


Job No.: J113317  
 Route: I-29  
 County: Holt/Andrew

**JOB SPECIAL PROVISIONS TABLE OF CONTENTS (ROADWAY)**

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

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 <p>Brian M. Rosenthal        08/31/2023 7:35:23 AM        BRIAN M. ROSENTHAL - CIVIL        MO-PE-2005022151</p>	<p><b>MISSOURI HIGHWAYS AND          TRANSPORTATION COMMISSION</b>          105 W. CAPITOL AVE.          JEFFERSON CITY, MO 65102          Phone 1-888-275-6636</p>
	<p>If a seal is present on this sheet,          JSP's have been electronically sealed          and dated.</p>
	<p>JOB NUMBER: J113317          HOLT/ANDREW COUNTIES, MO          DATE PREPARED: 08/01/2023</p>
	<p>ADDENDUM DATE:</p>
<p>Only the following items of the Job Special Provisions (Roadway) are          authenticated by this seal: All</p>	

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](http://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](http://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.

Job No.: J113317  
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Notice to Proceed: December 04, 2023  
Completion Date: November 01, 2024

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

<b>Job Number</b>	<b>Calendar Days</b>	<b>Daily Road User Cost</b>
J13317	N/A	\$5,400

**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 **\$2000** 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 15 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:

<b>When Independence Day falls on:</b>	<b>The Holiday is Observed on:</b>	<b>Halt Lane Closures beginning at:</b>	<b>Allow Lane Closures to resume at:</b>
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, roadbed, 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 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 \$1000 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.

**3.3.1** 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 816-387-2345		
City of Mound City	City of Savannah	City of St. Joseph
Fire: N/A	Fire: 816-324-7533	Fire: 816-271-4601
Police: 660-442-3100	Police: 816-324-7541	Police: 816-271-4777

**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.

Brian Rosenthal, Project Contact  
Northwest District  
3602 N. Belt Hwy  
Saint Joseph, MO 64506

Telephone Number: 816-387-2499  
Email: [brian.rosenthal@modot.mo.gov](mailto:brian.rosenthal@modot.mo.gov)

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

F. 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](http://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.

G. Pavement Marking Log

**1.0 Description.** The contractor shall log the locations of existing pavement marking prior to any construction operations that may affect the existing pavement marking. The log shall contain all existing pavement marking and shall include center stripes, no passing stripes, lane lines, turn arrows, hash bars, cross walks, and stop bars. The contractor shall provide a copy of the existing pavement marking log to the engineer. The contractor shall place the new pavement marking at the same locations as the existing pavement marking, unless otherwise directed by the engineer or shown on the plans.

**2.0 Basis of Payment.** No direct payment will be made for logging of existing pavement marking.

H. Utilities

**1.0** For informational purposes only, the following is a list of names, addresses, and telephone numbers of the known utility companies in the area of the construction work for this improvement:

<u>Utility Name</u>	<u>Known Required Adjustment</u>	<u>Type</u>
Andrew County PWSD 1 201 South 71 Highway Savannah, MO 64485 Phone: (816) 324-6266	None	Water
Andrew County PWSD 3 151 East Main Street Fillmore, MO 64449 Phone: (816) 654-2756	None	Water

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AT&T Distribution 320 North 10th Street Saint Joseph, MO 64501 Phone: (314) 275-0020	<b>None</b>	Communications
Brightspeed 1120 South Tryon Street Charlotte, NC 28203 Phone: (833) 363-2360	<b>None</b>	Communications
City of Savannah 402 Court Street Savannah, MO 64485 Phone: (816) 646-6638	<b>None</b>	Sewer/Water
Evergy 613 Atchison Street Saint Joseph, MO 64501 Phone: (816) 471-5275	<b>None</b>	Electric
Holt County PWSD 1 102 South Monroe Street Oregon, MO 64473 Phone: (660) 446-2087	<b>None</b>	Water
Lumen 100 CenturyLink Drive Monroe, LA 71203 Phone: (877) 366-8344	<b>See Section 2</b>	Communications (I-29 Median Fiber)
Magellan Midstream Partners One Williams Center Tulsa, OK 74172 Phone: (918) 574-9098	<b>None</b>	Pipeline
MNA-Bluebird 800 NW Chipman Road Suite 5750 Lee's Summit, MO 64063 Phone: (800) 778-9140	<b>None</b>	Communications
MODOT Northwest District 3602 North Belt Highway Saint Joseph, MO 64506 Phone: (816) 387-2956	<b>None</b>	Electric/Communications
Oregon Farmers Mutual Telephone 118 East Nodaway Street Oregon, MO 64473 Phone: (660) 446-3391	<b>None</b>	Communications
Rock Port Telephone Company 214 South Main Street Rock Port, MO 64482 Phone: (660) 744-5311	<b>None</b>	Communications

