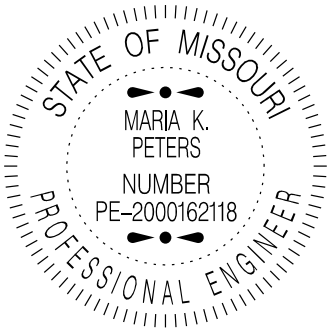
Job No.: J5P3451
Route: US 54
County: Cole/Callaway

JOB SPECIAL PROVISIONS TABLE OF CONTENTS (ROADWAY)

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



MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 W. CAPITOL AVE.
JEFFERSON CITY, MO 65102
Phone 1-888-275-6636

If a seal is present on this sheet, JSP's have been electronically sealed and dated.

JOB NUMBER: J5P3451
COLE/CALLAWAY COUNTY, MO
DATE PREPARED: 10/2/2023

ADDENDUM DATE:

Only the following items of the Job Special Provisions (Roadway) are authenticated by this seal: All

Job No.: J5P3451
Route: US 54
County: Cole/Callaway

JOB
SPECIAL PROVISION

A. General - Federal JSP-09-02J

1.0 Description. The Federal Government is participating in the cost of construction of this project. All applicable Federal laws, and the regulations made pursuant to such laws, shall be observed by the contractor, and the work will be subject to the inspection of the appropriate Federal Agency in the same manner as provided in Sec 105.10 of the Missouri Standard Specifications for Highway Construction with all revisions applicable to this bid and contract.

1.1 This contract requires payment of the prevailing hourly rate of wages for each craft or type of work required to execute the contract as determined by the Missouri Department of Labor and Industrial Relations and requires adherence to a schedule of minimum wages as determined by the United States Department of Labor. For work performed anywhere on this project, the contractor and the contractor's subcontractors shall pay the higher of these two applicable wage rates. State Wage Rates, Information on the Required Federal Aid Provisions, and the current Federal Wage Rates are available on the Missouri Department of Transportation web page at www.modot.org under "Doing Business with MoDOT", "Contractor Resources". Effective Wage Rates will be posted 10 days prior to the applicable bid opening. These supplemental bidding documents 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.

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

General Provisions & Supplemental Specifications

Supplemental Plans to July 2023 Missouri Standard Plans
For Highway Construction

These supplemental bidding documents contain all current revisions to the published 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 JSP-13-01C

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 on all projects (job numbers) shall be completed on or before the Contract Completion date specified below. Completion by this date shall be in accordance with the requirements of Sec 108.7.1.

Notice to Proceed Date: February 5, 2024
Contract Completion Date: July 1, 2024

2.1 Calendar Days. The count of calendar days will begin on the date the contractor starts any construction operations on the project.

Job Number	Calendar Days	Daily Road User Cost
J5P3451	30	$9,800

3.0 Liquidated Damages for Contract Administrative Costs. Should the contractor fail to complete the work on or before the contract completion date specified in Section 2.0, or within the number of calendar days specified in Section 2.1, whichever occurs first, the contractor will be charged contract administrative liquidated damages in accordance with Sec 108.8 in the amount of **$250** per calendar day for each calendar day, or partial day thereof, 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 contract completion date or calendar days.

4.0 Liquidated Damages for Road User Costs. Should the contractor fail to complete the work on or before the contract completion date specified in Section 2.0, or within the number of calendar days specified in Section 2.1, whichever occurs first, the contractor will be charged road user costs in accordance with Sec 108.8 in the amount specified in Section 2.1 for each calendar day, or partial day thereof, that the work is not fully completed. These damages are in addition to the contract administrative damages and any other damages as specified elsewhere in this contract.

C. Work Zone Traffic Management JSP-02-06N

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 Maintaining Work Zones and Work Zone Reviews. The Work Zone Specialist (WZS) shall maintain work zones in accordance with Sec 616.3.3 and as further stated herein. The WZS shall coordinate and implement any changes approved by the engineer. The WZS shall ensure all traffic control devices are maintained in accordance with Sec 616, the 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. The WZS is responsible to manage work zone delay in accordance with these project provisions. When requested by the engineer, the WZS shall submit a weekly report that includes a review of work zone operations for the week. The report shall identify any problems encountered and corrective actions taken. Work zones are subject to unannounced inspections by the engineer and other departmental staff to corroborate the validity of the WZS's review and may require immediate corrective measures and/or additional work zone monitoring.

1.2 Work Zone Deficiencies. Failure to make corrections on time may result in the engineer suspending work. The suspension will be non-excusable and non-compensable regardless if road 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, the hours traffic control will be in place, and work hours.

2.2 The traffic management schedule shall conform to the limitations specified in Sec 616 regarding lane closures, traffic shifts, road closures and other width, height and weight restrictions.

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 immediately implement appropriate mitigation strategies whenever traffic congestion reaches an excess of **10 minutes** to prevent congestion from escalating beyond this delay threshold. If disruption of the traffic flow occurs and traffic is backed up in queues equal to or greater than the delay time threshold listed above, then the contractor shall immediately review the construction operations which contributed directly to disruption of the traffic flow and make adjustments to the operations to prevent the queues from reoccurring. Traffic delays may be monitored by physical presence on site or by utilizing real-time travel data through the work zone that generate text and/or email notifications where available. The engineer monitoring the work zone may also notify the contractor of delays that require prompt mitigation. The contractor may work with the engineer to determine what other alternative solutions or time periods would be acceptable. When a Work Zone Analysis Spreadsheet is provided, the contractor will find it in the electronic deliverables on MoDOT's Online Plans Room. The contractor may refer to the Work Zone Analysis Spreadsheet for detailed information on traffic delays.

2.5.1 Traffic Safety.

2.5.1.1 Recurring Congestion. 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.

2.5.1.2 Non-Recurring Congestion. When traffic queues 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 infrequently, 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 Except for emergency work, as determined by the engineer, and long term lane closures required by project phasing, all lanes shall be scheduled to be open to traffic during the five major holiday periods shown below, from 12:00 noon on the last working day preceding the holiday until 6:00 a.m. on the first working day subsequent to the holiday unless otherwise approved by the engineer.

Memorial Day
Labor Day
Thanksgiving
Christmas
New Year's Day

3.1.1 Independence Day. The lane restrictions specified in Section 3.1 shall also apply to Independence Day, except that the restricted periods shall be as follows:

When Independence Day falls on:	The Holiday is Observed on:	Halt Lane Closures beginning at:	Allow Lane Closures to resume at:
Sunday	Monday	Noon on Friday	6:00 a.m. on Tuesday
Monday	Monday	Noon on Friday	6:00 a.m. on Tuesday
Tuesday	Tuesday	Noon on Monday	6:00 a.m. on Wednesday
Wednesday	Wednesday	Noon on Tuesday	6:00 a.m. on Thursday
Thursday	Thursday	Noon on Wednesday	6:00 a.m. on Friday
Friday	Friday	Noon on Thursday	6:00 a.m. on Monday
Saturday	Friday	Noon on Thursday	6:00 a.m. on Monday

3.2 The contractor shall not perform any construction operation on the roadway or active lanes, 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 will be allowed the following work hours noted below. It shall be the responsibility of the engineer to determine if the work hours below may be modified. Working hours for evenings, weekends and holidays will be determined by the engineer.

US 54 Eastbound and Westbound Work Hours:

7:00 p.m. – 6:00 a.m. Sunday through Saturday (1 Lane Closed)
8:00 p.m. – 5:00 a.m. Sunday through Saturday (2 Lanes Closed)

3.4 Any work requiring a reduction in the number of through lanes of traffic shall be completed during nighttime hours. Nighttime hours shall be considered to be 7:00 p.m. to 6:00 a.m. for this project.

3.5 The contractor shall not alter the start time, ending time, or a reduction in the number of through lanes of traffic or ramp closures 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 delays, with a resulting cost to the traveling public. These damages are not easily computed or quantified. Therefore, the contractor will be charged with liquidated damages specified in the amount of **$1500 per 15 minute increment** for each 15 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.

3.5.1 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 When a changeable message sign (CMS) is provided, the contractor shall use the CMS to notify motorists of future traffic disruption and possible traffic delays one week before traffic is shifted to a detour or prior to lane closures. The CMS shall be installed at a location as approved or directed by the engineer. If a CMS with Communication Interface is required, then the CMS shall be capable of communication prior to installation on right of way. All messages planned for use in the work zone shall be approved and authorized by the engineer or its designee prior to deployment. When permanent dynamic message signs (DMS) owned and operated by MoDOT are located near the project, they may also be used to provide warning and information for the work zone. Permanent DMS shall be operated by the TMC, and any messages planned for use on DMS shall be approved and authorized by the TMC at least 72 hours in advance of the work.

4.2 At least one lane of traffic in each direction 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 interrupt traffic will be designated by the engineer.

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. All authorized changes in the traffic control plan shall be provided for as specified in Sec 616.

D. Emergency Provisions and Incident Management JSP-90-11A

1.0 The contractor shall have communication equipment on the construction site or immediate access to other communication systems to request assistance from law enforcement or other emergency agencies for incident management. In case of traffic accidents or the need for law enforcement to direct or restore traffic flow through the job site, the contractor shall notify law enforcement 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 law enforcement services, the following agencies may also be notified for accident or emergency situation within the project limits.

Missouri Highway Patrol (573-751-1000) *55 (Non-Emergency)		
City of Jefferson	Cole County	Callaway County
Fire: 573-634-6401	Ambulance: 573-634-2616	Ambulance: 573-642-8800
Police: 573-634-6400	Sheriff: 573-634-9100	Sheriff: 573-642-7291

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 law enforcement agency.

2.2 The contractor shall notify law 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 law 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. Project Contact for Contractor/Bidder Questions JSP-96-05

All questions concerning this project during the bidding process shall be forwarded to the project contact listed below.

Mia Peters, Project Contact
MoDOT – Central District
1511 Missouri Blvd., P.O. Box 718
Jefferson City, Missouri 65102
Telephone Number 573-751-7690
Email maria.peters@modot.mo.gov

All questions concerning the bid document preparation can be directed to the Central Office – Design at (573) 751-2876.

