

Standard Road Plans
Standard Road Plans are listed on sheet number C.3

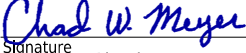
Design Data Rural		
2026 AADT	4,500	V.P.D.
2046 AADT	4,900	V.P.D.
2046 DHV	510	V.P.H.
TRUCKS	10	%
Total Design ESALs	--	

Index of Seals		
Sheet No.	Name	Type
A.1	Chad W. Meyer	Structural Design
A.3	Michael J. Janecek	Roadway Design
CS.1	Ujwala Manchikanti	Geotechnical Design
V.4	Philip M. Harpole	Hydraulic Design
SPS.1	Zachary A. Bonzer	Geotechnical 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.



09-01-2026

Signature

Chad W. Meyer

Printed or Typed Name

My license renewal date is December 31, 2026

Pages or sheets covered by this seal: A.1 - A.2, V.1 - V.20

Index of Sheets	
No.	Description
Sheets	Bridge Plan
A.1	Title Sheet
A.2	Location Map Sheet
V.1	Estimated Quantities - Design 0126
V.2 - V.20	Design 0126
SPS Sheets	Bridge Plan Soils Sheet
SPS.1 - SPS.3	Bridge Plan Soils Sheet
Road Sheets	Road Plan
A.3 - W.10	Road Plans
C.1 - C.2	Estimated Quantities - Road
C.3	Standard Plans - Road
RC.1 - RC.2	Estimated Quantities - Erosion Control



PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM DICKINSON COUNTY

Bridge Replacement - CCS

IA 9 over West Fork Little
Sioux River
4.9 mi W of IA 86

Refer to the Plan Sheets for list of applicable specifications.

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



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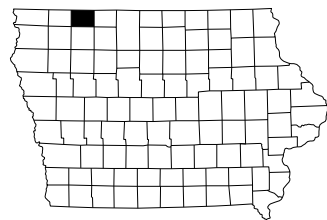
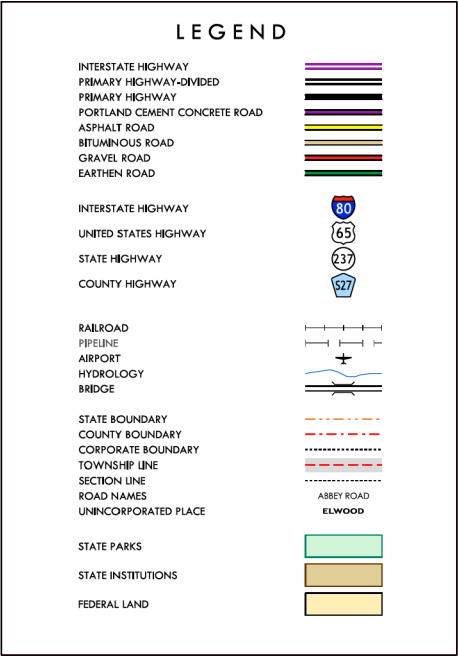
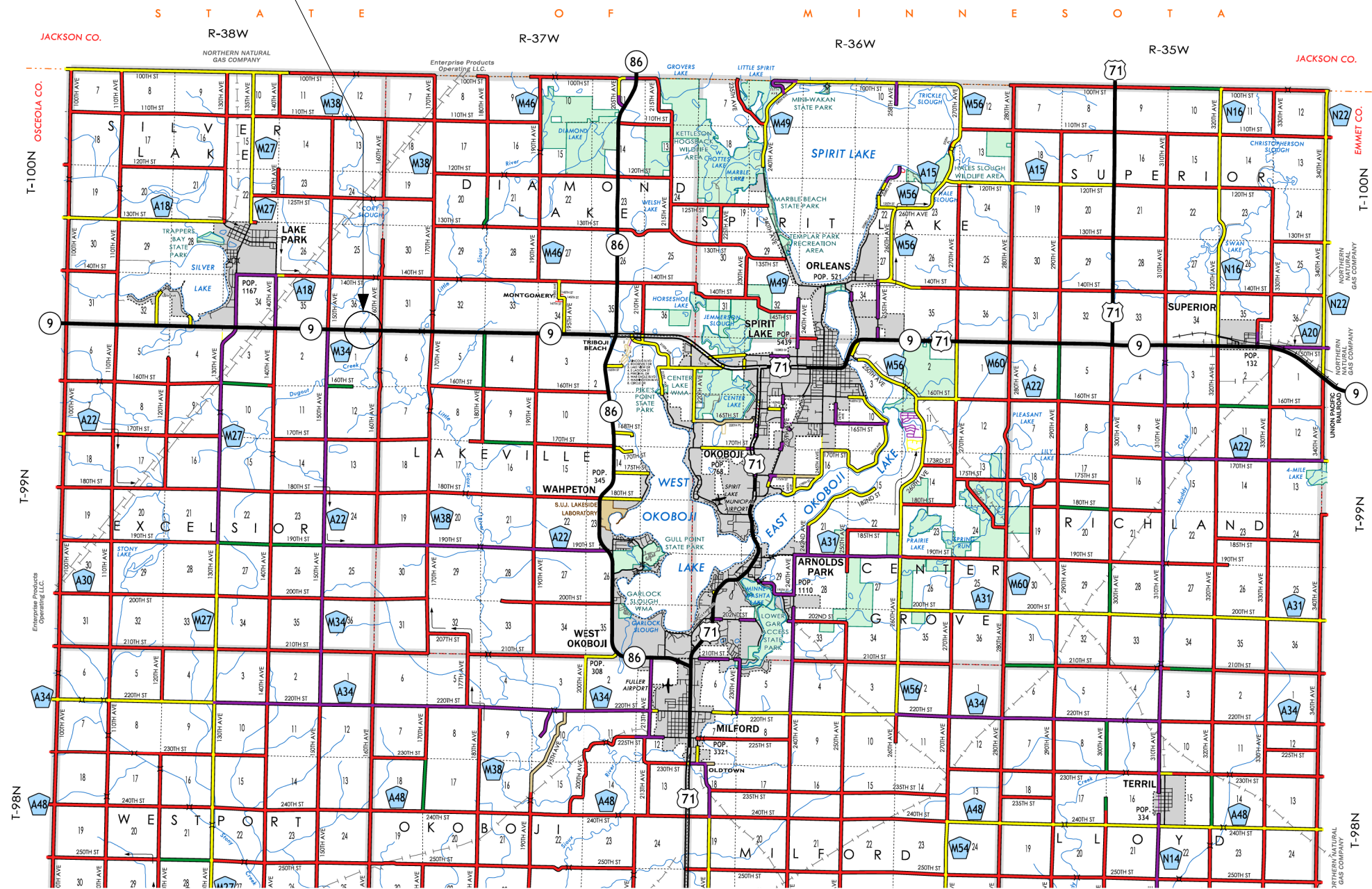
Know what's below.
Call before you dig.

Revisions

	TOTAL
	65
PROJECT IDENTIFICATION NUMBER	
21-30-009-020	
PROJECT NUMBER	
BRF-009-3(29)--38-30	
R.O.W. PROJECT NUMBER	
PROJECT DIRECTORY NUMBER	
3000902021	

English Bridge Standards		
Standard	Issued	Revised
J44-45-14	07-14	08-20
J44-46-14	07-14	08-20
J44-47-14	07-14	08-20
J44-51-14	07-14	08-20
J44-52-14	07-14	08-20

Design No. 0126
FHWA No. 023701



Dickinson County Location Map

Not To Scale

Estimate Bridge Quantities and Reference Notes					
Item No.	Item Code	Item	Unit	Quantities Estimated	Estimate Reference Notes
1	2104-2710020	EXCAVATION, CLASS 10, CHANNEL	CY	707.9	---
2	2401-6745625	REMOVAL OF EXISTING BRIDGE	LS	1	Removal of existing 71'-0" x 28'-0" I-Beam bridge, Design No. 159. Includes all work for removal and off-site disposal of the existing bridge by stages in these plans. 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 shall be replaced at no extra cost to the State. Includes all costs for removal of existing concrete erosion control blanket at abutments. Contractor to add the following information when submitting the Iowa DNR "Notification of Demolition" form: Name of Asbestos Inspector: Brad Azeltine Date Inspected: 3/12/2021 IA License Number: Iowa DOT Inspector Phone: 515-290-2687 Procedure used to detect the presence of asbestos materials: Polarized Light Microscopy (PLM)
3	2402-2720000	EXCAVATION, CLASS 20	CY	130	---
4	2402-2721000	EXCAVATION, CLASS 21	CY	365	---
5	2403-0100010	STRUCTURAL CONCRETE (BRIDGE)	CY	601.4	Includes all resilient joint filler required. Includes furnishing and placing subdrain (including excavation), floodable backfill, porous backfill, geotextile fabric, water flooding, and subdrain outlet at abutment. Includes furnishing and placing concrete sealer. Includes furnishing and placing 3 inch diameter PVC plastic pipe and expanding foam in the abutment wings. Includes cost of 4 drains at 39 lbs steel per drain.
6	2403-1000005	FIBER REINFORCEMENT FOR STRUCTURAL CONCRETE	CY	323.8	Includes concrete for the slab and abutment diaphragms. Refer to Developmental Specifications for Fiber Reinforcement for Structural Concrete for additional information.
7	2403-1000010	TRIAL BATCH AND TEST PLACEMENT (FIBER REINFORCED CONCRETE)	LS	1	Trial batch and test placement for fiber reinforced structural concrete. Refer to Developmental Specifications for Fiber Reinforcement for Structural Concrete for additional information.
8	2404-7775000	REINFORCING STEEL	LB	39,602	---
9	2404-7775005	REINFORCING STEEL, EPOXY COATED	LB	85,511	---
10	2404-7775009	REINFORCING STEEL, STAINLESS STEEL	LB	2,703	---
11	2414-6424110	CONCRETE BARRIER RAILING	LF	242.0	If placement of concrete is done by the slipforming method, Class BR concrete is required. Cast-in-place barrier rails shall use Class C mix. Price bid for this item shall include the cost of cast-in-place forms if required for placement of the concrete.
12	2501-0201057	PILES, STEEL, HP 10 X 57	LF	5,085	---
13	2501-8400172	TEMPORARY SHORING	LS	1	Includes all cost for designing, furnishing, installing, and removing temporary shoring.
14	2507-2638650	BRIDGE WING ARMORING - EROSION STONE	SY	12.8	Includes furnishing and placing engineering fabric, erosion stone, and all required excavating, shaping and compacting for wing armoring.
15	2507-3250005	ENGINEERING FABRIC	SY	1,090.9	Engineering fabric shall be material as specified for embankment erosion control in accordance with Article 4196.01.B.3, of the Standard Specifications.
16	2507-6800061	REVTMENT, CLASS E	TON	1,118.4	Estimated at 1.6 ton/cu yd. Class E revetment shall meet requirements of Article 4130. Broken concrete and granite is not allowed.
17	2507-8029000	EROSION STONE	TON	14.4	Estimated at 1.6 ton/cu yd. Erosion stone shall meet requirements of Article 4130. Broken concrete and granite is not allowed.
18	2526-8285040	CONSTRUCTION SURVEY, LOCATION SURVEY	LS	1	---
19	2533-4980005	MOBILIZATION	LS	1	---
FILE NO. 32502			ENGLISH		DESIGN TEAM McClure
4:22:23 PM 9/2/2026			jkane		pw:\\projectwise.dot.int.lan:PWMMain\Documents\Projects\3000902021\Bridge\029_Bridge Replacement-CCS\SHT_30009029_McClure_0126_023701_Z01.dgn
			Dickinson COUNTY		PROJECT NUMBER BRF-009-3(29)--38-30
			SHEET NUMBER V.1		

Roadway Quantities shown elsewhere in these plans.

Design For 0 Degree Skew

110'-0" x 44'-0" Continuous Concrete Slab Bridge

33'-6" End Spans43'-0" Interior Span

Estimate Quantities

STA. 296+73.40 (IA 9)Turn-in Date: Oct 2026

Dickinson County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0126Design Sheet No. 1 of 20FHWA No. 023701

Specifications:

Design:

AASHTO LRFD 8th Ed., Series of 2017, except as noted in the current Iowa Bridge Design Manual.

Construction:

Iowa Department of Transportation Standard Specifications for Highway and Bridge Construction, Series 2023, plus applicable General Supplemental Specifications, Developmental Specifications, Supplemental Specifications and Special Provisions shall apply to construction work on this project.
Developmental Specifications - Fiber Reinforcement for Structural Concrete
Developmental Specification for Electronic ticketing

Design Stresses:

Design stresses for the following materials are in accordance with the AASHTO LRFD Bridge Design Specifications, 8th Ed., Series of 2017, except as noted in the current Iowa Bridge Design Manual.

Reinforcing steel in accordance with AASHTO LRFD Section 5, Grade 60 for epoxy coated and non-coated, and Grade 60 or 75 for stainless.

Concrete in accordance with AASHTO LRFD Section 5, f'c = 3.5 ksi.

Structural steel in accordance with AASHTO LRFD Section 6. ASTM A709 Grade 36, Grade 50, and Grade 50W (AASHTO M270 Grade 36, Grade 50, and Grade 50W).

General Notes:

It is the intent of this design to construct a new 110'-0" x 44'-0" continuous concrete slab bridge on IA 9 over West Fork Little Sioux River.

This design is for the replacement of the existing 71'-0" x 28'-0" I-beam bridge, Design No. 159, with a year of construction of 1929. Electronic copies of the original design plans are available to the Contractor as part of the E-files supplied with the contract documents. Existing maintenance sketches and inspection photos will be available to the Contractor as part of the eFiles. Dimensions shown on these plans are based on design plans (Original Design No. 159, Design 189, Design 102, and Design 111).

The lump sum bid for "Removal of Existing Bridge" shall include 71'-0" x 28'-0" I-beam bridge and concrete erosion control blanket at abutments.

Removals shall be in accordance with Section 2401, of the Standard Specifications

All alignment, stationing, connecting dimensions, and elevations used in the new details in these plans were developed based on the existing bridge plans. The Bridge Contractor shall field verify these details before starting construction.

Utility Companies whose facilities are shown on the plans or known to be within the construction limits shall be notified by the Bridge Contractor of the construction starting date.

The Bridge Contractor is to retain earth and/or granular material behind the portion of abutments subjected to traffic during widening by methods approved by the Engineer. All costs for retaining the earth and/or granular material shall be included in the price bid for "Class 20 Excavation".

This bridge will be built in stages and the falsework for Stage 1 construction shall remain in place until Stage 2 is complete. The Stage 1 falsework shall be removed with the Stage 2 falsework.

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

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

This bridge is designed for HL-93 Loading, plus 20 lbs. per square foot of roadway for future wearing surface.

Class 20 excavation quantities are based on the assumption that the channel excavation is completed prior to starting construction of the abutments and piers.

It shall be the Bridge Contractor's responsibility to provide sites for excess excavated material. No payment for overhaul will be allowed for material hauled to these sites.

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).

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

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

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

The bridge Contractor is to provide a method of removal that will prevent damage to cast-in-place concrete not designated for removal.

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

Faint lines on plans indicate existing structure.

Laboratory analysis has identified asbestos at this site. Asbestos shall be removed prior to bridge demolition operations. Removal, transport, and disposal shall be in accordance with Section 2536, of the Standard Specifications.

Required DNR information includes:	
Year Constructed	- 1929
Asbestos Location	- Joint filler between the top of the widened portions of the abutments and pier cap and the diaphragms, 72 sq. ft. - Gray caulk under the base paltes for the metal handrails (18 bases), 8 sq. ft.
FHWA Number (Existing)	- Information provided elsewhere in plan
Road/Route (City)	- Information provided elsewhere in plan
County	- Information provided elsewhere in plan
Direction to Bridge	- Information provided elsewhere in plan
Bridge Size	- Information provided elsewhere in plan
Number of Decks	- 1 (Typ.)
Asbestos Inspector/Amounts	- Information provided by Engineer

A scrape sample was taken from an area of this bridge to get an indication of the existence of and level of total lead and total chromium. Analysis of total lead on this sample was 1010 parts per million (ppm). Analysis of total chromium on this sample was 319 ppm. These analyses show the existence of these two toxic constituents. Levels indicated by these tests could create conditions above regulatory limits for health and safety requirements. No other constituents were analyzed. The Bidder should not rely on the Iowa DOT's testing and analysis for any purpose other than as an indication of the existence of these two toxic constituents.

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	CCS Falsework	(29)_Dickinson_Design0126_FalseworkPlans.pdf	Yes
2	Floor Drains	(29)_Dickinson_Design0126_FloorDrains.pdf	No
3	Temporary Shoring	(29)_Dickinson_Design126_TempShore.pdf	Yes
No.	Calculation Description	Calculation File Name Convention For Submittal	Certified by Iowa P.E. (Yes/No)
1	CCS Falsework	(29)_Dickinson_Design0126_FalseworkCalcs.pdf	Yes
2	Temporary Shoring	(29)_Dickinson_Design126_TempShore_Calcs.pdf	Yes

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.

Bridge Deck Dimension Table			
No.	Item	Unit	Quantity
1	Deck Length	L.F.	110.8
2	Minimum Deck Width	L.F.	47.2
3	Maximum Deck Width	L.F.	47.2
4	Deck Area	S.F.	5,228

1. Deck length is measured from face-to-face of paving notches along the centerline of the roadway.
- 2, 3. Deck widths are measured from out-to-out of deck perpendicular to the centerline of roadway.
4. Deck area is to be based on the face-to-face paving notch distance and out-to-out deck dimensions.

Temporary shoring (sheet pile or other) shall be required as necessary to prevent the earth under the traffic lane from sloughing in during construction.

The Contractor shall submit a Temporary Shoring Plan for review. The Temporary Shoring Plan shall be designed and certified by a Professional Engineer licensed in the State of Iowa. When determining slope stability to support structures such as bridges, culverts and retaining walls, a global stability analysis shall be included in the design of the temporary shoring in accordance with Chapter 200F-1 in the Design Manual of the Iowa DOT, Design Bureau. The Contractor shall not proceed with installation of the temporary shoring without notice to proceed from the Engineer.

- The temporary shoring submittal shall include:
- Design calculations (including a global stability analysis)
- Soil properties
- Shoring material properties
- Shoring plan layout (showing location of traffic)
- Shoring details

Temporary shoring shall be paid for as a lump sum including all cost for designing, furnishing, installing and removal. All material used for shoring shall remain the property of the Contractor. Shoring is to be removed only after backfilling has been completed. In addition to the requirements noted above, Article 1107.07 of the Standard Specifications, still applies.

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

Design History at this Site (Includes this Design)	
Des. No.	Type of Work
2429	Original Design
159	Deck Widening
189	Bridge Deck Overlay
102	Retrofit Barrier Rails
111	Scour Countermeasures
0126	This Design

Design For 0 Degree Skew

110'-0" x 44'-0" Continuous Concrete Slab Bridge

33'-6" End Spans43'-0" Interior Span

General Notes

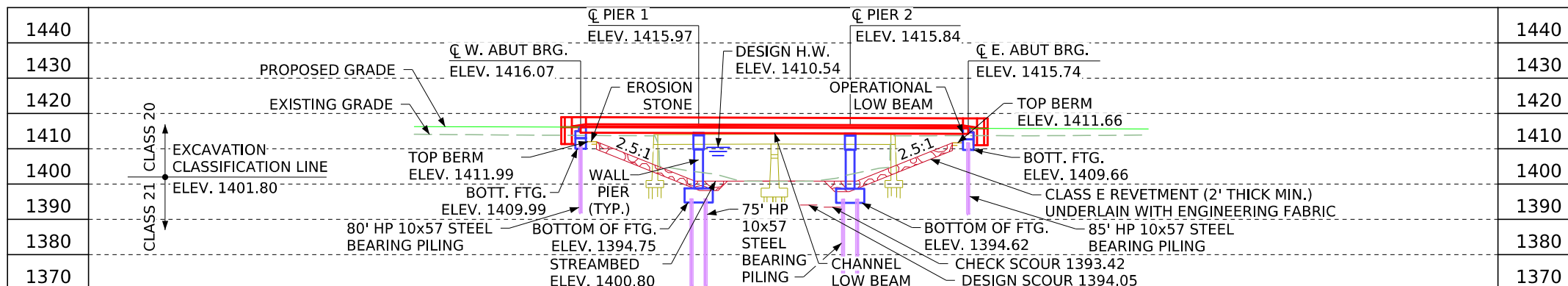
STA. 296+73.40 (IA 9)Turn-in Date: Oct 2026

Dickinson County

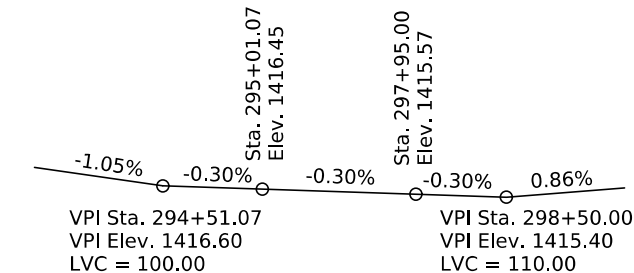
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0126Design Sheet No. 3 of 20FHWA No. 023701

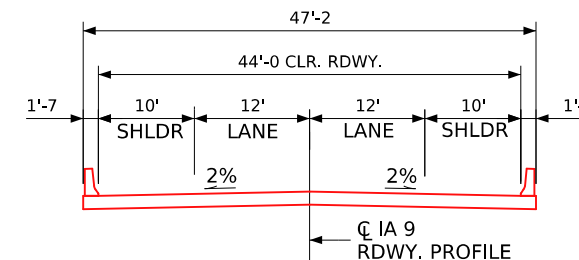
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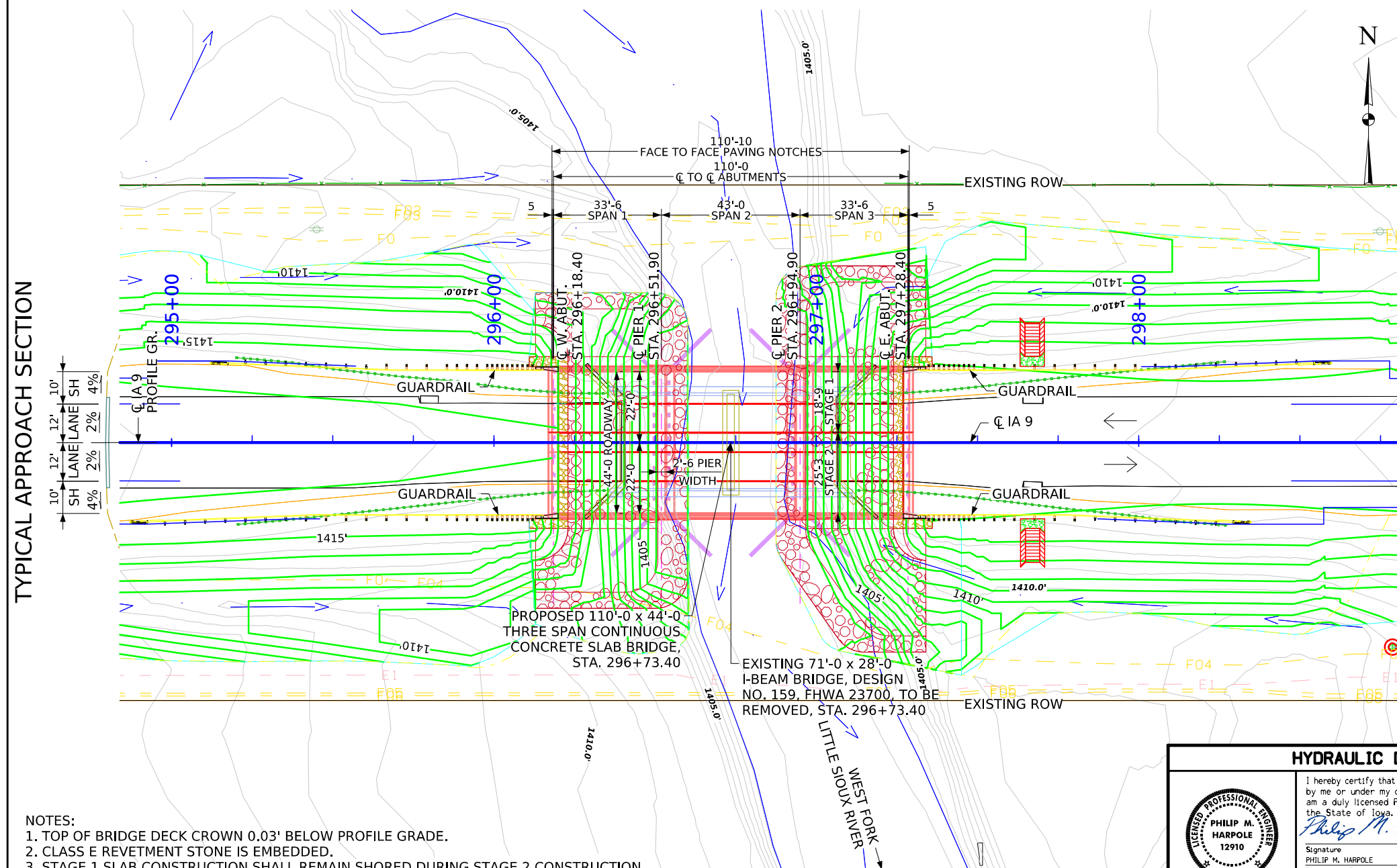
LONGITUDINAL SECTION ALONG C APPROACH ROADWAY



PROPOSED PROFILE GRADE IA 9

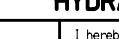


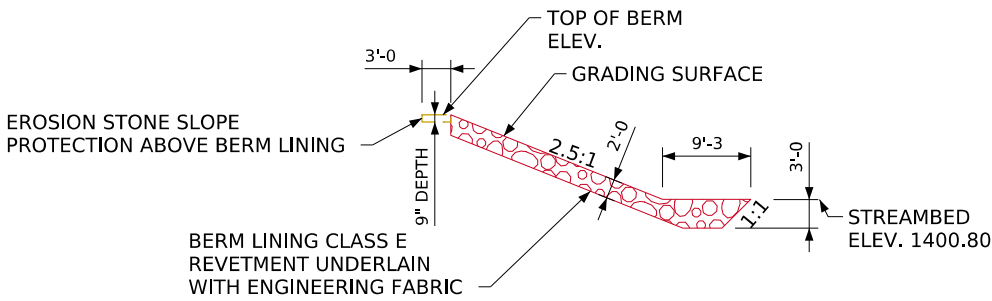
TYPICAL BRIDGE SECTION



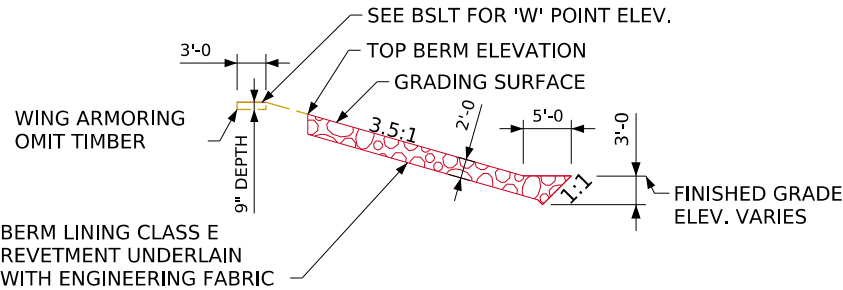
SITUATION PLAN

NOTES:
1. TOP OF BRIDGE DECK CROWN 0.03' BELOW PROFILE GRADE.
2. CLASS E REVETMENT STONE IS EMBEDDED.
3. STAGE 1 SLAB CONSTRUCTION SHALL REMAIN SHORED DURING STAGE 2 CONSTRUCTION.

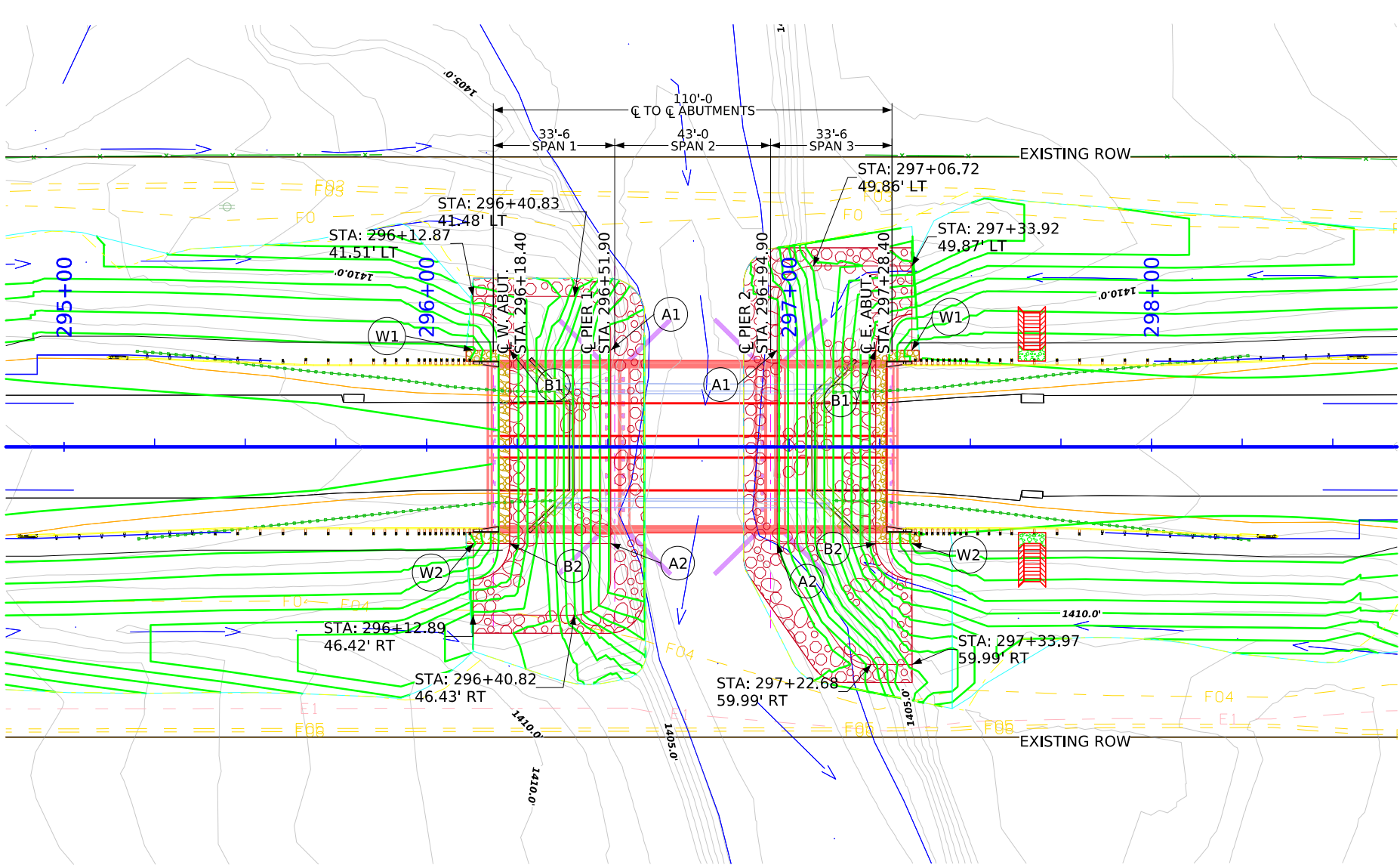
HYDRAULIC DESIGN	
	I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.
	
	08-07-2025
	Signature Date
	Printed or Typed Name
My license renewal date is December 31, 2025	
Pages or sheets covered by this seal: <u>V.4, V.5</u>	



SECTION THRU EMBEDDED REVETMENT BERM



SECTION THRU EMBEDDED REVETMENT BERM
NORMAL TO BRIDGE WING AT 'W' POINT



SITE PLAN

Berm Slope Location Table						
Points	West Abutment			East Abutment		
	Station	Offset	Elev.	Station	Offset	Elev.
A1	296+50.83	26.58' LT	1400.80	296+96.72	26.58' LT	1400.80
A2	296+50.83	26.58' RT	1400.80	296+96.72	26.58' RT	1400.80
B1	296+22.90	26.58' LT	1411.99	297+23.90	26.58' LT	1411.66
B2	296+22.90	26.58' RT	1411.99	297+23.90	26.58' RT	1411.66
W1	296+12.90	26.58' LT	1415.52	297+33.90	26.58' LT	1415.16
W2	296+12.90	26.58' RT	1415.52	297+33.90	26.58' RT	1415.16

Berm slope elevations reflect the grading surface.

Estimated Berm Armoring Quantities				
Location	Revetment CL E (Ton)	Erosion Stone (Ton)	Engineering Fabric (SY)	Excavation (CY)
Berm Lining - West Abutment	518.5	7.2	505.5	328.5
Berm Lining - East Abutment	599.9	7.2	585.4	379.4
Totals	1118.4	14.4	1090.9	707.9

Excavation quantity calculated from grading surface.

