LETTING DATE
Dec. 15, 2026

Bridge Deck Overlay
BRF-151-1(037)--38-48

IOWA COUNTY

Index of Sheets

No.	Description
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A.2	Location Map Sheet
V.1	Estimated Quantities - Design No. 0226
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C.2	Estimated Quantities - Road

IOWA DOT

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM
IOWA COUNTY
Bridge Deck Overlay

US 151 over Iowa River Overflow 1.6 Mi. S. of IA 220

Refer to the Plan Sheets for list of applicable specifications.

Value Engineering Saves. Refer to Article 1105.13 of the Specifications.

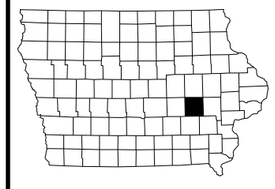
IOWA ONE CALL
1-800-292-8989
www.iowaonecall.com
811
Know what's below. Call before you dig.

Revisions

	TOTAL
	30
PROJECT IDENTIFICATION NUMBER	
21-48-151-020	
PROJECT NUMBER	
BRF-151-1(037)--38-48	
R.O.W. PROJECT NUMBER	
PROJECT DIRECTORY NUMBER	
4815102021	

Scan the QR code or click the link below to leave plan quality feedback and help us improve future projects.

Design QR Feedback Link



Standard Road Plans

Refer to Sheet C.3 of Tied Project Number BRF-151-1(036)--38-48

Design Data Rural

2024 AADT	5,600 V.P.D.
TRUCKS	12 %

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

Index of Seals

Sheet No.	Name	Type
A.1	Nick J. Lampe	Structural Design
A.3	Sean L. Ranney	Roadway Design

Structural Design

LICENSED PROFESSIONAL ENGINEER
Nick Lampe 26089
IOWA

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.

Nick J. Lampe 9/14/26
Signature Date

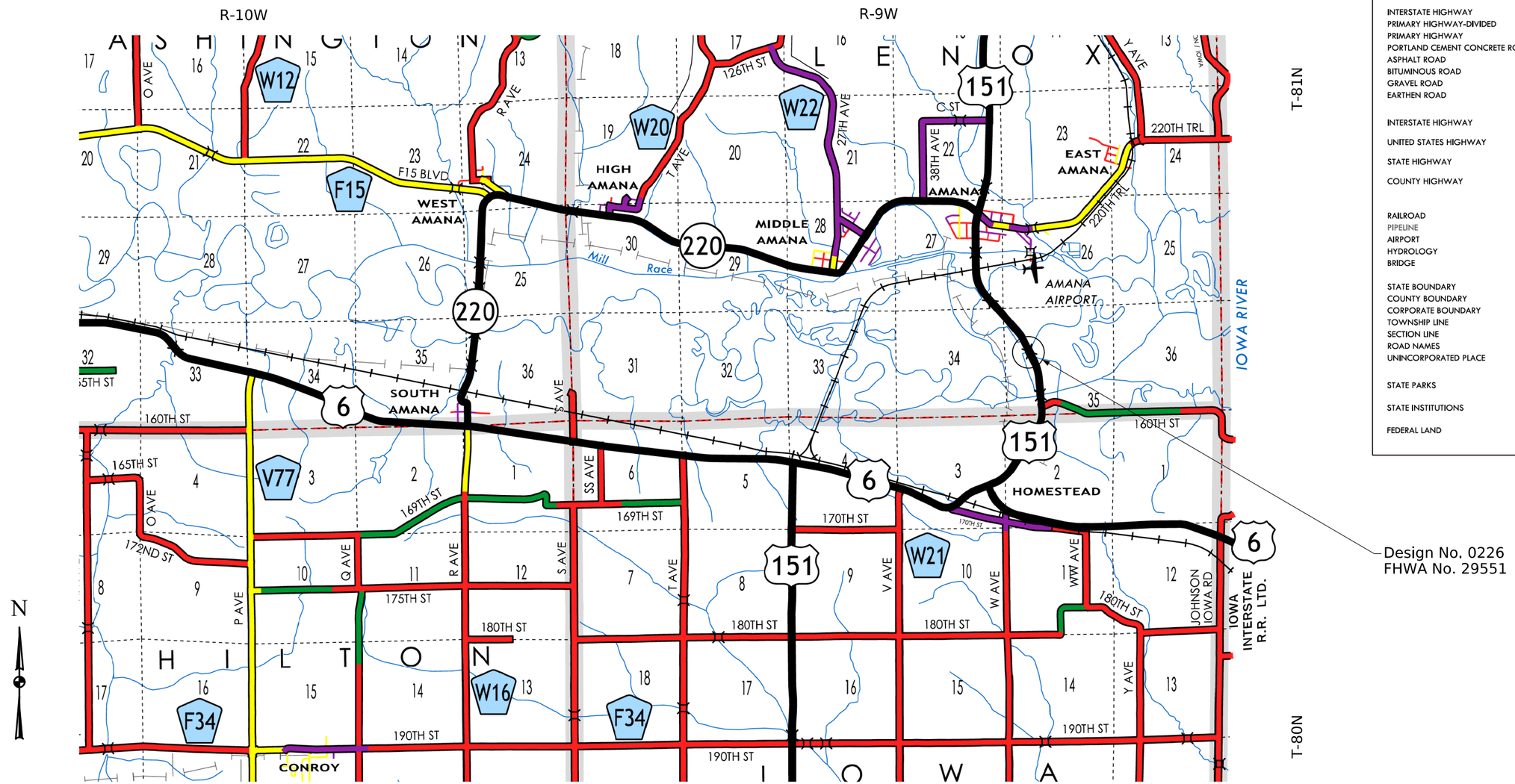
Nick Lampe
Printed or Typed Name

My license renewal date is December 31, 2027

Pages or sheets covered by this seal: A.1, A.2, V.1 - V.18

FILE NO. 32245	ENGLISH	DESIGN TEAM HDR	IOWA COUNTY	PROJECT NUMBER BRF-151-1(037)--38-48	SHEET NUMBER A.1	

3:39:07 PM 9/14/2026 ESORENS pw:\\pwhdruscen01:HDR_US_Central_01\Documents\IADOT\IDOT-FY26BridgeOverlaysFinal\6.0_CAD_BIM\6.2_WIP\Bridge\T8_Iowa_226\688-6 x 44 PPCB_ Bridge Repairs_DesignNo_0226



LEGEND

- INTERSTATE HIGHWAY
- PRIMARY HIGHWAY-DIVIDED
- PRIMARY HIGHWAY
- PORTLAND CEMENT CONCRETE ROAD
- ASPHALT ROAD
- BITUMINOUS ROAD
- GRAVEL ROAD
- EARTHEN ROAD

- INTERSTATE HIGHWAY
- UNITED STATES HIGHWAY
- STATE HIGHWAY
- COUNTY HIGHWAY

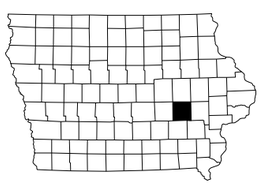
- RAILROAD
- PIPELINE
- AIRPORT
- HYDROLOGY
- BRIDGE

- STATE BOUNDARY
- COUNTY BOUNDARY
- CORPORATE BOUNDARY
- TOWNSHIP LINE
- SECTION LINE
- ROAD NAMES — ABBEY ROAD
- UNINCORPORATED PLACE — ELWOOD

- STATE PARKS
- STATE INSTITUTIONS
- FEDERAL LAND

Iowa County Location Map

Not To Scale



FILE NO. 32245	ENGLISH	DESIGN TEAM HDR	IOWA COUNTY	PROJECT NUMBER BRF-151-1(037)--38-48	SHEET NUMBER A.2

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Estimated Bridge Repair Quantities

Item No.	Item Code	Description	Unit	Total	As Built Quantity
1	2401-6750001	Removals, As Per Plan	LS	1.0	
2	2403-0100000	Structural Concrete (Miscellaneous)	CY	45.6	
3	2403-1000005	Fiber Reinforcement for Structural Concrete	CY	37.6	
4	2403-1000010	Trial Batch and Test Placement (Fiber Reinforced Concrete)	LS	1.0	
5	2404-7775005	Reinforcing Steel, Epoxy Coated	LB	6,212	
6	2413-0698074	Deck Repair, Class A	SY	652.2	
7	2413-1200000	Steel Extrusion Joint with Neoprene	LF	273.8	
8	2413-1200100	Neoprene Gland Installation and Testing	LF	273.8	
9	2426-6772013	Repair Beam Ends	EACH	21	
10	2426-6772016	Concrete Repair	SF	86	
11	2499-6000200	Sealer Coat for Prestressed Concrete Beam Ends	EACH	70	
12	2508-0970000	Containment	LS	1.0	
13	2508-0991000	Painting of Structural Steel	LS	1.0	
14	2510-6745640	Removal of Existing P.C. Overlay	SY	3,261.1	
15	2533-4980005	Mobilization	LS	1.0	
		Alternate AA Option 1			
16	2413-0698066	Deck Overlay (Class O PCC)	SY	3,261.1	
		Alternate AA Option 2			
17	2413-0698067	Deck Overlay (Class HPC-O PCC)	SY	3,261.1	
18	2413-1000005	Fiber Reinforcement for Concrete Repair/Overlay	SY	3,261.1	

Item No. Estimate Reference Information

1 Removal of scheduled items shall be in accordance with Section 2401, of the Standard Specifications. Any damage to material not to be removed shall be the responsibility of the Contractor and repaired at no extra cost to the State. Includes all work for removal and off-site disposal of existing backwall, existing expansion joints, concrete deck, top portion of concrete diaphragms, barrier curbs, and retrofit rails as shown in these plans.

2 Estimated quantity includes 37.6 cubic yards of fiber reinforced concrete for bridge deck, top portion of concrete diaphragms, and abutment backwalls, and 8.0 cubic yards of concrete without fiber reinforcing for barrier curbs and retrofit rails as shown on Design Sheet No. 7. Includes all resilient joint filler required.

3 Refer to "Developmental Specifications for Fiber Reinforcement for Structural Concrete".

4 Includes all costs for equipment, materials and labor necessary for trial batch and test placement of fiber reinforced structural concrete and fiber reinforced overlay concrete. Refer to "Developmental Specifications for Fiber Reinforcement for Structural Concrete".

5 Includes all mechanical splice assemblies required.

6 Estimated as 20% of the total deck area.

7 Includes all necessary hardware and accessories including the anchorage system, temporary erection material and the 3/8" curb plates with their anchorage system. Excludes installation of neoprene gland.

8 Includes installation of neoprene gland and water testing of joint.

9 Beam repair locations and quantity are based on 2023 Bridge Inspection Report. Actual spalled and deteriorated areas, as determined by the Engineer at the time of construction, shall be repaired.

11 Includes sandblasting and applying concrete sealer to beam ends under under expansion joints. Item will be measured for each beam end cleaned and sealed, and payment will include all materials and labor necessary. See additional information on Design Sheet No. 12.

13 Includes painting of existing abutment and expansion pier bearing sole plates and masonry plates. For painting notes, see General Notes on Design Sheet No. 2. For painting details, see Design Sheet No. 16.

16 or 17 Includes cost of cleaning existing rails, abutment seats, and expansion pier caps. Includes furnishing and placing concrete sealer.

18 Refer to "Developmental Specifications for Fiber Reinforcement for Structural Concrete".

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	Steel Extrusion for Strip Seals	(37)_Iowa_Design226_SteelExtrusion.pdf	No
2	Barrier Cover Plates	(37)_Iowa_Design226_BarrierCoverPlates.pdf	No
No.	Calculation Description	Calculation File Name Convention For Submittal	Certified by Iowa P.E. (Yes/No)

Roadway quantities are shown elsewhere in these plans.

Design For Repair to 0° Skew

688'-6" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

68'-3" End Spans 69'-0" Interior Spans

Estimated Quantities

STA. 100+25.00 (℄ US 151) Turn-in Date: October, 2026

Iowa County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0226 Design Sheet No. 1 of 18 FHWA No. 29551

Specifications:

Design:

AASHTO 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 Fiber Reinforcement for Structural Concrete",
- "Developmental Specifications for Electronic Ticketing".

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 (AASHTO M270 Grade 36).

General Notes:

This design is for repairs to the Existing 688'-6" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge on US 151 over the Iowa River Overflow. Electronic copies of original design plans will be made available to the Contractor as part of the E-files supplied with the contract documents. Dimensions shown on these plans are based on Design Plans (Original Design No. 872, Repair Design No. 390 & 201).

See Situation Plan on Design Sheet No. 3 for list of repair items.

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

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.

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.

The lump sum bid for "Removals, as Per Plan" shall include all costs associated with removing top of abutment backwalls, portions of the bridge deck, barrier curbs and retrofit barrier rails, and existing expansion joints at abutments and Pier Nos 2, 4, 6, and 8. 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.

All concrete removals shall be initiated with a ¾"sawcut wherever possible.

These bridge plans label all reinforcing steel with english notation (5a1 is $\frac{5}{8}$ 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 Bridge Contractor is to provide a method of removal that will prevent feather edging at the bottom of the existing deck. Care shall be taken when exposing existing reinforcing so the bond to existing concrete is not broken at the concrete break lines.

The tops of the abutment backwalls as shown shall be constructed using Structural Concrete Class C. 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 provided 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.

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. The new sections shall not be sealed. All costs associated with cleaning and sealing of the concrete rails shall be include in the unit price bid item "Deck Overlay".

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 under expansion joints at Pier Nos. 2, 4, 6, & 8, shall have an application of concrete sealer in accordance with Article 2403.03, P, 3, of the Standard Specifications.

Areas of barrier curb indicated in the plans 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 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, including existing overlay. The Contractor shall exercise care in removing concrete in order to prevent unnecessary unbonding of reinforcing steel.

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

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

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.

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.

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 bridge deck is covered with a $1\frac{3}{4}$ 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 $1\frac{3}{4}$ 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.

