

Job No.:	J5I3397	J5I3572	J5I3482
Route:	44	44	44
County:	Phelps / Crawford	Phelps	Phelps

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	<b>MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION</b> 105 W. CAPITOL AVE. JEFFERSON CITY, MO 65102 Phone 1-888-275-6636
	<b>HR Green, Inc.</b> 16020 Swingley Ridge Road, Ste. 205 Chesterfield, MO 63017 Certificate of Authority: 2002006608 Consultant Phone: (636) 812-4209
	JOB NUMBERS: J5I3397 / J5I3572 / J5I3482 PHELPS, CRAWFORD CO., MO DATE PREPARED: Sept. 23, 2021
Date: October 7, 2021	ADDENDUM DATE:
Only the following items of the Job Special Provisions (Roadway) are authenticated by this seal: All	

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JOB  
SPECIAL PROVISIONS

A. General - Federal JSP-09-02G

**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 2021 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-13-01B

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

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

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Notice to Proceed:	January 31, 2022
Completion Date:	November 1, 2023

**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
J5I3397	NA	\$3200
J5I3482	NA	\$3200
J5I3572	NA	\$3200

**3.0 Liquidated Damages for Contract Administrative Costs.** Should the contractor fail to complete the work on or before the completion date specified in Section 2.0, 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 **\$3,000** 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 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 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-02-06J

**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 of if road user costs are being charged for closures.

**2.0 Traffic Management Schedule.**

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**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 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.

**2.5.2 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.**

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**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:

12:00 noon July 1, 2022 – 6:00 a.m. July 5, 2022  
12:00 noon June 30, 2023 – 6:00 a.m. July 5, 2023

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

**3.3** The contractor shall be aware that traffic volume data indicates construction operations on the roadbed between the following hours will likely result in traffic queues greater than 15 minutes. Based on this, the contractor's operations will be restricted accordingly unless it can be successfully demonstrated the operations can be performed without a 15-minute queue in traffic. It shall be the responsibility of the engineer to determine if the above work hours may be modified. Working hours for evenings, weekends and holidays will be determined by the engineer. During the following work hours, single lane closures will only be allowed unless specifically authorized by the Engineer:

Interstate 44 Eastbound / Westbound:  
6:00 a.m. - 7:00 p.m. All Days

**3.4** The contractor shall not alter the start time, ending time, or a reduction in the number of through lanes of traffic or ramp 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.

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

#### **4.0 Detours and Lane Closures.**

**5.0** 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. The CMS shall be capable of communication with the Transportation Management Center (TMC), if applicable, 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.

**5.1** 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.

**6.0 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. Liquidated Damages Specified JSP-93-28**

**1.0 Description.** If the reconstruction of the unbonded concrete overlay and inside shoulder through the limits of the J5I3397 are not complete and open to traffic within **90 calendar days**, the Commission, the traveling public, and state and local police and governmental authorities will be damaged in various ways, including but not limited to, increased construction administration cost, potential liability, traffic and traffic flow regulation cost, traffic congestion and motorist delay, with its resulting cost to the traveling public. These damages are not reasonably capable of being computed or quantified. Therefore, the contractor will be charged with liquidated damages specified in the amount of **\$10,000** per day in excess of the limitation as specified elsewhere in this special provision for each full day that the westbound shoulders are not complete and temporary traffic control devices remain. It shall be the responsibility of the engineer to determine the quantity of excess closure time.

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

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E. Liquidated Damages Specified JSP-93-28

**1.0 Description.** During the construction of the unbonded concrete overlay on the westbound lanes of J5I3397, if the contractor's work requires one or both of the following, the Commission, the traveling public, and state and local police and governmental authorities will be damaged in various ways, including but not limited to, increased construction administration cost, potential liability, traffic and traffic flow regulation cost, traffic congestion and motorist delay, with its resulting cost to the traveling public.

- the closure of the westbound exit ramp to Highway T/C (Doolittle Newburg) for more than **five (5) days**, and/or
- the closure of the westbound entrance ramp from Highway T/C for more than **five (5) days**

**1.1** 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 **\$5,000** per day in excess of the limitation as specified elsewhere in this special provision for each full day that either ramp is closed in excess of the stipulated five day maximum and temporary traffic control devices remain. It shall be the responsibility of the engineer to determine the quantity of excess closure time.

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

F. Liquidated Damages Specified JSP-93-28

**1.0 Description.** If the construction of the WBL inside and outside temporary alternate shoulder through the limits of the J5I3572 are not complete and open to traffic by **January 31, 2023 (first year of construction)**, the Commission, the traveling public, and state and local police and governmental authorities will be damaged in various ways, including but not limited to, increased construction administration cost, potential liability, traffic and traffic flow regulation cost, traffic congestion and motorist delay, with its resulting cost to the traveling public. These damages are not reasonably capable of being computed or quantified. Therefore, the contractor will be charged with liquidated damages specified in the amount of **\$10,000** per day in excess of the limitation as specified elsewhere in this special provision for each full day that the westbound shoulders are not complete and temporary traffic control devices remain. It shall be the responsibility of the engineer to determine the quantity of excess closure time.

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

G. 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.



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James V. Beattie, P.E.  
Transportation Project Manager  
MoDOT, Central District – Design  
1511 Missouri Boulevard  
Jefferson City, MO. 65102

(573) 751-5217 (Office)  
(573) 508-4967 (Cell)  
Email: [james.beattie@modot.mo.gov](mailto:james.beattie@modot.mo.gov)

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

H. 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) 368.2345	
City of Rolla Fire & Rescue: (573) 364.3989	St. James Ambulance District: (573) 265.6565
City of Rolla Police Dept.: (573) 308-1213	Doolittle Rural Fire Protection District: (573) 762.3474
North Crawford County Ambulance District: (573) 885.3793	
MoDOT Customer Services: (888) 275-6636	

**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.

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I. Utilities JSP-93-26F

**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>
<b>Ameren Missouri Gas</b> (800) 552.7583	<b>None</b>	Gas
<b>AT&amp;T Distribution</b> (314) 275.0020	<b>None</b>	Fiber, Telephone, TV
<b>Cable America</b> Jim Allen (573) 528-9516 jallen@cablemo.com	<b>None</b>	Fiber, Telephone, TV
<b>CLTCL – CenturyLink</b> Chris Mueller (573) 341-0452 Chris.Mueller@lumen.com	<b>None</b>	Fiber, Telephone, TV
<b>Charter Communications</b> Ky Nichols (636) 387.6648 Ky.nichols@chartercom.com	<b>None</b>	Fiber, TV
<b>City of Doolittle</b> (573) 465.2523	<b>None</b>	Storm, Water
<b>City of Rolla Public Works</b> Darin Pryor (573) 364.8659 dpryor@rollacity.org	<b>None</b>	Storm, Sanitary, TS, SD
<b>City of St. James Public Works</b> Lyle D. Thomas (573) 265.7011 lthomas@stjamesmo.org	<b>None</b>	Electric, Gas
<b>Fidelity Communications</b> Roger Halmick (573) 468.1082 Roger.halmick@fidelitycommunications.com	<b>None</b>	Fiber, Telephone, TV
<b>Intercounty Electric Coop</b> David Walker (573) 674.2211 David.walker@ieca.coop	<b>None</b>	Electric, Telephone
<b>Level 3 Now CenturyLink aka Lightcore</b> Jeffrey Reynolds (877) 366.8344 Jeffrey.reynolds@lumen.com	<b>None</b>	Fiber
<b>Missouri University of Science &amp; Technology</b> (573) 341.4044	<b>None</b>	Electric, Fiber, Storm, Sanitary, SD, SL, Water

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<b>MoDOT Central District</b> Jason Morff (573) 526.3207 Jason.Morff@modot.mo.gov	<b>None</b>	Electric, Fiber, TS, SL
<b>MOGAS Pipeline LLC</b> Dan Klein (636) 856-8035 dklein@mogaspipeline.com	<b>None</b>	Gas
<b>Nustar Pipeline Company LP</b> Bill Fogarty 800-759-0033 Bill.fogarty@nustarenergy.com	<b>None</b>	Pipeline
<b>Phelps County PWSD 2</b> Josh Thompson (573) 364.8790 jthompson@alliancewater.com	<b>None</b>	Water
<b>Rolla Municipal Utilities</b> Chad Davis (573) 364.1572 cdavis@rollamunicipalutilities.com  Dale Brown (573) 364.1572, ext. 1531 dbrown@rollamunicipalutilities.org	<b>None</b>	Electric, Fiber, Water

**1.1 Known Utility Facilities;** The Contractor shall be aware there are numerous utilities present along this corridor. The extents of the utility conflicts are unknown. However, if conflicts are encountered the Contractor shall be required to move their operation to another location until the utility can be relocated or the Engineer determined another course of action. There shall be no delay claims until such time the Contractor has no place to work except in the areas of the utility conflict and as approved by the engineer. The Contractor shall be proactive in the discovery of utility conflicts. The Contractor is recommended, after award of the project, to have all utilities marked along the project to visually see where conflicts may occur. Any conflicts discovered and cleared before construction begins will help the Contractor's progress on the project. MoDOT utilities staff will assist in relocation of utilities if necessary. There will be no direct pay for compliance to the above specification.

**1.2 Overhead electric line** crossings (some with communications/cable TV lines) occur near Doolittle (1), Rolla (10), St James (8), and near Route F (1). Gasconade Cooperative Electric, Intercounty Electric Cooperative Association, Crawford Cooperative Electric Inc., City of Rolla, and City of St. James maintain these lines. The Contractor shall use caution when working near any overhead lines and shall contact the utility companies at least two (2) weeks in advance if line protection is necessary. The Contractor shall be responsible for any damage to the overhead lines. There will be no direct pay for compliance to the above specification.

**1.3 Lumen (Lightcore/DTI)** exists throughout the route, mostly along the north and south side of the eastbound lanes, with side crossings at Doolittle, several through Rolla and St. James, and several east of St. James. No conflicts are anticipated. The contractor shall be responsible for any damage to the fiber optic cable resulting from their construction. There will be no direct pay for compliance with this specification.

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**1.4 The Cities of Rolla and St. James** have electric, gas, sewer, and water lines which cross I-44. Some protection of facilities may be required along the shoulder work anticipated just west of Rolla, and for Job No. J5I3572. However, no relocations are anticipated. There will be no direct pay for compliance with this specification.

**1.5 Numerous underground lighting and ITS conduits** exist throughout the corridor. Minor adjustments at best are anticipated. Any adjustments to these underground cables and conduits will be provided under Job No. J5I3397.

**1.6 The Nustar Pipeline** crosses I-44 just west of the Route 8/68 interchange. It is anticipated that this pipeline will remain in place. The Nustar line may need additional protection during the reconstruction of the eastbound lanes under Job No. J5I3572. The contractor shall not perform any excavation work near the pipelines without a representative of the pipelines on site. The pipelines may advise the Contractor to use lightweight excavation equipment above their facilities. The Contractor shall be responsible for any damage to the underground pipelines.

**1.7 A MOGAS Pipeline** crosses I-44 between the Route 8/68 interchange and the Route F interchange. It is anticipated that this pipeline will remain in place. The pipeline will not require protection since only cold milling and resurfacing are proposed east of the Route 8/68 interchange. The contractor shall not perform any excavation work near the pipelines without a representative of the pipelines on site. The pipelines may advise the Contractor to use lightweight excavation equipment above their facilities. The Contractor shall be responsible for any damage to the underground pipelines.

**2.0** 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.

#### 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.

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- (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.

**4.1.1** Contractor shall submit a completed two-week schedule no later than noon of the last workday prior to the start of the proposed schedule. Failure to submit a two-week schedule may result in suspension of work for that period. Re-scheduling of work will require a minimum 24-hour advance notification from the contractor unless otherwise allowed 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.