Design For 0 Degree Skew

110'-0" x 44'-0" Continuous Concrete Slab Bridge

33'-6" End Spans43'-0" Interior Span

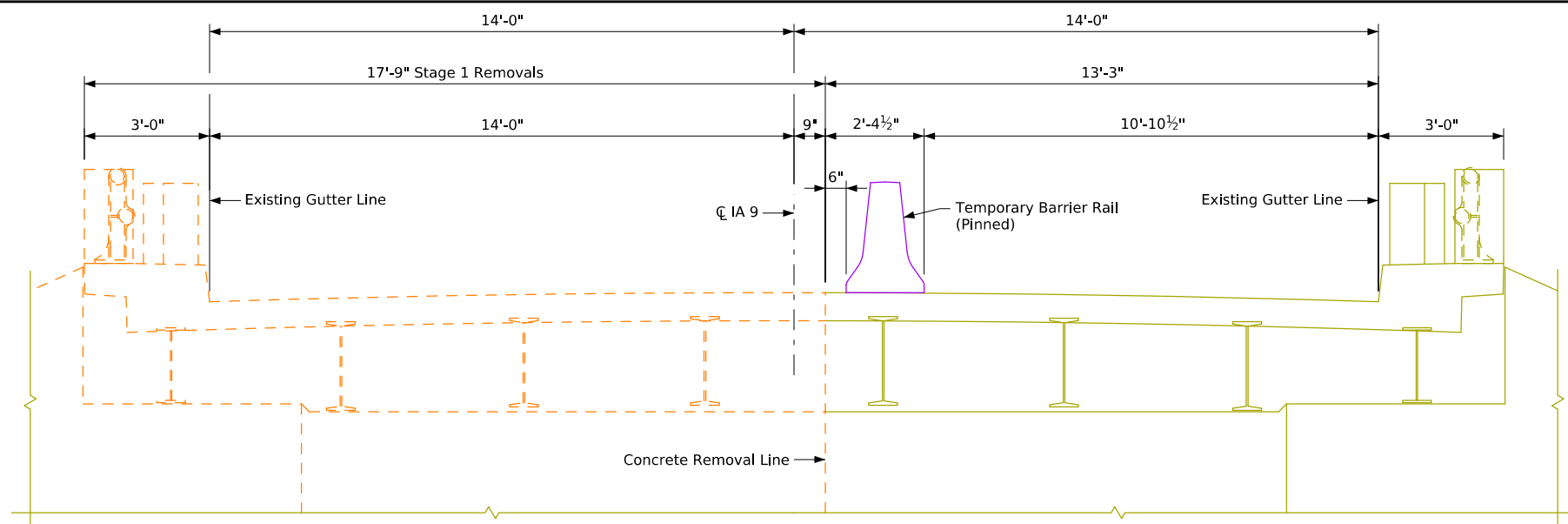
Situation Plan - Site

STA. 296+73.40 (IA 9)Turn-in Date: Oct 2026

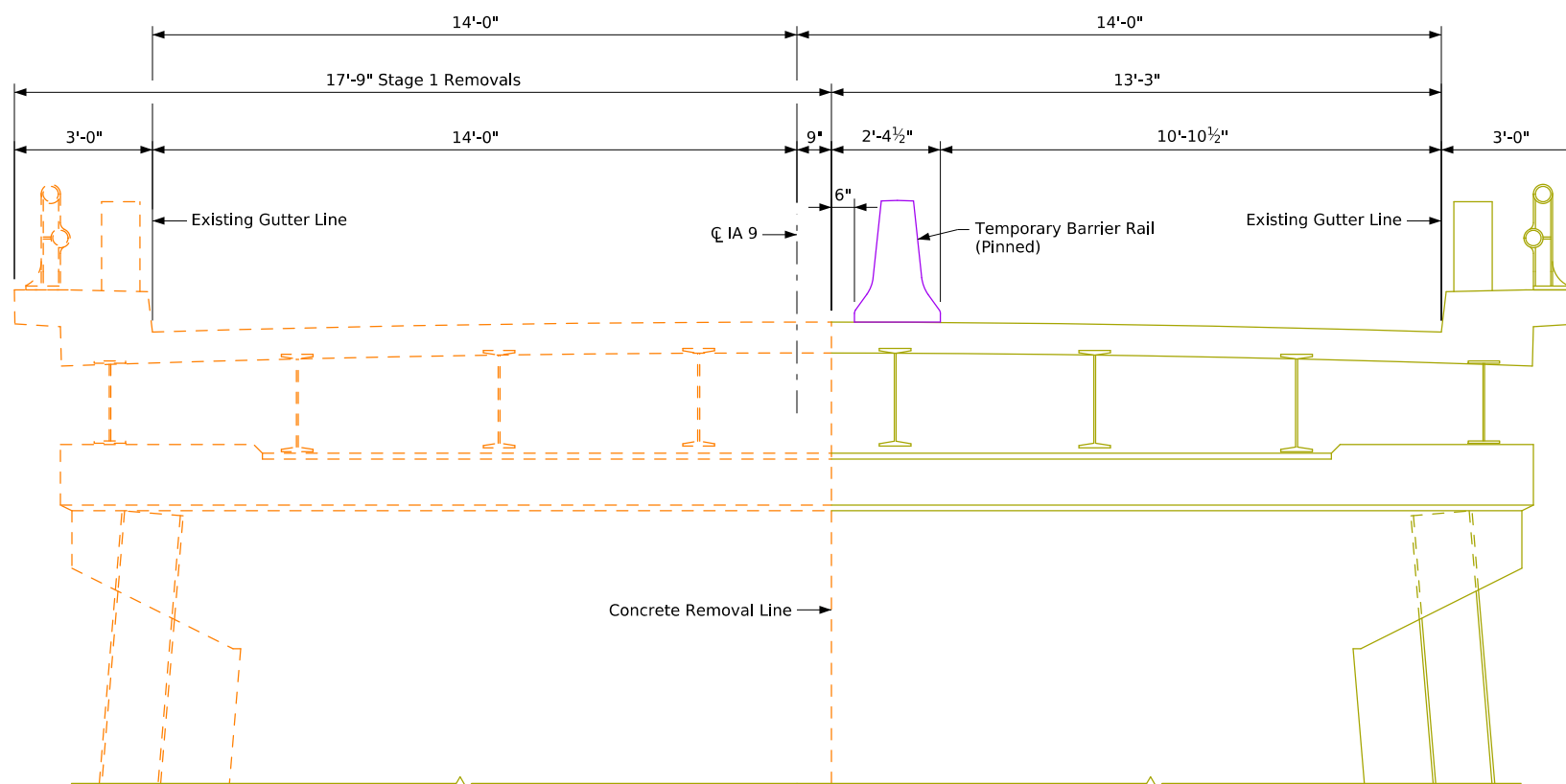
Dickinson County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0126Design Sheet No. 5 of 20FHWA No. 023701



Stage 1 Abutment Removals



Stage 1 Pier Removals

Design For 0 Degree Skew

110'-0" x 44'-0" Continuous Concrete Slab Bridge

33'-6" End Spans 43'-0" Interior Span

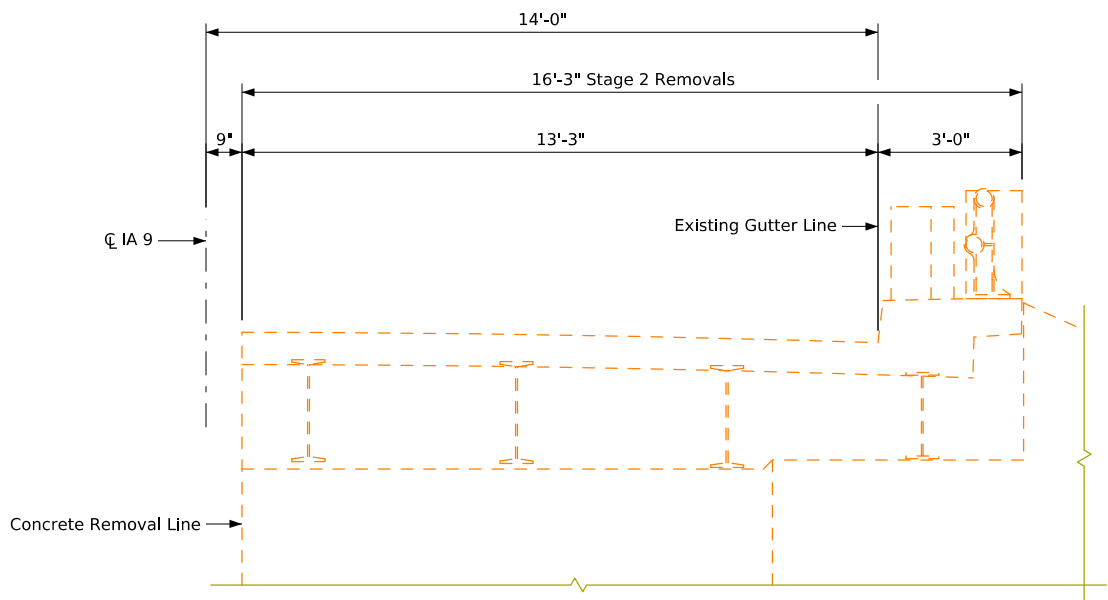
Removal Details

STA. 296+73.40 (IA 9) Turn-in Date: Oct 2026

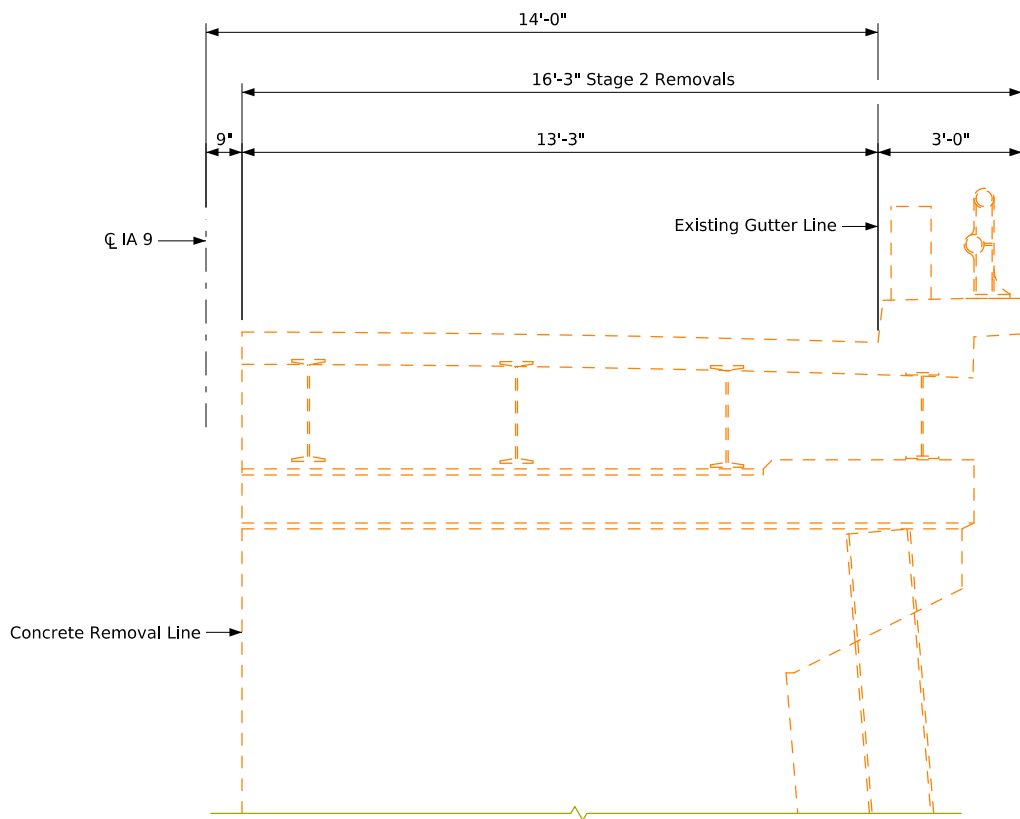
Dickinson County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0126 Design Sheet No. 6 of 20 FHWA No. 023701



Stage 2 Abutment Removals



Stage 2 Pier Removals

Design For 0 Degree Skew

110'-0" x 44'-0" Continuous Concrete Slab Bridge

33'-6" End Spans 43'-0" Interior Span

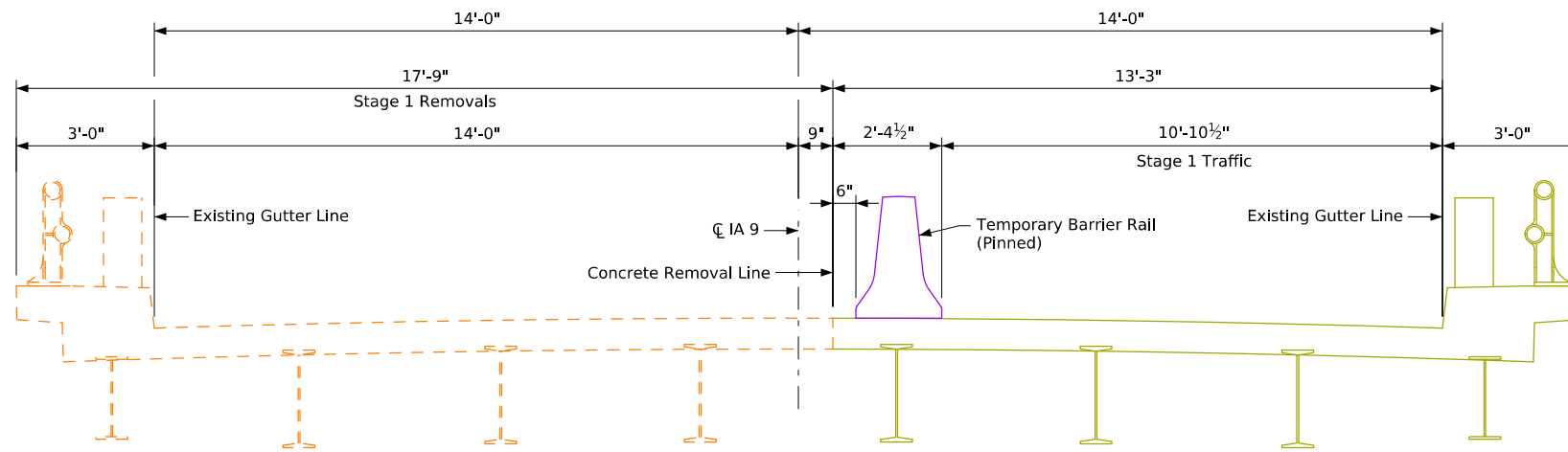
Removal Details

STA. 296+73.40 (IA 9) Turn-in Date: Oct 2026

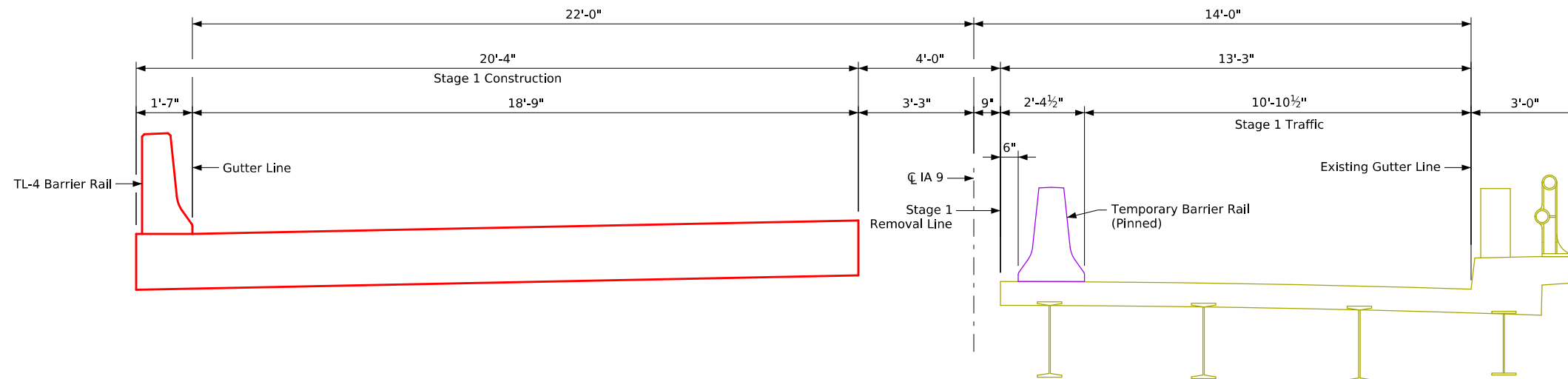
Dickinson County

IOWA DEPARTMENT OF TRANSPORTATION

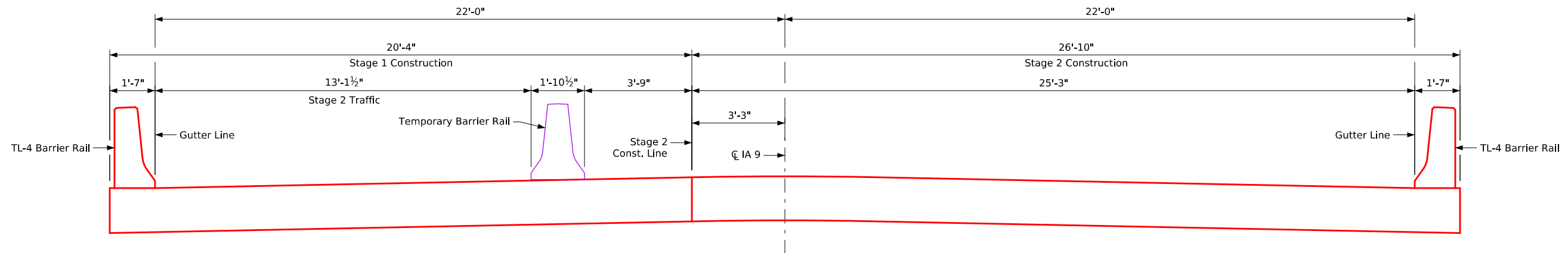
Design No. 0126 Design Sheet No. 7 of 20 FHWA No. 023701



Stage 1 Removals



Stage 1 Construction



Stage 2 Construction

Design For 0 Degree Skew

110'-0" x 44'-0" Continuous Concrete Slab Bridge

33'-6" End Spans 43'-0" Interior Span

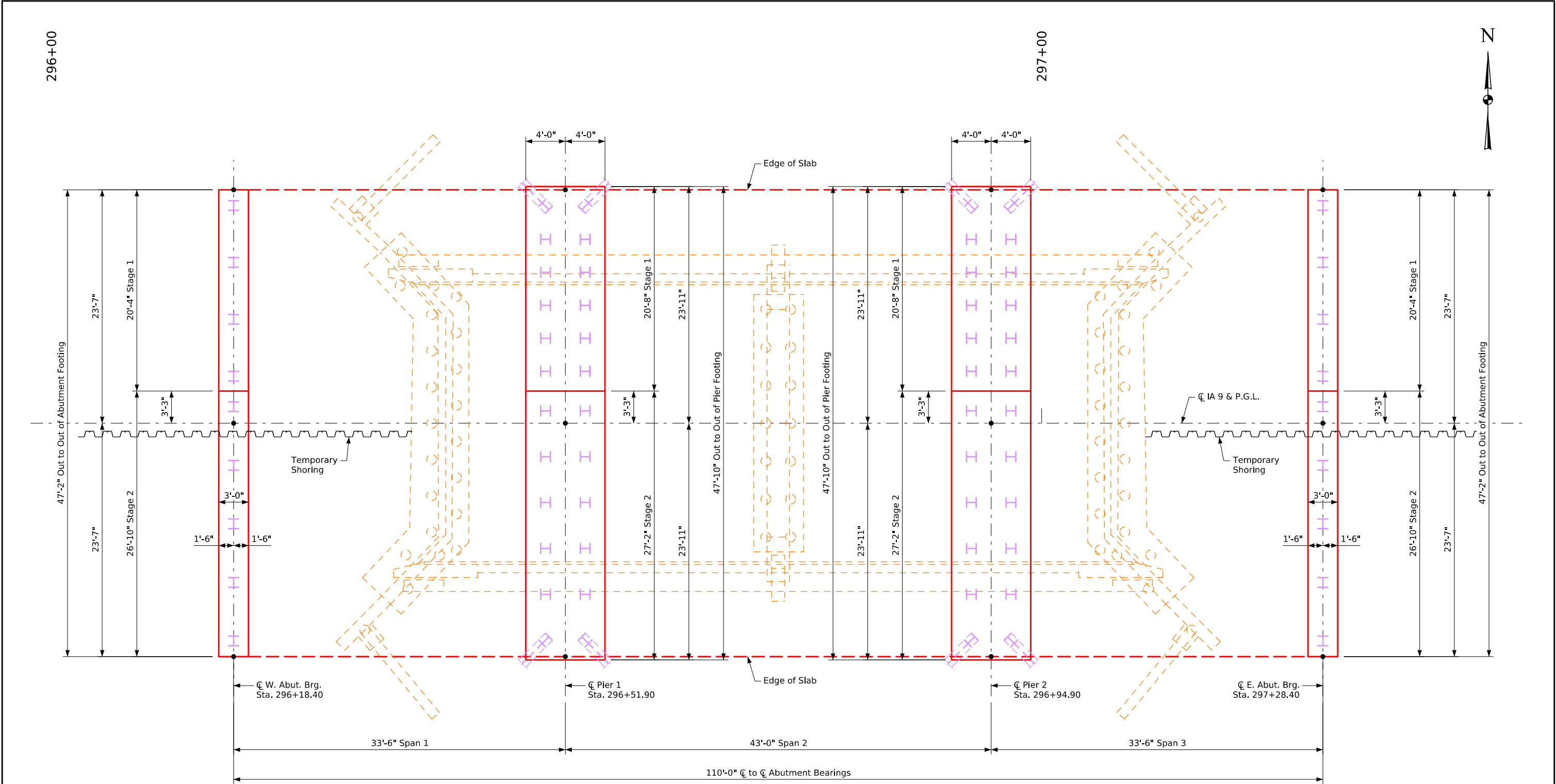
Staging Details

STA. 296+73.40 (IA 9) Turn-in Date: Oct 2026

Dickinson County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0126 Design Sheet No. 8 of 20 FHWA No. 023701



Staking Diagram

Bridge Coordinates				
Location	☐ W. Abut. Brg.	☐ Pier 1	☐ Pier 2	☐ E. Abut. Brg.
North Edge of Slab	X=11493075.527 Y=9684017.023	X=11493109.027 Y=9684016.981	X=11493152.027 Y=9684016.926	X=11493185.527 Y=9684016.884
☐ Approach Roadway	X=11493075.497 Y=9683993.440	X=11493108.997 Y=9683993.397	X=11493151.997 Y=9683993.343	X=11493185.497 Y=9683993.301
South Edge of Slab	X=11493075.468 Y=9683969.856	X=11493108.967 Y=9683969.814	X=11493151.967 Y=9683969.760	X=11493185.467 Y=9683969.718

Note:
An electronic file containing the bridge coordinate data is available as part of the e-files supplied with the contract documents. The contractor shall verify these coordinates with the project horizontal control information provided in the road plans.

Design For 0 Degree Skew

110'-0" x 44'-0" Continuous Concrete Slab Bridge

33'-6" End Spans43'-0" Interior Span

Staking Diagram

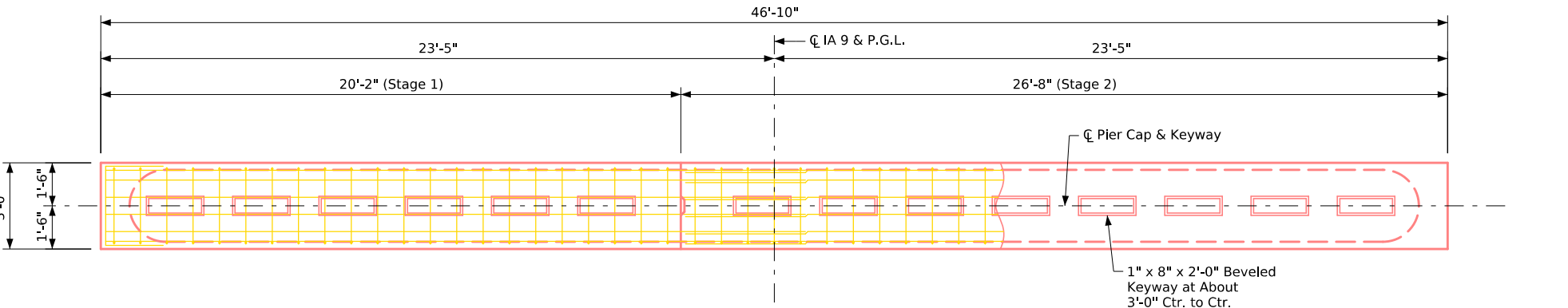
STA. 296+73.40 (IA 9)Turn-in Date: Oct 2026

Dickinson County

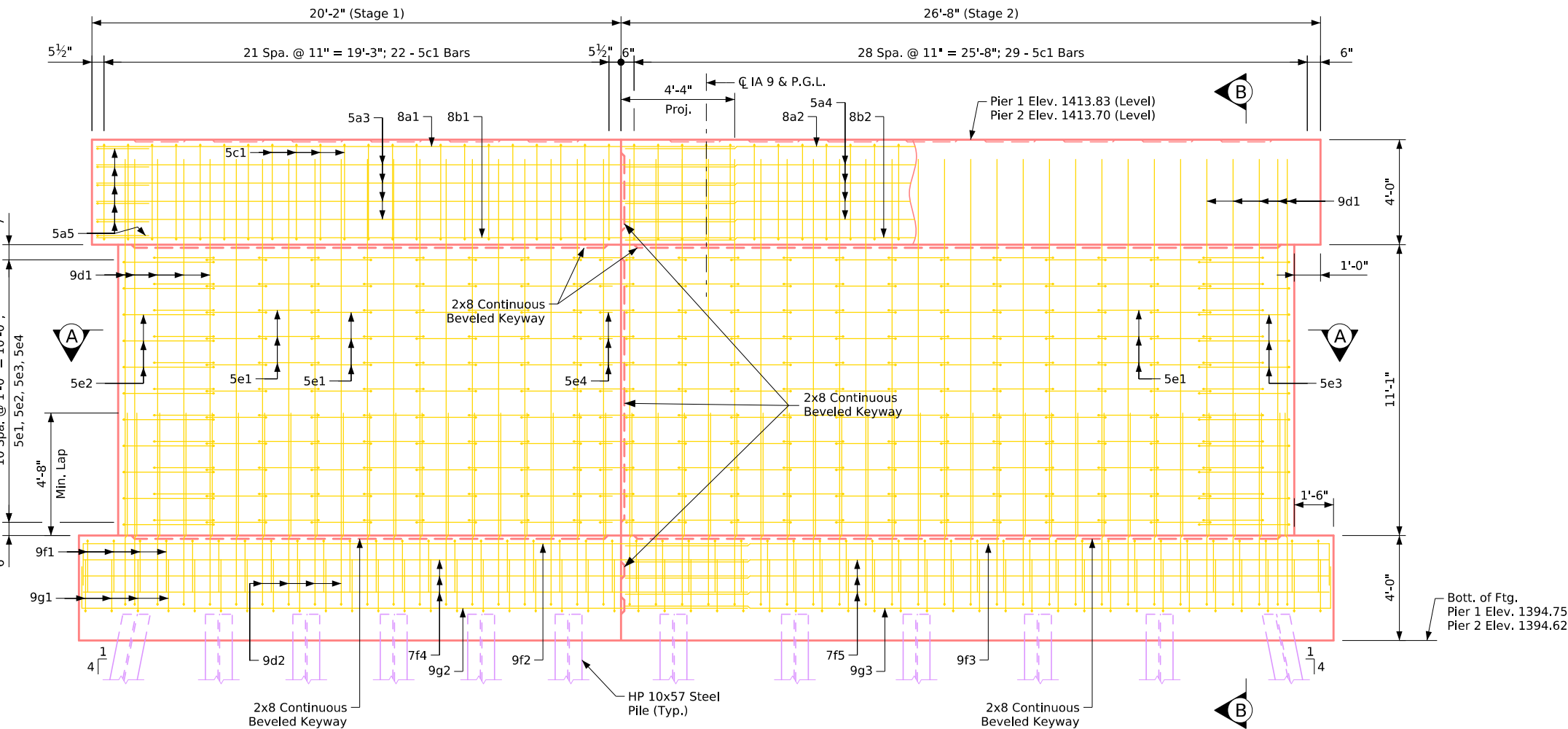
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0126Design Sheet No. 9 of 20FHWA No. 023701

Control Point: Point Name 205, Y=9684074.525, X=11492263.87, Z=1433.326, CP Cut X Ball Rail



Pier Cap Plan



Pier Elevation

Pier Notes:

All reinforcing steel is to be securely wired in place before concrete is placed.

All exposed corners 90° or sharper are to be filleted with a 3/4" dressed and beveled strip.

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

The 9d2 footing to column dowels are to be in place before footing concrete is placed.

Pile dimensions shown are at the bottom of footing. Batter piles 1H:4V in the direction shown. 24 - HP 10x57 steel bearing piles are required at each pier. All battered piles shall be trimmed to a level horizontal line to aid in the placement of reinforcing.

The pier piles are to be driven to full penetration, if practicable, but in no case to a bearing value less than the pile bearing required as shown on Design Sheet 12.

All reinforcing steel is to be Grade 60.

Pier piling was designed for HL-93 loading with an allowance for 20 lbs. per sq.ft. future wearing surface.

Notes:

See Design Sheet 11 for section A-A and section B-B.

Pier piles are not battered (except corner piles, as shown) to avoid undercutting of the existing abutment and pier piles which could cause potential settlement issues during staged construction.

Design For 0 Degree Skew

110'-0" x 44'-0" Continuous Concrete Slab Bridge

33'-6" End Spans 43'-0" Interior Span

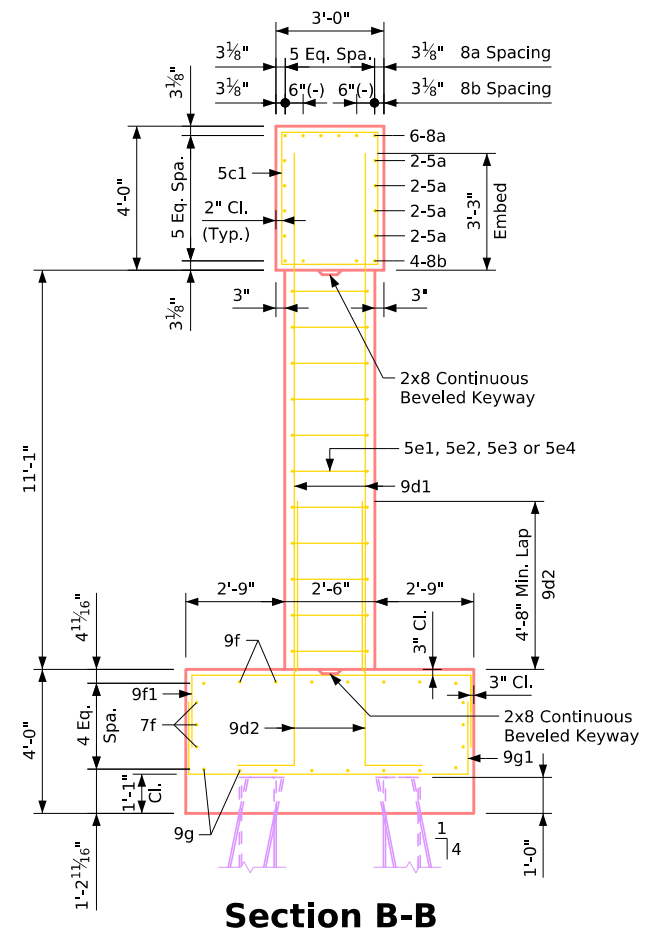
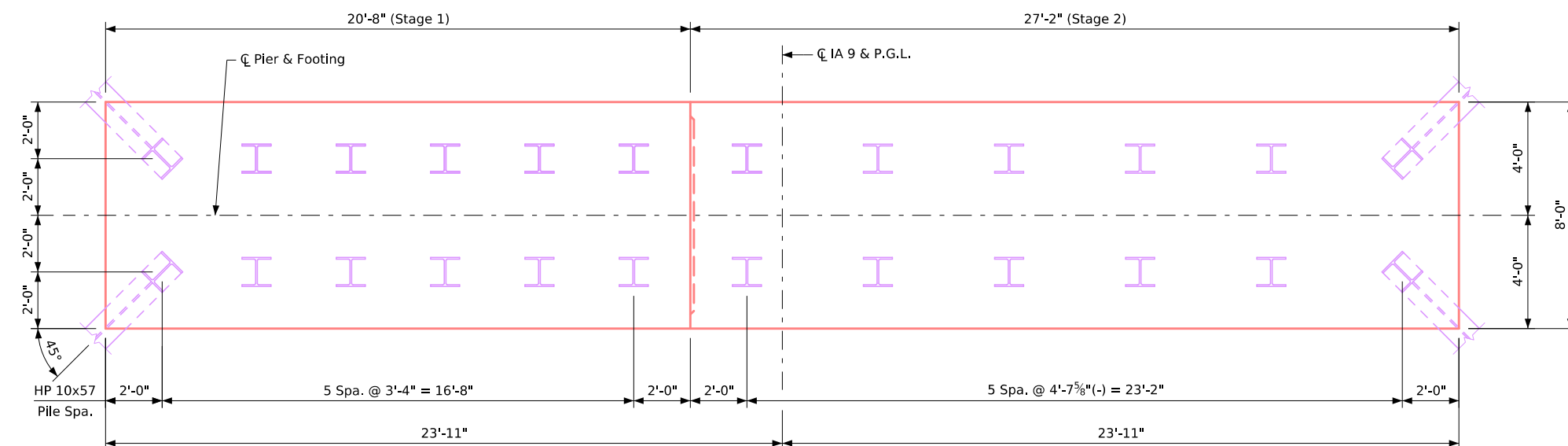
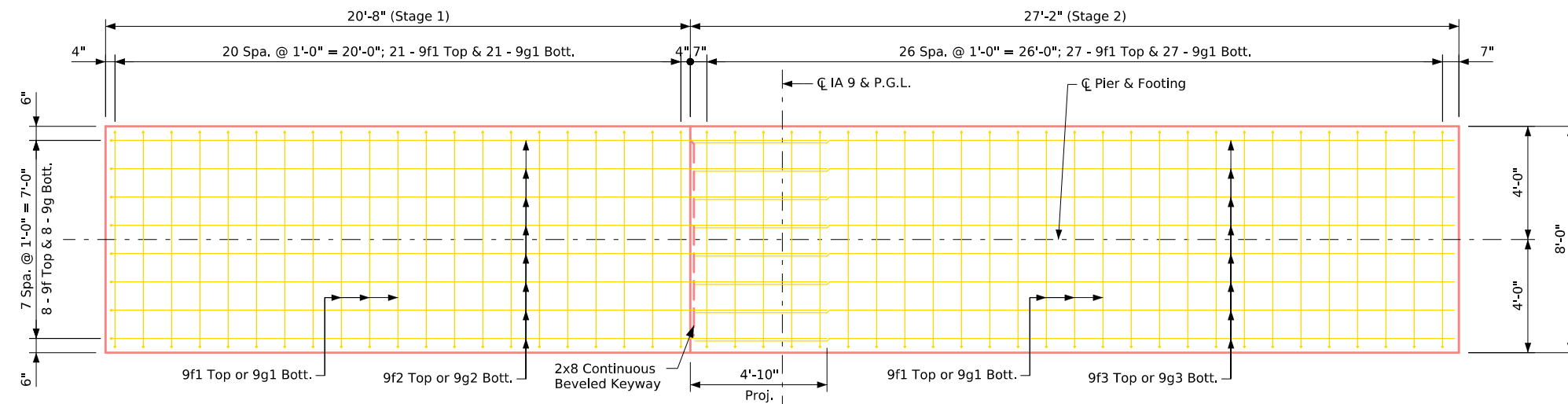
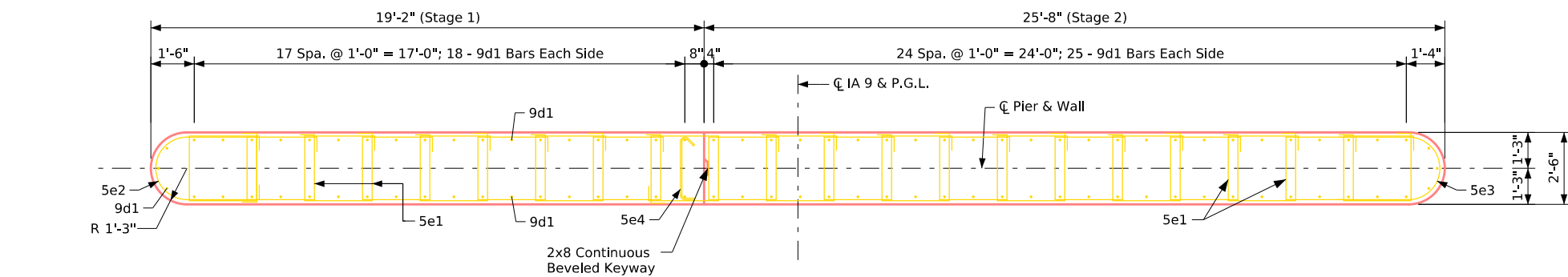
Pier Details

STA. 296+73.40 (IA 9) Turn-in Date: Oct 2026

Dickinson County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0126 Design Sheet No. 10 of 20 FHWA No. 023701



Notes:

See Design Sheet 10 for location of section A-A and section B-B.

