LETTING DATE MAR. 19, 2019

HARRISON Co. PCC PAVEMENT - GRADE AND REPLACE IMX-029-5(245)77--02-43

INDEX OF SHEETS	
No.	DESCRIPTION
A Sheets	**Title Sheets**
A.1	Title Sheet
A.2	Location Map Sheet
B Sheets	**Typical Cross Sections and Details**
B.1 - 6	Typical Cross Sections and Details
B.7 - 8	As-Built Typical Cross Sections
B.9	Typical Detail for Obliterating of Roadbed
C Sheets	**Quantities and General Information**
C.1	Project Description
C.1	Estimated Project Quantities
C.2 - 3	Estimate Reference Information
C.4	Standard Road Plans
C.4	Index of Tabulations
C.5 - 22	Tabulations
CE Sheets	**Erosian Control Tabulations**
CE.1 - 3	Pollution Prevention Plan
CS Sheets	**Soils Tabulations**
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D Sheets	**Mainline Plan and Profile Sheets**
* D.1 - 26	Interstate 29 (SB)
J Sheets	**Traffic Control and Staging Sheets**
J.1	Traffic Control Plan
J.1	Staging Notes
* J.2 - 4	Stage 1
* J.5 - 7	Stage 2
* J.8 - 10	Stage 3
* J.11 - 16	Stage 4
* J.17 - 20	Stage 5
* J.21 - 23	Stage 6
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* K.1	Rest Stop As-Built (Info. Only)
* K.2 - 3	I-29 & Co. Rd. F-50 Interchange As-Built (Info. Only)
* K.4 - 5	I-29 & IA 127 Interchange As-Built (Info. Only)
N Sheets	**Signing Sheets**
N.1	Signing Tabulations
* N.2 - 25	Signing Plan Sheets

IOWA DOT

Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

INTERSTATE ROAD SYSTEM

HARRISON COUNTY

PCC PAVEMENT - GRADE AND REPLACE

0.4 mi N of UP RR to 0.5 mi 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.

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

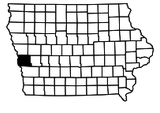
For Project Location Map
Refer to Sheet No. A.2

REVISIONS

TOTAL 167
PROJECT IDENTIFICATION NUMBER
15-43-029-010
PROJECT NUMBER
IMX-029-5(245)77--02-43
R.O.W. PROJECT NUMBER

INDEX OF SHEETS	
No.	DESCRIPTION
U Sheets	**500 Series, Mod.Stds. and Detail Sheets**
U.1 - 2	PV-410M Deceleration Taper for Exit Ramps
U.3 - 4	PV-411M Acceleration Taper for Entrance Ramps
* U.5 - 6	Northbound Weigh Station Removal
* U.7 - 8	Southbound Weigh Station Removal
U.9	Crossover XO-1 (Stage 1, Sta. 1275+66.76)
U.10	Crossover XO-2 (Stage 1, Sta. 1276+29.49)
U.11	Crossover XO-3 (Stage 1, Sta. 1289+44.86)
U.12	Crossover XO-4 (Stage 1, Sta. 1289+80.60)
U.13	Crossover XO-5 (Stage 1, Sta. 1415+76.75)
U.14	Crossover XO-6 (Stage 1, Sta. 1416+39.49)
U.15	Crossover XO-7 (Stage 1, Sta. 1435+22.11)
U.16	Crossover XO-8 (Stage 1, Sta. 1434+58.94)
U.17	Crossover XO-9 (Stage 2, Sta. 1271+10.57)
U.18	Crossover XO-10 (Stage 2, Sta. 1292+97.12)
U.19	Crossover XO-11 (Stage 2, Sta. 1411+98.90)
U.20	Crossover XO-12 (Stage 2, Sta. 1439+45.58)
U.21	Crossover XO-13 (Stage 3, Sta. 1795+06.95)
U.22	Crossover XO-14 (Stage 3, Sta. 1795+69.69)
U.23	Crossover XO-15 (Stage 3, Sta. 1813+69.09)
U.24	Crossover XO-16 (Stage 3, Sta. 1813+06.36)
U.25	Crossover XO-17 (Stage 4, Sta. 1789+65.52)
U.26	Crossover XO-18 (Stage 4, Sta. 1818+41.01)
U.27	DR-502M Slotted Drain for Medain Crossovers
U.28	TBR Connection to Retrofit Bridge Rail w/ End Sections
U.29	Bridge Approach (Abutting PCC or Composite Pavement)
V Sheets	**Bridge and Culvert Situation Plans**
* V.1 - 16	Bridge Sheets

* Color Plan Sheets



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

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

LICENSED PROFESSIONAL ENGINEER — Paul W. Flattery 15282 — IOWA

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

Signature — Date: 12-31-2018

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

4:05:18 PM 2/11/2019 akiebel pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\4302901015\Design\43029245_A01.sht

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

1	TEMPORARY DECK SHORING AND BRACKETS

STRUCTURAL DESIGN

LICENSED PROFESSIONAL ENGINEER
David R. Evans
18670
IOWA

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

Signature _____ Date 12/4/18

Printed or Typed Name David R. Evans

My license renewal date is December 31, 2019

Pages or sheets covered by this seal: V.1 THRU V.16

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 SPANS 60′-6 INTERIOR SPAN

QUANTITIES

STATION: 1187+71.90 JANUARY, 2019

HARRISON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

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

DESIGN TEAM AMA / JSZ / RDM / DRE | HARRISON COUNTY | PROJECT NUMBER IMX-029-5(245)77--02-43 | SHEET NUMBER V.1

GENERAL NOTES:

THIS DESIGN IS FOR REPAIRS TO THE EXISTING 155'-0 x 39'-0 CONTINUOUS STEEL I-BEAM BRIDGE, WITH A 42°25' R.A. SKEW, ON SOUTHBOUND I-29 OVER ALLEN CREEK.

ELECTRONIC COPIES OF ORIGINAL DESIGN PLANS WILL BE MADE AVAILABLE TO THE CONTRACTOR AS PART OF THE E-FILES SUPPLIED WITH THE CONTRACT DOCUMENTS.

REPAIR SHALL CONSIST OF THE FOLLOWING:

1. REPLACE THE EAST ABUTMENT WITH SEMI-INTEGRAL ABUTMENT DETAIL.
2. REPLACE THE PAVING NOTCH AT THE WEST ABUTMENT.
3. REMOVE THE END SECTION OF THE BARRIER RAIL AND THE RETROFIT WALL PART DIRECTLY UNDERNEATH IT ON THE EAST ABUTMENT, (DO NOT REMOVE THE ORIGINAL WING WALL).
4. REPLACE THE OVERHANGS PART OF THE BRIDGE DECK.
5. REPLACE THE CURB AND RETROFIT BARRIER RAIL ON THE BRIDGE WITH STANDARD F-SHAPE BARRIER RAILS.
6. CLEAN AND SEAL WEST ABUTMENT SEATS.
7. CLEAN AND PAINT THE BEAM ENDS, ABUTMENT DIAPHRAGMS AND ABUTMENT BEARINGS AT WEST ABUTMENT.

DIMENSIONS SHOWN ON THESE PLANS ARE BASED ON PREVIOUS DESIGN PLANS.

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

FAINT LINES ON PLANS INDICATE THE EXISTING STRUCTURE.

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

THE LUMP SUM BID FOR "REMOVALS, AS PER PLAN" SHALL INCLUDE ALL COSTS ASSOCIATED WITH REMOVING PORTIONS OF THE DECK, CURBS, RETROFIT RAIL, EAST ABUTMENT BACKWALL, BOTH EAST ABUTMENT BARRIER END SECTIONS AND RETROFIT WALL DIRECTLY UNDERNEATH. REMOVAL OF SCHEDULED ITEMS SHALL BE IN ACCORDANCE WITH SECTION 2401 OF THE STANDARD SPECIFICATIONS. ANY DAMAGE TO ANY STEEL OR CONCRETE NOT TO BE REMOVED SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND REPAIRED AT NO EXTRA COST TO THE STATE.

THE TOPS OF THE ABUTMENT BACKWALLS, AS SHOWN, SHALL BE CONSTRUCTED USING STRUCTURAL CONCRETE CLASS C. PROMPTLY AFTER THE CONCRETE HAS BEEN PLACED AND VIBRATED AS PROVIDED IN ARTICLES 2403.03, C, AND 2403.03, D, OF THE STANDARD SPECIFICATIONS, IT SHALL BE HAND FINISHED TO PROVIDE A SMOOTH SURFACE WITH THE PROPER CROWN. THE CONTRACTOR MAY ELECT TO USE FORMWORK WHICH IS MARKED OR TRIMMED TO THE CORRECT ELEVATION AND CROWN TO PROVIDE THE LIMITS FOR THE HAND FINISHING.

ALL CONCRETE REMOVALS SHALL BE INITIATED WITH A $\frac{3}{4}$" SAWCUT.

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

THE BRIDGE CONTRACTOR IS TO PROVIDE A METHOD OF REMOVAL THAT WILL PREVENT FEATHER EDGING AT THE BOTTOM OF THE EXISTING SLAB. CARE SHALL BE TAKEN WHEN EXPOSING EXISTING REINFORCING SO THE BOND TO EXISTING CONCRETE IS NOT BROKEN AT THE CONCRETE BREAK LINES.

THESE BRIDGE PLANS LABEL ALL REINFORCING STEEL WITH ENGLISH NOTATION (5a) 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:

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.

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.

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.

IN ADDITION TO THE REQUIREMENTS OF ARTICLE 2413.03, G, OF THE STANDARD SPECIFICATIONS, THE EXPOSED WEST ABUTMENT SEATS AND WASH SURFACES SHALL HAVE AN APPLICATION OF CONCRETE SEALER IN ACCORDANCE WITH ARTICLE 2403.03, P, 3, OF THE STANDARD SPECIFICATIONS. ALL COST ASSOCIATED WITH CLEANING AND SEALING OF THE WEST ABUTMENT BEAM SEATS SHALL BE INCLUDED IN THE UNIT PRICE BID ITEM "STRUCTURAL CONCRETE (MISCELLANEOUS)".

THE LUMP SUM BID FOR "PAINTING STRUCTURAL STEEL" SHALL INCLUDE THE COST OF PREPARING THE EXISTING STRUCTURAL STEEL FOR PAINTING (INCLUDING BEARINGS) AND FIELD PAINTING EXISTING STRUCTURAL STEEL AS NOTED IN THESE PLANS. CLEANING AND PAINTING SHALL BE IN ACCORDANCE WITH SECTION 2508, OF THE STANDARD SPECIFICATIONS. AN EPOXY PAINT SYSTEM SHALL BE USED.

SCRAPE SAMPLES WERE TAKEN FROM AREAS OF THIS BRIDGE TO GET AN INDICATION OF THE EXISTENCE OF AND LEVEL OF TOTAL LEAD AND TOTAL CHROMIUM. ANALYSIS OF THE TOTAL LEAD ON THESE SAMPLES WAS 2200 PARTS PER MILLION ON THE BEAMS, 38000 PPM ON THE FORMER RAILING BASE PLATE, 780 PPM ON THE ABUTMENT BEARINGS, AND 160 PPM ON THE EXPANSION PLATE. ANALYSIS OF TOTAL CHROMIUM ON THESE SAMPLES WAS 1100 PARTS PER MILLION ON THE BEAMS, 50000 PPM ON THE FORMER RAILING BASE PLATE, 350 PPM ON THE ABUTMENT BEARINGS, AND 92 PPM ON THE EXPANSION PLATE. 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.

THE CONTRACTOR SHALL CONDUCT THEIR OPERATIONS IN SUCH A MANNER THAT ANY PAINT REMOVED DURING DEMOLITION IS CONTAINED, COLLECTED, AND DISPOSED OF IN ACCORDANCE WITH SECTION 2508, OF THE STANDARD SPECIFICATIONS. BEFORE DELIVERY OF ANY SCRAP STEEL THE CONTRACTOR SHALL PROVIDE A WRITTEN NOTICE TO THE RECEIVING FACILITY. THIS NOTICE SHALL AT A MINIMUM INCLUDE:

1. A NOTICE THAT THE SCRAP STEEL IS COATED WITH PAINT THAT HAS REGULATED MATERIALS AT LEVELS WHICH COULD BE HAZARDOUS TO EMPLOYEES OR THE ENVIRONMENT.

2. A COPY OF THE SCRAPE SAMPLE PROVIDED IN THE CONTRACT DOCUMENTS.

3. A SIGNATURE BLOCK FOR THE RECEIVING FACILITY TO CONFIRM THEIR RECEIPT OF THIS INFORMATION.

A COPY OF THIS NOTICE, SIGNED BY THE RECEIVING FACILITY, SHALL BE RETURNED TO THE ENGINEER BEFORE ANY SCRAP STEEL IS REMOVED FROM THE PROJECT.

THE BRIDGE CONTRACTOR SHALL DRESS UP THE SLOPES AROUND THE WINGS WHICH ARE DISTURBED DURING CONSTRUCTION. THIS WORK SHALL BE CONSIDERED INCIDENTAL AND NO EXTRA PAYMENT WILL BE MADE.

CONTAINMENT AND DISPOSAL OF WASTE SHALL BE IN ACCORDANCE WITH SECTION 2508 OF THE STANDARD SPECIFICATIONS. ALL COSTS ASSOCIATED WITH HAULING AND DEPOSITING OF WASTE AT THE DESIGNATED SITE/ FACILITY SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND INCLUDED IN THE CONTRACT PRICE BID FOR THE "CONTAINMENT" ITEM.

