

BRIDGE REPAIR LETTING DATE
BRFN-092-9(141)--39-70 05-21-2013

MUSCATINE COUNTY

MUSCATINE COUNTY - DESIGN NO. 213

CONVENTIONAL	SIGNS
	DIVIDED HIGHWAY
	PAVED ROAD
	BITUMINOUS ROAD
	GRAVEL ROAD
	INTERSTATE HIGHWAY
	UNITED STATES HIGHWAY
	STATE HIGHWAY
	COUNTY HIGHWAY
	RAILROAD
	PIPELINE
	AIRPORT
	HYDROLOGY
	BRIDGE
	STATE BOUNDARY
	COUNTY BOUNDARY
	CORPORATE LIMIT LINE
	TOWNSHIP LINE
	SECTION LINE

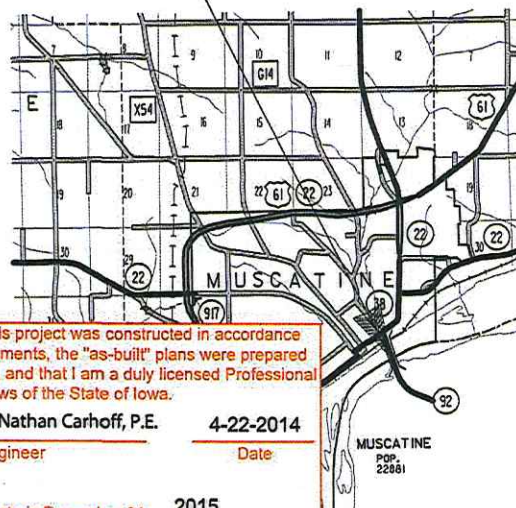
AS-BUILT PLAN

PROJECT ENGINEER: Jeffery L. Johnson
RESIDENT ENGINEER: Mount Pleasant RCE
PRIME CONTRACTOR: General Constructors, Inc.
WORK STARTED: 7/08/13
WORK COMPLETED: 9/24/13



Subcontractor List
Revans Steel Co.
Interstate Maintenance, Inc.
Robert W. Britz Painting Company, Inc.
SELCO, Inc.
Watson Bowman Acme Corp. (Supplier)

DESIGN NO. 213



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.

Nathan Carhoff Nathan Carhoff, P.E. 4-22-2014
Project Engineer Date

My license renewal date is December 31, 2015

2014 Year *Louis A. Olson* Louis A. Olson P.E. Project Inspector



Iowa Department of Transportation
Highway Division

PLANS OF PROPOSED IMPROVEMENTS ON THE PRIMARY ROAD SYSTEM MUSCATINE COUNTY BRIDGE REPAIR IN THE CITY OF MUSCATINE OVER THE MISSISSIPPI RIVER

THE IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES 2012, 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



STANDARD ROAD PLANS

STANDARD ROAD PLANS ARE LISTED
ON SHEET NUMBER C.1

DESIGN DATA RURAL

2007 AADT	4150	V.P.D.
202 AADT		V.P.D.
202 DHV		V.P.H.
TRUCKS		%
Total Design ESALs		

TOTAL SHEETS

19

PROJECT NUMBER

BRFN-092-9(141)--39-70

R.O.W. PROJECT NUMBER

PROJECT IDENTIFICATION NUMBER

03-70-092-010

INDEX OF SHEETS

NO.	DESCRIPTION
1	TITLE SHEET
2	ESTIMATE SHEET - DESIGN 213
2-9	DESIGN 213
C.1	ESTIMATE SHEET FOR ROADWAY
* A.1-J.6	ROADWAY SHEETS

* COLOR PLAN SHEETS - J.1-J.6

INDEX OF SEALS

SHEET NO.	NAME	TYPE
1	DEAN G. BIERWAGEN	STRUCTURAL DESIGN
A.1	DON DRAKE	ROADWAY DESIGN

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.

Dean G. Bierwagen 3-05-2013
Signature Date
Printed or Typed Name

My license renewal date is December 31, 2014

Pages or sheets covered by this seal: SHEETS 1 THRU 9 OF 19

DESIGN TEAM DGB * MSF

ENGLISH IOWA DOT * OFFICE OF BRIDGES AND STRUCTURES

FILE NO. 038201

MUSCATINE COUNTY

PROJECT NUMBER BRFN-092-9(141)--39-70

SHEET NUMBER

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ESTIMATED BRIDGE REPAIR QUANTITIES

ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QUAN.
1	2401-6750001	REMOVALS, AS PER PLAN	LS	1.00	1.00
2	2413-1200100	NEOPRENE GLAND INSTALLATION AND TESTING	LF	408.0	399.94
3	2426-6772016	CONCRETE REPAIR	SF	1,472	1,394.24
4	2426-6772120	BRIDGE REPAIR	LS	1.00	1.00
5	2508-0804000	BRIDGE CLEANING FOR PAINTING	LS	1.00	1.00
6	2508-0805000	BLAST CLEANING OF STRUCTURAL STEEL	LS	1.00	1.00
7	2508-0970000	CONTAINMENT	LS	1.00	1.00
8	2508-0990000	PAINT WASTE TRANSPORT AND DISPOSAL	LS	1.00	1.00
9	2508-0991000	PAINTING OF STRUCTURAL STEEL	LS	1.00	1.00
10	2533-4980005	MOBILIZATION	LS	1.00	1.00

