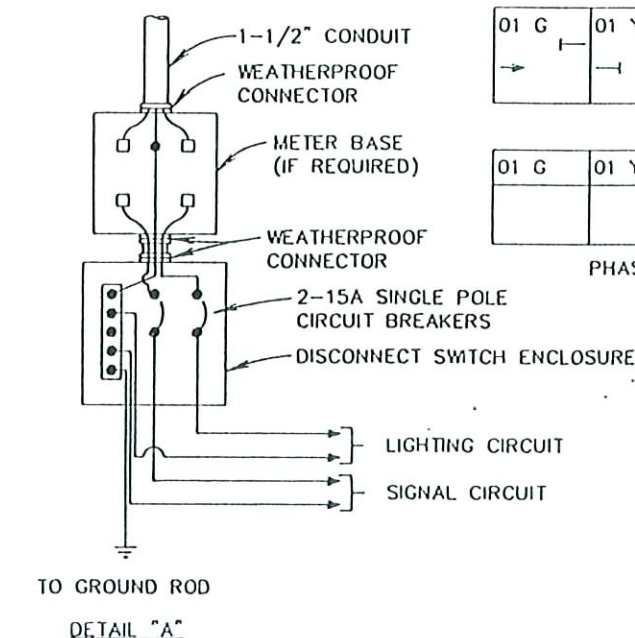
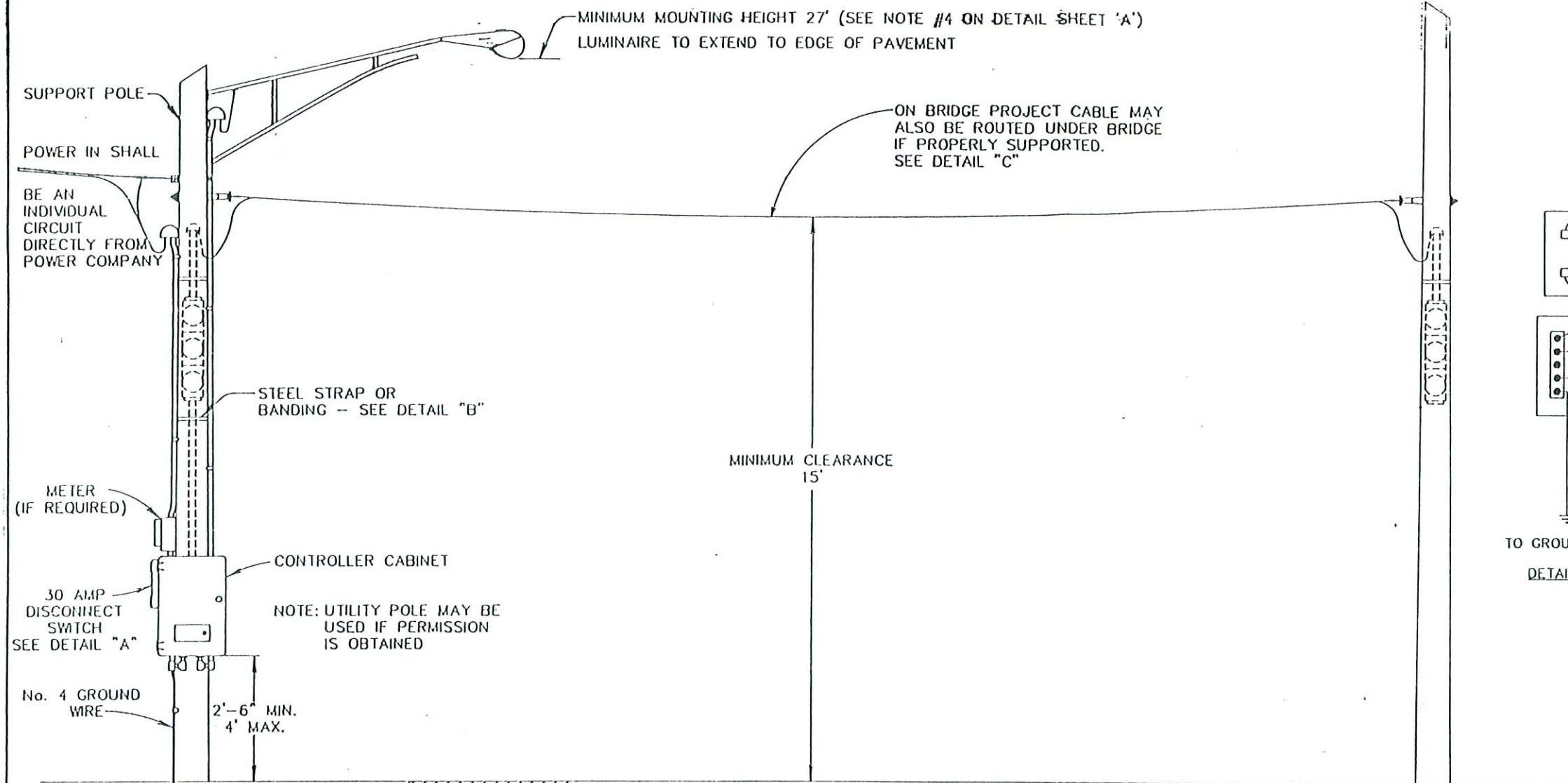
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BR-26-88