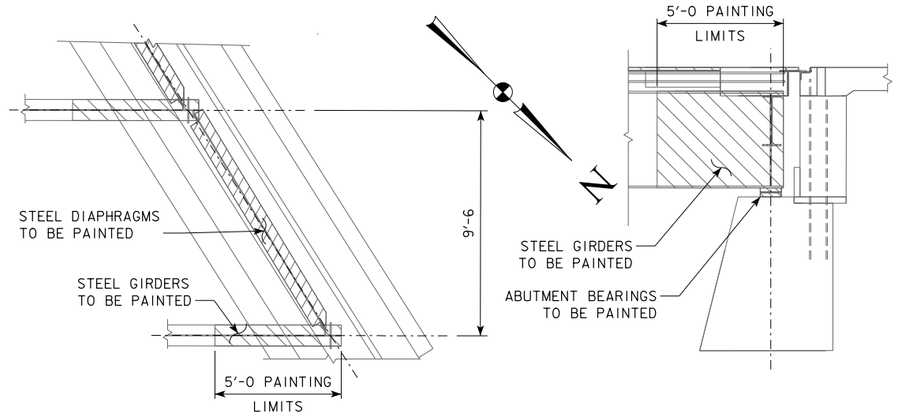
LABORATORY ANALYSIS HAS IDENTIFIED ASBESTOS AT THIS SITE. 8 SQUARE FEET OF ASBESTOS EXISTS IN THE EXPANSION PAD ON THE OUTSIDE CORNERS OF THE WEST ABUTMENT AND THE BRIDGE DECK. ASBESTOS REMOVAL IS NOT ANTICIPATED AS PART OF THIS PROJECT. CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO PROTECT AGAINST ASBESTOS DUST AND CONTAMINATION.

THE CONTRACTOR SHALL CLEAN EXISTING REINFORCEMENT BARS INCORPORATED IN THE NEW WORK TO ENSURE THAT REINFORCEMENT IS FREE FROM DIRT, DETRIMENTAL SCALE, RUST, PAINT, OIL, OR OTHER FOREIGN SUBSTANCES.

MECHANICAL COUPLERS ARE CONSIDERED INCIDENTAL TO THE BID ITEM "REINFORCING STEEL, EPOXY COATED".

DESIGN STRESSES:

DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE IN ACCORDANCE WITH THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SERIES OF 2002.
REINFORCING STEEL IN ACCORDANCE WITH SECTION 8, GRADE 60.
CONCRETE IN ACCORDANCE WITH SECTION 8, f'c = 4.0 KSI.
STRUCTURAL STEEL IN ACCORDANCE WITH SECTION 10 ASTM A709 GRADE 36, AND GRADE 50 (AASHTO M270 GRADE 36 AND GRADE 50).



PAINT LIMIT DETAILS

(WEST ABUTMENT ONLY)

THE CONTRACTOR SHALL SUBMIT DETAILS FOR PROPOSED TEMPORARY DECK SHORING AND BRACKETS TO THE OFFICE OF BRIDGES AND STRUCTURES. THE DETAILS SHALL INCLUDE THE MAXIMUM FINISHING MACHINE LOAD, THE ANGLE OF THE DIAGONAL MEMBER OF THE OVERHANG BRACKETS, ANY ASSUMPTIONS AND ANY OTHER CONSTRUCTION LOADINGS. IT WILL BE NECESSARY TO SUPPORT THE DECK ALONG THE CONCRETE BREAK LINE TO LIMIT SLAB DEFLECTION. ALL DETAILS SHALL BE DESIGNED AND SEALED BY PROFESSIONAL ENGINEER CURRENTLY REGISTERED IN THE STATE OF IOWA. ALL COSTS FOR TEMPORARY DECK SHORING SUBMITTAL, MATERIAL, EQUIPMENT AND LABOR TO INSTALL THE DECK SHORING SHALL BE INCLUDED IN THE LUMP SUM BID ITEM "TEMPORARY SHORING".

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).

HEAVY CONSTRUCTION EQUIPMENT WILL NOT BE ALLOWED ON THE BRIDGE DURING CONSTRUCTION UNLESS PRIOR WRITTEN APPROVAL OF THE ENGINEER IS OBTAINED. APPROVAL SHALL BE OBTAINED BY SUBMITTING A WRITTEN REQUEST TO THE ENGINEER. THIS REQUEST SHALL INCLUDE THE FOLLOWING:

1. A DETAILED PLAN ADEQUATELY DESCRIBING THE EQUIPMENT AND HOW IT IS PROPOSED TO BE USED. THIS PLAN SHALL CONTAIN, AS A MINIMUM, THE FOLLOWING INFORMATION:
   A. THE CONFIGURATION AND WEIGHT OF THE EQUIPMENT PROPOSED TO BE PLACED ON THE BRIDGE.
   B. THE PROPOSED LOCATION(S) OF THE EQUIPMENT ON THE BRIDGE DURING ALL LIFTING OPERATIONS.
   C. THE WEIGHT OF ALL PROPOSED LIFTS TO BE MADE BY THE EQUIPMENT.
   D. THE LOAD TO ALL WHEELS/AXLES/OUTRIGGERS/CRAWLERS RESULTING FROM THE PROPOSED LIFTING OPERATIONS, DURING ALL CRITICAL PHASES OF THE LIFTING OPERATIONS.
2. THE NECESSARY CALCULATIONS TO VERIFY THAT NO COMPONENT OF THE BRIDGE WILL BE OVERSTRESSED DURING THE PROPOSED USE OF THE EQUIPMENT ON THE BRIDGE. THE CALCULATIONS SHALL BE CERTIFIED BY A PROFESSIONAL ENGINEER CURRENTLY LICENSED TO PRACTICE ENGINEERING IN THE STATE OF IOWA.

TRAFFIC CONTROL PLAN

THE BRIDGE WILL BE CLOSED BUT TRAFFIC WILL BE MAINTAINED THRU THE PROJECT. REFER TO THE TRAFFIC CONTROL PLAN ON THE ROAD PLAN IN THESE PLANS.

LOCATION:

S.B. I-29 OVER ALLEN CREEK
T-78 N R-44 W
SECTION 8
ST. JOHNS TWP.
HARRISON COUNTY
FHWA NO. 028160
MAINT. NO. 4377.6L029
LONGITUDE -95.928363°
LATITUDE 41.574064°

DESIGN HISTORY AT THIS SITE

DES. NO.	TYPE OF WORK
565	ORIGINAL DESIGN
590	OVERLAY & RETROFIT RAIL
215	REHABILITATION

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

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

47'-3 END SPANS 60'-6 INTERIOR SPAN

GENERAL NOTES

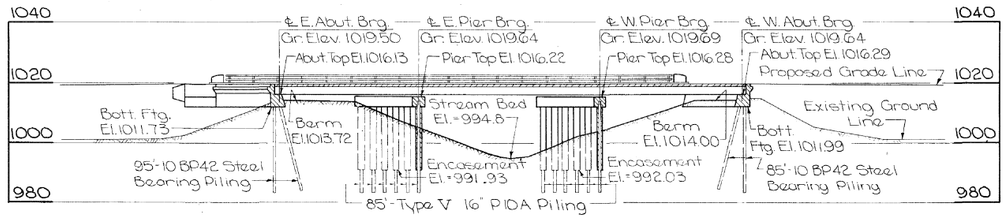
STATION: 1187+71.90 JANUARY, 2019

HARRISON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

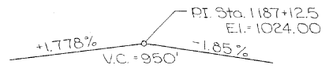
DESIGN SHEET NO. 2 OF 13 FILE NO. 31135 DESIGN NO. 215

DESIGN TEAM AMA / JSZ / RDM / DRE | HARRISON COUNTY | PROJECT NUMBER IMX-029-5(245)77--02-43 | SHEET NUMBER V.2



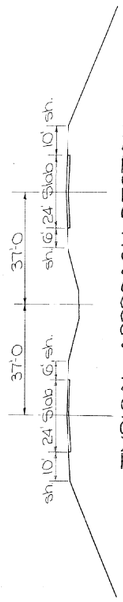
LONGITUDINAL SECTION ALONG ℄ ROADWAY

~~BENCH MARK: "96A Station 1187+85.5 Iron Pin on Dike, 150' Right Elev. = 1014.84~~

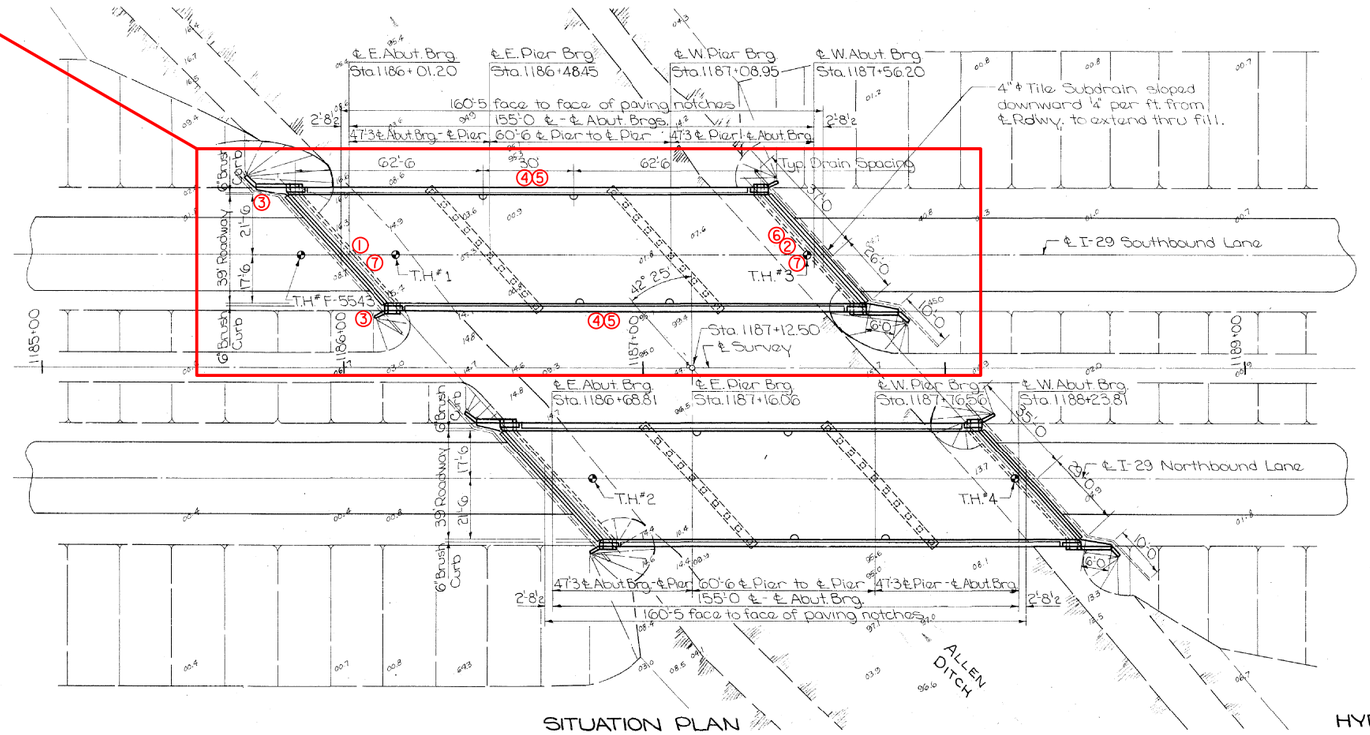


VERTICAL CURVE DATA

PROJECT LOCATION

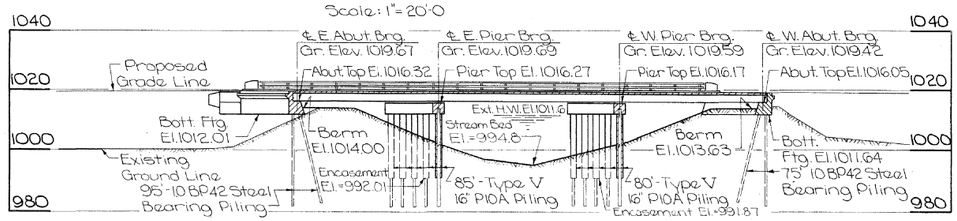


TYPICAL APPROACH SECTION



SITUATION PLAN

Scale: 1" = 20'-0



LONGITUDINAL SECTION ALONG ℄ ROADWAY

LOCATION:
St. Johns Twp.
T-78-N R-44-W
Section 8
Harrison County
I-29 over Allen Ditch

HYDRAULIC DATA:
Drainage Area = 64 sq. mi.

DESIGN NO. 565
FILE NO. 20676
DES. SH. NO. 1 OF 10

Design for 42° 25' Skew
DUAL 155'-0 x 39 CONT. I-BEAM BRIDGE
47'-3 End Spans 60'-6 Interior Span
SITUATION PLAN
Station 1187+12.50 August, 1966
HARRISON COUNTY
IOWA STATE HIGHWAY COMMISSION

Designed By: J.H Traced By: RM Checked By: WAL

HARRISON COUNTY

PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
I-IG-29-5(17)78--04-43	IOWA	5		3	13

NOTE:
REFER TO ROAD DESIGN SHEETS IN THESE PLANS FOR EXISTING GUARDRAIL DETAILS.

THIS SHEET FROM ORIGINAL DESIGN PLANS IS INCLUDED FOR INFORMATION ONLY.

