

PROGRESS PLANS, NOT FOR CONSTRUCTION

WOODBURY COUNTY

Barrier Rail Repairs
IMX-129-6(51)0--02-97

LETTING DATE
Dec 19 2023

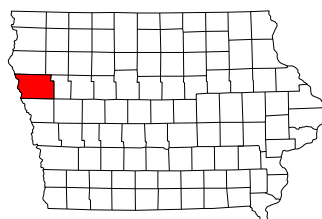
A.1 ?

A.2 ?

Please verify if this is correct. Should it be Bridge Repair?

Note: Review comments by the Bridges and Structures Bureau have been marked on these plans.

Review Key:
PRC = Bridge Plan Review Checklist, 4/3/23 Version.



Standard Road Plans
Standard Road Plans are listed on Sheet Number C.2

Design Data Rural	
2019 AADT	21,100 V.P.D.
TRUCKS	10 %
Total Design ESALs	7,950,000

Index Of Seals		
Sheet No	Name	Type
1	Anthony J. Bower	Structural Design
A.1	Taylor R. Theulen	Roadway 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: Anthony J. Bower Date: XX-XX-XXXX

Printed or Typed Name: Anthony J. Bower

My license renewal date is December 31, 2024

Pages or sheets covered by this seal: Sheets 1-42 of 70



PLANS OF PROPOSED IMPROVEMENT ON THE INTERSTATE ROAD SYSTEM WOODBURY COUNTY Barrier Rail Repairs

I-129 over the Missouri River
0.5 Miles West of Jct. I-29

FRA No. 975417P

- Refer to the Plan Sheets for list of applicable specifications.
- Value Engineering Saves. Refer to Article 1105.14 of the Specifications.
- The Iowa Department of Transportation Standard Specifications for Highway and Bridge Construction, Series 2015, plus applicable General Supplemental Specifications, Developmental Specifications, Supplemental Specifications, and Special Provisions shall apply to the construction work on this project.



Preliminary
Not For Construction

Revisions to this Design Plan and/or Project Specifications should be submitted by _____

Per PRC 2.1, Traffic Data for both roadways should be included for a separation grade crossing.

A.1

Revisions

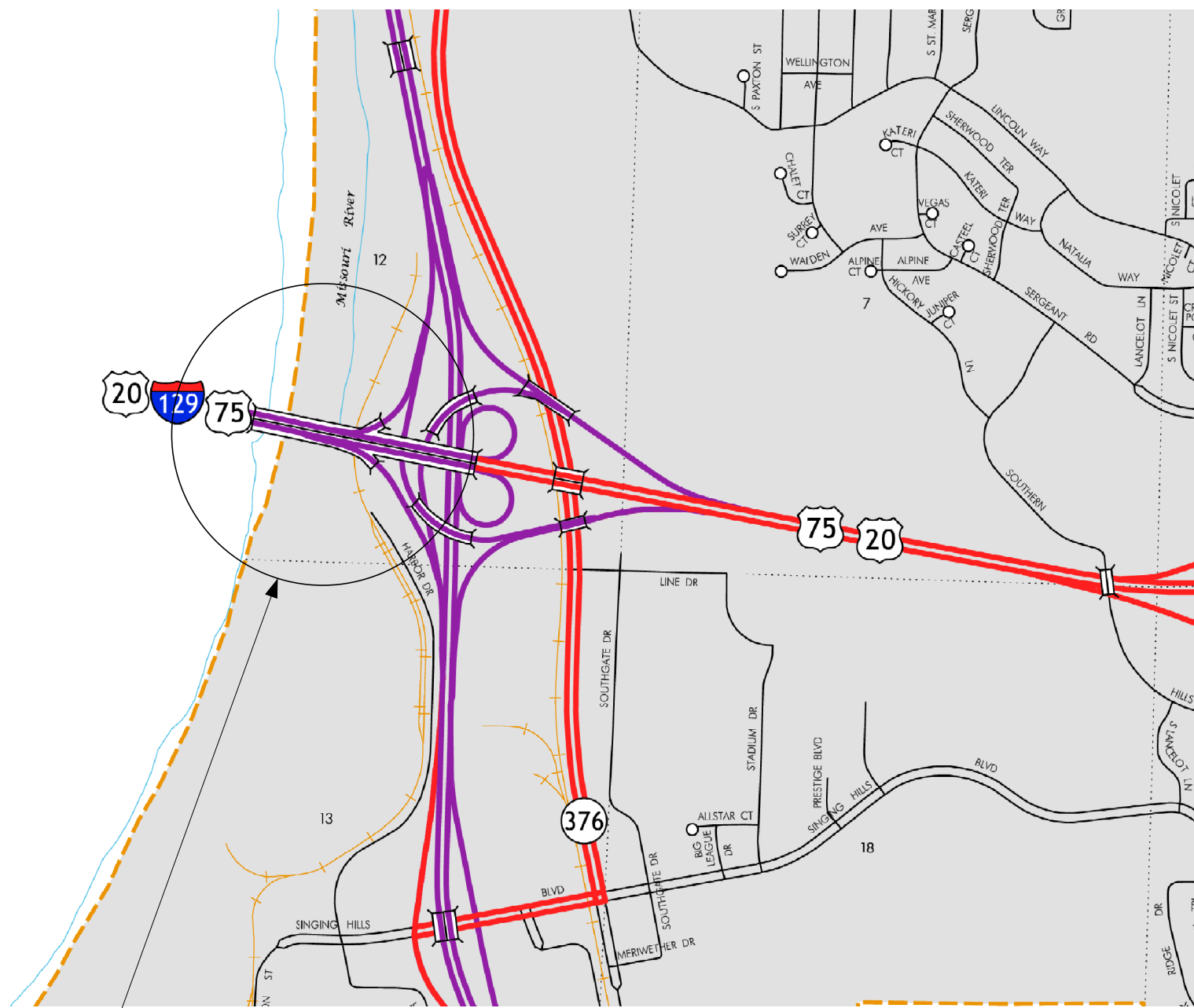
TOTAL
70
PROJECT IDENTIFICATION NUMBER 21-97-129-010
CONTRACT ID NUMBER 97-1296-051
PROJECT NUMBER IMX-129-6(51)0--02-97
R.O.W. PROJECT NUMBER
PROJECT DIRECTORY NUMBER

9712901021

PROGRESS PLANS, NOT FOR CONSTRUCTION

R-48W

R-47W



LEGEND

INTERSTATE ROUTE	
FREEWAY OR EXPRESSWAY ROUTE	
U.S. NUMBERED ROUTE	
BUSINESS ROUTE	
STATE NUMBERED ROUTE	
UNSIGNED ROUTE	
COUNTY NUMBERED ROUTE	
SECONDARY ROAD OR ADJOINING CITY STREET	
CITY STREET	
PARK, INSTITUTION, OR FEDERAL ROAD	
RAILROAD	
CORPORATION LINE	
SECTION LINE	
CUL-DE-SAC	
SECTION, TOWNSHIP & RANGE NUMBERS	9, T-81N, R-30W

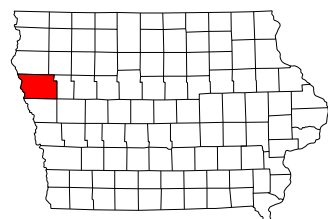


Design No. 1124
FHWA No. 600675

City of Sioux City Location Map

Not To Scale

Per PRC 2.2, add: Part of



Please replace "Barrier Rail" with "Bridge".

This item does not seem to address the deck removal. How is removal of the deck to be paid for? Should there be a separate bid item for the deck removal since the quantity/total cost will depend on the amount as determined in field by the engineer.

Estimated Barrier Rail Repair Quantities and Reference Notes - Design #1124

Item No.	Item Code	Item	Unit	Quantities Estimated Design No. 1124	Estimate Reference Notes
1	2401-6750001	REMOVALS, AS PER PLAN	LS	1.0	Includes all work for removal and off-site disposal of portions of barrier rails. 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 cost to prevent debris/material from falling below the structure as described in the General Notes on Sheet V.2.
2	2403-0100000	STRUCTURAL CONCRETE (MISC.)	CY	1,627.1	----
3	2404-7775005	REINFORCING STEEL, EPOXY COATED	LB	189,985	----
4	2426-2772016	CONCRETE REPAIR	SF	20.0	----
5	2508-0970000	CONTAINMENT	LS	1.0	----
6	2533-4980005	MOBILIZATION	LS	1.0	Includes furnishing construction progress schedules as required in the Developmental Specification listed in the General Notes.
7	2595-0005150	RAILROAD PROTECTIVE LIABILITY INSURANCE FOR UNION PACIFIC RAILROAD CO.	LS	1.0	----

Add removal of light pole bases ?

The note in Masterwork does not match this.

Spelling

Design Sheet ?

Please check

Spelling

This bid item applies to removal of paint. Please check if this is the appropriate bid item for this particular containment.

Please indicate the concrete items that this includes such as barrier rail, deck, light pole bases, and gore areas.

Please also list the various incidental work that is included with this structural concrete bid item. For example, does this include anchor bolts and plates at the light pole bases? Also, for example, should this include furnishing and installing 1 inch diameter plastic conduit which is shown on sheet 37?

Per PRC 3.1.1, construction survey bid items (if requested by District) should be located with the Estimated Bridge Quantities and not Roadway Quantities if plans are to be turned in by the Bridges and Structures Bureau. Please coordinate with road plans.

The divisions in Masterworks should be in the proper order per PRC 3.1.1

Please replace Missouri River with I-129.

Please provide a pdf of the bridge and road cost estimates to the Bridges and Structures Bureau.

Please add roadway quantities note in box per PRC 3.1.1

Design For Repairs To
2600'-0" × 84'-0" Continuous Welded Girder Bridge
 Estimated Quantities
 STA. 422+15.00 (Missouri River) Turn-In Date: Oct 2023
Woodbury County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 1124 Design Sheet No. 001 of 40 FHWA No. 600765

Specifications:

Design:
AASHTO series of 2002.

Construction:

Iowa Department of Transportation Standard Specifications for Highway and Bridge Construction, Series 2015, plus applicable General Supplemental Specifications, Developmental Specifications, Supplemental Specifications and Special Provisions shall apply to construction work on this project.

Please enter this into Masterworks

The plans show a layout for TBR for both Stage 1 and Stage 2 construction. The temporary barrier rail sections adjacent to the work area for Stage 1 traffic are to remain in place until traffic is shifted to the Stage 2 traffic lane. The temporary barrier rail sections adjacent to the work area for Stage 2 traffic are to be in place prior to shifting traffic to the Stage 2 traffic lane.

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.

Concrete barrier rails placed using the slipform method will require the use of a Class BR Concrete in accordance with Article 2513.03, A, 2, of the Standard Specifications. Cast-in-place barrier rails shall use Class C mix. Class D Concrete is not permitted for concrete barrier rails (cast-in-place or slipformed method).

The Contractor's attention is directed to the existing conduit in the bridge barrier rails. Any damage to the conduit to remain or wiring to remain by the Contractor will be the responsibility of the Contractor and repaired at no extra cost to the State.

The lump sum bid for "Removals, as Per Plan" shall include all costs associated with removing portions of the barrier rails and the barrier end sections as the west end of the bridge as identified in these plans. 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.

These bridge plans label all reinforcing steel with english notation (5a1 is 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.

Recommend changing to CADD Note E101 (per PRC 3.2.4.1.)

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

Faint lines on plans indicate existing portions of the bridge.

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 construction starting date.

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

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 roadway will be open to traffic during construction. See Traffic Control Plan note.

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

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	Containment Plan		Yes
X	Demolition Plan		Yes
X			
X			
X			
No.	Calculation Description	Calculation File Name Convention For Submittal	Certified by Iowa P.E. (Yes/No)
X			
X			
X			
X			

Include light pole blisters ?

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

Please complete.

Design History At This Site (Includes this Design)	
Des. No.	Type of Work
173b	Original Design
173c	Original Design
1375	Bridge Deck Overlay
500	Bridge Rehabilitation
121	Bridge Deck Overlay
1124	Barrier Rail Repair

Please evaluate whether the existing barrier rail, which is to remain in place, should be sealed as per CADD note E463. Please consult with the Bridges and Structures bureau on this.

Design For Repairs To
2600'-0" x 84'-0" Continuous Welded Girder Bridge

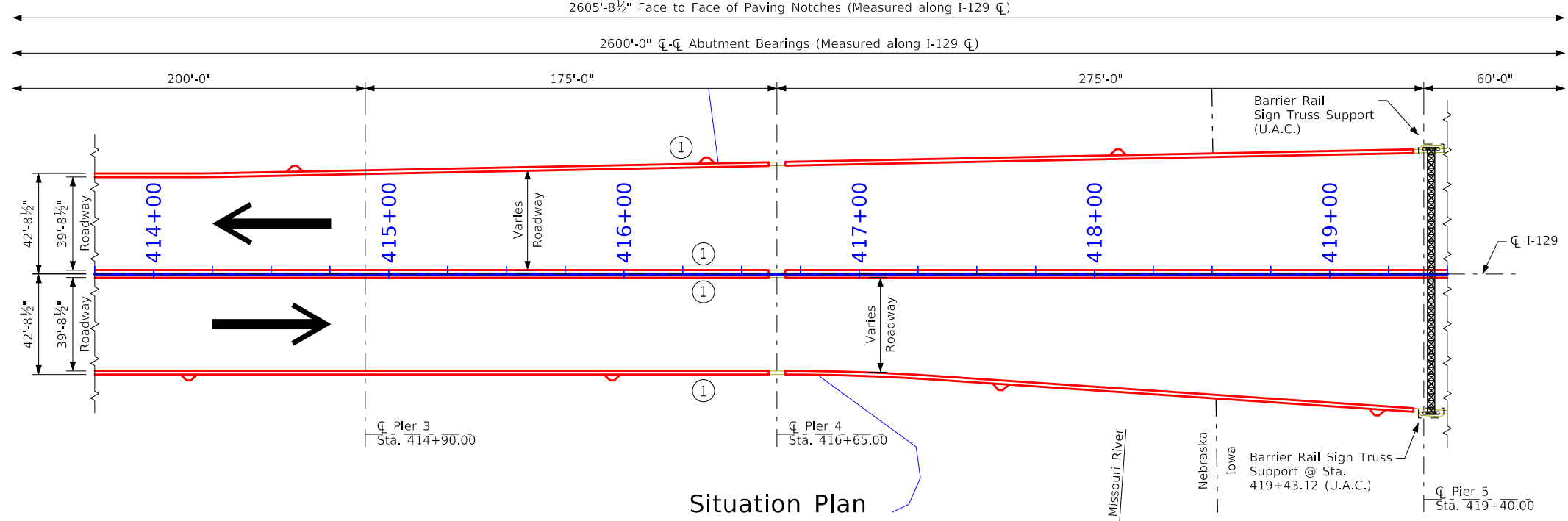
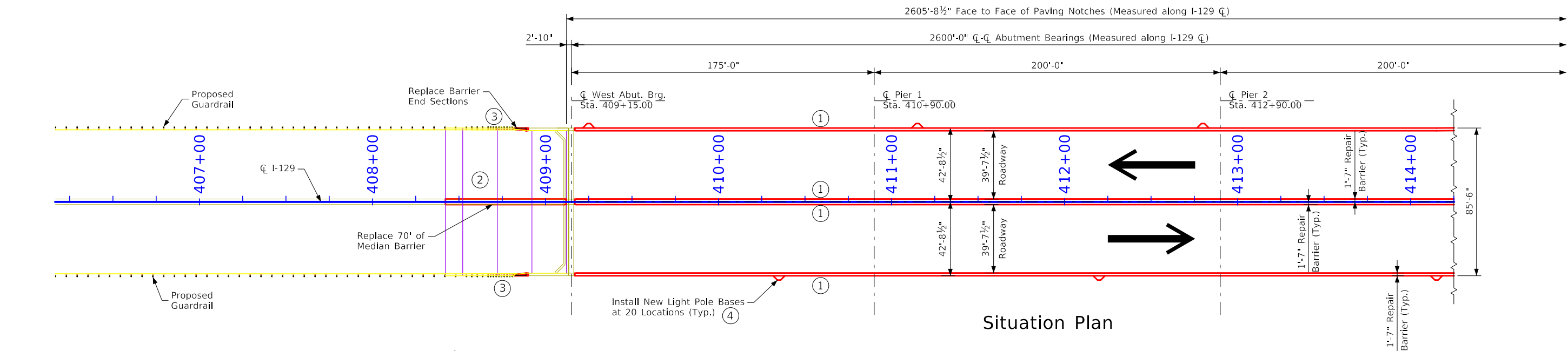
General Notes

STA. 422+15.00 (Missouri River) Turn-In Date: Oct 2023

Woodbury County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 1124 Design Sheet No. 002 of 40 FHWA No. 600765



Bridge Repair Legend:

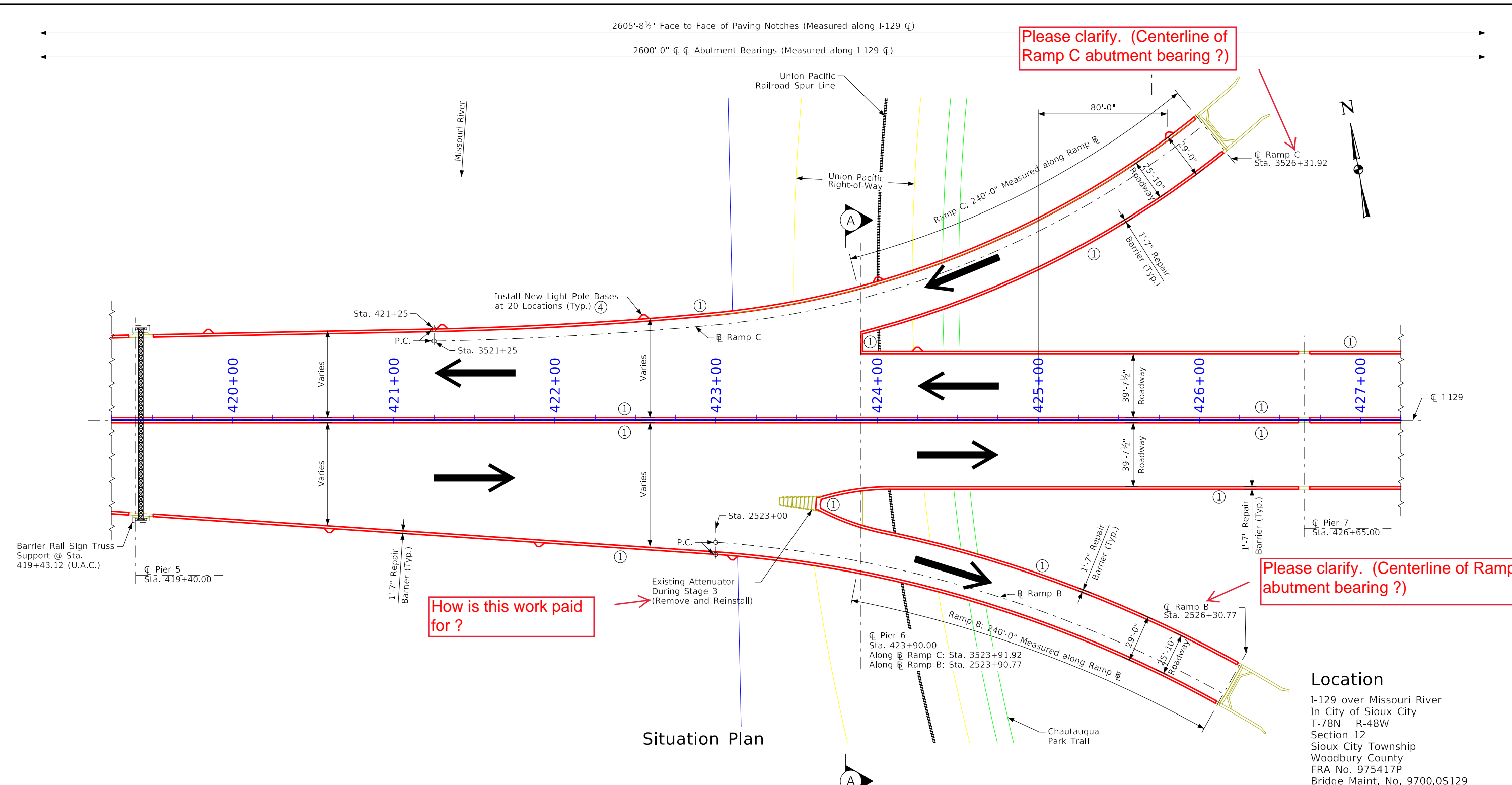
- ①. Partially remove and replace barrier rails. Includes partial removal of bridge deck overhang where directed by Engineer. Includes construction of new light pole blisters in approximately same location as existing.
- ②. Remove and replace 70' bridge approach with IowaDOT standard bridge approach.
- ③. Remove and replace guardrail at west approach. Include partially remove and replace bridge barrier rail end section at west end.
- ④. Remove existing light pole bases and install new bases

Location

I-129 over Missouri River
 In City of Sioux City
 T-78N R-48W
 Section 12
 Sioux City Township
 Woodbury County
 FRA No. 975417P
 Bridge Maint. No. 9700.05129
 FHWA No. 600765
 Latitude 42.446889°
 Longitude -96.380905°

Design For Repairs To
**2600'-0" × 84'-0" Continuous
 Welded Girder Bridge**
 Situation Plan
 STA. 422+15.00 (Missouri River) Turn-In Date: Oct 2023
Woodbury County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 1124 Design Sheet No. 003 of 40 FHWA No. 600765

PROGRESS PLANS, NOT FOR CONSTRUCTION



Please clarify. (Centerline of Ramp C abutment bearing ?)

Please clarify. (Centerline of Ramp B abutment bearing ?)

How is this work paid for ?

Situation Plan

Bridge Repair Legend

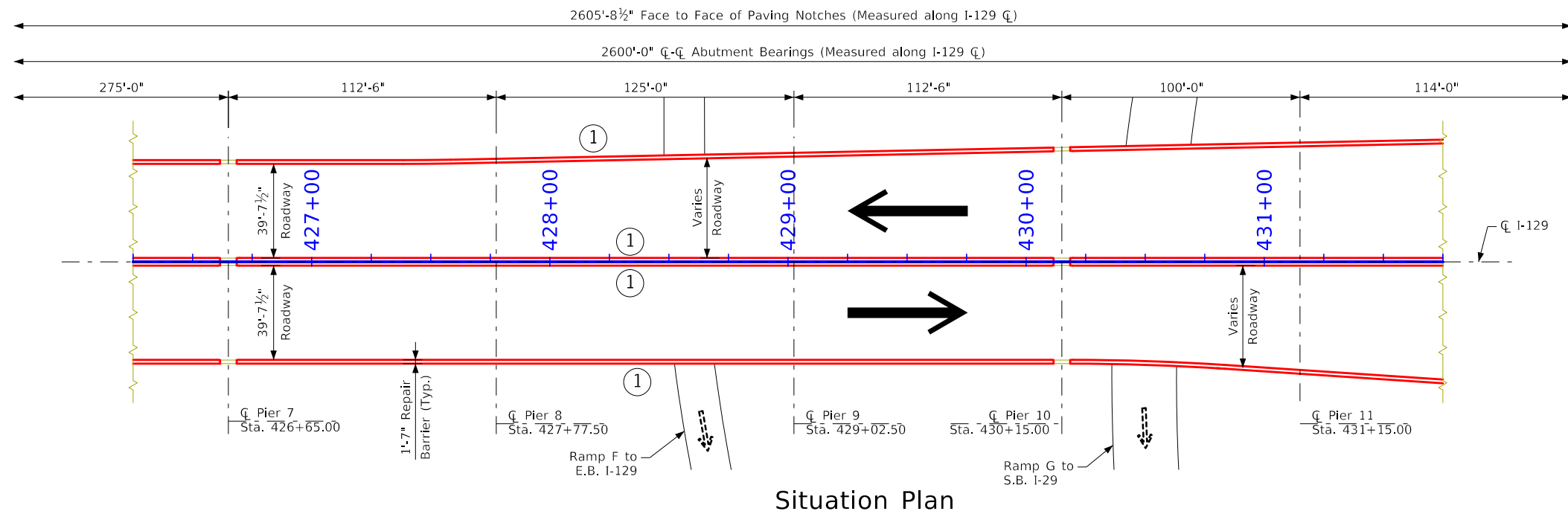
- ① Partially remove and replace barrier rails. Includes partial removal of bridge deck overhang where directed by Engineer. Includes construction of new light pole blisters in approximately same location as existing.
- ④ Remove existing light pole bases and install new bases

Location

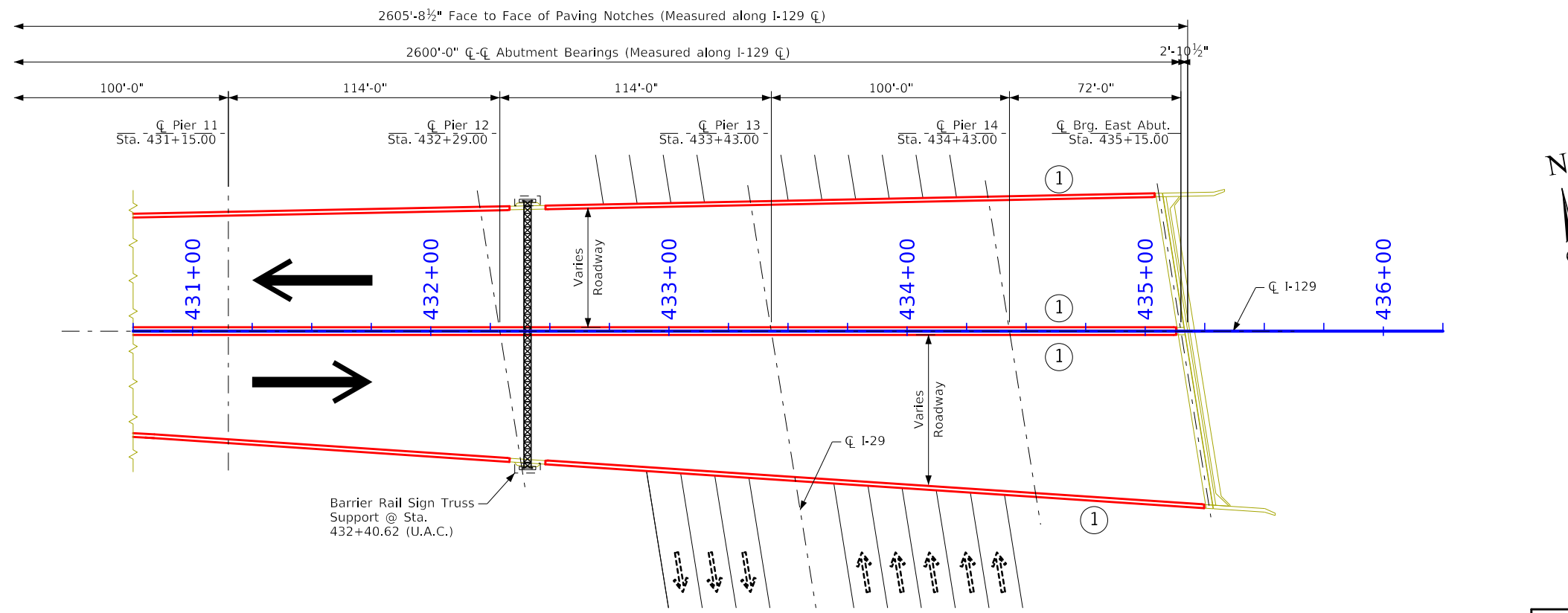
I-129 over Missouri River
 In City of Sioux City
 T-78N R-48W
 Section 12
 Sioux City Township
 Woodbury County
 FRA No. 975417P
 Bridge Maint. No. 9700.05129
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 Latitude 42.446889°
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See Design Sheet 12 for Section A-A
 UPRR Containment Details

Design For Repairs To
**2600'-0" × 84'-0" Continuous
 Welded Girder Bridge**
 Situation Plan
 STA. 422+15.00 (Missouri River) Turn-In Date: Oct 2023
Woodbury County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 1124 Design Sheet No. 004 of 40 FHWA No. 600765



Situation Plan



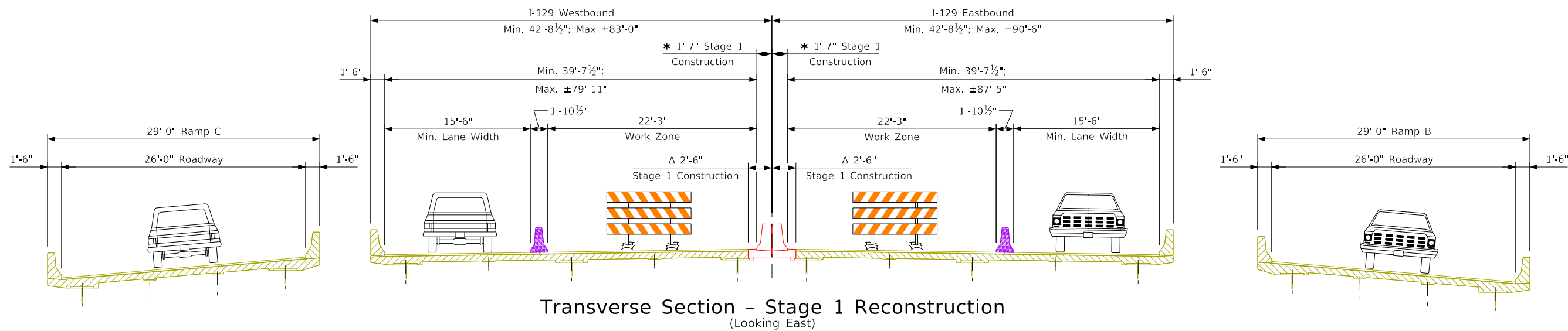
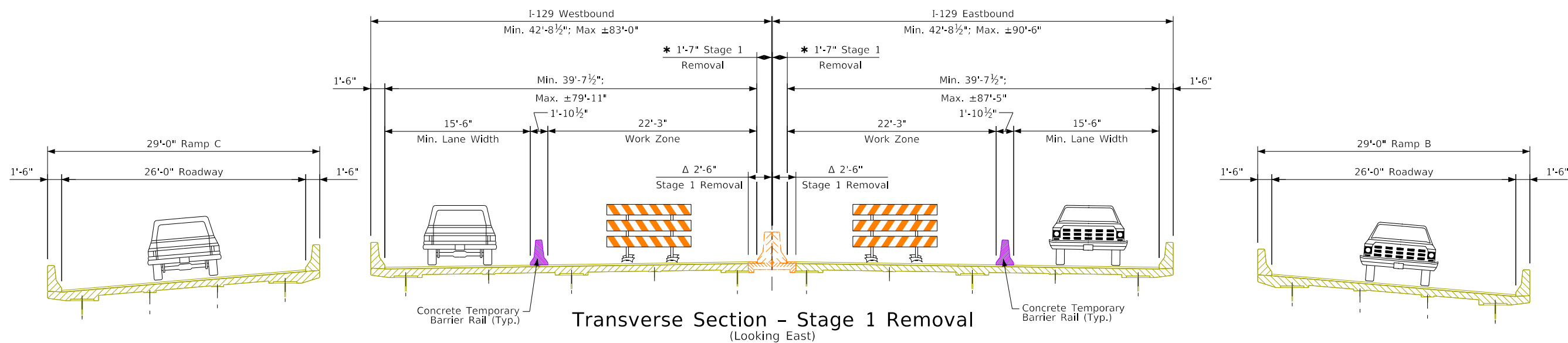
Situation Plan

Location
 I-129 over Missouri River
 In City of Sioux City
 T-78N R-48W
 Section 12
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 FRA No. 975417P
 Bridge Maint. No. 9700.05129
 FHWA No. 600765
 Latitude 42.446889°
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Bridge Repair Legend

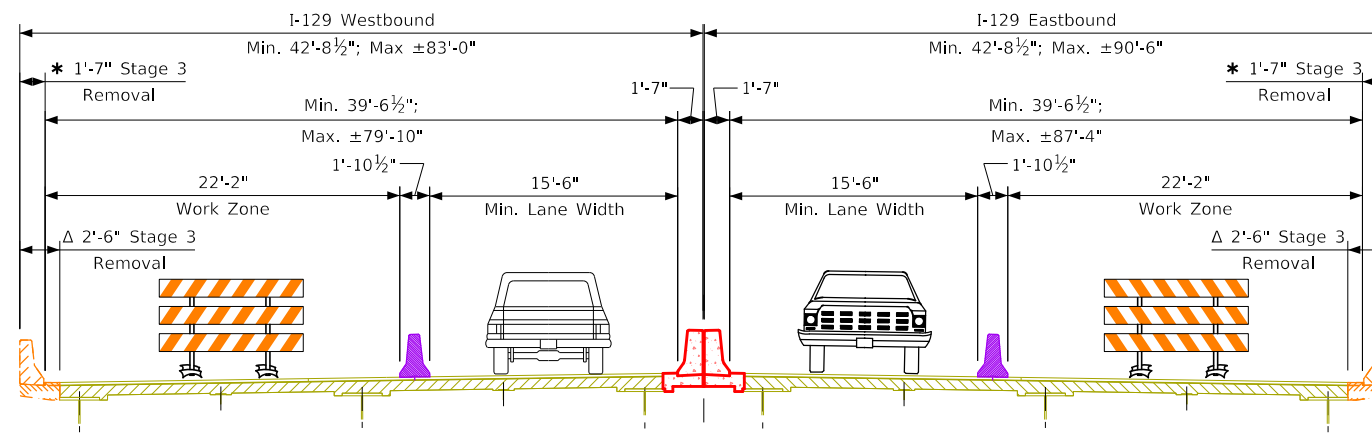
① Partially remove and replace barrier rails. Includes partial removal of bridge deck overhang where directed by Engineer. Includes construction of new light pole blisters in approximately same location as existing.

Design For Repairs To
**2600'-0" × 84'-0" Continuous
 Welded Girder Bridge**
Situation Plan
 STA. 422+15.00 (Missouri River) Turn-In Date: Oct 2023
Woodbury County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 1124 Design Sheet No. 005 of 40 FHWA No. 600765

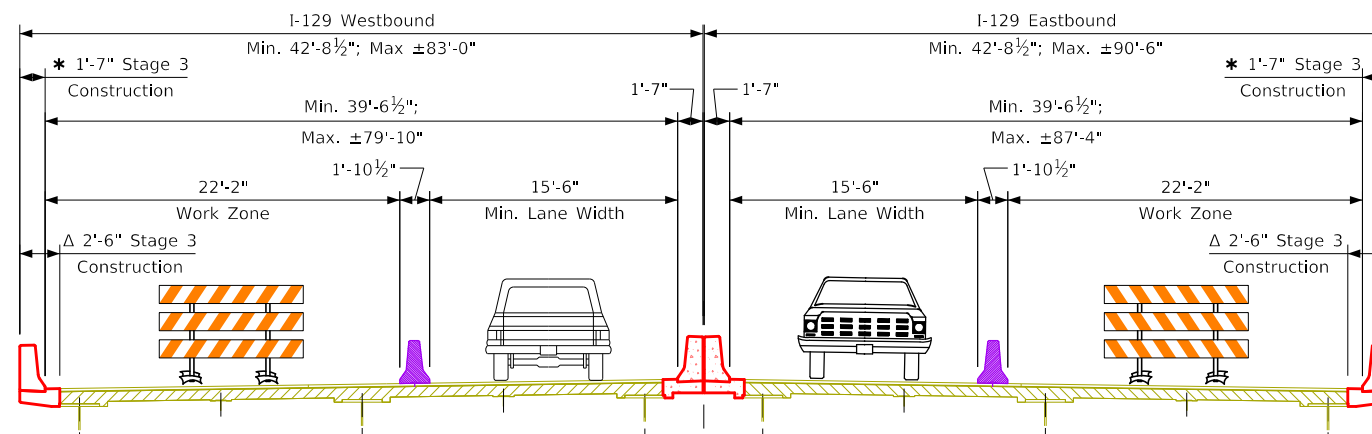


Notes:
 *: Barrier replacement only as shown in these plans
 Δ: Barrier and partial deck overhang replacement as identified and approved by engineer in the field.
 (Estimated as 20% of barrier replacement length, actual length approved and replaced to be paid)

Design For Repairs To
**2600'-0" × 84'-0" Continuous
 Welded Girder Bridge**
 Staging Details
 STA. 422+15.00 (Missouri River) Turn-In Date: Oct 2023
Woodbury County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 1124 Design Sheet No. 006 of 40 FHWA No. 600765



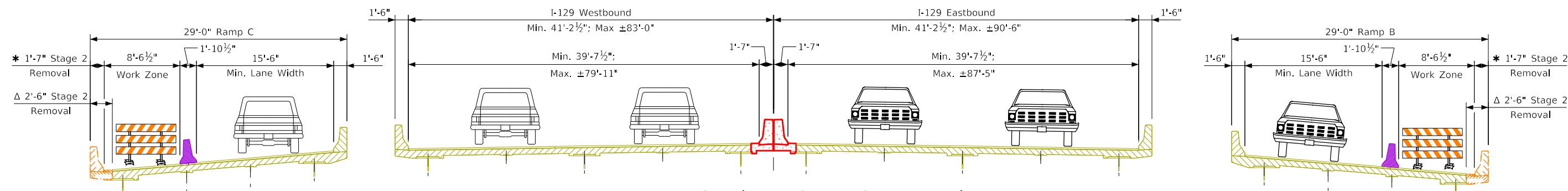
Transverse Section - Stage 2 Removal
(Looking East) (Sta. 409+15.00 - Sta. 423+62.00)



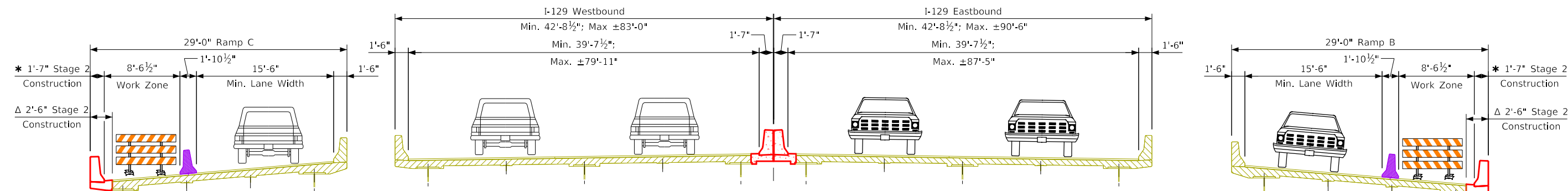
Transverse Section - Stage 2 Reconstruction
(Looking East) (Sta. 409+15.00 - Sta. 423+62.00)

Notes:
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Design For Repairs To
**2600'-0" × 84'-0" Continuous
 Welded Girder Bridge**
 Staging Details
 STA. 422+15.00 (Missouri River) Turn-In Date: Oct 2023
Woodbury County
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 Design No. 1124 Design Sheet No. 007 of 40 FHWA No. 600765



Transverse Section - Stage 2 Removal
(Looking East) (Sta. 423+62.00 - Sta. 435+15.00)



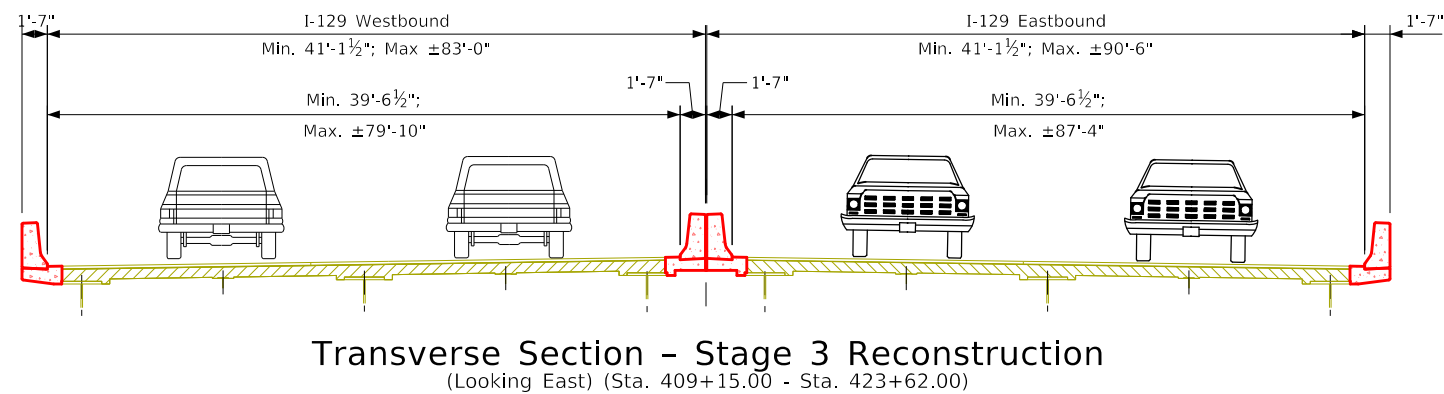
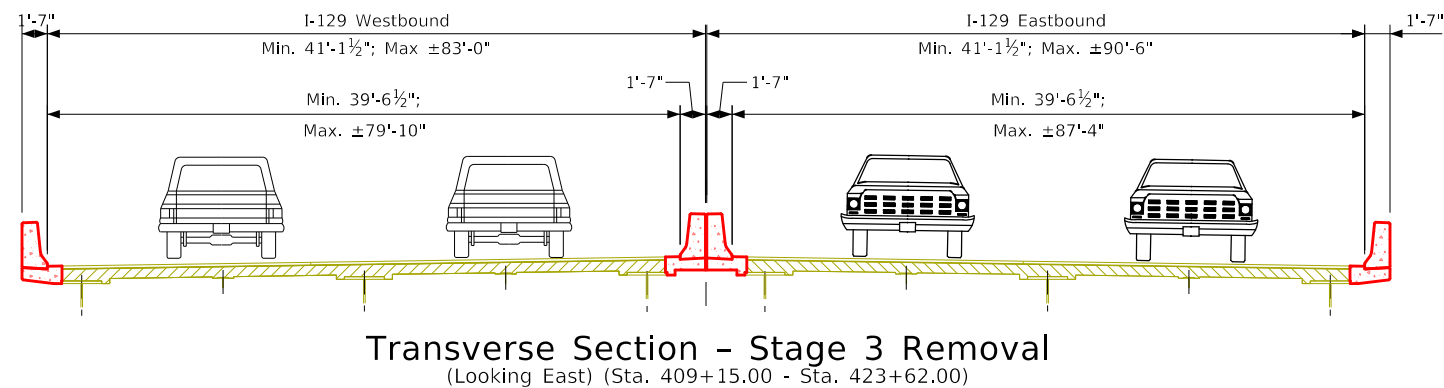
Transverse Section - Stage 2 Reconstruction
(Looking East) (Sta. 423+62.00 - Sta. 435+15.00)

Notes:

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Per PRC 12.1, typical section should show the cross slope of the deck.