Abutment and expansion pier bearings (sole plates and masonry plates) are to be cleaned and painted. Cleaning by vacuum blasting or by a non-blasting method is required. Surface to be painted shall be prepared in accordance with Steel Structures Painting Council (SSPC) SP3. Surfaces of the abutment and expansion pier bearings are to be given one coat of both a rust inhibitor type primer and final coat as approved by the Engineer. The color of the dry paint should approximate the color of concrete. This work shall be measured and paid for at the contract unit priced per lump sum for the bid item “Painting of Structural Steel”.

Containment and disposal of waste shall be in accordance with Section 2508, of the Standard Specifications. All costs associated with hauling and depositing of waste at the designated site/facility shall be the responsibility of the Contractor and included in the contract price bid for the "Containment" item.

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 2,300 parts per million (PPM). Analysis of total chromium on this sample was 154 parts per million (PPM). 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.

All curb and retrofit barrier rail concrete is to be Class C mix, Class D concrete is not permitted.

Design History at this Site

(Includes this Design)

Des. No.	Type of Work
872	Original Design
390	Retrofit Barrier Rail
201	Bridge Deck Overlay
0226	Re-Overlay and Repair

Traffic Control Plan

The roadway will be open to thru traffic. Refer to the Traffic Control Plan included in the tied Road Plans, Project No. BRF-151-(036)--38-48.

HDR

Design For Repair to 0° Skew

688'-6" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

68'-3" End Spans 69'-0" Interior Spans

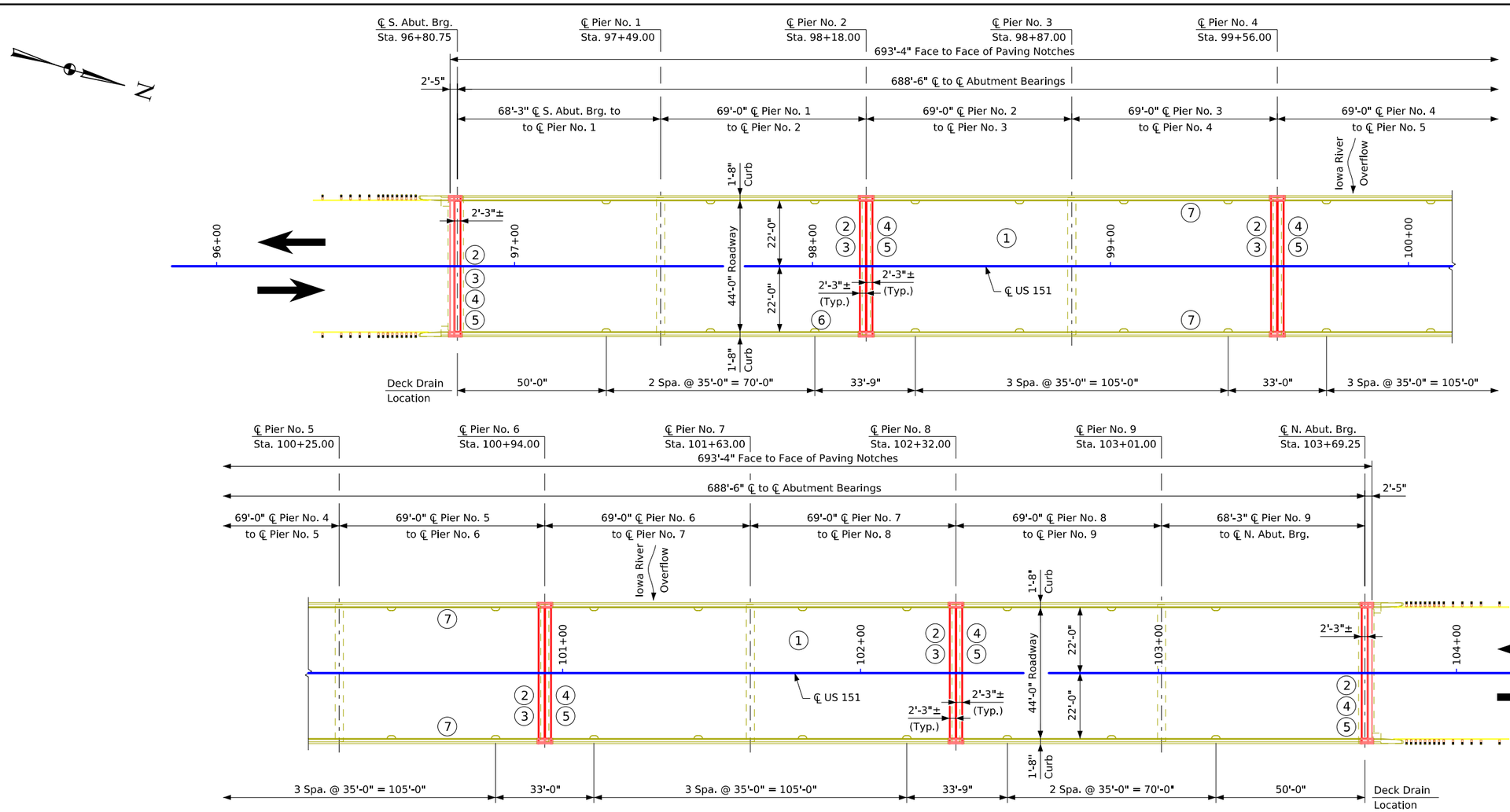
General Notes

STA. 100+25.00 (℄ US 151) Turn-in Date: October, 2026

Iowa County

IOWA DEPARTMENT OF TRANSPORTATION

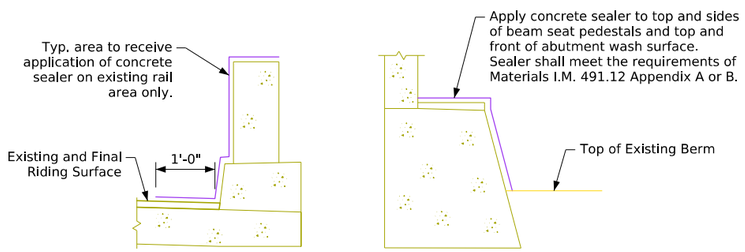
Design No. 0226 Design Sheet No. 2 of 18 FHWA No. 29551



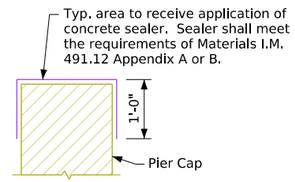
Situation Plan

Repairs shall consist of:

1. Remove existing concrete overlay, scarify deck, complete Class A repairs and overlay the bridge with P.C.C.
2. Repair spalled and delaminated concrete at abutments and Pier 2, Pier 4, Pier 6, and Pier 8. Seal abutment seats and washes between abutment pedestals and seal caps of expansion piers, Piers 2, 4, 6, and 8.
3. Repair deteriorated pretensioned prestressed concrete beam ends.
4. Clean and paint bearings at both abutments and Piers 2, 4, 6, and 8.
5. Remove existing expansion joints on the bridge and replace with strip seal expansion joints. Remove and replace top of abutment backwalls to top of paving notch and remove and reconstruct bridge deck at joints as needed for strip seal installation. Approach slabs are to be used as constructed.
6. Perform concrete repairs on the barrier curbs.
7. Seal traffic face and top surface of retrofit barrier rails and curbs.



Concrete Sealer Details



Pier Concrete Sealer Detail

(Piers 2, 4, 6 & 8)

Note:
The cost of furnishing and placing concrete sealer is to be included in the price bid for "Deck Overlay".

Traffic Estimate

2024 AADT	5,600	V.P.D.
TRUCKS	12	%

Location

US 151 over the Iowa River Overflow
T-81N R-9W
Section 35
Lenox Township
Iowa County
FHWA No. 29551
Bridge Maint. No. 4809.3S151
Latitude 41.78202087°
Longitude -91.86522979°

Design For Repair to 0° Skew

688'-6" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

68'-3" End Spans — 69'-0" Interior Spans

Situation Plan

STA. 100+25.00 (℄ US 151) — Turn-in Date: October, 2026

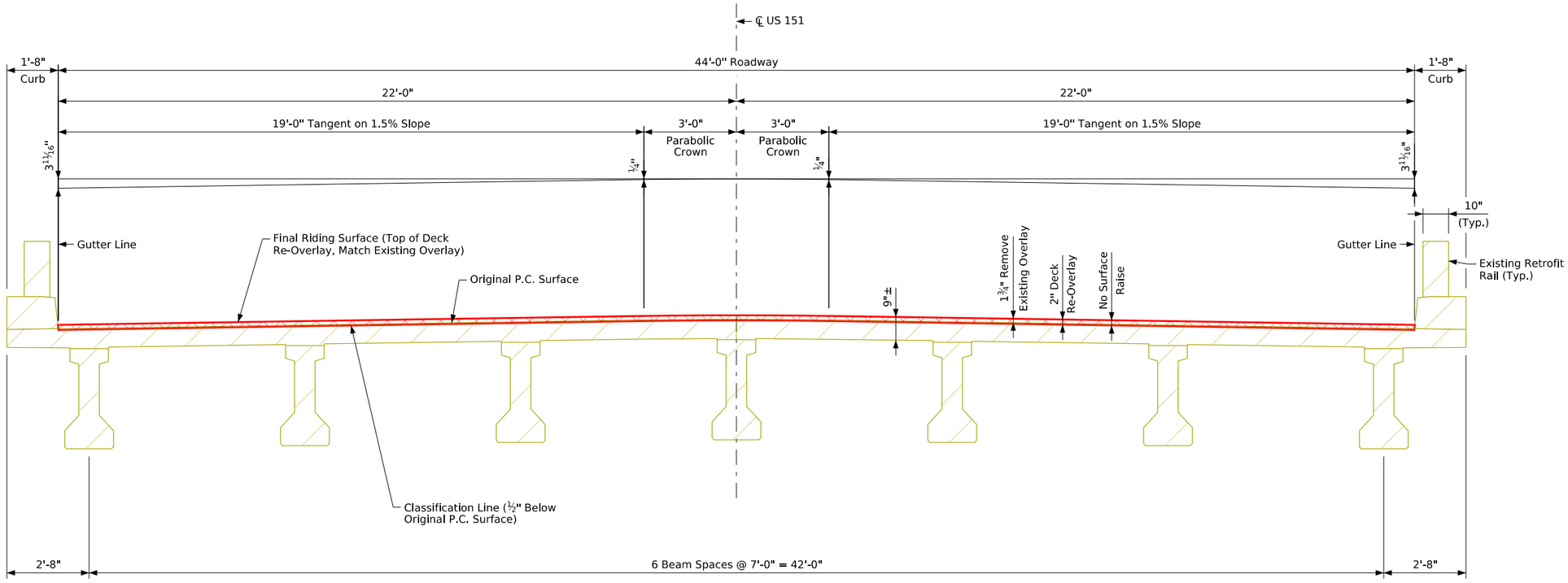
Iowa County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0226 — Design Sheet No. 3 of 18 — FHWA No. 29551

FILE NO. 32245	ENGLISH	DESIGN TEAM NJL\CJL\EES	IOWA COUNTY	PROJECT NUMBER BRF-151-1(037)--38-48	SHEET NUMBER V.3

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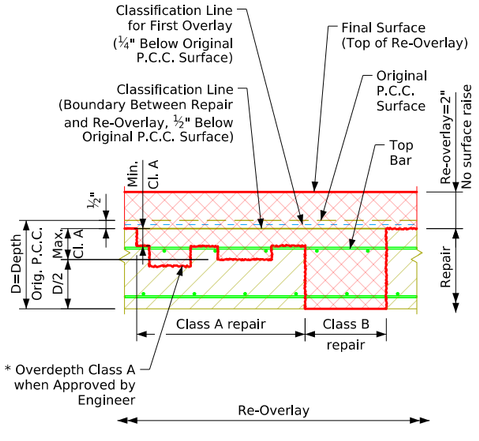


Typical Section

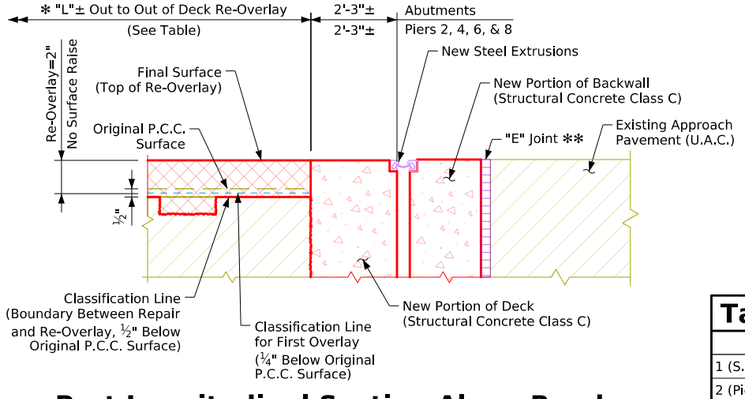
(Looking Ahead Station)

Note:
See Design Sheet No. 5 for Construction Staging.

* Per IDOT Std. Spec. 2413.03.C.3.b, limited areas of Class A removal may exceed 50% of the floor thickness at the Engineer's direction. These limited areas of excess depth (overdepth) will be measured as Class A deck repair.



