

**MISSOURI DEPARTMENT OF TRANSPORTATION
GENERAL SERVICES- PROCUREMENT
DISTRICT 6, 2309 BARRETT STATION RD,
BALLWIN, MO 63021**

REQUEST NO.	SL15-001-RW
DATE	June 3, 2014
PAGE NO.	1
NO. OF PAGES	20

SEALED BIDS, SUBJECT TO THE ATTACHED CONDITIONS WILL
BE RECEIVED AT THIS OFFICE UNTIL

10:00 a.m., Local Time, July 10, 2014

AND THEN PUBLICLY OPENED AND READ FOR FURNISHING
THE FOLLOWING SUPPLIES OR SERVICES.

**BIDS TO BE BASED F.O.B. MISSOURI DEPARTMENT OF
TRANSPORTATION**

Submit net bid as cash discount stipulations will not be considered

THE BIDDER MUST SIGN AND RETURN BEFORE DATE AND TIME SET FOR OPENING.

BUYER: _Teresa(Terri) Mount
BUYER EMAIL:
Teresa.Mount@modot.mo.gov

BUYER TELEPHONE: 314-301-1431
BUYER FAX:
573-526-0016

SUPPLIES OR SERVICES

Bridge Joint Repair, Jefferson County

COMPLETION DATE: September 30, 2014

Bidders are encouraged to obtain minority business enterprise (MBE) and women business enterprise (WBE) participation in this work through the use of subcontractors, suppliers, joint ventures, or other arrangements that afford meaningful participation for M/WBES. Bidders are encouraged to obtain 10% MBE and 5% WBE participation.

Components of Agreement: The Agreement between MHTC and the successful Bidder shall consist of: the RFB and any written amendments thereto, the "Standard Bid/Proposal Provisions, General Terms and Conditions and Special Terms and Conditions" that are attached to this RFB, the bid submitted by the Bidder in response to the RFB and the post-award contract agreement signed between the parties. However, MHTC reserves the right to clarify any relationship in writing and such written clarification shall govern in case of conflict with the applicable requirements stated in the RFB or the Bidder's bid. The Bidder is cautioned that its bid shall be subject to acceptance by MHTC without further clarification.

Return sealed bid to the address shown at the top of this page.

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(SEE ATTACHED FOR TERMS, CONDITIONS, AND INSTRUCTIONS)

In compliance with the above Request For Bid, and subject to all conditions thereof, the undersigned bidder agrees to furnish and deliver any or all the items on which prices were bid within the timeframe specified herein, after receipt of

Date: _____
Telephone No.: _____
Fax No.: _____
Federal I.D. No. _____
Email Address: _____

Firm Name: _____
Address: _____

By (Signature): _____
Type/Print Name _____

Is your firm MBE certified? ☐ Yes ☐ No
Form E-103 (Rev. 11-04)

Title: _____
Is your firm WBE certified? ☐ Yes ☐ No

INTRODUCTION AND GENERAL INFORMATION

1.1 Introduction:

- 1.1.1 This Request For Bid seeks bids from qualified organizations to provide services for a bridge joint repair in Jefferson County, MO., as indicated below and in accordance with terms and specifications of this RFB.

- Route 30@ Big River Bridge A4629, Jefferson County, MO.

Each bid must be mailed or hand delivered in a sealed envelope to Ms. Teresa (Terri) Mount, Procurement Unit, Operations Complex, 2309 Barrett Station Rd., Ballwin, Mo. 63021.

All questions regarding the RFB shall be submitted to Ms. Teresa (Terri) Mount. Bids must be returned to the office of Ms. Mount no later **than 10:00 a.m., Local Time July 10, 2014.**

RFB Coordinator:

**Ms. Teresa (Terri) Mount Sr. Procurement Agent
Missouri Department of Transportation
2309 Barrett Station Road, Ballwin, MO. 63021**

**PHONE: 314-301-1431
FAX: 573-522-0016
EMAIL: Teresa.Mount@modot.mo.gov**

1.2 General Information:

This document constitutes an invitation for competitive, sealed bids for the procurement of services to repair a bridge joint on Highway 30, as specified in these provisions.

1.2.1 Organization - This document, referred to as a Request for Bid (RFB), is divided into the following parts:

- 1) Introduction and General Information
- 2) Scope of Work
 - A. JSP Roadway
 - B. JSP Bridge
- 3) Bid Submission
- 4) Pricing Page(s)
- (5) Exhibit(s)
- (6) Terms and Conditions
- (7) Plans, separate PDF files.

1.2.2 This document contains requirements related to the newly revised statute.

Effective January 1, 2009 and pursuant to RSMo 285.530 (1), no business entity or employer shall knowingly employ, hire for employment, or continue to employ an unauthorized alien to perform work within the state of Missouri. Additional specific information is included herein.

<http://www.moga.mo.gov/statutes/C200-299/2850000530.HTM>

E-Verify is an example of a federal work authorization program. For vendors that are not already enrolled and participating in a federal work authorization program, E-Verify is available at:

http://www.dhs.gov/xprevprot/programs/gc_1185221678150.sht

2.1 General Requirements:

2.1.1 The contractor shall furnish all equipment and personnel and materials to complete all requirements perform bridge joint repairs as specified for the Missouri Highway and Transportation Commission (MHTC) and Missouri Department of Transportation (MoDOT), in accordance with the provisions and requirements stated herein.

2.1.2 The contractor shall provide all deliverables/services to the sole satisfaction of MoDOT.

2.1.3 Unless otherwise specified herein, the contractor shall furnish all material, labor, facilities, equipment, and supplies necessary to provide the deliverables/services required herein.

2.2 Specific Requirements:

2.2.1 The contractor shall provide MoDOT with services in accordance with applicable specifications or as specifically noted in the following provisions.

2.2.2 Required Specifications – All materials, equipment, and/or services bid upon must comply with all pertinent standards and specifications as accessible on the Missouri Department of Transportation website (www.modot.mo.gov) under “Business With MoDOT”, and “Standards and Specifications”. The effective version will be determined by the letting date of the project.

2.2.3 The supplemental bidding documents mentioned above contain all current revisions to the bound printed version and have important legal consequences. It shall be conclusively presumed that they are in the bidders’ possession, and they have been reviewed and used by the bidder in the preparation of any bid submitted for this project.

2.3 Invoicing and Payment Requirements:

2.3.1 The contractor shall submit an itemized invoice to the following address after the completion of deliverables, as specified herein.

Missouri Department of Transportation
Business & Benefits
1590 Woodlake
Chesterfield, MO. 63017-5712

2.3.2 Each invoice should be itemized in accordance with items listed on the purchase order and/or contract. The statewide financial management system has been designed to capture certain receipt and payment information. Therefore, each invoice submitted must reference the purchase order number and must be itemized in accordance with items listed on the purchase order. Failure to comply with this requirement may delay processing of invoices for payment.

2.3.3 The contractor shall be paid in accordance with the firm, fixed prices stated on the pricing page(s) of this document after completion of deliverables specified herein and acceptance by MoDOT.

- 2.3.4 Other than the payment specified above, no other payments or reimbursements shall be made to the contractor for any reason whatsoever.
- 2.3.5 MoDOT is exempt from paying Missouri Sales Tax, Missouri Use Tax and Federal Excise Tax. However, the contractor may themselves be responsible for the payment of taxes on materials they purchase to fulfill the contract. A Federal Excise Tax Exemption Certificate will be furnished to the successful bidder upon request.
- 2.3.6 Unless otherwise provided for in the solicitation documents, payment for all equipment, supplies, and/or services required herein shall be made in arrears. The Missouri Highways and Transportation Commission (MHTC) shall not make any advance deposits.
- 2.3.7 Notarized weekly payroll documentation for prime and subcontractors will be required from start to finish of this contract showing compliance with prevailing wage rates. Lien Waivers from materials suppliers shall also be provided. Additional documents shall be furnished as required by other provisions in the bid package. These documents shall be submitted to the attention of the MoDOT General Services – Procurement Buyer for this particular contract at the address below:
Missouri Department of Transportation
General Services – Procurement
St. Louis District
2309 Barrett Station Rd
Ballwin, MO 63021
- 2.3.8 Payment shall be made per contractor invoice upon satisfactory completion of all work items and the receipt of required documentation

2.4 Other Contractual Requirements:

- 2.4.1 **RSMo 285.530** - The contractor understands and agrees that by entering into a contractual agreement with MoDOT, they certify the following:
- a. The contractor shall only utilize personnel authorized to work in the United States in accordance with applicable federal and state laws. This includes, but is not limited to, the Illegal Immigration Reform and Immigrant Responsibility Act (IIRIRA) and INA Section 274A.
 - b. If the contractor is found to be in violation of this requirement or the applicable state, federal and local laws and regulations, and if the State of Missouri has reasonable cause to believe that the contractor has knowingly employed individuals who are not eligible to work in the United States, the state shall have the right to cancel the contract immediately without penalty or recourse and suspend or debar the contractor from doing business with the state.
 - c. The contractor agrees to fully cooperate with any audit or investigation from federal, state or local law enforcement agencies.
 - d. In addition, the contractor shall maintain enrollment and participation in a federal work authorization program with respect to the employees working in connection with the contracted services included herein.
- 2.4.2 Prevailing Wage:
- a. **General Wage Order # 57 , to apply Jefferson County, MO.**

2.4.3 Construction Safety Program:

Missouri law, 292.675 RSMo, requires the awarded Contractor and its subcontractor(s) to provide a ten-hour occupational safety and health administration (OSHA) construction safety program (or a similar program approved by the Missouri Department of Labor and Industrial Relations as a qualified substitute) for their on-site employees (laborers, workmen, drivers, equipment operators, and craftsmen) who have not previously completed such a program and are directly engaged in actual construction of the improvement (or working at a nearby or adjacent facility used for construction of the improvement). The Contractor and its subcontractor(s) shall require all such employees to complete this ten-hour program, pursuant to 292.675 RSMo, unless they hold documentation on their prior completion of said program. Penalties for non-compliance include Contractor forfeiture to the Commission in the amount of \$2,500, plus \$100 per contractor and subcontractor employee for each calendar day such employee is employed beyond the elapsed time period for required program completion under 292.675 RSMo.

2.4.4 Insurance:

The Contractor shall maintain or cause to be maintained at Contractor's own expense commercial general liability, automobile liability, worker's compensation insurance against negligent acts, errors or omissions of the Contractor, or its subcontractors and anyone directly or indirectly employed by any of them. Any insurance policy required as specified in this Section shall be written by a company that is licensed and authorized to issue such insurance in the state of Missouri and shall provide insurance coverage for not less than the following limits of liability:

- 1) General Liability: Not less than \$500,000 for any one person in a single accident or occurrence, and not less than \$3,000,000 for all claims arising out of a single occurrence;
- 2) Automobile Liability: Not less than \$500,000 for any one person in a single accident or occurrence, and not less than \$3,000,000 for all claims arising out of a single occurrence;
- 3) Missouri State Workmen's Compensation policy or equivalent in accordance with state law.

Upon request from the Commission, the Contractor shall provide the Commission with certificates of insurance evidencing the required coverage and that such insurance is in effect.

PRIOR EXPERIENCE OF BIDDER- SHOTCRETE NOZZLEMAN

The Bidder may copy and complete this form and use it for each reference being submitted as demonstration of the bidder prior experience. In addition, the Bidder is advised that if the contact person listed for the reference is unable to be reached during the evaluation, the listed experience may not be considered.

Bidder's Name	
Reference Information for Prior Services Performed:	
Name of Reference Company:	
Address of Reference Company:	
Reference Contact Person Name:	
Contact Person Phone #	
Contact Person E-mail address:	
Dates of Prior Services:	
Dollar Value of Prior Services:	
Description of Prior Services Performed	

Note: the Bidder is cautioned that it is the Bidder's sole responsibility to submit information as requested in bid solicitation documents and that MoDOT's representative is under no obligation to solicit such information if it is not included with the bid. Failure of the Bidder to submit such information may cause an adverse impact o the evaluation of the bid.

MoDOT reserves the right to determine which references to call and whether or not to call all references for all Bidders.

3.0

BID SUBMISSION

Bid Submission Information:

3.1.1 Submit completed Contractor Questionnaire with attachments not later than seven (7) days prior to the date and hour of the bid opening. See Sec 102.2 of the Missouri Standard Specifications for Highway Construction, and Rule 7 CSR 10-15.900, "Prequalifications to Bid of Certain Contractors". Questionnaire and Contact information are provided on MoDOT's website at: <http://www.modot.org/business/BecomeAMoDOTPrimeContractor.htm>

3.1.2 All bids must be received in a sealed envelope clearly marked **"SL15-001-RW "BRIDGE JOINT REPAIR"**.

3.1.3 All bids must be received at the following address no later than **July 10, 2014 at 10:00 a.m., Local Time**.

The Missouri Department of Transportation
Procurement Division
Attn: Teresa (Terri Mount)
2309 Barrett Station Rd.
Ballwin, MO. 63021

3.1.4 The bidder may withdraw, modify or correct his bid after it has been deposited with the Department provided such request is submitted in writing and received at the location designated for the bid opening prior to the time specified for opening bids. Such a request received as specified will be attached to the bid and the bid will be considered to have been modified accordingly. No bid may be modified after the time specified for the opening of bids.

3.1.5 Open Competition / Request For Bid Document:

- a. It shall be the bidder's responsibility to ask questions, request changes or clarification, or otherwise advise MoDOT if any language, specifications or requirements of an RFB appear to be ambiguous, contradictory, and/or arbitrary, or appear to inadvertently restrict or limit the requirements stated in the RFB to a single source. Any and all communication from bidders regarding specifications, requirements, competitive bid process, etc., must be directed to the buyer from MoDOT, unless the RFB specifically refers the bidder to another contact. Such communication should be received at least three (3) working days prior to the official bid opening date.
- b. Every attempt shall be made to ensure that the bidder receives an adequate and prompt response. However, in order to maintain a fair and equitable bid process, all bidders will be advised, via the issuance of an amendment to the RFB, of any relevant or pertinent information related to the procurement. Therefore, bidders are advised that unless specified elsewhere in the RFB, any questions received less than three (3) working days prior to the RFB opening date may not be answered.
- c. Bidders are cautioned that the only official position of the MoDOT is that which is issued by MoDOT in the RFB or an amendment thereto. No other means of communication, whether oral or written, shall be construed as a formal or official response or statement.
- d. MoDOT monitors all procurement activities to detect any possibility of deliberate restraint of competition, collusion among bidders, price-fixing by bidders, or any other anticompetitive conduct by bidders which appears to violate state and federal antitrust laws. Any suspected violation shall be referred to the Missouri Attorney General's Office for appropriate action.

