May 2026 Specifications Committee Meeting

SPECIFICATIONS COMMITTEE MEETING AGENDA

Meeting Date
Tuesday, May 5, 2025 @ 10:00AM
Meeting Location: 190 Dry Branch Drive, Conference Room, MCS&T Division Charleston, WV

Virtual platform available via Google Meet. E-mail distribution message includes instructions.

Approved Supplemental Specification changes from last Committee meeting (03/17/26)

- **None.**

Approved Special Provisions (SP) from last Committee meeting (03/17/26)

- **SP 601-"Class S Concrete":** The revision expands upon the section referring to shrinkage and updates reference section numbers.

Items Removed from the Agenda:

- **None**

Important Announcements:
The **2026 Supplemental Specifications** are available on the MCS&T webpage:
https://transportation.wv.gov/highways/mcst/Pages/specifications.aspx

- Physical copies of the 2026 Supplemental Specifications will be available for purchase once production is complete. We are currently reviewing the proofs. An announcement will be made when printed copies are ready.

Old Business Items

SECTION	TITLE	DESCRIPTION
651	**Section 651-Furnishing and Placing Soil**	**8th time to Committee. (January, March, May, July, September, December 2025, March, and April 2026)**
652	**Section 652-Seeding and Mulching**	Three (3) specification changes updating the requirements for seeding and mulching.
715	**Section 715.25-715.32** (Ground Agricultural Limestone, Fertilizers, Mulch Material, Seed, Inoculating Bacteria, Biological Growth Stimulants, and Hydraulic Growth Material)	1. Section 651-Furnishing and Placing Soil 2. Section 652-Seeding and Mulching a. Updated from the last meeting. 3. Section 715.25-715.32 a. (Ground Agricultural Limestone, Fertilizers, Mulch Material, Seed, Inoculating Bacteria, Biological Growth Stimulants, and Hydraulic Growth Material) b. Updated from the last meeting.

	D. Kirk	Sections 651 and 652 have been updated in response to comments from FHWA and industry stakeholders. Including seeding dates have been updates, Table 652.5 has been revised accordingly, and the maximum slope application in Table 652.6.2.A has been revised to 1H:1V.
SP 106	**SP 106.1.4-Use of Domestic Construction Materials (De Minimis Standard)** D. Brayack	**2nd time to Committee. Discussed in April.** Special Provision for Section 106-Control of Materials, Subsection 106.1.4- Use of Domestic Construction Materials. The revision adds language to Subsection 106.1.4 incorporating the FHWA Build America, Buy America (BABA) De Minimis standard. The SP has been updated to clarify intent by adding the word "permanently," so the text now reads "…permanently incorporated into the project." **Approval is expected in May.**
SP106 & 106	**SP 106-Build America Buy America (2026)** **Subsections 106.1.1-Definitions & 106.1.5-State and/or Federal Use of Manufactured Products** D. Brayack	**2nd time to Committee. Discussed in April.** Special Provision and Supplemental Specification for Section 106-Control of Materials, Subsection 106.1.1-Definitions and 106.1.5- State and/or Federal Use of Manufactured Products. • **Subsection 106.1.1:** The revision adds the definition of Fifty-Five Percent (55%) Requirement. • **Subsection 106.1.5:** The revision reflects changes to 23 CFR 635.410. All Manufactured Products and Final Assembly shall occur in America. Manufactured products shall meet the 55% Requirement. ******THIS WILL NEED TO BE ADDED TO PROPOSALS WHEN THE PROJECT IS AUTHORIZED BY THE FEDS ON 10/1/2026 OR LATER.***** The SP has been updated; the definition of "Kit" was updated. **Approval is expected in May.**

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SP 115 & SP 614	**SP 115-Job Order Contracting (JOC)** **SP 614-Piling Walls** S. Boggs	**2nd time to Committee. Discussed in April.** Two Special Provisions: 1. **SP 115-Job Order Contracting (JOC).** This Special Provisions establishes JOC as a contracting method for the WVDOH. Under this method: • WVDOH competitively awards a master agreement. • Individual Job Orders are then issued under that Master Agreement. • Each Job Order functions as its own separate construction contract, defining scope, locations, quantities, schedule, and requirements. Initially, this Special Provision will be used for piling wall projects, but WVDOH may expand it to other types of work in the future. 2. **SP 614-Piling Walls.** Requires steel piles to be classified and paid by HCSI, as determined by the Division's Geotechnical Engineer. For SP 115 projects, the highest HCSI shown in the Abbreviated PS&E applies to all piling. SP 115 was updated regarding DBE goals and listing of federal requirements. **Approval is expected in May.**
SP 645	**SP 645-Reinforced Soil Slopes (EPS)** S. Lewis	**2nd time to Committee. Discussed in April.** This Special Provision (SP) defines the physical properties, testing methods, and performance requirements for Standard Expanded Polystyrene (S-EPS). It also establishes specifications for geotextile separation fabric and incorporates the requirements of SP 708 – Neoprene Sheet for Semi-Integral Abutments, where applicable. The SP was updated; "ASTM" was added in front of C272 in Table 645.2.3, Part (a), the ASTM test in Table 645.2.3, Part (c) was updated from D 2136 to D 573, the word "Elasticized" was removed from in front of S-EPS, and a pay item was created. **Approval is expected in May.**

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660	**660.9-Loop Traffic Detectors** T. Nichols	**2nd time to Committee. Discussed in April.** Specification update to Section 660.9-Loop Traffic Detectors. This revision adds the new section 660.9.1-Loop Traffic Selant, which overhauls an existing paragraph within 660.9. This specification update ensures loop sealants are properly tested to ASTM D2240 and correctly applied to the road surface. No update to specification; it is redlined showing the revisions. **Approval is expected in May.**
SP 636	**SP 636-Temporary Pavement Markings-Orange** T. Whitmore	**2nd time to Committee. Discussed in April.** This Special Provision covers the furnishing, application, maintenance, and removal of temporary orange pavement markings used for traffic control within active work zones. The provision is to be used on an experimental project. The Special Provision has been updated; modifies the proposed temporary pavement marking paint lines, changing them to a 4- inch width and to be used in conjunction with existing white and/or yellow pavement markings. **Approval is expected in May.**
662	**662.2.3.5-Electrical Conduit** **&** **662.17-Pay Items** **R. Tabassum**	**2nd time to Committee. Discussed in April.** An approved Special Provision from March 2025, now to be a supplemental specification. The proposed supplemental specification adds Subsection 662.2.3.5 – Type PR (PVC-Coated Rigid Galvanized Steel Conduit "PVC-RGS") and adds a pay item. No update to specification; it is redlined showing the revisions. **Approval is expected in May.**

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715	**715.42.10-Electrical Conduit** R. Tabassum	**2nd time to Committee. Discussed in April.** An approved Special Provision from March 2025, now to be a supplemental specification. The revision will replace the current subsection. No update to specification; it is redlined showing the revisions. **Approval is expected in May.**

New Business Items

401	**401.7.4-Thickness** **&** **401.13.4-** K. Welch	**1st time to Committee.** Specification change to 401-Asphalt Base, Wearing, and Patching and Leveling Courses, 401.7.4-Thickness and 401.13.4. The revision allows using MIT Scanning (nondestructive testing) to verify asphalt pavement thickness. It also includes revisions to the acceptance and payment methods.
506	**506.2-Materials** A. Thaxton	**1st time to Committee.** Specification change to 506-Concrete Pavement Repair, 506.2-Materials. This revision allows calcium sulfoaluminate (CSA) cement, specified in Section 701.5 of the Supplemental Specification to be used for concrete repairs in Section 506.
601	**601.1-Description** **601.3-Proportioning** **601.3.1.1.1.3-Level of Prevention** **601.16-Pay Items** A. Thaxton	**1st time to Committee.** Specification change to Section 601-Structural Concrete, the revision adds a new Class BP of Concrete to the following subsections: • 601.1-Description • 601.3-Proportioning (Tables 601.3.1A & 601.3.1D) • 601.3.1.1.1.3-Level of Prevention (Table 601.3.1.1.1.3) • 601.16-Pay Items. This material may be used instead of an approved prepackaged patching material.
615	**615.5.6.3-Installation**	**1st time to Committee.** Specification change to section 615-Steel Structures, subsection 615.5.6.3-Installation. The revision removes references to impact and air-supplied tools and clarifies that bolt tightening wrenches shall have

	G. Hanna	sufficient capacity to achieve tightening in approximately ten (10) seconds. Allows bolt rotation while restraining the nut when necessary to improve constructability.
619 & 705	**Section 619-Membrane Waterproofing** **705.7-Waterproofing Materials** S. Boggs (EGIS)	**1st time to Committee.** Specification change to Section 619-Membrane Waterproofing and Section 705-Asphalt Materials. Section 619 is a complete section rewrite to reflect current waterproofing practices, covering materials, installation, and protection. Section 705 is revised to match these changes and remove outdated requirements.
642	**642.6.5-Silt Fence:** D. Kirk	**1st time to Committee** Specification change to Section 642-Temporary Pollution Control, subsection 642.6.5-Silt Fence. This revision improves silt fence performance and consistency by updating height, embedment, installation, and alignment requirements, including guidance for multiple rows. It also adds ASTM D6461 material standards, defines Standard and High Performance fence types, and updates related tables and pay items.
679	**Section 679 Overlaying of Portland Cement Concrete Bridge Decks.**	**1st time to Committee.** Specification change to various subsections of Section 679 Overlaying of Portland Cement Concrete Bridge Decks. The revisions incorporates very early strength latex modified concrete from the current Special Provision into the specification. • 679.1-Description, • 679.2-Materials, • 679.3.1-Removal of Existing Deck Surface, • 679.3.1.1-Removal of Existing Deck Surface Phase I, • 679.3.1.2-Removal of Existing Deck Surface Phase II, • 679.3.1.4-Disposal • 679.3.3-Preparation of Surface, • 679.3.5-Placement Preconditions, • 679.3.6-Placing, Finishing and Curing Slab Reconstruction Concrete,

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	A. Thaxton	• 679.3.6.2-Removal of Slab Reconstruction Concrete Surface, • 679.3.7.1-General, • 679.3.7.5.3-Curing Very Early Strength Latex Modified Concrete, • 679.4.3.4-Loading Limitations during Curing, • 679.4.9-Defective or Damaged Concrete, • 679.6.3.1-Blast Cleaning
697	**Section 697 – Safety Inspection of In-Service Bridges During Construction** T. Brown	**1st time to Committee.** This item was previously approved as a Special Provision on January 27, 2026, and is now being converted to a Supplemental Specification. The revision updates the names associated with NBI inspections and shortens the report submission timeframe to better align with our Consultant Inspection Contracts.
701	**701.1-Portland Cement** A. Thaxton	**1st time to Committee.** Specification change to Section 701, 701.1-Portland cement. The revision adds Type III cement for items in Section 603, 506, and precast concrete applications when specified.
709	**709.1.3- Galvanized Coated Bars for Concrete Reinforcement** G. Hanna	**1st time to Committee.** This item was previously approved as a Special Provision on March 5, 2025, and is now being converted to a Supplemental Specification. The revision adds inspection requirements for galvanized reinforcing steel. The revision also adds requirements if ASTM A767 is used as the method of galvanizing.
709	**709.24.4.3 (Direct Tension Indicators (DTIs))** G. Hanna	**1st time to Committee.** This revision introduces new subsection 709.24.4.3 for Direct Tension Indicators (DTIs), providing an additional method for tightening bolted connections and establishing that DTIs, when used to indicate bolt tension, must conform to ASTM F959.

Deadline for new items & updates for the July 7, 2026 Meeting are due June 12, 2026.

If you are the '**champion**' of any Specification Changes and/or Project Specific Special Provisions currently in the Specification Committee, it is your responsibility to edit/update/revise your items in a timely manner per Specification Committee Guidelines.

NOTE: Failure to submit updates may result in removal of item and/or delays.

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Comments

Comments are requested for Specifications Changes and Project Specific Special Provisions as they help in the decision-making process. Please send comments by Friday prior to the meeting!

All Comments should be sent to **Jacinda.n.Chapman@wv.gov.**

File Format Structure and Progression of items through Specifications Committee

The purpose of the protocol below is to provide guidance on the file structure of Proposed Specifications & Project Specific Provisions as they progress through Specifications Committee. This procedure would facilitate a means of tracking changes from meeting to meeting as the agenda & provisions are posted publicly online on the Spec Committee website.

NEW BUSINESS ITEMS:

New items should be setup & submitted in the following format along with a brief overview of the item or reason for the change:

1. **Specification Changes** – Show as red-line copy (see note)
2. **Project Specific Special Provisions (SP)** – Will be shown in all black.
3. **Updates to approved SP** – Shown as red-line copy.

NOTE: Red-line copy is a form of editing which indicates removal or addition of text. You can redline a Microsoft Word document by using the built-in "Track Changes" feature.

OLD BUSINESS ITEMS:

Updated provisions that were discussed at the last committee meeting should be set up in the following format:

- Redline copy from prior meeting would not be shown.
- Redline copy of new changes/updates (from previous meeting)

PROGRESSION OF ITEMS THRU COMMITTEE AND APPROVAL:

Depending on how important the project and/or comments/discussion of item at previous meeting, then several things can happen in no particular order.

- Few comments/discussion/minor changes…will recommend approval of item at next meeting.
- A lot of comments/discussion…will not recommend approval at next meeting; item will be updated and reviewed again at the next meeting.
- SPs in committee may be used in advertised project. Hope to work to address comments & finish approving at subsequent meeting.

DRAFT

~~March 2, 2026~~ March 31, 2026

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 651
FURNISHING AND PLACING TOPSOIL

DELETE THE ENTIRE CONTENTS OF THE SECTION AND REPLACE WITH THE FOLLOWING:

651.1-DESCRIPTION:

This work shall consist of acquiring sites outside the right-of-way from which topsoil can be obtained and the hauling and placing of such material, or hauling and placing of topsoil from stockpiles within the right-of-way, all in accordance with these Specifications and at locations indicated on the Plans or designated by the Engineer.

651.2-MATERIALS:

Topsoil shall consist of the uppermost layers of fertile and friable soil that contains humus material. This material varies in thickness in accordance with soil groups and usually possesses a darker color than the subsoil. The texture of the topsoil may vary within the range of natural loam, silty clay loam, and sandy loam. Acceptable topsoil shall contain at least 3% organic matter ~~in the range of 2% to 20%~~ and be sampled at least once per project using AASHTO T 267 method; multiple sources or change of sources shall also be sampled.

Topsoil containing less than 3% organic matter shall be conditioned with biological growth stimulants. The requirements for these amendments shall conform to 715.30.

CONSTRUCTION METHODS

651.3-STRIPPING TOPSOIL:

Prior to removal from the site, the soil will be tested by the Division to determine the humus and nutrient value. Care shall be exercised as to the depth of stripping, and any loads with an excess of subsoil shall be discarded. The Contractor shall ~~mow or otherwise remove~~ remove all heavy grass, weeds, or other vegetation, including root mass, in ~~over~~ the areas before stripping.

Topsoil shall be stored on the stripping site out of construction limits, ~~if feasible~~ until needed. ~~Any topsoil that cannot be stored on the construction site must acquire~~ If storage at the stripping site is not feasible, approval ~~by~~ from the Engineer must be obtained ~~prior to~~ before transport any ~~material from the stripping site~~ topsoil.

651.4-TRANSPORTING:

Topsoil material shall not be placed until the entire roadway (including surfacing) has been completed, unless otherwise provided for on the Plans or approved in writing. During hauling operations, the surface of the highway shall be kept reasonably clean to avoid creating a traffic hazard.

651.5-PLACING AND MANIPULATING:

Areas to be topsoiled shall be brought reasonably close to the lines and grades shown on the Plans or established by the Engineer. Topsoil may not be applied to slopes steeper than 2H:1V. All slopes less than or equal to 2H:1V that do not meet an organic matter of at least 3% require the application of topsoil. An approved hydraulic growth medium may be used in replace of topsoil if designated by the Engineer and must meet all requirements in 715.31.

Prior to application, fertilizer lime or sulfur, and other soil amendments shall be added to the topsoil according to the soil analysis, in accordance with section 652.4.1. The Contractor shall ~~scarify~~ track the surface of the subsoil before the topsoil is placed, unless otherwise permitted, for bonding the topsoil layer with the subsoil.

Topsoil shall be applied at a minimum depth of ~~6~~two (2) to three (3) inches. For Type B and C seed mixtures, the topsoil must be tracked again to compact to a minimum thickness of two (2) inches. For Type A seeding (lawn type seeding), compact the topsoil and then finely graded to provide a smooth surface. All sites must then be scarified ~~shall be accomplished~~ by disking, harrowing, raking, or other approved methods. Depressions and ridges formed by construction equipment, during final grading or scarifying, shall be parallel to the contours.

~~Topsoil shall not be spread to a greater depth than that required to make the work conform to the natural terrain after shrinkage and settlement have taken place.~~ After spreading the soil, all deleterious materials (large lumps or clods, brush, litter, or other foreign material, and stones exceeding two (2) inches approximately in any dimension) shall be raked up and removed from the site. For Type A seeding (lawn type seeding), remove all material over one (1) inch in any dimension.

The Contractor shall take all reasonable precautions to avoid injury to existing plant growth, structures, and roadway surface.

651.6-METHOD OF MEASUREMENT:

The quantity of work done will be measured in cubic yards of "Furnishing and Placing Topsoil" or "Placing Stockpiled Topsoil", which shall be the material actually removed from previously selected site or sites outside the right-of-way of from stockpiles within the right-of-way, and acceptably placed and spread on the areas designated to receive it, as determined from the net total of load tickets of vehicles.

651.7-BASIS OF PAYMENT:

The quantities, determined as provided above, will be paid for at the contract unit prices bid for the items listed below, which prices and payments shall be full compensation for furnishing all the materials and doing all the work prescribed in a workmanlike and acceptable manner, including all labor, tools, equipment, supplies, and incidentals necessary to complete the work.

No separate payment will be made for stripping topsoil within the right-of-way limits and transporting or stockpiling of such material.

651.8-PAY ITEMS:

ITEM	DESCRIPTION	UNIT
651001-*	Furnishing and Placing Topsoil	Cubic Yard
651002-*	Placing Stockpiled Topsoil	Cubic Yard

* Sequence number

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 652
SEEDING AND MULCHING

DELETE THE ENTIRE CONTENTS OF THE SECTION AND REPLACE WITH THE FOLLOWING:

652.1-DESCRIPTION:

This work shall cover all operations incidental to the establishment and maintenance of grass, forb, and leguminous vegetation, including the furnishing and sowing of seed; furnishing and applying fertilizer, ~~agricultural~~ limestone, other soil amendments, and mulch material, all in accordance with these Specifications and at locations indicated on the Plans or designated by the Engineer.

652.2-MATERIALS:

Materials shall meet the requirements in the following Subsections of ~~Division 700~~ Section 715:

MATERIAL	SUBSECTION
Biological Growth Stimulants	715.30
Fertilizers	715.26
~~Ground Agricultural Limestone~~	~~715.25~~
Hydraulic Growth Mediums	715.31
Inoculating Bacteria	715.29
Limestone	715.25
Matting for Erosion Control	715.24
Mulch Materials	715.27
Seed	715.28
Water	*

* Water shall be reasonably free from injurious chemicals and other toxic substances harmful to plant life. The source of water used is subject to the approval of the Engineer.

Temporary seed, such as ~~annual ryegrass (Italian ryegrass) and weeping lovegrass~~ common oats and cereal rye, used in the seed mixture~~s~~ B~~, C, or D,~~ shall be of a commercial grade meeting the requirements of the State Seed Law. Temporary seed labeled with the notation "germination

below standard" shall not be used. Temporary seed shall not be used after one year from date of germination test shown on the label. Seed other than that specified above shall meet the requirements of subsection 715.28.

Tackifier or chemical mulch binders shall be of commercial grade and conform to the requirements in subsection 715.27.1. Topsoil, if called for, shall conform to the requirements in section 651. All materials will be subject to approval or rejection, in part or in whole.

CONSTRUCTION METHODS

652.3-SEASON OF WORK:

Permanent seeding or ~~second and third seeding~~ re-application and spot application, following the original seeding, under section 652, shall be performed between the dates of ~~March 1~~ February 15th to ~~June 15 20th~~ May 31st and August 1st to October ~~15~~ 31st. Specific seeding dates are made for each seed mixture and can be found in 652.5. Permanent seeding shall not be performed outside these dates unless approved by the Engineer based on site conditions and seasonal suitability for establishment.

Temporary seeding and other erosion control measures, outside the above planting dates, shall fall under section 642. Seed shall be applied following construction at any time the weather will allow seeding equipment to operate, ~~under 642,~~ without regard to seasons. All disturbed areas shall be stabilized immediately following disturbance and shall not remain exposed longer than allowed under Section 642 or applicable permit requirements, whichever is more restrictive.

652.4-AREA PREPARATION FOR SEEDING AND MULCHING:

Seeding, fertilizing, liming, applying soil treatments, and mulching shall not be ~~applied~~ conducted until the specified areas have been brought to lines and grades shown on the Plans. Topsoil~~, when called for,~~ or hydraulic growth media shall be spread ~~to the depths indicated on the Plans.~~ In accordance to section 651.

~~The application rate for agricultural limestone will be determined by a pH test after cuts and embankments are completed just prior to seeding. The Plans will show the estimated tons of lime needed for the job based on general knowledge of the soils in the area. The final application rate will be determined by the Engineer based on the pH test, conducted in accordance with MP 700.04.10.~~

652.4.1-Soil Tests and Analysis: A soil test is required on all areas greater than one (1) acre when the area has reached final grade and permanent seeding is the next step. A soil test is optional for areas less than one (1) acre and will be determined by the Engineer if required. The area shall be evaluated by the Engineer to determine where the distinguishable representative areas are located. A distinguishable representative area is defined as an area where visible changes, such as a change in color or texture, in soil occur. All representative areas of the site shall be divided into maximum of five (5) acre increments and tested individually.

On each representative soil type, a composite sample is needed. A minimum of ten (10) subsamples of soil from the top ~~four (4) to six (6) inches will~~ two (2) to three (3) inches shall be collected. The subsamples should be taken randomly throughout the area. The subsamples ~~should~~ shall be thoroughly mixed and the composite sample should be sent to a certified soil

testing laboratory for analysis. The laboratory, at a minimum, should report: pH, buffer pH, fertilizer requirements and recommendations, and lime requirements and recommendations.

Soil test results shall be valid for a period not to exceed twelve (12) months from the date of sampling. If site conditions change due to additional disturbance, grading, or material placement after sampling, as determined by the Engineer, new soil testing shall be required prior to application of seed, lime, fertilizer, or other soil amendments.

652.4.2-Seedbed Preparation: ~~Interchanges, medians and similar~~ Areas with ~~3 to~~ 2 Horizontal : 1 Vertical (H:V) slope or flatter, excluding areas involving subsurface drainage from base course material, shall be scarified sufficiently to produce a seed bed ~~as directed by the Engineer~~. For slopes 3H:1V and flatter, scarify soil to a depth of 2-4 inches. For slopes 3H:1V to 2H:1V, scarify subsoil to a depth of 0.5-1 inches. Remediation of the pH should be made to the subsoil at the time of soil scarification, whether lime or sulfur is required based on soil test. See Table 653.4.3 for recommended bulk densities. All large sticks, brush, loose roots, stones exceeding two (2) inches approximately in any dimension, and other debris shall be removed prior to seeding operations. ~~The area shall be back dragged to eliminate depressions, ruts, or equipment track marks on slopes.~~ Before topsoil application, use a bulldozer to track the soil perpendicular to the slope making track indentations to reduce potential for topsoil slippage. Once check slots are in place, apply and track with a dozer to a minimum thickness of four (4) inches. The area shall be free of depressions, ruts, or excessive equipment track marks, other than check slots, on slopes. Seed bed preparation will not be necessary on slopes steeper than ~~3 to 1~~ 2H:1V.

~~652.4.1~~ **652.4.3-Preparation of Lawn Type Area for Seeding:** ~~All areas to be seeded to "Type C-2" lawn mixture, and "Type C-1" mixture in rest areas~~ Lawn type areas will use "Type A" mixture in rest areas, medians, shoulders, and lawns. The seedbed shall be fine graded. The finished grade shall be uniform and free of irregularities or ~~water pockets~~ depressions. The finished grade shall be free of weed and plant growth, stones over one (1) inch~~es~~ in diameter, or other debris. This debris will be disposed of as directed by the Engineer. Immediately prior to seeding, all areas shall be cultivated to provide a reasonably firm but friable seedbed. The depth of tillage shall be three (3) inches or as directed by the Engineer. Limestone as required and fertilizer as specified shall be worked into the upper three (3) inches of the seedbed before seeding.

TABLE 652.4.3

Recommended Lime Bulk Densities			
Soil Texture	**Ideal Bulk Densities**	**Bulk Densities that May Affect Root Growth**	**Bulk Densities that Restrict Root Growth**
	(lb/ft^3)	**(lb/ft^3)**	**(lb/ft^3)**
Sands, loamy sands	< 99.9	105.5	> 112.4
Sandy loam, loams	< 87.4	101.8	> 112.4
Sandy clay loams, loams, clay loams	< 87.4	99.9	> 109.2
Silts, silt loams	< 81.2	99.9	> 109.2
Silt loams, silty clay loams	< 87.4	96.8	> 103.0

Sandy clays, silty clays, some clay loams (35-45% clay)	< 68.7	93	> 98.6
Clays (> 45% clay)	< 68.7	86.8	> 91.8

652.4.4-Soil Additives and Amendments: The application rate for limestone, fertilizer, and other soil amendments will be determined by a soil test after cuts and embankments are completed just prior to seeding. The Plans will show the estimated tons of lime, fertilizer, and other soil amendments needed for the job based on general knowledge of the soils in the area. The final application rate ~~will~~ shall be determined by the Engineer based on ~~the~~ soil test, conducted in accordance with MP 700.04.10 for pH and soil nutrient testing.

