BRIDGE DECK OVERLAY

CITY OF DYERSVILLE

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STANDARND ROAD PLANS
STANDARD ROAD PLANS ARE LISTED ON SHEET NUMBER C.3

TRAFFIC ESTIMATE:

2021 2500 V.P.D.

CITY OF DYERSVILLE

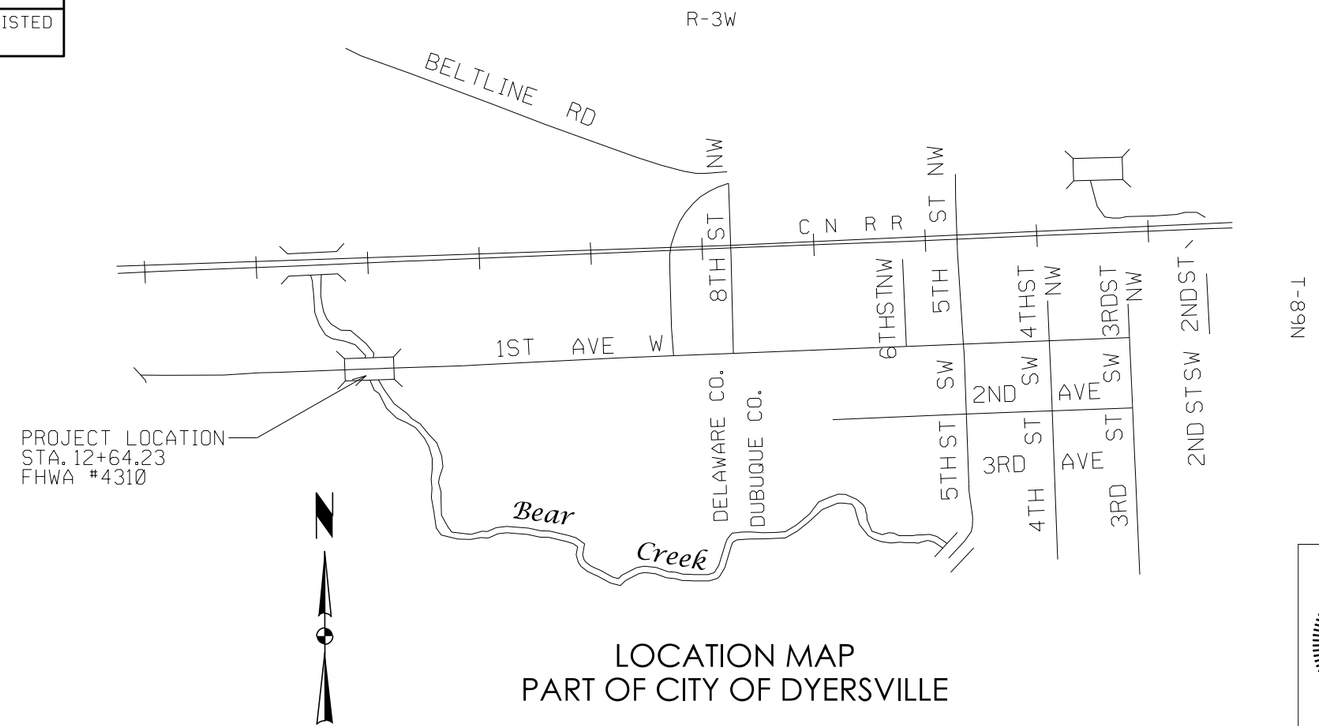
BRIDGE DECK OVERLAY

1ST AVENUE OVER BEAR CREEK IN THE CITY OF DYERSVILLE

SCALES: As Noted

Refer to the Proposal Form and plan sheets for list of applicable specifications.

REVISIONS



LOCATION MAP
PART OF CITY OF DYERSVILLE

IOWA ONE CALL
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www.iowaonecall.com
811 Know what's below. Call before you dig.

UTILITIES
ONE CALL 1(800)292-8989

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ALLIANT ENERGY IPC 8000
CHAVENELLE Rd.
DUBUQUE, IOWA. 52002
(563) 587-4537

SEWER
TERRY RECKER
CITY OF DYERSVILLE
340 1ST AVE E
DYERSVILLE, IOWA
52040
(563) 875-7724

TELEPHONE
BRENT GIESE
CENTURY LINK
1600 J. F. KENNEDY RD
DUBUQUE, IA. 52002
(563)-355-2592

FIBEROPTIC
STEPHEN KNESS
WINDSTREAM
1450 N. CENTER POINT RD.
HIAWATHA, IA. 52233
(319)790-7678 OFFICE
(319)538-1985 CELL

FIBEROPTIC
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justin.stinson@imon.net
IMON COMMUNICATIONS
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BLACK HILLS ENERGY
1015 CEDAR CROSS RD
DUBUQUE, IA. 52003
(563) 585-4026

LICENSED PROFESSIONAL ENGINEER
BRADLEY J. FLEMING
25337
IOWA

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

Bradley J. Fleming, P.E — 6/15/2023 DATE

MY LICENSE RENEWAL DATE IS DECEMBER 31,2024

PAGES OR SHEETS COVERED BY THIS SEAL: A.1, V.1-V.8

LICENSED PROFESSIONAL ENGINEER
ERIC J. TOTT
19992
IOWA

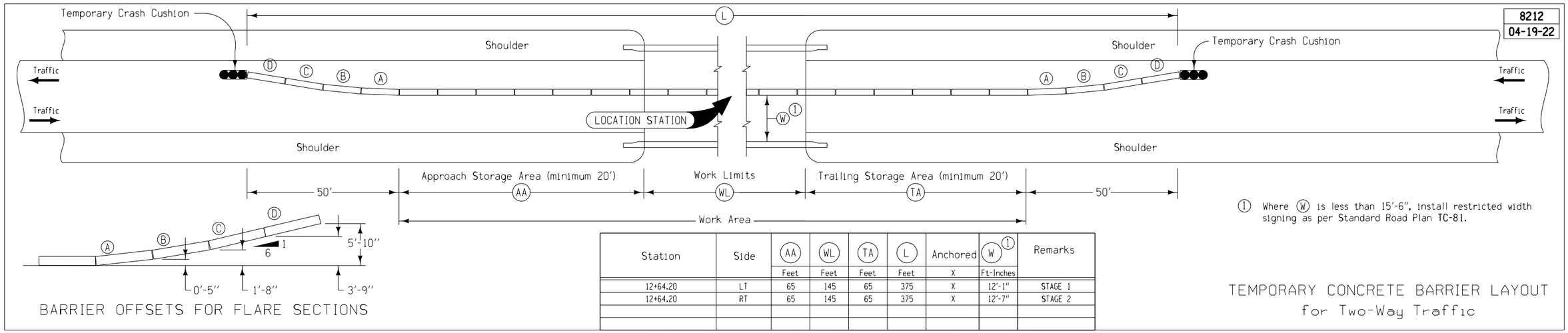
I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

Eric J. Tott, P.E. PTOE — 6/15/2023 DATE

MY LICENSE RENEWAL DATE IS DECEMBER 31,2023

PAGES OR SHEETS COVERED BY THIS SEAL: B.1, C.1-C.5, U.1

FILE NO.	ENGLISH	DESIGN TEAM · WHKS & CO	DELAWARE COUNTY	PROJECT NUMBER ·	SHEET NUMBER A.1



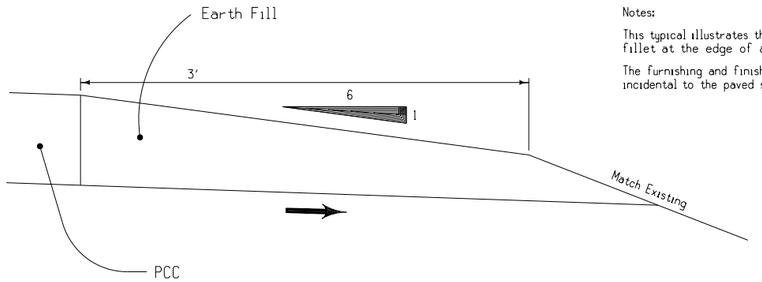
8212
04-19-22

1 Where W is less than 15'-6", install restricted width signing as per Standard Road Plan TC-81.

BARRIER OFFSETS FOR FLARE SECTIONS

Station	Side	AA	WL	TA	L	Anchored	W 1	Remarks
		Feet	Feet	Feet	Feet	X	Ft-Inches	
12+64.20	LT	65	145	65	375	X	12'-1"	STAGE 1
12+64.20	RT	65	145	65	375	X	12'-7"	STAGE 2

TEMPORARY CONCRETE BARRIER LAYOUT for Two-Way Traffic



WHKS

Notes:

This typical illustrates the construction requirements for an earth fillet at the edge of a paved shoulder.

The furnishing and finishing of earth for paved shoulder fillets is incidental to the paved shoulder.

LOCATION				QUANTITIES 1
ROAD IDENTIFICATION	STATION TO STATION		SIDE	EARTH FILL
				Cu. Yds.
1ST AVE W	11+31.00	12+09.00	RT	6.0
1ST AVE W	13+37.00	14+00.00	RT	4.5
1ST AVE W	11+31.00	11+91.00	LT	4.5
1ST AVE W	13+20.00	14+00.00	LT	6.0

1 Not a bid item. Quantities are per station per side.
2 Match slope of under side of shoulder pavement.

EARTH FOR SHOULDER FILLET

Design For Repair To 30° (RA)

125'-0"x30'-0" Continuous Concrete Slab Bridge

38'-0" End Spans 49'-0" Interior Span

Typical Details

STA. 12+64.23 May, 2023

City of Dyersville

FILE NO.	ENGLISH	DESIGN TEAM	WHKS	DELAWARE	COUNTY	PROJECT NUMBER		SHEET NUMBER B.1	FHWA No. 4310

100-1D
10-18-05

PROJECT DESCRIPTION

This project includes bridge deck overlay/repair, barrier rail replacement, bridge approach pavement and associated bridge/roadway improvements for the 1st Avenue West bridge over Bear Creek in the City of Dyersville.

