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

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ADDITIONAL INFORMATION

Graphic Representation of Personal Protective Equipment

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| --- | --- |
| “THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT.” | **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: J1P1234  COUNTY: Cole  DATE PREPARED: 01-04-2013 |
| ADDENDUM: |
| Only the following items of the Job Special Provisions are authenticated by this seal: ALL | |

JOBSPECIAL PROVISIONS

A. GENERAL - FEDERAL JSP-09-02A

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

**1.1**  This contract requires payment of the prevailing hourly rate of wages for each craft or type of work required to execute the contract as determined by the Missouri Department of Labor and Industrial Relations, and requires adherence to a schedule of minimum wages as determined by the United States Department of Labor. For work performed anywhere on this project, the contractor and the contractor’s subcontractors shall pay the higher of these two applicable wage rates. State Wage Rates, Information on the Required Federal Aid Provisions, and the current Federal Wage Rates are available on the Missouri Department of Transportation web page at [www.modot.org](http://www3.modot.mo.gov/jobspec2.nsf/40d8d12ad121cf2f862567bb004c65ce/7e062915b7ed8ee18625762e004adda0/$FILE/www.modot.org) under "Bidding". Effective Wage Rates will be posted 10 days prior to the applicable bid opening. These supplemental bidding documents have important legal consequences. It shall be conclusively presumed that they are in the bidder's possession, and they have been reviewed and used by the bidder in the preparation of any bid submitted on this project.

**1.2** The following documents are available on the Missouri Department of Transportation web page at [www.modot.org](http://www3.modot.mo.gov/jobspec2.nsf/40d8d12ad121cf2f862567bb004c65ce/7e062915b7ed8ee18625762e004adda0/$FILE/www.modot.org) under "Business"; “Standards and Specifications”. The effective version shall be determined by the letting date of the project.

General Provisions & Supplemental Specifications

Supplemental Plans to October 2009 Missouri Std. Plans

For Highway Construction

These supplemental bidding documents contain all current revisions to the bound printed 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 BIDDER / CONTRACTOR QUESTIONS**1.0** Any questions relating to the bidding process or concerning the bid document preparation shall be directed to the Central Office Design Division to:

Mr. Jason Vanderfeltz

Bidding and Contract Services Engineer

MoDOT – Central Office

Telephone Number: (573) 526-2923

Email: [Jason.Vanderfeltz@modot.mo.gov](mailto:Jason.Vanderfeltz@modot.mo.gov)

*\*\*\*INSERT DISTRICT CONTACT INFORMATION HERE\*\*\**

**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:

*\*\*\*INSERT DISTRICT CONTACT INFORMATION HERE\*\*\**

C. SCOPE OF WORK

**1.0 Guardrail.** The scope of work for this project is to provide guardrail and crashworthy end terminal repair and/or replacement on an as needed basis in response to vehicle damage and similar sudden occurrence, such as physical damage by the elements, but not solely as a result of wear and tear or changes in standards not in connection with a sudden occurrence. The contractor will be notified of the need for work by written notice on a location by location basis.

**1.1** **Guard Cable.** The scope of work for this project is to provide one-strand access restraint cable, three-strand low tension guard cable, and three-strand high tension guard cable repair and replacement on an as needed basis in response to vehicle damage and similar sudden occurrence, such as physical damage by the elements, but not solely as a result of wear and tear or changes in standards not in connection with a sudden occurrence. The contractor will be notified of the need for work by written notice on a location by location basis.

**2.0** The work will be performed along Commission maintained roadways in *\*\*\*insert list of Counties and Routes\*\*\*.* Location details are shown in Section OO of these Job Special Provisions.

**3.0 Guardrail.** The contract includes pay items to repair various guardrail systems and crashworthy end terminals by removal and replacement of major components and assemblies that have been damaged.

**3.1 Guard Cable.** The contract includes pay items to repair access restraint cable, three-strand low tension guard cable, and three-strand high tension guard cable systems by removal and replacement of major components and assemblies that have been damaged.

**4.0** The contract includes pay items for removal of existing guardrail systems and end terminals and installation of new guardrail, crashworthy end terminals, and related appurtenances complete in place. The engineer may order a new guardrail system, crashworthy end terminal, or related appurtenance to be installed when the existing system and/or terminal is damaged to such a significant extent that it is in the best interest of the Commission and the traveling public to install new current standard material, complete in place, rather than repair the existing system. New guardrail systems and/or terminals may be used to replace an entire existing system and/or terminal, which is partially or wholly damaged, or selected portions of such damaged system and/or terminal. Installation of new guardrail systems and/or terminals may require conformance to location specific plans provided by the engineer. The work may involve adjusting the location of new guardrail systems and/or crashworthy terminals to properly shield the roadside obstacle for which the existing damaged system and/or terminal was originally installed. The determination of when an existing guardrail system and/or crashworthy end terminal is significantly damaged such that it requires installation of a new system and/or terminal, rather than repair, or when an existing system and/or terminal requires adjusting the location will be made by the engineer.**5.0** The engineer reserves the rights to have others perform some or all of the work at individual locations based on the needs of the Commission.**6.0** Work may be required during daytime, nighttime, and/or weekend hours. Some work may be on a high priority basis with response required within the time specified in the job order.

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. The contractor shall bid three separate Adjustment Factors to be applied to the fixed unit prices as applicable for work performed during normal working hours, nighttime hours or weekend hours as defined elsewhere in this contract. The total cost of an individual Job Order will be determined by multiplying the fixed unit prices of each fixed cost pay item by the appropriate quantity and then multiplying the total cost of all pay items 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. PROCEDURES FOR DEVELOPING A JOB ORDER

**1.0 Initiation of a Job Order.** The engineer will notify the contractor of a potential Job Order by issuing a Notice of Joint Scope Meeting.The notification will be issued by electronic mailing or facsimile machine at the discretion of the engineer to the contractor, unless the engineer approves other arrangements. The contractor shall confirm receipt of all job orders by the same means as issued. Notification for high priority repair work will be initiated by telephone with the job order being issued by facsimile machine.

**1.1** The contractor shall attend the Joint Scope Meeting and be prepared to discuss, at a minimum:

1. The general scope of the work;
2. Existing conditions, presence of waterways, wetlands, or other natural resources,
3. Presence of hazardous materials
4. Methods and alternative for accomplishing the work;
5. Access to the site;
6. Staging area availability/location;
7. Requirements for catalog cuts, technical data, samples and shop drawings;
8. Requirements for professional services, including sketches, drawings, and specifications;
9. Hours of operation;
10. Anticipated working days and schedule;
11. Liquidated damages;
12. Specific quality requirements for equipment and material;
13. List of anticipated Subcontractors and Material Suppliers.

**1.2** Upon completion of the joint scoping process, the engineer will prepare a draft detailed Scope of Work referencing any sketches, drawings, photographs, and specifications required to document accurately the work to be accomplished. The contractor shall review the detailed Scope of Work and request any desired changes or modifications thereto. When an acceptable detailed Scope of Work has been completed, the engineer will issue a Draft Job Order.

**1.3** 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 to perform any Job Order or any work identified in a Job Order, the contractor may be considered to be in default in accordance with Sec 108.

**2.0 Preparation Of The Job Order.** The engineer will prepare a Draft Job Order and submit the order to the contractor for final review. The contractor and the engineer will jointly review the Draft Job Order and finalize the order. 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.

**2.1** When the engineer and contractor have agreed to the scope of work and Fixed Cost and Non-Fixed Cost tasks to be performed, the engineer will finalize the official Job Order and submit a signed Job Order for the contractor to review and sign. The affixed signatures by the engineer and the contractor shall bind the Job Order. If the contractor is not clear or in disagreement with the terms of the Job Order he shall NOT sign the Job Order, but shall work with the engineer to clear up any discrepancies in the work to be done. If the contractor fails to execute the Job Order, the contractor may be considered to be in default in accordance with Sec 108.

**3.0** The Commission reserves the right to cancel or reject a Job Order for any reason. The Commission also reserves the right not to 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.

**4.0 Job Order Issuance.** The Job Order will be signed by the engineer and delivered to the contractor. The Job Order will reference the Detailed Scope of Work and set forth the amount to be paid and the time to complete the work.

**5.0 Notice to Proceed.** Each Job Order 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 within 3 calendar days after the job order is issued. For Job Orders that require a high priority response, contractors shall respond to the work location and begin the high priority repair work within 24 hours of execution of the Job Order.

**6.0 Job Orders.** A job order is a written notice from the engineer to the contractor directing the work to be performed at each work location. A separate job order will be issued for each work location. A job order is considered a contract document as defined in Sec 101.2.

**6.1 Job Order Information.** The job order will provide the following information:

(a) Job order number and MoDOT Property Damage (PD) number(b) County, route, and location(c) Date and time of issuance(d) Notice to proceed date and time(e) Required completion date(f) Designation of high priority repair (if needed)(g) Designation of nighttime work (if needed)(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(m) Name and signature of the engineer

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

**6.3 Completed Job Orders.** The contractor shall provide the following information on the contractor's copy of the completed job order:

1. Actual date and time that repairs are completed
2. Actual repair materials used to complete the work
3. Signature of the contractor's authorized representative certifying that the work is complete
4. Missouri One Call (800 Dig Rite) "all clear" reference number indicating the contractor's notification of the Missouri One Call utility locate system
5. MoDOT Signal & Lighting Locates "all clear" reference number indicating the contractor's notification of MoDOT’s utility locate system

**6.4** One copy of all completed job orders shall be returned to the engineer with the contractor's monthly request for payment unless otherwise directed by the engineer.

F. TERM OF CONTRACT**1.0** The term of this contract shall be for the period commencing *\*\*\*Insert Date\*\*\** and ending *\*\*\*Insert Date\*\*\*.*

**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.

**3.0** The contract may be extended under the original terms and contract prices for the period commencing *\*\*\*Insert Date\*\*\** and shall end *\*\*\*Insert Date\*\*\** for a maximum contract term of two (2) years. If, in the sole discretion of the Commission, the Commission desires to extend the contract, the contractor will be given written notification of the extension no later than December 1 of the current contract year. The contractor shall provide written notification of acceptance or rejection of the extension of this contract no later than January 1 of the current contract year. If the option for extending the contract is exercised by MoDOT, a time adjustment change order will be issued by the Commission to extend the contract to the new term limits. The contractor shall increase the performance contract bond to an amount equal to the original contract amount plus the extended contract amount (i.e., double the original bond amount).

G. FIXED UNIT PRICE LIST

**1.0** **Description.** A fixed unit price list containing unit prices associated with guardrail repair 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.