- 3.1.6 Pursuant to 285.530 RSMo, the bidder must affirm enrollment and participation in a federal work authorization program with respect to the employees proposed to work in connection with the services requested herein by:
- a. Submitting a completed Signature and Identity of Bidder form, attached herein,
 - b. Submitting a completed, notarized copy of the applicable portion of Exhibit A, WORKER ELIGIBILITY VERIFICATION AFFIDAVIT or APPLICANT AFFIDAVIT FOR SOLE-PROPRIETORSHIP OR PARTNERSHIP, and
- 3.1.7 Proposal/Bid Guaranty/Contract Bond:
- a. Each bid shall be accompanied by a Bid Bond, Certified Check, Cashier's Check or Bank Money Order payable to the Director of Revenue – Credit State Road Fund for an amount equal to Five Percent (5%) of the amount of the BID submitted. This is to act as a guarantee that the bidder, if awarded the contract, will furnish an acceptable performance and payment bond (Contract Bond) or a cashier's check, a bank money order or a certified check made payable to "Director of Revenue--Credit State Road Fund" in an amount equal to One Hundred (100%) of the contract price.
 - b. If a BID BOND is used (in lieu of a certified check, cashier's check, or bank money order), it must be in the form provided and executed by the bidder as principal and by a surety company authorized to do business in the MoDOT as surety. The agent executing the same on behalf of the surety company must attach a current Power of Attorney setting forth his authority to execute the bond involved.
 - c. Certified Checks, Cashier's Checks or Bank Money Orders of unsuccessful bidders will be returned as soon as the award is made. The checks or bank money orders of the successful bidder(s) will be retained until the contract is executed and a satisfactory Performance and Payment (Contract Bond) is furnished. Bid Bonds will not be returned except on specific request of the bidder.
- 3.1.8 Bids will be reviewed to determine if the bid complies with the mandatory requirements, and to determine the lowest and best responsible bid.
- 3.1.9 Cost Determination - The low bid shall be determined by adding all of the firm, fixed prices on the pricing page for the original contract period to obtain a total price.
- 3.10 Contract Award – The contract will be awarded to the lowest responsible bidder determined as specified above.
- a. Award of this bid will be made on an “All Or Nothing” basis using the “lowest and best responsible” principle of award.
 - b. Notification of award will be at the time the tabulation is posted to the Internet. It is the sole responsibility for all bidders to check the website for bid results

4. PRICING PAGE SL15-001-RW

4.1 The bidder shall provide a firm, fixed price in the table below for the original contract period for providing the deliverables/services in accordance with the provisions and requirements of this RFB. All costs associated with providing the required deliverables/services shall be included in the prices stated below.

Route 30 @ Big River Bridge A4629, Jefferson County					
Item #	Description	U/M	QTY	COST U/M	EXTENDED COST
001	Construction Signs	SF	213		
002	Impact Attenuators (14 Sand Barrels)	Each	2		
003	Replacement Sand Barrels	\	3		
004	Flag Assembly	Each	9		
005	Channelizer (Trim Line)	Each	36		
006	Flashing Arrow Panel	Each	1		
007	Work Zone Lighting	Lump Sum	1		
008	Contractor furnished/retained Temporary Traffic Barrier	SF	200		
009	Mobilization	Lump Sum	1		
010	Removal of Existing Expansion Joints and Adjacent Concrete	SF	86		
011	Substructure Repair (Formed)	SF	10		
012	Substructure Repair (Unformed)	SF	10		
013	Superstructure Repair (Unformed)	SF	40		
014	Strip Seal Expansion Joint System and Adjacent Concrete	SF	86		
015	TOTAL EXTENDED COST				

COMPANY: _____ **DATE;** _____

SIGNATURE: _____

Exhibit I
PREFERENCE IN PURCHASING PRODUCTS

DATE: _____

The bidders attention is directed to Section 34.076 RSMo 2000 which gives preference to Missouri corporations, firms, and individuals when letting contracts or purchasing products.

Bids/Quotations received will be evaluated on the basis of this legislation.

All vendors submitting a bid/quotation must furnish ALL information requested below.

FOR CORPORATIONS:

State in which incorporated: _____
FOR OTHERS:

State of domicile: _____
FOR ALL VENDORS:

List address of Missouri offices or places of business:

THIS SECTION MUST BE COMPLETED AND SIGNED:

FIRM NAME: _____

ADDRESS: _____

CITY: _____ **STATE:** _____ **ZIP:** _____

BY (signature required): _____

Federal Tax I.D. #: _____ **if no Federal Tax I.D. # - list Social Security #:** _____

NOTE: For bid to be considered, the "Preference in Purchasing Products" form must be on file in the General Services (Procurement) Division and must be dated in the current calendar year.

Exhibit II

MISSOURI DOMESTIC PRODUCTS PROCUREMENT ACT

The bidder's attention is directed to the Missouri Domestic Products Procurement Act, Sections 34.350 to 34.359, RsMO, which requires all manufactured goods or commodities used or supplied in the performance of this contract or any subcontract to be manufactured or produced in the United States.

Section 34.355, RsMO, requires the vendor or contractor to certify his compliance with Section 34.353 and, if applicable, Section 34.359, RsMO, at the time of bidding **and** prior to payment. Failure to comply with Section 34.353, RsMO, during the performance of the contract **and** to provide certification of compliance prior to payment will result in nonpayment for those goods or commodities.

Section 34.353.2, RsMO, specifies that it does not apply where the total contract is less than Twenty-Five Thousand Dollars (\$25,000.00). If your total bid is Twenty-Five Thousand Dollars (\$25,000.00) or more, you **must** complete this form as directed below.

Failure to complete and return this document with this bid will cause the State to presume the manufactured goods or products listed in the bid are not manufactured or produced in the United States, and the bid will be evaluated on that basis. Please read the certification appearing below on this form.

- [] If all the goods or products specified in the attached bid which the bidder proposes to supply to the State shall be manufactured or produced in the "United States" as defined in Section 34.350, RsMO, check the box at left.
- [] If only one item of any particular goods or products specified in the attached bid is manufactured or produced in the "United States" as defined in Section 34.350, RsMO, check the box at left and list the items (or item number) here:
- _____
- _____
- [] If any or all of the goods or products specified in the attached bid which the bidder proposes to supply to the State are **not** manufactured or produced in the "United States" as defined in Section 34.350, RsMO, then: (a) check the box at left; (b) list below, by item (or item number), the country other than the United States where each good or product is manufactured or produced; and (c) check the boxes to the left of the paragraphs below if applicable and list the corresponding items (or item numbers) in the spaces provided.

Item (or item number)	Location Where Item Manufactured or Produced

(attach an additional sheet if necessary)

- [] The following specified goods or products cannot be manufactured or produced in the United States in sufficient quantities or in time to meet the contract specifications. Items (or item numbers): _____
- [] The following specified goods or products must be treated as manufactured or produced in the United States, in accordance with an existing treaty, law, agreement, or regulation of the United States, including a treaty between the United States and any foreign country regarding export-import restrictions or international trade. Items (or item numbers): _____

CERTIFICATION

By submitting this document, completed as directed above, with a bid, the bidder certifies under penalty of making false declaration (Section 575.060, RsMO) that the information contained in this document is true, correct and complete, and may be relied upon by the State in determining the bidders qualifications under and in compliance with the Missouri Domestic Products Procurement Act.

The bidder's failure to complete and return this document with the bid as directed above will cause the State to presume the manufactured goods or products listed in the bid are not manufactured or produced in the United States, and the bid will be evaluated on that basis pursuant to Section 34.353.3(2), RsMO.

Exhibit III

SIGNATURE AND IDENTITY OF BIDDER

The undersigned states that the correct LEGAL NAME and ADDRESS of (1) the individual Bidder, (2) each partner or joint venture (whether individuals or corporations, and whether doing business under a fictitious name), or (3) the corporation (with the state in which it is incorporated) are shown below; that (if not signing with the intention of binding himself to become the responsible and sole contractor) he is the agent of, and duly authorized in writing to sign for the Bidder or Bidders; and that he is signing and executing this (as indicated in the proper spaces below) as the proposal of a

() sole individual

() partnership

() joint venture

() corporation, incorporated under laws of state of _____

Dated _____.

Name of individual, all partners,
or joint ventures:

Address of each:

doing business under the name of:

Address of principal place of business in Missouri

(If using a fictitious name, show
this name above in addition
to legal names)

(If a corporation, show its name above)

ATTEST: (SEAL)

Secretary

Title

(NOTE: If the Bidder is doing business under a FICTITIOUS NAME, the Proposal shall be executed in the legal name of the individual, partners, joint ventures, or corporation, with the legal address shown, and REGISTRATION OF FICTITIOUS NAME filed with the Secretary of

State, as required by Sections 417.200 to 417.230, RS Mo. If the Bidder is a CORPORATION NOT ORGANIZED UNDER THE LAWS OF MISSOURI, it shall procure a CERTIFICATE OF AUTHORITY TO DO BUSINESS IN MISSOURI, as required by Section 351.570 and following, RS Mo. A CERTIFIED COPY of such Registration of Fictitious Name or Certificate of Authority to do Business in Missouri shall be filed with the Missouri Highways and Transportation Commission, as required by the Standard specifications, Sec 102.6.6 and.

Exhibit IV
WORKER ELIGIBILITY VERIFICATION AFFIDAVIT FOR ALL
MHTC/MODOT CONTRACT AGREEMENTS IN EXCESS OF \$5,000
(for joint ventures, a separate affidavit is required for each business entity)

STATE OF _____)
) ss
COUNTY OF _____)

On this _____ day of _____, 20____, before me appeared _____, personally known to me or proved to me on the basis of satisfactory evidence to be a person whose name is subscribed to this affidavit, who being by me duly sworn, deposed as follows:

My name is _____, and I am of sound mind, capable of making this affidavit, and personally certify the facts herein stated, as required by Section 285.530, RSMo, to enter into any contract agreement with the state to perform any job, task, employment, labor, personal services, or any other activity for which compensation is provided, expected, or due, including but not limited to all activities conducted by business entities:

I am the _____ of _____, and I am duly authorized, directed, and/or empowered to act officially and properly on behalf of this business entity. I hereby affirm and warrant that the aforementioned business entity is enrolled in a federal work authorization program operated by the United States Department of Homeland Security to verify information of newly hired employees, and the aforementioned business entity shall participate in said program with respect to all employees working in connection to work under the within state contract agreement with the Missouri Highways and Transportation Commission (MHTC). I have attached documentation to this affidavit to evidence enrollment/participation by the aforementioned business entity in a federal work authorization program, as required by Section 285.530, RSMo. In addition, I hereby affirm and warrant that the aforementioned business entity does not and shall not knowingly employ, in connection to work under the within state contract agreement with MHTC, any alien who does not have the legal right or authorization under federal law to work in the United States, as defined in 8 U.S.C. § 1324a(h)(3). I am aware and recognize that, unless certain contract and affidavit conditions are satisfied pursuant to Section 285.530, RSMo, the aforementioned business entity may be held liable under Sections 285.525 through 285.550, RSMo, for subcontractors that knowingly employ or continue to employ any unauthorized alien to work within the state of Missouri.

I acknowledge that I am signing this affidavit as a free act and deed of the aforementioned business entity and not under duress.

Affiant Signature

Subscribed and sworn to before me this _____ day of _____, 20____.

Notary Public

My commission expires:

[documentation of enrollment/participation in a federal work authorization program attached]

APPLICANT AFFIDAVIT FOR SOLE-PROPRIETORSHIP OR PARTNERSHIP
(a separate affidavit is required for each owner and general partner) *(if applicable)*

STATE OF _____)
) ss

COUNTY OF _____)

On this _____ day of _____, 20____, before me appeared _____, personally known to me or proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instruments, who being by me duly sworn, deposed as follows:

My name is _____, and I am of sound mind, capable of making this affidavit, and personally certify the facts herein stated, as required by Section 208.009, RSMo, for failure to provide affirmative proof of lawful presence in the United States of America:

☐ I am the _____ of _____, which is applying for a public benefit (grant, contract, and/or loan) administered/provided by the Missouri Highways and Transportation Commission (MHTC), acting by and through the Missouri Department of Transportation (MoDOT). I am classified by the United States of America as: (check the applicable box) a United States citizen. an alien lawfully admitted for permanent residence.

I am aware that Missouri law provides that any person who obtains any public benefit by means of a willfully false statement or representation, or by willful concealment or failure to report any fact or event required to be reported, or by other fraudulent device, shall be guilty of the crime of stealing pursuant to Section 570.030, RSMo, which is a Class C felony for stolen public benefits valued between \$500 and \$25,000 (punishable by a term of imprisonment not to exceed 7 years and/or a fine not more than \$5,000 – Sections 558.011 and 560.011, RSMo), and is a Class B felony for stolen public benefits valued at \$25,000 or more (punishable by a term of imprisonment not less than 5 years and not to exceed 15 years – Section 558.011, RSMo).

I recognize that, upon proper submission of this sworn affidavit, I will only be eligible for temporary public benefits until such time as my lawful presence in the United States is determined, or as otherwise provided by Section 208.009, RSMo.

I understand that Missouri law requires MHTC/MoDOT to provide assistance in obtaining appropriate documentation to prove citizenship or lawful presence in the United States, and I agree to submit any requests for such assistance to MHTC/MoDOT in writing.

I acknowledge that I am signing this affidavit as a free act and deed and not under duress.

Affiant Signature

Affiant's Social Security Number or
Applicable Federal Identification Number

Subscribed and sworn to before me this _____ day of _____, 20____.

Notary Public

My commission expires:

Exhibit V SL15-001-RW

(Revised 08/96)

BID BOND

KNOW ALL PERSONS BY THESE PRESENTS, that we _____

_____ as principal and _____

as surety, are held and firmly bound unto the state of Missouri (acting by and through the Missouri Highways and Transportation Commission) in the penal sum of _____

Dollars (\$) to be paid to the commission to be credited to the state road fund, the principal and surety binding themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

Sealed with our seals and dated this _____

THE CONDITION OF THIS OBLIGATION is such that

WHEREAS the principal is submitting herewith a bid to the commission on route(s) _30_____

_____ in County(ies),

project (s) _Jefferson, SL15-001-RW_____

_____ for construction or improvement of state highway as set out in said bid;

NOW THEREFORE, if the commission shall accept the bid of the principal and if the principal shall properly execute and deliver to the commission the contract, contract bond, and evidence of insurance coverage in compliance with the requirements of the bid, the specifications, and the provisions of section 227.100 RSMo, to the satisfaction of the commission, then this obligation shall be void and of no effect, otherwise to remain in full force and effect.