F. Cooperation Between Contractors US 54/63

1.0 Description. The contractor shall be aware there are other contracts that will be ongoing at the same time on US 54/63 in Cole and Callaway Counties as listed below.

- J5P3467 – Bridge rehabilitations on Bridge A1416 over McCarty and A1417 over US 50 (top level of the tri-level) – Cole County
  - J5P3451 Bridge washing will not be allowed to set up temporary lane drops while the J5P3467 bridge rehabilitations are under construction.
- J5S3458 – Bridge rehabs over US 54 including Bridge A3508 (Route H), Bridge A3539 (Route 63 and Route 94) and Bridge A4635 (Route W) – Callaway County
- JCD0100 – Pavement improvements on US 54 from the Missouri River Bridge to north of I-70 – Callaway County
- J5P3497 – Roadway improvements from west McCarty Street to Route 63 interchange – Cole/Callaway County

2.0 Construction Requirements. The contractor shall establish contact with the Central District Office Construction personnel to determine if there are any scheduling conflicts with paving, bridge work, and/or other striping operations on those projects along US 54/63.

Project Contact: Chris Brownell, Resident Engineer – Jefferson City
Phone: 573-526-4567

3.0 Basis of Payment. No direct payment will be made for compliance with this provision.

G. Scope of Work

1.0 The scope of work for this project is to remove loose debris and associated chlorides from existing bridge structures #A4497 and #L0550 as shown within the as-built plans and specified by the Engineer. Work for this project includes the cleaning of specific areas of bridge components and structural steel.

1.1 Background. MoDOT routinely washes bridge decks to remove debris and associated chlorides at least once per year. The scope of this contract is to provide thorough washing of the bridge deck, gutters, drains, superstructure areas within 10 ft. vertical from pavement (splash zone), lower chords of superstructure members along the exterior of the bridge, beam caps and bearing areas, joints and associated diapers/drains, and all exposed steel below the deck within 10 ft. longitudinal distance from each open joint area. Flushing the enclosed drain piping systems including down spouts not tied into an existing sewer is also included within this work. The Engineer shall visually inspect the cleaning of each structure and acceptance will be based upon this **visual inspection** in order to ensure all debris, dirt and chlorides are being removed from each structure.

1.2 Timing. Based upon the NTP (Notice to Proceed) date under the Contract Time Liquidated Damages JSP, the contractor can begin work on February 5, 2024. However, the contractor will not be allowed to begin the washing on the bridge decks until April 1, 2024. The contractor will still be responsible for removing the bird nests by March 15, 2024 and maintaining a nest free condition until the bridge work is complete, as described within the Restrictions for Migratory Birds JSP.

2.0 The work boundaries for the terms of the contract include Commission owned bridge structures #A4497 and #L0550, within the limits of Commission right-of-way, as noted below.

Bridge Number – Route – Feature -County/County - Deck SF

A4497, US54 EB, Missouri River & UP Railroad, Cole/Callaway County	156,250 SF
L0550, US54 WB, Missouri River & UP Railroad, Callaway/Cole County	126,854 SF

STRUCTURE DESCRIPTIONS (A4497)

#1: Structure No. A4497, carrying US54 EB between Cole County and Callaway County over the Missouri River and UP Railroad. This 18-span structure has an overall length of 3125 feet, a total width of 50 feet (out to out) on the main structure. There are three tied arch truss spans over the Missouri River and 15 prestressed concrete girder and beam approach spans on either side of the tied arch truss spans. Expansion joints are present at pier 3, pier 6, pier 10, and pier 16. The cleaning areas are outlined on the plans and described in more detail in the Structure Cleaning Notes, below.

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STRUCTURE DESCRIPTIONS (L0550)

#2: Structure No. L0550, carrying US54 WB between Callaway County and Cole County over the Missouri River and UP Railroad. This 18-span structure has an overall length of 3094 feet, a total width of 41 feet (out to out) on the main structure. There are three tied arch truss spans over the Missouri River and 15 steel plate girder and beam approach spans on either side of the tied arch truss spans. Expansion joints are present at pier 3, pier 6, pier 10, pier 13, and pier 16. The cleaning areas are outlined on the plans and described in more detail in the Structure Cleaning Notes, below.

3.0 Bridge Deck Sweeping. Prior to flushing/washing of any structure, including the bridge deck, the contractor shall sweep the existing bridge deck to remove any debris.

4.0 STRUCTURE CLEANING NOTES:

4.1 Truss Spans. Truss Spans areas to be washed include all structural steel, including lower chord to a point 10 ft. vertical above the bridge deck elevation.

Curbs, joints, drains, diapers, troughs, open scuppers and railings.

All Floor beams, diagonal bracing, stringers, and other structural steel from the lower chord inward to and including the outside and bottom of exterior stringers.

All abutment and pier caps and bearings.

All structural steel located below the bridge deck within 10 ft. longitudinal on either side of all open expansion joints (open joints such as finger plates with troughs or diapers).

4.2 Multi-beam or Approach Spans.

All deck joints, diapers, drains, and deck drains.

Curbs, joints, drains, diapers, troughs, open scuppers and railings.

The outside and bottoms of fascia beams.

All abutments, pier caps, and bearings.

All structural steel located below the deck within 10 ft. longitudinally on either side of all open expansion joints (open joints such as finger plates with troughs or diapers).

5.0 Special Notes for Bridge A4497.

A bike path is present on the south side of the EB structure. As mentioned within Section 4.3 of the Work Zone Traffic Management JSP, the bike path will be closed during washing of this area. The bike path supports and associated connections shall be washed from the interior of the support to a point at least 5 ft. along the tie girder from the support connection. See as-built plans for details.

Enclosed drain piping systems are required to be flushed. All open drains, troughs, diapers, or scuppers shall be washed to insure no clogging in any open drain.

6.0 Special Notes for Bridge L0550.

Enclosed drain piping systems are required to be flushed. All open drains, troughs, diapers, or scuppers shall be washed to insure no clogging in any open drain.

7.0 Equipment Performance Requirements. Water flushing shall be performed such that all loose debris is removed, and no damage occurs to bridge components, paint/coatings, or adjacent roadway, shoulder or embankment. Provisions shall also be made to prevent damage to the existing enclosed drainage system. Any damage caused by the Contractor's operation shall be repaired at the sole expense of the Contractor. No debris accumulations shall remain on the adjacent portion of bridge structures as a result of the contractor's operation. Water flushing is required to remove chloride salts, however additional measures are allowable to insure removal of debris. The Contractor shall utilize a minimum 100 psi water pressure, as measured at the cleaning surface, in order to remove all loose debris. Access equipment and methods shall be required in order to reach all noted components with pressure washing equipment. Water, essentially potable water, shall be used for all washing and shall comply with JSP – Restrictions for Migration Birds, Section 3.2.

7.1 It is recommended that the contractor use a top-down approach to avoid having to repeat bridge washing/cleaning activities. As part of this, the contractor shall start at the crown of the roadway for both bridges to be washed as part of this project. For each bridge, the maximum number of lanes that the contractor will need to close to ensure washing off the debris/chloride salts from the crown of the roadway/bridge towards the shoulder line are the following:

A4497 – 2 through lanes on EB US54

L0550 – 2 through lanes on WB US54

7.2 With the working hours noted within the Workzone Management JSP and the length of the structures to be washed/cleaned on this project, **it is recommended that the contractor provide sufficient mobile lighting during construction operations** as to avoid having to repeat bridge washing/cleaning activities along with improved safety for the workers.

8.0 Mobilization for Removal of Bird Nesting. The contractor is advised any additional mobilization prior to bridge washing activities will be the contractor's responsibility in order to follow JSP – Restrictions for Migratory Birds.

9.0 As-built Plans. Pertinent as-built plans for each structure have been included within the Electronic Deliverables. The contractor may request full as-builts **after** award from the project contact listed within JSP – Project Contact for Contractor/Bidder Questions.

10.0 Method of Measurement. No measurement will be made by the Engineer of the area to be washed for each structure within this contract.

11.0 Basis of Payment. Payment for bridge washing as described within this provision shall include all material, water, equipment, tools, labor and work incidental thereto, and shall be completely covered for the following pay items:

Item No.	Unit	Description
703-99.01	Lump Sum	Bridge Washing (Br. A4497 & Br. L0550)

H. Union Pacific Railroad Requirements

1.0 Introduction.

1.1 These Railroad Requirements set forth terms and conditions agreed upon between the Union Pacific Railroad Company (Railroad) and the Missouri Highways and Transportation Commission (Commission), under which the Railroad will allow the Commission's contractors to enter in and upon the Railroad's real property, right of way, tracks and other facilities (Railroad's Property) to perform the contractor's work relating to this project.

1.2 To report an emergency on the Railroad, call: (888) 877-7267.

1.3 The project location is at Railroad Milepost 126.23 on Railroads Jefferson City Sub, designated as USDOT Crossing # 442836P and Railroad Milepost 126.22 on Railroads Jefferson City Sub, designated as USDOT Crossing # 441677G. **Current FRA data shows 14 daytime trains and 14 nighttime trains and 4 passenger trains per day.**

1.4 Definitions of terms set forth in the current edition of the Missouri Standard Specifications for Highway Construction shall be applicable to those terms as used in these Railroad Requirements.

2.0 Authority of Railroad Representative and Engineer.

2.1 The authorized representative of the Railroad, herein called "Railroad Representative", shall have final authority in all matters affecting the safe maintenance and operation of railroad traffic including the adequacy of the foundations and structures supporting the railroad tracks.

2.1.1 The Railroad designates the following individual as the Railroad Representative for this project. Except as otherwise provided in these Railroad Requirements, the contractor shall address all notices concerning this project to the Railroad Representative, as follows:

Leo Craig,
Public Projects
Telephone: Direct - (817) 901-9560
E-mail: lcraig@olsson.com

2.1.2 The Railroad, or the individual identified above, may designate a different individual to act as the Railroad Representative for this project, and may change the address information stated above, by giving written notice of the changes to the contractor and to the Engineer, as provided in these Railroad Requirements.

2.2 The authorized representative of the Commission (Engineer) shall have authority over all other matters as prescribed herein and in the project specifications.