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

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

47'-3 END SPANS 60'-6 INTERIOR SPAN

SITUATION PLAN

STATION: 1187+71.90 JANUARY, 2019

HARRISON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 3 OF 13 FILE NO. 31135 DESIGN NO. 215

DESIGN TEAM AMA / JSZ / RDM / DRE | HARRISON COUNTY | PROJECT NUMBER IMX-029-5(245)77--02-43 | SHEET NUMBER V.3

12/4/2018 12:45:19 PM jzimmer pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\4302901015\BRFinal\43029245.brg 430215S003P 11x17_pdf.pltcfg

NOTES:

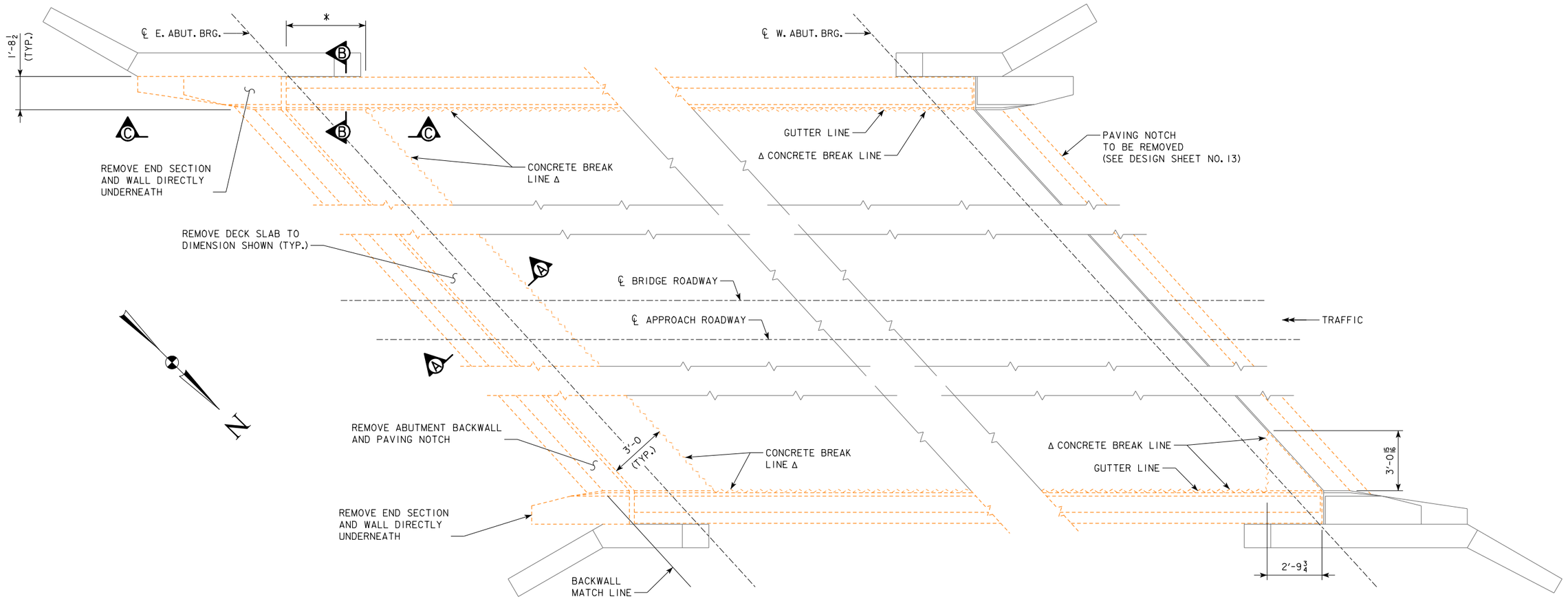
SEE DESIGN SHEET NO. 5 FOR SECTIONS A-A, B-B AND C-C AND ADDITIONAL REMOVAL NOTES.

EXISITNG #7 LONGITUDINAL AND TRANVERSE REINFORCING BARS EXPOSED DURING CONCRETE REMOVAL OPERATIONS, BUT STILL EMBEDDED IN THE DECK SHALL BE CLEANED AND INCORPORATED INTO NEW WORK, UNLESS NOTED OTHERWISE IN THE PLAN.

* ALL LOOSE TRANVERSE DECK BARS IN THE DECK OVERHANG CORNER SHALL BE CLEANED AND INCORPORATED INTO NEW WORK.

Δ TEMPORARY DECK SHORING NOTES:

THE CONTRACTOR SHALL PROVIDE TEMPORARY SHORING TO LIMIT VERTICAL SLAB DEFLECTION TO $\frac{1}{8}$" AT THE CONCRETE BREAK LINES. REFER TO THE GENERAL NOTES, DESIGN SHEET NO. 2 FOR ADDITIONAL REQUIREMENTS.



PART PLAN VIEW FOR REMOVAL

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

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

47'-3 END SPANS — 60'-6 INTERIOR SPAN

REMOVAL DETAILS

STATION: 1187+71.90 — JANUARY, 2019

HARRISON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 4 OF 13 — FILE NO. 31135 — DESIGN NO. 215

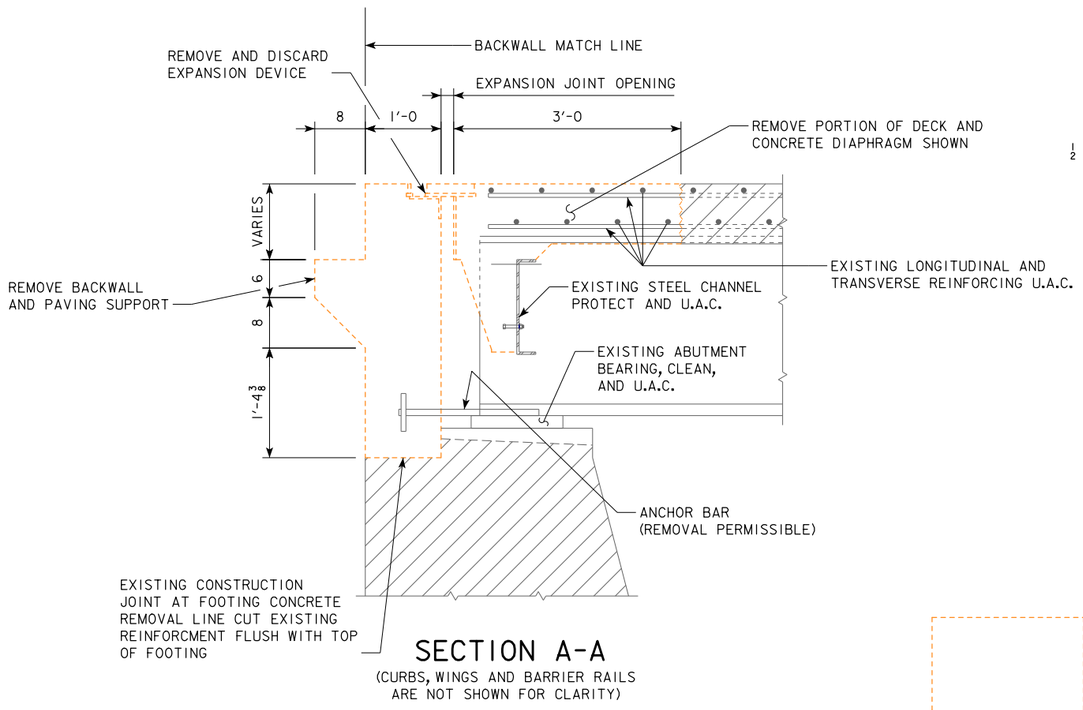
DESIGN TEAM AMA / JSZ / RDM / DRE	HARRISON COUNTY	PROJECT NUMBER IMX-029-5(245)77--02-43	SHEET NUMBER V.4

NOTES:

SEE DESIGN SHEET NO. 4 FOR LOCATION OF SECTIONS A-A, B-B AND C-C.

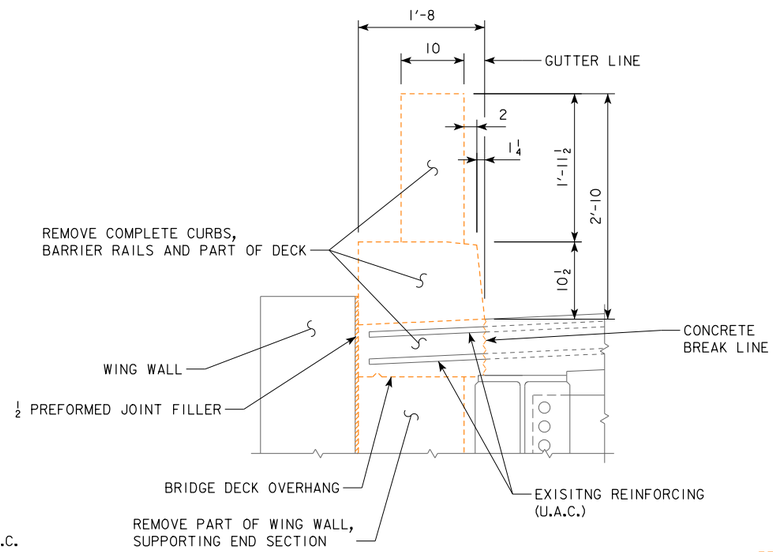
LOOSE REINFORCING BARS THAT ARE NOT SHOWN IN THE CONCRETE REMOVAL SECTIONS A-A, B-B, C-C AND D-D CAN BE REMOVED WITH THE CONCRETE, UNLESS OTHERWISE NOTED OR SHOWN ON DESIGN SHEET NO. 4.

ALL REINFORCING BARS THAT ARE DESIGNATED U.A.C. SHALL BE CLEANED AND INCORPORATED INTO NEW WORK.

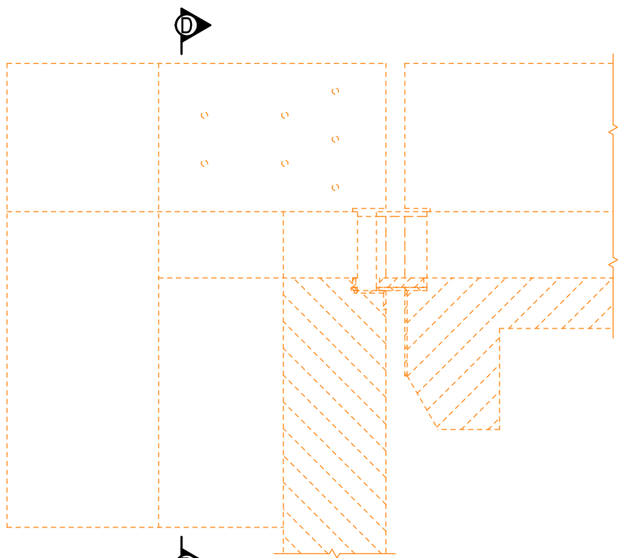


SECTION A-A

(CURBS, WINGS AND BARRIER RAILS ARE NOT SHOWN FOR CLARITY)

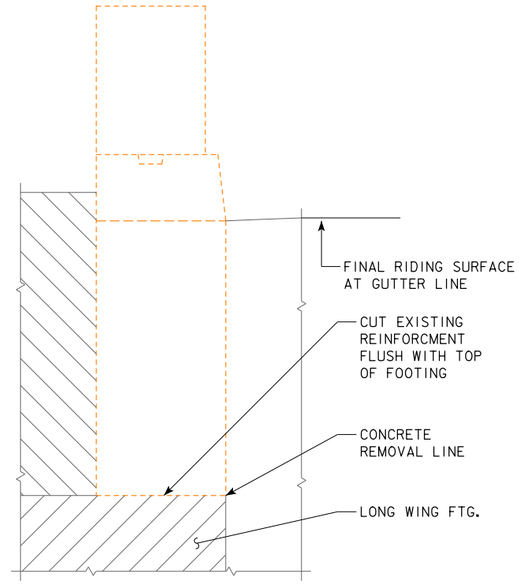


SECTION B-B



SECTION C-C

(WINGS DETAIL)