01 G	01 Y	ALL RED	02 G	02 Y
→	→	→	→	→

01 G	01 Y	ALL RED	02 G	02 Y

PHASING AND INITIAL TIME SETTINGS



ALTERNATE SUPPORT POLE METHOD

TYPICAL SERVICE, LUMINAIRE, SIGNAL HEAD AND CONTROLLER CABINET INSTALLATION

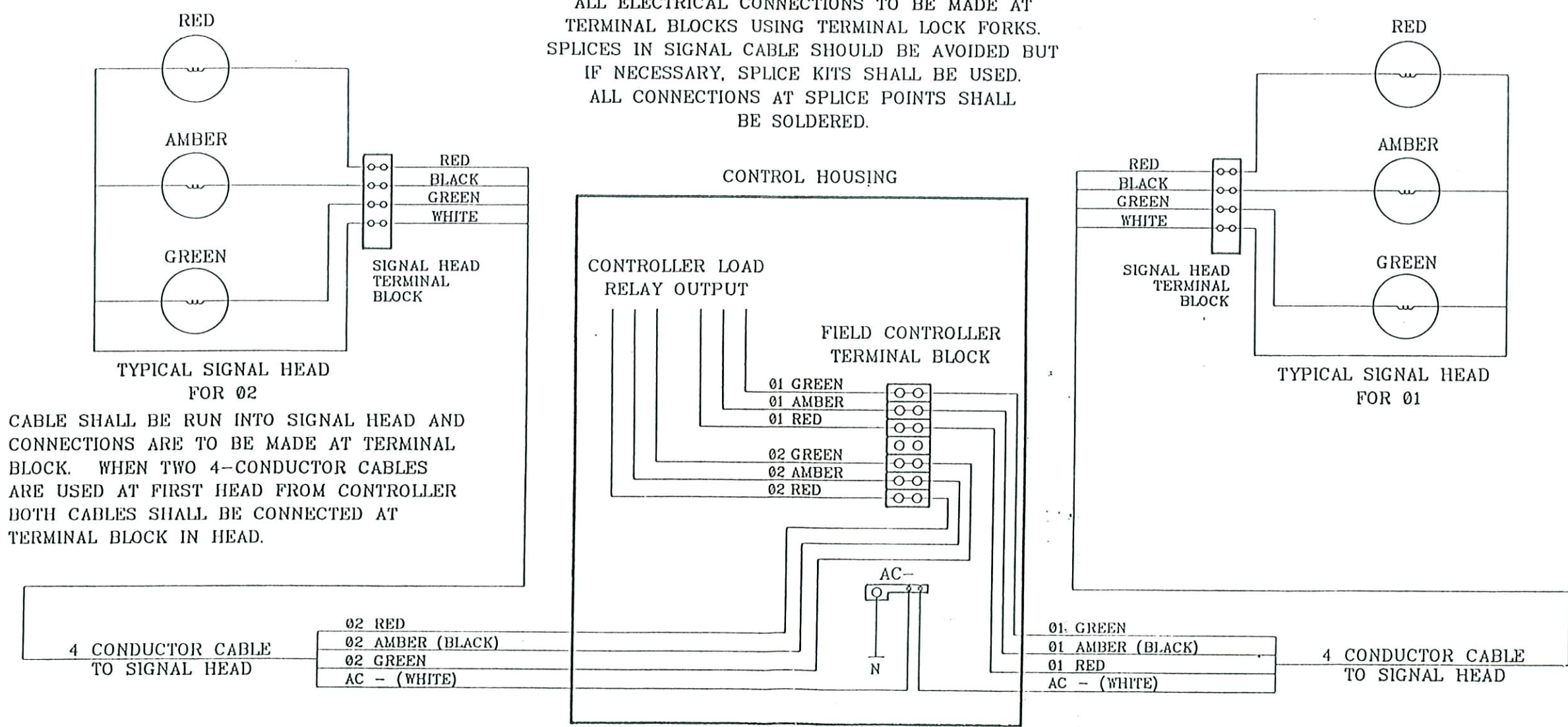
OHIO DEPARTMENT OF TRANSPORTATION

SIGNALIZED CLOSING
1 LANE OF A 2 LANE
HIGHWAY

ROS-159-0661

DR: CKD:

CABLE SHALL BE 4-CONDUCTOR No. 14 COPPER
SIGNAL CABLE, COLOR CODED AND STRANDED.
ALL ELECTRICAL CONNECTIONS TO BE MADE AT
TERMINAL BLOCKS USING TERMINAL LOCK FORKS.
SPICES IN SIGNAL CABLE SHOULD BE AVOIDED BUT
IF NECESSARY, SPICE KITS SHALL BE USED.
ALL CONNECTIONS AT SPICE POINTS SHALL
BE SOLDERED.



CABLE SHALL BE RUN INTO SIGNAL HEAD AND
CONNECTIONS ARE TO BE MADE AT TERMINAL
BLOCK. WHEN TWO 4-CONDUCTOR CABLES
ARE USED AT FIRST HEAD FROM CONTROLLER
BOTH CABLES SHALL BE CONNECTED AT
TERMINAL BLOCK IN HEAD.

TYPICAL SIGNAL HEAD HOOK-UP