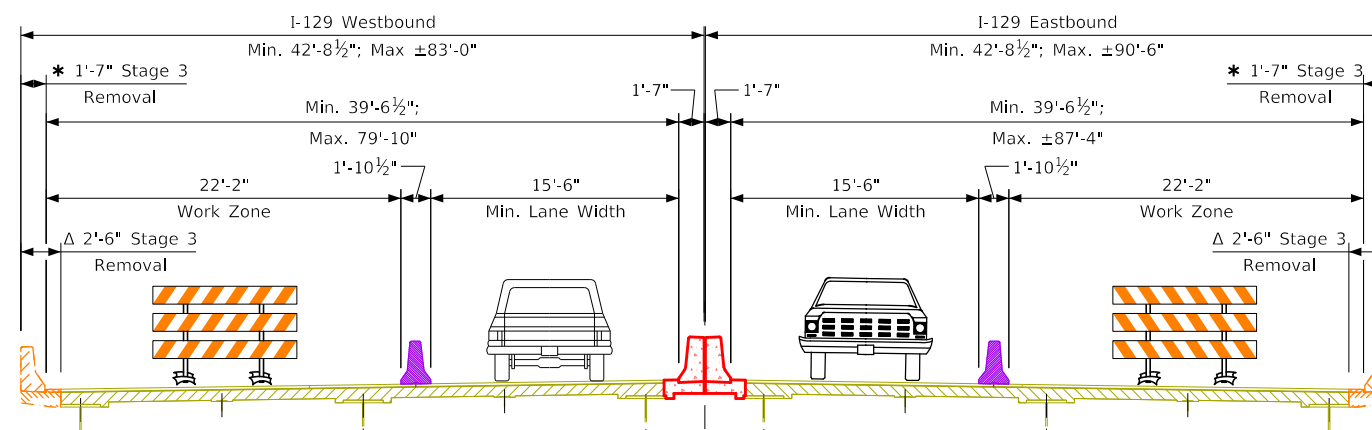
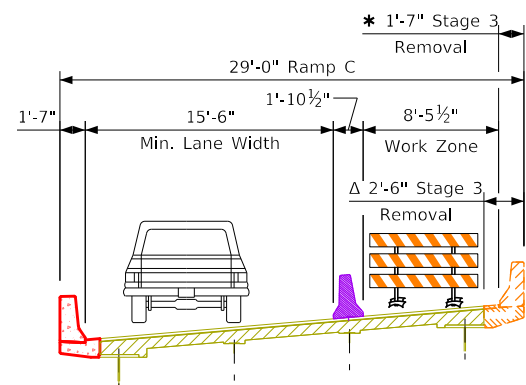
Design For Repairs To
**2600'-0" × 84'-0" Continuous
 Welded Girder Bridge**
 Staging Details
 STA. 422+15.00 (Missouri River) Turn-In Date: Oct 2023
Woodbury County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 1124 Design Sheet No. 008 of 40 FHWA No. 600765



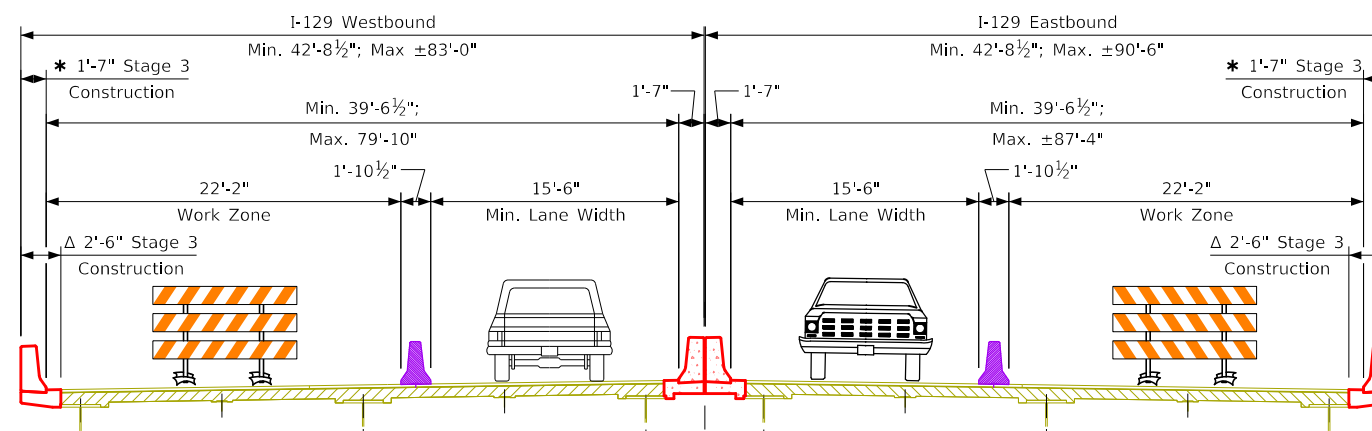
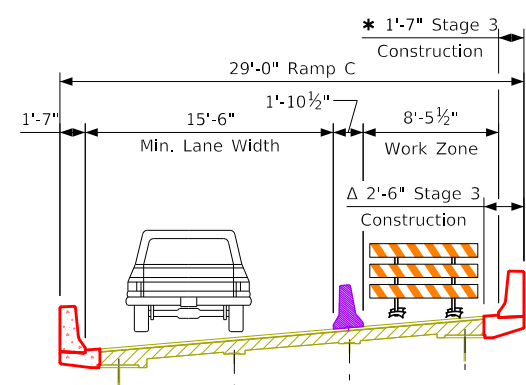
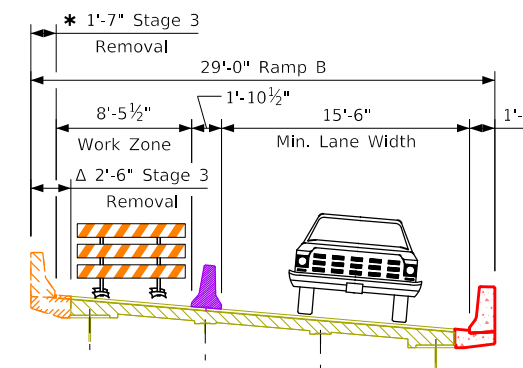
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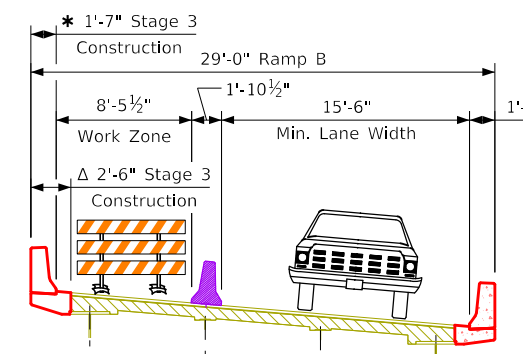
Design For Repairs To
**2600'-0" × 84'-0" Continuous
 Welded Girder Bridge**
 Staging Details
 STA. 422+15.00 (Missouri River) Turn-In Date: Oct 2023
Woodbury County
 IOWA DEPARTMENT OF TRANSPORTATION
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Transverse Section - Stage 3 Removal
(Looking West) (Sta. 423+62.00 - Sta. 435+15.00)



Transverse Section - Stage 3 Reconstruction
(Looking West) (Sta. 423+62.00 - Sta. 435+15.00)



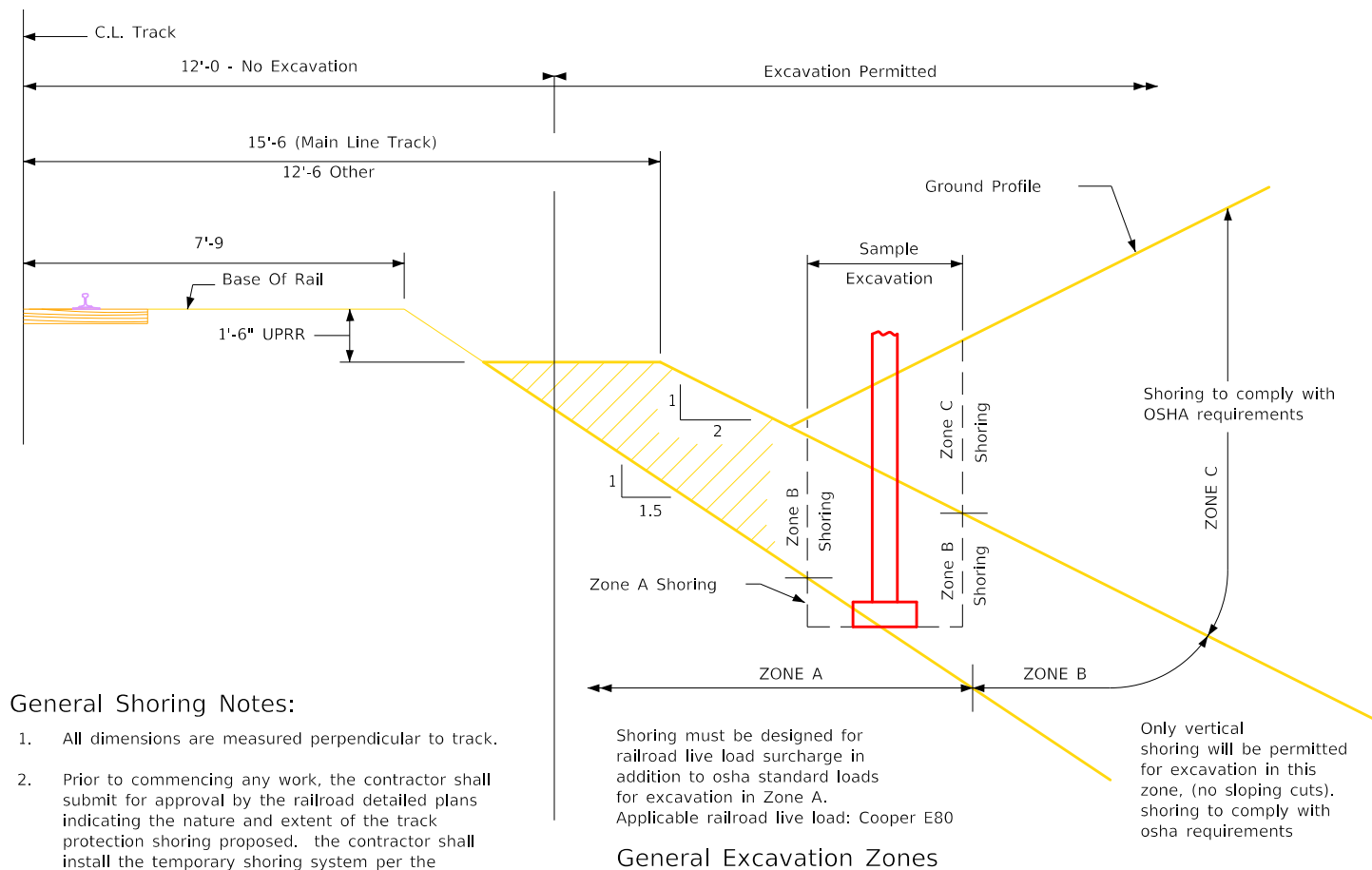
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Design For Repairs To
 2600'-0" × 84'-0" Continuous
 Welded Girder Bridge

Staging Details

STA. 422+15.00 (Missouri River) Turn-In Date: Oct 2023
 Woodbury County
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General Shoring Notes:

1. All dimensions are measured perpendicular to track.
2. Prior to commencing any work, the contractor shall submit for approval by the railroad detailed plans indicating the nature and extent of the track protection shoring proposed. the contractor shall install the temporary shoring system per the approved plans. design of the temporary shoring system to comply with guidelines for temporary shoring.
3. For excavations which encroach into zone a or b, shoring plans shall be accompanied by design calculations. plans and calculations must be signed and stamped by a Professional Engineer registered in the state of Iowa.

Note:
No excavation on railroad right of way will be required for this repair project.

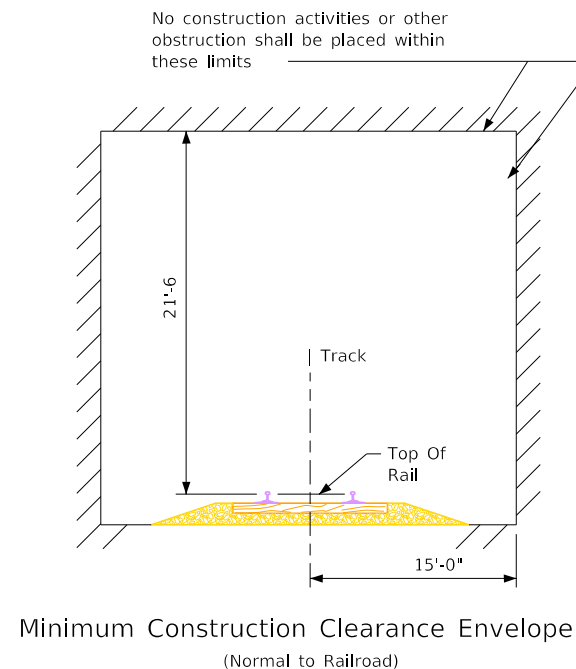
Shoring must be designed for railroad live load surcharge in addition to osha standard loads for excavation in Zone A.
Applicable railroad live load: Cooper E80

Only vertical shoring will be permitted for excavation in this zone. (no sloping cuts). shoring to comply with osha requirements

General Excavation Zones

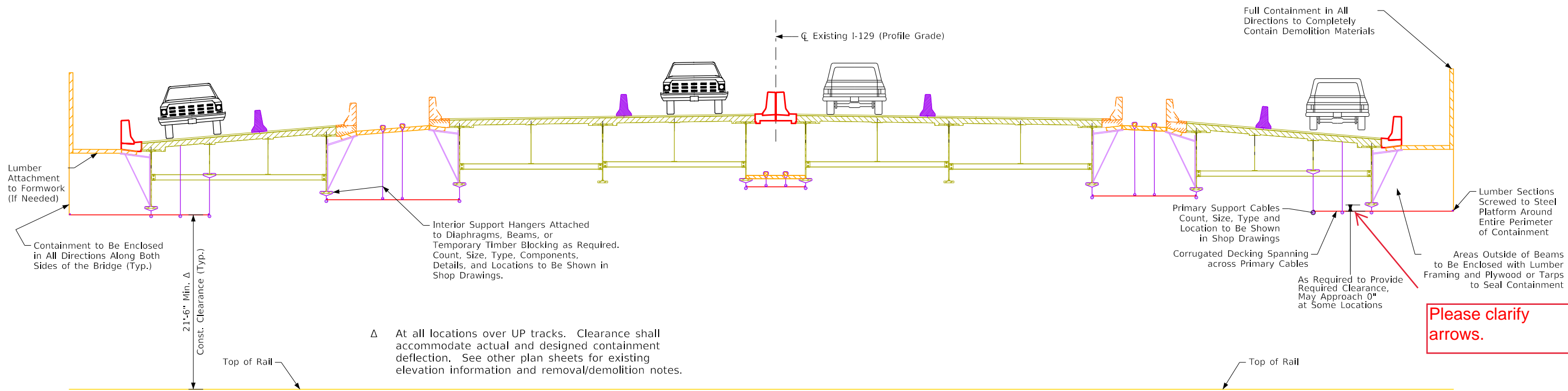
Railroad General Notes:

1. Railroad review and approval of shoring, erection, demolition, and falsework is required. Allow a minimum of four weeks for the review and approval of each submittal.
2. The proposed grade separation project shall not increase the quantity and/or characteristics of the flow in the railroad's ditches and/or drainage structures.
3. The elevation of the existing top-of-rail profile shall be verified before beginning construction. all discrepancies shall be brought to the attention of the railroad prior to construction.
4. The contractor must submit a proposed method of erosion and sediment control and have the method approved by the railroad.
5. All shoring systems that impact the railroad's operations and/or supports the railroad's embankment shall be designed and constructed per current railroad guidelines for temporary shoring.
6. All demolitions within the railroad's right-of-way and/or demolition that may impact the railroad's tracks or operations shall be in compliance with the railroad's demolition guidelines.
7. Erection over the railroad's right-of-way shall be designed to cause no interruption to the railroad's operation, enabling the track(s) to remain open to traffic per the railroad's requirements.
8. All construction phasing that may impact the railroad operations shall be designed to cause no interruption to the railroad's operation, enabling the track(s) to remain open to traffic per the railroad's requirements.
9. False-work clearances shall comply with minimum construction clearances.
10. All permanent clearances shall be verified before project closing.
11. For railroad coordination please refer to the railroad coordination requirements as part of special provisions.
12. Vertical clearance = 29'-2 3/4" (from existing plans)



Minimum Construction Clearance Envelope
(Normal to Railroad)

Design For Repairs To
2600'-0" × 84'-0" Continuous Welded Girder Bridge
UPRR General Notes & Shoring
 STA. 422+15.00 (Missouri River) Turn-In Date: Oct 2023
Woodbury County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 1124 Design Sheet No. 011 of 40 FHWA No. 600765



Section A-A
Suspended Platform & Containment at All Locations

Suspended Platform & Containment System Notes

- The suspended platform system could consist of corrugated steel decking (or similar) supported by a series of primary cables attached to the superstructure or as otherwise shown in the shop drawings.
- All platform components depicted on these drawings are for illustration purposes only. Dimensions, details, components, types, sizes, and locations shall be included on the shop drawings. The design, fabrication and recommended installation requirements of each system component are the full responsibility of the Contractor.
- The suspended platform system shall be designed to support a uniform live load of at least 10 psf over the entire platform area. In addition, the platform system shall be designed to include (2) workers between each pair of diaphragms, per platform cable tributary width.
- The suspended platform system will be installed beneath the work areas in its entirety or in stages to be included in the shop drawings. The cables will be rigged to a down-rigger and spreader beam assembly. The down-riggers and spreader beams may be located anywhere within the bridge limits, as dictated by the work operations, subject to meeting clearance requirements.
- All components shall be installed per manufacturer's recommendations and Contractor's approved certified shop drawings.
- The vertical cables may be secured to the bottom flanges of the beam with beam clamp hangers or to temporary timber blocking between beams.
- All shackles for the main horizontal support cables and the vertical hangers (if used) shall be sized to meet OSHA requirements.
- The maximum pretension of the longitudinal platform cables prior to installing the corrugated decking panels shall be stated in the shop drawings.
- The platform deck could be corrugated steel decking (or similar) and have a d+load rating sufficient to carry: (a) the maximum support cable spacing of 5'-0"; (b) the calculated live load capacity for installation across (3) cables (double-span), and; (c) the required safety factor(s).
- The corrugated steel panels could include (4) cut-outs (1 per corner), which allow for the attachment of the decking panels to the longitudinal support cables. Attachment of the steel panels to the cables shall be made using decking attachment clips. The decking attachment clips shall provide both a secure method of attaching the corrugated metal sheets to the decking panels, while providing a connection point for the vertical cable hangers (where required).
- One or more workers (as required) shall be utilized to continuously vacuum or otherwise remove any debris on the metal decking panels to minimize build-up and reduce sag of the platform support cables.
- The platform system shall be inspected daily to ensure the installation is sound and void of any damage or loose components. Inspections, as a minimum, shall include the following:
 - Check decking for loose or missing fasteners
 - Check all cable clips to ensure they are all tight
 - Check all bolted connections for loose nuts and bolts
 - Check all vertical hangers for proper installation
 - Check for required installation of worker safety tie-off cables
 - Check minimum construction clearances are being met
- Worker safety tie-off cables and worker harnesses shall be utilized during all work, or as required, including travel up and down the ladders to access the platform containment (if used). The safety cables shall be rigged at the proper locations so as to provide full access using the worker harness tether length of 6'-0".
- At a minimum, the shop drawing submittal shall include:
 - Plans and calculations certified by Licensed Professional Engineer in the State of Iowa.
 - Elevation profile across all spans with elevations and deflections shown.
 - Type, size, location, and strength of all cables, hangers, and connection hardware.
 - Platform cable installation requirements and schedule including down riggers and spreader beam, if included.
 - Type, size, and strength of steel corrugated decking (or similar)
 - Decking attachment clip details
 - Procedure, hardware, and equipment for deck overhang enclosure before, during, and after deck overhang removal.
 - Containment ventilation details, if required.

Notes:

- Contractor shall submit containment plan along with demolition plan as required in these plans. Containment plan and demolition plan shall include any temporary works required to install or maintain containment for construction activities, including demolition and painting. Containment plan and demolition plan shall be certified by a licensed Professional Engineer in the State of Iowa. Contractor shall allow a minimum of 4 weeks for the review and approval of each submittal by the UP Railroad and is a separate review from the review completed by the Engineer. Requests for additional information or rejection by the UP of submittals may reset the review time. See Design Sheet 11 for additional UP notes, details, and additional submittal requirements.
- Containment details and phasing details shown, for illustration only, in this plan set have been reviewed by the UP. If Contractor deviates from method illustrated, the Contractor is responsible for all costs associated with coordinating details with the up at no cost to the Owner. Contractor shall follow guidelines for preparation of a bridge demolition and removal plan for structures over UP Railroad.
- Proposed construction including installing and maintaining containment shall not interfere with railroad train operations and temporary clearances. Any activities within the minimum construction clearance envelope shown on Design Sheet 11 shall be coordinated with the UP and shall occur in the natural occurring track closure windows which can be assumed to be 1-2 hours per day and shall be assumed to be intermittent from week to week.

See Design Sheet 4 for location of Section A-A.

space

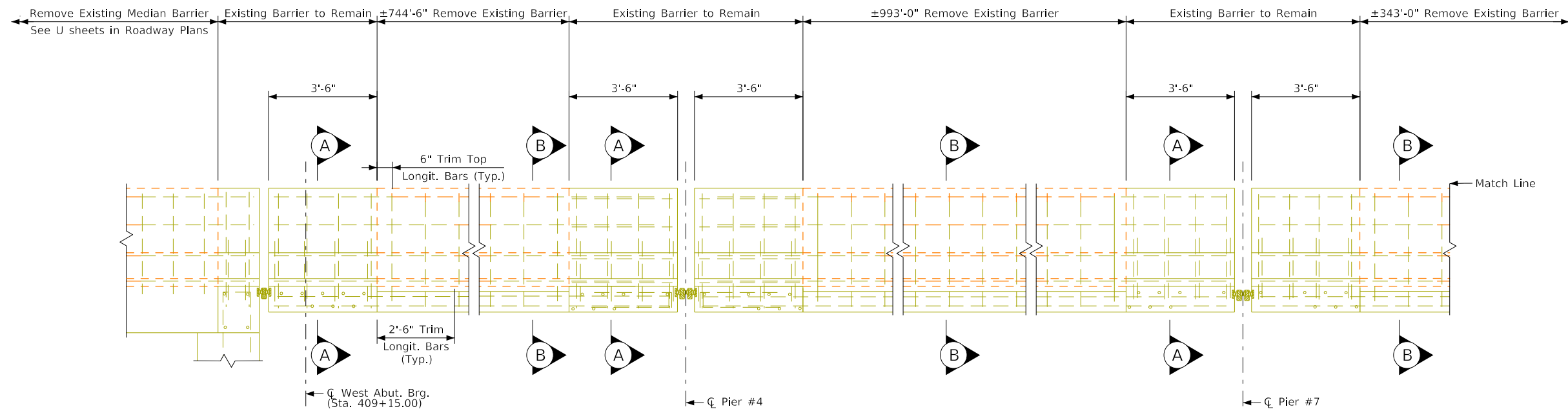
Use capital letters for UP

Recommend adding a note to indicated that attachments to the existing bridge steel members shall not damage the existing bridge steel members.

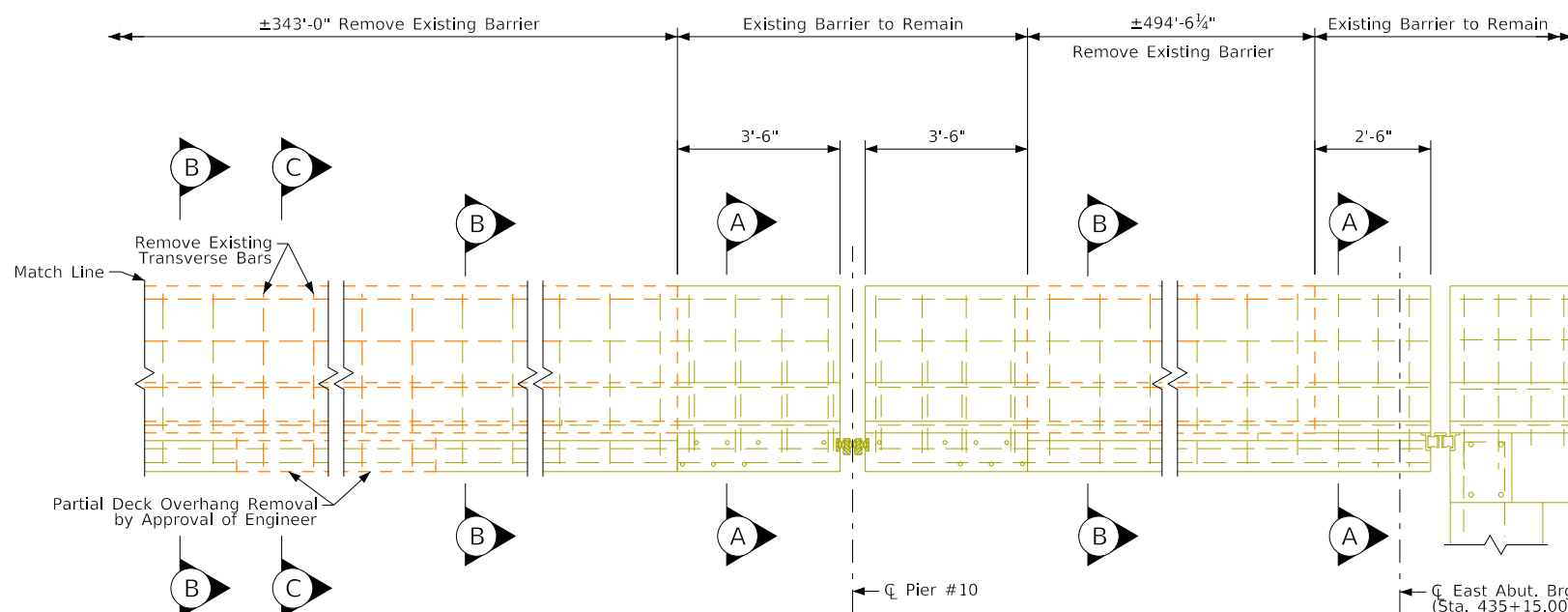
Recommend adding a note to indicate that field welding to existing bridge steel members is not allowed.

Design For Repairs To
**2600'-0" × 84'-0" Continuous
 Welded Girder Bridge**
 Containment Details
 STA. 422+15.00 (Missouri River) Turn-In Date: Oct 2023
Woodbury County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 1124 Design Sheet No. 012 of 40 FHWA No. 600765
 SHEET NUMBER 14

PROGRESS PLANS, NOT FOR CONSTRUCTION



Elevation of Interior Barrier Rail Layout
(Looking North)



Elevation of Interior Barrier Rail Layout
(Looking North)

REMOVAL NOTES

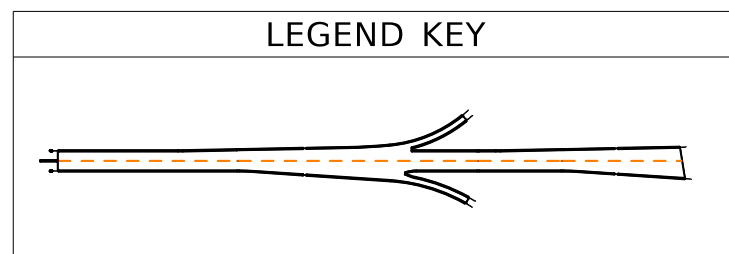
These plans show details of the partial superstructure and abutment removal. All partial removals shall be in accordance with Section 2401 of The Standard Specifications. All such removals shall be to neat saw cuts to provide clean straight surfaces at interfaces between new concrete and remaining concrete. The removal shall be done in a manner which will prevent any damage to the existing structure to remain. The contractor shall assume full responsibility for and ← damage caused, and shall repair any damage area to its original condition, as directed by the engineer, at the contractor's expense. Any existing reinforcing steel which is "to remain" that is exposed during removal operations is to be carefully protected, cleaned and incorporated into new construction unless noted otherwise.

Start all removals with 3/4" saw cut.

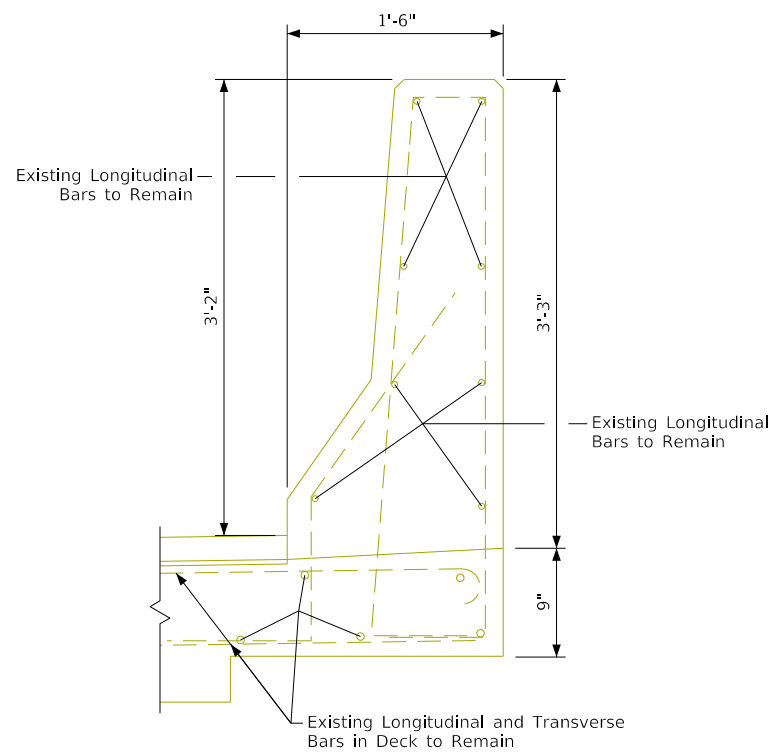
Barrier length dimensions measured along toe of barrier

See Design Sheet 14 for Sec. A-A, Sec. B-B, & Sec. C-C

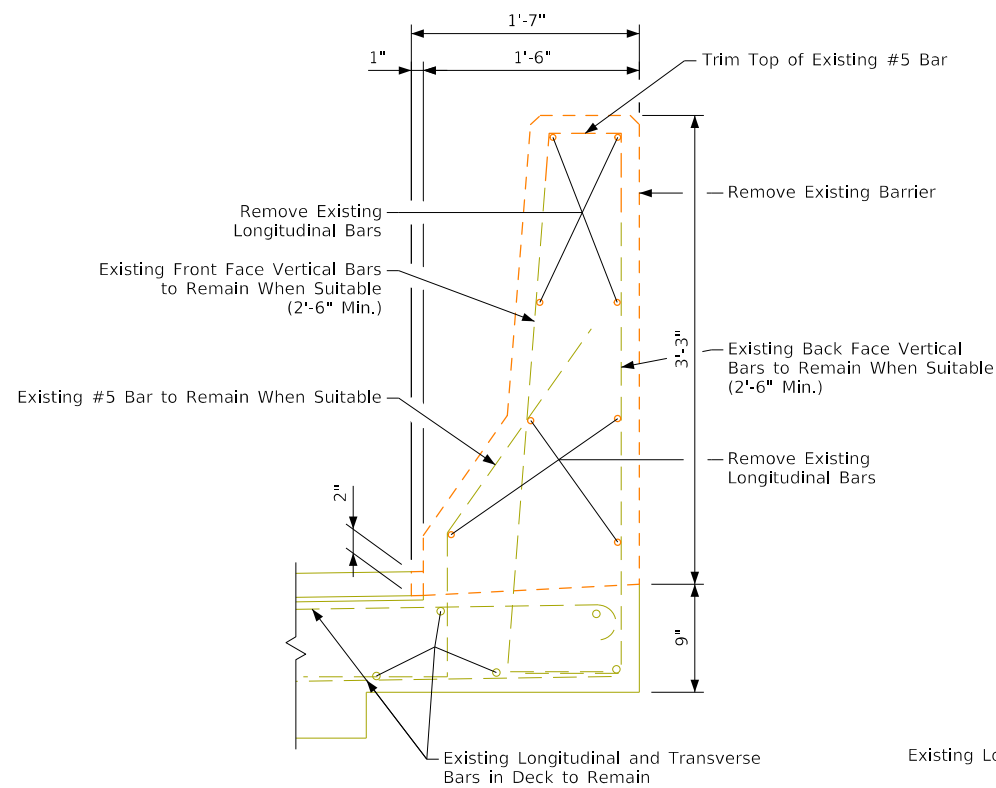
any ?



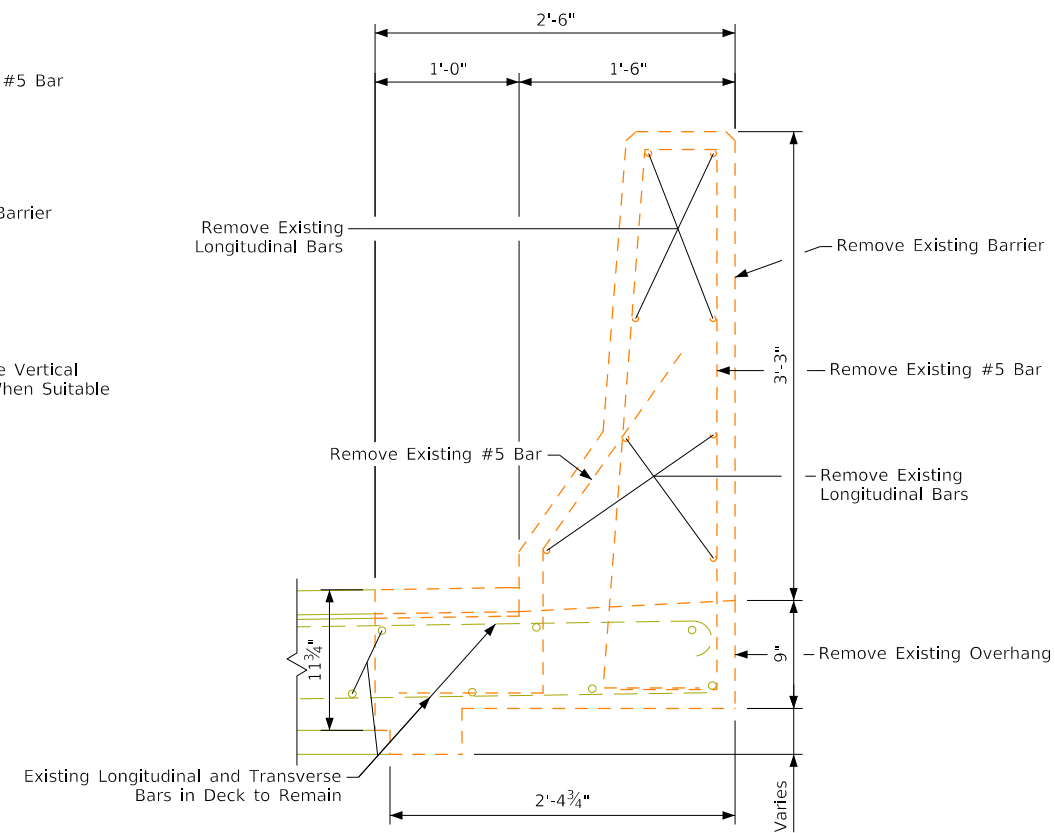
Design For Repairs To
**2600'-0" × 84'-0" Continuous
 Welded Girder Bridge**
Interior Barrier Removal Details
 STA. 422+15.00 (Missouri River) Turn-In Date: Oct 2023
Woodbury County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 1124 Design Sheet No. 013 of 40 FHWA No. 600765



Section A-A



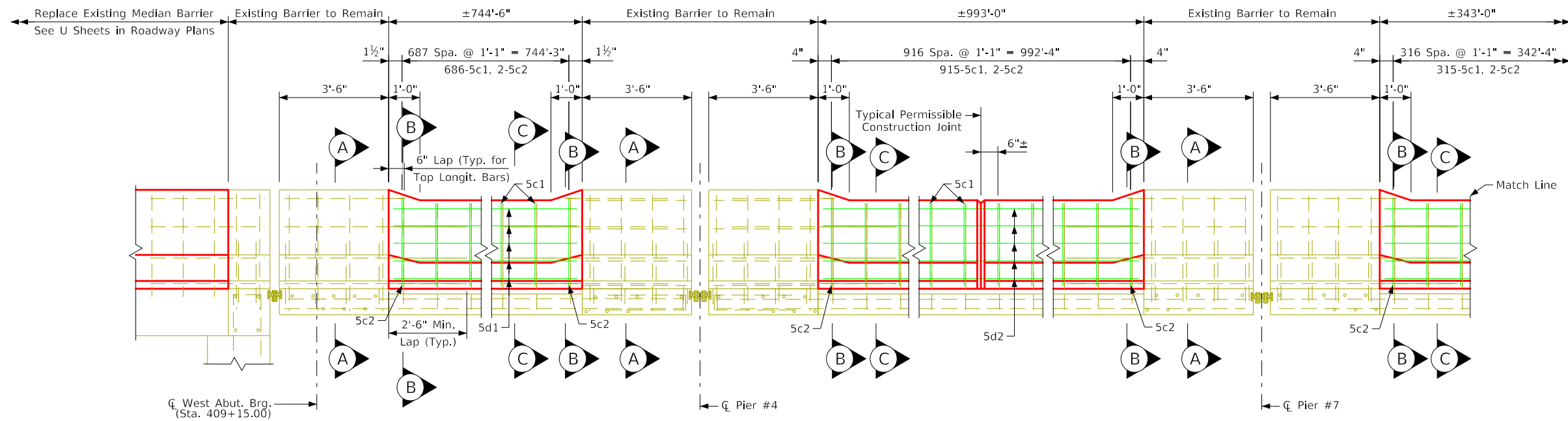
Section B-B



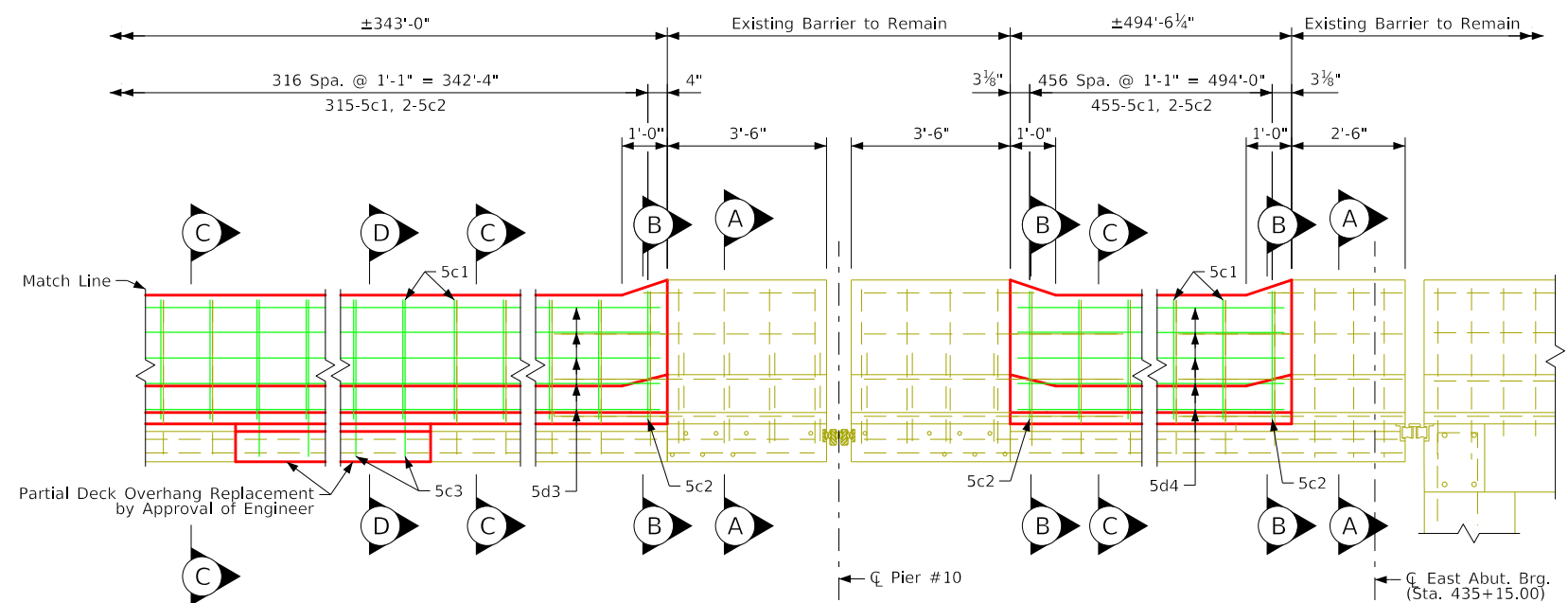
Section C-C

Note: See Design Sheet 13 for locations of Sections A-A, B-B, & C-C

Design For Repairs To
**2600'-0" × 84'-0" Continuous
 Welded Girder Bridge**
Interior Barrier Removal Details
 STA. 422+15.00 (Missouri River) Turn-In Date: Oct 2023
Woodbury County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 1124 Design Sheet No. 014 of 40 FHWA No. 600765

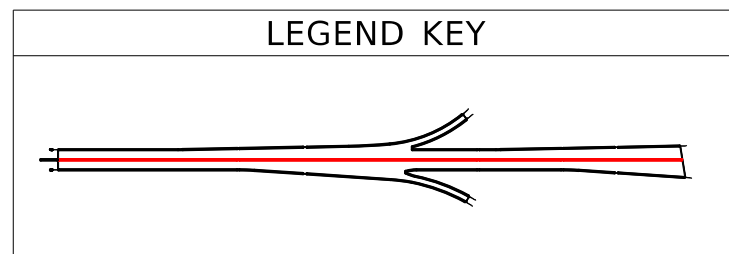


Elevation of Interior Barrier Rail Layout (Section 1)
(Looking North)

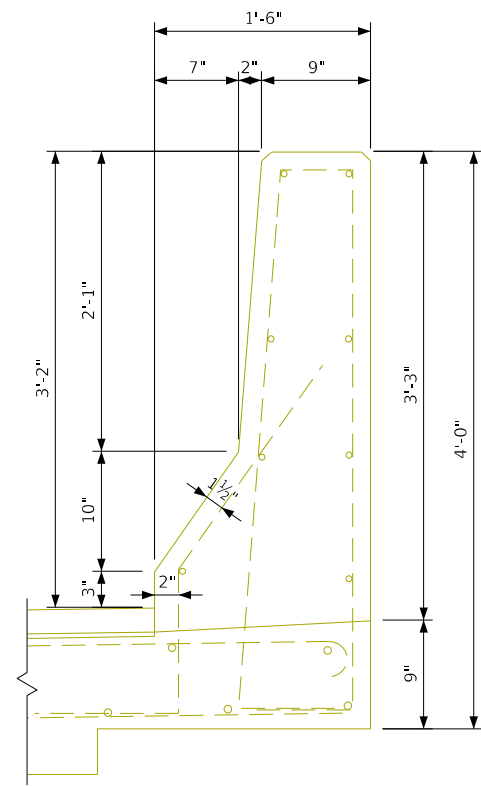


Elevation of Interior Barrier Rail Layout (Section 1)
(Looking North)

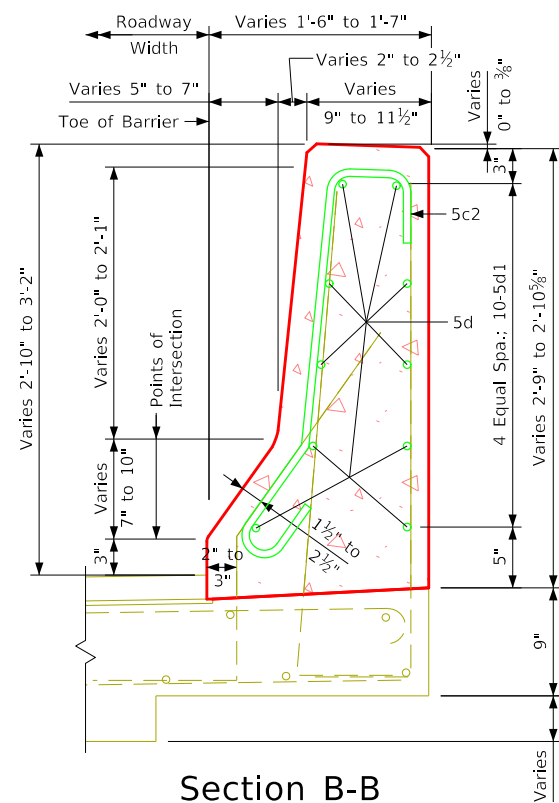
Note:
Barrier length dimensions measured along toe of barrier
See Design Sheet 16 for Sections A-A, B-B, C-C, & D-D



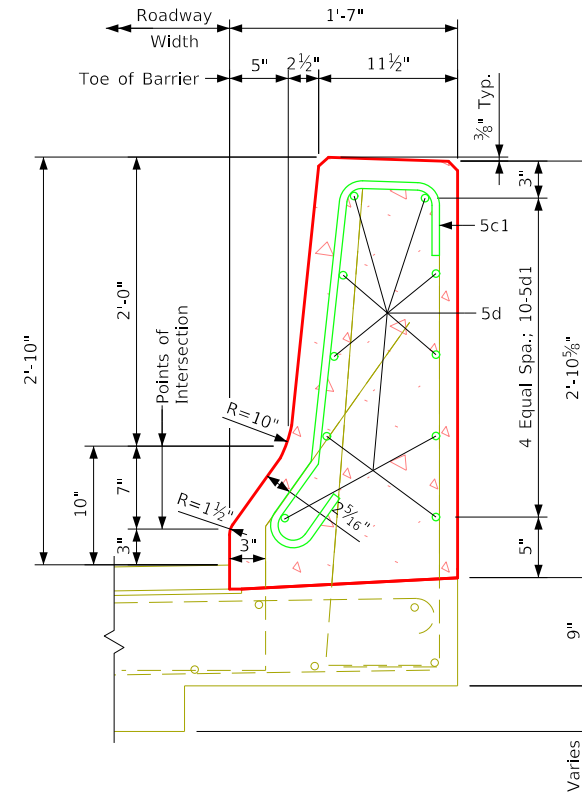
Design For Repairs To
2600'-0" × 84'-0" Continuous Welded Girder Bridge
 Interior Barrier Rail Details
 STA. 422+15.00 (Missouri River) Turn-In Date: Oct 2023
Woodbury County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 1124 Design Sheet No. 015 of 40 FHWA No. 600765