SECTION D-D

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

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

47'-3 END SPANS — 60'-6 INTERIOR SPAN

REMOVAL DETAILS

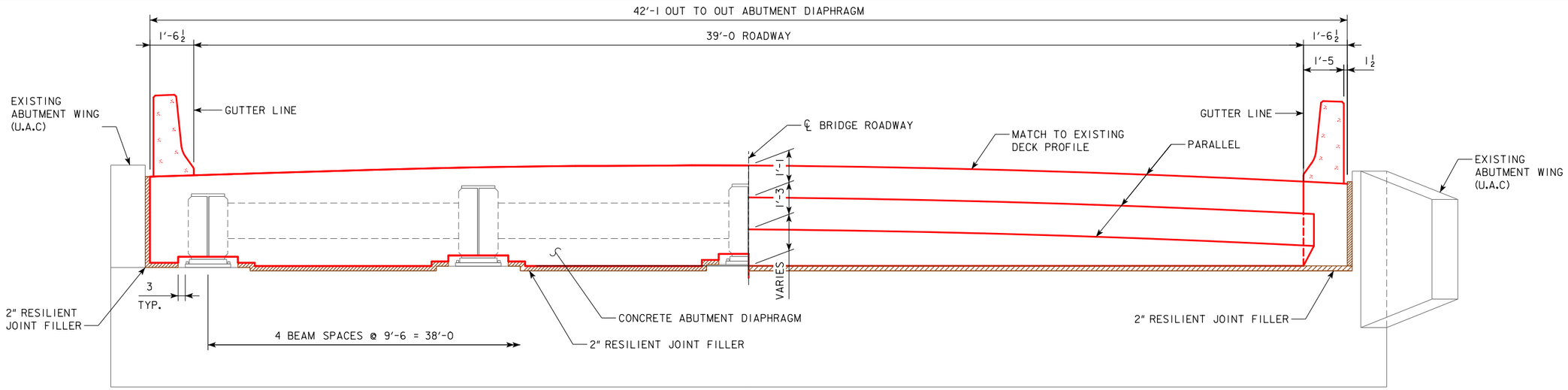
STATION: 1187+71.90 — JANUARY, 2019

HARRISON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

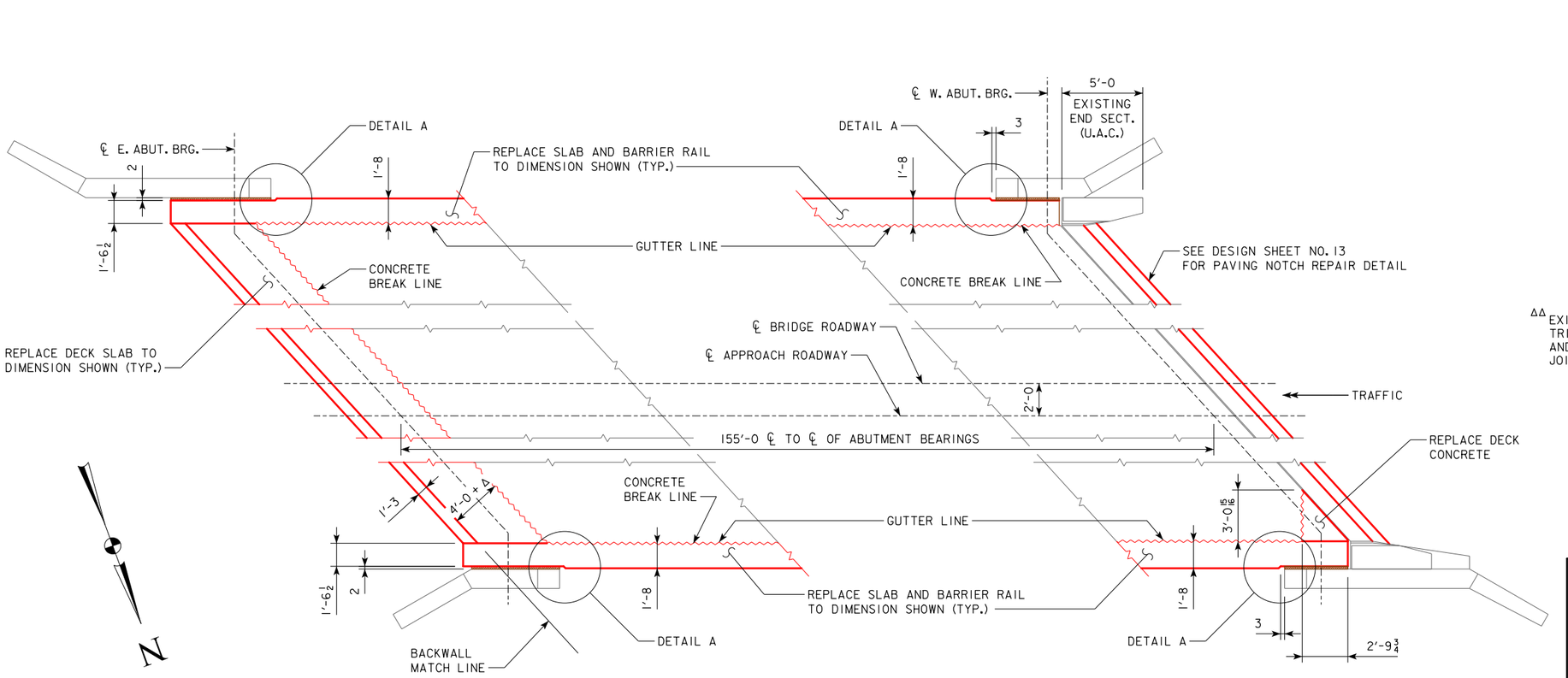
DESIGN SHEET NO. 5 OF 13 — FILE NO. 31135 — DESIGN NO. 215

DESIGN TEAM AMA / JSZ / RDM / DRE | HARRISON COUNTY | PROJECT NUMBER IMX-029-5(245)77--02-43 | SHEET NUMBER V.5



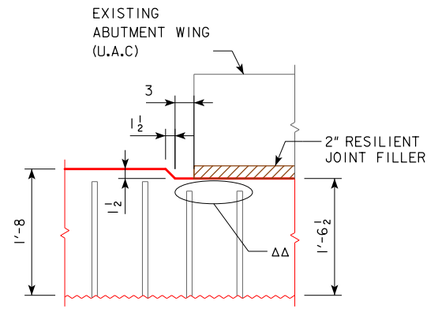
PART SECTION NEAR EAST ABUTMENT

REAR ELEVATION EAST ABUTMENT



PLAN VIEW FOR REPAIR

Δ = EXISTING EXPANSION JOINT OPENING MEASURED PRIOR TO REMOVALS



DETAIL A

(FOUR SIDES SIMILAR)

ΔΔ EXISTING REINFORCEMENT MIGHT NEED TO BE TRIMMED TO ALLOW FOR 2" OF CLEAR COVER AND THE INSTALLATION OF THE 2" RESILIENT JOINT FILLER NEAR THE ABUTMENTS.

NOTES:

"BACKWALL MATCH LINE" SHALL MATCH THE BACK FACE OF THE EXISTING FOOTING.

SEE NOTE ON DESIGN SHEET NO. 9 FOR DECK REINFORCEMENT THAT IS REQUIRED TO BE REPLACED

SEE DESIGN SHEET NO. 7 - 11 FOR CONCRETE REINFORCEMENT DETAILS FOR THE REPAIRS.

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

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

47'-3 END SPANS 60'-6 INTERIOR SPAN

REPAIR DETAILS

STATION: 1187+71.90 JANUARY, 2019

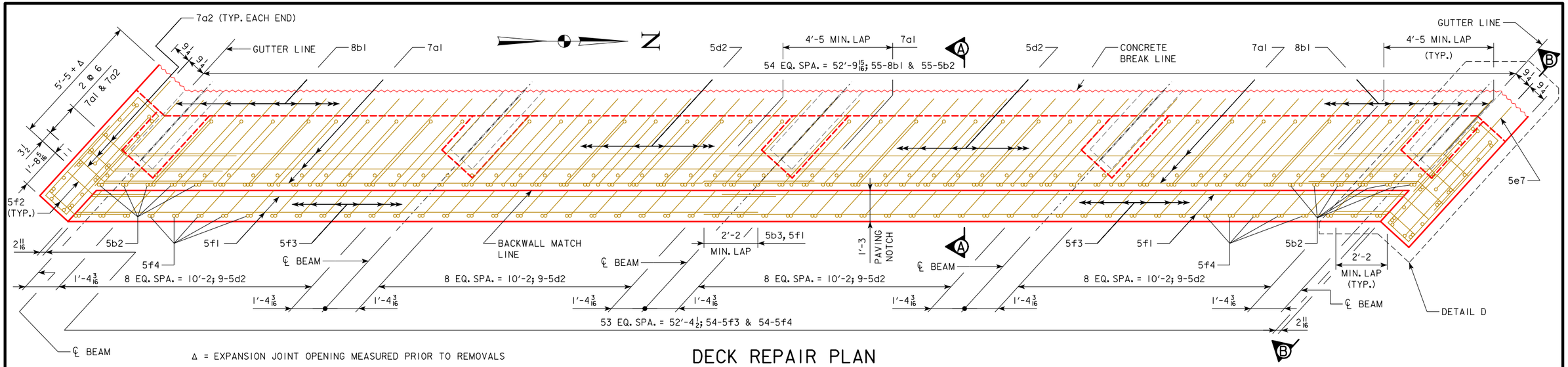
HARRISON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 6 OF 13 FILE NO. 31135 DESIGN NO. 215

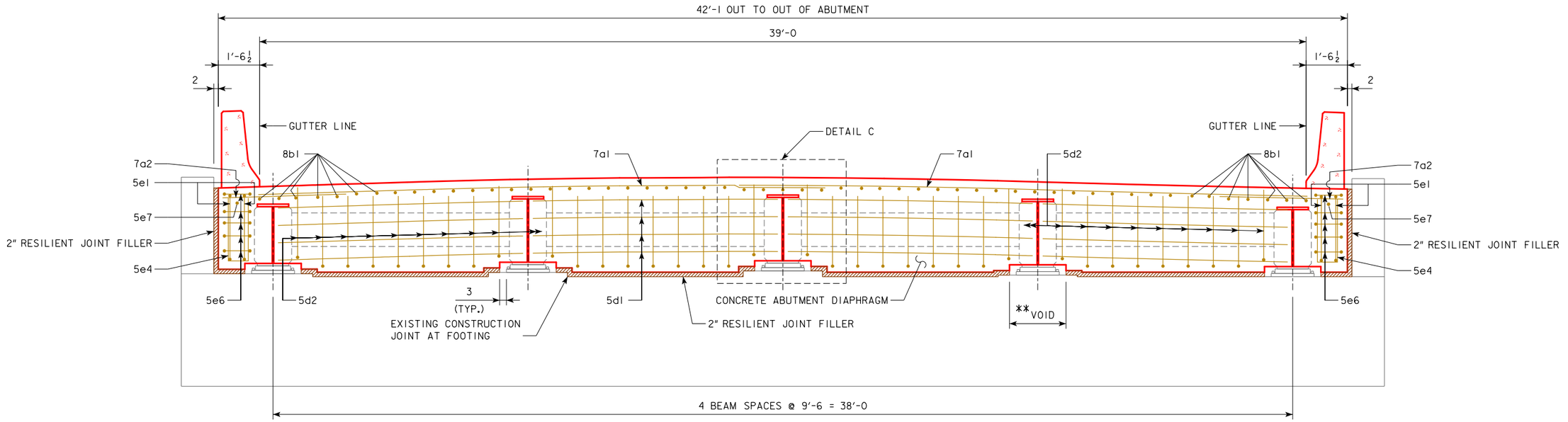
DESIGN TEAM AMA / JSZ / RDM / DRE | HARRISON COUNTY | PROJECT NUMBER IMX-029-5(245)77--02-43 | SHEET NUMBER V.6

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DECK REPAIR PLAN

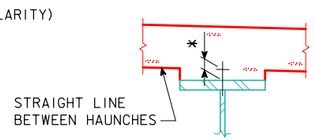
(EXISTING DECK REINFORCING NOT SHOWN FOR CLARITY)



SECTION NEAR EAST ABUTMENT

(LOOKING EAST)
(EXISTING DECK REINFORCING NOT SHOWN FOR CLARITY)

** NOTE:
A CONCRETE VOID WITH MINIMUM OF 3" CLEAR AROUND PERIMETER OF THE BEARINGS.



TYP. DECK & HAUNCH DETAIL

* MATCH EXISTING HAUNCH, DECK THICKNESS AND SLOPE

NOTE: DETAILS FOR SECTION A-A, SECTION B-B, DETAIL C AND DETAIL D ARE SHOWN ON DESIGN SHEET NO. 8.

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

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

47'-3 END SPANS — 60'-6 INTERIOR SPAN

EAST ABUTMENT DETAILS

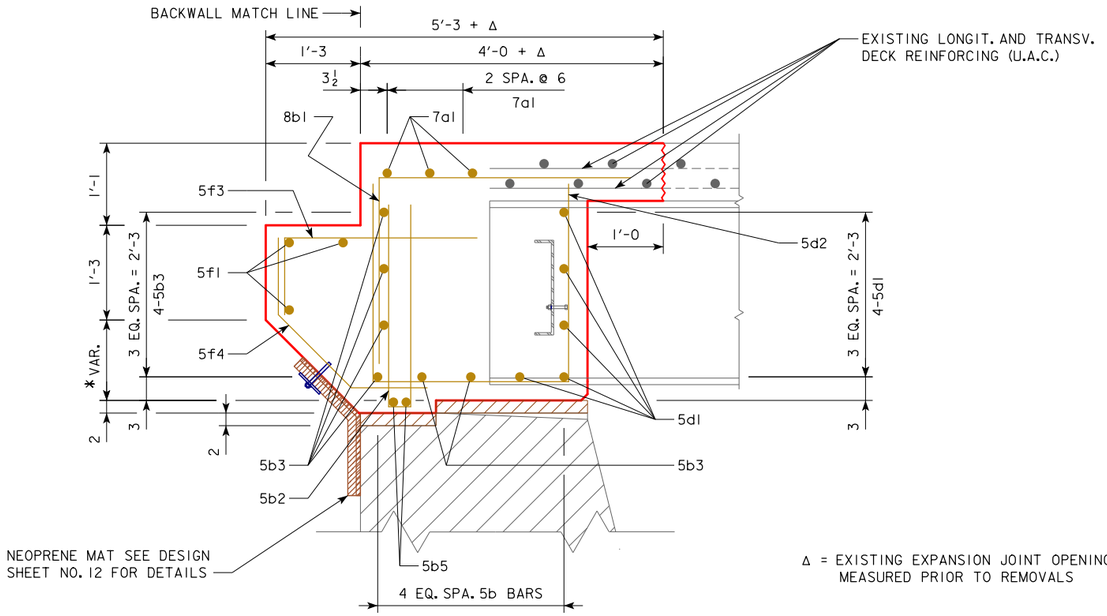
STATION: 1187+71.90 — JANUARY, 2019

HARRISON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 7 OF 13 — FILE NO. 31135 — DESIGN NO. 215

