BRIDGE REPAIR LETTING DATE 2-15-2011

BRFN-061-2(88)--39-29

DES MOINES COUNTY

CONVENTIONAL SIGNS

- DIVIDED HIGHWAY
- PAVED ROAD
- BITUMINOUS ROAD
- GRAVEL ROAD
- EARTH ROAD
- INTERSTATE HIGHWAY (000)
- UNITED STATES HIGHWAY (000)
- STATE HIGHWAY (000)
- COUNTY HIGHWAY 000
- RAILROAD
- PIPELINE
- AIRPORT
- HYDROLOGY
- BRIDGE
- STATE BOUNDARY
- COUNTY BOUNDARY
- CORPORATE LIMIT LINE
- TOWNSHIP LINE
- SECTION LINE

Iowa Department of Transportation

Highway Division

PLANS OF PROPOSED IMPROVEMENTS ON THE

PRIMARY ROAD SYSTEM

DES MOINES COUNTY

BRIDGE REPAIR

S.B. US 61 OVER SKUNK RIVER
0.6 MI. NORTH OF IA 16

THE IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES 2009, PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT.

ENGLISH STANDARD BRIDGE PLANS		
STANDARD	ISSUED	REVISED

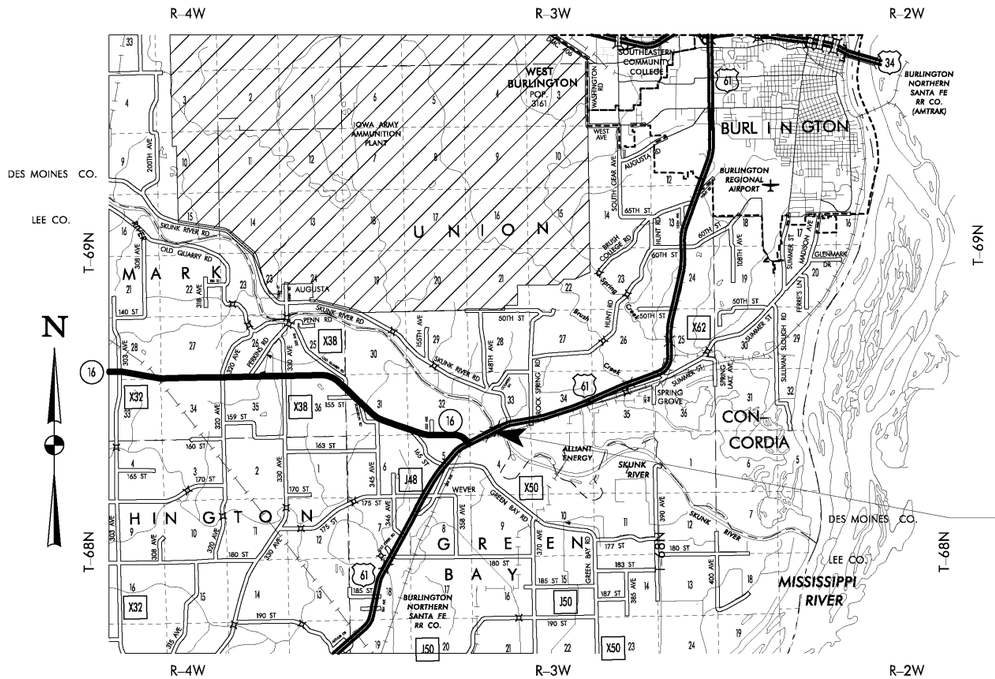
REVISIONS

	TOTAL SHEETS
	26
PROJECT NUMBER	
BRFN-061-2(88)--39-29	
R.O.W. PROJECT NUMBER	
PROJECT IDENTIFICATION NUMBER	
10-29-061-010	

INDEX OF SHEETS

NO.	DESCRIPTION
1	TITLE SHEET
2	ESTIMATE SHEET - DESIGN III
2-12	DESIGN III
C.1	ESTIMATE SHEET FOR ROADWAY
B.1-U.4	ROADWAY SHEETS

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www.iowaonecall.com
811 Know what's Below. Call before you dig.



LOCATION MAP

DESIGN NO. III

STANDARD ROAD PLANS
STANDARD ROAD PLANS ARE LISTED ON SHEET C.2

DESIGN DATA RURAL

2011	AADT	10,000	V.P.D.
2031	AADT	11,600	V.P.D.
2031	DHV	1200	V.P.H.
TRUCKS		11	%
Total Design ESALs			

INDEX OF SEALS

SHEET NO.	NAME	TYPE
1	DAVID L. BARE	STRUCTURAL DESIGN
B.1	PAUL W. FLATTERY	ROADWAY DESIGN

Form 520003 11-12

LICENSED PROFESSIONAL ENGINEER — JEFFREY L. JOHNSON 12258 — IOWA

I hereby certify that this project was constructed in accordance with the contract documents, the "as-built" plans were prepared under my supervision, and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Project Engineer — Date: 6-10-13

My license renewal date is December 31, 2013

Year	Contractor	Project Inspector
2012	Dormark Construction, Co.	Blint

STRUCTURAL DESIGN

LICENSED PROFESSIONAL ENGINEER — David L. Bare 15597 — 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: 11-22-2010

David L. Bare
Printed or Typed Name

My license renewal date is December 31, 2010

Pages or sheets covered by this seal: SHEETS 1 THRU 12 OF 26

PROJECT DIRECTORY NAME: 2906101010

DESIGN TEAM DLB / BDK / RDM	ENGLISH	IOWA DOT * OFFICE OF BRIDGES AND STRUCTURES	FILE NO. 30522	DES MOINES COUNTY	PROJECT NUMBER BRFN-061-2(88)--39-29	SHEET NUMBER

DES MOINES COUNTY - DESIGN NO. III

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ESTIMATED BRIDGE QUANTITIES

ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QUAN.
1	2401-6750001	REMOVALS, AS PER PLAN	LS	1.00	1.0
2	2402-2720000	EXCAVATION, CLASS 20	CY	10	10.0
3	2403-0100000	STRUCTURAL CONCRETE (MISCELLANEOUS)	CY	26.4	26.4
4	2404-7775005	REINFORCING STEEL, EPOXY COATED	LB	3,968	3968.0
5	2413-1200000	STEEL EXTRUSION JOINT WITH NEOPRENE	LF	94.0	94.0
6	2413-1200100	NEOPRENE GLAND INSTALLATION AND TESTING	LF	94	94.0
7	2426-6772020	PARTIAL DEPTH BRIDGE DECK FINISH PATCH	SF	~~324~~	1223.77
8	2533-4980005	MOBILIZATION	LS	1.00	1.0

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 CONCRETE FROM SLAB, CURB, RAIL, AND BACKWALL. 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 COST OF CLEANING AND SEALING EXISTING CONCRETE RAIL.
4	2404-7775005	**REINFORCING STEEL, EPOXY COATED** INCLUDES MECHANICAL SPLICERS IN THE ABUTMENT BACKWALL AND SLAB. INCLUDES 84 LBS OF STAINLESS STEEL REINFORCING. ADDITIONAL COST OF STAINLESS STEEL REINFORCING IS INCIDENTAL TO THE COST OF THE EPOXY COATED REINFORCING STEEL.
5	2413-1200000	**STEEL EXTRUSION JOINT WITH NEOPRENE** INCLUDES ALL NECESSARY HARDWARE AND ACCESSORIES INCLUDING THE ANCHORAGE SYSTEM, TEMPORARY ERECTION MATERIAL AND THE $\frac{3}{8}$" BARRIER PLATES WITH THEIR ANCHORAGE SYSTEM. EXCLUDES INSTALLATION OF NEOPRENE GLAND.
6	2413-1200100	**NEOPRENE GLAND INSTALLATION AND TESTING** INCLUDES INSTALLATION OF NEOPRENE GLAND AND WATER TESTING OF JOINT.
7	2426-6772020	**PARTIAL DEPTH BRIDGE DECK FINISH PATCH** - -
8	2533-4980005	**MOBILIZATION** - -

NOTE:
ROADWAY QUANTITIES SHOWN ELSEWHERE IN THESE PLANS.

DESIGN FOR REPAIRS TO 15° SKEW R.A.

685'-0 x 44'-0 CONTINUOUS WELDED GIRDER BRIDGE

117'-6 END SPANS THREE - 150'-0 INTERIOR SPANS

QUANTITIES

STA. 450+12.5 NOVEMBER, 2010

DES MOINES COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 1 OF 11 FILE NO. 30522 DESIGN NO. 111

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GENERAL NOTES

THIS DESIGN IS FOR REPAIRS TO THE EXISTING 685'-0 x 44'-0 CONTINUOUS WELDED GIRDER BRIDGE, WITH A 15° R.A. SKEW, ON S.B. US 61 OVER SKUNK RIVER. COPIES OF ORIGINAL DESIGN PLANS WILL BE MADE AVAILABLE TO THE CONTRACTOR. CONTACT THE OFFICE OF CONTRACTS - HIGHWAY DIVISION - IOWA D.O.T. - AMES.

REPAIR SHALL CONSIST OF THE FOLLOWING:

1. RECONSTRUCT BACKWALL TOP SECTIONS AND REPLACE SLIDING METAL PLATES WITH STEEL EXTRUSION/NEOPRENE STRIP-SEAL DECK JOINT.

2. BRIDGE FLOOR REPAIRS.

3. CLEAN AND SEAL ABUTMENT SEATS.

4. CONSTRUCT NEW 20'-0 LONG APPROACH SECTIONS AND UPDATE ONE GUARDRAIL END.

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

CONSTRUCTION STAGES I & II AS DETAILED ON THESE PLANS MAY BE REVERSED AT THE CONTRACTOR'S OPTION SUBJECT TO THE ENGINEER'S APPROVAL.

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

FAINT LINES ON PLANS INDICATE EXISTING PORTIONS OF THE BRIDGE.

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

IN ADDITION TO THE REQUIREMENTS OF ARTICLE 2413.03, G, OF THE STANDARD SPECIFICATIONS, BOTH ABUTMENT BRIDGE SEATS SHALL HAVE AN APPLICATION OF CONCRETE SEALER IN ACCORDANCE WITH ARTICLE 2403.03, P, 3, OF THE STANDARD SPECIFICATIONS.

THE LUMP SUM BID FOR "REMOVALS, AS PER PLAN" SHALL INCLUDE ALL COSTS ASSOCIATED WITH REMOVING THE SLAB, CURB, RAIL, AND BACKWALL. REMOVAL OF SCHEDULED ITEMS SHALL BE IN ACCORDANCE WITH SECTION 2401 OF THE 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 TOP OF THE ABUTMENT BACKWALLS AS SHOWN SHALL BE CONSTRUCTED USING STRUCTURAL CONCRETE CLASS D. 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.

IT WILL BE NECESSARY TO SUPPORT THE EARTH AND/OR GRANULAR MATERIAL BEHIND THE ABUTMENT DURING RECONSTRUCTION OF THE ABUTMENT BACKWALLS BY SOME METHOD APPROVED BY THE ENGINEER. ALL COSTS FOR SUPPORTING THE EARTH AND/OR GRANULAR MATERIAL SHALL BE INCLUDED IN THE PRICE BID FOR "CLASS 20 EXCAVATION".

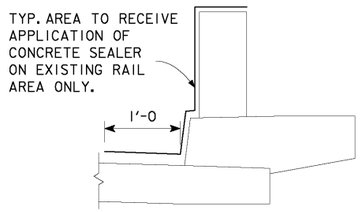
THE BRIDGE CONTRACTOR WILL BE THE ONLY CONTRACTOR AT THE SITE AND IS RESPONSIBLE FOR THE COMPLETION OF ALL WORK AS DETAILED AND NOTED IN THESE PLANS.

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

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.

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

THE TOP AND INTERIOR FACES OF THE EXISTING CONCRETE RAILING ARE TO BE CLEANED AND SEALED IN ACCORDANCE WITH STANDARD SPECIFICATION 2403.03,P,3. IF NEW SECTIONS OF RAIL ARE CONSTRUCTED, THE NEW SECTIONS SHALL NOT BE SEALED. ALL COSTS ASSOCIATED WITH CLEANING AND SEALING OF THE CONCRETE RAILS SHALL BE INCLUDED IN THE UNIT PRICE BID ITEM "STRUCTURAL CONCRETE".



DETAIL OF CONCRETE SEALER AREA

SPECIFICATIONS:

DESIGN: AASHTO SERIES OF 2002.
CONSTRUCTION: IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES 2009, PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT, INCLUDING DEVELOPMENTAL SPECIFICATIONS FOR PARTIAL DEPTH BRIDGE DECK PATCHING.

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 = 3,500 PSI.
STRUCTURAL STEEL IN ACCORDANCE WITH SECTION 10 ASTM A709 GRADE 36, GRADE 50, AND GRADE 50W (AASHTO M270 GRADE 36, GRADE 50, AND GRADE 50W).

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

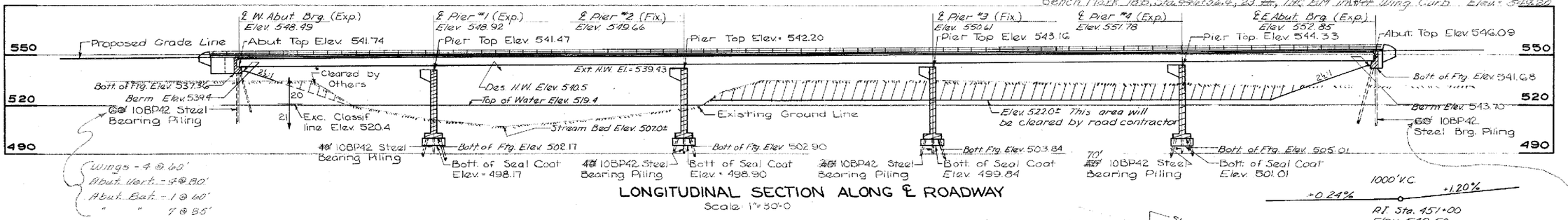
DESIGN HISTORY AT THIS SITE

DES. NO.	TYPE OF WORK
468	ORIGINAL DESIGN
389	OVERLAY & RETROFIT RAIL

DESIGN FOR REPAIRS TO 15° SKEW R.A.
685'-0 x 44'-0 CONTINUOUS WELDED GIRDER BRIDGE
117'-6 END SPANS THREE - 150'-0 INTERIOR SPANS
GENERAL NOTES
STA. 450+12.5 NOVEMBER, 2010
DES MOINES COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 2 OF 11 FILE NO. 30522 DESIGN NO. 111

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Bench Mark "18" Sta. 446+88 Sat. R.R. Spk. in N. side 30" Cottonwood at ℄ Elev. 534.91
Bench Mark "19" Sta. 454+23 Sta. 454+04, 23' Lt., 1.1' E of Inlet Wing Curb. Elev. = 543.20

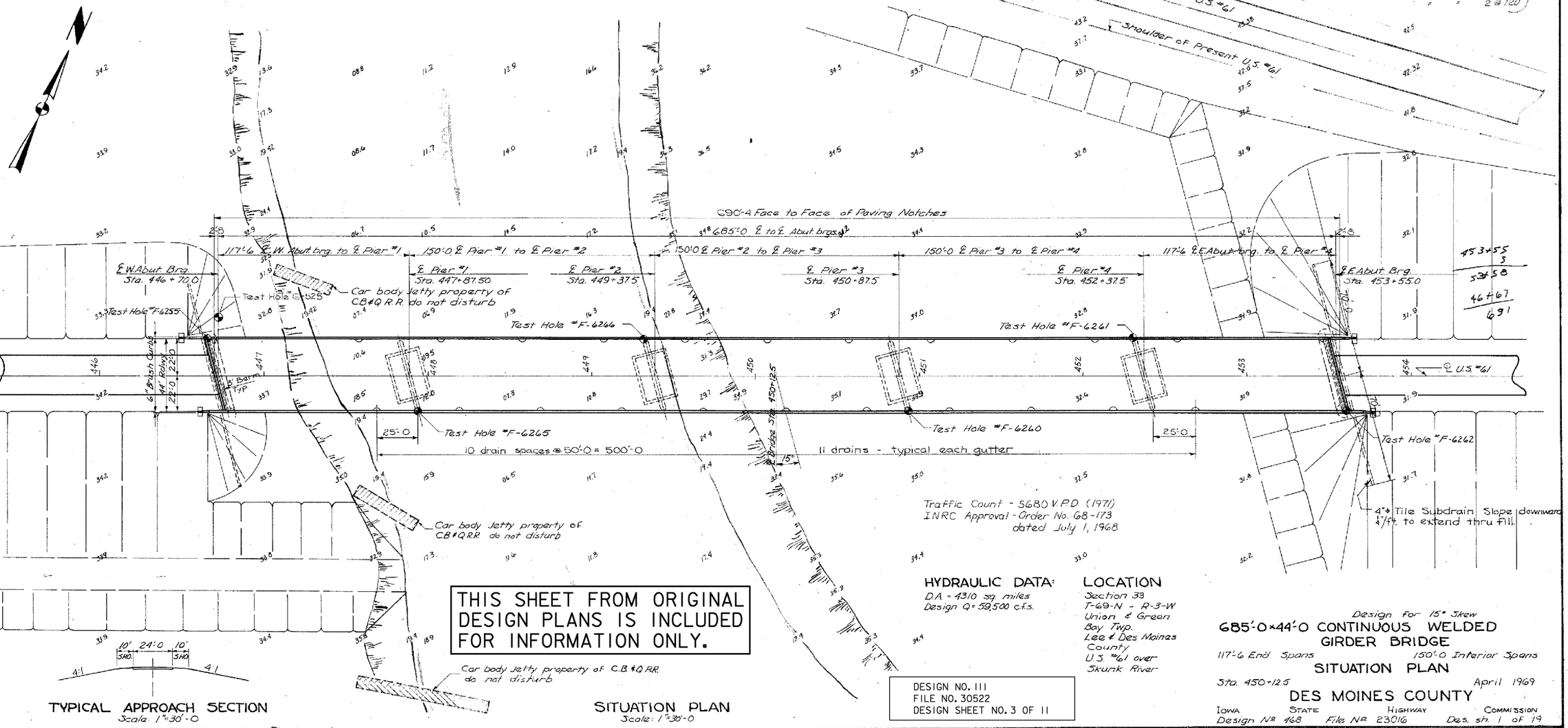


LONGITUDINAL SECTION ALONG ℄ ROADWAY
Scale: 1" = 50'-0

1000' V.C.
+0.24% +1.20%
P.I. Sta. 451+00
Elev. 549.50

VERTICAL CURVE DATA
U.S. #61

Wings - 4 @ 60'
Abut. Vert. - 4 @ 80'
Abut. Batt. - 1 @ 100'
" " 2 @ 120'



Traffic Count - 5680 V.P.D. (1971)
INRC Approval - Order No. 68-173 dated July 1, 1968

HYDRAULIC DATA:
D.A. = 4310 sq. miles
Design Q = 59,500 c.f.s.

