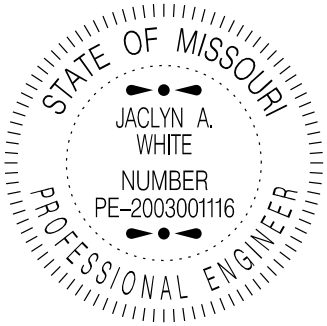
Job No.: JKU0424
Route: Various
County: Various

JOB SPECIAL PROVISIONS TABLE OF CONTENTS (ROADWAY)

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

Job No.: JKU0424
Route: Various
County: Various



01/02/2026 10:51:26 AM
JACLYN A WHITE - CIVIL
MO-PE-2003001116

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

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

JOB NUMBER: JKU0424
VARIOUS COUNTIES, MO
DATE PREPARED: 10/27/2025

ADDENDUM DATE:01/05/2025

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

Job No.: JKU0424
Route: Various
County: Various

JOB
SPECIAL PROVISION

A. General - Federal JSP-09-02L

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 day\s 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 2025 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. Project Contact for Contractor/Bidder Questions JSP-96-05

1.0 Any project specific questions shall be directed to the to the following contact:

Jaclyn White, P.E.
Project Manager
Missouri Department of Transportation
Kansas City District
600 NE Colbern Road
Lee's Summit, MO 64086
Email: Jaclyn.White@modot.mo.gov
Telephone Number 816-927-9220

2.0 Upon award and execution of the contract, the successful bidder/contractor shall forward all questions and coordinate the work with the contract administrator. The contract will be administered and inspected by the engineer/contract administrator listed below:

Steve Sandifer, P.E.
Resident Engineer
Missouri Department of Transportation
9400 E. 43rd Street
Kansas City, MO 64133
Email: Steven.Sandifer@modot.mo.gov
Telephone Number 816-927-9214

3.0 All questions concerning the bid document preparation can be directed to the Central Office – Design as listed below:

Telephone Number: (573) 751-2876
Email: BCS@modot.mo.gov

C. Scope of Work

1.0 The work will be performed along Commission maintained roadways in the following:

COUNTY	ROUTE
Jackson, Cass, Clay, and Platte, Ray	Various

2.0 Job Orders can be on any MoDOT route and can include contract work items.

3.0 The contract includes pay items to repair or replace existing ITS related infrastructure that has been damaged or is currently inoperable.

4.0 The contract includes pay items for reinstallation of ITS related infrastructure. The work may include removal of existing ITS infrastructure and replacing with new Contractor furnished, new Commission furnished, or existing displaced infrastructure. The engineer may request new Contractor provided or Commission provided ITS hardware to be installed when the existing infrastructure is damaged to such a significant extent that it is in the best interest of the Commission and the traveling public to current standard material, complete in place, rather than repair the existing system. The ITS infrastructure may require conformance to location specific plans provided by the engineer. This work may also include disposal of the existing damaged ITS infrastructure appurtenances. The determination of when an existing ITS device is significantly damaged such that it requires a new device will be made by the engineer.

5.0 The engineer reserves the right to have others perform some or all of the work at individual locations based on the needs of the Commission.

6.0 Working Hours. Work may be required during daytime or nighttime hours, dependent on traffic impacts, as determined by the engineer. Daytime repairs are often allowed but restricted to non-peak hours for traffic. No work will be allowed during the morning and afternoon rush periods (6:00 a.m. to 9:00 a.m. and 3:00 p.m. to 6:30 p.m.) within the metro area unless otherwise directed or approved by the engineer. Some job orders may be designated as higher priority than other active job orders, but this contract does not require emergency repairs.

7.0 The Commission is not bound to issue a minimum or maximum number of Job Orders during the contract term. Award of contract does not guarantee any Job Orders during the duration of the contract.

D. Job Order Contract

1.0 A Job Order Contract is an indefinite quantity contract pursuant to which the contractor shall perform the work itemized in a Job Order at individual work locations throughout the project limits. The contractor shall perform all tasks itemized in the Job Order.

2.0 The engineer may identify the required work at an individual work location in collaboration with the contractor at a Joint Scope Meeting, unless the engineer approves other arrangements. The engineer will provide the contractor with a draft Detailed Scope of Work which the contractor shall review. Once the detailed Scope of Work is agreed upon, the engineer will issue a Job Order to the contractor. At any given time the contractor may be performing more than one Job Order.

3.0 The contract includes a list of fixed cost pay items with fixed unit prices. Payment for the work will be determined by multiplying the fixed unit prices by an applicable Adjustment Factor. There will be an Adjustment Factor for Traffic Control category items and a separate Adjustment Factor for Signal and ITS Device category items. The total cost of an individual Job Order will be determined by multiplying the fixed unit price of each fixed cost pay item by the appropriate quantity and then multiplying the total cost of all pay items in the applicable category by the appropriate Adjustment Factor.

4.0 Definitions.

4.1. Detailed Scope of Work. A written document that sets forth the work the contractor is obligated to perform in connection with a particular Job Order.

4.2 Job Order. A written order from the engineer to the contractor directing the work required at an individual work location in accordance with the Detailed Scope of Work within the Job Order Completion Time.

4.3 Job Order Completion Time. The time within which the contractor must complete the Detailed Scope of Work for a particular Job Order.

4.4 Fixed Cost Pay Item. Work for which a description and fixed cost is set forth in the fixed cost pay item list.

4.5 Non-Fixed Cost Pay Item. Work for which a description and fixed cost is not set forth in the pay item list. Payment for non-fixed cost pay items will be determined in accordance with Sec 109.4.2, 109.4.3, or 109.4.4. Non-fixed cost pay items will be paid using an Adjustment Factor of 1.000.

E. Job Order Procedure

1.0 Draft Job Order. The engineer will prepare a Draft Job Order (DJO) and submit to the contractor by email. The DJO will be provided as an Excel spreadsheet and will include the basic information listed in Section 1.1. The contractor shall review the DJO and respond by email within 24 hours, as specified herein. If the contractor agrees to all terms, and accepts the Job Order as final, the contractor shall respond with concurrence and proceed with the work under those terms. If the contractor has any proposed changes, the contractor shall present those in the response. The engineer will consider any proposed changes and respond with a Final Job Order, as described in Section 2.0. If additional time is required for the engineer to review the contractor's proposed changes, or if time is needed to hold a Joint Scope Meeting prior to the work, the Notice to Proceed date will be postponed accordingly and revised by the engineer.

1.1 Joint Scope Meeting. For complex job orders, or when price agreement negotiations are necessary, or for any other reason deemed necessary by the engineer, a joint scope meeting may be required either in person at the job site, or through Microsoft Teams, to plan the work and complete all job order terms. Establishment of pricing for any non-fixed cost pay items shall be in accordance with Sec 109.4.2 or 109.4.3. If no agreement to pricing can be made, then the work will proceed with payment for non-fixed cost items under Sec 109.4.4. The contractor's attendance at the joint scope meeting is required and at no additional cost.

1.2 Draft Job Order Information. The Draft Job Order will provide the following information:

(a) Job order number
(b) MoDOT Property Damage (PD) No. (when applicable)
(c) County, route, and location
(d) Date of issuance
(e) Proposed Notice to Proceed date (as defined elsewhere in these provisions)
(f) Required completion date
(g) Designation if work is restricted to the nighttime period only
(h) Traffic control plan type
(i) Additional traffic control devices (if needed)
(j) Speed limit reduction and normal speed limit (if needed)
(k) General description of repair
(l) Estimated repair quantities

2.0 Final Job Order. Following any revisions to the DJO, as authorized by the engineer, the terms in the Job Order are considered binding. The final Job Order is a written notice from the engineer to the contractor directing the work to be performed at each work location. A job order is considered a contract document as defined in Sec 101.2. A separate job order will be issued for each work location, as defined elsewhere in these provisions.

2.1 The contractor does not have the right to refuse to perform any Job Order or any work identified in a Job Order. If the contractor refuses or fails to perform any Job Order or any work

identified in a Job Order, the contractor may be considered in default in accordance with Sec 108.

2.2 The Commission reserves the right to cancel or reject a Job Order for any reason. The Commission also reserves the right to not issue a Job Order if that is determined to be in the best interests of the Commission. The contractor shall not recover costs arising out of or related to the development of the Job Order including but not limited to the costs to attend the Joint Scope Meeting, review the Detailed Scope of Work, subcontractor costs, and the cost to review the Job Order Proposal with the Commission.

2.3 Multiple Job Orders. The engineer may issue multiple job orders with the same or overlapping completion periods.

3.0 Completed Job Orders. Following completion of the Job Order work, the contractor shall promptly enter the following information into the Excel Job Order form and return the Job Order to the engineer by email:

(a) Actual date that repairs were completed
(b) Actual repair materials used to complete the work and any traffic control changes, as authorized by the engineer
(c) Printed name of the contractor's authorized representative who is certifying that the work is complete and in compliance with the Job Order, Contract, and plans (when applicable)

3.1 The engineer will review the completed Job Order, make any necessary adjustments to update final quantities, including traffic control, and determine the final payment amount. If any additional time to complete the work is warranted due to the engineer changing priority of Job Order completion, or for any other reason, the engineer will note such time extension in the comments section. Upon acceptance of the work, as described in JSP FINAL INSPECTION AND ACCEPTANCE OF THE WORK, the engineer will serve notice of Acceptance for Maintenance by converting the final completed Job Order to PDF format, digitally signing, and sending a digital copy to the contractor by email. Payment will be made following acceptance. Should any liquidated damages be assessed for failure to complete the work on time, a separate contract adjustment will be made.

F. Term of Contract

1.0 The term of this contract shall be for the period commencing March 23, 2026 and ending June 30, 2027.

2.0 Any work already ordered or in progress when the contract term ends shall be completed in accordance with the provisions, price proposals and timelines established in the issued Job Order(s), or liquidated damages will be assessed against the contractor in accordance with the provisions of this contract.

G. Fixed Unit Price List

1.0 Description. A fixed unit price list containing unit prices associated with ITS infrastructure repair or replacement is listed below. Fixed unit prices are for complete and in-place construction and include all labor, equipment and material required to complete the construction task. All labor, material, equipment and work required by a specification shall

be considered part of the fixed unit price, unless otherwise stated elsewhere in this contract. Pay limits will be defined in the approved Job Order. Pay limits will be defined in the approved job order.

