Job No.: J4S3405
Route: 24
County: Jackson

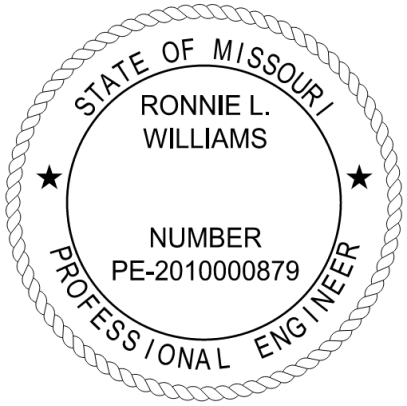
JOB SPECIAL PROVISIONS TABLE OF CONTENTS (ROADWAY)

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

A.	General - Federal JSP-09-02H	1
B.	Contract Liquidated Damages	1
C.	Utilities JSP-93-26F	2
D.	Work Zone Traffic Management	5
E.	Emergency Provisions and Incident Management	7
F.	Project Contact for Contractor/Bidder Questions	8
G.	Supplemental Revisions JSP-18-01X	8
H.	Optional Pavements JSP 06-06H	26
I.	Modified Bonded Asphaltic Concrete Pavement NJSP-15-11C	27
J.	Damage to Existing Pavement, Side Roads and Entrances	28
K.	Right of Way Commitments	29
L.	Access to Commercial and Private Entrances	29
M.	Contractor Quality Control and Daily Reporting	29
N.	Site Restoration	31
O.	ADA Compliance and Final Acceptance of Constructed Facilities JSP-10-01C	32
P.	Temporary Bituminous Pavement	34
Q.	6 Inch PCCP Shared Use Path	34
R.	Truncated Domes in Median Island or Median Cut-Through	35
S.	Contractor Verification of Signal Base Locations	35
T.	Disposition of Existing Signal/Lighting and Network Equipment	35
U.	Countdown Pedestrian Signal Head, Type 1S	36
V.	Coordination with MoDOT Signal Shop for Cabinet Entry	37
W.	Coordination with MoDOT and MARC OGL	38
X.	Relocate Existing Traffic Signal Equipment	38
Y.	Rectangular Rapid Flashing Beacons	39
Z.	MoDOT TS2 Cabinet Assembly	42
AA.	KC District Video Detection System	46
BB.	Accessible Pedestrian Signals	49
CC.	Emergency Vehicle Pre-Emption	51
DD.	Drainage Maintenance During Construction	51
EE.	Contractor Designed, Furnished, and Installed Shoring for Excavation	52
FF.	Misc. Storm Sewer Pipe and Structures	53
GG.	Misc. Metal Fence	53
HH.	Pipe Connection to Existing Storm Structures (Includes Any Excavation)	54
II.	Removal and Delivery of Existing Signs JSP-12-01B	54
JJ.	Tree Clearing Restriction	55
KK.	Remove & Reset Ground Mounted Signs	55
LL.	Adjusting Meter or Valve Box	55
MM.	Misc. 8 In. Pipe PVC	56
NN.	Misc. Infiltration Trench	56
OO.	Parcel 4 – Owner Negotiated Work Requirements	56
PP.	Parcel 5 – Owner Negotiated Work Requirements	57
QQ.	Parcel 8 – Owner Negotiated Work Requirements	57
RR.	Parcel 9 – Owner Negotiated Work Requirements	57
SS.	Parcel 10 - Owner Negotiated Work Requirements	57
TT.	Parcel 12 - Owner Negotiated Work Requirements	57
UU.	Parcel 13 - Owner Negotiated Work Requirements	57
VV.	Parcel 15 - Owner Negotiated Work Requirements	58

WW. Parcel 16 - Owner Negotiated Work Requirements 58
XX. Parcel 17 – Owner Negotiated Work Requirements 58
YY. Parcel 20- Owner Negotiated Work Requirements 58
ZZ. Parcel 29 - Owner Negotiated Work Requirements 58
AAA. Notice to Bidders of Funding by Third Party (JSP-18-02A) 58

Job No.: J4S3405
Route: 24
County: Jackson



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

Burns & McDonnell Engineering Co
9400 Ward Parkway
Kansas City, MO 64114

Certificate of Authority: 000165
Consultant Phone: 816-363-7231

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

JOB NUMBER: J4S3405
JACKSON COUNTY, MO
DATE PREPARED: 4/06/2023

ADDENDUM DATE:

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

JOB
SPECIAL PROVISION

A. General - Federal JSP-09-02H

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

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

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

General Provisions & Supplemental Specifications

Supplemental Plans to July 2022 Missouri Standard Plans
For Highway Construction

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

B. Contract Liquidated Damages

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

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

Notice to Proceed:	July 10, 2023
Completion Date:	June 30, 2026

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
J4S3405	316	$3,200

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 **$2000** per calendar day for each calendar day, or partial day thereof, that the work is not fully completed. For projects in combination, these damages will be charged in full for failure to complete one or more projects within the above specified 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. Utilities JSP-93-26F

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

Utility Name	**Known Required Adjustment**	**Type**
AT&T Distribution Mark Manion 2121 E 63rd Street Kansas City, MO 64160 (816) 214-2322 (816) 772-0267 mm256t@att.com	Yes Section 2.1	Communications
Comcast Andrew Bell (816) 379-0073 (816) 795-2255 Andrew_Bell@comcast.com	Yes Section 2.2	Communications

City of Independence Power and Light Ron Rodvelt 21500 E. Truman Rd Independence, MO 64056 (816) 839-3247 (816) 325-7437 rrodvelt@indepmo.org	Yes Section 2.3	Power
City of Independence Water Ashton England 17221 East 23rd Street South Independence, MO 64057 (816) 500-3234 (816) 325-7654 aengland@indepmo.org	Yes Section 2.4	Water
Spire Richi Garcia 3025 SE Clover Drive Lees Summit, MO 64082 (816) 507-0713 Richi.Garcia@spireenergy.com	Yes Section 2.5	Gas
Bluebird Fiber David Frazier 800 NW Chipman Rd, Suite 5750 Lee's Summit, MO 64063 (816) 237-2125 david.frazier@bluebirdnetwork.com	Yes Section 2.6	Communications
MCI/Verizon Joseph Bullimore 10740 Nall Ave Overland Park, Kansas 66211 (913) 609-1024 joseph.bullimore@verizon.com	Yes Section 2.7	Communications
City of Sugar Creek Pat Casey 103 South Sterling Avenue Sugar Creek, MO 64054 (816) 252-4400 pcasey@sugar-creek.mo.us	None	Sewer
Evergy Distribution Eric Bowen 4400 E. Front Street Kansas City, MO 64120 (816) 810-7623 (913) 894-3082 eric.bowen@evergy.com	Yes Section 2.8	Power

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

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

2.0 Project Specific Provisions.

2.1 AT&T has existing overhead lines with poles running along Route 24 from just west of Grand Ave. to just east of River Blvd and from just west of Delaware Ave. to just east of Noland Rd. The lines have been placed underground at a depth of 5 ft minimum, unless otherwise noted on the relocation plans and are within the 6 ft utility corridor. All AT&T poles have been removed. Relocation is currently underway and will be complete by Notice to Proceed in July. AT&T's relocation plans can be found in eProjects.

2.2 Comcast has aerial lines along Route 24 that are attached to AT&T poles. Coordination between AT&T and Comcast has taken place and design for relocation is complete. Relocation will be complete by Notice to Proceed in July. Relocation plans can be found in eProjects.

2.3 Independence Power & Light has aerial power lines along Route 24 and is placing 8 new self-supporting poles with 3 ft diameter bases at the following locations: SW Quadrant of Grand, SW Quadrant of River, SW and NW Quadrants of Spring, SW and SE Quadrants of Main, SE Quadrant of Lynn, and SW Quadrant of Dodgion. Bases may be able to be built ahead of Notice to Proceed date to avoid disruption to the Contractor's timeline. The expected delivery date for the poles is February 2024 with the possibility for an early delivery in November/December 2023. Relocation will not be complete by Notice to Proceed and the Contractor shall coordinate with IPL directly for the installation of the self-supporting poles. Relocation plans can be found in eProjects.

2.4 Independence Water has a relocation of an existing 12" waterline on the south side of Route 24 from just east of Noland Rd to Emery (less than 1000 ft). Estimated delivery of a replacement line of 12" ductile iron is 8-10 months. Relocation will not be complete by Notice to Proceed date and the Contractor shall coordinate directly with Independence Water for the relocation of the new 12" waterline. Relocation plans can be found in eProjects.

2.5 Spire has a 12" gas line at Sterling and Independence that needs relocation. It is unknown at this time whether relocation will be complete by Notice to Proceed date. If not, the Contractor shall coordinate with Spire directly for relocation of the existing 12" line. Once received, relocation plans will be placed in eProjects.

2.6 Bluebird fiber has relocated out of the entire project area onto a city street. Relocation was complete on October 1, 2022 and relocation plans can be found in eProjects.

2.7 Verizon has two fiber crossings along Route 24. One at Sterling and one at ??. Still looking into whether these will need relocation. If so, relocation will take approximately 90 days to complete. Relocation will not be complete by Notice to Proceed and the Contractor shall coordinate directly with Verizon. Relocation plans will be placed in eProjects if relocation is deemed necessary.

2.8 Evergy has a wooden dusk to dawn pole within the bowling alley parking lot along Route 24 that needs to be relocated. It is unknown at this time whether relocation will be complete by Notice to Proceed date. If not, the Contractor shall coordinate directly with Evergy to relocate the existing pole.

D. Work Zone Traffic Management

1.0 Description. Work zone traffic management shall be in accordance with applicable portions of Division 100 and Division 600 of the Standard Specifications, and specifically as follows.

1.1 Maintaining Work Zones and Work Zone Reviews. The Work Zone Specialist (WZS) shall maintain work zones in accordance with Sec 616.3.3 and as further stated herein. The WZS shall coordinate and implement any changes approved by the engineer. The WZS shall ensure all traffic control devices are maintained in accordance with Sec 616, the work zone is operated within the hours specified by the engineer, and will not deviate from the specified hours without prior approval of the engineer. The WZS is responsible to manage work zone delay in accordance with these project provisions. When requested by the engineer, the WZS shall submit a weekly report that includes a review of work zone operations for the week. The report shall identify any problems encountered and corrective actions taken. Work zones are subject to unannounced inspections by the engineer and other departmental staff to corroborate the validity of the WZS's review and may require immediate corrective measures and/or additional work zone monitoring.

1.2 Work Zone Deficiencies. Failure to make corrections on time may result in the engineer suspending work. The suspension will be non-excusable and non-compensable regardless if road user costs are being charged for closures.

2.0 Traffic Management Schedule.

2.1 Traffic management schedules shall be submitted to the engineer for review prior to the start of work and prior to any revisions to the traffic management schedule. The traffic management schedule shall include the proposed traffic control measures, the hours traffic control will be in place, and work hours.

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

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

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

2.5 Traffic Congestion. The contractor shall, upon approval of the engineer, take proactive measures to reduce traffic congestion in the work zone. The contractor shall immediately implement appropriate mitigation strategies whenever traffic congestion reaches an excess of **15 minutes** to prevent congestion from escalating beyond this delay threshold. If disruption of the traffic flow occurs and traffic is backed up in queues equal to or greater than the delay time threshold listed above then the contractor shall immediately review the construction operations which contributed directly to disruption of the traffic flow and make adjustments to the operations to prevent the queues from reoccurring. Traffic delays may be monitored by physical presence on site or by utilizing real-time travel data through the work zone that generate text

and/or email notifications where available. The engineer monitoring the work zone may also notify the contractor of delays that require prompt mitigation. The contractor may work with the engineer to determine what other alternative solutions or time periods would be acceptable. When a Work Zone Analysis Spreadsheet is provided, the contractor will find it in the electronic deliverables on MoDOT's Online Plans Room. The contractor may refer to the Work Zone Analysis Spreadsheet for detailed information on traffic delays.

2.5.1 Traffic Safety.

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

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

3.0 Work Hour Restrictions.

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

Memorial Day
Labor Day
Thanksgiving
Christmas
New Year's Day

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

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

3.2 The contractor shall not perform any construction operation on all active lanes during restricted periods, holiday periods or other special events specified in the contract documents.

3.3 The contractor shall be aware that traffic volume data indicates construction operations on the roadbed between the following hours will likely result in traffic queues greater than 15 minutes. Based on this, the contractor's operations will be restricted accordingly unless it can be successfully demonstrated the operations can be performed without a 15 minute queue in traffic. It shall be the responsibility of the engineer to determine if the above work hours may be

modified. Working hours for evenings, weekends and holidays will be determined by the engineer.

Route 24 Eastbound:
4:00 p.m. - 6:00 p.m. Monday through Friday

Route 24 Westbound:
6:00 a.m. - 8:00 a.m. Monday through Friday

Lanes shall remain open when no work is being conducted, unless otherwise permitted by the resident engineer.

4.0 Detours and Lane Closures.

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

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

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

E. Emergency Provisions and Incident Management

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

Missouri Highway Patrol: 816-622-0800
Jackson County Police: 816-541-8017

City of Independence Police: 816-325-7300
City of Independence Fire Department: 816-325-7123

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 police agency.

2.2 The contractor shall notify 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 enforcement and emergency agencies, a report shall be furnished to the engineer on the status of incident management.

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

F. Project Contact for Contractor/Bidder Questions

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

Christopher West, PE – MoDOT Project Manager
MoDOT, Kansas City District
600 NE Colbern Rd.
Lee's Summit, MO 64086

Telephone Number: 816-607-2211
E-mail: christopher.west@modot.mo.gov

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

G. Supplemental Revisions JSP-18-01X

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

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

Stormwater Compliance Requirements

1.0 Description. This provision requires the contractor to provide a Water Pollution Control Manager (WPCM) for any project that includes land disturbance on the project site and the total area of land disturbance, both on the project site, and all Off-site support areas, is one (1) acre

or more. Regardless of the area of Off-site disturbance, if no land disturbance occurs on the project site, these provisions do not apply. When a WPCM is required, all sections within this provision shall be applicable, including assessment of specified Liquidated Damages for failure to correct Stormwater Deficiencies, as specified herein. This provision is in addition to any other stormwater, environmental, and land disturbance requirements specified elsewhere in the contract.

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

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

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

2.1 Duties of the WPCM:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Table 1 – GTR Material Properties

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

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

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

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

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

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

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

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

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

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

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

7.0 Mix Design Test Method Modification. A formal mixing procedure from the additive supplier shall be provided to the contractor and engineer that details the proper sample

preparation, including blending GTR with the binder or other additives. Samples shall be prepared and fabricated in accordance with this procedure by the engineer and contractor throughout the duration of the project.

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

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

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

8.2.1 GTR SPG shall be 1.15

8.3 VMA shall be calculated as follows:

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

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

8.4 G_{se} shall be calculated as follows:

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

8.5 P_{be} shall be calculated as follows:

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

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

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

		PG 46-34	10 %

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

Delete Sec 107 in its entirety and substitute the following:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

107.5.1 Obstructions Prohibited Fire hydrants on and adjacent to the highway shall be kept accessible to firefighting apparatus at all times, and no obstruction shall be placed within15 feet of any such hydrant. Footways, gutters, sewers, outlets, inlets and portions of highways

adjoining the work under construction shall not be obstructed. Pavements over which hauling is performed shall be kept clean of spilled or tracked-on material at all times when in use by traffic.

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

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

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

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

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

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

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

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

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

107.8 Preservation of Monuments and Artifacts.

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

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

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

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

107.10.1 Fording of streams and fill for temporary work not specified on design plans will not be permitted unless the plan for such operation is authorized by the Corps of Engineers, meets the approval of the engineer, complies with the current MoDOT Pollution Plan and results in minimum siltation to the stream. Temporary stream crossings shall not be constructed unless specifically designated as a condition of the Corps of Engineers Section 404 permit or a permit is obtained, and the temporary stream crossing is in accordance with Sec 806.

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

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

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

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

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

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

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

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

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

107.12 Contractor's Responsibility for Work From the earlier of the date of commencement of the work or the effective date of the notice to proceed, and until any work is accepted by the engineer, the work shall be in the custody and under the charge and care of the contractor. Issuance of a payment estimate on any part of the work done will not be considered as final acceptance of any work completed up to that time.

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

been reimbursed for such damages by the contractor's insurer. Prior to reimbursement, the contractor shall furnish documentary evidence of all efforts to recover such repair costs.

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

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

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

107.13.2 Commercial General Liability Insurance. The Contractor shall procure, and maintain during the term of the project, commercial general liability insurance with coverage at least as broad as Insurance Services Office (ISO) policy form CG 00 01. The general aggregate limit shall, by endorsement or otherwise, provide a designated aggregate limit solely for this project using ISO form CG 25 03 05 09 or an equivalent form. General liability policies shall be endorsed to add the Commission, MoDOT, and its employees as additional insureds (the "Additional Insureds") using Insurance Services Office forms CG 20 10 or the equivalent under such policy. For construction contracts, an endorsement providing completed operations coverage to the Additional Insureds, ISO form CG 20 37 or the equivalent, is also required. This form, CG 20 37, shall be endorsed on each subsequent commercial general liability policy issued to the Contractor for three (3) years after final acceptance of the project. The contractor could provide extended completed operations for specific project needs. Discontinued operations coverage shall be provided for three (3) years when applicable. Coverage shall not be reduced by insured versus insured exclusions or by explosion, collapse and underground (XCU) exclusions.