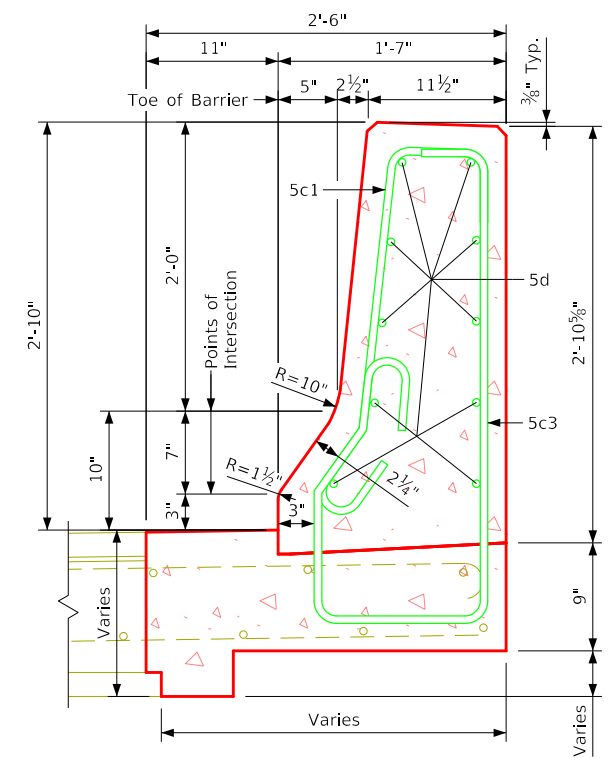
Section A-A



Section B-B



Section C-C

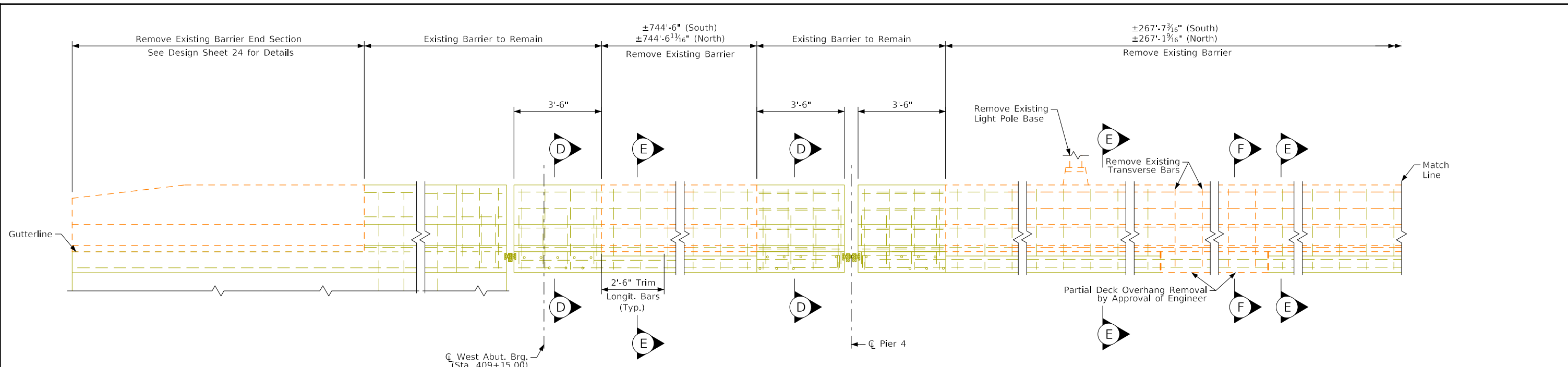


Section D-D

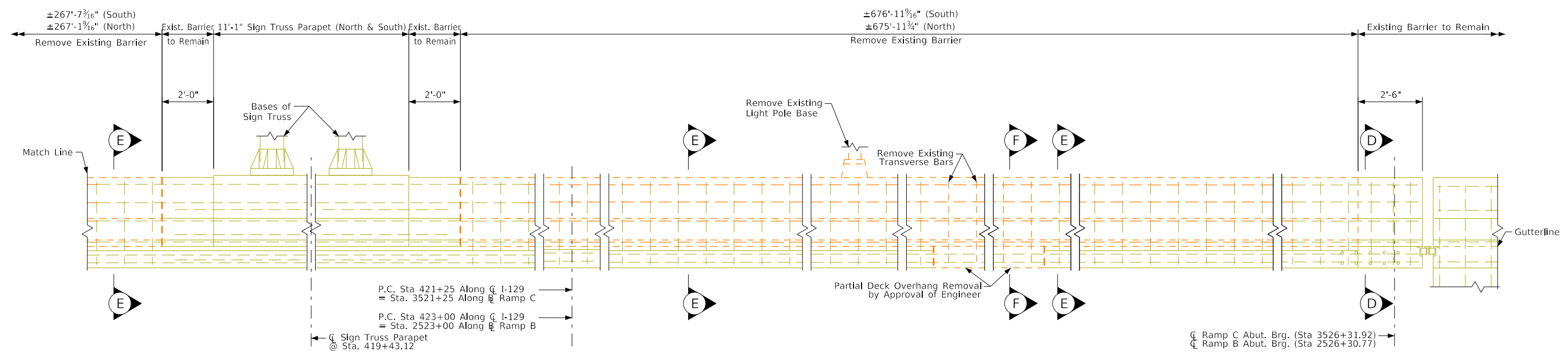
Note: See Design Sheet 15 for locations of Sections A-A, B-B, C-C & D-D

Design For Repairs To
**2600'-0" × 84'-0" Continuous
 Welded Girder Bridge**
 Interior Barrier Rail Details
 STA. 422+15.00 (Missouri River) Turn-In Date: Oct 2023
Woodbury County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 1124 Design Sheet No. 016 of 40 FHWA No. 600765

PROGRESS PLANS, NOT FOR CONSTRUCTION

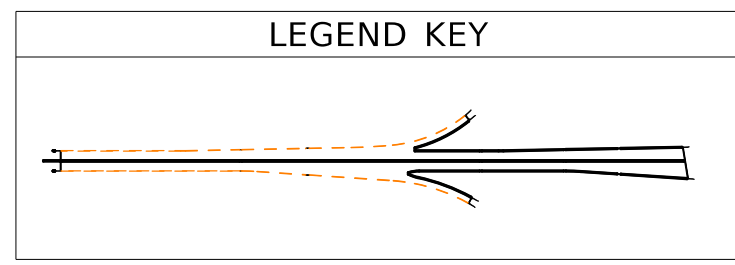


Elevation of Exterior Barrier Rail Layout
(Looking North)

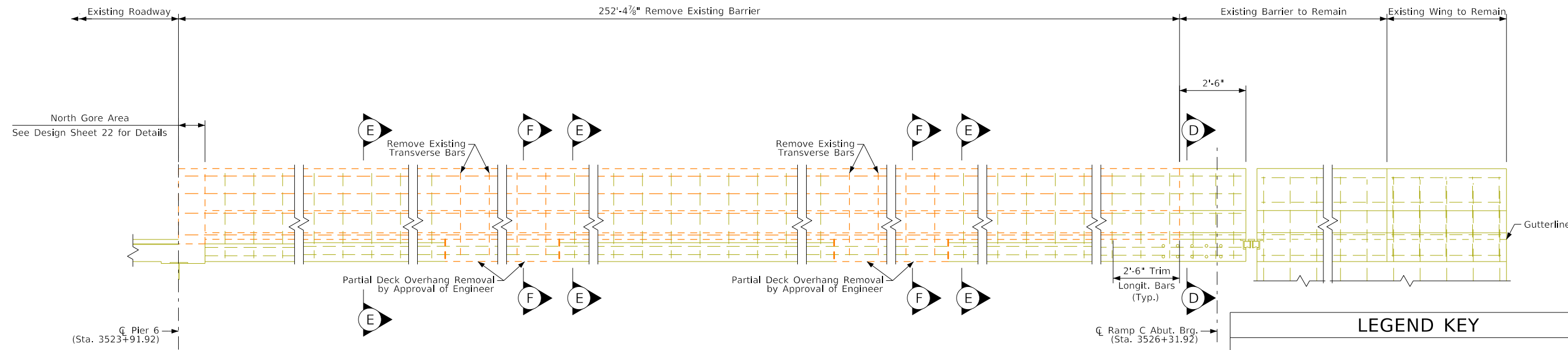


Elevation of Exterior Barrier Rail Layout
(Looking North)

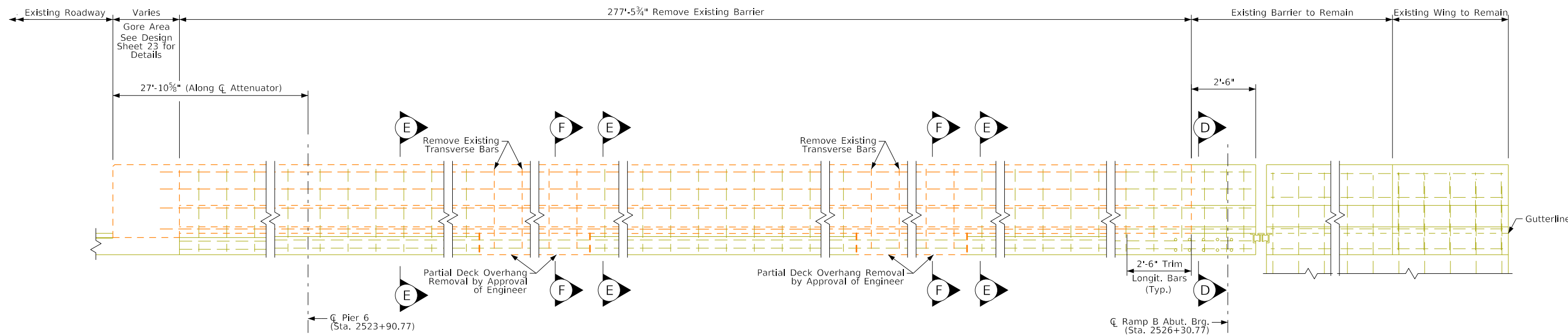
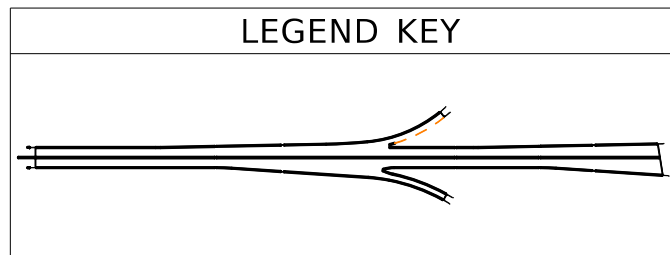
Notes:
 See design sheet 13 for Removal Notes
 Barrier length dimensions measured along toe of barrier
 See Design Sheet 21 for Sections D-D, E-E, & F-F



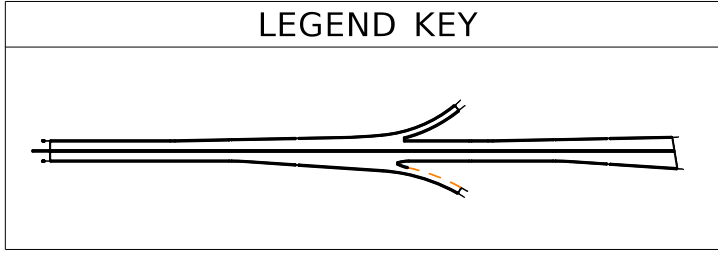
Design For Repairs To
2600'-0" x 84'-0" Continuous Welded Girder Bridge
 Exterior Barrier Removal Details
 STA. 422+15.00 (Missouri River) Turn-In Date: Oct 2023
Woodbury County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 1124 Design Sheet No. 017 of 40 FHWA No. 600765



Elevation of North Interior Ramp Barrier Rail Layout
(Looking North)



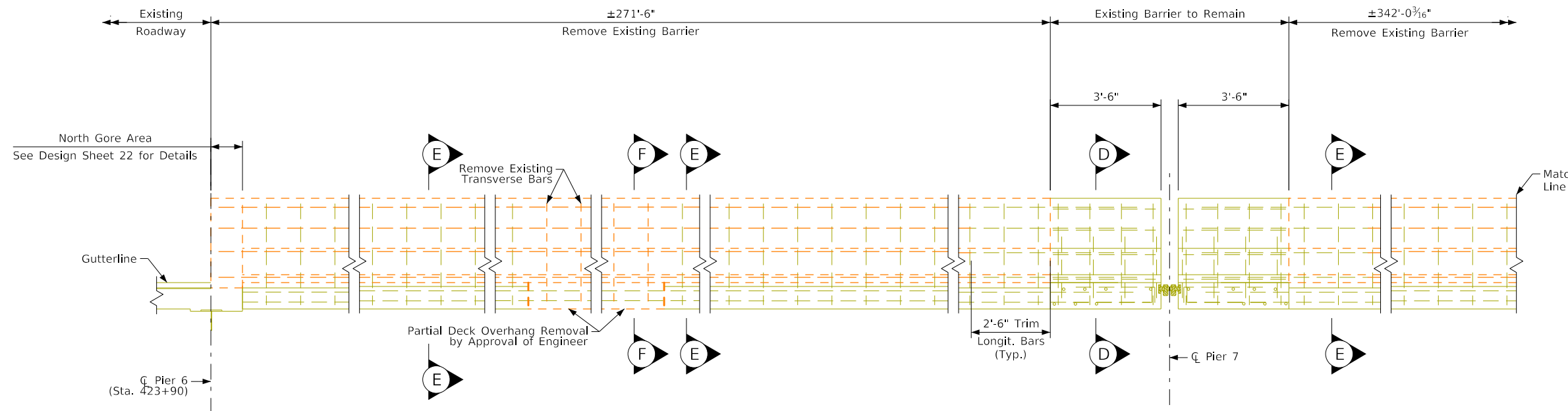
Elevation of South Interior Ramp Barrier Rail Layout
(Looking North)



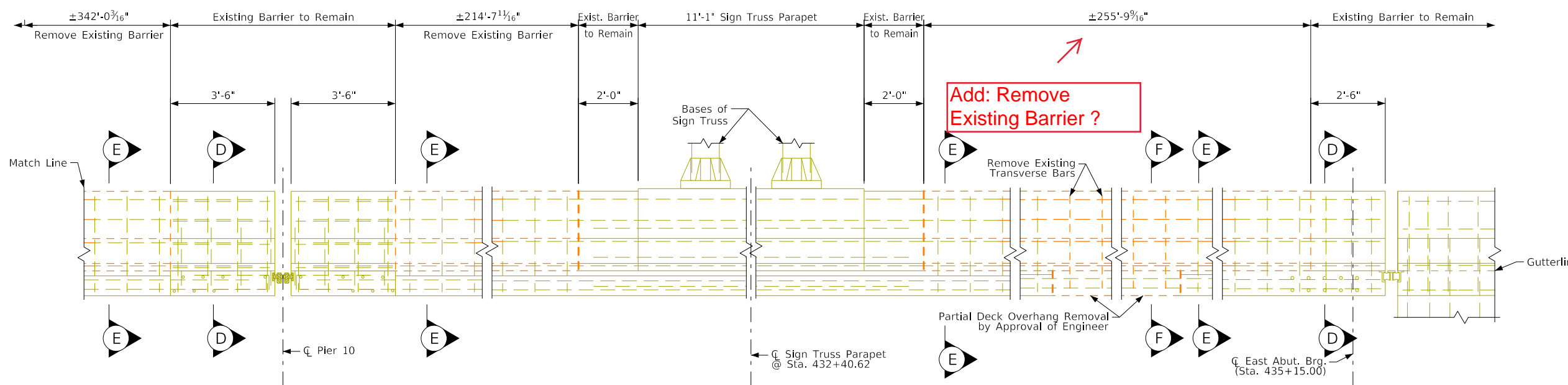
Note:
See Design Sheet 13 for Removal Notes
Barrier length dimensions measured along toe of barrier
See Design Sheet 21 for Sections D-D, E-E, and F-F.

Design For Repairs To
**2600'-0" × 84'-0" Continuous
 Welded Girder Bridge**
Interior Ramp Barrier Removal Details
 STA. 422+15.00 (Missouri River) Turn-In Date: Oct 2023
Woodbury County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 1124 Design Sheet No. 018 of 40 FHWA No. 600765

PROGRESS PLANS, NOT FOR CONSTRUCTION

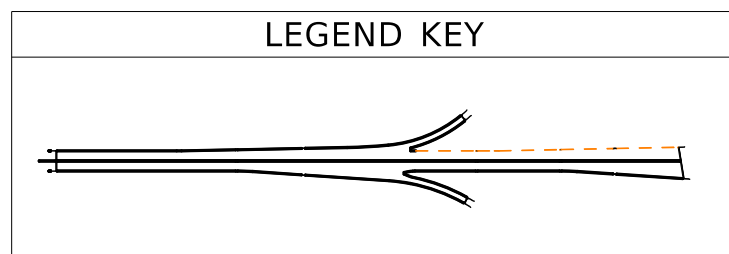


Elevation of North Exterior Barrier Rail Layout (Looking North)

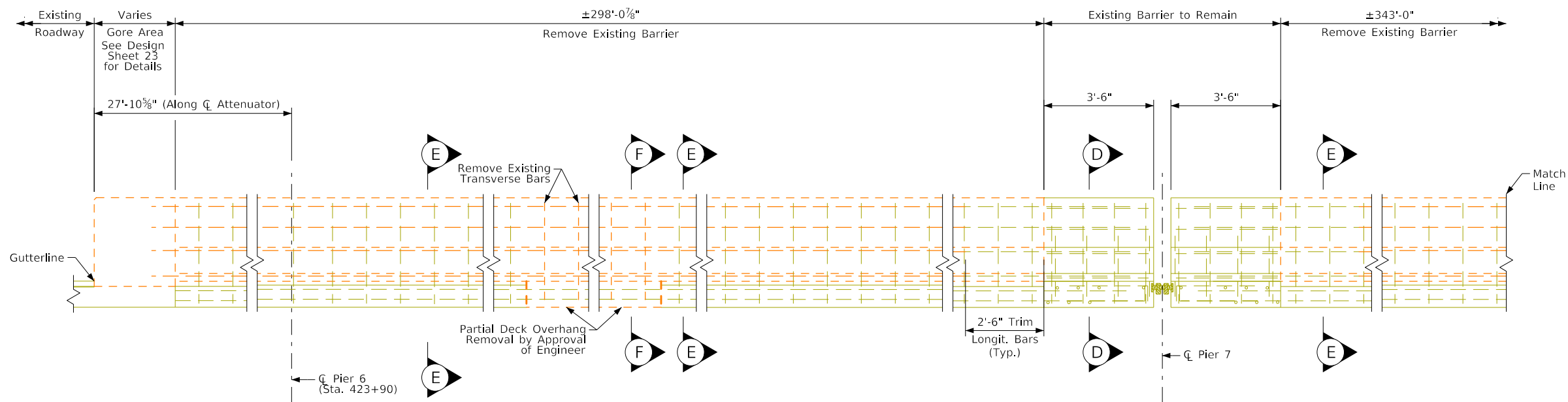


Elevation of North Exterior Barrier Rail Layout (Looking North)

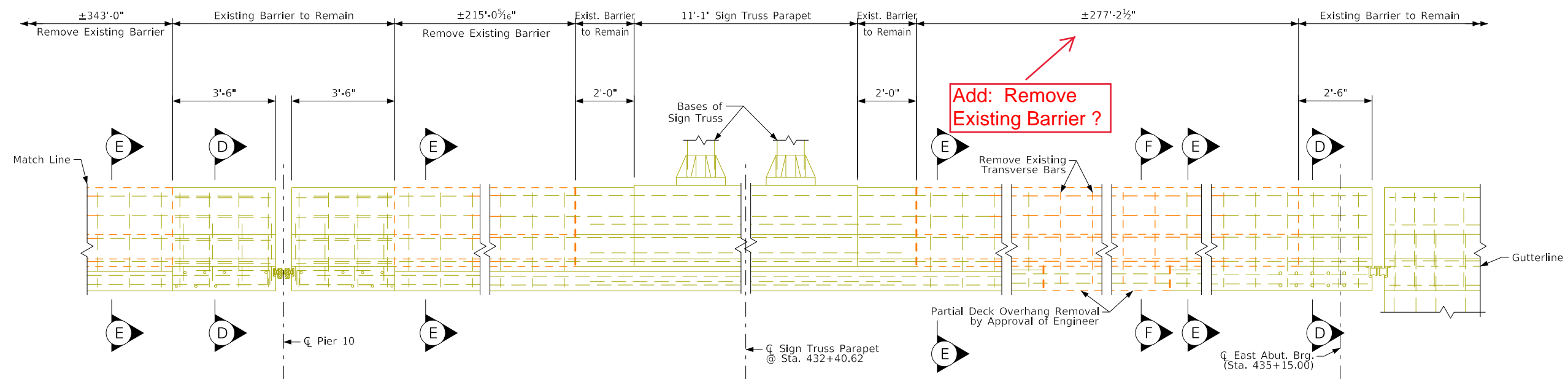
Note:
 See Design Sheet 13 for Removal Notes
 Barrier length dimensions measured along toe of barrier
 See Design Sheet 21 for Sections D-D, E-E, & F-F



Design For Repairs To
2600'-0" x 84'-0" Continuous Welded Girder Bridge
North Exterior Barrier Removal Details
 STA. 422+15.00 (Missouri River) Turn-In Date: Oct 2023
Woodbury County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 1124 Design Sheet No. 019 of 40 FHWA No. 600765

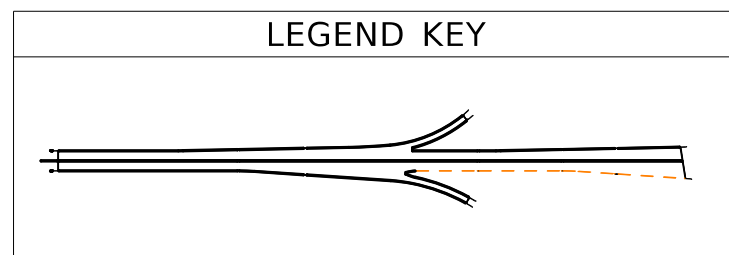


Elevation of South Exterior Barrier Rail Layout
(Looking North)

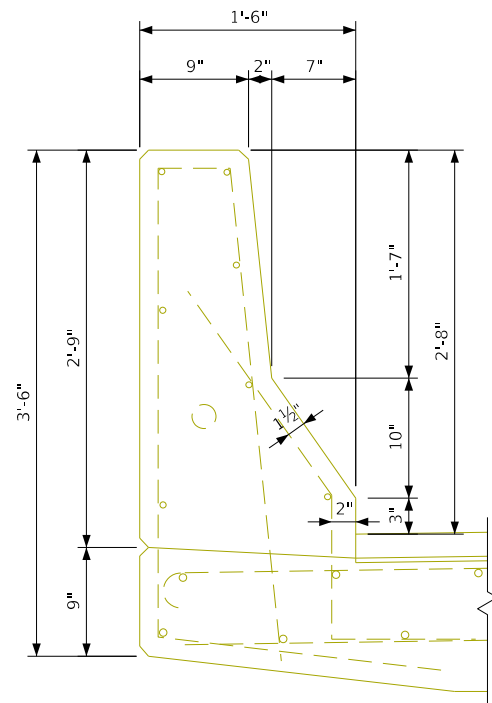


Elevation of South Exterior Barrier Rail Layout
(Looking North)

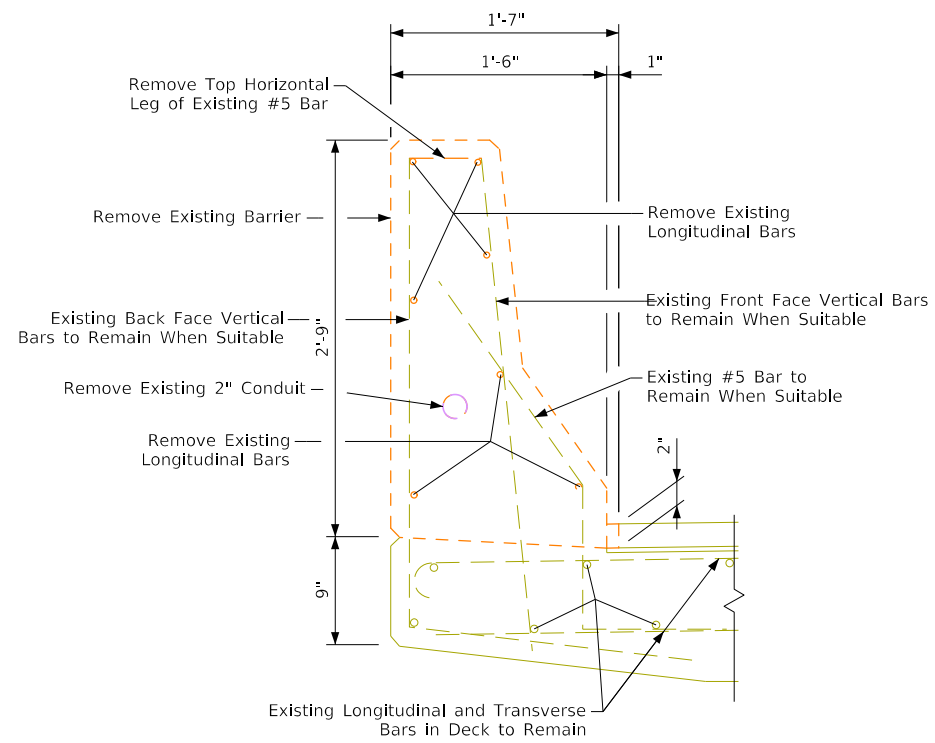
Note:
See Design Sheet 13 for Removal Notes
Barrier length dimensions measured along toe of barrier
See Design Sheet 21 for Sections D-D, E-E, & F-F



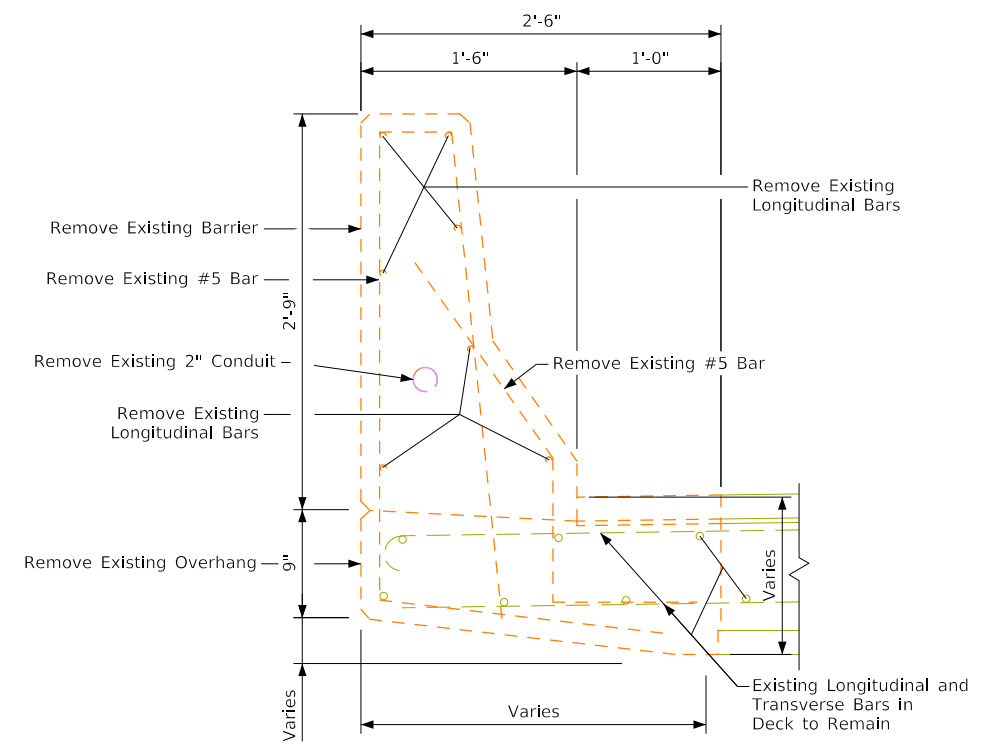
Design For Repairs To
2600'-0" x 84'-0" Continuous Welded Girder Bridge
South Exterior Barrier Removal Details
 STA. 422+15.00 (Missouri River) Turn-in Date: Oct 2023
Woodbury County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 1124 Design Sheet No. 020 of 40 FHWA No. 600765



Section D-D

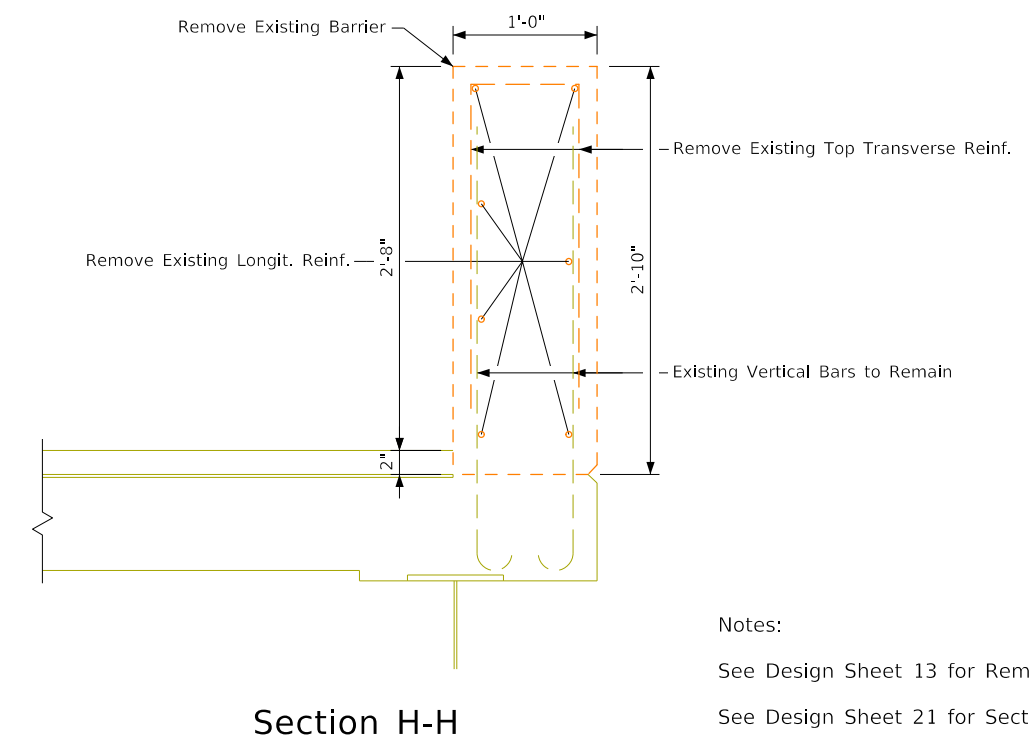
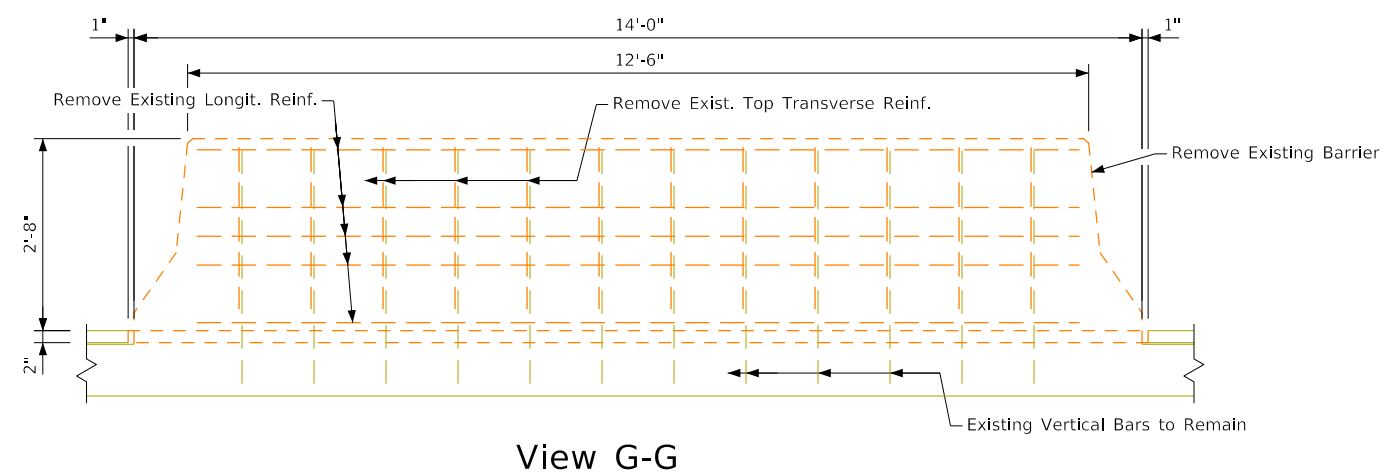
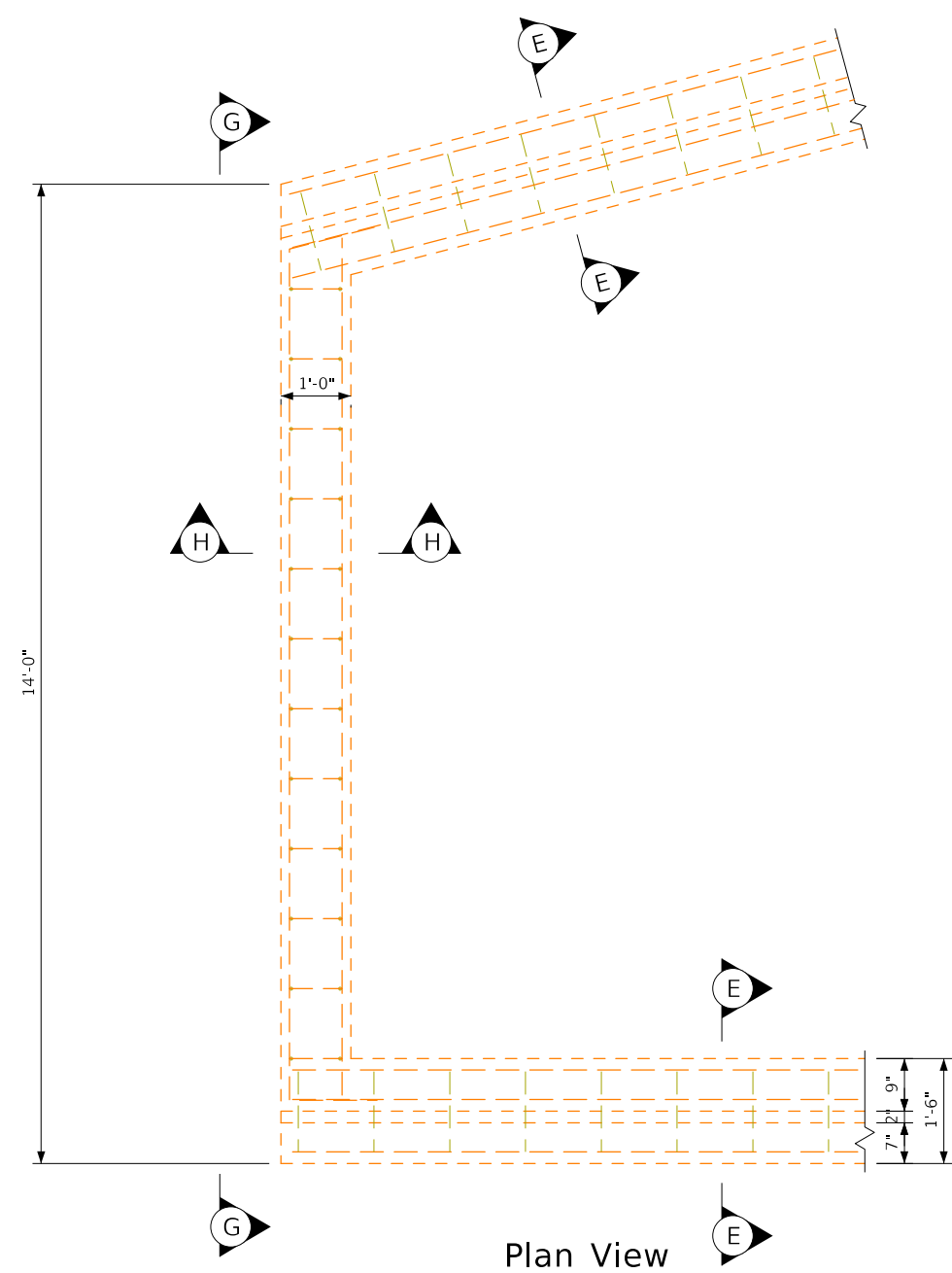


Section E-E

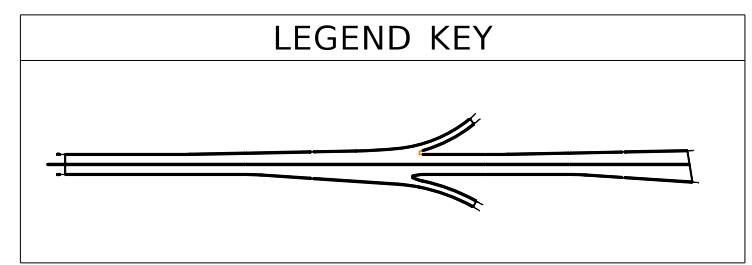


Section F-F

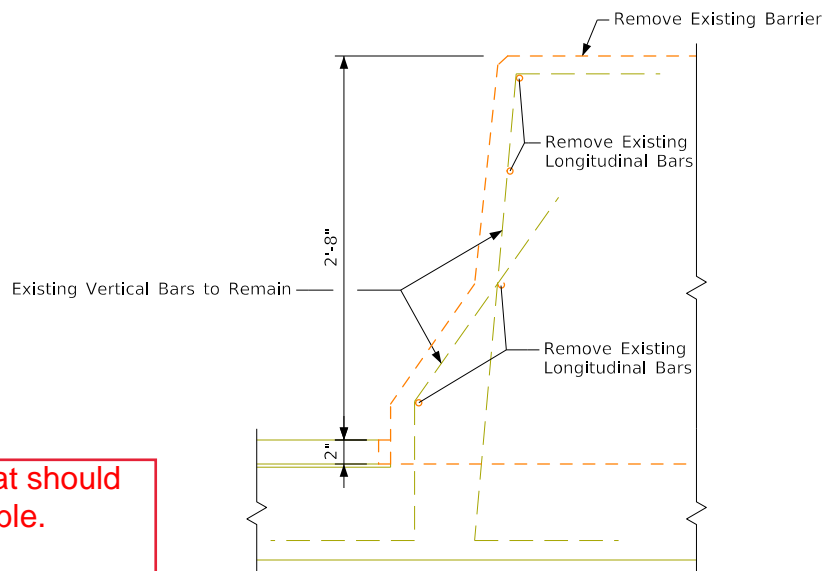
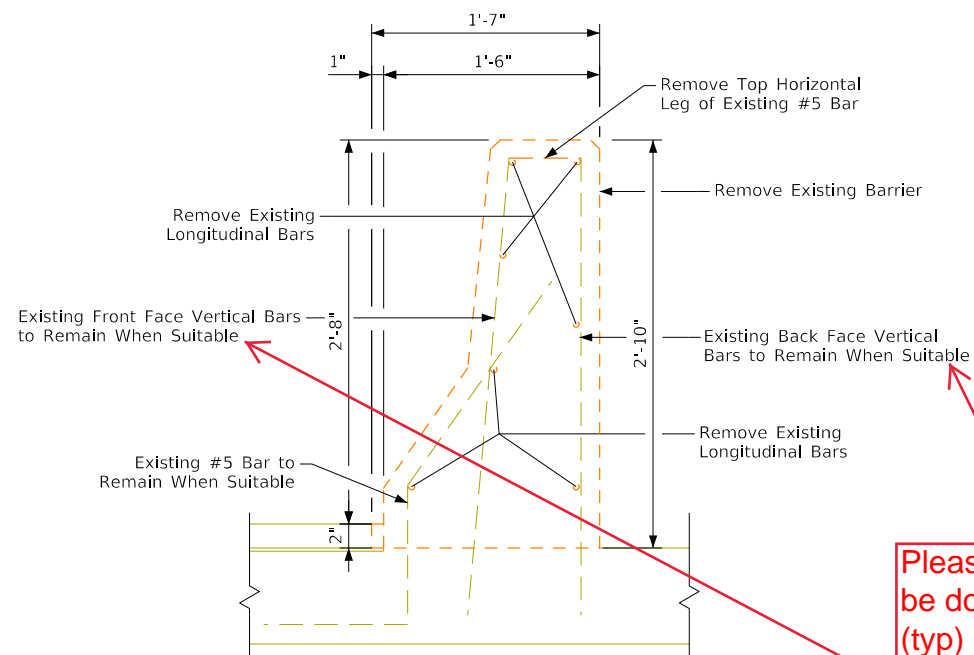
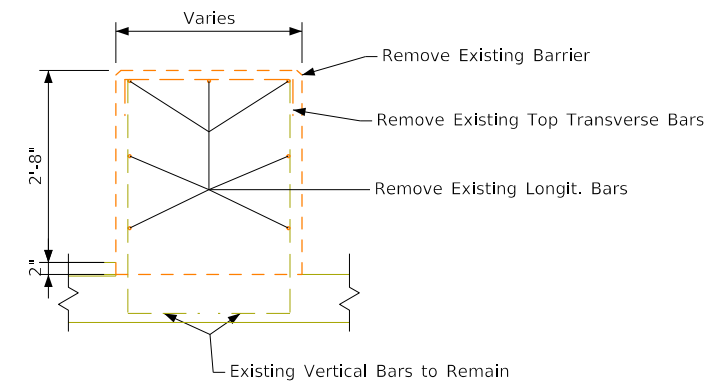
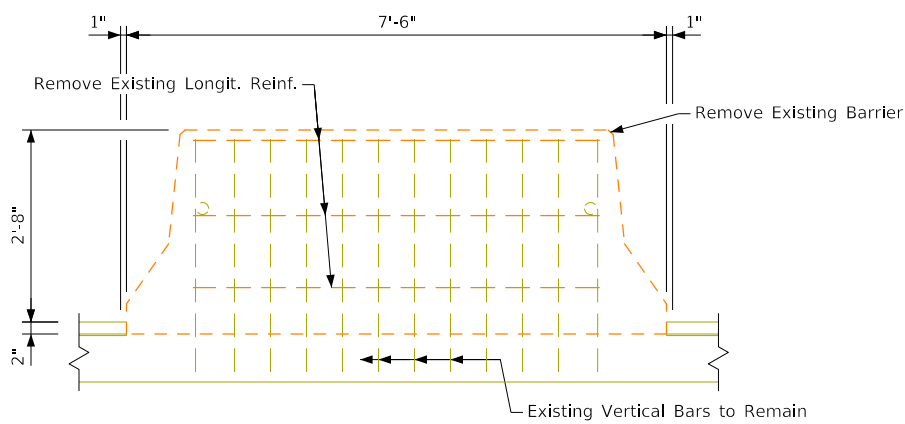
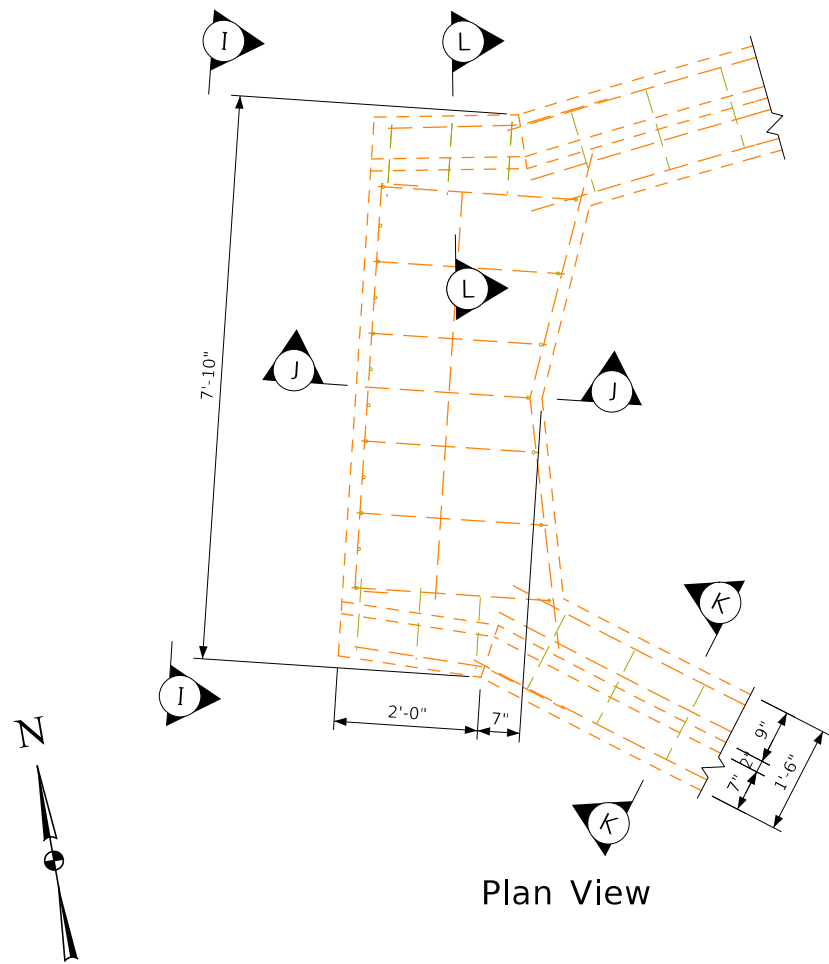
Design For Repairs To
**2600'-0" × 84'-0" Continuous
 Welded Girder Bridge**
Exterior Barrier Removal Details
 STA. 422+15.00 (Missouri River) Turn-In Date: Oct 2023
Woodbury County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 1124 Design Sheet No. 021 of 40 FHWA No. 600765



