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Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

INTERSTATE ROAD SYSTEM
HARRISON COUNTY
PCC PAVEMENT - GRADE AND REPLACE

0.4 m1 N of UP RR to 0.5 m1 N of IA 127 (SBL)

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

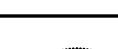
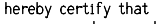
Value Engineering Saves. Refer to Article 1105.14 of the Specifications.



For Project Location Map
Refer to Sheet No. A.2

I-29 SB			
DESIGN DATA RURAL			
2015	AADT	<u>7200</u>	V.P.D.
2035	AADT	<u>10200</u>	V.P.D.
20--	DHV	<u>--</u>	V.P.H.
TRUCKS		<u>26</u>	%
Total			
Design	ESALs	<u>--</u>	

INDEX OF SEALS		
SHEET NO.	NAME	TYPE
A.1	Paul Flattery	Primary Signature Block
CE.1	Seana Godbold	Landscape Design
CS.1	Stephen J. Megivern	Geotech Design
N.1	Michael J. Jorgensen	Signing Design
V.1	David R. Evans	Structural Design

ROADWAY DESIGN	
	I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.
	
	Signature _____ Date <u>12-31-2018</u>
	Paul W. Flattery Printed or Typed Name My license renewal date is December 31, 2019

Pages or sheets covered by this seal: A.1-2, B.1-9, C.1-22, D.1-26, J.1-26, K.1-5, U.1-29

FILE NO.	ENGLISH	DESIGN TEAM	Flattery \ Kiebel \ Carlson	HARRISON COUNTY	PROJECT NUMBER	IMX-029-5(245)77--02-43	SHEET NUMBER	A.1
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ESTIMATED BRIDGE REPAIR QUANTITIES					
ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QUAN.
1	2401-6750001	REMOVALS, AS PER PLAN	LS	1.00	
2	2402-2720000	EXCAVATION, CLASS 20	CY	29	
3	2403-0100000	STRUCTURAL CONCRETE (MISCELLANEOUS)	CY	43.0	
4	2404-7775005	REINFORCING STEEL, EPOXY COATED	LB	15,534	
5	2404-7775009	REINFORCING STEEL, STAINLESS STEEL	LB	2,028	
6	2414-6424110	CONCRETE BARRIER RAILING	LF	321.6	
7	2499-0800000	PAVING NOTCH REPLACEMENT	LF	53.7	
8	2501-8400172	TEMPORARY SHORING	LS	1.00	
9	2508-0970000	CONTAINMENT	LS	1.00	
10	2508-0991000	PAINTING OF STRUCTURAL STEEL	LS	1.00	

ESTIMATE REFERENCE INFORMATION		
ITEM NO.	ITEM CODE	DESCRIPTION
1	2401-6750001	REMOVALS, AS PER PLAN INCLUDES ALL WORK FOR REMOVAL AND OFF-SITE DISPOSAL OF PORTIONS OF THE SLAB, CURB, RETRO-FIT RAIL, EAST ABUTMENT BACKWALL, BOTH EAST ABUTMENT BARRIER END SECTIONS AND RETRO-FIT WALL DIRECTLY UNDERNEATH. REMOVAL OF SCHEDULED ITEMS SHALL BE IN ACCORDANCE WITH SECTION 2401 OF THE STANDARD SPECIFICATIONS. ANY DAMAGE TO MATERIAL NOT TO BE REMOVED SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND REPAIRED AT NO EXTRA COST TO THE STATE.
2	2402-2720000	EXCAVATION, CLASS 20 --
3	2403-0100000	STRUCTURAL CONCRETE (MISCELLANEOUS) INCLUDES ALL COSTS ASSOCIATED WITH FURNISHING AND INSTALLING NEOPRENE MAT, STEEL PLATES, CONCRETE ANCHORS, NUTS, AND WASHERS AT EAST ABUTMENT BACKWALL. INCLUDES ALL RESILIENT JOINT FILLER REQUIRED. INCLUDES CLEANING EXISTING WEST ABUTMENT SEATS AND BACKWALL, FURNISHING AND PLACING CONCRETE SEALER. INCLUDES FURNISHING, PLACING AND COMPACTING GRANULAR BACKFILL AND PLACING GEOTEXTILE FABRIC BEHIND THE EAST ABUTMENT BACKWALL.
4	2404-7775005	REINFORCING STEEL, EPOXY COATED INCLUDES ALL NECESSARY HARDWARE AND ACCESSORIES REQUIRED TO INSTALL 460 MECHANICAL COUPLERS IN THE BRIDGE DECK.
5	2404-7775009	REINFORCING STEEL, STAINLESS STEEL --
6	2414-6424110	CONCRETE BARRIER RAILING 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.
7	2499-0800000	PAVING NOTCH REPLACEMENT INCLUDES 3.8 CY OF STRUCTURAL CONCRETE CLASS C, 858 LBS OF EPOXY-COATED REINFORCING STEEL, EXCAVATION, 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.
8	2501-8400172	TEMPORARY SHORING ALL DETAILS SHALL BE DESIGNED AND SEALED BY PROFESSIONAL ENGINEER CURRENTLY REGISTERED IN THE STATE OF IOWA.
9	2508-0970000	CONTAINMENT --
10	2508-0991000	PAINTING OF STRUCTURAL STEEL INCLUDES BRIDGE CLEANING AND BLAST CLEANING OF STRUCTURAL STEEL IN ACCORDANCE WITH SECTION 2508 OF THE STANDARD SPECIFICATIONS.