Repair and Re-Overlay Definition



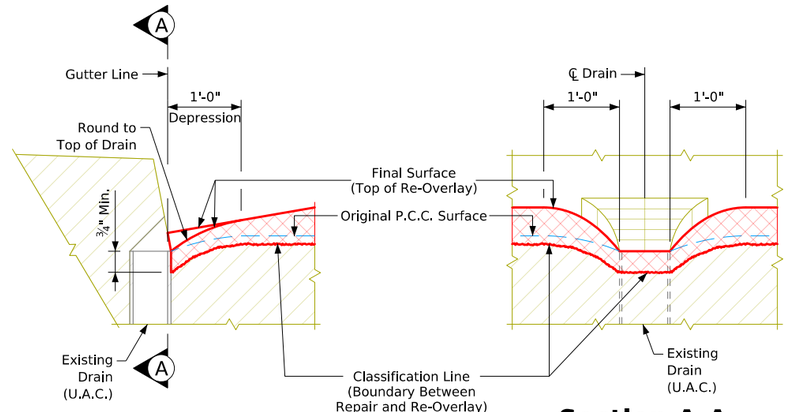
Part Longitudinal Section Along Roadway

(Abutments shown, Piers 2, 4, 6 & 8 Similar)

* Adjust as needed to set Expansion Joint
** Refer to Standard Road Plan PV-101

Table of Dimensions

Unit No.	"L"
1 (S. Abut. to Pier No. 2)	133'-7"
2 (Pier No. 2 to Pier No. 4)	133'-3 1/2"
3 (Pier No. 4 to Pier No. 6)	133'-3 1/2"
4 (Pier No. 6 to Pier No. 8)	133'-3 1/2"
5 (Pier No. 8 to N. Abut.)	133'-7"



Section A-A

Deck Repair Detail at Drain

(Required at 36 Locations)

Design For Repair to 0° Skew

688'-6" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

68'-3" End Spans — 69'-0" Interior Spans

Deck Repair Details

STA. 100+25.00 (℄ US 151) — Turn-in Date: October, 2026

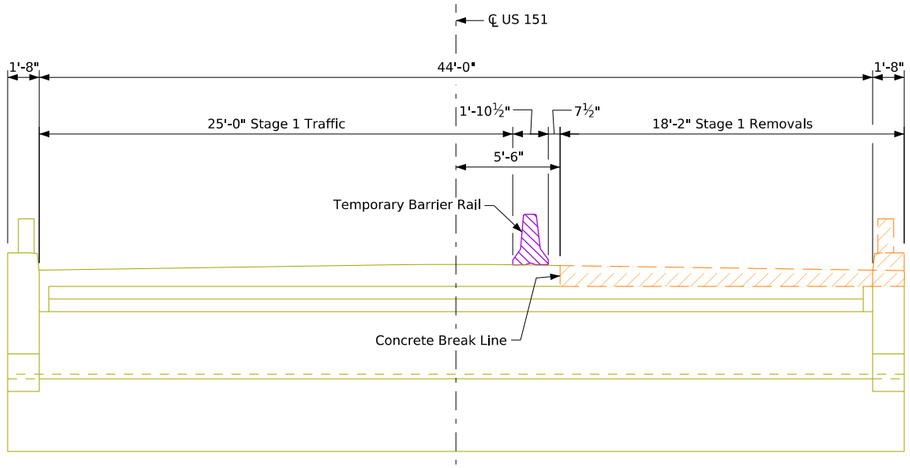
Iowa County

IOWA DEPARTMENT OF TRANSPORTATION

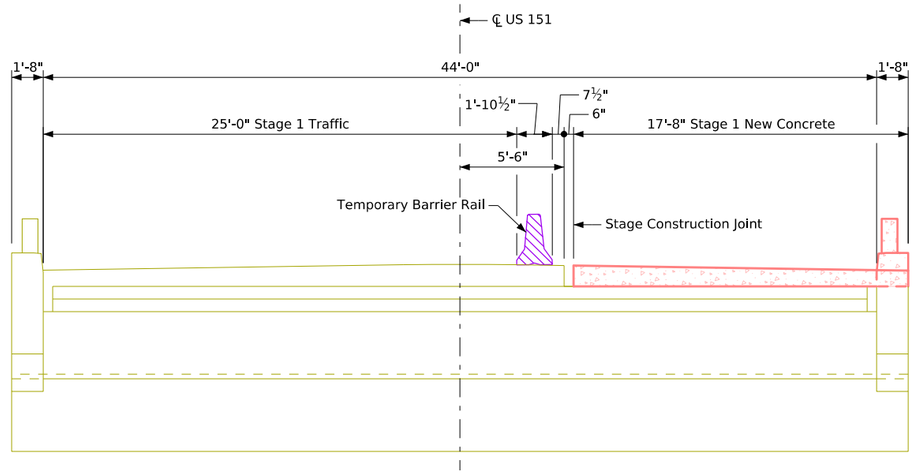
Design No. 0226 — Design Sheet No. 4 of 18 — FHWA No. 29551

FILE NO. 32245	ENGLISH	DESIGN TEAM NJL\CJL\TMS	IOWA COUNTY	PROJECT NUMBER BRF-151-1(037)--38-48	SHEET NUMBER V.4

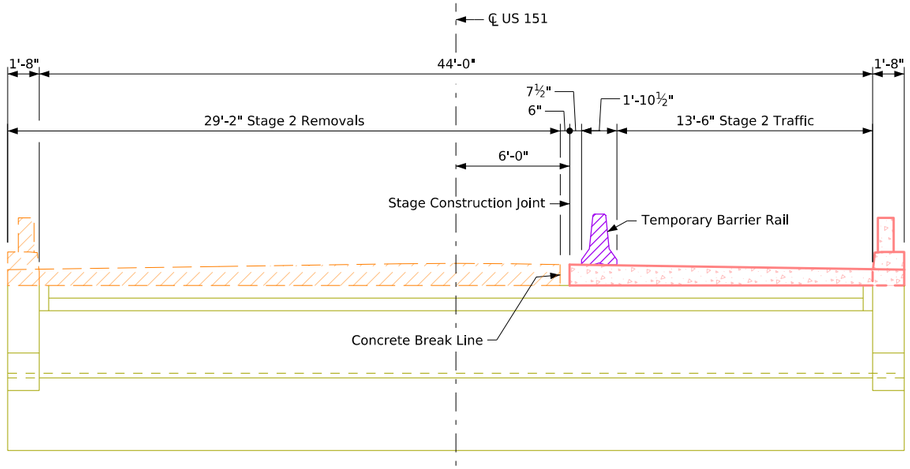
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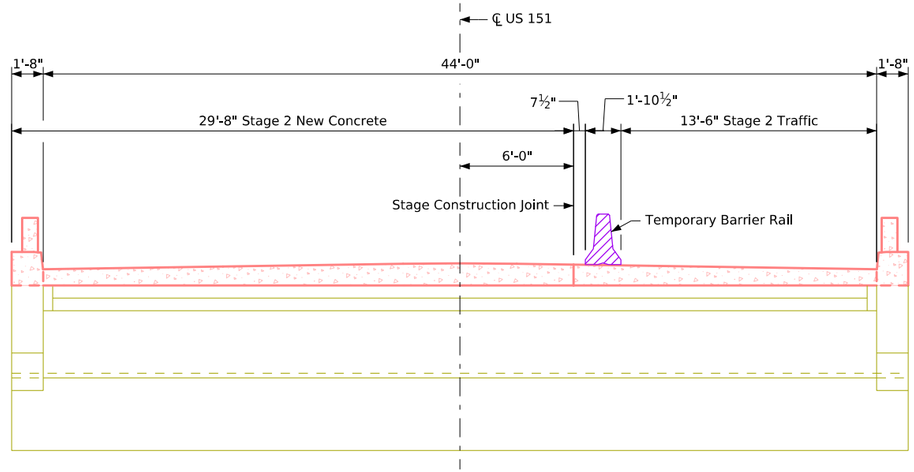
Removals - Stage 1
(Looking Back Station)



Construction - Stage 1
(Looking Back Station)



Removals - Stage 2
(Looking Back Station)



Construction - Stage 2
(Looking Back Station)

Note:
North Abutment Shown, South Abutment Similar.

Design For Repair to 0° Skew

688'-6" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

68'-3" End Spans — 69'-0" Interior Spans

Staging Details

STA. 100+25.00 (℄ US 151) — Turn-in Date: October, 2026

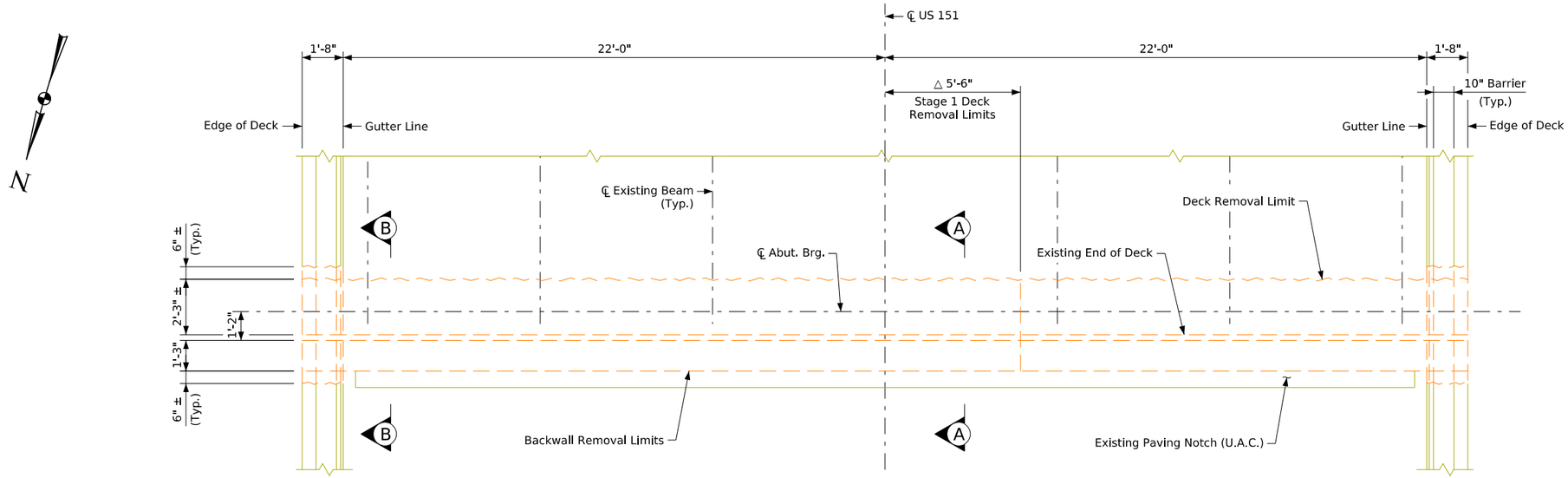
Iowa County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0226 — Design Sheet No. 5 of 18 — FHWA No. 29551

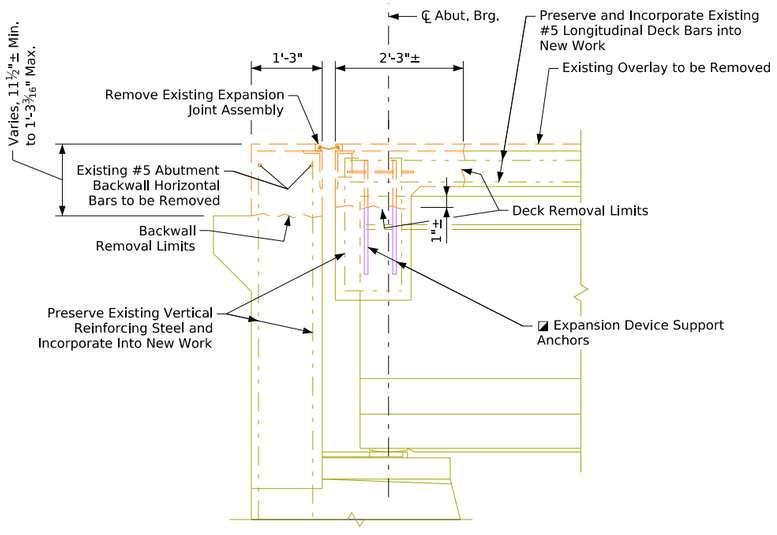
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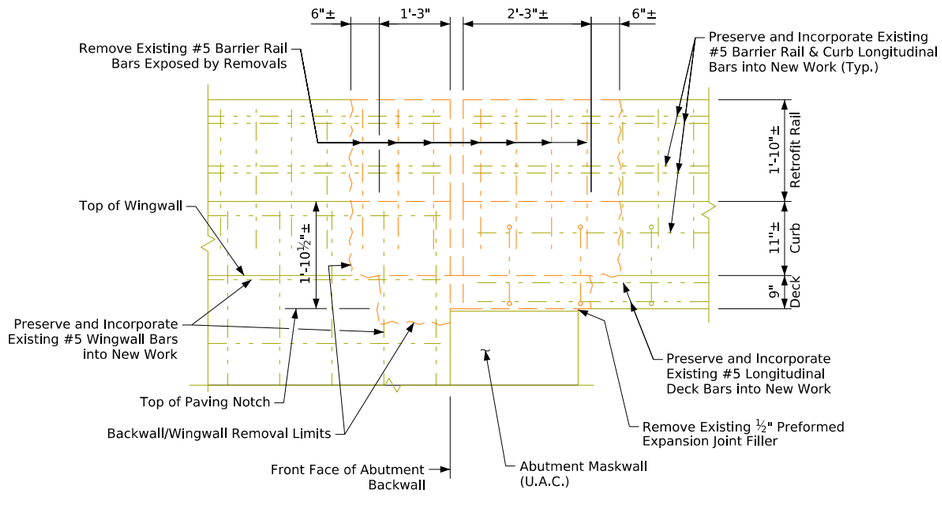
Plan View at Abutment

(Showing Deck, Curb, Barrier Rail and Abutment Removals)
(Approach Slab not Shown)
(North Abutment Shown, South Abutment Similar)



Section A-A

(Transverse Deck Reinforcing Not Shown for Clarity)



Section B-B

Notes:
Existing longitudinal deck reinforcing steel and longitudinal barrier rail reinforcing shall be preserved and incorporated into new work.
△ For Staging Details, see Design Sheet No. 5.
◪ Existing expansion device support anchors shall be cut off flush or slightly below the removal level and the exposed ends painted with 2 coats of zinc rich paint.

