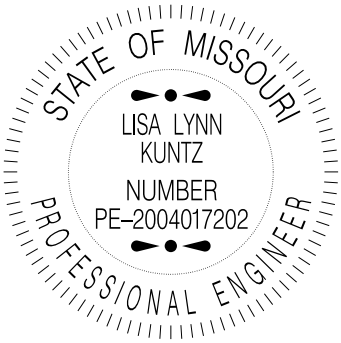
Job No.: J6P3308 & J6S3437
Route: 367
County: St. Louis

JOB SPECIAL PROVISIONS TABLE OF CONTENTS (ROADWAY)

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



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

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

JOB NUMBER: J6P3308 & J6S3437
ST. LOUIS COUNTY, MO
DATE PREPARED: 08/09/21

ADDENDUM DATE:

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

Job No.: J6P3308 & J6S3437
Route: 367
County: St. Louis

JOB
SPECIAL PROVISION

A. General - Federal JSP-09-02G

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

1.1 This contract requires payment of the prevailing hourly rate of wages for each craft or type of work required to execute the contract as determined by the Missouri Department of Labor and Industrial Relations and requires adherence to a schedule of minimum wages as determined by the United States Department of Labor. For work performed anywhere on this project, the contractor and the contractor's subcontractors shall pay the higher of these two applicable wage rates. State Wage Rates, Information on the Required Federal Aid Provisions, and the current Federal Wage Rates are available on the Missouri Department of Transportation web page at www.modot.org 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 2021 Missouri Standard Plans
For Highway Construction

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

B. Contract Liquidated Damages JSP-13-01B

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

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

Notice to Proceed: January 31st, 2022
Completion Date: September 2nd, 2023

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

Job Number	Calendar Days	Daily Road User Cost
J6P3308	N/A	$9,800
J6S3437	N/A	$5,400

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 **$2,000** 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 Work Zone Specialist (WZS). The Traffic Management Plan shall name an individual, either employed by the contractor or hired by the contractor, to act as the Work Zone Specialist (WZS) throughout the entirety of the project. Any change in personnel for the WZS shall be submitted in written form to the engineer. This individual will be a trained Work Zone Specialist in accordance with Standard Specifications Section 616.3.3 and will be directly involved with daily traffic management and traffic management planning. It will be the responsibility of the WZS to coordinate daily traffic management with the engineer. The WZS shall maintain daily contact with the engineer either on-site or via telecommunication.

1.2 Maintaining Work Zones and Work Zone Reviews. The WZS shall maintain work zones on a daily basis to ensure safety to the traveling public and the workers; this includes long term work zones that have devices and/or roadway conditions that need to be maintained. If the engineer or a designated MoDOT employee (identified at the preconstruction meeting) notifies the WZS of any safety or traffic delay concerns in the work zone, the WZS shall promptly inspect and work to provide a solution to correct the situation. The WZS shall have personnel reviewing traffic control devices daily and any temporary lane drop traffic control devices for

initial set up and during the operation. Missing, damaged or over-turned traffic control devices shall typically be corrected without the need for direction by the engineer. The WZS is responsible to assure all traffic control devices are maintained in accordance with EPG standards. The WZS is responsible to ensure 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. The WZS and engineer shall submit one joint weekly technical review of work zone operations identifying any concerns present and the corrective actions taken. Reviews may be subjected to unannounced inspections by the engineer to corroborate the validity of the ratings. The engineer and WZS will be notified of the results.

1.3 Work Zone Conflict Resolution. Any conflict resolution shall be in accordance with Standard Specifications Section 616.4. 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.

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
Juneteenth
Labor Day
Thanksgiving
Christmas
New Year's Day

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

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

3.2 The contractor shall not perform any construction operation on the *roadway*, *(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's operations will be allowed the following working hours. It shall be the responsibility of the engineer to determine if the work hours below may be modified.

For Epoxy Polymer Overlays on Bridges on Job J6P3308:

Route 367 Northbound and Southbound:
9:00 p.m. - 5:00 a.m. Monday through Sunday (Maximum 1 Lane Closed)
10:00 p.m. - 4:00 a.m. Monday through Sunday (Maximum 2 Lanes Closed – **Only Where Ramps are Involved as noted below**)

Southbound 367 On-Ramp at Lindbergh Blvd:
9:00 p.m. - 5:00 a.m. Monday through Sunday (Ramp Closed)

Northbound 367 On-Ramp Between Coldwater Creek and New Jamestown Road:
9:00 p.m. - 5:00 a.m. Monday through Sunday (Ramp Closed)

Southbound 367 On-Ramp Between Redman Avenue and Parker Road:
9:00 p.m. - 5:00 a.m. Monday through Sunday (Ramp Closed)

For Resurfacing (Coldmilling and Overlay) Operations on Job J6S3437:

Route 367 Northbound (from Halls Ferry Circle to I-270 Interchange) – 1 Lane Closed:
7:00 p.m. to 5:00 a.m., Monday through Sunday

Route 367 Southbound (I-270 Interchange to Halls Ferry Circle) – 1 Lane Closed:
7:00 p.m. to 5:00 a.m., Monday through Sunday

I-270/Route 367 Interchange:
Ramp Closures Allowed from 9:00 p.m. to 5:00 a.m. Monday through Sunday
(No more than 1 Ramp to be closed at a given time at the interchange)

Route 367/Chambers Road Interchange:
Ramp Closures Allowed from 7:00 p.m. to 5:00 a.m., Monday through Sunday

Major Sidestreets along Route 367, including:
Jennings Sta. Road
St. Cyr Road
Marquis Court
Prestige Lane
Berwyn Dr. / Northumberland Dr.
Chambers Road
Comet Drive
MO Veterans Home

7:00 p.m. to 5:00 a.m., Monday through Sunday

For Guardrail, Pavement Repairs, ADA Work and Other Miscellaneous Work on Job J6S3437:

Route 367 Northbound (from Halls Ferry Circle to I-270 Interchange) – 1 Lane Closed:
5:00 p.m. to Noon, Monday through Sunday

Route 367 Southbound (from I-270 Interchange to Halls Ferry Circle) – 1 Lane Closed:
5:00 p.m. – Noon, Monday through Sunday

Route 367/Chambers Road Interchange:
Ramp Closures Allowed from 5:00 p.m. to Noon, Monday through Sunday

Major Sidestreets along Route 367, including:
Jennings Sta. Road
St. Cyr Road
Marquis Court
Prestige Lane
Berwyn Dr. / Northumberland Dr.
Chambers Road
Comet Drive
MO Veterans Home

5:00 p.m. to Noon, Monday through Sunday

3.4 For Ramp Closure from Chambers Road to Northbound Route 367 for Ramp Extension/Widening Work:

Full Ramp Closure allowed for a one-time 4-week closure.
(No other Ramp to be closed at the interchange when this work is taking place)

&

Right Northbound Route 367 Closed for a one-time 4-week closure.

3.4.1 For Base Widening and Entrance Reconstruction along Southbound Route 367 near Prestige/Marquis:

Right Southbound Route 367 Closed for a one-time 2-week closure.

3.4.2 For Base Widening and Entrance Reconstruction along Northbound Route 367 near Prestige/Marquis:

Right Northbound Route 367 Closed for a one-time 3-week closure.

3.4.3 For Type 'T' Inlet Top Reconstruction along Loop Ramp from WB I-270 to SB Route 367:

Ramp Closed for a one-time Weekend closure:
9:00 p.m. to 5 a.m., Friday night through Monday morning

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 **$250 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. The CMS shall be capable of communication with the Transportation Management Center (TMC), if applicable, prior to installation on right of way. All messages planned for use in the work zone shall be approved and authorized by the engineer or its designee prior to deployment. When permanent dynamic message signs (DMS) owned and operated by MoDOT are located near the project, they may also be used to provide warning and information for the work zone. Permanent DMS shall be operated by the TMC, and any messages planned for use on DMS shall be approved and authorized by the TMC at least 72 hours in advance of the work.

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.

4.3 Interchange Exit Ramp Traffic Flow. The contractor is required to pay special attention at all times to the traffic flow on the interchange exit ramps at the following interchanges when work is actively taking place and/or roadway restrictions are in place related to work on this project.

I-270 at Route 367

If at any time the traffic queue along any of the exit ramps at these interchanges exceeds 75% of the storage distance to the pavement gore point from the start of the ramps, immediate corrective action shall be required to modify traffic flow in order to avoid further backup along the ramps which could result in a traffic safety issue. Immediate corrective action means work may need to be abruptly halted to open traffic lanes and/or provide more traffic flow resulting in a reduction of the traffic queue on the ramps. Work will not be allowed to proceed or restrictions reinstalled until such time as the traffic queue on the exit ramps is reduced to 25% of the storage length of the ramps to the pavement gore point at the start of the ramps, or at the discretion of the Engineer.

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

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

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

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

Missouri Highway Patrol: 636-300-2800		
St. Louis County Police: 636-529-8210		
City of Bellefontaine Neighbors	Unincorporated Area	City of Moline Acres
Fire: 314-867-8005	Fire: 314-741-7300	Fire: 314-867-5360
Police: 314-867-0080	Police: 314-355-1200	Police: 314-868-2433

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

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

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

E. Project Contact for Contractor/Bidder Questions JSP-96-05

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

Lisa Kuntz, Project Manager
St. Louis District
1590 Woodlake Drive
Chesterfield, MO 63017-5712

Telephone Number: 314-453-1879
Email: Lisa.Kuntz@modot.mo.gov

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

F. Coordination with Other Projects

1.0 Description. The contractor shall coordinate traffic management between this project and MoDOT Job J6I3020B (I-270 North Design Build). The Design Build project is reconstructing the interchange at I-270 and Route 367 and that project may impact the construction activities of this project. In addition, MoDOT Job J6P3637 will install guard cable along Route 67/367 north of Coldwater Creek, which may impact work associated with the bridges on Job J6P3308.

1.1 This list of projects is not all inclusive. The contractor shall be aware that there may be other projects including, but not limited to, utility, St. Louis County, private, MoDOT maintenance, permit, or other projects that may impact project construction or traffic control in the vicinity of this project. It shall be the responsibility of the contractor to determine what, if any projects other than the ones listed above may impact this project and work to coordinate construction and traffic management efforts between this project and any other project involved.

2.0 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.

G. Prime Contractor Requirements JSP-16-09

1.0 The limitation in Sec 108.1.1 of the Missouri Standard Specifications for Highway Construction that "the contractor's organization shall perform work amounting to not less than 40 percent of the total contract cost" is waived for this project. Instead, for the purposes of constructing this project only, the less restrictive terms of the Federal Highway Administration's rule at Title 23 Code of Federal Regulations (CFR) § 635.116(a) shall apply, so that the contractor must perform project work with its own organization equal to not less than 30 percent of the total original contract price. All other provisions in Sec 108.1.1 et seq. of the Missouri Standard Specifications for Highway Construction shall remain in full force and effect, and shall continue to govern the contractor and its subcontractors, in accordance with the provisions of Title 23 CFR § 635.116.

H. Order of Work

1.0 Description. This project contains work items which impact the construction of other work items. Conflicting work and its resolution are outlined in this provision.

2.0 Maline Creek Bridge – A6751. The Route 367 Bridge over Maline Creek (A6751) will have an EPO (Epoxy Polymer Overlay) installed as part of Job J6P3308. The contractor shall not install the EPO on Bridge A6751 until after Route 367 north of the bridge is resurfaced due to the modifications in striping (addition of left turn only lane for Southbound Route 367 into Prestige Lane and Marquis Court and the reconstruction of those entrances). See plan sheets for additional details on the new lane configuration. The contractor shall install temporary striping as needed until the final striping can be installed. Any temporary striping on the bridge shall not damage the new EPO.

3.0 New Light along NB 367 south of I-270. The contractor shall be notified that a new light will be installed on NB Route 367 between I-270 and the MO Veterans Home intersection and will be connected into an existing circuit at the I-270 interchange. The contractor may install this new light for J6S3437 based upon their schedule, however, the contractor shall coordinate with the Engineer at least 2 weeks prior to installing this new light and wiring. The contractor for the North I-270 Design Build Project may be installing the new circuiting at the interchange at the same time as this work is taking place.

4.0 Pot Holing Utility Facilities for Chambers On-Ramp Work. The contractor shall pot hole the existing AT&T duct bank running along NB Route 367 north of Chambers Road before ordering any materials and beginning any work for the ramp extension from Chambers Road to NB Route 367. The contractor is also advised to review JSP – Guardrail Construction Requirements, and JSP – Utilities, for information regarding guardrail installation near utilities along Route 367.

5.0 No direct payment shall be made to comply with this provision.

I. Property Owner Notification

1.0 Description. It shall be the contractor's responsibility to inform and notify the adjacent property owner 48 hours prior to starting any construction activities that may impact driveway and parking lot access or occur along the frontage of the property owner's parcel. Notification shall be in written form and include the contractor's contact information, the Engineer’s contact information, and an estimated schedule of work and the associated impacts.

2.0 Basis of Payment. No direct payment will be made to the contractor for the labor, equipment, material, or time required to comply with this provision.

J. Access to Commercial and Private Entrances

1.0 Description. While working on entrances or adjacent properties, the contractor shall make every reasonable effort to minimize any interference to the properties and to complete the work diligently. Under no circumstances shall the contractor block ingress/egress to and from

businesses during the normal business hours of each business unless as approved by the property owner and engineer.