United Electric Cooperative 401 North Highway 71 Savannah, MO 64485 Phone: (800) 748-1488	<b>None</b>	Electric
United Fiber 401 North Highway 71 Savannah, MO 64485 Phone: (800) 748-1488	<b>None</b>	Communications

**1.1** The existence and approximate location of utility facilities known to exist, as shown on the plans, are based upon the best information available to the Commission at this time. This information is provided by the Commission "as-is" and the Commission expressly disclaims any representation or warranty as to the completeness, accuracy, or suitability of the information for any use. Reliance upon this information is done at the risk and peril of the user, and the Commission shall not be liable for any damages that may arise from any error in the information. It is, therefore, the responsibility of the contractor to verify the above listing information indicating existence, location, and status of any facility. Such verification includes direct contact with the listed utilities.

**2.0 Lumen** has an existing buried fiber line running down the median of I-29. The contractor shall contact and have Missouri One Call System locate Lumen's interstate median fiber optic cable. The contractor shall inform Rick Redel, of Lumen, to be on site for all work within two feet of this fiber optic cable. All work within two feet of this fiber optic cable shall be done with approval of the Engineer, after consultation with Rick Redel, the on-site Lumen representative. The contractor shall exercise caution around all fiber optic cable of Lumen throughout the life of the project. Rick Redel can be reached at (816) 518-2804.

**2.1** The engineer may adjust the placement of guardrail, guard cable, anchor assemblies, pipe extensions, etc. in the field, after utility facilities have been located, to eliminate as many fiber optic cable conflicts as possible.

I. Lump Sum Temporary Traffic Control JSP-22-01A

**1.0 Delete Sec 616.11 and insert the following:**

**616.11 Method of Measurement.** Measurement for relocation of post-mounted signs will be made to the nearest square foot of sign area only for the signs designated for payment on the plans. All other sign relocations shall be incidental. Measurement for construction signs will be made to the nearest square foot of sign area. Measurement will be made per each for each of the temporary traffic control items provided in the contract.

**616.11.1 Lump Sum Temporary Traffic Control.** No measurement will be made for temporary traffic control items grouped and designated to be paid per lump sum. The list of lump sum items provided in the plans or contract is considered an approximation and may be subject to change based on field conditions. This is not a complete list and may exclude quantities for duplicate work zone packages used in simultaneous operations. The contractor shall provide all traffic control devices required to execute the provided traffic control plans for each applicable operation, stage, or phase. No measurement will be made for any additional signs or devices needed except for changes in the traffic control plan directed by the engineer.

**2.0 Delete Sec 616.12 and insert the following:**

**616.12 Basis of Payment.** All temporary traffic control devices authorized for installation by the engineer will be paid for at the contract unit price for each of the pay items included in the contract. Whether the devices are paid individually, or per lump sum, no direct payment will be made for the following:

- (a) Incidental items necessary to complete the work, unless specifically provided as a pay item in the contract.
- (b) Installing, operating, maintaining, cleaning, repairing, removing, or replacing traffic control devices.
- (c) Covering and uncovering existing signs and other traffic control devices.
- (d) Relocating temporary traffic control devices, including permanent traffic control devices temporarily relocated, unless specifically included as a pay item in the contract.
- (e) Worker apparel.
- (f) Flaggers, AFADs, PFDs, pilot vehicles, and appurtenances at flagging stations.
- (g) Furnishing, installing, operating, maintaining, and removing construction-related vehicle and equipment lighting.
- (h) Construction and removal of temporary equipment crossovers, including restoring pre-existing crossovers.
- (i) Provide and maintaining work zone lighting and work area lighting.

