Job No.: J6I2090
Route: I-270
County: St. Louis

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Job No.: J6I2090
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County: St. Louis

THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

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

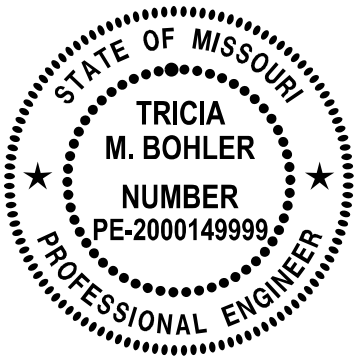
HDR Engineering
10450 Holmes Road, Suite 600
Kansas City, MO 64131
Certificate of Authority: #000856
Consultant Phone: 816-360-2700

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

JOB NUMBER: J6I2090
ST LOUIS COUNTY, MO
DATE PREPARED:2/28/2023

ADDENDUM DATE: 5/11/2023

Only the following items of the Job Special Provisions (Roadway) are authenticated by this seal: A to NN and WW to YY



THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

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

Civil Design, Inc.
5220 Oakland Ave.
St. Louis, MO 63110
Certificate of Authority: 2002006804
Consultant Phone:314-863-5570

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

JOB NUMBER: J6I2090
ST. LOUIS COUNTY, MO
DATE PREPARED: 2/28/2023

ADDENDUM DATE:5/11/2023

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

Job No.: J6I2090
Route: I-270
County: St. Louis

JOB
SPECIAL PROVISION

A. General - Federal JSP-09-02H

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

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

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

General Provisions & Supplemental Specifications

Supplemental Plans to July 2022 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

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.

Job No.: J6I2090
Route: I-270
County: St. Louis

Notice to Proceed: July 10, 2023
Completion Date: November 1, 2025

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
J6I2090	N/A	$11,400

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 if road user costs are being charged for closures.

2.0 Traffic Management Schedule.

2.1 Traffic management schedules shall be submitted to the engineer for review prior to the start of work and prior to any revisions to the traffic management schedule. The traffic management

schedule shall include the proposed traffic control measures, the hours traffic control will be in place, and work hours.

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

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

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

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

2.5.1 Traffic Safety.

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

2.5.1.2 Non-Recurring Congestion. When traffic queues extend to within 1000 feet of the ROAD WORK AHEAD, or similar, sign on a divided highway or to within 500 feet of the ROAD WORK AHEAD, or similar, sign on an undivided highway infrequently, the contractor shall deploy a means of providing advance warning of the traffic congestion, as approved by the engineer. The warning location shall be no less than 1000 feet and no more than 0.5 mile in advance of the end of the traffic queue on divided highways and no less than 500 feet and no more than 0.5 mile in advance of the end of the traffic queue on undivided highways.

3.0 Work Hour Restrictions.

3.1 Except for emergency work, as determined by the engineer, and long term lane closures required by project phasing, all lanes shall be scheduled to be open to traffic during the five major holiday periods shown below, from 12:00 noon on the last working day preceding the holiday until

6:00 a.m. on the first working day subsequent to the holiday unless otherwise approved by the engineer.

Memorial Day
Labor Day
Thanksgiving
Christmas
New Year's Day

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

12:00 noon June 30, 2023 – 6:00 a.m. July 5, 2023
12:00 noon July 3, 2024 – 6:00 a.m. July 5, 2024
12:00 noon July 3, 2025 – 6:00 a.m. July 7, 2025

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

3.3 The contractor shall 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.

I-270 Northbound:
6:00 a.m. - 8:00 p.m Monday through Sunday

I-270 Southbound:
6:00 a.m. - 8:00 p.m Monday through Sunday

I-64 Eastbound:
6:00 a.m. - 8:00 p.m Monday through Sunday

I-64 Westbound:
6:00 a.m. - 8:00 p.m Monday through Sunday

3.4 Any work requiring a reduction in the number of through lanes of traffic shall be completed during the following hours

NB I-270	Single	Double
Monday-Sunday	8:00 p.m. - 6:00 a.m.	10:00 p.m. - 5:00 a.m.

SB I-270	Single	Double
Monday-Sunday	8:00 p.m. - 6:00 a.m.	10:00 p.m. - 5:00 a.m.

EB I-64	Single	Double
Monday-Sunday	8:00 p.m. - 6:00 a.m.	10:00 p.m. - 5:00 a.m.

WB I-64	Single	Double
Monday-Sunday	8:00 p.m. - 6:00 a.m.	10:00 p.m. - 5:00 a.m.

Ladue/Route AB	Single
Monday-Sunday	9:00 a.m. - 2:00 p.m.
	5:00 p.m. – 6:00 a.m.
Nightly closure allowed for setting girder 11pm - 5am	

Conway Road	Single
Monday-Sunday	9:00 a.m. – 2:00 p.m. 5:00 p.m. - 6:00 a.m.
Nightly closure allowed for setting girder 11pm - 5am	

1 Revised

3.5 The contractor shall not alter the start time, ending time, or a reduction in the number of through lanes of traffic or ramp closures without advance notification and approval by the engineer. The only work zone operation approved to begin 30 minutes prior to a reduction in through traffic lanes or ramp closures is the installation of traffic control signs. Should lane closures be placed or remain in place, prior to the approved starting time or after the approved ending time, the Commission, the traveling public, and state and local police and governmental authorities will be damaged in various ways, including but not limited to, increased construction administration cost, potential liability, traffic and traffic flow regulation cost, traffic congestion and motorist delays, with a resulting cost to the traveling public. These damages are not easily computed or quantified. Therefore, the contractor will be charged with liquidated damages specified in the amount of **$1000 per 15 minute increment** for each 15 minutes that the temporary lane closures are in place and not open to traffic in excess of the limitation as specified elsewhere in this special provision. It shall be the responsibility of the engineer to determine the quantity of unapproved closure time.

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

4.0 Detours and Lane Closures.

4.1 When a changeable message sign (CMS) is provided, the contractor shall use the CMS to notify motorists of future traffic disruption and possible traffic delays one week before traffic is shifted to a detour or prior to lane closures. The CMS shall be installed at a location as approved or directed by the engineer. If a CMS with Communication Interface is required, then the CMS shall be capable of communication prior to installation on right of way. All messages planned for use in the work zone shall be approved and authorized by the engineer or its designee prior to deployment. When permanent dynamic message signs (DMS) owned and operated by MoDOT

are located near the project, they may also be used to provide warning and information for the work zone. Permanent DMS shall be operated by the TMC, and any messages planned for use on DMS shall be approved and authorized by the TMC at least 72 hours in advance of the work

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

5.0 Basis of Payment. No direct payment will be made to the contractor to recover the cost of equipment, labor, materials, or time required to fulfill the above provisions, unless specified elsewhere in the contract document. All authorized changes in the traffic control plan shall be provided for as specified in Sec 616.

D. Coordination with Other Projects in the Vicinity

1.0 Description. The contractor shall be aware that other contracts are being administered in the vicinity and timeframe as this project, including those that are be performed in combination with this project.

1.1 Route I-270 Pavement Repairs (J6I3653). This is a pavement preventative maintenance project involving pavement repairs from Route AB to approximately 0.4 miles south of Route 100.

1.2 Route I-64 Bridge Rehabilitations at I-270 (J6I3501). This project is project involves bridge rehabilitations of bridges A4650, A4651, A4652, and A4653.

1.3 Route 67 Pavement, Bridges and ADA Transition Plan (JS3280). This project involves pavement resurfacing, bridge replacement, and upgrade to pedestrian facilities to comply with the ADA Transition Plan from Route D (Page Ave.) to Swan Drive.

2.0 Construction Requirements. The contractor shall coordinate work to prevent interference with or hinder the project or completion of work being done by the other contractors. The contractor shall also coordinate work to minimize impacts to the traveling public.

3.0 Basis of Payment. No direct payment or additional time 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.

E. 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 State Highway Patrol
Troop C Headquarters
891 Technology Dr.
Weldon Spring, MO 63304
(636) 300-2800

City of Creve Coeur Fire Department
11221 Olive Blvd.
Creve Coeur, MO 63141
(314) 432-5570

City of Creve Coeur Police Department
350 N. New Ballas Road
Creve Coeur, MO 63141
(314) 432-8000

Mercy Hospital
615 S. New Ballas Road
St. Louis, MO 63141
(314) 251-6000

St. Louis County Police Department
Central Precinct
1333 Ashby Road
St. Louis, MO 63132
(314) 615-0111

MoDOT Transportation Management Center (TMC)
14301 South Outer 40 Rd.
Chesterfield, MO 63017
(314) 275-1500

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.

F. 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.

Stuart McNeil, PE, Project Manager
St. Louis District
MoDOT, St. Louis District
1590 Woodlake Dr.
Chesterfield, MO 63017

Telephone Number: 314-453-5042
Email: stuart.mcneil@modot.mo.gov

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

G. Supplemental Revisions JSP-18-01X

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

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

Stormwater Compliance Requirements

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

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

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

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

2.1 Duties of the WPCM:

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

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

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

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

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

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

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

with the Stormwater requirements that could arise in the course of construction activity at the project.

3.1 Hold Point. Following the pre-activity meeting for grading/land disturbance and subsequent installation of the initial BMPs identified at the pre-activity meeting, a Hold Point shall occur prior to the start of any land disturbance operations to allow the engineer and WPCM the time needed to perform an on-site review of the installation of the BMPs to ensure compliance with the SWPPP is met. Land disturbance operations shall not begin until authorization is given by the engineer.

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

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

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

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

Anti-Discrimination Against Israel Certification

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

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

Job No.: J6I2090
Route: I-270
County: St. Louis

1.0 Description. This work shall consist of the dry process of adding ground tire rubber (GTR) to modify bituminous material to be used in highway construction. Existing GTR requirements in Section 1015 pertain to the wet process method of GTR modification that blends GTR with the asphalt binder (terminal blending or blending at HMA plant). The following requirements shall govern for dry process GTR modification. The dry process method adds GTR as a fine aggregate or mineral filler during mix production. All GTR modified asphalt mixtures shall be in accordance with Secs 401, 402, or 403 as specified in the contract; except as revised by this specification.

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

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

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

Table 1 – GTR Material Properties

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

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

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

Table 2 – GTR Gradation	
Sieve	**Percent Passing by Weight**
No. 20	100
No. 30	98-100
No. 40	50-70
No. 100	5-15

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

4.0 Feeder System. Dry Process GTR shall be controlled with a feeder system using a proportioning device that is accurate to within ± 3 percent of the amount required. The system shall automatically adjust the feed rate to always maintain the material within this tolerance and shall have a convenient and accurate means of calibration. The system shall provide in-process monitoring, consisting of either a digital display of output or a printout of feed rate, in pounds per minute, to verify feed rate. The supply system shall report the feed in 1-pound increments using load cells that will enable the user to monitor the depletion of the GTR. Monitoring the system volumetrically will not be allowed. The feeder shall interlock with the aggregate weight system and asphalt binder pump to maintain correct mixture proportions at all production rates.

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

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

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

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

6.0 Construction Requirements. Mixes containing GTR shall have a target mixing temperature of 325 F or as directed by the GTR additive supplier. The additive supplier's

recommendations shall be followed to allow for GTR binder absorption/reaction. This may include holding mix in the silo to allow time for binder to absorb into the GTR. Rolling operations may need to be modified.

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

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

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

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

8.2.1 GTR SPG shall be 1.15

8.3 VMA shall be calculated as follows:

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

$$where:$$

$P_s = percent\ aggregate\ by\ total\ mixture\ weight$
$P_{GTR} = percent\ GTR\ by\ total\ mixture\ weight$
$G_{sb} = bulk\ specific\ gravity\ of\ the\ combined\ aggregate$
$G_{GTR} = GTR\ specific\ gravity$

8.4 G_{se} shall be calculated as follows:

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

8.5 P_{be} shall be calculated as follows:

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

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

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

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

Delete Sec 107 in its entirety and substitute the following:

107.1 Laws to be Observed The contractor shall know, observe and comply with all federal and state laws, local laws, codes, ordinances, orders, decrees and regulations existing at the time of or enacted subsequent to the execution of the contract that in any manner affect the prosecution of the work, except as specified in the contract or as directed by the engineer. The Contractor shall also ensure that any subcontractor know, observe and comply with all federal and state laws, local laws, codes, ordinances, orders, decrees and regulations as outlined above. The contractor and surety shall indemnify and save harmless the State, the Commission, the Commission's agents, employees and assigns from any claim or liability arising from or based on the violation of any such law, code, ordinance, regulation, order or decree, except any local regulations, decrees, orders, codes or ordinances directed by the contract.

107.1.1 Contract and Legal Inconsistency The engineer shall be notified immediately in writing if any discrepancy or inconsistency is discovered between the contract and any law, ordinance, regulation, order or decree.

107.1.2 Local Building and Zoning Codes or Ordinances The projects of the Commission are not typically subject to local building or zoning codes or ordinances. Therefore, the contractor usually need not obtain a local building or zoning permit or variance for work done exclusively as the Commission's contractor on the Commission's project and the Commission's right of way. Other local codes or ordinances may not apply to the Commission, and thus to the contractor as well. If any questions arise concerning whether the contractor shall comply with a local code, ordinance, decree or order of any type, the contractor shall advise the engineer of the problem immediately, for resolution by the engineer. This provision will not exempt the contractor from the requirement of thoroughly researching and determining, before submitting a bid on the contract and from complying with, all federal, state or local laws, regulations, codes, ordinances, decrees or orders that may apply to the contract work. The Commission will not be responsible for the contractor's failure to be informed before bidding as to the federal, state and local laws, regulations, codes, ordinances, decrees or orders that may govern the contract work, or for the contractor's failure to determine before bidding which of these do not govern the contract work.

107.1.3 Authentication of Certain Documents If plans, plats, detailed drawings or specifications for falsework, cofferdams or any other work are required to be submitted to the engineer, the documents shall be signed, sealed and stamped in accordance with the laws relating to the practice of architecture and professional engineering in the State of Missouri (Chapter 327, RSMo).

107.2 Permits, Licenses and Taxes Except as otherwise provided in the contract, the contractor shall procure all permits and licenses, shall pay all charges, fees and taxes, and shall give all notices necessary and incidental to the due and lawful prosecution of the work. No direct payment will be made for the cost of complying with this requirement.

107.3 Patented or Copyrighted Devices, Material and Processes. If the contractor is required or desires to use any design, device, material or process covered by letters, patent, copyright, service or trademark, the contractor shall arrange and provide for such use by suitable agreement with the patentee or owner, and a copy of the agreement may be required by the Commission. The contractor and surety shall indemnify and save harmless the State, the Commission, the Commission's agents, employees and assigns from any suits, claims or damages arising from the infringement upon or use of any patented, copyrighted or registered design, device, material, process or mark.

107.4 Safety and Sanitary Provisions The contractor shall at all times take necessary precautions to protect the life and health of all persons employed on the project or, who at the direction of the contractor are present on the right of way. The contractor shall be familiar with the latest accepted accident prevention methods and shall provide necessary safety devices and safeguards accordingly. The Commission will refuse to provide inspection services at plants or work sites where adequate safety measures are not provided and maintained.

107.4.1 Apparel. All workers within highway right of way shall wear approved ANSI/ISEA 107 Performance Class 2 or 3 safety apparel and more specifically as follows:

107.4.1.1 During daytime activities, flaggers shall wear a high visibility hard hat, safety glasses, a Performance Class 3 top OR a Performance Class 2 top, and safety footwear. Hard hats other than high visibility orange or green shall be covered with a high visibility covering.

107.4.1.2 During daytime activities, workers shall wear a hard hat, safety glasses, a Performance Class 3 top OR a Performance Class 2 top, and safety footwear.