In the event the said principal shall, in the judgment of the commission, fail to comply with any requirement as set forth in the preceding paragraph, then the state of Missouri, acting by and through the commission, shall immediately and forthwith be entitled to recover the full penal sum above set out, together with court costs, attorney's fees, and any other expense of recovery.

The principal and surety hereby certify that the document is the original or a verbatim copy of the bid bond form furnished by the Commission, in accordance with Sec 102.9 of the Missouri Standard Specifications for Highway Construction.

Principal

SEAL By _____

Signature

Surety

SEAL By _____

Signature of Attorney in Fact

NOTE: This bond must be executed by the principal, and by a corporate surety authorized to conduct surety business in the state of Missouri.

Exhibit VI

MISSOURI SERVICE-DISABLED VETERAN BUSINESS PREFERENCE

By virtue of statutory authority, RSMo 34.074, a preference will be given all contracts for the performance of any job or service to service-disabled veteran business either doing business as Missouri firms, corporations, or individuals; or which maintain Missouri offices or places of business, when the quality of performance promised is equal or better and the price quoted is the same or less or whenever competing bids, in their entirety, are comparable.

Definitions:

Service-Disabled Veteran is defined as any individual who is disabled as certified by the appropriate federal agency responsible for the administration of veterans' affairs.

Service-Disabled Veteran Business is defined as a business concern:

- a. Not less than fifty-one (51) percent of which is owned by one or more service-disabled veterans or, in the case of any publicly owned business, not less than fifty-one (51) percent of the stock of which is owned by one or more service-disabled veterans; and
- b. The management and daily business operations of which are controlled by one or more service-disabled veterans.

If a bidder meets the definitions of a service-disabled veteran and a service-disabled veteran business as defined in 34.074 RSMo and is either doing business as a Missouri firm, corporation, or individual; or maintains a Missouri office or place of business, the bidder **must** provide the following with the bid in order to receive the Missouri service-disabled veteran business preference over a non-Missouri service-disabled veteran business when the quality of performance promised is equal or better and the price quoted is the same or less or whenever competing bids, in their entirety, are comparable:

- a. A copy of a letter from the Department of Veterans Affairs (VA), or a copy of the bidder's discharge paper (DD Form 214, Certificate of Release or Discharge from Active Duty) from the branch of service the bidder was in, stating that the bidder has a service-connected disability rating ranging from 0 to 100% disability; and
- b. A completed copy of this exhibit

(NOTE: For ease of evaluation, please attach copy of the above-referenced letter from the VA or a copy of the bidder's discharge paper to this Exhibit.)

By signing below, I certify that I meet the definitions of a service-disabled veteran and a service-disabled veteran business as defined in 34.074 RSMo and that I am either doing business as a Missouri firm, corporation, or individual; or maintain Missouri offices or places of business at the location(s) listed below.

Veteran Information

Service-Disabled Veteran's Name, (Please Print)

Business Information

Service-Disabled Veteran Business Name

Service-Disabled Veteran's Signature

Missouri Address of Service-Disabled Veteran
Business

STANDARD SOLICITATION PROVISIONS

- a. The solicitation for the procurement of the supplies referenced therein, to which these "Standard Bid Provisions, General Terms and Conditions and Special Terms and Conditions" are attached, is being issued under, and governed by, the provisions of Title 7 – Missouri Department of Transportation, Division 10 – Missouri Highways and Transportation Commission, Chapter 11 – Procurement of Supplies, of the Code of State Regulations. The Missouri Highways and Transportation Commission (MHTC), acting by and through its operating arm, the Missouri Department of Transportation (MoDOT), draws the Bidder's attention to said 7 CSR 10-11 for all the provisions governing solicitation and receipt of bids/quotes and the award of the contract pursuant to this solicitation.
- b. All bids/quotes must be signed with the firm name and by a responsible officer or employee. Obligations assumed by such signature must be fulfilled.

GENERAL TERMS AND CONDITIONS

Definitions

Capitalized terms as well as other terms used but not defined herein shall have the meaning assigned to them in section 7 CSR 10-11.010 Definition of Terms.

Nondiscrimination

- a. The Contractor shall comply with all state and federal statutes applicable to the Contractor relating to nondiscrimination, including, but not limited to, Chapter 213, RSMo; Title VI and Title VII of Civil Rights Act of 1964 as amended (42 U.S.C. Sections 2000d and 2000e, *et seq.*); and with any provision of the "Americans with Disabilities Act" (42 U.S.C. Section 12101, *et seq.*).
- b. **Sanctions for Noncompliance:** In the event of the Contractor's noncompliance with the nondiscrimination provisions of this contract, MHTC shall impose such contract sanctions as it or the Federal Highway Administration may determine to be appropriate, including, but not limited to:
 - i. withholding of payments to the Contractor under the contract until the Contractor complies, and/or,
 - ii. cancellation, termination or suspension of the contract, in whole or in part.

Contract/Purchase Order

- a. By submitting a bid/quote, the Bidder agrees to furnish any and all equipment, supplies and/or services specified in the solicitation documents, at the prices quoted, pursuant to all requirements and specifications contained therein.
- b. A binding contract shall consist of: (1) the solicitation documents, amendments thereto, and/or Best and Final Offer (BAFO) request(s) with any changes/additions, (2) the Contractor's bid response, and (3) the MHTC's acceptance of the bid by post-award contract or purchase order.
- c. A notice of award does not constitute an authorization for shipment of equipment or supplies or a directive to proceed with services. Before providing equipment, supplies and/or services, the Contractor must receive a properly authorized notice to proceed and/or purchase order.

Applicable Laws and Regulations

- a. The contract shall be construed according to the laws of the State of Missouri. The Contractor shall comply with all local, state, and federal laws and regulations related to the performance of the contract. The exclusive venue for any legal proceeding relating to or arising, out of the contract shall be in the Circuit Court of Cole County, Missouri.
- b. The Contractor must be registered and maintain good standing with the Secretary of State of the State of Missouri, Missouri Department of Revenue, and other regulatory agencies, as may be required by law or regulations. Prior to the issuance of a purchase order and/or notice to proceed, the Contractor may be required to submit to MHTC a copy of their current Authority Certificate from the Secretary of State of the State of Missouri and/or a copy of their Certificate of No Tax Due from the Missouri Department of Revenue.
- c. Prior to the issuance of a purchase order and/or notice to proceed, all **out-of-state** Contractors **providing services** within the state of Missouri must submit to MHTC a copy of their current Transient Employer Certificate from the Missouri Department of Revenue, in addition to a copy of their current Authority Certificate from the Secretary of State of the State of Missouri.

Executive Order:

The Contractor shall comply with all the provisions of Executive Order 07-13, issued by the Honorable Matt Blunt, Governor of Missouri, on the sixth (6th) day of March, 2007. This Executive Order, which promulgates the State of Missouri's position to not tolerate persons who contract with the state engaging in or supporting illegal activities of employing individuals who are not eligible to work in the United States, is incorporated herein by reference and made a part of this Agreement.

- 1) "By signing this Agreement, the Contractor hereby certifies that any employee of the Contractor assigned to perform services under the contract is eligible and authorized to work in the United States in compliance with federal law."
- 2) In the event the Contractor fails to comply with the provisions of the Executive Order 07-13, or in the event the Commission has reasonable cause to believe that the contractor has knowingly employed individuals who are not eligible to work in the United States in violation of federal law, the Commission reserves the right to impose such contract sanctions as it may determine to be appropriate, including but not limited to contract cancellation, termination or suspension in whole or in part or both.
- 3) The Contractor shall include the provisions of this paragraph in every subcontract. The Contractor shall take such action with respect to any subcontract as the Commission may direct as a means of enforcing such provisions, including sanctions for noncompliance.

Preferences

In the evaluation of bids/quotes, preferences shall be applied in accordance with 7 CSR 10-11.020(7). Contractors should apply the same Bidders are encouraged to obtain minority business enterprise (MBE) and women business enterprise (WBE) participation in this work through the use of subcontractors, suppliers, joint ventures, or other arrangements that afford meaningful participation for M/WBEs. Bidders are encouraged to obtain 10% MBE and 5% WBE participation.

Cancellation of Contract

The MHTC may cancel the Contract at any time for a material breach of contractual obligations or for convenience by providing Contractor with written notice of cancellation. Should the MHTC exercise its right to cancel the contract for such reasons, cancellation will become effective upon the date

specified in the notice of cancellation sent to the Contractor.

Bankruptcy or Insolvency

Upon filing for any bankruptcy or insolvency proceeding by or against the Contractor, whether voluntarily, or upon the appointment of a receiver, trustee, or assignee, for the benefit of creditors, the Commission reserves the right and sole discretion to either cancel the Agreement or affirm the Agreement and hold the Contractor responsible for damages.

Warranty

The Contractor expressly warrants that all equipment, supplies, and/or services provided shall: (1) conform to each and every specification, drawing, sample or other description which was furnished to or adopted by the MHTC, (2) be fit and sufficient for the purpose expressed in the solicitation documents, (3) be merchantable, (4) be of good materials and workmanship, and (5) be free from defect.

Status of Independent Contractor

The Contractor represents itself to be an independent Contractor offering such services to the general public and shall not represent itself or its employees to be an employee of the MHTC. Therefore, the Contractor shall assume all legal and financial responsibility for taxes, FICA, employee fringe benefits, workers' compensation, employee insurance, minimum wage requirements, overtime, etc., and agrees to indemnify, save and hold the MHTC, its officers, agents and employees harmless from and against any and all losses (including attorney fees) and damage of any kind related to such matters.

Non-Waiver

If one of the parties agrees to waive its right to enforce any term of this Contract, that party does not waive its right to enforce such term at any other time or to enforce any or all other terms of this Contract.

Indemnification

The Contractor shall defend, indemnify and hold harmless MHTC, including its members and department employees, from any claim or liability whether based on a claim for damages to real or personal property or to a person for any matter relating to or arising out of the Contractor's performance of its obligations under the contract awarded pursuant to this solicitation.

SPECIAL TERMS AND CONDITIONS

Permits, Licenses and Safety Issues

The contract price shall include any necessary permits and licenses required by law incidental to the work. Local ordinances requiring building permits are not applicable to state agencies.

- a. When any of the above **holidays falls** on a **Sunday**, the holiday will be observed on the following **Monday**; when any of the above **holidays falls** on a **Saturday**, the **holiday** will be observed on the immediately preceding **Friday**.
- b. Contractor will not be required to provide dozers, loaders, motor graders, or other equipment for shaping of stockpiles, constructing ramps or runways, or leveling of the top of a completed lift, unless otherwise noted herein.

Temporary Suspension of Work

- a. The **District Engineer** shall have authority to suspend work wholly or in part for such period or periods as may be deemed necessary when weather or other conditions are such that in the opinion of the engineer, the work may be done at a later time with advantage to MoDOT or for failure on the part of the Contractor to comply with any of the provisions of the Contract.
- b. If MoDOT suspends the work for its own advantages and not because of the Contractor's failure to comply with the Contract, the Contractor will be allowed an equal number of calendar days after the completion date for the completion of the work. MoDOT may at its discretion give the Contractor an extension of time for completing the work where the Contractor incurs delays for causes beyond his control.
- c. Normal rainfall is not considered a cause qualifying for an extension of time. Claim for extension of time for all causes must be submitted by the Contractor in writing within **30 Days** after the claimed cause for the delay has ceased to exist.

Preferences

- a. By virtue of statutory authority, RSMo. 34.076 and 34.350 to 34.359, a preference will be given to materials, products, supplies, provisions and all other articles produced, manufactured, made or grown within the State of Missouri. Such preference shall be given when quality is equal or better and delivered price is the same or less.
 - 1) If attached, the document entitled "**PREFERENCE IN PURCHASING PRODUCTS**" should be completed and returned with the solicitation documents.
 - 2) If attached, the document entitled "**MISSOURI DOMESTIC PRODUCTS PROCUREMENT ACT**" should be completed and returned with the solicitation documents. **Applies if bid is Twenty-Five Thousand Dollars (\$25,000.00) or more.**
- b. By virtue of statutory authority, RSMo 34.074, a preference will be given all contracts for the performance of any job or service to service-disabled veteran business either doing business as Missouri firms, corporations, or individuals; or which maintain Missouri offices or places of business, when the quality of performance promised is equal or better and the price quoted is the same or less or whenever competing bids, in their entirety, are comparable. 1) If attached, the document entitled "**MISSOURI SERVICE-DISABLED VETERAN PREFERENCE**" should be completed and returned with the solicitation documents.

Job No. WBA4629A
Route 30
County: Jefferson

JOB SPECIAL PROVISIONS TABLE OF CONTENTS (ROADWAY)

(Job Special Provisions shall prevail over General Special Provisions whenever in conflict therewith.)

- A. General
- B. Contract Liquidated Damages
- C. Work Zone Traffic Management Plan
- D. Emergency Provisions and Incident Management
- E. Supplemental Revisions
- F. Quality Management
- G. Safety Plan

	MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION 105 W. CAPITOL AVE. JEFFERSON CITY, MO 65102 Phone 1-888-275-6636
	Horner & Shifrin, Inc. 5200 Oakland Ave. St. Louis, MO 63110 314-531-4321 Certificate of Authority #000159 Expiration Date: December 31, 2014
	JOB NUMBER: WBA4629A Jefferson County, MO DATE PREPARED: 5/19/2014
	ADDENDUM DATE:
Date: 5/19/2014	
Only the following items of the Job Special Provisions (Roadway) are authenticated by this seal: A-G.	

JOB
SPECIAL PROVISION

A. GENERAL - STATE JSP-09-03A

1.0 Description. The Federal Government is not participating in the cost of construction of this project.

1.1 This contract requires payment of the prevailing hourly rate of wages for each craft or type of worker required to execute the contract as determined by the Missouri Department of Labor and Industrial Relations. The current State Wage Rates can be found on the Missouri Department of Transportation web page at www.modot.org under "Bidding" for the applicable bid opening. This supplemental bidding document has important legal consequences. It shall be conclusively presumed that they are in the bidder's possession, and they have been reviewed and used by the bidder in the preparation of any bid submitted on this project.