**2.0 Fixed Unit Price List for Guardrail Repair Job Orders.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Item Number** | **Description** | **Unit** | **Fixed Unit Price** |
| 6169902 | MISC. WORK BEYOND SHOULDER | EA | $113.00 |
| 6169902 | MISC. SHOULDER WORK - UNDIVIDED ROADWAYS | EA | $188.00 |
| 6169902 | MISC. RIGHT SHOULDER WORK - HIGH SPEED ROADWAY | EA | $263.00 |
| 6169902 | MISC. LEFT SHOULDER WORK - HIGH SPEED ROADWAY | EA | $360.00 |
| 6169902 | MISC. 1-LANE 2-WAY OPERATION W/ FLAGGERS | EA | $625.00 |
| 6169902 | MISC. SINGLE LANE CLOSURE | EA | $650.00 |
| 6169902 | MISC. PARTIAL RAMP CLOSURE | EA | $300.00 |
| 6169902 | MISC. COMPLETE RAMP CLOSURE | EA | $550.00 |
| 6169902 | MISC. ENTRANCE RAMP AREA, MAINLINE WORK | EA | $300.00 |
| 6169902 | MISC. ENTRANCE RAMP AREA, ACCEL LANE WORK | EA | $275.00 |
| 6169902 | MISC. EXIT RAMP AREA, MAINLINE/DECEL LANE WORK | EA | $275.00 |
| 6169902 | MISC. ADDITIONAL TRUCK MOUNTED ATTENUATOR | EA | $225.00 |
| 6169902 | MISC. ADDITIONAL FLASHING ARROW PANEL | EA | $90.00 |
| 6169902 | MISC. ADDITIONAL DIRECTIONAL INDICATOR BARRICADE | EA | $6.00 |
| 6169902 | MISC. ADDITIONAL CHANNELIZER (TRIMLINE/DRUM) | EA | $4.00 |
| 6169902 | MISC. ADDITIONAL CHANGEABLE MESSAGE SIGN | EA | $400.00 |
| 6169902 | MISC. ADDITIONAL ADVANCED WARNING RAIL SYSTEM | EA | $10.00 |
| 6169902 | MISC. ADDITIONAL FLAG ASSEMBLY | EA | $4.00 |
| 6169902 | MISC. SEQUENTIAL FLASHING WARNING LIGHT | EA | $50.00 |
| 6169904 | MISC. ADDITIONAL TRAFFIC CONTROL SIGNS | SQFT | $2.00 |
| 6189902 | MISC. HIGH PRIORITY REPAIR | EA | $2,200.00 |
| 2029902 | MISC. TYPE A OR B TERMINAL REMOVAL | EA | $575.00 |
| 2029903 | MISC. REMOVE GUARDRAIL | LF | $6.00 |
| 6060110 | BULLNOSE GUARDRAIL SYSTEM | EA | $4,826.00 |
| 6061010 | GUARDRAIL TYPE A | LF | $16.00 |
| 6061011A | GUARDRAIL TYPE A, 7 FT. POST, 3 FT. - 1.5 IN. SPACING | LF | $26.00 |
| 6061050 | GUARDRAIL TYPE E, 6 FT. POST, 3 FT. - 1.5 IN. SPACING | LF | $29.00 |
| 6061051 | GUARDRAIL TYPE E, 7 FT. POST | LF | $32.00 |
| 6061054 | GUARDRAIL TYPE E, 6 FT. POST, 6 FT. - 3 IN. SPACING | LF | $23.00 |
| 6062200A | BRIDGE ANCHOR SECTION, 6.5 FT. POSTS (SAFETY BARRIER CURB)(ROADWAY AND REHABILITATION WORK ONLY) | EA | $1,433.00 |
| 6062202A | BRIDGE ANCHOR SECTION, 7.5 FT. POSTS (SAFETY BARRIER CURB)(ROADWAY AND REHABILITATION WORK ONLY) | EA | $1,483.00 |
| 6062300A | TRANSITION SECTION, 6.5 FT. POSTS | EA | $293.00 |
| 6062301A | TRANSITION SECTION, 7.5 FT. POSTS | EA | $302.00 |
| 6062303 | ASYMETRICAL TRANSITION SECTION, 6.5 FT. POSTS | EA | $325.00 |
| 6062304 | ASYMETRICAL TRANSITION SECTION, 7.5 FT. POSTS | EA | $350.00 |
| 6062400 | BRIDGE ANCHOR SECTION (THRIE BEAM) | EA | $1,494.00 |
| 6063000 | TERMINAL SECTION – GUARDRAIL | EA | $774.00 |
| 6063015 | TYPE A CRASHWORTHY END TERMINAL | EA | $1,674.00 |
| 6063016 | TYPE B CRASHWORTHY END TERMINAL | EA | $3,800.00 |
| 6066610 | END ANCHOR | EA | $708.00 |
| 6066620 | GUARDRAIL ANCHOR, EMBEDDED | EA | $1,090.00 |
| 6066630 | GUARDRAIL ANCHOR, ROCK FACE | EA | $697.00 |
| 6069902 | MISC. INSTALL POST IN SOLID ROCK OR CONC, 6’ OR 7’ (TYPE A OR E) | EA | $62.00 |
| 6069902 | MISC. FLARED TYPE A CRASHWORTHY END TERMINAL | EA | $1,655.00 |
| 6069902 | MISC. R&R 12.5’ BEAM, CONC/CONVEX RADIUS, TY A | EA | $146.00 |
| 6069902 | MISC. R&R 12.5’ W-BEAM PANEL (TYPE A GR) | EA | $107.00 |
| 6069902 | MISC. R&R 12.5' BEAM 10 GA. (TYPE E GR) | EA | $150.00 |
| 6069902 | MISC. R&R 25' THRIE BEAM PANEL (TYPE E GR) | EA | $265.00 |
| 6069902 | MISC. R&R 25' W-BEAM PANEL (TYPE A GR) | EA | $154.00 |
| 6069902 | MISC. R&R 6.25' TYPE A TO TYPE E TRANSITION BEAM | EA | $113.00 |
| 6069902 | MISC. R&R WOOD BLOCK 8X6X17 TRANSITION SECTION | EA | $18.00 |
| 6069902 | MISC. REALIGN & USE EXIST POST TYPE A OR E GR | EA | $17.00 |
| 6069902 | MISC. R&R 12.5' END ANCHOR PANEL | EA | $101.00 |
| 6069902 | MISC. R&R 12.5' THRIE BEAM RAIL TY E GR | EA | $152.00 |
| 6069902 | MISC. R&R END ANCHOR RAIL | EA | $102.00 |
| 6069902 | MISC. R&R END SEC (SHOE) TY A GR | EA | $45.00 |
| 6069902 | MISC. R&R PARTS FOR END SECTION | EA | $61.00 |
| 6069902 | MISC. R&R PARTS FOR TYPE C END TERMINAL | EA | $749.00 |
| 6069902 | MISC. R&R GR DELINEATOR 1 SIDE | EA | $7.00 |
| 6069902 | MISC. R&R GR DELINEATOR 2 SIDE | EA | $8.00 |
| 6069902 | MISC. R&R STEEL POST 6', TY A GR | EA | $61.00 |
| 6069902 | MISC. R&R STEEL POST 6', TY E GR | EA | $61.00 |
| 6069902 | MISC. R&R STEEL POST 7', TY A GR | EA | $66.00 |
| 6069902 | MISC. R&R STEEL POST 7', TY E GR | EA | $68.00 |
| 6069902 | MISC. R&R WOOD POST 6', TY A GR | EA | $62.00 |
| 6069902 | MISC. R&R WOOD POST 7', TY A GR | EA | $66.00 |
| 6069902 | MISC. R&R STEEL TUBE BLOCK 7X4 BR ANCH | EA | $52.00 |
| 6069902 | MISC. R&R STEEL SPACER BLOCK (TYPE A GR) | EA | $18.00 |
| 6069902 | MISC. R&R STEEL BLOCKOUT FOR RADIUS RAIL | EA | $18.00 |
| 6069902 | MISC. R&R TERMINAL CONNECTOR, TY A GR | EA | $100.00 |
| 6069902 | MISC. R&R TERMINAL CONNECTOR, TY E GR | EA | $109.00 |
| 6069902 | MISC. R&R WOOD/PLASTIC BLOCK 8X6X14 TY A GR | EA | $17.00 |
| 6069902 | MISC. R&R WOOD/PLASTIC BLOCK 8X6X21 TY E GR | EA | $20.00 |
| 6069902 | MISC. INSTALL TERMINAL END MARKER | EA | $31.00 |
| 6069902 | MISC. R&R 14 IN W BLOCK (ET2000,SRT350,CAT #2-6) | EA | $17.00 |
| 6069902 | MISC. R&R 25' DBR PUNCHED FOR EXTRUDER (ET2000) | EA | $228.00 |
| 6069902 | MISC. R&R 25' DEEPBEAM RAIL (ET2000, BEST) | EA | $211.00 |
| 6069902 | MISC. R&R 45 IN WP IN FOUND TUBE (ET2000,SRT350) | EA | $87.00 |
| 6069902 | MISC. R&R 54 IN FND TUBE W/ SOIL PLATE (ET2000,CAT) | EA | $147.00 |
| 6069902 | MISC. R&R 72 IN WP IN GROUND (ET2000, SRT350) | EA | $65.00 |
| 6069902 | MISC. R&R 78 IN FND TUBE W/O PLATE (ET2000) | EA | $153.00 |
| 6069902 | MISC. R&R CABLE ASSY W/ PIPE, PLATE & ANCH (ET2000) | EA | $158.00 |
| 6069902 | MISC. R&R HBA POST #1 BOTTOM (ET2000) | EA | $113.00 |
| 6069902 | MISC. R&R HBA POST #1 TOP (ET2000) | EA | $76.00 |
| 6069902 | MISC. R&R SYT POST #2 - #8 (ET2000) | EA | $105.00 |
| 6069902 | MISC. R&R INLINE STRUT (ET2000) | EA | $70.00 |
| 6069902 | MISC. R&R NEW GR EXTRUDER (ET2000) | EA | $632.00 |
| 6069902 | MISC. R&R EXISTING EXTRUDER HEAD (ET2000) | EA | $253.00 |
| 6069902 | MISC. R&R OFFSET STRUT (ET2000) | EA | $65.00 |
| 6069902 | MISC. REM EXTRUDED GR & REUSE EXIST EXTRUDER (ET2000) | EA | $152.00 |
| 6069902 | MISC. R&R 1ST SLOTTED PANEL, 12.5' (SRT350) | EA | $158.00 |
| 6069902 | MISC. R&R 2ND SLOTTED PANEL, 12.5' (SRT350) | EA | $158.00 |
| 6069902 | MISC. R&R 60 IN FND TUBE W/ SOIL PLATE (SRT350) | EA | $171.00 |
| 6069902 | MISC. R&R SLOTTED PANEL, 25' (SRT350) | EA | $192.00 |
| 6069902 | MISC. R&R NOSE PIECE (SRT350) | EA | $75.00 |
| 6069902 | MISC. R&R STRUT ASSEMBLY (SRT350) | EA | $78.00 |
| 6069902 | MISC. R&R 14 INCH WOOD BLOCK #1 (CAT) | EA | $21.00 |
| 6069902 | MISC. R&R 1ST RAIL & ROD, POSTS # 2-4 (CAT) | EA | $304.00 |
| 6069902 | MISC. R&R 2ND RAIL & ROD, POSTS # 4-6 (CAT) | EA | $371.00 |
| 6069902 | MISC. R&R 42 IN NOTCHED WOOD POST #1 (CAT) | EA | $86.00 |
| 6069902 | MISC. R&R 6X8 TUBE (KNOCKOUT BLOCK) (CAT) | EA | $32.00 |
| 6069902 | MISC. R&R CABLE ASSY W/ PIPES & PLATE (CAT) | EA | $109.00 |
| 6069902 | MISC. R&R 42 IN WOOD POST # 2-6 (CAT) | EA | $71.00 |
| 6069902 | MISC. R&R BENT PLATE SLEEVE (CAT) | EA | $47.00 |
| 6069902 | MISC. R&R CHANNEL STRUT (CAT) | EA | $134.00 |
| 6069902 | MISC. R&R NOSE PLATE (CAT) | EA | $117.00 |
| 6069902 | MISC. R&R SIDE PLATE (CAT) | EA | $109.00 |
| 6069902 | MISC. R&R SPACER CHANNEL (CAT) | EA | $219.00 |
| 6069902 | MISC. R&R 14 IN WOOD BLOCK (SKT) | EA | $13.00 |
| 6069902 | MISC. R&R 25 FT 1ST W-BEAM RAIL (SKT) | EA | $210.00 |
| 6069902 | MISC. R&R 25 FT 2ND W-BEAM RAIL (SKT) | EA | $178.00 |
| 6069902 | MISC. R&R 45 IN WOOD POST IN FOUND TUBE (SKT) | EA | $45.00 |
| 6069902 | MISC. R&R 6 FT FOUNDATION TUBE (SKT) | EA | $168.00 |
| 6069902 | MISC. R&R 6 FT WOOD POST IN GROUND (SKT) | EA | $64.00 |
| 6069902 | MISC. R&R CABLE ASSY W/ PIPE, PLATE & ANCH (SKT) | EA | $164.00 |
| 6069902 | MISC. R&R GROUND STRUT (SKT) | EA | $71.00 |
| 6069902 | MISC. R&R NEW IMPACT HEAD (SKT) | EA | $646.00 |
| 6069902 | MISC. REM EXT GR & REUSE EXIST IMPACT HD (SKT) | EA | $178.00 |
| 6069902 | MISC. R&R POST #1 HBA TOP (SKT) | EA | $75.00 |
| 6069902 | MISC. R&R POST #1 HBA BOTTOM (SKT) | EA | $97.00 |
| 6069902 | MISC. R&R POST #2 HBA TOP (SKT) | EA | $75.00 |
| 6069902 | MISC. R&R POST #2 HBA BOTTOM (SKT) | EA | $97.00 |
| 6069902 | MISC. R&R POST #3-8 1 TOP (SKT) | EA | $62.00 |
| 6069902 | MISC. R&R PARTS FOR BULLNOSE SYSTEM | EA | $372.00 |
| 6069902 | MISC. R&R 72 IN FOUNDATION TUBE BULLNOSE SYSTEM | EA | $176.00 |
| 6069902 | MISC. R&R 96 1/16 IN FOUNDATION TUBE BULLNOSE SYSTEM | EA | $216.00 |
| 6069902 | MISC. R&R POSTS #1-2 BULLNOSE SYSTEM | EA | $70.00 |
| 6069902 | MISC. R&R POSTS #3-8 BULLNOSE SYSTEM | EA | $83.00 |
| 6069902 | MISC. R&R POSTS #9-12 BULLNOSE SYSTEM | EA | $83.00 |
| 6069902 | MISC. R&R 8X6X14 3/16 TAPERED WOOD BLOCK BULLNOSE SYSTEM | EA | $26.00 |
| 6069902 | MISC. R&R RAIL SECTION #1 BULLNOSE SYSTEM | EA | $397.00 |
| 6069902 | MISC. R&R RAIL SECTION #2 BULLNOSE SYSTEM | EA | $273.00 |
| 6069902 | MISC. R&R RAIL SECTION #3 BULLNOSE SYSTEM | EA | $241.00 |

**2.1 Fixed Unit Price List for Guard Cable Repair Job Orders.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Item Number** | **Description** | **Unit** | **Fixed Unit Price** |
| 6169902 | MISC. WORK BEYOND SHOULDER | EA | $113.00 |
| 6169902 | MISC. SHOULDER WORK - UNDIVIDED ROADWAYS | EA | $188.00 |
| 6169902 | MISC. RIGHT SHOULDER WORK - HIGH SPEED ROADWAY | EA | $263.00 |
| 6169902 | MISC. LEFT SHOULDER WORK - HIGH SPEED ROADWAY | EA | $360.00 |
| 6169902 | MISC. 1-LANE 2-WAY OPERATION W/ FLAGGERS | EA | $625.00 |
| 6169902 | MISC. SINGLE LANE CLOSURE | EA | $650.00 |
| 6169902 | MISC. PARTIAL RAMP CLOSURE | EA | $300.00 |
| 6169902 | MISC. COMPLETE RAMP CLOSURE | EA | $550.00 |
| 6169902 | MISC. ENTRANCE RAMP AREA, MAINLINE WORK | EA | $300.00 |
| 6169902 | MISC. ENTRANCE RAMP AREA, ACCEL LANE WORK | EA | $275.00 |
| 6169902 | MISC. EXIT RAMP AREA, MAINLINE/DECEL LANE WORK | EA | $275.00 |
| 6169902 | MISC. ADDITIONAL TRUCK MOUNTED ATTENUATOR | EA | $225.00 |
| 6169902 | MISC. ADDITIONAL FLASHING ARROW PANEL | EA | $90.00 |
| 6169902 | MISC. ADDITIONAL DIRECTIONAL INDICATOR BARRICADE | EA | $6.00 |
| 6169902 | MISC. ADDITIONAL CHANNELIZER (TRIMLINE/DRUM) | EA | $4.00 |
| 6169902 | MISC. ADDITIONAL CHANGEABLE MESSAGE SIGN | EA | $400.00 |
| 6169902 | MISC. ADDITIONAL ADVANCED WARNING RAIL SYSTEM | EA | $10.00 |
| 6169902 | MISC. ADDITIONAL FLAG ASSEMBLY | EA | $4.00 |
| 6169902 | MISC. SEQUENTIAL FLASHING WARNING LIGHT | EA | $50.00 |
| 6169904 | MISC. ADDITIONAL TRAFFIC CONTROL SIGNS | SQFT | $2.00 |
| 6189902 | MISC. HIGH PRIORITY REPAIR | EA | $2,200.00 |
| 2029903 | MISC. REMOVE ACCESS RESTRAINT CABLE 1/S | LF | $4.00 |
| 2029903 | MISC. REMOVE GUARD CABLE 3-STRAND | LF | $4.00 |
| 6064000 | ONE-STRAND CABLE - ACCESS RESTRAINT | LF | $10.00 |
| 6064100 | MEDAIN GUARD CABLE 3-STRAND | LF | $12.00 |
| 6064106 | ROADSIDE GUARD CABLE 3-STRAND (16 FT. POST SPACING) | LF | $15.00 |
| 6064108 | ROADSIDE GUARD CABLE 3-STRAND (4 FT. POST SPACING) | LF | $24.00 |
| 6064110 | ANCHOR ASSEMBLY, GUARD CABLE 3-STRAND | EA | $1,953.00 |
| 6064111 | ANCHOR ASSEMBLY, GUARD CABLE 3-STRAND TO GUARDRAIL TRANSITION | EA | $2,035.00 |
| 6069902 | MISC. R&R STEEL LINE OR END POST 1/S | EA | $54.00 |
| 6069902 | MISC. R&R ANCHOR ROD ASSY 1/S | EA | $202.00 |
| 6069902 | MISC. R&R TURNBUCKLE CABLE END ASSY 1/S | EA | $97.00 |
| 6069902 | MISC. RETENSION ACCESS RESTRAINT CABLE 1/S | EA | $14.00 |
| 6069902 | MISC. REATTACH CABLE TO POST ACC REST CABLE 1/S | EA | $6.00 |
| 6069902 | MISC. REALIGN LINE/END POST ACC REST CABLE 1/S | EA | $13.00 |
| 6069902 | MISC. R&R ANCHOR POST 3/S | EA | $105.00 |
| 6069902 | MISC. R&R LINE POST - MEDIAN 3/S | EA | $54.00 |
| 6069902 | MISC. R&R LINE POST - ROADSIDE 3/S | EA | $54.00 |
| 6069902 | MISC. REALIGN LINE POST 3/S | EA | $13.00 |
| 6069902 | MISC. R&R CABLE END FITTING 3/S | EA | $54.00 |
| 6069902 | MISC. R&R COMPENSATING CABLE END ASSY 3/S | EA | $144.00 |
| 6069902 | MISC. R&R COMPENSATOR SPRING 3/S | EA | $147.00 |
| 6069902 | MISC. R&R TURNBUCKLE END ASSY W/O COMPE'TOR 3/S | EA | $119.00 |
| 6069902 | MISC. R&R ANCH BRACKET - MED OR RDSIDE 3/S | EA | $158.00 |
| 6069902 | MISC. R&R ANCH BRACKET - GUARD CABLE TO GR 3/S | EA | $180.00 |
| 6069902 | MISC. R&R CABLE TRANSITION BRACKET 3/S | EA | $50.00 |
| 6069902 | MISC. REATTACH CABLE TO POST 3/S | EA | $6.00 |
| 6069902 | MISC. RETENSION LOW TENSION GUARD CABLES 3/S | EA | $14.00 |
| 6069902 | MISC. GUARD CABLE LINE POST SET IN ROCK 3/S | EA | $61.00 |
| 6069902 | MISC. REPLACE GUARD CABLE DELINEATOR 3/S | EA | $8.00 |
| 6069902 | MISC. RETROFIT SLIP BASE PLATE | EA | $24.00 |
| 6069902 | MISC. SPLICE 1/2 INCH OR 3/4 INCH CABLE 1/S | EA | $128.00 |
| 6069902 | MISC. REATTACH CABLES TO LINE POST HT | EA | $10.00 |
| 6069902 | MISC. R&R LINE POST IN EXIST SLEEVE HT | EA | $68.00 |
| 6069902 | MISC. REATTACH EXIST CRP ANCH POST TO BASE HT | EA | $70.00 |
| 6069902 | MISC. ATTACH NEW CRP ANCH POST TO BASE HT | EA | $206.00 |
| 6069902 | MISC. R&R LINE POST CONC FOOTING W/ SLEEVE HT | EA | $138.00 |
| 6069902 | MISC. R&R CRP ANCH POST 1-3 CONC FOOT W/ STUB HT | EA | $348.00 |
| 6069902 | MISC. R&R CCT TERM POST 4-9 CON FOOT W/ SLEEVE HT | EA | $231.00 |
| 6069902 | MISC. RETENSION HIGH TENSION CABLES HT | EA | $61.00 |
| 6069902 | MISC. R&R CCT TERMINAL POST 4-7 IN EX SLEEVE HT | EA | $216.00 |
| 6069902 | MISC. R&R CCT TERMINAL POST 8-9 IN EX SLEEVE HT | EA | $216.00 |
| 6069902 | MISC. FURN/INST TURNBUCKLE CABLE SPLICE ASSY HT | EA | $411.00 |
| 6069902 | MISC. R&R TURNBUCKLE HT | EA | $275.00 |
| 6069902 | MISC. R&R TOP/MID/OR BOTTOM CABLE END ASSY HT | EA | $164.00 |
| 6069902 | MISC. TL-3 LINE POST DRIVEN | EA | $77.00 |
| 6069902 | MISC. TL-3 LINE POST SOCKETED | EA | $60.00 |
| 6069902 | MISC. TL-3 HAIRPIN | EA | $22.00 |
| 6069902 | MISC. TL-3 LOCKPLATE | EA | $6.00 |
| 6069902 | MISC. TL-3 OR TL-4 U-BOLT LOCKPLATE ASSEMBLY | EA | $28.00 |
| 6069902 | MISC. TERMINAL SECTION COMPLETE | EA | $2,069.00 |
| 6069902 | MISC. TL-4 LINE POST DRIVEN | EA | $86.00 |
| 6069902 | MISC. TL-4 LINE POST SOCKETED | EA | $64.00 |
| 6069902 | MISC. TL-4 HAIRPIN | EA | $30.00 |
| 6069902 | MISC. TL-4 LOCKPLATE | EA | $14.00 |
| 6069902 | MISC. TERMINAL POST #1/ WEAK | EA | $82.00 |
| 6069902 | MISC. TERMINAL POST #2/ WEAK | EA | $82.00 |
| 6069902 | MISC. TL-3 TERMINAL POST #3&4/ WEAK | EA | $82.00 |
| 6069902 | MISC. TL-4 TERMINAL POST #3&4/ WEAK | EA | $89.00 |
| 6069902 | MISC. CABLE RELEASE POST | EA | $262.00 |
| 6069902 | MISC. ANCHOR POST | EA | $568.00 |
| 6069902 | MISC. ANCHOR TERMINAL FITTING | EA | $162.00 |
| 6069902 | MISC. CABLE SPLICE TURNBUCKLE | EA | $277.00 |
| 6069902 | MISC. R&R LINE POST IN ROCK HT | EA | $106.00 |
| 6069902 | MISC. REALIGN LINE POST HT | EA | $14.00 |
| 6069903 | MISC. 1/2 INCH CABLE 1/S | LF | $3.00 |
| 6069903 | MISC. 3/4 INCH CABLE 1/S | LF | $5.00 |
| 6069903 | MISC. HIGH TENSION SAFETY FENCE, TL-3 | LF | $15.00 |
| 6069903 | MISC. HIGH TENSION SAFETY FENCE, TL-4 | LF | $20.00 |