DESIGN TEAM	AMA / JSZ / RDM / DRE	HARRISON COUNTY	PROJECT NUMBER	IMX-029-5(245)77--02-43	SHEET NUMBER	V.7



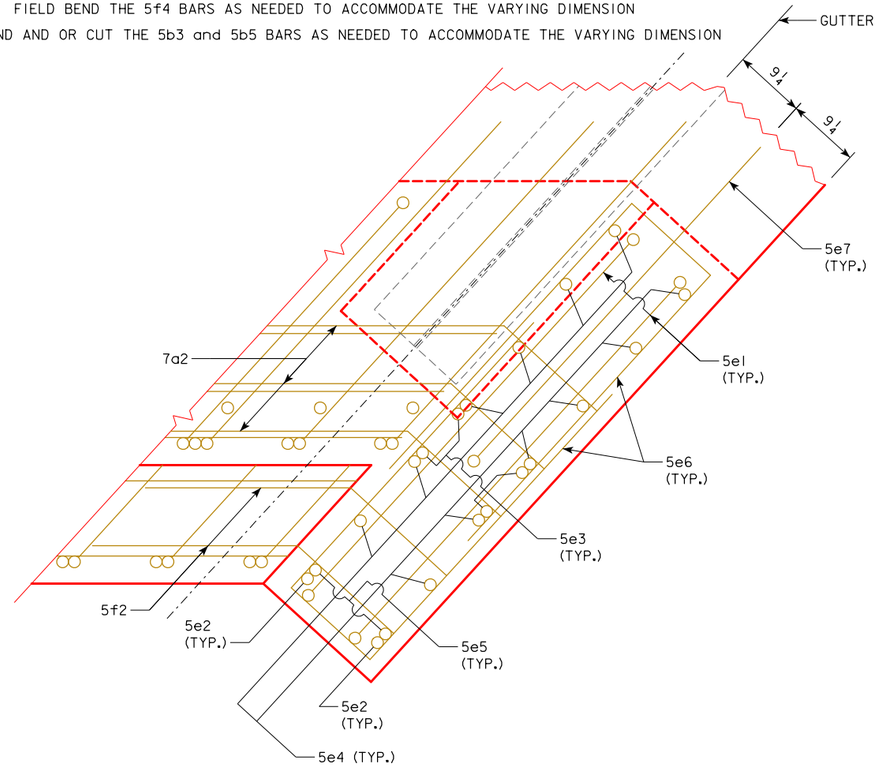
Δ = EXISTING EXPANSION JOINT OPENING MEASURED PRIOR TO REMOVALS

SECTION A-A

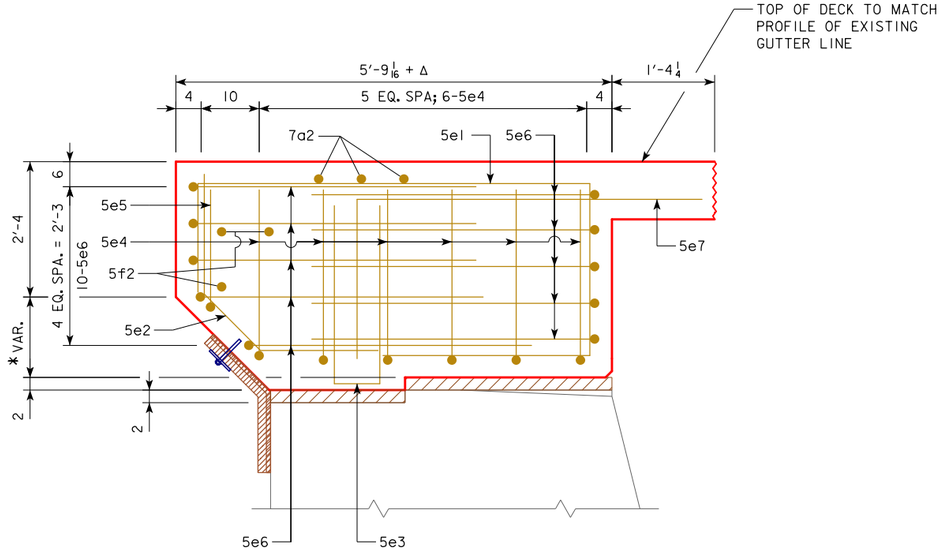
* THIS DIMENSION WILL VARY ALONG THE ABUTMENT

FIELD BEND THE 5f4 BARS AS NEEDED TO ACCOMMODATE THE VARYING DIMENSION

FIELD BEND AND OR CUT THE 5b3 and 5b5 BARS AS NEEDED TO ACCOMMODATE THE VARYING DIMENSION



DETAIL D

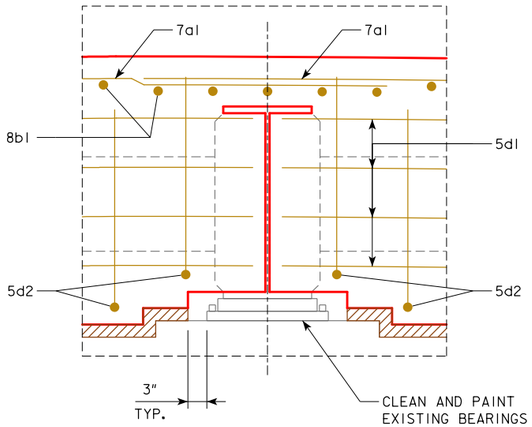


SECTION B-B

EXISTING DECK REINFORCEMENT NOT SHOWN FOR CLARITY

* THIS DIMENSION WILL VARY ALONG THE ABUTMENT

FIELD BEND THE 5e2 BARS AS NEEDED TO ACCOMMODATE THE VARYING DIMENSION



DETAIL C

NOTE: LOCATIONS FOR SECTION A-A, SECTION B-B, DETAIL C AND DETAIL D ARE SHOWN ON DESIGN SHEET NO. 7.

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

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

47'-3 END SPANS 60'-6 INTERIOR SPAN

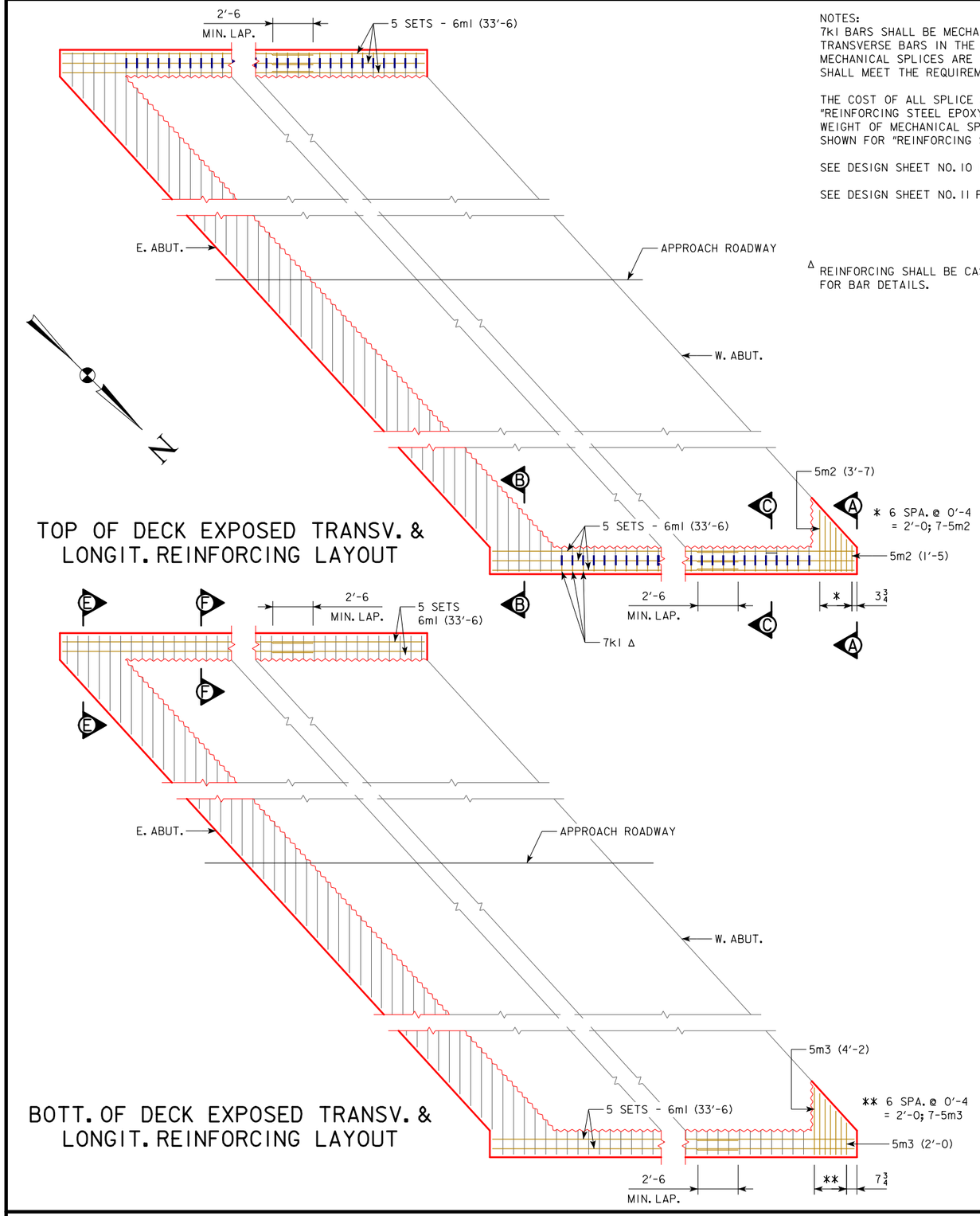
EAST ABUTMENT DETAILS

STATION: 1187+71.90 JANUARY, 2019

HARRISON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 8 OF 13 FILE NO. 31135 DESIGN NO. 215



TOP OF DECK EXPOSED TRANSV. & LONGIT. REINFORCING LAYOUT

BOTT. OF DECK EXPOSED TRANSV. & LONGIT. REINFORCING LAYOUT

NOTES:
7k1 BARS SHALL BE MECHANICALLY SPLICED WITH THE TOP EXISTING #7 TRANSVERSE BARS IN THE DECK OVERHANGS. IT IS ESTIMATED 460 EPOXY COATED MECHANICAL SPLICES ARE NECESSARY. THE EPOXY COATED MECHANICAL SPLICES SHALL MEET THE REQUIREMENTS OF MATERIALS IM 451 APPENDIX E.

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

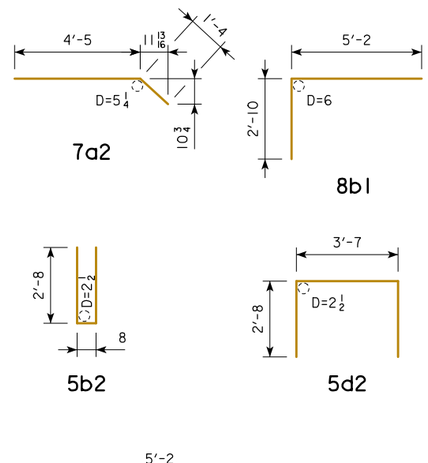
SEE DESIGN SHEET NO. 10 FOR SECTIONS A-A, B-B, AND C-C.

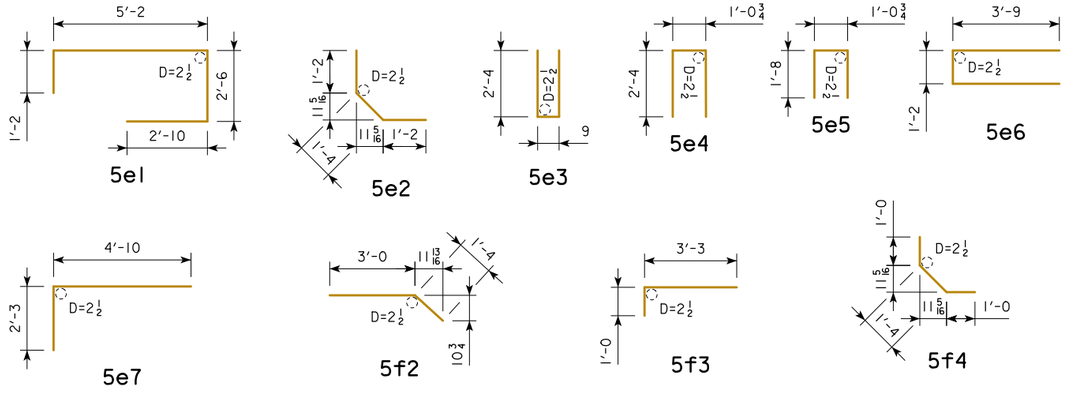
SEE DESIGN SHEET NO. 11 FOR SECTIONS E-E AND F-F.

Δ REINFORCING SHALL BE CAST WITH DECK CONCRETE - SEE DESIGN SHEETS 10 AND 11 FOR BAR DETAILS.