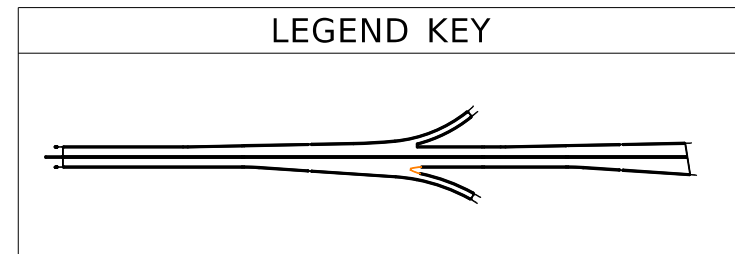
Notes:
 See Design Sheet 13 for Removal Notes
 See Design Sheet 21 for Section E-E



Design For Repairs To
**2600'-0" × 84'-0" Continuous
 Welded Girder Bridge**
North Gore Area Removal Details
 STA. 422+15.00 (Missouri River) Turn-In Date: Oct 2023
Woodbury County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 1124 Design Sheet No. 022 of 40 FHWA No. 600765



Please indicate what should be done if not suitable. (typ)

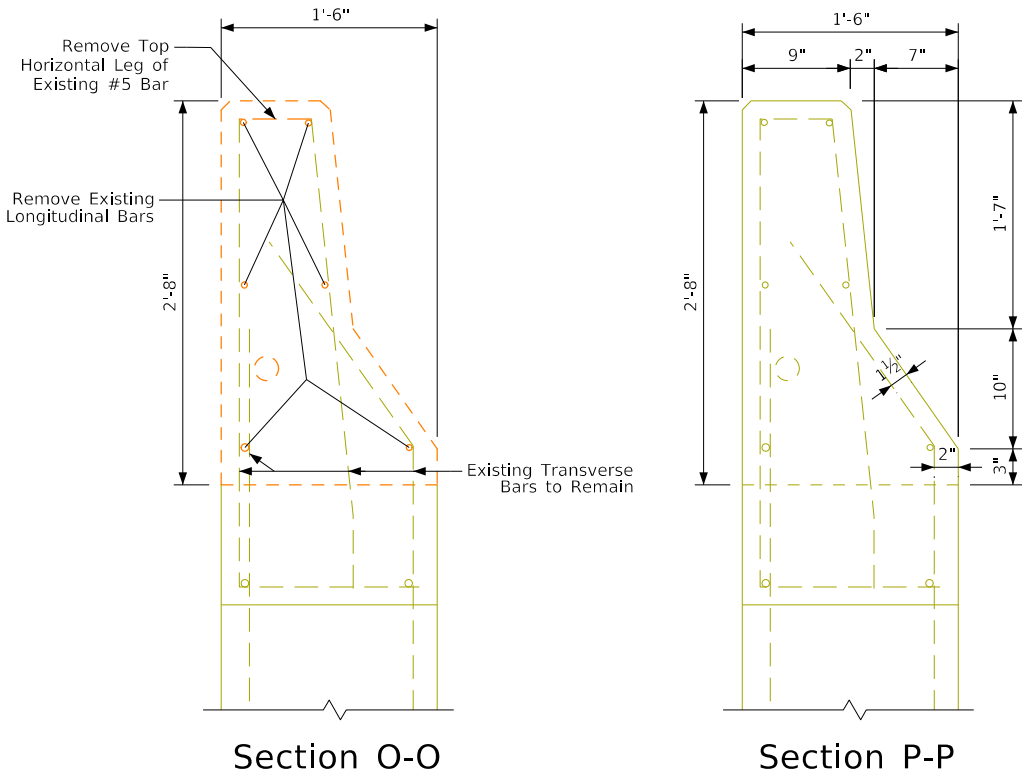
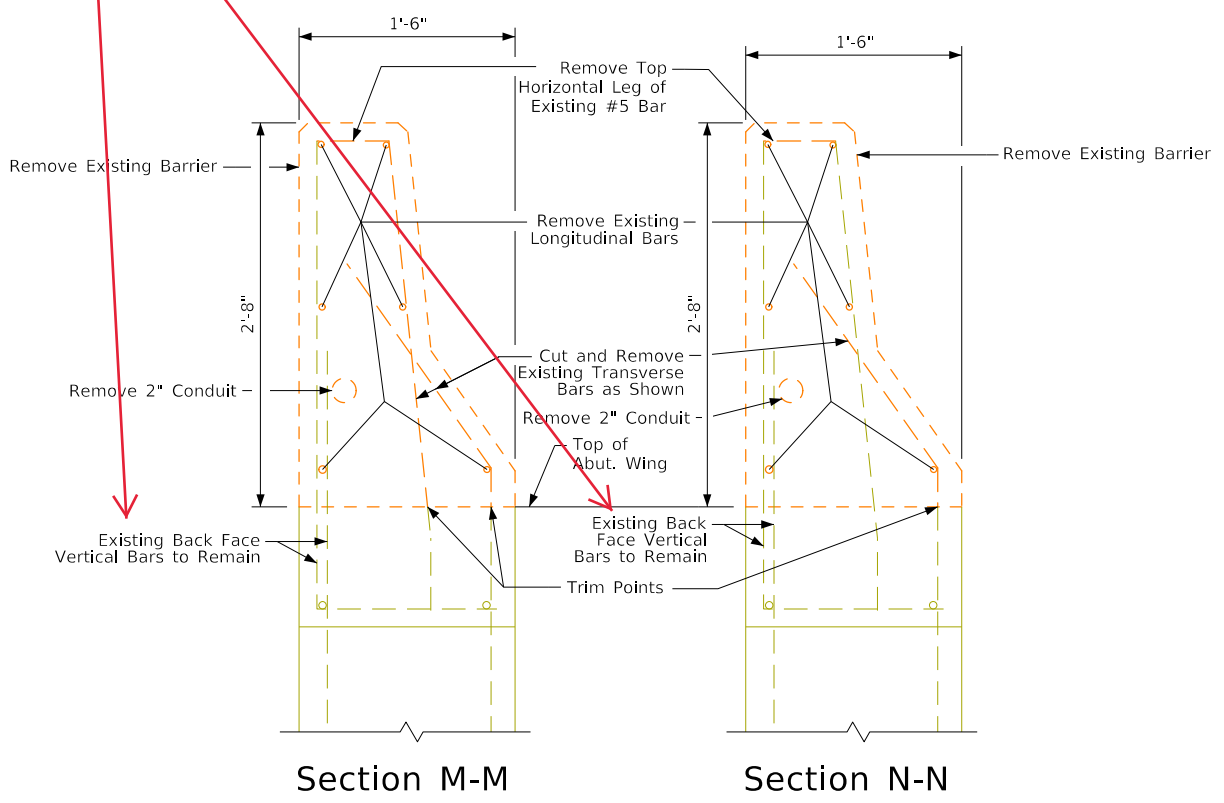
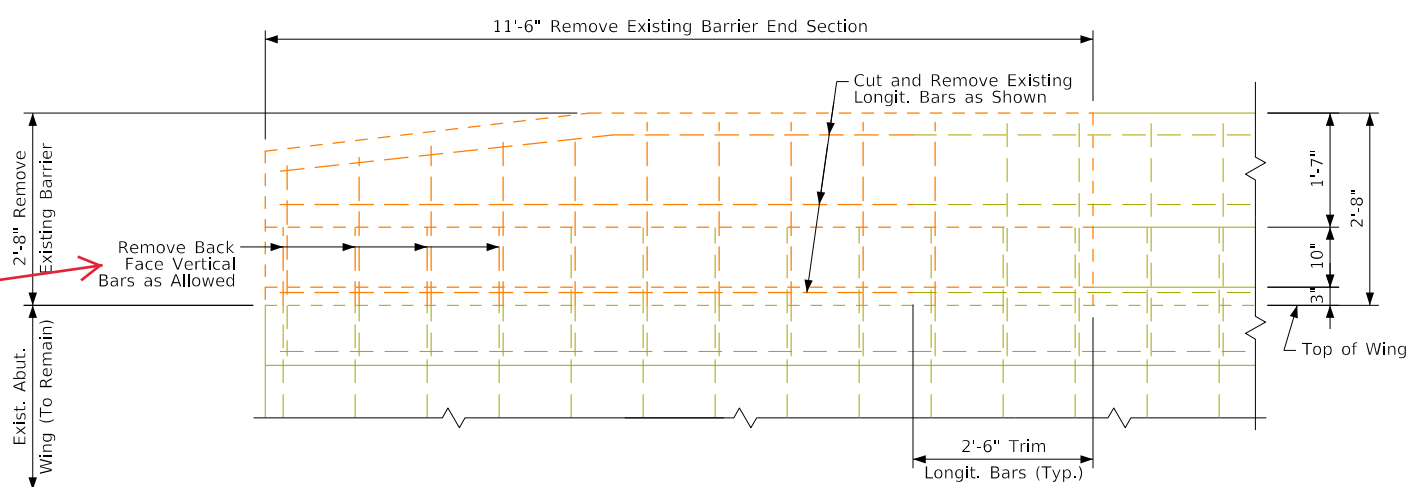
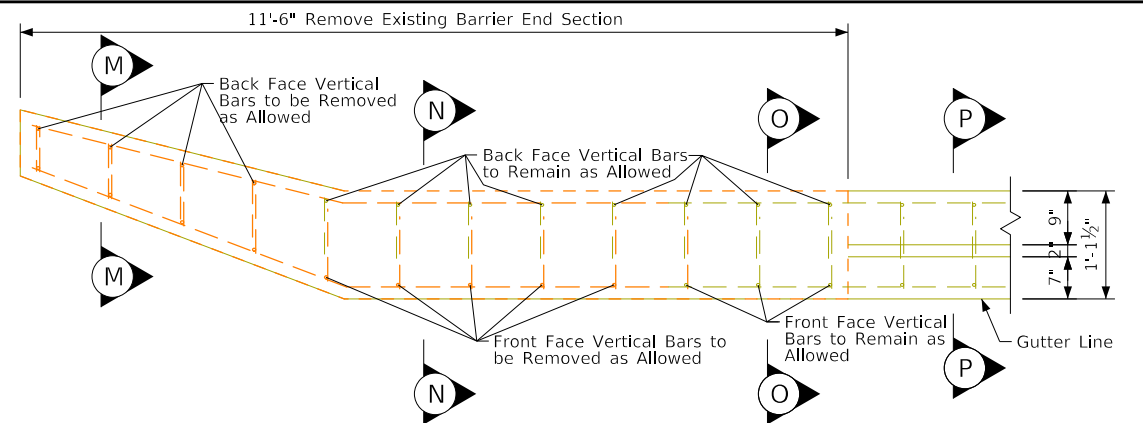


See Design Sheet 13 for Removal Notes

Design For Repair To
**2600'-0" × 84'-0" Continuous
 Welded Girder Bridge**
 South Gore Area Removal Details
 STA. 422+15.00 (Missouri River) Turn-In Date: Oct 2023
Woodbury County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 1124 Design Sheet No. 023 of 40 FHWA No. 600765

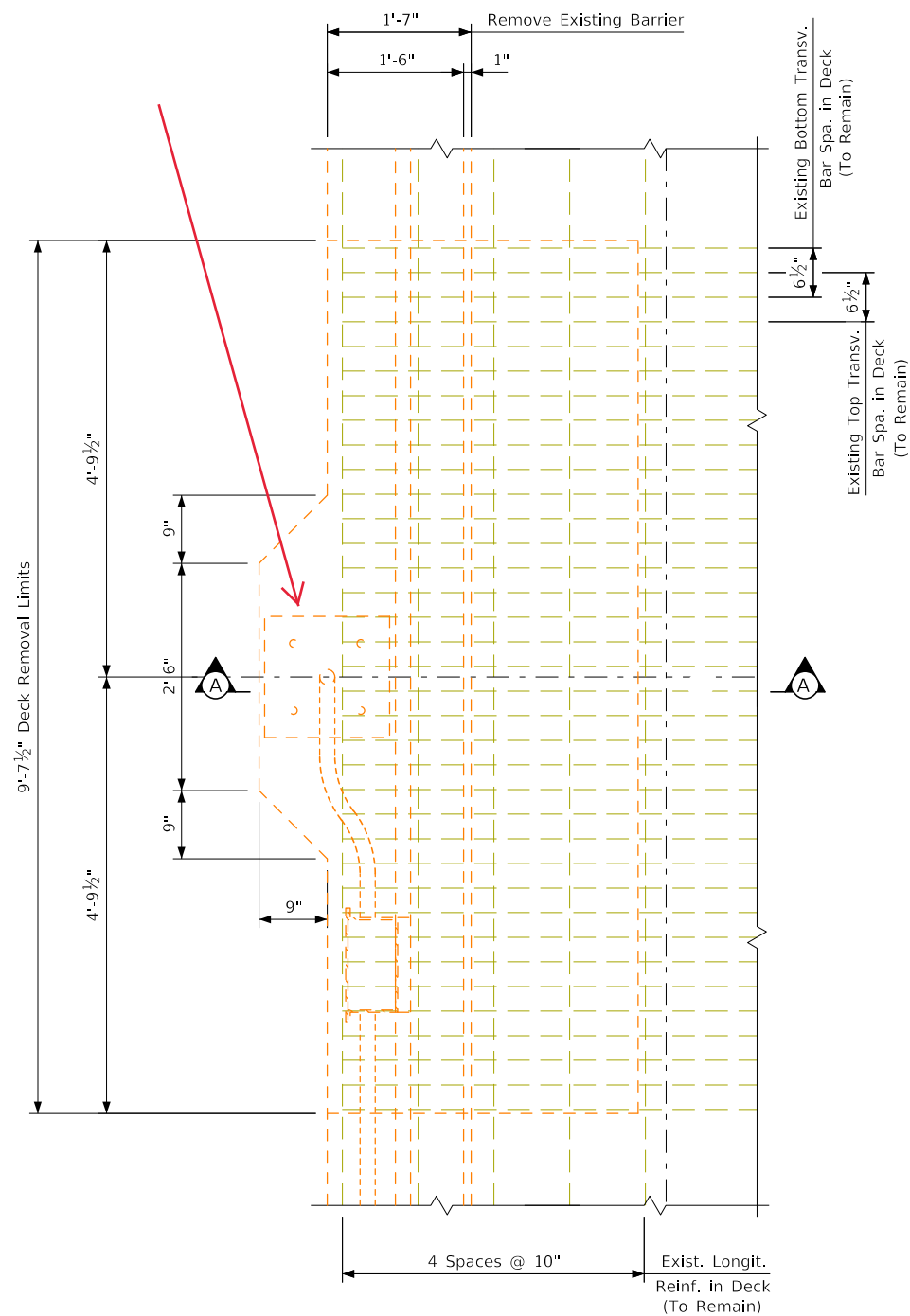
PROGRESS PLANS, NOT FOR CONSTRUCTION

Please check. These notes seem to conflict.

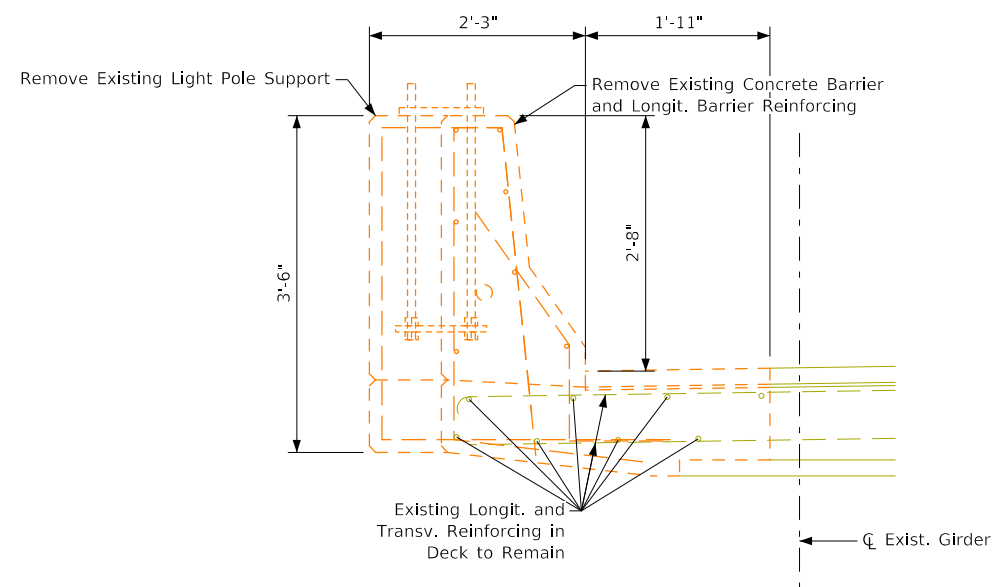


Design For Repairs To
2600'-0" x 84'-0" Continuous Welded Girder Bridge
 West Barrier Rail End Section Removal Details
 STA. 422+15.00 (Missouri River) Turn-in Date: Oct 2023
Woodbury County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 1124 Design Sheet No. 024 of 40 FHWA No. 600765

Are there existing light poles, and if so, will they be removed and reinstalled in this project? If the poles are removed and replaced by this project, please address the work involved and how it's paid for.



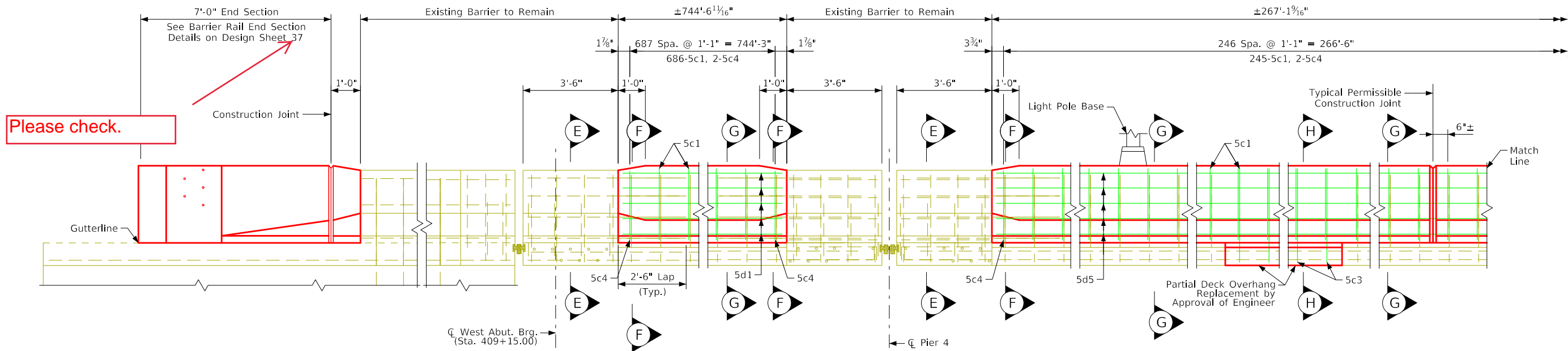
Plan of Typical Pole Base



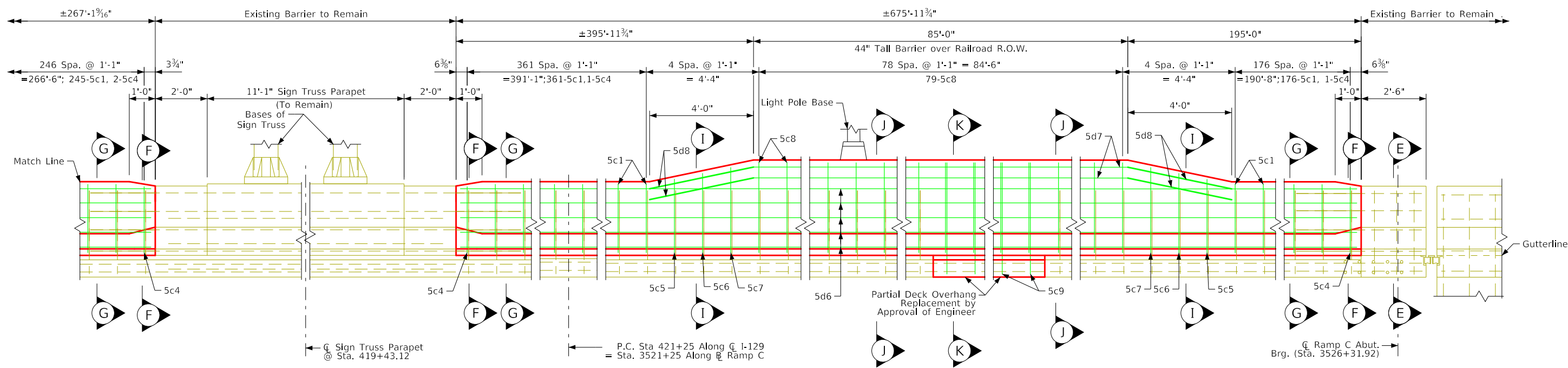
Section A-A

Design For Repairs To
2600'-0" × 84'-0" Continuous Welded Girder Bridge
 Lighting Removals
 STA. 422+15.00 (Missouri River) Turn-In Date: Oct 2023
Woodbury County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 1124 Design Sheet No. 025 of 40 FHWA No. 600765

PROGRESS PLANS, NOT FOR CONSTRUCTION

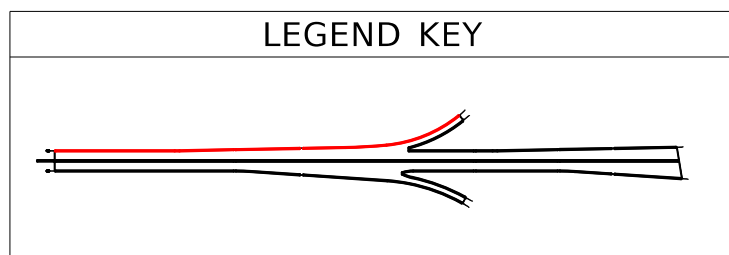


Elevation of North Exterior Barrier Rail Layout (Section 2)
(Looking North)



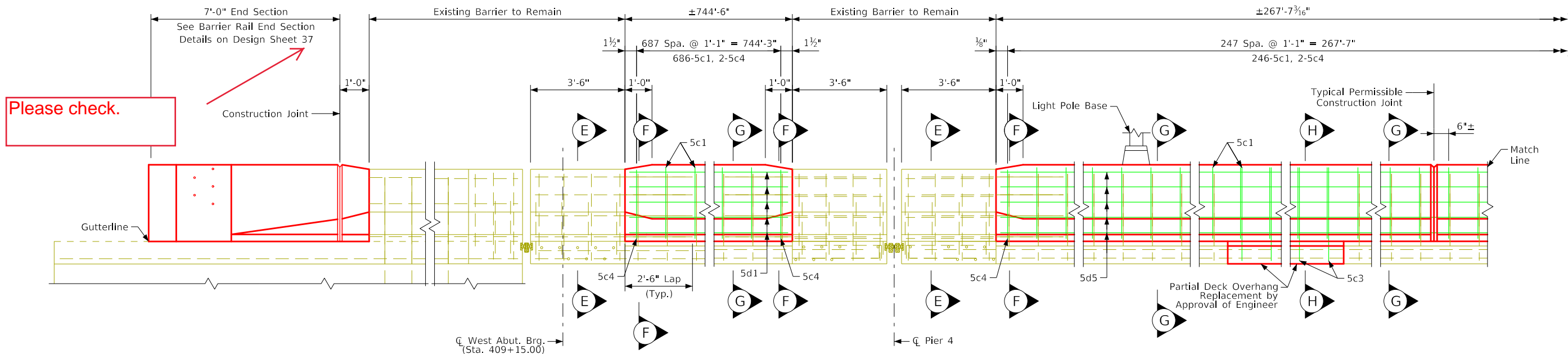
Elevation of North Exterior Barrier Rail Layout (Section 2)
(Looking North)

Note:
Barrier length dimensions measured along toe of barrier
See Design Sheet 31 for Sections

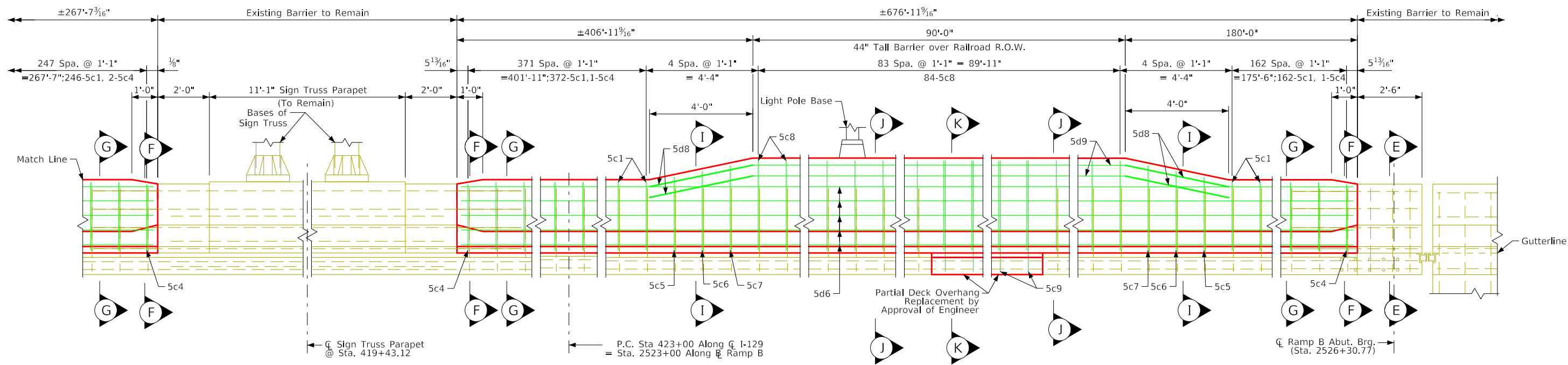


Design For Repairs To
2600'-0" × 84'-0" Continuous Welded Girder Bridge
 North Exterior Barrier Rail Details
 STA. 422+15.00 (Missouri River) Turn-In Date: Oct 2023
Woodbury County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 1124 Design Sheet No. 026 of 40 FHWA No. 600765

PROGRESS PLANS, NOT FOR CONSTRUCTION

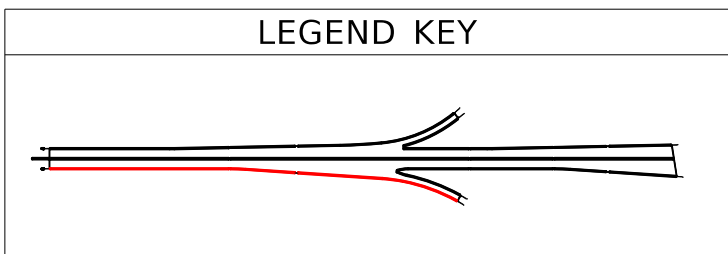


Elevation of South Exterior Barrier Rail Layout (Section 3)
(Looking North)



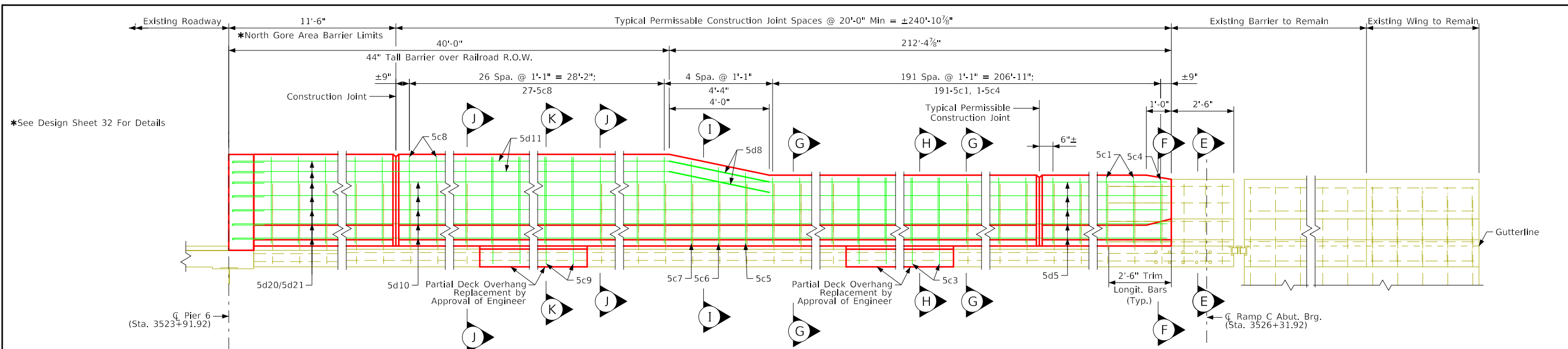
Elevation of South Exterior Barrier Rail Layout (Section 3)
(Looking North)

Note:
Barrier length dimensions measured along toe of barrier
See Design Sheet 31 for Sections

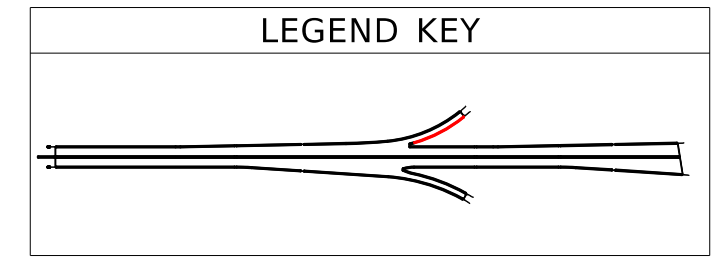


Design For Repairs To
2600'-0" × 84'-0" Continuous Welded Girder Bridge
South Exterior Barrier Rail Details
STA. 422+15.00 (Missouri River) Turn-In Date: Oct 2023
Woodbury County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 1124 Design Sheet No. 027 of 40 FHWA No. 600765

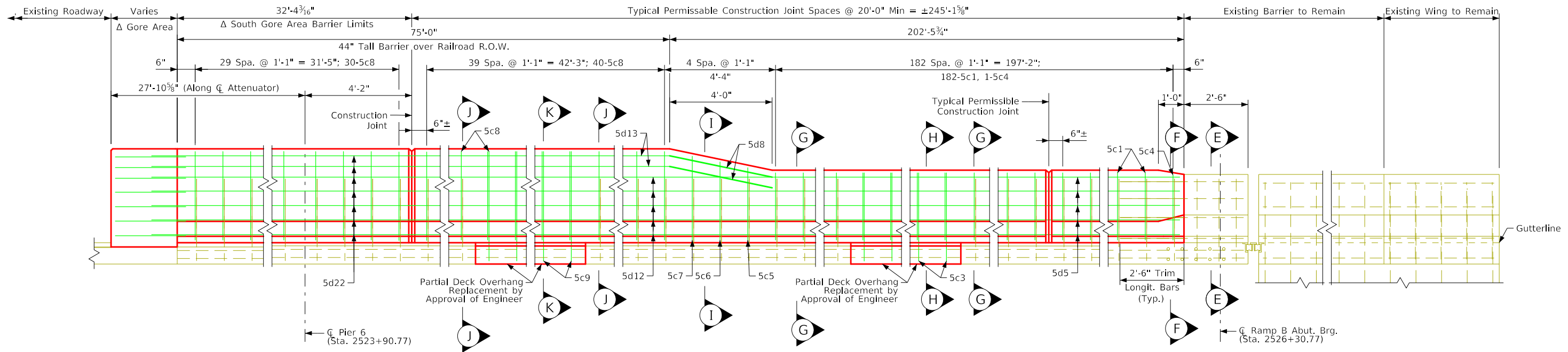
PROGRESS PLANS, NOT FOR CONSTRUCTION



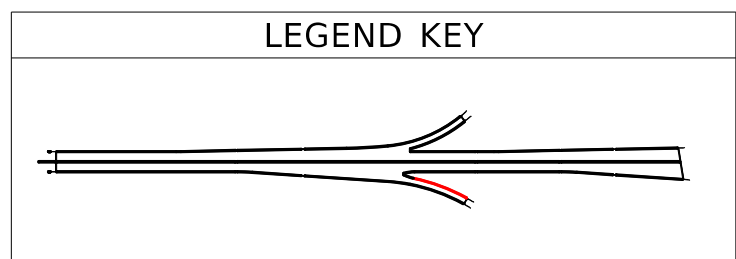
Elevation of North Interior Ramp Barrier Rail Layout (Section 4)
(Looking North)



△ See Design Sheet 33 for Details



Elevation of South Interior Ramp Barrier Rail Layout (Section 5)
(Looking North)

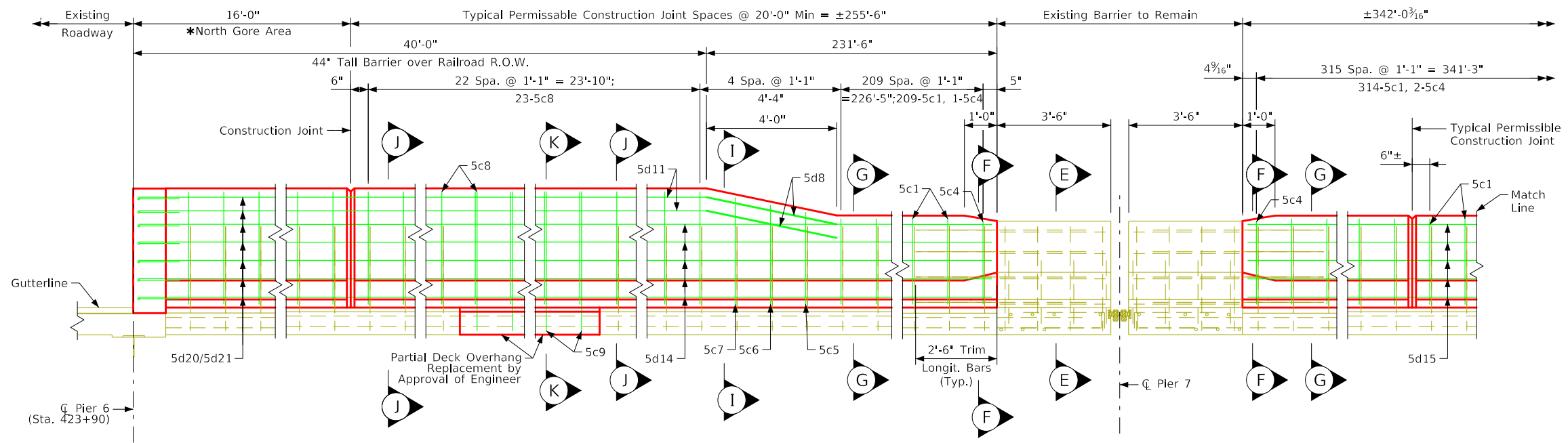


Note:
Barrier length dimensions measured along toe of barrier
See Design Sheet 31 for Sections

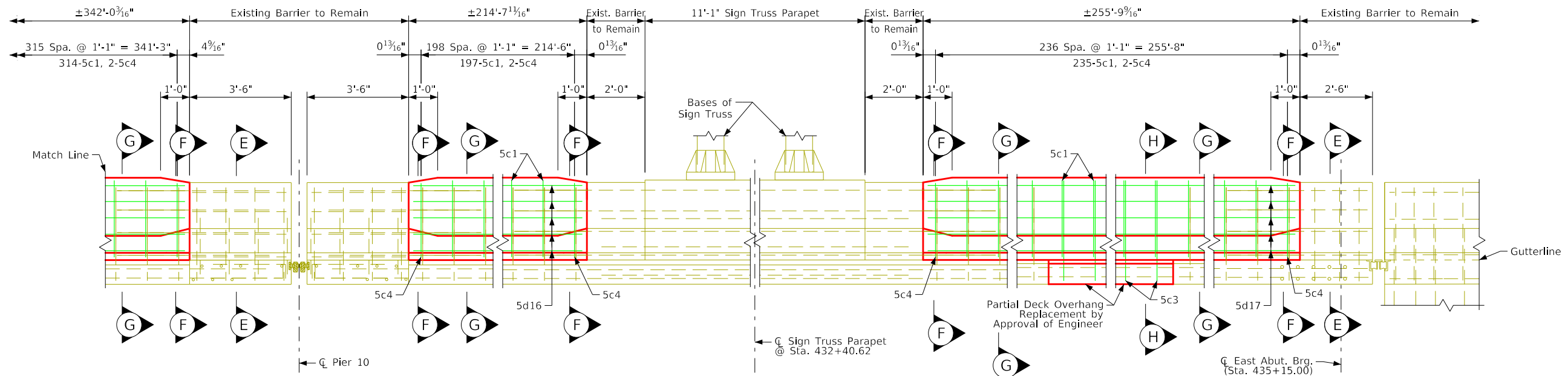
Design For Repairs To
**2600'-0" × 84'-0" Continuous
Welded Girder Bridge**
Interior Ramp Barrier Rail Details
STA. 422+15.00 (Missouri River) Turn-In Date: Oct 2023
Woodbury County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 1124 Design Sheet No. 028 of 40 FHWA No. 600765

PROGRESS PLANS, NOT FOR CONSTRUCTION

*See Design Sheet 32 For Details

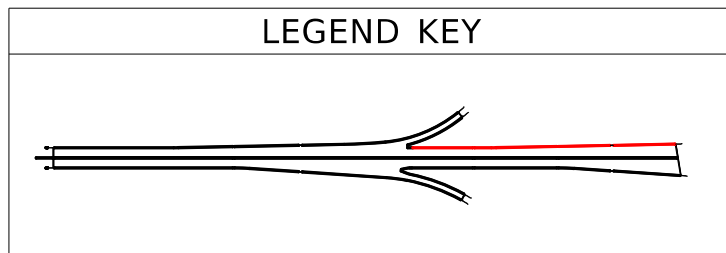


Elevation of North Exterior Barrier Rail Layout (Section 6)
(Looking North)



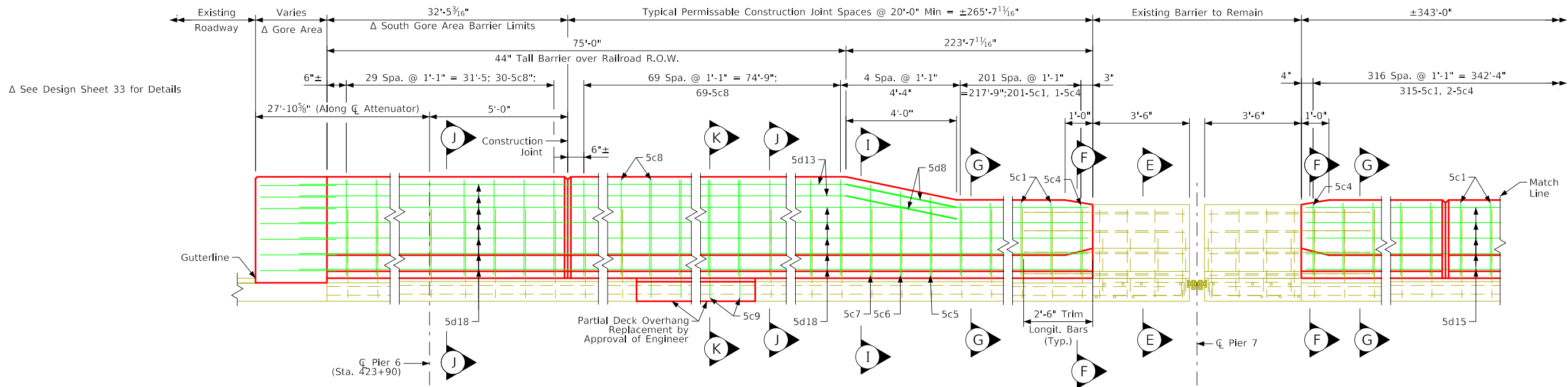
Elevation of North Exterior Barrier Rail Layout (Section 6)
(Looking North)

Note:
Barrier length dimensions measured along toe of barrier
See Design Sheet 31 for Sections

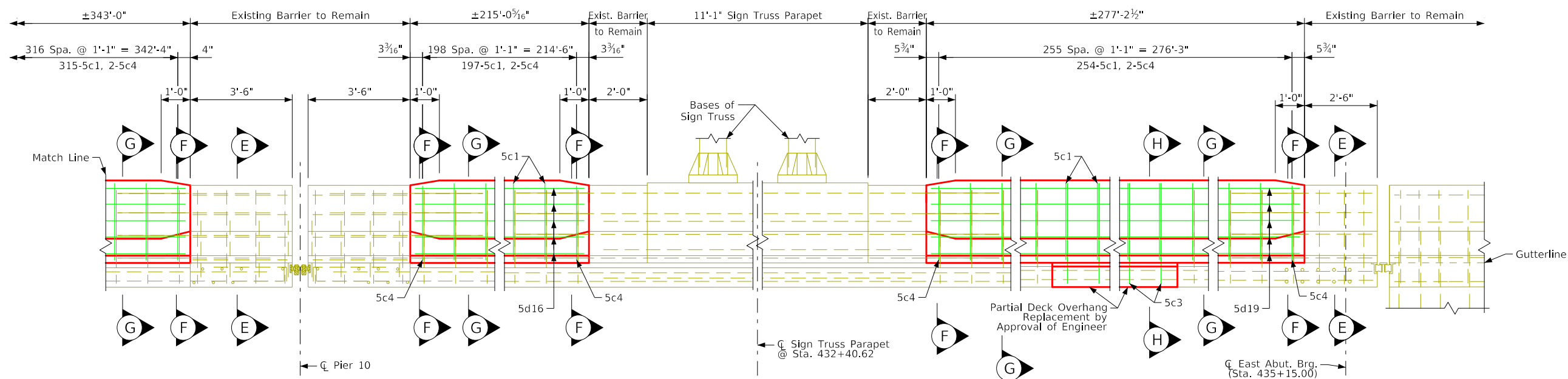


Design For Repairs To
2600'-0" × 84'-0" Continuous Welded Girder Bridge
 North Exterior Barrier Rail Details
 STA. 422+15.00 (Missouri River) Turn-In Date: Oct 2023
Woodbury County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 1124 Design Sheet No. 029 of 40 FHWA No. 600765

PROGRESS PLANS, NOT FOR CONSTRUCTION

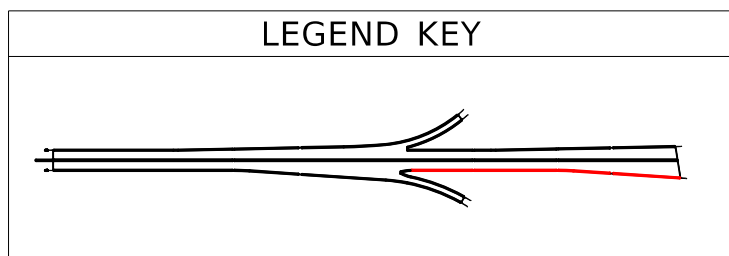


Elevation of South Exterior Barrier Rail Layout (Section 7)
(Looking North)