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;

1. insurance, bonds and indemnification
2. project meetings, training, management and supervision
3. project office staff and equipment
4. employee or subcontractor wage rates that exceed prevailing wages
5. 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.
6. 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;

1. personnel safety equipment
2. security requirements
3. excess material waste
4. daily and final clean-up
5. costs resulting from inadequate supply of materials, fuel, electricity, or skilled labor
6. costs resulting from productivity loss
7. working in extreme and adverse weather conditions
8. any other discreet items of work required to complete a particular 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.

**2.0 Normal Work Adjustment Factor.** The Adjustment Factor for *Normal Working Hours* includes work conducted from 6:00 a.m. to 7:30 p.m. Monday through Friday.

**2.1** In addition to the time period specified in 2.0, work performed during *Normal Working Hours* must also be done during daylight hours, unless the contractor provides the necessary lighting equipment. Daylight hours are defined as ½ hour after sunrise to ½ hour before sunset. If the contractor chooses to work during *Normal Working Hours,* but outside of the defined daylight hours, the contractor shall provide lighting equipment at no additional cost to the Commission.

**3.0** **Nighttime Work Adjustment Factor.** If the engineer determines traffic volumes are such that work cannot be performed during the daytime, Monday through Friday, without significant traffic impacts, the Job Order will specify nighttime repair operations. The Adjustment Factor for *Nighttime Work* includes any work conducted from 7:30 p.m. to 6:00 a.m. Monday through Thursday.

**3.1** Any costs for additional lighting equipment necessary to perform nighttime repair operations is considered included in the Nighttime Work Adjustment Factor.

**4.0** **Weekend Work Adjustment Factor.** If the engineer determines traffic volumes are such that work cannot be performed Monday through Friday without significant traffic impacts, the Job Order will specify weekend repair operations. The Adjustment Factor for *Weekend Work* includes any work conducted from 7:30 p.m. on Friday through 6:00 a.m. on Monday, night or day, or a Holiday.

**4.1** All work shall be scheduled to avoid major holidays. During the term of this contract there are six major holiday periods: Memorial Day, Independence Day, Labor Day, Thanksgiving, Christmas, and New Year’s Day. 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 9:00 a.m. on the first working day subsequent to the holiday, unless designated as *Weekend* *Work* by the engineer.

**5.0** The Adjustment Factor for Nighttime Work and Weekend Work will not be applied to adjust the unit bid price(s) unless the contractor is specifically directed to perform *Nighttime* or *Weekend Work* by the engineer as part of the Job Order. If the Job Order does not otherwise restrict nighttime or weekend hours, the contractor may, with the approval of the engineer, perform some or all of the repair operations during nighttime or weekend hours but will paid for the Adjustment Factor specified in the Job Order (i.e. the contractor may be allowed to complete nighttime work on the weekend but will be paid the Nighttime Adjustment Factor).

I. BIDDING THE ADJUSTMENT FACTORS

**1.0** The bidder shall complete the bid form by writing in three Adjustment Factors, one for *Normal Working Hours* one for *Nighttime Work* and one for *Weekend Work.* 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 Factors used are for example purposes only and are 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 anticipated budget for this project is $140,000*.*

**2.0** The lowest bid will be determined by multiplying each individual Adjustment Factor by the anticipated budget for each individual adjustment factor. For purposes of determining award of this contract, the estimated percentage of work performed during Normal Working Hours is 71%, the estimated percentage of Nighttime work is 18%, and the estimated percentage of Weekend work is 11%. The extended amount for each item will then be totaled, and the total sum will be used for bid comparison purposes. The initial contract value will be equal to the total sum. The dollar quantities provided in the bid form are anticipated budgets and are not intended to represent the actual value of work that will be assigned.

**EXAMPLE:** The initial contract value is determined by entering the Adjustment Factors as the following example illustrates:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Item Description | Approximate Quantity | Unit | Unit Price | | Bid Amount | |
| Dollar | Cts | Dollar | Cts |
| 618-99.16  Normal Work Adjustment Factor | $100,000.00 | DLR | **1.150** | | $115,000.00 | |
| 618-99.16  Nighttime Work Adjustment Factor | $25,000.00 | DLR | **1.200** | | $30,000.00 | |
| 618-99.16  Weekend Work Adjustment Factor | $15,000.00 | DLR | **1.250** | | $18,750.00 | |
| Bid Total |  |  |  | | $163,750.00 | |

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

K. BONDS

**1. 0** The amount of the Bid Bond shall be 5% of the anticipated budget for this project.

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

L. HIGH PRIORITY REPAIR

**1.0** If the engineer determines the safety of the public is unduly compromised by the damaged facility, the work will be designated as an high priority repair. Commission forces or others will initially respond to the location and perform such work as necessary to reduce the immediate danger to the public.

**2.0** The contractor will be notified by telephone of the location of the high priority repair and extent of work needed. Written confirmation of the required work will be provided by fax, e-mail or personal delivery immediately after notification. The contractor shall provide a means for the engineer to contact the contractor 24 hours a day for emergencies. The Job Order will be negotiated and issued by the Commission within 48 hours of notification to the contractor. It is estimated that high priority repair could occur up to 5 times during the term of this contract.

**3.0** The contractor shall respond to the work location and begin the high priority repair work within 24 hours of execution of the Job Order. After beginning the high priority repair work, the contractor shall continuously and diligently pursue the work according to the mutually agreed upon schedule in the Job Order until all of the repairs described in the Job Order are complete, unless otherwise approved by the engineer.

**4.0** The contractor will be paid a one-time High Priority Repair payment for beginning the high priority repair work within 24 hours of execution of the Job Order. An Adjustment Factor will not be applied to the High Priority Repair payment. All other items necessary to complete the repair work will be paid for at the fixed unit price multiplied by the Normal, Nighttime or Weekend Adjustment Factor, as mutually agreed upon in the Job Order.

M. 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 3 calendar days after the job order is issued.

**108.2.1** For job orders that require a high priority response, the contractor shall respond to the work location and begin the high priority repair work within 24 hours of execution of the Job Order.

N. 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 seven (7) calendar daysof the notice to proceed date.**3.0 High Priority Repair Completion By Calendar Days.** If the engineer has designated the work as a high priority repair, the contractor shall complete all work described in the job order within three (3) calendar days of the notice to proceed date.

**4.0 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.

**5.0 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.

**6.0 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, noncompensable delay under Sec 108.14.1.

O. 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 appropriate Adjustment Factor for tasks performed during Normal Working Hours or for tasks performed during Nighttime or for tasks performed during Weekend hours. 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.

P. 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.

Q. LIQUIDATED DAMAGES FOR FAILURE OR DELAY IN STARTING OF COMPLETING WORK ON TIME

**Delete Secs 108.8 through 108.8.1.2 and substitute the following:108.8 Liquidated Damages for Failure or Delay in Completing Work on Time.108.8.1** If the contractor, or in case of default, the surety fails to start or complete the work required in each job order within the time specified in the contract, or within such extra time as may be allowed by the contract, a deduction of an amount as specified elsewhere in this section will be made for each day that each job order remains incomplete after the time allowed for completion. 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. 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.**108.8.1.1** Liquidated damages will be charged for Saturdays, Sundays, national, and state holidays established by law.

**108.8.1.2** The amount of liquidated damages for this contract shall be as follows: **Job Order Amount** **Liquidated Damages Per Day**

$0 to $1000.00 $50.00$1000.01 to $3000.00 $100.00$3000.01 and Over $200.00

R. LIQUIDATED DAMAGES SPECIFIED FOR HIGH PRIORITY REPAIR RESPONSE**1.0 Description.** For those job orders that are designated as a high priority repair, if the contractor does not respond to the work site and begin the high priority repair work within 24 hours, the Commission, the traveling public, and state and local police and governmental authorities will be damaged in various ways, including but not limited to, increased construction administration cost, increased potential liability, increased traffic and traffic flow regulation cost and greater traffic congestion, and motorist delay, with its resulting cost to the traveling public. These damages are not reasonably capable of being computed or quantified. Therefore, the contractor will be charged with liquidated damages specified in the amount of **$250.00 per hour** that the high priority repairs are not started, in excess of the limitation as specified elsewhere in the contract documents. The engineer will determine the quantity of excess time.**1.1** The said liquidated damages specified for high priority repair response will be assessed in addition to any other applicable liquidated damages specified elsewhere in the contract documents.

S. LIQUIDATED DAMAGES SPECIFIED FOR LANE CLOSURES

**1.0 Description.** The contractor shall be required to have all lanes open to unrestricted traffic and free of any equipment by the time specified in Job Order for each closure location. Should the contractor fail to have the roadway completely open, and free of any equipment by the time specified in Job Order, the Commission, the traveling public, state and local police and governmental authorities will be damaged in various ways, including but not limited to potential liability, traffic and traffic flow regulation cost, traffic congestion and motorist delay, with its resulting cost to the traveling public. 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 **$1,000 per 15 minutes** for each 15-minute increment that the roadway is not open and free of any equipment, in excess of the limitation as specified elsewhere in the special provision. It will be the responsibility of the engineer to determine the quantity of excess closure time.

* 1. The said liquidated damages specified will be assessed in addition to any other liquidated damages charged under the Missouri Standard Specifications for Highway Construction, as indicated elsewhere in this contract.

**1.2** This deduction will continue until such time as the necessary work is completed and all lanes are open to traffic.

**2.0** A contingency plan mutually agreed upon by the contractor and the engineer shall be established at the joint meeting and documented in each Job Order in the event of a delay of the scheduled traffic opening time due to weather or other unforeseen circumstances.

T. LIQUIDATED DAMAGES FOR WINTER MONTHS JSP-04-17

**1.0 Description.** Revise Sec 108.8.1.2 (a) and (b) and substitute the following for the project:

(a) Liquidated damages will be assessed from December 15 to March 15

(b) Liquidated damages will be assessed for Saturdays, Sundays and Holidays.

U. CONTRACT PAYMENTS

**1.0** The contractor shall request payment by submitting a semi-monthly invoice to the engineer. The invoice shall be for the job orders completed and shall be itemized by job order number. A summary of all contract items used, contract unit prices, and total cost shall be included with the invoice.

**1.1** The engineer will make semi-monthly payment estimates in writing for the Job Orders completed and final inspected during the semi-monthly interval and the value thereof at the price established in the Job Order, including any necessary adjustments. The semi-monthly estimates will include deductions from the contractor’s invoice for any liquidated damages applicable to any of the Job Orders.

* 1. **Material Allowance.** No material allowance will be made for this contract.

V. MOBILIZATION**Delete Sec 618.2 and substitute the following:618.2** No direct payment will be made for mobilization except as provided for under Section J, High Priority Repair, of these provisions. All costs for mobilization shall be considered included in the cost of the individual contract pay items included in the contract.

W. WORKING HOURS

**1.0** 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. No work will be allowed during the morning and afternoon rush periods *(\*\*\*insert time\*\*\** a.m. to *\*\*\*insert time\*\*\** a.m. and *\*\*\*insert time\*\*\** p.m. to \*\*\*insert time\*\*\* p.m.) within the metro \*\*\*insert location\*\*\* area unless otherwise directed or approved by the engineer.

*\*\*\*insert lane drop limitations if needed\*\*\**

**2.0** 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 weekends: Memorial Day, Independence 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 9:00 a.m. on the first working day subsequent to the holiday, unless otherwise designated by the engineer.

X. WORK ZONE TRAFFIC MANAGEMENT PLAN**1.0 General.** 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 high 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.**2.2** 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.**2.3** 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.

**2.4** In order to ensure minimal traffic interference, the contractor shall schedule lane closures for the absolute minimum amount of time required to complete the work. Lanes shall not be closed until material is available for continuous 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 sideroads. 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 Traffic Control Plan Types.** 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 or drum-like channelizers are required for all TCP’s regardless of daytime or nighttime operations. Cones will not be allowed for use on this contract.**

**7.0 Additional Traffic Control Devices.** The engineer may determine that devices in addition to those shown on the TCP’s are necessary to safely accommodate traffic. These devices may be needed for merging ramp traffic, side streets, or other special cases. Additional devices may include signs, channelizers for side streets, directional indicator barricades (DIBS), sequential flashing lights, flashing arrows, and/or truck mounted attenuators. The additional devices shall be used within the work zone as directed by the engineer. The engineer will designate in the job order the type of additional traffic control devices necessary to perform the work.

**8.0 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.**9.0 Basis of Payment.** Payment will be made at the contract unit price for each of the pay items included in the contract and will be considered full compensation for all labor, material, and equipment necessary to manage traffic per the designated traffic control plan or as otherwise directed by the engineer.**9.1** Payment will be made once for each traffic control plan type specified for each work location regardless of the number of times the traffic control devices are installed, relocated, and removed while work progresses. **Payment for each traffic control plan includes the cost of all channelizers as shown on the plans. Cones will not be allowed for use on this contract.9.2** Payment will be made once for the actual amount of additional traffic control devices specified for each work location regardless of the number of times the devices are installed, relocated, and removed while work progresses.**9.3** No traffic control plan payment will be made when work is performed within another work zone unless additional traffic control devices are required to safely accommodate traffic.

Y. TRUCK MOUNTED ATTENUATOR (TMA)**1.0 Description.** If a truck mounted attenuator (TMA) is shown for use in a traffic control plan or if an additional TMA is specified in the job order for use at a specific work location, the contractor shall furnish, operate, repair, replace, and maintain a TMA as indicated on the plans or as directed by the engineer.**2.0 Basis of Payment.** Payment will be made at the contract unit price for each of the pay items included in the contract and will be considered full compensation for all labor, material, and equipment necessary to furnish and maintain the TMA.**2.1** If a truck mounted attenuator (TMA) is shown for use in a traffic control plan then payment will be considered covered by the contract unit price of that plan.**2.2** If an additional TMA is specified in the job order for use at a specific work location, the TMA will be paid for once at the established fixed unit price for: Item 616-99.02 Additional Truck Mounted Attenuator Each

Z. EMERGENCY PROVISIONS AND INCIDENT MANAGEMENT**1.0** The contractor shall have communication equipment on the construction site or immediate access to other communication systems to request assistance from the police or other emergency agencies for incident management. In case of traffic accidents or the need for police to direct or restore traffic flow through the job site, the contractor shall notify police or other emergency agencies immediately as needed. MoDOT customer service shall also be notified when the contractor requests emergency assistance.**2.0** In addition to the 911 emergency telephone number for ambulance, fire or police services, the following agencies may also be notified for accident or emergency situation within the project limits.  *\*\*\*insert telephone numbers below\*\*\**

Missouri Highway Patrol (XXX) XXX-XXXX MoDOT Customer Service (XXX) XXX-XXXX **2.1** This list is not all inclusive. Notification of the need for wrecker or tow truck services will remain the responsibility of the appropriate police agency.**2.2** The contractor shall notify enforcement and emergency agencies before the start of construction to request their cooperation and to provide coordination of services when emergencies arise during the construction at the project site. When the contractor completes this notification with enforcement and emergency agencies, a report shall be furnished to the engineer on the status of incident management.**3.0** No direct pay will be made to the contractor to recover the cost of the communication equipment, labor, materials or time required to fulfill the above provisions.