EPOXY COATED REINF. STEEL - SUPERSTRUCTURE

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
7a1	DECK, TRANSV., TOP		6	28'-9	353
7a2	DECK, TRANSV., TOP, ENDS		6	5'-9	71
8b1	DECK, LONGT.		55	8'-0	1175
5b2	ABUT., BACKWALL, VERT., TIES		55	6'-0	344
5b3	ABUT., TRANSV., B.F.		12	27'-5	343
5b5	ABUT., TRANSV., BOTT.		6	19'-0	119
5d1	ABUT., DIAPH., TRANSV., F.F.		20	12'-5	259
5d2	ABUT., DIAPH., TIES		36	8'-11	335
5e1	ABUT., ENDS, TIES, TOP		4	11'-8	49
5e2	ABUT., ENDS, BOTT.		4	3'-8	15
5e3	ABUT., ENDS, BACKWALL, VERT., TIES		4	5'-5	23
5e4	ABUT., ENDS, VERT., TIES		12	5'-9	72
5e5	ABUT., ENDS, VERT., TIES		4	4'-5	18
5e6	ABUT., ENDS, LONGIT., TIES		20	8'-8	181
5e7	ABUT., ENDS, LONGIT.		2	7'-1	15
5f1	PAVING NOTCH, TRANSV., TOP & BOTT.		6	27'-5	172
5f2	PAVING NOTCH, TRANSV., TOP & BOTT., ENDS		6	4'-4	27
5f3	PAVING NOTCH, LONGIT.		54	4'-3	239
5f4	PAVING NOTCH, BOTT.		54	3'-4	188
6m1	DECK, LONGIT., TOP & BOTT.		50	33'-6	2516
5m2	DECK, TRANSV., TOP		7	VARIES	18
5m3	DECK, TRANSV., BOTTOM		7	VARIES	23
			EPOXY REINF. TOTAL WEIGHT (LBS.)		6,555





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

BENT BAR DETAILS

NOTES:
ANY STEEL REINFORCEMENT BARS DAMAGED OR DEBONDED FROM CONCRETE DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND REPLACED AT NO EXTRA COST TO THE STATE.

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

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

47'-3 END SPANS 60'-6 INTERIOR SPAN

REINFORCEMENT DETAILS

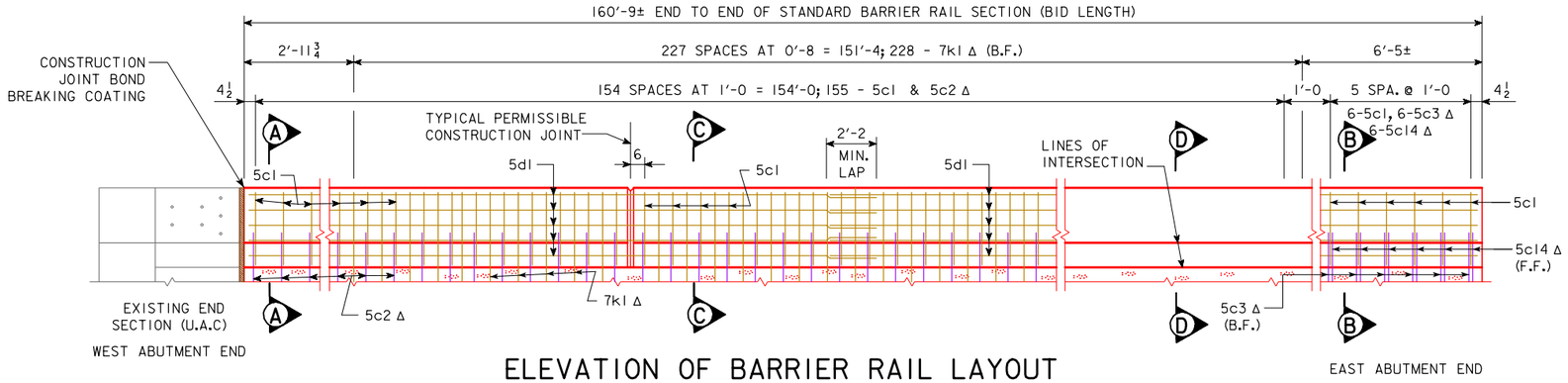
STATION: 1187+71.90 JANUARY, 2019

HARRISON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

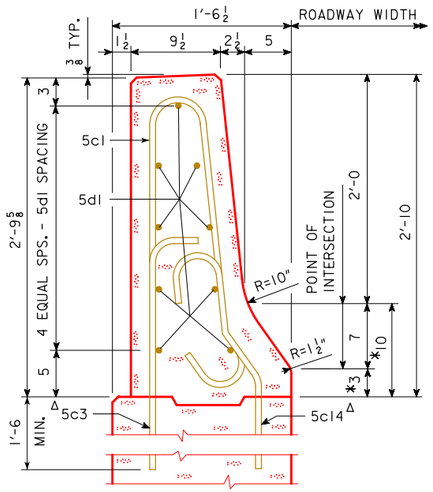
DESIGN SHEET NO. 9 OF 13 FILE NO. 31135 DESIGN NO. 215

DESIGN TEAM AMA / JSZ / RDM / DRE | HARRISON COUNTY | PROJECT NUMBER IMX-029-5(245)77--02-43 | SHEET NUMBER V.9

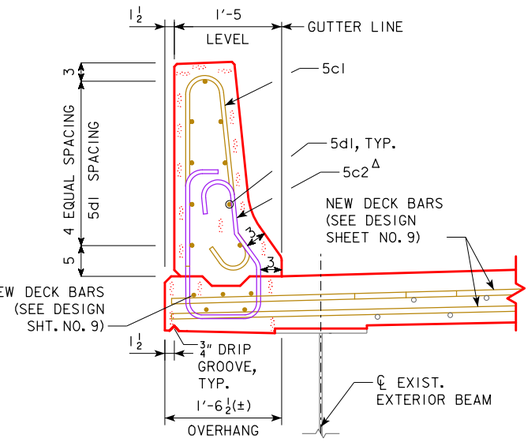


ELEVATION OF BARRIER RAIL LAYOUT

(NORTH RAIL SHOWN - LOOKING NORTH)

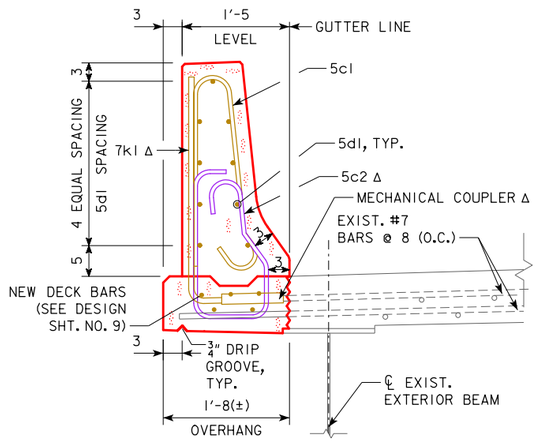


PART SECTION B-B



SECTION A-A

(N.W. CORNER ONLY)



SECTION C-C

(TYPICAL OVERHANG)

BARRIER RAIL NOTES:

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

THE PERMISSIBLE CONSTRUCTION JOINTS ARE TO BE PLACED BETWEEN VERTICAL BARS AT A MINIMUM SPACING OF 20 FEET. CONSTRUCTION JOINT CONTACT SURFACES ARE TO BE COATED WITH AN APPROVED BOND BREAKER.

COST OF THE JOINT SEALER AND BOND BREAKER SHALL BE CONSIDERED INCIDENTAL TO OTHER CONSTRUCTION.

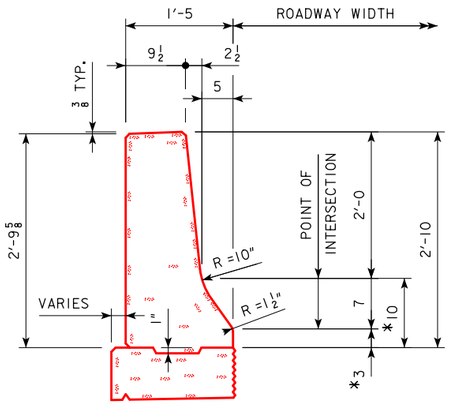
ALL BARRIER RAIL REINFORCING STEEL IS TO BE EITHER EPOXY COATED OR STAINLESS STEEL AS SHOWN. THE STAINLESS STEEL REINFORCING STEEL SHALL BE DEFORMED BAR GRADE 60 MEETING THE REQUIREMENTS OF MATERIALS I.M. 452.

THE CONCRETE BARRIER RAIL IS TO BE BID ON A LINEAL FOOT BASIS. THE NUMBER OF LINEAL FEET OF BARRIER RAIL INSTALLED WILL BE PAID FOR AT THE CONTRACT PRICE PER LINEAL FOOT BASED ON PLAN QUANTITIES. PRICE BID FOR CONCRETE BARRIER RAILING SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIAL, EXCLUDING REINFORCING STEEL, AND ALL OF THE EQUIPMENT AND LABOR REQUIRED TO ERECT THE RAIL IN ACCORDANCE WITH THESE PLANS AND CURRENT SPECIFICATIONS. IF CONDUIT IS REQUIRED IN THIS PLAN THE RIGID STEEL CONDUIT, JUNCTION BOXES AND FITTINGS INCLUDING LABOR AND ANY ADDITIONAL WORK TO DO THE INSTALLATION IS CONSIDERED INCIDENTAL TO THE COST OF THE RAILING.

THE JOINT SEALER SHALL BE LIGHT GRAY NONSAG LATEX CAULKING SEALER MARKETED FOR OUTDOOR USE. NO TESTING OR CERTIFICATION IS REQUIRED.

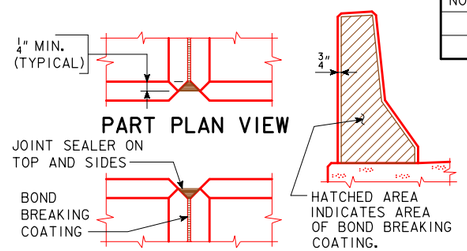
TOP OF THE BARRIER RAIL IS TO BE PARALLEL TO THE THEORETICAL ℄ GRADE.

CROSS SECTIONAL AREA OF THE STANDARD SECTION OF THE BARRIER RAIL = 2.84 SQUARE FEET.



SECTION D-D

*DENOTES THE MAXIMUM VALUE FOR THIS DIMENSION. THIS DIMENSION MAY VARY DUE TO CONSTRUCTION INACCURACIES.



PART PLAN VIEW

PART ELEVATION VIEW

BARRIER RAIL JOINT DETAILS

EPOXY COATED REINF. STEEL - ONE RAIL

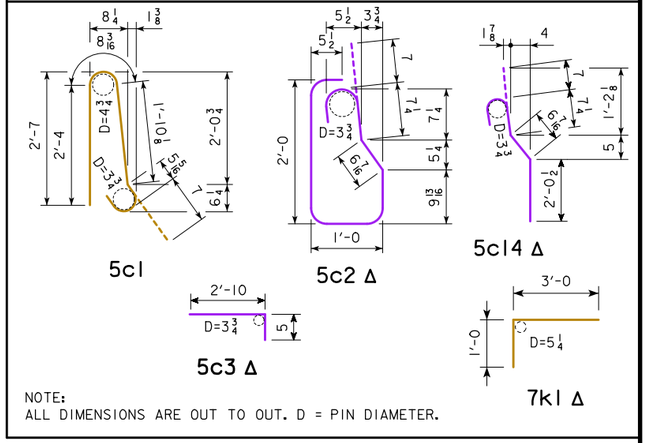
SECTION	BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
STANDARD SECTIONS	5c1	RAIL, VERTICAL		161	5'-11	994
	5d1	RAIL, LONGITUDINAL		54	28'-8	1615
	7k1 Δ	BARRIER, DECK, CONNECTOR		228	4'-0	1864
			EPOXY STEEL TOTAL (LBS.)			4473

STAINLESS STEEL REINF. STEEL - ONE RAIL

SECTION	BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
STANDARD SECTIONS	5c2 Δ	RAIL, VERTICAL		155	6'-0	970
	5c3 Δ	RAIL, VERTICAL, B.F.		6	3'-3	20
	5c14 Δ	RAIL, VERTICAL, F.F.		6	3'-10	24
			STAINLESS STEEL TOTAL (LBS.)			1014

Δ REINFORCING SHALL BE CAST WITH THE DECK CONCRETE AS SHOWN ON DESIGN SHEETS 6, 7, 8 AND 9.

