

20231206 – December Specifications Committee Meeting

December Specifications Committee Meeting Agenda

Meeting Date

Wednesday, December 6, 2023 @ 9:00am

Meeting Location: 1334 Smith Street, Charleston, WV in Lower Level Conference

Also meeting virtually via Google Meet video conference. E-mail distribution message includes instruction.

2023 Standard Specification Roads and Bridges

Electronic copy (pdf): The 2023 Standard Specifications Roads & Bridges is posted on the Publications page under Specifications.

<https://transportation.wv.gov/highways/TechnicalSupport/specifications/Pages/default.aspx>

Print Version:

WVDOH Employees-contact us or stop by Technical Support

Industry-We have an order form on our webpage here:

https://transportation.wv.gov/highways/TechnicalSupport/specifications/Documents/SpecBookOrderForm_20230925.pdf

2024 Supplemental

- The 2024 Supplemental will be posted on our webpage before 1/1/24 and will be applicable on all projects let after 1/1/24.

Approved Permanent Specification changes from last Committee meeting (10/04/23)

- **401.9.9-Material Transfer Vehicle**: Adds MTV requirements to equipment subsection.
- **101.2-Definitions**: The revision updates holidays to align the State Code.
- **406-High Friction Surface Treatment**: Adds High Friction Surface Treatment (HFST).
- **606.2-Materials**: Updates references to "Concrete for Miscellaneous Use".
- **607.2-Materials**: Updates references to "Concrete for Miscellaneous Use".
- **636.24-Basis of Payment**: Updates payment of items after contract completion date.
- **709.46-Steel Posts, Post Braces and Gate Frames for Right-of-Way Fence**: Adds MP reference.

Approved Project Specific Special Provisions (SP) from last Committee meeting (10/04/23)

- SP401-Material Transfer Vehicle
- SP601-Galvanic Anode Protection
- SP601-Distributed Anode System

Items removed from Committee Agenda

- SP679-Epoxy-Urethane Overlay
- SP642-High Strength Silt Fence

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Old Business-Provisions discussed at last Committee meeting

SECTION	TITLE	DESCRIPTION
<u>636</u>	SP636-Digital Speed Limit Sign J. Adkins	3rd time to Committee; discussed in August and October. Project Specific Special Provision for Digital Speed Limit Sign on high speed, multi-lane highways, work areas. The Provision has been updated changing the proposed Supplemental Specifications to a Special Provision.
<u>101</u>	101.1-Abbreviations 401.9.7-Trucks for Transporting Mixture 707.1.1-Acceptance Requirements for Air Entraining Admixtures 708.3-Joint and Crack Sealant, Hot-Poured for Concrete and Asphalt Pavements & 708.4.1.2-Test Requirements 709.1-Steel Bars for Concrete Reinforcement 711.5.3-Approval & 711.23-Material/System Approval 715.4-Concrete Repair Materials, 715.9-Warning Devices, 715.11-Engineering Fabric, 715.14-Elastomeric Bearing Pads, & 715.40-Pavement Marking Material D. Brayack	2nd time to Committee; discussed in October. Seven specification changes to update terminology of AASHTO Product Evaluation and Audit Solutions (formerly National Transportation Product Evaluation Program - NTPEP): <ol style="list-style-type: none"> 1. 101.1-Abbreviations 2. *401.9.7-Trucks for Transporting Mixture 3. *707.1.1-Acceptance Requirements for Air Entraining Admixtures 4. 708.3-Joint and Crack Sealant, Hot-Poured for Concrete and Asphalt Pavements & 708.4.1.2-Test Requirements 5. 709.1-Steel Bars for Concrete Reinforcement 6. 711.5.3-Approval & 711.23-Material/System Approval 7. 715.4-Concrete Repair Materials, 715.9-Warning Devices, 715.11-Engineering Fabric, 715.14-Elastomeric Bearing Pads, & 715.40-Pavement Marking Material The specifications with star (*) were updated per comments at the last meeting; clarifying evaluated requirement. They are redline copy showing the revision. Approval is expected in December.

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<u>101</u>	<p>101.2-Definitions</p> <p>J. Adkins</p>	<p>2nd time to Committee; discussed in October. Specification change to Section 101-Definition of Terms. The revision is to correlate with recent Division personnel announcement.</p> <p>The specification has been updated per comments at the last meeting; adding Chief Engineer. It is redline copy.</p> <p style="color: #C85130;">Approval is expected in December.</p>
<u>106</u>	<p>106.3-Samples</p> <p>D. Brayack</p>	<p>2nd time to Committee; discussed in October. Specification change to Section 106-Control of Materials. The revision adds testing and material acceptance requirements.</p> <p>No update to the specification; it is redline copy showing the revision.</p> <p style="color: #C85130;">Approval is expected in December.</p>
<u>109</u>	<p>109.20-Weigh Tickets</p> <p>C. Harper</p>	<p>2nd time to Committee; discussed in October. Specification change to Section 109-Measure and Payment. The revision adds weigh ticket requirements.</p> <p>The specification has been updated per comments at the last meeting; it is the redline copy showing the revision.</p> <p style="color: #C85130;">Approval is expected in December.</p>
<u>402</u>	<p>402.2-Materials</p> <p>T. Ross</p>	<p>2nd time to Committee; discussed in October. Specification change to Section 402-Asphalt Skid Resistant Pavement. The revision is to make the subsection better align with recent changes to 401.2.</p> <p>No update to the specification; it is redline copy showing the revisions.</p> <p style="color: #C85130;">Approval is expected in December.</p>
<u>601</u>	<p>601.3.2.4.1-Optimized Aggregate Gradation</p>	<p>2nd time to Committee; discussed in October. Specification change to Section 601-Structural Concrete. The revision, revises error to 200 sieve and eliminate error with note 1 of Table 601.3.2.4.1B.</p>