100-1C
04-17-12

ESTIMATED PROJECT QUANTITIES (UP TO A 5 DIVISION PROJECT)

Division 1: Roadway
Division 2: Bridge
Division 3: Alternate AA Option 1 (Bridge Deck Overlay)
Division 4: Alternate AA Option 2 (Bridge Deck Overlay)

Item No.	Item Code	Item	Unit	Quantities										
				Estimated						As Built				
				Division 1	Division 2	Division 3	Division 4	Division 5	Total	Division 1	Division 2	Division 3	Division 4	Division 5
1	2105-8425015	TOPSOIL, STRIP, SALVAGE AND SPREAD	CY	20										
2	2123-7450000	EARTH SHOULDER CONSTRUCTION	STA	3										
3	2301-0685550	BRIDGE APPROACH PAVEMENT, AS PER PLAN	SY	431.2										
4	2401-6750001	REMOVALS AS PER PLAN	LS		1									
5	2402-2720000	EXCAVATION, CLASS 20	CY		22.7									
6	2404-7775005	REINFORCING STEEL, EPOXY COATED	LB		7557									
7	2413-0698066	DECK OVERLAY (CLASS O PCC)	SY			428.2								
8	2413-0698067	DECK OVERLAY (CLASS HPC-O PCC)	SY				428.2							
9	2413-0698074	DECK REPAIR, CLASS A	SY		307.2									
10	2414-6424119	CONCRETE BARRIER RAIL, AESTHETIC	LF		269.6									
11	2499-0800000	PAVING NOTCH REPLACEMENT	LF		70.7									
12	2499-2300026	DRAIN EXTENSIONS	EA		4									
13	2510-6745850	REMOVAL OF PAVEMENT	SY	431.2										
14	2524-6765010	REMOVE AND REINSTALL SIGN AS PER PLAN	EA	4										
15	2527-9263112	PAINTED PAVEMENT MARKINGS, HIGH-BUILD WATERBORNE	STA	26										
16	2527-9263131	WET RETROREFLECTIVE REMOVABLE TAPE MARKINGS	STA	6.44										
17	2527-9263180	PAVEMENT MARKINGS REMOVED	STA	13										
18	2528-8400048	TEMPORARY BARRIER RAIL, CONCRETE	LF	750										
19	2528-8400256	TEMPORARY TRAFFIC SIGNALS	EA	1										
20	2528-8445110	TRAFFIC CONTROL	LS	1										
21	2528-8445113	FLAGGERS	EA	2										
22	2533-4980005	MOBILIZATION	LS	1										
23	2551-0000110	TEMP CRASH CUSHION	EA	4										
24	2601-2634100	MULCHING	ACRE	0.04										
25	2601-2636043	SEEDING AND FERTILIZING (RURAL)	ACRE	0.04										
26	2601-2642100	STABILIZING CROP - SEEDING AND FERTILIZING	ACRE	0.04										
27	2602-0000020	SILT FENCE	LF	525										
28	2602-0000071	REMOVAL OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS	LF	525										
29	2602-0000101	MAINT OF SILT FENC/SILT FENCE-DITCH CHECK	LF	42										
30	2602-0010010	MOBILIZATIONS, EROSION CONTROL	EA	1										
31	2602-0010020	MOBILIZATIONS, EMERGENCY EROSION CONTROL	EA	1										

ESTIMATE REFERENCE INFORMATION

Item No.	Item Code	Description
1	2105-8425015	TOPSOIL, STRIP, SALVAGE AND SPREAD
		Topsoil was calculated at 4" for a width of 6 feet along the edge of pavement.
	-	-
2	2123-7450000	EARTH SHOULDER CONSTRUCTION
	-	-
3	2301-0685550	BRIDGE APPROACH PAVEMENT, AS PER PLAN
		See Tab 112-6 on C Sheets for locations and details.
	-	-
4	2401-6750001	REMOVALS AS PER PLAN
		Includes all work for removal and off-site disposal of joint material, aluminum rails, end posts, and curbs.
		Removal of scheduled items shall be in accordance with Section 2401, of the Standard Specifications. Any damage
		to material not to be removed shall be the responsibility of the Contractor and repaired at no extra cost.
	-	-
5	2402-2720000	EXCAVATION, CLASS 20
		Includes cost of temporary shoring behind abutments.
	-	-
6	2404-7775005	REINFORCING STEEL, EPOXY COATED
	-	-
7	2413-0698066	DECK OVERLAY (CLASS O PCC)
8	2413-0698067	DECK OVERLAY (CLASS HPC-O PCC)
9	2413-0698074	DECK REPAIR, CLASS A
10	2414-6424119	CONCRETE BARRIER RAIL, AESTHETIC
		Cast-in-place barrier rails shall use Class C mix. Price bid for this item shall include the cost of
		cast-in-place forms. Slip forming of the concrete barrier rails is not allowed.
		Includes cost of setting dowel bars in drilled holes in existing deck and wing.
		Includes all resilient joint filler required.
	-	-
11	2499-0800000	PAVING NOTCH REPLACEMENT
		Includes 4.9 cu yd of structural concrete Class C, 1,100 lbs of epoxy-coated reinforcing steel, removing and
		disposing of the existing paving notch and concrete removed to form the shear keyways, drilling holes for dowel
		bars, and polymer grout material. Includes required mechanical splice assemblies.
	-	-
12	2499-2300026	DRAIN EXTENSIONS
		Includes labor and material costs associated with installing concrete anchors, bent plate, fasteners, PVC pipe,
		and necessary concrete repair.
	-	-
13	2510-6745850	REMOVAL OF PAVEMENT
		Includes approximately 52 LF of full depth sawcut.
		Concrete crushing onsite, within the project limits, needs to meet current specifications and the local
		jurisdictional codes and ordinances.
	-	-
14	2524-6765010	REMOVE AND REINSTALL SIGN AS PER PLAN
		See Tab 190-61 on C Sheets for locations and details.
		Method of measurement: The Engineer will count the number of signs removed and reinstalled.
		Basis of Payment: The Contractor will be paid the contract unit price for the number of signs removed and
		reinstalled. The contractor shall carefully remove and stockpile bid items for later installation. Any
		items as determined by the Engineer shall be replaced by the contractor at no cost to the City. The signs
		damaged shall be cleaned as directed by the Engineer before installation. The Contractor shall restore any
		area disturbed by the removal operation to an acceptable condition.
	-	-
15	2527-9263112	PAINTED PAVEMENT MARKINGS, HIGH-BUILD WATERBORNE
16	2527-9263131	WET RETROREFLECTIVE REMOVABLE TAPE MARKINGS
17	2527-9263180	PAVEMENT MARKINGS REMOVED
		See Tab 108-22 on C Sheets for locations and details.
	-	-
18	2528-8400048	TEMPORARY BARRIER RAIL, CONCRETE
		See Tab 108-33 on C Sheets for locations and details.
		Subgrade and subbase preparation for temporary barrier rail shall be incidental to this bid item.
	-	-
19	2528-8400256	TEMPORARY TRAFFIC SIGNALS
	-	-
20	2528-8445110	TRAFFIC CONTROL
		See J Sheets for details.
	-	-
21	2528-8445113	FLAGGERS
		For use while setting up traffic control.
	-	-
22	2533-4980005	MOBILIZATION
	-	-
23	2551-0000110	TEMP CRASH CUSHION
		See Tab 108-30 on C Sheets for locations and details.
	-	-
24	2601-2634100	MULCHING
	-	-
25	2601-2636043	SEEDING AND FERTILIZING (RURAL)
		All areas 6 foot ajacent to the outside shoulder mainline, medians and side roads shall be seeded and
		fertilizer per Article 2601.03, C, 3.
		All seed and fertilizer for shall be applied with ground driven equipment. No broadcast seeding will be
		allowed. All Seeding and Fertilizing (Rural) will be completed during the time frame of August 15 through
		September 1.
	-	-
26	2601-2642100	STABILIZING CROP - SEEDING AND FERTILIZING
	-	-

100-4A
10-29-02

ESTIMATE REFERENCE INFORMATION

Item No.	Item Code	Description
27	2602-0000020	SILT FENCE
		Refer to Tab. 100-17 in C Sheets. The tabulation includes estimated locations for placement of Silt Fence to
		address possible erosion during construction. Verify the specific locations with the Engineer prior to
		beginning placement.Bid item includes 25% additional quantity for field adjustments and replacements.
	-	-
28	2602-0000071	REMOVAL OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS
		Refer to Tab 100-17 in C Sheets. This item is included for silt fence and silt fence for ditch check
		removal required for staging reasons, for replacement (replacement to be paid separately), or for areas that
		have achieved 70% permanent growth.
	-	-
29	2602-0000101	MAINT OF SILT FENC/SILT FENCE-DITCH CHECK
		Refer to Tab 100-17 in C Sheets. This item is included for maintaining the silt fence
		and silt fence for ditch checks.
	-	-
30	2602-0010010	MOBILIZATIONS, EROSION CONTROL
	-	-
31	2602-0010020	MOBILIZATIONS, EMERGENCY EROSION CONTROL
	-	-

105-4
10-18-11

STANDARD ROAD PLANS

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

Number	Date	Title
BA-401	04-20-21	Temporary Barrier Rail (Precast Concrete)
BA-500	04-20-21	Temporary Crash Cushions Sand Barrel
BR-101	10-18-22	Bridge Approach Section (General Details)
BR-107	04-21-15	Bridge Approach Section (at Existing Bridges, HMA Pavement)
EC-201	04-20-21	Silt Fence
EC-502	04-21-15	Seeding in Rural Areas
PM-110	04-21-20	Line Types
PV-101	04-19-22	Joints
TC-1	10-15-19	Work Not Affecting Traffic (Two-Lane or Multi-Lane)
TC-81	04-18-23	Restricted Width Signing (Less Than 14.5 Feet)
TC-202	04-18-23	Work Within 15 ft of Traveled Way
TC-213	04-18-23	Lane Closure with Flaggers
TC-217	04-18-23	Lane Closure with Signals and TBR
TC-233	10-17-17	Pavement Marking Operations Two-Lane

111-25
10-18-11

INDEX OF TABULATIONS

232-3A
10-19-21

EROSION CONTROL (RURAL SEEDING)

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

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

- Place seed and fertilize according to the requirements of Article 2601.03,C,3 and Section 4169 of the Standard Specifications.
- Place mulch according to the requirements of Articles 2601.03,E,2,a and 4169.07,A of the Standard Specifications.

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

262-6
10-18-05

UTILITIES (NOT A POINT 25 PROJECT)

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

100-27
04-17-18

PROPOSED POSTED SPEED LIMIT

Road Identification	Begin Station	End Station	Proposed Posted Speed Limit			Remarks
			35 or less	40 - 45	over 45	
1st Ave West			35			

100-17
04-20-10

TABULATION OF SILT FENCES

Refer to EC-201

Location			Length	Remarks
Begin Station	End Station	Side	LF	
11+20.00	12+20.00	RT	100.0	
13+10.00	14+20.00	RT	110.0	
11+20.00	12+20.00	LT	100.0	
13+10.00	14+20.00	LT	110.0	
		Total	420.0	
		Total Installation Adjusted	525.0	
		Total Maintenance Adjusted	42.0	
		Total Removal Adjusted	525.0	

108-28
08-01-08

TEMPORARY TRAFFIC SIGNALS

No.	Location Station	Type			Remarks
		One Lane Traffic	Haul Road	Intersection	
	10+50.00	X			
	15+00.00	X			

103-10
04-18-17

TOPSOIL STRIPPING AND PLACEMENT

Location				Topsoil Stripping Thickness	Topsoil Placement Thickness	Remarks
Road Identification	Dir. of Traffic	Begin Station	End Station	IN	IN	
1st Ave West	EB	11+31.00	12+09.00	4.0	4.0	
1st Ave West	EB	13+37.00	14+00.00	4.0	4.0	
1st Ave West	WB	11+31.00	11+91.00	4.0	4.0	
1st Ave West	WB	13+20.00	14+00.00	4.0	4.0	

110-1
04-16-13

REMOVAL OF PAVEMENT

Refer to Tabulation 102-5

* Not a Bid Item

Begin Station	End Station	Side	Pavement Type	Area	Saw Cut*	Remarks
				SY	LF	
11+31.34	12+08.66	BOTH	ASPHALT	215.6	26.0	
13+19.80	13+97.11	BOTH	ASPHALT	215.6	26.0	
			TOTAL	431.2	52.0	

108-22
04-16-13

PAVEMENT MARKING LINE TYPES

See PM-110

*BCY4 - Place on the same side of the roadway to match existing markings near the project.
**NPY4 - For estimating purposes only. No Passing Zone Lines will be located in the field.
***MNY4 - Factor of 1.00 as value includes number of 4-inch passes to cover median nose area.

