

LISTING OF PROJECT REVISIONS					
DATE	SHEET NUMBER	DESCRIPTION OF REVISIONS	DATE	SHEET NUMBER	DESCRIPTION OF REVISIONS
07-10-2009	1A	REVISION SHEET ADDED			
07-10-2009	2	MODIFIED NOTES AND QUANTITIES TO REFLECT THE CHANGE FROM PERFORMING A NEOPRENE GLAND INSTALLATION TO PERFORMING A STEEL EXTRUSION JOINT WITH NEOPRENE GLAND INSTALLATION.			
07-10-2009	3	SHEET VOIDED.			
07-10-2009	4	OVERLAY DEFINITION AND LONGITUDINAL SECTIONS MODIFIED TO REFLECT INSTALLATION OF NEW STEEL EXTRUSION JOINT.			
07-10-2009	4A THRU 4A3	SHEETS 4A, 4A1, 4A2 AND 4A3 ADDED.			

STRUCTURAL DESIGN



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

Suren K. Gupta

07-10-2009

Signature

Surendra K. Gupta, P.E.

Printed or Typed Name

My license renewal date is December 31, 2009

Pages or sheets covered by this seal:

1, 1A, 2, 3, 4 THRU 4A3

GREENE COUNTY
DESIGN NO. 109
REVISION SHEET

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

NEOPRENE GLAND NOTES:

THE NEOPRENE GLAND SHALL BE SIMILAR TO THE EXISTING TYPE SS400 NEOPRENE GLAND AND BE MADE COMPATIBLE WITH THE EXISTING TYPE SS FRAME RAILS BOTH MANUFACTURED BY D.S. BROWN CO. SEE DESIGN NO. 182 FOR EXISTING JOINT DETAILS.

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 FURNISHING, 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.

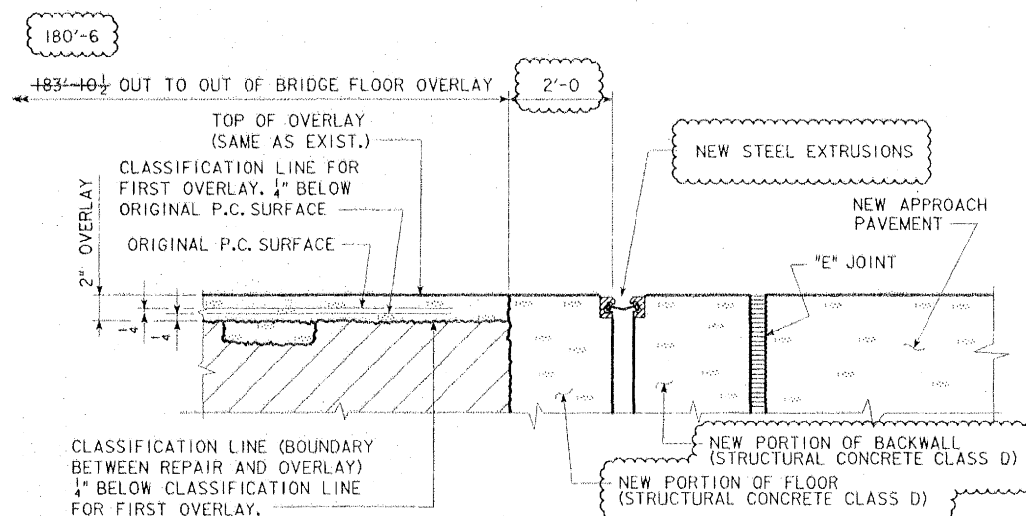
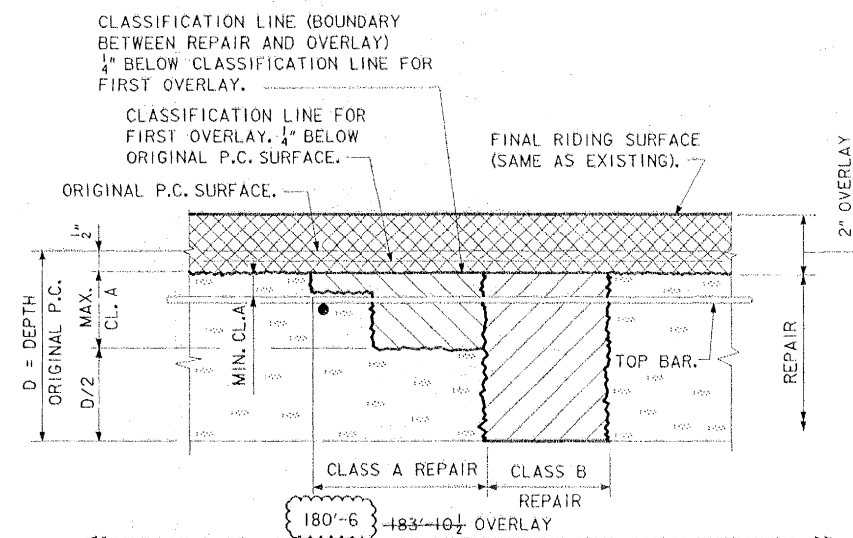
THE CONTRACTOR SHALL TEST THE EXPANSION DEVICE BETWEEN UPTURNED ENDS BY BLOCKING OUT AND COVERING THE DEVICE WITH PONDED OR FLOWING WATER TO A DEPTH OF AT LEAST 1" AT ALL POINTS, FOR AT LEAST 30 MINUTES. VERTICAL CURB SURFACES MAY BE TESTED WITH AN UNNOZZLED HOSE DELIVERING APPROXIMATELY ONE GALLON PER 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.

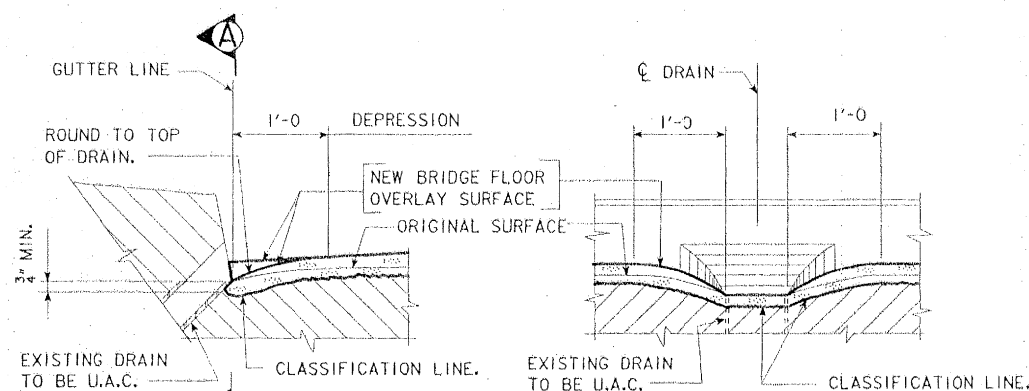
REVISED 07-10-2009.
THIS SHEET VOIDED.