Pier piles are not battered (except corner piles, as shown) to avoid undercutting of the existing abutment and pier piles which could cause potential settlement issues during staged construction.

Design For 0 Degree Skew
110'-0" x 44'-0" Continuous
Concrete Slab Bridge

33'-6" End Spans

43'-0" Interior Span

Pier Sections and Footing

STA. 296+73.40 (IA 9)

Turn-in Date: Oct 2026

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IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0126

Design Sheet No. 11 of 20

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Bent Bar Details

5a5

5c1

9d2

5e1

5e2, 5e3

5e4

9f1, 9g1

9f2, 9g2

9f3, 9g3

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

PIER 1 AND PIER 2 PILE DRIVING NOTES

THE NOMINAL AXIAL BEARING RESISTANCE FOR CONSTRUCTION CONTROL WAS DETERMINED FROM A COHESIVE SOIL CLASSIFICATION AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.65. PILES ARE ASSUMED TO BE DRIVEN FROM A START ELEVATION AT THE BOTTOM OF FOOTING. DESIGN SCOUR (200-YEAR) WAS ASSUMED TO AFFECT THE UPPER 1 FEET OF EMBEDDED PILE LENGTH AND CAUSE 1 KIP OF DRIVING RESISTANCE.

FILE NO. 32502	ENGLISH	DESIGN TEAM McClure
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Concrete Placement Quantities (Stage 1)		
Location	Pier 1	Pier 2
Footing	24.5	24.5
Column	19.4	19.4
Cap	9.0	9.0
Total (Cu. Yds.)	52.9	52.9

Concrete Placement Quantities (Stage 2)		
Location	Pier 1	Pier 2
Footing	32.2	32.2
Column	26.1	26.1
Cap	11.9	11.9
Total (Cu. Yds.)	70.2	70.2

Diagram illustrating the treatment of joint material at the ends of pier cap. The diagram shows a cross-section of a pier cap, labeled "PART PLAN". The pier cap is shown as a hatched rectangular area. The joint material is indicated by a dashed line. The edge of the slab is marked with a red line. The dimension of the joint material is given as $4 \times \frac{3}{8}$ STRIP OF PREFORMED JOINT MATERIAL. The section is labeled "C-C" on both sides.

SHOWING TREATMENT OF $4 \times \frac{3}{8}$ STRIP OF PREFORMED JOINT MATERIAL AT ENDS OF PIER CAP. NOTE THAT JOINT MATERIAL IS TO GO ALL THE WAY AROUND PIER CAP.

PART SECT C-C

Non - Coated Reinforcing Steel - One Pier					
Bar	Location	Shape	No.	Length	Weight
8a1	Cap Longit. Top - Stage 1		6	24'-4"	390
8a2	Cap Longit. Top - Stage 2		6	26'-4"	422
5a3	Cap Longit. Sides - Stage 1		8	24'-4"	203
5a4	Cap Longit. Sides - Stage 2		8	26'-4"	220
5a5	Cap Transverse Ends		12	6'-7"	82
8b1	Cap Longit. Bott. - Stage 1		4	24'-4"	260
8b2	Cap Longit. Bott. - Stage 2		4	26'-4"	281
5c1	Cap Stirrups		51	13'-8"	727
9d1	Column Vertical		92	14'-4"	4483
9d2	Column Vertical Dowel		92	9'-0"	2815
5e1	Column Ties		231	10'-0"	2409
5e2	Column Tie End - Stage 1		11	11'-5"	131
5e3	Column Tie End - Stage 2		11	11'-1"	127
5e4	Column Tie Hairpin		11	3'-2"	36
9f1	Pier Footing Transverse Top		48	10'-8"	1741
9f2	Pier Footing Longit. Top - Stage 1		8	26'-10"	730
9f3	Pier Footing Longit. Top - Stage 2		8	28'-4"	771
7f4	Pier Footing Longit. Sides - Stage 1		6	25'-3"	310
7f5	Pier Footing Longit. Sides - Stage 2		6	26'-9"	328
9g1	Pier Footing Transverse Bott.		48	10'-8"	1741
9g2	Pier Footing Longit. Bott. - Stage 1		8	26'-10"	730
9g3	Pier Footing Longit. Bott. - Stage 2		8	28'-4"	771
Non-Coated Reinforcing Total Weight (lbs.)					19,708

4:22:40 PM 9/2/2026 jkane pw:\\projectwise.dot.int.lan:PWMain\\Documents\\Projects\\3000902021\\Bridge\\(029) Bridge Replacement-CCS\\SHT 30009029 McClure 0126 023701 Z01.dgn

Control Point: Point Name 205, Y=9684074.525, X=11492263.87, Z=1433.326, CP Cut X Ball Rail

ABUTMENT NOTES:

ALL PILING HP 10x57.

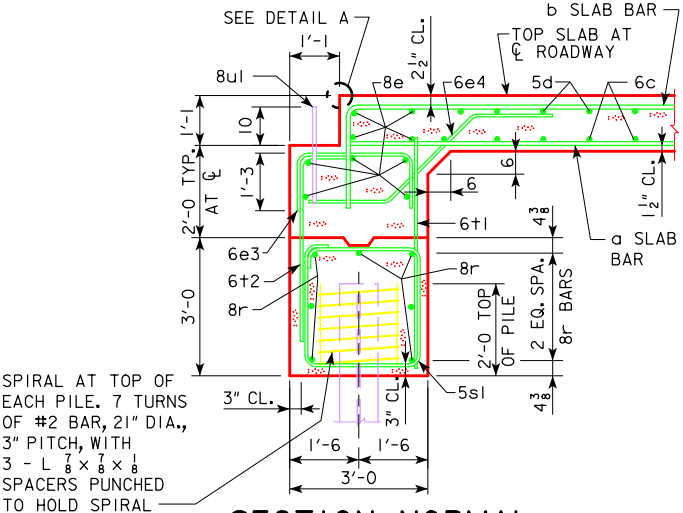
THE CONCRETE AND REINFORCING STEEL FOR THE WINGS IS INCLUDED WITH THE SUPERSTRUCTURE.

THE MINIMUM CLEAR DISTANCE FROM THE FACE OF THE CONCRETE TO NEAR REINFORCING BAR IS TO BE 2 INCHES UNLESS OTHERWISE NOTED OR SHOWN.

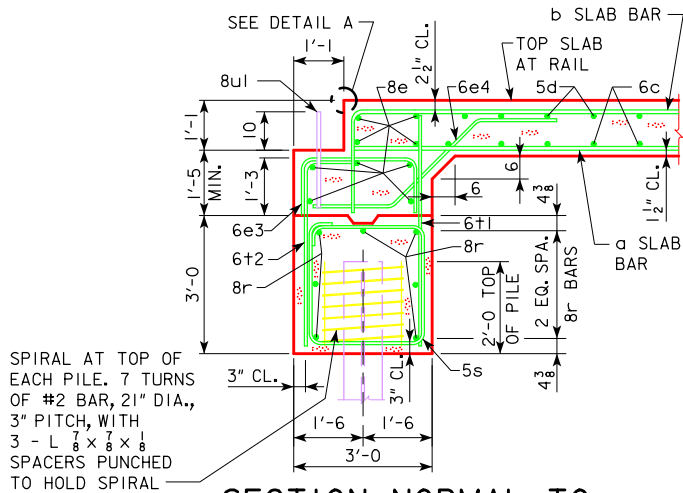
STEEL ABUTMENT PILES SHALL BE DRIVEN TO FULL PENETRATION IF PRACTICABLE BUT IN NO CASE TO A BEARING VALUE LESS THAN SHOWN IN DESIGN PLANS.

ALL REINFORCING STEEL IS TO BE GRADE 60.

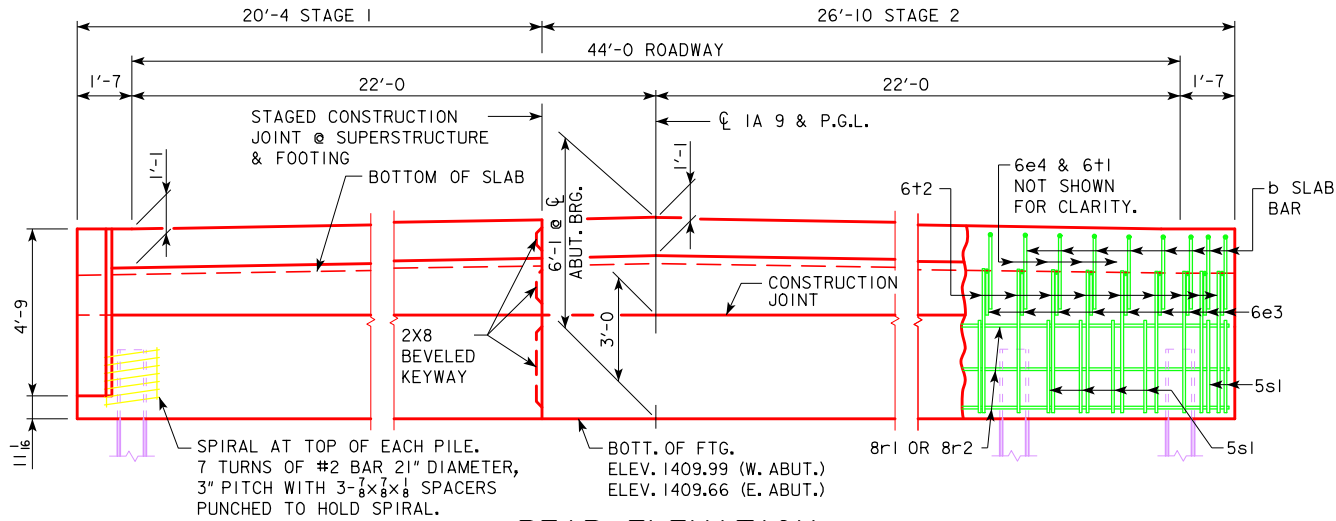
ABUTMENT PILING WAS DESIGNED FOR HL-93 LOADING WITH AN ALLOWANCE FOR 20 LBS. PER SQ. FT. FUTURE WEARING SURFACE.



SECTION NORMAL TO ABUTMENT AT CL

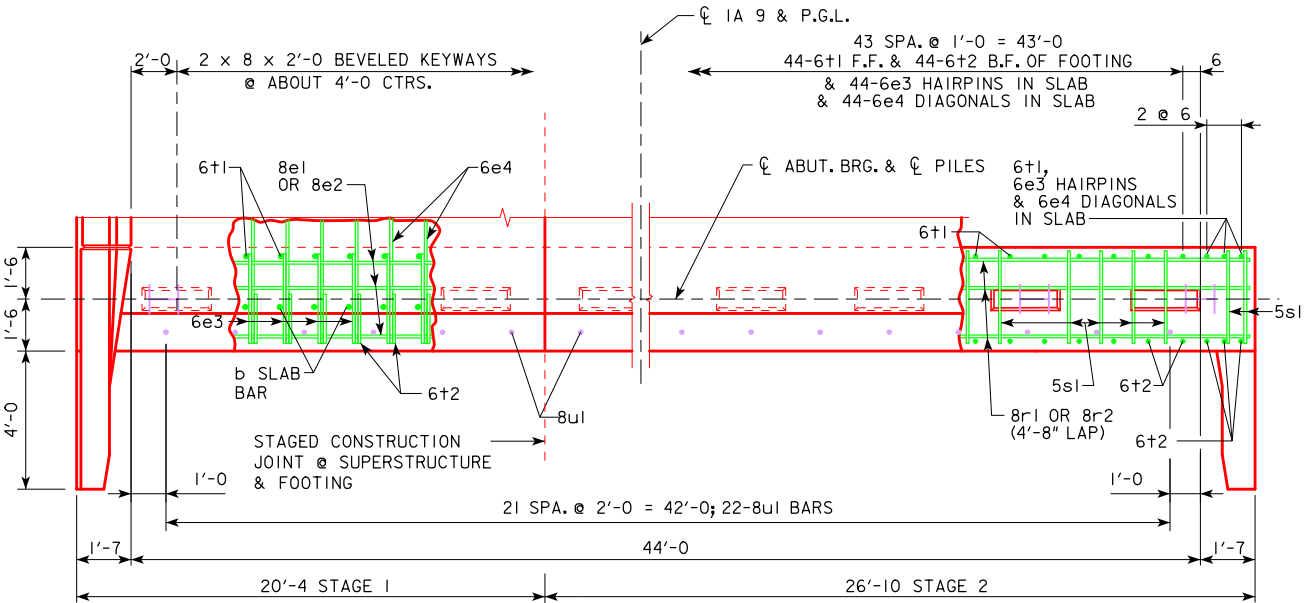


SECTION NORMAL TO ABUTMENT AT GUTTERLINE



REAR ELEVATION

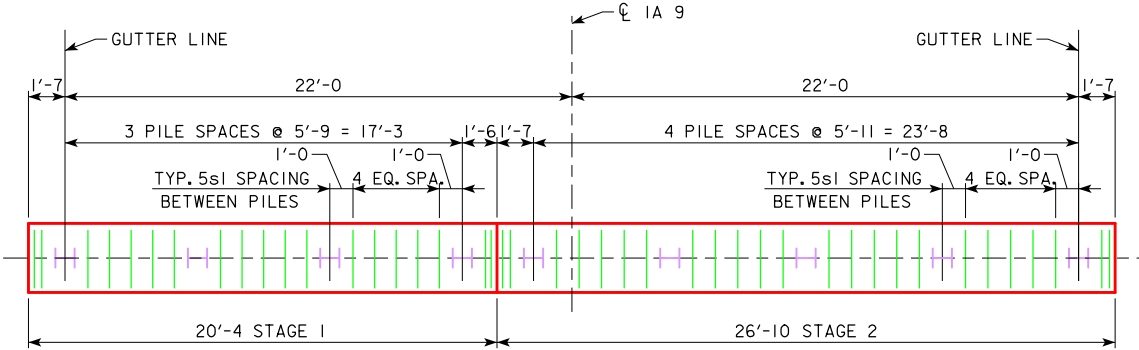
(WEST ABUTMENT SHOWN, EAST ABUTMENT SIMILAR)



PLAN VIEW

(WEST ABUTMENT SHOWN, EAST ABUTMENT SIMILAR)

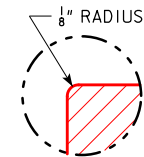
NOTE: WING REINFORCING AND RAIL NOT SHOWN.
6e3, 6e4 AND 8e ARE INCLUDED WITH SUPERSTRUCTURE QUANTITIES.



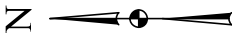
PILE PLAN

(WEST ABUTMENT SHOWN, EAST ABUTMENT SIMILAR)

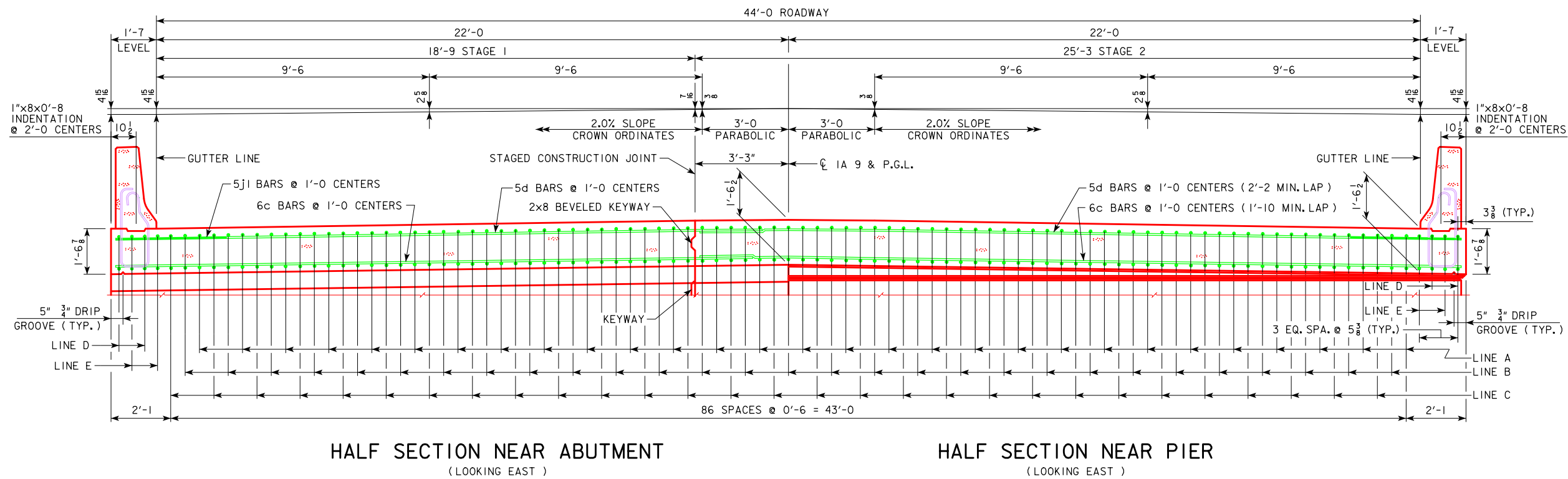
9 - HP 10X57 STEEL BEARING PILES AT WEST ABUTMENT
9 - HP 10X57 STEEL BEARING PILES AT EAST ABUTMENT



DETAIL A



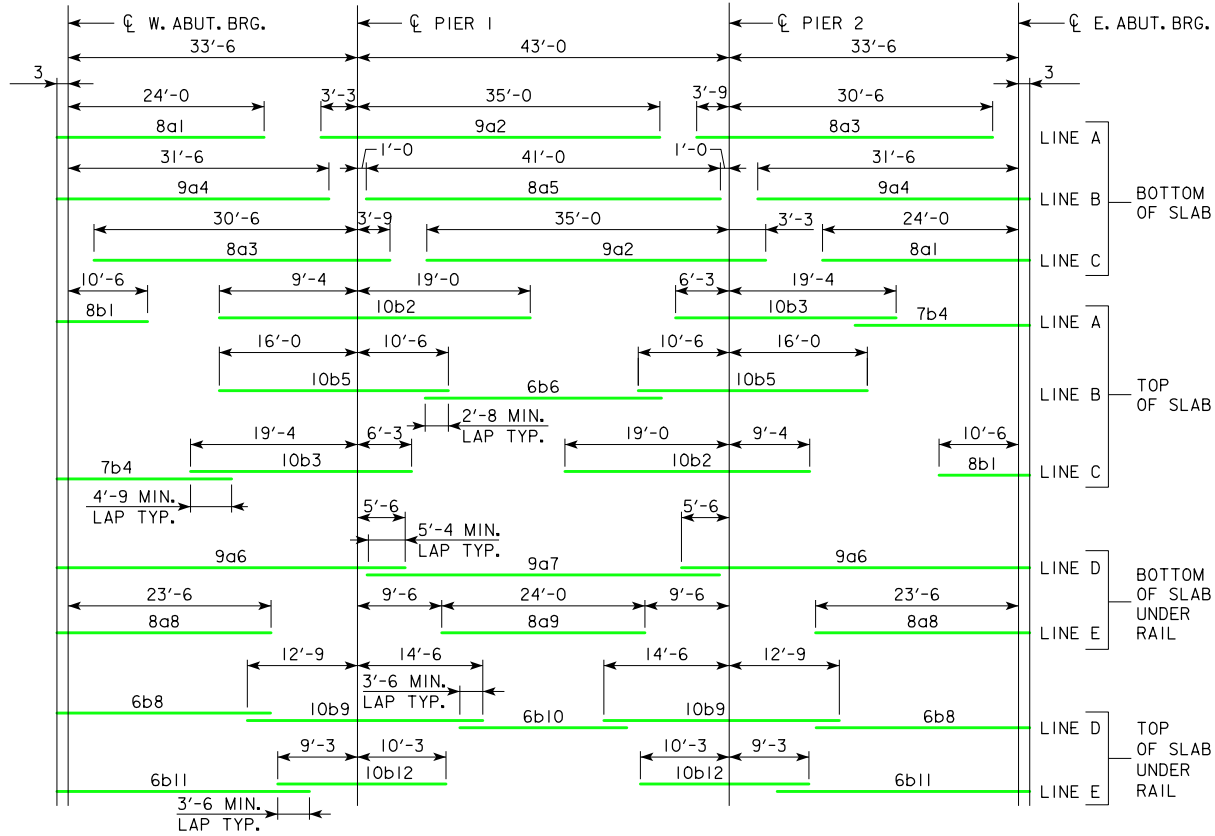
Design For 0 Degree Skew
110'-0" x 44'-0" Continuous Concrete Slab Bridge
33'-6" End Spans 43'-0" Interior Span
Abutment Details
STA. 296+73.40 (IA 9) Turn-in Date: Oct 2026
Dickinson County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 0126 Design Sheet No. 13 of 20 FHWA No. 023701



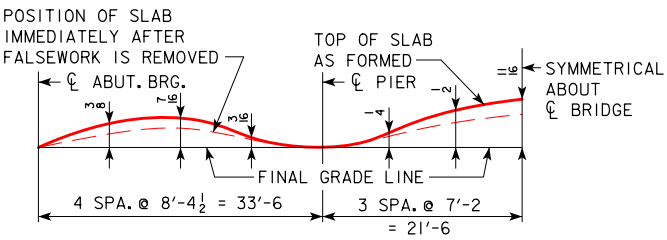
SLAB CROSS-SECTIONAL AREA
STAGE 1 = 31.37 SQ. FT.
STAGE 2 = 41.39 SQ. FT.

NOTE: TOP LONGITUDINAL REINFORCING STEEL IS TO BE PARALLEL TO AND 2 1/2" CLEAR BELOW TOP OF SLAB. BOTTOM LONGITUDINAL REINFORCING STEEL IS TO BE PARALLEL TO AND 1 1/2" CLEAR ABOVE BOTTOM OF SLAB. REINFORCING STEEL IS TO BE SECURELY WIRED IN PLACE AND ADEQUATELY SUPPORTED ON BAR CHAIRS BEFORE CONCRETE IS POURED. I.M. 451.01 REQUIREMENTS SHALL APPLY FOR BAR CHAIRS.

LONGITUDINAL BARS SHALL BE SHIFTED TO PROVIDE 1" CLEAR TO STAGE CONSTRUCTION JOINT



PLACEMENT FOR LONGITUDINAL REINFORCEMENT



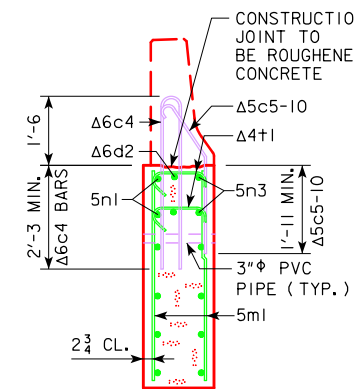
FORM CAMBER DIAGRAM

THIS DIAGRAM SHOWS THE FORM CAMBER REQUIRED TO COMPENSATE FOR THE ANTICIPATED ULTIMATE DEAD LOAD DEFLECTION. THE ABOVE DIMENSIONS DO NOT INCLUDE ANY ALLOWANCE FOR FORM DEFLECTION OR FALSEWORK SETTLEMENT.

Design For 0 Degree Skew
110'-0" x 44'-0" Continuous Concrete Slab Bridge
33'-6" End Spans 43'-0" Interior Span
Superstructure Details
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[illegible]

NOTE: PLUG 3" ϕ PVC PIPE
WITH EXPANDING FOAM PRIOR
TO BACKFILLING BEHIND
ABUTMENTS.



Δ NOTE: SEE STANDARD END SECTION
DETAILS FOR DETAILS OF BARRIER
RAIL END SECTION. REINFORCING BARS
6c3, 6c4, 5c5-10, 6d2 & 4t1 ARE INCLUDED
IN THE SUPERSTRUCTURE QUANTITIES.

NOTE: 5ml & 5nl BARS ARE INCLUDED
IN SUPERSTRUCTURE BAR LIST. 5c, 6c, 6d
& 4+I BARS ARE INCLUDED IN BARRIER
RAIL BAR LIST.

THIS BRIDGE IS DESIGNED FOR HL-93 LOADING PLUS AN ALLOWANCE OF 20 POUNDS PER SQUARE FOOT OF ROADWAY FOR FUTURE WEARING SURFACE.

THE SLAB AS SHOWN INCLUDES A $\frac{1}{2}$ INCH INTEGRAL WEARING SURFACE.

THE MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR
REINFORCING BAR SHALL BE 2 INCHES UNLESS OTHERWISE NOTED
OR SHOWN. ALL REINFORCING STEEL IS TO BE SECURELY WIRED
IN PLACE. SEE "BAR CHAIR NOTE".

ALL REINFORCING SHALL BE GRADE 60.

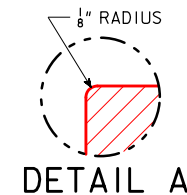
THE CONCRETE SLAB IS TO BE PLACED WITH A MINIMUM OF CONSTRUCTION JOINTS. PROCEDURES FOR PLACING SLAB CONCRETE SHALL BE SUBMITTED FOR APPROVAL TOGETHER WITH A STATEMENT OF THE PROPOSED METHOD AND EVIDENCE THAT THE CONTRACTOR POSSESSES THE NECESSARY EQUIPMENT AND FACILITIES TO ACCOMPLISH THE REQUIRED RESULT. STAGE 1 SLAB CONSTRUCTION SHALL REMAIN SHORED DURING STAGE 2 SLAB CONSTRUCTION.

NOTE THAT WHEN PORTLAND CEMENT APPROACH PAVEMENT IS PLACED, COMPRESSIBLE JOINT MATERIAL MUST BE USED BETWEEN PAVEMENT AND END OF BRIDGE.

IF NECESSARY TO PREVENT DAMAGE TO THE END OF THE BRIDGE DECK OR BACKWALL FROM CONSTRUCTION EQUIPMENT, AN APPROPRIATE METHOD OF PROTECTION APPROVED BY THE ENGINEER SHALL BE PROVIDED BY THE BRIDGE CONTRACTOR AT NO EXTRA COST TO THE STATE.

COST OF FURNISHING AND PLACING 3" ϕ PVC PIPE IN EACH WING IS INCLUDED IN THE PRICE BID FOR STRUCTURAL CONCRETE.

TOP MAT OF REINFORCING STEEL IS TO BE SUPPORTED BY INDIVIDUAL BAR CHAIRS SPACED AT NOT MORE THAN 3'-0" CENTERS LONGITUDINALLY AND TRANSVERSELY. THE BOTTOM MAT OF REINFORCING STEEL IS TO BE SUPPORTED BY INDIVIDUAL BAR CHAIRS SPACED AT NOT MORE THAN 3'-0" CENTERS LONGITUDINALLY AND TRANSVERSELY, OR BY CONTINUOUS ROWS OF BAR HIGH CHAIRS OR SLAB BOLSTERS SPACED 4'-0" APART. I.M. 451.01 REQUIREMENTS SHALL APPLY FOR BAR CHAIRS, BAR HIGH CHAIRS, AND SLAB BOLSTERS.