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

107.13.4 Contractor's Pollution Liability (CPL) Insurance. The Contractor performing excavation, remediation, hazardous materials removal, or any other work involving potential pollution arising from construction operations shall procure and maintain contractor's pollution liability insurance for liability arising out of sudden, accidental, and gradual pollution and remediation. The policy shall have minimum limits of $1,000,000 and the Commission, MoDOT

and its employees shall be endorsed as additional insureds under such policy. The policy shall provide coverage for the hauling of waste from the project site to the final disposal location, including non-owned disposal sites. Products/completed operations coverage for pollution liability insurance shall extend a minimum of three (3) years after final acceptance of the project. Coverage shall be included on behalf of the insured for covered claims arising out of the actions of independent contractors. If the insured is using subcontractors, the Policy must include work performed "by or on behalf" of the insured. Policy shall specifically provide for a duty to defend on the part of theinsurer.

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

107.13.6 Excess or Umbrella Liability Insurance. The Contractor may satisfy the required limits for Secs 107.13.2 through 107.13.5 by use of excess or umbrella liability insurance policies in any combination that meets the contract limits requirements. Such policies shall include as insureds, the Missouri Highways and Transportation Commission (Commission), the Missouri Department of Transportation (MoDOT) and its employees.

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

107.13.8 Railroad Protective Liability Insurance. In addition to other forms of required insurance, the Contractor shall provide railroad protective liability insurance when any of the Contractor's work is to be performed within any railroad right of way and in some cases may be required when the project improvements are near a railroad right of way. The name or names of the railroad companies known to be in the vicinity of the contract improvements will be specified in each contract, but the contractor shall confirm the railroad companies impacted and the final insurance needed with each railroad. The minimum limits of the insurance indicated by each railroad to the Commission will be included in the contract bid documents for informational purposes, but the contractor shall be bound by each individual railroad company requirements.

Each railroad agency has final determination in the content and coverage limits of the policies required. No work will be permitted within any railroad's right of way until the railroad involved has reviewed and approved the insurance policy. Any day upon which the Contractor cannot perform work due to such a policy not being approved by the railroad will not be counted as a contract day under Sec 108.7.

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

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

107.13.10 Other Conditions and Requirements

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Buy America

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

1.0 Description. The Bipartisan Infrastructure Law (BIL) was enacted on November 15, 2021. The BIL includes Build America, Buy America Act Publication L. No. 117-58. This provision

expands the Buy America requirements beyond what is currently only required for steel and iron products. The steel and iron provisions have not changed with the new bill. Cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives are excluded from this requirement. All other materials and manufactured products permanently incorporated into the project will be subject to Buy America requirements. There are three categories requiring Buy America Certification:

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

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

c) Construction materials consisting primarily of:

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

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

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

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

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

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

bid for the various items of work included in the contract.

Delete Sec 617.20.3 and substitute the following:

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

Delete Sec 1063.2 and substitute the following:

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

Alternate Weather Limitations for Plant Mix Bituminous Surface Leveling

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

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

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

2.0 Remedial Actions.

a) Reclaimed Asphalt Pavement (RAP) content in the mix does not exceed 20% asphalt binder replacement.
b) No Reclaimed Asphalt Shingles (RAS) are added to the mix.

c) A material transverse vehicle is utilized to transfer the mix from the haul trucks to the paver.
d) Warm mix technology shall be incorporated into the mix (either by chemical additive or foaming), as approved by the engineer.

H. Optional Pavements JSP 06-06H

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 at the contract unit bid price for Item 502-99.05, Optional Pavement, per square yard.

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

4.2 Price Adjustment for Fuel. If the contractor accepts the option for fuel adjustment in the bid proposal, a fuel adjustment will be applied in accordance with Sec 109.14 for the type of pavement constructed.

I. Modified Bonded Asphaltic Concrete Pavement NJSP-15-11C

1.0 Description. This work shall consist of the placement of a Polymer Modified Emulsion Membrane (PEM) or Cationic Modified Emulsion Membrane (CPEM) prior to a bituminous overlay of hot asphaltic concrete pavement. At the contractor's option, the contractor may replace the PEM/CPEM with a Performance Graded (PG) Asphalt Binder prior to a bituminous overlay of hot asphaltic concrete pavement. The PEM/CPEM or PG Asphalt Binder shall be spray applied prior to the application of the hot asphaltic concrete pavement so as to produce a homogeneous surface in accordance with Secs 401, 402, or 403.

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

Item	Section
Polymer Modified Emulsion Membrane (PEM or CPEM)	1015.20.6.2
Performance Graded (PG) Asphalt Binder	1015.10

The PG Asphalt Binder shall be modified to meet the following performance parameters. The test results shall be submitted to the engineer for approval at least 30 days prior to use. The PG binder component shall account for at least 95% of the total product composition by volume.

Parameters*	Test Method	Min	Max
No-Pick-Up Time for Tack Coats; minutes	MoDOT TM 87	-	5
Average Bond Strength; psi	MoDOT TM 88 or alternate method	75	-
Elastic Recovery, percent	AASHTO T 301	60	-

*The PG Asphalt Binder product shall exhibit a laboratory "no-pick-up" time of 5 minutes or less per MoDOT TM-87. The PG Asphalt Binder product shall exhibit laboratory bond pull-off strengths (average of three test specimens) of a minimum of 75 psi in accordance with MoDOT TM-88 method or other approved research test methods at the target application rate prescribed within this specification. The elastic recovery may be waived if the product has proven performance in cold weather climates with freeze/thaw conditions.

3.0 Construction Requirements. The PEM/CPEM or PG Asphalt Binder shall be applied in accordance with Sec 407 except as modified herein.

3.1 Coldmilled Surfaces. All coldmilled surfaces shall be thoroughly cleaned with air blowing, air vacuuming, or other approved methods resulting in a cleaned surface free of all dust, loose material, grease, or other foreign material at the time the tack is applied to the satisfaction of the engineer. Historically, conventional sweeping equipment has not produced satisfactory results and will not be acceptable as the sole operation. .

3.2 Requirements of Polymer Modified Emulsion Membrane (PEM or CPEM).

3.2.1 Equipment. No wheel, track or other part of the paving machine or any hauling equipment shall come in contact with the PEM/CPEM before the asphaltic concrete pavement mixture is applied.

3.2.2 Application. The target application rate of the PEM/CPEM shall be 0.20 gallons per square yard. The application rate shall be within +/- 0.02 gallons per square yard of the target application rate during construction. The average application rate used within the entire areas

of the job limits shall be within +/- 1% of the target application rate. The PEM/CPEM shall be sprayed at a temperature of 120 - 180°F. The sprayer shall accurately and continuously monitor the application rate and provide a uniform coverage across the entire width to be overlaid.

3.2.2.1 The application rate of the PEM/CPEM shall be verified by dividing the volume (of PEM/CPEM used) by the area of paving for that day.

3.2.2.2 No water shall be added to the PEM/CPEM.

3.3 Requirements of Performance Graded (PG) Asphalt Binder

3.3.1 Equipment. The PG Asphalt Binder product shall be applied with an asphalt distributor that has been properly cleaned and set-up specifically for use of hot applied PG Asphalt Binder products. The distributor shall have the full circulating and heating capabilities in the tank and a heated spray bar.

3.3.2 Application. The target application rate of the PG Asphalt Binder shall be 0.15 gallons per square yard. The application rate shall be within +/- 0.02 gallons per square yard of the target application rate during construction. The average application rate used within the entire area of the job limits shall be within +/- 1% of the target application rate.

3.3.3 Non-Tracking. The PG Asphalt Binder shall be modified to be non-tracking that does not stick to the tires, tracks or other parts of paving equipment or vehicles such that the surface to be overlaid becomes visible or void of tack prior to the placement of the asphaltic concrete pavement mixture. A test strip using the PG Asphalt Binder product of 200 feet long (maximum) shall be applied to the roadway. After application, the PG Asphalt Binder shall be non-tracking within 10 minutes or less. If the test strip exhibits unacceptable tracking, then work shall cease until the PG Asphalt Binder product is either reformulated, switched to a different PG Asphalt product, or a spray paver application method is utilized. The test strip shall be conducted until satisfactory results are achieved.

3.3.4 Safety. Proper storage, handling, and application guidelines shall be followed carefully in accordance with the product manufacturer. A copy of this information shall be provided to the engineer. The information shall include the application temperature range, maximum allowable temperature for the product, and the particle charge.

3.3.4.1 Safety procedures of all products shall be addressed in the contractor's safety plan and a pre-construction meeting shall be held with the employees involved with the construction of the asphalt overlay to address all safety procedures, protocols, and personal protective equipment (PPE) of hot applied PG Asphalt Binder prior to application.

4.0 Method of Measurement. Measurement of the Polymer Modified Emulsion Membrane or PG Asphalt Binder shall be based on the volume in gallons in accordance with Sec 1015. Where required, measurement for coldmilling existing asphalt materials and cleaning the underlying pavement will be computed to the nearest square yard.

5.0 Basis of Payment. The accepted quantity of Polymer Modified Emulsion Membrane (PEM/CPEM) or PG Asphalt Binder shall be paid for as incidental payment to the optional pavement concrete option.

J. <u>Damage to Existing Pavement, Side Roads and Entrances</u>

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

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

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

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

K. Right of Way Commitments

1.0 Description. It is the responsibility of the contractor to coordinate all entrance work and entrance closures with each property owner. The contractor shall give notice the property owners at least two weeks before the entrance work begins unless specified in this JSP otherwise. Owner and Tenant contact information will be given to the contractor by the Engineer for each affected parcel.

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.

L. 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 and 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 the Engineer.

2.0 Construction Requirements. On all entrances the contractor shall keep one-half of the entrance open at all times. On narrow entrances it may be necessary for the contractor to provide temporary aggregate for property access. 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.

3.0 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.

M. Contractor Quality Control and Daily Reporting

1.0 The contractor shall perform Quality Control (QC) testing and reporting 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.

3.3 Contractor Daily Work Reporting. The contractor shall submit to the engineer a Contractor Daily Work Report (CDWR) for each calendar day that work is performed. The CDWR shall include all information listed in 3.3.2.

3.3.1 The CDWR information may be provided on the MoDOT-provided form or an approved contractor form. Each CDWR shall be digitally signed by the contractor and uploaded to the MoDOT SharePoint® site no later than two (2) business days following the end of each week.

3.3.2 CDWR information:
(a) Date and Contract Identification Number
(b) Weather conditions, rainfall amounts, high/low ambient temperatures
(c) List of subcontractors who performed work
(d) Description of all work performed, including general location (ex. Sta, offset, log mile, etc.), and any testing performed.

(e) Date range of days when no work was performed since the previous DWR
(f) Pertinent traffic control information (changes, delays, accidents, etc.)
(g) Statement: “All items installed meet or exceed contract requirements.”

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. Discussion topics should include: safety precautions, QC testing, traffic impacts, and any required Hold Points.

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.

N. <u>Site Restoration</u>

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

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

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

2.2 Sidewalks and sidewalk ramps that are disturbed as described in this provision shall be replaced to meet current ADA standards at the contractor's expense.

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 associated unit price. No direct payment will be made for any materials or labor, which is performed under this provision.

O. ADA Compliance and Final Acceptance of Constructed Facilities JSP-10-01C

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 not to be considered all-inclusive, nor does it supersede any other contract requirements. The ADA checklist is a required guide 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. This notification shall be made in writing. 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.

P. Temporary Bituminous Pavement

1.0 Description. Temporary Bituminous Pavement shall be used as directed by the Engineer. The temporary bituminous pavement will be used to improve paved approach transitions to driveways, parking lots, side street transitions and similar applications.

2.0 Material. Temporary Bituminous Pavement shall be Bituminous Pavement Mixture PG64-22, (BP-1) mix or equivalent approved by the Engineer.

2.1 Material testing and construction acceptance testing shall be based upon Sec 402, Plant Mix Bituminous Surface Leveling.

3.0 Basis of Payment. Payment for Temporary Bituminous Pavement shall be at contract unit price per ton.

Item No.	Type	Description
401-99.10	Ton	Temporary Bituminous Pavement

Q. 6 Inch PCCP Shared Use Path

1.0 Description. This work shall consist of constructing 6 inch PCCP Shared Use Path.

2.0 Material and Construction Requirements. Material and construction requirements for the 6 inch PCCP Shared Use Path bid item shall conform to the material and construction specifications associated with Section 642 in the MoDOT EPG and Section 608.10P & 608.50A of the Standard Plans.

3.0 Basis of Payment. Payment for 6 Inch PCCP Shared Use Path shall be at contract unit price per SY.

Item No.	Type	Description
608-99.05	SY	6 In. PCCP Shared Use Path

R. Truncated Domes in Median Island or Median Cut-Through

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.

Item Number	Type / Description	Unit
608-10.12	Truncated Domes	Sq. Ft.

S. 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 B**asis 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.

T. Disposition of Existing Signal/Lighting and Network Equipment

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

2.0 Signal Equipment. All equipment are to be transported to the Commission's maintenance lot located 9101 E. 40th Terrace, Kansas City, MO 64086. The contractor shall notify the Commission's representative 24 hours prior to each delivery by calling:

Mr. Scott Brelsford
Phone: (816) 564-3123

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 “Removal of Improvements” per lump sum.

U. Countdown Pedestrian Signal Head, Type 1S

1.0 Description. This work shall consist of furnishing, installing and placing into operation any countdown, pedestrian signal heads.

2.0 System Requirements. Delete Sec. 1092.1.9 in its entirety and substitute the following:

1092.1.9 Pedestrian Signal Heads. Pedestrian signal heads shall be in accordance with ITE specifications and standards for pedestrian traffic control signal indications and the following:

(a) Pedestrian signal head housings shall be constructed of a one-piece, 0.250-inch (6 mm) thick, polycarbonate material as shown on the plans. The housing shall include an integral mounting bracket designed for side-of-pole mounting on all makes of signal poles with a terminal compartment and minimum 5-position, double-row terminal block.

(b) The door, lens and any openings in the housing shall have gaskets or seals to exclude dust and moisture from the inside of the compartment.

(c) Lenses shall be constructed of polycarbonate material.

(d) Pedestrian signal head units shall be provided with a manufactured preformed rectangular visor or screen-type louver.

(e) All plastic material shall be ultraviolet stabilized.

(f) Indications shall be ITE Class 3 symbol messages. The "UPRAISED HAND" symbol shall be illuminated with a filled, Portland orange LED module. The "WALKING PERSON" symbol shall be illuminated with a filled, white LED module. The “Countdown” display numbers shall be illuminated with a Portland orange LED module. The LED modules shall be in accordance with applicable portions of Sec 1092.1.

(g) Pedestrian traffic control signal faces shall be constructed such that all messages are displayed from the same message-bearing surface having a black opaque background. The "Countdown" display shall be located to the right of the "UPRAISED HAND" and “WALKING PERSON” symbols, which will be overlaid.

(h) Pedestrian signal heads require “Countdown” displays and shall have the following features:

(1) Display numbers must be two digits at least 9 inches in height.

(2) Shall only display the “Countdown” time during the pedestrian change interval. Time displayed shall be in seconds and begin only at the beginning of the pedestrian change interval. The flashing “UPRAISED HAND” symbol shall be concurrently displayed during the pedestrian change interval. The total time displayed at the start of the pedestrian change interval shall be automatically adjusted by the pedestrian signal head and not require any manual settings or additional wiring to the signal cabinet.

(3) Once the “Countdown” display reaches “0”, the “Countdown” display shall blank-out until the next pedestrian change interval begins.

(4) If the pedestrian change interval is interrupted or shortened as part of a transition into a preemption sequence, the “Countdown” display shall go dark immediately upon activation of the preemption transition.

(5) A test switch shall be provided in order to test the “Countdown” display.

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

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

5.0 Basis of Payment. Payment for pedestrian signal heads, including all materials, equipment, labor and tools shall be made and considered completely covered by the contract unit price bid for:

Item Number	Type	Description
902-99.02	Each	Countdown Pedestrian Signal Head, Type 1S

V. 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.

1.1 Keys & Locks. Red locks & 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).

1.2 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.

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

W. Coordination with MoDOT and MARC OGL

1.0 Description. Any work that will impact the existing traffic signal monitoring and communications network must be coordinated with the Mid-American Regional Council Operation Green Light (OGL) 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.

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 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 Ray Webb with OGL via email at rwebb@marc.org or 816-701-8300.

3.0 The signal and communication 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 signal and communication 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 communication devices in the area to be used to manage other traffic impacting workzones.

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

X. Relocate Existing Traffic Signal Equipment

1.0 Description. The contractor shall relocate existing traffic signal equipment as shown in the plans, make necessary connections and test for proper network connection. This work shall be coordinated with MARC OGL Contact Ray Webb with OGL via email at rwebb@marc.org or 816-701-8300.

2.0 Materials.

2.1 Existing traffic signal equipment shown to be relocated will be removed by the Contractor from their existing location with approval from the engineer. These devices include wireless radio devices, CCTV cameras, and video detection cameras.

2.2 The Contractor shall furnish and install any requires to provide for functioning relocated equipment.

3.0 Construction Requirements.

3.1 Provide to the engineer a detailed schedule of installation of Contractor furnished communications equipment, at least thirty (30) days before commencing this type of work. Additionally, coordinate such work with the engineer.

3.2 The Contractor shall NOT move any cables from port to port on the network switches without prior MoDOT approval. For equipment installed in cabinets, mount the equipment in the rack as shown in the approved cabinet layout diagram or, for existing cabinets, as directed by the engineer, and connect the power cables and ground wires. If there are insufficient outlets in existing cabinets, provide Commission approved power strips as required. Connect the communication cables as shown on the connection diagrams in the plans. The equipment will be configured by the Commission, and therefore do not change any configuration settings.