DESIGN FOR REPAIRS TO A 0° SKEW
180'-0" x 28'-0" CONTINUOUS
I-BEAM BRIDGE
55'-0" END SPANS 70'-0" INTERIOR SPAN
EXPANSION DEVICE NOTES
STATION: 1245+15.00 JANUARY, 2009
GREENE COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 2 OF 6 FILE NO. 30348 DESIGN NO. 109

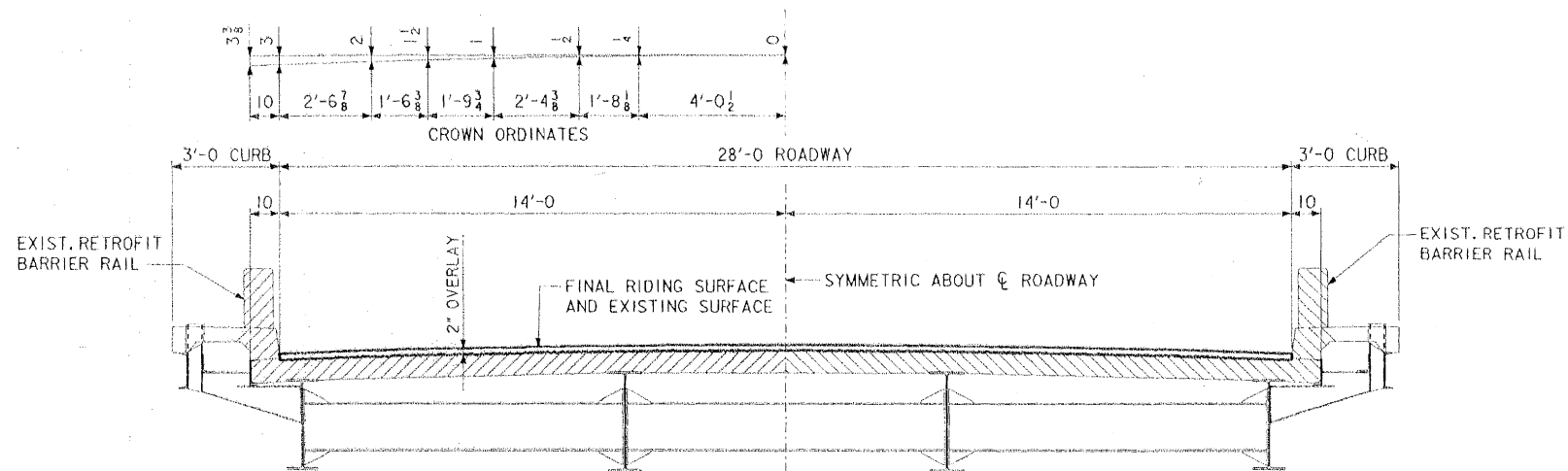


PART LONGITUDINAL SECTION ALONG ROADWAY

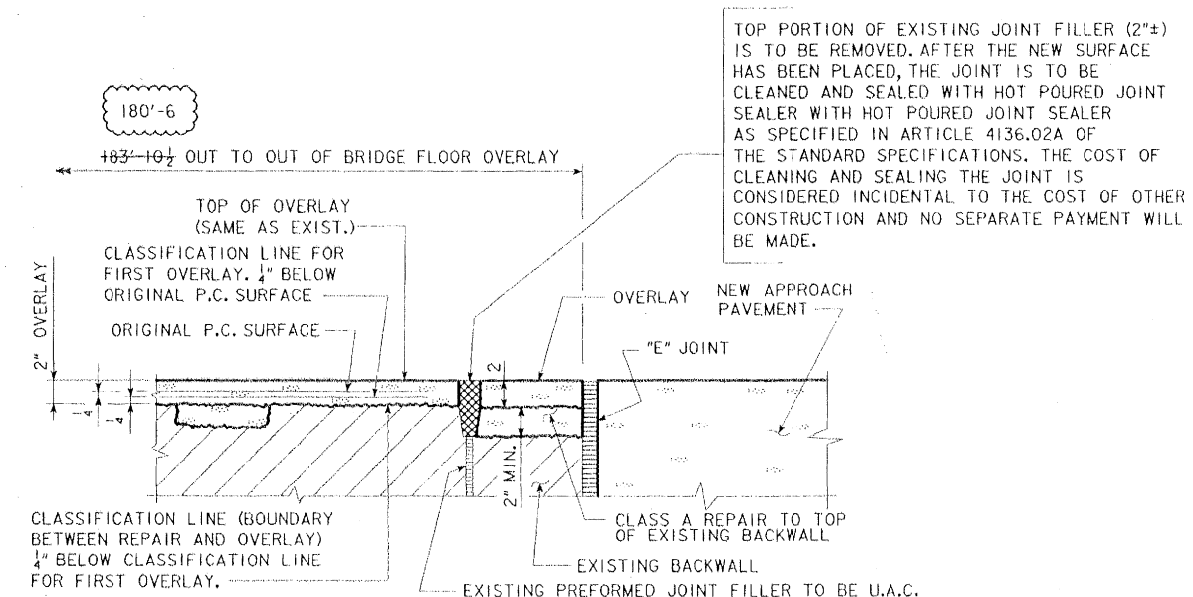
WEST ABUTMENT
(LOOKING SOUTH)



SECTION A-A
FLOOR REPAIR DETAIL AT DRAIN
(REQUIRED AT 8 LOCATIONS)

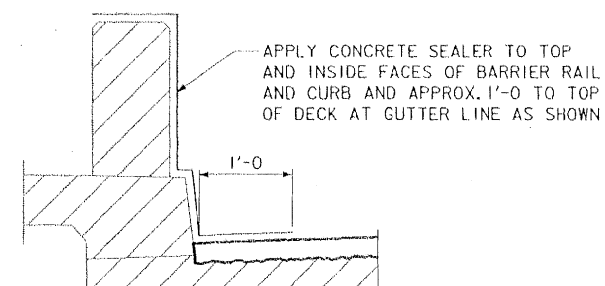


TYPICAL CROSS SECTION



PART LONGITUDINAL SECTION ALONG ROADWAY

EAST ABUTMENT
(LOOKING NORTH)



CONCRETE SEALER DETAIL

REVISED 07-10-2009.
PART LONGITUDINAL SECTIONS AT EAST AND WEST ABUTMENT AND
REPAIR AND OVERLAY DEFINITION MODIFIED.

DESIGN FOR REPAIRS TO A 0° SKEW
180'-0" x 28'-0" CONTINUOUS
I-BEAM BRIDGE

55'-0 END SPANS 70'-0 INTERIOR SPAN

DECK REPAIR DETAILS

STATION: 1245+15.00 JANUARY, 2009

GREENE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 3 OF 6 FILE NO. 30348 DESIGN NO. 109

W H K S & CO.