SLW2: Stop Line (White) @ 6.00 DCY4: Double Centerline (Yellow) @ 2.00 ELY4: Edge Line Left (Yellow) @ 1.00 DLW4: Dotted Line (White) @ 0.33 ELW4: Edge Line Right (White) @ 1.00

Location							Length by Line Type (Unfactored)														Remarks
Road ID	Station to Station		Dir. of Travel	Marking Type	Side		SLW2	DCY4	ELY4	DLW4	ELW4										
					L	C R	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	
Removal																					
	Stage 1																				
	9+50.00	16+00.00	BOTH	Removal of Paint		X		6.50													
	Stage 2																				
	13+28.00	15+78.00	BOTH	Removal of Removable Tape		X					2.50										
	9+50.00	12+00.00	BOTH	Removal of Removable Tape		X					2.50										
Stage 1																					
	13+28.00	15+78.00	BOTH	Wet Retroreflective Removable Tape		X					2.50										
	9+50.00		EB	Wet Retroreflective Removable Tape	X		0.12														
	16+00.00		WB	Wet Retroreflective Removable Tape		X	0.12														
Stage 2																					
	9+50.00	12+00.00	BOTH	Wet Retroreflective Removable Tape		X					2.50										
	9+50.00	16+00.00	BOTH	Highbuild Waterborne Paint		X		6.50													
	9+50.00	16+00.00	EB	Highbuild Waterborne Paint	X						6.50										
	9+50.00	16+00.00	WB	Highbuild Waterborne Paint		X					6.50										
	9+50.00		EB	Removal of Removable Tape	X		0.12														
	16+00.00		WB	Removal of Removable Tape		X	0.12														
				Factored Total: Highbuild Waterborne Paint			0.00	13.00	0.00	0.00	13.00	0.00									
				Factored Total: Wet Retroreflective Removable Tape			1.44	0.00	0.00	0.00	5.00	0.00									
				Factored Total: Removal of Paint			0.00	13.00	0.00	0.00	0.00	0.00									
				Factored Total: Removal of Removable Tape			1.44	0.00	0.00	0.00	5.00	0.00									
				Bid Quantity: Painted Pavement Markings, Highbuild Waterborne						26.00											
				Bid Quantity: Wet Retroreflective Removable Tape Markings						6.44											
				Bid Quantity: Pavement Markings Removed						13.00											
				Incidental Removal of Removable Tape						6.44											

108-30
04-16-13

CRASH CUSHIONS

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

No.	(1) Direction of Traffic	Location Station	Side	Obstacle Width	Crash Cushion (Select One)*					Sand Barrel Details (2)					Earthwork*		Spare Parts Kit (Select One)*		Obstacle Description	Remarks
					Temporary	Temporary Redirective	Temporary Severe Use	Permanent	Permanent Severe Use	V Length	W Length	X Length	Y Length	Z Length	Excavation Class 10	Embankment in Place	Permanent	Permanent Severe Use		
				FT						FT	FT	FT	FT	FT	CY	CY	EACH	EACH		
	EB	10+75.00	LT	1.88	1						24.25	5.25	3.25	12.00					TBR	STAGE 1
	WB	14+50.00	LT	1.88	1						24.25	5.25	3.25	12.00					TBR	STAGE 1
	EB	10+75.00	RT	1.88	1						24.25	5.25	3.25	12.00					TBR	STAGE 2
	WB	14+50.00	RT	1.88	1						24.25	5.25	3.25	12.00					TBR	STAGE 2
		TOTAL			4															

108-33
10-15-19

TEMPORARY BARRIER RAIL

Possible Standard: BA-401 Possible Detail: 560-7

* Not a bid item. Anchorage requirements are based on TBR locations shown in the plans. TBR alignments that vary from what is shown in the plans may result in additional TBR sections requiring anchorage.

No.	Station to Station		Length	(Select One) Concrete	(Select One) Steel	Anchored*	Modular Glare Screen System	Remarks
			LF	BA-401	560-7	(Y/N)	(Y/N)	
	10+75.00	14+50.00	375.0	X		Y	N	STAGE 1
	10+75.00	14+50.00	375.0	X		Y	N	STAGE 2
		TOTAL	750.0					

112-6
04-18-17

BRIDGE APPROACH SECTION

Refer to the Series.

* Not a bid item

Location				Approach Pavement					Standard Road Plans BR Series			Subdrain								
Bridge Station	End	Skew Ahead Degrees LEFT	Skew Ahead Degrees RIGHT	(T) Thickness	Pay Length	Non-Reinf. Pavement Area	Single-Reinf. Pavement Area	Double-Reinf. Pavement Area	Approach	Fixed or Movable Abutment	Abutting Pavement	* Perforated Subdrain 4"	* Subdrain Outlet STA	* Subdrain Outlet Side	* Porous Backfill	* Class 'A' Crushed Stone Backfill	* Modified Subbase	* Polymer Grid	* Special Backfill	Remarks
				Inches	FT	SY	SY	SY				LF	STA	Side	CY	CY	TON	SY	TON	
12+00.00	W		30	10.0	60.0	115.6	100.0		BR-107	Movable	See U.01						54.500	259.6		
13+28.46	E		30	10.0	60.0	115.6	100.0		BR-107	Movable	See U.01						54.500	259.6		
			SUBTOTAL			231.2	200.0										109.000	519.1		
		Non-Reinf.PavementArea				231.2														
		Single-Reinf.PavementArea				200.0														
			TOTAL			431.2														

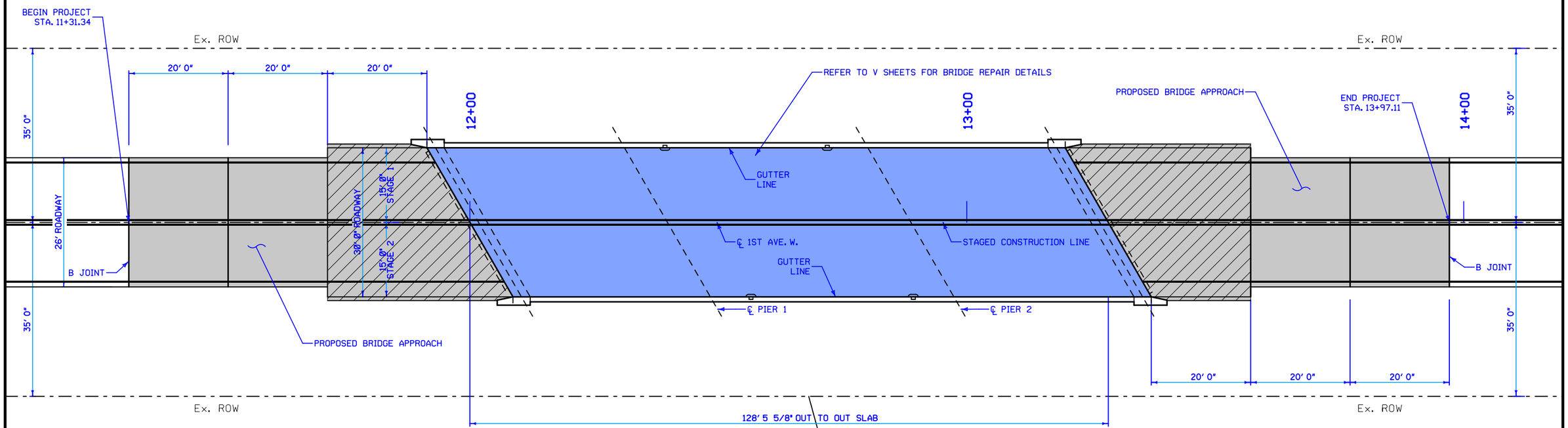
190-61
10-15-13

EXISTING SIGNS TO BE REINSTALLED

SIGN DESCRIPTION	DIRECTION OF TRAVEL	LOCATION STATION	NUMBER OF POSTS	SQUARE TUBE STEEL POSTS	WOOD POSTS 4" x 4" LF	WOOD POSTS 4" x 6" LF	INSTALLATION TYPE	INSTALLATION DIM 'X'	SEE SIGNING NOTES
Object Marker	EB	11+90	1.0						
Object Marker	EB	12+07	1.0						
Object Marker	WB	13+23	1.0						
Object Marker	WB	13+41	1.0						

BREMEN TOWNSHIP
T-89N R-3W
SECTION 25

Deutmeyer, Thomas L & Barbara



Tegeler Sand Inc

Kronlage, David R Trustee

Pay limits for contract item include the following areas:

- Reinforced Section
- Non-Reinforced Section
- Bridge Repairs Refer to V Sheets

N

0 10 FEET

NOTES:

1. REFER TO STANDARD ROAD PLAN BR-107 FOR BRIDGE APPROACH DETAILS.
2. REFER TO STANDARD ROAD PLAN TC-217 FOR LANE CLOSURE WITH TRAFFIC SIGNAL AND TBR DETAILS.
3. REFER TO STANDARD ROAD PLAN TC-81 FOR RESTRICTED WIDTH SIGNING DETAILS. MINIMUM LANE WIDTH SHALL BE 10'-6".

BREMEN TOWNSHIP
T-89N R-3W
SECTION 36

Design For Repair To 30' (RA)

125'-0"x30'-0" Continuous Concrete Slab Bridge

38'-0" End Spans 49'-0" Interior Span

Bridge Approach Detail

STA. 12+64.23 May, 2023

City of Dyersville

FILE NO.	ENGLISH	DESIGN TEAM	WHKS	DELAWARE	COUNTY	PROJECT NUMBER		SHEET NUMBER U.1	FHWA No. 4310

GENERAL NOTES:

THIS DESIGN IS FOR REPAIRS TO THE EXISTING 125'-0" X 30'-0" CONTINUOUS CONCRETE SLAB BRIDGE ON 1ST AVE. W. OVER BEAR CREEK IN THE CITY OF DYERSVILLE.

SEE DESIGN SHEET V.02 FOR LIST OF REPAIR ITEMS.

THE CITY AND UTILITY COMPANIES WHOSE FACILITIES ARE SHOWN ON THE PLANS OR KNOWN TO BE WITHIN THE CONSTRUCTION LIMITS SHALL BE NOTIFIED BY THE CONTRACTOR OF THE CONSTRUCTION STARTING DATE.

FAINT LINES ON PLANS INDICATE THE EXISTING STRUCTURE.

ALL DIMENSIONS AND DETAILS SHOWN ON THESE PLANS PERTINENT TO NEW CONSTRUCTION SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR BEFORE STARTING CONSTRUCTION.

ALL REINFORCING BARS AND BARS NOTED AS DOWELS SUPPLIED FOR THIS STRUCTURE SHALL BE DEFORMED REINFORCEMENT UNLESS OTHERWISE NOTED OR SHOWN.