652.5-SOWING SEED:

Immediately following area preparation, seed shall be sown. Only certified seed shall be used. Certified seed is seed that has been screened to check for satisfactory genetic purity and varietal identity and meets all requirements of State Seed Law. Seed shall not be used after one year from date of germination test shown on the label Legume seed shall be inoculated with approved cultures, in accordance with the instruction of the manufacturer. Seed may be directly sown with a drill seeder, if site conditions permit. Alternatively, seed may be sown by hydroseeding. When using a hydroseeder, the inoculant shall be increased to five times the normal rate. For areas of 5,000 square feet or less, narrow strips, steep slopes, or locations inaccessible to mechanical equipment, broadcast seeding may be permitted when approved by the Engineer

~~If machine breakdown occurs during hydroseeding, the following practices should be used to avoid seed damage:~~

~~For machine breakdown of thirty (30) minutes to two (2) hours, fifty percent (50%) more seed shall be added to the slurry, based on the proportion of the slurry remaining in the tank.~~

~~i. For machine breakdown of more than two (2) hours, a full rate of seed shall be used.~~

Seed shall be sown by approved methods which provide for uniform distribution of seed. Rates of application and type of seed mixture shall be in accordance with Table 652.5 unless otherwise specified on the Plans.

~~For lawn areas, the broadcast seeding shall be made in two applications, using one half the seed each time and the second sowing to be at right angles to the first. After broadcasting or otherwise applying the seed, the seedbed shall be firmed by means of a roller or cultipacker.~~

Specific seeding dates are made for each seed mixture.

a. Type A mixture is to be seeded from February 15th to ~~June 20th~~ May 31st and from August 1st to October 31st.
b. Type B seed mixture is to be seeded from ~~March 1st~~ March 15th to ~~June 20th~~ May 31st and ~~October 1st~~ August 1st to October 31st.
c. Type C mixture is to be seeded from March 15th to ~~May 15th~~ May 31st and from August 1st to October 31st.
d. Type E mixture is to be planted from March 20th to June 30th and October 15th to the first frost.

652.5.1-Reseeding, Refertilizing, and Remulching: Any area failing to establish ~~a stand due to weather or adverse soil conditions~~ seventy percent (70%) ~~of cover by area over 100%~~

of the site due to any reason vegetative cover shall be reseeded, refertilized, and remulched as directed by 652.8 and by the Engineer.

TABLE 652.5-SEED MIXTURES

Variety of Seed	Type B	Type C**		Type D	Type L
		C-1	C-2		
	Medians, Shoulders (Ditch Slope) Waterways, and Mowable Areas of Interchange*	Coarse Lawn Grass For Use in Urban and Rest Area Locations	Fine Lawn Grass For Use where a Fine Lawn is Desired	Cut and Fill Slopes (Including Benches and Bifurcated Median)	All areas
	Lb. per acre	Lb. per acre	Lb. per acre	Lb. per acre	Lb. per acre
Kentucky 31 Fescue	65	45		20	
Red Fescue (Pennlawn)	20	20	20	20	41
Kentucky Bluegrass		25	40		
Merion Bluegrass			30		
Crown Vetch				20	
Hard Fescue Mixture***					63
White Dutch Clover	3				
Annual Ryegrass Aug 1 to May 15 or Weeping Lovegrass May 15 to Aug 1	7 3	7 3	7	7 3	12 5

* Areas will be considered mowable when slopes are 3 to 1 or flatter.

** Type C-1 and C-2 seed mixtures shall be used in all urban, suburban, and rest areas where lawn type turf is desired with mowing maintenance intended. C-2 lawn mixture shall be used along sidewalks, adjacent to private lawns.

** A combination of approved certified varieties with no one variety exceeding 50% of the
* total hard fescue component.

TABLE 652.5
Seed Mixtures

Variety of Seed	Type A Mowable Areas [b] (lb/ac)	Type B Cut and Fills (lb/ac)	Type C Cool Season (lb/ac)	Type E Wet Areas (lb/ac)
Common Oat (*Avena sativa*) (March 1- October 31) [a]		30		
Cereal Rye (*Secale cereal*) (November 1-Feb 28) [a]		30		
~~Autumn Bentgrass (*Agrostis perennans*)~~	~~10~~	~~3.7~~		
Perennial Rye (*Lolium perenne*)	~~10~~ 50	~~3.713~~ 50	35	
Chewing's Fescue (*Festuca rubra ssp. commutate*)	25			
~~Hard Fescue 'Chariot' (*Festuca brevipila*)~~	~~35~~		~~35~~	
~~Hard Fescue 'Heron' (*Festuca ovina var. duriuscula*)~~	~~35~~		~~35~~	
Turf Fescue [c] (*Festuca Variety*)	25			
Creeping Red Fescue (*Festuca rubra*)	~~55~~ 50		~~55~~ 50	
White Clover (*Trifolium repens*)	~~35~~	5	~~7~~ 10	
Red Clover (*Trifolium pratense*)		~~518~~ 10		
Big Bluestem (*Andropogon gerardii*)		~~621~~ 5		
~~Virginia Wildrye (Elymus virginicus)~~		~~8.4~~		4
~~Switchgrass (Panicum virgatum)~~		~~6.4~~		
~~Indiangrass (Sorghastrum nutans)~~		~~14~~		
Partridge Pea (*Chamaecrista fasciculate*)		~~14~~		
Black-eyed Susan (*Rudbeckia hirta*)		~~0.6 4~~ 2		
~~Birds Foot (Lotus corniculatus)~~		~~18~~		
Orchard ~~G~~grass (Dactylis glomerata)		~~11~~15	15	
~~Narrowleaf Mountainmint (Pycnanthemum tenuifolium)~~		~~0.1~~		

TABLE 652.5
Seed Mixtures

Variety of Seed	Type A Mowable Areas [b] (lb/ac)	Type B Cut and Fills (lb/ac)	Type C Cool Season (lb/ac)	Type E Wet Areas (lb/ac)
~~Wild Bergamot~~		~~0.5~~		
~~Panicledleaf Ticktrefoil (Desmodium paniculatum)~~		~~0.4~~		
~~Smooth Oxeye (Heliopsis helianthoides)~~		~~0.4~~		
~~Flat-top Goldentop (Euthamia graminifolia)~~		~~0.1~~		
Redtop (*Agrostis gigantean*)			42	
Birdsfoot Trefoil (*Lotus corniculatus*)		15	~~8~~10	
Fox Sedge (*Carex vulpinoidea*)				4
Fowl Bluegrass (*Poa palustris*)				3.5
Redtop Panicgrass (*Panicum rigidulum*)				4
Common Rush (*Juncus effuses*)				0.5
Shallow Sedge (*Carex lurida*)				3
Blue Vervain (*Verbena hastate*)				0.8
Wingstem (*Verbesina alternifolia*)				0.2
~~Joe Pye Weed (*Eutrochium purpureum*)~~		~~1.5~~		~~1.5~~
Swamp milkweed (*Asclepias incarnata*)				0.1
~~Butterfly Milkweed (*Asclepias tuberosa L.*)~~		~~.10~~		
Common Milkweed (*Asclepias syriaca*)		~~.10~~ 1		
Purple coneflower (*Echinacea purpurea*)		~~1.5~~2		

a. Choose a nurse crop according to season of planting.

TABLE 652.5
Seed Mixtures

Variety of Seed	Type A Mowable Areas [b] (lb/ac)	Type B Cut and Fills (lb/ac)	Type C Cool Season (lb/ac)	Type E Wet Areas (lb/ac)

b. Type A will be utilized for mowable areas. Type A seed mixture shall be used in all urban, suburban, rest areas, WVDOH facilities, and mowable areas along roadways where lawn type turf is desired with mowing maintenance intended.

c. A combination of approved certified varieties with no one variety exceeding fifty percent (50%) of the total turf fescue component.

652.6-APPLYING MULCH, LIME, ~~AND~~ FERTILIZER, AND OTHER SOIL AMENDMENTS:

652.6.1-General: Whenever permanent or temporary seeding is made on bare soil or newly completed construction work, the following criteria shall be followed in regard to mulching.

i. Hydraulic erosion control products shall be used on all slopes but consult 652.6.2 for further details and specifications.

ii. Rolled erosion control products (RECPs) may be used on slopes less than or equal to 2H:1V.

iii. Straw mulch (excluding hay) shall be used on slopes ~~1 ½ to 1 or flatter~~ less than or equal to 4H:1V. ~~Wood cellulose fiber mulch shall be used on cut slopes steeper than 1½ to 1. The Engineer may make adjustments in the type of mulch to meet local conditions on the job.~~

When using straw mulch, the mulch shall be anchored with ~~an acceptable~~ a non-toxic tackifier or binder as described in Section 652.6.~~2~~5 ~~below~~. The sequence of application, when using straw mulch shall be as follows:

1) Seed, lime, ~~and~~ fertilizer, other soil amendments shall be sown prior to mulching.
2) Mulch and non-toxic tackifier ~~mulch~~ or binder shall be placed within twenty-four (24) hours of sowing seed.

~~When permanent seeding follows a temporary cover crop, wood cellulose fiber mulch shall be used and the quantity of mulch shall be determined by the amount of living and dead plant residue on the soil surface in accordance with subsection 652.6.3.2.~~

Where the temporary seeding has been destroyed by subsequent construction, the mulch will be the same type and amount as required for bare soil or new construction.

~~**652.6.2-Straw Mulch:** Straw shall be applied at the rate of approximately two tons per acre. Straw mulch around buildings, sidewalks or other structures may be held in place with a form of netting or chemical mulch binders applied according to the manufacturers' specifications.~~

652.6.2-Hydraulic Erosion Control Products: Hydraulically applied erosion control products (HECPs) are applied to bare soil by means of a mechanically agitated hydro seeder

or by broadcast spreading. Typically, a mixture of cut or shaved wood, straw, bonded fiber matrix, or defibrated organic fiber matrix and a stabilizing emulsion or tackifier constitutes the components of HECP. Paper mulch is not approved for use other than for the use of a mulch binder on straw.

Table 652.6.2A lists qualifications for the accepted HECPs. The products are presented in respect to the acceptable slope that the individual HECPs may be applied, as shown in Table 652.6.2B.

TABLE 652.6.2A

Mulch Types					
Property	**Test Method**	**Straw**	**HECP Type 1**	**HECP Type 2**	**HECP Type 3**
Physical					
Color	Observed	Natural	Colored to contrast application area, shall not stain concrete or painted surfaces.		
Organic Matter	ASTM D2974	100%	90% minimum		
Water Holding Capacity	ASTM D7367		600% Minimum	800% Minimum	1200% Minimum
Acute Toxicity	ASTM D7101 EPA 2021.0-1	Non Toxic			
Endurance					
Functional Longevity	ASTM D5338	≥ 90 days	≥ 90 days	≥ 180 days	≥ 365 days
Performance					
Maximum Slope Application	Observed	4.0H:1V	4.0H:1V	2.0H:1V	~~0.5H:1V~~ 1H:1V
Cover Factor	ASTM D8298 or ASTM D6459	-	C ≤ 0.3	C ≤ 0.05	C ≤ 0.01
Ground Cover	ASTM D6567	> 85%	> 90%	> 95%	> 97%
Vegetation Establishment	ASTM D7322[a]		300% Minimum	400% Minimum	500% Minimum

a. ASTM test methods developed for Rolled Erosion Control Products (RECPs) that have been modified to accommodate Hydraulic Erosion Control Products (HECPs).

TABLE 652.6.2B

Mulch Application		
Mulch	**Applicable Slopes**	**Minimum Application Rate (lb/acre – dry) [a]**
HECP Type 1	≤ 4H:1V	2,500
HECP Type 2	4H:1V < S ≤ 2H:1V	3,000

HECP Type 3	2H:1V < S ≤ ~~0.5H:1V~~ 1H:1V	4,000 [b]
Straw	≤ 4H:1V	4,000

a. A higher level of mulch may be applied than that specified on the Plans, Specifications, and other terms of the Contract. In this situation, the higher level mulch is applied at the rate for the actual slope condition of the site in accordance with the mulch tables, and payment is for the actual mulch specified, not the higher level mulch.

b. HECP Type 3 may be used for permanent cover applications on slopes 1H:1V or greater at a minimum rate of 4,500 pounds per acre as directed by the Engineer only when the proper TRM installation is not practicable due to site constraints.

652.6.2.1-HECP Type Overview: Provide a HECP Type 1, 2, or 3 that has no germination or growth inhibiting factors and does not form a water-resistant crust that can inhibit plant growth. Provide a HECP Type 1, 2, or 3 that completely photo-degrades or biodegrades. Add seed, lime, fertilizer, and other soil amendments to the HECP Type 1, 2, or 3 mixture.

Furnish HECP Type 1, 2, or 3 where all components are pre-packaged by the manufacturer to assure material performance and compliance with the minimum requirements of Table 652.7.2.1. Under no circumstances will field mixing of HECP Type 1, 2, or 3 additives or components be accepted.

HECP Type 1 or 2 shall be applied when the soil is dry and rain is not expected within 24 hours following application. HECP Type 3 shall be applied when the soil is dry and rain is not expected within eight (8) hours following application. All applications shall have a high degree of certainty that no heavy rain events follow within forty-eight (48) hours following application.

The HECPs must comply at minimum with Tables 652.6.2A and 652.6.2B.

652.6.2.2-HECP Type 1: Provide a HECP Type 1 (Hydraulic Mulch with Tack) composed of non-toxic fibers consisting of a minimum of seventy percent (70%) wood fiber or natural fibers that contain non-toxic tackifiers or binders. The HECP Type 1 should be insoluble and non-dispersible after drying to limit raindrop impact. Paper fiber, whether recycled or virgin, may be incorporated in an amount not to exceed thirty percent (30%) of the total fiber content.

652.6.2.3-HECP Type 2: Provide a HECP Type 2 (bonded fiber matrix (BFM)) consisting of a hydraulically applied matrix composed of a minimum of seventy percent (70%) of non-toxic defibrated organic fibers with at least one of the following non-toxic additives:

i. Soil tackifiers
ii. Soil flocculants
iii. Soil polymers
iv. Cross-linked hydro-colloidal polymers, or
v. Cross-linked tackifiers.

The HECP Type 2 should be insoluble and non-dispersible after drying to limit raindrop impact.

Do not use materials composed of paper, cellulose fiber, or any mixture containing paper or cellulose. Do not use materials listed for use as a HECP Type 1. Add seed, legume inoculant, lime, and fertilizer to the HECP Type 2 mixture.

652.6.2.4-HECP Type 3: Provide a HECP Type 3 (fiber reinforced matrix (FRM)) consisting of a hydraulically applied matrix composed of a minimum of seventy percent (70%) of non-toxic defibrated organic fibers and a minimum of five percent (5%) ~~crimped~~, biodegradable interlocking fibers with least one of the following non-toxic additives:

i. Soil tackifiers,
ii. Soil flocculants,
iii. Soil polymers,
iv. Cross-linked hydro-colloidal polymers, or
v. Cross-linked tackifiers.

The HECP Type 3 should be insoluble and non-dispersible after drying to limit raindrop impact.

Do not use materials composed of paper, cellulose fiber, or any mixture containing paper or cellulose. Do not use materials listed for use as HECP Type 1 or 2. Add seed, legume inoculant, lime, and fertilizer to the HECP Type 3 mixture.

~~**652.6.3-Hydraulic Application of Wood Cellulose Fiber as a Mulching Agent**:~~

652.6.3-Hydraulic Erosion Control Products Application:

652.6.3.1-Equipment: Hydraulic equipment shall be used for the application of a slurry of fertilizer, lime, seed, ~~prepared wood cellulose fiber, and water.~~ tackifier, legume inoculant, water, and HECP. This equipment shall have a built-in agitation system with ~~an operating capacity sufficient to agitate, suspend, and homogeneously mix a slurry of the specified amount of fiber, fertilizer, seed, and water.~~ a working capacity sufficient to agitate, suspend, and homogeneously mix a slurry of the specified amount of tackifier, fertilizer, lime, seed, legume inoculant, other soil amendments, water, and HECP. The slurry distribution lines shall be large enough to prevent stoppage. This discharge line shall be equipped with a set of hydraulic spray nozzles which will provide even distribution of the mixture or slurry in the various areas to be seeded. The slurry tank ~~shall have a minimum capacity of 1,000 gal and~~ shall be mounted on a traveling unit which may be either self-propelled or drawn, with a separate unit which will place the slurry tank and spray nozzles within sufficient proximity to the areas to be seeded to provide uniform distribution without waste.

652.6.3.2-Preparation of Slurry and Application of HECPs: ~~Fertilizer, Seed, and Mulch:~~ ~~Wood cellulose fiber shall be applied at a minimum rate of 1,500 lbs. net dry weight per acre when seeding bare soil or new construction.~~ HECPs shall be applied at the specified rate according to the manufacturer, while following the minimum standards specified in Table 652.6.2B. When seeding into a residue or growth where temporary seeding has previously been performed, the rate will be determined by the Engineer, usually 1,000 lbs. net dry weight per acre. The ~~seed, fertilizer, wood cellulose fiber, and water~~ HECP, tackifier, seed, legume inoculant, fertilizer, lime, other soil amendments, and

water shall all be combined into the slurry tank for distribution of all ingredients in one operation by the hydraulic seeding method. The agitator shall be operating at a rate sufficient to keep all materials in suspension at the time such material is added. ~~Seed shall be added first, shall be thoroughly mixed, and the fertilizer then added and put into suspension. When the tank is 40 percent (40%) full, the mulch material may be added and shall be in complete suspension by the time the tank is 75 percent (75%) full. Such increased mixing speed as is necessary for putting the entire admixture in suspension shall be maintained until the tank is emptied. Spraying may commence at such time as the full complement of water has been mixed into the slurry. It is the intent of this Specification to maintain the slurry, during the spraying operation, as~~ The addition of materials into the slurry shall be conducted in the order and time specified by the manufacturer to ensure a homogeneous slurry and survivability of the seed and inoculants. During the spraying operation, a homogenous mixture of suspended solids in the tank until the tank is emptied. Upon request of the Engineer, a representative from the HECP manufacturer shall be on site to aid in application and inspection of the mixture application.

652.6.4-Rolled Erosion Control Products: Rolled erosion control products (RECPs) shall be composed of natural or polymer fibers bound together to form a matrix to provide erosion control. RECPs shall conform to all requirements within 715.24. RECPs shall be installed in accordance with the manufacturer's recommendations to slope with 100% surface coverage. Single net straw matting shall be installed on slopes less than or equal to 3H:1V. Double net straw matting shall be installed on slopes less than or equal to 2H:1V.

Site preparation is crucial to achieve continuous intimate contact between the soil and the RECP. The site must be fine graded to a smooth profile and the surface must be free from any bumps or dips that cause separation between the soil and the RECP. All installed RECP's shall be inspected to ensure proper installation. All deficiencies shall be corrected.

RECPs shall be installed as follows for proper long term effectiveness. A six (6) inch by six (6) inch trench shall be dug a minimum of three (3) feet above the top of slope. The RECP shall then be laid into the trench with six (6) inches of material extended above the trench to be used for overlap. The RECP laid in the trench shall be anchored with six (6) inch anchors at one (1) foot intervals along the width of the RECP. Backfill soil shall then be added to the trench on top of the anchored RECP and compacted. The six (6) inch overlap will then wrap around the backfilled soil and be anchored. The RECP shall then be installed parallel to the slope direction.

Each RECP should overlap another by six (6) inches to provide maximum coverage and stability. Each overlap shall be anchored at one (1) foot intervals along the length of the RECP. RECPs shall be pulled to remove excess slack without breaking contact with the soil surface and anchored to the slope with six (6) inch anchors (stakes or pins). The Engineer may require longer anchors for sandy or loose soils. Refer to table 652.7.4.1 for the minimum anchor frequency requirements.

TABLE 652.6.4

RECP Anchoring Requirement	
Slope Grade	**Anchoring Frequency (anchors / square yard)**
Up to 3H:1V	1.5
3H:1V to 2H:1V	2.0

652.6.5-Straw Mulch: Clean, dry straw mulch may be applied on slopes less than 4H:1V. Straw mulch may be applied to slopes up to 2H:1V if the coverage area is less than 1 acre. Straw mulch shall be applied at a rate of two (2) tons per acre with eighty five percent (85%) surface coverage by visual observation. The maximum allowable continuous slope length for straw mulch is fifty (50) feet. Slope interruption devices or rolled erosion control products are required for continuous slope length longer than fifty (50) feet. Straw mulch must be anchored with a non-toxic tackifier or binder according to the manufacturer specifications. The non-toxic tackifier or binder should be applied on the straw at the manufacturer's recommended rates. The Contractor shall be responsible for any damage to structures from the tackifier or binder.

Straw mulch around buildings, sidewalks, or other structures may be held in place with a form of netting or may be sprayed with a non-toxic tackifier or binder by hand while protecting the structures from over spray.

652.6.6-Limestone: The kind and rate of application of limestone shall be determined by the soil analysis. Agricultural granular, fast acting lime, or both may be needed depending on the results from the soil analysis. Lime is not required for temporary seeding unless directed by the Engineer.

652.6.6.1-Agricultural Granular Limestone: Agricultural granular limestone is used for long term pH remediation. Agricultural lime shall be uniformly distributed among the area and thoroughly mixed with the soil to a depth of three (3) inches. Mixing is not required when spreading lime with hydraulic methods. Agricultural lime shall be spread at the rate recommended by the soil analysis.

652.6.6.2-Fast Acting Limestone: Fast acting limestone is used for immediate pH remediation and should only be used on sites that have time-sensitive guidelines, as directed by the Engineer. Fast acting lime comes in two forms: liquid and dry. The type of fast acting lime shall be determined by the Engineer. Both forms of fast-acting limestone shall be applied at the recommended rate from results of the soil analysis.

652.6.47-Fertilizer: The kind and amount of fertilizer per acre shall ~~consist of any type with 1-2-1 ratio (nitrogen, phosphoric acid, and potash) providing the minimum nutrient equivalent of 1,000 lb. of 10-20-10. In addition, 300 lb. per acre of slow release urea formaldehyde fertilizer shall be added whenever second step seeding and fertilizing is not feasible due to the Contract completion date. When hydraulic seeding methods are used, the fertilizer shall be applied concurrently with the seeding and mulching operation as part of the slurry mix. When commercial fertilizer is applied by the spray or hydraulic method, it need not be worked into the soil.~~

~~Fertilizer applications for second and third step seeding shall be in accordance with subsection 652.8.~~ be determined by the soil analysis. Fertilizer type and quantity will then be prescribed by the Engineer based on a site-by-site analysis. The Engineer may require more than one type and quantity of fertilizer based on the project site characteristics due to varying soil conditions and properties.

Re-application and spot application fertilizer requirements shall be based on soil tests to determine the appropriate type and quantity to mitigate the failed vegetative establishment.

Temperature Release Nitrogen (Environmentally Sensitive Nitrogen (ESN)) should be considered during winter seeding to prevent excess nitrogen runoff and to preserve nitrogen for the growing season.

652.6.8-Biological Growth Stimulants: Biological growth stimulants shall be applied to all topsoil containing less than three percent (3%) organic matter by weight. The amount and type of stimulant will be determined by the soil analysis. All biological growth stimulants shall conform to 715.30.

652.6.9-Hydraulic Growth Medium: Hydraulic growth medium (HGM) shall be used when topsoil cannot be used and the subsoil analyzed for permanent seeding does not contain at least three percent (3%) organic matter by weight. The HGMs shall conform to sections 651 and 715.31.

652.6.~~5~~10-Wood Chips: Wood chips, recovered from clearing and grubbing operations, or bark will be acceptable ~~as a mulch for seeding and shall be used at a rate of 35 cubic yard per acre in lieu of straw or hay.~~ for landscaping at a depth of two (2)-four (4) inches or used to fill compost socks for erosion control measures instructed by the Engineer.

652.7-MAINTENANCE OF SEEDED AND MULCHED AREAS:

652.7.1-Contractor Maintenance Requirements: The Contractor shall maintain all seeded areas until final acceptance of the project, minimum of seventy percent (70%) vegetative cover.~~.~~ All areas shall be protected from equipment ~~traffic and any damaged areas shall be repaired and reseeded.~~ and foot traffic and any damaged areas shall be repaired and reseeded. The Engineer will require spot application or re-application, or both, depending upon the completion date and estimated completion time of any remaining items on the project.

~~**652.8-SECOND AND THIRD STEP SEEDING, FERTILIZING AND MULCHING:**~~

652.7.2-Re-Application: The re-application of seed, mulch, and fertilizer shall be applied as directed by the Engineer based on ~~The Engineer will require second or third step seeding, or both, depending upon~~ the completion date, ~~and~~ estimated completion time of any remaining items on the project, and unsatisfactory stand development. ~~The second application of fertilizer, seed and mulch shall be applied as directed by the Engineer.~~ The application rates will be based on the stand of grass, severity of erosion and condition or growth of grass as described. ~~Spring seedings shall be refertilized and reseeded as needed in the fall from August 15 to October 15. Fall seeded areas shall be given a second step seeding and fertilizing, as required, the following spring from March 15, to May 15.~~ Spring seeding shall be re-fertilized and re-seeded as needed in the summer and fall from August 1st to October 31st. Summer and fall seeded areas shall be re-seeded and re-fertilized in the following spring from March 1st to ~~June 20th~~ May 31st.