LOCATION
Section 33
T-69-N - R-3-W
Union & Green Bay Twp.
Lee & Des Moines County
U.S. #61 over Skunk River

DESIGN NO. 111
FILE NO. 30522
DESIGN SHEET NO. 3 OF 11

TYPICAL APPROACH SECTION
Scale: 1" = 30'-0

10' 24'-0 10'
3:1 3:1
4:1 4:1

SITUATION PLAN
Scale: 1" = 30'-0

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

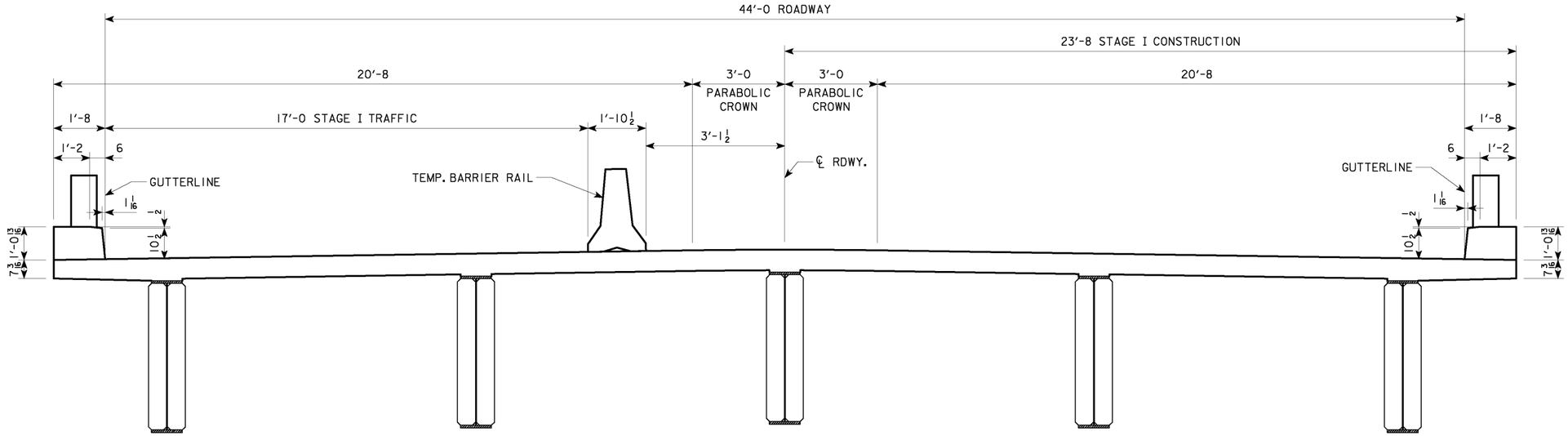
Design for 15° Skew
685'-0 × 44'-0 CONTINUOUS WELDED GIRDER BRIDGE
117'-6 End Spans 150'-0 Interior Spans
SITUATION PLAN
Sta. 450+12.5
April 1969
DES MOINES COUNTY
IOWA STATE HIGHWAY COMMISSION
Design Nº 468 File Nº 23016 Des. sh. 1 of 19

DESIGNED BY: V. A. Lundquist
DETAILED BY:
TRACED BY: T.S.A. M.F. J.L.S.
CHECKED BY: M. Fuller
SECTION LEADER William A. Lundquist

DES MOINES COUNTY

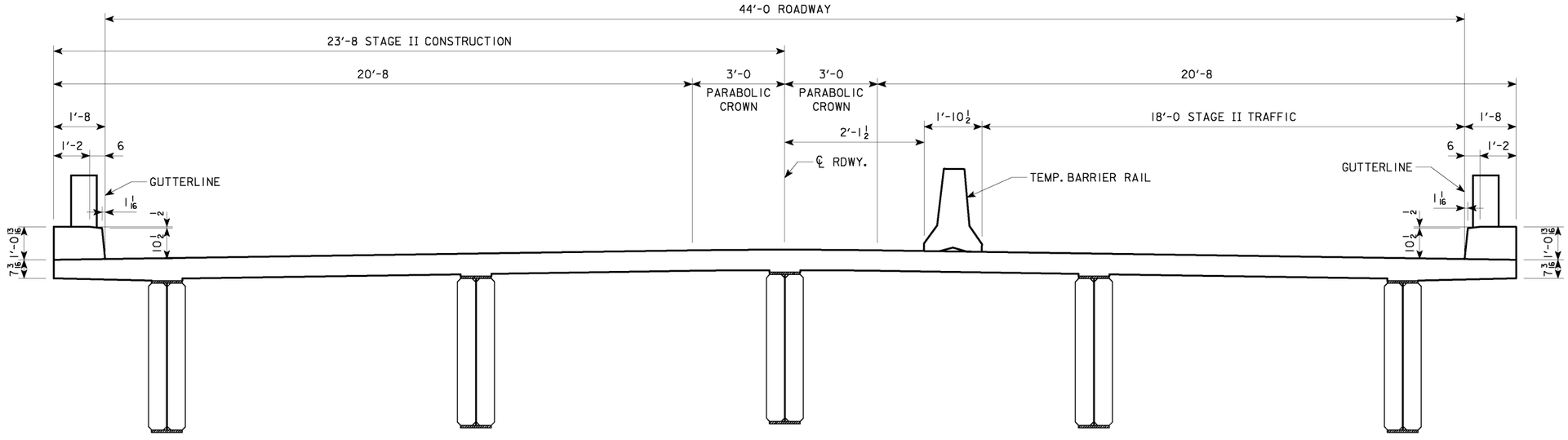
PROJECT NUMBER	STATE	F.A.I. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
F-61-2(3)--39-29	IOWA	5		3	8

DESIGN TEAM DLB / BDK | DES MOINES COUNTY | PROJECT NUMBER BRFN-061-2(88)--39-29 | SHEET NUMBER 4



TYPICAL SECTION OF STAGE I CONSTRUCTION

(LOOKING SOUTHBOUND)



TYPICAL SECTION OF STAGE II CONSTRUCTION

(LOOKING SOUTHBOUND)

DESIGN FOR REPAIRS TO 15° SKEW R.A.

685'-0 x 44'-0 CONTINUOUS WELDED GIRDER BRIDGE

117'-6 END SPANS — THREE - 150'-0 INTERIOR SPANS

STAGED CONSTRUCTION DETAILS

STA. 450+12.5 — NOVEMBER, 2010

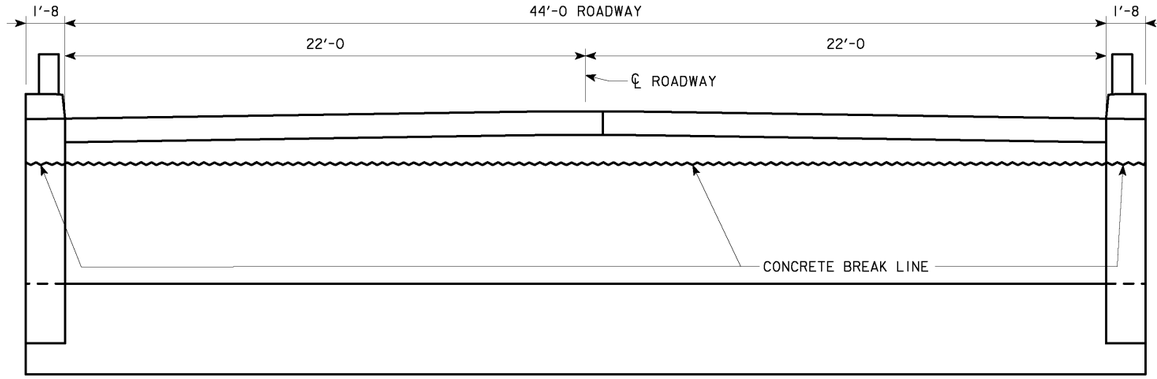
DES MOINES COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 4 OF 11 — FILE NO. 30522 — DESIGN NO. 111

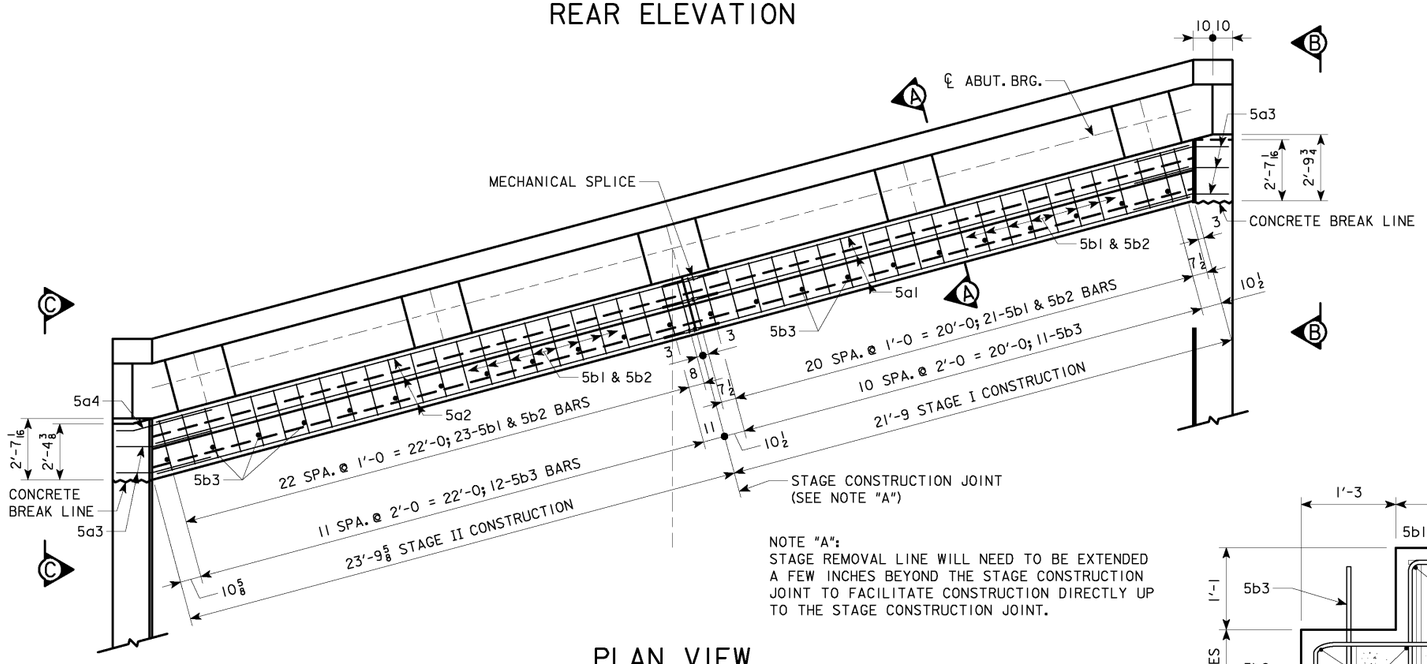
DESIGN TEAM DLB / BDK / RDM	DES MOINES COUNTY	PROJECT NUMBER BRFN-061-2(88)--39-29	SHEET NUMBER 5

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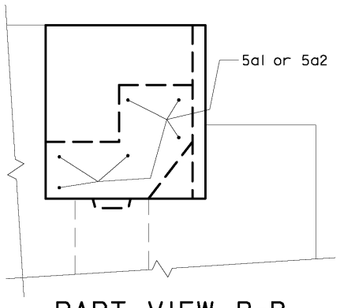
NOTE:
PAVING NOTCH DOWELS SHALL BE DEFORMED BAR GRADE 60, TYPE 316 LN IN ACCORDANCE WITH ASTM A955/A955M-01. THE COST OF THE STAINLESS STEEL PAVING NOTCH DOWELS IS TO BE INCIDENTAL TO THE PRICE BID FOR "REINFORCING STEEL - EPOXY COATED". THE WEIGHT OF THE STAINLESS STEEL DOWELS IS TO BE INCLUDED WITH THE WEIGHT FOR EPOXY REINFORCING STEEL.

REAR ELEVATION

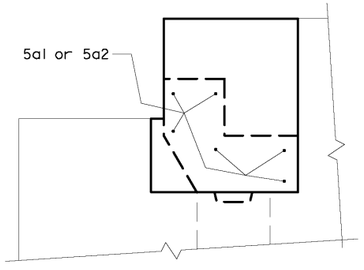


NOTE "A":
STAGE REMOVAL LINE WILL NEED TO BE EXTENDED A FEW INCHES BEYOND THE STAGE CONSTRUCTION JOINT TO FACILITATE CONSTRUCTION DIRECTLY UP TO THE STAGE CONSTRUCTION JOINT.

PLAN VIEW

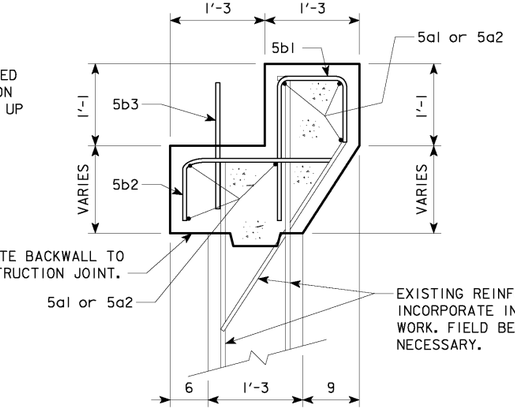


PART VIEW B-B



PART VIEW C-C

SEE DES. SHT. #6 FOR MECHANICAL SPLICE NOTE.



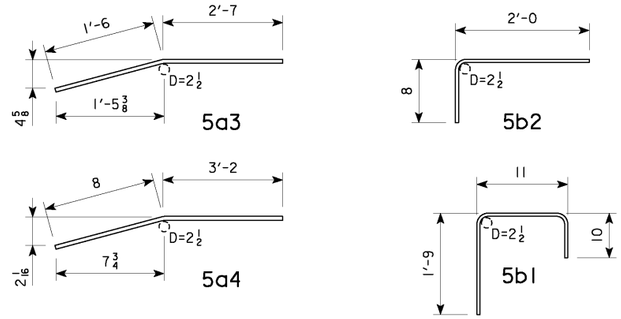
SECTION A-A

NOTE:
ALL CURB, CAST IN PLACE BARRIER RAIL, AND ABUTMENT BACKWALL REINFORCING IS TO BE INCORPORATED INTO NEW WORK WHENEVER PRACTICABLE. WHEN NECESSARY, CUT OR BEND REINFORCING SO THERE IS 2" COVER WITH NEW CONCRETE.

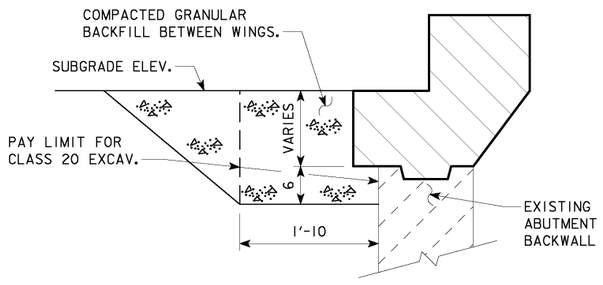
REINF. BAR LIST - ONE ABUTMENT

	BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
EPOXY REINF.	5a1	BACKWALL LONGIT. - STAGE I	——	6	21'-5	134
	5a2	BACKWALL LONGIT. - STAGE II	——	6	23'-0	144
	5a3	BACKWALL DOWEL TO WING	⌐	10	4'-1	43
	5a4	BACKWALL DOWEL TO WING	⌐	2	3'-10	8
	5b1	BACKWALL HAIRPIN	⊓	47	3'-6	172
	5b2	BACKWALL TRANSVERSE	⌐	47	2'-8	131
		REINFORCING STEEL EPOXY COATED - TOTAL (LBS)				632
S.S. BARS	5b3	PAVING NOTCH, DOWELS (STAINLESS STEEL)	——	23	1'-9	42
		STAINLESS STEEL - TOTAL (LBS)				42

BENT BAR DETAILS



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



GRANULAR BACKFILL DETAILS

NOTE:
SPECIAL BACKFILL MAY BE SUBSTITUTED FOR GRANULAR BACKFILL.

DESIGN FOR REPAIRS TO 15° SKEW R.A.

685'-0 x 44'-0 CONTINUOUS WELDED GIRDER BRIDGE

117'-6 END SPANS — THREE - 150'-0 INTERIOR SPANS

ABUTMENT REPAIR DETAILS

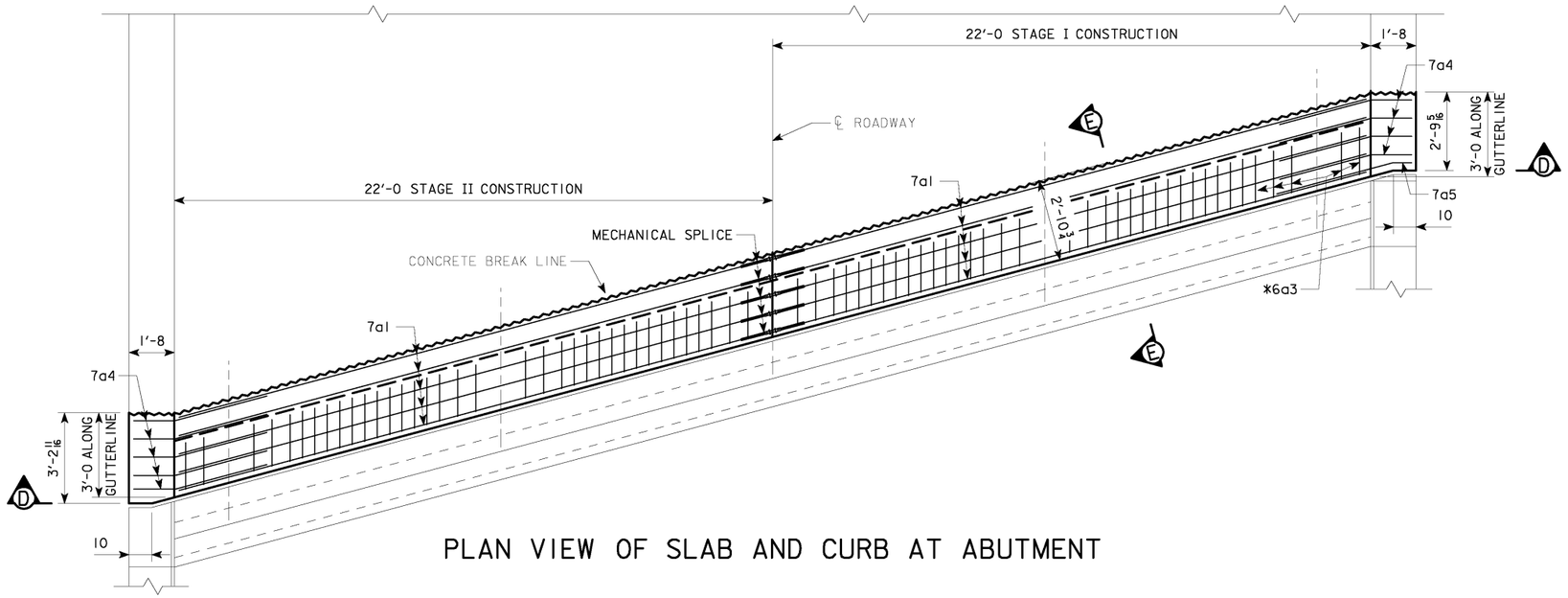
STA. 450+12.5 — NOVEMBER, 2010

DES MOINES COUNTY

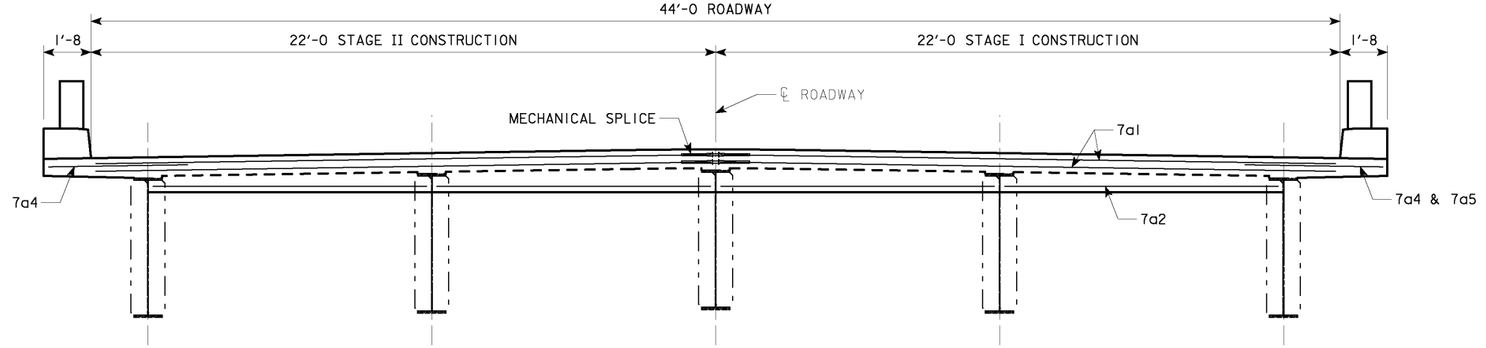
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 5 OF 11 — FILE NO. 30522 — DESIGN NO. 111

DESIGN TEAM DLB / BDK / RDM | DES MOINES COUNTY | PROJECT NUMBER BRFN-061-2(88)--39-29 | SHEET NUMBER 6



PLAN VIEW OF SLAB AND CURB AT ABUTMENT



VIEW D-D

MECHANICAL SPLICE NOTE:

THE 7a BARS IN THE DIAPHRAGM AND THE 5a BARS IN THE ABUTMENT BACKWALLS 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 BE A MINIMUM OF $\frac{5}{8}$ INCH DIA.