3.0 Contractor's Indemnity Obligations to the Railroad.

3.1 The contractor agrees to indemnify, defend and hold harmless the Railroad from and against any injury or death of persons whomsoever, or from any loss or damage to the Railroad's Property, caused by acts or omissions of the contractor in performing work on this

project, whether on, over, under or in the vicinity of the Railroad's Property. In the event the contractor shall fail to restore the Railroad's Property immediately to a condition acceptable to the Railroad when any such loss or damage to the Railroad's Property is called to the contractor's attention by the Railroad, then the Railroad may perform such corrective work at the cost of the contractor. The Railroad shall have the right to bring an action directly against the contractor to recover any loss or damage sustained by the Railroad by reason of the contractor's breach of agreements contained in these Railroad Requirements. In addition to such remedies of the Railroad, the Commission will withhold from final payment due to the contractor the amount reasonably necessary to reimburse the Railroad for such loss or damage or for performing such work. The term "loss or damage" as used herein shall include, but not be limited to, the erosion and silting of, water damage to, and the accidental or intentional placing or dropping of objects on the Railroad's Property.

4.0 Notice of Starting Work.

4.1 The contractor shall not commence any work on the Railroad's right of way until contractor has complied with the following conditions (no particular order):

4.1.1 At least thirty (30) days in advance of the date the contractor proposes to begin work on the Railroad's Property, the contractor has given written notice of the contractor's proposed start date and time to the Railroad Representative, and Railroad's Manager of Track Maintenance (see paragraph 12.2.3 below), with a copy to the Engineer.

4.1.2 The Commission has obtained written approval from the Railroad's Representative for the contractor's insurance coverage as required by Section 17 of these Railroad Requirements, and authorization for the contractor to begin work on the Railroad's Property.

4.1.3 The contractor has determined whether fiber optic cable systems are buried on the Railroad's Property. If fiber optic cable systems are buried on the Railroad's Property, then the contractor has contacted the Railroad at the 24 hour number, 800-336-9193, has contacted the telecommunications company involved, has arranged for a cable locator, and has made arrangements for relocation or other protection of the fiber optic cable system on the Railroad's Property.

4.1.4 Union Pacific Property Access Training must have been completed by each person on UPRR right of way. A valid copy of certification must be with the individual anytime they are on the job site. For guidance on completing the training, visit the website provided:
https://www.up.com/aboutup/community/safety/erailsafe/up-pat/index.htm

4.2 Right of Entry. At least thirty (30) days in advance of the date the contractor proposes to begin work on the Railroad's Property, the contractor shall enter into a Contractor's Right of Entry Agreement (CROE) with Railroad prior to working on Railroad property. Submit the following information to the Railroad Representative:

a. MoDOT manager contact information
b. Contractor contact information
c. Site location (include address, DOT#)
d. Site map
e. Brief description of scope of work
f. Proposed schedule for work on UP right of way

4.2.1 After reviewing the information, the Railroad Representative will send all of the information to UP Real Estate for processing. UP Real Estate will draft the CROE agreement and send it to the contractor for signature. The signed contract and administrative fee must then be returned to UP Real Estate.

4.2.2 Administrative Fee. Upon the execution and delivery of this CROE agreement, Contractor shall pay the Railroad One Thousand Twenty-five Dollars ($1,025) as reimbursement for clerical, administrative and handling expenses in connection with the processing of this CROE agreement.

4.2.3 If applicable to the project, the contractor must submit a demolition and falsework plan as well as means and methods to the Railroad for review and approval. These plans can be submitted along with the Right of Entry application; however, the Right of Entry will not be approved until the demolition and falsework plan is approved by the Railroad.

5.0 Interference with Railroad's Operations.

5.1 The Railroad's right of way is located within the limits of this project. The contractor shall take care to ensure that it will not drop any debris or material on the Railroad's Property.

5.2 The contractor shall arrange and conduct all of the contractor's work so that it causes no interference with the Railroad's operations, including train, signal, telephone, telegraphic services, damage to the Railroad's Property, poles, wires and other facilities of tenants on the Railroad's Property. Whenever the contractor's work may directly affect the operations or safety of trains, the contractor shall submit a written description of the method of doing such work to the Railroad Representative for approval, but such approval shall not relieve the contractor from liability resulting from the contractor's work. Any work to be performed by the contractor that requires flagging service shall be deferred by the contractor until the flagging services are available at the job site.

5.3 Whenever the contractor's work upon the Railroad's Property will unavoidably cause an impediment to the Railroad's operations, such as requiring the use of runaround tracks or reduced train speed, the contractor should schedule and conduct these operations so that this impediment is reduced to the absolute minimum.

5.4 If conditions arising from, or in connection with the work require immediate and unusual provisions to protect the Railroad's operations and property, the contractor shall make such provisions. If in the judgment of the Railroad Representative, or the Engineer if the Railroad Representative is absent, such provision is insufficient, then the Railroad Representative or Engineer may require or provide such provisions as he/she deems necessary. In any event, the contractor shall make such provisions at the contractor's expense, and without cost to the Railroad or the Commission.

6.0 Track Clearances.

6.1 During construction, the contractor shall maintain not less than the minimum track clearances as shown on the project plans. However, before undertaking any work within the Railroad's Property and before placing any obstruction over any track, the contractor shall:

6.1.1 Notify the Railroad Representative and the Railroad's Manager of Track Maintenance at least ten (10) days in advance of the proposed work.

6.1.2 Receive assurance from the Railroad's Manager of Track Maintenance that arrangements have been made for flagging service as may be necessary.

6.1.3. Receive permission from the Railroad Representative to proceed with the work, as provided in section 4.0.

6.1.4. Confirm that the Engineer has received copies of the contractor's notice to the Railroad, and of the Railroads' response.

6.1.5 Note that temporary Work Zone traffic control must not circumvent the active warning devices at this location.

6.1.6 Temporary traffic control must comply with MUTCD standards. Any time work is within 25' of the track, the potential to foul the track exists or a pilot car is used traversing the crossing will require a Railroad flag person to be present. Traffic control must be returned to normal operations through the crossing area before releasing the Railroad's flag person.

7.0 Construction Procedures.

7.1. General. The contractor's work on the Railroad's property shall be performed in accordance with these Railroad Requirements and shall be subject to the Railroad's inspection and review. The contractor shall submit plans that shall be signed, sealed, and stamped in accordance with the laws relating to Architects and Professional Engineers, Chapter 327, RSMo, for the demolition of any structure over Railroad right of way, and for temporary shoring and falsework that may affect the Railroad's facilities or traffic.

7.2 Excavation. The contractor shall maintain the subgrade of an operated track with the beam edge at least 12 feet from centerline of track and not more than 26 inches below top of rail, unless the existing section fails to meet this specification, in which case the contractor shall maintain the existing section.

8.0 Maintenance of Railroad Facilities. Within the project limits, the contractor shall maintain Railroad's Property, including all ditches and drainage structures, free of silt or other obstructions that may result from contractor's operations. The contractor shall promptly repair eroded areas within the Railroad's Property and repair any other damage to the Railroad's Property or the Railroad's tenants. The contractor shall perform all such maintenance and repair of damages due to the contractor's operations at the contractor's expense.

9.0 Storage of Materials and Equipment.

9.1 The contractor shall obtain permission from the Railroad Representative before storing any materials or equipment anywhere on Railroad's Property. The Railroad will not ordinarily permit storage within twenty-five feet (25') from the centerline of any track, or within three hundred feet (300') from any grade crossing. The Railroad will not be liable for damage to such material and equipment from any cause, and the Railroad Representative may move such material and equipment or require the contractor to move it, at the contractor's expense.

9.2 The contractor shall not leave unattended any grading or construction machinery parked upon Railroad's Property, unless it is effectively immobilized so that unauthorized persons cannot move such machinery.

10.0 Cleanup. Upon completion of the work, the contractor shall remove from within the limits of the Railroad's Property all machinery, equipment, surplus materials, falsework, rubbish or temporary buildings of the contractor's and shall leave Railroad's Property in a neat condition satisfactory to the Railroad Representative.

11.0 Damages. The Railroad shall not assume liability for any damages to the contractor, contractor's work, employees, servants, equipment and materials caused by the Railroad's traffic. However, the preceding sentence shall not exempt the Railroad from liability for any loss, damage or injury proximately caused by the Railroad's intentional misconduct or sole or gross negligence. The contractor shall directly reimburse the Railroad for any cost the Railroad reasonably incurs for repairing damages to the Railroad's Property or to property of the Railroad's tenants, caused by or resulting from the operations of the contractor relating to this project.

12.0 Flagging Services.

12.1 When Flagging is Required. The Railroad has sole authority to determine the need for flagging to protect the Railroad's operations. Whenever the Railroad requires flagging services with reference to any of the contractor's work on this project, the contractor shall not perform any such work until all required flaggers are present at the job site.

12.1.1 In general, the Railroad may require flagging services whenever the contractor's personnel or equipment are, or are likely to be, working on the Railroad's Property, or across, over, adjacent to, or under a track, or when such work has disturbed or is likely to disturb a railroad structure or the railroad roadbed or surface and alignment of any track to such extent that the movement of trains must be controlled by flagging, to prevent unreasonable risks of accidental hazard to the Railroad's operations or personnel.

12.1.2 Normally, the Railroad will assign one flagger to a project; but in some cases, more than one may be necessary, such as yard limits where the Railroad may assign up to three flaggers. However, if the contractor works within distances that violate instructions given by the Railroad Representative, or performs work upon or adjacent to Railroad's Property that has not been scheduled with the Railroad Representative, the Railroad may require flagging services full time until the project is completed.

12.1.3 If flagging is determined to be required by the Manager of Track Maintenance (MTM), and the MTM advises that third party flagging is to be used, then third-party flagging must be used. If flagging is determined to be required by the MTM and the MTM advises that an agreement employee flagging is to be used, then an agreement flagger will be put up for bid (and scheduled accordingly).

John Helchowski – Manager of Track Maintenance
530-227-6672
jvhelcho@up.com

UPRR Third Party Flagging Policy Link
https://www.up.com/real_estate/third-party-flagging/index.htm

12.2 Scheduling and Notification of Flagging Services.

12.2.1 The contractor shall arrange with the Railroad all flagging services required by the Railroad to accomplish the contractor's work on this project.