AA. 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.

BB. SAMPLE JOB ORDERS

**1.0 Guardrail.** 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:** Damaged Guardrail repair location does not have significant daytime peak hour ADT and will only required shoulder closure.

|  |  |  |  |
| --- | --- | --- | --- |
| **Item Description** | **Fixed Unit Price** | **Quantity** | **Price** |
| Misc. Shoulder Work – Undivided Roadways | $188.00 | 1 | $188.00 |
| Misc. R&R 12.5’ W-Beam Panel (Type A GR) | $154.00 | 1 | $154.00 |
| Misc. Realign & Use Exist Post Type A or E GR | $17.00 | 3 | $51.00 |
| Misc. R&R GR Delineator 1 Side | $7.00 | 1 | $7.00 |
|  |  | **Subtotal:** | **$400.00** |
| Normal Work Factor | 1.150 |  |  |
|  |  | **TOTAL:** | **$460.00** |

**1.2 Job Order Sample 2:** Damaged Guardrail repair location is a high ADT location requiring a ‘Single Lane Closure” so off-peak nighttime hours are required with reopening to traffic before the next morning rush period. Location requires quick response due to safety concerns.

|  |  |  |  |
| --- | --- | --- | --- |
| **Item Description** | **Fixed Unit Price** | **Quantity** | **Price** |
| Misc. Single Lane Closure | $650.00 | 1 | $650.00 |
| Misc. R&R 12.5’ W-Beam Panel (Type A GR) | $154.00 | 5 | $770.00 |
| Misc. Realign & Use Exist Post Type A or E GR | $17.00 | 1 | $17.00 |
| Misc. R&R GR Delineator 1 Side | $61.00 | 6 | $366.00 |
|  |  | **Subtotal:** | **$1,803.00** |
| Nighttime Work Factor | 1.200 |  |  |
|  |  | **Subtotal:** | **$2,163.60** |
| High Priority Repair | $2,200.00 | 1 Each | **$2,200.00** |
|  |  | **TOTAL:** | **$4,363.60** |

**1.3 Job Order Sample 3:** Damaged Guardrail repair location is a high ADT location, but due to the length of repair two continuous closure days will be required to complete the work. An “Entrance Ramp Area, Mainline Work” traffic control set-up will be required. A weekend closure will be used so the entire section can be removed and replaced at one time without impacting peak hour traffic.

|  |  |  |  |
| --- | --- | --- | --- |
| **Item Description** | **Fixed Unit Price** | **Quantity** | **Price** |
| Misc. Entrance Ramp Area, Mainline Work | $300.00 | 1 | $300.00 |
| Misc. R&R 12.5’ W-Beam Panel (Type A GR) | $154.00 | 10 | $1,540.00 |
| Misc. Realign & Use Exist Post Type A or E GR | $17.00 | 15 | $255.00 |
| Misc. R&R Steel Post 6', TY A GR | $61.00 | 20 | $1,220.00 |
| Misc. R&R GR Delineator 1 Side | $7.00 | 5 | $35.00 |
| Misc. R&R Wood/Plastic Block 8X6X14 TY A GR | $17.00 | 10 | $170.00 |
|  |  | **Subtotal:** | **$3,520.00** |
| Weekend Work Factor | 1.250 |  |  |
|  |  | **TOTAL:** | **$4,400.00** |

**2.0 Guard Cable.** 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.

**2.1 Job Order Sample 1:** Damaged Guard Cable repair location does not have significant daytime peak hour ADT and will only require shoulder closure.

|  |  |  |  |
| --- | --- | --- | --- |
| **Item Description** | **Fixed Unit Price** | **Quantity** | **Price** |
| Misc. Shoulder Work – Undivided Roadways | $188.00 | 1 | $188.00 |
| Misc. R&R Line Post - Roadside 3/S | $54.00 | 10 | $540.00 |
| Misc. Reattach Cable to Post 3/S | $6.00 | 10 | $60.00 |
| Misc. Retension Low Tension Guard Cables 3/S | $14.00 | 3 | $42.00 |
|  |  | **Subtotal:** | **$830.00** |
| Normal Work Factor | 1.150 |  |  |
|  |  | **TOTAL:** | **$954.50** |

**2.2 Job Order Sample 2:** Damaged Guard Cable repair location is a high ADT location requiring a ‘Single Lane Closure” so off-peak nighttime hours are required with reopening to traffic before the next morning rush period. Location requires quick response due to safety concerns.

|  |  |  |  |
| --- | --- | --- | --- |
| **Item Description** | **Fixed Unit Price** | **Quantity** | **Price** |
| Misc. Single Lane Closure | $650.00 | 1 | $650.00 |
| Misc. R&R Line Post in Existing Sleeve HT | $68.00 | 10 | $680.00 |
| Misc. Reattach Cables to Line Post HT | $10.00 | 10 | $100.00 |
|  |  | **Subtotal:** | **$1,430.00** |
| Nighttime Work Factor | 1.200 |  |  |
|  |  | **Subtotal:** | **$1,716.00** |
| High Priority Repair | $2,200.00 | 1 Each | **$2,200.00** |
|  |  | **TOTAL:** | **$3,916.00** |

**2.3 Job Order Sample 3:** Damaged Guard Cable repair location is a high ADT location, but due to the length of repair two continuous closure days will be required to complete the work. An “Entrance Ramp Area, Mainline Work” traffic control set-up will be required. A weekend closure will be used so the entire section can be removed and replaced at one time without impacting peak hour traffic.

|  |  |  |  |
| --- | --- | --- | --- |
| **Item Description** | **Fixed Unit Price** | **Quantity** | **Price** |
| Misc. Entrance Ramp Area, Mainline Work | $300.00 | 1 | $300.00 |
| Misc. Rem/Repl Anchor Post 3/S | $105.00 | 2 | $210.00 |
| Misc. Rem/Repl Line Post – Roadside 3/S | $54.00 | 17 | $918.00 |
| Misc. Rem/Repl Cable End Fitting 3/S | $54.00 | 6 | $324.00 |
| Misc. Rem/Repl Compensating Cable End Assy 3/S | $144.00 | 3 | $432.00 |
| Misc. Rem/Repl Compensator Spring 3/S | $147.00 | 3 | $441.00 |
| Misc. Reattach Cable to Post 3/S | $6.00 | 25 | $150.00 |
| Misc. Retension Low Tension Guard Cable 3/S | $14.00 | 2 | $28.00 |
|  |  | **Subtotal:** | **$2,803.00** |
| Weekend Work Factor | 1.250 |  |  |
|  |  | **TOTAL:** | **$3,503.75** |

CC. 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.

**2.0** The contractor will be responsible and is required to call for utility locates prior to performing any excavation work within any project limits for a given job order. Calling for utility locates will not relieve the contractor of his liability for utility damages caused by excavating operations performed by the contractor and/or any of his subcontractors. The contractor shall be solely responsible for all costs, fines, and penalties associated with the repair of any damaged utility caused by the actions of the contractor and/or any subcontractor within the given job order limits.

**2.1** It shall be noted by the contractor that MoDOT is a member of Missouri One Call (800 Dig Rite). Some work on this project may be in the vicinity of MoDOT utility facilities, which includes but is not limited to traffic signal cables, highway lighting circuits, ITS cables, cathodic protection cables, etc. Prior to beginning work, the contractor shall request locates from Missouri One Call. The contractor shall also complete the Notice of Intent to Perform Work form located at the Missouri Department of Transportation website:

<http://www.modot.mo.gov/asp/intentToWork.shtml>

The contractor shall submit the form over the web (preferred method) or by fax to the numbers on the printed form. The notice must be submitted a minimum of 2 and a maximum of 10 working days prior to excavation just as Missouri One Call requires.

**3.0** Any representation of the presence of utilities on any bidding document provided or job order issued under this contract is disclaimed by the Commission. The contractor fully understands this disclaimer when determining the basis of their bid for this contract. The contractor agrees to hold the Commission harmless in the presents or absents of any utility within the limits of any job order resulting from this contract.

DD. WORK PLAN AND SCHEDULE FOR ACCOMPLISHING WORK

**Delete Secs 108.4 - 108.4.4 and substitute the following:108.4 Work Plan and Schedule.** Prior to or at the preconstruction conference, the contractor shall provide a proposed work plan and typical schedule for accomplishing both normal and high priority work. The work plan shall include a written list of equipment and personnel that the contractor intends to use in executing the work.**108.4.1** The work plan will be reviewed by the engineer to determine in general if adequate personnel and equipment appear to be available to complete the work within the required number of calendar days. If the engineer determines the work plan is inadequate, the engineer and contractor shall meet for a joint review of the plan to correct and adjust the plan and schedule as necessary. A revised work plan and schedule shall be provided by the contractor prior to commencing the work.**108.4.2** If multiple job orders are issued with overlapping completion periods, the priority of the work will be jointly determined by the engineer and the contractor, with final approval of the work plan by the engineer. The work schedule and work priorities will be determined by the needs of the Commission and not the contractor's convenience of work location.**108.4.3** No direct payment will be made for furnishing the work plan or revisions.**108.4.4** The contractor shall determine the most feasible work plan and schedule consistent with the requirements of the contract. The engineer's approval of contractor's work plan is not intended to be acknowledgment or representation that it is reasonable or will accomplish the work within a particular time or at a particular cost.

EE. SUPPLEMENTAL REVISIONS

*(to be inserted by Central Office)*

FF. GUARDRAIL AND END TERMINAL REPAIR AND REPLACEMENT**1.0 Description.** This work shall consist of all labor, equipment, and materials to remove, install, repair, and replace guardrail, crashworthy end terminals, and related appurtenances as specified in the job order or as directed by the engineer. All work shall comply with Secs 202 and 606 except as herein modified.**2.0 Materials.** All guardrail materials shall conform to Division 1000, Materials Details, and specifically Sec 1040. All materials shall be new unless otherwise approved by the engineer or otherwise allowed by these specifications.

**2.1** Replacement materials and components for proprietary crashworthy end terminals shall conform to the manufacturers latest approved design. All replacement components shall be from the original equipment manufacturer unless approved by the engineer. The contractor shall provide manufacturer certification that the replacement components furnished, when properly installed by the contractor, will reestablish or exceed the original capabilities of the end terminal.**2.2** All materials intended for use in this contract shall be stored in a dedicated location on the contractor's property and shall be inspected and approved by the engineer prior to use.**3.0 Construction Requirements.3.1 Removal and Replacement of Individual Major Components.** If the job order designates a contract pay item that includes the term "remove and replace", the contractor shall remove the described existing component, material, hardware, or other appurtenance, in whole or in part, as designated in the job order or as directed by the engineer. The major components to be removed will be marked with paint or ribbon or other method convenient to the engineer.**3.1.1** The contractor shall furnish and install the described major replacement component and any incidental items necessary to provide a fully functional system. Replacement components designated in the job order may not be of the same size or material as those removed. Some items designated for replacement may be damaged and not reusable. Other items designated for replacement may not meet current Commission standards and policies. The engineer will determine the actual items to be replaced.**3.1.2** Unless otherwise directed by the engineer, the contractor shall reuse any undamaged major components salvaged from the damaged guardrail system, terminal, or appurtenance in order to provide a fully functional system. Minor components, such as nuts and bolts, may only be reused after inspection and approval by the engineer. Reused nuts and bolts shall only be used with salvaged major components. All new major components shall use new nuts, bolts, and other miscellaneous minor components.**3.2 Removal of Entire Guardrail System and/or Terminal.** If the engineer determines an existing guardrail, end anchor, bridge anchor section, turndown terminal, crashworthy terminal or other related appurtenance has been significantly damaged and/or the damaged guardrail system does not comply with current Commission standards or policies, the guardrail system and/or terminal shall be removed as designated in the job order or as directed by the engineer.**3.2.1** Unless otherwise designated by the engineer for salvage by the Commission, all materials removed shall become the property of the contractor and shall be removed from the right of way and properly disposed of.**3.2.2** If the system designated for removal includes a concrete pad, all hardware protruding above the surface of the pad shall be removed or otherwise cut off flush with the surface of the anchor. The concrete pad shall be abandoned in place unless otherwise directed by the engineer.**3.3 Installation of New Guardrail System and/or Crashworthy Terminal.** If the job order designates a contract pay item for new guardrail, bridge anchor, transition section, end anchor, crashworthy end terminal, or other appurtenance the contractor shall furnish and place the designated item complete in place. The new system and/or terminal shall be installed at the location designated by the engineer. The use of the ET Plus system will not be allowed.**3.4 Realigning Posts.** Posts which are out of alignment but otherwise undamaged will be designated for realignment. The contractor shall realign and plumb the designated posts. After realignment, any voids around the post shall be securely backfilled with a cohesive soil, or a sand meeting the gradation requirements of Sec 1005.3.5, and thoroughly tamped.**3.5 Driving Replacement Posts and Foundation Tubes.** When a replacement post or foundation tube is placed in the same hole as a removed damaged post or tube, the contractor shall first securely backfill the hole with a cohesive soil, or a sand meeting the requirements of Sec 1005.3.5, and thoroughly tamp the soil before driving the replacement post or tube.**3.6 Terminal End Marker.** On repaired/replaced crashworthy end terminals located 12 feet or less from the edge of the traveled way, the contractor shall furnish and install a modified Type III black and yellow object marker or other marking as directed by the engineer. The marker size, shape, method of attachment and placement shall be approved by the engineer prior to installation.**3.7 Guardrail Block.** Current Commission standards require the use of 8" x 6" x 14" or 21” wood or plastic guardrail blocks for new guardrail installations. Former standards allowed use of 6" x 6" x 14" or 21” blocks. For those locations requiring replacement of only the block and not the post, minor adjustments to the alignment of the existing guardrail posts or guardrail panels may be required to accommodate the 8" block.

**3.8 Removal of Extruded Guardrail Beam from ET 2000 Crashworthy End Terminal Guardrail Extruder.** Repair of vehicle impact damage to an ET-2000 crashworthy end terminal often includes removal of extruded guardrail beam material from an existing undamaged guardrail extruder. When designated in a job order, this work shall include removal of the extruded beam from an existing extruder and reuse of the undamaged, serviceable extruder on the repaired ET 2000 end terminal. Since on site removal of the extruded beam from the otherwise undamaged extruder is often difficult and time consuming, the contractor may elect to furnish and install a replacement extruder on the repaired terminal to allow removal of the extruded beam from the existing extruder at the contractor’s shop facilities. The replacement extruder shall be a new unit or a used unit in undamaged, serviceable condition. Used replacement extruders may only be installed after inspection and approval by the engineer. This item will not be designated in a job order if the vehicle impact with the ET-2000 terminal did not extrude any guardrail beam through the extruder or if the existing extruder is damaged beyond reuse. The replacement of the ET 2000 Crashworthy End Terminal Guardrailwith an ET Plus system or parts will not be allowed.**3.9 Guardrail Delineators.** Guardrail locations that require removal and replacement of existing damaged or missing delineators will be specified on the job order. The job order will designate the number of retro-reflective one-sided and two-sided delineators and will designate the color of the replacement delineators.

**3.10 Additional Work.** If additional major components or pay items beyond those specified in the job order are needed to properly perform the work, the contractor shall contact the engineer for authorization to proceed with the additional work. Any work performed without authorization of the engineer will be at the contractor's expense.**4.0 Method of Measurement.4.1** Measurement of existing guardrail, end anchor, bridge anchor, Type A crashworthy terminal, and turndown terminal removal will be made to the nearest foot from center of first post to center of last post.**4.2** Measurement of existing Type B crashworthy terminal removal will be made per each.**4.3** Measurement of removed and replaced guardrail and end terminal repair components will be made per each.**4.4** Measurement of realigned posts will be made per each.**4.5** Measurement of terminal end markers will be made per each.**4.6** Measurement of removal of extruded guardrail beam from an extruder and reuse of the extruder will be made per each.**4.7** Measurement of removed and replaced guardrail delineators will be made per each. Tabulation of delineators with one-sided retro-reflective sheeting and two-sided sheeting will be made separately.