ALL MECHANICAL SPLICE ASSEMBLIES TO BE USED IN SPLICING THE BARS IN THE ABUTMENT BACKWALLS SHALL BE EPOXY COATED.

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". A TOTAL OF 22 EPOXY COATED SPLICE ASSEMBLIES WILL BE REQUIRED.

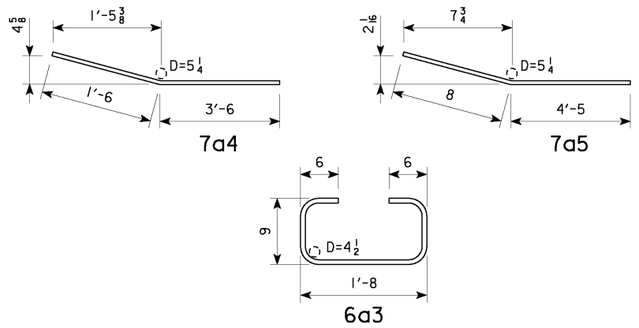
CONC. PLACEMENT QTY. - ONE ABUT.

LOCATION	TOTAL
ABUTMENT BACKWALL AND CURB	7.0
SLAB AND CURB	5.6
BARRIER RAIL	0.6
TOTAL (CU. YDS.)	13.2

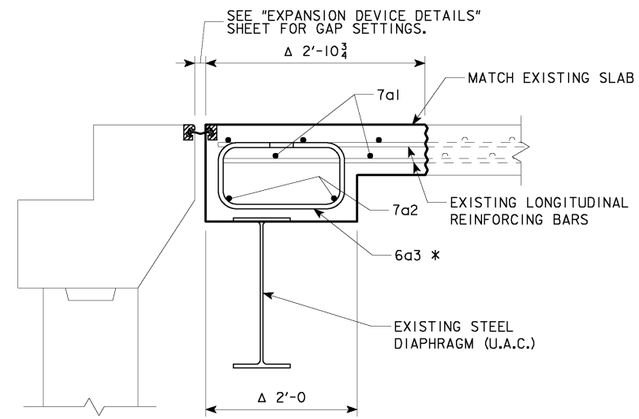
EPOXY COATED REINF. BAR LIST - ONE SLAB END

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
7a1	SLAB AND DIAPHRAGM	——	10	22'-5	458
7a2	DIAPHRAGM LONGITUDINAL	——	8	9'-7	157
6a3	DIAPHRAGM TRANSVERSE	⊏⊐	72	4'-2	451
7a4	CURB DOWEL	⟋	9	5'-0	92
7a5	CURB DOWEL	⟋	1	5'-1	10
	REINFORCING STEEL EPOXY COATED - TOTAL (LBS)				1168

BENT BAR DETAILS



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



Δ = ADJUST AS NEEDED TO SET EXPANSION JOINT.
* = PLACE ONE 6a3 AT EACH EXISTING DECK LONGITUDINAL BAR.

SECTION E-E

DESIGN FOR REPAIRS TO 15° SKEW R.A.

685'-0 x 44'-0 CONTINUOUS WELDED GIRDER BRIDGE

117'-6 END SPANS — THREE - 150'-0 INTERIOR SPANS

SLAB REPAIR DETAILS

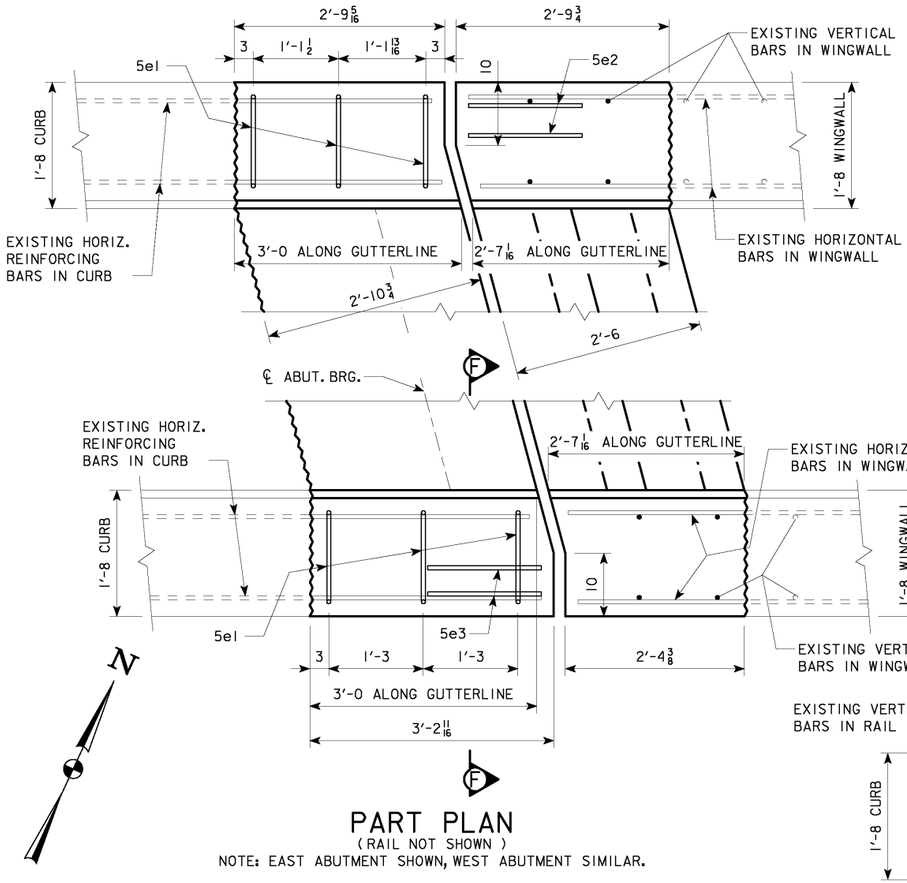
STA. 450+12.5 — NOVEMBER, 2010

DES MOINES COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 6 OF 11 — FILE NO. 30522 — DESIGN NO. 111

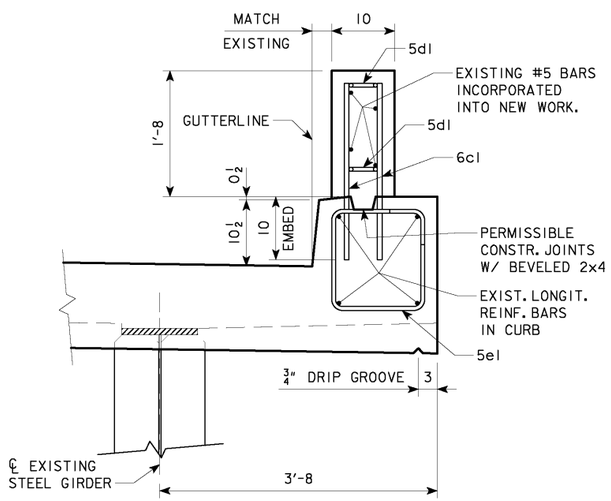
DESIGN TEAM DLB / BDK / RDM | DES MOINES COUNTY | PROJECT NUMBER BRFN-061-2(88)--39-29 | SHEET NUMBER 7



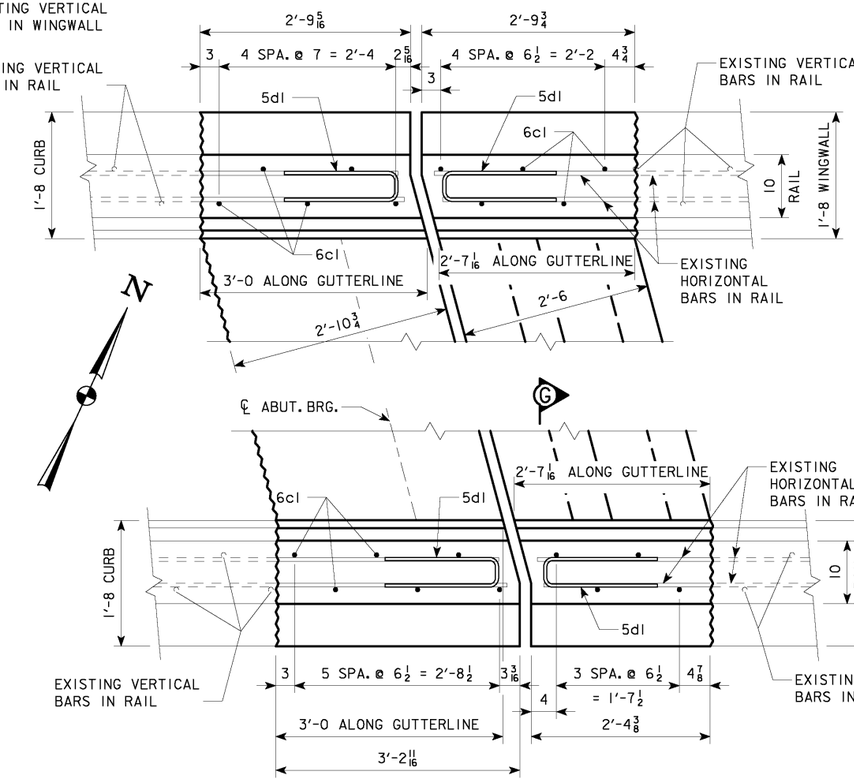
PART PLAN

(RAIL NOT SHOWN)

NOTE: EAST ABUTMENT SHOWN, WEST ABUTMENT SIMILAR.



SECTION F-F



PART PLAN

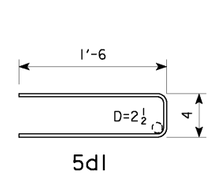
(RAIL SHOWN)

NOTE: EAST ABUTMENT SHOWN, WEST ABUTMENT SIMILAR.

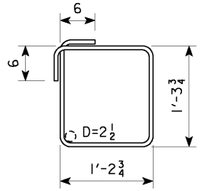
EPOXY COATED REINF. BAR LIST - ONE END

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6c1	BARRIER RAIL, VERTICAL	——	20	2'-4	70
5d1	BARRIER RAIL, HORIZONTAL HAIRPIN	⊐	8	3'-4	28
5e1	CURB TRANSVERSE HOOP	□	6	6'-1	38
5e2	WALL, LONGITUDINAL	——	2	1'-6	3
5e3	CURB, LONGITUDINAL	——	2	1'-6	3
	REINFORCING STEEL EPOXY COATED - TOTAL (LBS)				142

BENT BAR DETAILS



5d1



5e1

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

NOTE:
FIELD CUT EXISTING BARS TO MAINTAIN 2" MINIMUM CLEARANCE.

DESIGN FOR REPAIRS TO 15° SKEW R.A.

685'-0 x 44'-0 CONTINUOUS WELDED GIRDER BRIDGE

117'-6 END SPANS — THREE - 150'-0 INTERIOR SPANS

CURB & RAIL DETAILS

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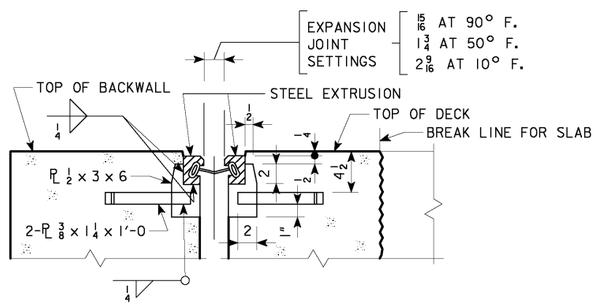
DES MOINES COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

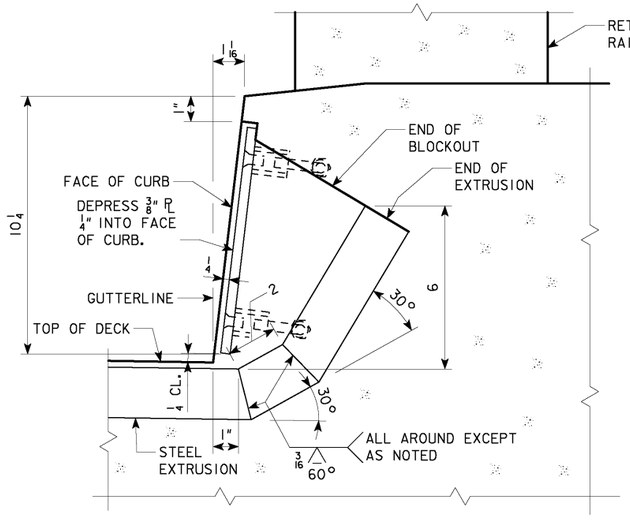
DESIGN SHEET NO. 7 OF 11 — FILE NO. 30522 — DESIGN NO. 111

DESIGN TEAM DLB / BDK / RDM | DES MOINES COUNTY | PROJECT NUMBER BRFN-061-2(88)--39-29 | SHEET NUMBER 8

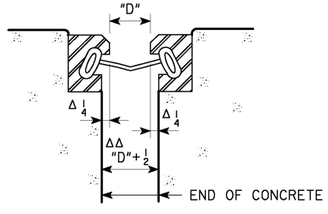
NOTE: JOINT SETTINGS FOR OTHER TEMPERATURES ARE PROPORTIONAL. TEMPERATURES SHOWN ARE CONCRETE DECK TEMPERATURES ON THE UNDERSIDE OR SHADED PORTION OF THE DECK.



SECTION J-J



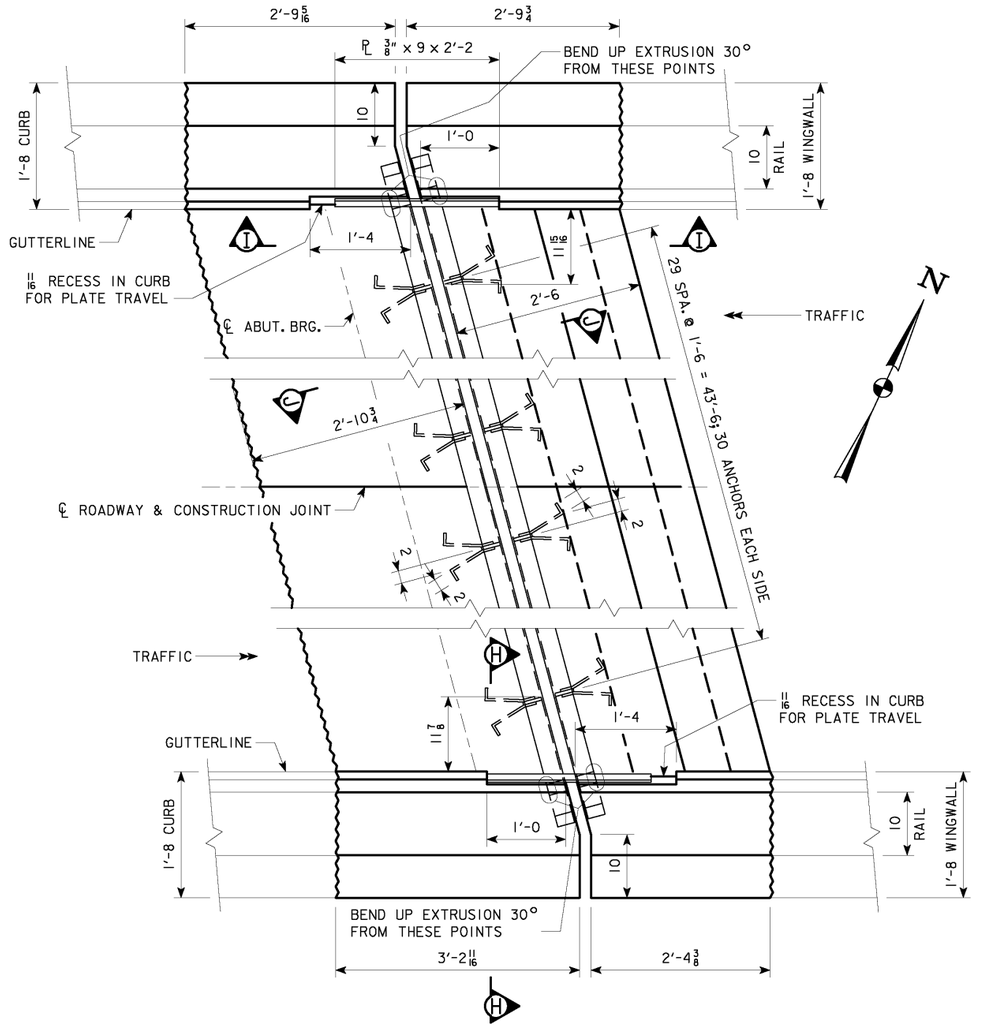
SECTION H-H



EXPANSION OPENING DETAIL

Δ THIS DIMENSION MAY VARY SLIGHTLY DEPENDING ON MANUFACTURER FURNISHING THE JOINT.

