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PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM MUSCATINE COUNTY

Bridge Repair

IA 92 over the
Mississippi River in Muscatine

FRA No. 607203K

Refer to the Plan Sheets for list of applicable specifications.

Value Engineering Saves. Refer to Article 1105.14 of the Specifications.



Iowa DOT Bridges and Structures
Consultant Reviewer Contact:
Michael Vander Wert

Standard Road Plans

Standard Road Plans are listed on Sheet Number C.4 and RC.5.

Design Data Urban

2024 AADT	3840	V.P.D.
TRUCKS	8	%

Index of Seals		
Sheet No.	Name	Type
A.1	Nick J. Lampe	Structural Design
A.3	Dung T. Ta	Roadway Design
RC.1	Rachel A. Harris	Landscape Design

Structural Design

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Signature

Nick J. Lampe

Printed or Typed Name

Nick Lampe

My license renewal date is December 31,

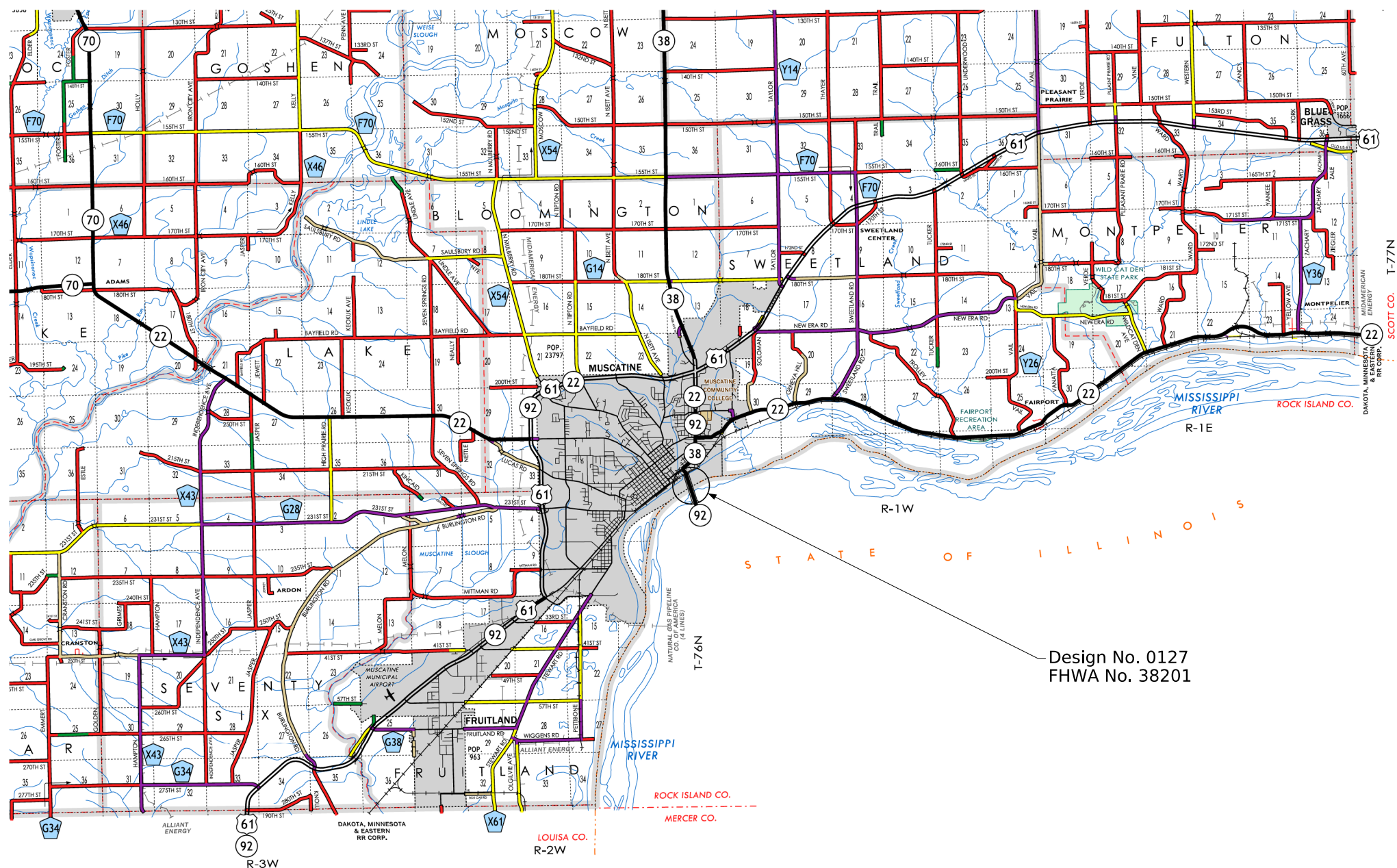
2027

Pages or sheets covered by this seal:

A.1, A.2, V.1 - V.51

Revisions

	TOTAL
	87
PROJECT IDENTIFICATION NUMBER	
22-70-092-010	
PROJECT NUMBER	
BRF-092-9(165)--38-70	
R.O.W. PROJECT NUMBER	
PROJECT DIRECTORY NUMBER	
7009201022	



Not To Scale

9:34:59 AM 7/14/2026 ESORENS pw:\\pwhdruscen02.intranet.hdr:HDR_US_Central 02\Documents\IADOT\IDOT-IA 92 Bridge Repair\6.0 CAD BIM\6.2 WIP\Bridge\Muscataine Co Steel Truss Bridge Repairs

Estimated Bridge Repair Quantities (50/50 Iowa/Illinois Split)									
Item No.	Item Code	Description	Unit	Estimated Quantity			As Built Quantity		
				Division 1: 50% / 50% Iowa / Illinois Split	Division 2: 100% Iowa Costs	Division 3: 100% Illinois Costs	Division 1: 50% / 50% Iowa / Illinois Split	Division 2: 100% Iowa Costs	Division 3: 100% Illinois Costs
1	2401-6750001	Removals, As Per Plan	LS	1.0					
2	2403-0100000	Structural Concrete (Miscellaneous)	CY	201.5					
3	2403-1000005	Fiber Reinforcement for Structural Concrete	CY	157.2					
4	2403-1000010	Trial Batch and Test Placement (Fiber Reinforced Concrete)	LS	1.0					
5	2404-7775005	Reinforcing Steel, Epoxy Coated	LB	36,735					
6	2408-7800000	Structural Steel	LB	20,351					
7	2413-0698067	Deck Overlay (Class HPC-O PCC)	SY	10,390					
8	2413-0698074	Deck Repair, Class A	SY	2,078					
9	2413-0698075	Deck Repair, Class B	SY	20					
10	2413-1000005	Fiber Reinforcement for Concrete Repair/Overlay	SY	10,390					
11	2413-1200000	Steel Extrusion Joint with Neoprene	LF	404.0					
12	2413-1200100	Neoprene Gland Installation and Testing	LF	404.0					
13	2426-6772016	Concrete Repair	SF	602.0					
14	2499-0800000	Paving Notch Replacement	LF	32.0					
15	2499-6000200	Sealer Coat for Prestressed Concrete Beam Ends	Each	90					
16	2499-9000000	Modular Expansion Joint Assembly	LF	135.3					
17	2499-9000100	Modular Expansion Joint Assembly Leak Testing	Each	4.0					
18	2508-0970000	Containment	LS	1.0					
19	2508-0990000	Paint Waste Transport and Disposal	LS	1.0					
20	2508-0991000	Painting of Structural Steel	LS	1.0					
21	2510-6745640	Removal of Existing P.C. Overlay	SY	10,390					
22	2523-0000100	Lighting Poles	Each	2.0					
23	2533-4980005	Mobilization	LS	1.0					
24	2595-0005125	Railroad Protective Liability Insurance for Dakota, Minnesota, and Eastern Railroad Corp.	LS	1.0					
25	2599-9999005	Replace Bearings	Each	12					
26	2599-9999005	Access Covers	Each	2.0					
27	2599-9999005	MMA Polymer Concrete Trial Batch	Each	1.0					
28	2599-9999005	MMA Polymer Concrete Test Placement	Each	1.0					
29	2599-9999010	Berm Erosion Repair - South Berm	LS	--		1.0			
30	2599-9999010	Vertical Clearance Gauge	LS	1.0					
31	2599-9999018	Underdeck Sounding	SY	10					
32	2599-9999022	Beam End Repair, Methyl Methacrylate Polymer Concrete	CF	60					

Estimate Reference Information

17	Includes all costs associated with performing leak testing of the modular joints, refer to the "Developmental Specifications for Modular Expansion Joint Assembly" for additional information.
19	Includes costs for handling and disposal of painted steel.
20	The lump sum for this item shall include all shop and field painting required in accordance with the Standard Specifications and General Notes. See Design Sheet Nos. 18 and 46 for additional information.
22	Includes all costs for materials, labor and equipment necessary to furnish and install the new light poles, bracket arms, and pole mounted LED luminaires. All conduit and conductors required shall be included in the per each price bid for "Lighting Poles".
25	The method of measurement is per each for each elastomeric bearing furnished and replaced. All costs associated with replacing damaged elastomeric bearings as shown on Design Sheet Nos. 20 & 21, including design of the jacking system, preparation of the jacking plan, temporary blocking, lateral and longitudinal support raising and supporting the superstructure, removal of the existing bearings, and installation of new bearings shall be included in the per each price bid for "Replace Bearings".
26	Method of measurement is per each, for each Access Cover furnished and installed. The estimated quantity shown is based on 2025 inspection report information. Additional missing or damaged access coverings and other holes in truss members as determined by the Engineer at the time of construction shall be covered. All costs for materials, equipment, labor, field verification, preparation of working drawings and incidentals necessary to install the Access covers as shown on Design Sheet No. 50 shall be included in the per each price bid for "Access Covers".
7 & 28	Refer to "Special Provisions for Beam End Repair with Methyl Methacrylate Polymer Concrete" for additional information.
29	Includes all material, equipment, and labor required to repair berm erosion in accordance with these plans. Method of measurement and basis of payment are lump sum.
30	Includes all materials, labor, and equipment required for access, cleaning, surface preparation and painting for vertical clearance markings on Piers 9 and 10 as shown on Design Sheet No. 17. The method of measurement and basis of payment are lump sum.
31	Includes all costs associated with sounding the bottom of the bridge deck to locate unsound areas of concrete. Includes removing delaminated and hollow areas of concrete. The delaminated and hollow concrete removal quantity is estimated based on 2% of the sounding area. The Contractor will be paid the contract unit price per square yard for the actual quantity removed. The area under the bridge deck to be sounded is 500 sq. yd., estimated by summing the areas between faces of Piers 1 & 2 (above the trail) and above the RR tracks (25ft each way from CL track) in Span 4.
32	Beam repair quantity is estimated based on 2023 & 2025 Bridge Inspection Report data. Actual spalled and deteriorated areas, as determined by the Engineer at the time of construction, shall be repaired. Refer to "Special Provisions for Beam End Repair with Methyl Methacrylate Polymer Concrete" and Design Sheet Nos. 18-20 for additional information.

Design For Repair to 0° Skew
3018'-0" x 32'-0"
Steel Thru Truss Bridge
Variable End Spans 512'-0" Main Span
Estimated Quantities
STA. 17+50.88 (C/LA 92) Turn-In Date: August 2026
Muscatine County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 0127 Design Sheet No. 1 of 51 FHWA No. 38201

Specifications:

Design: AASHTO Standard Specifications for Highway Bridges, Series of 2002.

Construction: Iowa Department of Transportation Standard Specifications for Highway and Bridge Construction, Series 2023, plus applicable General Supplemental Specifications, Developmental Specifications, Supplemental Specifications and Special Provisions shall apply to construction work on this project.

- "Developmental Specifications for Modular Expansion Joint Assembly",
- "Developmental Specifications for Fiber Reinforcement for Structural Concrete",
- "Developmental Specifications for Construction or Maintenance Work on Railroad Right-of-Way (Dakota, Minnesota, & Eastern Railroad Corporation dba CPKC)",
- "Developmental Specifications for Electronic Ticketing",
- "Special Provisions for Beam End Repair with Methyl Methacrylate Polymer Concrete",
- "Special Provisions for Maintenance of Navigation".

Design stresses:

Design stresses for the following materials are in accordance with the AASHTO Standard Specifications for Highway Bridges, Series of 2002.

- Reinforcing steel in accordance with Section 8, Grade 60.
- Concrete in accordance with Section 8, f'c = 4.0 ksi.
- Structural Steel in accordance with Section 10. ASTM A709 Grade 36, Grade 50, Grade 50W, and Grade HPS-70W (AASHTO M270 Grade 36, Grade 50, Grade 50W, and Grade HPS-70W).

General Notes:

This design is for repairs to the existing 3018'-0" x 32'-0" bridge, on Iowa 92 over the Mississippi River in Muscatine, Iowa. Electronic copies of the original design plans will be available to the Contractor as part of the e-files supplied with the contract documents. Dimensions shown on these plans are based on existing as-built plans (Original Design No. 170, Repair Design No. 694, 197, 213 & 124)

Repairs shall consist of:

- 1

Remove the existing concrete overlay, scarify the deck, complete Class A and Class B deck repairs, and overlay the bridge with P.C.C.
- 2

Remove portions of existing bridge deck, curb and retrofit barrier rails as necessary for removal of existing expansion joints at both abutments, Piers 3, 5, 14, 16, 18, 20 & 22 and truss Span Panel Points 3, 7 & 3' to install new strip seal expansion joints.
- 3

Remove portions of existing bridge deck, curbs and retrofit barrier rails as necessary to allow for removal of existing finger joints at Piers 7, 9, 10, and 12 to install modular expansion joints.
- 4

Remove portions of existing bridge deck near Piers 8 and 11 as necessary to strengthen the welded shop splices in the top flange.
- 5

Perform concrete repairs at abutments, Piers 7, 9, 10, 12, 14, 16, 18, 22, and barrier curbs and rails.
- 6

Perform beam end repairs to PPC beams with exposed strands.
- 7

Remove and replace the steel reinforced elastomeric bearings exhibiting horizontal tears.
- 8

Clean and seal the traffic face and top surface of barrier rails and curbs. Clean and seal abutment seats and pier cap top surface at expansion Piers, (Pier Nos. 3, 5, 7, 9, 10, 12, 14, 16, 18, 20 and 22).
- 9

Remove and reconstruct the paving notch at the south abutment with the standard retrofit paving notch. (Engineer to verify need for replacement after approach is removed)
- 10

Clearance gauge painting on upstream and downstream sides of Piers 9 and 10.
- 11

Remove and replace a portion of the north approach pavement from approximately 60' to 80' away from abutment paving notch.
- 12

Remove and reinstall the existing guardrail adjacent to the new north approach pavement. Engineer to verify guardrail was replaced as part of the Muscatine Design No. 124 project and meets current standards.
- 13

Remove and replace 60' of south approach pavement.
- 14

Remove and replace existing guardrails at the south approach and install paved shoulders at the new guardrails in accordance with current standards.

- 15

Remove and replace existing light poles and light fixtures at Pier 11 and Pier 22.
- 16

Repair Berm Erosion at South abutment.
- 17

Replace missing bird screens at truss access openings.
- 18

Sound the bottom of deck in Spans 2, 3, & 4 and remove hollow, delaminated, or loose concrete from the bottom of the deck. For repair locations, see Design Sheet Nos. 4-7.

All dimensions and details shown on these plans pertinent to new construction shall be verified in the field by the Contractor before starting construction.

All dimensions required to fabricate new structural steel shall be field verified by the Contractor.

In addition to the working drawing requirements of Article 1105.03 of the Standard Specifications, the Contractor shall submit field verification measurements of all dimensions where new work interfaces with the existing structure and these dimensions shall be indicated on the shop drawings submitted for review.

The City and utility companies whose facilities are shown on the plans or known to be within the construction limits shall be notified by the bridge Contractor of the starting date.

The Contractor's attention is directed to the existing conduit in and on the barrier rails. The Contractor shall conduct their operations such that the existing conduit and utility service (if present) is not damaged or disrupted except as noted.

Faint lines on plans indicate existing portions of the bridge.

Minimum clear distance from face of concrete to near reinforcing bar is to be 2" unless otherwise noted or shown.

These bridge plans label all reinforcing steel with english notation (5a1 is ⅝ inch diameter bar). English reinforcing steel received in the field may display the following "bar designation". The "bar designation" is the stamped impression on the reinforcing bars, and is equivalent to the bar diameter in millimeters.

English Size	3	4	5	6	7	8	9	10	11
Bar Designation	10	13	16	19	22	25	29	32	36

All reinforcing bars and bars noted as dowels supplied for this structure shall be deformed reinforcement unless otherwise noted or shown.

The lump sum bid for “Removals, as Per Plan”shall include all costs associated with removing bridge mounted light poles at Piers 11 and 22, concrete deck, curb and rail near Piers 8 and 11 and light pole blister at Pier 11, partial removal of girder stiffeners to clear flange strengthening splice plates, finger joints and designated structural steel at Piers 7, 9, 10 and 12, portions of existing stringers as needed for modular joint installation, top of abutment backwalls, expansion joints, barrier rail cover plates and bridge deck, curbs and retrofit barrier rails as needed to facilitate joint replacement. Removal of scheduled items shall be in accordance with Section 2401 of the Standard Specifications. Any damage to any steel or concrete not to be removed shall be the responsibility of the Contractor and repaired at no extra cost to the State.

Keyway dimensions shown on the plans are based on nominal dimensions unless stated otherwise. In addition, the bevel used on the keyway shall be limited to a maximum of 10 degrees from vertical.

The top and interior faces of the existing concrete railing are to be cleaned and sealed in accordance with Article 2403.03, P, of the Standard Specifications. If new sections of rail are constructed, the new sections shall not be sealed. All costs associated with cleaning and sealing of the concrete rails shall be included in the unit price bid item "Deck Overlay".

Construction shall be done in stages with at least one lane traffic maintained at all times in accordance with "Traffic Control Plan" note.

Construction Stages I & II as detailed on these plans may be reversed at the Contractor's option subject to the Engineer's approval.

Screed extension or overlay beyond the longitudinal construction joint may be less than the 6 inches required by Article 2413.03, A, 4, of the Standard Specifications. The Engineer may require additional vibration or special finishing procedures adjacent to the longitudinal construction joint.

Aesthetic truss lighting on the bridge is operated by the City of Muscatine and shall be protected during construction operations. The Contractor shall coordinate with the City for any removal and reinstallation of lighting or lighting components necessary for access and to complete bridge repairs. Any damage to the aesthetic lighting shall be the responsibility of the Contractor and repaired at no cost to the State or City.

Surface preparation shall be according to Article 2413.03, B and C of the Standard Specifications. The Contractor shall ensure the vertical edge of the Stage 1 overlay is prepared for placement of the new concrete for Stage 2 by sandblasting or shot blasting, followed by an air blast. Ensure this cleaning removes all dirt, oil, and other foreign material. Ensure it removes all unsound concrete, laitance, or loose material from the surface and edges against which the surface mixture is to be placed. The cleaning should roughen the surface in order to provide satisfactory bond with the surfacing mixture.

The tops of the abutment backwalls as shown shall be constructed using structural concrete Class C (fiber reinforced). Promptly after the concrete has been placed and vibrated as provided in Articles 2403.03, C, and 2403.03, D, of the Standard Specifications, it shall be hand finished to provide a smooth surface with the proper crown. The Contractor may elect to use formwork which is marked or trimmed to the correct elevation and crown to provide the limits for the hand finishing.

In addition to the requirements of Article 2413.03, G, of the Standard Specifications, both exposed abutment bridge seats and wash surfaces and pier caps as noted shall have an application of concrete sealer in accordance with Article 2403.03, P, 3, of the Standard Specifications.

Areas of curb indicated on the "Concrete Repairs Sheets" or designated by the Engineer are to be repaired using concrete repair notes and details included in these plans.

No preliminary deck survey is shown. The plan quantity for "Class A Bridge Deck Repair" is estimated as 20% of the total deck area. The actual quantity is determined by the Engineer after the existing P.C.C. overlay has been removed. Actual spalled and hollow areas as determined by the Engineer shall be repaired.

Present deck thickness is about 9" inches in concrete beam spans and 9.5" in truss and girder spans, including existing overlay. The Contractor shall exercise care in removing concrete in order to prevent unnecessary unbonding of reinforcing steel.

Ready mix trucks are not allowed on the prepared portion of the bridge deck.

The Bridge Contractor shall work in such a manner that equipment and materials shall not be allowed to interfere with train traffic or be allowed to fall on the railroad tracks. Interference above the railroad track area shall be coordinated with the railroad.

The bridge deck is covered with a 1¾ inch thick portland cement concrete overlay. The Contractor shall note the redefining of the classification line (boundary between repair and overlay) for this project due to the existing 1¾ inch overlay. The classification line will be defined as 2 inches below the top of existing overlay. This will necessitate the removal of the existing bridge deck overlay before placing the proposed new bridge deck overlay.

The bridge deck may have been epoxy-injected. The Contractor shall remove all exposed epoxy. Removal of epoxy is incidental to "Removal of Existing P.C. Overlay" and "Deck Repair, Class A" as appropriate.

All costs associated with the removal of the existing overlay shall be included in the bid item "Removal of Existing P.C. Overlay". Removal of existing overlay shall be computed in square yards from the measurement of areas removed. The Contractor will be paid the contract price per square yard for furnishing all equipment and labor necessary to remove the concrete to within ¼ inch above the classification line. All costs, including furnishing equipment and labor, associated with removal of the next ¼ inch of concrete (to the classification line) shall be included in the bid item "Deck Overlay".

Upon completion of the removal of concrete down to the classification line, the Engineer shall determine the areas of bridge deck to be repaired as "Deck Repair, Class A". Actual hollow areas, as determined by the Engineer, shall be repaired.

Concrete removal shall be initiated with a ¾" saw cut wherever possible.

Traffic Control Plan:
The roadway will be open to thru traffic. Refer to the Traffic Control Plan shown elsewhere in these plans.

Design History at this Site	
(Includes this Design)	
Des. No.	Type of Work
170	Original Design
694	Bridge Deck Overlay
197	Zone Painting, Girder/Beam Repair
N/A	Roadway Lighting (2006)
N/A	Bridge Lighting (2008)
213	Girder & Abutment Repair
N/A	Bridge Painting (2017)
124	Bridge Repair
127	Re-overlay and Repair

Design For Repair to 0° Skew		
3018'-0" x 32'-0"		
Steel Thru Truss Bridge		
Variable End Spans	512'-0" Main Span	
General Notes		
STA. 17+50.88 (☐ IA 92)	Turn-in Date: August 2026	
Muscatine County		
IOWA DEPARTMENT OF TRANSPORTATION		
Design No. 0127	Design Sheet No. 2 of 51	FHWA No. 38201
	SHEET NUMBER V.2	



General Notes (Cont.):

No torchwork, cutting, grinding or drilling of holes on the existing structural steel on the bridge shall be performed when the steel temperature is below 40°F.

All bid items involving steel work shall be in accordance with Section 2408 of the Standard Specifications unless noted otherwise.

The lump sum bid for “Painting of Structural Steel” shall include all costs for painting the structural steel in accordance with Section 2508, of the Standard Specifications. An epoxy paint system shall be used. Before cleaning the existing structural steel, the Bridge Contractor shall remove any attachments not being reused. In addition, any existing steel inaccessible after reassembly will be given the full paint system before final assembly of the structure.

The topcoat paint color shall be Federal Color Number 16495.

Containment and disposal of waste shall be in accordance with Section 2508, of the Standard Specifications. All costs associated with hauling and depositing waste at the designated facility shall be the responsibility of the Contractor and included in the contract price bid for the “Paint Waste Transport and Disposal” item.

Where new and/or reinstalled material is to be connected to existing material, the existing material shall be cleaned and primed as follows. The area comprised of the faying surface and an area extending a minimum of 2 inches outside the faying surface shall be cleaned to a SSPC-SP6. Remove all nicks, burrs, corrosion, scale and foreign substances from the inside of the bolt holes and faying surfaces. The blast cleaned areas are to be painted in accordance with Article 2508.02 of the Standard Specifications.

Except as shown in the plans, no welding of any nature shall be performed without written consent of the Iowa DOT or its authorized representative and then only in the manner and location(s) designated in the authorization.

Bolt layout and spacing not indicated on the plans shall be in accordance with AASHTO Specifications and shall be detailed on submitted shop drawings.

All cutting of steel in the field shall be by air arc method or flame cutting unless otherwise directed. The cut surfaces shall be ground smooth to a 1000 microinch finish.

During all operations, the Contractor shall not be permitted to drop material or debris from the bridge.

The Contractor to note the bridge was zone painted in 2017 per project BRFN-092-9(144)–39-70. The current analysis and the analysis for previous repairs shown are for information only. Previously analyzed hazardous paint may still exist even though the bridge has been blast cleaned and painted (for example, between faying surfaces of existing members to be replaced, etc.).

All partial removals (e.g.- at abutment backwalls/deck for joint replacement) shall be in accordance with Section 2401 of the Standard Specifications. All such removals shall be to neat saw cuts to provide clean straight surfaces at interfaces between new concrete and remaining concrete. The removals shall be done in a manner which will prevent any damage to the existing structure to remain. The Contractor shall assume full responsibility for any damage caused, and shall repair any damaged area to its original condition, as directed by the Engineer, at the Contractor's expense. Any existing reinforcing steel which is to be "preserved" that is exposed during removal operations is to be carefully protected, cleaned and incorporated into new construction unless noted otherwise.

The existing Road and Weather Information System (RWIS) sensor embedded in the bridge deck will not be salvaged and will be replaced by others after the overlay work is completed. The existing sensor will be disconnected prior to removal of the existing overlay. The Contractor shall contact Derrick Lopez with the Illinois DOT at (815) 284-5398 no less than 14 days prior to commencing any removal work. The RWIS conduit under the bridge shall be protected from damage during the Contractor's operations. Conduits damaged or rendered unservicable by the Contractor shall be replaced by the Contractor at no additional cost to the State.

A scrape sample was taken from an area of this bridge to get an indication of the existence of and level of total lead and total chromium. Analysis of total lead on this sample was as shown in the Table. Analysis of total chromium on this sample was as shown in the Table. These analyses show the existence of these two toxic constituents. Levels indicated by these tests could create conditions above regulatory limits for health and safety requirements. No other constituents were analyzed. The Bidder should not rely on the Iowa DOT's testing and analysis for any purpose other than as an indication of the existence of these two toxic constituents.

Scrape Sample - PPM		
Pb	Cr	Location
1500	22	Vertical Truss Member - Interior (2020)
3,960	21	Vertical Truss Member - Exterior (2020)
208,000	3,100	Below Superstructure (1994)
324,000	4,710	Above Superstructure (1994)

The Contractor shall conduct their operations in such a manner that any paint removed during demolition is contained, collected, and disposed of in accordance with Section 2508, of the Standard Specifications. Before delivery of any scrap steel the Contractor shall provide a written notice to the receiving facility. This notice shall at a minimum include:

1. A notice that the scrap steel is coated with paint that has regulated materials at levels which could be hazardous to employees or the environment.
2. A copy of the scrape sample provided in the contract documents.
3. A signature block for the receiving facility to confirm their receipt of this information.

A copy of this notice, signed by the receiving facility, shall be returned to the Engineer before any scrap steel is removed from the project.

The cost of handling and disposal of any painted steel is incidental to the Paint Waste Transport and Disposal bid item.

Working Drawing and Calculation Submittals

Working drawings and calculations shall be submitted for the following items shown in the table below. (Note additional working drawings and calculations may be required in accordance with Article 1105.03 of the Standard Specifications.)

Submittal requirements for working drawings and calculations shall be in accordance with 1105.03 of the Standard Specifications for Highway and Bridge Construction of the Iowa Department of Transportation. The absence of a certification requirement for a submittal does not relieve the Contractor of the responsibility to attain certification.

Calculation submittals in this table which are associated with working drawing submittals shall be submitted on the same day. Review time for calculation submittals shall be of the same duration as and run concurrently with review time for associated working drawings. The calculation submittals listed in the table are not meant to be an exhaustive list and do not relieve the Contractor from providing additional calculation submittals if requested by the Engineer.

No.	Working Drawing Description	Working Drawing File Name Convention For Submittal	Certified by Iowa P.E. (Yes/No)
1	Structural Steel	(165)_Muscatine_Design127_StructuralSteel.pdf	No
2	Strip Seal Joints	(165)_Muscatine_Design127_StripSealJoints.pdf	No
3	Modular Joints	(165)_Muscatine_Design127_ModularJoints.pdf	No
4	Curb and Barrier Rail Cover Plates	(165)_Muscatine_Design127_CurbandBarrierRailCoverPlates.pdf	No
5	Elastomeric Bearings	(165)_Muscatine_Design127_ElastomericBearings.pdf	No
6	Bridge Jacking Plan	(165)_Muscatine_Design127_BridgeJackingPlan.pdf	Yes
7	Light Poles	(165)_Muscatine_Design127_LightPoles.pdf	No
8	Access Cover	(165)_Muscatine_Design127_AccessCovers.pdf	No
9	Deck Drains	(165)_Muscatine_Design127_DeckDrains.pdf	No
10	Elastomeric Bearings	(165)_Muscatine_Design127_ElastomericBearings.pdf	No
No.	Calculation Description	Calculation File Name Convention For Submittal	Certified by Iowa P.E. (Yes/No)
11	Bridge Jacking Calculations	(165)_Muscatine_Design127_BridgeJackingCalculations.pdf	Yes

Coast Guard Requirements

See "Special Provisions for Maintenance of Navigation" for Coast Guard Requirements.



Design For Repair to 0° Skew

3018'-0" x 32'-0"

Steel Thru Truss Bridge

Variable End Spans512'-0" Main Span

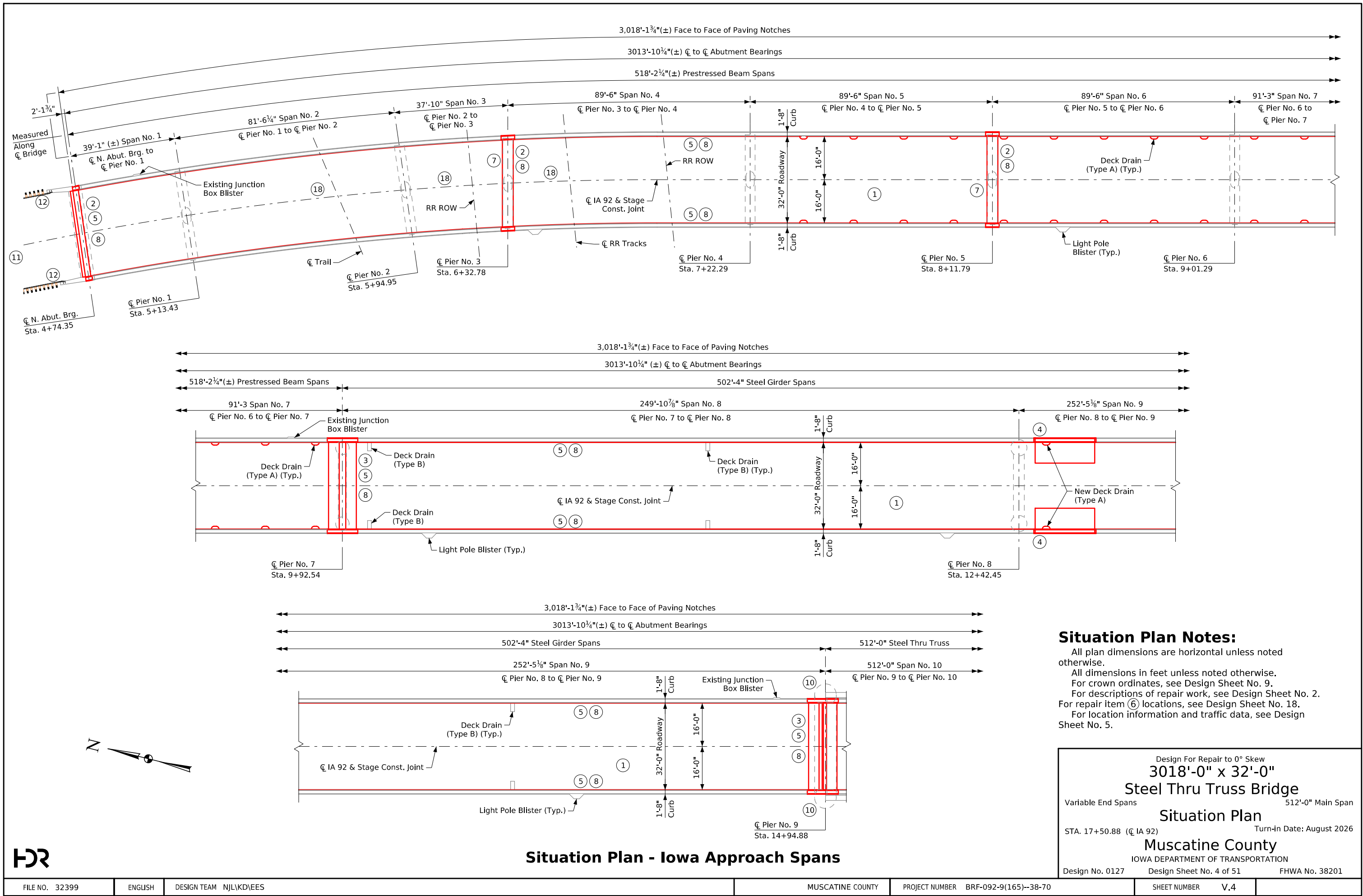
General Notes

STA. 17+50.88 (C 1A 92)Turn-in Date: August 2026

Muscatine County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0127Design Sheet No. 3 of 51FHWA No. 38201



Situation Plan Notes:
All plan dimensions are horizontal unless noted otherwise.
All dimensions in feet unless noted otherwise.
For crown ordinates, see Design Sheet No. 9.
For descriptions of repair work, see Design Sheet No. 2.
For repair item ⑥ locations, see Design Sheet No. 18.
For location information and traffic data, see Design Sheet No. 5.

Design For Repair to 0° Skew
3018'-0" x 32'-0"
Steel Thru Truss Bridge
Variable End Spans512'-0" Main Span

Situation Plan

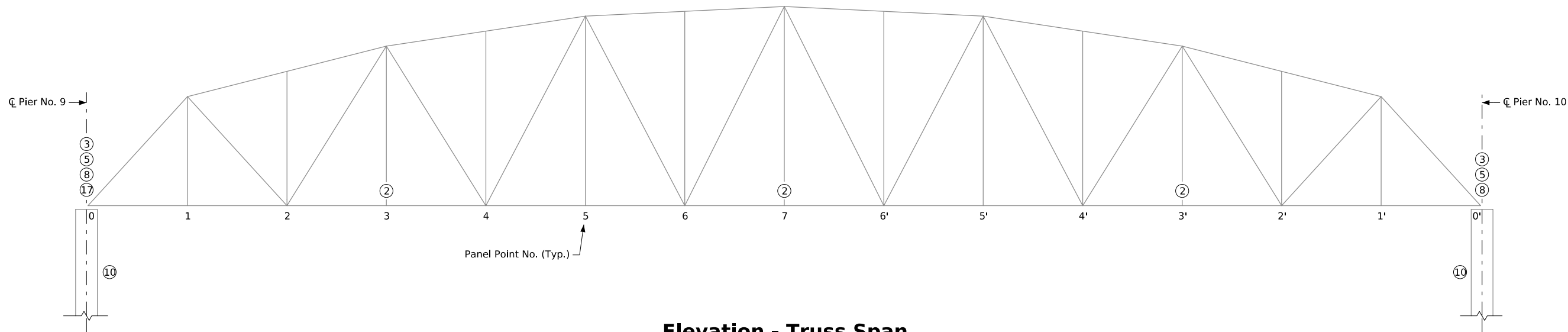
STA. 17+50.88 (☐ IA 92)Turn-in Date: August 2026

Muscatine County
IOWA DEPARTMENT OF TRANSPORTATION

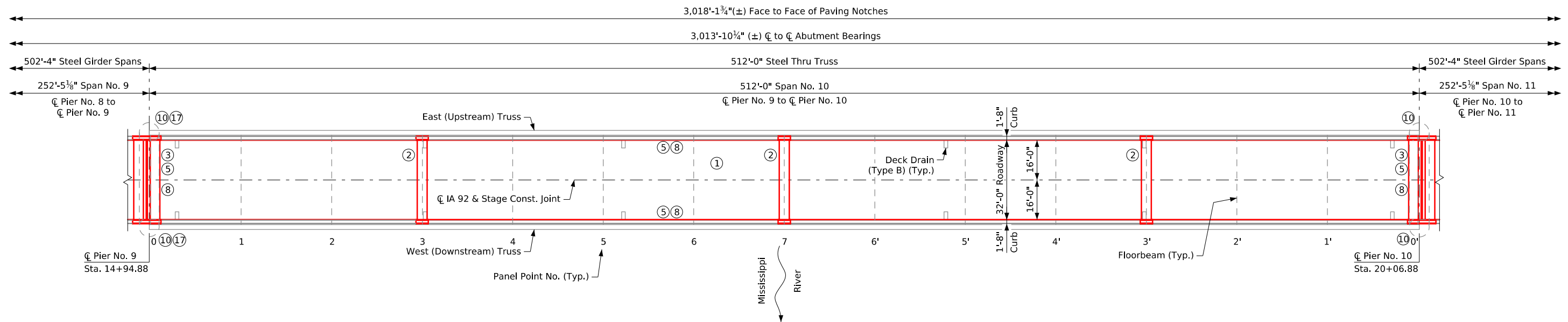
Design No. 0127Design Sheet No. 4 of 51FHWA No. 38201

Situation Plan - Iowa Approach Spans





Elevation - Truss Span



Situation Plan - Truss Span



Location

IA 92 over Mississippi River & Railroad
T-77N R-2W
Section 35
City of Muscatine
Muscatine Township
Muscatine County, Iowa
Rock Island County, Illinois
FHWA No. 38201
Bridge Maint. No. 7075.7S092
FRA No. 607203K
Latitude 41.42653613°
Longitude -91.03583215°
DM & E MP 218.78

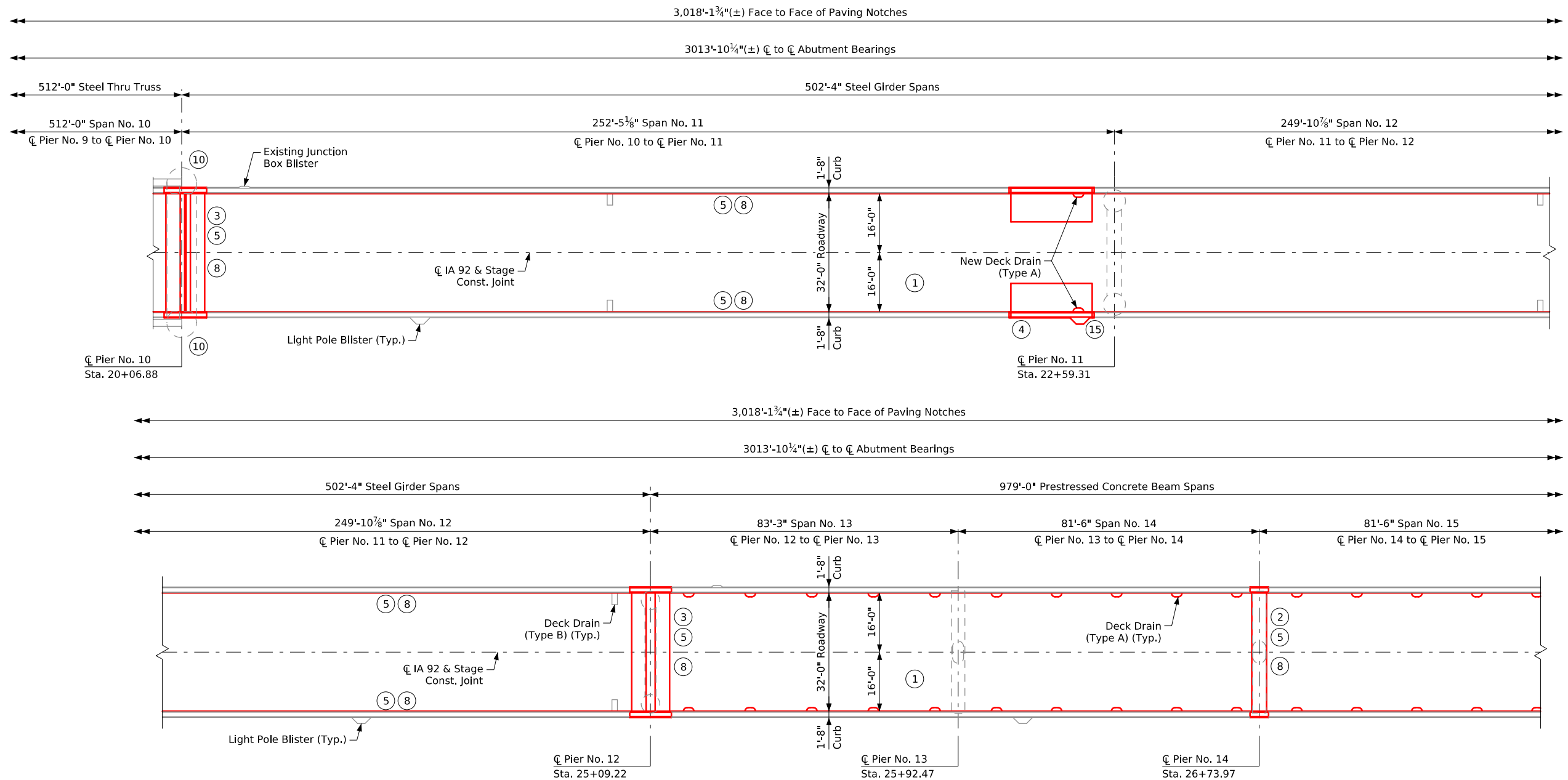
Traffic Estimate

2024 AADT 3,840 V.P.D.
TRUCKS 8 %

Note:
For Situation Plan Notes, see Design Sheet No. 4.

Design For Repair to 0° Skew
3018'-0" x 32'-0"
Steel Thru Truss Bridge
Variable End Spans 512'-0" Main Span
Situation Plan
STA. 17+50.88 (C/A 92) Turn-in Date: August 2026
Muscatine County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 0127 Design Sheet No. 5 of 51 FHWA No. 38201





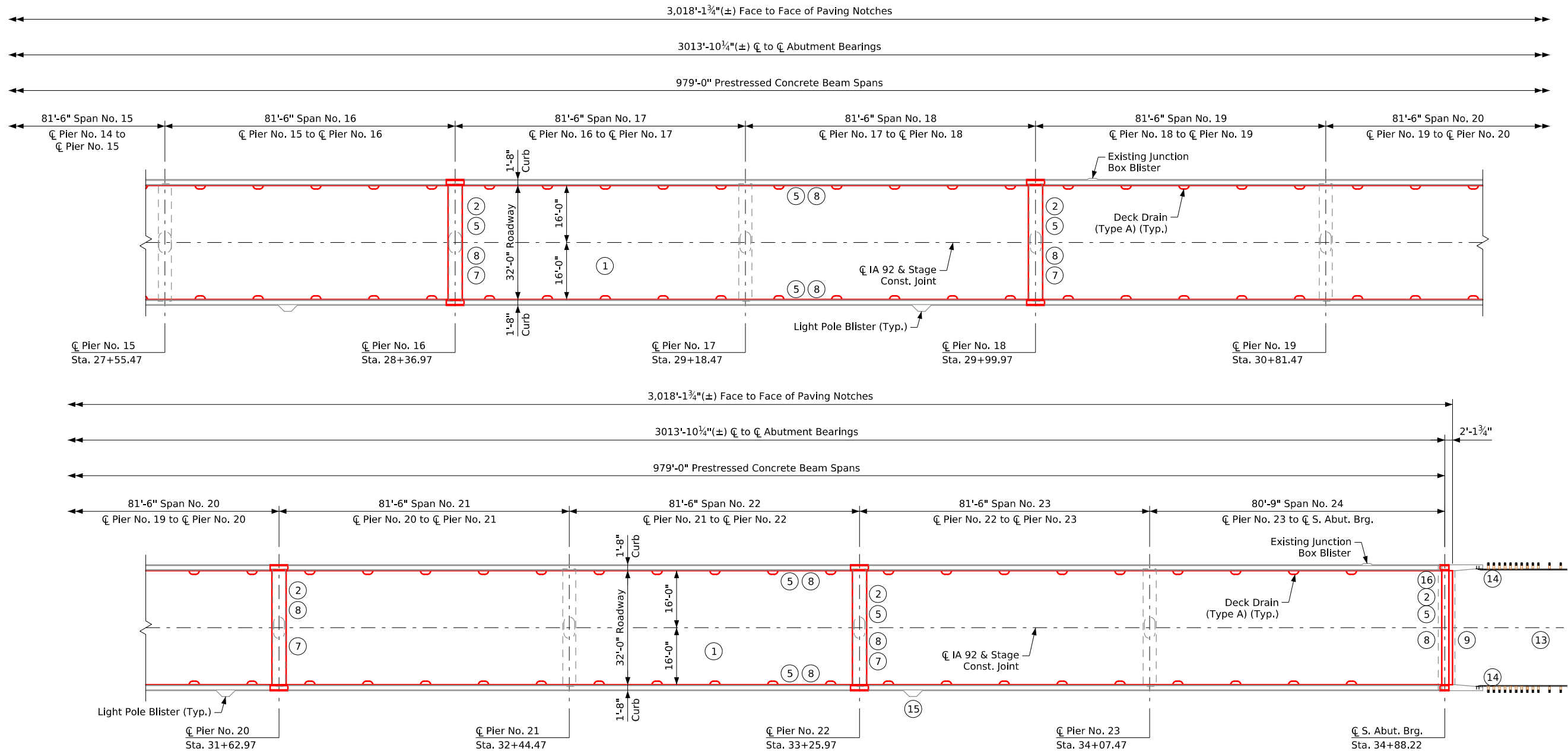
Situation Plan - Illinois Approach Spans

Note:
For Situation Plan Notes, see Design Sheet No. 4.



Design For Repair to 0° Skew
3018'-0" x 32'-0"
Steel Thru Truss Bridge
Variable End Spans 512'-0" Main Span
Situation Plan
STA. 17+50.88 (C/A 92) Turn-in Date: August 2026
Muscatine County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 0127 Design Sheet No. 6 of 51 FHWA No. 38201





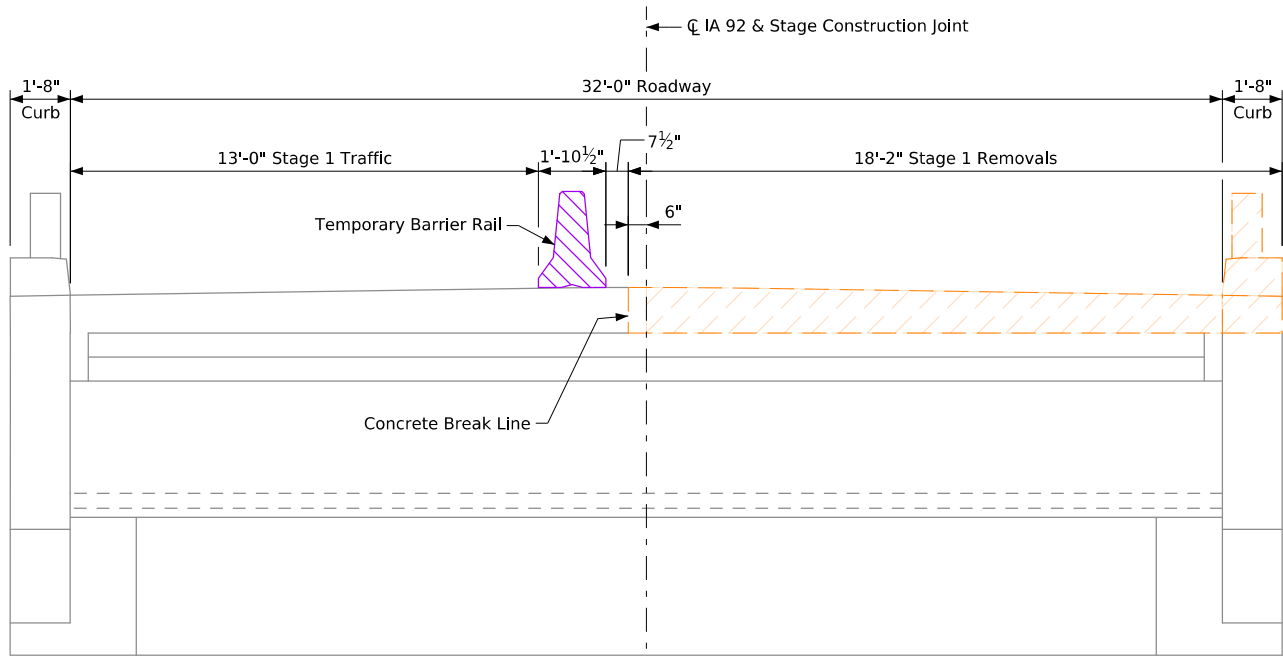
Situation Plan - Illinois Approach Spans

Note:
For Situation Plan Notes, see Design Sheet No. 4.

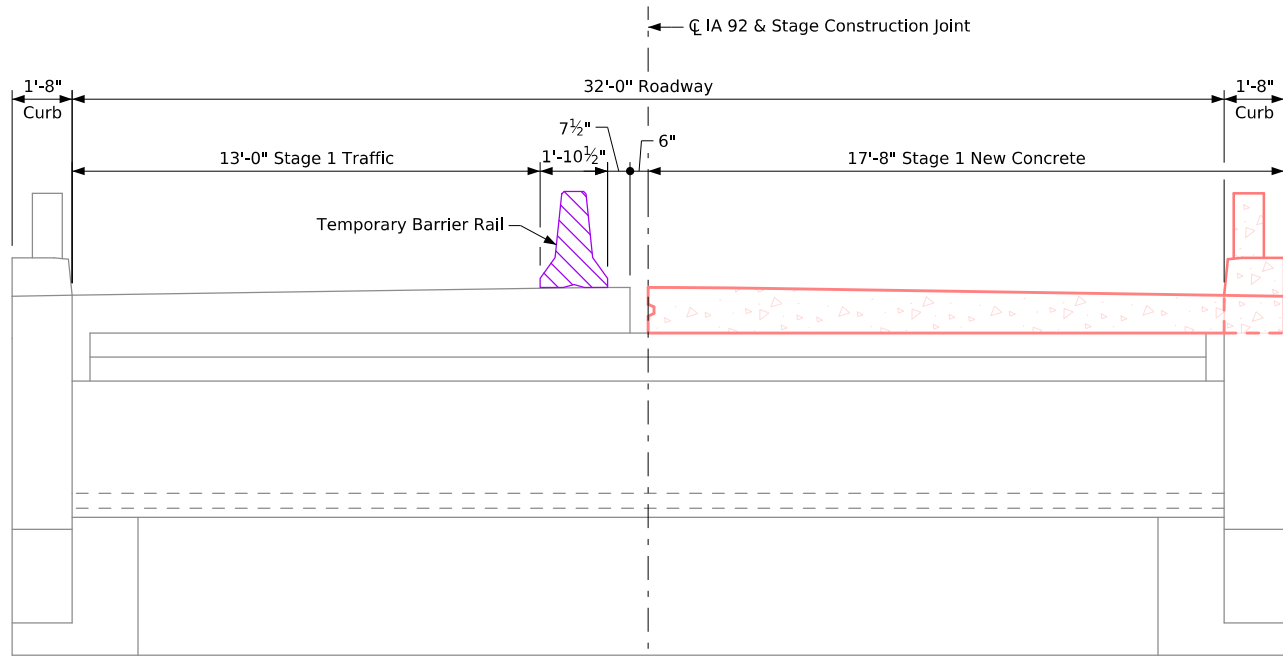


Design For Repair to 0° Skew
3018'-0" x 32'-0"
Steel Thru Truss Bridge
Variable End Spans 512'-0" Main Span
Situation Plan
STA. 17+50.88 (C/I A 92) Turn-in Date: August 2026
Muscatine County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 0127 Design Sheet No. 7 of 51 FHWA No. 38201

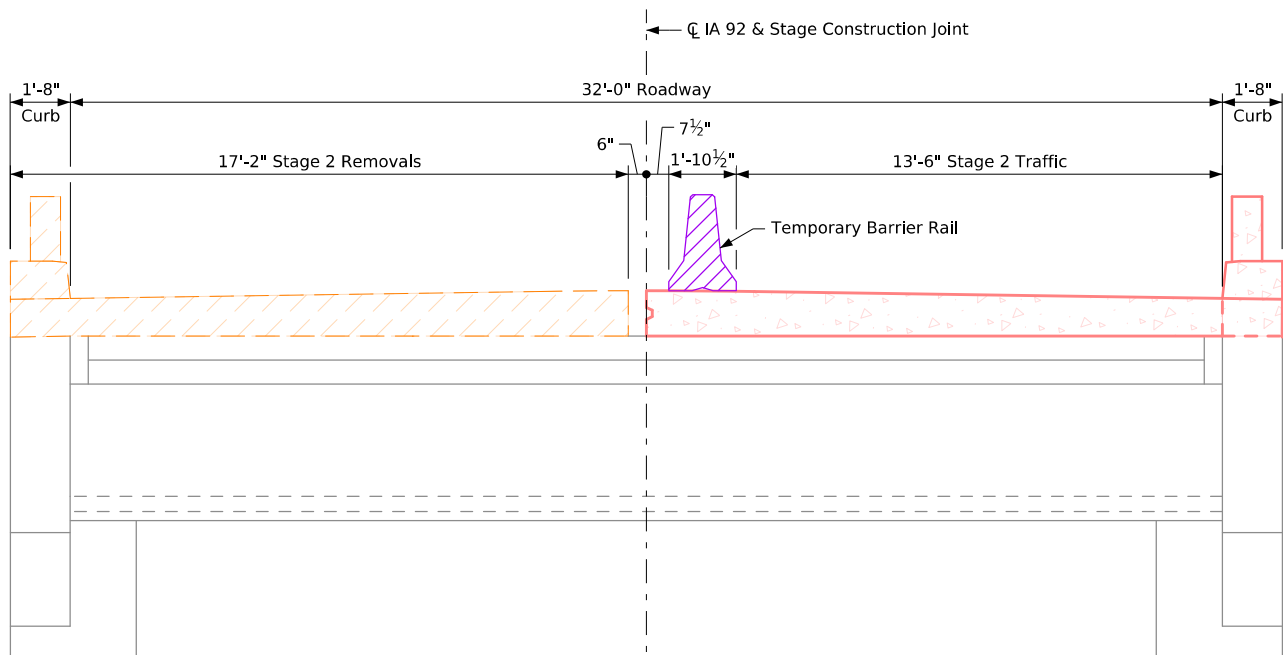




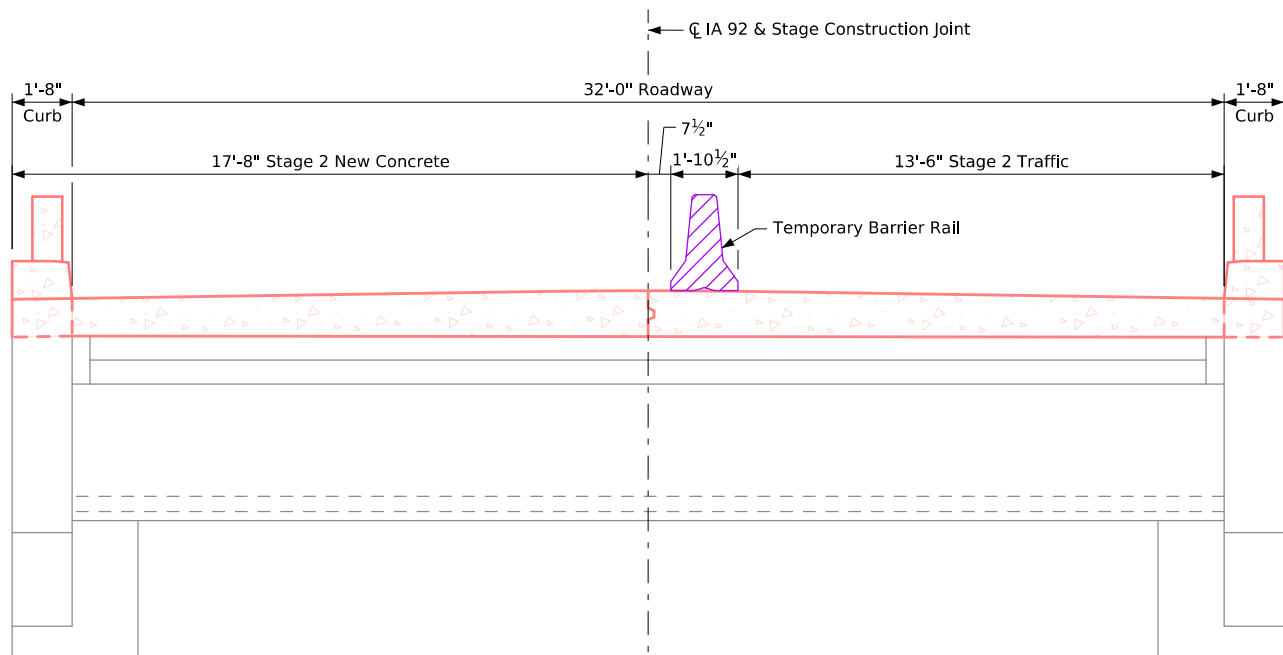
Removals - Stage 1
(Looking Ahead Station)



Construction - Stage 1
(Looking Ahead Station)



Removals - Stage 2
(Looking Ahead Station)

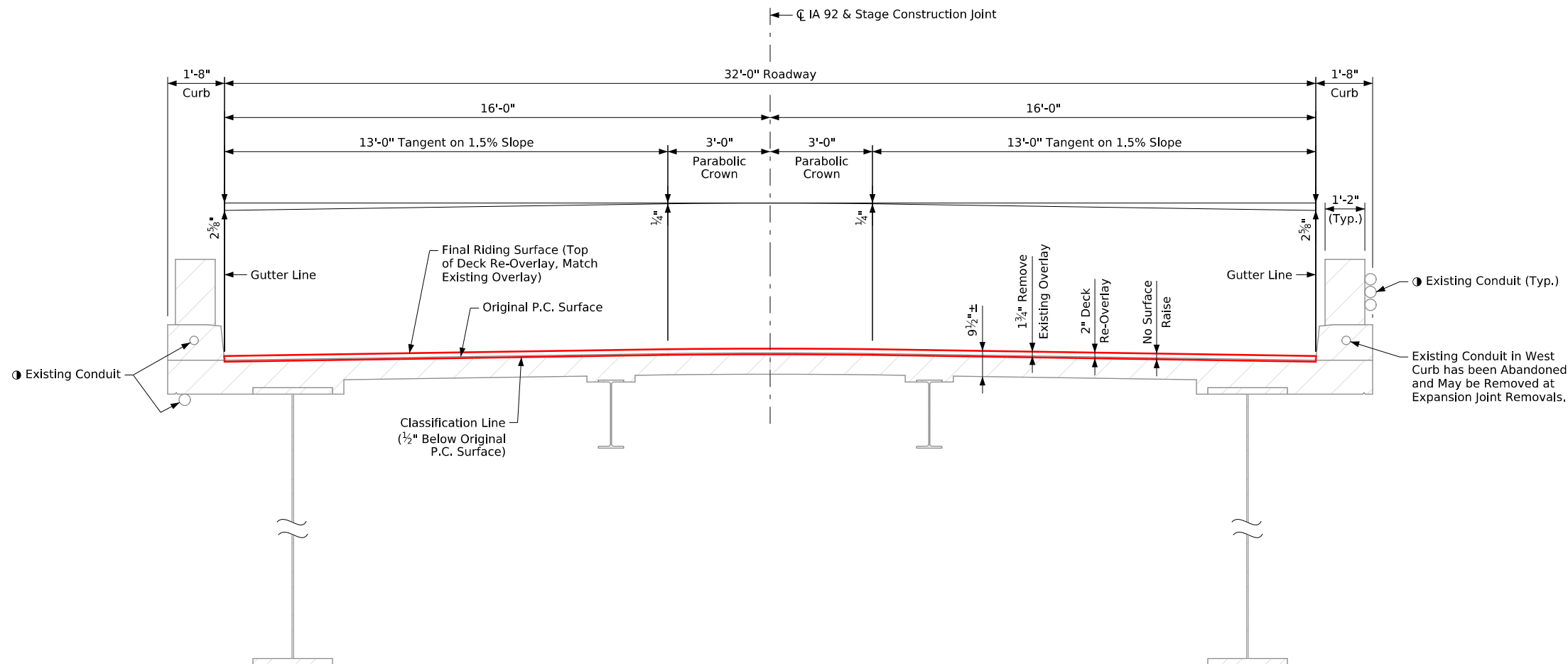


Construction - Stage 2
(Looking Ahead Station)

Notes:
North Abutment Shown, South Abutment Similar.
Superelevation at North Abutment not shown in details.
See Roadway Plans for Traffic Control Plan Notes and additional information.