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**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 and 5.2.

**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.

**5.2** Inspection and testing required for grading and removals shall be the responsibility of the contractor. Submittal of the 200 Grading and Removals Checklists are required.

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

K. MoDOT's Construction Workforce Program NJSP-15-17A

## **1.0 Description.**

**1.1** Projects utilizing federal funds include contract provisions for minority and female workforce utilization in the various trade crafts used to complete construction contracts. These federal contract workforce goals are described in the section labeled "Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity". These goals are included in all MoDOT federal aid contracts and are under the authorization and enforcement of the U.S. Department of Labor (US DOL).

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**1.2** The Federal workforce requirement (Goals – TABLE 1) is authorized in 41 CFR Part 60-4 and Executive Order 11246 which set Equal Employment Opportunity goals with Affirmative Action requirements.

**1.3** The required federal aid workforce provisions noted above, coupled with the following additional contract provisions, constitute MoDOT's Construction Workforce Program herein called Program.

**1.4** This provision does not require pre-qualification nor is it a condition of award.

**1.5** The Program does not eliminate or limit any actions the US DOL may take in relation to this contract's federal provisions.

**1.6** The Program goals included in the contract are separate from any Disadvantaged Business Enterprise (DBE) or On-The-Job (OJT) training provision that may be included as contract provisions. DBE and OJT goals may or may not be included in a contract based on the individual size of contracts, type of contract work, anticipated length of contract, available and willing resources or other reasons.

**1.7** Contractor, for the purpose of this provision, means the prime contractor and any and all subcontractors.

**1.8** It is expected that the contractor recognizes the construction workforce goals for both minority and female workers in the project's county and make efforts to attain those goals, if possible, through the existing workforce makeup of the prime (including subcontractors) that will be on the project and/or through hiring opportunities that may arise for the project. However, it is not the intent of this provision to compel any contractor to displace existing workforce or move workers around to just meet the workforce goals.

**1.9** If the contractor's existing Missouri construction workforce meets or exceeds the federal workforce goals established in Table 1, then the OJT goal (Training Provision) if included in the contract, does not be apply.

**1.10** Contractor's Workforce Plan. The Contractor shall submit its Workforce Plan a minimum of 1 week before construction starts. One plan shall be submitted for the project that shall include the cumulative planned workforce of the prime and subcontractor(s). The contractor shall prepare the plan, for total minority and female utilization, regardless of the craft. The Engineer will provide the Contractor with comments regarding their Workforce Plan prior to the start of construction. Once work starts, all monthly reporting shall include the craft of each worker reported. If the contractor's plan includes project manager, direct project support roles, project testers or other project professionals, these designations should also be included in addition to the workers designated by craft such as laborer, operator, carpenter, ironworker, and others.

**1.11** The plan accepted by the engineer before the start of construction will be the effort expected of the prime contractor to maintain during the life of the project.

**1.12** If the contractors planned project workforce plan (including OJT hours if included in the contract) is short of the goals included in Table 1, there is opportunity for the contractor to receive a reimbursement of \$10.00 / hour for any new project minority and female hires needed through the remainder of the project. The reimbursement is applicable to work that qualifies for prevailing

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wage under the federal Davis-Bacon Act, 40 U.S.C. §§ 3141–3148, in accordance with an approved workforce plan. Any reimbursement must be pre-approved by the Engineer. The reimbursement is provided as a remedy to the contractor and as an aid in the long-term growth of experienced persons in the building of roads and bridges in Missouri. The contractor shall manage the plan through the life of the project as described in the plan or as modified, in coordination with the Engineer. The total amount available per project is not capped.

**1.13** The Contractor's workforce plan may include existing construction support and professional services staff.

**2.0 Forms and Documentation.** The bidder must submit the following documents if awarded the contract:

**2.1** Cumulative Workforce Utilization Reports. This report is contract specific. One report shall be submitted to the Engineer by the 15th of each month. The report will be used to report the total workforce compliance data for the prime contractor and all subcontractors retained by the contractor on the Commission's construction contract. The reporting shall include the workforce hours per each craft broken down by gender and ethnicity. Construction Support, testing and other professional services hours shall be included as these hours are part of the overall plan. The report will include the previous month's hours worked for the project. For projects less than 60 days in length, only one report with total hours worked by classification is required at substantial completion of construction.

### **3.0 Methods for Securing Workforce Participation and Good Faith Efforts.**

**3.1** By submitting a bid, the Bidder agrees, as a material term of the contract, to carry out MoDOT's Construction Workforce Program by making good-faith efforts to utilize minority and female workers on the contractor's job sites to the fullest extent consistent with submitting the lowest bid to MoDOT. The Bidder shall agree that the Program is incorporated into this document and agree to follow the Program. If a bidder is unable to meet the workforce goals at the time of bid, it shall be required to objectively demonstrate to MoDOT that the goals have been met or demonstrate a good faith effort has been made with the level of effort submitted prior to the start of construction.

**3.2** The Engineer, through consultation with MoDOT's External Civil Rights (ECR's) Division, may determine that the contractor has demonstrated that good-faith efforts to secure minority and female participation have been made.

**3.3** In evaluating good-faith efforts, the ECR's Division will take into consideration the affirmative actions listed in the Federal Provisions (including provisions of Executive Order 11246).

**3.4** MoDOT's Program allows the contractor flexibility to implement a project specific workforce and improve the diversity of their existing workforce that can be utilized across various areas of the state to meet future MoDOT Program goals and Federal Provisions.

**3.5** If the contractor's approved plan changes during the project and/or the available workforce changes from what is approved at any time, it is the contractor's responsibility to remedy, in coordination with MoDOT's ECR Division, the conditions as outlined and made available through this provision.



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**4.0 Compliance Determination.** (Required with project closeout). All documentation and on-site information will be reviewed by MoDOT's ECR Division in making a determination of whether the contractor made sufficient good faith efforts to meet the compliance with MoDOT's Construction Workforce Program.

**5.0 Liquidated Damages.** If the contractor elects to not submit a workforce plan prior to work starting or fails to fulfill their workforce plan committed to prior to the start of construction, the contractor will be required to establish a good-faith effort determination, as to why either of these events occurred. MoDOT may sustain damages, the exact extent of which would be difficult or impossible to ascertain, as this impacts the cost of future road and bridge construction. Therefore, in order to liquidate those damages, MoDOT shall be entitled, at its sole discretion, to deduct and withhold the following amounts: The sum of one thousand five hundred (\$1,500)

**6.0 Administrative Reconsideration.** The contractor shall be offered the opportunity for administrative reconsideration upon written request related to findings and/or actions determined by MoDOT's ECR's Division. The Administrative Reconsideration Committee shall be composed of individuals not involved in the original MoDOT determination(s).

**7.0 Available Pre-Apprentice Training Programs.** The Commission has established a labor force recruiting program intended to assist contractors in identifying, interviewing and hiring qualified job applicants. MoDOT strongly encourages the hiring of individuals from the MoDOT funded pre-apprentice training programs.

**8.0 Independent Third-Party Compliance Monitor (Monitor).** MoDOT may utilize a monitor that will be responsible for tracking the project's workforce utilization for the information the contractor submits. The contractor and its subcontractors shall allow the monitor access to their reports, be available to answer the monitor's questions and allow the monitor to access to the site and to contractor and subcontractor employees. The monitor shall abide by the contractor's project site protocols.

**9.0 Regional Diversity Council (Council).** (Applicable to the Kansas City and St. Louis District regions only). The Council shall consist of local community leaders, leadership of local construction trades, MoDOT staff, Industry representation, and a representative(s) from the Federal Highway Administration. The Council will meet quarterly and evaluate the workforce activity per each project according to the following criteria:

- (a) Review monthly workforce reports.
- (b) Review progress toward the stated project workforce program.
- (c) Review findings of Administrative Reconsideration hearings.
- (d) Recommend other workforce actions to MoDOT.

## **10.0 Federal Workforce Goals.**

Female Participation for Each Trade is 6.9% Statewide for Missouri.

Minority Participation for Each Trade is shown below in Table 1.

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**TABLE 1:**

<b>County</b>	<b>Goal (Percent)</b>	<b>County</b>	<b>Goal (Percent)</b>
Adair	4	Linn	4
Andrew	3.2	Livingston	10
Atchison	10	McDonald	2.3
Audrain	4	Macon	4
Barry	2.3	Madison	11.4
Barton	2.3	Maries	11.4
Bates	10	Marion	3.1
Benton	10	Mercer	10
Bollinger	11.4	Miller	4
Boone	6.3	Mississippi	11.4
Buchanan	3.2	Moniteau	4
Butler	11.4	Monroe	4
Caldwell	10	Montgomery	11.4
Callaway	4	Morgan	4
Camden	4	New Madrid	26.5
Cape Girardeau	11.4	Newton	2.3
Carroll	10	Nodaway	10
Carter	11.4	Oregon	2.3
Cass	12.7	Osage	4
Cedar	2.3	Ozark	2.3
Chariton	4	Pemiscot	26.5
Christian	2	Perry	11.4
Clark	3.4	Pettis	10
Clay	12.7	Phelps	11.4
Clinton	10	Pike	3.1
Cole	4	Platte	12.7
Cooper	4	Polk	2.3
Crawford	11.4	Pulaski	2.3
Dade	2.3	Putnam	4
Dallas	2.3	Ralls	3.1
Daviess	10	Randolph	4
DeKalb	10	Ray	12.7
Dent	11.4	Reynolds	11.4
Douglas	2.3	Ripley	11.4
Dunklin	26.5	St. Charles	14.7
Franklin	14.7	St. Clair	2.3
Gasconade	11.4	St. Francois	11.4
Gentry	10	Ste. Genevieve	11.4
Greene	2	St. Louis City	14.7

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Grundy	10	St. Louis County	14.7
Harrison	10	Saline	10
Henry	10	Schuyler	4
Hickory	2.3	Scotland	4
Holt	10	Scott	11.4
Howard	4	Shannon	2.3
Howell	2.3	Shelby	4
Iron	11.4	Stoddard	11.4
Jackson	12.7	Stone	2.3
Jasper	2.3	Sullivan	4
Jefferson	14.7	Taney	2.3
Johnson	10	Texas	2.3
Knox	4	Vernon	2.3
Laclede	2.3	Warren	11.4
Lafayette	10	Washington	11.4
Lawrence	2.3	Wayne	11.4
Lewis	3.1	Webster	2.3
Lincoln	11.4	Worth	10
		Wright	2.3

**STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION  
CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246)**

This contractor and subcontractor shall abide by the requirements of 41 CFR 60-1.4(a), 60-300.5(a) and 60-741.5(a). These regulations prohibit discrimination against qualified individuals based on their status as protected veterans or individuals with disabilities, and prohibit discrimination against all individuals based on their race, color, religion, sex, sexual orientation, gender identity or national origin. Moreover, these regulations require that covered prime contractors and subcontractors take affirmative action to employ and advance in employment individuals without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, disability or veteran status.

As used in these specifications:

"Minority" includes;

- (i) Black (all person having origins in any of the Black African racial groups not of Hispanic origin);
- (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
- (iii) Asian and pacific islander (all persons having origins in any of the original peoples of the Far East, southeast Asia, the Indian Subcontinent, or the Pacific Islands; and
- (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North American and maintaining identifiable tribal affiliations through membership and participation or community identification).

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L. Alternates for Pavements JSP-96-04G

**1.0 Description.** This work shall consist of a pavement composed of either portland cement concrete or asphaltic concrete, constructed on a prepared subgrade in accordance with the standard specifications and in conformity with the lines, grades, thickness and typical cross sections shown on the plans or established by the engineer.

**1.1** Separate pay items, descriptions and quantities are included in the itemized proposal for each of the alternates. The bidder shall only bid one of the alternates and leave the contract unit price column blank for any pay item listed for any other alternate. If the bidder leaves any value in the unit price column for another alternate other than the one they are bidding, the bid will be rejected.