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

THESE BRIDGE PLANS LABEL ALL REINFORCING STEEL WITH ENGLISH NOTATION (5#1 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 STATED OTHERWISE. IN ADDITION, THE BEVEL USED ON THE KEYWAY SHALL BE LIMITED TO A MAXIMUM OF 10 DEGREES FROM VERTICAL.

CONSTRUCTION SHALL BE DONE IN STAGES WITH AT LEAST ONE LANE OF TRAFFIC MAINTAINED AT ALL TIMES IN ACCORDANCE WITH "TRAFFIC CONTROL PLAN NOTE".

THE LUMP SUM BID FOR "REMOVALS, AS PER PLAN" SHALL INCLUDE ALL COSTS ASSOCIATED WITH REMOVING THE EXISTING JOINT MATERIAL, ALUMINUM RAILS, END POSTS, TOP OF WINGS, AND CURBS. REMOVAL OF SCHEDULED ITEMS SHALL BE IN ACCORDANCE WITH SECTION 2401 OF THE STANDARD SPECIFICATIONS. ANY DAMAGE TO STEEL OR CONCRETE NOT TO BE REMOVED SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND REPAIRED AT NO EXTRA COST TO THE CITY OF DYERSVILLE.

PLAN QUANTITY OF DECK REPAIR IS BASED ON THE "SURVEY PLOT" AS SHOWN IN THESE PLANS. HATCHED PORTIONS REPRESENT DELAMINATION OF THE BRIDGE DECK AND APPROXIMATE LOCATIONS OF CLASS A BRIDGE DECK REPAIR. THE PLAN QUANTITY FOR "DECK REPAIR, CLASS A" IS ESTIMATED AS 307.2 SY BASED ON HAND SOUNDING OF THE DECK PLUS 25% INCREASE FOR ESTIMATING PURPOSES. ACTUAL SPALLED AND HOLLOW AREAS AS DETERMINED BY THE ENGINEER AT THE TIME OF CONSTRUCTION SHALL BE REPAIRED.

PRESENT DECK THICKNESS IS ABOUT 20.625 INCHES. THE CONTRACTOR SHALL EXERCISE CARE IN ORDER TO PREVENT UNNECESSARY REMOVAL OF CONCRETE BELOW THE TOP OF THE TOP REINFORCING. THE ENERGY OF HAND TOOLS SHALL BE RESTRICTED NEAR THE BOTTOM OF THE DESIGNATED CLASS A REPAIR AREAS IN ORDER TO PREVENT UNBONDING OF REINFORCING. NO CONCRETE SHALL BE REMOVED BELOW THE TOP OF THE TOP LONGITUDINAL REINFORCING WITHOUT PRIOR PERMISSION FROM THE BRIDGE ENGINEER.

SURFACE RAISE, AS SHOWN ON THE PLANS, SHALL BE CONSIDERED A MINIMUM. IN ORDER TO LIMIT THE ADDITIONAL DEAD LOAD SURFACE RAISE SHALL BE RESTRICTED TO A MAXIMUM OF 1/2" MORE THAN SHOWN ON THE PLANS. PROFILE MAY BE ADJUSTED TO THE EXTENT POSSIBLE WITHIN THESE LIMITS.

CLASS A REPAIRS SHALL BE COMPLETED IN 4' WIDE LONGITUDINAL STRIPS TO AVOID WEAKENING THE TOP REINFORCING MAT. CARE SHALL BE TAKEN WHEN EXPOSING EXISTING REINFORCING SO THE BOND TO EXISTING CONCRETE IS NOT BROKEN. UN-BONDED REGIONS SHALL HAVE CONCRETE REMOVED ADJACENT TO THE BAR TO ACHIEVE MINIMALLY 3/4" CLEARANCE TO THE SURFACE OF THE BAR.

SCREED EXTENSION OR OVERLAY BEYOND THE LONGITUDINAL CONSTRUCTION JOINT MAY BE LESS THAN THE 6 INCHES REQUIRED BY ARTICLE 2413.03, A, 4, OF THE STANDARD SPECIFICATIONS. THE ENGINEER MAY REQUIRE ADDITIONAL VIBRATION OR SPECIAL FINISHING PROCEDURES ADJACENT TO THE LONGITUDINAL CONSTRUCTION JOINT.

SURFACE PREPARATION SHALL BE ACCORDING TO ARTICLE 2413.03, B AND C OF THE STANDARD SPECIFICATIONS. THE CONTRACTOR SHALL ENSURE THE VERTICAL EDGES STAGE 1 OVERLAY ARE PREPARED FOR PLACEMENT OF THE NEW CONCRETE BY SANDBLASTING OR SHOT BLASTING, FOLLOWED BY AN AIR BLAST. ENSURE THIS CLEANING REMOVES ALL DIRT, OIL, AND OTHER FOREIGN MATERIAL. ENSURE IT REMOVES ALL UNSOUND CONCRETE, LAITANCE, OR LOOSE MATERIAL FROM THE SURFACE AND EDGES AGAINST WHICH THE CONCRETE REPAIRS AND SURFACE MIXTURE IS TO BE PLACED. THE CLEANING SHOULD ROUGHEN THE SURFACE IN ORDER TO PROVIDE SATISFACTORY BOND WITH CONCRETE REPAIRS AND THE SURFACE MIXTURE.

READY MIX TRUCKS ARE NOT ALLOWED ON THE PREPARED PORTION OF THE BRIDGE DECK.

THE BRIDGE CONTRACTOR IS TO RETAIN EARTH AND/OR GRANULAR MATERIAL BEHIND THE PORTION OF ABUTMENTS SUBJECTED TO TRAFFIC DURING REPAIRS 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".

SPECIFICATIONS:

DESIGN: AASHTO SERIES 2002.

CONSTRUCTION: IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES 2015, PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT.

DESIGN STRESSES:

DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE IN ACCORDANCE WITH THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SERIES 2002.

REINFORCING STEEL IN ACCORDANCE WITH SECTION 8, GRADE 60.

CONCRETE IN ACCORDANCE WITH SECTION 8, f'_c = 4.0 KSI.

TRAFFIC CONTROL PLAN:
THE ROADWAY WILL BE OPEN TO THRU TRAFFIC. REFER TO TRAFFIC CONTROL PLANS SHOWN ELSEWHERE IN THESE PLANS.

Design For Repair To 30' (RA)

125'-0"x30'-0" Continuous Concrete Slab Bridge

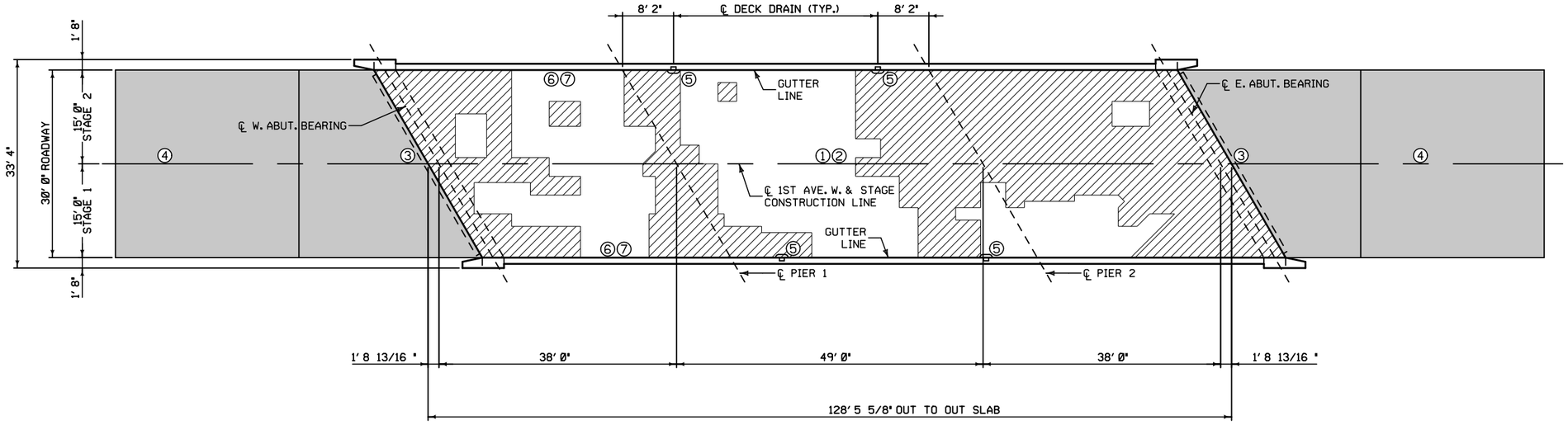
38'-0" End Spans 49'-0" Interior Span

General Notes

STA. 12+64.23 May, 2023

City of Dyersville

FILE NO.	ENGLISH	DESIGN TEAM WHKS & CO.	DELAWARE COUNTY	PROJECT NUMBER	SHEET NUMBER V.01	FHWA No. 4310



SITUATION PLAN

NOTE: DIAGONAL HATCHED AREAS REPRESENT DELAMINATION OF THE BRIDGE DECK AND APPROXIMATE LOCATIONS FOR DECK REPAIRS.

TOTAL DELAMINATION AREA = 2,212 SQ. FT. (57% OF DECK AREA)

REPAIRS SHALL CONSIST OF:

1. PERFORM CLASS A DECK REPAIRS, AS NECESSARY.
2. SCARIFY THE DECK 1/4" AND OVERLAY THE BRIDGE.
3. CONSTRUCT PAVING NOTCH REPLACEMENT AT BOTH ABUTMENTS.
4. REMOVE AND REPLACE BRIDGE APPROACH PAVEMENT AND JOINTS.
5. CONSTRUCT DECK DRAIN EXTENSIONS.
6. REMOVE EXISTING ALUMINUM RAILS, END POSTS, AND BRIDGE CURB.
7. CONSTRUCT RETROFIT CONCRETE BARRIER RAIL.

LOCATION:

1ST AVE. W. OVER BEAR CREEK, Ø.2 MI. E. OF CO. RD. X49
SECTION 36
T-89N R-3W
CITY OF DYERSVILLE
DELAWARE COUNTY
FHWA NO. 4310
LATITUDE 42.484411
LONGITUDE -91.140786

TRAFFIC ESTIMATE:

2021 2500 V.P.D.