ΔΔ USED FOR ALL OUT TO OUT DIMENSIONS OF SLAB. THE DIMENSION MAY VARY SLIGHTLY DEPENDING ON MANUFACTURER FURNISHING THE JOINT.



PART PLAN

(RAIL SHOWN)

NOTE: EAST ABUTMENT SHOWN.

SEE DES. SHT. #9 FOR DETAILS OF SECTION I-I.

TABLE OF APPROVED EXPANSION DEVICES		
MANUFACTURER	TYPE OF STEEL EXTRUSION	NEOPRENE GLAND
WATSON-BOWMAN & ACME CORP.	A	SE-300
APPROVED EQUAL		

DESIGN FOR REPAIRS TO 15° SKEW R.A.

685'-0 x 44'-0 CONTINUOUS WELDED GIRDER BRIDGE

117'-6 END SPANS — THREE - 150'-0 INTERIOR SPANS

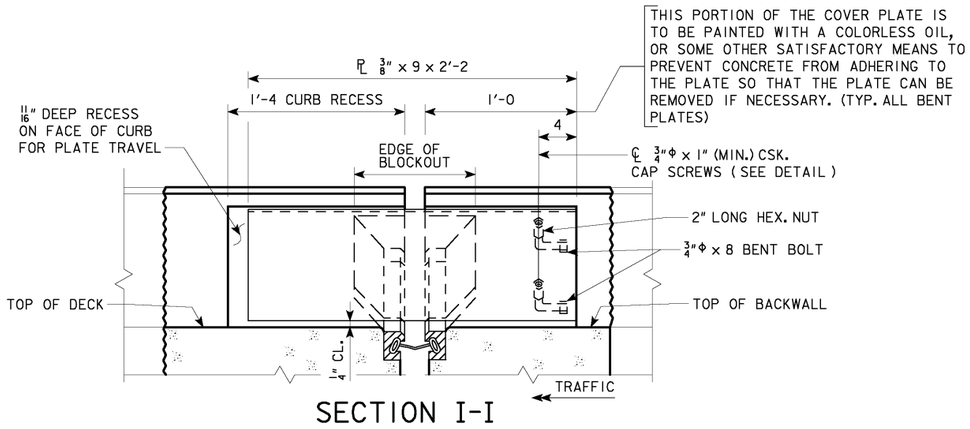
EXPANSION DEVICE DETAILS

STA. 450+12.5 — NOVEMBER, 2010

DES MOINES COUNTY

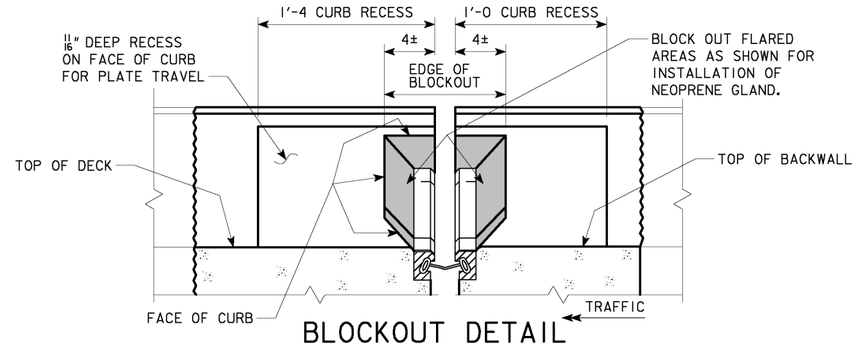
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 8 OF 11 FILE NO. 30522 DESIGN NO. 111



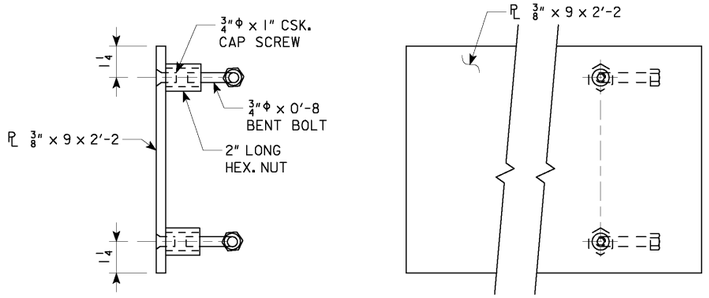
SECTION I-I

NOTE: IT IS INTENDED THAT THE RECESSED AREA BE FORMED SO THAT WHEN THE COVER PLATE IS INSTALLED THE PLATE WILL BE ABLE TO MOVE FREELY IN THE RECESSED AREA.



BLOCKOUT DETAIL

(NOT SHOWING CURB COVER PLATE)
(DRAWN FOR 0° SKEW FOR ILLUSTRATIVE PURPOSE)



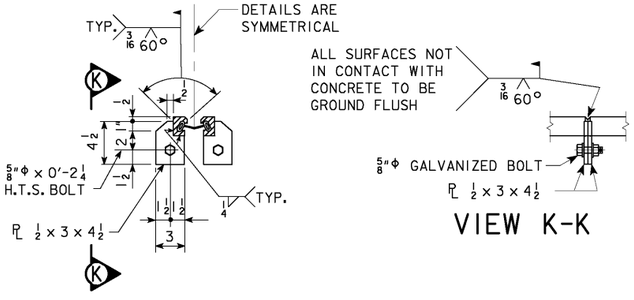
CURB PLATE DETAIL

CURB PLATE NOTE: THE MATERIAL USED FOR THE CURB PLATE IS TO BE ASTM A-36 STEEL. THE BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A-307. THE PLATE, BOLTS, NUTS AND CAP SCREWS ARE TO BE GALVANIZED IN ACCORDANCE WITH ARTICLE 4100.07 OF THE STANDARD SPECIFICATIONS.

STAGE CONSTRUCTION NOTES:

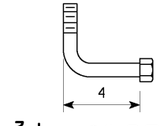
FIELD SPLICES IN THE STEEL EXTRUSION SHALL BE MADE IN THE LOCATIONS DETAILED. PIECES SHALL BE JOINED WITH A PRE-QUALIFIED PARTIAL PENETRATION SINGLE V-GROOVE WELD AS DETAILED. ALL SURFACES NOT IN CONTACT WITH CONCRETE ARE TO BE GROUND FLUSH. NO WELD SHALL BE PERMITTED IN THE INTERNAL SECTION OF THE EXTRUSION WHERE THE NEOPRENE GLAND IS TO BE LOCATED.

FIELD WELDS ON GALVANIZED ITEMS SHALL BE COATED WITH A ZINC RICH MATERIAL APPROVED BY THE ENGINEER.



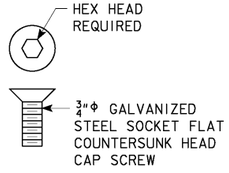
EXTRUSION FIELD SPLICE DETAIL

VIEW K-K



3/4Φ x 8" BENT BOLT DETAIL

CONTRACTOR TO NOTE THAT THE CAP SCREW ANCHORAGE SYSTEM FOR THE 3/8" BARRIER PLATES ARE ALWAYS TO BE PLACED ON THE ONCOMING TRAFFIC SIDE.



SOCKET FLAT COUNTERSUNK HEAD CAP SCREW DETAIL

SEE DES. SHT. #8 FOR LOCATIONS OF SECTION I-I.

DESIGN FOR REPAIRS TO 15° SKEW R.A.

685'-0 x 44'-0 CONTINUOUS WELDED GIRDER BRIDGE

117'-6 END SPANS — THREE - 150'-0 INTERIOR SPANS

EXPANSION DEVICE DETAILS

STA. 450+12.5 — NOVEMBER, 2010

DES MOINES COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 9 OF 11 — FILE NO. 30522 — DESIGN NO. 111

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STEEL EXTRUSION NOTES:

THE CONTRACTOR SHALL SUBMIT FOR APPROVAL SHOP DRAWINGS OF THE EXPANSION DEVICES SHOWING LAYOUT, MATERIAL TO BE USED, AND PROVISIONS FOR HOLDING DEVICE DURING PLACEMENT OF CONCRETE.

THE EXPANSION DEVICE SHALL BE GALVANIZED AFTER WELDING.

THE EXPANSION DEVICE IS TO BE PARALLEL TO GRADE.

CAP SCREWS SHALL BE COUNTERSUNK $\frac{1}{16}$" BELOW TOP OF THE PLATE.

THE MINIMUM GRADE OF STRUCTURAL STEEL FOR THE EXPANSION DEVICE SHALL BE ASTM A-36.

BLOCKOUT DETAILS MAY BE ALTERED FROM THOSE SHOWN PROVIDED THE GLAND MAY BE INSTALLED AND REMOVED IF NECESSARY AND THE CURB AREA REMAINS WATERTIGHT.

SHOP AND OR FIELD SPLICES OF THE STEEL EXTRUSION WILL BE PERMITTED. FIELD SPLICES OF THE STEEL EXTRUSION SHALL BE MADE AT THE STAGING JOINTS IF CONSTRUCTION IS STAGED. FIELD WELDS ON GALVANIZED ITEMS SHALL BE COATED WITH A ZINC RICH MATERIAL APPROVED BY THE ENGINEER. PIECES OF STEEL EXTRUSION IN THE 15 FT. TO 22 FT. RANGE SHALL BE USED TO FORM THE REQUIRED GUTTER TO GUTTER LENGTH. THE INDIVIDUAL LENGTH OF PIECES SHALL BE CHOSEN SO THAT A MINIMUM NUMBER OF SPLICES IS REQUIRED. ALL PIECES SHALL BE JOINED WITH A PREQUALIFIED PARTIAL PENETRATION SINGLE GROOVE WELD, AND ALL SURFACES NOT IN CONTACT WITH CONCRETE ARE TO BE GROUND FLUSH. NO WELD SHALL BE PERMITTED IN THE INTERNAL SECTION OF THE EXTRUSION WHERE THE NEOPRENE GLAND IS TO BE LOCATED.

THE NUMBER OF FEET OF STEEL EXTRUSION INSTALLED SHALL BE PAID FOR AT THE CONTRACT PRICE PER FOOT BASED ON PLAN QUANTITIES. THE PRICE BID FOR "STEEL EXTRUSION JOINT W/NEOPRENE" SHALL INCLUDE THE COST OF FURNISHING BUT NOT THE COST OF INSTALLING THE NEOPRENE GLAND. THE CONTRACT PRICE BID FOR "STEEL EXTRUSION JOINT W/NEOPRENE" SHALL BE FULL COMPENSATION FOR FURNISHING AND INSTALLING STEEL EXTRUSIONS. THIS WORK WILL CONSIST OF FURNISHING ALL REQUIRED MATERIALS, (INCLUDING THE $\frac{3}{8}$" PLATES AT THE CURBS AND THEIR ANCHORAGE SYSTEMS), AND THE INSTALLATION AND ADJUSTMENT OF THE EXPANSION JOINTS IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER. THE FURNISHING AND INSTALLATION OF ALL NECESSARY HARDWARE AND ACCESSORIES AS SUPPLIED BY THE EXPANSION JOINT MANUFACTURER ARE TO BE INCLUDED IN THIS WORK, INCLUDING THE ANCHORAGE SYSTEM AND ANY TEMPORARY ERECTION MATERIAL. ALL WORK AND MATERIALS FOR THE INSTALLATION OF THE EXPANSION JOINTS ARE TO COMPLY WITH THE WRITTEN RECOMMENDATIONS OF THE EXPANSION JOINT MANUFACTURER.

NEOPRENE GLAND NOTES:

THE NEOPRENE GLAND IS TO BE PLACED AS ONE CONTINUOUS PIECE FROM END TO END OF THE STEEL EXTRUSION.

THE NEOPRENE GLAND SHALL CONFORM TO ASTM-2628 MODIFIED TO EXCLUDE RECOVER TEST AND COMPRESSION SET.

THE CONTRACTOR SHALL INSTALL THE GLAND ONLY WHEN THE DECK TEMPERATURE IS BETWEEN 40°F AND MAXIMUM INSTALLATION TEMPERATURE SHOWN IN THESE PLANS INCLUSIVE. THE DECK TEMPERATURE SHALL BE MEASURED BY RECORDING THE SURFACE TEMPERATURES ON THE UNDERSIDE OF THE DECK ADJACENT TO THE JOINTS. IF THE DECK TEMPERATURE DOES NOT FALL WITHIN THE SPECIFIED TEMPERATURE RANGE BEFORE THE CONTRACTOR HAS COMPLETED ALL OTHER REQUIRED WORK, IT WILL BE NECESSARY FOR THE CONTRACTOR TO RETURN TO THE PROJECT SITE TO COMPLETE INSTALLATION AND TESTING OF THE NEOPRENE GLAND. IF THE CONTRACTOR IS REQUIRED TO RETURN TO THE PROJECT SITE AFTER ALL OTHER REQUIRED WORK HAS BEEN COMPLETED, THE CONTRACTOR SHALL COMPLETE INSTALLATION AND TESTING OF NEOPRENE GLAND AT NO EXTRA CHARGE TO THE STATE.

THE NUMBER OF FEET OF NEOPRENE GLAND INSTALLED SHALL BE PAID FOR AT THE CONTRACT PRICE PER FOOT BASED ON PLAN QUANTITIES. THE PRICE FOR "NEOPRENE GLAND INSTALLATION AND TESTING" SHALL BE FULL COMPENSATION FOR INSTALLING AND TESTING OF THE NEW NEOPRENE GLAND. THIS WORK WILL CONSIST OF CLEANING THE EXTRUSION, INSTALLATION OF THE NEOPRENE GLAND AND WATER TIGHT TESTING OF THE EXPANSION JOINT SYSTEM. ALL WORK AND MATERIALS NECESSARY FOR THE INSTALLATION OF THE NEOPRENE GLAND SHALL COMPLY WITH THE RECOMMENDATIONS OF THE EXPANSION JOINT MANUFACTURER. THE PRICE BID FOR "NEOPRENE GLAND INSTALLATION AND TESTING" SHALL INCLUDE ALL WATERTIGHT INTEGRITY TESTING, LEAK REPAIRS AS DIRECTED BY THE ENGINEER, AND SUBSEQUENT WATERTIGHT TESTING UNTIL A LEAK FREE INSTALLATION IS ACHIEVED.

WATERTIGHT INTEGRITY TESTING AND REPAIR NOTES:

AFTER INSTALLATION OF EACH NEOPRENE GLAND, THE CONTRACTOR SHALL PERFORM WATERTIGHT INTEGRITY TESTS AT THE DECK LEVEL TO DETECT ANY LEAKAGE. THE TESTS ARE TO CHECK FOR LEAKAGE AT THE UPTURNED ENDS OF THE EXPANSION DEVICE AND FOR LEAKAGE ALONG THE EXPANSION DEVICE ACROSS THE DECK AND ANY MEDIANS OR SIDEWALKS. THE CONTRACTOR MAY CONDUCT A SINGLE TEST OF THE ENTIRE DEVICE INCLUDING UPTURNED ENDS OR MAY CONDUCT SEPARATE TESTS OF UPTURNED ENDS AND ONE OR MORE TESTS OF OVERLAPPING LENGTHS BETWEEN THE UPTURNED ENDS.

AT EACH UPTURNED END OF THE EXPANSION DEVICE, THE CONTRACTOR SHALL BLOCK OUT ON THE DECK AT LEAST 3 FEET OF THE EXPANSION DEVICE LEADING TO THE UPTURNED END AND FLOOD THE AREA. A MINIMUM WATER DEPTH OF 3" SHALL BE MAINTAINED AT THE GUTTERLINE FOR AT LEAST 30 MINUTES. DURING THE TEST, THE INSPECTOR SHALL OBSERVE FOR ANY OVERFLOW AT THE UPTURNED END. AT THE CONCLUSION OF THE TEST THE INSPECTOR WILL EXAMINE THE UNDERSIDE OF THE JOINT FOR LEAKAGE. THE EXPANSION DEVICE IS CONSIDERED WATERTIGHT IF THE INSPECTOR OBSERVES NO OVERFLOW DURING THE TEST AND IF NO DRIPPING WATER OR WATER DROPLETS ARE VISIBLE IN THE UNDERDECK AREAS NEAR THE UPTURNED END.

THE CONTRACTOR SHALL TEST THE EXPANSION DEVICE BETWEEN UPTURNED ENDS BY BLOCKING OUT AND COVERING THE DEVICE WITH PONDED OR FLOWING WATER TO A DEPTH OF AT LEAST 1" AT ALL POINTS, FOR AT LEAST 30 MINUTES. VERTICAL CURB SURFACES MAY BE TESTED WITH AN UNNOZZLED HOSE DELIVERING APPROXIMATELY ONE GALLON PER MINUTE DIRECTED TO FLOW OVER THE ENTIRE CURB HEIGHT FOR 30 MINUTES. AT THE CONCLUSION OF THE TEST, THE INSPECTOR WILL EXAMINE THE UNDERSIDE OF THE JOINT FOR LEAKAGE. THE EXPANSION DEVICE IS CONSIDERED WATERTIGHT IF NO DRIPPING WATER OR WATER DROPLETS ARE VISIBLE IN THE UNDERDECK AREAS ALONG THE FULL LENGTH OF THE EXPANSION JOINT. DAMP CONCRETE THAT DOES NOT SHOW DRIPPING WATER OR WATER DROPLETS IS NOT CONSIDERED A SIGN OF LEAKAGE.

IF THE EXPANSION DEVICE LEAKS AT AN UPTURNED END OR ALONG ITS LENGTH, THE CONTRACTOR SHALL LOCATE THE LEAK(S) AND TAKE REPAIR MEASURES TO STOP THE LEAKAGE. THE REPAIR MEASURES SHALL BE AS RECOMMENDED BY THE MANUFACTURER AND APPROVED BY THE ENGINEER PRIOR TO BEGINNING CORRECTIVE WORK.

IF MEASURES TO ELIMINATE LEAKAGE ARE TAKEN, THE CONTRACTOR SHALL PERFORM SUBSEQUENT WATERTIGHT INTEGRITY TESTS SUBJECT TO THE SAME CONDITIONS AS THE ORIGINAL TEST.

DESIGN FOR REPAIRS TO 15° SKEW R.A.