107.4.1.3 During nighttime activities, flaggers shall wear a high visibility/reflective hard hat, safety glasses, a Performance Class 3 top AND Class E bottoms, OR Performance Class 2 top AND Class E bottoms, and safety footwear. Hard hats shall be reflective or covered with a high visibility covering.

107.4.1.4 During nighttime activities, workers shall wear a hard hat, safety glasses, a Performance Class 3 top OR Performance Class 2 top AND Class E bottoms, and safety footwear.

107.4.2 The contractor shall provide and maintain in a neat and sanitary condition, such accommodations for the use of employees as may be necessary to comply with the requirements and regulations of any agency having jurisdiction over public health and sanitation. The contractor shall permit no public or private nuisance.

107.4.3 All sanitary facilities and safety devices shall be furnished free to employees and no direct payment will be made for such facilities or devices.

107.5 Public Convenience and Safety The contractor shall conduct the work in a manner that will ensure, as far as practical, the least obstruction to traffic and shall provide for the convenience and safety of the general public and residents along and adjacent to the highway in an adequate and satisfactory manner.

107.5.1 Obstructions Prohibited Fire hydrants on and adjacent to the highway shall be kept accessible to firefighting apparatus at all times, and no obstruction shall be placed within15 feet of any such hydrant. Footways, gutters, sewers, outlets, inlets and portions of highways adjoining the work under construction shall not be obstructed. Pavements over which hauling is performed shall be kept clean of spilled or tracked-on material at all times when in use by traffic.

107.5.2 Objects Potentially Affecting Navigable Airspace. The contractor shall comply with all federal regulations pertaining to constructing, erecting or installing any object, temporary or permanent, which could potentially affect navigable airspace.

107.5.3 Material and Equipment. During construction hours, equipment, material and vehicles utilized in construction of the project will only be permitted on shoulders, medians or pavements where the locations are closed to traffic, properly signed and occupied by ongoing construction operations, unless otherwise approved by the engineer. Except in cases of emergency, construction equipment, material and vehicles will not be permitted on pavements or shoulders being utilized by traffic. If the contract specifies time periods the contractor will not be permitted to perform work, construction equipment or vehicles shall not enter or leave the construction area via the pavements handling traffic nor be operated on the pavements handling traffic within the construction area during the restricted time periods. During non-construction hours, construction equipment, material and vehicles will not be permitted within 30 feet of the edge of the pavement or shoulders carrying traffic unless the equipment, material and vehicles are located in a properly protected area, an off-site storage area or as otherwise directed by the engineer.

107.5.4 Distractions to the Traveling Public in Work Zones. In order to avoid distracting operators of vehicles traveling on the roadway, the Contractor and its sub-contractors shall not bring or display any signs, flags, logos, emblems, advertising, or any other communicative device on construction equipment that is large enough to be legible from the main traveled way of the highway in the work zone or on highway right of way. This prohibition does not apply to any sign, logo or emblem placed on Contractor equipment identifying the owner or manufacturer of the equipment or to any official highway signs approved by the Commission pursuant to 227.220 RSMo.

107.6 Bridges over Navigable Waters. All work on navigable waters shall be conducted such that free navigation of the waterways will not be interfered with and that existing navigable depths will not be impaired except as allowed by permit issued by the USCG or the USACE.

107.7 Use of Explosives. All blasting operations shall be conducted under the direct supervision of a licensed blaster as required by the Missouri Blasting Safety Act. When explosives are used in the prosecution of the work, the contractor shall use the utmost care to prevent bodily injury and property damage. The contractor shall be responsible for damage resulting from the use of explosives. The engineer will have the authority to suspend any unsafe blasting operation. The contractor shall be familiar and comply with the rules and regulations of any city, county, state or federal agency or any other agency that may have jurisdiction in the handling, loading,

transporting, storage and use of explosives. All places used for explosives storage shall be marked clearly "DANGEROUS EXPLOSIVES".

107.7.1 Before beginning work, the contractor shall furnish the engineer letters of approval for the proposed operation from the appropriate regulating agencies. The contractor shall notify in writing the appropriate fire protection jurisdiction of the intent to store, transport or use explosives and shall provide proof of notice to the engineer. The contractor shall provide the engineer with copies of all permits, blasting logs and seismic monitoring data.

107.7.2 The contractor shall notify in advance each property owner, tenant and public utility company having structures or facilities close to the work of any intention to use explosives.

107.7.3 Removal of any item or material of any nature by blasting shall be done in such a manner and at such time as to avoid damage affecting the integrity of the design and to avoid damage to any new or existing structure, whether on Commission right of way or private property, included in or adjacent to the work. Unless the contract documents or the engineer restricts such operation, the contractor shall be responsible for determining a method of operation to ensure the desired results and the integrity of the completed work.

107.7.4 The contractor and surety shall indemnify and save harmless the State, the Commission, the Commission's agents, employees and assigns from any claim related to the possession, transportation, storage or use of explosives.

107.8 Preservation of Monuments and Artifacts.

107.8.1 Monuments. The contractor shall not disturb or damage any land monument or property landmark unless authorized by the engineer.

107.8.2 Human and Archaeological Remains. The contractor shall report to the engineer the discovery of human remains, artifacts, fossils and other items of historical, archaeological or geological significance discovered within the right of way during construction. Such items will remain in the Commission's custody and shall not be removed from the site unless directed by the engineer. The preservation and handling of such items shall be in accordance with Sec 203.4.8.

107.9 Forest and Park Protection. Environmental and sanitary laws and regulations regarding the performance of work within or adjacent to state or national forests or parks shall be obeyed. The contractor shall keep the project site in an orderly condition, dispose of all refuse, obtain permits for the construction and maintenance of all construction camps, stores, warehouses, residences, latrines, cesspools, septic tanks and other structures in accordance with the regulations and instructions issued by the forest or park supervisor. The contractor shall require employees and subcontractors, independently, and at the request of forest officials, to prevent and suppress forest fires, and to notify a forest official of the location and extent of any fire.

107.10 Environmental Protection. The contractor shall comply with all federal, state and local laws and regulations controlling pollution of the environment. Pollution of streams, lakes, ponds and reservoirs with fuels, oils, bitumens, chemicals or other harmful material and pollution of the atmosphere from particulate and gaseous matter shall be avoided.

107.10.1 Fording of streams and fill for temporary work not specified on design plans will not be permitted unless the plan for such operation is authorized by the Corps of Engineers, meets the

approval of the engineer, complies with the current MoDOT Pollution Plan and results in minimum siltation to the stream. Temporary stream crossings shall not be constructed unless specifically designated as a condition of the Corps of Engineers Section 404 permit or a permit is obtained, and the temporary stream crossing is in accordance with Sec 806.

107.10.2 When work areas or pits are located in or adjacent to streams, the areas shall be separated from the main stream by a dike or barrier to keep sediment from entering the stream. Care shall be taken during the construction and removal of such barriers to minimize siltation of the stream.

107.10.3 Disposal of Portland cement concrete residue and wash water, water from aggregate washing, or other operations producing sediment laden runoff shall be treated in accordance with Sec 806.

107.10.4 Oil distributors or tanker trucks used for the transport or application of any petroleum-based products, and that have a capacity greater than 1,320 gallons, shall not be left unattended on MoDOT right of way within the project limits during non-construction hours unless secondary containment is deployed as per the Spill Prevention Control and Countermeasure rule. Parking of these vehicles on MoDOT right of way outside of the project limits, or on any MoDOT owned property, shall not be allowed without the aforementioned secondary containment and prior authorization from the engineer.

107.11 Responsibility for Claims for Damage or Injury. The contractor and insurance company shall indemnify and save harmless the State, the Commission, the Commission's agents, employees and assigns from all claims or suits made or brought for bodily injury, death or property damage, arising from performance of the work to the extent of:

(a) The negligent acts or omissions of the contractor, subcontractors, suppliers or their respective officers, agents or employees.

(b) The creation or maintenance of a dangerous condition of or on the Commission's property or right of way, which condition occurred due to the acts or omissions of the contractor, subcontractors, suppliers or their respective officers, agents or employees or for which the contractor had knowledge of or could have had knowledge of the condition in time to warn of or repair said condition.

(c) The failure of the contractor, subcontractors, suppliers or their respective officers, agents or employees, to perform the work in accordance with the plans and specifications.

107.11.1 The contractor will not be required to defend, indemnify or hold harmless any other person, including the State, the Commission, or the Commission's agents, employees or assigns for any acts, omissions or negligence of other persons.

107.11.2 Neither the Commission nor the contractor, by execution of a contract, shall intend to or create a new or enlarge an existing cause of action in any third party. This provision shall not be interpreted to create any new liability that does not exist under the law, or to waive or extinguish any defense that either party to this contract or their respective agents and employees may have to an action or suit by a third party.

107.12 Contractor's Responsibility for Work From the earlier of the date of commencement of the work or the effective date of the notice to proceed, and until any work is accepted by the

engineer, the work shall be in the custody and under the charge and care of the contractor. Issuance of a payment estimate on any part of the work done will not be considered as final acceptance of any work completed up to that time.

107.12.1 Damages to any portion of the work before the work is completed and accepted, caused by the action of the elements or from any other reason, shall be repaired or replaced at the contractor's expense. The contractor, at the contractor's option, may insure against any such damages. The Commission may, in its discretion, make such a payment, determined in accordance with Sec 109.4, for damage to the work due to unforeseeable causes beyond the control of, and without fault or negligence on the part of the contractor, unless the contractor has been reimbursed for such damages by the contractor's insurer. Prior to reimbursement, the contractor shall furnish documentary evidence of all efforts to recover such repair costs.

107.12.2 The contractor shall immediately give written notice to the engineer of any pedestrian, worker and/or vehicular accident. The contractor may be directed by the engineer to repair permanent Commission facilities that have been damaged by events that are beyond the control of the contractor. Reimbursement will be provided by the Commission, determined in accordance with Sec 109.4, for the actual direct cost of labor, equipment and material, exclusive of overhead, indirect or consequential costs of profit. The Commission may elect to make such repairs in lieu of the contractor.

107.13 General Insurance Requirements. The Contractor shall procure and maintain at the Contractor's expense until Final Acceptance of the project by the engineer, insurance for all damages and losses imposed by law and assumed under the contract, of the kinds and in the amounts specified in Secs 107.13.1 through 107.13.8.

107.13.1 Sovereign Immunity Limits for Missouri Public Entities. The Contractor shall procure and maintain at least minimum insurance coverages to meet the sovereign immunity limits for Missouri public entities as calculated by the Missouri Department of Insurance and published annually in the Missouri Register pursuant to Section 537.610 RSMo., for Secs 107.13.2 through 107.13.5, unless specified otherwise for each type of insurance coverage. Each policy shall provide additional insured status for the Missouri Highways and Transportation Commission (Commission), the Missouri Department of Transportation (MoDOT) and its employees up to Missouri's sovereign immunity limits.

107.13.2 Commercial General Liability Insurance. The Contractor shall procure, and maintain during the term of the project, commercial general liability insurance with coverage at least as broad as Insurance Services Office (ISO) policy form CG 00 01. The general aggregate limit shall, by endorsement or otherwise, provide a designated aggregate limit solely for this project using ISO form CG 25 03 05 09 or an equivalent form. General liability policies shall be endorsed to add the Commission, MoDOT, and its employees as additional insureds (the "Additional Insureds") using Insurance Services Office forms CG 20 10 or the equivalent under such policy. For construction contracts, an endorsement providing completed operations coverage to the Additional Insureds, ISO form CG 20 37 or the equivalent, is also required. This form, CG 20 37, shall be endorsed on each subsequent commercial general liability policy issued to the Contractor for three (3) years after final acceptance of the project. The contractor could

provide extended completed operations for specific project needs. Discontinued operations coverage shall be provided for three (3) years when applicable. Coverage shall not be reduced by insured versus insured exclusions or by explosion, collapse and underground (XCU) exclusions.

107.13.3 Commercial Automobile Liability Insurance. The Contractor shall procure and maintain automobile liability coverage at least as broad as ISO policy form CA 00 01 covering owned, hired, and non-owned autos. The policy shall include as insureds anyone liable for the conduct of an insured as described by policy provision or by endorsement added to the policy.

107.13.4 Contractor's Pollution Liability (CPL) Insurance. The Contractor performing excavation, remediation, hazardous materials removal, or any other work involving potential pollution arising from construction operations shall procure and maintain contractor's pollution liability insurance for liability arising out of sudden, accidental, and gradual pollution and remediation. The policy shall have minimum limits of $1,000,000 and the Commission, MoDOT and its employees shall be endorsed as additional insureds under such policy. The policy shall provide coverage for the hauling of waste from the project site to the final disposal location, including non-owned disposal sites. Products/completed operations coverage for pollution liability insurance shall extend a minimum of three (3) years after final acceptance of the project. Coverage shall be included on behalf of the insured for covered claims arising out of the actions of independent contractors. If the insured is using subcontractors, the Policy must include work performed "by or on behalf" of the insured. Policy shall specifically provide for a duty to defend on the part of theinsurer.

107.13.5 Aircraft Liability Insurance. If aircraft, including unmanned aircraft, will be used on the project, Contractor shall provide, or cause to be provided, aircraft liability insurance protecting against claims for damages resulting from such use in all cases where any aircraft that is owned, leased or chartered by any Contractor-Related Entity used on the Project. The policy shall have minimum limits of $1,000,000 and the Commission, MoDOT and its employees shall be additional insureds on the policy by endorsement or policy provision. The use of any aircraft in performance of the Work, the aircraft crew, flight path and altitude, including landing of any aircraft on the Site or on any property owned by the Commission, MoDOT or other parties at interest, shall be subject to review and written acceptance by the Commission prior to any such usage. If any aircraft are leased or chartered with crew and/or pilot, evidence of non-owned aircraft liability insurance will be acceptable to meet these requirements but must be provided prior to use of the aircraft. For use of unmanned aircraft vehicles, the contractor may provide insurance either through an aircraft liability insurance policy, or by endorsement to the Contractor's commercial general liability insurance policy and excess liability policies. Use of unmanned aircraft must comply with all state and federal rules and regulations, including FAA requirements.

107.13.6 Excess or Umbrella Liability Insurance. The Contractor may satisfy the required limits for Secs 107.13.2 through 107.13.5 by use of excess or umbrella liability insurance policies in any combination that meets the contract limits requirements. Such policies shall

include as insureds, the Missouri Highways and Transportation Commission (Commission), the Missouri Department of Transportation (MoDOT) and its employees.

107.13.7 Workers' Compensation Insurance. The Contractor shall provide evidence to the engineer that the Contractor has obtained workers' compensation insurance and employers liability insurance as required by the state or is exempt and provides proper documentation to the engineer. Coverage shall include all statutory workers' compensation benefits to Contractor employees who may sustain work-related injury, death or disease. If applicable, commensurate with the requirements of the U.S. Longshore and Harbor Workers' Compensation Act (USL&H) and the Jones Act, with a minimum limit of $2,000,000 per occurrence and in the aggregate, or as may be specified by law, for each. The required insurance must be endorsed to include a waiver of subrogation in favor of the Commission, MoDOT and its employees.

107.13.8 Railroad Protective Liability Insurance. In addition to other forms of required insurance, the Contractor shall provide railroad protective liability insurance when any of the Contractor's work is to be performed within any railroad right of way and in some cases may be required when the project improvements are near a railroad right of way. The name or names of the railroad companies known to be in the vicinity of the contract improvements will be specified in each contract, but the contractor shall confirm the railroad companies impacted and the final insurance needed with each railroad. The minimum limits of the insurance indicated by each railroad to the Commission will be included in the contract bid documents for informational purposes, but the contractor shall be bound by each individual railroad company requirements. Each railroad agency has final determination in the content and coverage limits of the policies required. No work will be permitted within any railroad's right of way until the railroad involved has reviewed and approved the insurance policy. Any day upon which the Contractor cannot perform work due to such a policy not being approved by the railroad will not be counted as a contract day under Sec 108.7.