The following shall be used as a guide for ~~second step application~~ for re-application:

i. For areas with less than fifty percent (50%) stand or subject to sever erosion, apply the ~~complete amount of seed, fertilizer, and mulch (wood cellulose fiber) as specified in the original seeding.~~ original specified seed, fertilizer, lime, and mulch rates.

ii. For areas with over fifty percent (50%) ~~of grass and slight to moderate erosion~~ stand,, apply one half the original ~~fertilizer and~~ seed fertilizer, lime, and mulch rates., . ~~If erosion is a problem apply one half the original wood fiber mulch.~~

~~The third step seeding, mulching, and fertilizing shall consist of spot application on areas not showing a satisfactory stand after the second step application. The quantity of material will be determined on the same basis as for the second step application. No urea formaldehyde fertilizer will be needed for third step seeding.~~

652.7.3-Spot Application: Spot application is for areas that have been damaged or not showing a satisfactory stand after the original or re-application, or both for seeding, mulching, liming, and fertilizing of the project site. The quantity of material will be determined by the Engineer based on the size and requirements of the spot applications.

652.8-Blank

652.9-METHOD OF MEASUREMENT:

Ground agricultural limestone, fast-acting limestone, fertilizer, and mulch will be measured by the ton. Seed will be measured by the pound.

~~Wood chips or bark~~ Mulch will be measured by the cubic yard. It is assumed that 17.5 cubic yard of chips or bark are equal to one (1) ton of straw for seeding. Wood chips or bark mulch will be measured by truck load or other loose volume measurement, and payment will be made on one ton equivalent of straw for each 17.5 cubic yard of ~~wood chips or bark~~ mulch.

~~Second and third step seeding operations~~ Re-application and spot application will be measured and included for payment under items in subsection 652.11.

~~Chemical mulch binders~~ Tackifier or binder for anchoring mulch will not be measured separately, but their cost shall be included in the unit price bid for mulch.

652.10-BASIS OF PAYMENT:

The quantities determined as provided above, will be paid for at the contract unit prices bid for the items listed below, which prices and payments shall be considered full compensation for furnishing all materials and performing all the work prescribed in a workmanlike and acceptable manner, including all labor, tools, equipment, supplies, and incidentals necessary to complete the work.

Topsoil will be measured and paid for in accordance with the provisions of section 651.

The bid price for fertilizer is based on 10-20-10 type. When other types of fertilizer are ~~used, pay quantities will be determined using the following table.~~ determined by the Engineer based on soil tests, pay quantities will be established by the following table.

Type of Fertilizer	Actual Quantity Used Pounds	Pay Quantity Pounds
5-10-5	100	50
8-16-8	100	80
10-20-10	100	100
12-24-12	100	120
15-30-15	100	150

Type of Fertilizer	Actual Quantity Used Pounds	Pay Quantity Pounds
18-46-0	100	180

When fertilizer types other than those shown above are used, the relationship between the pay quantity and the actual quantity used will be established by the Engineer.

652.11-PAY ITEMS:

ITEM	DESCRIPTION	UNIT
652001-*	Agricultural Limestone	Ton
652001-*	Fast-Acting Limestone, Dry	Pound
652001-*	Fast-Acting Limestone, Liquid	Gallon
652002-*	Fertilizer, “type”	Ton
652003-*	Seed Mixtures, “type”	Pound
652004-*	~~“type”~~ Mulch, “type”	Ton
652006-*	Biological Growth Stimulant, “type”	Pound
652006-*	Hydraulic Growth Medium, “type”	Pound

* Sequence number

DRAFT

~~February 10, 2025~~ April 21, 2026

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 715
MISCELLANEOUS MATERIALS

DELETE THE ENTIRE CONTENTS OF SUBSECTIONS 715.25 THROUGH 715.32 AND REPLACE WITH THE FOLLOWING:

715.25-~~GROUND AGRICULTURAL~~ LIMESTONE:

715.25.1-Ground Agricultural Limestone: Ground agricultural limestone shall consist of high calcitic or dolomitic limestone containing not less than 85% of total calcium and magnesium carbonates, ground to such fineness and clearly labeled in accordance with the requirements of the West Virginia Department of Agriculture. Ground agricultural limestone shall be furnished and used in accordance with State Laws. Suppliers must be registered with the West Virginia Department of Agriculture.

715.25.2-Fast Acting Limestone: Fast acting limestone shall meet all requirements of ground agricultural limestone with the West Virginia Department of Agriculture, except that gradation requirements for percent by weight passing U.S. Standard Sieves shall not apply.

715.26-FERTILIZERS:

Commercial fertilizers shall be supplied separately or in mixtures containing the specified percentages of total nitrogen, available phosphoric acid, and water-soluble potash. Fertilizer shall be furnished in standard containers with weight, name of plant nutrients and guaranteed percentages, clearly marked, all in accordance with governing State and Federal laws. Brands must be registered with the West Virginia State Department of Agriculture.

715.26.1-Fertilizer for Seeding: Fertilizer for seeding shall consist of any type ~~with a 121 ratio providing the minimum nutrient equivalent specified~~ meeting the minimum specified by the soil analysis. Urea formaldehyde fertilizer shall contain a minimum of 38 percent (38%) slowly available nitrogen.

Commercial fertilizer for seeding may be supplied in any of the following forms, subject to the approval of the Engineer.

i. A dry, free flowing fertilizer that may be applied by ordinary agricultural spreaders.
ii. A fertilizer which is water soluble or one which will permit complete suspension of insoluble particles in water, applicable to hydraulic methods of application.

715.26.2-Fertilizer for Landscape Planting: The fertilizer shall be a co-granulated magnesium ammonium phosphate and magnesium potassium phosphate, controlled release, inorganic fertilizer compound (coarse grade). It shall have a guaranteed minimum analysis of:

	Percent
Nitrogen	7
Maximum water soluble ammoniacal nitrogen	2
Minimum water insoluble ammoniacal nitrogen	5
Phosphoric acid (available P_2O_5)	40
Potash(K_2O)	6

715.27-MULCH MATERIAL:

715.27.1-Mulch Material for Seeding:

715.27.1.1-Straw Mulch: Straw mulch for seeding shall include baled wheat or oat straw, ~~or baled grass hay. Alfalfa, clover and salt grass hay are not acceptable~~ free of seed heads. Hay shall not be used. Straw mulch shall be dry and reasonably free from weeds, sticks, or other foreign material.

Acceptance shall be based on the Division's visual inspection of the material. Wood Mulch for seeding should be 100% recycled materials, biodegradable, thermally refined, plastic-free, and phytosanitized to eliminate potential weed seeds and pathogens.

715.27.1.2-~~Wood Cellulose Mulch~~ Hydraulic Erosion Control Products (HECP): Mulch for use with the hydraulic application of grass seed shall consist of a minimum of 70% wood ~~cellulose~~ fiber. It should become insoluble and non- dispersible after drying to limit raindrop impact on soil. Do not use materials composed of paper, cellulose fiber, or any mixture containing paper or cellulose. It shall contain no growth or germination inhibiting factors ~~and~~, shall be dyed green, and shall not form a water-resistant crust.

When the material is agitated in slurry tanks with fertilizers, grass seed, water and other approved additives, the fibers shall become uniformly suspended to form a homogeneous slurry. The hydraulically sprayed slurry shall form a blotter-like ground cover impregnated with grass seed. The ground cover shall permit the absorption of water and allow rainfall or mechanically applied water to percolate to the underlying soil, and it must completely photo-degrade or biodegrade.

The ~~wood cellulose fiber mulch~~ hydraulic erosion control product shall conform to the following requirements:

~~Length of fibers~~	~~10 mm. maximum~~
~~Thickness of Fibers~~	~~1 mm. maximum~~
~~Net Dry Weight Content*~~	~~Minimum stated on bag~~
~~pH*~~	~~4.0-8.5~~
~~Water Holding Capability*~~	~~90% Minimum~~

~~* Test Procedure MP 715.27.20~~

TABLE 715.27.1.2

Mulch Types				
Property	**Test Method**	**HECP Type 1**	**HECP Type 2**	**HECP Type 3**
Physical				
Color	Observed	Colored to contrast application area, shall not stain concrete or painted surfaces.		
Organic Matter	ASTM D2974	90% minimum		
Water Holding Capacity	ASTM D7367	600% Minimum	800% Minimum	1200% Minimum
Acute Toxicity	ASTM D7101 EPA 2021.0-1	Non Toxic		
Mass per Unit Area (g/m^2)	ASTM D6566	150	250	350
Thickness of Fibers (mm)	ASTM D6525	2.5	3	4
Endurance				
Functional Longevity	ASTM D5338	≥ 90 days	≥ 180 days	≥ 365 days
Performance				
Maximum Slope Application	Observed	4.0H:1V	2.0H:1V	0.5H:1V
Cover Factor	ASTM D8298 or ASTM D8297	C ≤ 0.3	C ≤ 0.05	C ≤ 0.01
Ground Cover	ASTM D6567	> 90%	> 95%	> 97%
Vegetation Establishment	ASTM D7322 [a]	300% Minimum	400% Minimum	500% Minimum

a. ASTM test methods developed for Rolled Erosion Control Products (RECPs) that have been modified to accommodate Hydraulic Erosion Control Products (HECPs).

The mulch shall be delivered in packages not to exceed 100 lbs. The package shall bear the name of the manufacturer, the net weight and a supplemental statement of the net dry weight.

The material must be approved prior to being used. Acceptance will be based on sampling and testing by the Division for conformance to specifications.

715.27.1.3-Chemical Mulch Binder: A chemical mulch binder shall consist of a polymer, ~~synthetic resin, polypectate~~ guar, starch, polyacylamide, or other material which can readily be removed and will give similar adhesive properties as asphalt when sprayed on straw or other fiber mulches.

715.27.2-Mulch Materials for Landscape Plantings: Acceptable materials for mulching shall be shredded bark, buckwheat hulls, wood chips or other organic materials approved by the Engineer.

Certain inorganic materials such as calcined clay, crushed rock or coarse gravel will be acceptable when designated on the Plans.

715.28-SEED:

The varieties of grass and legume seeds to be furnished to the project shall bear a tag on

each bag of each species showing the lot number, the seedman's name, the percent of purity, the percent of germination and the weed seed content, in accordance with governing State and Federal laws.

All seeds shall be free from noxious weed seeds as set forth in the West Virginia State seed law and in no event shall the total weed content of any lot of seed or seed mixture exceed one-half percent by weight. The minimum percent purity and germination for the various seeds shall be as shown in Table 715.28.

~~Seed~~	~~Purity Minimum %~~	~~Germination~~	
		~~Total Minimum (%)~~	~~Minimum Quick Sprouts (%)~~
~~Crown Vetch~~	~~99~~	~~*70~~	~~35~~
~~Kentucky Bluegrass~~	~~85~~	~~75~~	
~~Kentucky 31 Fescue~~	~~98~~	~~85~~	
~~Marion Bluegrass~~	~~90~~	~~75~~	
~~Perennial Ryegrass~~	~~95~~	~~85~~	
~~Red Fescue~~	~~98~~	~~85~~	
~~White Dutch Clover~~	~~98~~	~~*85~~	~~55~~

TABLE 715.28

Minimum Seed Purity And Germination

Variety of Seed	Minimum Seed Purity (%)	Minimum Seed Germination (%)
Common Oat *(Avena sativa)* (March 1-October 31)	98	85
Cereal Rye *(Secale cereal)* (November 1 – February 28)	98	85
~~Autumn Bentgrass *(Agrostis perennans)*~~	~~95~~	~~85~~
Perennial Rye (*Lolium perenne*)	95	85
Chewing's Fescue *(Festuca rubra ssp. commutate)*	97	85
Turf Fescue c. *(Festuca Variety)*	95	85
~~Hard Fescue 'Chariot' *(Festuca brevipila)*~~	~~97~~	~~85~~
~~Hard Fescue 'Heron' *(Festuca ovina var. duriuscula)*~~	~~97~~	~~85~~
Creeping Red Fescue *(Festuca rubra)*	97	85
White Clover *(Trifolium repens)*	99	85
Red Clover (*Trifolium pratense*)	95	80
Big Bluestem *(Andropogon gerardii)*	85	70
~~Virginia Wildrye~~	~~85~~	~~70~~

~~*(Elymus virginicus)*~~		
~~Switchgrass~~ ~~*(Panicum virgatum)*~~	~~95~~	~~75~~
~~Indiangrass~~ ~~*(Sorghastrum nutans)*~~	~~85~~	~~70~~
Partridge Pea *(Chamaecrista fasciculate)*	98	70
Black-eyed Susan *(Rudbeckia hirta)*	80	60
~~Birdsf Foot~~ ~~(Lotus corniculatus)~~	~~96~~	~~85~~
Orchardg~~-~~Grass (*Dactylis glomerata*)	85	80
~~Narrowleaf Mountainmint~~ ~~*(Pycnanthemum tenuifolium)*~~	~~80~~	~~40~~
~~Wild Bergamot~~ ~~*(Monarda fistulosa)*~~	~~80~~	~~40~~
~~Panicledleaf Ticktrefoil~~ ~~*(Desmodium paniculatum)*~~	~~90~~	~~70~~
~~Smooth Oxeye~~ ~~*(Heliopsis helianthoides)*~~	~~80~~	~~60~~
~~Flat-top Goldentop~~ ~~*(Euthamia graminifolia)*~~	~~70~~	~~40~~
Redtop *(Agrostis gigantean)*	92	80
Birdsfoot Trefoil *(Lotus corniculatus)*	98	95
Fox Sedge *(Carex vulpinoidea)*	85	60
Fowl Bluegrass *(Poa palustris)*	90	70
Redtop Panicgrass *(Panicum rigidulum)*	99	70
Common Rush *(Juncus effuses)*	85	60
Shallow Sedge (*Carex lurida*	85	60
Blue Vervain (*Verbena hastate)*	80	50
Wingstem (*Verbesina alternifolia)*	90	80
~~Joe Pye Weed~~ ~~*(Eutrochium purpureum)*~~	~~80~~	~~60~~
Swamp milkweed (*Asclepias incarnata*)	80	60
~~Butterfly Milkweed~~ ~~*(Asclepias tuberosa L.)*~~	~~80~~	~~60~~
Common Milkweed (*Asclepias syriaca*)	80	60
Purple coneflower (*Echinacea purpurea*)	80	60

~~Crown vetch seed~~ All legumes shall be inoculated according to the supplier's

recommendations. However, when seeding with the hydroseeder the inoculant shall be increased to five times the recommended rate.

If test results indicate noncompliance with the above germination or purity requirements, or both, additional seed may be added to give the equivalent germination or purity, or both.

The Division reserves the right to test, reject or approve all seed after delivery on the project.

715.29-INOCULATING BACTERIA:

This material shall be used to treat all leguminous seed and shall be a pure culture of nitrogen fixing bacteria selected for maximum vitality and ability to transform nitrogen from the air into soluble nitrates and deposit them in the soil. It shall not be more than one year old.

~~**715.30 through 715.32:** Blank~~

715.30-BIOLOGICAL GROWTH STIMULANTS:

Biological growth stimulants (BGSs) shall be applied to topsoil containing less than 3% organic matter. BGSs shall provide immediate organic matter adjustment to help stimulate seed germination, improve the availability of nutrients to the grass, and generate robust plant growth which is more tolerant of changes in environmental conditions.

Animal by-products, municipal waste products, and liquid fertilizers are not acceptable for use as a BGSs.

BGSs shall not contain germination or growth inhibiting factors or form a water-resistant crust that can inhibit plant growth. BGSs shall come pre-packaged by the manufacturer to assure material performance and compliance with the minimum requirements in Table 715.30~~.1~~ No field mixing of components shall occur on site.

TABLE 715.30~~.1~~

Minimum Biological Growth Stimulant Requirements		
BGS Property	**Test Method**	**Required Value**
Physical		
Humate/Humic Acid		1% minimum
Acute Toxicity	ASTM D7101 EPA 2021.0-1	Non Toxic
Performance		
Seed Germination	ASTM D7322 [a]	200% minimum
Plant Height	ASTM D7322 [a]	200% minimum
Plant Mass	ASTM D7322 [a]	110% minimum

a. ASTM test methods developed for Rolled Erosion Control Products (RECPs) that have been modified for comparison to control at 21 days.

715.31-HYDRAULIC GROWTH MEDIUM:

Hydraulic growth mediums (HGMs) may be applied on areas to replace topsoil, by instruction of the Engineer, in areas where little to no organic matter is present in the parent subsoil. The HGMs provide a substance on which plants can be grown that requires no curing time, provides exceptional seeding germination and plant establishment, assists in soil building, and provides erosion control. HGMs may be applied to slopes with a steepness factor of 2H:1V or less.

The HGMs shall consist of a two-part system:

i. A blend of organic and natural fibers with fast-acting soil building and growth components.

ii. Materials and components that increase the water and nutrient holding capacity of the soil and create an environment for growth of beneficial microorganisms while allowing seed germination and vegetation establishment. These shall include at least 10% of the final composition:

a. Biochar
b. Humus/Humic Acid
c. Mycorrhizae Fungi
d. Seaweed Extract
e. Trace Elements
f. Growth Stimulators
g. Beneficial Microorganisms
h. Micronutrients
i. Organic Growth Mediums.

TABLE 715.31A~~1.1~~

Organic Fiber Requirements		
Property	**Test Method**	**Value**
Physical		
Minimum Organic Fiber Content like a combination of Bark fiber, wood fiber etc.		80%
Moisture Content		≤20%
Minimum Total Organic Matter	ASTM D586	88%
Maximum Carbon: Nitrogen Ratio	ASTM D1508	50:1
pH	ASTM D1293	5-7
Performance		
21 Day Germination	ASTM D7322	500%
Minimum Water Holding Capacity	ASTM D7367	900%

The application rates for all components shall be to manufacturer's specifications while following the minimum application rates outlined in Table 715.31B~~.2~~ and Table 715.31C~~1.3~~.

TABLE 715.31B~~.2~~

Organic Fiber Material Minimum Rates	
Property	**Minimum Application Rate lbs/acre**
% Organic Matter of Subsoil	
< 0.75	5,000
0.75 – 1.5	4,500
1.5 - 2.0	4,000
2.0 – 5.0	3,500

TABLE 715.31C~~.3~~

Soil Chemistry and Stabilizer Material Minimum Rates		
Slope	**Soil Type**	**Minimum Application Rate lbs/acre**

<3H:1V	Sand	35
	Clay	70
3H:1V – 2H:1V	Sand	70
	Clay	140

715.32-Blank

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April 1, 2026

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SPECIAL PROVISION

FOR

STATE PROJECT NUMBER: _____

FEDERAL PROJECT NUMBER: _____

SECTION 106
CONTROL OF MATERIALS

106.1-SOURCE OF SUPPLY AND QUALITY REQUIREMENTS:

106.1.4-Use of Domestic Construction Materials:

ADD THE FOLLOWING BETWEEN THE FOURTH AND FIFTH PARAGRAPH OF THE SUBSECTION:

The United States Department of Transportation has issued a De Minimis Cost that can waive certain requirements of the Build America, Buy America Act (BABA), and FHWA Buy America requirements as further described in MP 106.10.51 and 23 CFR 635.410.

The De Minimis Cost portion waives the application of FHWA Buy America requirements for manufactured products and BABA requirements for Construction Materials and Manufactured Products under a single financial assistance award when the total value of the non-compliant construction materials and manufactured products permanently incorporated into the project is no more than the lesser of $1,000,000 or five percent (5%) of the total applicable project costs. Total applicable project costs include the actual value of steel, iron, manufactured products, and construction materials permanently incorporated into the project.

Cement and cementitious materials; aggregates such as stone, sand, or gravel; and binding agents or additives (referred to as Section 70917(c) materials in 2 CFR 184.3), standing alone, should not be included in the determination of total applicable project costs. These Section 70917(c) materials, however, may be included as components of manufactured products, in which case the cost of the manufactured product, including the cost of the Section 70917(c) components, should be included in the determination of total applicable project costs.

For manufactured products, compliance and non-compliance shall be determined based on the standards in effect at the time of FHWA obligation of the Federal financial assistance. The Contractor shall track and document the cumulative value of all non-compliant construction materials and manufactured products throughout the duration of the project, including

modifications and change orders, based on actual costs, to ensure the applicable threshold is not exceeded.

The FHWA's de minimis standard at 23 CFR 635.410(b)(4) applies to steel and iron products. This standard permits minimal use of steel and iron provided the cost, defined as the value of the steel and iron products as delivered to the project, does not exceed one-tenth of one percent (0.1 percent) of the total contract cost or $2,500, whichever is greater. This includes the steel and iron included in precast concrete products and the cabinets and enclosures comprised of steel and iron for Intelligent Transportation Systems (ITS) products and other electronic hardware systems installed in the highway right-of-way.

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~~April 1, 2026~~ April 21, 2026

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SPECIAL PROVISION

FOR

STATE PROJECT NUMBER: _____

FEDERAL PROJECT NUMBER: _____

SECTION 106
CONTROL OF MATERIALS

106.1-SOURCE OF SUPPLY AND QUALITY REQUIREMENTS:

106.1.1-Definitions:

ADD THE FOLLOWING DEFINITIONS TO THE SUBSECTION:

"Fifty-Five Percent (55%) Requirement" means that the cost of components of the manufactured product that are mined, produced, or manufactured in the United States must be greater than Fifty-Five percent (55%) of the total cost of all components of the manufactured product, in accordance ~~with 23 CFR 635.410~~ as implemented in MP 106.10.50 and consistent with 23 CFR 635.410(c)(3) and 2 CFR part 184.

"Iron or Steel Products" means articles, materials, or supplies that consist wholly or predominantly of iron or steel or a combination of both, as defined in 23 CFR 635.410(c)(1)(iii).

"Kit" means components and/or products with the intent of being assembled or installed into one product at the work site to perform a unified function. ~~The components shall be acquired from a single manufacturer or supplier and assembled or installed at the work site. The~~ Kits~~, if~~ shall be classified as a single manufactured product ~~through~~ in accordance with 23 CFR 635.410 and MP 106.10.50. ~~,shall be classified as a singular manufactured product. In such cases, the individual components shall not be classified as separate manufactured products, even if they are brought to the work site separately.~~ The Kit shall comply with all applicable Buy America requirements for manufactured products, including the requirement that final assembly occur in the United States ~~and~~, meaning the location at which the manufacture brings together the components of the kit, and where applicable, the Fifty-Five Percent (55%) Requirement.

"Predominantly of iron or steel or a combination of both" means that the cost of the iron and steel content exceeds fifty percent (50%) ~~percent~~ of the total cost of all its components. The cost of iron and steel is the cost of the iron or steel mill products (such as bar, billet, slab, wire, plate, or sheet), castings, or forgings utilized in the manufacture of the product and a good faith estimate of the cost of iron or steel components.

DELETE THE CONTENTS OF THE SUBSECTION AND REPLACE WITH THE FOLLOWING:

106.1.5-State and/or Federal Use of Manufactured Products: All manufactured products permanently incorporated into the project are to be manufactured in the United States in accordance with 23 CFR 635.410. Manufactured products shall be classified in accordance with 23 CFR 635.410(c)(2) at the time the product is brought to the work site for incorporation into the project. The final assembly of the manufactured product shall occur in the United States and shall comply with 23 CFR 635.410 and the "Infrastructure Investment and Jobs Act," Section 70901-52, entitled the "Build America, Buy America Act", as implemented by the Office of Management and Budget (OMB) in the OMB Memorandum M-24-02, CFR Part 184, and MP 106.10.50.

For Federal-aid highway projects obligated on or after October 1, 2026, all manufactured products permanently incorporated into the project shall also comply with 23 CFR 635.410(c)(1)(vii)(B). In addition to final assembly occurring in the United States, the manufactured product shall meet the 55% Requirement.

For precast concrete products classified as manufactured products, all applicable Buy America requirements for manufactured products shall apply. In addition, any components that consist predominantly of iron or steel, or a combination of both, as defined in 23 CFR 635.410(c)(1)(vi), shall comply with the Buy America requirements for iron and steel under 23 CFR 635.410(b), regardless of the date of project obligation.

For Intelligent Transportation Systems (ITS) and other electronic hardware systems installed in the highway right-of-way or other real property and classified as manufactured products, all applicable Buy America requirements for manufactured products shall apply. In addition, cabinets or other enclosures that consist predominantly of iron or steel, or a combination of both, shall comply with 23 CFR 635.410(b).

For projects obligated on or after October 1, 2026, the cost of iron or steel components required to comply with 23 CFR 635.410(b) shall be included in the calculation of the Fifty-Five Percent (55%) Requirement.

When manufactured products are permanently incorporated into the project, the Contractor shall supply manufacturer certification and adequate documentation certifying compliance with applicable Buy America requirements prior to incorporation into the project in accordance with MP 106.10.50.

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~~April 1, 2026~~ April 21, 2026

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 106
CONTROL OF MATERIALS

106.1-SOURCE OF SUPPLY AND QUALITY REQUIREMENTS:

106.1.1-Definitions:

ADD THE FOLLOWING DEFINITIONS TO THE SUBSECTION:

"Fifty-Five Percent (55%) Requirement" means that the cost of components of the manufactured product that are mined, produced, or manufactured in the United States must be greater than Fifty-Five percent (55%) of the total cost of all components of the manufactured product, in accordance ~~with 23 CFR 635.410~~ as implemented in MP 106.10.50 and consistent with 23 CFR 635.410(c)(3) and 2 CFR part 184.

"Iron or Steel Products" means articles, materials, or supplies that consist wholly or predominantly of iron or steel or a combination of both, as defined in 23 CFR 635.410(c)(1)(iii).