BENT BAR DETAILS



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

CONCRETE PLACEMENT SUMMARY

SECTION		TOTAL
STANDARD SECTION	160'-9 @ 0.1052 CU.YD. PER FT.	16.9
	TOTAL (CU. YD.)	16.9

CONCRETE BARRIER RAIL QUANTITIES

ITEM	UNIT	QUANTITY
NORTH CONCRETE BARRIER RAILING	L.F.	160.8
TOTAL	L.F.	160.8

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

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

47'-3 END SPANS — 60'-6 INTERIOR SPAN

NORTH BARRIER RAIL DETAILS

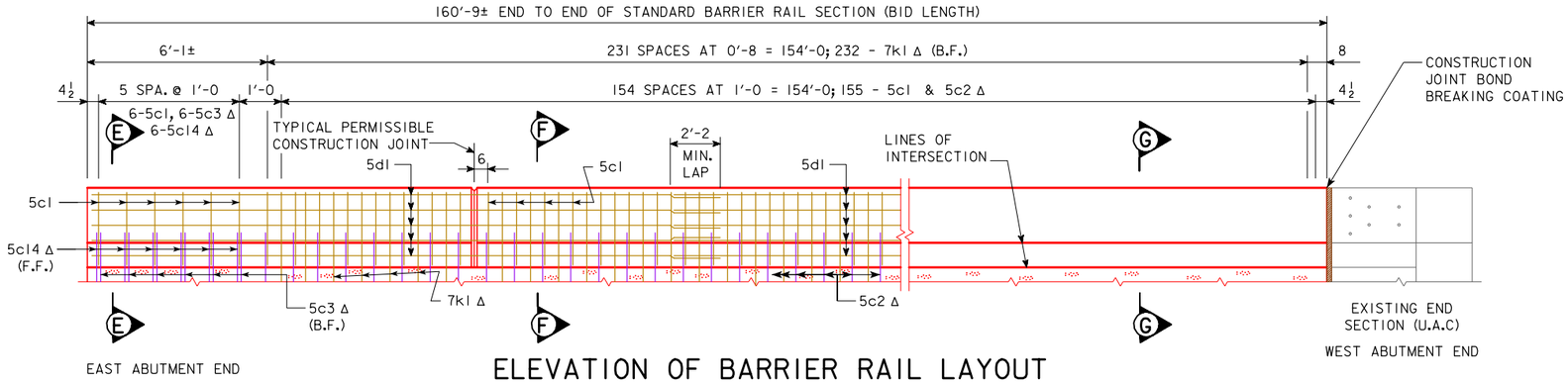
STATION: 1187+71.90 — JANUARY, 2019

HARRISON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

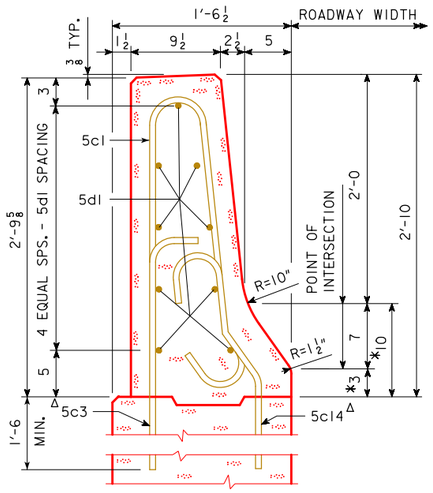
DESIGN SHEET NO. 10 OF 13 — FILE NO. 31135 — DESIGN NO. 215

DESIGN TEAM AMA / JSZ / RDM / DRE | HARRISON COUNTY | PROJECT NUMBER IMX-029-5(245)77--02-43 | SHEET NUMBER V.10

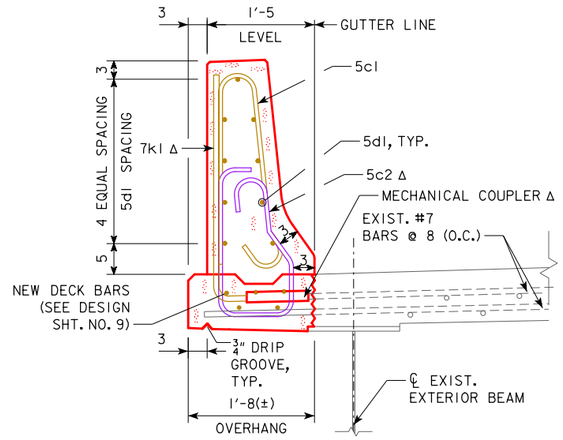


ELEVATION OF BARRIER RAIL LAYOUT

SOUTH RAIL SHOWN LOOKING SOUTH



PART SECTION E-E



SECTION F-F

(TYPICAL OVERHANG)

BARRIER RAIL NOTES:

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

THE PERMISSIBLE CONSTRUCTION JOINTS ARE TO BE PLACED BETWEEN VERTICAL BARS AT A MINIMUM SPACING OF 20 FEET. CONSTRUCTION JOINT CONTACT SURFACES ARE TO BE COATED WITH AN APPROVED BOND BREAKER.

COST OF THE JOINT SEALER AND BOND BREAKER SHALL BE CONSIDERED INCIDENTAL TO OTHER CONSTRUCTION.

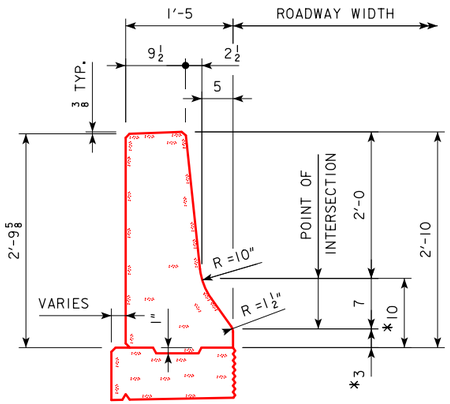
ALL BARRIER RAIL REINFORCING STEEL IS TO BE EITHER EPOXY COATED OR STAINLESS STEEL AS SHOWN. THE STAINLESS STEEL REINFORCING STEEL SHALL BE DEFORMED BAR GRADE 60 MEETING THE REQUIREMENTS OF MATERIALS I.M. 452.

THE CONCRETE BARRIER RAIL IS TO BE BID ON A LINEAL FOOT BASIS. THE NUMBER OF LINEAL FEET OF BARRIER RAIL INSTALLED WILL BE PAID FOR AT THE CONTRACT PRICE PER LINEAL FOOT BASED ON PLAN QUANTITIES. PRICE BID FOR CONCRETE BARRIER RAILING SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIAL, EXCLUDING REINFORCING STEEL, AND ALL OF THE EQUIPMENT AND LABOR REQUIRED TO ERECT THE RAIL IN ACCORDANCE WITH THESE PLANS AND CURRENT SPECIFICATIONS. IF CONDUIT IS REQUIRED IN THIS PLAN THE RIGID STEEL CONDUIT, JUNCTION BOXES AND FITTINGS INCLUDING LABOR AND ANY ADDITIONAL WORK TO DO THE INSTALLATION IS CONSIDERED INCIDENTAL TO THE COST OF THE RAILING.

THE JOINT SEALER SHALL BE LIGHT GRAY NONSAG LATEX CAULKING SEALER MARKETED FOR OUTDOOR USE. NO TESTING OR CERTIFICATION IS REQUIRED.

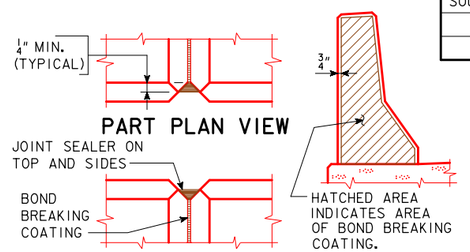
TOP OF THE BARRIER RAIL IS TO BE PARALLEL TO THE THEORETICAL ℄ GRADE.

CROSS SECTIONAL AREA OF THE STANDARD SECTION OF THE BARRIER RAIL = 2.84 SQUARE FEET.



SECTION G-G

*DENOTES THE MAXIMUM VALUE FOR THIS DIMENSION. THIS DIMENSION MAY VARY DUE TO CONSTRUCTION INACCURACIES.



BARRIER RAIL JOINT DETAILS

EPOXY COATED REINF. STEEL - ONE RAIL

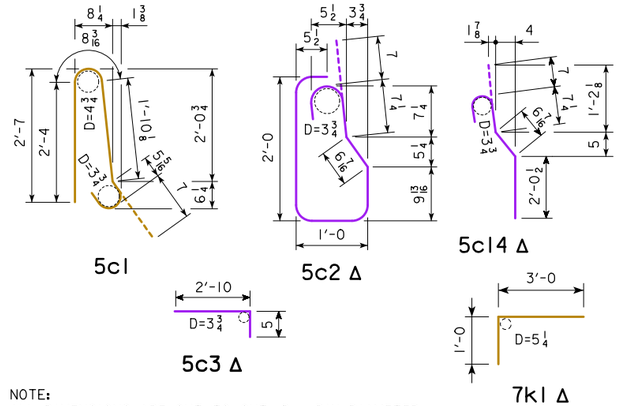
SECTION	BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
STANDARD SECTIONS	5c1	RAIL, VERTICAL		161	5'-11	994
	5d1	RAIL, LONGITUDINAL		54	28'-8	1615
	7k1 Δ	BARRIER, DECK, CONNECTOR		232	4'-0	1897
					EPOXY STEEL TOTAL (LBS.)	4506

STAINLESS STEEL REINF. STEEL - ONE RAIL

SECTION	BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
STANDARD SECTIONS	5c2 Δ	RAIL, VERTICAL		155	6'-0	970
	5c3 Δ	RAIL, VERTICAL, B.F.		6	3'-3	20
	5c14 Δ	RAIL, VERTICAL, F.F.		6	3'-10	24
					STAINLESS STEEL TOTAL (LBS.)	1014

Δ REINFORCING SHALL BE CAST WITH THE DECK CONCRETE AS SHOWN ON DESIGN SHEETS 6, 7, 8 AND 9.

BENT BAR DETAILS



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

CONCRETE PLACEMENT SUMMARY

SECTION		TOTAL
STANDARD SECTION	160'-9 @ 0.1052 CU.YD. PER FT.	16.9
	TOTAL (CU. YD.)	16.9

CONCRETE BARRIER RAIL QUANTITIES

ITEM	UNIT	QUANTITY
SOUTH CONCRETE BARRIER RAILING	L.F.	160.8
TOTAL	L.F.	160.8

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

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

47'-3 END SPANS — 60'-6 INTERIOR SPAN

SOUTH BARRIER RAIL DETAILS

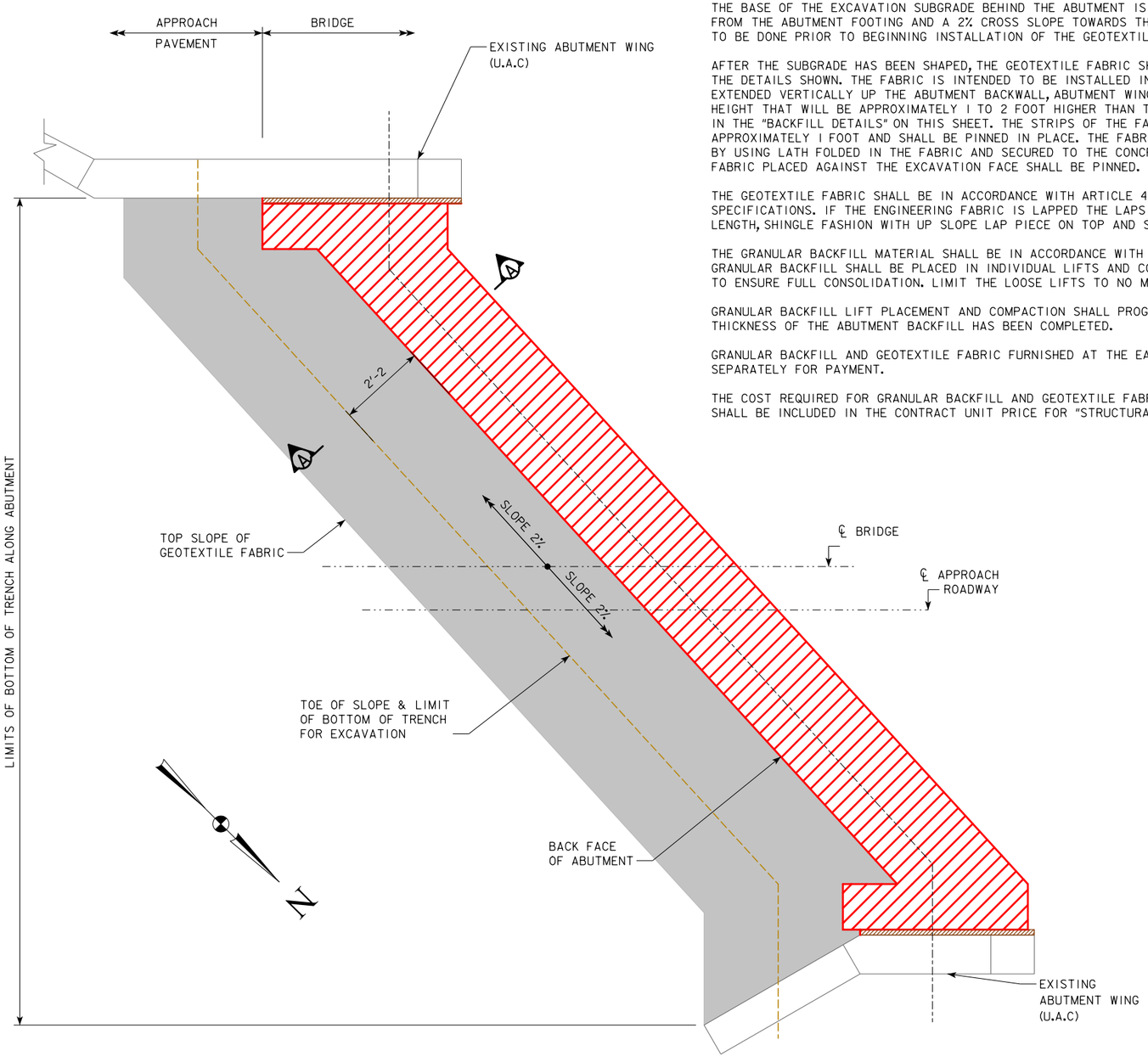
STATION: 1187+71.90 — JANUARY, 2019

HARRISON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 11 OF 13 — FILE NO. 31135 — DESIGN NO. 215

DESIGN TEAM AMA / JSZ / RDM / DRE | HARRISON COUNTY | PROJECT NUMBER IMX-029-5(245)77--02-43 | SHEET NUMBER V.11



NOTE:
SHADED AREA SHOWS LIMITS OF GEOTEXTILE FABRIC.

EAST ABUTMENT PLAN

ABUTMENT BACKFILL PROCESS:

THE BASE OF THE EXCAVATION SUBGRADE BEHIND THE ABUTMENT IS TO BE GRADED WITH A 4% SLOPE AWAY FROM THE ABUTMENT FOOTING AND A 2% CROSS SLOPE TOWARDS THE WINGS. THIS EXCAVATION SHAPING IS TO BE DONE PRIOR TO BEGINNING INSTALLATION OF THE GEOTEXTILE AND BACKFILL MATERIAL.