3.3 Assist Commission staff in making the installed equipment operational. This may entail having a person with a cellular telephone at the cabinet reporting on results and making changes as directed by Commission staff. It may also entail installing replacement equipment when a unit cannot be made to work properly.

4.0 Basis of Payment. Measurement and payment for traffic signal equipment installation will be on a per item basis. The unit price shall, cabling, assistance to Commission staff in getting the equipment operational, documentation, and all miscellaneous hardware required for a safe, fully operational system. Payment will be made as follows:

Item No.	Type	Description
902-99.02	Each	Wireless Radio System Relocation
902-99.02	Each	CCTV Camera Assembly Relocation

Y. Rectangular Rapid Flashing Beacons

1.0 Description. Rectangular Rapid Flashing Beacons (RRFBs) shall be placed at the locations indicated in the plans. Rectangular Rapid Flashing Beacons shall consist of two signal posts with each post having pedestrian crossing signs and two rapid flashing beacons facing both directions of traffic. Advanced signing upstream of the crossing shall be installed.

2.0 Beacon Requirements.

1. General Conditions:
    a. RRFBs shall meet requirements set forth by this JSP and in the MUTCD and found at:
    (http://mutcd.fhwa.dot.gov/resources/interim_approval/ia11/fhwamemo.htm
    b. An RRFB shall consist of two rapidly and alternately flashed rectangular yellow indications having LED-array based pulsing light sources, and shall be designed, located, and operated in accordance with the detailed requirements specified below.
    c. Each post shall have both front and rear facing signs and RRFBs for a total of 2 pedestrian signs, four plaques, and 8 RRFBs per crossing.
    d. Power for the RRFBs shall be self-sustained through solar panels and batteries.
    e. One solar-powered crosswalk illuminator that operates upon pedestrian actuation during times with low ambient light shall also be included at each RRFB location.

2. Restrictions:
    a. An RRFB shall only be used to supplement a W11-2 (Pedestrian) with a diagonal downward arrow (W16-7p) plaque, located at or immediately adjacent to a marked crosswalk.
    b. An RRFB shall not be used for crosswalks across approaches controlled by YIELD signs, STOP signs, or traffic control signals. This prohibition is not applicable to a crosswalk across the approach to and/or egress from a roundabout.
    c. An RRFB shall not be installed independent of the crossing signs for the approach the RRFB faces. The RRFB shall be installed on the same support as the associated W11-2 (Pedestrian) and plaque.
3. Beacon Dimensions and Placement in Sign Assembly:
    a. Each RRFB shall consist of two rectangular-shaped yellow indications, each with an LED-array based light source. Each RRFB indication shall be a minimum of approximately 5 inches wide by approximately 2 inches high.

    b. The two RRFB indications shall be aligned horizontally, with the longer dimension horizontal and with a minimum space between the two indications of approximately seven inches (7 in), measured from inside edge of one indication to inside edge of the other indication.

    c. The outside edges of the RRFB indications, including any housings, shall not project beyond the outside edges of the W11-2 sign.

    d. As a specific exception to 2003 MUTCD Section 4K.01 guidance, the RRFB shall be located between the bottom of the crossing warning sign and the top of the supplemental downward diagonal arrow plaque. (or, in the case of a supplemental advance sign, the AHEAD plaque), rather than 12 inches above or below the sign assembly. (See example photo at:

        hhttp://mutcd.fhwa.dot.gov/resources/interim_approval/ia11/fhwamemo.htm#image

4. Beacon Flashing Requirements:

    a. When activated, the two yellow indications in each RRFB shall flash in a rapidly alternating "wig-wag" flashing sequence (left light on, then right light on).

    b. As a specific exception to 2003 MUTCD Section 4K.01 requirements for the flash rate of beacons, RRFBs shall use a much faster flash rate. Each of the two yellow indications of an RRFB shall have 70 to 80 periods of flashing per minute and shall have alternating but approximately equal periods of rapid pulsing light emissions and dark operation. During each of its 70 to 80 flashing periods per minute, one of the yellow indications shall emit two rapid pulses of light and the other yellow indication shall emit three rapid pulses of light.

    c. The flash rate of each individual yellow indication, as applied over the full on-off sequence of a flashing period of the indication, shall not be between 5 and 30 flashes per second, to avoid frequencies that might cause seizures.

d. The light intensity of the yellow indications shall meet the minimum specifications of Society of Automotive Engineers (SAE) standard J595 (Directional Flashing Optical Warning Devices for Authorized Emergency, Maintenance, and Service Vehicles) dated January 2005.

5. Beacon Operation:

   a. The RRFB shall be normally dark, shall initiate operation only upon pedestrian actuation, and shall cease operation at a predetermined time after the pedestrian actuation or, with passive detection, after the pedestrian clears the crosswalk. The length of actuation shall be programmable and changeable.

   b. All RRFBs associated with a given crosswalk (including those with an advance crossing sign, if used) shall, when activated, simultaneously commence operation of their alternating rapid flashing indications and shall cease operation simultaneously.

   c. If pedestrian pushbuttons (rather than passive detection) are used to actuate the RRFBs, a pedestrian instruction sign with the legend PUSH BUTTON TO TURN ON WARNING LIGHTS should be mounted adjacent to or integral with each pedestrian pushbutton. Push buttons shall meet American's with Disabilities Act (ADA) requirements in both location and design with both visible and audible feedback when pushed.

   d. The duration of a predetermined period of operation of the RRFBs following each actuation should be based on the MUTCD procedures for timing of pedestrian clearance times for pedestrian signals.

   e. A small light directed at and visible to pedestrians in the crosswalk will be installed integral to the RRFB or push button to give confirmation that the RRFB is in operation.

6. Crosswalk Illuminator:

   Upon activation by pedestrian during times of low ambient light, the controllers shall activate all crosswalk illuminators in the crosswalk system simultaneously and then cease operation after a programmable timeout coordinated with the flashing beacons.

   a. The crosswalk illuminator shall be Tapco SafeWalk Crosswalk Illuminator.
   b. Shall operate in conjunction with the crosswalk controller and intelligent warning devices.
   c. Shall activate when less than 10 lux of ambient light is present (when activated by a pedestrian).
   d. Designed to provide at least 20 vertical lux at 5 feet for a standard 2 lane crosswalk.
   e. Activate with a 0.5 second soft start.
   f. Allow for multiple brightness options for each of illuminator
   g. Be housed in its own IP66 type enclosure.
   h. Be made of weather resistant materials (aluminum or stainless steel).
   i. Be able to be adjusted and aimed both horizontally and vertically.
   j. Be independently replaceable.
   k. Operate between the temperatures of -40° to +176°F (-40° to +80°C).

l. Mounting height and illumination angle should be considered when selecting RRFB pole height.

7. Other:
    a. Except as otherwise provided above, all other provisions of the MUTCD applicable to Warning Beacons shall apply to RRFBs.
    b. The signs shall meet the requirements of Sec 903. The minimum height of the lowest sign shall be seven feet if mounted in sidewalk to meet ADA requirements.
    c. The W11-2 and W16-7p signs shall be reflective yellow.
    d. The post shall meet MoDOT signal standards in Sec 902. The post will be located so that a minimum of four feet of walkable sidewalk is maintained.

4.0 Method of Measurement. Measurement for installation of RRFBs will be made per each rectangular rapid flashing beacon system. No measurement will be made for individual items that make up the RRFB system.

5.0 Basis of Payment. All labor, equipment, and materials necessary to install the beacons, signs, solar panels with batteries, push buttons, post, foundation, crosswalk illuminator, and other equipment to have a fully operational RRFB system will be included in the pay item below.

Item No.	Unit	Description
902-99.02	Each	Rectangular Rapid Flashing Beacon Assembly

Z. MoDOT TS2 Cabinet Assembly

1.0 Description. The cabinet assembly shall meet, as a minimum, all applicable sections of the latest revisions as found in the NEMA TS2 Standard Publication and sections 902 and 1092 of the Missouri Standard Specifications for Highway Construction Manual. Where differences occur, this specification shall govern.

2.0 Materials.

2.1 Cabinet. The cabinet shall be constructed from aluminum with a minimum thickness of 0.125 inches. The cabinet shall be designed and manufactured with materials that will allow rigid mounting, whether intended for pole, base or pedestal mounting. All mounting points where the cabinet is bolted to the foundation shall be reinforced at the factory by welding in an additional layer of material equal to the thickness of the material that the cabinet is constructed from. Triangular gussets are also required when the base plate and cabinet walls are welded together vs. continuous rolled material. A rain channel shall be incorporated into the design of the main door opening to prevent liquids from entering the enclosure. All external hardware shall be stainless steel. The cabinet exterior shall be supplied with a natural aluminum finish. Unless otherwise specified**,** the interior of the cabinet shall be white. Sufficient care shall be taken in handling to ensure that scratches are minimized. All surfaces shall be free from weld flash. Welds shall be smooth, neatly formed, free from cracks, blowholes and other irregularities. All sharp edges shall be ground smooth. The cabinet shall be equipped with (2) lifting brackets for installation and removal purposes.

2.2 Cabinet Doors. The cabinet shall include front and rear doors of NEMA type 3R construction with rain tight gaskets. A stiffener plate shall be welded across the inside of the main door to prevent flexing. Doors shall include a mechanism capable of holding the door open at approximately 90 and 165 degrees under windy conditions. Manual placement of the mechanism shall not be required by field personnel. Only the main door shall have ventilation louvers. A plaque designation “Traffic Control” shall be affix to each main cabinet door.

2.3 Door Alarm. The front and rear doors shall be equipped with switches wired to the traffic signal controller alarm with 1 input for logging and reporting of a door open condition.

2.4 Shelves. No less than (2) shelves shall be provided and each shall have the ability to be independently removed, relocated, and adjusted. The front edge of each shelf shall have holes predrilled at a spacing of no greater than 8 inches to accommodate tie-wrapping to secure cables/harnesses.

2.5 Mounting Rails. A minimum of one set of vertical "C" channels shall be mounted on each interior wall of the cabinet for the purpose of mounting the cabinet components. The channels shall accommodate spring mounted nuts or studs. All mounting rails shall extend to within 7 inches of the top and bottom of the cabinet.

2.6 Pull-out Drawer. The cabinet shall be equipped with a pull-out drawer/shelf assembly. A 1½ inch deep drawer shall be provided in the cabinet, mounted directly beneath the controller support shelf. The drawer shall have a hinged top cover and shall be capable of accommodating one complete set of cabinet prints and manuals. This drawer shall support 50 pounds in weight when fully extended. The drawer shall open and close smoothly. The drawer dimensions shall make maximum use of available depth offered by the controller shelf and be a minimum of 18 inches wide.

2.7 Police Door. The police door shall contain only (1) switch used for flash/auto operations. The ability to turn field indications off from the police panel will not be permitted.

2.8 Lighting. The cabinet shall include no less than (3) field replaceable LED light assemblies along the top and sides of the cabinet. The LED panels shall be controlled by a manually activated toggle switch on the tech panel.

2.9 Fans/Ventilation. The components of the system as well as the CFM requirements shall be in compliance with the MoDOT 902 & 1092 specifications.

2.10 Heater. The cabinet shall be supplied with a 200 Watt fan heater with thermostat control that is designed to protect electronics from the effects of low temperatures such as corrosion, freezing or condensation, which can damage critical components within a control enclosure. Housing shall be constructed of aluminum. Overall dimensions including mounting areas shall be approximately: 4 inch depth, 4 inch width, 5.50 inch height.

2.11 Switch Guards. All switches shall include switch guards. All switches shall be clearly labeled.

2.12 Receptacles and power strip(s). One 8-outletIP addressableindustrial surge protected power strip shall be provided. The installation of the power strip shall be included in the cost of the cabinet assembly. The main door tech panel shall contain a 15 amp duplex GFI receptacle. A separate grounded service outlet shall be provided in the controller cabinet for supplying power to the video detection monitor. 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. The use of the grounded service outlet located on the cabinet door will not be permitted for this function. A manual on/off switch shall also be provided and mounted to the main door tech panel.

2.13 16-Position Back Panel Wiring. All new signal cabinets shall have a 16-position load switch back panel and conform to the following specifications. Regardless of the number of phases specified on the plans, all load switch positions shall be completely wired for use. The load switch back panel shall be configured for NEMA Configurations designated on the signal plans. All wiring of FYA should be wired in mode G. The MMU2 should be configured in mode G also.Vehicle phases, overlaps (including FYA configurations), and pedestrian phases shall be wired such that it must work with an MMU2. The MMU2 must come with an ethernet port. The cabinet shall include both a DT panel and a CTB (SDLC) panel with 6 harnesses.

2.14 Intersections with Video Detection. For intersections with video detection, the cabinet shall be wired to automatically power on the video monitor when the cabinet door is open.

2.15 Load Switch. The front of the load switch shall be provided with (3) indicators to show the input signal from the controller to the load switch and (3) indicators to show the output to the field devices. The full complement of load switches shall be supplied with each cabinet to allow for maximum phase utilization for which the cabinet is designed.

2.16 SDLC. All connection points shall be protected by a BIU 15 pin surge suppressor used for the protection of any devices on Port 1 Synchronous Data Link Control (SDLC). Each cabinet shall be provided with a SDLC hub assembly and (6) SDLC cables unless otherwise noted on the order form. All mechanical connections shall be soldered.

2.17 Surge Protection. Surge protection shall be a modular plug in type product as listed in the MoDOT Traffic APL.

2.18 AC line filter. The AC line filter shall protect equipment from malfunctions due to conducted interference coming into the equipment from line, especially line to ground (common mode) noise and transients. Overall dimensions including mounting areas shall be approximately: 4.17inch width and 3.53inch height.

2.19 Signal Buss Relay. The relay shall be a direct “drop-in” replacement for existing mercury displacement relays. The relay shall be a single pole solid state or hybrid relay. Overall dimensions including mounting areas shall be approximately: 2.5inch depth, 2inch width, 5 inch height.

2.20 Field Wiring termination. All field wires shall be attached to the back panel terminal strips via a mechanical copper lug, which can accommodate wire sizes from 14AWG - 6AWG. Lugs shall be provided for all field outputs to maximize the cabinet design.

2.21 Flash Transfer Relays. The full complement of relays shall be supplied with each cabinet to allow for maximum phase utilization for which the cabinet is designed.

2.22 Cabinet Wiring. Paper cabinet prints as well as electronic media shall be provided with each cabinet. (4) paper copies shall be provided (22” X 34”) and (1) electronic copy in pdf and dgn format. All flash program wiring configurations shall be represented on the cabinet print (Red, Amber, No Flash, FYA, Ped, FYA & Ped). Wiring configuration shall be a red-red flash, unless otherwise specified by plans or Traffic Engineer.

2.23 Generator Attachment. A generator plug shall be installed on each cabinet unless otherwise noted. The access door shall be hinged, lockable and watertight. The plug shall conform to the (NEMA L5-30 configuration). An automatic transfer switch shall be provided which will switch power to/from “line”, “UPS” or “generator” when power from one of the sources has been lost or gained. The unit shall be rated for 30 amps and shall contain either a LCD display or indicator lights that validate the following: Line in, Line out, UPS in, UPS out and “from” generator. The unit shall contain a main breaker (on/off switch), a UPS bypass breaker (switch) and a Generator breaker (switch). To minimize the impact of the presence of the auto transfer switch, the dimensions shall be no greater than 12” wide X 6” deep X 4” high. The unit shall be constructed of either aluminum or stainless steel.

3.0 Signal Turn ON.

3.1 Turn on Date. Traffic engineer shall be given a minimum of two weeks’ notice for signal turn on date. Signal turn on date shall not occur on any Friday, unless previously approved by traffic engineer.

3.2 Traffic Control. Contractor shall provide a minimum of two Changeable Message Signs (CMS) in advance of new signal location for mainline traffic, unless determined that all legs of intersection require advance notice. The CMS boards shall be in place a minimum of two week prior to signal turn on date, and left in place a minimum of one week after signal turn on. Messages will be provided by traffic engineer for the CMS boards.

3.3 Time. Signal shall not be turned on during morning or evening rush hour times. This varies by location, and shall be preapproved by traffic engineer and the lead construction inspector.

4.0 Testing.

4.1 Each controller and cabinet assembly shall be tested as a complete entity under signal load in accordance with Missouri Standard Specifications Section 902 for a minimum of 30 days after installation. The traffic engineer is to determine if the 30 days has been accomplished with no functionality issues.

4.2 Each assembly shall be delivered with a signed document detailing the cabinet final tests performed.
The cabinet shall be assembled and tested by the controller manufacturer or authorized local distributor to ensure proper component integration and operation.

5.0 Warranty and Training.

5.1 If a Controller and/or Malfunction Management Unit are ordered with a cabinet assembly, the Controller and Malfunction Management Unit shall be warranted by the manufacturer against mechanical and electrical defects for a period of 2 years from date of shipment. The manufacturer's warranty shall be supplied in writing with each cabinet and controller. Second party extended warranties are not acceptable.

5.2 The cabinet assembly and all other components shall be warranted for a period of one year from date of shipment. Any defects shall be corrected by the manufacturer or supplier at no cost to the owner.

5.3 MoDOT may require training on the maintenance and operation of NEMA TS2 cabinet assemblies. Maintenance and operation personnel shall be trained on troubleshooting, maintenance and repair of cabinets and all serviceable equipment. Training shall include field level troubleshooting and bench repair. This training shall be for a minimum of sixteen hours over two days. Training shall be conducted at a time and location mutually agreeable by the contractor and the signal shop traffic supervisor or as directed by MoDOT.

6.0 Method of Measurement. Method of measurement shall conform to Sections 902 and 1092 of the Standard Specifications.

7.0 Basis of Payment. Payment included with cost of pay item 902-42.83 (Controller Assembly Housing, NEMA TS2 Controller) paid per each. Payment will be considered full compensation for all labor, equipment and material to complete the described work as shown on the plans. No additional payment will be made to provide conformance.