2.0 Fixed Unit Price List.

Line No.	Item Number	ITS Items	Unit	Fixed Unit Price	JSP ITEM
0010	910-88.10	Pull Box, Class 1	EA	$1500.00	SPI
	910-88.11	Pull Box, Class 2	EA	$2550.00	SPI
	910-88.16	ITS Pull Box, Class 5	EA	$3500.00	SPI
	910-99.02	Remove and Install CCTV Camera Assembly, Commission Furn.	EA	$2000.00	JSP X
	910-99.02	Remove Wireless Communication Equipment	EA	$900.00	JSP Y
	910-99.02	Install Wireless Ethernet Bridge Communication Equipment, Commisson Furn.	EA	$1600	JSP Z
	910-99.03	Remove and Install Cable in Existing Conduit	LF	$2.75	JSP AA
	910-99.03	Cable in Existing Conduit, CAT5e Outdoor Rated Cable	LF	$2.00	JSP AA
	910-99.03	Cable in Existing Conduit, CAT6 Outdoor Rated Cable	LF	$2.00	JSP AA
	910-99.03	Provide and Install 12 Count Single Mode Fiber Optic Cable	LF	$4.50	JSP BB
	910-99.02	Install Fusion Splices	EA	$25.00	JSP CC
	910-99.02	Provide and Install Splice Enclosures	EA	$1600.00	JSP CC
	910-99.02	Fiber Optic Testing and Documentation	EA	$10.00	JSP CC
	910-99.03	Pre-Terminated Fiber Panel Cable, Furnish and Install, 50’	LF	$150.00	JSP CC
	910-99.03	Pre-Terminated Fiber Panel Cable, Furnish and Install, 100’	LF	$300.00	JSP CC
	910-99.02	Pre-Terminated Fiber Panel, Furnish and Install	EA	$1000.00	JSP CC
	910-99.02	Install Fiber Termination Housing with Cassettes	EA	$600.00	JSP CC
	910-52.00	Conduit, 2-in, Rigid, In Trench	LF	$14.00	JSP DD
	910-52.01	Conduit, 3-in, Rigid, In Trench	LF	$15.00	SPI
	910-52.02	Conduit, 4-in, Rigid, In Trench	LF	$16.00	SPI
	910-99.03	Conduit, 2 in., Rigid, Pushed	LF	$25.00	JSP DD
	910-99.03	Split duct Conduit, 2 in.	LF	$40.00	JSP EE
	910-72.01	Conduit, 3-in, Rigid, Pushed	LF	$27.00	SPI
	910-72.02	Conduit, 4-in, Rigid, Pushed	LF	$29.00	SPI
	910-99.03	Install Tracer Wire	LF	$1.60	JSP FF

	910-99.02	Install Commission Furnished Signal Cabinet/Riser	EA	$5,500.00	JSP GG
	910-99.02	Install Commission Furnished Video Detection System	EA	$25,000.00	JSP HH
	902-99.02	Base, Concrete for Cabinet Shift	EA	$4500.00	JSP JJ
	910-99.02	Existing Cabinet Shift	EA	$2000.00	JSP JJ
	910-99.02	External Rigid Conduit Entry	EA	$1500.00	JSP KK
	910-99.02	Intercept of Existing Signal Conduit	EA	$1500.00	JSP LL

*SPI=Standard Pay Item/No Job Special Provision

	MISC. TRAFFIC CONTROL ITEMS			
Line No.	**Item Number**	**Description**	**Unit**	**Fixed Unit Price**
0020	6169902	MISC. WORK BEYOND SHOULDER	EA	$250.00
	6169902	MISC. SHOULDER WORK - UNDIVIDED ROADWAYS	EA	$250.00
	6169902	MISC. RIGHT SHOULDER WORK - HIGH SPEED ROADWAY	EA	$350.00
	6169902	MISC. LEFT SHOULDER WORK - HIGH SPEED ROADWAY	EA	$500.00
	6169902	MISC. 1-LANE 2-WAY OPERATION W/ FLAGGERS	EA	$800.00
	6169902	MISC. SINGLE LANE CLOSURE	EA	$900.00
	6169902	MISC. PARTIAL RAMP CLOSURE	EA	$400.00
	6169902	MISC. COMPLETE RAMP CLOSURE	EA	$600.00
	6169902	MISC. ENTRANCE RAMP AREA, MAINLINE WORK	EA	$400.00
	6169902	MISC. ENTRANCE RAMP AREA, ACCEL LANE WORK	EA	$400.00
	6169902	MISC. EXIT RAMP AREA, MAINLINE/DECEL LANE WORK	EA	$400.00
	6169902	MISC. SHOULDER WORK ON NEAR/FAR SIDE OF INTERSECTION	EA	$500.00
	6169902	MISC. LANE CLOSURE AT INTERSECTION	EA	$600.00
	6169902	MISC. ADDITIONAL TRUCK MOUNTED ATTENUATOR (TMA)	EA	$350.00
	6169902	MISC. ADDITIONAL FLASHING ARROW PANEL	EA	$100.00
	6169902	MISC. ADDITIONAL DIRECTIONAL INDICATOR BARRICADE	EA	$15.00
	6169902	MISC. ADDITIONAL CHANNELIZER (TRIMLINE/)	EA	$11.00
	6169902	MISC. ADDITIONAL CMS (CONTRACTOR FURNISHED/RETAINED)	EA	$1100.00
	6169902	MISC. SEQUENTIAL FLASHING WARNING LIGHT	EA	$50.00
	6169904	MISC. ADDITIONAL CONSTRUCTION SIGNS	SF	$4.00
	6169902	MISC. TEMPORARY TRAFFIC CONTROL SINGLE LANE SHIFT	EA	$500.00

H. Adjustment Factors

1.0 Description. Adjustment Factors include business and construction related costs as defined in this specification. It is the responsibility of the contractor to verify the unit prices provided in this contract and to modify their Adjustment Factors accordingly.

1.1 Business Costs. Business related costs consist of profit, overhead costs, subcontractor profit and overhead, taxes, finance costs, and other costs including but not limited to;

(a) insurance, bonds and indemnification

(b) project meetings, training, management and supervision
(c) project office staff and equipment
(d) employee or subcontractor wage rates that exceed prevailing wages
(e) fringe benefits, payroll taxes, worker's compensation, insurance costs and any other payment mandated by law in connection with labor that exceeds the labor rate allowances
(f) business risks such as the risk of low than expected volumes of work, smaller than anticipated Job Orders, poor subcontractor performance, and inflation or material cost fluctuations

1.2 Construction Costs. Construction related costs include but are not limited to;
(a) personnel safety equipment
(b) security requirements
(c) excess material waste
(d) daily and final clean-up
(e) costs resulting from inadequate supply of materials, fuel, electricity, or skilled labor
(f) costs resulting from productivity loss
(g) working in extreme and adverse weather conditions
(h) any other discreet items of work required to complete a Job Order

1.3 General Costs. The above lists are not exhaustive and are intended to provide general examples of cost items to be included in the contractor's Adjustment Factors as defined in the contract.

1 REVISED **2.0 ~~Lighting Repair~~ ITS Work Adjustment Factor.** The adjustment factor needed to construct any of the fixed items listed in this contract listed under Line Number 0010 of the fixed unit prices.

~~4.0~~ 3.0 Traffic Control Work Adjustment Factor. The adjustment factor for the traffic control work listed in Line Items 0020.

I. Bidding the Adjustment Factors

1 REVISED **1.0** The bidder shall complete the bid form by ~~writing in an Adjustment Factor~~ entering two Adjustment Factors, one for ITS and one for Traffic Control. The Adjustment Factors shall be specified to three decimal places. Note that these are contract pay items for contractor payment, not work items.

EXAMPLE: The Adjustment Factors shall be entered as the following example illustrates.

1	**.**	**1**	**9**	**8**

OR

0	**.**	**9**	**8**	**7**

Note: The Adjustment Factor used are for example purposes only and is not an indication of factors being bid by the contractor.

J. Contract Award

1.0 The Commission will evaluate the bids with the intent of awarding the contract to the lowest responsible bidder. The budget for the project will have a minimum budget of $0 dollars and an anticipated maximum of $300,000 dollars.

2.0 The lowest bid will be determined by multiplying the Adjustment Factor by the anticipated percent of work for each category of work. For the purposes of determining award of this contract, the estimated percentage of work for ITS Device Repair/Replacement is 80% and for Traffic Control is 20%. The extended amount for each item will then be totaled, and the total sum will be used for bid comparison purposes. The dollar quantities provided in the bid form are only for determining the winning bidder and are not intended to represent the actual value of work that will be assigned.

K. Bonds

1. 0 The amount of the Bid Bond shall be 5% of the anticipated maximum budget, $300,000, for this project.

2.0 The amount of the Performance Bond shall be 100% of the anticipated maximum budget for this project.

L. Notice to Proceed

Delete Sec 108.2 and substitute the following:

108.2 Notice to Proceed. For each Job Order, the engineer will include a notice to proceed, which will stipulate the date the contractor is expected to begin work. The notice to proceed date will normally be 7 working days after the job order is issued.

M. Contract Time for Completion of Job Order

1.0 Contract Time for Completion of Job Order. The time for the completion of the job order will be specified by calendar days. Time is an essential element of the contract, and it is therefore important that the work be pursued vigorously to completion.

2.0 Completion By Calendar Days. The contractor shall complete all work described in each job order within thirty (30) calendar days of the notice to proceed date.

3.0 Contract Time Extension for Change in the Work. If a change in the work on a job order is ordered by the engineer, the contractor will be allowed an extension of contract time when it can be established that the additional work required more time. In such cases, the actual time required, as determined by the engineer, will be allowed.

4.0 Contract Time Extension for Traffic Control Restrictions. If a traffic control time restriction ordered by the engineer changes the contractor's work schedule on a job order, the contractor will be allowed an extension of contract time when it can be established that the restriction prevented the contractor from performing the work within the contract time. In such cases, the actual restriction time, as determined by the engineer, will be allowed.

5.0 Contract Time Extension for Unsuitable Weather. The contractor will not be entitled to any extension of contract time because of unsuitable weather conditions unless authorized in writing by the engineer as an excusable, non-compensable delay under Sec 108.14.1.

N. Completing the Work

1.0 The contractor shall perform any task in the fixed unit price list for the fixed unit price multiplied by the quantity, multiplied by the Adjustment Factor. The contractor shall perform the Detailed Scope of Work for the Job Order Price as calculated in accordance with the procedure for developing Job Orders set forth herein.

2.0 When installed quantities differ from the estimated quantities in the issued Job Order, the as built quantities in the final Job Order will address the quantity variation(s) for final payment. When quantities are not specified in the Detailed Scope of Work, the Job Order Price will be deemed to be lump sum for such work.

3.0 The contractor shall employ and supply a sufficient force of workers, materials and equipment and shall progress the work with such diligence so as to ensure completion of the Detailed Scope of Work within the Job Order completion Time or within such extended time for completion as may be granted by the engineer.

O. Final Inspection and Acceptance of the Work

Delete Secs 105.10.7 through 105.10.7.2 and substitute the following:

105.10.7 Final Inspection. Upon completion of the required work for each Job Order, the contractor shall notify the engineer by phone, facsimile, or electronic mailing, and the engineer will perform an inspection. If the engineer determines all work required by the contract has been satisfactorily completed, the engineer will make the acceptance for maintenance and notify the contractor in writing of the date of acceptance for maintenance.

105.10.7.1 Work determined to be unsatisfactory by the engineer and not accepted shall be corrected to acceptable standards at the contractor's sole cost. All items that are unsatisfactory shall be corrected within the specified working days for each job order. If needed for correction of unsatisfactory work, the contractor will be given an extension of contract time in an amount equal to the number of working days remaining in the job order at the time the engineer was notified for inspection. No contract time extension will be made for notification made prior to completion of the work. Any time extension given will be considered a non-compensable delay. Upon completion of the corrections, the contractor shall notify the Engineer for a re-inspection.

105.10.7.2 Following a Job Order final inspection, the contractor, subcontractors, and suppliers are relieved of any new or additional liability to third parties for personal injury, death, or property damages which may be alleged to result from the performance of the work required by that job order, unless additional work on the right of way is required by the Engineer.

105.10.7.3 Nothing in this section shall be deemed to excuse the contractor of liability or responsibility for any personal injury, death, or property damages which may arise from acts or the failure to act prior to the final inspection of the work required by the Job Order.

P. Liquidated Damages for Failure or Delay in Startingor Completing Work on Time

1.0 Description. If the contractor, or in case of default, the surety fails to begin or complete the work required in a job order within the time specified, or within such extra time as may be allowed by the contract, the contractor shall be charged with liquidated damages in the amount of **$250 per day** for each day or partial day that the job order remains incomplete in excess of the specified time. The amount specified is agreed upon, not as a penalty, but as liquidated damages for loss to the Commission and the public. This amount will be deducted from any amount due under the contract. These damages will apply to each individual job order for which the contractor fails to complete the work on time. The contractor and surety shall be liable for all liquidated damages. Permitting the contractor to continue the work after the expiration of the specified time or any extension of time will not constitute a waiver by the Commission of any contractual rights. It shall be the responsibility of the engineer to determine the quantity of excess time.

2.0 Sec 108.8.1 through 108.8.1.3 shall not apply to this contract.

3.0 These liquidated damages will not be charged for Saturdays, Sundays, national, and state holidays established by law.

Q. Mobilization

Delete Sec 618.2 and substitute the following:

618.2 No direct payment will be made for mobilization. All costs for mobilization shall be considered included in the cost of the individual contract pay items included in the contract.