ESTIMATE REFERENCE INFORMATION

ITEM NO.	ITEM CODE	DESCRIPTION
1	2401-6750001	REMOVALS, AS PER PLAN INCLUDES COST OF ALL LABOR AND MATERIALS TO REMOVE AND DISPOSE OF CONCRETE AS SHOWN IN THESE PLANS AT SPECIFIED JOINT LOCATIONS. INCLUDES ALL WORK FOR REMOVAL AND OFF-SITE DISPOSAL OF EXISTING NEOPRENE GLANDS. 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	2413-1200100	NEOPRENE GLAND INSTALLATION AND TESTING INCLUDES INSTALLATION OF NEOPRENE GLAND AND TESTING OF JOINT.
3	2426-6772016	CONCRETE REPAIR INCLUDES THE COST OF MATERIALS AND LABOR TO INSTALL 3/4" SHEAR STUDS AT EACH JOINT LOCATION AS SHOWN IN THESE PLANS.
4	2426-6772120	BRIDGE REPAIR INCLUDES COSTS OF MATERIAL AND INSTALLATION OF FOUR - 6x6x3/4" GALVANIZED ANGLES (4'-4 & 3'-4), 3/4" A325 BOLTS, NUTS AND WASHERS.
5	2508-0804000	BRIDGE CLEANING FOR PAINTING
6	2508-0805000	BLAST CLEANING OF STRUCTURAL STEEL
7	2508-0970000	CONTAINMENT
8	2508-0990000	PAINT WASTE TRANSPORT AND DISPOSAL
9	2508-0991000	PAINTING OF STRUCTURAL STEEL
10	2533-4980005	MOBILIZATION

DESIGN FOR REPAIRS TO A 0° SKEW
3018' X 32' STEEL THRU TRUSS BRIDGE
MISSISSIPPI RIVER BRIDGE IN MUSCATINE
 MULTIPLE SPANS
ESTIMATED QUANTITIES
 STA. 0+20.5 TO 37+00 (E. IA 92) JANUARY 2013
MUSCATINE COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 1 OF 8 FILE NO. 3081T DESIGN NO. 213

DESIGN TEAM DGB * MSF

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MUSCATINE COUNTY

PROJECT NUMBER BRFN-092-9(141)--39-TD

SHEET NUMBER **2**

PROJ. DIR: 7009201003

GENERAL NOTES:

THIS DESIGN IS FOR REPAIRS TO THE EXISTING MISSISSIPPI RIVER BRIDGE AT MUSCATINE, IOWA ON IOWA #92 OVER THE MISSISSIPPI RIVER, ORIGINAL DESIGN NO. 170 AND REPAIR PLANS DES. NO. 694, MUSCATINE COUNTY. PLANS OF THE EXISTING STRUCTURE MAY BE OBTAINED AT THE AMES OFFICE OF THE IOWA D.O.T. - HIGHWAY DIVISION. REPAIRS SHALL CONSIST OF REPAIRING SPLIT WELDS IN TWO SECTIONS BETWEEN L4 AND L5 CONCRETE REPAIR AT SPECIFIED EXPANSION JOINTS AND REPLACEMENT OF NEOPRENE GLANDS SHOWN ELSEWHERE IN THESE PLANS.

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

REMOVALS AND DISPOSALS OF ITEMS SCHEDULED FOR REMOVAL 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 CITY AND UTILITY COMPANIES WHOSE FACILITIES ARE SHOWN ON THE PLANS OR KNOWN TO BE WITHIN THE CONSTRUCTION LIMITS SHALL BE NOTIFIED BY THE BRIDGE CONTRACTOR OF THE CONSTRUCTION STARTING DATE.

DECORATIVE LIGHTS ARE OPERATED BY THE CITY OF MUSCATINE. THE CONTRACTOR SHALL WORK WITH THE CITY DURING THE REPAIR TO MAKE SURE THE LIGHTS ARE NOT DAMAGED.

FAINT LINES ON PLANS INDICATE THE EXISTING STRUCTURE.

THE BRIDGE CONTRACTOR SHALL WORK IN SUCH A MANNER THAT EQUIPMENT AND MATERIALS SHALL NOT BE ALLOWED TO INTERFERE WITH TRAIN TRAFFIC OR BE ALLOWED TO FALL ON THE RAILROAD TRACKS. INTERFERENCE ABOVE THE RAILROAD TRACK AREA SHALL BE COORDINATED WITH THE RAILROAD.

THE ROAD PLANS SHOW A LAYOUT FOR TBR FOR BOTH STAGE 1 AND STAGE 2 CONSTRUCTION. THE TEMPORARY BARRIER RAIL SECTIONS ADJACENT TO THE WORK AREA FOR STAGE 1 TRAFFIC ARE TO REMAIN IN PLACE UNTIL TRAFFIC IS SHIFTED TO THE STAGE 2 TRAFFIC LANE. THE TEMPORARY BARRIER RAIL SECTIONS ADJACENT TO THE WORK AREA FOR STAGE 2 TRAFFIC ARE TO BE IN PLACE PRIOR TO SHIFTING TRAFFIC TO THE STAGE 2 TRAFFIC LANE.

THE ROAD WILL BE OPEN TO TRAFFIC DURING CONSTRUCTION. SEE TRAFFIC CONTROL PLAN NOTE ON THE ROAD PLANS IN THESE PLANS.

"REMOVALS AS PER PLAN" INCLUDE ALL COSTS ASSOCIATED WITH REMOVING THE LOOSE CONCRETE AND EXISTING NEOPRENE GLANDS AT THE SPECIFIED EXPANSION DEVICE JOINTS SHOWN IN THESE PLANS.

REMOVALS SHALL BE IN ACCORDANCE WITH SECTION 2401, OF THE STANDARD SPECIFICATIONS. ANY DAMAGE TO OTHER PORTIONS OF THE EXISTING STRUCTURE NOT NOTED FOR REMOVAL SHALL BE THE RESPONSIBILITY OF THE BRIDGE CONTRACTOR AND SHALL BE REPAIRED AT NO EXTRA COST TO THE STATE.