AA. KC District Video Detection System

1.0 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 bicycle and vehicular traffic signals.

2.0 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 (mouse or keypad;), software and license for system control via a computer or USB (if applicable), communication components, and a color monitor. 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 Kansas City District:

1. **Autoscope Vision**
2. **Autoscope Rackvision Terra**
3. **Iteris Vantage Vector**

3.0 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 coaxial and ethernet cable runs (if used) shall be continuous without a 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.

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.

3.1 Detection Zones. The detection zones shall be created by drawing the detection zones on the video image (minimum 2 zones). 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.

The video detection system shall have a method to send and receive communications from the system to a central location. It should be able to obtain a live video image and configured detection zones. The user should have the ability to change detection zones and detection settings in real time from the central location. The system shall be able to have re-addressable IP address or addresses.

3.2 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.

3.3 Vehicle Data. In addition to presence detection, the video detection system shall be capable of performing at a minimum the following calculations in real time and store all values for each camera view for any visible lane without the addition of another device:

a) Speed
b) Volume
c) Lane Occupancy
d) Vehicle Classification
e) Other available performance measures

For speed calculations thru movements are required. Turning movement measurements are desired but not required. 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. If this requirement cannot be met all values must be able to be exported thru an excel spreadsheet. Other performance measures must be clearly defined. In all cases all performances measures must be ultimately available in an easily usable, exportable format (USB, Ethernet, or built Wi-fi Computer). The contractor shall provide documentation to the Engineer to confirm the volumes are configured and operational through the video detection system.

3.4 Monitor. The monitor shall be an LCD active matrix with a minimum 7” diagonal screen color monitor, an NTSC-M system, HDMI, VGA, and BNC video in-out connections built into the housing. The unit shall be compact and lightweight, with a stand on 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.

3.5 Video Camera and Housing. The camera shall produce a high definition (HD) color video image of vehicles during daylight hours, with an optional production of black and white images during nighttime hours. The camera shall be able to detect a minimum of 500 ft in advance of the signal. Detection shall work properly during night hours without the need of additional luminaire lighting at the signal. The video shall produce a clear image for scenes. 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, as well as 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. The total weight of the enclosure, camera, lens, housing, sun shield and mounting bracket shall be less than 10 pounds.

3.6 Video Detection System Connections. The system must be able to connect through computer or mouse/video for configuring the detection zones. The equipment shall be provided with a NEMA TS2 interface as shown on the plans.

At a minimum, each lane of traffic shall be able to have its own output. A minimum of 32 detector outputs is required for the system but should be capable of expanding to 64 outputs if required based on the geometry of the intersection.

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, 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.

3.7 Warranty of Video Detection System. The video detection system including cameras shall be warranted to be free of defects in material and workmanship for a minimum of 3 years. During the warranty period, 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 the warranty period. The update of the processor unit software to be NTCIP compliant shall be included.

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

5.0 Documentation and Testing. The contractor shall provide one bound copy for the signal cabinet and one pdf version of the user's manual.

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

7.0 Training. MoDOT may require training on the maintenance and operation of the detection system. Maintenance and operation personnel shall be trained on troubleshooting, maintenance and repair of cameras and all serviceable equipment. Training shall include field level troubleshooting and bench repair. This training shall be for a minimum of sixteen hours over two days. Training shall be conducted at a time and location mutually agreeable by the contractor and the signal shop traffic supervisor or as directed by MoDOT.

7.1 Basis of Payment. Measurement and payment for work covered by this specification shall include all equipment, tools, labor, programming and materials necessary and shall be paid at the contract unit price as follows:

Item No.	Type	Description
902-99.02	Each	KC District Video Detection System

BB. Accessible Pedestrian Signals

1.0 General. Furnish weatherproof, vandal resistant Accessible Pedestrian Signals (Pushbuttons) that are secure from electrical shock to the user and conform to the following:

A. Manual on Uniform Traffic Control Devices (MUTCD) Chapter 4E.
B. PROWAG 2007 R306.

2.0 Materials. The items furnished and installed under this contract shall be new and the latest product in production for commercial trade, and shall be of the highest quality as to materials used and workmanship. Manufacturer(s) furnishing these items shall be experienced in design and construction of such items and shall furnish evidence of having supplied similar items which have been in successful operation. The bidder shall be an established supplier of the items bid.

Service information shall be furnished consisting of schematics, parts locators, parts lists and trouble-shooting guide.

3.0 System Operations Requirements.

3.1 Shall have confirmation of button activation (Push) via latching LED, sound, and vibrotactile bounce.

3.2 Shall have a standard locating tone with a nominal duration of 0.15 seconds repeated at 1 second intervals which automatically adjusts to ambient background noise.

3.3 Shall be able to program the device to broadcast a beaconing tone during the pedestrian clearance phase.

3.4 Shall broadcast a percussive tone which consists of multiple frequencies with dominant component at 880Hz or broadcast a standard voice message during the walk interval.

3.5 Shall have a Vibrating button during the walk interval.

3.6 Shall be capable of a standard locating tone, custom sound, or verbal count down during the pedestrian clearance phase.

3.7 Shall support custom voice messages, tones and sounds.

3.8 Shall support up to two (2) languages for speech messages.

3.9 Shall have all sounds adjust automatically to ambient noise levels up to a maximum volume of 100dBA.

3.10 Shall have minimum and maximum levels independently set for all audible features on each button.

3.11 Shall have all sounds emitted by the APS at an intersection synchronized.

3.11.1 Push button locate tones are exempt from this requirement.

3.12 May provide the capability that an extended button push can turn on, boost and /or mute all sounds except those on activated crosswalk.

3.13 Shall provide for emergency messages.

3.14 The tone or voice message shall be provided during the walk display as indicated on the plans or as directed by the Traffic Engineer.

3.15 The bolt pattern of the push button station shall be compatible with older push buttons.

4.0 Mechanical Requirements Push Button Station.

4.1 Shall have a housing constructed of aluminum.

4.2 Actuator shall be of the pressure-activated type with essentially no moving parts.

4.3 Shall be black in color, shaped to fit the curvature of the post to which it is attached and shall provide a rigid installation.

4.4 Actuator shall be a minimum of 2 inches in diameter, raised, contrast visually with the housing, and be made of brass or corrosion-resistant metal alloy or non-metallic material.

4.5 Tactile arrows shall be located on the pushbutton, have high visual contract, shall be aligned parallel to the direction of travel and be made of brass or corrosion-resistant metal allow or non-metallic material.

4.6 Maximum force of 3.5 pounds shall be required to activate the switch.

4.7 Shall have a solid state, piezo type switch rated at a minimum of 20 million actuations.

5.0 Environmental Requirements Push Button Station.

5.1 Shall be fully operational between -30° F to +165°F (-34° C to +74° C).

5.2 Shall not allow ice to form such to impede the operation of the button.

5.3 Shall have a weatherproof speaker.

5.4 Shall have been field tested in a traffic signal application for a period of at least one (1) Year.

6.0 Electrical Requirements Push Button Station.

6.1 Shall operate at a voltage no greater than 24 volts.

6.2 Shall require only 2 wires to connect to the traffic signal cabinet.

7.0 Pedestrian Information Sign.

7.1 Shall have a pedestrian information sign that is integral to the Pedestrian Push Button Station.

7.2 Shall be 9’’x15” R10-3e.

7.3 Shall be in accordance with the latest edition of the Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD) and the Standard Highway Signs and Markings publication.

7.4 Shall be fabricated in accordance with all applicable sections of MoDOT's Standard Specifications for Construction and Standard Plans.

7.5 Shall use flat sheet SH sheeting

8.0 Interface Connection Panel.

8.1 Shall have an interface panel located in the traffic signal cabinet for connecting external APS button connecting wires to the traffic signal cabinet.

9.0 Method of Measurement.

9.1 The work performed and materials furnished in accordance with this item will be paid at the unit price bid for 902-99.02, "Accessible Pedestrian Signal", per each. This price shall be full compensation for furnishing, assembling, and installing the Accessible Pedestrian Signal (Pushbutton) and associated sign, and for all mounting attachments, labor, tools, equipment, and incidentals necessary to complete the work.

CC. Emergency Vehicle Pre-Emption

1.0 Description. The Contractor shall furnish and install an Optical Pre-Emption and Priority Control System for emergency pre-emption as shown in the plans and as specified in the Traffic Signal Quantities.

2.0 Material and Construction Requirements. The cable shall be run continuous from the detector to the controller cabinet with no splices. The detector shall be installed as shown in the plans or by a method approved by the Engineer. The Contractor shall be responsible for the proper alignment of the detector to ensure maximum detection time for the emergency preemption equipment. It shall be the responsibility of the contractor to deliver, install and test a system in which all individual components and the system as a whole is working to its optimum to meet the design

3.0 Basis of Payment.

Measurement and payment for work covered by this specification shall include all equipment, tools, labor, programming and materials necessary and shall be paid at the contract unit price as follows:

Item No.	Type	Description
902-99.02	Each	Emergency Vehicle Pre-Emption System

DD. Drainage Maintenance During Construction

1.0 Description. The contractor's attention is called to the drainage construction. The Contractor is required to maintain drainage during construction and to ensure that the existing drainage system continues to convey all storm water until the new structures and pipes are in place.

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.

EE. Contractor Designed, Furnished, and Installed Shoring for Excavation

1.0 Description. This Section addresses sheeting, bracing, and all operations necessary for the preparation of trenches for bedding of pipes and pipe appurtenances, conduit, and buried cable.

2.0 Materials. All materials shall be in accordance with Division 1000.

3.0 Execution. Where selecting an option for excavation, trenching, and shoring in compliance with local, state, or federal safety regulations such as "OSHA Part 1926" or successor regulations, which require design by a registered professional engineer, submit (for information only and not for Engineer approval) the following:

A. Copies of design calculations and notes for sloping, benching, support systems, shield systems, and other protective systems prepared by or under the supervision of a professional engineer legally authorized to practice in the jurisdiction where the Project is located.

B. Documents provided with evidence of registered professional engineer's seal, signature, and date in accordance with appropriate state licensing requirements.

C. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards that could develop during excavation support and protection system operations.

D. Shore, support, and protect utilities encountered.

E. Install excavation support and protection systems to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.

F. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Engineer and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.

G. Locate excavation support and protection systems clear of permanent construction so that forming and finishing of concrete surfaces are not impeded.

H. Monitor excavation support and protection systems daily during excavation progress and for as long as excavation remains open. Promptly correct bulges, breakage, or other evidence of movement to ensure that excavation support and protection systems remain stable.

I. Promptly repair damages to adjacent facilities caused by installing excavation support and protection systems.

4.0 Quality Assurance. The contractor shall conduct a pre-installation meeting at the project site to review methods and procedures related to excavation support and protection systems including, but not limited to:

a. Existing utilities and subsurface conditions.
b. Proposed excavations.
c. Proposed equipment.
d. Monitoring of excavation support and protection system.
e. Working area location and stability.
f. Coordination with traffic control movements of general public.

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.

FF. Misc. Storm Sewer Pipe and Structures

1.0 Description. Non-standard size precast concrete curb drop inlets and pipe are specified in the project plans.

2. Material and Construction Requirements. Material and construction requirements for the indicated precast concrete curb drop inlets and pipe bid items shall conform to the material and construction specifications associated with Sec 731 and Division 1000 and MoDOT standard plans.

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 other than the direct payment identified for each bid item. This shall apply to following non-standard bid items.

Item Number	Type / Description	Unit
725-99.03	8 In. Pipe PVC	Ln. Ft.
731-99.03	Precast Concrete Drop Inlet 7.5 Ft. by 3 Ft.	Ln. Ft.
731-99.03	Precast Concrete Drop Inlet 10 Ft. by 3 Ft.	Ln. Ft.
731-99.03	Precast Concrete Drop Inlet 7.5 Ft. by 8 Ft.	Ln. Ft.
731-99.03	Precast Concrete Drop Inlet 10 Ft. by 8 Ft.	Ln. Ft.
731-99.03	4X4 Drop Inlet	Ln. Ft.

GG. Misc. Metal Fence

1.0 Description. This section addresses requirements for the installation of the metal fence – as called out in the construction plans – adjacent to Parcel 8.

2. Material and Construction Requirements. Material and construction requirements for the indicated metal fence bid item shall conform to the material and construction specifications associated with Sec 607 in the MoDOT EPG and Standard Plans.

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 other than the direct payment identified for each bid item. This shall apply to the following non-standard bid item.

Item Number	Type / Description	Unit
607-99.03	Misc. {Metal Fence}	Ln. Ft.

HH. Pipe Connection to Existing Storm Structures (Includes Any Excavation)

1.0 Description. Work shall consist of connecting drainage pipe to an existing reinforced concrete box culvert or inlet. The contractor should refer to standard drawing 703.60 for connection details.

2.0 Material and Construction Requirements. All materials and construction specifications shall conform to Sec 703 and Division 1000.

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 document.

II. Removal and Delivery of Existing Signs JSP-12-01B

1.0 Description. All City of Independence, and Commission-owned signs removed from the project shall remain the property of each respective agency and shall be disassembled and delivered as specified herein.

2.0 Disassembly and Delivery. All City of Independence and Commission-owned signs, designated for removal in the plans, and any other signs designated by the engineer, shall be removed by the contractor and delivered to the addresses below. The contractor shall call the phone number listed below 48 hours prior to delivery and make arrangements for delivery during normal business hours.

Commission's Sign Shop
3050 NE Independence Avenue
Lee's Summit, MO 64064
Phone: 816-622-0505

City of Independence, Missouri
Attn: Kyle Cain
910 N. 291 Hwy.
Independence, MO 64051
Phone: 816-325-7602

2.1 Signs shall be removed from sign supports and structures prior to delivery. Sign supports and structures shall become the property of the Contractor and removed from the project. Any oversized sign panels shall be disassembled or cut into widths of 8-feet or less with no restriction on length. Signs shall be stacked neatly at the receiving site at a location specified by the owning agency.

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

JJ. Tree Clearing Restriction

1.0 Description. The project is within the known range of the federally endangered Indiana bat and threatened northern long-eared bat. These bats are known to roost in trees with suitable habitat characteristics during summer months.

1.1 MoDOT has determined that suitable roost trees exist within the project area. Upon Request, the trees can be marked with either a spray painted "X" or a pink ribbon on their trunks. Suitable roost trees have been GPS located.

1.2 To avoid negative impacts to roosting Indiana and northern long-eared bats, removal of suitable roost trees will only be allowed between November 1 and March 31.

2.0 Basis of Payment. No direct pay shall be provided for any labor, equipment, time, or materials necessary to complete this work.

KK. Remove & Reset Ground Mounted Signs

1.0 Description. The contractor shall remove and reset all ground mount signs as noted in the plans. Existing signs fall into the following categories:

1.1 Remove & Reset - The contractor shall remove the post and reuse the existing sign on a new post at a location designated in the plans.

1.3 (R) or Remove – The contractor shall remove the sign and post.

1.4 (U.I.P.) – Use in Place.

2.0 RideKC Signing

2.1 Description. The contractor shall be informed that numerous RideKC Bus Signs are located within the limits of this project. The plans include quantities to relocate the existing signs onto new posts as shown in the plans. As part of the requirements, these signs shall be visible at all times during construction of this project.

2.2 Should any damage be inflicted on the existing RideKC Bus signs by reason of the contractor's action during the removal, transportation, or re-installation of existing signs, it will be the contractor's responsibility to replace or repair said items. The engineer shall have the final determination on whether the said signs should be replaced or repaired.

2.3 Temporary Ground Mount Signing. Temporary ground mounting of signs, including RideKC Signs will be paid for as no direct pay.

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 other than the direct payment identified for each bid item.

LL. Adjusting Meter or Valve Box

1.0 Description. Adjusting Meter or Valve Boxes shall consist of adjusting existing utility meter boxes or valve boxes shown in the plans to new finished grade elevations.

2. Material and Construction Requirements. Use methods for the adjustment of meter or valve boxes according to the requirements of the utility company involved.

3.0 Basis of Payment. Payment for Adjusting Meter or Valve Boxes shall be made at the contract set price and is full compensation for the specified work.

MM. Misc. 8 In. Pipe PVC

1.0 Description. This section addresses requirements for the installation of the 8 inch PVC pipe just east of the entrance at Sta. 57+66.00 Lt.

2.0 Material and Construction Requirements. Material and construction requirements for the 8 inch PVC pipe bid item shall conform to the material and construction specifications associated with Sec 730 in the MoDOT EPG and Standard Plans.

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 other than the direct payment identified for each bid item. This shall apply to the following non-standard bid item.

Item Number	Type / Description	Unit
725-99.03	Misc. {8 In. Pipe PVC}	Ln. Ft.

NN. Misc. Infiltration Trench

1.0 Description. This section addresses requirements for the installation of the infiltration trench from Sta. 81+55.00 – Sta. 84+05.00 Rt.

2. Material and Construction Requirements. Material and construction requirements for infiltration trench bid item shall conform to the material and construction specifications associated with Sec 806 in the MoDOT EPG and Standard Plans.

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 other than the direct payment identified for each bid item. This shall apply to the following non-standard bid item.

Item Number	Type / Description	Unit
806-99.03	Misc. {Infiltration Trench}	Ln. Ft.

OO. Parcel 4 – Owner Negotiated Work Requirements

1.0 Description. The contractor is required to notify the owner at least 2 weeks prior to construction beginning along their property. The contractor is required to remove the 2 light poles at the edge of the west entrance, belonging to the owner, and coordinate with the owner, a place to store them in an area behind the owners building. The contractor is required to put up

temporary fencing along the Boundary limits of the Temporary Easement to allow for customers of the business to continue parking along the south side of the parking lot.