2.0 Construction Requirements. On all commercial entrances the contractor shall keep one-half of the entrance open at all times. On commercial or private entrances less than 20' wide it may be necessary for the contractor to provide temporary aggregate to provide access to the property. The contractor shall remove and dispose of the temporary aggregate following completion of the entrance. For properties with more than one entrance the contractor may construct one entire entrance at a time with the approval of the property owner and the engineer.

2.1 The contractor shall complete the entrances as quickly as possible and shall take no longer than **3 days** to complete any one private or commercial entrance with a width less than 20'.

2.2 Private Entrances near Prestige Lane and Marquis Court. Excluding Prestige Lane and Marquis Court (see Section 2.3), the contractor shall construct each entrance one at a time, which includes pavement area for each entrance impacted by the base widening for the Left Turn Lane from Southbound Route 367 into Prestige Lane and Marquis Court. The contractor shall not remove and replace pavement with base widening for the full length of roadway in either direction along Route 367 at the same time as shown on Sheets 17 and 18 in the plan set.

2.3 Prestige Lane and Marquis Court. The contractor shall construct each of the entrances at Prestige Lane and Marquis Court a half at a time. The contractor shall not work on both entrances at the same time. The contractor may use high early strength concrete for the entrances using a mix approved by the Engineer for the paved approaches for Prestige Lane and Marquis Court.

3.0 Basis of Payment. No direct payment will be made to the contractor for any expenses incurred for compliance with this provision.

K. Coldmilling Requirements

1.0 Description. To prevent an edge drop-off requiring the use of temporary barrier after the daily mill and fill of the SP190C base mix along mainline Route 367, the contractor shall coldmill the existing UBAWS treatment first using pay item 622-20.10 below and then shall use pay item 622-10.03 to mill the existing asphalt down to concrete. The contractor may propose an alternative to this method with approval from the Engineer. Locations requiring a two-mill approach shall be noted in the plans. **The contractor shall coldmill down to existing concrete no more than 1 week after milling off the UBAWS lift.**

1.1 Order of Work. Due to the depth of asphalt varying along Route 367 for areas which were widened in the past to provide for wider two lanes in each direction of Route 367, the contractor shall mill out the outside lanes first in each direction since those were the ones which were widened. If the depth of milling down to concrete is less than 1.5 inches, then the contractor shall notify the engineer and adjustments shall be made to provide a minimum of 1.5-inch resurfacing lift.

2.0 Method of Measurement. Measurement for coldmilling shall be made to the nearest square yard for the items noted below. In areas that have a coldmilling depth of less than 3 inches, then Section 1.0 of this provision shall not apply as pavement edge drop-off will not be an issue.

3.0 Basis of Payment. All costs associated with compliance with this special provision for all material, equipment, and labor shall be completely covered by the contract unit price for the following:

Item Number	Type	Description
622-20.10	S.Y.	Coldmilling Bituminous Pavement for Driving Surface
622-10.03	S.Y.	Coldmilling Bituminous Pavement for Removal of Surfacing (Greater than 3 In. Thick)

L. Utilities

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**
Ameren Missouri Brandon Butcher Phone: (618) 797-5617 Email: bbutcher@ameren.com	None Section 3.0	Electric
AT&T - D Tonya Wells Phone: (636) 448-9607 Email: tw2745@att.com	Yes Section 4.0	Communications
Buckeye Pipeline Wesley Pekarek Phone: (816) 836-6096 Email: wpekarek@buckeye.com	None Section 8.0	Jet Fuel
Charter Aaron Tampow Phone: (314) 393-2961 Email: Aaron.Tampow@charter.com	None Section 8.0	Communications

Lumen - national Jeff Reynolds Phone: (314) 614-6944 Email: jeffrey.reynolds@lumen.com	None Section 5.0	Communications
Missouri American Water Company Ray Brooman Phone: (314) 996-2214 Email: Ray.Brooman@amwater.com	None Section 8.0	Water
MCI Verizon Ryan Tasker Phone: (314) 565-6946 Email: ryan.tasker@verizon.com	None Section 8.0	Communications
Spire Nick Eggert Phone: 314-330-5720 Nicholas.Eggert@spireenergy.com Trevor Tillmon Phone: (314) 941-9815 Email: Trevor.Tillmon@spireenergy.com	None Section 6.0	Natural Gas
St Louis County Scott Halter Phone: (314) 615-0202 Email: Shalter@stlouiscountymo.gov	None Section 7.0	Communications
St Louis Pipeline Jeff Davis Phone: (618) 254-8273 Email: Jeffdavis.stlouispipeline@hotmail.com	None Section 8.0	Jet Fuel

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 Guardrail Locations: The contractor shall be aware there are numerous utilities present along the route in this contract. Utility locates were not performed during the design phase of the project for proposed guardrail locations; therefore, the extent of conflicts with utilities are unknown. There may be underground utilities that run parallel or cross the route that are in

close proximity to guardrail work locations. The contractor shall take necessary precautions and measures to verify locations and depths of utilities by any necessary means to determine exact impacts to their work.

3.0 Ameren: Ameren has overhead facilities within the limits of this project, if contacting Ameren in regards to this project reference the premise number 008701530. Ameren advises that they do not anticipate any utility conflicts on the road project.

3.1 Ameren Overhead Power lines: Contractors and their employees working in the vicinity of Ameren's power lines will adhere to the Missouri Overhead Power Line Act as set forth in Missouri Revised Statutes section 319, particularly the safety requirements in sections 319.075 through 319.090.

3.1.1 The contractor shall discuss the planned work as it relates to any energized power lines with Ameren Missouri and coordinate with Ameren Missouri for the installation of any insulation covers over the lines and/or any other designated requirements. The contractor is advised to contact Ameren Missouri regarding the current policy and so the anticipated cost to the contractor can be estimated and when payment is required. The Contractor shall contact Ameren Missouri at least two weeks in advance of when construction work is scheduled to begin to request covers to be placed at a given location. The contractor will need to contact Ameren at (314) 992 -6619 to coordinate this work with their schedule. **The contractor is responsible for any charges from Ameren Missouri for this provision and payment will be directly to Ameren Missouri.**

3.2 Power Service Request: Utility connections will be required for the construction improvements in the plans, the contractor shall contact the MoDOT Area Utility Coordinator, Dave Brunjes at (314) 439 -6297, at least 2 weeks in advance of the planned work to arrange to have the new lighting power supplies connected/old power supplies disconnected by Ameren.

4.0 AT&T-Distribution: The Contractor shall be aware of the AT&T duct package and access vault between Station 556+00 and 560+00 that is situated within the shoulder of the Northbound lanes of MO 367. Contractor shall defer to JSP section titled Guardrail Construction Requirements for guidance on guardrail installation near or next to obstacles.

4.1 The Contractor will be constructing a new wall, drainage system, and guardrail as part of the extension and realignment of the Northbound On-ramp from Chambers Road. The aforesaid construction application is near the AT&T duct system situated by the Northbound shoulder. Contractor will need to defer JSP section titled Order of Work, Pot Holing Utility Facilities for Chambers On-Ramp prior to performing the work.

4.2 Contractor will be widening MO 367 at the intersection of Marquis Ct. AT&T has a manhole frame and cover within the street approach tie in that may need to be adjusted to the new street approach grade. Contractor shall contact MoDOT Area Utility Coordinator (Dave Brunjes at 314-439-6297), two weeks in advance of the anticipated adjustment to establish coordination between the contractor and AT&T.

4.3 AT&T has several manholes within the Northbound right through lane and adjacent shoulder that may need to be adjusted to finished grade. AT&T will be responsible for adjusting their manhole frame and covers.

5.0 Lumen (National): Lumen has both aerial and underground facilitates within the limits of the roadway project. The facilities run along the outer road system from approximate station 515+00 to approximate station 112+00 at which point it crossing underground and is placed in the median running north to the project limits. The contractor shall use care while excavating and constructing to shall avoid damaging these facilities. This project has been assigned **P-139944 MO** and **P-147384 MO,** if contacting Lumen for this project reference these numbers. Lumen advises that they do not anticipate any utility conflicts on the project.

6.0 Spire: Spire has a 20" ST Transmission Feeder Main that crosses underneath bridges A7087 and A6637 (Cold Water Creek). The contractor shall contact Spire (Trevor Tillmon (314) 941-9815) at least 3 days before beginning work near the anchors. The Contractor shall be aware of Spire's 6" main located west of the west curb line of Route 367 when installing new lights. Spire advises that they do not anticipate any utility conflicts on the project.

7.0 St. Louis County Department of Transportation: St Louis County has buried fiber within the project limits along Chambers and at the intersection of 367 and Jennings Station Road. St Louis County advises that while they do not anticipate any utility conflicts on the project the Contractor will have to call in locates separately to St Louis County.

7.1 The contractor shall be aware that St Louis County is **NOT** a member of Missouri One Call (800 Dig Rite). Some work on this project may be in the vicinity of St Louis County utility facilities, which includes but is not limited to traffic signal cables, highway lighting circuits, ITS cables, cathodic protection cables, etc. Prior to beginning work, the contractor shall request locates from the County at, Signal_locates@stlouisco.com. The County defers to MO One Call Ticket search system for information on the locate area, the contractor is to provide the relevant Mo One Call ticket number with their locate request.

8.0 Buckeye, Charter, St Louis pipeline, Missouri American Water Company, St Louis Pipeline, and MCI Verizon: have facilities within the project limits. These Companies advises that they do not anticipate any utility conflicts on the road project.

9.0 Bridge A4536 (367 NB over 67), A7088 (367 SB over 67), and A6751 (367 at Maline Creek), Records indicate that there are no attachments on these structures.

10. Bridge A6913 (367SB over Parker Rd): Records indicate that there are two MoDOT lights and conduit attached to front face of the cap at bents 2 & 3. Records also indicate that there is MoDOT lights and conduit attached the Girders 3 and 9 at spans 1 and 3 respectively. Records indicate that is 1 additional 1" conduit attached to the bridge. The Contractor should note of these facilities and should take care when working around the structure.

11.0 Bridge 6916 (367 NB over Redman): Records indicate that there are two (2) 2" MoDOT lighting conduits attached to the structure at Spans 2 and 4. The Contractor should note of these facilities and should take care when working around the structure.

12.0 Bridge 6917 (367 SB over Redman): Records indicate that there are two (2) 2" MoDOT lighting conduits attached to the structure at Spans 2 and 4. The Contractor should note of these facilities and should take care when working around the structure.

13.0 Bridge 6919 (367 over Dunn Rd): Records indicate that there are two (2) 2" MoDOT lighting conduits attached to the structure at Spans 2 and 7. The Contractor should note of these facilities and should take care when working around the structure.

14.0 Bridge A7087 (367 SB over Coldwater Creek): Records indicate that there are two (2) 2" conduits attached to the structure at the back of the exterior barrier curb. The Contractor should note that when facilities are installed on Bridges, they are typically along the back of the guardrail approaching the structure and are often in conflict with new guardrail systems being upgrading to MASH standard.

15.0 Bridge 6637 (367 NB over Coldwater Creek): Records indicate that there are two (2) telecommunication conduits attached to the structure one 2" in diameter and one 3" diameter. The Contractor should note that when facilities are installed on Bridges, they are typically along the back of the guardrail approaching the structure and are often in conflict with new guardrail systems being upgrading to MASH standard.

16.0 If utility facilities are discovered, the contractor shall contact the MoDOT Area Utility Coordinator Dave Brunjes at (314) 439-6297. The engineer will determine whether relocation of the utility is necessary to accommodate construction or if the work can be installed in accordance with Missouri Standard Plans for Highway Construction for the item of work specified.

17.0 Basis of Payment: No direct payment will be made for complying with this provision.

M. Adjusting Manholes, Valves and Pullboxes

1.0 Height Adjustment. Regardless of type or size, the manholes, valves and pull boxes shown in the plans require adjustment to match the new grade of the roadway, ramp, landing, or sidewalk. The existing manholes shall be adjusted and installed according to standard plan 731.00T. Adjusting rings shall not exceed 12 inches in height.

2.0 The contractor is advised that Metropolitan St. Louis Sewer District, MoDOT, MAWC, Spire Gas have manholes and valves, located within the islands/roadway/sidewalk that will require adjustments. The Contractor shall adjust these facilities to grade as necessary. The Contractor shall contact the respective utility regarding any questions regarding the adjustment of these facilities.

2.1 The contractor shall notify the engineer if manholes or pull boxes belonging to utilities other than Metropolitan St. Louis Sewer District, MoDOT, are encountered that will require adjustment. The contractor shall coordinate work with the affected utility to ensure that the completed facilities meet ADA requirements.

2.2 Basis of Payment. All costs associated with compliance with this special provision for all material, equipment, and labor shall be completely covered by the contract unit price for:

Item Number	Type	Description
604-99.02	Each	Adjusting Manholes, Valves, and Pull Boxes

3.0 Pull boxes, valves or manholes not owned by MoDOT or specified as required work by the Contractor may require adjustment due to work in the contract. The Contractor shall contact the respective utility owners regarding any questions about the adjustment of these facilities. The Contractor shall contact the respective utility owner, at least 3 weeks prior to adjustment of these facilities to allow the utility owner to make necessary adjustments. The Contractor shall coordinate with the respective utility owners for scheduling and providing the necessary grade requirements for each adjustment. Payment for all necessary work required for the coordination for the scheduling, grade requirements and adjustments of these utility facilities shall be at no direct pay.

