End of 2025 Specifications Committee Meeting

SPECIFICATIONS COMMITTEE MEETING AGENDA

Meeting Date
Thursday, December 4, 2025 @ 1:00pm
Meeting Location: Building 5, Conference Room 820, Technical Support Division Charleston, WV
Also meeting virtually via Google Meet video conference. E-mail distribution message includes instruction.

Approved Supplemental Specification changes from last Committee meeting (09/24/25)

- **688-Field Panting of Metal Structures:** The revision updates the entire section.
- **109.20.1-Electronic Ticket Delivery:** The revision adds steel superstructure components (pre-fab or construct on site) and stay-in-place forms.
- **401.13.3-Basis of Payment:** The revision adds requirement for sealing all longitudinal joints regardless of achieved density and clarifies payment method.
- **403-Crack Sealing in Asphalt Pavement:** Revision updates the title and revises the entire section. The update adds PG binder into the crack sealant spec to be used for longitudinal joint sealing.
- **106.3-Samples:** The revision adds a reference to the materials listed in Specification 109.20.1.
- **107.26.2.2-No Asbestos Containing Materials Reported:** The revision removes a sentence to eliminate confusion in the following sentence.
- **311.2-Materials & 311.4-Composition of Optional Stabilizing Mixtures:** The revision clarifies that the cement being discussed is Tyle 1L.

Approved Special Provisions (SP) from last Committee meeting (09/24/25)

- **SP 401:** The revision adds requirement for sealing all longitudinal joints regardless of achieved density and clarifies payment method.
- **SP 403-Joint and Crack Sealing of Asphalt Pavements:** Revision updates the title and revises the entire section. The update adds PG binder into the crack sealant spec to be used for longitudinal joint sealing.
- **SP601.1.1-Ultra High Performance Concrete:** The revision updates a previously approved SP by adding SMARTUP and replacing “Holcim” with “AMERIZE”.
- **SP601.3-Proportioning:** The revision adds a section that details Surface Resistivity Testing.
- **SP662.12:** Minor revision resolves typo.

Items removed from the Agenda:

- None

Important Announcements:

- **2026 Supplemental Specifications Manual**
- **Janie Adkins and Steve Boggs to return as consultants.**

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Old Business Items

SECTION	TITLE	DESCRIPTION
651 652 715	**Section 651-Furnishing and Placing Soil** **Section 652-Seeding and Mulching** **Section 715.25-715.32** *(Ground Agricultural Limestone, Fertilizers, Mulch Material, Seed, Inoculating Bacteria, Biological Growth Stimulants, and Hydraulic Growth Material)* D. Kirk	**6th time to Committee. (Present for all Meetings)** Three specification changes updating the requirements for seeding and mulching. 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.* Specifications are redlined show the revisions.
642	**642.6-Silt Fence** **642.7-Method of Measurement (Table 642.7.1)**	**6th time to Committee. (Present for all Meetings)** Two specification changes updating Section 642-Temporary Pollution Control: ***1. Section 642.6-Silt Fence*** • Specification adds three grades of silt fence. This is based on a range of products on the WVDOH Approved Products List. Recommended in the specification are Temporary, Standard, and High Performance. The differences are strength and UV stability. Temporary silt fence will be adequate for projects that can be completed in a single construction season. Standard silt fence will be used for projects that last two seasons. High Performance silt fence will be used for longer projects, and in challenging situations such as shallow concentrated flow that are likely to overstress standard silt fence. Guidance is also provided for post spacing, and for length and slope of disturbed area above the silt fence. ***2. Section 642.7-Method of Measurement:***

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	D. Kirk	• Updating the Table that is linked to 642.7.1-Temporary Pollution Control Units Value Method: https://transportation.wv.gov/highways/TechnicalSupport/specifications/642.7UnitValueMethod/Pages/default.aspx The revisions removes 652 Items in the Table.
601	**601.1–Description, 601.2–Materials, 601.3-Proportioning, 601.4-Testing, 601.8-Forms, 601.9-Adverse Weather Conditions, 601.10-Placing Concrete, 601.12-Curing and Protecting Concrete** Developed by WVU Vetted by A. Thaxton	**5th time to Committee! (March, May, July, September, December)** Specification Change to Section 601-Structural Concrete. The revision adds requirements for Class M concrete. WVU was contracted to research and develop a specification for mass concrete.
101	**101.2-Definitions** D. Brayack C. Amos	**2nd time to Committee! (September, December)** Specification Change to Section 101-Definition of Terms, Subsection 101.2-Definitions. The revision adds and updates definitions for Consultant, Subcontractor, Delivery Tickets, Paper Tickets, Image File Tickets, and Electronic Tickets.
106	**106.1.4-Use of Domestic Construction Materials** D. Brayack	**2nd time to Committee! (September, December)** Specification Change to Section 106-Control of Materials, Subsection 106.1.4-Use of Domestic Construction Materials. The revision add routes to waive Build America Buy America requirements and where to find that information.
107	**107.14-Responsibility for Damage Claims** C. Amos	**2nd time to Committee! (September, December)** Specification Change to Section 107 Legal Relations and Responsibility to Public, Subsection 107.14 Responsibility for Damage Claims. The revision clarifies language and broadens the indemnity clause expanding on losses and exceptions.
109 207	**109.1-Measurement of Quantities**	**2nd time to Committee! (September, December)** Mass Specification Change to Subsection's Labeled: "Method of Measurement" In the Following Sections:

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211 217 218	**207.15-Method of Measurement** **211.7.1-Method of Measurement** **217.4-Method of Measurement** **218.5-Method of Measurement** J. Bennett	Section 109 Measurement and Payment, Section 207 Excavation and Embankment, Section 211 Borrow Excavation, Section 217 Special Rock Fill, and Section 218 Slope And Foundation Protection. The revision allows Engineers to use Digital Terrain Modeling to determine earthwork quantities.
SP207	**207.7-Settlement Pins** M. Nettleton	**2nd time to Committee! (September, December)** Special Provision for Excavation and Embankment (Soil Monitoring Settlement Pins). The revision adds Geotechnical personal to the scope of work.
406	**406.3-Acceptance Testing** J. Cummings	**2nd time to Committee! (September, December)** Specification Change to Section 406 High Friction Surface Treatment, Subsection 406.3 Acceptance Testing. The revision removes Subsection 406.3.1-Skid Testing.
659 660 662	**659.2-Materials** **660.2-Materials** **662.2-Materials** T. Whitmore	**2nd time to Committee! (September, December)** Specification Change to Subsections ___.2-Materials from Sections 659 Sign Lighting, 660 Traffic Signals, and 662 Roadway Lighting. The revision states that Materials wanting to be included on Approved Product Lists (APL's) are subject to field evaluations and provides details and timeline for that process.
689	**689-Cathodic Protection of Concrete Structures** A. Mongi	**2nd time to Committee! (September, December)** Introduction of new Specification Section: 689-Cathodic Protection of Concrete Structures. The Specification establishes requirements and outlines materials, design, performance criteria, etc.
420	**420.3-Mixture Requirements** K. Welch	**2nd time to Committee! (September, December)** Specification Change to Section 420, Subsection 420.3 Mixture Requirements. The revision adds the new T420 Form as a requirement to be used when submitting micro surfacing job mix formulas (JMF) for approval.
506	**506.3-Proportioning**	**2nd time to Committee! (September, December)**

	A. Thaxton	Specification Change to Section 506 Concrete Pavement Repair, Subsection 506.3 Proportioning. The revision updates methods of calibration and adds reference to MP 679.02.99.
642	**642.4-General Requirements** D. Kirk	**2nd time to Committee! (September, December)** Specification Change to Section 642 Temporary Pollution Control, Subsection 642.4 General Requirements. The revision adds the WVDOH Environmental Construction Inspection Form.

New Business Items

SP697	**697-Safety Inspection of In-Service Bridges During Construction.** T. Brown	**1st time to Committee!** Special Provision for Section 697-Safety Inspection of In-Service Bridges During Construction. The revision updates names for NBI inspection and reduces the time to submit reports to align better with our Consultant Inspection Contracts.
SP	**SP__- Electronic Submission of Payrolls and Subcontractor Payments** D. Ballard	**1st time to Committee!** Special Provision for Electronic Submission of Payrolls and Subcontractor Payments. The revision clarifies language and use while removing all references to Disadvantages Business Enterprises (DBE's).

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Deadline for new items & updates for the November 5, 2025 Meeting are due October 10th, 2025.

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.*

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!

Please Send Comments to: **Jacinda.n.Chapman@WV.gov**

File Format Structure and Progression of items through Specifications Committee

The purpose of the below protocol 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.

TYPES OF PROVISIONS:

There are three standard types of provisions typically discussed in committee:

1. **Specification Changes** – These are permanent changes to the WVDOH Standard Specifications.
    - Unless inserted into a project proposal, these changes typically go into effect in January (of subsequent year) with the Supplemental Specifications
2. **Special Provisions (SP)** – Are applied to an individual project or a small group of projects and require two (2) meetings for approval.
3. **Project Specific Special Provisions (PSSP)** – Can be shown to committee-but not required, does not require two (2) meetings for approval, **REQUIRES MANAGEMENT APPROVAL** (from the State Highway Engineer level or above). Project Specific Special Provisions are applied to only an individual project.

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 setup 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:

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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.

2023 Standard Specification Roads and Bridges and the 2025 Supplemental Specifications Manuals

Both available on our Publications Webpage:
https://transportation.wv.gov/highways/TechnicalSupport/specifications/Pages/default.aspx

Both available for order:
https://transportation.wv.gov/highways/TechnicalSupport/specifications/Documents/SpecBookOrderForm_20230925.pdf

NOTE: WVDOH Employees may contact Jacinda Chapman or stop by Technical Support for a copy(ies).

~~December 10, 2024~~ April 8, 2025

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. Any topsoil that cannot be stored on the construction site must acquire approval by the Engineer ~~must be obtained prior~~ to transport~~ing~~ any material from the stripping site.

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 inches. For Type B and C seed mixtures, the topsoil must be tracked again to compact to a minimum thickness of four (4) 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~~ LIMESTONE	715.25
Hydraulic Growth Mediums	715.31
Inoculating Bacteria	715.29
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.

Temporary seeding 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.

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 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 be collected. The subsamples should be taken randomly throughout the area. The subsamples should 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.

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 be determined by the Engineer based on the soil test, conducted in accordance with MP 700.04.10.

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.

~~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.~~
- ~~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 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 to June 20th and October 1st to October 31st.
c. Type C mixture is to be seeded 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 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		
Chewing's Fescue (*Festuca rubra ssp. commutate*)	25			
Hard Fescue 'Chariot' (*Festuca brevipila*)	35		35	
Hard Fescue 'Heron' (*Festuca ovina var. duriuscula*)	35		35	
Creeping Red Fescue (*Festuca rubra*)	55		55	
White Clover (Trifolium repens)	3		7	
Big Bluestem (Andropogon gerardii)		6		
Virginia Wildrye (Elymus virginicus)		8.4		4
Switchgrass (Panicum virgatum)		6.4		
Indiangrass (Sorghastrum nutans)		14		
Partridge Pea (Chamaecrista fasciculate)		1		
Black-Eyed Susan (Rudbeckia hirta)		0.6		
Narrowleaf Mountainmint (Pycnanthemum tenuifolium)		0.1		
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)			4	

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)
Birdsfoot Trefoil (Lotus corniculatus)			8	
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*)				.1
Butterfly Milkweed (*Asclepias tuberosa L.)*		.10		
Common Milkweed (*Asclepias syriaca*)		.10		
Purple coneflower (*Echinacea purpurea*)		1.5		

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

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.

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.~~

~~i.~~

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 7101 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
Cover Factor	ASTM D8298		C ≤ 0.3	C ≤ 0.05	C ≤ 0.01
Ground Cover	ASTM D6567	> 85%	> 90%	> 95%	> 97%
Vegetation Establishment	ASTM D7322a		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	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.

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.~~4~~7-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
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

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 percent by weight passing U.S. Standard Sieves.

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 oats 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 7101 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	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.

		~~Germination~~	
~~Seed~~	~~Purity Minimum %~~	~~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-Octotber 31)	98	85
Cereal Rye *(Secale cereal)* (November 1 – February 28)	98	85
Autumn Bentgrass *(Agrostis perennans)*	95	85
Chewing's Fescue *(Festuca rubra ssp. commutate)*	97	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
Big Bluestem *(Andropogon gerardii)*	85	70
Virginia Wildrye *(Elymus virginicus)*	85	70
Switchgrass *(Panicum virgatum)*	95	75
Indiangrass *(Sorghastrum nutans)*	85	70
Partridge Pea *(Chamaecrista fasciculate)*	98	70

Black-Eyed Susan *(Rudbeckia hirta)*	80	60
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 7101 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 provides 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 715.31.1

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 715.31.2 and Table 715.31.3.

TABLE 715.31.2

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 715.31.3

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

February 11, 2025

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SPECIAL PROVISION

FOR

STATE PROJECT NUMBER: _____

FEDERAL PROJECT NUMBER: _____

SECTION 642
TEMPORARY POLLUTION CONTROL

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

REMOVE AND REPLACE 642.6.5 WITH THE FOLLOWING:

642.6.5-Silt Fence: The ~~minimum~~ height above ground for the silt fence shall be sixteen (16) ~~-~~inches and twenty-four (24) inches~~two (2) feet~~. 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.~~

~~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.~~Soil along the fence shall be compacted to ensure that the fence fabric is well anchored in the soil.

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.

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 steel posts may be necessary. ~~shall be adequately secured to prevent overturning of the fence due to loading.~~ 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 end of the silt fence, turn the ends of the fence upslope.

~~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 and maintain all silt fences ~~immediately after each rainfall and at least daily during prolonged rainfall~~in accordance with all applicable permits and the site specific Stormwater Pollution Prevention Plan (SWPPP). The contractor 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,~~engineer,~~ additional silt fence shall be installed as necessary and as directed by the E~~e~~ngineer. 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 red-line changes to the SWPPP to prevent erosion above the silt fence. The cost of sediment removal is incidental to Silt Fence. Remedial BMP's shall be paid in accordance with the provisions of the contract.~~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. The cost of this work shall be paid as "Sediment Removal" or "Silt Fence".~~

The silt fence shall remain in place until the E~~e~~ngineer directs it ~~be~~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 to the satisfaction of the E~~e~~ngineer.

Silt fence material shall be selected from the WVDOH Approved Products List for Engineering Fabric for Sediment Control (Silt Fence). Longer duration projects will require stronger silt fence materials with greater UV stability in accordance with the following table.