107.13.9 Evidence of Insurance. Required evidence of insurance providing confirmation of compliance with these requirements shall consist of a certificate of insurance, an endorsement to any workers compensation policy waiving the subrogation by the insurer, and any endorsements adding the Commission, MoDOT and its employees as additional insureds where specified. "Blanket" or "automatic" additional insured endorsements providing additional insured coverage "where required by contract," may be used, provided that such forms provide coverage at least as broad as provided by the specified endorsement forms required. The contractor and any subcontract work shall not commence under the contract until the contractor obtains the applicable insurance coverage required and receives approval for such insurance from the engineer. All evidence of insurance for the prime contractor, including certificates of insurance and required endorsements, and notices shall be submitted electronically by the insurance agent to ContractorSupport@MoDOT.mo.gov. The Contractor shall promptly furnish the engineer with a complete copy of its policy upon request. Failure to furnish evidence of proper insurance, or complete insurance policies when requested, may result in the suspension of work as provided in Sec 108, and may result in other claims or actions for breach of contract or otherwise, as may be recognized at law or in equity.

107.13.9.1 Work Performed by Subcontract. Prior to its commencement of the applicable work, the contractor shall cause each of its subcontractors to provide insurance that complies with the requirements for contractor-provided insurance. Contractor's determination of such insurance shall not be interpreted as relieving Contractor or its insurer of any liability otherwise imposed on Contractor or its insurers under these Contract Documents. The Contractor shall promptly furnish the engineer with a complete copy of its subcontractor policies upon request. Failure to furnish evidence of proper insurance, or complete insurance policies when requested, may result in the suspension of work as provided in Sec 108, and may result in other claims or actions for breach of contract or otherwise, as may be recognized at law or in equity.

107.13.10 Other Conditions and Requirements

107.13.10.1 Acceptability of Insurance Companies. All insurers must be authorized to transact business under the laws of the State of Missouri and hold an AM Best rating of no less than A-: VI.

107.13.10.2 Waiver of Right of Recovery. All insurance coverage maintained or procured pursuant to this agreement shall be endorsed to waive subrogation against the Commission, MoDOT and its employees or shall specifically allow the Contractor, or others providing insurance evidence in compliance with these specifications, to waive their right of recovery prior to a loss. Contractor hereby waives its own right of recovery against the Commission, MoDOT and its employees.

107.13.10.3 Enforcement of Contract Provisions (non estoppel). Contractor acknowledges and agrees that any actual or allegedfailure on the part of the Commission, MoDOT or its employees to inform Contractor of non-compliance with any requirement imposes no additional obligations on the Commission, MoDOT or its employees, nor does it waive any rights hereunder.

107.13.10.4 Primary and Non-contributory. For any claims related to this contract, the Contractor's insurance coverage shall be primary insurance with respects to the Commission, MoDOT and its employees as the additional insureds. Any other insurance or self-insurance maintained by any of these parties shall be excess of the Contractor's insurance and shall not contribute with the Contractor's insurance.

107.13.10.5 Specifications not Limiting. Requirements of specific coverage features, or limits contained in this Section are not intended as a limitation on coverage, limits or other requirements, or a waiver of any coverage normally provided by any insurance. Specific reference to a given coverage feature is for purposes of clarification only as it pertains to a given issue and is not intended by any party or insured to be all inclusive, or to the exclusion of other coverage, or a waiver of any type.

107.13.10.6 Notice of Cancellation and Change in Insurance Carrier. Contractor agrees to oblige its insurance agent or broker, and insurers by endorsement to the policy, to provide to the engineer with thirty (30) days advance notice of cancellation, except for nonpayment for which ten (10) days' notice is required, or nonrenewal of coverage for each required coverage. If any policy is canceled or the insurance carrier is planned to change before the contract work is complete, a satisfactory replacement policy shall be obtained and in force, with notice and evidence of insurance submitted to the engineer, prior to the effective date of cancellation of the former policy.

107.13.10.7 Self-insured Contractors and Self-insured Retentions. A self-insured contractor will not be considered to comply with these specifications unless approved by the engineer prior to beginning work. A contractor with insurance policies arranged with self-insured retentions must be declared to and approved by the engineer prior to beginning work. The Commission reserves the right to require that self-insured retentions be eliminated, lowered, or replaced by a deductible or other policy type.

107.13.10.8 Timely Notice of Claims. Contractor shall give the engineer prompt and timely notice of claims made or suits instituted that arise out of or result from Contractor's performance under this Agreement, and that involve or may involve coverage under any of the required liability policies. The Commission and MoDOT will provide timely notice to the contractor of any claims or lawsuits that it receives. If the Commission demands that the contractor defend the suit and/or indemnify the Commission, the contractor or its insurance company shall acknowledge that demand within 20 days of receiving it and the contractor shall respond within a total of 45 days of the claim receipt the intent of the contractor to defend.

107.13.10.9 Exhaustion of Policy Limits. It shall be the contractor's responsibility to notify the engineer promptly when any provided insurance limits are not able to be maintained during the contract period or provide verification that additional coverage or excess coverage is also available.

107.14 Cooperation in Defense. The indemnified party shall cooperate with the indemnifying party in the defense of a third-party claim subject to the foregoing, (1) the indemnified party shall not have any obligation to participate in the defense of or to defend any third-party claim, and (2) the indemnified party's defense of or its participation in the defense of any third-party claim shall not in any way diminish or lessen its right to indemnification as provided in this section.

107.15 Third Party Liability. Neither the State of Missouri, including the Commission, nor the contractor, by execution of the contract including these specifications, intend to create a right of action in a third-party beneficiary, except as specifically set out in these specifications and the contract. It is not intended by any required contractual liability in the contract or in these specifications that any third-party beneficiary has a cause of action arising out of the condition of the project when completed in accordance with the plans and accepted by the Commission.

107.16 Personal Liability of Public Officials. There shall be no personal liability upon the Chief Engineer, or any member, employee, or agent of the Commission in carrying out any of the provisions of the contract or in exercising any power or authority granted to the individual, it being understood that in such matters the individual acts as an agent and representative of the State, with official and public duty doctrine immunity. If any provision of the contract appears to impose a duty on such an individual, the duty will remain exclusively that of the Commission and will not be a personal duty or obligation of the individual.

107.17 Contractors That Are Not Resident In Missouri. Any contractor that is not a permanent resident of or domiciled in Missouri shall provide to the Commission proof of compliance with the Missouri "nonresident employers" financial assurance laws at Sections 285.230 to 285.234, RSMo, before the contractor performs any work on a project.

107.17.1 A nonresident contractor that is a "transient employer" as that term is defined in Section 285.230.1, RSMo, and 12 CSR 10-2.017(1)(A), shall file with the Commission a photocopy of the contractor's current transient employer's certificate of registration issued by the Missouri Department of Revenue before performing any work on a project. A nonresident contractor that is not classified by the Missouri Department of Revenue as a "transient employer" because the nonresident contractor has properly registered with the Missouri Department of Revenue and the Missouri Division of Employment Security, and has filed and paid Missouri state income taxes for more than 24 consecutive months, shall file with the Commission a photocopy of the contractor's certificate of registration, issued by the Missouri Department of Revenue, that it is not a "transient employer" before performing any work on a project.

107.17.2 The contractor shall require a nonresident subcontractor to file with the Commission a photocopy of the subcontractor's current transient employer's or alternate certificate of registration, as issued by the Missouri Department of Revenue, before that subcontractor performs any work on a project.

107.17.3 Any nonresident contractor or subcontractor that fails to file the financial assurance forms with the Missouri Department of Revenue as required by Missouri law will be prohibited from contracting for or performing labor on any project for a period of one year.

107.18 Basis of Payment. No direct payment will be made for compliance with Sec 107, except as provided by Sec 618.

Buy America

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

1.0 Description. The Bipartisan Infrastructure Law (BIL) was enacted on November 15, 2021.

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

a) Iron and steel – no changes to the current specification requirements.

b) Manufactured products – these are currently exempted under the 1983 waiver from FHWA.

c) Construction materials consisting primarily of:

- Non-ferrous metals;
- Plastic and polymer-based products (including polyvinylchloride, composite build materials, and polymers used in fiber optic cables);
- Glass (including optic glass);
- Lumber; or
- Drywall

1.1 All products and or materials will only be classified under one of these categories and not under multiple categories. It is the prime contractor's responsibility to assure all submittals required for Buy America are submitted to the Engineer prior to the products and or materials being incorporated in the job. The implementation of this policy will be in effect for all projects awarded after November 10, 2022.

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

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

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

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

Delete Sec 617.20.3 and substitute the following:

617.20.3 Certification. Prior to use the contractor shall submit to the engineer a manufacture's certification of crashworthiness per NCHRP 350 or MASH 2016 for portable concrete barrier or other approved temporary barrier. Type F three-loop temporary concrete barrier is required to meet NCHRP 350 requirements regardless of manufacturing date and may be used until January 1, 2030. All other temporary barriers manufactured prior to January 1, 2023 may be used until January 1, 2030. All other temporary barriers manufactured after January 1, 2023 shall meet MASH 2016 crash test requirements.

Delete Sec 1063.2 and substitute the following:

1063.2 General Requirements. All temporary traffic control devices shall be manufactured as shown on the plans and as specified, in accordance with MUTCD requirements and shall be NCHRP 350 or MASH 2016 compliant. FHWA Category 1 temporary traffic control devices are not required to be crash tested unless modified. Non MASH 2016 FHWA Category 2 temporary traffic control devices and appurtenances manufactured prior to January 1, 2023 may be used until January 1, 2026. Non MASH 2016 FHWA Category 3 temporary traffic control devices and appurtenances manufactured prior to January 1, 2023 may be used until January 1, 2030. All other FHWA Category 2 and Category 3 temporary traffic control devices and appurtenances manufactured after January 1, 2023 shall meet MASH 2016 Test Level 3 crash test requirements. Type F three-loop temporary concrete barrier is required to meet NCHRP 350 requirements regardless of manufacturing date and may be used until January 1, 2030. MASH 2016 FHWA Category 4 temporary traffic control devices should be used when available. Nominal dimensions will be permitted for dimensional lumber where applicable. All temporary traffic control devices shall exhibit good workmanship and shall be free of objectionable marks or defects that affect appearance or serviceability. The brand name or model number shall be permanently identified on each traffic control device.

Alternate Weather Limitations for Plant Mix Bituminous Surface Leveling

1.0 Description. Weather limitations for Plant Mix Bituminous Surface Leveling mixtures shall be as specified in Sec 402.10.1 except as otherwise allowed herein.

1.1 When all remedial actions listed in Section 2.0 have been implemented by the contractor, at no additional cost to the Commission, the alternate weather limitations in Section 1.2 shall apply in lieu of Sec 402.10.1

1.2 Alternate Weather Limitations. Bituminous mixtures shall not be placed (1) when either the air temperature or the temperature of the surface on which the mixture is to be placed is below 40 F, or (2) on any wet surface or frozen pavement. Temperatures shall be obtained in accordance with MoDOT Test Method TM 20.

2.0 Remedial Actions.

a) Reclaimed Asphalt Pavement (RAP) content in the mix does not exceed 20% asphalt binder replacement.
b) No Reclaimed Asphalt Shingles (RAS) are added to the mix.
c) A material transverse vehicle is utilized to transfer the mix from the haul trucks to the paver.
d) Warm mix technology shall be incorporated into the mix (either by chemical additive or foaming), as approved by the engineer.

H. Liquidated Damages Specified JSP-93-28

1.0 Description. If all bridge construction, pavement, microsurfacing and striping of I-270 and any other work requiring lane closures to I-270, ramps, and/or cross streets is not complete and open to open to traffic prior to the dates in the table below, 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.

2.0 Liquidated Damages Specified for Failure To Complete Work on Time. These costs are not reasonably capable of being computed or quantified. Therefore, the contractor will be charged with liquidated damages specified in the amount shown in the table below per day for each full day that all that all traffic lanes are not fully open on I-270, ramps, and cross streets as specified elsewhere in this special provision. It will be the responsibility of the engineer to determine the quantity of excess closure time.

WORK	Completion Date or Closure Time Allowed	Liquidated Damages
1 Revised Conway Road reduced to one lane and travel in one direction	230 calendar days	$18,000 per day
Ladue Ramp 3 Closure (270 NB to Ladue)	35 calendar days	$10,000 per day
Ladue Road Closure (Demolition)	4 weekends	$1,000 per hour
Conway Road Closure (Demolition and Setting Girders)	4 weekends, 12 Nighttime Closures	$1,000 per hour

2.1 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.

2.2 This deduction will continue until such time as the necessary work is completed and traffic is restored.

I. Liquidated Damages / Liquidated Savings Specified for Completion J6I2090

1.0 Description.

1.1 Project completion. The contractor, from start of construction, shall be permitted no more than 550 consecutive calendar days to complete project. The start of construction shall be defined as any lane closures, work within the R/W, temporary barrier installation, or other work that contributes directly to the progression of the physical work of the project. This will not include any traffic control needed for survey and measurements prior to mobilization to the site. If construction has not begun by 4/30/2024, that date will be used as the construction start date.

1.1.1 If the J6I2090 project is not complete and open to traffic prior to the end of the 550 consecutive calendar day period, the Commission, the traveling public, and state and local police and governmental authorities will be damaged in various ways, including but not limited to potential liability, traffic and traffic flow regulation cost, traffic congestion and motorist delay, with its resulting cost to the traveling public.

2.0 Liquidated Damages Specified for Failure To Complete Work on Time. These costs are not reasonably capable of being computed or quantified. Therefore, the contractor will be charged with liquidated damages specified in the amount of **$5,000.00 per day** for each full day that the J6I2090 project is not complete and **open to all lanes of 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 excess closure time.

2.1 If construction is not complete after the 550 consecutive calendar days, the said liquidated damages specified will be assessed in addition to any other liquidated damages charged under the Missouri Standard Specifications for Highway Construction, as indicated elsewhere in this contract A completion date of November 1, 2025 has been set for completion of this project and as of that date the regular contract liquidated damages will prevail over this provision. If the time set is for project completion, the liquidated damage specified is not to be applied in addition to regular contract liquidated damages.

2.2 This deduction will continue until such time as the necessary work is completed and traffic is restored.

3.0 Liquidated Savings Specified for Early Completion. The contractor may receive an incentive payment from the Commission, in addition to all other sums earned under the contract, if the contractor completes the J6I2090 project. To qualify for this incentive payment, the J6I2090 project must be completed including barrier/guardrail and microsurfacing treatments and any work on Conway or Ladue and open to traffic. An incentive payment of **$5,000.00 will be paid per day** for each full day that the work described above is completed prior to the 550 consecutive calendar day closure period. The maximum amount paid as liquidated savings will not exceed 200 days or $1,000,000.00 for Job No. J6I2090.

3.1 In the event of an excusable delay, including differing site conditions, an extension of the contract completion time will not extend the time specified for determining any liquidated savings or incentive, except that, in its discretion, the Commission may extend the time specified should the delay be directly caused by the Commission. Further, in the event of an excusable delay, if

the contractor completes the work providing for liquidated savings or incentive on or before the milestone or other date, that shall not constitute a basis to claim acceleration costs in addition to the liquidated savings or incentive that may be earned.