R. Work Zone Traffic Management Plan

1.0 Description. The contractor may be responsible for the work zone traffic management as mutually agreed upon by the contractor and engineer for each individual Job Order. 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:

2.0 Traffic Management Schedule.

2.1 The contractor shall notify the Engineer at least 48 hours prior to performing any work at each work site with the exception of first priority repairs. The notification shall include all information needed to identify traffic impacts such as work location, anticipated work hours, traffic control plan type, required lane or shoulder closures, anticipated duration of the work, etc. The Engineer will make appropriate notification to the public, MoDOT customer service, and MoDOT work crews of the contractor's operations. The contractor shall notify the Engineer at the actual time of closing any lane or shoulder and shall again notify the Engineer when the lane or shoulder is reopened to traffic. The contractor shall notify the Engineer as soon as practical any postponement due to weather, material, or other circumstances and shall renotify the Engineer when the work has been rescheduled.

2.2 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 work and the contractor is prepared to diligently

pursue the work until the closed lane is reopened to traffic.

3.0 Maintenance of Traffic.

3.1 Traffic flow shall be maintained through the work zone using the existing pavement in accordance with the traffic control plans. No detours or lane shifts onto shoulders will be allowed unless otherwise approved by the Engineer.

3.2 Provisions shall be made to allow the movement of emergency vehicles through the limits of the work at all times.

3.3 During non-working hours the contractor shall have all lanes of traffic open for all routes, ramps, and side roads. All channelizers and other traffic control devices shall be removed from the roadway during non-working hours unless otherwise approved by the Engineer.

4.0 Traffic Congestion and Delay. The contractor shall, upon approval of the Engineer, take proactive measures to reduce traffic congestion in the work zone. The contractor shall be responsible for maintaining the existing traffic flow through the job site during the work. If disruption of the traffic flow occurs and traffic is backed up in queues of 15 minute delays or longer, then the contractor shall review the construction operations which contributed directly to disruption of the traffic flow and make adjustments to the operations to prevent queues from occurring again.

5.0 Traffic Safety.

5.1 Where traffic queues routinely extend to within 1000 feet (300 m) of the ROAD WORK AHEAD, or similar, sign on a divided highway or to within 500 feet (150 m) 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.

5.2 When a traffic queue extends to within 1000 feet (300 m) of the ROAD WORK AHEAD, or similar, sign on a divided highway or to within 500 feet (150 m) of the ROAD WORK AHEAD, or similar, sign on an undivided highway due to non-recurring congestion, 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 (300 m) and no more than 0.5 mile (0.8 km) in advance of the end of the traffic queue on divided highways and no less than 500 feet (150 m) and no more than 0.5 mile (0.8 km) in advance of the end of the traffic queue on undivided highways.

6.0 Work Hour Restrictions.

6.1 All work shall be scheduled to avoid major sporting events, conventions, concerts, and similar special events as specified by the engineer. During the term of this contract, there are five major holiday periods: New Year's Day, Memorial Day, Labor Day, Thanksgiving, and Christmas. All lanes shall be scheduled to be open to traffic during these holiday periods, 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 designated by the engineer.

6.1.1 Independence Day. The lane restrictions specified in Section 6.1 shall also apply to Independence Day, except that the restricted periods shall be as follows:

When Independence Day falls on:	The Holiday is Observed on:	Halt Lane Closures beginning at:	Allow Lane Closures to resume at:
Sunday	Monday	Noon on Friday	6:00 a.m. on Tuesday
Monday	Monday	Noon on Friday	6:00 a.m. on Tuesday
Tuesday	Tuesday	Noon on Monday	6:00 a.m. on Wednesday
Wednesday	Wednesday	Noon on Tuesday	6:00 a.m. on Thursday
Thursday	Thursday	Noon on Wednesday	6:00 a.m. on Friday
Friday	Friday	Noon on Thursday	6:00 a.m. on Monday
Saturday	Friday	Noon on Thursday	6:00 a.m. on Monday

6.2 During non-working hours the contractor shall have all lanes of traffic open for all routes, ramps, and side roads. Working hours for holidays shall be determined by the engineer.

6.3 Due to the wide variance in traffic volumes throughout the contract area, it is not possible to give specific work hours for the term of the contract. Each Job Order will specify work hours or work hour restrictions based on the repair location, this may include peak hour restrictions. The following table provides general guidance as to the most restrictive schedule for when work on or adjacent to the roadway may be allowed.

Traffic Control Plan Type	Work Hours (Monday thru Friday)
Single Lane Closure	7:30 p.m. to 4:30 a.m.
Ramp Closure	Hours and days as approved by the engineer
One Lane Two Way Operation with Flagger	Hours and days as approved by the engineer

Specific work hours for an individual work location shall be according to the mutually agreed upon schedule in the Job Order. .

7.0 Work Within Another Work Zone. The Engineer may determine it is in the best interest of the Commission and the traveling public to have the work designated in the job order performed within another contractor's work zone or within a MoDOT work zone. If the work is designated to be performed within another work zone, the contractor shall coordinate and perform the work in accordance with Sec 105.6.

8.0 Ramp Closure. Ramp closures shall be minimized and shall be approved by the engineer a minimum of five days prior to the closure. Only one ramp closure will be permitted in a particular interchange or complex at one time. Work on acceleration / deceleration lanes will not require ramp closure unless approved by the engineer. Detour traffic handling details will be as specified by the engineer. Major ramp closures may require detour signing with other ramp closures only requiring use of changeable message signs (CMS) for detours. If the engineer determines detour signing is required, all necessary detour trailblazing placards will be furnished, installed, and covered by others. The contractor shall furnish all CMS required by the engineer. The contractor shall be responsible for uncovering and covering the trailblazing placards as work progresses.

9.0 Changeable Message Signs. The contractor shall provide changeable message signs notifying motorists of future traffic disruption and possible traffic slow down one week before traffic is shifted to a detour. The changeable message sign installation shall be placed at a location as approved or directed by the engineer.

10.0 Basis of Payment. All items necessary to complete the traffic control will be paid for at the fixed unit price multiplied by the Adjustment Factor, as mutually agreed upon in the Job Order.

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

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

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

Missouri Highway Patrol (816) 622-0800
MoDOT TMC Operating Hours 24/7/365 Dispatch: (816) 622-6500

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

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

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

T. Sample Job Orders

1.0 The following are example Job Orders intended to be illustrations that may be used as a guide for formulating the bid of the Adjustment Factor. For each example Job Order, the appropriate items that would be used and the quantities are computed based upon the sample work that would be completed in the Job Order. The contractor shall be reminded these are Job Order samples and the quantity totals in actual Job Orders, if issued, may be more or less than that depicted below or be totally different from the samples illustrated.

1.1 Job Order Sample 1: ITS device remove/install in a location on an undivided roadway that will only required shoulder closure.

Item Description	Quantity	Unit	Fixed Unit Price	Price
Misc. Shoulder Work - Undivided Roadways	1	EA	$250.00	$250.00
Traffic Control Adjustment factor			1.198	
			Subtotal:	**$299.50**
Remove and Install CCTV Camera Assembly, Commission Furn.	1	EA	$2000.00	$2000.00
ITS Adjustment Factor			1.250	
			Subtotal:	**$2,500.00**
			TOTAL:	**$2,799.50**

1.2 Job Order Sample 2: ITS device remove/install in a location requiring a "Single Lane Closure"

Item Description	Quantity	Unit	Fixed Unit Price	Price
Misc. Single Lane Closure	1	EA	$900.00	$900.00
Traffic Control Adjustment factor			1.198	
			Subtotal:	**$1,078.20**
Install Fiber Termination Housing with Cassettes	1	EA	$600.00	$600.00
ITS Adjustment Factor			1.250	
			Subtotal:	**$750.00**
			TOTAL:	**$1,828.20**

U. Utilities

1.0 It is the inherent risk of the work under this contract that the contractor may encounter utilities above and/or below the ground or in the vicinity of any given job order which may interfere with their operations. The contractor expressly acknowledges and assumes this risk even though the nature and extent is unknown to both the contractor and the Commission at the time of bidding and award of the contract. The effect in cost or time of the presence of utilities above, below or in the vicinity of the contractor's work under this contract shall not be compensable.

V. Contractor Staffing and Equipment Requirements

1.0 Description. The contractor shall have a qualified and competent staff to coordinate, communicate, and perform this specialized work. The contractor shall furnish all equipment necessary to perform the work described in this contract, except where noted.

2.0 Staffing Requirements. The contractor will submit a written list of key staff members to the engineer two (2) weeks prior to the preconstruction meeting for review. When approved, the contractor will be required to use staff as submitted. Key staff may only be substituted through a written request by the contractor and written approval by the engineer. In the event of staff turnover of key staff members, the contractor shall replace the respective staff with an individual with substantially equivalent experience and meeting the respective qualifications described below. The engineer will have final approval on the acceptability of all staff working on the project.

2.1 The contractor's staffing submittal shall include resumes of key staff that clearly provide supporting documentation in meeting the requirements described below and describe maintenance experience on specific projects. At a minimum, the resumes shall include:

a) Educational background, including any degrees and/or certifications, and the institution and year for which they were received.
b) A brief description of similar projects that the individual was involved with. The description should include: project name, agency, agency contact, contract cost, date(s) of services, and a short narrative of services provided.
c) Availability of staff described as a percentage of working hours in a typical work week.

2.2.1 Key Staff submittal shall, as a minimum, list a project manager, lead field communication technician, lead electrician, and lead field hardware technician.

2.3 Minimum Requirements of Project Manager. As required to maintain the system properly, the contractor shall provide an on-site professional project manager for administration of the maintenance and remedial maintenance or repair services of the ITS hardware. The project manager shall provide technical expertise, direction, and strategies regarding all aspects of ITS hardware maintenance, operation, and/or improvements.

The project manager shall have a minimum of five (5) years of experience managing similar work.

2.4 Minimum Requirements of Lead Field Communications Technician. The individual, or individuals, assigned to this role will provide the Commission with technical communication repair services.

The lead field communications technician shall:
a) Have experience in DWDM networks
b) Have experience in wireless communication network maintenance
c) Either show successful completion of one (1) three-day course in fiber optic splicing from a major manufacturer of fiber optic cable/equipment (such as Corning, AT&T, Lucent etc.) Or be certified as a fiber optic technician by the Fiber Optic Association, Inc. (Boston, MA)
d) Have a minimum of two (2) years of experience in the installation of digital and analog data communication systems, within the last five (5) years.

2.5 Minimum Requirements of Lead Electrician. The individual, or individuals, assigned to this role will provide the Commission with field ITS hardware electrical repair services. The lead electrician shall:
a) Be a licensed electrician in the State of Missouri.

2.6 Minimum Requirements of Lead Field Hardware Technician. The individual, or individuals, assigned to this role will provide the Commission with field ITS hardware technical repair services. The lead field hardware technician shall:
a) Have experience in the installation and maintenance of Closed Circuit Television (CCTV) camera assemblies and video switches, including:
    - Controller cabinets
    - Camera housings
b) Have a minimum of two (2) years of experience in the installation, integration, maintenance, and operations of ITS equipment, within the last five (5) years.
c) Have experience with the various vehicle detection systems.

3.0 Required Equipment. The contractor shall furnish all equipment and tools necessary to complete the work required in this contract, including equipment for field maintenance work and

communications for the project. This equipment will remain the property of the contractor throughout the project and after its conclusion. The contractor will also be responsible for all maintenance, repairs, and calibration (including firmware updates) needed to keep the equipment in proper working condition.

3.1 Communication and Coordination Equipment. At least one member of the contractor work crew shall be available by telephone at all times while working on the project. The phone numbers shall be furnished to the engineer for use in the project communications.

3.2 Maintenance Equipment. The contractor shall be required to possess, buy upon award, lease or rent any equipment or tools necessary for this project. While it is the contractor's responsibility to determine what equipment is necessary, a partial list of anticipated equipment includes:

a) Fiber optic cable fusion splicers
b) Fiber optic Optical Time Domain Reflectometer
c) Fiber optic cable power meter
d) Bucket truck
e) Backhoe
f) Cable pulling tension meter
g) Cable pulling pulleys

The contractor shall submit an equipment list to the engineer two (2) weeks prior to preconstruction meeting.