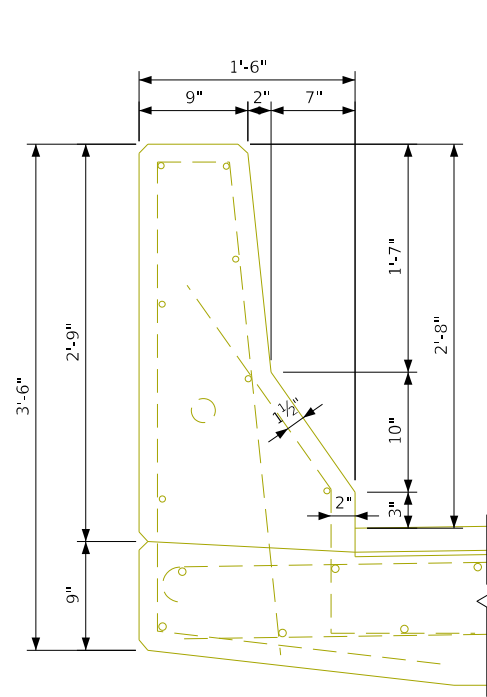


Elevation of South Exterior Barrier Rail Layout (Section 7)
(Looking North)

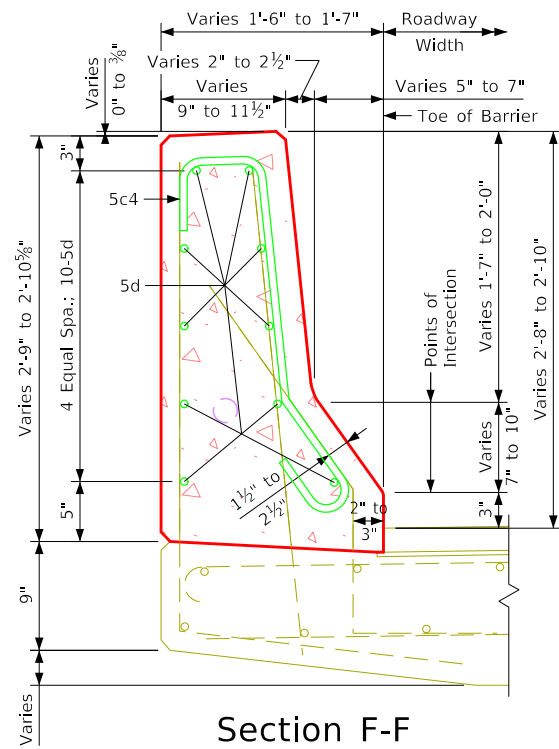
Note:
Barrier length dimensions measured along toe of barrier
See Design Sheet 31 for Sections



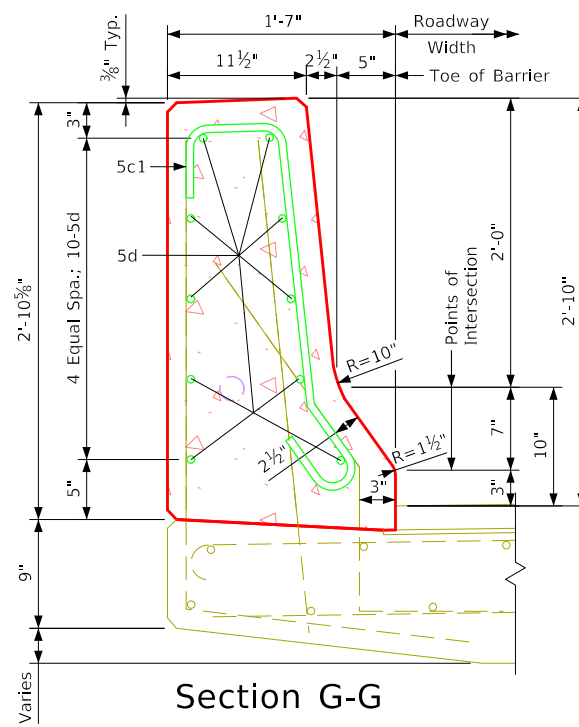
Design For Repairs To
2600'-0" x 84'-0" Continuous
Welded Girder Bridge
South Exterior Barrier Rail Details
STA. 422+15.00 (Missouri River) Turn-In Date: Oct 2023
Woodbury County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 1124 Design Sheet No. 030 of 40 FHWA No. 600765



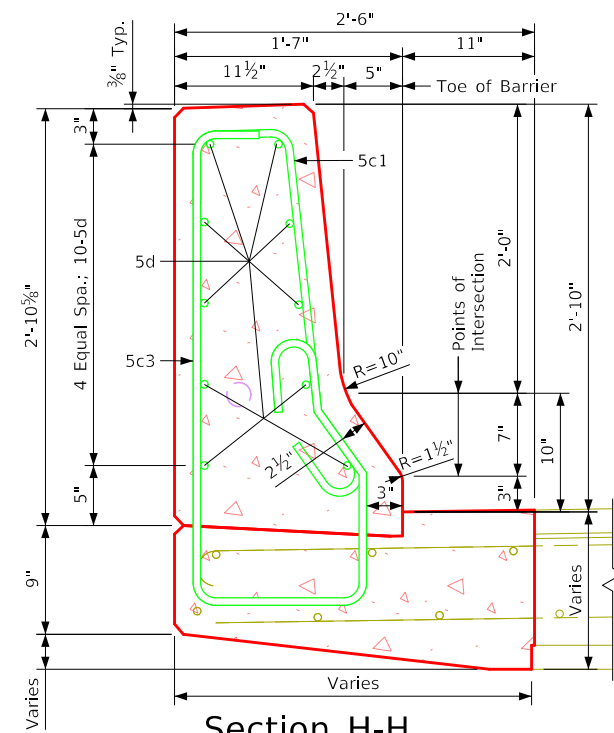
Section E-E



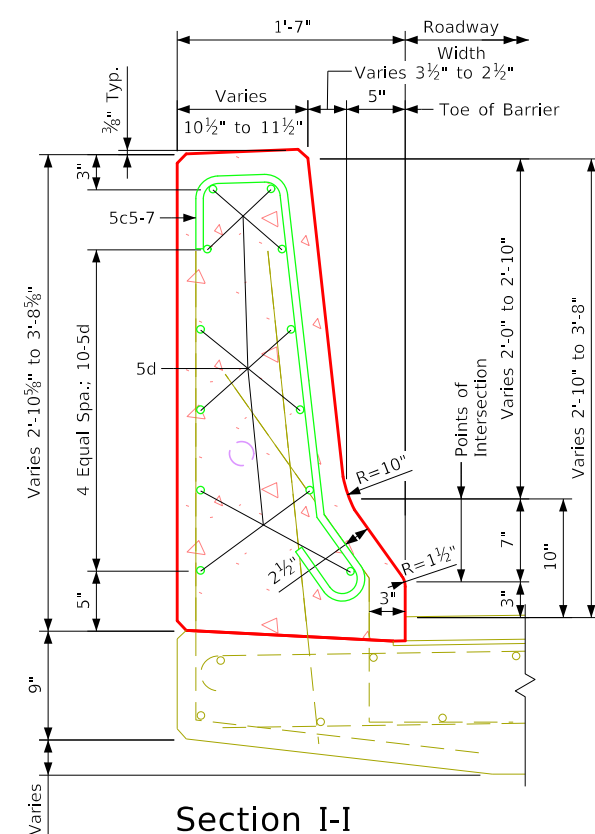
Section F-F



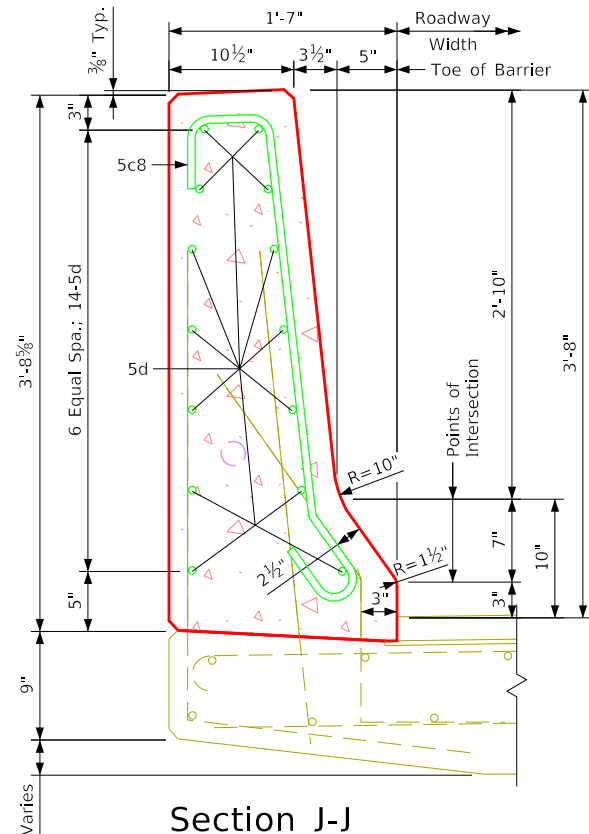
Section G-G



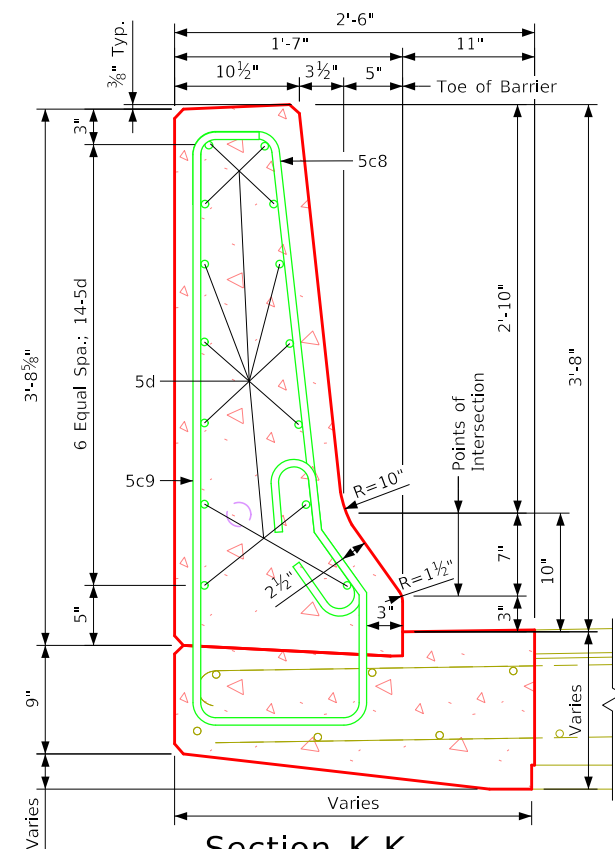
Section H-H



Section I-I



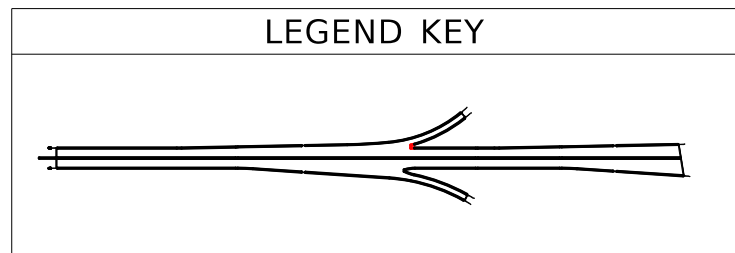
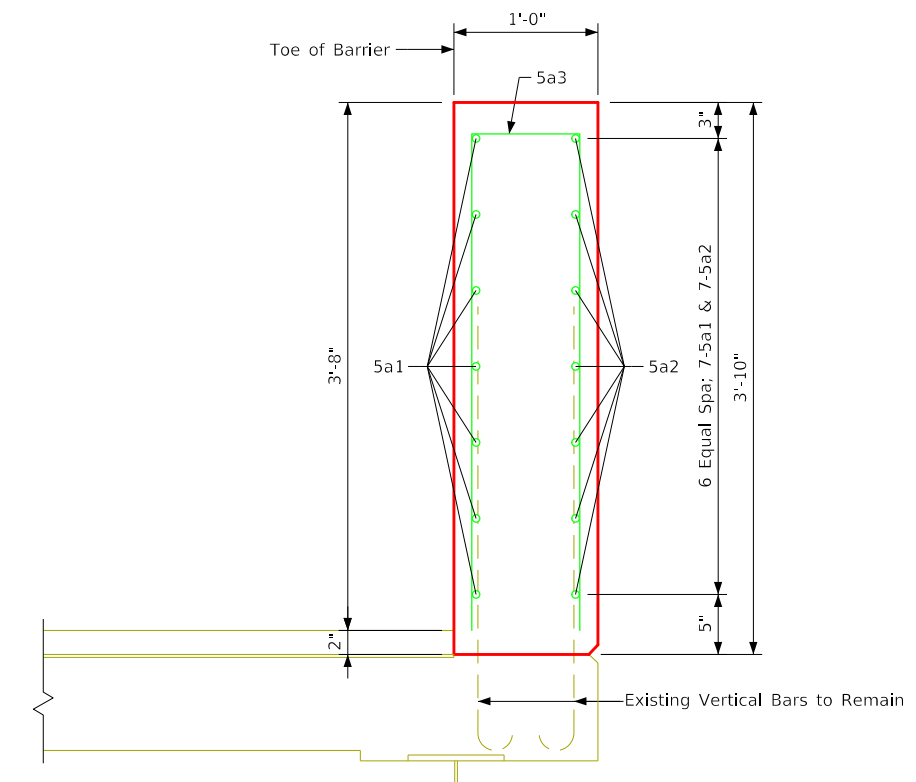
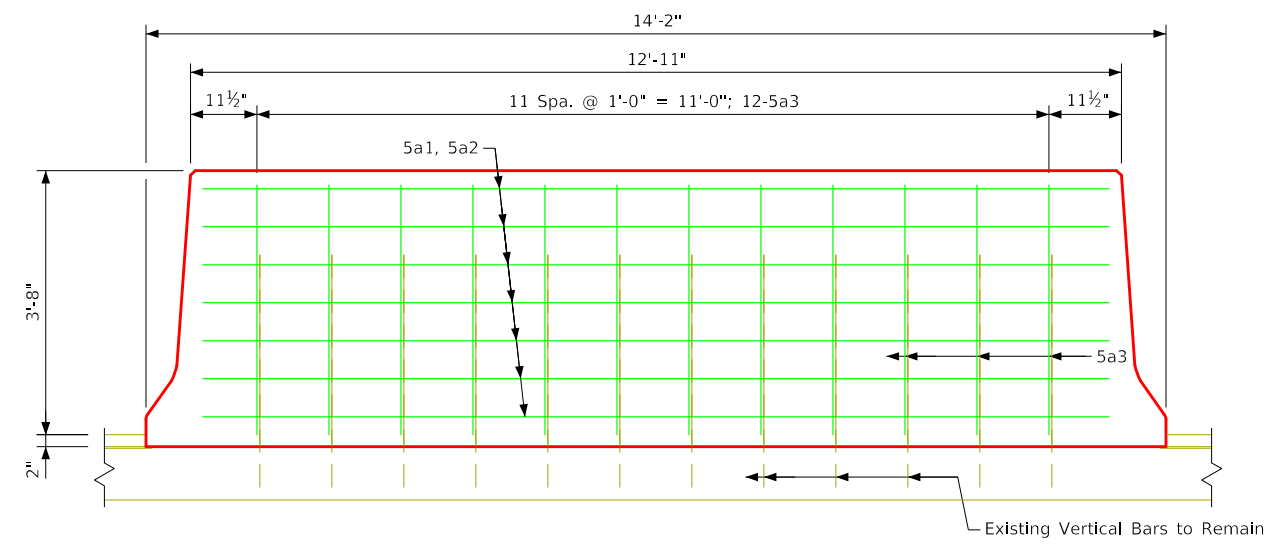
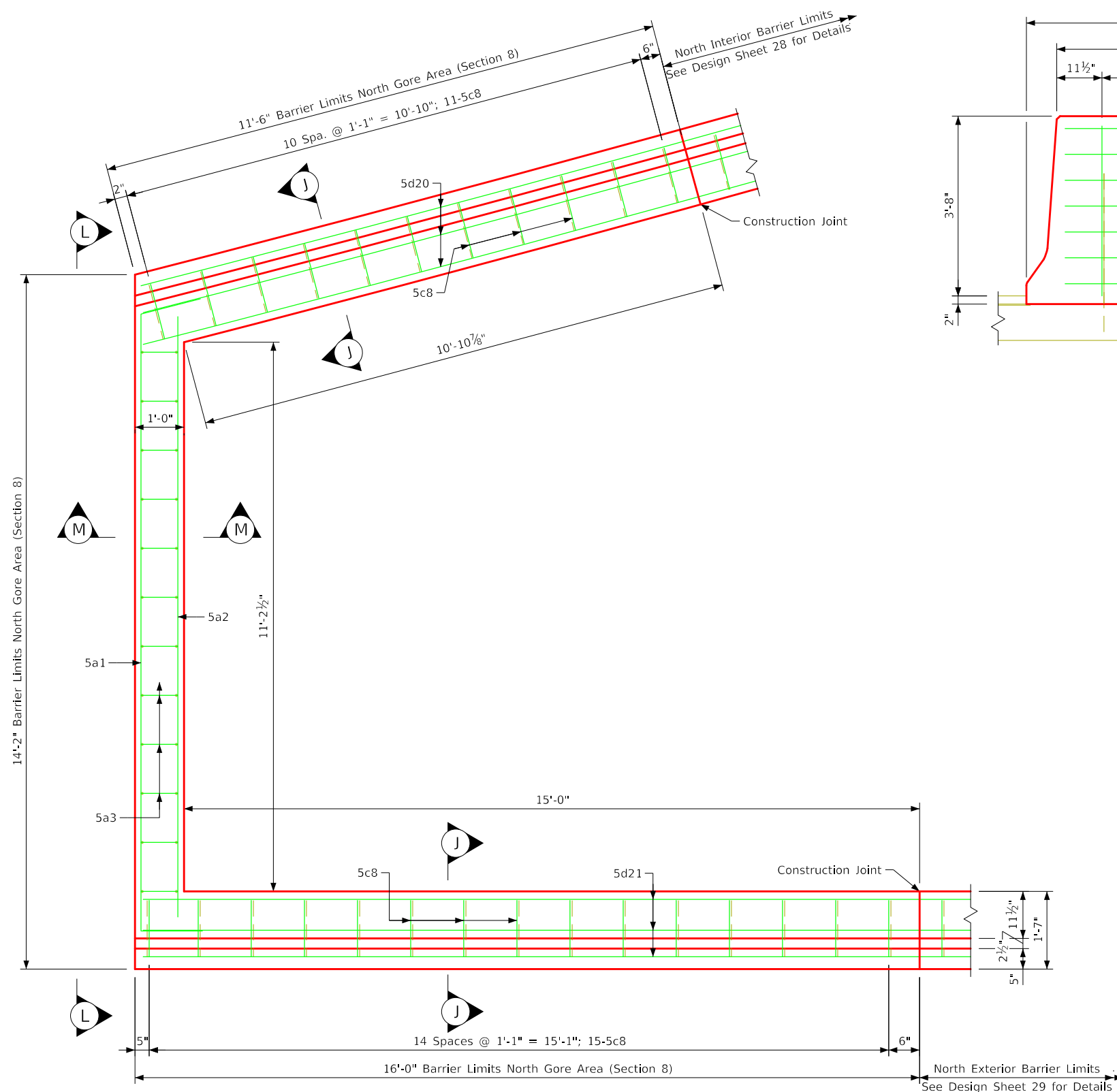
Section J-J



Section K-K

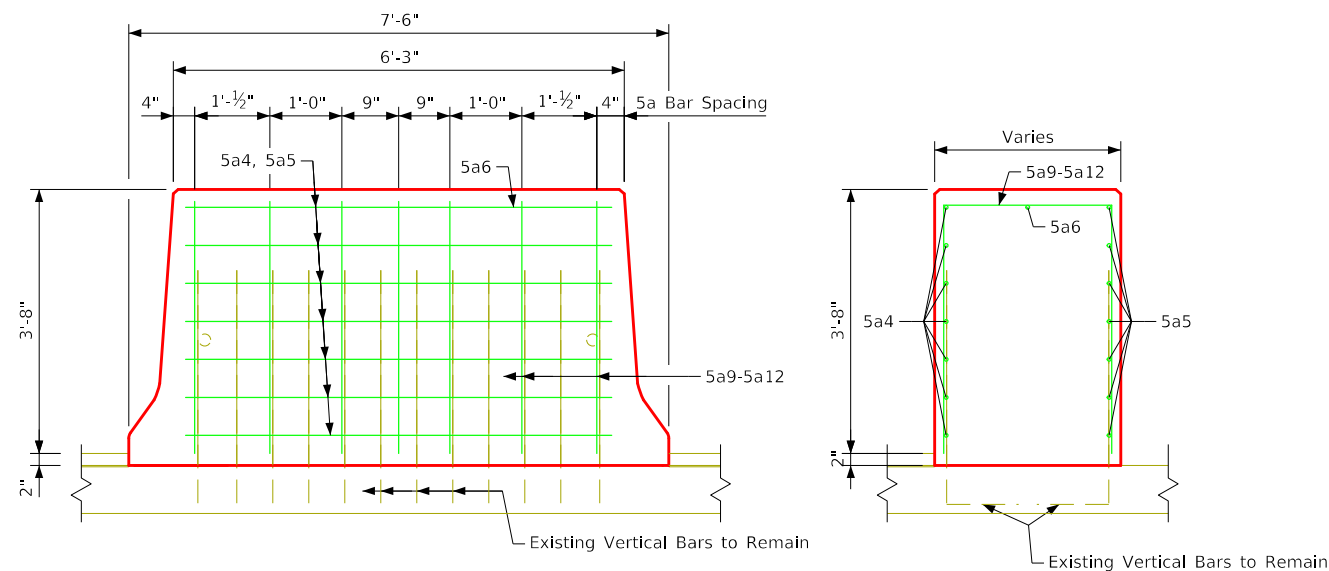
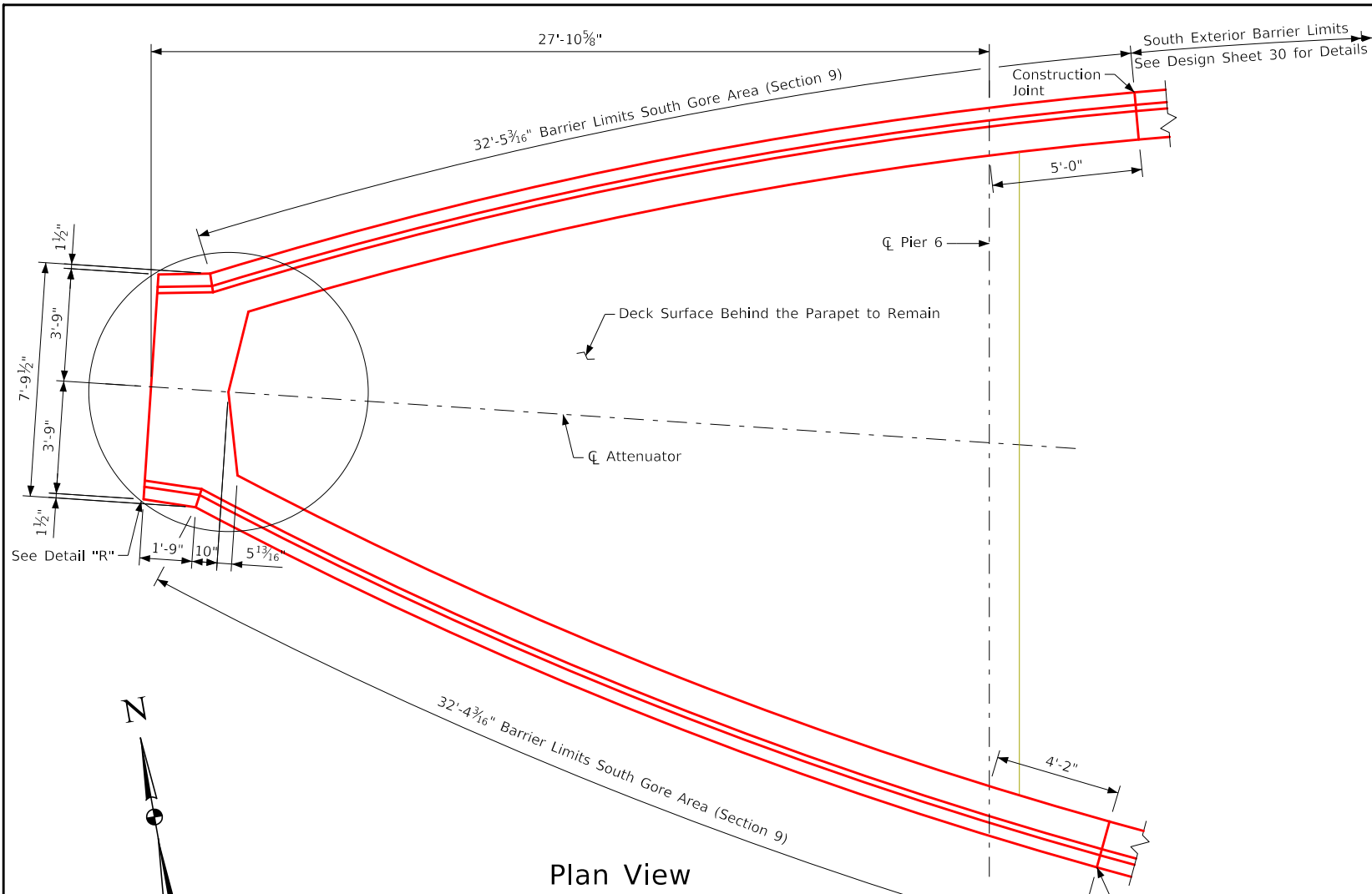
Design For Repairs To
2600'-0" × 84'-0" Continuous Welded Girder Bridge
 Exterior Barrier Rail Details
 STA. 422+15.00 (Missouri River) Turn-In Date: Oct 2023
Woodbury County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 1124 Design Sheet No. 031 of 40 FHWA No. 600765

PROGRESS PLANS, NOT FOR CONSTRUCTION



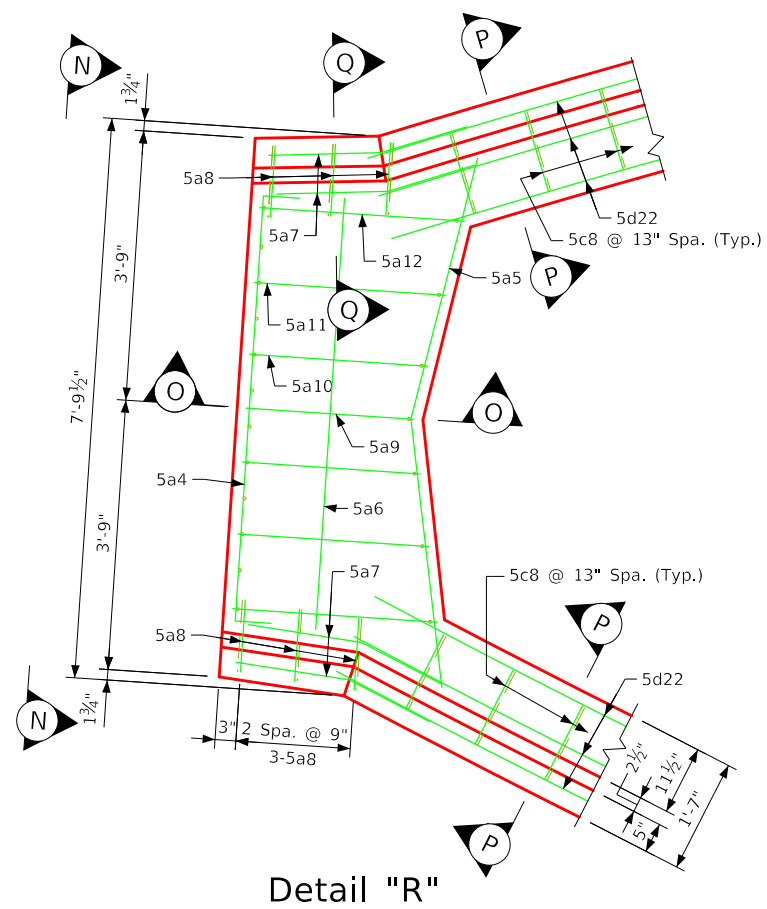
Design For Repairs To
2600'-0" x 84'-0" Continuous Welded Girder Bridge
 North Gore Area Replacement Details
 STA. 422+15.00 (Missouri River) Turn-In Date: Oct 2023
 Woodbury County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 1124 Design Sheet No. 032 of 40 FHWA No. 600765

PROGRESS PLANS, NOT FOR CONSTRUCTION

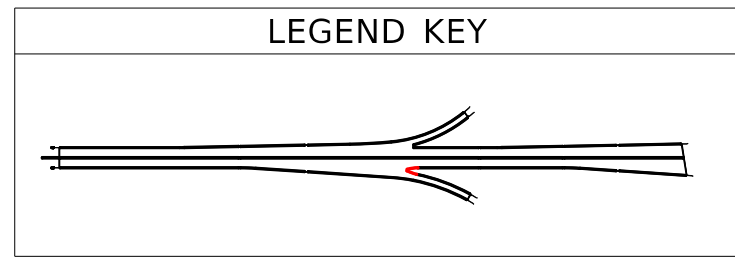
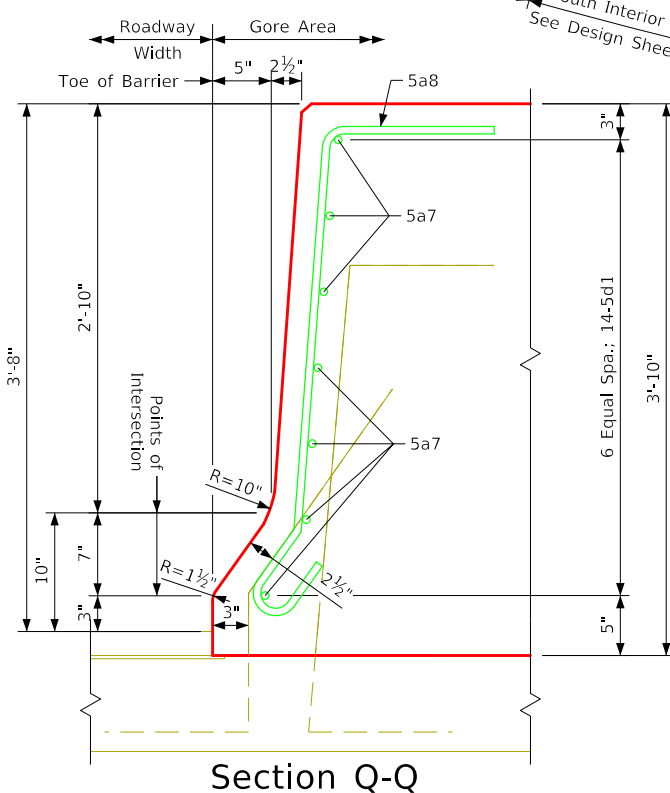
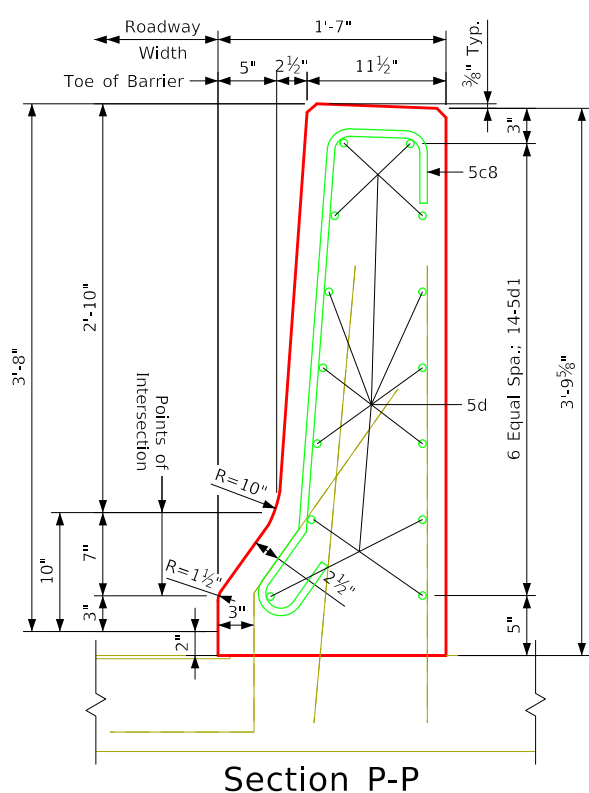


View N-N

Section O-O

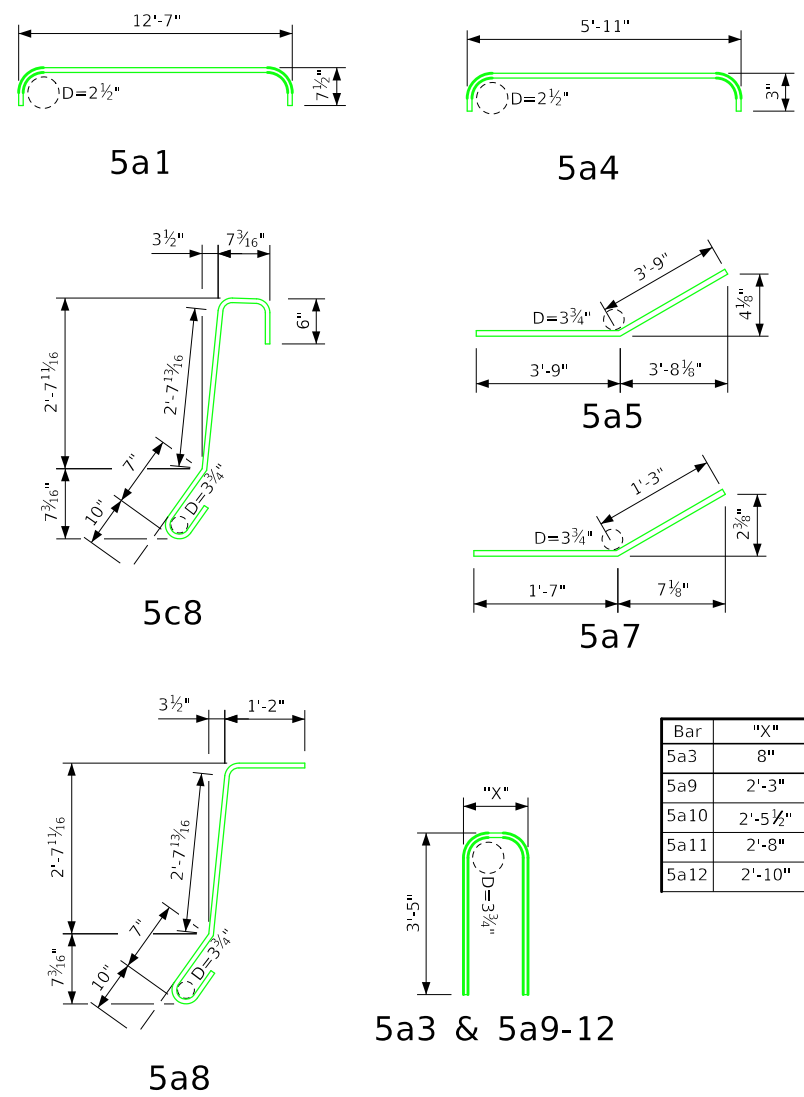


Detail "R"



Design For Repairs To
2600'-0" × 84'-0" Continuous Welded Girder Bridge
 South Gore Area Replacement Details
 STA. 422+15.00 (Missouri River) Turn-In Date: Oct 2023
Woodbury County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 1124 Design Sheet No. 033 of 40 FHWA No. 600765

Bent Bar Details



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

Epoxy Coated Reinf. Steel - North Gore Area

Bar	Location	Shape	No.	Length	Weight
5a1	Gore Horizontal		7	13'-10"	101
5a2	Gore Horizontal		7	12'-3"	89
5a3	Gore Vertical		12	7'-6"	94
5c8	Barrier Vertical		26	5'-2"	140
5d20	Barrier Horizontal		14	18'-0"	190
5d21	Barrier Horizontal		14	13'-0"	263
Epoxy Reinf. Total Weight (lbs.)					877

Epoxy Coated Reinf. Steel - South Gore Area

Bar	Location	Shape	No.	Length	Weight
5a4	Gore Horizontal		7	6'-5"	47
5a5	Gore Horizontal		7	7'-6"	55
5a6	Gore Vertical		1	6'-0"	6
5a7	Gore Corner		14	2'-10"	41
5a8	Gore Corner		6	5'-2"	32
5a9-12	Gore Horizontal		7	Varies	69
5c8	Barrier Vertical		60	5'-2"	324
5d22	Barrier Horizontal		28	32'-0"	935
Epoxy Reinf. Total Weight (lbs.)					1,509

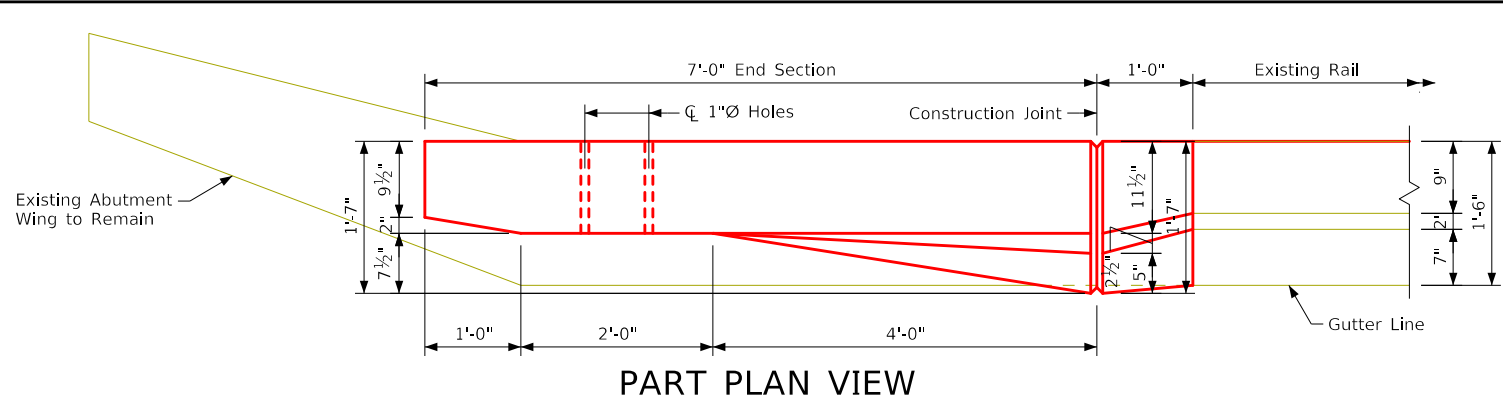
Note: Reinforcing steel quantities are included on the Summary Quantities Sheet.

Concrete Placement Summary

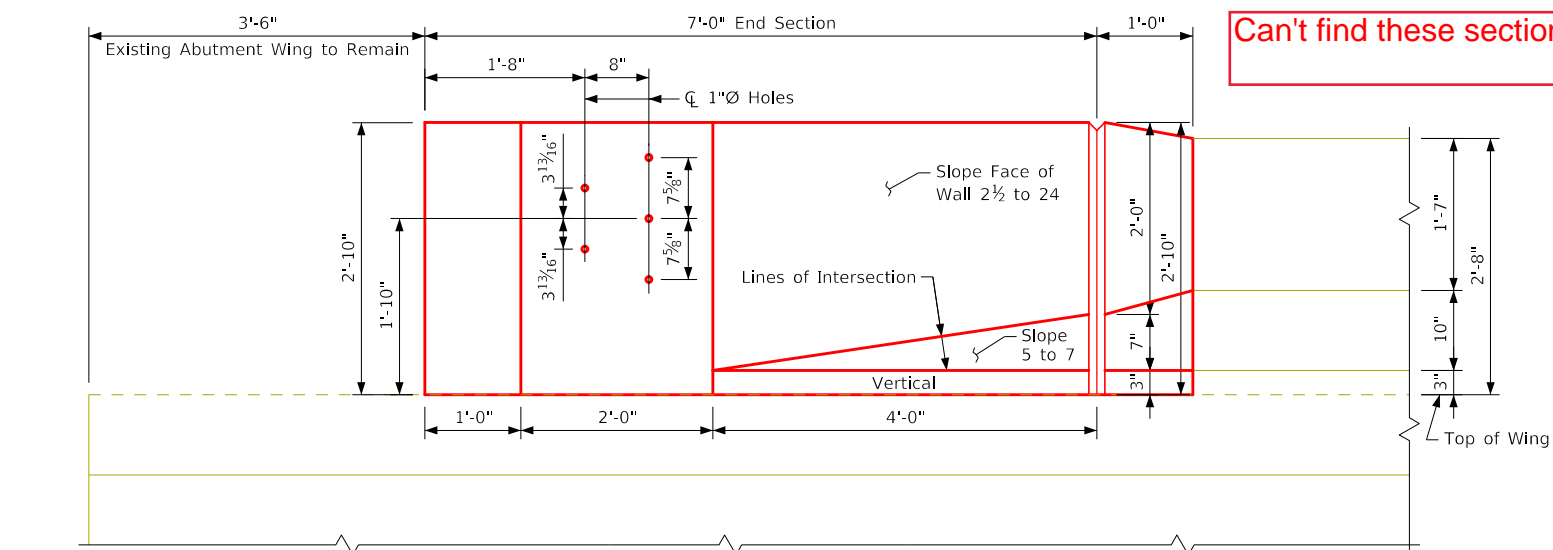
Section	Total
North Gore Area	7.7
South Gore Area	12.0

Design For Repairs To
**2600'-0" × 84'-0" Continuous
 Welded Girder Bridge**
Gore Area Replacement Details
 STA. 422+15.00 (Missouri River) Turn-In Date: Oct 2023
Woodbury County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 1124 Design Sheet No. 034 of 40 FHWA No. 600765

PROGRESS PLANS, NOT FOR CONSTRUCTION



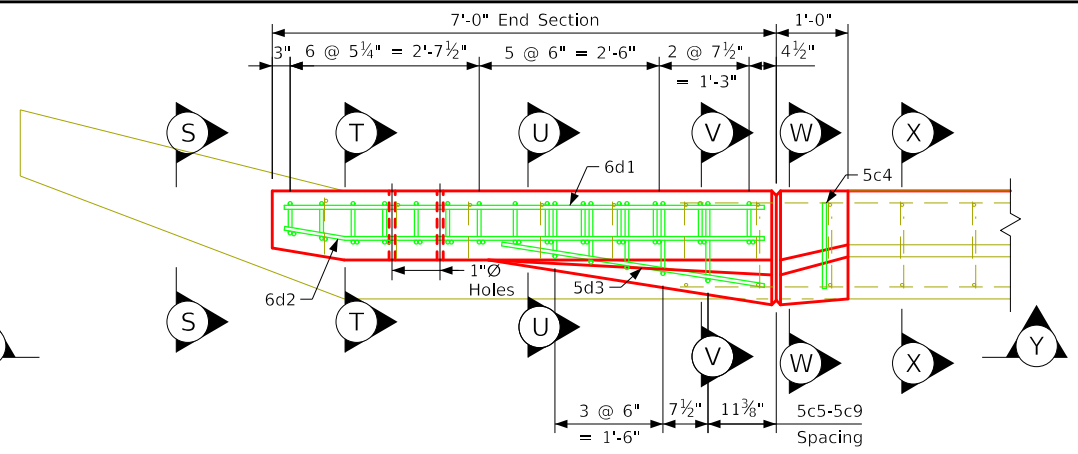
PART PLAN VIEW



PART ELEVATION VIEW

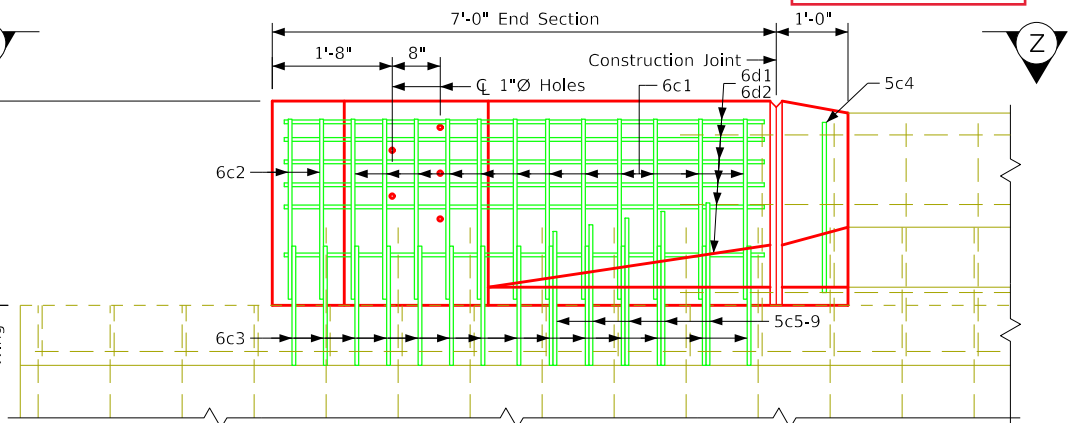
Provide 5 Holes Formed with 1"Ø Plastic Conduit. Cost to be Included in Price Bid for Concrete Barrier Railing.