685'-0 x 44'-0 CONTINUOUS WELDED GIRDER BRIDGE

117'-6 END SPANS — THREE - 150'-0 INTERIOR SPANS

EXPANSION DEVICE NOTES

STA. 450+12.5 — NOVEMBER, 2010

DES MOINES COUNTY

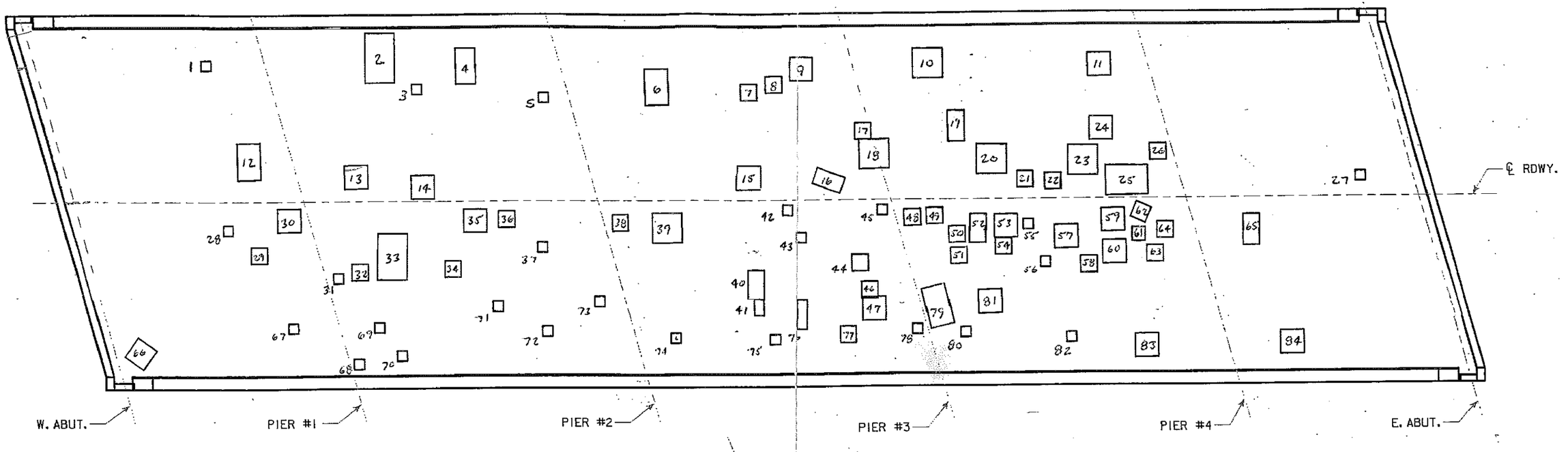
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 10 OF 11 — FILE NO. 30522 — DESIGN NO. 111

DESIGN TEAM DLB / BDK / RDM	F-SHAPE EXPANSION DEVICE DETAILS STEEL EXTRUSION WITH NEOPRENE GLAND (2 OF 2)	STANDARD SHEET 1026s2	DES MOINES COUNTY	PROJECT NUMBER BRFN-061-2(88)--39-29	SHEET NUMBER 11

ENGLISHDECKRAILBRIDGES.DGN - 1026s2 - THIS SHEET ISSUED 11-08.

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PARTIAL DEPTH BRIDGE DECK REPAIR AREAS

DESIGN FOR REPAIRS TO 15° SKEW R.A.

685'-0 x 44'-0 CONTINUOUS WELDED GIRDER BRIDGE

117'-6 END SPANS — THREE - 150'-0 INTERIOR SPANS

DECK REPAIR AREAS

STA. 450+12.5 — NOVEMBER, 2010

DES MOINES COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 11 OF 11 FILE NO. 30522 DESIGN NO. 111

BRFN-061-2(88)--39-29

Partial Depth Bridge Deck Finish Patch

Patch No.	Location	Side	Length	Width	SF	Remarks
1	W. Abut to Pier #1	Outside Shoulder	1.8	1.8	3.2	
2	Pier #1 to Pier #2	Outside Shoulder	8.5	5.6	47.6	
3	Pier #1 to Pier #2	Outside Shoulder	1.9	2.4	4.6	
4	Pier #1 to Pier #2	Outside Shoulder	2.7	5.7	15.4	
5	Pier #1 to Pier #2	Outside Shoulder	2.1	1.7	3.6	
6	Pier #2 to Pier #3	Outside Shoulder	3.9	7.9	30.81	
7	Pier #2 to Pier #3	Outside Shoulder	2.6	2.6	6.8	
8	Pier #2 to Pier #3	Outside Shoulder	2.6	2.6	6.8	
9	Pier #2 to Pier #3	Outside Shoulder	3.8	4.1	15.6	
10	Pier #3 to Pier #4	Outside Shoulder	4.5	6.6	29.7	
11	Pier #3 to Pier #4	Outside Shoulder	2.8	5	14.0	
12	W. Abut to Pier #1	Outside Lane	4.2	7.0	29.4	
13	Pier #1 to Pier #2	Outside Lane	4.6	4.5	20.7	
14	Pier #1 to Pier #2	Outside Lane	4.3	5.5	23.7	
15	Pier #2 to Pier #3	Outside Lane	4.2	4.3	18.1	
16	Pier #2 to Pier #3	Outside Lane	6.1	2.6	15.86	
17	Pier #2 to Pier #3	Outside Lane	3.5	2.6	9.1	Tied A
18	Pier #2 to Pier #3	Outside Lane	7.5	5.2	39.0	Tied A
19	Pier #3 to Pier #4	Outside Lane	7.6	3.4	25.84	
20	Pier #3 to Pier #4	Outside Lane	6.6	7.7	50.82	
21	Pier #3 to Pier #4	Outside Lane	3.9	2.7	10.53	
22	Pier #3 to Pier #4	Outside Lane	4.2	4.2	17.6	
23	Pier #3 to Pier #4	Outside Lane	5.6	5.5	30.8	
24	Pier #3 to Pier #4	Outside Lane	4.1	3.7	15.2	
25	Pier #3 to Pier #4	Outside Lane	8.5	5.7	48.45	
26	Pier #3 to Pier #4	Outside Lane	2.7	2.9	7.83	
27	Pier #4 to E. Abut	Outside Lane	1.7	1.8	3.06	
28	W. Abut to Pier #1	Inside Lane	1.8	1.8	3.2	
29	W. Abut to Pier #1	Inside Lane	3.1	3.5	10.9	
30	W. Abut to Pier #1	Inside Lane	4.4	4.3	18.9	
31	Pier #1 to Pier #2	Inside Lane	1.9	2.3	4.4	
32	Pier #1 to Pier #2	Inside Lane	3.6	3.3	11.9	
33	Pier #1 to Pier #2	Inside Lane	5.9	8.2	48.4	
34	Pier #1 to Pier #2	Inside Lane	3.4	3.4	11.6	
35	Pier #1 to Pier #2	Inside Lane	4.9	3.8	18.6	
36	Pier #1 to Pier #2	Inside Lane	3.1	3.4	10.5	
37	Pier #1 to Pier #2	Inside Lane	1.9	2.3	4.4	
38	Pier #2 to Pier #3	Inside Lane	3	3.3	9.9	
39	Pier #2 to Pier #3	Inside Lane	4.6	6	27.6	
40	Pier #2 to Pier #3	Inside Lane	3.1	6.9	21.4	Tied B
41	Pier #2 to Pier #3	Inside Lane	5.5	2.1	11.6	Tied B
42	Pier #2 to Pier #3	Inside Lane	2.9	2.9	8.4	

BRFN-061-2(88)--39-29

Partial Depth Bridge Deck Finish Patch

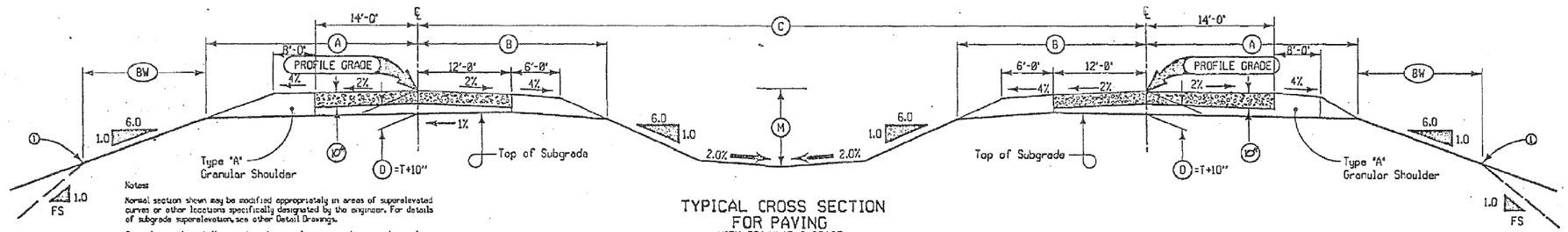
Patch No.	Location	Side	Length	Width	SF	Remarks
46	Pier #2 to Pier #3	Inside Lane	3.6	3.1	11.2	Tied C
47	Pier #2 to Pier #3	Inside Lane	3.5	3.6	12.6	Tied C
48	Pier #3 to Pier #4	Inside Lane	2.7	2.9	7.8	
49	Pier #3 to Pier #4	Inside Lane	3.0	3	9.0	
50	Pier #3 to Pier #4	Inside Lane	2.4	2.7	6.5	
51	Pier #3 to Pier #4	Inside Lane	3.5	3	10.5	
52	Pier #3 to Pier #4	Inside Lane	2.9	8.3	24.1	
53	Pier #3 to Pier #4	Inside Lane	4.7	5	23.5	Tied D
54	Pier #3 to Pier #4	Inside Lane	3.3	3.5	11.6	Tied D
55	Pier #3 to Pier #4	Inside Lane	4.6	4.4	20.2	
56	Pier #3 to Pier #4	Inside Lane	2.3	2.0	4.6	
57	Pier #3 to Pier #4	Inside Lane	4.5	4.5	20.3	
58	Pier #3 to Pier #4	Inside Lane	4.9	3.5	17.2	
59	Pier #3 to Pier #4	Inside Lane	3.9	4.3	16.8	
60	Pier #3 to Pier #4	Inside Lane	4.2	4	16.8	
61	Pier #3 to Pier #4	Inside Lane	6.0	3.3	19.8	
62	Pier #3 to Pier #4	Inside Lane	4.1	2.5	10.3	
63	Pier #3 to Pier #4	Inside Lane	2.4	2.3	5.5	
64	Pier #3 to Pier #4	Inside Lane	3.4	3.0	10.2	
65	Pier #4 to E. Abut	Inside Lane	2.5	6	15.0	
66	W. Abut to Pier #1	Inside Shoulder	3.8	3.4	12.9	
67	W. Abut to Pier #1	Inside Shoulder	1.5	1.5	2.3	
68	Pier #1 to Pier #2	Inside Shoulder	1.5	1.3	2.0	
69	Pier #1 to Pier #2	Inside Shoulder	2.5	2.3	5.8	
70	Pier #1 to Pier #2	Inside Shoulder	1.8	1.5	2.7	
71	Pier #1 to Pier #2	Inside Shoulder	2.2	2.0	4.4	
72	Pier #1 to Pier #2	Inside Shoulder	1.7	1.8	3.1	
73	Pier #1 to Pier #2	Inside Shoulder	2.3	1.3	3.0	
74	Pier #2 to Pier #3	Inside Shoulder	1.6	1.6	2.6	Core Hole
75	Pier #2 to Pier #3	Inside Shoulder	1.9	2.1	4.0	
76	Pier #2 to Pier #3	Inside Shoulder	8.1	2.0	16.2	
77	Pier #2 to Pier #3	Inside Shoulder	3.4	2.7	9.2	
78	Pier #2 to Pier #3	Inside Shoulder	2.0	1.4	2.8	
79	Pier #3 to Pier #4	Inside Shoulder	8.0	3.9	31.2	
80	Pier #3 to Pier #4	Inside Shoulder	1.9	1.3	2.5	
81	Pier #3 to Pier #4	Inside Shoulder	4.0	3.9	15.6	
82	Pier #3 to Pier #4	Inside Shoulder	2.8	2.9	8.1	
83	Pier #3 to Pier #4	Inside Shoulder	4.8	4.0	19.2	
84	Pier #4 to E. Abut	Inside Shoulder	4.0	4.3	17.2	
				Total	1223.77	

INDEX OF SHEETS

105-3
10-18-05

No.	Description
B.1	Index of Sheets
B.2-B.3	Roadway Typicals
C.1-C.6	Estimate Quantities and Tabulations
J.1	Traffic Control
U.1-U.2	Existing Details
U.3-U.4	Approach Details

TS-16



TYPICAL CROSS SECTION
FOR PAVING
WITH GRANULAR SUBBASE

Notes:

Normal section shown may be modified appropriately in areas of superelevated curves or other locations specifically designated by the engineer. For details of subgrade superelevation, see other Detail Drawings.

Centerline section shall coincide with centerline survey shown on plans unless specified otherwise.

For typical cross sections of ditches and backslopes for roadway in cut, refer to other detail drawings within the plans.

① Refer to Detail Project Plan and Cross Sections for specific locations of foreslope change.

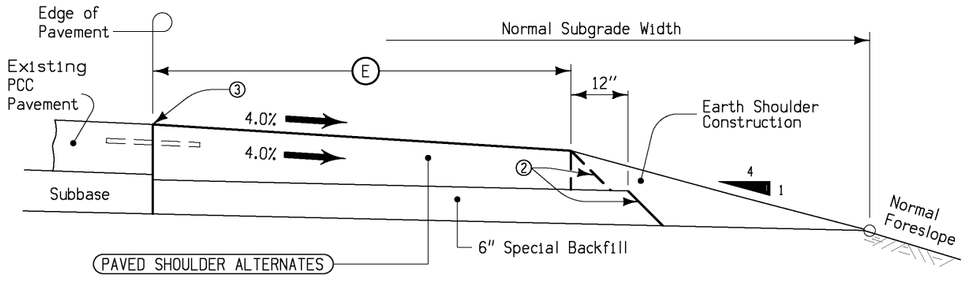
(M) Design depth of median ditch.

See typical 3217 on sheet B.2B for more details.

LOCATION		A	B	C	D	M	BW	SLOPE	
ROAD IDENTIFICATION	STATION TO STATION	Feet	Feet	Feet	Inches	Feet	Feet	FS	
U.S. HWY. 61	446+00	147+00	30.4	26.2	74.0	20	3.0	16.1	3:1	DIMENSION "C" AND "M" VARY FROM STA. 130+75 TO STA. 147+00
U.S. HWY. 61	147+00	175+00	30.4	26.2	124.0	20	4.0	16.1	3:1	DIMENSION "C" AND "M" VARY FROM STA. 147+00 TO STA. 169+72.03
U.S. HWY. 61	185+00	186+78.35	30.4	26.2	124.0	20	4.0	16.1	3:1	
U.S. HWY. 61	186+78.35	202+71.65	30.4	26.2	124.0	20	4.0	16.1	3:1	DIMENSION "C" AND "M" VARY FROM STA. 186+78.35 TO STA. 202+71.65
U.S. HWY. 61	202+71.65	211+00	30.4	26.2	74.0	20	3.0	15.1	3:1	
U.S. HWY. 61	219+50	277+50	30.4	26.2	74.0	20	3.0	16.1	3:1	

Existing Roadway Typical For Information Only

7119M
Modified



① Per station per side.

② Approximately 1:1 Slope

③ See Standard Road Plan PV-1 for joint requirements.

LOCATION		E	SIDE	QUANTITIES ①	
				SPECIAL BACKFILL	
ROAD IDENTIFICATION	STATION TO STATION	Feet		PCC Tons	HMA Tons
U.S. 61	456+43.39 to 453+78.39	6	Med.	25.4	25.4
U.S. 61	446+46.61 to 443+81.61	6	Med.	25.4	25.4
U.S. 61	456+43.55 to 453+78.39	8	Out.	32.4	32.4
U.S. 61	446+46.61 to 443+81.61	8	Out.	32.4	32.4

TYPICAL SECTION

Shoulder Strengthening Alternates
(8" HMA or 7" PCC)

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.

Paul W. Flattery — 11-12-2010
Signature — Date
Paul W. Flattery
Printed or Typed Name

My license renewal date is December 31, 2011

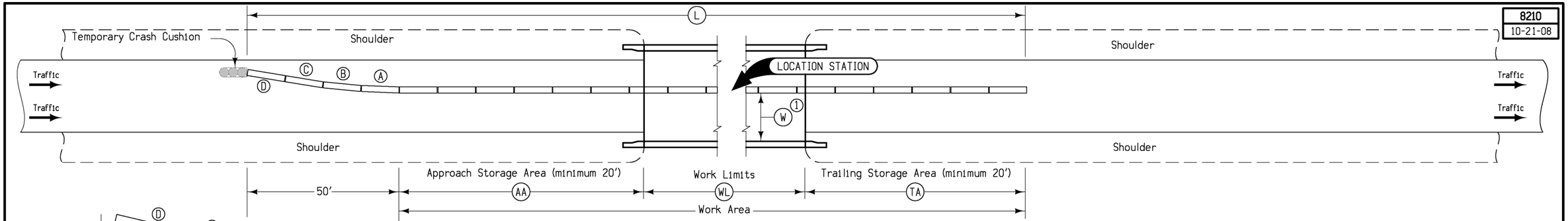
Pages or sheets covered by this seal: B.1- B.3, C.1-C.6, J.1, U.1-U.4

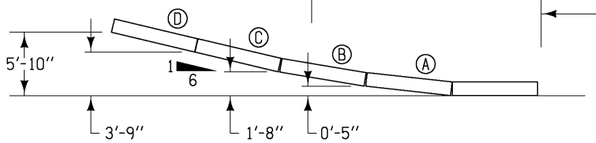
Design No. 111
File No. 30522

ENGLISH	IOWA DOT	DESIGN TEAM Flattery\Gansen\Smyth	DES MOINES COUNTY	PROJECT NUMBER BRFN-061-2(088)--39-29	SHEET NUMBER B.1

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8210
10-21-08





BARRIER OFFSETS FOR FLARE SECTIONS

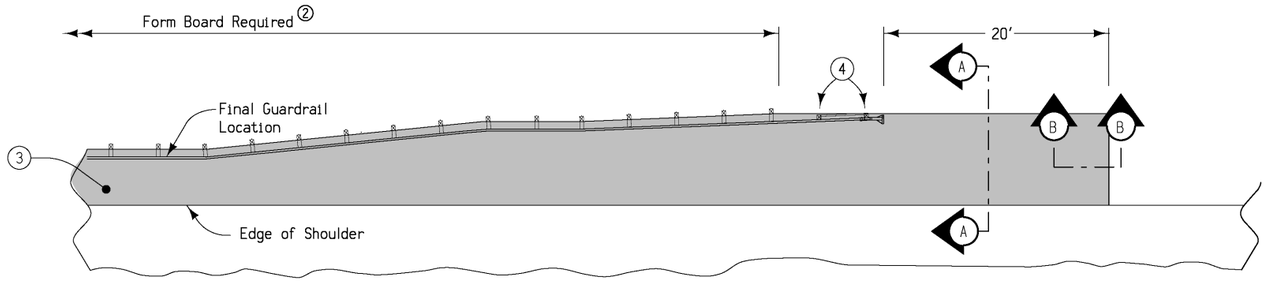
Station	Side	AA	WL	TA	L	Anchored	W (1)	Remarks
		Feet	Feet	Feet	Feet	X	Ft-Inches	
450+12.50	Med.	37.5	737.5	37.5	862.5		17-0	Stage 1
450+12.50	Out.	37.5	737.5	37.5	862.5		18-0	Stage 2

(1) Where (W) = 14'-6" or less, install restricted width signing as per Standard Road Plan TC-81.