ENGINEERS PLANNERS LAND SURVEYORS

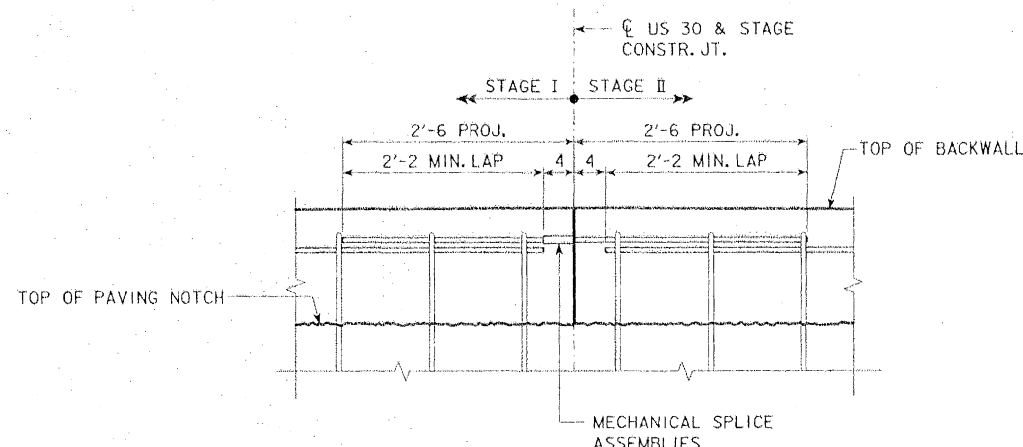
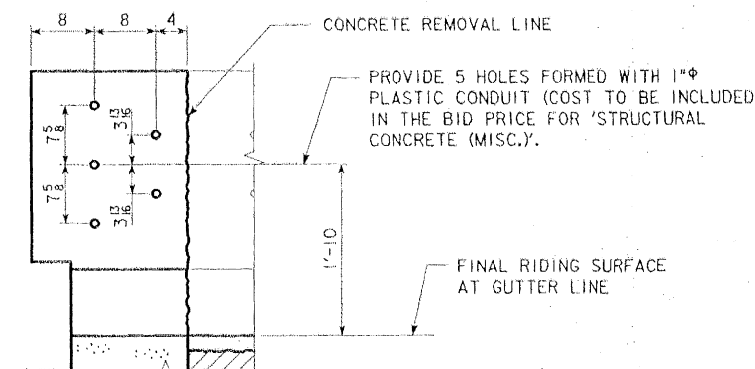
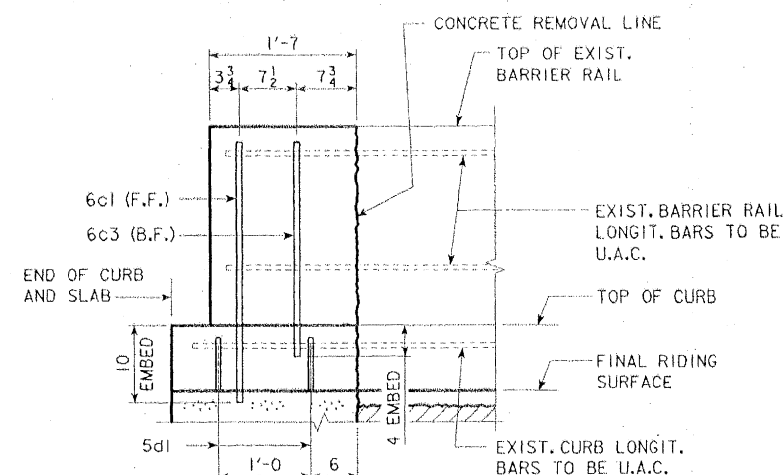
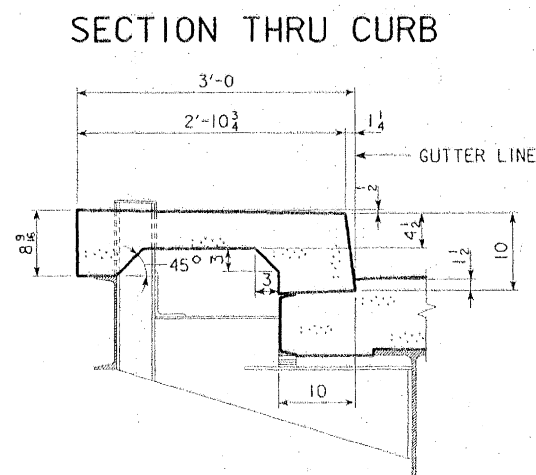
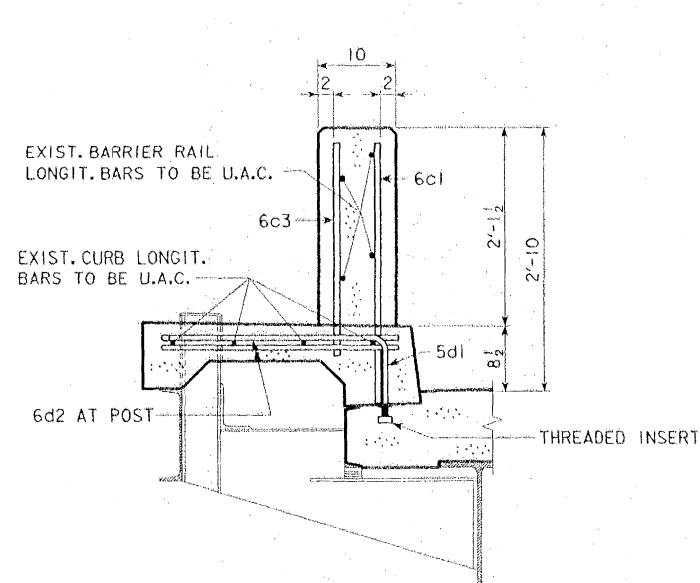
WASON CITY, IA DUBUQUE, IA AMES, IA ROCHESTER, MN

DESIGN TEAM S.K.G. / J.J.O. / M.A.F.

GREENE COUNTY

PROJECT NUMBER BRFN-030-3(39)--39-37

SHEET NUMBER 4



MECHANICAL SPLICE ASSEMBLIES:

THE 5d1 & 6d1 BARS IN THE WEST ABUTMENT BACKWALL AND DIAPHRAGM SHALL BE SPICED AT THE LOCATIONS SHOWN USING MECHANICAL SPICE ASSEMBLIES. MECHANICAL SPICE ASSEMBLIES CONSIST OF MECHANICAL SPICERS AND REINFORCING SPICE BARS AS REQUIRED TO FACILITATE THE USE OF THE MECHANICAL SPICER. THE MECHANICAL SPICE ASSEMBLY USED SHALL MEET THE REQUIREMENTS OF MATERIALS IM 451 APPENDIX E. REINFORCING SPICE BARS SHALL BE A MINIMUM OF 1/2 INCH DIA.

ALL MECHANICAL SPLICE ASSEMBLIES TO BE USED IN SPLICING 5a1 & 6b1 BARS IN THE WEST ABUTMENT BACKWALL AND DIAPHRAGM 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 6 EPOXY COATED SPLICE ASSEMBLIES WILL BE REQUIRED.

NOTES:

EXISTING SLAB, CURB, AND BARRIER RAIL LONGITUDINAL BARS AND BACKWALL VERTICAL BARS AND WING REINFORCING EXPOSED BY REMOVAL OPERATIONS SHALL BE CUT, CLEANED AND INCORPORATED INTO THE NEW WORK. BARS THAT ARE DAMAGED OR RENDERED UNSERVICABLE BY REMOVAL OPERATIONS SHALL BE REPLACED BY THE CONTRACTOR AT NO EXTRA COST TO THE STATE.

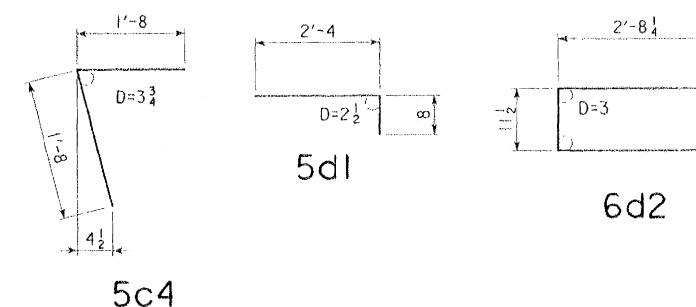
EPOXY COATED REINFORCING STEEL

MARK	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
5a1	LONGIT., ABUT. BACKWALL, TOP		4	14'-8	15
5a2	DOWEL, ABUT. BACKWALL, TOP		2	3'-2	7
6b1	TRANSV., SLAB		8	14'-7	175
6c1	VERT., BARRIER RAIL		8	2'-9	33
6c2	VERT., BARRIER RAIL		2	1'-8	5
6c3	VERT., BARRIER RAIL, B.F.		2	2'-6	8
5c4	VERT., DIAPHRAGM		28	3'-4	97
5d1	TRANSV., CURB		4	3'-0	13
6d2	TRANSV., CURB, AT POSTS		2	6'-5	19
				TOTAL (LBS)	372

CONCRETE PLACEMENT QUANTITIES

LOCATION	TOTAL (CY)
W. BACKWALL	1.7
W. SLAB & DIAPHRAGM	2.9
BARRIER RAIL	0.6
CURBS	0.3
TOTAL (CY)	5.5

BENT BAR DETAILS



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

DOWEL SETTING NOTE:

THE 5d2 BARS SHALL BE SET AS DOWELS IN DRILLED HOLES. HOLES ARE TO BE 10" DEEP. THE DOWELS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. EITHER OF THE FOLLOWING SYSTEMS MAY BE USED AS A BONDING AGENT FOR VERTICAL DOWELS, BUT ONLY SYSTEM "A" MAY BE USED FOR HORIZONTAL DOWELS:

A. POLYMER GROUT SYSTEM IN ACCORDANCE WITH STANDARD SPECIFICATIONS.
ARTICLE 2301.12.

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

W H K S & CO.