Contractor shall directly contact Utility companies to verify location of facilities and status of relocation/adjustment work. The contractor shall coordinate construction activities with Utility Companies and take measures to ensure the integrity of the existing facilities are not disturbed until such time as the Utility Companies have completed the adjustment work.

N. Concrete Manhole Collar

1.0 Description. The Contractor shall install a reinforced concrete collar around a manhole frame and cover or utility valve as indicated in the plans and as approved by the Engineer.

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

Item	**Section**
Reinforcing Steel for Concrete	1036

2.1 Concrete used for manhole collars shall be the same used for full depth pavement repairs as specified in Section 613.10 of the Standard Specifications.

3.0 Construction Requirements. Manhole collars shall be provided in locations within the plans or as directed by the Engineer but generally shall be located where a manhole is adjusted to grade due to the cold-milling and overlaying of an existing roadway. The use of a collar can also be considered for new installations within new full depth asphalt pavement.

3.1 Steel Plate. If approved by the Engineer, a steel plate may be installed over the void created by the removal of pavement next to a manhole or utility valve prior to the installation of the manhole collar concrete. Asphalt wedging surrounding the steel plate shall be included when using a steel plate. No direct payment shall be made to provide this steel plate and asphalt wedging.

3.2 Joint Sealing. Per MoDOT Standard Specification 613.3.3, the contractor shall seal the joint between the asphalt surface and the new concrete collar along with seal any overcut

created from the sawcutting operation when removing the portion of pavement to be replaced with manhole collar concrete. This joint shall be filled with either an expansive mortar, epoxy, polyester or joint material as approved by the Engineer. In addition, the contractor shall install tar paper between the new concrete and the existing manhole frame and cover as directed by the Engineer.

4.0 Method of Measurement. Measurement for installation of a reinforced concrete manhole collar will be made per each.

5.0 Basis of Payment. Payment for the installation of a reinforced concrete manhole collar, including all materials, equipment, labor, saw cuts before and/or after installation and all necessary work shall be completely covered by the contract unit price paid for the item listed below. Adjusting to grade the actual frame and cover shall be paid for separately. Please see JSP – Adjusting Manholes, Valves and Pullboxes for additional details regarding the adjustment to grade for those items.

Item No.	Type	Description
604-99.02	Each	Concrete Manhole Collar

O. Liquidated Damages Specified (Job J6S3437 Completion Milestone)

1.0 Description. If all resurfacing work on Job J6S3437, including on mainline Route 367 and all of its interchanges and cross streets, along with the on-ramp extension/widening from Chambers Road to Northbound Route 367, and the base widening and entrance reconstruction near Prestige/Marquis are not complete and open to traffic prior to October 29th, 2022, the Commission, the traveling public, and state and local police and governmental authorities will be damaged in various ways, including but not limited to, increased construction administration cost, potential liability, traffic and traffic flow regulation cost, traffic congestion and motorist delay, with its resulting cost to the traveling public. These damages are not reasonably capable of being computed or quantified. Therefore, the contractor will be charged with liquidated damages specified in the amount of **$1000** per day for each full day that all resurfacing work, on-ramp extension work from Chambers Road to Northbound Route 367 and the base widening and entrance reconstruction near Prestige/Marquis are not complete and 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 excess closure time.

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

P. Liquidated Damages Specified (4-Week Closure for On-ramp Extension/Widening Work)

1.0 Description. As specified in the Work Zone Traffic Management JSP, the contractor shall be allowed to completely close the on-ramp from Chambers Road to Northbound Route 367 and the far-right Northbound Route 367 lane north of the Chambers interchange for a 4-week period, one time on the project to complete the on-ramp extension/widening work. If all on-ramp extension/widening work including all new pavement, Type ‘D’ barrier wall, guardrail, pavement drainage and striping is not complete and the ramp and the right lane of Northbound Route 367

reopened to traffic after the 4-week full closure of the ramp, the Commission, the traveling public, and state and local police and governmental authorities will be damaged in various ways, including but not limited to, increased construction administration cost, potential liability, traffic and traffic flow regulation cost, traffic congestion and motorist delay, with its resulting cost to the traveling public. These damages are not reasonably capable of being computed or quantified. Therefore, the contractor will be charged with liquidated damages specified in the amount of **$2400** per day for each full day that all work specified above is not complete and the ramp has not been reopened 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 excess closure time.

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

Q. Liquidated Damages Specified (2-Week Closure for SB Route 367 near Prestige/Marquis)

1.0 Description. As specified in the Work Zone Traffic Management JSP, the contractor shall be allowed to completely close the far-right lane of Southbound Route 367 for a 2-week period, one time on the project, to complete the base widening and entrance work along Southbound Route 367 as part of the addition of a left turn lane to Prestige Lane and Marquis Court. If all base widening work including all new pavement (except the top lift) and the entrances is not complete and the ramp reopened to traffic after the 2-week full closure of the far-right lane of Southbound Route 367, the Commission, the traveling public, and state and local police and governmental authorities will be damaged in various ways, including but not limited to, increased construction administration cost, potential liability, traffic and traffic flow regulation cost, traffic congestion and motorist delay, with its resulting cost to the traveling public. These damages are not reasonably capable of being computed or quantified. Therefore, the contractor will be charged with liquidated damages specified in the amount of **$1200** per day for each full day that all work specified above is not complete and the ramp has not been reopened 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 excess closure time.

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

R. Liquidated Damages Specified (3-Week Closure for NB Route 367 near Prestige/Marquis)

1.0 Description. As specified in the Work Zone Traffic Management JSP, the contractor shall be allowed to completely close the far-right lane of Northbound Route 367 for a 3-week period, one time on the project, to complete the base widening and entrance work along Northbound Route 367 as part of the addition of a left turn lane to Prestige Lane and Marquis Court. If all base widening work including all new pavement (except the top lift) and the entrances is not complete and the ramp reopened to traffic after the 3-week full closure of the far-right lane of Northbound Route 367, the Commission, the traveling public, and state and local police and

governmental authorities will be damaged in various ways, including but not limited to, increased construction administration cost, potential liability, traffic and traffic flow regulation cost, traffic congestion and motorist delay, with its resulting cost to the traveling public. These damages are not reasonably capable of being computed or quantified. Therefore, the contractor will be charged with liquidated damages specified in the amount of **$1200** per day for each full day that all work specified above is not complete and the ramp has not been reopened 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 excess closure time.

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

S. Liquidated Damages Specified (Entrances Impacted by Base Widening Work near Prestige/Marquis)

1.0 Description. As specified in the Access to Commercial and Private Entrances JSP, the contractor shall be allowed to completely close an entrance needing complete reconstruction (not including Prestige Lane or Marquis Court) for a maximum of 3 days in order to reconstruct the entrance. **However, entrances impacted by the base widening along Route 367, shall have a maximum of 2 days of closed access to the property owner, requiring the owner park elsewhere or on the shoulder of Route 367.** If all new base widening is not complete and the entrance reopened to traffic after the 2-day full closure of the entrance, the Commission, the traveling public, and state and local police and governmental authorities will be damaged in various ways, including but not limited to, increased construction administration cost, potential liability, traffic and traffic flow regulation cost, traffic congestion and motorist delay, with its resulting cost to the traveling public. These damages are not reasonably capable of being computed or quantified. Therefore, the contractor will be charged with liquidated damages specified in the amount of **$500** per day for each full day that all work specified above is not complete and the ramp has not been reopened 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 excess closure time.

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

2.0 Parking Along Route 367. During the closure of an entrance, the contractor shall provide room along the existing shoulder of Route 367 so that the owner of the private residence can park on-street. If any of these vehicles interferes with the work, the Contractor shall notify, in writing, the owners of such vehicles, advising them of the nature of the interference and shall arrange and cooperate with them for the protection or disposition of such vehicles. The Contractor shall furnish the Engineer with copies of such notifications and with copies of any agreement between the Contractor and the property owners concerning such protection or disposition.

The Contractor shall take all necessary precautions for the protection of the parked vehicles contiguous to the work.

The Contractor shall be responsible for the damage or destruction of the parked cars of any character resulting from neglect, misconduct, or omission in his/her manner or method of execution or nonexecution of the work, or caused by defective work or the use of unsatisfactory materials or equipment, and such responsibility **shall not be released until the base widening work has been completed** and the requirements of the Specifications complied with.

Whenever parked vehicles are so damaged or destroyed, the Contractor shall, at no additional cost to the Commission, restore such vehicle to a condition equal to that existing before such damage or injury was done by repairing, rebuilding, or replacing it as may be directed, or the Contractor shall otherwise make good such damage or destruction in an acceptable manner. If the Contractor fails to do so, the Engineer may, after the expiration of a period of 48 hours after giving the Contractor notice in writing, proceed to repair, rebuild, or otherwise restore such vehicle as may be deemed necessary, and the cost thereof will be deducted from any compensation due, or which may become due, the Contractor under this or any other contract between the Commission and the Contractor.

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 the above provisions, unless specified elsewhere in the contract documents.

T. MSD As-built Submittals (Permit# 21MSD-00308)

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-built drawings for **21MSD-00308** and subsequent revisions after all drainage structures related to the project have been constructed or adjusted.

1.1 MSD Electronic Plans Submittal Process. MSD requires that permits be submitted electronically using their new online paperless system Accela. The contractor will be required to login on to this system and upload as-builts and/or shop drawings as necessary. Additional information can be found here:

https://msdprojectclear.org/doing-business/development-review/

A direct link to the new online system can be found here:

https://aca3.accela.com/STLMSD/Login.aspx

In order to access the permit, the contractor will first need to call MSD in order to obtain access for the particular job mentioned above.

1.2 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 The Contractor shall comply with all General Construction Permitting Requirements indicated in the approved permit, which includes payment of all permit fees.

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

U. Replace Inlet Top

1.0 Description. The contractor shall replace the inlet tops, MSD or MoDOT style, labeled in the plan sheets with tops that match the existing inlet size. The top shall be replaced with either a manhole cover, Type 'S' inlet top, Type 'T' inlet top or as indicated in the plans. The contractor will have the option to either tie the new top into the existing inlet with steel reinforcing rebar or shall instead build a larger structure that surrounds the existing inlet. All details of the area inlet top are shown within the special plan sheets.

1.1 Three 2.5'x3' Type 'T' inlets shall be replaced along the loop off-ramp from WB I-270 to SB Route 367. Two other Type 'T' inlets of the same size may also be replaced along Route 367 with approval from the Engineer. These inlets are expected to be UIP but may be removed as part of the I-270 North Design Build project.

2.0 Basis of Payment. Payment for the removal and replacement of the area inlet top as shown in the plans shall be considered full compensation for all contractor-provided equipment, hardware, labor, removal and material including new concrete, reinforcement, grate and bearing plate, and manhole frame and cover to complete the described work. Payment will be made as follows:

Item No.	Type	Description
731-99.02	Each	Replace Area Inlet Top with Manhole
731-99.02	Each	Replace Area Inlet Top with Type 'S-1' Inlet Top
731-99.02	Each	Replace Area Inlet Top with Type 'S-3' Inlet Top
731-99.02	Each	Replace Inlet Top Type 'T'

V. Replace Inlet Top to New Grade

1.0 Description. This work shall consist of **removing and replacing** existing in-pavement inlet tops, curved-vane grates, bearing plates and surrounding concrete along Rte. 367. The existing inlets shall remain in place. The locations of adjusting inlets to grade are shown within the plans.

2.0 Construction Requirements. The contractor shall field verify the size of the inlet and required grate opening area prior to ordering the drop inlet tops and grates and bearing plates. The contractor shall saw cut the existing pavement or shoulder around the inlet to provide the concrete pad around the inlet top in accordance with the dimensions shown in the plans. If needed, the inlet shall be adjusted to the proper elevation. The contractor shall also repair any damage to the inlet, inlet invert, or pipe connection to the inlet.

3.0 Method of Measurement. Measurement for replacing drop inlet tops will be per each and will include **full depth saw cutting**, removing pavement, removing existing inlet tops, grates,

bearing plates and any necessary surrounding concrete as well as furnishing and installing the new inlet tops and grates and bearing plates.

4.0 Basis of Payment. Payment for furnishing the labor, materials, equipment, and excavation necessary to install the new inlet top and grates and bearing plates shall be paid for by the contract unit price for the following pay items:

Item No.	Type	Description
731-99.02	Each	Replace Inlet Top to New Grade

W. 6-Inch Pipe under Sidewalk

1.0 Description. This work shall consist of installing two 6-inch black HDPE pipes, each 5 foot in length, under the sidewalk in the SE quadrant of Route 367 and St. Cyr Road. In addition to the pipes, the contractor shall provide a removable cap attached by screws at each end of both pipes which prevent debris from entering and clogging the pipes.

2.0 Material. New HDPE pipe shall be in accordance with Division 1000, Material Details, and specifically as follows:

Item	Section
Polyethylene Culvert Pipe	1047

3.0 Method of Measurement. Measurement for installation of 6-inch black HDPE pipe will be made to the nearest linear foot.

4.0 Basis of Payment. Payment for furnishing the 6-inch pipe, labor, materials, equipment, and excavation necessary to install the new pipes under new sidewalk shall be paid for by the contract unit price for the following:

Item No.	Type	Description
605-99.03	Linear Foot	6-Inch Black HDPE Pipe

X. 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 ***thinner*** 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 by the contract unit bid price for the following items:

Item No.	Type	Description
403-99.05	S.Y.	Optional Pavement: Chambers Ramp Extension

Y. Asphalt Base Widening

1.0 Description. This work shall consist of constructing a full depth asphalt pavement widening on Route 367 near Prestige Lane and Marquis Court, 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 the asphalt base widening 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 contractor shall comply with Sections 401 through 403 for this pavement.

