

## Table of Contents

<b><u>Local Administered Project Supplements, Specifications, Special Provisions</u></b>	<b><u>3</u></b>
<u>cn100-000051-02 VDOT Supplemental Specifications (SSS), Special Provisions (SPS) And Special Provision Copied Notes (SPCNS)</u>	4
<u>cn102-000510-00 Preparation of Bid Compliance with The Cargo Preference Act</u>	6
<u>SP100-000051-00 Changed Conditions for Local Assistance Projects</u>	7
<u>SP102-000510-02 Use Of Domestic Material</u>	9
<u>Cq107-000130-00 Drug-Free Workplace</u>	12
<u>Cq107-000140-00 Contractor Sexual Harassment Policy</u>	13
<u>SP107-001510-01 DBE Requirements</u>	14
<u>SQ105-000611-01 Section 105.06—Subcontracting (Federal Funded Projects)</u>	38
<u>SP0F0-000100-00 Predetermined Minimum Wage Rates</u>	39
<u>SP0F0-000130-00 Required Contract Provisions, Federal-Aid Construction Contracts</u>	41
<u>SP0F0-000150-01 Affirmative Action to Ensure Equal Employment Opportunity</u>	68
 <b><u>Division I – General Provisions</u></b>	 <b><u>76</u></b>
<u>SP107-001110-00 Controlled Blasting</u>	77
<u>SQ108-000210-00 108.02—Limitations of Operations</u>	79
 <b><u>Division II – Materials</u></b>	 <b><u>91</u></b>
<u>SS200-002020-02 Section 200 General Specification Amendments</u>	92
<u>SS203-002020-01 Coarse Aggregate</u>	94
<u>SS210-002020-01 Asphalt Materials</u>	95
<u>SS211-002020-01 Asphalt Concrete</u>	96
<u>SS217-000120-00 Massive Construction Hydraulic Cement Concrete</u>	101
<u>SS217-002020-01 Hydraulic Cement Concrete</u>	106
<u>SS226-002020-01 Structural Steel</u>	118
<u>SS237-002020-01 Structure Bedding Material and Bearing Pads</u>	121
<u>SS245-002020-01 Geosynthetics And Low Permeability Liners</u>	122
<u>SS246-002020-01 Pavement Marking</u>	127
 <b><u>Division III – Roadway Construction</u></b>	 <b><u>130</u></b>
<u>SP302-000110-00 Temporary Vehicular Watercourse Crossing</u>	131
<u>SS305-002020-01 Subgrade and Shoulders</u>	133
<u>SS315-002020-01 Asphalt Concrete Placement</u>	135
<u>SS316-002020-01 Hydraulic Cement Concrete Pavement</u>	146
 <b><u>Division IV – Bridges and Structures</u></b>	 <b><u>147</u></b>
<u>SP401-000100-01 Clearing and Grubbing at Bridge Approaches</u>	148
<u>SS401-002020-01 Structure Excavation</u>	150
<u>SS405-002020-01 Prestressed Concrete</u>	151
<u>SS407-002020-01 Steel and Other Metal Structures</u>	152
 <b><u>Division V – Incidental Construction</u></b>	 <b><u>155</u></b>
<u>SS512-002020-02 Maintaining Traffic</u>	156

<b><u>Division VII – Traffic Control Devices</u></b>	<b><u>170</u></b>
<u>SP700-000180-02 Modifications to AASHTO's Sign Structure Specification</u>	171
<u>SP703-000100-00 Mast Arm Hanger Assembly STD SM-3 And SMD-2</u>	176
<u>SP703-000110-00 Replacement of Loop Detectors</u>	185
<u>SP703-000120-00 Signal Head Module and Signal Head Backplate Replacement</u>	186
<u>SP704-000100-04 Pavement Markings and Markers</u>	188
<u>SQ704-000110-00 Pavement Markings and Markers</u>	201
<u>SP704-000120-00 Inlaid Pavement Markers</u>	203
<u>SS704-002020-01 Pavement Markings and Markers</u>	207
<b><u>Division VIII – Intelligent Transportation Systems</u></b>	<b><u>213</u></b>
<u>SP801-000100-01 Lane Closure Coordination (LCC)/Lane Closure Implementation (LCI)</u>	214
<b><u>Loudoun County Special Provisions</u></b>	<b><u>216</u></b>
<u>SP Stormwater &amp; Bioretention Ponds</u>	217
<u>SP Construction Record Documentation of Permanent Stormwater Management Facilities</u>	220
<u>SP Control of Work</u>	222
<u>SP Field Office</u>	223
<u>SP Underdrains, Crossdrains, And Edgedrains</u>	224
<u>SP Seeding of the Specifications: Excavation</u>	225
<u>SP Mowing of the Specifications: Measure and Payment</u>	226
<u>SP Work Zone Traffic Control Management</u>	227
<u>SP Cathodic Protection System</u>	231
<b><u>Loudoun County Supplemental Notes to Schedule of Bid Items</u></b>	<b><u>232</u></b>
<u>Loudoun Country Supplemental Notes</u>	233
<u>Temporary Access Exhibit</u>	236

## **Locally Administered Project Supplements, Specifications, Special Provisions**

**cn100-000051-02 VDOT SUPPLEMENTAL SPECIFICATIONS (SSs), SPECIAL PROVISIONS (SPs) AND SPECIAL PROVISION COPIED NOTES (SPCNs)**

Where Virginia Department of Transportation (VDOT) Supplemental Specifications, Special Provisions and Special Provision Copied Notes are used in this contract, the references therein to “the Specifications” shall refer to the *Virginia Department of Transportation Road and Bridge Specifications*, dated 2016 and the Supplement thereto, dated 2019. References to the “Road and Bridge Standard(s)” shall refer to the *Virginia Department of Transportation Road and Bridge Standards*, dated 2016 with revisions issued online as of the advertisement date for this project incorporated. References to the “Virginia Work Area Protection Manual” shall refer to the 2011 edition of the *Virginia Work Area Protection Manual with Revision Number 2* incorporated, dated September 1, 2019. References to the “MUTCD” shall refer to the 2009 edition of the *MUTCD with Revision Numbers 1 and 2* incorporated, dated May 2012; and the 2011 edition of the *Virginia Supplement to the MUTCD with Revision Number 1* dated September 30, 2013.

Where the terms “Department”, “Engineer”, “Contract Engineer”, “Construction Engineer”, Materials “Engineer”, and “Operations Engineer” appear in VDOT Supplemental Specifications, Special Provisions and Special Provision Copied Notes used in this contract and the VDOT publication(s) that each references, the authority identified shall be according to the definitions in Section 101.02 of the *Virginia Department of Transportation Road and Bridge Specifications*, dated 2016. Authority identified otherwise for this particular project will be stated elsewhere in this contract.

VDOT Supplemental Specifications, Special Provisions and Special Provision Copied Notes used in this contract and the VDOT publication(s) that each reference are intended to be complementary to the each other. In case of a discrepancy, the order of priority stated in Section 105.12 of the *Virginia Department of Transportation Road and Bridge Specifications*, dated 2016 shall apply.

VDOT Special Provision Copied Notes in this contract are designated with “(SPCN)” after the date of each document. VDOT Supplemental Specifications and Special Provision Copied Notes in this contract are designated as such above the title of each document.

The information at the top and left of each VDOT Special Provision Copied Note in this contract is file reference information for VDOT use only. The information in the upper left corner above the title of each VDOT Supplemental Specification

and VDOT Special Provision in this contract is file reference information for VDOT use only.

12-2-19 (SPCN)

cn102-000510-00

**SECTION 102.05—PREPARATION OF BID of the Specifications is amended to include the following:**

**(g) Compliance with the Cargo Preference Act**

As required by [46 CFR 381.7 \(a\)-\(b\)](#) "Use of United States-flag vessels, when materials or equipment are acquired for a specific highway project, the Contractor agrees:

1. To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels.
2. To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States. a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590.
3. To insert the substance of the provisions of this clause in all subcontracts issued pursuant to this contract.

This requirement will not be applicable when materials or equipment used on the Project are obtained from the existing inventories of suppliers and contractors; they are only applicable when the materials or equipment are acquired for the specific project, and have been transported by ocean vessel.

12-14-15; Reissued 7-12-16 (SPCN) [formerly cn102-050100-00]

**SP100-000051-00**

**VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
CHANGED CONDITIONS FOR LOCAL ASSISTANCE PROJECTS**

April 29, 2019

**I. GENERAL**

This special provision specifies the process to be followed when conditions specified in the Contract differ from what is encountered during the prosecution of work except as provided elsewhere in the Contract.

**II. DIFFERING SITE CONDITIONS**

1. During the progress of the work, if subsurface or latent physical conditions are encountered at the site differing materially from those indicated in the Contract or if unknown physical conditions of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the work provided for in the Contract, are encountered at the site, the party discovering such conditions shall promptly notify the other party in writing of the specific differing conditions before the site is disturbed and before the affected work is performed.
2. Upon written notification, the Engineer will investigate the conditions, and if it is determined that the conditions materially differ and cause an increase or decrease in the cost or time required for the performance of any work under the Contract, an adjustment, excluding anticipated profits, will be made and the Contract modified in writing accordingly. The Engineer will notify the Contractor of the determination whether or not an adjustment of the Contract is warranted.
3. No contract adjustment which results in a benefit to the Contractor will be allowed unless the Contractor has provided the required written notice.
4. No contract adjustment will be allowed under this clause for any effects caused on unchanged work. (This provision may be omitted by the [Department](#) at its option.)

**III. SUSPENSION OF WORK ORDERED BY THE ENGINEER**

1. If the performance of all or any portion of the work is suspended or delayed by the Engineer in writing for an unreasonable period of time (not originally anticipated, customary, or inherent to the construction industry) and the Contractor believes that additional compensation and/or contract time is due as a result of such suspension or delay, the Contractor shall submit to the Engineer in writing a request for adjustment within 7 calendar days of receipt of the notice to resume work. The request shall set forth the reasons and support for such adjustment.

2. Upon receipt, the Engineer will evaluate the Contractor's request. If the Engineer agrees that the cost and/or time required for the performance of the Contract has increased as a result of such suspension and the suspension was caused by conditions beyond the control of and not the fault of the Contractor, its suppliers, or subcontractors at any approved tier, and not caused by weather, the Engineer will make an adjustment (excluding profit) and modify the Contract in writing accordingly. The Contractor will be notified of the Engineer's determination whether or not an adjustment of the Contract is warranted.
3. No contract adjustment will be allowed unless the Contractor has submitted the request for adjustment within the time prescribed.
4. No contract adjustment will be allowed under this clause to the extent that performance would have been suspended or delayed by any other cause, or for which an adjustment is provided or excluded under any other term or condition of this contract.

#### **IV. SIGNIFICANT CHANGES IN THE CHARACTER OF WORK**

1. The Engineer reserves the right to make, in writing, at any time during the work, such changes in quantities and such alterations in the work as are necessary to satisfactorily complete the project. Such changes in quantities and alterations shall not invalidate the Contract nor release the surety, and the Contractor agrees to perform the work as altered.
2. If the alterations or changes in quantities significantly change the character of the work under the Contract, whether such alterations or changes are in themselves significant changes to the character of the work or by affecting other work cause such other work to become significantly different in character, an adjustment, excluding anticipated profit, will be made to the Contract. The basis for the adjustment shall be agreed upon prior to the performance of the work. If a basis cannot be agreed upon, then an adjustment will be made either for or against the Contractor in such amount as the Engineer may determine to be fair and equitable.
3. If the alterations or changes in quantities do not significantly change the character of the work to be performed under the Contract, the altered work will be paid for as provided elsewhere in the Contract.
4. The term "significant change" shall be construed to apply only to the following circumstances:
  - A. When the character of the work as altered differs materially in kind or nature from that involved or included in the original proposed construction; or
  - B. When a major item of work, as defined elsewhere in the Contract, is increased in excess of 125 percent or decreased below 75 percent of the original contract quantity. Any allowance for an increase in quantity shall apply only to that portion in excess of 125 percent of original contract item quantity, or in case of a decrease below 75 percent, to the actual amount of work performed.



**SP102-000510-02**

**VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
USE OF DOMESTIC MATERIAL**

December 19, 2018

**SECTION 102.05 PREPARATION OF BID** of the Specifications is amended to include the following:

In accordance with the provisions of Section 635.410(b) of Title 23 CFR, hereinafter referred to as “Buy America”, except as otherwise specified, all iron and steel (including miscellaneous items such as fasteners, nuts, bolts and washers) to be permanently incorporated for use on federal aid projects shall be produced in the United States of America. This applies to any iron or steel item brought onto the project, regardless of the percentage of iron or steel that exists in the pay item or in the final form they take; however, electrical components (i.e., combination products such as signal controllers and similar products which are only sold as a unit) are not subject to Buy America provisions if the product as purchased by the Contractor is less than 50% steel and iron. “Produced in the United States of America” means all manufacturing processes occur in one of the 50 United States, the District of Columbia, Puerto Rico or in the territories and possessions of the United States. “Manufacturing processes” are defined as any process which alters or modifies the chemical content, physical size or shape, or final finish of iron or steel material (such as rolling, extruding, bending, machining, fabrication, grinding, drilling, finishing, or coating). For the purposes of satisfying this requirement “coating” is defined as the application of epoxy, galvanizing, painting or any other such process that protects or enhances the value of the material to which the coating is applied. Non-iron and non-steel materials used in the coating process do not need to be produced in the United States as long as the application of the coating occurred in the United States. The manufacturing process is considered complete when the resultant product is ready for use as an item in the project (e.g. fencing, posts, girders, pipe, manhole covers, etc.) or is incorporated as a component of a more complex product by means of further manufacturing. Final assembly of a product may occur outside of the United States of America provided no further manufacturing processes take place.

For the purposes of this provision, all steel or iron material meeting the criteria as produced in the United States of America will be considered as “Domestic Material.” All iron and steel items not meeting the criteria as produced in the United States of America will be considered “Non-Domestic Material.”

A minimal amount of “Non-Domestic” steel or iron material may be incorporated in the permanent work on a federal-aid contract provided that the cost of such materials or products does not exceed one-tenth of one percent of the Contract amount or \$2500, whichever is greater. The cost of the “Non-Domestic Material” is defined as its monetary value delivered to the job site and supported by invoices or bill of sale to the Contractor. This delivered-to-site cost must include transportation, assembly, installation and testing.

Buy America provisions do not apply to iron or steel products used temporarily in the construction of a project such as temporary sheet piling, temporary bridges, steel scaffolding, falsework or such temporary material or product or material that remains in place for the Contractor's convenience.

Raw materials such as iron ore, pig iron, processed, pelletized and reduced iron ore, waste products (including scrap, that is, steel or iron no longer useful in its present form from old automobiles, machinery, pipe, railroad rail, or the like and steel trimmings from mills or product manufacturing) and other raw materials used in the production of steel and/or iron products may, however, be imported. Extracting, handling, or crushing the raw materials which are inherent to the transporting the materials for later use in the manufacturing process are exempt from Buy America.

Any items containing foreign source steel or iron billet shall be considered "Non-Domestic Materials." Additionally, iron or steel ingots or billets produced in the United States, but shipped outside the United States of America for any manufacturing process and returned for permanent use in a project shall be considered "Non-Domestic Materials."

**Waivers:**

The process for receiving a waiver for Buy America provisions is identified in 23 CFR 635.410(c). The Contractor shall not anticipate that any Buy America provisions will be waived.

**Certification of Compliance:**

The Contractor is required to submit a Certificate of Compliance prior to incorporating any items containing iron or steel items into the project. This shall be accomplished by the Contractor submitting the Form C-76 Certificate of Compliance to the Department when the items are delivered to the project site. The Certification of Compliance will certify whether the items are considered "Domestic Material" or "Non-Domestic Material" as referenced in this Special Provision. The certificate must be signed and dated by the Prime Contractor's Superintendent and include a Buy America Submittal Number. The Buy America Submittal Number is simply the Contractor's project specific sequential numbering system that will allow the Contractor and Department to track the total number of certificates provided and the individual items containing iron or steel associated with each certificate.

**Supporting Documentation:**

Supporting documentation to demonstrate compliance with Buy America provisions (such as mill test reports manufacturer/supplier certifications, etc.) shall be organized by Buy America Submittal Number and maintained by the Contractor from the date of delivery until three years after project acceptance. The Contractor may maintain this documentation electronically or in paper format.

The Department or FHWA may review the Contractor's supporting documentation to verify compliance with the Buy America provisions at any time. Supporting documentation shall be provided within five business days of the request. The burden of proof to meet the Buy America provisions rests with the Contractor. If the supporting documentation does not undeniably demonstrate to FHWA or the Department that the "Domestic Materials" identified in the Certificates of Compliance were produced in the United States of America, then the Department may deduct payment from moneys due the Contractor for the value of the iron and steel that did not meet the Buy America provisions.

**cq107-000130-00**

**DRUG-FREE WORKPLACE**

The Contractor shall:

- Provide a Drug-Free Workplace for the Contractor's employees.
- Post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana is prohibited in the Contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition.
- State in all solicitations or advertisements for employees placed by or on behalf of the Contractor that the Contractor maintains a Drug-Free Workplace.
- Include the provisions of the foregoing clauses in every Subcontract or purchase order of over \$10,000, so that the provisions will be binding upon each Subcontractor or vendor.

For the purposes of this provision, "Drug-Free Workplace" means a site for the performance of work done in connection with the Contract. The Contractors employees, and those of his Subcontractors, shall be prohibited from engaging in the unlawful manufacture, sale, distribution, dispensation, possession, or use of any controlled substance or marijuana during the performance of the Work.

7-3-19 (SPCN)

**cq107-000140-00**

**CONTRACTOR SEXUAL HARASSMENT POLICY** – If the contractor employs more than five employees, the contractor shall (i) provide annual training on the contractor's sexual harassment policy to all supervisors and employees providing services in the Commonwealth, except such supervisors or employees that are required to complete sexual harassment training provided by the Department of Human Resource Management, and (ii) post the contractor's sexual harassment policy in (a) a conspicuous public place in each building located in the Commonwealth that the contractor owns or leases for business purposes and (b) the contractor's employee handbook.

The contractor shall include the above paragraph in every subcontract or purchase order over \$10,000, so that this requirement shall be binding upon each subcontractor or vendor.

6-5-20 (SPCN)

**SP107-001510-01** [formerly SP107-150100-01]

VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
**DBE REQUIREMENTS**

August 18, 2017

**SECTION 107 – LEGAL RESPONSIBILITIES** of the Specifications is revised as follows:

**Section 107.15 – Use of Small, Women-Owned, and Minority-Owned Business** is renamed **Use of Disadvantaged Business Enterprises (DBEs)** and replaced with the following:

**(a) Disadvantaged Business Enterprise (DBE) Program Requirements**

Any Contractor, subcontractor, supplier, DBE firm, and contract surety involved in the performance of work on a federal-aid contract shall comply with the terms and conditions of the United States Department of Transportation (USDOT) DBE Program as the terms appear in Part 26 of the Code of Federal Regulations (49 CFR as amended), the USDOT DBE Program regulations; and the Virginia Department of Transportation's (VDOT or the Department) Road and Bridge Specifications and DBE Program rules and regulations.

For the purposes of this provision, Contractor is defined as the Prime Contractor of the Contract; and sub-contractor is defined as any DBE supplier, manufacturer, or subcontractor performing work or furnishing material, supplies or services to the Contract. The Contractor shall physically include this same contract provision in every supply or work/service subcontract that it makes or executes with a subcontractor having work for which it intends to claim credit.

In accordance with 49 CFR Part 26 and VDOT's DBE Program requirements, the Contractor, for itself and for its subcontractors and suppliers, whether certified DBE firms or not, shall commit to complying fully with the auditing, record keeping, confidentiality, cooperation, and anti-intimidation or retaliation provisions contained in those federal and state DBE Program regulations. By bidding on this contract, and by accepting and executing this contract, the Contractor agrees to assume these contractual obligations and to bind the Contractor's subcontractors contractually to the same at the Contractor's expense.

The Contractor or subcontractor shall not discriminate on the basis of race, color, sex, sexual orientation, gender identity, or national origin in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR Part 26 in the award, administration, and performance of this contract. Failure by the Contractor to carry out these requirements is a material

breach of this contract, which will result in the termination of this contract or other such remedy, as VDOT deems appropriate.

All administrative remedies noted in this provision are automatic unless the Contractor exercises the right of appeal within the required timeframe(s) specified herein. Appeal requirements, processes, and procedures shall be in accordance with guidelines stated herein and current at the time of the proceedings. Where applicable, the Department will notify the Contractor of any changes to the appeal requirements, processes, and procedures after receiving notification of the Contractor's desire to appeal.

All time frames referenced in this provision are expressed in business days unless otherwise indicated. Should the expiration of any deadline fall on a weekend or holiday, such deadline will automatically be extended to the next normal business day.

**(b) DBE Certification**

The only DBE firms eligible to perform work on a federal-aid contract for DBE contract goal credit are firms certified as Disadvantaged Business Enterprises by the Virginia Department of Small Business and Supplier Diversity (DSBSD) or the Metropolitan Washington Airports Authority (MWAA) in accordance with federal and VDOT guidelines. DBE firms must be certified in the specific work listed for DBE contract goal credit. A directory listing of certified DBE firms can be obtained from the Virginia Department of [Small Business and Supplier Diversity website: www.sbsd.virginia.gov](http://www.sbsd.virginia.gov).

**(c) Bank Services**

The Contractor and each subcontractor are encouraged to use the services of banks owned and controlled by socially and economically disadvantaged individuals. Such banking services and the fees charged for services typically will not be eligible for DBE Program contract goal credit. Such information is available from the VDOT's Internet Civil Rights Division website: [http://www.virginiadot.org/business/resources/Civil\\_Rights/VDOT\\_DB\\_E\\_Program\\_Plan.pdf](http://www.virginiadot.org/business/resources/Civil_Rights/VDOT_DB_E_Program_Plan.pdf)

**(d) DBE Program-Related Certifications Made by Bidders\Contractors**

By submitting a bid and by entering into any contract on the basis of that bid, the bidder/Contractor certifies to each of the following DBE Program-related conditions and assurances:

1. That the management and bidding officers of its firm agree to comply with the bidding and project construction and administration obligations of the USDOT DBE Program requirements and regulations of 49 CFR Part 26 as amended, and VDOT's Road and Bridge Specifications and DBE Program requirements and regulations.

2. Under penalty of perjury and other applicable penal law that it has complied with the DBE Program requirements in submitting the bid, and shall comply fully with these requirements in the bidding, award, and execution of the Contract.
3. To ensure that DBE firms have been given full and fair opportunity to participate in the performance of the Contract. The bidder certifies that all reasonable steps were, and will be, taken to ensure that DBE firms had, and will have, an opportunity to compete for and perform work on the Contract. The bidder further certifies that the bidder shall not discriminate on the basis of race, color, age, sex, sexual orientation, gender identity, or national origin in the performance of the Contract or in the award of any subcontract. Any agreement between a bidder and a DBE whereby the DBE promises not to provide quotations for performance of work to other bidders is prohibited.
4. As a bidder, good faith efforts were made to obtain DBE participation in the proposed contract at or above the goal for DBE participation established by VDOT. It has submitted as a part of its bid true, accurate, complete, and detailed documentation of the good faith efforts it performed to meet the Contract goal for DBE participation. The bidder, by signing and submitting its bid, certifies the DBE participation information submitted within the stated time thereafter is true, correct, and complete, and that the information provided includes the names of all DBE firms that will participate in the Contract, the specific line item(s) that each listed DBE firm will perform, and the creditable dollar amounts of the participation of each listed DBE. The specific line item must reference the VDOT line number and item number contained in the proposal.
5. The bidder further certifies, by signing its bid, it has committed to use each DBE firm listed for the specific work item shown to meet the Contract goal for DBE participation. Award of the Contract will be conditioned upon meeting these and other listed requirements of 49 CFR Part 26.53 and the contract documents. By signing the bid, the bidder certifies on work that it proposes to sublet; it has made good faith efforts to seek out and consider DBEs as potential subcontractors. The bidder shall contact DBEs to solicit their interest, capability, and prices in sufficient time to allow them to respond effectively, and shall retain on file proper documentation to substantiate its good faith efforts. Award of the Contract will be conditioned upon meeting these and other listed requirements of 49 CFR Part 26.53 and the contract documents.
6. Once awarded the Contract, the Contractor shall make good faith efforts to utilize DBE firms to perform work designated to be performed by DBEs at or above the amount or percentage of the dollar value specified in the bidding documents. Further, the Contractor understands it shall not unilaterally terminate, substitute for, or replace any DBE firm that was designated in the executed contract in whole or in part with another DBE, any non-DBE firm, or with the Contractor's own forces or those of an affiliate of the Contractor without the prior written consent of VDOT as set out within the requirements of this provision.
7. Once awarded the contract, the Contractor shall designate and make known to the Department a liaison officer who is assigned the responsibility of administering and promoting an active and inclusive DBE program as required by 49 CFR Part 26 for DBEs. The designation and identity of this officer need be submitted only once by the Contractor during any twelve (12) month period



at the preconstruction conference for the first contract the Contractor has been awarded during that reporting period. The Department will post such information for informational and administrative purposes at VDOT's Internet Civil Rights Division website.

8. Once awarded the Contract, the Contractor shall comply fully with all regulatory and contractual requirements of the USDOT DBE Program, and that each DBE firm participating in the Contract shall fully perform the designated work items with the DBE's own forces and equipment under the DBE's direct supervision, control, and management. Where a contract exists and where the Contractor, DBE firm, or any other firm retained by the Contractor has failed to comply with federal or VDOT DBE Program regulations and/or their requirements on that contract, VDOT has the authority and discretion to determine the extent to which the DBE contract regulations and/or requirements have not been met, and will assess against the Contractor any remedies available at law or provided in the Contract in the event of such a contract breach.
9. In the event a bond surety assumes the completion of work, if for any reason VDOT has terminated the prime Contractor, the surety shall be obligated to meet the same DBE contract terms and requirements as were required of the original prime Contractor in accordance with the requirements of this specification.

**(e) Disqualification of Bidder**

Bidders may be disqualified from bidding for failure to comply with the requirements of this Special Provision, the Contract specifications, and VDOT Road and Bridge Specifications.

(f) **Bidding Procedures**

The following bidding procedures shall apply to the Contract for DBE Program compliance purposes:

1. **Contract Goal, Good Faith Efforts Specified:** All bidders evidencing the attainment of DBE goal commitment equal to or greater than the required DBE goal established for the project must submit completed Form C-111, Minimum DBE Requirements, and Form C-48, Subcontractor/Supplier Solicitation and Utilization, as a part of the bid documents.

Form C-111 may be submitted electronically or may be faxed to the Department, but in no case shall the bidder's Form C-111 be received later than 10:00 a.m. the next business day after the time stated in the bid proposal for the receipt of bids. Form C-48 must be received within ten (10) business days after the bid opening.

If, at the time of submitting its bid, the bidder knowingly cannot meet or exceed the required DBE contract goal, it shall submit Form C-111 exhibiting the DBE participation it commits to attain as a part of its bid documents. The bidder shall then submit Form C-49, DBE Good Faith Efforts Documentation, within two (2) business days after the bid opening.

The lowest responsive and responsible bidder must submit its properly executed Form C-112, Certification of Binding Agreement, within three (3) business days after the bids are received. DBEs bidding as prime contractors are not required to submit Form C-112 unless they are utilizing other DBEs as subcontractors.

If, after review of the apparent lowest bid, VDOT determines the DBE requirements have not been met, the apparent lowest successful bidder must submit Form C-49, DBE Good Faith Efforts Documentation, which must be received by the Contract Engineer within two (2) business days after official notification of such failure to meet the aforementioned DBE requirements.

Forms C-48, C-49, C-111, and C-112 can be obtained from the VDOT website at:

<http://vdotforms.vdot.virginia.gov/>

Instructions for submitting Form C-111 can be obtained from the VDOT website at:

[http://www.virginiadot.org/business/resources/const/Exp\\_DBE\\_Commitments.pdf](http://www.virginiadot.org/business/resources/const/Exp_DBE_Commitments.pdf)

2. **Bid Rejection:** The failure of a bidder to submit the required documentation within the timeframes specified in the **Contract Goal, Good Faith Efforts Specified** section of this Special Provision may be cause for rejection of that bidder's bid.

If the lowest bidder is rejected for failure to submit the required documentation in the specified time frames, the Department may award the work to the next lowest bidder, or re-advertise the proposed work at a later date or proceed otherwise as determined by the Commonwealth.

3. **Good Faith Efforts Described:** In order to award a contract to a bidder that has failed to meet DBE contract goal requirements, VDOT will determine if the bidder's efforts were adequate good faith efforts, and if given all relevant circumstances, those efforts were made actively and aggressively to meet the DBE requirements. Efforts to obtain DBE participation are not good faith efforts if they could not reasonably be expected to produce a level of DBE participation sufficient to meet the DBE Program and contract goal requirements.

Good faith efforts may be determined through use of the following list of the types of actions the bidder may make to obtain DBE participation. This is not intended to be a mandatory checklist, nor is it intended to be exclusive or exhaustive. Other factors or types of efforts of similar intent may be relevant in appropriate cases:

- a. Soliciting through reasonable and available means, such as but not limited to, attendance at pre-bid meetings, advertising, and written notices to DBEs who have the capability to perform the work of the Contract. Examples include: advertising in at least one daily/weekly/monthly newspaper of general circulation, as applicable; phone contact with a completely documented telephone log, including the date and time called, contact person, or voice mail status; and internet contacts with supporting documentation, including dates advertised. The bidder shall solicit this interest no less than five (5) business days before the bids are due so that the solicited DBEs have enough time to reasonably respond to the solicitation. The bidder shall determine with certainty if the DBEs are interested by taking reasonable steps to follow up initial solicitations as evidenced by documenting such efforts as requested on Form C-49, DBE Good Faith Efforts Documentation.
- b. Selecting portions of the work to be performed by DBEs in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the Contractor might otherwise prefer to completely perform all portions of this work in its entirety or use its own forces;
- c. Providing interested DBEs with adequate information about the plans, specifications, and requirements of the Contract in a timely manner, which will assist the DBEs in responding to a solicitation;
- d. Negotiating for participation in good faith with interested DBEs;
  - (1) Evidence of such negotiation shall include the names, addresses, and telephone numbers of DBEs that were considered; dates DBEs were contacted; a description of the information provided regarding the plans, specifications, and requirements of the Contract for the work selected for subcontracting; and, if insufficient DBE participation

seems likely, evidence as to why additional agreements could not be reached for DBEs to perform the work;

- (2) A bidder using good business judgment should consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and should take a firm's price, qualifications, and capabilities, as well as contract goals, into consideration. However, the fact that there may be some additional costs involved in finding and using DBEs is not sufficient reason for a bidder's failure to meet the Contract goal for DBE participation, as long as such costs are reasonable and comparable to costs customarily appropriate to the type of work under consideration. Also, the ability or desire of a bidder to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make diligent good faith efforts. Bidders are not, however, required to accept higher quotes from DBEs if the price difference can be shown by the bidder to be excessive, unreasonable, or greater than would normally be expected by industry standards;
- e. A bidder cannot reject a DBE as being unqualified without sound reasons based on a thorough investigation of the DBE's capabilities. The DBE's standing within its industry, membership in specific groups, organizations, associations, and political or social affiliations, and union vs. non-union employee status are not legitimate causes for the rejection or non-solicitation of bids in the bidder's efforts to meet the project goal for DBE participation;
  - f. Making efforts to assist interested DBEs in obtaining bonding, lines of credit, or insurance as required by VDOT or by the bidder/Contractor;
  - g. Making efforts to assist interested DBEs in obtaining necessary equipment, supplies, materials, or related assistance or services subject to the restrictions contained in these provisions;
  - h. Effectively using the services of appropriate personnel from VDOT and from DMBE; available minority/women community or minority organizations; contractors' groups; local, state, and Federal minority/ women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and utilization of qualified DBEs.

**(g) Documentation and Administrative Reconsideration of Good Faith Efforts**

**During Bidding:** As described in the **Contract Goal, Good Faith Efforts Specified** section of this Special Provision, the bidder must provide Form C-49, DBE Good Faith Efforts Documentation, of its efforts made to meet the DBE contract goal as proposed by VDOT within the time frame specified in this provision. The means of transmittal and the risk for timely receipt of this information shall be the responsibility of the bidder. The bidder shall attach additional pages to the certification, if necessary, in order to fully detail specific good faith efforts made to obtain the DBE firms participation in the proposed contract work.

However, regardless of the DBE contract goal participation level proposed by the bidder or the extent of good faith efforts shown, all bidders shall timely and separately file their completed and executed forms C-111, C-112, C-48, and C-49, as aforementioned, or face potential bid rejection.

If a bidder does not submit its completed and executed forms C-111, or C-112, when required by this Special Provision, the bidder's bid will be considered non-responsive and may be rejected.

Where the Department upon initial review of the bid results determines the apparent low bidder has failed or appears to have failed to meet the requirements of the **Contract Goal, Good Faith Efforts Specified** section of this Special Provision and has failed to adequately document that it made a good faith effort to achieve sufficient DBE participation as specified in the bid proposal, that firm upon notification of the Department's initial determination will be offered the opportunity for administrative reconsideration before VDOT rejects that bid as non-responsive. The bidder shall address such request for reconsideration in writing to the Contract Engineer within five (5) business days of receipt of notification by the Department and shall be given the opportunity to discuss the issue and present its evidence in person to the Administrative Reconsideration Panel. The Administrative Reconsideration Panel will be made up of VDOT Division Administrators or their designees, none of who took part in the initial determination that the bidder failed to make the goal or make adequate good faith efforts to do so. After reconsideration, VDOT shall notify the bidder in writing of its decision and explain the basis for finding that the bidder did or did not meet the goal or make adequate good faith efforts to do so.

If, after reconsideration, the Department determines the bidder has failed to meet the requirements of the Contract goal and has failed to make adequate good faith efforts to achieve the level of DBE participation as specified in the bid proposal, the bidder's bid will be rejected.

If sufficient documented evidence is presented to demonstrate that the apparent low bidder made reasonable good faith efforts, the Department will award the Contract and reduce the DBE requirement to the actual commitment identified by the lowest successful bidder at the time of its bid. The Contractor is still encouraged to seek additional DBE participation during the life of the Contract.

However, such action will not relieve the Contractor of its responsibility for complying with the reduced DBE requirement during the life of the Contract or any administrative sanctions as may be appropriate.

**During the Contract:** If a DBE, through no fault of the Contractor, is unable or unwilling to fulfill his agreement with the Contractor, the Contractor shall immediately notify the Department and provide all relevant facts. If a Contractor relieves a DBE subcontractor of the responsibility to perform work under their subcontract, the Contractor is encouraged to take the appropriate steps to obtain a DBE to perform an equal dollar value of the remaining subcontracted work. In such instances, the

Contractor is expected to seek DBE participation towards meeting the goal during the performance of the Contract.

If the Contractor fails to conform to the schedule of DBE participation as shown on the progress schedule, or at any point at which it is clearly evident that the remaining dollar value of allowable credit for performing work is insufficient to obtain the scheduled participation, and the Contractor has not taken the preceding actions, the Contractor and any aforementioned affiliates may be subject to disallowance of DBE credit until such time as conformance with the schedule of DBE participation is achieved.

**Project Completion:** If the Contractor fails upon completion of the project to meet the required participation, the Contractor and any prime contractual affiliates, as in the case of a joint venture, may be enjoined from bidding as a prime Contractor, or participating as a subcontractor on VDOT projects for a period of 90 days.

Prior to enjoinder from bidding or denial to participate as a subcontractor for failure to comply with participation requirements, as provided hereinbefore, the Contractor may submit documentation to the State Construction Engineer to substantiate that failure was due solely to quantitative underrun(s), elimination of items subcontracted to DBEs, or to circumstances beyond their control, and that all feasible means have been used to obtain the required participation. The State Construction Engineer upon verification of such documentation shall make a determination whether or not the Contractor has met the requirements of the Contract.

If it is determined that the aforementioned documentation is insufficient or the failure to meet required participation is due to other reasons, the Contractor may request an appearance before the Administrative Reconsideration Panel to establish that all feasible means were used to meet such participation requirements. The decision of the Administrative Reconsideration Panel shall be administratively final. If the decision is made to enjoin the Contractor from bidding on other VDOT work as described herein, the enjoinder period will begin upon the Contractor's failure to request a hearing within the designated time frame or upon the Administrative Reconsideration Panel's decision to enjoin, as applicable.

**(h) DBE Participation for Contract Goal Credit**

1. Cost-plus subcontracts will not be considered to be in accordance with normal industry practice and will not normally be allowed for credit.
2. The applicable percentage of the total dollar value of the Contract or Subcontract awarded to the DBE will be counted toward meeting the Contract goal for DBE participation in accordance with the **DBE Program-Related Certifications Made by Bidders\Contractors** section of this Special Provision for the value of the work, goods, or services that are actually performed or provided by the DBE firm itself or subcontracted by the DBE to other DBE firms.

3. When a DBE performs work as a participant in a joint venture with a non-DBE firm, the Contractor may count toward the DBE goal only that portion of the total dollar value of the Contract equal to the distinctly defined portion of the Contract work that the DBE has performed with the DBE's own forces or in accordance with the provisions of this Section. The Department shall be contacted in advance regarding any joint venture involving both a DBE firm and a non-DBE firm to coordinate Department review and approval of the joint venture's organizational structure and proposed operation where the Contractor seeks to claim the DBE's credit toward the DBE contract goal.
4. When a DBE subcontracts part of the work of the Contract to another firm, the value of that subcontracted work may be counted toward the DBE contract goal only if the DBE's subcontractor at a lower tier is a certified DBE. Work that a DBE subcontracts to either a non-DBE firm or to a non-certified DBE firm will not count toward the DBE contract goal. The cost of supplies and equipment a DBE subcontractor purchases or leases from the prime Contractor or the prime's affiliated firms will not count toward the Contract goal for DBE participation.
5. The Contractor may count expenditures to a DBE subcontractor toward the DBE contract goal only if the DBE performs a Commercially Useful Function (CUF) on that contract.
6. A Contractor may not count the participation of a DBE subcontractor toward the Contractor's final compliance with the DBE contract goal obligations until the amount being counted has actually been paid to the DBE. A Contractor may count sixty (60) percent of its expenditures actually paid for materials and supplies obtained from a DBE certified as a regular dealer, and one hundred (100) percent of such expenditures actually paid for materials and supplies obtained from a certified DBE manufacturer.
  - a. For the purposes of this Special Provision, a regular dealer is defined as a firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials, supplies, articles, or equipment required and used under the Contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business. To be a regular dealer, the DBE firm shall be an established business that regularly engages, as its principal business and under its own name, in the purchase and sale or lease of the products or equipment in question. Packagers, brokers, manufacturers' representatives, or other persons who arrange or expedite transactions will not be considered regular dealers.
  - b. A DBE firm may be a regular dealer in such bulk items as petroleum products, steel, cement, gravel, stone, or asphalt without owning, operating, or maintaining a place of business where it keeps such items in stock if the DBE both owns and operates distribution equipment for the products it sells and provides for the Contract work. Any supplementation of a regular dealer's own distribution equipment shall be by a long-term lease agreement and not on an *ad hoc* or contract-by-contract basis to be eligible for credit to meet the DBE contract goal.
  - c. If a DBE regular dealer is used for DBE contract goal credit, no additional credit will be given for hauling or delivery to the project site goods or materials sold by that DBE regular dealer. Those delivery costs shall be deemed included in the price charged for the goods or materials by the DBE regular dealer, who shall be responsible for their distribution.

- d. For the purposes of this Special Provision, a manufacturer will be defined as a firm that operates or maintains a factory or establishment that produces on the premises the materials, supplies, articles, or equipment required under the Contract and of the general character described by the project specifications. A manufacturer shall include firms that produce finished goods or products from raw or unfinished material, or purchase and substantially alter goods and materials to make them suitable for construction use before reselling them.
- e. A Contractor may count toward the DBE contract goal the following expenditures to DBE firms that are not regular dealers or manufacturers for DBE program purposes:
  - (1) The entire amount of fees or commissions charged by a DBE firm for providing a bona fide service, such as professional, technical, consultant or managerial services, or for providing bonds or insurance specifically required for the performance of the federal-aid contract, if the fee is reasonable and not excessive or greater than would normally be expected by industry standards for the same or similar services.
  - (2) The entire amount of that portion of the construction contract that is performed by the DBE's own forces and equipment under the DBE's supervision. This includes the cost of supplies and materials ordered and paid for by the DBE for contract work, including supplies purchased or equipment leased by the DBE, except supplies and equipment a DBE subcontractor purchases or leases from the prime Contractor or its affiliates.
- f. A Contractor may count toward the DBE contract goal one hundred (100) percent of the fees paid to a DBE trucker or hauler for the delivery of material and supplies required on the project job site, but not for the cost of those materials or supplies themselves, provided that the trucking or hauling fee is determined by VDOT to be reasonable, as compared with fees customarily charged by non-DBE firms for similar services. A Contractor shall not count costs for the removal or relocation of excess material from or on the job site when the DBE trucking company is not the manufacturer of or a regular dealer in those materials and supplies. The DBE trucking firm shall also perform a Commercially Useful Function (CUF) on the project and not operate merely as a pass through for the purposes of gaining credit toward the DBE contract goal. Prior to submitting a bid, the Contractor shall determine, or contact the VDOT Civil Rights Division or its district Offices for assistance in determining, whether a DBE trucking firm will meet the criteria for performing a CUF on the project. See section on **Miscellaneous DBE Program Requirements; Factors used to Determine if a DBE Trucking Firm is Performing a CUF.**
- g. The Contractor will receive DBE contract goal credit for the fees or commissions charged by and paid to a DBE broker who arranges or expedites sales, leases, or other project work or service arrangements provided that those fees are determined by VDOT to be reasonable and not excessive as compared with fees customarily charged by non-DBE firms for similar services. For the purposes of this Special Provision, a broker is defined as a person or firm that regularly engages in arranging for delivery of material, supplies, and equipment, or regularly arranges for the providing of project services as a course of routine business but



does not own or operate the delivery equipment necessary to transport materials, supplies, or equipment to or from a job site.

(i) **Performing a Commercially Useful Function (CUF)**

No credit toward the DBE contract goal will be allowed for contract payments or expenditures to a DBE firm if that DBE firm does not perform a CUF on that contract. A DBE performs a CUF when the DBE is solely responsible for execution of a distinct element of the Contract work and the DBE actually performs, manages, and supervises the work involved with the firm's own forces or in accordance with the provisions of the **DBE Participation for Contract Goal Credit** section of this Special Provision. To perform a CUF the DBE alone shall be responsible and bear the risk for the material and supplies used on the Contract, selecting a supplier or dealer from those available, negotiating price, determining quality and quantity, ordering the material and supplies, installing those materials with the DBE's own forces and equipment, and paying for those materials and supplies. The amount the DBE firm is to be paid under the Contract shall be commensurate with the work the DBE actually performs and the DBE credit claimed for the DBE's performance.

**Monitoring CUF Performance:** It shall be the Contractor's responsibility to ensure that all DBE firms selected for subcontract work on the Contract, for which he seeks to claim credit toward the Contract goal, perform a CUF. Further, the Contractor is responsible for and shall ensure that each DBE firm fully performs the DBE's designated tasks with the DBE's own forces and equipment under the DBE's own direct supervision and management or in accordance with the provisions of the **DBE Participation for Contract Goal Credit** section of this Special Provision. For the purposes of this provision the DBE's equipment will mean either equipment directly owned by the DBE as evidenced by title, bill of sale or other such documentation, or leased by the DBE, and over which the DBE has control as evidenced by the leasing agreement from a firm not owned in whole or part by the prime Contractor or an affiliate of the Contractor under this contract.

VDOT will monitor the Contractor's DBE involvement during the performance of the Contract. However, VDOT is under no obligation to warn the Contractor that a DBE's participation will not count toward the goal.

**DBEs Must Perform a Useful and Necessary Role in Contract Completion:** A DBE does not perform a commercially useful function if the DBE's role is limited to that of an extra participant in a transaction, contract, or project through which funds are passed in order to obtain the appearance of DBE participation.

**DBEs Must Perform The Contract Work With Their Own Workforces:** If a DBE does not perform and exercise responsibility for at least thirty (30) percent of the total cost of the DBE's contract with the DBE's own work force, or the DBE subcontracts a greater portion of the work of a contract than would be expected on the basis of normal industry practice for the type of work involve, VDOT will presume

that the DBE is not performing a CUF and such participation will not be counted toward the Contract goal.

**VDOT Makes Final Determination On Whether a CUF Is Performed:** VDOT has the final authority to determine whether a DBE firm has performed a CUF on a federal-aid contract. To determine whether a DBE is performing or has performed a CUF, VDOT will evaluate the amount of work subcontracted by that DBE firm or performed by other firms and the extent of the involvement of other firms' forces and equipment. Any DBE work performed by the Contractor or by employees or equipment of the Contractor shall be subject to disallowance under the DBE Program, unless the independent validity and need for such an arrangement and work is demonstrated.

**(j) Verification of DBE Participation and Imposed Damages**

Within fourteen days after contract execution, the Contractor shall submit to the Responsible Engineer, with a copy to the District Civil Rights Office (DCRO), a fully executed subcontract agreement for each DBE used to claim credit in accordance with the requirements stated on Form C-112. The subcontract agreement shall be executed by both parties stating the work to be performed, the details or specifics concerning such work, and the price which will be paid to the DBE subcontractor. Because of the commercial damage that the Contractor and its DBE subcontractor could suffer if their subcontract pricing, terms, and conditions were known to competitors, the Department staff will treat subcontract agreements as proprietary Contractor trade secrets with regard to Freedom of Information Act requests. In lieu of subcontract agreements, purchase orders may be submitted for haulers, suppliers, and manufacturers. These too, will be treated confidentially and protected. Such purchase orders must contain, as a minimum, the following information: authorized signatures of both parties; description of the scope of work to include contract item numbers, quantities, and prices; and required federal contract provisions.