MASON CITY, IA DUBUQUE, IA AMES, IA ROCHESTER, MN

REVISED 07-10-2009.
THIS SHEET ADDED.

GREENE COUNTY

PROJECT NUMBER BRFN-030-3(39)-39-37

SHEET NUMBER 4A1

DESIGN FOR REPAIRS TO A 0° SKEW
180'-0" x 28'-0" CONTINUOUS
I-BEAM BRIDGE

55'-0" END SPANS 70'-0" INTERIOR SPAN

ABUTMENT REPAIR DETAILS

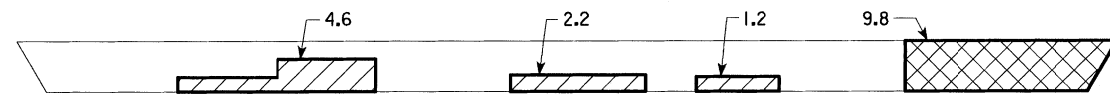
STATION: 1245+15.00

JANUARY, 2009

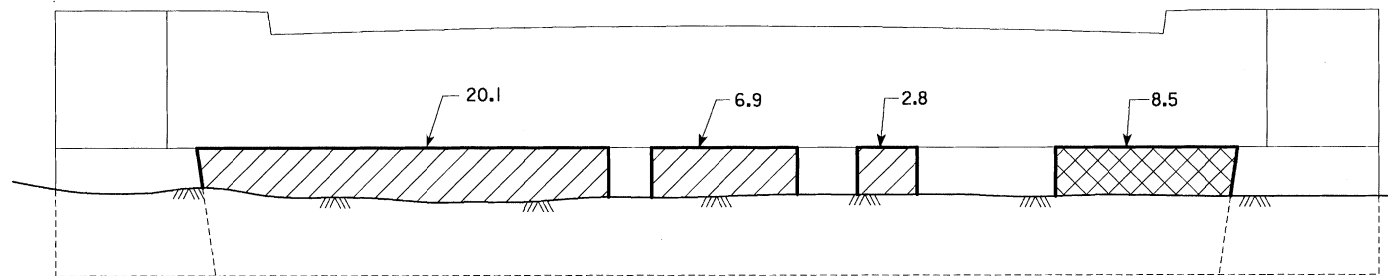
GREENE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

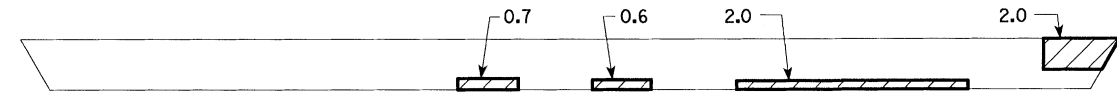
DESIGN SHEET NO. 3A1 OF 6 FILE NO. 30348 DESIGN NO. 109



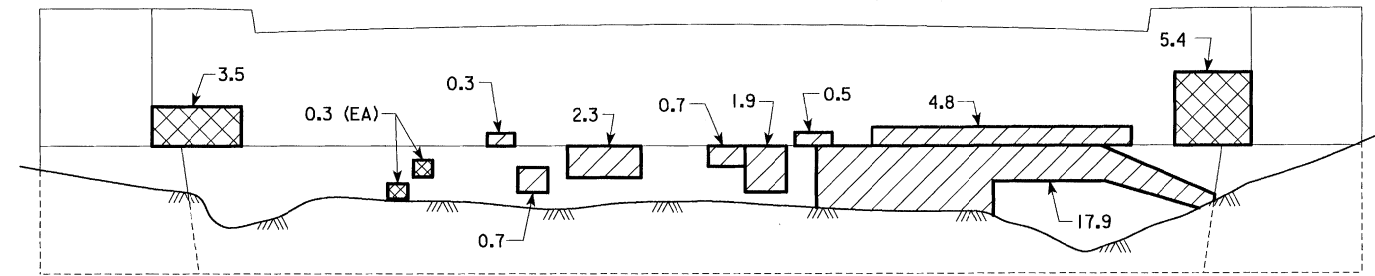
PLAN OF BRIDGE SEAT



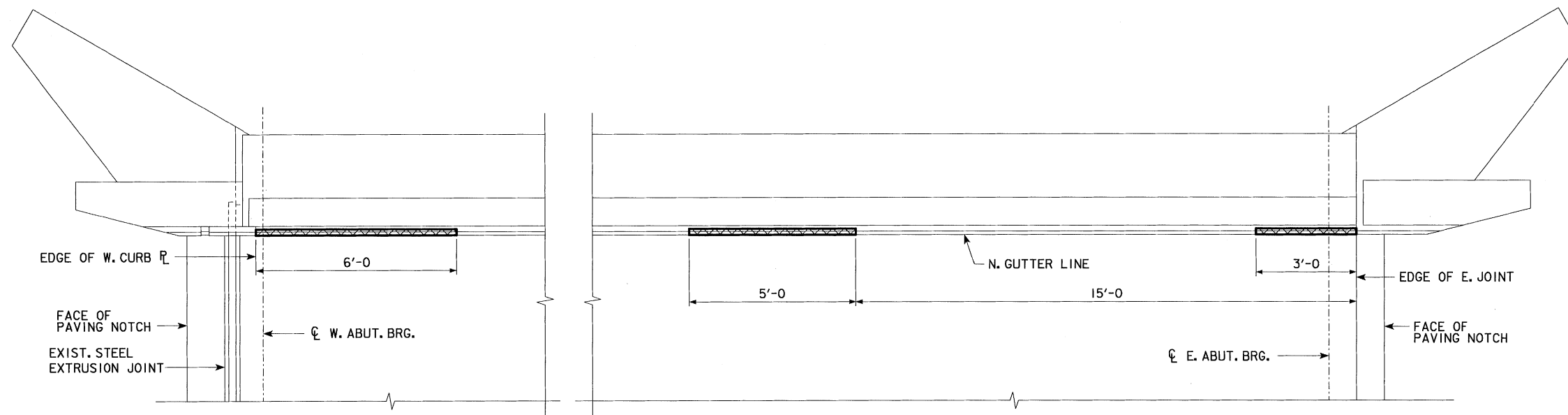
FRONT ELEVATION AT WEST ABUTMENT



PLAN OF BRIDGE SEAT



FRONT ELEVATION AT EAST ABUTMENT



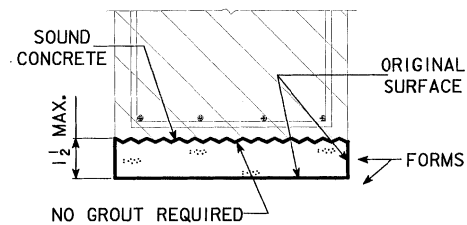
PLAN VIEW OF CURB REPAIR AREAS

-  SHALLOW REPAIR AREAS
-  REGULAR REPAIR AREAS

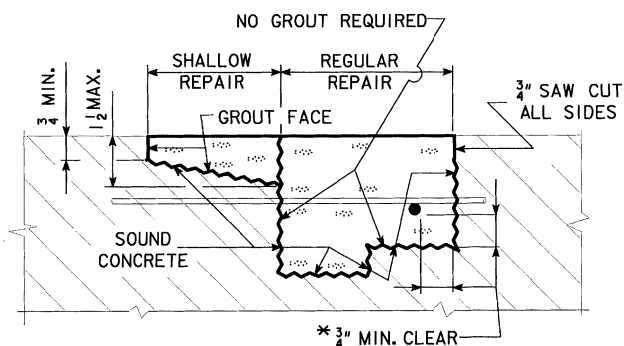
NOTE:
VALUES SHOWN ON REPAIR AREAS ARE IN SQUARE FEET. REPAIR AREAS SHOWN ARE APPROXIMATE. ACTUAL AREAS OF CONCRETE REPAIR SHALL BE DETERMINED IN THE FIELD AT THE TIME OF CONSTRUCTION.