[illegible]

SPIRAL AT TOP OF
EACH PILE. 7 TURNS
OF #2 BAR, 21" DIA.,
3" PITCH, WITH
3 - L $\frac{7}{8} \times \frac{7}{8} \times \frac{1}{8}$
SPACERS PUNCHED
TO HOLD SPIRAL —

TABLE OF WINGWALL ELEVATIONS

LOCATION	ELEV. A	ELEV. B
W. ABUT., N. WING	1415.66	1415.67
W. ABUT., S. WING	1415.66	1415.67
E. ABUT., N. WING	1415.33	1415.31
E. ABUT., S. WING	1415.33	1415.31

Design For 0 Degree Skew

110'-0" x 44'-0" Continuous Concrete Slab Bridge

33'-6" End Spans 43'-0" Interior Span

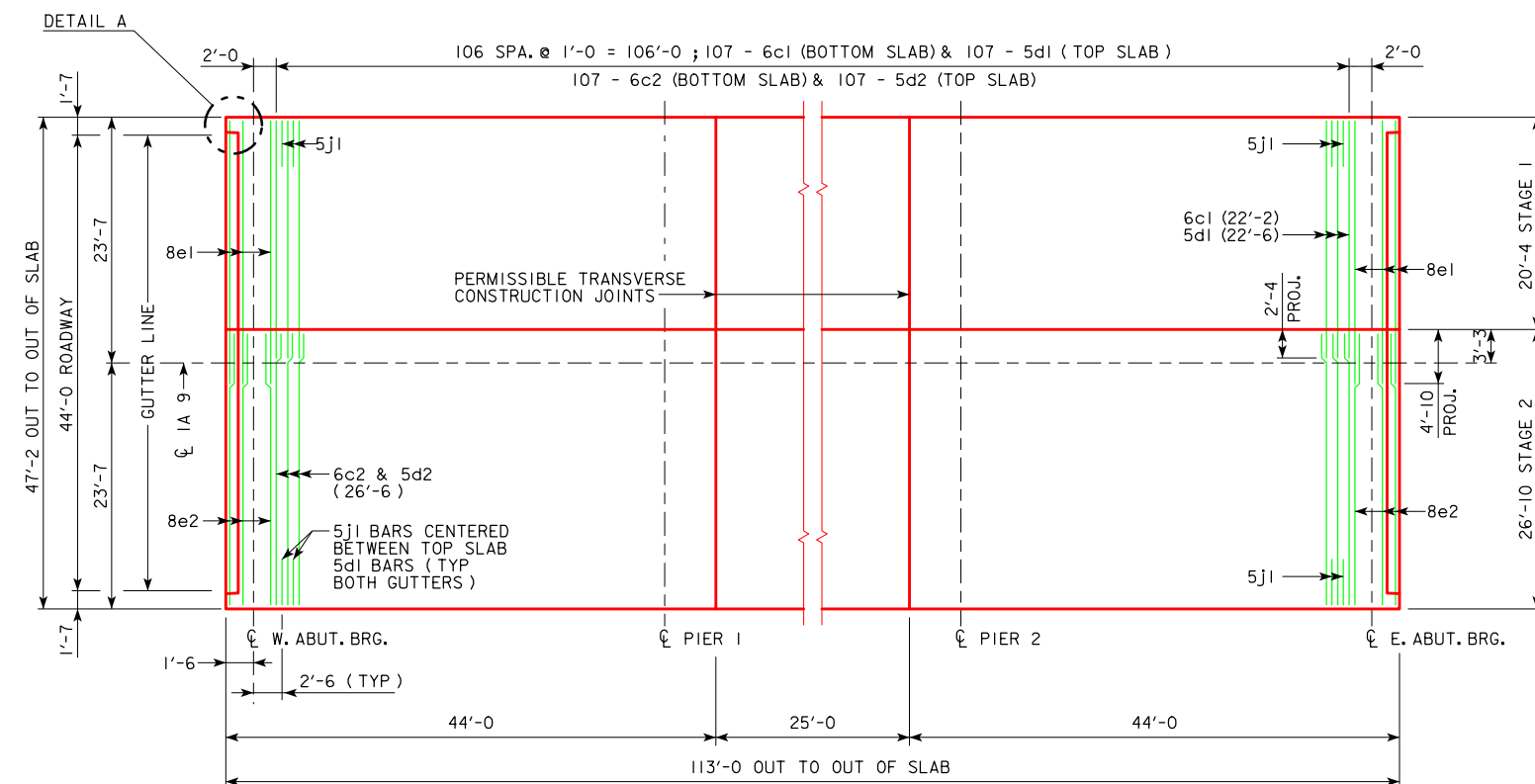
Superstructure Details

STA. 296+73.40 (IA 9) Turn-in Date: Oct 2026

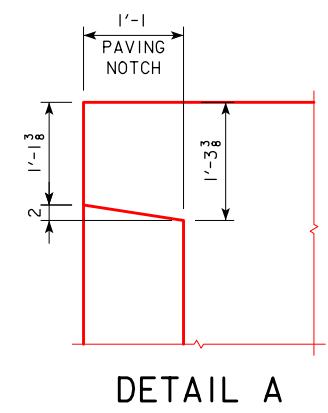
Dickinson County

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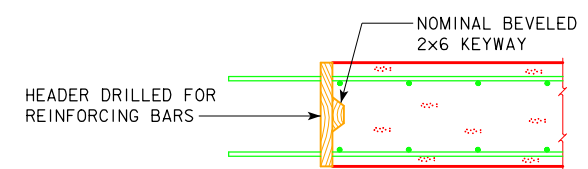
Design No. 0126 Design Sheet No. 16 of 20 FHWA No. 023701



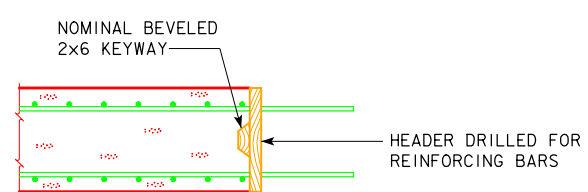
TRANSVERSE REINFORCING STEEL LAYOUT



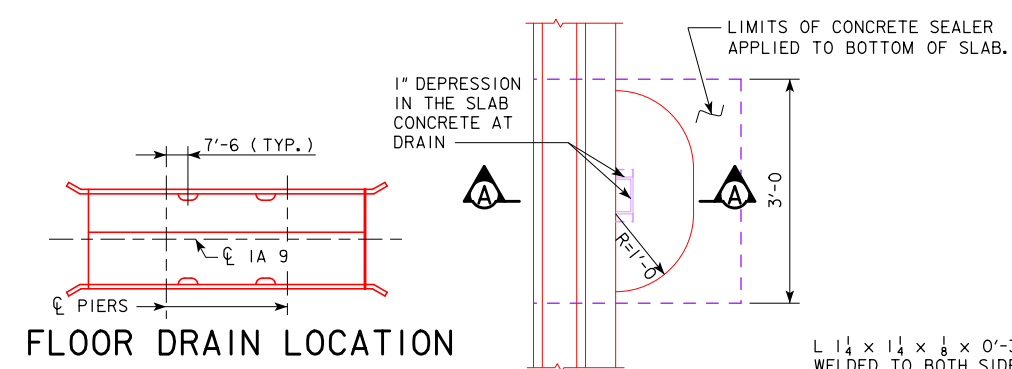
DETAIL A



PERMISSIBLE TRANSVERSE CONSTR. JOINT



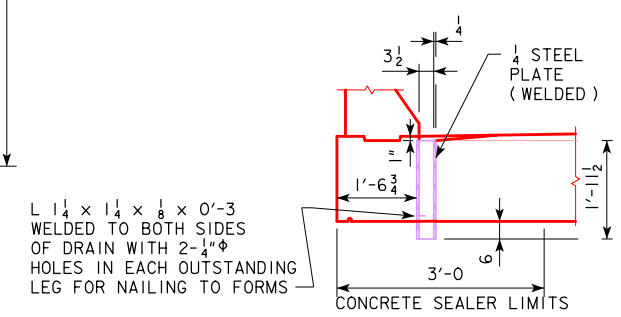
LONGITUDINAL CONSTR. JOINT



FLOOR DRAIN LOCATION

NOTE: 4" x 8" OUTSIDE DIMENSION ROLLED TUBE WITH 1/4" WALL THICKNESS MAY BE SUBSTITUTED FOR THE WELDED DRAIN SHOWN.

PART PLAN



SECTION A-A

WEIGHT OF ONE FLOOR DRAIN
39 LBS.

FLOOR DRAIN DETAILS

NOTE: DRAINS ARE TO BE GALVANIZED. INCLUDE COST OF DRAINS IN PRICE BID FOR "STRUCTURAL CONCRETE". 4 DRAINS REQUIRED.

Design For 0 Degree Skew

110'-0" x 44'-0" Continuous Concrete Slab Bridge

33'-6" End Spans 43'-0" Interior Span

Superstructure Details

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Design No. 0126 Design Sheet No. 17 of 20 FHWA No. 023701

BILL OF REINFORCING STEEL FOR SUPERSTRUCTURE					
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
8a1	SLAB LONGITUDINAL BOTTOM		58	24'-3	3756
9a2	SLAB LONGITUDINAL BOTTOM		58	38'-3	7543
8a3	SLAB LONGITUDINAL BOTTOM		58	34'-3	5304
9a4	SLAB LONGITUDINAL BOTTOM		58	31'-9	6262
8a5	SLAB LONGITUDINAL BOTTOM		29	41'-0	3175
9a6	SLAB LONGITUDINAL BOTTOM, AT RAIL		8	39'-3	1068
9a7	SLAB LONGITUDINAL BOTTOM, AT RAIL		4	42'-8	581
8a8	SLAB LONGITUDINAL BOTTOM, AT RAIL		8	23'-9	508
8a9	SLAB LONGITUDINAL BOTTOM, AT RAIL		4	24'-0	257
8b1	SLAB LONGITUDINAL TOP		58	13'-0	2014
10b2	SLAB LONGITUDINAL TOP		58	28'-4	7072
10b3	SLAB LONGITUDINAL TOP		58	25'-7	6385
7b4	SLAB LONGITUDINAL TOP		58	21'-5	2539
10b5	SLAB LONGITUDINAL TOP		58	26'-6	6614
6b6	SLAB LONGITUDINAL TOP		29	27'-4	1191
6b8	SLAB LONGITUDINAL TOP, AT RAIL		8	26'-9	322
10b9	SLAB LONGITUDINAL TOP, AT RAIL		8	27'-3	939
6b10	SLAB LONGITUDINAL TOP, AT RAIL		4	21'-0	127
6b11	SLAB LONGITUDINAL TOP, AT RAIL		8	30'-3	364
10b12	SLAB LONGITUDINAL TOP, AT RAIL		8	19'-6	672
6c1	SLAB TRANSVERSE BOTTOM - STAGE 1		107	22'-2	3562
6c2	SLAB TRANSVERSE BOTTOM - STAGE 2		107	26'-6	4259
5d1	SLAB TRANSVERSE TOP - STAGE 1		107	22'-6	2511
5d2	SLAB TRANSVERSE TOP - STAGE 2		107	26'-6	2957
8e1	SLAB, TRANSVERSE AT ABUTMENT - STAGE 1		18	25'-1	1206
8e2	SLAB, TRANSVERSE AT ABUTMENT - STAGE 2		18	26'-6	1274
6e3	SLAB, HAIRPINS, AT ABUTMENT		100	5'-0	751
6e4	SLAB, DIAGONALS, AT ABUTMENT		100	5'-11	889
5j1	TOP OF SLAB, TRANSVERSE, AT RAIL		212	8'-6	1880
5m1	WING, VERTICAL		40	4'-5	185
5n1	WING, HORIZONTAL BACK FACE		24	6'-8	167
5n3	WING, HORIZONTAL TRAFFIC FACE		24	6'-9	169
SUB EPOXY COATED TOTAL - LBS.				76,503	
BARRIER RAIL - SEE LIST ON RAIL SHEET J44-46-14				4504	
EPOXY COATED RAIL TOTAL - LBS.				81,007	
STAINLESS STEEL RAIL TOTAL - LBS.				2458	

ESTIMATED QUANTITIES FOR SUPERSTRUCTURE		
ITEM	UNIT	QUANTITY
* STRUCTURAL CONCRETE (BRIDGE)	C.Y.	323.8
REINF. STEEL EPOXY COATED	LBS.	81,007
Δ REINF. STEEL STAINLESS STEEL	LBS.	2703
CONCRETE BARRIER	L.F.	242.0

* INCLUDES 4 WINGS @ 0.68 C.Y. EACH; EXCLUDES RAIL CONCRETE.
Δ INCLUDES ABUTMENT PAVING NOTCH BAR WEIGHT.

CONCRETE PLACEMENT QUANTITIES	
LOCATION	QUANTITY
SLAB, ABUT. DIAPHRAGMS & PIER HAUNCHES - STAGE 1	138.4
ABUTMENT WINGS 2 @ 0.68 CY - STAGE 1	1.4
SLAB, ABUT. DIAPHRAGMS & PIER HAUNCHES - STAGE 2	182.6
ABUTMENT WINGS 2 @ 0.68 CY - STAGE 2	1.4
TOTAL (CU. YDS.)	323.8

NOTE:
CONCRETE AND REINFORCING STEEL QUANTITIES ARE INCLUDED ON THE SUMMARY QUANTITIES SHEET.

BENT BAR DETAILS

6e4

6e3

5n3

8b1, 7b4,
6b8, AND 6b11

NOTE: ALL DIMENSIONS ARE OUT TO OUT. D = PIN DIAMETER.

STAINLESS STEEL REINFORCING FOR SUPERSTRUCTURE					
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
8u1	ABUTMENT PAVING NOTCH BAR		44	2'-1	245
8u1 BARS SHALL BE PAID FOR UNDER THE BID ITEM "REINFORCING STEEL, STAINLESS STEEL".			WEIGHT = LBS.		

NOTES:
ALL BARRIER RAIL REINFORCING STEEL IS TO BE EITHER EPOXY COATED OR STAINLESS STEEL AS SHOWN OR NOTED. THE STAINLESS STEEL REINFORCING STEEL SHALL BE DEFORMED BAR GRADE 60 MEETING THE REQUIREMENTS OF MATERIALS I.M.452.

ALL OTHER REINFORCING STEEL IS TO BE EPOXY COATED.

Design For 0 Degree Skew

110'-0" x 44'-0" Continuous Concrete Slab Bridge

33'-6" End Spans43'-0" Interior Span

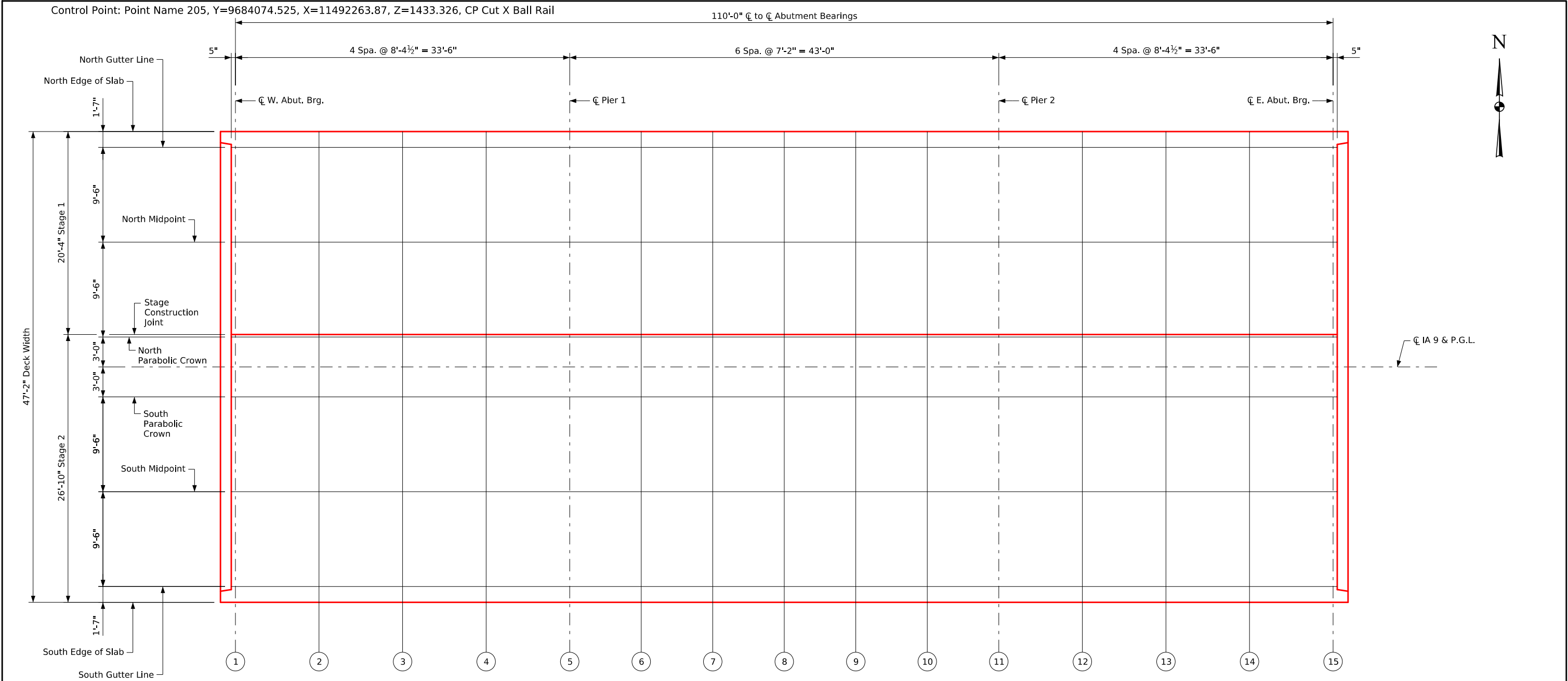
Superstructure Details

STA. 296+73.40 (IA 9)Turn-In Date: Oct 2026

Dickinson County

IOWA DEPARTMENT OF TRANSPORTATION

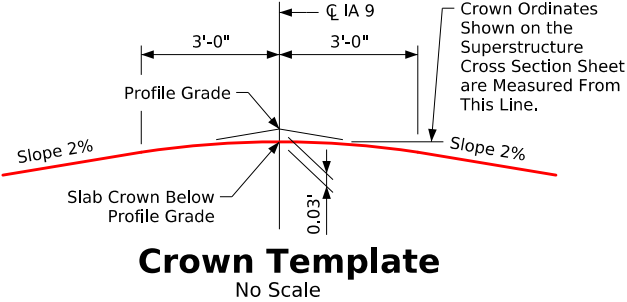
Design No. 0126Design Sheet No. 18 of 20FHWA No. 023701



Location of Top of Slab Elevations

Top of Slab Elevations															
	℄ W. Abut. Bearing				℄ Pier 1 Bearing						℄ Pier 2 Bearing				℄ E. Abut. Bearing
Location	Line 1	Line 2	Line 3	Line 4	Line 5	Line 6	Line 7	Line 8	Line 9	Line 10	Line 11	Line 12	Line 13	Line 14	Line 15
North Edge of Slab	1415.66	1415.63	1415.61	1415.58	1415.56	1415.53	1415.51	1415.49	1415.47	1415.45	1415.43	1415.40	1415.38	1415.35	1415.33
North Gutter Line	1415.66	1415.63	1415.61	1415.58	1415.56	1415.53	1415.51	1415.49	1415.47	1415.45	1415.43	1415.40	1415.38	1415.35	1415.33
North Midpoint	1415.85	1415.82	1415.80	1415.77	1415.75	1415.72	1415.70	1415.68	1415.66	1415.64	1415.62	1415.59	1415.57	1415.54	1415.52
Stage Construction Joint	1416.03	1416.01	1415.98	1415.96	1415.93	1415.91	1415.89	1415.87	1415.85	1415.82	1415.80	1415.78	1415.75	1415.73	1415.70
North Parabolic Crown	1416.04	1416.01	1415.99	1415.96	1415.94	1415.91	1415.89	1415.87	1415.85	1415.83	1415.81	1415.78	1415.76	1415.73	1415.71
℄ IA 9	1416.07	1416.04	1416.02	1415.99	1415.97	1415.95	1415.92	1415.90	1415.88	1415.86	1415.84	1415.81	1415.79	1415.76	1415.74
South Parabolic Crown	1416.04	1416.01	1415.99	1415.96	1415.94	1415.91	1415.89	1415.87	1415.85	1415.83	1415.81	1415.78	1415.76	1415.73	1415.71
South Midpoint	1415.85	1415.82	1415.80	1415.77	1415.75	1415.72	1415.70	1415.68	1415.66	1415.64	1415.62	1415.59	1415.57	1415.54	1415.52
South Gutter Line	1415.66	1415.63	1415.61	1415.58	1415.56	1415.53	1415.51	1415.49	1415.47	1415.45	1415.43	1415.40	1415.38	1415.35	1415.33
South Edge of Slab	1415.66	1415.63	1415.61	1415.58	1415.56	1415.53	1415.51	1415.49	1415.47	1415.45	1415.43	1415.40	1415.38	1415.35	1415.33

Note:
The top of slab elevations for the high point on the bridge slab are 0.03 feet below the high point on the approach roadway to account for the rounding of the slab with a parabolic template at the cross slope intersection.



Design For 0 Degree Skew

110'-0" x 44'-0" Continuous Concrete Slab Bridge

33'-6" End Spans 43'-0" Interior Span

Top of Slab Elevations

STA. 296+73.40 (IA 9) Turn-In Date: Oct 2026

Dickinson County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0126 Design Sheet No. 19 of 20 FHWA No. 023701

SUBDRAIN STAGING NOTE :

INSTALL SUBDRAIN IN SEGMENTS TO ALIGN WITH THE STAGED CONSTRUCTION SEQUENCE OF THE BRIDGE ABUTMENT. AT THE COMPLETION OF STAGE I, SECURELY CAP THE END OF THE SUBDRAIN. WHEN INSTALLING THE SUBDRAIN FOR THE SUBSEQUENT STAGE, UNCAP THE SUBDRAIN AND COUPLE IT TO THE NEWLY INSTALLED SEGMENT TO MAINTAIN CONTINUITY OF THE PERFORATED SUBDRAIN. ESTIMATED LENGTHS OF SUBDRAIN REQUIRED BEHIND THE ABUTMENT FOR EACH STAGE ARE SHOWN IN THE SITUATION PLAN DETAIL ON THIS SHEET, BUT MAY BE ADJUSTED AS NEEDED BASED ON AVAILABLE CLEARANCES DURING CONSTRUCTION.

SUBDRAIN NOTES:

THIS PLAN SHEET SHOWS DETAILS FOR PLACING ALL SUBDRAINS AND SUBDRAIN OUTLETS REQUIRED FOR THIS STRUCTURE.

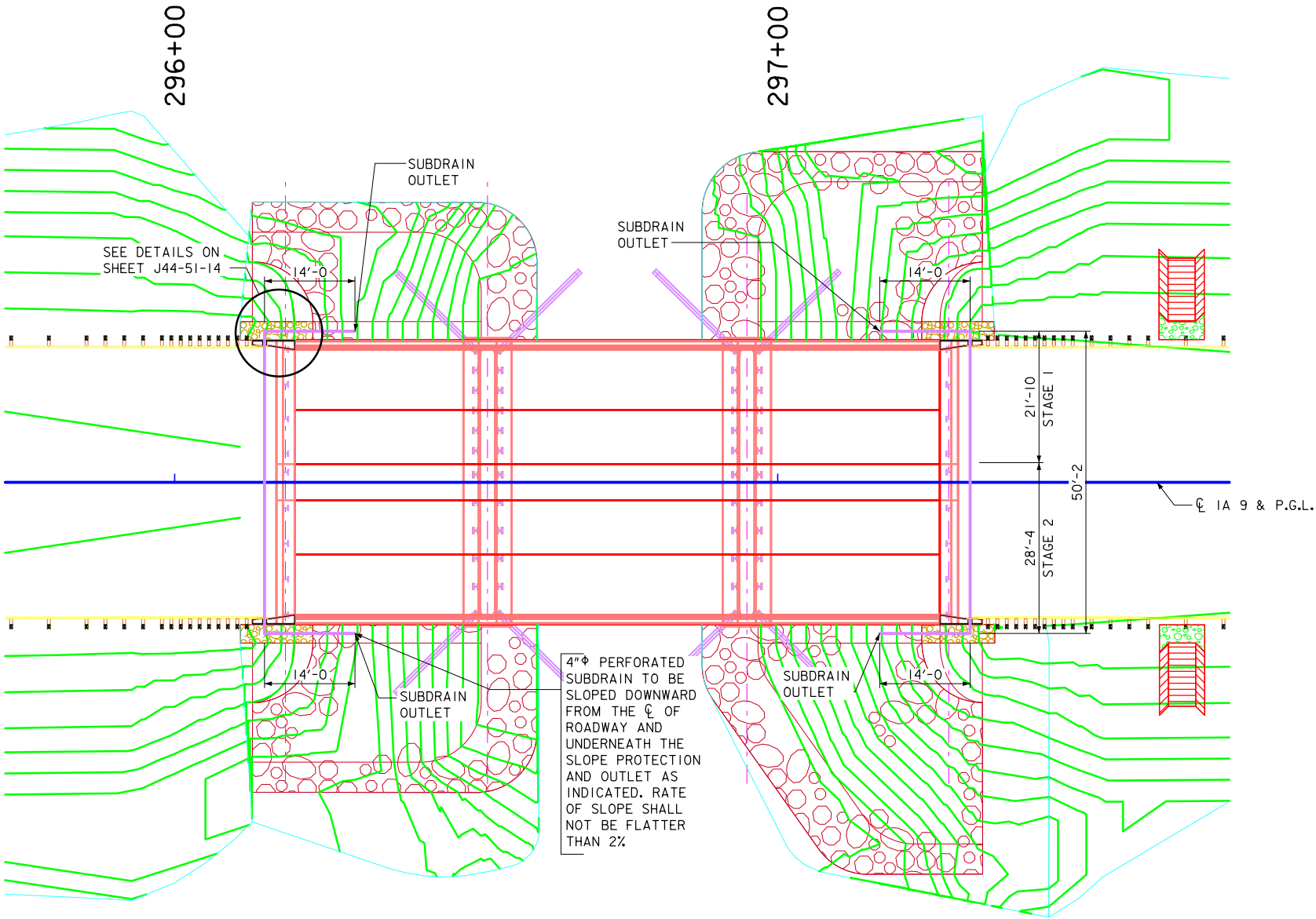
THE BRIDGE CONTRACTOR IS TO INSTALL SUBDRAINS BEHIND THE ABUTMENT. THE SUBDRAINS SHALL BE 4" IN DIAMETER AND BE IN ACCORDANCE WITH ARTICLE 4143.01, B, OF THE STANDARD SPECIFICATIONS. THE SUBDRAIN OUTLET SHALL CONSIST OF A 6'-0 LENGTH OF PIPE WITH A REMOVABLE RODENT GUARD.

THE DIMENSIONS SHOWN FOR THE PROPOSED SUBDRAINS ARE BASED ON THE PROPOSED GRADING LAYOUT OF BRIDGE BERMS. THE DIMENSIONS SHOWN ARE FOR ESTIMATING ONLY. REQUIRED LENGTHS AND GENERAL LOCATIONS OF SUBDRAINS ARE SUBJECT TO CHANGE DUE TO FIELD ADJUSTMENTS OF THE GRADING LAYOUT.

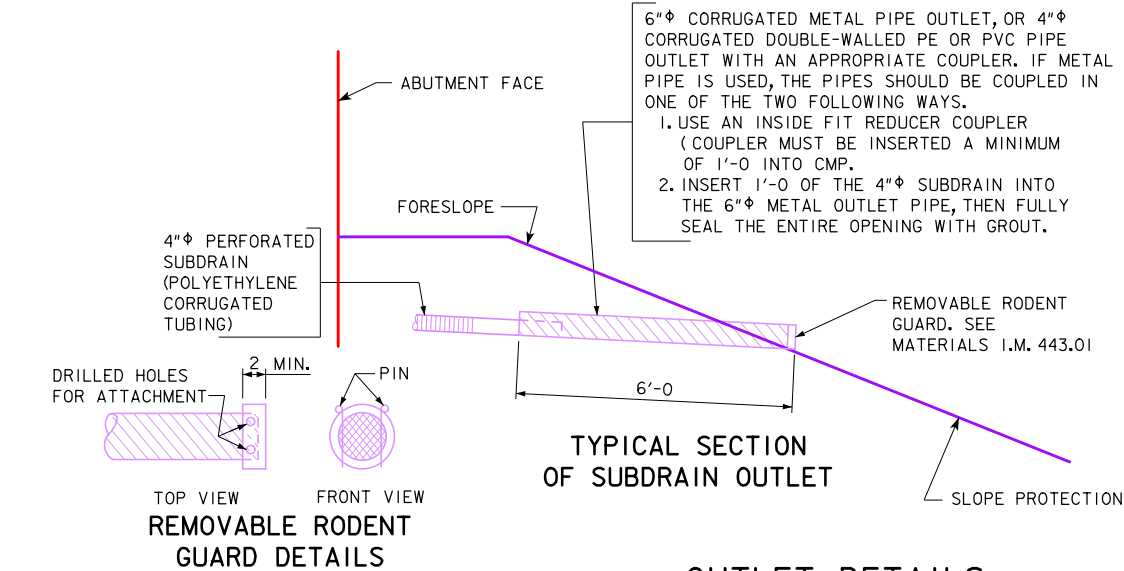
THE COST OF FURNISHING AND PLACING SUBDRAIN (INCLUDING EXCAVATION), GRANULAR BACKFILL, POROUS BACKFILL, AND SUBDRAIN OUTLET IS TO BE INCLUDED IN THE PRICE BID FOR "STRUCTURAL CONCRETE (BRIDGE)". NO EXTRA PAYMENT WILL BE MADE.

SUBDRAIN OUTLET ELEVATIONS

LOCATION	ELEVATION
WEST ABUTMENT	1409.79
EAST ABUTMENT	1409.46



SITUATION PLAN
SHOWING SUBDRAIN LOCATIONS



OUTLET DETAILS

Design For 0 Degree Skew

110'-0" x 44'-0" Continuous Concrete Slab Bridge

33'-6" End Spans43'-0" Interior Span

Subdrain Details

STA. 296+73.40 (IA 9)Turn-in Date: Oct 2026

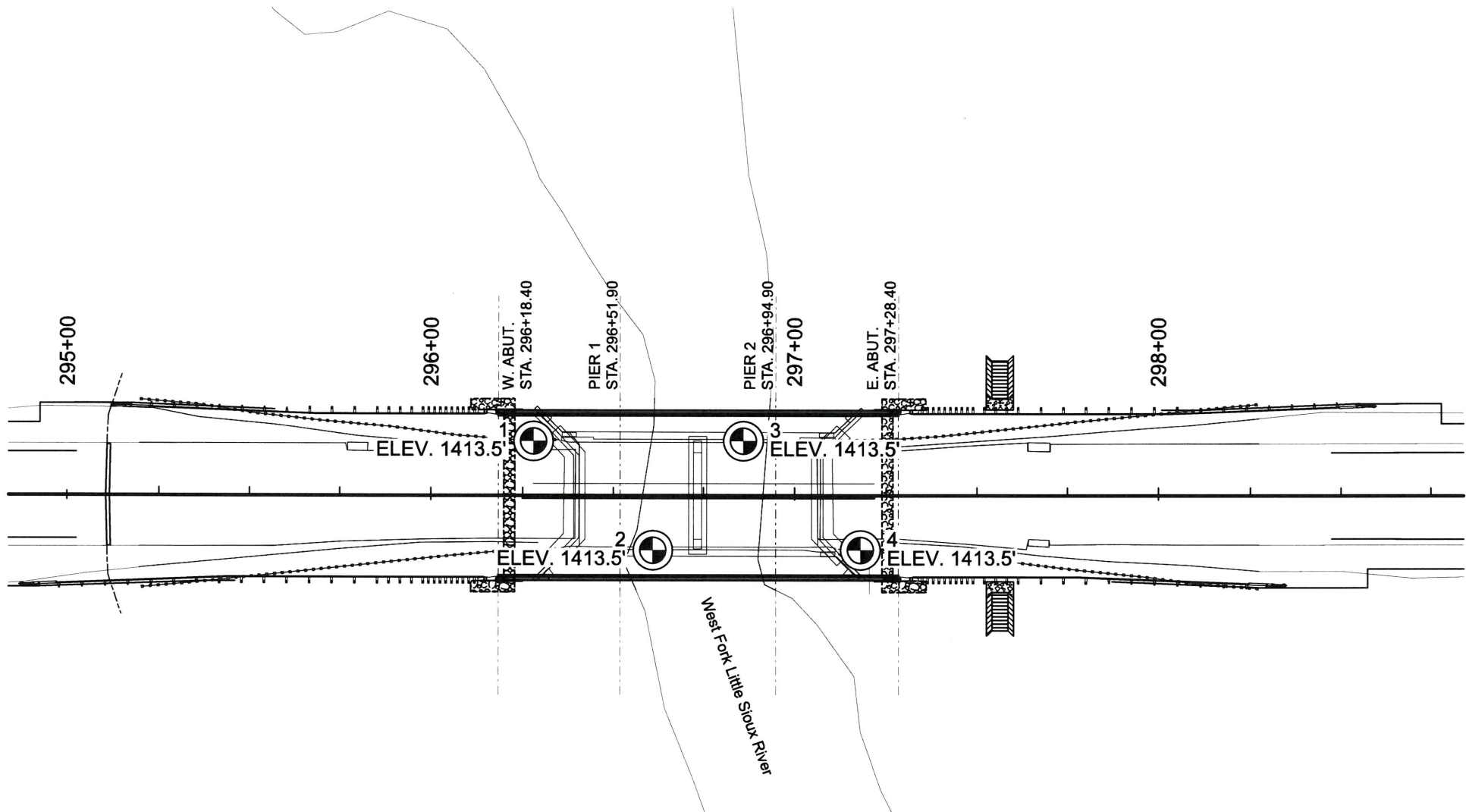
Dickinson County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0126Design Sheet No. 20 of 20FHWA No. 023701

THIS SHEET IS INCLUDED TO SHOW SOIL INFORMATION. DETAILS AND NOTES SHOWN ELSEWHERE IN THESE PLANS SHALL BE USED FOR STRUCTURE CONSTRUCTION.

NOTE: SOILS MAY VARY BETWEEN BORINGS. SEE STANDARD SPECIFICATION 1104.01



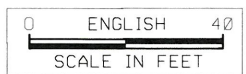
GEOTECHNICAL DESIGN



I hereby certify that this engineering document was prepared under my supervision and that engineering decisions with regard to the design were made by me or by other duly licensed Professional Engineers under the laws of the State of Iowa.