Design For Repair to 0° Skew

688'-6" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

68'-3" End Spans — 69'-0" Interior Spans

Removal Details - Abutments

STA. 100+25.00 (℄ US 151) — Turn-in Date: October, 2026

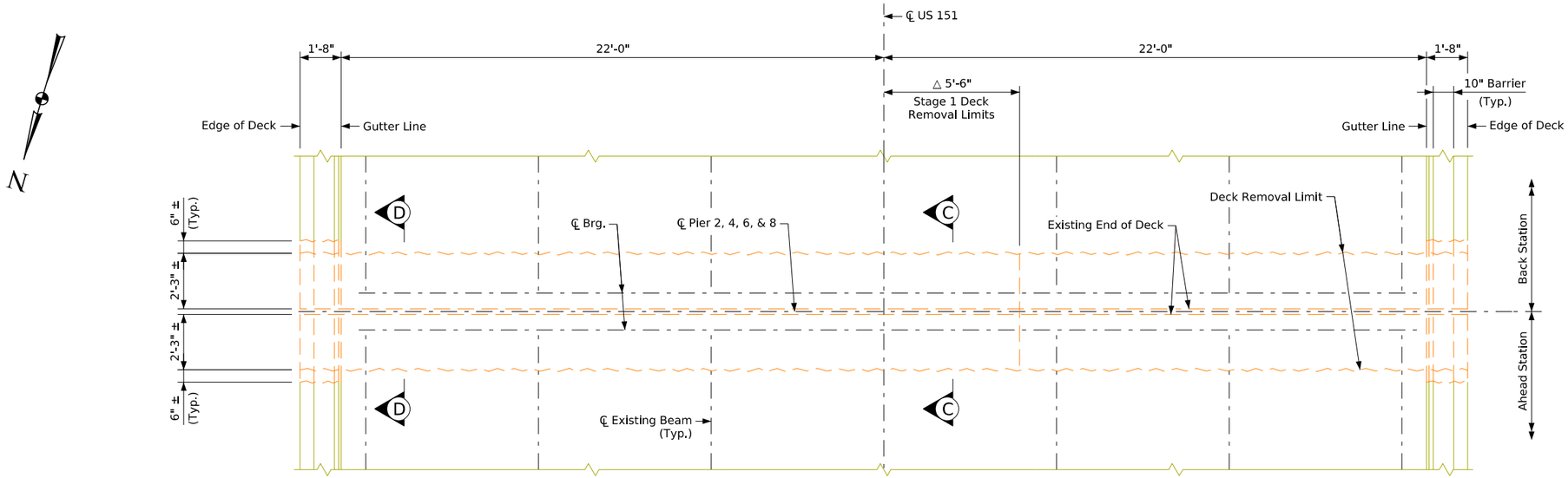
Iowa County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0226 — Design Sheet No. 6 of 18 — FHWA No. 29551

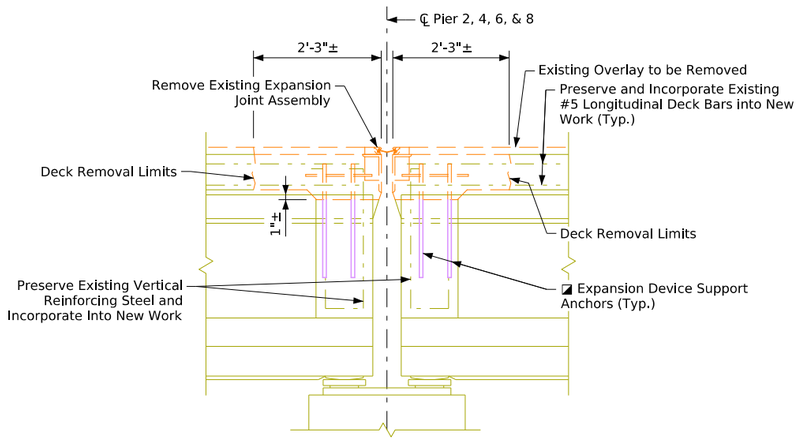
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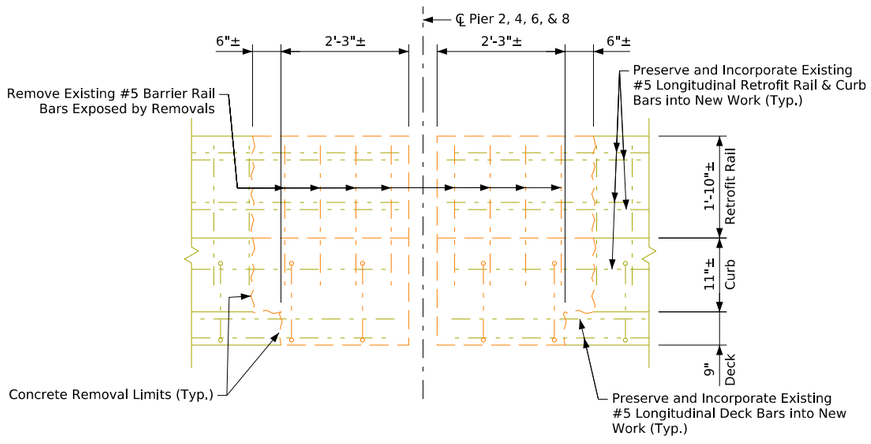
Plan View at Expansion Piers

(Showing Deck, Curb and Barrier Rail Removals)



Section C-C

(Transverse Deck Reinforcing Not Shown for Clarity)



Section D-D

Notes:

Existing longitudinal deck reinforcing steel and longitudinal barrier rail reinforcing shall be preserved and incorporated into new work.

△ For Staging Details, see Design Sheet No. 5.

◪ Existing expansion device support anchors shall be cut off flush or slightly below the removal level and the exposed ends painted with 2 coats of zinc rich paint.

Design For Repair to 0° Skew

688'-6" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

68'-3" End Spans 69'-0" Interior Spans

Removal Details - Expansion Pier

STA. 100+25.00 (℄ US 151) Turn-in Date: October, 2026

Iowa County

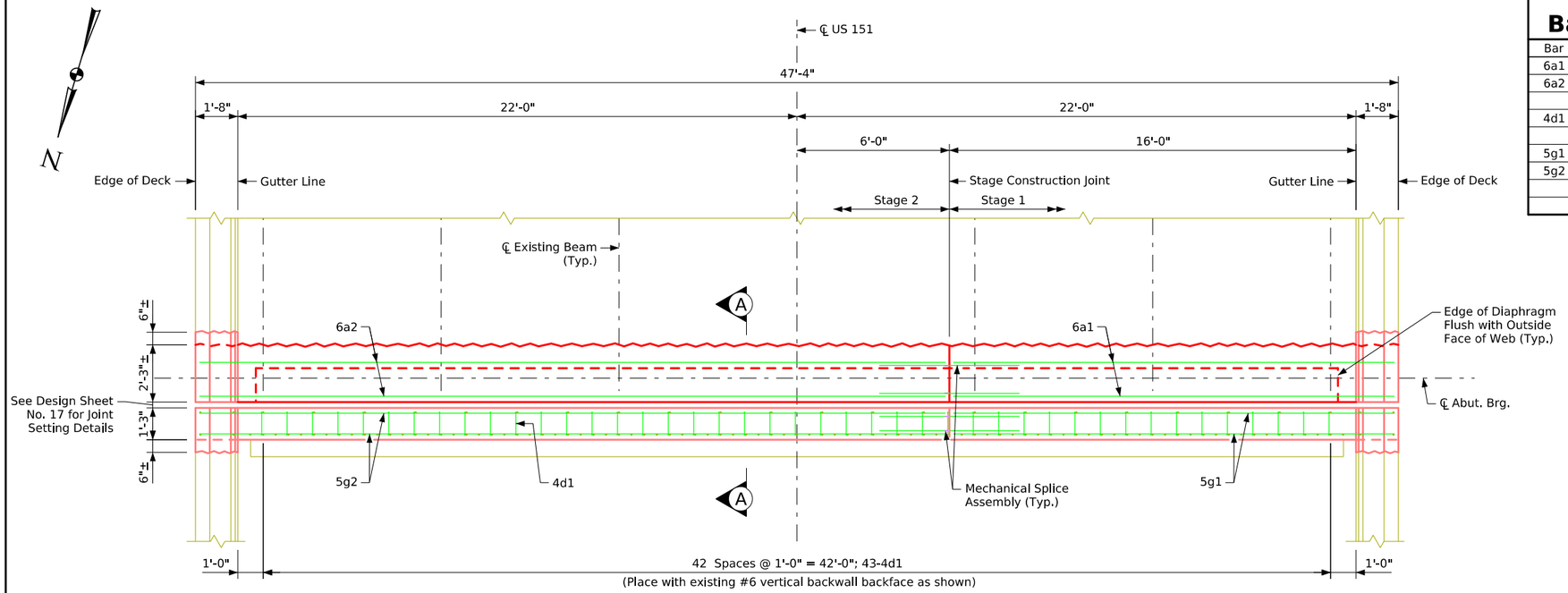
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0226 Design Sheet No. 7 of 18 FHWA No. 29551

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FILE NO. 32245	ENGLISH	DESIGN TEAM CJL\NJL\TMS	IOWA COUNTY	PROJECT NUMBER BRF-151-1(037)--38-48	SHEET NUMBER V.7

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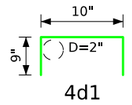
Plan View at Abutment

(North Abutment Shown, South Abutment Similar)
(Existing Longitudinal Deck Reinforcing not Shown)

Epoxy Coated Reinforcing Steel Bar List - One Abutment Joint Replacement

Bar	Location	Shape	No.	Length	Weight
6a1	Deck Transverse, Stage 1		6	17'-4"	156
6a2	Deck Transverse, Stage 2		6	29'-4"	264
4d1	Abutment Backwall Vertical Hoop		43	2'-4"	67
5g1	Abutment Backwall Longitudinal, Stage 1		4	17'-4"	72
5g2	Abutment Backwall Longitudinal, Stage 2		4	29'-4"	122
	Epoxy Coated Reinforcing Steel - Total Weight (lbs.)				681

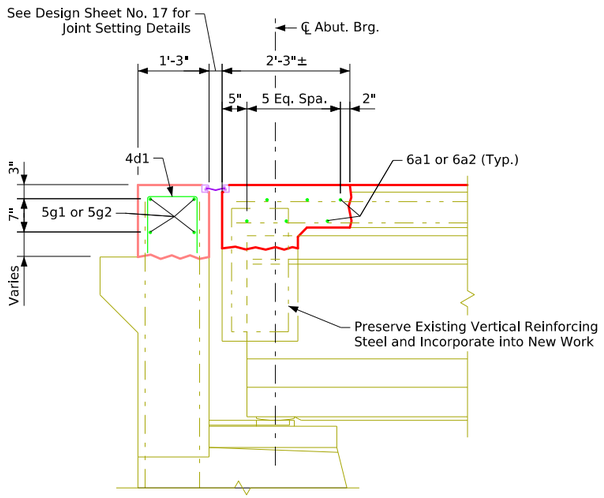
Bent Bar Details



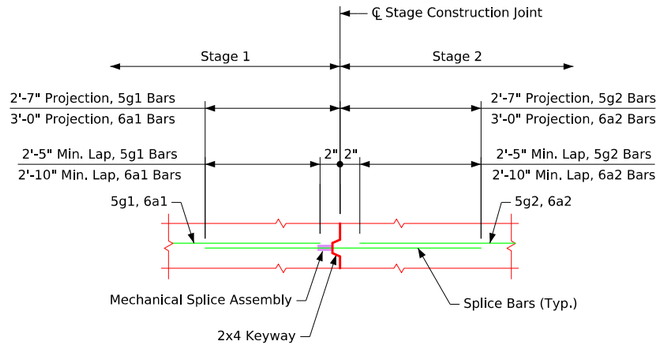
Note: All dimensions are out to out. D = Pin Diameter

Concrete Placement Quantities - One Abutment Joint Replacement

Location	Quantity
Abutment Backwall - Stage 1 (Fiber Reinforced)	0.8
Abutment Backwall - Stage 2 (Fiber Reinforced)	1.5
Deck and Diaphragm - Stage 1 (Fiber Reinforced)	1.2
Deck and Diaphragm - Stage 2 (Fiber Reinforced)	2.1
Curbs (2 curbs at 0.30 cu. yd.)	0.6
Retrofit Rails (2 rails at 0.30 cu. yd.)	0.6
Total (cu. yd.)	6.8



Section A-A



Mechanical Splice Detail

Mechanical Splice Assembly Notes:

The 6a and 5g bars 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 5g bars and $\frac{3}{4}$" for 6a 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". A total of 68 epoxy coated splice assemblies will be required.

Notes:

Existing longitudinal deck reinforcing steel and longitudinal barrier rail and curb reinforcing shall be preserved and incorporated into new work.

For Staging Details, see Design Sheet No. 5.

For curb and barrier rail details and quantities at abutments, see Design Sheet No. 10.