**616.12.1 Lump Sum Temporary Traffic Control.** Traffic control items grouped together in the contract or plans for lump sum payment shall be paid incrementally per Sec 616.12.1.1. Alternately, upon request from the contractor, the engineer will consider a modified payment schedule that more accurately reflects completion of traffic control work. No payment will be made for any additional signs or devices needed except for changes in the traffic control plan directed by the engineer. Additional items directed by the engineer will be paid for in accordance with Sec 109.4. No adjustment to the price will be made for overruns or underruns of other work or for added work that is completed within existing work zones.

**616.12.1.1 Partial payments.** For purposes of determining partial payments, the original contract amount will be the total dollar value of all original contract line items less the price for Lump Sum Temporary Traffic Control (LSTTC). If the contract includes multiple projects, this determination will be made for each project. Partial payments will be made as follows:

- (a) The first payment will be made when five percent of the original contract amount is earned. The payment will be 50 percent of the price for LSTTC, or five percent of the original contract amount, whichever is less.

(b) The second payment will be made when 50 percent of the original contract amount is earned. The payment will be 25 percent of the price for LSTTC, or 2.5 percent of the original contract amount, whichever is less.

(c) The third payment will be made when 75 percent of the original contract amount is earned. The payment will be 20 percent of the price for LSTTC, or two percent of the original contract amount, whichever is less.

(d) Payment for the remaining balance due for LSTTC will be made when the contract has been accepted for maintenance or earlier as approved by the engineer.

**616.12.1.2** Temporary traffic control will be paid for at the contract lump sum price for Item:

Item No.	Unit	Description
616-99.01	Lump Sum	Misc. Lump Sum Temporary Traffic Control

J. Aggregate Requirements for Type III Microsurfacing (Single Pass)

**1.0 Description.** Shall meet all requirements of Sec 413.10 except as modified in this provision. This provision shall limit the allowable aggregate sources found in Sec. 413.10.2.1.1 to the following:

- (a) Flint Chat from the Joplin Area.
- (b) Crushed porphyry.
- (c) Crushed Steel Slag
- (d) Crushed Blast Furnace Slag with a documented history of satisfactory use
- (e) Combinations thereof

**1.1** Grade B and C aggregates such as limestone and/or dolomite shall not be allowed.

**2.0 Basis of Payment.** All requirements of this provision shall be completely paid for by the contract unit price of Item 413-11.00, Type III Microsurfacing, per square yard as designated in the plans.

K. Intelligent Compaction NJSP-18-08C

**1.0 Description.** This work shall consist of collecting location, temperature, speed and intelligent compaction measurement values (ICMV) from properly instrumented rollers within the mainline paving limits and then submitting the Intelligent Compaction (IC) Data in the defined format. This provision shall apply for each lift of mainline pavement. This work shall be completed in accordance with the general principles set forth in AASHTO PP81-18 Standard Practice for Intelligent Compaction Technology for Embankment and Asphalt Pavement Applications, and specifically as stated in the following sections.

**2.0 IC Asphalt Rollers.** All asphalt rollers with the exception of the finish roller shall be properly instrumented. These instrumented rollers will be referred to as IC Rollers. Steel wheel rollers shall be self-propelled double-drum vibratory rollers equipped with accelerometers mounted to acquire signals from the vibratory response in the drum measuring the interactions between the rollers and compacted materials in order to evaluate the applied compaction effort

known as the ICMV. Rubber tire rollers will not be required to collect the ICMV. IC Rollers shall be equipped with non-contact temperature sensors for measuring pavement surface temperatures as well as a Global Positioning System (GPS) to map the roller position history.