3.2 The incentive payment described above is made, not as a bonus or gift, but as stipulated compensation in full for reduced risks, delay and inconvenience experienced by the traveling public, and for other reduced costs to the Commission and public resulting from early completion.

J. Utilities

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

Utility Name	**Known Required Adjustment**	**Type**
MISSOURI AMERICAN WATER Clayton Monroe clayton.monroe@amwater.com (314) 791-2449	None See 3.0	water
AMEREN Jessica Jackson RealEstatePermitsROW@ameren.com (314) 554-2273	None See 4.0 & 10.2	electric
SPIRE ENERGY Brian Langenbacher brian.langenbacher@spireenergy.com (314) 713-6572	None See 5.0 & 10.1	gas
CHARTER Ron Dumke DLCentralStatesConstruction@charter.com (314) 386-1643	None See 6.0	communications
AT&T Danny Gray (314) 415-0832	No Response See 7.0	communications
LUMEN Richard Obremski richard.obremski@lumen.com 314-378-9931	None See 8.0 & 10.3	communications
MoDOT ITS Darrel Patrick Darrell.Patrick@modot.mo.gov 314-275-1562	None See 9.0 & 10.4	

1.1 The existence and approximate location of utility facilities known to exist, as shown on the plans, are based upon the best information available to the Commission at this time. This information is provided by the Commission "as-is" and the Commission expressly disclaims any representation or warranty as to the completeness, accuracy, or suitability of the

information for any use. Reliance upon this information is done at the risk and peril of the user, and the Commission shall not be liable for any damages that may arise from any error in the information. It is, therefore, the responsibility of the contractor to verify the above listing information indicating existence, location and status of any facility. Such verification includes direct contact with the listed utilities.

2.0 Project Specific Provisions. The Contractor shall be aware there are numerous utilities present along the routes in this contract. The locations listed below are not to be considered all inclusive. Refer to Attachment A – Additional Utility Information, for additional utility information.

3.0 Missouri American Water. The 6" Cast Iron Main crossing I-270 at approximately STA 364+50 has been retired and left in place. The main was cut/capped from the last service at 38 BEACON HILL LN, ST. LOUIS, MO and cut/capped at 10 SACKSTON WOODS LN, ST. LOUIS, MO. There are no other apparent adjustments necessary within the scope of this project. Refer to Attachment A – Additional Utility Information, for additional utility information.

4.0 Ameren Overhead Power Lines

4.1 Description. 319.080. Activities within ten feet of power lines are prohibited. Unless danger against contact with high voltage overhead lines has been guarded against as provided by section 319.083, no person, individually or through an agent or employee, shall store, operate, erect, maintain, move or transport any tools, machinery, equipment, supplies or materials or any other device that conducts electricity, within ten feet of any high voltage overhead line, or perform or require any other person to perform any function or activity upon any land, building, highway or other premises, if at any time during the performance thereof it could reasonably be expected that the person performing the function or activity could move or be placed within ten feet of any high voltage overhead line.

4.2 The contractor will have overhead cranes on site to set the new girders over Conway Road, but they should not be within 30' of the existing overhead power lines. Contractor is to verify sufficient distant from powerlines prior to construction.

5.0 Spire Energy. No apparent adjustments necessary within the scope of project. Exercise extreme caution excavating near gas facilities and field verify main depth prior to installation. See section 10 for more information.

6.0 Charter. No apparent adjustments necessary within the scope of project.

7.0 AT&T. No apparent adjustments necessary within the scope of project. There was no response received from AT&T to confirm.

8.0 Lumen. Lumen has completed a joint build with MoDOT ITS to relocate of their fiber optic cable and facilities that run parallel to I-270 along the eastern edge of the interstate as part of MoDOT job J6I3501. Location of new facilities have been placed to avoid conflicts with proposed work on J6I2090. Please note that the existing fiber optic wire and trace wire were removed from the previous conduit, the conduit was abandoned in place.

9.0 MoDOT ITS. MoDOT ITS fiber optic cable has been relocated with the Lumen fiber optic cable as part of MoDOT job J6I3501. Location of new facilities have been placed to avoid

conflicts with proposed work on J6I2090. Please note that the existing fiber optic wire and trace wire were removed from the previous conduit, the conduit was abandoned in place.

10.0 Plan Sheet Utility Notes

10.1 Spire Energy notes that a proposed guardrail is crossing 6'' steel gas main near station 402+00 south of Conway Rd. Contractor to use extreme caution when excavating near gas facilities and field verify main depth prior to installation. See note on plan sheet.

10.2 Contractor to coordinate with MODOT Lighting and Ameren UE regarding power supply at pole providing 120V services to new CCTV at Ladue and I-270. See ITS plan sheets.

10.3 Plan sheets show previously marked location of Lumen fiber optic cable and facilities, these have been marked as abandoned by job J6I3501, while cable and tracer wire have been removed conduit was abandoned in place. Plan sheets also show the design location for the relocation of the Lumen's facilities, currently as-built plans are unavailable, and location is approximate.

10.4 Plan sheets show previously marked location of MoDOT ITSfiber optic cable and facilities, these have been marked as abandoned by job J6I3501, while cable and tracer wire have been removed conduit was abandoned in place. Plan sheets also show the design location for the relocation of the MoDOT ITS facilities, currently as-built plans are unavailable, and location is approximate.

K. Temporary Traffic Control

1.0 Description. All work necessary to maintain safe and efficient traffic flow through the work areas shall be provided by the contractor. This will include furnishing, relocating, and removing temporary traffic control devices, truck mounted attenuators and equipment, and the removal and relocation or covering and uncovering of existing signs and other traffic control devices in accordance with the contract documents or as directed by the engineer.

2.0 Work requirements. Work shall be in accordance with Sec 616, Sec 612, and the contract plans.

3.0 Method of Measurement. The quantities shown on the plans shall be considered an estimate and may be subject to change based on field conditions. This work will not be measured for payment, but will be considered a lump sum unit. Any Value Engineering proposals to the temporary traffic control will not be paid through value engineering but will be covered under:

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

4.0 Basis of Payment.

4.1 Partial payments will be made as follows:

(a) The first partial payment will be made when five percent of the original contract amount is earned. This payment will be the lesser of 50 percent of the contract price for the item of temporary traffic control or 5 percent of the original contract price.

(b) The second partial payment will be made when 50 percent of the original contract amount is earned. This payment will be the lesser of 25 percent of the original contract price for the item of temporary traffic control or 2.5 percent of the original contract price.

(c) The third partial payment will be made when 75 percent of the original contract amount is earned. This payment will be the lesser of 20 percent of the original contract price for the item of temporary traffic control or 2 percent of the original contract price.

(d) When the engineer has accepted the contract for maintenance in accordance with Sec 105, the remaining contract price for the item of temporary traffic control will be paid.

(e) The above partial payment schedule may be adjusted by the engineer if proof of invoices submitted by the contractor demonstrate additional temporary traffic control costs were incurred earlier than the above proposed schedule. The total payment for temporary traffic control will not exceed the bid amount for Temporary Traffic Control, lump sum, unless covered by a cost change order as referenced in the following Section 4.3.

4.1.1 For the purposes of this provision, the term “original contract price” will be construed as the total dollar value of the construction items (excluding temporary traffic control) of the original contract.

4.2 Temporary traffic control will be paid for at the contract lump sum price for Item 616-99.01, Temporary Traffic Control. No direct payment will be made for the following:

(a) Incidental items necessary to complete the work, unless specifically provided as a pay item in the contract.

(b) Installing, operating, maintaining, cleaning, repairing, removing or replacing traffic control devices.

(c) Covering and uncovering existing signs and other traffic control devices.

(d) Relocating temporary traffic control devices, including permanent traffic control devices temporarily relocated, unless specifically included as a pay item in the contract.

(e) Providing channelizers.

(f) Worker apparel.

(g) Flaggers, AFADs, PFDs, pilot vehicles, and appurtenances at flagging stations.

(h) Furnishing, installing, operating, maintaining, and removing construction-related vehicle and equipment lighting.

(i) Construction and removal of temporary equipment crossovers, including restoring pre-existing crossovers.

(j) Provide and maintaining work zone lighting and work area lighting.

(k) Removing existing pavement markings and removing and relocating temporary pavement markings as necessary for staging operations. Removal of pavement markings shall not mar the surface of permanent concrete pavement.

4.3 Any additional work deemed necessary by the engineer that requires temporary traffic control and is not covered by the contract plans will be included in the cost change order for the additional work. However, if the added work is required in a stage where temporary traffic control is already in place, no additional traffic control pay will be allowed in this case.

L. NTCIP Compliant Changeable Message Sign (Contractor Furnished and Retained)

1.0 Description. All solar powered changeable message signs, hereinafter referred to as a CMS, shall be in accordance with these specifications.

2.0 Material. Each CMS shall consist of an all LED (light emitting diode) matrix message board, solar/battery power supply and a user-operated interface, as specified, all mounted on a heavy duty, towable trailer.

2.1 Each CMS shall be either Full Matrix or Character Matrix, and have the following minimum characteristics:

(a) Full Matrix - Each CMS shall be the Full Matrix type with the capability of providing one, two, and three lines of individual changeable characters with minimum heights of 52 (1300), 28 (700), and 18 (450) inches (mm), respectively. Full Matrix signs shall be capable of both static and dynamic graphics, and full display sized messages.

(b) Character Matrix (Three Line) – Each CMS shall consist of a minimum of three lines containing eight individual changeable characters per line. Each character shall be a minimum of 12 inches wide and 18 inches (450 mm) high.

(c) Sign firmware shall comply with the current FHWA and DOT (Department of Transportation) NTCIP standards and support all NTCIP mandatory objects.

(d) The sign controller shall be remotely accessible by the MoDOT St Louis District Transportation Management Center (TMC) through the Commission's ATMS (Advanced Traffic Management System) software, currently TransSuite provided by TransCore. The contractor will be responsible for ensuring the CMS is added to the ATMS software.

(e) The CMS shall have a cellular data modem compatible with the district's current cellular IP (packet data) service provider and be capable of allowing the MoDOT St Louis District TMC ATMS software to have full control of the NTCIP compliant CMS controller remotely. Modem shall by capable of being programmed with a static IP.

(f) The sign shall have a GPS unit that can assist in locating the sign's position when polled by the TMC. The GPS unit must be remotely accessible by the TMC and be part of or work with the provided communication modem.

(g) Physical access to the onboard computer shall be protected by a padlock or other locking handle mechanism. Electronic access to the onboard computer shall be protected by a username and password.

2.2 Full matrix CMS and character matrix CMS shall meet the following:

(a) The overall sign dimensions shall not be less than 72 inches (1800 mm) high x 126 inches (3150 mm) wide.

(b) The CMS shall be legible up to a distance of 650 feet (200 m) for both day and night operations and shall be visible for ½-mile (800 m) with 18 inch (450 mm) characters.

(c) When fully raised in the display position, the bottom of the CMS board shall be at least a height of 7 feet (2100 mm) from the ground and shall be able to rotate a complete 360 degrees atop the lift mechanism. A sight tube, used to aim the CMS board to oncoming traffic, shall be installed on the CMS board or mast. The CMS shall have an electrical hydraulic lifting mechanism that includes a manual lifting and lowering relief mechanism as a backup. It also must be able to be locked into various viewing angles as determined best for the motorists by the CMS operator.

(d) All LED displays and control circuitry shall be operational from -20 F (6 C) to 120 F (50 C). The LED's shall have a rated life of 100,000 hours. The LED's shall be ITE amber in color on a flat black background.

(e) The CMS face shall be constructed that if an individual panel or pixel fails the rest of the face shall continue to display the message.

(f) All costs and coordination needed for testing to verify modem communication, sign NTCIP compliance, remote GPS status polling, ability to control the sign via the St Louis District's ATMS software provided by TransCore shall be the sole responsibility of the Contractor. Full integration into TransCore's ATMS shall be completed at least 5 business days prior to use of the CMS in the project. TransCore contact information will be provided to the contractor by contacting MoDOT's Gateway Guide staff at 314-275-1526 or via email at ggtech@modot.mo.gov with details of the request. No other support shall be provided by MoDOT other than TransCore contact information. Information provided shall include, at a minimum, CMS make and model, IP address, and proposed locations and messages.

(g) The Contractor shall be responsible for all monthly cellular service fees for the duration of the project.

(h) The unit shall be able to withstand a 65-mph (105-kmph) maximum road wind speed. The trailer shall be able to support the fully extended CMS board in an 80-mph (130-kmph) wind load.

(i) Solar charging system shall allow for total autonomy of 24/7/365 continuous operation.

(j) All exterior surfaces except the sign face shall be cleaned, primed, and finished with two coats of Highway Safety Orange and the sign interior itself shall be cleaned and finished with one coat of corrosion inhibiting primer and two coats of flat black. The

sign face shall be covered with a rigid translucent material to prevent damage to the sign face caused by the environment.

3.0 Construction Requirements. Prior to placing a CMS on a project, the engineer shall verify proposed CMS location is void of conflict with another DMS or CMS locations presently established. If a conflict is present, the engineer shall contact the Traffic Management Center (TMC) at 314-275-1526 to mitigate. If no conflict is present, engineer shall provide Traffic Management Center (TMC) with the Job Number, Route, County, specific CMS location, and a CMS identification number that is permanently affixed to the CMS. The engineer and contractor shall verify the message displayed on board is compliant with CMS messaging policies. The contractor shall place the CMS 6 feet [2 meters] off of the right edge of shoulder at the location shown on the plans or as directed by the engineer. The CMS shall be placed so that the right side of the unit is advanced approximately 3 degrees ahead with the direction of traffic. CMS shall not be located in medians. CMS shall be delineated with a minimum of five non-metallic channelizing devices. Installation, including location and placement, shall be approved by the engineer. If needed, the contractor shall relocate the CMS as directed by the engineer.

3.1 When not in use, the CMS shall be stored no closer than 30 feet [10 meters] to the edge of pavement carrying traffic, unless it is in a properly protected area or an off-site storage area or as otherwise directed by the engineer.

4.0 Basis of Payment. All expenses incurred by the contractor in integrating, maintaining, relocating, operating and protecting the changeable message signs as outlined above shall be paid for at the contract unit price for Item 616-99.02 NTCIP Compliant Changeable Message Sign, Contractor Furnished and Retained, per Each.

4.1 Cost for channelizers shall be included in the contract unit price for CMS.

4.2 Cost for cellular phone hookup and monthly usage fee for the duration of the project shall be included in the contract unit price for CMS.

Item Number	Unit	Description
616-99.02	Each	NTCIP Compliant Changeable Message Sign (Contractor Furnished and Retained)

M. 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.

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 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 Once the bridge closure has been implemented by the Contractor, the Contractor shall then be solely responsible for the following signals' controller programming until completion of all closures necessary to complete the Contractor's work. 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 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:

- I-270 NB Ramps at Olive Blvd/Rte 340
- I-270 SB Ramps at Olive Blvd/Rte 340
- Olive Blvd/Route 340 at Center Parkway Drive
- Olive Blvd/Route 340 at New Ballas Road
- I-270 NB Ramps at Ladue Road/Rte AB
- I-270 SB Ramps at Ladue Road/Rte AB
- Ladue Road at Emerson Road
- I-64 WB Ramps at New Ballas Road
- I-64 EB Ramps at New Ballas Road

City of Creve Coeur Signals:

- New Ballas at Studt Ave.
- New Ballas at Old Ballas Road
- New Ballas at 456 New Ballas Road (all quadrants)
- New Ballas at Magna Carta Dr.
- New Ballas at Ladue Road
- New Ballas at Muckerman Drive
- New Ballas at Conway Road

3.3 The Engineer shall provide to the Contactor 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
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 AM and 6 PM 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 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 bridge 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 Number	Description	Unit
616-99.01	Traffic Signal Maintenance and Programming	Lump Sum

N. Pavement Marking Removal

1.0 Description. Pavement Marking Removal shall be in accordance with Section 620.50 and specifically as follows.

2.0 Construction Requirements. Removal of all pavement marking within the project limits shall be as shown on the plans or as approved by the engineer. Pavement marking shall be completely removed to the satisfaction of the engineer with minimal damage to the pavement. The contractor shall use an approved sand or water blasting method to remove the pavement marking. No more than five percent of the existing marking shall remain. The pavement surface shall not be left scarred with an image that might mislead traffic. Any excess damage or scarring of the pavement shall be repaired at the contractor's expense. It shall be the contractor's responsibility to determine what type of material needs to be removed.