**2.0 Mainline Pavements**

**2.0.1** A sum of \$162,400 will be added by the Commission to the total bid using an asphalt alternate for the J5I3397 Alternate A pavement for bid comparison purposes to factor in life cycle cost analysis of the roadway. The additional amount added will not represent any additional payment to be made to the successful bidder and is used only for determining the low bid.

**2.0.2** A sum of \$3,294,400 will be added by the Commission to the total bid using an asphalt alternate for the J5I3572 Alternate A pavement for bid comparison purposes to factor in life cycle cost analysis of the roadway. The additional amount added will not represent any additional payment to be made to the successful bidder and is used only for determining the low bid.

**2.1 Shoulders**

**2.1.1** A sum of \$1,002,800 will be added by the Commission to the total bid using an asphalt Shoulder alternate for the Alternate C pavement for J5I3572 for bid comparison purposes to factor in life cycle cost analysis of the roadway. The additional amount added will not represent any additional payment to be made to the successful bidder and is used only for determining the low bid.

**2.2** The quantities shown for each alternate reflect the total square yards of pavement surface designated for alternate pavement types as computed and shown on the plans. No additional payment will be made for asphaltic concrete mix quantities to construct the required 1:1 slope along the edge of the pavement, or for tack applied between lifts of asphalt.

**2.3** The grading shown on the plans was designed for the thinner concrete pavement alternate.

**2.4** Pavement alternates composed of Portland cement concrete shall have contrast pavements for intermittent markings (skips), dotted lines, and solid intersection lane lines. The pavement markings shall comply with Sec 620. No additional payment will be for the contrast pavement markings.

**3.0 Method of Measurement.** The quantities of concrete pavement will be measured in accordance with Sec 502.14. The quantities of asphaltic concrete pavement will be measured in accordance with Sec 403.22.

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**4.0 Basis of Payment.** The accepted quantity of the chosen alternate and other associated items will be paid for at the unit price for each of the appropriate pay items included in the contract.

**4.1** The use of Pavement Edge Treatment will not be quantified for this project and will be considered incidental to Alternate Pavement and/or Modified Linear Grading, Class II.

M. Contractor Quality Control for Plant Mix Bituminous Surface Leveling NJSP-15-21A

**1.0 Description.** The contractor shall provide Quality Control (QC) testing and shall perform verification procedures associated with the production and placement of Plant Mix Bituminous Surface Leveling Mixture in accordance with this provision.

**2.0 Asphalt Plant Requirements.** The contractor shall perform quality control testing in the production of the Surface Leveling Mixture and report the results electronically on MoDOT-provided forms. All reports shall include the Contract ID, Project Number, Route, County, and Job Mix number.

**2.1** Calibration of the asphalt plant shall be in accordance with Sec 403.17.2.2. Record retention for verification of test reports shall be in accordance with Sec 403.17.3.2.

**2.2** At a minimum, the contractor shall perform one QC sieve analysis test for each day of production of Surface Level mixture in excess of 100 tons to verify the aggregate is within the required gradation range. Results of the QC sieve analysis test shall be reported to the engineer daily. A split of each sample shall be clearly labeled and stored by the contractor in a manner that prevents contamination. The engineer will collect a minimum of one random QC split sample, and one full sample from plant production, for testing per each 10,000 tons of production. Uncollected QC split samples shall be retained by the contractor until the engineer authorizes disposal or until the Final Inspection, whichever occurs earlier.

**2.3** The contractor shall monitor the quantity of asphalt binder used in the production of the mix, including any commercial mix, and report that quantity to the engineer. Original asphalt binder delivery tickets shall accompany the report submitted to the engineer. The engineer will perform a minimum of one asphalt binder content test per each 10,000 tons of production for any project that exceeds a total of 5,000 tons of production.

**2.4** The contractor shall take a daily QC sample of the asphalt binder per instructions in Section 460.3.13 of the EPG. The engineer will collect the QC samples and ship to the MoDOT Central lab for random testing. In addition, the engineer will take a minimum of one random Quality Assurance sample per project from the binder line. The engineer sample will be shipped to the Central Lab along with the daily samples and will be designated for testing.

**2.5** The contractor shall perform one moisture content test for each day of production of Surface Level mixture in excess of 100 tons. The frequency of the moisture test may be reduced if approved by the engineer.

**3.0 Roadway Requirements.** The contractor shall perform quality control verification of the Surface Leveling Mixture on the roadway and shall monitor the asphalt tonnage placed in relation to plan quantity.

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**3.1 Irregularities.** Additional tons of Surface Leveling mix will be provided for irregularities in the existing roadway surface. The tonnage specified for irregularities is an estimated quantity and shall only be placed at locations where it is necessary to fill ruts and other low points. Prior to placing the mix, the contractor and engineer shall evaluate the entire route and develop a plan that best utilizes the tonnage needed for irregularities. Any excess quantity of irregularities shall not be placed.

**3.2 Tack.** On the first day of production, the contractor shall demonstrate proper application of tack coat in the presence of the engineer. Thereafter, when the engineer is not present to witness the application of the tack coat, the contractor shall document the tack application by taking a minimum of two high-resolution date/time stamped photographs of the tacked surface per one-mile segment. Pictures should be taken just in front of the paver in order to account for loss of tack from truck tires. The contractor shall also monitor and document the application rate. The contractor shall take distributor readings at the beginning and ending of each shift and document the quantity used.

**3.3 Spreading and Rolling.** On the first day of production, the contractor shall demonstrate successful spreading and compaction of the mixture, including proper rolling patterns, in the presence of the engineer. Thereafter, the contractor shall monitor all roadway production procedures and document daily. Use of approved Intelligent Compaction technology is an allowable substitute for daily documentation.

**3.4 Monitoring of Quantity.** The contractor shall monitor the quantity of Surface Level mix placed and report that information to the engineer and production staff as specified herein.

**3.4.1** The contractor shall verify that the quantity of Surface Leveling mix in the contract for each route is sufficient to cover the roadway as shown on the typical sections, including any surface irregularities. Any discrepancies shall be brought to the engineer's attention in writing prior to the pre-construction conference. Plan quantity shall be defined as the total tons computed to cover the surface area according to the typical section, plus any amount pre-approved by the engineer for pavement irregularities.

**3.4.2** The contractor shall provide temporary log mile reference points at no less than ½ mile intervals along each route to monitor the tons of Surface Leveling mix laid in relation to plan quantity. Entrances, shoulders, or other irregular areas will be monitored as directed by the engineer.

**3.4.3** During production, the contractor shall document the total tons placed in each one-mile segment, along with the plan quantity and the percent over/under for that segment. The cumulative quantity and percent over/under for the route should also be documented. After each one-mile segment, the contractor shall provide a status report to the production manager and the engineer. When the engineer is not present on the project, the contractor shall send an electronic status report to the engineer.

**3.4.4** The goal is to keep the placed quantity within 2% of plan quantity for the project. The engineer will monitor the status reports and will advise the contractor on how to proceed when there is an excessive variance from plan quantity. The engineer may decrease the frequency of the electronic status reports when the variances are consistently low.

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**3.4.5** The contractor shall collect asphalt tickets from the delivery trucks and group them per each one-mile segment. The contractor shall submit to the engineer a daily summary report that includes all of the information specified in Section 3.4.3. The contractor shall sign the summary report confirming that the information is accurate and that the attached tickets represent the asphalt material placed.

**3.4.6** The contractor shall be equipped with a contractor-furnished cellular device capable of providing and maintaining a reliable means of immediate communication with the engineer when the engineer is not present on the project.

**4.0 Excessive Quantity.** If the contractor places Surface Level mix on any one-mile segment, or any other isolated areas, in excess of plan quantity by 5% or more, without prior approval from the engineer, further investigation may be required to determine if the excess was warranted. If directed by the engineer, the contractor shall core the pavement at locations established by the engineer to determine the amount that was excessive, if any. No payment will be made for the cost to core the pavement or for the tons of Surface Level mix that the engineer determines to be excessive. If the amount of Surface Level mix is determined to be justified, payment will be made for the mix, and for the cost of coring at the fixed price established in Sec 109. Placement of asphalt in excess of plan quantity for two consecutive segments without prior approval from the engineer may result in issuance of an Order Record to stop work.

**5.0 Basis of Payment.** No direct payment will be made for compliance with this provision. All costs shall be considered completely covered under the pay items provided in the contract.

#### N. Pavement Smoothness for UBAWS NJSP-17-05

**1.0 Description.** Pavement smoothness shall be in accordance with Sec 610 except as modified in this provision. This provision adds Section 413.30 UBAWS mix type to the pavement smoothness requirement.

**2.0** Delete Sec 610.1 and insert the following:

**610.1 Description.** This work shall consist of measuring the smoothness of the final pavement surface. Smoothness shall be measured using the International Roughness Index (IRI). The following pavement types shall comply with this specification:

- a) Multi-lift asphalt construction contained in Sections 401, 403, and **413.30, including any combination of these mix types.**
- b) Concrete pavement construction contained in Sections 502 and 506.
- c) Combination of surface planing, such as diamond grinding or milling, and single lift asphalt construction contained in Sections 401, 403, and **413.30, including any combination of these mix types.**
- d) Single lift asphalt construction contained in sections 401, and 403.
- e) **Single lift asphalt construction contained in section 413.30.**

**3.0** Add section 610.5.2.2

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**610.5.2.2** The contract price for resurfacing pavement types described in Section 610.1 (e) will be adjusted based on the improvement in profile index according to Table 4 for each segment with an initial IRI greater than 60 inches per mile.

Any segment with an initial IRI less than or equal to 60 inches per mile shall receive no percent improvement price adjustment if the segment IRI after placement of the overlay is also less than or equal to 60 inches per mile.

Any segment with an initial IRI less than or equal to 60 inches per mile that has an IRI greater than 60 inches per mile after placement of the overlay shall be paid at 97 percent of the contract unit price for pavement.

Table 4	
Percent Improvement (Change in IRI / Initial IRI) X 100	Percent of Contract Unit Price For Pavement
20.0 or greater	103
5.0 to 19.9	100
0.0 to 4.9	97
Below 0.0	97 <sup>d</sup>

<sup>d</sup> After correction to 0.0 or greater.

#### O. Jointing for Concrete Pavement

**1.0 Description.** This provision shall pertain to locations where the concrete alternate is selected for use as either a shoulder or mainline pavement.

**2.0 Construction Requirements.** The contractor shall provide a proposed jointing layout to the engineer at least five (5) days prior to the scheduled concrete pour for review. Approval of the jointing layout must be given prior to the start of concrete placement of pavement or could be subject to rejection if layout is not acceptable to the engineer.

**3.0 Basis of Payment.** No payment will be made for compliance to this specification.

#### P. 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

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



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- a) **25-Foot maximum** equipment operating height for all expected construction activities outside lighting.

**2.0** 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.

**2.1** 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 not be compensated for.

Q. Damage to Existing Pavement, Side Roads, and Entrances

**1.0 Description.** This work shall consist of repairing any damage to existing pavement, shoulders, side roads and entrances caused by contractor operations. This shall include, but is not limited to, damage caused by the traffic during contractor operations within the project limits including the work zone signing.

**2.0 Construction Requirements.** Any cracking gouging, or other damage to the existing pavement, shoulders, side roads, or entrances from general construction shall be repaired within twenty-four (24) hours of the time of damage at the contractor's expense. Repair of the damaged pavement, shoulders, side roads, or entrances shall be as determined by the engineer.

**3.0 Method of Measurement.** No measurement of damaged pavement or shoulder areas or damaged side roads or entrances as described above shall be made.

**4.0 Basis of Payment.** No payment will be made for repairs to existing pavement, shoulders, side roads or entrances damaged by contractor expenses.