Design For Repair to 0° Skew

688'-6" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

68'-3" End Spans 69'-0" Interior Spans

Abutment Repair Details

STA. 100+25.00 (℄ US 151) Turn-in Date: October, 2026

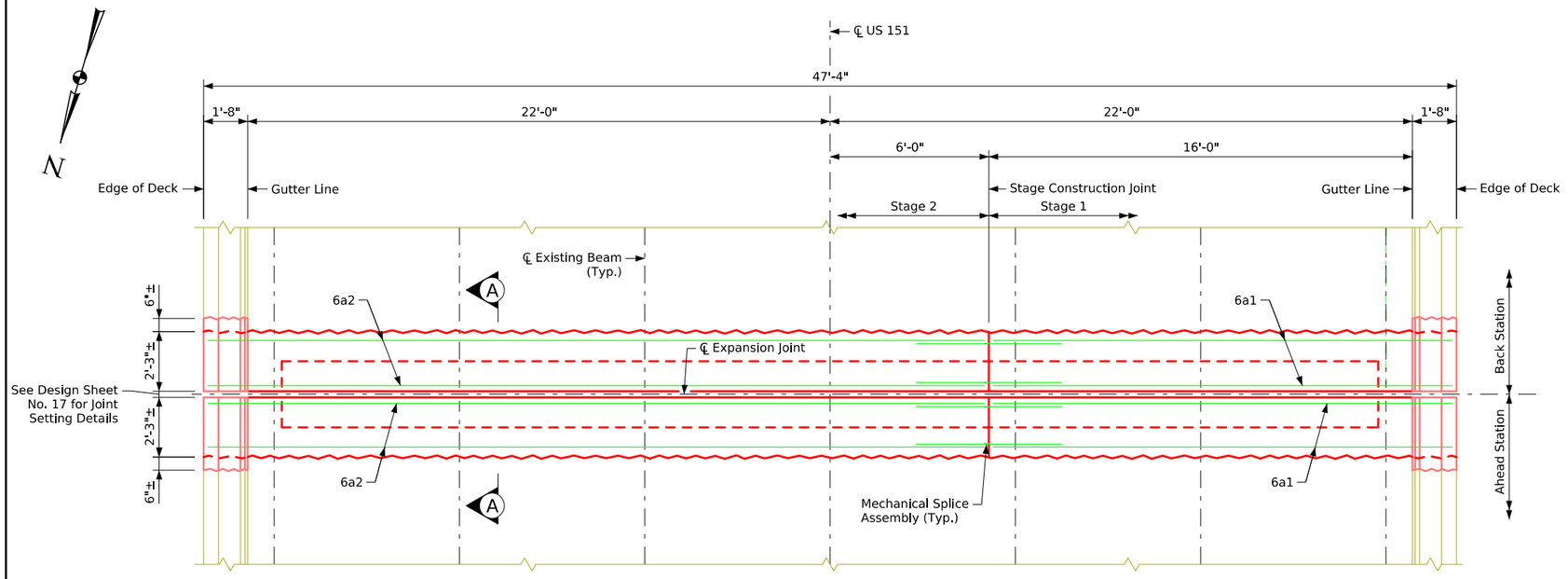
Iowa County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0226 Design Sheet No. 8 of 18 FHWA No. 29551

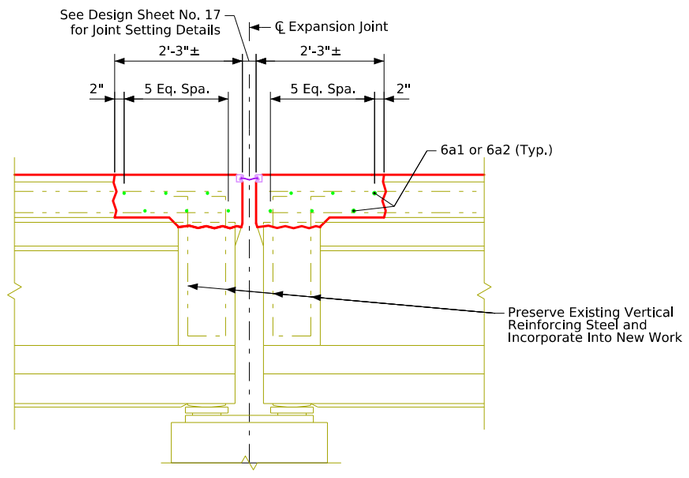
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Plan View at Piers 2, 4, 6, & 8

(Existing Longitudinal Deck Reinforcing not Shown)



Section A-A

Epoxy Coated Reinforcing Steel Bar List - One Pier Joint Replacement

Bar	Location	Shape	No.	Length	Weight
6a1	Deck Transverse, Stage 1		12	17'-4"	312
6a2	Deck Transverse, Stage 2		12	29'-4"	529
	Epoxy Coated Reinforcing Steel - Total Weight (lbs.)				841

Concrete Placement Quantities - One Pier Joint Replacement

Location	Quantity
Deck - Stage 1 (Fiber Reinforced)	2.4
Deck - Stage 2 (Fiber Reinforced)	4.2
Curbs (2 curbs at 0.35 cu. yd.)	0.7
Retrofit Rails (2 rails at 0.35 cu. yd.)	0.7
Total (cu. yd.)	8.0

Notes:

Existing longitudinal deck reinforcing steel and longitudinal barrier rail and curb reinforcing shall be preserved and incorporated into new work.

For Staging Details, see Design Sheet No. 5.

For Mechanical Splice Assembly Notes, see Design Sheet No. 8.

For curb and barrier rail details and quantities at expansion piers, see Design Sheet No. 11.

Design For Repair to 0° Skew

688'-6" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

68'-3" End Spans 69'-0" Interior Spans

Pier Joint Repair Details

STA. 100+25.00 (℄ US 151) Turn-in Date: October, 2026

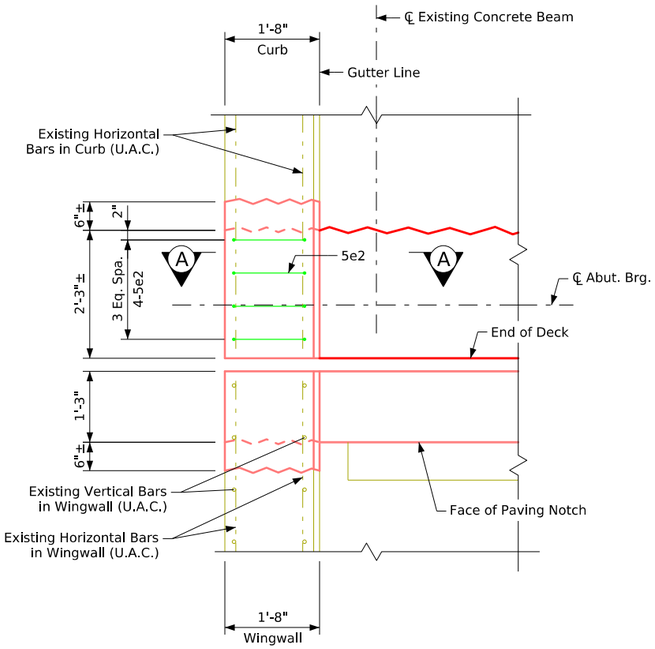
Iowa County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0226 Design Sheet No. 9 of 18 FHWA No. 29551

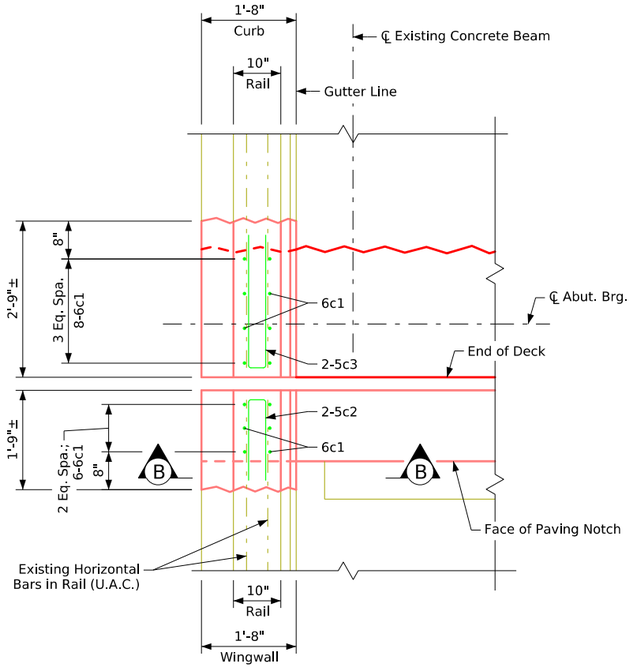
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Part Plan Showing Curb at Abutment

(Rail Not Shown)

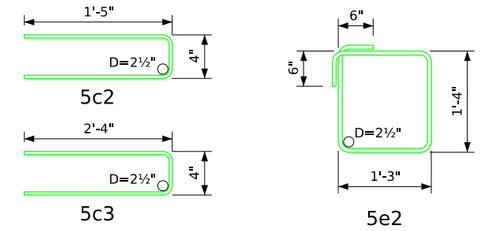


Part Plan Showing Rail at Abutment

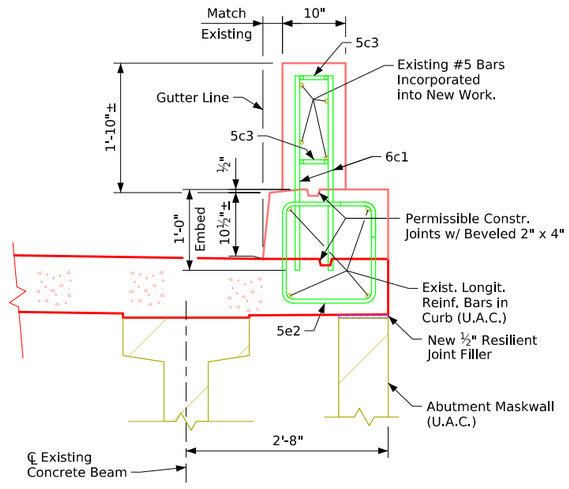
Epoxy Coated Reinf. Bar List - One Abutment

Bar	Location	Shape	No.	Length	Weight
6c1	Barrier Rail, Vertical		28	2'-8"	112
5c2	Abutment Barrier Rail, Horizontal Hairpin		4	3'-2"	13
5c3	Deck Barrier Rail, Horizontal Hairpin		4	5'-0"	21
5e2	Curb Transverse Hoop		8	6'-2"	51
			Epoxy Reinforcing Total Weight (lbs.)		197

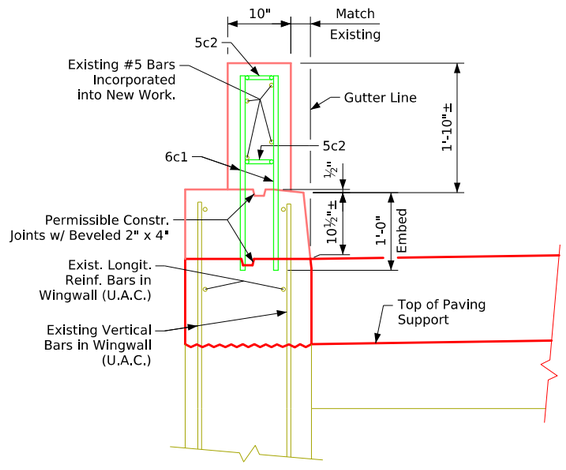
Bent Bar Details



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



Section A-A



Section B-B

Note:
For curb and rail details at expansion piers, see Design Sheet No. 11.

Design For Repair to 0° Skew

688'-6" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

68'-3" End Spans 69'-0" Interior Spans

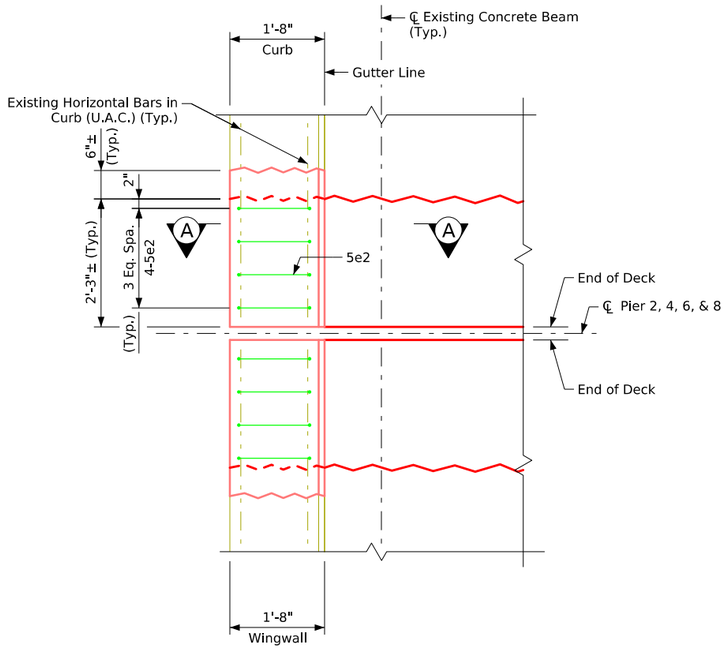
Curb & Rail Repair Details - Abutment

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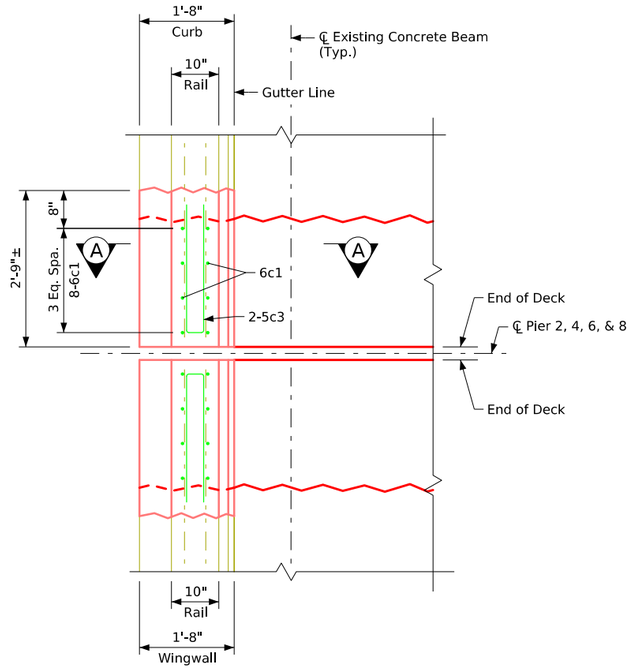
Iowa County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0226 Design Sheet No. 10 of 18 FHWA No. 29551



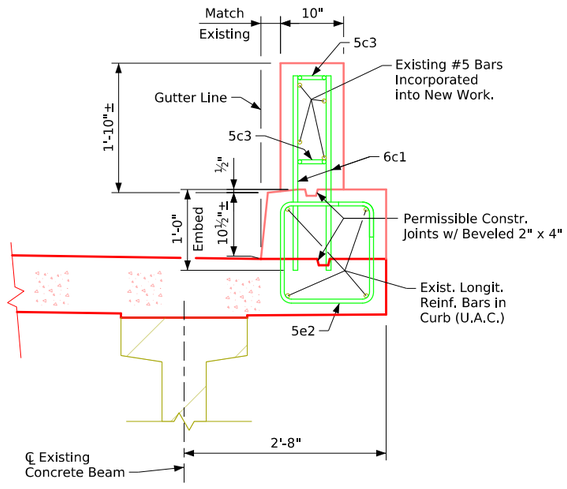
Part Plan Showing Curb at Expansion Pier



Part Plan Showing Rail at Expansion Pier

Epoxy Coated Reinf. Bar List - One Expansion Pier

Bar	Location	Shape	No.	Length	Weight
6c1	Barrier Rail, Vertical		32	2'-8"	128
5c3	Barrier Rail, Horizontal Hairpin		8	5'-0"	42
5e2	Curb Transverse Hoop		16	6'-2"	103
			Epoxy Reinforcing Total Weight (lbs.)		273



Section A-A

Note:
For bent bar details, see Design Sheet No. 10.