**3.0 Equipment Accuracy.** IC Roller accuracy shall be in accordance with the following.

Operating Parameter	Accuracy
Global Positioning System	±50 mm (±2 in.) in the X and Y Direction
Rolling Speed	±0.5 kph (±0.3 mph)
Frequency	±2 Hz
Amplitude	±0.2 mm (±0.008 in.)
Temperature	±1.5°C (±2.7°F)

**4.0 Onboard Unit.** The IC Rollers shall include an integrated on-board documentation system that is capable of displaying real-time color-coded maps of IC measurement values including the stiffness response values, roller location, number of roller passes, pavement surface temperatures and line work (alignment file) if applicable. The unit shall display the current value for roller speeds, vibration frequencies and vibration amplitude of the roller drums. The operator shall have the ability to label or select each Layer ID. The display unit shall be capable of transferring the data by means of a USB port to a removable media device or wirelessly to the manufacturer's Cloud storage.

**5.0 Software Requirements.** The manufacturer's Intelligent Compaction software, or cloud computing, shall map and export gridded all-pass data and resemble PP81 section 4.3.5.2 as much as possible. At minimum, the exported data shall consist of the required fields in Table 5 of PP81 in order to allow adequate filtering in Veta.

**6.0 Global Positioning System (GPS).** Radio and receiver units shall be mounted on each IC roller to monitor the drum locations and track the number of passes of the rollers. The GPS system shall also meet the following requirements:

- (a) Set all GPS devices to the Universal Transverse Mercator (UTM) coordinate system No.15 except for portions of the SE District which are No. 16, regardless of whether GPS or Grid data are originally recorded. If UTM coordinates are not available, use the State Plane coordinate system and designate the appropriate State Plane zone. The recorded coordinates shall be in US survey feet. If an alternate coordinate system is established for the construction of the project, it may be used for the IC.
- (b) Provide a GPS system that can be a ground-based base station or Virtual Reference Station (VRS) to achieve Real Time Kinematic Global Positioning Systems (RTK-GPS) accuracy.
- (c) Provide GPS receivers on IC Rollers and a hand-held GPS rover that reference to the same ground-based base station channel or have the same VRS subscription.
- (d) Provide the recorded GPS data, whether from the IC Rollers or hand-held GPS rovers, in the following formats:
  - (i) The time stamp shall be in military format (HHMMSS.SS) in local time zone. Accuracy of 0.01 second is necessary to differentiate sequence of Intelligent Compaction data points during post processing.

(ii) Provide GPS latitudes and longitudes in DDMM.MMMMMMMM or decimal degrees (DD.DDDDDDDD).

(iii) Provide grid coordinates in feet to the nearest 0.1 foot.

**7.0 Rover.** The contractor shall provide one fully equipped survey grade hand-held GPS rover with RTK for the duration of the contract. The rover may remain in the possession of the contractor but shall be available to the engineer as needed.

**7.1 Rover Specifications.** The Rover shall read GPS signals L1 C/A, L1/L2 P-Code, and L2C and Glonass signals L1/L2 CA, L1/L2 P-Code. It shall achieve horizontal accuracies of 10mm + 1 ppm RMS and vertical accuracies of 15 mm + 1 ppm RMS in RTK surveys. It shall support Network RTK using NTRIP and have an internal modem with cellular service provided. Single Baseline RTK shall also be supported with an internal UHF Radio. Training shall be provided to ensure that MoDOT personnel shall have enough knowledge of software and hardware to operate the GPS rover.

**8.0 Control Points.** The contractor shall establish control points on the project at locations necessary to ensure compliance with the outlined provisions.

**9.0 Data Management.** All submitted files shall be adequately labeled prior to submission as defined in the MoDOT IC-PMTS Project Protocol.

**9.1 Trial Section Data.** The results from the trial section shall be recorded on the appropriate spreadsheet and submitted to the engineer within 24 hours of completing the trial section.

**9.2 Unfiltered Raw Data.** The raw IC data shall be downloaded twice per day and uploaded to the appropriate MODOT IC SharePoint site before the start of the next day's production.

**9.3 Formatted Raw Data.** The formatted raw IC data shall be submitted to the engineer before the start of the next day's production. The formatted raw IC data shall be compatible with the latest version of Veta. The data shall include IC data files, core locations/data, and coordinates of daily production boundaries. The GPS and temperature verification data shall be submitted as well in a separate file. Each file shall be labeled in accordance with the current IC-IR naming protocol posted on the IC SharePoint Site.