State Wage Rates

1.2 The following documents are available on the Missouri Department of Transportation web page at www.modot.org under "Business"; "Standards and Specifications". The effective version shall be determined by the letting date of the project.

General Provisions & Supplemental Specifications

Supplemental Plans to October 2009 Missouri Std. Plans
For Highway Construction

These supplemental bidding documents contain all current revisions to the bound printed versions and have important legal consequences. It shall be conclusively presumed that they are in the bidder's possession, and they have been reviewed and used by the bidder in the preparation of any bid submitted on this project.

B. CONTRACT LIQUIDATED DAMAGES

1.0 Description. Liquidated Damages for failure or delay in completing the work on time for this contract shall be in accordance with Sec 108.8. The liquidated damages include separate amounts for road user costs and contract administrative costs incurred by the Commission.

2.0 Period of Performance. Prosecution of work is expected to begin on the date specified below in accordance with Sec 108.2. Regardless of when the work is begun on this contract, all work shall be completed on or before the date specified below. Completion by this date shall be in accordance with the requirements of Sec 108.7.1.

Completion Date: September 30, 2014.

3.0 Liquidated Damages for Contract Administrative Costs. Should the contractor fail to complete the work on or before the completion date specified in Section 2.0, the contractor will be charged contract administrative liquidated damages in the amount of **\$250** per calendar day for each full calendar day that the work is not fully completed. For projects in combination,

these damages will be charged in full for failure to complete one or more projects within the above specified completion date..

4.0 Liquidated Damages for Road User Costs. Should the contractor fail to complete the work on or before the completion date specified in Section 2.0, the contractor will be charged road user costs in accordance with Sec 108.8 in the amount specified in Section 4.1. These damages are in addition to the contract administrative damages and any other damages as specified elsewhere in this contract.

4.1 Road User Costs.

Job Number	Road User Cost
WBA4629A	\$ 1,200

C. WORK ZONE TRAFFIC MANAGEMENT PLAN

1.0 Description. Work zone traffic management shall be in accordance with applicable portions of Division 100 and Division 600 of the Standard Specifications, and specifically as follows.

1.1 Work Zone Specialist (WZS) The Traffic Management Plan shall name an individual, either employed by the contractor or hired by the contractor, to act as the Work Zone Specialist. This individual will be a trained Workzone Specialist in accordance with Standard Specifications Section 616.3.4 and will be directly involved with daily traffic management and traffic management planning. It will be the responsibility of the WZS to coordinate daily traffic management between MoDOT inspection staff (when present) and Transportation Management Center (TMC) (when MoDOT inspector is not present). The WZS shall maintain daily contact with MoDOT either through on-site MoDOT inspector or telecommunication to MoDOT Transportation Management Center (TMC) traffic management operations.

1.2 Maintaining Work Zones and Work zone Reviews. The WZS shall maintain work zones on a daily basis to assure safety to the traveling public and the workers. If the engineer or a designated MoDOT employee (identified at the preconstruction meeting) notifies the WZS of any safety or traffic delay concerns in the work zone, the WZS shall immediately work to correct the situation. The WZS shall have personnel reviewing regular traffic control items daily and any temporary lane drop traffic control items initial set up and during the operation. Traffic control items shall typically be corrected without the need for direction by the engineer. The WZS is responsible to assure all traffic control devices are maintained in accordance with EPG standards. The WZS is responsible to assure work zone is operated within the hours specified by the engineer and will not deviate from the specified hours without prior approval of the engineer. WZS is responsible to manage work zone delay in accordance with the principles and guidelines of traffic delay mitigation established by the District 6 Work Zone Level of Impact (WZLOI). The WZS and engineer shall submit one joint weekly technical review of work zone operations indentifying any concerns present and the corrective actions taken. Multiple reviews rated 100% will be subjected to unannounced inspections to corroborate validity of multiple ratings. Engineer and WZS will be notified of results.

1.3 Work Zone Conflict Resolution Plan. The WZS shall be presented a copy of District 6 Work Zone Conflict Resolution Plan and acquire a working knowledge of expectations in traffic mitigation. The engineer or its designee will notify the contractor first verbally if work zone is not maintained at an acceptable level. If first verbal notification does not resolve the work zone

deficiency(s), then the engineer or its designee will proceed upwards utilizing the Work Zone Resolution Ladder until all concerns are resolved. The engineer may use an order record to correct traffic control items. The order record shall state the correction(s) necessary and the time frame by which the corrections shall be made. Failure to make corrections on time may result in the engineer suspending work. The suspension will be non-excusable and non-compensable regardless if user costs are being charged for closures.

2.0 Traffic Management Schedule.

2.1 Traffic management schedules shall be submitted to the engineer for review prior to the start of work and prior to any revisions to the traffic management schedule. The traffic management schedule shall include the proposed traffic control measures, hours traffic control will be in place, and work hours.

2.2 The contractor shall request permission 48 hours prior to lane closures or shifting traffic onto detours. This is to ensure closures do not conflict with other work within the zone of influence and the work zone information on the website can remain real-time. In accordance with Management of Traffic (MOT) procedures, the contractor will need to submit lane closure for the following week by Monday 3:00pm.

2.3 The engineer shall be notified as soon as practical of any postponement due to weather, material or other circumstances.

2.4 In order to ensure minimal traffic interference, the contractor shall schedule lane closures for the absolute minimum amount of time required to complete the work. Lanes shall not be closed until material is available for continuous construction and the contractor is prepared to diligently pursue the work until the closed lane is opened to traffic.

2.5 Traffic Congestion. The contractor shall, upon approval of the engineer, take proactive measures to reduce traffic congestion in the work zone. The contractor shall begin mitigation measures whenever traffic congestion reaches excess of 10 minutes to prevent congestion escalating to 15 minute or above threshold.

2.5.1 Traffic Delay. The contractor shall be responsible for maintaining the existing traffic flow through the job site during construction. If disruption of the traffic flow occurs and traffic is backed up in queues of 15 minute delays or longer, all steps available up to and including removal of lane closure to achieve free flow traffic shall be deployed. The contractor shall review the construction operations which contributed directly to disruption of the traffic flow and make adjustments to the operations to prevent the queues from occurring again.

Traffic Safety.

2.5.2.1 Where traffic queues routinely extend to within 1000 feet of the ROAD WORK AHEAD, or similar, sign on a divided highway or to within 500 feet of the ROAD WORK AHEAD, or similar, sign on an undivided highway, the contractor shall extend the advance warning area, as approved by the engineer.

2.5.2.2 When a traffic queue extends to within 1000 feet of the ROAD WORK AHEAD, or similar, sign on a divided highway or to within 500 feet of the ROAD WORK AHEAD, or similar, sign on an undivided highway due to non-recurring congestion, the contractor shall deploy a means of providing advance warning of the traffic congestion, as approved by the engineer. The

warning location shall be no less than 1000 feet and no more than 0.5 mile in advance of the end of the traffic queue on divided highways and no less than 500 feet and no more than 0.5 mile in advance of the end of the traffic queue on undivided highways.

3.0 Work Hour Restrictions.

3.1 There are three major summer holiday periods: Memorial Day, Independence Day, and Labor Day. All lanes shall be scheduled to be open to traffic during these holiday periods, from 12:00 noon on the last working day preceding the holiday until 9:00 a.m. on the first working day subsequent to the holiday.

3.2 The contractor shall not perform any construction operation on the roadway, including the hauling of material within the project limits, during restricted periods, holiday periods or other special events specified in the contract documents.

3.3 The contractor shall be aware that traffic data indicates construction operations on the roadbed between the hours of 6 a.m. on Tuesday and 9 a.m. on Friday will likely result in traffic queues greater than 15 minutes. Based on this data the contractors operations will be restricted accordingly unless it can be successfully demonstrated that their operations can be performed without a 15 minute queue in traffic. It shall be the responsibility of the engineer to determine if the above work hours may be modified.

3.4 The contractor shall not alter the start time, ending time, or a reduction in the number of through lanes of traffic or ramp closure without advance notification and approval by the engineer. The only work zone operation approved to begin 30 minutes prior to a reduction in through traffic lanes or ramp closures is the installation of traffic control signs. Should lane closures be placed or remain in place, prior to the approved starting time or after the approved ending time, the Commission, the traveling public, and state and local police and governmental authorities will be damaged in various ways, including but not limited to, increased construction administration cost, potential liability, traffic and traffic flow regulation cost, traffic congestion and motorist delay, with its resulting cost to the traveling public. These damages are not reasonably capable of being computed or quantified. Therefore, the contractor will be charged with liquidated damages specified in the amount of \$35 per 5 minute increment for each 5 minutes that the temporary lane closures are in place and not open to traffic in excess of the limitation as specified elsewhere in this special provision. It shall be the responsibility of the engineer to determine the quantity of unapproved closure time.

3.4.1 The said liquidated damages specified will be assessed regardless if it would otherwise be charged as liquidated damages under the Missouri Standard Specification for Highway Construction, as amended elsewhere in this contract.

4.0 Detours and Lane Closures.

4.1 At least one lane of traffic in each direction on Route 30 shall be maintained at all times except for brief intervals of time required when the movement of the contractor's equipment will seriously hinder the safe movement of traffic. Periods during which the contractor will be allowed to halt traffic will be designated by the engineer.

4.2 Mobile operations for striping, removals and pavement markers are permitted within the scope of approved traffic control plan provided with plans. In the event traffic control for mobile

operations on this project is not addressed, the contractor shall submit a mobile operation traffic control plan to the engineer before operation may begin. On high-speed roadways, a third shadow vehicle should be used with Shadow Vehicle 1 in the closed lane, Shadow Vehicle 2 straddling the edge line, and Shadow Vehicle 3 on the shoulder. Reference mobile operation principles established within EPG 616.11.5 or MUTCD 6G.02, Typical Application 6H -35.

5.0 Basis of Payment. No direct payment will be made to the contractor to recover the cost of equipment, labor, materials or time required to fulfill the above provisions, unless specified elsewhere in the contract document.

D. EMERGENCY PROVISIONS AND INCIDENT MANAGEMENT

1.0 The contractor shall have communication equipment on the construction site or immediate access to other communication systems to request assistance from the police or other emergency agencies for incident management. In case of traffic accidents or the need for police to direct or restore traffic flow through the job site, the contractor shall notify police or other emergency agencies immediately as needed. The area engineer's office shall also be notified when the contractor requests emergency assistance.

2.0 In addition to the 911 emergency telephone number for ambulance, fire or police services, the following agencies may also be notified for accident or emergency situation within the project limits.

Missouri Highway Patrol (573-751-3313)		
City of Cedar Hill	City of Dittmer	
Fire: 636-285-3345		
Police:	636-797-5000	
Jefferson County Sheriff (636-797-5000)		

2.1 This list is not all inclusive. Notification of the need for wrecker or tow truck services will remain the responsibility of the appropriate police agency.

2.2 The contractor shall notify enforcement and emergency agencies before the start of construction to request their cooperation and to provide coordination of services when emergencies arise during the construction at the project site. When the contractor completes this notification with enforcement and emergency agencies, a report shall be furnished to the engineer on the status of incident management.

3.0 No direct pay will be made to the contractor to recover the cost of the communication equipment, labor, materials or time required to fulfill the above provisions.

E. SUPPLEMENTAL REVISIONS JSP-09-01M

Insert Sec 109.15, Sec 109.16 and Sec 109.17, subsequent section renumbered accordingly:

109.15 Seal Coat Price Index. Adjustments will be made to the payments due the contractor for Seal Coat placed in accordance with Section 409 of the Standard Specifications when the quantity exceeds 50,000 square yards for an individual project or any number of projects in the contract combination. Adjustments will be calculated in accordance with Asphalt Cement Price Index of the General Provisions, except as defined herein.

109.15.1 Basis of Payment. To determine the adjustment for any material specified in this provision the following formula will be used.

$$A = B \times (2.01/2000) \times (D - E)$$

Where: A = adjustment for Seal Coat placed during the index period
 B = square yards of seal coat placed during the index period
 D = average index price at the beginning of the period
 E = average index price at the time of bid

109.15.2 Optional. This provision is optional. If the bidder wishes to be bound by this provision, the bidder shall execute the acceptance form in the Bid for the Asphalt Cement Price Index. Acceptance of this provision will apply to both the Asphalt Cement Price Index and Seal Coat Price Index. Failure by the bidder to execute the acceptance form will be interpreted to mean election to not participate in the Asphalt Cement Price Index or Seal Coat Price Index.

109.16 Asphalt Underseal Price Index. Adjustments will be made to the payments due the contractor for Asphalt underseal placed in accordance with Section 625 of the Standard Specifications when the quantity exceeds 10,000 gallons for an individual project or any number of projects in the contract combination. Adjustments will be calculated in accordance with Asphalt Cement Price Index of the General Provisions, except as defined herein.

109.16.1 Basis of Payment. To determine the adjustment for any material specified in this provision the following formula will be used.

$$A = B \times (8.66/2000) \times (D - E)$$

Where: A = adjustment for asphalt underseal placed during the index period
 B = gallons of asphalt underseal placed during the index period
 D = average index price at the beginning of the period
 E = average index price at the time of bid
 (use average specific gravity of 1.04 for underseal)

109.16.2 Optional. This provision is optional. If the bidder wishes to be bound by this provision, the bidder shall execute the acceptance form in the Bid for the Seal Coat Price Index. Failure by the bidder to execute the acceptance form will be interpreted to mean election to not participate in the Seal Coat Price Index.

109.17 Polymer Modified Emulsion Membrane Price Index. Adjustments will be made to the payments due the contractor for Polymer Modified Emulsion Membrane placed in accordance with Sec 413.30 when the quantity exceeds 5,000 square yards. Adjustment will be calculated in accordance with the Supplemental Asphalt Price Adjustment except as defined herein.

109.17.1 Basis of Payment. To determine the adjustment for any material specified in this provision the following formula will be used.

$$A=B \times (1.20/2000) \times (D - E)$$

Where: A = adjustment for membrane placed during the index period
 B = square yards of membrane placed during the index period
 D = average index price at the beginning of the period
 E = average index price at time of bid

109.17.2 Optional. This provision is optional. If the bidder wishes to be bound by the provision, the bidder shall execute the acceptance form in the Bid for Polymer Modified Emulsion Membrane Price Index. Failure by the bidder to execute the acceptance form will be interpreted to mean election not to participate in the Polymer Modified Emulsion Membrane Price Index.