The Contractor shall also furnish, and shall require each subcontractor to furnish, information relative to all DBE involvement on the project for each quarter during the life of the Contract in which participation occurs and verification is available. The information shall be indicated on Form C-63, DBE and SWAM Payment Compliance Report. The department reserves the right to request proof of payment via copies of cancelled checks with appropriate identifying notations. Failure to provide Form C-63 to the District Civil Rights Office (DCRO) within five (5) business days after the reporting period may result in delay of approval of the Contractor's monthly progress estimate for payment. The names and certification numbers of DBE firms provided by the Contractor on the various forms indicated in this Special Provision shall be exactly as shown on the DMBE's or MWAA's latest list of certified DBEs. Signatures on all forms indicated herein shall be those of authorized representatives of the Contractor as shown on the Prequalification Application, Form C-32 or the Prequalification/Certification Renewal Application, Form C-32A, or authorized by letter from the Contractor. If DBE firms are used which have not been previously documented with the Contractor's

bid and for which the Contractor now desires to claim credit toward the project goal, the Contractor shall be responsible for submitting necessary documentation in accordance with the procedures stipulated in this Special Provision to cover such work prior to the DBE beginning work.

Form C-63 can be obtained from the VDOT website at: <http://vdotforms.vdot.virginia.gov/>

The Contractor shall submit to the Responsible Engineer its progress schedule with a copy to the DCRO, as required by Section 108.03 of the Specifications or other such specific contract scheduling specification that may include contractual milestones, i.e., monthly or VDOT requested updates. The Contractor shall include a narrative of applicable DBE activities relative to work activities of the Contractor's progress schedule, including the approximate start times and durations of all DBE participation to be claimed for credit that shall result in full achievement of the DBE goal required in the Contract.

On contracts awarded on the basis of good faith efforts, narratives or other agreeable format of schedule information requirements and subsequent progress determination shall be based on the commitment information shown on the latest Form C-111 as compared with the appropriate Form C-63.

Prior to beginning any major component or quarter of the work, as applicable, in which DBE work is to be performed, the Contractor shall furnish a revised Form C-111 showing the name(s) and certification number(s) of any current DBEs not previously submitted who will perform the work during that major component or quarter for which the Contractor seeks to claim credit toward the Contract DBE goal. The Contractor shall obtain the prior approval of the Department for any assistance it may provide to the DBE beyond its existing resources in executing its commitment to the work in accordance with the requirements listed in the **Good Faith Efforts Described** section of this Special Provision. If the Contractor is aware of any assistance beyond a DBE's existing resources that the Contractor, or another subcontractor, may be contemplating or may deem necessary and that have not been previously approved, the Contractor shall submit a new or revised narrative statement for VDOT's approval prior to assistance being rendered.

If the Contractor fails to comply with correctly completing and submitting any of the required documentation requested by this provision within the specified time frames, the Department will withhold payment of the monthly progress estimate until such time as the required submissions are received VDOT. Where such failures to provide required submittals or documentation are repeated the Department will move to enjoin the Contractor and any prime contractual affiliates, as in the case of a joint venture, from bidding as a prime Contractor, or participating as a subcontractor on VDOT projects until such submissions are received.

**(k) Documentation Required for Semi-final Payment**

On those projects nearing completion, the Contractor must submit Form C-63 marked “Semi-Final” within twenty (20) days after the submission of the last regular monthly progress estimate to the DCRO. The form must include each DBE used on the Contract work and the work performed by each DBE. The form shall include the actual dollar amount paid to each DBE for the accepted creditable work on the Contract. The form shall be certified under penalty of perjury, or other applicable law, to be accurate and complete. VDOT will use this certification and other information available to determine applicable DBE credit allowed to date by VDOT and the extent to which the DBEs were fully paid for that work. The Contractor shall acknowledge by the act of filing the form that the information is supplied to obtain payment regarding a federal participation contract. A letter of certification, signed by both the prime Contractor and appropriate DBEs, will accompany the form, indicating the amount, including any retainage, if present, that remains to be paid to the DBE(s).

**(l) Documentation Required for Final Payment**

On those projects that are complete, the Contractor shall submit a final Form C-63 marked “Final” to the DCRO, within thirty (30) days of the final estimate. The form must include each DBE used on the Contract and the work performed by each DBE. The form shall include the actual dollar amount paid to each DBE for the creditable work on the Contract. VDOT will use this form and other information available to determine if the Contractor and DBEs have satisfied the DBE contract goal percentage specified in the Contract and the extent to which credit was allowed. The Contractor shall acknowledge by the act of signing and filing the form that the information is supplied to obtain payment regarding a federal participation contract.

**(m) Prompt Payment Requirements**

The Contractor shall make prompt and full payment to the subcontractor(s) of any retainage held by the prime Contractor after the subcontractor’s work is satisfactorily completed.

For purposes of this Special Provision, a subcontractor’s work is satisfactorily completed when all the tasks called for in the subcontract have been accomplished, documented, and accepted as required by the contract documents by VDOT. When VDOT has made partial acceptance of a portion of the prime contract, the Department will consider the work of any subcontractor covered by that partial acceptance to be satisfactorily completed. Payment will be made in accordance with the requirements of Section 107.01, Section 109.08, and Section 109.09 of the Specifications.

Upon VDOT’s payment of the subcontractor’s portion of the work as shown on the monthly progress estimate and the receipt of payment by the Contractor for such work, the Contractor shall make compensation in full to the subcontractor for that portion of the work satisfactorily completed and accepted by the Department. For the purposes of this Special Provision, payment of the

subcontractor's portion of the work shall mean the Contractor has issued payment in full, less agreed upon retainage, if any, to the subcontractor for that portion of the subcontractor's work that VDOT paid to the Contractor on the monthly progress estimate.

The Contractor shall make payment of the subcontractor's portion of the work within seven (7) days of the receipt of payment from VDOT in accordance with the requirements of Section 107.01, Section 109.08, and Section 109.09 of the Specifications.

If the Contractor fails to make payment for the subcontractor's portion of the work within the time frame specified herein, the subcontractor shall contact the Responsible Engineer and the Contractor's bonding company in writing. The bonding company and VDOT will investigate the cause for non-payment and, barring mitigating circumstances that would make the subcontractor ineligible for payment, ensure payment in accordance with the requirements of Section 107.01, Section 109.08, and Section 109.09 of the Specifications.

By bidding on this contract, and by accepting and executing this contract, the Contractor agrees to assume these contractual obligations, and to bind the Contractor's subcontractors contractually to those prompt payment requirements.

Nothing contained herein shall preclude the Contractor from withholding payment to the subcontractor in accordance with the terms of the subcontract in order to protect the Contractor from loss or cost of damage due to a breach of agreement by the subcontractor.

**(n) Miscellaneous DBE Program Requirements**

1. **Loss of DBE Eligibility:** When a DBE firm has been removed from eligibility as a certified DBE firm, the following actions will be taken:
  - a. When a Bidder/Contractor has made a commitment to use a DBE firm that is not currently certified, thereby making the Contractor ineligible to receive DBE participation credit for work performed, and a subcontract has not been executed, the ineligible DBE firm does not count toward either the Contract goal or overall goal. The Contractor shall meet the Contract goal with a DBE firm that is eligible to receive DBE credit for work performed, or must demonstrate to the Contract Engineer that it has made good faith efforts to do so.
  - b. When a Bidder/Contractor has executed a subcontract with a certified DBE firm prior to official notification of the DBE firm's loss of eligibility, the Contractor may continue to use the firm on the Contract and shall continue to receive DBE credit toward its DBE goal for the subcontractor's work.
  - c. When VDOT has executed a prime contract with a DBE firm that is certified at the time of contract execution but that is later ruled ineligible, the portion of the ineligible firm's

performance on the Contract before VDOT has issued the notice of its ineligibility shall count toward the Contract goal.

2. **Termination of DBE:** If a certified DBE subcontractor is terminated, or fails, refuses, or is unable to complete the work on the Contract for any reason, the Contractor must promptly request approval to substitute or replace that firm in accordance with this section of this Special Provision.

The Contractor, as aforementioned in **DBE Program-Related Certifications Made by Bidders/Contractors**, shall notify VDOT in writing before terminating and/or replacing the DBE that was committed as a condition of contract award or that is otherwise being used or represented to fulfill DBE contract obligations during the Contract performance period. Written consent from the Department for terminating the performance of any DBE shall be granted only when the Contractor can demonstrate that the DBE is unable, unwilling, or ineligible to perform its obligations for which the Contractor sought credit toward the Contract DBE goal. Such written consent by the Department to terminate any DBE shall concurrently constitute written consent to substitute or replace the terminated DBE with another DBE. Consent to terminate a DBE shall not be based on the Contractor's ability to negotiate a more advantageous contract with another subcontractor whether that subcontractor is, or is not, a certified DBE.

- a. All Contractor requests to terminate, substitute, or replace a certified DBE shall be in writing, and shall include the following information:
  - (1) The date the Contractor determined the DBE to be unwilling, unable, or ineligible to perform.
  - (2) The projected date that the Contractor shall require a substitution or replacement DBE to commence work if consent is granted to the request.
  - (3) A brief statement of facts describing and citing specific actions or inaction by the DBE giving rise to the Contractor's assertion that the DBE is unwilling, unable, or ineligible to perform;
  - (4) A brief statement of the affected DBE's capacity and ability to perform the work as determined by the Contractor;
  - (5) A brief statement of facts regarding actions taken by the Contractor which are believed to constitute good faith efforts toward enabling the DBE to perform;
  - (6) The current percentage of work completed on each bid item by the DBE;
  - (7) The total dollar amount currently paid per bid item for work performed by the DBE;
  - (8) The total dollar amount per bid item remaining to be paid to the DBE for work completed, but for which the DBE has not received payment, and with which the Contractor has no dispute;

(9) The total dollar amount per bid item remaining to be paid to the DBE for work completed, but for which the DBE has not received payment, and over which the Contractor and/or the DBE have a dispute.

- b. Contractor's Written Notice to DBE of Pending Request to Terminate and Substitute with another DBE.

The Contractor shall send a copy of the "request to terminate and substitute" letter to the affected committed DBE firm, in conjunction with submitting the request to the DCRO. The affected DBE firm may submit a response letter to the Department within two (2) business days of receiving the notice to terminate from the Contractor. The affected DBE firm shall explain its position concerning performance on the committed work. The Department will consider both the Contractor's request and the DBE's response and explanation before approving the Contractor's termination and substitution request, or determining if any action should be taken against the Contractor.

If, after making its best efforts to deliver a copy of the "request to terminate and substitute" letter, the Contractor is unsuccessful in notifying the affected DBE firm, the Department will verify that the affected, committed DBE firm is unable or unwilling to continue the Contract. The Department will immediately approve the Contractor's request for a substitution.

- c. Proposed Substitution of Another Certified DBE

Upon termination of a DBE, the Contractor shall use reasonable good faith efforts to replace the terminated DBE. The termination of such DBE shall not relieve the Contractor of its obligations pursuant to this section, and the unpaid portion of the terminated DBE's contract will not be counted toward the Contract goal.

When a DBE substitution is necessary, the Contractor shall submit an amended Form C-111 with the name of another DBE firm, the proposed work to be performed by that firm, and the dollar amount of the work to replace the unfulfilled portion of the work of the originally committed DBE firm. The Contractor shall furnish all pertinent information including the Contract I.D. number, project number, bid item, item description, bid unit and bid quantity, unit price, and total price. In addition, the Contractor shall submit documentation for the requested substitute DBE as described in this section of this Special Provision.

Should the Contractor be unable to commit the remaining required dollar value to the substitute DBE, the Contractor shall provide written evidence of good faith efforts made to obtain the substitute value requirement. The Department will review the quality, thoroughness, and intensity of those efforts. Efforts that are viewed by VDOT as merely superficial or pro-forma will not be considered good faith efforts to meet the Contract goal for DBE participation. The Contractor must document the steps taken that demonstrated its

good faith efforts to obtain participation as set forth in the **Good Faith Efforts Described** section of this Special Provision.

**3. Factors Used to determine if a DBE Trucking Firm is performing a CUF:**

The following factors will be used to determine whether a DBE trucking company is performing a CUF:

- a. To perform a CUF the DBE trucking firm shall be completely responsible for the management and supervision of the entire trucking operation for which the DBE is responsible by subcontract on a particular contract. There shall not be a contrived arrangement, including, but not limited to, any arrangement that would not customarily and legally exist under regular construction project subcontracting practices for the purpose of meeting the DBE contract goal;
- b. The DBE must own and operate at least one fully licensed, insured, and operational truck used in the performance of the Contract work. This does not include a supervisor's pickup truck or a similar vehicle that is not suitable for and customarily used in hauling the necessary materials or supplies;
- c. The DBE receives full contract goal credit for the total reasonable amount the DBE is paid for the transportation services provided on the Contract using trucks the DBE owns, insures, and operates using drivers that the DBE employs and manages;
- d. The DBE may lease trucks from another certified DBE firm, including from an owner-operator who is certified as a DBE. The DBE firm that leases trucks from another DBE will receive credit for the total fair market value actually paid for transportation services the lessee DBE firm provides on the Contract;
- e. The DBE may also lease trucks from a non-DBE firm, including an owner-operator. The DBE who leases trucks from a non-DBE is entitled to credit for the total value of the transportation services provided by non-DBE lessees, *not to exceed the value of transportation services provided by DBE-owned trucks on the Contract*. For additional participation by non-DBE lessees, the DBE will only receive credit for the fee or commission it receives as a result of the lease arrangement.

**EXAMPLE**

DBE Firm X uses two (2) of its own trucks on a contract. The firm leases two (2) trucks from DBE Firm Y and six (6) trucks from non-DBE Firm Z.

		<b>Value of Trans. Serv.</b> (For Illustrative Purposes Only)
<b><u>Firm X</u></b>		
Truck 1	Owned by DBE	\$100 per day



Truck 2	Owned by DBE	\$100 per day
<b><u>Firm Y</u></b>		
Truck 1	Leased from DBE	\$110 per day
Truck 2	Leased from DBE	\$110 per day
<b><u>Firm Z</u></b>		
Truck 1	Leased from Non DBE	\$125 per day
Truck 2	Leased from Non DBE	\$125 per day
Truck 3	Leased from Non DBE	\$125 per day
Truck 4	Leased from Non DBE	\$125 per day
Truck 5	Leased from Non DBE*	\$125 per day
Truck 6	Leased from Non DBE*	\$125 per day

DBE credit would be awarded for the total transportation services provided by DBE Firm X and DBE Firm Y, and may also be awarded for the total value of transportation services by four (4) of the six (6) trucks provided by non-DBE Firm Z (not to exceed the value of transportation services provided by DBE-owned trucks).

**Credit = 8 Trucks**

**Total Value of Transportation Services = \$820**

In all, full DBE credit would be allowed for the participation of eight (8) trucks (twice the number of DBE trucks owned and leased) and the dollar value attributable to the Value of Transportation Services provided by the 8 trucks.

\* With respect to the other two trucks provided by non-DBE Firm Z, DBE credit could be awarded only for the fees or commissions pertaining to those trucks that DBE Firm X receives as a result of the lease with non-DBE Firm Z.

- f. For purposes of this section, the lease must indicate that the DBE firm leasing the truck has exclusive use of and control over the truck. This will not preclude the leased truck from working for others during the term of the lease with the consent of the DBE, provided the lease gives the DBE absolute priority for and control over the use of the leased truck. Leased trucks must display the name and identification number of the DBE firm that has leased the truck at all times during the life of the lease.

4. **Data Collection:** In accordance with 49CFR Section 26.11, all firms bidding on prime contracts and bidding or quoting subcontracts on federal-aid projects shall provide the following information to the Contract Engineer annually.

- Firm name
- Firm address
- Firm's status as a DBE or non-DBE
- The age of the firm and
- The annual gross receipts of the firm

The means of transmittal and the risk for timely receipt of this information shall be the responsibility of the bidder. However, the above information can be submitted by means of the Annual Gross Receipts Survey as required in the Prequalification/Certification application.

All bidders, including DBE prime Contractor bidders, shall complete and submit to the Contract Engineer the Subcontractor/Supplier Solicitation and Utilization Form C-48 for each bid submitted; to be received within ten (10) business days after the bid opening. Failure of bidders to submit this form in the time frame specified may be cause for disqualification of the bidder and rejection of their bid in accordance with the requirements of this Special Provision, the Contract specifications, and VDOT Road and Bridge specifications.

(o) **Suspect Evidence of Criminal Behavior**

Failure of a bidder, Contractor, or subcontractor to comply with the Virginia Department of Transportation Road and Bridge Specifications and these Special Provisions wherein there appears to be evidence of criminal conduct shall be referred to the Attorney General for the Commonwealth of Virginia and/or the FHWA Inspector General for criminal investigation and, if warranted, prosecution.

**Suspected DBE Fraud**

In appropriate cases, VDOT will bring to the attention of the U. S. Department of Transportation (USDOT) any appearance of false, fraudulent, or dishonest conduct in connection with the DBE program, so that USDOT can take the steps, e.g., referral to the Department of Justice for criminal prosecution, referral to the USDOT Inspector General, action under suspension and debarment or Program Fraud and Civil Penalties rules provided in 49CFR Part 31.

(p) **Summary of Remedies for Non-Compliance with DBE Program Requirements**

Failure of any bidder\Contractor to comply with the requirements of this Special Provision for Section 107.15 of the Virginia Road and Bridge Specifications, which is deemed to be a condition of bidding,

or where a contract exists, is deemed to constitute a breach of contract shall be remedied in accordance with the following:

**1. Disadvantaged Business Enterprise (DBE) Program Requirements**

The Contractor shall carry out applicable requirements of 49 CFR Part 26 in the award, administration, and performance of this contract. Failure by the Contractor to carry out these requirements is a material breach of this contract, which will result in the termination of this contract or other such remedy, as VDOT deems appropriate.

All administrative remedies noted in this provision are automatic unless the Contractor exercises the right of appeal within the required timeframe(s) specified herein.

**2. DBE Program-Related Certifications Made by Bidders\Contractors**

Once awarded the contract, the Contractor shall comply fully with all regulatory and contractual requirements of the USDOT DBE Program, and that each certified DBE firm participating in the Contract shall fully perform the designated work items with the DBE's own forces and equipment under the DBE's direct supervision, control, and management. Where a contract exists and where the Contractor, DBE firm, or any other firm retained by the Contractor has failed to comply with federal or VDOT DBE Program regulations and/or their requirements on that contract, VDOT has the authority and discretion to determine the extent to which the DBE contract requirements have not been met, and will assess against the Contractor any remedies available at law or provided in the Contract in the event of such a contract breach.

**3. Disqualification of Bidder**

Bidders may be disqualified from bidding for failure to comply with the requirements of this Special Provision, the Contract specifications, and VDOT Road and Bridge Specifications.

**4. Bidding Procedures**

The failure of a bidder to submit the required documentation within the timeframes specified in the **Contract Goal, Good Faith Efforts Specified** section of this Special Provision may be cause for rejection of that bidder's bid. If the lowest bidder is rejected for failure to submit required documentation in the specified time frames, the Department may either award the work to the next lowest bidder, or re-advertise and construct the work under contract or otherwise as determined by the Commonwealth.

In order to award a contract to a bidder that has failed to meet DBE contract goal requirements, VDOT will determine if the bidder's efforts were adequate good faith efforts, and if given all relevant circumstances, those efforts were to the extent a bidder actively and aggressively seeking to meet the requirements would make. Regardless of the DBE contract goal participation level proposed by the bidder or the extent of good faith efforts shown, all bidders shall timely

and separately file their completed and executed Forms C-111, C-112, C-48, and Form C-49, as aforementioned, or face potential bid rejection. If a bidder does not submit its completed and executed C-111, or C-112, when required by this Special Provision, the bidder's bid will be considered non-responsive and may be rejected. If, after reconsideration, the Department determines the bidder has failed to meet the requirements of the Contract goal and has failed to make adequate good faith efforts to achieve the level of DBE participation as specified in the bid proposal, the bidder's bid will be rejected. If sufficient documented evidence is presented to demonstrate that the apparent low bidder made reasonable good faith efforts, the Department will award the Contract and reduce the DBE requirement to the actual commitment identified by the lowest successful bidder at the time of its bid. The Contractor is encouraged to seek additional participation during the life of the Contract.

If the Contractor fails to conform to the schedule of DBE participation as shown on the progress schedule, or at any point at which it is clearly evident that the remaining dollar value of allowable credit for performing work is insufficient to obtain the scheduled participation, the Contractor and any aforementioned affiliates may be enjoined from bidding for 60 days or until such time as conformance with the schedule of DBE participation is achieved. In such instances, the Contractor is expected to seek DBE participation towards meeting the goal during the prosecution of the Contract.

If the Contractor fails upon completion of the project to meet the required participation, the Contractor and any prime contractual affiliates, as in the case of a joint venture, may be enjoined from bidding as a prime Contractor, or participating as a subcontractor on VDOT projects for a period of 90 days.

Prior to enjoinder from bidding or denial to participate as a subcontractor for failure to comply with participation requirements, as provided hereinbefore, the Contractor may submit documentation to the State Construction Engineer to substantiate that failure was due solely to quantitative underrun(s) or elimination of items subcontracted to DBEs, and that all feasible means have been used to obtain the required participation. The State Construction Engineer upon verification of such documentation shall make a determination whether or not the Contractor has met the requirements of the Contract.

If it is determined that the aforementioned documentation is insufficient or the failure to meet required participation is due to other reasons, the Contractor may request an appearance before the Administrative Reconsideration Panel to establish that all feasible means were used to meet such participation requirements. The decision of the Administrative Reconsideration Panel shall be administratively final. The enjoinder period will begin upon the Contractor's failure to request a hearing within the designated time frame or upon the Administrative Reconsideration Panel's decision to enjoin, as applicable.

## **5. Verification of DBE Participation and Imposed Damages**

If the Contractor fails to comply with correctly completing and submitting any of the required documentation requested by this provision within the specified time frames, the Department will withhold payment of the monthly progress estimate until such time as the required submissions are received by VDOT. Where such failures to provide required submittals or documentation are repeated the Department will move to enjoin the Contractor and any prime contractual affiliates, as in the case of a joint venture, from bidding as a prime Contractor, or participating as a subcontractor on VDOT projects until such submissions are received.

**(q) Suspect Evidence of Criminal Behavior**

In addition to the remedies described heretofore in this provision VDOT also exercises its rights with respect to the following remedies:

- Failure of a bidder, Contractor, or subcontractor to comply with the Virginia Department of Transportation Road and Bridge Specifications and these Special Provisions wherein there appears to be evidence of criminal conduct shall be referred to the Attorney General for the Commonwealth of Virginia and/or the FHWA Inspector General for criminal investigation and, if warranted prosecution.
- In appropriate cases, VDOT will bring to the attention of the U. S. Department of Transportation (USDOT) any appearance of false, fraudulent, or dishonest conduct in connection with the DBE program, so that USDOT can take the steps, e.g., referral to the Department of Justice for criminal prosecution, referral to the USDOT Inspector General, action under suspension and debarment or Program Fraud and Civil Penalties rules provided in 49CFR Part 31.

**SQ105-000611-01**

VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
**SECTION 105.06—SUBCONTRACTING**  
**(FEDERAL FUNDED PROJECTS)**

February 9, 2017

**SECTION 105.06—Subcontracting** of the Specifications is amended to include the following:

- (d) According to Commonwealth of Virginia Executive Order 20, the Contractor is encouraged to seek out and consider Small, Women-owned, and Minority-owned (SWaM) businesses certified by the Department of Small Business and Supplier Diversity (DSBSD) as potential subcontractors and vendors. Further, the Contractor shall furnish and require each subcontractor (first-tier) to furnish information relative to subcontractor and vendor involvement on the project.

For purposes of this provision, the term “vendor” is defined as any consultant, manufacturer, supplier or hauler performing work or furnishing material, supplies or services for the contract. The Contractor and, or subcontractor (first-tier) must insert this provision in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services). The applicable requirements of this provision are incorporated by reference for work done by vendors under any purchase order, rental agreement or agreement for other services for the contract. The Contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or vendor.

The submission of a bid will be considered conclusive evidence that the Contractor agrees to assume these contractual obligations and to bind subcontractors contractually to the same at the Contractor’s expense.

When an approved Form C-31 “Subletting Request” is required according to IIM-CD-2013-06.01, the Contractor shall indicate on the Subletting Request if a subcontractor is a certified DBE or SWaM business.

The Contractor shall report all DBE, SWaM, and Non SWaM vendor payments quarterly to the District Civil Rights Office. The Contractor shall provide the information in a format consistent with Form C-63, Vendor Payment Compliance Report, subject to the approval of the Engineer.

DBE Participation and reporting shall be in accordance with the Special Provision for Section 107.15 (Use of Disadvantaged Business Enterprises).

If the Contractor fails to provide the required information, the Department may delay final payment according to Specification Section 109.10 of the Specifications.

**SP0F0-000100-00**

Reissued July 12, 2016

**PREDETERMINED MINIMUM WAGE RATES**

(NEXT PAGE)

U.S. DEPARTMENT OF LABOR  
OFFICE OF THE SECRETARY  
WASHINGTON  
**DECISION OF THE SECRETARY**

This case is before the Department of Labor pursuant to a request for a wage predetermination as required by law applicable to the work described.

A study has been made of wage conditions in the locality and based on information available to the Department of Labor the wage rates and fringe payments listed are hereby determined by the Secretary of Labor as prevailing for the described classes for labor in accordance with applicable law.

This wage determination decision and any modifications thereof during the period prior to the stated expiration date shall be made a part of every contract for performance of the described work as provided by applicable law and regulations of the Secretary of Labor, and the wage rates and fringe payments contained in this decision, including modifications, shall be the minimums to be paid under any such contract and subcontractors on the work.


The Contracting Officer shall require that any class of laborers and mechanics which is not listed in the wage determination and which is to be employed under the Contract, shall be classified or reclassified conformably to the wage determination, and a report of the action taken shall be sent by the Federal agency to the Secretary of Labor. In the event the interested parties cannot agree on the proper classification or reclassification of a particular class of laborers and mechanics to be used, the question accompanied by the recommendation of the Contracting Officer shall be referred to the Secretary for determination.

Before using apprentices on the job the contractor shall present to the Contracting Officer written evidence of registration of such employees in a program of a State apprenticeship and training agency approved and recognized by the U.S. Bureau of Apprenticeship and Training. In the absence of such a State agency, the Contractor shall submit evidence of approval and registration by the U.S. Bureau of Apprenticeship and Training.

The Contractor shall submit to the Contracting Officer written evidence of the established apprentice-journeyman ratios and wage in the project area, which will be the basis for establishing such ratios and rates for the project under the applicable contract provisions.

Fringe payments include medical and hospital care, compensation for injuries or illness resulting from occupational activity, unemployment benefits, life insurance, disability and sickness insurance, accident insurance (all designated as health and welfare), pensions, vacation and holiday pay, apprenticeship or other similar programs and other bona fide fringe benefits.

By direction of the Secretary of Labor

A handwritten signature in black ink, appearing to read "E. Irving Manger", is written over a small, faint rectangular stamp.

E. Irving Manger, Associate Administrator  
Division of Wage Determinations  
Wage and Labor Standards Administration



**SP0F0-000130-00**

May 1, 2012; Reissued July 12, 2016  
FHWA-1273 (Electronic Version)

**FHWA-1273 REQUIRED CONTRACT PROVISIONS, FEDERAL-AID CONSTRUCTION CONTRACTS** shall apply to this contract:

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FHWA-1273 – Revised May 1, 2012

**REQUIRED CONTRACT PROVISIONS  
FEDERAL-AID CONSTRUCTION CONTRACTS**

- 
- I. General
  - II. Nondiscrimination
  - III. Nonsegregated Facilities
  - IV. Davis-Bacon and Related Act Provisions
  - V. Contract Work Hours and Safety Standards Act Provisions
  - VI. Subletting or Assigning the Contract
  - VII. Safety: Accident Prevention
  - VIII. False Statements Concerning Highway Projects
  - IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
  - X. Compliance with Governmentwide Suspension and Debarment Requirements
  - XI. Certification Regarding Use of Contract Funds for Lobbying

**ATTACHMENTS**

- A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

## **I. GENERAL**

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The Contractor (or Subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the Contract by the Contractor's own organization and with the assistance of workers under the Contractor's immediate superintendence and to all work performed on the Contract by piecework, station work, or by subcontract.
3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the Contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.
4. Selection of Labor: During the performance of this contract, the Contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

## II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the Contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. **Equal Employment Opportunity:** Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the Contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the Contractor agrees to comply with the following minimum specific requirement activities of EEO:
  - a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with

respect to all of its terms and conditions of employment and in their review of activities under the Contract.

- b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. **EEO Officer:** The contractor will designate and make known to the Contracting Officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.
3. **Dissemination of Policy:** All members of the Contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the Contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:
- a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the Contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.
- b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the Contractor's EEO obligations within thirty days following their reporting for duty with the Contractor.
- c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the Contractor's procedures for locating and hiring minorities and women.
- d. Notices and posters setting forth the Contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

- e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

- 4. **Recruitment:** When advertising for employees, the Contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the Contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the Contractor for employment consideration.

In the event the Contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the Contractor is expected to observe the provisions of that agreement to the extent that the system meets the Contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the Contractor to do the same, such implementation violates Federal nondiscrimination provisions.

The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

- 5. **Personnel Actions:** Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

- a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.
- b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

- c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the Contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.
- d. The contractor will promptly investigate all complaints of alleged discrimination made to the Contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the Contractor will inform every complainant of all of their avenues of appeal.

**6. Training and Promotion:**

- a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.
- b. Consistent with the Contractor's work force requirements and as permissible under Federal and State regulations, the Contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).
- c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.
- d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

- 7. Unions:** If the Contractor relies in whole or in part upon unions as a source of employees, the Contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the Contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

- a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.
  - b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.
  - c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the Contractor, the Contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.
  - d. In the event the union is unable to provide the Contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the Contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the Contractor from the requirements of this paragraph. In the event the union referral practice prevents the Contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.
8. **Reasonable Accommodation for Applicants / Employees with Disabilities:** The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.
9. **Selection of Subcontractors, Procurement of Materials and Leasing of Equipment:** The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

- a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.
- b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

**10. Assurance Required by 49 CFR 26.13(b):**

- a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.
- b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

**11. Records and Reports:** The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the Contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

- a. The records kept by the Contractor shall document the following:
  - (1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;
  - (2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and
  - (3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;
- b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on [Form FHWA-1391](#). The staffing data should represent the project work force on



board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the Contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

### **III. NONSEGREGATED FACILITIES**

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the Contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

### **IV. Davis-Bacon and Related Act Provisions**

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

#### **1. Minimum wages**

- a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents

thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

- b. (1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the Contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:
  - (I) The work to be performed by the classification requested is not performed by a classification in the wage determination; and
  - (II) The classification is utilized in the area by the construction industry; and
  - (III) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.
- (2) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the Contracting Officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the Contracting Officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor,

Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the Contracting Officer or will notify the Contracting Officer within the 30-day period that additional time is necessary.

- (3) In the event the Contractor, the laborers or mechanics to be employed in the classification or their representatives, and the Contracting Officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the Contracting Officer shall refer the questions, including the views of all interested parties and the recommendation of the Contracting Officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the Contracting Officer or will notify the Contracting Officer within the 30-day period that additional time is necessary.
  - (4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.
- c. Whenever the minimum wage rate prescribed in the Contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.
  - d. If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

## **2. Withholding**

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the Contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the Contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the Contract, the contracting agency may, after

written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

**3. Payrolls and basic records**

- a. Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.
- b. (1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee ( e.g. , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers

to the prime contractor for its own records, without weekly submission to the contracting agency.

- (2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the Contract and shall certify the following:
    - (I) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;
    - (II) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the Contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;
    - (III) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the Contract.
  - (3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.
  - (4) The falsification of any of the above certifications may subject the Contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.
- c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the Contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

**4. Apprentices and trainees**

a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

- c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.
- d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

5. **Compliance with Copeland Act requirements.** The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.
6. **Subcontracts.** The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.
7. **Contract termination: debarment.** A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the Contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.
8. **Compliance with Davis-Bacon and Related Act requirements.** All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.
9. **Disputes concerning labor standards.** Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the Contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.
10. **Certification of eligibility.**
  - a. By entering into this contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).
  - b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).
  - c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

## V. **CONTRACT WORK HOURS AND SAFETY STANDARDS ACT**

The following clauses apply to any Federal-aid construction contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.



1. **Overtime requirements.** No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.
2. **Violation; liability for unpaid wages; liquidated damages.** In the event of any violation of the clause set forth in paragraph (1.) of this section, the Contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.
3. **Withholding for unpaid wages and liquidated damages.** The FHWA or the contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the Contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.
4. **Subcontracts.** The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

## VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the Contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the

amount of work required to be performed by the Contractor's own organization (23 CFR 635.116).

- a. The term “perform work with its own organization” refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:
    - (1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
    - (2) the prime contractor remains responsible for the quality of the work of the leased employees;
    - (3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
    - (4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.
  - b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the Contract as a whole and in general are to be limited to minor components of the overall contract.
2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the Contractor under the contract provisions.
  3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the Contracting Officer determines is necessary to assure the performance of the Contract.

4. No portion of the Contract shall be sublet, assigned or otherwise disposed of except with the written consent of the Contracting Officer, or authorized representative, and such consent when given shall not be construed to relieve the Contractor of any responsibility for the fulfillment of the Contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.
5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

## **VII. SAFETY: ACCIDENT PREVENTION**

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the Contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the Contracting Officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the Contract.
2. It is a condition of this contract, and shall be made a condition of each subcontract, which the Contractor enters into pursuant to this contract, that the Contractor and any subcontractor shall not permit any employee, in performance of the Contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).
3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

## **VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS**

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

#### **IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT**

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.
2. That the Contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

**X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION**

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost \$25,000 or more – as defined in 2 CFR Parts 180 and 1200.

**1. Instructions for Certification – First Tier Participants:**

- a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.
- b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.
- c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.
- d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective

first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

- e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).
- f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.
- g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.
- h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.
- i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by

this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

- j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

\* \* \* \* \*

**2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:**

- a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:
  - (1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;
  - (2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
  - (3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and
  - (4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

- b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

**3. Instructions for Certification - Lower Tier Participants:**

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost \$25,000 or more - 2 CFR Parts 180 and 1200)

- a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.
- b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.
- c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.
- d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).
- e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered



transaction, unless authorized by the department or agency with which this transaction originated.

- f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.
- g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.
- h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
- i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

\* \* \* \* \*

**Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:**

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared

ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

\* \* \* \* \*

#### **XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING**

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:
  - a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
  - b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

SP0F0-000150-01

July 17, 2017

VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
**NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE  
EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246)**

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.
2. The goals for female and minority participation, expressed in percentage terms of the Contractor's aggregate work force in each trade on all construction works in the covered area, are as follows:

Females- 6.9%

Minorities - See Attachment "A"

The goals are applicable to all the Contractor's construction work performed in the covered area, whether or not it is Federal or federally assisted. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications, set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals established herein. The hours of minority and female employment and training must be substantially uniform throughout the length of the Contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the Contract, the Executives Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days the award of any construction subcontract in excess of \$10,000 at any tier for construction works under this contract. The notification shall list the name, address and telephone number of the subcontractor, employer identification number, estimated dollar amount of the subcontract, estimated starting and completion dates of the subcontract and the geographical area in which the Contract is to be performed.

**STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY  
CONSTRUCTION CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246)**

1. As, used in this provision:
  - a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;
  - b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;
  - c. "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U. S. Treasury Department Form 941;
  - d. "Minority" includes:
    - (i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
    - (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
    - (iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
    - (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).
2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation.
3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U. S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors and Subcontractors toward a goal

in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7 a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered construction Contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.
5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.
6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U. S. Department of Labor.
7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:
  - a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, shall assign two or more women to each construction project. The Contractor shall specifically ensure that all foreman, superintendents and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites in such facilities.
  - b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the

Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

- c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off the street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union, or if referred, not employed by the Contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the Contractor may have taken.
- d. Provide immediate written notification to the Director when the union or unions which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or women sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.
- e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources complied under 7b above.
- f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper or annual report; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.
- g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination, or other employment decisions including specific review of these items with onsite supervisory personnel such as Superintendents and General Foremen prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed and disposition of the subject matter.
- h. Disseminate the Contractor's EEO policy externally by including in any news media advertisement that the Contractor is "An Equal Opportunity Employer" for minority and female, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.

- i. Directs its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures and tests to be used in the selection process.
  - j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of Contractor's workforce.
  - k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.
  - l. Conduct, at least annually, an inventory and evaluation of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for such opportunities through appropriate training or other means.
  - m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.
  - n. Ensure that all facilities and company activities are nonsegregated, except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.
  - o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
  - p. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.
8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the Contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these Specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables and can provide access to



documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. Goals for women have been established. However, the Contractor IS required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner, that is even though the Contractor has achieved its goals for women, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized.
10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, sexual orientation, gender identity, or national origin.
11. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.
12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.
13. The Contractor, in fulfilling its obligations under these specifications shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director will proceed in accordance with 41 CFR 60-4.8.
14. The Contractor shall designate and make known to the Department a responsible official as the EEO Officer to monitor all employment related activity, to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, Contractors will not be required to maintain separate records.
15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other

area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

## ATTACHMENT A

<u>Economic Area</u>	<u>Goal (Percent)</u>
Virginia:	
021 Roanoke-Lynchburg, VA	
SMSA Counties:	
4640 Lynchburg, VA .....	19.3
VA Amherst; VA Appomattox; VA Campbell; VA Lynchburg	
6800 Roanoke, VA .....	10.2
VA Botetourt; VA Craig; VA Roanoke; VA Roanoke City; VA Salem	
Non-SMSA Counties .....	12.0
VA Alleghany; VA Augusta; VA Bath; VA Bedford; VA Bland; VA Carroll;	
VA Floyd; VA Franklin; VA Giles; VA Grayson; VA Henry; VA Highland;	
VA Montgomery; VA Nelson; VA Patrick; VA Pittsylvania; VA Pulaski;	
VA Rockbridge; VA Rockingham; VA Wythe; VA Bedford City; VA Buena Vista;	
VA Clifton Forge; VA Covington; VA Danville; VA Galax; VA Harrisonburg;	
VA Lexington; VA Martinsville; VA Radford; VA Staunton; VA Waynesboro; WV	
Pendleton.	
022 Richmond, VA	
SMSA Counties:	
6140 Petersburg - Colonial Heights - Hopewell, VA .....	30.6
VA Dinwiddie; VA Prince George; VA Colonial Heights; VA Hopewell;	
VA Petersburg.	
6760 Richmond, VA .....	24.9
VA Charles City; VA Chesterfield; VA Goochland, VA Hanover; VA	
Henrico; VA New Kent; VA Powhatan; VA Richmond.	
Non-SMSA Counties .....	27.9
VA Albemarle; VA Amelia; VA Brunswick; VA Buckingham, VA Caroline;	
VA Charlotte; VA Cumberland; VA Essex; VA Fluvanna; VA Greene; VA	
Greensville; VA Halifax; VA King and Queen; VA King William; VA	
Lancaster; VA Louisa; VA Lunenburg; VA Madison; VA Mecklenburg; VA	
Northumberland; VA Nottoway; VA Orange; VA Prince Edward; VA Richmond	
VA Sussex; VA Charlottesville; VA Emporia; VA South Boston	
023 Norfolk - Virginia Beach - Newport News VA:	
SMSA Counties:	
5680 Newport News- Hampton, VA .....	27.1

VA Gloucester; VA James City; VA York; VA Hampton; VA Newport News; VA Williamsburg.	
5720 Norfolk - Virginia Beach - Portsmouth, VA - NC .....	26.6
NC Currituck; VA Chesapeake; VA Norfolk; VA Portsmouth; VA Suffolk; VA Virginia Beach.	
Non-SMSA Counties .....	29.7
NC Bertie; NC Camden; NC Chowan; NC Gates; NC Hertford; NC Pasquotank; NC Perquimans; VA Isle of Wight; VA Matthews; VA Middlesex; VA Southampton; VA Surry; VA Franklin.	
Washington, DC:	
020 Washington, DC.	
SMSA Counties:	
8840 Washington, DC - MD - VA .....	28.0
DC District of Columbia; MD Charles; MD Montgomery MD Prince Georges; VA Arlington; VA Fairfax; VA Loudoun; VA Prince William VA Alexandria; VA Fairfax City; VA Falls Church.	
Non- SMSA Counties .....	25.2
MD Calvert; MD Frederick; MD St. Marys; MD Washington; VA Clarke; VA Culpeper; VA Fauquier; VA Frederick; VA King George; VA Page; VA Rappahannock; VA Shenandoah; VA Spotsylvania; VA Stafford; VA Warren; VA Westmoreland; VA Fredericksburg; VA Winchester WV Berkeley; WV Grant; WV Hampshire; WV Hardy; WV Jefferson; WV Morgan.	
Tennessee:	
052 Johnson City - Kingsport - Bristol, TN - VA	
SMSA Counties:	
3630 Johnson City - Kingsport -Bristol, TN-VA .....	2.6
TN Carter; TN Hawkins; TN Sullivan; TN Washington; VA Scott: VA Washington; VA Bristol.	
Non-SMSA Counties .....	3.2
TN Greene; TN Johnson; VA Buchanan; VA Dickenson; VA Lee; VA Russell; VA Smyth; VA Tazewell; VA Wise; VA Norton; WV McDowell; WV Mercer.	
Maryland:	
019 Baltimore MD	
Non-SMSA Counties .....	23.6
MD Caroline; MD Dorchester; MD Kent; MD Queen Annes; MD Somerset; MD Talbot; MD Wicomico; MD Worchester; VA Accomack; VA Northampton.	

## **DIVISION I – GENERAL PROVISIONS**

**SP107-001110-00** [formerly SP107-110100-00]

VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
**CONTROLLED BLASTING**

April 11, 2017

**I. DESCRIPTION**

This project is in close proximity to private property, dwellings, water wells, springs, utilities, railroads, important karst features, or other structures. Important karst features include, but are not limited to, caves and open throated sinkholes. The Contractor shall explore other means of loosening or reducing the size of the excavated material without blasting to avoid damaging these structures or resources. If blasting is necessary, controlled blasting techniques shall be used during construction. The Contractor shall conduct an on-site review of the work involved and develop a plan of operations for performing the excavation work before prosecuting the work. The blasting plan shall be submitted to the Engineer at least two weeks before scheduled blasting.

**II. BLASTING PROCEDURES**

No blasting shall be performed within 100 feet of existing or new bridge foundations, railroad right-of-way, residential or commercial buildings, wells, other structures, or important karst features without the written approval of the Engineer. In the vicinity of proposed concrete construction, blasting shall be scheduled so that blasting operations are fully complete before placing concrete.

All blasting shall be performed in accordance with the current edition of the Virginia Statewide Fire Prevention Code. The Contractor shall use the services of an experienced powder man at all times. The drill hole diameter, hole spacing, and size of charge per hole shall be such as to afford satisfactory breakage with a minimum of vibration. A Construction Blasting Quantity and Distance Table shall be used to control the maximum quantity of explosives per shot for instantaneous firing, or per delay for delay firing in pounds. At no time shall the total size of any charge cause the particle velocity of the ground motion to exceed 0.20 inches per second when measured at the nearest structure or resource to a blast.

The Contractor shall maintain a daily log of the type, grade, and quantity of explosives, type of detonating cap, hole locations, depths, and minimum distances from the blasts to private property, dwellings, water wells, springs, utilities, other structures, and important karst features. A copy of this log shall be submitted to the Engineer at the end of each workday on which blasting activity has occurred.

**III. SEISMIC MONITORING**

The Contractor shall submit a comprehensive blasting plan detailing the blasting techniques to be used near property, structures, and important karst features to the Department. Seismic monitoring shall be performed by a qualified firm before performing construction operations near property, structures, and important karst features. Some of the initial blasts shall be monitored close to the blasting while others shall be monitored at property, structures, and important karst features; and the blasting plan shall be revised if the anticipated maximum particle velocity at those locations will exceed 0.20 inches per second.

The seismograph used shall have the ability to store digital data for documentation and inspection by, or submittal to, the Department. Further, the seismograph used shall be capable of accurately measuring frequency and amplitude in three planes: vertically, longitudinally, and transversely. These instruments must be dynamically calibrated and of such sensitivity that displacements as little as 0.0005 inches and frequencies of from 1 to 100 cycles per second may be read. The instruments must also be capable of adjustment so that the peak of maximum amplitude of vibration can be recorded on the tape or disk.

The Contractor shall cooperate and coordinate blasting activities with the owners of private property, dwellings, water wells, springs, utilities, structures, and resources.

#### **IV. Rock Slopes**

For use in this Special Provision, slopes shall be considered rock slopes when the height of final slope is 15 feet or greater, and 50% or more of the face of the final slope is rock, based on visual inspection.

All rock slopes with a slope of 1H:1V or steeper shall be pre-split by controlled blasting or non-explosive techniques in accordance with Section 303.04(a) of the Specifications and the preceding sections.

#### **V. Measurement and Payment**

The cost for explosives and blasting operations, alternative methods, monitoring, and recording and submitting daily blasting logs will be considered under Rock Excavation. The Contractor's failure to maintain and submit daily blasting logs as stipulated herein will result in withholding payment for rock excavation until such time that daily logs are provided.

VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
**SECTION 108.02—LIMITATION OF OPERATIONS**

October 7, 2016

**SECTION 108.02—LIMITATIONS OF OPERATIONS** of the Specifications is amended to include the following:

All work areas (and the limits thereof) and lane closures shall be in accordance with the *Virginia Work Area Protection Manual* and shall be approved by the Engineer.