Can't find these sections.



PART VIEW F-F

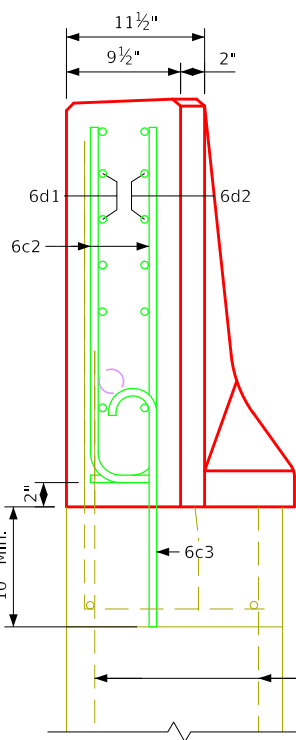
Z-Z?



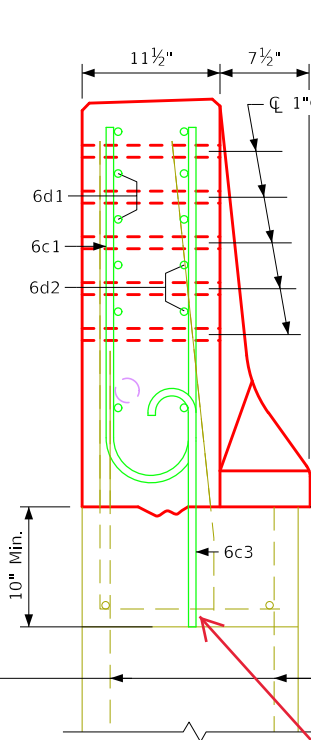
PART VIEW G-G

Y-Y?

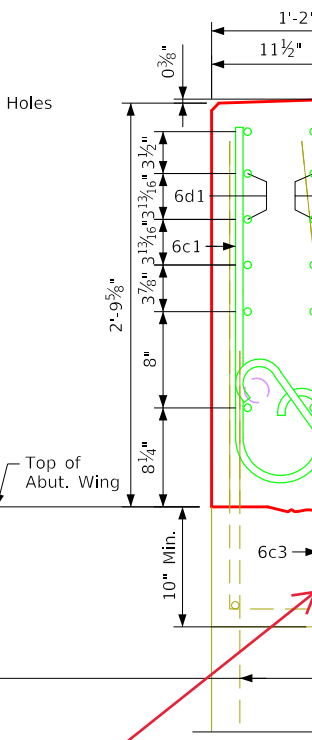
Please check. There is no bid item for concrete Barrier Railing.



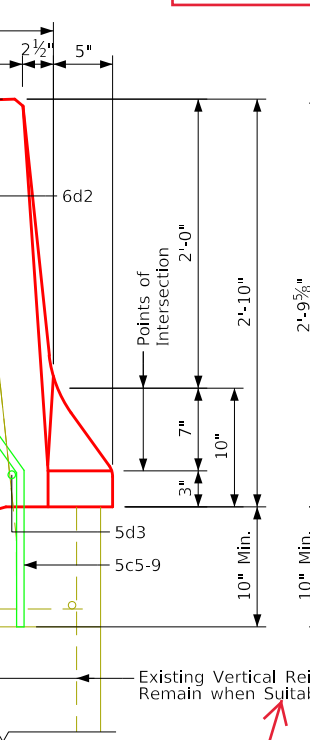
VIEW S-S



SECTION T-T



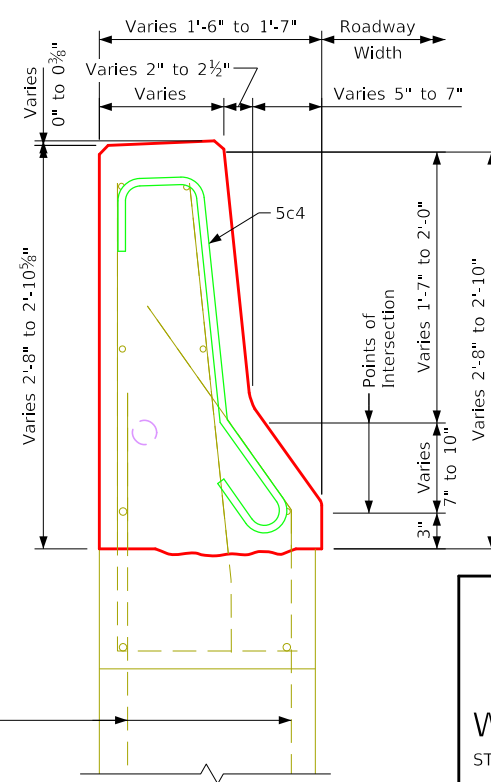
SECTION U-U



SECTION V-V

Please indicate what to do if it's not suitable. (typ)

Please provide details/specs for installing these bars in the existing concrete. (typ).



SECTION W-W

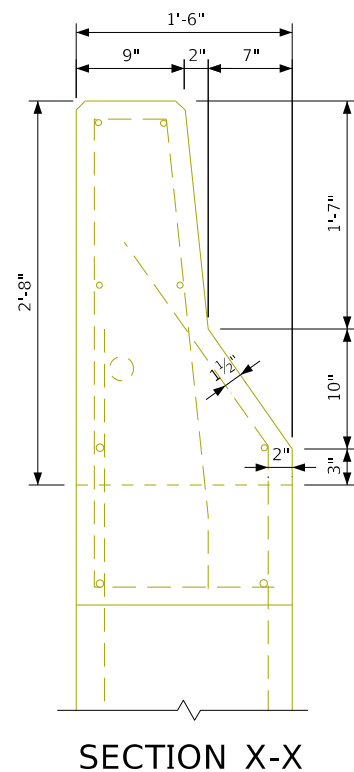
Note: Construction Joint Between Top of Wing and Barrier Rail is Roughened Concrete

Note: The 10" Radius and 1 1/2" Radius are Typical and Shall be Used when Construction the Corners for View S-S, Section T-T, Section U-U, Section V-V, and Section W-W.

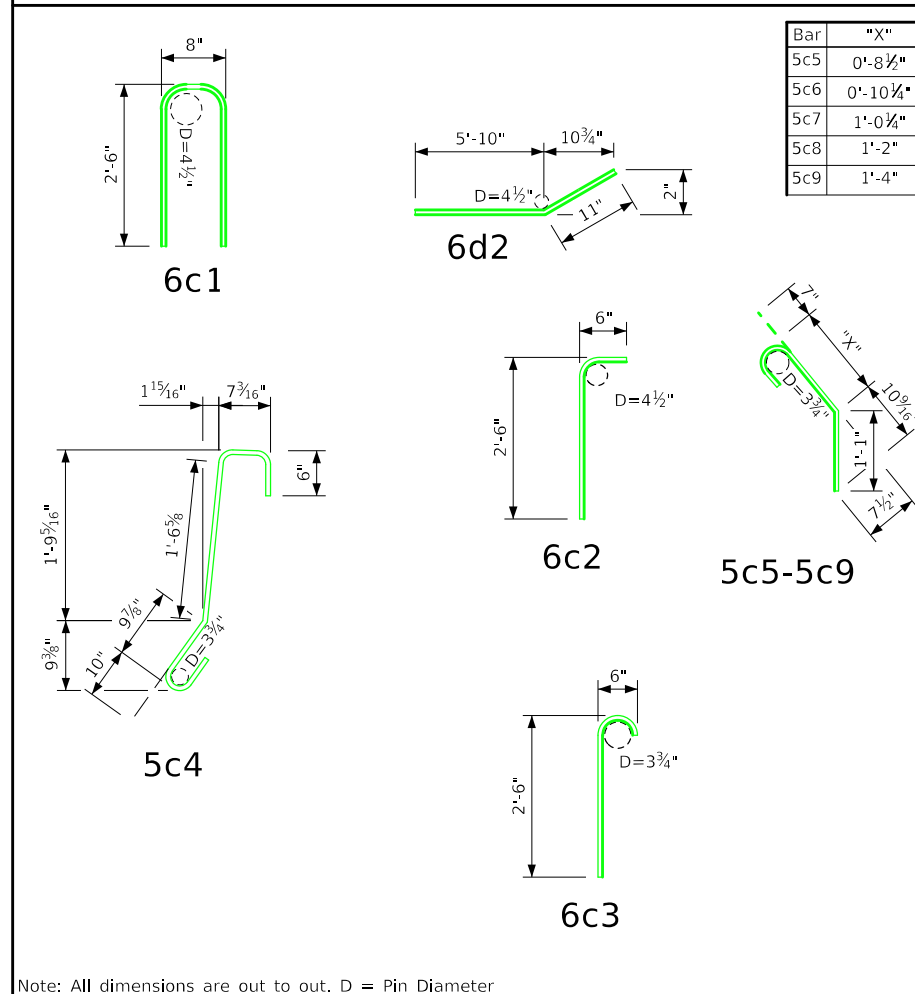
Note: See Design Sheet 36 for Section X-X

Spelling

Design For Repairs To
2600'-0" x 84'-0" Continuous Welded Girder Bridge
West Barrier Rail End Section Details
 STA. 422+15.00 (Missouri River) Turn-In Date: Oct 2023
Woodbury County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 1124 Design Sheet No. 035 of 40 FHWA No. 600765



Bent Bar Details



Epoxy Coated Reinf. Steel - One End Section

Bar	Location	Shape	No.	Length	Weight
6c1	Vertical		12	5'-8"	102
6c2	Vertical		4	3'-0"	18
6c3	Vertical		14	3'-4"	70
5c4	Vertical		1	4'-4"	5
5c5-9	Vertical		5	Varies	14
6d1	Horizontal		6	6'-8"	60
6d2	Horizontal		6	6'-8"	60
5d3	Horizontal		1	3'-9"	4
Epoxy Reinf. Total Weight (lbs.)					333

Note: Reinforcing steel quantities are included on the Summary Quantities Sheet.

Concrete Placement Summary

Section	Total
Barrier Rail One End Section	0.90 Cu. Yd.

Note:
See Design Sheet 35 for Location of Section X-X

Design For Repairs To
**2600'-0" × 84'-0" Continuous
 Welded Girder Bridge**
 West Barrier Rail End Section Details
 STA. 422+15.00 (Missouri River) Turn-In Date: Oct 2023
Woodbury County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 1124 Design Sheet No. 036 of 40 FHWA No. 600765

PROGRESS PLANS, NOT FOR CONSTRUCTION

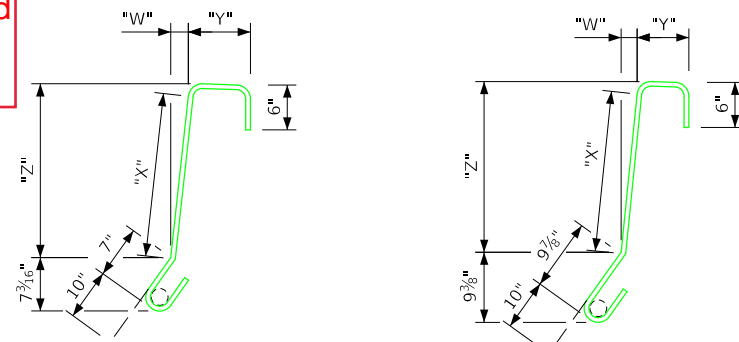
Barrier Rail Notes:

Minimum clear distance from face of concrete to near reinforcing bar is to be 2" unless otherwise noted or shown.
 The permissible construction joints are to be placed between vertical bars at a minimum spacing of 20 feet. Construction joint contact surfaces are to be coated with an approved bond breaker.
 Cost of the joint sealer and bond breaker shall be considered incidental to other construction.
 All barrier rail reinforcing steel is to be epoxy coated as shown.
 The concrete barrier rail is to be bid on a lineal foot basis. The number of lineal feet of barrier rail installed will be paid for at the contract price per lineal foot based on plan quantities. Price bid for concrete barrier railing shall be full compensation for furnishing all material, excluding reinforcing steel, and all of the equipment and labor required to erect the rail in accordance with these plans and current specifications. If conduit is required in this plan the rigid steel conduit, junction boxes and fittings including labor and any additional work to do the installation is considered incidental to the cost of the railing.
 The joint sealer shall be light gray nonsag latex caulking sealer marketed for outdoor use. No testing or certification is required.
 Top of the barrier rail is to be parallel to the theoretical \bar{C} grade.
 All exposed corners 90° or sharper are to be filleted with a $\frac{3}{4}$ " dressed and beveled strip.
 Cross sectional area of the Standard and Special Sections of the barrier rail = 3.50 square feet.
 Assumes 20% of barrier rail replacement will require deck overhang replacement.

Please check this paragraph. (The estimated quantities on Sheet 3 don't have a bid item for lineal feet of rail.)

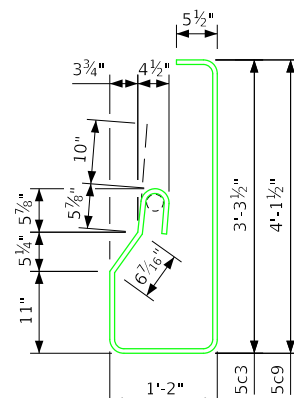
Please clarify. (There are both 44" and 34" high rail.)

Bent Bar Details



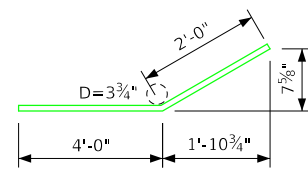
5c1 & 5c5-8

5c2/5c4



5c3 & 5c9

Bar	"W"	"X"	"Y"	"Z"
5c1	2 3/8"	1'-9 3/4"	8 7/16"	1'-9 1/16"
5c2	2 1/8"	1'-9 3/8"	6 1 1/16"	1'-9 1/16"
5c4	1 1 1/16"	1'-6 5/8"	7 7/16"	1'-6 1/2"
5c5	2 3/8"	2'-0 1/4"	8 7/16"	2'-0 7/16"
5c6	2 1 1/16"	2'-2 3/4"	7 7/8"	2'-2 1 1/16"
5c7	3 7/16"	2'-5 1/4"	7 7/16"	2'-5 7/16"
5c8	3 1/2"	2'-7 1 1/16"	7 7/16"	2'-7 1 1/16"



5d8

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

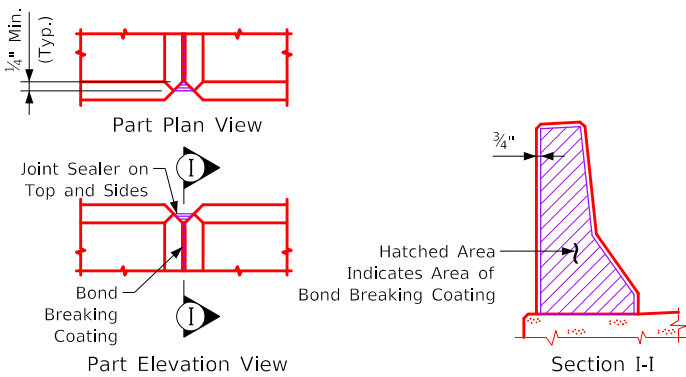
Note: Reinforcing steel quantities are included on the Summary Quantities Sheet.

Epoxy Coated Reinf. Steel - All Rails

Bar	Location	Shape	No.	Length	Weight
5c1	Rail, Vertical	U	9966	4'-5"	45,963
5c2	Rail, Vertical	U	16	4'-6"	75
5c3	Rail, Vertical	U	1993	7'-8"	15,992
5c4	Rail, Vertical	U	28	4'-4"	126
5c5	Rail, Vertical	U	8	4'-7"	38
5c6	Rail, Vertical	U	8	4'-10"	40
5c7	Rail, Vertical	U	8	5'-0"	42
5c8	Rail, Vertical	U	408	5'-2"	2,199
5c9	Rail, Vertical	U	83	8'-6"	738
5d1	Rail, Longitudinal (Sections 1, 2, 3)	—	800	40'-0"	33,376
5d2	Rail, Longitudinal (Section 1)	—	540	40'-0"	22,529
5d3	Rail, Longitudinal (Section 1)	—	200	40'-0"	8,344
5d4	Rail, Longitudinal (Section 1)	—	280	40'-0"	11,682
5d5	Rail, Longitudinal (Section 2 & 3)	—	160	40'-0"	6,675
5d6	Rail, Longitudinal (Section 2 & 3)	—	36	40'-0"	1,502
5d7	Rail, Longitudinal (Section 2)	—	12	30'-0"	375
5d8	Rail, Longitudinal (Sections 2-7)	—	32	6'-0"	200
5d9	Rail, Longitudinal (Section 3)	—	12	32'-0"	401
5d10	Rail, Longitudinal (Section 4)	—	70	40'-0"	2,920
5d11	Rail, Longitudinal (Sections 4 & 6)	—	8	28'-4"	236
5d12	Rail, Longitudinal (Section 5)	—	70	40'-0"	2,920
5d13	Rail, Longitudinal (Sections 5 & 7)	—	8	40'-0"	334
5d14	Rail, Longitudinal (Section 6)	—	70	40'-0"	2,920
5d15	Rail, Longitudinal (Sections 6 & 7)	—	200	40'-0"	8,344
5d16	Rail, Longitudinal (Sections 6 & 7)	—	120	40'-0"	5,006
5d17	Rail, Longitudinal (Section 6)	—	70	40'-0"	2,920
5d18	Rail, Longitudinal (Section 7)	—	80	40'-0"	3,338
5d19	Rail, Longitudinal (Section 7)	—	80	40'-0"	3,338
Epoxy Reinf. Total Weight (lbs.)					182,573

Concrete Placement Summary

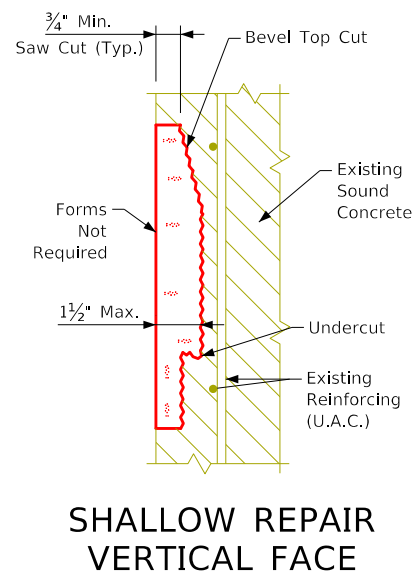
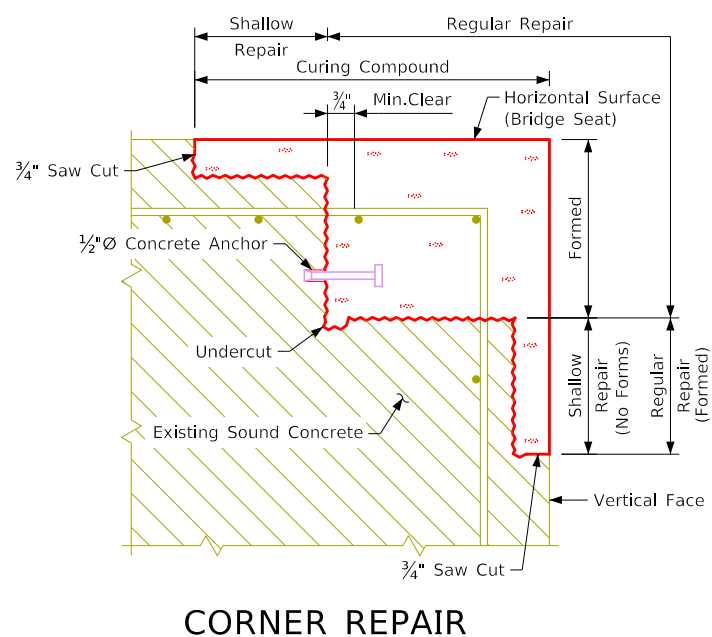
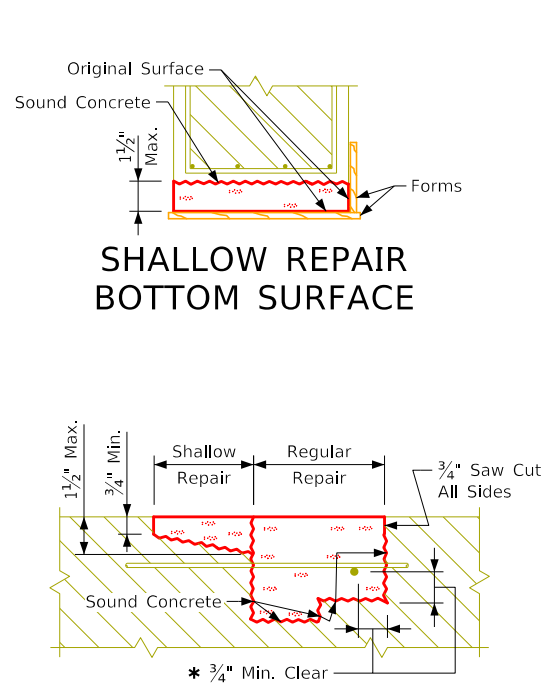
Section	Total	
Section 1: 5150.0' @ 0.13 cy/ft	669.5	
Section 2: 1602.7' @ 0.13 cy/ft, 85.0' @ 0.16 cy/ft, 337.8' @ 0.08 cy/ft	249.7	
Section 3: 1599.1' @ 0.13 cy/ft, 90.0' @ 0.16 cy/ft, 337.8' @ 0.08 cy/ft	250.0	
Section 4: 212.4' @ 0.13 cy/ft, 28.5' @ 0.16 cy/ft, 48.2' @ 0.08 cy/ft	36.1	
Section 5: 202.5' @ 0.13 cy/ft, 42.6' @ 0.16 cy/ft, 49.0' @ 0.08 cy/ft	37.1	
Section 6: 1044.0' @ 0.13 cy/ft, 24.0' @ 0.16 cy/ft, 216.6' @ 0.08 cy/ft	157.2	
Section 7: 1058.9' @ 0.13 cy/ft, 42.6' @ 0.16 cy/ft, 220.3' @ 0.08 cy/ft	162.6	
Section 8: North Gore	6.4	
Section 9: South Gore	13.7	
Total (cu. yd.)		621.2



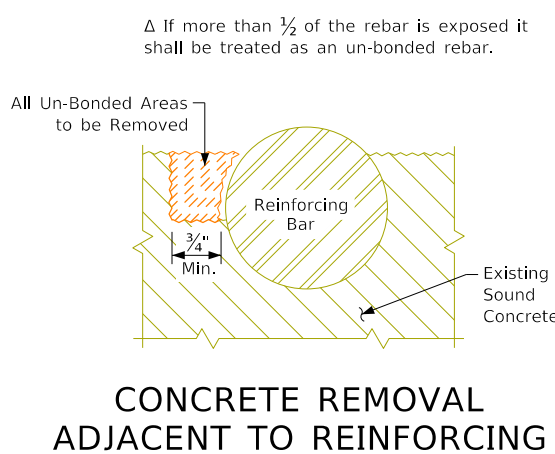
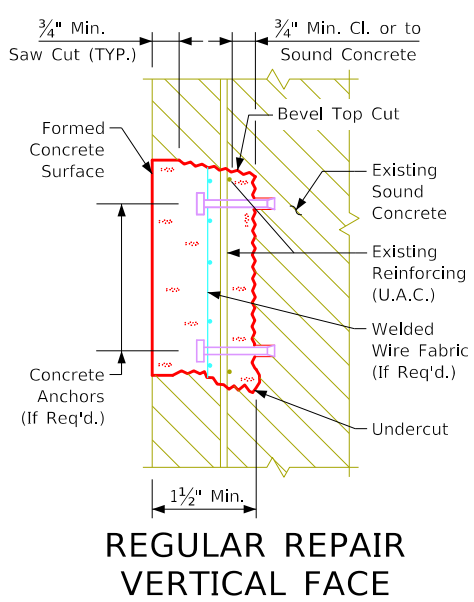
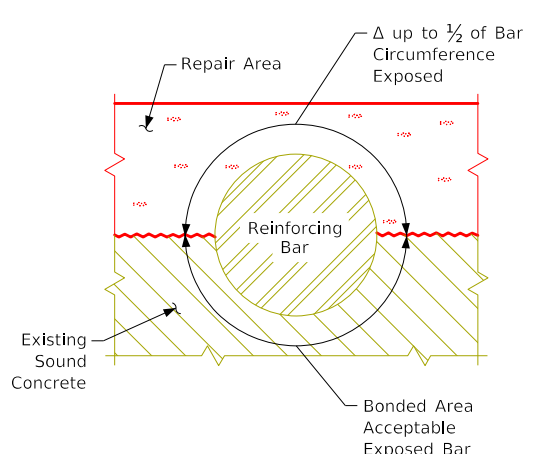
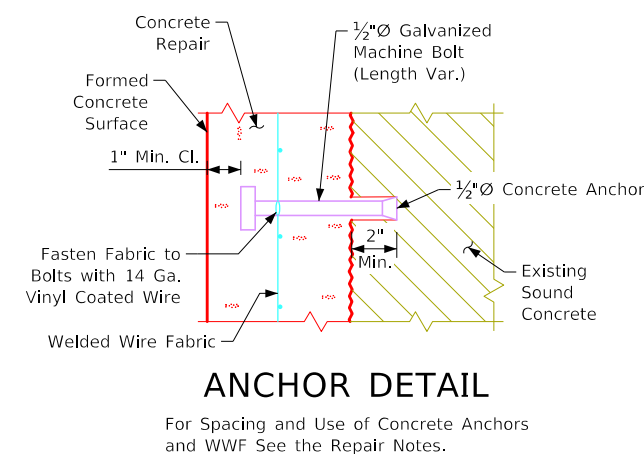
Barrier Rail Joint Details

Design For Repairs To
2600'-0" × 84'-0" Continuous Welded Girder Bridge
Barrier Rail Details
 STA. 422+15.00 (Missouri River) Turn-In Date: Oct 2023
Woodbury County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 1124 Design Sheet No. 037 of 40 FHWA No. 600765

REVISED 10-14 - DELETED ALL REFERENCES TO GROUT. SECTION 2426 COVERS THIS REQUIREMENT AND DOESNT NEED TO STATED ON THE PLANS. ORD_97129051_STANLEY_STRUCTURES_600765_204.dgn - 5038 - THIS SHEET REDRAWN 9-27-90.



REPAIR DEFINITION
* Indicates Clearance for an Un-Bonded Rebar.



Modified ?

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 inches 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 foot or larger. For this condition 1/2 inch diameter 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.	0.0
②	Regular repair	Sq. Ft.	20.0
		Total (Sq. Ft.)	20.0

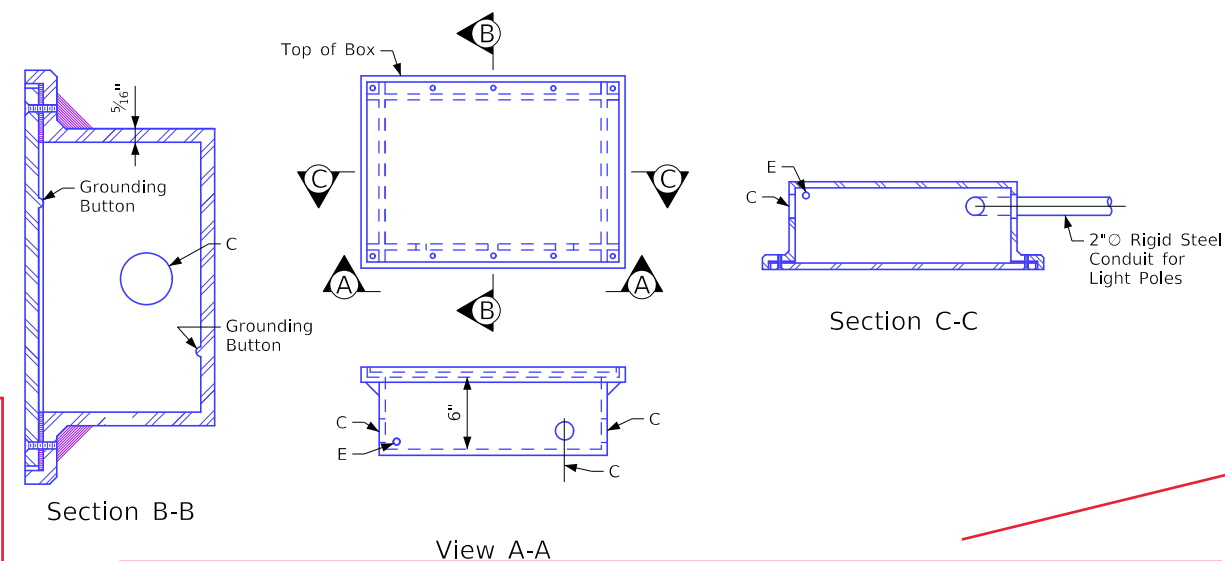
ESTIMATED CONCRETE REPAIR QUANTITIES		
Description	Units	Amount
Concrete Repair	Sq. Ft.	20.0

Concrete Repair Note:
 Concrete Repair for Bridge Barrier Rail to remain as approved by Engineer prior to completing repair.
 20.0 SF is estimated area.

Design For Repairs To
2600'-0" x 84'-0" Continuous Welded Girder Bridge
 Concrete Repairs
 STA. 422+15.00 (Missouri River) Letting Date Dec 19 2023
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Bossed For	Hole	For Conduit Size
5 Threads	C	2" Ø Rigid Steel
None	D	1" Ø Rigid Steel
None	E	½" Ø Rigid Steel

Note: The grounding buttons are to be blind drilled and tapped for ⅜"Ø x 0'-0¼" bolts.

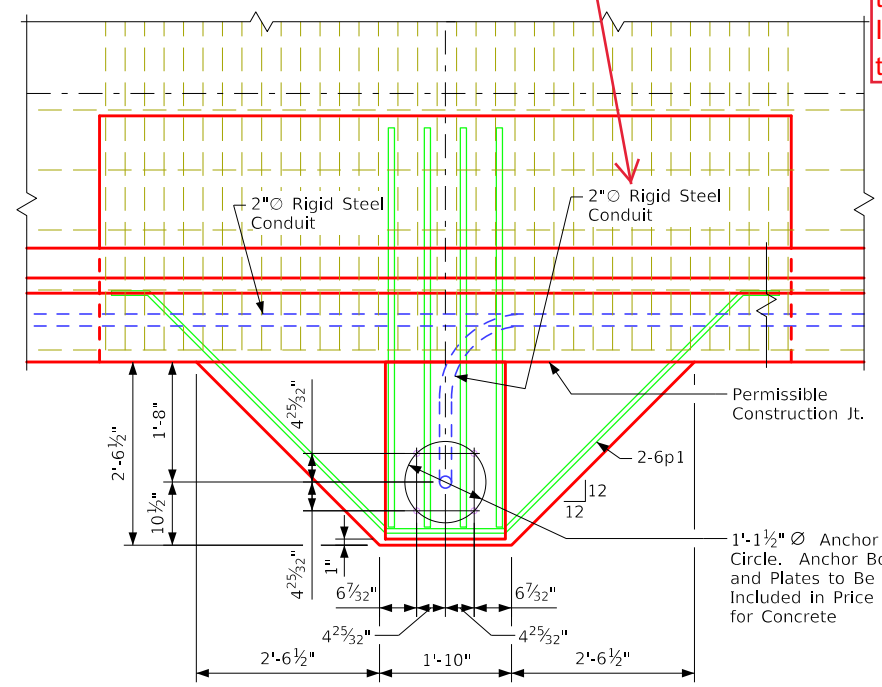


Lighting Notes:
 See LI-104 Standard Road Plan for additional information on junction boxes.
 Construction shall conform to the current Iowa D.O.T. Standard and Supplemental Specifications and Special Provisions.
 Conduit installation shall be in accordance with Article 2523.03, N, of the Standard Specifications.
 All "C" entrance holes in junction boxes shall be drilled and tapped for the specified conduit size. All other holes shall have a concrete - tight slip fit. Conduit ends shall not protrude into junction box more than ¼". Drain pipe end shall be flush with inside surface of box. Grounding buttons shall be located approximately 3" from the inside surface of the box wall, and not closer than 3" to the edge of any hole in the box floor. Holes for drain pipe shall be placed in the low corner of the box, with a minimum clearance of 1" between the edge of the hole and the inside surface of the box wall. Typical details are shown on this sheet.
 The rigid steel conduit and junction boxes including labor and any additional work to do the installation is considered incidental to the cost of the railing.
 Cost of furnishing and installing poles, lights, and lighting conductor is not a part of this contract on this sh
 All anchor bolt material shall comply with the requirements of Iowa DOT Construction and Materials I.M. 453.08 and Standard Specifications 4185.02,B,2.
 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.
 All reinforcing steel is to be epoxy coated and grade 60.

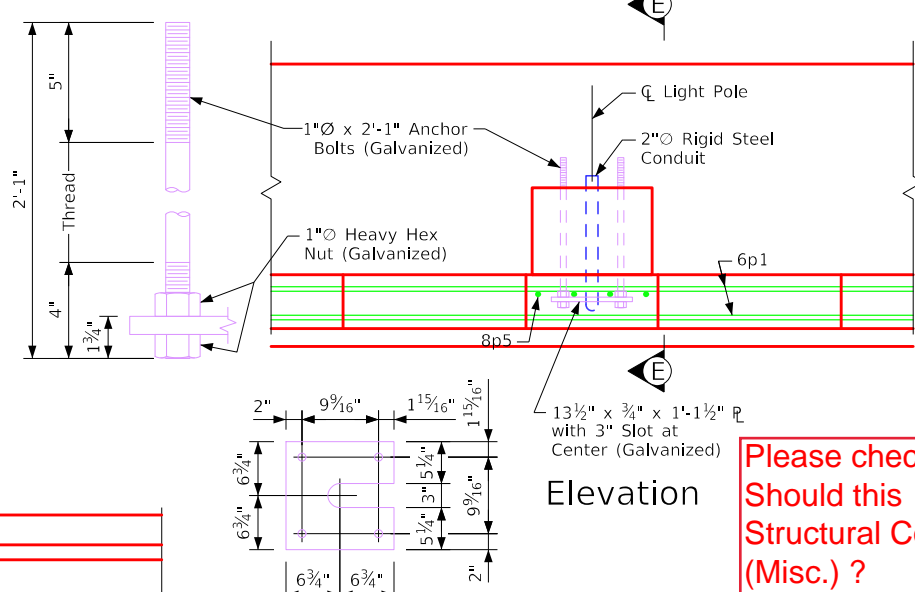
Clarify ?
 Replace existing conduit with new conduit ?

Please verify.
 If there are existing light poles in place on the bridge, they will need to be removed in order to install the new concrete pole bases.
 If the light pole work is not done by others, please address in these plans what work needs to be done with the light poles to facilitate this project and how that work is to be paid for.

?



Plan of Pole Base
 Base Reinforcing Bars Not Shown

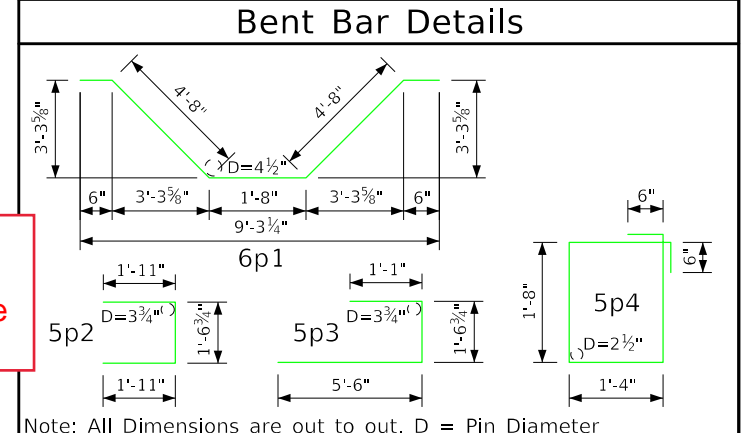


Elevation

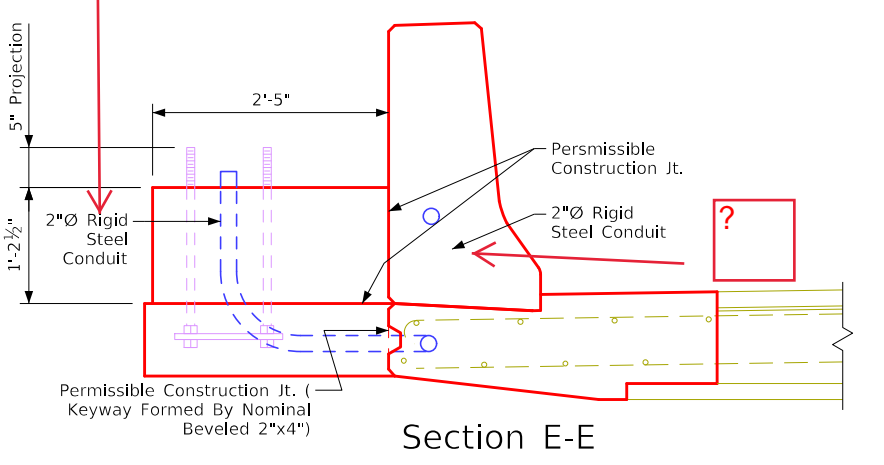
Please check.
 Should this Structural Concrete (Misc.) ?

There doesn't seem to be a Summary Quantities Sheet.
 Please clarify where this is.

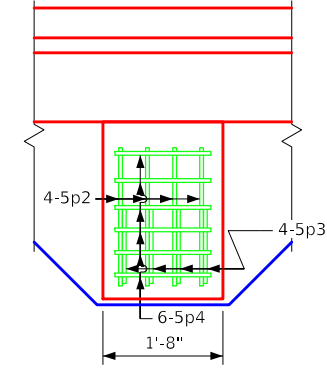
Epoxy Coated Reinf. Steel - One Base					
Bar	Location	Shape	No.	Length	Weight
6p1	Deck Anchors		2	12'-0"	36
5p2	Pole Base to Deck		4	5'-5"	23
5p3	Pole Base to Deck		4	8'-2"	34
5p4	Pole Base Hoop		6	7'-0"	44
8p5	Deck Transverse		4	5'-8"	61
Epoxy Reinforcing Total Weight (lbs.)					198



Lighting Quantities		
Section		Total
Structural Concrete (Bridge)	20 @ 0.39	7.8 Cu. Yd.
Reinforcing Steel - Epoxy Coated	20 @ 198	3960 lbs.

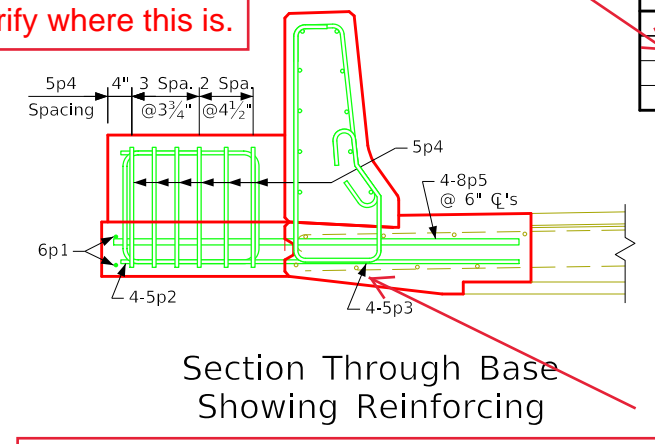


Section E-E



Plan of Pole Base Reinforcing
 See Concrete Barrier Rail Details in These Plans.

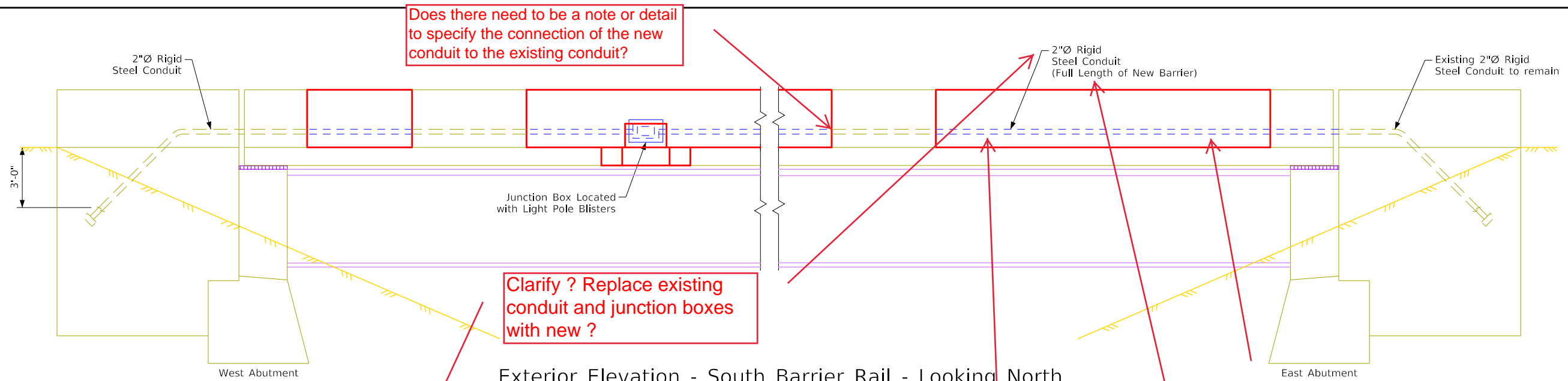
Note: For location of conduits, see lighting layout details in these plans. Lighting quantities for concrete and reinforcing steel for pole bases are included on the Summary Quantities Sheet.



Section Through Base Showing Reinforcing

Please clarify which bar the arrow is pointing to.

Design For Repairs To
2600'-0" x 84'-0" Continuous Welded Girder Bridge
Lighting Details
 STA. 422+15.00 (Missouri River) Turn-In Date: Oct 2023
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 Design No. 1124 Design Sheet No. 039 of 40 FHWA No. 600765
 SHEET NUMBER 41

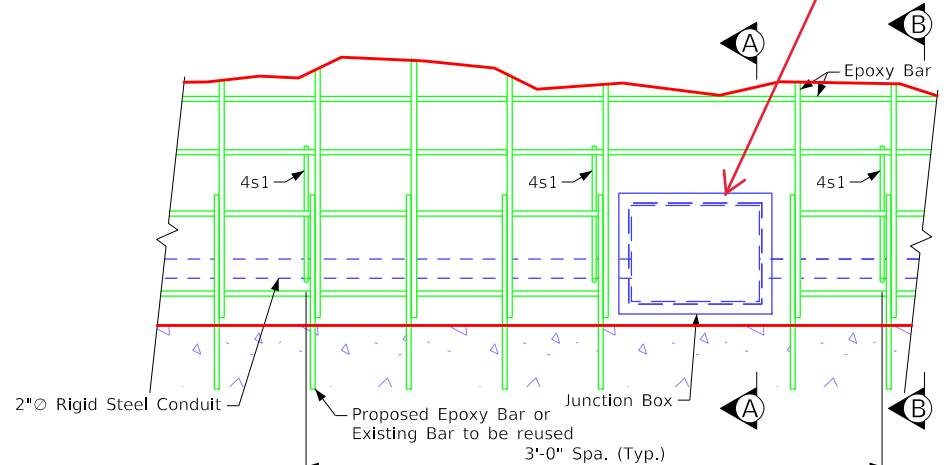


Clarify ? Replace existing conduit and junction boxes with new ?

Exterior Elevation - South Barrier Rail - Looking North
North Barrier Rail Similar

Power to the navigation lights is fed through the same conduit in the barrier rail as the lighting. The contractor will need to provide temporary power or provide temporary navigational lights during the project. Please address this in the plans.

In order to remove the conduits, wires within those conduits will need to be removed as part of the conduit removal process. Please make provisions in the plans to remove and re-install any wiring which is to remain after the new conduits are installed.

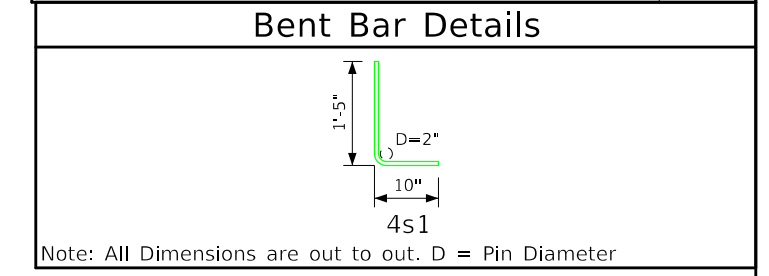


Conduit Support - Rail Elev. Detail
Adjust reinforcing to clear junction box.
Junction boxes are to be placed no further than 300'-0" apart.