3.0 Method of Measurement. Final measurement will be made in accordance with Section 620.50.3.

4.0 Basis of Payment. The accepted quantity of pavement marking removal will be included in the lump sum Temporary Traffic Control. The payment will be for:

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

O. Inlaid Pavement Marker Removal

1.0 Description. Existing Inlaid raised pavement markers shall be removed within the limits of the temporary pavement marking shown in the temporary traffic control plans for I-270.

2.0 Removal of Existing Inlaid Pavement Markers (IPM) This work shall consist of the removal of existing IRPM's. Removal of IRPM's shall include removing the IPM reflector and housing, with minimal damage to the pavement. The hole shall be patched with a commercial mix.

3.0 Method of Measurement. No Measurement shall be made for the removal of IRPM's, and associated patching of grove.

4.0 Basis of Payment. The accepted quantity of inlaid pavement marker removal will be included in the lump sum Temporary Traffic Control. The payment will be for:

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

P. Adjust Overhead Signs

1.0 Description.

1.1 This work shall consist of temporarily covering 'Exit Only' panels, adding 'Closed' panels, shifting of overhead signs on existing truss, covering various arrow symbols, route or interstate shields, directional designation, as well as some signs in total on existing sign trusses and any additional signs listed in the contract. Uncovering of the signs shall be included within the cost of the pay item. The contractor shall uncover signs once the traffic control stage is completed for which has signs to be covered and plaques to be installed. Contractor shall submit proposed cover material for approval to the engineer prior to any work being performed.

1.2 This work will also consist of temporarily mounting a sign for Phase 3 and 4 of the traffic control plans on the existing overhead truss along NB I-270 and removing the temporary signs upon completion of Phase 4 traffic control.

2.0 Basis of Payment. The accepted quantity of covering/uncovering existing signs and arrow symbols, installing temporary overhead signs and installing/removing 'Closed' plaques on existing signs will be paid at the contract unit price for the pay item included in the contract. All labor, equipment and material cost required to fulfill this requirement shall be included in the unit price for the following pay item:

Item No.	Type	Description
903-99.02	Each	Adjust Overhead Signs

Q. Coordination with Mercy Hospital

1.0 Description. This project impacts Mercy Hospital's operations, emergency response and facilities. The contractor shall keep Mercy Hospital informed of planned work to minimize the impact to the hospital.

2.0 Coordination. The Contractor shall coordinate with all of the hospital contacts on upcoming work and update progress as noted in this section.

2.1.1 Hospital Contacts:

Cristopher Viviano
Project Principle
Email: Christopher.Viviano@Mercy.Net
Phone: (314) 821-3324 (O) (314) 560-4101 (M)

Erick Enderling
Senior Manager Facilities Maintenance and Operations
Email: Erik.Enderling@Mercy.Net
Phone: (314) 251-6626 (O) (314) 221-6787 (M)

Jeff Bader
Director of Public Safety
Email: Jeffrey.Bader@Mercy.Net
Phone: (314) 251-4988 (O) (314) 624-4223 (M)

Catherine Grasso
Manager – Construction Facilities Plan Design Construction
Email: Catherine.Grasso@Mercy.Net
Phone: (314) 251-4397 (O) (618) 972-4446 (M)

2.1 Grading and Excavation along Mercy Frontage. The hospital currently has established landscaping and irrigation along their frontage, some of which is located within MoDOT right-of-way, that will be disturbed by the project. To allow the hospital to disconnect irrigation and establish protection of trees marked as do not disturb, the Contractor shall notify Mercy hospital three weeks prior to any grading or excavation on the east side of I-270 from STA 382+00 to STA 400+00 and along Conway Road from STA 10+83 to STA. 15+50

2.1.1. Staking of Grading Limits. The Contractor shall stake proposed grading limits two weeks prior to grading activities.

2.1.2 Finished Grade and Sodding. The Contractor shall notify the hospital contacts two weeks prior to completing the finished grading to allow the hospital to re-establish irrigation prior to contractor placing sod. The hospital will be allowed two weeks to install and mark all new irrigation. Contractor shall install sod within two weeks of the completion of the irrigation work by Mercy. It is the contractor's responsibility to not disturb the newly installed irrigation and will be responsible for all repair costs associated with damage caused by their efforts.

3.1 Conway Road and McAuley Drive Improvements. The contractor shall provide four weeks' notice to the hospital contacts for all changes to traffic patterns including short-term closures, weekend closures of Conway Road, and closures of the McAuley drive. Contractor shall provide weekly updates of schedule after initial notice. Contractor shall also coordinate with local EMS and Fire one week prior to impacts.

4.1 Impacts to Mercy Helipad. The hospital's helipad is located near Conway Road along the east side of I-270. In addition to requirements of the FAA permits, the contractor shall notify hospital contacts two weeks ahead of all crane operations in the vicinity of the I-270 crossing over Conway Road, place proper flagging and lighting when cranes are elevated and lower the crane to ground level when not in use.

5.0 Basis of Payment. No direct payment will be made to the contractor for meeting the requirements set in this provision.

R. 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 **$511,300** will be added by the Commission to the total bid using an asphalt alternate for the ***Alternate A (I-270 and I-64 Ramps)*** 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 **$171,000** will be added by the Commission to the total bid using an asphalt alternate for the ***Alternate C (Ladue Rd. Ramps)*** 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.

2.0.3 A sum of **$70,200** will be added by the Commission to the total bid using an asphalt alternate for the ***Alternate G (Conway Road and N. Forty Drive)*** 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 A2 Shoulders

- **2.1.1** A sum of **$18,300**

will be added by the Commission to the total bid using an asphalt A2 Shoulder alternate for the ***Alternate E (I-270 and I-64 Ramps)*** 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.

2.1.2 A sum of **$1,300** will be added by the Commission to the total bid using an asphalt A2 Shoulder alternate for the ***Alternate I (Conway Road and N. Forty Drive)*** 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.

2.2 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 for **Alternates A through F, was designed for the *thicker* pavement alternate.** The grading shown on the plans for **Alternates G through J was designed for the *thinner* 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.

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 For projects with previously graded roadbeds, any additional quantities required to bring the roadway subgrade to the proper elevation will be considered completely covered by the pay item for Subgrading and Shouldering.

4.2 For projects with grading in the contract, there will be no adjustment of the earthwork quantities due to adjusting the roadway subgrade for alternate pavements.

S. Optional Pavements JSP 06-06G

1.0 Description. This work shall consist of a pavement composed of either Portland cement concrete or asphaltic concrete constructed on a prepared subgrade. This work shall be performed in accordance with the standard specifications and as shown on the plans or established by the engineer.

2.0 The quantities shown reflect the total square yards of pavement surface designated for each pavement type as computed and shown on the plans.

2.1 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.

2.2 No additional payment will be made for aggregate base quantities outside the limits of the final surface area as computed and shown on the plans. When A2 shoulders are specified, payment for aggregate base will be as shown on the plans.

2.3 The grading shown on the plans was designed for the *thicker* pavement option. For projects with grading in the contract, there will be no adjustment of the earthwork quantities due to adjusting the roadway subgrade for optional pavements.

2.4 The contractor shall comply with Sections 401 through 403 for the asphalt option and Sections 501 and 502 for the concrete option.

2.5 Pavement options composed of Portland cement concrete shall have contrast pavement marking for intermittent markings (skips), dotted lines, and solid intersection lane lines. The pavement markings shall be in accordance with Section 620. No additional payment will be made for the contrast pavement markings.

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

4.0 Basis of Payment. The accepted quantity of the chosen option will be paid for at the contract unit bid price for Item 401-99.05, Optional Pavement, per square yard.

T. Ground Improvements

1.0 Description. This Work shall consist of furnishing all supervision, materials, equipment, labor and related services for ground improvement at the locations shown on the Contract Plans (Plans) by constructing stone columns using dry installation techniques or by the removal and replacement of selected soils. The Work shall be carried out in accordance with the requirements of the Plans, this special provision, the Standard Specifications and as directed by the Engineer. The Work shall include access and working platforms, excavation, general and local dewatering as required for proper execution of the Work, construction of stone columns using dry installation techniques, placement of select granular backfill, and as-built drawings.

1.1 Over-excavation. Based on subsurface exploration data, the soil depth beneath Mechanically Stabilized Earth (MSE) Walls A9013 and A9014 from bottom of leveling pad to bedrock varies from shallow at the east end to roughly 25-feet at the west. The contract drawings depict areas where it is anticipated that this over-excavation and rock fill would extend fully to bedrock, depths less than 5-feet (+/-). Section 5.6 of the Report of Subsurface Exploration and Geotechnical Engineering Evaluation allows for additional areas with limited soil depth, less than 10-feet, where the proposed ground improvements, stone columns with rock mat, may be replaced with over-excavation and rock fill. These areas must meet global stability, settlement and bearing capacity requirements listed in the geotechnical report.

1.2 General Requirements. A subsurface exploration and testing program has been conducted in the project area. This information shows a variability in the bedrock elevation across the project site. The Contractor is responsible for the design of any changes in the ground improvements or over-excavation. The Contractor is responsible for obtaining any additional information to assist in their analysis at no additional cost to the Commission. Contract plans show stone column limits based on the sizes and layout depicted.

1.2.1 The purpose of the ground improvements is to strengthen the underlying soils and to provide additional bearing capacity for support of the bridge approaches and portions of MSE Walls A9013 and A9014. The ground improvements have been designed to provide minimum factors of safety of 1.5 (ϕ=0.65) against bearing capacity failure, 1.5 against sliding failure, and 2.0 against overturning failure. The above factors of safety are based on a MSE Wall reinforcement length of 0.7 times the height of the wall, reinforcement lengths greater than this will result in increased factors of safety.

1.2.2 Ground Improvements are limited to the areas indicated on the project drawings. The actual limits of Ground Improvement may vary from those shown on the plans, either decreased or increased, dependent on the Contractor's changes in design or subsurface conditions encountered during the work. All variations shall be approved by the Engineer.

1.2.3 The installation of the ground improvements shall also include the removal and disposal of excavation spoils as a result of the installation process. The cost of installation of the ground improvements shall include the cost of hauling, stockpiling and off-site disposal, of the excess excavated material.

1.3 Submittals. No later than 21 days prior to beginning work, the Contractor shall submit to the Engineer for approval the following information:

1.3.1 Documentation of the Contractor's qualifications shall show that they have been engaged in successful design and installation of deep ground improvements for at least 5-years and designed and constructed a minimum of five similar projects utilizing the deep ground improvement method proposed for the subject project. A list of previous projects including name, description, relative size and contact person with phone number shall be provided. Resumes of Contractor's site superintendent and/or foreman along with qualifications of the firm that will be performing the pile integrity tests shall also be provided.

1.3.2 Shop Drawings. The Ground Improvements contractor shall submit detailed design calculations and construction drawings by the Rammed Aggregate Pier. The shop drawings shall indicate the spacing, location, and depth of the Rammed Aggregate Pier installation points to achieve the performance criteria outlined in this specification. Each stone column shall receive a reference number, which will be indicated on the shop drawings. The shop drawing submittal shall also show cutoff elevations, typical sections and detail drawings as required. If an aggregate drainage layer is specified on the plans or a working platform proposed by the Contractor, the thickness, aggregate gradation, and plan dimensions shall be shown in addition to any other details needed to describe the work.

1.3.3 Design computations, signed, sealed and stamped in accordance with the laws relating to architects and professional Engineers (Chapter 327, RSMo.), demonstrating the proposed stone columns or trenches plan satisfies the minimum global stability, settlement, and bearing capacity performance requirements stated in the contract plans and those contained in this job special provision.

1.3.4 Certification that their Errors and Omissions design insurance policy has a minimum coverage of $2,000,000 per occurrence.

1.3.5 Work Plan. Submit to the Engineer for review, details of the equipment, sequence, and method of installation to include a plan to address any water or spoils. The submittal should include a detailed narrative of the Contractor's Quality Control Plan and how the work plan will comply with all requirements of the Project Safety Plan.

1.3.6 The source and gradation of the aggregate proposed for the stone columns/load transfer pad and rock fill.

1.3.7 The proposed verification program methods to monitor and verify the aggregate column or trench installation is satisfying the design and performance requirements. Also required is a sample of the daily report form to be used by the Contractor to documents the adequacy of that day's work.

2.0 Materials

2.1 Backfill Materials

2.1.1 Rammed Aggregate Piers. Stone used for Rammed Aggregate Piers backfill stone shall consist of MoDOT certified stone meeting gradation Type D, Course Aggregate for Concrete. If available, recycled concrete meeting MoDOT specifications may also be used for the pier construction provided it meets the approval of the Engineer as well as the Testing and Inspection program.

2.1.2 Load Transfer Pad and Rock Fill. The granular material used to construct the Load Transfer Pad and Rock Fill shall generally conform to the requirements of MoDOT Aggregate for Drainage, Grade 4, Gradation A (Section 1009).

2.1.2.1 The granular material for the load transfer pad shall be compacted with moisture control in accordance with this specification and Section 203 of the Missouri DOT Standard Specifications for Highway Construction.

2.1.3 Alternate backfill materials can be used if submitted per Section 7 and approved by the engineer.

2.2 Geogrid reinforcement: Shall conform to the following requirements:

High Strength Geogrid for use in Load Transfer Pad

Property	Value	Test Method
Tensile Strength (5% strain, MD)	810 lb/ft	ASTM D6637
Tensile Strength (5% strain, XD)	1340 lb/ft	ASTM D6637
Aperture Size (MD)	1.0 Inch	---
Aperture Size (XD)	1.3 inch	---

Note: MD – machine direction
XD – cross machine direction

2.3 Documentation. Provide documentation for all imported materials including pertinent laboratory test results prior to delivery on site.

2.3.1 Granular Material for use in the stone columns and load transfer pad: Provide the material source and results of recent gradation testing. Deliver a representative 5-gallon bucket sample of the product to the Engineer a minimum 10 days prior to delivery on site.

2.3.2 Geogrid for use in the load transfer pad: Provide the manufacturer's specifications and material source. Deliver samples of the product to the Engineer a minimum of 10 days prior to delivery on site.

3.0 Design Criteria. The contractor shall provide a ground improvement plan with shop drawings, and design computations that meet the performance requirements shown on the contract plans. These requirements normally include the global stability factor of safety, tolerable settlement amounts at various times and in the case of walls or structure footings, the equivalent uniform service bearing pressure applied at various locations and the factor of safety required.

3.1 Definitions.

3.1.1 Stone Column. Stone Columns shall consist of Rammed Aggregate Piers. The purpose of the stone column is to provide ground improvement and support for the MSE walls and highway embankment fill. Stone columns shall extend from the Load Transfer Pad to underlying bedrock

3.1.2 Load Transfer Pad. A load transfer pad will be constructed at the top of the stone columns. The transfer pad shall consist of compacted granular fill with layers of high strength geogrid reinforcement as shown on the plans. The purpose of the pad is to transfer the majority of the embankment loads to the stone columns, thereby providing adequate support above and between the stone columns.