TEMPORARY CONCRETE BARRIER LAYOUT for One-Way Traffic

7156M
Modified

DESIGNER INFO



Location			P	Subgrade (1) Treatment		HMA 6" Paved Shoulder	Remarks
Road Identification	Station To Station		Feet	Special Backfill Tons	Modified Subbase CY	SY	
US-61 SB	453+58.61	453+85.75	Out	1.6	1.5	-	4.8	
US-61 SB	453+85.75	454+11.15	Out	1.6-4.1	2.5	-	8.1	
US-61 SB	454+11.15	454+86.24	Out	4.1	10.8	-	34.5	
US-61 SB	454+86.24	455+36.17	Out	4.1-5.1	4.2	-	13.0	
US-61 SB	455+36.17	455+56.17	Out	5.1	7.9	-	25.5	
				TOTALS:	26.9	-	85.9	

6" HMA Paved Shoulder at guardrail. 7" PCC may be substituted pending approval of jointing layout.

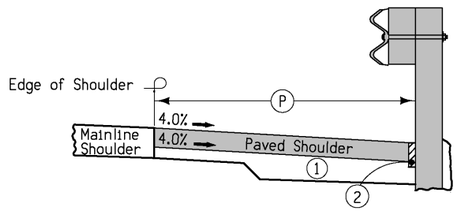
Compaction of HMA is required to face of guardrail post. Hand compaction will be allowed under guardrail. Removal & reinstallation of guardrail will be allowed with no additional payment.

(1) 6" subgrade treatment.

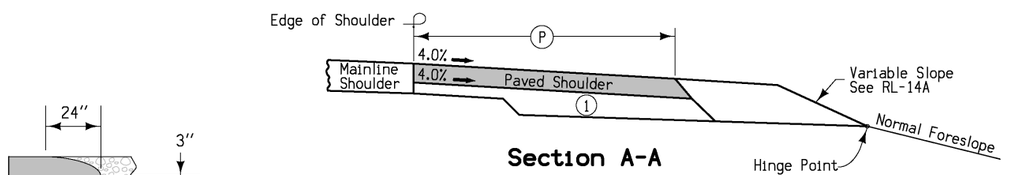
(2) When guardrail posts are installed prior to construction of paved shoulder, nail 1" x 6" untreated form boards along the face of guardrail posts for the length shown. This board is to prevent shoulder material from contacting the sides of the posts and altering the function of the guardrail. Form board not required for final 2 posts.

(3) Continue paved shoulder to existing paved shoulder or 20' beyond the end of guardrail.

(4) Shoulder may be notched for final 2 posts or post sleeves may be installed through pavement.



Typical Section with Form Board



Section A-A

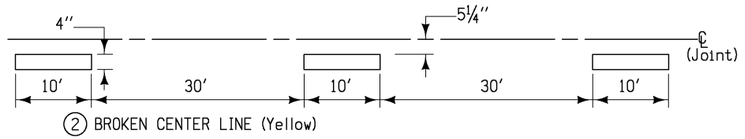
Section B-B

Roll down at granular shoulder or earth.

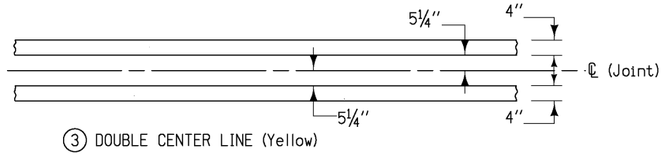
Design No. 111
File No. 30522

PAVED SHOULDER AT GUARDRAIL

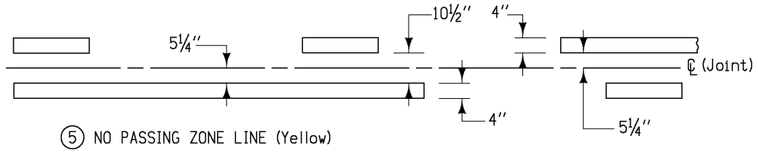
9001
04-20-04



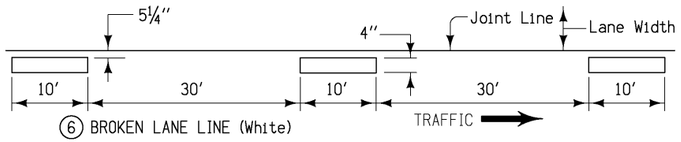
② BROKEN CENTER LINE (Yellow)



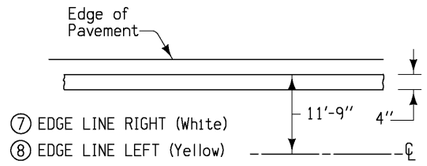
③ DOUBLE CENTER LINE (Yellow)



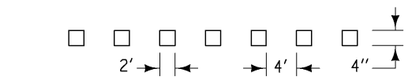
⑤ NO PASSING ZONE LINE (Yellow)



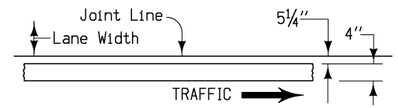
⑥ BROKEN LANE LINE (White)



⑦ EDGE LINE RIGHT (White)
⑧ EDGE LINE LEFT (Yellow)



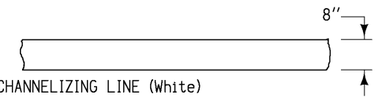
⑨ DOTTED LINE (White)



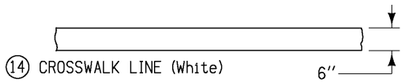
⑩ SOLID LANE LINE (White)



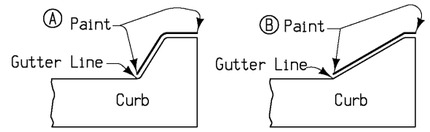
⑬ STOP LINE (White)



⑪ CHANNELIZING LINE (White)
⑫ CHANNELIZING LINE (Yellow)

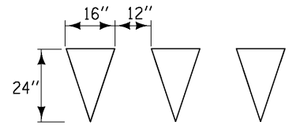


⑭ CROSSWALK LINE (White)

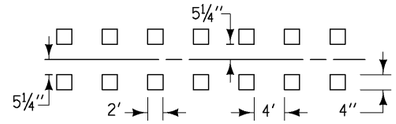


Ⓐ Paint 12″ width for 6″ Standard Curb,
Ⓑ Paint 14″ width for 6″ Sloped Curb.

⑮ YELLOW CURB ⑯ WHITE CURB



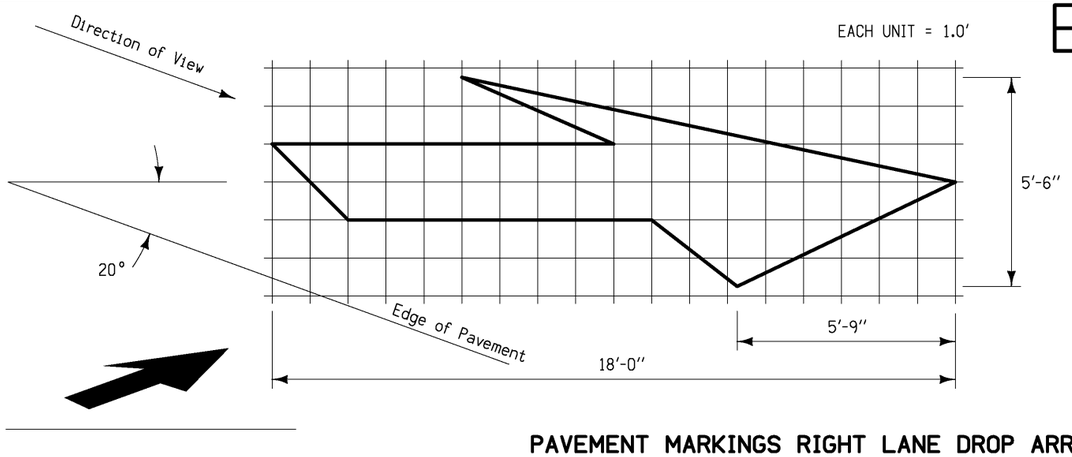
⑰ YIELD LINE (White)



⑱ DOUBLE DOTTED LINE (Yellow)

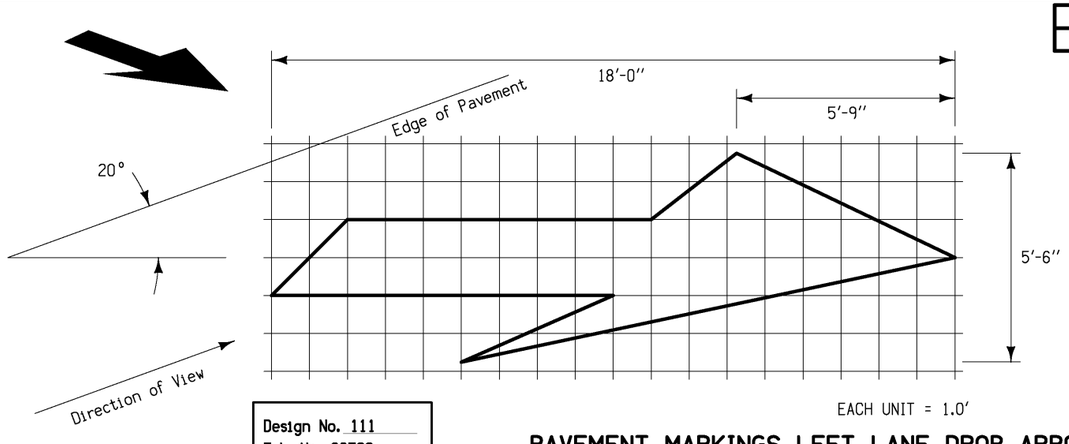
STANDARD TYPES OF PAVEMENT MARKINGS

9015
07-15-97



PAVEMENT MARKINGS RIGHT LANE DROP ARROWS

9016
07-15-97



Design No. 111
File No. 30522

PAVEMENT MARKINGS LEFT LANE DROP ARROWS

ENGLISH	IOWA DOT	DESIGN TEAM Flattery\Gansen\Smyth	DES MOINES COUNTY	PROJECT NUMBER BRFN-061-2(088)--39-29	SHEET NUMBER B.3

9:18:28 AM 10/15/2010 nhumpal W:\Projects\2906101010\Design\29061088B.sht

ESTIMATED PROJECT QUANTITIES

ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QUAN.
1	2102-0425070	SPECIAL BACKFILL	TON	~~333.7~~	251.24
2	2102-2625000	EMBANKMENT-IN-PLACE	CY	225.0	225.0
3	2122-5500060	PAVED SHOULDER, HOT MIX ASPHALT MIXTURE, 6 IN.	SY	~~85.9~~	0.0
4	2122-7450080	SHOULDER STRENGTHENING, OPTIONAL HOT MIX ASPHALT MIXTURE OR PORTLAND CEMENT CONCRETE, 8 IN.	SY	~~824.6~~	715.334
5	2123-7450000	SHOULDER CONSTRUCTION, EARTH	STA	~~10.80~~	9.09
6	2213-2713300	EXCAVATION, CLASS 13, FOR WIDENING	CY	~~618.6~~	293.88
7	2301-0685550	BRIDGE APPROACH PAVEMENT, AS PER PLAN	SY	202.8	202.8
8	2505-4008120	REMOVAL OF STEEL BEAM GUARDRAIL	LF	62.5	62.5
9	2505-4008300	STEEL BEAM GUARDRAIL	LF	100.0	100.0
10	2505-4008400	STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION	EACH	1	1.0
11	2505-4021010	STEEL BEAM GUARDRAIL END ANCHOR, BOLTED	EACH	1	1.0
12	2505-4021700	STEEL BEAM GUARDRAIL END TERMINAL	EACH	1	1.0
13	2510-6745850	REMOVAL OF PAVEMENT	SY	202.8	202.8
14	2527-9263109	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED	STA	~~59.40~~	62.355
15	2527-9263130	REMOVABLE TAPE MARKINGS	STA	~~22.20~~	23.99
16	2527-9263137	PAINTED SYMBOLS AND LEGENDS, WATERBORNE OR SOLVENT-BASED	EACH	~~8~~	0.0
17	2527-9263180	PAVEMENT MARKINGS REMOVED	STA	~~75.30~~	56.97
18	2527-9263190	SYMBOLS AND LEGENDS REMOVED	EACH	~~8~~	0.0
19	2528-8400048	TEMPORARY BARRIER RAIL, CONCRETE	LF	1,725.0	1725.0
20	2528-8400157	TEMPORARY FLOODLIGHTING LUMINAIRE	EACH	1	1.0
21	2528-8445110	TRAFFIC CONTROL	LS	1.00	1.0
22	2551-0000110	TEMP CRASH CUSHION	EACH	2	2.0
23	2602-0000020	SILT FENCE	LF	~~125.0~~	33.0
24	2602-0000090	CLEAN-OUT OF SILT FENCE	LF	~~125.0~~	0.0
0325	2599-9999005	Water Cement Ratiion Is Non-Compliant	EACH	-1.0	-1.0
0330	2122-5190007	PCC Shoulder, PCC, 7"	SY	85.9	85.9
0335	6200-5000011	Price Adj./Aggregate Gradation Test Deviation	EACH	-1.0	-1.0
0340	6200-5000011	Price Adj./Aggregate Gradation Test Deviation	EACH	-1.0	-1.0
0345	6200-5000011	Price Adj./Aggregate Gradation Test Deviation	EACH	-1.0	-1.0
0350	2599-9999005	Improper Portland Cement Proportions	EACH	-1.0	-1.0
0355	2527-9263152	Pre-Cut Symbol & Legend, Regular Mark Tape	EACH	8.0	8.0

ESTIMATE REFERENCE INFORMATION

ITEM NO.	ITEM CODE	DESCRIPTION
1	2102-0425070	SPECIAL BACKFILL Refer to Tab. 112-9 on Sheet C.3, Typical 7119M on Sheet B.1, and Typical 7156M on Sheet B.2 for complete details. Existing PCC from pavement removal may be used on the project as special backfill.
2	2102-2625000	EMBANKMENT-IN-PLACE Included for the installation of guardrail blister, see Tab. 107-23 on Sheet C.4 for further information.
3	2122-5500060	PAVED SHOULDER, HOT MIX ASPHALT MIXTURE, 6 IN. To be placed in front of guardrail according to Typical 7156M on Sheet B.2.
4	2122-7450080	SHOULDER STRENGTHENING, OPTIONAL HOT MIX ASPHALT MIXTURE OR PORTLAND CEMENT CONCRETE, 8 IN. HMA, 7" PCC See Typical 7119M on Sheet B.1 and Tab. 112-9 on Sheet C.3.
5	2123-7450000	SHOULDER CONSTRUCTION, EARTH Includes 5.4 Sta. of 6 ft wide mainline shoulders, 5.4 Sta. of 8 ft mainline shoulders, and 0 Sta. of sideroad shoulders. Refer to Tab. 112-9 on Sheet C.3 and Typical 7119M on Sheet B.1 for details.
6	2213-2713300	EXCAVATION, CLASS 13, FOR WIDENING Refer to Tab. 112-9 on Sheet C.3 and Typical 7119M on Sheet B.1.
7	2301-0685550	BRIDGE APPROACH PAVEMENT, AS PER PLAN Only includes the double reinforced bridge approach pavement, refer to Sheet U.3 and U.4 and Tab. 112-6 on Sheet C.4. Refer to Standard Specification Section 2301 for further information.
8	2505-4008120	REMOVAL OF STEEL BEAM GUARDRAIL Refer to Tab. 110-7A on Sheet C.2 for locations and details.
9 10 11 12	2505-4008300 2505-4008400 2505-4021010 2505-4021700	STEEL BEAM GUARDRAIL STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION STEEL BEAM GUARDRAIL END ANCHOR, BOLTED STEEL BEAM GUARDRAIL END TERMINAL Refer to Tab. 108-8A on Sheet C.4 for further information.
13	2510-6745850	REMOVAL OF PAVEMENT Refer to Tab.110-1 on Sheet C.2.
14	2527-9263109	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED Refer to Tab. 108-22 on Sheet C.5 and Sheet J.1.
15	2527-9263130	REMOVABLE TAPE MARKINGS Refer to Tab. 108-22 on Sheet C.5 and Sheet J.1.
16	2527-9263137	PAINTED SYMBOLS AND LEGENDS, WATERBORNE OR SOLVENT-BASED See Tab. 108-29 on Sheet C.6.
17	2527-9263180	PAVEMENT MARKINGS REMOVED Refer to Tab. 108-22 on Sheet C.5 and Sheet J.1.
18	2527-9263190	SYMBOLS AND LEGENDS REMOVED See Tab. 108-29 on Sheet C.6.
19	2528-8400048	TEMPORARY BARRIER RAIL, CONCRETE For barrier rail layout see Typical 8210 on Sheet B.2 for details. Refer to Tab. 108-33 on Sheet C.3 for further information.
20	2528-8400157	TEMPORARY FLOODLIGHTING LUMINAIRE Refer to Tab. 108-27 on Sheet C.3.
21	2528-8445110	TRAFFIC CONTROL Refer to Traffic Control Plan on Sheet J.1.
22	2551-0000110	TEMP CRASH CUSHION Refer to Tab. 108-30 on Sheet C.3.
23	2602-0000020	SILT FENCE The quantity includes estimated locations for placement of "Silt Fence" to address erosion to be encountered during construction. Verify the specific locations with the Engineer prior to beginning placement. 453+50 33 LF
24	2602-0000090	CLEAN-OUT OF SILT FENCE This item is included for maintaining the silt fence during the construction of the project.

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01-20-84 212-1

Sounding and test boring data shown on plans were accumulated for designing and estimating purposes. Their appearance on the plan does not constitute a guarantee that conditions other than those indicated will not be encountered.

04-15-08 213-1

It shall be the contractor's responsibility to provide waste areas or disposal sites for excess material (excavated material or broken concrete) which is not desirable to be incorporated into the work involved on this project.

It shall be the contractor's responsibility to ensure that areas (including haul roads) selected for waste or disposal not impact 1) culturally sensitive sites or graves or 2) wetlands or "Waters of the U.S.", including streams or stream banks below the "ordinary high water mark", without an approved U.S. Army Corps of Engineers Section 404 Permit.

No payment for overhaul will be allowed for material hauled to these sites. No material shall be placed within the right-of-way, unless specifically stated in the plans.

04-30-02 213-7

Unless otherwise directed or authorized, all hot mix asphalt and other bituminous materials which are not specifically addressed or described in the contract documents shall become the property of the contractor.

The contractor, in accordance with current rules and regulations of the Iowa Department of Natural Resources, may:

1. With the approval of the Engineer, blend or otherwise process the material for use with shoulder or special backfill aggregate, for use on the project.
2. With the approval of the Engineer, place with material in areas designated by the Engineer as Soil Aggregate Subbase without extra charge.
3. Remove the material from the project and stockpile for the contractor's future use.

modified 232-3A

EROSION CONTROL: (Rural Seeding)

Following completion of work in a disturbed area, that portion of the area lying 8 feet adjacent to shoulder shall be seeded, fertilized, and mulched as follows:

SEEDING:
3 lbs. of Fescue or Fawn per 1000 sq. ft.

FERTILIZER:
17 lbs. of 13-13-13 (or equivalent) commercial fertilizer per 1000 sq. ft.