R. Construction Staging Sequence

**1.0 Description.**

**1.1** The Traffic Control Plans depict one of a number of scenarios for potential construction staging. Because of the size of the project, it may be necessary for the contractor to have multiple operations ongoing at the same time in order to meet the stipulated schedule. Other circumstances may also require the contractor to deviate from the staging sequence shown. For example, the contractor shall be required to remove existing improvements, clear the right of way, or complete partial grading for work in subsequent stages or phases in order to allow the next

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phase to proceed. The engineer shall approve any deviation in the staging sequence shown on the Traffic Control Plan.

**1.2** The contractor will be responsible for maintaining and removing all temporary pavements, temporary surfacing, and temporary connections.

**1.3** The contractor shall construct all permanent stormwater drainage inlets or pipes as necessary to drain the project during construction utilizing the phasing shown on the Traffic Control Plans. In addition, in order to follow the phasing, the contractor may be required to provide temporary ditching, temporary pipes or culverts, temporary pipe plugs, temporary inlet covers, or other temporary measures necessary to adequately drain stormwater from the project as well as eliminate the ponding of stormwater at localized depressions. The engineer shall approve all temporary drainage. No direct payment will be made for temporary pipe plugs, temporary pipes or culverts, temporary inlet covers, or temporary ditching.

## **2.0 Potential Order of Work.**

### **2.1 Construction Year 2022**

- a) Pavement Repairs throughout corridor (single lane closures)
- b) Inside Shoulder
  - i. WB Replacement (Doolittle)
  - ii. WB Replacement (St. James to Rolla)
- c) Outside Shoulder
  - i. WB Replacement (St. James to Rolla)
- d) WB Bridge Rehab and transitional milling
- e) WB Resurfacing (Except portion between St. James and Rolla) – Night Work
- f) WB Guardrail / barrier replacement (late in year)

### **2.2 Construction Year 2023**

- a) EB Guardrail / barrier replacement (early before paving can occur)
- b) Unbonded Overlay (Doolittle)
- c) EB reconstruction
- d) EB Bridge Rehab
- e) EB Resurfacing
- f) WB Resurfacing (St. James to Rolla)
- g) Median Guard Cable (late in year)

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

## **S. 3- or 4- Strand High Tension Cable Barrier JSP 06-07C**

**1.0 Description.** This work shall consist of all labor, equipment, and materials to remove, install, repair, and replace a 3- or 4- strand cable barrier system including all hardware and appurtenances as shown on the plans or as directed by the engineer. The cable barrier system shall function in accordance with the requirements of NCRHP 350, Test Level 3, and be approved by the Federal Highway Administration. Test Level 3 acceptable products, for use as a cable

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barrier system, are included in the list of pre-qualified products displayed on MoDOT's website. Acceptable products shall include a concrete socketed line post system with galvanized high-tension wire ropes and anchorages. The cable barrier system shall be constructed as shown on the plans, with a maximum deflection of 9 feet.

**2.0 Construction Requirements.** Line posts shall be provided in accordance with the manufacturer's shop drawings and shall be placed plumb. Spacing of the posts shall not exceed 20 feet.

**2.1 Anchor Assemblies.** An anchor assembly, as specified in the manufacturer's shop drawings, shall be constructed at each end of a cable barrier run. The anchor assembly shall function in accordance with the requirements of NCRHP 350, Test Level 3, and be approved by the Federal Highway Administration. Anchors shall be constructed on firm, stable, undisturbed soil to the minimum dimension shown on the shop drawings. Anchor bolts and anchor post slip bases shall be firmly held in position at the top by templates during concrete replacement. Backfill shall be thoroughly compacted with mechanical tampers with care taken to prevent damage to the finished concrete. Backfill shall be brought up level with the finished grade line.

**2.2 Cable.** The galvanized wire rope shall be  $\frac{3}{4}$ " pre-stretched 3 x 7 construction as approved by the Federal Highway Administration during the system's acceptance testing. Threaded terminals (wedge or swaged type) shall be furnished. Swaged terminals may be shop- or field-swaged. Threaded terminals shall be right hand (RH) or left hand (LH) threaded M 24 x 3 pitch to ANSI B 1.13 M. The body of the threaded terminal shall provide a minimum of 5.9" of wire rope penetration depth. Threaded terminals shall be galvanized after threading to ASTM A 151. Turnbuckle or rigging screws shall be of the size and shape shown in the manufacturer's shop drawings. Rigging screws shall be of a solid or closed body type with two inspection holes to determine threaded rope terminal penetration. Rigging screws shall be galvanized to ASTM A 153 after threading.

**2.3 Cable Tensioning.** The cable height above ground shall be in accordance with the manufacturer's shop drawings. The cable shall be tensioned immediately after initial installation. Tension shall be rechecked and adjusted, if necessary, three to five days after initial tensioning on cable system sections with lengths greater than 2500 feet. A tension log form shall be completed showing: the time, date, location, ambient temperature, and final tension reading, signed by the person performing the tensioning, and furnished to the engineer upon completion of the work. This form shall also include the system manufacturer's recommended tension chart.

**2.4 Delineators.** Delineator spacing and reflector colors shall be in accordance with Sec 606.10.

**3.0 Method of Measurement.** Measurement of the cable barrier will be made from center of line posts, totaled to the nearest linear foot.

**3.1 Anchor Assemblies.** Measurement of anchor assemblies will be made per each.

**4.0 Basis of Payment.** The accepted quantities of cable barrier, anchor assemblies, cable barrier to guardrail interfaces will be paid for at the contract unit price with Item No. 606-99.03 High Tension Guard Cable (per linear foot) and Item No. 606-99.02 HTGC Anchor Assembly (per each). Any anchor assembly required for cable to guardrail transition shall be considered included

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in the contract unit price for cable to guardrail transition. No direct payment will be made for delineators or setting post in rock.

T. Law Enforcement in The Work Zone JSP-15-03

**5.0 Description.** This project has been selected for use of law enforcement personnel in the work zone to help control traffic and promote safety.

**6.0 Traffic Control Plan and Preconstruction Conference.** The contractor shall present any variations planned to the Traffic Control Plan to the engineer prior to the preconstruction conference. Law enforcement agency representatives may be present at the preconstruction conference. The preconstruction conference will include discussion about the proposed strategy for use of law enforcement in the work zone. Based upon input from the law enforcement agency personnel, the engineer and the contractor, a strategy will be developed for best use of the law enforcement hours by spacing involvement at various times and durations throughout the life of the project.

**7.0 Control of Work.** The engineer will contact the law enforcement agency and make all arrangements to schedule this work. The contractor may make suggestions to the engineer for improving the strategy at any time. The engineer will contact the law enforcement agency with any approved changes.

**7.1** The engineer will make the final decision on all aspects of law enforcement in the work zone.

**8.0 Basis of Payment.** The Commission will reimburse the law enforcement agency per terms of the agreement between the two agencies. The contractor will not be part of that agreement and will not be required to participate in the cost. No direct payment will be made to the contractor for any costs associated with this provision.

U. Radar Speed Advisory System NJSP 21-06

**1.0 General.** The Radar Speed Advisory System (RSAS) shall be a portable, automated, and solar powered system that displays real-time speed data in operation 24 hours per day, seven days per week during active work zones for the duration of this contract.

**2.0 Description.** This item shall consist of furnishing, installing, relocating, operating, and removing a RSAS meeting the requirements noted herein, and providing a work zone specialist responsible for maintaining the system during the duration of this contract. The contractor shall assume responsibility for any damaged equipment due to crashes, vandalism, adverse weather, etc. that may occur during the system's deployment.

**2.1** The Contractor shall furnish and maintain this system for measuring and delivering real-time messages for the work zone.

**2.2** The contractor will be responsible to relocate the devices as directed by the engineer. When the equipment is not in use, it shall be turned away from traffic. When the equipment is no longer required for longer than a 24-hour period, the RSAS shall be stored in accordance with Section 107.5. When the equipment is no longer required for this contract, the contractor shall remove it and retain ownership.

**3.0 System Requirements.** The RSAS shall include a trailer with a 36"x24" Work Zone Plaque with a 36"x48" R2-1 sign that reflects the work zone speed limit. The signs shall be in accordance with Section 903. The trailer shall be marked with red and white conspicuity tape along the flat edges of the trailer tongue and framing.

**3.1** The RSAS shall be equipped with a radar unit equipped with a data logger designed to detect speed and quantity of approaching vehicles. It shall meet the following requirements:

- The radar unit shall detect approaching vehicles at a minimum of 1000 feet.
- The radar is accurate to plus or minus one mile per hour

**3.2** The RSAS display shall be at a height visible for situations where the trailer is behind a temporary barrier. The display shall meet the additional following requirements:

- Amber display with an automatic brightness control for high visibility in both daytime and nighttime situations.
- The display shall have a minimum character height of 18 inches.
- The display shall be legible at a minimum distance of 750 feet.
- The display allows input of the work zone speed in multiples of 5 miles per hour
- The display shall indicate the speed of the approaching vehicle when the speed is less than or equal to the work zone speed limit (Non-Flash Mode)
- The display shall indicate the speed of the approaching vehicle when the speed is 1-10 miles per hour greater than the work zone speed limit (Flash Mode)
- The display shall indicate "SLOW DOWN" when the speed of the approaching vehicle is greater than 10 miles per hour of the work zone speed limit.



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**3.3** The RSAS shall include a self-contained electrical power source that, with or without maintenance, will ensure continuous operation of the RSAS throughout the duration of this contract.

**3.4** The RSAS may be equipped with a high-speed Global Positioning System (GPS) and a cellular device to connect for remote management and data retention. If optioned for, the remote management and data application must provide the following:

- Allow users to configure, update, and monitor the operation of the RSAS, including review of the data collected in real-time, for the duration of this contract.
- The application shall display the specific project the RSAS is deployed on and the specific location of the RSAS on a map interface.
- Store and maintain traffic volume and speed data collected throughout the duration of this contract in a secure location.
- Allow users to download the data in an approved format

**3.5** The RSAS's sensors shall be side-fired microwave radar type whose accuracy is not degraded by inclement weather and visibility conditions including precipitation, fog, darkness, excessive dust and road debris. These sensors shall be capable of acquiring traffic data from up to three (3) lanes of traffic on a lane-by-lane basis.

**3.6** The RSAS shall be National Transportation Communications for ITS Protocol (NTCIP) compliant.

**3.7** The RSAS may be equipped with Red or Red and Blue Warning Lights that are in accordance with Section 616.5.1.1.

**4.0** Construction. Install the RSAS in accordance with the manufacturer's recommendations and the following requirements:

**4.1** Locate the RSAS downstream of the initial sign package, as shown in the plans or as directed by the engineer. Relocation of the trailer should be considered every two weeks or as required by the engineer.

**4.2** Orient the RSAS so the digital display and any other signing are fully visible to oncoming traffic.

**4.3** Ensure the RSAS is not obstructed by other traffic control devices, construction materials, or equipment and is able to detect traffic.

**4.4** Ensure the RSAS trailer is level while the wheels are elevated from the ground.

**4.5** Adjust the display brightness for maximum visibility.

**4.6** Ensure the controller is locked at all times and default passwords are not used.

**4.7** Update the R2-1 sign as necessary to reflect any changes in the speed throughout the project.

**4.8** If the RSAS malfunctions, it shall be turned away from traffic.

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**5.0 Method of Measurement.** Measurement of Radar Speed Advisory System will be per each individual Radar Speed Advisory System.

**6.0 Basis of Payment.** The accepted quantity of Radar Speed Advisory System will be paid for at the contract unit price for item number 616-10.95, "Radar Speed Advisory System" per each in accordance with Section 616.12.