PP. Parcel 5 – Owner Negotiated Work Requirements

1.0 Description. The work being done on the entrance approach to this property is to be completed within a total of 3 consecutive days, using high early strength, fast curing concrete. The entrance will not be closed to vehicles entering and exiting the property for more than a total of 3 days. During those 3 days, there must be access available to the entrances located on S. Sterling Avenue and S. Claremount Avenue.

QQ. Parcel 8 – Owner Negotiated Work Requirements

1.0 Description. The work being done on the entrance approach to this property is to be completed half at a time, making it possible for vehicles to enter and exit the parking lot at all times during construction The owner would like to keep the rolling gate (including all parts to the gate) that is currently located along the frontage of the property. The owner would also like to keep the three (3) flag poles that are currently within the existing Right of Way. The contractor is required to contact the owner, Cynthia Langer, before the gate and the three (3) flag poles are removed, to discuss where on the property the owner would like the items placed by the contractor, after removal. The contractor is required to relocate the concrete Barrier Block located within state right of way, back behind the existing right of way line, preferably in line with the other Barrier Blocks to prevent vehicles from passing through at the east end of the lot. The contractor is required to ensure that the vehicles on the lot are secure at all times during construction. If possible, the contractor shall construct the 24” integral curb on the backside of the sidewalk before removing existing pipe fence that is located within the existing right of way.

RR. Parcel 9 – Owner Negotiated Work Requirements

1.0 Description. The work being done on the 2 entrance approaches to this property are to be completed half at a time on each entrance, making it possible for vehicles to enter and exit the parking lot at all times during construction.

SS. Parcel 10 - Owner Negotiated Work Requirements

1.0 Description. The contractor is required to notify the owner (Sugar Creek Aerie #3717 Fraternal Order of Eagles) at least 2 weeks prior to construction beginning along their property. The owner would like to possibly coordinate an agreement with the contractor for removal and relocation of a flagpole that is currently located within state right of way, as well as a possible new sign placement on owners property.

TT. Parcel 12 - Owner Negotiated Work Requirements

1.0 Description. The work being done on the 2 entrance approaches to this property are to be completed one at a time, and at least one entrance will remain open at all times during construction, making it possible for vehicles to enter and exit the parking lot.

UU. Parcel 13 - Owner Negotiated Work Requirements

1.0 Description. The work being done on the entrance approach from 24 Hwy, to this property, will be completed half at a time, making it possible for vehicles to enter and exit the parking lot at all times during construction.

VV. Parcel 15 - Owner Negotiated Work Requirements

1.0 Description. The contractor is required to notify the owner at least 2 weeks prior to construction beginning along their property. The owner would like to possibly coordinate an agreement with the contractor for removal and relocation of existing steps that are located within the existing state right of way, as well as placement of any excess dirt removed due to the project and removal and replacement of a private sign and lamp post.

WW. Parcel 16 - Owner Negotiated Work Requirements

1.0 Description. The work being done on the entrance approach from 24 Hwy, to this property, will be completed half at a time, making it possible for vehicles to enter and exit the parking lot at all times during construction. In addition, the contractor will be required to contact the owner at least 2 weeks prior to work being done along the property. High early, fast drying concrete will be used on the entrance approach and each half of the approach will be done during a 3 day period coordinated by the contractor and the owner's representative (Chris Ann Nicolaisen).

XX. Parcel 17 – Owner Negotiated Work Requirements

1.0 Description. The contractor is required to re-seed all easement areas following completion of work on this parcel.

YY. Parcel 20- Owner Negotiated Work Requirements

1.0 Description. The work being done on the entrance approach from 24 Hwy at station 75+68.37 is to be completed within a total of 3 consecutive days, using high early strength, fast curing concrete. The entrance will not be closed to vehicles entering and exiting the property for more than a total of 3 days. During those 3 days, access will be available to the entrance approach from 24 Hwy at station 76+61.57. Access to the front of the building will be always available.

2.0 Description. The work being done on the entrance approach from 24 Hwy at station 76+61.57 is to be completed within a total of 3 consecutive days, using high early strength, fast curing concrete. The entrance will not be closed to vehicles entering and exiting the property for more than a total of 3 days. During those 3 days, access will be available to the entrance approach from 24 Hwy at station 75+68.37. Access to the front of the building will be always available.

ZZ. Parcel 29 - Owner Negotiated Work Requirements

1.0 Description. The work being done on the entrance approach to this property is to be completed half at a time, making it possible for vehicles to enter and exit the parking lot at all times during construction.

AAA. Notice to Bidders of Funding by Third Party (JSP-18-02A)

1.0 Bidders are advised that the City of Independence is required to provide substantial funds for construction of Job No. J4S3405B.

2.0 Bidders acknowledge that their bids are made with knowledge of and subject to the condition of the City of Independence providing substantial funds prior to authorization of any award of a contract for this job by the Commission.

3.0 Bidders agree that they shall be estopped, both in law and equity, to assert any right to award of a contract for this job by the Commission should the City of Independence not provide substantial funds for any reason.

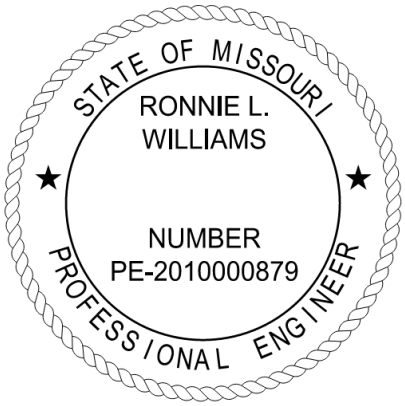
Job No.: J4S3405B
Route: 24
County: Jackson

JOB SPECIAL PROVISIONS TABLE OF CONTENTS (ROADWAY)

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

A.	General - Federal JSP-09-02H	1
B.	Contract Liquidated Damages	1
C.	Utilities	2
D.	Delayed Right of Way Possession	4
E.	Work Zone Traffic Management JSP-02-06L	5
F.	Emergency Provisions and Incident Management JSP-90-11A	7
G.	Project Contact for Contractor/Bidder Questions JSP-96-05	8
H.	Supplemental Revisions JSP-18-01X	8
I.	Optional Pavements JSP 06-06H	26
J.	Damage to Existing Pavement, Side Roads and Entrances	26
K.	Bus Service	27
L.	Property Owner Notification	27
M.	Access to Commercial and Private Entrances	27
N.	Contractor Quality Control and Daily Reporting	28
O.	Site Restoration	30
P.	ADA Compliance and Final Acceptance of Constructed Facilities JSP-10-01C	30
Q.	Temporary Bituminous Pavement	32
R.	Concrete Sidewalk, 6 IN. (Bus Stop)	33
S.	Truncated Domes in Median Island or Median Cut-Through	33
T.	Contractor Verification of Signal Base Locations	33
U.	Disposition of Existing Signal/Lighting and Network Equipment	34
V.	Countdown Pedestrian Signal Head, Type 1S	34
W.	Coordination with MoDOT Signal Shop for Cabinet Entry	36
X.	Coordination with MoDOT and MARC OGL	36
Y.	Relocate Existing Traffic Signal Equipment	37
Z.	Rectangular Rapid Flashing Beacons	38
AA.	MoDOT TS2 Cabinet Assembly	41
BB.	KC District Video Detection System	44
CC.	Accessible Pedestrian Signals	47
DD.	Emergency Vehicle Pre-Emption	50
EE.	Drainage Maintenance During Construction	50
FF.	Contractor Designed, Furnished, and Installed Shoring for Excavation	50
GG.	Misc. Storm Sewer Pipe and Structures	52
HH.	Pipe Connection to Existing Storm Structures (Includes Any Excavation)	53
II.	Removal and Delivery of Existing Signs JSP-12-01B	53
JJ.	Tree Clearing Restriction	54
KK.	Remove & Reset Ground Mounted Signs	54
LL.	Adjusting Meter or Valve Box	55
MM.	Property Owner Agreement – Parcel 2	55
NN.	Property Owner Agreement – Parcel 8	56
OO.	Property Owner Agreement – Parcel 39	56
PP.	Notice to Bidders of Funding by Third Party (JSP-18-02A)	56

Job No.: J4S3405B
Route: 24
County: Jackson



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

Burns & McDonnell Engineering Co
9400 Ward Parkway
Kansas City, MO 64114

Certificate of Authority: 000165
Consultant Phone: 816-363-7231

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

JOB NUMBER: J4S3405B
JACKSON COUNTY, MO
DATE PREPARED: 4/06/2023

ADDENDUM DATE:

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

JOB
SPECIAL PROVISION

A. General - Federal JSP-09-02H

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

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

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

General Provisions & Supplemental Specifications

Supplemental Plans to July 2022 Missouri Standard Plans
For Highway Construction

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

B. Contract Liquidated Damages

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

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

Notice to Proceed: July 10, 2023
Completion Date: June 30, 2026

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
J4S3405B	520	$3,200

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 **$2000** per calendar day for each calendar day, or partial day thereof, that the work is not fully completed. For projects in combination, these damages will be charged in full for failure to complete one or more projects within the above specified 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. Utilities

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

Utility Name	**Known Required Adjustment**	**Type**
AT&T Distribution Mark Manion (816) 214-2322 (816) 772-0267 mm256t@att.com	Yes Section 2.1	Communications
Bluebird Fiber David Frazier 800 NW Chipman Rd, Suite 5750 Lee's Summit, MO 64063 (816) 237-2125 david.frazier@bluebirdnetwork.com	Yes Section 2.2	Communications
Charter Communications Beatrice Bernal (816) 222-5449 (913) 660-2487 beatrice.bernal@charter.com	Yes Section 2.3	Communications

Comcast Andrew Bell (816) 379-0073 (816) 795-2255 Andrew_Bell@comcast.com	Yes Section 2.4	Communications
City of Independence Power and Light Ron Rodvelt 21500 E. Truman Rd Independence, MO 64056 (816) 839-3247 rrodvelt@indepmo.org	Yes Section 2.5	Power
City of Independence Water Ashton England 17221 East 23rd Street South Independence, MO 64057 (816) 500-3234 aengland@indepmo.org	Yes Section 2.6	Water
Spire Richi Garcia 3025 SE Clover Drive Lees Summit, MO 64082 (816) 507-0713 Richi.Garcia@spireenergy.com	Yes Section 2.7	Gas

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

2.0 Project Specific Provisions.

2.1 AT&T has existing overhead lines with poles running along Route 24 from just west of Grand Ave. to just east of River Blvd and from just west of Delaware Ave. to just east of Noland Rd. The lines have been placed underground at a depth of 5 ft minimum, unless otherwise noted on the relocation plans and are within the 6 ft utility corridor. All AT&T poles have been removed. Relocation is currently underway and will be complete by Notice to Proceed in July. AT&T's relocation plans can be found in eProjects.

2.2 Bluebird Fiber has relocated out of the entire project area onto a city street. Relocation was complete on October 1, 2022 and relocation plans can be found in eProjects.

2.3 Charter has overhead lines attached to AT&T poles and will coordinate with AT&T and Comcast to remove those lines. It is unknown whether relocation will be complete by Notice to Proceed date. Once received, relocation plans will be placed in eProjects.

2.4 Comcast has aerial lines along Route 24 that are attached to AT&T poles. Coordination between AT&T and Comcast has taken place and design for relocation is complete. Relocation will be complete by Notice to Proceed in July. Relocation plans can be found in eProjects.

2.5 Independence Power & Light has aerial power lines along Route 24 and is placing 8 new self-supporting poles with 3 ft diameter bases at the following locations: SW Quadrant of Grand, SW Quadrant of River, SW and NW Quadrants of Spring, SW and SE Quadrants of Main, SE Quadrant of Lynn, and SW Quadrant of Dodgion. Bases may be able to be built ahead of Notice to Proceed date to avoid disruption to the Contractor's timeline. The expected delivery date for the poles is February 2024 with the possibility for an early delivery in November/December 2023. Relocation will not be complete by Notice to Proceed and the Contractor shall coordinate with IPL directly for the installation of the self-supporting poles. Relocation plans can be found in eProjects.

2.6 Independence Water has a relocation of an existing 12" waterline on the south side of Route 24 from just east of Noland Rd to Emery (less than 1000 ft). Estimated delivery of a replacement line of 12" ductile iron is 8-10 months. Relocation will not be complete by Notice to Proceed date and the Contractor shall coordinate directly with Independence Water for the relocation of the new 12" waterline. Relocation plans can be found in eProjects.

2.7 Spire has a 12" gas line at Sterling and Independence that needs relocation. It is unknown at this time whether relocation will be complete by Notice to Proceed date. If not, the Contractor shall coordinate with Spire directly for relocation of the existing 12" line. Once received, relocation plans will be placed in eProjects.

D. Delayed Right of Way Possession

1.0 Description. The right of way for this project has been acquired except for
Parcel 8 – Truman Mart LLC
Parcel 16 – Siraj & Salima Vishnani
Parcel 28 – John and Sandra Huff
Parcel 30 – John and Sandra Huff
Parcel 32 – QCSIF One LLC

1.1 The contractor shall inform itself of the location of these parcels. No encroachment, storage of equipment and materials or construction on these parcels shall be permitted until notification by the engineer is given that these parcels have been acquired.

1.2 The contractor shall schedule its work utilizing the available right of way until these parcels are cleared for construction, which is estimated to be July 10, 2023. However, this date expressly is not a warranty by or contractually binding on the Commission as the date the five Parcels will be clear for construction. No encroachment, storage of equipment and materials or construction on these parcels shall be permitted until the contractor is notified by the engineer that these parcels have been acquired.

1.3 The contractor shall have no claim for damage for delay, disruption, interference or otherwise as a result of the unavailability of Parcel 8, Parcel 16, Parcel 28, Parcel 30, and Parcel 32. The contractor may be given an extension of time upon proof of actual delay caused by the unavailability of these parcels as approved by the engineer.

E. Work Zone Traffic Management JSP-02-06L

1.0 Description. Work zone traffic management shall be in accordance with applicable portions of Division 100 and Division 600 of the Standard Specifications, and specifically as follows.

1.1 Maintaining Work Zones and Work Zone Reviews. The Work Zone Specialist (WZS) shall maintain work zones in accordance with Sec 616.3.3 and as further stated herein. The WZS shall coordinate and implement any changes approved by the engineer. The WZS shall ensure all traffic control devices are maintained in accordance with Sec 616, the work zone is operated within the hours specified by the engineer, and will not deviate from the specified hours without prior approval of the engineer. The WZS is responsible to manage work zone delay in accordance with these project provisions. When requested by the engineer, the WZS shall submit a weekly report that includes a review of work zone operations for the week. The report shall identify any problems encountered and corrective actions taken. Work zones are subject to unannounced inspections by the engineer and other departmental staff to corroborate the validity of the WZS's review and may require immediate corrective measures and/or additional work zone monitoring.

1.2 Work Zone Deficiencies. Failure to make corrections on time may result in the engineer suspending work. The suspension will be non-excusable and non-compensable regardless if road user costs are being charged for closures.

2.0 Traffic Management Schedule.

2.1 Traffic management schedules shall be submitted to the engineer for review prior to the start of work and prior to any revisions to the traffic management schedule. The traffic management schedule shall include the proposed traffic control measures, the hours traffic control will be in place, and work hours.

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

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

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

2.5 Traffic Congestion. The contractor shall, upon approval of the engineer, take proactive measures to reduce traffic congestion in the work zone. The contractor shall immediately implement appropriate mitigation strategies whenever traffic congestion reaches an excess of **15 minutes** to prevent congestion from escalating beyond this delay threshold. If disruption of the traffic flow occurs and traffic is backed up in queues equal to or greater than the delay time threshold listed above then the contractor shall immediately review the construction operations which contributed directly to disruption of the traffic flow and make adjustments to the operations to prevent the queues from reoccurring. Traffic delays may be monitored by physical presence on site or by utilizing real-time travel data through the work zone that generate text and/or email notifications where available. The engineer monitoring the work zone may also

notify the contractor of delays that require prompt mitigation. The contractor may work with the engineer to determine what other alternative solutions or time periods would be acceptable. When a Work Zone Analysis Spreadsheet is provided, the contractor will find it in the electronic deliverables on MoDOT's Online Plans Room. The contractor may refer to the Work Zone Analysis Spreadsheet for detailed information on traffic delays.

2.5.1 Traffic Safety.

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

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

3.0 Work Hour Restrictions.

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

Memorial Day
Labor Day
Thanksgiving
Christmas
New Year's Day

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

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

3.2 The contractor shall not perform any construction operation on all active lanes during restricted periods, holiday periods or other special events specified in the contract documents.

3.3 The contractor shall be aware that traffic volume data indicates construction operations on the roadbed between the following hours will likely result in traffic queues greater than 15 minutes. Based on this, the contractor's operations will be restricted accordingly unless it can be successfully demonstrated the operations can be performed without a 15 minute queue in traffic. It shall be the responsibility of the engineer to determine if the above work hours may be

modified. Working hours for evenings, weekends and holidays will be determined by the engineer.

Route 24 Eastbound:
4:00 p.m. - 6:00 p.m. Monday through Friday

Route 24 Westbound:
6:00 a.m. - 8:00 a.m. Monday through Friday

Lanes shall remain open when no work is being conducted, unless otherwise permitted by the resident engineer.

4.0 Detours and Lane Closures.

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

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

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

F. 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 the police or other emergency agencies for incident management. In case of traffic accidents or the need for police to direct or restore traffic flow through the job site, the contractor shall notify police 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 police services, the following agencies may also be notified for accident or emergency situation within the project limits.