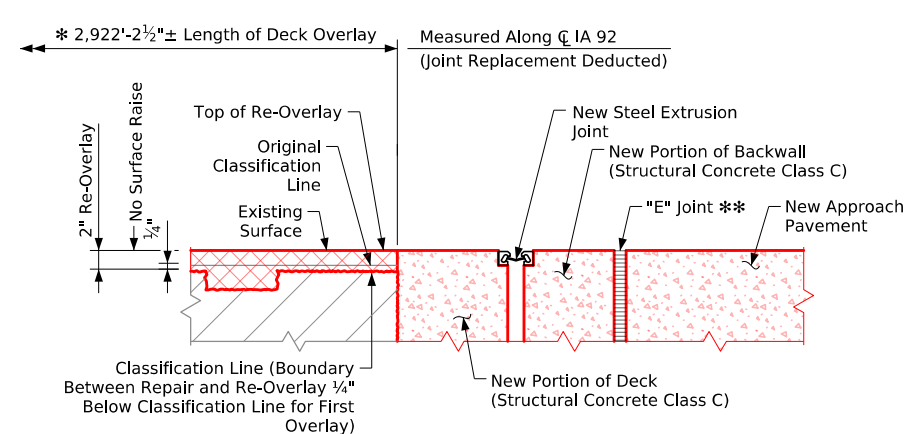
Design For Repair to 0° Skew
3018'-0" x 32'-0"
Steel Thru Truss Bridge
Variable End Spans 512'-0" Main Span
Staging Plan
STA. 17+50.88 (CL IA 92) Turn-in Date: August 2026
Muscatine County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 0127 Design Sheet No. 8 of 51 FHWA No. 38201





Typical Section

(Steel Girder Spans Shown, Concrete Beam and Truss Spans Similar)
(Looking Ahead Station)

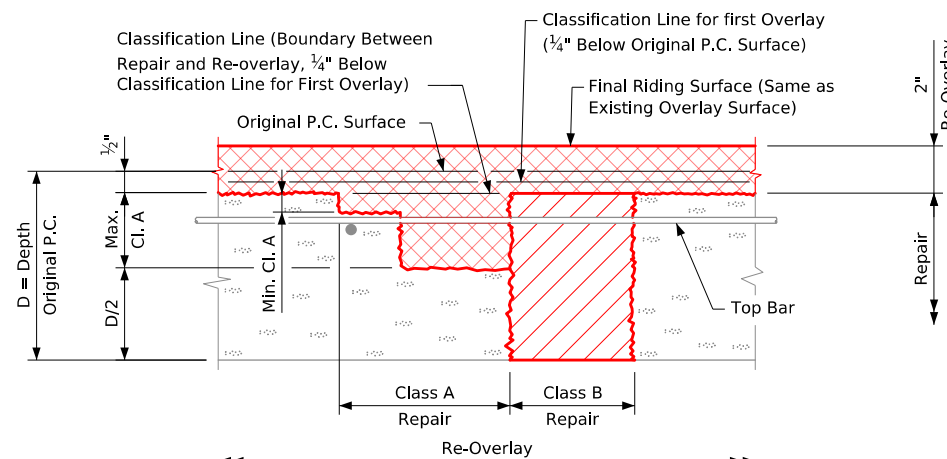


Part Longitudinal Section Along Roadway

(Abutments shown, other joints similar)

* Adjust as needed to set Expansion Joints

** Refer to Standard Road Plan PV-101



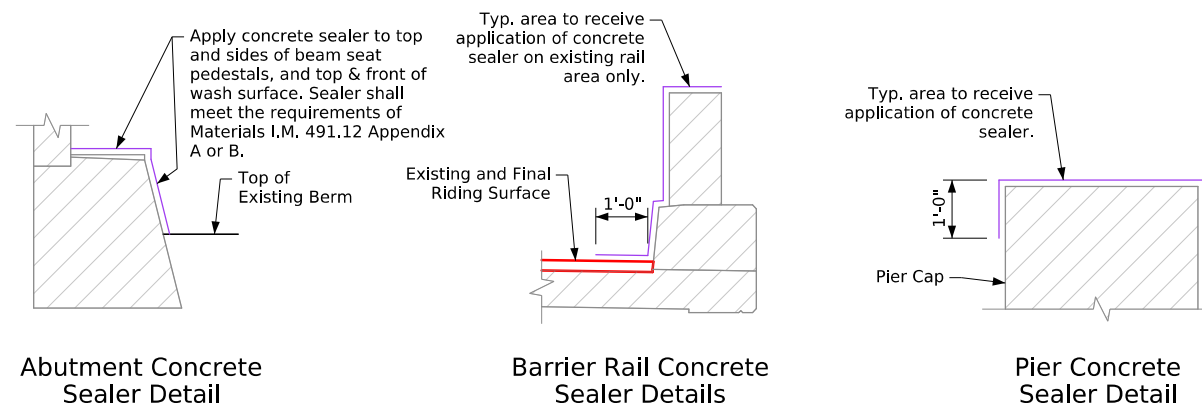
Repair & Re-Overlay Definition

Notes:

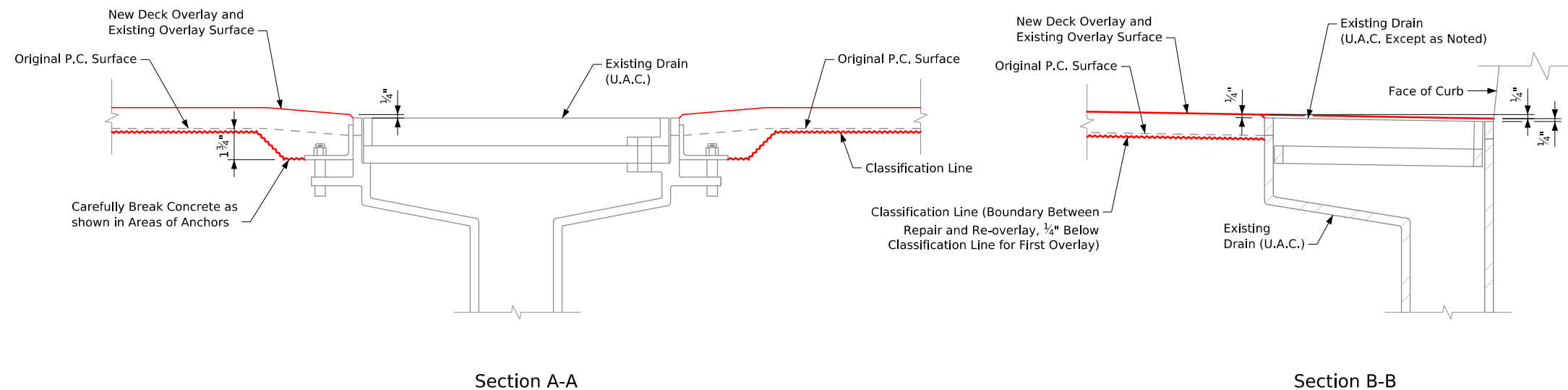
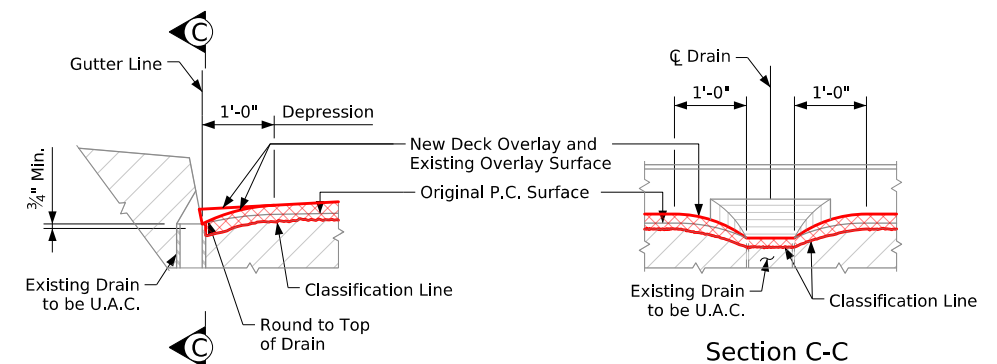
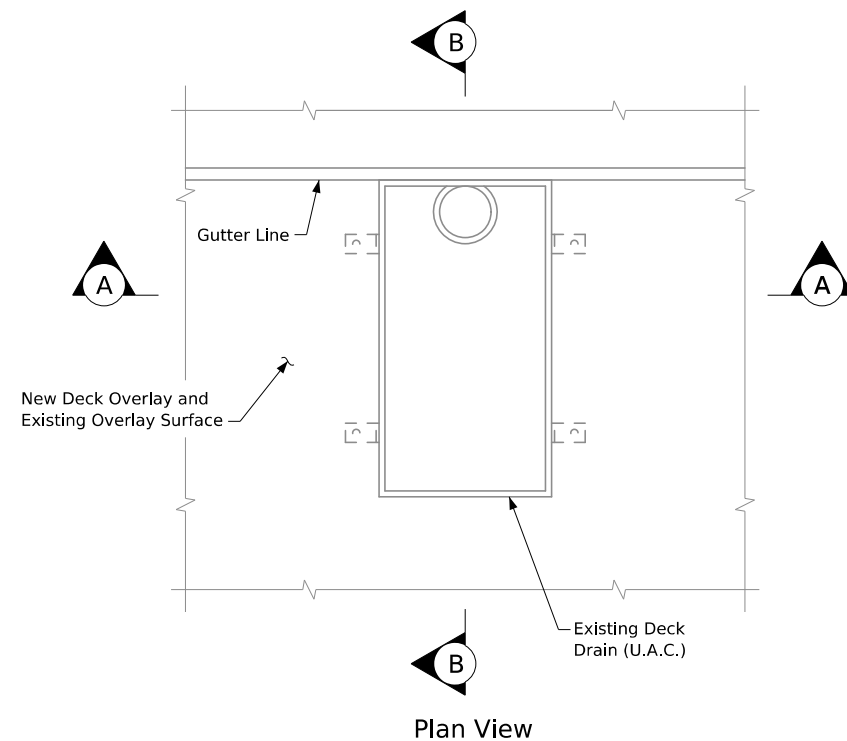
- For Deck Repair Details at Drains, see Sheet No. 10.
- ▲ See joint replacement details for deck overlay limits.
- The Contractor shall conduct their operations such that the existing conduit and utility service is not damaged or disrupted.

Design For Repair to 0° Skew		
3018'-0" x 32'-0"		
Steel Thru Truss Bridge		
Variable End Spans	512'-0" Main Span	
Deck Repair Details		
STA. 17+50.88 (CL IA 92)	Turn-in Date: August 2026	
Muscatine County		
IOWA DEPARTMENT OF TRANSPORTATION		
Design No. 0127	Design Sheet No. 9 of 51	FHWA No. 38201





Concrete Sealer Details



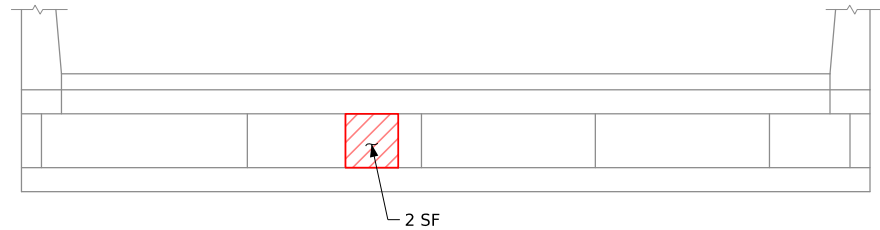
Deck Repair Detail at Drains (Type B)

(Required at 28 Locations)

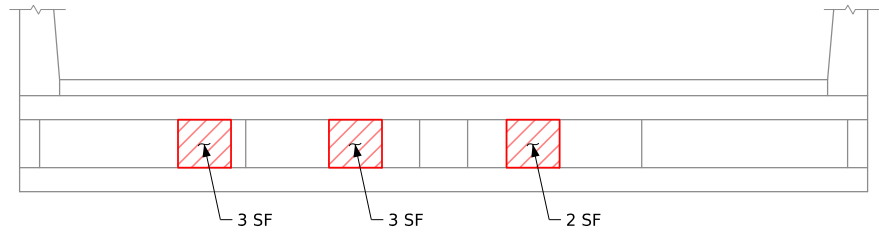
Note:
For Repair and Re-overlay Definition, see Design Sheet No. 9.

Design For Repair to 0° Skew		
3018'-0" x 32'-0"		
Steel Thru Truss Bridge		
Variable End Spans	512'-0" Main Span	
Deck Repair Details		
STA. 17+50.88 (C 1A 92)	Turn-in Date: August 2026	
Muscatine County		
IOWA DEPARTMENT OF TRANSPORTATION		
Design No. 0127	Design Sheet No. 10 of 51	FHWA No. 38201

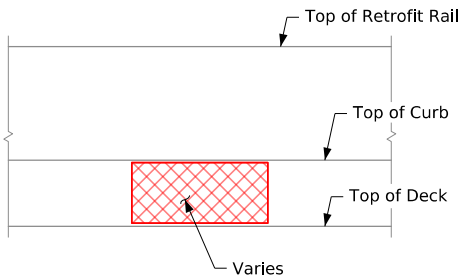




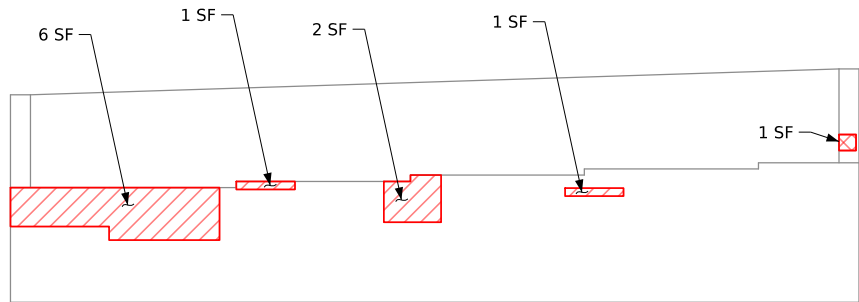
Part Plan - North Abutment
(Existing Beams Not Shown for Clarity)



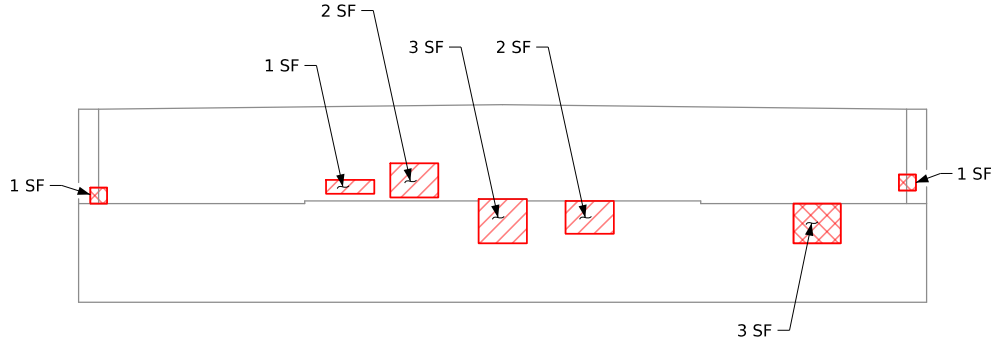
Part Plan - South Abutment
(Existing Beams Not Shown for Clarity)



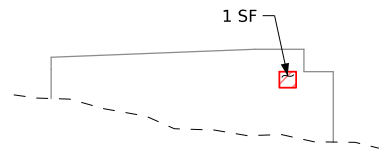
Part Elevation - Barrier Curb
(Estimated as 145 SF at Various Locations along the Bridge)



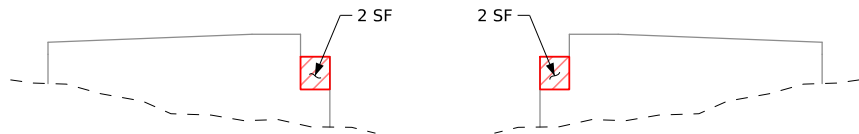
Part Elevation - North Abutment
(Looking North)
(Existing Beams Not Shown for Clarity)



Part Elevation - South Abutment
(Looking South)
(Existing Beams Not Shown for Clarity)



Part Wing Elevation - North Abutment
(Looking East)



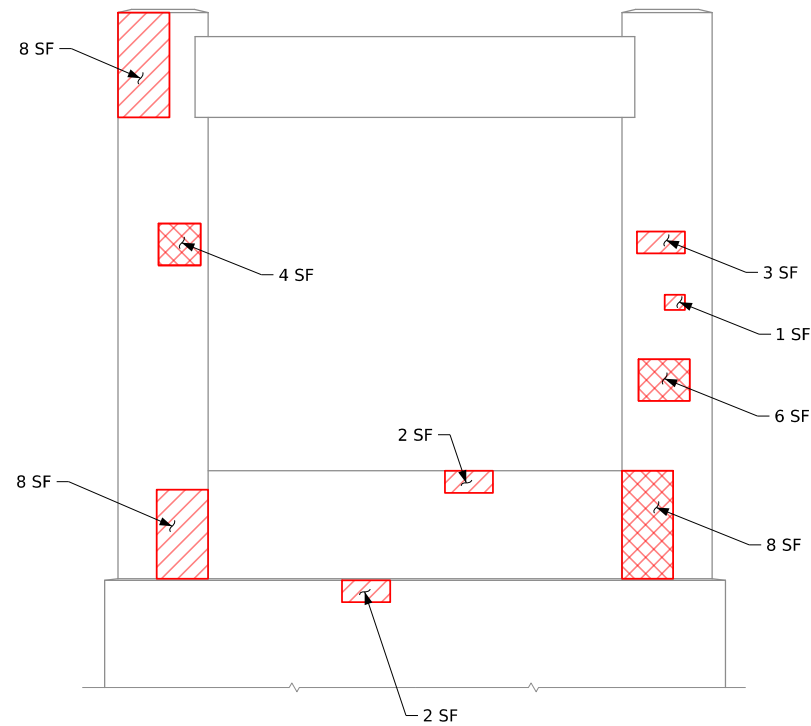
Part Wing Elevation - South Abutment
(Looking West) (Looking East)

Legend	
	Indicates Shallow Repair
	Indicates Regular Repair

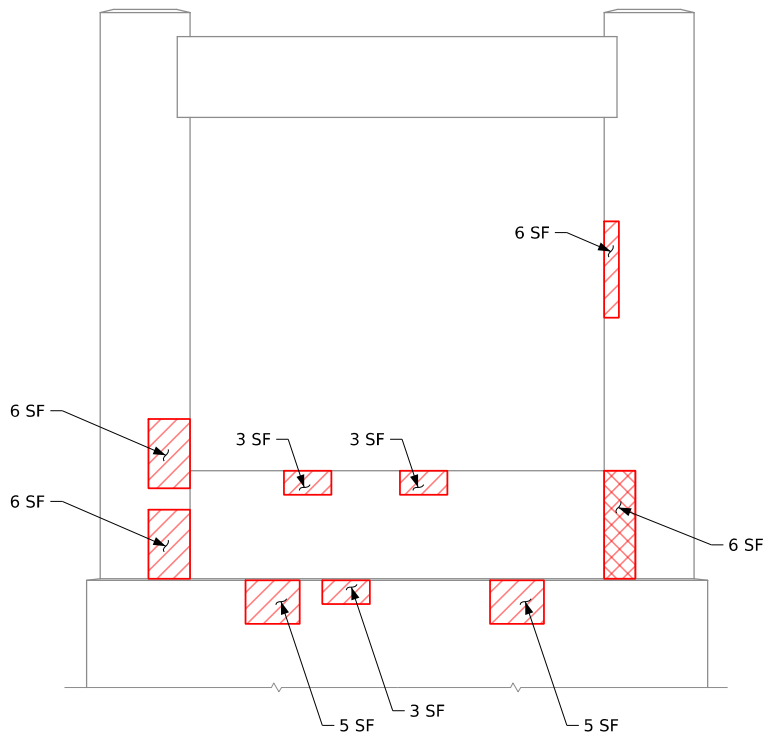
Notes:
See Design Sheet No. 15 for notes and details for concrete repairs.
Areas shown are approximate. Engineer shall determine actual areas of repair at the time of construction.

Design For Repair to 0° Skew		
3018'-0" x 32'-0"		
Steel Thru Truss Bridge		512'-0" Main Span
Concrete Repair Details		
Variable End Spans		
STA. 17+50.88 (C 1A 92)	Turn-In Date: August 2026	
Muscatine County		
IOWA DEPARTMENT OF TRANSPORTATION		
Design No. 0127	Design Sheet No. 11 of 51	FHWA No. 38201





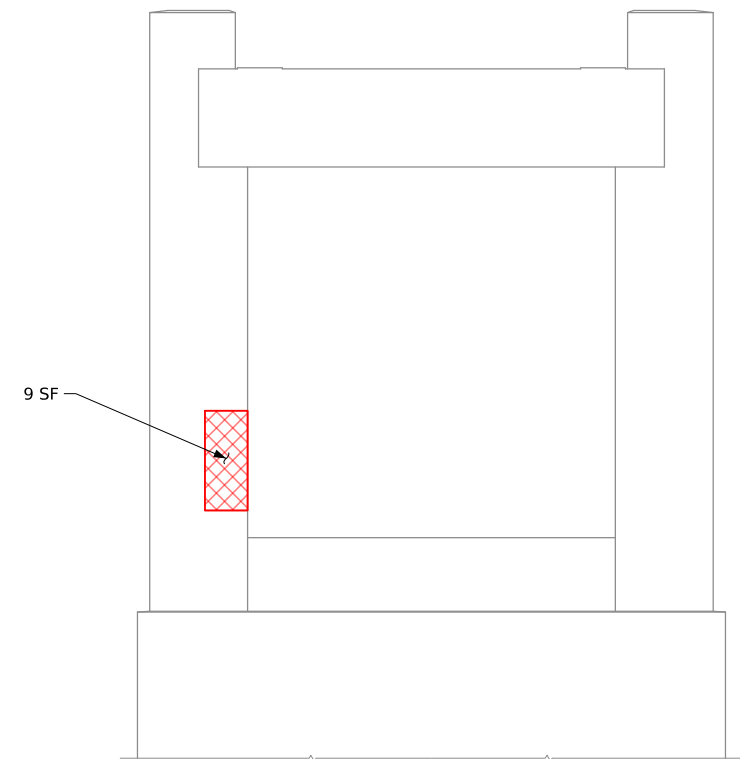
North Face



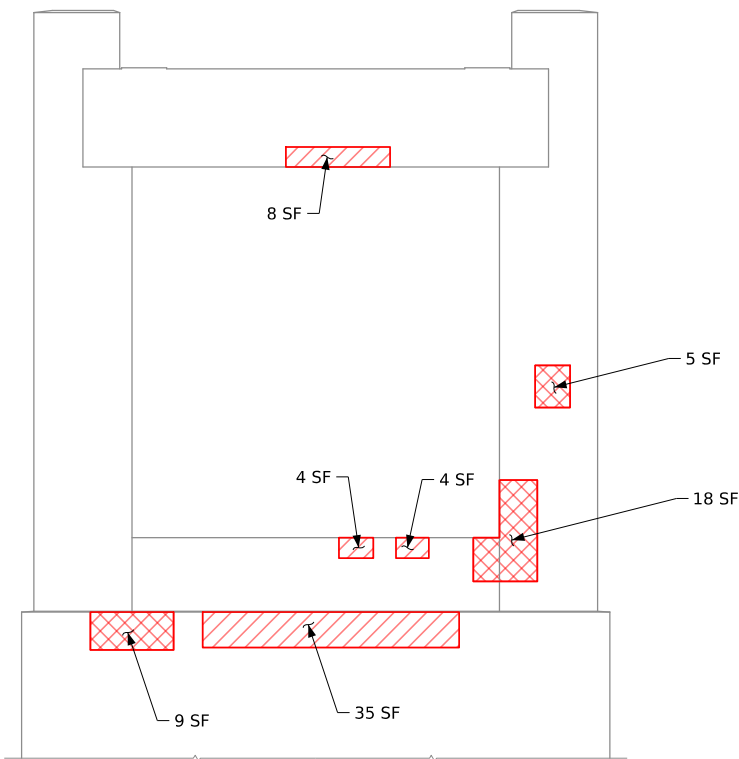
South Face

Part Elevation - Pier No. 7

(Existing Beams Not Shown for Clarity)



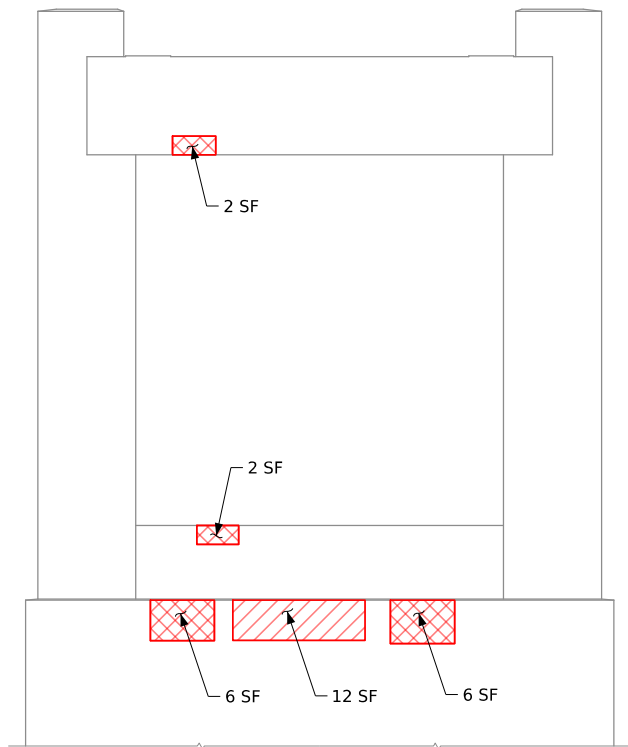
North Face



South Face

Part Elevation - Pier No. 10

(Existing Beams Not Shown for Clarity)



South Face

Part Elevation - Pier No. 9

(Existing Beams Not Shown for Clarity)

Legend



Indicates Shallow Repair



Indicates Regular Repair

Notes:
See Design Sheet No. 15 for notes and details for concrete repairs.
Areas shown are approximate. Engineer shall determine actual areas of repair at the time of construction.

Design For Repair to 0° Skew
3018'-0" x 32'-0"
Variable End Spans 512'-0" Main Span

Concrete Repair Details

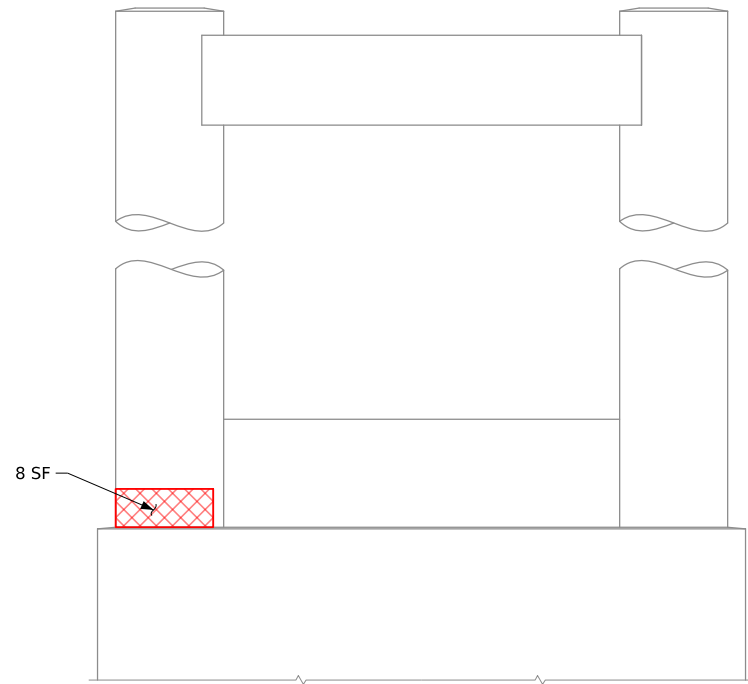
STA. 17+50.88 (C 1A 92) Turn-In Date: August 2026

Muscatine County

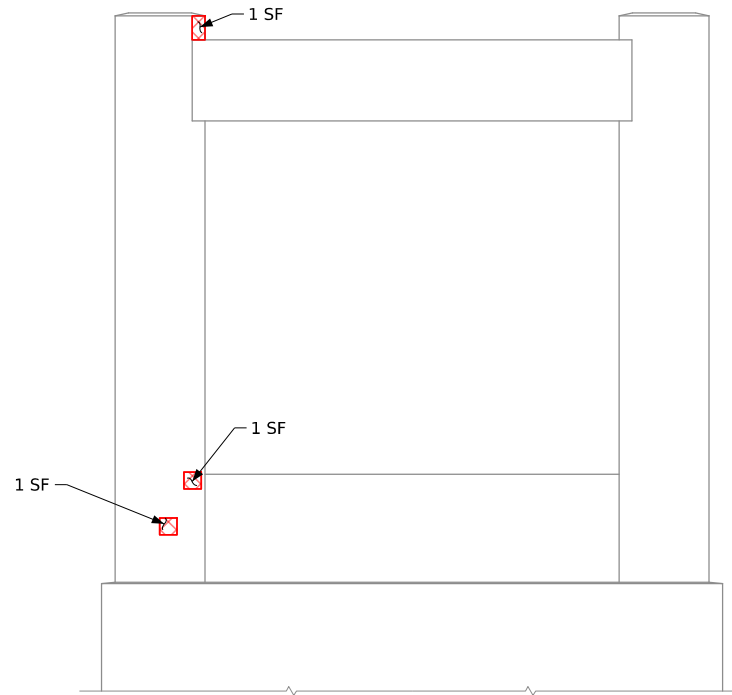
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0127 Design Sheet No. 12 of 51 FHWA No. 38201

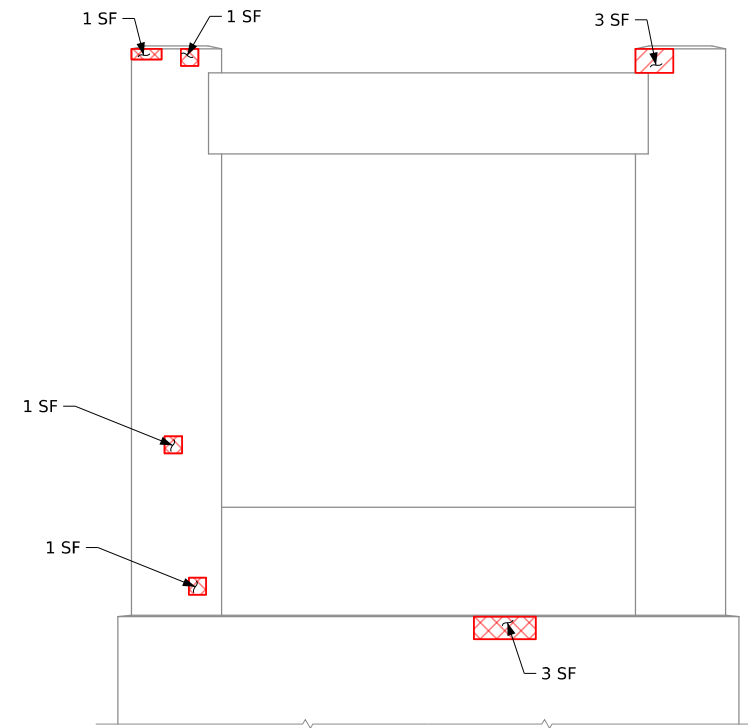




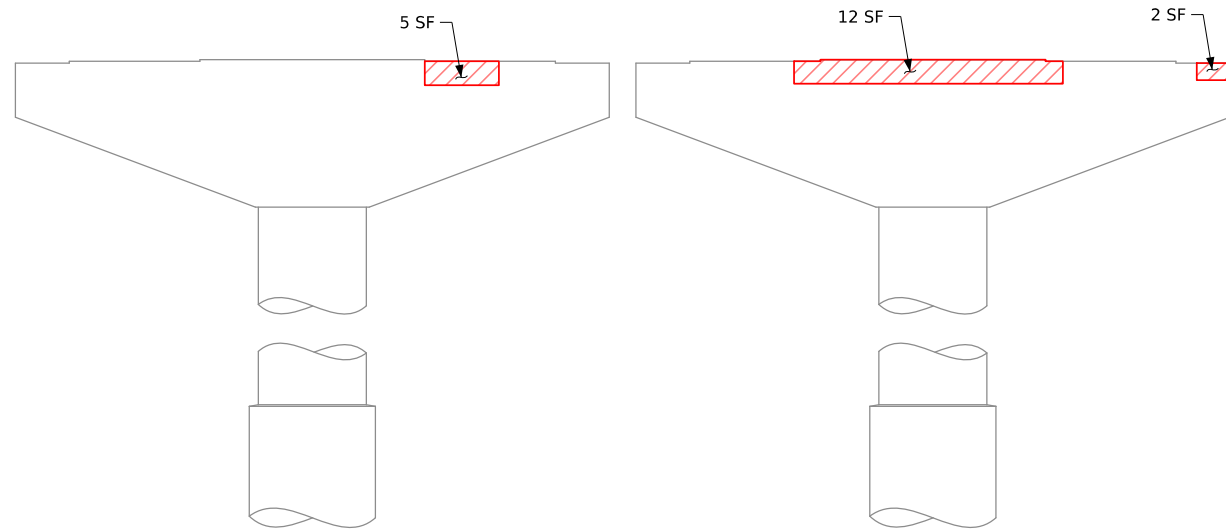
South Face
Part Elevation - Pier No. 11
(Existing Beams Not Shown for Clarity)



North Face

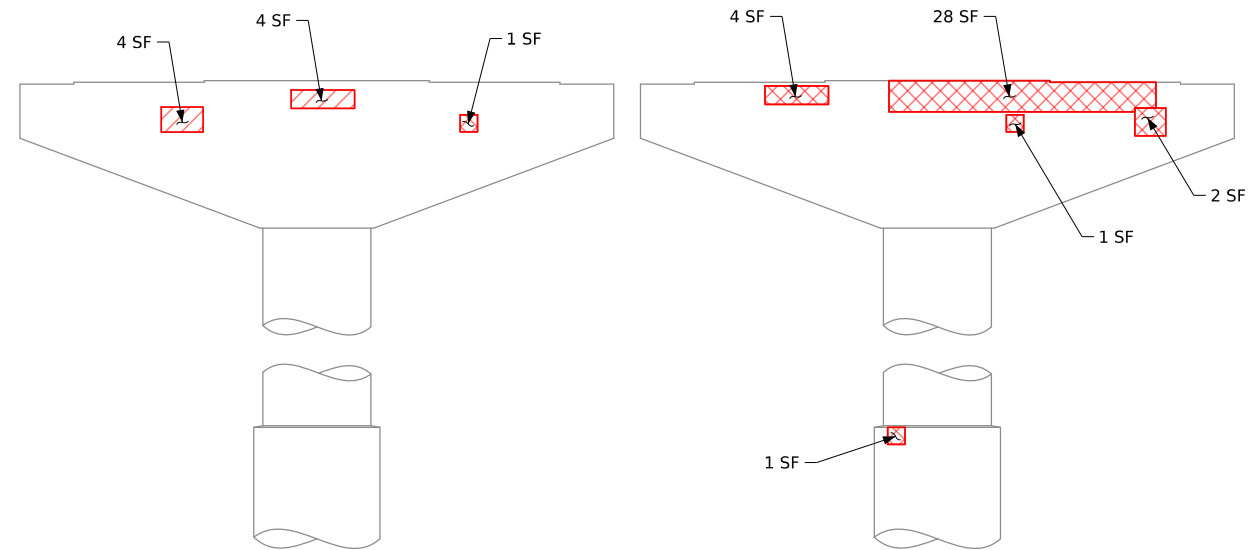


South Face
Part Elevation - Pier No. 12
(Existing Beams Not Shown for Clarity)



North Face
South Face

Part Elevation - Pier No. 14
(Existing Beams Not Shown for Clarity)



North Face

South Face

Part Elevation - Pier No. 16
(Existing Beams Not Shown for Clarity)

Notes:
See Design Sheet No. 15 for notes and details for concrete repairs.
Areas shown are approximate. Engineer shall determine actual areas of repair at the time of construction.

Legend	
	Indicates Shallow Repair
	Indicates Regular Repair

Design For Repair to 0° Skew

3018'-0" x 32'-0"

Steel Thru Truss Bridge

Variable End Spans

512'-0" Main Span

Concrete Repair Details

STA. 17+50.88 (C 1A 92)

Turn-In Date: August 2026

Muscatine County

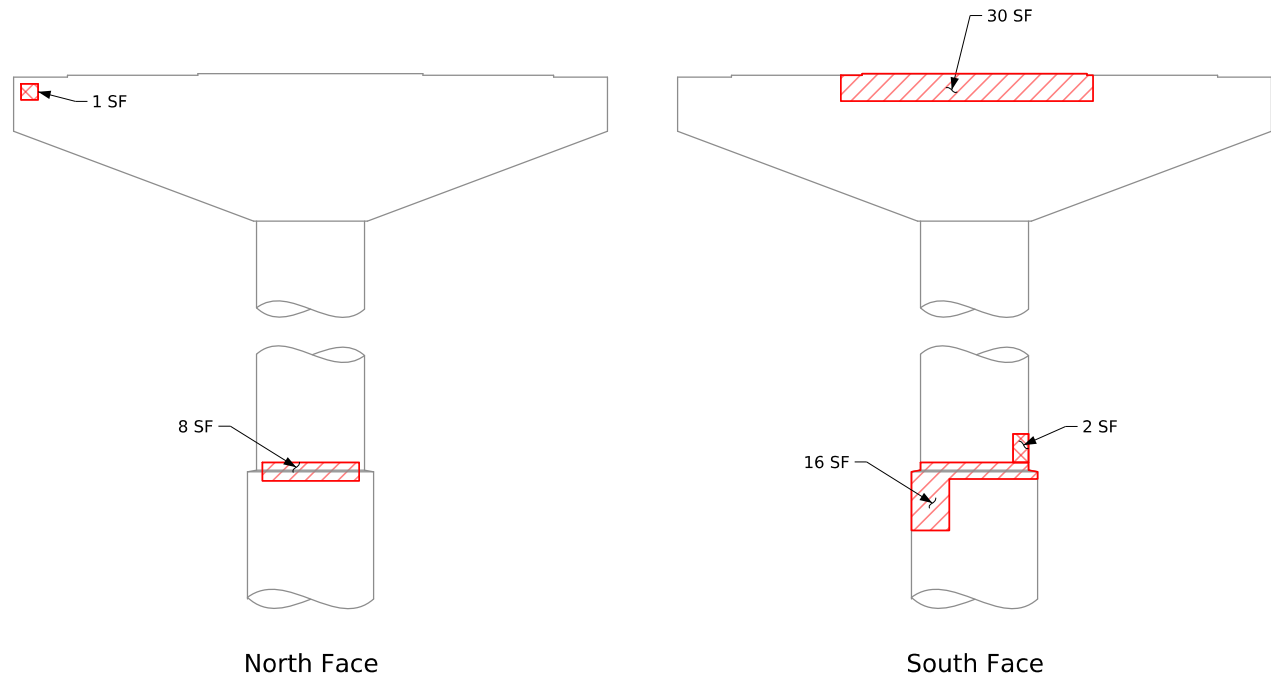
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0127

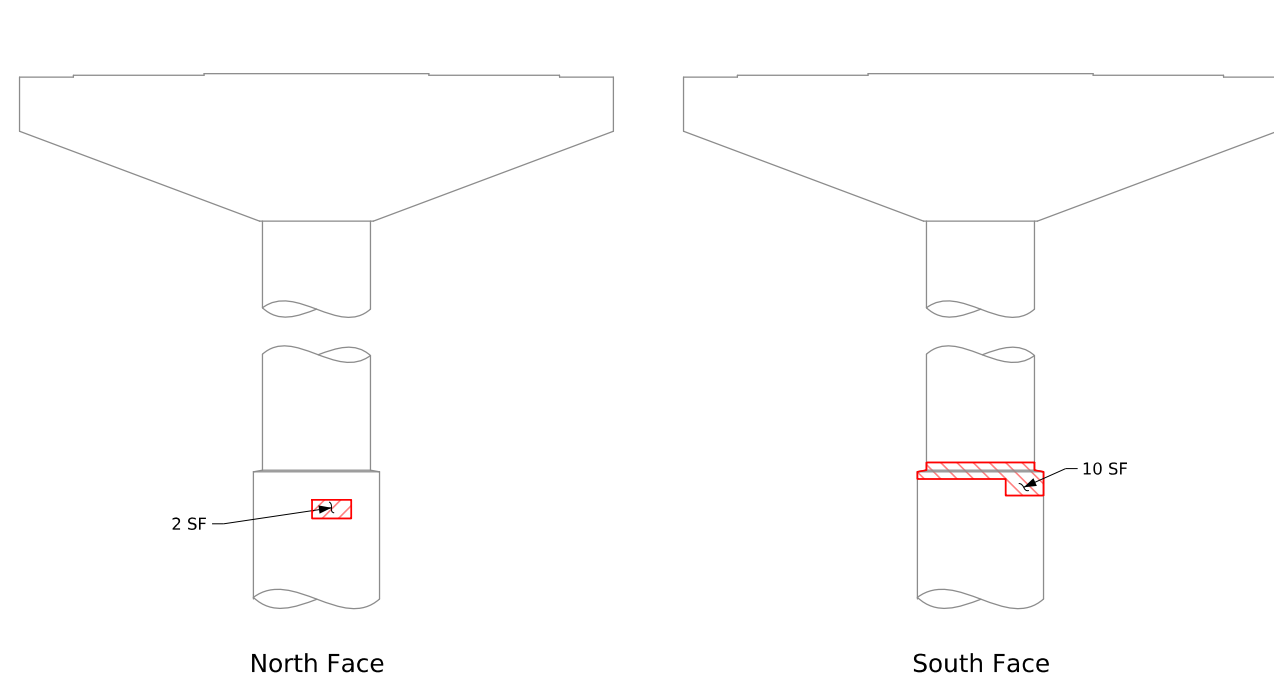
Design Sheet No. 13 of 51

FHWA No. 38201

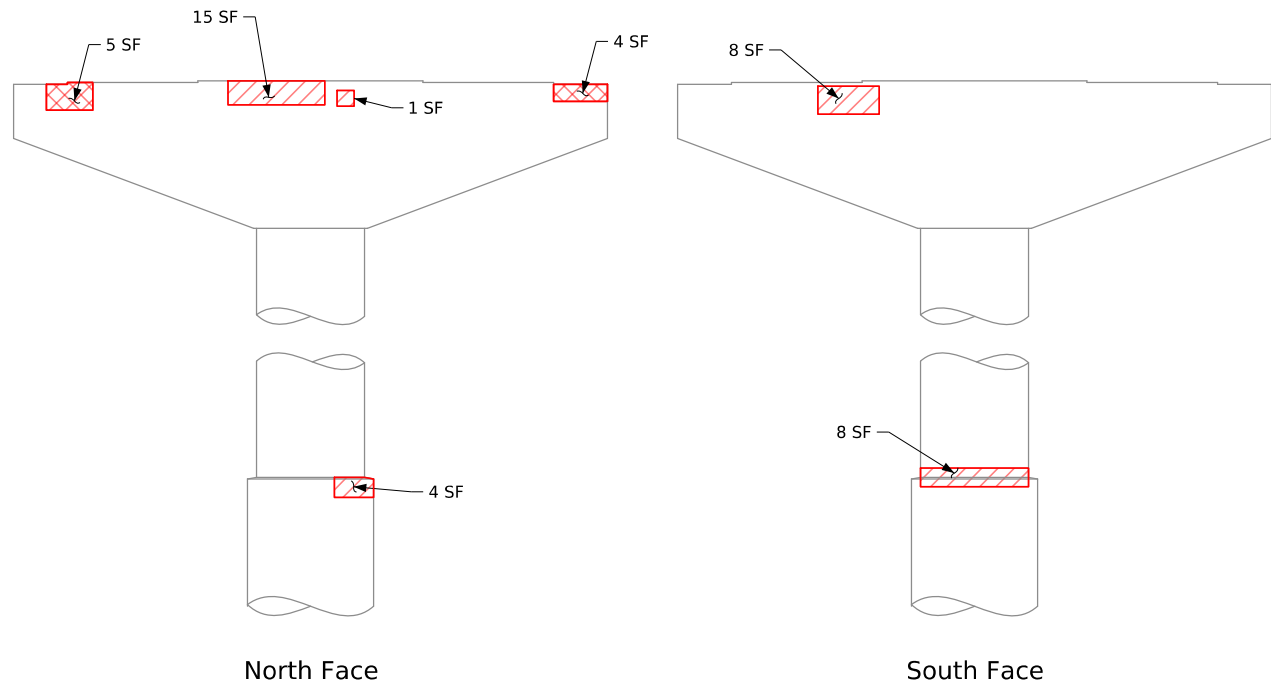




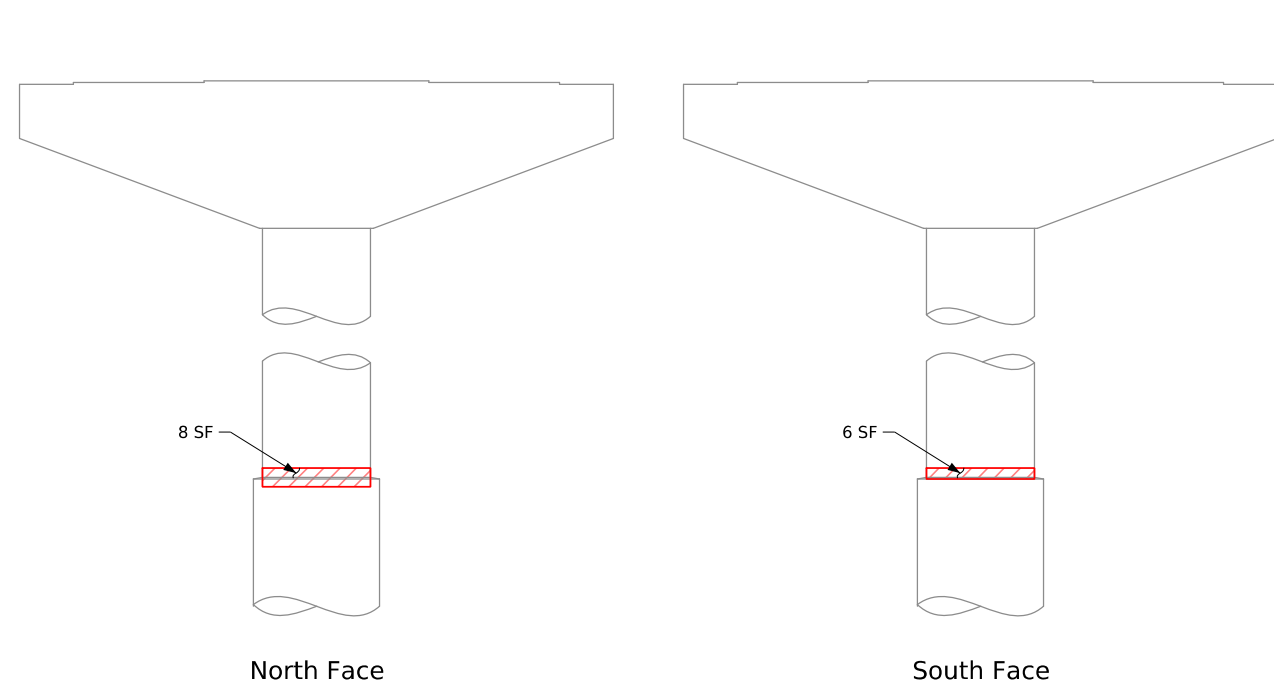
Part Elevation - Pier No. 18
(Existing Beams Not Shown for Clarity)



Part Elevation - Pier No. 20
(Existing Beams Not Shown for Clarity)



Part Elevation - Pier No. 22
(Existing Beams Not Shown for Clarity)



Part Elevation - Pier No. 23
(Existing Beams Not Shown for Clarity)

Notes:
See Design Sheet No. 15 for notes and details for concrete repairs.
Areas shown are approximate. Engineer shall determine actual areas of repair at the time of construction.

Legend

Indicates Shallow Repair

Indicates Regular Repair

Design For Repair to 0° Skew

3018'-0" x 32'-0"

Steel Thru Truss Bridge

Variable End Spans512'-0" Main Span

Concrete Repair Details

STA. 17+50.88 (C 1A 92)Turn-In Date: August 2026

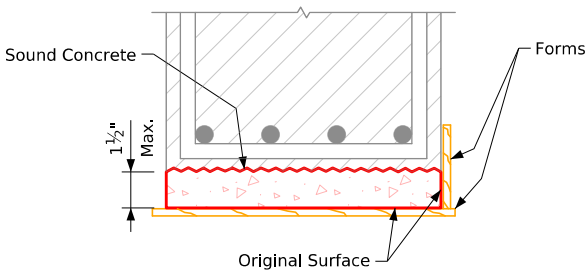
Muscatine County

IOWA DEPARTMENT OF TRANSPORTATION

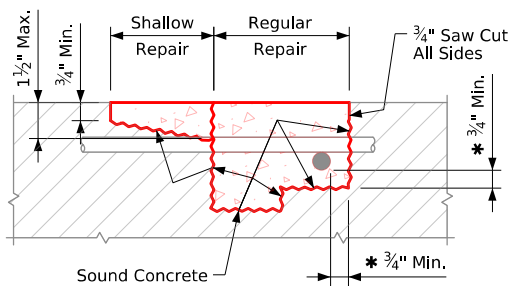
Design No. 0127Design Sheet No. 14 of 51FHWA No. 38201



Revised 10-2014 - Deleted All References to Grout. Section 2426 Covers this Requirement and Doesn't Need to be Stated on the Plans.
RepairRetrofitBridges.dgn - 1045 - This Sheet Redrawn 09-27-1990.
RepairRetrofitBridges.dgn - 1045 - This Sheet Re-Issued 07-2023.

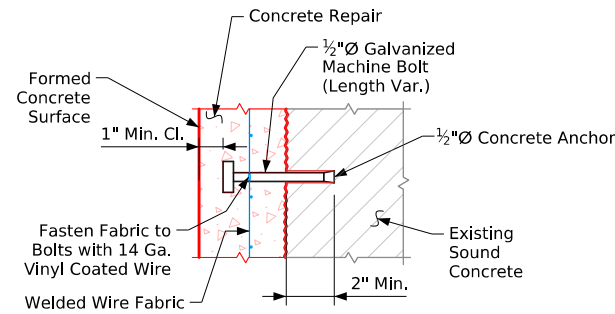


Shallow Repair
Bottom Surface



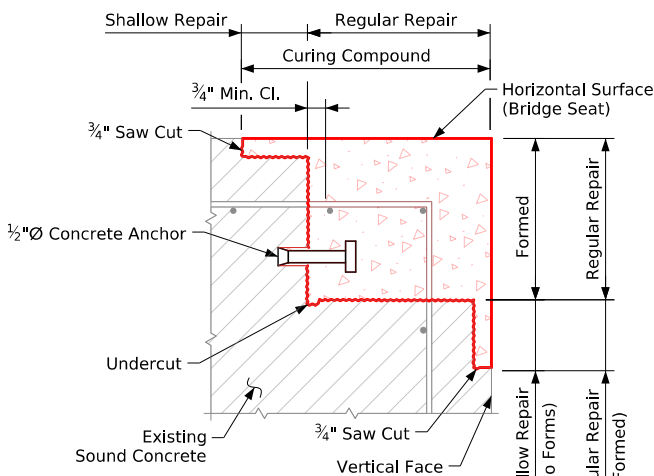
Repair Definition

* Indicates Clearance for an Un-Bonded Rebar.

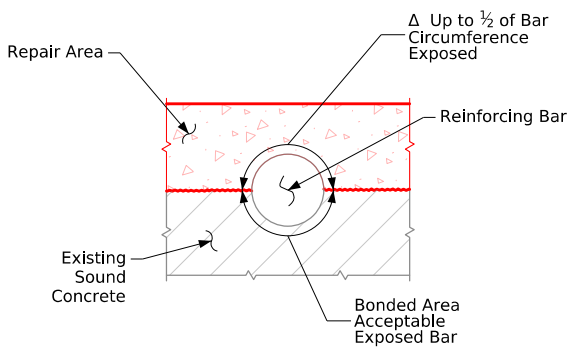


Anchor Detail

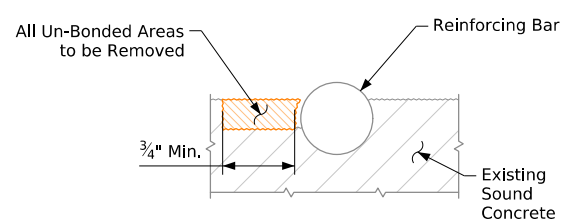
For Spacing and Use of Concrete Anchors and WWF See the Repair Notes.



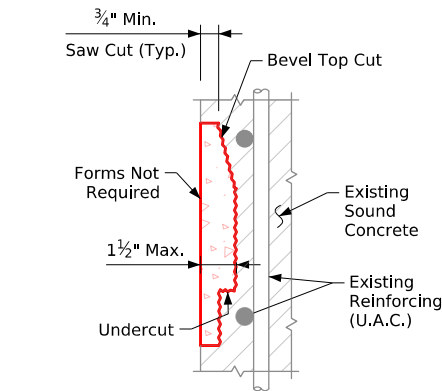
Corner Repair



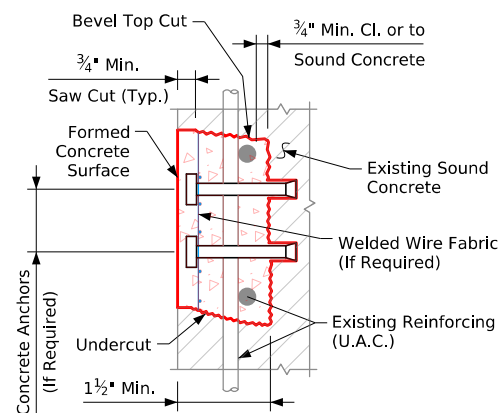
Δ If more than 1/2 of the rebar is exposed it shall be treated as an un-bonded rebar.



Concrete Removal
Adjacent to Reinforcing



Shallow Repair
Vertical Face



Regular Repair
Vertical Face

Repair Notes:

- The spalled and hollow areas of this bridge as noted and shown in these plans shall be repaired as follows:
- All the costs of equipment and materials required to repair the spalled and hollow areas of this bridge shall be included in the price bid for "Concrete Repair".
 - The price bid for "Concrete Repair" shall include the cost of all concrete anchors and welded wire fabric required by the plans.
 - The Engineer shall determine and outline by visual and audible inspection the actual areas of the concrete repairs. The Contractor shall be paid for the actual amount of repairs made on a square foot basis based on the price bid per square foot.
 - All existing reinforcing bars that are exposed by the concrete removal shall be cleaned and carefully incorporated into the new work, except badly deteriorated existing reinforcing which shall be replaced as directed by the Engineer.
 - The concrete anchors required shall have a minimum pull out of 5,000 lbs based on 4,000 psi concrete. An anchor meeting the requirements of Iowa D.O.T. Materials I.M. 453.09 and the pull out load above is required. The anchors shall be galvanized and shall be installed according to recommendations of the Manufacturer. The cost of furnishing and installing the concrete anchors shall be included in the price bid for "Concrete Repair".
 - The welded wire fabric shall be ASTM A185 and galvanized as per ASTM A-641. The WWF wires shall be spaced 3x3 or 4x4 and the wires shall have a nominal area of 0.014 to 0.029 square inch inclusive, example "WWF 3x3 - W1.4xW2.9".
- Where reinforcement has been exposed and clearance around the periphery of the existing bar is provided, no supplemental reinforcing is required, except where existing reinforcement density and pattern are such that individual open spaces between bars are of 1.5 square feet or larger. For this condition 1/2"Ø concrete anchors and welded wire fabric shall be installed at the rate of one concrete anchor with WWF per each 1.5 square feet of area within each open space.
- Repairing the structural concrete shall be in accordance with Section 2426 of the Standard Specifications.

Concrete Placement Quantities

Mark	Type	Units	Quantity
①	Shallow Repair	Sq. Ft.	303
②	Regular Repair	Sq. Ft.	299
		Total (Sq. Ft.)	602

Estimated Concrete Repair Quantities

Description	Units	Amount
Concrete Repair	Sq. Ft.	602

Note:
See Design Sheet Nos. 11 to 14 for approximate locations of concrete repair areas.

Design For Repair to 0° Skew

3018'-0" x 32'-0"

Steel Thru Truss Bridge

Variable End Spans512'-0" Main Span

Concrete Repair Details

STA. 17+50.88 (C 1A 92)Turn-in Date: August 2026

Muscatine County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0127Design Sheet No. 15 of 51FHWA No. 38201

Bridge Painting Notes:

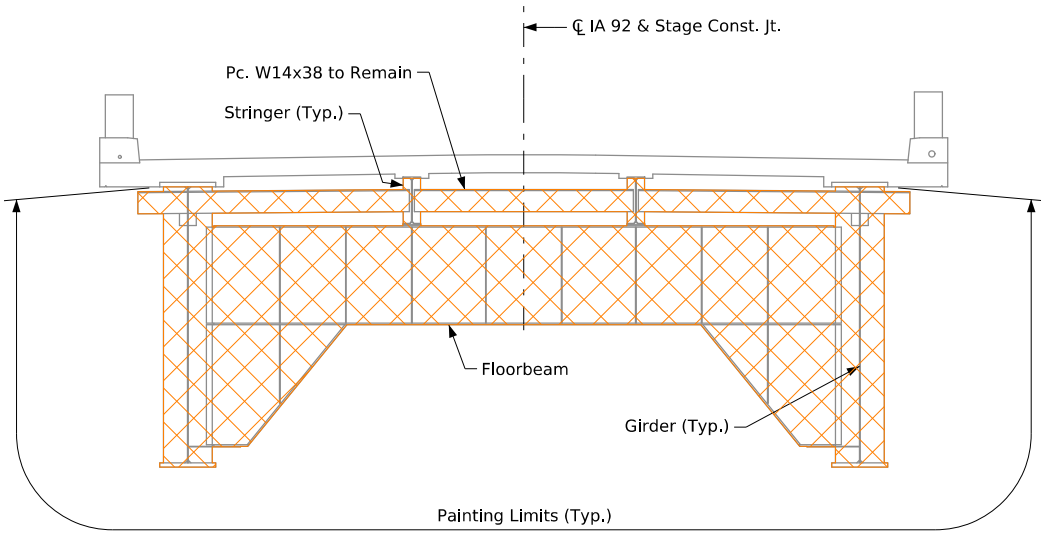
All steel to be painted shall be blast cleaned according to SSPC-SP10. The paint system shall be the epoxy system. This includes a zinc-rich epoxy primer, an aluminum epoxy mastic intermediate coat, and an aliphatic polyurethane topcoat. Abrasives shall be steel shot and/or grit, aluminum oxide, or garnet abrasives. Do not use sand or coal slag.

Bridge painting shall include painting portions of the steel girder spans and the thru truss span. The steel girder approach span painting shall include all steel within a zone 10 feet from the expansion joints. This includes girders, floorbeams, support girders at Piers 7 & 12, bearings, stiffeners and all miscellaneous steel within this zone.

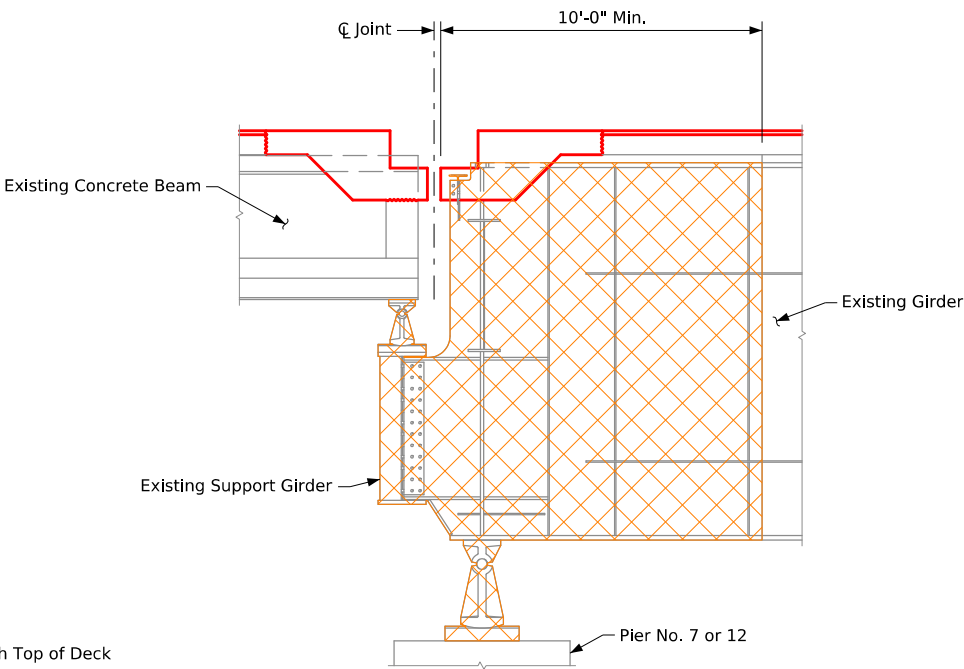
The truss span painting shall include all steel below the top of deck level within a zone 10 feet each way from expansion joints at Piers 9, 10 and relief joints at panel points 3, 7 and 3' in Span 10. This includes the bottom chord, floor beams, lateral bracing, bearings, stiffeners, and all miscellaneous steel and all truss members from the bottom chord to top of deck within a zone 10 feet from expansion joints.