Silt Fence Application Table

	ASTM Standard	Temporary	Standard	High Performance
Application	n/a	1 construction season	2 construction seasons	Longer projects and challenging situations
Grab Strength Machine Direction (lb)	D-4632	120	280	400
Maximum Elongation (%)	D-4632	50	50	50

Min. Permittivity (sec^{-1})	D-4491	0.05	0.05	0.05
Max. Apparent opening size (mm)	D-4751	0.6	0.6	0.6
UV Stability (%)	D-4355	70	80	90

Refer to the following table for post spacing

Max. Post Spacing (ft)		
	16" high fence	24" high fence
Steel T-post		
0.95#/ft	5	3
1.25#/ft	6	4
1.33#/ft	7	5
Wood stakes		
1-1/4" x 1-3/4"	6	4
1-3/4" x 1-3/4"	6	4

Longer and steeper slopes require multiple rows of silt fence for effective protection. Add rows of silt fence in accordance with the following table.

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:

ADD THE FOLLOWING TO THE TABLE:

ITEM	DESCRIPTION	UNIT
642011-*	Temporary Silt Fence	Linear Foot
642012-*	Standard Silt Fence	Linear Foot
642013-*	High Strength Silt Fence	Linear Foot

*Sequence number

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 642
TEMPORARY PLLUTION CONTROL

NOTE: This table will be posted at :
https://transportation.wv.gov/highways/TechnicalSupport/specifications/642.7UnitValueMethod/Pages/default.aspx/
(this link will be revised prior to publication of 2026 Supplemental Specifications).

642.7-METHOD OF MEASUREMENT:

ADD THE FOLLOWING:

TABLE 642.7.1 – Pollution Control Device Rate Schedule

Description	(Item)	Unit	Value per Unit	Specification Note 2
Temporary Berm	(642001-001)	LF	2	Yes
Slope Drain	(642002-001)	LF	21	Yes
Seed Mixture, Temporary	(642004-001)	LB	2	Yes
Seed Mixture, B	(642004-002)	LB	5	Yes
Seed Mixture, D	(642004-003)	LB	20	Yes
Seed Mixture, L	(642004-004)	LB	18	Yes
Mulch, Straw or Hay	(642005-001)	TN	450	Yes
Mulch, Wood Cellulose Fiber	(642005-002)	TN	2,500	Yes
Mulch	(642005-003)	TN	2,500	Yes
Hydraulic Erosion Control Product, function longevity (1 to < 6 months)		LB	1	-
Hydraulic Erosion Control Product, function longevity (> 6 months)		LB	1	-
Hydraulically Applied Polymers		LB	1	-
Biotic Soil Amendment		LB	1	-
Fertilizer	(642006-001)	TN	850	Yes
Fiber Matting	(642007-001)	SY	2	Yes
Temporary Pipe	(642008-001)	LF	73	Yes
Contour Ditch	(642009-001)	LF	2	Yes
Agricultural Limestone	(642010-001)	TN	68	Yes
Wattle, ≥ 8 IN		LF	12	-

TABLE 642.7.1 – Pollution Control Device Rate Schedule

Description	(Item)	Unit	Value per Unit	Specification Note 2
Silt Fence	(642012-001)	LF	4	Yes
Super Silt Fence	(642015-001)	LF	10	Yes
SMARTFence, 36 IN		LF	5	-
SMARTFence, 42 IN		LF	10	-
Simplified Diversion Fence		LF	5	-
Compost Filter Sock, 8 IN	(642016-001)	LF	7	SP
Compost Filter Sock, 12 IN	(642016-002)	LF	8	SP
Compost Filter Sock, 18 IN	(642016-003)	LF	9	SP
Compost Filter Sock, 24 IN	(642016-004)	LF	10	SP
Compost Filter Sock, 32 IN	(642016-005)	LF	11	SP
Rock Check Dam	(642031-001)	EA	93	Yes
Sediment Trap	(642033-001)	CY	17	Yes
Sediment Basin	(642034-001)	CY	17	Yes
Riser	(642035-001)	EA	9,000	Yes
Skimmer	(642035-002)	EA	2,800	SP
Sediment Removal	(642036-001)	CY	7	Yes
Inlet Protection	(642040-001)	EA	270	Yes
Flocculant Block	(642042-001)	EA	180	SP
Polyacrylamide		LB	1	-
Premanufactured Ditch Check	(642043-001)	EA	67	-
Turbidity Curtain	(642045-002)	FT	100	SP
Coir Baffles		LF	9	-
Dewatering Device	(642050-001)	EA	720	Yes
Erosion Control Matting	(642055-001)	SY	2	-
Coconut Matting		SY	4	-
Non-Woven Geotextile Fabric		SY	3	-
Rock Borrow Excavation	(211008-000)	TN	75	Yes
Impervious Core	(211017-001)	SF	4	Yes
~~Seed Mixture, B, C-1, or C-2~~	~~(652003-001)~~	~~LB~~	~~20~~	~~Yes~~
~~Seed Mixture, D~~	~~(652003-002)~~	~~LB~~	~~20~~	~~Yes~~
~~Mulch, Straw or Hay~~	~~(652004-001)~~	~~TN~~	~~450~~	~~Yes~~
~~Mulch, Wood Cellulose Fiber~~	~~(652004-002)~~	~~TN~~	~~850~~	~~Yes~~
~~Fertilizer, 10-20-10~~	~~(652002-001)~~	~~TN~~	~~500~~	~~Yes~~
~~Fertilizer, Urea Formaldehyde~~	~~(652002-002)~~	~~TN~~	~~60~~	~~Yes~~
Tied Concrete Block Mattress	(655002-002)	SY	90	SP

Note 1: Units are calculated by multiplying the quantity of temporary pollution control devices installed on project by the rate value.

Example: 175 lbs of "Seed Mixture, Temporary" X 2 = 350 Units

Note 2 Items not covered by WVDOH Specification or Special Provision (SP) shall be handled and installed according to the manufacturer's recommendations.

~~February 11, 2025~~ April 3, 2025

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 601
STUCTURAL CONCRETE

601.1–DESCRIPTION:

ADD THE FOLLOWING:

Class M concrete shall be used to produce less heat of hydration and intended for use in large concrete bridge substructure elements including pier stems, pier caps, footers, and abutments.

601.2–MATERIALS:

ADD THE FOLLOWING AFTER "Class H Concrete Requirements":

Class M Concrete Requirements: All coarse aggregate used in Class M concrete shall be limestone. River, manufactured silica , or limestone sand shall be used as fine aggregate in Class M concrete. Slag cement used in Class M concrete shall be Grade 100 or Grade 120. Fly ash used in Class M concrete shall be Class F. Sources of each type of supplemental cementitious material (SCM) shall be approved by the Engineer. Multiple sources of the same type of supplem~~ntal~~entary cementitious material shall not be permitted.

601.3–PROPORTIONING:

601.3.1-Mix Design Requirements:

ADD CLASS "M" CONCRETE AND UPDATE THE FIRST FOOTNOTE TO TABLE 601.3.1A:

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

M	3500	See Table 601.3.1E	0.42	57, 67	6.0

* 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 target cement factor of Class M concrete shall consist of Option 1, Option 2, or Option 3 from Table 601.3.1F. The Contractor may choose either option.

ADD THE FOLLOWING TO TABLE 601.3.1B:

TABLE 601.3.1B

Material	Class of Concrete	Quantity
Fly Ash	All Classes Except H and M	20%

ADD THE FOLLOWING TABLE TO SUBSECTION:

TABLE 601.3.1F

Option	Cement	Fly Ash	Slag Cement	Silica Fume
1	564 lb/c.y.			
2	254 lb/c.y.		254 lb/c.y.	
3	340 lb/c.y.	168 lb/c.y		

601.3.2-Field Tolerances and Adjustments:

601.3.2.2-Air Content:

REMOVE AND REPLACE THE 2nd PARAGRAPH IN SUBSECTION 601.3.2.2 WITH THE FOLLOWING:

The target of the entrained air content of Class H and Class M concrete at the time of placement shall be as shown in Table 601.3.1A. If the concrete is pumped, the air content shall be measured before the concrete pump. If the entrained air does not conform with the target value within plus or minus 1.5 percentage points, the Contractor shall take immediate steps to adjust the air content of succeeding loads by making necessary adjustments in the mixture. If the entrained air content of Class H and Class M concrete does not conform to the target value plus 2.0 percentage points, the concrete shall be rejected. When Class H and Class M concrete is delivered in a truck mixer and the air content is less than the target value minus 2.0 percentage points, the concrete shall be rejected or the Contractor may use an additional air-entraining agent in an amount that is intended to achieve the target value specified. The addition is permitted under the conditions listed below.

ADD THE FOLLOWING SUBSECTION:

601.3.3-Class M Mix Development: The chemical reaction of cement and water releases heat which can cause detrimental thermal cracking in large concrete structures. To prevent thermal cracking, Class M concrete shall obtain minimum strength in accordance with 601.3.3.1. The Division will approve Supplementary Cementitious Materials, admixtures, and

Cements based on their chemical, and thermal properties for Class M concrete during mix design approval.

601.3.3.1–Tests for Strength Acceptance of Class M Concrete: Class M concrete shall obtain a minimum 1-day and 3-day strength shown in Table 601.3.3.1.

TABLE 601.3.3.1

Minimum Compressive Strength of Class M Concrete			
Testing Age	Option 1	Option 2	Option 3
1-Day	1580 psi (10.9 MPa)	710 psi (4.9 MPa)	1010 psi (6.9 MPa)
3-Day	2700 psi (18.6 MPa)	1680 psi (11.6 MPa)	1810 psi (12.5 MPa)

A strength test shall consist of three test specimens. Specimens shall be cured in a water bath at 73.5 ± 3.5 °F. The test shall be the average of the three specimens, except if one specimen shows manifest evidence of improper sampling, molding, or testing, it shall be discarded, and the remaining two strengths averaged. Should more than one specimen representing a given test show definite defects due to improper sampling, molding, or testing, the entire test shall be discarded. The maximum acceptable range of compressive strengths within a set of three cylinders is 9.5%. This range is found by multiplying 9.5% times the average compressive strength of the three cylinders. If this acceptable range is exceeded, the cylinder that varies the most from the average shall be discarded, and the remaining two cylinders shall be evaluated as outlined in the following paragraph. The maximum acceptable range of compressive strengths within a set of two cylinders is 8.0%. This range is found by multiplying 8.0% times the average compressive strength of the two cylinders. If this acceptable range is exceeded, the entire test shall be discarded. Under no circumstances shall a compressive strength test consist of less than the average of two specimens.

601.4–TESTING:

601.4.1–Sampling and Testing Methods:

ADD THE FOLLOWING TO THE TABLE:

~~Splitting tensile strength of cylindrical concrete specimens~~	~~AASHTO T 198~~

601.8–FORMS:

601.8.7-Removal of Forms and Construction of Superimposed Elements:

ADD THE FOLLOWING PARAGRAPH AT THE END OF SUBSECTION 601.8.7:

Concrete elements cast with Class M or Class B concrete shall have forms remain in place for a minimum of 96 hours. Insulated concrete elements with Class M concrete shall follow 601.8.11. Insulated concrete elements with Class B concrete shall have forms remain in place for a minimum of 11 days.

ADD THE FOLLOWING SUBSECTION:

601.8.11–Removal of Form Insulation of Class M Concrete: Insulated forms shall remain in place for a minimum of 96 hours. The insulation may be removed when the temperature difference between the concrete surface and the lowest daily ambient temperature is less than 40 °F after 96 hours. The lowest forecast ambient temperature during the week of formwork removal shall be used as the lowest daily ambient temperature. The concrete surface temperature measurement shall be taken before exposing the concrete surface to the ambient temperature. The concrete surface temperature may be measured using an embedded temperature sensor 2-in from the concrete surface at the center of the side face closest to the center of the element. In the absence of an embedded temperature sensor, other approved temperature devices may be used to measure the concrete side face temperature closest to the center of the element. In lieu of concrete surface temperature measurements, the form insulation removal time for an R = 5 insulation in an ambient temperature ranging from 60 °F to 30 °F is shown in Table 601.8.11. Ambient temperature outside the 60 °F to 30 °F range requires a temperature sensor. The actual minimum dimension shall be rounded up to the nearest tabulated minimum dimension. If the minimum dimension exceeds the minimum dimension tabulated in Table 601.8.11, the structure shall be designated as mass concrete and require a thermal control plan meeting the requirements in 601.9.3.5. Concrete placement outside the 60 °F to 30 °F temperature range and without an embedded temperature sensor specified above shall meet 601.12.2 requirement for insulation removal: "When protection is removed from the structure after the specified curing is complete, the temperature of the concrete shall not be permitted to fall at a greater rate than 20 ˚F per 24-hrs." The specified curing for these cases shall be at least 7-days. Additionally, the temperature difference between the concrete surface and the lowest daily ambient temperature shall not be greater than 40°F.

TABLE 601.8.11

Form Insulation Removal Times (Class M concrete with R = 5 Insulation)					
Type	Cross-Section	Minimum Dimension (ft)	Class M Concrete: Option 1	Class M Concrete: Option 2	Class M Concrete: Option 3
Pier Stem	Circular	6 or less	288-hrs	216-hrs	192-hrs
		7	See 601.9.3.5	240-hrs	240-hrs
		8	See 601.9.3.5	288-hrs	288-hrs
	Square	3.5 or less	168-hrs	168-hrs	144-hrs
		4.5	264-hrs	216-hrs	216-hrs
		5.5	See 601.9.3.5	288-hrs	264-hrs
	Rectangular	2 or less	144-hrs	120-hrs	120-hrs
		3	240-hrs	192-hrs	192-hrs
		4	See 601.9.3.5	288-hrs	288-hrs
Pier Cap		5 or less	228-hrs	192-hrs	204-hrs

	Hammerhead (Less than 14-ft in width and less than 5-ft in height)	6	See 601.9.3.5	216-hrs	240-hrs
		7	See 601.9.3.5	240-hrs	See 601.9.3.5
	Hammerhead (Less than 36-ft in width and less than 10-ft in height)	2.5 or less	180-hrs	180-hrs	192-hrs
		3	240-hrs	216-hrs	228-hrs
		3.5	See 601.9.3.5	240-hrs	240-hrs
	Two-column pier cap (Less than 23-ft in span, and less than 5-ft in height)	3 or less	264-hrs	204-hrs	240-hrs
		3.5	See 601.9.3.5	240-hrs	See 601.9.3.5
		4	See 601.9.3.5	264-hrs	See 601.9.3.5
	Three-column pier cap (Less than 16-ft in each span, and less than 5-ft in height)	3 or less	240-hrs	144-hrs	192-hrs
		4	See 601.9.3.5	216-hrs	See 601.9.3.5
		5	See 601.9.3.5	240-hrs	See 601.9.3.5
Rectangular Footer (Thickness = H x Width x Length)	H X 3H X 4H	3 or less	240-hrs	144-hrs	144-hrs
		3.5	See 601.9.3.5	192-hrs	240-hrs
		4	See 601.9.3.5	240-hrs	See 601.9.3.5
	H X 4H X 4H	2.5 or less	96-hrs	96-hrs	120-hrs
		3	240-hrs	168-hrs	192-hrs
		3.5	See 601.9.3.5	240-hrs	240-hrs
	H X 4H X 5H	2.5 or less	96-hrs	120-hrs	120-hrs
		3	240-hrs	168-hrs	240-hrs
		3.5	See 601.9.3.5	240-hrs	See 601.9.3.5
	H X 4H X 36	2.5 or less	240-hrs	240-hrs	240-hrs
		3	See 601.9.3.5	264-hrs	See 601.9.3.5

601.9 ~~MASS CONCRETE~~TEMPERATURE CONTROL:

601.9.1–Cold Weather Concreting:

ADD THE FOLLOWING TO THE END OF THE SUBSECTION:

Class M Concrete Cold Weather Provisions: Cold weather periods shall be defined as those periods when temperatures above 50 °F do not occur for more than half of any 24-hour

duration. The temperature of the surface on which the concrete is to be placed shall not be less than 40 °F immediately prior to the placement of the concrete. During the cold weather periods, as defined above, the temperature of the concrete immediately after placement shall be between 50 °F to 65 °F

ADD THE FOLLOWING CONTENT AS A NEW SUBSECTION:

601.9.3-Mass Concrete:

~~601.9.3.1 General:~~ Mass concrete is defined as "Any large volume of cast-in-place concrete with dimensions large enough to require measures to be taken to cope with the generation of heat and attendant volume changes to minimize cracking". A concrete element's dimensions will be classified as mass concrete when the early-age tensile stresses exceed 80% of the tensile strength. Rock socketed drilled shafts shall not be classified as mass concrete.