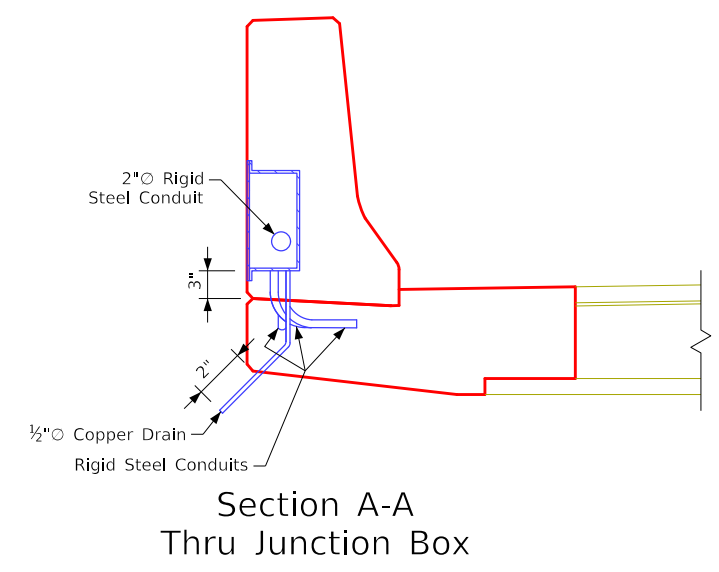
What are the new conduit quantities and how are they paid for ? Also, how are the junction boxes paid for ?

Station (North Side)	Station (South Side)
409+25	410+35
411+15	412+20
412+80	414+15
414+60	415+95
416+35	417+60
418+10	419+20
419+85	420+60
421+30	421+90
422+55	423+10
424+00	
425+80	

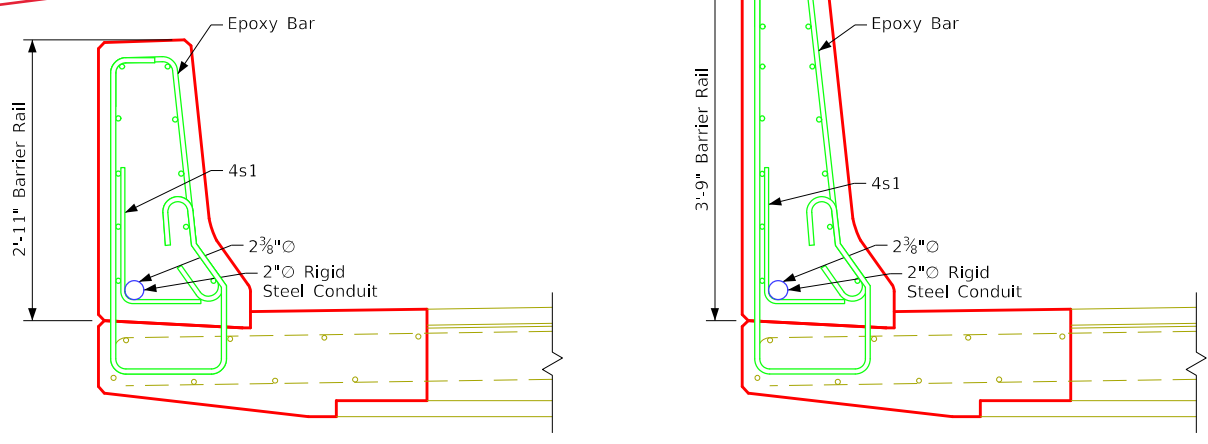
Epoxy Coated Reinf. Steel - One Rail					
Bar	Location	Shape	No.	Length	Weight
4s1	Rail Conduit	U	2900	2'-3"	4359
Epoxy Reinforcing Total Weight (lbs.)					4359



Note: Reinforcing steel quantities are included on the Summary Quantities Sheet.



Section A-A
Thru Junction Box



Section B-B - Conduit Support
Only used in rail with conduit, use 3'-0" spacing.

There doesn't seem to be a Summary Quantities Sheet. Please clarify where this is.

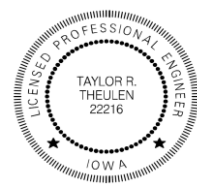
Design For Repairs To
2600'-0" × 84'-0" Continuous Welded Girder Bridge
 Lighting Details
 STA. 422+15.00 (Missouri River) Turn-In Date: Oct 2023
Woodbury County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 1124 Design Sheet No. 040 of 40 FHWA No. 600765

INDEX OF SHEETS	
NO.	DESCRIPTION
A Sheets	Title Sheets
A.1	Index of Tabulations and Index of Sheets
C Sheets	Quantities and General Information
C.1	Project Description
C.1	Estimated Roadway Quantities
C.1	Estimate Reference Information
C.2	Standard Road Plans
C.1 - C.4	Tabulations
J Sheets	Traffic Control and Staging Sheets
J.1	Traffic Control Plan & Staging Notes
* J.2	Traffic Control and Staging Legend and Symbol Information Sheet
* J.3 - J.21	Traffic Control Plan
U Sheets	Modified Standard Road Plans
* U.1	Modified BA-100
* U.2	Modified BA-101
	* Color Plan Sheets

INDEX OF TABULATIONS		
Tabulation	Tabulation Title	Sheet No.
C Sheets		
100-0A	ESTIMATED ROADWAY QUANTITIES (1 DIVISION PROJECT)	C.1
100-1D	PROJECT DESCRIPTION	C.1
100-4A	ESTIMATE REFERENCE INFORMATION	C.1
100-19	PERIMETER, SLOPE AND DITCH CHECK SEDIMENT CONTROL DEVICES	C.2
105-4	STANDARD ROAD PLANS	C.2
108-8A	STEEL BEAM GUARDRAIL AT CONCRETE BARRIER OR BRIDGE RAIL END SECTION	C.3
108-18	CONCRETE BARRIER AT MEDIAN LOCATIONS	C.3
108-22	PAVEMENT MARKING LINE TYPES	C.4
108-29	PAVEMENT MARKING SYMBOLS AND LEGENDS	C.4
108-30	CRASH CUSHIONS	C.2
108-33	TEMPORARY BARRIER RAIL	C.2
110-1	REMOVAL OF PAVEMENT	C.2
110-7A	REMOVAL OF STEEL BEAM GUARDRAIL	C.2
111-25	INDEX OF TABULATIONS	A.1
112-6	BRIDGE APPROACH SECTION	C.3
112-10	MILLED RUMBLE STRIPS	C.3

111-25
10-18-11

Please let us know whether or not a Pollution Prevention Plan is needed.

	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 <u>7/14/2023</u>
	Printed or Typed Name Taylor R. Theulen
	My license renewal date is December 31, 20 <u>23</u>
Pages or sheets covered by this seal: <u>A.1, C.1-C.4, J.1-J.21, U.1-U.2</u>	

100-1D 10-18-05
PROJECT DESCRIPTION
This project involves bridge barrier rail, approach work, and guardrail on I-129 over the Missouri River in Sioux City, located at the Nebraska/Iowa state line.

Please see comment on Sheet No. 3

100-0A 10-28-97
ESTIMATED ROADWAY QUANTITIES (1 DIVISION PROJECT)

Description doesn't match masterworks. Please coordinate.

Item No.	Item Code	Item	Unit	Total	As Built Qty.
1	2301-0690203	BRIDGE APPROACH, BR-203	SY	655.4	
2	2505-4008120	REMOVAL OF STEEL BEAM GUARDRAIL	LF	1310.0	
3	2510-6745850	REMOVAL OF PAVEMENT	SY	655.4	
4	2513-0001000	CONCRETE BARRIER, BA-100, MODIFIED	LF	50.0	
5	2513-0001011	CONCRETE BARRIER, BA-101, MODIFIED	EACH	1	
6	2526-8285000	CONSTRUCTION SURVEY	LS	1.00	
7	2527-9263109	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED	STA	113.27	
8	2527-9263131	WET RETROREFLECTIVE REMOVABLE TAPE MARKINGS	STA	101.70	
9	2527-9263137	PAINTED SYMBOLS AND LEGENDS, WATERBORNE OR SOLVENT-BASED	EACH	12	
10	2527-9263180	PAVEMENT MARKINGS REMOVED	STA	110.12	
11	2527-9263190	SYMBOLS AND LEGENDS REMOVED	EACH	12	
12	2528-8400048	TEMPORARY BARRIER RAIL, CONCRETE	LF	12675.0	
13	2528-8445110	TRAFFIC CONTROL	LS	1.00	
14	2548-0000200	MILLED SHOULDER RUMBLE STRIPS, PCC SURFACE	STA	0.20	
15	2551-0000110	TEMPORARY CRASH CUSHION	EACH	7	
16	2551-0000230	PERMANENT CRASH CUSHION, SEVERE USE (SU)	EACH	1	
17	2599-9999010	REMOVAL OF CONCRETE BARRIER RAIL SECTIONS, AS PER PLAN	LS	1.00	
18	2602-0000320	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 20 IN. DIA.	LF	450.0	
19	2602-0000351	REMOVAL OF PERIMETER AND SLOPE OR DITCH CHECK SEDIMENT CONTROL DEVICE	LF	450.0	

Please check. Masterworks shows 2551-0000130.

Add bid items for the proposed guardrail on the Nebraska side which is shown on sheet No. 5 ? If the cost is not shared between the states, may need to have a separate division in this table for Nebraska only cost.

Masterworks has a Plan Items folder for "Roadway IA Only", which has no bid items. Please either add bid items or delete the folder if there won't be any bid items.

If there will be "Roadway IA Only" bid items, may need add a separate division to this table to separate costs.

Please provide road eFiles including individual pdf's of the standard road plans.

100-4A 10-29-02		
ESTIMATE REFERENCE INFORMATION		
Item No.	Item Code	Description
1	2301-0690203	BRIDGE APPROACH, BR-203 Refer to Tab 112-6 in C sheets for details and locations.
2	2505-4008120	REMOVAL OF STEEL BEAM GUARDRAIL Refer to Tab 110-7A in C sheets for locations and additional details.
3	2510-6745850	REMOVAL OF PAVEMENT Refer to Tab 110-1 in C sheets for locations and additional details.
4	2513-0001000	CONCRETE BARRIER, BA-100, MODIFIED
5	2513-0001011	CONCRETE BARRIER, BA-101, MODIFIED Refer to Tab 108-18 in C sheets and U sheets for locations and additional details.
6	2526-8285000	CONSTRUCTION SURVEY -
7	2527-9263109	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED
8	2527-9263131	WET RETROREFLECTIVE REMOVABLE TAPE MARKINGS
9	2527-9263137	PAINTED SYMBOLS AND LEGENDS, WATERBORNE OR SOLVENT-BASED
10	2527-9263180	PAVEMENT MARKINGS REMOVED
11	2527-9263190	SYMBOLS AND LEGENDS REMOVED Refer to Tab 108-22 and Tab 108-29 in C sheets for locations and additional details.
12	2528-8400048	TEMPORARY BARRIER RAIL, CONCRETE Refer to Tab 108-33 in C sheets for locations and additional details.
13	2528-8445110	TRAFFIC CONTROL -
14	2548-0000200	MILLED SHOULDER RUMBLE STRIPS, PCC SURFACE Refer to Tab 112-10 in C sheets for locations and additional details.
15	2551-0000110	TEMPORARY CRASH CUSHION
16	2551-0000230	PERMANENT CRASH CUSHION, SEVERE USE (SU) Refer to Tab 108-30 in C sheets for locations and additional details.
17	2599-9999010	REMOVAL OF CONCRETE BARRIER RAIL SECTIONS, AS PER PLAN Includes removal of concrete barrier prior to placement of CONCRETE BARRIER and BRIDGE APPROACH PAVEMENT items.
18	2602-0000320	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 20 IN. DIA.
19	2602-0000351	REMOVAL OF PERIMETER AND SLOPE OR DITCH CHECK SEDIMENT CONTROL DEVICE Refer to Tab 100-19 in C sheets for locations and additional details. Bid item includes 25% additional quantity for field adjustments and replacements.

105-4
10-18-11

STANDARD ROAD PLANS

The following Standard Road Plans apply to construction work on this project.

Number	Date	Title
BA-200	04-20-21	Steel Beam Guardrail Components
BA-201	10-18-22	Steel Beam Guardrail Barrier Transition Section (MASH TL-3)
BA-202	10-20-15	Steel Beam Guardrail Bolted End Anchor
BA-205	10-17-23	Steel Beam Guardrail Tangent End Terminal (MASH TL-3)
BA-250	04-20-21	Steel Beam Guardrail Installation at Concrete Barrier or Bridge End Post (MASH TL-3)
BA-401	04-20-21	Temporary Barrier Rail (Precast Concrete)
BA-500	04-20-21	Temporary Crash Cushions Sand Barrel
BR-203	10-19-21	Double Reinforced 12" Approach
BR-231	10-18-22	Bridge Approach (Multi-Lane, Curbed Roadway)
DR-306	10-17-23	Precast Concrete Headwall for Subdrain Outlets
PM-110	04-21-20	Line Types
PM-111	04-21-20	Symbols and Legends
PV-12	10-20-20	Milled Shoulder Rumble Strips
PV-101	04-19-22	Joints
PV-102	04-21-20	PCC Curb Details
SI-173	04-19-16	Object Markers
SI-211	10-18-22	Object Marker and Delineator Placement with Guardrail
TC-1	10-15-19	Work Not Affecting Traffic (Two-Lane or Multi-Lane)
TC-202	04-18-23	Work Within 15 ft of Traveled Way
TC-402	04-18-23	Work Within 15 ft of Traveled Way
TC-432	10-17-17	Shoulder Rumble Strip Operations
TC-433	10-17-17	Pavement Marking Operations

List LI-104 per Lighting Note on sheet No. 41 ?

108-33
10-15-19

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.

No.	Station to Station		Length LF	(Select One)		Anchored* (Y/N)	Modular Glare Screen System (Y/N)	Remarks
				Concrete BA-401	Steel 560-7			
1	407+66.00	408+42.00	75.0	X		No	No	Stage 1 - EB
2	408+42.00	409+12.00	75.0	X		Yes	No	Stage 1 - EB
3	409+12.00	435+44.00	2625.0	X		No	No	Stage 1 - EB
4	408+21.00	408+42.00	12.5	X		No	No	Stage 1 - WB
5	408+42.00	409+12.00	75.0	X		Yes	No	Stage 1 - WB
6	409+12.00	435+99.00	2687.5	X		No	No	Stage 1 - WB
7	407+70.00	426+42.00	1900.0	X		No	No	Stage 2 - EB
8	408+21.00	426+60.00	1900.0	X		No	No	Stage 2 - WB
9	422+74.00	426+44.00	400.0	X		No	No	Stage 3 - EB
10	422+63.00	435+53.00	1300.0	X		No	No	Stage 3 - EB
11	423+14.00	435+28.00	1225.0	X		No	No	Stage 3 - WB
12	423+23.00	426+73.00	400.0	X		No	No	Stage 3 - WB
Totals:			12675.0					

110-1
04-16-13

REMOVAL OF PAVEMENT

Refer to Tabulation 102-5

* Not a Bid Item

Begin Station	End Station	Side	Pavement Type	Area		Saw Cut* LF	Remarks
				SY	LF		
408+42.00	409+12.00	Both	Composite	655.4	226.0		West approach

110-7A
04-17-12

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	Location			Removal of Guardrail LF
		Station to Station	Side		
1	EB	401+93.00	408+83.00	Rt	690.0
2	WB	402+62.00	408+82.00	Lt	620.0
Totals:					1310.0

108-30
04-16-13

CRASH CUSHIONS

* Bid Item
① Lane(s) to which the installation is adjacent.
② Complete this section when using the Temporary Crash Cushion bid item and Earthwork is needed for Sand Barrel placement. Refer to BA-500

No.	Direction of Traffic	Location Station	Side	Obstacle Width FT	Crash Cushion (Select One)*					Sand Barrel Details ②					Earthwork*		Spare Parts Kit (Select One)*		Obstacle Description	Remarks
					Temporary	Temporary Redirective	Temporary Severe Use	Permanent	Permanent Severe Use	V	W	X	Y	Z	Excavation Class 10 CY	Embankment in Place CY	Permanent EACH	Permanent Severe Use EACH		
										Length FT	Length FT	Length FT	Length FT	Length FT						
1	EB	407+66.00	Rt	2.00	X													Temporary Barrier Rail	Stage 1	
2	WB	435+99.00	Rt	2.00	X													Temporary Barrier Rail	Stage 1	
4	EB	407+70.00	Rt	2.00	X													Temporary Barrier Rail	Stage 2	
4	WB	426+60.00	Lt	2.00	X													Temporary Barrier Rail	STG2 - Ramp C	
5	EB	422+63.00	Rt	2.00	X													Temporary Barrier Rail	Stage 3	
6	EB	423+61.00	Rt	2.00						X								Permanent Barrier Rail	Stage 3	
7	WB	426+73.00	Rt	2.00	X													Temporary Barrier Rail	STG3 - Ramp C	
8	WB	435+28.00	Rt	2.00	X													Temporary Barrier Rail	STG3 - Loop E	
Totals:					7					1										

100-19
10-19-21

PERIMETER, SLOPE AND DITCH CHECK SEDIMENT CONTROL DEVICES

Possible Standards: EC-204

Location			Perimeter and Slope			Ditch Check		Remarks
Begin Station	End Station	Side	Length of Installation			Length of Installation		
			9 inch Dia LF	12 inch Dia LF	20 inch Dia LF	12 inch Dia LF	20 inch Dia LF	
408+35.00	409+25.00	Both			360.0			

BRIDGE APPROACH SECTION

Refer to the Series.

* Not a bid item

Location		Approach Pavement						Standard Road Plans BR Series			Subdrain				Remarks			
Bridge Station	End	Skew Ahead		Thickness T	Pay Length	Non-Reinf. Pavement Area	Single-Reinf. Pavement Area	Double-Reinf. Pavement Area	Approach	Fixed or Movable Abutment	Abutting Pavement	Perforated Subdrain 4"	Subdrain Outlet	Porous Backfill	6" Top Soil	Modified Subbase	Polymer Grid	Special Backfill
		Degrees																
		LEFT	RIGHT															
		Inches	FT	SY	SY	SY				LF	STA	Side	CY	CY	TON	SY	TON	
422+15.00	W	0		12.0	70.0	285.0	187.1	183.3	BR-203	Fixed	BR-211	100.0	408+52.00	Rt	2.8	0.2	604.7	673.2
Total BR-203:								655.4										

STEEL BEAM GUARDRAIL AT CONCRETE BARRIER OR BRIDGE RAIL END SECTION

Possible Standards: BA-200, BA-201, BA-202, BA-205, BA-206, 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.

Location		Layout Lengths				Delineators and Object Markers ②				Bid Items										Remarks				
No.	Direction of Traffic ① O = Outside M = Median	Station	Offset	BA-250, BA-260, LS-630, or LS-635				Long-Span System	SI-211	Object Marker SI-173			Bolted End Anchor	Post Adapter	Steel Beam Guardrail	BA-250 or LS-630					BA-260 or LS-635			
				VT1	VF	VT2	ET			Type 1	Type 2	Type 3				End Terminal					Barrier Transition Section	End Terminal		
				FT	LF	LF	LF			White	OM2-2	OM3-L				OM3-R	BA-202	BA-210	BA-200		BA-201	Tangent	Flared	Tangent
		STATION	TYPE	TYPE	EACH	EACH	EACH	EACH	TYPE	EACH	EACH	LF	EACH	EACH	EACH	EACH	EACH	EACH	EACH					
1	EB	408+81.83	41.96 Lt	634.375	6.25																			
2	WB	408+81.83	41.96 Rt	571.875	6.25																			
Totals:																								

CONCRETE BARRIER AT MEDIAN LOCATIONS

See BA-100, BA-101, and BA-102.

No.	Begin Station	End Station	Standard Road Plan	Bid Items		Remarks	Expansion Joints			
				Barrier Type			Footing	Station	Side	Remarks
				BA-100 or BA-102	BA-101					
1	408+92.00	409+12.00	Mod. BA-101		1	West approach median barrier. Pin to new Approach Pvmt.	409+12.00	Med	Place at bridge barrier interface. Refer to U sheets for modified BA-101 detail.	
2	408+42.00	408+92.00	Mod. BA-100	50.0		West approach median barrier. Pin to new Approach Pvmt.	408+52.00	Med	Place at bridge approach "EF" joint.	

MILLED RUMBLE STRIPS

See PV-12 and PV-13

* Calculated at 18" width for Shoulder.

Location		Shoulder Pavement Type	Rumble Strip Type (Centerline, Rt or Lt Shoulder)	L	Installation Length		Fog Seal* (Milled Rumble Strip)	Effective Shoulder Width			Remarks	
Road Identification	Station to Station				PCC	HMA		Shoulder				
								IN	STA	STA		PCC Paved
I-129	408+42.00	408+52.00	PCC	Left Shoulder	12"	0.10						WB
I-129	408+42.00	408+52.00	PCC	Right Shoulder	12"	0.10						EB
Totals:						0.20						

PAVEMENT MARKING SYMBOLS AND LEGENDS

Refer to PM-111

Road Identification	Location		↑	↶	↷	↵	↶↷	↵↶	↵↷	↑	↗	↖	⊗	🚲	♿	♿	SCHOOL	XING	STOP	AHEAD	ONLY	BIKE	LANE	EXIT	Groove Cuts	Remarks
	Station	Side																								
I-129	368+72.00	Lt									1															Stage 1 - EB
I-129	369+72.00	Lt									1															Stage 1 - EB
I-129	378+72.00	Lt									1															Stage 1 - EB
I-129	379+72.00	Lt									1															Stage 1 - EB
US 20	463+89.00	Rt									1															Stage 1 - WB
US 20	464+89.00	Rt									1															Stage 1 - WB
US 20	473+89.00	Rt									1															Stage 1 - WB
US 20	474+89.00	Rt									1															Stage 1 - WB
I-129	368+76.00	Rt																								Stage 2 - EB
I-129	369+76.00	Rt																								Stage 2 - EB
I-129	378+76.00	Rt																								Stage 2 - EB
I-129	379+76.00	Rt																								Stage 2 - EB
										Totals:	8	4														

PAVEMENT MARKING LINE TYPES

See PM-110

***MNY4 - Factor of 1.00 as value includes number of 4-inch passes to cover median nose area.

*BCY4 - Place on the same side of the roadway to match existing markings near the project.

**NPY4 - For estimating purposes only. No Passing Zone Lines will be located in the field.

BCY4: Broken Centerline (Yellow) @ 0.25

DCY4: Double Centerline (Yellow) @ 2.00

NPY4: No Passing Zone Line (Yellow) @ 1.25

BLW4: Broken Lane Line (White) @ 0.25

ELW4: Edge Line Right (White) @ 1.00

ELY4: Edge Line Left (Yellow) @ 1.00

CHW8: Channelizing Line (White) @ 2.00

CHY8: Channelizing Line (Yellow) @ 2.00

Road ID	Station to Station		Dir. of Travel	Marking Type	Side			Length by Line Type (Unfactored)												Remarks												
								BCY4*	DCY4	NPY4**	BLW4	ELW4	ELY4	CHW8	CHY8	STA	STA	STA	STA		STA	STA										
																							L	C	R							
I-129	383+72.00	408+21.00	BOTH	Removal of Paint	X	X	X																				Stage 1 - EB					
I-129	391+22.00	408+17.00	EB	Wet Retroreflective Removable Tape	X	X	X																				Stage 1 - EB					
US 20	435+48.00	459+93.00	BOTH	Removal of Paint	X	X	X																				Stage 1 - WB					
US 20	435+48.00	452+43.00	WB	Wet Retroreflective Removable Tape	X	X	X																				Stage 1 - WB					
I-129	391+22.00	408+17.00	EB	Removal of Removable Tape	X	X	X																				Stage 1 - EB					
US 20	435+48.00	452+43.00	WB	Removal of Removable Tape	X	X	X																				Stage 1 - WB					
I-129	391+26.00	408+21.00	EB	Wet Retroreflective Removable Tape	X	X	X																				Stage 2 - EB					
I-129	391+26.00	408+21.00	EB	Removal of Removable Tape	X	X	X																				Stage 2 - EB					
I-129	383+72.00	408+21.00	BOTH	Waterborne/Solvent Paint	X	X	X																				Stage 3 - EB					
US 20	435+48.00	459+93.00	BOTH	Waterborne/Solvent Paint	X	X	X																				Stage 3 - WB					
I-129	408+42.00	409+12.00	BOTH	Waterborne/Solvent Paint	X	X	X																				Stage 3 - Approach					
Factored Total: Waterborne/Solvent Paint								-	-	-	12.59	50.34	50.34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Factored Total: Wet Retroreflective Removable Tape								-	-	-	-	-	-	33.90	67.80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Factored Total: Removal of Paint								-	-	-	12.24	48.94	48.94	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Factored Total: Removal of Removable Tape								-	-	-	-	-	-	33.90	67.80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bid Quantity: Painted Pavement Markings, Waterborne or Solvent-Based														113.27																		
Bid Quantity: Wet Retroreflective Removable Tape Markings														101.70																		
Bid Quantity: Pavement Markings Removed														110.12																		
Incidental Removal of Removable Tape														101.70																		

108-23A 08-01-08
TRAFFIC CONTROL PLAN
<p>1. At least one lane of traffic in each direction shall be maintained on I-129 at all times.</p> <p>2. Refer to Standard Road Plans shown on Tab 105-4 in C Sheets for other information.</p> <p>3. Refer to Staging Notes (Tabulation 108-26A) and J sheets for details of specific closures.</p>

111-01 04-17-12						
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.						
<table border="1"> <thead> <tr> <th>Project</th> <th>Type of Work</th> </tr> </thead> <tbody> <tr> <td>None provided</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </tbody> </table>	Project	Type of Work	None provided			
Project	Type of Work					
None provided						

Please add projects per Shane Tymkowicz's 8/8/2023.



108-25 10-21-14
511 TRAVEL RESTRICTIONS

Route	Direction	County	Location Description	Feature Crossed	Object Type	Maint. Bridge No., Structure ID, or FHWA No.	Type of Restriction	Existing Measurement	Construction Measurement	Construction Measurement as Signed	Projected As Built Measurement	Remarks
I-129	EB	Woodbury	Nebraska/Iowa state border	Missouri River	Barrier	FHWA No. 600765	Horizontal	N/A	15'-6"	N/A	N/A	STG 1,2,3
I-129	WB	Woodbury	Nebraska/Iowa state border	Missouri River	Barrier	FHWA No. 600765	Horizontal	N/A	15'-6"	N/A	N/A	STG 1,2,3
I-129	EB	Woodbury	Nebraska/Iowa state border	Missouri River	Traffic Control Device	FHWA No. 600765	Horizontal	N/A	15'-6"	N/A	N/A	STG 2,3
I-129	WB	Woodbury	Nebraska/Iowa state border	Missouri River	Traffic Control Device	FHWA No. 600765	Horizontal	N/A	15'-6"	N/A	N/A	STG 2,3

108-26A 08-01-08
STAGING NOTES
<p>STAGE 1</p> <p>Traffic Control: Close the I-129 westbound inside lane and eastbound inside lane using temporary barrier rail (TBR).</p> <p>Construction: Repair median barrier and west approach.</p> <p>STAGE 2</p> <p>Traffic Control: Close the I-129 westbound outside lane and eastbound outside lane using temporary barrier rail (TBR).</p> <p>Construction: Repair west approach, barrier end section, guardrails and outside barrier from bridge to Ramp B/C.</p> <p>STAGE 2</p> <p>Traffic Control: Close the I-129 westbound outside lane and eastbound outside lane using temporary barrier rail (TBR).</p> <p>Construction: Repair outside barrier from Ramp B/C to Loop E/ Ramp H.</p>

**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

LINWORK	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
Gray, Med	(80)	Proposed Granular Surface Shading
Gray, Med	(80)	Previously Constructed Granular Surface Shading
Blue, Light	(230)	Proposed Pavement Shading
Lavender	(9)	Temporary Pavement Shading
Brown, Light	(236)	Proposed Grading Limits Shading
Pink, Dark	(13)	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**

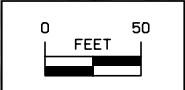
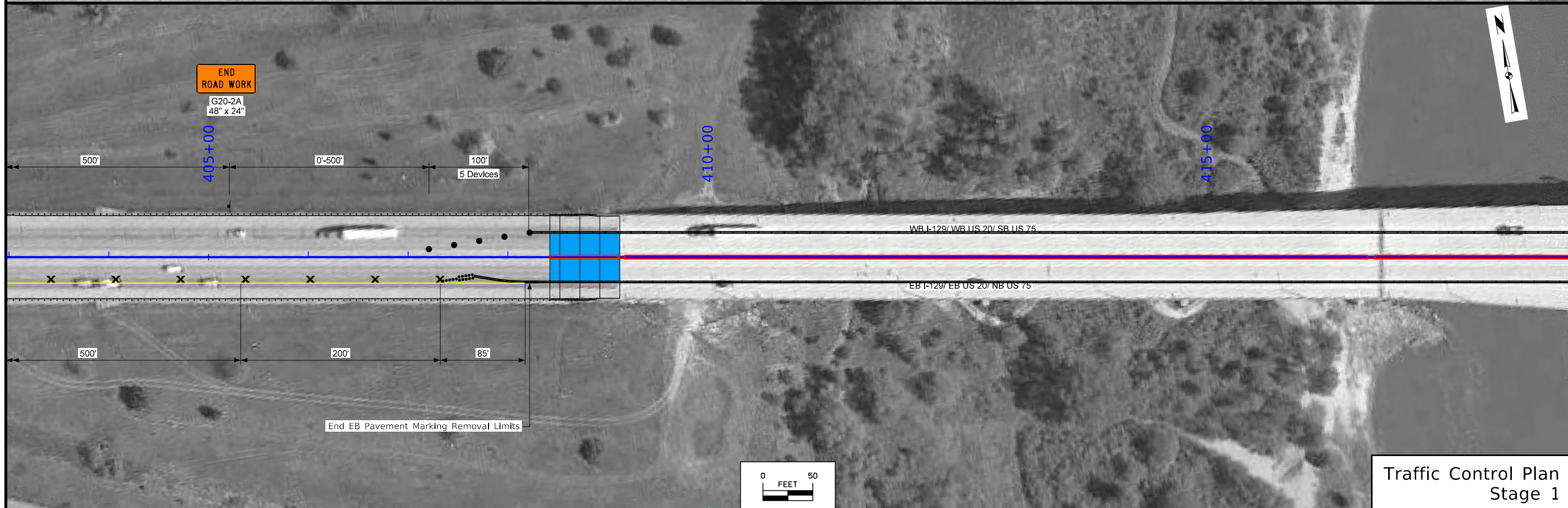
	Channelizing Device		Crash Cushion (Temp or Perm)
	Drum		Traffic Signal
	Temporary Lane Separator		Flagger
	Tubular Marker		Temporary Floodlighting
	Channelizer Marker		Traffic Sign
	Concrete Barrier Marker		Type III Barricade
	Delineator		Type A Warning Light
	Temporary Barrier Rail		Direction of Traffic
	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)





Traffic Control Plan
Stage 1



Map
Description for your map.

420+00

425+00

430+00

WB I-129/ WB US 20/ SB US 75

EB I-129/ EB US 20/ NB US 75

EB US 20/ NB US 75 On-Ramp

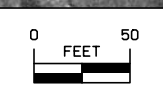
SB I-29 On-Ramp

Ramp C

Ramp B

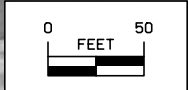
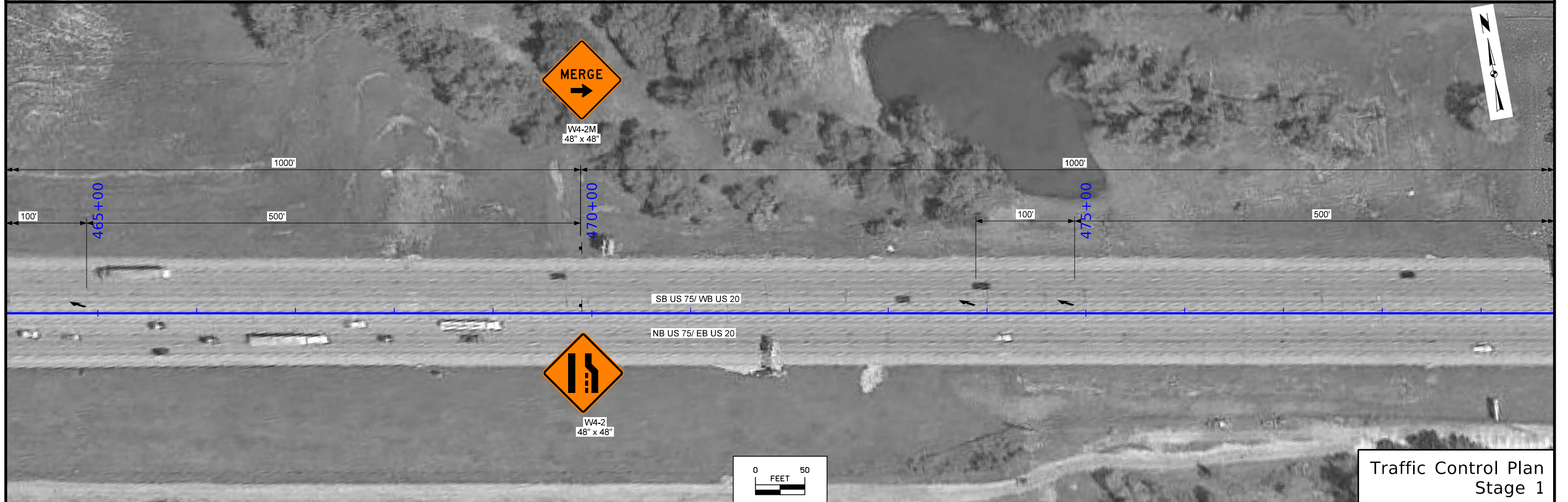
SB I-29

NB I-29

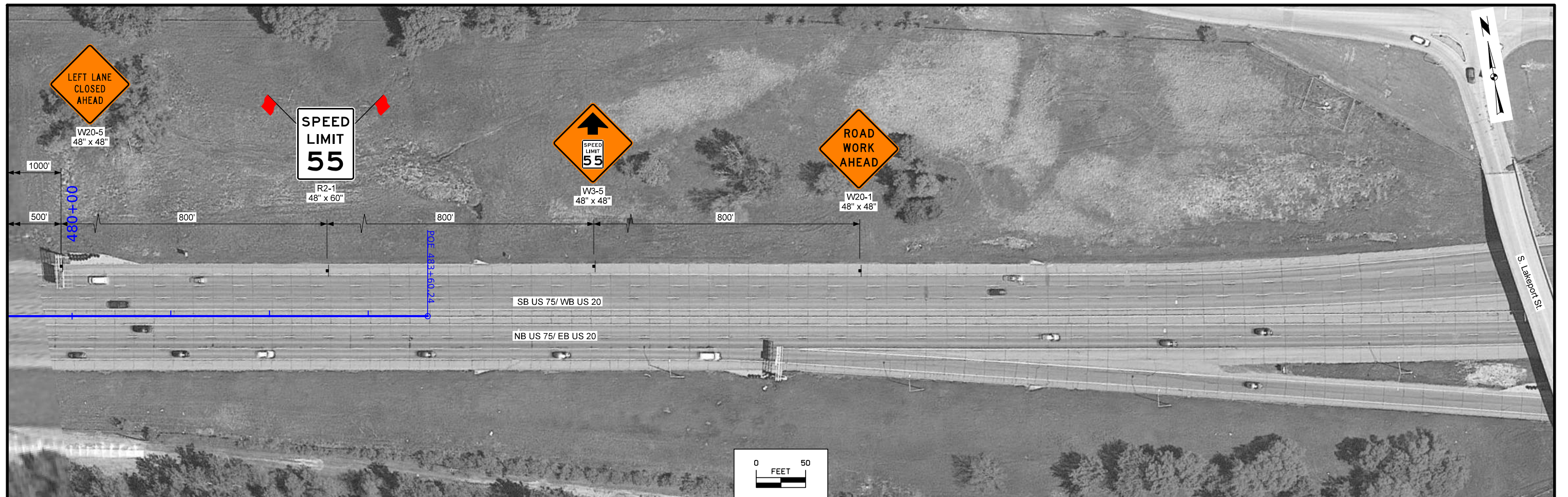


Traffic Control Plan
Stage 1

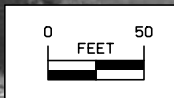
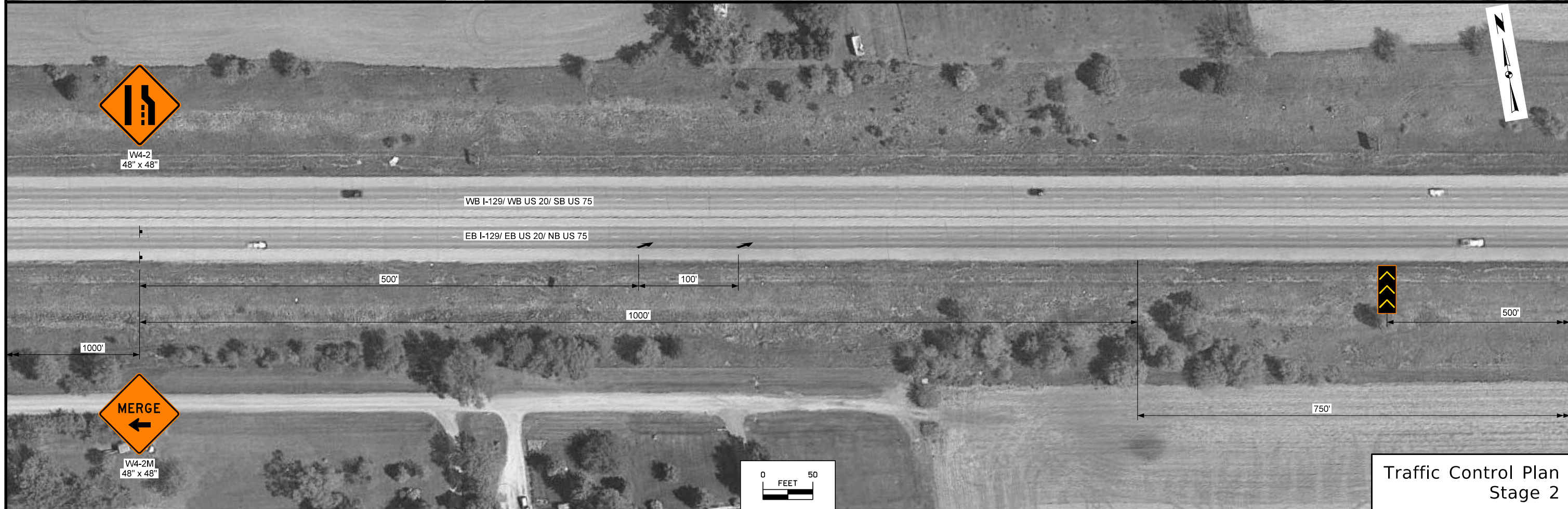




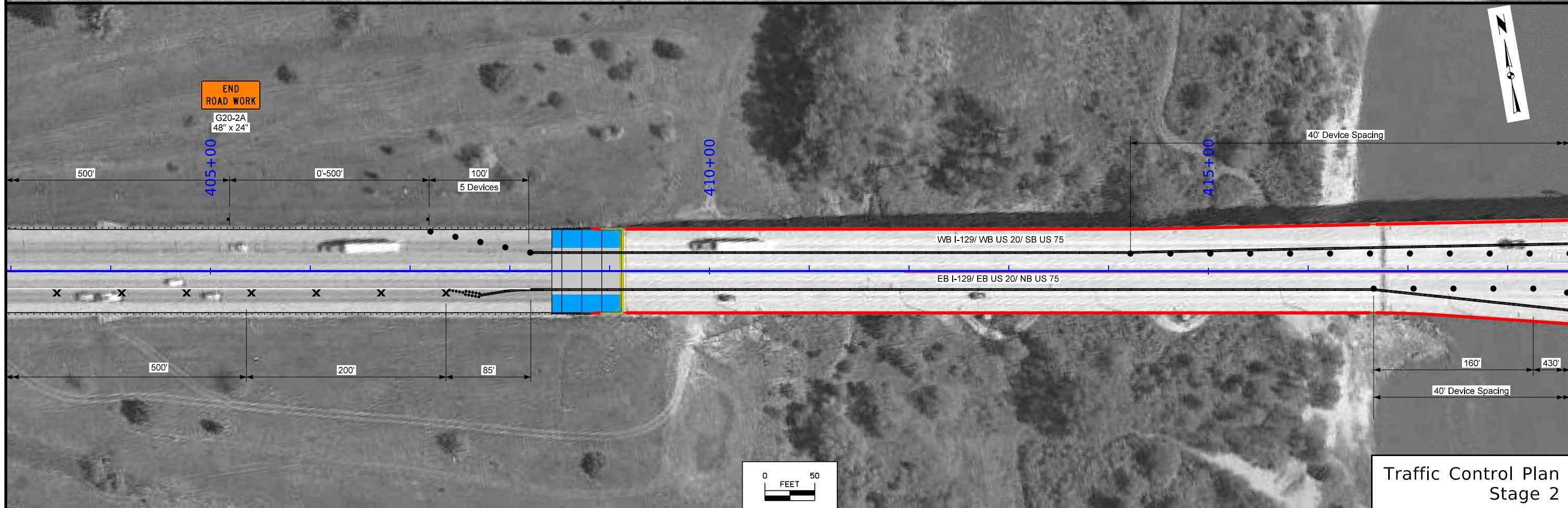
Traffic Control Plan
Stage 1



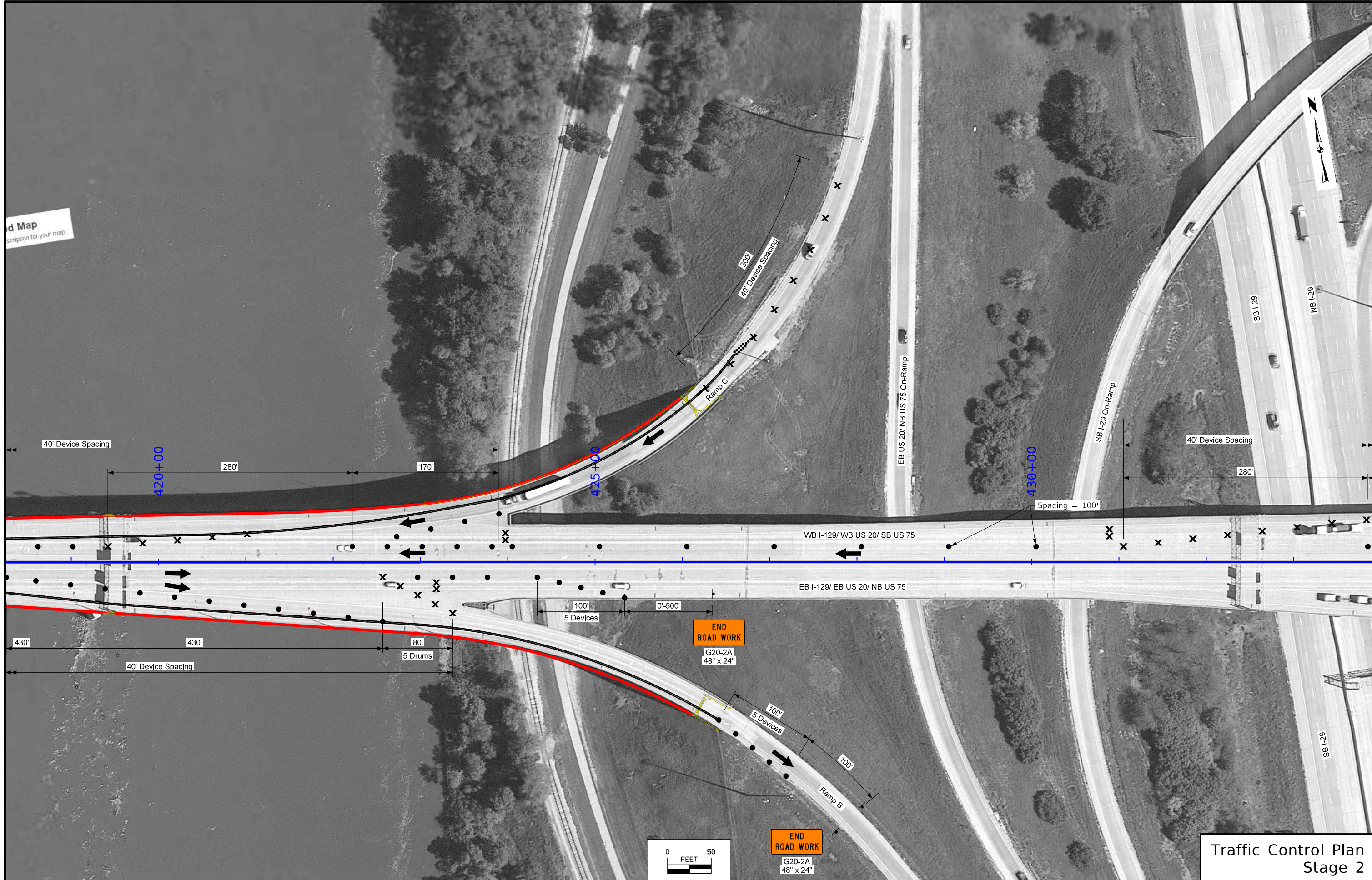
Traffic Control Plan
Stage 1



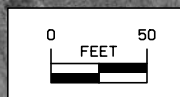
Traffic Control Plan
Stage 2



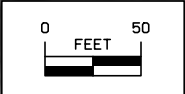
Traffic Control Plan
Stage 2



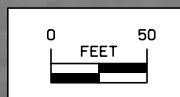
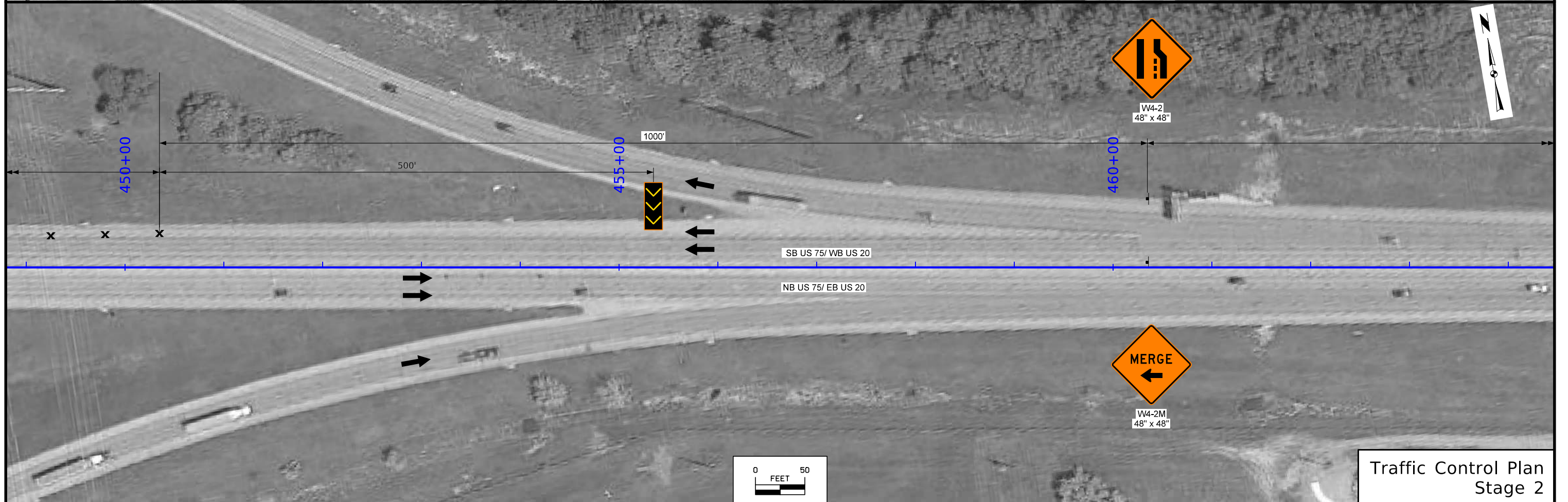
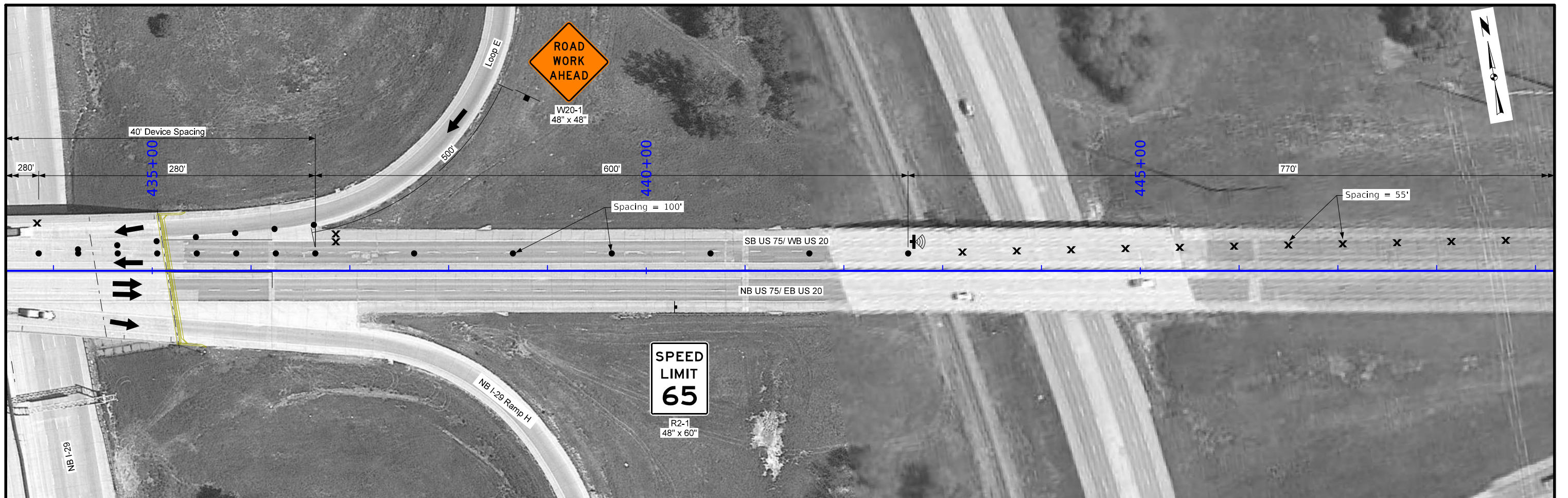
Map
Description for your map.