V. Work Zone Intelligent Transportation System NJSP-15-32

**1.0 General.** The Work Zone Intelligent Transportation System (WZITS) shall be a portable, real-time, automated, solar powered system that calculates and displays travel time through work zones. The goal of this system is to provide advance traffic condition information to motorists at key decision points due to construction activity. The information reported to the public will include an accurate drive time through the work zone. This system shall be in operation 24 hours per day, seven days per week, **during** the construction period.

**2.0 Description.** This item shall consist of submittal and approval of a Work Zone Intelligent Transportation System plan, furnishing, installing, relocating, and operating a portable, automated, solar powered real-time work zone system ("Work Zone Intelligent Transportation System") meeting the requirements noted herein, and providing a system manager to maintain the system during the duration of the project. The contractor shall assume responsibility for any damaged equipment due to crashes, vandalism, adverse weather, etc. that may occur during the system's deployment.

**2.1** The Contractor shall furnish and maintain this system for measuring and delivering real-time messages for the work zone.

**2.2** The contractor is responsible for coordinating any work in adjacent roadway construction projects.

**2.3** The contractor will be responsible to relocate the devices as directed by the engineer. When the equipment is no longer required for this project, the contractor shall remove it and retain ownership.

**3.0 System Requirements**

**3.1** The Work Zone Intelligent Transportation System shall be installed on westbound Interstate 44 in advance of the Concrete Unbonded Overlay Work, on westbound Interstate 44 in advance of the bridge work over the tributary of the Bourbeuse River, on westbound Interstate 44 in advance of box culvert A12601 extension over East Fork of Little Beaver Creek, and on westbound and eastbound Interstate 44 in advance of eastbound lane reconstruction on project J5I3572. For the westbound I-44 Unbonded Concrete Overlay work between Rolla and Doolittle, it will be necessary to relocate the system at least six (6) times to limit the construction zone to less than one (1) mile. It shall consist of the following as a minimum:

- Eight (8) portable changeable message signs
- Eight (8) portable non-intrusive traffic sensors
- One (1) central computer

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#### 4.0 Smart Work Zone Plan

**4.1 General.** The contractor shall submit to the Engineer for approval a written and illustrated WZITS Plan three (3) weeks prior to mobilization of any component of the WZITS System. The WZITS Plan shall include the items required in this specification. The Contractor will not be allowed to start any construction activities that will affect traffic on the project until the WZITS Plan is approved by the Engineer.

**4.2 Content of the WZITS Plan.** The WZITS Plan shall include, as a minimum, the following items:

- (a) A detailed plan showing the proposed locations of all WZITS devices and equipment description including make and model.
- (b) A description of all proposed thresholds and proposed CMS messages to be implemented.
- (c) The name and contact information of the WZITS System Manager.
- (d) A detailed description of the proposed methods of communication between WZITS devices and WZITS Central Computer and between WZITS Central Computer and the District Office located at 1511 Missouri Blvd., Jefferson City, Missouri 65102.
- (e) Proposed corrective method procedures including response times and notification process.

**4.3 Approval of Plan.** Approval of the WZITS Plan by the Engineer is required prior to the placement of any WZITS devices. Approval is conditional and will be predicated on satisfactory performance during construction. The Engineer reserves the right to require the Contractor to make changes in the WZITS Plan and operations, at no additional cost to the Commission, including removal of personnel, as necessary, to obtain the quality specified. The Contractor shall notify the Engineer in writing a minimum of seven (7) calendar days prior to any proposed changes in the WZITS Plan. Proposed changes are subject to approval by the Engineer.

#### 5.0 Materials.

**5.1 Changeable Message Signs.** The Work Zone Intelligent Transportation System shall utilize MoDOT approved portable changeable message signs (CMS) in accordance with Missouri Standard Specifications for Highway Construction section 616 Temporary Traffic Control and 1063 Temporary Traffic Control Devices and Standard Plans for Highway Construction 616.10. Each CMS shall be capable of displaying eight characters on each of three rows. Each CMS power supply shall be properly sized to allow continuous operation for up to ten days during periods of darkness and inclement weather.

**5.2** Each CMS shall be integrated with a radio/modem, and/or a traffic sensor or other equipment (e.g. controller) mounted on it and shall act as a single “device” for the purpose of communicating with similarly integrated “devices” and displaying real-time traffic condition information. Each device shall be capable of communicating through radios/modems with other device(s) at upstream or downstream locations. MoDOT District staff must have the ability to



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override messages displayed on any CMS in the system. This feature must be password protected and, on a website, separate from MoDOT's public website.

**5.3 Portable Non-Intrusive Traffic Sensors.** The Smart Work Zone System traffic sensors shall be side-fired microwave radar type whose accuracy is not degraded by inclement weather and visibility conditions including precipitation, fog, darkness, excessive dust and road debris. These sensors shall be capable of acquiring traffic data from up to six (6) lanes of traffic on a lane-by-lane basis.

**5.4 Central Computer.** The central computer shall provide the functionality described below:

#### **General**

- Provide a Graphical User Interface that is compliant with Windows standards.
- Communication between the central computer and any device shall be independent and *non-reliant* upon communications with any other CMS or sensor.
- Alerts to MoDOT District staff and the Engineer shall be provided via pagers and/or e-mail. Alerts shall be sent in the event of device failure or traffic delays over 15 minutes.

#### **Data Processing Software**

- The capability to collect and store sensor data.
- The capability to compare traffic data collected from sensors to user-defined thresholds and automatically update one or more CMS's.
- The capability to estimate travel times and automatically update one or more portable CMS's consistent with user-defined thresholds.
- The capability to display alternate route messages consistent with user-defined thresholds.

#### **Data Management**

- Storage of speed, volume, occupancy, CMS message history, and travel times as well as appropriate sensor status for each day.

#### **Website**

- The Contractor will be responsible for hosting the website and obtaining domain names. Possible domain names and overall website design must be submitted to the Engineer for approval prior to it being made available.
- The website shall contain an accurate map of the area affected by the work zone, including state highways or routes that may be used as alternates.
- Icons or hyperlinked text should accurately depict the current location of the system components and give real-time information provided by each component. In the event components are moved to a new location, the website must reflect these changes to the system layout.
- Historical data should be password protected and stored on the website for each day the system is in use, with date and time stamps included. The above data shall be available to MoDOT staff at all times for the duration of work zone activity. An electronic copy of all data, including date and duration of system malfunction, shall be provided to MoDOT staff after all work zone activity is completed and the WZITS has been removed.
- The MoDOT District staff and the Engineer shall have the capability to override messages, via password protection, from the website.

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- Device information shall be provided to MoDOT TMC staff through icons or hyperlinked text representing each device. Detectors should provide real-time speeds at the respective locations and CMS's should provide the current message of each sign.
- The website shall be designed and operated to allow 20 users to access the site at one time.

**6.0 System Manager.** The contractor shall employ a system manager for the WZITS. The system manager shall be locally available to maintain system components, maintain the website, move portable devices as necessary, and respond to emergency situations. The system manager shall be responsible for coordinating the placement of devices in the project areas. It is the responsibility of the system manager to move system components that interfere with construction operations and relocate the components to another area. The system manager shall supply a local phone number and/or a toll free number to the engineer to contact the system manager or other system representative at any time. The system manager shall not perform any other duties on the jobsite.

**7.0 Operational Test.** Once the WZITS is installed, it shall undergo a five-day operational test. The operational test shall include a test of the system in operation during a lane closure to ensure that all WZITS equipment (including the changeable message signs, traffic sensors, central computer, communication devices, and website) is operating in a fully functional manner and in accordance with the Smart Work Zone Plan for a duration of at least five (5) calendar days. The contractor shall provide for complete operations support from the vendor during the operational test, and the contractor shall provide verification that the reported drive time through the work zone accurately reflects actual field conditions. If any equipment malfunctions occur for a combined period of four (4) hours or more during this operational test on any day, no credit will be given for that day for the operational test period, and the five-day operational test will reset.

**7.1** The contractor shall maintain records of equipment stoppages and resumptions during the five-day operational test for submission to the engineer for his approval. In the event that ten percent or more of the time similar malfunctions occur that affect the proper operation of the WZITS, the engineer may declare a system component defective and require replacement of the equipment at no additional cost. When a system component defect is declared, the five-day operational test shall begin again after all defective equipment is replaced and the system is fully operational.

**7.2 Report.** The contractor shall submit a report to the engineer detailing the daily activity of the system during the operational test. The report shall indicate the date and time of any activity necessary to maintain operation of the WZITS during the operational test period. Each entry shall include the following information:

- Identity of the equipment on which work was performed
- Cause of equipment malfunction (if known)
- A description of the type of work performed
- Time required to repair equipment malfunction

Once the operational test report is received and approved by the engineer, the WZITS will be considered operational and the system will be accepted for use.

**8.0 Method of Measurement.** Work Zone Intelligent Transportation System (WZITS) shall be measured by one lump sum and shall be divided into the following payment schedule:

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- 35 percent will be paid when all of the WZITS equipment is delivered to the jobsite.
- 25 percent will be paid when the engineer approves the Operational Test Report.
- 20 percent will be paid after 30 calendar days of full system operation.
- 20 percent will be paid after traffic is in its final position, the contractor's equipment has been removed from the project, and historical data has been provided to the engineer.

**8.1 Deduction for Failed System.** A percentage of the lump sum will be deducted should the system malfunction for three (3) or more consecutive calendar days or any total of five (5) calendar days in any one calendar month after the approval of the operational test. This deduction will be based on a ratio of calendar days of unsuccessful operation to total calendar days of operation following the approval of the operational test. This deduction will not reduce the total system payment to less than 60 percent of the lump sum.

**9.0 Basis of Payment.** Payment for submittal and approval of a Work Zone Intelligent Transportation plan, furnishing, installing, relocating, operating, maintaining, testing, monitoring, providing a website, providing historical data, and removal of the Work Zone Intelligent Transportation System (WZITS), including all items required for proper operation of this installation, will be completely covered by the contract unit price for Item Number 616-99.01, "Work Zone Intelligent Transportation System," per lump sum. The lump sum pay item shall be payment for the required Intelligent Work Zones specified in the plans, and the lump sum shall be full payment for all three jobs J5I3397, J5I3482, and J5I3572.

W. Temporary Long-Term Rumble Strips JSP-13-04C

**1.0 Description.** The work shall include furnishing, installing, maintaining, and removing long-term rumble strips, as shown in the plans, or as designated by the engineer.

**2.0 Material.**

**2.1** The long-term rumble strips shall be 10 feet to 12 feet in length, fabricated from a polymer material, and be orange in color.

**2.2** The long-term rumble strips shall have a minimum width of 4 inches, but no greater than 6 inches. The long-term rumble strips shall have a minimum thickness of 0.25 inch, but no greater than 0.50 inch.

**2.3** The long-term rumble strips shall have a pre-applied adhesive backing for securing to the asphalt or concrete roadway surface.

**3.0 Construction.** Long-term rumble strips layout and spacing shall be in accordance with the plans or as approved by the engineer. The long-term rumble strips shall be installed and removed in accordance with manufacturer's recommendation. The contractor shall monitor and repair and maintain - if necessary - the long-term rumble strips until removed.

**3.1** Each set shall consist of five individual strips spaced ten to twelve feet on center.

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**3.2** The long-term rumble strips removal process shall not damage the roadway surface. If any damage occurs to the pavement during the removal of long-term rumble strips, the contractor shall replace or repair the damaged pavement at no cost to the Commission.

**4.0 Method of Measurement.** Measurement of long-term rumble strips will be per each complete set of five strips.

**5.0 Basis of Payment.** The accepted quantity of Temporary Long-Term Rumble Strips sets will be paid for at the contract unit price for 616-20.02, Temporary Long-Term Rumble Strips, per each set. The long-term rumble strips unit bid price shall include the cost of all labor, equipment, and materials to install, maintain, and remove the rumble strips.