Traffic control devices shall be kept clean, legible, and in proper working order at all times. The Contractor shall provide a person whose responsibility shall be to inspect and maintain signs, barricades, other channelizing devices, and lights while traffic is restricted due to the Contractor's operations.

The Contractor shall not conduct operations requiring lane closures when the weather causes unsafe conditions for the traveling public as determined by the Engineer.

The Contractor shall submit lane and shoulder closure requests to the Engineer for approval seven (7) days in advance, stating the location, purpose, date, time, and duration of the closure. Confirmation shall be made twenty-four (24) hours before any scheduled lane closure and shall include a written reiteration of the proposed tasks and a list of materials, labor, and equipment to be used.

Complete road closures (for maximum of 20 minutes) require a seventy-two (72) hour advance confirmation for coordination. The Contractor shall provide adequate advance notification via variable message and required static signing for lane closures in accordance with the latest version of the *Virginia Work Area Protection Manual*. Once a closure is in place, work shall commence immediately and shall progress on a continuous basis to completion or to a designated time.

All closures in the Express Lanes on either I-95 or I-495 shall be coordinated with the Express Lanes Operations Center at least five business days in advance using their Authorization to Work form (available from the Express Lanes Operations Center at (571) 419-6046.) Complete road closures on 95 Express Lanes and 495 Express Lanes shall not exceed 30 minutes.

No lane closure signing or other traffic disruptive work may be initiated outside the times specified. All signs, equipment, and materials shall be removed before the ending closure time indicated. No lane closures will be permitted outside the times detailed herein without the written authorization from the Engineer.

Extension of a lane closure time is not acceptable. Any changes to the allowable time periods above will require approval in accordance with the Contractor Proposed Alternative Traffic Control Plans special provision copied note. If the Contractor does not restore traffic lanes within the allowable time limits, the Contractor will not be allowed further lane closures until the reasons for the failure are evaluated and the Contractor can provide assurance that the causes have been corrected.

Restoration of traffic is defined as opening all travel lanes to traffic including the completion of all construction work, removing or relocating all work zone traffic control devices and signs to their approved site as determined by the VDOT Engineer, and removing all workers, materials and equipment from the roadway.

Failure to restore all lanes of traffic by the time limits defined herein will be handled as follows:

The Contractor will not be allowed further lane closures until the reasons for the previous failure are evaluated.

A formal submission as to the reasons for the failure to restore traffic lanes within the contract lane closure restrictions and the proposed corrective measures is to be provided to the VDOT Project Manager within two (2) days of the occurrence. A meeting with the District Construction Engineer or designee shall be required prior to the next scheduled lane closure at which the Contractor must be able to provide assurances to the Engineer that adjustments have been made to eliminate the operational causes of failure to restore all lanes of traffic within the time limits herein. No modifications to the Contract Time(s) will be granted or considered for these days.

When applicable, disincentives will be assessed on this project, or sections thereof, designated as subject to disincentives.

The Engineer may change any or all of the work hours stated below when such changes are in the best interest of the traveling public. The Engineer may monitor traffic conditions impacted by the work and make additional restrictions as necessary; i.e., terminate a lane closure early when excessive traffic backups occur or emergency situations dictate. Additional restrictions for other holidays or special local events may be necessary. In these situations, the Engineer will endeavor to inform the Contractor at the earliest opportunity and in no case less than 48 hours before the event.

### **Night Work**

In areas where work will be performed during the hours of dusk or darkness, the Contractor shall furnish, place, and maintain lighting facilities capable of providing a minimum of 50 foot-candles of light for an area of approximately 15 feet by 15 feet with minimum of 5 foot-candles in the corners. The lights shall be arranged so as not to interfere with or impede traffic approaching the work sites from either direction or produce undue glare to property owners.



Lighting of work sites may be accomplished by using of any combination of portable floodlights or standard equipment lights, etc. that will provide the sufficient illumination for prosecution and inspection of the work, including, but not limited to, laying out and installing pavement markings and traffic loops.

Unsupplemented lighting integral to or attached to working mobile equipment such as rollers, pavers, etc. will not be considered sufficient to meet the requirements of this specification.

The cost of providing lighting of the work site will be considered incidental and shall be included in the contract item unit prices of other work.

The Contractor shall provide sufficient fuel, spare lamps, generator, etc. to maintain the lighting of the work site. The Contractor shall use padding and shielding or locate mechanical and electrical equipment to minimize noise generated by lighting operations as directed by the Engineer. Noise generated by portable generators shall comply with all applicable Federal, State and Local environmental regulations.

The Contractor shall have a superintendent present during nighttime operations who will control all operations involved. The superintendent shall maintain contact with the Engineer and shall ensure that all actions required to correct any noted problems are taken promptly.

All private vehicles shall be parked outside the clear zone.

The Contractor shall review traffic control devices to ensure proper installation and working order, including monitoring of lights. The individual responsible for this review shall be qualified in accordance with Section 105.14 (a) of the Specifications.

Sound levels resulting from the Contractor's operations shall conform to Section 107.16; (b), 3. of the Specifications The Contractor shall obtain all noise permits from the locality where the work is being performed as applicable.

### **Construction in Residential Subdivisions**

Road work within residential subdivisions and/or cul-de-sac streets shall not be performed at night unless circumstances require night work and the Contractor obtains advance approval from the Engineer and conducts outreach to the residents that may be impacted to avoid noise issues.

**Section 108.02 (b) Holidays** of the Specifications is amended to include the following:

- **Martin Luther King Jr. Day and Lee Jackson Day:** As indicated below\*.
- **President's Day:** As indicated below\*.
- **Inauguration Day:** From Noon on the preceding day until Noon on the following day, except as indicated below\*.
- **Easter:** As indicated below\*.

- **September 11<sup>th</sup>:** From Noon on the preceding day until Noon on the following day, except as indicated below\*.
- **Columbus Day:** As indicated below\*.
- **Veteran's Day:** From Noon on the preceding day until Noon on the following day, except as indicated below\*.

**If the Holiday occurs on a Friday or Saturday:** From Noon on the preceding Thursday to Noon on the following Monday.

**If the Holiday occurs on a Sunday or Monday:** From Noon on the preceding Friday to Noon on the following Tuesday.

\*Note:

For low volume roadways (minor arterial), no lane closure is allowed during the holidays, but no restriction to the preceding day and the following day.

If an approved shoulder closure is required to protect from traffic hazards, no time restrictions will apply, but the Contractor shall continuously prosecute the work and remove the shoulder closure as soon as the hazard is addressed.

INTERSTATE 395 & INTERSTATE 95						
WEEKDAY		Northbound				
		Single-Lane Closures or Shoulder	Two-Lane Closures	Multiple-Lane Closures	Complete Road Closure	
Segment 1	14 <sup>th</sup> St. Bridge to Springfield Interchange	10:00AM to 3:00PM	10:00PM to 5:00AM	11:00PM to 5:00AM	12:00AM to 4:00AM	
		9:00PM to 5:00AM				
Segment 2	Springfield Interchange to Rt.123	9:30AM to 3:30PM	10:00PM to 5:00AM	11:00PM to 5:00AM	12:00AM to 4:00AM	
		9:00PM to 5:00AM				
Segment 3	Rt.123 to Prince William / Stafford County line	9:30AM to 3:30PM	10:00PM to 4:30AM	11:00PM to 4:00AM	12:00AM to 4:00AM	
		9:00PM to 5:00AM				
Segment 4	Prince William / Stafford County line to Rt.3 Exit 130	9:30AM to 3:30PM	10:00PM to 4:30AM	n/a	12:00AM to 4:00AM	
		9:00PM to 4:30AM				
Segment 5	Rt.3 Exit 130 to Caroline / Hanover County line	9:00AM to 3:30PM	10:00PM to 4:30AM	n/a	12:00AM to 4:00AM	
		9:00PM to 5:30AM				
All lanes open at 12:00 noon on Friday						

INTERSTATE 395 & INTERSTATE 95						
WEEKDAY		Southbound				
		Single-Lane Closures or Shoulder	Two-Lane Closures	Multiple-Lane Closures	Complete Road Closure	
Segment 1	14 <sup>th</sup> St. Bridge to Springfield Interchange	10:00AM to 2:30PM	10:00PM to 5:00AM	11:00PM to 5:00AM	12:00AM to 4:00AM	
		9:30PM to 5:00AM				
Segment 2	Springfield Interchange to Rt.123	9:00AM to 2:00PM	10:00PM to 5:00AM	11:00PM to 5:00AM	12:00AM to 4:00AM	
		9:30PM to 5:00AM				
Segment 3	Rt.123 to Prince William / Stafford County line	9:00AM to 2:00PM	10:00PM to 5:00AM	11:00PM to 5:00AM	12:00AM to 4:00AM	
		9:30PM to 6:00AM				
Segment 4	Prince William / Stafford County line to Rt.3 Exit 130	9:00AM to 2:00PM	10:00PM to 5:30AM	n/a	12:00AM to 4:00AM	
		9:30PM to 6:00AM				
Segment 5	Rt.3 Exit 130 to Caroline / Hanover County line	9:00AM to 3:00PM	10:00PM to 5:30AM	n/a	12:00AM to 4:00AM	
		9:30PM to 6:00AM				
All lanes open at 11:00am on Friday						

INTERSTATE 395 & INTERSTATE 95			
Northbound/Southbound*			
WEEKEND	Single-Lane Closures or Shoulder	Multiple-Lane Closures	Complete Road Closure
Friday to Saturday	10:00PM to 7:00AM	11:00PM to 6:00AM	12:00AM to 5:00AM
Saturday to Sunday	10:00PM to 7:00AM	11:00PM to 6:00AM	12:00AM to 5:00AM
Sunday to Monday	10:00PM to 5:00AM	11:00PM to 4:00AM	12:00AM to 4:00AM
* For special operations, depending on time of year, additional hours may be allowed with proper ADA/ROD approval.			

REVERSIBLE LANES (HOV & EXPRESS LANES)*			
	Single-Lane Closures or Shoulder		Complete Road Closure**
WEEKDAY	9:30PM (Sunday to Thursday) to 4:00AM (Monday to Friday)		11:00PM to 4:00AM
WEEKEND	11:00PM (Friday to Saturday) to 9:00AM (Saturday to Sunday)		11:00PM to 4:00AM
*.Direction of traffic control for all lane closures in reversible lanes will need to be <u>adjusted</u> as necessary to face direction of traffic.			
** Complete Road Closure on Express Lanes limited to 30 minutes or less.			

INTERSTATE 495 (BELTWAY)						
WEEKDAY		Inner Loop				
		Single-Lane Closures or Shoulder	Two-Lane Closures	Multiple-Lane Closures	Complete Road Closure	
Segment 1	A. L. Bridge to Springfield Interchange	10:00AM to 3:00PM	10:00PM to 5:00AM	11:00PM to 5:00AM	12:00AM to 5:00AM	
		9:30PM to 5:00AM				
Segment 2	Springfield Interchange to W.W. Bridge	10:00AM to 3:00PM	10:00PM to 5:00AM	11:00PM to 5:00AM	12:00AM to 5:00AM	
		9:30PM to 5:00AM				
All lanes open at 12:00 noon on Friday						
WEEKDAY		Outer Loop				
		Single-Lane Closures or Shoulder	Two-Lane Closures	Multiple-Lane Closures	Complete Road Closure	
Segment 1	A. L. Bridge to Springfield Interchange	9:30AM to 2:30PM	10:00PM to 5:00AM	11:00PM to 5:00AM	12:00AM to 5:00AM	
		9:30PM to 5:00AM				
Segment 2	Springfield Interchange to W.W. Bridge	10:00AM to 3:00PM	10:00PM to 5:00AM	11:00PM to 5:00AM	12:00AM to 5:00AM	
		9:30PM to 5:00AM				
All lanes open at 12:00 noon on Friday						
WEEKEND		Inner/Outer Loop				
		Single-Lane Closures or Shoulder	Multiple-Lane Closures			Complete Road Closure
Friday to Saturday		10:00PM to 8:00AM	11:00PM to 7:00AM			12:00AM to 5:00AM
Saturday to Sunday		10:00PM to 9:00AM	11:00PM to 8:00AM			12:00AM to 5:00AM
Sunday to Monday		9:30PM to 5:00AM	11:00PM to 5:00AM			12:00AM to 5:00AM



INTERSTATE 495 (BELTWAY)			
		EXPRESS LANES	
	Single-Lane Closures or Shoulder	Complete Road Closure**	
WEEKDAY	9:30PM (Sunday to Thursday) to 4:00AM (Monday to Friday)	11:00PM to 4:00AM	
WEEKEND	11:00PM (Friday to Saturday) to 9:00AM (Saturday to Sunday)	11:00PM to 4:00AM	
** Complete Road Closure on Express Lanes limited to 30 minutes or less.			

INTERSTATE 66						
WEEKDAY		Eastbound				
		Single-Lane Closures or Shoulder	Two-Lane Closures	Multiple-Lane Closures	Complete Road Closure	
Segment 1	Prince William County line to Route 286	10:00AM to 3:30PM	9:00PM to 5:00AM	10:00PM to 5:00AM	12:00AM to 4:00AM	
		8:00PM to 5:00AM				
Segment 2	Route 286 to Beltway	11:00AM to 3:30PM	10:00PM to 5:00AM**	11:00PM to 5:00AM**	12:00AM to 4:00AM	
		9:00PM to 5:00AM				
Segment 3	Beltway to TR Bridge (Inside Beltway)	9:30PM to 5:00AM	n/a	n/a	12:00AM to 4:00AM	
All lanes open at 12:00 noon on Friday						
WEEKDAY		Westbound				
		Single-Lane Closures or Shoulder	Two-Lane Closures	Multiple-Lane Closures	Complete Road Closure	
Segment 1	Prince William County line to Route 286	9:00AM to 2:30PM	9:30PM to 6:00AM	10:30PM to 5:00AM	12:00AM to 4:00AM	
		9:00PM to 6:00AM				
Segment 2	Route 286 to Beltway	9:00AM to 2:00PM*	10:00PM to 5:00AM**	11:00PM to 5:00AM**	12:00AM to 4:00AM	
		9:30PM to 5:00AM				
Segment 3	Beltway to TR Bridge (Inside Beltway)	9:30AM to 2:00PM*	10:00PM to 5:00AM**	n/a	12:00AM to 4:00AM	
		10:00PM to 5:00AM				
All lanes open at 12:00 noon on Friday						
* Only be considered for <u>three lane segment</u> .						
** Consider opening shoulder lane, where Applicable.						



INTERSTATE 66				
WEEKEND	Eastbound/Westbound			
Outside Beltway	Single-Lane Closures or Shoulder	Multiple-Lane Closures	Complete Road Closure	
Friday to Saturday	9:00PM to 9:00AM	10:00PM to 6:00AM	12:00AM to 5:00AM	
Saturday to Sunday	9:00PM to 9:00AM	10:00PM to 6:00AM	12:00AM to 5:00AM	
Sunday to Monday	8:00PM to 5:00AM	9:00PM to 5:00AM	12:00AM to 4:00AM	
Inside Beltway	Single-Lane Closures or Shoulder	Multiple-Lane Closures	Complete Road Closure	
Friday to Saturday	10:00PM to 6:00AM	n/a	12:00AM to 5:00AM	
Saturday to Sunday	10:00PM to 6:00AM	n/a	12:00AM to 5:00AM	
Sunday to Monday	9:30PM to 5:00AM	n/a	12:00AM to 4:00AM	

ROUTE 267 CONNECTOR				
WEEKDAY	Eastbound		Westbound	
	Single-Lane Closures or Shoulder	Complete Road Closure	Single-Lane Closures or Shoulder	Complete Road Closure
	11:00AM to 3:00PM	12:00AM to 4:00AM	9:30AM to 3:00PM	12:00AM to 4:00AM
	9:30PM to 5:00AM		9:00PM to 5:00AM	
Monday to Friday	All lanes open at 12:00 noon on Friday			

WEEKEND		
Eastbound/Westbound		
Single-Lane Closures or Shoulder		Complete Road Closure
Friday to Saturday	10:00PM to 8:00AM	12:00AM to 5:00AM
Saturday to Sunday	11:00PM to 8:00AM	12:00AM to 5:00AM
Sunday to Monday	9:00PM to 5:00AM	12:00AM to 4:00AM

Single-Lane Closures* or Shoulder					
ARTERIAL	WEEKDAY		WEEKEND		
	Monday to Thursday	Friday	Friday to Saturday	Saturday to Sunday	Sunday to Monday
Major Arterials**	9:30AM to 3:00PM	9:30AM to 2:00 PM	10:00PM to 9:00AM	10:00PM to 8:00AM	10:00PM to 5:00AM
	10:00PM to 5:00AM				
All Other Roadways	9:00AM to 3:30PM	9:00AM to 2:00 PM	10:00PM to 9:00AM	9:00PM to 9:00AM	10:00PM to 5:00AM
	9:00PM to 5:00AM				

Multiple-Lane Closures					
ARTERIAL	WEEKDAY		WEEKEND		
	Monday to Thursday	Friday	Friday to Saturday	Saturday to Sunday	Sunday to Monday
Major Arterials**	10:00PM to 5:00AM	Not before 11:00PM	11:00PM to 5:00AM	11:00PM to 6:00AM	11:00PM to 5:00AM
All Other Roadways	9:00PM to 5:00AM	Not before 10:00PM	10:00PM to 6:00AM	10:00PM to 6:00AM	10:00PM to 5:00AM

\*Single-lane closures only permitted for multiple-lane roadways.

\*\*Major Arterials defined as Primary Roads, high volume Secondary Roads, and all other routes that connect directly to Interstates.

## **DIVISION II – MATERIALS**

SS200-002020-02

January 27, 2020

VIRGINIA DEPARTMENT OF TRANSPORTATION  
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS  
**SECTION 200 – GENERAL**

**SECTION 200 – GENERAL of the Specifications is amended as follows:**

**Section 200.04 – Acceptance Procedures for Aggregates** is amended to replace the fourth paragraph with the following:

The No. 10 sieve shall be the dividing sieve for soils, select material, aggregate subbase material, and aggregate base material. The No. 8 sieve shall be the dividing sieve for asphalt concrete aggregates. That portion of the total aggregate retained on the sieves is defined as *coarse aggregate*, and that portion passing the sieves is defined as *fine aggregate*. Soundness tests will be performed according to the requirements of AASHTO T 104 without regard to these definitions of fine and coarse aggregate. Fine and coarse aggregates for hydraulic cement concrete are distinguishable by their conformity to the series of grading requirements specified in Sections 202 and 203, respectively, except that lightweight aggregate is specified in Section 206.

**Section 200.06 – Technician and Batchers Certification** is amended to replace the first paragraph with the following:

When the Contract requires a type of technician or batcher defined by this Section, the Contractor shall use a person certified by the Department. The Department will certify technicians and batchers upon a candidate's satisfactory completion of an examination.

**Section 200.06(m) – Soils and Aggregate Compaction Technician** is inserted as follows:

**Soils and Aggregate Compaction Technician:** A Soils and Aggregate Compaction Technician conducts density, moisture content, and depth checks of soil placement and aggregate lifts during construction, including stabilized lifts. The Technician also monitors application rates of stabilizing chemicals used in soil and aggregate lifts in the field.

**Section 200.06(n) – Cold Asphalt Recycling – Plant Technician** is inserted as follows:

**Cold Asphalt Recycling – Plant Technician** samples Cold In-place Recycling (CIR) or Cold Central Plant Recycling (CCPR) material during production and is capable of conducting any tests necessary to put the CIR equipment and CCPR plant into operation.

**Section 200.06(o) – Cold Asphalt Recycling – Field Technician** is inserted as follows:

**Cold Asphalt Recycling – Field Technician** provides quality control testing and inspection of the placement of CIR and CCPR materials.

**Section 200.06(p) – Full Depth Reclamation (FDR) Technician** is inserted as follows:

**Full Depth Reclamation (FDR) Technician** provides quality control testing, inspection of the placement of FDR, samples FDR material during production, and is capable of conducting any tests necessary to put the FDR equipment into operation.

SS203-002020-01

September 19, 2019

VIRGINIA DEPARTMENT OF TRANSPORTATION  
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS  
**SECTION 203 – COARSE AGGREGATE**

**SECTION 203 – COARSE AGGREGATE is amended as follows:**

**Section 203.02 – Materials** is amended by replacing the first paragraph with the following:

Coarse aggregate shall consist of crushed stone, crushed slag, crushed or uncrushed gravel, or lightweight aggregate. Coarse aggregate shall be clean, hard, tough, and durable pieces free from: adherent coatings and deleterious amounts of friable, thin, elongated, or laminated pieces; soluble salts; or organic materials.

**Section 203.02(e) – Lightweight coarse aggregate** is inserted as follows:

**Lightweight coarse aggregate** shall conform to Section 206.

SS210-002020-01

19 May 2020

**VIRGINIA DEPARTMENT OF TRANSPORTATION  
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATION  
SECTION 210 – ASPHALT MATERIALS**

**SECTION 210 – ASPHALT MATERIALS** of the Specifications is amended as follows:

**Section 210.04(e) – Thin Hot Mix Asphalt Concrete Overlay tack coat** is inserted as follows:

**Thin Hot Mix Asphalt Concrete Overlay tack coat** shall conform to the following:

<b>Test on Emulsion</b>	<b>Method</b>	<b>Min</b>	<b>Max</b>
Viscosity at 77° F, SSF	AASHTO T 59	20	100
Sieve Test <sup>1</sup> , %	AASHTO T 59	—	0.05
24 hour storage stability <sup>2</sup> , %	AASHTO T 59	—	1
Residue from distillation at 400° F <sup>3</sup> , %	AASHTO T 59	63	
Oil portion from distillation ml of oil per 100g emulsion			2
Demulsibility, % 35 ml 0.02 N CaCl <sub>2</sub> or 35 ml 0.8% dioctyl sodium sulfosuccinate	AASHTO T 59	60	

<sup>1</sup>The sieve test is waived if successful application of the material has been achieved in the field.

<sup>2</sup>After standing undisturbed for 24 hours, the surface shall show no white, milky colored substance, but shall be a smooth homogeneous color throughout.

<sup>3</sup>AASHTO T59 with modifications to include a 400° F +/- 10° F maximum temperature to be held for a period of 15 minutes.

<b>Test on Residue From Distillation</b>	<b>Method</b>	<b>Min</b>	<b>Max</b>
Elastic Recovery <sup>1</sup> , %	AASHTO T 301	60	—
Penetration @ 77° F, 100 g, 5 sec. dmm.	AASHTO T 49	60	150

<sup>1</sup>With exception that the elongation is 20 cm and the test temperature is 50° F.

SS211-002020-01

August 20, 2020

**VIRGINIA DEPARTMENT OF TRANSPORTATION  
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS  
SECTION 211 – ASPHALT CONCRETE**

**SECTION 211 – ASPHALT CONCRETE** of the Specifications is amended as follows:

**Section 211.01 – Description** is replaced with the following:

Asphalt concrete shall consist of a combination of mineral aggregate and asphalt material mixed mechanically in a plant specifically designed for such purpose.

An equivalent single-axle load (ESAL) will be established by the Engineer, and SUPERPAVE mix types may be specified as one of the types listed as follows:

Mix Type <sup>1</sup>	Equivalent Single-Axle Load (ESAL) Range (millions)	Minimum Asphalt Performance Grade (PG) <sup>2</sup>	Nominal Maximum Aggregate Size <sup>3</sup>
SM-4.75A	0 to 3	64S-16	No. 4
SM-4.75D	3 to 10	64H-16	No. 4
SM-4.75E	3 to 10	64E-22	No. 4
SM-9.0A	0 to 3	64S-16	3/8 in
SM-9.0D	3 to 10	64H-16	3/8 in
SM-9.0E	Above 10	64E-22	3/8 in
SM-9.5A	0 to 3	64S-16	3/8 in
SM-9.5D	3 to 10	64H-16	3/8 in
SM-9.5E	Above 10	64E-22	3/8 in
SM-12.5A	0 to 3	64S-16	1/2 in
SM-12.5D	3 to 10	64H-16	1/2 in
SM-12.5E	Above 10	64E-22	1/2 in
IM-19.0A	Less than 10	64S-16	3/4 in
IM-19.0D	10 to 20	64H-16	3/4 in
IM-19.0E	20 and above	64E-22	3/4 in
BM-25.0A	All ranges	64S-16	1 in
BM-25.0D	Above 10	64H-16	1 in

<sup>1</sup>SM = Surface Mixture; IM = Intermediate Mixture; BM = Base Mixture

<sup>2</sup>**Minimum Asphalt Performance Grade (PG)** is defined as the minimum binder performance grade for the job mixes as determined by AASHTO T170 or AASHTO M332.

<sup>3</sup>**Nominal Maximum Aggregate Size** is defined as one sieve size larger than the first sieve to retain more than 10 percent aggregate.

Asphalt concrete shall conform to the requirements for the mix type designated on the plans or elsewhere in the Contract for use.



At the Contractor's option, an approved Warm Mix Asphalt (WMA) additive or process may be used to produce the asphalt concrete (AC) mix type designated.

**Table II-12A – Standard Deviation** is renamed **Aggregate Properties** and is replaced with the following:

<b>TABLE II-12A</b>					
<b>Aggregate Properties</b>					
<b>Mix Type</b>	<b>Coarse Aggregate Properties</b>			<b>Fine Aggregate Properties</b>	
	<b>CAA</b>		<b>ASTM D4791 F &amp; E (5:1) % by weight</b>	<b>SE</b>	<b>FAA</b>
	<b>1 fractured face</b>	<b>2 fractured faces</b>			
SM-4.75A				40% min	40% min
SM-4.75D				45% min	45% min
SM-4.75E				45% min	45% min
SM-9.0 A	85% min.	80% min.	10% max. <sup>1</sup>	40% min.	40% min.
SM-9.0 D	85% min.	80% min.	10% max. <sup>1</sup>	45% min.	45% min.
SM-9.0 E	95% min.	90% min.	10% max. <sup>1</sup>	45% min.	45% min.
SM-9.5 A	85% min.	80% min.	10% max. <sup>1</sup>	45% min.	45% min.
SM-9.5 D	85% min.	80% min.	10% max. <sup>1</sup>	45% min.	45% min.
SM-9.5 E	95% min.	90% min.	10% max. <sup>1</sup>	45% min.	45% min.
SM-12.5 A	85% min.	80% min.	10% max. <sup>1</sup>	45% min.	45% min.
SM-12.5 D	85% min.	80% min.	10% max. <sup>1</sup>	45% min.	45% min.
SM-12.5 E	95% min.	90% min.	10% max. <sup>1</sup>	45% min.	45% min.
IM-19.0 A	85% min.	80% min.	10% max. <sup>1</sup>	45% min.	45% min.
IM-19.0 D	95% min.	90% min.	10% max. <sup>1</sup>	45% min.	45% min.
IM-19.0 E	95% min.	90% min.	10% max. <sup>1</sup>	45% min.	45% min.
BM-25.0 A	80% min.	75% min.	10% max. <sup>1</sup>	45% min.	45% min.
BM-25.0 D	80% min.	75% min.	10% max. <sup>1</sup>	45% min.	45% min.

<sup>1</sup>10 percent measured at 5:1 on maximum to minimum dimensions

**Table II-13 – Asphalt Concrete Mixtures: Design Range** is replaced with the following:

<b>TABLE II-13</b>											
<b>Asphalt Concrete Mixtures: Design Range</b>											
<b>Mix Type</b>	<b>Percentage by Weight Passing Square Mesh Sieves</b>										
	<b>1 1/2 in</b>	<b>1 in</b>	<b>¾ in</b>	<b>½ in</b>	<b>3/8 in</b>	<b>No. 4</b>	<b>No. 8</b>	<b>No. 16</b>	<b>No. 30</b>	<b>No. 50</b>	<b>No. 200</b>
SM-4.75				100 <sup>1</sup>	95-	90-		30-55			6-13
A,D,E					100	100					
SM-9.0 A,D,E				100 <sup>1</sup>	90-	90	47-67				2-10
					100	max.					
SM-9.5 A,D,E				100 <sup>1</sup>	90-	58-80	38-67		23		2-10
					100				max		

SM-12.5 A,D,E		100	95- 100	90 max.	58-80	34-50	23 max	2-10
IM-19.0 A,D,E	100	90- 100	90 max.	--	--	28-49		2-8
BM-25.0 A,D	100	90- 100	90 max.	--	--	19-38		1-7
C (Curb Mix)			100	92- 100	70-75	50-60	28-36	15-20 7-9

<sup>1</sup>A production tolerance of 1% will be applied to this sieve regardless of the number of tests in the lot.

**Table II-14 – Mix Design Criteria** is replaced with the following:

**TABLE II-14**  
**Mix Design Criteria**

Mix Type	VTM (%) Production	VFA (%) Design	VFA (%) Production	Min. VMA (%)	Fines/Asphalt Ratio	No. of Gyrations N Design
SM4.75A <sup>2,4</sup>	3.0-6.0	70-75	70-80	16.5	1.0-2.0	50
SM4.75D <sup>2,4</sup>	3.0-6.0	70-75	70-80	16.5	1.0-2.0	50
SM4.75E <sup>2,4</sup>	3.0-6.0	70-75	70-80	16.5	1.0-2.0	50
SM-9.0A <sup>1,2</sup>	2.0-5.0	75-80	70-85	17.0	0.6-1.3	50
SM-9.0D <sup>1,2</sup>	2.0-5.0	75-80	70-85	17.0	0.6-1.3	50
SM-9.0E <sup>1,2</sup>	2.0-5.0	75-80	70-85	17.0	0.6-1.3	50
SM-9.5A <sup>1,2</sup>	2.0-5.0	75-80	70-85	16.0	0.7-1.3	50
SM-9.5D <sup>1,2</sup>	2.0-5.0	75-80	70-85	16.0	0.7-1.3	50
SM-9.5E <sup>1,2</sup>	2.0-5.0	75-80	70-85	16.0	0.7-1.3	50
SM-12.5A <sup>1,2</sup>	2.0-5.0	73-79	68-84	15.0	0.7-1.3	50
SM-12.5D <sup>1,2</sup>	2.0-5.0	73-79	68-84	15.0	0.7-1.3	50
SM-12.5E <sup>1,2</sup>	2.0-5.0	73-79	68-84	15.0	0.7-1.3	50
IM-19.0A <sup>1,2</sup>	2.0-5.0	69-76	64-83	14.0	0.6-1.3	50
IM-19.0D <sup>1,2</sup>	2.0-5.0	69-76	64-83	14.0	0.6-1.3	50
IM-19.0E <sup>1,2</sup>	2.0-5.0	69-76	64-83	14.0	0.6-1.3	50
BM-25.0A <sup>2,3</sup>	1.0-4.0	67-87	67-92	13.0	0.6-1.3	50
BM-25.0D <sup>2,3</sup>	1.0-4.0	67-87	67-92	13.0	0.6-1.3	50

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<sup>1</sup>Asphalt content should be selected at 4.0% air voids for A & D mixes, 3.5% air voids for E mix.

<sup>2</sup>Fines-asphalt ratio is based on effective asphalt content.

<sup>3</sup>Base mix shall be designed at 2.5% air voids. BM-25A shall have a minimum asphalt content of 4.4% unless otherwise approved by the Engineer. BM-25D shall have a minimum asphalt content of 4.6% unless otherwise approved by the Engineer.

<sup>4</sup> Asphalt content shall be selected at 5.0 percent air voids.

**Section 211.03(d)8 – For surface mixes** is replaced with the following:

For surface mixes, permeability test data shall be submitted in accordance with VTM 120 using either single point verification or the regression method for each surface mix having a different gradation. The specimen height shall be one inch for SM-4.75 mix types. If the average of the permeability results from the single point verification method exceeds  $150 \times 10^{-5}$  cm/sec, or if the regression method predicts a permeability exceeding  $150 \times 10^{-5}$  cm/sec at 7.5% voids, the Contractor shall redesign the mixture to produce a permeability number less than  $150 \times 10^{-5}$  cm/sec.

**Section 211.04(a) – Types SM-9.0A, SM-9.0D, SM-9.0E, SM-9.5A, SM-9.5D, SM-9.5E, SM-12.5A, SM-12.5D, and SM-12.5E asphalt concrete** is renamed **Types SM-4.75A, SM-4.75D, SM-4.75E, SM-9.0A, SM-9.0D, SM-9.0E, SM-9.5A, SM-9.5D, SM-9.5E, SM-12.5A, SM-12.5D, and SM-12.5E asphalt concrete** and replaced with the following:

**Types SM-4.75A, SM-4.75D, SM-4.75E, SM-9.0A, SM-9.0D, SM-9.0E, SM-9.5A, SM-9.5D, SM-9.5E, SM-12.5A, SM-12.5D, and SM-12.5E asphalt concrete** shall consist of crushed stone, crushed slag, or crushed gravel and fine aggregate; slag or stone screenings; or a combination thereof combined with asphalt cement. For all surface mixes, except where otherwise noted, no more than 5% of the aggregate retained on the No. 4 sieve and no more than 20% of the total aggregate may be polish-susceptible. At the discretion of the Engineer, SM-9.5AL or SM-12.5AL may be specified and polish susceptible aggregates may be used (without percentage limits). Unless Type C (curb mix) is specified by the Engineer in the Contract, SM-9.0, SM-9.5, and SM-12.5 mix types are acceptable for use in the construction of asphalt curbing.

**Section 211.04(e) – Type SM-9.5, SM-12.5, IM-19.0 and BM-25.0 asphalt concrete** is renamed **Type SM-4.75, SM-9.5, SM-12.5, IM-19.0 and BM-25.0 asphalt concrete** and amended to replace the first paragraph with the following:

**Type SM-4.75, SM-9.5, SM-12.5, IM-19.0 and BM-25.0 asphalt concrete** may be designated E (polymer modified), or stabilized (S). Asphalt concrete mixtures with the E designation may not be stabilized.

**Table II-15 – Process Tolerance** is replaced with the following:

TABLE II-15 Process Tolerance													
Tolerance on Each Laboratory Sieve and Asphalt Content: Percent Plus and Minus													
No. Tests	Top Size <sup>1</sup>	1 ½"	1"	¾"	½"	3/8"	No. 4	No. 8	No. 16	No. 30	No. 50	No. 200	A.C.
1	0.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	6.0	5.0	2.0	.60
2	0.0	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	4.3	3.6	1.4	0.43
3	0.0	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	3.3	2.8	1.1	0.33
4	0.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.0	2.5	1.0	0.30
5	0.0	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	2.7	2.2	0.9	0.27
6	0.0	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.4	2.0	0.8	0.24
7	0.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.3	1.9	0.8	0.23
8	0.0	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.1	1.8	0.7	0.21
12	0.0	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	1.7	1.4	0.6	0.17

<sup>1</sup>Defined as the sieve that has 100% passing as defined in Table II-13.

**Section 211.09 – Adjustment System** is amended by replacing the first paragraph and following table with the following:

If a lot of material does not conform to the acceptance requirements of Section 211.08, the Department will determine adjustment points as follows:

Adjustment Points for Each 1% the Gradation Is Outside the Process Tolerance Permitted In Table II-15	
Sieve Size	(Applied in 0.1% increments)
1 1/2 in	1
1 in	1
3/4 in	1
1/2 in	1
3/8 in	1
No. 4	1
No. 8	1
No. 16	1
No. 30	2
No. 50	2
No. 200	3

SP217-000120-00

VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
**MASSIVE CONSTRUCTION HYDRAULIC CEMENT CONCRETE (“MASS CONCRETE”) OPERATIONS**

March 19, 2020

**I. DESCRIPTION**

This work shall consist of furnishing and placing hydraulic cement concrete for massive cast-in-situ concrete bridge components, which shall be any concrete element designated on the plans as mass concrete. If the plans do not address mass concrete, then any concrete element for which the smallest dimension according to the Plans exceeds 5 feet shall be designated mass concrete. This shall include footings, drilled shaft caps, piers, abutments, and other work that meet this criterion. Work shall be performed in accordance with this Special Provision, the Plans, and as directed by the Engineer.

Unless otherwise specified, the 28-day compressive strength ( $f'_c$ ) used in the design calculations and specified in Table II-17 of the Specifications shall be attained in 56 days instead of 28 days.

**II. DEFINITIONS**

**Match-Cured.** A process where concrete test specimens are cured at the same temperature as the product by monitoring the concrete temperature in both the product and the test specimens and applying heat to the test specimens to match the temperature of the concrete.

**III. MATERIALS**

1. Mass Concrete shall contain at least 30% Class F fly ash or at least 65% blast-furnace slag, measured by mass of cementitious materials, but not both.
2. High-early-strength (Type III) cement, calcium chloride, and accelerating type admixtures shall not be used.
3. A retarding admixture may be allowed, if approved by the Engineer, for the following conditions: to prevent cold joints due to the quantity of concrete placed, to permit re-vibration of the concrete, to offset the effects of high concrete temperature, or to reduce the maximum temperature and rate of temperature rise. The admixture shall be pretested with job materials under job conditions, to include approximate dimensions.
4. The Class of Concrete used in mass concrete placements shall conform to Table II-17 of the Specifications and shall not be higher quality than Class A4 General unless specified otherwise on the Plans.

**IV. PROCEDURES**

1. **ACI Specifications.** This work shall be performed in accordance with the following ACI publications, except as modified by this Special Provision:

- A. "Guide to Mass Concrete", ACI 207.1R.
- B. "Report on Thermal and Volume Change Effects on Cracking of Mass Concrete", ACI 207.2R.
- C. "Control of Cracking in Concrete Structures", ACI 224R.
- D. "Specifications for Structural Concrete", ACI 301, Section 8.

## 2. Submittals

The Contractor shall submit the following to the Engineer for review and approval according to the procedures in Section 105.10(c) of the Specifications.

- A. **Working Drawings.** Describe the intended concrete placing sequence in the mass concrete components. Indicate proposed locations of all temperature sensors.
- B. **Shop Drawings.** Show reinforcing steel to be placed in the elements if different size, spacing, or depth of reinforcing bars to be used than those given in the Plans.
- C. **Placement Plans.** For each proposed concrete mix design, the following information shall be submitted:
  - (1) **Methods.** Describe the methods to be used to construct the mass concrete components within the criteria set forth herein. Include graphics that illustrate the dimensions of proposed mass concrete placements. Mass concrete placements shall be laid out to minimize surface area for a given volume. Individual placements that combine elements considered mass concrete and non-mass concrete shall not be permitted.
  - (2) **Design calculations** prepared to document that the methods chosen to install the mass concrete components are in accordance with the ACI publications referenced above as modified by this Special Provision. Calculations shall include:
    - A table of calculated peak temperatures for the range of expected air, concrete, and soil or ground (if applicable) temperatures at time of placement.
    - A calculation of maximum temperature differences within the element during the curing period.
    - A calculation of time to peak temperature.
    - A curve of maximum allowable temperature difference vs. concrete strength for each element under consideration, calculated for the allowable crack widths shown on the Plans. The Contractor shall use allowable crack widths shown in Table 4.1 of ACI 224R when not shown on the Plans. At the Engineer's discretion, this analysis can be waived for elements where all of the following conditions are met:
      - the smallest dimension is less than 10 ft.
      - at least 40% Class F Fly Ash or at least 75% granulated iron blast-furnace slag cement is used in the concrete mix
      - the total maximum cementitious content is 600 lbs/yd<sup>3</sup> except with Self-Consolidating Concrete.

- Insulation requirements for the forms and exposed portions of the concrete to keep the thermal differences within allowable limits.
  - A calculation of the time to reach the peak temperature difference, as well as the estimated time to cool to the allowable differential temperature specified in Section IV-4C.
- (3) **Mix design** showing proportions and sources for all components, and results of strength tests of sample cylinders. Mix designs shall also include the heat of hydration of the cementitious materials in the mix, as well as the thermal expansion coefficient of the concrete in accordance with AASHTO T 336 if the allowable temperature difference curve will be used.
- (4) **Admixtures.** Catalogue information on any admixtures proposed to be added to the concrete mix.
- (5) **Temperature control.** Proposed methods to reduce concrete temperatures and temperature differentials, such as pre-cooling of concrete or insulation. Internal cooling pipes shall not be permitted.
- D. All submittals must be signed and sealed by a Professional Engineer licensed to practice engineering in the Commonwealth of Virginia.

### 3. Placing

The maximum temperature of the concrete for mass components when deposited shall be 95°F. The minimum temperature limit of the concrete for mass components when deposited shall be 50°F.

### 4. Curing and Protection

- A. The minimum curing period shall be 7 Days. Curing methods shall be in accordance with Section 404 of the Specifications, and shall not result in temperature differentials exceeding the limits in Sections IV-2C(2) and IV-4C. With the Engineer's approval, the forms may be stripped prior to the end of the curing period, provided the curing continues for the remaining time.
- B. The maximum allowable temperature in any portion of the mass concrete shall be 160°F for slag cement mixes and fly ash mixes, in the prescribed proportions. The Engineer may direct that concrete which has exceeded these temperatures be removed, or otherwise mitigated, at no cost to the Department.
- C. The maximum allowable thermal gradient between the core and skin temperatures of a placement is limited to 35°F.
- D. Temperature sensors shall be installed in each mass concrete pour and placement. A pair of two temperature sensors (a primary and backup), shall be at the centroid of the placement, or wherever the point of expected maximum temperature is anticipated. If there is any doubt as to the location of the predicted maximum temperature, then additional temperature sensors shall be placed as required or as directed by the Engineer.

- E. For elements cast on the ground or in a horizontal position such as footings, slabs, or pier caps: in addition to the pair of temperature sensors located at the point of maximum temperature, one pair each of temperature sensors shall be cast 3 inches from the surface and each pair of temperature sensors shall be vertically in line with the temperature sensors placed at the centroid as required by Section IV-4D. The temperature sensors pairs located at the elevations of the top and bottom mats shall have the same concrete cover as the reinforcing mats in those locations.
- F. For elements cast in a vertical position such as columns and walls: in addition to the temperature sensors located at the point of maximum temperature, one pair each of temperature sensors on the north face and on the south face shall be cast in line with the temperature sensors cast at the centroid. These temperature sensors shall be located in the same vertical plane as the reinforcing steel mats and shall have the same concrete cover as the reinforcing mats.
- G. The Engineer may direct that additional temperature sensors be placed if the area of maximum thermal gradient cannot be readily determined.
- H. Both temperature sensors from each pair shall be connected to a data logger or other recording device. The data logger shall record the temperatures at each temperature sensor at least once every hour from the time the temperature sensor is covered with concrete until 3 days after the peak temperature is reached, or as directed by the Engineer. The data logger shall have a printed tape or electronic data storage capability. The Engineer may discontinue monitoring of mass concrete elements deemed to be similar to previously monitored elements and placed under similar temperature conditions.
- I. To determine concrete strength for stripping and allowable thermal differences, the Contractor shall use Match-Cured cylinders. A separate analysis shall be provided for each approved mass concrete design mix.
- J. Match-Cured cylinders shall follow the coolest surface temperature sensor in the placement. Sufficient number of cylinders shall be cast to allow an accurate plot of the strength development of the concrete. At a minimum, 9 pairs of cylinders shall be cast, with two cylinders each broken at the end of 1, 2, 3, 4, 5, 6, 7, 10, and 14 days. Additional cylinders shall be cast if it is anticipated that the concrete will not reach peak temperature until after 10 days from the placement.
- K. The forms may be stripped when the concrete strength is high enough (as determined by the Match-Cured cylinders) to withstand the anticipated thermal difference between the core temperature and the 48-hour average air temperature, or as directed by the Engineer. In no event will form stripping be allowed before the surface concrete reaches at least 80 percent of its design strength. After form stripping, concrete shall be protected from freezing temperatures for 48 hours by the use of insulating blankets or other methods approved by the Engineer.

## **5. Remedial Measures**

If temperature differentials are exceeded and cracking occurs or if other damage is evident, the Contractor shall core or otherwise test the concrete elements as directed by the Engineer to determine the extent of damage.



The Contractor shall submit a proposed remediation plan for the approval of the Engineer. The Engineer may direct that all or a portion of the damaged or unacceptable concrete be removed and replaced without additional compensation.

For concrete left in place, all cracks widths over 0.2 mm shall be epoxy injected. Epoxy bonding compounds shall be in accordance with Section 243 of the Specifications. All ports and mastic compound shall be removed from portions of the structure that will remain visible when construction is complete.

All remedial work required, including coring and crack sealing, shall be incidental to the unit bid price for Concrete (Class).

#### **V. MEASUREMENT AND PAYMENT**

Measurement and payment will be in accordance with Section 404 of the Specifications. All work required to install mass concrete bridge components as specified herein shall be considered incidental to the work required in Section 404 of the Specifications and will not be measured for separate payment.

SS217-002020-01

September 27, 2019

VIRGINIA DEPARTMENT OF TRANSPORTATION  
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS  
**SECTION 217 – HYDRAULIC CEMENT CONCRETE**

**SECTION 217 – HYDRAULIC CEMENT CONCRETE** of the Specifications is amended as follows:

**Section 217.02(c) – Fine aggregate** is replaced with the following:

**Fine aggregate** shall conform to Section 202 for Grading A or Section 206.

**Section 217.02(d) – Coarse aggregate** is replaced with the following:

**Coarse aggregate** shall conform to Sections 203 or 206 for the class of concrete being produced.

**Section 217.02(m) – Lightweight aggregate** is inserted as follows:

**Lightweight aggregate** shall conform to Section 206.

**Section 217.07 – Proportioning Concrete Mixes** is replaced with the following:

The Contractor is responsible for having a certified Concrete Plant Technician available during batching operations, and a certified Concrete Field Technician present during placing operations.

The Contractor shall have at least one certified Concrete Field Technician on the project for single or multiple incidental concrete placements. The Contractor shall have at least one certified Concrete Field Technician present at each site during the placement of pavements, bridge decks, bridge piers and abutments, box culverts, and any placement of 50 or more cubic yards.