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

4.0 Basis of Payment. The accepted quantity of asphalt base widening will be paid for by the contract unit bid price for the following items:

Item No.	Type	Description
403-99.05	S.Y.	11-Inch Asphalt Base Widening (Rte. 367 at Prestige/Marquis)

Z. ADA Compliance and Final Acceptance of Constructed Facilities JSP-10-01B

1.0 Description. The contractor shall comply with all laws pertaining to the Americans with Disabilities Act (ADA) during construction of pedestrian facilities on public rights of way for this project. An ADA Checklist is provided herein to be utilized by the contractor for verifying compliance with the ADA law. The contractor is expected to familiarize himself with the plans involving pedestrian facilities and the ADA Post Construction Checklist prior to performing the work.

2.0 ADA Checklist. The contractor can locate the ADA Checklist form on the Missouri Department of Transportation website:

www.modot.org/business/contractor_resources/forms.htm

2.1 The ADA Checklist is intended to be a helpful tool for the contractor to use during the construction of the pedestrian facilities and a basis for the commission's acceptance of work. Prior to work being performed, the contractor shall bring to the engineer's attention any planned work that is in conflict with the design or with the requirement shown in the checklist. Situations may arise where the checklist may not fully address all requirements needed to construct a facility to the full requirements of current ADA law. In those situations, the contractor shall propose a solution to the engineer that is compliant with current ADA law using the following hierarchy of resources: 2010 ADA Standards for Accessible Design, Draft Public Rights of Way Accessibility Guidelines (PROWAG) dated November 23, 2005, MoDOT's Engineering Policy Guidelines (EPG), or a solution approved by the U.S. Access Board.

2.2 It is encouraged that the contractor monitor the completed sections of the newly constructed pedestrian facilities in attempts to minimize negative impacts that his equipment, subcontractors or general public may have on the work. Completed facilities must comply with the requirements of ADA and the ADA Checklist or have documented reasons for the non-compliant items to remain.

3.0 Coordination of Construction.

3.1 Prior to construction and/or closure on an existing pedestrian path of travel, the contractor shall submit a schedule of work to be constructed, which includes location of work performed, the duration of time the contractor expects to impact the facility and an accessible signed pedestrian detour compliant with MUTCD Section 6D that will be used during each stage of construction. This plan shall be submitted to the engineer for review and approval at or prior to the pre-construction conference. Accessible signed detours shall be in place prior to any work being performed that has the effect of closing an existing pedestrian travel way.

3.2 When consultant survey is included in the contract, the contractor shall use their survey crews to verify that the intended design can be constructed to the full requirements as established in the 2010 ADA Standards. When 2010 ADA Standards do not give sufficient information to construct the contract work, the contractor shall refer to the PROWAG.

3.3 When consultant survey is not included in the contract, the contractor shall coordinate with the engineer, prior to construction, to determine if additional survey will be required to confirm the designs constructability.

4.0 Final Acceptance of Work. The contractor shall provide the completed ADA Checklist to the engineer at the semi-final inspection. ADA improvements require final inspection and compliance with the ADA requirements and the ADA Checklist. Each item listed in the checklist must receive either a "YES" or an "N/A" score. Any item receiving a "NO" will be deemed non-compliant and shall be corrected at the contractor's expense unless deemed otherwise by the engineer. Documentation must be provided about the location of any non-compliant items that are allowed to remain at the end of the construction project. Specific details of the non-compliant items, the ADA requirement that the work was not able to comply with, and the specific reasons that justify the exception are to be included with the completed ADA Checklist provided to the engineer.

4.1 Slope and grade measurements shall be made using a properly calibrated, 2 foot long, electronic digital level approved by the engineer.

5.0 Basis of Payment. The contractor will receive full pay of the contract unit cost for all sidewalk, ramp, curb ramp, median, island, approach work, cross walk striping, APS buttons, pedestrian heads, detectible warning systems and temporary traffic control measures that are completed during the current estimate period as approved by the engineer. Based upon completion of the ADA Checklist, the contractor shall complete any necessary adjustments to items deemed non-compliant as directed by the engineer.

5.1 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 documents.

AA. ADA Curb Ramp

1.0 Description. This work shall consist of constructing new concrete curb ramps and island cut-throughs that are compliant with current Americans with Disabilities Act (ADA) and MoDOT guidelines at locations shown on the plans and as directed by the engineer. Providing work zone protections for pedestrians will be a primary component of this project. Specifically, this work shall consist of providing pedestrian detours, including all necessary designing of specific detour routes, placing of signing, barricades, and channelizing. Nothing in this provision shall be construed to limit contractor innovation in mitigating pedestrian traffic impacts. All revisions shall be submitted to the engineer in writing 3 days prior to approval.

1.1 The contractor shall ensure that the persons establishing the grades of the ADA facilities have a copy of ADA related provisions at hand for reference. If it is found that written provisions for ADA facilities are not at hand, the engineer may cause ADA work to be ceased until a copy arrives.

2.0 Construction Requirements. Except as noted herein, all applicable provisions in Sec 608 for construction of curb ramps shall apply. Items and materials used for pedestrian traffic control shall be in accordance with Section 616 of the Missouri Standard Specifications for Highway Construction of the version current at the time of the bid opening, as applicable. Materials used to provide access over or around obstacles shall be in accordance with the Section applicable.

2.1 The area to be removed and/or constructed under this provision includes the entire curb ramp, flares, landing pads, sidewalk, and any curbs, including variable height curbs as tabulated in the quantity sheets and shown on the plan sheets. **Truncated domes shall be paid for separately.**

2.1.1 Gutter Correction. The contractor shall establish the grade of the flow line of the gutter before establishing the grades of ADA facilities. The gutter line shall be free flowing with no ponding and next to the curb. Under performing gutters shall be replaced with a concrete curb and gutter or a minimum 1.75 inch thick asphalt mill and fill. Running or standing storm water shall not be pushed out into the roadway where it may be splashed on pedestrians by passing vehicles or cause a hydroplaning hazard. An asphalt mill and fill shall be a minimum of 1.75 inches thick and the edges shall be at a smooth milled butt joint. The contractor shall use an approved BP-1 mix for all corner asphalt mill and fill work unless another surface asphalt mix is specified elsewhere in the contract. Asphalt mill and fill is included in the work of ADA Curb Ramps. If asphalt mill and fill is needed at a corner without any other ADA work, it will be found as a separate line item in this contract.

2.2 Recommendations for the design type of each curb ramp to be built on this project are shown on the plans. These curb ramps may vary from the original design in size, shape, and location as necessary to comply with ADA laws. It is the contractor's responsibility to inspect locations in the field before bidding to verify quantities needed to satisfy this provision.

2.2.1 ADA provides some exceptions to ramp slope where space limitations exist. The apparent construction limits shown on the plans are not considered a space limitation. The use of these exceptions will not be considered by the engineer unless the length needed for compliance goes beyond 10 additional feet as shown as the plans are interpreted by the engineer. The contractor shall not place any ADA exceptions without consulting the engineer on a case by case basis.

2.3 Work Area Safety. The contractor shall maintain a work area that is safe for pedestrians. The areas adjacent to the contractor's physical work site shall also be maintained as needed to provide access to adjoining properties, regardless of whether a detour route is in place. All holes shall be covered with secured plywood or steel plates, and the work area walkways shall be free of trip hazards, loose debris, vehicles, materials, and equipment when the contractor is not in the work area. A 3 foot minimum path shall be maintained on any used-in-place walkway needed for access. The contractor shall not be permitted to park on any walkway solely to avoid the need for a lane closure. Items for lane closures are provided in the plans and quantities. The contractor shall fence in his work area to provide no access to the general public during the construction of the project.

2.4 Prosecution of Work. The contractor shall have all necessary personnel, equipment, and materials at hand for all work at each location before the work begins so that work may proceed without delay.

2.4.1 Pedestrian Detours. The contractor may provide and maintain a signed pedestrian detour at their own cost on a route with equal or better ADA accessibility than the closed pathway, if such routes exist. Since MoDOT may not own the right-of-way of the detour path, the contractor shall ascertain that the detour route will remain open during its planned use as a detour. The contractor shall inform the engineer of plans to use a detour not less than three weeks before it is set up.

2.4.2 Detour Locations. Pedestrian detours are to cross the street or go around the block where facilities exist. It may be possible to provide one detour for more than one corner/work location; the quantity for pedestrian detours will be based on the number of work locations needing detours and not on the number of detours actually used. The detour routes shall have equal or better accessibility than existing in the construction location and shall be approved by the engineer. Detours may also use roadway shoulders with sufficient width to provide for pedestrians, and the traffic control to protect them, and where parking is not allowed, provided drainage structures are not a hazard.

At locations where an pedestrian detour is not feasible, the contractor has the option of staging work to maintain a 3' minimum pathway, providing a temporary pathway (3' minimum width) that does not reduce the number of through lanes of the roadway, or providing a full closure with signs. Locations for full closure shall be submitted to the engineer in writing 2 weeks prior to beginning work, and signs shall be placed announcing the closure 1 week before work begins.

2.5 The curb ramps to be modified per this provision vary in size. It is the contractor's responsibility to verify actual quantities needed to satisfy this provision.

2.6 The truncated domes shall come from Pre-Qualified List FS-1067 Table 1.

3.0 Method of Measurement. Final measurement will not be made except for authorized changes during construction or where appreciable errors are found in the contract quantity. The revision or correction will be computed and added to or deducted from the contract quantity.

4.0 Basis of Payment. The accepted quantity of ADA compliant curb ramps will be paid at the contract unit price for:

Pay Item Number	Type / Description	Unit
608-99.02	ADA Curb Ramp	Each
608-10.12	Truncated Domes	Sq. Ft.

No direct payment will be made for any excavating or preparing of the subgrade, furnishing or installing reinforcement, any incidental work required for furnishing and installing tie bars, tinting of concrete surface as required in the plans, asphalt mill and fill required to transition the new ramp to existing pavement or to drain the sidewalk, warping sidewalk to meet existing sidewalk sections, relocating or resetting granite curb or relocating existing pedestrian push buttons on signal poles.

BB. Pedestrian Traffic Impacts

1.0 Description. Providing work zone protection for pedestrians will be a primary component of this project at intersections along Route 367 that have sidewalks and ADA facilities. This work shall consist of staging/managing construction timelines to minimize the project's impacts to pedestrian traffic where construction activities make walkways impassible. Nothing in this provision shall be construed to limit contractor innovation in mitigating pedestrian traffic impacts.

2.0 Prosecution of Work. At locations where construction makes walkways impassible, the contractor shall have all necessary personnel, equipment, and materials at hand for all work at each location before the work begins so that work may proceed without delay. Work requiring the mitigation of pedestrian traffic impacts includes, but shall not be limited to, removal of sidewalk, curb ramp, or other paved pedestrian pathway.

3.0 Time of Disruption of Pedestrian Facilities. Regardless of construction methods chosen, once a section of sidewalk, defined as a path of no more than 500 foot in length, has been closed to pedestrian traffic, the contractor shall prosecute the work as to minimize delays and inconvenience to the traveling public. The contractor may be allowed to modify the length of a given section to be reconstructed, with approval from the engineer. Once a section has been closed to pedestrian traffic, the contractor shall have a maximum of three weeks, regardless of weather or other delays, to reopen that corner/section to pedestrian traffic.

4.0 Work Area Safety. The contractor shall maintain a work area that is safe for pedestrians. In order to provide this, the contractor shall work on only 1 side of an intersection along Route 367 at a given time to improve the sidewalks along either the east or west sides and to allow a walkable path on the other side during construction. The areas adjacent to the contractor's physical work site shall also be maintained to provide access to adjoining properties, regardless of whether a detour route is in place. All holes shall be covered with secured plywood or steel plates, and the work area walkways shall be free of trip hazards, loose debris, vehicles, materials, and equipment when the contractor is not in the work area. A 3' minimum path shall be maintained on any used-in-place walkway needed for access. The contractor shall not be permitted to park on any walkway.

5.0 Liquidated Damages. If work associated with new sidewalk or curb ramps along a side of Route 367 at a given intersection is not complete and open to pedestrian traffic within 3 weeks of commencement, 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, and pedestrian delay, with its resulting cost to the traveling public. These damages are not reasonably capable of being computed or quantified.

Therefore, the contractor will be charged with liquidated damages specified in the amount of **$500.00 per day** of delay that closes a walkway in excess of **3 weeks**. The contractor's superintendent and the engineer shall be on site at the time of any closures and shall both record an agreed time when the walkway was closed. It shall be the responsibility of the engineer to determine the quantity of excess closure time.

5.1 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. There shall be no permitted excuse for delay of the work, including weather.

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

CC. Truncated Domes in Median Island or Median Cut-Throughs

1.0 Description. This work shall consist of installing truncated domes at raised island or median cut-throughs.

2.0 Construction Requirements. The contractor shall be responsible for installing truncated domes in island or median cut-throughs as shown in the plans and as per Section 608. Truncated domes installed within island or median cut-throughs shall be placed flush with the face of the curb.

3.0 Basis of Payment. Payment for furnishing and installing truncated domes within island or median cut-throughs shall include all excavation, materials, equipment, tools, labor, and work incidental thereto, and shall be considered to be completely covered by the contract unit price for Item Number 608-10.12, “Truncated Domes”, per square foot, as indicated in the plans.