**9.4 Veta Project File.** The Veta project file shall include the day's production data and be submitted to the engineer within 36 hours after completion of the day's paving. The valid Veta project file shall contain the day's IC data, core locations and paving boundaries. The IC Data shall include at a minimum roller locations, temperatures, amplitudes, frequencies and speeds as well as ICMV if the accelerometer is used.

**9.5 Loss of Data.** If data collection ceases as a result of circumstances reasonably beyond the control of the contractor, the contractor will be allowed to continue the days paving without jeopardizing a portion of the lump sum payment for that day. The engineer must be notified immediately of the issue and determine if the contractor has made a reasonable effort to resolve the issue. A meeting with the engineer shall be held to determine how to proceed if the issue is expected to extend into the next day's paving. Failure to notify the engineer of the issue at hand

will result in deduction from the lump sum pay item based on the percentage of the data which is lost.

**9.6 Summary Report.** The Summary Report shall be furnished to the engineer by the contractor two days prior to the 1<sup>st</sup> and 15<sup>th</sup> of each month which includes the roller coverage results, classification for each segment, any qualifying GPS obstructions and the mean temperature at the optimum pass count. A copy of the specific version of the Summary Report used for the current construction season can be downloaded from the Construction Forms folder on the IC SharePoint page.

**10.0 Daily Verification.** The surface temperature sensor and GPS on each IC Roller shall be verified each day, although a record needs only be submitted for the measurements at the start of each week. IC Roller GPS verification shall include verifying a point established by the rover for both X and Y position to an accuracy of +/- 6 Inches. The rover shall be verified for both X and Y position with a control point at the start of each day. The IC roller temperature sensor verification shall be compared with a temperature gun which has been calibrated within the past year. The IC temperatures shall compare to be within 5°F of the temperature gun measurement. A record of each verification shall be submitted to the engineer electronically as soon as possible but no later than the start of the next day's production.

**11.0 IC Segments.** Each IC Segment shall consist of one day's production.

**12.0 Technical Support.** Technical Support from the IC roller manufacturer shall include availability on an as-needed basis for the duration of the project at no cost to the Commission. The manufacturer's representative shall provide assistance with setup, verification, data management, operation, and analysis.

**13.0 Training.** IC training materials are available online and located on the IC SharePoint Site. The IC Quality Control Technician shall review the training materials prior to the start of the project. Equipment operators shall be knowledgeable of the equipment that will be used and trained as needed by the contractor or equipment supplier.

**14.0 IC Quality Control Plan.** A pre-activity meeting shall be required prior to mainline paving. The IC Quality Control Plan shall be submitted to the engineer at least 2 weeks prior to the mainline paving pre-activity meeting. The plan at minimum shall include the following:

- (a) A list of personnel previously trained
- (b) Detailed daily verification procedure for checking the RTK-GPS of both the IC roller(s) and rover(s)
- (c) Procedure for the construction of the trial section and establishment of the optimum compaction pass count and target IC-MV value
- (d) Procedure for downloading IC data from the roller(s)
- (e) The procedure for training operators or other project staff
- (f) Detailed daily verification procedure for checking the temperature sensor on the IC Roller(s)
- (g) The name of the designated IC Quality Control Technician
- (h) Procedure for submitting data
- (i) Contact information for technical support staff
- (j) A list of the control points with either UTM or State Plane Coordinates established by the contractor
- (k) The date range when the IC component of the project will be taking place.



**15.0 Coring.** Cores shall be taken as typically required by the Missouri Standard Specification for acceptance of the pavement. The GPS coordinates of each core shall be collected with an accuracy of +/- 2 inches and submitted to the engineer by the start of the next day's production.

**16.0 Daily Production Boundaries.** The paving limits of the freshly placed mat shall be collected with an accuracy of +/- 2 inch. The edge of the new paved mainline surface shall be collected at least every 100 feet for curves and every 200 feet for tangent sections. These points shall be used to define the boundaries of each segment.

**17.0 Software Access.** The contractor shall supply the engineer with the manufacturer's Intelligent Compaction Computer Software 14 days prior to beginning work and until ninety days after completion of all work. If Cloud Storage or Cloud Computing is used, the engineer shall be supplied one user ID with full access for the same time period specified.