**5.0 Basis of Payment.5.1** The accepted quantity of removed guardrail, end anchor, bridge anchor, Type A crashworthy terminal, or turndown terminal will be paid for at the contract unit price for:

Item 202-99.03 Remove Guardrail Lineal Foot Includes Turndown and Type A Crashworthy Terminals**5.1.1** Payment will be considered full compensation for all labor and equipment necessary to completely remove the guardrail system.**5.2** The accepted quantity of removed Type B crashworthy terminals will be paid for at the contract unit price for: Item 202-99.02 Remove Complete Type B Each Crashworthy Terminal **5.2.1** Payment will be considered full compensation for all labor and equipment necessary to completely remove the terminal system.

**5.3** The accepted quantities of removed and replaced guardrail and terminal repair components will be paid for at the contract unit price for each of the pay items included in the contract. Payment will be considered full compensation for all labor, equipment, and material necessary to remove the existing component, furnish a new replacement component, and install the component. No direct payment will be made for removing or reinstalling any reused undamaged components necessary to provide a fully functional system.**5.4** The accepted quantity of realigned posts will be paid for at the contract unit price for: Item 606-99.02 Realign and Use Existing Post, Each Type A or E Guardrail**5.4.1** Payment will be considered full compensation for all labor, equipment, and material, including any required backfill, necessary to realign and plumb an existing post.**5.5** The accepted quantity of installed terminal end markers will be paid for at the contract unit price for: Item 606-99.02 Install Terminal End Marker Each**5.5.1** Payment will be considered full compensation for all labor, equipment, and material necessary to furnish and install an end marker.**5.6** The accepted quantity of removal of extruded guardrail beam from an extruder and reuse of the extruder will be paid for at the contract unit price for: Item 606-99.02 Remove Extruded Guardrail and Each Reuse Existing Extruder (ET)**5.6.1** Payment will be considered full compensation for all labor, equipment, and material necessary to remove extruded guardrail beam from an existing extruder and reuse of the extruder on the repaired end terminal. No additional payment will be made if the contractor elects to furnish a new or used replacement extruder.**5.7** The accepted quantity of removed and replaced guardrail delineators will be paid for at the contract unit price for: Item 606-99.02 R&R Guardrail Delineator Each Retro–reflective One-side Item 606-99.02 R&R Guardrail Delineator Each Retro–reflective Two-sides**5.7.1** Payment will be considered full compensation for all labor, equipment, and material necessary to remove, furnish, and install a guardrail delineator.

GG. ONE-STRAND ACCESS RESTRAINT CABLE REPAIR AND REPLACEMENT

**1.0 Description.** This work shall consist of all labor, equipment, and materials to remove, install, repair, and replace one-strand access restraint cable and appurtenances as specified in the job order or as directed by the engineer. All work shall comply with Secs 202 and 606 except as herein modified.

**2.0 Materials.** All materials shall conform to Division 1000, Materials Details, and specifically Sec. 1040. All materials shall be new unless otherwise approved by the engineer or otherwise allowed by these specifications.

**2.1** All materials intended for use in this contract shall be stored in a dedicated location on the contractor's property and shall be inspected and approved by the engineer prior to use.

**3.0 Construction Requirements.**

**3.1 Removal and Replacement of Individual Major Components.** If the job order designates a contract pay item that includes the term "remove and replace", the contractor shall remove the described existing component, material, hardware, or other appurtenance, in whole or in part, as designated in the job order or as directed by the engineer. The major components to be removed will be marked with paint or ribbon or other method convenient to the engineer.

**3.1.1** The contractor shall furnish and install the described major replacement component and any incidental items necessary to provide a fully functional system. Replacement components designated in the job order may not be of the same size or material as those removed. Some items designated for replacement may be damaged and not reusable. Other items designated for replacement may not meet current Commission standards and policies. The engineer will determine the actual items to be replaced.

**3.1.2** Unless otherwise directed by the engineer, the contractor shall reuse any undamaged major components salvaged from the damaged cable system or appurtenances in order to provide a fully functional system. Minor components, such as nuts and bolts, may only be reused after inspection and approval by the engineer. Reused nuts and bolts shall only be used with salvaged major components. All new major components shall use new nuts, bolts, and other miscellaneous minor components.

**3.2 Removal of Entire Cable System.** If the engineer determines an existing one-strand access restraint cable system and related appurtenances have been significantly damaged and/or the damaged system does not comply with current Commission standards or policies, the cable system shall be removed as designated in the job order or as directed by the engineer.

**3.2.1** Unless otherwise designated by the engineer for salvage by the Commission, all materials removed shall become the property of the contractor and shall be removed from the right of way and properly disposed of.

**3.3 Installation of New Access Restraint Cable System.** If the job order designates a contract pay item for new access restraint cable the contractor shall furnish and place the cable system complete in place. The new system shall be installed at the location designated by the engineer.

**3.4 Replacing and Splicing Cable.** Existing cable that has sustained damage that does not allow reuse will be designated for replacement. The existing damaged cable shall be cut and new replacement cable spliced at the locations designated by the engineer. Splices shall be as shown on the plans.

**3.5 Realigning Posts.** Posts which are out of alignment but otherwise undamaged will be designated for realignment. The contractor shall realign and plumb the designated posts. After realignment, any voids around the post shall be securely backfilled with a cohesive soil, or a sand meeting the requirements of Sec 1005.3.5, and thoroughly tamped.

**3.6 Driving Replacement Posts.** When a replacement post is placed in the same hole as a removed damaged post the contractor shall first securely backfill the hole with a cohesive soil, or a sand meeting the requirements of Sec 1005.3.5 and thoroughly tamp the soil before driving the replacement post.

**3.7 Reattaching Cable to Posts.** Cable which is pulled loose from existing undamaged posts shall be reattached to any undamaged posts using new clamps and any other required hardware. Cable shall also be attached to any new replacement posts using new clamps. The clamps may need to be left slightly loose until final cable tensioning is complete.

**3.8 Retensioning Cable.** After replacement of all necessary components, the cable shall be retensioned such that no sag occurs between the posts and so that the finished installation presents an appearance satisfactory to the engineer. Following tensioning, all clamps shall be completely tightened.

**3.9 Additional Work.** If additional major components or pay items beyond those specified in the job order are needed to properly perform the work, the contractor shall contact the engineer for authorization to proceed with the additional work. Any work performed without authorization of the engineer will be at the contractor's expense.

**4.0 Method of Measurement.**

**4.1** Measurement of access restraint cable removal will be made to the nearest foot from center of end post to center of end post.

**4.2** Measurement of removed and replaced access restraint cable repair components will be made per each.

**4.3.1** Measurement of splice will be made per each.

**4.4** Measurement of realigned posts will be made per each.

**4.5** Measurement of cable reattachment to existing or new posts will be made per each post.

**4.6** Measurement of retensioning cable will be made per each complete section of cable retensioned between two anchors.

**5.0 Basis of Payment.**

**5.1** The accepted quantity of removed access restraint cable will be paid for at the contract unit price for:

Item 202-99.03 Remove Access Restraint Cable 1/S Lineal Foot

**5.1.1** Payment will be considered full compensation for all labor and equipment necessary to remove the cable system, including all cable, posts, and hardware.

**5.2** The accepted quantities of removed and replaced repair components will be paid for at the contract unit price for each of the pay items included in the contract. Payment will be considered full compensation for all labor, equipment, and material necessary to remove the existing component, furnish a new replacement component, and install the component. No direct payment will be made for removing or reinstalling any reused undamaged components necessary to provide a fully functional system.

**5.3** The accepted quantity of new 1/2 inch replacement cable will be paid for at the contract unit price for:

Item 606-99.03 1/2 Inch Cable 1/S Lineal Foot

**5.3.1** Payment will be considered full compensation for all labor, equipment, and material necessary, including any clips, to cut the existing cable, furnish new 1/2 inch cable, and splice to the existing cable.

**5.4** The accepted quantity of realigned posts will be paid for at the contract unit price for:

Item 606-99.02 Realign Line / End Post, Each

Access Restraint Cable, 1/S

**5.4.1** Payment will be considered full compensation for all labor, equipment, and material, including any required backfill, necessary to realign and plumb an existing post.

**5.5** The accepted quantity of reattached cable to new or existing posts will be paid for at the contract unit price for:

Item 606-99.02 Reattach Cable to Post Each

Access Restraint Cable, 1/S

**5.5.1** Payment will be considered full compensation for all labor, equipment, and material, including new clamps and other hardware, necessary for reattaching cable to existing and new posts.

**5.6** The accepted quantity of retensioned cable will be paid for at the contract unit price for:

Item 606-99.02 Retension Access Restraint Cable, 1/S Each

**5.6.1** Payment will be considered full compensation for all labor, equipment, and material necessary for retensioning an entire run of cable between two anchors.

HH. 3-STRAND LOW TENSION GUARD CABLE REPAIR AND REPLACEMENT

**1.0 Description.** This work shall consist of all labor, equipment, and materials to remove, install, repair, and replace non-proprietary 3-strand low tension guard cable and appurtenances as specified in the job order or as directed by the engineer. All work shall comply with Secs 202 and 606 except as herein modified.

**2.0 Materials.** All materials shall conform to Division 1000, Materials Details, and specifically Sec 1040. All materials shall be new unless otherwise approved by the engineer or otherwise allowed by these specifications.

**2.1** Replacement materials and components for proprietary crashworthy end terminals shall conform to the manufacturers latest approved design. All replacement components shall be from the original equipment manufacturer unless approved by the engineer. The contractor shall provide manufacturer certification that the replacement components furnished, when properly installed by the contractor, will reestablish or exceed the original capabilities of the end terminal.

**2.2** All materials intended for use in this contract shall be stored in a dedicated location on the contractor's property and shall be inspected and approved by the engineer prior to use.

**3.0 Construction Requirements.**

**3.1 Removal and Replacement of Individual Major Components.** If the job order designates a contract pay item that includes the term "remove and replace", the contractor shall remove the described existing component, material, hardware, or other appurtenance, in whole or in part, as designated in the job order or as directed by the engineer. The major components to be removed will be marked with paint or ribbon or other method convenient to the engineer.

**3.1.1** The contractor shall furnish and install the described major replacement component and any incidental items necessary to provide a fully functional system. Replacement components designated in the job order may not be of the same size or material as those removed. Some items designated for replacement may be damaged and not reusable. Other items designated for replacement may not meet current Commission standards and policies. The engineer will determine the actual items to be replaced.

**3.1.2** Unless otherwise directed or approved by the engineer, the contractor shall reuse any undamaged major components salvaged from the damaged guard cable system or appurtenances in order to provide a fully functional system. Minor components, such as nuts and bolts, may only be reused after inspection and approval by the engineer. Reused nuts and bolts shall only be used with salvaged major components. All new major components shall use new nuts, bolts, and other miscellaneous minor components.

**3.2 Removal of Entire Cable System.** If the engineer determines an existing guard cable system and related appurtenances have been significantly damaged and/or the damaged system does not comply with current Commission standards or policies, the cable system shall be removed as designated in the job order or as directed by the engineer.

**3.2.1** Unless otherwise designated by the engineer for salvage by the Commission, all materials removed shall become the property of the contractor and shall be removed from the right of way and properly disposed of.

**3.2.2** If the portion of the system designated for removal includes concrete anchors, all hardware protruding above the surface of the anchor shall be removed or otherwise cut off flush with the surface of the anchor. The concrete anchor shall be abandoned in place unless otherwise directed by the engineer.

**3.3 Installation of New Guard Cable System, Guardrail System, and/or Crashworthy Terminal.** If the job order designates a contract pay item for new 3-strand guard cable, guardrail, or crashworthy terminal the contractor shall furnish and place the designated item complete in place. The new cable system, guardrail, or terminal shall be installed at the location designated by the engineer.

**3.4 Replacing and Splicing Cable.** Existing cable (wire rope) that has sustained damage that does not allow reuse will be designated for replacement. The existing damaged cable shall be cut and new replacement cable spliced at the locations designated by the engineer. Individual cables shall be spliced by use of an approved device as shown on the plans and shall be installed where no interference with the functions of any other part of the installation occurs. Splices shall develop the full breaking strength of the cable.

**3.5 Realigning Posts.** Posts which are out of alignment but otherwise undamaged will be designated for realignment. The contractor shall realign and plumb the designated posts. After realignment, any voids around the post shall be securely backfilled with a cohesive soil, or a sand meeting the requirements of Sec 1005.3.5, and thoroughly tamped.

**3.6 Driving Replacement Posts.** When a replacement post is placed in the same hole as a removed damaged post, the contractor shall first securely backfill the hole with a cohesive soil, or a sand meeting the requirements of Sec 1005.3.5, and thoroughly tamp the soil before driving the replacement post. When a replacement post requires relocation or new cable installation is designated in the job order and the relocated or new post is in rock, the job order will designate the number of posts to be installed in rock.

**3.7 Reattaching Cables to Posts.** Cables which are pulled loose from existing undamaged posts shall be reattached to any undamaged posts using new hooks and any other required hardware. Cables shall also be attached to any new replacement posts using new hooks. The hooks may need to be left slightly loose until final cable tensioning is complete.

**3.8 Retensioning Cables.** After replacement of all necessary components, all three cables shall be inspected at both ends of the cable run and any required adjustments to end fittings performed. The cables may require reattachment to the end anchors and fittings to properly complete the system. All compensator springs shall be inspected to ensure they are undamaged and capable of properly functioning. All compensating end assemblies on all three cable runs shall be fully loosened and the cables shall be stretched taut by mechanical means to eliminate sag between the posts. All cables shall be retensioned per the temperature and spring compression table shown on the plans. Following tensioning, all hooks shall be completely tightened.

**3.9 Guard Cable to Guardrail Transition.** A limited amount of guardrail may require repair at guard cable to guardrail transitions. The contract includes various guardrail pay items for repair and/or replacement at these locations. All post holes shall be properly backfilled in accordance with Section 3.6 of this provision prior to driving new posts. The repaired guard cable to guardrail transition shall be in accordance with the plans.

**3.10 Guard Cable Delineators.** Locations that require replacement of guard cable posts with existing delineators will be specified on the job order. The job order will designate the number of retro-reflective delineators and will designate the color of the replacement delineators.

**3.11 Additional Work.** If additional major components or pay items beyond those specified in the job order are needed to properly perform the work, the contractor shall contact the engineer for authorization to proceed with the additional work. Any work performed without authorization of the engineer will be at the contractor's expense.

**4.0 Method of Measurement.**

**4.1** Measurement of existing 3-strand guard cable removal will be made to the nearest foot from the center of the first line post to the center of the last line post.

**4.2** Measurement of removed and replaced guard cable or guardrail repair components will be made per each.

**4.3** Measurement of new 3/4 inch replacement cable (wire rope) will be made to the nearest foot from center of splice to center of splice.

**4.3.1** Measurement of splice will be made per each.

**4.4** Measurement of realigned posts will be made per each.

**4.5** Measurement of line posts set in rock will be made per each.

**4.6** Measurement of cable reattachment to existing or new posts will be made per each post. One unit will include reattachment of up to 3 cables to one post.

**4.7** Measurement of retensioning guard cable will be made per each complete section of guard cable retensioned between two anchors. One unit will include retensioning of all 3 cables.

**4.8** Measurement of existing guardrail and Type A crashworthy terminal removal will be made to the nearest foot from center of first post to center of last post.

**4.9** Measurement of replaced delineators will be made per each.

**5.0 Basis of Payment.**

**5.1** The accepted quantities of removed cable will be paid for at the contract unit price for:

Item 202-99.03 Remove Guard Cable, 3-Strand Lineal Foot

**5.1.1** Payment will be considered full compensation for all labor and equipment necessary to remove the guard cable system, including all cable, posts, and hardware.

**5.2** The accepted quantities of removed and replaced repair components will be paid for at the contract unit price for each of the pay items included in the contract. Payment will be considered full compensation for all labor, equipment, and material necessary to remove the existing component, furnish a new replacement component, and install the component. No direct payment will be made for removing or reinstalling any reused undamaged components necessary to provide a fully functional system.

**5.3** The accepted quantity of new 3/4 inch replacement cable will be paid for at the contract unit price for:

Item 606-99.03 3/4 Inch Cable 1/S Lineal Foot

Item 606-99.03 Splice ½ or ¾ Inch Cable 1/S Lineal Foot

**5.3.1** Payment will be considered full compensation for all labor, equipment, and material, including any wedges, fittings, and other hardware, necessary to cut the existing cable, furnish new 3/4 inch cable, and splice to the existing cable.