DESIGN FOR REPAIRS TO A 0° SKEW
180'-0" x 28'-0" CONTINUOUS I-BEAM BRIDGE
 55'-0" END SPANS 70'-0" INTERIOR SPAN
CONCRETE REPAIR AREAS
 STATION: 1245+15.00 JANUARY, 2009
GREENE COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 4 OF 6 FILE NO. 30348 DESIGN NO. 109



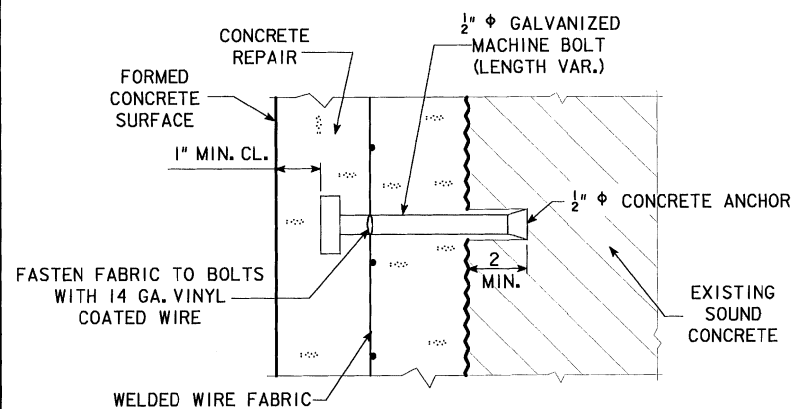


SHALLOW REPAIR
BOTTOM SURFACE



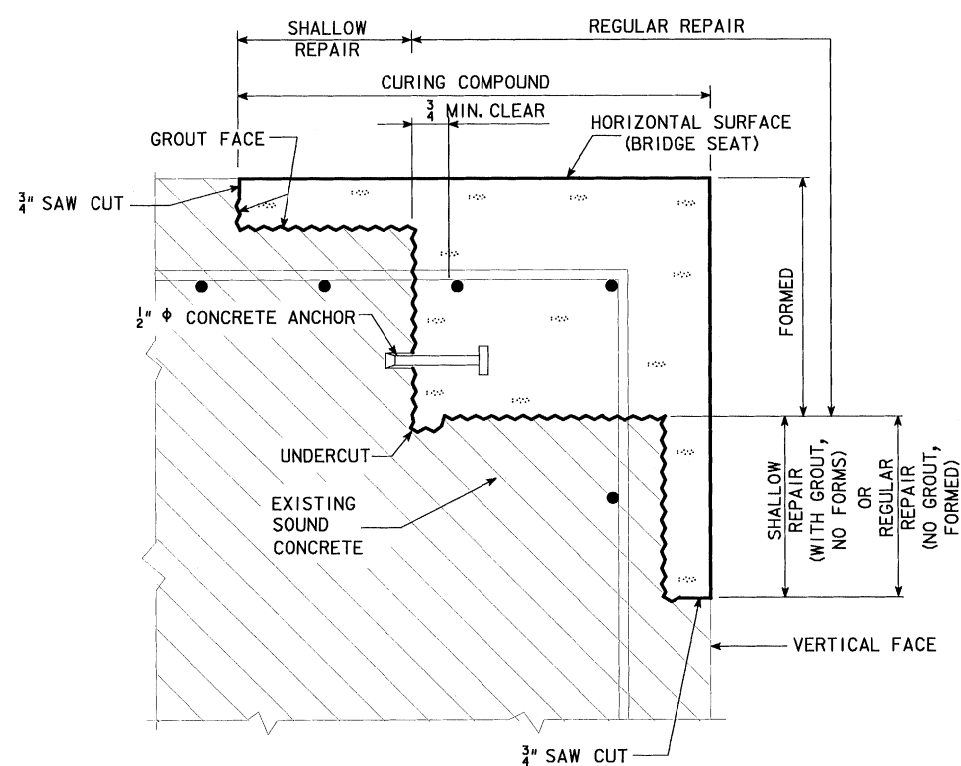
REPAIR DEFINITION

* INDICATES CLEARANCE FOR AN UN-BONDED REBAR.

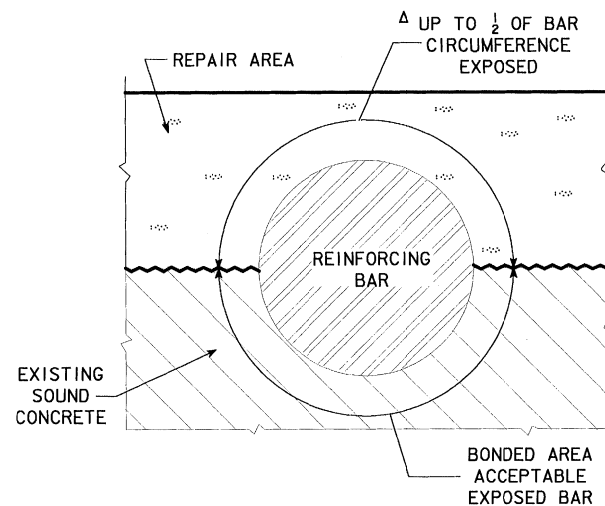


ANCHOR DETAIL

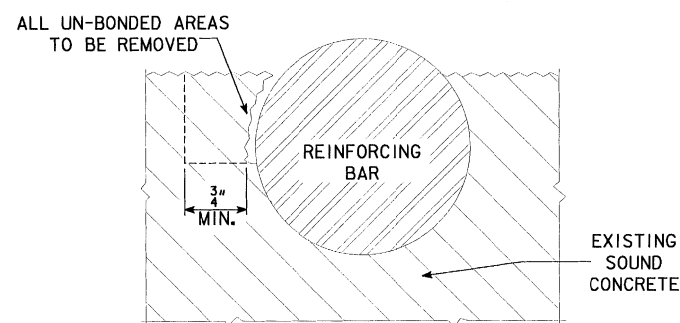
FOR SPACING AND USE OF CONCRETE ANCHORS
AND WWF SEE THE STANDARD NOTES.