SHOP DRAWING SUBMITTALS

SHOP DRAWINGS SHALL BE SUBMITTED FOR THE FOLLOWING ITEMS SHOWN IN THE TABLE BELOW. (NOTE ADDITIONAL SHOP DRAWINGS MAY BE REQUIRED IN ACCORDANCE WITH ARTICLE 1105.03 OF THE STANDARD SPECIFICATIONS.)

SUBMITTAL REQUIREMENTS FOR SHOP DRAWINGS SHOULD BE IN ACCORDANCE WITH ARTICLE 1105.03, OF THE STANDARD SPECIFICATIONS, FOR HIGHWAY AND BRIDGE CONSTRUCTION OF THE IOWA DEPARTMENT OF TRANSPORTATION.

SHOP DRAWINGS SHALL BE SUBMITTED WITH THE FOLLOWING NAMING CONVENTION:
(Paren).County_DesignNumber_SubmittalDescription.pdf
Example: (090).BlackHawk_Design915_DeckDrains.pdf

I	TEMPORARY DECK SHORING AND BRACKETS

STRUCTURAL DESIGN



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

Signature

Date

12/4/18

David R. Evans

Printed or Typed Name

My license renewal date is December 31, 2019

Pages or sheets covered by this seal: V.I THRU V.I6

NOTE:
ROADWAY QUANTITIES SHOWN
ELSEWHERE IN THESE PLANS.

POLLUTION PREVENTION PLAN SHOWN
ELSEWHERE IN THESE PLANS.

DESIGN FOR REPAIRS TO 42°25' SKEW (R.A.)

155'-0 x 39'-0 CONTINUOUS
I-BEAM BRIDGE

47'-3 END SPANS60'-6 INTERIOR SPAN

QUANTITIES

STATION: 1187+71.90JANUARY, 2019

HARRISON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

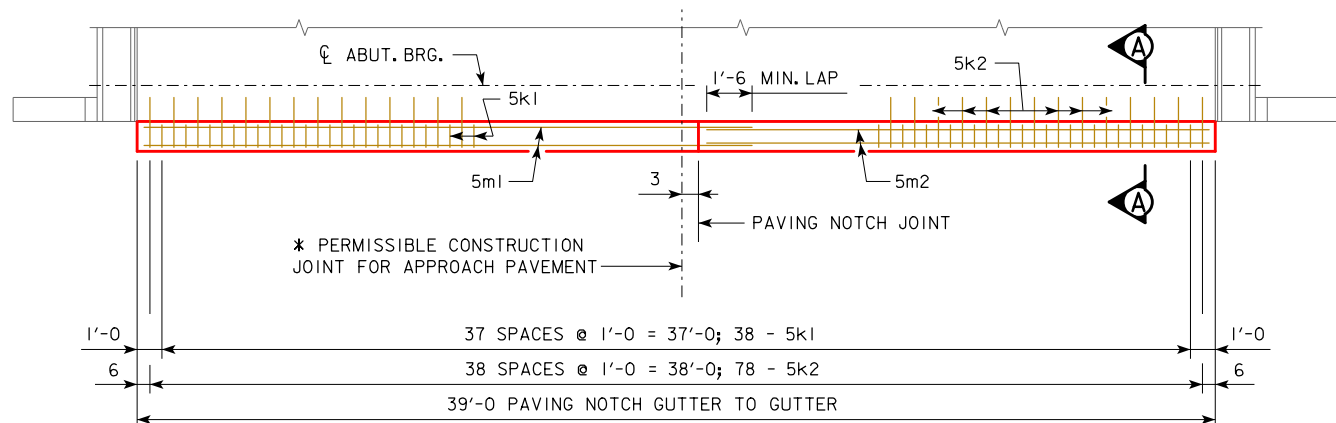
DESIGN SHEET NO. 1 OF 13FILE NO. 31135DESIGN NO. 215