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

W. Supplemental Revisions JSP-18-01KK

- 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.

- ***Delete Sec 106.9 in its entirety and substitute the following:***

106.9 Buy America Requirements.
Buy America Requirements are waived if the total amount of Federal financial assistance applied to the project, through awards or subawards, is below $500,000.

106.9.1 Buy America Requirements for Iron or Steel Products.
The contractor's attention is directed to Title 23 CFR 635.410 *Buy America Requirements*. Where articles, materials or supplies that consist wholly or predominantly of iron or steel or a combination of both are to be permanently incorporated into the contract work, steel and iron material shall be manufactured, from the initial melting stage through the application of coatings, in the USA except for "minimal use" as described herein. Predominantly of iron or steel or a combination of both means that the cost of the iron and steel content exceeds 50 percent of the total cost of all its components. Under a general waiver from FHWA the use of pig iron and processed, pelletized, and reduced iron ore manufactured outside of the USA will be permitted in the domestic manufacturing process for steel or iron material.

106.9.1.1 Any sources other than the USA as defined will be considered foreign. The required domestic manufacturing process shall include formation of ingots and any subsequent process. Coatings shall include any surface finish that protects or adds value to the product.

106.9.1.2 "Minimal use" of foreign steel, iron or coating processes will be permitted, provided the cost of such products does not exceed 1/10 of one percent (0.1 percent) of the total contract cost or $2,500.00, whichever is greater. If foreign steel, iron, or coating processes are used, invoices to document the cost of the foreign portion, as delivered to the project, shall be provided and the engineer's written approval obtained prior to placing the material in any work.

106.9.1.3 Buy America requirements include a step certification for all fabrication processes of all steel or iron materials that are accepted per Sec 1000. The AASHTO Product Evaluation and Audit Solutions compliance program verifies that all steel and iron products fabrication processes conform to 23 CFR 635.410 Buy America Requirements and is an acceptable standard per 23 CFR 635.410(d). AASHTO Product Evaluation and Audit Solutions compliant suppliers will not be required to submit step certification documentation with the shipment for some selected steel and iron materials. The AASHTO Product Evaluation and Audit Solutions compliant supplier shall maintain the step certification documentation on file and shall provide this documentation to the engineer upon request.

106.9.1.3.1 Items designated as Category 1 will consist of steel girders, piling, and reinforcing steel installed on site. Category 1 items require supporting documentation prior to incorporation into the project showing all steps of manufacturing, including coating, as being completed in the United States and in accordance with CFR Title 23 Section 635.410 Buy America Requirements. This includes the Mill Test Report from the original producing steel mill and certifications documenting the manufacturing process for all subsequent fabrication, including coatings. The certification shall include language that certifies all steel and iron materials permanently incorporated in this project was procured and processed domestically and all manufacturing processes, including coating, as being completed in the United States and in accordance with CFR Title 23 Section 635.410.

106.9.1.3.2 Items designated as Category 2 will include all other steel or iron products not in Category 1 and permanently incorporated in the project. Category 2 items shall consist of, but not be limited to items such as fencing, guardrail, signing, lighting and signal supports. The prime contractor is required to submit a material of origin form certification prior to incorporation into the project from the fabricator for each item that the product is domestic. The Certificate of Materials Origin form (link to certificate form) from the fabricator must show all steps of manufacturing, including coating, as being completed in the United States and in accordance with CFR Title 23 Section 635.410 Buy America Requirements and be signed by a fabricator

representative. The engineer reserves the right to request additional information and documentation to verify that all Buy America requirements have been satisfied. These documents shall be submitted upon request by the engineer and retained for a period of 3 years after the last reimbursement of the material.

106.9.1.3.3 Any minor miscellaneous steel or iron items that are not included in the materials specifications shall be certified by the prime contractor as being procured domestically. Examples of these items would be bolts for sign posts, anchorage inserts, etc. The certification shall read "I certify that all steel and iron materials permanently incorporated in this project during all manufacturing processes, including coating, as being completed in the United States and in accordance with CFR Title 23 Section 635.410 Buy America Requirements procured and processed domestically in accordance with CFR Title 23 Section 635.410 Buy America Requirements. Any foreign steel used was submitted and accepted under minor usage". The certification shall be signed by an authorized representative of the prime contractor.

106.9.1.4 When permitted in the contract, alternate bids may be submitted for foreign steel and iron products. The award of the contract when alternate bids are permitted will be based on the lowest total bid of the contract based on furnishing domestic steel or iron products or 125 percent of the lowest total bid based on furnishing foreign steel or iron products. If foreign steel or iron products are awarded in the contract, domestic steel or iron products may be used; however, payment will be at the contract unit price for foreign steel or iron products.

106.9.2 Buy America Requirements for Construction Materials other than iron or steel products.

Construction materials mean articles, materials, or supplies that consist of only one of the items listed. Minor additions of articles, materials, supplies, or binding agents to a construction material do not change the categorization of the construction material. Upon request by the engineer, the contractor shall submit a domestic certification for all construction materials listed that are incorporated into the project.

(a) Non-ferrous metals
(b) Plastic and Polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables)
(c) Glass (including optic glass)
(d) Fiber optic cable (including drop cable)
(e) Optical fiber
(f) Lumber
(g) Engineered wood
(h) Drywall

106.9.3 Buy America Requirements for Manufactured Products.
Manufactured products mean articles, materials or supplies that have been processed into a specific form and shape, or combined with other articles, materials or supplies to create a product with different properties than the individual articles, materials or supplies. If an item is classified as an iron or steel product, an excluded material, or other product category as specified by law or in 2 CFR part 184, then it is not a manufactured product. However, an article, material or supply classified as a manufactured product may include components that are iron or steel products, excluded materials, or other product categories as specified by law or

in 2 CFR part 184. Mixtures of excluded materials delivered to a work site without final form for incorporation into a project are not a manufactured product.

106.9.3.1 Produced in the United States, in the case of manufactured products, means:
(A) For projects obligated on or after October 1, 2025, the product was manufactured in the United States; and
(B) For projects obligated on or after October 1, 2026, the product was manufactured in the United States and the cost of the components of the manufactured product that are mined, produced, or manufactured in the United States is greater than 55 percent of the total cost of all components of the manufactured product.

106.9.3.2 (i) With respect to precast concrete products that are classified as manufactured products, components of precast concrete products that consist wholly or predominantly of iron or steel or a combination of both shall meet the requirements of paragraph (b) of this section. The cost of such components shall be included in the applicable calculation for purposes of determining whether the precast concrete product is produced in the United States.
(ii) With respect to intelligent transportation systems and other electronic hardware systems that are installed in the highway right of way or other real property and classified as manufactured products, the cabinets or other enclosures of such systems that consist wholly or predominantly of iron or steel or a combination of both shall meet the requirements of paragraph (b) of this section. The cost of cabinets or other enclosures shall be included in the applicable calculation for purposes of determining whether systems referred to in the preceding sentence are produced in the United States.

106.9.4 Waiver for De Minimis Costs for Manufactured and Construction Materials other than iron or steel products.
"The total value of the non-compliant products is no more than the lesser of $1,000,000 or 5% of total applicable costs for the project." The contractor shall submit to the engineer any non-domestic materials and their total material cost to the engineer. The contractor and the engineer will both track these totals to assure that the minimal usage allowance is not exceeded.

- Third-Party Test Waiver for Concrete Aggregate

1.0 Description. Third party tests may be allowed for determining the durability factor for concrete pavement and concrete masonry aggregate.

2.0 Material. All aggregate for concrete shall be in accordance with Sec 1005.

2.1 MoDOT personnel shall be present at the time of sampling at the quarry. The aggregate sample shall be placed in an approved tamper-evident container (provided by the quarry) for shipment to the third-party testing facility.

2.2 AASHTO T 161 Method B Resistance of Concrete to Rapid Freezing and Thawing, shall be used to determine the aggregate durability factor. All concrete beams for testing shall be 3-inch wide by 4-inch deep by 16-inch long or 3.5-inch wide by 4.5-inch deep by 16-inch long. All beams for testing shall receive a 35-day wet cure fully immersed in saturated lime water prior to initiating the testing process.

2.3 Concrete test beams shall be made using a MoDOT approved concrete pavement mix design.

3.0 Testing Facility Requirements. All third-party test facilities shall meet the requirements outlined in this provision.

3.1 The testing facility shall be AASHTO accredited.

3.1.1 For tests ran after January 1, 2025, accreditation documentation shall be on file with the Construction and Materials Division prior to any tests being performed.

3.1.2 Construction and Materials Division may consider tests completed prior to January 1, 2025, to be acceptable if all sections of this provision are met, with the exception of 3.1.1. Accreditation documentation shall be provided with the test results for tests completed prior to January 1, 2025. No tests completed prior to September 1, 2024, will be accepted.

3.2 The testing facility shall provide their testing process, list of equipment, equipment calibration documentation, and testing certifications or qualifications of technicians performing the AASHTO T 161 Procedure B tests. The testing facility shall provide details on their freezing and thawing apparatus including the time and temperature profile of their freeze-thaw chamber. The profile shall include the temperature set points throughout the entirety of the freeze-thaw cycle. The profile shall show the cycle time at which the apparatus drains/fills with water and the cycle time at which the apparatus begins cooling the specimens.

3.3 Results, no more than five years old, from the third-party test facility shall compare within ±2.0 percent of an independent test from another AASHTO accredited test facility or with MoDOT test records, in order to be approved for use (e.g. test facility results in a durability factor of 79, MoDOT's recent durability test factor is 81; this compared within +2 percent). The independent testing facility shall be in accordance with this provision. The comparison test can be from a different sample of the same ledge combination.

3.4 When there is a dispute between the third party durability test results and MoDOT durability test results, the MoDOT durability test result shall govern.

3.5 Test results shall be submitted to MoDOT's Construction and Materials division electronically for final approval. Test results shall include raw data for all measurements of relative dynamic modulus of elasticity and percent length change for each individual concrete specimen. Raw data shall include initial measurements made at zero cycles and every subsequent measurement of concrete specimens. Raw data shall include the cycle count and date each measurement was taken. Test results shall also include properties of the concrete mixture as required by AASHTO T 161. This shall include the gradation of the coarse aggregate sample. If AASHTO T 152 is used to measure fresh air content, then the aggregate correction factor for the mix determined in accordance with AASHTO T 152 shall also be included.

4.0 Method of Measurement. There is no method of measurement for this provision. The testing requirements and number of specimens shall be in accordance with AASHTO T 161 Procedure B.

5.0 Basis of Payment. No direct payment will be made to the contractor or quarry to recover the cost of aggregate samples, sample shipments, testing equipment, labor to prepare samples or test samples, or developing the durability report.

- ***Delete paragraph 15.0 of the General Provision Disadvantaged Business Enterprise (DBE) Program Requirements and substitute the following*:**

15.0 Bidder's List Quote Summary. MoDOT is a recipient of federal funds and is required by 49 CFR 26.11 to provide data about its DBE program. All bidders who seek to work on federally assisted contracts must submit data about all DBE and non-DBEs in accordance with Sec 102.7.9. MoDOT will not compare the submitted Bidder's List Quote Summary to any other documents or submittals, pre or post award. All information will be used by MoDOT in accordance with 49 CFR 26.11 for reporting to USDOT and to aid in overall DBE goal setting.

- ***Add Sec 102.7.9 to include the following:***

102.7.9 Bidder's List Quote Summary. Each bidder shall submit with each bid a summary of all subcontractors, material suppliers, and service providers (e.g. hauling) considered on federally funded projects pursuant to 49 CFR 26.11. The bidder will provide the firm's name, the corresponding North American Industry Classification System (NAICS) code(s) the firm(s) were considered for, and whether or not they were used in the bid. The information submitted should be the most complete information available at the time of bid. The information shall be disclosed on the Bidder's List Quote Summary form provided in the bidding documents and submitted in accordance with Sec 102.10. Failure to disclose this information may result in a bid being declared irregular.