MULCH:
70 lbs. of dry cereal straw per 1000 sq. ft. All mulch shall be consolidated into the soil with a mulch stabilizer.

The preparation of the seedbed and the furnishing and application of seed, fertilizer, and mulch shall be considered incidental to mobilization and no extra compensation will be allowed.

01-20-84 232-5

The contractor shall not disturb desirable grass areas and desirable trees outside the construction limits. The contractor will not be permitted to park or service vehicles and equipment or use these areas for storage of materials. Storage, parking and service area(s) will be subject to the approval of the resident engineer.

06-07-94 232-8

The top six (6) inches of the disturbed areas shall be free of rock and debris and shall be suitable for the establishment of vegetation, subject to the approval of the Engineer.

10-28-97 232-10

The contractor is expected to have materials, equipment, and labor available on a daily basis to install and maintain erosion control features on the project. This may involve seeding, silt fence, rock ditch checks, silt basins, or silt dikes.

01-19-88 251-1

The contractor shall be responsible to maintain access to individual properties during construction.

Relocated access shall be completed to individual properties prior to removal of existing access.

If the permanent access cannot be completed prior to removal of the existing access, the contractor shall provide and maintain an alternate access. Temporary Granular Surfacing will be paid for as a contract item or by extra work.

06-22-84 251-2

The contractor is hereby notified that removal of any existing traffic markers, warning devices or guardrail barriers shall be scheduled subject to the approval of the Engineer. The contractor may be required to place temporary warning devices at certain locations where replacement features are not installed the same day during which any such removals take place.

STANDARD ROAD PLANS

105-4
04-20-10

The following Standard Road Plans shall be considered applicable to construction work on this project.

Number	Date	Title
BA-200	10-19-10	Steel Beam Guardrail Components
BA-201	10-19-10	Steel Beam Guardrail Barrier Transition Section
BA-202	04-20-10	Steel Beam Guardrail Bolted End Anchor
BA-205	04-20-10	Steel Beam Guardrail End Terminal
BA-250	10-19-10	Steel Beam Guardrail Installation at Concrete Barrier or Bridge End Post
BA-401	04-20-10	Temporary Barrier Rail (Precast Concrete)
BA-500	04-20-10	Temporary Crash Cushions Sand Barrel
EC-201	04-20-10	Silt Fence
PV-1	10-19-10	Joints
RL-14A	10-19-10	Guardrail Grading
RM-48	10-17-06	Temporary Floodlighting
SI-173	04-20-10	Object Markers
SI-211	10-19-10	Object Marker and Delineator Placement with Guardrail
TC-1	10-17-06	Work Not Affecting Traffic
TC-402	04-20-10	Shoulder Closure (Multi-Lane)
TC-418	04-20-10	Lane Closure on Divided Highway
TC-421	04-20-10	Lane Closure with TBR
TC-433	10-17-06	Pavement Marking Operations

REMOVAL OF PAVEMENT

110-1
04-19-05

Refer to Tabulation 102-5

* Not a Bid Item

Station to Station		Pavement Type	Area (Sq. Yds.)	Saw Cut* (Lin. Ft.)	Intakes and Utility Accesses (No.)	Remarks
453+78.39	453+57.50	PCC	101.4	24.0		Double reinforced bridge approach section.
446+67.50	446+46.61	PCC	101.4	24.0		Double reinforced bridge approach section.
	TOTAL:		202.8	48.0		

REMOVAL OF STEEL BEAM GUARDRAIL

110-7A
10-19-10

* Not a bid item.
(1) Lane(s) to which the installation is adjacent.

Location					Guardrail	End Terminals and Anchors*		Remarks
No.	(1) Direction of Traffic	Station to Station		Side	Remove LF	Remove No.	Type	
1	SB	453+58.00	452+95.50	OUT	62.5	2	ET & Anchor	

Design No. 111
File No. 30522

(1) Lane(s) to which the shoulder is adjacent. (2) Bid Item

(3) Applies only for Paved Shoulders constructed on projects with existing granular shoulders.

SHOULDERS

112-9
10-19-10

Location				Typical	Dimensions				Quantities								Remarks
Road Identification	Direction of Traffic (1)	Station to Station	Side		(T) Thickness Inches	(P) Width Feet	(G) Width Feet	(L) Length Feet	(2) Class 13 Excavation Widening Cu. Yds.	Earth Shoulder Fill Cu. Yds.	(2) Earth Shoulder Construction Sta.	(2) Special Backfill Tons	(2)(3) HMA Base Widening Tons	Hot Mix Asphalt Tons	(2) Paved Shoulder Sq. Yds.	(2) Granular Shoulder Tons	
																	Choose 7" PCC Option
	SB	444+37 TO 446+14	Med.	See B.2	8	6	-	240	49.56	66	1.77	~~67.4~~	-	81.4	118.0	-	"
	SB	453+62 TO 456+02	Med.	See B.2	8	6	-	177	67.2	66	2.4	~~67.4~~	-	81.4	160.0	-	"
	SB	443+39 TO 445+94	Out.	See B.2	8	8	-	237	91.8	66	2.55	~~86~~	-	107	226.667	-	"
	SB	453+42 TO 455+71	Out.	See B.2	8	8	-	~~265~~	85.32	66	2.37	~~86~~	-	107	210.667	-	"
	SB	453+59 TO 455+56	OUT.	See B.2	8	8											"
							Total:	654.0	293.88	264	9.09	~~306.8~~ 251.24	-	376.8	715.334	-	

TEMPORARY BARRIER RAIL

108-33
04-20-10

No.	Station To Station		Length LF	(Select One) Concrete BA-401	(Select One) Steel BA-400	Remarks
1	454+68.75	446+06.25	862.5	X		Stage 1 Outside Closure
2	454+68.75	446+06.25	862.5	X		Stage 2 Inside Closure
		Total:	1725			

TABULATION OF TEMPORARY FLOODLIGHTING LUMINAIRES

108-27
04-30-96

NO.	LOCATION STATION	TYPE	NUMBER LUMIN.	REMARKS
1	454+96		.5	Outside
			.5	Inside
		Total:	1	Refer to Standard TC-421

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

(2) Complete this section when using the Temporary Crash Cushion bid item. Refer to Standard Road Plan BA-500.

CRASH CUSHIONS

* Bid Item

108-30
04-20-10

No.	(1) Direction of Traffic	Location Station	Side	Obstacle Width Feet	Crash Cushion (Select One)* Temporary	Temporary Redirective	Temporary Severe Use	Permanent	Permanent Severe Use	Sand Barrel Details (2) (V) Length Feet	(W) Length Feet	(X) Length Feet	(Y) Length Feet	(Z) Length Feet	Earthwork* Excavation Class 10 Cu.Yds.	Embankment in Place Cu.Yds.	Remarks
1	SB	454+68.75	Med.	2	X					2	24.25	7.25	5.25	12.5	(1)	(1)	Stage 1
2	SB	454+68.75	Out.	2	X					2	24.25	7.25	5.25	12.5	(1)	(1)	Stage 2
		Total:			2												

NOTE:
(1) Sand barrel placed on existing pavement, earthwork not required.

Design No. 111
File No. 30522

BRIDGE APPROACH SECTION

Refer to the RK-Series Standard Road Plans.

112-6
10-21-08

* Not a bid item

Location		Approach Pavement					Fixed or Movable Abutment	Subdrain					* Modified Subbase	* Polymer Grid	Remarks
Bridge Station	End	(T) Thickness	Pay Length	Non-Reinf. Pavement Area	Single-Reinf. Pavement Area	Double-Reinf. Pavement Area		* Perforated Subdrain 4"	* Subdrain Outlet		* Porous Backfill	Class 'A' * Crushed Stone Backfill			
									Station	Side					
		Inches	Feet	Sq. Yds.	Sq. Yds.	Sq. Yds.	F or M	Lin. Ft.			Cu. Yds.	Cu. Yds.	Tons	Sq. Yds.	
450+12.50	E	12	20.9	-	-	101.4	F	-	-	-	-	-	116.7	107.6	
450+12.50	W	12	20.9	-	-	101.4	F	-	-	-	-	-	116.7	107.6	
	TOTAL:		41.8	-	-	202.8		-	-	-	-	-	233.4	215.2	

GRADING FOR GUARDRAIL INSTALLATIONS

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

Refer to RL-14A

107-23
10-19-10

Location				Foreslope at Guardrail	Dimensions (Feet)									Slope in Front of Guardrail	Earthwork		Remarks
No.	(1) Direction of Traffic	Station	Side		(X1)	(Y1)	(X2)	(Y2)	(X3)	(Y3)	(X4)	(Y4)	(Z)		Excavation Class 10	Embankment in Place	
														%	CY	CY	
1	SB	453+58.61	Out	3:1	27.5	5.6	52.3	8.1	127.4	8.1	177.5	9.7	58.2	4		225	

STEEL BEAM GUARDRAIL AT CONCRETE BARRIER OR BRIDGE END POST

Refer to BA-200, BA-201, BA-202, BA-205, BA-250, SI-172, SI-173 and SI-211.

108-8A
10-19-10

Location Station			Layout Lengths				Delineators and Object Markers					Bid Items (1)						(1) See Standards for list of materials.
			(VT1)	(VF)	(VT2)	(ET) Terminal	Type	Delineator Type 1	Object Marker Type 2	Object Marker Type 3		End Anchor Bolted	Barrier Transition Section	Steel Beam Guardrail	End Terminal Standard	End Terminal Flared for Cable Connection	Adapter	
								White		OM-3L	OM-3R	BA-202	BA-201	BA-200	BA-205	BA-206	BA-210	
No.	Station	Offset	LF	LF	LF	LF		No.	No.	No.	No.	Type	No.	LF	No.	No.	No.	Remarks
1	453+58.61	-59.8	28.125	25	75	50	3				1	C	1	100	1			

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File No. 30522

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PAVEMENT MARKINGS

108-22
04-20-10

* See Typical 9001 for 'A' and 'B' designation

(2) Broken Center Line (Yellow) (5) No-Passing Zone Line (Yellow) (7) Edge Line Right (White) (9) Dotted Line (White) (11) Channelizing Line (White) (13) Stop Line (White) (15) Yellow Curb (17) Yield Line (White)
(3) Double Center Line (Yellow) (6) Broken Lane Line (White) (8) Edge Line Left (Yellow) (10) Solid Lane Line (White) (12) Channelizing Line (Yellow) (14) Crosswalk Line (White) (16) White Curb (18) Double Dotted Line (Yellow)

Location				Length (In Stations)																		
Road Identification	Station to Station		Side L	Side R	(2)	(3)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15A)*	(15B)*	(16A)*	(16B)*	(17)	(18)	Remarks
Stage 1																							
U.S. 61	462+01	462+71							0.7														
U.S. 61	456+47	460+40							3.93														
U.S. 61	444+33	456+46								12.13													
Stage 2																							
U.S. 61	443+40	455+65							12.25														
U.S. 61	455+65	459+58								3.93													
Stage 3																							
U.S. 61	444+34	456+46								12.7													
U.S. 61	444+35	456+56							12.2														
U.S. 61	456+47	460+40						4.06															
U.S. 61	462+90	476+90						14.0															
	Length Subtotals							18.06	29.08	28.76													Totals:
	Quantity Factors				.25	2	1	.25	1	1	.33	1	2	2	6	1.5	3	3.5	3	3.5	1.71	.66	62.355 Sta. (paint)
	Totals							4.515	29.08	28.76													Sta. (removable tape)

PAVEMENT MARKINGS REMOVED

108-22
04-20-10

* See Typical 9001 for 'A' and 'B' designation

(2) Broken Center Line (Yellow) (5) No-Passing Zone Line (Yellow) (7) Edge Line Right (White) (9) Dotted Line (White) (11) Channelizing Line (White) (13) Stop Line (White) (15) Yellow Curb (17) Yield Line (White)
(3) Double Center Line (Yellow) (6) Broken Lane Line (White) (8) Edge Line Left (Yellow) (10) Solid Lane Line (White) (12) Channelizing Line (Yellow) (14) Crosswalk Line (White) (16) White Curb (18) Double Dotted Line (Yellow)

Location				Length (In Stations)																		
Road Identification	Station to Station		Side L	Side R	(2)	(3)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15A)*	(15B)*	(16A)*	(16B)*	(17)	(18)	Remarks
Stage 1																							
U.S. 61	462+71	471+82							9.11														Removable Tape Marking
U.S. 61	454+35	456+46							2.11														Removable Tape Marking
U.S. 61	462+90	476+90						14.0															
U.S. 61	444+34	456+46								12.12													
U.S. 61	444+35	456+46							12.11														
Stage 2																							
U.S. 61	453+78	455+65								1.87													Removable Tape Marking
U.S. 61	460+92	471+82								10.9													Removable Tape Marking
Stage 3																							
U.S. 61	456+47	460+40								4.06													
U.S. 61	462+90	463+33								0.43													
U.S. 61	443+40	455+65							12.07														
	Length Subtotals							14.0	35.4	42.06													Totals:
	Quantity Factors				.25	2	1	.25	1	1	.33	1	2	2	6	1.5	3	3.5	3	3.5	1.71	.66	56.97 Sta. (paint)
	Totals							3.5	35.4	42.06													23.99 Sta. (removable tape)

Design No. 111
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TABULATION OF PAVEMENT MARKING SYMBOLS AND LEGENDS

REMOVED DELETED

108-29
04-28-98

ROAD IDENTIFICATION	LOCATION																	REMARKS
	STATION	SIDE										X RR	STOP	AHEAD	ONLY	SCHOOL	XING	
STAGE 1																		
U.S. 61	484+88.39	In.								1								
U.S. 61	483+88.39	In.								1								
U.S. 61	474+88.39	In.								1								
U.S. 61	473+88.39	In.								1								
STAGE 2																		
U.S. 61	484+88.39	Out.							1									
U.S. 61	483+88.39	Out.							1									
U.S. 61	474+88.39	Out.							1									
U.S. 61	473+88.39	Out.							1									
1	Total:								4	4								

TABULATION OF PAVEMENT MARKING SYMBOLS AND LEGENDS

108-29
04-28-98

ROAD IDENTIFICATION	LOCATION																	REMARKS
	STATION	SIDE										X RR	STOP	AHEAD	ONLY	SCHOOL	XING	
STAGE 2																		
U.S. 61	486+38	In.								1								Pre-Cut
U.S. 61	485+38	In.								1								Pre-Cut
U.S. 61	476+38	In.								1								Pre-Cut
U.S. 61	475+38	In.								1								Pre-Cut
STAGE 3																		
U.S. 61	486+38	Out.							1									Pre-Cut
U.S. 61	485+38	Out.							1									Pre-Cut
U.S. 61	476+38	Out.							1									Pre-Cut
U.S. 61	475+38	Out.							1									Pre-Cut
1	Total:								4	4								

Design No. 111
File No. 30522

ENGLISH	IOWA DOT	DESIGN TEAM Flattery\Gansen\Smyth	DES MOINES COUNTY	PROJECT NUMBER BRFN-061-2(088)--39-29	SHEET NUMBER C.6

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TABULATION OF SPECIAL EVENTS

102-15
10-29-02

Event	Location	Date
None known at this time, to be discussed at preconstruction meeting.		

TRAFFIC CONTROL PLAN

108-23
04-04-89

1. Through traffic on US 61 will be maintained on the project at all times.

2. Traffic control on this project shall be found in accordance with Standard Road Plans of the "TC" series listed in Tab. 105-4. For additional information, refer to Part 6 of the Manual on Uniform Traffic Control Devices and to the current Standard Specifications.

STAGING NOTES

108-26
08-30-88

STAGE 1
Install shoulder strengthening on outside shoulder.
Place TBR and crash cushions and close the inside lane.
Remove and place pavement markings as shown in Standard Road Plan TC-421.
Remove existing single reinforced bridge approach as shown on sheets U.1 and U.2.
Construct bridge repairs on inside lane.
Install new double reinforced bridge approach section as shown on Sheets U.3 and U.4.

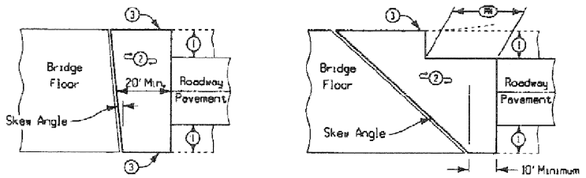
STAGE 2
Install shoulder strengthening on inside shoulder.
Place TBR and crash cushions and close the outside lane.
Remove and place pavement markings as shown in Standard Road Plan TC-421.
Remove existing single reinforced bridge approach as shown on sheets U.1 and U.2.
Construct bridge repairs on outside lane.
Install new double reinforced bridge approach section as shown on Sheets U.3 and U.4

STAGE 3
Remove TBR and crash cushions and place pavement markings.
Open both lanes to traffic.

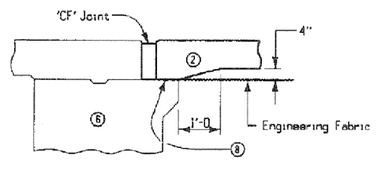
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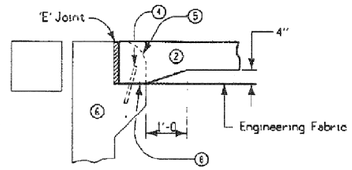
FEDERAL HIGHWAY ADMINISTRATION



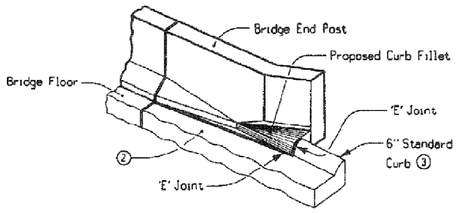
TWO LANE APPROACH PAVEMENT LAYOUTS AT VARIOUS SKEWS



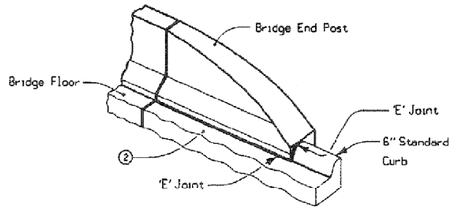
DETAIL "A"
Movable Abutment Bridge



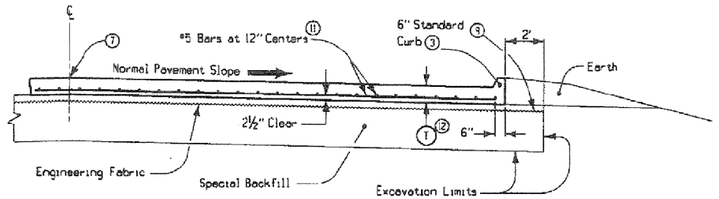
DETAIL "A"
Fixed Abutment Bridge



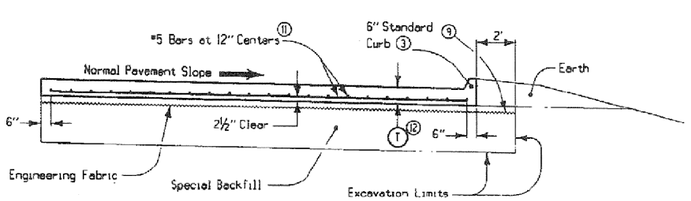
DETAIL "C"
Joint and Curb Fillet
at Bridge End Section



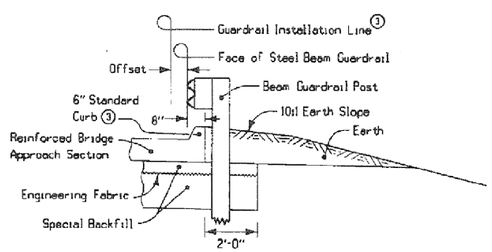
DETAIL "D"
Joints at Bridge
End Section



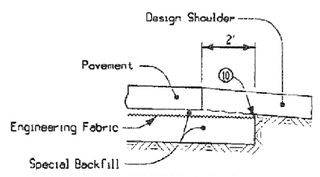
SECTION A-A



SECTION D-D



SECTION B-B
Curb Location Details



SECTION C-C

GENERAL NOTES:

The intent of this sheet is to detail the construction of a PCC bridge approach pavement. Sections and details apply to Standard Road Plans RK-16 and RK-19B through RK-19J.