**5.4** The accepted quantity of realigned posts will be paid for at the contract unit price for:

Item 606-99.02 Realign Line Post (3-Strand) Each

**5.4.1** Payment will be considered full compensation for all labor, equipment, and material, including any required backfill, necessary to realign and plumb an existing post.

**5.5** The accepted quantity of line posts set in rock will be paid for at the contract unit price for:

Item 606-99.02 Guard Cable Line Post Set in Rock 3/S Each

**5.5.1** Payment will be in addition to the amount paid for 3-strand guard cable complete in place or replacement posts and will be considered full compensation for all labor, equipment, and material necessary to drill or bore a hole and to set the line post in rock. No direct payment will be made for the required backfill material. Payment for the post will be considered included in the cost of the 3-strand guard cable or replacement post.

**5.6** The accepted quantity of reattached cable to new or existing posts will be paid for at the contract unit price for:

Item 606-99.02 Reattach Cable to Post (3-Strand) Each

**5.6.1** Payment will be considered full compensation for all labor, equipment, and material, including new hooks and other hardware, necessary for reattaching up to 3 cables to existing and new posts.

**5.7** The accepted quantity of retensioned cable will be paid for at the contract unit price for:

Item 606-99.02 Retension Guard Cable (3-Strand) Each

**5.7.1** Payment will be considered full compensation for all labor, equipment, and material necessary for retensioning an entire run of 3 cables between two anchors.

**5.8** The accepted quantity of removed guardrail or Type A crashworthy terminal removal will be paid for at the contract unit price for:

Item 202-99.03 Remove Guardrail, Including Type A Lineal Foot

Crashworthy Terminal

**5.8.1** Payment will be considered full compensation for all labor and equipment necessary to completely remove the guardrail system.

**5.9** The accepted quantity of replaced delineators will be paid for at the contract unit price for:

Item 606-99.02 Replace Guard Cable Delineator 3/S Each

II. 3-STRAND HIGH TENSION GUARD CABLE REPAIR AND REPLACEMENT

**1.0 Description.** This work shall consist of all labor, equipment, and materials to remove, install, repair, and replace 3-strand high tension guard cable systems. The work shall be as specified in the job order or as directed by the engineer. All work shall comply with Secs 202 and 606 except as herein modified.

**2.0 Materials.** All materials shall conform to Section II. of these Job Special Provisions, 3-Strand High Tension Cable Barrier, which follows this special provision. All materials shall be new unless otherwise approved by the engineer or otherwise allowed by these specifications.

**2.1** Replacement materials and components for proprietary systems shall conform to the manufacturers latest approved design. All replacement components shall be from the original equipment manufacturer unless approved by the engineer. The contractor shall provide manufacturer certification that the replacement components furnished, when properly installed by the contractor, will reestablish or exceed the original capabilities of the system.

**2.2** All materials intended for use in this contract shall be stored in a dedicated location on the contractor's property and shall be inspected and approved by the engineer prior to use.

**3.0 Construction Requirements.**

**3.1 Removal and Replacement of Individual Major Components.** If the job order designates a contract pay item that includes the term "remove and replace", the contractor shall remove the described existing component, material, hardware, or other appurtenance, in whole or in part, as designated in the job order or as directed by the engineer. The major components to be removed will be marked with paint or ribbon or other method convenient to the engineer.

**3.1.1** The contractor shall furnish and install the described major replacement component and any incidental items necessary to provide a fully functional system. Replacement components designated in the job order may not be of the same size or material as those removed. Some items designated for replacement may be damaged and not reusable. Other items designated for replacement may not meet current Commission standards and policies. The engineer will determine the actual items to be replaced.

**3.1.2** Unless otherwise directed or approved by the engineer, the contractor shall reuse any undamaged major components salvaged from the damaged guard cable system or appurtenances in order to provide a fully functional system. Minor components, such as nuts and bolts, may only be reused after inspection and approval by the engineer. Reused nuts and bolts shall only be used with salvaged major components. All new major components shall use new nuts, bolts, and other miscellaneous minor components.

**3.2 Removal of Entire Cable System.** If the engineer determines an existing guard cable system and related appurtenances have been significantly damaged and/or the damaged system does not comply with current Commission standards or policies, the cable system shall be removed as designated in the job order or as directed by the engineer.

**3.2.1** Unless otherwise designated by the engineer for salvage by the Commission, all materials removed shall become the property of the contractor and shall be removed from the right of way and properly disposed of.

**3.2.2** If the portion of the system designated for removal includes concrete anchors, all hardware protruding above the surface of the anchor shall be removed or otherwise cut off flush with the surface of the anchor. The concrete anchor shall be abandoned in place unless otherwise directed by the engineer.

**3.3 Replacing and Splicing Cable.** Existing cable (wire rope) that has sustained damage that does not allow reuse will be designated for replacement. The existing damaged cable shall be cut and new replacement cable spliced at the locations designated by the engineer. Individual cables shall be spliced by use of an approved device as shown on the manufacturer’s plans and shall be installed where no interference with the functions of any other part of the installation occurs. Splices shall develop the full breaking strength of the cable.

**3.4 Reattaching Cables to Posts.** Cables which are pulled loose from existing undamaged posts shall be reattached to any undamaged posts using new hooks and any other required hardware. Cables shall also be attached to any new replacement posts using new hooks and spacers.

**3.5 Retensioning Cables.** After replacement of all necessary components, all three cables shall be inspected at both ends of the cable run and any required adjustments to end fittings performed. The cables may require reattachment to the anchor posts to properly complete the system. All cables shall be retensioned per the temperature table shown on the manufacturer’s plans. A tension log form shall be completed showing: the time, date, location, ambient temperature and final tension reading, signed by the person performing the tensioning, and furnished to the engineer upon completion of the work. This form shall also include the system manufacturer’s recommended tension chart.

**3.6 Guard Cable Delineators.** Locations that require replacement of guard cable posts with existing delineators will be specified on the job order. The job order will designate the number of retro-reflective delineators and will designate the color of the replacement delineators. No direct payment will be made for delineators. Payment for delineators will be considered covered in the cost of replacement posts.

**3.7 Additional Work.** If additional major components or pay items beyond those specified in the job order are needed to properly perform the work, the contractor shall contact the engineer for authorization to proceed with the additional work. Any work performed without authorization of the engineer will be at the contractor's expense.

**4.0 Method of Measurement.**

**4.1** Measurement of removed and replaced guard cable repair components will be made per each.

**4.2** Measurement of new 3/4 inch prestreched replacement cable will be made to the nearest foot from center of splice to center of splice.

**4.2.1** Measurement of splice will be made per each.

**4.3** Measurement of cable reattachment to existing or new posts will be made per each post. One unit will include reattachment of up to 3 cables to one post.

**4.4** Measurement of retensioning guard cable will be made per each complete section of guard cable retensioned between two anchors. One unit will include retensioning of all 3 cables.

**5.0 Basis of Payment.**

**5.1** The accepted quantities of removed and replaced repair components will be paid for at the contract unit price for each of the pay items included in the contract. Payment will be considered full compensation for all labor, equipment, and material necessary to remove the existing component, furnish a new replacement component, and install the component. No direct payment will be made for removing or reinstalling any reused undamaged components necessary to provide a fully functional system.

**5.2** The accepted quantity of new 3/4 inch prestretched high tension replacement cable will be paid for at the contract unit price for:

Item 606-99.03 3/4 Inch Cable 1/S Lineal Foot

**5.2.1** Payment will be considered full compensation for all labor, equipment, and material, including any wedges, fittings, and other hardware, necessary to cut the existing cable, furnish new 3/4 inch cable, and splice to the existing cable.

**5.3** The accepted quantity of reattached cable to new or existing posts will be paid for at the contract unit price for:

Item 606-99.02 Reattach Cables to Line Post HT Each

**5.3.1** Payment will be considered full compensation for all labor, equipment, and material, including new hooks and other hardware, necessary for reattaching up to 3 cables to existing and new posts.

**5.4** The accepted quantity of retensioned cable will be paid for at the contract unit price for:

Item 606-99.02 Retension High Tension Cables HT Each

**5.4.1** Payment will be considered full compensation for all labor, equipment, and material necessary for retensioning an entire run of 3 cables between two anchors and furnishing a tension log to the engineer.

JJ. 3- STRAND HIGH TENSION CABLE BARRIER

**1.0 Description.** This work shall consist of all labor, equipment, and materials to remove, install, repair, and replace a 3-strand cable barrier system including all hardware and appurtenances as shown on the plans or as directed by the engineer. The cable barrier system shall function in accordance with the requirements of NCRHP 350, Test Level 3, and be approved by the Federal Highway Administration. Test Level 3 acceptable products, for use as a cable barrier system, are included in the list of pre-qualified products displayed on MoDOT’s website. Acceptable products shall include a concrete socketed line post system with galvanized high-tension wire ropes and anchorages. The cable barrier system shall be constructed as shown on the plans, with a maximum deflection of 9 feet.

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

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

**2.2 Cable.** The galvanized wire rope shall be ¾” pre-stretched 3 x 7 construction as approved by the Federal Highway Administration during the system’s acceptance testing. Threaded terminals (wedge or swaged type) shall be furnished. Swaged terminals may be shop- or field-swaged. Threaded terminals shall be right hand (RH) or left hand (LH) threaded M 24 x 3 pitch to ANSI B 1.13 M. The body of the threaded terminal shall provide a minimum of 5.9” of wire rope penetration depth. Threaded terminals shall be galvanized after threading to ASTM A 151. Turnbuckle or rigging screws shall be of the size and shape shown in the manufacturer’s shop drawings. Rigging screws shall be of a solid or closed body type with two inspection holes to determine threaded rope terminal penetration. Rigging screws shall be galvanized to ASTM A 153 after threading.

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

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

KK. SAFETY PLAN

**1.0 Description.** This contractor shall submit to the engineer a project Safety Plan (SP) for all work performed by the contractor and all subcontractors. The purpose of the SP is to encourage and enable all work to be performed in the safest possible manner and that all parties involved are aware of their individual responsibility for safety on the jobsite.

**1.1** The SP shall be completed by the contractor and provided to the engineer prior to the beginning of any construction activity or phase on the project.

**1.2** The contractor shall designate a person to serve as Project Safety Manager (PSM). The PSM shall be responsible for implementing and overseeing the SP. The PSM is not required to be present on the project at all times, but must be available to address safety issues and needs.

**1.3** The PSM shall make revisions to the SP as necessary. Any new project activities or phases shall be included in the SP prior to work beginning on that activity or phase.

**1.4** An example Safety Plan is available at:

<http://www.modot.mo.gov/business/contractor_resources/bid_opening_info/bidGenInfo.shtml>

**2.0 Emergency Preparedness.** The SP shall outline and detail for all workers, the specific procedures and actions necessary to respond to a jobsite emergency and the measures taken to communicate these requirements to all workers.

**2.1** The SP shall include a list of local emergency contacts including phone numbers. A copy of the emergency contact list shall be accessible to workers.

**2.2** In the case where there is no cellular or land line phone service at the jobsite, the SP shall identify how to reach the nearest available phone service.

**3.0 Project Safety Analysis.**  The SP should contain a basic Project Safety Analysis (PSA) that outlines the actions necessary to complete each activity or phase of the project. The SP shall include a general description of the primary activities or steps required to safely complete the project.

**3.1** Each activity should also include a general description of the work involved along with the known risks associated with the activity. In addition the PSA should outline the controls for those risks, including any Personal Protection Equipment (PPE) requirements for that activity or phase, and whether or not the activity or phase requires a specific safety meeting prior to beginning the activity or phase.

**3.2** Submittal of the PSA for all activities or phases is not required with the initial submittal of the SP; however, the PSA for each activity or phase shall be completed prior to the beginning of that activity or phase.

**4.0 Safety Meetings.** The SP shall include the types of safety meetings that will be required of and conducted by the contractor.

**5.0 Safety Training.** The SP shall identify the required safety training provided to the contractor’s personnel. The contractor shall require that the appropriate safety training for the contractor’s personnel is completed prior to the beginning of work on each activity or phase.

**5.1** The SP shall identify the recommended safety training needs and PPE for MoDOT employees who will be exposed to the work activities. MoDOT will provide safety training and PPE to MoDOT employees based on MoDOT safety policies.

**6.0 Payment.** There will be no direct payment for compliance with this Safety Plan provision.

LL. DEFINITION OF SPECIAL "99 NUMBER" 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 DESCRIPTIONHigh Priority Repair618-99.02 HIGH PRIORITY REPAIR High priority guardrail repair with accelerated work completion.Traffic Control Items616-99.02 ADDITIONAL TRUCK MOUNTED ATTENUATOR Provide additional truck mounted attenuator for use in addition to other devices specified in the traffic control plan.616-99.02 ADDITIONAL TRAFFIC CONTROL SIGNS Provide additional traffic control signs for use in addition to other devices specified in the traffic control plan.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 CHANNELIZER (TRIMLINE/DRUM)

Provide additional channelizers for use in addition to other devices specified in

the traffic control plan. May be either trim line or drum-like.

616-99.02 ADDITIONAL CHANGEABLE MESSAGE SIGN

Provide additional changeable message sign for use in addition to other devices specified in the traffic control plan.

616-99.02 ADDITIONAL ADVANCED WARNING RAIL SYSTEM

Provide additional advanced warning rail system for use in addition to other devices specified in the traffic control plan.

616-99.02 ADDITIONAL FLAG ASSEMBLY

Provide additional flag assembly 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 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 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 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 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.

# New Guardrail Installation Items

202-99.03 GUARDRAIL REMOVAL

Remove existing complete guardrail. Item also includes existing turndown end treatments.

606-99.02 INSTALL POST IN SOLID ROCK OR CONC, 6 OR 7’ (TYPE A OR E)

Install 6’ or 7’ guardrail post in solid rock or through concrete for Type A or E guardrail. Pay item is in addition to normal pay item for new guardrail or for normal pay item to remove and replace a 6’ or 7’ type A or E guardrail post.

202-99.02 TYPE A OR B TERMINAL REMOVAL

Remove existing complete Type A or B crashworthy end terminal.

606-99.02 FLARED TYPE A CRASHWORTHY END TERMINAL

Furnish and install flared Type A crashworthy end terminal.

# Guardrail Repair Items

606-99.02 R&R 12.5’ W-BEAM PANEL (TYPE A GR)

Remove and replace 12’-6” Type A guardrail beam.

606-99.02 R&R 12.5' THRIE BEAM RAIL TY E GR

Remove and replace 12’-6” thrie beam rail for Type E guardrail.

606-99.02 R&R END ANCHOR RAIL.

Remove and replace end anchor rail section.

606-99.02 R&R PARTS FOR END SECTION

Remove and replace parts for end section.

606-99.02 R&R PARTS FOR TYPE C END TERMINAL

Remove and replace parts for Type C end terminal.

606-99.02 R&R 25’ W-BEAM PANEL (TYPE A GR)

Remove and replace 25’ W-beam guardrail panel for Type A guardrail. Existing panels may be 12.5’ long.

606-99.02 R&R 25’ THRIE BEAM PANEL (TYPE E GR)

Remove and replace 25’ Thrie beam guardrail panel for Type E guardrail. Existing panels may be 12’-6” long.

606-99.02 R&R 6.25’ TYPE A TO TYPE E TRANSITION BEAM

Remove and replace 6.25’ transition section beam for Type A to Type E transition.

606-99.02 R&R 12.5’ END ANCHOR PANEL

Remove and replace 12.5’ end anchor W-beam panel. Existing beam may be shorter.

606-99.02 R&R 12.5’ BEAM, CONC/CONVEX RADIUS, TY A

Remove and replace 12’-6” Type A guardrail beam with a concave or convex radius beam.

606-99.02 R&R 12.5’ BEAM 10 GA. (TYPE E GR)

Remove and replace 12’-6”, 10 gage, Type E guardrail beam.

606-99.02 R&R STEEL POST, 6' TYPE A GR

Remove and replace 6’ steel guardrail post for Type A guardrail.

606-99.02 R&R STEEL POST 6', TY E GR

Remove and replace 6’ steel guardrail post for Type E guardrail.

606-99.02 R&R STEEL POST 7' (TY A GR)

Remove and replace 7’ steel post for Type A guardrail.

606-99.02 R&R STEEL POST 7' (TY E GR)

Remove and replace 7’ steel post for Type E guardrail.

606-99.02 R&R WOOD POST 6' (TY A GR)

Remove and replace 6’ wood post for Type A guardrail.