Delete Sec 407 in its entirety and substitute the following:

407.1 Description. This work shall consist of preparing and treating an existing bituminous or concrete surface with bituminous material, in accordance with these specifications.

407.2 Material. All material shall be in accordance with Division 1000, Material Details, and specifically as follows:

Item	Section
Emulsified Asphalt or PG Liquid Asphalt	1015

407.3 Equipment. The contractor shall provide a system for heating and applying the bituminous material. The system shall be designed, equipped, maintained and operated such that emulsified asphalt or liquid asphalt, at even heat, may be applied uniformly on variable widths of surface up to 15 feet with uniform pressure and an allowable variation from any specified rate of ± 0.01 gallon per square yard. The system shall include a calibrated tank and a thermometer for measuring temperature of tank contents. The system shall be equipped with instrumentation that continuously verifies application rates. The calibration of the system shall be approved by the engineer prior to use, and the contractor shall furnish all equipment, material and assistance if calibration is required.

407.4 Construction Requirements.

407.4.1 Preparation of Surface. The existing surface shall be free of all dust, loose material, grease or other foreign material at the time the tack is applied. Any excess bituminous surface mixture or bituminous joint material will be removed by MoDOT without cost to the contractor before the tack is applied.

407.4.2 Application. Asphalt emulsion or PG liquid asphalt shall be applied uniformly with a pressure distributor at the minimum rates indicated in the following table. No dilution of the emulsified asphalt material shall be allowed. The tack coat material shall be heated at the time of application to a temperature in accordance with Sec 1015. The tack coat shall be properly cured and the tacked surface shall be clean of all dirt before the next course is placed.

Tack Coat Application Rates	
Surface Type	Minimum Application Rate (gal/sq yd)
New Asphalt Pavement	0.05
Existing Asphalt or Concrete Pavement	0.08

407.4.3 Tack. The tack coat shall be applied in such a manner as to cause the least inconvenience to traffic and to permit one-way traffic without tracking of asphalt emulsion. All exposed tack coat shall be covered with bituminous mixture prior to opening to traffic.

407.5 Method of Measurement. Measurement of asphalt emulsion to the nearest 10 gallons will be made in accordance with Sec 1015.

407.6 Basis of Payment. The accepted quantity of tack coat will be paid for at the contract unit price.

Delete Sec 1015.20.5.1 and substitute the following:

1015.20.5.1 Polymer Modified Asphalt Emulsion – Seal Coat. Bituminous material for polymer modified asphalt shall be in accordance with the following:

Polymer Modified Asphalt Emulsion				
Test ^a	CRS-2P		EA-90P	
	Min	Max	Min	Max
Viscosity, SSF @ 50 C	100	400	100	400
Storage Stability Test ^b , 24 hour, percent	----	1	----	1
Classification Test	Pass	----	----	----
Particle Charge Test	Positive	----	----	----
Sieve Test, percent	----	0.3	----	0.3
Demulsibility, 0.02 N CaCl ₂ , percent	----	----	30	----
Distillation:				
Oil distillate by volume of emulsion, percent	----	3	----	3
Residue from distillation ^c , percent	65	----	65	----
Tests on Residue from Distillation:				
Penetration, 25 C, 100 g, 5 sec	100	200	100	200
Ductility, 4 C, 5 cm/minute, cm	30	----	25	----
Ash ^d , percent	----	1	----	1
Float Test at 60 C, sec	----	----	1200	----
Elastic Recovery ^e , percent	58	----	58	----

^aAll tests shall be performed in accordance with AASHTO T 59 except as noted.

^bIn addition to AASHTO T 59, upon examination of the test cylinder, and after standing undisturbed for 24 hours, the surface shall show no appreciable white, milky colored substance and shall be a homogeneous brown color throughout.

^cAASHTO T 59 shall be modified to maintain a 399 F ± 10 F maximum temperature for 15 minutes.

^dPercent ash shall be determined in accordance with AASHTO T 111, *Ash in Bituminous Material*.

^eElastic recovery shall be determined as follows. Condition the ductilometer and samples to be treated at 50 F. Prepare the brass plate, mold and briquet specimen in accordance with AASHTO T 51. Keep the specimen at the specified test temperature of 50 F for 85 to 95 minutes. Immediately after conditioning, place the specimen in the ductilometer and proceed to elongate the sample to 20 cm at a rate of pull of 5 cm/min. After the 20 cm elongation has been reached, stop the ductilometer and hold the sample in the elongated position for 5 minutes. After 5 minutes, clip the sample approximately in half by means of scissors or other suitable cutting devices. Let the sample remain in the ductilometer in an undisturbed condition for one hour. At the end of this time period, retract the half sample specimen until the two broken ends touch. At this point note the elongation (x) in cm. Calculate the percent recovery by the following formula:

$$\% \text{ Recovery} = \frac{20 - X}{20} \times 100$$

Polymer Modified Asphalt Emulsion		
Test ^a	CHFRS-2P	
	Min.	Max.
Viscosity, SFS @ 50 C	100	400
Storage Stability Test, 24 hour, percent	---	1.0
Demulsibility, 35 ml 0.8% dioctyl sodium sulfosuccinate, percent	60	---
Sieve Test, percent	---	0.1 0
Particle Charge Test	Positive	
Distillation ^b		
Oil Distillate, by volume of emulsion, percent	---	0.5
Residue from distillation, percent	65	---
Tests on Residue from Distillation:		
Polymer content, weight, percent (solids based)	3.0	---
Softening Point, C	54	---
Float test at 60 C, s	1800	---
Penetration, 25 C, 100 g, 5 s	80	130
Viscosity @ 60 C, Poise	1300	---
Solubility in Trichloroethylene, percent	95	---
Elastic Recovery ^c @ 10 C , percent	65	---

^aAll tests shall be performed in accordance with AASHTO T-59 except as noted.

^bAASHTO T59 shall be modified to maintain a 177 ± 5 C maximum temperature to be held for 20 minutes. Complete the total distillation in 60 ± 5 minutes from the first application of heat.

^cElastic recovery shall be determined as follows. Condition the ductilometer and samples to be treated at 10 C. Prepare the brass plate, mold, and briquet specimen in accordance with AASHTO T 51. Keep the specimen at the specified test temperature of 10 C for 85 to 95 minutes. Immediately after conditioning, place the specimen in the ductilometer and proceed to elongate the sample to 20 cm at a rate of pull of 5 cm/min. After the 20 cm elongation has been reached, stop the ductilometer and hold the sample in the elongated position for 5 minutes. After the 5 minutes, clip the sample approximately in half by means of scissors or other suitable cutting devices. Let the sample remain in the ductilometer in an undisturbed condition for one hour. At the end of this time period, retract the half sample specimen until the two broken ends touch. At this point note the elongation recovery (X) in cm. Calculate the percent recovery by the following formula:

$$\% \text{ Recovery} = \frac{20 - X}{20} \times 100$$

Amend Sec 1015.20.5.1.1 to include the following:

1015.20.5.1.1 Polymer Modified Asphalt Emulsion – Tack Coat. Bituminous material for polymer modified asphalt shall be in accordance with the following:

Slow Setting Polymer Modified Asphalt Emulsion^a					
		SS-1HP		CSS-1HP	
Test on Emulsion	Method	Min	Max	Min	Max
Viscosity, Saybolt Furol @ 25°C (77°F), s	AASHTO T 59	20	100	20	100
Particle Charge Test		Negative		Positive	
Storage Stability Test ^b , 24 hr, percent	AASHTO T 59	--	1	--	1
Sieve Test, percent	AASHTO T 59	--	0.50	--	0.50
Residue by Distillation ^c , percent	AASHTO T 59	57		57	
Oil Distillate by Distillation, percent	AASHTO T 59	--	--	--	--
Test on Residue from Distillation					
Penetration 25°C, 100 g, 5 s	AASHTO T 49	40	90	40	90
Elastic Recovery ^d , 20 cm, 5 cm/min, 60 min, %	AASHTO T 301	30	--	30	--
Solubility in Trichloroethylene ^e , %	AASHTO T 44	97.5	--	97.5	--

^a The emulsified asphalt shall be in accordance with Section 1015.20.5 of the 2011 Missouri Standard Specifications for Highway Construction, except as indicated above, and shall be modified with a styrene-butadiene diblock or triblock copolymer or a styrene butadiene rubber.

^b In addition to AASHTO T 59, upon examination of the test cylinder, and after standing undisturbed for 24 hours, the surface shall show no appreciable white, milky colored substance and shall be homogeneous brown color throughout. The storage stability test may be waved provided the asphalt emulsion storage tank at the project site has adequate provisions for circulating the entire contents of the tank, provided satisfactory field results are obtained.

^c AASHTO T 59 shall be modified to use a lower distillation temperature of 177° C (350° F).

^d AASHTO T 301 shall be modified to allow the residue to be obtained from distillation as long as the distillation temperature is modified as stated above. The test on residue shall be conducted at a temperature of 10° C (50° F).

^e In lieu of performing AASHTO T 44, AASHTO T 111, Ash in Bituminous Material, may be performed with a maximum allowable percent ash of 1.0 percent.

F. QUALITY MANAGEMENT

1.0 Quality Management. The contractor shall provide Quality Management as specified herein to ensure the project work and materials meets or exceeds all contract requirements.

1.1 The contractor shall provide all Quality Control (QC) of the work and material. Contractor QC staff shall hold the primary responsibility for ensuring all work and material is in compliance with contract requirements. QC staff shall perform and document all inspection and testing. The QC inspectors and testers may be employed by the contractor, sub-contractor, or a qualified professional service hired by the contractor.

1.2 The engineer will provide Quality Assurance (QA) inspection. The role of QA is to verify the performance of QC and provide confidence that the product will satisfy given requirements for quality.

1.3 The contractor shall designate a person to serve as the project Quality Manager (QM). The QM shall be knowledgeable of standard testing and inspection procedures for highway and bridge construction, including a thorough understanding of the standard specifications. The QM shall be responsible for the implementation and execution of the Quality Management Plan and shall oversee all QC responsibilities, including all sub-contract work. The QM shall be the primary point of contact for all quality related issues and responsibilities, and shall ensure qualified QC technicians and inspectors are assigned to all work activities. The QM should be separate from the manager of the work activities.

1.4 Any QC personnel determined in sole discretion of the engineer to be incompetent, derelict in their duties, or dishonest, shall at a minimum be removed from the project. Further investigation will follow with a stop work notification to be issued until the contractor submits a corrective action report that meets the approval of the engineer.

2.0 Quality Management Plan. The contractor shall develop, implement and maintain a Quality Management Plan (QMP) that will ensure the project quality meets or exceeds all contract requirements, and provides a record for acceptance of the work and material.

2.1 The QMP shall address all QC inspection and testing requirements of the work as described herein. A draft QMP shall be submitted to the Resident Engineer for review at least two weeks prior to the pre-construction conference.

2.2 Physical work on the project shall not begin prior to approval of the QMP by the engineer. The approved QMP shall be considered a contract document and any revisions to the QMP will require approval from the engineer.

2.3 The following items shall be included in the Quality Management Plan:

- a) General organizational structure of the contractor's production and QC staff.
- b) Name, qualifications and job duties of the Quality Manager.
- c) A list of all certified QC testers who will perform QC duties on the project, including sub-contract work, and the areas of testing in which they are certified.
- d) A list of all QC inspectors who will perform inspection duties on the project, including sub-contract work, and the areas of inspection that they will be assigned.
- e) A Document Control Procedure for verifying documentation is accurate and complete as described in Section 3.
- f) A procedure describing QC Inspections as outlined in Section 4.
- g) A procedure describing QC Testing, as outlined in Section 5, including a job specific Inspection and Test Plan (ITP).
- h) A procedure describing Material Receiving as outlined in Section 6.
- i) A list of Hold Points as outlined in Section 8.

- j) A procedure for documenting and resolving Non-Conforming work as described in Section 9.
- k) A procedure for tracking revisions to the QMP.
- l) A list of any approved changes to the Standard Specifications or ITP, including a reference to the corresponding change order.
- m) Format for the Weekly Schedule and Work Plans as described in Section 10, including a list of activities that will require pre-activity meetings.

3.0 Project Documentation. The contractor shall establish a Document Control Procedure for producing and uploading the required Quality Management documents to a web-based electronic storage site provided by MoDOT (Microsoft SharePoint), or to an alternate storage site provided by the contractor and approved by the engineer. This process will allow efficient sharing of documents among authorized users. Any proposed alternate site must provide equal or better efficiency in document sharing as the MoDOT provided site. If an alternate site is utilized, upon completion of the project the contractor shall provide all files to the engineer on an approved electronic media.

3.1 The contractor shall utilize a file naming system that allows efficient location of documents. The file naming system for each folder should be shown in the QMP.

3.2 Documents (standard forms, reports, and checklists) referenced throughout this provision are considered the minimum documentation required. They shall be obtained from MoDOT at the following web address: <http://www.modot.org/quality> . The documents provided by MoDOT are required to be used in the original format, unless otherwise approved by the engineer. Contractor-altered versions may be allowed in some cases; however, many of these forms must remain in the original format in order to simplify data entry into SiteManager (MoDOT's internal project management system).

3.3 Timely submittal of the required documents to the MoDOT document storage location is essential to ensure payment can be processed for the completed work. Submittal of the documents is required within 12 hours of the work shift that the work was performed, or on a document-specific schedule approved by the engineer and included in the QMP.

3.4 The contractor shall establish a verification procedure that ensures all required documents are submitted to the engineer within the specified time, and prior to the end of each pay period for the work that was completed during that period. Payment will not be made for work that does not include all required documents. Minimum documents that might be required prior to payment include: Test Reports, Inspection Checklists, Materials Receiving Reports, and Daily Inspection Reports.

3.5 The contractor shall perform an audit at project closeout to ensure the final collection of documents is accurate and complete.

4.0 Quality Control Inspections. The QMP shall identify a procedure for performing QC inspections. QC inspections shall be performed for all project activities to ensure the work is in compliance with the contract, plans and specifications.

4.1 The QM shall identify the QC inspectors assigned to each work activity. The QC inspectors shall inspect the work to ensure the work is completed in accordance with the plans and specifications, and shall document the inspection by completing the required inspection checklists, forms, and reports provided by MoDOT. Depending on the type of work, the checklists may be necessary daily, or they may follow a progressive work process. The frequency of each checklist shall be stated in the QMP. The contractor may propose alternate versions of checklists that are more specific to the work.