DD. Contractor Verification of Signal Base Locations

1.0 Description. The Contractor shall field verify that the proposed traffic signal base locations will not need to be shifted to avoid utilities prior to ordering the traffic signal equipment. The Contractor shall be proactive in the discovery of potential utility conflicts. The Contractor shall directly contact the utility companies to verify the location of facilities, and coordinate with the utility company and the Engineer to determine if a conflict will be encountered due to the work proposed in the contract. If a conflict is anticipated, the Contractor shall perform test holes to field verify no conflicts exist with proposed traffic signal base locations.

If a conflict is determined, the Contractor shall shift the signal base location, as approved by the Engineer. The Contractor shall coordinate construction activities with the utilities and take measures to ensure the integrity of the existing facilities are not disturbed during construction.

The contractor will be compensated for the additional mast arm length if required. The Contractor shall not order materials until measurements are field verified.

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.

EE. Disposition of Existing Signal/Lighting and Network Equipment

1.0 Description. All controllers, cabinets, cabinet equipment, network equipment, DMS equipment, antennas, radios, modems, and other equipment noted in the plans shall be removed by the contractor.

2.0 Signal Equipment. All equipment {or specific equipment listed here}, other than network communication devices noted in 3.0 are to be transported to the Commission's maintenance lot located at 2309a Barrett Station Road, Ballwin, Missouri 63021. The contractor shall notify the Commission's representative 24 hours prior to each delivery by calling:

Mr. Dennis Hixson, Traffic Supervisor, Preventive Maintenance/ITS
Cell: (314) 565-6726

Mr. Ron Mize, Traffic Supervisor, Emergency Signal Maintenance
Cell: (314) 565-6727

Mr. Brian Ducote, Senior Signal EM Electric Technician
Cell: (314) 205-7319

3.0 Network Communication Devices. Devices such as CCTV cameras and domes, video encoders, device servers, Ethernet switches, media converters, and radio assemblies are to be transported to the Commission's TMC in Chesterfield. The contractor shall notify the Commission's representative 24 hours prior to each delivery by calling 314-275-1526 and providing details for the delivery.

4.0 The contractor shall exercise reasonable care in the handling of the equipment during removal and transportation. Should any of the equipment be damaged by the contractor's negligence, it shall be replaced at the contractor's expense. The contractor shall dispose of any other equipment. Delivery shall be within 2 working days of removal. All items returned shall be tagged with the date removed, project number and location/intersection.

5.0 Basis of Payment. Payment for removal, handling and transportation of all equipment specified shall be considered completely covered by the contract unit price for Item No. 202-20.10, "Removal of Improvements", per lump sum.

FF. Coordination with MoDOT Signal Shop for Cabinet Entry

1.0 **Description.** Commission-furnished color-coded pad locks have been placed on all of MoDOT's signal cabinets in addition to the key used to unlock the door handle. To gain access to the appropriate cabinets during the project all contractors shall coordinate with MoDOT's signal shop to obtain the proper keys and locks.

1.0.1 Keys & Locks. Red locks and keys are provided when a contractor has modified the signal cabinet and MoDOT staff shall not have access to the cabinet until it is accepted for maintenance. The blue keys are provided for entry into the cabinet where MoDOT's Signal Shop group deems the access to be minor in nature (entry to the cabinet to make a simple network switch connection, for example).

1.0.2 Completion of Project. At the completion of the project all keys and pad locks distributed to contractor during the project shall be returned to the Signal Shop supervisor or their representative and keys shall not be reproduced.

2.0 Contact. Initial contact must be made at least seven calendar days before work begins, preferably when the project has the notice to proceed or during the pre-construction meeting, if applicable. MoDOT's Signal Shop supervisors shall be notified prior to work beginning. Contact the signal shop via email at **sltrs@modot.mo.gov** to coordinate which padlocks are to be used.

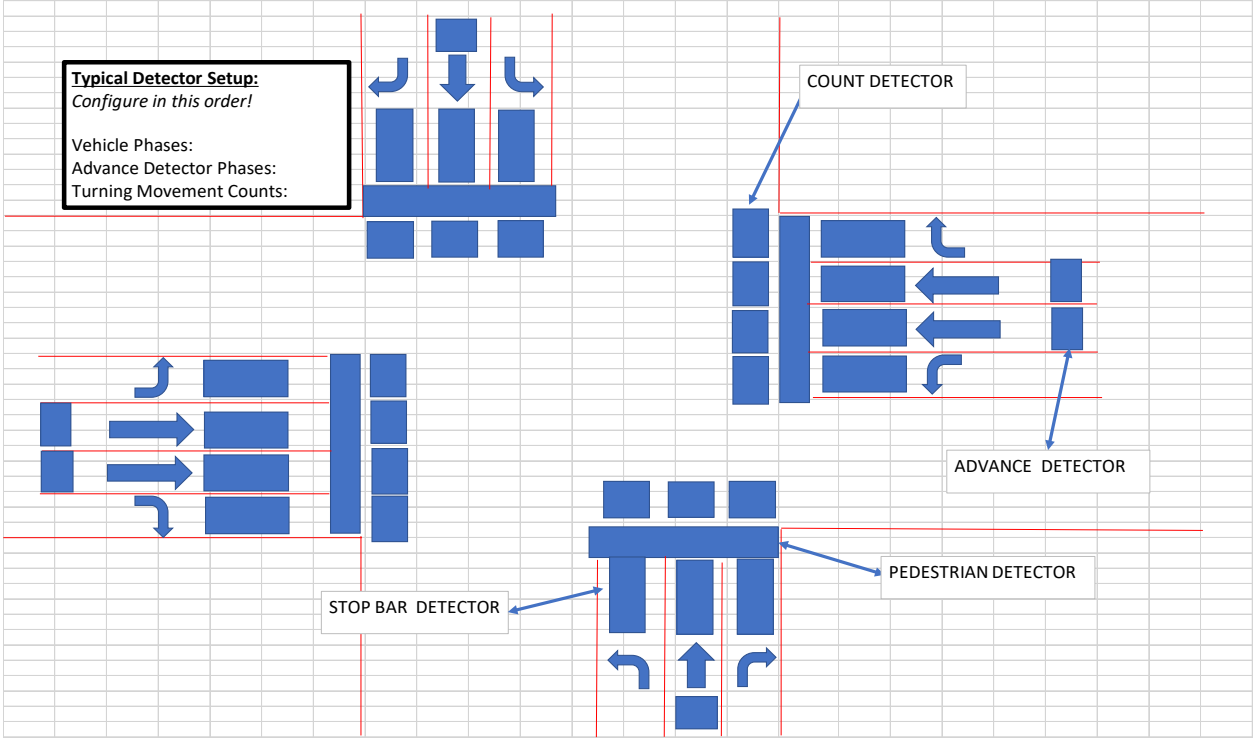
3.0 Basis of Payment. No direct payment shall be made for compliance with this provision.

GG. SL District Traffic Signal Detection System

1.0 Description. This work shall consist of providing detectors for signalized installations that will support advance traffic signal performance measures (ATSPM) on the Commission's St. Louis District roadways. Detectors shall be in accordance with the Missouri Standard Specifications for Highway Construction (latest version) and installed to provide detection at locations as shown on the plans or as directed by the Engineer in accordance with Section 902. If any information conflicts between Section 902 and this JSP, the JSP shall supersede.

2.0 Detector Zones. The following detector zones shall be placed as shown in the plans:

- Stop Bar Detection
- Advance Upstream (Performance Measures)
- Dilemma Zone
- Turn Counts
- Advance Video Zones (if applicable)
- Radar Zones (if applicable)
- Advance Data Collector (if applicable)
- Bicycle/Pedestrian (see Section 2.2)



[INSTRUCTIONS: Configure detector setup per project and/or intersection. Double click to edit Excel file base.]

2.1 Dilemma Zones. Dilemma zone detection shall be required for the following approaches for high speed dilemma zone detection:

[INSTRUCTIONS: Insert any approaches 45 MPH + or where engineering judgment dictates the need for dilemma zone detection.]

Dilemma zone detectors shall be placed at 5 secs and 8 seconds travel time before stop bar per below Table unless directed otherwise in the plans or by the Engineer.

Approach Speed (MPH)	Advance Detector Placement 5 secs Travel time	Advance Detector Placement 8 seconds travel time
35 mph	260	415
40 mph	295	470
45 mph	330	530
50 mph	370	590
55 mph	405	645
60 mph	440	705

2.2 Bicycle/Pedestrian Zones. Bicycle and/or pedestrian zones (if applicable) shall be provided as directed by the Engineer. Specific zone placement and description as required by vendor shall be reviewed and approved by the Engineer.

3.0 Performance Measures. In addition to presence detection, the detection system shall be capable of providing data to an advanced traffic signal controller that can perform at a minimum the following calculations in real time for each detection zone without the addition of another device:

- Speed
- Volume
- Lane Occupancy
- Vehicle Classification
- Other available performance measures

For speed calculations thru movements are required for all detection installations. Turning movement measurements are required for all detection installations. For volume measurements/calculations both mainline thru and all turning movements are required. All values are to be assigned to detector channels within the controller. Other performance measures must be clearly defined. In all cases all performances measures must be ultimately available in an easily usable, exportable format. Turning movement counts shall be installed per the detector setup diagram(s) above to include all lanes. The contractor shall provide documentation to the Engineer to confirm the volumes are configured and operational through the detection system. Performance measurement data must be configured and fed into the Commission's ATSPM platform with data storage confirmed, see Section 5.0. If utilized on the project, the Contractor's Traffic Engineer shall assist in this task.

4.0 Material. The Contractor can choose from the following list of detector types according to the exceptions noted below:

- Induction Loop
- Video Image
- Radar

Reference each detection type's subsection for specific allowable models. Unless otherwise specified on the plans, the Contractor may supply more than one type of detector and customize the installation based on field conditions, as approved by the Engineer.

4.1 Induction Loops. Induction loops, if selected, shall be in accordance with the Missouri Standard Specifications for Highway Construction (latest version) and shall be installed to provide detection at locations as shown on the plans or as directed by the Engineer in accordance with Section 902.

4.2 Video Detection. If video detection is selected, the following provisions shall also apply.

4.2.1 Description. The Contractor shall furnish and install all equipment, materials, software and other miscellaneous items that are required to provide a fully functional Video Detection System for the control of vehicular and pedestrian traffic signals.

4.2.2 Material. The video detection system shall consist of power supply, hard-wired video cameras, all necessary video and power cabling with end connectors, mounting brackets, surge protection as recommended by the manufacturer, video detection processors/extension modules capable of processing the number of camera and phase combination video sources

shown on the project plans. The video detection system will be defined as the complete assembly of all required equipment and components for detection of vehicles. Each video detection system shall consist of the video camera(s), lightning arrester for video cabling, processor unit(s), control device (track ball or keypad; no mouse allowed), software and license for system control via a computer (if applicable), communication components, and a color monitor. The video detection system shall have the most current available firmware installed. All camera views shall be obtainable without requiring the disconnection and reconnection of cables within the system. The video detection systems in the list below are the only systems that are tested, fully functional, and approved for use in the St. Louis District.

- Autoscope Vision
- Iteris Vantage Next
- Aldis Gridsmart Smart mount Camera (Performance Module to be included)

4.2.3 Installation Requirements. The video detection system shall be installed per the manufacturer's recommendations. The installer shall be certified by the video detection system's manufacturer to install the system. All CAT5 cable runs (if used) shall be continuous without splice from the cabinet to the camera. If requested by the engineer, a factory certified representative from the supplier shall be available for on-site assistance for a minimum of one day during installation. The bottom of the video camera shall be mounted a minimum of 30 feet (9.0 m) above the pavement, unless otherwise indicated on the plans or approved by the Engineer.

A separate grounded 120 VAC service outlet shall be provided in the controller cabinet for supplying power to the parts of the video detection system requiring AC power. Use of the grounded service outlet located on the cabinet door will not be permitted. The video detection system must integrate/be compatible with an Advanced Transportation Signal Controller (ATC).

4.2.4 Detection Zones. The detection zones shall be created by drawing the detection zones on the video image. A graphical user interface shall be built into the video detection system and displayed on a video monitor or computer. It shall be possible to edit previously defined detector configurations to fine-tune detection zone placement. When a vehicle is detected by crossing a detection zone, there shall be a visual change on the video display, such as a flashing symbol or a change in color or intensity to verify proper operation of the video detection system.

4.2.5 Performance. Overall performance of the video detection system shall be comparable to inductive loops. Using camera optics and in the absence of occlusion, the video detection system shall be able to detect vehicle presence with 98% accuracy under normal day and night conditions with only slight deterioration in performance under adverse weather conditions, including fog, snow and rain. When visibility exceeds the capabilities of the camera, the video detection system shall default to placing a call on all detectors. Supportive documentation is required to meet this specification and shall be provided to the Engineer before installation.

4.2.6 Monitor. The monitor shall be an LCD active matrix with a minimum 7" diagonal screen color monitor, an NTSC-M system and BNC video in-out connections built into the housing. The unit shall be compact and lightweight, securely mounted to the cabinet shelving, have low power consumption, constructed to operate under extreme temperature conditions, and run on AC power. AC adaptor shall be included. The monitor shall be installed to automatically power on when the cabinet door is opened and automatically power off when the cabinet door is closed. A manual on/off switch shall be provided.