PRESENT DECK THICKNESS IS ABOUT 10 INCHES. THE CONTRACTOR SHALL EXERCISE CARE IN ORDER TO PREVENT UNNECESSARY REMOVAL OF CONCRETE BELOW THE LIMITS SHOWN IN THESE PLANS. THE ENERGY OF HAND TOOLS SHALL BE RESTRICTED NEAR THE BOTTOM OF THE DESIGNATED REPAIR AREAS IN ORDER TO PREVENT UNBONDING OF REINFORCING.

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

NEOPRENE GLAND NOTES:

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

THE EXISTING EXPANSION JOINT EXTRUSION WAS AN 'A' MANUFACTURED BY THE WATSON/BOWMAN COMPANY.

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

THE CONTRACTOR SHALL REMOVE THE EXISTING NEOPRENE GLAND AND CLEAN THE STEEL EXTRUSION PER THE MANUFACTURER'S GLAND INSTALLATION RECOMMENDATIONS IN ORDER TO SEAL THE JOINT UPON INSTALLATION OF THE NEW NEOPRENE GLAND. CONTRACTOR SHALL PROVIDE THE ENGINEER WITH A COPY OF THE MANUFACTURER'S INSTRUCTIONS FOR GLAND REMOVAL, STEEL EXTRUSION CLEANING, AND NEW GLAND INSTALLATION. METHODS OF CLEANING MAY BE COMPRISED OF A COMBINATION OF COMPRESSED AIR, WIRE BRUSHING, AND LIGHT SAND BLASTING WITH FINE GRIT SAND. CARE SHALL BE TAKEN IN THE CLEANING OPERATION TO MINIMIZE REMOVAL OF GALVANIZED ZINC COATING ON THE STEEL EXTRUSION.

THE CONTRACTOR SHALL INSTALL THE GLAND ONLY WHEN THE DECK TEMPERATURE IS BETWEEN 50° F MINIMUM AND 90° F MAXIMUM, UNLESS OTHERWISE NOTED BY THE MANUFACTURER. 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 ALONG THE EXPANSION DEVICE ACROSS THE DECK AND ANY MEDIANS OR SIDEWALKS. THE CONTRACTOR MAY CONDUCT A SINGLE TEST OF THE ENTIRE DEVICE OR MAY CONDUCT SEPARATE TESTS OF OVERLAPPING LENGTHS BETWEEN THE GUTTERLINES.

THE CONTRACTOR SHALL TEST THE EXPANSION DEVICE BETWEEN THE GUTTERLINES BY BLOCKING OUT AND COVERING THE DEVICE WITH POUNDED 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 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.

TABLE OF EXPANSION DEVICES

MANUFACTURER	TYPE OF STEEL EXTRUSION	NEOPRENE GLAND
WATSON-BOWMAN & ACME CORP.	A	SE-400

TRAFFIC CONTROL PLAN

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

DESIGN HISTORY AT THIS SITE

DES. NO.	TYPE OF WORK
170	ORIGINAL DESIGN
694	RETROFIT RAIL AND BRIDGE OVERLAY
213	GIRDER REPAIR L4-L5 DECK REPAIR

DESIGN FOR REPAIRS TO A 0° SKEW
3018' X 32' STEEL THRU TRUSS BRIDGE
MISSISSIPPI RIVER BRIDGE IN MUSCATINE
MULTIPLE SPANS
GENERAL NOTES
STA. 0+20.5 TO 37+00 (E. I.A. 92) JANUARY 2013
MUSCATINE COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 2 OF 6 FILE NO. 30817 DESIGN NO. 213

DESIGN TEAM DGB * MSF

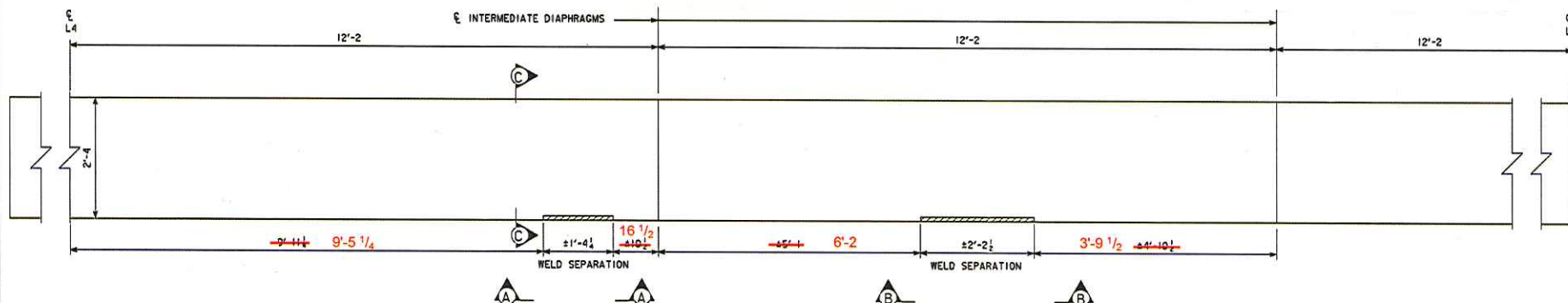
MUSCATINE COUNTY

PROJECT NUMBER BRFN-092-9(141)-39-70

SHEET NUMBER 3

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PROJ. DIR: 7009201003



RIGHT SIDE OF BOX BEAM, RIGHT VIEW

NOTES:

ANGLES SHALL MEET REQUIREMENT OF ASTM A709 GRADE 36.