Zachary A. Bonzer 3-26-2025
Signature Date
ZACHARY A. BONZER
Printed or Typed Name
License Number P23811
My license renewal date is December 31, 2026

Pages or sheets covered by this seal: SPS.1-SPS.3



Location

IA 9 over West Fork
Little Sioux River
T-100N & T-99N R-38W
Sections 36 & 1
Silver Lake & Excelsior Twp.
Dickinson County
FHWA No. 023701
Bridge Maint. No. 3065.4s009
Latitude 43.430414°
Longitude -95.275864°

Design For 0° Skew

**110'-0 X 44'-0 CONTINUOUS
CONCRETE SLAB BRIDGE**

33'-6 END SPANS 43'-0 INTERIOR SPAN

SOIL PROFILE SHEET

STA. 296+73.40 (IA 9)

DICKINSON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0126 Design Sheet No. 1 of 3 FHWA/Asset 023701

1440																THIS SHEET IS INCLUDED TO SHOW SOIL INFORMATION. DETAILS AND NOTES SHOWN ELSEWHERE IN THESE PLANS SHALL BE USED FOR STRUCTURE CONSTRUCTION.															1440																																											
1430																NOTE: SOILS MAY VARY BETWEEN BORINGS. SEE STANDARD SPECIFICATION 1104.01															1430																																											
1420																															1420																																											
1410	A: ASPHALT B: CONCRETE C: FILL - BROWN FINE TO COARSE SAND															A: CONCRETE B: AIR VOID BELOW BRIDGE DECK C: CONCRETE															1410																																											
1400	D: DARK BROWN STIFF SANDY CLAY E: GRAY FINE TO COARSE SAND															D: DARK BROWN STIFF SANDY CLAY E: BROWN CLAYEY SAND															1400																																											
1390																															1390																																											
1380	F: GRAY STIFF SANDY CLAY															F: GRAY SOFT TO STIFF SANDY CLAY															1380																																											
1370																															1370																																											
1360	G: GRAY FIRM SANDY CLAY															G: GRAY VERY FIRM CLAY															1360																																											
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1340																															1340																																											
1330																															1330																																											
1320	H: GRAY VERY FIRM TO HARD SANDY CLAY															COBBLES															1320																																											
1310																BORING 4 SHOWN HERE FOR CLARITY															1310																																											
1300																															1300																																											
1290																COBBLES															1290																																											
1280	LEGEND															110'-0 X 44'-0 CONTINUOUS CONCRETE SLAB BRIDGE															1280																																											
1270																SOIL PROFILE SHEET															1270																																											
1260																DICKINSON COUNTY															1260																																											
FILE NO. 32502															DESIGN TEAM SHIVE-HATTERY/TERRACON															DICKINSON COUNTY															PROJECT NUMBER BRF-009-3(29)-38-30															SHEET NUMBER SPS.2														

THIS SHEET IS INCLUDED TO SHOW SOIL INFORMATION. DETAILS AND NOTES SHOWN ELSEWHERE IN THESE PLANS SHALL BE USED FOR STRUCTURE CONSTRUCTION.

NOTE: SOILS MAY VARY BETWEEN BORINGS. SEE STANDARD SPECIFICATION 1104.01

BORING	1	2	3	4
LAYER	THICKNESS	THICKNESS	THICKNESS	THICKNESS
A	0.2	0.8	0.8	0.2
B	1.3	10.2	9.7	1.3
C	2.5	1.0	5.0	2.5
D	7.5	7.0	0.2	5.0
E	7.5	25.0	-	5.0
F	20.0	35.0	-	34.0
G	30.0	46.5	-	4.0
H	51.5	-	-	22.0
I	-	-	-	46.5

Water Level Observations (Ft.)				
Boring No.	Date Drilled	While Drilling	End of Drilling	Delayed Water Level
1	02/06/24	9.5'	-	-
2	02/08/24	NONE*	-	-
3	02/12/24	10.5'	10.5'	-
4	02/07/24	12.0'	-	-
* None Observed Prior to Washbore Drilling				

SHELBY TUBE CORE DATA

CORE NO.	1 D1	1 D3	4 D1	4 E1
DEPTH IN FEET	4-6	9-11	4-6	9-11
CLASSIFICATION (AASHTO)	A-6(5)	-	A-6(6)	A-6(1)
COEFF.CON SOL. (SQ. FT /DAY)	-	-	-	-
TRIA XIAL COMPRESSION	-	-	UC	-
COHESION - PSF	-	-	785	-
FRIC TION COEFF.	-	-	-	-
MOISTURE CONTENT %	15.5	18.5	22.1	18.5
DRY DENSITY - PCF	111	-	98	107
CU-CONSOLIDATED UN DRAINED				
UU-UNCONSOLIDATED UN DRAINED				
UC-UNCONFINED COMPRESSION (c=1/2 Qu)				

Design For 0° Skew

110'-0 X 44'-0 CONTINUOUS
CONCRETE SLAB BRIDGE

33'-6 END SPANS43'-0 INTERIOR SPAN

SOIL PROFILE SHEET

STA. 296+73.40 (IA 9)

DICKINSON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0126Design Sheet No. 3 of 3FHWA/Asset 023701

3/25/2025 1:19:05Personalpw:\projectwise.dot.int.lan:PW\Main\Documents\Projects\3000902021\Soils\Terracon\SHT_30009029_0126_023701_SPS SPS.3 11x17_.pltcfg

Full Depth PCC Shoulder

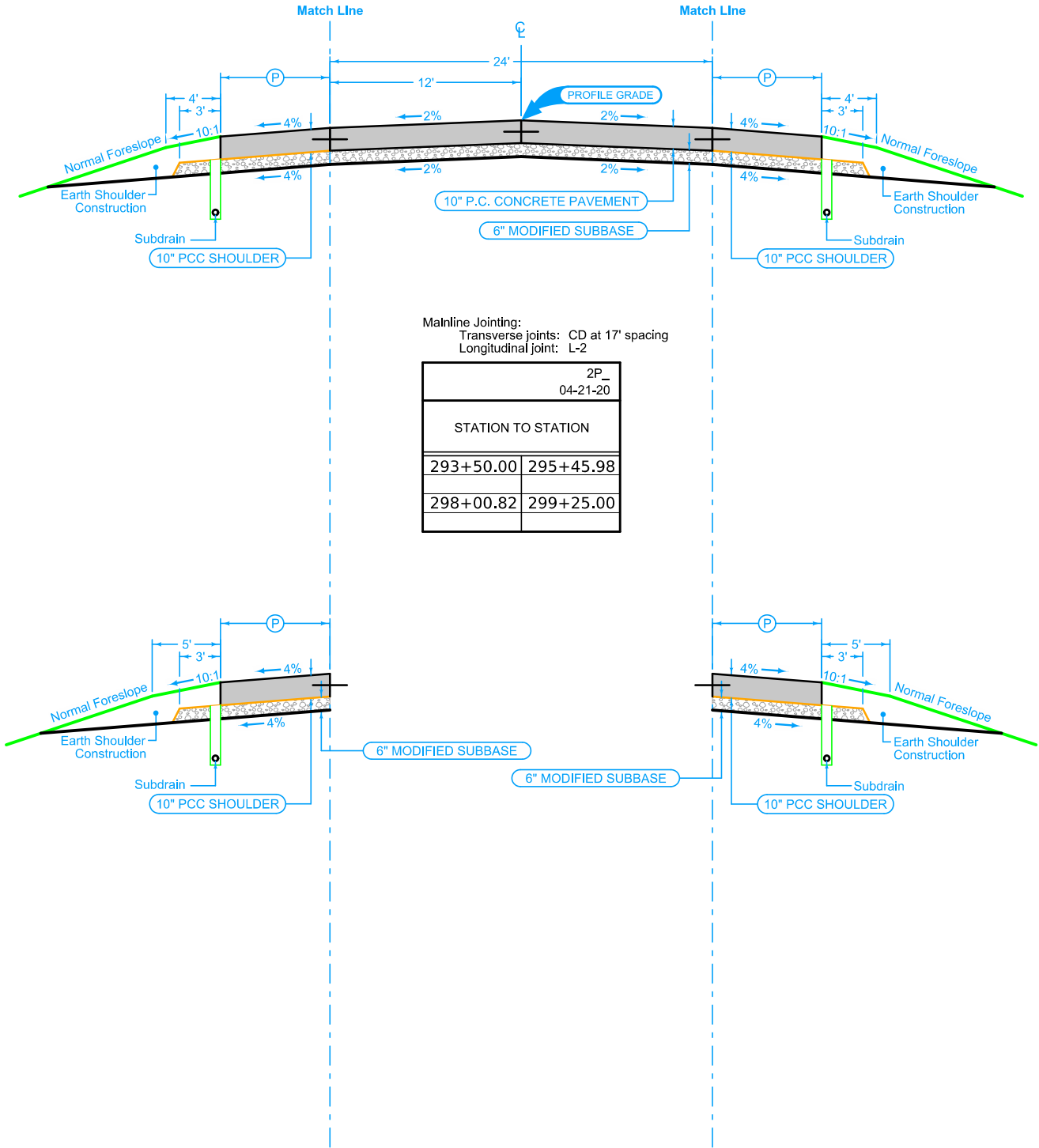
Shoulder Jointing:
Longitudinal joint: BT-2, L-2 or KT-2
Transverse joints: C at 17' spacing

2_P_FullPCC_04-20-21		
STATION TO STATION		(P) Feet
292+74.98	294+92.56	8
298+77.82	300+70.39	8

Paved Shoulder at Guardrail

PCC Shoulder Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse joints: C at mainline spacing

2_P_Guard_04-21-20		
STATION TO STATION		(P) Feet
294+92.56	295+57.08	VAR
298+00.82	298+77.82	VAR



Full Depth PCC Shoulder

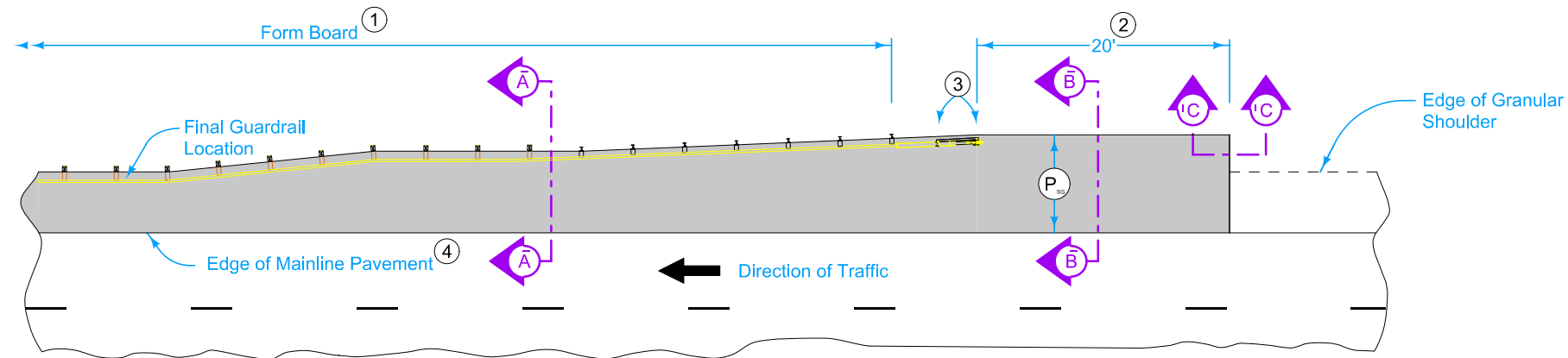
Shoulder Jointing:
Longitudinal joint: BT-2, L-2 or KT-2
Transverse joints: C at 17' spacing

2_P_FullPCC_04-20-21		
STATION TO STATION		(P) Feet
293+23.48	294+67.46	8
298+57.38	300+21.89	8

Paved Shoulder at Guardrail

PCC Shoulder Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse joints: C at mainline spacing

2_P_Guard_04-21-20		
STATION TO STATION		(P) Feet
294+67.46	295+45.98	VAR
297+87.28	298+57.38	VAR



PLAN VIEW

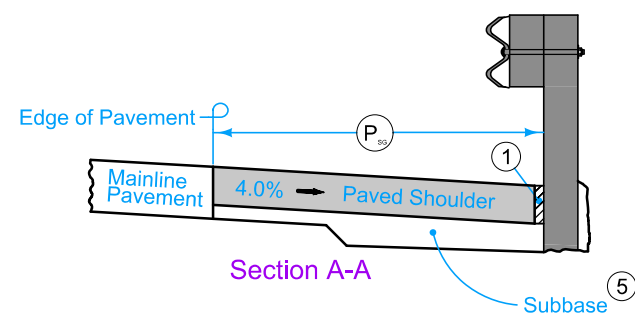
9" HMA Paved Shoulder at guardrail. 8" PCC may be substituted with the following jointing layout:

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

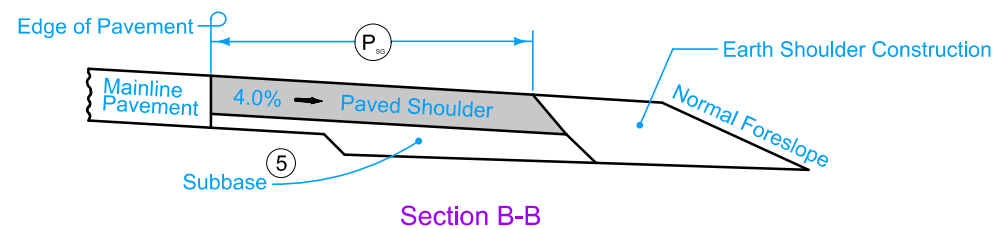
Compaction of HMA is required to face of guardrail post. Hand compaction will be allowed under guardrail. Removal and reinstallation of guardrail will be allowed with no additional payment.

Refer to Tabulation 112-9 for shoulder quantities.

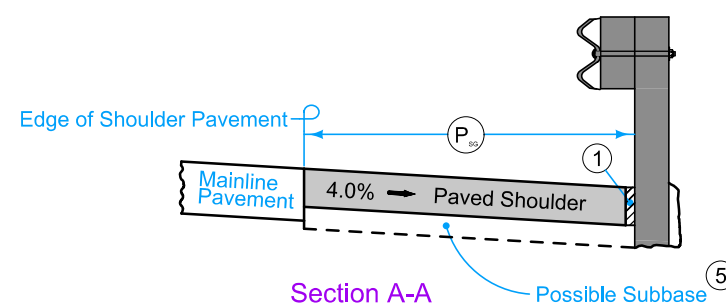
- ① PCC option only: When guardrail posts are installed prior to construction of PCC paved shoulder, fasten form board to the face of guardrail posts for the length shown.
- ② Continue paved shoulder 20 feet beyond the center of the first post.
- ③ Shoulder may be notched for first 2 posts or post sleeves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



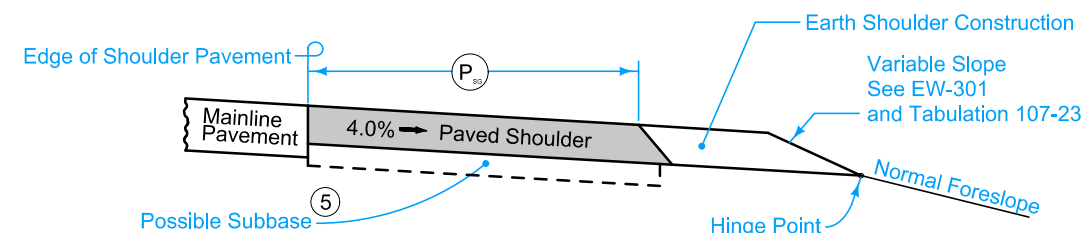
NEW CONSTRUCTION



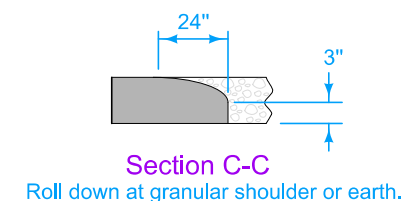
Section B-B



EXISTING SHOULDER



Section B-B



PAVED SHOULDER AT GUARDRAIL
(GRANULAR SHOULDER ADJACENT TO MAINLINE)

ESTIMATED PROJECT QUANTITIES AND REFERENCE NOTES

Roadway Items : Roadway Items

Item no.	Item Code	Item	Unit	Quantities	Estimate Reference Notes
				Estimated	
				Roadway Items	
1	2101-0850001	CLEARING AND GRUBBING	ACRE	1.2	This item is to be used for clearing and grubbing all disturbed areas within right-of-way. All material generated as a result of Clearing and Grubbing shall become the property of the contractor and must be disposed off site. All wood material must be disposed of according to Iowa Department of Agriculture and Land Stewardship Emerald Ash Borer Quarantine Order. For more information see www.iowatreepests.com .
2	2102-2625001	EMBANKMENT-IN-PLACE, CONTRACTOR FURNISHED	CY	930	Includes 1,727 CY of fill material. Adding 30% shrink = 2,245 CY. Subtract 1,038 CY of Cut = 1,207 CY. Factoring out shrink to establish bid item = 930 CY Provide borrow material according to Section 2102 of the Standard Specifications. Overhaul shall be incidental to this item. By location (No shrink applied) West: 650 CY Cut, 975 CY Fill; East: 388 CY Cut, 752 CY Fill
3	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW	CY	1,038	Includes cut material for removals to reach subgrade.
4	2102-2712015	EXCAVATION, CLASS 12, BOULDERS OR ROCK FRAGMENTS	CY	10	A. Refer to Tab. 103-7. B. Dispose of excess material according to Article 1106.07 of the current specifications.
5	2105-8425015	TOPSOIL, STRIP, SALVAGE AND SPREAD	CY	1,590	Strip 12 inches of topsoil within the limits of grading. After excavating to the sub grade elevations, spread the stockpiled topsoil to an 8 inch depth across the grading area. Seed the disturbed topsoil stockpile area as per section 2601.05 of the standard specifications. Seeding of the stockpile areas shall be considered incidental to this bid item.
6	2107-0875100	COMPACTION WITH MOISTURE CONTROL	CY	1,727	Refer to Tab. 103-6 in the CS Sheets. Cubic yards shown on the contract documents as determined by the template fill volume. Shrinkage will not be included in the moisture control quantity.
7	2115-0100000	MODIFIED SUBBASE	CY	492	Refer to Typical Section and Tabs. 100-24 and 112-9 for location and details.
8	2122-5190010	PAVED SHOULDER, P.C. CONCRETE, 10 IN.	SY	1,021.5	Refer to Tab. 112-9 for locations and details.
9	2123-7450000	SHOULDER CONSTRUCTION, EARTH	STA	10.12	Refer to Tab. 112-9 for locations and details. Requires a minimum of 4 inches of topsoil. Place according to Article 2105.03,B of the Standard Specifications.
10	2123-7450020	SHOULDER FINISHING, EARTH	STA	1	Item included for finishing behind approach curbs.
11	2301-0690205	BRIDGE APPROACH, BR-205	SY	758	Refer to Tab. 112-6 for locations and details.
12	2301-1033100	STANDARD OR SLIP FORM PORTLAND CEMENT CONCRETE PAVEMENT, CLASS C, CLASS 3 DURABILITY, 10 IN.	SY	853.7	
13	2301-6911722	PORTLAND CEMENT CONCRETE PAVEMENT SAMPLES	LS	1	
14	2304-0101000	TEMPORARY PAVEMENT	SY	500.8	Refer to Tab. 100-24. Refer to J-sheets for additional information. 8" PCC.

Item no.	Item Code	Item	Unit	Quantities	Estimate Reference Notes
				Estimated	
				Roadway Items	
15	2412-0000100	LONGITUDINAL GROOVING IN CONCRETE, BRIDGE DECK	SY	520.8	
16	2502-8212034	SUBDRAIN, LONGITUDINAL, (SHOULDER) 4 IN. DIA.	LF	1,509.7	
17	2502-8221306	SUBDRAIN OUTLET, DR-306	EACH	16	
18	2503-0500402	BRIDGE END DRAIN, DR-402	EACH	2	Refer to Tab. 104-8A for location and details.
19	2505-4008120	REMOVAL OF STEEL BEAM GUARDRAIL	LF	464	Refer to Tab. 110-7A for location and details.
20	2505-4008300	STEEL BEAM GUARDRAIL	LF	100	Refer to Tab. 108-8A for location and details.
21	2505-4008410	STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION, BA-201	EACH	4	
22	2505-4021010	STEEL BEAM GUARDRAIL END ANCHOR, BOLTED	EACH	4	
23	2505-4021720	STEEL BEAM GUARDRAIL TANGENT END TERMINAL, BA-205	EACH	4	
24	2510-6745850	REMOVAL OF PAVEMENT	SY	2,158.8	Refer to Tab. 110-01 for location and details. Includes saw cutting and temporary pavement removals.
25	2527-9263181	PAVEMENT MARKINGS REMOVED	STA	37.15	Refer to Tab. 108-22 and J-sheets for locations and details.
26	2527-9263209	PAINTED PAVEMENT MARKINGS, WATERBORNE OR SOLVENT-BASED	STA	28.69	
27	2527-9263231	REMOVABLE TAPE MARKINGS, WET RETROREFLECTIVE	STA	8.46	
28	2527-9270112	GROOVES CUT FOR PAVEMENT MARKINGS	STA	28.69	
29	2528-8400048	TEMPORARY BARRIER RAIL, CONCRETE	LF	2,250	Refer to Tab. 108-33 and J-sheets. All temporary barrier rail shall be nominal 12'-6 long concrete units.
30	2528-8400256	TEMPORARY TRAFFIC SIGNALS	EACH	1	Refer to Tab. 108-28 and J-sheets.
31	2528-8445110	TRAFFIC CONTROL	LS	1	Refer to Traffic Control Plan on J-sheets.
32	2548-0000200	MILLED SHOULDER RUMBLE STRIPS, PCC SURFACE	STA	7.2	Refer to Tab. 112-10 for locations and details.
33	2551-0000110	TEMP CRASH CUSHION	EACH	6	Winterize sand filled or water filled crash cushions according to the manufacturer's recommendations if they are to remain in place during winter months.
34	2557-0000100	LONGITUDINAL GROOVING IN CONCRETE, PAVEMENT	SY	788	Refer to Tab. 100-28 for location and details.

100_01D 8/15/22
PROJECT DESCRIPTION
This project involves the replacement of the IA 9 bridge over the Little Sioux River, 4.9 miles West of IA 86, using staged construction.

262_05 9/28/22
UTILITIES (POINT 25 PROJECT)
This is a POINT 25 project and is subject to the provisions of IAC 761-115.25.

111_25 4/30/25			
INDEX OF TABULATIONS			
Line No.	Tabulation	Tabulation Title	Sheet No.
	100_18	SILT FENCES FOR DITCH CHECKS	RC.3
	281_03	STORM WATER BEST MANAGEMENT PRACTICES	RC.3
	111_25	INDEX OF TABULATIONS	C.3
	112_06	BRIDGE APPROACH SECTION	C.4
	100_28	LONGITUDINAL GROOVING	C.5
	108_30	CRASH CUSHIONS	C.6
	100_01A	ESTIMATED PROJECT QUANTITIES	C.1-2
	100_17	TABULATION OF SILT FENCES	RC.3
	281_01	SECTION 404 PERMIT AND CONDITIONS	RC.3
	105_04	STANDARD ROAD PLANS	C.3
	110_07A	REMOVAL OF STEEL BEAM GUARDRAIL	C.4
	100_24	PCC PAVEMENT	C.5
	107_23	GRADING FOR GUARDRAIL INSTALLATIONS	C.6
	108_22	PAVEMENT MARKING LINE TYPES	C.8
	100_04A	ESTIMATE REFERENCE INFORMATION (EROSION CONTROL)	RC.1-2
	110_12	POLLUTION PREVENTION PLAN	RC.4-5
	100_01D	PROJECT DESCRIPTION	C.3
	110_01	REMOVAL OF PAVEMENT	C.4
	108_28	TEMPORARY TRAFFIC SIGNALS	C.4
	108_08A	STEEL BEAM GUARDRAIL AT CONCRETE BARRIER OR BRIDGE RAIL END SECTION	C.6
	112_09	SHOULDERS	C.7
	100_01A	ESTIMATED PROJECT QUANTITIES (EROSION CONTROL)	RC.1-2
	100_19	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE	RC.3
	100_04A	ESTIMATE REFERENCE INFORMATION	C.1-2
	102_05	EXISTING PAVEMENT	C.4
	108_33	TEMPORARY BARRIER RAIL	C.4
	112_10	MILLED RUMBLE STRIPS	C.5
	104_08A	SCOUR PROTECTION OR ROCK FLUME FOR BRIDGE END DRAIN	C.6

105_04 10/21/25		
STANDARDS		
The following Standards apply to construction work on this project.		
Number	Date	Title
BA-200	04-15-25	Steel Beam Guardrail Components
BA-201	10-18-22	Steel Beam Guardrail Barrier Transition Section (MASH TL-3)
BA-202	04-15-25	Steel Beam Guardrail Bolted End Anchor
BA-205	10-17-23	Steel Beam Guardrail Tangent End Terminal (MASH TL-3)
BA-500	04-20-21	Temporary Crash Cushions Sand Barrel
BR-101	10-21-25	Bridge Approach Section (General Details)
BR-205	10-21-25	Double Reinforced 12in Approach (Slab Bridge)
BR-211	10-21-25	Bridge Approach (Abutting PCC or Composite Pavement)
DR-303	10-17-17	Subdrains (Longitudinal)
DR-306	10-17-23	Precast Concrete Headwall for Subdrain Outlets
DR-402	04-16-24	Rock Flume for Bridge End Drain
EW-102	10-20-15	Allowable Placement of Unsuitable Soil in Embankments
EW-202	04-19-16	Bridge Berm Grading without Recoverable Slope (Non-Barnroof Section)
EW-301	04-16-24	Guardrail Grading
PM-110	10-15-24	Line Types
PV-101	10-21-25	Joints
SI-172	04-19-16	Delineators
SI-173	04-19-16	Object Markers
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-213	04-18-23	Lane Closure with Flaggers
TC-217	10-21-25	Lane Closure with Signals and TBR
TC-232	10-21-14	Shoulder Rumble Strip Operations
TC-233	10-17-17	Pavement Marking Operations Two-Lane
TC-81	04-18-23	Restricted Width Signing (Less Than 14.5 Feet)
EC-201	04-20-21	Silt Fence
EC-204	10-19-21	Perimeter, Slope and Ditch Check Sediment Control Devices
EC-502	04-21-15	Seeding in Rural Areas

102_05
9/29/23

EXISTING PAVEMENT

Line No.	County	Route	Direction of Travel	Begin Ref. Location Sign	End Ref. Location Sign	Year	Type	Project Number	Surface Type	Surface Depth (IN)	Base Type	Base Depth (IN)	Subbase Type	Subbase Depth (IN)	Removal Type	Removal Depth (IN)	Coarse Aggregate Source	Coarse Aggregate Type	Course Aggregate Durability Class	Reinforcement Type	Remarks
1.0	Dickinson	IA 9	Both	059.61	070.04	2002		STP-9-3(18)--2C-30	AAC	1.5	AAC	2.0					ROHLIN	C.GRAVL			4' WIDEN W/2IN. AAC
2.0	Dickinson	IA 9	Both	059.61	070.04	1998	V	MP-9-3(701)60--76-30	AAC	2.0							MOORE QUARR	C.LST.			
3.0	Dickinson	IA 9	Both	059.61	070.04	1972		FN-9-3(1)--21-30	PCC	9.0							MILFORD	GRAVEL	2		

110_07A
8/15/22

REMOVAL OF STEEL BEAM GUARDRAIL

(1) Lane(s) to which the installation is adjacent.
(2) Includes length of End Terminals and End Anchors.

Line No.	No.	Direction of Traffic (1)	Station From	Station To	Side	Removal of Guardrail (2) (LF)
1.0	1	EB	295+20.00	296+36.00	Right	116.0
2.0	2	WB	295+20.00	296+36.00	Right	116.0
3.0	3	EB	297+11.00	298+27.00	Right	116.0
4.0	4	WB	297+11.00	298+27.00	Right	116.0
Total:						464

110_01
4/5/24

REMOVAL OF PAVEMENT

Refer to Tabulation 102-5.

* Not a bid item.

Line No.	Station From	Station To	Side	Pavement Type	Area (SY)	Saw Cut* (LF)	Remarks
1.0	293+50.00	296+40.00	Both	COMPOSITE	918.3	28.5	WEST
2.0	297+07.00	299+25.00	Both	COMPOSITE	690.3	28.5	EAST
3.0	292+74.98	293+50.00	Left	COMPOSITE	16.7	80.0	LT SHLDR
4.0	293+23.49	293+50.00	Right	COMPOSITE	7.4	30.0	RT SHLDR
5.0	299+25.00	300+70.39	Left	COMPOSITE	40.4	150.0	LT SHLDR
6.0	299+25.00	300+21.89	Left	COMPOSITE	21.5	100.0	RT SHLDR
7.0	293+50.00	296+18.00	Both	COMPOSITE	268.0		STG 2 TEMP
8.0	297+28.82	299+25.00	Both	COMPOSITE	196.2		STG 2 TEMP
Total:					2158.8	417	

112_06
2/22/24

BRIDGE APPROACH SECTION

Refer to the BR Series.

* Not a bid item

Line No.	Bridge Station	End	Skew Ahead Left (Degrees)	Skew Ahead Right (Degrees)	(T) Thickness (IN)	Pay Length (FT)	Non-Reinf. Area (SY)	Single-Reinf. Area (SY)	Double-Reinf. Area (SY)	SRP Approach	SRP Abutment Type	SRP Abutting Pavement	Perforated * 4" Subdrain (LF)	Subdrain * Outlet (STA)	Subdrain * Outlet Side	Porous * Backfill (CY)	Class 'A' * Crushed Stone Backfill (CY)	Modified * Subbase (TON)	Polymer Grid (SY)	Special * Backfill (TON)	Remarks
1.0	296+73.40	W			12.0	72.0	158.0	105.0	116.0	BR-205	Fixed	BR-211	115.0	295+56.00	Right	2.0	1.0	400.000	450.0		
2.0	296+73.40	E			12.0	72.0	158.0	105.0	116.0	BR-205	Fixed	BR-211	115.0	297+91.00	Right	2.0	1.0	400.000	450.0		
Total:							316	210	232				230				800		900		

BID ITEM TOTAL: 758.0 SY

108_33
8/15/22

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.

Line No.	No.	Station From	Station To	Length (FT)	Barrier Rail Type	Anchored*	Modular Glare Screen System	Remarks
1.0	1	292+95.00	301+01.00	812.5	Concrete BA-401	Yes		STG 1
2.0	2	293+08.00	299+99.00	700.0	Concrete BA-401	No		STG 2
3.0	3	292+70.00	299+98.00	737.5	Concrete BA-401	No		STG 3
Total:				2250				

108_28
8/15/22

TEMPORARY TRAFFIC SIGNALS

Line No.	Item No.	Station	Signal Type	Remarks
1.0	1	290+93.00	One Lane Traffic	STG 1-3
2.0	1	302+28.00	One Lane Traffic	STG 1-3

BID QTY = 1

FILE NO.

ENGLISH

DESIGN TEAM

Shive-Hatterv

DICKINSON COUNTY

PROJECT NUMBER

BRF-009-3(29)--38-30

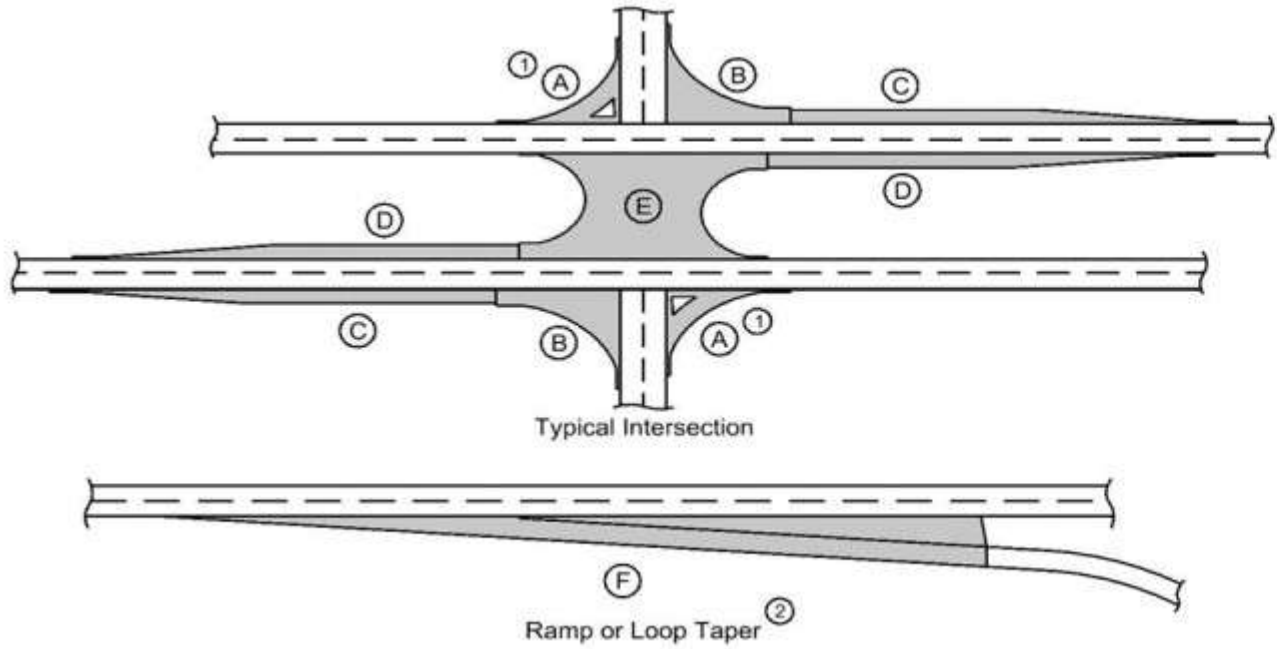
SHEET NUMBER

C.4

7/21/2025 10:44:08 AM

MIKE.JANECHKE@IOWAID

PCC PAVEMENT



(1) Does not include raised island area or curb. Refer to tabulation 112-4 for quantities.
(2) Refer to PV-410, PV-411, PV-412, and PV-414.
(3) Quantity includes Pavement Header.