The certified Concrete Field Technician shall provide control over methods used for discharging, conveying, spreading, consolidating, screeding, finishing, texturing, curing, and protecting the concrete. Deficiencies in conformance to specification requirements and good concreting practices shall be corrected by or under the direction of the certified Concrete Field Technician as soon as they begin to occur.

The concrete producer shall plan batching operations so that delays do not occur because of the absence of certified personnel.

Concrete shall be proportioned to secure the strength and durability required for the pavement or the part of the structure in which it will be used.

The Contractor shall submit concrete mixture designs conforming to the Specifications for the class of concrete specified for the Engineer's approval prior to the start of concrete mixing operations.

The Contractor shall furnish and incorporate a water-reducing and retarding admixture in bridge deck concrete and in other concrete when conditions are such that the initial set may occur prior to

completion of approved finishing operations. The two admixtures shall not be used together in the same concrete batch unless tests indicate the admixtures are compatible in accordance with Section 215.02(b). If the Engineer elects to waive the requirement to have both admixtures, the Contractor may supply and incorporate only a water-reducing admixture, in lieu of having both the water-reducing and retarding admixtures normally required in the bridge deck concrete, to provide the required slump without exceeding the maximum water/cement ratio. The Contractor shall demonstrate to the Engineer that use of the admixture will not cause segregation.

Concrete shall be air entrained. The air content shall conform to Table II-17.

Except for latex hydraulic cement concrete, concrete mixtures shall be developed and verified by any one of the following three options listed below.

The mix designs as determined by the respective option below shall be valid provided there is no change in sources of aggregate, chemical admixtures, mineral admixtures, or hydraulic cement. All concrete mixtures shall contain the minimum amount of mineral admixtures or combination thereof expressed as a percent of the total cementitious materials in accordance with Section 217.02(a). All quantities of materials shall be weighed in accordance with tolerances specified in Section 217.04. The quantities of coarse and fine aggregates used in concrete production shall not deviate by more than  $\pm 5\%$  by weight from the batch weights of the approved mix design.

When low permeability concrete is specified, two 4 X 8 inch specimens shall be molded from concrete representing the proposed mix design and tested in accordance with VTM 112 to validate conformance. For trial batches, the tested permeability value shall be considered satisfactory provided it is 500 coulombs less than the specified maximum value for the class of concrete specified.

**(a) Option 1 – Prescriptive Method:**

Mix proportions for normal, heavy weight, and lightweight concrete shall be established by the methods described in ACI 211 on an absolute volume basis for the respective aggregate size. The mix design shall conform to Table II-17 or other parts of the Contract for the class and type of concrete indicated. Aggregate properties obtained from the aggregate producer shall be used for design purposes.

Once the proposed mix design has been established, the Contractor or their concrete supplier shall produce one 3-cubic yard production verification batch using the same type of equipment intended for use in supplying concrete to the Department. The proposed mix design will be considered acceptable provided that the plastic properties of the concrete are within the Department's specification limits for the given class of concrete. Strength tests of the verification batch must equal or exceed  $f'_c$  for the intended class of concrete.

**(b) Option 2 – Trial Batch Mix Design Method:**

The minimum cementitious content requirement in Table II-17 will be waived provided that the maximum water-cementitious ratio requirement of Table II-17 is met for the respective class of concrete. The required grading for fine and coarse aggregate will be waived provided the coarse

aggregate meets the nominal maximum size as required in Table II-17 for the respective class of concrete.

The Contractor shall prepare a minimum of 3 trial concrete batches with differing cementitious materials contents over a range anticipated to encompass the design strength,  $f'_c$ , plus overdesign, and water-cementitious ratios encompassing the range permitted for the classes of concrete being evaluated. Trial batches may be produced in either small scale laboratory batches or truck batches with a minimum batch volume of 3 cubic yards each.

The plastic properties of the trial concrete batches shall meet the requirements for consistency and air content in Table II-17 and meet the additional requirements listed below:

- The concrete temperature of the trial batches, as batched and sampled, shall be a minimum of 68°F.
- Air content of the trial batches shall be within a range of -1.0 to +1.5 percentage points of the median design air content for the classes of concrete being evaluated.
- Slump of the trial batches shall be within  $\pm 1$  inch of the maximum slump permitted for the class of concrete.

Three 4 X 8 inch test specimens shall be molded from each batch, cured in accordance with ASTM C31 for acceptance specimens, and then compression tested at an age of 28 days. The strength results of these tests shall be plotted on a graph to establish the relationship between the water-cementitious ratio and the compressive strength. Alternately, the relationship can be established between the cementitious content and the compressive strength. The design water-cementitious ratio, or design cementitious content, can then be derived from the graph to satisfy the required design strength plus an appropriate overdesign to be designated as  $f'_{cr}$ . The required cementitious materials content determined from these tests can be interpolated from the established graph. If desired, the design water-cementitious ratio or cementitious content can be determined from a polynomial regression analysis of the plotted strength data.

Test results from prior trial concrete batches are acceptable for use if they represent the same material sources proposed for the Department work, meet the requirements for trial concrete batches as stated above and are less than 18 months old.

The required cementitious content to satisfy the strength requirement for the respective class of concrete shall be determined in accordance with either of the two following procedures:

1. When the concrete production facility has sufficient data to establish a production standard deviation (“s”), as described in Section 217.07(d). The cementitious content required to meet the design strength requirement,  $f'_{cr}$ , then the  $f'_{cr}$  shall be based upon the following equation:

$$f'_{cr} = f'_c + 3s$$

2. When the concrete production facility does not have a production standard deviation established the cementitious content required to meet the design strength requirement,  $f'_{cr}$ , then the  $f'_{cr}$  shall be based upon the following equation:

$$f'_{cr} = f'_c + 1700 \text{ psi.}$$

Once the proposed mix design has been established, the Contractor shall produce one 3-cubic-yard production verification batch using the same type of equipment intended for use in supplying concrete to the Department. The proposed mix design will be considered acceptable if and only if the plastic properties of the concrete are within the Department's specification limits for the given class of concrete. Strength tests of the verification batch must equal or exceed  $f'_c$  for the intended class of concrete. The requirement for a production verification batch will be waived when the trial batching is performed –with truck batches.

**(c) Option 3 - Documented Field Experience Method:**

The minimum cementitious content requirement in Table II-17 will be waived provided that the maximum water-cementitious ratio requirement of Table II-17 is met for the respective class of concrete. The required grading for fine and coarse aggregate will be waived provided the coarse aggregate meets the nominal maximum size as required in Table II-17 for the respective class of concrete.

An existing concrete mixture shall be considered acceptable for use if the Contractor has a satisfactory test record of pervious field experience as described in Section 217.07(d), and that the proposed concrete mixture meets the following requirements:

1. The water cementitious ratio of the proposed concrete mixture is less than or equal to the maximum water cementitious ratio specified for the respective class of concrete.
2. The documented average strength,  $f'_{cr}$ , equals or exceeds the design compressive strength  $f'_c$  for the respective class of concrete in accordance with the following equation:  $f'_{cr} = f'_c + 3s$ .
3. The proposed concrete mixture contains the same aggregate sources, supplementary cementitious materials type, and admixture type as those used to establish the previous field experience test record.
4. The consistency (slump) and air content are within the specification limits for the respective class of concrete.

**(d) Documentation of Previous Field Experience or Production Standard Deviation(s)**

An acceptable test record to document previous field experience or to establish a production facility standard deviation shall represent a minimum of 30 consecutive compressive strength tests results, encompass a production period of at least 45 days and test data not more than 18 months old. A test record of less than 30 tests, but not less than 15 tests, shall be permitted provided a modification factor is applied to the production facility sample standard deviation as shown below:

<b>Multiply Standard Deviation by Modification Factor</b>	
<b>Number of Test</b>	<b>Modification Factor</b>
15	1.16
20	1.08
25	1.03
30	1.00

The test record may be based on non-Department projects if documentation of the sources of concrete strength test results accompanies the submittal.

For latex hydraulic cement content, the dry weight ratio of cement/fine aggregate/coarse aggregate shall be 1:2.5:2. With the Engineer's approval a maximum adjustment of 10 percent may be made in aggregate weights to compensate for grading changes and variable specific gravity.

The Contractor shall adjust batch quantities during the course of the work to compensate for changes in workability caused by differences in the characteristics of aggregates and cements permitted within the specification requirements. Such adjustments shall be made only by the Contractor and shall not change the yield.

If concrete cannot be obtained with the required workability or consistency or within the maximum design water content with the materials furnished, the Contractor shall make changes to secure the desired properties subject to the limiting requirements specified in Table II-17 and the Engineer's approval. The Contractor shall use a fine aggregate having a void content of less than 50.5 percent, except when lightweight fine aggregate is used. When the void content of the fine aggregate is more than 50.5 percent and the concrete does not have the desired properties, in lieu of changing the fine aggregate, the Contractor may take one or more of the following actions:

- Use a water-reducing admixture.
- Increase the cement content.
- Change the source of coarse aggregate.
- In hot weather, add ice or otherwise reduce the temperature to increase the workability.
- Submit other recommendations to the Engineer for approval.

The Contractor shall make trial batches under the observation of the Engineer to verify that concrete of the required workability and consistency is obtained within the specified water content when any of the actions is exercised. At least one trial batch shall be made with the concrete temperature at approximately 90°F to verify that the concrete mixture has sufficient workability and consistency without exceeding the specified water content. The concrete mixture shall be redesigned when the fineness modulus of the fine aggregate changes more than 0.2 from the original design and the concrete does not have the desired properties. Costs incurred because of adjustments of concrete mixture designs and for trial batches shall be borne by the Contractor with no additional compensation being made.

**Section 217.08 – Acceptance** is replaced with the following:

- (a) **Hydraulic cement concrete sampling:** For the purpose of acceptance testing for consistency, air content, density (unit weight), and preparation of specimens for strength testing or permeability

testing, hydraulic cement concrete shall be sampled from the mixing/delivery unit in accordance with ASTM C172, except the sample shall be permitted to be taken after discharge of a minimum of two cubic feet of concrete from the delivery vehicle. The two cubic feet discharged shall not be used as part of the test sample or in the Work. The Contractor shall provide a receptacle conforming to ASTM C31 for the Department's use in obtaining the sample. Additional (but not alternate) points of sampling may be required by the Engineer when deemed necessary.

(b) **Air and Consistency Tests:** Air and consistency tests will be performed by the Department prior to discharge of concrete into the forms to ensure that specification requirements are consistently being complied with for each class of concrete supplied. If either determination yields a result that is outside of the allowable range for air content or consistency, the Engineer will use the following procedure:

1. The Engineer will immediately perform a recheck determination. If the results confirm the original test results, the load will be rejected.
2. The Contractor's representative will be immediately informed of the test results.
3. The Contractor shall notify the concrete producer of the test results through a pre-established means of communication.

The Engineer may perform any additional tests deemed necessary and reject all remaining material that fails the tests.

Entrained air content will be determined in accordance with ASTM C231 or ASTM C173. Acceptance or rejection will be based on the results obtained from these tests.

A mixture that contains the minimum amount of water consistent with the required workability shall be used. Consistency will be determined in accordance with ASTM C143. The Engineer will not allow adding cement to loads previously rejected for excessive water content or unsatisfactory consistency.

(c) **Strength Tests:** The 28-day compressive strengths ( $f'_c$ ) specified in Table II-17 are the strengths used in the design calculations. The Engineer will verify design strengths by tests made during the progress of the work in accordance with ASTM C31 and ASTM C39. The use of ASTM C42 will be at the Engineer's discretion. If the 28-day design compressive strength ( $f'_c$ ) test results do not conform to the strength requirements specified in Table II-17, the Contractor shall take immediate steps to adjust the mixture design. In addition, the Engineer may require removal of or corrective measures be applied to any concrete that does not meet the requirements of Table II-17. If the concrete cylinder strength,  $f'_{cyl}$ , is less than the specified compressive strength found in Table II-17, the criteria in Table II-17A shall apply. The Department will not assess a calculated penalty less than \$500. However, the Contractor shall have the right to remove and replace concrete failing to meet specifications at the Contractor's cost.

Before concrete is placed, the Contractor shall provide a storage chamber at his expense for temporary storage of the Department's concrete cylinders. The Contractor shall be responsible for maintaining the chamber so that the concrete test cylinders are kept in a continuously moist

condition and within a temperature range of 60°F to 80°F. The chamber shall be equipped with a continuously recording thermometer accurate to  $\pm 2^\circ\text{F}$  for the duration of concrete cylinder curing. The Contractor shall provide the data from the continuously recording thermometer within time frames as approved by the Engineer. The chamber shall be located in an area where the test cylinders will not be subject to vibration and shall be of sufficient size or number to store, without crowding or wedging, the required number of test cylinders as determined by the Contractor based on his plan of operations. The Engineer will approve the location of the chamber prior to its placement.

When use of high-early-strength hydraulic cement concrete is required, it shall conform to Table II-17 except that the 28-day compressive strength requirement shall be obtained in 7 days. The Contractor may use up to 800 lbs/yd<sup>3</sup> of Type I, Type II or Type III cement to produce high-early-strength concrete.

- (d) **Concrete Temperature** shall be measured in accordance with ASTM C1064.
- (e) **Density (Unit Weight)** of freshly mixed concrete will be measured, when required by the Engineer, in accordance with ASTM C138.
- (f) **Quality Assurance for Low Permeability Concrete:**

- 1. **General**

The Contractor shall prepare and cast test specimens on at least two trial batches using job materials, with permissible combination of cementitious materials, for testing by the Department for permeability and strength at least 5 weeks before the field application. The permeability samples shall be cylindrical specimens with a 4-inch diameter and at least 4-inches in length. Cylinders will be tested at 28 days in accordance with VTM 112. The test value shall be the result of the average values of tests on two specimens from each batch. Permeability values obtained from trial batches shall be 500 coulombs below the maximum values specified in Table II-17 to be acceptable.

- 2. **Acceptance Tests:**

For each set of cylinders made for compressive strength tests, two additional cylinders shall be made for the permeability test. The Department will be responsible for making and testing all permeability test specimens.

If the average permeability test result is at most the value for the specified class of concrete in Table II-17, then full payment will be made for the lot the average permeability test result represents. However, if the average permeability test result exceeds the coulomb value in Table II-17, the percent reduction in payment for that lot of concrete shall be calculated by multiplying 0.005 by each coulomb above the coulomb value in Table II-17 by the concrete item Contract unit price times the number of cubic yards or cubic meters of concrete in the lot. The reduction in price will not exceed 5 percent of the concrete item Contract unit price. The Engineer will reject any concrete with a coulomb value that exceeds the maximum required in Table II-17 by 1000 coulombs. However, bridge deck concrete with any coulomb



value exceeding the maximum required value by over 1000 coulomb may be accepted by the Engineer at 95 percent of the Contract unit price if the concrete in question has the required strength, meets the other specification requirements and the Contractor applies, at his own expense, an approved epoxy concrete overlay to the top of the entire deck. In such cases deck grooving will not be required. The Engineer will not allow the placement of epoxy overlays over latex overlays. The Contractor shall make the adjustment to the roadway grade as required by the Engineer at the Contractor's expense.

Similarly, concrete in abutments and pier caps with coulomb value exceeding the maximum required in Table II-17, by more than 1000 coulomb may be accepted at 95 percent of the Contract unit price if it has the required strength, meets the other specification requirements and the Contractor applies, at his own expense, one coat of epoxy Type EP 3B and one coat of epoxy EP 3T in conformance with Section 243.02, on top of the pier caps or abutment seats.

**(g) Bond Strength for Silica fume concrete, latex-modified concrete and very-early-strength latex-modified concrete overlays:**

The Contractor shall perform the bond strength testing in accordance with VTM 92 at a minimum age of 7 days; when scheduling the lane closure for testing, the inconvenience to the public shall be minimized. The bond strength shall be at least 150 psi; otherwise the substrate concrete shall fail at a depth of at least 0.5 inch over at least 50% of the test area. A minimum of one test result (based upon the average of three test specimen results) shall be conducted on each placement.

**Table II-17A - Price Reduction or Action Taken due to  $f'_{cyl}$  not meeting the specification value  $f'_c$  listed in Table II-17** is replaced with the following:

<b>Table II – 17A</b> <b>Price Reduction or Action Taken due to <math>f'_{cyl}</math> not meeting the specification value <math>f'_c</math></b> <b>listed in Table II-17</b>		
<b>Condition<sup>1,2</sup></b>	<b>Concrete is a Pay Item</b>	<b>Concrete is <u>Not</u> a Pay Item</b>
$f'_{cyl}$ is greater than or equal to 98% $f'_c$	A <sup>3</sup>	A <sup>3</sup>
$f'_{cyl}$ is greater than or equal to 90% $f'_c$ and less than 98% $f'_c$	B <sup>4</sup>	C <sup>5</sup>
$f'_{cyl}$ is less than 90% $f'_c$	D <sup>6</sup>	D <sup>6</sup>
$f'_{cyl}$ is not available due to the Contractor's inappropriate handling and storage of specimens in accordance with ASTM C31	D <sup>6</sup>	D <sup>6</sup>

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<sup>1</sup> $f'_c$  is the 28-day design compressive strength requirement found in Table II-17.

<sup>2</sup> $f'_{cyl}$  is the actual average tested strength of the standard-cured concrete cylinder made and tested in accordance with ASTM C31 and ASTM C39.

<sup>3</sup>A = full payment

<sup>4</sup>B = pay reduction =  $\left[\frac{(f'_c - f'_{cyl})}{f'_c} \times \text{Contract unit price for concrete per yd}^3 \times \text{number of yds}^3 \text{ the concrete represents}\right]$  or \$500, whichever is greater.

<sup>5</sup>C = pay reduction =  $\left[\frac{(f'_c - f'_{cyl})}{f'_c} \times 5 \times \text{Contractor's invoice price for concrete per yd}^3 \times \text{number of yds}^3 \text{ the concrete represents}\right]$  or \$500, whichever is greater.

<sup>6</sup>D = The Contractor shall submit an investigative plan stamped by a Professional Engineer holding a valid license to practice engineering in the Commonwealth of Virginia outlining how the Contractor shall demonstrate that the in-place concrete meets the structural strength requirements for the design. The Engineer will not permit any reduction in concrete strength below  $0.9f'_c$  for barriers, parapets, railings, etc. The Engineer will approve the investigative plan for all other applications prior to the execution of the investigation. All costs associated with this investigation shall be borne by the Contractor. After the investigation is completed, the Contractor shall submit a report to the Engineer showing the results of the Professional Engineer's analysis, testing and conclusions as well as any recommended actions proposed by the Contractor to be taken with the concrete that did not meet the strength requirements. The Department retains all rights to determine if the action proposed with regard to the concrete in question is acceptable. If the Department concurs with the proposed action and the concrete meets the structural strength requirements of the design and remains in place, any price reduction will be taken by Method B if the concrete is a pay item or Method C if the concrete is not a pay item. If the concrete does not meet the structural requirements of the design, the concrete shall be removed and replaced at no cost to the Department.

**Section 217.11 – Self-Consolidating Concrete (SCC)** is replaced with the following:

When specified or designated on the Plans, SCC shall be designed as the Class of Concrete specified in Table II-17 and conform to all the requirements herein except as outlined below. Combined aggregate grading and Viscosity Modifying Admixture (VMA) may be used. The VMA shall conform to ASTM C494, Type S. Synthetic fibers from the Department's Approved List 35 may be added to control cracking. Shrinkage-reducing admixture may be added to control shrinkage if approved by the Engineer. The maximum size of aggregate shall not be larger than: 3/4-inch; 1/5 the narrowest dimension between the sides of the forms; 1/3 the slab depth; and 3/4 of the minimum clear spacing between individual reinforcing bars or wires, bundles of bars, individual tendons, bundled tendons or ducts.

The Contractor shall furnish the Engineer a mix design for the SCC which is proportioned according to the project specific criteria for compressive strength, air content, slump flow, VSI, J-Ring value, and segregation factor. The maximum water-cementitious materials ratio shall be 0.45 unless otherwise approved by the Engineer. The Contractor shall use the same components in the trial batches as are to be used in the project including: coarse and fine aggregates; water; source and type of cement; supplementary cementitious materials; and admixtures, including any site-added admixtures intended to be used.

- (a) **Slump flow** shall be measured in accordance with ASTM C1611, Procedure B. The slump flow shall be  $26 \pm 3$  inches, and there shall be no visible segregation of the mix in the spread. The slump flow shall be compared to the slump flow with the J-ring in accordance with ASTM C1621.
- (b) **Visual Stability Index (VSI)** Rating in accordance with ASTM C1611 shall not exceed 1.
- (c) **J-Ring Flow** as measured by ASTM C1621 shall not be more than 2 inches different from slump flow.
- (d) **Stability (performed on trial batches)** of the concrete shall be determined in the laboratory prior to approval of the SCC mixture using test method ASTM C1610. Concrete mixtures shall have a maximum static segregation (segregation factor) of 15%.
- (e) **Permeability (if specified) and Strength Test Specimens** shall be sampled in accordance with Section 217.08(c) and fabricated in accordance with ASTM C1758.

**Section 217.12 – Low Shrinkage Class A4 Modified Concrete** is replaced by the following:

Low shrinkage Class A4 modified concrete shall be either Normal or Lightweight, as specified on the Plans.

- (a) **Normal weight:** The cementitious materials content shall be less than 600 pounds per cubic yard. High-early-strength hydraulic cement concrete as described in Section 217.08(b) shall not be used.

The 28 day drying shrinkage shall be less than 0.035% based on average of three specimens when tested in accordance with ASTM C157. Specimens shall be moist-cured for 7 days prior to testing for drying shrinkage. A Shrinkage Reducing Admixture (SRA) shall be used unless the 28 day drying shrinkage is  $< 0.035\%$  without the admixture. A fixed amount of SRA dosage can be used without additional drying shrinkage testing if approved by the Engineer.

The Contractor, at his expense, shall prepare a minimum 3-cubic-yard trial batch of the mix at least 5 weeks before the proposed start date of production. The trial batch will be used to verify compliance with the shrinkage requirements listed herein and the minimum compressive strength, permeability, air void content, and slump listed in Table II-17. The Contractor shall prepare the trial batch with the same equipment to be used on the project. The Contractor shall obtain the services of a Department approved independent laboratory to perform the trial batch testing. Test results shall be furnished to the Engineer for review and approval. The Engineer will not authorize the Contractor to proceed with production of low shrinkage Class A4 modified concrete for the work required by the Contract until the test results verify conformance with the requirements stated herein.

- (b) **Lightweight:** Use lightweight concrete with lightweight aggregates in conformance with AASHTO M 195.

The maximum cementitious materials content shall be 650 lbs/yd<sup>3</sup>. All other requirements shall conform to those listed in Table II-17 for Low Shrinkage Class A4 Modified concrete.

Maximum density of freshly mixed lightweight concrete, when tested in accordance with ASTM C138, shall be 120 lbs/ft<sup>3</sup>, or as specified on the plans.

**Section 217.13 – Latex-modified Concrete, Very-Early Strength (LMCVE), for Bridge Deck Overlays** is replaced with the following:

LMCVE shall conform to the requirements of Section 217 and Table II-17 except as modified herein.

Cement shall be approximately 1/3 calcium sulfoaluminate (C4A3S) and 2/3 dicalcium silicate (C2S) or other hydraulic cement that will provide a Latex-Modified Concrete that meets the physical requirements indicated in this section.

The LMCVE shall contain a minimum 658 lbs/yd<sup>3</sup> of rapid hardening cement, 15% styrene butadiene latex by weight of cement, water not to exceed a water-cement ratio of 0.40, and aggregates as proposed by the Contractor for the mixture. The compressive strength minimum shall be 2500 psi at 3 hours and 3500 psi at 24 hours. Compressive strength specimens shall be cured in the molds in the same environment as the in-place LMCVE they represent. Specimens shall remain undisturbed at the site for 2 hours and shall be transported to the testing lab for testing.

Prior to placing overlay the Contractor shall calibrate the mobile concrete mixers. Once the mixers are calibrated, the mixtures shall be sampled and tested for slump and air content. The Contractor shall prepare and test specimens to demonstrate that the concrete mixture shall obtain a compressive strength of at least 2500 psi within 3 hours at the curing temperatures in which the overlay will be placed, and a compressive strength of at least 3500 psi at an age of 24 hours. All trial batching and preparatory work prior to placing LMCVE shall be at the Contractor's expense. During the placement of the overlay the Contractor shall take samples for testing for compressive strength. Permeability, slump and air content measurements will not be required, but may be performed by the Engineer.

**Section 217.15 – Lightweight Concrete** is inserted as follows:

Lightweight aggregate shall be proportioned for incorporation into the mix in accordance with AASHTO M 195. Prior to producing concrete for a project, the lightweight aggregate shall be in a moisture condition such that the total moisture exceeds the absorbed moisture by a minimum of one percentage point.

The air content for lightweight concrete will be measured by the Department in accordance with ASTM C173.

The fresh lightweight concrete density shall be a maximum 120 lbs/ft<sup>3</sup> unless noted otherwise on the Plans and determined in accordance with ASTM C138. If specified in the Contract, the equilibrium density of the hardened concrete shall be determined in accordance with ASTM C567.

When the lightweight aggregate is used to provide internal curing, when concrete will be delivered by pumping, or when otherwise required by the Engineer, the aggregate shall be pre-wetted to obtain an absorbed moisture content equal to at least the 24-hour absorption as determined by AASHTO T

84 or T 85. In lieu of testing, the Engineer may allow use of a minimum absorbed moisture content equal to the recommendation of the lightweight aggregate manufacturer or as known by the concrete supplier through previous experience to provide the desired performance.

If no previous experience is available for the field performance of the lightweight aggregate, the Contractor shall perform freeze/thaw resistance testing of the hardened concrete mixture on a trial batch in accordance with ASTM C666. The minimum durability factor shall be 90%. This information shall be provided to the Engineer for approval prior to the placement of lightweight concrete.

At least two weeks prior to the initial placement of lightweight concrete, a pre-pour meeting be held with the Contractor, Subcontractors, the concrete producer, and the lightweight aggregate supplier to discuss the production of the lightweight concrete and the placement operations. On the first day of production, the lightweight aggregate manufacturer's representative shall be at the batch plant and/or at the project site to provide technical assistance.

SS226-002020-01

September 27, 2019

VIRGINIA DEPARTMENT OF TRANSPORTATION  
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS  
**SECTION 226 – STRUCTURAL STEEL**

**SECTION 226 – STRUCTURAL STEEL** of the Specifications is amended as follows:

**Section 226.02(c) – Anchor Bolts** is replaced with the following:

**Anchor bolts** shall conform to AASHTO M 314 or ASTM F1554.

1. **Anchor bolts for general use** shall be Grade 36. Nuts and washers shall conform to ASTM A563 and ASTM F844 respectively. Threads shall be coarse series.
2. **High-strength anchor bolts** shall conform to ASTM F1554, Grade 55 or AASHTO M314, Grade 55, with supplemental requirements of S1. Nuts and washers shall conform to ASTM A563, Grade DH and ASTM F436 respectively.
3. **Galvanization** of steel anchor bolts, nuts, and washers shall conform to ASTM A153.
4. **Anchor bolts for railings** shall conform to (c)1 herein, and shall be hot-dipped galvanized.

**Section 226.02(h) – High-Strength Bolts, Nuts, Washers, and Direct Tension Indicators** is renamed **High-Strength Bolts** and replaced with the following:

**High-Strength Bolts** shall conform to ASTM F3125 Grade A325 Type 1, unless specified otherwise. Nuts, Washers, and Direct Tension Indicators (DTIs) shall conform to specifications appropriate for the grade and type of bolt according to the table below. All nuts shall be Heavy Hex, and all washers shall be Hardened.

High-Strength Bolts	Nuts	Washers	DTIs
ASTM F3125, Grade A325, Type 1 <sup>1</sup>	ASTM A563, Grade DH	ASTM F436	ASTM F959
ASTM F3125, Grade A325, Type 3	ASTM A563, Grade DH3	ASTM F436	ASTM F959
ASTM F3125, Grade A490, Type 1	ASTM A563, Grade DH ASTM A194, Grade 2H	ASTM F436	ASTM F959
ASTM F3125, Grade A490, Type 3	ASTM A563, Grade DH3	ASTM F436	ASTM F959
ASTM A449, Type 1 <sup>1</sup>	ASTM A563, Grade DH	ASTM F436	ASTM F959
ASTM A449 Type 3	ASTM A563, Grade DH3	ASTM F436	ASTM F959

<sup>1</sup>All bolts conforming to ASTM F3125, Grade A325, Type 1 or ASTM A449, Type 1 and their nuts, washers, and DTIs shall be galvanized.

1. Bolts, nuts, and washers conforming to ASTM F3125 Grade A490 shall not be galvanized. High-strength bolts used with unpainted weathering steel shall conform to ASTM F3125 Grade A325,

Type 3; ASTM A449, Type 3; or, when specified, ASTM F3125 Grade A490, Type 3. All use of high-strength bolts conforming to ASTM A449 shall be approved, in writing, by the Engineer. ASTM A449 bolts shall conform to the rotational capacity testing requirement in ASTM F3125 Grade A325 and these Specifications.

2. The maximum hardness for bolts conforming to ASTM F3125 Grade A325 shall be 33Rc. The maximum tensile strength for such bolts shall be 150 kips per square inch for bolts 1 inch or less in diameter and 120 kips per square inch for larger bolts.
3. High-strength fasteners (plain and coated) shall pass a rotational-capacity test as detailed in VTM 135.
  - a. Bolts shall be proof-load tested in accordance with ASTM F606, Method I. Full-size bolts shall be wedge tested in accordance with ASTM F606. Nuts shall be proof-load tested in accordance with ASTM F606. Galvanized bolts shall be wedge tested after galvanizing. Galvanized nuts shall be proof-load tested in accordance with ASTM F606 only after overtapping, galvanizing, and lubricating operations are completed.
  - b. Galvanized bolts, nuts and washers shall be hot-dipped galvanized in accordance with ASTM A153. The Contractor may use mechanically galvanized bolts, nuts, and washers that conform to ASTM B695, Class 50 if the bolts are to be topcoated with paint.

When galvanized nuts conforming to ASTM A563 are specified, the amount of over-tapping may be less than specified; however, all nuts in each lot shall be over-tapped by the same amount. Galvanized nuts shall be lubricated in accordance with ASTM A563 using a lubricant sufficiently tinted so as to be readily visible.

Galvanized bolts, nuts, and washers shall have the galvanization measured for thickness. Measurements for bolts shall be taken on the wrench flats or top of the bolt head. Measurements for nuts shall be taken on the wrench flats.

When galvanized washers are specified, hardness testing shall be performed after galvanizing. The coating shall be removed prior to testing.

- c. All bolts, nuts, and washers shall be furnished with a marking that readily identifies their manufacturer. The Contractor shall provide the Engineer with an example of such marking and the manufacturer's certification for each bolt, nut, and washer supplied to the project. The Contractor shall ensure that two samples from each rotational capacity lot, each sample consisting of one bolt, nut, washer, and DTI (if used on the project), are submitted to the Department for testing, and are accompanied by all documentation.

Documentation shall indicate the results of all tests and processes performed on the hardware, the name of the testing facility, address where the tests were performed and the date of testing. Test results of bolts and nuts shall also indicate the lot number of the product. Bolts, nuts, and washers from different rotational-capacity lots shall not be shipped in the same container. In addition, shipping containers shall be marked with the rotational-capacity test lot number of the product supplied.

**Section 226.02(i) – Steel Plate** is inserted as follows:

**Steel plate** shipped to the project site as plate shall have the direction of roll indicated on the plate to provide direction to the field for cutting along the appropriate axis when making components in the field. The plate shall be blast cleaned to either SSPC SP-6 or SP-10 finish and have an arrow painted along the direction of roll with the letters “DOR” above it using an inorganic zinc rich primer from the Department’s Approved List 13.



**SS237-002020-01**

**July 27, 2020**

VIRGINIA DEPARTMENT OF TRANSPORTATION  
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS  
**SECTION 237 – STRUCTURE BEDDING MATERIAL AND BEARING PADS**

**SECTION 237 – STRUCTURE BEDDING MATERIAL AND BEARING PADS of the Specifications is amended as follows:**

**Section 237.02(a) – Elastomeric Bearing Pads** is amended by replacing the fourth paragraph with the following:

Material having a nominal durometer hardness of 70 and 50 shall be used for nonlaminated pads and laminated pads, respectively. Test samples shall be prepared from finished pads. Samples of each thickness will be taken from 1 full-size pad from each shipment of 300 pads or less, with 1 additional pad for each additional increment of 300 pads or fraction thereof. Samples shall comply with the following physical requirements when tested in accordance with the ASTM methods designated.

SS245-002020-01

April 30, 2020

**VIRGINIA DEPARTMENT OF TRANSPORTATION**  
**2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS**

**SECTION 245 – GEOSYNTHETICS AND LOW PERMEABILITY LINERS**

**SECTION 245 – GEOSYNTHETICS AND LOW PERMEABILITY LINERS** of the Specifications is amended as follows:

**Section 245.03(a) – Geotextile Fabric for Use in Silt Fences** is amended by replacing the second paragraph with the following:

The geotextile shall comply with the requirements of AASHTO M288, Table 8, Temporary Silt Fence Property Requirements, for grab strength and ultraviolet stability.

**Section 245.03(c) – Geotextile Fabric for Use in Drainage Systems (Drainage Fabric)** is amended by replacing the third paragraph with the following:

The geotextile shall comply with the requirements of AASHTO M288 Table 1-Geotextile Strength Property Requirements, Class 2, for grab strength.

**Section 245.03(d) – Geotextile for Use in Stabilization** is replaced with the following:

**Geotextile for Use in Separation and Stabilization:** Separation geotextiles are used as a permeable layer to separate fine-grained subgrades and aggregate base or subbase. Stabilization geotextiles are used in saturated or unstable conditions to provide the functions of separation and reinforcement.

**1. Subgrade Separation Fabric:**

Physical Property	Test Method	Requirements
Apparent opening size	ASTM D 4751	Max. No. 70 sieve
Permittivity	ASTM D4491	Min. 0.1 sec <sup>-1</sup>

The geotextile shall comply with the requirements of AASHTO M288 Table 1-Geotextile Strength Property Requirements, Class 2, for grab strength, tear strength, and puncture strength. Only nonwoven geotextiles shall be used as subgrade separation geotextiles.

**2. Subgrade Stabilization Fabric:**

Physical Property	Test Method	Requirements
Apparent opening size	ASTM D4751	Max. No. 70 sieve
Permittivity	ASTM D4491	Min. 0.1 sec <sup>-1</sup>

The geotextile shall comply with the requirements of AASHTO M 288 for strength property requirements, Table 1, Class 1, for grab strength, tear strength, and puncture strength. Geotextiles used for subgrade stabilization shall be woven or nonwoven.

3. **Embankment Stabilization Fabric Up to 6 Feet High:**

Physical Property	Test Method	Requirements
Apparent opening size	ASTM D 4751	Max. No. 20 sieve
Seam strength	ASTM D 4632	90% specified grab strength

The geotextile shall comply with the requirements of AASHTO M288 Table 1, Class 1 for grab strength, tear strength, and puncture strength.

**Section 245.03(e) – Prefabricated Geocomposite Pavement Underdrain** is replaced with the following:

**Prefabricated Geocomposite Pavement Underdrain:** Prefabricated geocomposite pavement underdrain shall consist of a polymeric drainage core encased in a nonwoven filter fabric envelope having sufficient flexibility to withstand bending and handling without damage. Prefabricated geocomposite pavement underdrain shall conform to the following:

1. **Core:** The drainage core shall be made from an inert, polymeric material resistant to commonly encountered chemicals and substances in the pavement environment and shall have a thickness of not less than 3/4 inch. Outer surfaces shall be smooth to prevent excessive wear of bonded filter fabric.

Physical Properties	Test Method	Requirements
Compressive strength panel vertical strain and core area change	ASTM D1621/ D2412/D6364	Min. 40 psi at 20% deflection after 24 hrs at 0 deg F and at 125 deg F
Water flow rate (after 100 hr at 10 psi and normal confining pressure gradient of no more than 0.1)	ASTM D4716	Min. 15 gal/min/ft width for 12-in specimen length

2. **Filter Fabric:** Geotextile shall be bonded to and tightly stretched over both sides of the core. Geotextile shall not sag or block the flow channels, shall have a life equivalent to that of the core material, and shall conform to the requirements of (c) herein.

**Section 245.03(h) – Dewatering Bag** is replaced with the following:

**Dewatering Bag:** A nonwoven geotextile sewn together to form a bag that can be used in lieu of a de-watering basin for the purpose of filtering out suspended soil particles. The bag shall be capable of accommodating the water flow from the pump without leaking at the spout and seams.

Physical Property	Test Method	Requirements
Grab strength @ Elongation >50%(CRE/Dry)	ASTM D4632	Min. 250 lb (min)
Seam strength	ASTM D4632	90% Specified grab strength
Puncture	ASTM D6241	Min. 150 lb

Permittivity	ASTM D4491	Min. 1.2 sec-1
UV resistance	ASTM D4355	Min. 70% at 500 hr
AOS	ASTM D4751	Max. 100 sieve

**Section 245.03(i)1 – Paving Fabric, Type I & II** is replaced with the following:

**Paving Fabric, Type I & II:** All paving fabrics shall meet the requirements of the table below.

Property	Test Method	Type I	Type II
Mass per unit area, min (oz/yd <sup>2</sup> )	ASTM D5261	4.5	4.1
Grab Tensile Strength, min (lbs.)	ASTM D4632	120	101
Grab Tensile Elongation, min (%)	ASTM D4632	50	50
Melting point, min (°F)	ASTM D276	320 <sup>1</sup>	320 <sup>1</sup>

<sup>1</sup>320 is the softening/melt point of polypropylene.

**Section 245.03(i)2 – Paving Mat; Type I, II, and III** is replaced with the following:

**Paving Mat; Type I, II, and III:** Materials used for paving mat shall be a hybrid of two or more of the following material types: fiberglass, polyester, or polypropylene. Paving mat shall meet the requirements of the table below.

Property	Test Method	Type I	Type II	Type III
Tensile Strength, min (lbs)	ASTM D5035 (2C-E)	280	140	45
Ultimate Elongation, max (%)	ASTM D5035 (2C-E)	5	5	5
Melting Point, min (°F)	ASTM D276	320 <sup>1</sup>	320 <sup>1</sup>	320 <sup>1</sup>
Mass/Unit Area, min (oz/yd <sup>2</sup> )	ASTM D5261	7.0	4.0	4.0

<sup>1</sup>320 is the softening/melt point of polypropylene, which is lower than either polyester or fiberglass.

**Section 245.03(i)3 – Paving Grid: Type I, II, & III** is replaced with the following:

**Paving Grid: Type I, II, & III:** Materials used for paving grids shall be comprised of fiberglass and shall meet the requirements of the table below. Some paving grids are self-adhesive and some require nails for installation. Tack coat required for the installation of the overlay shall be specified with the paving grid. Refer to manufacturer's recommendations for tack coat type and application rate.

Property	Test	Type I	Type II	Type III
Tensile Strength, min (lbs/in) <sup>1</sup>	ASTM D6637, Method A, modified <sup>2</sup>	560 x 1,120	560	280
Aperture size, min (in)	Calipered	0.5	0.5	0.5
Elongation, max (%)	ASTM D6637 Method A	3	3	3
Mass per area, min (oz/yd <sup>2</sup> )	ASTM D5261	16	10	5.5
Melting Point, min (°F) (fabric component – if applicable)	ASTM D276	420 <sup>3</sup>	420 <sup>3</sup>	420 <sup>3</sup>

<sup>1</sup>For Type I, machine and cross direction respectively. Strengths for Type II and III are in both directions

<sup>2</sup>Tensile Strength shall be converted to and reported in lbs/in.

<sup>3</sup>420 is the softening/melt point of fiberglass.

**Section 245.03(i)4 – Composite Paving Grids: Type I, II, & III** is replaced with the following:

**Composite Paving Grids: Type I, II, & III:** Composite paving grids shall consist of a fiberglass, polyester, or polyvinyl alcohol (PVA) paving grid integrated with a nonwoven geotextile and meet the requirements of the table below.

Property	Test	Type I	Type II	Type III
Tensile Strength, Min (lbs/in) <sup>1</sup>	ASTM D6637, Method A, modified <sup>2</sup>	560 x 1,120	560	280
Aperture size, Min (in)	Calipered	0.5	0.5	0.5
Elongation, Max (%)	ASTM D6637 Method A	5	5	10
Mass per area, Min (oz/yd <sup>2</sup> )	ASTM D5261	16	10	5.5
Melting Point, Min (°F) (fabric component)	ASTM D276	320 <sup>3</sup>	320 <sup>3</sup>	320 <sup>3</sup>

<sup>1</sup>For Type I, machine and cross direction respectively. Strengths for Type II and III are in both directions.

<sup>2</sup>Tensile Strength should be converted to and reported in lbs/in.

<sup>3</sup>320 is the assumed softening/melt point of PVA. See Section 318.03 for more on placement temperature.

**Section 245.03(i)5 – Pavement Repair and Bridge Deck Waterproofing Strip Membrane** is replaced by the following:

**Pavement Repair and Bridge Deck Waterproofing Strip Membrane:** Materials used for strip membranes shall be comprised of composite self-adhering rubberized asphalt attached to a paving fabric, a paving mat, or a paving grid and meet the requirements of the table below.

Property	Test Method	Type I
Strip Tensile Strength, min (lbs/in)	ASTM D882	50
Puncture Resistance, min (lbs)	ASTM E154	200
Permeance-Perms, max	ASTM E-96 Method B	0.05
Pliability - 1/4" Mandrel 180° Bend at -25 °F	ASTM D146	No cracks in fabric or rubberized asphalt

SS246-002020-01

August 23, 2020

VIRGINIA DEPARTMENT OF TRANSPORTATION  
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS  
**SECTION 246 – PAVEMENT MARKING**

**SECTION 246 – PAVEMENT MARKING** of the Specifications is amended as follows:

**Section 246.03(g) – Temporary Pavement Marking Materials** is replaced with the following:

**Temporary Pavement Marking Materials** other than paint shall consist of Type D, Class III, removable, wet reflective tape and Type E removable black, non-reflective tape. Determination of conformance will include, but not be limited to, the evaluation of test data from AASHTO's NTPEP or other VDOT Test Facilities.

**1. Wet Reflective, Removable Tape (Type D, Class III):**

Wet reflective, removable tape shall be a durable, retro-reflective pliant material consisting of a mixture of polymeric materials, pigments, and glass beads (reflective optics) evenly distributed throughout its cross-sectional area and embedded into the surface. This tape shall be suitable for use on both asphalt and hydraulic cement concrete surfaces and shall be selected from the Department's Approved List 17.

a. **Initial Approval** - Maintained retroreflectivity (dry and wet), color (including luminance), and adhesive bond rating shall conform to the following requirements after the material has been installed on the test deck for 90 days:

- (1) **Maintained Dry Retroreflectivity:** The dry photometric quantity to be measured is the coefficient of retroreflected luminance ( $R_L$ ) in accordance with ASTM E1710 for 30-meter geometry when measured in the skip line or centerline areas.

**Coefficient of Retroreflected Luminance ( $R_L$ ) ( $\text{mcd}/\text{ft}^2/\text{fc}$ ) Dry Retro  
Removable Tape-Type D, Class III**

<b>Color</b>	<b>Initial</b>	<b>90 Days In-Service</b>
White	250	150
Yellow	200	100

- (2) **Maintained Wet Retroreflectivity:** The wet photometric quantity to be measured is the coefficient of retroreflected luminance ( $R_L$ ) in accordance with VTM 124 (Visual Evaluation or ASTM E2177, Recovery Method) when measured in the skip line or centerline areas.

**Coefficient of Retroreflected Luminance ( $R_L$ ) ( $\text{mcd}/\text{ft}^2/\text{fc}$ ) Wet Retro  
Removable Tape-Type D, Class III**

Color	Initial	90 Days In-Service
White	150	100
Yellow	125	75

- (3) **Day and Nighttime Color and Luminance (Y%):** According to ASTM D6628.
- (4) **Adhesive Bond Rating:** The average adhesive bond rating (from transverse and longitudinal lines) shall be 3 or higher according the NTPEP Work Plan.
- (5) **Skid Resistance:** The initial skid resistance shall be at least 45 BPN when tested according to ASTM E303, if available.
- (6) **Thickness:** Per the manufacturer's recommendation.
- (7) **Adhesion:** No line shall be displaced, torn or missing.

**b. Batch Testing:**

Wet reflective, removable tape batch testing will be performed by the Department on samples obtained from the point of manufacture or from the field in accordance with the Materials Division's Manual of Instructions. Test results shall be compared against the following specifications and requirements:

- (1) **Retroreflectivity:** Refer to initial requirements
- (2) **Day and Night Color and Luminance:** Refer to initial requirements
- (3) **Thickness:** Refer to initial requirements
- (4) **Width:** The width shall be no less than the nominal width and no greater than 1/8" of the nominal width.
- (5) **Length:** The length shall be no less than the length stated on the manufacturer's packaging.
- (6) **Skid Resistance:** Refer to initial requirements.

**2. Removable Black, Non-Reflective Tape (Type E):**

Removable black, non-reflective tape shall be a durable, pliant material consisting of a mixture of polymeric materials, pigments and a friction material evenly distributed throughout its cross-sectional area and embedded into the surface. Removable black, non-reflective tape shall be suitable for use on asphalt concrete pavement surfaces, and shall be selected from the Department's Approved List 17.