**18.0 GPS Obstructions.** Isolated areas influenced by a GPS obstruction may be excluded from % roller coverage computation provided that the following conditions are satisfied:

- 1) The position data is present
- 2) The GPS Reception Mode as recorded by the onsite equipment indicates that a obstruction is present
- 3) The location is properly flagged in the Veta project file and the location is identified in the bi-weekly report
- 4) The total of these areas are no more than 5% of any single day's production.

**19.0 Trial Section.** Mainline paving shall begin with the construction of a trial section for each mix type. One trial section may be constructed for each mix design. The engineer shall be notified at least 48 hours prior to construction of the trial section. The trial section shall be constructed and compacted with the same equipment, progression and methods which will be used during production. The roller speed and frequency used on the trial section shall be maintained during the construction of the project. The trial section shall be constructed with sufficient passes to determine the optimum density. The trial section shall typically be 1000 feet in length, with the last 400 feet being utilized for testing, the width of one lane and shall be constructed as part of the project. Within the 400 feet long testing portion, one Evaluation Location shall be identified for each 100 feet. Flexibility will be allowed up a maximum combined length of 1500 feet in order to facilitate the construction of the trial section. Areas needed beyond the 1500 feet will be assessed as deficient. Each Evaluation Location shall be positioned away from the center of the lane due to potential overlap of roller passes during compaction. After each of the passes, the contractor shall collect a density measurement with a nuclear gauge or an approved alternate density gauge at each Evaluation Location. When approved by the engineer, initial pairs or pass groups may be completed between density measurements. The passes shall be continued until either the pavement density begins to decrease or the density measurement on two consecutive passes are within 0.2%. Following completion of the trial section, a compaction curve shall be constructed from the pass vs. density information. From this curve the optimum number of passes and optimum IC-MV shall be determined from either the peak density versus pass value or from the 0.2% increase pass versus density values. If the 0.2% increase is the determining factor, the pass prior to the 0.2% increase will be used. Cores shall be collected at each Evaluation Location after completion of the recorded passes. The density of each core shall be determined by the contractor and used to correlate with the final density collected from the nuclear gauge. If the density at the optimum

pass count is determined to be outside the required acceptance range, then a new trial section shall be initiated. The trial section will not be considered for IC incentive or disincentive payment up to the 1500 feet maximum length. Acceptance of this area will be made in accordance with section 403.23.7.4 regarding density.

**19.1 Optimum Pass Count Refinement.** Once the project is underway, changes in operation or roadway characteristics may require refinement of the optimum pass count. With approval of the engineer, an optimum pass count refinement may be scheduled at a predetermined time when the inspector can be in attendance. The refinement shall follow the criteria established in section 19.0 and the results from this refinement will be effective starting the day that the optimum pass count refinement takes place.

**20.0 Segment Classification.** Passing Segments shall have a minimum of 90% coverage at or above the optimum number of passes. Segments with between 90% and 70% coverage will be called moderate segments. Any segment with less than 70% coverage at the optimum number of passes shall be a Deficient Segment, including areas where data is lost. If 70% of the target IC-MV is not obtained, the segment shall be flagged accordingly in the Veta project file. All segments with a mean temperature of less than 180 F at the optimum pass shall be considered deficient.

**21.0 Quality Assurance.** Quality Assurance will be performed by means of a Commission-furnished, Commission-retained magnetic GPS system attached to the top of any IC roller. Thermal Sensors may also be installed by means of a magnetic mount. The units will be solar-powered. The contractor shall provide the engineer access to these systems and accommodate the presence of the device on the IC Roller. The engineer will conduct a QA analysis according to the NJSP1808-Form-01-DataQA-Instructions and provide the contractor pass or fail results to be recorded in the Summary Sheet. In the event that a favorable comparison is not obtained, the accuracy of each system shall be verified prior to conflict resolution being initiated. The contractor shall be responsible for not damaging the QA GPS System while on their equipment and in their possession. In the event that the unit is damaged, the contractor shall be responsible for repair or replacement up to \$500.