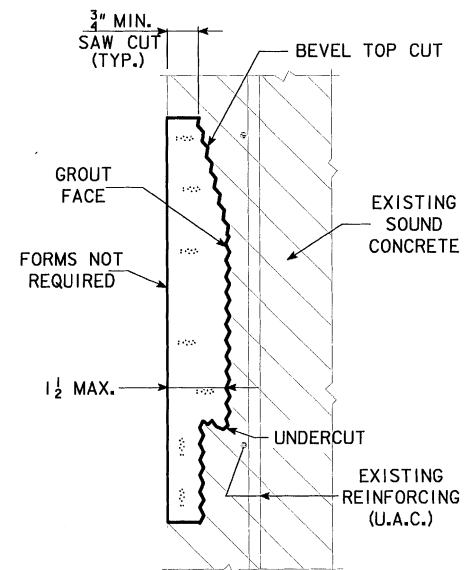
CORNER REPAIR



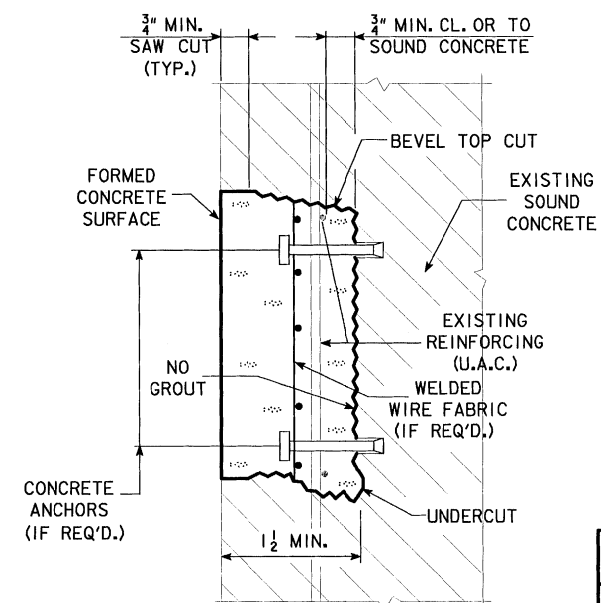
Δ IF MORE THAN 1/2 OF THE REBAR IS EXPOSED IT
SHALL BE TREATED AS AN UN-BONDED REBAR.



CONCRETE REMOVAL
ADJACENT TO REINFORCING



SHALLOW REPAIR
VERTICAL FACE



REGULAR REPAIR
VERTICAL FACE

STANDARD NOTES:
THE SPALLED AND HOLLOW AREAS OF THIS BRIDGE AS NOTED AND SHOWN IN THESE PLANS SHALL BE REPAIRED AS FOLLOWS:
ALL THE COSTS OF EQUIPMENT AND MATERIALS REQUIRED TO REPAIR THE SPALLED AND HOLLOW AREAS OF THIS BRIDGE SHALL BE INCLUDED IN THE PRICE BID FOR "CONCRETE REPAIR".
THE PRICE BID FOR "CONCRETE REPAIR" SHALL INCLUDE THE COST OF ALL CONCRETE ANCHORS AND MESH REQUIRED BY THE PLANS.
THE ENGINEER SHALL DETERMINE AND OUTLINE BY VISUAL AND AUDIBLE INSPECTION THE ACTUAL AREAS OF THE CONCRETE REPAIRS. THE CONTRACTOR SHALL BE PAID FOR THE ACTUAL AMOUNT OF REPAIRS MADE ON A SQUARE FOOT BASIS BASED ON THE PRICE BID PER SQUARE FOOT.
ALL EXISTING REINFORCING BARS THAT ARE EXPOSED BY CONCRETE REMOVAL SHALL BE CLEANED AND CAREFULLY INCORPORATED INTO THE NEW WORK, EXCEPT BADLY DETERIORATED EXISTING REINFORCING WHICH SHALL BE REPLACED AS DIRECTED BY THE ENGINEER.
THE CONCRETE ANCHORS REQUIRED SHALL HAVE A MINIMUM PULL OUT OF 5000 LBS. BASED ON 4000 PSI CONCRETE. AN ANCHOR MEETING THE REQUIREMENTS OF IOWA D.O.T. MATERIALS I.M. 453.09 AND THE PULL OUT LOAD ABOVE IS REQUIRED. THE ANCHORS SHALL BE GALVANIZED AND SHALL BE INSTALLED ACCORDING TO RECOMMENDATIONS OF THE MANUFACTURER. THE COST OF FURNISHING AND INSTALLING THE CONCRETE ANCHORS SHALL BE INCLUDED IN THE PRICE BID FOR "CONCRETE REPAIR".
THE WELDED WIRE FABRIC SHALL BE ASTM A185 AND GALVANIZED AS PER ASTM A-641. THE WWF WIRES SHALL BE SPACED 3 X 3 OR 4 X 4 AND THE WIRES SHALL HAVE A NOMINAL AREA OF 0.014 TO 0.029 SQUARE INCHES INCLUSIVE, EXAMPLE "WWF 3 X 3 - W1.4 X W2.9".
WHERE REINFORCEMENT HAS BEEN EXPOSED AND CLEARANCE AROUND THE PERIPHERY OF THE EXISTING BAR IS PROVIDED NO SUPPLEMENTAL REINFORCING IS REQUIRED, EXCEPT WHERE EXISTING REINFORCEMENT DENSITY AND PATTERN ARE SUCH THAT INDIVIDUAL OPEN SPACES BETWEEN BARS ARE OF 1.5 SQUARE FOOT OR LARGER. FOR THIS CONDITION 1/2 CONCRETE ANCHORS AND WELDED WIRE FABRIC SHALL BE INSTALLED AT THE RATE OF ONE CONCRETE ANCHOR WITH WWF PER EACH 1.5 SQUARE FEET OF AREA WITHIN EACH OPEN SPACE.
SEE "STRUCTURAL CONCRETE REPAIR" IN CURRENT STANDARD SPECIFICATIONS FOR MORE INFORMATION CONCERNING THIS WORK.

CONCRETE PLACEMENT QUANTITIES

MARK	TYPE	UNITS	QUANTITY
①	SHALLOW REPAIR	SQ. FT.	72.2
②	REGULAR REPAIR	SQ. FT.	41.8
		TOTAL (SQ. FT.)	114.0

ESTIMATED CONCRETE REPAIR QUANTITIES

DESCRIPTION	UNITS	AMOUNT
CONCRETE REPAIR	SQ. FT.	114.0

DESIGN FOR REPAIRS TO A 0° SKEW
180'-0" X 28'-0" CONTINUOUS
I-BEAM BRIDGE

55'-0" END SPANS 70'-0" INTERIOR SPAN

CONCRETE REPAIR DETAILS

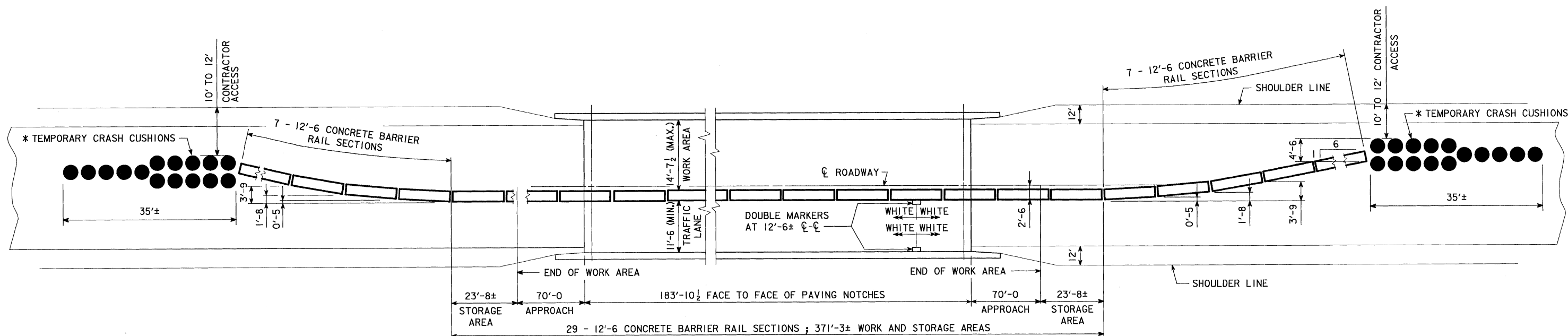
STATION: 1245+15.00 JANUARY, 2009

GREENE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 5 OF 6 FILE NO. 30348 DESIGN NO. 109

REVISED 10-08 - REFLECTOR TERMINOLOGY CHANGED TO MARKER NOTES CHANGED TO OMIT TIE-DOWN INFORMATION.
ENGLISH MISCELLANEOUS BRIDGES.DGN 1050A - THIS SHEET ISSUED 11-06.