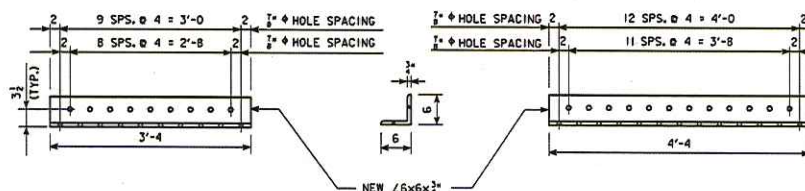
DRILLING OF THE EXISTING TRUSS MEMBER SHALL ONLY BE PERFORMED IF THE TEMPERATURE OF THE STEEL IS 50°F OR HIGHER.

PACK RUST SHALL BE REMOVED AROUND THE SEPARATED AREAS BEFORE BLAST CLEANING USING HAND TOOLS.

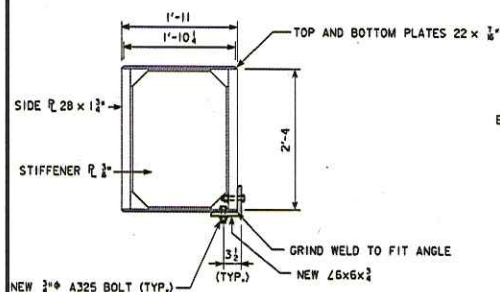
ANGLES ARE TO BE GALVANIZED AFTER FABRICATION. BOLTS, NUTS AND WASHERS ARE TO BE GALVANIZED, ALSO PER STANDARD SPECIFICATIONS.

BOLTS TO BE INSTALLED BY THE TURN-OF-NUT METHOD PER STANDARD SPECIFICATIONS 2408.03, 5.5b.

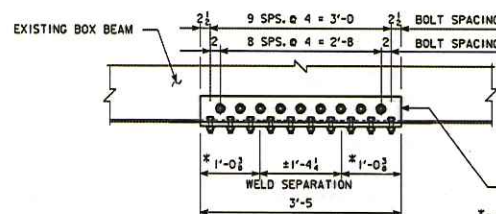
SEE DESIGN SHEET NO. 5 FOR ADDITIONAL REPAIR NOTES.



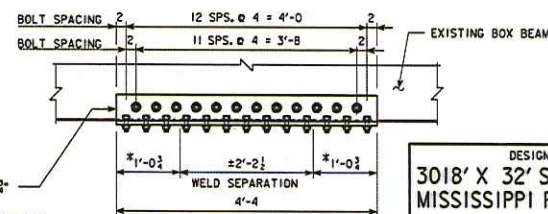
NEW 6 x 6 x 3/4" ANGLE



SECTION C-C THRU LOWER TRUSS BOX BEAM AT WELD SEPARATION



VIEW A-A



VIEW B-B

BOLT PLACEMENT

*EXTEND ANGLE 1'-0" MIN FROM REPAIR AREA AT EACH END.

DESIGN FOR REPAIRS TO A 0° SKEW
3018' X 32' STEEL THRU TRUSS BRIDGE
MISSISSIPPI RIVER BRIDGE IN MUSCATINE
MULTIPLE SPANS

REPAIR DETAILS

STA. 0+20.5 TO 37+00 (E 1A 92) JANUARY 2013
MUSCATINE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 4 OF 8 FILE NO. 30817 DESIGN NO. 213

TRUSS STRENGTHENING NOTES:

THE EXISTING TRUSS CHORD AS SHOWN ON THESE PLANS IS TO BE STRENGTHENED WITH NEW STEEL 6 x 6 x 1/2 STRENGTHENING ANGLES IN ACCORDANCE WITH THE FOLLOWING CONSTRUCTION SEQUENCE:

1. THE AREA OF THE EXISTING TRUSS CHORD WHICH WILL BE UNDER THE STRENGTHENING ANGLES AND AT LEAST ONE INCH OUTSIDE THE AREAS SHALL BE BLAST CLEANED TO A NEAR-WHITE CONDITION IN ACCORDANCE WITH SECTION 2508 OF THE STANDARD SPECIFICATIONS. VACUUM BLAST SHALL BE USED. IF THE CONTRACTOR RECYCLES THE BLAST MATERIAL, IN NO CASE SHALL THE RECYCLING PROCESS UTILIZE A WET SEPARATION METHOD. CONTAINMENT AND DISPOSAL OF WASTES SHALL BE IN ACCORDANCE WITH SECTION 2508 OF THE STANDARD SPECIFICATIONS.
 2. THE PORTION OF THE BLAST-CLEANED SURFACES WHICH WILL BE UNDER THE STRENGTHENING ANGLES AND AN ADDITIONAL ONE INCH OUTSIDE THESE AREAS SHALL BE GIVEN A PRIME COAT OF ZINC SILICATE PAINT IN ACCORDANCE WITH SECTION 2508 OF THE STANDARD SPECIFICATIONS. THE STRENGTHENING ANGLES SHALL BE GALVANIZED PER STANDARD SPECIFICATIONS. THE ZINC SILICATE PAINT SHALL MEET THE REQUIREMENTS OF MATERIALS I.M. 482.02 APPENDIX A. CARE SHALL BE TAKEN TO INSURE THAT ZINC SILICATE PRIMER IS APPLIED ONLY ON BLAST-CLEANED STEEL SURFACES AND THAT NONE IS APPLIED OVER OLD PRIMER OR PAINT.
 3. RESTRICT TRAFFIC TO ONE LANE OF TWO-WAY TRAFFIC ON THE SIDE OF THE BRIDGE AWAY FROM THE EXTERIOR BEAM BEING STRENGTHENED.
 4. FIELD DRILL THE EXISTING TRUSS CHORD FOR 3/4" DIA. H.S. BOLTS USING THE SHOP DRILLED HOLES IN THE STRENGTHENING ANGLES AS A TEMPLATE.
 5. AFTER DRILLING, REMOVE STRENGTHENING ANGLES AND CLEAN ALL BURRS AND CUTTINGS FROM THE STRENGTHENING ANGLES AND TRUSS CHORD MEMBERS.
 6. BOLT THE 6 x 6 x 1/2 ANGLE TO THE TRUSS CHORD WITH 3/4" DIA. H.S. BOLT. FULLY TIGHTEN ALL BOLTS FOR A FRICTION TYPE CONNECTION. DURING THE TIGHTENING OF BOLTS, ALL POSSIBLE EFFORTS SHALL BE MADE BY THE CONTRACTOR TO MINIMIZE THE AMOUNT OF EQUIPMENT AND SUPPLIES STORED ON THE BRIDGE DECK AS DIRECTED BY THE ENGINEER. TRAFFIC MAY BE RESTORED AFTER ALL BOLTS ARE TIGHTENED.
 7. PAINT THE BOLTS, NUTS, ANGLES, AND THE BLAST-CLEANED AREA AROUND IT IN ACCORDANCE WITH SECTION 2508, OF THE STANDARD SPECIFICATIONS, AND WITH THE FOLLOWING ADDITIONS/EXCEPTIONS:
 - A. REMOVE ANY SILICATE PRIMER APPLIED (IN STEP 2 ABOVE) OVER OLD PRIMER OR PAINT.
 - B. APPLY EPOXY ALUMINUM PRIMER TO THE ATTACHED ANGLES AND AN ADDITIONAL 3 INCHES OUTSIDE THE ANGLES.
 - C. APPLY WATERBORNE ACRYLIC PAINT FINISH COAT OVER THE EPOXY ALUMINUM PRIMER. FINAL PAINT COAT SHALL MATCH THE COLOR OF THE EXISTING PAINT.
- ANY DAMAGE BY THE CONTRACTOR TO PORTIONS OF THE STRUCTURE AND ITS PAINT SYSTEM NOT SPECIFICALLY COVERED BY THE SCOPE OF THESE PLANS SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.
- ALL NEW BOLTS ARE TO BE 3/4" DIA. H.S. BOLTS AND ALL HOLES ARE TO BE 3/4" DIA. BOLTS SHALL BE INSTALLED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

THE PRICE BID FOR "BRIDGE REPAIR" SHALL INCLUDE ALL COSTS ASSOCIATED WITH FURNISHING AND INSTALLING STRENGTHENING ANGLES (INCLUDING FIELD DRILLING EXISTING BEAMS) AS NOTED ABOVE EXCEPT FOR ITEMS INCLUDED IN THE BID ITEMS FOR "BRIDGE CLEANING FOR PAINTING", "BLAST CLEANING OF STRUCTURAL STEEL", "CONTAINMENT AND PAINTING OF STRUCTURAL STEEL". CHARMY V NOTCH TESTING IS REQUIRED FOR THE STRENGTHENING ANGLES. ALSO SEE GENERAL NOTES FOR OTHER ITEMS INCLUDED IN BRIDGE REPAIR.

THE LUMP SUM BID ITEMS FOR "BRIDGE CLEANING FOR PAINTING", "BLAST CLEANING OF STRUCTURAL STEEL" AND "PAINTING OF STRUCTURAL STEEL" SHALL INCLUDE THE COSTS OF CLEANING, BLAST CLEANING AND FIELD PAINTING OF THE EXISTING STRUCTURAL STEEL AREA WHERE THE STRENGTHENING ANGLES WILL BE INSTALLED. THE BID ITEMS SHALL BE IN ACCORDANCE WITH SECTION 2508 OF THE STANDARD SPECIFICATIONS. THE PAINT SYSTEM REQUIRED IS DESCRIBED IN THE "TRUSS STRENGTHENING NOTES" IN THESE PLANS.

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

A SCRAPE SAMPLE WAS TAKEN FROM AN AREA OF THIS BRIDGE TO GET AN INDICATION OF THE EXISTENCE OF AND LEVEL OF TOTAL CHROMIUM AND TOTAL LEAD. ANALYSIS OF TOTAL LEAD ON THIS SAMPLE WAS 276,000 PARTS PER MILLION (PPM). ANALYSIS OF TOTAL CHROMIUM ON THIS SAMPLE WAS 4710 PPM. THESE ANALYSES SHOW THE EXISTENCE OF THESE TWO TOXIC CONSTITUENTS. LEVELS INDICATED BY THESE TESTS COULD CREATE CONDITIONS ABOVE REGULATORY LIMITS FOR HEALTH AND SAFETY REQUIREMENTS. NO OTHER CONSTITUENTS WERE ANALYZED. THE BIDDER SHOULD NOT RELY ON THE DEPARTMENT'S TESTING AND ANALYSIS FOR ANY PURPOSE OTHER THAN AS AN INDICATION OF THE EXISTENCE OF THESE TWO TOXIC CONSTITUENTS.