12.2.2 Before the contractor begins work on the Railroad's Property, the contractor shall furnish to the Railroad Representative and the Engineer a schedule for all work required to complete the contractor's portion of the project within the Railroad's Property, and shall arrange for a job site meeting between the contractor, the Engineer, and the Railroad Representative. Until the contractor has provided its work schedule and met on-site with the Railroad Representative and the Engineer, the Railroad may withhold all flagging services from the contractor's proposed job site.

12.2.3 Before the contractor first begins any work upon or adjacent to the Railroad's Property, the contractor shall give not less than thirty (30) days advance notice to the Railroad, and to the Engineer, of its intent to begin such work. The contractor shall address all notices relating to flagging as instructed in the fully executed CROE agreement.

12.2.4 The Railroad usually assigns one flagger to work at the job site on a continuous basis until the contractor no longer needs flagging services. The contractor shall not call for flagging services on a spot basis. The Railroad's assigned flagger shall notify the Engineer when flagging services have begun and ended. The flagger shall give these notices immediately upon arrival at the job site on the first day, and before departing from the job site on the last day of each separate period when the Railroad provides flagging services, or as soon as possible thereafter. The Engineer shall document these notifications in the project records.

12.2.5 After the contractor has begun work that requires flagging services, the contractor shall give not less than ten (10) day's advance written notice to the Railroad before discontinuing flagging services and terminating the obligation to pay for flagging services. The contractor shall simultaneously provide a copy of this notice to the Engineer. If the contractor's work on or adjacent to the Railroad's Property is suspended at any time, or for any reason, then before the contractor resumes any work on or adjacent to the Railroad's Property, the contractor shall give advance, written notice to the Railroad and to the Engineer of its intent to resume such work. This notice shall provide sufficient details of the contractor's proposed work to enable the Railroad Representative to determine whether flagging services will be required before the contractor resumes its work on or adjacent to the Railroad's Property. The contractor shall give this required notice at least three (3) working days before it intends to resume such work; however. The Railroad may take up to thirty (30) days after the contractor has given this notice before resuming flagging services at the job site. The requirements of this paragraph 12.2.5 shall not apply if the suspension and resumption of the contractor's work were previously scheduled with the Railroad pursuant to paragraph 12.2.2 of these Railroad Requirements, or the suspension was caused by an emergency as provided in paragraph 12.2.6 of these Railroad Requirements.

12.2.6 If, after the Railroad has assigned a flagger to the project site in accordance with section 12.0, any emergency requires the flagger's presence elsewhere, then the contractor shall suspend work on the Railroad's Property until the flagger is again available. Any additional costs to the contractor resulting from such delay shall be borne by the contractor and not by the Railroad.

12.3 Payment for Flagging Services.

12.3.1 The Commission will pay the Railroad directly for the cost of flagging services associated with this project by deducting the amount from the Commission's payments to the

contractor. If a third-party flagger is used, the contractor has the option to pay the flagger directly but must notify the MoDOT Engineer of such payments for flagging.

12.3.2 The estimated cost of flagging services is approximately $1,500 per day, based on an 8-hour workday and a 40-hour work week. The Railroad shall charge not more than its actual cost of providing these flagging services, which includes the base pay for the flagger or flaggers who actually performed the required flagging services, the Railroad's reasonable overhead costs, and the reasonable costs actually incurred for the flagger's travel expenses, meals and lodging if required. The Railroad may charge a maximum of one hour of travel time each way per day per flagger, for travel to and from the job site. A flagger's work in excess of 8 hours per day or 40 hours per week, but not more than 12 hours per day, will result in overtime pay at 1.5 times that employee's regular hourly rate. A flagger's work in excess of 12 hours per day will result in overtime pay at 2.0 times that employee's regular hourly rate. If a flagger performs required flagging services on a holiday, then the overtime pay rate shall be 2.5 times that employee's regular hourly rate. The Commission or contractor also shall reimburse the Railroad for its actual expenses reasonably incurred in preparing and handling invoices to the Commission or contractor for the cost of these flagging services. The Railroad's charges to the Commission or contractor shall comply with applicable provisions of the current FAPG issued by the FHWA.

12.3.3 The Railroad shall submit progress invoices to the Engineer during the time the Railroad requires flagging services. The Railroad shall submit its final invoice for flagging services to the Engineer within one hundred eighty (180) days after the contractor has notified the Railroad and the Commission that all its work over the Railroad's Property is complete, in accordance with section 18.0 below. If the Commission does not receive the Railroad's final flagging invoice within this time period, then the Railroad shall obtain payment directly from the contractor.

12.3.4 If a dispute arises between the Railroad, the Commission and the contractor concerning the amount charged for flagging service, then the Commission may deduct the full amount of the Railroad's invoice from the contractor's payment until the dispute is resolved.

12.4 Flagging Complaints. The contractor and the Railroad shall attempt to resolve any complaints concerning flagging services in a timely manner. If the contractor disputes the need for a flagger, the contractor shall notify the Railroad Representative and the Engineer. The contractor shall confirm any verbal complaints in writing within five (5) working days, by sending a copy to the Railroad Representative and to the Engineer.

13.0 Temporary Construction Grade Crossing.

13.1 When the contractor has no reasonable alternate method of transporting construction materials and personnel across the Railroad's track, the contractor shall make all necessary arrangements with the Railroad for the installation, maintenance, and removal of one temporary grade crossing for a construction haul road. The contractor shall bear all costs incidental to such crossings, including flagging, whether services are performed by contractor's own forces or by the Railroad's personnel. The contractor shall execute the Railroad's standard Road Crossing Agreement covering terms and conditions for the temporary crossing.

13.2 Neither the contractor nor the Railroad shall construct any crossing for use by the contractor for transporting materials or equipment across the tracks of the Railroad until the Railroad Representative specifically authorizes the installation, maintenance, necessary watching and flagging thereof and removal, which shall be done at the contractor's expense.

14.0 Work for the Benefit of the Contractors. The project plans show all temporary or permanent changes in wire lines or other facilities that are necessary to complete the project, or these changes will be covered by appropriate plan revisions approved by the Commission and the Railroad. If the contractor desires any further changes, the contractor shall make separate arrangements with the Railroad for those changes, at the contractor's expense.

15.0 Cooperation and Delays. The contractor shall arrange a schedule with the Railroad for accomplishing staged construction involving work by the Railroad or tenants of the Railroad. In arranging a schedule, the contractor shall request information from the Railroad, and the Railroad shall promptly provide information, concerning the minimum lead time required for assembling crews and materials. The contractor shall schedule adequate time for those activities. The contractor shall not make any claim against the Railroad for hindrance or delay on account of railway traffic for:

15.1 Any work the Railroad performs.

15.2 Other delay incident to or necessary for the safe maintenance of railway traffic.

15.3 Any delays due to compliance with these Railroad Requirements.

16.0 Trainman's Walkways. The contractor shall maintain along the outer side of each exterior track of multiple operated tracks, and on each side of single operated track, an unobstructed continuous space suitable for trainman's use in walking along trains, extending to a line not less than 12 feet from the centerline of the track. Before the close of each workday, the contractor shall remove all temporary impediments to walkways and track drainage encroachments or obstructions that were allowed during work hours when flagging services were available. Whenever the contractor excavates or maintains any excavation near the walkway, the contractor shall install a handrail with 12 feet minimum clearance from the centerline of the track.

17.0 Insurance.

17.1 General Insurance Provisions. The contractor shall, at its sole cost and expense, procure and continuously maintain in force during this project, the insurance coverage required under this section 17 until the contractor has completed all project work on the Railroad's Property, has removed all equipment and materials from the Railroad's Property, and has cleaned and restored the Railroad's Property to the satisfaction of the Engineer and the Railroad Representative. The amount of work to be performed upon, over or under the Railroad's Property is estimated to be one percent (1%) of the contractor's total bid for the project.

17.2 Commercial General Liability Insurance. The contractor shall maintain commercial general liability ("CGL") insurance with a limit of not less than $5,000,000 for each occurrence and an aggregate limit of not less than $10,000,000. CGL insurance must be written on ISO occurrence form CG 00 01 12 04 (or a substitute form providing equivalent coverage). The policy must contain the following endorsement, which must be stated on the certificate of insurance: **"**Contractual Liability Railroad's" ISO form CG 24 17 10 01 (or a substitute form providing equivalent coverage) showing "Union Pacific Railroad Company Property" as the Designated Job Site.

17.3 Business Automobile Coverage Insurance. The contractor shall maintain business auto coverage written on ISO form CA 00 01 (or a substitute form providing equivalent liability coverage) with a combined single limit of not less than $5,000,000 for each accident. The policy must contain the following endorsements, which must be stated on the certificate of insurance: "Coverage For Certain Operations In Connection With Railroad's" ISO form CA 20 70 10 01 (or a substitute form providing equivalent coverage) showing "Union Pacific Property" as the Designated Job Site; and Motor Carrier Act Endorsement - Hazardous Materials Clean Up (MCS-90) if required by law.

17.4 Alternate Liability Insurance Limits. Instead of the minimum limits of insurance coverage described above in subsections 17.2 and 17.3, Railroad will accept CGL insurance limits of at least $2,000,000 for each occurrence or claim and an aggregate limit of at least $2,000,000, and will accept Business Automobile Insurance containing a combined single limit of at least $2,000,000 per occurrence or claim, if the contractor will secure Railroad Protective Liability Insurance coverage with a combined single limit of $5,000,000 per occurrence and an aggregate limit of $10,000,000. The contractor's election to maintain these alternate liability insurance limits shall not affect the applicability of any other terms and conditions set forth in these Railroad Requirements.

17.5 Workers' Compensation and Employers' Liability Insurance. The contractor shall maintain workers' compensation insurance coverage, with not less than the minimum statutory liability required under the workers' compensation laws of the State of Missouri. The contractor shall maintain Employers' Liability (Part B) insurance coverage with limits of at least $500,000 for each accident, a $500,000 disease policy limit, and $500,000 for each employee. If the contractor is self-insured, then the contractor shall provide evidence of state approval and excess workers' compensation coverage, which must include coverage for liability arising out of the U. S. Longshoremen's and Harbor Workers' Act, the Jones Act, and the Outer Continental Shelf Land Act, if applicable. The policy must contain the following endorsement, which must be stated on the certificate of insurance: "Alternate Employer Endorsement" ISO form WC 00 03 01 A (or a substitute form providing equivalent coverage) showing the Railroad in the schedule as the alternate employer (or a substitute form providing equivalent coverage).