"Kit" means components and/or products with the intent of being assembled or installed into one product at the work site to perform a unified function. ~~The components shall be acquired from a single manufacturer or supplier and assembled or installed at the work site. The~~ Kit~~s, if~~ shall be classified as a single manufactured product ~~through~~ in accordance with 23 CFR 635.410 and MP 106.10.50. ~~,shall be classified as a singular manufactured product. In such cases, the individual components shall not be classified as separate manufactured products, even if they are brought to the work site separately.~~ The Kit shall comply with all applicable Buy America requirements for manufactured products, including the requirement that final assembly occur in the United States ~~and~~, meaning the location at which the manufacture brings together the components of the kit, and where applicable, the Fifty-Five Percent (55%) Requirement.

"Predominantly of iron or steel or a combination of both" means that the cost of the iron and steel content exceeds fifty percent (50%) ~~percent~~ of the total cost of all its components. The cost of iron and steel is the cost of the iron or steel mill products (such as bar, billet, slab, wire, plate, or sheet), castings, or forgings utilized in the manufacture of the product and a good faith estimate of the cost of iron or steel components.

DELETE THE CONTENTS OF THE SUBSECTION AND REPLACE WITH THE FOLLOWING:

106.1.5-State and/or Federal Use of Manufactured Products: All manufactured products permanently incorporated into the project are to be manufactured in the United States in accordance with 23 CFR 635.410. Manufactured products shall be classified in accordance with 23 CFR 635.410(c)(2) at the time the product is brought to the work site for incorporation into the project. The final assembly of the manufactured product shall occur in the United States and shall comply with 23 CFR 635.410 and the "Infrastructure Investment and Jobs Act," Section 70901-52, entitled the "Build America, Buy America Act", as implemented by the Office of Management and Budget (OMB) in the OMB Memorandum M-24-02, CFR Part 184, and MP 106.10.50.

For Federal-aid highway projects obligated on or after October 1, 2026, all manufactured products permanently incorporated into the project shall also comply with 23 CFR 635.410(c)(1)(vii)(B). In addition to final assembly occurring in the United States, the manufactured product shall meet the 55% Requirement.

For precast concrete products classified as manufactured products, all applicable Buy America requirements for manufactured products shall apply. In addition, any components that consist predominantly of iron or steel, or a combination of both, as defined in 23 CFR 635.410(c)(1)(vi), shall comply with the Buy America requirements for iron and steel under 23 CFR 635.410(b), regardless of the date of project obligation.

For Intelligent Transportation Systems (ITS) and other electronic hardware systems installed in the highway right-of-way or other real property and classified as manufactured products, all applicable Buy America requirements for manufactured products shall apply. In addition, cabinets or other enclosures that consist predominantly of iron or steel, or a combination of both, shall comply with 23 CFR 635.410(b).

For projects obligated on or after October 1, 2026, the cost of iron or steel components required to comply with 23 CFR 635.410(b) shall be included in the calculation of the Fifty-Five Percent (55%) Requirement.

When manufactured products are permanently incorporated into the project, the Contractor shall supply manufacturer certification and adequate documentation certifying compliance with applicable Buy America requirements prior to incorporation into the project in accordance with MP 106.10.50.

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~~March 2, 2026~~ April 7, 2026

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SPECIAL PROVISION

FOR

STATE PROJECT NUMBER: _____

FEDERAL PROJECT NUMBER: _____

ADD THE FOLLOWING SECTION:

SECTION 115
JOB ORDER CONTRACTING

115.1- DESCRIPTION:

This Section establishes Job Order Contracting (JOC) as a method of construction contracting under which the Contractor shall perform construction, maintenance, repair, or minor improvement work as directed by the West Virginia Division of Highways (WVDOH) through individually issued JOC.

Job Order Contracts shall be issued under competitively bid Master Agreements awarded by WVDOH. Each JOC constitutes a binding construction contract issued under and governed by the Master Agreement and shall define the scope, location, quantities, schedule, and applicable requirements for the work.

At initial implementation, JOC under this Section is intended for use on piling wall projects. Additional work categories may be added in the future at the discretion of the Division through revisions to the Master Agreement, project-specific special provisions, or both.

Work under a Master Agreement is performed on an as-needed basis. No minimum quantity of work is guaranteed.

The Contractor shall comply with this Special Provision and all applicable WVDOH Standards and Supplemental Specifications.

115.2-MASTER AGREEMENT:

115.2.1-General: Master Agreements shall be advertised and bid in accordance with WVDOH standard bidding procedures and applicable federal and state requirements. Each Master Agreement shall include a schedule of items with unit bid prices applicable to the defined categories of work. The Master Agreement establishes unit bid prices and prequalifies contractors for future competition at the individual Job Order Contract level. The Master Agreement does not authorize construction work and does not obligate funds.

Federal contract provisions shall be included in the advertisement and bidding documents.

The Master Agreement ~~does not constitute a Federal-aid project and~~ is not required to be included in the Statewide Transportation Improvement Program (STIP). Federal authorization, NEPA clearance, and STIP inclusion shall be obtained at the individual JOC level, as applicable.

115.2.2-Eligibility and Duration:

A. Contractors must be responsible bidders and provide proof of insurance meeting WVDOH requirements.
B. No performance or payment bond is required for the Master Agreement.
C. Contractors must be prequalified in the major item(s) of work for which the Master Agreement is intended.
D. Master Agreements shall be awarded to all responsible bidders in accordance with this Special Provision.
   i. The award of Contract, if it be awarded, will be made within thirty (30) calendar days after the opening of Proposals to all responsible and prequalified bidders. The Commissioner may withhold award for any length of time. All responsible bidders will be made aware of intent to withhold the award, and may withdraw their bid at that time if they so choose. All responsible bidders will be notified that their bid has been accepted and they have been awarded a Contract.
E. No bid bond shall be required for the Master Agreement or for individual Job Order Contracts, unless otherwise specified in the advertisement.
~~F. No Disadvantaged Business Enterprise (DBE) goal is established for the Master Agreement.~~
~~G.~~F. The maximum total duration of a Master Agreement, including any extensions, shall not exceed five (5) years. Master Agreements shall be administratively closed at the end of each calendar year, with continuation or renewal subject to Division determination and applicable procurement requirements.

115.3-JOB ORDER CONTRACT DEVELOPMENT:

115.3.1-Abbreviated PS&E: An Abbreviated Plans, Specifications, and Estimate (PS&E) package shall be developed for each JOC and shall include, at a minimum:

1. Right-of-Way and Utility status
2. NEPA clearance
3. Schedule of items with estimated quantities sufficient to complete the project, including traffic control, erosion and sediment control, piling, and other required work
4. Cost estimate
5. Working time analysis
6. A plan set sealed by a Professional Engineer sufficient for construction using standard details
7. JOC completion date
8. Liquidated damages based on the JOC value in accordance with WVDOH specifications

Each JOC shall have its own State and Federal project number and shall receive individual authorization in Federal Highway Administration's (FHWA) Fiscal Management Information System (FMIS).

115.4-AWARD OF JOB ORDER CONTRACTS:

Each JOC shall be awarded on a competitive basis among Master Agreement holders applying the unit prices established under the Master Agreement to the estimated quantities included in the Abbreviated PS&E. Award shall be determined solely by multiplying the estimated quantities by the applicable unit prices. Unit prices established in the Master Agreement shall not be renegotiated for individual JOCs.

A. The schedule of items and estimated quantities included in the Abbreviated PS&E for the JOC shall be used to determine the lowest overall total cost by multiplying the estimated quantities by the unit prices bid under the Master Agreement.
B. The lowest responsible bidder shall be offered the JOC for the construction of the project.
    1. The apparent low bidder shall have five (5) working days from notification by the Division to accept or reject the JOC. The five (5) working day acceptance period shall run concurrently with the two (2) working day protest period established in Subsection 115.4.2.
    2. Acceptance or rejection may be submitted by email or other acceptable written format.
    3. If the Contractor rejects the JOC or fails to respond within five (5) working days, the JOC shall be offered to the next lowest responsible bidder.
    4. This process shall continue until the JOC is accepted or no responsible Master Agreement holders remain.
C. Upon written acceptance by the Contractor, the Job Order Contract shall constitute a binding construction contract issued under the Master Agreement. No separate contract document shall be required unless otherwise specified in the Job Order Contract. No bid bond, performance bond, or payment bond shall be required unless specified in the individual Job Order Contract.
D. Notice to Proceed shall not be issued prior to authorization in FMIS.

115.4.1-Issuance of Job Orders: The Division will issue Job Orders describing the specific scope of work. Each Job Order shall include:

A. Location of work
B. Description of work
C. Applicable items and quantities from the Schedule of Items
D. Time allowed for completion
E. Indication of federal-aid participation, if any

115.4.2-Protest of Award: Following evaluation of the Abbreviated PS&E quantities and application of the unit prices established under the Master Agreement, the Division will notify all Master Agreement holders of the apparent low bidder for the Job Order Contract.

Any protest concerning the evaluation, selection, or proposed award of a Job Order Contract shall be submitted in writing within two (2) working days of issuance of the Division's notification of the apparent low bidder.

Protests shall be submitted and handled in accordance with Section 103.2 – Bid Protests, except as modified herein.

The Division shall not finalize the award of the Job Order Contract until the two (2) working day protest period has expired or any timely filed protest has been resolved.

115.4.3 – Failure to Commence or Perform Work: If a Contractor accepts a Job Order Contract and subsequently fails to begin work within the time specified in the Notice to Proceed, or fails to prosecute the work with sufficient forces, equipment, and progress to ensure completion within the time allowed, the Division may take the following actions:

A. The Division may rescind the Job Order Contract, in whole or in part, at no cost to the Division.
B. Upon rescission, the Division may offer the Job Order Contract to the next lowest responsible Master Agreement holder in accordance with Subsection 115.4.
C. Failure to commence work or to maintain satisfactory progress may be grounds for the Contractor to be declared non-responsible for purposes of future Job Order Contract awards under the Master Agreement.
D. Removal from consideration for future Job Order Contracts under the Master Agreement shall not relieve the Contractor of liability for any damages or other remedies available to the Division under the Contract Documents.

115.4.4 – Commencement of Work: The Contractor shall begin physical work at the project site within twenty-one (21) calendar days after issuance of the Notice to Proceed, unless otherwise specified in the individual Job Order Contract.

Failure to commence work within the required time, or failure to thereafter prosecute the work with sufficient forces and progress to ensure completion within the time allowed, may result in rescission of the Job Order Contract in accordance with Subsection 115.4.3.

115.5 MOBILIZATION

Upon commencement of work under an issued Job Order Contract, the Contractor shall be entitled to payment for mobilization in the amount of one (1) unit of Item 204003-000, "Mobilization per Job Order," per Job Order Contract.

Mobilization shall be paid on the first progress estimate following the start of physical work at the project site.

If a Job Order Contract includes work at multiple locations within the same county, mobilization shall be paid only once for that county. If the Job Order Contract includes work in more than one county within the District, one additional mobilization payment will be made for each additional county in which work is performed, unless otherwise specified in the Job Order Contract.

Payment for mobilization shall constitute full compensation for all preparatory operations, including but not limited to movement of personnel, equipment, materials, bonds, insurance, field office setup (if required), and all other incidentals necessary to begin work under the Job Order Contract.

115.6-APPLICABLE SPECIFICATIONS:

Unless otherwise stated in the JOC, the following shall apply:

1. WVDOH Standard Specifications, latest edition
2. Applicable Supplemental Specifications
3. WVDOH Manuals and Standard Drawings
4. Applicable ASTM, AASHTO, and other recognized industry standards

The Contractor shall meet the same material, construction, and quality requirements as required for traditionally bid projects.

115.6.1 – Clearing and Grubbing: Clearing and grubbing required for the construction of a Job Order shall be performed in accordance with Section 201 – Clearing and Grubbing, and shall be considered incidental to Item 207001-001, "Unclassified Excavation."

No separate measurement or payment will be made for clearing and grubbing; all costs shall be included in the unit price for Unclassified Excavation.

Payment shall constitute full compensation for labor, equipment, materials, disposal, and all incidentals necessary to complete the clearing and grubbing work in accordance with Section 201 and the requirements of the Job Order Contract.

115.6.2 – Construction Layout Stakes: Construction layout stakes required for the performance of any work under a Job Order Contract, including setting reference points, grade, alignment, or other layout control, shall be considered incidental to the respective unit prices under the Job Order Contract.

No separate measurement or payment will be made for construction layout stakes; all labor, materials, equipment, and incidentals necessary to provide and maintain the layout stakes shall be included in the applicable unit prices of the JOC.

115.7-ORDER OF PRECEDENCE:

In the event of conflict between Contract documents, the following order of precedence shall apply:

1. Job Order Contract (JOC)
2. Master Agreement
3. Special Provisions
4. Contract Documents
5. Schedule of Items
6. WVDOH Standard Specifications and Supplemental Specifications
7. WVDOH Standard Details and Manuals

115.8-INSPECTION AND ACCEPTANCE:

All work shall be subject to inspection by the Division. Acceptance shall be based on compliance with the Job Order Contract, approved plans, and applicable specifications.

Final acceptance shall be made on an individual Job Order Contract basis in accordance with Subsection 105.16.2. Each Job Order Contract shall be administered and accepted individually for purposes of inspection, punch list, final quantities, and final acceptance, but shall remain subject to the Master Agreement. Acceptance of one Job Order Contract shall not constitute acceptance of the Master Agreement or any other issued Job Order Contract.

Nonconforming work may be rejected at no additional cost to the Division.

115.9-TIME FOR COMPLETION:

Each JOC shall establish a specific time for completion. Failure to complete the work within the allowed time shall result in liquidated damages assessed in accordance with subsection 108.7.1 - Failure to Complete on Time and Liquidated Damages, based on the total authorized

value of the individual JOC. Liquidated damages shall not be based on the value of the Master Agreement.

115.10-CHANGES TO JOB ORDERS:

Changes within the general scope of a JOC shall be priced using applicable unit prices from the Master Agreement Schedule of Items. Work not included in the Schedule of Items shall be handled according to subsection 104.3-Extra Work.

115.11-MEASUREMENT AND PAYMENT:

Measurement shall be based on actual quantities of work performed and accepted.

Payment shall be made using the unit prices established under the Master Agreement and the quantities authorized in the JOC.

No payment shall be made for work not authorized by a JOC.

115.11.1 – HCSI Classification for Piling Walls: When piling wall work is included in a Job Order Contract, the Abbreviated PS&E shall identify a single Hardness and Compress Strength Index (HCSI) classification for the project in accordance with Special Provision 614.8.1.

Only the steel pile pay items corresponding to that HCSI classification shall be included in the Schedule of Items for the Job Order Contract.

Estimated quantities shall reflect total anticipated pile length regardless of localized subsurface variation.

115.12-SUBCONTRACTING:

Subcontracting shall be in accordance with subsection 108.1 – Subletting of Contract and all other Contract Documents.

For each individual Job Order Contract, the Contractor shall perform with its own organization work amounting to not less than thirty percent (30%) of the total contract cost, unless otherwise permitted under subsection 108.1.

The Contractor remains fully responsible for the quality and timely completion of all Subcontracted work.

115.13-NON-EXCLUSIVE CONTRACT:

The Division reserves the right to perform work with its own forces or through other Contracts. The Division makes no guarantee as to the quantity, value, or frequency of Job Orders to be issued under the Master Agreement.

115.14-FEDERAL-AID / FHWA REQUIREMENTS:

115.14.1-Federal-Aid Participation: Federal contract provisions included in the Master Agreement shall apply to each Job Order. ~~When federal funds participate in a JOC, all applicable FHWA requirements apply, including:~~

~~Title 23, United States Code~~
~~Title 23, Code of Federal Regulations~~
~~FHWA-1273 Required Contract Provisions~~
~~Davis-Bacon wage rate requirements~~
~~Buy America requirements~~

~~Equal Employment Opportunity provisions~~
~~Debarment and suspension requirements~~

~~Each Job Order will indicate whether federal-aid funds are involved.~~

Appendix – Sample Bid Items (Informational Only)

The sample bid items provided in this appendix are for **illustrative purposes only** to facilitate discussion and understanding of potential Job Order Contract work. These items **do not constitute a Schedule of Items**, nor are they authorized for bidding, payment, or contract use. Actual bid items, quantities, and unit prices will be established and provided in the Schedule of Items for each individual Job Order Contract in accordance with the Master Agreement and approved Abbreviated PS&E.

PAY ITEM	DESCRIPTION	UNITS
204001-000	Mobilization	EA
207001-001	Uncl. Excavation	CY
207034-000	Fabric for Separation	SY
211002-000	Rock Borrow Excavation	CY
307001-000	Aggregate Base Course, class 1	TN
307001-000	Aggregate Base Course, class 10	TN
614010-003	HP 10X42 Steel Pile (HCSI 4 or less)	LF
614010-006	HP 12X53 Steel Pile (HCSI 4 or less)	LF
614010-008	HP 12X74 Steel Pile (HCSI 4 or less)	LF
614011-003	HP 10X42 Steel Pile (HCSI greater than 4)	LF
614011-006	HP 12X53 Steel Pile (HCSI greater than 4)	LF
614011-008	HP 12X74 Steel Pile (HCSI greater than 4)	LF
614003-001	Concrete Lagging, thickness 6”	SF
614003-001	Concrete Lagging, thickness 8"	SF
636011-001	Traffic Control Device	UN
636014-001	Flagger	HR
636022-001	Changeable Message Sign	DA
636023-002	Temporary Traffic Signal, Portable	MO
636017-004	Temporary Traffic Barrier, TL-2, II	LF
636017-005	Temporary Traffic Barrier, TL-3, II	LF
636025-001	Warning Lights, Ty B	DA
642004-001	Seed Mixture, Temporary	LB
642005-001	Mulch, Straw or Hay	TN
642006-001	Fertilizer	TN
642012-001	Silt Fence	LF

DRAFT

~~March 2, 2026~~ April 7, 2026

WEST VIRGINIA DIVISION OF HIGHWAYS

JOB ORDER CONTRACT (JOC) – CONTRACTOR ACCEPTANCE FORM

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1. Master Agreement Information

Master Agreement No.: _____

Master Agreement Title: _____

Contractor Name (as shown in Master Agreement): _____

---

2. Job Order Contract Information

Job Order Contract (JOC) No.: _____

State Project No.: _____

Federal Project No. (if applicable): _____

County: _____

Location/Route: _____

Description of Work: _____

---

3. Schedule of Items and Contract Amount

The Contractor acknowledges receipt of the Abbreviated PS&E for the above-referenced Job Order Contract, including the Schedule of Items and estimated quantities.

The total authorized amount for this Job Order Contract, determined by applying the unit prices established under the Master Agreement to the estimated quantities, is:

$ _____

---

4. Contract Time

Time for Completion: _____ calendar days

Liquidated Damages (per Section 108.7.1, as applicable to JOC value):

$ _____ per calendar day

---

5. Contractor Acceptance and Agreement

By signing below, the Contractor:

1. Accepts the above-referenced Job Order Contract.
2. Agrees to perform the work in accordance with:
    - Master Agreement No. _____
    - Section 115 – Job Order Contracting
    - The issued Job Order Contract
    - The Abbreviated PS&E
    - WVDOH Standard Specifications, Supplemental Specifications, Standard Details, and all applicable Contract Documents.
3. Acknowledges that this written acceptance constitutes execution of the construction contract for this Job Order Contract under the Master Agreement.
4. Agrees to begin work within the time specified in Section 115.4.4 following issuance of the Notice to Proceed.
5. Acknowledges that failure to commence or prosecute the work in accordance with Section 115 may result in rescission of this Job Order Contract and potential removal from consideration for future Job Orders under the Master Agreement.

---

6. Signatures

CONTRACTOR

Authorized Representative: _____

Title: _____

Signature: _____

Date: _____

WEST VIRGINIA DIVISION OF HIGHWAYS

By: _____

Title: _____

Date: _____

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March 3, 2026

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SPECIAL PROVISION

FOR

STATE PROJECT NUMBER: _____

FEDERAL PROJECT NUMBER: _____

SECTION 614
PILING WALLS

614.1-DESCRIPTION:

ADD THE FOLLOWING.

614.1.1-HCSI Steel Piles: This work shall consists of furnishing and installing steel piles as described in Section 614, with the additional requirement that steel piles be classified according to the Hardness and Compress Strength Index (HCSI). HCSI classifications will govern the pay items for steel piles, as described below. Work shall conform to all provisions of Section 614 except as modified herein.

614.1.2-Hardness and Compress Strength Index (HCSI): The HCSI classification system is based on rock field hardness at the pile location, as shown in Table 614.11.1:

TABLE 614.1.2

HCSI Value	Description	Rock Field Hardness (PSI)		
0	ES = Extremely Soft	20	-	100
1	VS = Very Soft	100	-	1,000
2	S = Soft	1,000	-	4,000
3	A = Average	4,000	-	8,000
4	H = Hard	8,000	-	16,000
5	VH = Very Hard	16,000	-	32,000
6	EH = Extremely Hard	Over 32,000		

Notes:

1	The applicable HCSI value for each piling location shall be identified in the Abbreviated PS&E or plan set.
2	HCSI values shall be determined solely by the Division's Geotechnical Engineer based on borings, cores, field observations, laboratory testing, and engineering judgment.
3	The Contractor shall not independently assign or reinterpret HCSI classifications.

614.8-METHOD OF MEASUREMENT:

Steel piles shall be measured and paid by linear foot based on pile size and the HCSI classification at the pile location, as listed below:

614.8.1 – Measurement for Job Order Contracts (JOC): For work performed under Special Provision 115 – Job Order Contracting, steel piles shall be measured and paid using a single HCSI classification for the entire Job Order Contract.

The applicable HCSI classification shall be the highest HCSI value shown in the geotechnical data included in the Abbreviated PS&E for the limits of piling wall construction, as determined by the Division's Geotechnical Engineer.

All steel piles furnished and installed under the Job Order Contract shall be paid under the pay item corresponding to that highest HCSI classification, regardless of localized variations in subsurface conditions.

No adjustment in unit price or pay item will be made based on differing HCSI conditions encountered at individual pile locations within the project limits.

This provision applies only to Job Order Contracts issued under Special Provision 115.

614.9-BASIS OF PAYMENT:

Payment for steel piles shall be full compensation for furnishing all materials, performing all work, and completing all related operations described in Section 614, including drilling, concrete or grout placement, wales, and painting. The cost of drilling through different HCSI-classified soils or rock, as well as any additional equipment or labor required due to rock hardness, shall be included in the unit price bid.

614.10-PAY ITEMS:

ITEM	DESCRIPTION	UNIT
614010-003	HP 10X42 Steel Pile (HCSI 4 or less)	Linear Foot
614010-006	HP 12X53 Steel Pile (HCSI 4 or less)	Linear Foot
614010-008	HP 12X74 Steel Pile (HCSI 4 or less)	Linear Foot
614011-003	HP 10X42 Steel Pile (HCSI greater than 4)	Linear Foot
614011-006	HP 12X53 Steel Pile (HCSI greater than 4)	Linear Foot
614011-008	HP 12X74 Steel Pile (HCSI greater than 4)	Linear Foot

Note: For Job Order Contracts, only the pay item corresponding to the highest HCSI classification identified in the Abbreviated PS&E shall be included in the Schedule of Items.

DRAFT

~~February 25, 2026~~ April 20, 2026

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SPECIAL PROVISION

FOR

STATE PROJECT NUMBER: _____

FEDERAL PROJECT NUMBER: _____

SECTION 645
REINFORCED SOIL SLOPES

645.1-DESCRIPTION:

ADD THE FOLLOWING SUBSECTION AFTER THE FIRST PARAGRAPH:

645.1.1-Standard Expanded Polystyrene (S-EPS) - ~~Elastic Inclusion work~~Work shall consist of installation of a~~n elasticized~~ Standard Expanded Polystyrene (S-EPS) and geotextile separation fabric between the back of concrete surfaces and backfill material, in accordance with these specifications and in close conformity with manufacturer's recommendations, the lines shown on the plans or as established by the Engineer. S-EPS shall be considered part of the geosynthetic reinforcement system where shown on the Plans.

645.2-MATERIALS:

ADD THE FOLLOWING SUBSECTION:

645.2.3 ~~Elasticized~~ Standard Expanded Polystyrene (~~EPS~~ S-EPS) Material:

a) ~~Elasticized~~ Standard Expanded Polystyrene (~~EPS~~ S-EPS): Provide EPS15 EPS blocks in accordance with ASTM D-6817, "Standard Specification for Rigid Cellular Polystyrene Geofoam," that meet the physical property requirements in the following table ~~EPS shall have a size tolerance of 1/8" for each dimension and conform to the following~~:

~~Physical Property~~	~~Test Method~~	~~Requirements~~
~~Compressive strength~~ ~~Water Absorption~~	~~ASTM D-1621~~ ~~ASTM C-272~~	~~5 psi +/- 0.4 psi @10% strain~~ ~~Max. 3% by volume~~
~~Insect Resistance~~	~~ASTM D-3345~~	~~Resistance to ants, termites, etc.~~

Physical Property	Test Method	Requirements
Density	ASTM D1622 (Use 2-inch cubic samples. Report results for minimum samples)	0.85 pcf min., 0.95 pcf max. (for each sample)
Compressive strength	ASTM D-1621	518 psf. Min. @ 1% strain 1152 psf min. @ 5% strain 1350 psf min., 1650 psf max. @ 10% strain.
Water Absorption	ASTM C272	Max 4% by Volume
Insect Resistance	ASTM D-3345	Resistance to ants, termites, etc.

~~The EPS shall be elasticized, with a linear-elastic stress-strain behavior up to 10 percent strain and linear proportional stress-strain behavior up to 30 percent strain.~~

The S-EPS shall contain no chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), hydrofluorocarbons (HFCs) or formaldehyde. It shall be chemically and biologically inert when in contact with acidic and alkaline soils. ~~It~~ The S-EPS shall be manufactured or treated to prevent insect attack , including ants and termites.