Missouri Highway Patrol: 816-622-0800
Jackson County Police: 816-541-8017
City of Independence Police: 816-325-7300

City of Independence Fire Department: 816-325-7123

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 police agency.

2.2 The contractor shall notify 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 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.

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

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

Christopher West, PE – MoDOT Project Manager
MoDOT, Kansas City District
600 NE Colbern Rd.
Lee's Summit, MO 64086

Telephone Number: 816-607-2211
E-mail: christopher.west@modot.mo.gov

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

H. Supplemental Revisions JSP-18-01X

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

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

Stormwater Compliance Requirements

1.0 Description. This provision requires the contractor to provide a Water Pollution Control Manager (WPCM) for any project that includes land disturbance on the project site and the total area of land disturbance, both on the project site, and all Off-site support areas, is one (1) acre or more. Regardless of the area of Off-site disturbance, if no land disturbance occurs on the project site, these provisions do not apply. When a WPCM is required, all sections within this

provision shall be applicable, including assessment of specified Liquidated Damages for failure to correct Stormwater Deficiencies, as specified herein. This provision is in addition to any other stormwater, environmental, and land disturbance requirements specified elsewhere in the contract.

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

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

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

2.1 Duties of the WPCM:

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

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

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

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

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

(f) Review and acknowledge receipt of each MoDOT Inspection Report (Land Disturbance Inspection Record) for the Project within forty eight (48) hours of receiving the report and

ensure that all Stormwater Deficiencies noted on the report are corrected as soon as possible, but no later than stated in Section 5.0.

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

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

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

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

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

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

Anti-Discrimination Against Israel Certification

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

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

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

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

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

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

Table 1 – GTR Material Properties

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

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

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

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

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

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

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

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

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

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

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

7.0 Mix Design Test Method Modification. A formal mixing procedure from the additive supplier shall be provided to the contractor and engineer that details the proper sample preparation, including blending GTR with the binder or other additives. Samples shall be

prepared and fabricated in accordance with this procedure by the engineer and contractor throughout the duration of the project.

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

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

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

8.2.1 GTR SPG shall be 1.15

8.3 VMA shall be calculated as follows:

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

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

8.4 G_{se} shall be calculated as follows:

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

8.5 P_{be} shall be calculated as follows:

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

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

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

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

Delete Sec 107 in its entirety and substitute the following:

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

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

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

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

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

107.3 Patented or Copyrighted Devices, Material and Processes. If the contractor is required or desires to use any design, device, material or process covered by letters, patent, copyright, service or trademark, the contractor shall arrange and provide for such use by

suitable agreement with the patentee or owner, and a copy of the agreement may be required by the Commission. The contractor and surety shall indemnify and save harmless the State, the Commission, the Commission's agents, employees and assigns from any suits, claims or damages arising from the infringement upon or use of any patented, copyrighted or registered design, device, material, process or mark.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

107.7.3 Removal of any item or material of any nature by blasting shall be done in such a manner and at such time as to avoid damage affecting the integrity of the design and to avoid

damage to any new or existing structure, whether on Commission right of way or private property, included in or adjacent to the work. Unless the contract documents or the engineer restricts such operation, the contractor shall be responsible for determining a method of operation to ensure the desired results and the integrity of the completed work.

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

107.8 Preservation of Monuments and Artifacts.

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

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

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

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

107.10.1 Fording of streams and fill for temporary work not specified on design plans will not be permitted unless the plan for such operation is authorized by the Corps of Engineers, meets the approval of the engineer, complies with the current MoDOT Pollution Plan and results in minimum siltation to the stream. Temporary stream crossings shall not be constructed unless specifically designated as a condition of the Corps of Engineers Section 404 permit or a permit is obtained, and the temporary stream crossing is in accordance with Sec 806.

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

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

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

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

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

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

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

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

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

107.12 Contractor's Responsibility for Work From the earlier of the date of commencement of the work or the effective date of the notice to proceed, and until any work is accepted by the engineer, the work shall be in the custody and under the charge and care of the contractor. Issuance of a payment estimate on any part of the work done will not be considered as final acceptance of any work completed up to that time.

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

107.12.2 The contractor shall immediately give written notice to the engineer of any pedestrian, worker and/or vehicular accident. The contractor may be directed by the engineer to repair

permanent Commission facilities that have been damaged by events that are beyond the control of the contractor. Reimbursement will be provided by the Commission, determined in accordance with Sec 109.4, for the actual direct cost of labor, equipment and material, exclusive of overhead, indirect or consequential costs of profit. The Commission may elect to make such repairs in lieu of the contractor.

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

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

107.13.2 Commercial General Liability Insurance. The Contractor shall procure, and maintain during the term of the project, commercial general liability insurance with coverage at least as broad as Insurance Services Office (ISO) policy form CG 00 01. The general aggregate limit shall, by endorsement or otherwise, provide a designated aggregate limit solely for this project using ISO form CG 25 03 05 09 or an equivalent form. General liability policies shall be endorsed to add the Commission, MoDOT, and its employees as additional insureds (the "Additional Insureds") using Insurance Services Office forms CG 20 10 or the equivalent under such policy. For construction contracts, an endorsement providing completed operations coverage to the Additional Insureds, ISO form CG 20 37 or the equivalent, is also required. This form, CG 20 37, shall be endorsed on each subsequent commercial general liability policy issued to the Contractor for three (3) years after final acceptance of the project. The contractor could provide extended completed operations for specific project needs. Discontinued operations coverage shall be provided for three (3) years when applicable. Coverage shall not be reduced by insured versus insured exclusions or by explosion, collapse and underground (XCU) exclusions.

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

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

of independent contractors. If the insured is using subcontractors, the Policy must include work performed “by or on behalf” of the insured. Policy shall specifically provide for a duty to defend on the part of theinsurer.

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

107.13.6 Excess or Umbrella Liability Insurance. The Contractor may satisfy the required limits for Secs 107.13.2 through 107.13.5 by use of excess or umbrella liability insurance policies in any combination that meets the contract limits requirements. Such policies shall include as insureds, the Missouri Highways and Transportation Commission (Commission), the Missouri Department of Transportation (MoDOT) and its employees.

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

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

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

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

107.13.10 Other Conditions and Requirements

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

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

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

107.13.10.4 Primary and Non-contributory. For any claims related to this contract, the Contractor's insurance coverage shall be primary insurance with respects to the Commission, MoDOT and its employees as the additional insureds. Any other insurance or self-insurance

maintained by any of these parties shall be excess of the Contractor's insurance and shall not contribute with the Contractor's insurance.

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

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

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

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

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

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

107.15 Third Party Liability. Neither the State of Missouri, including the Commission, nor the contractor, by execution of the contract including these specifications, intend to create a right of action in a third-party beneficiary, except as specifically set out in these specifications and the contract. It is not intended by any required contractual liability in the contract or in these

specifications that any third-party beneficiary has a cause of action arising out of the condition of the project when completed in accordance with the plans and accepted by the Commission.

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

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

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

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

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

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

Buy America

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

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

permanently incorporated into the project will be subject to Buy America requirements. There are three categories requiring Buy America Certification:

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

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

c) Construction materials consisting primarily of:

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

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

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

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

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

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

Delete Sec 617.20.3 and substitute the following:

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

Delete Sec 1063.2 and substitute the following:

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

Alternate Weather Limitations for Plant Mix Bituminous Surface Leveling

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

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

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

2.0 Remedial Actions.

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

I. Optional Pavements JSP 06-06H

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 at the contract unit bid price for Item 502-99.05, Optional Pavement, per square yard.

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

4.2 Price Adjustment for Fuel. If the contractor accepts the option for fuel adjustment in the bid proposal, a fuel adjustment will be applied in accordance with Sec 109.14 for the type of pavement constructed.

J. Damage to Existing Pavement, Side Roads and Entrances

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

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

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

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

K. Bus Service

1.0 The contractor shall be aware KCATA operates routes along various portions of Route 24 with bus stops located along the entire corridor. The contractor shall maintain pedestrian access to each bus stop at all times, unless approved by the Engineer and KCATA. All active bus stop signs shall remain visible at all times during construction. Should any of the existing bus stop signs or posts be damaged by the contractor's negligence, they shall be replaced at the contractor's expense.

2.0 No direct pay will be made to the contractor to recover the cost of the equipment, labor, materials or time required to fulfill the above provision unless specified elsewhere in the contract documents.

L. Property Owner Notification

1.0 Description. It shall be the contractor's responsibility to inform and notify the adjacent property owner two weeks 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.

M. 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 and 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 the Engineer.

2.0 Construction Requirements. On all entrances the contractor shall keep one-half of the entrance open at all times. On narrow entrances it may be necessary for the contractor to provide temporary aggregate for property access. 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.

3.0 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.

N. Contractor Quality Control and Daily Reporting

1.0 The contractor shall perform Quality Control (QC) testing and reporting 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.

3.3 Contractor Daily Work Reporting. The contractor shall submit to the engineer a Contractor Daily Work Report (CDWR) for each calendar day that work is performed. The CDWR shall include all information listed in 3.3.2.

3.3.1 The CDWR information may be provided on the MoDOT-provided form or an approved contractor form. Each CDWR shall be digitally signed by the contractor and uploaded to the MoDOT SharePoint® site no later than two (2) business days following the end of each week.

3.3.2 CDWR information:

(a) Date and Contract Identification Number
(b) Weather conditions, rainfall amounts, high/low ambient temperatures
(c) List of subcontractors who performed work
(d) Description of all work performed, including general location (ex. Sta, offset, log mile, etc.), and any testing performed.
(e) Date range of days when no work was performed since the previous DWR
(f) Pertinent traffic control information (changes, delays, accidents, etc.)
(g) Statement: "All items installed meet or exceed contract requirements."

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. Discussion topics should include: safety precautions, QC testing, traffic impacts, and any required Hold Points.

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.

O. Site Restoration

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

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

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

2.2 Sidewalks and sidewalk ramps that are disturbed as described in this provision shall be replaced to meet current ADA standards at the contractor's expense.

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 associated unit price. No direct payment will be made for any materials or labor, which is performed under this provision.

P. ADA Compliance and Final Acceptance of Constructed Facilities JSP-10-01C

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 not to be considered all-inclusive, nor does it supersede any other contract requirements. The ADA checklist is a required guide 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. This notification shall be made in writing. 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.

Q. Temporary Bituminous Pavement

1.0 Description. Temporary Bituminous Pavement shall be used as directed by the Engineer. The temporary bituminous pavement will be used to improve paved approach transitions to driveways, parking lots, side street transitions and similar applications.

2.0 Material. Temporary Bituminous Pavement shall be Bituminous Pavement Mixture PG64-22, (BP-1) mix or equivalent approved by the Engineer.

2.1 Material testing and construction acceptance testing shall be based upon Sec 402, Plant Mix Bituminous Surface Leveling.

3.0 Basis of Payment. Payment for Temporary Bituminous Pavement shall be at contract unit price per ton.

Item No.	Type	Description
401-99.10	Ton	Temporary Bituminous Pavement

R. Concrete Sidewalk, 6 IN. (Bus Stop)

1.0 Description. Concrete Sidewalk, 6 IN. (Bus Stop) shall be placed at the locations shown in the plans and in accordance with the KCATA Ride KC Post Stop and Bus Stop Pad Typical Section special detail included in the plans.

2.0 Material. Materials used shall be in accordance with the KCATA Bus Stop Pad Typical Section special detail included in the plans.

2.1 Material testing and construction acceptance testing shall be based upon Sec 608, Concrete Median, Median Strip, Sidewalk, Curb Ramps, Steps and Paved Approaches.

3.0 Basis of Payment. Payment for Concrete Sidewalk, 6 IN. (Bus Stop) shall be at contract unit price per square yard.

Item No.	Type	Description
608-99.05	Sq. Ft.	Concrete Sidewalk, 6 IN. (Bus Stop)

S. Truncated Domes in Median Island or Median Cut-Through

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.

Item Number	Type / Description	Unit
608-10.12	Truncated Domes	Sq. Ft.

T. 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 B**asis 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.

U. Disposition of Existing Signal/Lighting and Network Equipment

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

2.0 Signal Equipment. All equipment are to be transported to the Commission's maintenance lot located 9101 E. 40th Terrace, Kansas City, MO 64086. The contractor shall notify the Commission's representative 24 hours prior to each delivery by calling:

Mr. Scott Brelsford
Phone: (816) 564-3123

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 "Removal of Improvements" per lump sum.

V. Countdown Pedestrian Signal Head, Type 1S

1.0 Description. This work shall consist of furnishing, installing and placing into operation any countdown, pedestrian signal heads.

2.0 System Requirements. Delete Sec. 1092.1.9 in its entirety and substitute the following:

1092.1.9 Pedestrian Signal Heads. Pedestrian signal heads shall be in accordance with ITE specifications and standards for pedestrian traffic control signal indications and the following:

(a) Pedestrian signal head housings shall be constructed of a one-piece, 0.250-inch (6 mm) thick, polycarbonate material as shown on the plans. The housing shall include an integral mounting bracket designed for side-of-pole mounting on all makes of signal poles with a terminal compartment and minimum 5-position, double-row terminal block.

(b) The door, lens and any openings in the housing shall have gaskets or seals to exclude dust and moisture from the inside of the compartment.

(c) Lenses shall be constructed of polycarbonate material.

(d) Pedestrian signal head units shall be provided with a manufactured preformed rectangular visor or screen-type louver.

(e) All plastic material shall be ultraviolet stabilized.

(f) Indications shall be ITE Class 3 symbol messages. The "UPRAISED HAND" symbol shall be illuminated with a filled, Portland orange LED module. The "WALKING PERSON" symbol shall be illuminated with a filled, white LED module. The “Countdown” display numbers shall be illuminated with a Portland orange LED module. The LED modules shall be in accordance with applicable portions of Sec 1092.1.

(g) Pedestrian traffic control signal faces shall be constructed such that all messages are displayed from the same message-bearing surface having a black opaque background. The "Countdown" display shall be located to the right of the "UPRAISED HAND" and “WALKING PERSON” symbols, which will be overlaid.

(h) Pedestrian signal heads require “Countdown” displays and shall have the following features:

(1) Display numbers must be two digits at least 9 inches in height.

(2) Shall only display the “Countdown” time during the pedestrian change interval. Time displayed shall be in seconds and begin only at the beginning of the pedestrian change interval. The flashing “UPRAISED HAND” symbol shall be concurrently displayed during the pedestrian change interval. The total time displayed at the start of the pedestrian change interval shall be automatically adjusted by the pedestrian signal head and not require any manual settings or additional wiring to the signal cabinet.

(3) Once the “Countdown” display reaches “0”, the “Countdown” display shall blank-out until the next pedestrian change interval begins.

(4) If the pedestrian change interval is interrupted or shortened as part of a transition into a preemption sequence, the “Countdown” display shall go dark immediately upon activation of the preemption transition.

(5) A test switch shall be provided in order to test the “Countdown” display.

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

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

5.0 Basis of Payment. Payment for pedestrian signal heads, including all materials, equipment, labor and tools shall be made and considered completely covered by the contract unit price bid for:

Item Number	Type	Description
902-99.02	Each	Countdown Pedestrian Signal Head, Type 1S

W. 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.

1.1 Keys & Locks. Red locks & 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).

1.2 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.

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

X. Coordination with MoDOT and MARC OGL

1.0 Description. Any work that will impact the existing traffic signal monitoring and communications network must be coordinated with the Mid-American Regional Council Operation Green Light (OGL) 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.

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 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 Ray Webb with OGL via email at rwebb@marc.org or 816-701-8300.

3.0 The signal and communication 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 signal and communication 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 communication devices in the area to be used to manage other traffic impacting workzones.

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

Y. Relocate Existing Traffic Signal Equipment

1.0 Description. The contractor shall relocate existing traffic signal equipment as shown in the plans, make necessary connections and test for proper network connection. This work shall be coordinated with MARC OGL Contact Ray Webb with OGL via email at rwebb@marc.org or 816-701-8300.

2.0 Materials.

2.1 Existing traffic signal equipment shown to be relocated will be removed by the Contractor from their existing location with approval from the engineer. These devices include wireless radio devices, CCTV cameras, and video detection cameras.

2.2 The Contractor shall furnish and install any requires to provide for functioning relocated equipment.

3.0 Construction Requirements.

3.1 Provide to the engineer a detailed schedule of installation of Contractor furnished communications equipment, at least thirty (30) days before commencing this type of work. Additionally, coordinate such work with the engineer.

3.2 The Contractor shall NOT move any cables from port to port on the network switches without prior MoDOT approval. For equipment installed in cabinets, mount the equipment in the rack as shown in the approved cabinet layout diagram or, for existing cabinets, as directed by the engineer, and connect the power cables and ground wires. If there are insufficient outlets in existing cabinets, provide Commission approved power strips as required. Connect the communication cables as shown on the connection diagrams in the plans. The equipment will be configured by the Commission, and therefore do not change any configuration settings.

3.3 Assist Commission staff in making the installed equipment operational. This may entail having a person with a cellular telephone at the cabinet reporting on results and making changes as directed by Commission staff. It may also entail installing replacement equipment when a unit cannot be made to work properly.

4.0 Basis of Payment. Measurement and payment for traffic signal equipment installation will be on a per item basis. The unit price shall, cabling, assistance to Commission staff in getting the equipment operational, documentation, and all miscellaneous hardware required for a safe, fully operational system. Payment will be made as follows:

Item No.	Type	Description
902-99.02	Each	Wireless Radio System Relocation

902-99.02	Each	CCTV Camera Assembly Relocation
902-99.02	Each	Video Detection Camera Relocation

1.0 Description. Rectangular Rapid Flashing Beacons (RRFBs) shall be placed at the locations indicated in the plans. Rectangular Rapid Flashing Beacons shall consist of two signal posts with each post having pedestrian crossing signs and two rapid flashing beacons facing both directions of traffic. Advanced signing upstream of the crossing shall be installed.