~~This section describes the requirements for concrete used in mass concrete elements and is intended to produce structures free of thermal cracks caused by the heat of hydration during the curing of large concrete cross-sections. This is accomplished by using appropriate mix designs, cross-section, and managing the structure's temperature differential. This section does not apply to rock socketed drilled shafts.~~ Concrete pier stems, pier caps, footers, and abutments shall be considered mass concrete if they exceed the dimensions in Section 601.9.3.1.1~~2~~, Section 601.9.3.1.2, and Section 601.9.3.1.3~~4~~, respectively.

Compensation for conforming to these requirements will be at no additional cost and shall be included in Pay Items for individual elements identified in the plans.

601.9.3.1.~~1 Requirements for~~Requiremnts for Miscellaneous Mass Concrete ~~Mass Definition Tables~~: Tables in Section 601.9.3.1.1~~601.9.2~~, Section 601.9.3.1.2~~601.9.3~~ and Section 601.9.3.1.3~~601.9.4~~ shall be cast with Class M and Class B concrete meeting the requirements in Table 601.3.1A, Table 601.3.1B, and Table 601.3.1F. The placement temperature of a concrete element shall meet the requirements of 601.10.1.4. Concrete forms for non-insulated concrete elements shall remain in place for a minimum of ninety-six (96) hours. Concrete shall be cured following 601.12.1. When insulation is not used, a plastic sheet shall cover the concrete forms to protect the concrete element from excessive wind. Tables labeled as "non-insulated" shall only be used in ambient temperatures above 60 °F. Ambient temperature below the 60 °F range shall require insulation. Insulated concrete elements shall have insulated formworks or blankets with a minimum overall R-value of five (5). The insulation shall remain in place until the requirements in 601.8.11 are met for Class M concrete and the requirements in 601.8.7 are met for Class B concrete.

601.9.3.1.1-Pier Stems: Pier stems with minimum dimensions per Table 601.9.3.1.1 – Table 601.9.3.1.6 shall be designated as mass concrete and require a thermal control plan meeting the requirements in 601.9.3.5.

TABLE 601.9.3.1.1

Class M Option 1 (Non-Insulated)	
Geometry	**Minimum Cross-Section**

Circular	**≥ 3.5 ft**
Square	**≥2.5 ft**
Rectangular	**≥1.5 ft**

TABLE 601.9.3.1.2

Class M Option 1 (Insulated R≥5)	
Geometry	**Minimum Cross-Section**
Circular	**≥ 6.0 ft**
Square	**≥4.5 ft**
Rectangular	**≥3.0 ft**

TABLE 601.9.3.1.3

Class M Option 2 & 3	
Geometry	**Minimum Cross-Section**
Circular	**≥ 4.5 ft**
Square	**≥3.0 ft**
Rectangular	**≥2.0 ft**

TABLE 601.9.3.1.4

Class M Option 2 & 3 (Insulated R≥5)	
Geometry	**Minimum Cross-Section**
Circular	**≥ 8.0 ft**
Square	**≥5.5 ft**
Rectangular	**≥4.0 ft**

TABLE 601.9.3.1.5

Class B (Non-Insulated)	
Geometry	**Minimum Cross-Section**
Circular	**≥ 3.0 ft**
Square	**≥2.0 ft**
Rectangular	**≥1.5 ft**

TABLE 601.9.3.1.6

Class B (Insulated R≥5)	
Geometry	**Minimum Cross-Section**
Circular	**≥ 5.5 ft**
Square	**≥4.0 ft**
Rectangular	**≥2.5 ft**

601.9.3.2~~3~~-Pier Caps: Pier caps with minimum dimensions (W) per Table 601.9.3.2.1 — Table 601.9.3.2.6 shall be designated as mass concrete and require a thermal control plan meeting the requirements in 601.9.3.5. A hammerhead type pier cap with less than 14-ft in width and less than 5-ft in height shall be treated as a “14-ft Hammerhead”. A hammerhead type pier cap with less than 36-ft in width and less than 10-ft in height shall be treated as a “36-ft hammerhead”. “Two-column” pier cap shall have the span of less

than 23-ft, and height of less than 5-ft. "Three-column" pier cap shall have the span of less than 16-ft, and height of less than 5-ft. A schematic drawing of a hammerhead, a two-column and a three-column pier cap is shown in Figure 601.9.3.2A.

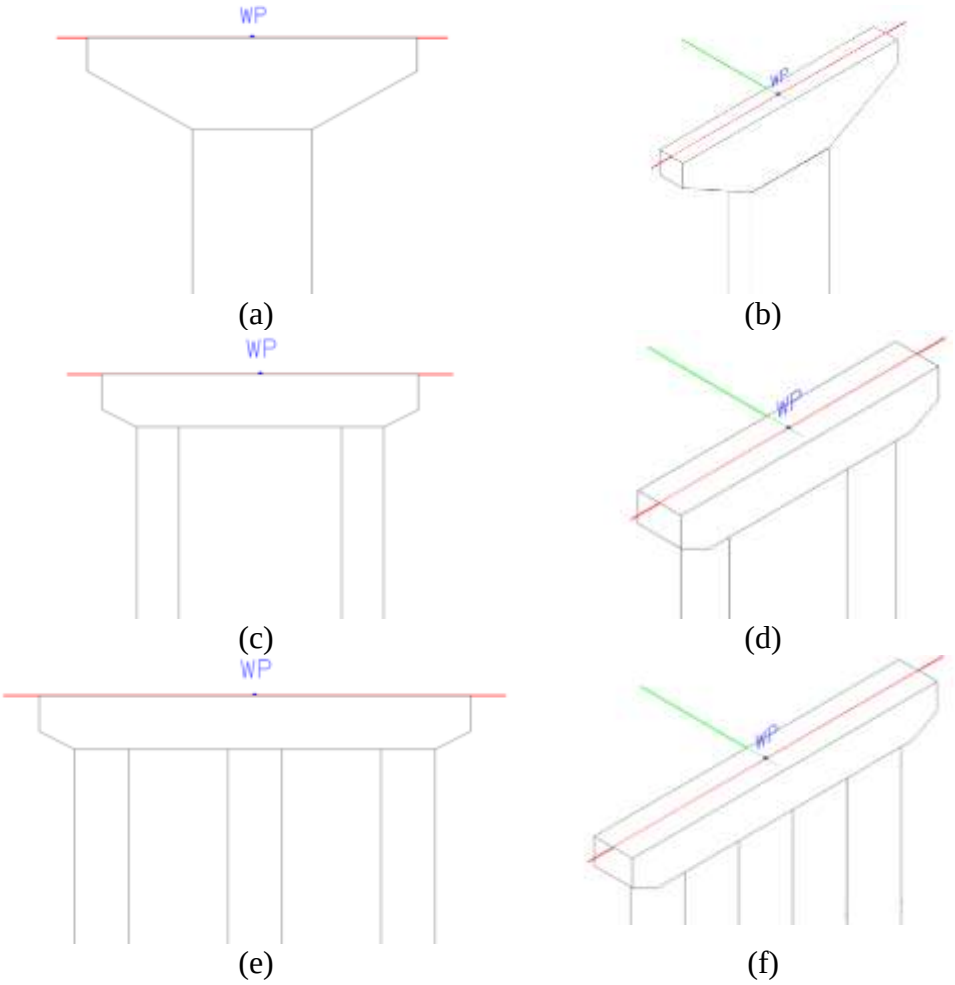

Figure 601.9.3.2A: Schematic drawing of a hammerhead pier cap (a) front view (b) isometric view, a two-column pier cap (c) front view (d) isometric view, a three-column pier cap (e) front view (f) isometric view.

Detailed dimensions of each pier cap type are shown in TABLE 601.9.3.2. A schematic of the pier cap geometry and the parameters used in TABLE 601.9.3.2 are shown in Figure 601.9.3.2B. The dimensions shown in TABLE 601.9.3.2 remain the same and only the thickness 'W' changes.

TABLE 601.9.3.2

Types	~~**L (ft)**~~ ~~**H (ft)**~~ ~~**HM (ft)**~~

	~~LD and RD (ft)~~Pier Cap Dimensions			
	L (ft)	H (ft)	HM (ft)	LD and RD (ft)
Hammerhead (14ft)	14	5	3.5	3.5
Hammerhead (36ft)	36	10	3.625	11.5
Two-Column Pier Cap (30ft)	30	5	3.333	3.3
Three-Column Pier Cap (40ft)	40	5	3.333	3.3

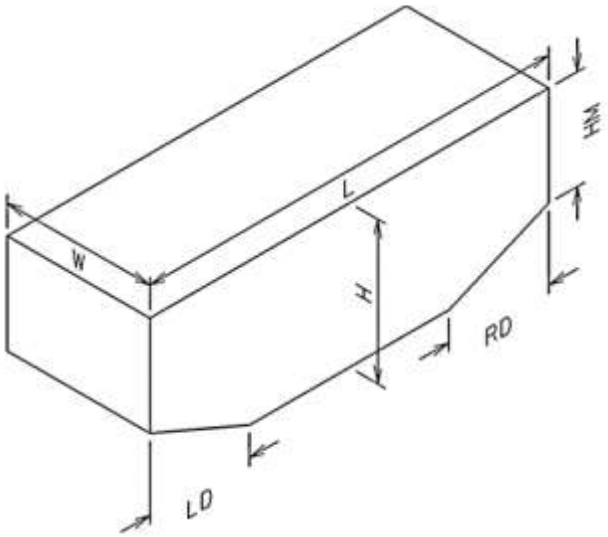

Figure 601.9.3.2B: Pier Cap Geometry

TABLE 601.9.3.2.1

Class M Option 1 (Non-Insulated)	
Geometry	**Minimum Cross-Section**
14 ft Hammerhead	**≥ 2.0 ft**
36 ft Hammerhead	
Two-Column	
Three-Column	

TABLE 601.9.3.2.2

Class M Option 1 (Insulated R≥5)	
Geometry	**Minimum Cross-Section**
14 ft Hammerhead	**≥ 5.0 ft**
36 ft Hammerhead	**≥3.0 ft**
Two-Column	**≥2.5 ft**
Three-Column	**≥3.0 ft**

TABLE 601.9.3.2.3

Class M Option 2 & 3 (Non-Insulated)	
Geometry	**Minimum Cross-Section**
14 ft Hammerhead	**≥ 2.5 ft**
36 ft Hammerhead	
Two-Column	

Three-Column	

TABLE 601.9.3.2.4

Class M Option 2 & 3 (Insulated R≥5)	
Geometry	**Minimum Cross-Section**
14 ft Hammerhead	**≥ 6.0 ft**
36 ft Hammerhead	**≥3.5 ft**
Two-Column	**≥3.0 ft**
Three-Column	**≥3.5 ft**

TABLE 601.9.3.2.5

Class B (Non-Insulated)	
Geometry	**Minimum Cross-Section**
14 ft Hammerhead	**≥ 2.0 ft**
36 ft Hammerhead	
Two-Column	
Three-Column	

TABLE 601.9.3.2.6

Class B (Insulated R≥5)	
Geometry	**Minimum Cross-Section**
14 ft Hammerhead	**≥ 4.5 ft**
36 ft Hammerhead	**≥2.5 ft**
Two-Column	**≥2.0 ft**
Three-Column	**≥2.5 ft**

601.9.3.3 ~~3.4~~-Footers: Footers with minimum dimensions per Table 601.9.3.3.1 – Table 601.9.3.3.6 shall be designated as mass concrete and require a thermal control plan meeting the requirements in 601.9.3.5. "H" in the tables shall be referred to as the minimum dimension in thickness. The actual minimum dimension shall be rounded up to the nearest tabulated minimum dimension.

TABLE 601.9.3.3.1

Class M Option 1 (Non-Insulated)	
Geometry	**Minimum Cross-Section**
H x 3H x 4H	**≥ 2.5 ft**
H x 4H x 4H	
H x 4H x 5H	
H x 4H x 36	

TABLE 601.9.3.3.2

Class M Option 1 (Insulated R≥5)	
Geometry	**Minimum Cross-Section**
H x 3H x 4H	**≥ 3.0 ft**
H x 4H x 4H	
H x 4H x 5H	

H x 4H x 36	**≥2.5 ft**

TABLE 601.9.3.3.3

Class M Option 2 & 3 (Non-Insulated)	
Geometry	**Minimum Cross-Section**
H x 3H x 4H	**≥ 3.0 ft**
H x 4H x 4H	
H x 4H x 5H	
H x 4H x 36	**≥2.5 ft**

TABLE 601.9.3.3.4

Class M Option 2 & 3 (Insulated R≥5)	
Geometry	**Minimum Cross-Section**
H x 3H x 4H	**≥ 3.5 ft**
H x 4H x 4H	
H x 4H x 5H	**≥ 3.0 ft**
H x 4H x 36	**≥2.5 ft**

TABLE 601.9.3.3.5

Class B (Non-Insulated)	
Geometry	**Minimum Cross-Section**
H x 3H x 4H	**≥ 2.0 ft**
H x 4H x 4H	
H x 4H x 5H	
H x 4H x 36	

TABLE 601.9.3.3.3

Class M Option 2 & 3 (Insulated R≥5)	
Geometry	**Minimum Cross-Section**
H x 3H x 4H	**≥ 2.5 ft**
H x 4H x 4H	
H x 4H x 5H	
H x 4H x 36	**≥2.0 ft**

601.9.3.5-Thermal Control Plan: When it is determined that a Thermal Control Plan is required, as outlined in Section 601.9.2, the following provisions shall apply. The Thermal Control Plan shall describe the measures and procedures the Contractor intends to use to satisfy the following Temperature Control Requirements for each mass concrete element.

i. The Maximum Allowable Temperature Differential shall be limited to 35 °F. The temperature differential between the hottest interior location and exterior portions of the designated mass concrete elements during curing will be maintained to be less than or equal to this Maximum Allowable Temperature Differential, and

ii. The Maximum Allowable Concrete Temperature shall be limited to 160 °F.