17.6 Railroad Protective Liability Insurance. The contractor must maintain Railroad Protective Liability insurance written on ISO occurrence form CG 00 35 12 04 (or a substitute form providing equivalent coverage) on behalf of the Railroad as named insured, with a limit of not less than $2,000,000 per occurrence and an aggregate limit of $6,000,000. Before commencing any work on the Railroad's Property, the contractor shall submit the original insurance policy to the Railroad, or may submit a binder stating that the required Railroad Protective Liability policy is in place until the contractor delivers the original policy to the Railroad. The contractor shall cause the Railroad Protective Liability Insurance policy to include a description of the named insured, the work, and the job site, as follows:

17.6.1 Named Insured: Union Pacific Railroad Company.

17.6.2 Description and Designation:
Bridge washing over UPRR bridge
Cole County Route 54
Job No. J5P3451
USDOT # 442836P MP 126.23 and 441677G MP 126.22 Jefferson City Sub in Jefferson City, MO.

17.7 Umbrella or Excess Insurance. If the contractor utilizes umbrella or excess insurance policies, these policies must "follow form" and afford no less coverage than the primary policy.

17.8 Pollution Liability Insurance. The contractor shall maintain pollution liability insurance coverage, which must be written on ISO form Pollution Liability Coverage Form Designated Sites CG 00 39 12 04 (or a substitute form providing equivalent liability coverage), with limits of at least $5,000,000 per occurrence and an aggregate limit of $10,000,000. If the scope of work as defined in this Project includes the disposal of any hazardous or non-hazardous materials from the job site, the contractor must furnish to the Railroad evidence of pollution legal liability insurance maintained by the disposal site operator for losses arising from the insured facility accepting the materials, with coverage in minimum amounts of $1,000,000 per loss, and an annual aggregate of $2,000,000.

17.9 Other Insurance Requirements.

17.9.1. Each policy required above (except workers' compensation and employers' liability) must include the Railroad as "Additional Insured" using ISO Additional Insured Endorsements CG 20 26, and CA 20 48 (or substitute forms providing equivalent coverage). The coverage provided to the Railroad as an additional insured shall, to the extent provided under ISO Additional Insured Endorsement CG 20 26 and CA 20 48, provide coverage for the Railroad's negligence whether sole or partial, active or passive.

17.9.2 Where allowable by law, the punitive damage exclusion shall be deleted, and the deletion shall be indicated on the certificate of insurance.

17.9.3 The contractor waives all rights of recovery, and its insurers also waive all rights of subrogation of damages against the Railroad and its agents, officers, directors and employees, except that these waivers shall not apply to punitive damages, nor to any loss, damage or injury proximately caused by the Railroad's intentional misconduct or sole or gross negligence. The certificate of insurance shall acknowledge these waivers.

17.9.4 Prior to commencing any work on the Railroad's Property, the contractor shall furnish the Railroad with one or more certificates of insurance, executed by a duly authorized representative of each insurer, showing compliance with the insurance requirements set forth in this Section 17.0.

17.9.5 The contractor shall only obtain insurance policies written by a reputable insurance company acceptable to the Railroad, or which currently has a Best's Insurance Guide Rating of A– and Class VII or better, and which is authorized to do business in the State of Missouri.

17.9.6 The fact that insurance is obtained by the contractor or by the Railroad on behalf of the contractor will not be deemed to release or diminish the liability of the contractor, including, without limitation, liability under the indemnity provisions contained in Section 3.0 of these Railroad Requirements. Damages recoverable by the Railroad from the contractor or any third party will not be limited by the amount of the required insurance coverage, except to the extent of any payments the Railroad has received pursuant to that insurance coverage obtained and paid for by the contractor.

17.10 Evidence of Insurance. The contractor shall provide evidence of insurance as required above to the addresses shown below, for review by the Commission and transmittal to the Railroad.

Railroad	Commission
Mr. Casey Moore	Ms. Brandi Baldwin
Real Estate	State Construction and Materials Engineer
Union Pacific Railroad Company	Missouri Department of Transportation
1400 Douglas St., MS 1690	P.O. Box 270
Omaha, NE 68179-1690	Jefferson City, MO 65102

17.11 Except as otherwise specifically provided in these Railroad Requirements, the Railroad will not accept binders as evidence of insurance, and the contractor shall provide the Railroad with the original insurance policy.

17.12 Insurance Required of Subcontractors. If any part of the work is sublet, the contractor shall maintain and provide evidence of similar insurance, in the same amounts as required of the prime contractor, to cover the subcontractor's operations. The Railroad will accept endorsements to the prime contractor's policies specifically naming subcontractors and describing the subcontractor's operations, for this purpose.

17.13 Cancellation of Insurance. The contractor and its insurers shall not cancel any of the required insurance coverage, except by permission of the Commission and the Railroad, or after thirty (30) days' written notice to the Commission and the Railroad at the addresses shown in subsection 17.10.

18.0 Completion of Work on Railroad's Property. The contractor shall notify Engineer and Railroad's Representative when the contractor has completed its work on Railroad's Property.

19.0 Failure to Comply. If the contractor violates or fails to comply with any of the requirements of these Railroad Requirements, then the Railroad Engineer may require that the contractor vacate the Railroad's property and the Engineer may withhold all monies due to the contractor until the contractor has remedied the situation to the satisfaction of the Railroad Engineer and the Engineer.

20.0 Payment for Cost of Compliance. The contractor is not entitled to any separate payment for any extra cost it may incur on account of compliance with these Railroad Requirements. The contractor shall include all such costs in the contract unit price for items properly authorized in the contract.

I. Restrictions for Migratory Birds NJSP-16-06A

1.0 Description. Swallows or other bird species protected by the Migratory Bird Treaty Act may be nesting under the bridge or bridges that will be repaired under this contract.

2.0 Restrictions. To comply with the Migratory Bird Treaty Act, nests of protected species cannot be disturbed when active (eggs or young are present). Generally, nests are active between April 1 and July 31, but active nests can be present outside of these dates.

3.0 Avoidance Measures. The contractor shall not disturb active nests or destroy adults, eggs or young birds. In an effort to comply with the Migratory Bird Treaty Act, the contractor operations will be limited to the options established in the following sections.

3.1 Inactive or Partially Constructed Nests. If nests are present and MoDOT determines that the nests are inactive or partially constructed, the contractor may remove the nests provided that the colony's inactive or partially constructed nests are completely removed by March 15 and the contractor maintains a nest free condition until the bridge work is complete. Dry removal methods shall be used when practicable. If dry removal is not practicable, hydro cleaning may be used if approved by the Engineer and only if water is free of blasting grit, chemicals, or detergents, and applied using pressure less than 5,000 PSI. Clean water such as that from municipal water treatment plants or wells shall be used. Use of source water from Waters of the State (i.e., streams or lakes), is allowable, if the appropriate methods to prevent the possible spread of invasive aquatic species are implemented.

3.2 Water and Equipment Used for Hydro cleaning. Aquatic invasives such as zebra mussels and some algae species have infested several bodies of water in the United States and can be transported by vessels (barges, boats, tugs, tankers, etc.) and equipment (tanks, tubing, pumps, etc.) that have been used in areas that contain these invasive species. If equipment is not properly inspected and treated to prevent the spread of invasives, these species can be introduced into areas not currently known to have a population. These invasive species are detrimental to existing ecosystems and can outcompete native species. To assist in preventing the introduction and spread of aquatic invasive species through MoDOT projects in Missouri streams and lakes, the following precautions shall be followed.

3.2.1 Use of Water from Streams, Lakes or Ponds. Contractors shall not use water for nest removal from streams, lakes or ponds, unless they have implemented appropriate methods to prevent the possible spread of invasive aquatic species. Water sources from municipal water treatment plants or wells may be used without following these measures provided the equipment to be used has not previously contained waters from streams, lakes or ponds. If the equipment has previously contained waters from other streams or lakes, the following measures must be implemented prior to use.

3.2.1.1 Equipment Washing. Prior to the use or re-use of equipment following any use with water from streams, lakes or ponds, all equipment shall be washed and rinsed thoroughly with hard spray (power wash) and hot (minimum 120º F) water, for at least one minute.

3.2.1.2 Equipment Treating or Drying. Equipment shall be treated or dried in one of the following manners.

3.2.1.2.1 Equipment interior and/or other surfaces shall be treated with a 10% bleach solution to kill any aquatic nuisance species. This solution must also be run through all intake lines and hoses, to sterilize interior components. When chlorine treatment is used, all chlorine runoff from equipment washing must be collected and properly treated and/or disposed of in accordance with Sec 806.

3.2.1.2.2 Equipment interior and/or other surfaces shall be treated with 140º F water for a minimum of 10 seconds contact on all surfaces. 140 º F water must also be run through all intake lines and hoses, to purge any standing water.

3.2.1.2.3 Equipment shall be flushed of all non-municipal water, and dried thoroughly, in the sun before using in or transporting between streams and lakes. Dry times will depend on the season the equipment is being used. Equipment must dry a minimum of 7 days for June-September, 18 days for March-May; 18 days for October-November, and 30 days for December-February. The drying method should be reserved as a last resort option.

3.2.2 Prior to use of equipment, contractors shall provide the MoDOT inspector written documentation of the equipment's geographic origin (including the water body it was last used in), as well as defining the specified treatment method used to adequately ensure protection against invasive species. The written documentation will include a statement indicating the contractor is aware of these provisions and will also treat the equipment appropriately after completion of the project.

3.3 Active Nests. The contractor may work on the bridge if active nests are present, as long as the work does not impact or disturb the birds and/or nests. At a minimum, work shall not be performed within 10 feet of an active nest; however, the contractor is responsible for ensuring their activities do not impact the nests, eggs, or young.

4.0 Additional Responsibilities. If active bird nests remain after all reasonable avoidance measures have been taken, or if bird nests are observed during project construction, the contractor shall notify the Resident Engineer and contact the MoDOT Environmental Section (573-526-4778) to determine if there are other allowable options.