The total area of structural steel in the zones designated to be painted is estimated to be 18,600 sq. ft. This estimate is provided only for the Contractor's information. There will be no additional payment if the actual areas in the zones vary from the estimated area shown.

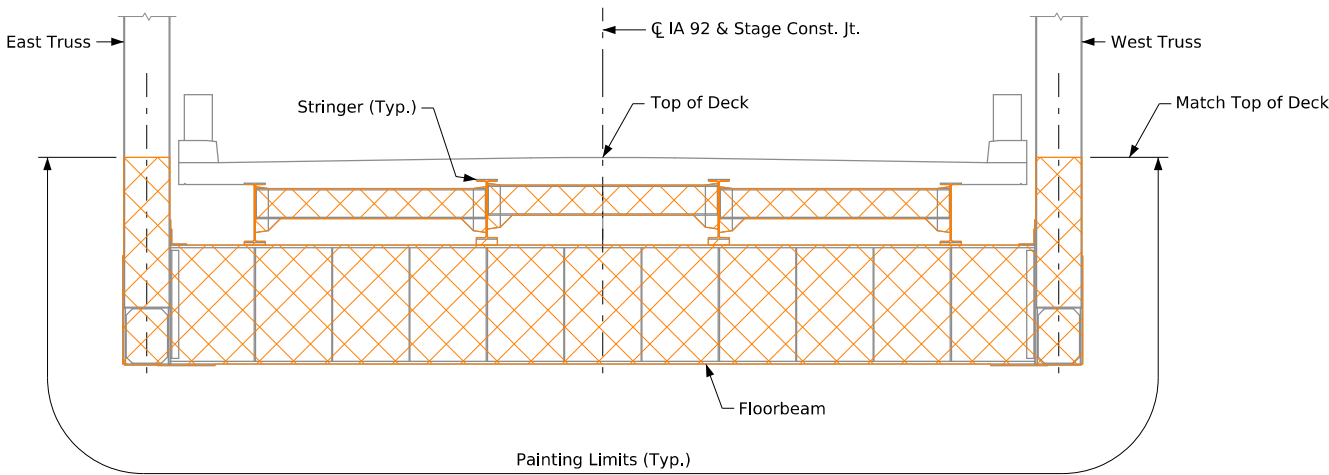
All new structural steel shall be shop primed and field painted except as designated to be galvanized. The topcoat paint color shall be Federal Color Number 16495.



Approach Span Painting Limits at Expansion Joints
(Paint 10' Each Side of Joint)



Part Section at Piers 7 & 12



Truss Span Painting Limits at Expansion Joints
(Paint 10' Min. Each Side of Joint)



Design For Repair to 0° Skew

3018'-0" x 32'-0"

Steel Thru Truss Bridge

Variable End Spans512'-0" Main Span

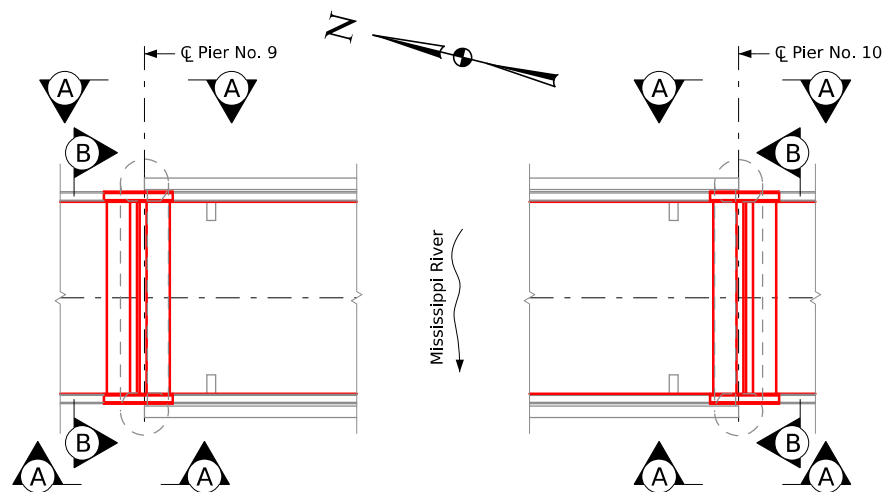
Bridge Painting Details

STA. 17+50.88 (CL IA 92)Turn-In Date: August 2026

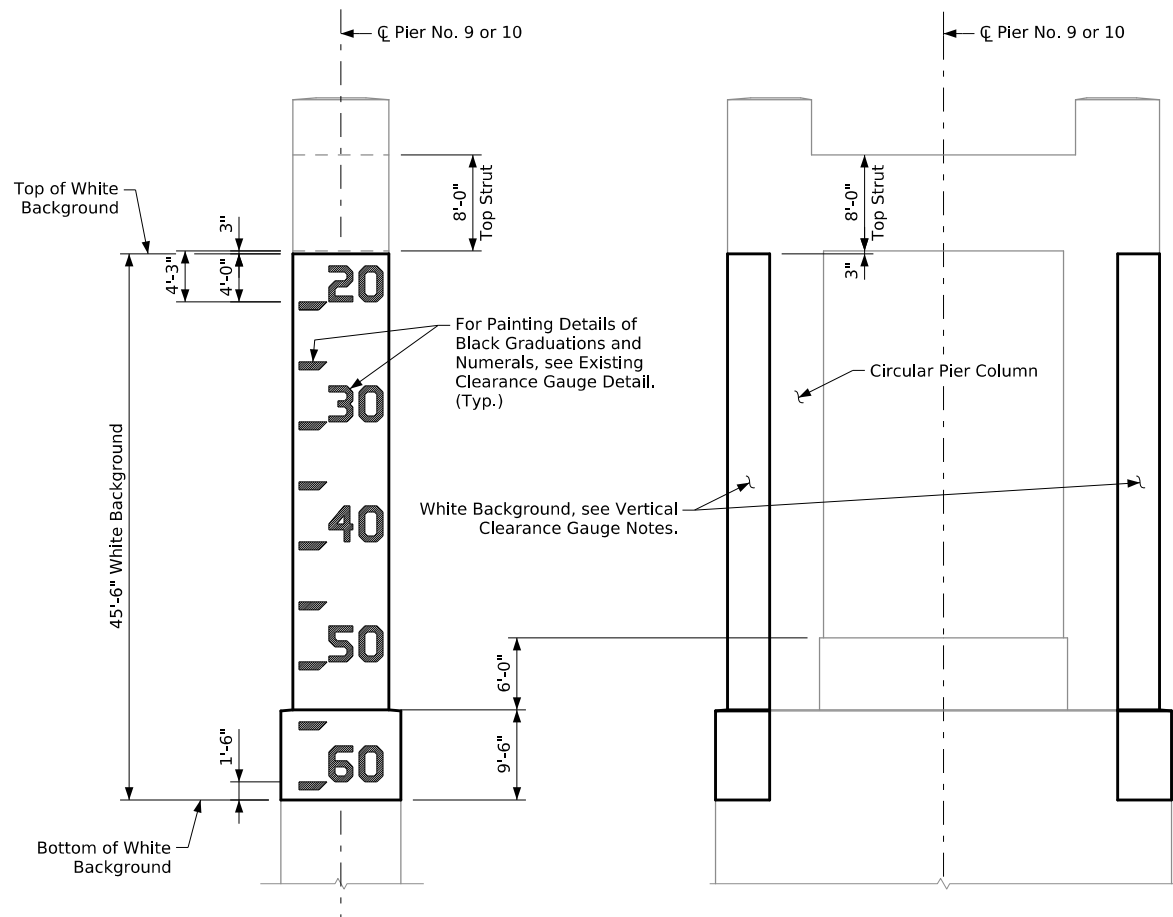
Muscatine County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0127Design Sheet No. 16 of 51FHWA No. 38201

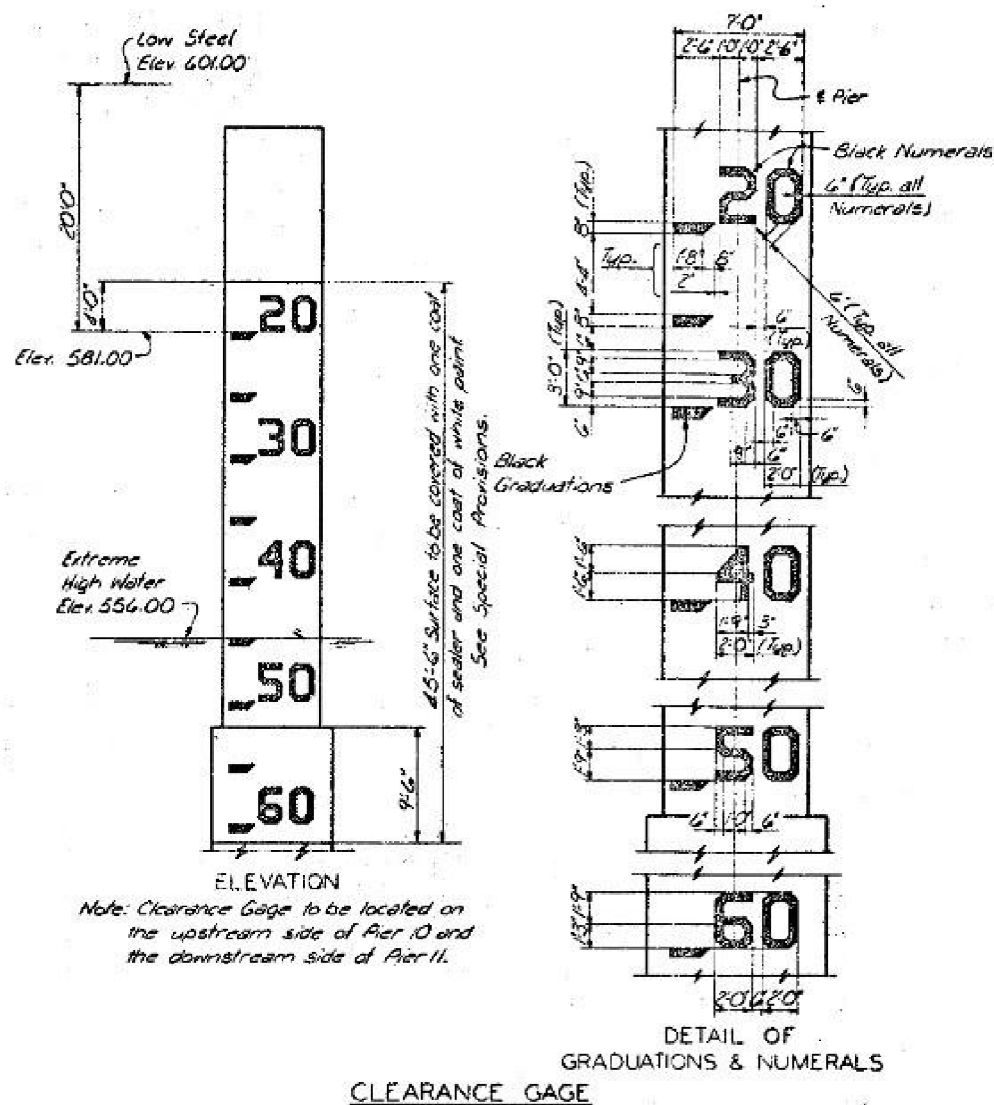


Partial Plan



View A-A

View B-B
(Truss Not Shown)



Existing Clearance Gauge
(From Original Design, for Information Only.)

Vertical Clearance Gauge Notes:

This clearance gauge shall consist of 36" height black numerals and black graduation marks painted on a white background as indicated in these details.
The white background shall extend to the full projected width of the circular pier column.

Existing concrete surfaces to be painted shall be prepared in accordance with SSPC-SP-13/NACE No. 6.

The paint system shall be from one of the following products, and applied in accordance with instructions furnished by the manufacturer:

Sherwin-Williams
Base Coat - Macropoxy 646
White Background - Sher-Loxane 800
Black Markings - Sher-Loxane 800

PPG
Base Coat - Pittguard 95-245
White Background - PSX 700
Black Markings - PSX 700

Carboline
Base Coat - Carboguard 890 GF
White Background - Carboxane 2100 FC
Black Markings - Carboxane 2100 FC

Or Approved Equal

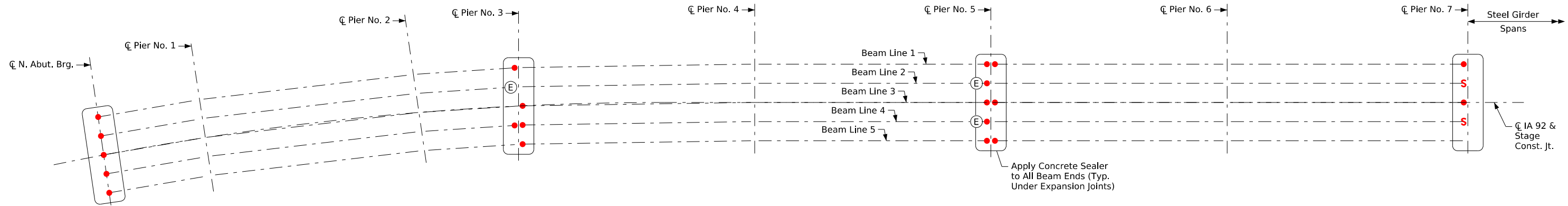
If a portion of the clearance gauge is below the waterline, surface preparation and painting shall be applied to within 6" of the waterline.

The Lump Sum price bid for "Vertical Clearance Gauge" shall include include all costs for labor, materials, and equipment necessary to access the repair areas and for cleaning, surface preparation and painting of vertical clearance markings on upstream and downstream faces of Piers 9 and 10 as shown.

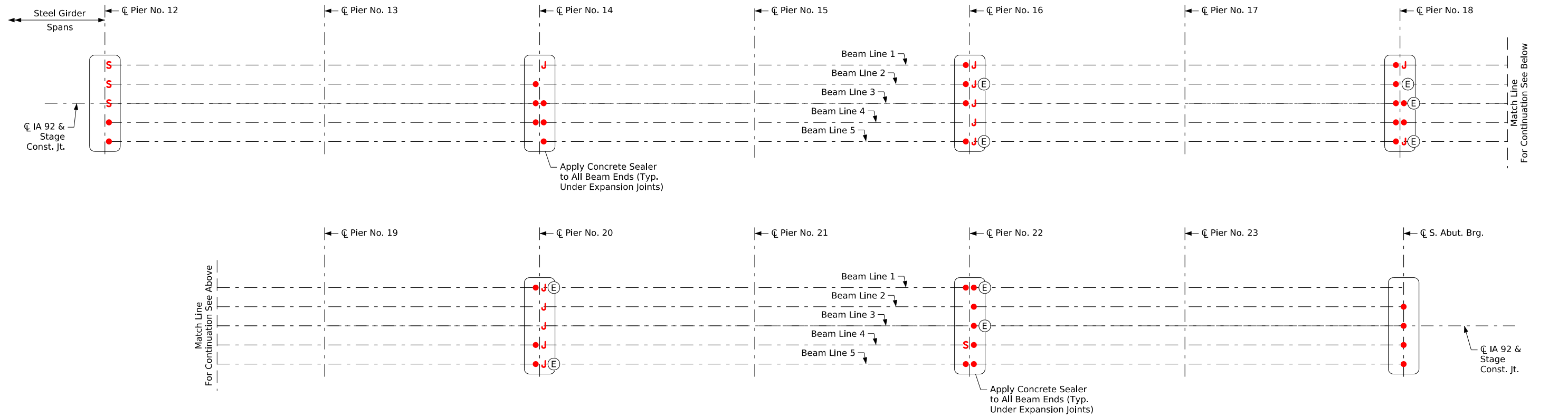
Do not apply coating for Clearance Gauge on repaired concrete until the repair material has cured a minimum of 28 days.

Design For Repair to 0° Skew		
3018'-0" x 32'-0"		
Steel Thru Truss Bridge		
Variable End Spans	512'-0" Main Span	
Clearance Gauge Details		
STA. 17+50.88 (C 1A 92)	Turn-In Date: August 2026	
Muscatine County		
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Beam Layout Details - Iowa Approach Spans



Beam Layout Details - Illinois Approach Spans

(E) - Elastomeric Bearing Pad Replacement Locations

• - Regular Beam End Repair Locations

S - Shallow Beam End Repair Locations

J - Jacking Repair Locations

Notes:

For Beam End Repair Notes and Details and Concrete Beam Sealing Notes, see Design Sheet No. 19.

For bearing details and bridge raising notes, see Design Sheet No. 21.

Design For Repair to 0° Skew

3018'-0" x 32'-0"

Steel Thru Truss Bridge

Variable End Spans 512'-0" Main Span

Beam End & Bearing Repair Location Plan

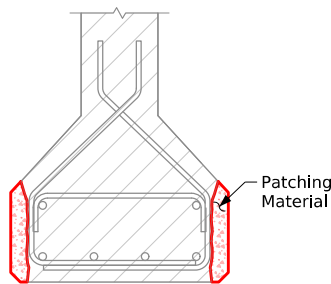
STA. 17+50.88 (C IA 92) Turn-In Date: August 2026

Muscatine County

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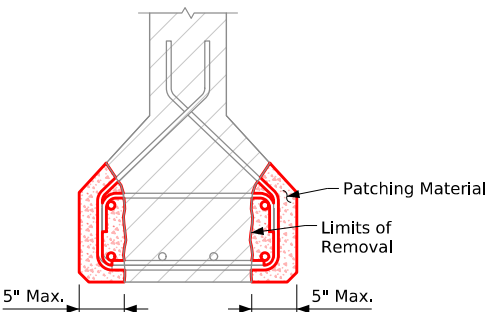
Design No. 0127 Design Sheet No. 18 of 51 FHWA No. 38201

FILE NO. 32399	ENGLISH	DESIGN TEAM NJL\KD\EES	MUSCATINE COUNTY	PROJECT NUMBER BRF-092-9(165)--38-70	SHEET NUMBER V.18
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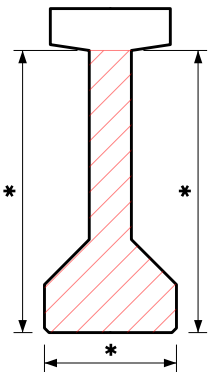


Shallow Repair Areas

Note: The repair areas shown are schematic only. The actual area to be repaired will be determined by the Engineer.



Regular Repair Areas

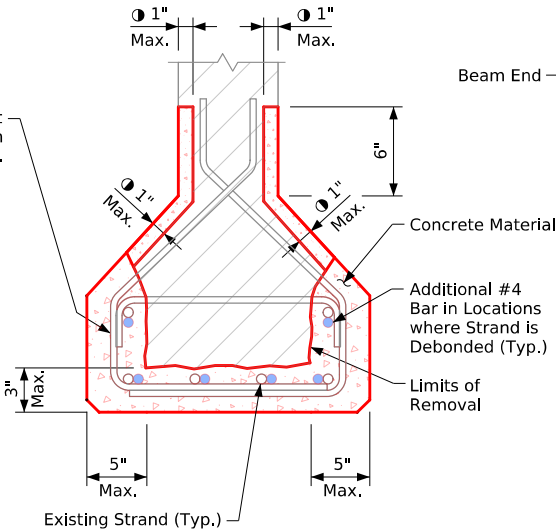


Limits of Sandblasting

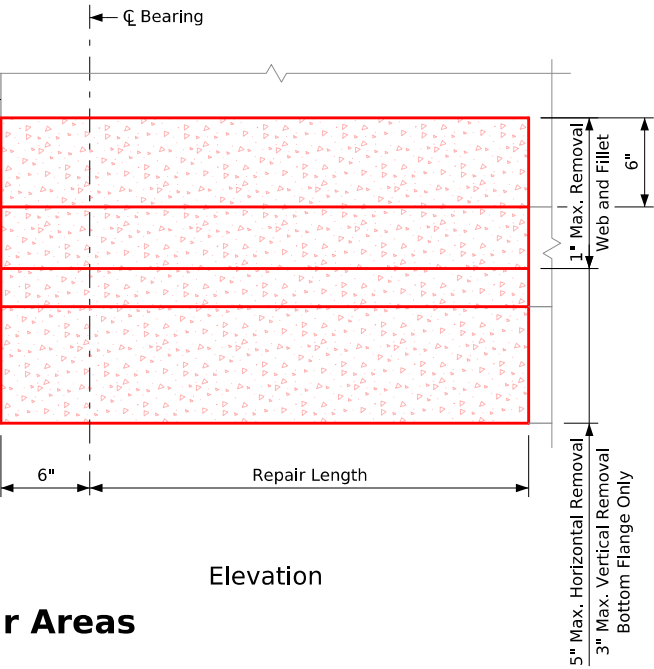
* Sandblast the surfaces of the bottom flange and web within the limits shown to 6 feet of the beam ends.

Note:
1" maximum removal. Repair thickness may be increased an additional 1" to improve concrete placement.

Provide 2-#3 Bars Adjacent Stirrups with Greater than 50% Section Loss.
6" 12" Min. Lap

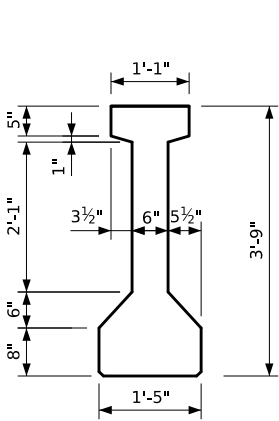


Typical Section

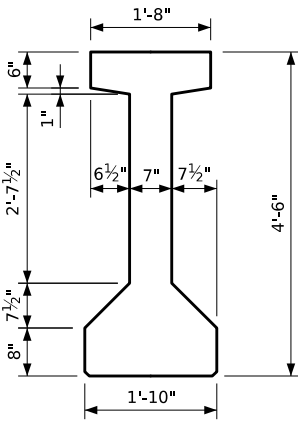


Elevation

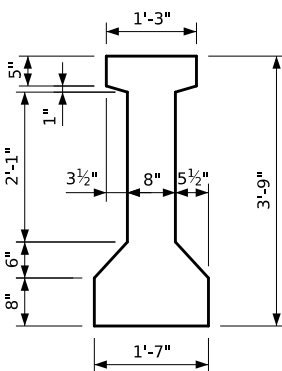
Jacking Repair Areas



Beam Section
(Spans 1 & 3)



Beam Section
(Spans 4 thru 7)



Beam Section
(Spans 2, 13 thru 24)

Beam End Repair Materials

Primer	Shallow Repair	Regular Repair	Jacked Repair
Special Provisions for Beam End Repair with Methyl Methacrylate Polymer Concrete			

Note:
See Design Sheet No. 21 for Jacking Location Detail and Notes.

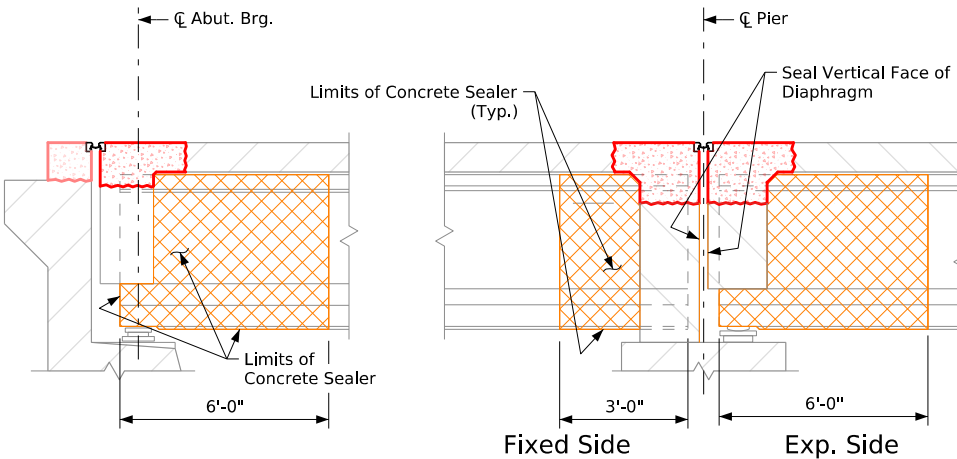
Concrete Beam Sealing Notes:

The price bid for "Sealer Coat for Prestressed Concrete Beam Ends" shall include all costs for materials, equipment and labor to prepare and seal the prestressed concrete beam ends as shown in these plans.

Prestressed concrete beam ends shall be sealed with a product from Materials I.M. 491.19, Appendix B approved list, and prepared in accordance with the sealant manufacturer's recommendations.

Portions of the prestressed beam ends that are embedded in abutment and expansion-expansion pier diaphragms as shown on this sheet shall not be sealed.

Sealing of the vertical diaphragm faces will not be measured separately for payment and is subsidiary to the bid item, "Sealer Coat for Prestressed Concrete Beam Ends".



Concrete Sealer Limits for Prestressed Beam

(North Abutment, Pier 3, Pier 5, Pier 7, Pier 12, Pier 14, Pier 16, Pier 18, Pier 20, Pier 22, and South Abutment) (Strip Seal Expansion Joint Shown, Modular Expansion Joint Similar)

Notes:
See Design Sheet No. 20 for Beam End Repair Notes and Beam Repair Mockup Test Placement Detail.
The repair areas shown are schematic only. The actual area to be repaired will be determined by the Engineer. For location of beam ends to be repaired see beam layout Design Sheet No. 18.

Design For Repair to 0° Skew
3018'-0" x 32'-0"
Steel Thru Truss Bridge
Variable End Spans 512'-0" Main Span

Beam End Repair Details

STA. 17+50.88 (C/LA 92) Turn-In Date: August 2026

Muscatine County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0127 Design Sheet No. 19 of 51 FHWA No. 38201



FILE NO. 32399

ENGLISH

DESIGN TEAM NJL\KD\EEs

MUSCATINE COUNTY

PROJECT NUMBER BRF-092-9(165)--38-70

SHEET NUMBER V.19

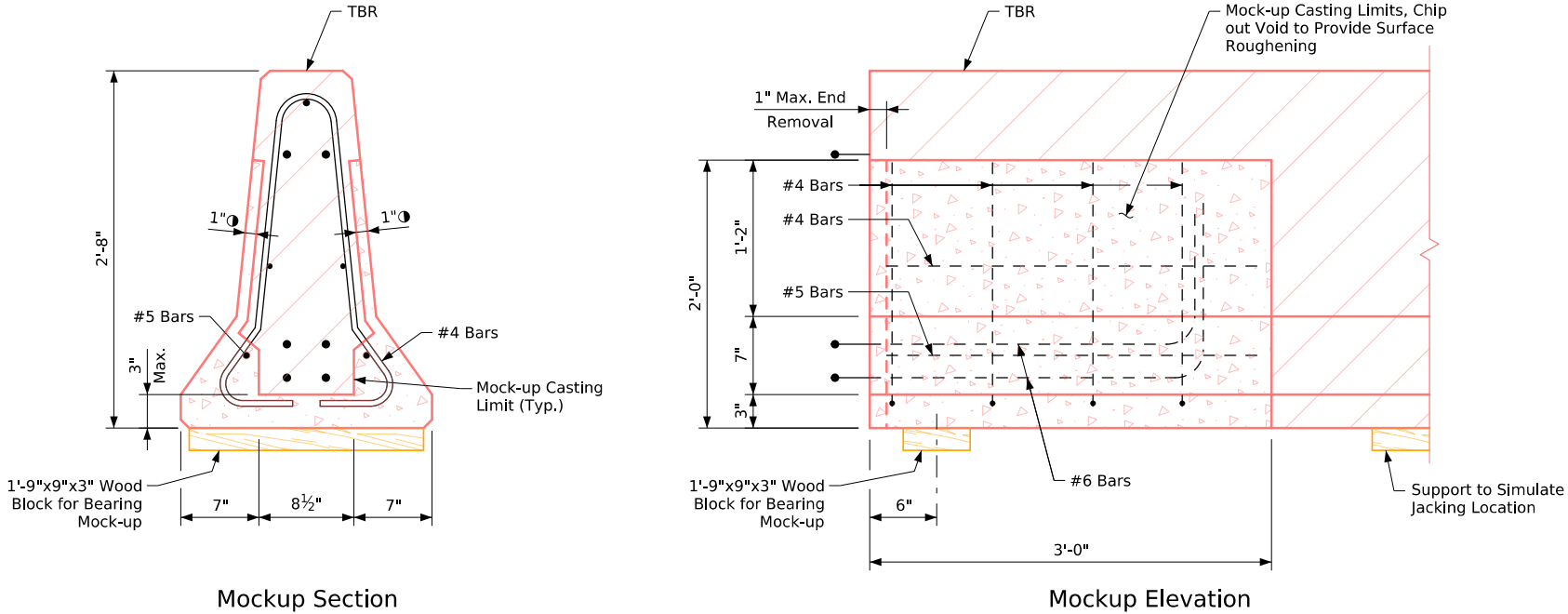
Beam End Repair Notes:

It is estimated that 72 beam end(s) will be repaired. The final quantity and limits of beam end repairs shall be determined by the Engineer at the time of construction. Removals and repairs shall be in accordance with Special Provisions for Beam End Repair with Methyl Methacrylate Polymer Concrete. Measurement and payment shall be based on the quantity placed and accepted in accordance with the Special Provisions. Excludes costs for jacking of superstructure. All costs for jacking the superstructure for beam repair shall be included in the unit price bid for "Replace Bearings".

The Contractor shall notify the Engineer when concrete removals are complete at each location to allow inspection by the Engineer prior to placement of repair material.
The Contractor shall report tendon or reinforcing bar section loss, exposed during removal work, to the Engineer prior to performing any repair work. The Engineer shall be given adequate time (7 days max.) to determine whether beam reinforcing is required. The Contractor shall incorporate this time into the construction schedule with work in other areas of the project in order to not delay the project.
The Contractor shall perform the concrete repair work in accordance with the Special Provisions for Beam End Repair with Methyl Methacrylate Polymer Concrete, the following notes and/or as directed by the Engineer:

1. Adjust depth of saw cut as required to prevent cutting of existing reinforcing steel or strands. Extreme care shall be exercised during concrete removal so that exposed strands and reinforcing bars are not damaged. Any damage done to the strands or reinforcing bars by the Contractor shall be repaired by the Contractor at no additional cost to the State.
2. Remove deteriorated areas to sound concrete and chip square. Boundaries to be square with no feathered edges.
3. If removals could exceed the 5" maximum horizontal depth or 3" maximum vertical depth, contact the Engineer prior to removal.
4. Report to the Engineer, prior to repair, section loss of tendons or reinforcing steel exposed during removals.
5. All beam end repairs shall be completed using Methyl Methacrylate (MMA) Polymer Concrete in accordance with the Special Provisions for Beam End Repair with Methyl Methacrylate Polymer Concrete. Repair areas shall be classified as follows:
 - A. Shallow Repair: Shallow repair areas are those where concrete removal did not result in reinforcing bars or prestressing strands being exposed for more than half their diameters.
 - B. Regular Repair: Regular repair areas are those where concrete removal extended behind the reinforcing bars and/or prestressing strands.
 - C. Jacked Repair: Jacked repair areas are those where the concrete beam above the bearing has deteriorated and the beam must be unloaded to complete the repair. The bridge shall be closed to traffic during this repair. Other beam end repairs and bearing replacement may be done concurrently. See Design Sheet No. 21 for "Bridge Raising Notes" and "Jacking Loads". Jacks shall not be removed until the MMA polymer concrete has attained the minimum compressive strength required by the Special Provisions.
6. Sandblast 6'-0" of the ends of all beams under expansion joints as shown on the Beam Layout Details on Design Sheet No. 18. The sandblasting shall be a light blast just enough to expose the fine aggregates. Do not sandblast patching material. All costs associated with sandblasting are to be included in the price bid for "Sealer Coat for Prestressed Concrete Beam Ends".
7. Apply concrete sealer to sandblasted portions of beams ends. Concrete sealer shall be in accordance with Concrete Sealer Notes on Design Sheet No. 19.

Note:
1" maximum removal. Repair thickness may be increased an additional 1" to improve concrete placement.



Mockup Section

Mockup Elevation

Beam Repair Mockup Test Placement Detail

(Refer to Special Provisions for Additional Information)

Note:
For Beam End Repair Details and Concrete Beam Sealing Notes, see Design Sheet No. 19.



Design For Repair to 0° Skew

3018'-0" x 32'-0"

Steel Thru Truss Bridge

Variable End Spans 512'-0" Main Span

Beam End Repair Notes & Details

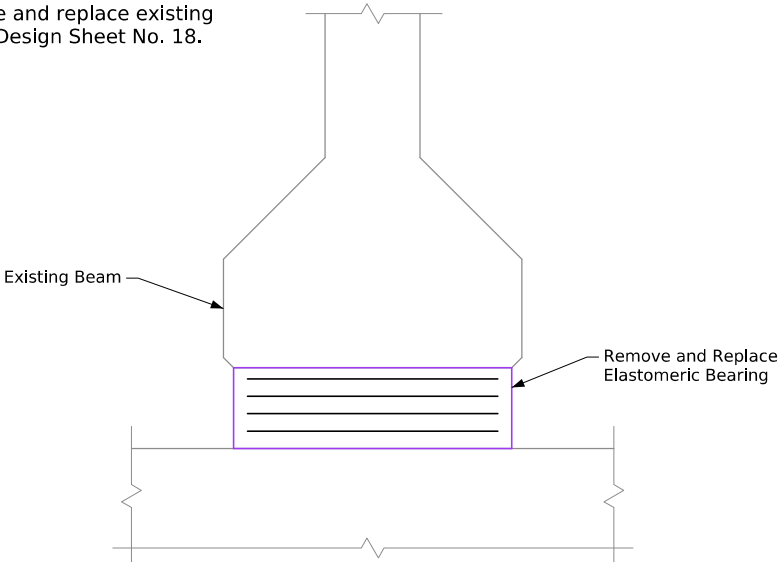
STA. 17+50.88 (C 1A 92) Turn-In Date: August 2026

Muscatine County

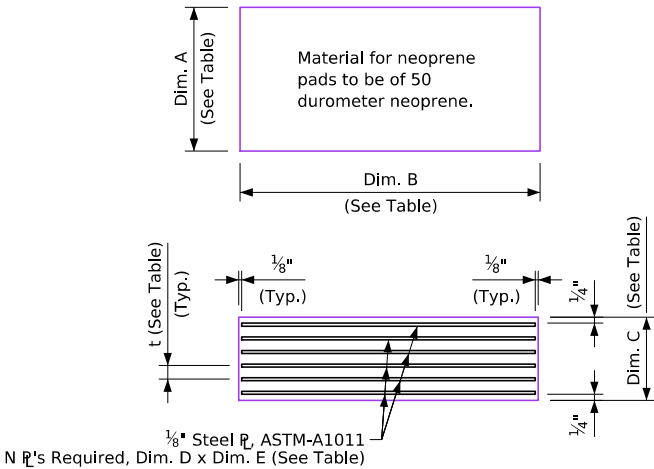
IOWA DEPARTMENT OF TRANSPORTATION

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Note:
For locations to remove and replace existing elastomeric bearing, see Design Sheet No. 18.

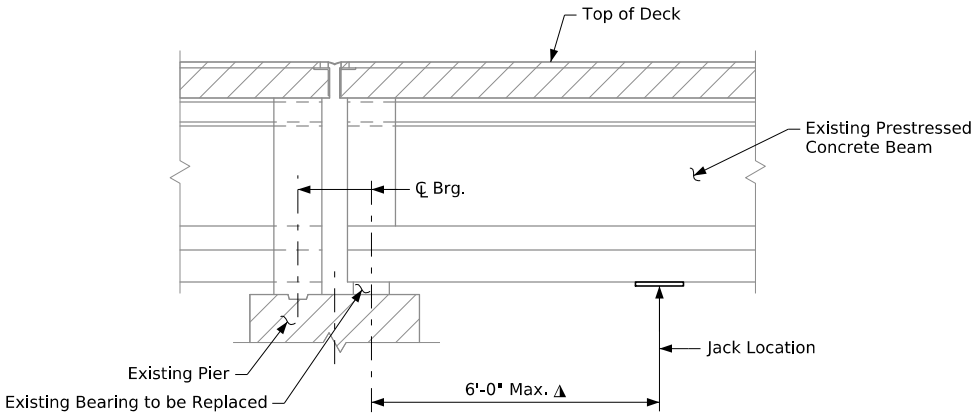


Elastomeric Bridge Bearing



Laminated Neoprene Pads

Table of Elastomeric Bridge Bearings								
Location	No. Required	Dim. A	Dim. B	Dim. C	Dim. D	Dim. E	t	N
Pier No. 3	1	9"	1'-6"	2 ⁷ / ₈ "	8 ³ / ₄ "	1'-5 ³ / ₄ "	⁷ / ₁₆ "	5
Pier No. 5	2	8"	1'-8"	3 ³ / ₄ "	7 ³ / ₄ "	1'-7 ³ / ₄ "	¹ / ₂ "	6
Pier No. 16	2	10"	1'-6"	3 ¹ / ₈ "	9 ³ / ₄ "	1'-5 ³ / ₄ "	¹ / ₂ "	5
Pier No. 18	3	10"	1'-6"	3 ¹ / ₈ "	9 ³ / ₄ "	1'-5 ³ / ₄ "	¹ / ₂ "	5
Pier No. 20	2	10"	1'-6"	3 ¹ / ₈ "	9 ³ / ₄ "	1'-5 ³ / ₄ "	¹ / ₂ "	5
Pier No. 22	2	10"	1'-6"	3 ¹ / ₈ "	9 ³ / ₄ "	1'-5 ³ / ₄ "	¹ / ₂ "	5



Jacking Location Detail

Jacking Load Table	
Location	Jacking Service Load (kip)
Pier No. 3 Back	250
Pier No. 5 Back	500
Pier No. 16 Ahead	500
Pier No. 18 Ahead	500
Pier No. 20 Ahead	500
Pier No. 22 Ahead	500

Note:
Jacking load shown in table above is the total service dead load reaction of all 5 beams in the cross section and 6 ft. from C bearing as shown in the Jacking Location Detail.

Bridge Raising Notes:

The bridge shall be raised near the end of span to facilitate the removal and replacement of elastomeric bearing pads at the designated locations shown on Design Sheet No. 18. It is anticipated that the elastomeric bearing pads can be removed and replaced by raising the bridge no more than 1/4 inch using hydraulic jacks. Jacks shall be detailed in the Bridge Jacking Plan such that all five beams are raised simultaneously and the jacks are centered under the prestressed beams. Locations of jacking along the girder to be as per the approved Bridge Jacking Plan. If the Contractor determines that the bridge will need to be raised more than 1/4 inch, the Engineer shall be contacted for approval. The superstructure shall only be jacked at the locations shown in the approved Bridge Jacking Plan. The jacking load required for each designated pier location is based on the total dead load service reaction listed in table shown below. Jacks shall be sized for dead load plus an additional 30%. Live load is not included. It shall be the responsibility of the Contractor performing the jacking to size and design the required jacking equipment and to establish the procedure for jacking.

No traffic will be allowed on the bridge during the lifting operation or while the bridge is in the raised position. The Contractor shall provide adequate longitudinal and lateral support of the superstructure during the lifting operation and while the bridge is in the raised position. The Contractor shall provide shims or modifications to plates on top and bottom of the jack to allow the jack to be in uniform contact with the bottom flange of the concrete beams and other contact points. The contact area between the bottom flange of each concrete beam and jack shall be greater than or equal to 50 square inches. Repair of beam flanges may be done prior to jacking for bearing replacement, see Jacking Location Detail. The Contractor shall submit for review, a jacking plan containing detailed plans and design calculations showing the proposed method of raising the superstructure. The plans and calculations shall be prepared and sealed by professional civil or structural engineer licensed to practice in the State of Iowa. Prior to jacking of the bridge, the Contractor shall review the jacking areas and identify any components that may conflict or bind during jacking operations. The jacking plan shall include the procedures to resolve these conflicts. All costs associated with removing and replacing the elastomeric pads noted in these plans including all materials, equipment, labor, raising and supporting the superstructure, development and implementation of the Bridge Jacking Plan shall be included in the per each price bid for "Replace Bearings".

Notes:
Δ Jack location corresponding to jacking load shown in table. If the field conditions warrant jack placement beyond the limit shown, contact the Engineer for further direction. Contractor to note, beam repair may be required prior to jacking to establish a satisfactory jacking location within the limits shown.

Design For Repair to 0° Skew

3018'-0" x 32'-0"

Steel Thru Truss Bridge

Variable End Spans512'-0" Main Span

Bearing Repair Details

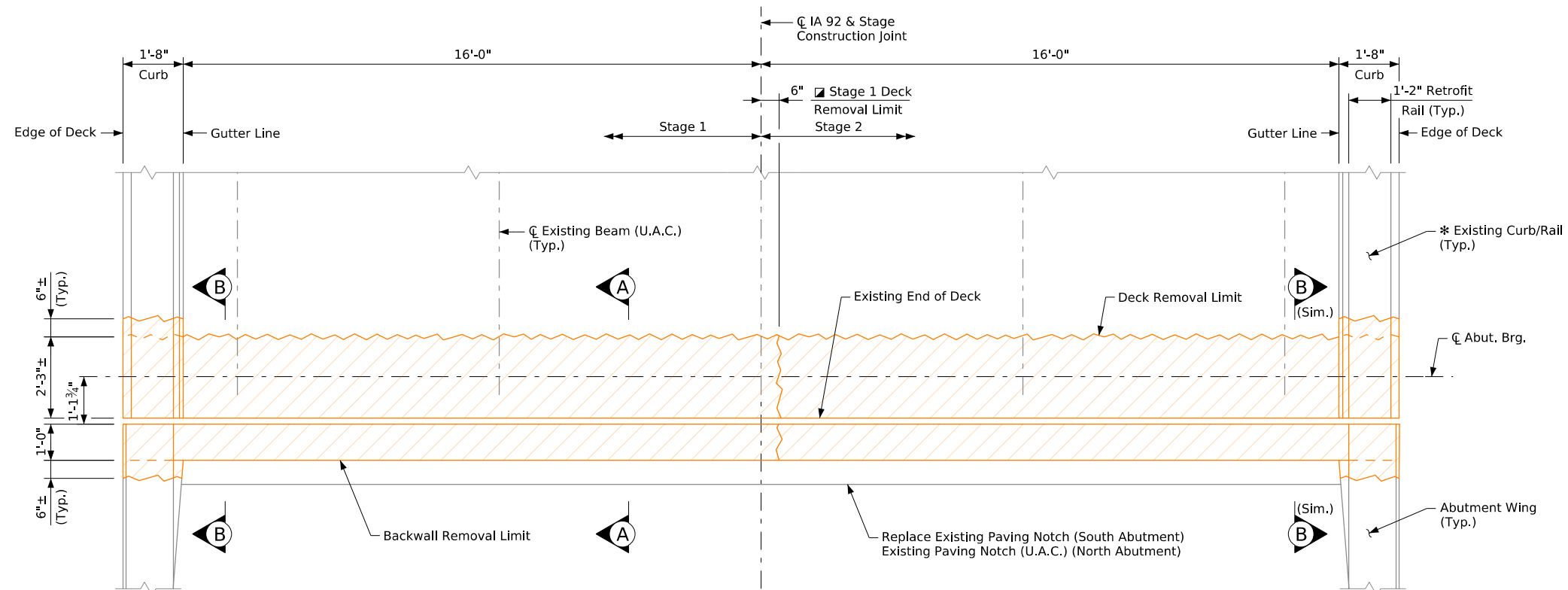
STA. 17+50.88 (C IA 92)Turn-in Date: August 2026

Muscatine County

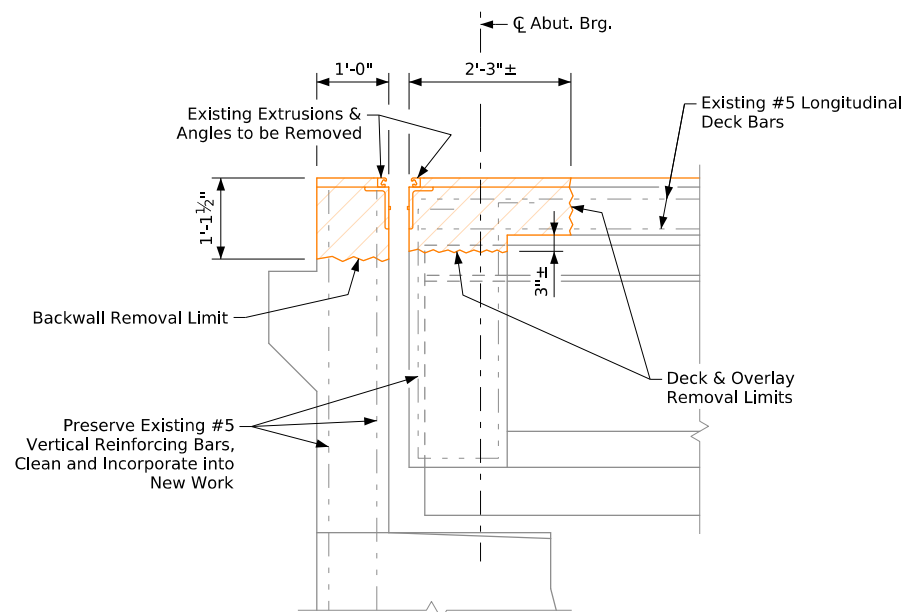
IOWA DEPARTMENT OF TRANSPORTATION

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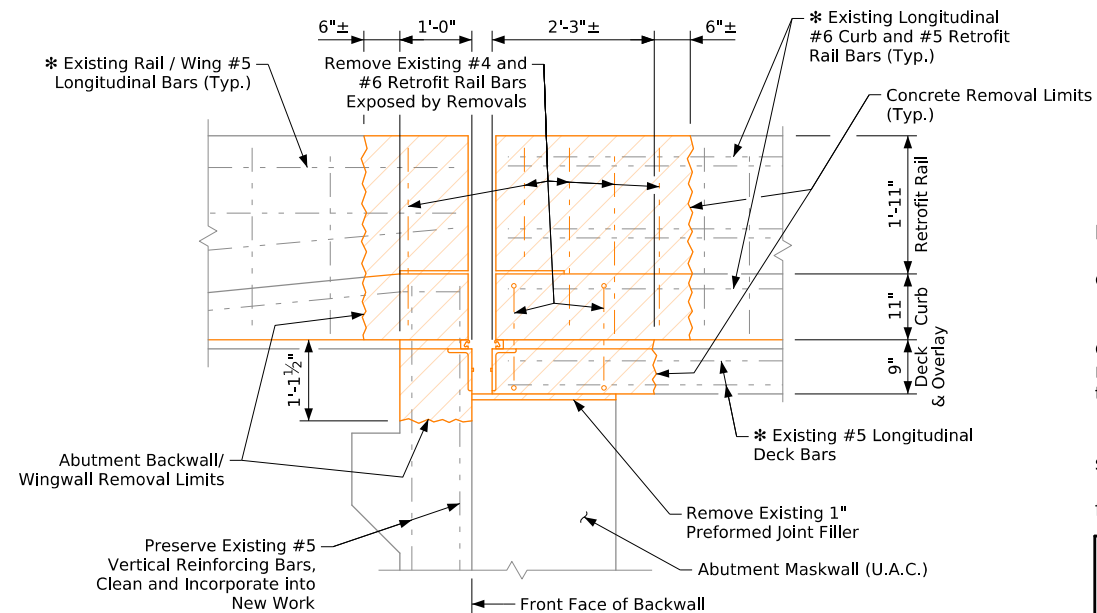




Removal Plan at Abutments
(South Abutment Shown, North Abutment Similar)
(Approach Slab Not Shown)



Section A-A
(Transverse Deck Reinforcing Not Shown for Clarity)



Section B-B
(Transverse Deck Reinforcing Not Shown for Clarity)

Notes:

* Existing longitudinal bridge deck reinforcing, longitudinal curb and rail reinforcing, and longitudinal wing reinforcing that is exposed by concrete removal shall be cleaned and incorporated into new work. Reinforcing steel that is damaged or rendered unserviceable by removal operations shall be replaced as directed by the Engineer at no additional cost to the State.

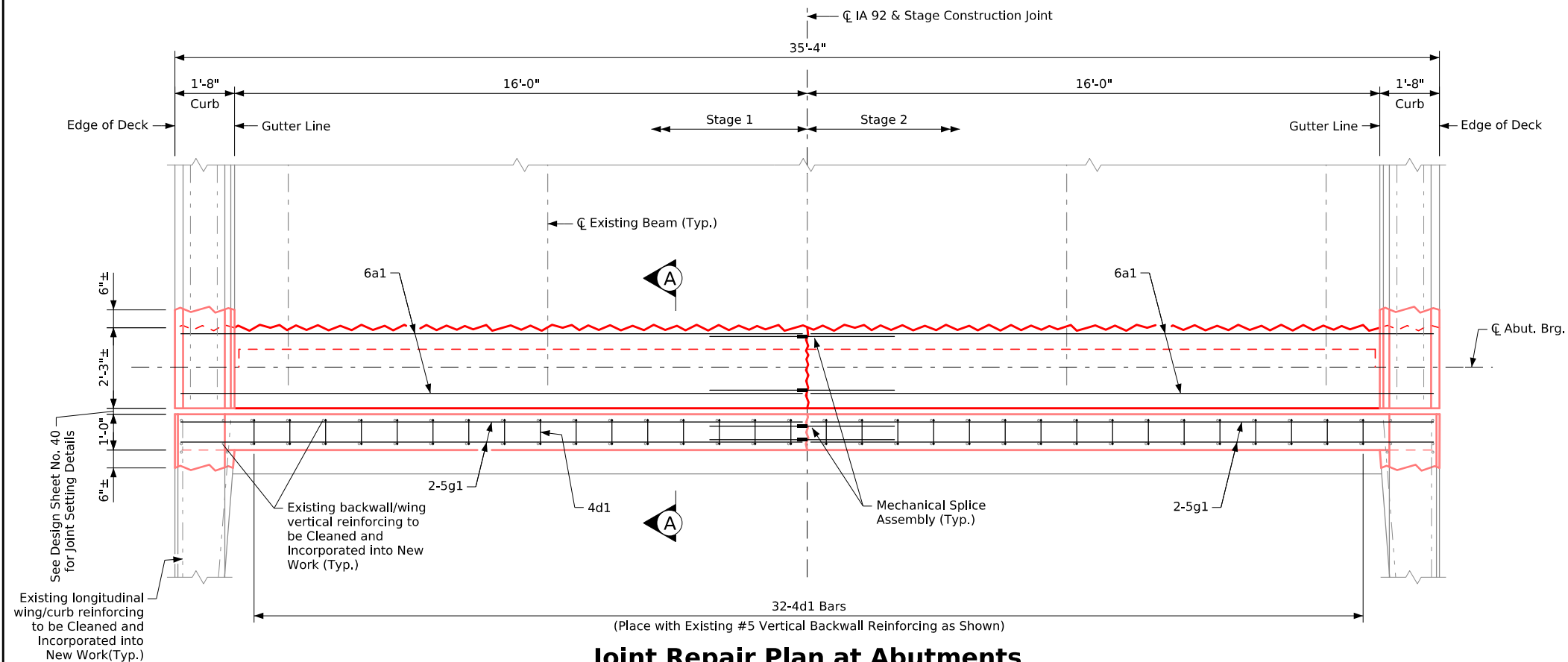
For Staging Details, see Design Sheet No. 8.

For paving notch replacement details at South Abutment, see Design Sheet No. 25.

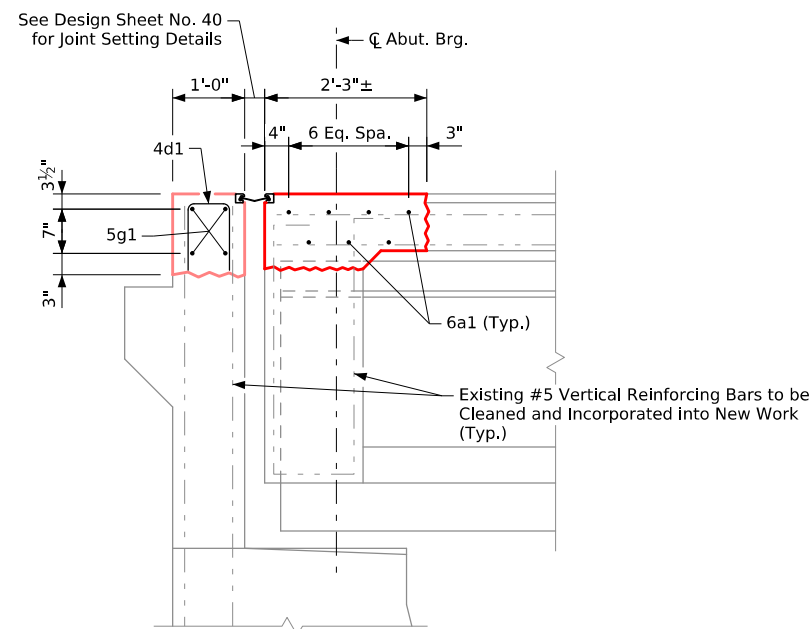
Existing utility conduits not shown, see Design Sheet No. 9 for approximate conduit locations.

Design For Repair to 0° Skew		
3018'-0" x 32'-0"		
Steel Thru Truss Bridge		
Variable End Spans	512'-0" Main Span	
Removal Details - Abutments		
STA. 17+50.88 (C IA 92)	Turn-in Date: August 2026	
Muscatine County		
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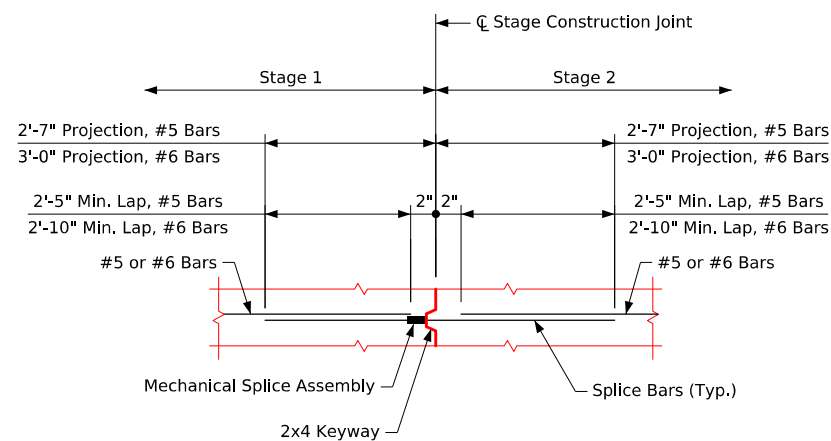




Joint Repair Plan at Abutments
(South Abutment Shown, North Abutment Similar)
(Existing Longitudinal Deck Reinforcing not Shown)



Section A-A



Mechanical Splice Detail

Mechanical Splice Assembly Notes:

The #6 and #5 bars as indicated, shall be spliced at the locations shown using mechanical splice assemblies. Mechanical splice assemblies consist of mechanical splicers and reinforcing splice bars as required to facilitate the use of the mechanical splicer. The mechanical splice assembly used shall meet the requirements of Materials I.M. 451 Appendix E. Reinforcing splice bars shall be a minimum of $\frac{5}{8}$ " diameter for #5 bars and $\frac{3}{4}$ " for #6 bars.

All mechanical splice assemblies to be used in splicing reinforcing bars shall be epoxy coated.

The cost of all splice assemblies is to be included in the price bid for "Reinforcing Steel, Epoxy Coated" and no separate payment will be made. The weight of mechanical assemblies is not included in the quantity shown for "Reinforcing Steel, Epoxy Coated".

Notes:

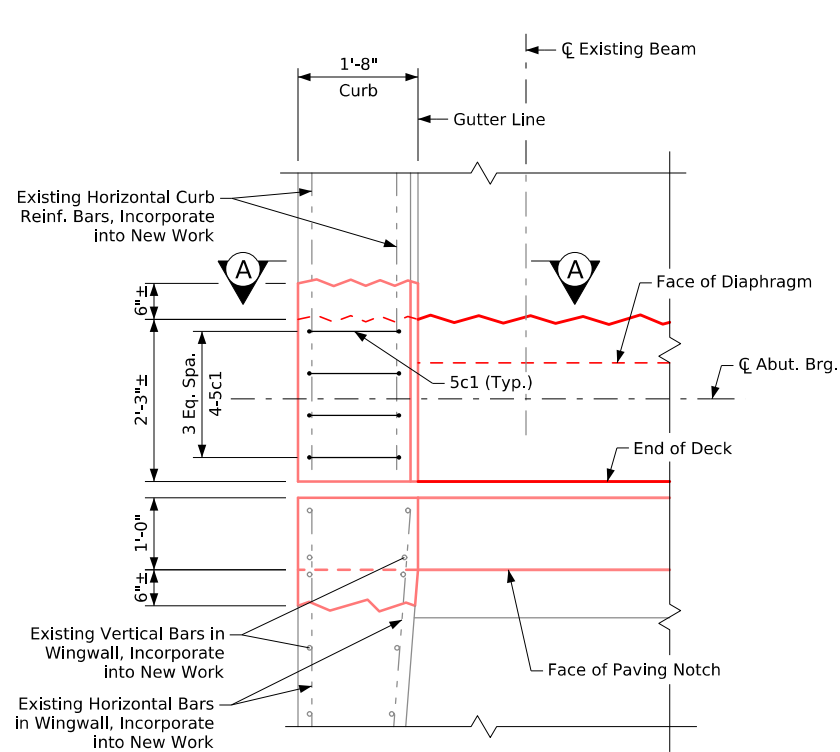
Existing longitudinal deck reinforcing, longitudinal curb and rail reinforcing, and longitudinal abutment wing reinforcing shall be preserved and incorporated into new work.

For Staging Details, see Design Sheet No. 8.

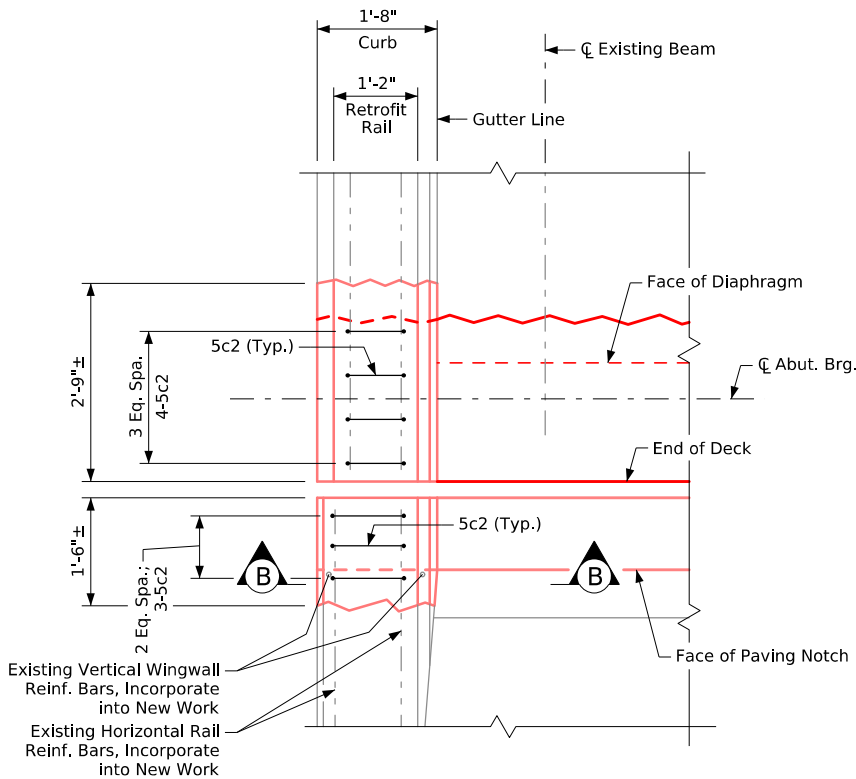
For curb and barrier rail details and quantities at abutments, see Design Sheet No. 24.