A change to the Temperature Control Requirements specified above can be addressed in the Thermal Control Plan through a demonstration that deleterious effects to the concrete can be avoided through adherence to the Thermal Control Plan. Such a change requires approval by the Engineer.

As a minimum, the Thermal Control Plan shall include the following:

A. Mix Design.
B. Methodology used to determine the heat of hydration.
C. Duration and method of curing.
D. Methods of controlling maximum concrete temperature and temperature differentials.
E. An analysis of the anticipated thermal developments in the mass concrete elements for all expected project temperature ranges using the proposed mix design, casting procedure, and materials. It shall show complete details and determine the maximum allowable temperature differentials between the hottest point of the concrete and the exterior faces.
F. Temperature sensor type and location including installation details.
G. Temperature Monitoring System includes description, operating plan, recording, and reporting plan, and remedial action plan.
H. Field measures to ensure conformance with the maximum concrete temperature and temperature differential requirements.
I. Field methods of applying immediate corrective action should the temperature differential approach the Maximum Allowable Temperature Differential.

The Contractor shall submit the Thermal Control Plan to the Engineer for approval a minimum of thirty (30) working days prior to concrete placement. Mass concrete placement shall not begin until the Engineer has accepted the Thermal Control Plan and the demonstration placement has verified the accuracy of the temperature predictions. If the demonstration placement fails to verify the accuracy of the temperature predictions to the satisfaction of the Engineer, the Thermal Control Plan shall be revised and resubmitted. If necessary, a second demonstration placement shall be required by the Engineer.

601.9.3.5.1–Temperature Monitoring System: The temperature monitoring and recording system for mass concrete shall consist of temperature sensors connected to a data acquisition system capable of printing, storing, and downloading data to a computer. Temperature sensors shall be located such that the maximum temperature difference within a mass concrete element can be monitored. As a minimum, concrete temperatures shall be monitored: within 1 inch of the calculated hottest location, an outside vertical edge of the outer face that is furthest from the center of the element, and at both the center and an outside edge of the top surface. No temperature sensor shall be placed within the clear distance between the reinforcing steel and the outer concrete surface

Temperature readings shall be automatically recorded on an hourly or more frequent basis. A redundant set of sensors shall be installed near the primary set. Provision shall be made for recording the redundant set, but records of the redundant sensors need not be made if the primary set is operational.

Methods of concrete consolidation shall prevent damage to the temperature monitoring and recording system. Wiring from temperature sensors cast into the concrete shall be

protected to prevent movement. Wire runs shall be kept as short as possible. The ends of the temperature sensors shall not come into contact with either supports or concrete form or reinforcing steel.

When any equipment used in the temperature control and monitoring and recording system fails during the mass concrete construction operation, the Contractor shall take immediate remedial measures to correct the situation. Remedial measures shall be included in the Thermal Control Plan.

601.9.3.5.2–Construction: Temperature readings will begin immediately after casting is complete. Temperature reading will continue until the maximum temperature differential (not maximum temperature) is reached and a decreasing temperature differential is confirmed as defined in the Thermal Control Plan and the maximum concrete temperature is within the Maximum Allowable Temperature Differential of the ambient air temperature in the shade. Data shall be submitted to the Engineer daily.

601.9.3.5.3-Temperature Control Failure: If monitoring indicates the Temperature Control Requirements have been exceeded, the Contractor shall take immediate corrective action as defined in the Thermal Control Plan. The Contractor will provide all analyses and test results deemed necessary by the Engineer for determining the structural integrity and durability of the mass concrete element. If, in the sole opinion of the Engineer, the concrete placement has been damaged so as not to be serviceable as a result of exceeding the Temperature Control Requirements, then the Contractor shall remove and replace the concrete placement at no additional cost to the project. The Contractor will make the necessary revisions to the approved Thermal Control Plan to satisfy the Temperature Control Requirements on any remaining placements. Revisions to the approved plan must be approved by the Engineer prior to implementation. The revised plan will be used on future placements. No extension of time or compensation will be made for any rejected mass concrete element or revisions of the Thermal Control Plan.

If the monitoring indicates that the Temperature Control Requirements have been exceeded then a penalty shall be assessed for bullets (i) and (ii) above in 601.9.3.5 if the concrete is allowed to remain in place, independently as follows:

$~~100~~?/ °F or fraction there-of the allowable temperature range multiplied by the number of yards in the element.

601.10–PLACING CONCRETE:

601.10.1–General:

ADD THE FOLLOWING SUBSECTION:

601.10.1.4–Class M Concrete Placement Limitations: The maximum concrete placement temperature of Class M concrete shall not exceed 75 °F. Class M concrete shall not be used in cold weather placements, as defined in 601.9.1, without form insulation. The anticipated placement completion time of non-insulated Class M concrete shall be between 12:00 AM to 10:00 AM.

601.12–CURING AND PROTECTING CONCRETE:

601.12.1–Curing Under Normal Conditions:

DELETE THE SECOND PARAGRAPH IN THE SUBSECTION AND REPLACE WITH THE FOLLOWING:

Concrete surfaces shall be kept completely and continuously moist. Curing shall be continued for a period of at least seven (7) days. This curing period may be reduced if the contractor presents evidence that the in-place concrete has attained 70% of the specified strength for the class of concrete under cure. Under no circumstances shall the period of cure be less than three (3) days. The reduced curing period option does not apply to Class H, Class K, or Class M concrete. When placing concrete elements with a minimum dimension greater than two (2)- feet ~~(0.61 m))~~, the contractor shall not be permitted to add additional cement to the target cement factor in the approved mix design to obtain high-early strength and/or reduce curing time. Water spreading directly on the concrete surface shall not be permitted for concrete elements with a minimum dimension greater than 1.5-feet. Plastic sheets shall be used to protect exposed concrete surfaces from wind and evaporation. Moist burlap shall be placed on the plastic sheets. Mass concrete placement shall be completely protected from exposure to precipitation to prevent cooling of the surface this includes extruding steel reinforcement. Mass concrete placement shall be continuously moist cured for at least seven (7) days. Concrete forms shall be considered to prevent moisture loss for mass concrete placements and be counted as moist curing days. The temperature of any water used for moist curing of concrete shall be controlled to within 10°F of the mean concrete surface temperature. Surfaces may have coverings temporally removed for finishing, but the covering shall be restored as soon as possible. When protection is removed from the structure after the specified curing is complete, the temperature of the concrete shall not be permitted to fall at a greater rate than 20°F per 24- hrs.

August 18, 2025

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 101
DEFINITION OF TERMS

101.2-DEFINITIONS

ADD AND UPDATE THE DEFINITIONS FOR THE FOLLOWING TO THIS SECTION.

Consultant – An individual or firm that provides professional or expert services in the the field of engineering or architecture, as well as incidental services that members of those professions and those in their employ may logically or justifiably perform, including their subconsultants, employees, and agents.

Subcontractor – An individual, firm, or corporation to whom the Contractor sublets part of the Contract. Subcontractor includes any employees, agents, or other Subcontractors that a Subcontractor utilizes in the performance of their services pursuant to the Contract.

TICKETS:

Delivery Tickets – Tickets serving as a bill of lading containing material information and quantity. The following three types of delivery tickets represent the progression of paper to full digital ticketing for materials delivered to a construction project.

Paper Tickets – The traditional process entails printing delivery tickets on paper. The paper tickets serve as a bill of lading for the hauler and a source document to communicate material information and quantity and provide a basis for payment. The information from the paper ticket must be manually extracted and entered into the agency's construction management system for further processing and applications

Image File Ticket – The paper tickets are converted into an image form, such as a photo, PDF (Portable Document Format), or scan, to enable electronic transmittal. The original paper ticket is still needed to serve as the source document and must eventually be delivered to the project or retained by the contractor or supplier. Because the image files contain unstructured data, the information must still be manually extracted and entered into the agency's construction management system.

Electronic Tickets (e-Tickets) – The tickets are produced in an electronic format and developed in-house or through a commercially available technology-based solutions. The e-Tickets are transmitted in real time from load-out systems directly to field inspectors or through a server. The data may be placed in files with comma-separated values (CSV), text, or SQL (Structured Query Language) database formats and stored, queried, and used for further applications. The e-Ticket serves as a source document and must be securely stored and archived in electronic form.

September 5, 2025

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 106
CONTROL OF MATERIALS

106.1.4-Use of Domestic Construction Materials:

ADD THE FOLLOWING TO THE SUBSECTION

Any construction materials, as defined in Section 106.1.1, shall be manufactured in the United States and compliant with the "Infrastructure Investment and Jobs Act," Section 70901-52, entitled the "Build America, Buy America 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. No construction material may be used unless the manufacturing process for the manufacture of the construction material occurs in the United States. The Buy America standards that apply to the manufacturing process for construction materials are listed in MP 106.10.50.

Buy America also applies to all projects within the scope of a finding, determination, or decision under the National Environmental Policy Act (NEPA), regardless of the funding source, if at least one contract within the scope of the NEPA decision is funded with Federal funding provided under Title 23.

Buy America only applies to construction materials that are consumed in, incorporated into, or affixed to a project. As such, it does not apply to tools, equipment, and supplies, such as temporary scaffolding, removed at or before completion of the project. Nor does Buy America apply to equipment and furnishings, such as movable chairs, desks, and portable computer equipment, that are used at or within the finished project, but are not an integral part of or permanently affixed to the structure.

When construction materials are permanently installed into the project, the Contractor shall supply adequate documentation certifying compliance with Buy America requirements prior to the permanent incorporation of the materials into the project in accordance with MP 106.10.50.

The United States Department of Transportation has De Minimis Cost and Small Grants Waiver that can waive BABA requirements on construction projects as further described in MP 106.10.51

The De Minimis Costs portion waives the application of the requirements of the Build America, Buy America Act (BABA) for construction materials under a single financial assistance

award when the total value of the non-compliant products is no more than the lesser of $1,000,000 or 5% of total applicable costs for the project.

The small grants portion waives the application of FHWA's Buy America requirements for steel or iron and BABA's requirements for construction materials under a single financial assistance award when the total amount of Federal financial assistance applied to the project, through awards or subawards, is less than $500,000.

Any exceptions to Buy America requirements for domestic construction materials will be in accordance with MP 106.10.51 and shall be compliant with the Build America, Buy America Act.

July 31, 2025

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 107
LEGAL RELATIONS AND REPONSIBILITY TO PUBLIC

107.14-RESPONSIBILITY FOR DAMAGE CLAIMS:

DELETE THE CONTENTS AND REPLACE WITH THE FOLLOWING:

Contractor shall defend, indemnify and hold harmless Division, its officers and employees (the Division and such persons collectively "Division Indemnified Persons") against any and all losses, damages, liabilities, suits, actions, judgments, settlements, interest, awards, penalties, fines, costs or expenses of whatever kind, including professional and attorneys' fees, or claims of any character brought because of any injury or damage received or sustained by any person, persons, or property (collectively, "Losses") imposed on, incurred by or asserted against Division and caused, wholly or in part, by: (a) the acts or omissions of Contractor, Subcontractor or Consultant; (b) any neglect in safeguarding the work; (c) any failure of Contractor, Subcontractor, or Consultant to comply with any applicable law, rule, regulations or order of any governmental authority; (d) failure to comply with any provision of the Contract; (e) use of unacceptable materials in constructing the work; (f) any claims related to infringements of patent, trademark, or copyright; (g) any claims or amounts arising or recovered under the "Worker's Compensation Act," or any other law, ordinance, order, or decree; or (h) any other damage or injury related to Contractor's, Subcontractor's or Consultant's performance of Work hereunder. These covenants of indemnity shall survive cancellation, termination, or expiration of this Contract.

Notwithstanding anything herein to the contrary, Contractor is not obligated to indemnify, hold harmless, or defend any Division Indemnified Person against any claim if such claim or corresponding Losses arise out of or result from such Division Indemnified Person's sole negligence, gross negligence, or willful misconduct.

The Division shall give Contractor prompt written notice (a "Claim Notice") of any Losses on which any Division Indemnified Person intends to base a request for indemnification under this Agreement. The Division's failure to provide a Claim Notice to Contractor under this Section does not relieve Contractor of any liability that Contractor may have to any Division Indemnified Person, but in no event shall Contractor be liable for any Losses that result directly from a delay in providing a Claim Notice, which delay materially prejudices the defense of the related third-party claim. The Division shall furnish to Contractor copies of all materials received with respect to the claim.

Contractor's duty to defend applies immediately, regardless of whether the Division has paid any sums or incurred any detriment arising out of or relating, directly or indirectly, to any third-party claim.

September 1, 2025

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION XXX
SECTION NAME

XXX-METHOD OF MEASUREMENT:

ADD THE FOLLOWING TO THE SUBSECTION:

The Engineer may elect to determine earthwork quantities using Digital Terrain Modeling (DTM) or other technologies demonstrated to provide accurate results

This is a requested addition for the subsection's labeled:
"MEATHOD OF MEASURMENT" in the following Sections:

SECTION 109 MEASURMENT AND PAYMENT, SUBSECTION 109.1

SECTION 207 EXCAVATION AND EMBANKMENT, SUBSECTION 207.15

SECTION 211 BORROW EXCAVATION, SUBSECTION 211.7.1

SECTION 217 SPECIAL ROCK FILL, SUBSECTION 217.4

SECTION 218 SLOPE AND FOUNDATION PROTECTION, SUBSECTION 218.5

The Champion's comments:

- "Should this addition apply specifically to **earthwork only**, or do we want to expand it to cover all pay items/quantities? Additionally, where do we feel this line should be inserted?"

SECTION 109
MEASUREMENT AND PAYMENT

109.1-MEASUREMENT OF QUANTITIES:

All work completed under the Contract will be measured by the Engineer according to United States standard measure.

The method of measurement and computations to be used in determining of quantities of materials furnished and of work performed under the Contract will be those methods generally recognized as conforming to good engineering practice.

Unless otherwise indicated, the requirements prescribed shall govern.

Earthwork will be computed by the average end area method, using the horizontal length measured along the centerline as the distance between sections, applying corrections for curvature where the apparent error exceeds twenty-five percent (25%) of the volume in any one cut. Other acceptable methods may be used.