Design For Repair to 0° Skew

688'-6" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

68'-3" End Spans 69'-0" Interior Spans

Curb & Rail Repair Details - Exp. Piers

STA. 100+25.00 (℄ US 151) Turn-in Date: October, 2026

Iowa County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0226 Design Sheet No. 11 of 18 FHWA No. 29551

FILE NO. 32245	ENGLISH	DESIGN TEAM CJL\NJL\EES	IOWA COUNTY	PROJECT NUMBER BRF-151-1(037)--38-48	SHEET NUMBER V.11

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Beam End Repair Notes:

It is estimated that 21 beam end(s) will be repaired. The final quantity and limits of beam end areas shall be determined by the Engineer.

The Contractor shall notify the Engineer when concrete removals are complete by each location to allow inspection by the Engineer prior to placement of concrete or repair mortar.

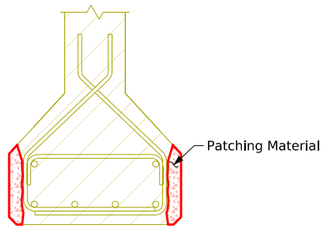
The Contractor shall report tendon or reinforcing bar section loss, exposed during removal work, to the Engineer prior to performing any repair work. The Engineer shall be given adequate time (7 days max.) to determine whether beam reinforcing is required. The Contractor shall incorporate this time into the construction schedule with work in other areas of the project in order to not delay the project.

Removal tools shall be limited to 15 lb chipping hammers and to hand tools without power.

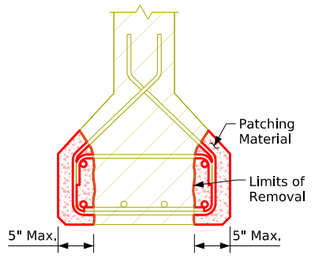
The Contractor shall perform the concrete repair work in accordance with the following procedures and/or as directed by the Engineer:

1. Initiate removal of unsound concrete with ½" saw cuts at perimeter. Do not cross cut at corners. Stop saw cuts short of corners and remove concrete by hand. 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 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. Sandblast concrete surfaces in the repair area and the exposed steel to bare metal. Remove all dust and debris resulting from chipping and blasting by using clean compressed air.
3. If concrete removal results in more than half the diameter of any reinforcing bar or prestressing strand being exposed, then removal shall continue to a minimum of ¾" behind the first interior strand. If removals could exceed the 5" maximum horizontal 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. Apply two coats of protective coating/bonding agent (products are listed in the table on this sheet) to exposed prestressing strands and reinforcing bars according to manufacturer's recommendations.
6. Apply patching material. Type of material and application of material depends upon the extent of concrete removal and the two types of repair are to be 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. Patching material shall be as listed in the table on this sheet. Patching materials contain corrosion inhibitors. Apply patching material to match original beam surface. Patch need not be formed. Follow manufacturer's instructions and recommendations for mixing, placing and curing.
   B. Regular repair: Regular repair areas are those where concrete removal extended behind the reinforcing bars and/or prestressing strands. These areas are to be placed using forms to match the original beam surface. Patching material shall be one of the grouts as listed in the table on this sheet. Patching materials contain corrosion inhibitors. Follow manufacturer's instructions and recommendations for mixing, placing and curing. Forms are to remain in place for seven days.
7. Sandblast 5' of the ends of all beams under expansion joints (abutments and Pier Nos. 2, 4, 6, & 8) as shown on this sheet. 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".
8. Apply concrete sealer to sandblasted portions of beam ends. Do not seal patching material until materials have cured a minimum of 28 days. Concrete sealer to be in accordance with concrete sealer notes shown on this sheet.

The price bid for "Repair Beam Ends" shall include all equipment, labor, and materials required to repair deteriorated beam ends as detailed in these plans. The Engineer will count each end of each beam properly repaired, and the Contractor will be paid the contract unit price per each repair.

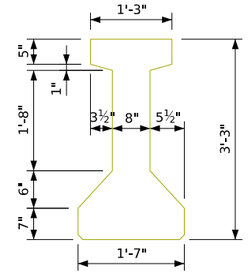


Shallow Repair Areas

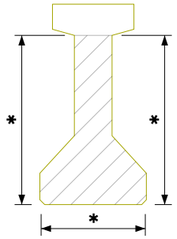


Regular Repair Areas

Note: 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 below.

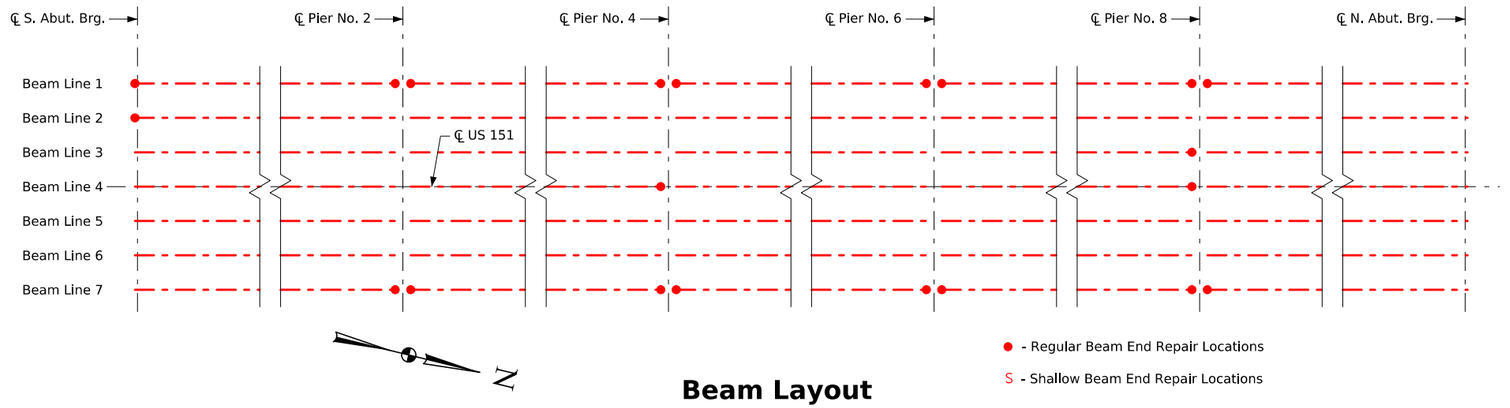


Beam Section

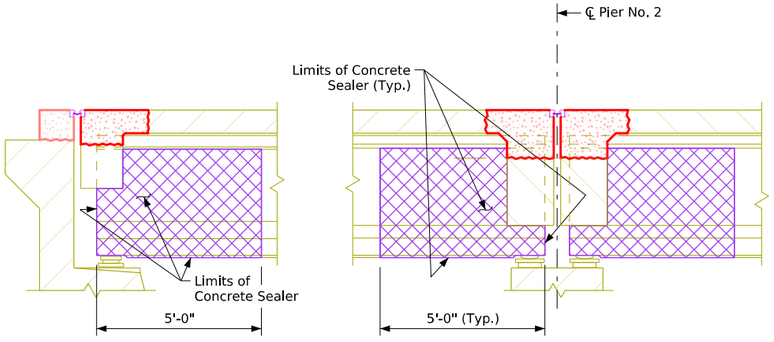


Limits of Sandblasting

✱ Sandblast and seal the surfaces of the bottom flange and web within the limits shown to 5 feet from the beam ends.



Beam Layout



Concrete Sealer Limits for Prestressed Beam

(South Abutment and Pier No. 2 Shown, Pier Nos. 4, 6, 8, and North Abutment Similar)

Concrete Sealer 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.

Table of Manufacturers

Manufacturer	Bondlng Agent	Shallow Repalr	Regular Repalr
BASF	Mastermaco P 124	Masteremaco N 350 Cl	Masteremaco S 477Cl
Euclid	Duralprep A.C.	Verticoat Supreme	Eucorepair
Sika	Sika Armatec 110 Epocem	Sikatop 123 Plus	Sikatop 111 Plus

Design For Repair to 0° Skew

688'-6" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

68'-3" End Spans — 69'-0" Interior Spans

Beam Repair Details

STA. 100+25.00 (℄ US 151) — Turn-in Date: October, 2026

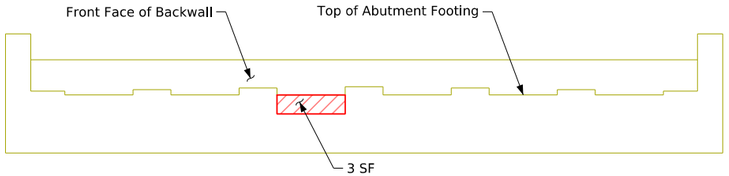
Iowa County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0226 — Design Sheet No. 12 of 18 — FHWA No. 29551

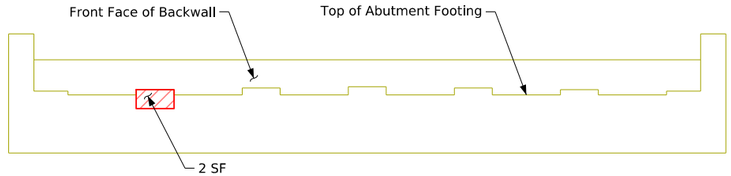
FILE NO. 32245	ENGLISH	DESIGN TEAM CJL\NJL\EES	Concrete Beam Repair Details	Standard Sheet 1055 (Modified)	IOWA COUNTY	PROJECT NUMBER BRF-151-1(037)--38-48	SHEET NUMBER V.12	

RepairRetrofitBridges.dgn - Drawing_s011_Beam Repair - This Sheet Issued 03-01-2017.
RepairRetrofitBridges.dgn - Drawing_s011_Beam Repair - This Sheet Re-Issued 07-23.



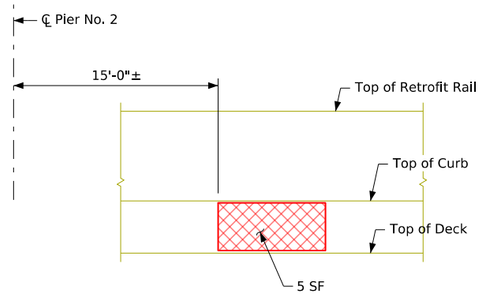
Part Elevation - South Abutment

(Looking South)
(Existing Beams Not Shown for Clarity)



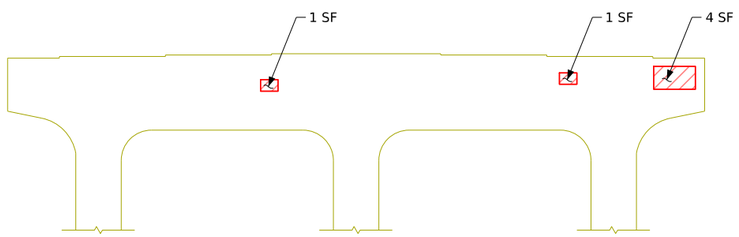
Part Elevation - North Abutment

(Looking North)
(Existing Beams Not Shown for Clarity)

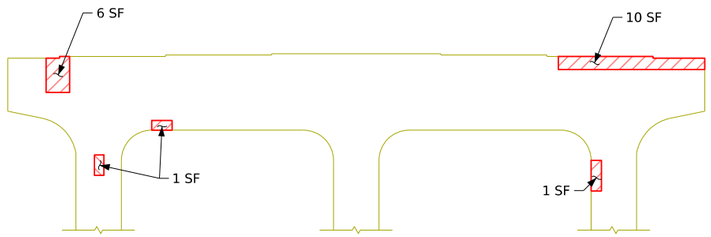


Part Elevation - East Barrier Curb

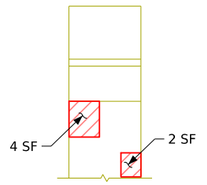
(Looking East)



South Face



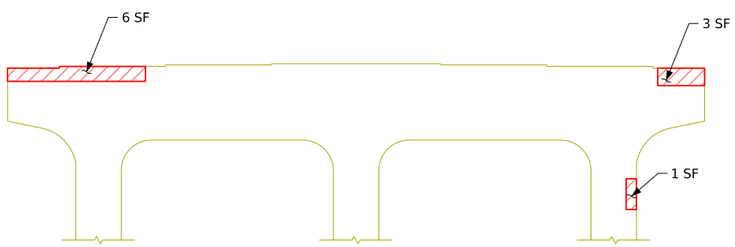
North Face



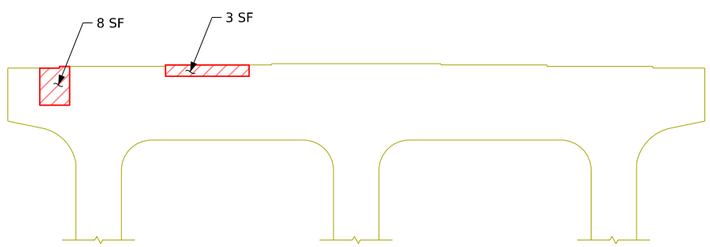
East Column Face

Part Elevation - Pier No. 2

(Existing Beams Not Shown for Clarity)