4.2.7 Video Camera and Housing. The camera shall produce a color video image of vehicles during daylight hours, with an optional production of black and white images during nighttime hours. The video shall produce a clear image for scenes with a luminance from a minimum range of 0.18 to 929 foot-candles (2.0 to 10,000 lux). The camera shall provide a minimum resolution of 430 lines horizontal (TVL) and 350 lines vertical under NTSC operation. The camera shall include an electronic shutter or auto iris control based on average scene luminance and shall be equipped with an auto iris lens. sun shield that prevents sunlight from directly entering the lens. The sun shield shall include a provision for water diversion to prevent water from flowing in the camera field of view and shall be able to slide forward and back.

4.2.8 Video Detection System Connections. All bus connections in the video detection system shall be corrosion resistant. Serial communications to a computer shall be through an RS-232/RS-422 serial port through a subminiature “D” connector with a computer running supplied system software. The port shall have the capability to access detection system data as well as the real-time imagery needed to show detector actuations. The processor shall have a RJ-45 plug using Ethernet 10/100 protocols. The equipment shall be provided with either a NEMA TS1 or NEMA TS2 interface as shown on the plans.

[INSTRUCTIONS: Only use this paragraph when retrofitting a signalized intersection]. *For TS1 systems, the video detection system shall be equipped with a TS1 detector interface for a minimum of 32 detector outputs. Logic output levels shall be compatible with the TS1. A subminiature "D" connector on the video detection system shall be used for interfacing to these outputs.*

For TS2 systems, the video detection system shall be equipped with a TS2 Type 1 detector interface, where detector information is transmitted serially via an RS-485 data path. A 15-pin subminiature "D" connector, meeting the requirements of the TS2 standard, shall be used for the serial detector output. A minimum of 32 detector outputs is required, with the capability of expansion to 64 outputs if required based on the design plans.

The contractor shall be responsible for any changes or additions to either an existing or new cabinet in order to provide a properly functional video detection system and monitor display. This may include, but is not limited to, additional SDLC connectors, an MMU (malfunction management unit), shelf relocation and component reorganization. No direct pay for any changes or additions. All required connections will be considered part of the video detection system installation.

4.2.9 Documentation. The contractor shall provide one bound copy and one electronic version (.pdf format) of the user’s manual.

4.3 Radar Detection. If radar detection is selected, the following provisions shall also apply.

4.3.1 Description. Provide, install and test continuous tracking advance detector (CTAD) units and cabinet interface to detect range, speed, and vehicle estimated time of arrival (ETA) to the stop bar for vehicles or clusters of vehicles moving in the user selected direction of travel. The CTAD shall also detect instantaneous roadway efficiency. This specification sets forth the provisions for a radar detection system that detects vehicles, pedestrians, bicycles, and motorcycles on roadways and provides vehicle presence and full-motion tracking.

4.3.2 Material

4.3.2.1 Advance Detector. The radar detection systems in the list below are the only systems approved for use in the St. Louis District. Installation of radar detection systems shall follow both the below specifications and the manufacturer's instructions.

- WAVETRONIX SmartSensor
  - Matrix
  - Advance
  - Advance Extended
- Iteris Vector

Provide a radar advance detection system with the following features.

- Shall be able to track/detect a minimum of 64 objects
- Shall be able to operate in a temperature range between -30 degrees and 165 degrees F
- The detection range shall cover the dilemma zone distances covered in section 2.1
- The detection zones shall be configurable based off several factors' such as classification, ETA, speed, presence and delay.
- The radar sensor shall be forward fire
- The sensor shall operate in the 25 GHz band
- The sensor shall be housed in a sealed IP-67 enclosure

4.3.2.2 Power and Communications.

- Power and communications cabling shall be installed per manufacturer specifications
- The radar sensor shall operate at 24 VDC
- Power consumption shall be no more than 38 watts
- If required, the advance detection System shall include all equipment to communicate wirelessly.

4.3.2.3 Contact Closure Card. Any contact closure card shall be compatible with a NEMA detector rack and shall be installed per manufacturer specifications.

4.3.2.4 Lightning Surge Protection. The CTAD shall include surge protection hardware installed per manufacturer specifications. The hardware shall be accepted by the engineer before installation in the cabinet.

4.3.4 Construction Requirements.

4.3.4.1 Mounting Location. All mounting hardware shall be installed per manufacturers specifications. The CTAD shall be mounted as follows:

- at a height that is within the manufacturer's recommended mounting heights.
- The radar shall be positioned so that all detection zones needed for an approach can be captured.
- in a forward-fire position, looking towards either approaching or departing traffic.

{NOTE: Adjust 4.3.4.2 depending on the availability of an induction card rack in cabinets}

4.3.4.2 Induction Card Rack Interface. {Install the contact closure card in the existing induction card rack} ***or*** {Install a 4-position induction card rack with power supply} and configure based on manufacturer's instructions to provide all needed detection outputs. Any power supply cards for the induction card rack needed for proper operation of the CTAD shall be provided and installed by the contractor.

4.3.4.3 Support. A factory certified representative from the supplier shall be available for on-site assistance for a minimum of one day during installation and shall provide two (2) days of local training after the CTAD has been installed and are operational.

4.3.4.4 Acceptance Testing. The contractor shall develop a proposed test procedure for the CTAD and submit it to the Engineer for approval. It must include visual verification of vehicle detections being received. Each detector shall be tested separately. Revise the proposed test procedure until it is acceptable to the Engineer. Provide all equipment and personnel needed to safely conduct the tests. Arrange for the Engineer's representative to witness the tests. Give the Engineer a report documenting the result of the tests.

4.3.5 Documentation and Software.

4.3.5.1 Prior to purchasing the CTAD system, the contractor shall submit five copies of catalog cut sheets and the environmental testing results to the Engineer for approval.

4.3.5.2 The contractor shall provide five copies of the operation and maintenance manuals for the CTAD system.

4.3.5.3 Contractor shall provide one copy of the software and any cables needed to interface with the system.

4.3.5.4 Contractor shall provide the CTAD installation kit, if applicable, to the Commission upon completion and acceptance of the project.

5.0 Communication with Advanced Transportation Management System (ATMS). The detection systems and all performance measure data should be fed directly into the Commission's current ATSPM platform (currently through TransSuite). All data must be online and verified by contractor to be fully operational and available for data output reporting via the Commission's ATSPM platform. In addition, the data storage for long-term storage use should be configured properly on the Commission's ATSPM platform. The Contractor shall be responsible for ensuring the firmware of all detection works with the Commission's ATSPM platform. If utilized on the project, the Contractor's Traffic Engineer shall assist in this task.

6.0 Technical Support for Detection System. The detection system(s) chosen for installation shall be free of defects in material and workmanship. For five (5) years, technical support from factory certified personnel or factory certified installers shall be available from the supplier. Ongoing software support by the supplier shall include updates for the processor unit and computer software and shall be provided at no cost during this two-year period. The update of the processor unit software to be NTCIP compliant shall be included. Detection system(s) must not be within 5 years of end of support or sale by manufacturer.

7.0 Construction Requirements. Construction requirements shall conform to Sec 902.

8.0 Method of Measurement. Method of measurement shall conform to Sec 902.

9.0 Basis of Payment. Measurement and payment for work covered by this specification shall include all equipment, materials, tools, labor, programming, testing, and documentation necessary to provide a detection system **per intersection** and shall be paid at the contract unit price as follows:

Item No.	Type	Description
902-99.02	Each	SL District Traffic Signal Detection System

HH. Pedestrian Push Button Stanchion

1.0 Description. This work shall consist of installing pedestrian push button stanchions at the locations shown on the plans.

2.0 Requirements. Posts used for pedestrian push button stanchions shall be 48-inch long 4-inch diameter (4.5-inch O.D) schedule 40 aluminum pipe.

3.0 Construction Requirements. The post for the pedestrian push button stanchion shall be installed on top of a breakaway pedestal base mounted to a foundation in the sidewalk. The sidewalk foundation shall be constructed as part of the sidewalk and have an 18-inch diameter and 12-inch depth. The breakaway pedestal base shall be mounted to the sidewalk foundation using proper sized anchor bolts according to manufacturer's instructions.

A slip form connection shall be provided on the wiring in the breakaway pedestal base to sever the connection in the event that the pedestrian push button stanchion is struck by a vehicle. Access to wiring shall be provided through an access panel in the breakaway pedestal base as well as the pipe post cap. The cap shall be secured and weather proofed when it is not opened for access.

The final product shall meet or exceed Americans with Disabilities Act (ADA) requirements for pedestrian facilities.

4.0 Method of Measurement. Final measurement of pedestrian push button stanchions will be made per each.

5.0 Basis of Payment. Payment for furnishing all labor, equipment, materials, labor, and tools necessary to place pedestrian push button stanchions shall be completely covered by the contract unit price for:

Pay Item Number	Type / Description	Unit
902-99.02	Pedestrian Push Button Stanchion	Each

II. Audible Pedestrian Signals and Signing

1.0 Description. Audible pedestrian pushbuttons and signing will be required for all pedestrian indications at all the intersections.

2.0 Installation. Audible signals should be installed as part of a pushbutton assembly.

3.0 Equipment.

3.1 Walk Indications. Accessible pedestrian signals shall have both audible and vibrotactile walk indications.

3.2 Vibrotactile. Vibrotactile walk indications shall be provided by a tactile arrow on the pushbutton that vibrates during the walk interval. Tactile arrow shall be located on the pushbutton that vibrates during the walk interval. Tactile arrow shall be located on the pushbutton, have high visual contrast (light on dark or dark on light), and shall be aligned parallel to the direction of travel on the associated crosswalk.

3.3 Audible. Accessible pedestrian signals shall have an audible walk indication during the walk interval only. The audible walk indication shall be audible from the beginning of the associated crosswalk.

3.4 Pushbutton signage. In addition to standard pedestrian sign requirements, all pushbuttons for the locations mentioned in 1.0 shall have additional signage to indicate crosswalk direction by use of a tactile arrow and the name of the street containing the crosswalk served by the audible pedestrian signal. The sign shall be located immediately above the push button mechanism and parallel to the crosswalk controlled by the button. The street name shall be the name of the street or reasonable abbreviation whose crosswalk is controlled by the push button. Signage shall comply with ADA Accessibility Guidelines (ADAAG) 703.2 specifications for Braille and raised print.

3.4.1 Arrow. Signs shall include a tactile arrow aligned parallel to the crosswalk direction. The arrow shall be raised 0.8 mm (.03 inch) minimum and shall be 4 mm (1.5 in) minimum in length. The arrowhead shall be open at 45 degrees to the shaft and shall be 33 percent of the length of the shaft. Stroke width shall be 10 percent minimum and 15 percent maximum of arrow length. The arrow shall contrast with the background.

3.4.2 Street Name. Accessible pedestrian signals (APS) shall include street name information aligned parallel to the crosswalk direction and shall comply with Revised Draft Guidelines for Accessible Public Rights-of-Way R409.3 or shall provide street name information in audible format.

4.0 Performance.

4.1 Audible Locator Tone. Locator tone that tells the pedestrian that the intersection is equipped with APS and where it is. Pushbutton locator tones shall have duration of 0.15 seconds or less, and shall repeat at 1-second intervals. Pushbutton locator tones shall be intensity responsive to ambient sound, and be audible 6 to 12 feet from the pushbutton, or to the building line. The locator tone shall operate during the DON'T WALK and flashing DON'T WALK intervals only and shall be deactivated when the pedestrian signal is not operative.

4.2 Verbal Wait Message. Acknowledge tone that tells the pedestrian that they have placed a call and informational message that tells the pedestrian to “Wait to cross” street name at intersecting street name.

4.3 Verbal Walk Message. The verbal messages shall provide a clear message that the walk interval is in effect, as well as to which crossing it applies. If available, the audio tone feature will not be used. The verbal message that is provided at regular intervals throughout the timing of the walk interval shall be the term “walk sign,” which will be followed by the name of the street to be crossed.

4.4 Volume. Automatic volume adjustment in response to ambient traffic sound level will be provided up to a maximum volume of 100 dB. The units shall be responsive to ambient noise level changes up to no more than 5 dB louder than ambient sound. Tone or voice volume measured at 36 inches from the unit shall be 2dB minimum and 5dB maximum above ambient noise level. At installation, signal system is to be adjusted to be audible at no more than 5 to 12 feet from the system.

5.0 Documentation and Support.

5.1 Operation and Maintenance Manuals. Two copies of the operation and maintenance manuals for each station shall be included.

5.2 USB with Audible Messages. The Contractor shall provide two copies of USB data card to the Engineer that contains files for the manufacturer’s audible messages for complete operation of all APS signals at all stations.

6.0 Construction Requirements. Construction requirements shall conform to Sec 902, 1061, and 1092.

7.0 Method of Measurement. Method of measurement shall conform to Sec 902.

8.0 Payment. Payment for the audible signals will be for each unit per bid item, 902-99.02, “Audible Pedestrian Pushbutton and Signing”, per each. This will include all wiring, power adaptors, and installation hardware needed. Payment for signing will be included in the pay item for audible pedestrian pushbutton.

JJ. Coordination with MoDOT SLITS Group and Utility Locates

1.0 Description. Any work that will impact the existing communications network must be coordinated with the Commission’s St. Louis District ITS staff. This includes but not limited to removal and replacement of any existing communications equipment, adding new devices and changes to power sources or disconnects. Minor modifications to the existing communications network can have significant impacts on the system and operation of other ITS and traffic signal systems.