4.2 A Daily Inspection Report is required to document pertinent activity on the project each day. This report shall include a detailed diary that describes the work performed as well as observations made by the inspection staff regarding quality control. The report shall include other items such as weather conditions, location of work, installed quantities, tests performed, and a list of all subcontractors that performed work on that date. The report shall include the full name of the responsible person who filled out the report and shall be digitally signed by an authorized contractor representative.

4.3 External fabrication of materials does not require further QC inspection if the product is currently under MoDOT inspection or an approved QC/QA program. QC inspection and testing required in the production of concrete for the project shall be the responsibility of the contractor.

4.4 The contractor shall measure and document the quantity for all items of work that require measurement. Any calculations necessary to support the measurement shall be included with the documentation. The engineer will verify the measurements prior to final payment.

5.0 Quality Control Testing. The QMP shall identify a procedure for QC testing. The contractor shall perform testing of the work at the frequency specified in the Inspection and Test Plan (ITP).

5.1 MoDOT will provide a standard ITP and the contractor shall modify it to include only the items of work in the contract, including adding any Job Special Provision items. The standard ITP is available on the MoDOT website at <http://www.modot.org/quality>. The contractor shall not change the specifications, testing procedures, or the testing frequencies, from the standard ITP without approval by the engineer and issuance of a change order.

5.2 Test results shall be recorded on the standard test reports provided by the engineer, or in a format approved by the engineer. Any test data shall be immediately provided to the engineer upon request at any time, including prior to the submission of the test report.

5.3 The contractor shall ensure that all personnel who perform sampling and/or testing are certified by the MoDOT Technician Certification Program or a certification program that has been approved by MoDOT for the sampling and testing they perform.

5.4 If necessary, an independent third party will be used to resolve any significant discrepancies between QC and QA test results. All dispute resolution testing shall be performed by a laboratory that is accredited in the AASHTO Accreditation Program in the area of the test performed. The contractor shall be responsible for the cost to employ the third party laboratory if the third party test verifies that the QA test was accurate. The Commission shall be responsible for the cost if the third party test verifies that the QC test was accurate.

6.0 Material Receiving. The QMP shall identify a procedure for performing material receiving. Standard material receiving forms will be provided by the engineer.

6.1 The procedure shall address inspections for all material delivered to the site (excluding testable material such as concrete, asphalt, aggregate, etc.) for general condition of the material at the time it is delivered. The material receiving procedure shall record markings and accompanying documentation indicating the material is MoDOT accepted material (MoDOT-OK Stamp, PAL tags, material certifications, etc.).

6.2 All required material documentation must be present at the time of delivery. If the material is not MoDOT accepted, the contractor shall notify the engineer immediately and shall not incorporate the material into the work.

7.0 Quality Assurance. The engineer will perform Quality Assurance inspection and testing (QA) to verify the performance of QC inspection and testing. The frequency of the QA testing will be as shown in the ITP, but may be more frequent at the discretion of the engineer. The engineer will record the results of the QA testing and inspection and will inform the contractor of any known discrepancies.

7.1 QA is responsible for verifying the accuracy of the final quantity of all pay items in the contract. This includes taking measurements on items that require measurement and other items that are found to have appreciable errors.

7.2 QA inspection and test results may not be used as a substitute for QC inspection and testing.

7.3 QA will be available for Hold Point inspections at the times planned in the Weekly Schedule. The inspections may be re-scheduled as needed, but a minimum 24-hour advance notification from the contractor is required unless otherwise approved by the engineer.

8.0 Hold Points. Hold Points are events that require approval by the engineer prior to continuation of work. Hold Points occur at definable stages of work when the succeeding work depends on a QA review of the preceding work.

8.1 A list of minimum Hold Points will be provided by the engineer and shall be included in the QMP. The engineer may make changes to the Hold Point list at any time.

8.2 Prior to all Hold Point inspections, QC shall provide the engineer with the Daily Inspection Reports, Inspection Checklists, Test Reports, and Material Receiving Reports for the work performed leading up to the Hold Point. If the engineer identifies any corrective actions needed during a Hold Point inspection, the corrections shall be completed prior to continuing work. The engineer may require a new Hold Point to be scheduled if the corrections require a follow-up inspection.

9.0 Non-Conforming Work. Non-conforming work is defined as work that does not meet the contract requirements. The contractor shall establish a procedure for identifying and resolving non-conforming work as well as tracking the status of the reports.

9.1 Contractor QC staff or production staff should identify non-conforming work and document the details on the Non-Conformance Report form provided by MoDOT. QA staff may also initiate a non-conformance report.

9.2 In-progress work that does not meet the contract requirements may not require a non-conformance report if production staff is aware of the issue and corrects the problem during production. QC or QA may issue a non-conformance report for in-progress work when documentation of the deficiency is considered beneficial to the project record.

9.3 The contractor shall propose a resolution to the non-conforming work. Acceptance of a resolution by the engineer is required before closure of the non-conformance report.

9.4 For recurring non-conformance work of the same or similar nature, a written Corrective Action Request will be issued by QC or QA. The contractor shall then establish a procedure for tracking the corrective action from issuance of the request to implementation of the solution. Approval from the engineer is required prior to implementation of the proposed corrective action. The contractor shall notify the engineer after the approved corrective action has been implemented.

10.0 Work Planning and Scheduling. The contractor shall include Quality Management in all aspects of the work planning and scheduling. This shall include providing a Weekly Schedule, a Work Plan for each work activity, and holding pre-activity meetings for each new activity.

10.1 A Weekly Schedule shall be provided to the engineer each week that outlines the planned project activities for the following two-week period. This schedule shall include all planned work, identification of all new activities, traffic control events, and requested hold point inspections for the period. Planned quantity of materials, along with delivery dates should also be included in the schedule.

10.2 A Work Plan shall be submitted to the engineer at least one week prior to the pre-activity meeting. The Work Plan shall include the following: a safety plan, list of materials to be used, work sequence, defined responsibilities for QC testing and inspection personnel, and stages of work that will require hold point inspections.

10.3 A pre-activity meeting is required prior to the start of each new activity. The purpose of this meeting is to discuss details of the Work Plan and schedule, including all safety precautions. Those present at the meeting shall include: the production supervisor for the activity, the Quality Manager, QC inspection and testing staff, and QA. The Quality Manager will review the defined responsibilities for QC testing and inspection personnel and will address any quality issues with the production staff. Attendees may join the meeting in person or by phone or video conference.

11.0 Basis of Payment. Payment for all costs associated with developing, implementing and maintaining the Quality Management Plan, providing Quality Control inspection and testing, and all other costs associated with this provision, will be considered included in the unit price of each contract item. No direct pay will be made for this provision.

G. SAFETY PLAN

1.0 Description. This contractor shall submit to the engineer a project Safety Plan (SP) for all work performed by the contractor and all subcontractors. The purpose of the SP is to encourage and enable all work to be performed in the safest possible manner and that all parties involved are aware of their individual responsibility for safety on the jobsite.

1.1 The SP shall be completed by the contractor and provided to the engineer prior to the beginning of any construction activity or phase on the project.

1.2 The contractor shall designate a person to serve as Project Safety Manager (PSM). The PSM shall be responsible for implementing and overseeing the SP. The PSM is not required to be present on the project at all times, but must be available to address safety issues and needs.

1.3 The PSM shall make revisions to the SP as necessary. Any new project activities or phases shall be included in the SP prior to work beginning on that activity or phase.

1.4 An example Safety Plan is available at: www.modot.org/safetyplan

2.0 Emergency Preparedness. The SP shall outline and detail for all workers, the specific procedures and actions necessary to respond to a jobsite emergency and the measures taken to communicate these requirements to all workers.

2.1 The SP shall include a list of local emergency contacts including phone numbers. A copy of the emergency contact list shall be accessible to workers.

2.2 In the case where there is no cellular or land line phone service at the jobsite, the SP shall identify how to reach the nearest available phone service.

3.0 Project Safety Analysis. The SP should contain a basic Project Safety Analysis (PSA) that outlines the actions necessary to complete each activity or phase of the project. The SP shall include a general description of the primary activities or steps required to safely complete the project.

3.1 Each activity should also include a general description of the work involved along with the known risks associated with the activity. In addition the PSA should outline the controls for those risks, including any Personal Protection Equipment (PPE) requirements for that activity or phase, and whether or not the activity or phase requires a specific safety meeting prior to beginning the activity or phase.

3.2 Submittal of the PSA for all activities or phases is not required with the initial submittal of the SP; however, the PSA for each activity or phase shall be completed prior to the beginning of that activity or phase.

4.0 Safety Meetings. The SP shall include the types of safety meetings that will be required of and conducted by the contractor.


5.0 Safety Training. The SP shall identify the required safety training provided to the contractor's personnel. The contractor shall require that the appropriate safety training for the contractor's personnel is completed prior to the beginning of work on each activity or phase.

5.1 The SP shall identify the recommended safety training needs and PPE for MoDOT employees who will be exposed to the work activities. MoDOT will provide safety training and PPE to MoDOT employees based on MoDOT safety policies.

6.0 Payment. There will be no direct payment for compliance with this Safety Plan provision.

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	<p>JOB NO. WBA4629A St. Louis County, MO Date Prepared: 4/29/2014</p>
<p>Date: 4.29.2014</p>	
<p>Only the following items of the Job Special Provisions (Bridge) are authenticated by this seal: A thru F</p>	

A. CONSTRUCTION REQUIREMENTS

1.0 Description. This provision contains general construction requirements for this project.

2.0 Construction Requirements. Plans for the existing structure are included for informational purposes only.

2.1 In order to assure the least traffic interference, the work shall be scheduled so that a lane closure is for the absolute minimum amount of time required to complete the work. A lane shall not be closed until material is available for continuous construction and the Contractor is prepared to diligently pursue the work until the closed lane is opened to traffic.

2.2 Qualified special mortar shall be a qualified rapid set concrete patching material in accordance with [Sec 704](#). A qualified rapid set concrete patching material will not be permitted for repairing concrete deck (half-soling), deck repair with void tube replacement, full depth repair, modified deck repair and substructure repair (formed) unless a note on the bridge plans specifies that a qualified special mortar may be used.

2.3 Provisions shall be made to prevent any debris and materials from falling into the stream. Debris and material that falls below the bridge, and if determined necessary by the Engineer, shall be removed as approved by the Engineer at the Contractor's expense.

2.4 Any damage sustained to the remaining structure as a result of the Contractor's operations shall be repaired or the material replaced as approved by the Engineer at the Contractor's expense.

2.5 Provisions shall be made to prevent damage to any existing utilities. Any damage sustained to the utilities as a result of the Contractor's operations shall be the responsibility of the Contractor. All costs of repair and disruption of service shall be as determined by the utility owners and as approved by the Engineer.

2.7 A washer shall be required under head and nut when any reaming is performed for bolt installation.

3.0 Method of Measurement. No measurement will be made.

4.0 Basis of Payment. Payment for the above described work will be considered completely covered by the contract unit price for other items included in the contract.

B. RAPID SET CONCRETE PATCHING MATERIAL – HORIZONTAL REPAIRS

1.0 Description. This specification covers cementitious concrete, polymer-modified concrete and polymer concrete that are suitable for repairing concrete surfaces on bridges or roadways, particularly under fast setting or special conditions. The repairs would involve horizontal applications. The work shall consist of removing, furnishing, preparing, and placing materials at locations as shown on the plans or as directed by the Engineer.

2.0 Material. All materials shall be in accordance with MoDOT specifications and as noted herein.

2.1 Aggregate For Extending Commercial Mixture. Coarse and fine aggregates shall be in accordance with [Sec 1005](#), except the requirements for gradation and percent passing the No. 200 sieve shall not apply. Coarse aggregate meeting Gradation E requirements shall be used for repairs greater than one inch (25 mm) in depth. Fine aggregate will be allowed for repairs less than one inch (25 mm). Aggregate specified, bagged, labeled and furnished by the rapid set concrete patching material manufacturer may also be used for mortar extension.

2.2 Material Applications. The Contractor shall select and use the product most suitable for the work and field conditions in accordance with these specifications.

2.3 Curing. Rapid set concrete patching material shall be cured until the minimum compressive strength 3200 psi is attained using standard curing specifications, unless otherwise specified by the manufacturer.

2.4 Qualification and Project Acceptance.

2.4.1 Inspection. All materials shall be subject to inspection and sampling by MoDOT at the source of manufacture, intermediate shipping terminal or destination. MoDOT will be allowed free access to all facilities and records as required to conduct inspection and sampling.

2.4.2 Qualification. Prior to use, rapid set concrete patching material shall be qualified. In order to become qualified, a material shall have completed testing through AASHTO's National Transportation Product Evaluation Program (NTPEP). The manufacturer shall contact the AASHTO/NTPEP coordinator to obtain the testing location for the rapid setting concrete patching material.

2.4.2.1 Requested Information. The manufacturer shall submit with samples of the materials, a written request to Construction and Materials with the following information:

- (a) Brand name of the product.
- (b) Certification that the material meets this specification.
- (c) NTPEP test results showing compliance with this special provision.
- (d) Specific mixing, handling and curing instructions.
- (e) Application type (i.e., bridge or roadway).

2.4.2.2 Qualified List. Upon approval by the Engineer, the brand name and manufacturer will be placed on a qualified list of rapid set concrete patching materials. The listing of qualified materials is available from Construction and Materials or on MoDOT's web site. New certified test results and samples shall be submitted any time the manufacturing process or the material formulation is changed. The material will be subject to removal from the qualified list if there is evidence of unsatisfactory performance or a change in manufacturing process or formulation, or when random sampling and testing of material offered for use indicates nonconformity with any of the requirements herein specified.

2.4.3 Provisional Approval. Provisional approval may be granted provided the following requirements have been met:

- (a) New Products Evaluation Form
- (b) Certified test results from an independent laboratory showing compliance with this special provision.
- (c) Documentation prepared by MoDOT covering two years of field performance on MoDOT's system. MoDOT will need to approve the location of the test site. Documentation will contain the placement date, field observations (semi annual), description of field performance and photographs of in-place material.
- (d) During placement the manufacturer's representative shall be present on the project to provide technical expertise.

2.4.3.1 Disqualification. If during the two year observation period the repair area(s) fails provisional approval will not be granted. Repair area(s) experiencing any cracking, debonding or spalling will be considered a failure.

2.4.3.2 Length of Provisional Approval. Provisional approval will be granted for three years or until NTPEP testing is completed.