ESTIMATED BRIDGE REPAIR QUANTITIES					
ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QUAN.
I	2499-0800000	PAVING NOTCH REPLACEMENT	LF	78.0	

ESTIMATED BRIDGE REPAIR QUANTITIES					
ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QUAN.
I	2499-0800000	PAVING NOTCH REPLACEMENT	LF	78.0	

ESTIMATE REFERENCE INFORMATION

ITEM NO.	ITEM CODE	DESCRIPTION
1	2499-0800000	PAVING NOTCH REPLACEMENT INCLUDES 5.5 CY OF STRUCTURAL CONCRETE CLASS C, 1248 LBS OF EPOXY-COATED REINFORCING STEEL, EXCAVATION, REMOVING AND DISPOSING CONCRETE REMOVED TO FORM THE SHEAR KEYWAYS, DRILLING HOLES FOR DOWEL BARS, AND POLYMER GROUT MATERIAL.



PART PLAN VIEW AT ABUTMENT

PART PLAN VIEW AT ABUTMENT
(TYPICAL FOR BOTH ENDS OF BRIDGE)

* PERMISSIBLE CONSTRUCTION JOINT FOR NOTCH REPAIR TO EXTEND A MINIMUM OF 3 INCHES PAST CONSTRUCTION JOINT FOR PAVEMENT. PROVIDE 1'-6" MINIMUM LAP FOR REINFORCEMENT

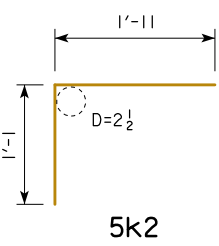
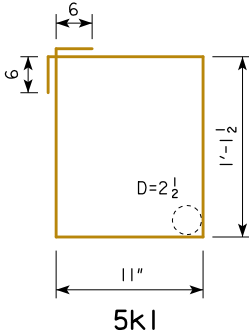
NOTE:
NEW PAVING NOTCH REPLACEMENT SHOULD EXTEND
FROM GUTTER LINE TO GUTTER LINE.

BENT BAR DETAILS

NOTE: ALL REINFORCING IS TO BE EPOXY COATED.

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

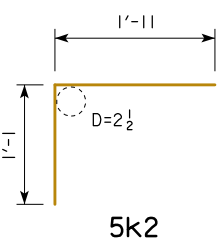
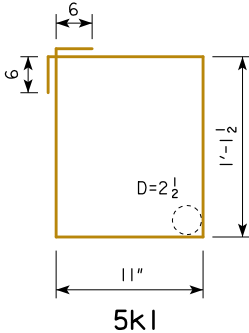
BENT BAR DETAILS

NOTE: ALL REINFORCING IS TO BE EPOXY COATED.

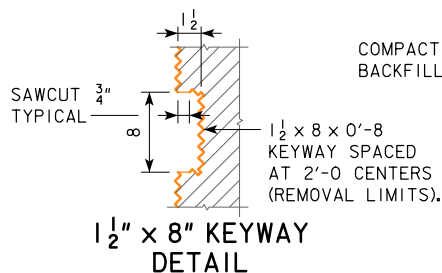
NOTE: ALL DIMENSIONS ARE OUT TO OUT. D=PIN DIAMETER.

BENT BAR DETAILS

NOTE: ALL REINFORCING IS TO BE EPOXY COATED.

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



PART SECTION A-A

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

TOP OF NEW APPROACH SLAB

1'-0"

5m1 & 5m2

1'-6"

2' CL

5k1

COMPACT GRANULAR BACKFILL IF NECESSARY

EXISTING BAR (U.A.C.)