J. Contractor Quality Control NJSP-15-42

1.0 The contractor shall perform Quality Control (QC) testing in accordance with the specifications and as specified herein. The contractor shall submit a Quality Control Plan (QC Plan) to the engineer for approval that includes all items listed in Section 2.0, prior to beginning work.

2.0 Quality Control Plan.

(a) The name and contact information of the person in responsible charge of the QC testing.
(b) A list of the QC technicians who will perform testing on the project, including the fields in which they are certified to perform testing.
(c) A proposed independent third party testing firm for dispute resolution, including all contact information.
(d) A list of Hold Points, when specified by the engineer.
(e) The MoDOT Standard Inspection and Testing Plan (ITP). This shall be the version that is posted at the time of bid on the MoDOT website (www.modot.org/quality).

3.0 Quality Control Testing and Reporting. Testing shall be performed per the test method and frequency specified in the ITP. All personnel who perform sampling or testing shall be certified in the MoDOT Technician Certification Program for each test that they perform.

3.1 Reporting of Test Results. All QC test reports shall be submitted as soon as practical, but no later than the day following the test. Test data shall be immediately provided to the engineer upon request at any time, including prior to the submission of the test report. No payment will be made for the work performed until acceptable QC test results have been received by the engineer and confirmed by QA test results.

3.1.1 Test results shall be reported on electronic forms provided by MoDOT. Forms and Contractor Reporting Excel2Oracle Reports (CRE2O) can be found on the MoDOT website. All required forms, reports and material certifications shall be uploaded to a Microsoft SharePoint® site provided by MoDOT, and organized in the file structure established by MoDOT.

3.2 Non-Conformance Reporting. A Non-Conformance Report (NCR) shall be submitted by the contractor when the contractor proposes to incorporate material into the work that does not meet the testing requirements or for any work that does not comply with the contract terms or specifications.

3.2.1 Non-Conformance Reporting shall be submitted electronically on the Non-Conformance Report form provided on the MoDOT Website. The NCR shall be uploaded to the MoDOT SharePoint® site and an email notification sent to the engineer.

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

4.0 Work Planning and Scheduling.

4.1 Two-week Schedule. Each week, the contractor shall submit to the engineer a schedule that outlines the planned project activities for the following two-week period. The two-week schedule shall detail all work and traffic control events planned for that period and any Hold Points specified by the engineer.

4.2 Weekly Meeting. When work is active, the contractor shall hold a weekly project meeting with the engineer to review the planned activities for the following week and to resolve any outstanding issues. Attendees shall include the engineer, the contractor superintendent or project manager and any foreman leading major activities. This meeting may be waived when, in the opinion of the engineer, a meeting is not necessary. Attendees may join the meeting in person, by phone or video conference.

4.3 Pre-Activity Meeting. A pre-activity meeting is required in advance of the start of each new activity, except when waived by the engineer. The purpose of this meeting is to review construction details of the new activity. At a minimum, the discussion topics shall include: safety precautions, QC testing, traffic impacts, and any required Hold Points. Attendees shall include the engineer, the contractor superintendent and the foreman who will be leading the new activity. Pre-activity meetings may be held in conjunction with the weekly project meeting.

4.4 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, in the opinion of the engineer, a review of the preceding work is necessary before continuation to the next stage.

4.4.1 A list of typical Hold Point events is available on the MoDOT website. Use of the Hold Point process will only be required for the project-specific list of Hold Points, if any, that the engineer submits to the contractor in advance of the work. The engineer may make changes to the Hold Point list at any time.

4.4.2 Prior to all Hold Point inspections, the contractor shall verify the work has been completed in accordance with the contract and specifications. 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. Re-scheduling of Hold Points require a minimum 24-hour advance notification from the contractor unless otherwise allowed by the engineer.

5.0 Quality Assurance Testing and Inspection. MoDOT will perform quality assurance testing and inspection of the work, except as specified herein. The contractor shall utilize the inspection checklists provided in the ITP as a guide to minimize findings by MoDOT inspection staff. Submittal of completed checklists is not required, except as specified in 5.1.

5.1 Inspection and testing required in the production of concrete for the project shall be the responsibility of the contractor. Submittal of the 501 Concrete Plant Checklist is required.

6.0 Basis of Payment. No direct payment will be made for compliance with this provision.

K. Slurry and Residue Produced During Surface Treatment of PCCP and Bridge Decks JSP-06-05A

1.1 Description. This work covers the requirements for controlling residue or slurry produced by milling, grinding, planing, grooving or other methods of surface treatments on new or existing PCCP and bridge decks in addition to Section 622.

2.0 Construction Requirements. The following shall be considered the minimum requirements for performing this work within the project limits.

2.1 The contractor shall submit to the Engineer for approval in writing prior to the pre-construction meeting, the best management practices (BMP's) to be used to protect the environment, including the method of disposal of the residue whether on right of way or off-site.

2.2 When slurry is dispersed on the right of way, BMP's shall be installed to keep slurry or residue from entering paved ditches or structures discharging within the areas restricted by Section 622.303.8.6, from entering any waterways or from leaving the right of way.

2.3 Upon approval of the contractor's BMP and residue disposal plan and prior to the contractor beginning surface treatment operations, the Engineer will identify slurry or residue "no discharge zones".

2.4 Operations may be suspended by the Engineer during periods of rainfall or during freezing temperatures.

3.0 Basis of Payment. No direct payment for slurry or residue control requirements for BMP's will be made. Compliance with this specification along with the cost of all materials, labor and equipment necessary for the surface treatment work shall be included in and completely covered by the unit price bid for each of the items of work for surface treatment included in contract.

L. Bridge Washing BMP

1.0 Description. Bridge A4497 and L0550 are within the Jefferson City Urbanized TS4 area. This will require consideration of stormwater best management practices (BMP) as it relates to Minimum Control Measure (MCM) 6 – Pollution Prevention and Good Housekeeping (EPG 127.29.4.4). Bridge Washing is a focal point of MCM 6, and regardless of the contractual vehicle over the internal operation, consideration of dry method removal of contaminants as well as temporary containments must be considered to protect from pollutants entering the Missouri

River through the runoff from the wash water. The contractor shall abide by all regulations in the State of Missouri TS4 Permit – 6 Minimum Control Measures (MCM6).

1.1 Dry Cleaning Completion of a dry cleaning method such as a dry removal (scraping, sweeping and vacuuming) of all contaminants, including salts, sediments, dirt, sprays, de-icing chemicals, and other substances, must take place before washing to prevent materials entering the waters of Missouri. All debris shall be transported from the work site to a proper disposal area. See EPG 771.2 Bridge Cleaning and Flushing for more details.

2.0 Method of Measurement. Measurement for all labor, equipment, and materials to install, maintain, and remove the BMP devices used to meet the requirements of this provision and the TS4 permit shall be all inclusive under one lump sum pay item.

3.0 Basis of Payment. The accepted quantity of Bridge Washing BMP shall be paid for at the contract unit price for 806-99.01, Bridge Washing BMP, per lump sum.

M. Airport Requirements JSP-15-09

1.0 Description. The project is located near a public use airport or heliport or is more than 200 feet above existing ground level, which requires adherence to Federal Aviation Regulation Part 77 (FAA Reg Part 77). "Near" to a public use airport or heliport is defined as follows:

20,000 feet (4 miles) from an airport with a runway length of at least 3,200 feet
10,000 feet (2 miles) from an airport with runway length less than 3,200 feet
5,000 feet (1 mile) from a public use heliport

2.0 The maximum height of the improvement and the equipment operating while performing the improvements was assumed to be **20 feet** above the current travelway during the process of evaluating the project for compliance with FAA Reg Part 77.

2.1 If the contractor's height of equipment or if the improvement itself is beyond the assumed height as indicated in Sec 2.0, the contractor will work with the resident engineer to fill out the Form 7460-1, or revise the original Form 7460-1 based upon the proposed height and resubmit, if necessary, for a determination by FAA on compliance with FAA Reg Part 77. Further information can be found in MoDOT's Engineering Policy Guide 235.8 Airports. If the Form 7460-1 must be filed, the associated work shall not be performed prior to the FAA determination, which could take up to 45 days.

2.2 If the contractor's height of equipment and the improvement itself is below the assumed height as indicated in Sec 2.0, no further action is necessary to fulfill the requirements set forth in FAA Reg Part 77.

3.0 Basis of Payment. There will be no direct payment for any work associated with this provision. Contract time extension will be given for the time necessary to obtain or revise the FAA permit. Any delays or costs incurred in obtaining the revised permit will be noncompensable.

N. Detectable Pedestrian Barricade

1.0 Description. This work shall consist of utilizing Detectable Pedestrian Barricades as shown on the plans, in accordance with the Manual for Uniform Traffic Control Devices(MUTCD), and as approved by the Engineer. The pedestrian barricade is similar to the Type 2 Barricade indicated in Sec 6F.63 of the MUTCD.

2.0 Basis of Payment. Payment for furnishing and installing the Detectable Pedestrian Barricade shall be considered completely covered by the contract unit price for Item No. 616-99.02, Detectable Pedestrian Barricade, per each.

O. Supplemental Revisions JSP-18-01AA

Compliance with 2 CFR 200.216 – Prohibition on Certain Telecommunications and Video Surveillance Services or Equipment.

The Missouri Highways and Transportation Commission shall not enter into a contract (or extend or renew a contract) using federal funds to procure or obtain equipment, services, or systems that uses covered telecommunications equipment or services as substantial or as critical technology as part of any system where the video surveillance and telecommunications equipment was produced by Huawei Technologies Company, ZTE Corporation, Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).

Stormwater Compliance Requirements

1.0 Description. This provision requires the contractor to provide a Water Pollution Control Manager (WPCM) for any project that includes land disturbance on the project site and the total area of land disturbance, both on the project site, and all Off-site support areas, is one (1) acre or more. Regardless of the area of Off-site disturbance, if no land disturbance occurs on the project site, these provisions do not apply. When a WPCM is required, all sections within this provision shall be applicable, including assessment of specified Liquidated Damages for failure to correct Stormwater Deficiencies, as specified herein. This provision is in addition to any other stormwater, environmental, and land disturbance requirements specified elsewhere in the contract.