Design For Repair To 30' (RA)

125'-Ø"x3Ø'-Ø" Continuous Concrete Slab Bridge

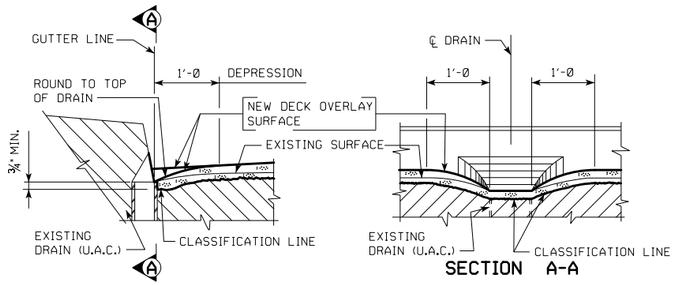
38'-Ø" End Spans 49'-Ø" Interior Span

Situation Plan

STA. 12+64.23 May, 2023

City of Dyersville

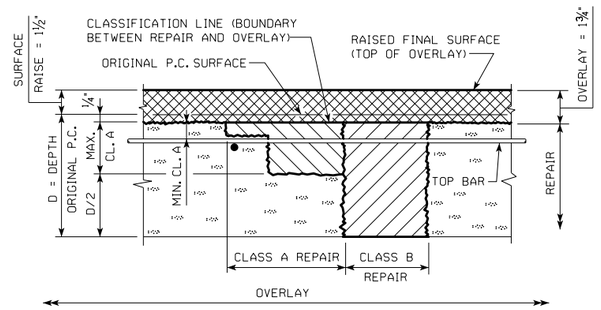
FILE NO.	ENGLISH	DESIGN TEAM WHKS & CO.	DELAWARE COUNTY	PROJECT NUMBER	SHEET NUMBER V.Ø2	FHWA No. 4310



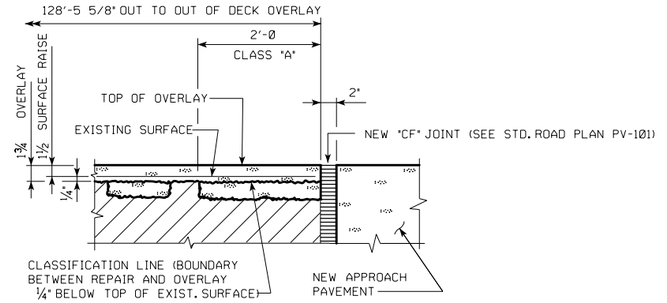
SECTION A-A

DECK REPAIR DETAIL AT DRAIN

(REQUIRED AT 4 LOCATIONS)



REPAIR AND OVERLAY DEFINITION

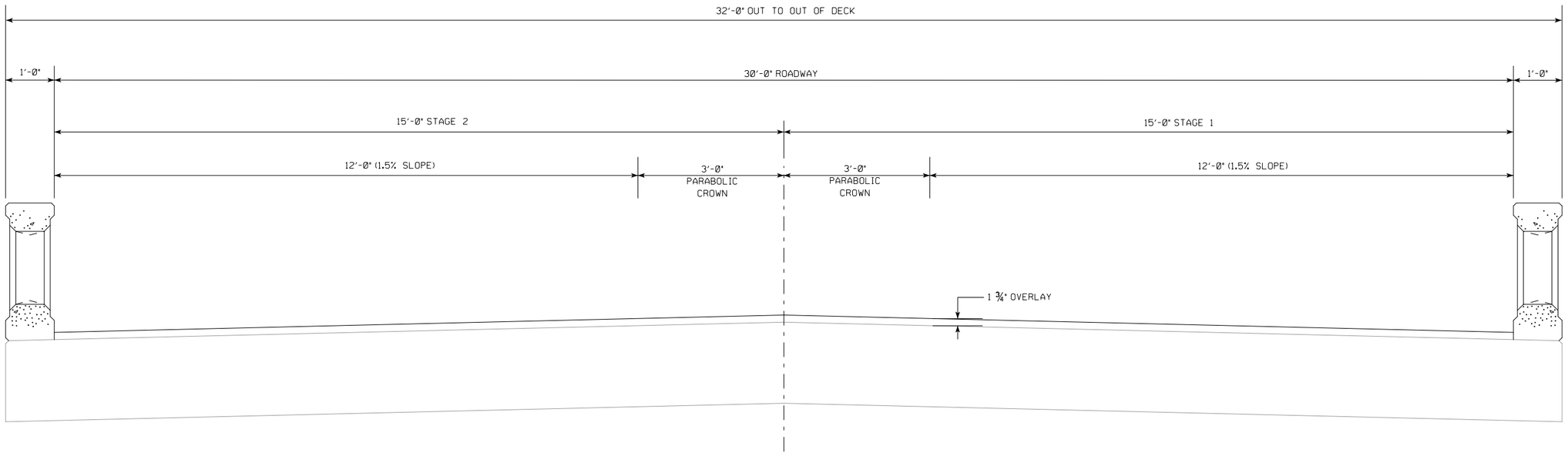


PART LONGITUDINAL SECTION ALONG ROADWAY

BOTH ABUTMENTS

NOTE:
THE 2'-0 CLASS "A" REPAIR AREA SHOWN AT THE JOINT SHALL BE REMOVED TO A MINIMUM DEPTH 1 INCH BELOW THE EXISTING TOP MAT OF REINFORCING. THE EXISTING BRIDGE DECK REINFORCING BARS SHALL BE CAREFULLY EXPOSED AND INCORPORATED INTO THE NEW CONSTRUCTION WORK.

SEE SHEET V.08 FOR CONCRETE REPAIR DETAILS



TRANSVERSE SECTION

(LOOKING EAST)

Design For Repair To 30" (RA)

125'-0"x30'-0" Continuous Concrete Slab Bridge

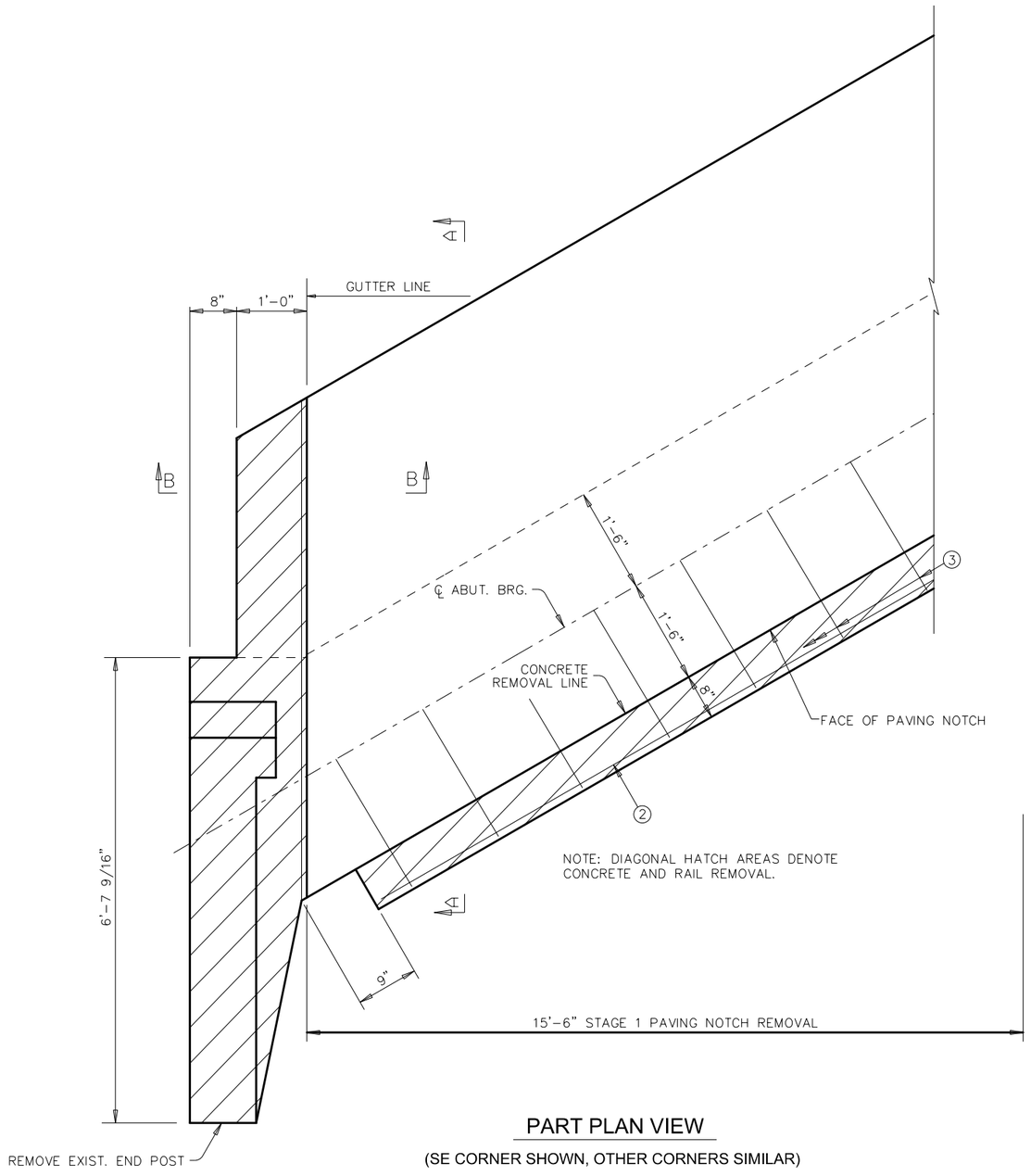
38'-0" End Spans 49'-0" Interior Span

Overlay & Deck Repair Details

STA. 12+64.23 May, 2023

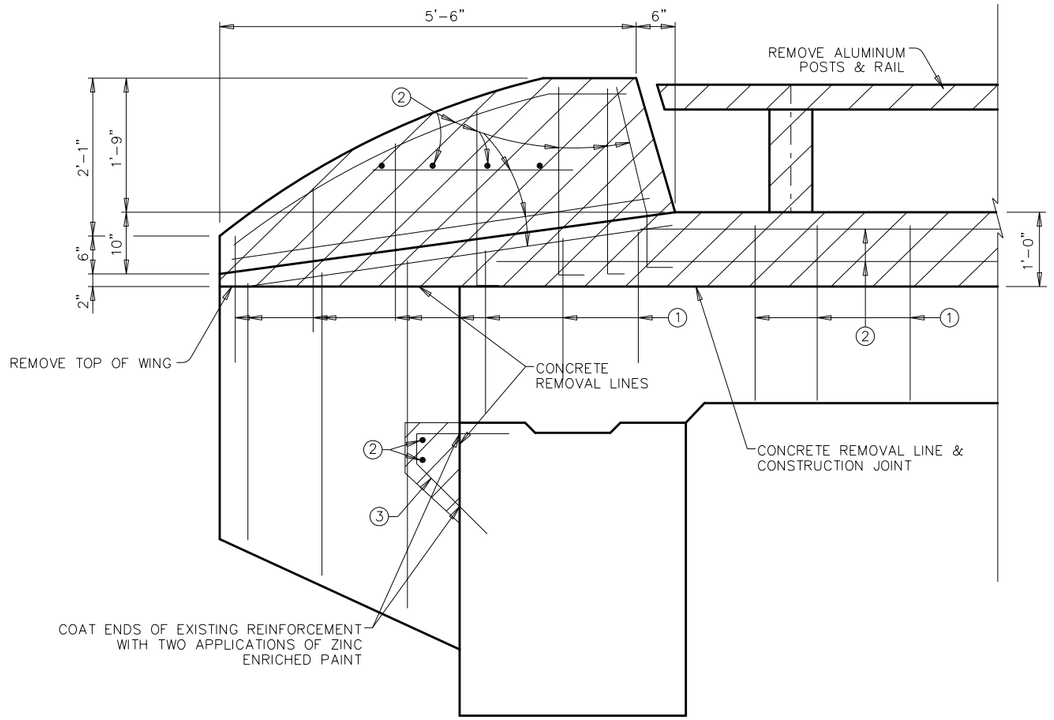
City of Dyersville

FILE NO.	ENGLISH	DESIGN TEAM WHKS & CO.	DELAWARE COUNTY	PROJECT NUMBER	SHEET NUMBER V.03	FHWA No. 4310

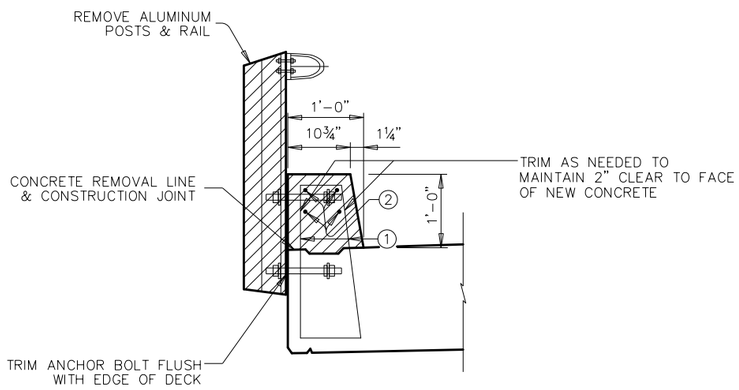


PART PLAN VIEW

(SE CORNER SHOWN, OTHER CORNERS SIMILAR)