606-99.02 R&R WOOD POST 7' (TY A GR)

Remove and replace 7’ wood post for Type A guardrail.

606-99.02 REALIGN & USE EXIST POST TY A OR E GR

Realign and reuse existing guardrail post for Type A or E guardrail.

606-99.02 R&R WOOD BLOCK 8X6X14 TY A GR

Remove and replace wood or plastic post block, 8" x 6" x 14" for Type A guardrail.

606-99.02 R&R WOOD BLOCK 8X6X17 TRANSITION SECTION

Remove and replace wood or plastic post block, 8" x 6" x 17" for Type A to Type E transition section.

606-99.02 R&R STEEL SPACER BLOCK (TYPE A GR)

Remove and replace steel spacer block for Type A guardrail.

606-99.02 R&R STEEL BLOCKOUT FOR RADIUS RAIL

Remove and replace steel blockout for radius rail.

606-99.02 R&R WOOD BLOCK 8X6X21 TY E GR

Remove and replace wood or plastic post block, 8" x 6" x 21" for Type E guardrail.

606-99.02 R&R STEEL TUBE BLOCK 7X4 BR ANCH

Remove and replace structural steel tubing block, 7" x 4" x 3/16" for bridge anchor section.

606-99.02 R&R END SEC (SHOE) TY A GR

Remove and replace guardrail end section (also called a shoe) for Type A guardrail.

606-99.02 R&R TERM CONN TY A GR

Remove and replace terminal connector for Type A guardrail.

606-99.02 R&R TERMINAL CONNECTOR, TYPE E GR

Remove and replace thrie beam terminal connector for Type E guardrail.

606-99.02 R&R GR DELINEATOR 1 SIDE

Remove and replace existing 1 reflective sided guardrail delineator. Color will be designated on the job order.

606-99.02 R&R GR DELINEATOR 2 SIDE

Remove and replace existing 2 reflective sided guardrail delineator. Color will be designated on the job order.

# End Terminal Repair Items

606-99.02 R&R 45 IN WP IN FOUND TUBE (ET,SRT)

Remove and replace 6" x 8" x 45" wood post in a steel foundation tube. Posts are used on ET 2000 family and SRT-350 crashworthy end terminals.

606-99.02 R&R 72 IN WP IN GROUND (ET,SRT)

Remove and replace 6" x 8" x 72" wood post directly buried in ground without a steel foundation tube. Posts are used on ET 2000 family and SRT-350 crashworthy end terminals.

606-99.02 R&R HBA POST #1 TOP (ET)

Remove and replace hinged breakaway post #1 top for ET 2000 family of crashworthy end terminals.

606-99.02 R&R HBA POST #1 BOTTOM (ET)

Remove and replace hinged breakaway post #1 bottom for ET 2000 family of crashworthy end terminals.

606-99.02 R&R SYT POST #2 - #8 (ET)

Remove and replace steel yielding terminal post #2 - #8 for ET 2000 family of crashworthy end terminals.

606-99.02 R&R 54 IN FND TUBE W/SOILPLATE (ET, CAT)

Remove and replace steel foundation tube with soil plate for ET 2000 family and CAT crashworthy end terminals.

606-99.02 R&R 78 IN FND TUBE W/O PLATE (ET)

Remove and replace 78” steel foundation tube without soil plate for ET-2000 family of crashworthy end terminals.

606-99.02 R&R 14 IN W BLOCK (ET,SRT,CAT #2-6)

Remove and replace 6" x 8" x 14" wood post block for ET 2000 family, SRT-350, and on CAT posts #2-6 crashworthy end terminals.

606-99.02 R&R 25 FT DBR PUNCHED FOR EXTRUDER (ET)

Remove and replace 1st - 25’ deep beam rail punched for extruder for ET 2000 family of crashworthy end terminals. Rail must be original manufacturer replacement part.

606-99.02 R&R 25 FT DEEPBEAM RAIL (ET2000,BEST)

Remove and replace 25’ deep beam rail for ET 2000 and BEST crashworthy end terminals.

606-99.02 R&R NEW GR EXTRUDER (ET)

Remove and replace guardrail extruder with a new extruder for ET 2000 family of crashworthy end terminals.

606-99.02 R&R EXISTING EXTRUDER HEAD (ET2000)

Remove and replace existing guardrail extruder head for ET 2000 crashworthy end terminals.

606-99.02 REM EXTRUDED GR & REUSE EXIST EXTRUDER (ET)

Remove extruded guardrail beam from an existing guardrail extruder and reuse the undamaged, serviceable extruder on the repaired ET 2000 crashworthy end terminal. A new or used replacement extruder in an undamaged, serviceable condition may be furnished to allow removal of the extruded guardrail beam from the original extruder at the contractor’s shop facilities. No additional payment will

be made for providing a used extruder. If a new extruder is provided, payment

will be made for 606-99.02 R&R NEW GR EXTRUDER (ET).

606-99.02 R&R OFFSET STRUT (ET2000)

Remove and replace offset ground strut for ET 2000 crashworthy end terminal.

606-99.02 R&R INLINE STRUT (ET)

Remove and replace an inline strut. Used on ET-2000 family of crashworthy end terminals.

606-99.02 R&R CABLE ASSY W/PIPE, PLATE & ANCH (ET)

Remove and replace cable assembly including pipe sleeve, bearing plate, and cable anchor for ET 2000 family of crashworthy end terminals.

606-99.02 INSTALL TERMINAL END MARKER

Install Type III black and yellow object marker on crashworthy end terminal.

606-99.02 R&R STRUT ASSEMBLY (SRT-350)

Remove and replace strut assembly for SRT-350 crashworthy end terminal.

606-99.02 R&R 1ST SLOTTED PANEL, 12.5' (SRT-350)

Remove and replace 1st slotted 12’-6” guardrail panel for SRT-350 crashworthy end terminal. Panel must be original manufacturer replacement part.

606-99.02 R&R 2ND SLOTTED PANEL, 12.5' (SRT-350)

Remove and replace 2nd slotted 12’-6” guardrail panel for SRT-350 crashworthy end terminal. Panel must be original manufacturer replacement part.

606-99.02 R&R SLOTTED PANEL, 25' (SRT-350)

Remove and replace one piece 25’ slotted guardrail panel for SRT-350 crashworthy end terminal. Panel must be original manufacturer replacement part.

606-99.02 R&R NOSE PIECE (SRT-350)

Remove and replace barrier end nose piece for SRT-350 crashworthy end terminal.

606-99.02 R&R 60 IN FND TUBE W/SOILPLATE (SRT-350)

Remove and replace 60” steel foundation tube with soil plate for SRT-350 crashworthy end terminal.

606-99.02 R&R 42 IN WOOD POST #2-6 (CAT)

Remove and replace 42" wood post #2-6 for CAT crashworthy end terminal.

606-99.02 R&R 14 INCH WOOD BLOCK #1 (CAT)

Remove and replace 14" wood block on post #1 for CAT crashworthy end terminal.

606-99.02 R&R 1ST RAIL & ROD, POSTS # 2-4 (CAT)

Remove and replace the 1st guardrail panel and rod between posts #2 and #4 on the CAT crashworthy end terminal. 1st panels are 12 gage steel. Item is for one panel, either left of right.

606-99.02 R&R 2ND RAIL & ROD, POSTS # 4-6 (CAT)

Remove and replace 2nd guardrail panel and rod between posts #4 and #6 on the CAT crashworthy end terminal. 2nd panels are 10 gage steel. Item is for one panel, either left or right.

606-99.02 R&R NOSE PLATE (CAT)

Remove and replace nose plate for CAT crashworthy end terminal.

606-99.02 R&R SIDE PLATE (CAT)

Remove and replace side plate for CAT crashworthy end terminal.

606-99.02 R&R SPACER CHANNEL (CAT)

Remove and replace spacer channel behind post #2 on a CAT crashworthy end terminal.

606-99.02 R&R 6X8 TUBE (KNOCKOUT BLOCK) (CAT)

Remove and replace 6" x 8" Tube (also called a knockout block) on posts #4 and #6 on the CAT crashworthy end terminal. Item includes post plates as needed.

606-99.02 R&R CHANNEL STRUT (CAT)

Remove and replace channel strut for CAT crashworthy end terminal.

606-99.02 R&R CABLE ASSY W/PIPES & PLATE (CAT)

Remove and replace cable assembly, including 2 pipe sleeves and plate for CAT crashworthy end terminal.

606-99.02 R&R BENT PLATE SLEEVE (CAT)

Remove and replace bent plate sleeve on post #1 for a CAT crashworthy end terminal.

606-99.02 R&R 42 IN NOTCHED WOOD POST #1 (CAT)

Remove and replace 42" notched wood post #1 for CAT crashworthy end terminal.

606-99.02 R&R NEW IMPACT HEAD (SKT)

Remove and replace impact head with a new impact head for SKT crashworthy end terminal.

606-99.02 REM EXT GR & REUSE EXIST IMPACT HEAD (SKT)

Remove extruded guardrail beam from an existing impact head and reuse the undamaged, serviceable impact head on the repaired SKT 350 crashworthy end terminal. A new or used replacement head in an undamaged, serviceable condition may be furnished to allow removal of the extruded guardrail beam from the original head at the contractor’s shop facilities.

606-99.02 R&R 25 FT 1ST W-BEAM RAIL (SKT)

Remove and replace 1st - 25’ w-beam rail punched for impact head and cable anchor bracket. Rail must be original manufacturer replacement part.

606-99.02 R&R 25 FT 2ND W-BEAM RAIL (SKT)

Remove and replace 2nd - 25’ deep w-beam rail. Rail must be original manufacturer replacement part.

606-99.02 R&R 45 IN WOOD POST IN FOUND TUBE (SKT)

Remove and replace 5 1/2" x 7 1/2" x 45" wood post in a steel foundation tube.

606-99.02 R&R 6 FT FOUNDATION TUBE (SKT)

Remove and replace 6” x 8” x 6’ steel foundation tube for SKT crashworthy end terminal.

606-99.02 R&R CABLE ASSY W/PIPE, PLATE & ANCH (SKT)

Remove and replace cable assembly including pipe sleeve, bearing plate, and anchor bracket for SKT crashworthy end terminal.

606-99.02 R&R GROUND STRUT (SKT)

Remove and replace a SKT ground strut.

606-99.02 R&R 6FT WOOD POST IN GROUND (SKT)

Remove and replace 6" x 8" x 6’ wood post directly buried in ground without a steel foundation tube..

606-99.02 R&R 14IN WOOD BLOCK (SKT)

Remove and replace 6" x 8" x 14" wood post block for post # 3-8 on SKT crashworthy end terminal.

606-99.02 R&R POST #1 HBA TOP (SKT)

# Remove and replace #1 HBA top post on SKT crashworthy end terminal.

606-99.02 R&R POST #1 HBA BOTTOM (SKT))

Remove and replace #1 HBA bottom post on SKT crashworthy end terminal.

606-99.02 R&R POST #2 HBA TOP (SKT)

Remove and replace #2 HBA top post on SKT crashworthy end terminal.

606-99.02 R&R POST #2 HBA BOTTOM (SKT)

Remove and replace #2 HBA bottom post on SKT crashworthy end terminal.

606-99.02 R&R POST #3-8 1 TOP (SKT)

Remove and replace #3-8 1 top post on SKT crashworthy end terminal.

# Bullnose System Repair Items

606-99.02 R&R PARTS FOR BULLNOSE SYSTEM

Remove and Replace various parts for Bullnose System

606-99.02 R&R 72 IN FOUNDATION TUBE BULLNOSE SYSTEM

Remove and Replace 72 in Foundation Tube for Bullnose System

606-99.02 R&R 96 1/16 IN FOUNDATION TUBE BULLNOSE SYSTEM

Remove and Replace 96 1/16 in Foundation Tube for Bullnose System

606-99.02 R&R POST #1-2 BULLNOSE SYSTEM

Remove and Replace post #1-2 for Bullnose System

606-99.02 R&R POST #3-8 BULLNOSE SYSTEM

Remove and Replace post #3-8 for Bullnose System

606-99.02 R&R POST #9-12 BULLNOSE SYSTEM

Remove and Replace post #9-12 for Bullnose System

606-99.02 R&R 8X16X14 3/16 TAPERED WOOD BLOCK BULLNOSE SYSTEM

Remove and Replace 8x16x14 3/16 Tapered Wood Block for Bullnose System

606-99.02 R&R RAIL SECTION #1 BULLNOSE SYSTEM

Remove and Replace Rail Section #1 for Bullnose System

606-99.02 R&R RAIL SECTION #2 BULLNOSE SYSTEM

Remove and Replace Rail Section #2 for Bullnose System

606-99.02 R&R RAIL SECTION #3 BULLNOSE SYSTEM

Remove and Replace Rail Section #3 for Bullnose System

# Guard Cable Items

202-99.03 REMOVE ACCESS RESTRAINT CABLE 1/S

Remove existing complete single strand access restraint cable system

202-99.03 REMOVE GUARD CABLE 3-STRAND

Remove existing complete 3-strand guard cable system

606-99.02 R&R STEEL LINE OR END POST 1/S

Remove and replace steel line or end post, single strand access restraint cable

606-99.02 R&R ANCHOR ROD ASSY 1/S

Remove and replace anchor rod assembly, single strand access restraint cable

606-99.02 R&R TURNBUCKLE CABLE END ASSY 1/S

Remove and replace turnbuckle cable end assembly, single strand access restraint

cable

606-99.02 RETENSION ACCESS RESTRAINT CABLE 1/S

Retension single strand access restraint cable

606-99.02 REATTACH CABLE TO POST ACC REST CABL 1/S

Reattach cable to post, single strand access restraint cable

606-99.02 REALIGN LINE/END POST ACC REST CABLE 1/S

Realign line or end post, single strand access restraint cable

606-99.02 REPLACE/SPLICE 1/2 INCH CABLE 1/S

Replace and splice 1/2 inch cable, single strand access restraint cable

606-99.02 R&R ANCHOR POST 3/S

Remove and replace anchor post, 3-strand guard cable system

606-99.02 R&R LINE POST - MEDIAN 3/S

Remove and replace median line post, 3-strand guard cable system

606-99.02 R&R LINE POST - ROADSIDE 3/S

Remove and replace roadside line post, 3-strand guard cable system

606-99.02 REALIGN LINE POST 3/S

Realign line post, 3-strand guard cable system

606-99.02 R&R CABLE END FITTING 3/S

Remove and replace cable end fitting, 3-strand guard cable system

606-99.02 R&R COMPENSATING CABLE END ASSY 3/S

Remove and replace compensating cable end assembly, 3-strand guard cable system

606-99.02 R&R COMPENSATOR SPRING 3/S

Remove and replace compensator spring only, 3-strand guard cable system

606-99.02 R&R TURNBUCKLE END ASSY W/O COMPE'TOR 3/S

Remove and replace turnbuckle cable end assembly without compensator, 3-strand guard cable system

606-99.02 R&R ANCH BRACKET - MED OR RDSIDE 3/S

Remove and replace median or roadside anchor bracket, 3-strand guard cable system

606-99.02 R&R ANCH BRACKET - GUARD CABLE TO GR 3/S

Remove and replace guard cable to guardrail transition anchor bracket, 3-strand guard cable system

606-99.02 R&R CABLE TRANSITION BRACKET 3/S

Remove and replace cable transition bracket, 3-strand guard cable to guardrail transition

606-99.02 REATTACH CABLE TO POST 3/S

Reattach up to 3 cables to one line post or anchor post, 3-strand guard cable system

606-99.02 RETENSION LOW TENSION GUARD CABLES 3/S

Retension all 3 strands of 3-strand low tension guard cable system, item includes check and adjustment of all end assemblies on both ends of a cable run

606-99.02 GUARD CABLE LINE POST SET IN ROCK 3/S

Install line post in solid rock or existing concrete for 3-strand guard cable system, pay item is in addition to normal pay item for 3-strand guard cable

606-99.02 REPLACE GUARD CABLE DELINEATOR

Replace delineator on one side of a guard cable post. (Note: Guard

cable placed in the median typically has delineators facing both directions of traffic.)

606-99.02 RETROFIT SLIP BASE PLATE

Furnish and Install retrofit slip base plate in accordance with standard drawing included in this proposal.

606-99.02 SPLICE 1/2 INCH OR 3/4 INCH CABLE 1/S

Splice one 1/2 inch or 3/4 inch cable. Cut existing cable, and splice new cable to replace existing damaged low or high tension cable; includes clamps or torpedo cable splices at each end of the cut cable to fully develop the strength of the cable.