Design For Repair to 0° Skew		
3018'-0" x 32'-0"		
Steel Thru Truss Bridge		
Variable End Spans	512'-0" Main Span	
Abutment Joint Replacement		
STA. 17+50.88 (CL IA 92)	Turn-in Date: August 2026	
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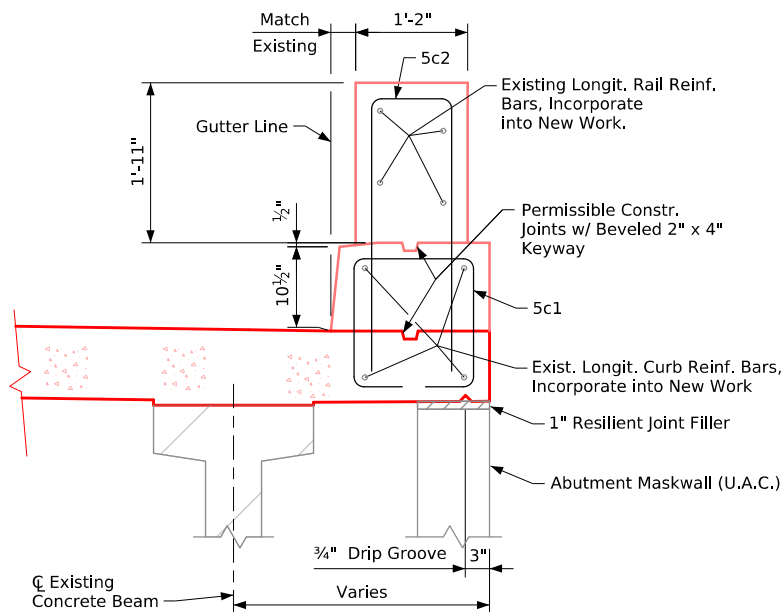




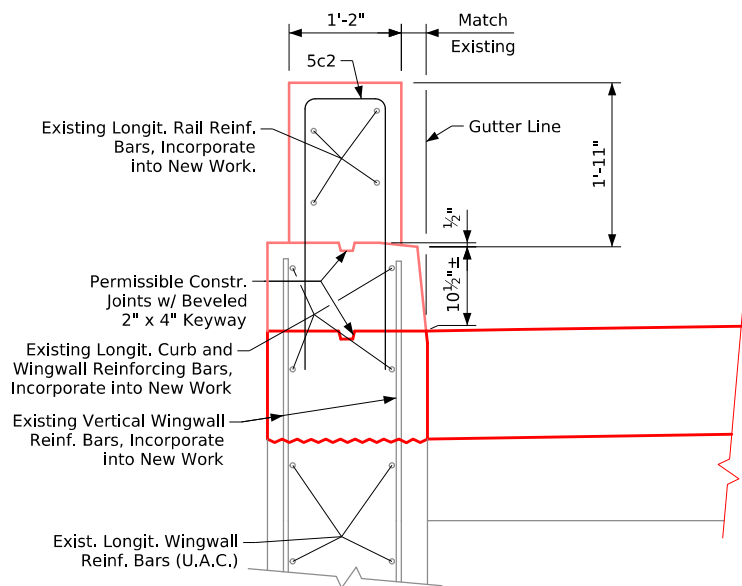
Part Plan Showing Curb at Abutment
(Rail Not Shown)



Part Plan Showing Rail at Abutment



Section A-A

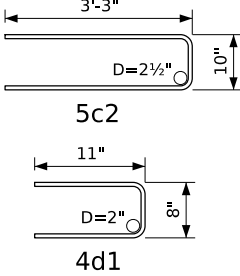
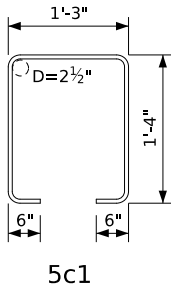


Section B-B

Epoxy Coated Reinf. Bar List - One Abutment

Bar	Location	Shape	No.	Length	Weight
6a1	Deck Transverse, Top & Bottom	—	14	17'-4"	364
5c1	Curb Hoops	□	8	4'-11"	41
5c2	Retrofit Rail Vertical	□	14	7'-4"	107
4d1	Backwall Vertical	□	32	2'-6"	53
5g1	Backwall Horizontal	—	8	17'-4"	145
Epoxy Reinforcing Total Weight (lbs.)					710

Bent Bar Details



Note: All dimensions are out to out, D = Pin Diameter

Concrete Placement Quantities -
One Abutment Joint Replacement

Location	Quantity
Deck and Diaphragm Stage 1 (Fiber Reinforced)	1.3
Abutment Backwall Stage 1 (Fiber Reinforced)	0.7
Deck and Diaphragm Stage 2 (Fiber Reinforced)	1.3
Abutment Backwall Stage 2 (Fiber Reinforced)	0.7
Curbs (0.2 cu. yd. Each Stage)	0.4
Retrofit Rail (0.4 cu. yd. Each Stage)	0.8
Total (cu. yd.)	5.2

Design For Repair to 0° Skew
3018'-0" x 32'-0"
Steel Thru Truss Bridge
Variable End Spans 512'-0" Main Span
Abutment Joint Replacement
STA. 17+50.88 (C/A 92) Turn-In Date: August 2026
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Design No. 0127 Design Sheet No. 24 of 51 FHWA No. 38201



Revised 07-2019: Changed Bent Ends (Hook Leg) of 5k1 Bar to 6" (Was 4 1/2"). Changed All References of "Slab" to "Deck". MiscellaneousBridges.dgn - 1068 - This Sheet Re-Issued 11-2023. Sheet Format Update.

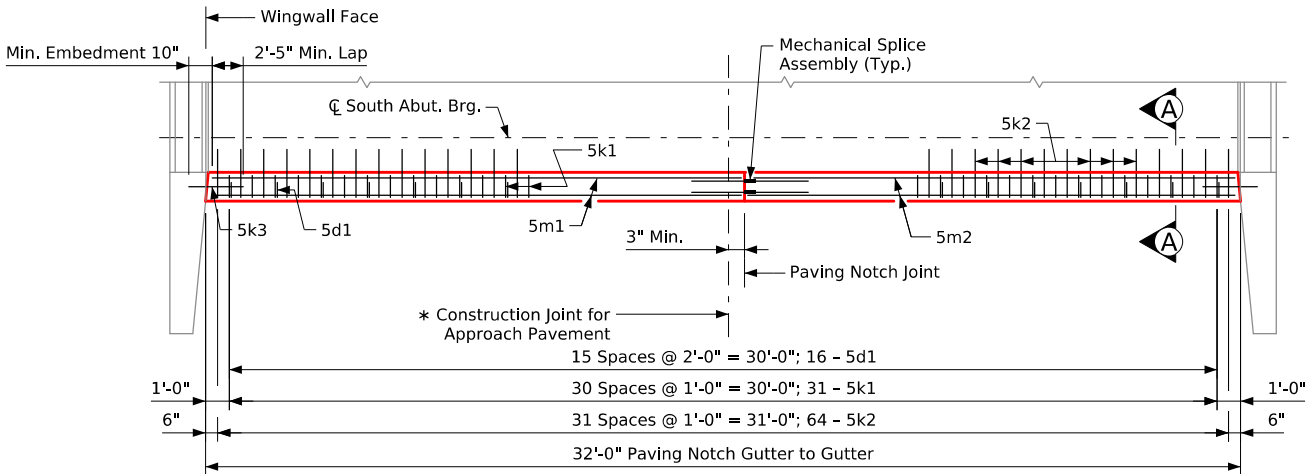
* Construction joint for notch repair to extend a minimum of 3 inches past construction joint for pavement. Provide mechanical splice assemblies for longitudinal reinforcing.

Paving Notch Replacement Notes:

The Paving Notch Replacement is to be Class "C" structural concrete. Minimum clear distance from face of concrete to near reinforcing bar is to be 2", unless otherwise noted or shown. The bid item "Paving Notch Replacement" linear feet, shall include all costs of labor and materials associated with excavation, removing, and disposing of the existing paving notch, granular backfill and compaction as needed, and installing the new paving notch. This work shall include, cutting of the existing #4 bars, removing the concrete for the shear keyways, drilling the holes for the deformed dowels, and constructing the new notch to the dimensions shown. The new notch is estimated at 0.07 cubic yards per foot of structural concrete and 16.0 pounds of epoxy coated reinforcing steel per foot and 1.1 pounds of stainless reinforcing steel per foot. Removals shall be in accordance with Section 2401, of the Standard Specifications.

Dowel Setting Note:

The deformed 5k2 & 5k3 bars shall be set as dowels in drilled holes. Holes are to be 10" deep. Polymer grout system shall be used to install the deformed dowel bars in accordance with Article 2301.03,E, of the Standard Specifications and the Grout Manufacturer's recommendations.



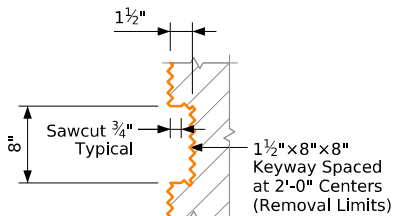
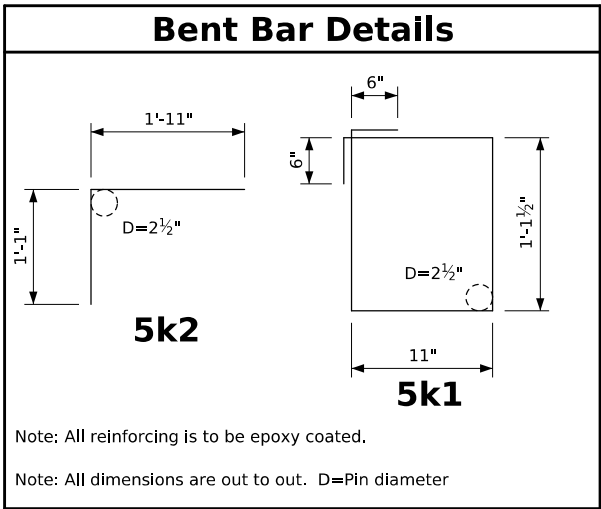
Part Plan View At South Abutment

Note: 5k3 bars shall be set as dowels embedding 10" minimum into the existing bridge wingwalls and extending a minimum of 2'-5" into the new paving notch replacement.

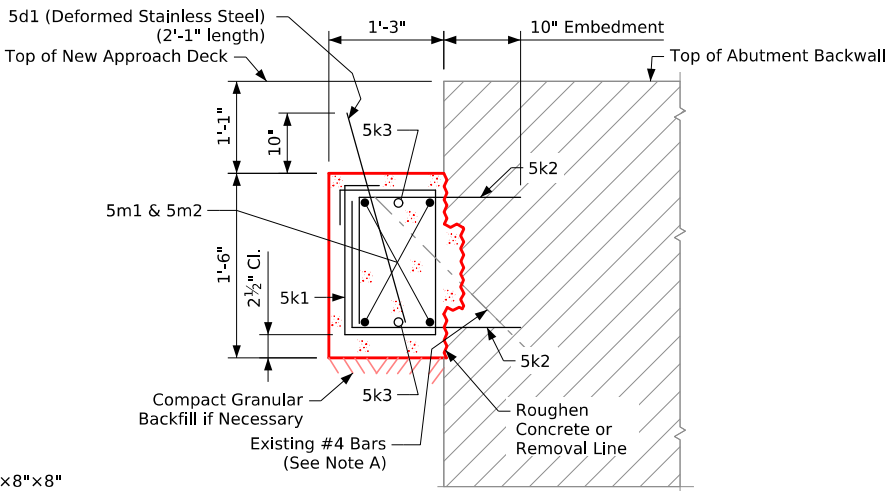
Note: New paving notch replacement should extend from bridge wingwall to bridge wingwall.

Note:
Use "BR-203" Approach Pavement Standard for Fixed Abutment.

Note A: The bottom portion of the existing #4 bars shall be carefully exposed and incorporated into new work. The bar shall be cut off to provide 2 inches of cover from the top of the new paving notch. The top portion of the bar shall be cut off flush or slightly below the concrete surface and the ends painted with 2 coats of zinc rich paint.



1 1/2" x 8" Keyway Detail

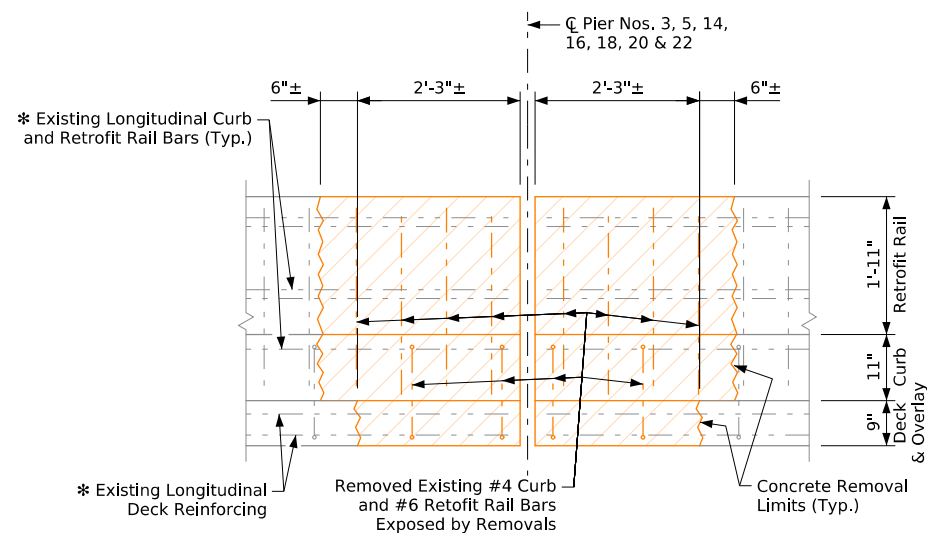
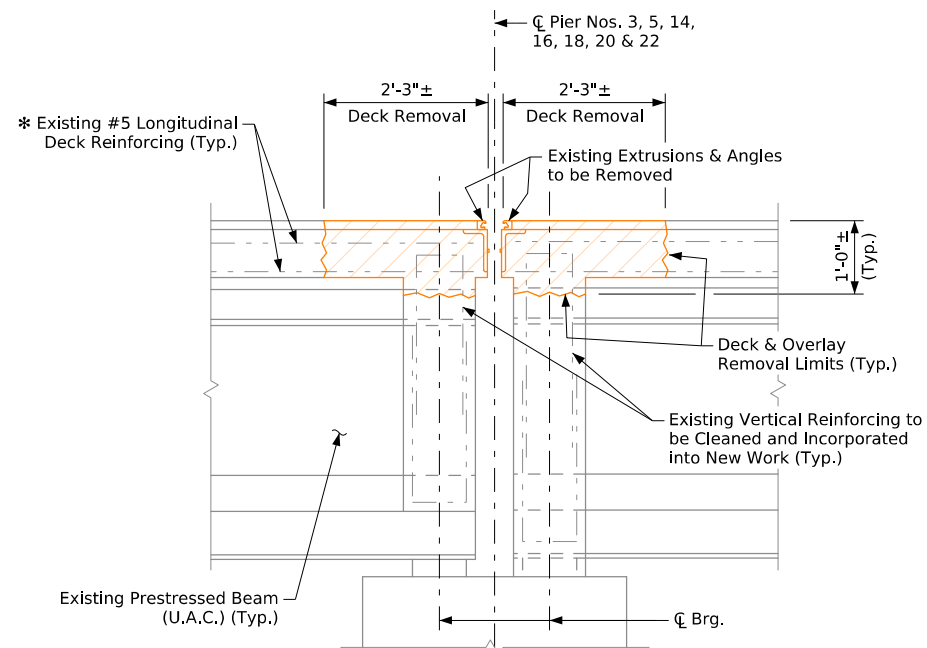
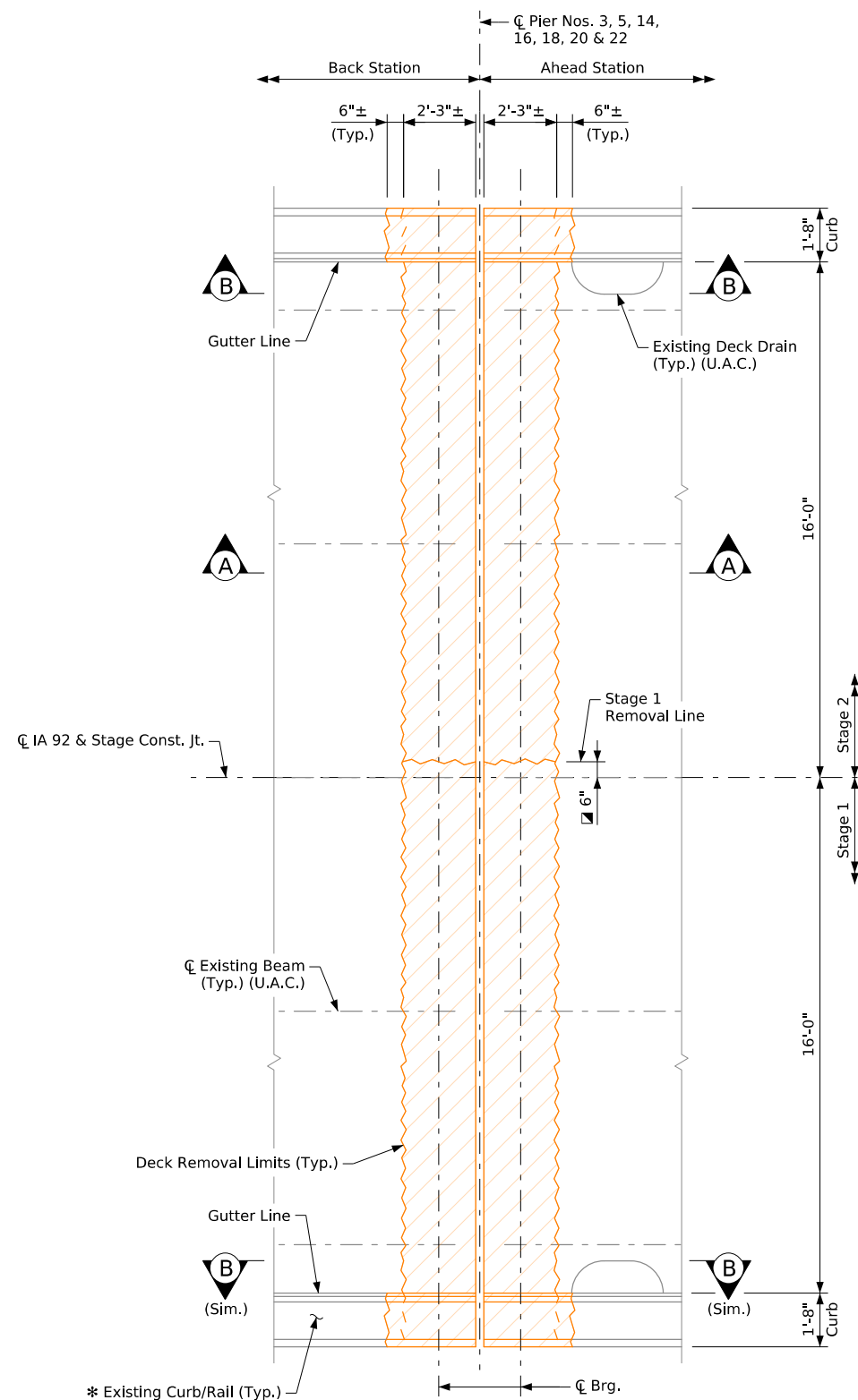


Part Section A-A

Note: Dowels shall be placed to miss any existing reinforcing steel exposed during removals.

Note:
For Mechanical Splice Detail and Mechanical Splice Assembly notes, see Design Sheet No. 23.

Design For Repair to 0° Skew
3018'-0" x 32'-0"
Steel Thru Truss Bridge
Variable End Spans 512'-0" Main Span
Paving Notch Replacement
STA. 17+50.88 (C 1A 92) Turn-in Date: August 2026
Muscatine County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 0127 Design Sheet No. 25 of 51 FHWA No. 38201



Notes:

* Existing longitudinal bridge deck reinforcing and longitudinal curb and rail reinforcing that is exposed by concrete removal shall be cleaned and incorporated into new work. Reinforcing steel that is damaged or rendered unserviceable by removal operations shall be replaced as directed by the Engineer at no additional cost to the State.

The Engineer shall be notified in case the existing deck drains near the Piers fall within the deck removal limits.

■ For Staging Details, see Design Sheet No. 8.

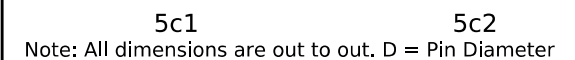
Existing utility conduits not shown, see Design Sheet 9 for approximate conduit locations.

Design For Repair to 0° Skew
3018'-0" x 32'-0"
Steel Thru Truss Bridge
Variable End Spans 512'-0" Main Span
Removal Details - Expansion Piers
STA. 17+50.88 (C/L IA 92) Turn-In Date: August 2026
Muscatine County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 0127 Design Sheet No. 26 of 51 FHWA No. 38201



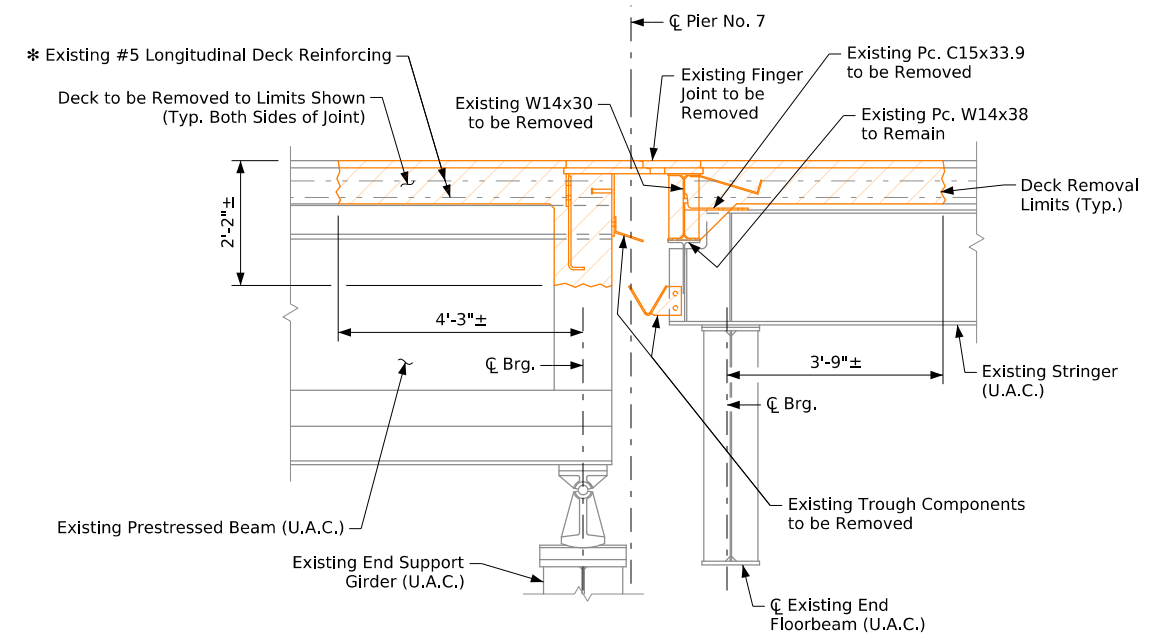
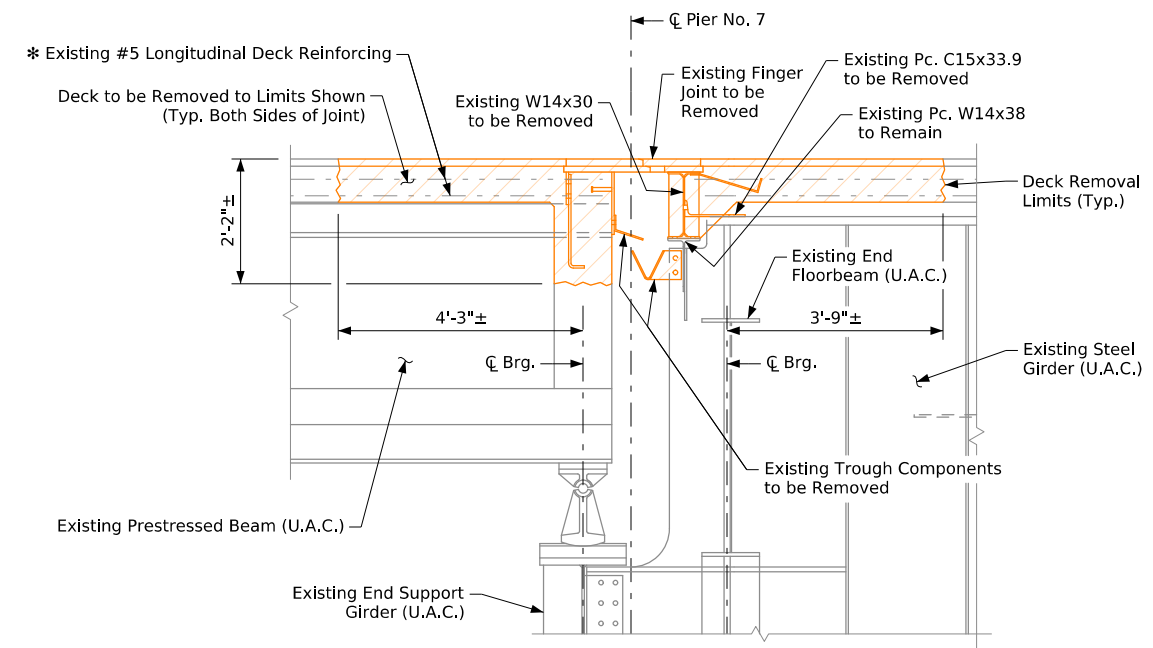
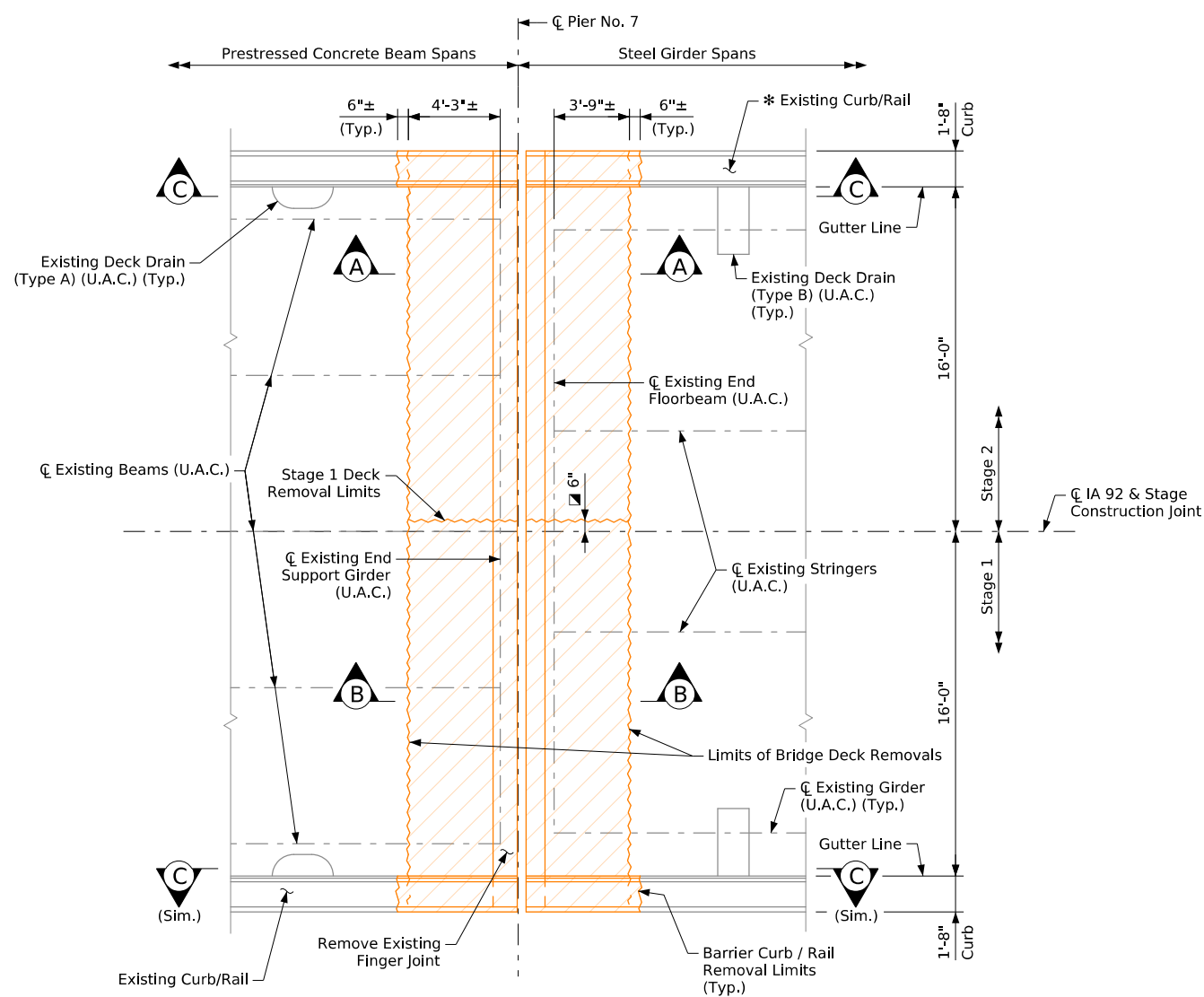
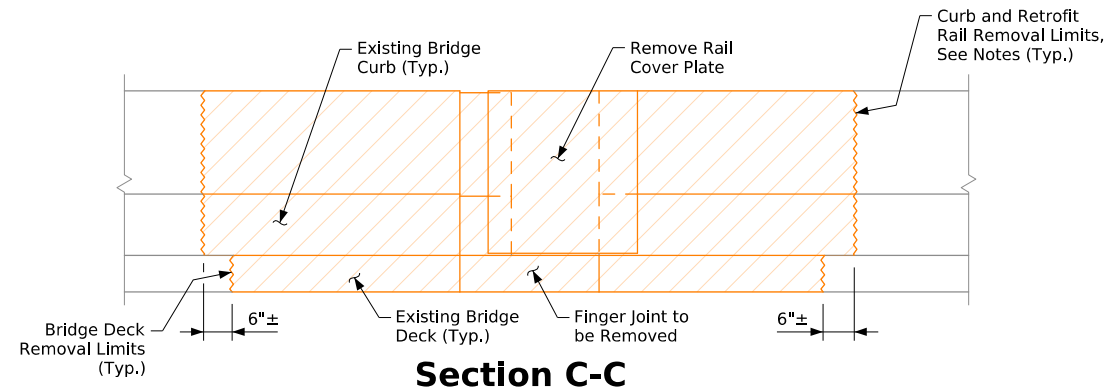
Concrete Placement Quantities - One Pier Joint Replacement

Bent Bar Details



Notes:
 For Staging Details, see Design Sheet No. 8.
 For Mechanical Splice Assembly Details and Notes,
 see Design Sheet No. 23.
 ■ Match existing.

Design For Repair to 0° Skew
3018'-0" x 32'-0"
Steel Thru Truss Bridge
Variable End Spans 512'-0" Main Span
Expansion Pier Joint Replacement
STA. 17+50.88 (C/LA 92) Turn-in Date: August 2026
Muscataine County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 0127 Design Sheet No. 27 of 51 FHWA No. 38201

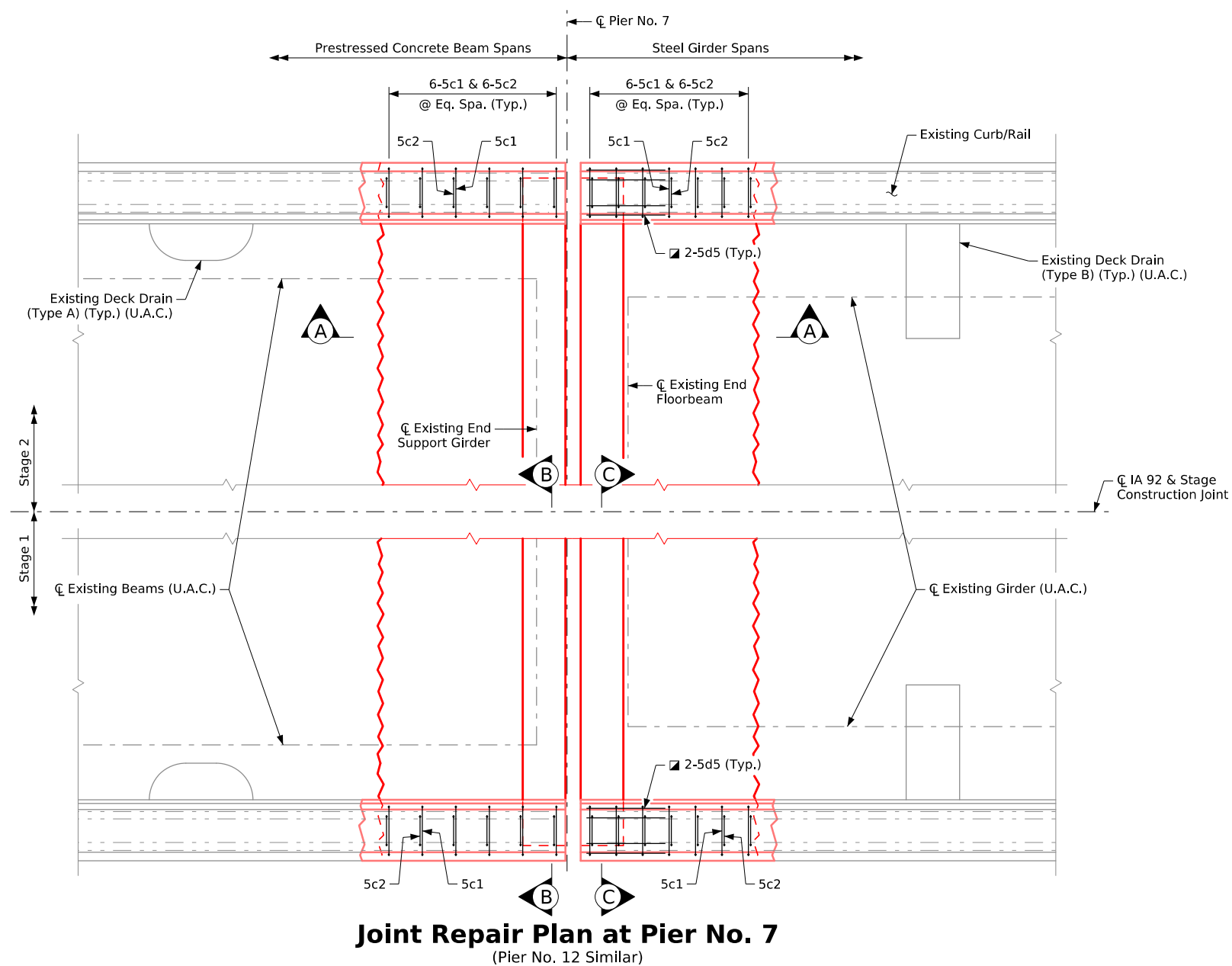
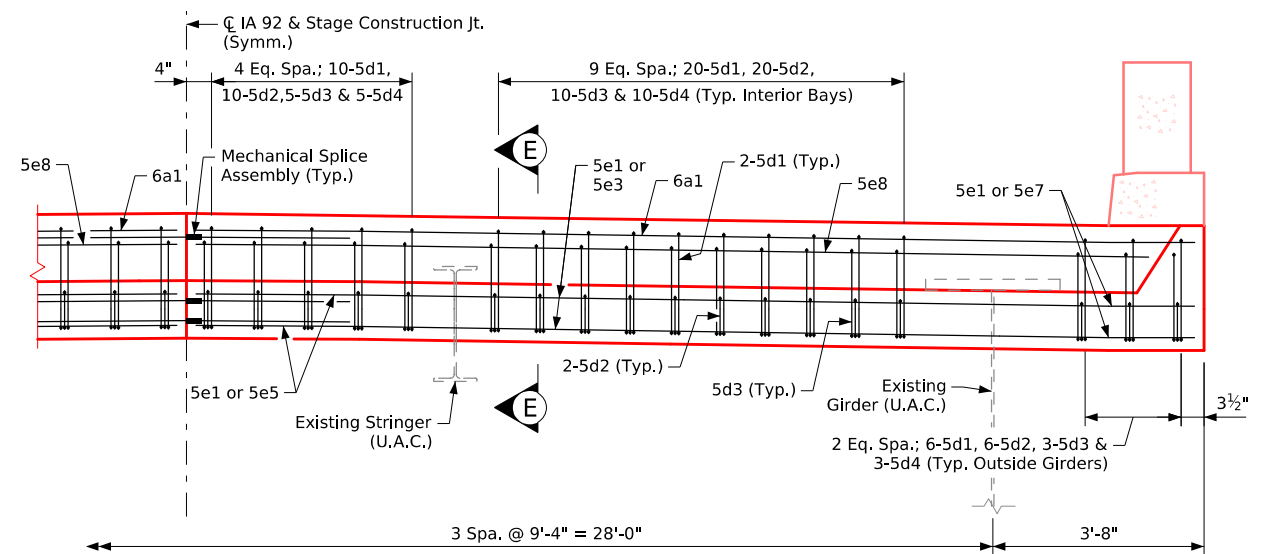
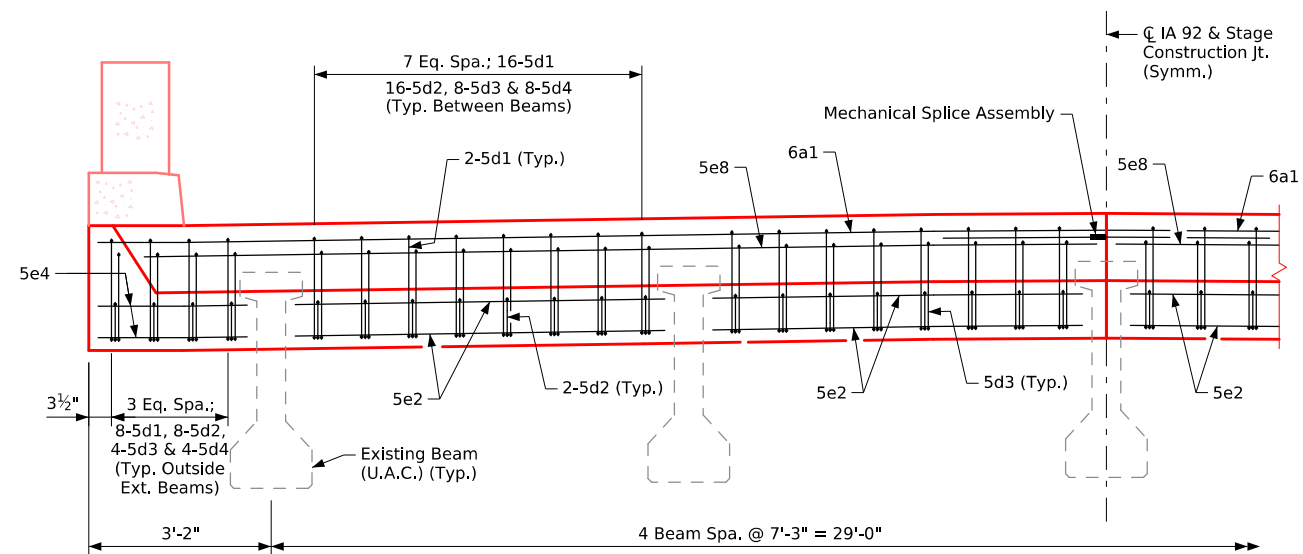


Notes:

- * Existing longitudinal bridge deck reinforcing and longitudinal curb and rail reinforcing that is exposed by concrete removal shall be cleaned and incorporated into new work. Reinforcing steel that is damaged or rendered unserviceable by removal operations shall be replaced as directed by the Engineer at no additional cost to the State.
- For Staging Details, see Design Sheet No. 8.
- Existing utility conduits not shown, see Design Sheet No. 9 for approximate conduit locations.

Design For Repair to 0° Skew
3018'-0" x 32'-0"
Steel Thru Truss Bridge
 Variable End Spans 512'-0" Main Span
Removal Details - Pier Nos. 7 & 12
 STA. 17+50.88 (C/A 92) Turn-In Date: August 2026
Muscatine County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 0127 Design Sheet No. 28 of 51 FHWA No. 38201

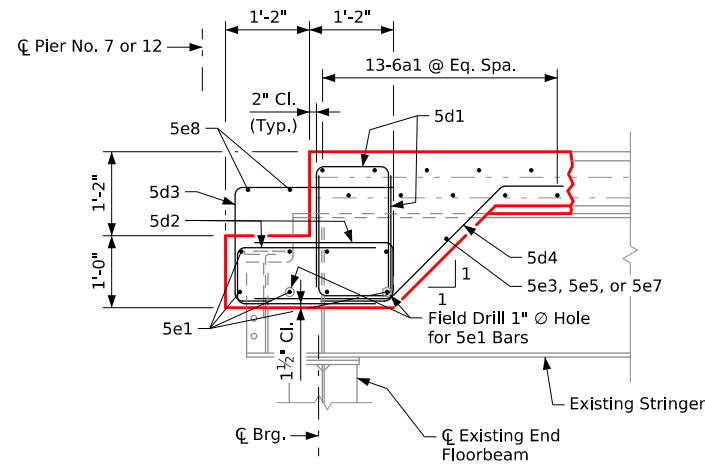




Notes:

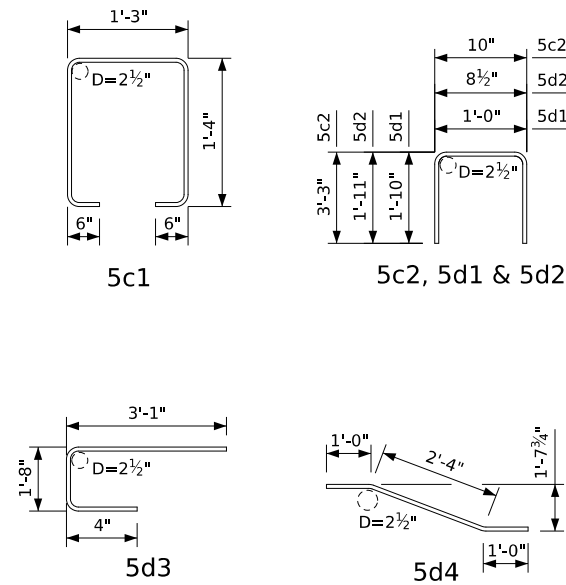
- For Section A-A and Part Section E-E, see Design Sheet No. 30.
- ▣ 5d5 bars shall be lapped with existing #6 curb and #5 barrier rail bars.
- For Staging Details, see Design Sheet No. 8.
- For Mechanical Splice Assembly Notes and Details, see Design Sheet No. 23.
- For Section Thru Curb & Retrofit Rail, see Design Sheet No. 32.

Design For Repair to 0° Skew
3018'-0" x 32'-0"
Steel Thru Truss Bridge
Variable End Spans 512'-0" Main Span
Pier Nos. 7 & 12 Joint Replacement
STA. 17+50.88 (C/A 92) Turn-in Date: August 2026
Muscatine County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 0127 Design Sheet No. 29 of 51 FHWA No. 38201



Part Section E-E

Bent Bar Details



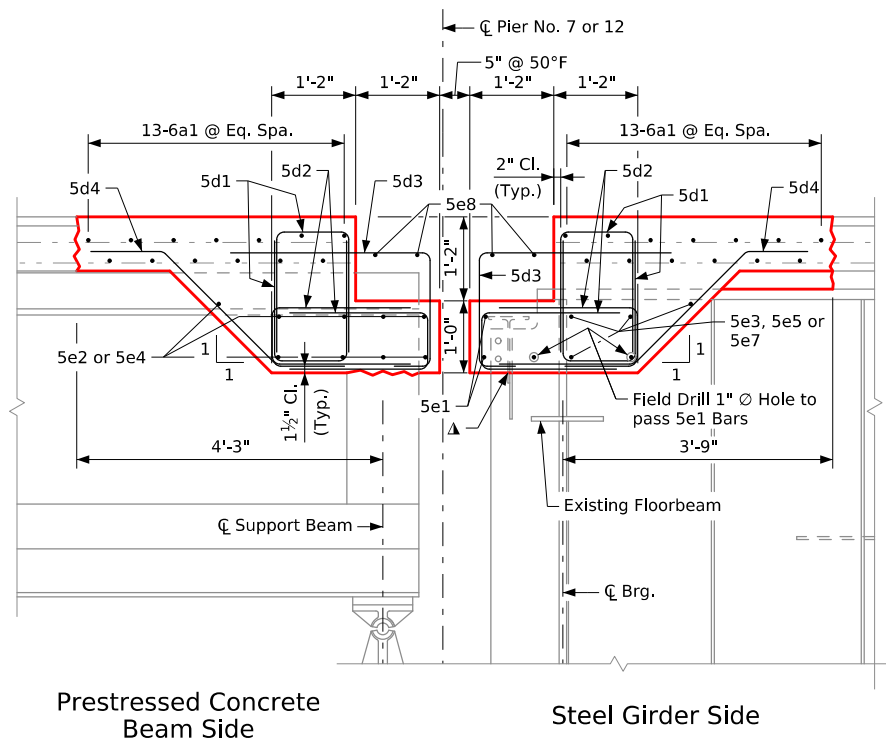
Note: All dimensions are out to out. D = Pin Diameter

Epoxy Coated Reinforcing Steel - One Joint Replacement (Pier 7 or 12)

Bar	Location	Shape	No.	Length	Weight
6a1	Deck Transverse, Top & Bottom	—	52	17'-4"	1,354
5c1	Curb Hoops	□	24	4'-11"	123
5c2	Retrofit Rail Vertical	□	24	7'-4"	184
5d1	Expansion Joint Diaphragm Vertical	□	152	4'-8"	740
5d2	Expansion Joint Diaphragm Horizontal	□	152	4'-7"	727
5d3	Expansion Joint Diaphragm	□	76	5'-1"	403
5d4	Expansion Joint Diaphragm	□	76	4'-4"	343
5d5	Curb and Rail Extension	—	16	3'-0"	50
5e1	Expansion Joint Diaphragm Longit. (Girder Side)	—	8	17'-4"	145
5e2	Expansion Joint Diaphragm Longit. (Beam Side)	—	36	6'-4"	238
5e3	Expansion Joint Diaphragm Longit. (Girder Side)	—	8	9'-0"	75
5e4	Expansion Joint Diaphragm Longit. (Beam Side)	—	18	2'-6"	47
5e5	Expansion Joint Diaphragm Longit. (Girder Side)	—	8	4'-4"	36
5e7	Expansion Joint Diaphragm Longit. (Girder Side)	—	8	3'-4"	28
5e8	Expansion Joint Blockout (Both Sides)	—	8	16'-7"	138
Reinforcing Steel - Epoxy Coated - Total Weight (lbs.)					4,631

Concrete Placement Quantities - One Joint Replacement (Pier 7 or 12)

Location	Quantity
Deck and Diaphragm - Stage 1 (Fiber Reinforced)	8.6
Deck and Diaphragm - Stage 2 (Fiber Reinforced)	8.6
Curbs (0.6 cu. yd. each stage)	1.2
Retrofit Rail (0.9 cu. yd. each stage)	1.8
Total (cu. yd.)	20.2



Prestressed Concrete Beam Side

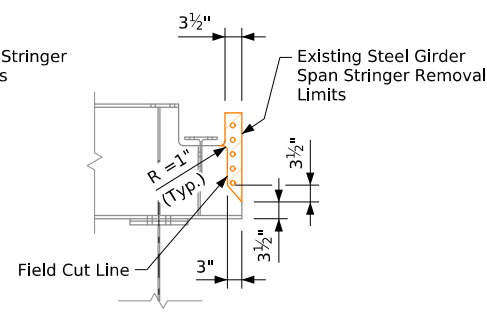
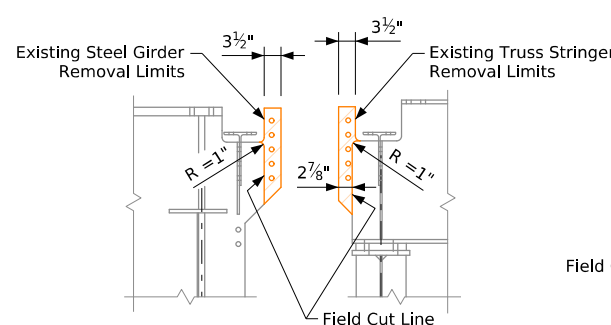
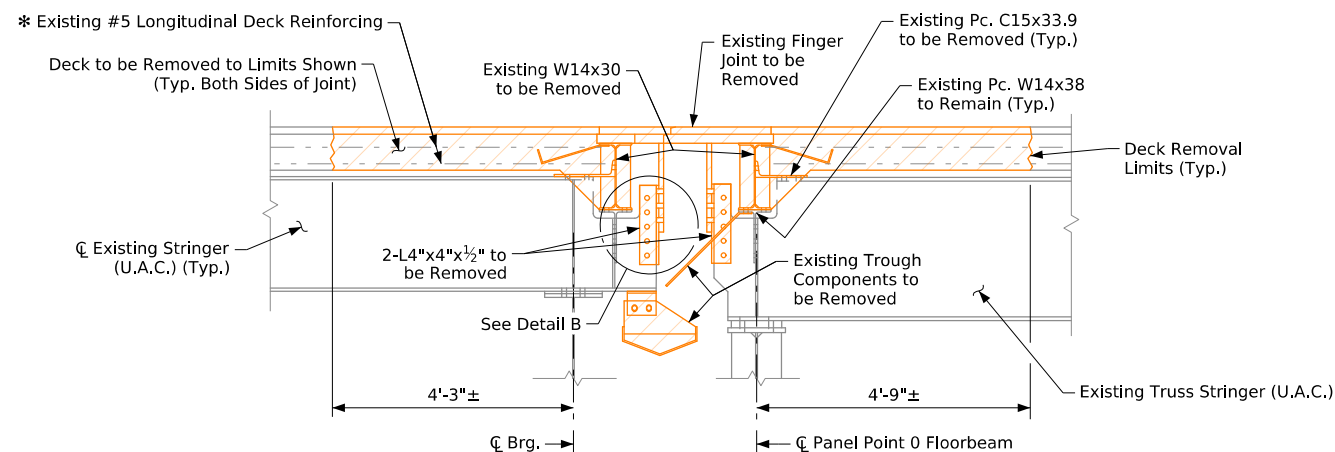
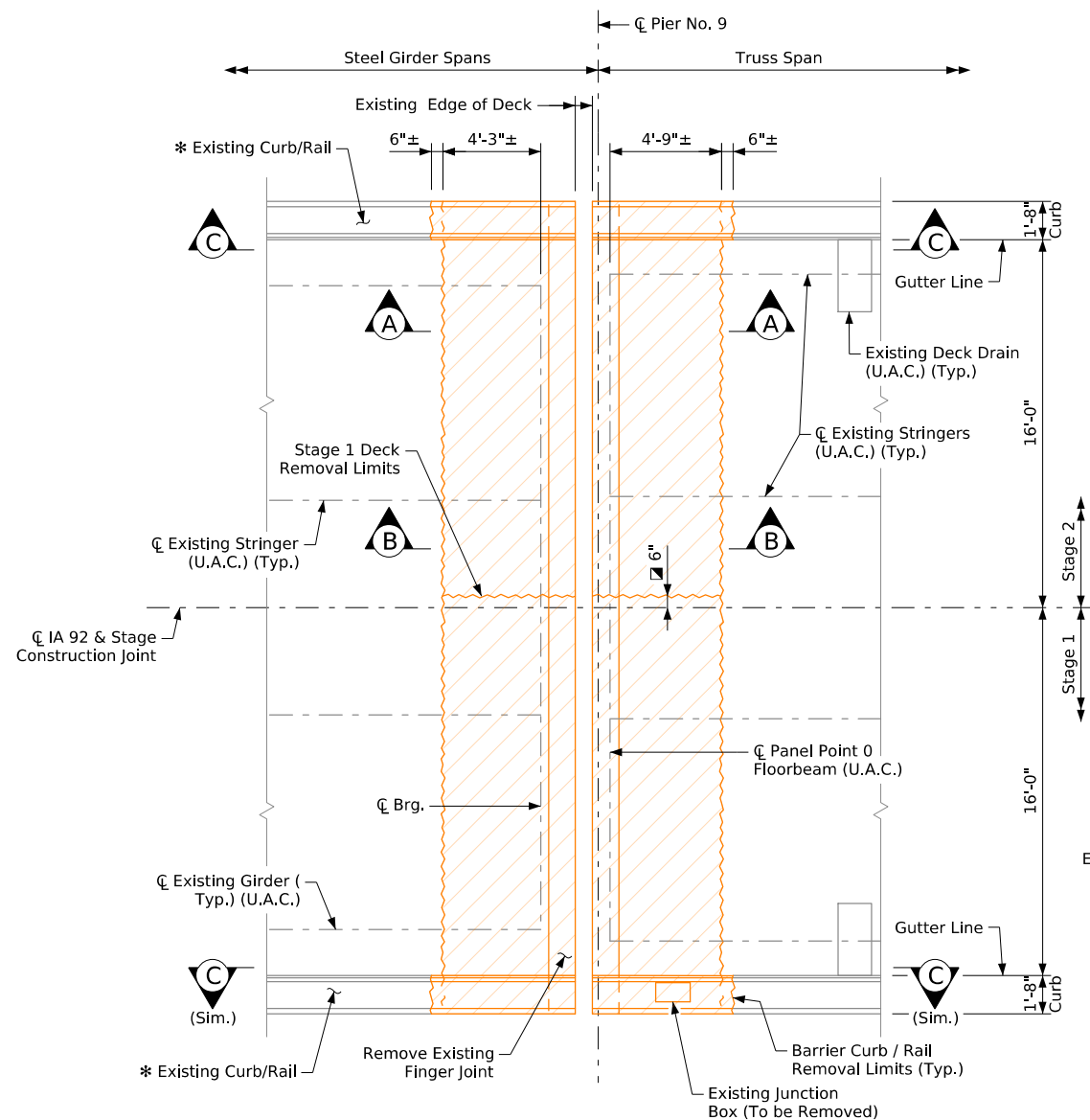
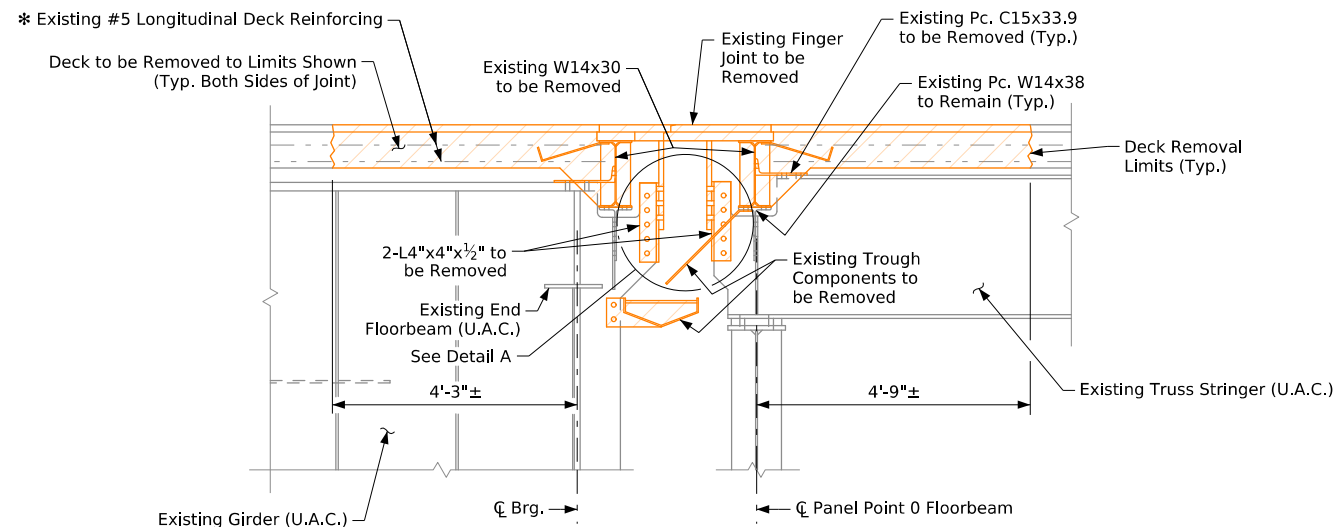
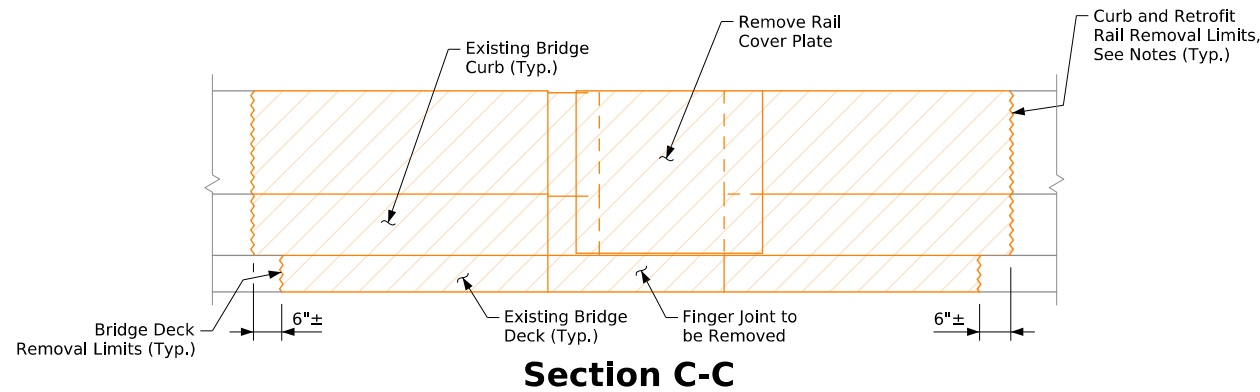
Steel Girder Side

Section A-A

Notes:
 5d3 bars shall be field cut or spaced as required at expansion joint support boxes.
 For location of Sections A-A and E-E, see Design Sheet No. 29.
 ▲ Field drill 1½" Ø holes in existing Pc. W14x38 to pass 5d2 bars.

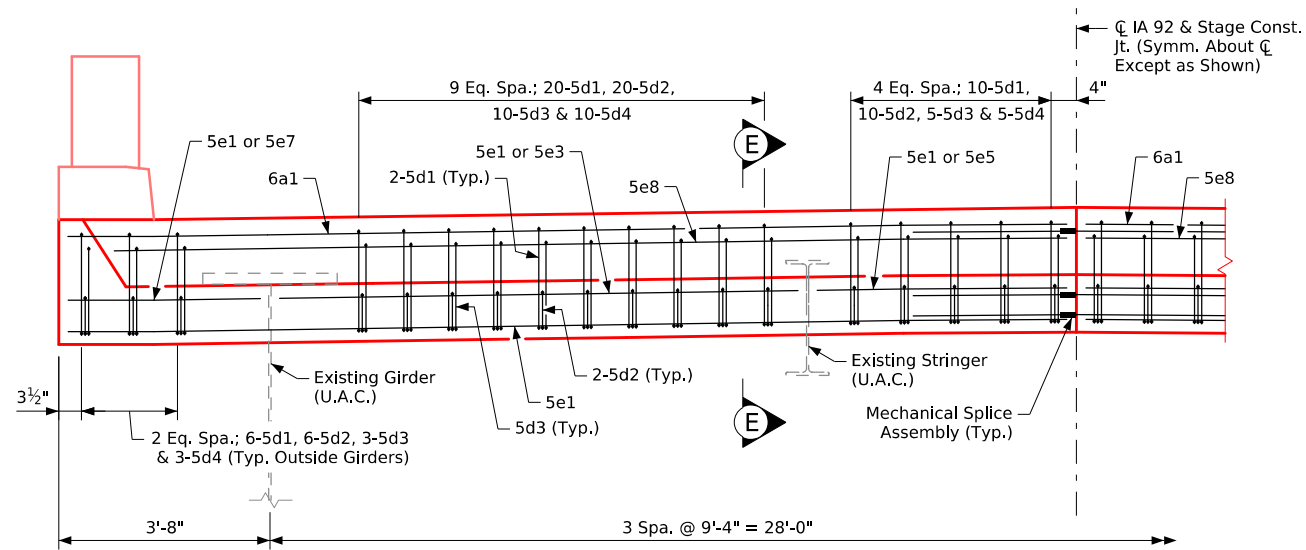
Design For Repair to 0° Skew
3018'-0" x 32'-0"
Steel Thru Truss Bridge
 Variable End Spans 512'-0" Main Span
Pier Nos. 7 & 12 Joint Replacement
 STA. 17+50.88 (C/LA 92) Turn-In Date: August 2026
Muscatine County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 0127 Design Sheet No. 30 of 51 FHWA No. 38201



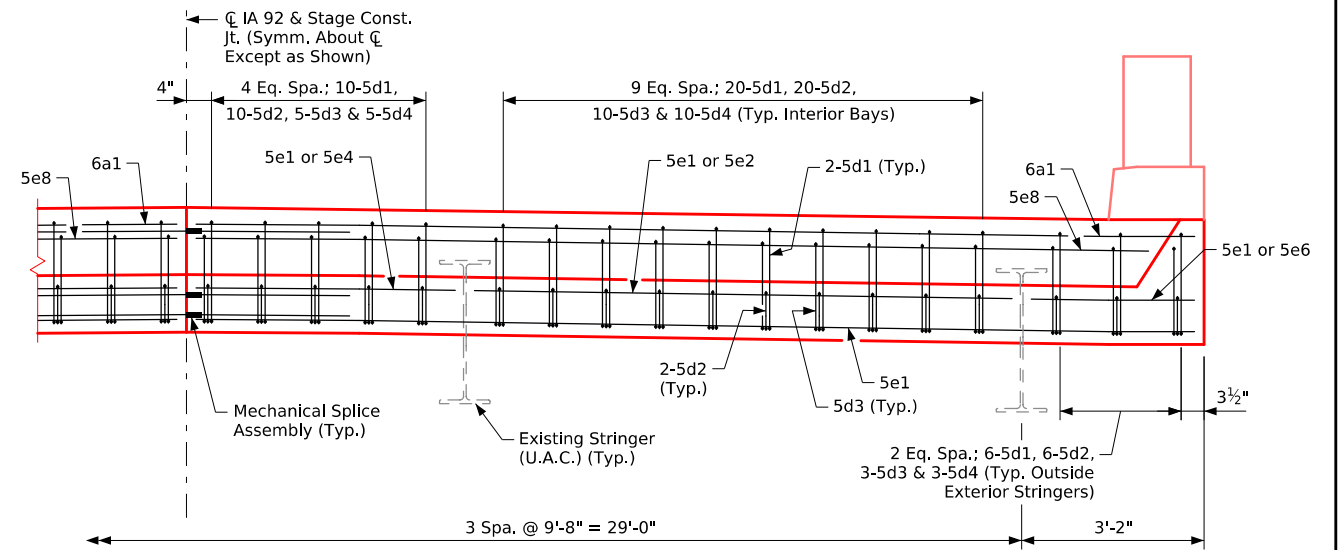


Notes:
 * Existing longitudinal bridge deck reinforcing and longitudinal curb and rail reinforcing that is exposed by concrete removal shall be cleaned and incorporated into new work. Reinforcing steel that is damaged or rendered unserviceable by removal operations shall be replaced as directed by the Engineer at no additional cost to the State.
 For Staging Details, see Design Sheet No. 8.
 Existing utility conduits not shown, see Design Sheet No. 9 for approximate conduit locations.