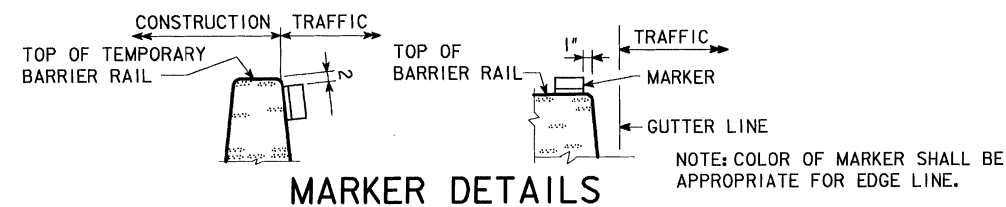


TEMPORARY CONCRETE BARRIER RAIL LAYOUT FOR TWO WAY TRAFFIC

*** NOTE:**

FOR TEMPORARY CRASH CUSHION DETAILS SEE STANDARD ROAD PLAN RE-85.

COST OF TEMPORARY CRASH CUSHIONS TO BE INCLUDED
WITH ROADWAY BID ITEMS.



CONCRETE TEMPORARY BARRIER RAIL NOTES:

CONCRETE TEMPORARY BARRIER RAIL SHALL BE CONSTRUCTED AS DETAILED AND NOTED
ON THE ENGLISH RE-71 STANDARD ROAD PLANS.
REFER TO OTHER DETAILS, NOTES, AND QUANTITY ITEMS ELSEWHERE IN THESE PLANS FOR
TRAFFIC CONTROL TO BE ESTABLISHED IN CONJUNCTION WITH THE TEMPORARY BARRIER RAIL.
NO STATIONARY EQUIPMENT OR CONSTRUCTION MATERIAL IS TO BE PLACED IN FRONT OF THE
TEMPORARY BARRIER RAIL AT ANY TIME.
ANCHORS ARE REQUIRED ONLY WHERE THE TEMPORARY BARRIER RAIL IS ADJACENT TO A DROP-OFF
(SEE RE-71 FOR GUIDELINES). HOLES FOR CONCRETE ANCHORS MAY BE DRILLED AFTER POSITIONING
THE TEMPORARY BARRIER RAIL.

ESTIMATED QUANTITIES

ITEM	AMOUNT
TEMPORARY BARRIER RAIL, CONCRETE	1075 LF

ITEM REFERENCE:
ALL TEMPORARY BARRIER RAIL SHALL
BE NOMINAL 12'-6 LONG CONCRETE UNITS.

DESIGN FOR REPAIRS TO A 0° SKEW
**180'-0 x 28'-0 CONTINUOUS
I-BEAM BRIDGE**
55'-0 END SPANS 70'-0 INTERIOR SPAN
TEMPORARY BARRIER RAIL
STATION: 1245+15.00 JANUARY, 2009
GREENE COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 6 OF 6 FILE NO. 30348 DESIGN NO. 109

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ESTIMATED ROADWAY QUANTITIES					100-0A 10-28-97
ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QUAN.
1	2115-0100000	MODIFIED SUBBASE	CY	25.2	25.2
2	2122-5500080	PAVED SHOULDER, HOT MIX ASPHALT MIXTURE, 8 IN.	SY	124.8	124.8
3	2214-5145150	PAVEMENT SCARIFICATION	SY	632	617.995
4	2301-0690200	BRIDGE APPROACH, RK-20	SY	399.2	399.2
5	2303-0133500	HOT MIX ASPHALT MIXTURE (1,000,000 ESAL), SURFACE COURSE, 1/2 IN. MIX, NO SPECIAL FRICTION REQUIREMENT	SY	631.8	617.995
6	2303-9091021	MILLED SHOULDER RUMBLE STRIPS, HMA SURFACE	STA	9.2	9.2
7	2308-1000000	ASPHALT EMULSION FOR FOG SEAL (SHOULDERS)	GAL	13.6	20
8	2412-0000100	LONGITUDINAL GROOVING IN CONCRETE	SY	857.0	857
9	2509-0000012	TEMPORARY CRASH CUSHION	EACH	4	4
10	2510-6745850	REMOVAL OF PAVEMENT	SY	523.6	523.6
11	2527-9263109	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED	STA	32.11	63.91
12	2527-9263130	REMOVABLE TAPE MARKINGS	STA	3.40	5.61
13	2527-9263180	PAVEMENT MARKINGS REMOVED	STA	24.95	53.233
14	2528-8400157	TEMPORARY FLOODLIGHTING LUMINAIRE	EACH	2	2
15	2528-8400256	TEMPORARY TRAFFIC SIGNALS	EACH	1	1
16	2528-8445110	TRAFFIC CONTROL	LS	1	1
17	2528-8445112	FLAGGERS	DAY		0
18	2602-0000020	SILT FENCE	LF	900	0

EWO Quantities				
265	2599-9999005	Paving Natch Replacement	Each	1.0
270	2599-9999009	Expansion Joint Replacement	LF	29.5
275	2599-9999009	Furnish Neoprene Gland	LF	29.5
280	2413-0698073	Bridge Floor Repair, CL B	SY	7.51
285	2599-9999005	Scarification Re-mobilization	Each	1.0
290	6200--7000061	Price Adj\Incentive-Smoothness	Each	1.0

ESTIMATE REFERENCE INFORMATION			100-4A 10-29-02
Item No.	Item Code	Description	
1	2115-0100000	MODIFIED SUBBASE Item is for construction of Paved Shoulders. See Detail 7156 on Sheet No. 10.	
2	2122-5500080	PAVED SHOULDER, HOT MIX ASPHALT MIXTURE, 8 IN. See Detail 7156 on Sheet No. 10 and Sheet No. 13 for locations. Use PG 58 -22 Asphalt Binder at 6%.	
3	2214-5145150	PAVEMENT SCARIFICATION Item is for the removal of Rumble Strips. See Typ. WHKS-1 on Sheet No. 12 and Sheet No. 13.	
4	2301-0690200	BRIDGE APPROACH, RK-20 See Tab. 112-6 on Sheet No. 11 and Sheet No. 13 for locations.	
5	2303-0133500	HOT MIX ASPHALT MIXTURE (1,000,000 ESAL), SURFACE COURSE, 1/2 IN. MIX, NO SPECIAL FRICTION REQUIREMENT Item is for Resurfacing Scarified Shoulders. Use PG 58 -22 Asphalt Binder at 6%. See Typ. WHKS-2 on Sheet No. 12 and Sheet No. 13.	
6	2303-9091021	MILLED SHOULDER RUMBLE STRIPS, HMA SURFACE See Tab. 112-10 on Sheet No. 11 and Sheet No. 13 for locations.	
7	2308-1000000	ASPHALT EMULSION FOR FOG SEAL (SHOULDERS) See Tab. 112-10 on Sheet No. 11.	
8	2412-0000100	LONGITUDINAL GROOVING IN CONCRETE See Tab. 100-28 on Sheet No. 11.	
9	2509-0000012	TEMPORARY CRASH CUSHION See Standard Road Plan TC-217 and Tab. 108-30 on Sheet No. 10.	
10	2510-6745850	REMOVAL OF PAVEMENT See Tab. 110-1 and Tab. 102-5 on Sheet No. 10. Disposal per Standard Notes 213-1 and 213-7.	
11	2527-9263109	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED	
12	2527-9263130	REMOVABLE TAPE MARKINGS	
13	2527-9263180	PAVEMENT MARKINGS REMOVED See Tab. 108-22 on Sheet No. 11.	
14	2528-8400157	TEMPORARY FLOODLIGHTING LUMINAIRE See Tab. 108-27 on Sheet No. 11.	
15	2528-8400256	TEMPORARY TRAFFIC SIGNALS See Tab. 108-28 on Sheet No. 11.	
16	2528-8445110	TRAFFIC CONTROL See Standard Road Plan TC-81 for Restricted Width Signing and Bridge Plans for Width Restrictions. See Tab. 108-23 and Tab. 108-26 on Sheet No. 9.	
17	2528-8445112	FLAGGERS Flaggers shall be used to set up traffic control for Stage 1 and Stage 2.	
18	2602-0000020	SILT FENCE Silt fence shall be used to protect and restore areas disturbed by necessary construction activities, as directed by the Engineer. Item includes 75 linear feet (nominal) at each corner of the bridge. The Engineer shall adjust the locations to fit field conditions.	