**22.0 Basis of Payment.** Payment for compliance with this provision will be made at the contract unit price for Item No. 403-10.58, Intelligent Compaction, lump sum. In addition, an incentive payment of \$75 per 1000 feet will be made on all Passing Segments and a disincentive deduct of \$75 per 1000 feet will be made on all Deficient Segments. No additional payment will be made for the equipment, software, training, survey, analysis, trial section, trial section cores or any other incidentals necessary to complete the work.

$$\text{Incentive or Disincentive Payment} = ((\text{Length of Days Run}) / 1000) \times \$75$$

L. Paver-Mounted Thermal Profiles NJSP-18-09B

**1.0 Description** This work shall consist of collecting the paving location, surface temperature and paver stops with a Contractor supplied, Contractor retained Paver-Mounted Thermal Profile System (PMTPS) for each lift of mainline asphalt pavement. The PMTPS shall be used to continually monitor the surface temperature of the mat immediately behind the paver screed during paving operations in order to determine the thermal segregation levels for each subplot. Data from the PMTPS shall be automatically uploaded and processed through a wireless data connection or exported to an USB drive. This work shall be completed in accordance with the

general principles set forth in AASHTO PP 80-17 “Standard Practice for Continuous Thermal Profile of Asphalt Mixture Construction”, and specifically as stated in the following sections.

**2.0 PMTPS Equipment.** The PMTPS shall consist of a temperature scanner/camera, wheel speed/distance sensor, GPS antenna, control panel and necessary cabling. The PMTPS shall measure the surface temperature over the complete paving width. The current position shall be recorded via the GPS antenna. The control panel shall feature the keys and screen displays necessary to control the system as well as the software for data recording and visualization during the paving process. The system shall provide a real-time map of the temperature readings, as well as the total number of sublots in each temperature segregation category. The system shall store the data locally on a memory stick and also upload the data directly to cloud-based software which shall be supplied by the contractor for use on this project. Logon information shall be provided to the engineer for direct access to the cloud storage. In addition, the equipment shall meet the following requirements;

<u>Parameter</u>	<u>Requirement</u>
Longitudinal and Lateral Surface	≤ 12.0 inch intervals at all paving speeds
Temperature Readings Footprints	Tolerance: ±1 inch
Surface Temperature Readings	Range: 32°F to 480°F Accuracy: ± 6° F
Location (x and y)	Accuracy: ± 4 feet
Ground Distance Sensor	Accuracy: ± 1/1000 feet

**3.0 Verification.** The system shall have a documented verification before beginning construction and a minimum of once per week for Travel Distance and Temperature.

**4.0 PMTPS Training.** The PMTPS Technician and individuals performing daily setup of the equipment shall be properly trained. If trained personnel are unavailable PMTPS scanning and mainline paving shall not be performed. The PMTPS Technician shall have completed a qualifying Veta training within the last 2 years.

**5.0 Thermal Profile Sublots** For each run, the thermal profiles shall be divided into sublots that are 150 ft. in length and of the width placed. Sublots shall not extend over multiple days, different lifts or directions.

**6.0 Thermal Segregation** Exclude the following surface temperature readings from each subplot: (1) Surface temperature readings less than 180°F; and (2) Surface temperature readings within 2 ft. prior to and 8 ft. after paver stops that are greater than 1 minute in length. The temperature differential is the difference between the surface temperature readings at the 98.5 and 1 percentile in each 150 ft. subplot. The thermal segregation categories are based on the temperature differential as shown in the table below.

<b>Temperature Differential (TD)</b>	<b>Thermal Segregation Category</b>
TD ≤25.0 F	Low
25.0 F < TD ≤ 50.0 F	Moderate
TD > 50.0 F	Severe

**7.0 Data Management.** All of the header inputs shall be correctly entered by the contractor at the start of each run. The Veta Thermal Segregation Report shall be generated and electronically submitted to the engineer for each day before the start of the next day’s

production, along with the Veta file. Each file shall be labeled with the corresponding production date, direction, starting and ending log mile, and lane according to the MoDOT IC-PMTPS Protocol. The contractor shall provide to the engineer a Summary Report of the daily Thermal Segregation Reports two days prior to the 1<sup>st</sup> and 15<sup>th</sup> of each month for verification. A blank copy of the Summary Report can be found in the construction forms folder on the IC SharePoint page.