# High Tension Guard Cable Items

606-99.02 REATTACH CABLES TO LINE POST HT

Reattach up to 3 cables to one line post; high tension cable system

606-99.02 R&R LINE POST IN EXIST SLEEVE HT

Remove and replace steel yielding cable line post in an existing ground sleeve mounted in a concrete footing; includes new delineator for top of post; high tension cable system

606-99.02 REATTACH EXIST CRP ANCH POST TO BASE HT

Reattach an existing undamaged cable release post (CRP) upper anchor post to an existing undamaged CRP stub post mounted in a concrete footing; high tension cable system

606-99.02 ATTACH NEW CRP ANCH POST TO BASE HT

Furnish and attach a new CRP upper anchor post to an existing undamaged CRP stub post mounted in a concrete footing; includes new reflector for post; high tension cable system

606-99.02 R&R LINE POST CONC FOOTING W/SLEEVE HT

Remove and replace steel yielding cable line post reinforced concrete footing

with a new sleeve; engineer may allow abandoning of old concrete base and installation of new base immediately adjacent to damaged base; high tension cable system

606-99.02 R&R CRP ANCH POST 1-3 CONC FOOT W/STUB HT

Remove and replace CRP post footing # 1-3 with a new reinforced concrete footing with a new CRP stub; high tension cable system

606-99.02 R&R CCT TERM POST 4-9 CONC FOOT W/SLEEVE HT

Remove and replace Cable Terminal (CCT) post footing # 4-9 with a new reinforced concrete footing with a new sleeve; high tension cable system

606-99.02 RETENSION HIGH TENSION CABLES HT

Retension all 3 strands of 3-strand high tension guard cable system; item includes written documentation on a tension log form provided to the engineer; includes check and adjustment of all end assemblies on both ends of a cable run; high tension cable system

606-99.02 R&R CCT TERMINAL POST 4-7 IN EXSLEEVE HT

Remove and replace CCT post # 4-7 in an existing ground sleeve mounted in a concrete footing; high tension cable system

606-99.02 R&R CCT TERMINAL POST 8-9 IN EXSLEEVE HT

Remove and replace CCT post # 8-9 in an existing ground sleeve mounted in a concrete footing; high tension cable system

606-99.02 FURN/INST TURNBUCKLE CABLE SPLICE ASSY HT

Furnish and install a turnbuckle cable splice assembly to tie two cut ends of high tension cable together; includes all castings, wedges, threaded rods, nuts, and turnbuckles needed to fully develop the strength of the cable, high tension cable system

606-99.02 R&R TURNBUCKLE HT

Remove and replace a turnbuckle to tie two existing cable ends with existing left hand and right hand stud assemblies. New turnbuckle will typically be used when an existing turnbuckle has been cut by emergency personnel to free a vehicle from the cable system, high tension cable system

606-99.02 R&R TOP/MID/OR BOTTOM CABLE END ASSY HT

Remove and replace the top, middle, or bottom cable end assembly at a CCT terminal; bottom assembly is 41’-9” long; middle assembly is 48’-0” long; top assembly is 54’-3” long; includes all hardware to fully replace the cable end assembly; high tension cable system

606-99.02 REALIGN LINE POST HT

Realign line post, high tension guard cable system

606-99.02 R&R LINE POST IN ROCK HT

Remove and replace line post in rock, high tension guard cable system

606-99.02 TL-3 LINE POST DRIVEN

Furnish and Install TL-3 line post driven, high tension guard cable system

606-99.02 TL-3 LINE POST SOCKETED

Furnish and Install TL-3 line post socketed, high tension guard cable system

606-99.02 TL-3 HAIRPIN

Furnish and Install TL-3 Hairpin, high tension guard cable system

606-99.02 TL-3 LOCKPLATE

Furnish and Install TL-3 Lockplate, high tension guard cable system

606-99.02 TL-3 OR TL-4 U-BOLT LOCKPLATE ASSEMBLY

Furnish and Install TL-3 or TL-4 U-Bolt Lockplate Assembly, high tension guard cable system

606-99.02 TL-4 LINE POST DRIVEN

Furnish and Install TL-4 line post driven, high tension guard cable system

606-99.02 TL-4 LINE POST SOCKETED

Furnish and Install TL-4 line post socketed, high tension guard cable system

606-99.02 TL-4 HAIRPIN

Furnish and Install TL-4 Hairpin, high tension guard cable system

606-99.02 TL-4 LOCKPLATE

Furnish and Install TL-4 Lockplate, high tension guard cable system

606-99.02 TERMINAL SECTION COMPLETE

Furnish and Install complete terminal section

606-99.02 TERMINAL POST #1/WEAK

Furnish and Install Terminal Post #1/WEAK

606-99.02 TERMINAL POST #2/WEAK

Furnish and Install Terminal Post #2/WEAK

606-99.02 TL-3 TERMINAL POST #3&4/WEAK

Furnish and Install TL-3 Terminal Post #3&4/WEAK

606-99.02 TL-4 TERMINAL POST #3&4/WEAK

Furnish and Install TL-4 Terminal Post #3&4/WEAK

606-99.02 CABLE RELEASE POST

Furnish and Install Cable Release Post

606-99.02 ANCHOR POST

Furnish and Install Anchor Post

606-99.02 ANCHOR TERMINAL FITTING

Furnish and Install Anchor Terminal Fitting

606-99.02 CABLE SPLICE TURNBUCKLE

Furnish and Install Cable Splice Turnbuckle

606-99.03 1/2 IN CABLE 1/S

Furnish new ½ inch cable

606-99.03 3/4 IN CABLE 1/S HT

Furnish new 3/4” HT cable.

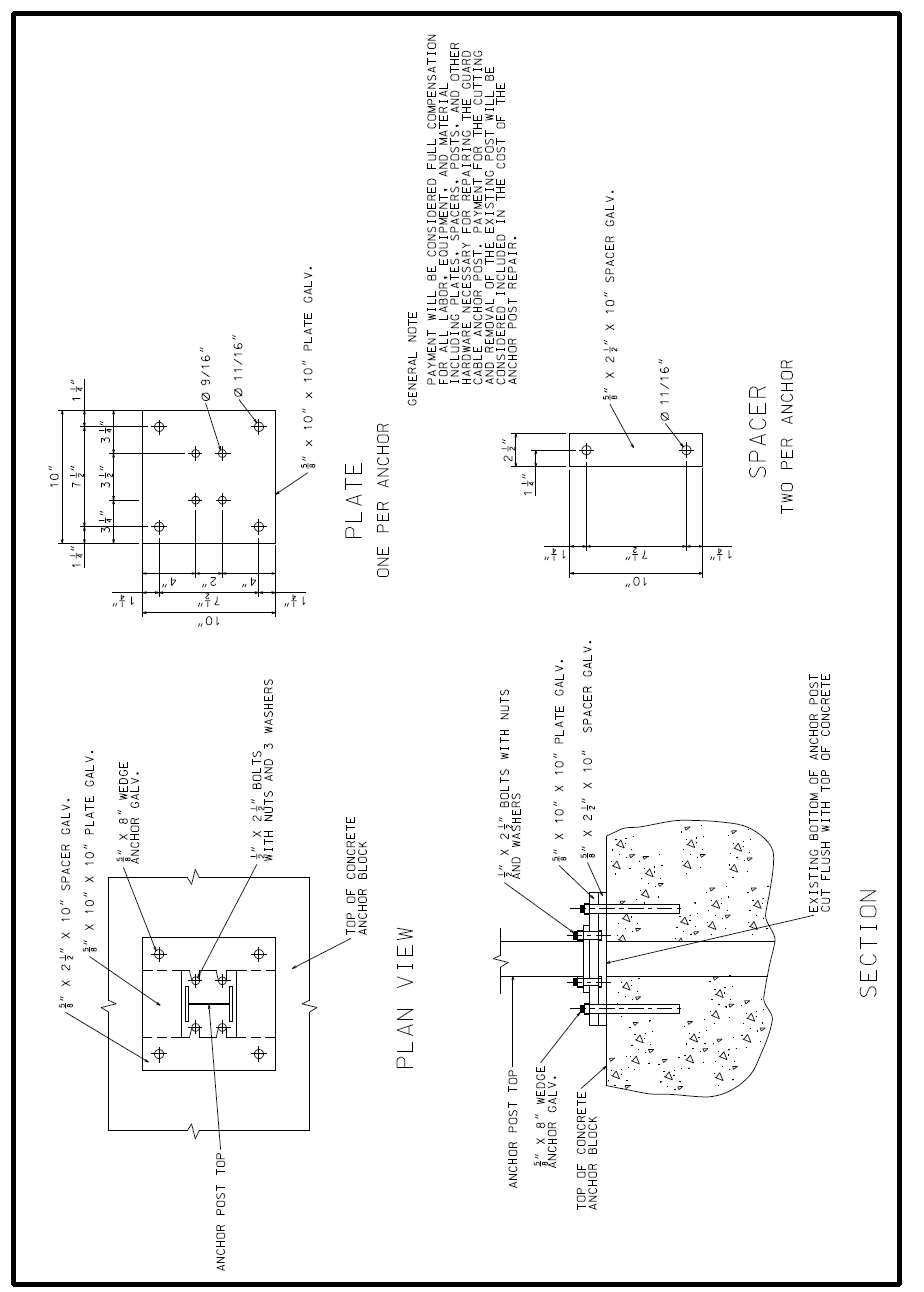
606-99.03 HIGH TENSION SAFETY FENCE, TL-3

Furnish and install new TL-3 High Tension Safety Fence

606-99.03 HIGH TENSION SAFETY FENCE, TL-4

Furnish and install new TL-4 High Tension Safety Fence

MM. RETROFIT SLIP BASE PLATE DETAIL



NN. ET-PLUS® TYPE A CRASHWORTHY END TERMINALS

1. **Description.** The ET-Plus® Type A Crashworthy End Terminal manufactured by Trinity Industries Co. has been suspended from use on MoDOT projects. A list of the currently approved Type A Crashworthy End Terminals can be found at: <http://tinyurl.com/TypeACET>.
2. **Construction Requirements.** Damaged ET-Plus® Type A Crashworthy End Terminals shall not be repaired in place, irrespective of the level of damage sustained. Rather, they shall be removed and replaced in their entirety with an approved Type A Crashworthy End Terminal.
3. **Basis of Payment.** The accepted quantities of Type A Crashworthy End Terminal, in place, will be paid at the contract unit price for each of the pay items included in the contract.

OO. SAFETY REQUIREMENTS

**Delete Sec 616.3.1 and substitute the following:**

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

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

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

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

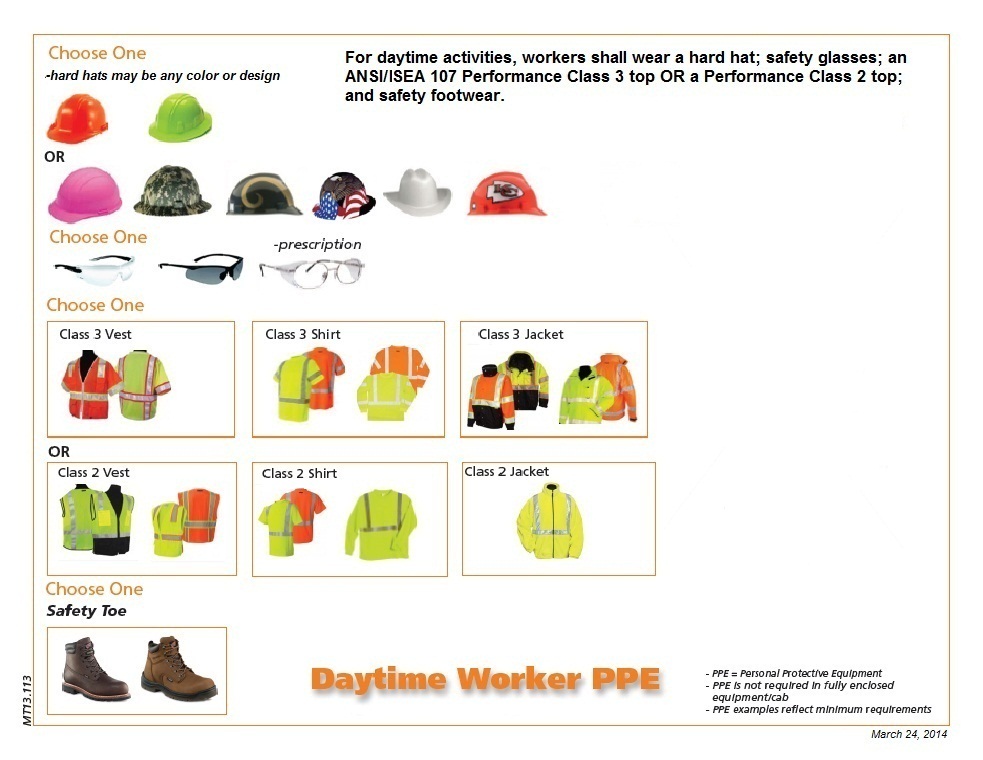
**616.3.1.4 Nighttime Worker**. During nighttime activities, workers shall wear a hard hat, safety glasses, a Performance Class 3 top OR Performance Class 2 top AND Class E bottoms, and safety footwear.

Note: A graphic representation of the various PPE as described above can be found in the “Additional Information” portion of these provisions. A color representation can be found on the MoDOT website at: <http://tinyurl.com/Safe-Apparel>.

**GRAPHIC REPRESENTATION OF PERSONAL PROTECTIVE EQUIPMENT**



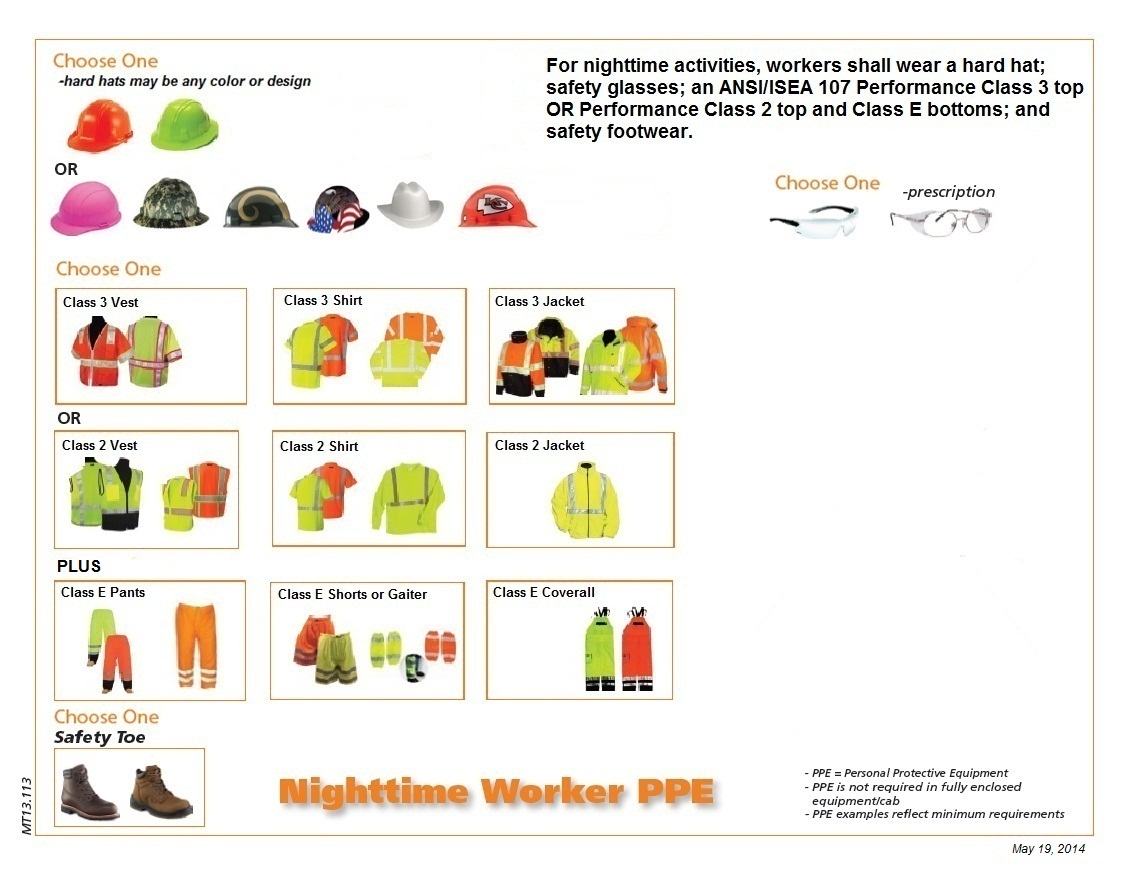
**616.3.1.1**



**616.3.1.2**



**616.3.1.3**



**616.3.1.4**