2.5 Certification. The Contractor shall supply a manufacturer's certification to the Engineer for each lot of material furnished. The certification shall include the name of the manufacturer, a manufacturer certification statement that the material supplied is the same as that qualified and listing the date of qualification.

2.6 Acceptance. Acceptance of the material will be based on the use of a qualified or provisionally approved material, the manufacturer's certification that the material supplied is the same as that approved and upon the results of such tests as may be performed by the Engineer.

3.0 Mixture. Unless otherwise specified, rapid set concrete patching material shall be approved commercial mixtures meeting [Sections 3.1 – 3.1.3](#) or deck repair cementitious mortar meeting [Section 3.2](#). Rapid set concrete patching materials shall be specifically designed for the application needed.

3.1 Commercial Mixtures. Rapid set concrete patching material in its sacked form and mixtures when properly prepared in accordance with the manufacturer's specifications, shall meet the minimum test requirements given in Table 1. Mixtures may be supplied, as required, as a patching mortar or as a patching mortar with aggregate extension. If the material is to be supplied with extender aggregate, this shall also pass the required tests in Table 1 using the maximum allowed amount of extender aggregate.

3.1.1 Mixture Requirements. Rapid set concrete patching material shall be single packaged dry mix requiring the addition of water or other liquid component just prior to mixing. The material shall be capable of ½ inch (13 mm) to full depth repair and require no bonding agent. The material shall not contain soluble chlorides as an ingredient of manufacture. The material shall be placed in accordance to the manufacturer's recommendations.

Table 1 (English Unit)				
Physical Test Property	<u>Specification</u>	Requirement for cementitious concrete	Requirement for polymer-modified concrete	Requirement for polymer concrete
Bond Strength by Slant Shear ¹	ASTM C882/C928 ³	min. 1000 psi @ 24hrs.& min. 1500 psi @ 7 days	n/a	min. 1000 psi @ 24hrs.& min. 1500 psi @ 7 days
Linear Coefficient of Thermal Expansion ^{1, 2} (for bagged mortar only, without extension aggregate)	ASTM C531	n/a	n/a	4 – 8 X 10-6 in/in/deg F
Resistance to Rapid Freezing & Thawing ¹	AASHTO T161 or ASTM C666	80% min. using Procedure B ⁵ (300 Cycles)	80% min. using Procedure B ⁵ (300 Cycles)	n/a
Compressive Strength ¹	AASHTO T22 or ASTM C39	3200 psi @ 3 hr & 4000 psi @ 7 days	3200 psi @ 3 hr & 4000 psi @ 7 days	n/a
Rapid Chloride Permeability ¹	AASHTO T277 or ASTM C1202	<u>Bridge Decks</u> 1000 coulombs @ 28 days <u>Roadway</u> 2000 coulombs @ 28 days	<u>Bridge Deck</u> 1000 coulombs @ 28 days <u>Roadway</u> 2000 coulombs @ 28 days	<u>Bridge Deck</u> 1000 coulombs @ 28 days <u>Roadway</u> 2000 coulombs @ 28 days
Length Change ^{1, 4}	AASHTO T 160 or ASTM C157	In water Storage (+0.15) In air storage (-0.15)	In water storage (+0.15) In air storage (-0.15)	n/a
Color		gray	gray	gray

¹The commercial mix test values can be located in the AASHTO's National Transportation Product Evaluation Program (NTPEP) reports for Laboratory Evaluations of Rapid Set Concrete Patching Materials. Data for provisionally approved materials is located at the Construction and Materials Division.

²Not required for extended mixtures if the mortar passes this requirement.

³ ASTM C882 shall be performed on non-water based materials. ASTM C928 shall be performed on water-based materials.

⁴ As modified by ASTM C928.

⁵ Procedure A may be used in lieu of Procedure B

3.1.2 Construction Requirements. The manufacturer shall provide with the bagged mixture, specifications for the mixing procedure, amount and kind of liquid to be added, and the amount of aggregate extension allowed, if any. All mixing, handling and curing practices recommended by the manufacturer shall be followed and will be considered a part of these specifications.

3.1.3 Removal from Qualified List. All mixtures shall be approved before use. Reoccurring failures of any mixture for any reason will be cause for removal from the qualified list.

3.2 Deck Repair Concrete. A qualified rapid set concrete patching material indicated for horizontal use and intended for patching concrete bridge decks may be used when specified on

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the plans and as approved by the Engineer. If this option is selected, the Contractor shall provide a trial mix to determine the total cure time needed to achieve a compressive strength of 3200 psi (22 MPa). Compressive specimens shall be prepared in accordance with current MoDOT test methods and cured to simulate actual field conditions. Testing of compressive specimens shall be performed by methods and at facilities acceptable to the Engineer. The repaired deck shall not be opened to traffic until at least 4 hours after the last placement of deck repair concrete, the established cure time has elapsed and until such concrete has achieved a compressive strength of 3200 psi (22 MPa). A new trial mix may be required if the Engineer determines the field conditions vary substantially from trial mix conditions. The Engineer will make field cylinders to verify the 3200 psi (22 MPa) minimum strength.

4.0 Construction Requirements.

4.1 Mixing. Rapid set concrete patching material shall be mixed and finished according to the manufacturer's recommendation.

4.2 Preparation of Repair Area. Deteriorated, damaged or defective concrete as shown on the plans, required by the specifications or as directed by the Engineer, shall be removed. All exposed reinforcement shall be thoroughly cleaned as shown on the plans, required by the specifications or as directed by the Engineer. Unless otherwise specified by the commercial mixture manufacturer, the existing surface shall be damp and all free water shall be removed prior to placement of the required material.

4.3 Bonding Agent. A bonding agent may be used if recommended by the rapid set concrete patching material manufacturer.

5.0 Method of Measurement. No measurement will be made for rapid set concrete patching material.

6.0 Basis of Payment. Rapid set concrete patching material will be paid for at the contract unit price for other items and will be considered full compensation for all labor, equipment and material to complete the described work.

C. RAPID SET CONCRETE PATCHING MATERIAL – VERTICAL AND OVERHEAD REPAIRS

1.0 Description. This specification covers cementitious concrete, polymer-modified concrete and polymer concrete that are suitable for repairing concrete surfaces on bridges or concrete structures, particularly under fast setting or special conditions. The repairs would involve vertical or overhead applications. The work shall consist of removing, furnishing, preparing, and placing materials at locations as shown on the plans or as directed by the Engineer.

2.0 Material. All materials shall be in accordance with MoDOT specifications and as noted herein.

2.1 Aggregate For Extending Commercial Mixture. Coarse and fine aggregates shall be in accordance with [Sec 1005](#), except the requirements for gradation and percent passing the No. 200 sieve shall not apply. Coarse aggregate meeting Gradation E requirements shall be used for repairs greater than one inch (25 mm) in depth. Fine aggregate will be allowed for repairs

less than one inch (25 mm). Aggregate specified, bagged, labeled and furnished by the rapid set concrete patching material manufacturer may also be used for mortar extension.

2.2 Material Applications. The Contractor shall select and use the product most suitable for the work and field conditions in accordance with these specifications.

2.3 Curing. Rapid set concrete patching material shall be cured until the minimum compressive strength 1500 psi is attained using standard curing specifications, unless otherwise specified by the manufacturer.

2.4 Qualification and Project Acceptance.

2.4.1 Inspection. All materials shall be subject to inspection and sampling by MoDOT at the source of manufacture, intermediate shipping terminal or destination. MoDOT will be allowed free access to all facilities and records as required to conduct inspection and sampling.

2.4.2 Qualification. Prior to use, rapid set concrete patching materials need to be qualified.

2.4.2.1 Requested Information. The manufacturer shall submit with samples of the materials, a written request to Construction and Materials with the following information:

- (a) New Products Evaluation Form
- (b) Brand name of the product.
- (c) Certification that the material meets this specification.
- (d) Certified test results from an independent laboratory showing compliance with this specification.
- (e) Specific preparation instructions of repair area.
- (f) Specific mixing, handling and curing instructions.
- (g) Application type (i.e., vertical or overhead).

2.4.2.2 Field Evaluation. Final approval will be granted when the following requirements are met:

- (e) MoDOT report documenting two years of field performance on MoDOT system. The report will contain the placement date, field observations (semi annual), description of field performance and photographs of in-place material.
- (f) A manufacturer's representative shall be present during placement of the material to provide technical expertise.

2.4.2.3 Disqualification. If during the two year observation period the repair area(s) fails the product will not be added to the qualified list.

2.5 Qualified List. The listing of qualified products are available from Construction and Materials or on MoDOT's web site. New certified test results and samples shall be submitted

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any time the manufacturing process or the material formulation is changed. The material will be subject to removal from the qualified list if there is evidence of unsatisfactory performance or a change in manufacturing process or formulation, or when random sampling and testing of material offered for use indicates nonconformity with any of the requirements herein specified.

2.6 Certification. The Contractor shall supply a manufacturer's certification to the Engineer for each lot of material furnished. The certification shall include the name of the manufacturer, a manufacturer certification statement that the material supplied is the same as that qualified and listing the date of qualification.

2.7 Acceptance. Acceptance of the material will be based on the use of a qualified product, the manufacturer's certification that the material supplied is the same as that approved and upon the results of such tests as may be performed by the Engineer.

3.0 Mixture. Unless otherwise specified, rapid set concrete patching material shall be approved commercial mixtures meeting [Sections 3.1 – 3.1.3.](#) Rapid set concrete patching materials shall be specifically designed for the application needed.

3.1 Commercial Mixtures. Rapid set concrete patching material in its sacked form and mixtures when properly prepared in accordance with the manufacturer's specifications, shall meet the minimum test requirements given in Table 1. Mixtures may be supplied, as required, as a patching mortar or as a patching mortar with aggregate extension. If the material is to be supplied with extender aggregate, this shall also pass the required tests in Table 1 using the maximum allowed amount of extender aggregate.

3.1.1 Mixture Requirements. Rapid set concrete patching material shall be single packaged dry mix requiring the addition of water or other liquid component just prior to mixing. The material shall not contain soluble chlorides as an ingredient of manufacture. The material shall be placed in accordance to the manufacturer's recommendations.

Table 1 (English Unit)				
Physical Test Property	Specification	Requirement for cementitious concrete	Requirement for polymer-modified concrete	Requirement for polymer concrete
Bond Strength by Slant Shear	ASTM C882/C928 ²	min. 1000 psi @ 24hrs.& min. 1500 psi @ 7 days	n/a	min. 1000 psi @ 24hrs.& min. 1500 psi @ 7 days
Linear Coefficient of Thermal Expansion ¹ (for bagged mortar only, without extension aggregate)	ASTM C531	n/a	n/a	4 – 8 X 10-6 in/in/deg F
Resistance to Rapid Freezing & Thawing	AASHTO T161 or ASTM C666	80% min. using Procedure B ³ (300 Cycles)	80% min. using Procedure B ³ (300 Cycles)	n/a
Compressive Strength	AASHTO T22 or ASTM C39	1500 psi @ 3 hr & 3000 psi @ 24 hr	1500 psi @ 3 hr & 3000 psi @ 24 hr	n/a
Rapid Chloride Permeability	AASHTO T277 or ASTM C1202	1000 coulombs @ 28 days	1000 coulombs @ 28 days	1000 coulombs @ 28 days

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Length Change	AASHTO T 160 or ASTM C157	In water Storage (+0.15) In air storage (-0.15)	In water storage (+0.15) In air storage (-0.15)	n/a
Color		gray	gray	gray

¹ Not required for extended mixtures if the mortar passes this requirement.

² ASTM C882 shall be performed on non-water based materials. ASTM C928 shall be performed on water-based materials.

³ Procedure A may be used in lieu of Procedure B

3.1.2 Construction Requirements. The manufacturer shall provide with the bagged mixture, specifications for the mixing procedure, amount and kind of liquid to be added, and the amount of aggregate extension allowed, if any. All mixing, handling and curing practices recommended by the manufacturer shall be followed and will be considered a part of these specifications.

3.1.3 Removal from Qualified List. All mixtures shall be approved before use. Reoccurring failures of any mixture for any reason will be cause for removal from the qualified list.

3.2 Vertical Repair.. A qualified rapid set concrete patching material approved for vertical use may be used when specified on the plans and as approved by the Engineer. The Engineer will make field cylinders to verify the 1500 psi (10 MPa) minimum strength. The material shall adhere to the concrete surface without sagging.

3.3 Overhead Repair. A qualified rapid set concrete patching material approved for overhead use may be used when specified on the plans and as approved by the Engineer. The material shall be placeable in layers of at least 1 inch on overhead applications without the use of formwork or anchoring devices. The material shall adhere to the concrete surface without sagging. The Engineer will make field cylinders to verify the 1500 psi (10 MPa) minimum strength.

4.0 Construction Requirements.

4.1 Mixing. Rapid set concrete patching material shall be mixed and finished according to the manufacturer's recommendation.

4.2 Preparation of Repair Area. Deteriorated, damaged or defective concrete as shown on the plans, required by the specifications or as directed by the Engineer, shall be removed. All exposed reinforcement shall be thoroughly cleaned as shown on the plans, required by the specifications or as directed by the Engineer. Unless otherwise specified by the commercial mixture manufacturer, the existing surface shall be damp and all free water shall be removed prior to placement of the required material.

4.3 Bonding Agent. A bonding agent may be used if recommended by the rapid set concrete patching material manufacturer.

5.0 Method of Measurement. No measurement will be made for rapid set concrete patching material.

6.0 Basis of Payment. Rapid set concrete patching material will be paid for at the contract unit price for other items and will be considered full compensation for all labor, equipment and material to complete the described work.

D. CURING CONCRETE ADJACENT TO EXPANSION DEVICE

1.0 Description. This special provision covers construction requirements for curing concrete adjacent to the expansion device.

2.0 Construction Requirements.

2.1 Type III cement may be used to accelerate the set of the concrete. Accelerating additives containing chlorides will not be permitted.

2.2 Following texturing, fresh concrete shall be sprayed immediately with a curing compound in accordance with Sec 703.

2.3 The concrete surface shall be covered with clean curing mats as soon as the curing compound has dried sufficiently to prevent adhesion and the concrete surface will support the curing mat without marring or distorting the finish, but not more than 90 minutes after the concrete is textured.

2.3.1 The mats shall be sufficiently wet at the time of placement to prevent moisture absorption from the finished surface. The curing mats shall be kept continuously wet for a minimum of 4 hours following concrete placement.