Materials shall withstand temperature variations from ~~-68°F~~ 0°F to 140°F without deforming and shall maintain their original dimensions and placement without chipping, spalling, or cracking. Material shall not deteriorate because of contact with sodium chloride, calcium chloride, mild alkalis and acids, or other ice control materials.

The S-EPS shall contain a flame retardant additive.

b) Geotextile Separation Fabric: A non-woven geotextile separation fabric shall be placed between the S-EPS and the backfill material. Fabric joints shall have a minimum overlap of one (1) foot. Fabric shall extend a minimum of one (1) foot beyond the S- EPS surface and overlap with adjacent concrete surface.

The separation fabric shall have the following properties:

Physical Property	Test Method	Requirements
Grab Strength	ASTM D-4632	Min. 250 lb.
Puncture Strength	ASTM D-4833	Min. 110 lb.
Tear Strength	ASTM D-4533	Min. 90 lb.
Permittivity	ASTM D-4491	Min. 0.5 sec-1
Apparent Opening Size	ASTM D-4751	Max. 0.3 mm

Geotextile separation fabric shall be protected ~~front~~ from mud, dirt, dust, sunlight, and debris during transport and storage. Material shall be inert to commonly encountered chemicals; resistant to mildew, rot, insects, and rodents; and biologically and thermally stable. Geotextile separation fabric for subsurface installation shall not be exposed to direct sunlight for more than 24 hours during installation.

Tensile strength requirements are in the machine and cross-machine directions.

c) Neoprene Sheet For Semi-Integral Abutments: Where shown on the plans, provide 3/32-inch thick general purpose, heavy-duty neoprene sheeting with nylon fabric reinforcement, conforming to this specification or an approved alternate. Examples of acceptable products include "Fairprene NN0003" by E.I. DuPont De Nemours and Company, Inc., and "Wingprene" by the Goodyear Tire and Rubber Company. The neoprene shall meet the requirements listed in the table below:

Physical Property	Test Method ASTM	Requirements
Thickness, inch	D 751	3/32 ± 0.01
Breaking Strength, Grab WXF, N, minimum	D 751	3130 × 3130
Adhesive 1-inch Strip, 2-inch Minimum, N minimum	D 751	27 N
Burst Strength (mullen) psi, minimum	D 751	1400 psi
Heat Aging 70 h at 100°C, 180° Bend without cracking	~~D 2136~~ D 573	No cracking of coating
Low Temperature Brittleness, 1 hour at -40°C, Bend around ¼-inch Mandrel	D 2136	No cracking of coating

Installation shall consist of three (3) foot wide strips at locations shown on the plans. The neoprene sheeting shall be secured to the concrete with 1 ¼-inch (length) x 3/32 inch (shank diameter) x 1/4-inch (head diameter) galvanized button head spikes through a 3/32-inch (outside diameter), 1/8-inch (thick) galvanized washer. Other similar galvanized devices that will not damage either the neoprene or the concrete may be used subject to the approval of the Engineer. Maximum fastener spacing shall be nine (9) inches unless otherwise noted herein or on the Plans.

Horizontal laps shall be a minimum of one (1) foot for non-bonded material and six (6) inches where vulcanized or adhesive-bonded.

Vertical strips shall be continuous, overlapping horizontal strips, with a single line of fasteners along the edge nearest the centerline of the roadway. The distance from the vertical edge of the neoprene strip to the fasteners shall be six (6) inches (+/-). Also install two (2) additional fasteners at six (6) inches center to center across the top of the neoprene strip on the same side of the joint as the single vertical row of fasteners is located.

~~e)~~**d) Adhesive:** Adhesive shall be provided for bonding the S-EPS to concrete surfaces. The adhesive shall be compatible with the material and applied in accordance with the manufacturer's recommendations. All concrete surfaces to receive adhesive shall be clean and dry, free of laitance, oil, grease, or other deleterious substances, and prepared in accordance with the manufacturer's instructions.

~~d)~~**e) Backfill Material:** Backfill material adjacent to the separation fabric or neoprene sheeting shall conform to the requirements of subsection 645.2.2. Backfill shall be placed

and compacted in a manner that does not dislodge or damage the S- EPS, geotextile, or neoprene sheeting. Care shall be taken to prevent shifting, tearing, or crushing of installed materials during backfilling operations.

645.3-FOUNDATION PREPARATION:

ADD THE FOLLOWING SUBSECTION AFTER THE FIRST PARAGRAPH:

Before placement of S-EPS, geotextile separation fabric, or neoprene sheets, concrete surfaces shall be abrasive blast cleaned using a positive contact sandblaster or prepared in accordance with the adhesive manufacturer's recommendations and as approved by the Engineer. All non-adherent laitance, oil, grease, or other deleterious matter shall be removed prior to installation.

645.4-GEOSYNTHETIC INSTALLATION:

ADD THE FOLLOWING SUBSECTION AFTER THE SECOND PARAGRAPH:

The S-EPS shall be attached to the back of concrete surfaces with an adhesive compatible with the material. Concrete surfaces ~~must be thoroughly dry and clean, with any laitance, oil, grease, or other deleterious matter removed by abrasive blast cleaning or as recommended by the adhesive manufacturer and approved by the Engineer~~ shall be prepared in accordance with subsection 645.3, and the adhesive shall be applied in accordance with the manufacturer's recommendations.

Geotextile separation fabric shall be installed either pre-attached to the S-EPS or after the S-EPS is in place. The fabric shall cover all exposed surfaces of the S-EPS and extend to provide the required overlaps.

Where neoprene sheeting is specified, the material shall be installed in accordance with 645.2.3(c) and secured to concrete with approved fasteners. Horizontal and vertical laps, fastener spacing, and alignment shall comply with the requirements set forth in 645.2.3(c). The S-EPS, geotextile, and neoprene shall be installed in close conformity with the manufacturer's recommendations and the lines shown on the plans or as established by the Engineer.

The Contractor shall protect installed S-EPS from damage due to construction equipment, ultraviolet exposure, and construction activities until backfill is placed. Any damaged material shall be removed and replaced at no additional cost to the Division.

645.7-ACCEPTANCE:

ADD THE FOLLOWING SUBSECTION AFTER THE FIRST PARAGRAPH:

~~Elasticized~~S-EPS shall be tested by an independent commercial laboratory to verify compliance with the material requirements specified herein. The Contractor shall provide written documentation of all tests, including style, lot, roll numbers, and actual results, as well as the name, address, and contact information of the testing laboratory and the date of testing.

After installation and prior to acceptance, the Contractor and Inspector shall perform a visual inspection of the S-EPS, geotextile separation fabric, and neoprene sheeting to verify proper coverage, adhesion, and alignment. Any areas deemed unacceptable, or ~~questionable as~~ determined

to ~~remaining in position~~ be at risk of displacement during backfill placement, as determined by the Engineer, shall be removed or repaired as required. Replacement or repair shall be performed using new material and in accordance with the installation requirements. All additional work, including labor and materials for repairs, shall be borne by the Contractor.

645.8-METHOD OF MEASUREMENT:

ADD THE FOLLOWING SUBSECTION AFTER THE SECOND PARAGRAPH:

Standard Expanded Polystyrene (S-EPS) shall be measured for payment by the square yard (SY) of material installed in accordance with the Plans and accepted by the Engineer.

Geotextile separation fabric, neoprene sheeting, adhesive, fasteners, overlaps, surface preparation, and all other materials and work necessary for a complete and accepted installation shall not be measured for separate payment, but shall be considered incidental to the S-EPS installation.

645.9-BASIS OF PAYMENT:

ADD THE FOLLOWING SUBSECTION AFTER THE FIRST PARAGRAPH:

Payment for Standard Expanded Polystyrene (S-EPS) Installation will be made at the contract unit price per square yard of S-EPS installed, and shall include furnishing and installing S-EPS, geotextile separation fabric, adhesive, neoprene sheeting where required, fasteners, surface preparation, overlaps, labor, equipment, and all incidentals necessary to complete the work.

645.10-PAY ITEM:

ADD THE FOLLOWING TO THE TABLE:

ITEM	DESCRIPTION	UNIT
645005-001	Standard Expanded Polystyrene (S-EPS) Installation	Square Yard

DRAFT

February 23, 2026

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 660
TRAFFIC SIGNALS

660.9-LOOP TRAFFIC DETECTORS:

DELETE THE ENTIRE CONTENTS OF THE SUBSECTION AND REPLACE WITH THE FOLLOWING:

Installation shall conform to the details and notes shown on the Plans.

Slots cut in the pavement for the loop conductor shall be neat and true to the dimensions shown on the Plans. Slots shall be blown out and dried before loop conductors are installed.

The # 14 THWN stranded loop conductor shall run continuous and unspliced from the roadway loop to a junction box or ~~condulet~~ conduit body as indicated in the Plans. Each loop shall consist of a single separate wire and shall be connected to the detector by a separate lead-in wire. The loops shall consist of three turns of wire, unless otherwise specified.

All loop wire installation shall be made without damage to the wire or its insulation and all damaged wires shall be replaced. The wire must be ~~so placed~~ placed so that there are no kinks or curls and no straining or stretching of the insulation. It shall be installed and secured as deep in the slot as possible. A blunt object, similar to wooden paint stirrer shall be used to seat the loop wire. A screwdriver or other sharp tool shall not be used for this purpose.

Prior to placing the loop slot sealant, the loop wire shall be checked for continuity, resistance and insulation integrity. Insulation integrity shall be checked by applying a megger between each end of the loop wire and ~~the nearest reliable electrical ground street light, fire hydrant, etc~~ a verified electrical ground (cabinet grounding bus or driven ground rod). If no available ground exists, a suitable ground shall be established for the measurement, (e.g., driven metal spike). The megger reading shall be in excess of ten megohms under all conditions, (500 volts DC). The continuity and megger checks shall be recorded by the ~~e~~Engineer.

Lead-in wire from the loop conductor to the detector terminal strip shall be two # 14 AWG solid copper.

The lead-in wire shall also be continuous and unspliced from junction box or ~~condulet~~ conduit body to the detector terminal strip in the cabinet.

Splices between the loop conductor and the lead-in wire shall be soldered with ~~fuseable~~ fusible metal or alloy. These splices shall first be joined and made mechanically secure and tested electrically. No spring connectors will be allowed for splicing. When the mechanical connection has been shown to be electrically functional under operational conditions, it shall then be soldered.

Each splice shall then be insulated with a permanent, waterproof covering as specified or as approved by the ~~e~~Engineer. Waterproof adhesive shall be applied to the splice and on at least two (2) inches of loop wire and lead-in wire insulation on both sides of the splice. The splice shall then be covered with half-lapped, ¾ inch, self-bonding electrical tape; starting at the center of the splice and proceeding to ¾ inch onto the wire insulation, returning to the center of the splice. The entire splice shall then be wrapped with half-lapped, ¾ inch, all-weather electrical tape using the same procedure as above. When both ends of the loop wire and lead-in wires are so spliced and wrapped, both splices shall then be wrapped together with ¾ inch, all-weather electrical tape. The ~~635~~ entire splice area to the end of the adhesive coating shall be covered. The splice shall then be completed by inserting a four (4) inch piece of all-weather electrical tape into the "V" formed by the loop wires.

~~The loop slot cuts in the pavement shall be filled with a permanent, flexible weatherproof sealant after the placement of the loop wire in the slots. The sealant shall be resistant to traffic, water, gasoline, chemical fumes, mild alkalies, oils and mild acids; no noticeable deterioration of the sealant shall be apparent after exposures to temperatures ranging from minus 20°F to plus 160°F. Before sealing the loop, slots must be clean and dry and blown out with oil-free air. The sealant shall be placed to within 5/8 inch of the pavement surface and surplus sealant shall be removed from the adjacent road surfaces without the use of solvents.~~

~~The loop slot sealant shall be of "Weatherban 101 sealer" as manufactured by the 3-m company or an approved equal.~~

The ~~e~~Contractor shall be responsible for replacement of damaged loops and lead-in cable to the existing splice box or otherwise designated junction box.

The ~~e~~Contractor shall be responsible for replacing all damaged traffic signal loops within the construction limits within fourteen (14) calendar days of when damage occurs.

Standard (6 foot x 6 foot) detector loops shall consist of three (3) turns of stranded #14 AWG copper wire, with quadrupole presence loops consisting of two (2) turns of stranded #14 AWG copper wire meeting IMSA conductor specifications. All detector loops shall conform to ~~specifications~~ subsections 715.42.2 and 715.42.13.

660.9.1-LOOP TRAFFIC SEALANT: The loop slot cuts in the pavement shall be filled with a permanent, flexible weatherproof sealant after the placement of the loop wire in the slots. Sealants are either one-component or two-component materials and are appropriate for application in both asphalt and concrete pavements. ~~These s~~Sealants ~~are to~~ shall be engineered to exhibit stability, preventing shrinkage, swelling, or cracking during and subsequent to their curing process. Sealants must exhibit resistance to the following: vehicular traffic, water, gasoline, chemical fumes, mild alkalies, oils, mild acids, de-icing agents, motor oil, sodium chloride 5%, hydraulic brake fluid; no noticeable deterioration of the sealant shall be apparent after exposures to temperatures ranging from -20°F to 160°F. The sealant shelf life must meet a minimum of 12 months in unopened containers. The sealant must also be approved on the West Virginia Department of Highways Approved product list prior to use.

Prior to sealant application, the loop slots must be thoroughly cleaned, dried, and cleared of debris using oil-free compressed air. The application equipment, techniques, and temperature range utilized must strictly conform to the manufacturer's recommendations and standards. Upon application, the sealant must demonstrate a sufficiently free-flowing consistency to ensure thorough filling of the road cavity. The sealant shall be placed such that its final surface is within 5/8 inch of the pavement surface, and any excess sealant must be meticulously removed from the adjacent road surfaces without the use of chemical solvents to

~~avoid~~ prevent vehicle~~s catching on to the~~ tire contact with excess material. Loop sealants must meet ASTM D2240 and fall within the durometer hardness ratings on the following table.

Sealant Type	ASTM D2240 Shore A Hardness	Expected Tack-Free Time (at 77°F)	Full Cure Time (Typical Range)
Polyurea	Mid-High (60–80)	10-30 Minutes	One to Two Days
Polyurethane	Mid-High (50-75)	1 – 4 Hours	Three to Seven Days
Flexible Epoxy	Mid-High (50-75)	20 – 30 Minutes	Two to Five Days

Note: Tack-free times vary based on weather and temperature, therefore manufacturer's recommendations and standards for tack-time must be followed.

DRAFT

~~April 14, 2026~~ April 21, 2026

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SPECIAL PROVISION

FOR

STATE PROJECT NUMBER: _____

FEDERAL PROJECT NUMBER: _____

SECTION 636
MAINTAINING TRAFFIC

636.1-DESCRIPTION:

ADD THE FOLLOWING TO THE END OF SUBSECTION:

636.1.1-Temporary Pavement Markings - Orange: This work shall consist of furnishing, applying, maintaining, and removing temporary orange pavement markings for traffic control in designated work zones ~~for traffic control~~ as shown on the Plans or as directed by the Engineer.

Temporary orange pavement markings shall be used only within active work zones and are not intended as permanent pavement markings. Temporary orange pavement markings are intended to supplement existing white and yellow pavement markings to clearly define temporary traffic patterns within active work zones.

636.2-MATERIALS:

ADD THE FOLLOWING TO THE END OF SUBSECTION:

Orange pavement marking material shall conform to the applicable requirements of subsections 711.40 and 711.41; except that the color shall be traffic orange instead of white or yellow. The color ~~shall conform to ASTM D6628 (Traffic Orange) or a WVDOH approved work zone orange standard, as approved by the Engineer.~~ profile for the orange markings shall be submitted to the Engineer for approval prior to installation. Unless otherwise approved by the Engineer, the color profile shall fall within the following color chromaticity limits:

~~ORANGE RANGE CHROMATICITY COORDINATES~~

	~~X~~	~~Y~~
~~1~~	~~0.5580~~	~~0.3520~~
~~2~~	~~0.6360~~	~~0.3640~~
~~3~~	~~0.5700~~	~~0.4290~~
~~4~~	~~0.5060~~	~~0.4040~~

COLOR	CIE CHROMATICITY COORDINATE LIMITS							
	1		2		3		4	
	X	Y	X	Y	X	Y	X	Y
Orange	0.558	0.352	0.636	0.364	0.570	0.429	0.506	0.404

Temporary orange markings shall provide adequate visibility during both day and night conditions, as determined by the Engineer.

636.8- TEMPORARY PAVEMENT MARKINGS AND RAISED PAVEMENT MARKERS:

ADD THE FOLLOWING TO THE END OF SUBSECTION:

Application shall comply with Sections 636.8 and 663, except as modified below:

1. Temporary orange pavement markings shall be used only within active work zones.
2. Temporary markings shall be maintained to provide continuous visibility and legibility.
3. Orange markings shall not conflict with or create ambiguity when viewed in conjunction with existing or permanent pavement markings.
4. All conflicting pavement markings shall be eradicated in accordance with subsection 636.7 prior to placement and shall not result in damage to the pavement surface. Pavement markings intended to remain and be supplemented by temporary orange markings need not be removed.
5. Markings shall be removed or eradicated when no longer applicable to traffic control.
6. Orange markings shall not remain in place once permanent pavement markings are installed.
7. Temporary orange pavement markings shall be used to supplement existing pavement markings where necessary to define the intended path of travel through work zones. When used in conjunction with existing markings, the combined markings shall provide a clear and unambiguous message to motorists.
8. Orange markings shall only be used in combination with and to supplement yellow and white edge, channelizing, and lane lines. Orange markings shall not be used by themselves.
9. When supplementing white and yellow edge lines, the orange marking shall be placed to the outside of the yellow or white edge line. When supplementing a solid white lane or channelizing line, the orange marking shall be placed to the right of the solid white lane line. When supplementing a broken white lane line, each white skip line shall be immediately followed by an orange skip line of equal length. Orange markings shall not be used to supplement dashed lines.
10. ~~7.~~ Placement of the white and yellow lines shall not be adjusted laterally to accommodate the placement of the orange markings. In the event of space restrictions, the orange markings may be placed on the toe of a temporary barrier or omitted if necessary at the direction of the Engineer.

636.23-METHOD OF MEASUREMENT

636.23.9-Temporary Pavement Markings - Paint:

ADD THE FOLLOWING TO THE END OF SUBSECTION:

The quantity of "Temporary Pavement Markings – Paint (Orange)" shall be the linear feet of ~~six (6) or eight (8) inch~~ four (4) inch solid line actually placed on the pavement.

636.25-PAY ITEMS

ADD THE FOLLOWING PAY ITEM:

ITEM	DESCRIPTION	UNIT
636008-025	Temporary Pavement Marking-Paint 4 Inch (Orange)	Linear Foot
~~636008-026~~	~~Temporary Pavement Marking-Paint 8 Inch (Orange)~~	~~Linear Feet~~

DRAFT

March 3, 2026

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 662
ROADWAY LIGHTING

662.2-MATERIALS:

662.2.3-ELECTRICAL CONDUIT:

ADD THE FOLLOWING SUBSECTION:

662.2.3.5-Type PR (PVC-Coated Rigid Galvanized Steel Conduit "PVC-RGS"): Type PR (PVC-Coated Rigid Galvanized Steel Conduit) shall meet the applicable requirements of Section 715.42.10.1 and Section 715.42.10.5.

662.17–PAY ITEMS:

ADD THE FOLLOWING TO THE TABLE

ITEM NUMBER	DESCRIPTION	UNIT
662005-001	PVC-Coated Rigid Galvanized Steel Conduit	Lump Sum

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March 3, 2026

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 715
MISCELLANEOUS MATERIALS

715.42-TRAFFIC SIGNAL MATERIALS AND EQUIPMENT:

715.42.10-Electrical Conduit:

715.42.10.5-PVC-coated, Galvanized Rigid Conduit:

DELETE THE CONTENTS OF THE SUBSECTION AND REPLACE WITH THE FOLLOWING:

A nominal 40 mil polyvinyl chloride exterior coating shall be bonded to a hot-dipped galvanized rigid steel conduit conforming to NEMA/ANSI C80.1. The bond between the PVC coating and the conduit surface shall be greater than the tensile strength of the coating. The interior of the conduit shall have a nominal 2 mil urethane coating. The threads shall be urethane coated as well. The conduit shall be epoxy prime coated prior to the application of PVC and urethane coatings.

Female ends shall have plastic sleeve extending a minimum of one pipe diameter or two (2) inches, whichever is less beyond the opening. The inside diameter of the sleeve shall be the same as the outside diameter of the conduit to be used with it.

Conduit shall pass the high temperature water PVC coating adhesion test and be ETL Verified PVC-001. Conduit shall meet standards NFPA 70 Type RMC, NEMA/ANSI C80.1, UL 6, and NEMA RN 1.

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SECTION BREAK

NEW BUSINESS ITEMS

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April 14, 2026

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 401
ASPHALT, BASE, WEARING, AND
PATCHING AND LEAVELING COURSES

401.7-VERIFICATION TESTING:

401.7.4-Thickness:

DELETE SUBSECTION 401.7.4 AND REPLACE WITH THE FOLLOWING:

When a uniform thickness of three (3) inches or more is specified, excluding resurfacing, ~~cores shall be taken to verify~~ the thickness of the compacted pavement shall be verified by taking cores, in accordance with MP 401.07.22 or using non-destructive measurements, in accordance with MP 700.10.01.

~~Cores~~ Thickness measurements will be taken by the Division at random locations. The sampling frequency shall be approximately ~~five cores~~ one (1) measurement per ~~2,000~~ 500 feet per paving lane ~~of two-lane construction, except that the sampling frequency shall normally be limited to a minimum of five and a maximum of 50 cores per project~~. The Division may elect to waive coring for short projects of less than 1,000 feet in length or for projects where a paving mat of uniform thickness cannot be expected (for example: tapered paving mats or pavement widening projects). The Division may ~~also~~ elect to take additional cores when needed to resolve problems related to pavement thickness.

The thickness measurement shall be considered acceptable if it equals or exceeds the specified thickness. ~~one or both of the following criteria are met:~~

~~The average thickness equals or exceeds the specified thickness.~~

~~The average thickness is less than the specified thickness, but the difference is not statistically significant at the 95% confidence level. (Standard one tail "t" test at 0.05 significance).~~

~~The calculated 't' value shall be less than or equal to the standard 't' value at the 95% confidence level. The method for calculating Criteria 'B', shall be as follows:~~

~~$t \leq t_{95}$~~

~~Where:~~

~~t_{95} = value from standard "t" table for 95% confidence level~~

~~$$t = \frac{Xs - \bar{x}}{s}\sqrt{n-1}$$~~

~~x_s = specified thickness~~
~~$\bar{x}$ = average thickness~~
~~n = number of samples~~

~~$$s = \sqrt{\frac{\sum x2 - \frac{(\sum x)2}{n}}{n-1}}$$~~

~~x = individual core thickness~~

~~If the average thickness is less than specified and is determined to be significant as determined by criteria 'B', the Division shall decide on a course of action as described in Section 401.13.4.~~

401.13-BASIS OF PAYMENT:

401.13.4-

DELETE SUBSECTION 401.13.4 AND REPLACE WITH THE FOLLOWING:

When an area ~~Lot~~ of asphalt pavement is determined to be deficient, ~~statistically non-conforming in accordance with Criteria 'B' of Section 401.7.4, the Division will review the plans and project records to determine if there is an acceptable explanation for this deficiency. If it is determined that a deficiency does exist,~~ one of the following adjustments ~~may~~ will be used:~~.~~

1. If the deficiency is less than or equal to ~~3/4~~1/2 inch, the Division may choose to accept the material at a price equal to the bid price times the ratio of the ~~average~~ deficient thickness divided by the specified thickness.

2. If the deficiency is greater than ~~3/4~~1/2 inch ~~or greater~~, the Division may require that an additional lift of material [specified to the nearest 1/4 inch of the deficiency] be placed at the Contractor's expense. Retesting of the overlay will be at the expense of the Contractor in accordance with MP 109.00.20.

DRAFT

April 1, 2026

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 506
CONCRETE PAVEMENT REPAIR

506.2-MATERIALS:

DELETE THE CONTENTS OF SUBSECTION 506.2 AND REPLACE WITH THE FOLLOWING:

Materials shall meet the requirements of Section 501 or 601, and as follows:

MATERIAL	SECTION OR SUBSECTION
Accelerating Admixtures	707.13
Curing Materials	707.6-707.10
Epoxy-Coated Dowel Bars	709.15
Joint Sealer	708.3, 708.4
Portland Cement Concrete	501 or 601
Subbase	307
Tie Bars and Hook Bolts	709.1

A non-shrink cementitious grout meeting the requirements of ASTM C1107 or an approved epoxy adhesive meeting the requirements of AASHTO M 235, Type IV, Grade 3, Class B or C shall be used to firmly anchor dowel bars in 30 minutes. This material shall be approved by the Engineer for the intended application.

Type III c~~C~~ement meeting the requirements of ASTM C150~~, Type III~~, or cement meeting the requirements of Section 701.5 ~~-~~may be used in the concrete mixes for concrete pavement repair.

DRAFT

April 1, 2026

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 601
STRUCTURAL CONCRETE

601.1-DESCRIPTION:

INSERT THE FOLLOWING AFTER PARAGRAPH TEN (10) (CLASS DC):

Class BP concrete may be used to patch concrete elements if the substrate is Class B concrete in lieu of a prepackaged concrete repair material.