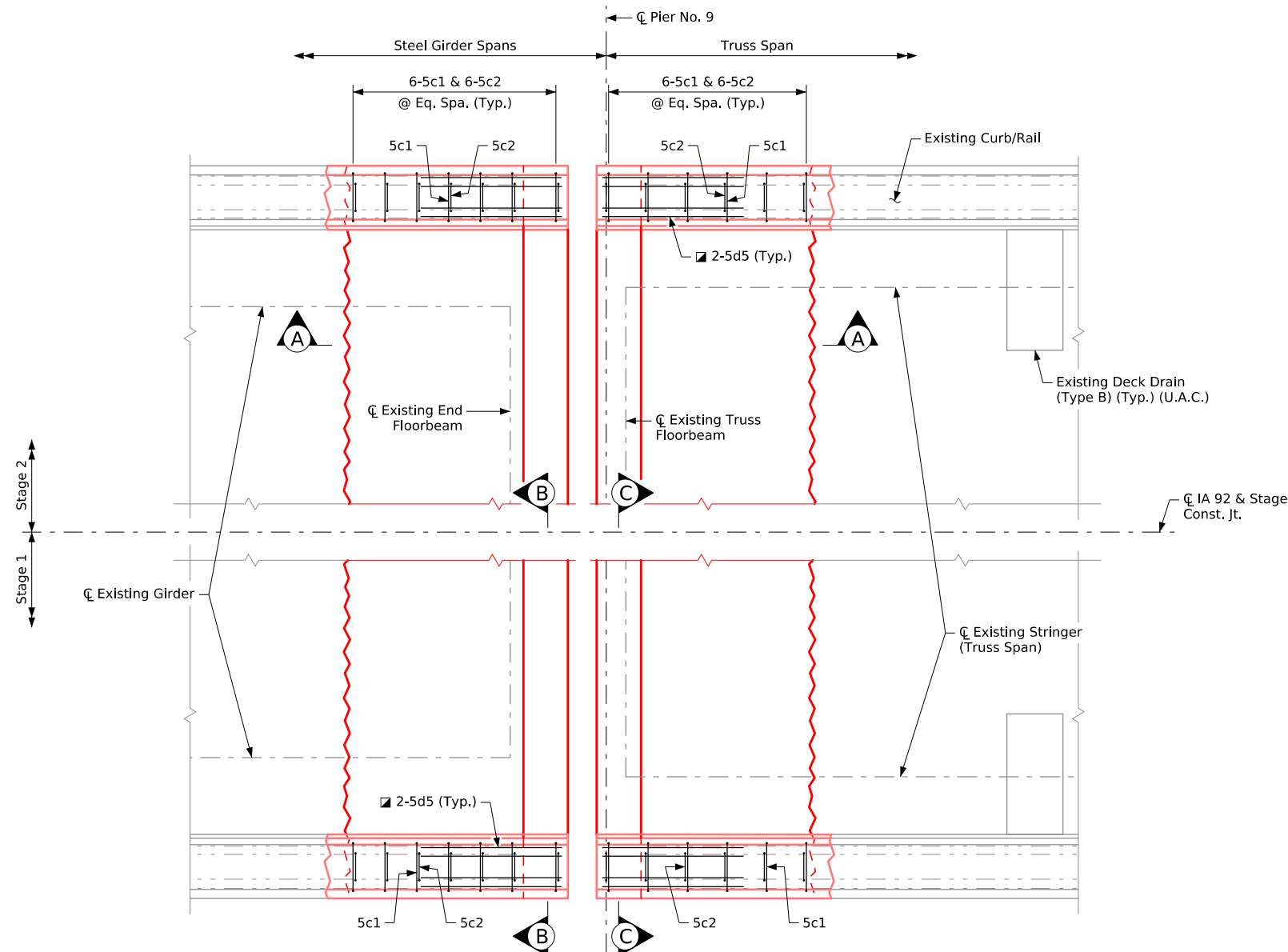
Design For Repair to 0° Skew
3018'-0" x 32'-0"
Steel Thru Truss Bridge
 Variable End Spans 512'-0" Main Span
Removal Details - Pier No. 9
 STA. 17+50.88 (C IA 92) Turn-in Date: August 2026
Muscatine County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 0127 Design Sheet No. 31 of 51 FHWA No. 38201



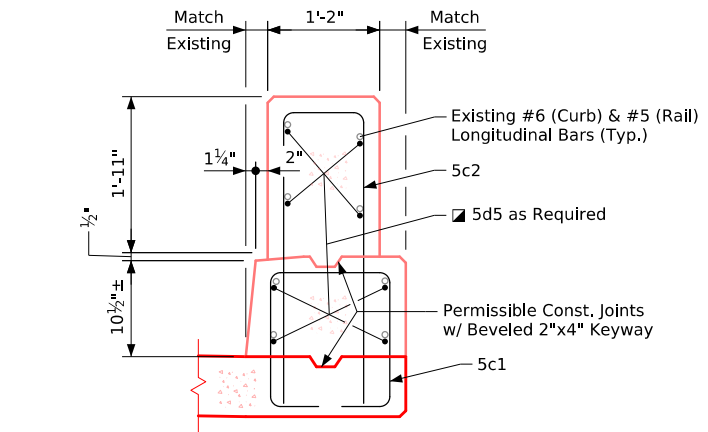
Part Section B-B
(Floorbeam and Pc. W14x38 Not Shown for Clarity)



Part Section C-C
(Floorbeam and Pc. W14x38 Not Shown for Clarity)



Joint Repair Plan at Pier No. 9
(Utility Conduits not Shown)

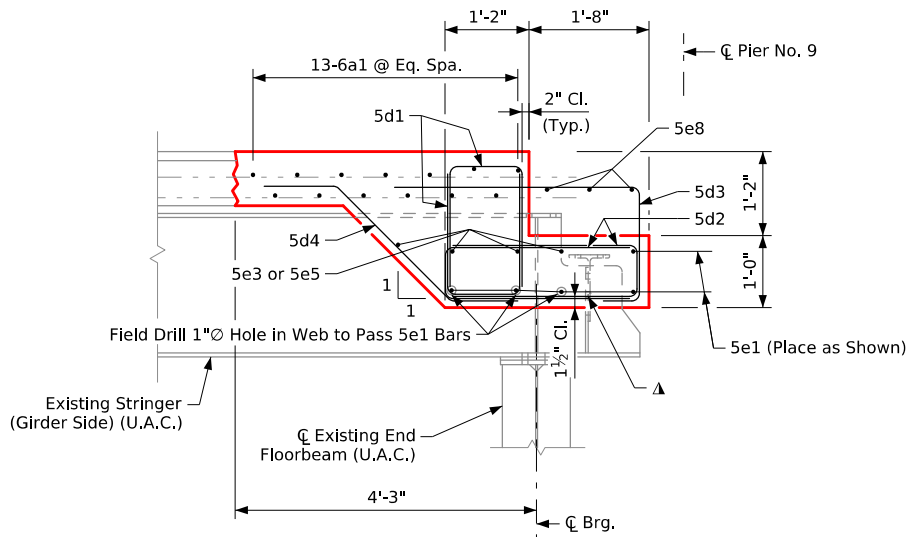


Section Thru Curb & Retrofit Rail
(Match Existing Curb and Rail)

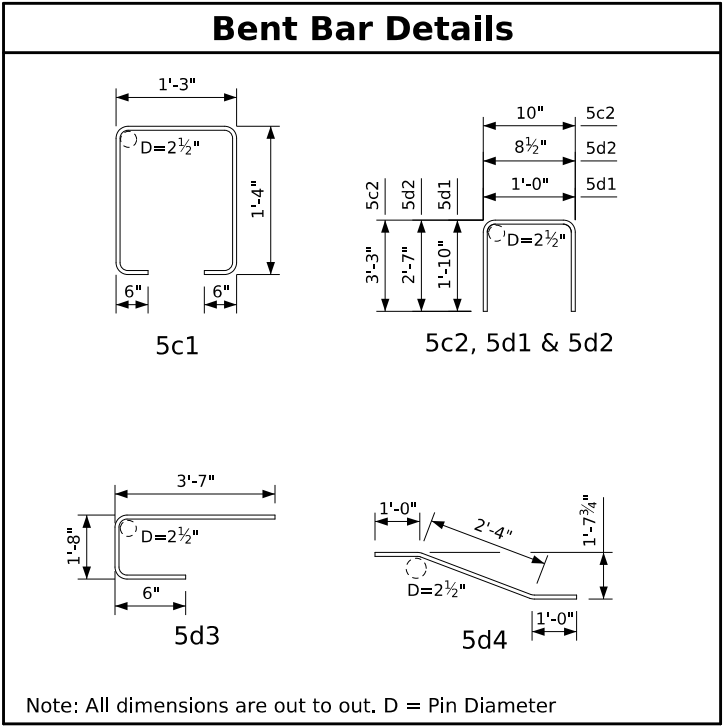
Notes:
For Section A-A and Part Section E-E, see Design Sheet No. 33.
5d5 bars shall be lapped with existing longitudinal #6 curb and #5 barrier rail bars.
For Mechanical Splice Assembly Notes and Details, see Design Sheet No. 23.
For Staging Details, see Design Sheet No. 8.

Design For Repair to 0° Skew		
3018'-0" x 32'-0"		
Steel Thru Truss Bridge		
Variable End Spans	512'-0" Main Span	
Pier No. 9 Joint Replacement		
STA. 17+50.88 (CL IA 92)	Turn-In Date: August 2026	
Muscatine County		
IOWA DEPARTMENT OF TRANSPORTATION		
Design No. 0127	Design Sheet No. 32 of 51	FHWA No. 38201





Part Section E-E



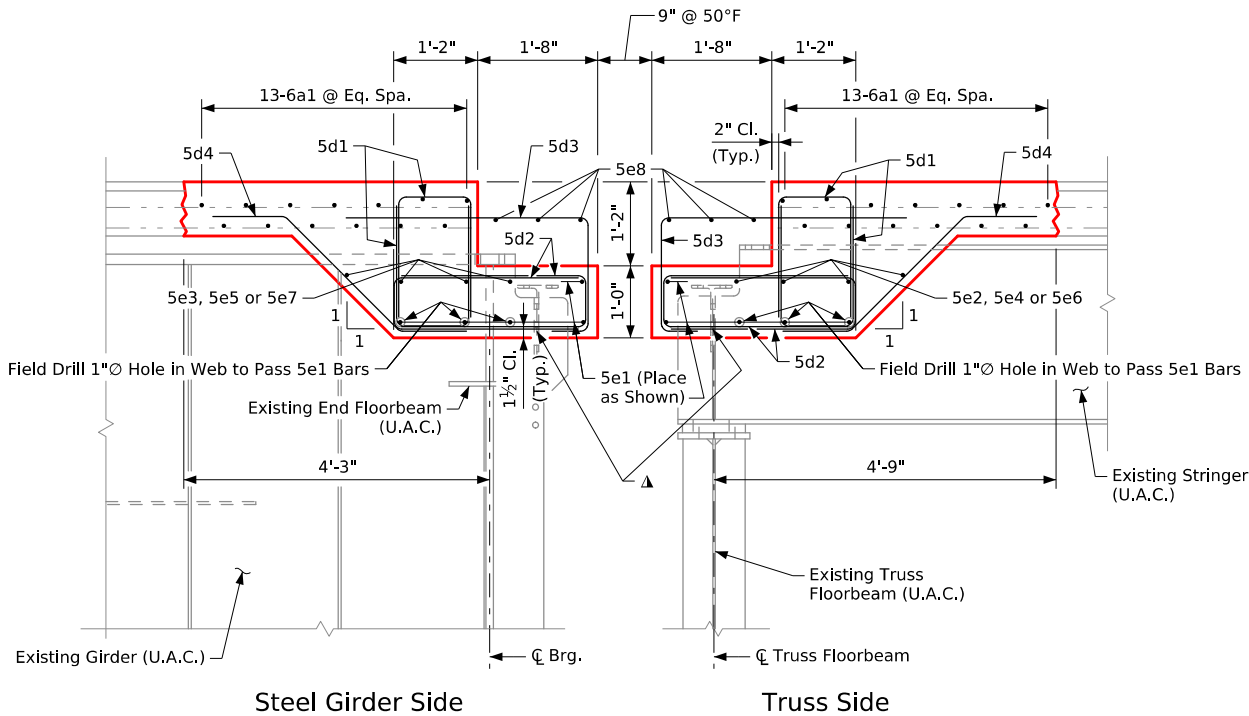
Note: All dimensions are out to out. D = Pin Diameter

Epoxy Coated Reinforcing Steel - Pier No. 9 Joint Replacement

Bar	Location	Shape	No.	Length	Weight
6a1	Deck Transverse, Top & Bottom	—	52	17'-4"	1,354
5c1	Curb Hoops	□	24	4'-11"	123
5c2	Retrofit Rail Vertical	□	24	7'-4"	184
5d1	Expansion Joint Diaphragm Vertical	└┐	144	4'-8"	701
5d2	Expansion Joint Diaphragm Horizontal	└┐	144	5'-11"	889
5d3	Expansion Joint Diaphragm	└┐	72	5'-9"	432
5d4	Expansion Joint Diaphragm	└┐	72	4'-4"	325
5d5	Curb and Rail Extension	—	36	3'-8"	122
5e1	Expansion Joint Diaphragm Longit. (Both Sides)	—	20	17'-4"	362
5e2	Expansion Joint Diaphragm Longit. (Truss Side)	—	8	9'-4"	78
5e3	Expansion Joint Diaphragm Longit. (Girder Side)	—	8	9'-0"	75
5e4	Expansion Joint Diaphragm Longit. (Truss Side)	—	8	4'-6"	38
5e5	Expansion Joint Diaphragm Longit. (Girder Side)	—	8	4'-4"	36
5e6	Expansion Joint Diaphragm Longit. (Truss Side)	—	8	2'-10"	24
5e7	Expansion Joint Diaphragm Longit. (Girder Side)	—	8	3'-4"	28
5e8	Expansion Joint Blockout (Both Sides)	—	12	16'-7"	208
Reinforcing Steel - Epoxy Coated - Total Weight (lbs.)					4,979

Concrete Placement Quantities - Pier No. 9 Joint Replacement

Location	Quantity
Deck and Diaphragm Stage 1 (Fiber Reinforced)	9.9
Deck and Diaphragm Stage 2 (Fiber Reinforced)	9.9
Curbs (0.6 cu. yd. each stage)	1.4
Retrofit Rail (0.9 cu. yd. each stage)	2.0
Total (cu. yd.)	23.2

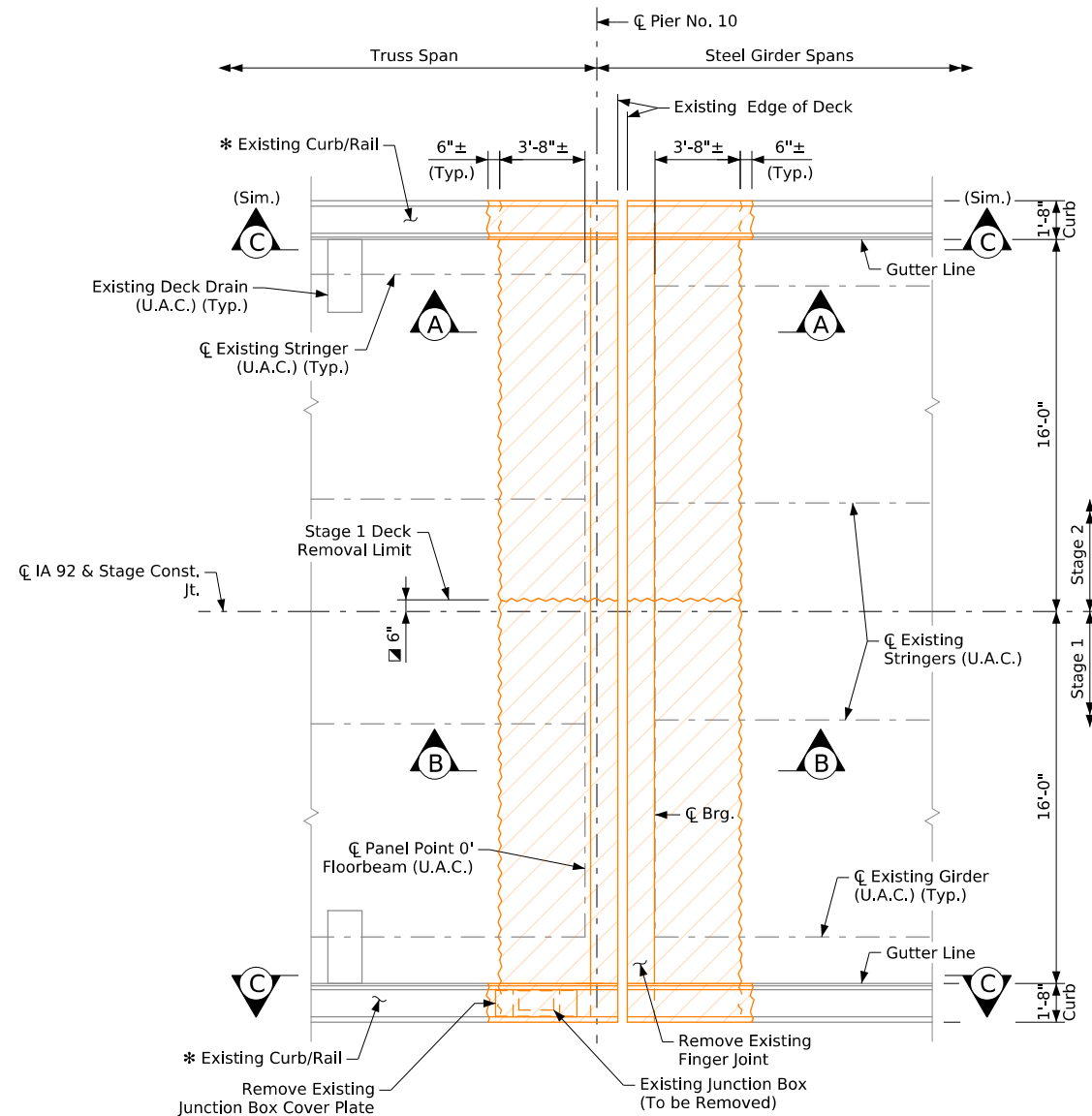
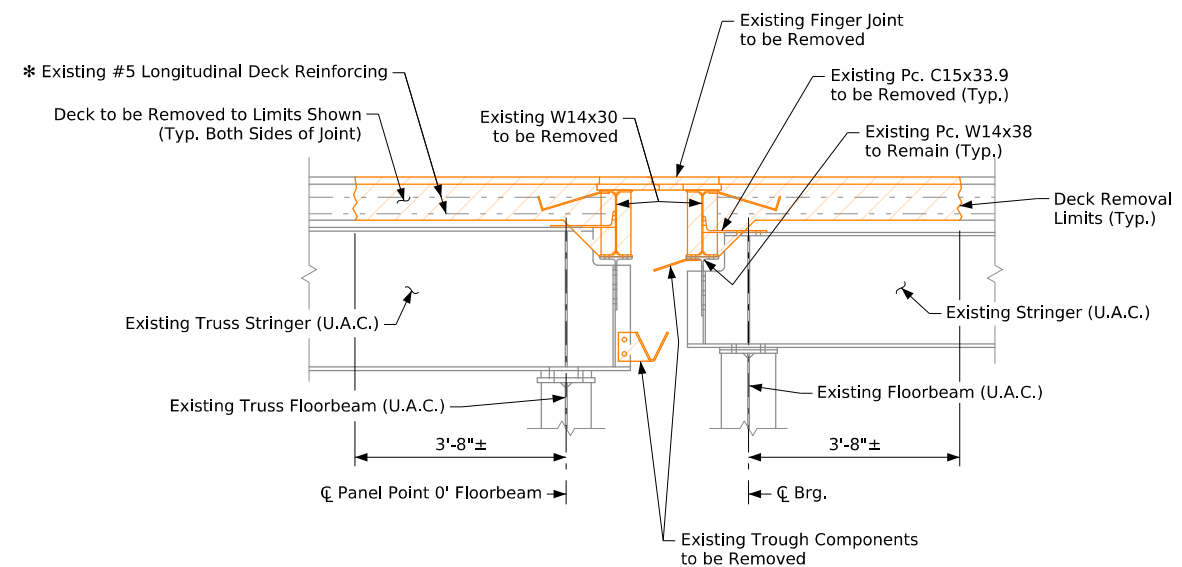
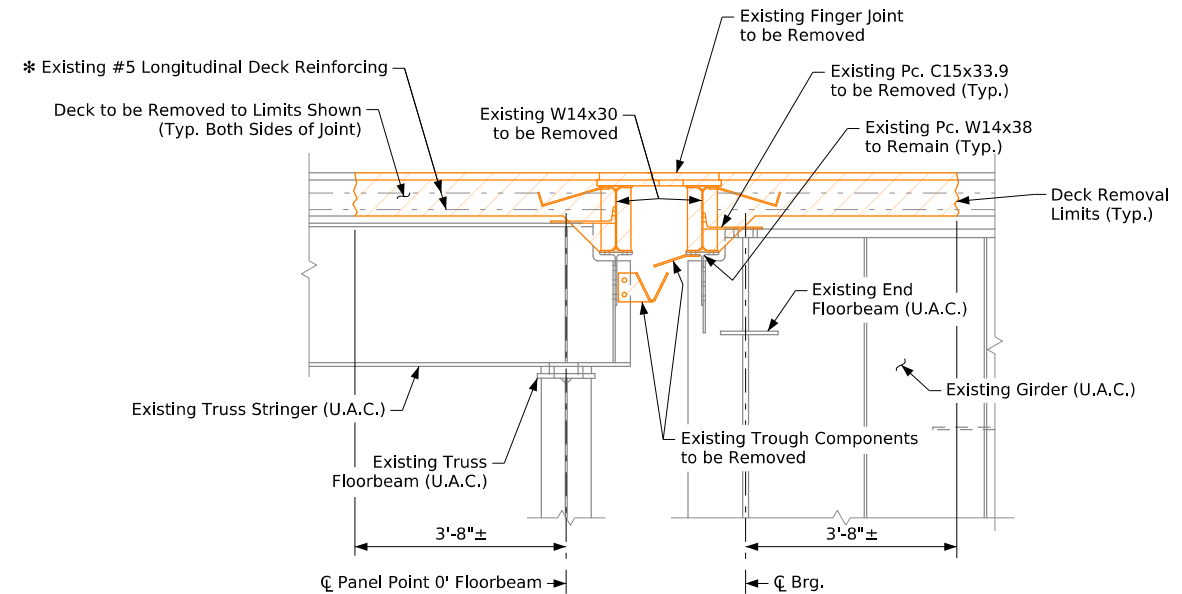
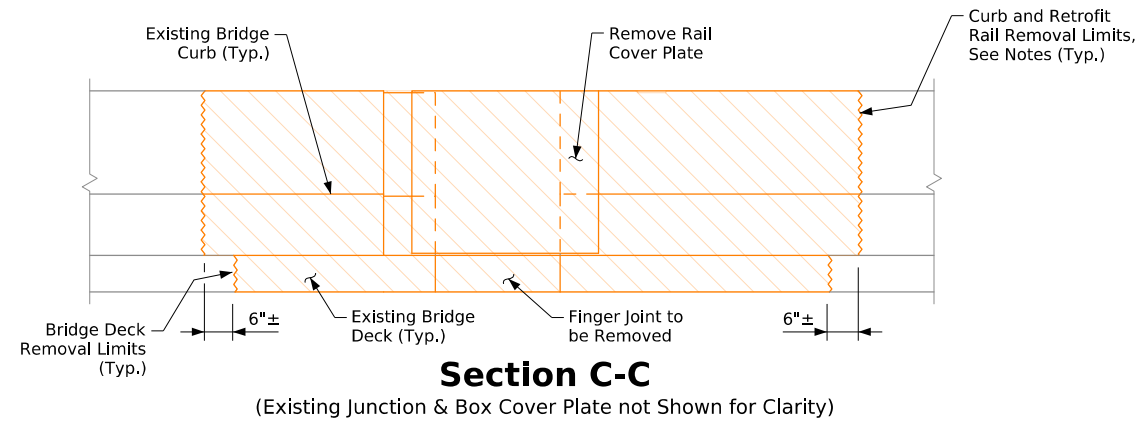


Section A-A

Notes:
5d3 bars shall be field cut or spaced as required at expansion joint support boxes.
For location of Sections A-A and E-E, see Design Sheet No. 32.
▲ Field drill 1 1/2" Ø holes in existing Pc. W14X38 to pass 5d2 bars.

Design For Repair to 0° Skew
3018'-0" x 32'-0"
Steel Thru Truss Bridge
Variable End Spans 512'-0" Main Span
Pier No. 9 Joint Replacement
STA. 17+50.88 (CL 1A 92) Turn-In Date: August 2026
Muscatine County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 0127 Design Sheet No. 33 of 51 FHWA No. 38201





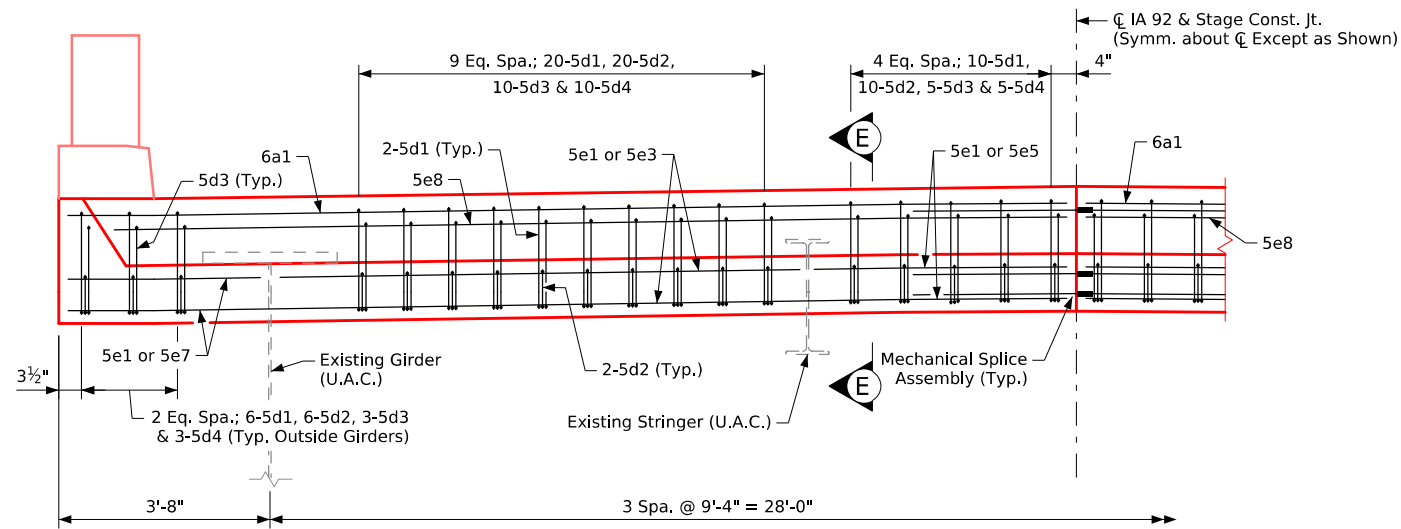
Notes:

* Existing longitudinal bridge deck reinforcing and longitudinal curb and rail reinforcing that is exposed by concrete removal shall be cleaned and incorporated into new work. Reinforcing steel that is damaged or rendered unserviceable by removal operations shall be replaced as directed by the Engineer at no additional cost to the State.

For Staging Details, see Design Sheet No. 8.
Existing utility conduits not shown, see Design Sheet No. 9 for approximate conduit locations.

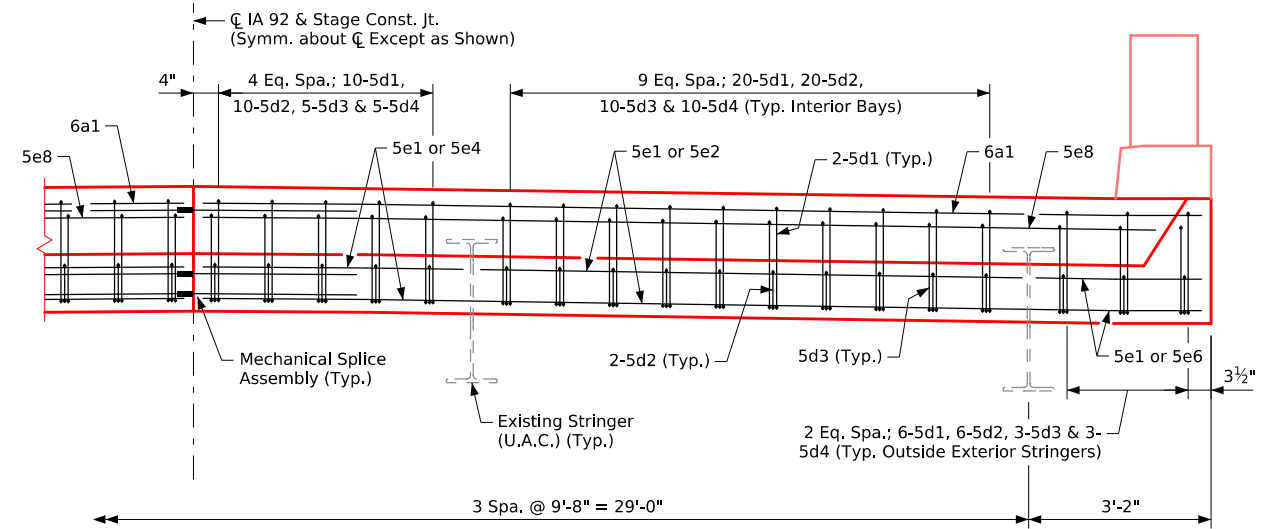
Design For Repair to 0° Skew		
3018'-0" x 32'-0"		
Steel Thru Truss Bridge		
Variable End Spans	512'-0" Main Span	
Removal Details - Pier No. 10		
STA. 17+50.88 (C/A 92)	Turn-in Date: August 2026	
Muscatine County		
IOWA DEPARTMENT OF TRANSPORTATION		
Design No. 0127	Design Sheet No. 34 of 51	FHWA No. 38201





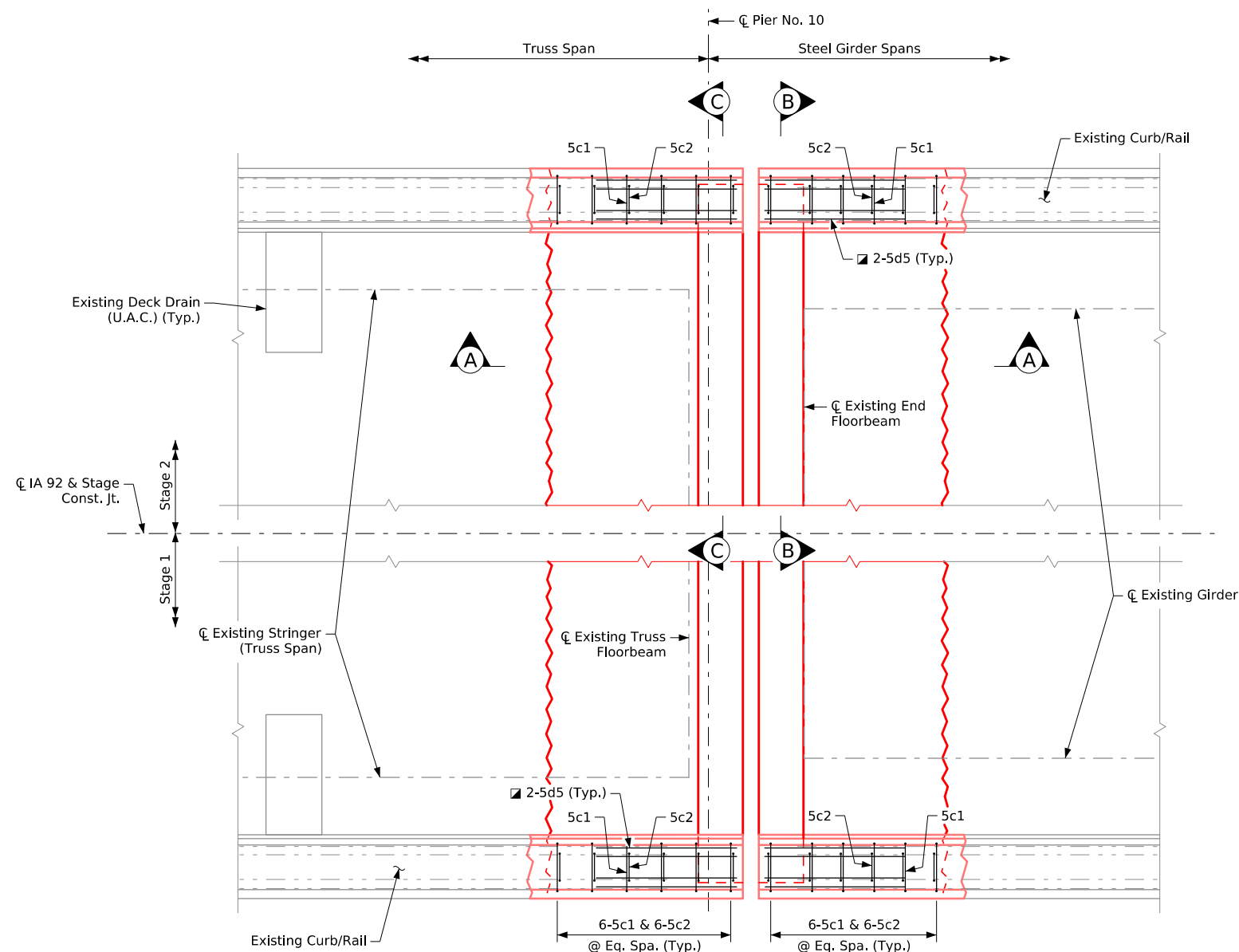
Part Section B-B

(Floorbeam and Pc. W14x38 Not Shown for Clarity)



Part Section C-C

(Floorbeam and Pc. W14x38 Not Shown for Clarity)

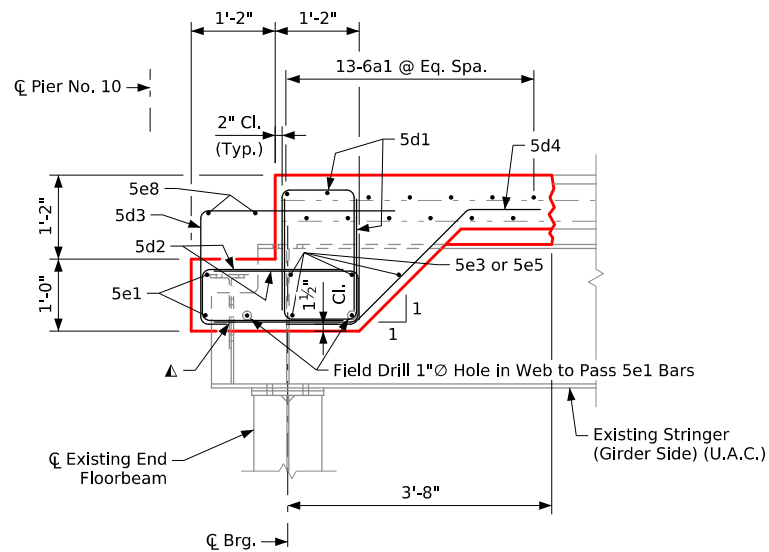


Joint Repair Plan at Pier No. 10

Notes:
 For Section A-A and Part Section E-E, see Design Sheet No. 36.
 ■ 5d5 bars shall be lapped with existing #6 curb and #5 rail bars.
 For Section through Curb and Retrofit Rail, see Design Sheet No. 32.
 For Staging Details, see Design Sheet No. 8.
 For Mechanical Splice Assembly Notes and Details, see Design Sheet No. 23.

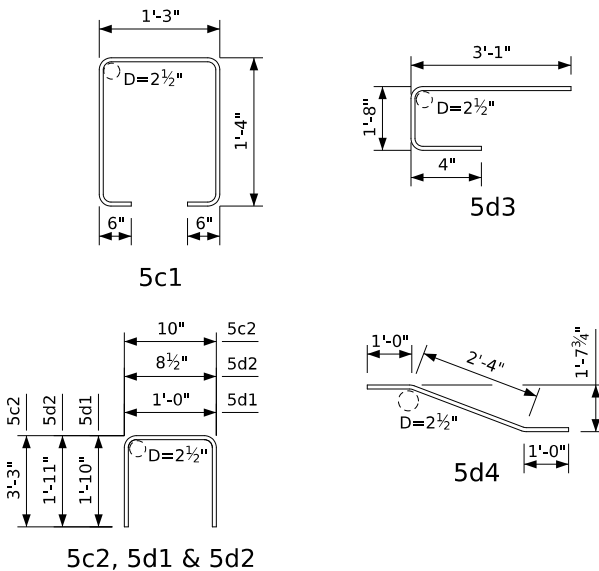
Design For Repair to 0° Skew		
3018'-0" x 32'-0"		
Steel Thru Truss Bridge		
Variable End Spans	512'-0" Main Span	
Pier No. 10 Joint Replacement		
STA. 17+50.88 (C IA 92)	Turn-in Date: August 2026	
Muscatine County		
IOWA DEPARTMENT OF TRANSPORTATION		
Design No. 0127	Design Sheet No. 35 of 51	FHWA No. 38201





Part Section E-E

Bent Bar Details



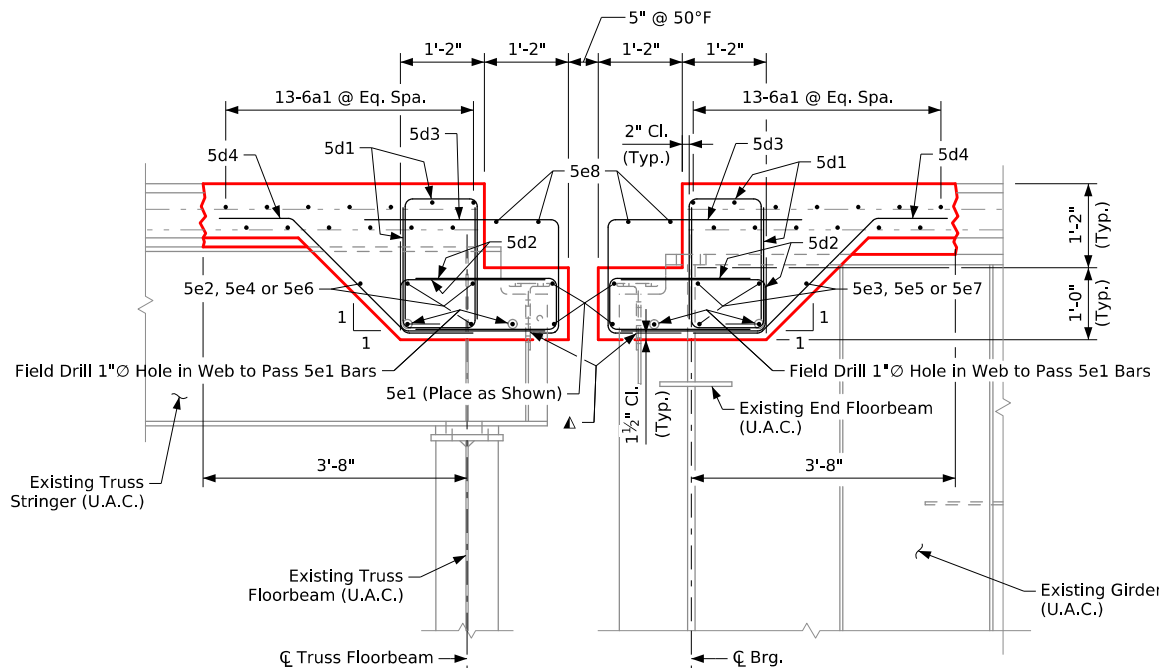
Note: All dimensions are out to out. D = Pin Diameter

Epoxy Coated Reinforcing Steel - Pier No. 10 Joint Replacement

Bar	Location	Shape	No.	Length	Weight
6a1	Deck Transverse, Top & Bottom		52	17'-4"	1,354
5c1	Curb Hoops		24	4'-11"	123
5c2	Retrofit Rail Vertical		24	7'-4"	184
5d1	Expansion Joint Diaphragm Vertical		144	4'-8"	701
5d2	Expansion Joint Diaphragm Horizontal		144	4'-7"	688
5d3	Expansion Joint Diaphragm		72	5'-1"	382
5d4	Expansion Joint Diaphragm		72	4'-4"	325
5d5	Curb and Rail Extension		36	3'-0"	100
5e1	Expansion Joint Diaphragm Longit. (Both Sides)		16	17'-4"	289
5e2	Expansion Joint Diaphragm Longit. (Truss Side)		8	9'-4"	78
5e3	Expansion Joint Diaphragm Longit. (Girder Side)		8	9'-0"	75
5e4	Expansion Joint Diaphragm Longit. (Truss Side)		8	4'-6"	38
5e5	Expansion Joint Diaphragm Longit. (Girder Side)		8	4'-4"	36
5e6	Expansion Joint Diaphragm Longit. (Truss Side)		8	2'-10"	24
5e7	Expansion Joint Diaphragm Longit. (Girder Side)		8	3'-2"	28
5e8	Expansion Joint Blockout (Both Sides)		8	16'-7"	138
Reinforcing Steel - Epoxy Coated - Total Weight (lbs.)					4,563

Concrete Placement Quantities - Pier No. 10 Joint Replacement

Location	Quantity
Deck and Diaphragm Stage 1 (Fiber Reinforced)	9.2
Deck and Diaphragm Stage 2 (Fiber Reinforced)	9.2
Curbs (2 at 0.6 cu. yd.)	1.2
Retrofit Rail (2 at 0.9 cu. yd.)	1.8
Total (cu. yd.)	21.4

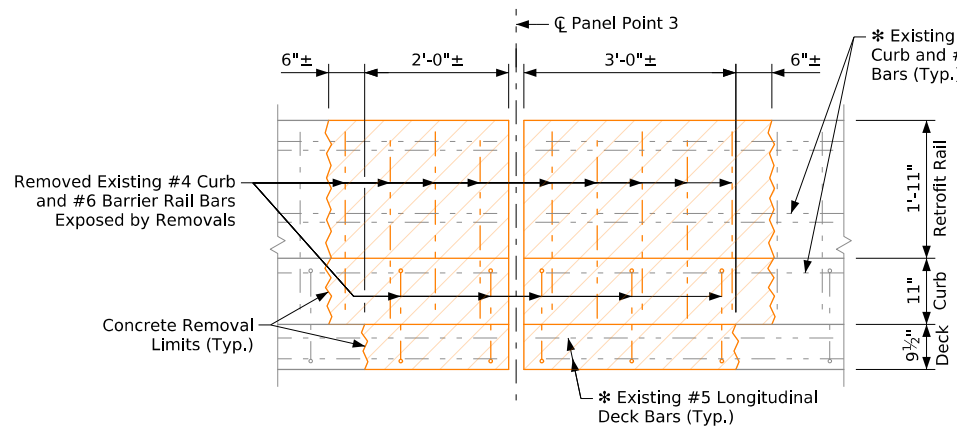


Section A-A

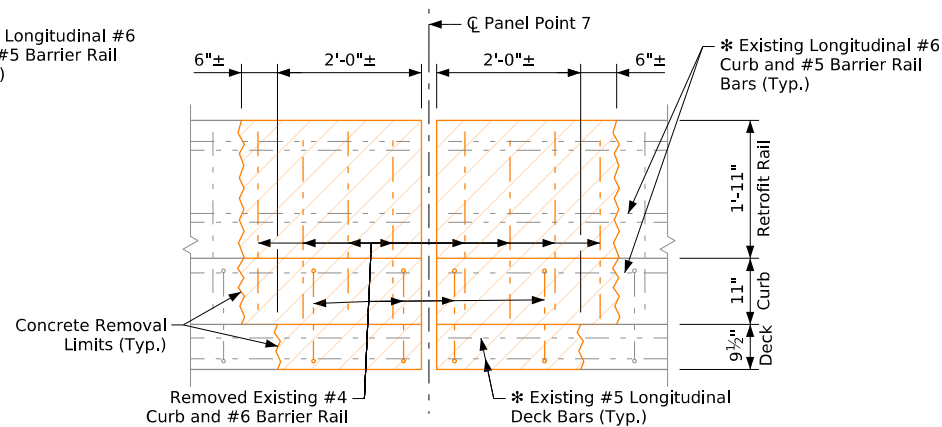
Notes:
5d3 bars shall be field cut or spaced as required at expansion joint support boxes.
For location of Sections A-A and E-E, see Design Sheet No. 35.
▲ Field drill 1½"Ø holes in existing Pc. W14x38 to pass 5d2 bars.

Design For Repair to 0° Skew
3018'-0" x 32'-0"
Steel Thru Truss Bridge
Variable End Spans 512'-0" Main Span
Pier No. 10 Joint Replacement
STA. 17+50.88 (C/LA 92) Turn-in Date: August 2026
Muscatine County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 0127 Design Sheet No. 36 of 51 FHWA No. 38201

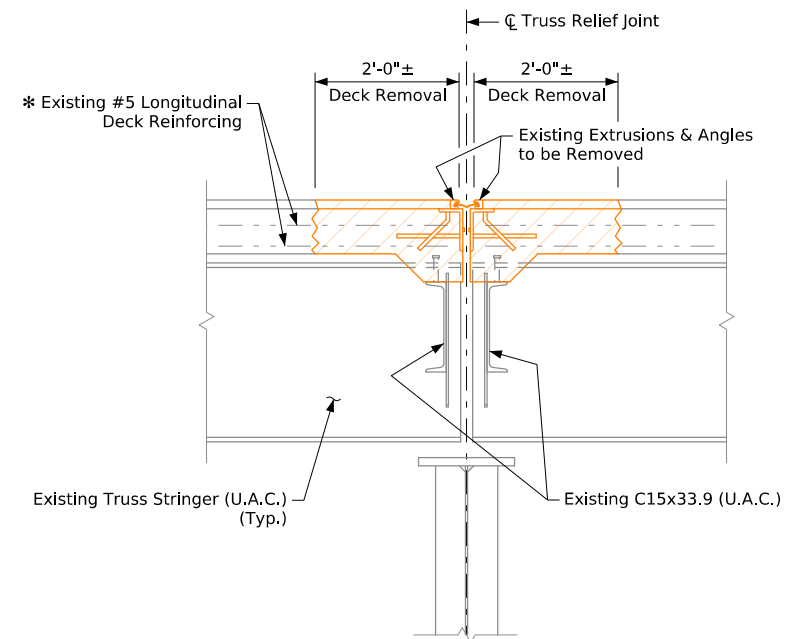




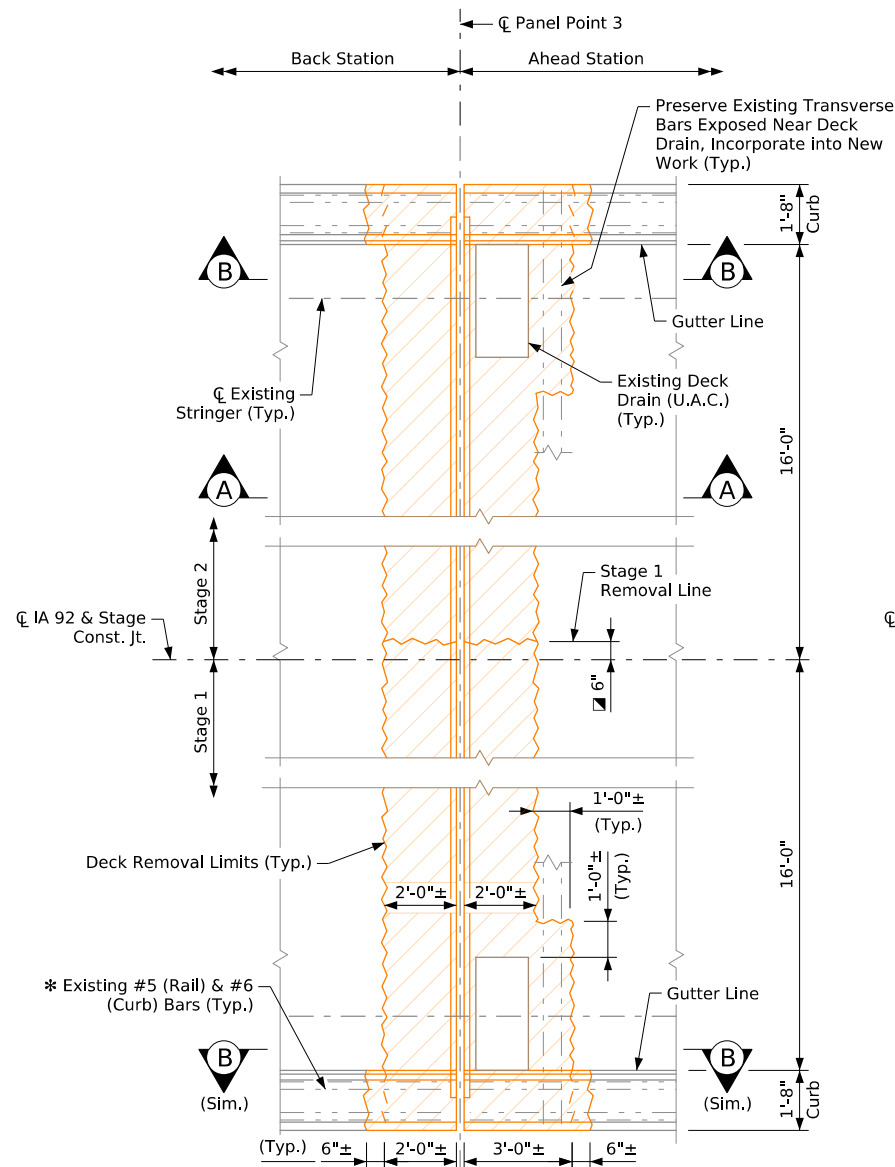
Section B-B
(Panel Point 3 Shown, Panel Point 3' Similar)



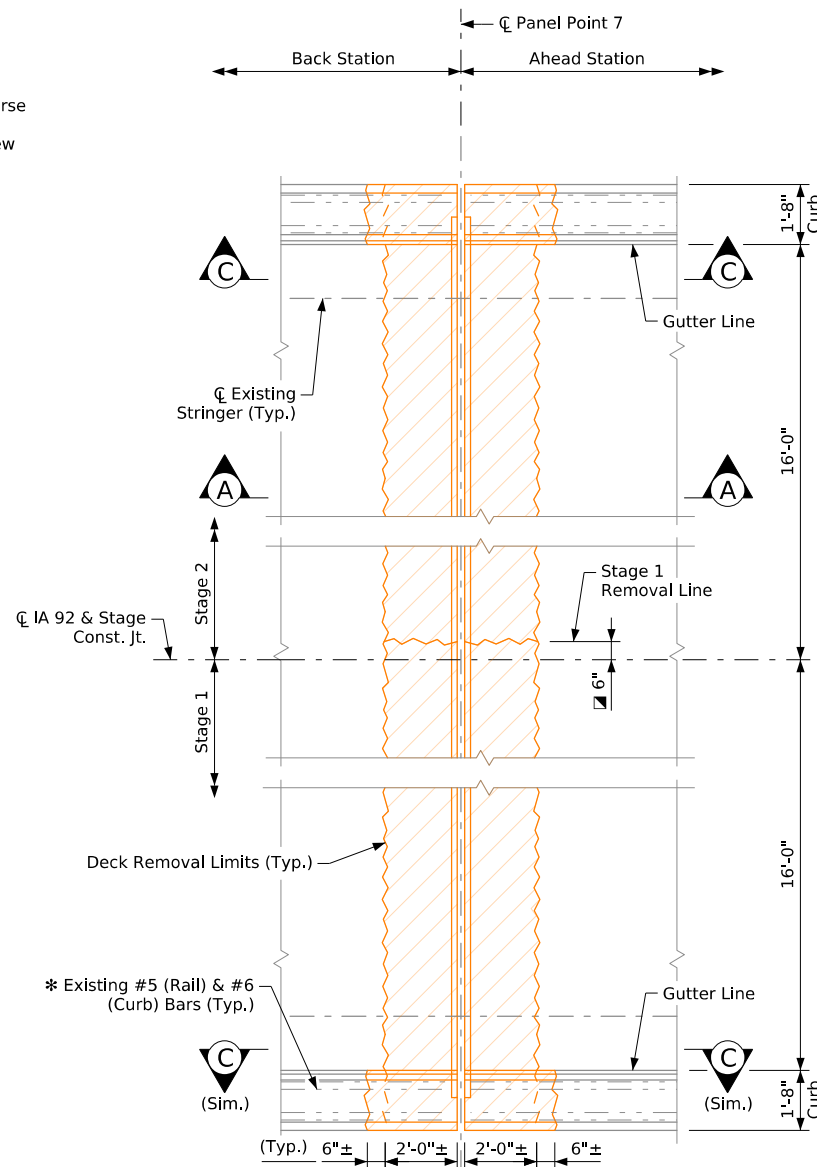
Section C-C



Section A-A



**Truss Relief Joint Removal Plan
at Panel Point 3**
(Panel Point 3 Shown, Panel Point 3' Similar)

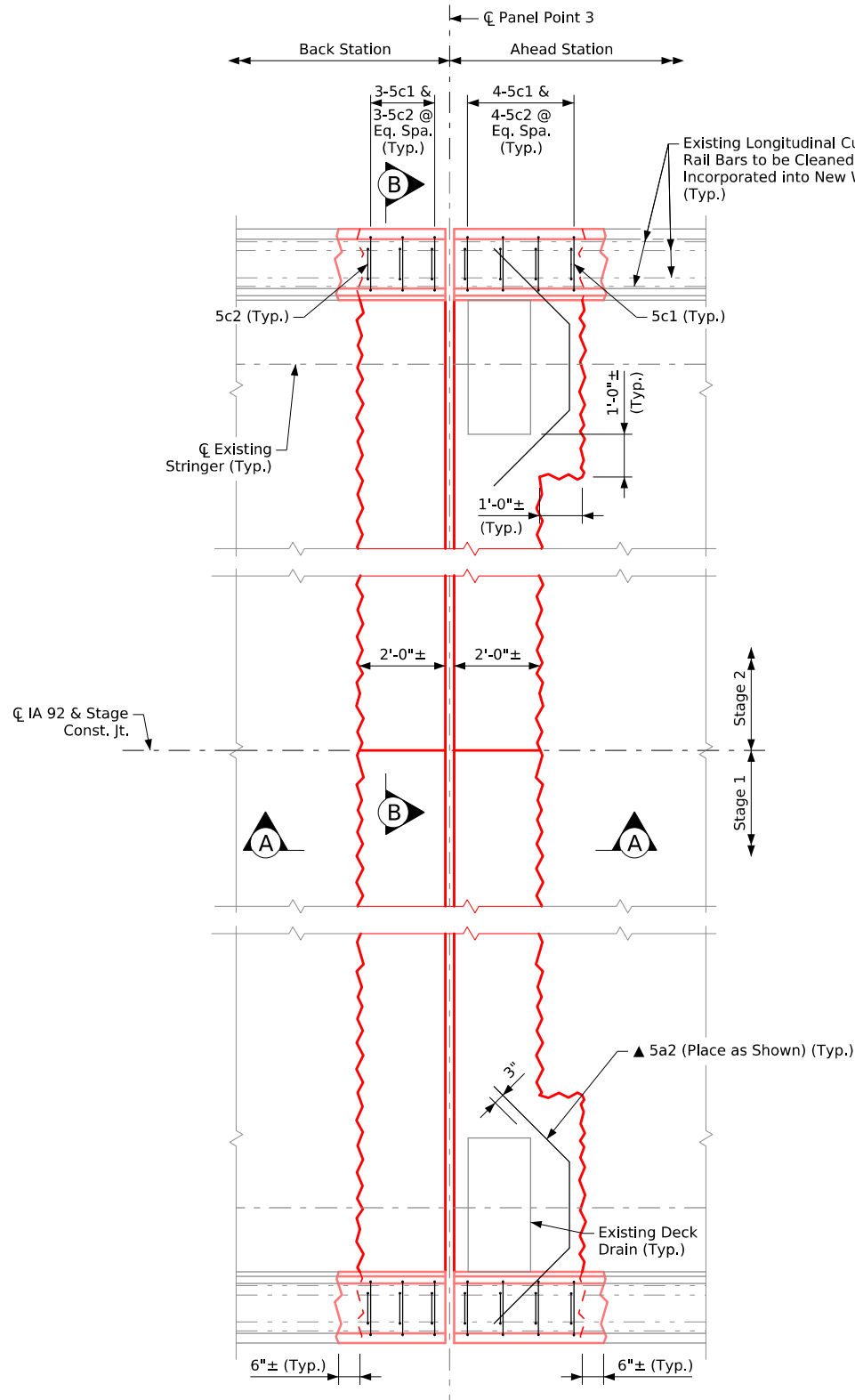


**Truss Relief Joint Removal Plan
at Panel Point 7**

Notes:
 Truss relief joint removal typical at P.P. 3, 7, and 3'.
 * Existing longitudinal bridge deck reinforcing and longitudinal curb and rail reinforcing that is exposed by concrete removal shall be cleaned and incorporated into new work. Reinforcing steel that is damaged or rendered unserviceable by removal operations shall be replaced as directed by the Engineer at no additional cost to the State.
 ▣ For Staging Details, see Design Sheet No. 8.
 Existing utility conduits not shown, see Design Sheet No. 9 for approximate conduit locations.