AFTER THE SUBGRADE HAS BEEN SHAPED, THE GEOTEXTILE FABRIC SHALL BE INSTALLED IN ACCORDANCE WITH THE DETAILS SHOWN. THE FABRIC IS INTENDED TO BE INSTALLED IN THE BASE OF THE EXCAVATION AND EXTENDED VERTICALLY UP THE ABUTMENT BACKWALL, ABUTMENT WING WALLS, AND EXCAVATION FACE TO A HEIGHT THAT WILL BE APPROXIMATELY 1 TO 2 FOOT HIGHER THAN THE TOP OF THE NEOPRENE MAT AS SHOWN IN THE "BACKFILL DETAILS" ON THIS SHEET. THE STRIPS OF THE FABRIC PLACED SHALL OVERLAP APPROXIMATELY 1 FOOT AND SHALL BE PINNED IN PLACE. THE FABRIC SHALL BE ATTACHED TO THE ABUTMENT BY USING LATH FOLDED IN THE FABRIC AND SECURED TO THE CONCRETE WITH SHALLOW CONCRETE NAILS. THE FABRIC PLACED AGAINST THE EXCAVATION FACE SHALL BE PINNED.

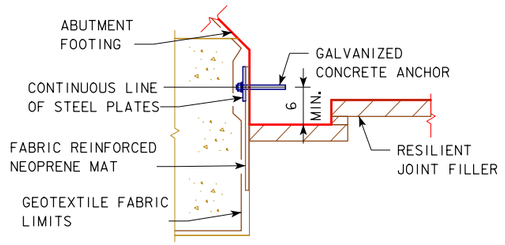
THE GEOTEXTILE FABRIC SHALL BE IN ACCORDANCE WITH ARTICLE 4196.01, B, 6 OF THE STANDARD SPECIFICATIONS. IF THE ENGINEERING FABRIC IS LAPPED THE LAPS SHALL BE A MINIMUM OF ONE FOOT IN LENGTH, SHINGLE FASHION WITH UP SLOPE LAP PIECE ON TOP AND STAPLED FOR CONTINUITY.

THE GRANULAR BACKFILL MATERIAL SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. THE GRANULAR BACKFILL SHALL BE PLACED IN INDIVIDUAL LIFTS AND COMPACTED WITH VIBRATORY COMPACTION TO ENSURE FULL CONSOLIDATION. LIMIT THE LOOSE LIFTS TO NO MORE THAN 2 FEET OF THICKNESS.

GRANULAR BACKFILL LIFT PLACEMENT AND COMPACTION SHALL PROGRESS UNTIL THE REQUIRED FULL THICKNESS OF THE ABUTMENT BACKFILL HAS BEEN COMPLETED.

GRANULAR BACKFILL AND GEOTEXTILE FABRIC FURNISHED AT THE EAST ABUTMENT WILL NOT BE MEASURED SEPARATELY FOR PAYMENT.

THE COST REQUIRED FOR GRANULAR BACKFILL AND GEOTEXTILE FABRIC FURNISHED AT THE BRIDGE ABUTMENT SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR "STRUCTURAL CONCRETE (MISCELLANEOUS)".

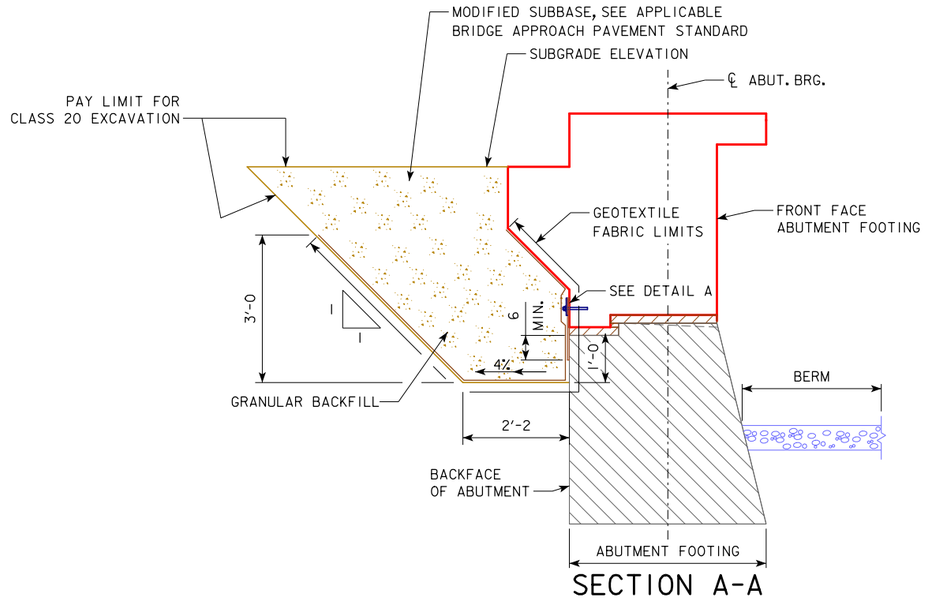


DETAIL A

FOR THE FULL WIDTH OF THE PAVING NOTCH, A 1'-6×¼ FABRIC REINFORCED NEOPRENE MAT SHALL BE ANCHORED TO THE ABUTMENT AS SHOWN WITH A CONTINOUS LINE OF 5×⅜" STEEL PLATES AND CONCRETE ANCHORS, NUTS, AND WASHERS SPACED AT 1'-0 MAXIMUM. NEOPRENE MAT AND ANCHORAGE SHALL BE INSTALLED PRIOR TO GEOTEXTILE FABRIC.

ANCHORS SHALL BE ½" IN DIAMETER AND IN ACCORDANCE WITH MATERIALS IM 453.09. FABRIC REINFORCED NEOPRENE MAT SHALL BE DUROMETER 50 AND IN ACCORDANCE WITH MATERIALS IM 494. STRUCTURAL STEEL PLATE AND HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ARTICLE 4100.07 OF THE STANDARD SPECIFICATIONS.

ALL COSTS ASSOCIATED WITH FURNISHING AND INSTALLING NEOPRENE MAT, STEEL PLATES, CONCRETE ANCHORS, NUTS, AND WASHERS SHALL BE INCLUDED IN THE PRICE BID FOR "STRUCTURAL CONCRETE (MISCELLANEOUS)".



SECTION A-A

NOTE: GEOTEXTILE FABRIC WILL BE ATTACHED TO FACE OF ABUTMENT FOOTING AND WINGS.

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

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

47'-3 END SPANS — 60'-6 INTERIOR SPAN

ABUTMENT BACKFILL DETAILS

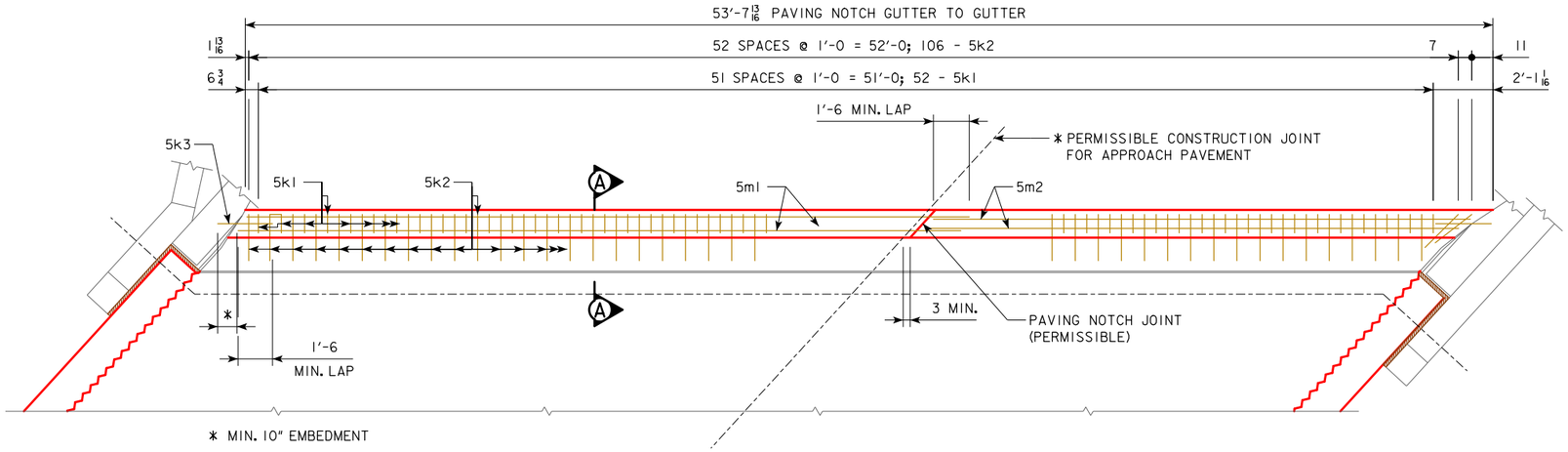
STATION: 1187+71.90 — JANUARY, 2019

HARRISON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 12 OF 13 — FILE NO. 31135 — DESIGN NO. 215

DESIGN TEAM AMA / JSZ / RDM / DRE | HARRISON COUNTY | PROJECT NUMBER IMX-029-5(245)77--02-43 | SHEET NUMBER V.12



PART PLAN VIEW AT WEST ABUTMENT

(WEST ABUTMENT ONLY)

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

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 EXCAVATION, REMOVING AND DISPOSING OF THE EXISTING PAVING NOTCH, GRANULAR BACKFILL AND COMPACTION AS NEEDED, AND INSTALLING THE NEW PAVING NOTCH. THIS WORK SHALL INCLUDE, CUTTING OF EXISTING #4 BARS, PAINTING THE ENDS OF THE #4 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.

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

NEW PAVING NOTCH REPLACEMENT SHOULD EXTEND FROM WING TO WING.

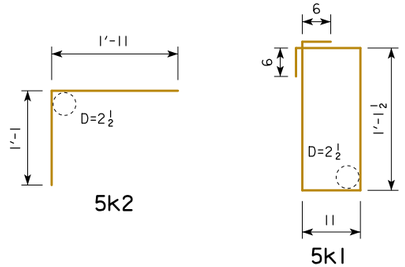
DOWEL SETTING NOTE:

THE DEFORMED 5k2 & 5k3 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.

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

* 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

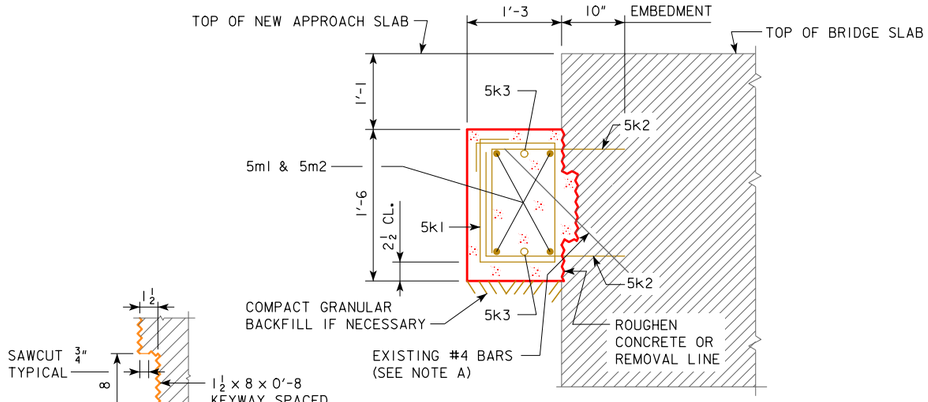
BENT BAR DETAILS



NOTE: ALL REINFORCING IS TO BE EPOXY COATED.

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

NOTE: 5k2 BARS AT 1'-0 CENTERS ARE TO BE PLACED AT THE TOP & BOTTOM OF THE PAVING NOTCH. THE 5k1 BARS AT 1'-0 CENTERS ARE CENTERED BETWEEN THE 5k2 BARS.



1 1/2" x 8" KEYWAY DETAIL

PART SECTION A-A

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

NOTE A:

THE BOTTOM PORTION OF THE EXISTING #4 BARS SHALL BE CAREFULLY EXPOSED AND INCORPORATED INTO NEW WORK. THE BAR SHALL BE CUT OFF TO PROVIDE 2 INCHES OF COVER FROM THE TOP OF THE NEW PAVING NOTCH. THE TOP PORTION OF THE BAR SHALL BE CUT OFF FLUSH OR SLIGHTLY BELOW THE CONCRETE SURFACE AND THE ENDS PAINTED WITH 2 COATS OF ZINC RICH PAINT.

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

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

47'-3 END SPANS — 60'-6 INTERIOR SPAN

PAVING NOTCH DETAILS

STATION: 1187+71.90 — JANUARY, 2019

HARRISON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

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

DESIGN TEAM	PAVING NOTCH REPLACEMENT		HARRISON COUNTY	PROJECT NUMBER	SHEET NUMBER
AMA / JSZ / RDM / DRE				IMX-029-5(245)77--02-43	V.13

REVISED 12-13 - CONSTRUCTION SPECIFICATIONS DATE WAS CHANGED TO 2012. CONCRETE STRENGTH WAS CHANGED TO 4.0 KSI. FHWA NO. ENTRY WAS ADDED TO THE LOCATION INFORMATION.
ENGLISHMISCELLANEOUSBRIDGES.DGN - 1068 - THIS SHEET ISSUED 04-09.