Line No.	Road Identification	Direction of Travel	Station From	Station To	Width (FT)	Length (FT)	Area (SY)	Area A(1) (SY)(3)	Area B (SY)(3)	Area C (SY)(3)	Area D (SY)(3)	Area E (SY)(3)	Area F(2) (SY)(3)	Area G (SY)(3)	Area H (SY)(3)	Area by Thickness - Thickness(IN)	Area by Thickness - Area (SY)	Polymer Grid (SY)	Special Backfill (TON)	Modified Subbase (CY)	Granular Subbase (SY)	Remarks
1.0	IA 9	Both	293+50.00	295+45.98	24.0	195.98	522.60									10.0	522.6			109.00		
2.0	IA 9	Both	298+00.82	299+25.00	24.0	124.18	331.10									10.0	331.1			69.00		
3.0	IA 9	Right	295+56.97	296+39.50	2.0	82.53	18.40									8.0	18.4			3.00		STG 1 TEMP PAVING
4.0	IA 9	Right	297+07.00	297+90.30	2.0	83.30	18.40									8.0	18.4			3.00		STG 1 TEMP PAVING
5.0	IA 9	Left	293+50.00	296+18.00	9.0	268.00	268.00									8.0	268.0			45.00		STG 2 TEMP PAVING
6.0	IA 9	Left	297+28.82	299+25.00	9.0	196.18	196.00									8.0	196.0			33.00		STG 2 TEMP PAVING
Total:																1354.5				262		

10" PCC TOTAL: 853.7 SY
8" PCC TEMPORARY PAVEMENT TOTAL: 500.8 SY

LONGITUDINAL GROOVING				100_28 8/15/22
Line No.	Location	Total (SY)	Remarks	
1.0	296+73.40	344.0	W. APPROACH	
2.0	296+73.40	520.8	BRIDGE	
3.0	296+73.40	344.0	E. APPROACH	
Total:		1208.8		

MILLED RUMBLE STRIPS

* Calculated at 18" width for Shoulder.
** For use with penetrating Engineered Fog Seal. Calculated at 2" wider than rumble strips.

Line No.	Road Identification	Station From	Station To	Shoulder Pavement Type	Rumble Strip Lane	Rumble Strip Type	Fog Seal Type	L (IN)	PCC Length (STA)	HMA Length (STA)	Fog Seal* Shoulder (GAL)	Fog Seal (SY)**	Effective Shoulder Width PCC (FT)	Effective Shoulder Width HMA (FT)	Effective Shoulder Width Granular\Earth (FT)	Remarks
1.0	IA 9	292+74.95	294+92.56	PCC	Left Shoulder	Milled		12"	2.18				8.0			
2.0	IA 9	293+23.48	294+67.46	PCC	Right Shoulder	Milled		12"	1.44				8.0			
3.0	IA 9	298+77.82	300+70.39	PCC	Left Shoulder	Milled		12"	1.93				8.0			
4.0	IA 9	298+57.38	300+21.89	PCC	Right Shoulder	Milled		12"	1.65				8.0			
Total:									7.2							

108_08A
4/25/25

STEEL BEAM GUARDRAIL AT CONCRETE BARRIER OR BRIDGE RAIL END SECTION

Possible Standards: BA-200, BA-201, BA-202, BA-205, BA-206, BA-209, BA-210, BA-211, BA-221, BA-225, BA-250, BA-260, LS-625, LS-626, LS-630, LS-635, SI-172, SI-173 and SI-211.

(1) Lane(s) to which the obstacle is adjacent.
(2) Not a bid item. Incidental to guardrail installation.

Line No.	Direction of Travel (1)	Side	Station	Offset (FT)	Barrier Transition Section	Barrier Transition Section (EA)	End Terminal	End Terminal Count (EA)	VT1 (LF)	VF (LF)	VT2 (LF)	ET (LF)	BA-211 Station	BA-211 (Type)	SI-211 (Type) (2)	Delineator SI-172 Type 1 (EA) (2)	Object Marker Type 2 (EA) (2)	Object Marker Type 3 Lt (EA)(2)	Object Marker Type 3 Rt (EA)(2)	Bolted End Anchor BA-202 (Type)	Bolted End Anchor BA-202 (EA)	Post Adapter BA-210 (EA)	Steel Beam Guardrail BA-200 (LF)	Remarks			
1.0	2-Lane	Right	296+13.50		BA-201	1	BA-205	1	78.125			47.70			3				1	A	1		37.5				
2.0	2-Lane	Left	296+13.50		BA-201	1	BA-205	1	53.125			47.70			3			1		A	1		12.5				
3.0	2-Lane	Left	297+33.30		BA-201	1	BA-205	1	78.125			47.70			3			1		A	1		37.5				
4.0	2-Lane	Right	297+33.30		BA-201	1	BA-205	1	53.125			47.70			3			1		A	1		12.5				
Total:					4		4												2		2		4		100		

107_23
8/15/22

GRADING FOR GUARDRAIL INSTALLATIONS

Refer to EW-301.

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

Line No.	Direction of Traffic (1)	Station	Side	Foreslope at Guardrail	X1 (FT)	Y1 (FT)	X2 (FT)	Y2 (FT)	X3 (FT)	Y3 (FT)	X4 (FT)	Y4 (FT)	Z (FT)	Excavation Class 10 (CY)	Embankment-in-Place (CY)	Remarks
1.0	2-Lane	296+73.40	Right	6:1	69.0	6.2					125.4	8.0	50.0			
2.0	2-Lane	296+73.40	Left	6:1	44.2	6.2					100.5	7.7	50.0			
3.0	2-Lane	296+73.40	Right	6:1	44.2	6.2					100.5	7.7	50.0			
4.0	2-Lane	296+73.40	Left	6:1	69.0	6.2					125.4	8.0	50.0			

108_30
4/16/24

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.

Line No.	Lane	Station	Side	Obstacle Width (FT)	Crash Cushion Type	Crash Cushion Quantity	V (FT) (2)	W (FT) (2)	X (FT) (2)	Y (FT) (2)	Z (FT) (2)	Excavation Class 10* (CY)	Embankment in Place* (CY)	Obstacle Description	Remarks
1.0	EB	292+96.00	Left	1.9	Temporary	1								TBR	
2.0	WB	301+01.00	Right	1.9	Temporary	1								TBR	
3.0	EB	293+09.00	Right	1.9	Temporary	1								TBR	
4.0	WB	299+99.00	Left	1.9	Temporary	1								TBR	
5.0	EB	292+70.00	Left	1.9	Temporary	1								TBR	
6.0	WB	299+99.00	Right	1.9	Temporary	1								TBR	
Total:					6										

104_08A
8/15/22

SCOUR PROTECTION OR ROCK FLUME FOR BRIDGE END DRAIN

Refer to Standard Road Plan DR-401 and DR-402

Line No.	Bridge Station	Bridge Corner	Distance DI-1 or DI-2 (FT)	Bridge End Drain Type	Special Ditch Control, Wood Excelsior Mat EC-101 (SQ)	Turf Reinforced Mat (TRM) Type 2 EC-104 (SQ)	Transition Mat EC-105 (SF)	Macadam Stone Base (TONS)	Engineering Fabric (SY)	Erosion Stone (TON)	Remarks				
1.0	296+73.40	SE	40.0	DR-402				1.500	47.3	30.000					
2.0	296+73.40	NE	40.0	DR-402				1.500	47.3	30.000					
Total:					3							94.6		60	

FILE NO.

ENGLISH

DESIGN TEAM

Shive-Hatterv

DICKINSON COUNTY

PROJECT NUMBER

BRF-009-3(29)--38-30

SHEET NUMBER

C.6

7/21/2025 10:55:06 AM

MIKE.JANECHKE@IOWAID

112.09
10/15/24

SHOULDERS

(1) Lane(s) to which the shoulder is adjacent.
(2) See Typ. 7156, 7157, or 7158.
(3) Bid Item.
(4) Applies only for Paved Shoulders constructed on project with existing granular shoulders.
(5) Bid Item. Typ. 7156, 7157, or 7158.
(6) Does not include shrink.
(7) Paved shoulder thickness specified in Remarks.
(8) Subbase type specified in Remarks.

Roadway Identification	Direction of Travel (1)	Station From	Station To	Side	P Width (FT)	P SG Width (2) (FT)	G Width (FT)	L Length (FT)	Class 13 Excavation (CY)(3)(4)	HMA (TON)	HMA (TON/ STA)	Binder (TONS)	Paved Shoulder (3) (SY)	Shoulder at Grd rail (5)(7)	Reinforced Paved Shoulder(3) (SY)	Special Backfill HMA Alt. (3) (TON)	Special Backfill HMA Alt. (TON/STA)	Special Backfill PCC Alt. (3) (TON)	Special Backfill PCC Alt. (TON/STA)	Polymer Grid (SY)	Subbase (3) (8) (CY)	Granular Shoulder (3) (TON)	Granular Shoulder (TON/STA)	Shoulder Const. Alt (3) (STA)	Shoulder Const. Alt HMA (6) (CY)	Shoulder Const. Alt PCC (6) (CY)	Remarks							
IA 9	WB	292+74.98	294+92.56	Right	8			217.58					193.4								45.00			2.18		32.23								
IA 9	WB	294+92.56	295+17.57	Right		13.5		25.01						37.5							8.00			0.25		3.71								
IA 9	WB	295+17.57	295+45.98	Right		13.5-12.2		28.41						40.6							8.00			0.28		4.21								
IA 9	WB	295+45.98	295+57.08	Right		.5-0		11.10						0.3							8.00			0.11		1.64								
IA 9	EB	293+23.48	294+67.46	Right	8			143.98					128.0								30.00			1.44		21.33								
IA 9	EB	294+67.46	294+91.59	Right		13.5		24.13						36.2							8.00			0.24		3.57								
IA 9	EB	294+91.59	295+38.27	Right		13.5-11.9		46.68						65.9							11.00			0.47		6.92								
IA 9	EB	295+38.27	295+45.98	Right		11.9		7.71						10.2							2.00			0.08		1.14								
IA 9	WB	298+00.82	298+11.36	Right		11.6		10.54						13.6							3.00			0.11		1.56								
IA 9	WB	298+11.36	298+55.28	Right		11.6-13.5		43.92						61.2							11.00			0.44		6.51								
IA 9	WB	298+55.28	298+77.82	Right		13.5		22.54						33.8							6.00			0.23		3.34								
IA 9	WB	298+77.82	300+70.39	Right	8			192.57					171.2								40.00			1.93		28.53								
IA 9	EB	297+87.28	298+00.82	Right		0-0.6		13.54						0.5							0.50			0.14		2.01								
IA 9	EB	298+00.82	298+27.80	Right		12.2-13.5		26.98						38.5							7.00			0.27		4.00								
IA 9	EB	298+27.80	298+57.38	Right		13.5		29.58						44.4							8.00			0.30		4.38								
IA 9	EB	298+57.38	300+21.89	Right	8			164.51					146.2								34.00			1.65		24.37								
Total:														638.8	382.7											229.5				10.12			149.45	

PAVEMENT MARKING LINE TYPES

108 22
10/21/25

Line factors based on 6-inch wide continuous line.
*BCY4 - Place on the same side of the roadway to match existing markings near the project.
**NPY4 - Estimating purposes only. No Passing Zone Lines will be located in the field.
***MNY6 - Factor of 1.00 includes number of 6-inch passes to cover median nose area.

BCY4: Broken Centerline (Yellow) @ 0.17
CBW6: Crosswalk Bar (White) @ 10.00
CLW6: Crosswalk Line (White) @ 2.00
DLW4: Dotted Line (White) @ 0.22
ELW6: Edge Line Right (White) @ 1.00
MNY6: Median Nose (Yellow) @ 1.00
RLY4: Ramp Edge Line Left (Yellow) @ 0.67
SPW4: Sloped Curb 4" (White) @ 2.16
STY6: Standard Curb 6" (Yellow) @ 2.03

BCY6: Broken Centerline (Yellow) @ 0.25
CHW8: Channelizing Line (White) @ 1.33
DCY4: Double Centerline (Yellow) @ 1.34
DLW6: Dotted Line (White) @ 0.33
ELY4: Edge Line Left (Yellow) @ 0.67
NPY4: No Passing Zone Line (Yellow) @ 0.84
RLY6: Ramp Edge Line Left (Yellow) @ 1.00
SPW6: Sloped Curb 6" (White) @ 2.28
YLW2: Yield Line (White) @ 1.15

BLC6: Broken Line Contrast (White/Black) @ 0.50
CHW10: Channelizing Line (White) @ 1.67
DCY6: Double Centerline (Yellow) @ 2.00
DLY4: Dotted Line (Yellow) @ 0.22
ELY6: Edge Line Left (Yellow) @ 1.00
NPY6: No Passing Zone Line (Yellow) @ 1.25
SLW2: Stop Line (White) @ 4.00
SPY4: Sloped Curb 4" (Yellow) @ 2.16

BLW4: Broken Lane Line (White) @ 0.17
CHY8: Channelizing Line (Yellow) @ 1.33
DDY4: Double Dotted Line (Yellow) @ 0.44
DLY6: Dotted Line (Yellow) @ 0.33
LDW8: Lane Drop (White) @ 0.33
RLW4: Ramp Edge Line Right (White) @ 0.67
SLW4: Solid Lane Line (White) @ 0.67
SPY6: Sloped Curb 6" (Yellow) @ 2.28

BLW6: Broken Lane Line (White) @ 0.25
CHY10: Channelizing Line (Yellow) @ 1.67
DDY6: Double Dotted Line (Yellow) @ 0.67
ELW4: Edge Line Right (White) @ 0.67
LDW10: Lane Drop (White) @ 0.42
RLW6: Ramp Edge Line Right (White) @ 1.00
SLW6: Solid Lane Line (White) @ 1.00
STW6: Standard Curb 6" (Yellow) @ 2.03

Line No.	Road ID	Station From	Station To	Lane	Marking Type	Left	Center	Right	Groove Marking Needed?	Groove Qty. (STA)	BCY4* Factored (STA)	BCY6 (STA)	BCY6 Factored (STA)	BLW4 Factored (STA)	DCY4 Factored (STA)	ELW6 (STA)	ELW6 Factored (STA)	ELY4 Factored (STA)	SLW2 (STA)	SLW2 Factored (STA)	Remarks
1.0	IA 9	290+50.00	303+25.00	Both	Removal of Paint	X	X	X	No			12.75	3.19			25.50	25.50				
2.0	IA 9	290+50.00	290+50.00	EB	Wet Retroreflective Removable Tape			X	No										0.12	0.48	STOP BAR
3.0	IA 9	303+25.00	303+25.00	WB	Wet Retroreflective Removable Tape			X	No										0.12	0.48	STOP BAR
4.0	IA 9	300+50.00	303+00.00	WB	Wet Retroreflective Removable Tape			X	No							2.50	2.50				STAGE 1
5.0	IA 9	291+40.00	293+90.00	EB	Wet Retroreflective Removable Tape			X	No							2.50	2.50				STAGE 2
6.0	IA 9	291+40.00	293+90.00	EB	Removal of Removable Tape			X	No							2.50	2.50				STAGE 2 REMOVAL
7.0	IA 9	299+50.00	302+00.00	WB	Wet Retroreflective Removable Tape			X	No							2.50	2.50				STAGE 3
8.0	IA 9	299+50.00	302+00.00	WB	Removal of Removable Tape			X	No							2.50	2.50				STAGE 3 REMOVAL
9.0	IA 9	290+50.00	290+50.00	EB	Removal of Removable Tape			X	No										0.12	0.48	STOP BAR RMVL
10.0	IA 9	303+25.00	303+25.00	WB	Removal of Removable Tape			X	No										0.12	0.48	STOP BAR RMVL
11.0	IA 9	290+50.00	303+25.00	Both	Waterborne/Solvent Paint	X	X	X	Yes	28.69		12.75	3.19			25.50	25.50				
Total:										28.69			6.38			63.5			1.92		

ITEM TOTALS:
PAVEMENT MARKINGS REMOVED: 37.15 STA
PAINTED PAVEMENT MARKINGS, WATERBORNE OR SOLVENT-BASED: 28.69 STA
REMOVABLE TAPE MARKINGS, WET RETROREFLECTIVE: 8.46 STA
GROOVES CUT FOR PAVEMENT MARKINGS: 28.69 STA

103_06
8/15/22

EMBANKMENT WITH MOISTURE CONTROL

Moisture Control is required for all Class 10 fill placed in all locations and depths. Topsoil will not require Moisture Control.

GEOTECHNICAL 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.

M. Ujwala

03/28/2025

Signature

Date

UJWALA MANCHIKANTI

Printed or Typed Name

License Number P27413

My license renewal date is December 31, 2025

Pages or Sheets covered by this seal:

CS.1 - CS.3

FILE NO.

ENGLISH

DESIGN TEAM

IaDOT\Shive-Hatterv\Terracon

DICKINSON COUNTY

PROJECT NUMBER

BRF-009-3(29)--38-30

SHEET NUMBER

CS.1

3/21/2025 6:05:51 PM

UJWALA@MANCHIKANTI@IOWAID

103_07
8/15/22

SHRINKAGE DATA

Material	%	Remarks
Estimated Boulder Quantity	0.0	10 CY Class 12 Excavation
Class 10	30.0	
Topsoil	40.0	

LONGITUDINAL SUBDRAIN SHOULDER											104_09A 5/6/24
* Not a bid item.											
Line No.	Road or Lane Identification	Station From	Station To	Side	Depth (IN) (D)	Subdrain Size (IN)	Length (FT)	Outlet Station	Outlet Type	Porous Backfill* (CY)	Remarks
1.1	IA 9	292+74.97	295+01.20	Left	42.0	4.0	256.2	292+74.97	DR-306	23.7	Note 1, 2
1.2							30.0	295+01.20	DR-306		
2.1	IA 9	295+01.20	295+62.95	Left	42.0	4.0	91.8	295+01.20	DR-306	8.5	Note 1, 2
2.2							30.0	295+62.95	DR-306		
3.1	IA 9	297+96.69	298+73.70	Left	42.0	4.0	107.0	297+96.69	DR-306	9.9	Note 1, 2
3.2							30.0	298+73.70	DR-306		
4.1	IA 9	298+73.70	300+71.26	Left	42.0	4.0	227.6	298+73.70	DR-306	21.1	Note 1, 2
4.2							30.0	300+71.26	DR-306		
5.1	IA 9	293+24.36	294+73.34	Right	42.0	4.0	179.0	293+24.36	DR-306	16.6	Note 1, 2
5.2							30.0	294+73.34	DR-306		
6.1	IA 9	294+73.34	295+51.86	Right	42.0	4.0	108.5	294+73.34	DR-306	10.0	Note 1, 2
6.2							30.0	295+51.86	DR-306		
7.1	IA 9	297+83.16	298+53.26	Right	42.0	4.0	100.1	297+83.16	DR-306	9.3	Note 1, 2
7.2							30.0	298+53.26	DR-306		
8.1	IA 9	298+53.26	300+22.76	Right	42.0	4.0	199.5	298+53.26	DR-306	18.5	Note 1, 2
8.2							30.0	300+22.76	DR-306		
Total:							1509.7	117.6			

Total number of DR-306 outlets = 16

- Notes
- 1 - Subdrains may be adjusted both vertically and horizontally in the field as necessary.
 - 2 - Use modified Type 7A Installation, with subdrain located along the outside edge of the paved shoulder.

	Interstate Highway Symbol
	U.S. Highway Symbol
	Iowa Highway Symbol
	County Road Highway Symbol
	Evergreen Tree
	Deciduous Tree
	Fruit Tree
	Shrub (Bushes)
	Timber
	Hedge
	Stump
	Swamp
	Rock Outcrop
	Broken Concrete
	Revetment (Rip Rap)
	Cemetery
	Grave
	Cave
	Sink Hole
	Board Fence
	Chain Link or Security Fence
	Wire Fence
	Terrace
	Earth Dam or Dike (Existing)
	Tile Outlet
	Edge of Water
	Existing Drainage
	Right of Way Rail or Lot Corner
	Concrete Monument
	Well
	Windmill
	Beehive Intake
	Existing Intake
	Existing Utility Access (Manhole)
	Fire Hydrant
	Water Hydrant (Rural)

	Septic Tank
	Cistern
	L.P. Gas Tank (No Footing)
	Underground Storage Tank
	Latrine
	Satellite TV Dish
	WHU Water Hook Up
	RT Radio Tower
	TA Tower Anchor
	Guardrail (Beam or Cable)
	GP Guard Post (one or two)
	Guard Post (over two)
	FP Filler Pipe
	GV Gas Valve
	WV Water Valve
	SL Speed Limit Sign
	MM Mile Marker Post
	SIGN Sign
	TCB Traffic Signal Control Box
	RRB Rail Road Signal Control Box
	TSB Telephone Switch Box
	EB Electric Box

Sub-Surface Utility Mapping Quality Level is in accordance with CI/ASCE 38-02 Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data.

QLA Quality Level A Highest guideline quality level
QLD Quality Level D Lowest guideline quality level

- E1 E1 - IOWA LAKES ELECTRIC - Quality D
- F0 FO1D - LONG LINES - Quality D
- F02 FO2D - MEDIACOM - Quality D
- F03 FO3D - CENTURYLINK - Quality D
- F04 FO4D - ICN - Quality D
- F05 FO5D - CENTURYLINK - Quality D
- F06 FO6D - CENTURYLINK - Quality D
- PPA, Power Pole, IOWA LAKES ELECTRIC

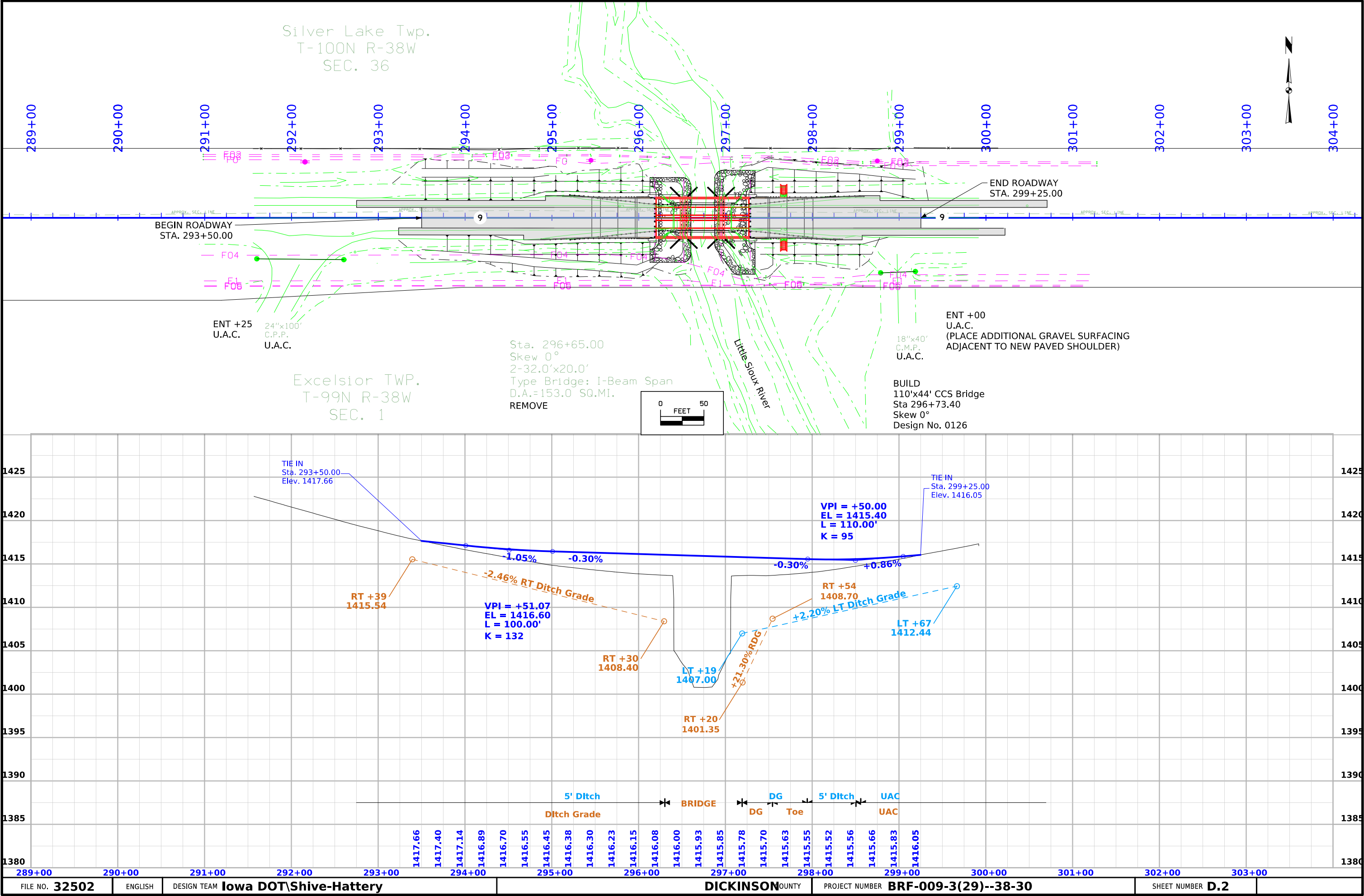
LINEWORK		Design Color No.
Green	(2)	Existing Topographic Features and Labels
Blue	(1)	Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
Magenta	(5)	Existing Utilities
SHADING		Design Color No.
Lavender	(9)	Temporary Pavement Shading
Yellow	(4)	Proposed Pavement Shading
Orange	(6)	Proposed Granular Shading
Orange	(70)	Proposed Shoulder Granular Shading
Yellow	(68)	Proposed Shoulder Paved Full Depth Shading
Yellow	(132)	Proposed Shoulder Paved Partial Depth Shading
Gray, Dark	(112)	Proposed Grade and Pave Shading "In conjunction with a paving project"
Brown, Light	(236)	Grading Shading
Orange, Light	(134)	Proposed Granular Entrance Shading
Yellow	(220)	Proposed Paved Entrance Shading
Tan	(8)	Proposed Sidewalk Shading
Blue, Light	(230)	Proposed Sidewalk Landing Shading
Pink	(11)	Proposed Sidewalk Ramp Shading
Green, Light	(225)	Existing Pavement Shading
Red	(3)	Proposed Structure Shading
Red	(3)	Delineates Restricted Areas

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

- Proposed Right-of-Way
- Existing Right of Way
- Existing and Proposed Right-of-Way
- Easement and Existing Right-of-Way
- Easement (Temporary)
- Easement
- Access Control
- Property Line

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

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



Survey Information

SURVEY INDEX

County: Dickinson
PIN: 21-30-009-020
Project Number: BRF-009-3(29)--38-30
Location: Little Sioux River 4.9 mi W of IA 86
Type of Work: Topographic Survey
Project Directory: 3000902021

Survey Personnel

Murray Berting – PLS
Gavin Gear – Land Survey Technician

Date(s) of Survey

Begin Date 11/04/2022
End Date 03/29/2023

General Information

Measurement units for this survey are US survey feet. This survey is for proposed bridge reconstruction and reconstruction of State Highway 9, over the Little Sioux River. Project datum and control information is provided by Shive-Hattery Inc. This project is a Preliminary Survey. This survey request was for the bridge over the Little Sioux River, State Highway 9 corridor and the Little Sioux River.

Project Control

Nearby Iowa Real Time Network reference stations were utilized to obtain horizontal and vertical control on primary project control points. (3) three-minute observations were taken with a minimum two-hour time span between and used in a weighted average to obtain final coordinate values. For additional details of the control survey, contact the Preliminary Survey department.

PROJECT DATUM: NAD83(2011) for EPOCH 2010.00 (IaRTN 2019 ADJUSTMENT)
COORDINATE SYSTEM: IOWA REGIONAL COORDINATE SYSTEM ZONE 01
(U.S. SURVEY FOOT)
VERTICAL DATUM: NAVD88
GEOID MODEL: 2012bu2

Alignment Information

The horizontal alignment for U.S. Hwy 9 this survey is a retrace of As-built Plans No. FN-9-3-(1)-21-30. Survey stationing was equated to the plan PI at Sta. 261+66.10 and run back without equation and run ahead with equation (POT Sta. 286+32.60 = POT Sta. 286+37.0)

Survey stationing relates to as built plan stationing as follows:

PI Sta. 261+66.10 (NW Corner Sec 1-99-38) As-built plans Project No. FN-9-3-(1)-21-30
Survey PI Sta. 261+66.10

POT Sta. 286+32.60 = POT Sta. 286+37.0 (1959 Survey) Not Found

Survey POT Sta. 288+07.89 (N ¼ Corner Sec 1-99-38)

POT Sta. 296+73.40 (CL Bridge) As-built plans Project No. FN-564 (March 2, 1964)

PI Sta. 314+46.40 As-built Plans Project No. FN-9-3-(1)-21-30
Survey POT Sta. 314+45.22

CONTROL POINT VICINITY MAP

This map is a guide to the vicinity of the primary project control points. Primary control is for use with RTK base stations and for RTN validation. Future surveys will use primary project control to establish temporary control as needed for construction or other surveying applications.



HORIZ. DATUM: NAD83(2011) for EPOCH 2010.00 (IaRTN 2019 Adjustment) - Iowa RCS Zone 01 (U.S. Survey Foot)

VERT. DATUM: NAVD88 - Geoid Model: 2012bu2

Coordinate listing from next sheet will be used with IaRTN for monument recovery. No other reference ties are given.

HORIZONTAL AND VERTICAL PROJECT CONTROL COORDINATE LISTING
HORIZ. DATUM: NAD83(2011) for EPOCH 2010.00 (IaRTN 2019 Adjustment)
Ia. Regional Coordinate System Zone 01 (U.S. Survey Foot)
VERT. DATUM: NAVD88
Geoid Model: 2012bu2

POINT NAME	NORTHING	EASTING	ELEVATION	FEATURE DEFINITION-DESCRIPTION
202	9683912.082	11494156.78	1425.747333	CP CUT X BALL RAIL
205	9684074.525	11492263.87	1433.325667	CP CUT X BALL RAIL
207	9683904.476	11492208.59	1443.458333	CP 5/8" IR W/ YELLOW IDOT CAP @ REF SIGN
208	9683899.995	11492094.06	1446.989667	CP CUT X BALL RAIL

ALIGNMENT DATA													SH 02-15-24
Alignment	POB/PI/POE			PC			Curve PI			PT			Remarks
	Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		
		Northing	Easting		Northing	Easting		Northing	Easting		Northing	Easting	
ML009	26170.580 R1	9683997.789	11489627.68										
ML009	31445.304 R1	9683991.135	11494902.4										

108-23A
08-01-08

TRAFFIC CONTROL PLAN

1) While bridge and approaches are being removed and replaced, traffic shall be maintained on IA 9 at all times by staged construction with temporary signals allowing one lane of traffic. (TC-217)

2) Signage and devices shall be furnished, installed, maintained, and removed by Contractor.

108-26A
08-01-08

STAGING NOTES

Stage 1:
Construct temporary pavement at EB shoulders.
Remove and replace north (WB) portion of IA 9 roadway, approaches and bridge with traffic shifted to EB lane using temporary signals.

Stage 2:
Remove and replace south half of roadway, approaches and complete bridge structure with traffic shifted to WB lane and temporary pavement using temporary signals.

Stage 3:
Complete approach and roadway to re-establish centerline with IA 9 traffic shifted to EB lane and shoulder using temporary signals.