South Face



North Face

Part Elevation - Pier No. 4

(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

688'-6" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

68'-3" End Spans — 69'-0" Interior Spans

Concrete Repair Details

STA. 100+25.00 (℄ US 151) — Turn-in Date: October, 2026

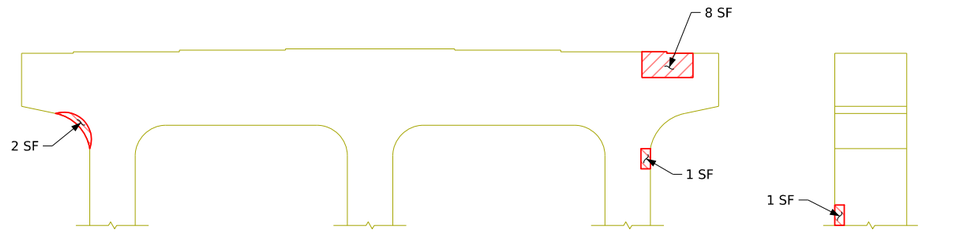
Iowa County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0226 — Design Sheet No. 13 of 18 — FHWA No. 29551

FILE NO. 32245	ENGLISH	DESIGN TEAM CJL\NJL\EES	IOWA COUNTY	PROJECT NUMBER BRF-151-1(037)--38-48	SHEET NUMBER V.13	

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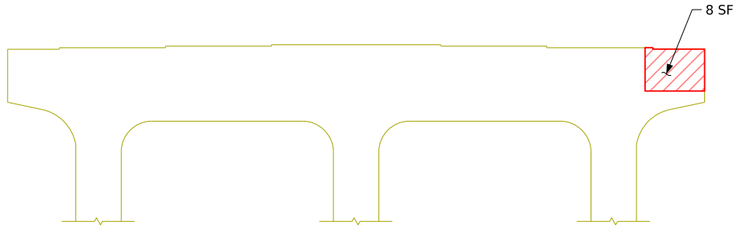


South Face

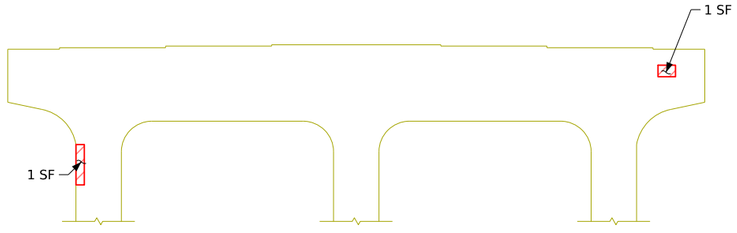
West Column Face

Part Elevation - Pier No. 6

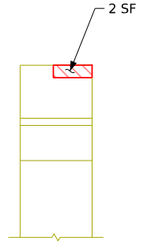
(Existing Beams Not Shown for Clarity)



South Face



North Face



West Column Face

Part Elevation - Pier No. 8

(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

688'-6" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

68'-3" End Spans 69'-0" Interior Spans

Concrete Repair Details

STA. 100+25.00 (℄ US 151) Turn-in Date: October, 2026

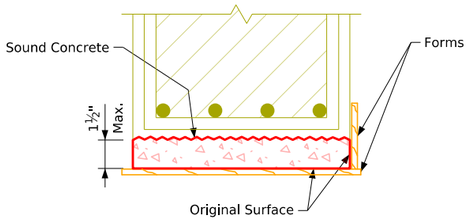
Iowa County

IOWA DEPARTMENT OF TRANSPORTATION

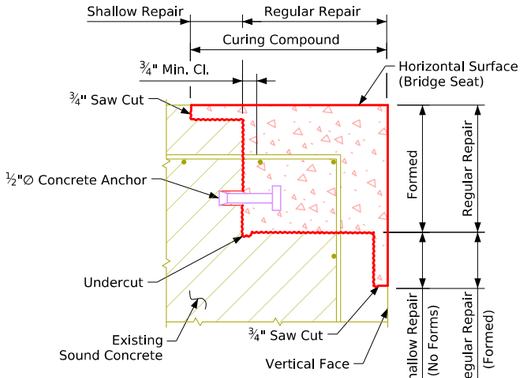
Design No. 0226 Design Sheet No. 14 of 18 FHWA No. 29551

FILE NO. 32245	ENGLISH	DESIGN TEAM CJL\NJL\EES	IOWA COUNTY	PROJECT NUMBER BRF-151-1(037)--38-48	SHEET NUMBER V.14

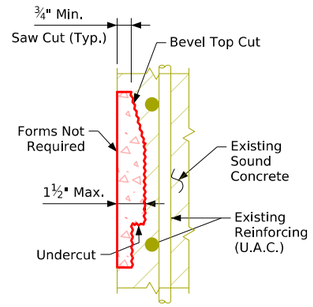
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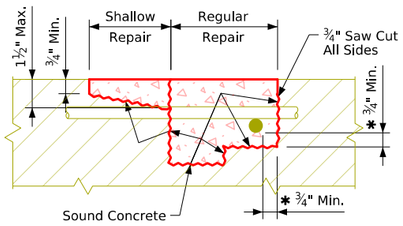
Shallow Repair Bottom Surface



Corner Repair

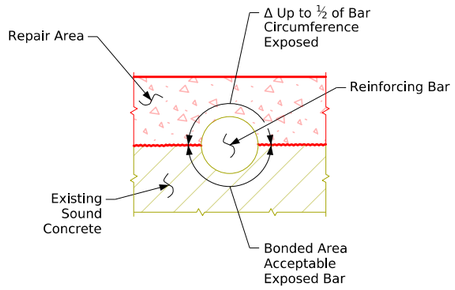


Shallow Repair Vertical Face

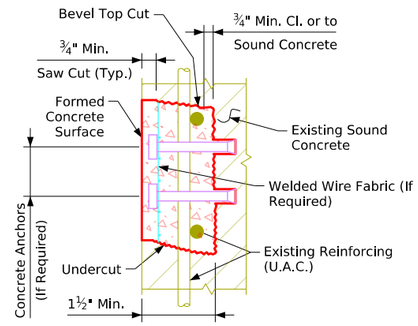


Repair Definition

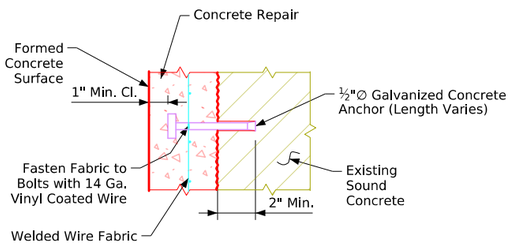
* Indicates Clearance for an Un-Bonded Rebar.



Δ If more than ½ of the rebar is exposed it shall be treated as an un-bonded rebar.

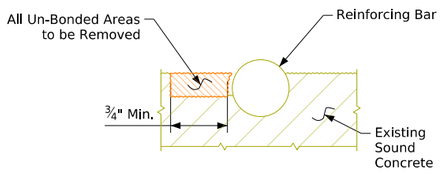


Regular Repair Vertical Face



Anchor Detail

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



Concrete Removal Adjacent to Reinforcing

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 sq in 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 sq ft or larger. For this condition ½"∅ concrete anchors and welded wire fabric shall be installed at the rate of one concrete anchor with WWF per each 1.5 sq ft 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.	81
②	Regular repair	Sq. Ft.	5
		Total (Sq. Ft.)	86

Estimated Concrete Repair Quantities

Description	Units	Amount
Concrete Repair	Sq. Ft.	86

Note:
For estimated repair areas and locations, see Design Sheet Nos. 13 & 14.

Design For Repair to 0° Skew

688'-6" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

68'-3" End Spans — 69'-0" Interior Spans

Concrete Repair Details

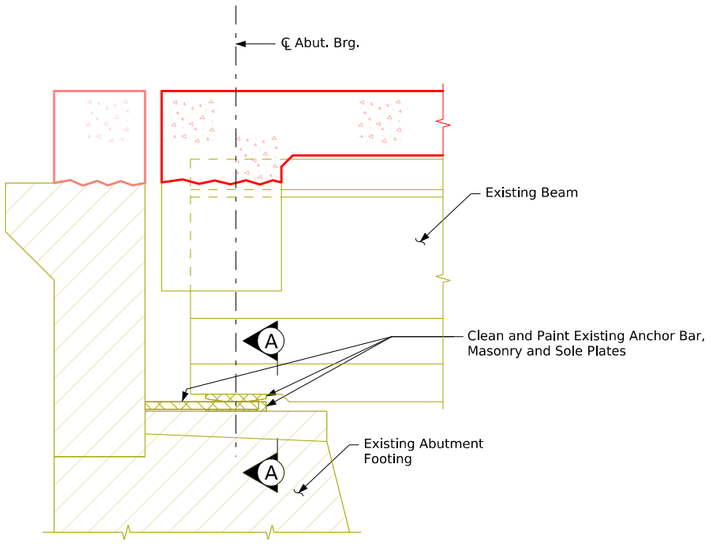
STA. 100+25.00 (℄ US 151) — Turn-in Date: October, 2026

Iowa County

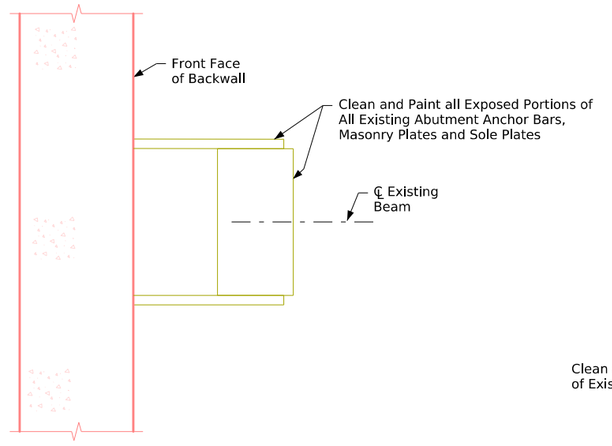
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0226 — Design Sheet No. 15 of 18 — FHWA No. 29551

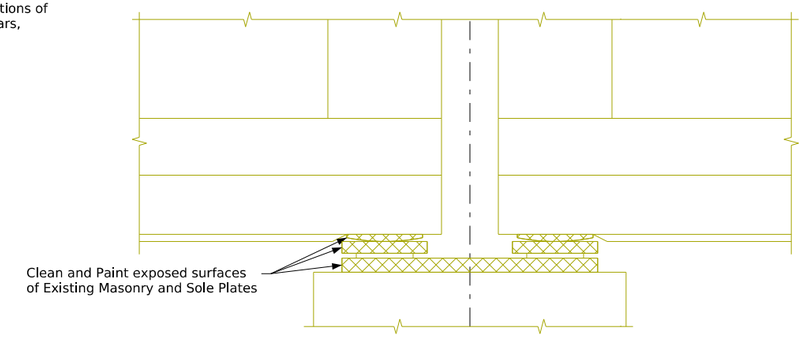
Revised 10-2014 - Deleted All References to Grout. Section 2426 Covers this Requirement and Doesn't Need to be Stated on the Plans.
RepairRetrofitBridges.dgn - Dwg_Concrete Repair - This Sheet Redrawn 09-27-1990.
RepairRetrofitBridges.dgn - Dwg_Concrete Repair - This Sheet Re-Issued 07-23.



Abutment Elevation



Abutment Plan View



Expansion Pier Elevation
(Piers 2, 4, 6, & 8)

Painting Limit Details

Note:
For painting notes, see General Notes on Design Sheet No. 2.

Design For Repair to 0° Skew

688'-6" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

68'-3" End Spans 69'-0" Interior Spans

Miscellaneous Repair Details

STA. 100+25.00 (℄ US 151) Turn-in Date: October, 2026

Iowa County

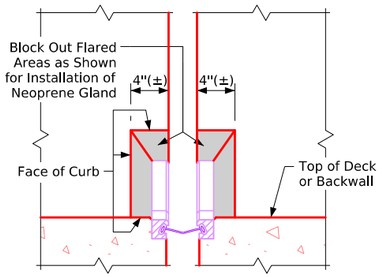
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0226 Design Sheet No. 16 of 18 FHWA No. 29551

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FILE NO. 32245	ENGLISH	DESIGN TEAM CJL\NJL\TMS	IOWA COUNTY	PROJECT NUMBER BRF-151-1(037)--38-48	SHEET NUMBER V.16	

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Blockout Detail

(Drawn for 0° Skew for Illustrative Purposes)

Contractor to note that the cap screw anchorage system for the ⅜" barrier plates are always to be placed on the oncoming traffic side.

Table of Approved Expansion Devices

Joint	Manufacturer	Type of Steel Extrusion	Neoprene Gland	Minimum Opening for Gland Installation	Corresponding Maximum Deck Temperature
South & North Abutments	Watson-Bowman & Acme Corp	A	SE-300	2"	90°F
	D.S. Brown Co.	SSA2	A2R-400	2"	90°F
	Approved Equal				
Piers 2, 4, 6, & 8	Watson-Bowman & Acme Corp	A	SE-300	2"	90°F
	D.S. Brown Co.	SSA2	A2R-400	2"	90°F
	Approved Equal				

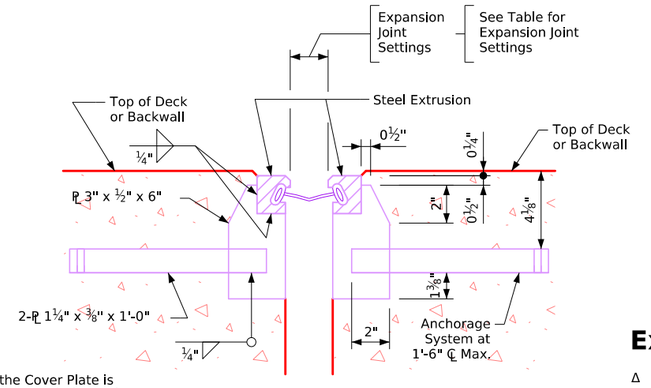
Expansion Joint Settings

Joint	10°F	50°F	90°F
South & North Abutments	$2\frac{3}{8}$"	$2\frac{3}{16}$"	2"
Piers 2, 4, 6, & 8	$2\frac{13}{16}$"	$2\frac{3}{8}$"	2"

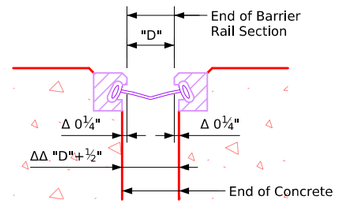
Barrier Plate Note:

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.