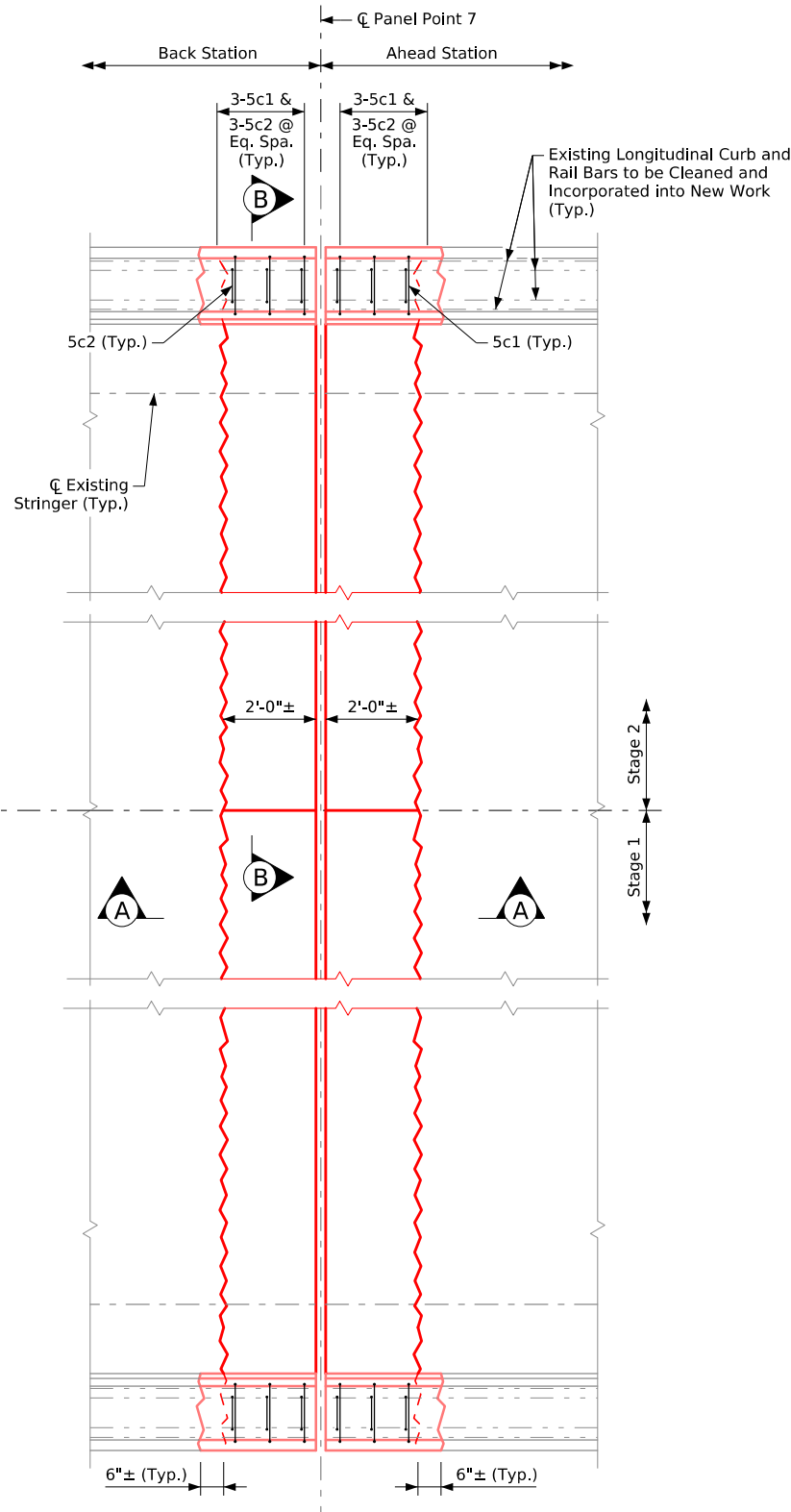
Design For Repair to 0° Skew
3018'-0" x 32'-0"
Steel Thru Truss Bridge
 Variable End Spans 512'-0" Main Span
Truss Relief Joint Removals
 STA. 17+50.88 (C/LA 92) Turn-In Date: August 2026
Muscatine County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 0127 Design Sheet No. 37 of 51 FHWA No. 38201



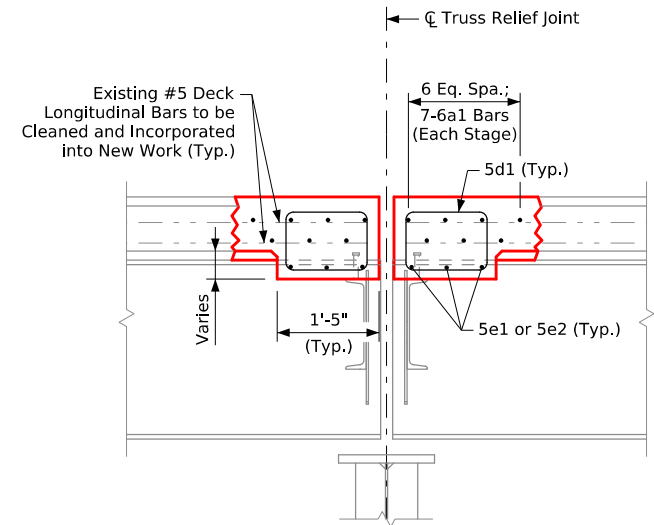


Plan of Deck and Barrier at Panel Point 3

(Panel Point 3 Shown, Panel Point 3' Similar)



Plan of Deck and Barrier at Panel Point 7



Section A-A

(Steel Extrusion Not Shown for Clarity)

Notes:

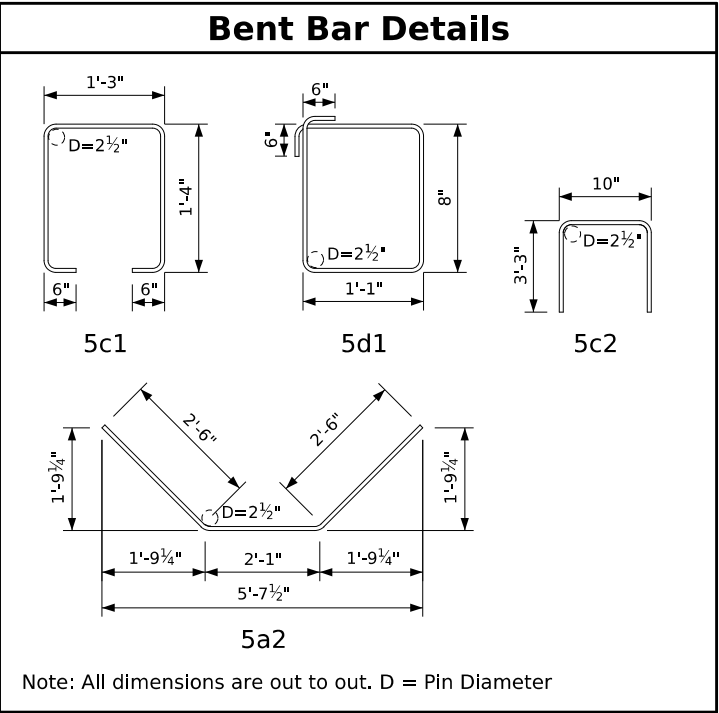
- Truss relief joint replacement typical at P.P. 3, 7, and 3'.
- ▲ Place 5a2 bars between reinforcing layers.
- For Part Section B-B, see Design Sheet No. 39.
- For Section Thru Curb & Retrofit Rail, see Design Sheet No. 32.
- For Staging Details, see Design Sheet No. 8.

Design For Repair to 0° Skew	
3018'-0" x 32'-0"	
Variable End Spans	512'-0" Main Span
Truss Relief Joint Details	
STA. 17+50.88 (CL IA 92)	Turn-In Date: August 2026
Muscatine County	
IOWA DEPARTMENT OF TRANSPORTATION	
Design No. 0127	Design Sheet No. 38 of 51 FHWA No. 38201



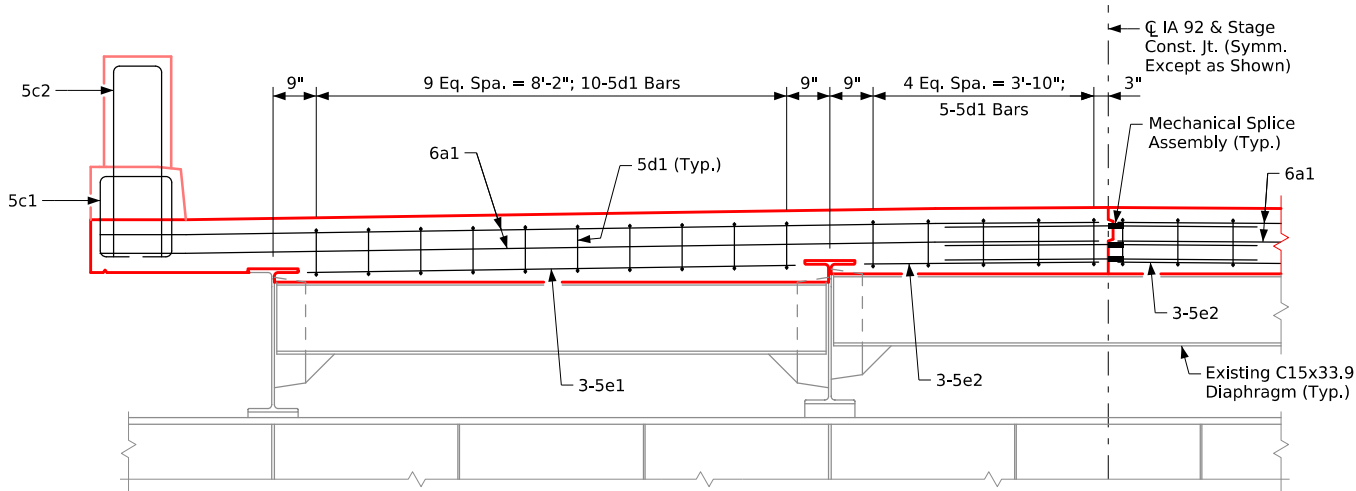
Concrete Placement Quantities - Truss Relief Joint Replacement at P.P.3 or P.P.3'	
Location	Quantity
Deck and Diaphragm Stage 1 (Fiber Reinforced)	2.9
Deck and Diaphragm Stage 2 (Fiber Reinforced)	2.9
Curbs (0.3 cu. yd. Each Stage)	0.6
Retrofit Rail (0.5 cu. yd. Each Stage)	1.0
Total (cu. yd.)	7.4

Concrete Placement Quantities - Truss Relief Joint Replacement at P.P.7	
Location	Quantity
Deck and Diaphragm Stage 1 (Fiber Reinforced)	2.8
Deck and Diaphragm Stage 2 (Fiber Reinforced)	2.8
Curbs (0.3 cu. yd. Each Stage)	0.6
Retrofit Rail (0.4 cu. yd. Each Stage)	0.8
Total (cu. yd.)	7.0



Epoxy Coated Reinforcing Steel - Truss Relief Joint Replacement at P.P.3 or P.P.3'					
Bar	Location	Shape	No.	Length	Weight
6a1	Deck Transverse, Top & Bottom		28	17'-4"	729
5a2	Deck at Drains		2	7'-1"	15
5c1	Curb Hoops		14	4'-11"	72
5c2	Retrofit Rail Vertical		14	7'-4"	107
5d1	Expansion Joint Diaphragm Hoop		60	4'-6"	282
5e1	Expansion Joint Diaphragm		12	8'-6"	106
5e2	Expansion Joint Diaphragm		12	4'-1"	51
Reinforcing Steel - Epoxy Coated - Total Weight (lbs.)					1,362

Epoxy Coated Reinforcing Steel - Truss Relief Joint Replacement at P.P.7					
Bar	Location	Shape	No.	Length	Weight
6a1	Deck Transverse, Top & Bottom		28	17'-4"	729
5c1	Curb Hoops		12	4'-11"	62
5c2	Retrofit Rail Vertical		12	7'-4"	92
5d1	Expansion Joint Diaphragm Hoop		60	4'-6"	282
5e1	Expansion Joint Diaphragm		12	8'-6"	106
5e2	Expansion Joint Diaphragm		12	4'-1"	51
Reinforcing Steel - Epoxy Coated - Total Weight (lbs.)					1,322



Part Section B-B
(Longitudinal deck reinforcing, curb and rail reinforcing not shown for clarity)

Notes:
For location of Section B-B, see Design Sheet No. 38.
For Mechanical Splice Assembly Notes and Details, see Design Sheet No. 23.
For Staging Details, see Design Sheet No. 8.

Design For Repair to 0° Skew

3018'-0" x 32'-0"

Steel Thru Truss Bridge

Variable End Spans512'-0" Main Span

Truss Relief Joint Details

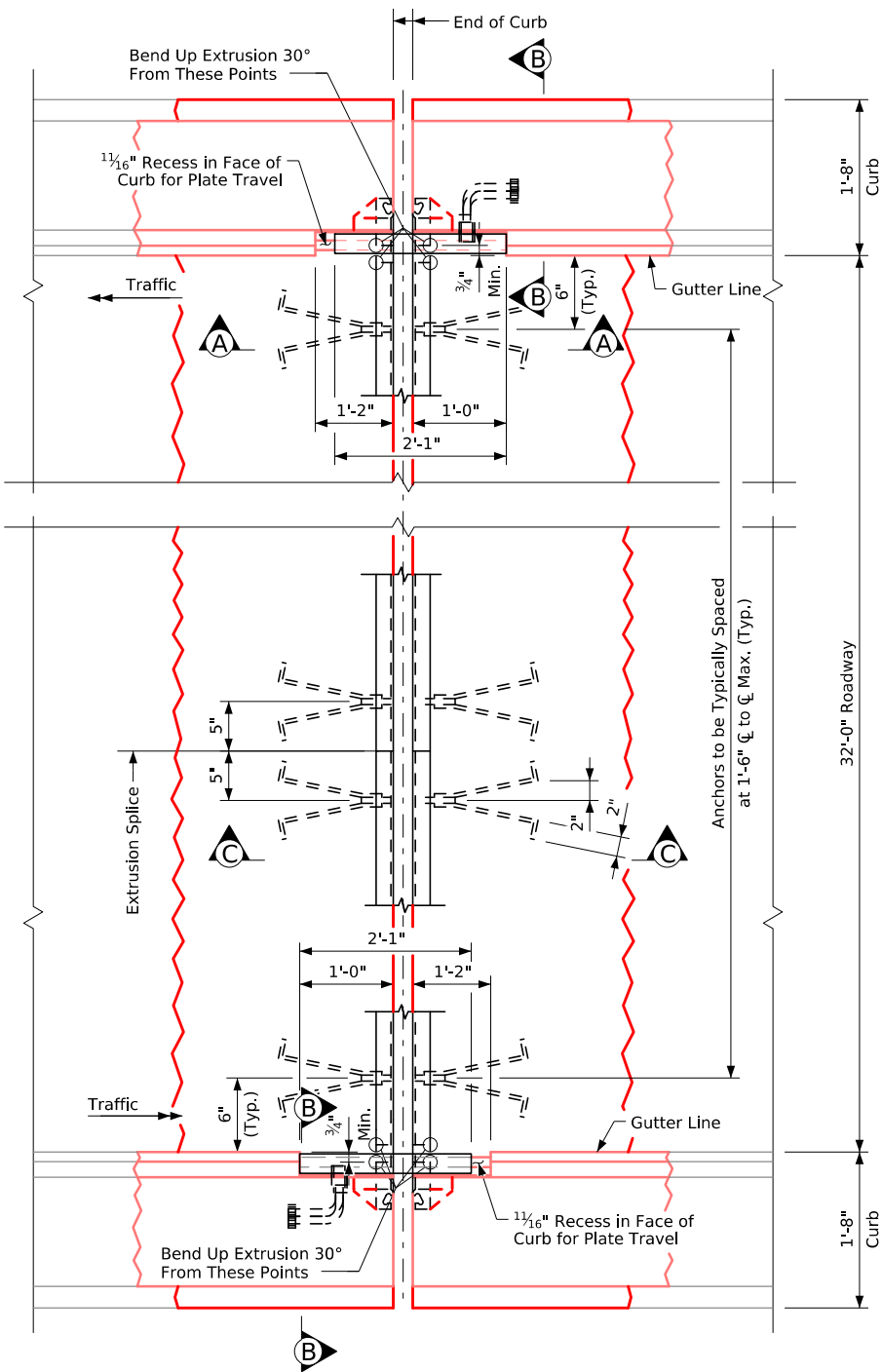
STA. 17+50.88 (☒ IA 92)Turn-In Date: August 2026

Muscatine County

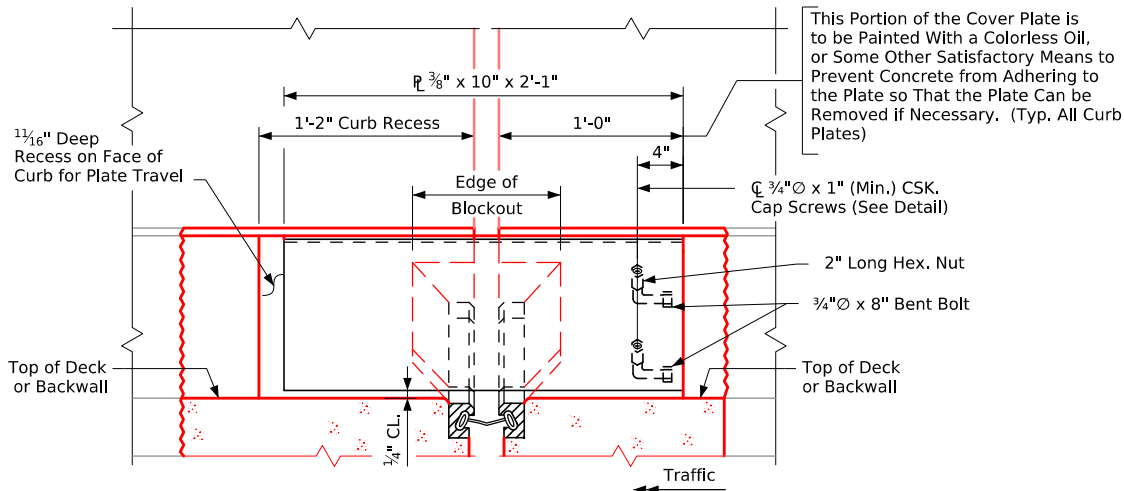
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0127Design Sheet No. 39 of 51FHWA No. 38201

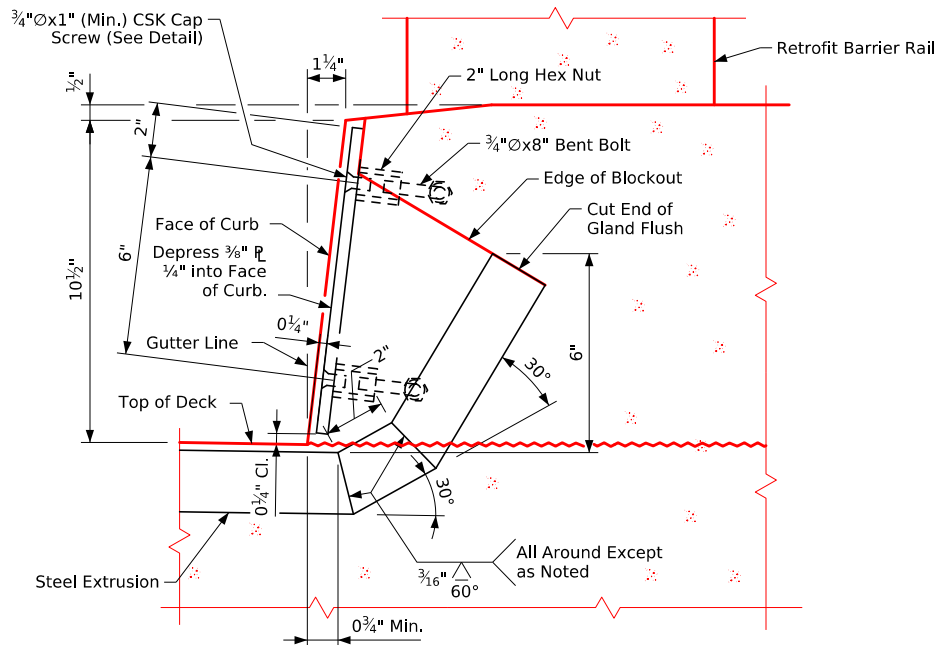




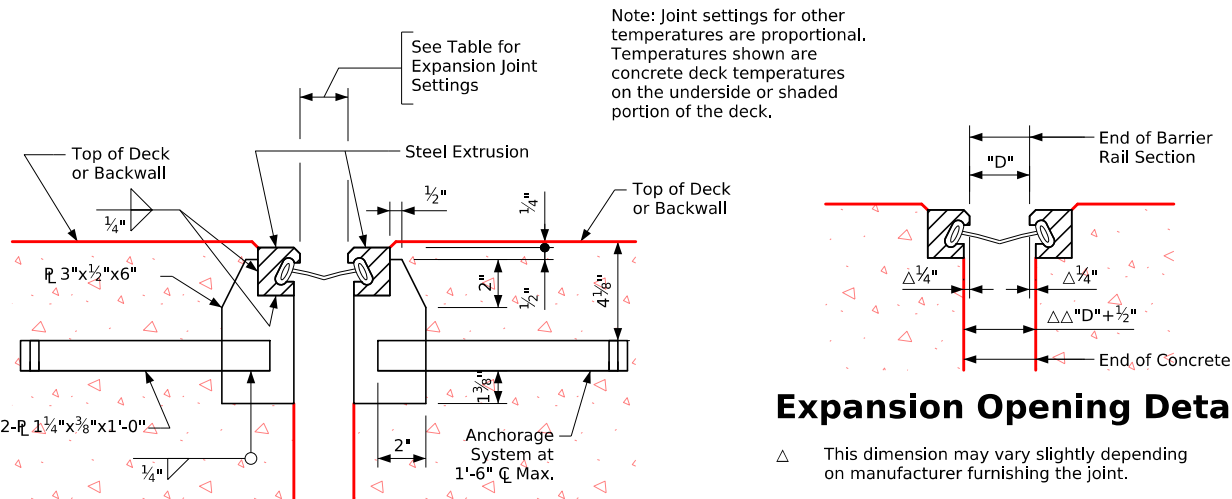
Part Plan View of Expansion Devcie



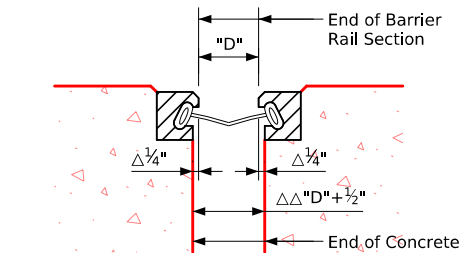
Section A-A



Section B-B
(Existing Conduit Not Shown)



Section C-C



Expansion Opening Detail

- △ This dimension may vary slightly depending on manufacturer furnishing the joint.
- △△ Used for all out to out dimensions of deck. The dimensions may vary slightly depending manufacturer furnishing the joint.

Barrier Plate Note:

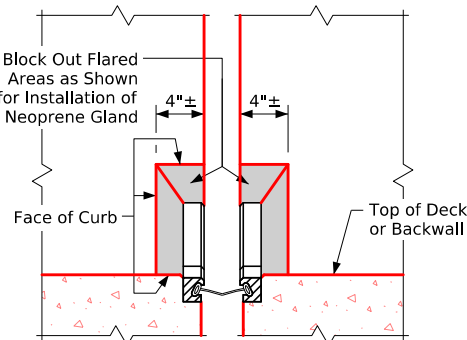
The material used for the barrier plates is to be ASTM A36 steel. The bolts shall meet the requirements of ASTM A307. The plates, bolts, nuts and cap screws are to be galvanized in accordance with Article 4100.07 of the Standard Specifications.

Expansion Joint Settings

Joint	10° F	50° F	90° F
N. Abut., Piers 3 & 22, S. Abut.	2 1/2"	2 3/4"	2"
Piers 5, 14, 16, 18 & 20 Span 10 Panel Points 3, 7 & 3'	3"	2 1/2"	2"

Table of Approved Expansion Device

Manufacturer	Type of Steel Extrusion	Neoprene Gland	Minimum Opening for Gland Installation	Corresponding Maximum Deck Temperature
Watson-Bowman & Acme Corp.	A	SE-400	2"	90°F
D.S. Brown Co.	SSA2	A2R-400	2"	90°F
Approved Equal				



Blockout Detail

Contractor to note that the cap screw anchorage system for the 3/8" barrier plates are always to be placed on the oncoming traffic side.

Notes:
See Deisgn Sheet No. 41 for expansion device notes, Neoprene Gland Notes, and Watertight Integrity Testing and Repair Notes.
See Design Sheet No. 43 for Cap Screw and Bent Bolt Details.

Design For Repair to 0° Skew
3018'-0" x 32'-0"
Steel Thru Truss Bridge
Variable End Spans 512'-0" Main Span
Expansion Device Details
STA. 17+50.88 (C/LA 92) Turn-in Date: August 2026
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Revised 08-13: Steel Extrusion Note was Added to Show a Weld Detail on the Shop Drawings for Splices.
An Additional Neoprene Gland Note About The Corresponding Maximum Deck Temperature was Added.
Issued 11-08:
DeckRailBridges.dgn - 1026s-2 -This Sheet Re-Issued 05-2024. Sheet Format Update.

Steel Extrusion Notes:

The Contractor shall submit for approval shop drawings of the expansion devices showing layout, material to be used, and provisions for the holding device during placement of concrete.

The expansion device shall be galvanized after welding. All curb plates including their anchorages shall be galvanized.

The expansion device is to be parallel to grade.

Cap screws shall be countersunk 1/16" below top of the plate. The minimum grade of structural steel for the expansion device shall be ASTM A36.

Blockout details may be altered from those shown provided the gland may be installed and removed if necessary and the curb area remains watertight.

Shop splices of the steel extrusion will be permitted. Prior to making shop splices steel extrusion pieces shall have a minimum length of 15 feet. The individual length of pieces shall be chosen so that a minimum number of splices is required. All pieces shall be joined with a prequalified partial penetration single groove weld detailed on the shop drawing. All surfaces not in contact with concrete are to be ground flush. No weld shall be permitted in the internal section of the extrusion where the neoprene gland is to be installed.

The number of feet of steel extrusion installed shall be paid for at the contract price per foot based on plan quantities. The price bid for "Steel Extrusion Joint w/Neoprene" shall include the cost of furnishing but not the cost of installing the neoprene gland. The contract price bid for "Steel Extrusion Joint w/Neoprene" shall be full compensation for furnishing and installing steel extrusions. This work will consist of furnishing all required materials, (including the 3/8" plates at the curbs and their anchorage systems), and the installation and adjustment of the expansion joints in accordance with the details shown on the plans and as directed by the Engineer. The furnishing and installation of all necessary hardware and accessories as supplied by the Expansion Joint Manufacturer are to be included in this work, including the anchorage system and any temporary erection material. All work and materials for the installation of the expansion joints are to comply with the written recommendations of the Expansion Joint Manufacturer.

Field Construction Notes:

If the steel extrusion is spliced in the field, the splice location shall be detailed on the shop drawings. The connection details shall include tab plates and prepared ends to accommodate the necessary welding. See details in these plans.

Galvanized coating damage by field welding shall be repaired in accordance with Construction and Materials I.M. 410.

Neoprene Gland Notes:

The neoprene gland is to be placed as one continuous piece from end to end of the steel extrusion.

The neoprene gland shall conform to ASTM-2628 modified to exclude recover test and compression set.

The Contractor shall install the gland above the minimum temperature of 45° and the minimum joint opening and corresponding maximum deck temperature shown in these plans. The deck temperature shall be measured by recording the surface temperatures on the underside of the deck adjacent to the joints. If the deck temperature does not fall within the specified temperature range before the Contractor has completed all other required work, it will be necessary for the Contractor to return to the project site to complete installation and testing of the neoprene gland. If the Contractor is required to return to the project site after all other required work has been completed, the Contractor shall complete installation and testing of neoprene gland at no extra charge to the State.

The number of feet of neoprene gland installed shall be paid for at the contract price per foot based on plan quantities. The price for "Neoprene Gland Installation and Testing" shall be full compensation for installing and testing of the new neoprene gland. This work will consist of cleaning the extrusion, installation of the neoprene gland and water tight testing of the expansion joint system. All work and materials necessary for the installation of the neoprene gland shall comply with the recommendations of the Expansion Joint Manufacturer. The price bid for "Neoprene Gland Installation and Testing" shall include all watertight integrity testing, leak repairs as directed by the Engineer, and subsequent watertight testing until a leak free installation is achieved.

Watertight Integrity Testing And Repair Notes:

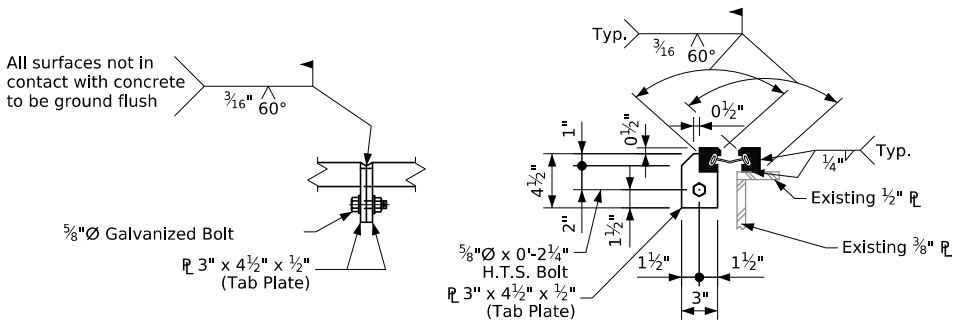
After installation of each neoprene gland, the Contractor shall perform watertight integrity tests at the deck level to detect any leakage. The tests are to check for leakage at the upturned ends of the expansion device and for leakage along the expansion device across the deck and any medians or sidewalks. The Contractor may conduct a single test of the entire device including upturned ends or may conduct separate tests of upturned ends and one or more tests of overlapping lengths between the upturned ends.

At each upturned end of the expansion device, the Contractor shall block out on the deck at least 3 feet of the expansion device leading to the upturned end and flood the area. A minimum water depth of 3" shall be maintained at the gutter line for at least 30 minutes. During the test, the Inspector shall observe for any overflow at the upturned end. At the conclusion of the test the Inspector will examine the underside of the joint for leakage. The expansion device is considered watertight if the Inspector observes no overflow during the test and if no dripping water or water droplets are visible in the under deck areas near the upturned end.

The Contractor shall test the expansion device between upturned ends by blocking out and covering the device with ponded or flowing water to a depth of at least 1" at all points, for at least 30 minutes. Vertical curb surfaces may be tested with an unnozzled hose delivering approximately one gallon per minute directed to flow over the entire curb height for 30 minutes. At the conclusion of the test, the inspector will examine the underside of the joint for leakage. The expansion device is considered watertight if no dripping water or water droplets are visible in the under deck areas along the full length of the expansion joint. Damp concrete that does not show dripping water or water droplets is not considered a sign of leakage.

If the expansion device leaks at an upturned end or along its length, the Contractor shall locate the leak(s) and take repair measures to stop the leakage. The repair measures shall be as recommended by the Manufacturer and approved by the Engineer prior to beginning corrective work.

If measures to eliminate leakage are taken, the Contractor shall perform subsequent watertight integrity tests subject to the same conditions as the original test.



End View Section Thru Extrusion

Field Splice Detail

Design For Repair to 0° Skew

3018'-0" x 32'-0"

Steel Thru Truss Bridge

Variable End Spans 512'-0" Main Span

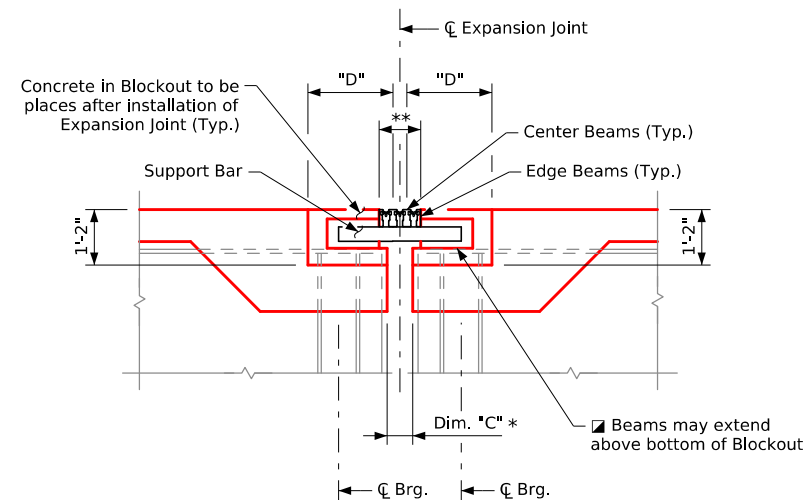
Expansion Device Notes

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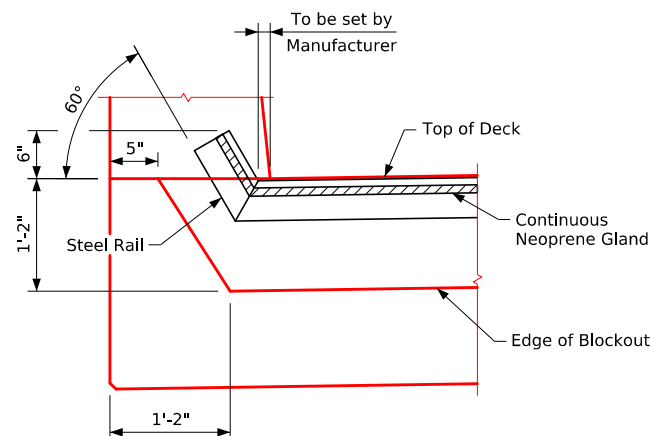
Muscatine County

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Section thru joint



Section at Curb

Movement & Blockout Table				
Location	Total Movement (IN)	Temp Change for 1/8 inch Adjustment (°F)	Dim "C" (IN)	Dim "D" (IN)
Pier No. 7	4.3	3.9°	5	14
Pier No. 9	9.5	2.0°	9	20
Pier Nos. 10 & 12	4.2	4.0°	5	14

Modular joint support brackets shall be designed and located to avoid conflict with existing beams, girders, and stringers.

Modular Expansion Device Notes:

The Contractor shall submit for approval shop drawings of the expansion devices showing layout, material to be used, and provisions for holding device during placement of concrete.

The modular expansion device shall be galvanized after welding.

The modular expansion device is to be parallel to grade.

The minimum grade of structural steel for the expansion device shal be ASTM A-36.

Blockout details may be altered from those shown provided the gland may be installed and removed if necessary and the curb area remains watertight.

Shop splices of the modular expansion device rails will be permitted. Prior to making shop splices, pieces of modular expansion device rails shall have a minimum length of 15 ft. The individual length of pieces shall be chosen so that a minimum number of splices is required. All center beam splices shall be full penetration welds,except upturn splices may be partial penetration welds. All edge beam splices maybe partial penetration welds. All surfaces not in contact with concrete shall be ground flush. No weld shall be permitted in the internal section of the extrusion where the neoprene gland is to be installed.

Anchorage for modular expansion joint and spacing of support brackets to be designed by the modular expansion joint manufacturer.

Modular expansion joint assemblies shall be installed after the deck concrete replacement has been completed on each side of the expansion joint.

Notes:

Dimensions marked thus (*) are at 50°f with 1/8" variation for the temperature shown in the "Movement & Blockout Table". Increase gap for a decrease in temperature and decrease gap for an increase in temperature.

** Dimensions to be set by joint manufacturer.

Design For Repair to 0° Skew

3018'-0" x 32'-0"

Steel Thru Truss Bridge

Variable End Spans512'-0" Main Span

Modular Expansion Joint Details

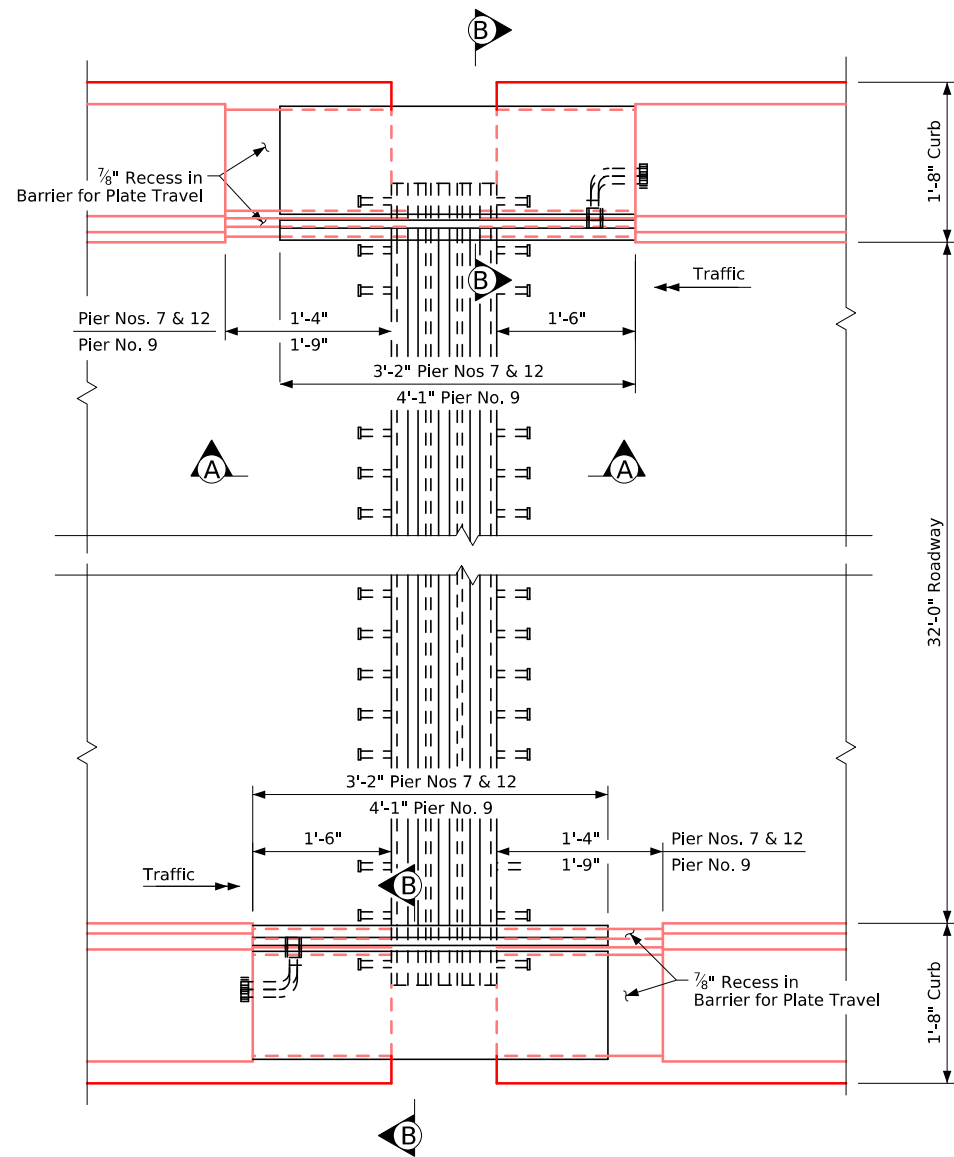
STA. 17+50.88 (C 1A 92)Turn-in Date: August 2026

Muscatine County

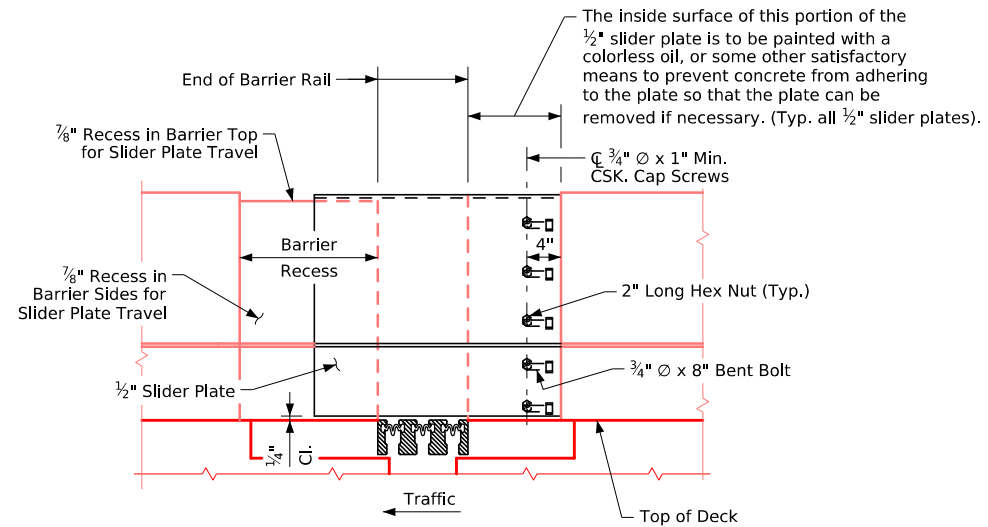
IOWA DEPARTMENT OF TRANSPORTATION

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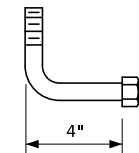




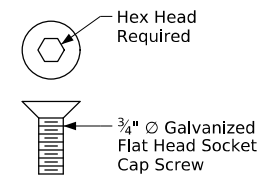
Expansion Device Plan



Section A-A

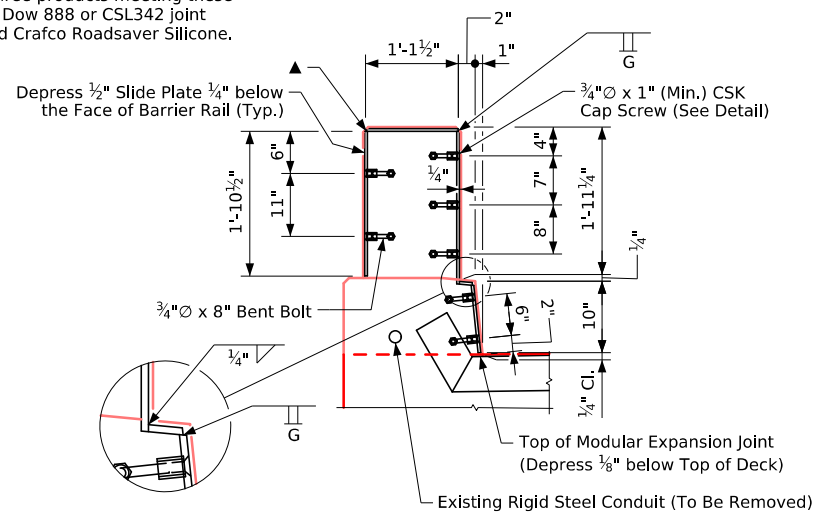


Bent Bolt Detail



Cap Screw Detail

▲ Caulk (no weld). Caulking material shall be neutral cure and non-sag silicone. Three products meeting these criteria are Dow 888 or CSL342 joint sealant, and Crafcro Roadsaver Silicone.



Section B-B

Notes:

The cover plate attachment, and all hardware, labor and materials required to install and field adjust the cover plates as shown in these plans shall be included in the price bid for "Modular Expansion Joint Assembly".

The material used for the slider plates is to be ASTM A36 steel. The bolts shall meet the requirements of ASTM A307. The plates, bolts, nuts and cap screws are to be galvanized in accordance with Article 4100.07 of the Standard Specifications.

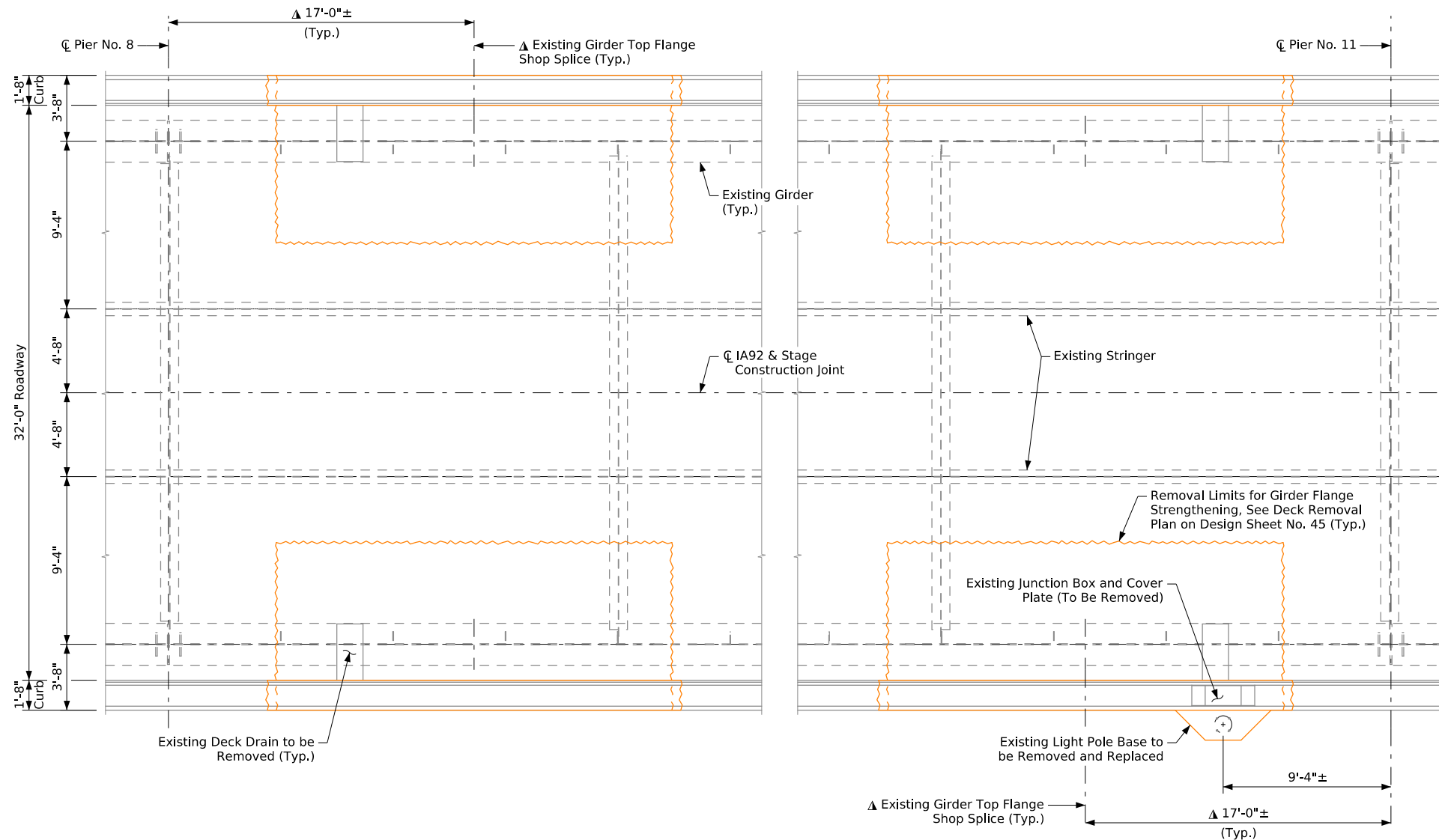
Contractor to note that the cap screw anchorage system for the 1/2" barrier plates are always to be placed on the oncoming traffic side.

It is intended that the recessed area be formed so that when the 1/2" bent plate is installed the plate will be able to move freely in this recessed area.

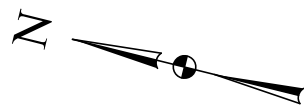
Cap screws shall be countersunk 1/16" below top of the plate.

Design For Repair to 0° Skew		
3018'-0" x 32'-0"		
Steel Thru Truss Bridge		
Variable End Spans	512'-0" Main Span	
Modular Expansion Joint Details		
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Muscatine County		
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Girder Flange Strengthening Location Plan



Notes:
For Deck Removal Part Plan View, Removal Notes and Details, see Design Sheet No. 45.
▲ Location of top flange repair is at the existing top flange welded butt splice. Exact distance of top flange repair from CL Pier is to be verified in the field before the concrete removal.
Existing Deck Drain removed with deck removal shall be replaced with Deck Drain-Type A. See Design Sheet No. 49 for deck drain details.

Design For Repair to 0° Skew

3018'-0" x 32'-0"

Steel Thru Truss Bridge

Variable End Spans512'-0" Main Span

Flange Strengthening Plan

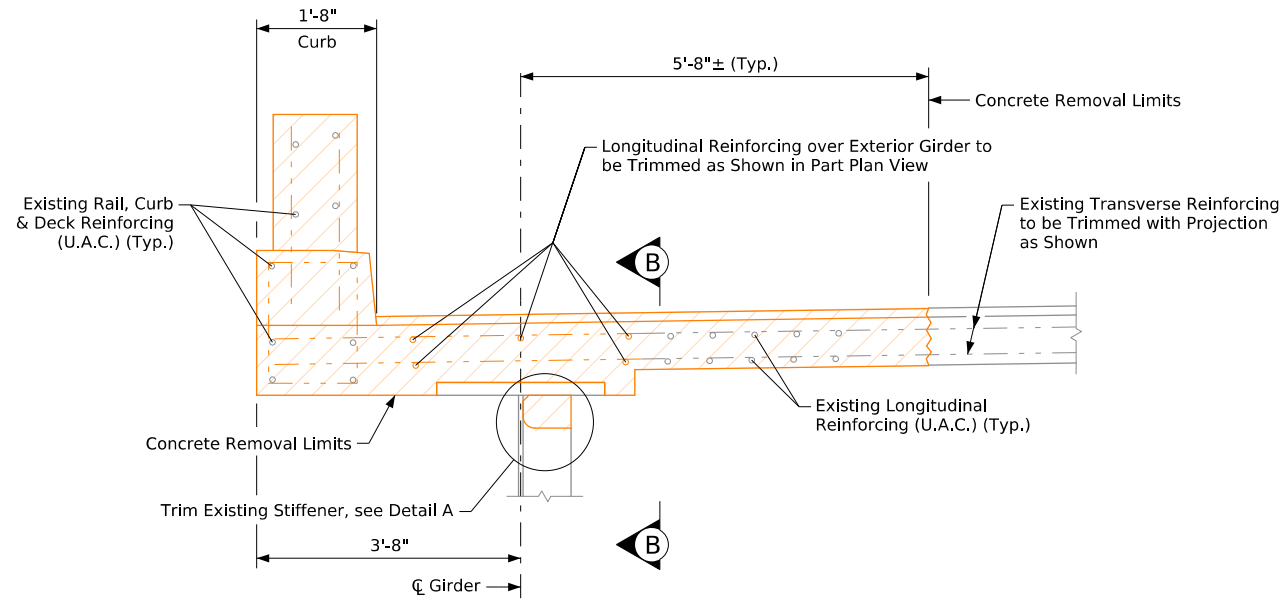
STA. 17+50.88 (CL IA 92)Turn-In Date: August 2026

Muscatine County

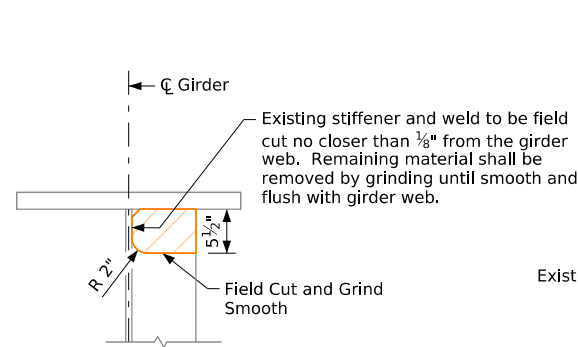
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Design No. 0127Design Sheet No. 44 of 51FHWA No. 38201

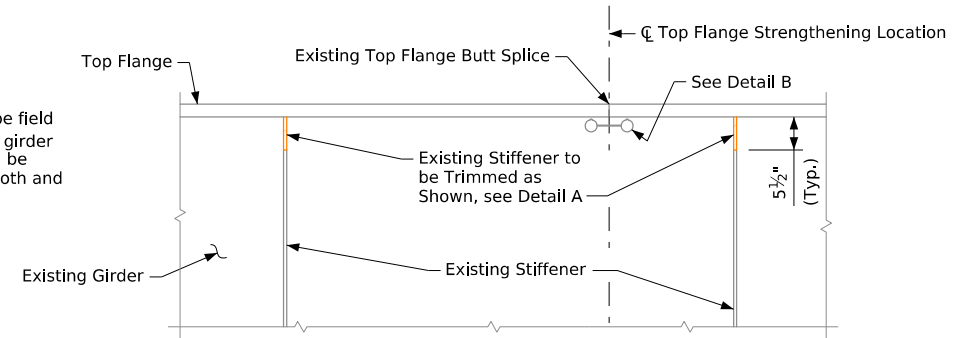




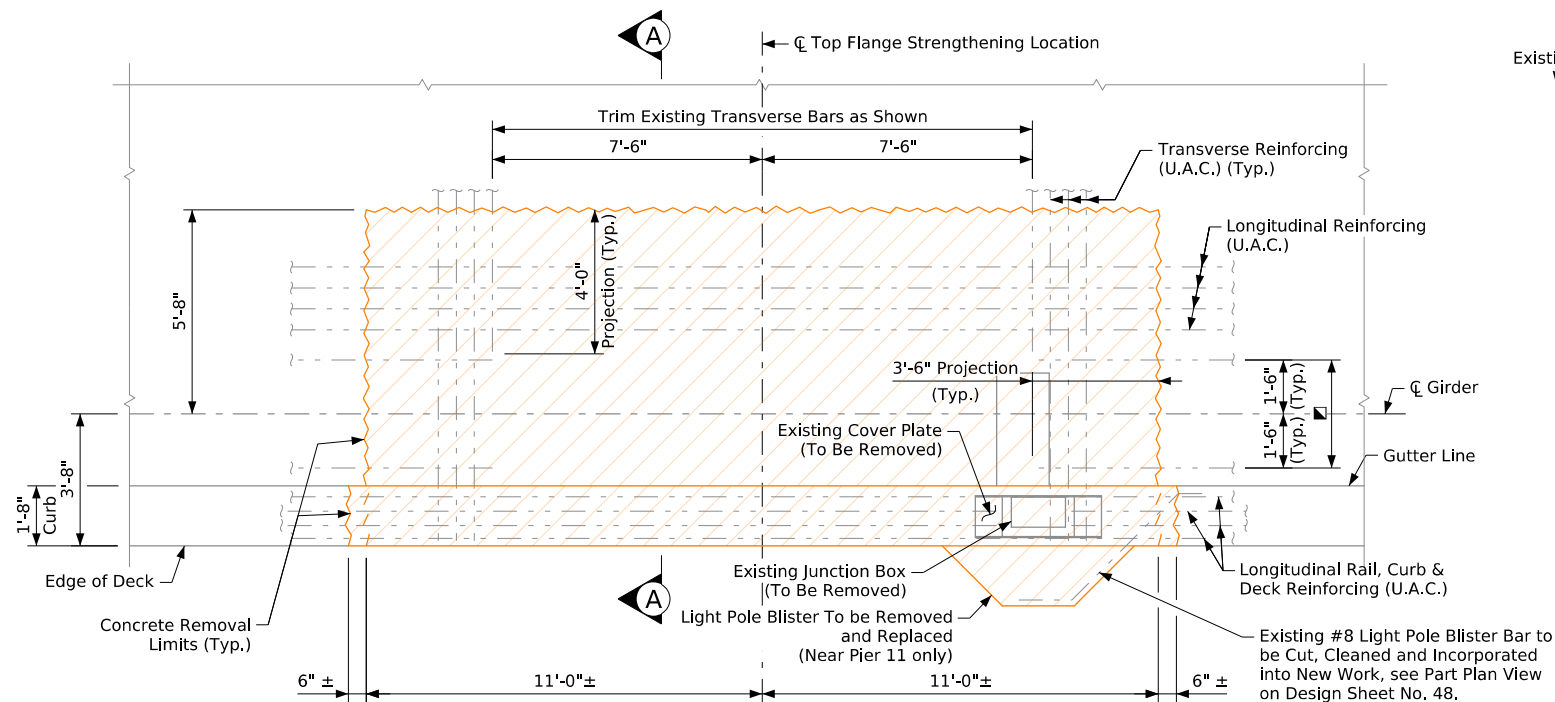
Section A-A



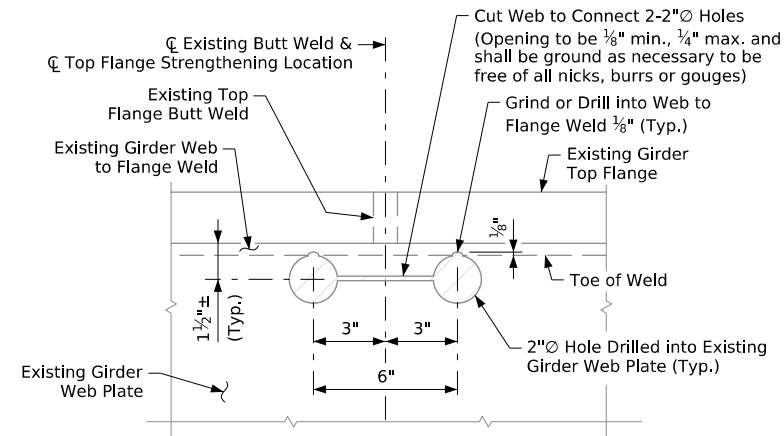
Detail A
(Existing Deck Not Shown)



Part Section B-B
(Existing Deck Not Shown)



Deck Removal Part Plan View



Detail B
(Splice Plates Not Shown for Clarity)
(See Flange Strengthening Sequencing Note ⑥ on Design Sheet No. 46.)

Removal Notes:
Existing longitudinal deck reinforcing and longitudinal curb & barrier rail reinforcing shall be preserved and incorporated into new work, unless noted otherwise. Bars or dowels that are damaged or rendered unserviceable by removal operations shall be replaced by the Contractor at no extra cost to the State.
■ Existing longitudinal top and bottom bars within the limit shown shall be trimmed to project 3'-6" from the concrete removal line.
Existing utility conduits not shown, see Design Sheet No. 9 for approximate conduit locations.

Design For Repair to 0° Skew		
3018'-0" x 32'-0"		
Steel Thru Truss Bridge		
Variable End Spans	512'-0" Main Span	
Flange Strengthening Removals		
STA. 17+50.88 (C/LA 92)	Turn-In Date: August 2026	
Muscatine County		
IOWA DEPARTMENT OF TRANSPORTATION		
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- Flange Strengthening Sequencing Notes:
- Splice plate installation shall be in accordance with the following sequence:
- 1

Remove existing deck and rebar as shown in Removal Details. See Design Sheet No. 45 for Removal Notes and Details.
- 2

The Contractor and Engineer shall locate and agree upon the location of the butt weld in the top flange. Ultrasonic testing may be used to verify visual location. Centerline of the butt weld is the centerline of the top flange strengthening location.
- 3

Cut and grind smooth existing stiffener as shown in Detail A of Flange Strengthening Removals Sheet.
- 4

Clean and prime existing surfaces that will become faying surfaces.
- 5

Install top splice plate and bottom exterior splice plate. Drill and install Sequence 1 bolts using the top splice plate as a template as indicated in Flange Strengthening - Plan. Sequence 1 bolts shall be installed beginning from end of splice plate progressing towards the $\varnothing$ Top Flange Strengthening Location.
- 6

Drill 2" $\varnothing$ holes into existing girder web and cut in web to connect 2-2" $\varnothing$ holes as shown in Detail B. Holes and cut shall be free of any nicks, burrs and gouges.
- 7

Install interior bottom splice plate. Drill and install Sequence 2 bolts using the top splice plate as a template as indicated in Flange Strengthening-Plan.
- 8

Drill and Install Sequence 3 bolts using the top splice plate as a template as indicated in Flange Strengthening - Plan.

Notes:

Plate steel for flange strengthening shall conform to ASTM A709, Grade HPS-70W. The minimum yield point for Grade HPS-70W steel is 70 ksi.

All field connections are to be bolted using "High Tensile Strength Bolts". Unless otherwise noted, all open holes are to be 1 $\frac{1}{8}$ " diameter and all bolts are to be 1" diameter. Bolts for use with weathering steel shall be A325 Type III with A563 Grade DH3 nuts and F436 Type III washers.

Splice plate bolts shall be installed such that the nuts are installed on bottom of the lower splice plate.

Bolts shall be provided with grip lengths sufficient to exclude threads and thread transitions from shear planes.

Splice plates shall be shop primed. After installation of splice plate, prepare and paint exposed splice plate and surrounding surfaces in accordance with the General Notes.