**8.0 Incentive/Disincentive.** Incentive/disincentive adjustments shall be made for each subplot in accordance with the following:

<b>Thermal Segregation Category</b>	<b>Adjustment per 150 ft. Sublot</b>
Low	\$7 Incentive
Moderate	No Pay Adjustment
Severe	\$7 Disincentive

**9.0 Quality Assurance (QA) Testing.** The Engineer will record spot temperature readings with a calibrated infrared thermometer. 2 QA test sets each consisting of 3 spot readings at the lane quarter points will be taken for each full production day. The test sets will be taken at random locations. The contractor shall assist the engineer with determining the GPS location of each spot reading location. The recorded temperature shall be within 12°F of the temperature recorded by the thermal scanner for each location. If 4 readings from any 2 consecutive test sets fall outside of the 12°F range, then conflict resolution shall be initiated to determine corrective action.

**10.0 Basis of Payment.** Payment for compliance with this provision will be made at the Lump Sum Price for Item 403-10.59, Paver-Mounted Thermal Profiles. No additional compensation will be provided to the contractor for any direct or indirect cost, including scheduling delays, associated with the installation of the noted equipment, training or the affiliated data processing.

M. Supplemental Revisions JSP-18-01Z

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	≤ 0.01%
Fiber Content	ASTM D5603	≤ 0.5%
Moisture Content	ASTM D1509	≤ 1.0%*
Mineral Filler	AASHTO M17	≤ 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.

<b>Sieve</b>	<b>Percent Passing by Weight</b>
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  $\pm 3$  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  $\pm 3$  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.

#### Buy America

In addition to Section 106.9 of the Missouri Standard Specifications for Highway Construction, the following requirements will also be in effect for this project.

**1.0 Description.** The Bipartisan Infrastructure Law (BIL) was enacted on November 15, 2021. The BIL includes Build America, Buy America Act Publication L. No. 117-58. This provision expands the Buy America requirements beyond what is currently only required for steel and iron products. The steel and iron provisions have not changed with the new bill. Cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives are excluded from this requirement. All other materials and manufactured products permanently incorporated into the project will be subject to Buy America requirements. There are three categories requiring Buy America Certification:

- a) Iron and steel – no changes to the current specification requirements.
- b) Manufactured products – these are currently exempted under the 1983 waiver from FHWA.
- c) Construction materials consisting primarily of:
  - Non-ferrous metals;
  - Plastic and polymer-based products (including polyvinylchloride, composite build materials, and polymers used in fiber optic cables);
  - Glass (including optic glass);
  - Lumber; or
  - Drywall

**1.1** All products and or materials will only be classified under one of these categories and not

under multiple categories. It is the prime contractor's responsibility to assure all submittals required for Buy America are submitted to the Engineer prior to the products and or materials being incorporated in the job. The implementation of this policy will be in effect for all projects awarded after November 10, 2022.

**1.2** New items designated as construction materials under this requirement will require the prime contractor to submit a material of origin form certification prior to incorporation into the project. The Certificate of Material origin form ([link to certificate form](#)) from the supplier and/or fabricator must show all steps of the manufacturing being completed in the United States. The Certificate of Material form shall be filed with the contract documents.

**1.3** Any minor miscellaneous construction material items that are not included in the materials specifications shall be certified by the prime contractor as being procured domestically. The certification shall read "I certify all materials permanently incorporated in this project covered under this provision have been to the best of my knowledge procured and all manufactured domestically." The certification shall be signed by an authorized representative of the prime contractor.

**1.4** The National Transportation Product Evaluation Program (NTPEP) compliance program verifies that some non-iron and steel products fabrication processes conform to 23 CFR 635.410 Buy America Requirements and an acceptable standard per 23 CFR 635.410(d). NTPEP compliant suppliers will not be required to submit step certification documentation with the shipment for some selected non-iron and steel materials. The NTPEP compliant supplier shall maintain the step certification documentation on file and shall provide this documentation to the engineer upon request.

**2.0 Basis of Payment.** Any costs incurred by the contractor by reason of compliance with the above requirements shall be considered as included in and completely covered by the unit price bid for the various items of work included in the contract.

***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](#).