Note: Joint settings for other temperatures are proportional. Temperatures shown are concrete deck temperatures on the underside or shaded portion of the deck.



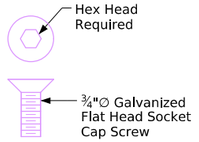
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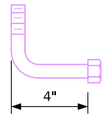
Expansion Opening Detail

Δ This dimension may vary slightly depending on manufacturer furnishing the joint.

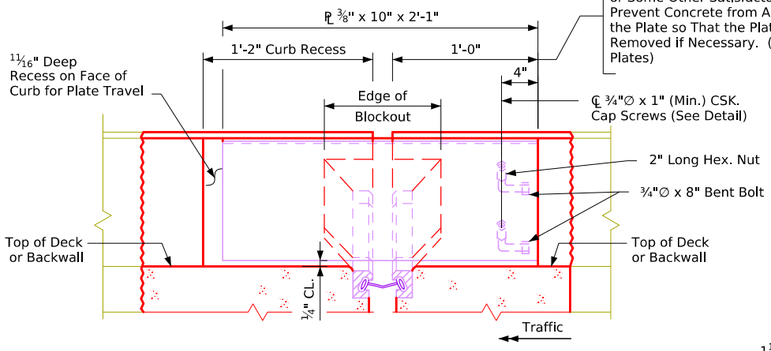
ΔΔ Used for all out to out dimensions of deck. The dimensions may vary slightly depending manufacturer furnishing the joint.



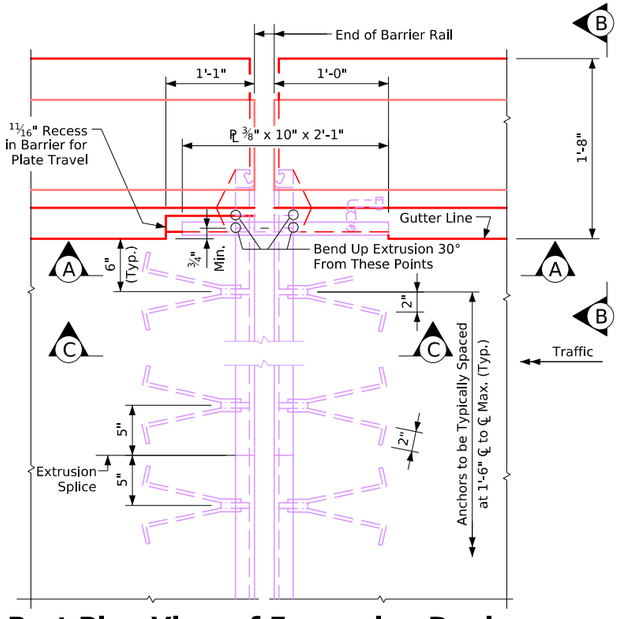
Cap Screw Detail



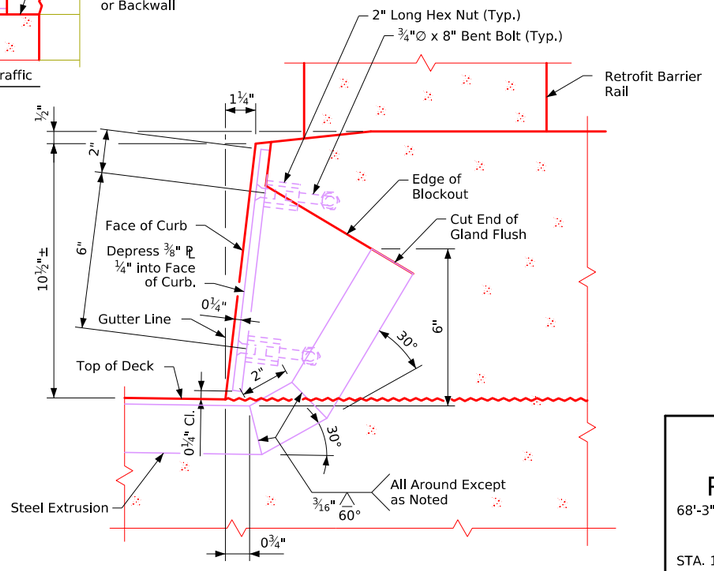
Bent Bolt Detail



Section A-A



Part Plan View of Expansion Device



Section B-B

Note:
See Design Sheet No. 18 for expansion device notes containing the steel extrusion notes, neoprene gland notes, and watertight integrity testing and repair notes.

Design For Repair to 0° Skew

688'-6" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

68'-3" End Spans — 69'-0" Interior Spans

Expansion Device Details

STA. 100+25.00 (℄ US 151)

Turn-in Date: October, 2026

Iowa County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0226 | Design Sheet No. 17 of 18 | FHWA No. 29551

HDR

FILE NO. 32245	ENGLISH	DESIGN TEAM CJL/NJL/TMS	IOWA COUNTY	PROJECT NUMBER BRF-151-1(037)--38-48	SHEET NUMBER V.17

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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 $\frac{1}{16}$" 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 $\frac{3}{8}$" 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.

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 gutterline 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 underdeck 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 underdeck 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.

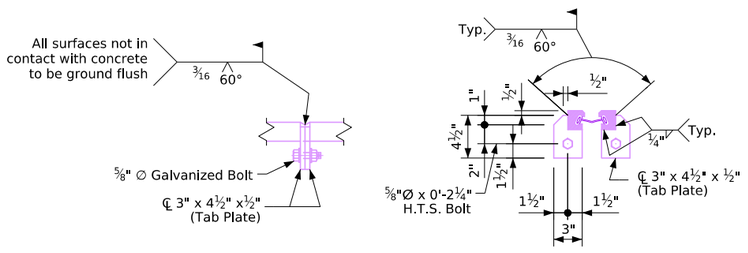
If the expansion device leaks at an upturned end or along its length, the Contractor shall locate the leak(s) and take repair measures to stop the leakage. The repair measures shall be as recommended by the Manufacturer and approved by the Engineer prior to beginning corrective work.

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

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.



End View Section Thru Extrusion

Field Splice Detail

Design For Repair to 0° Skew

688'-6" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

68'-3" End Spans 69'-0" Interior Spans

Expansion Device Notes

STA. 100+25.00 (℄ US 151) Turn-in Date: October, 2026

Iowa County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0226 Design Sheet No. 18 of 18 FHWA No. 29551

FILE NO. 32245	ENGLISH	DESIGN TEAM CJL\NJL\TMS	Expansion Device Details - Steel Extrusion Notes (2 of 2)	Standard Sheet 1026s2 (Modified)	IOWA COUNTY	PROJECT NUMBER BRF-151-1(037)--38-48	SHEET NUMBER V.18	

10:04:22 AM 9/14/2026 ESORENS pw:\\pwhdruscen01:HDR_US_Central_01\Documents\IADOT\IDOT-FY26BridgeOverlaysFinal\6.0_CAD_BIM\6.2_WIP\Bridge\T8_Iowa_226\688-6 x 44 PPCB_ Bridge Repairs_DesignNo_0226

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.

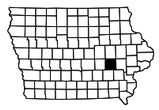
INDEX OF SHEETS

No.	DESCRIPTION
A Sheets	**Title Sheets**
A.3	Title Sheet
C Sheets	**Quantities and General Information**
C.1	Project Description
C.2	Estimated Project Quantities and Reference Notes
C.3	Index of Tabulations
C.4 - 5	Tabulations
D Sheets	**Mainline Plan and Profile Sheets**
D.1	IA 151 Mainline
J Sheets	**Traffic Control and Staging Sheets**
J.1 - 3	Traffic Control Plan and Staging Notes

Note: All utilities are to be protected in place. The contractor shall locate utilities, handholes, and utility access points prior to performing work. Utilities known to be in the vicinity of the project are listed in the table below. Other utilities may exist and their location may not be presently known or identified on the plans. The Contractor shall notify Iowa One-Call at 1.800.292.8989 to identify the location of all underground utility facilities within the construction area. Do not drive over handholes, utility access points, or utility markers with equipment. The Contractor shall be liable for damages to utilities that occur during construction. In the event of interruption to utility services as a result of accidental breakage or as a result of being exposed or unsupported, the Contractor shall promptly notify the proper authority and shall cooperate with the authority in restoration of service. If a utility service is interrupted, repair work shall be continuous until service is restored. All repairs will be made at no additional cost to the contracting authority.

IOWA ONE CALL
1-800-292-8989
www.iowaonecall.com
811 Know what's below. Call before you dig.

District	Contact Name	Contact Phone	Contact Email
ALLIANT ENERGY (AIM)	Alliant Energy Field Engineer	800-255-4268	locate_IPL@alliantenergy.com
AMANA SOCIETY SERVICE COMPANY (AMS)	Russell Eimers	319-622-7623	reimers@amanas.net
ALLIANT ENERGY (ASE)	Alliant Energy Field Engineer	800-255-4268	locate_IPL@alliantenergy.com
AUREON NETWORK SERVICES (INS)	Jeff Klocko	515-830-0445	jeff.klocko@aureon.com
MIDAMER-FIBER (MAF5)	Telecom On Call	515-281-2313	telecomoncall@midamerican.com
SOUTH SLOPE TELEPHONE (SSC)	Brian Frese	319-665-5326	brian@southslope.com
MEDIACOM IOWA CITY (T13)	Carl Norton	319-594-6201	cnorton@mediacomcc.com



ROADWAY DESIGN

LICENSED PROFESSIONAL ENGINEER
Sean L. Ranney
26408
IOWA

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 — Date: 9/4/2026

Sean L. Ranney
Printed or Typed Name

My license renewal date is December 31, 2027

Pages or sheets covered by this seal: A.3, C.1-5, D.1, J.1-3

FILE NO. **32245**	ENGLISH	DESIGN TEAM **Iowa DOT / HDR**	**IOWA** COUNTY	PROJECT NUMBER **BRF-151-1(037)--38-48**	SHEET NUMBER **A.3**

12:00:55 PM 8/25/2026 ALEXMARTINEZ pw:\\pwhdruscen01:HDR_US_Central_01\Documents\IADOT\IDOT-FY26BridgeOverlaysFinal\6.0_CAD_BIM\6.2_WIP\Roadway\T8_Iowa_226\Sheet_Files\Title Sheet

100_01D
8/15/22

PROJECT DESCRIPTION

This project involves bridge repairs & re-overlay on US 151 over the Iowa River Overflow, located 1.6 miles south of the IA 220 junction.

ESTIMATED PROJECT QUANTITIES AND REFERENCE NOTES

Roadway Items : Roadway Items

Item no.	Item Code	Item	Unit	Quantities	Estimate Reference Notes
				Estimated	
				Roadway Items	
1	2412-0000100	LONGITUDINAL GROOVING IN CONCRETE, BRIDGE DECK	SY	3,124.4	Refer to Tab. 100-28.

111_25
4/21/26

INDEX OF TABULATIONS

Line No.	Tabulation	Tabulation Title	Sheet No.
1.0	100_01D	PROJECT DESCRIPTION	C.1
2.0		ESTIMATED PROJECT QUANTITIES AND REFERENCE NOTES	C.2
3.0	111_25	INDEX OF TABULATIONS	C.3
4.0	100_28	LONGITUDINAL GROOVING	C.4
5.0	262_06	UTILITIES (NOT A POINT 25 PROJECT)	C.5
6.0	108_23A	TRAFFIC CONTROL PLAN	J.1
7.0	108_25	511 TRAVEL RESTRICTIONS	J.2
8.0	111_25	COORDINATED OPERATIONS	J.3

LONGITUDINAL GROOVING

Line No.	Location	Total (SY)	Remarks
1.0	100+25.00	3124.4	Bridge

262_06
9/28/22

UTILITIES (NOT A POINT 25 PROJECT)

This is NOT a POINT 25 project and is not subject to the provisions of IAC 761-115.25.

Note: See Bridge Sheets for bridge repair details.

95+00

100+00

105+00

STA 96+77.66 (ML_151)
Begin Bridge Work

U.A.C. Bridge Approach and Steel Beam Guardrail

(ML 151)

U.A.C. Bridge Approach and Steel Beam Guardrail

STA 103+72.33 (ML_151)
End Bridge Work

IOWA RIVER OVERFLOW

0 50
FEET

US 151 OVER IOWA RIVER OVERFLOW

FILE NO. 32245	ENGLISH	DESIGN TEAM Iowa DOT / HDR	IOWA COUNTY	PROJECT NUMBER BRF-151-1(037)--38-48	SHEET NUMBER D.1

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108_23A
8/15/22

TRAFFIC CONTROL PLAN

Bridge at US 151 over Iowa River Overflow will be under construction. Construction will be complete in two stages while maintaining a single lane open to traffic on the bridge. Refer to Project Number BRF-151-1(036)--38-48 for traffic control details.

The Contractor shall submit any requests for closures or traffic control plan modifications to the Engineer for review and approval two weeks prior to any changes being made.

511 TRAVEL RESTRICTIONS

Line No.	Route	Direction	County	Location Description	Feature Crossed	Object Type	Maint. Bridge No. or Structure ID or FHWA No.	Type of Restriction	Existing Measurement	Construction Measurement	Construction Measurement as Signed	Projected As Built Measurement	Remarks
1.0	US 151	Both	Iowa	1.6 mi S of IA 220	Iowa River Overflow	Bridge	29551	Horizontal	44'-0"	13'-6"	12'-6"	NA	
2.0	US 151	Both	Iowa	1.6 mi S of IA 220	Iowa River Overflow	Temporary Signal	29551	Vertical			15'-0"	NA	

COORDINATED OPERATIONS

Other work in progress during the same period of time will include the construction of the projects listed. Coordinate operations with those of other contractors working within the same area.

Project	Type of Work
BRF-151-1(036)--38-48	Bridge Reconstruction-Overlay