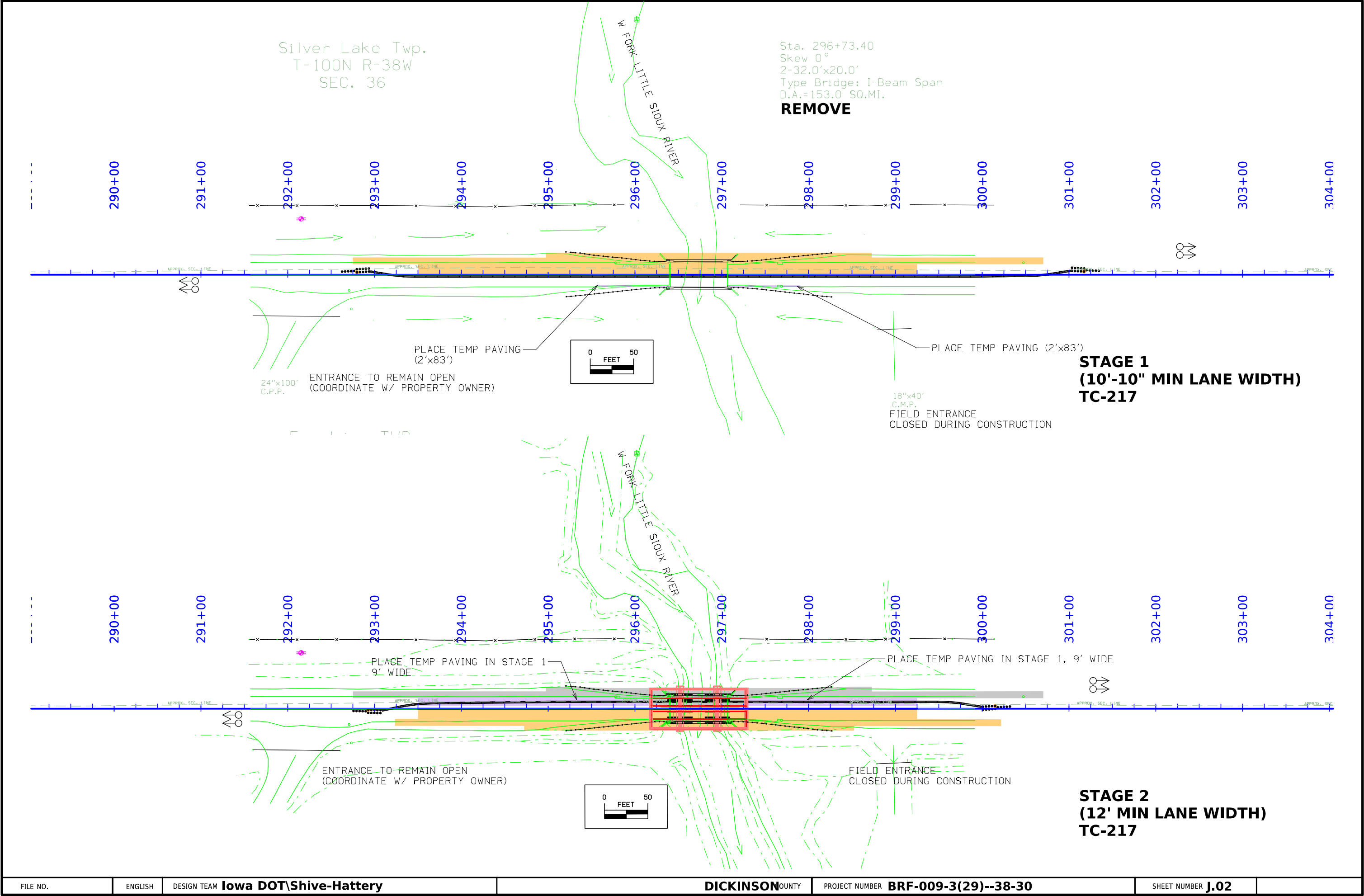
108-25 10-21-14												
511 TRAVEL RESTRICTIONS												
Route	Direction	County	Location Description	Feature Crossed	Object Type	Maint. Bridge No., Structure ID, or FHWA No.	Type of Restriction	Existing Measurement	Constructio n Measurement	Constructio n Measurement as Signed	Projected As Built Measurement	Remarks
IA 9	Both	DICKINSON	Bridge over Little Sioux River	Litle Sioux River	Bridge	023701	Width	28'-0	10'-10 1/2"	9'-10 1/2"	44'-0	

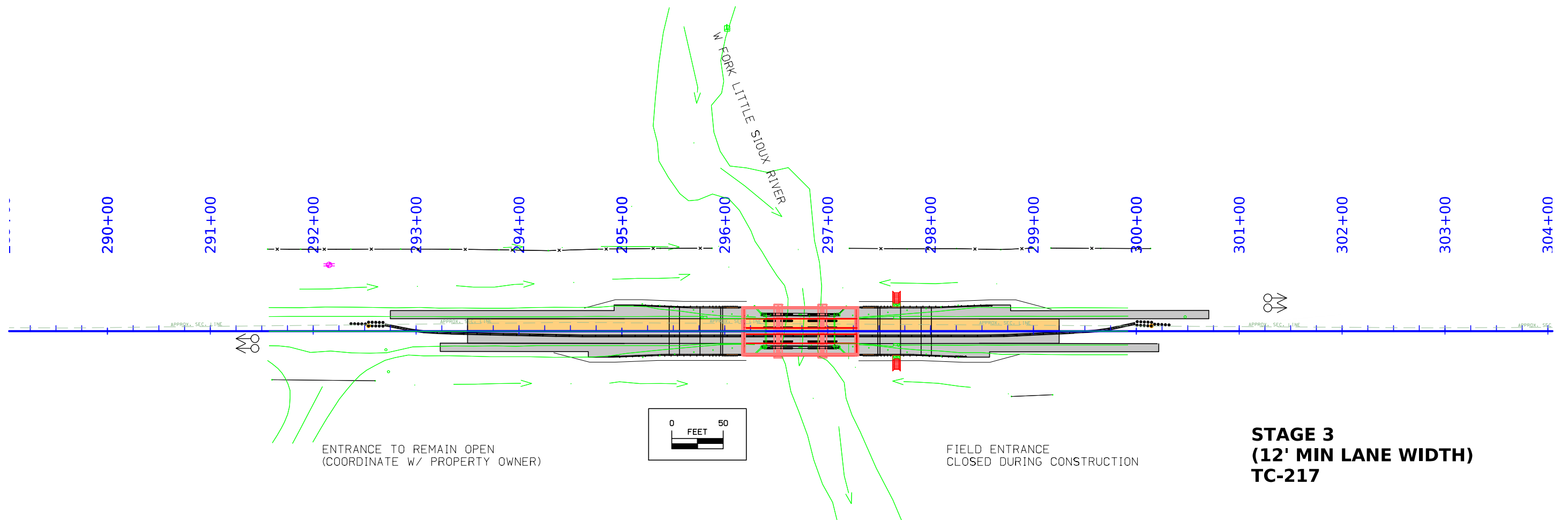
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04-17-12

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.

Project	Type of Work
None Provided	





ESTIMATED PROJECT QUANTITIES AND REFERENCE NOTES

Erosion Control Items :

Item no.	Item Code	Item	Unit	Quantities	Estimate Reference Notes
				Estimated	
				Erosion Control Items	
1	2601-2634100	MULCHING	ACRE	1.2	Perform mulching according to Article 2601.03, E, 2, of the Standard Specifications. Anchor mulch into the soil using mulch anchoring equipment with a minimum of two passes. Item is included for areas requiring reshaping and seedbed preparation. Use mulch that is Certified Noxious Weed Seed Free Mulch as certified by the Iowa Crop Improvement Association or adjacent states Crop Improvement Associations. Mulch Rate: 1 1/2 tons of dry cereal straw or native grass straw per acre.MULCHING Mulching shall be applied as described in standard specification section 2601. After seeding, mulch all areas disturbed by grading except where slope protection has been applied.
2	2601-2636015	NATIVE GRASS SEEDING	ACRE	0.95	Seed all areas outside eight feet adjacent to outside shoulder along mainline, side roads, and infield areas at interchanges with "Native Grass Seeding". Supply all seed for "Native Grass Seeding". Apply all forb seed through the native grass drill wildflower or small seed box. Do not mix and apply Forb seed with the native grass seed. Apply cover crop through the cool season or through cover crop seed box. Do not mix and apply cover crop seed with the native grass seed. Remove seed remaining in the drill at the end of each day. At the completion of all seeding, remove remaining seed from the drill by vacuum or other means. Hand broadcast remaining seed on the project. The Engineer will review the limits with the Contractor prior to seeding. and seed bed preparation shall be as described in the Standard Specifications Section 2601 and as shown on the plans.
3	2601-2636043	SEEDING AND FERTILIZING (RURAL)	ACRE	0.25	Seed and fertilize all areas 8 foot adjacent to the shoulder mainline, medians, and side according to Article 2601.03, C, 3, of the Standard Specifications. Use ground driven equipment.
4	2601-2642100	STABILIZING CROP - SEEDING AND FERTILIZING	ACRE	1.2	Item is included for disturbed areas. Seed and fertilize all disturbed areas according to Article 2601.03, C, 1, of the Standard Specifications. If permanent seeding cannot be placed due to the restrictive planting dates, stabilizing crop will need to be placed on all disturbed areas as temporary erosion control. Preparation and seeding shall be performed in accordance with Section 2601. Stabilizing crop will not be used when the application dates in Section 2601 allows permanent seeding. If stabilizing crop must be used, place immediately following completions of finished grading. Reseeding of these areas will be required at contractors expense if damage occurs due to contractors negligence during the contract period. It is not necessary to place stabilizing crop in locations that have be covered by Wood Excelsior Mat.

Item no.	Item Code	Item	Unit	Quantities	Estimate Reference Notes
				Estimated	
				Erosion Control Items	
5	2602-0000020	SILT FENCE	LF	1,002	Refer to Tab. 100-17. The tabulation includes estimated locations for placement of "Silt Fence" to address erosion to be encountered during construction. Verify the specific locations with the Engineer prior to beginning placement. Bid item includes 25% additional quantity for field adjustments and replacements.
6	2602-0000030	SILT FENCE FOR DITCH CHECKS	LF	83	Refer to Tab 100-18. The tabulation includes estimated locations for placement of "Silt Fence for Ditch Checks" to address erosion to be encountered during construction. Verify the specific locations with the Engineer prior to beginning placement. Bid item includes 50% additional quantity for field adjustments and replacements.
7	2602-0000071	REMOVAL OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS	LF	1,085	This item is included for silt fence and silt fence for ditch check removal required for staging reasons, removal to allow for replacement (replacement to be paid separately), or for areas that have achieved 70% permanent growth.This item is included for silt fence and silt fence for ditch check removal. Remove silt fence and posts after mulching or vegetation is established and approved by the engineer.
8	2602-0000101	MAINTENANCE OF SILT FENCE OR SILT FENCE FOR DITCH CHECK	LF	109	This item is included for clean-out and repair of the silt fence and silt fence for ditch checks during the project.
9	2602-0000150	STABILIZED CONSTRUCTION ENTRANCE, EC-303	LF	200	
10	2602-0000312	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 12 IN. DIA.	LF	1,170	Refer to Tab. 100-19. The tabulation includes estimated locations for placement of "Perimeter and Slope Sediment Control Device, 12 in. dia." to address erosion to be encountered during construction. Verify the specific locations with the Engineer prior to beginning placement. Bid item includes 25% additional quantity for field adjustments and replacements.
11	2602-0000320	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 20 IN. DIA.	LF	100	Refer to Tab. 100-19. The tabulation includes estimated locations for placement of "Perimeter and Slope Sediment Control Device, 20 in. dia." to address erosion to be encountered during construction. Verify the specific locations with the Engineer prior to beginning placement. Bid item includes 25% additional quantity for field adjustments and replacements.
12	2602-0000351	REMOVAL OF PERIMETER AND SLOPE OR DITCH CHECK SEDIMENT CONTROL DEVICE	LF	1,270	
13	2602-0010010	MOBILIZATIONS, EROSION CONTROL	EACH	1	
14	2602-0010020	MOBILIZATIONS, EMERGENCY EROSION CONTROL	EACH	1	

281_01
9/28/22

SECTION 404 PERMIT AND CONDITIONS

Construct this project according to the requirements of U.S. Army Corps of Engineers Nationwide, Permit 14, Permit No. 2025-XXXX. A copy of this permit is available from the Iowa DOT website (<http://www.envpermits.iowadot.gov/>). The U.S. Army Corps of Engineers reserves the right to visit the site without prior notice.

281_03
11/9/23

STORM WATER BEST MANAGEMENT PRACTICES

When the following best management practices are used, they are intended to account for disturbed areas where storage volume cannot be provided: Wood Excelsior Mat for Ditch Protection, Silt Fence, Silt Fence for Ditch Protection, Perimeter and Slope Sediment Control Devices

TABULATION OF SILT FENCES					
Refer to EC-201					
Line No.	Station From	Station To	Side	Length (FT)	Remarks
1.0	293+50.00	295+05.00	Left	155.00	
2.0	295+20.00	296+00.00	Left	80.00	
3.0	293+50.00	296+00.00	Right	250.00	
4.0	297+30.00	299+26.00	Left	196.00	
5.0	297+50.00	297+70.00	Right	20.00	
6.0	297+70.00	298+71.00	Right	101.00	
Total:				802	

SF BID TOTAL: 1,002 LF (125% of Tab Total)
SF MAINTENANCE TOTAL: 100 LF (10% of Bid Total)
SF REMOVAL TOTAL: 1,002 LF (100% of Bid Total)

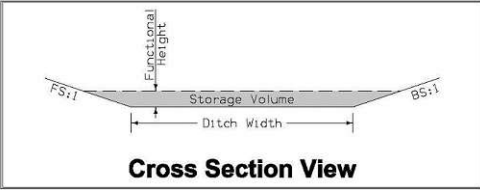
PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE							
Possible Standards: EC-204							
Line No.	Station From	Station To	Side	Sediment Control Device Type	Diameter Size	Length (LF)	Remarks
1.0	293+50.00	296+21.00	Left	Perimeter and Slope	12 inch	280.00	
2.0	293+50.00	293+50.00	Left	Ditch Check	12 inch	14.00	
3.0	294+17.00	294+17.00	Left	Ditch Check	12 inch	14.00	
4.0	294+81.00	294+81.00	Left	Ditch Check	12 inch	14.00	
5.0	296+36.00	296+36.00	Left	Ditch Check	20 inch	30.00	
6.0	293+56.00	293+56.00	Right	Ditch Check	12 inch	14.00	
7.0	294+64.00	294+64.00	Right	Ditch Check	12 inch	14.00	
8.0	296+00.00	296+00.00	Right	Ditch Check	12 inch	14.00	
9.0	296+25.00	296+25.00	Right	Ditch Check	20 inch	30.00	
10.0	293+77.00	296+20.00	Right	Perimeter and Slope	12 inch	250.00	
11.0	297+25.00	297+25.00	Left	Ditch Check	20 inch	15.00	
12.0	297+27.00	299+12.00	Left	Perimeter and Slope	12 inch	190.00	
13.0	297+35.00	297+35.00	Right	Ditch Check	20 inch	20.00	
14.0	297+27.00	298+57.00	Right	Perimeter and Slope	12 inch	130.00	
Total:						1029	

PSSCD TAB TOTALS: 934 LF 12-INCH PSSCD; 95 LF 20-INCH PSSCD
12-INCH PSSCD BID TOTALS: 1,170 LF (125% of Tab Total)
20-INCH PSSCD BID TOTALS: 100 LF (125% of Tab Total)
PSSCD REMOVAL TOTALS: 1,270 LF (100% of Bid Total)

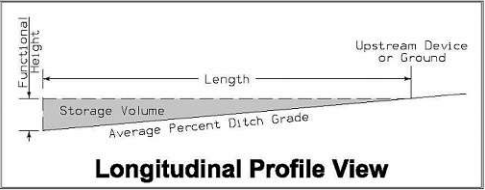
100_18
8/15/22

SILT FENCES FOR DITCH CHECKS

Possible Standard: EC-201



Cross Section View



Longitudinal Profile View

* The functional height used in the volume equation is 85% of effective height. Effective height is 1.58 feet as shown on EC-201.
* Volume equation: [0.5*Spacing*(0.5*H^2*FS+DW*H+0.5*H^2*BS)]

Line No.	Basin No.	Type	Station	Side	Installation (LF)	Maintenance (LF)	Removal (LF)	Foreslope (FS:1)	Backslope (BS:1)	Ditch Width (FT)	Avg. % Slope Ditch Grade	Volume (CF)	Remarks
1.0	1	Type 1	297+50.00	Left	20.0	2.0	20.0	3.0	3.0	10.0	2.2	565.20	
2.0	1	Type 1	298+21.00	Left	15.0	1.5	15.0	3.0	3.0	10.0	2.2	565.20	
3.0	1	Type 1	299+07.00	Left	20.0	2.0	20.0	3.0	3.0	10.0	2.2	565.20	
Total:					55	5.5	55						

SFDC TAB TOTALS: 55 LF
SFDC BID TOTAL: 83 LF (150% of Tab Total)
SFDC MAINT. TOTAL: 9 LF (10% of Bid Total)
SFDC REM. TOAL: 83 LF (100% of Bid Total)

FILE NO.

ENGLISH

DESIGN TEAM

Shive-Hattery

DICKINSON COUNTY

PROJECT NUMBER

BRF-009-3(29)--38-30

SHEET NUMBER

RC.3

7/21/2025 11:04:42 AM

MIKE.JANECHKE@IOWAID

110_12 1/13/23 POLLUTION PREVENTION PLAN This project is regulated by the requirements of the Iowa Department of Natural Resources (DNR) National Pollutant Discharge Elimination System (NPDES) General Permit No. 2 OR an Iowa Department of Natural Resources (DNR) National Pollutant Discharge Elimination System (NPDES) individual storm water permit. The Contractor shall carry out the terms and conditions of this permit and the Pollution Prevention Plan (PPP). This Base PPP includes information on Roles and Responsibilities, Project Site Description, Controls, Maintenance Procedures, Inspection Requirements, Non-Storm Water Controls, Potential Sources of Off Right-of-Way Pollution, and Definitions. This plan references other documents rather than repeating the information contained in the documents. A copy of this Base Pollution Prevention Plan, amended as needed during construction, will be readily available for review. All contractors shall conduct their operations in a manner that controls pollutants, minimizes erosion, and prevents sediments from entering waters of the state and leaving the highway right-of-way. The Contractor shall be responsible for compliance and implementation of the PPP for their entire contract. This responsibility shall be further shared with subcontractors whose work is a source of potential pollution as defined in this PPP. I. ROLES AND RESPONSIBILITES A. Designer: - Prepares Base PPP included in the project plan. - Prepares Notice of Intent (NOI) submitted to Iowa DNR. - Is signature authority on the Base PPP. If consultant designed, signature from Contracting Authority is also required. B. Contractor: - Signs a co-permittee certification statement adhering to the requirements of the NPDES permit and this PPP. All co-permittees are legally required under the Clean Water Act and the Iowa Administrative Code to ensure compliance with the terms and conditions of this PPP. - Designates a Water Pollution Control Manager (WPCM), who has the duties and responsibilities as defined in Section 2602 of the Standard Specifications. - Submits an Erosion Control Implementation Plan (ECIP) and ECIP updates according to Section 2602 of the Standard Specifications. - Installs and maintains appropriate controls. This work may be subcontracted as documented through Subcontractor Request Forms (Form 830231). - Supervises and implements good housekeeping practices according to Paragraph III, C, 2. - Conducts joint required inspections of the site with inspection staff. When Contractor is not mobilized on site, Contractor may delegate this responsibility to a trained or certified subcontractor. Contracting Authority also may waive joint inspection requirement during winter shutdown. In both circumstances, WPCM (or trained or certified delegate from the Contractor) is still responsible to review and sign inspection reports. - Complies with training and certification requirements of Section 2602 of the Standard Specifications. - Submits amended PPP site map according to Section 2602 of the Standard Specifications. C. Subcontractors: - Sign a co-permittee certification statement adhering to the requirements of the NPDES permit and this PPP if: responsible for sediment or erosion controls; involved in land disturbing activities; or perorming work that is a source of potential pollution as defined in this PPP. Subcontracted work items are identified in Subcontractor Request Forms (Form 830231). All co-permittees are legally required under the Clean Water Act and the Iowa Administrative Code to ensure compliance with the terms and conditions of this PPP. - Implement good housekeeping practices according to Paragraph III, C, 2. D. RCE/Project Engineer: - Is Project Storm Water Manager. - On projects where DOT is the Contracting Authority, is current with erosion control training or certification. - Takes actions necessary to ensure compliance with storm water requirements including, where appropriate, issuing stop work orders, and directing additional inspections at construction project sites that are experiencing problems with achieving permit compliance. - Orders the taking of measures to cease, correct, prevent, or minimize the consequences of non-compliance with the storm water requirements of the Applicable Permit. - Supervises all work necessary to meet storm water requirements at the Project, including work performed by contractors and subcontractors. - Requires employees, contractors, and subcontractors to take appropriate responsive action to comply with storm water requirements, including requiring any such person to cease or correct a violation of storm water requirements, and to order or recommend such other actions as necessary to meet storm water requirements. - Is familiar with the Project PPP and storm water site map. - On projects where DOT is Contracting Authority, is responsible for periodically monitoring inspection reports to determine whether deficiencies identified in inspection reports were adequately and timely addressed, and if not, has the authority and responsibility to direct immediate actions to correct the deficiencies. - Is the point of contact for the Project for regulatory officials, Inspector, contractors, and subcontractors regarding storm water requirements. - Is signature authority on Notice of Discontinuation. - Maintains an up-to-date record of contractors, subcontractors, and subcontracted work items through Subcontractor Request Forms (Form 830231). - Makes information to determine permit compliance available to the DNR upon their request.			110_12 1/13/23 POLLUTION PREVENTION PLAN E. Inspector: - Updates PPP through fieldbook entries and storm water site inspection reports if there is a change in design, construction, operation, or maintenance which has a significant effect on the discharge of pollutants from the project. - Makes information to determine permit compliance available to the DNR upon their request. - Conducts joint required inspections of the site with the contractor/subcontractor. - Completes an inspection report after each inspection. - Is signature authority on storm water inspection reports. II. PROJECT SITE DESCRIPTION A. This Pollution Prevention Plan (PPP) is for the construction of a bridge replacement. B. This PPP covers approximately 2.2 acres with an estimated 1.4 acres being disturbed. The portion of the PPP covered by this contract has 1.4 acres disturbed. C. The PPP is located in an area of Clarion-Nicolett-Webster soil association. The estimated weighted average runoff coefficient number for this PPP after completion will be 0.43. D. Storm Water Site Map is located in the R sheets. Proposed slopes are shown in cross sections, details, or standard road plans. Supplemental information is located in the Tabulations in the C or CE sheets. E. The base storm water site map is amended by contract modifications and progress payments (fieldbook entries) of completed erosion control work. Also, due to project phasing, erosion and sediment controls shown on project plans may not be installed until needed, based on site conditions. For example, silt fence ditch checks will typically not be installed until the ditch has been installed. Installed locations may also be modified from tabulation locations by field staff. Installed locations will be documented by fieldbook entries and amended PPP site map. F. Runoff from this work will flow into Little Sioux River. III. CONTROLS A. The Contractor’s ECIP specified in Article 2602.03 of the Standard Specifications for accomplishment of storm water controls should clearly describe the intended sequence of major activities, and for each activity define the control measure and the timing during the construction process that the measure will be implemented. B. Preserve vegetation in areas not needed for construction. C. Sections 2601 and 2602 of the Standard Specifications define requirements to implement erosion and sediment control measures. Actual quantities used and installed locations may vary from the Base PPP and amendment of the plan will be documented via fieldbook entries, amended PPP site map, or by contract modification. Additional erosion and sediment control items may be required as determined by the inspector and/or contractor during storm water site inspections. If the work involved is not applicable to any contract items, the work will be paid for according to Article 1109.03 paragraph B of the Standard Specifications. 1. EROSION AND SEDIMENT CONTROLS a. Stabilization Practices - Site plans will ensure that existing vegetation or natural buffers are preserved where attainable and disturbed portions of the site will be stabilized. - Initialize stabilization of disturbed areas immediately after clearing, grading, excavating, or other earth disturbing activities have: - Permanently ceased on any portion of the site, or - Temporarily ceased on any portion of the site and will not resume for a period exceeding 14 calendar days. - Staged permanent and/or temporary stabilizing seeding and mulching shall be completed as the disturbed areas are completed. Incomplete areas shall be stabilized according to paragraph III, C, 1, a, 2, b above. - Permanent and Temporary Stabilization practices to be used for this project are located in the storm water site map, Estimated Project Quantities (100-0A, 100-1A, or 100-1C), and Estimate Reference Information (100-4A) located in the C or R sheets. Typical drawings detailing construction of the practices to be used on this project are referenced in the Standard Road Plans Tabulation (105-4) in the C or R sheets. - Preservation of existing vegetation within right-of-way or easements will act as vegetative buffer strips. - Preservation of topsoil: Bid items to be used for this project are located in the Estimated Project Quantities (100-0A, 100-1A, or 100-1C) and Estimate Reference Information (100-4A) located in the C or R sheets. Additional information may be found in the Tabulations in the C or T Tabulation sheets, or is referenced in Section 2105 of the Standard Specifications. b. Structural Practices - Structural practices will be implemented to divert flows from exposed soils and detain or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Additionally, structural practices may include: silt basins that provide 3600 cubic feet of storage per acre drained or equivalent sediment controls, outlet structures that withdraw water from surface when discharging basins, and controls to direct storm water to vegetated areas. - Structural practices to be used for this project are located in the storm water site map, Estimated Project Quantities (100-0A, 100-1A, or 100-1C), and Estimate Reference Information (100-4A) located in the C or R sheets, as well as all other item specific Tabulations. Typical drawings detailing construction of the devices to be used on this project can be found on the B or R sheets or are referenced in the Standard Road Plans Tabulation (105-4) located in the C or R sheets.					
FILE NO.	ENGLISH	DESIGN TEAM	Shive-Hatterv	DICKINSON COUNTY	PROJECT NUMBER	BRF-009-3(29)--38-30	SHEET NUMBER	RC.4

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POLLUTION PREVENTION PLAN 110_12 1/13/23				POLLUTION PREVENTION PLAN 110_12 1/13/23					
c. Storm Water Management Measures shall be installed during the construction process to control pollutants in storm water discharges that will occur after construction operations have been completed. This may include velocity dissipation devices at discharge locations and along length of outfall channel as necessary to provide a non-erosion velocity flow from structure to water course. If included with this project, these items are located in the storm water site map and Estimated Project Quantities (100-0A, 100-1A, or 100-1C) and Estimate Reference Information (100-4A) located in the C or R sheets, as well as all other item specific Tabulations. Typical drawings detailing construction of the practices to be used on this project are referenced in the Standard Road Plans Tabulation. The installation of these devices may be subject to Section 404 of the Clean Water Act. 2. OTHER CONTROLS Contractor disposal of unused construction materials and construction material wastes shall comply with applicable state and local waste disposal, sanitary sewer, or septic system regulations. In the event of a conflict with other governmental laws, rules and regulations, the more restrictive laws, rules or regulations shall apply. a. Vehicle Entrances and Exits - Construct and maintain entrances and exits to prevent tracking of sediments onto roadways. b. Material Delivery, Storage and Use - Implement practices to prevent discharge of construction materials during delivery, storage, and use. c. Stockpile Management - Install controls to reduce or eliminate pollution of storm water from stockpiles of soil and paving. d. Waste Disposal - Do not discharge any materials, including building materials, into waters of the state, except as authorized by a Section 404 permit. e. Spill Prevention and Control - Implement chemical spill and leak prevention and response procedures to contain and clean up spills and prevent material discharges to the storm drain system and waters of the state. f. Concrete Residuals and Washout Wastes - Waste shall not be discharged to a surface water and is not allowed to adversely affect a water of the state. Designate temporary concrete washout facilities for rinsing out concrete trucks. Provide directions to truck drivers where designated washout facilities are located. Designated washout areas should be located at least 50 feet away from storm drains, streams or other water bodies. Care should be taken to ensure these facilities do not overflow during storm events. g. Concrete Grooving/Grinding Slurry - Do not discharge slurry to a waterbody or storm drain. Slurry may be applied on foreslopes or removed from the project. h. Vehicle and Equipment Storage and Maintenance Areas - Perform on site fueling and maintenance in accordance with all environment laws such as proper storage of onsite fuels and proper disposal of used engine oil or other fluids on site. Employ washing practices that prevent contamination of surface and ground water from wash water. Wash waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge. i. Litter Management - Ensure employees properly dispose of litter. Minimize exposure of trash if exposure to precipitation or storm water would result in a discharge of pollutants. j. Dewatering - Properly treat water to remove suspended sediment before it re-enters a waterbody or discharges off-site. Measures are also to be taken to prevent scour erosion at dewatering discharge point. 3. APPROVED STATE OR LOCAL PLANS During the course of this construction, it is possible that situations will arise where unknown materials will be encountered. When such situations are encountered, they will be handled according to all federal, state, and local regulations in effect at the time. IV. MAINTENANCE PROCEDURES The Contractor is required to maintain all temporary erosion and sediment control measures in proper working order, including cleaning, repairing, or replacing them throughout the contract period. This shall begin when the features have lost 50% of their capacity. V. INSPECTION REQUIREMENTS A. Inspections shall be made jointly by the Contractor and the Contracting Authority's inspector at least once every seven calendar days. Storm water site inspections will include: 1. Date of the inspection. 2. Summary of the scope of the inspection. 3. Name and qualifications of the personnel making the inspection. 5. Review of erosion and sediment control measures within disturbed areas for the effectiveness in preventing impacts to receiving waters. 6. Major observations related to the implementation of the PPP. 7. Identification of corrective actions required to maintain or modify erosion and sediment control measures. B. Include storm water site inspection reports in the Amended PPP. Incorporate any additional erosion and sediment control measures determined as a result of the inspection. Immediately begin corrective actions on all deficiencies found within 3 calendar days of the inspection and complete within 7 calendar days following the inspection. If it is determined that making the corrections less than 72 hours after the inspection is impracticable, it should be documented why it is impracticable and indicate an estimated date by which the corrections will be made. VI. NON-STORM WATER DISCHARGES				This includes subsurface drains (i.e. longitudinal and standard subdrains) and slope drains. The velocity of the discharge from these features may be controlled by the use of headwalls or blocks, Class A stone, erosion stone or other appropriate materials. This also includes uncontaminated groundwater from dewatering operations, which will be controlled as discussed in Section III of the PPP. VII. POTENTIAL SOURCES OF OFF RIGHT-OF-WAY (ROW) POLLUTION Silts, sediment, and other forms of pollution may be transported onto highway right-of-way (ROW) as a result of a storm event. Potential sources of pollution located outside highway ROW are beyond the control of this PPP. Pollution within highway ROW will be conveyed and controlled per this PPP. VIII. DEFINITIONS A. Base PPP - Initial Pollution Prevention Plan. B. Amended PPP - Base PPP amended during construction. May include Plan Revisions or Contract Modifications for new items, storm water site inspection reports, fieldbook entries made by the inspector, amended PPP site map by the Contractor, ECIP, NOI, co-permittee certifications, and Subcontractor Request Forms. Items amending the PPP are stored electronically and are readily available upon request. C. Fieldbook Entries - This contains the inspector’s daily diary and bid item postings. D. Controls - Methods, practices, or measures to minimize or prevent erosion, control sedimentation, control storm water, or minimize contaminants from other types of waste or materials. Also called Best Management Practices (BMPs). E. Signature Authority - Representative authorized to sign various storm water documents. CERTIFICATION STATEMENT I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. Signature Michael Janechek Printed or Typed Name Signature Shane Tymkowicz Printed or Typed Name					
FILE NO.	ENGLISH	DESIGN TEAM	Shive-Hatterv	DICKINSON	COUNTY	PROJECT NUMBER	BRF-009-3(29)--38-30	SHEET NUMBER	RC.5

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LINE STYLE LEGEND OF LANDSCAPE SHEETS	
LINESTYLE	Design Element
-----	Living Snow Fence Single Row
-----	Living Snow Fence Double Row
-----	Mechanical Edge

CELL LEGEND OF LANDSCAPE SHEETS		
CELL	Design Element	Plant Diameter
	Clearing	
	Proposed Shrub	6 FT
	Proposed Understory Tree	12 FT
	Proposed Conifer Tree	18 FT
	Proposed Overstory Tree	30 FT

PATTERN LEGEND OF LANDSCAPE SHEETS	
	Brush Clearing
	Clearing & Grubbing
	Spray Area

LINE STYLE LEGEND OF EROSION CONTROL SHEETS	
LINESTYLE	Design Element
	Silt Fence
	Perimeter and Slope Sediment Control Device (9")
	Perimeter and Slope Sediment Control Device (12")
	Perimeter and Slope Sediment Control Device (20")
	Open-Throat Curb Intake Sediment Filter
	Concentrated Flow
	Rock Check and Rock Check Dam
	Sheet Flow

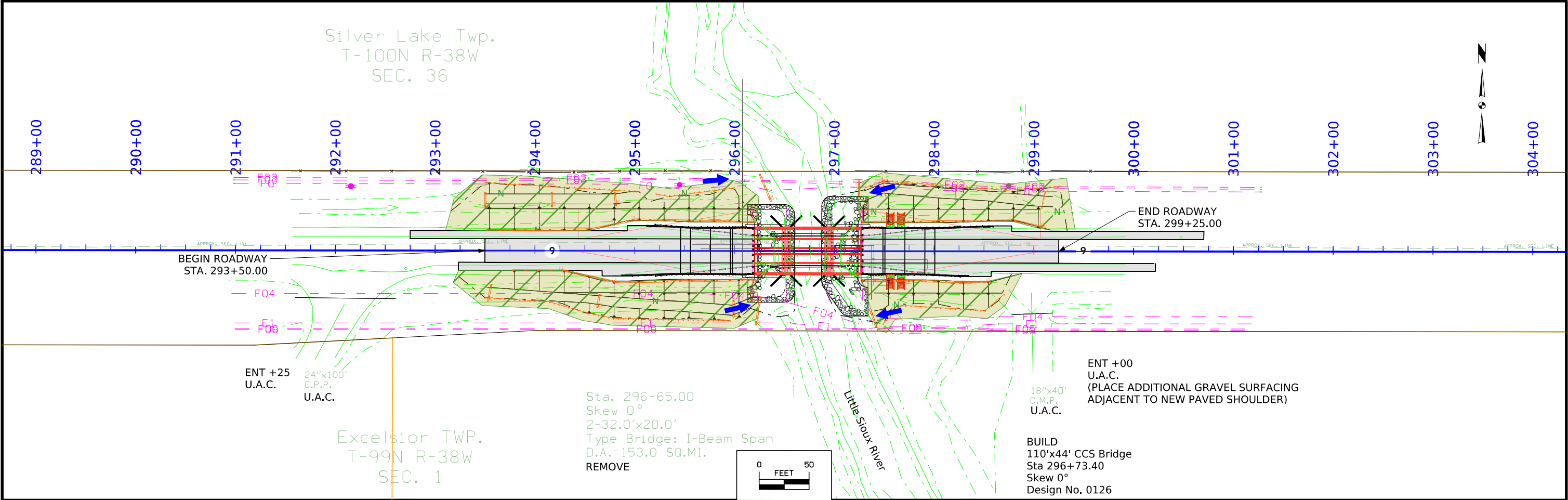
CELL LEGEND OF EROSION CONTROL SHEETS	
CELL	Design Element
	Temporary Sediment Control basin
	Erosion Control for Circular Intake or Manhole Well
	Erosion Control for Rectangular Intake or Manhole Well
	Grate Intake Sediment Filter Bag
	Silt Basin
	Silt Fence Tail
	Stormwater Drainage Basin Discharge Point