DESIGN FOR REPAIRS TO A 0° SKEW	
3018' X 32' STEEL THRU TRUSS BRIDGE	
MISSISSIPPI RIVER BRIDGE IN MUSCATINE	
MULTIPLE SPANS	
BEAM STRENGTHENING NOTES	
STA. 0+20.5 TO 37+00 (E. 1A 92)	JANUARY 2013
MUSCATINE COUNTY	
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION	
DESIGN SHEET NO. 5 OF 8	FILE NO. 3081T DESIGN NO. 213

DESIGN TEAM DGB * WSF

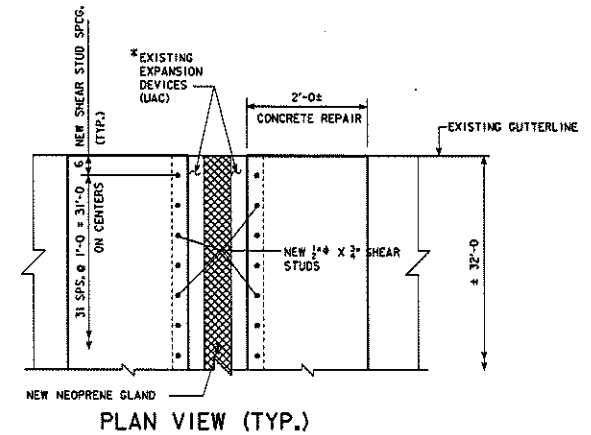
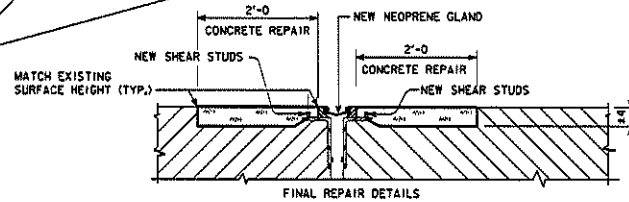
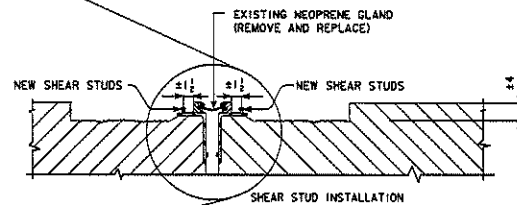
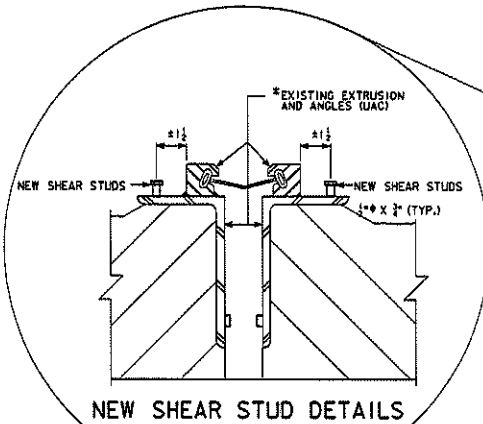
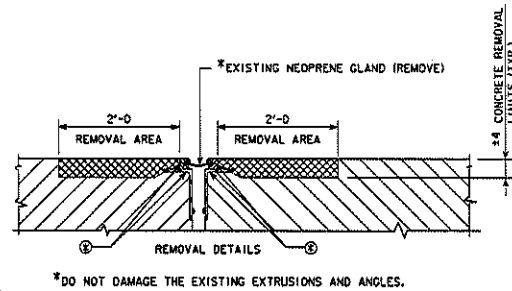
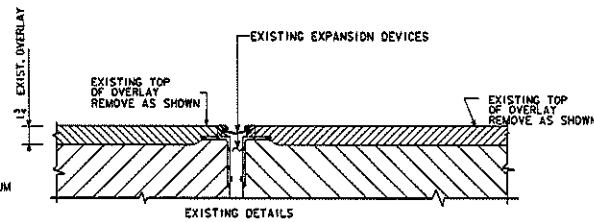
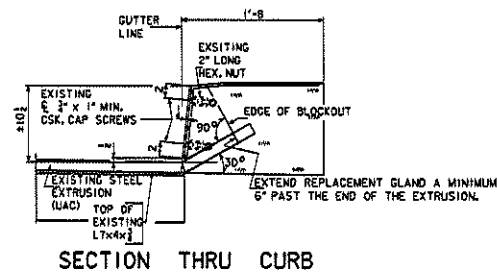
2/28/2013 9:28:37 AM dbrava p:\project\iss.doc\inst\lan\p\Main\Documents\Projects\7009201003\BRFinal\700929141.lbrg 700213s005 11x17.pdf.pltcf5

MUSCATINE COUNTY

PROJECT NUMBER BRFN-092-9(141)--39-70

SHEET NUMBER 6

PROJ. DIR: T009201003



REPAIR LOCATIONS TYPICAL AT PIERS 4, 6, 15, 17, 19, 21 AND 23
AND PANEL POINTS L3, L7, L3' IN TRUSS SPAN
(SEE DESIGN SHEET 3 FOR LOCATIONS)

NOTE:
SEE DESIGN SHEETS 7 & 8 FOR JOINT REPAIR NOTES.

DESIGN FOR REPAIRS TO A 0° SKEW
3018' X 32' STEEL THRU TRUSS BRIDGE
MISSISSIPPI RIVER BRIDGE IN MUSCATINE
MULTIPLE SPANS
REPAIR DETAILS
STA. 0+20.5 TO 37+00 (E. 1A 92) JANUARY 2013
MUSCATINE COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 8 OF 8 FILE NO. 30817 DESIGN NO. 213

STANDARD NOTES:

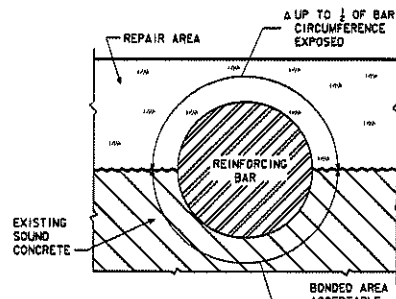
THE AREAS OF THIS BRIDGE AS NOTED AND SHOWN IN THESE PLANS SHALL BE REPAIRED AS FOLLOWS:

ALL THE COSTS OF EQUIPMENT AND MATERIALS REQUIRED TO REPAIR THE AREAS OF THIS BRIDGE NOTED FOR REPAIR SHALL BE INCLUDED IN THE PRICE BID FOR "CONCRETE REPAIR".