1.1 MoDOT is a member of MO-One-Call System. Prior to any excavation or work within MoDOT Right-Of-way, the contractor must contact MO-One Call at 1-800-DIG-RITE and request for Utility Locates within noted project limits. If the scope of work contains modification, addition and/or expansion of existing underground MoDOT ITS, lighting, or signal facilities, the

contractor must notify the MoDOT Utilities Locate staff prior to any work, in order for MoDOT to update MoDOT utility location records with Missouri One Call.

2.0 Contact. Initial contact must be made at least seven calendar days before work that may impact the existing communications network commences. Contact the ITS staff via an email at SLITS@modot.mo.gov. The engineer shall be notified prior to making contact with ITS staff. For MoDOT Utility location updates, the contractor must contact MoDOT TMC at 314-275-1500 and ask for Utility Locate Section at least seven calendar days before performing any work.

3.0 The ITS and network devices located within the project limits are a crucial part of the traffic operation system for this area. It is imperative that the downtime be kept to a minimum when adding, removing, or modifying any existing ITS and network devices. This may require the contractor to perform work that will affect existing network devices during nighttime and/or weekend hours, at the discretion of the Engineer. Allowable timeframes for this work will be subject to the need for ITS devices in the area to be used to manage other traffic impacting work zones.

4.0 Basis of Payment. No direct payment shall be made for compliance with this provision.

KK. Combination Pad Mounted 120v/240v Power Supply and Lighting Controller

1.0 Description. This work shall consist of furnishing and installing combination 120/240 Volt signal & lighting power supply and multi-circuit type lighting control station. Available units are listed in the lighting section of the MoDOT approved products list under Pad Mounted Lighting Controllers. Control stations shall be installed in accordance with the plans and by direction of the engineer.

2.0 Basis of Payment. Payment for furnishing and installing pad mounted combination units shall include all excavation, materials, equipment, tools, labor, and work incidental thereto, and shall be considered to be completely covered by the contract unit price for Item Number 901-99.02, “Combination Pad Mounted 120/240V Power Supply & Lighting Controller,” per each.

LL. Top Mount Luminaire

1.0 Description. This work shall consist of furnishing and installing LED 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	170W Top Mounted LED-B Luminaire	Each
901-99.02	170W Top Mounted Led-B Luminaire, Type IV Distribution	Each

MM. Top Mount Light 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 Light Pole	Each

NN. 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, 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) 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.

OO. NTCIP Compliant Changeable Message Sign Requirements

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 be 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 (-29 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 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 No.	Type	Description
616-99.02	Each	NTCIP COMPLIANT CHANGEABLE MESSAGE SIGN (CONTRACTOR FURNISHED AND RETAINED

PP. Guardrail Construction Requirements

1.0 Safety Devices. Before any guardrail or crashworthy end terminals including crash cushions are installed, the contractor shall layout the proposed alignment in the field to ensure that guardrail items, pavement and curb can be installed in accordance with the standard plans and manufacturer's recommendations. The contractor shall notify the engineer of the time and location that the field inspection will take place; the engineer will be permitted to participate in the layout discussion. 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 take place before ordering crashworthy end terminal items.

1.1 The length of the crashworthy end terminal is estimated in the plans to be 50 feet in length and is in addition to the design length on the plan. If a length of crashworthy end terminal selected by the contractor has a length differing from the 50 feet, the contractor shall obtain approval of the engineer for any proposed changes to the guardrail length on the plan to ensure design requirements are met.

1.2 New guardrail shall be installed the same day the existing guardrail has been removed to protect motorists from the hazard without requirement of temporary traffic barrier, unless approved by the engineer.

2.0 Curb Height Limitations Beneath Guardrail Elements.

2.1 MGS Guardrail. The maximum height of curb under standard MGS guardrail is 6 inches. Existing curb regardless of type at or below this height may remain in place with the new guardrail installation if it fits the new guardrail location as detailed in the standard plans and specifications. Existing curb taller than 6 inches shall be made compliant as set forth in the concrete curb section of this provision.

2.2 Crashworthy End Terminals and Bridge Anchor Sections. The maximum height of the curb under standard Bridge/Barrier Anchor Sections shall be 4 inches. The maximum height of curb under Crashworthy End Terminals shall be based upon manufacturer's recommendations but generally should be limited to be no greater than 4 inches.

2.3 The Contractor shall notify the Engineer of required deviations from the maximum curb height requirements set forth in this provision and shall be documented by MoDOT personnel and archived in eProjects.

3.0 Guardrail Posts Next to Obstacles. The contractor will have the option to skip 1 guardrailpost next to an obstacle instead of installing a long span guardrail section shown in the Standard Plans. An additional post on either side of the skipped location shall be placed with 3'- 1.5" post spacing. When reduced post spacing is called out in the plans, the contractor shall not skip a post.

4.0 Removal of Existing Guardrail – In Paved Areas. The contractor shall place either cold mix asphalt or hot pour in locations where guardrail or bridge anchor section posts have been removed and leave holes or voids within asphalt or concrete shoulders or concrete drain basins. The cold mix asphalt or hot pour shall cap any cavities as to prevent water from undermining the shoulder or slope. The cap shall consist of a minimum of 2 inches. The space below this 2-inch cap may be filled with rock, dirt, sand or other material as approved by the engineer. No direct payment shall be made to fill any cavities as described herein.

5.0 Removal of Existing Guardrail - In Soil. The contractor shall fill any holes or voids with either rock or dirt after removal of existing guardrail or bridge anchor section posts. No direct payment shall be made to fill any cavities as described herein.

6.0 Guardrail Near Footings. Guardrail and barrier designed in the plans has taken into account the horizontal (field measurements) and vertical clearance (as-builts) between the new guardrail/barrier and the existing structural footings, however, the contractor is encouraged to further investigate these clearances before installation of any new guardrail/barrier as this may require the contractor to modify what is installed. No direct payment shall be made for any further investigations described within this provision.

7.0 Guardrail Near Overhead Structures. Guardrail and barrier designed within the plans has taken into account the vertical clearance (field measured) between the roadway and the structure (bridge) above. Guardrail was designed in areas where the guardrail drill rig, estimated to have a height of 17.5', would have enough clearance in between the bridge girders to install guardrail using normal post spacing. Post spacing may need adjustment as approved by the Engineer.

8.0 Basis of Payment. All costs for compliance with this provision shall be considered fully included in and incidental to the contract unit price for the various guardrail items included in this contract.

QQ. Shaping Slopes Class III (Modified Material Requirements)

Delete Sec 215.1.3 and 215.1.3.1 and substitute the following:

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

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

RR. Guard cable Installation on J6P3637

1.0 Description. The contractor shall be made aware that new guard cable is being installed on Job J6P3637 and the contractor shall coordinate with the contractor on that project as noted in JSP – Coordination with Other Projects. Specifically, the guardrail shown on Plan Sheet #4 on Job J6P3308 for the SB Route 67/367 Bridge over Lindbergh (Bridge A7088) may be underrun on the guard cable project and instead installed on J6P3308. If that is the case, the contractor shall loosen and adjust the existing guard cable to wrap into the new guardrail per the standard plans.

2.0 Basis of Payment. No direct payment shall be made to adjust the guard cable and reinstall the cable around the new guardrail installed on Bridge

SS. Modified Pavement Marking Removal

1.0 Description. The first sentence of Sec 620.50.3.2 shall be removed and replaced with the following:

> Where required, measurement for the removal of pavement markings will be made to the nearest linear foot per 4-inches of width. No additional pay factor, based upon 4-inches of width, shall be included for removals unless the striping width is greater than 6-inches. Final measurement will not be made except for authorized changes during construction or where appreciable errors are found in the contract quantity. The revision or correction will be computed and added to or deducted from the contract quantity.

2.0 Pavement Marking Removal shall be in accordance with Section 620.50 and specifically as follows with the exception in Section 1.0 above.

3.0 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 **water blasting method** to remove the pavement marking on concrete surfaces. 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.

4.0 Method of Measurement. Final measurement will not be made except for authorized changes during construction or where appreciable errors are found in the contract quantity. The revision or correction will be computed and added to or deducted from the contract quantity.

5.0 Basis of Payment. The accepted quantity of pavement marking removal including all labor, equipment, and material necessary to remove the existing marking will be paid for at the contract unit price for the following pay item:

Item 620-70.01	Pavement Marking Removal	LF
Item 620-70.02	Pavement Marking Removal (Symbols)	EA

TT. Thermoplastic Pavement Markings

1.0 Description. This work shall consist of installing a minimum of 1.5 inch black outside contrast border surrounding any pavement marking arrow installed on existing or proposed concrete pavement.

2.0 Basis of Payment. Payment for installing the 1.5 inch black outside contrast border shall be included in the cost of the pavement marking arrow included in the plans.

UU. Lane Reduction Arrows

1.0 Description. This work shall consist of installing special pavement markings as shown in the plans.

2.0 Lane reduction arrows shown in the plans shall be in accordance with MUTCD Figure 3B-24F and shall be preformed thermoplastic pavement marking in accordance with Section 620 of the Standard Specifications. The lane reduction arrows installed on concrete pavement shall have a minimum of 1.5 inch black outside contrast border surrounding the lane reduction arrow. This black contrast border shall be either preformed thermoplastic paint or acrylic waterborne paint.

3.0 Basis of Payment. Payment for furnishing and installing the pavement markings noted above, including all materials, equipment, tools, labor, and work incidental thereto (including the 1.5 inch black outside border), and shall be considered to be completely covered by the contract unit prices for the following:

Item No.	Type	Description
620-99.02	Each	Lane Reduction Arrow, Preformed Thermoplastic Pavement Marking

VV. Pavement Marking Layout

1.0 Description. The striping lane lines on sections of roadway with multiple traffic lanes in one direction shall be placed in a manner in which the start and stop points for all intermittent lane lines match and line up even transversely across all traffic lanes. For all installations of intermittent pavement markings care should be taken to align the skips longitudinally to consistently match the spacing of the existing UIP intermittent lane lines at both start and end points of the improvement section.

2.0 Construction Requirements. The contractor shall submit to the Engineer for review and approval a pavement marking installation plan. This plan will include the contractor's proposal for installing the intermittent pavement markings to meet the requirements outlined above.

2.1 Final striping will not begin until the contractor has received approval of the pavement marking installation plan.

3.0 Basis of Payment. All cost and expenses incurred by the contractor in fulfilling the requirements of the provision shall be considered incidental to pavement marking cost.

WW. Island Tubular Markers

1.0 Description. Tubular markers shall be mounted on raised islands at the locations indicated in the plans.

2.0 Construction Requirements. Shall be surface mounted on the radius points of the island noses. The roadway shall be cleaned of dirt and gravel before installation. Island tubular markers shall be mounted using proper sized anchor bolts according to manufacturer's instructions. Post shall be capable of recovering from repeated vehicle impacts. Post shall insert and be secured into the plastic base with horizontal locking pins. When the post is no longer serviceable, it shall be able to be removed and a new post can be manually inserted and locked into the existing base.

3.0 Method of Measurement. Measurement for installation of tubular marker with base will be made per each.

4.0 Basis of Payment. All labor, equipment and materials necessary to install these markers will be paid for under:

Item Number	Type	Description
903-12.42	Each	36 IN. Surface-Mount Delineator Post

XX. 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 on 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.

YY. Seeding, Fertilizing and Erosion Control Blanket

1.0 Description. All areas disturbed by the contractor's operations and not specified to be covered with sod, shall be fertilized and seeded. In lieu of mulch, the seeded areas shall be covered by an erosion control blanket.

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 ½ lb. per acre
Total	90 ½ lb. per acre

4.0 Erosion Control Blanket. All work shall be in accordance with Sec 806. All seeded areas shall be stabilized with erosion control blanket in lieu of mulch.

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

Item Number	Item Name	Units
805-20.00A	Seeding – Warm Season Mixtures	Acre
806-41.33	Type 1C Erosion Control Blanket	S.Y.

ZZ. Remove and Relocate Signs

1.0 Description. The contractor shall remove and relocate all ground mount signs as noted in the plans. The contractor shall relocate signs near their existing locations unless noted in the plans.

2.0 Method of Measurement. Measurement for the removal and relocation of ground mount signs will be made per each. Regardless of the number of signs on a given ground-mount post, each sign relocated shall be considered as a quantity of 1 each.

3.0 Basis of Payment. All labor, equipment and material to complete the described work will be paid for at the contract unit price for:

Item 903-99.02	Remove & Relocate Ground Mount Signs	Each

AAA. Sign Mounting Bracket for Barrier Wall

1.0 Description. This work shall consist of fabricating and installing sign mounting brackets for signs mounted to the Type 'D' Permanent Concrete Traffic Barrier. This work shall be in accordance with applicable portions of Section 617, 903 and Division 1000 of the Standard Specifications and specifically as follows.

2.0 Construction Requirements. The mounting bracket plate, flanges and anchor sleeve shall be fabricated from 3/8" steel and then galvanized after fabrication. The mounting bracket shall be installed to the top of the Type 'D' Permanent Concrete Traffic Barrier by anchor bolts per the manufacturer's recommendations and as approved by the engineer. The signs shall be mounted to pipe posts as shown in the signing plans and then installed into the anchor sleeve portion of the sign mounting bracket. See special sheets for bracket details.