X. Temporary Short-Term Rumble Strips JSP-13-05E

**1.0 Description.** The work shall include furnishing, installing, maintaining, removing, and relocating the short-term rumble strips, as shown in the plans, or as designated by the engineer.

**2.0 Material.**

**2.1** The short-term rumble strips shall be 10 to 12 feet in length, minimum of 8 inches wide, ¾ to 1¼ inch thick, fabricated from a polymer material, and orange in color.

**2.2** The short term-rumble strips shall not curl or deform across the width of the strip, maintaining its rigidity.

**3.0 Construction.**

**3.1** Each set shall consist of three individual strips spanning a single lane, spaced in accordance with the plans or as directed by the engineer. The short-term rumble strips shall be installed and removed in accordance with manufacturer's recommendation.

**3.2** The contractor shall monitor, maintain alignment, and repair if needed the short-term rumble strips during construction. Short-term rumble strips shall not be placed on roadways when there are no workers present.

**3.3** Strips shall not extend onto the shoulder without the approval of the Engineer.

**4.0 Method of Measurement.** Measurement of short-term rumble strips will be based per each set.

**5.0 Basis of Payment.** The accepted quantity of Temporary Short-Term Rumble Strips sets will be paid for at the contract unit price for 616-20.04, Temporary Short-Term Rumble Strips, per each set. The short-term rumble strips unit bid price shall include the cost of all labor, equipment, and materials to install, maintain, remove, and relocate the rumble strips during the construction of the project.

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Y. Class A Partial Depth Concrete Pavement Repair Using Hot Applied Polymer Modified Repair Material NJSP-19-01

**1.0 Description.** This work shall consist of removal, furnishing, and placing material to repair existing concrete pavement by performing partial depth concrete pavement repairs as specified in plans or as approved by the engineer. All work shall be in accordance with Section 613 except as herein modified.

**2.0 Construction Requirements.**

**2.1** Individual repair areas shall be limited to approximately 24 square feet in area. Repair areas larger than 24 square feet shall be patched with a cementitious based material in accordance with Section 613.

**2.2** Removal of the existing patched, spalled, delaminated, or otherwise deteriorated concrete surface shall be limited to 1/3 (one third) of the pavement thickness or 4 inches, whichever is less. Removal of concrete shall be accomplished with light jack hammers and/or a mill head designed for concrete milling. All loose materials, including milled or broken concrete or asphalt, crack seal materials, oil, sand, dust, grit, or other contaminants, shall be completely removed. Removal of material shall be in accordance with Sec 202.2.

**2.3** All surfaces shall be cleaned with compressed air at a minimum of 100 psi.

**2.4** Partially exposed reinforcing steel mesh shall be sandblasted clean or removed before placing patch materials. If sandblasting is used, all surfaces shall be cleaned of loose sandblasting grit with compressed air.

**2.5** All surfaces of the repair area shall be primed using a primer and procedure recommended and approved by the manufacturer. Any costs related to primer shall be included in the unit cost. No direct payment will be made for the priming of the repair areas.

**2.6** Material shall be placed in 1 inch lifts until the repair is level with the existing pavement. Each lift shall be adequately cooled, based on manufacturer recommendations, prior to subsequent lift placement.

**2.7** Repairs that are greater than 1 inch in depth require the addition of bulking aggregate 20% to 50% by volume, as recommended by the manufacturer. The bulking stone shall be double washed, dust-free 5/8 inch to 1-inch sized granite. The bulking aggregate shall be adequately heated and dried prior to placement. No direct payment will be made for costs associated with bulking stone placement.

**2.8** Topping stone shall be placed on the surface of the patch to improve surface friction using a procedure recommended by the manufacturer. The topping stone shall be double washed, dust-free, angular, hard aggregate. The topping stone shall be adequately heated and dried prior to placement. No direct payment will be made for costs associated with topping stone placement.

**2.9** Traffic shall not be allowed on the repair area until the patching material has adequately cooled and gained strength, as recommend by the manufacturer.

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**2.10** Repair areas in the roadway and shoulders shall be swept clean of all loose debris before opening to traffic.

**2.11** Any patches that vary by more than ¼ inch from the existing profile of the roadway or of poor workmanship shall be removed and replaced by the contractor at the contractor's expense.

### **3.0 Material Requirements.**

**3.1** The contractor shall submit the manufacturer's specifications for the material for patching and repair to the engineer for approval. The contractor shall follow manufacturer's specifications for material preparation and placement.

**3.2** Material shall be hot pour, polymer modified, resin-based concrete repair material, flexible and grey in color. Material shall provide an impermeable, voidless mass at ambient temperatures. Material is to be mixed and heated on site as recommended by the product manufacturer. The repair material shall be factory blended and in meltable bags.

**4.0 Additional or Reduced Work.** If additional repair work is necessary beyond what is specified in the work order or the required repair is not as extensive as originally viewed, the contractor shall contact the engineer for authorization to proceed with the additional or reduced work. The contractor shall note that with this authorization to proceed with additional or reduced work may change which unit bid item is used to calculate final payment depending on final repair quantities. Any work performed without authorization of the engineer shall be at the contractor's expense.

**5.0 Method of Measurement.** Measurement shall be made to the nearest pound based on the actual material used with an acceptable form of package documentation.

**6.0 Basis of Payment.** Payment shall be paid by the pound and shall be full compensation for all repair work including removal of loose materials, cleaning of concrete surface, and furnishing and placing material for Class A Partial Depth Pavement Repair using flexible, hot polymer-modified repair material. All cost for the repair work, including labor, equipment, materials, and containment and disposal of material shall be included in Item 613-99.11, Class A Partial Depth Concrete Pavement Repair Using Flexible, Hot Polymer Modified Repair Material, per pound.

## **Z. Traffic Signal Maintenance and Programming**

**1.0 Description.** Traffic signal maintenance and timing for this project shall be in accordance with Section 902 of the Standard Specifications, and specifically as follows.

### **2.0 Qualified Traffic Engineer**

**2.1** The Contractor shall have an experienced traffic engineer with a Professional Engineer's (PE) license in Missouri as well as a Professional Traffic Operations Engineer (PTOE) certification (hereafter referred to as "Contractor's traffic engineer") with the noted experience defined below. The Engineer shall approve the traffic engineer prior to them being hired.

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**2.2 Experience.** Any proposed Contractor traffic engineer shall be able to demonstrate personal successful previous experience in the following tasks:

**2.2.1 Response.** The Contractor's traffic engineer shall have the ability to be on site within one (1) hour of being requested.

**2.2.2 Corridor Management:** Time/space diagram manipulation in order to successfully adjust offsets and splits for rapidly changing traffic demands.

**2.2.3 Controller Programming:** Ability to program by hand and by software Phase, TBC, and Coordination levels of any Commission-owned Advanced Traffic Signal Controller.

**2.2.4 Intersection Programming:** Implementation of adjusted and/or new timing plans as a result of changing traffic demand.

**2.2.5 Signal Software:** Use and understanding of TransCore traffic control software.

**2.3** The Contractor shall submit the names(s) of proposed traffic engineer(s) and the name(s) of all other personnel on their proposed staff along with detailed experience in all tasks outlined in Paragraph 2.2 above. The Engineer reserves the right to reject any Contractor traffic engineer, before the start of work, who does not have sufficient experience or, at any point during the project, which does not satisfy the requirements set forth within this Job Special Provision. A list of potential traffic engineers shall be submitted for review to the Commission prior to bid.

**2.4 VPN Access.** The Commission operates the noted signals through a central signal system which is capable of remote adjustments to controller programming.

**2.4.1** The approved contractor's traffic engineer and any staff assigned to manage the traffic signals during the project is encouraged to apply for VPN (Virtual Private Network) access with the Engineer once the project is awarded. If approved, the Engineer will assign a unique IP address to the Contractor's traffic engineering staff, which will allow for remote access to the Commission's central signal control system as appropriate and the ability to interface with the noted signals on this project.

### **3.0 Existing Traffic Signals and Communication System**

**3.1** The Contractor shall notify the Engineer three (3) weeks prior to the date of ramp bridge closure and detour implementation. The contractor shall meet with the Engineer's representatives to discuss their traffic mitigation plan at least one (1) week before the date of the first closure and as needed between construction stages. The traffic mitigation plan should at a minimum include:

- Proposed Timing Plan changes and any models
- Anticipated locations of concern
- A map in electronic format displaying the locations and names of the signals as detailed in Paragraphs 3.2 and 3.3 below.
- Other traffic mitigation efforts

**3.2** Maintenance at these locations for items other than controller programming issues or incidents caused by controller programming or other construction done by the Contractor shall remain with the Commission. If any part of an existing traffic signal or its controller within the limits of this project has otherwise been modified or adjusted by the Contractor, or the Contractor

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makes any roadway changes to reduce the traffic capacity through a signalized intersection within the limits of the project, or the Contractor begins work at an intersection with signals already in operation, the Contractor shall then be solely responsible for that signal's controller programming and all signal maintenance as specified in 902.2 and 902.3, except for power costs, until Final Acceptance of the project.

**Commission Signals:**

- Highway 8 and Eastbound I-44 Ramps
- Highway 68 and Westbound I-44 Ramps
- Route V and Eastbound I-44 Ramps
- Route V and Eastbound I-44 Ramps
- Highway 63 / Business Loop 44 and Eastbound I-44 Ramps
- Highway 63 / Business Loop 44 and Westbound I-44 Ramps

**3.3** The Engineer shall provide to the Contractor with two (2) weeks' notice an electronic report on the existing phasing and timing of each traffic signal which may be the Contractor's responsibility to program. The Engineer shall be available to the Contractor before any changes are made to a signal or controller to answer any questions about the report. In lieu of the report, the Contractor's traffic engineer may obtain this information from the Commission's central signal control system. Once the Contractor has modified a signal or controller for any reason, the Contractor shall be solely responsible for the existing timing plans and all subsequent timing changes.

**3.4** The Contractor shall notify the Engineer of the changes no later than (1) working day after changes are programmed if unable to provide advance notice as specified in 902.2.

**3.5** The Contractor shall be solely responsible for maintaining the coordination at any affected signal to the satisfaction of the Engineer until completion of work as set forth in section 3.2 of this provision. Maintenance of coordination may include the synchronization of the affected controller's internal time clocks to the second using an atomic clock, or other means approved by the Engineer. If time clock synchronization is used, the Contractor shall verify all affected controllers are synchronized at least one (1) time per week with a report to the Engineer.

**3.6** This report will be in the form of a documentation record as spelled out in the Work Zone Traffic Management Plan.

**4.0 Existing Traffic Signal Maintenance and Response**

**4.1** The Contractor shall respond to any signal timing complaints or malfunction complaints for those locations detailed in Section 3.0 of this provision and as specified in Section 902.21.1. Response time shall be one (1) hour for complaints received by the contractor between 6:00 a.m. and 6:00 p.m. on non-holiday weekdays, and two (2) hours for all other times. For some cases (due to travel times or other extenuating circumstances) additional time may be acceptable within reason but must be approved by the Engineer. These timeframes will replace the '24 hour' response time in Section 105.14 for any signal-related incidents, where the entire cost of the work, if performed by Commission personnel or a third party, will be computed as described in Section 108.9 and deducted from the payments due the Contractor.

**4.2** The Contractor must supply a contact name and phone number who will be responsible for receiving signal timing complaints for the Engineer. These complaints may be forwarded



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directly to the Contractor by someone other than the Engineer, including but not limited to the Commission's Customer Service Representatives, and will not relieve the Contractor from properly responding based on the response times of this Provision. The Contractor shall respond to the Engineer within 12 hours of the complaint as to the remedy. The Contractor shall submit to the Engineer a weekly report of complaints received and remedies performed throughout the duration of the project.