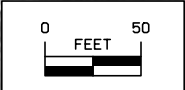
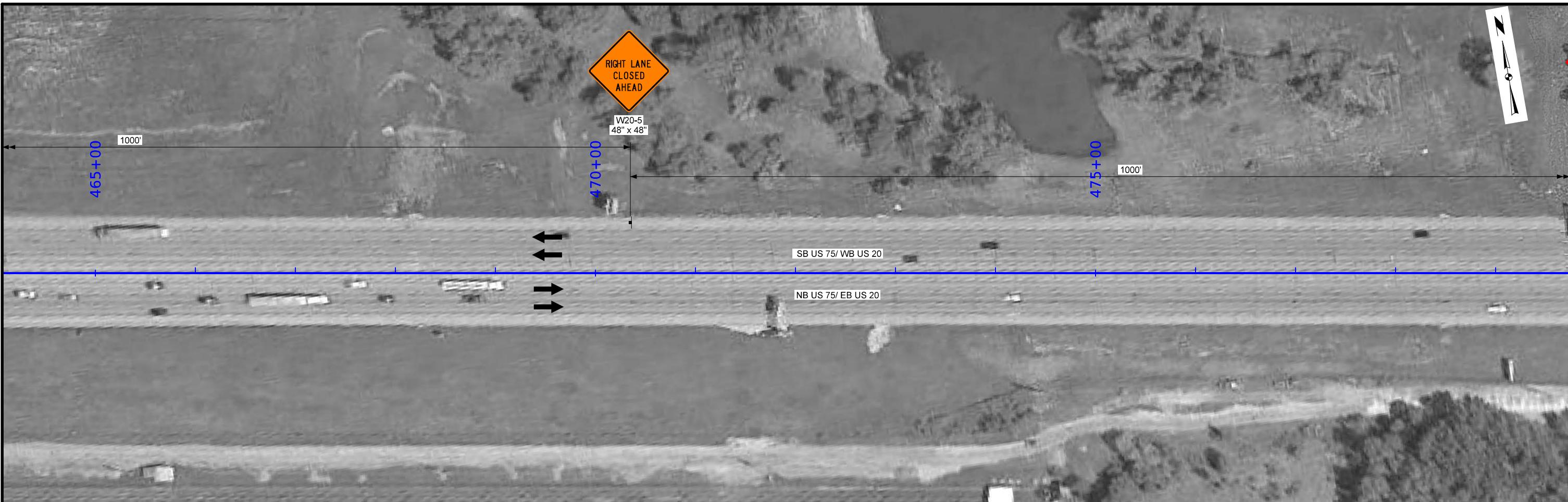
Traffic Control Plan
Stage 2



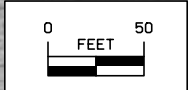
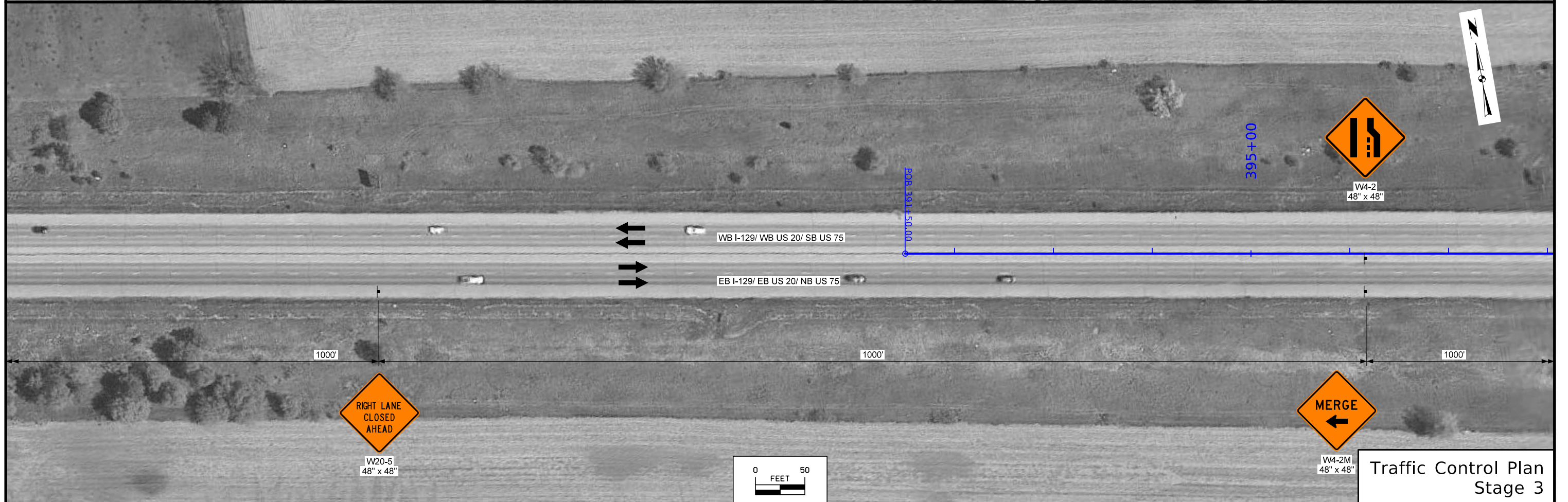
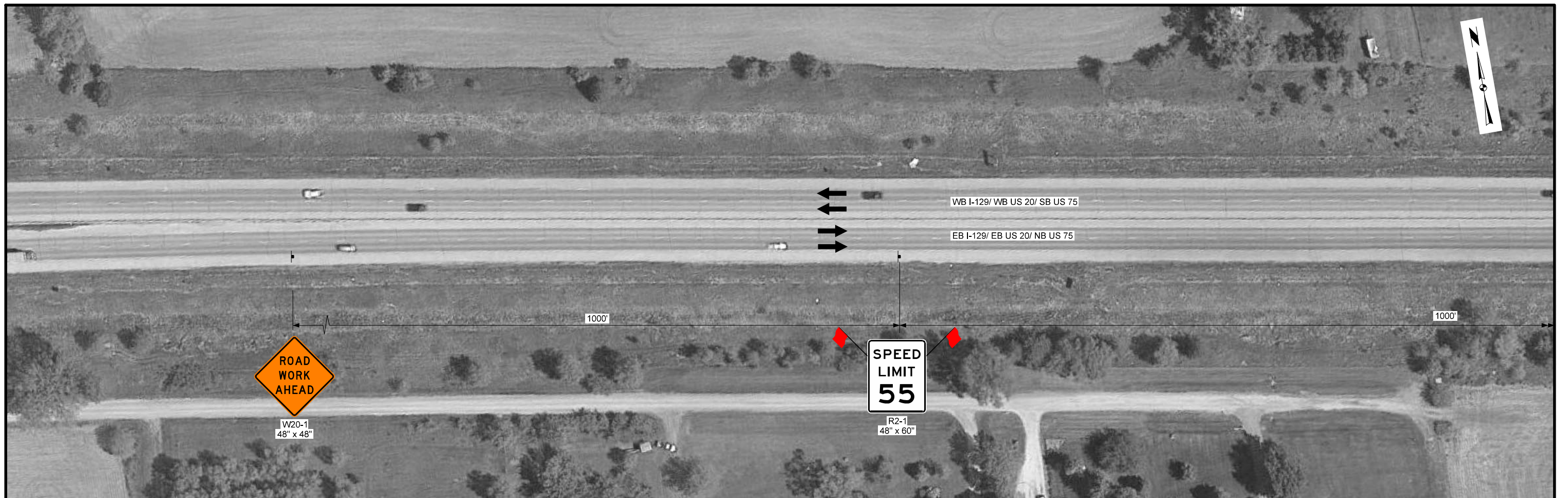
Traffic Control Plan
Stage 2



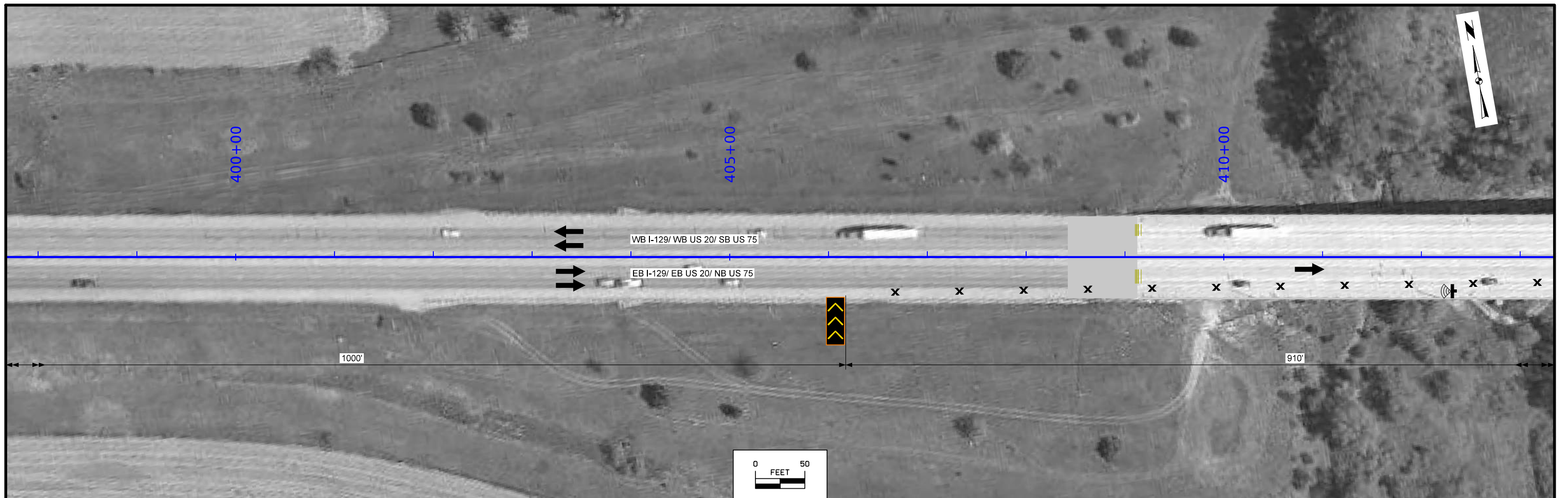
Traffic Control Plan
Stage 2



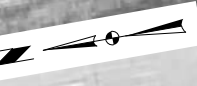
Traffic Control Plan
Stage 2



Traffic Control Plan
Stage 3



Traffic Control Plan
Stage 3



NB I-29

SB I-29

1500'

End of Taper

**RAMP
WORK
AHEAD**

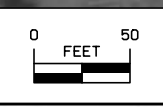
W20-1A
48" x 48"

**ON
RAMP**

W13-4
36" x 36"

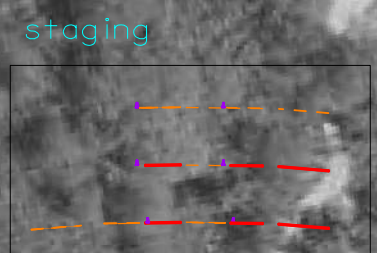
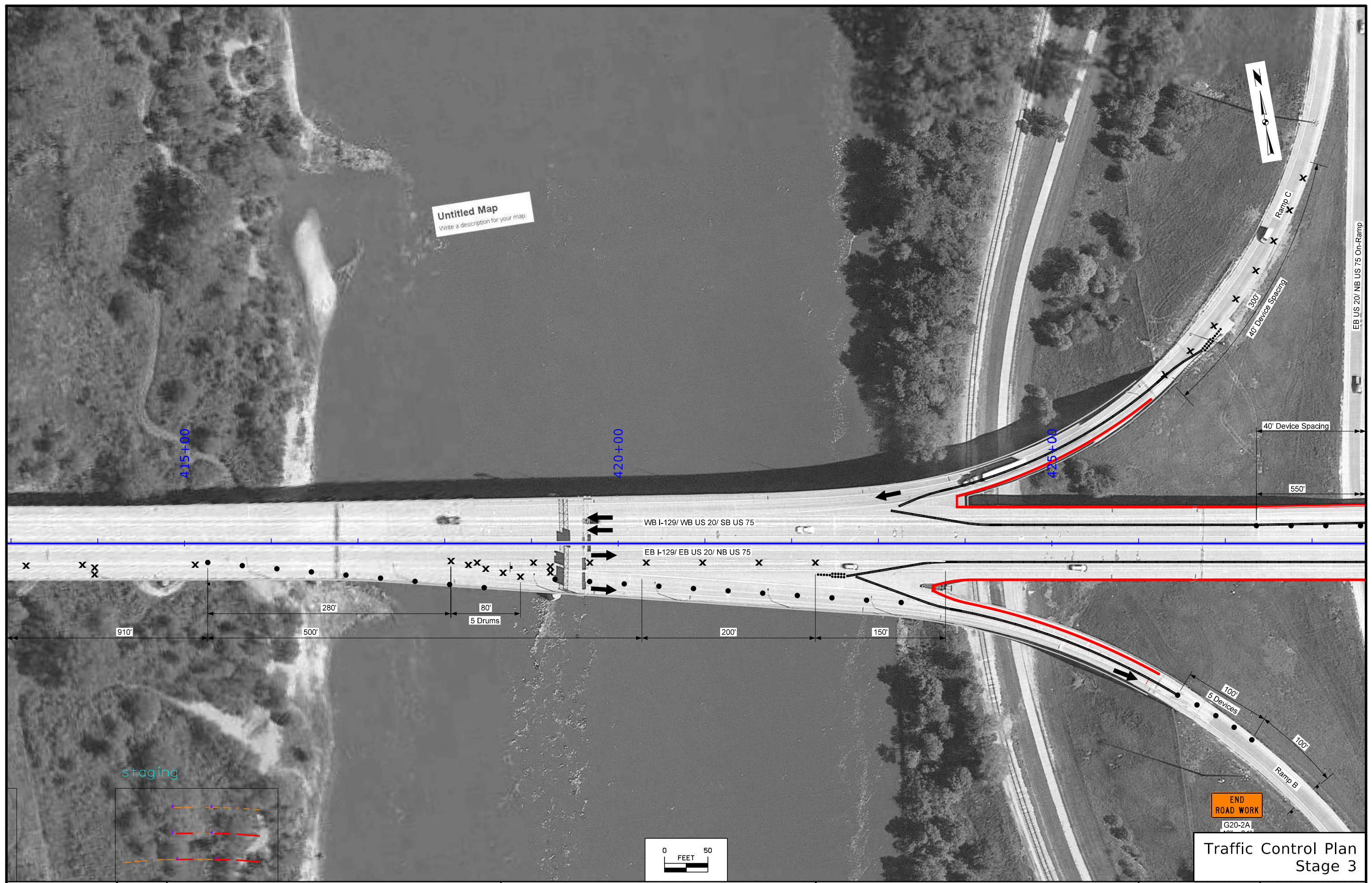
**RAMP
NARROWS**

VV5-4
48" x 48"

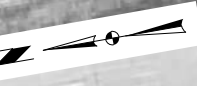


Traffic Control Plan
Stage 3

Untitled Map
Write a description for your map.



Traffic Control Plan
Stage 3



NB I-29

SB I-29

1500'

End of Taper

**RAMP
WORK
AHEAD**

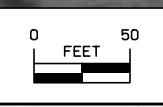
W20-1A
48" x 48"

**ON
RAMP**

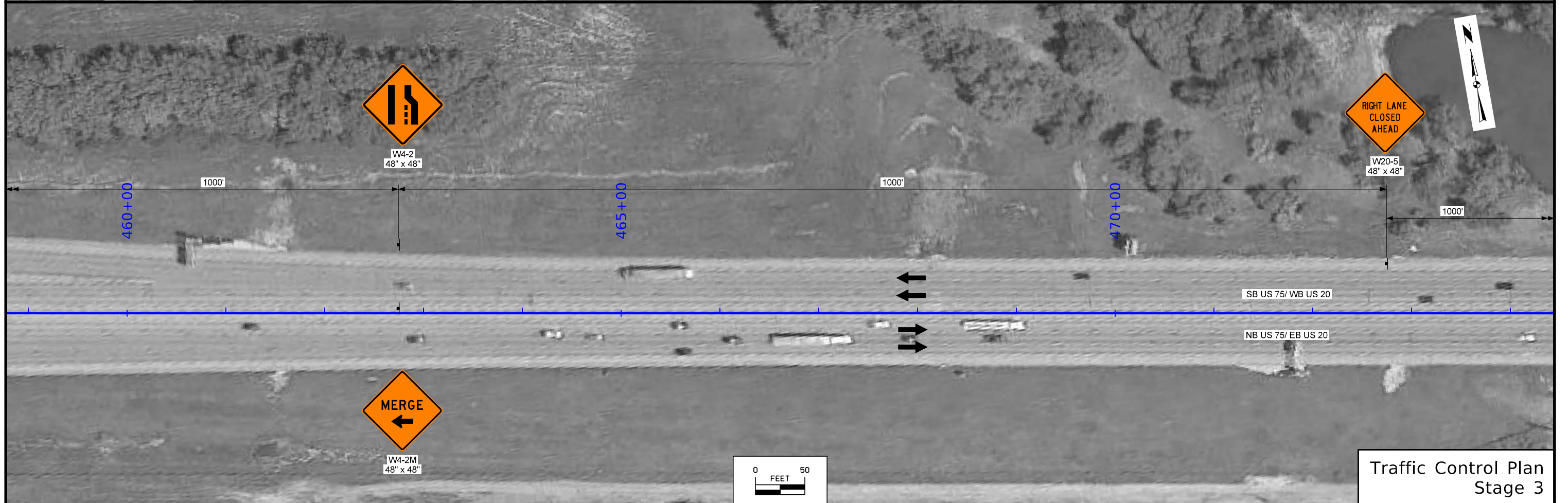
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36" x 36"

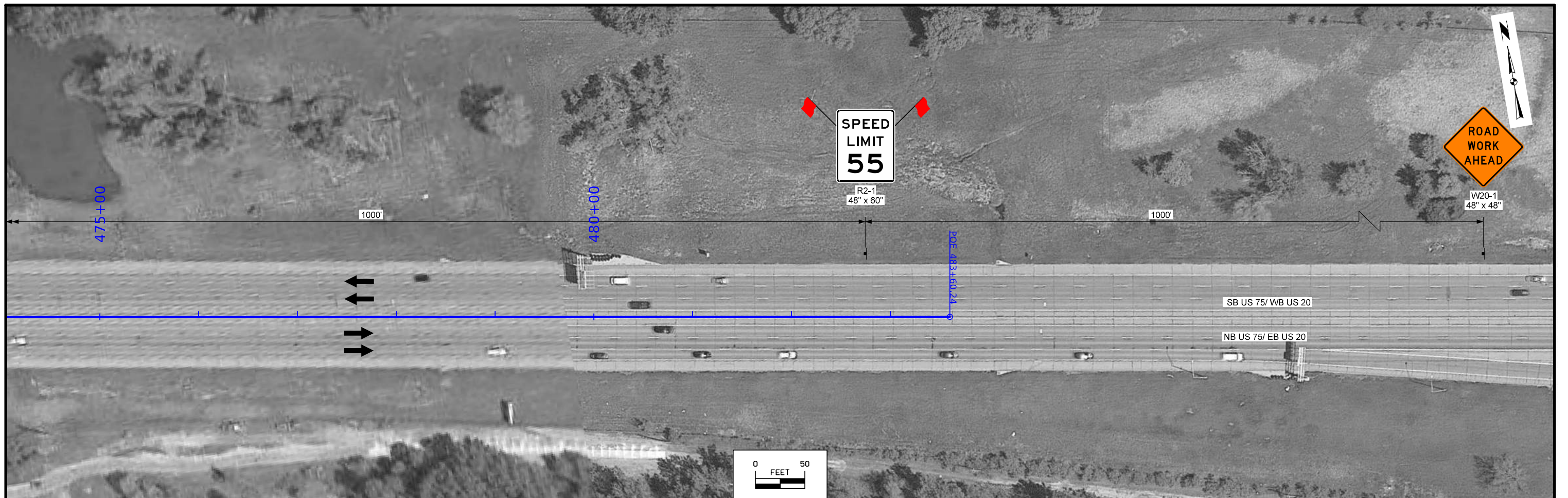
**RAMP
NARROWS**

VV5-4
48" x 48"

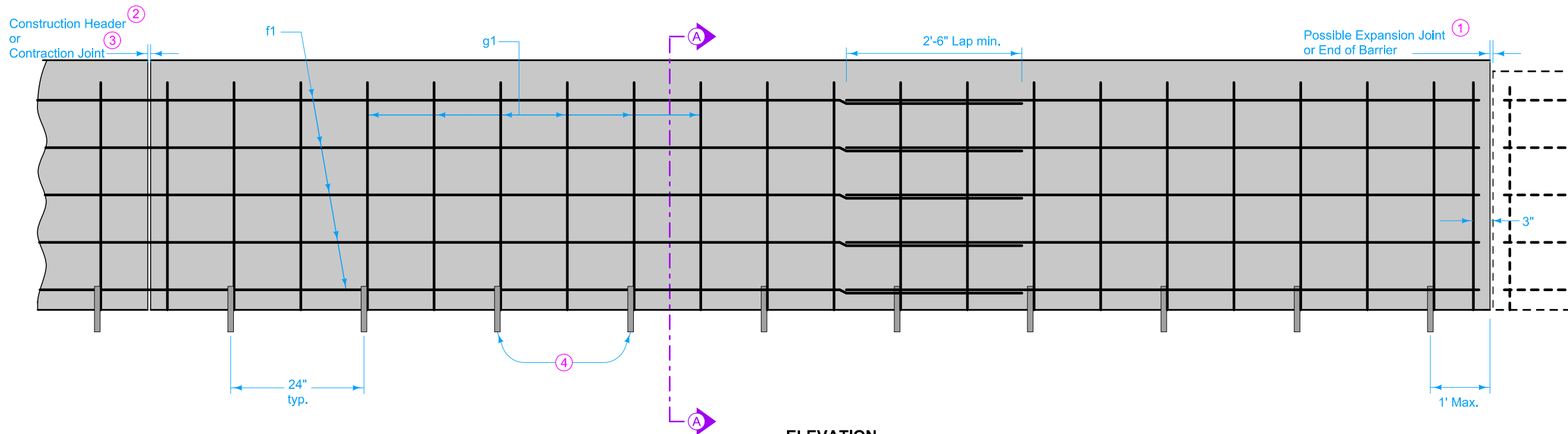


Traffic Control Plan
Stage 3

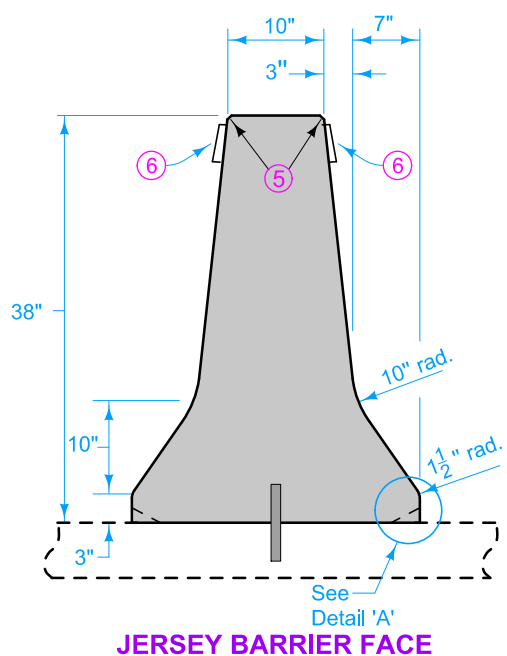




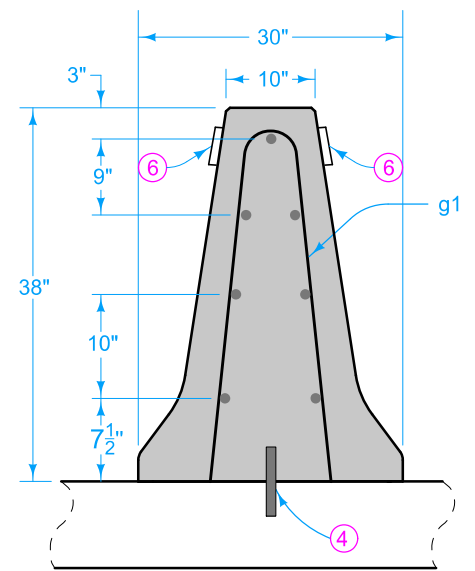
Traffic Control Plan
Stage 3



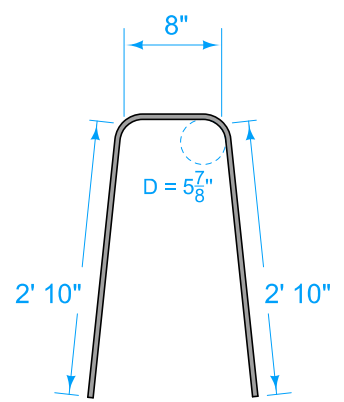
ELEVATION



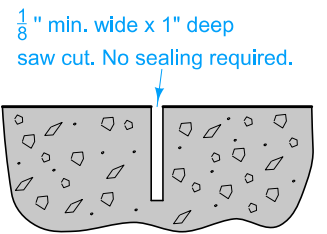
JERSEY BARRIER FACE



SECTION A-A

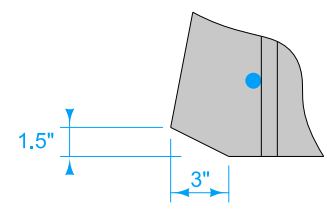


G1 BENT BAR



SAWED CONTRACTION JOINT

Saw cut top and front face



DETAIL 'A'

Special Shaping for Barrier over Intake

Use epoxy-coated Grade 60 reinforcing bars. Provide 2 inches minimum cover. Anchor barrier reinforcement to prevent movement. Secure each section at the front, back, and at 3 foot 6 inch minimum intervals using a method approved by the Engineer.

- ① Expansion joints are necessary only where specifically required by project plans. Conform expansion material to the shape of the barrier. No sealer is required.
- ② Saw contraction joints as indicated. Where abutting sections are placed as separate pours, a butt joint may be used. Extend longitudinal reinforcement into the abutting section a minimum of 3 feet.
- ③ For barrier dowelled to pavement, match pavement joints. For free-standing barrier with integral footings, use 17 foot maximum, 15 foot minimum joint spacing.
- ④ Use 1 inch diameter deformed dowel bars of sufficient length to ensure 6 inch minimum embedment in barrier and supporting surface. Install dowels either in supporting surface when placed, or in drilled holes using polymer grout complying with Materials I.M. 491.11 or hydraulic cement grout complying with Materials I.M. 491.13.

- ⑤ Fillet all exposed corners with a 3/4 inch dressed and beveled strip.
- ⑥ Place barrier markers at 100 foot increments in areas with non-continuous lighting, or 250 foot increments in areas with continuous lighting. Marker color to be the same as adjacent edge line.

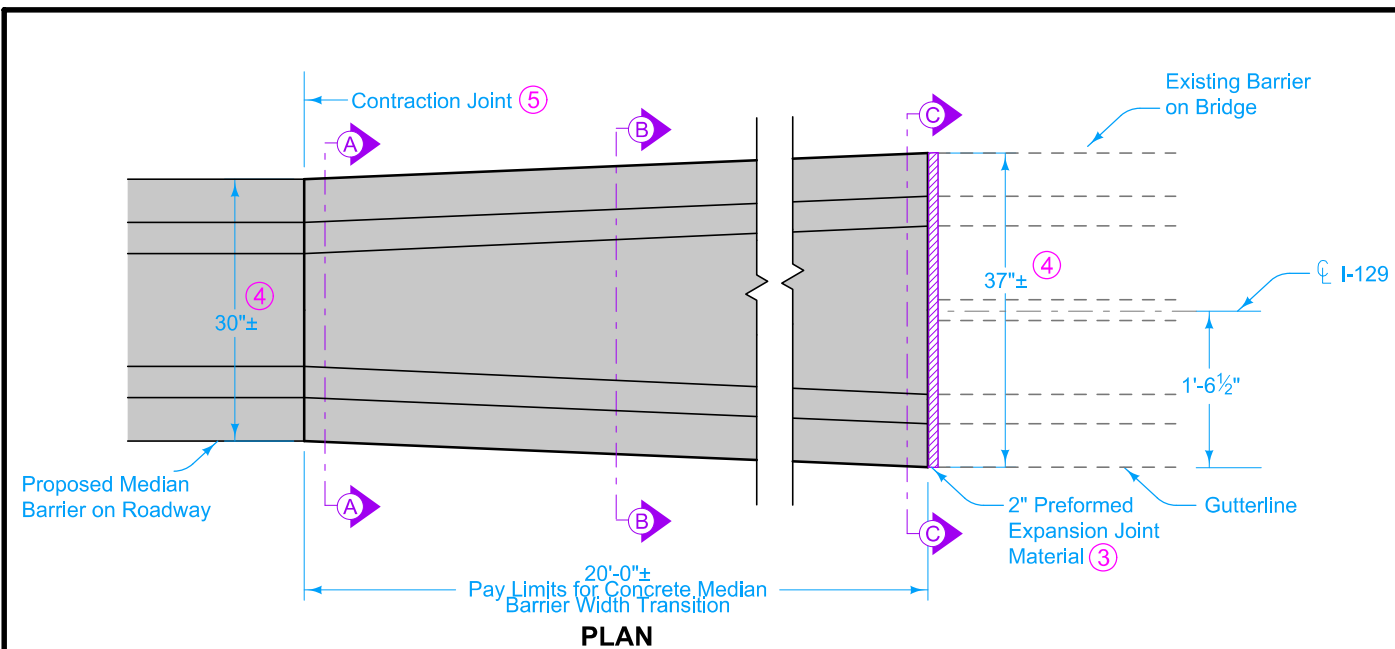
Possible Contract Item:
Concrete Barrier, BA-100 or
Concrete Barrier, BA-100 and Footing

Possible Tabulation:
108-18

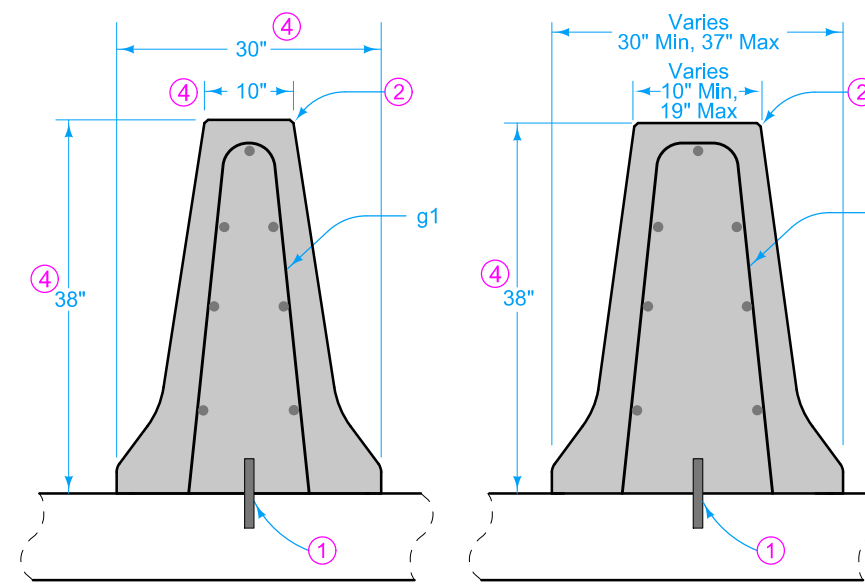
REINFORCING BAR LIST					
Per Section (Approx. 20 feet)					
Mark	Size	Number of Bars	Length	WT. (lbs.)	Max. Spacing
g1	5	?	6'-4"	?	12"
f1	5	10	19'-6"	204	—
Lap	5	10	2'-6"	3	—

CONCRETE QUANTITIES
Per Foot
0.18 cy

MODIFIED STANDARD ROAD PLAN	REVISION	
	4	10-18-22
BA-100		SHEET 1 of 1
MODIFICATIONS: Changed from F-shape to Texas single slope. Change reinforcing.		
44" CONCRETE MEDIAN BARRIER (FULL SECTION)		



PLAN

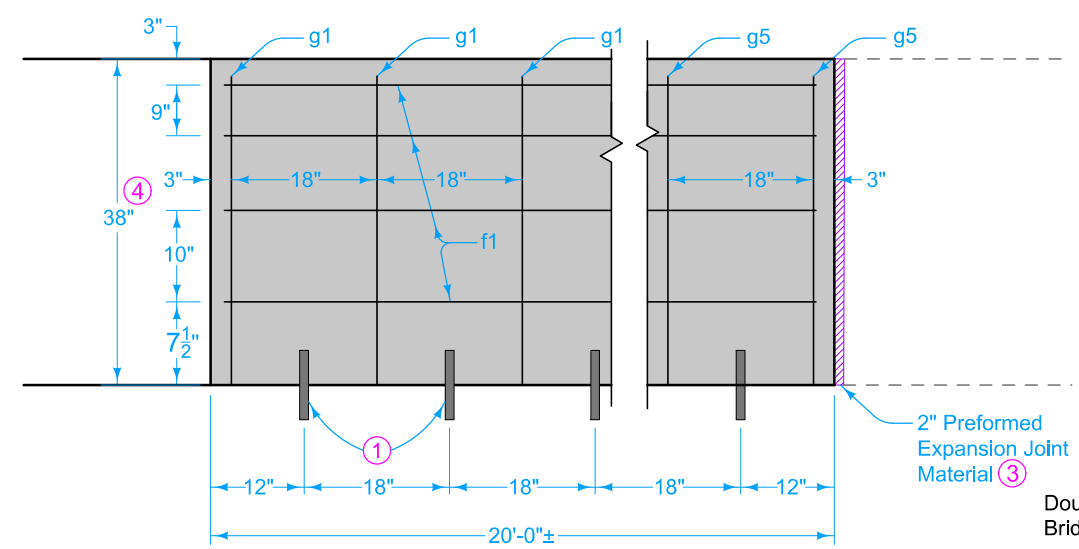


SECTION A-A

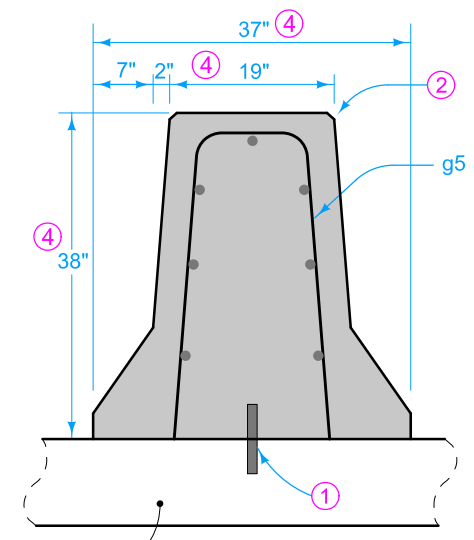
SECTION B-B

Use epoxy-coated grade 60 reinforcing bars. Provide 2 inches minimum cover. Anchor barrier reinforcement to prevent movement at 1'-6\"/>

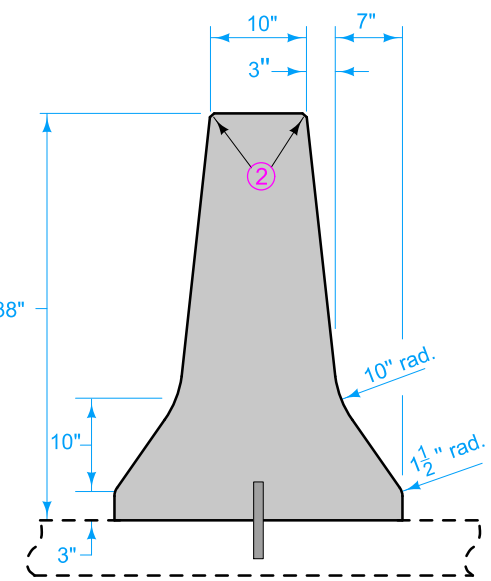
- ① Use 1 inch diameter deformed dowel bars of sufficient length to ensure 6 inch minimum embedment in barrier and supporting surface. Install bars either in supporting surface when placed or in drilled holes using polymer grout complying with Materials I.M. 491.11 or hydraulic cement grout complying with Materials I.M. 491.13.
- ② Fillet all exposed corners with a 3/4 inch dressed and beveled strip.
- ③ Conform expansion material to shape of barrier. No sealer required.
- ④ Barrier dimensions at each end of transition shall match existing such that all concrete surfaces are flush with existing.
- ⑤ For barrier dowelled to pavement, match pavement joints.



ELEVATION

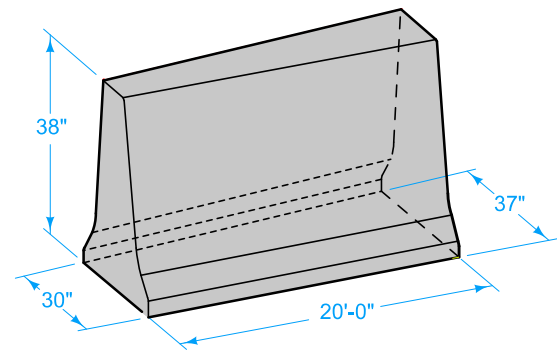


SECTION C-C

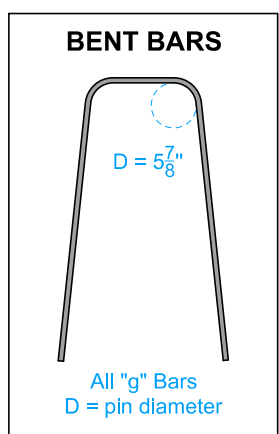


JERSEY BARRIER FACE

CONCRETE QUANTITIES
Per Section
4.22 cy



ISOMETRIC



BENT BARS

All "g" Bars
D = pin diameter

REINFORCING BAR LIST Per Section (20'-0")				
Mark	Size	Number of Bars	Length	Weight (lbs.)
f1	5	7	19'-8"	144
g1	5	3	6'-4"	20
g2	5	3	6'-5"	21
g3	5	3	6'-6"	21
g4	5	3	6'-7"	21
g5	5	2	6'-8"	14

MODIFIED STANDARD ROAD PLAN	REVISION	
	1	10-21-14
	BA-101	
SHEET 1 of 1		

MODIFICATIONS: Changed to show modified median barrier dimensions.

44\"/>