SECTION A-A



SECTION B-B

REMOVAL NOTES:

① **EXISTING REINFORCING STEEL TO BE CLEANED AND INCORPORATED INTO NEW WORK.**

② **EXISTING REINFORCING STEEL TO BE REMOVED WITH CONCRETE.**

③ **EXISTING REINFORCING STEEL TO BE TRIMMED FLUSH WITH CONCRETE REMOVAL LINE.**

Design For Repair To 30" (RA)

125'-0"x30'-0" Continuous Concrete Slab Bridge

38'-0" End Spans 49'-0" Interior Span

Concrete & Rail Removal

STA. 12+64.23 May, 2023

City of Dyersville

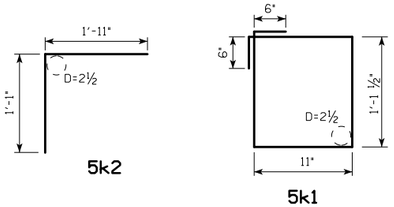
FILE NO.	ENGLISH	DESIGN TEAM WHKS & CO.	DELAWARE COUNTY	PROJECT NUMBER	SHEET NUMBER V.04	FHWA No. 4310

PAVING NOTCH REPLACEMENT NOTES:

THE PAVING NOTCH REPLACEMENT IS TO BE CLASS "C" STRUCTURAL CONCRETE.

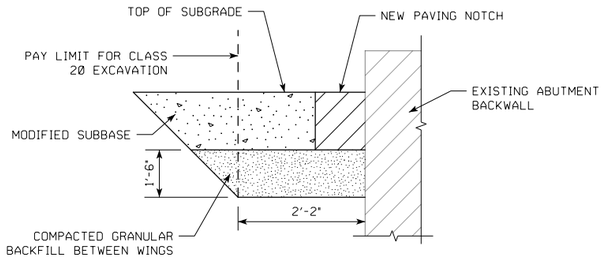
THE BID ITEM "PAVING NOTCH REPLACEMENT" LINEAR FEET, SHALL INCLUDE ALL COSTS OF LABOR AND MATERIALS ASSOCIATED WITH REMOVING AND DISPOSING OF THE EXISTING PAVING NOTCH, AND INSTALLING THE NEW PAVING NOTCH. THIS WORK SHALL INCLUDE, CUTTING OF EXISTING BARS, PAINTING THE ENDS OF THE BARS, REMOVING THE CONCRETE FOR THE SHEAR KEYWAYS, DRILLING THE HOLES FOR THE DEFORMED DOWELS AND CONSTRUCTING THE NEW NOTCH TO THE DIMENSIONS SHOWN. THE NEW NOTCH IS ESTIMATED AT 0.07 CUBIC YARDS PER FOOT OF STRUCTURAL CONCRETE AND 16.0 POUNDS OF EPOXY COATED REINFORCING STEEL PER FOOT.

BENT BAR DETAILS



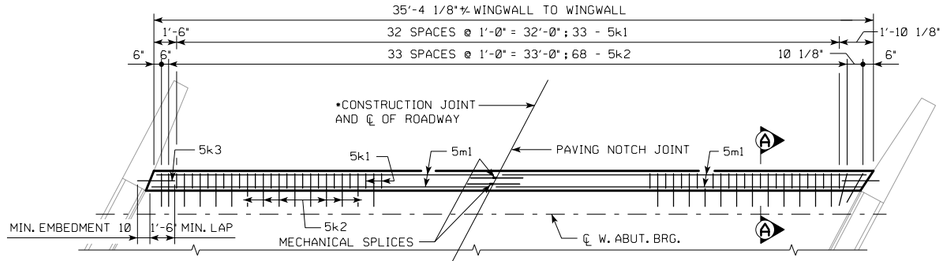
NOTE: ALL REINFORCING IS TO BE EPOXY COATED.

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



ABUTMENT EXCAVATION & GRANULAR BACKFILL DETAIL

NOTE:
MODIFIED SUBBASE MAY BE SUBSTITUTED FOR GRANULAR BACKFILL. COST OF MODIFIED SUBBASE AND GRANULAR BACKFILL SHALL BE INCLUDED IN THE BID PRICE FOR "EXCAVATION, CLASS 20".



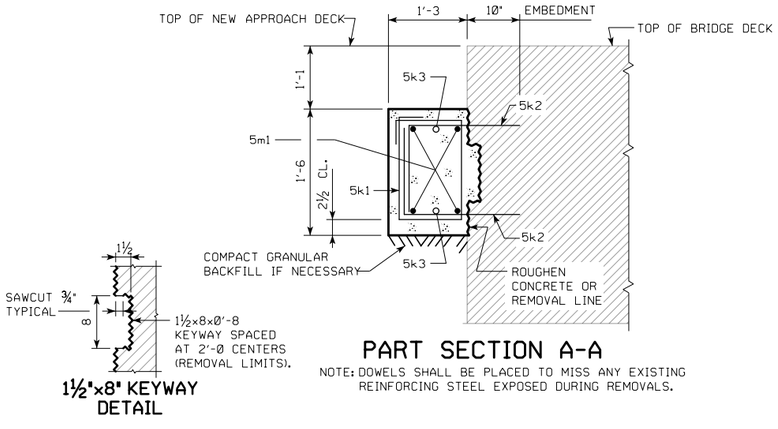
NOTE: 5k3 BARS SHALL BE SET AS DOWELS EMBEDDED 10 INCHES MINIMUM INTO THE EXISTING BRIDGE WINGWALLS AND EXTENDING A MINIMUM OF 1'-6 INTO THE NEW PAVING NOTCH REPLACEMENT.

PART PLAN VIEW AT ABUTMENT

(W. ABUT. SHOWN, W. ABUT. SIMILAR)

NOTE:
NEW PAVING NOTCH REPLACEMENT SHOULD EXTEND FROM BRIDGE WINGWALL TO BRIDGE WINGWALL.

NOTE: 5k2 BARS AT 1'-0 CENTERS ARE TO BE PLACED AT BOTH TOP & BOTTOM OF THE PAVING NOTCH. THE 5k1 BARS AT 1'-0 CENTERS ARE CENTERED BETWEEN THE 5k2 BARS. 5k1 AND 5k2 BARS MAY BE SHIFTED TO AVOID INTERFERENCE WITH CONSTRUCTION JOINT.



PART SECTION A-A

NOTE: DOWELS SHALL BE PLACED TO MISS ANY EXISTING REINFORCING STEEL EXPOSED DURING REMOVALS.

1½"x8" KEYWAY DETAIL

DOWEL SETTING NOTE:

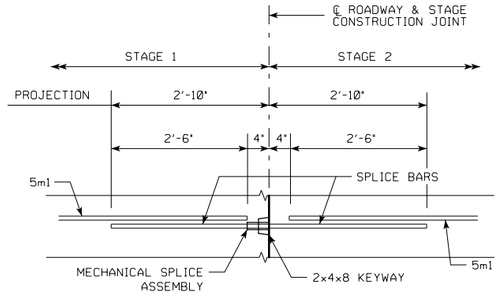
THE DEFORMED 5k2 & 5k3 BARS SHALL BE SET AS DOWELS IN DRILLED HOLES. HOLES ARE TO BE 10" DEEP. A POLYMER GROUT SYSTEM SHALL BE USED TO INSTALL THE DEFORMED DOWEL BARS IN ACCORDANCE WITH ARTICLE 2301.03, E, OF THE STANDARD SPECIFICATIONS, AND THE GROUT MANUFACTURER'S RECOMMENDATIONS.

MECHANICAL SPLICE ASSEMBLIES:

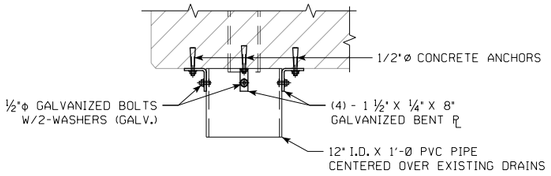
THE 5m1 BARS IN THE PAVING NOTCH REPLACEMENT SHALL BE SPLICED AT THE LOCATIONS SHOWN USING MECHANICAL SPLICE ASSEMBLIES. MECHANICAL SPLICE ASSEMBLIES CONSIST OF MECHANICAL SPLICERS AND REINFORCING SPLICE BARS AS REQUIRED TO FACILITATE THE USE OF THE MECHANICAL SPLICER. THE MECHANICAL SPLICE ASSEMBLY USED SHALL MEET THE REQUIREMENTS OF MATERIALS IM 451 APPENDIX E. REINFORCING SPLICE BARS SHALL MATCH THE DIAMETER OF THE BAR BEING SPLICED.

ALL MECHANICAL SPLICE ASSEMBLIES SHALL BE EPOXY COATED.

THE COST OF ALL SPLICE ASSEMBLIES IS TO BE INCLUDED IN THE PRICE BID FOR "PAVING NOTCH REPLACEMENT" AND NO SEPARATE PAYMENT WILL BE MADE. THE WEIGHT OF MECHANICAL SPLICE ASSEMBLIES IS NOT INCLUDED IN THE QUANTITY SHOWN FOR "REINFORCING STEEL EPOXY COATED". A TOTAL OF 8 EPOXY COATED SPLICE ASSEMBLIES WILL BE REQUIRED.



MECHANICAL SPLICE DETAIL



DRAIN EXTENSION DETAIL

(REQUIRED ALL 4 DRAINS)

DRAIN EXTENSION NOTES:

BENT PLATES ARE TO BE GALVANIZED AFTER FABRICATION ACCORDING TO SECTION 4100.07 OF THE STANDARD SPECIFICATIONS. 4 DRAIN EXTENSIONS REQUIRED.

THE CONTRACTOR SHALL PATCH SPALLED CONCRETE OUTSIDE THE AREA OF THE DRAIN EXTENSION PIPE TO FACILITATE DRAIN EXTENSION INSTALLATION. REFER TO SHEET V.08 FOR CONCRETE REPAIR DETAILS.