- a. **Initial Approval** - Maintained adhesive bond rating shall conform to the following requirements after the material has been installed on the test deck for 90 days:
- (1) **Adhesive Bond Rating:** The average adhesive bond rating (from transverse and longitudinal lines) shall be 3 or higher according to the NTPEP Work Plan.
  - (2) **Skid Resistance:** The initial skid resistance shall be at least 45 BPN when tested according to ASTM E303, if available.
  - (3) **Thickness:** Per the manufacturer's recommendation.
  - (4) **Adhesion:** No line shall be displaced, be torn or missing.

b. **Batch Testing**

Black removable, non-reflective tape batch testing will be performed by the Department on samples obtained from the point of manufacture or from the field in accordance with the Materials Division's Manual of Instructions. Test results shall be compared against the following specifications:

- (1) **Skid Resistance:** Refer to initial requirements
- (2) **Thickness:** Refer to initial requirements
- (3) **Width:** The width shall be no less than the nominal width and no greater than 1/8" of the nominal width.
- (4) **Length:** The length shall be no less than the length stated on the manufacturer's packaging.

## **DIVISION III – ROADWAY CONSTRUCTION**

### **STANDARD 300 SERIES SPCNs, SP, AND SSs**

**SP302-000110-00**

VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
**TEMPORARY VEHICULAR WATERCOURSE CROSSING**

March 25, 2009; Reissued 7-12-16

**I. GENERAL**

This work shall consist of constructing a temporary vehicular watercourse crossing according to these specifications and in conformity with the plans, Standard Drawings, permits and Contract documents.

**II. MATERIALS**

Pipe shall conform to Section 232 of the Specifications.

Class I Dry Riprap shall conform to Section 204.02 (b) of the Specifications.

Number 1 coarse aggregate shall conform to Section 203 of the Specifications.

Geotextile Bedding Material shall conform to Section 245 of the Specifications.

Timber shall be structural grade material conforming to Section 236 of the Specifications.

**III. CONSTRUCTION**

The Contractor shall construct the temporary vehicular watercourse crossing at right angle to the stream. Where approach conditions dictate, the crossing may vary 15 degrees from a line drawn perpendicular to the approximate centerline of the stream.

The finished grade elevation of the crossing shall be 3 feet above the ordinary high water elevation. When not specified in the plans, or elsewhere in the Contract, the Contractor shall determine the ordinary high water elevation using appropriate methods, and submit this information to the Engineer for approval prior to commencement of construction of the crossing.

Clearing and excavation of the stream bed and banks shall be kept to a minimum. The installation and removal of the crossing shall be accomplished in the dry utilizing a dry pump around or a stream diversion.

The Engineer may make minor adjustments in the location of any temporary vehicular watercourse crossing identified in the construction plans provided that the adjustment does not change the design for the temporary vehicular watercourse crossing or impact the environmental permits. In the event that the modifications are not covered by the permit, the Contractor shall be responsible for providing the information necessary for VDOT to secure the required permit modification. All temporary vehicular watercourse crossings will require a water quality permit.

Inlet and outlet ends of culverts greater than 24 inches in diameter shall be countersunk a minimum of 6 inches below the natural stream bed. Inlet and outlet ends of culverts 24 inches or less in diameter shall be countersunk a minimum of 3 inches below the natural stream bed. If bedrock is encountered during

installation or if steep slopes prohibit countersinking to the prescribed depth, then the work shall cease and the Contractor shall notify the Engineer.

Geotextile bedding material shall be placed on the stream bed and stream banks prior to installation of the culverts and aggregate. The geotextile bedding material shall cover the stream bed and extend a minimum of one foot beyond the end of the culverts and rip rap material.

The culverts shall extend a minimum of one foot beyond the upstream and downstream toe of the aggregate placed around the culvert.

Timbers used for temporary vehicular watercourse crossing shall be 12-inch x 12-inch timbers and shall be anchored sufficiently to prevent displacement during use or storm events.

The Contractor shall maintain the temporary vehicular watercourse crossing until no longer needed.

When no longer needed, all material associated with the temporary vehicular watercourse crossing shall be removed in their entirety and the stream bed and stream banks restored to their previous elevations. Stream banks shall be reseeded and seed bed protected by the use of geotextile embankment stabilization fabric conforming to Section 245.03(d) of the Specifications.

#### IV. MEASUREMENT AND PAYMENT

**Temporary Vehicular Watercourse Crossing** will be measured and paid for on an each basis per location. This price shall include full compensation for furnishing and installing all materials including pipe, aggregate riprap, geotextile bedding material, timbers, providing pump around or stream diversion during construction and removal, and all labor, equipment, materials, and incidentals needed for construction, maintenance, and removal and disposal of the crossing when no longer required.

Payment will be made under:

Pay Item	Pay Unit
Temporary Watercourse Crossing	Each

(CQ-302-000100-00)

**GRAB STRENGTH FOR PREFABRICATED VERTICAL DRAINS** – The geotextile jacket material for Prefabricated Vertical Drains shall conform to Section III-1F of the Special Provision for Prefabricated Vertical Drains, except that Grab Tensile Strength shall be at least 120 lbs when tested in accordance with ASTM D4632.

9-20-17 (SPCN)

SS305-002020-01

June 2, 2020

VIRGINIA DEPARTMENT OF TRANSPORTATION  
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS  
**SECTION 305 – SUBGRADE AND SHOULDERS**

**SECTION 305 – SUBGRADE AND SHOULDERS** of the Specifications is amended as follows:

**Section 305.02 – Materials** is replaced with the following:

- (a) **Materials** may consist of material in place, treated material in place, or imported material. Imported material may be borrow material, select material, or other material as shown on the plans or specified in the Contract.

Materials other than regular excavation or borrow material that are shown on the Plans or specified in the Contract shall conform to the applicable requirements of these Specifications.

- (b) **Geotextile** materials used for subgrade stabilization or separation shall conform to Section 245.03(d).

**Section 305.03(d) – Geotextile (Subgrade Stabilization)** is renamed **Geosynthetics** and replaced with the following:

**Geosynthetics** includes Geotextile used for subgrade separation or stabilization, and geogrid.

1. **Subsurface preparation:** Before placing the geotextile, geogrid, or combination of both, prepare the subgrade in accordance with Sections 304 and 305. Separation and stabilization geotextiles shall not be placed when weather conditions, in the judgement of the Engineer, are not suitable to allow placement of geotextiles or cover materials. These include wet or snowy conditions, rainfall, temperatures below freezing, frost, or excessively windy conditions.
2. **Geotextile or geogrid placement.** Place geogrid on top of geotextile when both are shown at the same elevation in the Plans. Place the geosynthetic in the direction of traffic. Geosynthetic shall be smooth and free of wrinkles and folds. Placement by dragging the geosynthetic across the finished surface will not be allowed. On curves, the geotextile may be folded or cut to conform to the curve. The fold or overlap shall be in the direction of traffic and held in place by pins, staples or piles of aggregate subbase or base materials. Overlap in the direction of construction. Overlap at least 24 inches at the ends and sides of adjoining sheets or sew the joints according to the Manufacturer's recommendations. Do not place longitudinal overlaps below anticipated wheel loads or joints. Hold the geosynthetic in place with pins, staples, or piles of aggregate subbase or base materials.

Replace or repair geosynthetic that is torn or punctured. Remove the damaged area and place a patch of the same type of geosynthetic overlapping 36 inches beyond the damaged area or sew a seam around the entire perimeter of the damaged area.

3. **Initial layer placement and compaction:** Place initial layer in accordance with Sections 308 and 309.

If during placement of the geosynthetic, the equipment causes subgrade rutting in excess of 2 inches, end dump the backfill material onto the geotextile or geogrid from the edge of the geosynthetic or from previously placed cover material. Do not operate equipment directly on the geosynthetic. Spread the end-dumped pile of cover material maintaining the minimum specified lift thickness over the geosynthetic. Avoid sudden stops, starts, or turns of the construction equipment. Fill ruts from construction equipment with additional cover material. Do not blade material down to remove ruts. If rutting continues to exceed 2 inches during placement, decrease the construction equipment size, decrease the equipment weight, or increase the first lift thickness as directed by the Engineer.

Compact in accordance with Sections 308 and 309. Do not use sheepfoot or studded compaction equipment. Compact the cover material with pneumatic-tire or non-vibratory smooth drum rollers.

Tracked equipment shall not be operated directly on top of geosynthetic. Rubber-tire equipment may pass over the geosynthetic if the geosynthetic is not damaged by the equipment (causing excessive rutting, 2 inches or greater); the Contractor shall specifically avoid sudden braking or sharp turning, and shall maintain low speed.

4. **Subsequent layer placement and compaction.** Place and compact subsequent layers in accordance with Sections 308 and 309.

**Section 305.04 – Measurement and Payment** is amended by replacing the tenth paragraph with the following:

**Geotextile** will be measured in square yards, complete-in-place. Overlaps and seams will not be measured for separate payment. The accepted quantity of geotextile will be paid for at the contract square yard price. This price shall include furnishing, placing, lapping, and seaming material.

**Section 305.04 – Measurement and Payment** is amended by revising the Pay Item Table as follows:

The following pay items are removed:

<b>Pay Item</b>	<b>Pay Unit</b>
Geotextile (Subgrade stabilization)	Square yard

The following pay items are inserted:

<b>Pay Item</b>	<b>Pay Unit</b>
Geotextile (type)	Square yard

SS315-002020-01

September 17, 2020

VIRGINIA DEPARTMENT OF TRANSPORTATION  
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS  
**SECTION 315 – ASPHALT CONCRETE PLACEMENT**

**SECTION 315 – ASPHALT CONCRETE PLACEMENT** of the Specifications is amended as follows:

**Section 315.04(b)2 – When the base temperature is between 40 degrees F and 80 degrees F** is renamed **When the base temperature is between 40°F and 80°F** and replaced with the following:

**When the base temperature is between 40°F and 80°F** the Contractor shall use Table III-2 to determine the minimum laydown temperature of the asphalt concrete mixes. At no time shall the base temperature for base (BM) and intermediate (IM) mixes be less than 40°F. At no time shall the laydown temperature for base (BM) and intermediate (IM) mixes be less than 250°F.

The minimum base and laydown temperatures for surface mixes (SM) shall never be less than the following:

PG Binder/Mix Designation	Percentage of Reclaimed Asphalt Pavement (RAP) Added to Mix	Minimum Base Temperature	Minimum Placement Temperature
PG 64S-22 (A)	<=25%	40°F/50°F <sup>1,2</sup>	250°F/270°F <sup>1,2</sup>
PG 64S-22 (A)	>25%	50°F <sup>2</sup>	270°F <sup>2</sup>
PG 64H-22 (D)	<=30%	50°F <sup>2</sup>	270°F <sup>2</sup>
PG 64E-22 (E)	<=15%	50°F <sup>2</sup>	290°F <sup>2</sup>
PG 64S-22 (S)	<=30%	50°F <sup>2</sup>	290°F <sup>2</sup>

<sup>1</sup>Minimum base temperature 50°F and placement temperature 270°F for SM-4.75 mixes regardless of WMA use.

<sup>2</sup>For SM-4.75 mixes, the temperatures are the minimum base temperature and placement temperature regardless of WMA use.

The Contractor shall employ a MTV during the placement of SM-4.75 mixtures when the ambient or base temperature is between 50°F and 60°F.

**Section 315.05(b) – Conditioning Existing Surface** is amended by replacing the second paragraph with the following:

When specified in the Contract, before placement of asphalt concrete, the Contractor shall seal longitudinal and transverse joints and cracks by the application of an approved crack sealing material in accordance with Section 322 .

**Section 315.05(d) – Compacting** is amended by inserting the following after the seventh paragraph:

For SM-4.75 mixes, breakdown rolling shall be accomplished with steel wheel rollers with a minimum weight of 10 tons. SM-4.75 mixes shall receive at least three breakdown roller passes before intermediate and finish rolling.

**Table III-3 – Density Requirements** is replaced with the following:

<b>TABLE III-3 Density Requirements</b>	
<b>Mixture Type</b>	<b>Min. Control Strip Density (%)<sup>1</sup></b>
SM-9.5A, 12.5A	92.5
SM-9.5D, 12.5D	92.5
SM-9.5E, 12.5E	92.5
IM-19.0A, IM-19.0D, IM-19.0E	92.2
BM-25.0A, BM-25.0D	92.2

<sup>1</sup>The control strip density requirement is the percentage of Theoretical Maximum Density (TMD) of the job-mix formula by SUPERPAVE mix design or as established by the Engineer based on two or more production maximum theoretical density tests.

**Table III-4 – Payment Schedule for Lot Densities** is renamed **Payment Schedule for Control Strips** and replaced with the following:

<b>TABLE III-4 Payment Schedule for Control Strips</b>	
<b>% TMD</b>	<b>% of Payment</b>
Greater than 96.5	95
92.2 <sup>1</sup> /92.5 <sup>2</sup> – 96.5	100
90.0-92.1 <sup>1</sup> /92.4 <sup>2</sup>	90
88.0-89.9	80
Less than 88.0	75

<sup>1</sup>For IM and BM mixes only.

<sup>2</sup>For SM mixes only.

**Table III-4A – Payment Schedule for Method A Lot Densities** is inserted as follows:

<b>TABLE III-4A Payment Schedule for Method A Lot Densities</b>	
<b>% TMD</b>	<b>% of Payment</b>
Greater than 96.5	95
92.2 <sup>1</sup> /92.5 <sup>2</sup> – 96.5	100
90.0 – 92.1 <sup>1</sup> /92.4 <sup>2</sup>	90
88.0 – 89.9	80
Less than 88.0	75

<sup>1</sup>For Intermediate and Base Mixes only.

<sup>2</sup>For Surface Mixes only.

**Table III-4B – Payment Schedule for Method B Lot Densities** is inserted as follows:

<b>TABLE III-4B Payment Schedule for Method B Lot Densities</b>	
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<b>% of Target Control Strip Density</b>	<b>% of Payment</b>
Greater than 102.0	95
98.0 to 102.0	100
97.0 to less than 98.0	95
96.0 to less than 97.0	90
Less than 96.0	75

**Table III-5 – Payment Schedule for Surface, Intermediate and Base Courses** is replaced with the following:

**TABLE III-5**  
**Payment Schedule for Surface, Intermediate and Base Courses (Not sufficient quantity to perform density roller pattern and control strip)**

<b>% TMD</b>	<b>% of Payment</b>
Greater than or equal to 92.2 <sup>1</sup> /92.5 <sup>2</sup>	100
90.0-92.1 <sup>1</sup> /92.4 <sup>2</sup>	90
88.0-89.9	80
Less than 88.0	75

<sup>1</sup>The minimum TMD percentage for Intermediate and Base Mixes

<sup>2</sup>The minimum TMD percentage for Surface Mixes

**Table III-6 – Payment Schedule for Surface, Intermediate and Base Courses** is replaced with the following:

**TABLE III-6**  
**Payment Schedule for Surface, Intermediate and Base Courses (Asphalt Patching)**

<b>% TMD</b>	<b>% of Payment</b>
Greater than or equal to 91.5	100
90.2-91.4	95
88.3-90.1	90
Less than or equal to 88.2	75

**Section 315.05(e) – Density** is replaced with the following:

**Density** will be determined in accordance with Method A for all interstate and limited access routes, and for primary and secondary routes with an ADT of at least 2,000 and at least 20' in width. Method B will be used for all other routes. Control Strips will not use Method A or B, but will use the methods described in Section 315.05(e)1a.

1. The Contractor shall perform roller pattern and control strip density testing on surface, intermediate, and base courses in accordance with VTM 76. The Contractor shall have a certified Asphalt Field Technician II perform all density testing.

Density shall be determined with a thin-lift nuclear gauge conforming to VTM 81 or from the testing of plugs or cores taken from the roadway where the mixture was placed. Density test locations shall be marked and labeled in accordance with VTM 76. When acceptance testing is performed with a nuclear gauge, the Contractor shall have had the gauge calibrated within the

previous 12 months by an approved calibration service. In addition, the Contractor shall maintain documentation of such calibration service for the 12-month period from the date of the calibration service. The required density of the compacted course shall not be less than 98.0 percent or more than 102.0 percent of the target control strip density.

Nuclear density roller pattern and control strip density testing shall be performed on asphalt concrete overlays placed directly on surface treatment roadways and when overlays are placed at an application rate less than 125 pounds per square yard, based on 110 pounds per square yard per inch, on any surface. In these situations, the Engineer will not require sawed plugs or core samples and the minimum control strip densities as specified in Table III-3 will not be required. The required density of the compacted course shall not be less than 98.0 percent or more than 102.0 percent of the target control strip.

The Engineer will divide the project into “control strips” and “test sections” for the purpose of defining areas represented by each series of tests.

- a. **Control Strip:** Control strips shall be constructed in accordance with the Specifications and VTM 76.

The term *control strip density* is defined as the average of 10 determinations selected at stratified random locations within the control strip.

The Contractor shall construct one control strip at the beginning of work on each roadway and shoulder course and on each lift of each course. The Engineer will require the Contractor to construct an additional control strip whenever a change is made in the type or source of materials; whenever a significant change occurs in the composition of the material being placed from the same source; or when there is a failing test strip. During the evaluation of the initial control strip, the Contractor may continue paving operations, however, paving and production shall be discontinued during construction and evaluation of any additional control strips. If two consecutive control strips fail, subsequent paving operations shall not begin or shall cease until the Contractor recommends corrective actions to the Engineer and the Engineer approves the Contractor proceeding with the corrective actions. If the Contractor and the Engineer mutually agree that the required density cannot be obtained because of the condition of the existing pavement structure, the target control strip density shall be determined from the roller pattern that achieves the optimum density and this target control strip density shall be used on the remainder of the roadway that exhibits similar pavement conditions.

Either the Engineer or the Contractor may initiate the construction of an additional control strip at any time.

The length of the control strip shall be approximately 300 feet and the width shall not be less than 6 feet. On the first day of construction or beginning of a new course, the control strip shall be started between 500 and 1,000 feet from the beginning of the paving operation. The Contractor shall construct the control strip using the same paving, rolling equipment, procedures, and thickness as shall be used for the remainder of the course being placed.

The Contractor's Asphalt Field Level II Technician shall take one reading at each of 10 stratified random locations. No determination shall be made within 12 inches of the edge of any application width for surface and intermediate mixes or within 18 inches of the edge of any application width for base mixes. The average of these 10 determinations shall be the control strip density recorded to the nearest 0.1 pound per cubic foot. The minimum control strip density shall be determined in accordance with VTM 76.

The control strip shall be considered a lot. If the control strip density conforms to the requirements in Table III-3, the Engineer will consider the control strip to be acceptable and the control strip density shall become the target control strip density.

If the Engineer determines that the control strip requirements in Table III-3 cannot be met due to in-situ pavement conditions, Method 'B' will be used for acceptance and payment and density adjustments will be waived.

Otherwise, if the density does not conform to the requirements specified in Table III-3, the tonnage placed in the control strip and any subsequent paving before construction of another control strip will be paid for in accordance with Table III-4. The Contractor shall take corrective action to comply with the density requirement specified in Table III-3.

- b. **Test section (lot):** For the purposes of both contractor quality control and for determining acceptance, the Engineer will consider each day's production as a lot unless the paving length is less than 3,000 feet or more than 7,500 feet, regardless of the method of acceptance (Method A or B). When paving is less than 3,000 feet, that day's production will be combined with the previous day's production or added to the next day's production to create a lot as described below.

The standard size of a lot will be 5,000 feet (five 1,000-foot sublots) of any pass 6 feet or greater made by the paving train for the thickness of the course. If the Engineer approves, the lot size may be increased to 7,500 feet with five 1,500-foot sublots when the Contractor's normal daily production exceeds 7,000 feet. Pavers traveling in echelon will be considered as two passes. When a partial lot occurs at the end of a day's production or upon completion of the project, the lot size will be redefined as follows:

- If the partial lot contains one or two sublots, the sublots will be added to the previous lot.
- If the partial lot contains three or four sublots, the partial lot will be redefined to be an entire lot.

The Contractor shall test each lot for density by taking a nuclear density gauge reading from two random test sites selected by the Engineer within each subplot. When saw plugs or cores are used to determine acceptance, a single test site per subplot will be selected by the Engineer. Test sites will not be located within 12 inches of the edge of any application width for surface and intermediate mixes or within 18 inches of the edge of any application width for base mixes.

The Engineer will compare the average of the subplot density measurements to the target nuclear density, or for plugs and cores, to the target percent of theoretical maximum density achieved on the control strip to determine the acceptability of the lot. The Contractor shall immediately notify the Engineer and institute corrective action if two consecutive sublots produce density results less than 98% or more than 102% of the target control strip density.

Density testing for acceptance will not be performed on areas too thin or irregular to test accurately, such as open-graded friction courses, and wedge-and-leveling courses. Areas that are difficult to compact due to subgrade support or space limitations, including but not limited to crossovers and gore areas, will be placed in accordance with Section 315.05(e)2.

For purposes of density determination, acceptance, and payment, Main Pavement is defined to include travel lanes, shoulders 6 feet or greater, turn lanes, ramps, and acceleration/deceleration lanes.

**(1) Method 'A' (plugs or cores)**

Any pay adjustment will only be applied to Main Pavement.

The Contractor shall perform acceptance testing for density for each subplot by obtaining one plug, defined as a sawed 4-inch by 4-inch specimen, or one 4-inch-diameter core, at a single random test site selected by the Engineer. More than one plug or core can be taken if the original sample is damaged.

The sub-lot site shall be marked as described in VTM 76. The bulk specific gravity of the plugs or cores shall be determined in accordance with VTM 6. The density of the plugs or cores shall be determined in accordance with VTM 22, except that the daily Rice values obtained by the contractor for the mix will be used for calculating percent density (instead of using the 5-day running average as noted in VTM 22).

Plugs or cores shall be taken from the pavement and bulked in the presence of the Engineer unless otherwise approved. The Department reserves the right to have the plugs or cores bulked on the project site. In the event of any uncertainty around the bulking procedures or results, the Department further reserves the right to re-bulk the samples. The Contractor will have the right to witness the re-bulking. The Contractor will be responsible for maintaining the cores until approved for disposal by the Department.

The Contractor shall number subplot test sites sequentially per lot, mark these on the pavement, fill them with the paving mixture, and compact them prior to the completion of each day of production.

The Contractor shall clean and straighten any irregular edges before filling and compacting. Liquid tack material shall be applied so it visibly covers all plug or core hole surfaces (sides, bottom, etc.). Hot mix asphalt paving mixture available on the same day of paving, or other permanent patching material as approved by the Engineer, shall be placed into the plug or core hole and compacted with a 10-pound weighted hand tool or greater compactive effort with rollers or other equipment available on-site and approved by the Engineer.

The tonnage of each lot for the pay adjustment will be based on the lot's width and length and the mixture application rate as designated in the Contract or as revised by the Engineer. Payment will be made in accordance with Table III-4A.

If a minimum of 80% of each test section lot's core/plug samples is no lower than 92.5% of TMD for Surface Mixes and 92.2% of TMD for Intermediate and Base Mixes and the lot average results in 100% payment, then the Engineer will increase the unit bid price for AC mixture by 5%. BM-25.0D+0.4 and BM-25.0D+0.8 shall not be eligible for five percent pay increase.

Longitudinal joints shall also be tested for density using a nuclear density gauge at each test site in the subplot. For surface and intermediate mixes, the edge of the gauge shall be placed within 4 inches of the joint. For base mixes, the edge of the gauge shall be placed within 6 inches of the joint. The Contractor shall not place the gauge over top of the joint. The joint density value shall be recorded. The Contractor shall report to the Engineer and institute corrective action if a single longitudinal joint density reading is less than 95% of the target control strip density. The Engineer will not use the values obtained from the joint readings in payment calculation. The Contractor shall furnish the test data developed during the day's paving to the Engineer by the end of the day's operations.

## **(2) Method 'B' (nuclear gauge)**

Any pay adjustment will only be applied to Main Pavement.

The Contractor shall test each lot for density by taking a nuclear density gauge reading from two random test sites selected by the Engineer within each subplot. Test sites will not be located within 12 inches of the edge of any application width for surface and intermediate mixes or within 18 inches of the edge of any application width for base mixes.

The Engineer will compare the average of the subplot density measurements to the target nuclear density, or for cores, to the target percent of theoretical maximum density achieved on the control strip to determine the acceptability of the lot. Once the average density of the lot has been determined, the Engineer will not allow the Contractor to provide additional compaction to raise the average. The Contractor shall immediately institute corrective action if two consecutive sublots produce density results less than 98% or more than 102% of the target control strip density.

Longitudinal joints shall also be tested for density using a nuclear density gauge at each test site in the subplot. For surface and intermediate mixes, the edge of the gauge shall be placed within 4 inches of the joint. For base mixes, the edge of the gauge shall be placed within 6 inches of the joint. The Contractor shall not place the gauge over top of the joint. The joint density value shall be recorded. The Contractor shall report to the Engineer and institute corrective action if a single longitudinal joint density reading is less than 95 percent of the target control strip density. The Engineer will not use the values obtained from the joint readings in payment calculation. The Contractor shall furnish the test data developed during the day's paving to the Engineer by the end of the day's operations.

The tonnage of each lot for the pay adjustment will be based on the lot's width and length and the mixture application rate as designated in the Contract or as revised by the Engineer. Payment will be made in accordance with the requirements of Table III-4B.

### **(3) Verification, Sampling, and Testing (VST)**

The Engineer at any time on any project may perform lot density verification testing regardless of whether Method A or B is being used for density acceptance. Lot density verification is performed by testing plugs or cores. The Contractor shall be responsible for taking plugs or cores for testing. The Engineer will perform verification testing of the plugs or cores.

On surface, intermediate, and base mixes, the Contractor shall take two plugs or cores per VST lot at locations selected by the Engineer. If the Engineer determines the density of the plugs or cores does not conform to the requirements for the lot in question or the same payment percentage determined by the Contractor's testing for that lot, then the Contractor may request additional sampling to be invoked. The Contractor shall take one additional plug or core from the remaining sublots. Payment for that lot, based on the results of the initial two plugs or cores or referee procedure, will be in accordance with the Table III-4A for Method A on the basis of the percentage of the theoretical maximum density or Table III-4B for Method B on the basis of the percentage of the control strip bulk density achieved.

2. **Surface, intermediate, and base courses** not having a sufficient quantity of material to run a roller pattern and control strip, and unique sections defined on the Plans or within the Contract that are 3,500 feet or less and at least 6 feet in width shall be compacted to a minimum density of 92.5% for surface mixes or 92.2% for intermediate and base mixes as determined in accordance with VTM 22. The Contractor shall be responsible for cutting cores or sawing plugs for testing by the Department. One plug or core shall be obtained within the first 500 feet of small quantity paving and every 1000 feet thereafter for testing by the Department. Plug or core locations shall be randomly selected by the Engineer. If the density is determined to be less than the minimum, the Engineer will make payment in accordance with Table III-5.

Any section in which a mixture (e.g., SM-9.0) is being placed at an application rate of less than 125 pounds per square yard (based on 110 pounds per square yard per inch) that does not have a sufficient quantity of material for a roller pattern and control strip shall be compacted by rolling a minimum of three passes with a minimum 8-ton roller. The Engineer will not require density testing.

For asphalt patching, the minimum density of 91.5% of the maximum theoretical density will be determined in accordance with VTM 22. The Contractor is responsible for cutting cores or sawing plugs. One set of cores or plugs shall be obtained within the first 20 tons of patching material and every 100 tons thereafter for testing by the Contractor or the Department. The Engineer will randomly select plug or core locations. If the density is less than the 91.5%, payment will be made on the tonnage within the 20 or 100 ton lot in accordance with Table III-6.

**Section 315.05(g) – Rumble Strips** is replaced with the following:

**Rumble Strips:** This work shall consist of constructing rumble strips or rumble stripes on mainline shoulders or centerlines of highways by cutting concave depressions into existing asphalt concrete surfaces as shown on the Standards Drawings and as directed by the Engineer. Rumble stripes are defined as edgeline or centerline rumble strips with permanent longitudinal pavement markings subsequently installed within the rumble strip grooves.

Rumble strips and rumble stripes shall be installed in accordance with the RS-Series Standard Drawings. The Contractor shall demonstrate to the Engineer the ability to achieve the desired surface regarding alignment, consistency, and conformity with these Specifications and the Standard Drawings before beginning production work on mainline shoulders or centerlines. The test site shall be approximately 25 feet longitudinally at a location mutually agreed upon by the Contractor and Engineer.

Pavement markings for rumble stripes shall be applied after the grooves have been cut. The grooves shall be thoroughly cleaned and the surface prepared before pavement marking application, in accordance with the Standard Drawings and Section 704. Overspray of pavement marking materials shall not extend more than one inch beyond the lateral position of the pavement marking line shown in the RS-Series Standard Drawings.

Rumble strips shall not be installed on shoulders of bridge decks, in acceleration or deceleration lanes, on surface drainage structures, or in other areas identified by the Engineer.

Waste material resulting from the operation shall be removed from the paved surface and shall be disposed of in accordance with Section 106.04.

**Section 315.05(i) – Coating designed surface cuts** is inserted as follows:

Designed Surface Cuts are roadway features installed by cutting or grinding into a road surface, for example, Rumble strips, rumble stripes, and plastic inlaid marker grooves.

Designed Surface Cuts shall be coated with liquid asphalt coating (emulsion) when the Designed Surface Cuts are being cut into an existing asphalt surface (i.e. more than one year since placement); when new Designed Surface Cuts are being cut into the pavement surface in conjunction with a surface treatment, latex emulsion, or slurry seal pavement operation; or when the proposed plant mix surface is less than one inch deep.

Liquid asphalt coating (emulsion) shall not be used when Designed Surface Cuts are being cut into new pavement, or being cut in conjunction with plant mix paving operations where the proposed plant mix surface is one inch or greater in depth.

When liquid asphalt coating (emulsion) is required, the Contractor shall coat the entire rumble strip area with the liquid asphalt coating (emulsion) using a pressure distributor following the cutting and cleaning of the depressions of waste material. For rumble strips installed on the shoulder, the approximate application rate shall be 0.1 gallons per square yard. For centerline rumble stripes and plastic inlaid marker grooves, the approximate application rate shall be 0.05 gallons per square yard. The application temperature shall be between 160 degrees F and 180 degrees F. For shoulder rumble strips and plastic inlaid marker grooves, overspray shall not extend more than 2 inches beyond the width of the cut depressions and shall not come in contact with pavement markings.

If liquid asphalt coating (emulsion) is applied before installation of the plastic inlaid marker, then the bottom of the plunge cut shall be protected during liquid asphalt coating (emulsion) application so as to avoid inhibiting the ability of the marker epoxy to bond to the bottom of the plunge cut. If the liquid asphalt coating (emulsion) is applied after the plastic inlaid marker has been installed, then the retroreflector shall be protected during the liquid asphalt coating (emulsion) application to prevent the coating material from dirtying or damaging the retroreflector, with the protection removed after the coating has been completed.

**Section 315.08 – Measurement and Payment** is amended by replacing the third paragraph with the following:

**Liquid Asphalt Cement**, when a pay item, will be measured in tons in accordance with Section 109.01 except that transporting vehicles shall be tare weighed before each load. When used in the mixture, the weight will be adjusted in accordance with the percentage of asphalt indicated by laboratory extractions.

**Section 315.08 – Measurement and Payment** is amended by deleting the sixth paragraph.

**Section 315.08 – Measurement and Payment** is amended by replacing the tenth paragraph with the following:



**Liquid asphalt coating** will be measured in square yards and will be paid for at the Contract square yard price. This price shall include cleaning Designed Surface Cuts before application of the coating, furnishing and applying coating , and protection of all retroreflectors.

**Section 315.08 – Measurement and Payment** is amended by revising the Pay Item Table as follows:

The following pay items are removed:

<b>Pay Item</b>	<b>Pay Unit</b>
Liquid asphalt coating (Rumble strips)	Square yard
Rumble Strip (Asphalt)	Linear foot

The following pay items are inserted:

<b>Pay Item</b>	<b>Pay Unit</b>
Liquid asphalt coating (type)	Square yard
Rumble Strip (shape, pavement type)	Linear foot

SS316-002020-01

September 2, 2020

VIRGINIA DEPARTMENT OF TRANSPORTATION  
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS  
**SECTION 316 – HYDRAULIC CEMENT CONCRETE PAVEMENT**

**SECTION 316 – HYDRAULIC CEMENT CONCRETE PAVEMENT of the Specifications is amended as follows:**

**Section 316.06 – Measurement and Payment** is amended by inserting the following:

**Corrosion resistant reinforcing steel** used in Bridge Approach Slabs will be measured in pounds and will be paid for at the Contract pound price for the class and grade of steel designated. This price shall include fabricating, shipping, furnishing, and placement in the locations shown in the Plans.

**Section 316.06 – Measurement and Payment** is amended by revising the Pay Item Table as follows:

The following pay items are inserted:

<b>Pay Item</b>	<b>Pay Unit</b>
Corrosion resistant reinforcing steel (class, grade) bridge approach slab	Pound

## **DIVISION IV – BRIDGES & STRUCTURES**

### **STANDARD 400 SERIES SPCNs, SP, AND SSs**

**SP401-000100-01**

VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
**CLEARING AND GRUBBING AT BRIDGE APPROACHES**

February 28, 2018

**I. DESCRIPTION:**

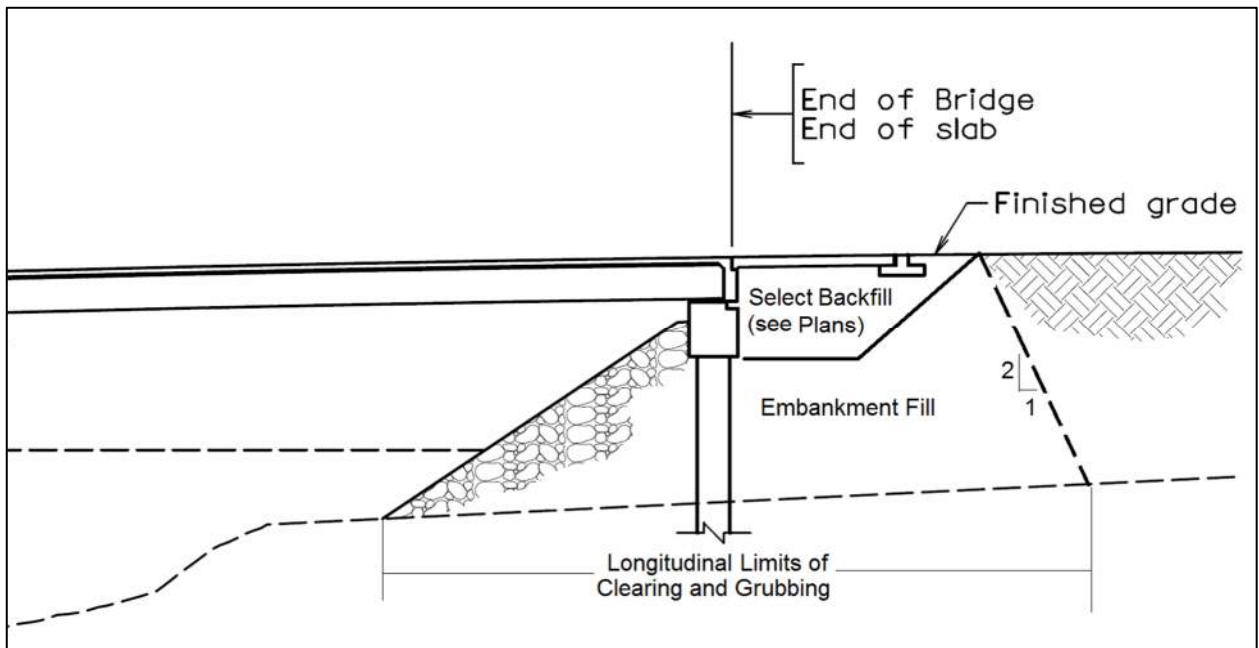
This work shall consist of clearing and grubbing at the future sites of bridge approaches in accordance with Section 301 of the Specifications, except as modified by this Special Provision. Clearing and Grubbing shall be performed prior to embankment construction in the vicinity of all bridge abutments, regardless of the height of the embankment fill and the height of the select backfill that will be placed behind the abutment.

**II. PROCEDURES:**

The Contractor shall remove stumps, vegetation, trees, brush, roots, perishable material and nonperishable, manmade objects (e.g., fences) in the vicinity of all proposed bridge abutments. Complete clearing and grubbing shall be conducted in advance of embankment fill placement in all areas where embankment fill will underlie the select backfill behind abutments.

All wet, loose, soft or disturbed soils that are present after clearing and grubbing operations are performed shall be removed or otherwise improved in accordance with Section 303 of the Specifications prior to embankment construction.

Clearing and grubbing shall be performed from the front toe of the embankment to the point behind the select backfill (see Longitudinal Limits in Figure 1). The lateral (transverse) limits of the clearing and grubbing shall extend from right toe-of-slope to left toe-of-slope.



**Figure 1**

Limits of Clearing and Grubbing in the Vicinity of Bridge Abutments

Not to scale

### III. MEASUREMENT AND PAYMENT:

Measurement and Payment for this work will be included as part of the project's overall Clearing and Grubbing pay item in accordance with Section 301 of the Specifications. No separate payment will be made.

SS401-002020-01

May 1, 2020

VIRGINIA DEPARTMENT OF TRANSPORTATION  
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS  
**SECTION 401—STRUCTURE EXCAVATION**

**SECTION 401 – STRUCTURE EXCAVATION** of the Specifications is amended as follows:

**Section 401.03(i) – Backfilling** is amended by replacing the second and third paragraphs with the following:

The Contractor shall use select backfill material behind all abutments. The Department will include a detail indicating the limits (zone) of the select backfill in the Plans. The Contractor shall compact the material in accordance with Sections 305 and 303. The top surface of the backfill material shall be neatly graded.

The earthen fill around the perimeter of the select material zone in abutments, wingwalls, and retaining walls shall be placed in horizontal layers not more than 6 inches in loose thickness and then compacted at  $\pm 20\%$  of optimum moisture content to a density of at least 95% as compared to the Theoretical Maximum Density. The Department will perform tests in accordance with VTM 10 to verify compliance with density requirements determined in accordance with VTM 1 or VTM 12. The Contractor shall place and compact the backfill in front of units in horizontal layers to the same elevation as the layers behind units until the final elevation in front is reached as the work progresses. Backfill in front of units shall be placed and compacted in horizontal layers to the same elevation as the layers behind units until the final elevation in front is reached. Backfill shall be placed in a manner to prevent wedging action against the concrete. The Contractor shall modify slopes bounding excavation for abutments, wingwalls, or retaining walls to lock in adjacent backfill material by stepping or serrating the existing soils. The Engineer will not permit jetting of the fill behind abutments, wingwalls, or retaining walls.

SS405-002020-01

June 23, 2020

VIRGINIA DEPARTMENT OF TRANSPORTATION  
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS  
**SECTION 405 – PRESTRESSED CONCRETE**

**SECTION 405 – PRESTRESSED CONCRETE** is amended as follows:

**Section 405.02(i) – Fully or partially embedded steel attachments to the prestressed concrete members** is renamed to **Fully or partially embedded steel attachments** and replaced with the following:

**Fully or partially embedded steel attachments** to the prestressed concrete members shall be stainless steel when using stainless-steel or carbon-fiber-reinforced-polymer strands. When using carbon-steel strands, these same steel attachments shall be galvanized in accordance with Section 233.

SS407-002020-01

August 29, 2019

VIRGINIA DEPARTMENT OF TRANSPORTATION  
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS  
**SECTION 407 – STEEL AND OTHER METAL STRUCTURES**

**SECTION 407 – STEEL AND OTHER METAL STRUCTURES** of the Specifications is amended as follows:

**Section 407.04 – Fabrication Procedures** is amended by replacing the seventh, eighth, and ninth paragraphs with the following:

The Contractor shall furnish a complete mill analysis showing chemical and physical results from each heat of steel for all units prior to fabrication. Before cutting, pieces of steel other than steel conforming to ASTM A709, Grade 36, that are to be cut to smaller-sized pieces shall be legibly marked with the ASTM A6 specification identification color code or the material specification designation. The identification color code of the latest system adopted under ASTM A6 shall be used to identify material. Any markings that indicate direction of roll shall be transferred to each new piece before cutting the new piece from the larger plate.

If requested by the Engineer, the Contractor shall furnish an affidavit from the fabricator certifying that the fabricator has marked and maintained the identification of steel in accordance with these specifications throughout the fabrication operation.

**Section 407.06(c) – Assembly of Structural Connections Using High-Strength Bolts** is amended by replacing the first paragraph with the following:

**Assembly of Structural Connections Using High-Strength Bolts:** Field connections shall be made with high-strength bolts 7/8-inch in diameter fabricated in accordance with ASTM F3125, Grade A325 unless otherwise specified. The Engineer will give consideration to the substitution of adequately designed welded connections if requested in writing by the Contractor.

**Section 407.06(c)1 – Bolts, nuts, and washers** is replaced with the following:

**Bolts, nuts, and washers:** Bolts, nuts, and washers shall conform to Section 226 and shall each be from one manufacturer on any one structure unless otherwise approved by the Engineer. In addition, each bolt, nut, and washer combination, when installed, shall be from the same rotational-capacity lot. Prior to installation, the Contractor shall perform a field rotational-capacity test on two nut, bolt, and washer assemblies for each diameter and length in accordance with VTM 135. Bolts fabricated in accordance with ASTM F3125, Grade A490 and galvanized bolts fabricated in accordance with ASTM F3125, Grade A325 shall not be reused. Retightening previously tightened bolts, which may have been loosened by the tightening of adjacent bolts, shall not be considered a reuse. Other bolts may be reused only if approved by the Engineer. Threads of plain (uncoated) bolts shall be oily to the touch when installed. Galvanized nuts shall be lubricated by lubricant containing a visible dye. Threads of weathered or rusted bolts shall be cleaned of loose rust, scale, and debris and relubricated. Lubricant shall be as recommended by the fastener manufacturer.

**Section 407.06(c)3 – Installation** is amended by replacing the second paragraph with the following:



When bolts fabricated in accordance with ASTM F3125, Grade A490 are used with steel having yield points less than 40 kips per square inch, hardened washers shall be installed under the nut and bolt head.

**Section 407.06(c)3 – Installation** is amended by replacing the eighth paragraph with the following:

The required minimum bolt tension is equal to 70% of specified minimum tensile strengths of bolts rounded to the nearest kip as specified in ASTM F3125 for Grades A325 and A490. *Snug tight* is defined as the tightness attained when a power wrench begins to impact solidly or when the bolts are firmly hand tightened with a spud wrench such that the complete area of the connecting surfaces are brought into firm contact with each other. Snug tightening shall progress systematically from the most rigid part of the connection to the free edges, and then the bolts of the connection shall be retightened in a similar systematic manner as necessary until all bolts are simultaneously snug tight and the connection is fully compacted.

**Section 407.06(c)3b – Direct Tension Indicators (DTI)** is amended by replacing the first paragraph with the following:

**Direct Tension Indicators (DTI):** Direct tension indicator washers shall be used for all high strength bolts, and installation shall be in accordance with Section 407.06(c)3; however, the indicator washer shall not be considered a substitute for the required hardened washer under the turned element. The indicator washer may be considered a substitute for the hardened washer required under the unturned element when bolts conforming to ASTM F3125, Grade A490 are used with steel conforming to ASTM A709, Grade 36. Direct tension-indicator washers shall not be painted or coated with any epoxy or similar material prior to installation. The normal installation shall consist of the load indicator washer being placed under the unturned bolt head or unturned nut. However, if conditions require installation under the turned bolt portion, a hardened flat washer or nut face washer shall be fitted against the tension-indicating protrusions. Tension-indicating washers shall not be substituted for the hardened washers required with short-slotted or oversized holes but may be used in conjunction with them.

**Table IV-3 – Bolt Tension** is replaced with the following:

<b>TABLE IV-3</b>		
<b>Bolt Tension</b>		
<b>Bolt Size</b>	<b>Required Min. Bolt Tension (lb.)</b>	
	<b>Grade A325 Bolts</b>	<b>Grade A490 Bolts</b>
½	12,000	15,000
5/8	19,000	24,000
¾	28,000	35,000
7/8	39,000	49,000
1	51,000	64,000
1 1/8	56,000	80,000
1 ¼	71,000	102,000
1 3/8	85,000	121,000
1 ½	103,000	148,000

## **DIVISION V – INCIDENTAL CONSTRUCTION**

### **STANDARD 500 SERIES SPCNs, SP, AND SSs**

SS512-002020-02  
2020

September 22,

VIRGINIA DEPARTMENT OF TRANSPORTATION  
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS  
**SECTION 512 – MAINTAINING TRAFFIC**

**SECTION 512 – MAINTAINING TRAFFIC** of the Specifications is amended as follows:

**Section 512.02(f) – Temporary (Construction) signs** is replaced with the following:

**Temporary (Construction) signs** shall have retroreflective sign sheeting in accordance with Sections 247 and 701.

Sign substrates for rigid temporary signs and temporary overlay panels shall be fabricated of either aluminum at least 0.080-inches thick, conforming to Section 229.02(a); 0.4-inch-thick corrugated polypropylene; 0.4-inch-thick corrugated polyethylene plastic; or 0.079-inch-thick aluminum/plastic laminate as approved by the Engineer. Sign substrates shall be smooth, flat, and free of metal burrs or splinters.

Sign substrate materials for signs mounted on drums, Type 3 barricades, and portable sign stands shall be as specified below and shall be the same material that was used when the device was approved in accordance with National Cooperative Highway Research Program (NCHRP) Report 350 or MASH.

**Sign Substrates for Type 3 Barricades and Portable Sign Stands**

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Rollup sign

0.4 inch thick corrugated polypropylene or polyethylene plastic

0.079 inch thick aluminum/plastic laminate

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**Sign Substrates for Drums**

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0.4 inch thick corrugated polypropylene or polyethylene plastic

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**Section 512.03 – Procedures** is amended by replacing the sixth and seventh paragraphs with the following:

The Contractor shall correct ineffective or unacceptable work zone traffic control devices immediately unless allowed otherwise by the Contract.

The color of Automated Flagger Assistance Device trailers, arrow board trailers, portable traffic control signal trailers, ITS trailer equipment, and portable changeable message sign trailers and sign frames shall be either Virginia highway orange (DuPont Color No. LF74279 AT or color equivalent) or federal yellow. The back traffic facing trailer frame, where the signal and brake lights are located, shall be fully covered with 2 inch high retroreflective sheeting conforming to Section 247.02(c). The sheeting shall have alternating 11 inch wide vertical red stripes and 7 inch wide vertical white stripes.