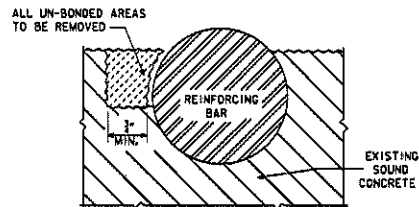
THE PRICE BID FOR "CONCRETE REPAIR" SHALL INCLUDE THE COST OF PROVIDING AND INSTALLING ALL SHEAR STUDS. THE CONTRACTOR SHALL BE PAID FOR THE ACTUAL AMOUNT OF REPAIRS MADE ON A SQUARE FOOT BASIS BASED ON THE PRICE BID PER SQUARE FOOT.

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.

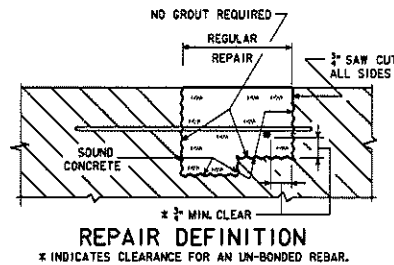
REFER TO SECTION 2426, OF THE STANDARD SPECIFICATIONS, FOR INFORMATION ABOUT REPAIRING STRUCTURAL CONCRETE.



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



ESTIMATED CONCRETE REPAIR QUANTITIES

DESCRIPTION	UNITS	AMOUNT
CONCRETE REPAIR (REGULAR REPAIR)	SQ. FT.	1492

DESIGN FOR REPAIRS TO A 0° SKEW
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REPAIR DETAILS
STA. 0+20.5 TO 37+00 (E. 1A 92) JANUARY 2013
MUSCATINE COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 1 OF 8 FILE NO. 3081T DESIGN NO. 213

JOINT REPAIR NOTES:

ALL LOOSE CONCRETE AND LATENCE SHALL BE REMOVED BEFORE NEW CONCRETE IS PLACED. ANY DEBRIS SHALL BE CLEANED OUT OF THE EXISTING EXPANSION DEVICE AREA AFTER NEW CONCRETE IS PLACED. CARE IS TO BE TAKEN THAT NEW CONCRETE DOES NOT FALL INTO THE EXISTING EXPANSION DEVICE.

SHEAR STUDS ARE TO BE INSTALLED BEFORE NEW CONCRETE IS POURED.

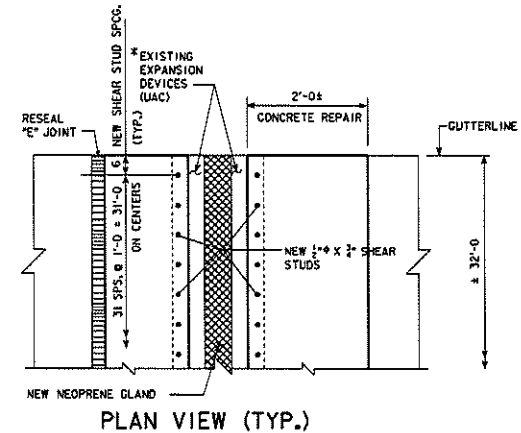
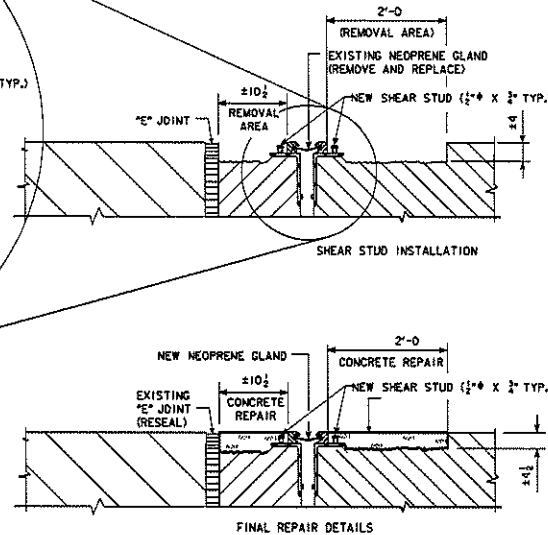
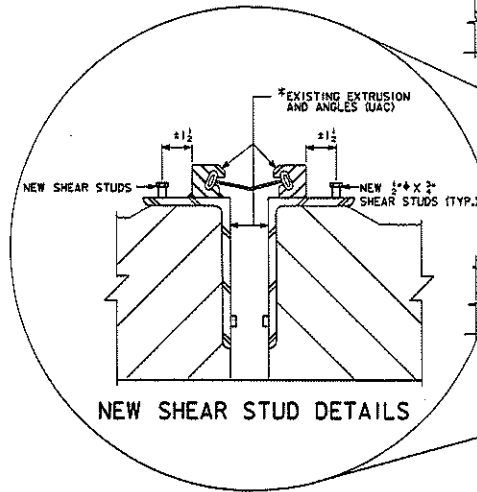
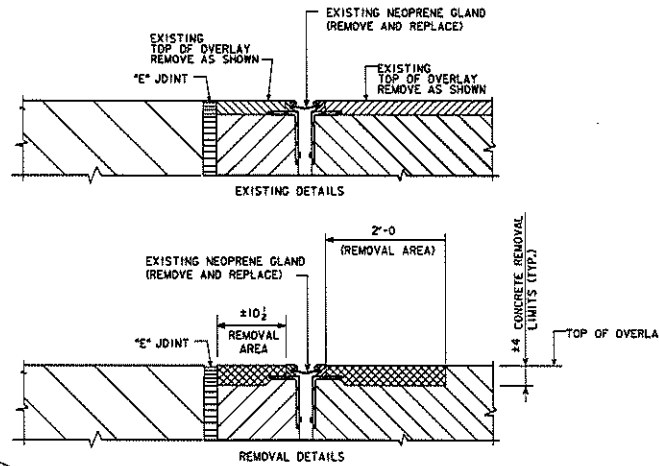
THE CONTRACTOR SHALL TAKE GREAT CARE NOT TO DAMAGE THE EXISTING EXPANSION DEVICE (EXTRUSIONS AND ANGLES.) ANY DAMAGE DONE BY THE CONTRACTOR SHALL BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE STATE.