2.3.2 The Contractor shall control the water runoff so as not to cause a traffic hazard.

2.4 The continuous wet cure shall be maintained a minimum of 4 hours and until the concrete has attained a minimum compressive strength of 3,200 psi (22 MPa). The Contractor shall not reopen the structure to any public vehicular traffic until the concrete has attained a compressive strength of 3,200 psi. Plates shall not be placed over each repair area or joint being repaired during the concrete curing time.

3.0 Basis of Payment. No direct payment will be made for curing the concrete as specified by this special provision.

E. SHOTCRETE FOR SMALL QUANTITY SUPERSTRUCTURE AND SUBSTRUCTURE REPAIR

1.0 Description. Superstructure Repair (Unformed), Substructure Repair (Formed) and Substructure Repair (Unformed) shall be in accordance with [Sec 704](#) and as shown on the plans. Shotcrete, in accordance with this Special Provision, may be used in lieu of these formed and unformed repairs.

1.1 Shotcrete shall be in accordance with the current requirements of American Concrete Institute (ACI) 506.2-95, "Materials, Proportioning and Application of Shotcrete", except as otherwise specified. Shotcrete shall consist of an application of one or more layers of mortar or

concrete conveyed through a hose and pneumatically projected at a high velocity against a prepared surface.

1.2 Shotcrete shall be produced by a dry-mix process. The dry-mix process shall consist of thoroughly mixing all the ingredients except accelerating admixtures and mixing water and conveying the mixture through the hose pneumatically and the mixing water is introduced at the nozzle. For additional descriptive information, the Contractor's attention shall be directed to the ACI 506R-90, "Guide to Shotcrete".

2.0 Contractor Experience Requirements.

2.1 Workers, including foremen, nozzlemen and delivery equipment operators, shall be fully experienced to perform the work.

2.2 Initial qualification of nozzlemen will be based ACI or EFNARC certification for the application process being used. The nozzlemen shall submit documented proof they have been certified in accordance with the ACI 506.3R-91 "Certification of Shotcrete Nozzlemen" or EFNARC "Nozzleman Certification Scheme". The certification shall have been done by an ACI or EFNARC recognized shotcrete testing lab and/or recognized shotcreting consultant and have covered the type of shotcrete to be used (plain dry-mix).

2.2.1 In lieu of a reference, a satisfactory test panel may be provided with the material to be used.

2.3 The Contractor shall supply 1 reference project to demonstrate the experience of the nozzleman in similar shotcrete application work. Owner contact information for the reference project shall be provided to allow for the Engineer to confirm satisfactory results.

3.0 Shotcrete Materials.

3.1 Shotcrete materials shall consist of one of the following premixed and packaged materials:

- a) BASF Shotpatch 21-F
- b) Euclid Chemical Eucoshot F
- c) King Shotcrete MS-D1
- d) CTS Cement Low-P

3.2 Due to the small quantities of repairs no material testing is anticipated. Acceptance will be based on the prequalified materials listed in this Special Provision, approval of the nozzleman prior to material placement, and visual inspection. If questions arise based from visual examination, placement methods, curing methods or other potentially undesirable influences the Engineer reserves the right to test any material properties listed on the published product data sheet for the material selected. Testing will be done at the Contractor's expense.

3.3 Material shall be delivered, stored and handled to prevent contamination, segregation, corrosion or damage.

3.4 Proportioning and Use of Admixtures. Admixtures will not be permitted unless approved by the Engineer.

3.5 Bonding Agents. Bonding agents will not be permitted.

3.6 Air Entrainment. Additional air entrainment admixtures will not be required.

4.0 Construction Submittals.

4.1 At least 15 days before the planned start of unformed superstructure repair and formed substructure repair, copy of the following information shall be submitted in writing to the Engineer for review:

- (a) Written documentation of the nozzlemen's qualifications including proof of ACI or EFNARC certification;
 - (b) Proposed methods of shotcrete placement and of controlling and maintaining facing alignment including equipment models;
 - (c) Shotcrete mix; and
 - (d) One reference project including: Nozzleman's name, material used, process used, and whether a blow pipe was utilized. Owner contact information shall be provided to ensure satisfactory results were accomplished on the reference project;
- or
- (e) A satisfactory test panel in accordance with this Special Provision shall be provided with the material to be used.

4.2 The Engineer will approve or reject the Contractor's submittals within 10 days after the receipt of a complete submission. The Contractor will not be permitted to begin unformed or formed concrete repair with shotcrete until the submittal requirements are satisfied and found acceptable to the Engineer. Changes or deviations from the approved submittals shall be re-submitted for approval. No adjustment in contract time will be allowed due to incomplete submittals.

4.3 A pre-construction meeting scheduled by the Engineer will be held prior to the start of work. The shotcrete Contractor shall attend.

5.0 Field Quality Control.

5.1 Production test panels will not initially be required if a reference project is provided. The Engineer may halt repair work if satisfactory results are not produced by the Contractor.

5.2 If a comparable project demonstrating satisfactory results cannot be provided, the skills of the nozzleman shall be demonstrated and tested with at least one production test panel being furnished prior to performing repairs.

5.3 Production Test Panels (If Required).

5.3.1 Qualified personnel shall perform shotcreting and coring of the test panels with the Engineer present. The Contractor shall provide equipment, materials and personnel as necessary to obtain shotcrete cores for testing including construction of test panel boxes, field curing requirements and coring.

5.3.2 Production test panels shall be made with the minimum full thickness and dimension of 18 x 18 inch (450 x 450 mm) and at least 3½ inch (89 mm) thick with 2-#4 bars placed in each direction. The #4 bars shall be centered in the 3½ inch dimension and evenly spaced in each direction with the bars touching at the 4 intersecting locations.

5.4 Test Panel Curing, Test Specimen Extraction and Testing.

5.4.1 Immediately after shooting, the test panels shall be field moist cured by covering and tightly wrapping with a sheet of material meeting the requirements of ASTM C 171 until delivered to the testing lab or test specimens are extracted. The test panels shall not be immersed in water. The test panels for the first 24 hours after shooting shall not be disturbed.

5.4.2 At the direction of the Engineer at least two 3 inch diameter core samples shall be cut at two of the intersections to ensure consolidation around the bars. If voids are present the material and nozzleman are not approved for use. The Contractor may continue with changes to the materials or nozzleman. The same process will be followed until no voids are present.

6.0 Shotcrete Facing Requirements.

6.1 Shotcrete Alignment Control. The final surface of the shotcrete shall maintain the existing concrete plane surface.

6.2 Surface Preparation. In addition to the manufacture's recommendations, the surfaces to be shotcreted shall be cleaned of loose materials, mud, rebound, overspray or other foreign matter that could prevent or reduce shotcrete bond. Shotcrete shall not be placed on frozen surfaces.

6.3 Delivery and Application. In addition to the manufacture's recommendations, a clean, dry, oil free supply of compressed air sufficient for maintaining adequate nozzle velocity shall be maintain at all times. The equipment shall be capable of delivering the premixed material accurately, uniformly and continuously through the delivery hose. Shotcrete application thickness, nozzle technique, air pressure and rate of shotcrete placement shall be controlled to prevent sagging or sloughing of freshly applied shotcrete.

6.3.1 The shotcrete shall be applied from the lower part of the area upwards to prevent accumulation of rebound. The nozzle shall be oriented at a distance and approximately perpendicular to the working face so that rebound will be minimal and compaction shall be maximized. Care shall be taken while encasing reinforcing steel and mesh to keep the front face of the reinforcement clean during shooting operations, so that the shotcrete builds up from behind, to encase the reinforcement and prevent voids and sand pockets from forming. If a blow pipe was used to qualify, a blow pipe shall be required. The blow pipe is used to remove rebound and overspray immediately ahead of the nozzle. Rebound shall not be worked back into the construction. Rebound that does not fall clear of the working area shall be removed. Hardened rebound and hardened overspray shall be removed prior to the application of additional shotcrete using abrasive blast cleaning, chipping hammers, high pressure water blasting or other suitable techniques.

6.3.2 When using multiple layer shotcrete construction, the surface of the receiving layer shall be prepared before application of a subsequent layer, by either:

- (a) Brooming the stiffened layer with a stiff bristle broom to remove all loose material, rebound, overspray or glaze, prior to the shotcrete attaining initial set.
- (b) If the shotcrete has set, surface preparation shall be delayed 24 hours, at which time the surface shall be prepared by sandblasting or high pressure water blasting to remove all loose material, rebound, hardened overspray, glaze or other material that may prevent adequate bond.

6.4 Defective Shotcrete. The Engineer will have authority to accept or reject the shotcrete work. Shotcrete that is not in accordance to the project specifications may be rejected either during the shotcrete application process, on the basis of tests. Shotcrete surface defects shall be repaired as soon as possible after placement. Shotcrete that exhibits segregation, honeycombing, laminations, voids or sand pockets shall be removed and replaced. In-place shotcrete determined not meeting the published technical information for the product used will be subject to remediation as approved by the Engineer. Possible remediation options range from required latex over coating for excessive cracking up to removal and replacement at the Contractor's expense.

6.5 Construction Joints. Construction joints shall be tapered uniformly toward the removal face over a minimum distance equal to the thickness of the shotcrete layer. Square joints will not be permitted except at the expansion joint. The surface of the joints shall be rough, clean and sound. A minimum reinforcement overlap at reinforcement splice joints shall be provided. The surface of a joint shall be clean and wet before adjacent shotcrete is applied.

6.6 Final Face Finish. Shotcrete finish shall be a wood float, rubber float, steel trowel or smooth screeded finish.

6.7 Additional Construction Requirements.

6.7.1 If the work to be performed is in the vicinity of a jurisdictional water of the US, care shall be taken to avoid any rebound from entering the regulated waterway.

6.7.2 If the work to be performed is in the vicinity of an enclosed drainage system, care shall be taken to avoid any rebound from entering the drainage system.

6.8 Weather Limitations.

6.8.1 The shotcrete shall be protected if placed when the ambient temperature is below 40°F and falling or when likely to be subject to freezing temperatures before gaining sufficient strength. Cold weather protection shall be maintained until the compressive strength of the shotcrete is greater than 725 psi. Cold weather protection includes blankets, heating under tents or other means acceptable to the Engineer. The temperature of the shotcrete mix, when deposited, shall be not less than 50°F or more than 85°F. The air in contact with the shotcrete surfaces shall be maintained at temperatures above 32°F for a minimum of 7 days.

6.8.2 If the prevailing ambient temperature conditions (relative humidity, wind speed, air temperature and direct exposure to sunlight) are such that the shotcrete develops plastic shrinkage and/or early drying shrinkage cracking, shotcrete application shall be suspended. The Contractor shall reschedule the work to a time when more favorable ambient conditions prevail or adopt corrective measures, such as installation of sun screens, wind breaks or fogging devices to protect the work. Newly placed shotcrete exposed to rain that washes out cement or

otherwise make the shotcrete unacceptable shall be removed and replaced at the Contractor's expense.

6.9 Curing. Permanent shotcrete shall be protected from loss of moisture for at least 1 day after placement. Cure shotcrete by methods that shall keep the shotcrete surfaces adequately wet and protected during the specified curing period. Curing shall commence within one hour of shotcrete application. When the ambient temperature exceeds 80°F, the work shall be planned such that curing can commence immediately after finishing. Curing shall be in accordance with the following requirements.

- (a) **Membrane Curing.** Membrane curing is required on overhead surfaces that cannot be adequately wet cured. Curing compounds will not be permitted on any surface against which additional shotcrete or other cementitious finishing materials are to be bonded unless the surface is thoroughly sandblasted in a manner acceptable to the Engineer. Membrane curing compounds shall be spray applied as quickly as practical after the initial shotcrete set at rate of coverage of not less than 7.1 square feet per gallon (2.5 m²/L).

7.0 Safety Requirements. Nozzle men and helpers shall be equipped with gloves, eye protection and adequate protective clothing during the application of shotcrete. Whip checks are required on air lines. The Contractor shall be responsible for meeting all federal, state and local safety requirements.

8.0 Method of Measurement. Measurement of Superstructure Repair (Unformed), Substructure Repair (Unformed) and Substructure Repair (Formed) shall be in accordance with [Sec 704](#).

9.0 Basis of Payment. Payment for Superstructure Repair (Unformed), Substructure Repair (Unformed) and Substructure Repair (Formed) shall be in accordance with [Sec 704](#).

F. STRIP SEAL EXPANSION JOINT SYSTEM & ADJACENT CONCRETE

1.0 Description. This provision contains requirements for constructing existing strip seal expansion joint systems at locations designated on the plans.

2.0 Construction Requirements. Existing expansion devices shall be replaced with strip seal expansion joint system.

2.1 The area to receive new concrete shall be prepared in accordance with Sec 704.

2.2 The new slab concrete shall be in accordance with Sec 704.

2.3 Construction requirements of strip seal expansion joint systems shall be in accordance with Sec 717.

2.4 The surfaces of existing steel that will become faying surfaces of new connections and all surfaces of the existing steel which will be in contact with new concrete in the completed structure shall be cleaned according to the manufacturer's recommendation and with a minimum of SSPC-SP-3 surface preparation and coated with one prime coat of Gray Epoxy-Mastic (non-

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aluminum) in accordance with Sec 1081. Painted faying surfaces need not be completely dry prior to installation and connection of the expansion device modifications. The gray epoxy-mastic primer (non-aluminum) shall be compatible with concrete and produce a dry film thickness of no less than 3 mils (75 μ m).

2.5 Holes in the existing steel may be used as a template for drilling the holes in the new materials.

2.6 The work shall be done in stages with a field splice located as shown on bridge plans. Field splicing of the strip seal glands will not be allowed; factory splicing will be permitted for joints in excess of 53 feet.

2.7 The Contractor shall repair any of the roadway approach pavement damaged during construction of the expansion joints at the End Bent No. 1.

3.0 Method of Measurement. The construction of the new strip seal expansion joint system and adjacent reinforced concrete slab and barrier curbs has been computed to the nearest linear foot based on measurement from the roadway face of existing curb to roadway face of existing curb parallel to the existing joint. Final measurement will not be made except for authorized changes during construction or where appreciable errors are found in this contract quantity. The revision or correction will be computed and added to or deducted from the contract quantity.

4.0 Basis of Payment. Payment for the above described work including all material, equipment, labor and any other incidental work necessary to completely construct strip seal expansion joint system, including supporting steel members, reinforcing steel, adjacent slab and barrier curbs will be considered completely covered by the contract unit price for "Strip Seal Expansion Joint System & Adjacent Concrete" per linear foot.