Material and construction methods used shall be in accordance with current Standard and Supplemental Specifications.

The subgrade shall be excavated to the limits shown. A transverse subdrain shall be installed directly beneath the location of the proposed 'EF' joint. The excavation shall be backfilled with the specified material and an approved "Engineering Fabric" as specified in Section 4196 of the current Standard Specifications and installed as shown. The engineering fabric shall be secured to the top of the bridge paving notch and extended as shown.

A portion of the bridge approach pavement section shall be constructed of reinforced PCC with 6" standard curb; concrete used for construction shall be the same as indicated for the remainder of the pavement. The skew angle of the bridge shall determine the shape of the reinforced bridge approach section as detailed hereon. The short edge of the section shall be a minimum of 10'-0" and the length at the centerline of the roadway shall be a minimum of 20'-0". The pavement panels between the reinforced bridge approach section and the 'DW' or 'RT' joint shall be standard PCC paving as specified in the contract documents for mainline paving.

A curb fillet shall be placed on top of the bridge wingwall and against the bridge end post as detailed hereon. The top of the wingwall and the face of the lower slope of the end post shall be painted with a cement\water grout immediately before the fillet is placed. There shall be no ties or contact between the curb fillet and the curb or pavement of the approach section.

1. Design Shoulder Width.
2. Reinforced Bridge Approach Section.
3. Build 6" standard curb to end of Reinforced Bridge Approach Section. The location of the guardrail determines the location of the curb. The back of curb is located 8" back of the face of guardrail.
4. Reinforcing Bar.
5. Temporary paving block removed by paving contractor.
6. Bridge Abutment.
7. Longitudinal Joint: Single pour – no joint; Two pours – use 'KS' joint.
8. Secure engineering fabric on top of paving notch.
9. Extend Engineering Fabric to 2' outside edge of pavement.
10. Trim fabric to edge of excavation.
11. Add one additional #5 bar parallel to skewed face when skew angle is 30 degrees or more.
12. T shall equal the new or existing pavement thickness, but not less than:
    10" on all Primary Road System projects.
    12" on all Interstate Road System projects.

Iowa Department of Transportation
Highway Division

NO.	DATE	REVISION
5	05-29-92	Revised notes 7 and 12. Eliminate note 13.

STANDARD ROAD PLAN RK-19A

Donald L. Cook 05-22-92
RECOMMENDED BY ROAD DESIGN ENGINEER DATE

George T. Sisson 05-22-92
APPROVED BY DEPUTY DIRECTOR DEVELOPMENT DATE

BRIDGE APPROACH SECTION
(GENERAL DETAILS)

Design No. 110
File No. 30172

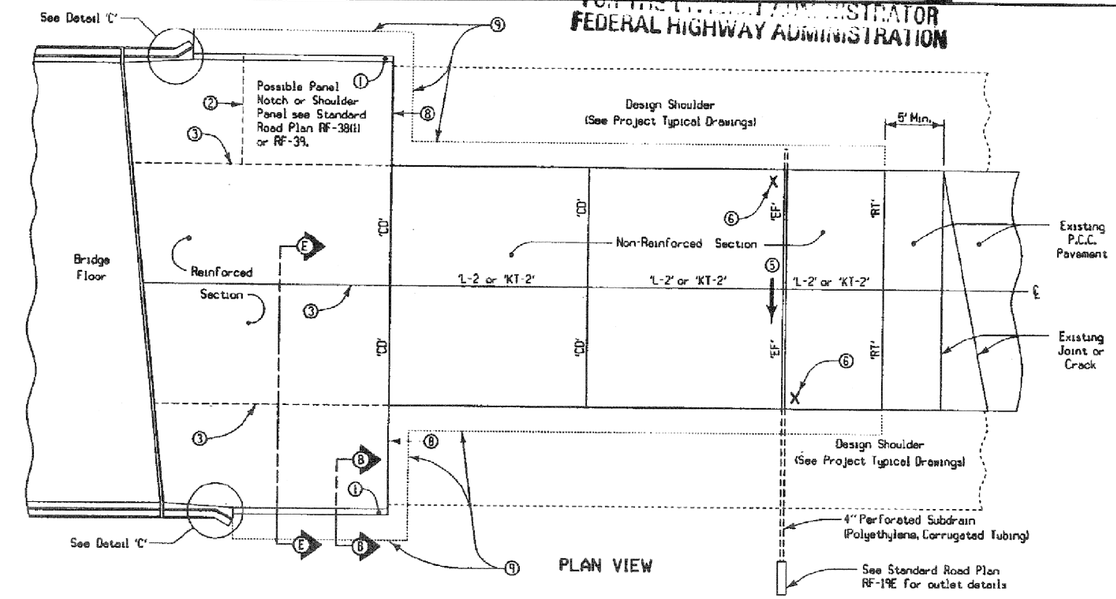
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For Information Only

EXISTING APPROACH

ENGLISH	IOWA DOT	DESIGN TEAM Flattery\Gansen\Smyth	DES MOINES COUNTY	PROJECT NUMBER BRFN-061-2(088)--39-29	SHEET NUMBER U.1

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FOR THE [illegible] ADMINISTRATOR
FEDERAL HIGHWAY ADMINISTRATION



GENERAL NOTES:

The intent of this plan is to detail the construction of a PCC Bridge Approach Section abutting PCC pavement. The length of this section shall be 45 feet or greater.

Material and construction methods used shall be in accordance with current Standard and Supplemental Specifications.

"Bridge Approach Section" shall be measured and paid for as specified in Articles 2301.34 and 2301.35 for Bridge Approach Section in the current Standard Specifications. The following items shall be considered incidental to and included in the price bid for "Bridge Approach Section":

- Furnishing and installing reinforcing steel, tie bars and dowel assemblies.
- Excavation for Special Backfill.
- Furnishing and installing Subdrain.
- Furnishing and placing Porous Backfill.
- Furnishing and installing Subdrain Outlet.
- Furnishing and installing Engineering Fabric.
- Furnishing and backfilling with Special Backfill.
- Placing, finishing, texturing, transverse grooving, curing, all joint construction and all other materials and labor to construct the "Bridge Approach Section" as detailed on this sheet.

(1) Build 6" curb to end of Reinforced Bridge Approach Section. The location of the guardrail determines the location of the curb. The back of curb is located 8" back of the face of guardrail.

(2) If panel notch is used, use 'RT' joint.

(3) Longitudinal Joint
Single Pour – No Joint.
Two Pours – Use 'KS' Joint.

(4) T = 10" on all primary road system projects.
T = 12" on all interstate road system projects.

(5) Slope Subdrain to Drain.

(6) An "X" shall be placed in the plastic concrete near the 'EF' joint at the outside edge of pavement.

(7) Minimum 1 panel, maximum 3 panels; 15' minimum 20' maximum panel length; use 'CD' Joints.

(8) Use 'RD' Joint where PCC shoulder, 'B' Joint otherwise.

(9) Excavation limits of Special Backfill 2' outside of pavement edge, see Standard Road Plan RK-19A.

For Section B-B, Detail 'A', and Detail 'C', see Standard Road Plan RK-19A.

For additional information see Standard Road Plans RH-50, RH-51, RH-52, RK-19A, and RF-19E.

Iowa Department of Transportation
Highway Division

STANDARD ROAD PLAN RK-19F

NO.	DATE	REVISION: Add 2' Special Backfill to section
1	02-20-92	

Donald L. Eastman — 11-03-92
RECOMMENDED BY ROAD DESIGN ENGINEER — DATE

George T. Sissen — 11-03-92
APPROVED BY DEPUTY DIRECTOR DEVELOPMENT — DATE

BRIDGE APPROACH SECTION
(AT EXISTING BRIDGES,
PCC PAVEMENT)

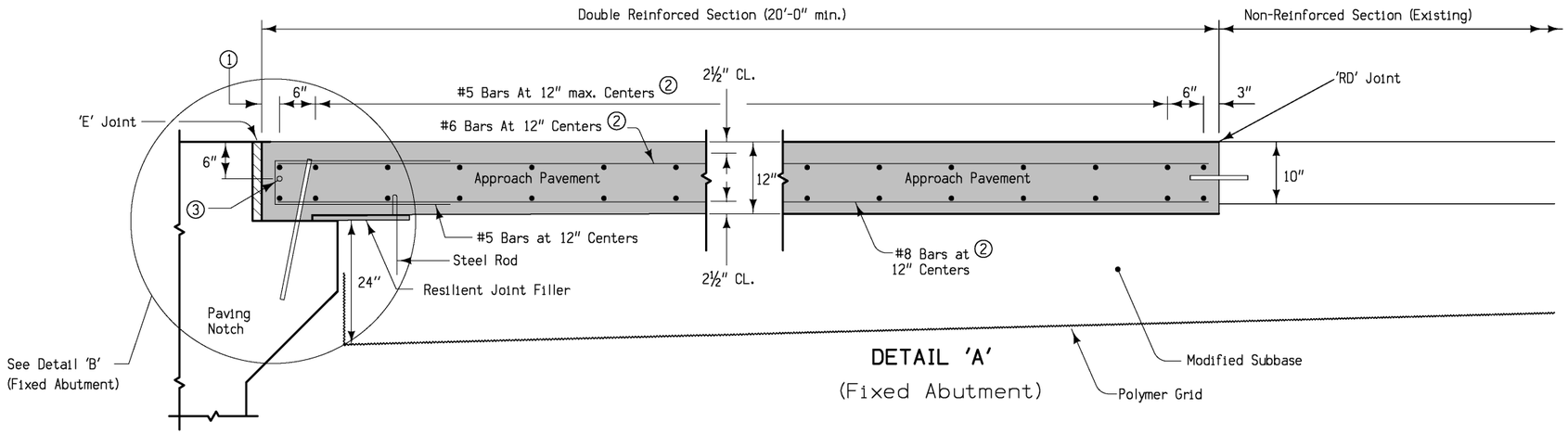
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File No. 30172

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For Information Only

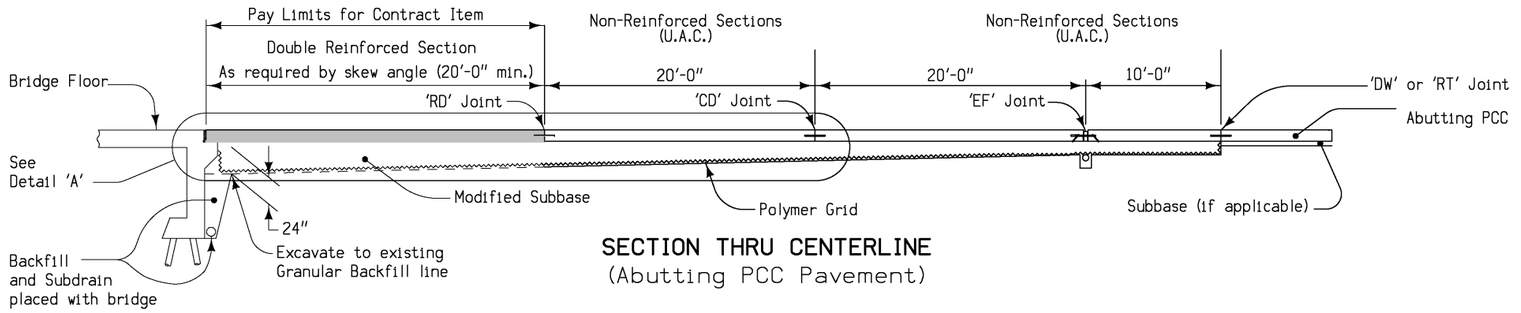
EXISTING APPROACH

ENGLISH	IOWA DOT	DESIGN TEAM Flattery\Gansen\Smyth	DES MOINES COUNTY	PROJECT NUMBER BRFN-061-2(088)--39-29	SHEET NUMBER U.2

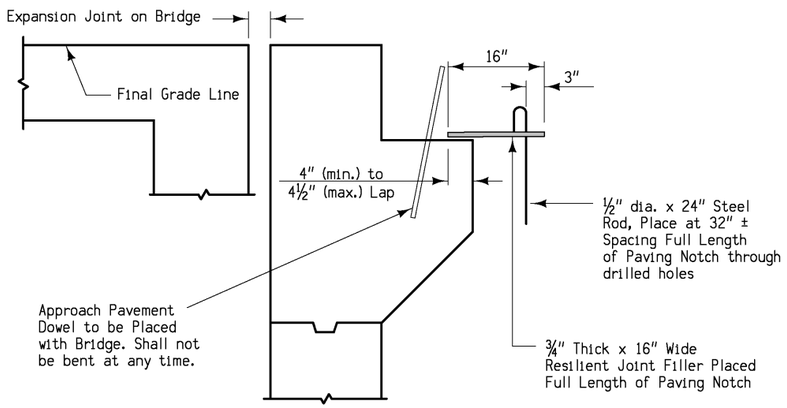
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DETAIL 'A'
(Fixed Abutment)



SECTION THRU CENTERLINE
(Abutting PCC Pavement)



DETAIL 'B' (Fixed Abutment)

For joint details, refer to PV-1.

All transverse bars are #5.

Possible Contract Item:

Bridge Approach, RK-20

Possible Tabulation: 112-6

① 2" min. to 2 1/2" max. clear to bent bar.

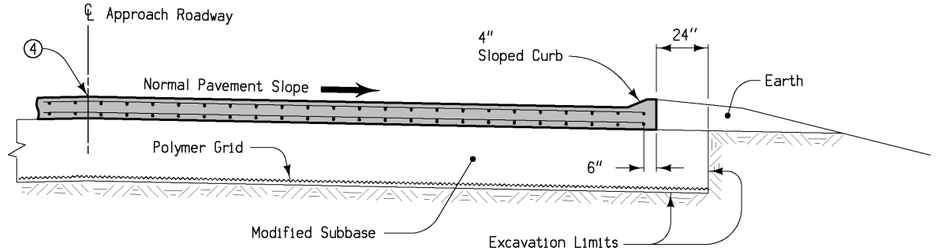
② Minimum lap length: #5 Bars - 18"
#6 Bars - 27"
#8 Bars - 48"

③ If bridge is skewed, place additional #5 bar parallel to skewed face.

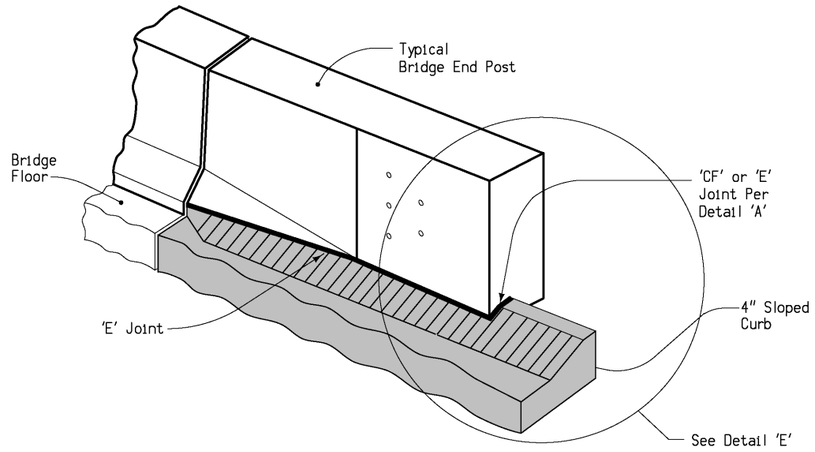
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File No. 30172

DOUBLE REINFORCED 12" APPROACH

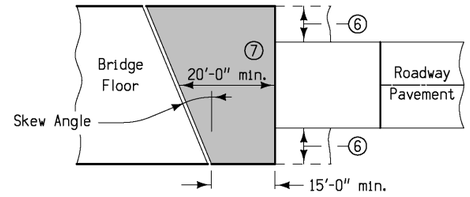
ENGLISH	IOWA DOT	DESIGN TEAM Flattery\Gansen\Smyth	DES MOINES COUNTY	PROJECT NUMBER BRFN-061-2(088)--39-29	SHEET NUMBER U.3



SECTION A-A ⑤



DETAIL 'D' ⑤
(Joint Placement)



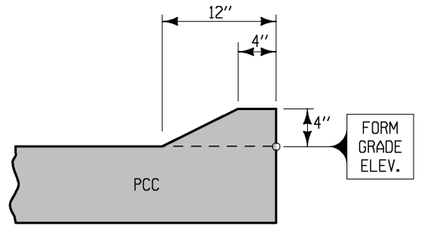
APPROACH PAVEMENT
LAYOUT AT A SKEW

④ Longitudinal Joint: (PV-1)
Single pour — Saw cut joint per Detail B.
Two pours — Use 'KS-2' Joint

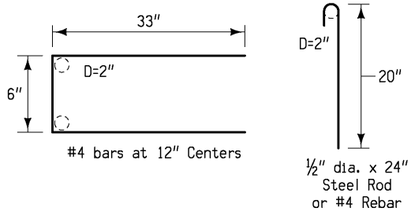
⑤ Refer to RK-21, RK-22, or RK-23.

⑥ Design shoulder width.

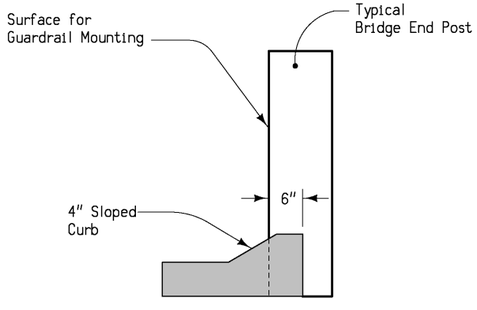
⑦ Reinforced bridge approach section.



4" SLOPED CURB



BENT BAR SHAPES



DETAIL 'E'
(Back of Curb Placement)

Design No. 110
File No. 30172

DOUBLE REINFORCED 12" APPROACH

ENGLISH	IOWA DOT	DESIGN TEAM Flattery\Gansen\Smyth	DES MOINES COUNTY	PROJECT NUMBER BRFN-061-2(088)--39-29	SHEET NUMBER U.4

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