601.3-PROPORTIONING:

601.3.1-Mix Design Requirements:

DELETE TABLE 601.3.1A AND REPLACE WITH THE FOLLOWING:

TABLE 601.3.1A

Class of Concrete	Design 28 Day Compressive Strength	Target Cement Factor	Maximum Water Content	Standard Size of Coarse Aggregate***	Entrained Air
	Pounds per Square inch	lbs./c.y.*	lb. of water / lb. of cement **	Number	Percent
A	3500	682	0.51	7, 78, or 8	7.5
K	4000	658	0.44	57, 67	7.0
B	3000	564	0.49	57, 67	7.0
C	2500	494	0.58	57, 67	6.0
D	2000	400	0.62	57, 67	5.5
H	4000	See Table 601.3.1C	0.40	57,67	6.5
DC	4500	705	0.44	7, 78, or 8	6.0
BP	3000	564	0.49	8	7.0

* An equal mass of a SCM may be substituted for Portland cement up to the maximum amount in Table 601.3.1B. Only one SCM is permitted in a mix design, except for Class H concrete. The target cement factor of Class H concrete shall consist of Option 1 or Option 2 from Table

601.3.1C. The Contractor may choose either option.

** When using a SCM, masses of these materials shall be considered as cement for purposes of establishing maximum water content.

*** A number 67 coarse aggregate may be used in Class DC concrete, provided the Engineer approves the use of that size aggregate for the specific project on which it is to be used. That approval will depend on the minimum spacing of the reinforcing steel in the drilled shaft foundation.

DELETE TABLE 601.3.1D AND REPLACE WITH THE FOLLOWING:

TABLE 601.3.1D

Class of concrete	Design 28 Day Compressive Strength	Target Cement Factor	Maximum Water Content	Nominal Maximum Aggregate Size	Entrained Air
	Pounds per Square inch	lbs./c.y. Note 1	lb. of water/lb. of cement Note 2	Inches	Percent
A	3,500	642	0.51	½ or ⅜	7.5
K	4,000	618	0.44	1 or ¾	7.0
B	3,000	524	0.49	1 or ¾	7.0
C	2,500	454	0.58	1 or ¾	6.0
D	2,000	360	0.62	1 or ¾	5.5
H	4,000	See Table 601.3.1E	0.40	1 or ¾	6.5
DC Note 3	4,500	665	0.44	½ or ⅜	6.0
BP	3,000	524	0.49	⅜	7.0

Note 1 An equal mass of a SCM may be substituted for Portland cement up to the maximum amount in Table 601.3.1B. Only one SCM is permitted in a mix design, except for Class H concrete. The target cement factor of Class H concrete shall consist of Option 1 or Option 2 from Table 601.3.1E. The Contractor may choose either option.

Note 2 When using a SCM, masses of these materials shall be considered as cement for purposes of establishing maximum water content.

Note 3 Nominal maximum aggregate size of ¾ inches may be used in Class DC concrete, provided the Engineer approves the use of that size aggregate for the specific project on which it is to be used. That approval will depend on the minimum spacing of the reinforcing steel in the drilled shaft foundation.

601.3.1.1-Mix Design Using Potentially Reactive Aggregate:
601.3.1.1.1-Selecting Preventive Measures For ASR:
601.3.1.1.1.3-Level of Prevention:

DELETE TABLE 601.3.1.1.1.3 AND REPLACE WITH THE FOLLOWING:

TABLE 601.3.1.1.1.3
Determining the Level of Prevention

Level of ASR Risk	Classes of Concrete		Precast Concrete Member	Prestressed Concrete Member
	D	A, B, C, K, H, DC, BP		
Risk Level 0	V	V		V
Risk Level 1	W	X		Y
Risk Level 2	X	Y		Z
Risk Level 3	Y	Z		See footnote**

** It is not permitted to construct prestressed concrete members (Section 603) with Aggregate Reactivity Class of R3. Measures must be taken to reduce the level of risk in these circumstances by selecting the aggregates only from the Reactivity Classes of R0, R1, or R2.

601.16-PAY ITEMS:

ITEM	DESCRIPTION	UNIT
601001-*	Class A Concrete	Cubic Yard
601002-*	Class B Concrete	Cubic Yard
601002-*	Class BP Concrete	Cubic Yard
601003-*	Class K Concrete	Cubic Yard
601003-*	Class K Concrete, Architectural	Cubic Yard
601005-*	Class C Concrete	Cubic Yard
601006-*	Class D Concrete	Cubic Yard
601009-*	Class H Concrete	Cubic Yard
601019-*	Concrete Protective Coating	Square Foot
601025-002	Modified Concrete, Class A	Cubic Yard
601025-003	Modified Concrete, Class B	Cubic Yard
601025-005	Modified Concrete, Class C	Cubic Yard
601025-006	Modified Concrete, Class D	Cubic Yard
601025-007	Modified Concrete, Class H	Cubic Yard
601025-008	Modified Concrete, Class K	Cubic Yard
601026-002	Modified Architectural Concrete, Class B	Cubic Yard
601026-003	Modified Architectural Concrete, Class H	Cubic Yard
601026-004	Modified Architectural Concrete, Class K	Cubic Yard
601046-*	Modified Concrete End Post	Each

* Sequence number

DRAFT

March 30, 2026

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 615
STEEL STRUCTURES

615.5-ASSEMBLY:

615.5.6-Connections Using High-Strength Bolts:

615.5.6.3-Installation:

DELETE THE CONTENTS OF THE SEVENTH PARAGRAPH OF SUBSECTION 615.5.6.3 AND REPLACE WITH THE FOLLOWING:

~~Impact~~ Bolt tightening wrenches shall be of adequate capacity and sufficiently ~~supplied with air~~ powered to perform the required tightening in approximately ten (10) seconds. Tightening may be done by turning the bolt while the nut is prevented from rotating when it is impractical to turn the nut.

DRAFT

April 21, 2026

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 619
MEMBRANE WATERPROOFING

DELETE THE ENTIRE CONTENTS OF SECTION 619 AND REPLACE WITH THE FOLLOWING:

619.1-DESCRIPTION:

This work shall consist of furnishing and installing waterproofing systems on concrete retaining walls, abutments, earth-filled arches, bridge decks, and other concrete surfaces as shown on the Plans. Waterproofing shall consist of a continuous membrane system designed to prevent the intrusion of water under hydrostatic or non-hydrostatic conditions and to protect the underlying concrete from moisture infiltration. Waterproofing systems shall consist of preformed sheet membrane systems or liquid-applied membrane systems as shown on the Plans. All work shall be performed in accordance with these Specifications, the manufacturer's written instructions, and the Plans.

619.2-MATERIALS:

Waterproofing systems shall be capable of providing a continuous, watertight barrier and shall be compatible with concrete substrates and adjoining materials.

Waterproofing systems shall consist of preformed sheet membrane systems or liquid-applied membrane systems conforming to subsection 705.7. Systems shall demonstrate performance characteristics including crack bridging, adhesion, and impermeability in accordance with ASTM C1305, ASTM C1306, or other applicable ASTM test methods as approved by the Engineer for the intended application. These materials shall be installed as part of a complete waterproofing system in accordance with this Section.

Waterproofing systems shall be listed on the Department's Approved Products List or shall be submitted for approval prior to use.

Liquid-applied systems used as waterproofing shall be capable of resisting hydrostatic pressure. Coatings intended solely for surface protection shall not be accepted unless specifically approved by the Engineer for the intended application.

619.3-SUBMITTALS:

The Contractor shall submit for approval the proposed waterproofing system, including product data, manufacturer installation requirements, and surface preparation requirements. The Contractor shall also submit certification from the manufacturer that all system components are

compatible and suitable for the intended application. When required by the Engineer, shop drawings shall be submitted showing details at joints, terminations, transitions, penetrations, and other critical locations. No waterproofing materials shall be incorporated into the work until the required submittals have been approved.

CONSTRUCTION METHODS

619.4–PREPARATION OF SURFACE:

Concrete surfaces to receive waterproofing shall be clean, sound, and free of laitance, curing compounds, oil, dirt, dust, loose material, and other deleterious substances. All voids, honeycombed areas, and tie holes shall be repaired prior to application of the waterproofing system. Projections shall be removed or ground smooth. Surface preparation shall meet the requirements of the waterproofing manufacturer. Unless otherwise approved, concrete surfaces shall meet a minimum surface profile equivalent to ICRI CSP 3.

619.5–ENVIRONMENTAL CONDITIONS:

Waterproofing shall not be applied when ambient or surface temperatures are below 40°F unless permitted by the manufacturer. Waterproofing shall not be applied when surface temperatures are within 5°F of the dew point, when surfaces are wet or damp unless approved for the system, or when precipitation is occurring or imminent. Application temperatures shall be maintained within manufacturer recommendations using equipment with temperature control devices.

619.6–GENERAL INSTALLATION REQUIREMENTS:

Waterproofing systems shall be installed to provide a continuous watertight membrane over all surfaces indicated on the Plans. Waterproofing systems shall be installed in accordance with the manufacturer’s requirements. All laps, seams, terminations, and transitions shall be sealed to provide a watertight system. Waterproofing shall be continuous across construction joints unless otherwise shown on the Plans. Special care shall be taken at penetrations, drains, and embedded items to ensure watertight integrity. Any damage to the waterproofing system shall be repaired in accordance with the manufacturer’s recommendations.

619.7–PREFORMED SHEET MEMBRANE SYSTEMS:

Preformed sheet membrane systems shall be installed in accordance with the manufacturer’s recommendations and fully bonded to the prepared substrate by self-adhering, mechanically fastened, or other approved methods. All laps shall be sealed in accordance with the manufacturer’s requirements to provide a continuous watertight system. Primer shall be used when required. The completed membrane shall be fully adhered, continuous, and watertight at all laps, joints, and terminations.

619.8–LIQUID-APPLIED MEMBRANE SYSTEMS:

Liquid-applied membrane systems shall be applied in accordance with the manufacturer’s recommendations by spray, roller, or squeegee methods. The membrane shall be installed in multiple coats as required to achieve the specified thickness and performance requirements. Reinforcement fabric shall be installed at cracks, joints, changes in plane, penetrations, and other locations as required by the manufacturer.

The completed system shall be seamless, fully bonded to the substrate, and free of pinholes, voids, or discontinuities.

619.9–BLANK

619.10–DETAILS:

Waterproofing shall be continuous and watertight at all construction joints, expansion joints, edges, terminations, penetrations, and drains.

Flashing shall be installed at all terminations and transitions as shown on the Plans and in accordance with the manufacturer's requirements. Special care shall be taken to ensure watertight conditions at all interfaces.

619.11–PROTECTION:

Waterproofing shall be protected from damage during construction. Where specified, waterproofing shall be covered with a protection system consisting of cast-in-place concrete, protection board, or other approved material. Waterproofing with protection shall be used where the membrane is subject to damage from construction operations, where horizontal or near-horizontal surfaces are present, where construction traffic is anticipated, or where shown on the Plans. Waterproofing without protection may be used on vertical surfaces or other locations where the membrane is not subject to damage and where approved by the Engineer. Protection shall be installed as soon as practicable following placement of the waterproofing system.

619.12–METHOD OF MEASUREMENT:

Waterproofing will be measured in square yards of surface area covered, complete in place and accepted by the Engineer, determined from actual field measurement.

619.13–BASIS OF PAYMENT:

The quantities, determined as provided above, will be paid for at the contract unit prices bid for the items listed, which prices shall include full compensation for furnishing all materials, labor, equipment, surface preparation protection, and incidentals necessary to complete the work in a satisfactory manner.

619.14–PAY ITEMS:

ITEM	DESCRIPTION	UNIT
619002-*	Waterproofing	Square Yard
619003-*	Waterproofing With Protection	Square Yard

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 705
ASPHALT MATERIALS

DELETE THE TITLE AND CONTENTS OF SUBSECTION 705.7 AND REPLACE WITH THE FOLLOWING:

~~**705.7 ASPHALT FOR DAMPPROOFING AND WATER-PROOFING:**~~

~~Materials shall conform to the requirements of ASTM D449. Unless otherwise specified, Type II shall be used.~~

705.7 WATERPROOFING MATERIALS:

Waterproofing membrane materials used in preformed sheet membrane systems and liquid-applied membrane systems shall conform to the following requirements and shall be listed on the Department's Approved Products List or approved prior to use.

- Preformed sheet membrane systems shall conform to ASTM D1970 or AASHTO M 275, as applicable.
- Liquid-applied membrane systems shall conform to ASTM C836 or other approved equivalent material specifications as determined by the Engineer.

DELETE THE CONTENTS OF SUBSECTION 705.8:

~~**705.8 PRIMER FOR USE WITH ASPHALT IN DAMPPROOFING AND WATERPROOFING:**~~

~~Materials shall conform to the requirements of ASTM D41. 705.9 through 705.10:~~

DELETE THE CONTENTS OF THE TITLE "705.9 THROUGH 705.10" AND REPLACE WITH THE FOLLOWING:

705.8-705.10: BLANK

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~~April 9, 2026~~ April 15, 2026

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 642
TEMPORARY POLLUTION CONTROL

642.6-TEMPORARY PIPE, CONTOUR DITCHES, BERMS, SLOPE DRAINS, ROCK CHECK DAM, SILT FENCE, AND SUPER SILT FENCE:

642.6.5-Silt Fence:

DELETE THE CONTENTS OF SUBSECTION 642.6.5 AND REPLACE WITH THE FOLLOWING:

The ~~minimum~~ height above ground for the silt fence shall be ~~two (2) feet~~ between sixteen (16) inches and twenty-four (24) inches. Minimum embedment depth shall be eight (8) inches. ~~The maximum post spacing shall be based on elongation of the geotextile as measured in accordance with Test Method D 4632. Silt fence geotextile with elongation 50 % shall have a maximum post spacing of four (4) feet. Silt fence geotextile with elongation < 50 % shall have a maximum post spacing of 6.5 feet. When silt fence is installed in valleys where water can pond behind the fence then the post spacing shall be half of the maximum post spacing for the geotextile used.~~ Soil along each side of the fence shall be compacted to ensure that the geotextile is securely anchored. Where anticipated flow, drainage area, or sediment storage requirements exceed the capacity of a single row of silt fence, additional rows of silt fence or other Best Management Practices (BMPs) shall be installed to maintain effective sediment retention.

~~When silt fence is installed by the trenching method the geotextile at the bottom of the fence shall be buried in a "J" configuration to a minimum depth of eight (8) inches in a trench so that no flow can pass under the silt fence. Backfill the trench and compact the soil over the geotextile.~~

~~When silt fence is installed by the soil slicing method the geotextile shall be installed in a slit in the soil eight (8) to twelve (12) inches deep so that no flow can pass under the silt fence. Create the slit such that a horizontal chisel point (approx. 3 inches wide) at the base of a soil slicing blade (approx. ¾ inches wide) that slightly disrupts soil upward as the blade slices through the soil. This upward disruption minimizes horizontal compaction and creates an optimal soil condition for mechanical compaction against the geotextile. Overturning of the soil shall not be permitted. The geotextile shall be mechanically inserted directly behind the soil slicing blade in a simultaneous operation, achieving consistent placement and depth.~~

~~The silt fence geotextile shall be spliced together with a sewn seam only at a support post, or two sections of fence may be overlapped.~~ The silt fence geotextile shall be overlapped a minimum of twelve (12) inches or wrapped around a support post at section joints. When wrapping is used,

the adjoining posts shall be placed together, the geotextile shall be wrapped a minimum of one (1) full turn around the posts, and the posts shall be driven into the ground together to form a continuous barrier. All overlaps or wraps shall be securely fastened to maintain a continuous sediment barrier and prevent gaps that could allow sediment-laden water to bypass the fence.

Silt fence posts shall be driven to a minimum of twenty (20) inches into the ground. This depth shall be increased to two (2) feet if the fence is placed on a slope of 3:1 or greater. Where the minimum depth is ~~impossible~~ difficult to attain, ~~the posts shall be adequately secured to prevent overturning of the fence due to loading~~ the steel posts may be necessary. The geotextile shall be properly fastened to the upslope side of the fence posts.

Silt fences shall be continuous and transverse to the flow. The silt fence shall follow the level contours of the site ~~as closely as possible~~ to prevent concentrated flow. ~~Place the fence such that the water cannot runoff around the end of the fence.~~ To prevent water from flowing around the ends of the silt fence, the ends shall be turned upslope to form a positive barrier. Ensure that the bottom of each end of fence is higher than the middle of the fence.

~~The silt fence trench shall be compacted on the upstream side first, and then the downstream side. The silt fence trench shall be compacted to a minimum of 90% of the original ground density and the posts must be installed after compaction of the trench. The trench compaction will be based on visual inspection and the engineer may require compaction testing to verify the visual inspection.~~

The contractor shall inspect ~~all silt fences immediately after each rainfall and at least daily during prolonged rainfall~~ and maintain all silt fences in accordance with all applicable permits and the site-specific Stormwater Pollution Prevention Plan (SWPPP). ~~The contractor~~ and shall immediately correct any deficiencies. The contractor shall also make a daily review of the location of silt fences in areas where construction activities have altered the natural contour and drainage runoff to ensure that the silt fences are properly located for effectiveness. Where deficiencies exist as determined by the ~~engineer,~~ Qualified Person or Environmental Monitor, additional silt fence shall be installed as necessary and as directed by the Engineer. Accumulation of sediment along the silt fence indicates inadequate protection of upslope disturbed ground. When this is observed, corrective action shall be taken to reduce erosion. When the sediment deposits ~~reaches half the height of the fence the sediment shall be removed or a second silt fence shall be installed as directed by the engineer.~~ reach a depth of six (6) inches, sediment shall be removed. Also, remedial BMP measures shall be implemented as revisions to the SWPPP to prevent erosion above the silt fence. The cost of sediment removal is incidental to Silt Fence. Remedial BMPs shall be paid in accordance with the provisions of the contract.

The silt fence shall remain in place until the Engineer directs it to be removed. Upon removal the contractor shall remove and dispose of any excess sediment accumulations ~~, dress the area to give it a pleasing appearance,~~ and vegetate all bare areas. Removed silt fence may be used at other locations provided the geotextile and other material requirements continue to be met, and the material shows no evidence of tears, clogging, or UV degradation, to the satisfaction of the Engineer.

Silt fence material shall be selected from the WVDOH Approved Products List for Engineering Fabric for Sediment Control (Silt Fence). Standard silt fence shall be used for typical applications with moderate drainage areas, flow conditions, and project durations of one construction season or less. High Performance silt fence shall be used for applications exceeding one construction season or where site conditions, including larger drainage areas, higher flow, or increased sediment load, require enhanced BMP performance. All material properties for silt

fence shall conform to the latest edition of ASTM D6461, the values shown in Table 642.6.5A are for reference only.

TABLE 642.6.5 A

Temporary Silt Fence Material Property Requirements			
	Silt Fence, Standard (ASTM D6461, Table 1)		Silt Fence, High Performance (ASTM D6461, Table 2)
Grab Strength Machine Direction (lb) Cross-machine Direction (lb)	 90 (Supported) 90 (Supported)	 124 (Unsupported) 101 (Unsupported)	 260 180
Min. Permittivity (sec^{-1})	0.05		1.0
Max. Apparent opening size (mm)	0.6		0.6
UV Stability (%)	70		70
Trapezoidal Tearing Strength (lb)	60		60
CBP Puncture (lb)	325		325

Post spacing shall be based on installed silt fence height. Table 642.6.5 B summarizes the maximum post spacing for temporary silt fence based on fence height and post type.

TABLE 642.6.5 B

Max. Post Spacing (ft)		
	Fence Height 16 in	Fence Height > 16 in to ≤ 24 in
Steel T-post (weight per foot)		
0.95 lb/ft	5	3
1.25 lb/ft	6	4
1.33 lb/ft	7	5
Wood stakes		
1-1/4 in x 1-3/4 in	6	4
1-3/4 in x 1-3/4 in	6	4

Longer or steeper slopes require multiple rows of silt fence for effective sediment control. Additional rows shall be installed in accordance with the maximum slope lengths in Table 642.6.5C.

TABLE 642.6.5 C

Maximum Slope Length Above Silt Fence		
Slope		Slope Length (ft)
0% - 2%	Flatter than 50:1	250
2% - 10%	50:1 - 10:1	125
10% - 20%	10:1 - 5:1	100
20% - 33%	5:1 - 3:1	75
33% - 50%	3:1 - 2:1	50

642.9-PAY ITEMS:

DELETE ITEM 642012, "SILT FENCE" AND ADD THE FOLLOWING TO THE TABLE:

ITEM	DESCRIPTION	UNIT
~~642012~~	~~Silt Fence~~	~~Linear Foot~~
642012	Silt Fence, Standard	Linear Foot
642013	Silt Fence, High Performance	Linear Foot

DRAFT

April 15, 2026

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 642
TEMPORARY POLLUTION CONTROL

642.6-TEMPORARY PIPE, CONTOUR DITCHES, BERMS, SLOPE DRAINS, ROCK CHECK DAM, SILT FENCE, AND SUPER SILT FENCE:

642.6.5-Silt Fence:

DELETE THE CONTENTS OF SUBSECTION 642.6.5 AND REPLACE WITH THE FOLLOWING:

The height above ground for the silt fence shall be between sixteen (16) inches and twenty-four (24) inches. Minimum embedment depth shall be eight (8) inches. Soil along each side of the fence shall be compacted to ensure that the geotextile is securely anchored. Where anticipated flow, drainage area, or sediment storage requirements exceed the capacity of a single row of silt fence, additional rows of silt fence or other Best Management Practices (BMPs) shall be installed to maintain effective sediment retention.

The silt fence geotextile shall be overlapped a minimum of twelve (12) inches or wrapped around a support post at section joints. When wrapping is used, the adjoining posts shall be placed together, the geotextile shall be wrapped a minimum of one (1) full turn around the posts, and the posts shall be driven into the ground together to form a continuous barrier. All overlaps or wraps shall be securely fastened to maintain a continuous sediment barrier and prevent gaps that could allow sediment-laden water to bypass the fence.

Silt fence posts shall be driven to a minimum of twenty (20) inches into the ground. This depth shall be increased to two (2) feet if the fence is placed on a slope of 3:1 or greater. Where the minimum depth is difficult to attain, the steel posts may be necessary. The geotextile shall be properly fastened to the upslope side of the fence posts.

Silt fences shall be continuous and transverse to the flow. The silt fence shall follow the level contours of the site to prevent concentrated flow. To prevent water from flowing around the ends of the silt fence, the ends shall be turned upslope to form a positive barrier. Ensure that the bottom of each end of fence is higher than the middle of the fence.

The contractor shall inspect and maintain all silt fences in accordance with all applicable permits and the site-specific Stormwater Pollution Prevention Plan (SWPPP), and shall immediately correct any deficiencies. The contractor shall also make a daily review of the location of silt fences in areas where construction activities have altered the natural contour and drainage runoff to ensure that the silt fences are properly located for effectiveness. Where deficiencies exist

as determined by the Qualified Person or Environmental Monitor, additional silt fence shall be installed as necessary and as directed by the Engineer. Accumulation of sediment along the silt fence indicates inadequate protection of upslope disturbed ground. When this is observed, corrective action shall be taken to reduce erosion. When the sediment deposits reach a depth of six (6) inches, sediment shall be removed. Also, remedial BMP measures shall be implemented as revisions to the SWPPP to prevent erosion above the silt fence. The cost of sediment removal is incidental to Silt Fence. Remedial BMPs shall be paid in accordance with the provisions of the contract.

The silt fence shall remain in place until the Engineer directs it to be removed. Upon removal the contractor shall remove and dispose of any excess sediment accumulations and vegetate all bare areas. Removed silt fence may be used at other locations provided the geotextile and other material requirements continue to be met, and the material shows no evidence of tears, clogging, or UV degradation, to the satisfaction of the Engineer.

Silt fence material shall be selected from the WVDOH Approved Products List for Engineering Fabric for Sediment Control (Silt Fence). Standard silt fence shall be used for typical applications with moderate drainage areas, flow conditions, and project durations of one construction season or less. High Performance silt fence shall be used for applications exceeding one construction season or where site conditions, including larger drainage areas, higher flow, or increased sediment load, require enhanced BMP performance. All material properties for silt fence shall conform to the latest edition of ASTM D6461, the values shown in Table 642.6.5A are for reference only.

TABLE 642.6.5 A

Temporary Silt Fence Material Property Requirements			
	Silt Fence, Standard (ASTM D6461, Table 1)		Silt Fence, High Performance (ASTM D6461, Table 2)
Grab Strength Machine Direction (lb) Cross-machine Direction (lb)	 90 (Supported) 90 (Supported)	 124 (Unsupported) 101 (Unsupported)	 260 180
Min. Permittivity (sec^{-1})	0.05		1.0
Max. Apparent opening size (mm)	0.6		0.6
UV Stability (%)	70		70
Trapezoidal Tearing Strength (lb)	60		60
CBP Puncture (lb)	325		325

Post spacing shall be based on installed silt fence height. Table 642.6.5 B summarizes the maximum post spacing for temporary silt fence based on fence height and post type.

TABLE 642.6.5 B

Max. Post Spacing (ft)		
	Fence Height 16 in	Fence Height > 16 in to ≤ 24 in
Steel T-post (weight per foot)		
0.95 lb/ft	5	3
1.25 lb/ft	6	4
1.33 lb/ft	7	5
Wood stakes		
1-1/4 in x 1-3/4 in	6	4
1-3/4 in x 1-3/4 in	6	4

Longer or steeper slopes require multiple rows of silt fence for effective sediment control. Additional rows shall be installed in accordance with the maximum slope lengths in Table 642.6.5C.