3.2 Performance Criteria. Analysis shall be performed using Load and Resistance Factor Design (LRFD) with a minimum factory of safety of 1.0. Load resistance factors of 0.5 for overturning, 1.0 for sliding, and 0.5 for bearing shall be used. For seismic design, resistance factors of 1.0 for overturning, 1.0 for sliding, 0.65 for bearing shall be used.

3.2.1 Global Stability.

3.2.1.1 Short-term (Undrained) Conditions. A global stability factor of safety of at least 1.5 for short-term (undrained) conditions shall be achieved with Ground Improvements.

3.2.1.2 Long-term (Drained) Conditions. A global stability factor of safety of at least 1.5 for long-term (drained) conditions shall be achieved with Ground Improvements.

3.2.2 Bearing capacity. Allowable bearing capacity of at least 2,500 psf with a factor of safety of 3.0 shall be achieved with Ground Improvements.

3.2.3 Settlement. Total post-construction settlement from the placement of the embankment or MSE wall load shall be limited to 1.0 inches for the subsurface soils following ground improvements.

3.2.3.1 Time Rate of Settlement. At least 90% of consolidation settlement must be achieved within 90 days following the installation of the Ground Improvements and completion of the fill placement for the embankment or MSE wall.

3.3 Design Procedures.

3.3.1 The design of a Rammed Aggregate Pier system shall be performed in accordance with the procedures set forth in the Geopier Foundations and Soil Reinforcement Manual (Fox and Cowell, 1998) or as described herein.

3.3.2 The Ground Improvements specialty contractor shall produce project-specific construction drawings that shall be stamped and sealed by a Professional Engineer registered in the State of Missouri. The construction drawings shall be approved by the Engineer prior to construction.

3.3.3 The design work shall include Errors and Omissions (E&O) insurance with a minimum coverage of $2,000,000 per occurrence.

3.3.4 Location of Stone Columns shall be coordinated to avoid conflicts with the locations of the steel piles for the bridge foundations, proposed utilities, and existing utilities that are to be abandoned in place.

4.0 Construction. The construction procedures shall be determined by the stone columns installer and submitted for approval along with the shop drawings. The following are the minimum requirements that the contactor shall be expected to follow unless otherwise approved in the shop drawings submittal.

4.1 The site shall be graded as needed for proper installation of the stone columns or trenches system. Any grading and excavation below the improvement limits shown on the plans shall be incidental to the stone columns or trenches installation.

4.2 Any granular base drainage layer or working platform shall be considered incidental to the improvement. Contractor requesting drainage layers or working platforms will only be allowed if approved as part of the shop drawings.

4.3 The aggregate material shall be placed in a manner that allows measurement of the tonnage or quantity of aggregate placed down the hole or trench.

4.4 Columns or trenches shall be installed in a sequence that will minimize ground heave. Any heaving shall be re-compacted or excavated as directed by the Engineer prior to wall or embankment construction and shall be considered incidental to aggregate column or trench improvement.

4.5 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 contain water used or encountered during construction, including the method of disposal of the water whether on right of way or off-site. Water will not be allowed to discharge onto open traffic lanes and BMP's shall be installed to keep sediment-filled water from entering drainage structures, from entering any waterways and from leaving the right of way. Prior to starting work, "no discharge zones" will be identified by the Engineer with respect to the contractor's approved BMP disposal plan."

4.6 The Contractor shall provide a full-time qualified representative to verify all installation procedures and provide the verification program.

4.7 Excavation. The final excavation for the load transfer pad or over-excavation shall be made using an excavator equipped with a smooth-edged bucket to minimize disturbance to the in-situ soils. The prepared subgrade shall consist of in-situ soils compacted to moisture content within ± 2% of optimum moisture content. If compaction is not practical due to natural moisture water contents far above optimum and/or wet weather conditions, the in-situ soils shall be over excavated to a depth of 12 inches and replaced with compacted granular fill as specified herein. Any organic-rich or otherwise unsuitable soils shall be removed and replaced with compacted granular fill.

4.7.1 Operations on earthwork shall be suspended at any time when satisfactory results cannot be obtained because of rain, freezing, or other unsatisfactory conditions of the field. Drag, blade, or slope the embankment to provide proper surface drainage. In wet weather conditions, dewater as required to prevent the accumulation of ponded water in excavations for embankment construction, and the earthwork should be done in sections to minimize the need for such dewatering.

4.7.2 Disposal of Excavation Spoils. Stockpile all spoil material, including any topsoil and spoils generated by stone column installation, at the locations designated on the soil erosion plan. Handling and disposal of spoils shall be in accordance with Sec 203 and performed at no additional cost to the project.

4.8 Specific Requirements for Stone Column Construction. The Ground Improvement Contractor shall install the stone columns in accordance with the equipment and procedures previously approved by the Engineer and in accordance with the patterns, sizes and depths shown on the Plans.

4.8.1 Stone columns shall be installed so that each completed column is continuous throughout its length. Specific equipment and installation procedures to achieve the required design are the Ground Improvement Contractor's responsibility.

4.8.2 Sequence. Install the stone columns in accordance with the sequence detailed in the approved work plan. If adjacent stone columns are observed to be influenced by the installation of a neighboring stone column, the installation sequence shall be modified to prevent disturbance of stone columns. Any required modifications to the sequence, or mitigation of stone columns deemed unusable due to disturbance, shall be completed at no additional cost or extension in the project schedule.

4.8.3 Depth. Stone columns may be placed prior to installation of, or through, the first layer of the load transfer pad to the minimum tip elevation resulting from auger refusal on sound rock, as determined by the Engineer.

4.8.4 Obstructions. Subsurface obstructions may include but are not limited to boulders, timbers, concrete, bricks, utility lines, foundations, slabs, etc. that prevent stone columns to be installed to the required depth. In the event that obstructions are encountered during installation of a stone column that cannot be penetrated with reasonable effort, the stone column shall be

constructed from the depth of obstruction to its specified upper level. The Engineer may direct the construction of a replacement stone column at another location.

4.8.4.1 Any change made to the design or stone columns layout because of obstructions shall be evaluated by the Contractor and approved by the Engineer. Provide to the Engineer an as- built submittal no later than 7 calendar days after the modification has been performed on site. This submittal shall be signed and sealed by the registered Professional Engineer responsible to the Contractor and having stamped the design submittals.

4.8.5 Cut-off Elevation. Cutoff the stone columns to the bottom of the load transfer pad or top elevation of the first layer of the load transfer pad. The cut-off elevation of each stone column shall be established with an accuracy of +/- 0.1 feet.

4.8.6 Protection of Stone Columns. Perform excavation for the load transfer pad, stone column installation, and embankment construction in such a way to prevent the damage to the stone columns or disturbance of the soil matrix between the stone columns.

4.8.7 Coordination. The Contractor shall coordinate the installation of stone columns with all other aspects of the Work and take all precautionary steps required to avoid damage to all other existing improvements and existing utilities.

4.8.7.1 Piles for support of Bridges A9008, A9009 and A9010 shall be driven after installation of the stone columns. Prior to installation of the stone columns, the Subcontractor shall verify that the stone column construction shall not be placed within 6 inches of the bridge piles to be installed. This may require the localized revisions to of stone column spacing shown in the contract plans.

4.8.8 Rammed Aggregate Piers.

4.8.8.1 Special high-energy impact densification apparatus shall be employed to densify the rammed aggregate pier elements during installation. The apparatus shall apply direct downward impact energy to each lift of aggregate. The Rammed Aggregate Pier installer shall use a breaker and tamper capable of developing the impact energy adequate to consistently compact Type A aggregate to a value of at least N=15 when tested using a dynamic cone penetrometer, or similar device. Penetrometer testing of piers shall be performed on the test pier and subsequently during construction (at least twice per day) as required to verify sufficient energy is being imparted to the stone. Penetration testing is not appropriate for open-graded stone.

4.8.8.2 A minimum tamper energy CMIA rating of 1200 foot-pounds of force per blow shall be applied by the energy source.

4.8.8.3 Densification shall be performed using a beveled tamper. The tamper foot used for a 24-inch diameter pier shall be at least 18 inches in diameter and shall be beveled to impart lateral stress into the stone and matrix soil during installation.

4.8.8.4 Downward pressure shall be applied to the tamper shaft during tamping.

4.8.8.5 Each lift of aggregate shall be tamped for a minimum of 10 seconds.

4.8.8.6 Drilling equipment used to drill holes for aggregate piers shall be capable of drilling through the soils anticipated for this project. If obstructions are encountered that are not

anticipated by the borings, then these shall be removed utilizing an excavator or other means. The cost for removing the obstruction shall be included in the bid price and will not be paid for separately.

4.8.8.7 The bottom of the excavation shall penetrate the weathered rock and be founded on sound rock.

4.8.8.8 The specialty rammed aggregate pier contractor shall be pre-approved prior to bidding and shall demonstrate competence in installation of rammed aggregate piers.

4.8.9 Layout and Tolerances.

4.8.9.1 Surveying. Prior to installation of the stone columns, each stone column location shall be surveyed by a licensed Professional Land Surveyor. Provide all survey layouts, maintain utility clearances, and provide any required coordination with the Engineer and any other local, state, and federal agencies having jurisdiction, prior to the start of construction. The location of each stone column shall be marked using a numbered utility flag.

4.8.9.2 Plan position. The center of the completed stone column shall be within 6 inches of the plan location.

4.8.9.3 Verticality. The axis of the completed stone column shall not deviate more than 2% from vertical. The verticality of the mast of the rig shall be checked by the operator before start of the installation for each stone column. The operator shall indicate on the daily drilling log for each stone column that verticality was within tolerance by checking the appropriate box on the installation log.

4.8.9.4 Diameter. The completed stone column diameter shall not be deviate more than 10% from the plan diameter.

4.8.9.5 Rejection. Stone Columns improperly located or installed beyond the maximum allowable tolerances or otherwise reported to be defective, shall be abandoned and replaced with new stone column unless the Contractor and the Contractor's designer propose a remedial measure which is acceptable to the Engineer, either of which will be done at no additional cost to the project.

4.9 Load Transfer Pad/ Rock Fill Construction.

4.9.1 Prior to construction the existing ground shall be excavated and stripped of topsoil and other unsuitable material as determined by the engineer.

4.9.2 The placement of select granular backfill in areas of removal and replacement below the MSE walls shall be compacted to not less than 95 percent of the maximum dry density as determined by laboratory tests.

4.9.3 Any rutting or pumping of the load transfer pad that occurs during installation of the stone columns should be measured and the Engineer notified. If practical, reroute construction traffic to avoid further damage to the underlying in-situ soils, or remove and replace the pumping material with compacted granular fill.

4.9.4 Place geogrid layers for Load Transfer Pad at appropriate intervals to the dimensions shown on the plans and overlapping in accordance with the manufacturer's specifications and the Contractor's Design Submittal.

5.0 Contractor Quality Control. The following describes the minimum inspection and testing required in the Contractor's Quality Control (CQC) Plan and Program for the work of this section and is for CQC only. The implementation of the Contractor Quality Control Program does not relieve the Contractor from the responsibility to provide the work in accordance with the contract documents, applicable codes, regulations, and governing authorities.

5.1 Supervision, Inspection, and Records. The Contractor must have an onsite field engineer to manage all of their QC activities on the project including foundation element integrity testing, and other testing at frequencies defined in the Design Submittal and approved by the Engineer. Monitoring, recording of the data and evaluation of load tests, and inspection and recording of data for production stone column construction, subgrade preparation, and the construction of the load transfer pad shall be done under the direct supervision of a geotechnical Professional Engineer registered in the State of Missouri. The geotechnical engineer shall have supervised a minimum of five similar deep ground improvement projects.

5.2 Rammed Aggregate Piers. A modulus test shall be performed to verify the design stiffness of the Rammed Aggregate Piers. The test shall be performed at the location of the boring with the lowest blow counts over the length of the proposed pier or column as approved by the Engineer. Testing shall be performed based on the highest design stress and the test shall be run to a stress level of 150% of this design stress.

5.2.1 Description of the installation equipment, installation records, complete test data and recommended design parameter values based on the modulus load test results. The report shall be prepared under supervision of a Missouri registered professional engineer.

5.2.2 Rammed Aggregate Pier modulus load test details and setup shall be furnished to the Engineer at least one (1) week prior to the start of the test.

5.2.3 A telltale shall be installed at the bottom of the test pier so that bottom-of-pier deflections may be determined. Acceptable performance is indicated when the bottom of the pier deflection is no more than 20% of the top of pier deflection at the design stress level.

5.2.4 General test procedures as recommended in ASTM D-1143 shall be used as a guide to establishing load increments, load increment duration, and load decrements.

5.2.5 Modulus testing shall be performed in accordance with the requirements outlined in the Design Submittal and herein. The results of the modulus test shall show that the modulus at the test location exceeds the minimum modulus required for the design criteria. If actual modulus value measured does not meet these criteria, additional Rammed Aggregate Piers shall be added and/or lengthened to meet the criteria at the Ground Improvements Contractor's expense. Additional modulus tests shall be performed at the Ground Improvements Contractor's expense until the requirements of Section 2.1.5 have been met.

5.2.6 Provide pertinent installation data on a daily basis, as defined in the Design Submittal and approved by the Engineer. These documents shall be prepared continuously as the production

progresses and shall be submitted to the Engineer no later than one (1) working day after the installation of a stone column. Ensure the Engineer has complete access at all times to data for the stone columns installation, as required.

5.3 Granular Fill. Perform a gradation sieve analysis at the beginning of the job and for every change in source and/or type of material. Perform proof-rolling of the top of the load transfer pad prior to and following completion of the stone column installation. The proof-rolling shall cover the entire work area, and the wheel pass spacing shall be equal to the axle length of the dump truck. All required testing will be completed to the satisfaction of the Engineer at no additional cost to the Missouri DOT.

5.4 Records. An accurate record shall be kept for all stone columns as installed. The record shall indicate the following:

i. Stone columns installed (identified by location number).
ii. Date constructed.
iii. Elevation of top and bottom of each stone columns.
iv. Average lift thickness.
v. Results of quality control testing such as average power consumption or tamping energy obtained during aggregate installation.
vi. Description of soil and groundwater conditions.
vii. Details of obstructions, delays and any unusual issues.
viii. Amount of water used per aggregate column if applicable.
ix. Estimated weight or volume of aggregate backfill placed in each column.
x. Average installed diameter or width of each aggregate column.

5.4.1 Daily records shall be signed by the Contractor' superintendent and by the inspector. A complete tabulation of all records pertaining to approved stone column installation shall be certified by the contractor's engineer and shall be delivered to the Engineer no later than 14 days after the completion of the stone column work. All testing and inspection documents shall be reviewed and approved by the Contractor's engineer certifying the stone columns and load transfer pad were installed according to the construction and installation criteria.

5.4.2 The Ground Improvements contractor shall immediately report any unusual conditions encountered during installation to the Engineer. Any change in the predetermined Ground Improvement program necessitated by a change in the subsurface conditions shall be immediately reported and submitted to and approved by the Engineer.

5.4.3 As-built plans for the installed stone columns with the transfer pad based on actual locations and tip elevations.

6.0 Method of Measurement. No measurement will be made.

7.0 Basis for Payment. Payment for ground improvements described above including all materials, labor, tools and equipment, testing and all incidentals necessary to complete this work shall be made and completely covered by the contract lump sum price for "Ground Improvements."