3.1 The testing facility shall be AASHTO accredited.

3.1.1 For tests ran after January 1, 2025, accreditation documentation shall be on file with the Construction and Materials Division prior to any tests being performed.

3.1.2 Construction and Materials Division may consider tests completed prior to January 1, 2025, to be acceptable if all sections of this provision are met, with the exception of 3.1.1. Accreditation documentation shall be provided with the test results for tests completed prior to January 1, 2025. No tests completed prior to September 1, 2024, will be accepted.

3.2 The testing facility shall provide their testing process, list of equipment, equipment calibration documentation, and testing certifications or qualifications of technicians performing the AASHTO T 161 Procedure B tests. The testing facility shall provide details on their freezing and thawing apparatus including the time and temperature profile of their freeze-thaw chamber. The profile shall include the temperature set points throughout the entirety of the freeze-thaw cycle. The profile shall show the cycle time at which the apparatus drains/fills with water and the cycle time at which the apparatus begins cooling the specimens.

3.3 Results, no more than five years old, from the third-party test facility shall compare within ±2.0 percent of an independent test from another AASHTO accredited test facility or with MoDOT test records, in order to be approved for use (e.g. test facility results in a durability factor of 79, MoDOT's recent durability test factor is 81; this compared within +2 percent). The

independent testing facility shall be in accordance with this provision. The comparison test can be from a different sample of the same ledge combination.

3.4 When there is a dispute between the third party durability test results and MoDOT durability test results, the MoDOT durability test result shall govern.

3.5 Test results shall be submitted to MoDOT's Construction and Materials division electronically for final approval. Test results shall include raw data for all measurements of relative dynamic modulus of elasticity and percent length change for each individual concrete specimen. Raw data shall include initial measurements made at zero cycles and every subsequent measurement of concrete specimens. Raw data shall include the cycle count and date each measurement was taken. Test results shall also include properties of the concrete mixture as required by AASHTO T 161. This shall include the gradation of the coarse aggregate sample. If AASHTO T 152 is used to measure fresh air content, then the aggregate correction factor for the mix determined in accordance with AASHTO T 152 shall also be included.

4.0 Method of Measurement. There is no method of measurement for this provision. The testing requirements and number of specimens shall be in accordance with AASHTO T 161 Procedure B.

5.0 Basis of Payment. No direct payment will be made to the contractor or quarry to recover the cost of aggregate samples, sample shipments, testing equipment, labor to prepare samples or test samples, or developing the durability report.

- ***Delete paragraph 15.0 of the General Provision Disadvantaged Business Enterprise (DBE) Program Requirements and substitute the following*:**

15.0 Bidder's List Quote Summary. MoDOT is a recipient of federal funds and is required by 49 CFR 26.11 to provide data about its DBE program. All bidders who seek to work on federally assisted contracts must submit data about all DBE and non-DBEs in accordance with Sec 102.7.9. MoDOT will not compare the submitted Bidder's List Quote Summary to any other documents or submittals, pre or post award. All information will be used by MoDOT in accordance with 49 CFR 26.11 for reporting to USDOT and to aid in overall DBE goal setting.

- ***Add Sec 102.7.9 to include the following:***

102.7.9 Bidder's List Quote Summary. Each bidder shall submit with each bid a summary of all subcontractors, material suppliers, and service providers (e.g. hauling) considered on federally funded projects pursuant to 49 CFR 26.11. The bidder will provide the firm's name, the corresponding North American Industry Classification System (NAICS) code(s) the firm(s) were considered for, and whether or not they were used in the bid. The information submitted should be the most complete information available at the time of bid. The information shall be disclosed on the Bidder's List Quote Summary form provided in the bidding documents and submitted in accordance with Sec 102.10. Failure to disclose this information may result in a bid being declared irregular.

- ***Delete Sec 102.1 - 102.2.5 and substitute the following:***

102.1 Notice of Bid Opening. After the date is fixed for the receipt of bids, the notice of bid opening will be posted on MoDOT's website and published as required by law. The notice of bid opening will contain a description of the proposed work, instructions and information to the potential bidder regarding bid forms, plans, specifications, combination bids and the reservation of the right of the Commission to reject any and all bids.

102.2 Contractor Questionnaire. Each prospective bidder, including a joint venture, shall file a contractor questionnaire on the form furnished by the Commission, which is available on MoDOT's website. The contractor questionnaire shall be furnished to the Commission as a separate document apart from any other document submitted. A bid will not be opened and read unless a fully responsive contractor questionnaire is on file with the Commission at least seven days prior to the time set for the opening of the bids. A new contractor questionnaire shall be filed as described in **Title 7 CSR 10-15.010**, except the Commission reserves the right to request a contractor questionnaire from any contractor as of any date if the Commission has shown reason to believe that the contractor's experience data may have changed from that shown on the questionnaire on file. This document shall include a record of the bidder's experience data. The Commission will use this information as an aid to determine in each instance the lowest responsible bidder and nothing contained herein shall be construed as depriving the Commission of the Commission's discretion in the matter of determining the lowest responsible bidder.

102.2.1 At any time prior to award, as a condition of award and for a period of three years after the date of final acceptance, the Commission may request true copies of the bidder's financial data, including the bidder's balance sheet, profit and loss statement and similar financial data, as of the close of the bidder's most recent fiscal year prior to submission of the bid, and for each fiscal year between the contract award and final acceptance of the contract work. Unless specified otherwise by the Commission, financial data shall be prepared by an accountant and audited financial data shall be provided if it is available to the bidder for the fiscal period requested. A bidder who has not closed the first fiscal year prior to the date of the request shall supply the last periodic balance sheet, profit and loss statement and similar data.

102.2.2 Each prospective bidder shall sign the contractor questionnaire acknowledging that such bidder will fully comply with all written requests by the Missouri Department of Labor and Industrial Relations, Division of Labor Standards, to provide information for the purpose of establishing a prevailing wage.

102.2.3 The prospective bidder doing business in the State of Missouri shall submit the charter number with the contractor questionnaire. The entity must be in good standing on file with the Corporation Division of the Missouri Secretary of State's Office to be approved and successfully awarded a bid. Each corporation that is a party to a joint venture shall submit the same required report with the corporation's joint venture contractor questionnaire.

102.2.4 All prospective bidders who are corporations organized in states other than Missouri or countries other than the USA shall furnish, at the prospective bidder's cost, a certified copy of a current certificate of authority to do business in Missouri, with said certificate to remain on file with the Commission. Such a certified copy may be secured from the corporation supervisor in the Office of the Secretary of State, Jefferson City, Missouri. The prospective bidder agrees to cause the prospective bidder's authority to do business as a foreign corporation to be continued and extended throughout the life of any contract awarded and until all claims thereon and thereunder shall have been finally settled. All prospective bidders shall have a valid certificate

of authority to transact business in Missouri at the time of bid opening as a condition of responsiveness.

- ***Delete Sec 108.13.1 and substitute the following:***

108.13.1 The acts, omissions and liabilities of persons or firms affiliated with the contractor or of persons that are principals of the contractor, are those of the contractor, unless the circumstances clearly negate that conclusion. Persons or firms are "affiliates" of each other if, directly or indirectly, either one controls or has the power to control the other or a third person controls or has the power to control both. Examples of control include, but are not limited to: interlocking management or ownership, identity of interests among family members, shared facilities and equipment, common use of employees on projects or a new business entity organized following the determination of ineligibility or non-responsibility of a person or firm which has the same or similar management, ownership or principal employees as the ineligible person. A "principal" will be defined as an officer, director, owner, partner or other natural person within a firm with primary management, supervisory or contracting responsibilities, including participating in, or formulating, bids.

X. Remove and Install CCTV Camera & Assembly, Commission Furnished

1.0 The contractor shall remove the existing camera, camera dome, pan/tilt unit, device server, and all cables and connectors from the pole. The existing camera controller assembly in the cabinet shall be disconnected from the camera communication/power cables and the cables shall be removed from the cabinet. The contractor shall only remove the camera controller from the cabinet if directed by the engineer. All items, removed by the contractor, shall remain the property of the Commission and shall be for use as maintenance spare parts, reinstalled or disposed of as directed by the engineer.

2.0 Once removal has begun, the contractor shall be responsible for the condition of all equipment. Compensation for equipment damaged shall be replaced at the contractor's expense. The contractor may request a field meeting with the engineer, or the engineer's representative, at the site to inspect the equipment prior to removal.

3.0 This work shall consist of installing a Commission- furnished closed circuit television (CCTV) camera and assembly, or salvaged camera and assembly, on a metal pole and install a Commission-furnished power supply and surge protection in a nearby cabinet. The pole and cabinet will be existing or shall be paid for separately. This work also requires the contractor to provide cables connecting the camera to the equipment in the cabinet and to ground, set up the camera assembly and test for proper operation.

4.0 Materials. Camera assembly, mounting bracket, and power supply will be provided by the Commission.

4.1 The contractor shall provide power over ethernet cable from the cameras manufacturer. The contractor shall provide stainless steel bands to affix the mounting bracket to the new or existing pole. Contractor shall provide power over ethernet surge suppressors as needed.

5.0 Construction Requirements. The dome shall be installed so that the pole does not block the camera's view of traffic.

The contractor shall terminate all the cables on surge protectors, install the Commission-furnished power supply in the cabinet, and connect the camera power circuit to the power supply.

The contractor shall configure the CCTV camera, including appropriate IP addresses, as directed by the engineer to function properly within the existing communications scheme.

6.0 Acceptance Testing.

After installing the camera assembly, the contractor shall test it using the procedures detailed by the manufacturer. If the installed camera assembly fails to operate properly, and the problem cannot be fixed by changing the wiring or setup parameters, the camera assembly will be deemed defective, and the contractor shall return it to the engineer for replacement.

7.0 Basis of Payment. Measurement and payment for this pay item includes all labor and material indicated in this provision. Payment will be made as follows:

Item No.	Type	Description
910-99.02	Each	Remove and Install CCTV Camera & Assembly, Commission Furnished

Y. Remove Wireless Communication Equipment.

1.0 This work shall consist of removing wireless communication equipment, including radio, antenna cable, antenna, and any mounting hardware dedicated to the wireless communication system. Locations shall be at MoDOT owned traffic signal and camera poles.

This item shall be paid per each (radio, antenna and cable) removed. Removal of both half ends of a wireless communication link shall considered 2 units of “Remove Wireless Communication Equipment.”

The contractor shall carefully remove and salvage the transmitter/receiver from the controller cabinet for re-use/reinstallation, remove the antenna cable and antennae, and deliver to the Stadium Signal Shop. The contractor shall give the Engineer twenty-four (24) hours notification prior to the delivery. Once removal has started, the contractor shall be responsible for any damage to the equipment including in this provision or adjacent equipment that is damaged during the removal process.

2.0 Basis of Payment. Measurement and payment for this pay item includes includes all labor and material indicated in this provision. Payment will be made as follows:

Item No.	Type	Description
910-99.02	Each	Remove Wireless Communication Equipment

Z. Install Wireless Ethernet Bridge Communication Equipment, Commission Furnished.

1.0 This work shall consist of installing Commission furnished wireless ethernet bridge communication equipment in existing ITS cabinets, including existing traffic signal cabinets.

The Commission shall furnish the wireless Ethernet bridges and power injectors, including power cables.

The contractor shall install Commission furnished wireless Ethernet bridges on structures as directed by the engineer and connect the devices to power communications and ground. The installations shall be considered complete after the contactor has successfully tested the system and notifies the engineer. The contractor shall furnish and install the following, as required:

- Outdoor rated power over ethernet cable to the pole or structure-mounted radios.
- Mounting brackets
- Stainless steel bands to affix the radio mounting bracket to the pole. The banding shall be 1-inch wide and 0.044-inch thick stainless steel.
- Power over ethernet surge protection

2.0 Any work to program the radio and find an open channel with a minimum of 10 MBPS throughput is considered incidental to this pay itme.