2.0 Beacon Requirements.

1. General Conditions:
    a. RRFBs shall meet requirements set forth by this JSP and in the MUTCD and found at:
    (http://mutcd.fhwa.dot.gov/resources/interim_approval/ia11/fhwamemo.htm
    b. An RRFB shall consist of two rapidly and alternately flashed rectangular yellow indications having LED-array based pulsing light sources, and shall be designed, located, and operated in accordance with the detailed requirements specified below.
    c. Each post shall have both front and rear facing signs and RRFBs for a total of 2 pedestrian signs, four plaques, and 8 RRFBs per crossing.
    d. Power for the RRFBs shall be self-sustained through solar panels and batteries.
    e. One solar-powered crosswalk illuminator that operates upon pedestrian actuation during times with low ambient light shall also be included at each RRFB location.
2. Restrictions:
    a. An RRFB shall only be used to supplement a W11-2 (Pedestrian) with a diagonal downward arrow (W16-7p) plaque, located at or immediately adjacent to a marked crosswalk.
    b. An RRFB shall not be used for crosswalks across approaches controlled by YIELD signs, STOP signs, or traffic control signals. This prohibition is not applicable to a crosswalk across the approach to and/or egress from a roundabout.
    c. An RRFB shall not be installed independent of the crossing signs for the approach the RRFB faces. The RRFB shall be installed on the same support as the associated W11-2 (Pedestrian) and plaque.
3. Beacon Dimensions and Placement in Sign Assembly:
    a. Each RRFB shall consist of two rectangular-shaped yellow indications, each with an LED-array based light source. Each RRFB indication shall be a minimum of approximately 5 inches wide by approximately 2 inches high.
    b. The two RRFB indications shall be aligned horizontally, with the longer dimension horizontal and with a minimum space between the two indications of approximately seven inches (7 in), measured from inside edge of one indication to inside edge of the other indication.

c. The outside edges of the RRFB indications, including any housings, shall not project beyond the outside edges of the W11-2 sign.

d. As a specific exception to 2003 MUTCD Section 4K.01 guidance, the RRFB shall be located between the bottom of the crossing warning sign and the top of the supplemental downward diagonal arrow plaque. (or, in the case of a supplemental advance sign, the AHEAD plaque), rather than 12 inches above or below the sign assembly. (See example photo at:

hhtp://mutcd.fhwa.dot.gov/resources/interim_approval/ia11/fhwamemo.htm#image

4. Beacon Flashing Requirements:

   a. When activated, the two yellow indications in each RRFB shall flash in a rapidly alternating "wig-wag" flashing sequence (left light on, then right light on).

   b. As a specific exception to 2003 MUTCD Section 4K.01 requirements for the flash rate of beacons, RRFBs shall use a much faster flash rate. Each of the two yellow indications of an RRFB shall have 70 to 80 periods of flashing per minute and shall have alternating but approximately equal periods of rapid pulsing light emissions and dark operation. During each of its 70 to 80 flashing periods per minute, one of the yellow indications shall emit two rapid pulses of light and the other yellow indication shall emit three rapid pulses of light.

   c. The flash rate of each individual yellow indication, as applied over the full on-off sequence of a flashing period of the indication, shall not be between 5 and 30 flashes per second, to avoid frequencies that might cause seizures.

   d. The light intensity of the yellow indications shall meet the minimum specifications of Society of Automotive Engineers (SAE) standard J595 (Directional Flashing Optical Warning Devices for Authorized Emergency, Maintenance, and Service Vehicles) dated January 2005.

5. Beacon Operation:

   a. The RRFB shall be normally dark, shall initiate operation only upon pedestrian actuation, and shall cease operation at a predetermined time after the pedestrian actuation or, with passive detection, after the pedestrian clears the crosswalk. The length of actuation shall be programmable and changeable.

   b. All RRFBs associated with a given crosswalk (including those with an advance crossing sign, if used) shall, when activated, simultaneously commence operation of their alternating rapid flashing indications and shall cease operation simultaneously.

   c. If pedestrian pushbuttons (rather than passive detection) are used to actuate the RRFBs, a pedestrian instruction sign with the legend PUSH BUTTON TO TURN ON WARNING LIGHTS should be mounted adjacent to or integral with each pedestrian pushbutton. Push buttons shall meet American's with Disabilities Act (ADA) requirements in both location and design with both visible and audible feedback when pushed.

d. The duration of a predetermined period of operation of the RRFBs following each actuation should be based on the MUTCD procedures for timing of pedestrian clearance times for pedestrian signals.

e. A small light directed at and visible to pedestrians in the crosswalk will be installed integral to the RRFB or push button to give confirmation that the RRFB is in operation.

6. Crosswalk Illuminator:

   Upon activation by pedestrian during times of low ambient light, the controllers shall activate all crosswalk illuminators in the crosswalk system simultaneously and then cease operation after a programmable timeout coordinated with the flashing beacons.

   a. The crosswalk illuminator shall be Tapco SafeWalk Crosswalk Illuminator.
   b. Shall operate in conjunction with the crosswalk controller and intelligent warning devices.
   c. Shall activate when less than 10 lux of ambient light is present (when activated by a pedestrian).
   d. Designed to provide at least 20 vertical lux at 5 feet for a standard 2 lane crosswalk.
   e. Activate with a 0.5 second soft start.
   f. Allow for multiple brightness options for each of illuminator
   g. Be housed in its own IP66 type enclosure.
   h. Be made of weather resistant materials (aluminum or stainless steel).
   i. Be able to be adjusted and aimed both horizontally and vertically.
   j. Be independently replaceable.
   k. Operate between the temperatures of -40° to +176°F (-40° to +80°C).
   l. Mounting height and illumination angle should be considered when selecting RRFB pole height.

7. Other:

   a. Except as otherwise provided above, all other provisions of the MUTCD applicable to Warning Beacons shall apply to RRFBs.
   b. The signs shall meet the requirements of Sec 903. The minimum height of the lowest sign shall be seven feet if mounted in sidewalk to meet ADA requirements.
   c. The W11-2 and W16-7p signs shall be reflective yellow.
   d. The post shall meet MoDOT signal standards in Sec 902. The post will be located so that a minimum of four feet of walkable sidewalk is maintained.

4.0 Method of Measurement. Measurement for installation of RRFBs will be made per each rectangular rapid flashing beacon system. No measurement will be made for individual items that make up the RRFB system.

5.0 Basis of Payment. All labor, equipment, and materials necessary to install the beacons, signs, solar panels with batteries, push buttons, post, foundation, crosswalk illuminator, and other equipment to have a fully operational RRFB system will be included in the pay item below.

Item No.	Unit	Description
902-99.02	Each	Rectangular Rapid Flashing Beacon Assembly

AA. MoDOT TS2 Cabinet Assembly

1.0 Description. The cabinet assembly shall meet, as a minimum, all applicable sections of the latest revisions as found in the NEMA TS2 Standard Publication and sections 902 and 1092 of the Missouri Standard Specifications for Highway Construction Manual. Where differences occur, this specification shall govern.

2.0 Materials.

2.1 Cabinet. The cabinet shall be constructed from aluminum with a minimum thickness of 0.125 inches. The cabinet shall be designed and manufactured with materials that will allow rigid mounting, whether intended for pole, base or pedestal mounting. All mounting points where the cabinet is bolted to the foundation shall be reinforced at the factory by welding in an additional layer of material equal to the thickness of the material that the cabinet is constructed from. Triangular gussets are also required when the base plate and cabinet walls are welded together vs. continuous rolled material. A rain channel shall be incorporated into the design of the main door opening to prevent liquids from entering the enclosure. All external hardware shall be stainless steel. The cabinet exterior shall be supplied with a natural aluminum finish. Unless otherwise specified**,** the interior of the cabinet shall be white. Sufficient care shall be taken in handling to ensure that scratches are minimized. All surfaces shall be free from weld flash. Welds shall be smooth, neatly formed, free from cracks, blowholes and other irregularities. All sharp edges shall be ground smooth. The cabinet shall be equipped with (2) lifting brackets for installation and removal purposes.

2.2 Cabinet Doors. The cabinet shall include front and rear doors of NEMA type 3R construction with rain tight gaskets. A stiffener plate shall be welded across the inside of the main door to prevent flexing. Doors shall include a mechanism capable of holding the door open at approximately 90 and 165 degrees under windy conditions. Manual placement of the mechanism shall not be required by field personnel. Only the main door shall have ventilation louvers. A plaque designation “Traffic Control” shall be affix to each main cabinet door.

2.3 Door Alarm. The front and rear doors shall be equipped with switches wired to the traffic signal controller alarm with 1 input for logging and reporting of a door open condition.

2.4 Shelves. No less than (2) shelves shall be provided and each shall have the ability to be independently removed, relocated, and adjusted. The front edge of each shelf shall have holes predrilled at a spacing of no greater than 8 inches to accommodate tie-wrapping to secure cables/harnesses.

2.5 Mounting Rails. A minimum of one set of vertical "C" channels shall be mounted on each interior wall of the cabinet for the purpose of mounting the cabinet components. The channels shall accommodate spring mounted nuts or studs. All mounting rails shall extend to within 7 inches of the top and bottom of the cabinet.

2.6 Pull-out Drawer. The cabinet shall be equipped with a pull-out drawer/shelf assembly. A 1½ inch deep drawer shall be provided in the cabinet, mounted directly beneath the controller support shelf. The drawer shall have a hinged top cover and shall be capable of accommodating one complete set of cabinet prints and manuals. This drawer shall support 50

pounds in weight when fully extended. The drawer shall open and close smoothly. The drawer dimensions shall make maximum use of available depth offered by the controller shelf and be a minimum of 18 inches wide.

2.7 Police Door. The police door shall contain only (1) switch used for flash/auto operations. The ability to turn field indications off from the police panel will not be permitted.

2.8 Lighting. The cabinet shall include no less than (3) field replaceable LED light assemblies along the top and sides of the cabinet. The LED panels shall be controlled by a manually activated toggle switch on the tech panel.

2.9 Fans/Ventilation. The components of the system as well as the CFM requirements shall be in compliance with the MoDOT 902 & 1092 specifications.

2.10 Heater. The cabinet shall be supplied with a 200 Watt fan heater with thermostat control that is designed to protect electronics from the effects of low temperatures such as corrosion, freezing or condensation, which can damage critical components within a control enclosure. Housing shall be constructed of aluminum. Overall dimensions including mounting areas shall be approximately: 4 inch depth, 4 inch width, 5.50 inch height.

2.11 Switch Guards. All switches shall include switch guards. All switches shall be clearly labeled.

2.12 Receptacles and power strip(s). One 8-outletIP addressableindustrial surge protected power strip shall be provided. The installation of the power strip shall be included in the cost of the cabinet assembly. The main door tech panel shall contain a 15 amp duplex GFI receptacle. A separate grounded service outlet shall be provided in the controller cabinet for supplying power to the video detection monitor. 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. The use of the grounded service outlet located on the cabinet door will not be permitted for this function. A manual on/off switch shall also be provided and mounted to the main door tech panel.

2.13 16-Position Back Panel Wiring. All new signal cabinets shall have a 16-position load switch back panel and conform to the following specifications. Regardless of the number of phases specified on the plans, all load switch positions shall be completely wired for use. The load switch back panel shall be configured for NEMA Configurations designated on the signal plans. All wiring of FYA should be wired in mode G. The MMU2 should be configured in mode G also.Vehicle phases, overlaps (including FYA configurations), and pedestrian phases shall be wired such that it must work with an MMU2. The MMU2 must come with an ethernet port. The cabinet shall include both a DT panel and a CTB (SDLC) panel with 6 harnesses.

2.14 Intersections with Video Detection. For intersections with video detection, the cabinet shall be wired to automatically power on the video monitor when the cabinet door is open.

2.15 Load Switch. The front of the load switch shall be provided with (3) indicators to show the input signal from the controller to the load switch and (3) indicators to show the output to the field devices. The full complement of load switches shall be supplied with each cabinet to allow for maximum phase utilization for which the cabinet is designed.

2.16 SDLC. All connection points shall be protected by a BIU 15 pin surge suppressor used for the protection of any devices on Port 1 Synchronous Data Link Control (SDLC). Each cabinet shall be provided with a SDLC hub assembly and (6) SDLC cables unless otherwise noted on the order form. All mechanical connections shall be soldered.

2.17 Surge Protection. Surge protection shall be a modular plug in type product as listed in the MoDOT Traffic APL.

2.18 AC line filter. The AC line filter shall protect equipment from malfunctions due to conducted interference coming into the equipment from line, especially line to ground (common mode) noise and transients. Overall dimensions including mounting areas shall be approximately: 4.17inch width and 3.53inch height.

2.19 Signal Buss Relay. The relay shall be a direct "drop-in" replacement for existing mercury displacement relays. The relay shall be a single pole solid state or hybrid relay. Overall dimensions including mounting areas shall be approximately: 2.5inch depth, 2inch width, 5 inch height.

2.20 Field Wiring termination. All field wires shall be attached to the back panel terminal strips via a mechanical copper lug, which can accommodate wire sizes from 14AWG - 6AWG. Lugs shall be provided for all field outputs to maximize the cabinet design.

2.21 Flash Transfer Relays. The full complement of relays shall be supplied with each cabinet to allow for maximum phase utilization for which the cabinet is designed.

2.22 Cabinet Wiring. Paper cabinet prints as well as electronic media shall be provided with each cabinet. (4) paper copies shall be provided (22" X 34") and (1) electronic copy in pdf and dgn format. All flash program wiring configurations shall be represented on the cabinet print (Red, Amber, No Flash, FYA, Ped, FYA & Ped). Wiring configuration shall be a red-red flash, unless otherwise specified by plans or Traffic Engineer.

2.23 Generator Attachment. A generator plug shall be installed on each cabinet unless otherwise noted. The access door shall be hinged, lockable and watertight. The plug shall conform to the (NEMA L5-30 configuration). An automatic transfer switch shall be provided which will switch power to/from "line", "UPS" or "generator" when power from one of the sources has been lost or gained. The unit shall be rated for 30 amps and shall contain either a LCD display or indicator lights that validate the following: Line in, Line out, UPS in, UPS out and "from" generator. The unit shall contain a main breaker (on/off switch), a UPS bypass breaker (switch) and a Generator breaker (switch). To minimize the impact of the presence of the auto transfer switch, the dimensions shall be no greater than 12" wide X 6" deep X 4" high. The unit shall be constructed of either aluminum or stainless steel.

3.0 Signal Turn ON.

3.1 Turn on Date. Traffic engineer shall be given a minimum of two weeks' notice for signal turn on date. Signal turn on date shall not occur on any Friday, unless previously approved by traffic engineer.

3.2 Traffic Control. Contractor shall provide a minimum of two Changeable Message Signs (CMS) in advance of new signal location for mainline traffic, unless determined that all legs of intersection require advance notice. The CMS boards shall be in place a minimum of two week

prior to signal turn on date, and left in place a minimum of one week after signal turn on. Messages will be provided by traffic engineer for the CMS boards.

3.3 Time. Signal shall not be turned on during morning or evening rush hour times. This varies by location, and shall be preapproved by traffic engineer and the lead construction inspector.

4.0 Testing.

4.1 Each controller and cabinet assembly shall be tested as a complete entity under signal load in accordance with Missouri Standard Specifications Section 902 for a minimum of 30 days after installation. The traffic engineer is to determine if the 30 days has been accomplished with no functionality issues.

4.2 Each assembly shall be delivered with a signed document detailing the cabinet final tests performed.
The cabinet shall be assembled and tested by the controller manufacturer or authorized local distributor to ensure proper component integration and operation.

5.0 Warranty and Training.

5.1 If a Controller and/or Malfunction Management Unit are ordered with a cabinet assembly, the Controller and Malfunction Management Unit shall be warranted by the manufacturer against mechanical and electrical defects for a period of 2 years from date of shipment. The manufacturer's warranty shall be supplied in writing with each cabinet and controller. Second party extended warranties are not acceptable.

5.2 The cabinet assembly and all other components shall be warranted for a period of one year from date of shipment. Any defects shall be corrected by the manufacturer or supplier at no cost to the owner.

5.3 MoDOT may require training on the maintenance and operation of NEMA TS2 cabinet assemblies. Maintenance and operation personnel shall be trained on troubleshooting, maintenance and repair of cabinets and all serviceable equipment. Training shall include field level troubleshooting and bench repair. This training shall be for a minimum of sixteen hours over two days. Training shall be conducted at a time and location mutually agreeable by the contractor and the signal shop traffic supervisor or as directed by MoDOT.

6.0 Method of Measurement. Method of measurement shall conform to Sections 902 and 1092 of the Standard Specifications.

7.0 Basis of Payment. Payment included with cost of pay item 902-42.83 (Controller Assembly Housing, NEMA TS2 Controller) paid per each. Payment will be considered full compensation for all labor, equipment and material to complete the described work as shown on the plans. No additional payment will be made to provide conformance.

BB. KC District Video Detection System

1.0 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 bicycle and vehicular traffic signals.

2.0 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 (mouse or keypad;), software and license for system control via a computer or USB (if applicable), communication components, and a color monitor. 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 Kansas City District:

1. **Autoscope Vision**
2. **Autoscope Rackvision Terra**
3. **Iteris Vantage Vector**

3.0 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 coaxial and ethernet cable runs (if used) shall be continuous without a 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.

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.