Unless otherwise specified, longitudinal measurements for area computations will be made horizontally and no deductions will be made for individual fixtures having an area of nine square feet or less. Unless otherwise specified, transverse measurements for area computations will be the neat dimensions shown on the Plans or ordered in writing by the Engineer.

Structures will be measured according to neat lines shown on the Plans or as altered to fit field conditions.

All items which are measured by the linear foot, such as pipe culverts, guardrail, underdrains, etc., will be measured parallel to the base or foundations upon which such structures are placed.

The term "gage" when used in connection with the measurements of plates, will mean the U.S. Standard Gage.

The galvanized sheet thicknesses to be used in the manufacture of corrugated steel culvert pipe, plate pipe, pipe arches, plate pipe arches and plate arches shall be as specified in AASHTO M 36 or AASHTO M 167. The sheet thicknesses to be used in the manufacture of corrugated aluminum alloy culvert pipe, plate pipe, pipe arches, plate pipe arches and plate arches shall be as specified in AASHTO M 196 or AASHTO M 219.

The "size number" used in the measurement of wire will be as specified in AASHTO M 336.

The term ton will mean the short ton consisting of 2,000 lb. All materials which are measured or proportioned by weight shall be weighed on approved scales by competent, qualified personnel. Scales for weighing shall be of either the beam type, springless-dial type or digital recorder type. All plant and truck scales and metering devices shall be inspected, approved and sealed in accordance with the requirements of the West Virginia Division of Labor, Bureau of Weights and Measures, or other appropriate agencies of the State or its political subdivisions. Poises shall be designed to be locked in any position to prevent unauthorized changes. When the beam type scales are used, provisions for a "telltale" dial shall be made for indicating to the operator that the required load in the weighing hopper is being approached. A device on the weighing beams shall clearly indicate the critical position.

Truck scales shall be provided by the producer or Contractor, except that truck scales are not required where the material is weighed at properly calibrated automatic batching plant facilities which are equipped with digital print-out equipment or electronic ticket delivery (e-ticket) capabilities. The scales shall be of sufficient size and capacity to weigh the heaviest loaded trucks that are used for delivery of the material. All truck scales shall be mounted on solid foundations which will ensure their remaining plumb and level.

A weigh person shall be provided by the producer. The weigh person shall certify that the weight of the material, as determined either by the truck scales or from the digital print-out of the weights, is correct. To signify the certification of weight the weigh person must either sign their full name on each ticket, or if the ticket printer prints the weigh person's full name they must at least initial each ticket. In instance where an e-ticket is provided as documentation on the project; a digital signature of the weigh person on the e-ticket will be considered equivalent as handsigned/ initialed, printed ticket.

Each truck shall be weighed empty prior to each load, except at automatic batch plants approved to operate without truck scales. A digital recorder shall be required on all truck scales. The digital recorder shall produce a record of the gross, tare and net weights, and the time, date, truck identification and project number. Provision shall be made for constant zero compensation and further provision shall be made so that the scales may not be manually manipulated during the recording process. The system shall be interlocked so as to allow recording of results only when the scale has come to rest.

In case of a breakdown of the automatic equipment, the Engineer may permit manual operation for a reasonable time, normally not to exceed 48 hours, while the equipment is being repaired.

If material is shipped by rail, the car weight may be accepted provided the actual weight of material only will be paid for. However, car weights will not be acceptable for material to be passed through mixing plants.

Devices, used to meter or measure component or other materials in a simultaneous manner, shall be located so as to be readily accessible and visible to a single Inspector, unless otherwise directed by the Engineer.

Materials to be measured by volume in the hauling vehicle shall be hauled in approved vehicles and measured at the point of delivery. Vehicles for this purpose may be of any size or type acceptable to the Engineer, provided that the body is of such shape that the actual contents may be readily and accurately determined. All vehicles shall be loaded to at least their water level capacity, and all loads shall be leveled when the vehicles arrive at the point of delivery.

When approved by the Engineer, material specified to be measured by the cubic yard may be weighed and these weights converted to cubic yard for payment purposes. Further, when it is impractical to measure the material by weighing, or in its original position, the material will be measured in its final position and adjusted by a volume change factor. These conversion factors will be determined by the Engineer and shall be agreed to by the Contractor before these methods of measurement are used.

When asphalt material is measured by volume, the measured volume at loading temperature shall be converted to volume at 60°F using the temperature correction factors in Section 705 for Asphalt Materials except that when volume is measured by an approved temperature compensated metering device, no further volume correction for temperature shall be required. When asphalt material is measured by weight, the actual specific gravity, API gravity, or weight per gallon of the material shall be used to convert the measured weight to volume at 60°F.

The Contractor shall furnish all information necessary as determined solely by the Division to determine the amount of asphalt material actually incorporated into the project.

Net certified scale weights or weights based on certified volumes in the case of rail shipments will be used as a basis of measurement, subject to correction when asphalt material has been lost from the car or the distributor, wasted, or otherwise not incorporated in the work.

When asphalt materials are shipped by truck or transport, net certified weights or volume, subject to correction for loss or foaming may be used for computing quantities.

Cement will be measured by the cement in hundredweight (cwt) (hundredweight = 100 lb.). For the purpose of determining the total amount used in the mixture, one bag of cement shall be considered as weighing 0.94 cwt, and one barrel of cement shall be considered as weighing 3.76 cwt.

The term "lump sum" when used as an item of payment will mean complete payment for the work described in the Contract.

When a complete structure or structural unit (in effect, "lump sum" work) is specified as the unit of measurement, the unit will be construed to include all necessary fittings and accessories.

When standard manufactured items are specified such as fence, wire, plates, rolled shapes, pipe conduit, etc., and these items are identified by gage, unit weight, section dimensions, etc., such identification will be considered to be nominal weights or dimensions. Unless more stringently controlled by tolerances in cited specifications, manufacturing tolerances established by the industries involved will be accepted.

SECTION 207
EXCAVATION AND EMBANKMENT

207.15-METHOD OF MEASUREMENT:

The quantity of work done will be measured in cubic yards for Item 207001-*, "Unclassified Excavation", which shall be the material actually moved and disposed as herein prescribed, measured in its original position and determined from the cross sections by the method of average end areas. The quantity of unclassified excavation for payment will be the number of cubic yards as further described. The quantities shall be computed using the cross section areas shown on the Plans with deductions from or additions to such cross section areas in accordance with Subsection 109.2 and authorized deviations. The quantity for payment will be to plan lines for material excavated in accordance with the construction tolerance set forth in Subsection 207.3.1 except as provided. In no case where the tolerance line has not been reached will the quantity for payment exceed the quantity actually excavated; unless otherwise authorized, the Contractor will be required to continue or resume excavation until within tolerance rather than receive payment for a lesser (out-of-tolerance) excavated quantity.

No material removed beyond the slope lines or below the grade line shown on the Plans, except as provided in Subsections 207.3.4 and 207.9, will be included for payment unless authorized in writing by the Engineer. Slides and material removed from beyond the slope lines, not attributable to carelessness, overshooting, or unsuitable construction methods on the part of the Contractor, will be included only when so authorized.

Excavation below grade, including undercutting, as shown on the Plans or as directed by the Engineer; ditches to divert water from the slopes of cuts; inlet and outlet ditches for drainage structures; other ditches as authorized be the Engineer; removal of topsoil, sod, old pavement, boulders, walls, and other unsuitable material within the areas upon which the embankment is to be placed; benching; and all other excavation authorized but not shown by the cross sections, will be measured separately and included for payment.

Where stone base or concrete pavements have been scarified or broken but not removed, or slopes other than rock upon which embankments are to be made are plowed or scarified and the loose soil has been manipulated and compacted but not removed, such work and all the work of placing and compacting all embankments, widenings or waste pits, placing and consolidating rockfills, will be considered as a necessary part of manipulation, the cost of which is included in the price bid per cubic yard for "Unclassified Excavation".

Payment for placing of temporary surcharge will be included in the contract unit price for "Unclassified Excavation" or "Unclassified Borrow Excavation", as the case may be. Removal of temporary surcharge will be paid at the contract unit price for "Unclassified Excavation".

The removal and disposal of slide and slipout material in accordance with Subsection 207.14 will be paid for at the contract price for "Unclassified Excavation", unless the Engineer, prior to the removal of such material, orders the slide or slipout material to be removed and disposed of as "Extra Work", or the Contractor, prior to performing any such work, requests in writing that the removal and disposal of any such slide or slipout material be paid for as "Extra Work", and the Engineer approves.

The cost of any work outside the limits of the slide necessary to make slide or slipout areas accessible to normal excavation equipment will be paid for as "Extra Work". The above provisions shall not be so construed as to relieve the Contractor from the duty of maintaining all slopes true and smooth.

The quantity of subgrade work done under this item will be the number of cubic yards of "Subgrade" established in the Proposal, subject to adjustment as provided for in Subsections 104.2 and 109.2. Any additional work beyond the scope of the original Plans but authorized by the Engineer will be measured in cubic yards, compacted in place, and paid for at the unit bid price for subgrade, subject to the provisions of 104.2.

The quantity of subgrade work done under Item 207002-* will be the number of cubic yards measured and compacted in place, subject to adjustment as provided for in 104.2 and 109.2. Any additional work beyond the scope of the original Plans but authorized by the Engineer will be measured in cubic yards, compacted in place, and paid for at the unit bid price for subgrade.

Measurement and payment for subgrade drains will be in accordance with the provisions of Section 606.

SECTION 211
BORROW EXCAVATION

211.7-METHOD OF MEASUREMENT:

211.7.1-Cubic Yard Measurement: The quantity of work done will be measured in cubic yards actually obtained and incorporated in the work, determined in its original position from cross sections by the average end areas.

The method of measurement may also be calculated as 80 percent (80%) of the truck load volume of each truck used to haul the material. The measurement of the load will be taken 130 inside each bed and will include length, width and average height to the top of the load. However, the measurement will exclude the hoist housing. When Rock Borrow is obtained from a commercial source payment may be per cubic yard by converting 1.65 tons to equal 1 cubic yard.

If the borrow is obtained in such quantity or in such manner that a waste of unclassified excavation, slips, or excess material is caused, the amounts of such waste shall be deducted from the borrow volume. In determining the amount of material to be developed due to unauthorized placement of borrow material or unclassified excavation material in the embankments, the quantity outside the construction tolerance will be measured and deducted from borrow on a yard-to-yard basis without adjustment due to shrinkage or swelling.

211.7.2-Ton Measurement: The quantity of work done will be measured in tons actually obtained and incorporated in the work, determined by the total of the weights shown on receipted railroad freight bills when materials are shipped by rail, by actual measured displacement of barges certified by the Producer when water shipments are made, providing materials delivered by the aforementioned methods are not stockpiled or stared; or determined by the Contractor from the total of weigh slips for each vehicle load weighed on an approved truck scale, and certified by the Contractor to be correct.

The Producer or Contractor shall provide truck scales. The scales shall be of sufficient size and capacity to weigh the heaviest loaded trucks that are used for delivery of the material. All truck scales shall be mounted on solid foundations, which will insure their retaining plumb and level. All truck scales shall be inspected and sealed by the West Virginia Department of Labor, Bureau of Weights and Measures, or other appropriate agencies of the State or its political subdivisions. The Department may, at its option, accept inspection and sealing by out of state agencies when the material is weighed outside West Virginia.

A digital recorder shall be required on all truck scales. The digital recorder shall produce a printed record of the gross, tare and net weights, and the time, date, truck identification and project number. Provision shall be made for constant zero compensation and further provision shall be made so the scales may not be manually manipulated during the printing process. The system shall be interlocked so as to allow printing only when the scale has come to rest. In case of a breakdown of the automatic equipment, the Engineer may permit manual operation for a reasonable time, normally not to exceed 48 hours, while the equipment is being repaired. A weighman shall be provided by the Producer/Supplier. The weighman shall certify that the weight of the material, as determined either by the scales or from the digital printout of the weights, is correct. Each truck shall be weighed empty prior to each load.

211.7.3-Square Foot Measurement: The measurement of the Impervious Core will be by the square foot of core placed and accepted by the Engineer. The area of measurement shall be calculated from the surface of a vertical plane through the centerline of the impervious core.

SECTION 217
SPECIAL ROCK FILL

217.4-METHOD OF MEASUREMENT:

The quantity of work done will be measured in cubic yards of "Special Rock Fill", complete in place and accepted, determined by the method of average end areas.

SECTION 218
SLOPE AND FOUNDATION PROTECTION

218.5-METHOD OF MEASUREMENT:

Except for "Shot Rock" which will be measured in tons, the quantity of work done under Slope Protection will be measured in cubic yards of "Riprap", "Grouted Riprap", or "Gabions", and in square yards of "Crushed Rock Slope Protection", "Concrete Slope Protection" or "Fabric for Erosion Control", excluding overlaps.

The number of tons of "Shot Rock" shall be determined by the total of the weights shown on receipted railroad freight bills when materials are shipped by rail; by actual measured displacement of barges certified by the producer when water shipments are made, providing materials delivered by the methods are not stockpiled or stored; or determined by the Contractor from the total of weigh slips for each vehicle load weighed on an approved truck scale, and certified by the Contractor to be correct.

Truck scales shall be provided by the producer or Contractor. The scales shall be of sufficient size and capacity to weigh the heaviest loaded trucks that are used for delivery of the material.

All truck scales shall be mounted on solid foundations which will insure their remaining plumb and level. All truck scales shall be inspected and sealed by the West Virginia Division of Labor, Bureau of Weights and Measures, or other appropriate agencies of the State or its political subdivisions. The Division may, at its option, accept inspection and sealing by out of state agencies when the material is weighed outside West Virginia.

A digital recorder shall be required on all truck scales. The digital recorder shall produce a printed record of the gross, tare and net weights, and the time, date, truck identification and project number. Provisions shall be made for constant zero compensation and further provision shall be made so that the scales may not be manually manipulated during the printing process.

The system shall be interlocked so as to allow printing only when the scale has come to rest. In case of a breakdown of the automatic equipment, the Engineer may permit manual operation for a reasonable time, normally not to exceed 48 hours, while the equipment is being repaired.

Each truck shall be weighed empty prior to each load.

A weigh person shall be provided by the producer. The weigh person shall certify that the weight of the material, as determined either by the truck scales or from the digital printout of the weights, is correct.

Area dimensions will be based on slope measurement; concrete sills will be included in the area measurement for crushed rock or concrete slope protection. Volumes may be determined by verified plan dimensions or from measurements of the completed work, as authorized by the Engineer. The quantity of work done under "Foundation Protection" will be measured in cubic yards, actually produced and incorporated in the work, determined in its original position from cross sections by the method of average end areas, unless otherwise authorized by the Engineer.