Design For Repair to 0° Skew

3018'-0" x 32'-0"

Steel Thru Truss Bridge

Variable End Spans512'-0" Main Span

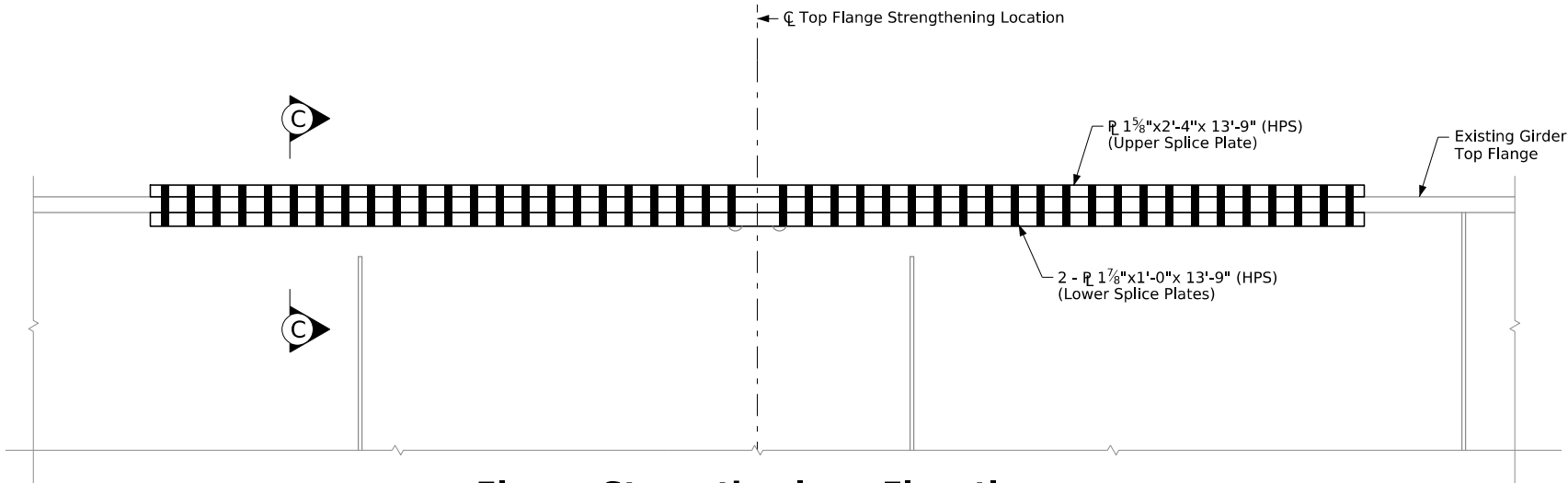
Flange Strengthening Details

STA. 17+50.88 ($\varnothing$ IA 92)Turn-in Date: August 2026

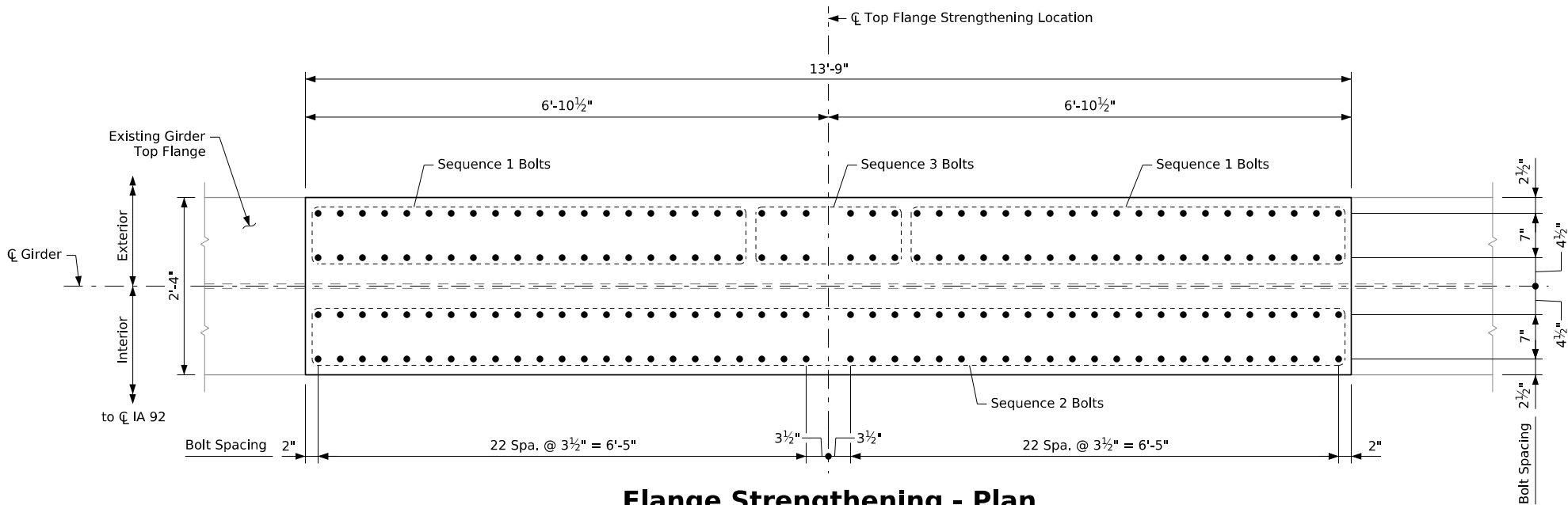
Muscatine County

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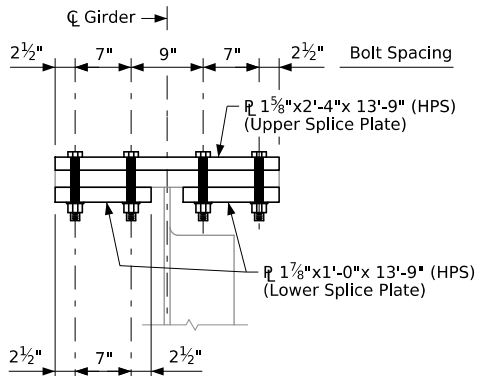
Design No. 0127Design Sheet No. 46 of 51FHWA No. 38201



Flange Strengthening - Elevation



Flange Strengthening - Plan



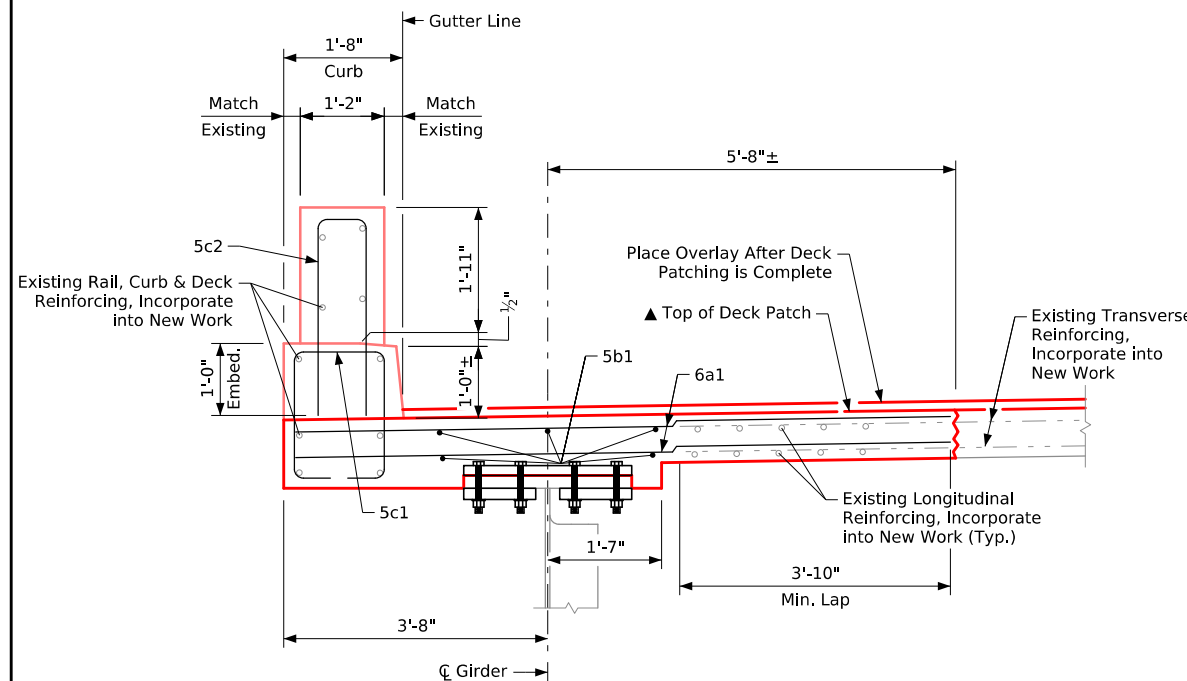
Part Section C-C

Structural Steel Quantities:

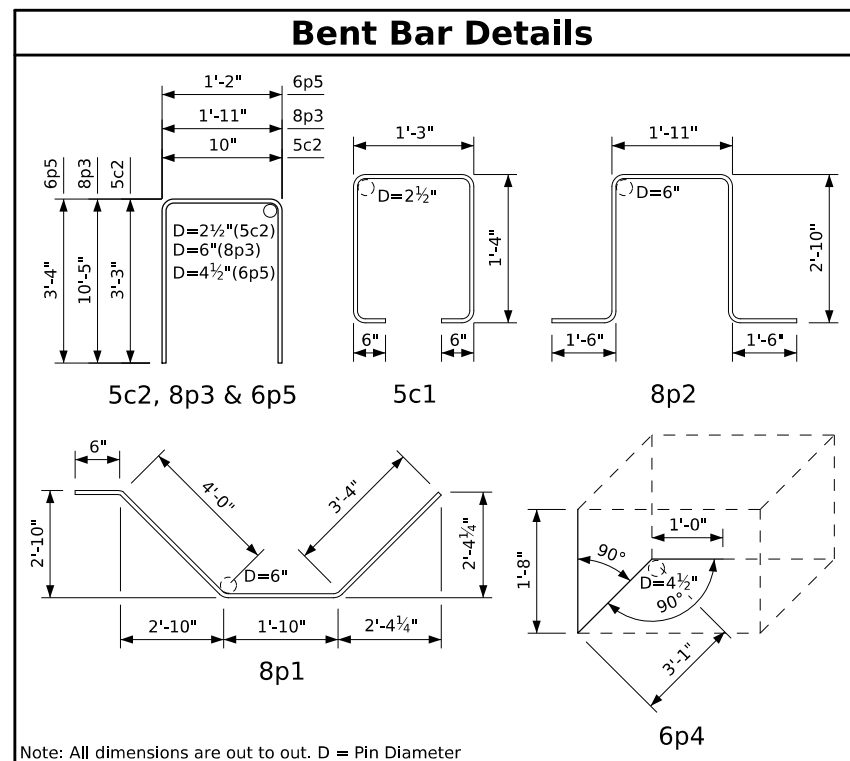
- * Pier 8, East Side = 4,680 lbs.
- * Pier 8, West Side = 4,680 lbs.
- * Pier 11, East Side = 4,680 lbs.
- ** Pier 11, West Side = 4,735 lbs.

- Notes:
- * Includes weight of H.S. bolts and 4,234 lbs. of HPS-70W.
- ** Includes weight of H.S. bolts, Light Pole Anchor Bolts, Anchor Bolt Circle Plate and 4,234 lbs. of HPS-70W.





Section A-A



Epoxy Coated Reinf. Bar List - One Flange Strengthening w/o Light Pole Blister

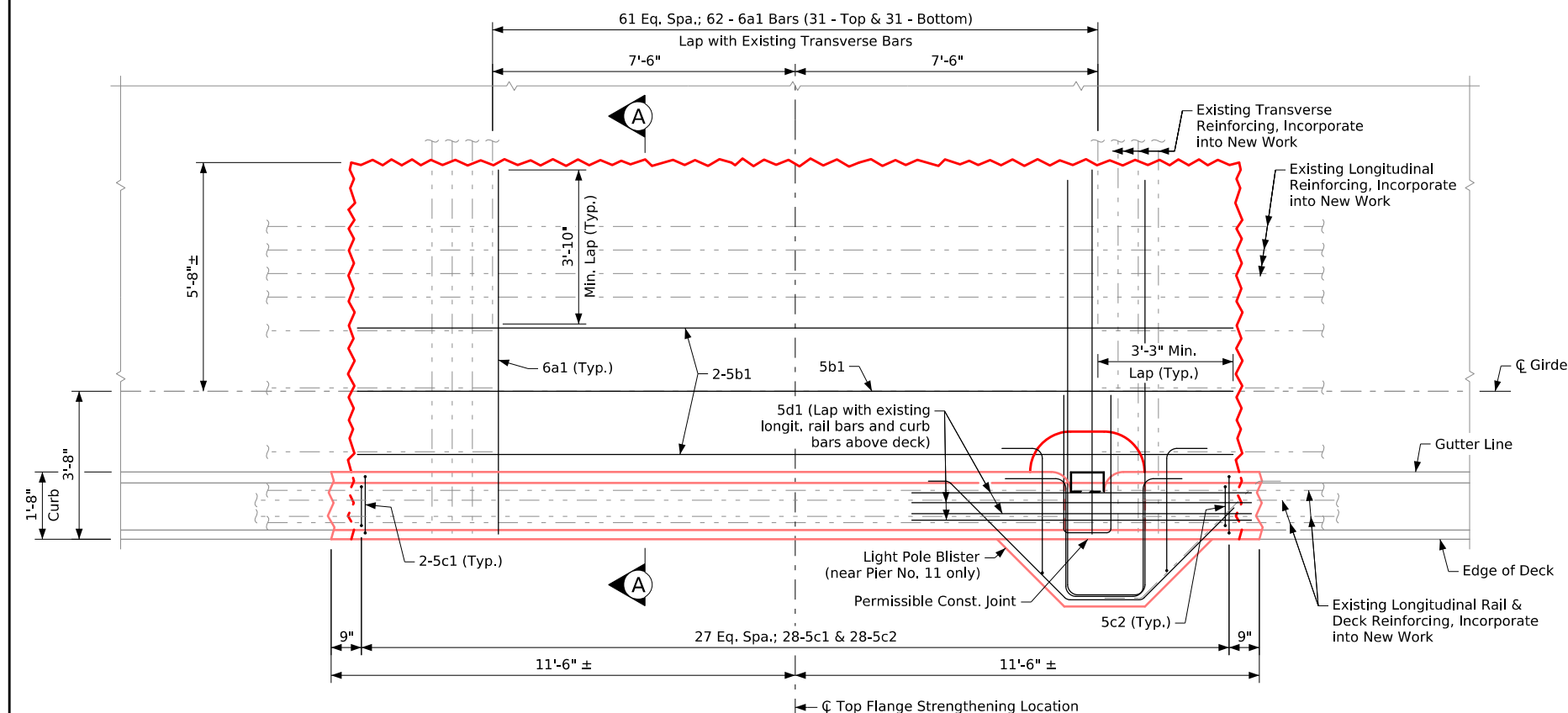
Bar	Location	Shape	No.	Length	Weight
6a1	Deck Transverse, Top & Bottom	—	62	9'-0"	838
5b1	Deck Longitudinal	—	5	21'-6"	112
5c1	Curb Hoops	□	28	4'-11"	144
5c2	Retrofit Rail Vertical	□	28	7'-4"	214
Epoxy Reinforcing Steel Total Weight (lbs.)					1,308

Epoxy Coated Reinf. Bar List - One Flange Strengthening w/ Light Pole Blister

Bar	Location	Shape	No.	Length	Weight
6a1	Deck Transverse, Top & Bottom	—	62	9'-0"	838
5b1	Deck Longitudinal	—	5	21'-6"	112
5c1	Curb Hoops	□	28	4'-11"	144
5c2	Retrofit Rail Vertical	□	28	7'-4"	214
5d1	Retrofit Rail Horizontal	—	6	8'-5"	53
8p1	Light Pole Blister	∨	2	9'-8"	52
8p2	Light Pole Blister Transverse	∨	2	10'-7"	57
8p3	Light Pole Blister Transverse	□	2	22'-9"	121
6p4	Light Pole Blister	∨	2	5'-9"	17
6p5	Deck Drain	□	2	7'-10"	24
Epoxy Reinforcing Steel Total Weight (lbs.)					1,632

Concrete Placement Quantities - Flange Strengthening

Location	Quantity
Deck and Haunch (4 @ 6.1 cu. yd.) (Fiber Reinforced)	24.4
Curbs (4 @ 1.4 cu. yd.)	5.6
Retrofit Rails (4 @ 1.9 cu. yd.)	7.6
Light Pole Blister	0.5
Total (cu. yd.)	38.1

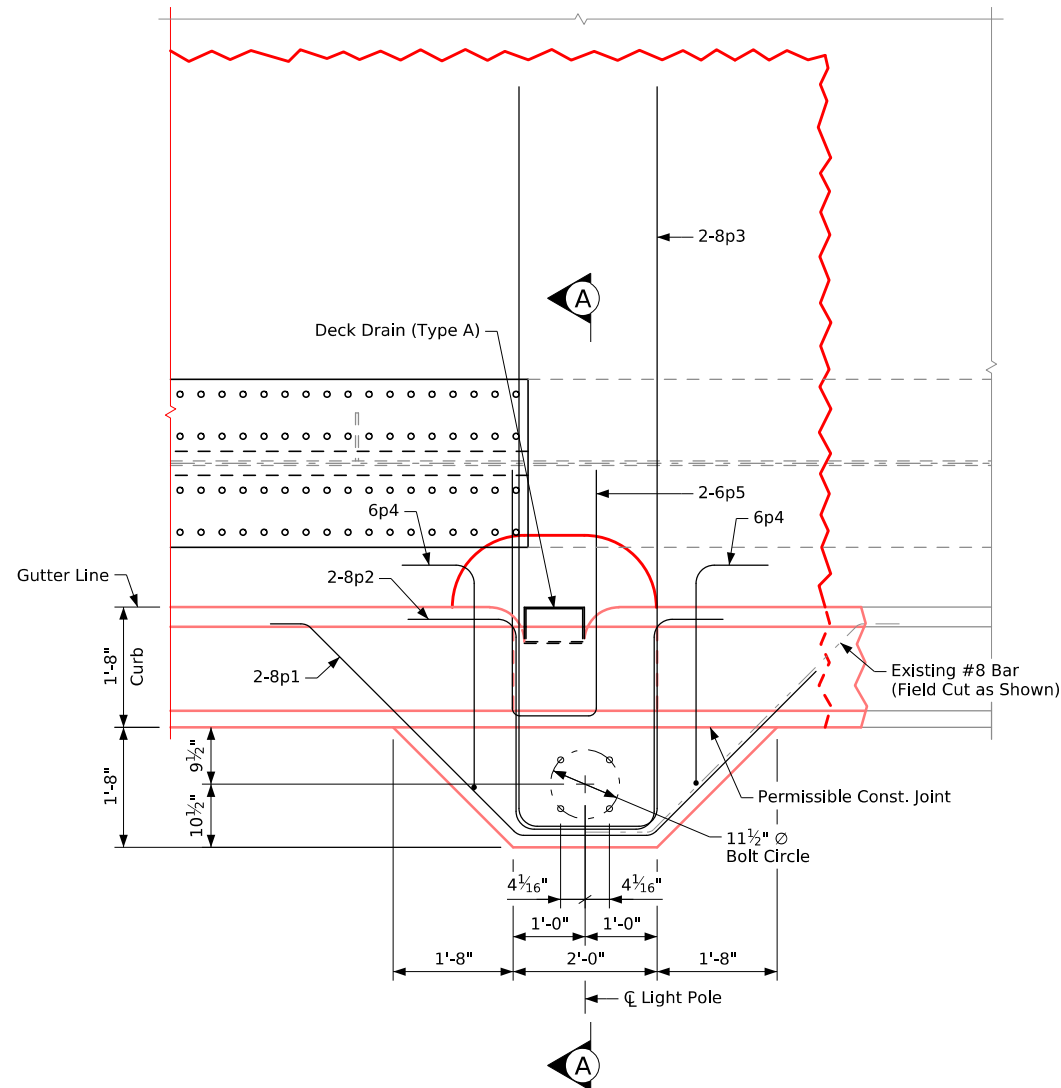


Reconstruction Part Plan View

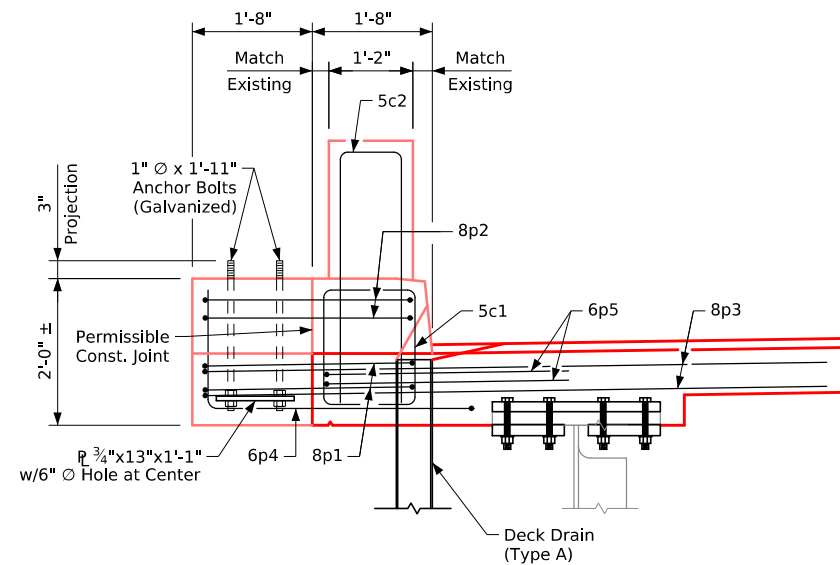
Notes:
For drain tube details, see Design Sheet No. 49.
▲ Top of deck patch shall be scarified/roughened prior to placement of deck overlay.

Design For Repair to 0° Skew
3018'-0" x 32'-0"
Steel Thru Truss Bridge
Variable End Spans 512'-0" Main Span
Flange Strengthening Details
STA. 17+50.88 (C/A 92) Turn-In Date: August 2026
Muscatine County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 0127 Design Sheet No. 47 of 51 FHWA No. 38201

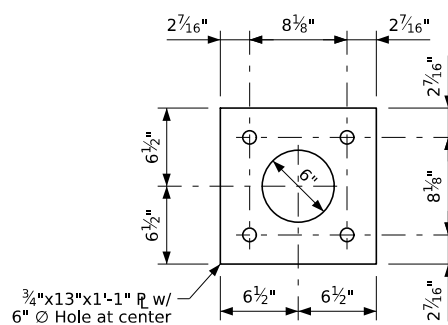




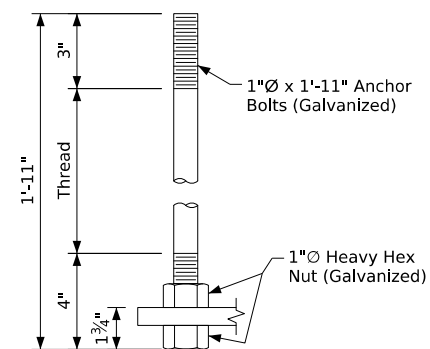
Part Plan View At Light Pole Blister



Section A-A
(Longitudinal Curb, Retrofit Rail Reinforcing, and Deck Reinforcing Not Shown for Clarity)



Anchor Bolt Circle Plate



Anchor Bolt

Lighting Notes:

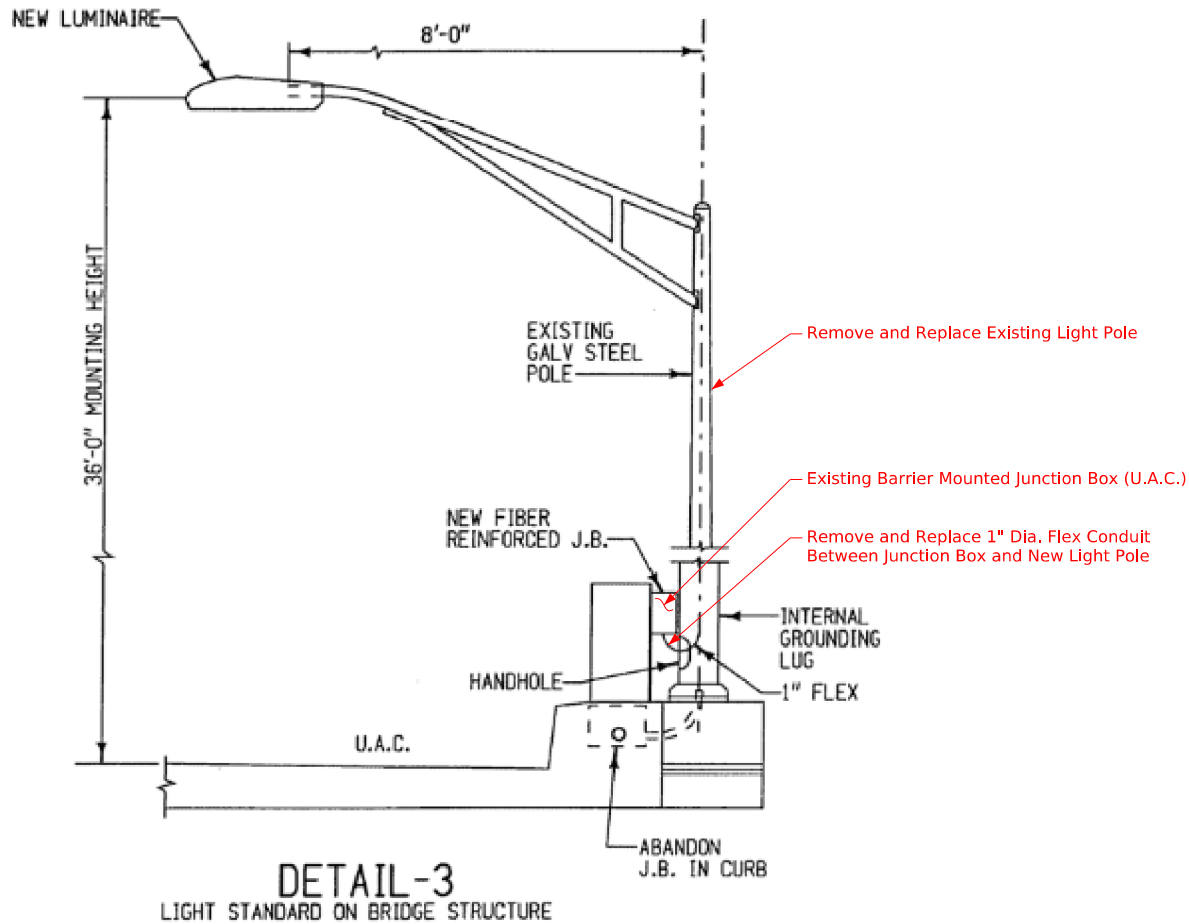
All anchor bolt material shall comply with the requirements of Iowa DOT Construction and Materials I.M. 453.08 and Standard Specifications 4185.02, B2.

Welding of anchor bolts shall not be allowed. The Contractor shall obtain a template from the Manufacturer/Fabricator for proper placement of the anchor bolts.

For Light Pole Details, see Design Sheet No. 51.

Design For Repair to 0° Skew		
3018'-0" x 32'-0"		
Steel Thru Truss Bridge		
Variable End Spans	512'-0" Main Span	
Flange Strengthening Details		
STA. 17+50.88 (C IA 92)	Turn-in Date: August 2026	
Muscatine County		
IOWA DEPARTMENT OF TRANSPORTATION		
Design No. 0127	Design Sheet No. 48 of 51	FHWA No. 38201





Existing Light Pole Detail

(From As Built Plans, Project No. BRFN-092-9(118)--39-70, for Information Only)

Lighting Notes:

This work shall consist of removing and replacing existing steel light poles near Piers 11 and 22. New poles and associated bracket arms shall be galvanized and match existing pole dimensions as near as practical. For light pole anchorage details, see Design Sheet No. 48.

The Contractor shall be responsible for supplying and installing light emitting diode (LED) luminaires as described.

LED luminaires shall be from one of the following:

- Type II distribution (light poles), gray/silver finish:
- American Electric (Autobahn 'ATB0-P303-MVolt-R2')
- GE/Current (Evolve 'ERL1-0-16-B5-40-Gray')
- Lumec (Roadfocus 'RPM-130W32LED-4K-G2-R2S-UNV-GY3')
- or approved equal

All costs for materials, labor and equipment necessary to furnish and install the new light poles and pole mounted LED luminaires, including any conduit and conductor required, shall be included in the per each price bid for "Lighting Poles". Removal of the existing light poles and light pole blister near Pier 11 is included in "Removals, as per Plan". Reconstruction of the light pole blister near Pier 11 is included with bid items "Structural Concrete (Miscellaneous)" and "Reinforcing Steel, Epoxy Coated".



Design For Repair to 0° Skew
3018'-0" x 32'-0"
Steel Thru Truss Bridge
Variable End Spans 512'-0" Main Span
Miscellaneous Repair Details
STA. 17+50.88 (C 1A 92) Turn-In Date: August 2026
Muscatine County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 0127 Design Sheet No. 50 of 51 FHWA No. 38201

FILE NO. 32399	ENGLISH	DESIGN TEAM KD\NJL\SSS	MUSCATINE COUNTY	PROJECT NUMBER BRF-092-9(165)--38-70	SHEET NUMBER V.50
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South Abutment Berm

Berm Erosion Repair Notes:

The Contractor shall repair berm erosion along the South Abutment berm by temporarily relocating the existing stone/rock, filling the eroded areas with compacted suitable fill and spreading the existing stone/rock over the area. Repair areas will be determined in the field by the Engineer.

Engineering fabric, if encountered at repair areas shall be removed and replaced to match existing limits. The engineering fabric shall be in accordance with Article 4196.01, B, 3, of the Standard Specifications. Engineering fabric shall be lapped in shingle fashion with up slope lap piece on top and stapled for continuity. Laps shall be minimum of 1 ft in length.

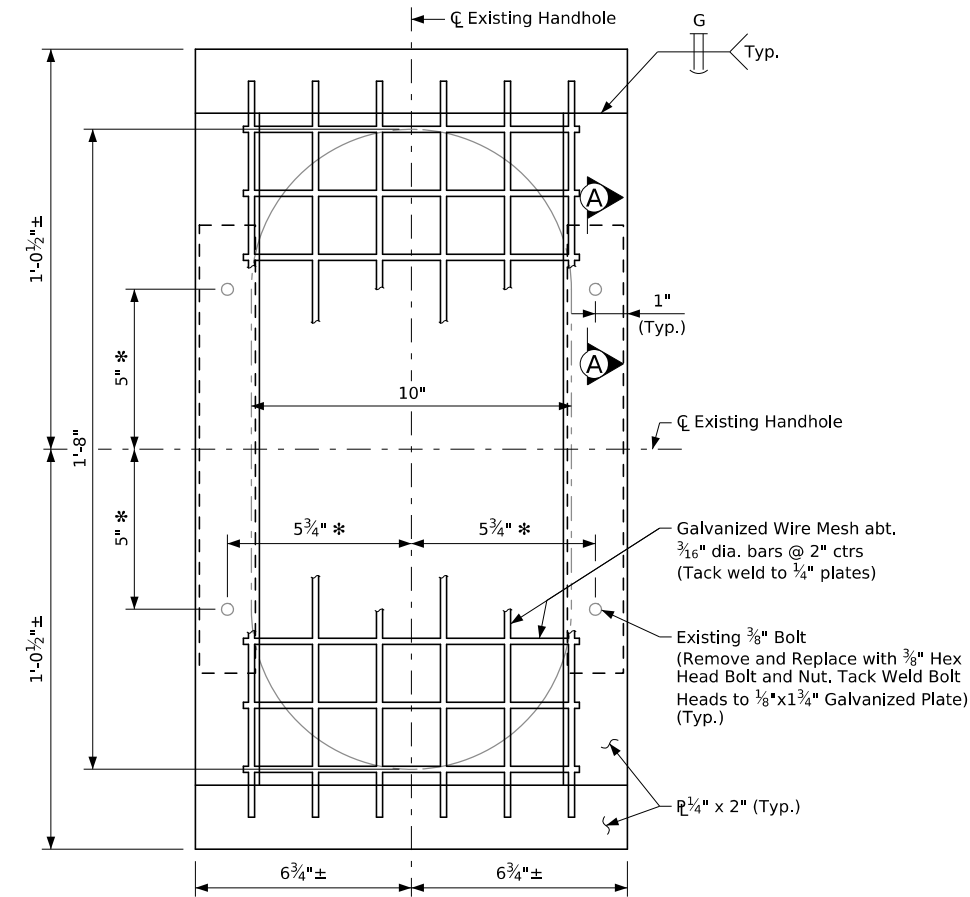
All costs for labor and material required to repair the berm shall be included in the lump sum unit price bid for "Berm Erosion Repair". No additional measurement or payment will be made. Approximately 5 CY of suitable fill is estimated to repair the eroded areas.

Access Cover Notes:

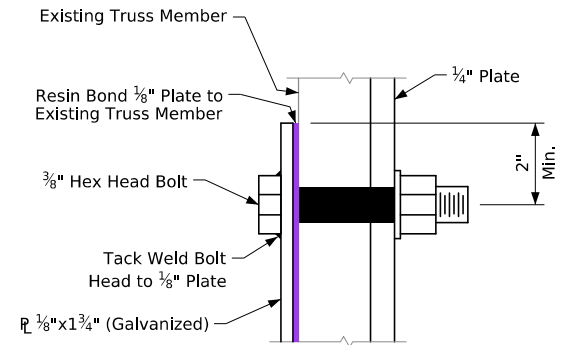
The plates for bird screen wire mesh frame shall be 1/4" thick steel and shall be galvanized after fabrication. The bid item "Access Covers" shall include all costs associated with fabricating and installing the Access Covers.

Steel plates for frames shall meet requirements of ASTM A709 Grade 36. 3/8" mechanically galvanized steel hex head bolts and hex nut shall meet the requirements of ASTM B695-04 (2009) and A307-12 Grade A.

* Handhole dimensions were taken from original project plans (Design No. 170) and shall be verified in the field by the Contractor before starting construction. Field measurements are to be included in the shop drawings.



Bird Screen Detail at L0 (East & West Truss)



Part Section A-A



Design For Repair to 0° Skew

3018'-0" x 32'-0"

Steel Thru Truss Bridge

Variable End Spans512'-0" Main Span

Miscellaneous Repair Details

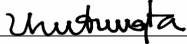
STA. 17+50.88 (C/LA 92)Turn-In Date: August 2026

Muscatine County

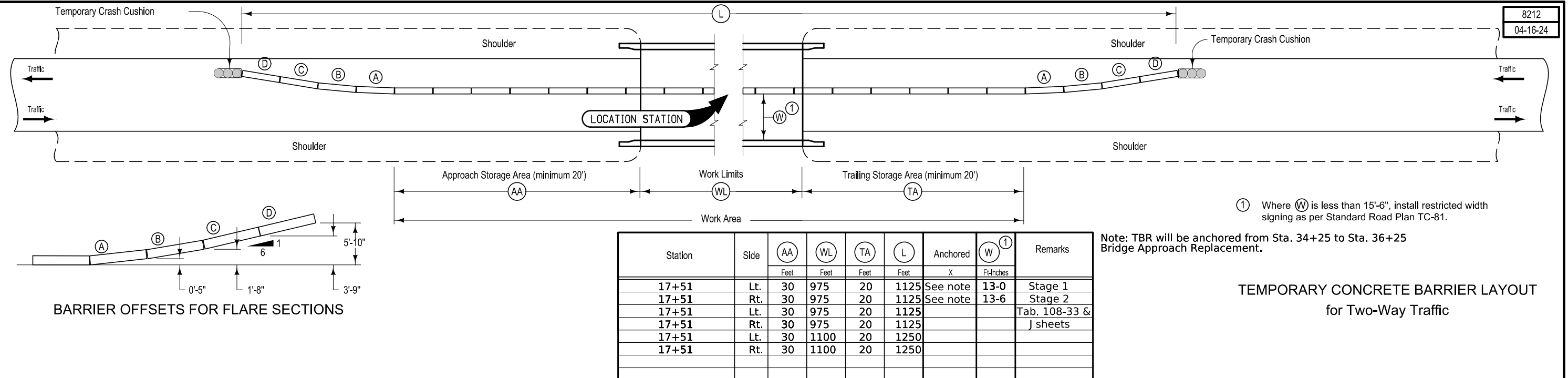
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0127Design Sheet No. 51 of 51FHWA No. 38201

A Sheets A.3	Title Sheets Title Sheet
B Sheets B.1 - 2	Typical Cross Sections and Details Typical Cross Sections and Details
C Sheets C.1 - 2 C.3 C.4 C.5 - 14	Quantities and General Information Estimated Project Quantities & Reference Information Index of Tabulations Estimate Reference Information Tabulations
D Sheets D.1 D.2	Mainline Plan and Profile Sheets Plan Legend & Symbol Information Sheet "IA 92"
J Sheets J.1 - 2 J.3 - 9	Traffic Control and Staging Sheets Traffic Control/ Staging Legend and Symbol Information Traffic Control layouts and Detour plan sheets
R Sheets RC.1 - 6	Erosion Control Sheets Est. Quantities, PPP, General Notes and Tabulations

ROADWAY DESIGN	
	I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa. Signature Dung T. Ta Printed or Typed Name  Date 6-09-2026 My license renewal date is December 31, 2027
Pages or sheets covered by this seal: A.3; B.1-B.2; C.1-C.14; D.1-D.2; J.1-J.9;	

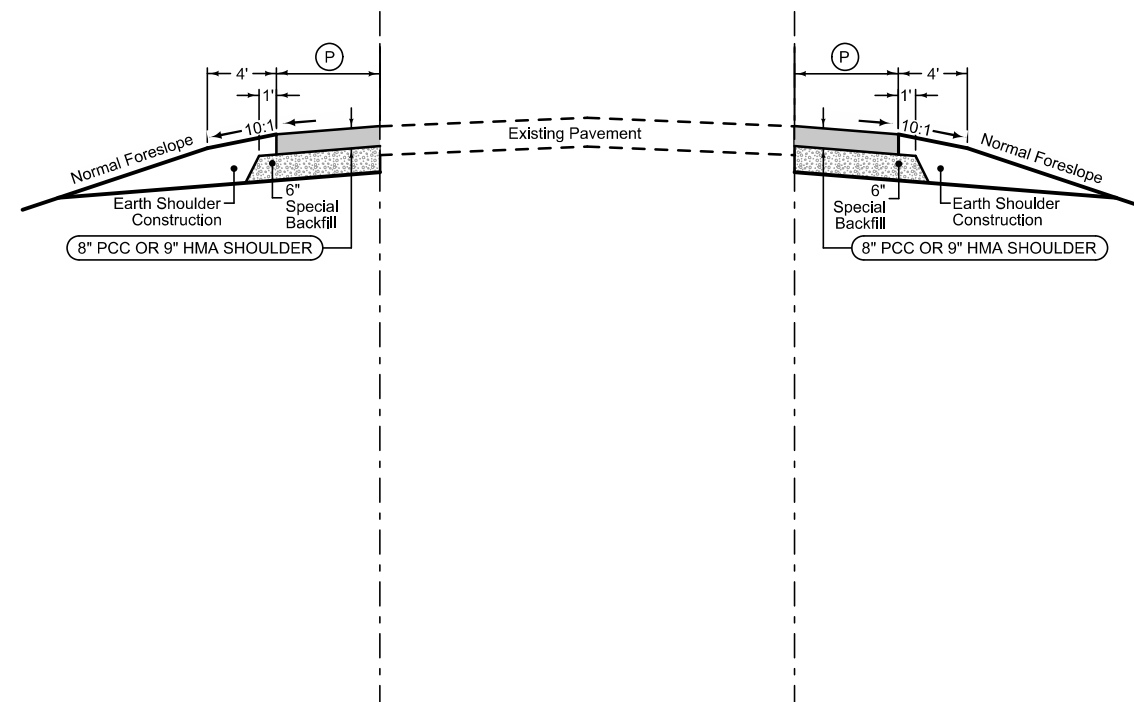
DESIGNER INFORMATION



Paved Shoulder Alternates

Refer to Road Design Details 7157
and Tab. 112-9 in the C sheets
for shoulder information.

4_P_ALT 04-21-20			
Direction of Travel	BEGIN STATION	END STATION	(P) Feet
WB	35+50	36+24.52	5.4
WB	36+24.52	36+85.21	5.4-8.2
WB	36+85.21	37+05.19	8.2-7.3
WB	37+05.19	38+75.00	4.0



Paved Shoulder Alternates

Refer to Road Design Details 7157
and Tab. 112-9 in the C sheets
for shoulder information.

4_P_ALT_ 04-21-20			
Direction of Travel	BEGIN STATION	END STATION	(P) Feet
EB	35+50.00	36+22.32	4.9-7.5
EB	36+22.32	36+42.10	7.5-8.0
EB	36+42.10	38+75.00	4.0

DESIGNER INFORMATION

7157
10-21-25

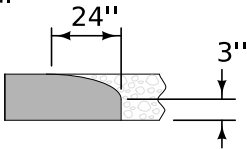
9" HMA Paved Shoulder at guardrail. 8" PCC may be substituted with the following jointing layout:

Match mainline pavement joint spacing. When mainline pavement is 8" or greater in thickness, place additional transverse 'C' joints in shoulder at mid-panel of the mainline pavement. Place longitudinal 'C' joint at P/2 from edge of mainline pavement when P is greater than 10' wide. Terminate longitudinal joint at transverse joint less than 10' in length.

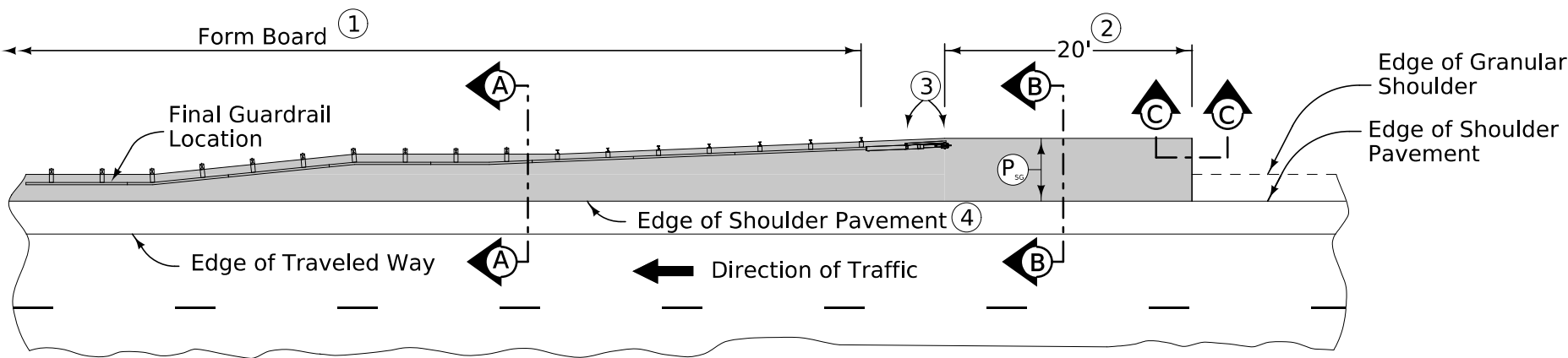
Compaction of HMA is required to face of guardrail post. Hand compaction will be allowed under guardrail. Removal and reinstallation of guardrail will be allowed with no additional payment.

Refer to Tabulation 112-9 for shoulder quantities.

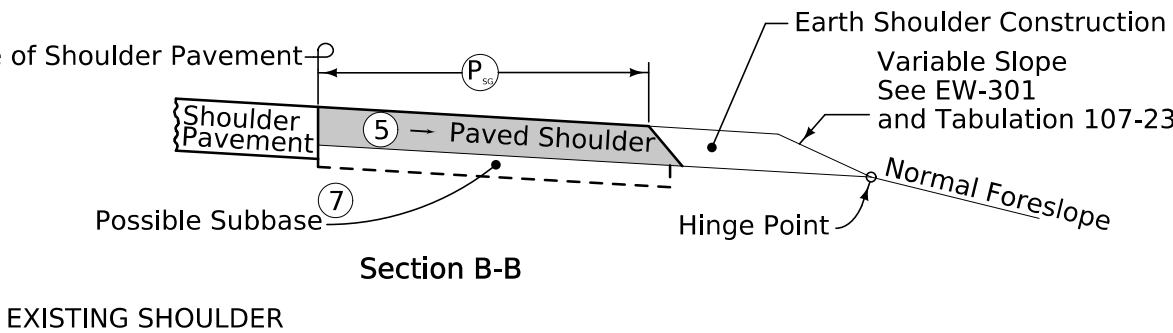
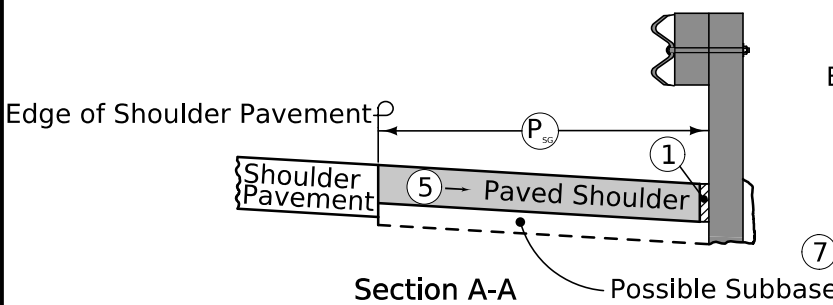
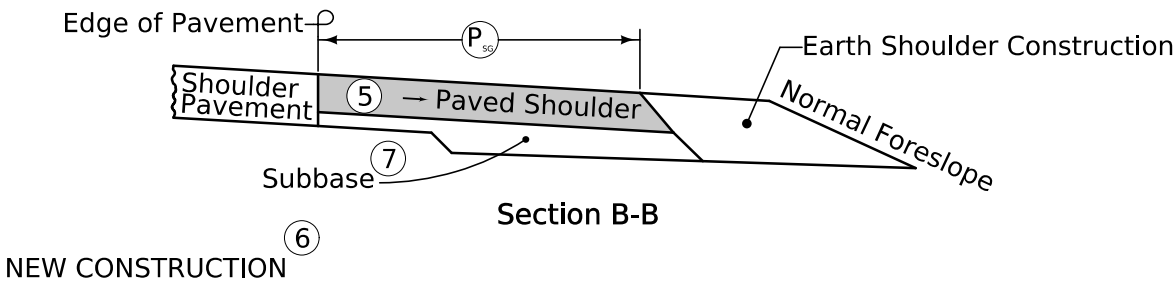
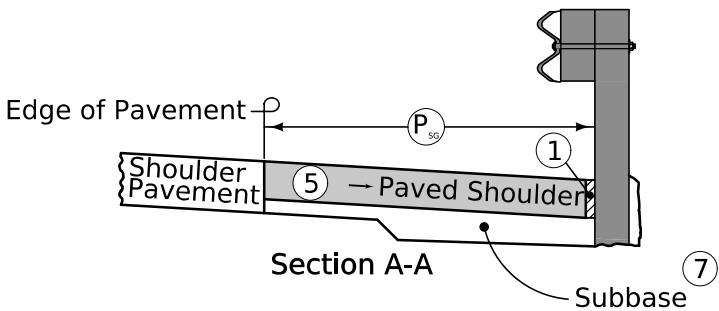
- ① PCC option only: When guardrail posts are installed prior to construction of PCC paved shoulder, fasten form board to the face of guardrail posts for the length shown.
- ② Continue paved shoulder 20 feet beyond the center of the first post.
- ③ Shoulder may be notched for first 2 posts or post sleeves may be installed through pavement. Do not drive posts through pavement.
- ④ 'BT' (per PV-101) joint for PCC shoulder. 'B' (per PV-101) joint for HMA shoulder.
- ⑤ Match shoulder slope.
- ⑥ The Contractor has the option to pave the paved shoulder at guardrail and the partial width paved shoulder as one operation.
- ⑦ Refer to other details in the plan.



Section C-C
Roll down at granular shoulder or earth.
PAVED SHOULDER AT GUARDRAIL
(ADJACENT TO PARTIAL WIDTH PAVED SHOULDER)



PLAN VIEW



ESTIMATED PROJECT QUANTITIES AND REFERENCE NOTES

Roadway DIVISION 1_
Iowa/Illinois 50%/50% :
Roadway DIVISION 2_
Illinois 100% :

Item no.	Item Code	Item	Unit	Quantities			Estimate Reference Notes
				Estimated			
				Roadway DIVISION 1_ Iowa/Illinois 50%/50%	Roadway DIVISION 2_ Illinois 100%	Total	
1	2102-0425070	SPECIAL BACKFILL	TON		336.147	336.147	Refer to Tabs 112-09 in the C sheets for details. Special Backfill HMA Total = 151.385 Tons Special Backfill PCC Total = 184.762 Tons
2	2102-2713090	EXCAVATION, CLASS 13, WASTE	CY		130.2	130.2	Dispose of excess material according to Article 1106.07 of the current specifications. Refer to Tab. 100-21 in the C sheets for details.
3	2301-0690203	BRIDGE APPROACH, BR-203	SY		229.7	229.7	Refer to Tab. 112-6 in the C sheets for details.
4	2304-0100000	DETOUR PAVEMENT	SY		353.6	353.6	Refer to Tab. 112-9 on the C sheets for details and sheet B.1 for details. The paved next to the guardrail and shoulder strengthening will be bid as Detour Pavement. Paved Shoulder 179.00 SY Shoulder at Guardrail 174.6 SY
5	2412-0000100	LONGITUDINAL GROOVING IN CONCRETE, BRIDGE DECK	SY	10,273.3		10,273.3	Refer to Tab,100-28 in the C sheets for details.
6	2505-4008120	REMOVAL OF STEEL BEAM GUARDRAIL	LF		325	325	Refer to Tab. 112-09 in the C sheets for details.
7	2505-4008300	STEEL BEAM GUARDRAIL	LF		112.5	112.5	Refer to Tab. 108-8A in the C sheets for details.
8	2505-4008410	STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION, BA-201	EACH		2	2	Refer to Tab. 108-08A in the C sheets for details.
9	2505-4021010	STEEL BEAM GUARDRAIL END ANCHOR, BOLTED	EACH		2	2	
10	2505-4021720	STEEL BEAM GUARDRAIL TANGENT END TERMINAL, BA-205	EACH		2	2	
11	2510-6745850	REMOVAL OF PAVEMENT	SY		212	212	A. Refer to Tabs.110-01 and 102-5 in the C sheets for details.
12	2527-9263181	PAVEMENT MARKINGS REMOVED	STA	58		58	Refer to Tab.108-22 in the C sheets for details.
13	2527-9263209	PAINTED PAVEMENT MARKINGS, WATERBORNE OR SOLVENT-BASED	STA	12.24		12.24	

Item no.	Item Code	Item	Unit	Quantities			Estimate Reference Notes
				Estimated			
				Roadway DIVISION 1_ Iowa/Illinois 50%/50%	Roadway DIVISION 2_ Illinois 100%	Total	
14	2527-9263216	PAINTED PAVEMENT MARKINGS, MULTI-COMPONENT LIQUID	STA	67.6		67.6	Refer to Tab. 108-22 in the C sheets.
15	2527-9263231	REMOVABLE TAPE MARKINGS, WET RETROREFLECTIVE	STA	26.88		26.88	Refer to Tab.108-22 in the C sheets for details.
16	2527-9270112	GROOVES CUT FOR PAVEMENT MARKINGS	STA	67.6		67.6	Refer to Tab108-22 for details.
17	2528-8400048	TEMPORARY BARRIER RAIL, CONCRETE	LF	7,000		7,000	Refer to J sheets; Typical B Sheets; and Tab. 108-33 in the C sheets for details. All temporary barrier rail shall be nominal 12'-6 long concrete units.
18	2528-8400256	TEMPORARY TRAFFIC SIGNALS	EACH	3		3	Refer to Tab. 108-28 in the C sheets for details.
19	2528-8445110	TRAFFIC CONTROL	LS	1		1	Refer to Traffic Control Plan on V sheets for details. Refer to Traffic Control Plan on sheet C.2
20	2528-8445113	FLAGGERS	EACH	8		8	(Designer should enter a quantity of 0) See Proposal.
21	2528-9290050	PORTABLE DYNAMIC MESSAGE SIGN (PDMS)	CDAY	18		18	
22	2551-0000110	TEMP CRASH CUSHION	EACH	4		4	Refer to Tab.108-30 in the C sheets for details. Winterize sand filled or water filled crash cushions according to the manufacturer's recommendations if they are to remain in place during winter months.

INDEX OF TABULATIONS			111_25 10/20/26
Tabulation	Tabulation Title	Sheet No.	
111_25	INDEX OF TABULATIONS	C.3	
105_04	STANDARD ROAD PLANS	C.4	
100_28	LONGITUDINAL GROOVING	C.5	
108_08A	STEEL BEAM GUARDRAIL AT CONCRETE BARRIER OR BRIDGE RAIL END SECTION	C.6	
108_22	PAVEMENT MARKING LINE TYPES	C.7 - C.8	
108_33	TEMPORARY BARRIER RAIL	C.9	
110_01	REMOVAL OF PAVEMENT	C.10	
110_07A	REMOVAL OF STEEL BEAM GUARDRAIL	C.11	
110_15	REMOVAL OF INTAKES AND UTILITY ACCESSES	C.12	
112_06	BRIDGE APPROACH SECTION	C.13	
112_09	SHOULDERS	C.14	

105_04
10/20/26

STANDARDS

The following Standards apply to construction work on this project.

Number	Date	Title
BA-200	4/21/2026	Steel Beam Guardrail Components
BA-201	10/18/2022	Steel Beam Guardrail Barrier Transition Section (MASH TL-3)
BA-202	4/15/2025	Steel Beam Guardrail Bolted End Anchor
BA-205	10/17/2023	Steel Beam Guardrail Tangent End Terminal (MASH TL-3)
BA-250	10/21/2025	Steel Beam Guardrail Installation at Concrete Barrier or Bridge End Post (MASH TL-3)
BA-401	4/20/2021	Temporary Barrier Rail (Precast Concrete)
BA-500	4/20/2021	Temporary Crash Cushions Sand Barrel
BR-203	4/21/2026	Double Reinforced 12in Approach
BR-211	4/21/2026	Bridge Approach (Abutting PCC or Composite Pavement)
DR-402	4/16/2024	Rock Flume for Bridge End Drain
EC-204	10-19-21	Perimeter, Slope and Ditch Check Sediment Control Devices
EW-401	10-20-15	Temporary Stream Crossing, Causeway, or Equipment Pad
PM-110	10/15/2024	Line Types
PV-101	10/21/2025	Joints
SI-173	4/19/2016	Object Markers
SI-211	10/18/2022	Object Marker and Delineator Placement with Guardrail
TC-1	10/15/2019	Work Not Affecting Traffic (Two-Lane or Multi-Lane)
TC-81	4/18/2023	Restricted Width Signing (Less Than 15.5 Feet)
TC-202	4/18/2023	Work Within 15 ft of Traveled Way
TC-213	4/18/2023	Lane Closure with Flaggers
TC-217	10/21/2025	Lane Closure with Signals and TBR
TC-252	10-20-26	Routes Closed to Traffic

LONGITUDINAL GROOVING		
Location	Total (SY)	Remarks
17+51.00	10060.0	Bridge Deck
17+51.00	213.3	South Bridge Approach
Total: 10273.3		

100_28
8/15/22

108 08A
4/25/25

STEEL BEAM GUARDRAIL AT CONCRETE BARRIER OR BRIDGE RAIL END SECTION																										
Possible Standards: BA-200, BA-201, BA-202, BA-205, BA-206, BA-209, BA-210, BA-211, BA-221, BA-225, BA-250, BA-260, LS-625, LS-626, LS-630, LS-635, SI-172, SI-173 and SI-211.																										
(1) Lane(s) to which the obstacle is adjacent. (2) Not a bid item. Incidental to guardrail installation.																										
Direction of Travel (1)	Side	Station	Offset (FT)	Barrier Transition Section	Barrier Transition Section (EA)	End Terminal	End Terminal ID	End Terminal Count (EA)	VT1 (LF)	VF (LF)	VT2 (LF)	ET (LF)	BA-211 Station	BA-211 (Type)	SI-211 (Type) (2)	Delineator SI-172 Type 1 (EA) (2)	Object Marker Type 2 (EA) (2)	Object Marker Type 3 Lt (EA)(2)	Object Marker Type 3 Rt (EA)(2)	Bolted End Anchor BA-202 (Type)	Bolted End Anchor BA-202 (EA)	Post Adapter BA-210 (EA)	Steel Beam Guardrail BA-200 (LF)	Remarks		
WB	Outside	34+97.36	16.0	BA-201	1	BA-205	1	1	128.125			47.70			2		3		1	B	1		87.5			
EB	Outside	34+97.36	16.0	BA-201	1	BA-205	1	1	65.625			47.70			2		3	1		B			25.0			
Total:									193.75			95.4			112.5											

108_22
11/25/25

PAVEMENT MARKING LINE TYPES

Line factors based on 6-inch wide continuous line.
*BCY4 - Place on the same side of the roadway to match existing markings near the project.
**NPY4 - Estimating purposes only. No Passing Zone Lines will be located in the field.
***MNY6 - Factor of 1.00 includes number of 6-inch passes to cover median nose area.
BCY4: Broken Centerline (Yellow) @ 0.17 BCY6: Broken Centerline (Yellow) @ 0.25 BLC6: Broken Line Contrast (White/Black) @ 0.50 BLW4: Broken Lane Line (White) @ 0.17 BLW6: Broken Lane Line (White) @ 0.25
CBW6: Crosswalk Bar (White) @ 10.00 CHW8: Channelizing Line (White) @ 1.33 CHW10: Channelizing Line (White) @ 1.67 CHY8: Channelizing Line (Yellow) @ 1.33 CHY10: Channelizing Line (Yellow) @ 1.67
CLW6: Crosswalk Line (White) @ 2.00 DCY4: Double Centerline (Yellow) @ 1.34 DCY6: Double Centerline (Yellow) @ 2.00 DDY4: Double Dotted Line (Yellow) @ 0.44 DDY6: Double Dotted Line (Yellow) @ 0.67
DLW4: Dotted Line (White) @ 0.22 DLW6: Dotted Line (White) @ 0.33 DLY4: Dotted Line (Yellow) @ 0.22 DLY6: Dotted Line (Yellow) @ 0.33 ELW4: Edge Line Right (White) @ 0.67
ELW6: Edge Line Right (White) @ 1.00 ELY4: Edge Line Left (Yellow) @ 0.67 ELY6: Edge Line Left (Yellow) @ 1.00 LDW8: Lane Drop (White) @ 0.33 LDW10: Lane Drop (White) @ 0.42
MNY6: Median Nose (Yellow) @ 1.00 NPY4: No Passing Zone Line (Yellow) @ 0.84 NPY6: No Passing Zone Line (Yellow) @ 1.25 RLW4: Ramp Edge Line Right (White) @ 0.67 RLW6: Ramp Edge Line Right (White) @ 1.00
RLY4: Ramp Edge Line Left (Yellow) @ 0.67 RLY6: Ramp Edge Line Left (Yellow) @ 1.00 SLW2: Stop Line (White) @ 4.00 SLW4: Solid Lane Line (White) @ 0.67 SLW6: Solid Lane Line (White) @ 1.00
SPW4: Sloped Curb 4" (White) @ 2.16 SPW6: Sloped Curb 6" (White) @ 2.28 SPY4: Sloped Curb 4" (Yellow) @ 2.16 SPY6: Sloped Curb 6" (Yellow) @ 2.28 STW6: Standard Curb 6" (Yellow) @ 2.03
STY6: Standard Curb 6" (Yellow) @ 2.03 YLW2: Yield Line (White) @ 1.15

Road ID	Station From	Station To	Lane	Marking Type	Left	Center	Right	Groove Marking Needed?	Groove Qty. (STA)	DCY4 (STA)	DCY4 Factored (STA)	DCY6 (STA)	DCY6 Factored (STA)	ELW4 (STA)	ELW4 Factored (STA)	ELW6 (STA)	ELW6 Factored (STA)	SLW2 (STA)	SLW2 Factored (STA)	Remarks		
IA 92	22+35.00	39+25.00	Both	Multi-Component Liquid Material		x		Yes	33.80			16.90	33.80							Final Pavement Marking		
IA 92	22+35.00	39+25.00	EB	Multi-Component Liquid Material			X	Yes	16.90							16.90	16.90			Final Pavement Marking		
IA 92	22+35.00	39+25.00	WB	Multi-Component Liquid Material			X	Yes	16.90							16.90	16.90			Final Pavement Marking		
									67.6					33.8					33.8			
Marking Type Multi-Component Liquid Material:																						
IA 92	22+35.00	39+25.00	Both	Removal of Paint		x				16.90	22.65											
IA 92	22+35.00	39+25.00	WB	Removal of Paint			X							16.90	11.32							
IA 92	22+35.00	39+25.00	EB	Removal of Paint			X							16.90	11.32							
IA 92	3+35.00	4+20.00	Both	Removal of Paint			X									0.85	0.85			Removal Stage 1		
IA 92	15+60.00	16+45.00	Both	Removal of Paint			X									0.85	0.85			Removal Stage 1		
IA 92	3+35.00	4+20.00	Both	Removal of Paint	X											0.85	0.85			Removal Stage 2		
IA 92	15+60.00	16+45.00	Both	Removal of Paint	X											0.85	0.85			Removal Stage 2		
IA 92	18+45.00		WB	Removal of Paint			X											0.12	0.48	Removal Stage 2		
IA 92	14+70.00	15+55.00	Both	Removal of Paint												0.85	0.85			Removal Phase 2 Stage 1		
IA 92	25+55.00	26+40.00	Both	Removal of Paint			X									0.85	0.85			Removal Phase 2 Stage 1		
IA 92	12+30.00		WB	Removal of Paint			X											0.12	0.48	Removal Phase 2 Stage 2		
IA 92	14+70.00	15+55.00	Both	Removal of Paint	X											0.85	0.85			Removal Phase 2 Stage 2		
IA 92	25+55.00	26+40.00	Both	Removal of Paint	X											0.85	0.85			Removal Phase 2 Stage 2		
IA 92	28+80.00		WB	Removal of Paint			X											0.12	0.48	Removal Phase 2 Stage 2		
IA 92	24+65.00	25+50.00	Both	Removal of Paint			X									0.85	0.85			Removal Phase 3 Stage 1		
IA 92	35+50.00	36+35.00	Both	Removal of Paint			X									0.85	0.85			Removal Phase 3 Stage 1		
IA 92	22+25.00		EB	Removal of Paint														0.12	0.48	Removal Phase 3 Stage 2		
IA 92	24+65.00	25+50.00	Both	Removal of Paint	X											0.85	0.85			Removal Phase 3 Stage 2		
IA 92	35+50.00	36+35.00	Both	Removal of Paint	X											0.85	0.85			Removal Phase 3 Stage 2		
IA 92	38+75.00		WB	Removal of Paint			X									0.12	0.12			Removal Phase 3 Stage 2		
									22.65					22.64					10.32			1.92
Marking Type Removal of Paint:																						
IA 92	+95.00	3+35.00	Both	Removal of Removable Tape			X									2.40	2.40			Removal Stage 1		
IA 92	16+45.00	18+85.00	Both	Removal of Removable Tape			X										2.40			Removal stage 1		
IA 92	+95.00	3+35.00	Both	Removal of Removable Tape	X											2.40	2.40			Removal Stage 2		
IA 92	12+30.00	14+70.00	Both	Removal of Removable Tape			X													Removal Phase 2 Stage 1		
IA 92	26+40.00	28+80.00	Both	Removal of Removable Tape			X									2.40	2.40			Removal Phase 2 Stage 1		
IA 92	12+30.00	14+70.00	Both	Removal of Removable Tape	X											2.40	2.40			Removal Phase 2 Stage 2		
IA 92	26+40.00	28+80.00	Both	Removal of Removable Tape												2.40	2.40			Removal Phase 2 Stage 2		
IA 92	22+25.00	24+65.00	Both	Removal of Removable Tape			X									2.40	2.40			Removal Phase 3 Stage 1		
IA 92	36+35.00	38+75.00	Both	Removal of Removable Tape			X									2.40	2.40			Removal Phase 3 Stage 1		
IA 92	22+25.00	24+65.00	Both	Removal of Removable Tape	X											2.40	2.40			Removal Phase 3 Stage 2		
IA 92	36+35.00	38+75.00	Both	Removal of Removable Tape	X											2.40	2.40			Removal Phase 3 Stage 2		
									24													
Marking Type Removal of Removable Tape:																						
IA 92	3+35.00	4+20.00	Both	Waterborne/Solvent Paint			X									0.85	0.85			Stage 1		
IA 92	15+60.00	16+45.00	Both	Waterborne/Solvent Paint			X									0.85	0.85			Stage 1		
IA 92	18+85.00		WB	Waterborne/Solvent Paint			X											0.12	0.48	Stage 1		