3.0 Basis of Payment. All expenses incurred by the contractor for fabricating and installing the sign mounting brackets shall be considered completely covered by the contract unit price for the following bid item:

Item No.	Unit	Description
903-99.02	Each	Sign Mounting Bracket for Barrier Wall

BBB. MoDOT ITS Assets Relocation

1.0 Description. The work consists of relocating existing MoDOT Intelligent Transportation System (ITS) facilities (conduit, cable, and/or pull boxes) that may be in conflict with this project construction sections as noted in the plans.

2.0 Materials. The materials used for relocating MoDOT ITS facilities shall be per MoDOT Approved Product List (APL) and meet all MoDOT Specifications. If the material is not in the APL, the contractor shall submit material specification documents to the Engineer and the MoDOT ITS group (via an email in advance to SLITS@modot.mo.gov) for review and approval.

3.0 Construction Requirements. The Contractor shall be aware there are numerous utilities present along the route in this contract. Utility locates were not performed during the design phase of the project; therefore, the extent of conflicts with utilities are unknown.

3.1 The contractor shall exercise reasonable care relocating MoDOT ITS Assets. Damage to any MoDOT facilities within the area of work caused by the contractor will be deemed by the Engineer as either “non-emergency” or “emergency” upon notification of the damages. Repair to damages will be performed as follows:

a) Non-Emergency: Contractor will have 4 hours to propose a repair plan to the Engineer for a complete repair within 3 business days.

b) Emergency: Upon notification of the damage, Contractor must immediately submit a repair plan to the Engineer which will take no more than 4 hours to respond on-site and complete repairs within 48 hours of notification of damage.

c) In either case, if the proposed plan is unacceptable for any reason to MoDOT, repairs will be made by MoDOT with all costs billed to the Contractor.

3.2 The ITS In-Ground Facilities located within the project limits are a crucial part of the traffic operation system for this area. It is imperative that the downtime be kept to a minimum when replacing, removing, or modifying any existing ITS In-Ground Facilities.

3.3 Prior to any in-ground work, the Contractor shall request for utility locates by contacting Missouri One Call (1-800 DIG-RITE or mo1call.com) for any in-ground installation locations as per plans. If there are any conflicts with MoDOT ITS Assets, the Contractor is responsible for relocation to the satisfaction of the Engineer prior to any in-ground work.

3.4 In the case of a conduit conflict, the Contractor shall trench an area beyond the in-ground work limits, install one or two conduits (must be the same quality as the existing conduit) using Split Duct Method, relocate the existing cables into the new conduit, and seal the conduit joints per manufacturer specifications.

3.5 The Contractor shall coordinate this work with the MoDOT ITS group and have the Engineer’s approval prior to performing this task.

3.6 The contractor shall perform a fiber testing (see below requirements) before and after relocating MoDOT fiber cables at the nearest Node Cabinet at each site as shown on the plans and submit that report to the SLITS Group for review and approval.

3.6.01 Test Procedure. For each fiber link, follow this procedure:

(a) If the link includes fiber installed by others, use an optical loss test set to measure and record the optical loss over that portion of the link before it is spliced to new fiber.

(b) Calculate the maximum allowable loss for the completed link, both at 1310 nm and at 1550 nm. Use the following formula:

Maximum link loss = Measured loss over portion installed by others
+ (Fiber length in km) x (0.35 for 1310 nm and 0.25 for 1550 nm)
+ (Number of fusion splices) x (0.05)
+ (Number of mechanical splices [for temp. connection]) x (0.3)
+ (Number of connections) x (0.5)

Provide this calculation to the engineer along with the test results.

(c) Calibrate an optical loss test set and provide evidence satisfactory to the engineer that the set produces accurate results at both wavelengths. This can be a demonstration that the set correctly measures the loss of a test fiber whose loss is known.

(d) Use the test set to measure the loss of the link under test. Record the result at both 1310 nm and 1550 nm. Arrange for the engineer or his representative to witness these tests.

(e) If the measured loss exceeds the calculated maximum, use an optical time domain reflectometer and other test equipment to troubleshoot the link. Take whatever corrective action is required, including cable replacement, to achieve a loss less than the calculated maximum.

3.6.02 Test Result Documentation. Prepare a diagram showing all of the links tested in this project. For the portions installed in this project, show the equipment cabinets, splices, and pigtails. On each line representing a link, show the maximum allowable loss and the actual loss. The actual loss shall be the one measured after all corrective actions have been taken. Submit 5 copies of this diagram to the engineer, along with the calculations for the maximum allowable loss. Submit the diagrams and calculations in an electronic format acceptable to the engineer.

3.6.03 Documentation. Provide the engineer mark-ups of the plans, neat and legible, illustrating as-built versions of the splice and connection diagrams that are contained in the plans.

3.6.04 Certifications. The fiber optic cable shall be factory certified to meet the requirements in this specification. In addition, the manufacturer shall certify that the fiber optic cable has a life expectancy of 20 years.

3.7 The Contractor shall trench an area beyond the in-ground work limits, install one or two conduits (must be the same quality as the existing conduit) using Split Duct Method, relocate the existing cables into the new conduit, and seal the conduit joints per manufacturer specifications.

3.8 Upon completion of this work, the Contractor shall contact the MoDOT ITS group (via email at slits@modot.mo.gov or by calling 314-275-1526) to verify that all existing MoDOT ITS devices are online and request inspection of this work. Acceptance of this work shall be the sole judgment of the Engineer and the MoDOT ITS group's engineer.

3.9 The contractor shall restore those areas disturbed by this work or installation according to specifications herein.

Basis of Payment. Payment for "MoDOT ITS Assets Relocation" shall be paid as Linear Feet and shall include the trenching, conduit installation, conduit coupling, pull boxes, sealing materials, cable relocation, needed fiber testing, restoration of all disturbed area, all labor and work incidental thereto, and shall be considered to be completely covered by the contract unit price for the following pay item:

Item No.	Unit	Description
910-99.03	Linear Feet	MoDOT ITS Assets Relocation

CCC. ITS Equipment within the Project Limits

1.0 Description. MoDOT owned fiber optic cable and conduit, critical MoDOT power supplies and power cables, and pull boxes for fiber and power cabling and other above and underground ITS (Intelligent Transportation System) facilities are present within the limits of this project. Damage or interruption of these items can cause extensive outages to the MoDOT network.

2.0 Construction Requirements. The contractor shall exercise reasonable care while completing work near these facilities and shall take steps necessary to protect these facilities from damage for all items that are not specifically identified as being removed and/or relocated in the plans. Should any of the existing wiring or conduit be damaged by the contractor, it shall be replaced at the contractor's expense and the system in full operation within **4** hours of when the damage occurred. If it is mutually agreed upon between the Commission and the Contractor that the repairs will require more than **4** hours to complete, a mutually agreed upon time for repairs to be complete will be determined.

2.1 The contactor shall not modify any existing network or electrical connections within equipment cabinets, unless coordinated with MoDOT ITS staff. Existing connections include, but are not limited to, fiber jumpers, CAT5(e) cables, power supplies, and power strips. The connection to specific fiber and copper ports on network equipment shall also not be modified, unless coordinated with MoDOT ITS staff, as the network equipment has been configured specifically for each equipment cabinet. Significant network outages and unnecessary troubleshooting to investigate outages can occur, even with minor changes to existing connections within the cabinet.

3.0 Liquidated Damages. In the event of damage, if the system is not repaired and in full operation within **4** hours of the damage occurring, or within the timeframe agreed upon, the contractor will be charged with a liquidated damage specified in the amount of $100.00 per hour for each full hour that the system is not fully operational. This damage will be assessed independently of the liquidated damages specified elsewhere in the contract.

3.1 The MoDOT Engineer will also have the option of issuing a work order for MoDOT's on-call ITS Maintenance contractor to make repairs, if it is the Engineer's opinion that the contractor creating the damage will not be able to make repairs in a timely manner. Contractor's reimbursement for MoDOT expense for this option shall be in addition to the liquidated damages.

4.0 Basis of Payment. No direct payment shall be made for compliance with this provision.

DDD. Resurfacing Roadway to Bellefontaine Project Office

1.0 Description. The contractor shall contact Rick Schneider, 314-954-0412, at least 2 weeks in advance before beginning the mill/fill resurfacing operations on the entrance road leading to the Bellefontaine Project Office off of Route 367 as shown on Sheet #6B on Job J6S3437.

2.0 Basis of Payment. No direct payment shall be made for compliance with this provision.

EEE. Contractor Quality Control NJSP-15-42

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

2.0 Quality Control Plan.

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

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

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

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

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

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

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

4.0 Work Planning and Scheduling.

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

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

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

4.4 Hold Points. Hold Points are events that require approval by the engineer prior to continuation of work. Hold Points occur at definable stages of work when, in the opinion of the engineer, a review of the preceding work is necessary before continuation to the next stage.

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

4.4.2 Prior to all Hold Point inspections, the contractor shall verify the work has been completed in accordance with the contract and specifications. If the engineer identifies any corrective actions needed during a Hold Point inspection, the corrections shall be completed prior to continuing work. The engineer may require a new Hold Point to be scheduled if the corrections require a follow-up inspection. Re-scheduling of Hold Points require a minimum 24-hour advance notification from the contractor unless otherwise allowed by the engineer.

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

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

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

FFF. Optional Temporary Pavement Marking Paint NJSP-18-07B

1.0 Description. This provision provides the contractor with the option to either complete all Permanent Pavement Marking Paint (PPMP) prior to the time limits specified herein or to apply Temporary Pavement Marking Paint (TPMP) in accordance with Sec 620.10.2 (4 in. width) in all locations shown on the plans as PPMP and delay application of the PPMP until the spring of 2023, as allowed herein. PPMP is defined as Standard Waterborne Paint and High Build Waterborne Paint and does not include Sec 620.20.3 Durable Pavement Markings.

1.1 No application of PPMP shall occur between October 1, 2022 and March 1, 2023, both dates inclusive, except as stated herein. When the contractor has begun application of PPMP prior to October 1, 2022, and weather limitations stated in Sec 620.20.2.4 can be met, the contractor may complete the PPMP within the first seven (7) calendar days of October. If all (100%) of the PPMP is not completed on or before October 7, 2022, all previously applied PPMP, including any painted markings applied prior to October 1, shall be considered TPMP, and the contractor shall complete the remaining marking with TPMP, and then re-apply PPMP in all planned locations after March 1, 2023. All PPMP shall be completed prior to June 1, 2023. No additional payment will be made for PPMP that is later determined to be TPMP due to the contractor's failure to complete the PPMP within the time specified.

1.2 Use of TPMP Prior to October 1. The contractor has the option to apply TPMP in lieu of PPMP prior to October 1, 2022, even when there is sufficient time to complete the PPMP prior to October 1, 2022. For example, the contractor may choose to use TPMP as a base coat for the PPMP on open-graded surfaces in order to achieve higher retroreflectivity readings on the surface coat as compared to a single application.

1.2.1 The contractor has the option of using TPMP in lieu of Temporary Raised Pavement Markers if applied each day that existing markings are obliterated.

2.0 Construction Requirements. TPMP shall be accurately placed in the final planned location and shall be completely covered by the final application of PPMP. Any failure to comply with this requirement shall be corrected by removal of the misplaced pavement markings at the contractor's expense and without marring of the pavement surface.

2.1 Prior to application of the PPMP on TPMP, TPMP shall be fully cured in accordance with the manufacturer's recommendation, or for a period of 12 hours, whichever is greater.

3.0 Weather Limitations. All weather limitations specified in Sec 620 for PPMP and TPMP shall apply. Cold Weather Pavement Marking Paint, in accordance with Sec 620.10.6, shall be used for TPMP when specified weather limitations do not allow the use of waterborne paint. No additional payment will be made for the use of Cold Weather Pavement Marking Paint as TPMP. Cold Weather Pavement Marking Paint is not an allowable substitute for PPMP and shall subsequently be covered with PPMP.

4.0 Time Exception. If application of PPMP is to be delayed to the spring of 2022, the contractor shall submit a request to the engineer for a time exception and shall provide a revised work schedule that shows the planned completion of the PPMP.

4.1 Upon receipt of the time exception request in Section 4.0, the engineer will list "Application of Permanent Pavement Marking Paint" as an exception on the Semi-Final Inspection form, thus granting an exception to the count of contract time thru June 1, 2023, solely for the purpose of delaying application of PPMP. This time exception shall not apply to any time needed to complete any other work items. Liquidated Damages, as specified elsewhere in this contract, shall remain in effect for all other work items not completed by the contract time limits, as specified elsewhere in this contract, and for PPMP not completed by June1, 2023.

5.0 Method of Measurement. No final measurement will be made for TPMP.

6.0 Basis of Payment. Full payment for TPMP will be made at the contract lump sum price even when PPMP is completed prior to the time limitation and TPMP is not used or only partially used.

6.2 If a $0 bid is entered for TPMP, no payment will be made should TPMP become necessary.

Item Number	Description	Unit
6209901	TEMPORARY PAVEMENT MARKING PAINT	LS

GGG. Supplemental Revisions JSP-18-01R

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

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

Stormwater Compliance Requirements

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

1.1 Definitions. The project site is defined as all areas designated on the plans, including temporary and permanent easements. The project site is equivalent to the "permitted site", as 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.

COVID-19 Safety

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

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

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

4.0 Basis of Payment. Compliance with regulations and laws pertaining to COVID-19 is covered under Sec 107 of the Missouri Standard Specifications for Highway Construction. No direct payment will be made for compliance with this provision.

Anti-Discrimination Against Israel Certification

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