PLAN VIEW COLOR LEGEND OF EROSION CONTROL SHEETS				
LINEWORK	Design Color No.			
Green	(2)		Existing Topographic Features and Labels	
Blue	(1)		Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation	
Magenta	(5)		Existing Utilities	
Black	(0)		Permanent Erosion Control Features	
Blaze Orange	(222)		Temporary Erosion Control Features	
SHADING	Design Color No.		Transparency	
Citron	(234)		Mulching, All Types	50%
Light Brown	(238)		Special Ditch Control, Wood Excelsior Mat	0%
Grass Green	(233)		8FT Mow Strip	50%
Red	(3)		Delineates Restricted Areas	0%

PATTERN LEGEND OF EROSION CONTROL SHEETS	
	Seeding and Fertilizing
	Seeding and Fertilizing (Rural)
	Seeding and Fertilizing (Urban)
	Native Grass Seeding
	Salt Tolerant Seeding
	Wetland Grass Seeding
	Wildflower Seeding
	Sodding
	Turf Reinforcement Mat Type 1
	Turf Reinforcement Mat Type 2
	Turf Reinforcement Mat Type 3
	Turf Reinforcement Mat Type 4
	Slope Protection, Wood Excelsior Mat
	Transition Mat
	Rock Features, Permanent
	Rock Features, Temporary

EROSION CONTROL LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES R)



CROSS SECTION VIEW COLOR LEGEND			
Design Color No.	Feature	Design Color No.	Feature
Aggregate		Structural	
(64)	Choke Stone	(112)	Noise Wall
(42)	Engineering Fabric	(112)	Noise Wall Footing
(8)	Flooded Backfill	(112)	Retaining Wall Back
(92)	Macadam Stone	(112)	Retaining Wall Back Excavate
(20)	Modified	(112)	Retaining Wall Face
(12)	Plowing Shaping	(112)	Retaining Wall Front Excavate
(14)	Porous Backfill	(112)	Retaining Wall Front Footing
(8)	Revetment Class A	(112)	Retaining Wall MSE Gutter
(6)	Revetment Class B	(112)	Retaining Wall Reinforced Earth
(62)	Revetment Class C	Grading	
(188)	Revetment Class D	(8)	Behind Curb Cut
(28)	Revetment Class E	(6)	Granular
(12)	Shoulder Special Backfill	(13)	Granular Back Fill
(12)	Special Backfill	(48)	Rock Undercut
(20)	Subbase	(8)	Shoulder Earth Fill
(20)	Subbase Lower	(2)	Side Slopes
(20)	Subbase Upper	(226)	Side Slopes Dressing
(118)	Subgrade Treatment	Substrata	
Asphalt		(128)	Boulder Substrata
(207)	HMA Base Course	(48)	Broken Weathered Substrata
(207)	HMA Interim Course	(3)	Core Out Substrata
(207)	HMA Surface Course	(203)	Existing Pavement Substrata
Concrete		(6)	Loam Substrata
(0)	Barrier Concrete	(80)	Rock Substrata
(0)	Barrier Concrete Footing	(4)	Select Sand Substrata
(0)	Curb Gutter	(3)	Shale Substrata
(48)	Flowable Mortar	(10)	Topsoil Substrata
(0)	Median Concrete	Unsuitable / Waste	
(0)	PCC Pavement	(3)	Unsuitable Type A
(0)	Sidewalk	(13)	Unsuitable Type B
Shoulder		(11)	Unsuitable Type C
(209)	Shoulder HMA	(3)	Waste
(0)	Shoulder PCC		
(6)	Shoulder Granular		
Existing			
(0)	Existing Pavement		

NOTES:

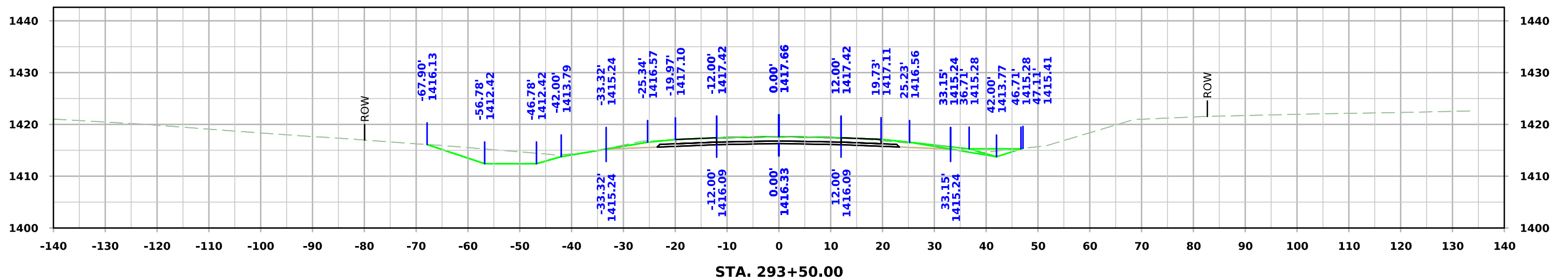
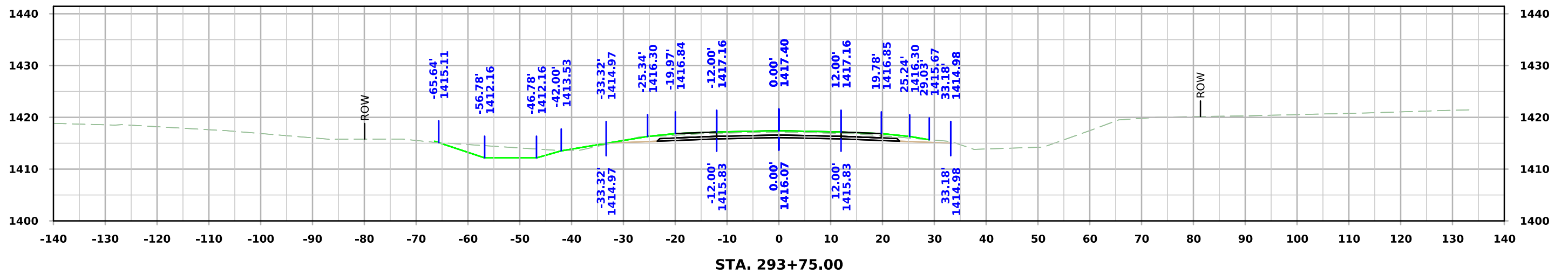
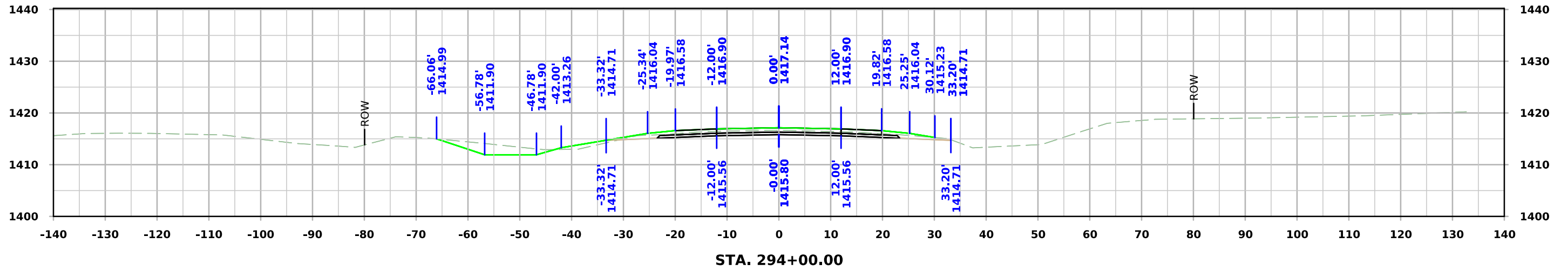
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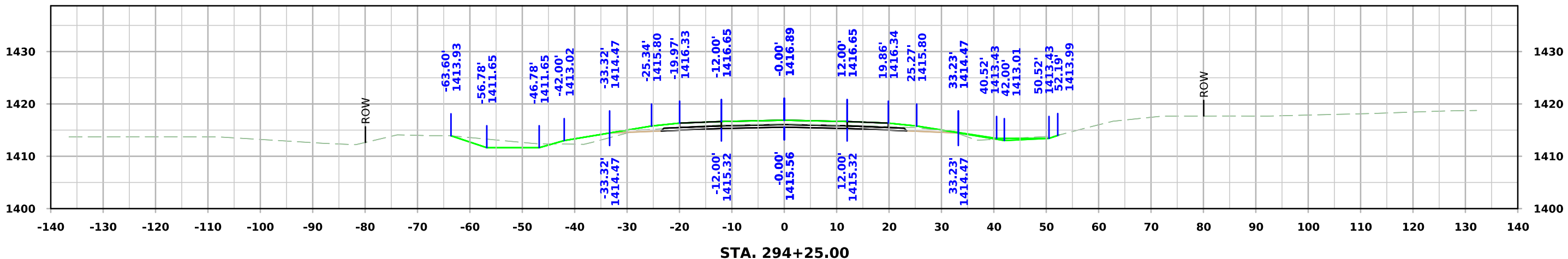
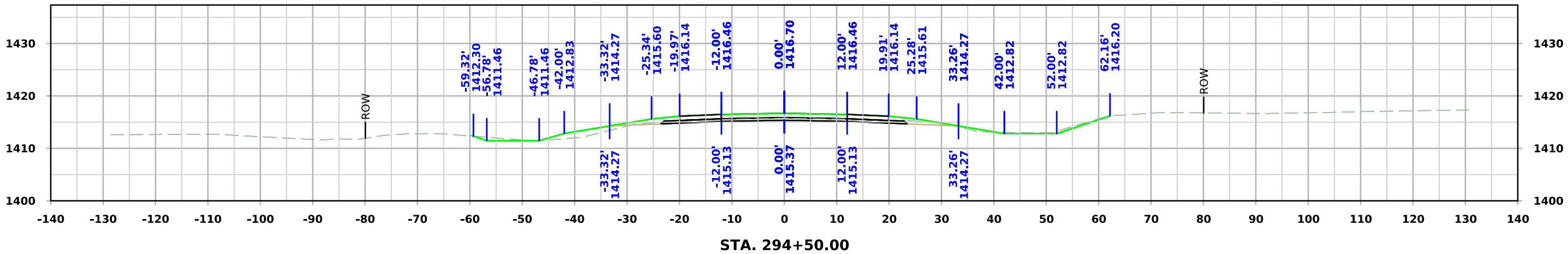
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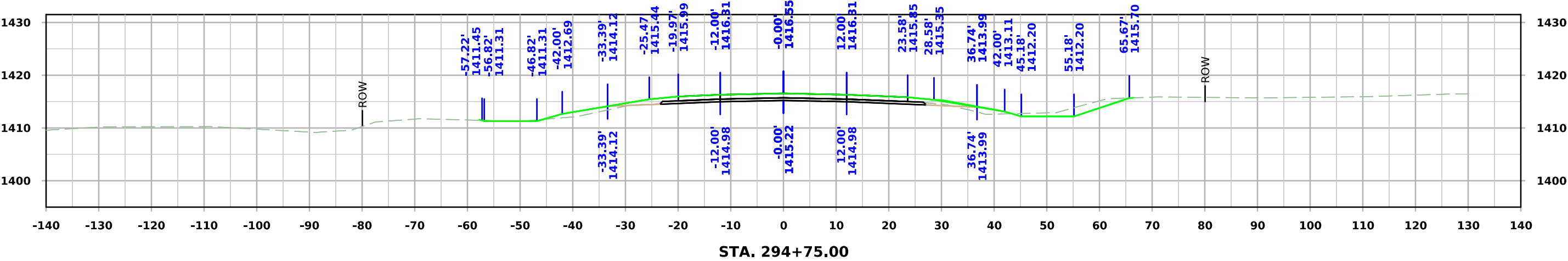
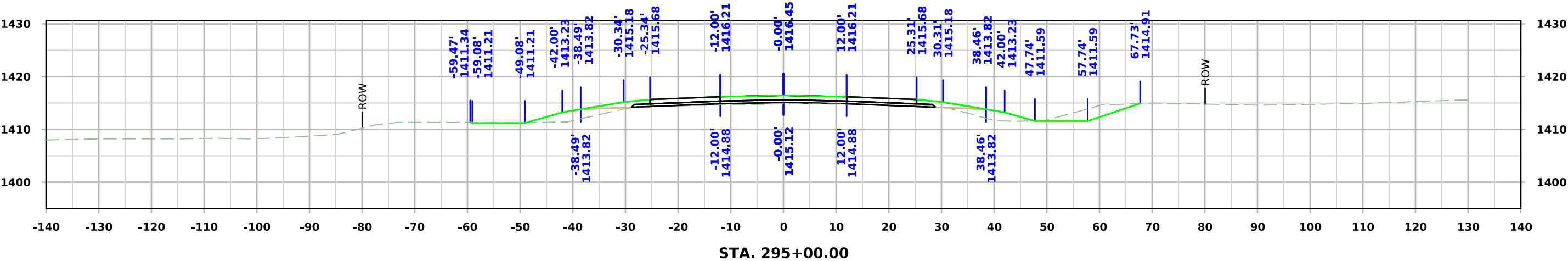
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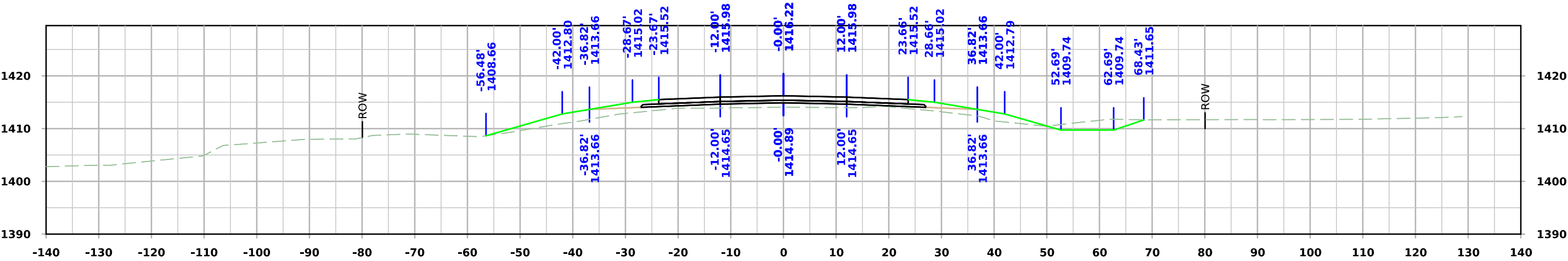
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LEGEND AND INFORMATION SHEET

(COVERS SHEET SERIES W, X, Y, & Z)

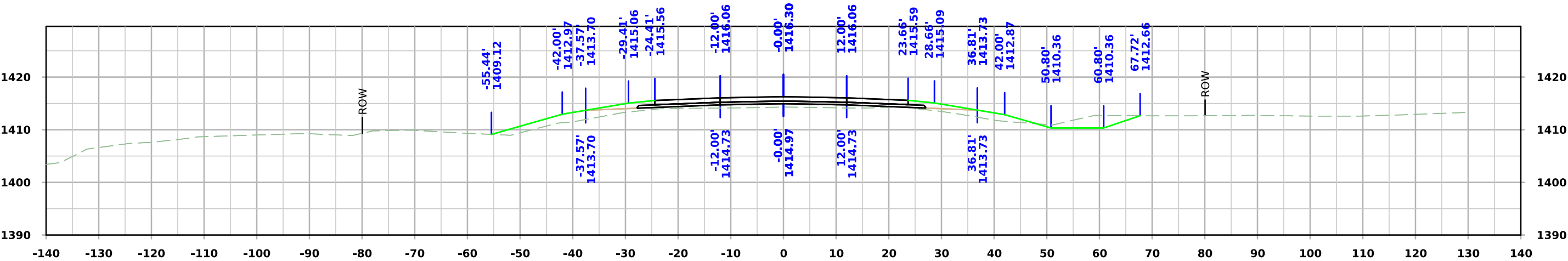




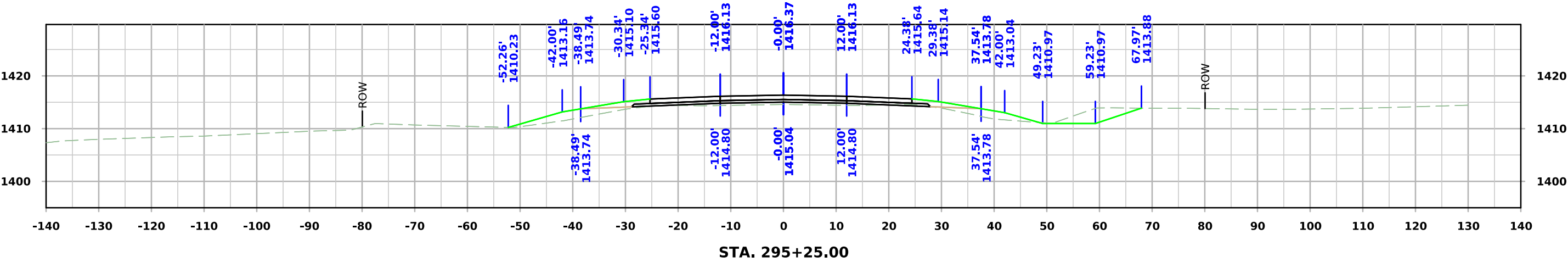




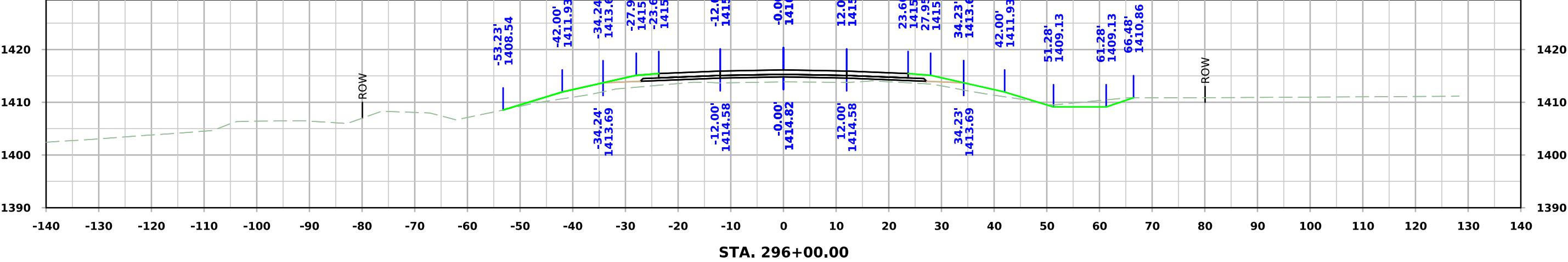
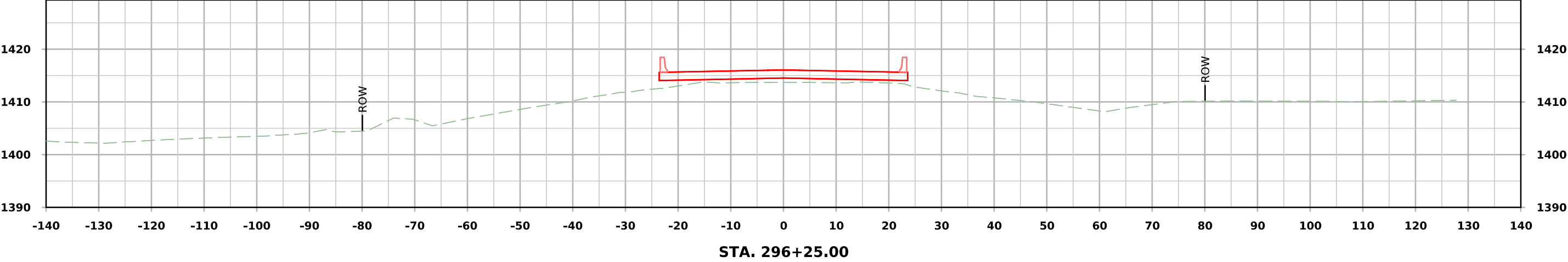
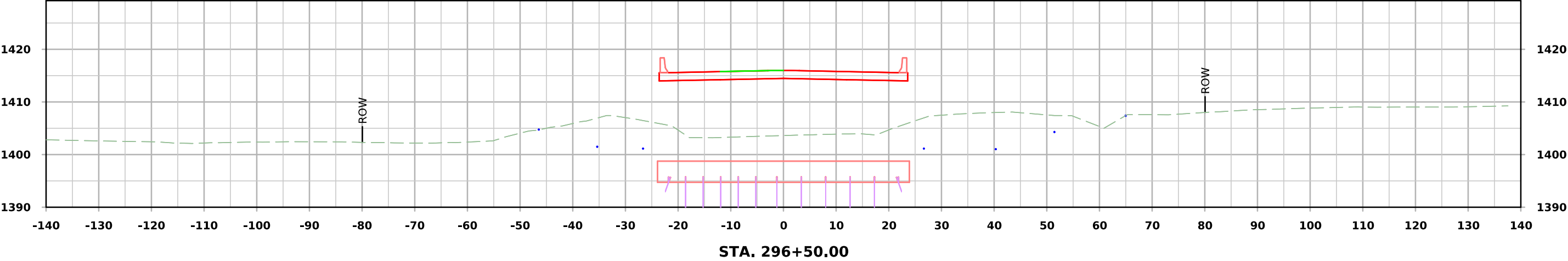
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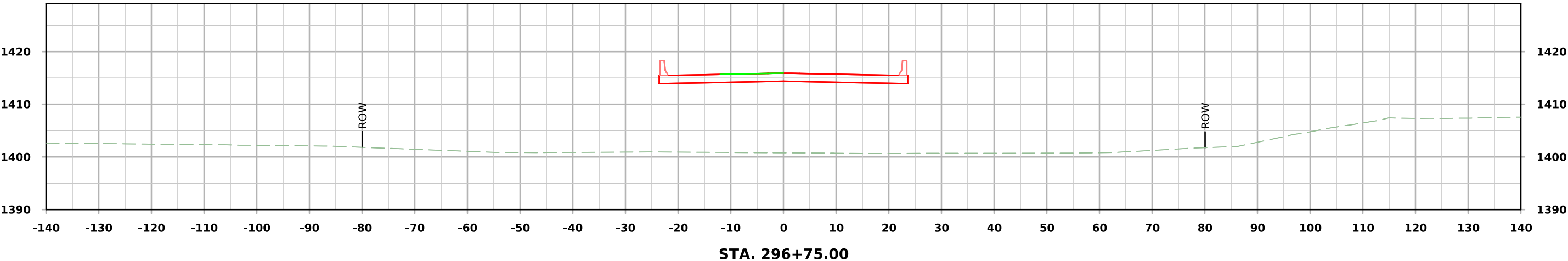
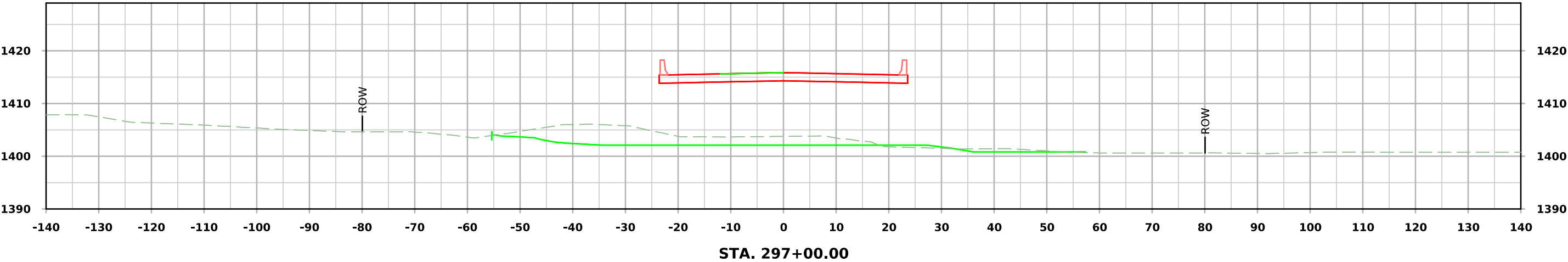
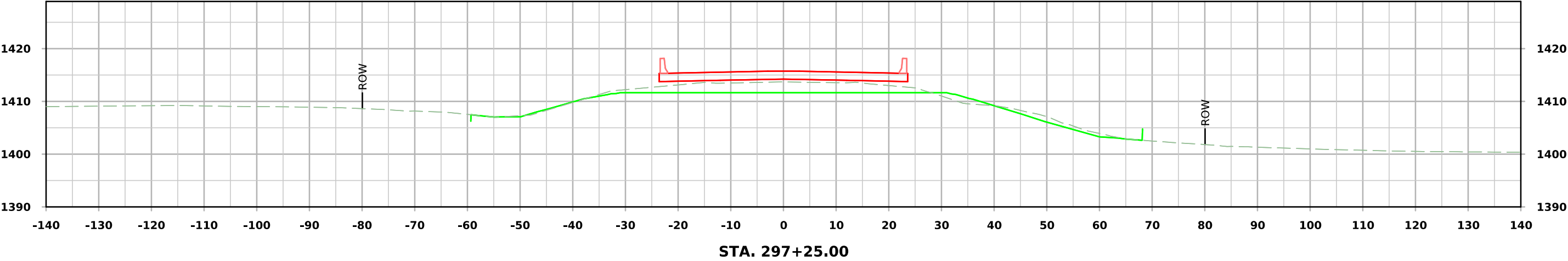


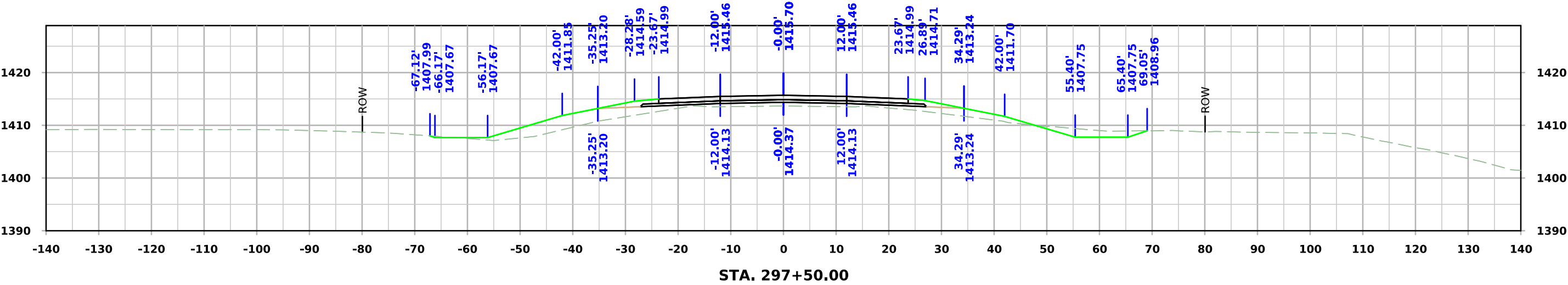
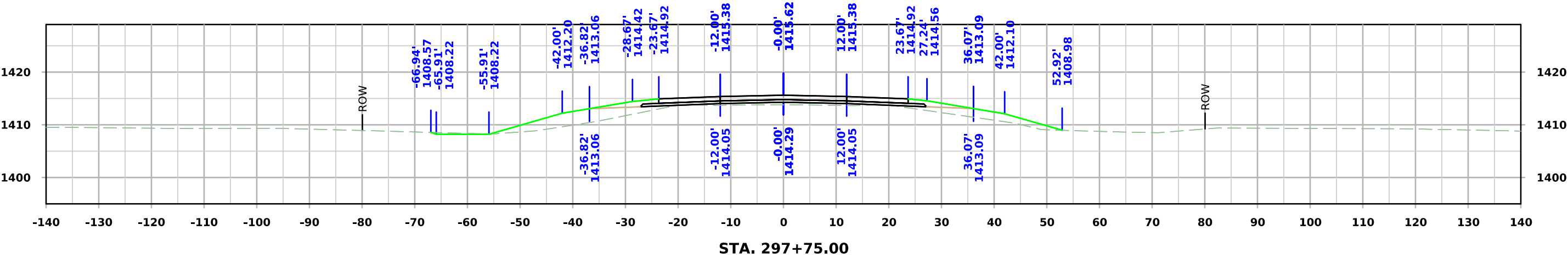
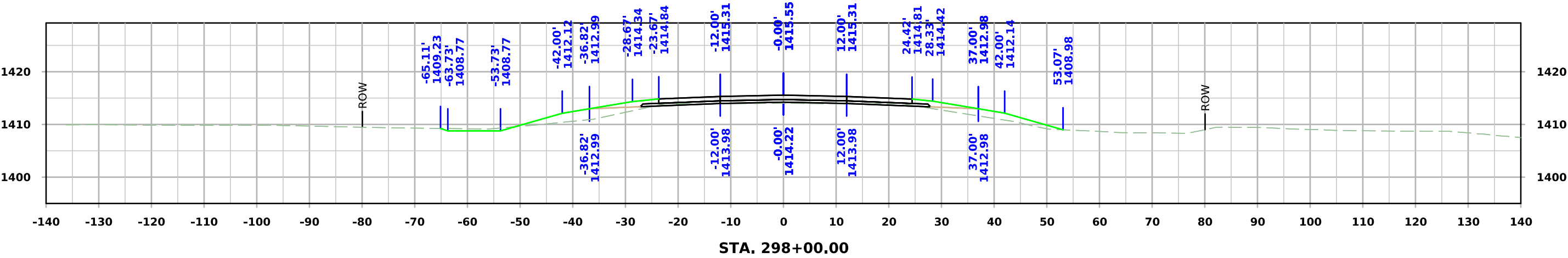
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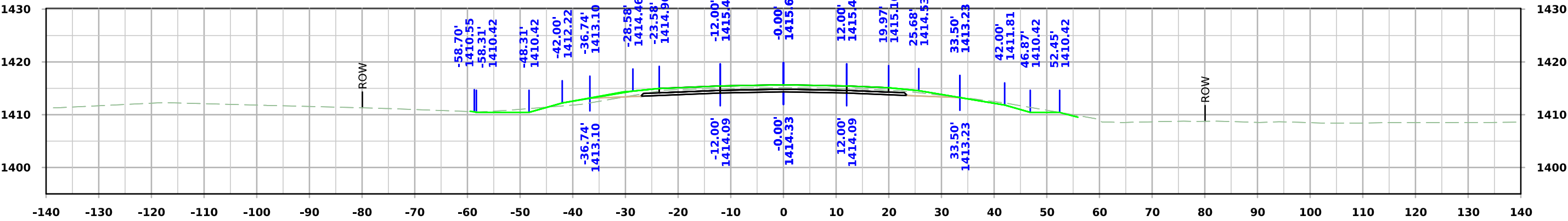


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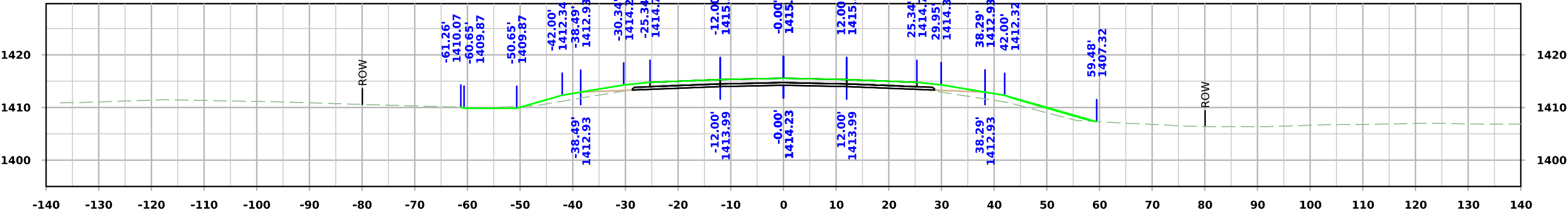




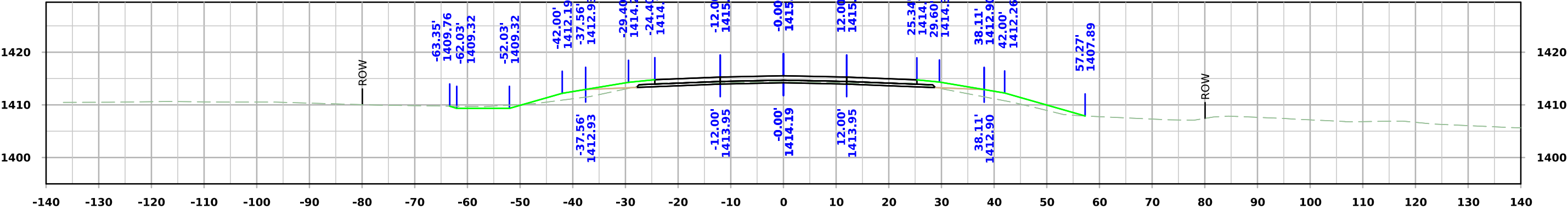




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STA. 298+25.00