PROFESSIONAL ENGINEER

BRIAN J. BIRKLAND
17375

STATE OF IOWA

I hereby certify that this plan 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.

Brian J. Birkland

Signature

1-20-09

Date

Brian J. Birkland

Printed or Typed Name

My license renewal date is December 31, 2010

Pages or sheets covered by this seal: 8-13

DES. NO. 109
FILE NO. 30348

DESIGN TEAM	WHKS & CO.	ENGLISH	IOWA DOT * OFFICE OF DESIGN	GREENE	COUNTY	PROJECT NUMBER	BRFN-030-3(39)--39-37	SHEET NUMBER	8
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TABULATION OF PAVEMENT MARKINGS

108-22

10-19-04

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)

⑪ Channelizing Line (White)

⑫ Channelizing Line (Yellow)

⑬ Stop Line (White)

⑭ Crosswalk Line (White)

⑮ Yellow Curb

⑯ White Curb

⑰ Yield Line (White)

⑱ Double Dotted Line (Yellow)

Location				Length (In Stations)																Remarks			
Road Identification	Station to Station	Side		②	③	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮A	⑮B	⑯A	⑯B		⑰	⑱	
		L	R																				
US 30	Pavement Markings Removed																						
	1240+99 to 1243+29			2.30																			Prior to Stage 1
	1247+00 to 1249+30			2.30																			Prior to Stage 1
	1241+69 to 1248+60		X						6.91														Prior to Stage 1
	1241+69 to 1243+53	X							1.84														Prior to Stage 2
	1246+77 to 1248+60	X							1.83														Prior to Stage 2
	1247+00 to 1247+60		X						0.60														Prior to Stage 2
	1241+69 to 1243+53		X						1.84														Stage 2
	1246+77 to 1248+60		X						1.83														Stage 2
	1241+69 to 1248+60	X							6.91														After Stage 2
	1242+69 to 1243+29	X							0.60														After Stage 2
	1240+99		X												0.12								After Stage 2
	1249+30	X													0.12								After Stage 2
	Subtotal				4.60				22.36														
Factor				0.25	2	1	0.25	1	1	0.33	1	2	2	6	1.5								
TOTAL				1.15				22.36						1.44									
US 30	Removable Tape Markings																						
	1247+60 to 1249+30	X						1.70														Prior to Stage 1	
	1240+99 to 1242+69		X					1.70														Prior to Stage 2	
	Subtotal							3.40															
Factor				0.25	2	1	0.25	1	1	0.33	1	2	2	6	1.5								
TOTAL								3.40															
US 30	Painted Pavement Markings																						
	1241+69 to 1248+60		X					6.91														Prior to Stage 1	
	1247+00 to 1247+60		X					0.60														Prior to Stage 1	
	1240+99		X											0.12								Prior to Stage 1	
	1249+30	X												0.12								Prior to Stage 1	
	1241+69 to 1248+60	X						6.91														Prior to Stage 2	
	1242+69 to 1243+29	X						0.60														Prior to Stage 2	
	1241+69 to 1248+60		X					6.91														Final Markings	
	1241+69 to 1248+60	X						6.91														Final Markings	
	1240+99 to 1249+30							7.31														Final Markings	
	Subtotal							7.31							0.24								
	Factor				0.25	2	1	0.25	1	1	0.33	1	2	2	6	1.5							
	TOTAL				1.83				28.84						1.44								

BRIDGE APPROACH SECTION

Refer to the RK-Series Standard Road Plans.

112-6

10-21-08

Location

Bridge Station

End

① Thickness
Inches

Pay Length
Feet

Non-Reinf. Pavement Area
Sq. Yds.

Single-Reinf. Pavement Area
Sq. Yds.

Double-Reinf. Pavement Area
Sq. Yds.

Fixed or Movable Abutment
F or M

② Perforated Subdrain 4"
Lin. Ft.

③ Subdrain Outlet
Station

④ Side

⑤ Porous Backfill
Cu. Yds.

⑥ Class 'A' * Crushed Stone Backfill
Cu. Yds.

⑦ Modified Subbase
Tons

⑧ Polymer Grid
Sq. Yds.

Remarks

1245+15	1	12	70	40	26.7	33.1	F	19	1243+62.7	R	2.5	0	99	107	
1245+15	2	12	70	40	26.7	33.1	F	34	1243+62.7	R	4.4	0.3	99	107	
1245+15	3	12	70	40	26.7	33.1	F	34	1246+66.7	R	4.4	0.3	99	107	
1245+15	4	12	70	40	26.7	33.1	F	19	1246+66.7	R	2.5	0	99	107	

MILLED SHOULDER RUMBLE STRIPS

Refer to Standard Road Plan RH-64.

* Calculated at 2' Width

Location

Road Ident.

Station to Station

L (Sta.)

Side

Fog Seal* (Gals.)

Shoulder Width
Paved (Ft.)

Granular\Earth (Ft.)

US 30	1241+73 to 1244+03	2.30	R	3.4	4/VAR.	8/0
US 30	1246+27 to 1248+57	2.30	R	3.4	VAR./4	0/8
US 30	1241+73 to 1244+03	2.30	L	3.4	4/VAR.	8/0
US 30	1246+27 to 1248+57	2.30	L	3.4	VAR./4	0/8

LONGITUDINAL GROOVING

100-28

10-16-07

Location

Total Sq. Yds.

Remarks

South Approach	176.4	
Bridge	504.2	
North Approach	176.4	

TABULATION OF TEMPORARY FLOODLIGHTING LUMINAIRES

108-27

04-30-96

No.

LOCATION STATION

TYPE

NUMBER LUMIN.

REMARKS

1	1242+69	RM-48	1	See TC-217
2	1247+60	RM-48	1	See TC-217

TEMPORARY TRAFFIC SIGNALS

108-28

04-18-06

No.

Location Station

Type
One Lane Traffic Haul Road Intersection

Remarks

1	1245+15	X		See TC-217
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DESIGN TEAM

WHKS & CO.

ENGLISH

IOWA DOT * OFFICE OF DESIGN

GREENE

COUNTY

PROJECT NUMBER

BRFN-030-3(39)--39-37

SHEET NUMBER

11