TABLE 642.6.5 C

Maximum Slope Length Above Silt Fence		
Slope		Slope Length (ft)
0% - 2%	Flatter than 50:1	250
2% - 10%	50:1 - 10:1	125
10% - 20%	10:1 - 5:1	100
20% - 33%	5:1 - 3:1	75
33% - 50%	3:1 - 2:1	50

642.9-PAY ITEMS:

DELETE ITEM 642012, "SILT FENCE" AND ADD THE FOLLOWING TO THE TABLE:

ITEM	DESCRIPTION	UNIT
642012	Silt Fence, Standard	Linear Foot
642013	Silt Fence, High Performance	Linear Foot

DRAFT

April 16, 2026

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 679
OVERLAYING OF PORTLAND CEMENT CONCRETE BRIDGE DECKS

679.1-DESCRIPTION

DELETE THE ENTIRE CONTENTS OF SUBSECTION 679.1 REPLACE WITH THE FOLLOWING:

The work shall consist of furnishing and placing a specialized concrete overlay to a designated grade line. Unless otherwise indicated on the plans, the Contractor may place any one of the specialized overlays allowed by the terms of this specification. Only one type of overlay will be allowed on any one structure. A specialized concrete overlay will not be considered an acceptable method for deck retrofit for any bridge deck where the original slab thickness is less than 6.5 inch.

679.1.1-Other Work: The following work, as required by the contract plans, may also be performed under the terms of this section:

a) Clean the bridge deck
b) Bridge deck repair
c) Clean exposed reinforcing steel
d) Support and tie reinforcing steel
e) Place slab reconstruction concrete
f) Abutment backwalls and approach slabs repair (same as bridge deck or as shown in the plans.)
g) Milling and h~~H~~ydrodemolition of existing deck surface

679.1.2-Definitions:

679.1.2.1-Specialized Concrete Overlay: ~~Two~~ Three (3) types of specialized concrete overlay are permitted as follows:

1) **Latex Modified Concrete:** A Portland cement concrete to which an approved styrene butadiene latex admixture has been added.
2) **Silica Fume Concrete:** A Portland cement concrete to which an approved silica fume admixture has been added.
~~2)~~3) **Very Early Strength Latex Modified Concrete:** A latex modified concrete that has been specifically designed using Very Rapid Hardening (VRH)

cement in accordance with ASTM C1600 to achieve a minimum 2,500 psi compressive strength prior to opening of traffic within three (3) or six (6) hours.

679.1.2.2-Slab Reconstruction Concrete: Slab reconstruction concrete is that concrete placed completely around exposed reinforcing bars.

679.1.2.3-Curing Hour: A curing hour is any hour, beginning with the hour of placement, during which the temperature of the concrete surface remains at, or above, 50° F as measured by a recording thermometer.

679.1.2.4-Curing Temperature: This is the air temperature at the concrete surface, or the air temperature between the concrete surface and its protective covering.

679.2-MATERIALS

DELETE THE ENTIRE CONTENTS OF SUBSECTION 679.2 REPLACE WITH THE FOLLOWING:

679.2.1-General: Materials used in the manufacture of specialized concrete overlays shall meet the requirements specified in ~~S~~subsection 601.2 of the Specifications and as required herein.

679.2.1.1-Fine Aggregate: Fine aggregate shall be silica sand meeting the requirements of ~~S~~subsections 702.1.2 through 702.1.5 and 702.6 of the Specifications.

679.2.1.2-Coarse Aggregate: Coarse aggregate shall be AASHTO Size No. 8 crushed stone or gravel conforming to Section 703 of the Specifications.

679.2.1.3-Latex Admixture: Formulated latex modifier shall meet the requirements of ~~S~~subsection 707.5 of the Specifications.

679.2.1.4-Silica Fume Admixture: Silica fume admixture shall meet the requirements of ~~S~~subsection 707.4.3.

679.2.1.5- Very Rapid Hardening Hydraulic Cement: Very Rapid Hardening Cement (VRH) meeting subsection 701.5 requirements shall be used in very early strength latex modified concrete overlays.

679.2.1.6-Liquid Citric Acid Admixture: Liquid citric acid admixtures containing 50 percent solids may be used as a set retarding admixture in very early strength latex modified concrete overlays if a written compatibility statement is provided by the cement manufacturer.

679.2.1.7~~5~~-Bonding Grout: Bonding Grout shall not be used on Reconstruction Projects. On New Construction Projects Bonding Grout shall consist of the actual modified concrete used with coarse aggregates removed. The consistency of the slurry shall be such

that it can be applied to the prepared concrete surfaces with a stiff bristle broom in a thin, even coating that will not run or puddle. The bonding grout shall be applied using a stiff broom and worked into all areas of the slab. The rate of applying this coating shall be controlled so that the brushed material does not become dry before it is covered with additional material.

679.2.1.86-Class K Concrete: Class K Concrete shall meet the requirements of Section 601 of the Specifications except that coarse aggregate shall meet the requirements of subsection 679.2.1.2. When used in conjunction with very early strength latex modified concrete overlays, Class K concrete shall be required to reach 4,000 psi within 24 hours.

679.2.1.97-Curing Materials:

Burlap: This shall meet the requirements of subsection 707.7 of the Specifications.

Quilted Covers: These shall be clean and free of defects, providing a water retention blanket over the concrete. Acceptance will be based on visual inspection.

Polyethylene Curing Covers: These shall meet the requirements of subsection 707.6 of the Specifications.

Plastic Coated Fiber Blankets: These shall be clean and free of defects, providing a water retention blanket over the concrete. Acceptance will be based on visual inspection.

679.2.1.108-Replacement Bars: Reinforcing bars shall be Grade 60 and shall meet the material requirements of Section 602 of the Specifications. Replacement bars shall be spliced to existing bars using either minimum 30-bar diameter lap splices or approved mechanical connectors.

679.2.1.11-Fibers: Fibers shall meet the requirements of subsection of 715.3.

679.2.2-Specialized Concrete Mix Design and Testing: Specialized concrete shall consist of a homogeneous mixture of cement, fine aggregate, coarse aggregate, latex or silica fume admixture, chemical admixtures, and water. The use of fibers in the specialized concrete shall be allowed.

The Contractor shall determine mixture proportions in general accordance with ACI 211.1, "Standard Practice for Selecting Proportions for Normal, Heavyweight and Mass Concrete." Establishment of mixture proportions shall be coordinated with the manufacturer of the latex or silica fume admixture. The dosage rate in lbs./cy of fibers for any application shall be the manufacturer's recommendation to meet the requirements of 715.3. The dosage rate shall not be less than the submitted rate used for product approval which can be found in the approved products list. The dosage rate shall not exceed 5.0 lbs./cy, unless the manufacturer can demonstrate, through a field demonstration, that the concrete mixture will be workable and fiber balling is not a problem.

Prior to the start of construction, the Contractor shall design and submit to the Engineer for approval the proportion of materials, including admixtures, to be used which will result in a workable concrete having the applicable properties enumerated below, including those of subsections 679.2.2.1 or 679.2.2.2.

This mix design shall be prepared in accordance with MP 711.03.23.

Design mixture testing shall include air content, slump, ~~and~~ compressive strength results at 28 days, Sequential Air Meter (SAM), and ~~results of~~ concrete surface resistivity test~~s~~ results.

Mix Designs accessed as very early strength latex modified concrete overlays shall be classified based upon the compressive strength tests conducted at either at three (3) hours, one (1) day, and 28 days; or at six (6) hours, one (1) day, and 28 days based upon the required compressive strength results at the specified time for opening of traffic. These cylinders shall be cured as similarly as possible to field placement conditions of the overlay. The minimum compressive strength shall be 3,000 psi at three (3), or six (6) hours; 3,500 psi at one (1) day, and 4,000 psi at 28 days.

Compressive strength cylinders for silica fume concrete shall be cured in accordance with ASTM C192 for 28 days, but compressive strength cylinders for latex modified concrete shall be moist cured in accordance with ASTM C192 for two (2) days then air cured in the lab at a temperature between 73.5 ± 3.5 °F for 26 days.

For establishment of mixture proportions, the surface resistivity testing silica fume concrete specimens shall be moist cured for seven (7) days in accordance with ASTM C192, then cured for 21 days in lime-saturated water at 100.0 ± 3.5 °F, then tested at an age of 28 days. For establishment of mixture proportions, the surface resistivity testing~~,~~ for latex modified concrete specimens shall be moist cured for two (2) days in accordance with ASTM C192, then cured for 26 days in air at 100.0 ± 3.5 °F and a minimum of 50% relative humidity, then resubmerged in the lime-saturated water for seven (7) days and tested at an age of 35 days.

The surface resistivity result will consist of average surface resistivity of three (3) cylinders and shall be at least 30 kΩ-cm and used as the basis for acceptance of the Specialized Concrete Overlay requirements.

The SAM test shall be performed on representative sample from both of the batches at the minimum cement factor as outlined in Section 3.3 of MP 711.03.23. These samples shall be prepared and tested in accordance with AASHTO T395. The SAM number for both of these samples shall be less than or equal to 0.20.

Concrete for any slump test shall be deposited in a manner and location that excludes the effects of vibrations caused by traffic and concrete placement operations.

The total concrete constituents shall contribute less than 0.10% water soluble chloride ion by weight of cement. Use one (1) brand and/or one (1) source for any concrete constituent.

The Contractor shall obtain a written statement from the manufacturer of the latex or silica fume admixture that confirms the compatibility of the material combination and the sequence in which they are combined. The written statement, along with the results of all required tests, shall be furnished to the Engineer prior to the pre-construction meeting (refer to subsection 679.2.2.3). Substantiating data showing compliance with the requirements of this specification shall also be submitted. This data shall also include the sources of coarse and fine aggregates as well as the brands of all admixtures to be used.

Contractor's Quality Control: Quality control of the specialized concrete is the responsibility of the Contractor as designated in MP 601.03.50. The Contractor shall maintain equipment and qualified personnel, including at least one (1) certified Portland Cement Concrete Technician who shall direct all field inspection, sampling, and testing necessary to determine the magnitude of the various properties of concrete governed by the Specifications and shall maintain these properties within the limits of this Specification. The Contractor's

personnel who conduct the field sampling and testing shall be a certified Portland Cement Concrete Inspector. The quality control plan designated in MP 601.03.50 shall be submitted to the Engineer at the preconstruction conference. Work shall not begin until the plan is reviewed for conformance with the contract documents.

Compressive strength specimens shall be made and cured in accordance with AASHTO R 100 and MP 601.04.20 at the frequency required in MP 601.03.50 except that specimens for latex modified concrete compressive strength shall be moist cured for two (2) days and air cured at a temperature of 73.5 ± 3.5 °F for 26 days.

However, when placing very early strength latex modified concrete overlays, a minimum of six (6) compressive strength specimens shall be cast for determining the required strength for the opening of traffic within the last 15 minutes of each concrete placement. These cylinders shall be cured as similarly as possible to field placement conditions of the concrete overlay. The average strength of three (3) of these specimens shall be used to determine the opening of traffic.

During construction, a minimum of three (3) specimens shall be fabricated for surface resistivity testing in accordance with AASHTO T358 every time that a set of compressive strength specimens is fabricated.

When silica fume concrete is used, these specimens shall be moist cured for 28 days. Three (3) specimens shall be then tested at an age of 28 days in accordance with AASHTO T358. The average result of the three (3) values from these specimens shall be reported as the result required in Note (a) in subsection 679.2.2.2.

When latex modified concrete is used these specimens may be moist cured for two (2) days in accordance with ASTM C192, then cured for 26 days in air at 100.0 ± 3.5 °F and a minimum of 50% relative humidity, then resubmerged in the lime-saturated water for seven (7) days and tested at an age of 35 days in accordance with AASHTO T358. The average result of the three (3) values from these specimens shall be reported as the result required in Note (a) in subsection 679.2.2.1.

Gradation testing shall be performed in accordance with subsection 601.3.2.4.

679.2.2.1-Latex Modified Concrete: The following test criteria must be met for all latex modified concrete pours placed at the structure. This testing shall be performed by the Contractor or his designated representative and certified results provided to the Engineer prior to final acceptance of the project.

Table 679.2.2.1

Surface Resistivity [a]	Minimum 30 kΩ-cm @ 35 days (per AASHTO T 358)
Compressive Strength [b][c]	Minimum 4,000 psi
Water/Cement Ratio [d~~e~~]	0.40 by weight, maximum
Portland Cement Content	658 lb/cu. yd., minimum
Latex Admixture Content [e~~d~~]	24.5 gal/cu. yd., minimum
Air Content [f~~e~~]	6.5% maximum (Per AASHTO T 152)
Slump	4.0 inches ± 2.0 inches

Note (a) The surface resistivity tests shall be performed and the results tabulated and submitted to the Engineer. If the surface resistivity value is less than ~~t~~ the minimum value noted in Table 679.2.2.1, then the concrete represented by this surface resistivity value may be

Table 679.2.2.1

	removed and replaced by the Contractor. If the Contractor elects to leave the material in place, the Engineer shall evaluate it as to the adequacy for the use intended. All concrete evaluated as unsatisfactory for the use intended shall be removed and replaced by the Contractor. When the Engineer's evaluation indicates that the work may satisfactorily remain in place, the subject material shall be paid for at a reduced unit price based on Table 679.2.2.5.
Note (b)	The minimum 28-day compressive strength shall be 4,000 psi. Overlay concrete with a compressive strength of less than this acceptance level may be removed and replaced at the contractor's expense. If the Contractor elects to leave the material in place, the Engineer shall evaluate it as to the adequacy for the use intended. All concrete evaluated as unsatisfactory for the use intended shall be removed and replaced by the Contractor. When the Engineer's evaluation indicates that the work may satisfactorily remain in place, the subject material shall be paid for at a reduced unit price based on subsection 601.15.2 in addition to any penalty assessed from Table 679.2.2.
Note (c)	For very early strength latex modified concrete overlays shall achieve a minimum compressive strength of 2,500 psi prior to opening to traffic in three (3) or six (6) hours as specified during the mix design approval.
Note (de)	The amount of added water shall be adjusted to provide slump at or below the prescribed limit. The water portion of all admixtures shall be included as part of the water/cement ratio.
Note (cd)	Latex sampling shall be in accordance with subsection 707.5.
Note (fe)	The initial mix design shall be based on an expected air content range of 3% to 6%. The mixture proportions shall be determined using actual conditions for fineness modulus and bulk specific gravities (saturated surface dry for aggregates).

679.2.2.2-Silica Fume Concrete: The following test criteria must be met for all silica fume concrete pours placed at the structure. This testing shall be performed by the Contractor or their designated representative and certified results provided to the Engineer prior to final acceptance of the project.

Table 679.2.2.2

Surface Resistivity (a)	Minimum 30 kΩ-cm @ 28 days (per AASHTO T 358)
Compressive Strength[(b)]	Minimum 4,000 psi
Water/(Cementitious Materials) Ratio [(c)]	0.37 by weight, maximum
Portland Cement Content [(d)]	680 lb/cu.yd., minimum
Silica Fume Content [(e)] (Dry Weight)	50 lb./cu. yd., minimum
Air Content	7.0% (plus or minus 1.5%) (Per AASHTO T 152)
Slump	6.5 inches ± 1.5 inches
High Range Water Reducer (Superplasticizers) [(f)]	As needed for workability, slump and water/cementitious ratios

Note (a)	The surface resistivity tests shall be performed and the results tabulated and submitted to the Engineer. If the surface resistivity value is less than the minimum value noted in Table 679.2.2.2, then the concrete represented by this surface resistivity value may be removed and replaced by the Contractor. If the Contractor elects to leave the material in place, the Engineer shall evaluate it as to the adequacy for the use intended. All concrete evaluated as unsatisfactory for the use intended shall be removed and replaced by the Contractor. When the Engineer's evaluation indicates that the work may satisfactorily remain in place, the subject material shall be paid for at a reduced unit price based on Table

Table 679.2.2.2

	679.2.2.5.
Note (b)	The minimum 28-day compressive strength shall be 4,000 psi. Overlay concrete with a compressive strength of less than this acceptance level may be removed and replaced at the contractor's expense. If the Contractor elects to leave the material in place, the Engineer shall evaluate it as to the adequacy for the use intended. All concrete evaluated as unsatisfactory for the use intended shall be removed and replaced by the Contractor. When the Engineer's evaluation indicates that the work may satisfactorily remain in place, the subject material shall be paid for at a reduced unit price based on subsection 601.15.2 in addition to any penalty assessed from Table 679.2.2.
Note (c)	The amount of added water shall be adjusted to provide slump at or below the prescribed limit. The water portion of all admixtures shall be included as part of the water/cement ratio.
Note (d)	An equal volume of fly ash may be substituted for cement to a maximum of 1 ¼ bags per cubic yard. An equal volume of slag cement may be substituted for cement to a maximum of three (3) bags per cubic yard. When fly ash or slag cement are used, equivalent volumes of fly ash or slag cement shall be considered as cement for purposes of determining the proportioning ratios.
Note (e)	Silica fume sampling shall be in accordance with subsection 707.4.3.
Note (f)	A high range water-reducing admixture is required to improve workability. No more than two (2) additions of the admixture shall be made, and the total quantity shall not exceed the manufacturer's maximum dosage rate. Each time high range water reducer is added, the concrete shall be mixed an additional minimum of 30 revolutions. The total number of revolutions shall not exceed 300.

679.2.2.3-Pre-Pour Meeting: The Contractor shall schedule a meeting prior to the start of the concrete work. The Engineer, Construction Manager, Prime Contractor, Concrete Contractor, Concrete Finisher, the Concrete Supplier and the Individual or Agency that will perform the quality control testing of the concrete shall attend. Topics of discussion shall include specialized concrete mixture proportions, batching, transporting, handling, placing, finishing and curing.

679.2.2.4-Test Slab Requirements: After obtaining the Engineer's approval of mixture proportions and at least one (1) week before any slab reconstruction concreting or overlay is to be placed, the Contractor shall make one (1) or more trial batches of the specialized concrete of the size to be hauled or mixed at the site. The trial shall simulate transportation and job site conditions, utilizing proposed material and methods of placing, finishing, and curing, including the application of bonding grout when required.

The test slab shall be constructed the same as the actual work (depth, reinforcing steel, etc.) and shall be at least one (1) lane width wide and of a length to allow the use of the contractor's entire paving train from placement to finishing. The test slab location shall be as shown in the plans or as approved by the Engineer. The prime intent is to familiarize the concrete finishing crew with the handling, finishing and curing characteristics of the concrete. Batching, placement and texturing shall be in strict accordance with this specification. Additional reference test slabs may be constructed as necessary to provide an acceptable standard of reference. This standard of reference shall serve throughout the project construction period as the basis of acceptance of the actual as-built work. This Item may be deleted at the discretion of the Engineer, however it is recommended for very early strength latex modified concrete overlays.

679.2.2.5 Price Adjustments for Accepted Concrete with Low Surface Resistivity Results:

Table 679.2.2.5

Resistivity Result (kΩ-cm)	Percent of Unit Bid Price Paid
>25-29	90%
>20-25	70%
>15-20	50%
≤15	Remove & Replace

679.2.3-Equipment: All equipment proposed for use shall have the Engineer's approval prior to its usage.

679.2.3.1-Cutting Equipment: Shall consist of ~~a~~ a cold planer or a high pressure water jet (hydrodemolishing) system per the following requirements.

679.2.3.1.1-Cold Planer Equipment: The cold planer shall be capable of accurately establishing profiles along each edge of the machine, maintain depths of cut and cross slopes. It must be capable of maintaining a specific profile grade tolerances of ± 1/4 inch for Standard Milling, and ± 1/8 inch for both Fine Milling and Micromilling. The machine shall have a control system that can provide a uniform varying depth of cut while the machine is in motion to prevent damage outside of milling plain. The machine must have a positive and immediate means for removing the milling residue and discharging it into a truck for disposal.

679.2.3.1.2~~1~~-Hydrodemolishing Equipment: The hydrodemolishing system shall be self-propelled, completely programmable, designed for high production concrete removal, and utilizes a high-pressure water jet stream capable of attaining pressures in the range of 14,000 to 20,000 PSI and removing all unsound, or otherwise designated, concrete to the depth specified. The pressure used for this work shall be a minimum of 14,000 PSI and a maximum of 20,000 PSI. Ultra high-pressure machines shall not be permitted. Water usage per minute shall be a minimum of 55 gallons (55 GPM minimum). Hydrodemolishers shall be capable of removing concrete from around and below the steel reinforcement. Lances shall be of a type intended to remove rather than scarify concrete. Individuals certified by the equipment manufacturers shall operate the removal equipment.

All removal equipment shall be capable of operating at a noise level of less than 90 decibels at a distance of fifty (50) feet from the noise source. The Contractor shall monitor noise levels throughout the project to ~~insure~~ ensurecompliance, if required by the Engineer. No separate or additional payment will be made for monitoring -noise levels.

Potable or filtered water may be used. Filtered water shall have all visible solids and oils removed that could prevent a proper bonding with the remaining concrete. When filtered water is used, the Contractor shall wash the bridge deck with potable water in water blasting equipment as soon as all the concrete debris has been cleaned up. This water blasting shall be in addition to any other water blasting that may be required.

The Contractor shall shield his operations to prevent injury or damage from flying or falling debris. The Contractor shall provide a method for handling expected and unexpected

blow-through of the deck. This method shall provide for the containment of runoff water and debris, and the protection of the area under the bridge deck. The Contractor shall be responsible for any injury or damage caused by his operations.

679.2.3.1.2.1-Hydrodemolishing Equipment Demonstration: Two (2) trial areas will be designated by the Engineer to allow the Contractor to demonstrate that the equipment, personnel, and methods of operation can meet the requirements of this specification. The demonstration shall follow any ~~roto-milling~~milling by cold planer permitted by this specification. No separate or additional payment will be made for this demonstration.

The first trial area will consist of approximately 30 square feet of sound concrete. The hydrodemolisher shall be calibrated to remove sound concrete to the depth specified in the contract documents without damaging the underlying sound concrete. After removing the sound concrete in the first trial area, the hydrodemolisher shall be moved to the second trial area. This area will consist of deteriorated or defective concrete. This trial will determine whether this unsound concrete will be completely removed with the above calibration.

If the equipment is deemed inadequate for use, the Contractor shall obtain another hydrodemolisher for a subsequent demonstration. When satisfactory results are obtained, production removal may proceed. No adjustment in the completion date of the project will be considered due to delays in obtaining suitable equipment.

If concrete is not being adequately removed during production work, recalibration of the equipment will be required.

679.2.3.2-Blast Cleaning Equipment: Blast cleaning ~~c~~Equipment shall be capable of removing rust from reinforcing bars, laitance, and small chips of partially loosened concrete. Certain qualities of rust are not necessary to be removed (refer to ~~S~~subsection 679.3.3).

679.2.3.3-Proportioning and Mixing Equipment: Unless fibers are used, handling, measuring, and batching of materials shall conform to the requirements specified in 501.7. Mix fibers as recommended by the manufacturer such that the addition of the fibers does not create balling. Notify the Engineer in writing of the dedicated personnel for this task, the procedure for distributing fibers into the concrete mixture, and the mixing method. Any of the following fiber addition methods are acceptable on all jobs except for mobile mixers:

i. Open bag and distribute fibers on aggregate belt at ready-mix concrete plant.
ii. Open bag, break apart any fiber clumps, and introduce fibers into ready-mix concrete truck in a well-distributed manner (i.e., “chicken feed”).

A minimum of 70 revolutions at mixing speed after all the fibers are added is required for proper mixing and dispersion of fibers in trucks. Allowing bags of fiber to dissolve in the ready-mix concrete trucks will not be allowed. Fibers shall never be the first material added in any mixing process. When using a mobile mixer unit, fibers should be mixed as recommended by the mobile mixer manufacturer and fiber manufacturer such that the addition of the fibers does not create balling and distributes the proper dosage of fibers into the concrete matrix. Notify the Engineer in writing of the dedicated personnel for this task, the procedure for distributing fibers into the concrete mixture, and the mixing method. The

Engineer may require a trial batch to be placed by the mobile mixer unit before any concrete placement can occur.

Proportioning and Mixing Equipment shall consist of the following:

679.2.3.3.1-Latex Modified Concrete: Self-contained, continuous mixing and proportioning mobile units shall be used. A minimum of two (2) units shall be supplied. The requirements of sSubsections 679.2.3.4 and 679.2.3.5 shall apply.

679.2.3.3.2-Silica Fume Concrete: An approved concrete batch plant, mobile mixer or truck mixer shall supply all concrete. The requirements of Section 601 of the Specifications shall apply, except as modified herein.

When silica fume densified powder is used, the densified powder shall be weighed using an approved cement scale or supplied in bags, the weight of each bag shall be clearly marked on the bag. The densified powder shall be last in the weighing sequence and the tolerance for each material draw weight shall be based upon the total weight of cement plus densified powder. Batching tolerance for the cement plus densified powder shall be 1%.

679.2.3.4-Mobile Mixer Units: Each unit shall be self-propelled and shall be capable of carrying sufficient unmixed material to produce on site, no less than six (6) cubic yards of specialized concrete.

Volumetric mixers shall conform to the requirements of AASHTO M 241, except as otherwise specified.

The Engineer will inspect each unit. A unit not functioning in a manner the Engineer considers acceptable shall be repaired. If repair is impractical, the unit shall be replaced. All costs associated with delays attributable to mobile mixer replacement shall be borne by the Contractor. No extension of time, for the purpose of replacing unacceptable mixers, will be granted. Conditions which will automatically designate an ~~unit~~ unacceptable unit are: hydrated cement deposits; broken, bent, loose or scalloped mixing paddles; mixing paddles worn 20% in any dimension; mixing paddles heavily caked with mortar; and admixture or water delivery system out of tolerance.

Proportioning devices shall deliver the materials within the following tolerances:

Coarse Aggregate	±2%
Fine Aggregate	±2%
Cement + fly ash	0% to +4%
Water	±1%
Cement + microsilica powder	1%
Fibers	1%
Latex Admixture	1%
Other Admixtures	3%

The unit shall be capable of positive measurement of cement being introduced into the mix.