Item Number	Item Name	Units
720-99.01	Ground Improvements	Lump Sum

7.1 Measurement of Class A Excavation and Select Granular Backfill, outside the limits of the MSE Wall construction, for Ground Improvement shall be on the basis of quantities shown on the Roadway Plans. Payment for Class A Excavation and Select Granular Backfill will be covered as a Roadway Item and will be in accordance with the Contract Unit Prices established for these items.

U. Removal and Delivery of Existing Signs

1.0 Description. All Commission-owned signs removed from the project shall remain the property of the Commission and shall be disassembled and delivered as specified herein.

2.0 Disassembly and Delivery. All Commission-owned signs, not to include abandoned billboard signs, designated for removal in the plans, and any other signs designated by the engineer, shall be removed by the contractor and delivered to the address below.

Missouri Department of Transportation - Operations Complex
2309 Barrett Station Road
Sign Building
Ballwin, MO 63021

2.1 The contractor shall notify the Signing Supervisor at least 48 hours in advance of delivering any signing materials to this location and make arrangements for delivery during normal business hours. Contact information is below:

James (Dusty) Henson, Signing / Striping Supervisor
Office: (314) 205-7310, Cell: (636) 591-8749

2.2 Signs shall be removed from sign supports and structures prior to delivery. Sign supports, structures and footings shall become the property of the Contractor and removed from the project. Any oversized sign panels shall be disassembled or cut into widths of 8-feet or less with no restriction on length. Signs shall be stacked neatly in bins provided by MoDOT at the delivery site.

2.3 Any hardware (brackets, u-bolts, aluminum I-beams, etc.) associated with removals involving overhead sign supports shall also be salvaged and delivered to this site.

3.0 Basis of Payment. All costs associated with removing, disassembling, storing, and transporting of signs shall be considered as completely covered by the contract unit price for Item No. 202-20.10, “Removal of Improvements”, per lump sum.

No direct payment will be made for attaching existing signs onto existing or new posts as indicated in the plans.

Item Number	Type	Description
202-20.10	Lump Sum	Removal of Improvements

V. Missouri LOGOS

1.0 Description. Generic service signs (Gas / Food / Lodging), specific information logo signs, and/or Tourist-Oriented Directional signs (TODS), which show the motorist services available on a crossroad at or near an interchange, are within the limits of the project.

1.1 These signs shall remain visible to and effective for the traveling public during all stages of construction.

1.2 Any work involving the relocation (permanent or temporary), repair, replacement or legend modification required for these signs is the responsibility of Missouri Logos. The contractor shall be responsible for coordinating this work with them using the contact information below, and providing full cooperation during this work.

Missouri Logos – Ron Young
4742-A Country Club Dr.
Jefferson City MO 65109
Office: 800-666-3514 or (573) 893-6662 (Mon-Fri 8 am-5 pm)
(573) 291-6788 (24 hours a day, 7 days per week)
Email: missourilogos@interstatelogos.com
Web: missouri.interstatelogos.com

2.0 Replacement costs of any business specific logo panels damaged by vandalism or natural forces are the responsibility of the specified business. Any logo signs damaged as a result of the contractor's action shall be replaced at the contractor's expense.

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 to fulfill this provision.

W. Guardrail Requirements

1.0 Safety Devices. Before any guardrail or crashworthy end terminals are installed, the contractor shall layout the proposed alignment in the field to insure that each of these items can indeed be installed properly based upon the standard plans and the manufacturer's recommendations. The contractor shall notify the engineer when that field inspection will take place as to allow the engineer to be present at that time. The contractor is advised that in order to ensure that the crashworthy end terminal or crash cushion selected by the contractor can indeed be installed at each of the locations listed in the plans, it is suggested that the field inspection meeting mentioned above take place before the ordering of any crashworthy end terminal.

2.0 Basis of Payment. The accepted crashworthy end terminals, complete in place, will be paid for by the contract unit bid price for the following items and will be full compensation for all labor, equipment and material to complete the above described work:

Item Number	Type	Description
606-30.14	Each	Type A Crashworthy End Terminal (MASH)

X. Modified Rock Blanket

1.0 Description. This work shall consist of furnishing and placing a special gradation of Modified Rock Blanket as shown in the plans. The material to construct the rock blanket shall consist of a predominantly one-sized, durable stone or shot rock with a minimum rock size of 4 inches and a maximum rock size of 8 inches placed 18 inches thick.

2.0 Basis of Payment. Payment for the Modified Rock Blanket will be made by the contract unit price for the following items:

Item No.	Unit	Description
611-99.07	C.Y.	Furnishing Modified Rock Blanket
611-99.07	C.Y.	Placing Modified Rock Blanket

Y. 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.

Z. Fertilizing, Seeding and Mulching

1.0 Description. All areas disturbed by the contractor's operations shall be fertilized, seeded and mulched.

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_2O_5)	160 lb. per acre
Potash (K_2O)	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
White Clover	2 1/2 lb. per acre
Total	90 1/2 lb. per acre

4.0 Mulching. All work shall be in accordance with Sec 802. All mulching shall be stabilized by overspray.

5.0 Basis of Payment. 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:

Item Number	Item Name	Units
805-99.19	Warm or Cool Season Mixtures	Acres

AA. Damage to Existing Pavement, Shoulders, 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 not be 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 resulting 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 areas shall be as approved by the engineer.

3.0 Method of Measurement. No measurement of damaged pavement, shoulders or 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 operation

BB. Lighting Site Restoration

1.0 Description. Restore to its original condition any disturbed area at sites including, but not limited to, guardrail, pull box, conduit, and pole base installations. Restoration shall be accomplished by placing material equivalent to that of the adjacent undisturbed area. Disturbed unpaved areas shall be fertilized and either seeded and mulched or sodded as directed by the engineer. The engineer will have the final authority in determining the acceptability of the restoration work.

2.0 If the contractor elects and receives approval from the engineer for alternate trench and/or pull box locations, any areas of concrete slope protection, sidewalk, pavement, shoulders, islands and medians – as well as any similar improvements consisting of asphaltic concrete materials – removed in conjunction with their construction shall be replaced with improvements of similar composition and thickness. Removals shall be achieved by means of full depth saw cuts, the resulting subgrade compacted to minimum density requirements and topped with 4 inches of

compacted aggregate base course prior to replacement of surface materials. Concrete materials used in replacement, shall be approved by the engineer. A commercial asphalt mix may be used for replacement of asphaltic surfacing upon approval of the engineer.

2.1 Unless quantities and pay items for removal and subsequent replacement of improvements are contained in the plans for a specific location of removal work, no direct payment will be made for full depth saw cutting and the removal and subsequent replacement of asphalt or concrete slope protection, sidewalk, pavement, shoulders, islands, medians, sod and the required dowel and tie bars removed and replaced by the contractor as a result of his election to vary the location of conduit runs and pull boxes. This work will be considered as included in the various unit bid prices for conduit and pull boxes established in the contract, and no additional payment will be made.

2.2 Sidewalks and sidewalk ramps that are disturbed as described in this provision shall be replaced to meet current ADA standards.

2.2 Areas that are used by the contractor for jobsite trailers, equipment and materials storage, or used for project staging areas that are disturbed shall be cleaned up and restored to a condition that is both acceptable to the engineer and, at a minimum, equivalent to the existing site condition.

3.0 Basis of Payment. The cost of restoration of disturbed areas will be incidental to the unit price of guardrail, pole base, conduit, and/or pull box. No direct payment will be made for any materials or labor, which is performed under this provision.

CC. Quality Management NJSP-15-22

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

1.1 The contractor shall provide Quality Control (QC) of the work and material, as specified herein, to ensure all work and material is in compliance with contract requirements. QC staff shall perform and document all inspection and testing. The QC inspectors and testers may be employed by the contractor, sub-contractor, or a qualified professional service provided by the contractor.

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

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

1.4 Any QC personnel determined in sole discretion of the engineer to be incompetent, derelict in their duties, or dishonest, shall at a minimum be removed from the project. Further investigation

will follow with a stop work notification to be issued until the contractor submits a corrective action report that meets the approval of the engineer.

2.0 Quality Management Plan. The contractor shall develop, implement and maintain a Quality Management Plan (QMP) that will ensure the project quality meets or exceeds all contract requirements, and provides a record for acceptance of the work and material. A sample QMP, which shows minimum requirements, is provided on the MoDOT website at: www.modot.org/quality.

2.1 The QMP shall address all QC inspection and testing requirements of the work as described herein. A draft QMP shall be submitted to the Resident Engineer for review at least two weeks prior to the pre-construction conference. An approved QMP is required at least two weeks prior to the start of work, unless otherwise allowed by the engineer. Physical work on the project shall not begin prior to approval of the QMP by the engineer.

2.2 The approved QMP shall be considered a contract document and any revisions to the QMP will require approval from the engineer.

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

a) Organizational structure of the contractor's project management, production staff, and QC staff, specific to this project.

b) Name, qualifications and job duties of the Quality Manager.

c) A list of all certified QC testers who will perform QC duties on the project, including sub-contract work, and the tests in which they are certified.

d) A list of all QC inspectors who will perform QC inspection duties on the project, including sub-contract work, and the areas of inspection that they will be assigned.

e) A procedure for verifying documentation is accurate and complete as outlined in Section 3.

f) A procedure describing QC Inspections as outlined in Section 4.

g) A procedure describing QC Testing, as outlined in Section 5, including a job specific Inspection and Test Plan (ITP).

h) A procedure describing Material Receiving as outlined in Section 6.

i) A list of Hold Points that are not included in the checklist forms, as outlined in Section 8.

j) A procedure for documenting and resolving Non-Conforming work as outlined in Section 9.

k) A procedure for tracking and documenting revisions to the QMP.

l) A list of any approved changes to the Standard Specifications or ITP, including a reference to the corresponding change order.

m) Format for the Weekly Schedule and Work Plans as outlined in Section 10, including a list of activities that will require pre-activity meetings.

3.0 Project Documentation. The contractor shall establish a Document Control Procedure for producing and uploading the required Quality Management documents to a MoDOT-provided server. The document management software used by MoDOT is Microsoft SharePoint®. Contractors do not need to purchase Microsoft SharePoint®, however, it is recommended that new users acquire some basic training to better understand how to use this software. MoDOT does not provide the software training, but there are several online vendors who do. Contractors are required to use Microsoft Excel® and Microsoft Word® with some documents.

3.1 The contractor shall utilize the file structure and file naming convention provided by MoDOT. A sample file structure is available on the MoDOT website.

3.2 Documents (standard forms, reports, and checklists) referenced throughout this provision are considered the minimum documentation required. They shall be obtained from MoDOT at the following web address: www.modot.org/quality. The documents provided by MoDOT are required to be used in the original format, unless otherwise approved by the engineer. Any alteration to these forms shall be approved by the engineer.

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

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

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

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

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

4.2 A Daily Inspection Report (DIR) is required to document pertinent activity on the project each day. This report shall include a detailed diary that describes the work performed as well as observations made by the inspection staff regarding quality control. The report shall include other items such as weather conditions, location of work, installed quantities, tests performed, and a

list of all subcontractors that performed work on that date. The report shall include the full name of the responsible person who filled out the report and shall be digitally signed by an authorized contractor representative.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

9.0 Non-Conformance Reporting. Non-conformance reports shall be issued by the contractor for work that does not meet the contract requirements. Non-conforming work includes work, testing, materials and processes that do not meet contract requirements. The contractor shall establish a procedure for identifying and resolving non-conforming work as well as tracking the status of the reports.

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

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

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

9.4 For recurring non-conformance work of the same or similar nature, a written Corrective Action Request will be issued by QC or QA. The contractor shall then establish a procedure for tracking the corrective action from issuance of the request to implementation of the solution. Approval

from the engineer is required prior to implementation of the proposed corrective action. The contractor shall notify the engineer after the approved corrective action has been implemented.

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

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

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

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

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

DD. Post-Award Value Engineering Change Proposal Workshop JSP-16-01

1.0 Description. A post award Value Engineering workshop will be held, prior to the Notice to Proceed, and shall be attended by the Contractor. The workshop will consist of a facilitated discussion to identify potential Value Engineering Change Proposals (VECP) and Practical Design Value Engineering Change Proposals (PDVECP), as defined in Sec 104.6. The purpose of the workshop is to develop and discuss any ideas that may result in reducing the cost of the project, reducing construction activity duration, increasing the cost effectiveness of the project, or improving the quality of the project.

2.0 Description of Workshop.

2.1 Workshop logistics, including date, time and location, will be determined by the engineer.

2.2 A minimum of two contractor's workshop participants will be required to participate. These participants shall be familiar with the project and with the intended construction practices which will be used to complete the project and of suitable authority to make project decisions for the contractor. Within one week of being notified of the award of the project, the contractor shall provide a list of dates prior to the notice to proceed for which the representatives are available to participate.

2.3 The one-day workshop will be facilitated by MoDOT or an external facilitator contracted to MoDOT. The facilitator will lead the workshop participants through a process to identify potential alternatives and to consider the advantages and disadvantages of these identified alternatives. Additionally, the workshop participants will discuss applicable submittal dates and review periods associated with any alternatives which the workshop team chooses to propose.

2.4 The workshop is intended to identify potential alternatives and facilitate contractor submittal of acceptable alternatives. Submittal and approval of identified proposals will be in accordance with Sec 104.6.

2.5 A negotiated delay in the Notice to Proceed may be necessary to facilitate a proposal that requires further research or design modifications.

3.0 Payment. No direct payment will be made for the cost of attendance and participation in the workshop. Payment for approved VECP and PDVECP proposals will be made in accordance with Sec 104.6.

EE. 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).

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 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:

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.

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.

Job No.: J6I2090
Route: I-270
County: St. Louis

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

TABLE 1:

County	Goal (Percent)	County	Goal (Percent)
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
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).

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

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

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

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

2.2 Prior to starting work, slurry or residue "no discharge zones" will be identified by the Engineer with respect to the contractor's approved BMP and residue disposal plan.

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

2.4 When slurry is dispersed on the right of way, BMP's shall be installed to keep slurry residue from entering drainage structures, from entering any waterways and from leaving the right of way.

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.

GG. Airport Requirements

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

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

2.0 The maximum height of the improvements are as noted on the plans and the equipment operating while performing the improvements was assumed to be 120 feet and 80 feet above the current travelway at the Ladue/Conway Road bridges and the proposed overhead sign truss locations respectively during the process of evaluating the project for compliance with FAA Reg Part 77.

2.1 If the contractor's height of equipment or if the improvement itself is beyond the assumed height as indicated in Sec 2.0, the contractor will work with the resident engineer to fill out the Form 7460-1, or revise the original Form 7460-1 based upon the proposed height and resubmit, if necessary, for a determination by FAA on compliance with FAA Reg Part 77. Further

information can be found in MoDOT's Engineering Policy Guide 235.8 Airports. If the Form 7460-1 must be filed, the associated work shall not be performed prior to the FAA determination, which could take up to 45 days.

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

3.0 This FAA determination expires on October 01, 2023 unless extended, revised or terminated by the issuing office. The Contractor is required to submit a request for extension to the engineer by September 01, 2023 if work will continue past the expiration date.

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

HH. Precast Concrete Manhole 96 IN.

1.0 Description. This section governs the furnishing of all labor, equipment, tools, materials, and the performance of all work incidental to the construction of manholes. The manhole shall be complete with rings and covers, steps, fittings, and appurtenance as required in accordance with the plans.

2.0 Material. The materials covered under this section shall follow Section 731 of the effective edition as of January 2022, of the Missouri Standard Specifications for Highway Construction or the latest version for Precast Reinforced Concrete Manholes and Drop Inlets and shall conform to plan details.