3.0 Basis of Payment. Measurement and payment for this pay item includes all labor and material indicated in this provision. Payment will be made as follows:

Item No.	Type	Description
910-99.02	Each	Install Wireless Ethernet Bridge Communication Equipment

AA. Remove and Install Cable in Existing Conduit

1.0 This work shall consist of removing old cables, installing new cables in an existing conduit network, and terminating the cable at the device. The contractor shall replace the existing cables with similar cables, or otherwise specified by the engineer.

2.0 Materials. All necessary cable shall be furnished and installed by the contractor. The contractor shall be responsible for providing all equipment and tools necessary to complete this item of work. The installation of a new pull rope for the purpose of installing new cables in existing conduit shall be considered incidental to the work.

3.0 Construction Methods. All cables shall be installed per current MoDOT standards and specifications. All conductors shall be terminated or capped. Old cables and material shall be removed and disposed of by the contractor. The wire or cable ends shall not be left uncovered or submerged in water. Any such condition observed shall constitute grounds for rejection of an entire length of cable and/or wire.

Tape shall be covered with a liberal coating of an electrical varnish or sealant providing flexible protection from oil, moisture, and corrosion. This electrical coating shall be approved by the engineer.

The contractor shall verify the number of conductors and the gauge of wire required in the cable runs and shall submit the cable arrangements to the engineer for approval.

An extra six (6) ft of cable length shall be provided by the contractor for all cables entering each pull box. This loop of cable shall be in addition to the amount needed to reach from the entrance conduit raceway end to the opening in the existing conduit raceway.

4.0 Basis of Payment. Measurement and payment for this pay item includes all labor and material indicated in this provision. Each electrical conductor and ground will be measured for payment. The maximum wire size will be Number 6 wire. Payment will be made as follows:

Item No.	Type	Description
910-99.03	LF	Remove and Install Electrical Cable in Conduit
910-99.03	LF	Cable in Existing Conduit, CAT5e Outdoor Rated Cable
910-99.03	LF	Cable in Existing Conduit, CAT6 Outdoor Rated Cable

BB. Provide and Install 12 Count Single Mode Fiber Optic Cable

1.0 This work shall consist of installing fiber optic cables.

2.0 Description This work shall consist of installing fiber optic cables. The fiber optic cable may be new or existing cable relocated as shown on the plans. Fiber optic cable relocation requires existing cable to be removed from an existing conduit system and installed in a new conduit system. Relocated cable must be carefully removed from the existing conduit system without being damaged.

3.0. Cable. Fiber optic cable shall be of loose tube construction. Provide certification by an independent testing laboratory that the cable meets all requirements of Rural Utilities Service Bulletin 1753F-601a Minimum Performance Specification for Fiber Optic Cables (https://www.rd.usda.gov/files/UTP_Bulletins_1753F-601a.pdf). The cable shall be gel free, all dielectric, and have 12 fibers per tube. The cable sheath shall have length markings in feet, and shall indicate that the unit of measure is feet. The cable shall have single mode fibers whose attenuation does not exceed 0.35 dB/km and 0.25 dB/km for 1310 nm and 1550 nm signals, respectively. The optical fibers used in the cable shall meet or exceed the International Telecommunication Union ITU-T G.652.D requirements.

4.0 Basis of Payment. Measurement and payment for this pay item includes all labor and material indicated in this provision. Payment will be made as follows:

Item No.	Type	Description
910-99.03	LF	Provide and Install 12 Count Single Mode Fiber Optic Cable

CC. Fiber Optic Cable, Installation, Splicing and Testing.

1.0 General.

The 12 count Pre-Terminated Fiber Panel shall use SC fiber connectors and shall be installed with either 50’ fiber length or 100’ fiber length. The 50’ fiber length shall be used at most

locations where the splice vault is close to the traffic signal cabinet. At locations where the splice vault is further away, a 100' fiber may be needed. All extra fiber shall be coiled up neatly within the splice vault and not left coiled inside the traffic signal cabinet.

The 12 count single mode Pre-Terminated Fiber Panel must be a compact, durable, and secure factory terminated patch panel that eliminates the need for onsite fiber termination at the cabinet end. The body of the 12 count factory terminated patch panel must be no larger than 13" by 1.5" by 1.5".

In locations where the fiber is directly terminated within the traffic signal cabinet, the Contractor shall provide and install a wall mounted interconnect housing (WCH) with two closet connector housing (CCH) panel cassettes.

Pictures must be taken of each splice tray before the underground splice enclosure is closed, pressure tested, and mounted on the wall of the pull box.

Pictures, power meter readings, and OTDR traces must be submitted to the engineer for all dual-end terminated fiber strands. Bi-directional tests are required for all fiber strands that are terminated at two ends, and all remaining fiber optic strands do not require testing. The first splice location must be inspected and approved by the Engineer before the contractor continues with fiber optic cable splicing. The extra fiber strands that are not terminated at the splice vault do not require testing.

Fiber optic fusion splicing shall be measured and paid by each fiber strand that is either fusion spliced within an underground splice enclosure or within the single panel termination housing that is located within the traffic signal cabinet. Fiber optic testing and documentation shall be measured and paid by each fiber strand that is tested in both directions after the splicing work has been completed.

1.1 Fiber Optic Testing and Documentation. The contractor shall complete the fiber testing documentation sheet that is included within the electronic deliverables. This worksheet shall be utilized to document all cable verification measurements. The contractor shall provide three copies of this worksheet. An electronic copy of this blank worksheet is available in the Electronic Deliverables for this project.

After all the splices and terminations have been completed, test each dual-terminated fiber with a power meter and optical time domain reflectometer (OTDR) as follows:

(1) Power Meter Tests: Install feed through connectors at all locations where an optical device is to be connected. Conduct power meter tests for each fiber to demonstrate connectivity and attenuation from origin to destination. Demonstrate that the attenuation for each fiber path including connectors, and splices as a whole, comply with the loss budgets required by these specifications and the optical equipment being installed. Submit a test result summary sheet of each fiber to the engineer for review and approval.

(2) OTDR Tests: Conduct tests using an OTDR for each fiber. Demonstrate that the attenuation for each fiber and splice, individually and as a whole, comply with the loss budgets required by these specifications. Test fibers at 1310 nm and 1550 nm using a launch cable no less than three times the pulse width used to shoot the cable. Submit OTDR traces to the engineer for review and approval. Clearly annotate each splice and identify the measured loss.

The contractor shall identify any unacceptable losses, and make corrective actions at no additional cost. Failed splices may be remade and re-tested for compliance. The contractor shall replace any cable in its entirety that is not compliant with these specifications at no additional cost.

Following completion of all testing, and approval by the engineer, the contractor shall compile and submit two organized test notebooks. These notebooks shall include a test summary that includes the OTDR traces of each fiber strand, and the power meter test results.

2.0 Underground Fiber Optic Splice Enclosures. The fiber optic splice enclosure (also referred to as simply “closures”) shall consist of an outer enclosure, an inner enclosure and splice trays, and shall conform to the following special provisions.

The fiber optic splice enclosure shall be designed for a temperature range of -40° F. to +158° F. The fiber optic splice enclosure shall be designed for splice vault/handhole applications. The splice enclosure shall 4 inch in diameter and a maximum dome length of 18 inches long. The enclosures shall be designed for cable entrance into the end of the enclosure.

All materials in the enclosures shall be non-reactive and shall not support galvanic cell action. The outer enclosure shall be compatible with the other enclosure components, the inner enclosure, splice trays, and cables.

The outer enclosure shall protect the splices from mechanical damage, shall provide strain relief for the cable, and shall be resistant to salt corrosion. The outer enclosure shall be waterproof, and re-enterable, corrosion resistant, rodent proof, and air tight. The outer enclosure shall be flash-tested at 103 kPa. (15 psi.). The inner enclosure shall be of metallic construction.

The inner enclosure shall be compatible with the outer enclosure and the splice trays and shall allow access to and removal of individual splice trays.

The splice trays shall be constructed of rigid plastic or metal.

Adequate splice trays shall be provided to splice all fibers entering the enclosure, plus 12 additional fibers.

The fiber optic splice enclosure shall be mounted in a manner that allows the cables to enter at the end of the enclosure without exceeding the minimum bending radius specification for any of the cables contained within the splice vault/handhole.

Upon completion of the splices, the splice trays shall be secured to the inner enclosure. The enclosure shall be sealed using a procedure recommended by the manufacturer that will provide a waterproof environment for the splices.

Care shall be taken at the cable entry points to ensure a tight waterproof seal is made which will not leak upon aging. It is acceptable to have multiple pigtail-fibers enter the fiber optic splice enclosure through one hole as long as all spaces between the cables are adequately sealed.

3.0 Fiber Optic Cable Assemblies. All fiber termination panels shall use SC connectors. The Contractor shall reuse existing jumpers inside the traffic signal cabinet when making repairs.

3.1 Construction Requirements.

3.1.1 Splicing. Splice all optical fibers, including spares, to provide continuous runs.

Make all splices using a fusion splicer that automatically positions the fibers using the Light Injection and Detection (LID) system or the High-resolution Direct Core Mounting (HDCM) system. Provide all equipment and consumable supplies.

Secure each spliced fiber in a protective groove. Completely re-coat bare fibers with a protective room temperature vulcanizing (RTV) coating, gel or similar substance, prior to insertion in the groove, so as to protect the fiber from scoring, dirt, or microbending.

Use a different splice tray for each buffer tube color. If an enclosure contains multiple buffer tubes of the same color, but none of the fibers in one of the tubes are spliced to fibers in other tubes of the same color, use a separate splice tray for that tube.

3.1.2 Fiber Management. Fiber in splice trays along with pigtails and buffer tubes in the interconnect center or splice closures shall be neatly looped and restrained following telecom industry standard fiber and cable management practice and enclosure manufacturer's recommendations. Shown below are examples of acceptable and unacceptable fiber and cable management. Work will not be accepted unless good fiber management practices are followed.

Acceptable

Unacceptable

4.0 Method of Measurement and Basis of Payment. Fiber optic fusion splicing shall be measured and paid by each fiber strand that is either fusion spliced within an underground splice enclosure or within the single panel termination housing that is located within the traffic signal cabinet. Fiber optic testing and documentation shall be measured and paid by each fiber strand that is tested in both directions after the splicing work has been completed.

The Pre-Terminated Fiber Panel will be measured by the length of the 12 count single mode fiber optic cable that is attached to the panel. The length of the fiber will be either 50' long or 100' long. The contractor shall provide the Pre-Terminated Fiber Panel and the length of the 12

count single mode fiber. Payment for the panel includes the work required to mount the panel to the side wall of the traffic signal cabinet.

Payment for the underground fiber splice enclosure will be made per each and will include the contractor providing and installing the splice enclosure inside the pull box.

At locations where a branch fiber optic cable is installed directly inside a traffic signal cabinet, the contractor shall install a wall mounted fiber termination housing with an internal cassette where fusion splicing can be included. Payment for the fiber termination housing and the cassette together will be made per each traffic signal where this termination has been installed. The fusion splicing work, whether it occurs in an underground splice enclosure or inside a wall mounted cassette is paid for separately per fiber strand as noted above.

Item No.	Type	Item Description
910-99.02	Install Fusion Splices	EA
910-99.02	Provide and Install Splice Enclosures	EA
910-99.02	Fiber Optic Testing and Documentation	EA
910-99.03	Pre-Terminated Fiber Panel Cable, Furnish and Install, 50’	LF
910-99.03	Pre-Terminated Fiber Panel Cable, Furnish and Install, 100’	LF
910-99.02	Pre-Terminated Fiber Panel, Furnish and Install	EA
910-99.02	Install Fiber Termination Housing with Cassettes	EA

DD. Conduit

1.0 This work shall consist of furnishing and installing conduit either as a replacement for a damaged section of conduit, as a new installation, or for re-routing the conduit run. The same size and type of conduit shall be replaced or repaired, unless otherwise directed by the engineer.

2.0 Materials. All materials shall be furnished by the contractor for this time per MoDOT specification.

3.0 Construction Methods. The conduit shall match the size and type of conduit being repaired or replaced, unless otherwise directed by the engineer. Each run of conduit shallbe of one size for its entire length from access point to access point. Access points shall be considered a pull box, junction box, and/or base of cabinet.