~~April 10~~August 5, 2025

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SPECIAL PROVISION

FOR

STATE PROJECT NUMBER: _____

FEDERAL PROJECT NUMBER: _____

SECTION 207
EXCAVATION AND EMBANKMENT
(SOIL MONITORING SETTLEMENT PINS)

207.7-FORMING AND COMPACTING EMBANKEMENT:

ADD THE FOLLOWING:

207.7.6-Settlement Pins:

207.7.6.1-Scope: The work herein specified shall consist of furnishing materials, equipment, and labor necessary to complete and install the soil monitoring settlement pins shown in the contract plans. The Contractor shall install the soil monitoring settlement pins in the locations shown in the plans. Settlement pins shall be installed once the subgrade is achieved per the contract drawings and the embankment fill has been placed to a specific elevation defined in the general notes. Before purchase of any materials or the initiation of any work on the soil monitoring settlement pins, the Contractor shall submit a plan for the approval of the Engineer. The plan shall show the locations of the soil monitoring settlement pins. The construction in the area of monitoring shall not begin until the settlement characteristics are acceptable to the Engineer. The Contractor shall be responsible for taking the readings from the soil monitoring settlement pins. The Contractor shall be responsible for the soil monitoring settlement pins maintenance for the duration of the project. The Engineer shall contact Geotechnical personnel from the Division for assistance in inspection, installation, and data evaluation.

207.7.6.2-Purpose: Settlement is anticipated at the embankment. Settlement shall be monitored in accordance with this special provision before further construction at the specific monitoring location can proceed. Information from the soil monitoring settlement pins will be used by the Engineer to evaluate the settlement at critical sections. This information will assist the Engineer in evaluating the project construction.

207.7.6.3-Installation: Soil Monitoring Settlement Pins shall consist of 4-foot long #5 reinforcement bars driven a minimum of 3 feet into the ground. A point shall be marked on each pin that can be measured and identified for future readings. The soil monitoring settlement pins must be labeled for easy identification and reference. The initial location and elevation of each soil monitoring settlement pin, which are listed in the plans, shall be surveyed by the Contractor. Elevation surveys shall be accurate to within 0.01 foot. A minimum of one reference point shall be established for each monitoring location. This reference point shall be outside the influence of any movement resulting from construction.

207.7.6.4-Readings and Reporting: Prior to taking readings, the Contractor shall present a reporting form for the approval of the Engineer. Time/Settlement graphs will be required. Readings shall be provided to the Engineer on a weekly basis. Readings shall be determined once per week after the embankment placement has been completed. The Engineer shall determine when the readings are to be terminated. Termination will be considered if the time rate of settlement is equal to or less than one-eighth (1/8) inch per week for at least four (4) consecutive weeks. The Engineer will provide a copy of the readings to Geotechnical personnel of the Division for their records.

207.7.6.5-Control: See table in general notes for settlement pin locations. The soil monitoring settlement pins should be placed immediately after the completion of the fill.

207.7.6.6-Acceptance: Acceptance by the Engineer of the soil monitoring settlement pins and approval to proceed with monitoring shall be based on the satisfactory completion of the installations. The Contractor shall provide a plan showing the locations and elevations of the soil monitoring settlement pins and reference points. Acceptance by the Engineer to proceed with the installation of the piles at the monitoring location shall not be given until the settlement is one-eighth (1/8) inch or less per week for four (4) consecutive weeks. The Contractor shall provide the Engineer with a report showing the time/settlement graphs.

207.7.6.7-Protection: The Contractor shall be responsible for the protection of the soil monitoring settlement pins from damage. All damaged instrumentation shall be replaced or repaired at the Contractor's expense. Damage shall be corrected at the Contractor's expense, as directed by the Engineer, before continuing construction. Work in the area of the damaged instrumentation shall be stopped until the instrumentation is repaired by the Contractor and approved by the Engineer.

207.15-METHOD OF MEASUREMENT:

ADD THE FOLLOWING:

The quantity of work done will be the actual number of soil monitoring settlement pins per each completed in place and accepted by the Engineer.

207.16-BASIS OF PAYMENT:

ADD THE FOLLOWING:

The quantities, as determined as provided above, will be paid for at the contract unit price bid for the item listed below, which price and payment shall be full compensation for excavating, backfilling, disposing of surplus material, furnishing all the materials and doing all the work herein prescribed in a workman like and acceptable manner, including all tools, equipment, supplies and incidentals necessary to complete the work.

207.17-PAY ITEM:

ADD THE FOLLOWING ITEM TO THE TABLE:

ITEM	DESCRIPTION	UNIT
207050-000	Soil Monitor Settlement Pins	Each

July 29, 2025

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 406
HIGH FRICTION SURFACE TREATMENT

406.3-ACCEPTANCE TESTING:

REMOVE THE FOLLOWING FROM THE SUBSECTION

The material shall be evaluated by AASHTO Product Evaluation and Audit Solutions. Acceptance sampling and testing of aggregates is the responsibility of the Division, except for furnishing the necessary materials. Quality control sampling and testing performed by the Contractor may be used by the Division for Acceptance.

~~**406.3.1-Skid Testing:** Test Sections are defined as a continuous lane of pavement to which a layer of high friction surface treatment (HFST) has been applied. The Engineer will submit a "Pavement Testing Request" form to DOHMCSnTRoadway@wv.gov, within five (5) days after all lanes are continuously open to traffic. The Division or an independent testing firm at the discretion of the Division, will perform initial skid testing within ninety (90) days after receiving the request. Skid testing will be performed with the ribbed tire as prescribed in AASHTO T242, *Frictional Properties of Paved Surfaces Using a Full-Scale Tire*. The frequency of tests shall be five (5) per lane-mile or three (3) per lane, whichever is greater. An average Friction Number (FN) of less than 69 will be deemed unacceptable and will require reinstallation of the complete surface system of the failed test section at no cost to the Division.~~

406.3.2-Acceptance for the Grading of Aggregate: Acceptance for gradation shall be on the basis of test results on consecutive random samples from a lot. A lot shall be considered the quantity of material represented by an average test value, not to exceed five sublots. Generally, at the beginning of the project, the average shall be started on the second sample in accordance with MP 300.00.51. A sublot is the quantity of material represented by a single gradation test. In the case where only one sample is taken, this sublot shall be considered the lot. The material shall be sampled and tested in accordance with the applicable specification. The gradation test results shall be plotted on a control chart in accordance with MP 300.00.51. When the average, or when the most recent three

consecutive individual test values fall outside the guidelines for this aggregate the lot of material represented will be considered nonconforming to the extent that the last of its sublots is nonconforming. When this occurs, the last sublot shall have its price adjusted in accordance with Table 406.12.1. In the case where the average is nonconforming and the last sublot contained is conforming, then there would be no price adjustment. In no event, however, shall a sublot of material have its price adjusted more than once, and the first adjustment, which is determined, shall apply.

406.3.2.1-Degree of Nonconformance: When a sublot of material is to have its price adjusted, the percentage point difference between the nonconforming test value and the specification limit shall be determined for each sieve size determined to be nonconforming and this value shall be multiplied by its appropriate multiplication factor as set forth in Table 406.3.2.1 to determine the degree of nonconformance on that sieve.

TABLE 406.3.2.1

Nonconforming Sieve Size	Multiplication Factor
No. 6 (3.35mm)	1.5
No. 16 *1.18mm)	2.0

The total measure of nonconformance of an individual sublot is the sum of all nonconformances on the various sieve sizes of that sublot. When the total degree of nonconformance has been established and it is 12.0 or less, the material will be paid for at an adjusted contract price as specified in Table 406.11.1. When the degree of nonconformance is greater than 12.0, the nonconforming sublot shall be resolved on an individual basis, requiring a special investigation by the Engineer to determine the appropriate course of action to be followed.

August 8, 2025

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 659
SIGN LIGHTING

659.2-MATERIALS:

ADD THE FOLLOWING PARAGRAPH TO THE END OF THE SECTION:

At the Division's discretion, all Sign Lighting Fixtures and Photoelectric Sensors shall be subject to a field evaluation as part of the Division's evaluation of the product for inclusion on the Approved Products List (APL). The field evaluation shall be for the purpose of, but not limited to, evaluation of the user friendliness, functionality, performance, and durability under actual use conditions. The field evaluation shall be for a period of three (3) to six (6) months and shall begin after the Division has acquired requested sample fixtures and has accomplished the necessary coordination to have the fixtures installed in the field.

August 8, 2025

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 660
TRAFFIC SIGNALS

660.2-MATERIALS:

ADD THE FOLLOWING PAARAGRAPH TO THE END OF THIS SECTION:

At the Division's discretion, all Audible Pedestrian Signals, Traffic Signal Modules, Radar Detection Systems, Video Detection Systems, Cabinet Auxiliary Equipment, Controllers, Priority Control Systems, and Cabinets shall be subject to a field evaluation as part of the Division's evaluation of the product for inclusion on the Approved Products List (APL). The field evaluation shall be for the purpose of, but not limited to, evaluation of the user friendliness, functionality, performance, and durability under actual use conditions. The field evaluation shall be for a period of three (3) to six (6) months and shall begin after the Division has acquired requested samples and has accomplished the necessary coordination to have the devices installed in the field.

August 8, 2025

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 662
ROADWAY LIGHTING

662.2-MATERIALS:

ADD THE FOLLOWING PARAGRAPH TO THE END OF THE SECTION:

At the Division's discretion, all Roadway Fixtures, High Mast Tower Fixtures, Wall Mounted Fixtures, High Mast Tower Lowering Devices, Navigation Light Units, and Photoelectric Sensors shall be subject to a field evaluation as part of the Division's evaluation of the product for inclusion on the Approved Products List (APL). The field evaluation shall be for the purpose of, but not limited to, evaluation of the user friendliness, functionality, performance, and durability under actual use conditions. The field evaluation shall be for a period of three (3) to six (6) months and shall begin after the Division has acquired requested samples and has accomplished the necessary coordination to have the devices installed in the field.

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SPECIAL PROVISION
FOR

STATE PROJECT NUMBER: _____
FEDERAL PROJECT NUMBER: _____

SECTION 689
CATHODIC PROTECTION OF CONCRETE STRUCTURES

689.1 - DESCRIPTION:

CREATE SECTION AND ADD THE FOLLOWING:

689.1.1 – Galvanic Cathodic Protection of Concrete Members: This work shall consist of application of an aluminum-zinc-indium (Al-Zn-In) anode coating on the surface of concrete using the thermal spray process. The purpose of the anode coating is to stop corrosion of the embedded steel by galvanic cathodic protection (GCP). When electrically shorted to the reinforcing steel in the concrete, a small direct current will flow from the sacrificial anode to the steel; thereby protecting the steel from any further corrosion.

The anode coating shall be applied on the surface of concrete as shown in the plans. If not clearly shown in the plans, the Engineer will determine the exact locations and boundaries of the anode coating. The anode coating shall be applied after the concrete repairs have occurred and fully cured. In addition, a compatible and breathable concrete protective coating shall be applied over the anode coating. The color of the concrete protective coating will be as specified in the plans.

The electrically shorted GCP system shall consist of an Al-Zn-In anode coating and connector plates. In addition, two non-shorted test areas shall also be installed, for the purpose of evaluating system performance. The non-shorted system shall consist of an Al-Zn-In coating, anode connector plates, embedded reference electrodes, system grounds, and all necessary wiring.

The GCP system furnished shall include all materials identified in these specifications and on the shop drawings. The contractor shall demonstrate that they are capable of spraying the galvanic alloy and have performed at least 10 installations prior to installation at the job site. The thermal spray operator shall have adequate technical training and field experience, to safely and proficiently apply the anode coating on concrete structures. The operator shall demonstrate the ability to set up and operate the thermal spray equipment. The contractor shall submit valid records showing operator qualifications.

The following standards shall be observed:

ASTM D1002	Strength Properties of Adhesives in Shear by Tension Loading
ASTM D4285	Standard Test Method for Indicating Oil or Water in Compress
Air ASTM D4541	Standard Test Method for Pull-off Strength of Coating
Using Portable	Adhesion Testers

689.2 – MATERIALS AND EQUIPMENT:

As a minimum, the contractor shall supply the following:

689.2.1 – Abrasion of Concrete Surface: The abrasive blasting equipment shall be a conventional, air pressure-type blaster. A maximum of 80 psi shall be maintained at the blast nozzle.

The abrasive material shall be clean and dry non-metallic grit with no mineral constituents, which tend to break down and remain on the surface in visible quantity. The abrasive size shall be selected from 20-40 mesh, and shall be hard and angular in shape. Abrasives that have been previously used to remove oil and/or grease shall not be allowed.

Compressed air used for abrasive blasting shall be clean, oil-free and dry per ASTM D 4285. Air line filters and moisture separators shall be installed upstream from the blasting equipment. These shall be inspected daily for cleanliness and correct operation.

689.2.2 Application Equipment: The coating shall be applied using electric-arc spray equipment. The arc spray equipment shall consist of a spray gun, wire feed unit, power supply, and air compressor. To readily spray the coiled anode wire, a straightening device may be necessary. The Contractor shall be responsible for making any necessary modifications and adjustments to the thermal spray equipment, so that the alloy wire can be sprayed properly.

689.2.3 Anode System: The material shall have the following material specifications:

Nominal Chemical Composition:	Zn(10%-50%)-In(0.03%-0.6%)-Al(balance)
Wire Diameter:	1/8 in.
Type:	Solid Wire
Density:	3.24 g/cubic cm
Maximum Copper Content:	100 PPM
Open Circuit Potential in Simulated Concrete Pore Solution w/pH = 12-13:	>-1.6 V (CSE)

The anode connector plate shall consist of a perforated aluminum sheet, galvanized steel stud, nut and washers. The anode connector plates shall be 4” x 4” square x 1/16” thick. The connector plate shall have 4 holes for attachment to the concrete surface and one hole in the center of the plate for attachment of the steel stud. Each hole shall be 3/4 in. in diameter.

The anode wire and anode connector plates shall be kept clean, dry and free from oxides at all times.

689.2.4 Reference Electrodes: The reference electrodes shall be silver-silver chloride designed for permanent installation in concrete structures. The electrodes shall be supplied with a No. 14 AWG stranded copper lead wire with HMWPE blue insulation. The lead wire to reference electrode connection shall be completely sealed to prevent moisture penetration into the connection.

689.2.5 Epoxy Material: The epoxy for the anode connector plates shall be Sikadur -32 Hi-Mod by Sika Corporation, 201 Polito Avenue, Lyndhurst, NJ 07071, or approved equal.

689.3 – INSTALLATION:

689.3.1 Field Verification: The contractor shall field verify all dimensions. The contractor shall coordinate installation of the system components with all other construction operations.