FILE NO. 32399

ENGLISH

DESIGN TEAM Ta\ McClanahan

MUSCATINE COUNTY

PROJECT NUMBER BRF-092-9(165)--38-70

SHEET NUMBER C.7

7/13/2026 3:57:30 PM shernie.mcclanahan@iowadot.us

108_22
11/25/25

PAVEMENT MARKING LINE TYPES

Line factors based on 6-inch wide continuous line.
*BCY4 - Place on the same side of the roadway to match existing markings near the project.
**NPY4 - Estimating purposes only. No Passing Zone Lines will be located in the field.
***MNY6 - Factor of 1.00 includes number of 6-inch passes to cover median nose area.
BCY4: Broken Centerline (Yellow) @ 0.17 BCY6: Broken Centerline (Yellow) @ 0.25 BLC6: Broken Line Contrast (White/Black) @ 0.50 BLW4: Broken Lane Line (White) @ 0.17 BLW6: Broken Lane Line (White) @ 0.25
CBW6: Crosswalk Bar (White) @ 10.00 CHW8: Channelizing Line (White) @ 1.33 CHW10: Channelizing Line (White) @ 1.67 CHY8: Channelizing Line (Yellow) @ 1.33 CHY10: Channelizing Line (Yellow) @ 1.67
CLW6: Crosswalk Line (White) @ 2.00 DCY4: Double Centerline (Yellow) @ 1.34 DCY6: Double Centerline (Yellow) @ 2.00 DDY4: Double Dotted Line (Yellow) @ 0.44 DDY6: Double Dotted Line (Yellow) @ 0.67
DLW4: Dotted Line (White) @ 0.22 DLW6: Dotted Line (White) @ 0.33 DLY4: Dotted Line (Yellow) @ 0.22 DLY6: Dotted Line (Yellow) @ 0.33 ELW4: Edge Line Right (White) @ 0.67
ELW6: Edge Line Right (White) @ 1.00 ELY4: Edge Line Left (Yellow) @ 0.67 ELY6: Edge Line Left (Yellow) @ 1.00 LDW8: Lane Drop (White) @ 0.33 LDW10: Lane Drop (White) @ 0.42
MNY6: Median Nose (Yellow) @ 1.00 NPY4: No Passing Zone Line (Yellow) @ 0.84 NPY6: No Passing Zone Line (Yellow) @ 1.25 RLW4: Ramp Edge Line Right (White) @ 0.67 RLW6: Ramp Edge Line Right (White) @ 1.00
RLY4: Ramp Edge Line Left (Yellow) @ 0.67 RLY6: Ramp Edge Line Left (Yellow) @ 1.00 SLW2: Stop Line (White) @ 4.00 SLW4: Solid Lane Line (White) @ 0.67 SLW6: Solid Lane Line (White) @ 1.00
SPW4: Sloped Curb 4" (White) @ 2.16 SPW6: Sloped Curb 6" (White) @ 2.28 SPY4: Sloped Curb 4" (Yellow) @ 2.16 SPY6: Sloped Curb 6" (Yellow) @ 2.28 STW6: Standard Curb 6" (Yellow) @ 2.03
STY6: Standard Curb 6" (Yellow) @ 2.03 YLW2: Yield Line (White) @ 1.15

Road ID	Station From	Station To	Lane	Marking Type	Left	Center	Right	Groove Marking Needed?	Groove Qty. (STA)	DCY4 (STA)	DCY4 Factored (STA)	DCY6 (STA)	DCY6 Factored (STA)	ELW4 (STA)	ELW4 Factored (STA)	ELW6 (STA)	ELW6 Factored (STA)	SLW2 (STA)	SLW2 Factored (STA)	Remarks
IA 92	3+35.00	4+20.00	Both	Waterborne/Solvent Paint	X												0.85			Stage 2
IA 92	15+60.00	16+45.00	Both	Waterborne/Solvent Paint	X												0.85			Stage 2
IA 92	12+30.00		EB	Waterborne/Solvent Paint			X											0.12	0.48	Phase 2 Stage 1
IA 92	14+70.00	15+55.00	Both	Waterborne/Solvent Paint			X									0.85	0.85			Phase 2 Stage 1
IA 92	25+55.00	26+40.00	Both	Waterborne/Solvent Paint			X									0.85	0.85			Phase 2 Stage 1
IA 92	28+80.00		WB	Waterborne/Solvent Paint			X									2.40	0.12			Phase 2 Stage 1
IA 92	14+70.00	15+55.00	Both	Waterborne/Solvent Paint	X											0.85	0.85			Phase 2 Stage 2
IA 92	25+55.00	26+40.00	Both	Waterborne/Solvent Paint	X											0.85	0.85			Phase 2 Stage 2
IA 92	22+25.00		EB	Waterborne/Solvent Paint			X											0.12	0.48	Phase 3 Stage 1
IA 92	24+65.00	25+50.00	Both	Waterborne/Solvent Paint			X									0.85	0.85			Phase 3 Stage 1
IA 92	35+50.00	36+35.00	Both	Waterborne/Solvent Paint			X									0.85	0.85			Phase 3 Stage 1
IA 92	38+75.00		WB	Waterborne/Solvent Paint			X											0.12	0.48	Phase 3 Stage 1
IA 92	24+65.00	25+50.00	Both	Waterborne/Solvent Paint												0.85	0.85			Phase 3 Stage 2
IA 92	35+50.00	36+35.00	Both	Waterborne/Solvent Paint	X											0.85	0.85			Phase 3 Stage 2
																	10.32		1.92	
Marking Type Waterborne/Solvent Paint:																				
IA 92	+95.00	3+35.00	Both	Wet Retroreflective Removable Tape			X									2.40	2.40			Phase 1 Stage 1
IA 92	16+45.00	18+85.00	Both	Wet Retroreflective Removable Tape			X									2.40	2.40			Stage 1
IA 92	+95.00	3+35.00	Both	Wet Retroreflective Removable Tape	X												0.24			Stage 2
IA 92	16+45.00	18+85.00	Both	Wet Retroreflective Removable Tape	X												2.40			Stage 2
IA 92	16+45.00	18+85.00	Both	Wet Retroreflective Removable Tape	X											2.40	2.40			Removal Stage 2
IA 92	12+30.00	14+70.00	Both	Wet Retroreflective Removable Tape			X									2.40	2.40			Phase 2 stage 1
IA 92	26+40.00	28+80.00	Both	Wet Retroreflective Removable Tape			X									2.40	2.40			Phase 2 Stage 1
IA 92	12+30.00	14+70.00	Both	Wet Retroreflective Removable Tape	X											2.40	2.40			Phase 2 Stage 2
IA 92	26+40.00	28+80.00	Both	Wet Retroreflective Removable Tape	X											2.40	2.40			Phase 2 stage 2
IA 92	22+25.00	24+65.00	Both	Wet Retroreflective Removable Tape			X									2.40	2.40			Phase 3 Stage 1
IA 92	36+35.00	38+75.00	Both	Wet Retroreflective Removable Tape			X									2.40	2.40			Phase 3 Stage 1
IA 92	22+25.00	24+65.00	Both	Wet Retroreflective Removable Tape	X											0.24	0.24			Phase 3 Stage 2
IA 92	36+35.00	38+75.00	Both	Wet Retroreflective Removable Tape	X											2.40	2.40			Phase 3 Stage 2
																	26.88			
Marking Type Wet Retroreflective Removable Tape:																				
Total:									67.6		22.65		33.8		22.64		105.32		3.84	

Groove Marking 67.6
Multi Component Liquid Material Total 67.6
Waterborne Solvent Paint Total 12.24
Wet Retroreflective Removable Tape Total 26.88
Removal of Removable Tape Total 24.00
Removal of Paint Total 57.53
* Length was doubled because tape should be 8" (two 4" strips side by side)

TEMPORARY BARRIER RAIL Possible Standard: BA-401 Possible Detail: 560-7 * Not a bid item. Anchorage requirements are based on TBR locations shown in the plans. TBR alignments that vary from what is shown in the plans may result in additional TBR sections requiring anchorage.							108_33 8/15/22
No.	Station From	Station To	Length (FT)	Barrier Rail Type	Anchored*	Modular Glare Screen System	Remarks
	11+88.50	23+13.50	1125.0	Concrete BA-401		No	Stage 1 & (See Note *)
	11+88.50	23+13.50	1125.0	Concrete BA-401		No	Stage 2 & (See Note *)
	11+88.50	23+13.50	1125.0	Concrete BA-401		No	(See Note*)
	11+88.50	23+13.50	1125.0	Concrete BA-401		No	(See Note*)
	11+26.00	23+76.00	1250.0	Concrete BA-401		No	(See Note*)
	11+26.00	23+76.00	1250.0	Concrete BA-401		No	(See Note*)

* Note: TBR will be anchored from Sta. 34+25 to Sta. 36+25 Bridge Approach Replacement.
See J Sheets for details.

REMOVAL OF PAVEMENT Refer to Tabulation 102-5.						110_01 4/5/24
* Not a bid item.						
Station From	Station To	Side	Pavement Type	Area (SY)	Saw Cut* (LF)	Remarks
34+90.41	35+50.00	2-Lane	PCC/HMA	211.9	32.0	Illinois State/ 9" exist Pav.
Total:				211.9	32	

110 07A
8/15/22

REMOVAL OF STEEL BEAM GUARDRAIL					
(1) Lane(s) to which the installation is adjacent.					
(2) Includes length of End Terminals and End Anchors.					
No.	Direction of Traffic (1)	Station From	Station To	Side	Removal of Guardrail (2) (LF)
	WB	34+90.00	36+90.00	Right	187.5
	EB	34+90.00	36+30.00	Right	137.5
Total:					325

110_15 8/15/22			
REMOVAL OF INTAKES AND UTILITY ACCESSES			
Item No.	Location Description	Type	Remarks
1	NE Corner of bridge	Intakes	IL side bridge FHWA # 38201
1	SE corner	Intakes	IL side bridge FHWA # 38201

112_06

10/20/26

BRIDGE APPROACH SECTION

Refer to the BR Series.

* Not a bid item

** Verify layout of bridge approach does not conflict with guardrail posts.

Bridge Station	End	Skew Ahead Left (Degrees)	Skew Ahead Right (Degrees)	(T) Thickness (IN)	Pay Length (FT)	Right Edge Offset (FT) **	Left Edge Offset (FT) **	Non-Reinf. Area (SY)	Single-Reinf. Area (SY)	Double-Reinf. Area (SY)	SRP Approach	SRP Abutment Type	SRP Abutting Pavement	Perforated * 4" Subdrain (LF)	Subdrain * Outlet (STA)	Subdrain * Outlet Side	Porous * Backfill (CY)	Modified * Subbase (TON)	Polymer * Grid (SY)	Special * Backfill (TON)	Remarks
17+51.00	E				60.0			77.1	77.1	75.5	BR-203	Fixed	BR-211					268.000	275.0		U.A.C Subdrain
Total:								77.1	77.1	75.5											

Nonreinforced 77.1 SY
Single Reinforced 77.1 SY
Double Reinforced 75.5 SY
Total 229.7 SY

112.09
4/21/26

SHOULDERS

(1) Lane(s) to which the shoulder is adjacent.

(2) See Typ. 7156, 7157, or 7158.

(3) Bid Item.

(4) Applies only for Paved Shoulders constructed on project with existing granular shoulders.

(5) Bid Item. Typ. 7156, 7157, or 7158.

(6) Does not include shrink.

(7) Paved shoulder thickness specified in Remarks.

(8) Subbase type specified in Remarks.

Roadway Identification	Direction of Travel (1)	Station From	Station To	Side	P Start Width (FT)	P End Width (FT)	P Width (FT)	P_SG Start Width (FT)	P_SG End Width (FT)	P SG Width (2) (FT)	L Length (FT)	Class 13 Excavation (CY)(3)(4)	HMA (TON)	HMA (TON/ STA)	Binder (TONS)	Paved Shoulder (3) (SY)	Shoulder at Grd rail (5)(7)	Reinforced Paved Shoulder(3) (SY)	Backfill Cross Section Area HMA	Special Backfill HMA Alt. (3) (TON)	Special Backfill HMA Alt. (TON/STA)	Special Backfill PCC Alt. (3) (TON)	Special Backfill PCC Alt. (TON/STA)	Subbase (3) (8) (CY)	Shoulder Const. Alt HMA (6) (CY)	Shoulder Const. Alt PCC (6) (CY)	Remarks
IA 92	WB	35+50.00	36+24.52	Right	0.0	0.0		5.4	5.4	5.4	74.52	18.6	21.881	29.363	1.313		44.7		3.40	17.736	23.800	21.544	28.910		20.37	16.42	Guardrail Paving
IA 92	WB	36+24.52	36+85.21	Right	0.0	0.0		5.4	8.2	7	60.69	2.5	24.420	40.237	1.465		45.9		4.40	18.693	30.800	21.794	35.910		9.89	11.53	Guardrail Paving
IA 92	WB	36+85.21	37+05.19	Right	0.0	0.0		8.2	7.3	7.8	19.98	7.2	9.068	45.385	0.544		17.2		4.85	6.783	33.950	7.874	39.410		5.43	4.40	Guardrail Paving
IA 92	WB	37+05.19	38+75.00	Right	4.0	4.0	4.0	0.0	0.0		169.81	31.4	40.750	23.997	2.445	75.5			2.90	34.471	20.300	43.149	25.410		46.41	37.42	Strengthening *
IA 92	EB	35+50.00	36+22.50	Right	0.0	0.0		4.9	7.5	6	72.50	20.1	25.230	34.800	1.514		49.9		3.90	19.700	27.300	23.497	32.410		19.82	15.98	Guardrail Paving
IA 92	EB	36+22.50	36+42.10	Right	0.0	0.0		7.5	8.0	8	19.60	7.3	8.967	45.748	0.538		16.9		4.90	6.723	34.300	7.724	39.410		5.36	4.32	Guardrail Paving
IA 92	EB	36+42.10	38+75.00	Right	4.0	4.0	4.0	0.0	0.0		232.90	43.1	55.890	23.997	3.353	103.5			2.90	47.279	20.300	59.180	25.410		63.66	51.32	Strengthening *
Total:												130.2	186.206			179	174.6		151.385		184.762			170.94	141.39		

* Paved PCC Shoulder

Total = 179.0

Paved PCC Shoulder at Guardrail

Total = 174.6

Total

353.6

Paved HMA Shoulder

Total = 179.0

Paved HMA Shoulder at Guardrail

Total = 174.6

Total

353.6

SURVEY SYMBOLS

	Interstate Highway Symbol		Septic Tank
	U.S. Highway Symbol		Cistern
	Iowa Highway Symbol		L.P. Gas Tank (No Footing)
	County Road Highway Symbol		Underground Storage Tank
	Evergreen Tree		Latrine
	Deciduous Tree		Satellite TV Dish
	Fruit Tree		Water Hook Up
	Shrub (Bushes)		Radio Tower
	Timber		Tower Anchor
	Hedge		Guardrail (Beam or Cable)
	Stump		Guard Post (one or two)
	Swamp		Guard Post (over two)
	Rock Outcrop		Filler Pipe
	Broken Concrete		Gas Valve
	Revetment (Rip Rap)		Water Valve
	Cemetery		Speed Limit Sign
	Grave		Mile Marker Post
	Cave		Sign
	Sink Hole		Traffic Signal Control Box
	Board Fence		Rail Road Signal Control Box
	Chain Link or Security Fence		Telephone Switch Box
	Wire Fence		Electric Box
	Terrace		
	Earth Dam or Dike (Existing)		
	Tile Outlet		
	Edge of Water		
	Existing Drainage		
	Right of Way Rail or Lot Corner		
	Concrete Monument		
	Well		
	Windmill		
	Beehive Intake		
	Existing Intake		
	Existing Utility Access (Manhole)		
	Fire Hydrant		
	Water Hydrant (Rural)		

UTILITY LEGEND

The following utilities have been identified by One Call (811)

(ASE) ALLIANT ENERGY
Contact Name : Alliant Energy Field Engineer
Contact Phone: 8002554268
Contact Email: locate_IPL@alliantenergy.com

(CTLIA01) CENTURYLINK
Contact Name : SADIE HULL
Contact Phone: 9185470147
Contact Email: sadie.hull@lumen.com

(MPW) MUSCATINE POWER AND WATER
Contact Name : Gabriel Jones / Mark Nelson
Contact Phone: 5632623298
Contact Email: designinfo@mpw.org

(MUS01) CITY OF MUSCATINE
Contact Name : Office
Contact Phone: 5632638933
Contact Email: sewerlocates@muscatineiowa.gov

MIDAMERICAN ENERGY (ELECTRIC)
Contact Email: nwteager@midamerican.com

FRONTIER COMMUNICATIONS
Contact Email: terry.spurgeon@ftr.com

PLAN VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

LINEWORK		Design Color No.	
Green	(2)		Existing Topographic Features and Labels
Blue	(1)		Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
Magenta	(5)		Existing Utilities
SHADING		Design Color No.	Transparency
Pink, Dark	(13)		Temporary Pavement Shading
Yellow	(4)		Proposed Pavement Shading
Orange	(6)		Proposed Granular Shading
Orange	(70)		Proposed Shoulder Granular Shading
Yellow	(68)		Proposed Shoulder Paved Full Depth Shading
Yellow	(132)		Proposed Shoulder Paved Partial Depth Shading
Brown, Light	(236)		Grading Shading
Orange, Light	(134)		Proposed Granular Entrance Shading
Yellow	(220)		Proposed Paved Entrance Shading
Tan	(8)		Proposed Sidewalk Shading
Blue, Light	(230)		Proposed Sidewalk Landing Shading
Pink	(11)		Proposed Sidewalk Ramp Shading
Red	(3)		Proposed Structure Shading
Red	(3)		Delineates Restricted Areas

PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

LINEWORK		Design Color No.	
Green	(10)		Existing Ground Line Profile
Blue	(1)		Proposed Profile and Annotation
Magenta	(5)		Existing Utilities
Blue, Light	(230)		Proposed Ditch Grades, Left
Black	(0)		Proposed Ditch Grades, Median
Rust	(14)		Proposed Ditch Grades, Right

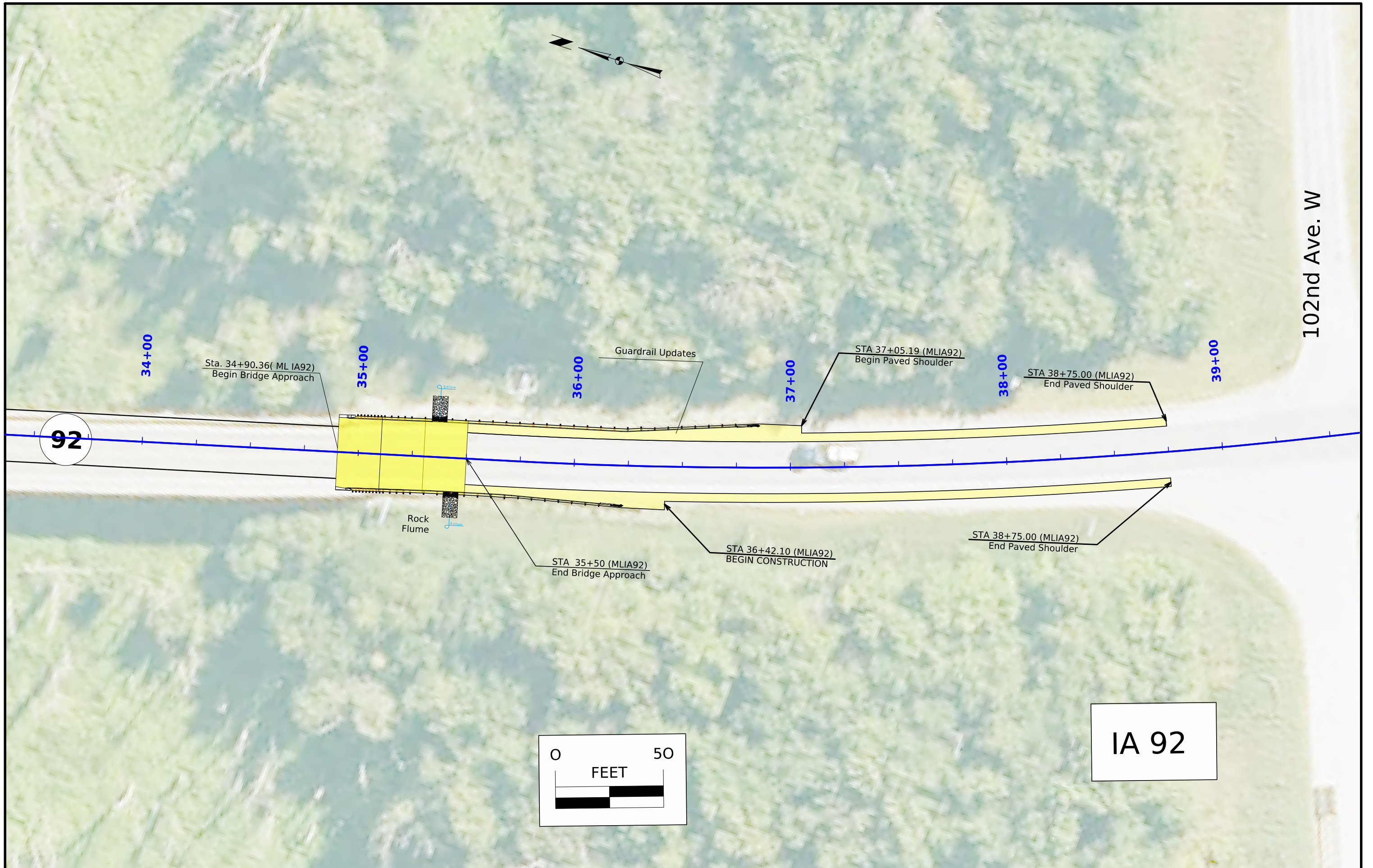
	Reference Point	
	Station	Survey Line
	Section Corner	
	Ground Line Intercept	
	Saw Cut	
	Guardrail	
	Trench Drain	
	HighTension Cable Guardrail	
	Sheet Pile	
	Pavement Removal	Clearing & Grubbing Area

RIGHT-OF-WAY LEGEND

	Proposed Right-of-Way Symbol
	Proposed Right-of-Way Line
	Existing Right of Way
	Existing and Proposed Right-of-Way
	Easement and Existing Right-of-Way
	Easement (Temporary) Symbol
	Easement (Temporary) Line
	Easement
	C/A Access Control
	Property Line Symbol
	Property Line

PLAN AND PROFILE
LEGEND AND SYMBOL
INFORMATION SHEET

(COVERS SHEET SERIES D, E, F, & K)



108-23A
08-01-08

Contractor shall coordinate traffic control with other stakeholder/ agencies in the area. Refer to Tab. 111-01 and Project Coordination in the J sheets.

Refer to Detour J sheets for a complete shutdown of IA-92 Bridge. Coordination with Illinois DOT is required for the implementation of the Detour in Illinois.

Portable dynamic message signs (PDMS) shall be deployed in advance of any closure as outlined in the plans. All PDMS units shall be furnished, maintained and removed by the Contractor. The locations of the PDMS units and messages on the PDMS will be determined at Preconstruction meeting.

Contractor to submit an updated Traffic Control Plan for approval if changes to the sequence or any element of the Designer's Traffic

108-26A
08-01-08

Refer to J sheets for more information.

108-25
10-21-14

111-01
04-17-12

None.

CROSS SECTION VIEW COLOR LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS		
SHADING	Design Color No.	
Green, Light	(225)	Existing Pavement Shading
Gray, Light	(48)	Previously Constructed Pavement Shading
Gray, Med	(80)	Previously Constructed Granular Surface Shading
Blue, Light	(230)	Proposed Pavement Shading
Lavender	(9)	Temporary Pavement Shading
Brown, Med	(237)	Future Proposed Pavement Shading

CROSS SECTION VIEW PATTERN AND SYMBOL LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS			
	Pavement Removal		Proposed Granular Shoulder
	Proposed Granular Subbase		Temporary Shoulder
	Proposed Special Backfill		Existing Shoulder Strengthening
	Temporary Barrier Rail		Permanent Barrier Rail
			Channelizing Device

PLAN VIEW COLOR LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS			
LINEWORK	Design Color No.		
Green	(2)	Existing Topographic Features and Labels	
Magenta	(5)	Pavement Marking Call Outs	
Blue	(1)	Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation	
Yellow	(4)	Pavement Markings, Yellow	
Off White	(254)	Pavement Markings, White	
Violet	(15)	Temporary barrier rail, Unpinned	
Flush Orange	(228)	Temporary barrier rail, Pinned	

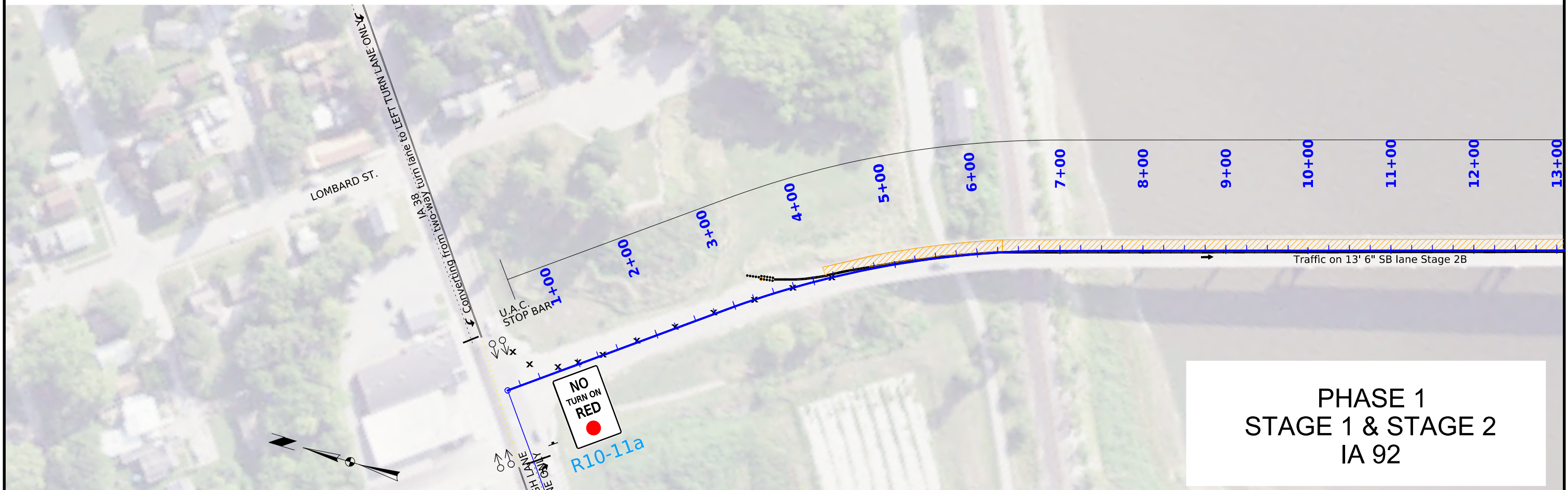
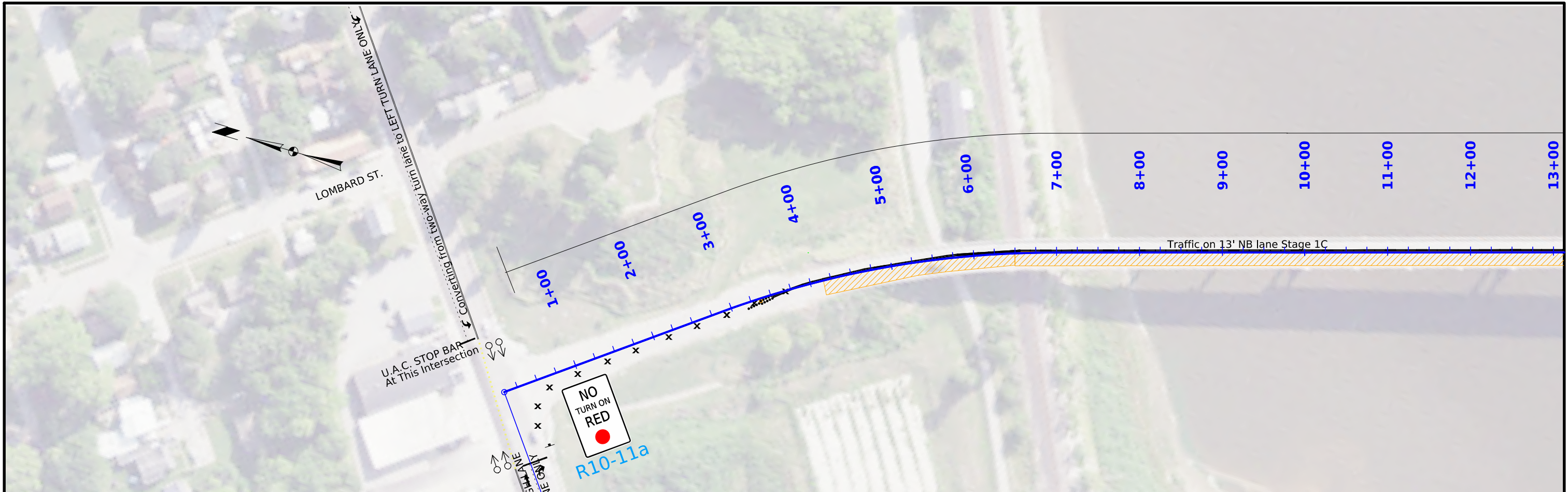
SHADING	Design Color No.	
Green, Light	(225)	Existing Pavement Shading
Gray, Light	(48)	Previously Constructed Pavement Shading
Orange	(6)	Proposed Granular Surface Shading
Gray, Med	(80)	Previously Constructed Granular Surface Shading
Blue, Light	(230)	Proposed Pavement Shading
Pink, Dark	(13)	Temporary Pavement Shading
Brown, Light	(236)	Proposed Grading Limits Shading
Cyan	(7)	Proposed MSE or CIP Wall Shading
Red	(3)	Proposed Bridge Shading and Sign Trusses
Black w/Gray, Light Fill	(0,48)	Previously Constructed Structure

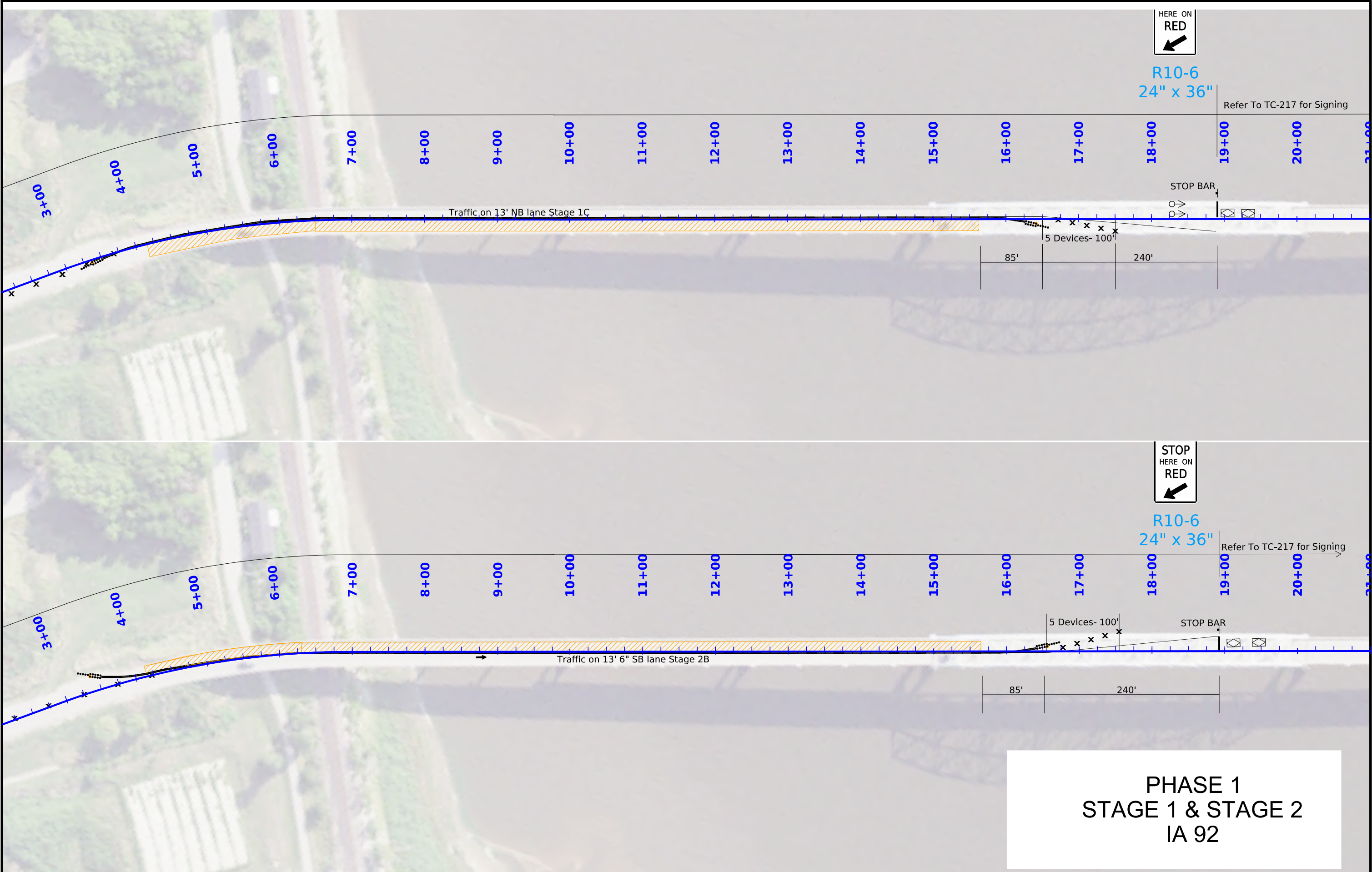
PLAN VIEW PATTERN AND SYMBOL LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS			
	Channelizing Device		Crash Cushion (Temp or Perm)
	Drum		Traffic Signal
	Temporary Lane Separator		Flagger
	Tubular Marker		Temporary Floodlighting
	Channelizer Marker		Traffic Sign
	Concrete Barrier Marker		Type III Barricade
	Delineator		Type A Warning Light
	Temporary Barrier Rail		Direction of Traffic
	Pavement Removal		Safety Closure
	Sand Barrel Layout		Lane Identification

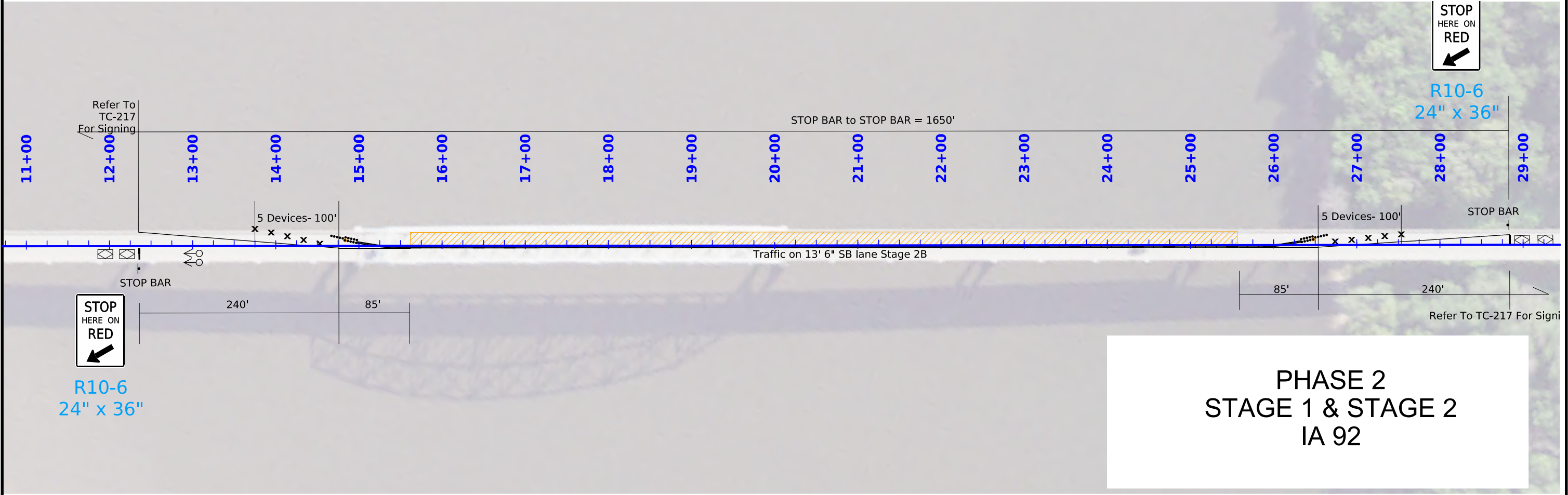
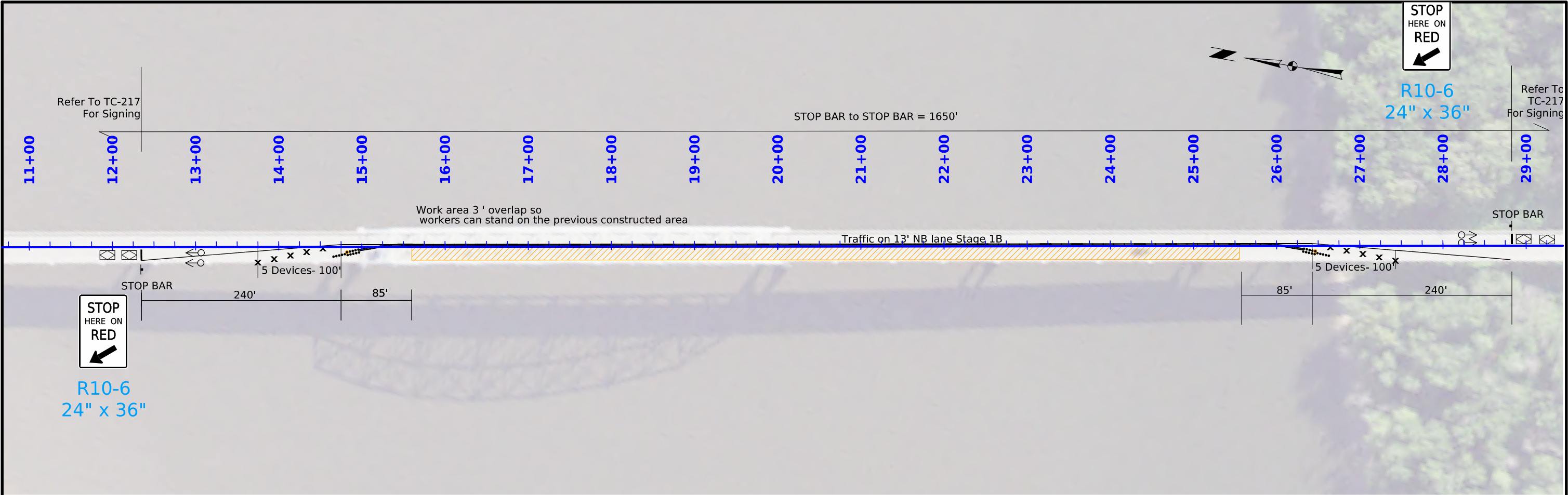
NOTE: Device spacing according to Standard Road Plans unless specifically dimensioned.

TRAFFIC CONTROL
AND
STAGING
LEGEND AND SYMBOL
INFORMATION SHEET

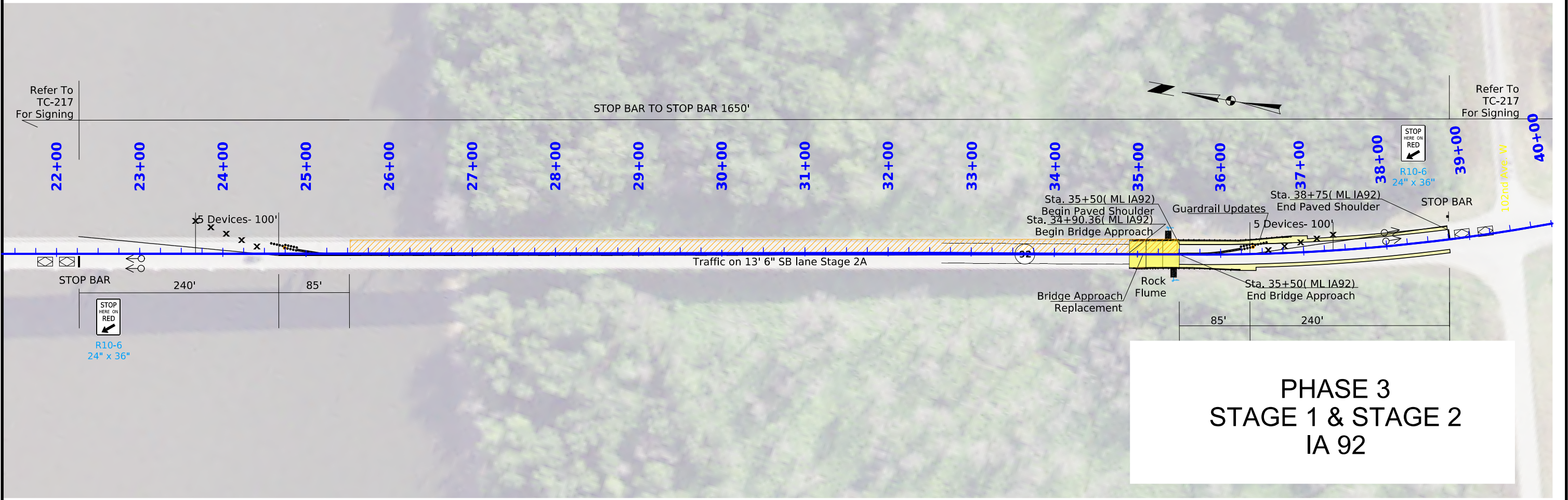
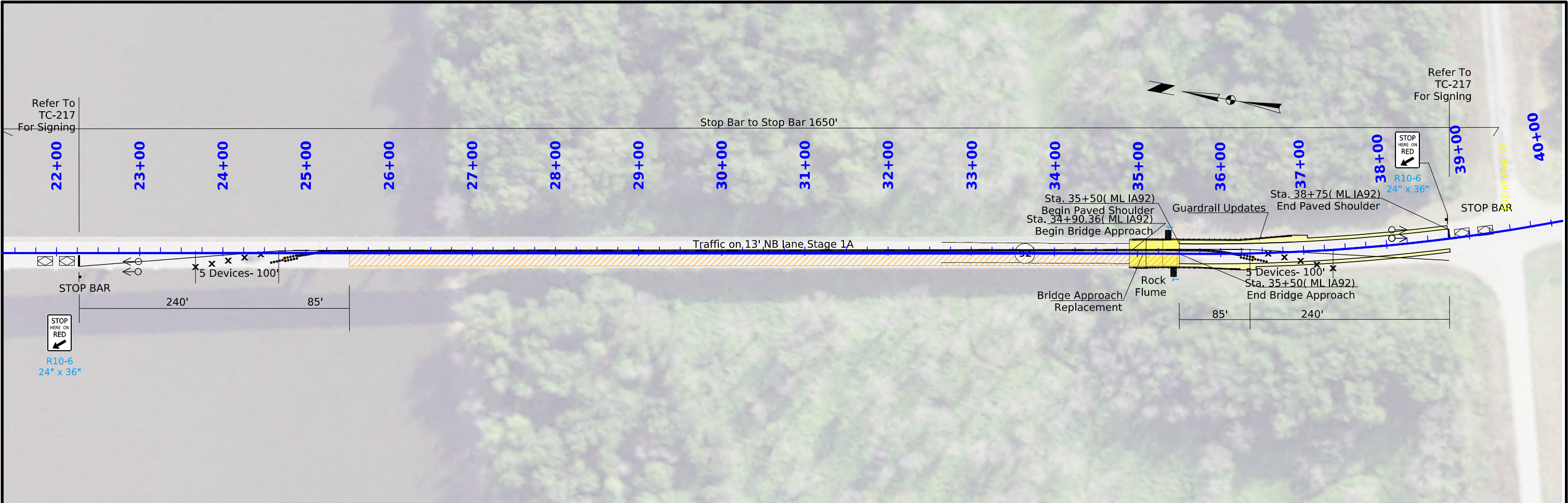
(COVERS SHEET SERIES J)



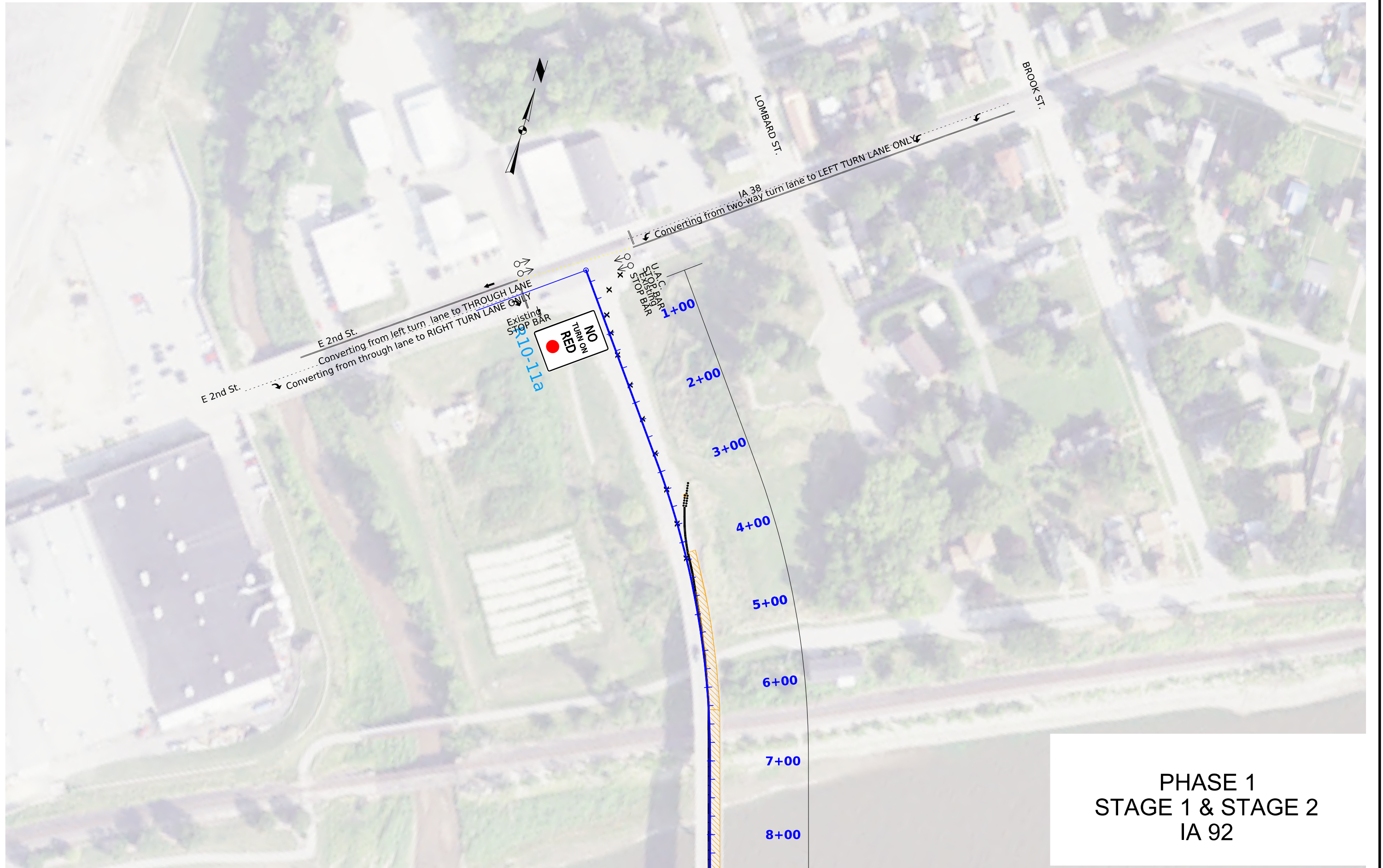




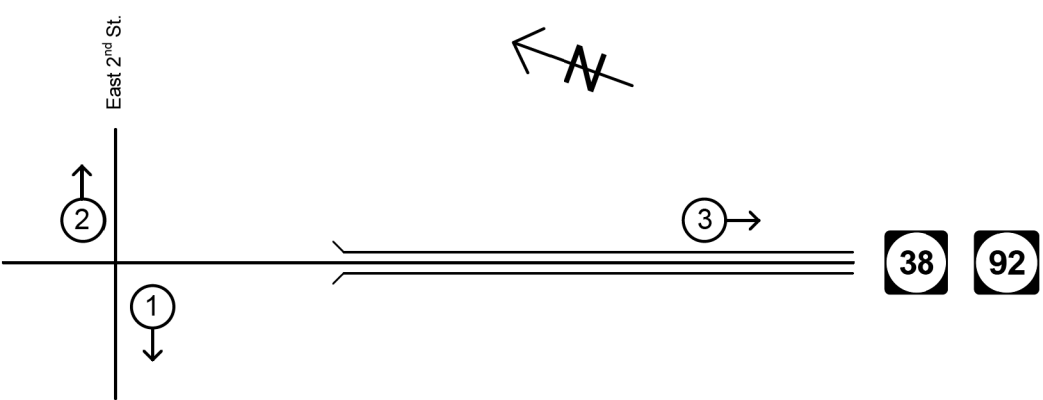
PHASE 2
STAGE 1 & STAGE 2
IA 92



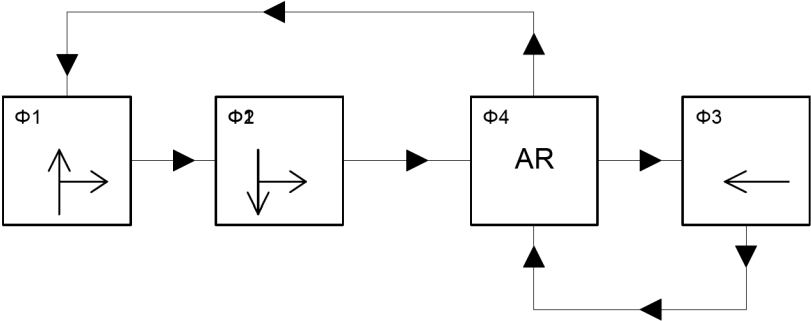
PHASE 3
STAGE 1 & STAGE 2
IA 92



PHASE 1
STAGE 1 & STAGE 2
IA 92



Flow Diagram



- ➡ Indicates flow path when all phases are demanded.
- ➡ Indicates optional flow path when some phases are not demanded at the time of right-of-way transfer.

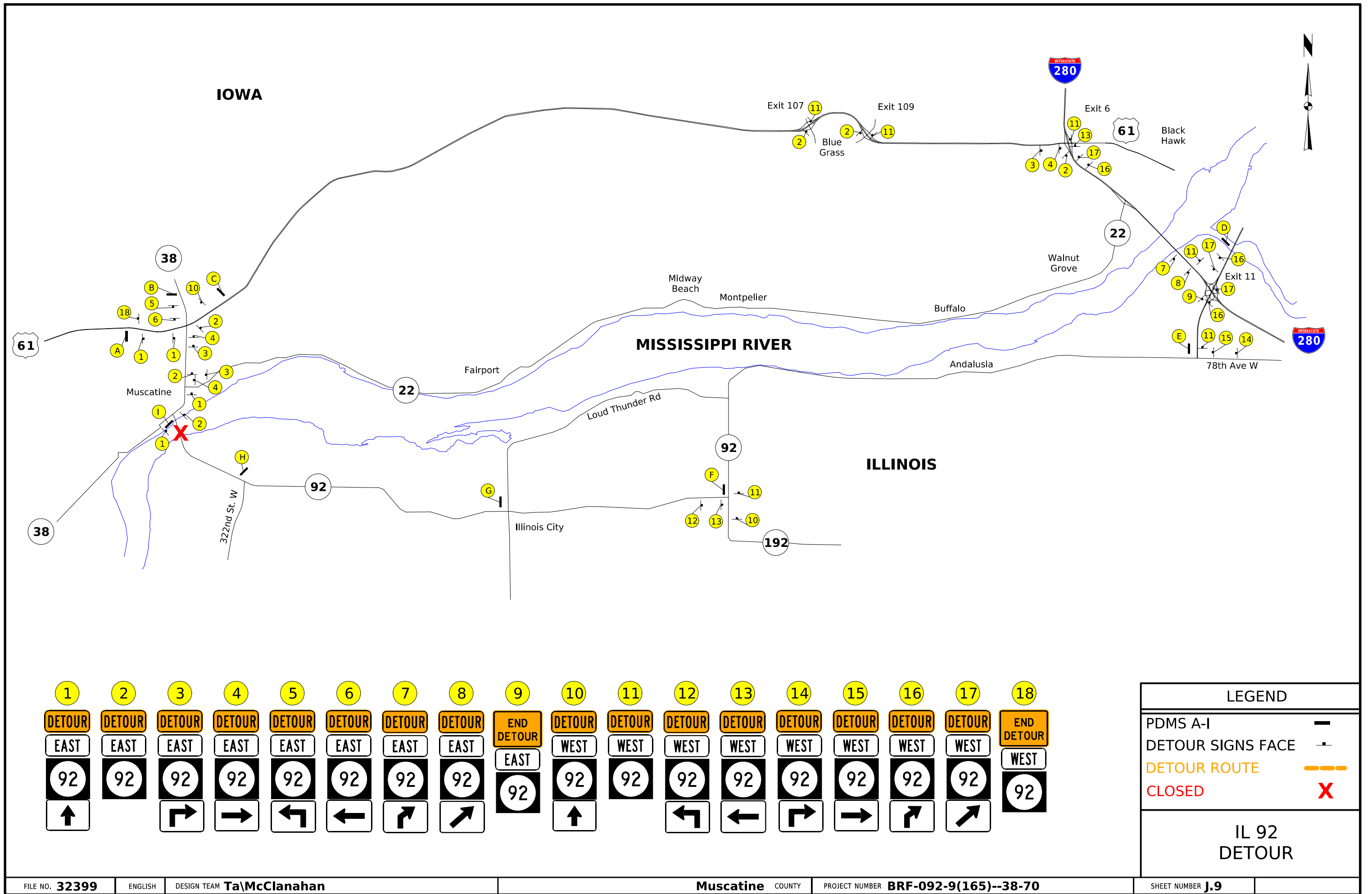
Recommended Timing (sec)

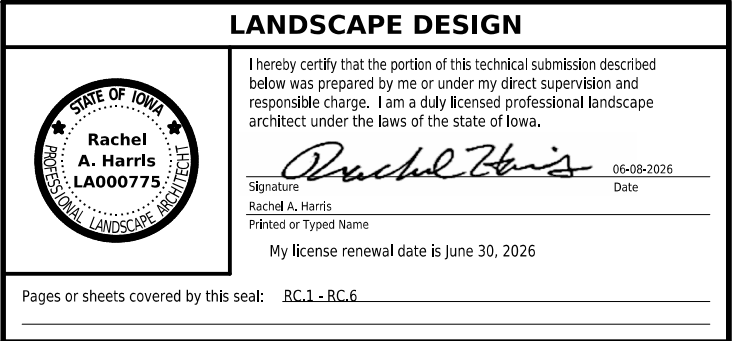
Signal Phase	1	2	3	4
Initial Green	15.0	15.0	15.0	-
Extension	2.5	2.5	2.5	-
Maximum Green	45.0	45.0	45.0	-
Yellow	4.0	4.0	5.0	-
All Red	2.0	2.0	2.0	32.0 – 43.0*

*All Red values based on operating speeds between 30 mph and 40 mph.

Timing For Signals of other Phases.

- Minimum Green = 15 sec.
- Green Ext. = 2.5 sec.
- Max. Green = 45 sec.
- * All Red = 28-38 sec.
- * Based on Operating Speeds Between 30 mph and 40 mph.





Signature Rachel Harris Date 06-08-2026

My license renewal date is June 30, 2026

Pages or sheets covered by this seal: BC.1 - BC.6

ESTIMATED PROJECT QUANTITIES AND REFERENCE NOTES

Roadside DIVISION 1_
Iowa/Illinois 50%/50% :

Item no.	Item Code	Item	Unit	Quantities	Estimate Reference Notes
				Estimated	
				Roadside DIVISION 1_ Iowa/Illinois 50%/50%	
1	2503-0500402	BRIDGE END DRAIN, DR-402	EACH	2	Refer to Tab. 104_08A and D Sheets for locations. Refer to Standard Road Plan DR-402.
2	2602-0000312	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 12 IN. DIA.	LF	500	Refer to Standard Road Plan EC-204. Item is included for temporary perimeter sediment control, inlet protection, and water velocity reduction on slopes or ditches at locations to be determined during construction. Verify specific locations with the Engineer prior to beginning placement.
3	2602-0000320	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 20 IN. DIA.	LF	500	Refer to Standard Road Plan EC-204. Item is included for temporary perimeter sediment control, inlet protection, and water velocity reduction on slopes or ditches at locations to be determined during construction. Verify specific locations with the Engineer prior to beginning placement.
4	2602-0000351	REMOVAL OF PERIMETER AND SLOPE OR DITCH CHECK SEDIMENT CONTROL DEVICE	LF	1,000	

232_03A
9/28/22

EROSION CONTROL (RURAL SEEDING)

Area to be seeded is estimated to be less than 1 acre. If the contractor determines the area exceeds 2 acres, notify the Engineer. Approved quantity in excess of 2 acres will be paid for as extra work according to Article 1109.03,B of the Standard Specifications.

Following the completion of work in a disturbed area and according to the seeding dates in Section 2601 of the Standard Specifications, place seed, fertilizer, and mulch on the disturbed area lying 8 feet adjacent to shoulder and median as follows:

Place seed and fertilize according to the requirements of Article 2601.03,C,3 and Section 4169 of the Standard Specifications.

Place mulch according to the requirements of Articles 2601.03,E,2,a and 4169.07,A of the Standard Specifications.

Preparing the seedbed, furnishing and applying seed, fertilizer, and mulch are all incidental to mobilization and will not be paid for separately.

281_01
9/28/22

SECTION 404 PERMIT AND CONDITIONS

Construct this project according to the requirements of U.S. Army Corps of Engineers Nationwide, Permit No. 3. A copy of this permit is available from the Iowa DOT website (<http://www.envpermits.iowadot.gov/>). The U.S. Army Corps of Engineers reserves the right to visit the site without prior notice.

281_03
11/9/23

STORM WATER BEST MANAGEMENT PRACTICES

When the following best management practices are used, they are intended to account for disturbed areas where storage volume cannot be provided: Perimeter and Slope Sediment Control Devices, Rock Flume for Bridge End Drains, and Seeding.

282_03
9/28/22

TEMPORARY STREAM CROSSING, CAUSEWAY, OR EQUIPMENT PAD

Standard Road Plan EW-401 is listed in Tabulation 105-4; however, it is included for information purposes only since it is an option. No quantities associated with constructing EW-401 are included in any bid items.

INDEX OF TABULATIONS			111_25 10/20/26
Tabulation	Tabulation Title	Sheet No.	
111_25	INDEX OF TABULATIONS	RC.4	
105_04	STANDARD ROAD PLANS	RC.5	
104_08A	SCOUR PROTECTION OR ROCK FLUME FOR BRIDGE END DRAIN	RC.6	

105_04 10/20/26 STANDARDS The following Standards apply to construction work on this project.		
Number	Date	Title
EC-204	10-19-21	Perimeter, Slope and Ditch Check Sediment Control Devices
EW-401	10-20-15	Temporary Stream Crossing, Causeway, or Equipment Pad
DR-402	04-16-24	Rock Flume for Bridge End Drain

SCOUR PROTECTION OR ROCK FLUME FOR BRIDGE END DRAIN										104_08A 8/15/22
Refer to Standard Road Plan DR-401 and DR-402										
Bridge Station	Bridge Corner	Distance DI-1 or DI-2 (FT)	Bridge End Drain Type	Special Ditch Control, Wood Excelsior Mat EC-101 (SQ)	Turf Reinforced Mat (TRM) Type 2 EC-104 (SQ)	Transition Mat EC-105 (SF)	Macadam Stone Base (TONS)	Engineering Fabric (SY)	Erosion Stone (TON)	Remarks
35+37.00	SE	46.5	DR-402				1.000	29.5	13.280	
35+43.00	SW	53.3	DR-402				1.000	29.5	12.280	

Total: 2 59 25.56