The contractor may elect to substitute a larger diameter conduit than the existing conduit run, if approved by the engineer. However, any additional cost shall be at the contractor’s expense and no adjustment in compensation shall be allowed.

Standard electrical conduit fittings shall be used. All nonmetallic conduit shall be capped or plugged immediately after installation and shall remain capped or plugged until installation of wire or cable.

End bells shall be installed on all nonmetallic raceway points before installation of wire and/or cable. Nonmetallic conduits shall be reamed to eliminate internal sharp edges before installation of end bells.

4.0 Basis of Payment. Measurement and payment for this pay item includes includes all labor and material indicated in this provision. Payment will be made as follows:

Item No.	Type	Description
910-99.03	LF	Conduit, 2-in, Rigid, In Trench
910-99.03	LF	Conduit, 2-in, Rigid, Pushed

EE. Split duct Conduit, 2 in.

1.0 General. Schedule 80 split-duct conduit repair systems (2 inch diameter) shall be used to repair damaged 2 inch HDPE SDR 11 fiber conduit without cutting the existing fiber optic conduit without cutting the existing fiber optic cable. Schedule 80 split-duct conduit must be used since the inner conduit diameter closely matches the existing HDPE SDR 11 conduit. Split duct conduit shall be bonded together used PVC to PVC adhesive and the ends of the split-duct conduit shall be connected to the existing conduit using using an approved PVC to HDPE adhevise.

2.0 Method of Measurement and Basis of Payment. All schedule 80 split duct conduit repair work shall be measured and paid by linear foot length that is installed in the ground after the repair is made. Payment includes all work to cut away the damaged conduit, deburr the conduit edges, and provide and install the schedule 80 split-duct conduit.

Item No.	Type	Description
910-99.03	LF	Split Duct Conduit, 2 in.

FF. Install Tracer Wire

1.0 This work shall consist of installing a blue jacketed No. 14 AWG (2.5 mm^2) stranded copper wire for locating purposes in the conduit. The tracer wire shall be pulled into the traffic signal cabinet and the tracer wire shall be terminated on a protected terminal that is isolated from the cabinet or base ground and labeled "TRACER". Tracer wire shall be continuously connected along the fiber backbone.

2.0 Construction Methods. The contractor shall install the trace wire in conduits as directedby the engineer. Separate runs of tracer wire shall be connected at each pull box, as approved by the engineer, so that the locator is able to energize the wire at one pull box and locate all conduits in that location.

3.0 Basis of Payment. Measurement and payment for this pay item includes includes all labor and material indicated in this provision. Payment will be made as follows:

Item No.	Type	Description
910-99.03	LF	Install Tracer Wire

GG. Install Commission Furnished Signal Cabinet/Riser

1.0 Signal/New Cabinet Turn ON.

1.1 Turn on Date. Traffic engineer shall be given a minimum of two weeks' notice for a new cabinet replacement. New cabinet turn on date shall not occur on any Friday, unless previously approved by traffic engineer.

1.2 Time. Cabinet shall not be replaced during morning or evening rush hour times. This varies by location and shall be preapproved by traffic engineer and the lead construction inspector.

2.0 Basis of Payment. Measurement and payment for this pay item includes includes all labor and material indicated in this provision. Payment will be made as follows:

Item No.	Type	Description
910-99.02	EA	Install Commission Furnished Signal Cabinet/Riser

HH. Install Commission Furnished Video Detection System

1.0 The contractor shall remove the existing video detection system including cameras, processors, and all cables and connectors from the signals and signal cabinet. All items, removed by the contractor, shall remain the property of the Commission or disposed of as directed by the engineer.

This work shall consist of installing a Commission furnished video detection system (6 camera maximum). This work also requires the contractor to provide cables connecting the cameras to the equipment in the cabinet and to ground, set up the camera assemblies, set up detection zones, and test for proper operation.

2.0 Materials. Camera assemblies, mounting brackets, camera processor will be provided by the Commission.

2.1 The contractor shall provide power over ethernet cable from the cameras manufacturer. The contractor shall provide stainless steel bands to affix the mounting bracket to the new or existing pole. Contractor shall provide power over ethernet surge supressors as needed.

3.0 Construction Requirements. The dome shall be installed so that the pole does not block the camera's view of traffic.

The contractor shall terminate all the cables on surge protectors, install the Commission-furnished power supply in the cabinet, and connect the camera power circuit to the power supply.

The contractor shall configure the CCTV camera, including appropriate IP addresses, as directed by the engineer to function properly within the existing communications scheme.

4.0 Acceptance Testing.

After installing the camera assembly, the contractor shall test it using the procedures detailed by the manufacturer. If the installed camera assembly fails to operate properly, and the problem cannot be fixed by changing the wiring or setup parameters, the camera assembly will be deemed defective, and the contractor shall return it to the engineer for replacement.

5.0 Basis of Payment. Measurement and payment for this pay item includes all labor and material indicated in this provision. Payment will be made as follows:

Item No.	Type	Description
910-99.02	EA	Install Commission Video Detection System

II. Troubleshooting

1.0 Minor Troubleshooting. All contractor costs for providing the expertise needed to repair or replace ITS components, including minor troubleshooting, is considered included in the fixed unit price of the replacement items. Minor troubleshooting is defined as a simple resolution, usually taking less than one hour, such as re-setting or re-booting a device, re-setting a tripped electrical breaker, clearing a short-to-ground, etc. Using reasonable judgment on the amount of time needed for troubleshooting, the engineer will determine if troubleshooting is considered minor or complex.

2.0 Complex Troubleshooting. The primary scope of this contract is not intended to include extensive troubleshooting or diagnosis of equipment failures. However, should the scope of a job order repair evolve into a more complex issue that requires time-consuming troubleshooting, as directed by the engineer, the engineer will declare the troubleshooting as complex, and the work will be considered compensable.

2.1 The engineer may issue a job order solely for the purpose of complex troubleshooting a system after the engineer establishes the scope of work with the project manager.

3.0 Basis of Payment. No payment will be made for minor troubleshooting, except that, payment will be made per section 3.1 when a job order repair results in a time-only repair, and no significant fixed unit price items are needed. Payment for complex troubleshooting will be made in accordance with section 3.1.

3.1 Payment for qualifying minor troubleshooting and complex troubleshooting will be made per an agreed hourly labor rate, including overhead and reasonable profit, for the person or persons approved to perform the troubleshooting. Should an agreement on the rate not be reached, payment will be made per Sec 109.5 Force Account. Payment for troubleshooting is a non-fixed unit price contingent item, and as such, the adjustment factor will not be applied to the cost.

JJ. Existing Cabinet Shift

1.0 General. The contractor shall install a new concrete base next to the existing base with one 4” rigid conduit entry into the shifted traffic signal cabinet at the locations shown in the plans. Large radius conduit sweeps shall be installed along with smooth conduit entries for the

4” conduit to ensure that the glass strands of the fiber optic cable are not stressed during installation. The contractor shall submit material details to the Engineer for approval prior to any installation work. All concrete anchors shall be stainless steel.

2.0 Method of Measurement. Each existing cabinet shift shall be installed per each.

3.0 Basis of Payment. All labor and materials necessary to shift the existing cabinet including the new concrete base with internal rigid conduit entry is paid per each signal cabinet location as detailed in the contract. No direct payment will be made for any incidental items necessary to complete the work unless specifically provided as a pay item in the contract.

The pay items for each required cabinet shift is:

Item No.	Type	Description
902-99.02	EA	Base, Concrete for Cabinet Shift
910-99.02	EA	Existing Cabinet Shift

KK. External Rigid Conduit Entry

1.0 General. The contractor shall install one 2” or 4” galvanized rigid steel conduit entry into the traffic signal cabinets at the locations shown in the plans. Large radius conduit sweeps shall be installed along with smooth conduit entries for the 2” or 4” conduit to ensure that the glass strands of the fiber optic cable are not stressed during installation. The contractor shall submit material details to the Engineer for approval prior to any installation work. A galvanized rigid steel half-pipe guard shall be installed around the conduit from 1” below ground to 11” above ground and that guard shall be anchored to the cabinet foundation using concrete anchors. All mounting brackets shall be galvanized steel and any concrete anchors shall be stainless steel. All connections shall have a waterproof seal.

2.0 Method of Measurement. Each external rigid conduit entry shall be installed per each.

3.0 Basis of Payment. The external rigid conduit entry system is paid per each signal cabinet location as detailed in the contract. No direct payment will be made for any incidental items, including conduit elbows, conduit couplers, and half-pipe conduit guards, necessary to complete the work unless specifically provided as a pay item in the contract.

The pay item for each cabinet where an external rigid conduit entry is required is:
2.0

Item No.	Type	Description
910-99.02	EA	External Rigid Conduit Entry

LL. Intercept of Existing Signal Conduit

1.0 This item is to intercept an existing conduit and place a pull box in line with that existing conduit. Reference plan sheet for this pay item

2.0 Conduits. The contractor shall determine final routing based on actual field conditions prior to construction at each site, including utility locator service markings, to assure no conflicts with existing utilities, including State owned underground lighting, or traffic signals. The contractor shall field review necessary routing of conduit and location of pull boxes and splice vaults prior to performance of work to determine the types and extent of incidental removal, relocation and replacement items to include conduit, pull boxes, and splice vaults.

3.0 Excavation and Backfilling. The excavated opening outside pull boxes or splice vaults shall be wide enough to allow compaction of the backfill material. Cinders, broken concrete, broken rock or other hard or undesirable material shall not be used for backfilling. The backfill material shall be placed in layers not to exceed 6 inches deep and each layer shall be thoroughly compacted before the next layer is placed. All disturbed areas shall be seeded and mulched in accordance with Sec 802 and 805. No direct pay will be made for seeding and mulching disturbed areas.

Removed concrete and soil shall become the property of the contractor and shall be disposed of off the right of way. No direct pay will be made for removal of paved surfaces or the disposition of excess material off of the right of way.

No additional pay will be made for operations in rock, unclassified, or other materials.

4.0 Basis of Payment. Payment for furnishing the labor, materials, and equipment necessary to perform the intercept of existing conduit task with the exception of the pull box itself. Pull box required will be paid as a separate pay item. No other direct payment will be made for any other incidental items necessary to complete the work unless specifically provided as a pay item in the contract.