1.1 Definitions. The project site is defined as all areas designated on the plans, including temporary and permanent easements. The project site is equivalent to the “permitted site”, as defined in MoDOT’s State Operating Permit. An Off-site area is defined as any location off the project site the contractor utilizes for a dedicated project support function, such as, but not limited to, staging area, plant site, borrow area, or waste area.

1.2 Reporting of Off-Site Land Disturbance. If the project includes any planned land disturbance on the project site, prior to the start of work, the contractor shall submit a written report to the engineer that discloses all Off-site support areas where land disturbance is planned, the total acreage of anticipated land disturbance on those sites, and the land disturbance permit number(s). Upon request by the engineer, the contractor shall submit a copy of its land disturbance permit(s) for Off-site locations. Based on the total acreage of land disturbance, both on and Off-site, the engineer shall determine if these Stormwater Compliance Requirements shall apply. The Contractor shall immediately report any changes to the planned

area of Off-site land disturbance. The Contractor is responsible for obtaining its own separate land disturbance permit for Off-site areas.

2.0 Water Pollution Control Manager (WPCM). The Contractor shall designate a competent person to serve as the Water Pollution Control Manager (WPCM) for projects meeting the description in Section 1.0. The Contractor shall ensure the WPCM completes all duties listed in Section 2.1.

2.1 Duties of the WPCM:

(a) Be familiar with the stormwater requirements including the current MoDOT State Operating Permit for construction stormwater discharges/land disturbance activities; MoDOT's statewide Stormwater Pollution Prevention Plan (SWPPP); the Corps of Engineers Section 404 Permit, when applicable; the project specific SWPPP, the Project's Erosion & Sediment Control Plan; all applicable special provisions, specifications, and standard drawings; and this provision;

(b) Successfully complete the MoDOT Stormwater Training Course within the last 4 years. The MoDOT Stormwater Training is a free online course available at MoDOT.org;

(c) Attend the Pre-Activity Meeting for Grading and Land Disturbance and all subsequent Weekly Meetings in which grading activities are discussed;

(d) Oversee and ensure all work is performed in accordance with the Project-specific SWPPP and all updates thereto, or as designated by the engineer;

(e) Review the project site for compliance with the Project SWPPP, as needed, from the start of any grading operations until final stabilization is achieved, and take necessary actions to correct any known deficiencies to prevent pollution of the waters of the state or adjacent property owners prior to the engineer's weekly inspections;

(f) Review and acknowledge receipt of each MoDOT Inspection Report (Land Disturbance Inspection Record) for the Project within forty eight (48) hours of receiving the report and ensure that all Stormwater Deficiencies noted on the report are corrected as soon as possible, but no later than stated in Section 5.0.

3.0 Pre-Activity Meeting for Grading/Land Disturbance and Required Hold Point. A Pre-Activity meeting for grading/land disturbance shall be held prior to the start of any land disturbance operations. No land disturbance operations shall commence prior to the Pre-Activity meeting except work necessary to install perimeter controls and entrances. Discussion items at the pre-activity meeting shall include a review of the Project SWPPP, the planned order of grading operations, proposed areas of initial disturbance, identification of all necessary BMPs that shall be installed prior to commencement of grading operations, and any issues relating to compliance with the Stormwater requirements that could arise in the course of construction activity at the project.

3.1 Hold Point. Following the pre-activity meeting for grading/land disturbance and subsequent installation of the initial BMPs identified at the pre-activity meeting, a Hold Point shall occur prior to the start of any land disturbance operations to allow the engineer and WPCM the time needed to perform an on-site review of the installation of the BMPs to ensure

compliance with the SWPPP is met. Land disturbance operations shall not begin until authorization is given by the engineer.

4.0 Inspection Reports. Weekly and post run-off inspections will be performed by the engineer and each Inspection Report (Land Disturbance Inspection Record) will be entered into a web-based Stormwater Compliance database. The WPCM will be granted access to this database and shall promptly review all reports, including any noted deficiencies, and shall acknowledge receipt of the report as required in Section 2.1 (f.).

5.0 Stormwater Deficiency Corrections. All stormwater deficiencies identified in the Inspection Report shall be corrected by the contractor within 7 days of the inspection date or any extended period granted by the engineer when weather or field conditions prohibit the corrective work. If the contractor does not initiate corrective measures within 5 calendar days of the inspection date or any extended period granted by the engineer, all work shall cease on the project except for work to correct these deficiencies, unless otherwise allowed by the engineer. All impact costs related to this halting of work, including, but not limited to stand-by time for equipment, shall be borne by the Contractor. Work shall not resume until the engineer approves the corrective work.

5.1 Liquidated Damages. If the Contractor fails to complete the correction of all Stormwater Deficiencies listed on the MoDOT Inspection Report within the specified time limit, the Commission will be damaged in various ways, including but not limited to, potential liability, required mitigation, environmental clean-up, fines, and penalties. 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 $2,000 per day for failure to correct one or more of the Stormwater Deficiencies listed on the Inspection Report within the specified time limit. In addition to the stipulated damages, the stoppage of work shall remain in effect until all corrections are complete.

6.0 Basis of Payment. No direct payment will be made for compliance with this provision.

Anti-Discrimination Against Israel Certification

By signing this contract, the Company certifies it is not currently engaged in and shall not, for the duration of the contract, engage in a boycott of goods or services from the State of Israel, companies doing business in or with Israel or authorized by, licensed by, or organized under the laws of the State of Israel, or persons or entities doing business in the State of Israel as defined by Section 34.600 RSMo. This certification shall not apply to contracts with a total potential value of less than One Hundred Thousand Dollars ($100,000) or to contractors with fewer than ten (10) employees.

Ground Tire Rubber (GTR) Dry Process Modification of Bituminous Pavement Material

1.0 Description. This work shall consist of the dry process of adding ground tire rubber (GTR) to modify bituminous material to be used in highway construction. Existing GTR requirements in Section 1015 pertain to the wet process method of GTR modification that blends GTR with the asphalt binder (terminal blending or blending at HMA plant). The following requirements shall govern for dry process GTR modification. The dry process method adds GTR as a fine aggregate or mineral filler during mix production. All GTR modified asphalt mixtures shall be in

accordance with Secs 401, 402, or 403 as specified in the contract; except as revised by this specification.

2.0 Materials. The contractor shall furnish a manufacturer's certification to the engineer for each shipment of GTR furnished stating the name of the manufacturer, the chemical composition, workability additives, and certifying that the GTR supplied is in accordance with this specification.

2.1 Product Approval. The GTR product shall contain a Trans-Polyoctenamer (TOR) added at 4.5 % of the weight of the crumb rubber or an engineered crumb rubber (ECR) workability additive that has proven performance in Missouri. Other GTR additives shall be demonstrated and proven prior to use such as a five-year field performance history in other states or performance on a federal or state-sanctioned accelerated loading facility.

2.2 General. GTR shall be produced from processing automobile or truck tires by ambient or cryogenic grinding methods. Heavy equipment tires, uncured or de-vulcanized rubber will not be permitted. GTR shall also meet the following material requirements:

Table 1 – GTR Material Properties

Property	Test Method	Criteria
Specific Gravity	ASTM D1817	1.02 to 1.20
Metal Contaminates	ASTM D5603	$\leq$ 0.01%
Fiber Content	ASTM D5603	$\leq$ 0.5%
Moisture Content	ASTM D1509	$\leq$ 1.0%*
Mineral Filler	AASHTO M17	$\leq$ 4.0%

*Moisture content of the GTR shall not cause foaming when combined with asphalt binder and aggregate during mix production

2.3 Gradation. The GTR material prior to TOR or ECR workability additives shall meet the following gradation and shall be tested in accordance with ASTM D5603 and ASTM D5644.

Table 2 – GTR Gradation

Sieve	Percent Passing by Weight
No. 20	100
No. 30	98-100
No. 40	50-70
No. 100	5-15

3.0 Delivery, Storage, and Handling. The GTR shall be supplied in moisture-proof packaging or other appropriate bulk containers. GTR shall be stored in a dry location protected from rain before use. Each bag or container shall be properly labeled with the manufacturer's designation for the GTR and specific type, mesh size, weight and manufacturer's batch or Lot designation.

4.0 Feeder System. Dry Process GTR shall be controlled with a feeder system using a proportioning device that is accurate to within ± 3 percent of the amount required. The system shall automatically adjust the feed rate to always maintain the material within this tolerance and

shall have a convenient and accurate means of calibration. The system shall provide in-process monitoring, consisting of either a digital display of output or a printout of feed rate, in pounds per minute, to verify feed rate. The supply system shall report the feed in 1-pound increments using load cells that will enable the user to monitor the depletion of the GTR. Monitoring the system volumetrically will not be allowed. The feeder shall interlock with the aggregate weight system and asphalt binder pump to maintain correct mixture proportions at all production rates.

Flow indicators or sensing devices for the system shall be interlocked with the plant controls to interrupt mixture production if GTR introduction rate is not within ± 3 percent. This interlock will immediately notify the operator if GTR introduction rate exceeds introduction tolerances. All plant production will cease if the introduction rate is not brought back within tolerance after 30 seconds. When the interlock system interrupts production and the plant has to be restarted, upon restarting operations; the modifier system shall run until a uniform feed can be observed on the output display. All mix produced prior to obtaining a uniform feed shall be rejected.

4.1 Batch Plants. GTR shall be added to aggregate in the weigh hopper. Mixing times shall be increased per GTR manufacturer recommendations.

4.2 Drum Plants. The feeder system shall add GTR to aggregate and liquid binder during mixing and provide sufficient mixing time to produce a uniform mixture. The feeder system shall ensure GTR does not become entrained in the exhaust system of the drier or plant and is not exposed to the drier flame at any point after introduction.

5.0 Testing During Mixture Production. Testing of asphalt mixes containing GTR shall not begin until at least 30 minutes after production or per additive supplier's recommendation.

6.0 Construction Requirements. Mixes containing GTR shall have a target mixing temperature of 325 F or as directed by the GTR additive supplier. The additive supplier's recommendations shall be followed to allow for GTR binder absorption/reaction. This may include holding mix in the silo to allow time for binder to absorb into the GTR. Rolling operations may need to be modified.