689.3.2 Installation Sequence: Installation shall proceed in accordance with the following sequence:

689.3.2.1 Steel Continuity: The purpose of the steel continuity check is to ensure that all of the embedded steel is electrically continuous. If the embedded steel is discontinuous, it will not receive cathodic protection current. The reinforcing steel shall be checked for electrical continuity at a minimum 5 locations per 1,000 sq. ft. and between all exposed rebars during the delamination repair stage, and other metallic members by using the DC millivolt technique. Testing shall be conducted during the delamination repair stage, so as to alleviate unwanted excavation. Test equipment for this procedure shall consist of a standard digital DC voltmeter, test leads and wire reel. The millivolt drop between the steel is measured. Readings greater than 1.0 mV indicate electrical discontinuity and the discontinuous steel must be bonded back into the steel network.

All reinforcing steel which is found to be discontinuous must be electrically bonded to the continuous steel with one No. 12 AWG wire with HMWPE insulation using the thermite welding procedure, by brazing a steel wire between the bars or adequately tie wiring the rebar to continuous rebar.

689.3.2.2 Installation of Reference Electrodes and Ground Wires (For Test Area): All instrumentation shall be installed as detailed on the drawings and at the locations shown.

The reference electrodes shall be located according to the layout plans. After locating the reinforcing steel in the concrete at each location with a pachometer, the contractor shall excavate an area approximately 4 in. x 8 in. to the depth of the reinforcing steel or prestressing steel. Care shall be taken not to expose the steel in the excavation.

A ground wire shall be connected to the reinforcing steel at each reference electrode location. The ground wire connection shall be at least 18 in. from the reference electrode in a separate excavation.

698.3.2.3 Wire Connections to Embedded Steel: The system ground and reference cell ground wires shall be No. 12 AWG copper wires with black HMWPE insulation. The

connection of each ground wire to the reinforcing steel shall be made using the thermite brazing or welding process, in accordance with appropriate manufacturers' instructions. The connection of any exposed copper stranded wires in the excavated area shall be completely coated with a 100 percent solid epoxy. After properly installing the reference electrode and ground wires, the excavated areas shall be filled with an air-entrained portland cement concrete patching material. Each ground wire shall then be routed through a PVC conduit to a nearby PVC junction box, as shown on the drawings.

689.3.2.4 Installation of Anode Connector Plates for Non-Shorted Test System: The purpose of the anode connector plate for the non-shorted test system is so that the anode can be disconnected from the steel to help facilitate testing of the CP system. The anode connector plates shall be installed at each location designated in the layout plans, using the following procedures:

1. Using a concrete cover meter or pachometer, locate the position of the reinforcing steel bars in the area where the anode connector plates are to be installed for the non-shorted test area. Mark a spot on the concrete between the bars.
2. At the spot, drill a 3/4-in. diameter by 1-1/4-in. deep hole into the concrete, making sure that no steel is exposed.
3. Chip an area, of approximately 4-in. diameter and to a minimum depth of 1 in., in the concrete surrounding this drilled hole where the anode connector plate is to be installed. The chipped area shall be filled with a cementitious grout. Prior to hardening of the grout, press the connector plate against the grout so that the disk is recessed into the grout surface.
4. Insert a 5/16 in. diameter stainless steel, threaded rod (stud) into the drilled hole, and secure the rod in the hole by backfilling with an epoxy adhesive. The threaded rod must extend to the outer concrete surface to facilitate attachment of the anode connector plate.
5. Secure the galvanized steel washer and nut over the anode connector plate.

689.3.2.5 Installation of Anode Connector Plate for Shorted System: The anode connector plates in the shorted system provide a direct electrical connection between the sacrificial anode and the reinforcing steel. For each anode connector plate, a threaded galvanized rod (stud) shall be attached to the reinforcing steel to facilitate attachment of the anode connector plate. The following procedure shall be followed:

1. Using a concrete cover meter or pachometer, locate the reinforcing steel at the location where a shorted-system anode connector plated is to be installed.
2. Drill a 1-in. diameter hole into the concrete to expose the reinforcing steel.
3. Chip an area, of approximately 4-in. diameter and to a minimum depth of 1 in., in the concrete surrounding this drilled hole where the anode connector plate is to be installed. The chipped area shall be filled with an approved cementitious grout. Prior to hardening of the grout, press the connector plate against the grout so that the disk is recessed into the grout surface.
4. Attach a 5/16-in. diameter stainless steel, threaded rod (stud) to the exposed steel, using the tapping method. The threaded rod must extend to the outer concrete surface to facilitate attachment of the anode connector plate.

5. Secure the galvanized steel nut over the anode connector plate.

689.3.2.6 Preparation of the Concrete Surface: Work performed under this section consists of cleaning the concrete surface and providing an anchor profile by abrasive blasting, so that an adequate bond between the concrete and thermally sprayed anode can be obtained. The main purpose is to remove dust, grit, chalk marks, paints, curing compounds, and other substances, which might inhibit bonding of the anode to the concrete.

Abrasive blasting shall not commence before concrete repairs are completed and patch materials are allowed to cure properly. Abrasive blasting shall not take place on surfaces that will be wet or damp following blasting. Exposed CP wiring shall be covered with a shielding material to prevent damage to the insulation from the blasting operations.

689.3.2.7 Application of Al-Zn-In Anode Coating: Anode connector plates shall be installed before application of the anode coating. The contractor shall furnish all necessary labor, materials and equipment for installation of the anode system, in accordance with the following procedure.

1. Surfaces shall be thoroughly vacuumed or blown clean within 15 minutes before thermal spraying of the area is started. Any oil, grease, soil, water, or other foreign matter that may have deposited on the surface after the surface preparation has been completed shall be removed before spray application. Coating applications shall only be performed when the concrete surface is clean and dry.
2. All metallic components or appurtenances such as drainpipes, conduit, or bearing steel plates shall be isolated from the anode and temporarily covered with suitable masking materials, which shall extend, from the objects, by at least 3 cm (1in.) on the concrete surfaces.
3. The installation areas shall be enclosed during spraying for dust containment. The enclosure shall consist of tarps, panels, or other methods to prevent dust from escaping the immediate area such that it would constitute a health hazard. Personnel conducting spraying operations within the enclosure shall be provided with a hood with external air supply for respiration in accordance with OSHA 19-10-134.
4. Concrete surfaces shall not be sprayed when the temperature is less than 41° F.
5. During application, the thermal spray nozzle shall be maintained at a travel speed and a distance from the work surface such that the anode deposit efficiency and bond strength are maximized. Travel speed shall be approximately 16 in. per second. The distance from the nozzle to the surface should be approximately 6 in.
6. This step differs for the non-shorted test area and the shorted systems. Therefore, follow the appropriate steps outlined below, according to the designation of an area (see layout plans):

    a) For Non-shorted Test System: The spray application of the sacrificial anode shall begin by metallizing the area(s) in which the anode connector plates are installed. To detect electrical short circuits between the anode and the reinforcing steel, connect a DC voltmeter between the threaded rod and a system

ground. Begin by spraying the anode over the connector plate and then proceed toward the surrounding concrete. To facilitate short circuit detection, monitor the potential on the voltmeter for any sudden drop (i.e., at or close to 0 millivolt). A sudden drop in potential is indicative of a short circuit. When a short circuit is detected, all installation work shall stop until the short is identified and eliminated.

b) For Shorted System: The spray application of the sacrificial anode shall begin by metallizing the area(s) in which the anode connector plates were installed. Begin by spraying the anode coating over the connector plate and then proceed toward the surrounding concrete.

7. The coating should be applied in multiple passes and should overlap on each pass in a crosshatch pattern, before the first layer of material has cools down. Uniform gun movement should be used to ensure a consistent thickness. Sufficient anode material shall be sprayed to achieve a minimum thickness of 12 mils.

The thickness of the coating shall be measured at a minimum of 5 locations per 100 ft^2 using a companion coupon and standard thickness gauge.

8. Compressed air used for spraying shall be clean, oil-free and dry, per ASTM D 4285. Air line filters and moisture separators shall be installed upstream from the spraying equipment. These shall be inspected daily for cleanliness and correct operation. Any indication of malfunction in the equipment, indicated by oil or water in the filter or traps, shall be corrected immediately.

9. The anode coating shall not contain any lumps, blisters, coarse texture, or loosely adhering particles, nor shall it contain any cracks, pinholes, or chips, which expose the concrete substrate. Unacceptable areas shall be repaired. Repair work shall be conducted as follows:

a) Remove all degraded anode coating by scraping, strip blasting or both. During this process, light blasting shall be applied to the areas without exposing large aggregates.

b) Re-apply sacrificial anode coating.

c) Inspect the sprayed anode for proper thickness, as described above.

689.3.2.8 Completion of Anode Connector Plate Installation: This step differs for the non-shorted test system and the shorted system. Therefore, follow the appropriate steps, outlined below for each system:

a) Non-shorted Test System: Securely attached a red No.10 AWG HMWPE copper lead wire between the anode connector plate and the galvanized steel washer and nut – making sure that the nut is firmly tightened. Enclose the connection with a PVC junction box, and provide a connection (through a precision 0.1-ohm fixed resistor) to the system ground wire.

b) For Shorted System: Check to make sure that the galvanized washer and nut are tightly secured over the anode connector plate using the galvanized steel threaded rod. Then cover the washer-and-nut assembly with epoxy adhesive.

Adhesion strength between the anode coating and concrete substrate shall be measured with an AT Positester, or equal. A minimum of one adhesion test shall be performed per
500 ft^2 of concrete surface. The target adhesion strength of the sacrificial anode coating shall be greater than 150 psi. The contractor shall remove the anode coating from areas where the adhesion strength is less than 50 psi, and re-apply the anode coating in accordance with these specifications.

689.3.2.9 Installation of Junction Boxes and Conduit (if necessary for test areas):

1. The contractor shall install Schedule 40 PVC conduit and PVC junction boxes for the CP system.
2. All conduit joints, fittings, couplings and adapters shall be jointed by means of a solvent cement or as recommended by the conduit manufacturer.
3. The junction boxes and the conduit shall be secured on the concrete surface using stainless steel (grade 304 or 316) bolts with a vinylester adhesive resin.
4. The conduit shall be secured on the concrete surface using non-metallic clamps or hangers in accordance with National Electric Code.
5. Any conduit sections to be bent must be heated evenly over the entire length of the curve. Only electrical heaters designed specifically for the size and purpose of bending non- metallic conduit shall be used. Conduit bending shall be performed according to conduit manufacturer's recommendations. For "blind" bends or for compound turns in a conduit run, the heated conduit may be solvent cemented in place while still flexible. The use of torches or other flame-type devices shall not be permitted. PVC conduit sections that were exposed to excessive heating, as evident by brown discoloration shall be discarded.

689.3.2.10 Installation of Electrical Wiring (if necessary for test area):

1. Wiring for the CP system shall be installed in accordance to the plans and material specifications.
2. All wiring shall be installed or routed in PVC conduit.
3. All cathodic protection wires shall be identified in the junction boxes, and at the test station using durable identification tags. Each wire shall be clearly marked as to its function. Care shall be taken to identify each wire correctly in accordance with the legend shown in any schematic-wiring diagram.
4. All connections and wire splices shall be housed in junction boxes, which are encapsulated to prevent any moisture intrusion, and to provide electrical insulation from other nearby connections or wires. A weep hole shall be provided in the base of each junction box.

689.3.2.11 Existing Utilities: There are other utilities located in the area of this project, such as wiring for lights and signs. Damage to these utilities by the contractor shall be repaired at the contractors' expense.

689.4-ENERGIZATION AND TESTING OF THE SYSTEM:

In the designated junction boxes, connect each red anode lead wire to a nearby system ground, through a 0.1-ohm shunt. Always properly seal all connections in the junction boxes with waterproof materials to prevent future moisture intrusion. Likewise, route all lead wires from the embedded reference electrodes and their grounds all the way, without splices, to the junction box. Properly mark each wire and its function with durable identification tags.

In each Non-shorted Test Zone, measure and record the AC resistance and DC voltage between the anode and steel, the DC millivolt drop across each shunt, the AC resistance between each reference electrode and the steel, and the native potential of the steel using the embedded reference electrodes. Conduct minimum 4-hour depolarization tests using the embedded reference electrodes. The Cathodic Protection System Technical Representative shall conduct these tests. The results of the testing shall be submitted in writing.

689.5-METHOD OF MEASUREMENT:

This work shall be measured for payment and paid at the contract unit price per square foot of anode coating installed. Estimated surface area to be coated, as determined from the lines and dimensions shown on the plans and subject to field verification, is to be provided in the plans.

689.6-BASIS OF PAYMENT:

Payment for this work shall be at the contract unit bid price and shall include all labor, materials, scaffolding, enclosures, equipment, tools, supplies, tests, and incidentals necessary to complete the work.

689.7–PAY ITEMS:

ITEM	DESCRIPTION	UNIT
689001-002	Cathodic Protection of Concrete Structures	Square Feet

September 16, 2025

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATIONS

FOR

SECTION 420
SINGLE / MULTIPLE COURSE MICRO SURFACING

420.3-MIXTURE REQUIREMENTS:

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

420.3.1-Mix Design: ~~Submit to the Engineer, at least fourteen calendar days before the start of production, a complete mix design prepared and certified by an experienced laboratory. The source for all materials must be shown. Provide a job mix formula (JMF) to the Engineer at the pre-paving meeting showing individual proportions of each material, that when combined, shall meet the requirements of AASHTO PP 83, with the exception that the Saturated Abrasion Loss by ISSA TB-144 shall be 2.0g max. A new mix design is required for any change in aggregate or asphalt emulsion source.~~

The job mix formula (JMF) defines the requirements for a specific mix utilized in micro surfacing applications. This formulation may be specific to a particular project or applicable across multiple projects.

Proposed JMFs must be documented on the Division Form T420 and certified by an experienced laboratory that possesses the necessary specialized equipment and staff to perform the required tests. The certifying laboratory shall meet at least one of the following criteria:

a. Currently an AASHTO accredited laboratory in Pavement Preservation
b. Has produced a minimum of five (5), in state, Division approved micro surfacing mix designs
c. Has produced a minimum of ten (10) out-of-state agency approved micro surfacing mix designs

Supporting documentation shall be included with the first submitted JMF package. The proposed JMF package shall be forwarded for review to the District Materials Engineer/Supervisor at least fourteen (14) calendar days before the start of production. The T420 and package shall then be transmitted to the Materials Control, Soils and Testing Division for final approval. If the JMF is approved, a lab number will be assigned to that specific mix, allowing it to be used in future projects without repeating the Division approval process. If the JMF requires revision, it will be returned to the designer through the District.

The JMF must be within the following limits:

Asphalt Binder Content (Residual)	7.0%-8.5%, dry weight, 2FA aggregate 6.5%-8.0%, dry weight, 3FA aggregate
Mineral Filler	0.25%-3.0%, dry weight, of aggregate

The JMF must show individual proportions of each material that, when combined, meet the requirements of AASHTO R 103, with the exception that the Saturated Abrasion Loss by ISSA TB-144 shall be 2.0g max.