RESEAL EXISTING "E" JOINT TO REMAIN IN PLACE.

SHEAR STUDS SHALL MEET THE REQUIREMENTS OF MATERIALS IM 453.10.

FIELD INSTALLATION OF THE SHEAR STUDS SHALL BE IN ACCORDANCE WITH MATERIALS IM 558.

SEE DESIGN SHEET 6 FOR GLAND REPLACEMENT DETAILS AT EXISTING GUTTER LINE.



DESIGN FOR REPAIRS TO A 0° SKEW
3018' X 32' STEEL THRU TRUSS BRIDGE
MISSISSIPPI RIVER BRIDGE IN MUSCATINE
 MULTIPLE SPANS
ABUTMENT REPAIR DETAILS
 STA. 0+20.5 TO 37+00 (E 1A 92) JANUARY 2013
MUSCATINE COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 8 OF 8 FILE NO. J0817 DESIGN NO. 213

INDEX OF SHEETS	
No.	DESCRIPTION
A Sheets	Title Sheets
A.1	Title Sheet
B Sheets	Typical Cross Sections and Details
B.1	Typical Cross Sections and Details
C Sheets	Quantities and General Information
C.1	Project Description
C.1	Estimated Project Quantities
C.1	Estimate Reference Information
C.1	Standard Road Plans
C.1	Index of Tabulations
C.2 - 3	Tabulations
J Sheets	Traffic Control and Staging Sheets
J.1	Traffic Control Plan
J.1	Staging Notes Stage
J.1	Tabulation of Special Events & Coordinated Operations
* J.2 - 6	Traffic Control
	- Color Plan Sheets

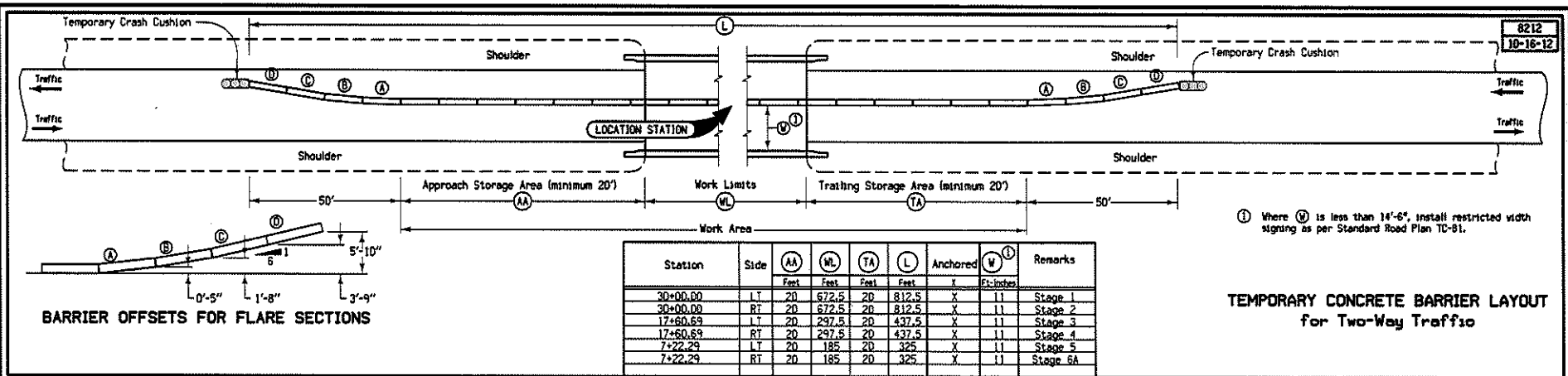
Value Engineering Saves. Refer to Article 1105.15 of the Specifications.

NO MILEAGE SUMMARY



Design No. 212
File No. 3017

	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 Donald G. Drake	Date 12/16/2013
	Printed or Typed Name	
	My license renewal date is December 31, 2014	
Pages or sheets covered by this seal: A.1, B.1, C.1-C.3, J.1-J.6		



Design No. 213
File No. 30817

100-10
10-18-85

Remove an area around the stripseal expansion joint from gutter line to gutter line, repair with Class "O" concrete and replace the neoprene gland at pier locations 4, 6, 15, 17, 19, 21, 23, and main truss panel points L3, L7, and L3' and both abutments. Repair main chord box section between panel points L4 and L5 on the right side of the main truss span.

100-0A
10-28-97

111-25
10-18-11

111-25
10-18-11

111-25
10-18-11

262-6
10-18-05

262-6
10-18-05

100-4A
10-29-02

100-4A
10-29-02

105-4
10-18-11

105-4
10-18-11

105-4
10-18-11