1'-3"

10" EMBEDMENT

TOP OF BRIDGE SLAB

5k2

ROUGHEN CONCRETE OR REMOVAL LINE

5k2

PART SECTION A-A

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

DES.	
196	
128	
192	
415	

NOTE:
USE "BR-203" APPROACH PAVEMENT
STANDARD FOR MOVEABLE ABUTMENT.

DOWEL SETTING NOTE:

DOWEL SETTING NOTE:
THE DEFORMED 5K2 BARS SHALL BE SET AS HOLES. HOLES ARE TO BE 10" DEEP. A POLY BE USED TO INSTALL THE DEFORMED DOWEL ARTICLE 2301.03, E, OF THE STANDARD SPEC GROUT MANUFACTURER'S RECOMMENDATIONS.

LOCATION

LOCATION
S.B. 1-29 OVER BURCHAM CREEK
T-79N R-45W
SECTION 12
CLAY TOWNSHIP
HARRISON COUNTY
FHWA NO. 028250
BRIDGE MAINT. NO. 4386.5L029
LATITUDE 41.671503°
LONGITUDE -96.036247°

PAVING NOTCH REPLACEMENT NOTES:

PAVING NOTCH REPLACEMENT NOTES:

PAVING NOTCH REPLACEMENT NOTES:

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

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

PAVING NOTCH REPLACEMENT NOTES:

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

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

THE BID ITEM "PAVING NOTCH REPLACEMENT" LINEAR FEET, SHALL INCLUDE COSTS OF LABOR AND MATERIALS ASSOCIATED WITH EXCAVATION, GRANULAR BACKFILL AND COMPACTION AS NEEDED, AND INSTALLING THE NEW PAVING. THIS WORK SHALL INCLUDE, REMOVING THE CONCRETE FOR THE SHEAR KEY, DRILLING THE HOLES FOR THE DEFORMED DOWELS AND CONSTRUCTING THE NOTCH TO THE DIMENSIONS SHOWN. THE NEW NOTCH IS ESTIMATED AT 0.0 YARDS PER FOOT OF STRUCTURAL CONCRETE AND 16.0 POUNDS OF EPOXY REINFORCING STEEL PER FOOT.

REMOVALS SHALL BE IN ACCORDANCE WITH SECTION 2401, OF THE STANDARD SPECIFICATIONS.

THESE BRIDGE PLANS LABEL ALL REINFORCING STEEL WITH ENGLISH NOTATION (50# IS $\frac{5}{8}$ INCH DIAMETER BAR). ENGLISH REINFORCING STEEL RECEIVED IN THE FIELD MAY DISPLAY THE FOLLOWING "BAR DESIGNATION". THE "BAR DESIGNATION" IS THE STAMPED IMPRESSION ON THE REINFORCING BARS, AND IS EQUIVALENT TO THE BAR DIAMETER IN MILLIMETERS.

ENGLISH SIZE	3	4	5	6	7	8	9	10	11
BAR DESIGNATION	10	13	16	19	22	25	29	32	36

SPECIFICATIONS:

SPECIFICATIONS:

DESIGN: AASHTO SERIES OF 2002.

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

DESIGN STRESSES:

DESIGN STRESSES:

DESIGN STRESSES FOR THE FOLLOWING ARE BASED ON THE AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL STEEL REINFORCING STEEL IN ACCORDANCE WITH THE AASHTO STANDARD SPECIFICATIONS FOR CONCRETE IN ACCORDANCE WITH THE AASHTO STANDARD SPECIFICATIONS FOR CONCRETE

DESIGN HISTORY AT THIS SITE	
DES. NO.	TYPE OF WORK
1965	ORIGINAL DESIGN
1289	RETROFIT RAILS
192	OVERLAY & REPAIRS
415	PAVING NOTCH REPAIRS

DESIGN HISTORY AT THIS SITE	
DES. NO.	TYPE OF WORK
1965	ORIGINAL DESIGN
1289	RETROFIT RAILS
192	OVERLAY & REPAIRS
415	PAVING NOTCH REPAIRS

DESIGN FOR REPAIRS TO 0° SKEW
115'-0" x 39'-0" CONTINUOUS
CONCRETE SLAB BRIDGE
35'-0" END SPANS 45'-0" INTERIOR SPAN
PAVING NOTCH REPAIR DETAILS
STATION: 1655+40.00 JANUARY, 2019
HARRISON COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 1 OF 1 FILE NO. 31135 DESIGN NO. 415