A new JMF is required for any change in aggregate or asphalt emulsion source. Any approved JMF that exhibits poor field performance may be rejected from further use by the Division.

~~**420.3.2 Mix Design Format:** Provide the following information in the final mix design:~~

~~a. Sources of each material~~

~~b. Aggregate~~

~~1. Type~~

~~2. Gradation~~

~~3. Sand equivalence~~

~~c. Field Simulation Tests~~

~~1. Wet stripping test~~

~~2. Wet track abrasion loss~~

~~3. Saturated abrasion compatibility~~

~~4. Trial mix time at 77 °F and 100 °F~~

~~d. Interpretation of results and the determination of a JMF~~

~~1. Mineral filler (minimum & maximum), percent~~

~~2. Water, including aggregate moisture (minimum & maximum), percent~~

~~3. Quantitative effects of moisture content on the unit weight of the aggregate~~

~~4. Mix set additive (if allowed), percent~~

~~5. Modified emulsion, percent~~

~~6. Residual content of modified emulsion~~

~~7. Residual, percent~~

~~e. Mix designer's signature and date~~

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 506
CONCRETE PAVEMENT REPAIR

506.3-PROPORTIONING:

ADD AND REMOVE THE FOLLOWING FROM THE SUBSECTION:

The Contractor may elect to use a mobile, continuous volumetric mixer in compliance with ASTM C685 at the patching location in lieu of a batch plant. A mobile, continuous volumetric mixer is defined as a truck mounted system where each component is automatically proportioned out for a selected batch size from on-board storage bins and automatically fed into a mixing unit to produce a mix complying with the requirements of 506.2. The unit shall be calibrated according to MP 679.02.99~~the manufacturer's recommendations~~ by the Contractor in the presence of the Engineer before any placements are made on the project. Copies of all calibration form/calculations shall be submitted to the Engineer. ~~A trial batch of at least 2 cubic yards shall be produced from the mobile, continuous volumetric mixer prior to placement of any patches on the project. Equip each truck with a ¼ cubic yard box constructed of suitable rigid materials for calibration purposes. The trial batch shall be accomplished by the Contractor under the observation of the Engineer. Trial batches will be sampled and tested by the Engineer to determine compliance with the specifications on the mix produced from the mobile, continuous volumetric mixer for slump, air content, and compressive strength.~~

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 642
TEMPORARY POLLUTION CONTROL

642.4-GENERAL REQUIREMENTS:

ADD THE FOLLOWING TO THE SUBSECTION:

The Engineer has the authority to limit the surface area of erodible earth material exposed by clearing and grubbing, to limit the surface area of erodible earth material exposed by excavation, borrow and fill operations and to direct the Contractor to provide immediate permanent or temporary pollution control measures as necessary to prevent contamination of adjacent streams or other watercourses, lakes, ponds, or other areas of water impoundment. Such work may involve the construction of temporary berms, rock check dam, sediment structures (traps, ponds or dams), slope drains, and use of temporary mulches, mats, seeding or other control devices or methods as necessary to control erosion.

The Contractor shall incorporate all permanent erosion control features into the project at the earliest practicable time as outlined in their acceptable schedule. Temporary pollution control measures shall be used to correct conditions that develop during construction that were not foreseen during the design stage; that are needed prior to installation of permanent pollution control features, or that are needed temporarily to control erosion that develops during normal construction practices, but are not associated with permanent control features on the project.

Where erosion is likely to be a problem, clearing and grubbing operations shall be so scheduled and performed that grading operations and permanent erosion control features can follow immediately if the project conditions permit; otherwise temporary erosion control measures may be required between successive construction stages.

The Engineer will limit the area of excavation, borrow and embankment operations in progress commensurate with the Contractor's capability and progress in keeping the finish grading, mulching, seeding, and other such permanent pollution control measures current in accordance with the accepted schedule. Should seasonal limitations make such coordination unrealistic, temporary erosion control measures shall be taken immediately to the extent feasible and justified.

Unless otherwise approved in writing by the Engineer, construction operations in rivers, streams, and impoundments shall be restricted to those areas where channel changes are shown on the Plans and to those areas which must be entered for the construction of temporary or permanent structures. Rivers, streams, and impoundments shall be promptly cleared of all falsework, piling, debris or other obstructions placed or caused by the construction operations.

Excavation from any source shall not be deposited in or near rivers, streams, or impoundments or otherwise located in such a manner which might be susceptible to erosion due

to high water, flooding, or runoff.

Frequent fording of live streams with construction equipment will not be permitted; therefore, temporary bridges or other structures shall be used wherever an appreciable number of stream crossings are necessary. Unless otherwise approved in writing by the Engineer, mechanized equipment shall not be operated in live streams except as may be required to construct channel changes and temporary or permanent structures.

The location of all local material pits other than commercially operated sources, and all waste areas will be subject to the approval of the Engineer, and construction operations shall be conducted and pollution control measures implemented so that, both during and after completion of the work, erosion will not result in water pollution.

The Contractor shall, in accordance with the guidance contained in subsection 642.3, submit schedules and methods in complete consonance with the intent of this Specification to prevent water pollution to the maximum extent possible. To provide a positive guide in this area, no more than 750,000 square feet each of erodible soil shall be exposed as a result of (1) clearing and grubbing and (2) excavation, embankment, borrow or waste for a maximum cumulative total of 1,500,000 square feet without the approval of the Engineer. Approval to proceed beyond this point will be contingent upon (1) the Engineer's satisfaction, based on performance, as to the Contractor's ability to proceed with their operation and still maintain pollution control at the level contemplated by this Specification, and (2) seeding and mulching of disturbed areas at the Contractor's expense.

It is further understood that regardless of an approval such as the above or compliance with an approved schedule as set forth in subsection 642.3, the Engineer may impose whatever limitations deemed necessary to assure an operation providing for pollution control consistent with the intent of this Specification. Reimbursement for such necessary temporary control measures required to eliminate the need for such limitation will be in accordance with the pertinent sections of this Specification. There will be no additional reimbursement to the Contractor due to losses from delays, production decreases or other causes resulting from the imposition of such a limitation.

In the event of conflict between these requirements and pollution control laws, rules, or regulations of other Federal, State, or local agencies, the more restrictive shall apply.

A Dewatering Device shall be installed on a slight slope so incoming water flows downhill through the Device without creating more erosion. The neck of the Dewatering Device shall be tightly strapped to the discharge hose. The contractor may place the bag on an aggregate or hay bale bed to maximize water flow through the surface area of the bag.

The Dewatering Device is full when it no longer can efficiently filter sediment or pass water at a reasonable rate. Flow rates will vary depending on the size of the Dewatering Device, amount of sediment discharged into the Dewatering Device, the type of ground, rock, or other substance under the bag and the degree of the slope on which the bag lies. The Dewatering Device will normally accommodate flow rates of 1000 gallons per minute. Use of excessive flow rates or overfilling the Dewatering Device with sediment will cause ruptures of the bag or failure of the hose attachment straps.

Contractors, DOH Project Inspectors, Environmental Monitors, and Environmental Coordinators shall use the WVDOH Environmental Construction Inspection Form at https://transportation.wv.gov/highways/TechnicalSupport/Documents/Final%20Environmental%20Construction%20Inspection%20Form%20-%2001.16.25.pdf to document environmental inspection of construction projects. Inspection frequency shall occur in accordance with the WV/NPDES Construction Stormwater Permit. Projects less than one (1) acre should be inspected at least once every seven (7) calendar days and after every significant rain event, unless otherwise required by local laws and ordinances.

SECTION BREAK

NEW BUSINESS ITEMS

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SPECIAL PROVISION

FOR

STATE PROJECT NUMBER: _____

FEDERAL PROJECT NUMBER: _____

SECTION 697
SAFETY INSPECTION OF IN-SERVICE BRIDGES DURING CONSTRUCTION

697.1–DESCRIPTION:

The work shall consist of performing all bridge safety inspection requirements of the Federal Highway Administration's current National Bridge Inspection Standards (NBIS) for normally scheduled inspections, temporary structures, and for any structure or portion thereof that utilizes staged construction until the construction project is fully complete. The inspection team leader shall meet the minimum requirements of a team leader as specified by the NBIS, shall be approved by WVDOH Operations Division, and shall be on site during the duration of all inspection activities. Operations Division shall be notified of the times and dates that any field inspection activities will be occurring.

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 Initial~~Inventory~~ Inspection as described in the current edition of the WVDOH Bridge Inspection Manual. ~~An~~ A ~~In-Depth~~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 a~~n~~ ~~In-Depth~~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~~ Initial ~~Inventory~~ 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. A~~n~~ ~~In-Depth~~Hands-On Routine Inspection, in accordance with the WVDOH Bridge Inspection Manual, shall be performed concurrently with each ~~Inventory~~ Initial Inspection. A~~n~~ ~~Inventory~~ Initial Inspection Report and a~~n~~ ~~In-Depth~~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.

697.2–Blank

697.3–METHOD OF MEASUREMENT:

Bridge safety inspection work will be paid for per each inspection and inspection type performed for each individual bridge or construction stage.

697.4–PENALTIES FOR LATE PERFORMANCE OR NON-PERFORMANCE:

In order for West Virginia to be compliant with the National Bridge Inspection Standards (NBIS), all bridge safety inspections are required to be performed and completed within the given month and year they are due. Therefore, if an inspection is not performed and completed within the month and year it comes due, all work shall be suspended on the project and all payments withheld until the inspection has been fully completed and the complete inspection report has been delivered to the Division. In addition, liquidated damages will be assessed to the Contractor in accordance with the amounts depicted in Section 108.7, beginning with the first day of the subsequent month that the inspection was due until the inspection report is received from the Contractor. If the Division is required to perform the inspection, or hire a separate entity to perform the inspection, the Contractor shall be responsible for all costs incurred by the Department. No extensions shall apply or be applicable for any reason, regardless of extensions that might be given for other work being performed on the project.

697.5–BASIS OF PAYMENT:

Payment for the above described work, including all materials, equipment, labor, and any other incidental work necessary to complete this item, will be considered completely covered by the contract unit price for the item below.

697.6–PAY ITEM:

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~~Hands-On Routine Inspection, Each

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SPECIAL PROVISION

FOR

STATE PROJECT NUMBER: _____

FEDERAL PROJECT NUMBER: _____

ELECTRONIC SUBMISSION OF PAYROLLS AND SUBCONTRACTOR PAYMENTS

1.0-GENERAL REQUIREMENTS:

The Contractor and all subcontractors shall submit ~~all~~ certified payrolls and subcontractor payments for federally funded projects only~~, including those made to Disadvantaged Business Enterprises (DBEs),~~ using the AASHTOWare™ Project (AWP) Civil Rights and Labor (CRL) ~~system~~ module in accordance with this provision. For subcontractor payments, the term "subcontractor" shall include all vendors subject to the Required Contract Provisions Federal-Aid Construction Contracts (FHWA-1273). All subcontracting agreements made by the Contractor shall include this Special Provision.

There will be no direct payment for recording and reporting of this information. All costs associated with this provision shall be considered incidental. More information about the AWP CRL ~~system~~ module can be located at: https://www.aashtowareproject.org/index.php.

2.0-SYSTEM REQUIREMENTS:

The ~~CRL~~ AWP system is web-based. The Contractor shall ensure compatibility with the CRL ~~system~~ module as necessary to successfully execute the work. The CRL ~~system~~ module requires the ability to read, create, and edit spreadsheets in the .xlsx file format.

Contractors with new AWP accounts ~~will be~~ must contact~~ed~~ ~~by~~ the Department's Civil Rights Division after the project is awarded to begin the process for accessing the CRL ~~system~~ module for them and their subcontractors. Contractors must register for payroll access and develop a method of payroll import prior to the Pre-Construction Conference. The Department's Civil Rights ~~Compliance~~ Division will provide training for entry of certified payrolls and subcontractor payments in CRL. Detailed information can be found on the Department's Civil Rights ~~Compliance~~ Division webpage at: https://transportation.wv.gov/crc/Pages/default.aspx

Contractors shall ensure each subcontractor~~, including DBEs,~~ has registered for ~~payroll~~ AWP access and developed their method of payroll import prior to commencing work. ~~The~~ Contractors and subcontractors with new AWP accounts will be granted CRL access after submitting Request Access forms for each individual user who requires an account. Only those

firms with a contract in the system should submit the Request Access form. The software is configured so that each firm can only see their specific contract information. There will only be one single sign-on process for multiple application access within the Department.

The Department will provide access and a log-in identification (ID) for the ~~CRL~~ AWP system to designated employees of the Contractor and approved subcontractors entered into the system for the contract. The login ID and password are unique to the designated employee and must not be shared with other employees. There are no fees associated with accessing the system or receiving a login ID.

3.0-PROCEDURES:

3.1-Certified Payroll and Subcontractor Data Submission: The Contractor and all subcontractors shall use the CRL ~~system~~ module to provide the Department with electronic certified payrolls for federally funded projects only. The Contractor shall assume all responsibility for ensuring all payrolls and all subcontractor payrolls are submitted and certified electronically in CRL for each week in which any contract work is performed. If all payrolls are not received in this timeframe, the progress payment shall be withheld until all necessary payrolls have been received and approved. Electronic submittal of certified payrolls can be submitted using the following methods:

- Manually add, copy, or modify data directly into CRL;
- Import payroll data with the CRL payroll spreadsheet XML converter tool available at https://xml.cloverleaf.net/spreadsheet/;
- Convert payroll system program data to Payroll XML and import it into the CRL system. Information on how to convert to payroll program data to an XML file can be located at https://xml.cloverleaf.net/resourcekit/;
- The Contractor may send, on behalf of a subcontractor, payroll payment information based on a signed, certified paper payroll through the Electronic Proxy Payroll Process. Import payroll data with the CRL payroll spreadsheet XML converter tool available at https://xml.cloverleaf.net/spreadsheet/.

The Department's Civil Rights Compliance Division may require at any time certified paper copies of payrolls conforming to FHWA-1273 from any or all Contractors working on the project.

3.2-Subcontractor Payment Submission Requirements: The Contractor shall ~~post~~ make payment to subcontractors and post such in the CRL module~~, including DBE firms listed on their DBE plan towards meeting their contract DBE goal,~~ within fourteen (14) days after receipt of payment from the ~~Department~~ State. The Contractor shall submit, and shall require each subcontractor to provide, payment amounts relative to all involvement on the project during the life of the contract in which participation occurs and verification is available. The Contractor shall enter all payments made to all subcontractors ~~into the Payment area of CRL~~ for each estimate. The Contractor shall also require all subcontractors to review and endorse receipt of payments in CRL.

Refer to the Special Provision for Subcontractor Prompt Payment for further information regarding subcontractor payments.

The Department's Civil Rights Compliance Division may require at any time proof of payments from any or all subcontractors working on the project~~, including any information related to Contractor DBE payments~~.