The Contractor shall locate, remove, and dispose of all existing asphalt-embedded Snowplowable Raised Pavement Marker (SRPM) castings which lie within a travel lane that has been shifted during construction for three months or longer. The cavity left by the removal of the existing marker shall be cleaned of debris, filled with an approved mix design for resurfacing or material found on the Department's Approved List 78, and compacted before shifting traffic.

**Section 512.03(a) – Temporary (Construction) Signs** is replaced with the following:

**Temporary (Construction) Signs:** The Contractor shall furnish, install, remove, relocate, and maintain temporary signs and sign panels necessary for prosecution of the work. Installation shall be in accordance with Section 701. The Contractor shall also furnish and install those signs not listed in the *VWAPM* that may be required by the Engineer.

Signs shall be fabricated in accordance with the MUTCD and *VWAPM*. If the Contractor proposes a sign message not included in the Plans, *VWAPM*, or MUTCD, then the Contractor shall submit a sign fabrication detail to the Engineer for approval before fabrication.

The Contractor shall relocate, cover, uncover, remove, and reinstall existing signs that conflict with the signs needed for maintenance of traffic. Covering of existing signs shall be accomplished in accordance with Section 701.03(d).

The Contractor shall ensure an unrestricted view of sign messages. The Contractor shall furnish and install flags for temporary signs, as directed by the Engineer; however flags will not be required for use on portable sign supports.

Sign location, lateral placement, and mounting height shall conform to the *VWAPM*, the *MUTCD*, the Contract, and as directed by the Engineer. The Contractor shall furnish all sign supports and hardware for use with temporary signs.

When the sign sequence is not provided in the plans, either by illustration or reference to a typical traffic control figure in the *VWAPM*, the Contractor shall submit a sketch of his proposed sign sequence to the Engineer for approval before installation.

Temporary signs shall be mounted using wooden post supports, square tube sign post supports, or portable sign stands, except where noted otherwise on the Plans. Portable sign stands shall not be used longer than three consecutive days (72 continuous hours). Wooden and square tube post installations shall be in accordance with Standard Drawing WSP-1.

Portable sign stands manufactured on or before December 31, 2019 may be used if they are in good working condition, conform to NCHRP Report 350 Test Level 3 or MASH, and are a product shown on the Department's Approved Lists for NCHRP-350 or MASH Approved Products. Portable sign stands manufactured after December 31, 2019 shall conform to MASH and shall be a product shown on the Department's Approved List for MASH Approved Products. The Contractor shall submit a certification letter stating the brands and models of portable sign stands to be used along with a copy of the certification letters indicating compliance with NCHRP Report 350 Test Level 3 or MASH.

Portable sign stands shall include decals, stenciling, or some other durable marking system that indicates the manufacturer and model number of the stands. Such marking shall be of sufficient size so it is clearly legible to a person in a standing position.

The Contractor shall erect, maintain, move, and be responsible for the security of sign panels and shall ensure an unrestricted view of sign messages for the safety of traffic.

**Section 512.03(g)2b(1) – Drums** is replaced with the following:

**Drums** shall be round or partially round; made from plastic; have a minimum height of 36 inches; have a cross-sectional width no less than 18 inches in any direction; have a closed top; and shall conform to the VWAPM. Drums shall be designed to allow for separation of ballast and drum upon vehicular impact but not from wind and vacuum created by passing vehicles. The base of the unit height shall not exceed 5 inches. Two-piece drums may have a flared drum foundation, a collar not exceeding 5 inches in height and be of suitable shape and weight to provide stable support. One-piece drums that comply with these requirements may be used.

**Section 512.03(g)2b(3) – Direction indicator barricades** is deleted.

**Section 512.03(h) –Traffic Barrier Service** is replaced with the following:

**Traffic Barrier Service** shall be of sufficient length to provide anchorage and protection of traffic and personnel in work areas.

The Contractor shall begin continuous progressive prosecution of the work protected by the barrier once the barrier is in place until its completion. If the Contractor ceases to continuously prosecute such work, the Engineer may cause the Contractor to discontinue operations in other areas on the project and concentrate work efforts behind the traffic barrier service until that work is completed. The Contractor shall remove the traffic barrier service when the Engineer determines work is completed to the extent that traffic barrier service is no longer required.

While performing work activities, workers and equipment shall remain behind the protection of the traffic barrier service except as approved by the Engineer. Work outside traffic barrier service

protection shall only proceed under the protection and direction of approved traffic control devices or flagger service to safeguard workers and traffic in advance of and at the point the traffic barrier service is opened for ingress or egress adjacent to the travel lane. The Engineer will not permit any equipment extending into an open travel lane.

Barrier openings for access to the work area may be provided only along tangent sections or along curved sections on the inside of traffic and shall be limited to the minimum length required for equipment access. The Contractor shall delineate and maintain normal pavement alignment at the barrier opening with Type D pavement marking.

Repairs to traffic barrier service shall match existing barrier so that positive connections can be maintained.

Delineators and barrier panels shall have reflectorized sheeting conforming to Section 247, shall be from the Department's Approved List 23, and shall be installed on traffic barrier service in accordance with the VWAPM.

The Contractor shall maintain the structural integrity of the barrier and its alignment while it is in use and shall maintain any associated warning lights, barrier delineators, barrier panels, and other devices in functional, clean and visible conditions at all times.

1. **Guardrail barrier service and terminal treatments** shall be installed in accordance with Section 505 except that the offset distance shall be as specified by the Engineer. The Contractor may be permitted to reuse guardrail or its hardware used for traffic barrier service guardrail for permanent installation provided the guardrail material is acceptable to the Engineer and conforms to Section 505 and the Standard Drawings for such guardrail. Marred galvanized surfaces shall be repaired in accordance with Section 233. Terminal treatments shall be permanently identified with a device specific Manufacturers' identification number by stamping or marking with a durable weather resistant material in accordance with § 33.2-274.1 of the Code of Virginia.
2. **Traffic barrier service** (concrete or longitudinal steel) shall be installed in accordance with the Plans and Standard Drawings or as directed by the Engineer, who will design according to Appendix A of the VWAPM. When traffic barrier ends at guardrail, fixed object attachment methods for construction zone shall be used to connect the barrier to the guardrail. Installation shall include additional guardrail posts and attachments as required. The traffic barrier, at a minimum, shall be tapered with the end of the barrier located behind the adjacent guardrail post in accordance with the VWAPM. Barrier connections shall be snug to prevent motion between sections.

Traffic barrier service used as a parapet shall be anchored as shown on the Plans or Section 500 of the Standard Drawings. Anchor holes in bridge decks shall be drilled with a rotary impact drill or other approved equipment that will limit damage to the deck. Anchor holes shall be located to avoid cutting reinforcing steel. Upon removal of the parapet, anchor holes shall be cleaned and filled with Type EP-4 or EP-5 epoxy mortar conforming to Section 243.

The Department will not permit the use of concrete traffic barrier service for permanent installations on bridge structures.

Traffic barrier service sections manufactured on or before December 31, 2019 and successfully tested to NCHRP 350 or MASH 2009 may be used until December 31, 2029, if they are in good working condition, and are a product shown on the Department's Approved Lists for NCHRP-350 or MASH Approved Products. Traffic barrier service sections manufactured after December 31, 2019, and all products in use after December 31, 2029, shall conform to MASH 2016 or its successor, and shall be from the Department's Approved List for Provisionally Approved MASH Products. All traffic barrier service runs shall be interlocking barrier of the same design or type. The Contractor shall visually inspect all traffic barrier service shipped to a project before placing it in use. Concrete barrier sections shall be structurally sound with no concrete missing along the top, bottom, sides, or end sections of the barrier; no through cracks; and no exposed rebar. The Contractor shall promptly remove any traffic barrier service found by the Contractor or Engineer to be unacceptable due to inadequate structural integrity or functionality and replace the concrete barrier service at no cost to the Department.

Concrete barrier service shall be cleaned or coated sufficiently to afford good visibility and uniformity of appearance.

The Engineer will review and must approve the layout and anchorage method for job specific applications before the barrier is authorized for installation.

With the approval of the Engineer, the Contractor may use additional traffic barriers for his convenience but at his own expense.

**Section 512.03(i) – Impact Attenuator Service** is replaced with the following:

**Impact Attenuator Service:** The Contractor shall install impact attenuator service at locations shown on the Plans or designated by the Engineer. An object marker for temporary impact attenuator shall be installed on the attenuator according to the details shown in the Standard Drawings. The object marker for impact attenuator service shall have reflective sheeting conforming to Section 247 featuring alternating diagonal black and orange 3 inch stripes sloping downward at an angle of 45 degrees in the direction vehicular traffic is to pass. Impact attenuators shall be permanently identified with a device specific Manufacturers' identification number by stamping or marking with a durable weather resistant material in accordance with § 33.2-274.1 of the Code of Virginia.

Impact Attenuator Service not shown on the Plans may be used at the request of the Contractor for the Contractor's convenience at the Contractor's expense.

All impact attenuator service shall be reviewed and approved by the State Location and Design Engineer before installation.

Impact Attenuators manufactured on or before December 31, 2019 and successfully tested to NCHRP 350 or the MASH 2009 may continue to be used until December 31, 2029. Impact Attenuators manufactured after December 31, 2019 shall meet MASH 2016 and shall be from the Department's Approved List for Provisionally Approved MASH Products.



**Section 512.03(j)2c – Equipment** is replaced with the following:

12 inch aluminum or polycarbonate traffic signal head sections with backplates mounted in the vertical display arrangement. Signal head sections may be mounted in the horizontal display arrangement when approved by the Engineer. Signal head sections and backplates shall conform to Section 238.

**Section 512.03(k) – Temporary (Construction) Pavement Markings** is replaced with the following:

**Temporary (Construction) Pavement Markings** shall be installed at locations shown on the Plans, the VWAPM, and as directed by the Engineer. Temporary pavement markings shall conform to Section 704 and be selected from the Department's Approved List 17. Temporary pavement markings are classified as Type A or B (temporary markings), Type D, Class III (removable tape), and Type E (non-reflective black removable tape).

The Contractor shall install temporary pavement markings in accordance with the manufacturer's recommendations, except that if the manufacturer's recommendation for material thickness and quantity of beads is less than that used when the material was tested by the NTPEP, the minimum product application rates shall conform to the NTPEP approved test rates for the specific marking. The Contractor shall furnish a copy of the manufacturer's installation recommendations, including the NTPEP data for product thickness and glass bead quantities to the Engineer.

The Contractor shall maintain the temporary pavement markings and shall correct any deficient markings by reapplying markings as directed or needed. The Department considers deficient any temporary pavement markings that provide inadequate guidance to motorists due to inadequate retroreflectivity, color qualities, or adherence to the pavement. The Engineer will make a visual nighttime inspection of all temporary pavement markings to identify areas where markings have inadequate retroreflectivity. Other deficient qualities may be identified by visual inspection at any time.

Markings that no longer adhere to the pavement, and may cause guidance problems for motorists, or are inadequately retroreflective as determined by the Engineer shall be replaced by the Contractor, with the following exceptions:

- Reapplication of skip line temporary pavement markings is not required unless the pavement marking does not adhere or inadequate retroreflectivity qualities are present for at least two consecutive skip lines.
- Reapplication of centerline (except skip lines) or edge line temporary pavement markings is not required unless the pavement marking does not adhere or inadequate retroreflectivity qualities are present for a continuous section of at least 70 feet.
- Reapplication of transverse markings is not required unless the pavement marking does not adhere or inadequate retroreflectivity qualities are present for a continuous section of at least 3 feet.

The Contractor may take retroreflectivity readings to counter visual observations by the Engineer as the basis for replacement of temporary pavement markings. These measurements shall be taken within 48 hours after the Contractor has been notified of the visual determination by the Engineer of deficient markings. The Engineer will grant additional time to the Contractor when inclement weather prevents accurate measurement of the temporary pavement markings.

The Contractor shall brush any form of debris from the marking before taking the retroreflectivity readings. Retroreflectivity measurements shall be taken in the presence of the Engineer using Contractor furnished equipment conforming to ASTM E1710. A copy of the operating instructions for the reflectometer shall be furnished to the Engineer before taking the measurements. The Contractor shall calibrate and operate the equipment in accordance with the manufacturer's instructions. The photometric quantity to be measured is the coefficient of retroreflected luminance ( $R_L$ ), which shall be expressed as millicandelas per square foot per footcandle (mcd/sf/fc). Measurements shall be taken at three random locations within each area of markings that are suspected of being inadequately retroreflective. When the length of the questionable visually inspected area is greater than 1 mile, the Contractor shall take measurements at three locations per mile segment or portion thereof. Measurements for all lines shall be taken in the middle of the line horizontally. Measurements for skip lines shall be taken in the middle of their length. Measurements for transverse lines shall be taken outside of the wheel path locations. The Engineer will designate the locations along the line segments where the measurements shall be taken. The Contractor shall make a log of the measurements and their locations and provide a copy to the Engineer. When the average of the three readings for an area is below 100 mcd/sf/fc, the Contractor shall reapply the markings as indicated.

Temporary (construction) pavement markings found in need of reapplication in accordance with these requirements shall be reapplied by the Contractor at no additional cost to the Department, with the following exceptions:

- Type D markings that have been under traffic for more than 180 days and requires reapplication will be paid for at the contract unit price when reapplied, unless the manufacturer's warranty coverage is still applicable.
- Markings damaged by the Department's snow removal or other maintenance and construction operations will be paid for at the contract unit price.

Deficient temporary pavement markings shall be replaced in the time specified in Section 704 for the maximum duration of unmarked roads.

Eradication for reapplication of Type A or B pavement markings is not required if allowed by the marking manufacturer, if the existing marking is well adhered and the total thickness of the existing and reapplied marking combined will not exceed 40 mils. If not well adhered, 90 percent of the existing markings shall be eradicated before reinstallation of the markings.

Existing Type D markings that are deficient (no longer retaining sufficient retroreflectivity) shall be removed before reapplication of new Type D, Class III markings.

1. **Temporary Type A or B pavement markings** shall be used where the roadway is to be resurfaced before changes in the traffic pattern or where pavement is to be demolished and traffic patterns will not change before demolition.
2. **Type D, Class III pavement markings** shall be used on final roadway surfaces or in areas where traffic patterns are subject to change before pavement is resurfaced, unless otherwise specified in the Contract.

On non-final pavement surfaces, the Contractor may install Type A or B pavement markings when the surface temperature of the pavement is below the manufacturer's minimum application temperature for a Type D pavement marking. In such cases, the Contractor shall select a Type A or B product known to perform the best under those temperature conditions. When a Type A or B pavement marking is used instead of a Type D pavement marking due to the surface temperature being below the manufacturer's minimum application temperature, the Contractor will be paid at the contract unit price for Type D pavement marking. This shall include the Type A or B marking and any necessary eradication of the Type A or B pavement marking.

3. **Type D, Class III contrast pavement markings** shall be used for all longitudinal temporary pavement markings on bridge decks and hydraulic cement concrete riding surfaces if all of the following are met:
  - The road has a speed limit of 45 MPH or greater.
  - The hydraulic cement concrete riding surface in question is at least 300 feet in length.
  - The temporary markings are planned for at least 15 days of use.Type D, Class III contrast markings are not required for any markings that are parallel to and within two feet of existing guardrail or other longitudinal barrier.
4. **Type E pavement markings** shall be used to cover existing markings in accordance with paragraph (l) herein.
5. **Temporary pavement markers** shall be installed with temporary pavement markings in accordance with paragraph (m) herein.

**Section 512.03(l) – Eradicating Pavement Markings** is replaced with the following:

**Eradicating Pavement Markings:** Markings that may conflict with desired traffic movement, as determined by the Engineer, shall be eradicated as soon as practicable: either immediately before the shifting of traffic or immediately thereafter and before the conclusion of the workday during which the traffic shift is made. Work shall be done in accordance with Section 704 except as noted herein.

The Contractor shall perform eradication by grinding, blasting, or a combination thereof. Blasting may be performed using water blasting, sand blasting, hydroblasting (combination of sand and water), or shot blasting. Water blasting and hydroblasting shall be done with equipment that includes a vacuum recovery system and capability to adjust the water pressure.

The Contractor may submit other methods for eradication for the Engineer's approval; however, the Department will not permit obscuring existing pavement markings with black paint or asphalt as a substitute for removal or obliteration. The Contractor shall minimize roadway surface damage when performing the eradication. The Contractor shall repair the pavement if eradication of pavement markings results in damage to or deterioration of the roadway presenting unsafe conditions for motorcyclists, bicyclists, or other road users. Pavement repair, when required, shall be performed using a method approved by the Engineer.

The Contractor shall ensure workers are protected in accordance with Section 107.17 when eradicating pavement markings.

The Contractor shall vacuum or collect the eradication residue (removed markings, debris, and water) during and immediately after the eradication operation. Dust shall be collected during the entire operation. The Contractor shall ensure that no debris enters inlets or waterways.

Eradication residue from the removal of any pavement markings is considered to be a nonhazardous waste material and shall be disposed of in a properly permitted waste disposal facility in accordance with applicable state and federal laws and regulations. The Department does not require Contractor testing of the eradication residue for the eight Resource Conservation Recovery Act metals.

When markings are removed for lane shifts, transitions, or other areas or conditions required in the VWAPM, 100% of the pavement marking shall be removed.

Type E pavement markings may be used to cover existing markings instead of eradication on asphalt concrete surfaces. The Contractor shall use this material to cover markings as indicated in the Plans or as directed by the Engineer. Type E pavement marking shall be applied in accordance with the manufacturer's recommendations. Type E markings shall not be adhered to the pavement for more than 120 days. Type E markings shall not be used on HCC surfaces or bridge decks.

When eradicating symbols and messages, the entire theoretical box bounding the outermost limits of the markings shall be uniformly eradicated.

Eradication of 24" lines shall be considered nonlinear marking eradication.

**Section 512.03(m) – Temporary Raised Pavement Markers** is replaced with the following:

**Temporary Raised Pavement Markers** shall be installed with temporary pavement markings where required by the VWAPM and where directed by the Engineer. Temporary raised pavement markers shall not be used with Type E markings.

Temporary raised pavement markers shall be installed at the spacing required by the VWAPM, and as shown on Standard Drawing PM-8. . The Contractor may install two one-way markers instead of each two-way marker at no additional cost to the Department.

Temporary raised pavement markers shall be installed with a hot applied bitumen adhesive, except epoxy may be used on hydraulic cement concrete roadways and non-final surfaces of asphalt concrete roadways. Pavement damage caused by removing markers shall be repaired in kind by the Contractor at no additional cost to the Department.

The Contractor shall replace damaged, ineffective, or missing temporary raised pavement markers upon notification by the Engineer at no additional cost to the Department. Markers damaged by the Department's snow removal operations or other maintenance and construction operations, however, will be paid for at the contract unit price.

**Section 512.03(p) – Construction (Temporary) Pavement Message and Symbol Markings** is replaced with the following:

**Construction (Temporary) Pavement Message and Symbol Markings** shall be the color, shape, and size required by the MUTCD, Standard Drawing PM-10, and the Plans. The Contractor shall install message and symbol markings in accordance with MUTCD, Section 704 the VWAPM, and the Standard Drawings.

Temporary pavement message and symbol markings shall be installed and maintained using the material specified on the Plans in accordance with Section 512.03(k).

Pavement message/symbol markings shall be installed at locations shown on the Plans and at locations designated by the Engineer.

Temporary pavement message markings shall be maintained in accordance with Section 512.03(k). Retroreflective measurements conforming to Section 512.03(k) shall be taken out of the wheel path locations. The pavement message/symbol marking shall be replaced when the average of the three readings for the symbol/message is below 100 mcd/sf/fc.

**Section 512.03(q) – Type 3 Barricades** is replaced as follows:

**Type 3 Barricades:** Type 3 barricades shall conform to NCHRP Report 350, Test Level 3, or MASH. Type 3 barricades shall be selected from those shown on the Department's Approved Lists for NCHRP 350 or MASH Approved Products. The Contractor shall provide a certification letter stating the brands and models of Type III barricades from the list proposed for the project. Instead of using Type 3 barricades on the listing, the Contractor may use other brands and models, if he submits a copy of the FHWA acceptance letter indicating the proposed substitutes complies with NCHRP Report 350, Test Level 3, or MASH before use.

Type 3 Barricades shall be installed and ballasted in accordance with the VWAPM.

**Section 512.03(r) – Truck-mounted or trailer mounted attenuators** is replaced as follows:

**Truck-mounted or trailer-mounted attenuators (TMAs):** Truck-mounted and trailer-mounted attenuators manufactured on or prior to December 31, 2019 may be used if they are in good working condition, conform to Test Level 3 of NCHRP Report 350 or MASH, and are a product shown on the Department's Approved Lists for NCHRP-350 or MASH Approved Products. TMAs manufactured after December 31, 2019 shall conform to MASH Test Level 3 and shall be a product shown on the Department's Approved List for MASH Approved Products.

The Contractor shall submit catalog cuts/brochures of the TMA and a copy of the certification letter documenting NCHRP 350/MASH compliance of the specific TMA before their use on the project. TMAs shall be permanently identified with a device-specific manufacturers' identification number by stamping or marking with a durable weather resistant material in accordance with § 33.2-274.1 of the Code of Virginia.

The weight of the support vehicle shall be as recommended by the manufacturer of the Truck/Trailer-mounted attenuator. The Contractor shall provide a copy of the manufacturer's recommendations to the Engineer, a copy of the original weigh ticket for the support vehicle, and a self-certification letter stating the support vehicle has not been altered since the original weight ticket was issued. The weigh ticket shall contain adequate information to identify the ticket with the applicable support vehicle. A copy of the self-certification and weigh ticket shall be available in the support vehicle at all times and upon request.

Additional weight may be added to the support vehicle to achieve the range recommended by the manufacturer of the Truck/Trailer-mounted attenuator provided the total weight is properly balanced without overloading any one axle, and is within the Gross Vehicle Weight Recommendation of the support vehicle. The added weight shall be securely attached to the support vehicle to prevent movement during an impact or movement of the vehicle. The additional weight and attachment method shall be self-certified by the Contractor and a copy of the self-certification letter shall be with the support vehicle at all times or a final stage manufacturer's certification sticker may be placed on the inside door of the altered vehicle.

The Truck/Trailer-mounted attenuator shall be no less than 72 inches wide and no more than 96 inches wide. There shall be no additional devices such as signs, lights, and flag holders attached to the Truck/Trailer-mounted attenuator except those that were tested on the Truck/Trailer-mounted attenuator and provided by the manufacturer of the Truck/Trailer-mounted attenuator.

The support vehicle shall have at least one vehicle warning light functioning while in operation in accordance with the VWAPM. When allowed by the VWAPM, an electronic arrow operated in the caution mode may be used with the vehicle warning light. When installing and removing lane closures on a multilane roadway as well as when performing mobile operations, the support vehicle shall be equipped with both vehicle warning lights and an arrow board.

The support vehicle shall be operated and parked in accordance with the manufacturer's recommendations.

If the Truck/Trailer-mounted attenuator is impacted, resulting in damage that causes the unit to be ineffective, all work requiring the use of the Truck/Trailer-mounted attenuator shall cease until such time that repairs can be made or the Contractor provides another acceptable unit.

**Section 512.03(s) – Portable Changeable Message Signs** is amended to replace the second and third paragraphs with the following:

The sign shall be capable of sequentially displaying at least 2 phases of 3 lines of text each with appropriate controls for selection of messages and variable off-on times. Trailer-mounted PCMS shall be capable of displaying 3 lines of 8-character 18-inch text in a single phase, and vehicle-mounted PCMS shall be capable of displaying 3 lines of 8-character 10-inch text in a single phase. Each character module shall at a minimum use a five wide by seven high pixel matrix. The message shall be composed from keyboard entries.

Access to PCMS control mechanisms shall be physically locked at all times when deployed to deter message tampering.

The message shall be legible in any lighting condition. Motorists should be able to read the entire PCMS message twice while traveling at the posted speed.

The sign panel support shall provide for an acceptable roadway viewing height that shall be at least 7 feet from bottom of sign to crown of road.

**Section 512.03(w) – Portable Temporary Rumble Strips (PTRS)** is replaced as follows:

**Portable Temporary Rumble Strip (PTRS):**

A PTRS may be made of rubber or recycled rubber. It shall have a recessed, raised or grooved design to prevent movement and hydroplaning. PTRS color shall be in accordance with the VWAPM.

A PTRS shall consist of interlocking or hinged segments of equal length that prevent separation when in use. The combined overall usable length of the PTRS shall be between 10 feet 9 inches and 11 feet. The width of the PTRS shall be 12 to 13 inches. PTRS shall be between 5/8 inch and 1.0 inch in height. The weight of each roadway strip shall be between 100 and 120 pounds. The leading and departing edge taper shall be between 12 and 15 degrees.

Each roadway length of the PTRS shall have either a minimum of one cutout handle in the end of the rumble strip, or an interlocking segment which can be used as a handle for easy deployment or removal.

The manufacturer of the PTRS shall provide a signed affidavit that states the PTRS is able to withstand being run over by an 80,000 pound vehicle and retain its original placement with minor incidental movement of 6 inches or less during an 8 hour deployment. Incidental movement of the PTRS shall be parallel with other rumble strips in an array but shall not move so that its placement compromises the performance and safety of the other rumble strips, workers or the traveling public.

The PTRS shall be installed in accordance with manufacturers installation instructions, without the use of adhesives or fasteners.

PTRS Placement shall be in accordance with the VWAPM.

**Section 512.04 – Measurement and Payment** is amended to replace the thirteenth paragraph with the following:

**Impact attenuator service** will be measured in units of each and will be paid for at the Contract each price for the type specified. This price shall include installing, maintaining, and removing impact attenuator and object marker. Impact attenuators used with barrier openings for equipment access will not be measured for separate payment but the cost thereof shall be included with other appropriate items. When impact attenuator service is moved to a new location, as directed or approved by the Engineer, the relocated terminal will be measured for separate payment. Payment for impact attenuator service will not be made until the work behind the corresponding barrier service is actively pursued.

**Section 512.04 – Measurement and Payment** is amended to replace the twentieth paragraph with the following:

**Eradication of existing nonlinear pavement markings** will be measured in square feet based on a theoretical box defined by the outermost limits of the nonlinear pavement markings as defined in Standard Drawing PM-10. Nonlinear pavement markings shall include but not be limited to, arrows, images, symbols, and messages. Eradication of existing nonlinear pavement markings will be paid for at the contract unit price per square foot. This price shall include removing nonlinear pavement markings, cleanup, and disposing of residue.

**Section 512.04 – Measurement and Payment** is amended to replace the 29th paragraph with the following:

**Portable Temporary Rumble Strip (PTRS) Array** will be measured in Days per array and will be paid for at the Contract Day price. An Array shall consist of three rumble strips. This price shall include installing, maintaining, removing devices when no longer required, and relocating throughout the day.

**Section 512.04 – Measurement and Payment** is amended by revising the Pay Item Table as follows:

The following pay items are removed:

Pay Item	Pay Unit
Portable temporary rumble strip	Each

The following pay items are inserted:

Pay Item	Pay Unit
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Portable temporary rumble strip array	Day
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## **DIVISION VII – TRAFFIC CONTROL DEVICES**

### **STANDARD 700 SERIES SPCNs, SP, AND SSs**

SP700-000180-02

VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
**MODIFICATIONS TO AASHTO'S SIGN STRUCTURE SPECIFICATION**

May 2, 2018

**I. GENERAL REQUIREMENTS**

Lighting (conventional and high mast), signal (overhead, mast arm and span wire), pedestal poles, overhead (span, cantilever and butterfly) sign structures, and ITS structures (camera poles, dynamic message signs (DMS), etc.) shall conform to the requirements of the AASHTO *Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 6<sup>th</sup> Edition (LTS-6), 2013 with 2015 interims* as modified by this Special Provision. Any AASHTO Specification optional design parameter noted as “may be used at the discretion of the owner” that are not addressed in this document shall not be used for design.

Modifications to span or height limits shown on the plans shall be approved by the Regional Traffic Engineer.

**II. WIND LOADING (LTS-6 Article 3.8 and Appendix C)**

1. The alternate method for wind pressures provided in AASHTO Appendix C shall be used. Linear interpolation between wind contours is not permitted. The next higher contour shall be used for design. Reduced forces shall not be used for free swinging traffic signal and free swinging sign wind loadings.
2. **LTS-6 Article C.2** is supplemented with the following: Wind speeds using 50-year mean recurrence shall be used for all conventional light poles, high mast light poles, ITS device support poles, and overhead sign structures (span, cantilever and butterfly).
3. Mast arm signal poles, mast arms, and strain poles shall be designed using the following wind speeds:

VDOT Traffic Operations Region	VDOT Districts Within That Region	Design Wind Speed for strain poles, mast arms, and mast arm poles
Southwest	Bristol, Salem, and Lynchburg	70 MPH
Northwest	Staunton and Culpeper	70 MPH
Northern	Northern Virginia	80 MPH
Central	Richmond and Fredericksburg	80 MPH
Eastern	Hampton Roads	90 MPH

Mast arm signal pole and strain pole foundations shall be designed for wind speeds at the foundation location using the 25-year mean recurrence.

4. For special wind regions in Bristol District shown in Figure 3.8.3-2 of LTS-6, the selection of the design wind speed shall consider localized effects. The minimum design wind speed for 50 year mean in these areas is 90 MPH, 25 year mean in these areas is 80 MPH and 10 year mean in these areas is 70 MPH.
5. For structures elevated above the surrounding terrain (e.g. bridge mounted light pole, overhead sign, and other structures), the height factor shall be increased to account for the increased wind effects.

### III. STEEL DESIGN

1. **Laminated Structures (LTS-6 Article C5.1):** Laminated or multi-ply structures shall only be used in tapered sections.
2. **Holes and Cutouts, Unreinforced and Reinforced (LTS-6 Article 5.14.5):** The location and size of hand holes and cutouts shall be in accordance with the details shown in the Standard Drawings. For high mast light poles, the width of unreinforced and reinforced holes and cutouts in the cross-sectional plane of the tube shall not be greater than 50 percent of the tube diameter at that section.
3. **Welding:** A connection detail using a full penetration groove weld with a backing ring may be considered for all traffic structures. For tubes 18" diameter and greater, the backing ring shall be attached at the top and bottom face of the ring using a continuous fillet weld. For tubes less than 18" diameter, the backing ring shall be attached at the bottom face using a continuous fillet weld and the top shall be caulked to provide a thick durable continuous seal. The caulk shall be a durable material approved by the Engineer which is formulated for this type of Industrial application..
4. **Diameter:** Mast arm signal pole structures shall have the following maximum column and arm outside diameters, unless otherwise approved by the Engineer.

Configuration	Arm Length	Design Loading	Max. column diameter at base of column	Max. arm diameter at base of arm
Dual arm	Length of one arm exceeds 70 feet or total length of both arms exceeds 130 feet	Varies (Project specific loads will be provided on the Plans)	22 inches	20 inches
	All other dual-arm structures	Design loading does not exceed Standard Drawing MP-3	20 inches	18 inches

Configuration	Arm Length	Design Loading	Max. column diameter at base of column	Max. arm diameter at base of arm
Single arm	> 75 feet	Varies (Project specific loads will be provided on the Plans)	22 inches	20 inches
	≤ 75 feet	“Case 2” loading as per Standard Drawing MP-3	22 inches	20 inches
		“Case 1” loading as per Standard Drawing MP-3	20 inches	18 inches

#### IV. FATIGUE DESIGN

1. **Fatigue Importance Categories (LTS-6 Article 11.6):** The following fatigue importance categories shall apply to structures:

Fatigue Importance Categories		
Structure Type	Span Length <sup>1</sup> , ft.	Fatigue Category
All structures supporting dynamic message signs or partial dynamic message signs <sup>3</sup>	All span lengths	Category I
Overhead sign span structure	> 150	Category I
	≤ 150	Category II
Overhead sign cantilever structure	> 50	Category I
	≤ 50	Category II
Overhead sign butterfly structure	All span lengths	Category II
Signal mast arm structure <sup>2</sup>	> 75	Category I
	50 to ≤ 75	Category II
	< 50	No fatigue design required
Overhead signal structure	> 190	Category I
	≤ 190	Category II
High mast light poles	All lengths	Category I
Signal span wires, conventional lights poles and ITS device support poles (excluding DMS)		No fatigue design required

<sup>1</sup>Span length is defined as center-to-center of column(s) for span structure and face-of-column to tip of arm for cantilever and signal structures.

<sup>2</sup>For twin mast arms, the pole, arms and connections shall be designed for the applicable fatigue category for the longest arm attached.

<sup>3</sup>Partial dynamic message signs may be treated as static signs for the purposes of determining Fatigue Category if the dynamic message portion of the sign does not exceed the thickness or weight of an equivalently-sized extruded aluminum sign.

2. **Mitigation Devices (LTS-6 Article 11.6 and 11.7.1):** Mitigation devices shall not be used in lieu of designing for fatigue.
3. **Aluminum light poles (LTS-6 Article 11.6 and 11.7.1):** Internal first and second mode vibration dampeners shall be provided and installed according to the manufacturer's instructions in all cases. External dampeners may be used if approved by the Engineer.
4. **Galloping Loads (LTS-6 Article 11.7.1):** Galloping loads shall not be considered in the design of overhead sign cantilevered structures with four chord trusses, signal mast arm structures, and multi-chord overhead signal structures.
5. **Truck-Induced Gust Loads (LTS-6 Article 11.7.1.3):** Truck induced gust loads shall not be considered in the design of signal mast arm and overhead signal structures.
6. **Vertical Deflection (LTS-6 Article 11.8):** The vertical deflection of the free end of the arm for overhead sign cantilevered structures due to the wind load effects of galloping or truck-induced gusts shall not exceed 8".

## V. FOUNDATION DESIGN

The AASHTO Standard Specifications for Highway Bridges, 1996, and the 1997 and 1998 Interim Specifications, as referenced in the AASHTO *Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals*, are modified as follows:

1. **Geotechnical Design:** The factor of safety shall be as follows:

MINIMUM FACTORS OF SAFETY <sup>1</sup>			
	Drilled Shaft		Spread Footing
	Overhead Sign Structures and all other types of ancillary structures except for Mast arm traffic Signals	Mast arm traffic Signals	
Tip resistance/ Bearing pressure	1.75	1.75	2.0

Torsion/Sliding/Skin Friction	2.0 <sup>2</sup>	1.3 <sup>2</sup>	1.2 <sup>3</sup>
Overturning (Broms Method)	2.25	2.25	1.5

<sup>1</sup>The factors of safety shown above already account for the 1.33/1.40 group overload/overstress factor. No reduction shall be applied to the design loading used in the analysis.

<sup>2</sup>Torsion Resistance shall be evaluated as specified by the AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS (Seventh Edition, 2014) Section 10.8.3.5- Nominal Axial Compression Resistance of Single Drilled Shafts. A value of 1.0 shall be used in lieu of the resistance factors as shown in Table 10.5.5.2.4-1.

<sup>3</sup>Passive resistance shall be reduced by 50% to limit foundation movement.

In capacity calculations for the foundation design of a drilled shaft, the soil resistance of the top 1.5 feet shall be neglected in the analysis for torsion/skin friction/tip resistance. The full length of the shaft from the ground surface to the tip may be used in overturning/horizontal deflection. The remainder of the shaft may be assumed to be fully effective in supporting applied loads.

2. **Horizontal Deflection:** In lieu of Broms method, COM624P or other commercially available software may be used to evaluate the overturning of shafts and to estimate shaft deflections. For mast arm signals and span wire signals, the total horizontal deflection shall be limited to 0.75 inches at the ground level and the tip of the pile deflection shall not exceed -0.25 inches. For other structures, the total horizontal deflection shall be limited to 0.50 inches at the ground level and the tip of the pile deflection shall not exceed -0.15 inches. The loading used in the analysis shall not be reduced by the allowable overload/overstress factor. The shafts shall be modeled such that the nonlinear flexural rigidity (non-linear EI, or “cracked” section) is accounted for when the horizontal deflections are calculated.
3. **Reinforcement:** Where tremie placement of concrete is anticipated, a minimum spacing of 5 inches or 10 times the size of the largest coarse aggregate whichever is greater shall be provided in both horizontal and vertical direction. For dry shafts, a smaller space of 5 times the size of the largest coarse aggregate may be considered. A dry shaft is when the amount of standing water in the base of the shaft prior to concreting is less than or equal to 3 inches and water is entering the shaft at a rate of less than 12 inches/hour.

**SP703-000100-00**

VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
**MAST ARM HANGER ASSEMBLY STD SM-3 AND SMD-2**

May 25, 2016; Issued July 12, 2016

**I. Description**

This work shall consist of furnishing and installing mast arm signal hanger assembly (Standard SM-3) and mast arm sign hanger assembly (Standard SMD-2) for new or relocated signals and signs on mast arms and replacing existing hanger assemblies.

**II. Definitions**

The following terms are used as follows in this special provision:



1. **Mast Arm Hanger Assembly (Complete):** An inclusive mast arm hanger assembly that consists of the main mount, swivel plate, mounting system, mounting tube, and miscellaneous hardware items.
2. **Mast Arm Hanger Assembly (Components):** Main mount, swivel plate, mounting system and miscellaneous hardware items (washers, screws, bolts, or nuts).
3. **Main Mount:** The bracket component that mounts against the mast arm signal pole. Once installed, this component is fixed and is not adjusted.
4. **Swivel Plate:** The bracket component(s) that mate to the main mount. The swivel plate can be adjusted along multiple axis to allow the signal mounting tube to be positioned at different angular orientations. The mounting tube is connected to the swivel plate.
5. **Mounting System:** Stainless steel cables which connect the main mount and mast arm signal pole.
6. **Mounting Tube:** The bracket component that holds the signal head assembly, camera, or sign panel bracing to the swivel plate.
7. **Miscellaneous items:** Other components of the hanger assembly not listed above, including but not limited to: tie back, or tether clamps which fasten the cable to the mounting tube; mounting arms; cover plates; hardware (washers, screws, bolts, or nuts); caps; and seals.
8. **Special Tools:** Unique tools identified by a specific item or product number in the manufacturer's installation instructions

### III. Materials

As used below: XX, XXX or xx refers to stainless steel cable length, which shall be determined by the Contractor for the specific mast arm diameter at each installation location; YY or yy refers to the mounting tube length for sign panels, which shall be determined by the Contractor for the specific sign height at each location; ## refers to the channel width, which shall be determined by the Contractor for the specific sign width at each location.

#### 1. Mast Arm Signal Hanger Assembly (Components) for Relocation or Maintenance Replacement – Signals

Mast arm hanger components (main mount, swivel plate, mounting system, and associated miscellaneous items) used for signal relocation or maintenance replacement of signal hanger assemblies shall be of the following or approved equal:

<b>Table 1: MAST ARM SIGNAL HANGER ASSEMBLY (COMPONENTS) FOR RELOCATION OR MAINTENANCE REPLACEMENT - SIGNALS</b>	
<b>MANUFACTURER</b>	<b>MODEL</b>
Pelco Products, Inc.	Galaxy, Model AB-3055-XX-SS-PNC
Traffic Hardware & Design	CAN-BRAC, Model CBL-VUB-2CXX-9
General Traffic Equipment Corp.	RM - MAC - XX
Cost Cast, Inc.	Cost Cast Item # 1816-A-CXX

Sky Bracket	SKYBRACKET, Model SS-SBCXX-SCK-VA
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**2. Mast Arm Signal Hanger Assembly (Complete) - Signals**

Complete Mast Arm Hanger Assemblies used for new signals, relocated signals or maintenance replacement of signal hanger assemblies shall be of the following or approved equal:

<b>Table 2: MAST ARM SIGNAL HANGER ASSEMBLY (COMPLETE) – SIGNALS</b> (New Signals, Relocated Signals Or Maintenance Replacement)	
<b>1-SECTION HEAD HANGER ASSEMBLY (IN LINE)</b>	
<b>MANUFACTURER</b>	<b>MODEL</b>
Pelco Products, Inc.	Galaxy, Model AG-0125-1-XX-SS-PNC
Traffic Hardware & Design	CAN-BRAC, Model CBL-VUN1-T24-2Cyy-9
General Traffic Equipment Corp.	RM-1000C-XX-1
Cost Cast, Inc.	Cost Cast Item # 1816-G-CXX-24
Sky Bracket	SKYBRACKET, Model SS-SBCXX-18-VA
<b>3-SECTION HEAD HANGER ASSEMBLY (IN LINE)</b>	
<b>MANUFACTURER</b>	<b>MODEL</b>
Pelco Products, Inc.	Galaxy, Model AG-0125-3-XX-SS-PNC
Traffic Hardware & Design	CAN-BRAC, Model CBL-VUN1-T46-2Cyy-9
General Traffic Equipment Corp.	RM-1000C-xx-3
Cost Cast, Inc.	Cost Cast Item # 1816-G-CXX-48
Sky Bracket	SKYBRACKET, Model SS-SBCXX-46-VA
<b>4-SECTION HEAD HANGER ASSEMBLY (IN LINE)</b>	
<b>MANUFACTURER</b>	<b>MODEL</b>
Pelco Products, Inc.	Galaxy, Model AG-0125-4-XX-SS-PNC
Traffic Hardware & Design	CAN-BRAC, Model CBL-VUN1- T58-2Cyy-9
General Traffic Equipment Corp.	RM-1000C-xx-4
Cost Cast, Inc.	Cost Cast Item # 1816-G-CXX-60
Sky Bracket	SKYBRACKET, Model SS-SBCXX-60-VA
<b>5-SECTION HEAD HANGER ASSEMBLY (CLUSTER)</b>	
<b>MANUFACTURER</b>	<b>MODEL</b>
Pelco Products, Inc.	Galaxy, Model AG-0138-XX-SS-PNC
Traffic Hardware & Design	CBL-VUN2-14-T37-2CXX-9
General Traffic Equipment Corp.	RM-5C-5000C-xx
Cost Cast, Inc.	Cost Cast Item # 1816-G-CXX-5X
Sky Bracket	SKYBRACKET, Model SS-SBCXX-SCB-46-VA

**3. Mast Arm Sign Hanger Assembly (Components) for Relocation or Maintenance Replacement – Signs**

Mast Arm Hanger Assembly components (main mount, swivel plate, mounting system, and associated miscellaneous items) used for sign relocation or maintenance replacement of sign hanger assemblies shall be of the following or approved equal:

**Table 3: MAST ARM SIGN HANGER ASSEMBLY (COMPONENTS) FOR RELOCATION OR MAINTENANCE REPLACEMENT - SIGNS**

MANUFACTURER	MODEL
Pelco Products, Inc.	Galaxy, Model AB-3055-XX-SS-PNC 1-Bracket per 16 Sq. Ft. of sign panel spaced per manufacturer's installation instructions
Traffic Hardware & Design	CBS-HU-Exx-2Cyy-3 1-Bracket per 20 Sq. Ft. of sign panel spaced per manufacturer's installation instructions
General Traffic Equipment Corp.	RM-MAC-XX 1-Bracket per 15 Sq. Ft. of sign panel spaced per manufacturer's installation instructions
Cost Cast, Inc.	Cost Cast Item # 1816-A-Cxx 1-Bracket per 16 Sq. Ft. of sign panel spaced per manufacturer's installation instructions
Sky Bracket	SKYBRACKET, Model SS-SBCXX-SCK-VA 1-Bracket per 13 Sq. Ft. of sign panel spaced per manufacturer's installation instructions
Xcessories Squared	PAX2PC30-XXX and PASCL316-XXXX 1-Bracket per 10 Sq. Ft. of sign panel spaced per manufacturer's installation instructions

**4. Mast Arm Sign Hanger Assembly (Complete) - Signs**

Complete Mast Arm Hanger Assemblies used for new signs, relocated signs or maintenance replacement of sign hanger assemblies shall be of the following or approved equal:

Table 4: MAST ARM SIGN HANGER ASSEMBLY (COMPLETE) – SIGNS (New Signs, Relocated Signs Or Maintenance Replacements)	
MANUFACTURER	MODEL
Pelco Products, Inc.	Galaxy, Model AG-0142-XX-XX-SS-PNC Galaxy, Model AG-0144-XX-XX-SS-PNC 1-Bracket per 16 Sq. Ft. of sign panel spaced per manufacturer's installation instructions
Traffic Hardware & Design	CAN-BRAC, Model CBS-HU-Exx-2Cyy-3 1-Bracket per 20 Sq. Ft. of sign panel spaced per manufacturer's installation instructions
General Traffic Equipment Corp.	SMA - 3000 – XX 1-Bracket per 15 Sq. Ft. of sign panel spaced per manufacturer's installation instructions
Cost Cast, Inc.	Cost Cast Item # 1816-N-CXX-YY 1-Bracket per 16 Sq. Ft. of sign panel spaced per manufacturer's installation instructions
Sky Bracket	SKYBRACKET, Model SS-SBXX-SBK-XXTK-##-VA 1-Bracket per 13 Sq. Ft. of sign panel spaced per manufacturer's installation instructions
Xcessories Squared	PAX2PC30-XXX and PASCL316-XXXX

	1-Bracket per 10 Sq. Ft. of sign panel spaced per manufacturer's installation instructions
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#### IV. Procedures

All work shall be accomplished according to the manufacturer's installation instructions. Only the tools, special tools, and anti-seize lubricants specifically noted in the manufacturer's installation instructions shall be used. If the Contractor deviates from the manufacturer's installation instructions, the Contractor shall provide documentation from the manufacturer authorizing such deviations, including the use of alternate tools.

If a bolt tightening sequence is not specified in the manufacturer installation instructions, bolts shall be tightened in an alternating pattern for even compression.

If a main mount with fully tightened bolts requires adjustment that necessitates loosening of the main mount bolts, the mounting system and associated hardware for the mounting system (washers, screws, bolts or nuts) shall be replaced at no additional cost to the Department.