THE STUD CONCRETE ANCHORS SHALL BE GALVANIZED AND HAVE A MINIMUM PULL OUT STRENGTH OF 8,000 POUNDS BASED ON 3,000 PSI CONCRETE.

ALL COSTS FOR FABRICATING AND INSTALLING THE DRAINS AS SHOWN, INCLUDING ALL MATERIAL, EQUIPMENT, AND LABOR, INCLUDING NECESSARY PATCHNG, SHALL BE INCLUDED IN THE PRICE BID FOR "DRAIN EXTENSIONS".

Design For Repair To 30" (RA)

125'-0"x30'-0" Continuous Concrete Slab Bridge

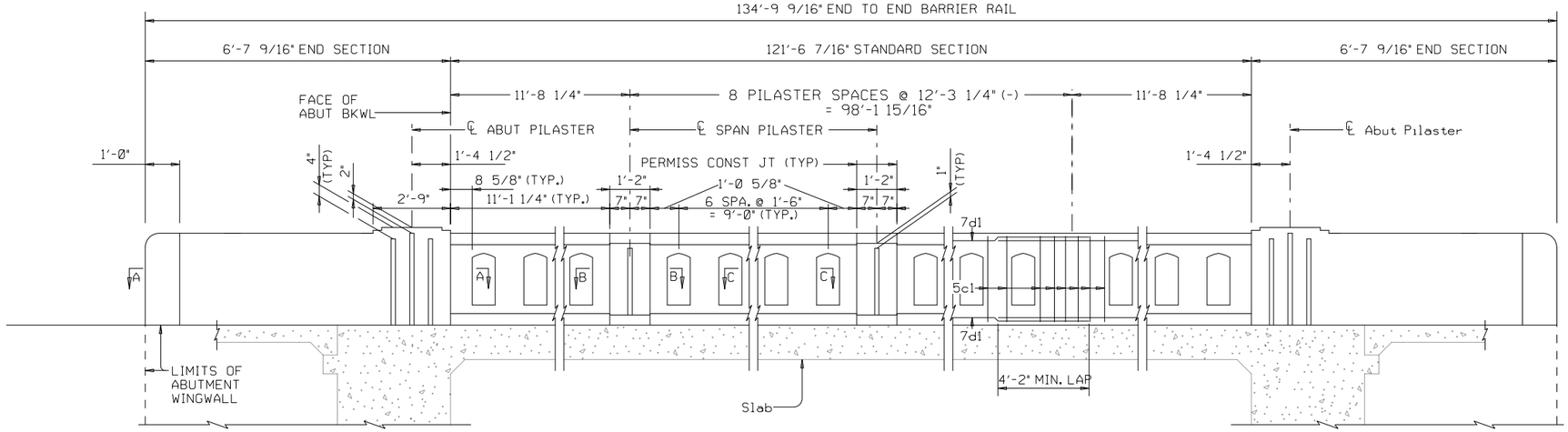
38'-0" End Spans 49'-0" Interior Span

Bridge Repair Details

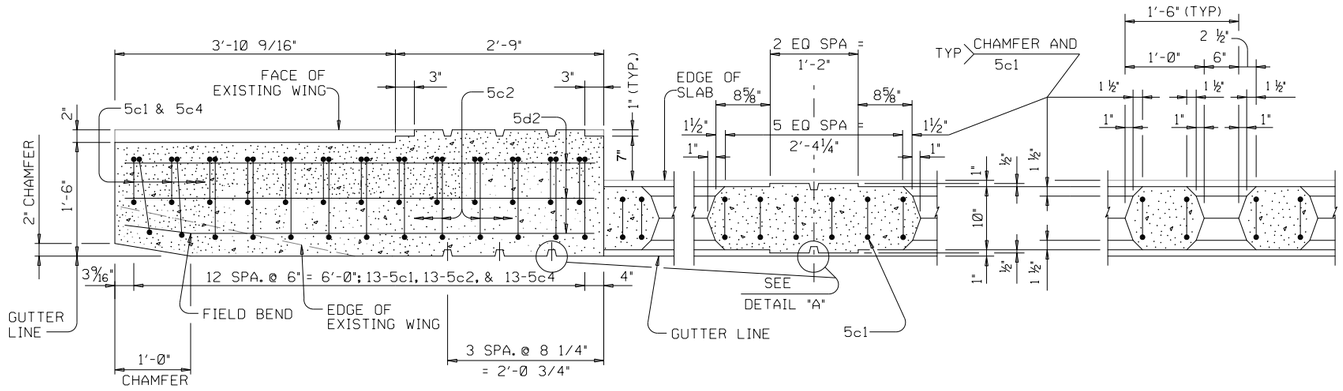
STA. 12+64.23 May, 2023

City of Dyersville

FILE NO.	ENGLISH	DESIGN TEAM WHKS & CO.	DELAWARE COUNTY	PROJECT NUMBER	SHEET NUMBER V.05	FHWA No. 4310



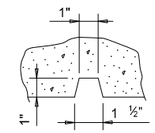
BARRIER RAIL ELEVATION



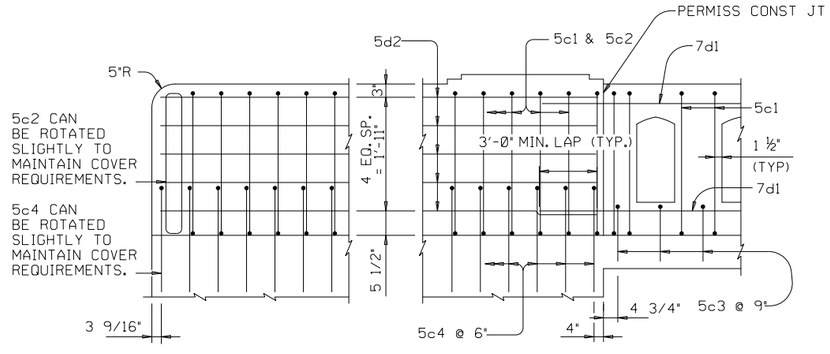
SECTION A-A

SECTION B-B

SECTION C-C



DETAIL "A"



ELEVATION SHOWING TYPICAL REINFORCING PLACEMENT

Design For Repair To 30" (RA)

125'-0"x30'-0" Continuous Concrete Slab Bridge

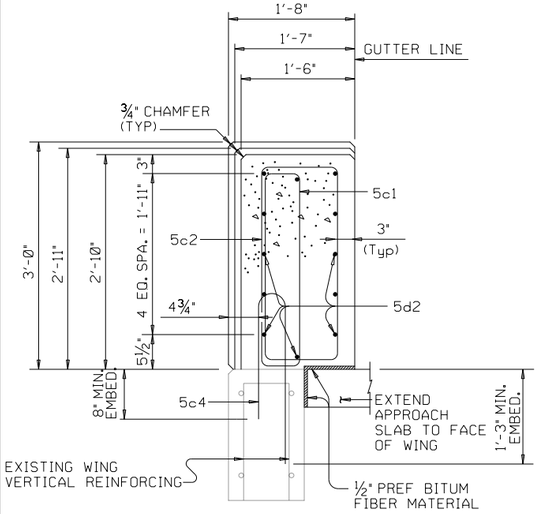
38'-0" End Spans 49'-0" Interior Span

Barrier Rail Details

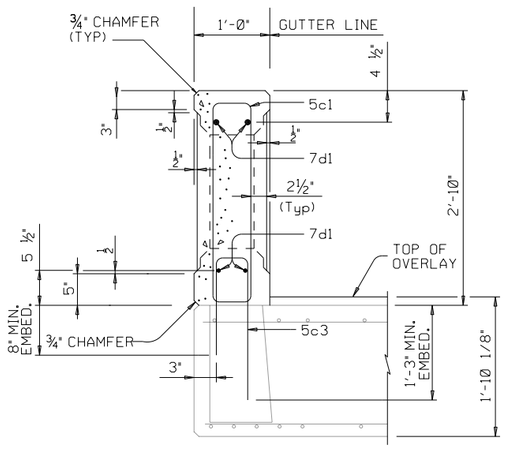
STA. 12+64.23 May, 2023

City of Dyersville

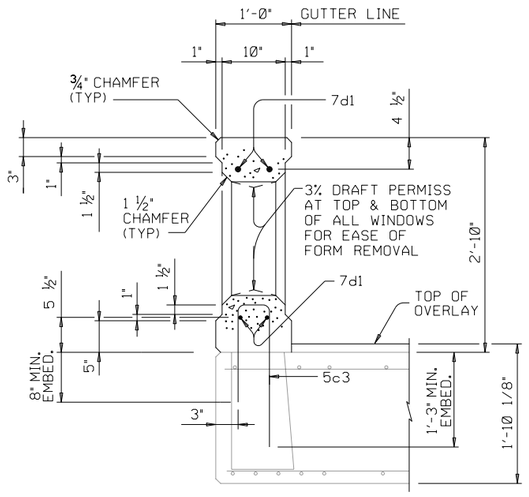
FILE NO.	ENGLISH	DESIGN TEAM WHKS & CO.	DELAWARE COUNTY	PROJECT NUMBER	SHEET NUMBER V.06	FHWA No. 4310



ON ABUTMENT WINGWALLS

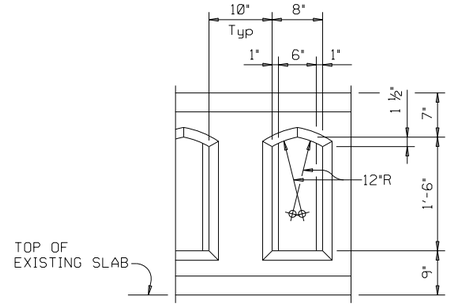


SECTION THRU
POST ON BRIDGE SLAB
(Showing Pilaster)



SECTION THRU
WINDOW ON BRIDGE SLAB

SECTIONS THRU RAIL



WINDOW DETAILS

DOWEL SETTING NOTE:

THE 5c3, 5c4, BARS SHALL BE SET AS DOWELS IN DRILLED HOLES. SEE DETAILS FOR HOLE DEPTH. THE DOWELS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. EITHER OF THE FOLLOWING SYSTEMS MAY BE USED AS A BONDING AGENT FOR VERTICAL DOWELS:

A. POLYMER GROUT SYSTEM IN ACCORDANCE WITH ARTICLE 2301.03, E, OF THE STANDARD SPECIFICATIONS.

B. HYDRAULIC CEMENT GROUT SYSTEMS. DRILLED HOLES ARE TO BE 2½ TIMES THE DOWEL DIAMETER AND ARE TO BE BLOWN CLEAN WITH COMPRESSED AIR IMMEDIATELY PRIOR TO PLACING GROUT. THE HYDRAULIC CEMENT GROUT SHALL BE ONE OF THOSE APPROVED IN MATERIALS I.M. 491.13 AND SHALL BE USED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

BARRIER RAIL NOTES:

THIS RAIL DESIGN IS BASED ON TX DOT TYPE T411 RAIL WHICH MEETS NCHRP REPORT 350 TL-2 RATING.