Item No.	Type	Description
902-99.02	Each	Intercept of Existing Signal Conduit

MM. Traffic Control Plan Types

1.0 Description. The engineer will designate in the job order the type of traffic control plan (TCP) necessary to perform the work. If the engineer determines more than one type of TCP is needed to perform the work, the additional plan or plans will be specified in the job order. The various types of TCP's and the traffic control devices required for each TCP are shown on the plans. The contractor shall furnish adequate channelizing devices as shown on the plans. **The contractor's attention is directed to the fact that trim line channelizers are required for all TCP's regardless of daytime or nighttime operations. Cones will not be allowed for use on this contract.**

2.0 Plan Types.

2.1 Single Lane Closure. A single lane closure shall be performed by furnishing, installing, and removing the following set of traffic control devices:

2 each	Road Work Ahead
2 each	Right (Left) Lane Closed Ahead
2 each	Reduced Speed Limit Ahead (Symbol)
1 each	Right (Left) Lane Closed
1 each	Merge with Right (Left) Arrow
2 each	Speed Limit XX MPH
2 each	Work Zone (Plaque)
14 each	Directional Indicator Barricade
30 each	Channelizer (Trim Line)
2 each	Flashing Arrow Panel (One Truck Mount for TMA)
1 each	Truck Mounted Attenuator
1 each	Changeable Message Sign (Contractor Furnished / Retained)

2.2 Ramp Closure. The contractor shall obtain approval from the engineer a minimum of five days prior to any ramp closure. A ramp closure shall be performed by furnishing, installing, and removing the following set of traffic control devices:

2 each	Road Work Ahead
2 each	Ramp Closed Ahead
2 each	Reduced Speed Limit Ahead (Symbol)
2 each	Detour Ahead
2 each	Speed Limit XX MPH
2 each	Work Zone (Plaque)
1 each	Road Closed
2 each	Speed Limit XX (Normal Speed)
14 each	Directional Indicator Barricade
40 each	Channelizer (Trim Line)
2 each	Flashing Arrow Panel (One Truck Mount for TMA)
1 each	Truck Mounted Attenuator
2 each	Changeable Message Sign (Contractor Furnished / Retained)

2.3 Partial Ramp Closure. A partial ramp closure shall be performed by furnishing, installing, and removing the following set of traffic control devices:

1 each	Ramp Work Ahead
1 each	Ramp Narrows
1 each	Speed Limit XX MPH
2 each	Work Zone (Plaque)
14 each	Directional Indicator Barricade
40 each	Channelizer (Trim Line)
1 each	Flashing Arrow Panel (One Truck Mount for TMA)
1 each	Truck Mounted Attenuator
1 each	Changeable Message Sign (Contractor Furnished / Retained)

2.4 Entrance Ramp Area Mainline Work. Entrance Ramp Area Mainline Work shall be performed by furnishing, installing, and removing the following set of traffic control devices:

3 each	Road Work Ahead
2 each	Right (Left) Lane Closed Ahead
1 each	Right (Left) Lane Closed
1 each	Merge

1 each	Ramp Narrows
14 each	Directional Indicator Barricade
50 each	Channelizer (Trim Line)
2 each	Flashing Arrow Panel (One Truck Mount for TMA)
1 each	Truck Mounted Attenuator
1 each	Changeable Message Sign (Contractor Furnished / Retained)

2.5 Entrance Ramp Area Acceleration Lane Work. Entrance Ramp Area Acceleration Work shall be performed by furnishing, installing, and removing the following set of traffic control devices:

3 each	Road Work Ahead
2 each	Right (Left) Lane Closed Ahead
1 each	Right (Left) Lane Closed
1 each	Merge
1 each	Ramp Narrows
1 each	Yield
1 each	Yield Ahead (Symbol)
1 each	Merge Traffic (Symbol)
14 each	Directional Indicator Barricade
50 each	Channelizer (Trim Line)
2 each	Flashing Arrow Panel (One Truck Mount for TMA)
1 each	Truck Mounted Attenuator
1 each	Changeable Message Sign (Contractor Furnished / Retained)

2.6 Exit Ramp Area Deceleration/Mainline Lane Work. Exit Ramp Area Deceleration/Mainline Work shall be performed by furnishing, installing, and removing the following set of traffic control devices:

2 each	Road Work Ahead
2 each	Right (Left) Lane Closed Ahead
1 each	Right (Left) Lane Closed
1 each	Merge
1 each	Ramp Narrows
1 each	Exit
14 each	Directional Indicator Barricade
50 each	Channelizer (Trim Line)
2 each	Flashing Arrow Panel (One Truck Mount for TMA)
1 each	Truck Mounted Attenuator
1 each	Changeable Message Sign (Contractor Furnished / Retained)

2.7 One-Lane Two-Way Operation with Flaggers. A minimum of two flaggers will be required to direct traffic. Additional flaggers may be required when working at intersecting streets or ramps as directed by the engineer. No direct payment will be made for flaggers. “One-Lane Two-Way Operation with Flaggers”, shall include furnishing, installing, and removing the following set of traffic control devices as shown on the plans:

2 each	Road Work Ahead
2 each	One Lane Road Ahead
2 each	Be Prepared To Stop
2 each	Flagger (Symbol)

2.8 Misc Shoulder Work on Near/Far Side of Intersection. A shoulder closure within an intersection shall be performed by furnishing, installing, and removing the following set of traffic control devices:

1 each	Road Work Ahead
3 each	Shoulder Work Ahead
30 each	Channelizer (Trim Line)

2.9 Misc Lane Closure at Intersection. A single lane closure within an intersection shall be performed by furnishing, installing, and removing the following set of traffic control devices:

4 each	Road Work Ahead
1 each	Right (Left) Lane Closed Ahead
1 each	Right (Left) Lane Closed
50 each	Channelizer (Trim Line)
2 each	Flashing Arrow Panel (or One Flashing Arrow Panel and One Type III Barricade)

3.0 Additional Traffic Control Devices. The engineer may determine that signs and channelizers, in addition to those devices shown in the plans are necessary to safely accommodate traffic. These additional devices may be needed for merging ramp traffic, detours, or other special cases to supplement the specified lane closure devices. The contract provides a fixed cost for any additional traffic control items.

4.0 Flaggers. Flaggers may be required when working at intersecting streets or ramps as directed by the engineer. No direct payment will be made for flaggers.

5.0 Temporary Traffic Control Single Lane Shift. When a Single Lane Closure is used for work on a divided highway, and repairs are necessary in both the right and left lanes within the same log mile range and direction, payment for the Temporary Traffic Control Single Lane Shift shall be paid for at the fixed unit price.

6.0 Method of Measurement and Basis of Payment.

6.1 Measurement will be made per each set-up made within the term of the Job Order. A set-up is defined as each installation and removal of traffic control devices at a specific work site. The accepted quantity of each set-up will be paid for at the fixed unit price for:

Item 616-99.02	Single Lane Closure	Each
Item 616-99.02	Ramp Closure	Each
Item 616-99.02	Partial Ramp Closure	Each
Item 616-99.02	Entrance Ramp Area, Mainline Work	Each
Item 616-99.02	Entrance Ramp Area, Accel Lane Work	Each
Item 616-99.02	Exit Ramp Area, Mainline/Decel Lane Work	Each
Item 616-99.02	One-Lane Two-Way Operation with Flaggers	Each
Item 616-99.02	Misc. Shoulder Work on Near/Far Side of Intersection	Each
Item 616-99.02	Misc. Lane Closure at Intersection	Each
Item 616-99.02	Misc. Temporary Traffic Control Single Lane Shift	Each

multiplied by the Adjustment Factor, as mutually agreed upon in the Job Order.

6.2 Measurement of additional traffic control devices will be made per each set-up made within the term of the Job Order. Payment for the devices shall include furnishing, installing, and removing the additional devices at a specific work site. No payment will be made for additional devices used by the contractor without prior approval of the engineer. The accepted quantity of additional traffic control devices will be paid for in accordance with the fixed unit price list, multiplied by the Adjustment Factor, as mutually agreed upon in the Job Order.

NN. Site Restoration

1.0 Description. The contractor shall restore to its original condition any disturbed areas at sites including, but not limited to pull box and conduit 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 Basis of Payment. The cost to restore unpaved areas with seed & mulch, or other non-paving surfaces (aggregate, mulch, etc.), as directed by the engineer, will be incidental to the unit price of the conduit, and/or pull box. The cost to restore hard-surfaced areas, or to restore unpaved areas with sod, will be paid in accordance with Sec 104.3. Any areas disturbed beyond the limits of what is necessary to perform the work will be restored at the contractor's expense..

OO. Spare Parts (Commission-Furnished or Contractor-Furnished)

1.0 Size of Inventory.

1.1 Commission-furnished Equipment. The engineer will provide a sufficient inventory of Commission-furnished spare parts to the contractor in order to prevent delays to the preventative or remedial repairs. The contractor shall advise the engineer if spare parts are getting low or provide recommendations on size of Commission-furnished inventory. The equipment furnished by the Commission shall remain Commission-owned and shall only be used to complete the requirements of this contract. These parts shall be neatly stored, separate from the other parts, and clearly labeled as owned by the Commission. The cost of any of these parts missing or otherwise unaccounted for shall be reimbursed to the Commission at the end of this contract.

1.1.1 The Commission will procure the following equipment for use with this project:

1.1.1.1 CCTV cameras and assemblies
1.1.1.11 Video Detection Cameras
1.1.1.111 Signal Cabinet with risers
1.1.1.1111 Fiber

2.0 Salvaged Equipment. The equipment removed from the field by the contractor shall remain Commission owned equipment and shall be stored, repaired or disposed of as directed by the engineer.

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

PP. Definition of Special “99 Number” Traffic Control Pay Items

1.0 The contract contains a large number of special "99-number" pay items. The Commission's automated bidding system is limited by the number of characters allowed for each special item description. The following table defines the abbreviated item descriptions. This table also further defines the work required for each of the pay items.

ITEM NO.	ITEM DESCRIPTION
616-99.02	WORK BEYOND SHOULDER Provide traffic control for work off roadway shoulder, but within clear zone. Not to be used when vehicles are parked on shoulder.
616-99.02	SHOULDER WORK – UNDIVIDED ROADWAYS Provide traffic control for work on shoulder or vehicles parked on shoulder.
616-99.02	RIGHT SHOULDER WORK – HIGH SPEED ROADWAY Provide traffic control for work on right shoulder or vehicles parked on right shoulder of a high speed roadway as designated by the engineer.
616-99.02	LEFT SHOULDER WORK – HIGH SPEED ROADWAY Provide traffic control for work on left shoulder or vehicles parked on left shoulder of a high speed roadway as designated by the engineer.
616-99.02	1-LANE 2-WAY OPERATION W/FLAGGERS Provide traffic control for one lane, two way operation on non-divided two lane pavement, using two flaggers.
616-99.02	SINGLE LANE CLOSURE Provide traffic control closing one lane, left or right, on a divided highway.
616-99.02	PARTIAL RAMP CLOSURE Provide traffic control for partial ramp closure.
616-99.02	COMPLETE RAMP CLOSURE Provide traffic control for complete ramp closure.
616-99.02	ENTRANCE RAMP AREA, MAINLINE WORK Provide traffic control within an entrance ramp area closing one lane on a divided highway; work is along mainline.
616-99.02	ENTRANCE RAMP AREA, ACCEL LANE WORK Provide traffic control within an entrance ramp area closing one lane on a divided highway. Work is along acceleration lane.
616-99.02	EXIT RAMP AREA, MAINLINE/DECEL LANE WORK

Provide traffic control within an exit ramp area closing one lane on a divided highway. Work is along mainline or deceleration lane.

616-99.02 ADDITIONAL TRUCK MOUNTED ATTENUATOR
Provide additional truck mounted attenuator for use in addition to other

616-99.02 ADDITIONAL FLASHING ARROW PANEL
Provide additional flashing arrow panel for use in addition to other devices specified in the traffic control plan.

616-99.02 ADDITIONAL DIRECTIONAL INDICATOR BARRICADE
Provide additional directional indicator barricades (DIBS) for use in addition to other devices specified in the traffic control plan.

616-99.02 ADDITIONAL CHANNELIZER (TRIMLINE)
Provide additional channelizers for use in addition to other devices specified in the traffic control plan.

616-99.02 ADDITIONAL CHANGEABLE MESSAGE SIGN (CMS CONTRACTOR FURNISHED/RETAINED)
Provide additional changeable message sign for use in addition to other devices specified in the traffic control plan.

616-99.02 SEQUENTIAL FLASHING WARNING LIGHT
Provide sequential flashing warning light for use on a channelizing device that forms a merging taper

616-99.04 ADDITIONAL CONSTRUCTION SIGNS
Provide additional construction signs for use in addition to other devices specified in the traffic control plan.

616-99.02 MISC. SHOULDER WORK ON NEAR/FAR SIDE OF INTERSECTION
Provide traffic control on near and/or far side within an intersection; work is along mainline shoulder.

616-99.02 MISC. LANE CLOSURE AT INTERSECTION
Provide traffic control to close a lane on near and/or far side within an intersection; work is along mainline in one lane.

QQ. Delay Provisions

1.0 If the contractor is delayed in the commencement, prosecution or completion of the work by any act of the Commission, or by any cause beyond the contractor's control, then the contractor will be entitled to an extension of time. If the contractor is delayed or prevented from working on a particular date as a result of a delay, error or omission of the Commission, and the contractor incurs unavoidable labor costs as a direct result thereof because the contractor did not have enough time to cancel or divert its labor force, then the contractor will be reimbursed for such costs. For each worker so paid, the contractor will be reimbursed the amount paid the worker. Also, the contractor will be reimbursed for construction tasks required as a direct result of such delay, error or omission, such as closing off areas of work. No other costs shall be paid as a result of a delay or late cancellation.