1. **Tools:** If maximum torque values are provided in the manufacturer's installation instructions, a calibrated torque wrench shall be used to verify that torque has not been exceeded. The Contractor shall calibrate torque wrenches in accordance with torque wrench manufacturer recommendations at the interval recommended by the torque wrench manufacturer. The torque wrench calibration testing lab shall be ISO, or ANSI accredited for instrument calibration.

If special tools are identified in the manufacturer's instructions as being either required or recommended for installation the Contractor shall furnish no less than one set of tools to the Engineer per ten mast arm hanger assemblies or portion thereof, unless otherwise specified in the contract documents.

2. **Packaging:** All required components of each hanger assembly, except the mounting tube, shall be packaged as one set. The mounting tube may be packaged separately. If special tools are required, or recommended, they may be packaged separately. Under no circumstances shall the parts from multiple assemblies be mixed.
3. **New Signal or Sign Installations:** A Mast Arm Hanger Assembly (Complete) shall be used - see Table 2 for signals and Table 4 for signs.

The Mast Arm Hanger Assembly (Complete) may be attached to the mast arm and all bolts tightened to final tightness before lifting and placing the mast arm onto the signal pole (i.e. on the ground-attached to the mast arm prior to installation of the mast arm).

4. **Relocate Existing Mast Arm Hanger Assemblies for Signals or Signs:** Existing Mast Arm Hanger Assemblies (main mount, swivel plates, mounting systems and all associated miscellaneous items)

that are in service before the commencement of any project shall not be relocated on the same mast arm or reused on a different mast arm.

The initial relocation of each existing signal or sign from its location at commencement of the project (Location A) to a new location on a mast arm (Location B) may be accomplished using one of the following at the new location on a mast arm:

- a. A new Mast Arm Hanger Assembly (Complete) – see Table 2 for signals and Table 4 for signs or
- b. New Mast Arm Hanger Assembly (Components) – see Table 1 for signals and Table 3 for signs. Existing mounting tubes, cover plates, tie backs, and tether clamps may be reused if they are compatible with the new components;

Subsequent relocations of the signal or sign from Location B to another location may be accomplished by the Contractor using one of the following at the new location on a mast arm:

- a. A new Mast Arm Hanger Assembly (Complete) – see Table 2 for signals and Table 4 for signs; or
- b. New Mast Arm Hanger Assembly (Components) – see Table 1 for signals and Table 3 for signs. Existing mounting tubes, cover plates, tie backs, and tether clamps may be reused if they are compatible with the new components; or
- c. New mounting system. The existing hanger assembly equipment installed for the initial relocation from Location A to Location B may be reused.

5. **Modify Existing Hanger Assembly:** Modifying an existing mast arm hanger assembly at the same location on a mast arm shall be accomplished in accordance with the following:

New Mast Arm Hanger Assembly (Components) – see Table 1 for signals and Table 3 for signs. Existing mounting tubes, cover plates, tie backs and tether clamps may be reused if they are compatible with the new components;

6. **Remove Existing Hanger Assembly:** Removing and disposing of an existing hanger assembly or components shall be in accordance with Section 510 of the Specifications.
7. **Prosecution of Work:** The Contractor shall prosecute work in accordance with Section 703.03 of the Specifications.
- 8.

While performing this work, if the Contractor discovers any mechanical or electrical problems with the signals, or discovers any problems that require immediate repair, the Contractor shall log each

problem by intersection and signal head and advise the Engineer immediately. The Engineer will instruct the Contractor how to proceed.

The Contractor shall exercise caution during prosecution of work to prevent damage to any existing wiring, or signal component. If the Contractor damages any existing wiring, or signal equipment, repair and replacement shall be at no additional cost to the Department.

## V. Reporting

For each mast arm hanger assembly (Complete or Components) installed, the Contractor shall submit the attached Mast Arm Bracket Installation Report form to the Engineer. The form shall also be submitted to the Department's email [hangerassemblies@vdot.virginia.gov](mailto:hangerassemblies@vdot.virginia.gov).

Hard copy submission of the Mast Arm Bracket Installation Report to the Engineer shall not substitute for reporting to the required email address. The Mast Arm Bracket Installation Report shall be submitted within 7 business days of mast arm hanger assembly installation.

By submitting the report, the Contractor certifies that the mast arm hanger assembly installation was accomplished in strict conformance with these specifications.

Reporting will not be measured for separate payment but shall be considered incidental to the mast arm hanger assembly work.

## VI. Warranty

The Contractor shall furnish a manufacturer warranty for the Complete Mast Arm Hanger Assembly or installed components to cover defects for a minimum of three years from the date of installation. The warranty shall include providing replacements, within 10 calendar days of notification, for defective parts and equipment at no additional cost to the Department. When the warranty normally given by the manufacturer is longer than three years, the manufacturer's normal warranty shall be furnished.

## VII. Measurement and Payment

**Mast Arm (Type) Hanger Assembly (Standard)** will be measured in units of each for the standard and type specified to be paid for at the contract unit price per each. This price shall include furnishing and installing Mast Arm Hanger Assembly (Complete), including the main mount, swivel plate, mounting system, mounting tube, miscellaneous items, reporting, and special tools (when required).

**Remove Existing Traffic Signal Head Assembly** will be measured in units of each and will be paid for at the contract unit price per each. Signal head assembly is defined as one or more traffic signal head sections (vehicular or pedestrian) assembled as one unit. This price shall include disconnecting the signal head assembly from existing conductor cables, removing the signal head assembly and backplate,

removing and disposing of hanger assembly, and removing all associated mounting equipment, hardware, and accessories. If the traffic signal head assembly is to be reinstalled, the price also shall include reconnecting signal cables. When designated in the contract for salvage or if salvage is directed by the Engineer, this price shall include storing, protecting, and delivering to a designated Department facility.

**Relocate Existing Mast Arm (Signal or Sign)** will be measured in units of each and will be paid for at the contract price per each. This price shall include removing and relocating an existing traffic sign, signal head, or pedestrian signal head from an existing to proposed location, disconnecting and reconnecting conductor cables, adjusting or relocating conductor cables, removing and disposing or salvaging the existing mast arm hanger assembly, installing a new Mast Arm Hanger Assembly (Complete) or installing new Mast Arm Hanger Assembly (Components) and relocating or replacing existing miscellaneous items.

When relocation of signals or signs is accomplished when maintenance of the traffic signal is the responsibility of the Contractor as specified in Section 512 for the items Modify Signal or Temporary Traffic Control Signal, relocating existing mast arm hanger assemblies for signals or signs will not be measured separately and the cost thereof shall be included in the contract unit price of Modify Signal or Temporary Traffic Control Signal.

**Modify Existing Mast Arm Hanger Assembly (Type)** will be measured in units of each and will be paid for at the contract price per each. This price shall include removing an existing traffic sign, signal head, or pedestrian signal head from the existing hanger, furnishing new hanger assembly components, disconnecting and reconnecting conductor cables, removing, salvaging, and disposing of existing mast arm hanger assembly components, installing new Mast Arm Hanger Assembly (Components) and reusing or replacing existing miscellaneous items.

Payment will be made under:

Pay Item	Pay Unit
Mast Arm (Type) Hanger Assembly (Standard)	Each
Remove Existing Traffic Signal Head Assembly	Each
Relocate Existing Mast Arm (Signal or Sign)	Each
Modify Existing Mast Arm Hanger Assembly (Type)	Each

[illegible]

Digital Form found at [http://www.virginiadot.org/business/traffic\\_signal\\_brackets.asp](http://www.virginiadot.org/business/traffic_signal_brackets.asp)



**SP703-000110-00**

VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
**REPLACEMENT OF LOOP DETECTORS**

March 16, 2017

**I. Description**

Loop Detectors shall be installed in accordance with the Section 703. Installation of loop detectors shall be performed in the presence of the Engineer.

**II. Materials**

Loop detector cables shall be No. 14 AWG stranded copper in accordance with Section 238. Loop sealant shall be from the Pre-Approved Traffic Control Device Listing.

New loop detectors shall be of the same size, configuration and locations as existing loop detector(s) unless otherwise indicated.

**III. Procedures**

When replacement of loop detectors is included in the Contract, the Contractor will be required to install new loop detector items either within the planed surface prior to the placement of new surface mix, or through the finished riding surface.

Loop detectors shall be installed at the depth specified in the TD-Series Standard Drawings for loop detectors installed in the planed surface or final riding surface, as applicable.

When an existing loop detector is taken out of service by the Contractor's planing operation, the Contractor shall have the new loop detector items installed and operational 96 hours after being taken out of service, unless otherwise stated in the Contract. In no case shall any loop detector be out of service for more than 96 hours. If the Contractor chooses to install new loop detector items through the final riding surface, all loop detector items shall be installed and operational within 96 hours after completion of the paving operations in the affected intersection.

The Contractor shall notify the Engineer at least 72 hours prior to planing at locations that contain loop detectors.

**SP703-000120-00**

VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
**SIGNAL HEAD MODULE AND SIGNAL HEAD BACKPLATE REPLACEMENT**

May 8, 2018

**I. DESCRIPTION**

This work shall consist of replacing LED signal head modules, replacing backplates on existing signal heads, and installing backplates furnished by the Department on existing signal heads as shown on the Plans, in accordance with these Specifications and as directed by the Engineer.

**II. MATERIALS**

Signal head sections shall be in accordance with Sections 238 and 703 of the Specifications.

High Visibility Signal Backplates (HVSBS) shall conform to Sections 238 and 703 of the Specifications. Retroreflective fluorescent yellow sheeting shall be in accordance with Section 247 of the Specifications.

Existing plastic or aluminum composite backplates shall be replaced with aluminum composite HVSBS. Existing aluminum backplates may be replaced with aluminum or aluminum composite HVSBS, unless otherwise shown on the Plans.

When no backplate exists on an existing operational traffic signal head, the use and type of backplates shall be in accordance with the Contract unless otherwise directed by the Engineer.

**III. REPLACE OR INSTALL HVSBS BACKPLATE**

When replacing backplates on existing traffic signal heads in operation with new HVSBS backplates, the new backplate shall be neatly cut vertically near one of the lower corners to allow installation without disassembling the existing traffic signal head from the hanger equipment or disconnecting any existing conductor cables from the traffic signal head. The cut shall be a minimum of 1 inch from either traffic signal head attachment and be nearly inconspicuous and smooth without any gaps in the front surface of the backplate.

If the backplate is precut by the manufacturer, the cut shall be reconnected in accordance with the manufacturer's instructions. If the backplate is not precut, the reconnection panel shall be connected with 4 rivets to the backplate or as approved by the Engineer. The reconnection panel shall be a minimum 4 inches x 4 inches and shall be of the same material and color as the backplate it is connecting.

The Contractor shall visually assess the traffic signal heads and hanger assembly surfaces and connections before performing any modification. If during this visual assessment, the Contractor observes a damaged hanger assembly or other signal head equipment that needs to be repaired, replaced, or in the opinion of the Contractor poses risk to the Department or travelling public, the Contractor shall notify the Engineer. The Contractor shall not make any modification to the existing signal head, backplate, or hanger assembly at that location unless authorized by the Engineer.

The Contractor shall remove the existing backplates and associated hardware from the traffic signal head and install the new HVSB in a single work day, reconnecting the cut area if a cut has been made. Removing and installing backplates shall be performed without disconnecting the traffic signal head mounting hardware and conductor cables. Any signal head sections, backplates, or components damaged or lost at the fault of the Contractor shall be repaired or replaced at no additional cost to the Department.

The Contractor shall perform the work such that each intersection approach shall have consistent backplates on all traffic signal heads (either with the fluorescent yellow border or without) at the end of each work week unless otherwise directed by the Engineer.

#### IV. MEASUREMENT AND PAYMENT

**Replace HVSB Backplate** (signal head size and number) will be measured in units of each signal head assembly for the LED module size specified, and will be paid at the Contract each price. This price shall include visually assessing the existing signal head and hanger assembly, removing and disposing of existing backplate, and furnishing and installing new HVSB and attachment hardware.

**Replace LED Module** (size) will be measured in units of each for the module size specified, and will be paid at the Contract each price. This price shall include removing and disposing of existing module, furnishing and installing of new module, and connecting the new module to signal cables.

**Install Backplate** (signal head size and number) will be measured in units of each signal head assembly for the LED module size specified, and will be paid at the Contract each price. This price shall include picking up and installing backplate, visually assessing the existing signal head and hanger assembly, removing and disposing of existing backplate, and furnishing and installing attachment hardware.

Payment will be made under:

Pay Item	Pay Unit
Replace HVSB Backplate (signal head size and number)	Each
Replace LED Module (size)	Each
Install Backplate (signal head size and number)	Each

**SP704-000100-04**

VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
**SECTION 704—PAVEMENT MARKINGS AND MARKERS**

August 31, 2020

**SECTION 704 – PAVEMENT MARKINGS AND MARKERS** of the Specifications is amended as follows:

**Section 704.02(e) – Flexible Temporary Pavement Markers (FTPMs)** is inserted as follows:

**Flexible Temporary Pavement Markers (FTPM's)** shall conform to Section 235. All FTPM's shall be new product. FTPM's are suitable for use up to one year after the date of manufacture when stored in accordance with the manufacturer's recommendations.

The color of FTPM units and their reflective surfaces shall be the same color (white or yellow) as the temporary pavement markings they are being used in substitution for.

FTPM's shall consist of products from the Department's Approved List 22. FTPM's shall include a removable material covering the reflective lens to protect the lens from being obscured or damaged during the paving operation.

**Section 704.03 – Procedures** is amended by replacing the second through fourth paragraphs with the following:

The Contractor shall have a certified Pavement Marking Technician present during all temporary pavement marking, permanent pavement marking, and pavement marker operations; however, a Pavement Marking Technician is not required for FTPM installation.

The Contractor shall provide staking in the field that documents any changes in passing zones on undivided roads, exact placement of all aerial speed enforcement markings, and placement of railroad crossing markings. Any changes to these markings that are specified in the Contract shall be staked. The Contractor shall complete all staking and notify the Engineer at least 14 days before the scheduled start of resurfacing operations.

The Contractor shall reference this staking when installing temporary markings, and for the premarking to be done in advance of permanent marking installation. The stakes shall be removed at the conclusion of the project.

All existing markings shall be replaced with permanent markings of the same width, color, size, and location unless otherwise directed in the PM Series Standard Drawings, in the Contract, or by the Engineer. All replacement markers shall have the same retroreflector colors (front and back) as existing markers unless otherwise directed in the Contract or by the Engineer.

The Contractor shall sweep clear all surface-treated, slurry seal, and latex emulsion roadways before installation of permanent pavement markings. Any loose aggregate remaining on the surface shall be blown-out with an air compressor or other approved method.

**Section 704.03(a)2e – Patterned Preformed Tape (Type B, Class VI)** is amended to insert the following:

When Type B, Class VI markings are being applied on Latex Emulsion or other Surface Treatment surfaces, the Contractor shall select a product from the Department's Approved List 17 which is warranted by the manufacturer against failure resulting from improper installation and material defects when used on that type of surface, and a low-VOC surface preparation primer adhesive shall be applied prior to application of the Type B, Class VI markings.

The Contractor shall install Type B, Class VI markings on existing asphalt concrete roadway surfaces, hydraulic cement concrete surfaces, and existing or new surface treatment, slurry seal, and latex

emulsion surfaces in accordance with the manufacturer's installation instructions for pavement surface preparation, sweeping, and installation techniques for non-embedded (adhesive) surface applications and splicing.

Before tape installation on new latex emulsion surfaces:

- The surface shall be swept clear of all loose aggregate immediately before spraying the surface preparation primer adhesive.
- The primer adhesive shall be sprayed uniformly at the correct thickness (shall not exceed the maximum thickness specified by the manufacturer), and cured in accordance with the manufacturer's installation instructions.

After application of the surface preparation primer adhesive, the tape shall be tamped to the road using a 200 pound minimum tamper cart and vehicle wheels. The Contractor shall ensure that the vehicle tires, if used, ride true down the length of the tape marking and in accordance with manufacturer instructions.

**Section 704.03(d) – Pavement Markers** is amended to insert the following:

Permanent markers shall not be installed until after the installation of the corresponding permanent line marking unless approved by the Engineer. If permanent markers are installed before installation of the corresponding permanent marking, then the Contractor shall ensure that the retroreflector is not damaged or obscured during the subsequent line marking installation.

The Contractor may choose to substitute FTPMs in lieu of Type A-temporary paint or in lieu of Type D temporary pavement markings. The Contractor's plan for FTPMs shall be in accordance with the *Typical Plan for FTPM Placement* drawings included herein.

When FTPMs are used to simulate temporary edgelines, then FTPMs shall be spaced every 20 feet and shall match the color of the line markings being simulated.

FTPMs shall be installed at the same locations that permanent pavement markings will be installed.

For surface treatment, slurry seal or latex emulsion treatment operations, the appropriate FTPMs with protective covering shall be installed before placing the new treatment. The lens protective covering shall be kept in place during the final surface placement to protect the lens from being obscured or damaged by the paving operation. Upon completion of surface treatment, slurry seal or latex emulsion treatment placement, the Contractor shall remove the protective covering from the reflective lens of the FTPMs before leaving the work site. Failure to remove such covering shall result in the non-payment for that portion type (skip or solid) of temporary pavement marking.

For plant mix operations, the appropriate FTPMs shall be installed on the newly-placed pavement after the pavement is thoroughly compacted and has cooled to the FTPM manufacturer's recommended temperature for installation.

The Contractor shall maintain the FTPMs until the permanent pavement markings are installed. Damaged or missing FTPMs shall be replaced within 24 hours of discovery at the Contractor's expense with new FTPMs of the same manufacturing type, color and model. No more than one FTPM may be damaged or missing out of every skip line simulated segment. No two consecutive FTPMs may be damaged or missing on a simulated solid line application, and no more than 30 percent of the FTPMs may be damaged or missing on any measured 100-foot segment of simulated solid line.

Once applied, FTPMs will be considered for a single use. If a FTPM requires replacement before installation of permanent pavement markings, it shall be properly disposed of and replaced with a new FTPM at no additional cost to the Department.

FTPMs shall be removed and properly disposed of when permanent pavement markings are installed. Used FTPMs removed from the pavement, including all containers, packaging, damaged FTPM's and all other miscellaneous items of waste, shall be appropriately disposed of in accordance with Section 106.04.

**Section 704.03(d) – Pavement Markers** is amended to insert the following:

All Inlaid Pavement Markers on plant mix surfaces shall be installed within 30 Days after the end of the last workday (final surface) of continuous paving on that section of roadway.

All Inlaid Pavement Markers on surface treatment, slurry seal, or latex emulsion surfaces shall be installed within 14 calendar days after the final markings are installed, unless a time extension is approved by the Engineer. Time extensions will be granted when weather conditions prohibit installation or other operations on the project would damage the markers. The time limit commences for a continuous section at the end of the last workday that the final surface is placed. For roads with more than two lanes, each direction will be considered a separate continuous section.

**Section 704.03(f) – Maximum Allowable Time Limits for Unmarked Roads** is inserted as follows:

**Maximum Allowable Time Limits for Unmarked Roads**

Existing markings that are obscured, covered, or eradicated by resurfacing operations (including existing symbol and message markings where the need for temporary symbol or message markings has been identified in the Contract) shall be replaced with either temporary or permanent markings within the time limits established in Table VII-4, unless otherwise approved by the Engineer.

If the Contractor begins the next lift within the time limits specified in Table VII-4 for a non-final surface, then the time limits shall be recalculated as starting at the end of the work day from the time of that next resurfacing operation.

The Engineer may allow the extension of the time limits by up to 12 hours for 10,000 ADT or greater roads, up to 24 hours for 9,999 to 3000 ADT roads, and up to 48 hours for less than 3000 ADT roads, provided that all of the following apply:

- The road is non-limited access.
- The road has a posted or statutory speed limit of 40 mph or below.
- All lanes are delineated by the milled surface or asphalt overlay.
- The road is on tangent alignment.
- “Unmarked Pavement Ahead” or “No Center Line” warning signs were properly installed in accordance with the VWAPM when the unmarked lane was opened to traffic.

For final surfaces, the Contractor shall determine if the permanent markings can be installed within these time limits, based on the installation requirements for that permanent marking material on that type of surface, and the weather conditions. If the permanent markings will not be installed within these time limits, then temporary markings shall be installed.

Temporary markings are not required on roads that are unmarked in the permanent condition.

**Table VII-4 – Time Limits for Unmarked Roads** is inserted as follows:

Road Type	Maximum allowable duration for unmarked roads
Interstates and other freeways (limited access roads) posted at 55 MPH or greater (including interstate/freeway ramps) <sup>1</sup>	<p>All lane line markings, at a minimum, shall be temporarily or permanently installed <b>before opening the lane to traffic</b>. If the latex emulsion surface has not cured enough to hold the temporary markings ( weathered-in texture ), then the Contractor shall apply the temporary paint before opening the lane to traffic and then, if necessary and when directed by the Engineer, shall refresh the temporary markings within 24 hours at VDOT expense.</p> <p>All other markings shall be temporarily or permanently installed within <b>24 hours</b> after the end of the workday when the corresponding existing markings were obscured, removed, or eradicated.</p>
Non-freeway roads with ADT of 10,000 or greater (Traffic Groups XV and above) <sup>2,3,4</sup>	<p>All lane line and center line markings shall be temporarily or permanently installed within <b>24 hours</b> after the end of the workday when the corresponding existing markings were obscured, removed, or eradicated. Application of temporary markings on surface treatment, slurry seal and latex emulsion shall be as soon as the surface has cured enough to hold the temporary markings.</p>



Non-freeway roads with ADT between 3,000 and 9,999 (Traffic Groups XI through XIV) <sup>2</sup>	All lane line and center line markings shall be temporarily or permanently installed within <b>48 hours</b> after the end of the workday when the corresponding existing markings were obscured, removed, or eradicated.
Non-freeway roads with ADT between 600 and 2,999 (Traffic Groups VII - X) <sup>5,6</sup>	All lane line and center line markings shall be temporarily or permanently installed within <b>72 hours</b> after the end of the workday when the corresponding existing markings were obscured, removed, or eradicated.
Non-freeway roads with ADT less than 600 (Traffic Groups I – VII)	Temporary markings are not required if all “Unmarked Pavement Ahead” or “No Center Line” warning signs were properly installed as per the VWAPM when the unmarked road was first opened to traffic.

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<sup>1</sup>For the purposes of this Special Provision, freeways shall be defined as any fully limited-access, divided roadway with two or more travel lanes in each direction and 55 mph or greater speed limit.

<sup>2</sup>If an approach to a signalized intersection has (a) two or more approach through lanes, (b) 45 mph or greater speed limit, (c) greater than 3000 ADT, and (d) all markings on the approach are obliterated, then all lane lines and centerlines within 250 feet of the location of the stop line location shall be temporarily or permanently marked within **24 hours** of opening the approach to traffic, unless a time extension is approved by the Engineer and “Unmarked Pavement Ahead” or “No Center Line” warning signs were properly installed as per the VWAPM when the unmarked approach was first opened to traffic.

<sup>3</sup>If the Contract Documents require temporary symbol/message markings or temporary edge line markings, those markings shall be temporarily or permanently marked within **72 hours** after the end of the workday when the corresponding existing markings were obscured, removed, or eradicated on non-freeway roads with 10,000 or greater ADT, and **96 hours** on less than 10,000 ADT non-freeway roads, unless the Engineer approves a time extension.

<sup>4</sup>If the next resurfacing operation will obliterate the temporary markings within approximately **24 hours**, the Engineer may approve an extension of time for temporary marking installation if the posted/statutory limit is less than 45 mph, and all “Unmarked Pavement Ahead” or “No Center Line” warning signs were properly installed as per the VWAPM when the unmarked approach was first opened to traffic.

<sup>5</sup>On surface treatment roads with ADT between 1000 and 2999, if it is anticipated that the surface treatment will not be sufficiently cured to permit temporary paint installation within 72 hours, then the Engineer may direct the Contractor to either use yellow FTPMs to simulate the centerline, or to apply temporary pavement markings within 72 hours and then, if the Engineer determines it necessary, refresh those temporary pavement markings with a second application of Type A temporary paint at VDOT’s expense.

<sup>6</sup>On curved portions of surface treatment roads with ADT between 600 and 999, if it is anticipated that the surface treatment will not be sufficiently cured to permit temporary paint installation within 72 hours, then the Engineer may direct the Contractor to use either yellow FTPMs to simulate the centerline on the curves, or to apply temporary pavement markings within 72 hours on the new surface and then, if the Engineer determines it necessary, refresh those temporary pavement markings with a second application of Type A temporary paint at VDOT’s expense. Temporary markings may be omitted on tangent sections of roadway if all “Unmarked Pavement Ahead” or “No Center Line” signs were properly installed as per the VWAPM when the unmarked road was first opened to traffic, and if approved by the Engineer.

**Section 704.03(g) – Temporary Pavement Markings** is inserted as follows:

### Temporary Pavement Markings

Premarking, dotting or layout marking shall not be used as a substitute for temporary pavement marking.

Temporary linear, symbol, and message pavement markings specified in the Contract shall be installed at the same locations that the permanent pavement markings are to be installed, unless otherwise approved by the Engineer.

Type D-removable tape shall be installed and removed in accordance with manufacturer's installation instructions.

Type A temporary paint shall be installed in accordance with the manufacturer's installation instructions and as detailed in the following table:

	<b>Milled Surface</b>	<b>Intermediate Lifts or Final Surface<sup>1</sup></b>
<b>Thickness</b>	15 mils when wet	8 to 10 mils when wet
<b>Glass Bead Application Rate</b>	6 lbs. of glass beads per gallon of material	3 lbs. of glass beads per gallon of material for 8 to 10 mils and 6 lbs. per gallon for 11 to 15 mils
<b>Long Line Width</b>	Same width as the permanent markings	75% of the permanent marking width
<b>Skip Line Pattern</b>	10-foot line segments / 30-foot gaps (approx.)	8-foot line segments / 32-foot gaps (approx.)

<sup>1</sup>Type A paint at approximately 15 mils thickness with 6 lbs/gal of glass beads will be permitted for temporary line markings, if the Type A is worn down to no more than 10 mils thickness before permanent marking installation. The Contractor shall assess how long the temporary lane line, center-line and edge line temporary markings will be in service and may increase the thickness based upon the duration and expected wear.

Temporary Type A pavement markings on final surfaces shall be arranged and spaced so that they will be completely covered by the subsequent installation of permanent pavement markings atop those temporary paint markings.

The following Temporary markings location and placement types shall comply with the following:

- Skip and solid lane line markings shall be required at all locations unless otherwise directed in the Contract.
- Centerline markings shall be required at all locations unless otherwise directed in the Contract. Temporary passing zone changes shall be at the same location as the permanent marking passing zone change locations.
- Edgelines shall only be required where specified in the Contract, subject to the surface reaching a condition to support the markings and the equipment. Temporary edgelines are not required when the shoulder surface is in a milled condition.
- Temporary stop lines, when required by the Contract, shall be 12 inches wide unless otherwise directed.
- Temporary crosswalks, when required by the Contract, shall be two parallel 6-inch white lines unless otherwise directed.

Temporary lane lines, centerlines, and edge lines may be marked with Type D removable tape, Type A-temporary paint, or FTPMs. All temporary symbol and message markings and other types of temporary markings may be marked with Type D-removable tape or Type A-temporary paint.

The moisture test in VTM 94 is not required for temporary pavement marking. However, if the VTM 94 moisture test is not performed, the Contractor shall document the approximate surface wetness on the Form C-85.

If the surface is visibly dry (does not have puddling or free-standing water present), the Contractor is responsible for installing and maintaining the temporary pavement markings. If the Contractor opts not to perform VTM 94 and the temporary markings applied to a visibly dry surface do not sufficiently adhere to the surface, temporary pavement markings shall be reapplied at no additional cost to the Department.

If the surface has puddling or free-standing water present, or if a VTM 94 moisture test result indicates that the condition of the surface is not suitable for temporary pavement marking application, the Engineer may direct the Contractor to install temporary pavement markings on the surface in order to avoid having traffic operate on an unmarked road. In such circumstances the Department may direct the Contractor to install one subsequent reapplication of the temporary markings once the surface has dried, if the previous installation did not satisfactorily adhere to the road. In such circumstances the Contractor will be compensated at the Contract bid price for those temporary markings.

In order to quicken the paint drying process, the Contractor may spray an Engineer-approved drying agent into the traffic paint during installation in accordance with the manufacturer's installation instructions, at no additional cost to the Department.

While in place, temporary pavement markings shall be maintained at adequate visibility and retroreflectivity, as defined in Section 512, until the permanent markings are installed. No additional

application (refreshing) is required as long as the temporary markings continue to meet these requirements.

If Type D-removable tape fails the visual evaluation or is deficient in any other respect before the installation of permanent markings, the tape shall be removed and new temporary markings shall be applied at no additional cost to the Department.

If Type A temporary paint does not meet the requirements of Section 512 before the installation of permanent markings, such temporary markings shall be refreshed by the application of a lighter application (applied so as to enhance visibility but not as to require eradication before application of permanent markings) of Type A-temporary markings at the Contractor's expense.

Permanent pavement markings shall not be installed atop Type A temporary markings if the paint is not fully dry or if the paint exceeds the maximum specified thickness in Table VII-3. If the temporary paint is not located directly underneath the location where the permanent markings are to be installed, they shall be 100% eradicated in accordance with Section 512 before installation of permanent markings at no additional cost to the Department.

**Section 704.03(h) – Time Limits for Permanent Pavement Marking Application** is inserted as follows:

#### **Time Limits for Permanent Pavement Marking Application**

All permanent linear, message, and symbol markings on Interstate and Limited Access Roadways posted at 55 MPH or greater, all other roadways with 10,000 ADT or greater with a posted or statutory speed limit of 45 mph or greater, shall be placed within the following time limits:

1. For Plant Mix operations:
  - a. All Type B Class VI markings shall be inlaid the same day as the final surface is placed as specified herein.
  - b. All other permanent markings shall be completed within 30 days after the end of the last workday of continuous paving on that section of roadway.
2. For Slurry Seal, Latex Emulsion, and Surface Treatment operations:
  - a. Type B, Class VI markings shall be installed at least 14 days after the end of the last workday of continuous paving on that section of road. Type B, Class VI markings shall not be installed until the texture is weathered-in on the edges and the temporary paint (if present) is worn down to 10 mils or less.
  - b. All permanent markings shall be completed within 30 days after the end of the last workday of continuous paving on that section of roadway.

On all other roadways (non-interstate and non-limited access roads with less than 10,000 ADT, or posted or statutory speed less than 45 MPH), all permanent linear and message/symbol markings shall be installed within 30 days on plant mix surfaces and between 30 and 45 days on surface treatment, slurry seal, and latex emulsion surfaces, after the end of the last workday of continuous paving on that section of roadway.

Permanent markings shall not be installed where pavement curing time or weather conditions prohibit installation, or where the pavement surface does not meet the markings manufacturer's requirements (e.g. the aggregate is not worn-in at the edges).

Any necessary refreshing or replacement of temporary pavement markings or FTPMs will not affect the allowable time limit for completion of permanent pavement marking installation.

**Section 704.04 – Measurement and Payment** is amended to replace the first paragraph with the following:

**Pavement line markings** will be measured in feet and paid for at the Contract foot price for the type, class and width specified. This price shall include furnishing and installing the pavement marking material, surface preparation, premarking, documentation and staking of existing markings, quality control tests, daily log, guarding devices, primer, adhesive, glass beads, and manufacturer's warranty.

**Section 704.04 – Measurement and Payment** is amended to add the following:

**Temporary pavement line markings** will be measured in feet and paid for at the Contract foot price for the type, class, and width specified. This price shall include furnishing, installing, and maintaining the pavement marking materials; surface preparation, inspections, testing, daily log, and guarding devices; providing primer, adhesive, glass beads, and drying agents; and disposal, and removing removable markings when no longer required.

If temporary line markings require refreshing, reapplication, or replacement before the final surface or the permanent markings are installed, all cost for refreshing, reapplication, or replacement shall be at the Contractor's expense, unless the Contractor was directed by the Engineer to apply the temporary markings to a visibly wet surface or to an insufficiently cured latex emulsion, slurry seal, or surface treatment surface.

If the Contractor uses FTPMs in lieu of Type A-temporary paint to simulate a longitudinal line marking as allowed herein, the Contractor will be paid at the foot pay unit for the length of simulated line marking at the Type A-temporary paint unit price. That measurement shall represent all FTPMs required for that simulated line marking. This cost shall include furnishing, installing and maintaining the FTPMs, removable covers, surface preparation, quality control tests, daily log, guarding devices, removal, and disposal.

**Temporary pavement message (word) markings** will be measured in units of each and paid for at the Contract each price for the character size, type, and class specified. This price shall include

furnishing, installing, and maintaining the pavement marking materials; surface preparation, inspections, testing, daily log, and guarding devices; providing primer or adhesive, glass beads, and drying agents; and disposal, and removing removable markings when no longer required.

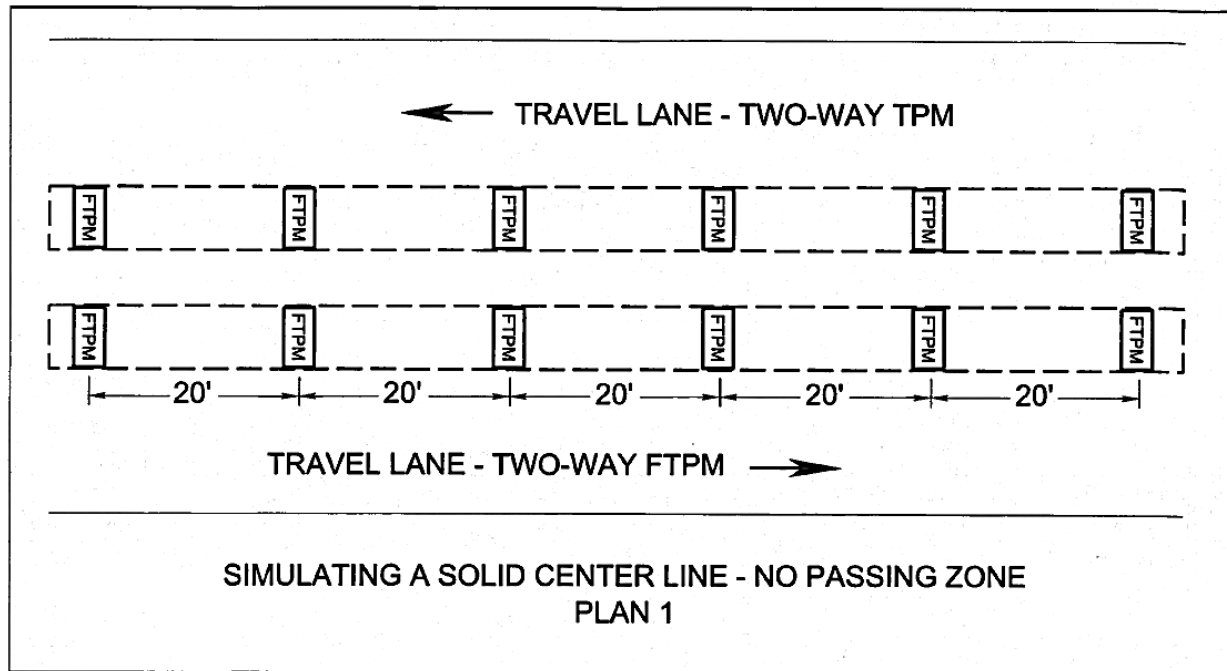
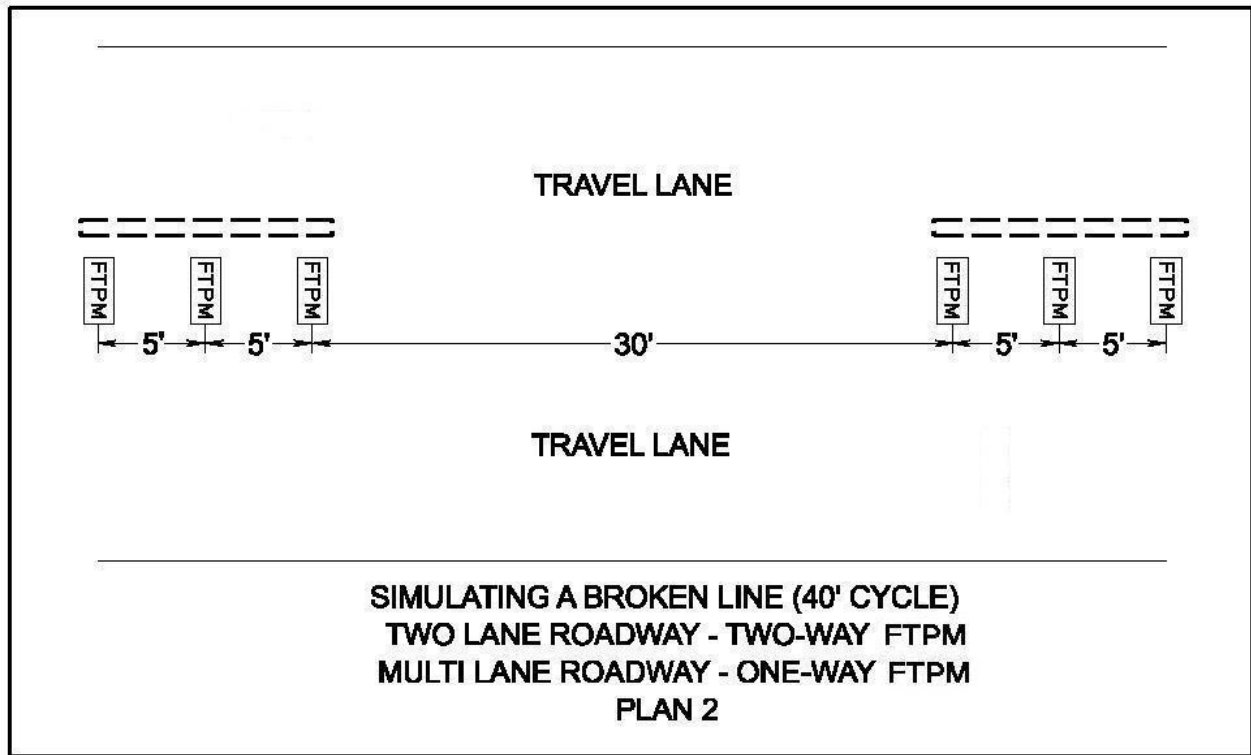
**Temporary pavement symbol markings** will be measured in units of each and paid for at the Contract each price for the size, type, and class specified. This price shall include furnishing, installing, and maintaining the pavement marking materials; surface preparation, inspections, testing, daily log, and guarding devices; providing primer or adhesive, glass beads, and drying agents; and disposal, and removing removable markings when no longer required.

If temporary pavement line, message, or symbol markings require refreshing, reapplication, or replacement before the final surface or the permanent markings are installed, all cost for refreshing, reapplication, or replacement (including Maintenance of Traffic costs) shall be at the Contractor's expense unless the Contractor was directed by the Engineer to apply the temporary markings to a visibly wet surface or to an insufficiently cured latex emulsion, slurry seal, or surface treatment surface.

Payment will be made under:

Pay Item	Pay Unit
(Type or class) Temporary pavement line marking (width)	Linear foot
Temporary pavement message (word) marking (size character, type or class material)	Each
Temporary pavement symbol marking (Symbol, Type or class material)	Each

**TYPICAL PLAN FOR FTPM PLACEMENT**



SQ704-000110-00

VIRGINIA DEPARTMENT OF TRANSPORTATION



SPECIAL PROVISION FOR  
**PAVEMENT MARKINGS AND MARKERS**  
**(Data Logger System)**

September 25, 2020

**I. DESCRIPTION**

This work shall consist of maintaining a daily log, Form [C-85](#), to record project and Contractor identification; project location; material installation time, date and location; environmental conditions; material composition; and material application rates for both temporary and permanent pavement markings and markers.

**II. PROCEDURES**

The Contractor shall maintain a daily log, Form [C-85](#), for both temporary and permanent pavement markings and markers. The C-85 form shall not be modified. All log entries shall be in electronic or legible ink format. The log shall be signed by the Contractor and delivered to the Engineer by the end of each workday. If the C-85 is in electronic format, then a printed copy, signed by the Contractor, shall be delivered to the Engineer at the end of each workday.

The Contractor shall use either of the following two methods to perform quality control (QC) testing for application thickness and glass bead rate for liquid temporary and permanent linear markings. However, the VTM 94 QC testing shall be used for all liquid linear markings that are installed by push cart.

- 1. VTM 94 quality control testing:** The “Quality Control Measurements” portion of the Form C-85 shall be filled out for all markings using the VTM 94 QC testing method, and the C-85 shall be kept current throughout the day. The Contractor shall perform QC testing for application thickness and glass bead rate in accordance with VTM 94 at the beginning of each workday and every 3 hours thereafter. The Contractor shall provide the equipment needed to perform the QC testing in accordance with VTM 94. QC testing using VTM 94 shall be performed in the presence of the Inspector and shall be documented on Form C-85, immediately after testing is completed. If directed by the Engineer, the Contractor shall provide a QC test plate and the provision of the test plate shall be documented on the Form C-85. The Contractor shall also provide a printed or electronic copy of the signed Form C-85 to the District Materials Engineer for materials notebook evaluation.
- 2. Data Logger System (DLS) quality control testing:** Before beginning pavement marking operations, the Contractor shall provide the DLS manufacturer’s instructions for equipment calibration and operation. Each DLS shall have an annual calibration of all mechanical and electrical components and its software function and output confirmed by the DLS manufacturer or their designated representative. Evidence of the annual calibration shall be carried by a signed and dated stamp or seal affixed to the inside of the driver’s door of each striping machine.

The Contractor shall submit electronic records from the DLS each day for all linear markings for which the Contractor is providing QC testing using this method. The record shall be produced in its final format directly from the DLS, before the records are removed from the DLS. The records shall be formatted to be read by Microsoft Excel (\*.xlsx) and shall be electronically provided to the Engineer via email or USB flash drive.

The DLS report shall include the following:

- Project number
- Route number and direction
- Contractor name
- GPS coordinates for the truck's position during the application of the corresponding line, to an accuracy of within 10 feet
- Date and time for start and end of application
- Line information – color (white or yellow), pattern (skip, double, dotted, etc.), and location (i.e. left edge)
- Vehicle speed, to an accuracy of +/- 0.1 mph
- Weight or volume of binder material, with separate data entries for each 0.1 mph increment
- Weight of glass beads
- Pavement temperature (°F), surface temperature (°F), dew point (°F), air temperature (°F), and humidity (%).
- Calculate and provide average application thickness and bead application rate for each 0.1 mile increment

If the equipment critical to the DLS fails or is observed to be reporting incorrect measurements, the Contractor shall switch to using the VTM 94 QC testing method.

### III. MEASUREMENT AND PAYMENT

**Data Logger System (DLS)** shall be included in the price bid for pavement markings and markers.

**cn704-000100-00 SWEEPING PRIOR TO PAVEMENT MARKING** — No earlier than 7 days after completion of surface treatment the Contractor shall sweep the roadway surface prior to installation of permanent pavement markings. Permanent pavement markings shall be installed within 30 calendar days after completion of surface treatment placement. The cost of sweeping the roadway prior to installing pavement marking shall be included in the price bid for pavement marking.

7-28-14; Reissued 7-12-16 (SPCN)

**SP704-000120-00**

VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
**INLAID PAVEMENT MARKERS**

August 26, 2019

**I. Description**

This work shall consist of furnishing and installing inlaid pavement markers in accordance with the Contract and manufacturer's installation instructions. Snow-plowable raised pavement markers conforming to Section 704.03(d)1 of the Specifications shall not be used in the Work.

## II. Materials

1. **All components** of the inlaid pavement marker shall be listed on the Department's Approved List 22.
2. **Retroreflectors** shall conform to ASTM D4383. The color and directional properties (one-way or two-way) of retroreflector lenses shall conform to Standard Drawing PM-8.
3. **Holders** shall be made of polycarbonate plastic that are nominally 4.75 inches wide (excluding breakaway tabs), can hold retroreflectors from the Department's Approved List 22 under Inlaid Pavement Markers, comes with two breakaway positioning tabs, and will hold the retroreflector just below the pavement surface when installed with the breakaway positioning tabs resting on the pavement surface.

## III. Procedure

The Contractor shall furnish the manufacturer's recommendations for adhesives and installation procedures to the Department before installing the markers.

### 1. Location and Spacing

The Contractor shall not install markers on bridge decks.

The edge of the groove shall be at least 2 inches from pavement joints and cracks, ensuring that the finished line of markers is straight in accordance with the tolerance for pavement markings specified in Section 704.03 of the Specifications. Offset from the longitudinal joint shall take precedence over straightness of the line of markers.

### 2. Installation

Retroreflectors shall be affixed to holders, using an adhesive from the Department's Approved List 22 (Inlaid Pavement Markers) prior to installation.

The Contractor shall cut tapered grooves and plunge cuts into the concrete or final course of asphalt. Grooves and plunge cuts shall be at the dimensions specified in Figure 1, unless specified otherwise in the manufacturer's installation instructions. The groove length may be shortened to 54 inches on sharp curves if approved by the Engineer.