There shall be positive control of the flow of water into the mixing chamber. Water flow shall be indicated by a flowmeter and readily adjustable to provide for minor variations in aggregate moisture. The system shall be equipped with a bypass valve, or hose, for

determining proportioning accurately. Also, there shall be a positive control of the flow of admixture into the mixing chamber. The admixture discharge pipe shall be readily accessible for determining proportioning accuracy.

The units shall be capable of being calibrated to automatically proportion and blend all components of indicated composition on a continuous or intermittent basis as required by the finishing operation, and shall discharge mixed material through a conventional chute directly in front of the finishing machine.

A sufficient number of self-propelled mixers shall be available at the job site to ensure ~~insure~~ that not more than 30 minutes shall elapse between the placement of batches.

679.2.3.5-Mobile Mixer Unit Testing: The units shall be calibrated by the Contractor to accurately proportion the approved mix design prior to placing the mix. The Engineer may require recalibration of any mixer as deemed necessary. Yield tests shall be performed by the Contractor for each mixer for each day's operation and when there appears to be a change in the mix. Certification of the calibration shall be performed per MP 679.02.99. ~~by an approved testing authority will be accepted as evidence of this accuracy if the yield is shown to be true within a tolerance of 1.0% according to the following test:~~

With the cement yard set on zero (0) and all controls set for the approved design mix, activate the mixer and discharge mixed material into a 0.25 cubic yard container one (1) yard square by nine (9) inches tall. When the container is level-struck full, making provision for settling the material into all corners, the cement yard shall show the discharge for a 0.25 cubic yard pour within the tolerance specified (refer to 679.2.3.4). No calibration shall be performed while it is raining.

679.2.3.6-Placing and Finishing Equipment: This shall include adequate hand tools for the placement of plastic concrete and for working down to approximately the correct level for the auger strike-off. A self-propelled finishing machine will be required to place and finish all concrete, except in areas inaccessible to the machine.

The finishing machine shall be capable of forward and reverse motion under positive control. Provisions shall be made for raising the screeds to clear the screeded surface, if traveling in reverse.

The machine shall be capable of placing full width, in one operation, the pours shown in the plans. The finishing machine shall be equipped with a vibrating device to consolidate the concrete, a power driven strike-off auger, a power driven finishing roller, and a pan float. The vibrating device shall vibrate at a frequency between 50 Hz and 115 Hz. A sufficient number of suitable portable lightweight or wheeled work bridges shall be required and used behind the finishing operation for touch-up work, surface texturing and curing cover placement.

Approved manual type screeds, metal plates equipped with electric vibrators, or hand held vibrators shall be used to consolidate and finish small inaccessible areas and slab reconstruction concrete.

Supporting rails shall be required. Rails may be two (2) inch by two (2) inch perforated steel bar stock, two (2) inch pipe rail, or approved equal. They shall exhibit no bends or kinks. Rail supports shall be fully adjustable (not shimmed) to obtain the correct profile. Rail supports are subject to the requirements of 679.3.7.2.

When placing concrete adjacent to a previously completed pour, the side of the finishing machine adjacent to the completed pour shall be equipped to travel on the completed lane on

rail supports only.

The placing and finishing equipment shall be designed so that the elapsed time between depositing concrete and final finishing shall not exceed 10 minutes.

When using fibers for Portland cement concrete, in order to provide consolidation and bury surface fibers, open slab surfaces should be struck off with a vibrating screed or laser screed. Magnesium floats in the form of a bullfloat, channel radius float, or highway straightedge should be used to establish a surface and close tears or open areas. The use of wood floats is not permitted.

679.2.3.7-Recording Thermometer: The Contractor shall supply a continuous recording thermometer capable of recording temperatures in the 30 - 150 F range. It shall likewise provide a recording capability over a 24-hour continuous period, minimum. The Contractor shall provide any ancillary equipment, supplies and labor necessary for calibration of this equipment.

679.2.3.8-Compressors Or Water Flushing Equipment: Equipment used for surface preparation shall be of such size and capacity to thoroughly remove all foreign material from the surface being prepared.

679.2.3.9-Saw Cutting Equipment: Only multi-bladed saw cutting equipment, using circular saw blades, will be permitted for final deck finish operations. The Engineer may allow the use of single blade circular saw equipment only where such equipment is necessary to complete the work as required.

679.2.3.10-Fogging Equipment: Fogging equipment shall be available for use in accordance with these specifications. The fogging nozzles shall produce an atomized mist. Fogging nozzles shall incorporate compressed air to create the mist. Hand held or hand operated equipment shall be permitted when the Contractor has demonstrated that his operator has been trained in its use.

679.3-CONSTRUCTION METHODS

DELETE THE CONTENTS OF SUBSECTIONS 679.3.1, 679.3.1.1, AND 679.3.1.2 REPLACE WITH THE FOLLOWING:

679.3.1-Removal of Existing Deck Surface: All asphaltic patches or bituminous overlays shall be removed by hydrodemolishing, ~~roto-milling~~milling by cold planer, or other approved methods. All debris from patch or overlay removal shall be legally disposed. Unless otherwise directed by the engineer, prior to concrete deck removal operations, the Contractor shall sound the deck using chain drags.

679.3.1.1-Removal of Existing Deck Surface Phase I: The Contractor shall determine the depth to the top mat of reinforcing steel using methods acceptable to the Engineer. The existing deck shall be removed so as to expose the topmost components of rebar in the upper mat of reinforcement. Full exposure of the upper mat of reinforcement is not required.

For decks greater than 7.0 inch thick, the deteriorated concrete may be removed by cold planer to 1.0 inch above the rebar followed by hydro-demolition, or any means acceptable to the Engineer. It is recommended that milling be done in shallow .25 inch deep passes to avoid damage to underlying reinforcement, and to prevent damage to any sound deck that will remain in place. Conventional concrete removal, such as milling by cold planer and the use of pavement breakers shall not be utilized for slabs less than 7.0 inch thick. For slabs, 6.5 to 7.0 inch thick, special consideration must be given to methods of removal of the deteriorated concrete, such as hydro-demolition, so that damage of the remaining slab is minimized.

~~The deck removal shall be accomplished by roto-milling, hydrodemolishing, or any means acceptable to the Engineer.~~ Damage to the existing mat will be repaired at no additional cost to the Division; Contractor may be accessed a penalty of $100 per linear foot by the Engineer for any disturbed reinforcing steel during the demolition process.

After removal of the existing deck is complete ~~as described above~~, the Contractor shall sound the deck using chain drags and delineate remaining areas of delaminated and unsound concrete for removal subject to the approval of the Engineer. Aerosol spray paint for delineating shall be provided by the Contractor. Edges around these concrete removal areas shall be vertical or slightly undercut. Upon completion of removal, the Contractor shall provide a hydrodemolished surface on which to install the new concrete Overlay.

When full depth removal of material is necessary, the forming shall be performed in accordance with s~~S~~ubsections 104.3 and 109.4 of the Specifications.

679.3.1.2-Removal of Existing Deck Surface Phase II: Unless waived by the Engineer; such as when the deck is replaced within 24 hours~~,~~ immediately prior to placement of new concrete overlay, the Contractor shall sound the deck using chain drags and delineate any additional areas that may have become delaminated or unsound. Edges around these concrete removal areas shall be vertical or slightly undercut. These areas shall be removed prior to placement of the new concrete overlay.

The Division is not responsible for delays caused by the concrete removal described here in 679.3.1.2.

When full depth removal of material is necessary, the forming shall be performed in accordance with s~~S~~ubsections 104.3 and 109.4 of the Specifications.

679.3.1.4-Disposal:

UPDATE THE FORMATTING OF THE FIFTH PARAGRAPH WITH THE FOLLOWING:

The authorization being granted herein is contingent upon strict adherence to the following conditions.

1. The Contractor shall provide via email to the West Virginia Department of Environmental Protection (DEP) with carbon copies to the WVDOH personnel as listed in the plan notes, the following information for review:
2. Project Name, Project Number, County, Route number, layman's description of location, Contractor's Name, description of work, description of discharge, a list of Best Management Practices to be used to protect water quality, and estimated start & stop dates of discharging activity.

679.3.3-Preparation of Surface:

DELETE THE CONTENTS OF SUBSECTION 679.3.3 AND REPLACE WITH THE FOLLOWING:

Blast cleaning shall be performed to thoroughly clean all horizontal and vertical receiving surfaces. Surfaces, which will be in contact with the specialized concrete overlay, shall have laitance and partially loosened chips of concrete removed by blast cleaning, which shall produce a bright, clean appearance. The edge of previously placed pours shall be similarly treated to promote bond.

All reinforcing steel, or other steel, which is to be in contact with the new concrete, shall be cleaned of all grease, dirt, concrete mortar and injurious rust. Injurious rust is defined as all scale, loose rust deposits, or all rust not firmly bonded to steel. Rust and concrete deposits, which in the Engineer's opinion cannot be removed by blast cleaning, will be considered firmly bonded and may remain. Any portion of a reinforcing bar judged by the Engineer to have any more than 50% section loss shall be replaced at no additional cost to the Division. A light coating of orange colored rust that forms on the reinforcing steel after blast cleaning is not considered detrimental to bond and may remain unless the time limit that follows is exceeded, or if ordered to be removed by the Engineer.

All debris from the blast cleaning operation shall be removed. After removal, the exposed reinforcing steel shall be supported and tied. Rustproof chairs shall be provided. If a continuous length of six (6) feet or more of reinforcing bar is exposed, the Engineer may require supports and positive tie-downs at a maximum spacing of four (4) feet. Positive tie-downs shall consist of anchors drilled into the structural slab and connected to the reinforcing bars. Replacement bars shall be spliced to existing bars using either minimum 30 bar diameter lap splices, approved mechanical connectors, or a welded splice as directed by the Engineer. Welded splices, if approved, shall be in accordance with ANSI/AWS Structural Welding Code - Reinforcing Steel D1.4. The Engineer shall be allowed sufficient time to inspect the work after the supporting and tying of the reinforcing steel has been completed.

Blast cleaning operations may be commenced in an area after necessary concrete removal, per ~~S~~subsection 679.3.1 or ~~S~~subsection 679.3.2, as applicable, has been completed. If more than 48 hours elapse from the termination of any blast cleaning operation to slab wetting, blast cleaning shall be repeated per the Engineers direction regardless of the apparent condition of the receiving surfaces.

679.3.5-Placement Preconditions:

DELETE THE CONTENTS OF SUBSECTION 679.3.5 AND REPLACE WITH THE FOLLOWING:

Slab reconstruction concrete, or overlay concrete, shall be placed only after all of the following preconditions are satisfied:

The Contractor has submitted to the Engineer, in writing, the proposed sequence of operations, equipment, number of personnel, and category of personnel to be used during the concrete placement.

a) All concrete removal operations in the placement area are complete and approved.
b) Deck drains have been cleaned of all debris and plugged.
c) Blast cleaning has been completed on an area large enough to require one working day for concrete overlay placement. In no case shall this be less than one span long.
d) Any additional blast cleaning, if required, has been completed and approved on an area large enough to require one working day for concrete overlay placement. In no case shall this be less than one span long.
e) Slab temperature and wetting requirements are met.

679.3.6-Placing, Finishing and Curing Slab Reconstruction Concrete:

DELETE THE CONTENTS OF SUBSECTION 679.3.6 AND REPLACE WITH THE FOLLOWING:

Slab reconstruction concrete shall be placed separately from overlay concrete except when both of the following conditions are, in the opinion of the Engineer, present:

a) Areas of exposed reinforcing steel do not exceed 5% of the total slab area ready to be overlaid.
b) Individual areas of exposed reinforcing shall not exceed 25 square feet in area.

When these two (2) conditions are present, slab reconstruction concrete may be placed integrally with overlay concrete.

The Contractor has the following choices of concrete placed as slab reconstruction concrete:

Overlay Type	Slab Reconstruction Concrete
Latex Modified	Latex Modified or Class K
Very Early Strength Latex Modified	Very Early Strength Latex Modified or Class K
Silica Fume	Silica Fume or Class K

Slab reconstruction concrete placed integrally with overlay shall match the Specialized Concrete Overlay.

The horizontal and vertical surfaces on which the slab reconstruction concrete is being placed shall be in a saturated surface dry condition immediately prior to placing any concrete.

When Class K Concrete is used as reconstruction concrete, a self-contained mobile mixer meeting the requirements of 679.2.3.4 may be used to provide the concrete.

After blast cleaning is completed, the Contractor shall place slab reconstruction concrete in the locations where reinforcing bars have been exposed. The concrete shall be consolidated by internal vibration in accordance with ~~S~~subsection 601.10.3 of the Specifications. It shall be finished to the level of the surrounding concrete, or to the middle of the reinforcing steel, whichever is higher. The surface of the new concrete shall be intentionally roughened to a raked finish. Placement of slab reconstruction concrete in accordance with this subsection shall not relieve the Contractor of the requirements to provide the minimum required thickness of overlay material.

679.3.6.2-Removal of Slab Reconstruction Concrete Surface:

DELETE THE CONTENTS OF SUBSECTION 679.3.6.2 AND REPLACE WITH THE FOLLOWING:

The slab reconstruction concrete surface shall be blast cleaned per the requirements of ~~S~~subsection 679.3.3 prior to the placement of the overlay.

679.3.7-Placing and Finishing Specialized Concrete Overlay:

679.3.7.1-General:

DELETE THE CONTENTS OF SUBSECTION 679.3.7.1 AND REPLACE WITH THE FOLLOWING:

The following requirements shall apply for specialized concrete overlay placements:

a) The overlay thickness shall be determined in accordance with ~~S~~subsection 679.3. The Contractor shall restore the concrete overlay in a uniform manner to match existing grade unless otherwise directed by the Engineer. Under no circumstance, the overlay thickness shall not be less than 1 ¼ inches.
b) The prepared surface of the structural slab shall be protected from contamination by any source and shall be in a saturated surface dry condition immediately prior to concrete placement.
c) Concrete may be mixed at the point of deposition.
d) When placing Specialized Concrete Overlays on a newly placed deck, the deck concrete shall be a minimum of 28 days old. The sidewalks, parapets, or curbs shall be a minimum of seven (7) days old.
e) When using VRH cement in latex modified overlays the Contractor shall submit copies of the manufacturer's recommendations for the placement and curing of the overlay to the Engineer for review prior to starting construction.

679.3.7.5-Curing:

ADD THE FOLLOWING SUBSECTION:

679.3.7.5.3-Curing Very Early Strength Latex Modified Concrete: The overlay shall be wet cured for minimum of three (3) or six (6) curing hours based upon the mix design classification and until the opening to traffic. Care shall be exercised to ensure the burlap remains in place during the cure period. Plastic coated fiber blankets may be substituted for the polyethylene film, but shall not replace the initial wet burlap. The film (or fiber blankets) shall be anchored along all edges and internally to prevent the loss of moisture and from being displaced.

679.4-CONSTRUCTION LIMITATIONS AND REQUIREMENTS

679.4.3-Vehicular and Equipment Restrictions:

679.4.3.4-Loading Limitations during Curing:

DELETE THE CONTENTS OF SUBSECTION 679.4.3.4 AND REPLACE WITH THE FOLLOWING:

No construction load shall be permitted on new concrete until the specified curing period(s) has been completed. No structural slab concrete removal work shall be performed

on structural slab areas adjoining new concrete during the time the new concrete is curing and until the overlay concrete has attained a compressive strength of at least 4,000 psi as outlined below.

No newly placed concrete shall be opened to traffic until the overlay concrete has attained a compressive strength of at least 4,000 psi, with the exception that very early strength latex modified concrete overlays may be opened to traffic once it has attained a compressive strength of at least 2,500 psi. This strength shall be determined by an average of three compressive strength specimens which have been cured in conditions as similar as possible to the concrete which they represent.

679.4.9-Defective or Damaged Concrete:

DELETE THE CONTENTS OF SUBSECTION 679.4.9 AND REPLACE WITH THE FOLLOWING:

After the overlay has been cured, the Contractor in the presence of the Engineer shall sound the deck in order to detect delaminated areas. All defective or damaged concrete, as determined by the Engineer, shall be repaired or replaced at no additional cost to the Division. Defects shall include but not be limited to delaminations, cracking, tearing, damage or other imperfections. The Contractor shall propose repair methods for approval by the Engineer. All concrete requiring removal and replacement, as determined by the Engineer, shall be removed by sawcutting the perimeter to a depth of ¾ inch ± 1/8 inch. Damaged concrete shall then be chipped out to the level of the original prepared surface. The chipped face shall not undercut the sawcut and shall have a slope of approximately 45°. Chipping hammers shall use only chisel bits. The prepared surface shall be blast cleaned prior to reapplying the overlay concrete.

679.6-METHOD OF MEASUREMENT

679.6.3-Newly Installed Deck Surface:

679.6.3.1-Blast Cleaning:

DELETE THE CONTENTS OF SUBSECTION 679.6.3.1 AND REPLACE WITH THE FOLLOWING:

During New Construction projects only where no removal of existing surface is required, bBlast cleaning of the deck surface as described in subsection 679.3.3, shall be paid at the unit bid price for 679001 Concrete Deck Overlay. Measurement shall be in square yard at one half (½) the actual field measured area to be bBlast cleaned.

DRAFT

March 31, 2026

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 697
SAFETY INSPECTION OF IN-SERVICE BRIDGES DURING CONSTRUCTION

697.1–DESCRIPTION:

DELETE THE SUBSECTIONS OF 697.1 AND REPLACE WITH THE FOLLOWING:

697.1.1–Inspection Requirements for Normally-Scheduled Inspections: A list of upcoming scheduled bridge safety inspections and the respective inspection types required for the existing structure, or any portion(s) of the existing structure that remain(s) open to traffic, shall be noted in the construction plans. Each inspection shall be performed and completed during the month and year as noted in the plans in accordance with the Department's requirements for the noted inspection type as described in the current edition of the WVDOH Bridge Inspection Manual. In cases where an inspection and inspection type are scheduled but no portion(s) of the existing structure remain(s) open to traffic, the Pay Item for that particular inspection will be non-performed. An inspection report, in accordance with the WVDOH Bridge Inspection Manual for the given inspection being performed, shall be compiled and submitted to the District Bridge Engineer within ~~sixty (60)~~ forty-five (45) calendar days of completing the inspection utilizing the Department's inspection data software. The inspection and the finalized inspection report must meet the approval of WVDOH Operations Division. The District Construction Engineer shall be notified in writing once the inspection report has been finalized and approved by Operations Division.

697.1.2–Inspection Requirements for Temporary Structures: An initial inspection shall be performed immediately prior to opening any temporary structure or portion thereof to public traffic. The initial inspection shall be in accordance with current NBIS requirements and in accordance with the Department's requirements for an ~~Inventory~~ Initial Inspection as described in the current edition of the WVDOH Bridge Inspection Manual. ~~An In-Depth~~ A Hands-On Routine Inspection, in accordance with the WVDOH Bridge Inspection Manual, shall be performed concurrently with the ~~Inventory~~ Initial Inspection. An ~~Inventory~~ Initial Inspection Report and ~~an In-Depth~~ a Hands-On Routine Inspection Report shall be compiled and submitted to the District Bridge Engineer within ~~sixty (60)~~ forty-five (45) calendar days of completing the inspection utilizing the Department's inspection data software. The inspection and the finalized inspection reports must meet the approval of WVDOH Operations

Division. The District Construction Engineer shall be notified in writing once the inspection reports have been finalized and approved by Operations Division.

A Bridge Rating Submission in accordance with Design Directive 202, meeting the requirements for Rating by District Bridge Engineer, shall be attached to the ~~Inventory~~ Initial Inspection Report for the temporary structure. It will not be necessary to include a title sheet with a proposed sheet index. However, all other required items listed for the submission shall be supplied. Load rating of the temporary structure will be performed by WVDOH evaluation personnel once the ~~Inventory~~ Initial Inspection Report has been submitted.

If a temporary structure or portion thereof is open to traffic twenty-four (24) months after the inspection date of the initial inspection, a routine inspection shall be performed in accordance with current NBIS requirements and in accordance with the Department's requirements for a Routine Inspection as described in the current edition of the WVDOH Bridge Inspection Manual. A Routine Inspection Report shall be compiled and submitted to the District Bridge Engineer within ~~sixty (60)~~ forty-five (45) calendar days of completing the inspection utilizing the Department's inspection data software. The inspection and the finalized inspection report must meet the approval of WVDOH Operations Division. The District Construction Engineer shall be notified in writing once the inspection report has been finalized and approved by Operations Division.

In cases where a panel-type bridge is being utilized, such as those bridges manufactured by Mabey, Acrow, or Bailey, a Special Inspection shall be performed at a maximum interval of every six (6) months, beginning at the inspection date of the ~~initial Inventory~~ Initial Inspection, for the entire period that the structure is open to traffic. This inspection shall be in accordance with the WVDOH Bridge Inspection Manual and shall consist of a hands-on inspection of all truss members, connections, pins, and retainer clips. A Special Inspection Report shall be compiled and submitted to the District Bridge Engineer within ~~sixty (60)~~ forty-five (45) calendar days of completing the inspection utilizing the Department's inspection data software. The inspection and the finalized inspection report must meet the approval of WVDOH Operations Division. The District Construction Engineer shall be notified in writing once the inspection report has been finalized and approved by Operations Division. If a panel-type bridge is anticipated and a pay item has been included on the project to accommodate the inspection(s), the pay item will be non-performed if a panel-type bridge is not ultimately used.

697.1.3–Inspection Requirements for Structures Utilizing Staged Construction: An initial inspection shall be performed on each individual construction stage immediately prior to opening each stage or portion thereof to public traffic. A revised initial inspection will be required for each additional phase prior to opening each phase to public traffic. The initial inspection shall be in accordance with current NBIS requirements and in accordance with the Department's requirements for an ~~Inventory~~ Initial Inspection as described in the current edition of the WVDOH Bridge Inspection Manual. ~~An In-Depth~~ A Hands-On Routine Inspection, in accordance with the WVDOH Bridge Inspection Manual, shall be performed concurrently with each ~~Inventory~~ Initial Inspection. ~~An Inventory~~ A Initial Inspection Report and ~~an In-Depth~~ a Hands-On Routine Inspection Report shall be compiled and submitted to the District Bridge Engineer within ~~sixty (60)~~ forty-five (45) calendar days of completing the inspection utilizing the Department's inspection data software. The inspection and the finalized inspection reports must meet the approval of WVDOH Operations Division. The District

Construction Engineer shall be notified in writing once the inspection reports have been finalized and approved by Operations Division.

If a construction stage, subsequent construction stages, or portions thereof are open to traffic twenty-four (24) months after the inspection date of the most recently performed ~~In-Depth~~ Hands-On Routine Inspection, a routine inspection shall be performed in accordance with current NBIS requirements and in accordance with the Department's requirements for a Routine Inspection as described in the current edition of the WVDOH Bridge Inspection Manual. A Routine Inspection Report shall be compiled and submitted to the District Bridge Engineer within ~~sixty (60)~~ forty-five (45) calendar days of completing the inspection utilizing the Department's inspection data software. The inspection and the finalized inspection report must meet the approval of WVDOH Operations Division. The District Construction Engineer shall be notified in writing once the inspection report has been finalized and approved by Operations Division.

697.6–PAY ITEM:

DELETE THE FOLLOWING CONTENTS OF THE TABLE AND REPLACE WITH THE FOLLOWING:

ITEM	DESCRIPTION	UNIT
697001-*	NBIS Bridge Safety Inspection, "designation", "type"	Each

* Sequence number

"designation" Bridge, temporary bridge, or stage name designation

"type" Inspection type, typically ~~Inventory~~ Initial Inspection or ~~In-Depth~~ Hands-On Routine Inspection

Note 1: Each individual bridge inspection should be added as separate line item in project proposal.

Example:
697001-001, NBIS Bridge Safety Inspection, Temporary Bridge, ~~Inventory~~ Initial Inspection, Each
697001-001, NBIS Bridge Safety Inspection, Stage One, ~~In-Depth~~ Routine Inspection, Each

DRAFT

April 1, 2026

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 701
HYDRAULIC CEMENT

701.1-PORTLAND CEMENT

DELETE THE CONTENTS OF SUBSECTION 701.1 AND REPLACE WITH THE FOLLOWING:

Portland cement shall conform to the requirements of ASTM C150, Type I, or Type III for items in Section 603, 506, and precast concrete applications when specified.

DRAFT

April 1, 2026

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 709
METALS

709.1-STEEL BARS FOR CONCRETE REINFORCEMENT:

709.1.3-Galvanized Coated Bars for Concrete Reinforcement:

DELETE THE CONTENTS OF SUBSECTION 709.1.3 AND REPLACE WITH THE FOLLOWING:

For galvanized coated reinforcing steel, the uncoated material shall conform to subsection 709.1. The galvanized coating shall conform to the requirements of ASTM A767 for the immersion process or ASTM A1094 for the continuous hot dip galvanizing process.~~, unless otherwise specified in the Contract Documents.~~ All field handling and repair requirements shall conform to ASTM A767 or ASTM A1094 as applicable. All galvanized reinforcing steel shall be inspected by a representative of the WVDOH MCS&T Division, at the location of galvanizing, prior to shipment. If ASTM A767 is used as the method of galvanizing, the coating shall be Class 1, field bending shall be prohibited, and shop bending shall be prohibited after galvanizing.

DRAFT

April 21, 2026

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 709
METALS

709.24-HIGH-STRENGTH BOLTS FOR STRUCTURAL STEEL JOINTS, INCLUDING SUITABLE NUTS AND HARDENED WASHERS:

709.24.4-Hardened Washers:

ADD THE FOLLOWING SUBSECTION:

709.24.4.3: If Direct Tension Indicators (DTIs) are used to indicate the tension in the bolted connection, they shall meet the requirements of ASTM F959.