## **5.0 Original Signal Controller Programming and Acceptance**

**5.1** The Contractor will be responsible for restoring the original signal controller programming at existing intersections and coordination plans for each intersection immediately upon ramp reopening. The Engineer shall preserve and house the original controller files and provide the Contractor with access to those files in order to perform the restoration of the original plans. Normal plan restoration can be done by a manual command in the signal control system or a preprogrammed time-of-day command change. For any locations rendered offline at the time of re-opening, these locations shall be returned to normal operation by hand. The contractor will be relieved of signal programming maintenance at an existing restored intersection once 48 consecutive hours have passed without a programming malfunction, including restoring normal signal programming to the satisfaction of the Commission.

## **6.0 Post Project Report**

**6.1** The Contractor shall submit to the Engineer a post project report, four to six weeks after the final signal adjustments have been completed. The report shall include at a minimum an observation report, summary of timing changes and locations, summary of complaints, and any other pertinent information regarding the contractor's efforts for managing these signal corridors in one electronic document.

## **7.0 Deliverables**

**7.1** All deliverables mentioned in this provision shall be submitted to the Engineer in a timely manner to the satisfaction of the Engineer prior to receiving full compensation for this work.

- Experience submittal
- Preliminary Traffic Mitigation Plan
- Notification of Detour Implementation
- Time Base Reports, As Needed
- Complaint Resolutions
- Notification of Restoration to Normal Operations
- Post Project Report

**8.0 Construction Requirements.** Construction requirements shall conform to Sections 902, 1061 and 1092.

**9.0 Method of Measurement.** Method of measurement shall conform to Section 902.

**10.0 Basis of Payment.** Payment will be considered full compensation for all Contractor services, installation, and labor to complete the described work:

Item No.	Type	Description
616-99.01	Lump Sum	Traffic Signal Maintenance and Programming

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AA. Concrete Washout

**1.0 Description.** Concrete washout BMPs shall be established in designated areas for this project if concrete production or delivery is occurring. Washout BMPs can be non-leaking plastic or clay/bentonite lined pits, a straw bale enclosure lined with plastic, a storage tank or prefabricated BMP or other structure approved by the engineer or inspector. Designated washout areas should be located at least 50 feet away from storm drains, ditches, streams, or other water bodies. Washouts should be monitored like other BMPs to ensure there are no leaks and that they are operating effectively. They should be cleaned out when they reach 75% of their design capacity. Care should be taken to ensure these structures do not overflow during storm events. Upon completion of concrete washout on the project, the engineer or inspector should ensure proper disposal of washout materials. Washout liquids can be allowed to evaporate or be pumped out and properly disposed of. They cannot be discharged into storm drains, ditches, streams, or other bodies of water. Dried concrete can be broken up and used as clean fill on the project, recycled or properly disposed of by other means.

**2.0 Basis of Payment.** No direct payment will be made to the contractor for installing, maintaining, and removing concrete washout facilities or for properly disposing of materials. The cost of complying with this requirement shall be completely covered in the contract unit price of the concrete pay items included in the contract.

BB. Seeding and Fertilizing

**1.0 Description.** All areas disturbed by the contractor's operations and not specified to be covered with sod, shall be fertilized, and seeded.

**2.0 Fertilizing.** All work shall be in accordance with Sec 801. Fertilizer shall be applied at the following rate:

Nitrogen (N)	80 lb. per acre
Phosphoric Acid (P <sub>2</sub> O <sub>5</sub> )	160 lb. per acre
Potash (K <sub>2</sub> O)	80 lb. per acre
Effective Neutralizing Material	2700 lb. per acre

**3.0 Seeding.** All work shall be in accordance with Sec 805. The following seed mixture shall be applied at the rate specific in pounds of pure live seed per acre:

Tall Fescue	80 lb. per acre
Annual Ryegrass	8 lb. per acre
<u>White Clover</u>	<u>2 ½ lb. per acre</u>
Total	90 ½ lb. per acre

**4.0 Method of Measurement and Basis of Payment.** Measurement and payment shall be in accordance with Sec. 805 and 806. Payment will be considered full compensation for all labor, equipment, and material to complete the described work. All expense incurred by the contractor in compliance with the above requirements shall be considered as completely covered by unit prices for:

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<u>Item Number</u>	<u>Item Name</u>	<u>Units</u>
805-10.00A	Seeding – Cool Season Mixtures	Acre

CC. Guardrail Locations

**1.0 Description.**

**1.1** The contractor shall be aware there are numerous utilities present along the route in this contract. Utility locates were not performed during the design phase of the project for proposed guardrail locations; therefore, the extent of conflicts with utilities are unknown.

**1.2** There may be underground utilities that run parallel or cross the route that are in close proximity to guardrail work locations. The contractor shall take necessary precautions and measures to verify locations and depths of utilities by any necessary means to determine exact impacts to their work.

**1.3** Known underground utilities, specifically **Centurylink / Lumen**, has several underground facilities running parallel to Interstate 44 in the project limits.

**1.4** If utility facilities are found and discovered, the Engineer will determine whether relocation of the utility is necessary to accommodate construction or if the work can be installed in accordance with Missouri Standard Plans for Highway Construction for the item of work specified.

**2.0 Basis of Payment.** There is no direct pay for complying with this provision.

DD. Shaping Slopes Class III (Modified Material Requirements) NJSP-20-03A

**Delete Sec 215.1.3 and 215.1.3.1 and substitute the following:**

**215.1.3** Shaping Slopes, Class III, shall consist of providing rock fill material and shaping slopes to construct additional shoulder width for the installation of guardrail and Type A crashworthy end terminals in accordance with Missouri Standard Plans for Highway Construction. The rock fill material used shall meet the requirements specified in Sec 215.1.3.1. The shoulder surface shall be finished smooth such that it is traversable and without significant voids or depressions.

**215.1.3.1 Material Requirements.** Rock fill material used for Shaping Slopes, Class III, shall consist of a durable crushed stone, shot rock or broken concrete, with a predominant size of 3 inches and a maximum size of 6 inches. Acceptance by the engineer will be made by visual inspection.

**215.4 Basis of Payment.** The accepted quantity will be paid for at the contract unit price: 215-99.03, Misc. Shaping Slopes Class III – Modified Material Requirement, per 100 ft.

EE. Modified Linear Grading, Class 2

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**1.0 Description.** Modified Linear Grading, Class 2 shall consist of preparing the subgrade by excavating, compacting, fine-grading, and shaping existing shoulder and ditch foreslope, conforming to the typical section shown on the plans. In addition, Modified Linear Grading, Class 2 shall apply to the grading necessary to promote continued drainage into and out of the extended box culvert (A12601). It may also be necessary to haul material and involve work on high banks, side hills, and rock outcroppings. Modified Linear Grading Class 2 shall also consist of hauling embankment material to the project or obtaining embankment material from the right of way as approved by the engineer to accommodate proposed inside shoulder widening and in-slopes as shown in the plans.

**2.0 Construction Requirements.** Embankment construction shall be in accordance with applicable requirements of Section 203 or similar methods approved by the engineer in order to produce a stabilized roadway embankment. The shoulder shall be excavated and graded as shown on the typical section with minimal disturbance of the existing sub-grade and fore-slope, except where new embankment or rock fill is required. Embankment and subgrade density shall be obtained from reasonable compactive efforts consisting of no less than three passes with a roller until no further visible compaction can be achieved, or by other methods approved by the engineer. Subgrade preparation and compaction shall also be in accordance with Sections 209 and 210.

**2.1** Following placement of the shoulder pavement, the shaping of the fore-slope shall be done as shown on the typical section.

**2.2** All ditches shall maintain existing flow direction and provide adequate capacity for drainage, as approved by the engineer. All ditches shall use existing drainage structures unless shown otherwise in the project documents. Slopes can be steepened if necessary to use existing drainage structures as approved by the engineer.

**2.3** It may be necessary to go outside the limits of the right of way to obtain additional material or to dispose of excess material. All costs for providing additional material or disposing of excess material shall be included in contract unit price for item MODIFIED LINEAR GRADING, CLASS 2.

**2.4** For areas where it is required to haul embankment material to the project to accommodate the 2 foot shoulder widening and inslope, the top 6 inches of embankment material shall be Class A material in areas where the adjacent property owners mow and/or maintain the right of way or as directed by the engineer. The Class A material shall be free of rocks and other materials undesirable for growing grass.

**2.5** Included in this work is any pavement edge treatment that might be necessary in order to stay in compliance with the Standard Plans. The need for edge treatment is determined by the contractor's method of operations.

**3.0 Method of Measurement.** Final measurement will not be made except where appreciable errors are found in the contract quantity.

**3.1** Where required, measurement will be made to the nearest 1/10 Station for the length of the shoulder along each side of the roadway, measured along centerline of the traveled way and totaled to the nearest Station for the sum of all segments.

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**3.2** If material is encountered that may be classified as other than Class A Excavation as described in Sec 203.2.1, the limits of linear grading will not be underrun. Material classified as other than Class A Excavation will be measured and paid for per cubic yard in accordance with Sec 203.8. Where undergrading is necessary, backfilling of the undergraded area will be considered as part of the linear grading operation.

**4.0 Basis of Payment.** Payment for MODIFIED LINEAR GRADING, CLASS 2 as described in this provision will be made at the contract unit price for item 207-99.09, "MODIFIED LINEAR GRADING, CLASS 2", per stations.

FF. Unbonded Concrete Pavement Repair

**1.0 Description.** This work shall consist of removing existing 8-inch unbonded concrete overlay in the driving lane of westbound Interstate 44 down to the underlying PCC pavement, placing a geotextile interlayer material on the exposed PCC pavement, and constructing an unbonded concrete pavement repair in accordance with the details and locations shown on the plans. Pavement cores and history indicate the existing pavement where the repairs will be performed consists of approximately 8-inch concrete pavement over 8" PCCP. No allowance will be made for existing pavement encountered that is thicker or thinner than the anticipated cross section.

**2.0 Materials.**

**2.1 Concrete.** All material, proportioning, air-entraining, mixing, and transporting of concrete shall be in accordance with Sec 501 as applicable to pavement concrete.

**2.2 Geotextile Interlayer.** The unbonded concrete pavement repair interlayer shall be in accordance with Sec 1011.3.7.

**3.0 Construction.** Construction of the unbonded concrete pavement repair shall be in accordance with Sec 613.10.2 except as modified herein:

**3.1 Geotextile Interlayer.** A geotextile interlayer shall be installed and comply with the following requirements:

**3.1.1** Fabric shall be tight without excess wrinkles and folds.

**3.1.2** Fabric shall remain flat throughout the concrete placement.

**3.1.3** Where it occurs, fabric shall overlap by  $8 \pm 2$  in.

**3.1.4** Fabric shall be damp, but not saturated, prior to concrete placement.

**3.1.5** Fabric should extend throughout the entire area of the full depth repair.

**3.2 Base and Subgrade.** All references to underlying base and subgrade shall not apply.

**3.3 Tie Bars and Dowel Bars.** All references to tie bars and dowel bars installation shall not apply.

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**3.4 Saw Cuts to Reduce Panel Size.** The joint spacing of the unbonded concrete pavement repair shall be 6 feet transversely and 7'6" feet longitudinally. In addition, a 4-foot sawcut into the existing shoulder will be required to further isolate the existing unbonded overlay section, as shown on the typical section drawings on sheet 4 of 4. Saw cuts shall be in accordance with Standard Plan Drawing 502.05 and will be considered incidental to furnishing and placing Portland cement concrete.

**4.0 Traffic Control and Sequencing.** The continuous unbonded overlay section of the driving lane of westbound I-44 cannot be completed as one singular construction zone. The Contractor will be limited to approximately one-mile (1-mile) segments as approved by the Engineer. Lane shifts and closures shown in the plans will require traffic to drive on the existing shoulder pavement. Quantities are included in the plans for various shoulder replacement as it relates to this staging requirement. The shoulder replacement will be concrete.