7.0 Mix Design Test Method Modification. A formal mixing procedure from the additive supplier shall be provided to the contractor and engineer that details the proper sample preparation, including blending GTR with the binder or other additives. Samples shall be prepared and fabricated in accordance with this procedure by the engineer and contractor throughout the duration of the project.

8.0 Mix design Volumetrics. Mix design volumetric equations shall be modified as follows:

8.1 Additional virgin binder added to offset GTR absorption of binder shall be counted as part of the mix virgin binder

8.2 GTR shall be included as part of the aggregate when calculating VMA of the mix.

8.2.1 GTR SPG shall be 1.15

8.3 Mix G_{sb} used to determine VMA shall be calculated as follows:

$$G_{sb\ (JMF)} = \frac{(100 - P_{bmv})}{\left(\frac{P_s}{G_{sb}} + \frac{P_{GTR}}{G_{GTR}}\right)}$$

where:

$G_{sb\ (JMF)} = bulk\ specific\ gravity\ of\ the\ combined\ aggregate\ including\ GTR$
$P_{bmv} = percent\ virgin\ binder\ by\ total\ mixture\ weight$
$P_s = percent\ aggregate\ by\ total\ mixture\ weight\ (not\ including\ GTR)$
$P_{GTR} = percent\ GTR\ by\ total\ mixture\ weight$
$G_{sb} = bulk\ specific\ gravity\ of\ the\ combined\ aggregate\ (not\ including\ GTR)$
$G_{GTR} = GTR\ specific\ gravity$

8.4 G_{se} shall be calculated as follows:

$$G_{se} = \frac{(100 - P_b - P_{GTR})}{\left(\frac{100}{G_{mm}} - \frac{P_b}{G_b} - \frac{P_{GTR}}{G_{GTR}}\right)}$$

8.5 P_{be} shall be calculated as follows:

$$P_{be} = P_b - \frac{P_{ba}}{100} * (P_s + P_{GTR})$$

9.0 Minimum GTR Amount. The minimum dosage rate for GTR shall be 5 % by weight of total binder for an acceptable one bump grade or 10 % by weight of total binder for an acceptable two bump grade as detailed in the following table. Varying percentage blends of GTR and approved additives may be used as approved by the engineer with proven performance and meeting the specified requirements of the contract grade.

Contract Binder Grade	Percent Effective Virgin Binder Replacement Limits	Required Virgin Binder Grade	Minimum GTR Dosage Rate
PG 76-22	0 - 20	PG 70-22	5 %
		PG 64-22	10 %
PG 70-22	0 - 30	PG 64-22	5 %
		PG 58-28	10 %
PG 64-22	0 – 40*	PG 58-28	5 %
		PG 52-34	10 %
PG 58-28	0 – 40*	PG 52-34	5 %
		PG 46-34	10 %

* Reclaimed Asphalt Shingles (RAS) may be used when the contract grade is PG 64-22 or PG 58-28. RAS replacement shall follow the 2 x RAS criteria when calculating percent effective binder replacement in accordance Sec 401.

Delete Sec 403.19.2 and substitute the following:

403.19.2 Lots. The lot size shall be designated in the contractor's QC Plan. Each lot shall contain no less than four sublots and the maximum sublot size shall be 1,000 tons. The maximum lot size shall be 4,000 tons for determination of pay factors. Sublots from incomplete lots shall be combined with the previous complete lot for determination of pay factors. When no previous lot exists, the mixture shall be treated in accordance with Sec 403.23.7.4.1. A new lot shall begin when the asphalt content of a mixture is adjusted in accordance with Sec 403.11.

Delete Sec 106.9 and substitute the following:

106.9 Buy America Requirements
Buy America Requirements are waived if the total amount of Federal financial assistance applied to the project, through awards or subawards, is below $500,000.

106.9.1 Buy America Requirements for Iron and Steel.
On all federal-aid projects, the contractor's attention is directed to Title 23 CFR 635.410 *Buy America Requirements*. Where steel or iron products are to be permanently incorporated into the contract work, steel and iron material shall be manufactured, from the initial melting stage through the application of coatings, in the USA except for "minimal use" as described herein. Furthermore, any coating process of the steel or iron shall be performed in the USA. Under a general waiver from FHWA the use of pig iron and processed, pelletized, and reduced iron ore manufactured outside of the USA will be permitted in the domestic manufacturing process for steel or iron material.

106.9.2 Buy America Requirements for Iron and Steel for Manufactured items.
A manufactured item will be considered iron and steel if it is "predominantly" iron or steel. Predominantly iron or steel means that the cost of iron or steel content of a product is more than 50 percent of the total cost of all its components.

106.9.2 Any sources other than the USA as defined will be considered foreign. The required domestic manufacturing process shall include formation of ingots and any subsequent process. Coatings shall include any surface finish that protects or adds value to the product.

106.9.3 "Minimal use" of foreign steel, iron or coating processes will be permitted, provided the cost of such products does not exceed 1/10 of one percent (0.1 percent) of the total contract cost or $2,500.00, whichever is greater. If foreign steel, iron, or coating processes are used, invoices to document the cost of the foreign portion, as delivered to the project, shall be provided and the engineer's written approval obtained prior to placing the material in any work.

106.9.4 Buy America requirements include a step certification for all fabrication processes of all steel or iron materials that are accepted per Sec 1000. The AASHTO Product Evaluation and Audit Solutions compliance program verifies that all steel and iron products fabrication processes conform to 23 CFR 635.410 Buy America Requirements and is an acceptable standard per 23 CFR 635.410(d). AASHTO Product Evaluation and Audit Solutions compliant suppliers will not be required to submit step certification documentation with the shipment for some selected steel and iron materials. The AASHTO Product Evaluation and Audit Solutions compliant supplier shall maintain the step certification documentation on file and shall provide this documentation to the engineer upon request.

106.9.4.1 Items designated as Category 1 will consist of steel girders, piling, and reinforcing steel installed on site. Category 1 items require supporting documentation prior to incorporation into the project showing all steps of manufacturing, including coating, as being completed in the United States and in accordance with CFR Title 23 Section 635.410 Buy America Requirements. This includes the Mill Test Report from the original producing steel mill and certifications documenting the manufacturing process for all subsequent fabrication, including coatings. The certification shall include language that certifies the following. That all steel and iron materials permanently incorporated in this project was procured and processed domestically and all manufacturing processes, including coating, as being completed in the United States and in accordance with CFR Title 23 Section 635.410.

106.9.4.2 Items designated as Category 2 will include all other steel or iron products not in Category 1 and permanently incorporated in the project. Category 2 items shall consist of, but not be limited to items such as fencing, guardrail, signing, lighting and signal supports. The prime contractor is required to submit a material of origin form certification prior to incorporation into the project from the fabricator for each item that the product is domestic. The Certificate of Materials Origin form (link to certificate form) from the fabricator must show all steps of manufacturing, including coating, as being completed in the United States and in accordance with CFR Title 23 Section 635.410 Buy America Requirements and be signed by a fabricator representative. The engineer reserves the right to request additional information and documentation to verify that all Buy America requirements have been satisfied. These documents shall be submitted upon request by the engineer and retained for a period of 3 years after the last reimbursement of the material.

106.9.4.3 Any minor miscellaneous steel or iron items that are not included in the materials specifications shall be certified by the prime contractor as being procured domestically. Examples of these items would be bolts for sign posts, anchorage inserts, etc. The certification shall read “I certify that all steel and iron materials permanently incorporated in this project during all manufacturing processes, including coating, as being completed in the United States and in accordance with CFR Title 23 Section 635.410 Buy America Requirements procured and processed domestically in accordance with CFR Title 23 Section 635.410 Buy America Requirements. Any foreign steel used was submitted and accepted under minor usage”. The certification shall be signed by an authorized representative of the prime contractor.

106.9.5 When permitted in the contract, alternate bids may be submitted for foreign steel and iron products. The award of the contract when alternate bids are permitted will be based on the lowest total bid of the contract based on furnishing domestic steel or iron products or 125 percent of the lowest total bid based on furnishing foreign steel or iron products. If foreign steel or iron products are awarded the contract, domestic steel or iron products may be used; however, payment will be at the contract unit price for foreign steel or iron products.

106.9.6 Buy America Requirements for Construction Materials other than iron and steel materials. Construction materials means articles, materials, or supplies that consist of only one of the items listed. Minor additions of articles, materials, supplies, or binding agents to a construction material do not change the categorization of the construction material. Upon request by the engineer, the contractor shall submit a domestic certification for all construction materials listed that are incorporated into the project.

(a) Non-ferrous metals
(b) Plastic and Polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables)

(c) Glass (including optic glass)
(d) Fiber optic cable (including drop cable)
(e) Optical fiber
(f) Lumber
(g) Engineered wood
(h) Drywall

106.9.6.1 Minimal Use allowance for Construction Materials other than iron or steel.
"The total value of the non-compliant products is no more than the lesser of $1,000,000 or 5% of total applicable costs for the project." The contractor shall submit to the engineer any non-domestic materials and their total material cost to the engineer. The contractor and the engineer will both track these totals to assure that the minimal usage allowance is not exceeded.

106.9.7 Buy America Requirements for Manufactured Products.
Manufactured products means:

(a) Articles, materials, or supplies that have been:

(i) Processed into a specific form and shape; or
(ii) Combined with other articles, materials, or supplies to create a product with different properties than the individual articles, materials, or supplies.

(b) If an item is classified as an iron or steel product, a construction material, or a section 70917(c) material under § 184.4(e) and the definitions set forth in this section, then it is not a manufactured product. However, an article, material, or supply classified as a manufactured product under § 184.4(e) and paragraph (1) of this definition may include components that are construction materials, iron or steel products, or section 70917(c) materials.

106.9.7.1 Manufactured products are exempt from Buy America requirements. To qualify as a manufactured product, items that consist of two or more of the listed construction materials that have been combined together through a manufacturing process, and items that include at least one of the listed materials combined with a material that is not listed through a manufacturing process, should be treated as manufactured products, rather than as construction materials.

106.9.7.2 Manufactured items are covered under a general waiver to exclude them from Buy America Requirements. To qualify for the exemption the components must comprise of 55% of the value of materials in the item. The final assembly must also be performed domestically.