3.1 Detection Zones. The detection zones shall be created by drawing the detection zones on the video image (minimum 2 zones). 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.

The video detection system shall have a method to send and receive communications from the system to a central location. It should be able to obtain a live video image and configured detection zones. The user should have the ability to change detection zones and detection settings in real time from the central location. The system shall be able to have re-addressable IP address or addresses.

3.2 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.

3.3 Vehicle Data. In addition to presence detection, the video detection system shall be capable of performing at a minimum the following calculations in real time and store all values for each camera view for any visible lane without the addition of another device:

a) Speed
b) Volume
c) Lane Occupancy
d) Vehicle Classification
e) Other available performance measures

For speed calculations thru movements are required. Turning movement measurements are desired but not required. 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. If this requirement cannot be met all values must be able to be exported thru an excel spreadsheet. Other performance measures must be clearly defined. In all cases all performances measures must be ultimately available in an easily usable, exportable format (USB, Ethernet, or built Wi-fi Computer). The contractor shall provide documentation to the Engineer to confirm the volumes are configured and operational through the video detection system.

3.4 Monitor. The monitor shall be an LCD active matrix with a minimum 7" diagonal screen color monitor, an NTSC-M system, HDMI, VGA, and BNC video in-out connections built into the housing. The unit shall be compact and lightweight, with a stand on 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.

3.5 Video Camera and Housing. The camera shall produce a high definition (HD) color video image of vehicles during daylight hours, with an optional production of black and white images during nighttime hours. The camera shall be able to detect a minimum of 500 ft in advance of the signal. Detection shall work properly during night hours without the need of additional luminaire lighting at the signal. The video shall produce a clear image for scenes. 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, as well as 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. The total weight of the enclosure, camera, lens, housing, sun shield and mounting bracket shall be less than 10 pounds.

3.6 Video Detection System Connections. The system must be able to connect through computer or mouse/video for configuring the detection zones. The equipment shall be provided with a NEMA TS2 interface as shown on the plans.

At a minimum, each lane of traffic shall be able to have its own output. A minimum of 32 detector outputs is required for the system but should be capable of expanding to 64 outputs if required based on the geometry of the intersection.

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, 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.

3.7 Warranty of Video Detection System. The video detection system including cameras shall be warranted to be free of defects in material and workmanship for a minimum of 3 years. During the warranty period, 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 the warranty period. The update of the processor unit software to be NTCIP compliant shall be included.

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

5.0 Documentation and Testing. The contractor shall provide one bound copy for the signal cabinet and one pdf version of the user's manual.

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

7.0 Training. MoDOT may require training on the maintenance and operation of the detection system. Maintenance and operation personnel shall be trained on troubleshooting, maintenance and repair of cameras and all serviceable equipment. Training shall include field level troubleshooting and bench repair. This training shall be for a minimum of sixteen hours over two days. Training shall be conducted at a time and location mutually agreeable by the contractor and the signal shop traffic supervisor or as directed by MoDOT.

7.1 Basis of Payment. Measurement and payment for work covered by this specification shall include all equipment, tools, labor, programming and materials necessary and shall be paid at the contract unit price as follows:

Item No.	Type	Description
902-99.02	Each	KC District Video Detection System

CC. Accessible Pedestrian Signals

1.0 General. Furnish weatherproof, vandal resistant Accessible Pedestrian Signals (Pushbuttons) that are secure from electrical shock to the user and conform to the following:

A. Manual on Uniform Traffic Control Devices (MUTCD) Chapter 4E.
B. PROWAG 2007 R306.

2.0 Materials. The items furnished and installed under this contract shall be new and the latest product in production for commercial trade, and shall be of the highest quality as to materials used and workmanship. Manufacturer(s) furnishing these items shall be experienced in design and construction of such items and shall furnish evidence of having supplied similar items which have been in successful operation. The bidder shall be an established supplier of the items bid.

Service information shall be furnished consisting of schematics, parts locators, parts lists and trouble-shooting guide.

3.0 System Operations Requirements.

3.1 Shall have confirmation of button activation (Push) via latching LED, sound, and vibrotactile bounce.

3.2 Shall have a standard locating tone with a nominal duration of 0.15 seconds repeated at 1 second intervals which automatically adjusts to ambient background noise.

3.3 Shall be able to program the device to broadcast a beaconing tone during the pedestrian clearance phase.

3.4 Shall broadcast a percussive tone which consists of multiple frequencies with dominant component at 880Hz or broadcast a standard voice message during the walk interval.

3.5 Shall have a Vibrating button during the walk interval.

3.6 Shall be capable of a standard locating tone, custom sound, or verbal count down during the pedestrian clearance phase.

3.7 Shall support custom voice messages, tones and sounds.

3.8 Shall support up to two (2) languages for speech messages.

3.9 Shall have all sounds adjust automatically to ambient noise levels up to a maximum volume of 100dBA.

3.10 Shall have minimum and maximum levels independently set for all audible features on each button.

3.11 Shall have all sounds emitted by the APS at an intersection synchronized.

3.11.1 Push button locate tones are exempt from this requirement.

3.12 May provide the capability that an extended button push can turn on, boost and /or mute all sounds except those on activated crosswalk.

3.13 Shall provide for emergency messages.

3.14 The tone or voice message shall be provided during the walk display as indicated on the plans or as directed by the Traffic Engineer.

3.15 The bolt pattern of the push button station shall be compatible with older push buttons.

4.0 Mechanical Requirements Push Button Station.

4.1 Shall have a housing constructed of aluminum.

4.2 Actuator shall be of the pressure-activated type with essentially no moving parts.

4.3 Shall be black in color, shaped to fit the curvature of the post to which it is attached and shall provide a rigid installation.

4.4 Actuator shall be a minimum of 2 inches in diameter, raised, contrast visually with the housing, and be made of brass or corrosion-resistant metal alloy or non-metallic material.

4.5 Tactile arrows shall be located on the pushbutton, have high visual contract, shall be aligned parallel to the direction of travel and be made of brass or corrosion-resistant metal allow or non-metallic material.

4.6 Maximum force of 3.5 pounds shall be required to activate the switch.

4.7 Shall have a solid state, piezo type switch rated at a minimum of 20 million actuations.

5.0 Environmental Requirements Push Button Station.

5.1 Shall be fully operational between -30° F to +165°F (-34° C to +74° C).

5.2 Shall not allow ice to form such to impede the operation of the button.

5.3 Shall have a weatherproof speaker.

5.4 Shall have been field tested in a traffic signal application for a period of at least one (1) Year.

6.0 Electrical Requirements Push Button Station.

6.1 Shall operate at a voltage no greater than 24 volts.

6.2 Shall require only 2 wires to connect to the traffic signal cabinet.

7.0 Pedestrian Information Sign.

7.1 Shall have a pedestrian information sign that is integral to the Pedestrian Push Button Station.

7.2 Shall be 9''x15" R10-3e.

7.3 Shall be in accordance with the latest edition of the Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD) and the Standard Highway Signs and Markings publication.

7.4 Shall be fabricated in accordance with all applicable sections of MoDOT's Standard Specifications for Construction and Standard Plans.

7.5 Shall use flat sheet SH sheeting

8.0 Interface Connection Panel.

8.1 Shall have an interface panel located in the traffic signal cabinet for connecting external APS button connecting wires to the traffic signal cabinet.

9.0 Method of Measurement.

9.1 The work performed and materials furnished in accordance with this item will be paid at the unit price bid for 902-99.02, “Accessible Pedestrian Signal”, per each. This price shall be full compensation for furnishing, assembling, and installing the Accessible Pedestrian Signal (Pushbutton) and associated sign, and for all mounting attachments, labor, tools, equipment, and incidentals necessary to complete the work.

DD. Emergency Vehicle Pre-Emption

1.0 Description. The Contractor shall furnish and install an Optical Pre-Emption and Priority Control System for emergency pre-emption as shown in the plans and as specified in the Traffic Signal Quantities.

2.0 Material and Construction Requirements. The cable shall be run continuous from the detector to the controller cabinet with no splices. The detector shall be installed as shown in the plans or by a method approved by the Engineer. The Contractor shall be responsible for the proper alignment of the detector to ensure maximum detection time for the emergency preemption equipment. It shall be the responsibility of the contractor to deliver, install and test a system in which all individual components and the system as a whole is working to its optimum to meet the design

3.0 Basis of Payment.

Measurement and payment for work covered by this specification shall include all equipment, tools, labor, programming and materials necessary and shall be paid at the contract unit price as follows:

Item No.	Type	Description
902-99.02	Each	Emergency Vehicle Pre-Emption System

EE. Drainage Maintenance During Construction

1.0 Description. The contractor’s attention is called to the drainage construction. The Contractor is required to maintain drainage during construction and to ensure that the existing drainage system continues to convey all storm water until the new structures and pipes are in place.

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.

FF. Contractor Designed, Furnished, and Installed Shoring for Excavation

1.0 Description. This Section addresses sheeting, bracing, and all operations necessary for the preparation of trenches for bedding of pipes and pipe appurtenances, conduit, and buried cable.

2.0 Materials. All materials shall be in accordance with Division 1000.

3.0 Execution. Where selecting an option for excavation, trenching, and shoring in compliance with local, state, or federal safety regulations such as "OSHA Part 1926" or successor regulations,

which require design by a registered professional engineer, submit (for information only and not for Engineer approval) the following:

A. Copies of design calculations and notes for sloping, benching, support systems, shield systems, and other protective systems prepared by or under the supervision of a professional engineer legally authorized to practice in the jurisdiction where the Project is located.

B. Documents provided with evidence of registered professional engineer's seal, signature, and date in accordance with appropriate state licensing requirements.

C. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards that could develop during excavation support and protection system operations.

D. Shore, support, and protect utilities encountered.

E. Install excavation support and protection systems to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.

F. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Engineer and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.

G. Locate excavation support and protection systems clear of permanent construction so that forming and finishing of concrete surfaces are not impeded.

H. Monitor excavation support and protection systems daily during excavation progress and for as long as excavation remains open. Promptly correct bulges, breakage, or other evidence of movement to ensure that excavation support and protection systems remain stable.

I. Promptly repair damages to adjacent facilities caused by installing excavation support and protection systems.

4.0 Quality Assurance. The contractor shall conduct a pre-installation meeting at the project site to review methods and procedures related to excavation support and protection systems including, but not limited to:

a. Existing utilities and subsurface conditions.
b. Proposed excavations.
c. Proposed equipment.
d. Monitoring of excavation support and protection system.
e. Working area location and stability.
f. Coordination with traffic control movements of general public.

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.

GG. Misc. Storm Sewer Pipe and Structures

1.0 Description. Non-standard size precast concrete curb drop inlets and pipe are specified in the project plans.

2. Material and Construction Requirements. Material and construction requirements for the indicated precast concrete curb drop inlets and pipe bid items shall conform to the material and construction specifications associated with Sec 731 and Division 1000 and MoDOT standard plans.

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 other than the direct payment identified for each bid item. This shall apply to following non-standard bid items.

Item Number	Type / Description	Unit
725-99.03	27 IN. Pipe Group B	Ln. Ft.
725-99.03	10 IN. Pipe Group C	Ln. Ft.
731-99.03	Precast Concrete Drop Inlet 7.5 Ft. by 3 Ft.	Ln. Ft.
731-99.03	Precast Concrete Drop Inlet 10 Ft. by 3 Ft.	Ln. Ft.
731-99.03	Precast Concrete Drop Inlet 10 Ft. by 5 Ft.	Ln. Ft.
731-99.03	Precast Concrete Drop Inlet 5 Ft. by 8 Ft.	Ln. Ft.
731-99.03	Precast Concrete Drop Inlet 10 Ft. by 8 Ft.	Ln. Ft.
731-99.03	Field Inlet	Ln. Ft.
731-99.03	Type S-1 Inlet	Ln. Ft.
731-99.03	Junction Box	Ln. Ft.

HH. Pipe Connection to Existing Storm Structures (Includes Any Excavation)

1.0 Description. Work shall consist of connecting drainage pipe to an existing reinforced concrete box culvert or inlet. The contractor should refer to standard drawing 703.60 for connection details.

2.0 Material and Construction Requirements. All materials and construction specifications shall conform to Sec 703 and Division 1000.

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 document.

II. Removal and Delivery of Existing Signs JSP-12-01B

1.0 Description. All City of Independence, and Commission-owned signs removed from the project shall remain the property of each respective agency and shall be disassembled and delivered as specified herein.

2.0 Disassembly and Delivery. All City of Independence and Commission-owned signs, designated for removal in the plans, and any other signs designated by the engineer, shall be removed by the contractor and delivered to the addresses below. The contractor shall call the phone number listed below 48 hours prior to delivery and make arrangements for delivery during normal business hours.

Commission's Sign Shop
3050 NE Independence Avenue
Lee's Summit, MO 64064
Phone: 816-622-0505

City of Independence, Missouri
Attn: Kyle Cain
910 N. 291 Hwy.
Independence, MO 64051
Phone: 816-325-7602

2.1 Signs shall be removed from sign supports and structures prior to delivery. Sign supports and structures shall become the property of the Contractor and removed from the project. Any oversized sign panels shall be disassembled or cut into widths of 8-feet or less with no restriction on length. Signs shall be stacked neatly at the receiving site at a location specified by the owning agency.

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

JJ. Tree Clearing Restriction

1.0 Description. The project is within the known range of the federally endangered Indiana bat and threatened northern long-eared bat. These bats are known to roost in trees with suitable habitat characteristics during summer months.

1.1 MoDOT has determined that suitable roost trees exist within the project area. Upon Request, the trees can be marked with either a spray painted "X" or a pink ribbon on their trunks. Suitable roost trees have been GPS located.

1.2 To avoid negative impacts to roosting Indiana and northern long-eared bats, removal of suitable roost trees will only be allowed between November 1 and March 31.

2.0 Basis of Payment. No direct pay shall be provided for any labor, equipment, time, or materials necessary to complete this work.

KK. Remove & Reset Ground Mounted Signs

1.0 Description. The contractor shall remove and reset all ground mount signs as noted in the plans. Existing signs fall into the following categories:

1.1 Remove & Reset - The contractor shall remove the post and reuse the existing sign on a new post at a location designated in the plans.

1.3 (R) or Remove – The contractor shall remove the sign and post.

1.4 (U.I.P.) – Use in Place.

2.0 RideKC Signing

2.1 Description. The contractor shall be informed that numerous RideKC Bus Signs are located within the limits of this project. The plans include quantities to relocate the existing signs onto new posts as shown in the plans. As part of the requirements, these signs shall be visible at all times during construction of this project.

2.2 Should any damage be inflicted on the existing RideKC Bus signs by reason of the contractor's action during the removal, transportation, or re-installation of existing signs, it will be the contractor's responsibility to replace or repair said items. The engineer shall have the final determination on whether the said signs should be replaced or repaired.

2.3 Temporary Ground Mount Signing. Temporary ground mounting of signs, including RideKC Signs will be paid for as no direct pay.

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 other than the direct payment identified for each bid item.

LL. Adjusting Meter or Valve Box

1.0 Description. Adjusting Meter or Valve Boxes shall consist of adjusting existing utility meter boxes or valve boxes shown in the plans to new finished grade elevations.

2. Material and Construction Requirements. Use methods for the adjustment of meter or valve boxes according to the requirements of the utility company involved.

3.0 Basis of Payment. Payment for Adjusting Meter or Valve Boxes shall be paid at the contract unit price as follows:

Item No.	Type	Description
604-99.02	Each	Misc. Adjusting Meter or Valve Box

MM. Property Owner Agreement – Parcel 2

1.0 Description. Access. The work being done at the intersection/approach of 24 Hwy and Grand Avenue will be completed half at a time, making it possible for vehicles to enter and exit Grand Avenue and the parking lot of Parcel 2 at all times during construction.

2.0 Description. Mailbox Access. The mailbox will be accessible at all times during Construction, even if it has to be moved temporarily or permanently.

3.0 Description. Restoration. The contractor will be required to restore the temporary easement area Back to its original condition or better.

NN. Property Owner Agreement – Parcel 8

1.0 Description. Material Storage. The easement area will not be used for material storage.

2.0 Description. Access. The contractor will make sure that the public always has access to the property during the project.

3.0 Description. Construction Debris. The contractor will ensure that no construction debris will be buried on the property.

4.0 Description. Restoration. The contractor will be required to restore the temporary easement and general utility easement areas back to its original condition or better.

OO. Property Owner Agreement – Parcel 39

1.0 Description. Fence Relocation. The contractor will be responsible for the relocation of the fence, if damaged, will replace the fence with fencing of similar quality.

2.0 Description. Light Pole Relocation. The contractor will be responsible for all costs of moving two privately owned light poles for the project. If the LED bulbs are damaged during the relocation process the contractor will replace with similar LED bulbs. The contractor will be responsible for reconnecting the poles to power and for relocation of the security camera and driveway sensor on the west pole. Contractor will also restore or replcace any streamers to the two poles.

3.0 Description. Fountain. The contractor will be required to ensure that the fountain has power and that the water line is functioning once the project is complete. This may require contractor to move the electrical line, electrical box and water line which all run to the area of the fountain.

4.0 Description. Restoration. The contractor will repair any asphalt damaged by the project.

PP. Notice to Bidders of Funding by Third Party (JSP-18-02A)

1.0 Bidders are advised that the City of Independence is required to provide substantial funds for construction of Job No. J4S3405B.

2.0 Bidders acknowledge that their bids are made with knowledge of and subject to the condition of the City of Independence providing substantial funds prior to authorization of any award of a contract for this job by the Commission.

3.0 Bidders agree that they shall be estopped, both in law and equity, to assert any right to award of a contract for this job by the Commission should the City of Independence not provide substantial funds for any reason.