#### **5.0 Method of Measurement.**

**5.1** Measurement for full depth saw cuts to remove the existing bituminous overlays will not be made.

**5.2** Measurement of the removal of existing material will not be made.

**6.0 Basis of Payment.** Accepted quantities of unbonded concrete pavement repair will be paid for at the contract unit price for the following:

Item 506-20.33, Misc. Geotextile Interlayer, per square yard

Item 506-99.05, Unbonded Concrete Overlay, per square yard.

Item 506-20.30A, Furnishing Unbonded Concrete Overlay, per cubic yard

**6.1** No additional payment will be made for the labor or materials necessary to remove the existing pavement.

#### **GG. Pavement Repair Ride Quality**

**1.0 Description.** The pavement shall be evaluated on all mainline surfaces to ensure a smooth ride throughout the entirety of the project.

**1.1** An International Roughness Index (IRI) shall be obtained from the beginning of the project to its terminus on all mainline pavement, existing pavement and repaired locations. Areas found to be deficient, as defined in this provision, shall be corrected.

**2.0 Construction Requirements.** Pavement smoothness shall be in accordance with Sec 610 and its subsections except as modified by this provision.

**2.1** Section 610.4.2.2 shall be deleted and replaced with the following requirements. Profiling of the existing mainline pavement, including all areas patched prior to and during construction of this project shall be required. Exceptions will be permitted for bridge decks, shoulders, and fifty feet on each side of utility appurtenances.

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**2.2** Smoothness corrections shall be performed in areas of localized roughness (ALR) that exceeds 125 inches per mile. The areas of correction shall be limited to pavement repair locations, constructed prior to or during this project. It shall be the contractor's responsibility to identify all locations of correction in the field.

### **3.0 Basis of Payment**

**3.1** Section 610.4.8, 610.5.1 thru 610.5.3 shall be deleted in their entirety. Marred surface deductions shall not be applicable to pavement repair smoothness correction. Incentives and disincentives are not applicable.

**3.2** There will be no direct payment for compliance with the requirements of this provision, including smoothness corrections for existing patches.

## **HH. Slurry and Residue Produced During Surface Treatment of PCCP and Bridge Decks**

**1.0 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 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.

## **II. 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.

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**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.



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**3.2.1.2.2** Equipment interior and/or other surfaces shall be treated with 140° F water for a minimum of 10 seconds contact on all surfaces. 140 ° 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.

#### JJ. Misc. Crash Cushion and Impact Attenuator (Relocation) (J5I3482 and J5I3572)

**1.0 Description.** The Misc. Crash Cushion (Impact Attenuator) is used to protect hazards in the work zone. The Misc. Crash Cushion (Impact Attenuator) is used in work zones for temporary applications.

**2.0** The Misc. Crash Cushion (Impact Attenuator) shall be a MASH TL-3 or NCHRP 350 TL-3 with a maximum width of 30" due to the limited workspace.

**3.0 Basis of Payment.** All costs incurred for complying with this provision shall be considered completely covered by the contract unit price for Item No. 612-99.02, Misc. Crash Cushion, per each.

#### KK. Guardrail Blockout Repair/Replacement

**1.0 Description.** This work shall consist of repairing and/or replacing guardrail blockouts for guardrail that will be used in place. All work shall be done in accordance with Section 606.

**2.0 Construction Requirements.** Blockouts that have rotated or that have been damaged due to rotation or other causes shall be turned to the proper position as shown in the standard

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plans for MGS guardrail. Blockouts turned by the contractor shall be secured to the guardrail post at four different points on the blockout, by means as approved by the engineer.

**2.1** If the existing blockout is damaged and cannot be reused, it shall be replaced with a blockout that meets specifications and standard plan requirements. If an existing blockout is damaged due to Contractor's activities and cannot be reused, it shall be replaced.

**3.0 Method of Measurement.** Final measurement of Guardrail Blockout Repair/Replacement will be made to the nearest 1/10 station along the front face of the guardrail being repaired. This will be made regardless of the number of blockouts that are replaced or turned and secured. Measurement shall begin at the first blockout turned or damaged, and end at the last turned or damaged blockout, such that at the minimum, the following three blockouts meet standards and specifications.

**4.0 Basis of Payment.** Payment for furnishing all labor, equipment, materials, labor, and tools necessary for Guardrail Blockout Repair/Replacement shall be completely covered by the contract unit price for:

Item Number	Unit	Description
605-99.09	STA	Guardrail Blockout Repair/Replacement

LL. Supplemental Revisions JSP-18-01R

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

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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

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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.

## COVID-19 Safety

**1.0 Description.** The coronavirus disease 2019 or COVID-19 has reached a pandemic stage across the United States, including the State of Missouri. To reduce the impact of COVID-19 outbreak conditions on businesses, workers, customers and the public, the contractor shall be aware of all COVID-19 guidance from the Center for Disease Control (CDC) and other government health mandates. The contractor shall conduct all operations in conformance with these safety directives. The guidance may change during the project construction and the

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contractor shall change and adapt their operation and safety protocols accordingly.

**2.0 Safety Plan.** The contractor shall include these procedures in the project safety plan as called for in the contract documents and revise the safety plan as needed.

**3.0 Essential Work.** In accordance with any state or local Stay at Home Order, care for the infrastructure has been deemed essential and MoDOT is moving forward with construction projects, this project is considered essential and the contractor and their employees, subcontractors and suppliers are considered essential business and performing essential functions.

**4.0 Basis of Payment.** Compliance with regulations and laws pertaining to COVID-19 is covered under Sec 107 of the Missouri Standard Specifications for Highway Construction. 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.

#### MM. Clean Water Act Requirements

**1.0 Description.** The Contractor shall be aware that any work within streams, wetlands, or special aquatic sites requires a Section 404 permit from the Corps of Engineers.

**2.0** The project meets the conditions of the following listed permits with no pre-construction notification to the Corps of Engineers:

Section 404 Nationwide Permit 14 (Linear Transportation Projects)

**3.0** The Contractor shall abide by all general conditions of Section 404 and 401 Permits, and specific conditions of the following listed Nationwide Permit found in the General Provisions and Supplemental Specifications to the current Missouri Standard Specifications for Highway Construction referenced in this contract.

Section 404 Nationwide Permit 14 (Linear Transportation Projects)

**3.1** If there are any changes to the scope or limits to the project, the Contractor must notify the Engineer who will then notify the MoDOT Environmental Section to verify that the project still meets permit conditions.

**3.2** No additional time will be added to the contract for the contractor to obtain any permits.

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**4.0 Basis of Payment.** There will be no direct payment for compliance with this provision.

NN. Emergency Reference Markers

**1.0 Description.** The Contractor shall be aware that existing emergency reference markers may be in conflict with proposed construction, and they must remain in their current location throughout the duration of construction.

**1.1** The Contractor is responsible for determining if any emergency reference markers conflict with construction activities. If they will be in conflict, the Contractor must keep the markers in place by temporarily mounting the markers in the original location. Once construction is complete the emergency reference markers shall be permanently mounted in the original location.

**2.0 Basis of Payment.** There will be no direct payment for compliance with this provision.

OO. Cooperation Between Contractors

**1.0 Description.** The contractor's attention is directed to the fact that there will be other contracts being constructed during the same time period as J5I3397, J5I3482, and J5I3572. Other contracts include:

**J5S3349:** Bridge re-decking over I-44 on Route U, Phelps County

**J5I3381:** Bridge rehabilitations with single lane closures. Bridges include I-44 EB and WB bridges over Trophy Lane between Route 28 and Route J, and I-44 EB bridge over the Roubidoux River between Route H and BUS Loop 44.

The contractor shall comply with section 105 of the "Missouri Standard Specifications for Highway Construction".

**2.0 Basis of Payment.** No direct payment will be made for compliance with this provision. All costs shall be considered completely covered under the pay items provided in the contract.

PP. Grooving for Waterborne Pavement Marking

**1.0 Description.** This work shall consist of furnishing and installing a groove in the pavement for placement of pavement markings as shown on the plans or as directed by the engineer.

**2.0 Construction Requirements.**

**2.1** The grooves shall be cut using a free-floating saw blade cutting head equipped with gang-stacked diamond saw blades. The diamond saw blades shall be of uniform wear and shall produce a smooth textured surface. Any ridges in the groove shall have a maximum height of 15 mils (0.38 mm). The grooves shall be constructed using one of the following methods:

**2.1.1 Wet Cutting Head Operation.** When water is required or used to cool the cutting head, the groove shall be flushed with high pressure water immediately following the cut to avoid build up

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and hardening of slurry in the groove. The pavement surface shall be allowed to dry for a minimum of 24 hours prior to the final cleaning of the groove and application of the pavement marking material.

**2.1.2 Dry Cutting Head Operation.** When used on HMA pavements, the groove shall be vacuumed or cleaned by blasting with high-pressure air to remove loose aggregate, debris, and dust generated during the cutting operation. When used on PCC pavements, the groove shall be flushed with high pressure water or shot blasted to remove any PCC particles that may have become destabilized during the grooving process. If high pressure water is used, the pavement surface shall be allowed to dry for a minimum of 24 hours prior to the final cleaning of the groove and application of the pavement marking material.

**2.2** The grooves shall be located where the final pavement marking will be placed according to the plans or as directed by the engineer.

**2.3** The grooves for pavement markings shall be 1" wider than the pavement marking that will be placed into the groove. Grooves for lane lines on PCCP pavements, the width of the groove shall be 1" wider than the 9" contrast lane line marking (6" lane line with 1.5" black contrast marking on either side).

**2.4** The grooves for lane lines, dotted white lines, gore lines and wide dotted white lines shall be 1" longer than the pavement markings that will be placed into the groove.

**2.5** The final depth of the groove shall be 100 mils, plus or minus 5 mils.

**2.6** The groove shall be clean and dry before the installation of the pavement marking can begin.

**2.7** All debris resulting from the installation of the grooves shall be removed and disposed of by the contractor.

**3.0 Method of Measurement.** Final measurement will not be made except for authorized changes during construction or where appreciable errors are found in the contract quantity. Where required, grooves will be measured separately and made to the nearest linear foot. The revision or correction will be computed and added to or deducted from the contract quantity.

**4.0 Basis of Payment.** Payment for Grooving for Waterborne Pavement Marking Paint including all materials, labor and equipment required to fulfill this provision will be paid for at the contract unit price for pay item 620-99.03, MISC. 7" Pavement Marking Groove, 100 Mils Depth, per linear foot, for 7" wide grooves, and 620-99.03, MISC. 13" Pavement Marking Groove, 100 Mils Depth, per linear foot, for 13" wide grooves. Payment will be considered full compensation for all labor, equipment, and material necessary to complete the described work, including loading, hauling, stockpiling and disposal of material; and any other incidental items.

#### QQ. Vegetative Barrier Pavement

**1.0 Description.** This work shall consist of constructing an asphalt pavement strip at a compacted thickness of 3 inches and width as specified in the contract plans. Placement shall be in accordance with section 400 of the standard specifications.

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**1.1** Final grading shall provide a stable and uniform subgrade prior to paving at the thickness specified. Prior to paving, the area shall be prepared and compacted with 3 passes of a 10 ton roller or by another method as approved by the engineer.

**1.2** Soil sterilant shall be applied to the compacted surface as specified by the manufacturer's requirements and as approved by the engineer.

**1.3** A commercial mix shall be allowed.

**2.0 Method of Measurement.** Vegetative barrier pavement shall be measured in square yards as constructed.

**3.0 Basis of Payment.** Vegetative barrier pavement, compaction, soil sterilant, and all other labor and materials shall be paid at the unit price for "Pavement for Vegetative Barrier 3 In. Depth", item number 401-99.05, per square yard.