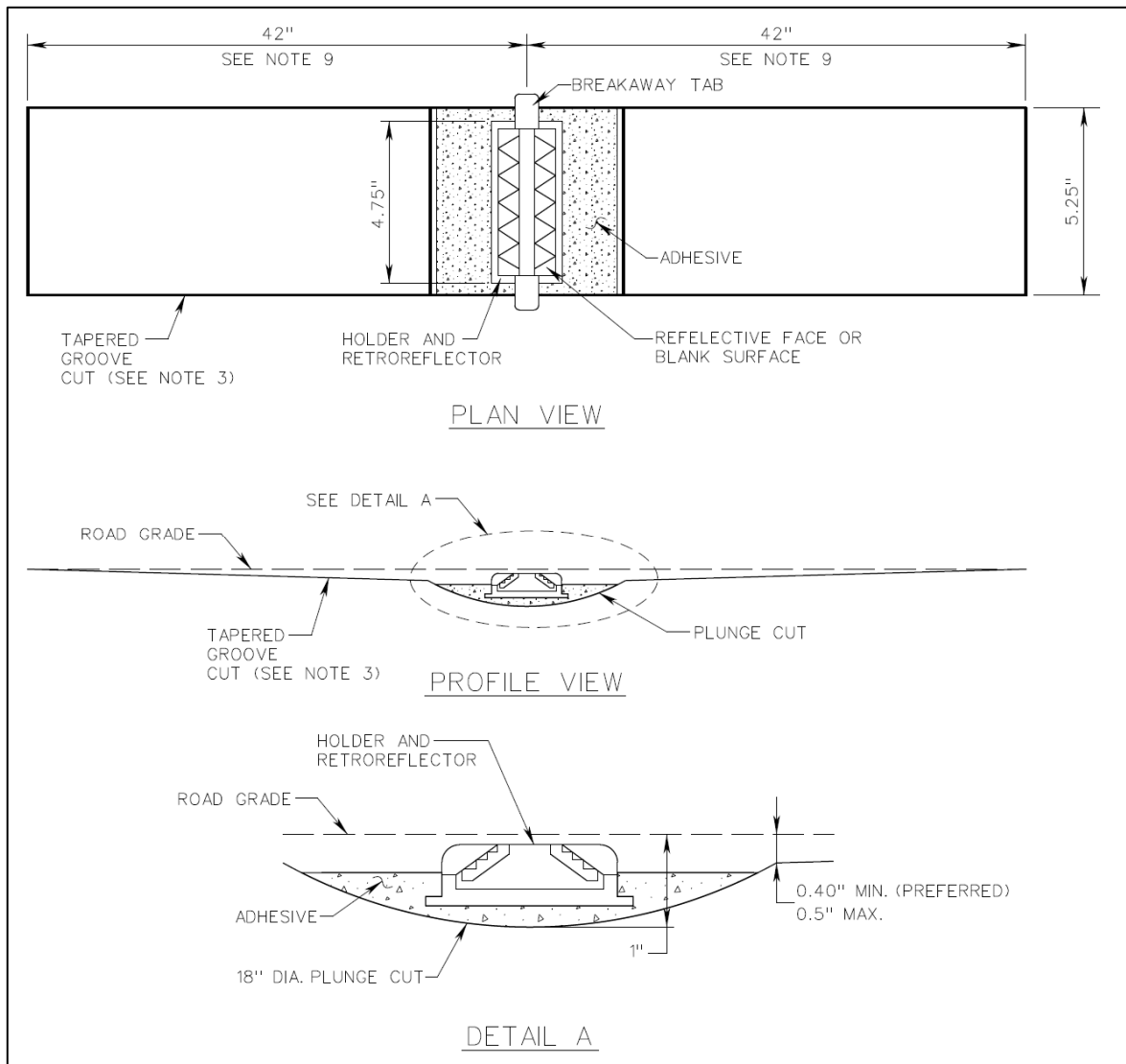
Tapered grooves and plunge cuts shall be cut using diamond blades that can accurately control the groove dimensions, resulting in smooth uniform tapers and smooth groove bottoms and ensuring the pavement does not tear or ravel. The Contractor shall remove all dirt, grease, oil, loose or unsound layers, and any other material from the groove which would reduce the bond of the

adhesive. Pavement surfaces shall be maintained in a clean and dry condition until the marker is placed.

Holders shall be installed in the same shift as grooving.

The epoxy adhesive shall be thoroughly mixed until it is uniform in color, and applied in accordance with the manufacturer's installation instructions. The Contractor shall partially fill the plunge cut with sufficient epoxy adhesive such that the epoxy adhesive bed area is equal to the bottom area of the holder. The Contractor shall then set the holder in the epoxy adhesive such that the breakaway tabs are resting on the road surface, the holder is centered in the cut, and then fill in additional epoxy adhesive if necessary so the entire perimeter of the holder is completely surrounded in epoxy, with the epoxy level with the edge of the holder in accordance with the manufacturer instructions.

The Contractor shall remove all adhesive and foreign matter from the face of the retroreflector or replace the retroreflector if adhesive and foreign matter cannot be removed. The marker shall be replaced if it is not properly positioned and adhered in the plunge cut.



**Figure 1: Installation of Inlaid Pavement Marker**

#### IV. Measurement and Payment

**Inlaid Pavement Marker** will be measured in units of each and will be paid for at the Contract each price. This price shall include surface preparation, furnishing, installing, retroreflectors, pavement cutting, adhesives, and holder.

Payment will be made under:

Pay Item	Pay Unit
Inlaid Pavement Marker (type pavement)	Each

SS704-002020-01

September 3, 2020

VIRGINIA DEPARTMENT OF TRANSPORTATION  
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS  
**SECTION 704 – PAVEMENT MARKINGS AND MARKERS**

**SECTION 704 – PAVEMENT MARKINGS AND MARKERS** of the Specifications is amended as follows:

**Section 704.02 – Materials** is amended to replace the first paragraph with the following:

For Type B, Class VI pavement marking materials that are to be applied to latex emulsion or slurry seal surfaces, the selected Type B, Class VI manufacturer shall be a manufacturer that approves and warrants their product for application on that type of surface.

**Section 704.03 – Procedures** is amended to replace the fourth through tenth paragraph with the following:

If the Contractor cannot have permanent pavement markings installed within the time limits specified, the Contractor shall install and maintain temporary pavement markings within the same time limits at no additional cost to the Department until the permanent pavement markings can be installed. Installation, maintenance, and removal or eradication of temporary pavement markings shall be according to Section 512.

The Contractor may mark the locations of proposed permanent markings on the roadway by installing premarking materials. Premarkings may be accomplished by installing removable tape, chalk, or lumber crayons, except pavement markings such as stop lines, crosswalks, messages, hatching, etc., shall be premarked using chalk or lumber crayons. Premarkings for yellow markings may be white or yellow. Premarkings for other colors shall be white.

When tape is used as a premarking material, premarking shall consist of 4-inch by 4-inch-maximum squares or 4-inch-maximum diameter circles spaced at 100-foot minimum intervals in tangent sections and 50-foot minimum intervals in curved sections. At locations where the pavement marking will switch colors (e.g., gore marking) the ends of the markings may be premarked regardless of the spacing.

When the Contractor uses chalk or lumber crayon as a premarking, the entire length of the proposed pavement marking may be premarked.

Premarkings shall be installed so their installation will not affect the adhesion of the permanent pavement markings. When removable tape is used as the premarking material and the lateral

location of such premarkings to location of the final pavement markings exceeds 6 inches, the tape shall be removed at no additional cost to the Department.

The Contractor shall exercise caution and protect the public from damage while performing pavement marking operations. The Contractor shall be responsible for the complete preparation of the pavement surface, including, but not limited to, removing dust, dirt, loose particles, oily residues, curing compounds, concrete laitance, residues from eradication, and other foreign matter immediately before installing pavement markings. The pavement surface shall be clean and dry at the time of pavement marking installation and shall be tested in accordance with VTM 94 before permanent installation, with the VTM 94 test results noted on Form C-85. The Contractor shall provide the equipment indicated in VTM 94 that are needed to perform the moisture test before application.

**Section 704.03 – Procedures** is amended by replacing the thirteenth paragraph with the following:

Non-truck mounted equipment shall be regulated to allow for calibration of the amount and type of material applied.

**Section 704.03 – Procedures** is amended to replace the eighteenth paragraph with the following:

Glass beads and retroreflective optics shall be applied at the rate specified herein or as specified in the Department's Approved List for the specific pavement marking product. Beads and optics shall be evenly distributed over the entire lateral and longitudinal surface of the marking. The Contractor shall apply beads to the surface of liquid markings with a bead dispenser attached to the applicator that shall uniformly dispense beads simultaneously on and into the just-applied marking. The bead dispenser shall be equipped with a cut-off control synchronized with the applied marking material cut off control so that the beads are applied totally on the marking. Beads shall be applied while the liquid marking is still fluid, resulting in approximately 60% embedment in the marking's surface. Beads installed on crosswalks and stop lines on roadways with curbs only (no gutter) may be hand applied for two feet at the end of each line next to the curb with 100 percent of the beads embedded 50% to 60% into the marking's surface.

**Section 704.03(a)1 – Type A markings** is replaced with the following:

**Type A markings** shall be applied in accordance with the manufacturer's installation instructions. When applying atop existing pavement markings, the existing marking shall first be swept or eradicated to the extent necessary to ensure that the surface of the existing marking is clean, chalk free (not powdery), and well adhered.

Glass beads and retroreflective optics shall be applied to the entire surface of the marking at the minimum rate of 6 pounds per gallon of paint, unless specified otherwise in the Department's Approved List 20 for the selected pavement marking product.



**Section 704.03(a)2 – Type B markings** is amended to replace the third paragraph with the following:

Non-truck mounted equipment for application of thermoplastic material shall include an extrude die with a burner, temperature controller, agitator, and mechanical bead applicator to allow for the correct amount of material to be applied.

**Section 704.03(a)2a – Thermoplastic (Class I)** is amended to replace the fourth paragraph with the following:

Thermoplastic shall not be applied over existing pavement markings of materials other than paint or thermoplastic, unless the existing marking is 90 percent worn away or eradicated. When applying thermoplastic over existing paint or thermoplastic, the existing marking shall first be swept or eradicated to the extent necessary to ensure that the surface of the existing marking is clean, chalk free (not powdery), and well adhered.

**Section 704.03(a)2b – Preformed thermoplastic (Class II)** is amended to replace the first and second paragraphs with the following:

**Preformed thermoplastic (Class II)** material shall be installed in accordance with the manufacturer's installation instructions. A primer or sealer manufactured by or recommended by the preformed thermoplastic manufacturer shall be applied to all hydraulic cement concrete surfaces and to asphalt concrete surfaces in accordance with the manufacturer's installation instructions.

Preformed thermoplastic shall not be applied over existing pavement markings of materials other than paint or thermoplastic, unless the existing marking is 90 percent worn away or eradicated. When applying preformed thermoplastic over existing paint or thermoplastic, the existing marking shall first be swept or eradicated to the extent necessary to ensure the surface of the existing marking is clean, chalk free (not powdery), and well adhered.

**Section 704.03(a)2f – Polyurea (Class VII)** is amended by replacing the second paragraph with the following:

Polyurea marking material shall be applied at a wet film thickness of 20 mils ( $\pm 1$  mil). Glass beads and retroreflective optics shall be applied at the rate specified in the Department's Approved List 74 for the specific polyurea product.

**Section 704.03(b) – Pavement messages and symbols markings** is amended to replace the second paragraph with the following:

Surface temperature at time of application shall be in accordance with manufacturer's installation instructions. If the installation instructions do not specify minimum surface temperature, then the markings shall not be installed unless the surface temperature at time of application is 50°F or

higher. Surface temperature requirements shall not be considered met if the temperature is forecasted to drop below the minimum within two hours of application. The Contractor may heat the pavement for a short duration to dry the pavement surface and bring the surface temperature to within the allowable temperatures for pavement marking installation, at no extra cost to the Department. Heat torch temperatures shall not exceed 300°F. The Contractor shall monitor pavement temperature to ensure it does not rise above 120°F at any time. Any damage to the pavement shall be promptly repaired at no extra cost to the Department.

Message and symbol markings include, but shall not be limited to, those detailed in Standard Drawing PM-10.

The sizes and shapes of symbols and characters shall match the size and shape specified in Standard Drawing PM-10 or elsewhere in the Contract. Hand-drawn or “stick” symbols or characters will not be allowed.

**Table VII-3** is replaced with the following:

**TABLE VII-3**  
**Pavement Markings**

Type	Class	Name	Film Thickness (mils)	Pavement Surface	Application Limitations	Appr. List No.
A		Traffic paint	15 ± 1 when wet	AC HCC	May be applied directly after paving operations	20
B	I	Thermoplastic	90 ± 5	AC	May be applied directly after paving operations	43
		Alkyd		HCC		
	I	Thermoplastic	90 ± 5	AC	Do not apply less than 30 days after paving operations	43
		Hydrocarbon	when dry	HCC		
	II	Preformed Thermoplastic	120-130	AC HCC	Manufacturers installation instructions	73
	III	Epoxy resin	20 ± 1 when wet	AC HCC	Manufacturers installation instructions	75

	IV	Plastic-backed preformed Tape	60 - 120	AC	Manufacturer's installation instructions	17
				HCC		
	VI	Patterned preformed Tape	20 min <sup>1</sup>	AC	(Note 4)	17
			65 min <sup>2</sup>	HCC		
	VII	Polyurea	20 ± 1	AC	Manufacturer's installation instructions	74
				HCC		
D	III	Wet Reflective Removable tape	(Note 3)	AC	Temporary pavement marking	17
				HCC		
E		Removable black tape (Non-Reflective)	(Note 3)	AC	Temporary pavement marking for covering existing markings	17

<sup>1</sup>Thinnest portion of the tape's cross section.

<sup>2</sup>Thickest portion of the tape's cross section.

<sup>3</sup>In accordance with manufacturer's installation instructions.

<sup>4</sup>In accordance with the manufacturer's installation instructions, except that Type B, Class VI markings on new plant mix asphalt surfaces shall be inlaid into the freshly installed asphalt surface and not surface-applied.

**Section 704.03(d)1 – Snowplowable raised pavement markers** is replaced as follows:

**Snow-plowable raised pavement markers** shall not be used.

**Section 704.03(d)2 – Raised Pavement Markers** is renamed **Nonplowable Raised Pavement Markers** and is replaced with the following:

**Nonplowable raised pavement markers** shall be bonded to the surface in accordance with the manufacturer's installation instructions. The bonding material shall be from the Department's Approved List 22 for the specific marker.

**Section 704.04—Measurement and Payment** is amended by revising the Pay Item Table as follows:

The following pay items are removed:

Pay Item	Pay Unit
Pavement message marking (Message)	Each or Linear Foot

The following pay items are inserted:

<b>Pay Item</b>	<b>Pay Unit</b>
Pavement message marking (Message, Type or class material)	Each or Linear Foot

## **DIVISION VIII – INTELLIGENT TRANSPORTATION SYSTEMS**

### **STANDARD 800 SERIES SPCNs, SP, AND SSs**

**SP801-000100-01**

VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
**LANE CLOSURE COORDINATION (LCC)/LANE CLOSURE IMPLEMENTATION (LCI)**

September 20, 2017

**V. General Requirements**

This work shall consist of coordinating and communicating lane closure operations through the local Transportation Operations Centers (TOC's). The Contractor shall coordinate lane closures in accordance with this Special Provision, and only implement lane closures with approval from the Department.

**VI. Training**

The Contractor shall have individuals trained to input work-zone information into the Department's LCC/LCI system, currently LCAMS and VaTraffic, on a weekly basis and to update as needed. These individuals shall be able to speak, understand, read, and write English, and be able to operate a computer. No advanced computer skills are needed to use the LCAMS or VaTraffic systems. The Contractor shall have a computer with internet connectivity and email capability.

The Contractor shall contact the Regional TOC Work Zone Lane Closure (LCAMS/VaTraffic) Coordinator to initiate system access and schedule training, when necessary. The Department requires a 10 business-day notice to schedule classroom training for LCAMS. The Contractor's designated individuals shall complete the courses Introduction to VaTraffic, VaTraffic Reports, VaTraffic Planned Events, and VaTraffic Work Zones. LCAMS and VaTraffic training for the individuals shall be completed prior to the Notice to Proceed date.

**VII. Lane Closure Process**

1. **Lane Closure Coordination Process.** All lane closures shall be entered as precisely as possible into the Lane Closure Advisory Management System (LCAMS) and VaTraffic no later than 8 AM on Thursday of the week prior to the planned lane closure, and updated as needed. For the purposes of this Special Provision, a week starts on Sunday. If this submission deadline changes (e.g., for weeks involving a holiday), the Engineer will notify the Contractor at least one week in advance. Final approval for the lane closure will be issued by the Engineer. All fields in LCAMS and VaTraffic must be properly filled out.
  - A. **Point of Contact.** The data fields labeled "Requesting Org POC" in LCAMS and "Point of Contact" in VaTraffic shall contain the name and email address of the person physically entering the request into LCAMS.
  - B. **Conflict Resolution.** LCAMS will identify and flag most conflicts, and will automatically assign priority as first-come, first-serve. The Contractor has the right to contact the higher-priority party and attempt resolution with them, provided the Contractor submits the final resolution to the

Engineer no later than 5 PM on Thursday of the week prior to the planned lane closure. The Engineer will handle all unresolved conflicts between requests and other events according to the priorities listed below, with the highest priority item first. If some or all requests involved in the conflict are the same priority level, conflict resolution will be on a first-come, first-serve basis.

- (1) **Emergency Work.** Work that if not done “*will result*” in damage to a motorist vehicle or infrastructure, or danger to public health and safety.
  - (2) **Lower Priority Items Previously Delayed.** Work that while considered a lower priority, if perpetually delayed could result in severe consequences.
  - (3) **Urgent Work.** Work that if not done “*may result*” in damage to the motorist vehicle or infrastructure, or danger to public health and safety.
  - (4) **Contractual Obligated Work.** Work that is expected to be accomplished “*on-time, on-budget*”.
  - (5) **Weather Dependent Work.** Work that is dependent on the temperature and clear or dry conditions.
  - (6) **Routine Maintenance Work.** Work that is routine in nature that can be rescheduled and moved around, within limits, without undue risk.
- C. The request shall be supported by the Schedule of Record, and the Engineer may deny requests which are not. The Contractor will be allowed to request lane closures to accommodate potential weather delays.
- D. The Contractor may revise his entries in LCAMS and VaTraffic after the Thursday deadline subject to the approval of the Engineer and the conflict resolution requirements herein.
2. **Lane Closure Implementation Process.** The Contractor shall notify the Regional TOC no later than 15 minutes, but no earlier than 45 minutes, prior to installing the lane closure, or no later than 15 minutes prior to scheduled start time if lane closure is delayed or canceled. The Contractor shall notify the TOC and update VaTraffic of any changes in lane-closure impact during the execution of work. The Contractor shall notify the Regional TOC no later than 15 minutes after the lane is reopened to traffic.
  3. **Emergency Lane Closure.** If an Emergency Lane Closure is required, the Contractor shall coordinate directly with the TOC regarding the lane closure as soon as the location and size of the lane closure is known. An Emergency Lane Closure is defined as road work which could not have been anticipated and is required to protect the public from immediate, severe harm, and has a priority as defined by Section III-1B(1).

#### **VIII. Measurement and Payment**

Lane closure coordination will not be measured or paid for separately, but the cost thereof shall be included in the price of other items.

**LOUDOUN COUNTY**  
**Supplements, Specifications, Special Provisions**  
**NORTHSTAR BOULEVARD PHASE 1 PROJECT**  
**VDOT PROJECT #9999-053-R31**



LOUDOUN COUNTY  
SPECIAL PROVISION FOR  
**STORMWATER & BIORETENTION PONDS:**

I. **Description**

This work shall consist of furnishing and installing stormwater & bioretention facility materials listed herein in accordance with the requirements of this special provision and in reasonably close conformity to the depths and limits shown on the plans or as established by the Engineer.

II. **Materials**

- a. **Clay Liners** shall be consistent with Low Permeability Liners for Stormwater Management Facilities Section 245 of the VDOT R&S Specifications: SWM liner soil shall be classified as CL, CH or MH in accordance with ASTM D2487 and shall have a maximum coefficient of permeability of  $1 \times 10^{-6}$  cm/sec in accordance with ASTM D5084, after compaction. The maximum particle size shall be three inches in its largest dimension. Natural soils, which do not meet these specifications, may be blended with bentonite to provide the specified permeability characteristics. Geosynthetic Clay Liner shall have a maximum coefficient of permeability of  $1 \times 10^{-6}$  cm/sec in accordance with ASTM D5887. This specification is not intended for dam embankment material or clay core cut-off trench material.
- b. **NS Drainage Cleanout Vent Pipe** material shall be in accordance with Section 232 of the Specifications. Cleanout Vent Pipes shall be installed and connected to the underdrain pipes prior to the placement of the soil media. The Contractor shall ensure that the cleanout vent pipe and underdrain pipes remain free of any detritus material. The pipes shall be cleaned and inspected prior to final acceptance.
- c. **NS Pipe 6" Underdrain Pipe** shall be in accordance with Section 501 of the Specifications including perforated and nonperforated PVC or HDPE pipe. The Contractor shall ensure that the vent pipe and underdrain pipes remain free of any detritus material. The pipes shall be cleaned and inspected prior to final acceptance. Outlet pipes used in the Stormwater and Bioretention Facilities shall be non-perforated pipe and installed according to the details.
- d. **Bedding Matl. Aggr. No. 57 Gravel Sump** shall meet the requirements of Section 302 and installed in accordance with the details and specifications herein.
- e. **Mulch** shall be double-shredded hardwood bark or other material as indicated in the construction plans. A representative sample shall be submitted to the Engineer for approval prior to delivery to the work site.
- f. **Soil Media for Bioretention Basins** shall have a USDA Classification of Loamy Sand. The soil media shall consist of approximately 60% to 76% granular sand, 10% to 35% topsoil, and 4% to 15% organic matter originating from composted yard waste. Moisture content shall be approximately 15% with a pH in the range of 6.0 to 7.0. Particle size D50 shall be 0.2 inch and the maximum particle size shall be 2 inch. Soil media may be mixed on-site or purchased pre-mixed from an offsite source approved by the Engineer.
- g. **Pea Gravel** shall meet ASTM D448 standards and be installed in accordance with the details.

### III. Procedures

Materials shall be tested in accordance with the plans and materials reports submitted to the Engineer for review prior to installation. Approved materials shall be thoroughly mixed on site, if applicable, prior to installation. Installation may then proceed as follows:

- Areas to receive bioretention media shall be excavated in accordance with the plans, details and specifications.
- Bottom and sides of excavated areas shall be scarified with excavating equipment having a toothed bucket.
- Following installation of perforated pipe and gravel sump, bioretention media shall be placed in 12-inch lifts and lightly compacted so as not to damage perforated pipe.
- Following installation of bioretention media, planting bed area adjacent to bioretention media shall be prepared and the entire bioretention area plated in accordance with the plans and provisions of Section 605 of the Specifications except as modified herein.
- Bioretention soil mixture and prepared planting bed mixture excavated for planting trees and shrubs, etc., may be used as backfill for planting pits.
- The planting area shall be neatly edged with a 3-inch depth “V” cut edge according to the plans and detailed drawings.
- Biorientation plantings shall be mulched immediately to prevent erosion of sloped sides of basin structure.

### IV. Measures and Payment

Excavation, backfill, and disposal of unsuitable material for stormwater & bioretention facilities will not be measured for separate payment unless otherwise stated, and the cost thereof shall be included in the bid price for such items. Other items not listed herein, unless otherwise stated, shall be incidental to the items listed below.

- **Clay Liner** will not be measured for separate payment and shall be included in the cost for Regular excavation and borrow.
- **NS Drainage Cleanout Vent Pipe** shall be measured and paid for at the contract unit price per each. This price shall include all fittings, wyes, tees, elbows, caps, couplings, including the vent pipe to the connection of the underdrain pipe.
- **NS Pipe 6” Underdrain Pipe** shall be measured along the invert and paid for at the contract unit price per linear foot. This price shall include all fittings wyes, tees, elbows, caps, couplings, geotextile fabric. All outlet pipe shall be non-perforated all other underdrain pipe within the soil media shall be perforated.
- **NS Pipe 8” Dewatering Pipe** shall be measured and paid for at the contract unit price per linear feet. This price shall include all fittings wyes, tees, elbows, caps and couplings.
- **NS Bedding Matt. Aggr. No. 57 Gravel Sump** will be measured and paid for at the contract unit price per ton. This price shall include excavating, sheeting, shoring, dewatering, disposing of surplus and unsuitable material.
- **Pea Gravel** will be measured in tons and paid for at the contract unit price per ton. This price shall include furnishing, excavating, placing, lightly compacting, grading and geotextile material.

- **Mulch** used in bioretention facilities will not be measured for separate payment. The cost thereof shall be included in the price for the soil media.
- **Soil Media for Bioretention Basins** will be measured in cubic yards and paid for at the contract unit price per cubic yard. This price shall include mixing, testing, furnishing, excavating, placing, lightly compacting, and grading.

Pay Item	Pay Unit
NS DRAINAGE CLEANOUT VENT	EACH
NS 6" UNDERDRAIN PIPE	LINEAR FOOT
NS BEDDING MAT. AGGREGATE 57 STONE	TON
PEA GRAVEL	TON
SOIL MEDIA FOR BIORETENTION BASINS	CUBIC YARDS

LOUDOUN COUNTY  
SPECIAL PROVISION FOR  
**CONSTRUCTION RECORD DOCUMENTATION OF PERMANENT STORMWATER MANAGEMENT FACILITIES**

**I. Description**

This specification covers the requirement for the Contractor to provide Construction Record Documents of permanent stormwater management facilities (SWMF).

**II. Definitions**

- 1. Construction Record Documents (CRDs).** Documents that record and detail the construction and final state of a SWMF, including, but not limited to, construction record surveys, shop drawings, and all certifications required in the Contract for the specific type of SWMF.
- 2. Licensed Professional.** A Professional Engineer, Land Surveyor, or Certified Landscape Architect licensed to practice in the Commonwealth of Virginia.

**III. Requirements**

The Contractor shall provide CRDs and other required information identified in Section IV for all permanent SWMF shown in the Plans. CRDs shall comply with Section 105.10(c) of the Specifications. All survey work and drawings shall comply with the VDOT Survey Manual and CADD Manual.

CRDs shall document the items summarized in Section IV for each type or category of SWMF on the Project. The CRDs shall be signed and sealed by a Licensed Professional.

A digitally signed and sealed copy of the CRDs and other required information for permanent SWMF on the Project shall be provided to the Engineer prior to Final Acceptance.

Deviations from the Plans that result in a decrease in the water quality or quantity volumes, or any change to the shape, size, location or elevations of the facility or its associated structures shall be shown on the CRDs for the Engineer's review. The Contractor shall be responsible for making any corrections to the SWMF required by the Engineer and updating the CRDs prior to Final Acceptance.

**IV. CRDs for Permanent Stormwater Management Facilities**

CRDs shall be provided for the following types of permanent SWMF's shown in the Plans:

- 1. Constructed Wetlands, Wet Ponds, Extended Detention, and Dry Detention Basins.** These facilities require a construction record survey which shall include:
  - A. Finished elevations, including pretreatment areas, basin floor elevations, bench elevations, pool elevations, and embankment contours and elevations.
  - B. Horizontal location of basin footprint, spillway, outfall structure and outlet protection.
  - C. Spillway dimensions and elevations.
    - (1) Riser shape and elevations (crest and bottom).

- (2) Orifice shape, dimensions, and elevations.
- (3) Weir shape, dimensions, and elevations.
- (4) Barrel shape, dimensions, and elevations (inlet and outlet).
- (5) Emergency spillway shape, dimensions, and elevations.

D. Baffle location, shape and dimensions.

**2. Infiltration, Bioretention, and Filtering Practices.** These facilities require a construction record survey which shall include:

- A. Finished elevations including pretreatment areas, filter bed surface, berm and earthen spillway.
- B. Horizontal location of observation wells, cleanouts, spillways and outfall.
- C. Types of outlet and overflow structures, shape and elevations (crest and bottom).
- D. Pipe barrel shape, dimensions, and elevations (inlet and outlet).
- E. Underdrain pipe shape, size and invert elevations.
- F. Underground storage structure type, shape, dimensions, and elevations.

**3. Manufactured Treatment Devices (MTDs) and Permeable Pavement.** Manufacturer's shop drawings shall be provided for all manufactured components of MTDs and Permeable Pavement. A statement for planting in conformance with the Plans shall be included. MTDs require a construction record survey which shall include:

- A. Horizontal location of the facility and outfall.
- B. Horizontal location of observation wells and cleanouts.
- C. Rim and invert elevations of associated structures or access location.

**V. Measurement and Payment**

**Construction Record Documents** for permanent SWMF will be paid for included in the cost of Survey As-built Lump Sum. This price shall include performing the work described herein on all SWMF's shown on the Plans.

Payment will not be made until the Contractor provides the Engineer with CRDs, signed and sealed by a Licensed Professional, and they are accepted by the Engineer.

LOUDOUN COUNTY  
SPECIAL PROVISION FOR  
**CONTROL OF WORK**

**Section 105-Control of Work** of the Specifications is amended as follows:

**105.08 Cooperation with Regard to Utilities** is amended to include the following:

After cut operations have been completed on the east side of Northstar Boulevard from Tall Cedars Parkway to approximate station 385+00, prior to fill between 385+50 to station 389+00, and before subbase operations are started, NOVEC shall relocate the existing underground conduit from Tall Cedars Parkway north to approximate station 389+00. The contractor shall be responsible for coordinating all necessary notifications, meetings, conferences, and inspections with NOVEC to facilitate electrical service installation. A preinstallation meeting shall be coordinated by the Contractor prior to initiating land disturbing activity on the site, which at a minimum should include the County Construction Manager, representatives from NOVEC and the Contractor. The Contractor shall be responsible for fully coordinating the utility installation schedules with his work. If during excavation and earthwork operations the existing conduit is found, the contractor will remove the exposed conduit.

All coordination with Utility providers and/or agencies shall be the sole responsibility of the Contractor, to include coordination of scheduling and access/logistics.

After all cut/fill operations have been completed, and before subbase operations are started, NOVEC will install conduits across Northstar Boulevard in three (3) locations:

1. At approximate centerline station 379+60 near Tall Cedars Pkwy.,
2. At approximate centerline station 396+50 near Marrwood Drive,
3. At approximate centerline station 409+00 near Route 50.

The contractor shall contact NOVEC three to four weeks' in advance and stake the centerline station shown above.

NOVEC contact information:

Carol Comstock  
703-754-6732 office or 571-271-6870 cell

Mark DeChristopher  
703-754-6713

The Contractor shall arrange meetings with Loudoun County and Loudoun Water to discuss the scheduling, coordination of construction, completion dates and acceptance of utilities. This will include coordination with Loudoun Water on shutting down any existing facility requiring relocations (i.e. existing 24" watermain).

LOUDOUN COUNTY  
SPECIAL PROVISION FOR  
**FIELD OFFICE**

**Section 514**

The field office and equipment required herein shall remain the property of the Contractor. The Contractor supplied Department field office shall be separated from buildings and trailers used by the Contractor and shall be erected and made functional as an initial operation of the work. The Contractor's failure to have the field office functional when work first begins on the project will result in the Engineer withholding payment of the Contractor's monthly progress estimate, except that the estimate will not be withheld if the Contractor has shown that the failure is not due to negligence on his part or for reasons beyond his control. The Contractor shall provide office space, equipment, and services consistent with requirements for a Type I Field Office per VDOT Roads & Bridges Specifications. This field office should be configured and equipped for operations County Staff & Consultants. The configuration and equipping of the field office shall be coordinated between the Contractor and the Loudoun County Construction Manager prior to on-site placement of the field office. The field office shall be weatherproof, tightly floored, and roofed, constructed with an air space above the ceiling for ventilation, supported above the ground and anchored against movement. The field office will be operational throughout the duration of the Project construction and shall be removed upon final Project acceptance.

LOUDOUN COUNTY  
SPECIAL PROVISION FOR  
**UNDERDRAINS, CROSSDRAINS, AND EDGEDRAINS**

**SECTION 501.03 - Procedures of the Specifications is amended as follows:**

**Section S01.03(d) Post-Construction Inspection** is amended to replace the fourth sentence in first paragraph with the following:

Pipe underdrains, including outlet pipes, shall be inspected in complete segments in both directions from the outlet pipe, PGPE shall be inspected all inspection ports, if provided.

**501.04 Measurement and Payment** first paragraph is amended to include the following:

The Contractor's video inspection of the installed system in accordance with the requirements of VTM-108 is included in the cost for underdrains, combination underdrains, and outlet pipe.



LOUDOUN COUNTY  
SPECIAL PROVISION FOR  
**SECTION 603 EXCAVATION**

**Section 603-Seeding of the Specifications is amended as follows:**

**603.03(b) Excavation** is amended to include the following:

If seeding methods have not resulted in sufficient growth two months prior to the anticipated substantial completion date, the Contractor shall, at no additional expense to the County, reseed the area in accordance with the Specifications as necessary and provide any additional maintenance as needed to ensure adequate turf establishment in accordance with the specifications. Complete establishment of turf will be one of the necessary prerequisites to achieving substantial completion.

LOUDOUN COUNTY  
SPECIAL PROVISION FOR  
**Section 608 - MOWING**

**Section 608-Mowing of the Specifications is amended as follows:**

**608.03 Measurement and Payment** is amended to include the following:

Mowing in accordance with the Specifications shall be performed at least once prior to final acceptance to facilitate inspection. In addition, the Contractor shall mow grassed areas within the project limits as necessary to limit grass height to not more than 6". The Contractor may choose to mow at other times at their discretion and sole expense. Cost of mowing to be included in Regular Excavation.

LOUDOUN COUNTY  
SPECIAL PROVISION FOR  
**WORK ZONE TRAFFIC CONTROL MANAGEMENT**

**I. GENERAL DESCRIPTION**

This work shall consist of providing work zone traffic control management in strict compliance with the contract, plans, specifications, the Virginia Work Area Protection Manual and the Manual on Uniform Traffic Control Devices (MUTCD), including supervision of personnel and the installation, inspection, and maintenance of all traffic control devices on the project.

**II. REQUIREMENTS**

The Contractor shall assign a traffic control supervisor (TCS) to provide work zone traffic control management for the project. If the Contractor assigns more than one TCS to provide work zone traffic control management, a weekly schedule identifying who will be in charge of providing work zone traffic control management on a daily basis shall be submitted to the VDOT Area Construction Engineer by the Contractor.

The TCS shall have a set of traffic control plans and a copy of the edition of the Virginia Work Area Protection Manual specified on the plan sheet or in the contract readily available at all times.

**A. Certification**

Prior to commencing work requiring work zone traffic control management, the Contractor shall submit to the Area Construction Engineer a valid copy of the Traffic Control Supervisor certificate (wallet size card) issued by the American Traffic Safety Services Association (ATSSA), or another similarly accredited agency or firm approved by the Department.

The Department will accept the certification by ATSSA or any approved agency or firm only if all of the following minimum requirements are met:

1. Successful completion of an Intermediate or Advanced work zone traffic control training course approved by the Department.
2. Passing a written examination given by the agency or firm on the approved work zone traffic control training course.
3. A minimum of two years full-time field experience in work zone traffic control. The experience may be verified by the Department at its discretion.

The TCS certification shall be renewed every four years by the TCS taking and passing a recertification test. The recertification test shall be taken through ATSSA or an agency or firm

approved by the Department. Recertification shall be done in the fourth year prior to the expiration date.

**B. Duties**

The TCS's main responsibility shall be work zone traffic control management. The TCS may have other assigned duties on the project as approved in writing by the Area Construction Engineer. The following is a listing of the TCS's primary duties:

1. The TCS(s) shall personally provide work zone traffic control management and supervision services at the project site.
2. The TCS(s) shall coordinate the training of flagging and signing personnel.
3. The TCS(s) shall supervise the flagging and signing personnel.
4. The TCS(s) shall coordinate all work zone traffic control operations for the duration of the contract, including those of subcontractors, utility companies, and suppliers, to ensure that all work zone traffic control is in place and fully operational prior to the commencement of any work.

The Department recognizes that the Contractor does not have direct control over the work zone traffic control operations of the utility companies. The coordination provided by the TCS when dealing with utility companies is for the purpose of coordinating concurrent utility work zone traffic control with any other construction/maintenance work zone traffic control to avoid conflicts.

5. The TCS(s) shall perform daily reviews of work zone traffic control when work activities are underway and document in the work zone traffic control daily diary activities taking place and any deviation from the traffic control plan, length and timing and mitigation of excessive traffic queues, and instances or conflicts or problems with the work zone traffic control and corrective actions taken. In addition, the TCS(s) shall perform weekly reviews of the work zone traffic control and document in detail using Forms TE-97001 and 97002. Every other detailed weekly review shall be performed during nighttime hours or as directed by the Area Construction Engineer.

The TCS shall inspect traffic control devices in use for compliance with the ATSSA Quality Standards for Work Zone Traffic Control Devices, the Road and Bridge Specifications, and the Virginia Work Area Protection Manual. The TCS shall provide for the immediate repair, cleaning, or replacement of traffic control devices not functioning as required to ensure the safety of the motorists and construction personnel.

The traffic control devices shall be inspected by the TCS during working and nonworking hours on a schedule approved in writing by the Area Construction Engineer, but as a minimum at the beginning and end of each work day or night and once during non-

working weekends and holidays, and daily on restricted days due to inclement weather or during any work shutdown.

Traffic control devices in use longer than fourteen (14) days shall be inspected by the TCS at least once every other week during nighttime periods.

6. The TCS(s) shall prepare and submit statements concerning road closures, delays, and other project activities to the District Public Affairs office as required.
7. The TCS(s) shall be responsible for notifying the VDOT project Maintenance of Traffic (MOT) Coordinator or designee, of all accidents related to the project traffic control. The time and date of notification shall be documented in the daily diary.
8. The TCS(s) assigned to the project shall attend the preconstruction conference and any other meeting which involves traffic control.
9. The TCS(s) shall be responsible for the maintenance, cleanliness, and replacement of traffic control devices of the existing traffic control plan during working and non-working hours.

**C. Documentation - Traffic Control Diary**

The TCS shall maintain a project work zone traffic control diary in a bound book. The Contractor shall provide a sufficient number of diaries for his or her use.

The TCS shall keep the work zone traffic control diary current on a daily basis, and shall sign each daily entry. Entries shall be made in ink in a format approved by the Area Construction Engineer, and there shall be no erasures or white-outs. Incorrect entries shall be struck out and then replaced with the correct entry. Photographs may be used to supplement the written text.

The work zone traffic control diary shall, at all times, be available for inspection by the VDOT Maintenance of Traffic Coordinator and a copy of the diary shall be submitted to the MOT Coordinator on a weekly basis.

The work zone traffic control diary(s) shall become the property of the Department at the completion of the project. Failure to submit the diary shall result in the withholding of final payment until the diary(s) is submitted.

**D. Availability of TCS**

Traffic control management shall be provided under the supervision and direction of the TCS on a 24-hour-per-day basis throughout the duration of the project.

The TCS shall be available on every working day—on call at all times—and available upon the Area Construction Engineer's request during normal working hours and during other than normal working hours in the case of emergency. The provisions for availability of the TCS shall also be met during times of partial or full project suspension. Contact telephone numbers for the TCS(s) shall be provided to Department project personnel, the Area Construction Engineer,

the Residency Administrator, and the region Smart Traffic Center prior to the Contractor commencing work requiring work zone traffic control management.

**E. Failure to Comply**

The Area Construction Engineer may suspend all or part of the Contractor's operation(s) for failure to comply with the approved "Traffic Control Plan" or failure to correct unsafe traffic conditions within 24 hours for critical items and 72 hours for non-critical items after such notification is given to the Contractor in writing.

In the event that the Contractor does not take appropriate action to bring the deficient work zone traffic control into compliance with the approved traffic control plan or fails to correct the unsafe traffic conditions, the Department may proceed with the corrective action using its own forces, equipment, and material to maintain the project and such costs, plus 25 percent for supervisory and administrative personnel, will be deducted from the money owed to the Contractor for the project.

The Contractor shall not be relieved of the responsibility to provide work zone traffic control safety to the traveling public when a project is under full or partial suspension. When a project is under suspension due to the Contractor's failure to comply with this section, or when the contract is under liquidated damages, the Contractor shall continue to provide work zone traffic control management and no additional measurement or payment will be made.

If suspensions or partial suspensions are requested by the Contractor, the additional work zone traffic control management costs will be at the Contractor's expense.

**III. MEASUREMENT AND PAYMENT**

**Work Zone Traffic Control Management** will be included and paid under contract MAINT. OF TRAFFIC CONTROL. This price shall be full compensation for furnishing 24 hour services as specified, including preparing and furnishing Work Zone Traffic Control diaries.

When work zone traffic control management is paid for by the lump sum, monthly partial payments for work zone traffic control management will be made on a pro rata basis for the estimate period being vouchered for payment.

In the event the contract time is authorized to be extended according to the provisions of Section 108.04 of the Specifications, the provisions of Section 104.02 of the Specifications will not apply. The payment for this item will be compensated on a daily basis by dividing the original lump sum bid amount by the number of calendar days in the original contract time and the resultant daily dollar value assigned to this item.

LOUDOUN COUNTY  
SPECIAL PROVISION FOR  
**CATHODIC PROTECTION SYSTEM**

**General Description**

Cathodic Protection System will include all Loudoun Water required control measures, including test stations as shown on the plans, as required in the approved construction plans and by Loudoun Water. All installations of corrosion control measures shall be made according to the approved construction plans, Loudoun Water specifications, Loudoun Water Standard Details, and the Loudoun Water Approved Materials List. Upon completion of the work, it shall be tested, operated, inspected, and surveyed. Any and all repairs or replacement of defective or improperly installed corrosion control systems shall be made by the contractor, at no additional cost to Loudoun County or Loudoun Water. Testing of the corrosion system will be required between the existing test station at station 23+85.61 (sheet 25 of the approved construction plans) and the connection to the existing 24" watermain B (Sheet 26 of the approved construction plans).

**Measurement and Payment:**

Cost of Cathodic Protection System will be paid under Cathodic Protection Systems as Lump Sum.

**LOUDOUN COUNTY**  
**Supplemental Notes to Schedule of Bid Items**  
**NORTHSTAR BOULEVARD PHASE 1 PROJECT**  
**VDOT PROJECT #9999-053-R31**



**LOUDOUN COUNTY  
SUPPLEMENTAL NOTES**

**General**

1. Plan Quantity Items: Items indicated in the schedule of bid as Plan Quantity Items are to be paid on basis of plan quantity in accordance with current VDOT Road and Bridge Specifications.
2. This contract will require the contractor to begin construction and operations with the roadway improvements on John Mosby Highway to maintain schedule of the extension of Northstar Boulevard to the north currently in design-build. The sequence of construction as described on page 1J(1) of the construction plans will begin with John Mosby Highway as noted (plan sheets 1J(5)-(8). The contractor will be responsible to complete this work no later than August 30, 2022. Completion is defined as work completed, area stabilized, and inspected by Loudoun County and/or its assigned inspector for completion.

**Earthwork Notes**

1. The contractor shall be responsible for the removal and disposal of all unsuitable material in accordance with section 106.04 of the 2020 V.D.O.T. Road and Bridge Specifications. All costs for removal and disposal of unsuitable material shall be included in the contract price bid for undercut excavation. Upon approval by the County, additional surplus material which is not unsuitable material may be placed to the west of Northstar Blvd from approximate stations 403+00 to 409+75.
2. The contractor is responsible for finding a disposal site for all unsuitable material encountered on the project.

**Drainage & Stormwater Management Notes**

1. The price bid for the Non-Standard Endwalls (Items 26, 27, and 28), Drainage Structures 50, 51 200, and 300) shall include all quantities detailed on the 2020 VDOT Road and Bridge Standards Section 302, including any required dewatering devices. Endwalls will be paid in measurements of each.
2. Clay Liners: It is anticipated the clay material for the liner (based on Geotechnical borings and data) will be available on-site via removal of the unsuitable materials. The Contractor will be responsible for sieve analysis and permeability testing to confirm material before placement in the pond. Approval from the County will be required prior to placement of the liner in the pond and bio-retention facility.

## **Water & Sewer**

1. Where work is to be performed on existing or proposed water and sanitary sewer, the Contractor will coordinate with Loudoun Water and Loudoun County. This includes coordination with Loudoun Water to close facilities temporarily during construction.
2. All proposed water and sanitary systems shall meet current Loudoun Water standards and Construction Standards.
3. Loudoun Water desires the existing 24" watermain remain operational as long as possible and until connections are ready. Loudoun Water will allow temporary shutdown of the existing 24" watermain during construction of the relocated 24" watermain. Loudoun Water requires that if the temporary shutdown will be for an extended period of time, the temporary shutdown will only be permitted during the Winter months (October – February). If the temporary shutdown will not be for an extended amount of time, the temporary shutdown may occur anytime of year pending approval from Loudoun Water. In the event the contractor wishes to shutdown the existing 24" watermain for an extended period during non-winter months, the Contractor will be required to provide an approved Loudoun Water bypass system. This temporary bypass system will be at the expense of the Contractor and not Loudoun County Government or Loudoun Water. All work must be approved by Loudoun County and Loudoun Water.

## **Temporary Access**

1. Access to Parcel 204-45-3260 shall be maintained throughout construction. Prior to removal of the existing entrance from to this parcel from John Mosby Highway – Route 50, the Contractor shall construct a temporary access roadway as shown on page 236. This access roadway will be maintained and remain unobstructed until alternative access can be provided to the property. This cost of this access roadway shall be included in Item 86 (Maint. Of Traffic Control) under the Schedule of Bid Items.

## **Landscape**

1. Watering under Item 146 shall be per 1,000 gallons and based on the Water Key shown in the description for items 95 through 143.
2. The Watering Schedule will be as follows:
  - (A) Deciduous Trees over 10'ht -12 gallons per pit
  - (B) Deciduous Tree 10' ht. or less-10 gallons per pit
  - (C) Evergreen Trees-8 gallons per pit
  - (D) Shrubs over 18" ht.-2 gallons per pit
  - (E) Shrubs under 18" ht.-1 gallon per pit
  - (F) Ground Covers and Vine-.25 gallons per pit.
3. Bid Items 95-119 will follow the requirements of VDOT Road and Bridge Specifications Section 605 and measure and payment for Plants as described in section 605.10