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

THE PERMISSABLE CONSTRUCTION JOINTS ARE TO BE PLACED ADJACENT TO THE POSTS AS SHOWN. LONGITUDINAL REINFORCEMENT SHALL CONTINUE THROUGH THE CONSTRUCTION JOINT AND LAP SPLICED A MINIMUM 1'-6" WITH ADJACENT RAIL REINFORCEMENT WHERE NECESSARY.

ALL BARRIER RAIL REINFORCING STEEL IS TO BE EPOXY COATED.

THE CONCRETE BARRIER RAIL IS TO BE BID ON A LINEAL FOOT BASIS. THE NUMBER OF LINEAL FEET OR BARRIER RAIL INSTALLED WILL BE PAID FOR AT THE CONTRACT PRICE PER LINEAL FOOT BASED ON PLAN QUANTITIES. PRICE BID FOR ASTHETIC CONCRETE BARRIER RAILING SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIAL, EXCLUDING REINFORCING STEEL, AND ALL OF THE EQUIPMENT AND LABOR REQUIRED TO ERECT THE RAIL IN ACCORDANCE WITH THESE PLANS AND CURRENT SPECIFICATIONS.

TOP OF THE BARRIER RAIL IS TO BE PARALLEL TO THE THEORETICAL C GRADE.

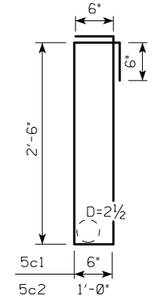
ALL BARRIER RAIL CONCRETE SHALL BE CLASS C.

AVERAGE WEIGHT OF RAILING WITH NO PILASTERS IS 295 PLF.

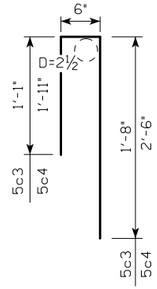
EPOXY COATED REINFORCING STEEL					
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
5c1	VERTICAL, BARRIER & END SECTION		416	7'-0"	3,037
5c2	VERTICAL, END SECTION		52	8'-0"	434
5c3	VERTICAL, BARRIER RAIL DOWEL		324	3'-7"	1,211
5c4	VERTICAL, END SECTION DOWEL		52	4'-11"	267
7d1	HORIZONTAL, BARRIER RAIL		32	35'-1"	2,295
5d2	HORIZONTAL, END SECTION		48	6'-3"	313
		EPOXY COATED REINFORCING STEEL - TOTAL (LBS)			7,557

CONCRETE PLACEMENT SUMMARY	
LOCATION	TOTAL
BRIDGE RAILING, 222.1 FEET AT 0.073 CY/FT	16.2
INTERIOR PILASTER, 18 AT 0.11 CY EACH	2.0
END SECTION, 4 AT 1.1 CY EACH	4.4
TOTAL (CU. YDS.)	22.6

BENT BAR DETAILS



5c1 & 5c2



5c3 & 5c4

NOTE: ALL REINFORCING IS TO BE EPOXY COATED.

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

Design For Repair To 30" (RA)

125'-0"x30'-0" Continuous Concrete Slab Bridge

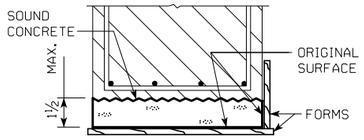
38'-0" End Spans 49'-0" Interior Span

Barrier Rail Details

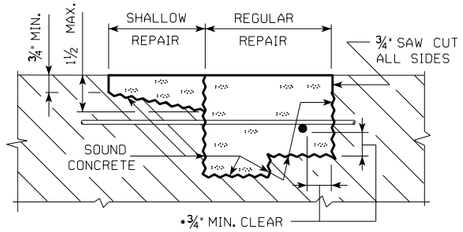
STA. 12+64.23 May, 2023

City of Dyersville

FILE NO.	ENGLISH	DESIGN TEAM WHKS & CO.	DELAWARE COUNTY	PROJECT NUMBER	SHEET NUMBER V.07	FHWA No. 4310

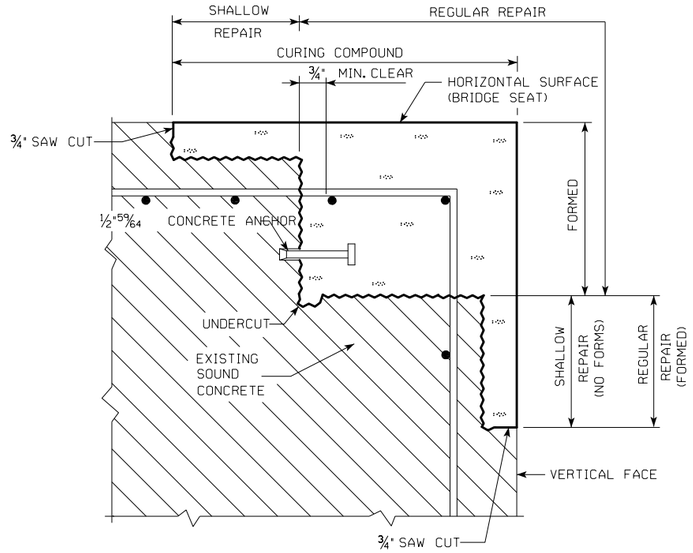


SHALLOW REPAIR BOTTOM SURFACE

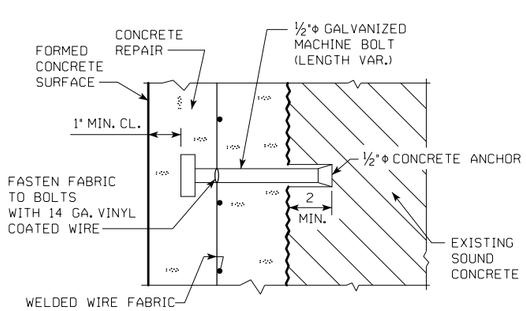


REPAIR DEFINITION

•INDICATES CLEARANCE FOR AN UN-BONDED REBAR.

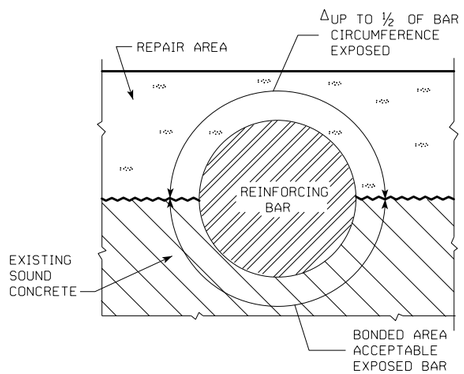


CORNER REPAIR

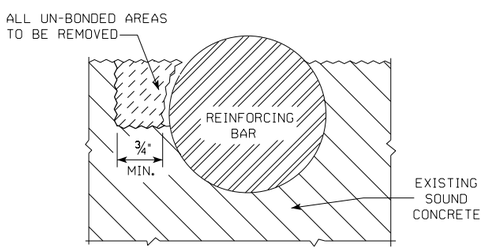


ANCHOR DETAIL

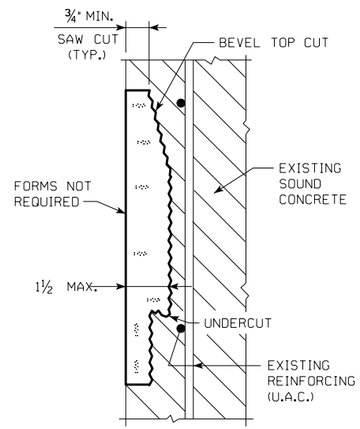
FOR SPACING AND USE OF CONCRETE ANCHORS AND WWF SEE THE REPAIR NOTES.



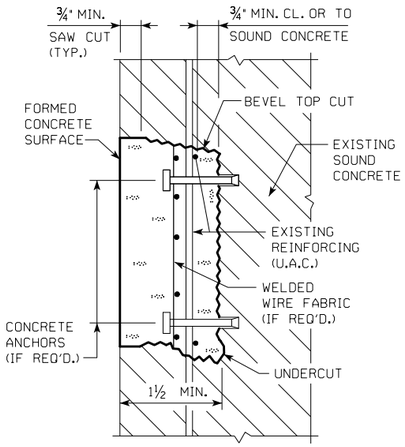
ΔIF MORE THAN ½ OF THE REBAR IS EXPOSED IT SHALL BE TREATED AS AN UN-BONDED REBAR.



CONCRETE REMOVAL ADJACENT TO REINFORCING



SHALLOW REPAIR VERTICAL FACE



REGULAR REPAIR VERTICAL FACE

REPAIR NOTES:

THE SPALLED AND HOLLOW AREAS OF THIS BRIDGE AS NOTED AND SHOWN IN THESE PLANS SHALL BE REPAIRED AS FOLLOWS:

ALL EXISTING REINFORCING BARS THAT ARE EXPOSED BY CONCRETE REMOVAL SHALL BE CLEANED AND CAREFULLY INCORPORATED INTO THE NEW WORK, EXCEPT BADLY DETERIORATED EXISTING REINFORCING WHICH SHALL BE REPLACED AS DIRECTED BY THE ENGINEER.

THE CONCRETE ANCHORS REQUIRED SHALL HAVE A MINIMUM PULL OUT OF 5000 LBS. BASED ON 3000 PSI CONCRETE. AN ANCHOR MEETING THE REQUIREMENTS OF IOWA D.O.T. MATERIALS I.M. 453.09 AND THE PULL OUT LOAD ABOVE IS REQUIRED. THE ANCHORS SHALL BE GALVANIZED AND SHALL BE INSTALLED ACCORDING TO RECOMMENDATIONS OF THE MANUFACTURER.

THE WELDED WIRE FABRIC SHALL BE ASTM A185 AND GALVANIZED AS PER ASTM A-641. THE WWF WIRES SHALL BE SPACED 3x3 OR 4x4 AND THE WIRES SHALL HAVE A NOMINAL AREA OF 0.014 TO 0.029 SQUARE INCHES INCLUSIVE, EXAMPLE "WWF 3x3 - W1.4xW2.9".

WHERE REINFORCEMENT HAS BEEN EXPOSED AND CLEARANCE AROUND THE PERIPHERY OF THE EXISTING BAR IS PROVIDED NO SUPPLEMENTAL REINFORCING IS REQUIRED, EXCEPT WHERE EXISTING REINFORCEMENT DENSITY AND PATTERN ARE SUCH THAT INDIVIDUAL OPEN SPACES BETWEEN BARS ARE OF 1.5 SQUARE FOOT OR LARGER. FOR THIS CONDITION ½"Φ CONCRETE ANCHORS AND WELDED WIRE FABRIC SHALL BE INSTALLED AT THE RATE OF ONE CONCRETE ANCHOR WITH WWF PER EACH 1.5 SQUARE FEET OF AREA WITHIN EACH OPEN SPACE.

REPAIRING THE STRUCTURAL CONCRETE SHALL BE IN ACCORDANCE WITH SECTION 2426, OF THE STANDARD SPECIFICATIONS.

Design For Repair To 30' (RA)

125'-0"x30'-0" Continuous Concrete Slab Bridge

38'-0" End Spans 49'-0" Interior Span

Concrete Repairs

STA. 12+64.23 May, 2023

City of Dyersville

FILE NO.	ENGLISH	DESIGN TEAM WHKS & CO.	DELAWARE COUNTY	PROJECT NUMBER	SHEET NUMBER V.08	FHWA No. 4310