3.0 Method of Measurement. Manholes shall be measured per Linear Foot of depth of the structure.

4.0 Basis of Payment. The accepted quantities of precast manholes, complete in place, including any necessary cutting or joining new pipe or existing pipe to the structure unless otherwise specified, will be paid for at the contract unit price for each of the pay items included in the contract. No direct payment will be made for, backfilling, footing concrete, steps, weep holes, permeable granular backfill, 4—inch drain tile, or any other work incidental thereto.

Item No.	Type	Description
731-99.13	FT	Precast Concrete Manhole – 96 IN.

II. Trench Drain

1.0 Description.

1.1 This work shall consist of furnishing and installing a new trench drain, grates and connection to drop inlets. Trench drain assembly can be POLYCAST Series 900 Pre-Sloped Trench Drain System with POLYCAST Heavy Duty Ductile Iron Grate & Frame (Non-Removable); ACO HighwayDrain HD200; or approved equal.

1.2 Trench drain shall have a nominal width of 6 inches.

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

2.1 Trench Drain. All materials shall meet or exceed AASHTO H-20 loading criteria.

2.1.1 Grates. Grates shall be ductile iron or other durable material that meets or exceeds AASHTO H-20 loading criteria. Grates shall have a minimum open area of 60%

3.0 Construction Requirements.

3.0.1 All work shall be performed in accordance with the Trench Drain manufacturer's recommendations and as approved by the engineer.

3.1.2 The layout of the Trench drains shall meet the performance criteria for runoff capacity, cubic feet per second per Linear foot of trench drain (CFS/LF) as shown on the plans. The layout shall be submitted to the engineer for approval.

3.1.3 Contractor is required to install non-removable grates within the limits shown on the plans. Grates shall be affixed in a manner that reduces the chance of being dislodged by traffic. Bolting or other locking devices are not acceptable.

3.1.4 Contractor is required to modify the drop inlets and provide a drainage connection from the trench drain to facilitate drainage into the existing or proposed drainage system as shown on the plans. Contractor shall also clean out all debris from the existing inlet and flush the inlet and pipe run to ensure proper drainage.

3.1.5 Trench drain finished grade should match grade of the re-constructed inside shoulder of north bound I-270.

4.0 Method of Measurement. Trench Drains shall be measured complete in place and will be made to the nearest foot along the geometrical center of the trench. The revision or correction will be computed and added to or deducted from the contract quantity.

5.0 Basis of Payment. Payment will be made for compliance with this provision including all labor, excavation, equipment, and material necessary with installation of the trench drain assembly at the contract unit price for the following pay item:

Item No.	Type	Description
730-99.03	LF	Trench Drain

JJ. Verification of Existing Drainage Facilities

1.0 Description. The Contractor shall field verify the tops, inverts, and pipe sizes of the existing drainage facilities along the inside median of I-270 from Station 348+50 to Station 409+50. The inverts, tops, and pipe sizes in the plans are based on available As-Built drawings. The Contractor shall notify the engineer of any discrepancies prior to ordering any materials. Any revision or correction will be computed and added to or deducted from the contract quantity.

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

KK. Curved Pipe Layout

1.0 Description. This section governs the furnishings of all labor, equipment, tools, fittings, materials, and the performance of all work incidental to the construction, layout, and installation of the curved pipes in accordance with the plans.

2.0 Basis of Payment. No direct payment will be made to the contractor for curved or radius pipe which shall be measured and paid for in the same manner as described for straight pipe. Any additional cost associated with the curved pipe will be considered incidental to the unit bid price for Group A Pipe.

LL. Grate and Bearing Plates – Type A, B & C Inlets

1.0 Description. This work shall consist of furnishing and installing parallel bar grates and bearing plates and frames of the size and design shown on the plans.

2.0 Material. The materials covered under this section shall follow Section 614.10 of the effective edition as of January 2022, of the Missouri Standard Specifications for Highway Construction or the latest version for Precast Reinforced Concrete Manholes and Drop Inlets and shall conform to plan details.

3.0 Basis of Payment. Payment for the Grate and Bearing Plates – Type A, B & C Inlets will be made by the contract unit price for the following items:

Item No.	Type	Description
614-99.02A	EA	Grate and Bearing Plate (3FT. X 2 FT.) – Type A, B & C Inlets
614-99.02B	EA	Grate and Bearing Plate (4FT. X 2 FT.) – Type A, B & C Inlets

MM. Weld Drainage Grates

1.0 Description.

1.1 This work shall consist of modifying the existing and proposed drop inlet grates along the inside shoulder of I-270 from station 348+59 to station 405+49, as well as the proposed drop inlet grates at station 399+30 and 399+85 along the outside right shoulder of I-270. Also, proposed drop inlet grates along the outside right shoulder of I-64 Ramp 1 from station 55+90 to station 62+50 shall be included. The grate shall be fixed to the frame of the inlet in a manner that allows traffic to traverse the inlet without the probability of the grate separating from the frame during traffic. Weld shall be removed prior to completion of project.

2.0 Construction Requirements.

3.0.1 All work including method and materials required to attached the grate to the frame shall be approved by the engineer prior to work being performed.

4.0 Method of Measurement. Final measurement will not be made.

5.0 Basis of Payment. Payment will be made for compliance with this provision including all labor, equipment and material necessary at the contract unit price for the following pay item:

Item No.	Unit	Description
730-99.02	EA	Weld Drainage Grates

NN. Inline Check Valve

1.0 Description. This work shall consist of furnishing and installing a new inline check valve. The inline check valve shall be designed to slip into the specified pipe inside diameter and attach by vendor furnished stainless steel expansion clamps. The inline check valve shall allow passage of flow in one direction while preventing reverse flow. The inline check valve is to be installed per project plans and manufacture's recommendations.

2.0 Material. The Inline Check Valve shall be a Checkmate inline check valve as manufactured by Red Valve Company, Inc. or approved equal. The valve shall be rubber construction with ply reinforcement.

3.0 Method of Measurement. Inline Check Valve shall be measured per Each.

4.0 Basis of Payment. Payment will be made for compliance with this provision including all labor, equipment, and material necessary with installation of the Inline Check Valve assembly at the contract unit price for the following pay item:

Item No.	Type	Description

734-99.02	EA	Inline Check Valve

OO. Decorative Fence

1.0 Description. This work shall consist of installing decorative fencing to match the existing fence, as shown in the plans. Decorative Fence shall be installed per manufactures recommendation.

2.0 Basis of Payment. Payment will be made for compliance with this provision including all labor, equipment and material necessary for installation of the decorative fence for the following pay item:

Item No.	Unit	Description
607-99.03	LF	Decorative Fence

PP. Outfall Structure (DI 3-122)

1.0 Description. This work shall consist of furnishing and installing an outfall structure DI 3-122 as shown on the plans.

2.0 Work requirements. Work shall be in accordance with Metropolitan St. Louis Sewer District (MSD) standards. Contractor shall follow the Metropolitan St. Louis Sewer District Standard Specifications for Sewers and Drainage Facilities (2009 edition) for standard details.

3.0 Basis of Payment. Payment will be made for the entire outfall structure including all labor equipment and materials necessary for installation. The structure includes standard MSD precast concrete double inlet, a double area inlet top (open four sides), and trash rack.

Item Number	Unit	Description
731-99.02	EA	Outfall Structure DI 3-122

QQ. Tinted Concrete (8 IN Non-Reinforced)

1.0 Description. This work shall consist of installing tinted concrete at the truck apron of the Conway roundabout.

2.0 Work requirements.

3.0 Basis of Payment. Payment will be made for all labor equipment and materials necessary for installation of the tinted concrete truck apron.

Item Number	Unit	Description
502-99.05	LS	Tinted Concrete (8 in. non reinforced)

RR. Lock Frame and Cover

1.0 Description. This work shall consist of installing lock type frame and cover as specified in the locations noted on the plans

2.0 Work requirements. Work shall be in accordance with MoDOT Standards Plans and Specifications.

3.0 Basis of Payment. No direct pay shall be made for locking lids. Lock type frame and cover are considered incidental to the cost of the manhole frame and cover.

SS. Bridge Drain Tee Connection

1.0 Description. This work shall consist of furnishing and installing the bridge drain tee connection to a storm manhole as shown in the plans.

2.0 Work requirements.

2.1 Work shall be in accordance with the details shown on the plans and include all materials and labor necessary to install this system.

2.2 Three (3) bridge drain tee connections are located at the following manholes as indicated on the plans.

1. MH 4-301-1
2. MH 4-301-2
3. MH 4-301-3

2.3 The bridge drain tee connection includes the following items

1. 10” PVC Standpipe (located behind a retaining wall)
2. Concrete Standpipe Support
3. 10” PVC Pipe
4. Connection to manhole
5. Connection to Bridge Drain
6. All excavation necessary to complete this work

3.0 Basis of Payment. Payment will be made for connecting the bridge drain tees to a storm manhole at the locations shown on the plans.

Item Number	Unit	Description
604-99.01	LS	Bridge Drain Tee Connection

TT. MSD Drainage Structures

1.0 Description. Metropolitan St. Louis Sewer District (MSD) standard drainage structures will be used on this project at the locations specified on the plans. Contractor shall follow the

Metropolitan St. Louis Sewer District Standard Specifications for Sewers and Drainage Facilities (2009 edition) for standard details.

2.0 Basis of Measurement. Measurement will be made for each structure for the vertical distance between the elevation of the top structure and the elevation of the flowline at the structure base and will include all necessary assemblies associated with that structure, such as adapter rings, joints, connectors, grade adjustment rings, waterproofing required to adhere to MSD standards for storm drainage structures.

MSD PCC 2 Grate Inlet – 48" Base includes 1- MSD standard 48" base, 2 Grate Inlet Seat, and Grates
MSD PCC 2 Grate Inlet – 60" Base includes 1- MSD standard 60" base, 2 Grate Inlet Seat, and Grates
MSD PCC Single Street Inlet – 48" Base includes 1-MSD standard 48" base, single curb inlet unit, Inlet Stone and Cover
MSD PCC Single Street Inlet – 60" Base includes 1-MSD standard 60" base, single curb inlet unit, Inlet Stone and Cover

3.0 Basis of Payment. Payment for work associated with these drainage structures will include the entire cost for all assemblies necessary to furnish and install the entire structure, including all materials, equipment, labor and work will be made under the bid items for MSD drainage structures included in the contract.

The accepted quantity for drainage structures will be paid for at the contract unit price for:

Item Number	Unit	Description
731-99.02	L.F.	MSD PCC 2 Grate Inlet – 48" Base
731-99.02	L.F.	MSD PCC 2 Grate Inlet – 60" Base
731-99.02	L.F.	MSD PCC Single Street Inlet – 48" Base
731-99.02	L.F.	MSD PCC Single Street Inlet – 60" Base

UU. MSD As-Built Submittals (18MSD-00549)

1.0 Description. Metropolitan St. Louis Sewer District (MSD) requires as-built drawings of the constructed drainage facilities to be submitted for their records. The contractor shall perform all work necessary to produce and submit the final as-built drainage plans to MSD, per MSD's as-built submittal requirements. The contractor shall submit the MSD as-builts for 18MSD-00549 and subsequent revisions after all drainage structures related to the project have been constructed or adjusted.

1.1 The contractor shall provide a copy of the as-built drainage plans to the MoDOT engineer at the time of the MSD submittal.

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

VV. TBR&R Per MSD Inspector

1.0 Description. This project falls within the jurisdiction of the Metropolitan St. Louis Sewer District. The MSD inspector may choose to replace existing drainage structures based on condition. At this time there is no way to determine which structures will be identified by the inspector for replacement. Structures with the potential for removal and replacement are identified on the plans as "TBR&R Per MSD Inspector".

If the MSD inspector requires existing structure replacement the Contractor shall follow the Metropolitan St. Louis Sewer District Standard Specifications for Sewers and Drainage Facilities (2009 edition) for standard details, material specifications, and construction requirements.

2.0 Basis of Payment. Payment for work associated with TBR&R Per MSD Inspector will include furnishing and installing the designated drainage structure, all excavation, connection to existing or new pipe, including all gaskets, joints, materials, equipment, labor and work will be made under the bid items for TBR&R Per MSD Inspector included in the contract.

The accepted quantity will be paid for at the contract unit price for:

Item Number	Unit	Description
731-99.02	EA	TBR&R Per MSD Inspector

1 Added

WW. LED-C Top-Mount Luminaire

1.0 Description. This work shall consist of furnishing and installing LED-C Top Mounted Luminaires as indicated in the plans.

2.0 Construction Requirements. Luminaires shall be vertical top mount type (pole top mount) with a slip-fitter that accommodates a standard 2" top mount. Available types are listed on the MoDOT approved products list and must meet all MoDOT Specifications along with additional requirements noted in the additional sections below. The contractor shall coordinate the pole top mount size with the luminaire mount to ensure compatibility. All luminaires for this project shall allow for a tilt angle to be adjusted in the field dependent upon the placement of the pole. All necessary mounting brackets and hardware shall be included in the payment for the luminaire.

2.1 LED luminaires shall not be equipped with a Photo Control Receptacle.

2.2 LED Luminaires shall have a terminal block for easy installation of a two wire Line/neutral circuit (no wire nuts for termination of field/luminaire circuit).

2.3 LED luminaires shall have an easy access point for future repairs to the driver.

2.4 LED luminaires shall have pole adaptors which are capable of feeding wires through without disassembling the knuckle.

3.0 Basis of Payment. Payment for furnishing and installing top mounted luminaries shall include all materials, equipment, tools, labor, and work incidental thereto, and shall be considered completely covered by the contract unit price for:

Item Number	Item Name	Units
901-99.02	Top Mounted LED-C Luminaire	Each

1 Added

XX. 45 Ft. Top Mount Light Type AT Pole

1.0 Description. This work shall consist of furnishing and installing top mount poles as indicated in the plans.

2.0 Construction Requirements. Top mount poles shall conform to the Type AT lighting poles and shall be fabricated with a circumferentially welded top mount and top plate to accept top mounted luminaries. The top mount shall extend 4" above the top of the pole and meet AASHTO loading requirements for the luminaires provided. The top mount shall be made of the same material as the pole shaft, be constructed as a one-piece pole and top mount unit by the manufacturer and have an outside diameter that accepts the appropriate luminaire slip-fitter. Pole and top mount shall conform to all MoDOT specifications and material requirements. Bridge mounted poles shall be constructed to match the existing bolt pattern.

3.0 Basis of Payment. Payment for furnishing and installing top mount poles shall include all excavation, materials, equipment, tools, labor, and work incidental thereto, and shall be considered completely covered by the contract unit price for:

Item Number	Item Name	Units
901-99.02	45 Ft. Top Mount Type AT Pole	Each

1 Added

YY. 00 AWG Cable

1.0 Description. This work shall consist of furnishing and placing all cabling in accordance with these specifications, and as shown on the plans or as directed by the engineer. This work shall be performed in accordance with Section 901 of the 2023 Edition of the Missouri Standard Specification for Highway Construction and as shown on the plans or directed by the engineer. The material shall be in conformance with Section 1061 of the 2023 Edition of the Missouri Standard Specification for Highway Construction.

2.0 Basis of Measurement. The work associated with each item described, will be measured per linear foot.

3.0 Basis of Payment. Payment for furnishing and installing 00 AWG cable shall include all excavation, materials, equipment, tools, labor, and work incidental thereto, and shall be considered completely covered by the contract unit price for:

Item Number	Item Name	Units
901-99.03	Cable, 00 AWG, 1 Conductor	Linear Foot
901-99.03	Cable, 00 AWG, Bare Neutral	Linear Foot