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	A. Gillispie	<p>No update to the specification; it is redline copy showing the revisions.</p> <p style="color: #A52A2A;">Approval is expected in December.</p>
<u>625</u>	<p>Section 625-Rock Socketed Drill Shaft</p> <p>M. Nettleton</p>	<p>2nd time to Committee; discussed in October. Specification change to Section 625-Rock Socketed Drill Shaft. The revision moves testing requirements responsibility to the contractor.</p> <p>Specification is updated adding pay item, method of measurement, and basis of payment criteria. Prior subsections updated and is the redline copy showing the revisions.</p> <p style="color: #A52A2A;">Approval is expected in December.</p>
<u>703</u>	<p>703.1.5.2-Dolomite Limestone</p> <p>T. Ross</p>	<p>2nd time to Committee; discussed in October. Specification change to Section 703-Coarse Aggregate. The revision clarifies that either ASTM test for elemental magnesium can be performed.</p> <p>No update to the specification; it is redline copy showing the revisions.</p> <p style="color: #A52A2A;">Approval is expected in December.</p>
<u>707</u>	<p>707.2.2-Performance Requirements for Concrete Retarders</p> <p>J. Adkins</p>	<p>2nd time to Committee; discussed in October. Specification change to Section 707-Concrete Admixtures, Curing and Coating Materials. The revision deletes a duplicated paragraph.</p> <p>No update to the specification; it is redline copy showing the revisions.</p> <p style="color: #A52A2A;">Approval is expected in December.</p>
<u>715</u>	<p>715.9.6.1-Product Submission and Approval</p> <p>D. Brayack</p>	<p>2nd time to Committee; discussed in October. Specification change to Section 715-Miscellaneous Materials. The revision adds MP reference.</p> <p>No update to the specification; it is redline copy showing the revisions.</p> <p style="color: #A52A2A;">Approval is expected in December.</p>

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<u>900</u>	<p>SP900-Railroad</p> <p>Chris Kinsey, Mott MacDonald</p>	<p>2nd time to Committee; discussed in October. Project Specific Special Provision for replacement of various railroad elements.</p> <p>Provision has been updated per comments at the last meeting.</p> <p style="color: #A52A2A;">Approval is expected in December.</p>
<u>106</u>	<p>106.1-Source of Supply and Quality Requirements (Buy America)</p> <p>Steve Boggs</p>	<p>2nd time to the Committee; Discussed in October</p> <p>Specification Change to Section 106 Control of Materials. Provision updated to correlate with new Federal requirements.</p> <p>The specification is the redline copy showing the revision.</p> <p style="color: #A52A2A;">Approval is expected in December.</p>

New Business - New Provisions for Spec Committee

SECTION	TITLE	DESCRIPTION
<u>601</u>	<p>601.11.4.4.1- Transverse Grooving</p> <p>A. Gillispie</p>	<p>1st time to Committee. Specification change to Section 601-Structural Concrete. The revision updates the transverse grooving (width, depth, and spacing tolerance) specification to align with the International Grooving & Grinding (IGGA) recommendation similar to surrounding states.</p> <p>The specification is redline copy showing the revision.</p>
<u>679</u>	<p>679.5.2.1-Transverse Grooving</p> <p>A. Gillispie</p>	<p>1st time to Committee. Specification change to Section 679-Overlaying of Portland Cement Concrete Bridge Decks. The revision updates the transverse grooving (width, depth, and spacing tolerance) specification to align with the International Grooving & Grinding (IGGA) recommendation similar to surrounding states.</p> <p>The specification is redline copy showing the revision.</p>

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<p><u>688</u></p>	<p>688.6.2.1-“Spent Material”</p> <p>E. Gardner</p>	<p>1st time to Committee. Specification change to Section 688-Field Painting of Metal Structures. The revision updates the laboratory certification requirement for testing “spent materials”; only requiring a certified WVDEP Laboratory.</p> <p>The specification is redline copy showing the revision.</p>
<p><u>712</u></p>	<p>712.4- Galvanized Steel Deep Beam Guardrail, Fasteners And Anchor Bolts</p> <p>G. Hanna</p>	<p>1st time to Committee. Specification change to Section 712-Guardrail and Fence. The revision adds the MP Reference and AASHTO Product Evaluation and Audit Solutions.</p> <p>The specification is redline copy showing the revision.</p>
<p><u>715</u></p>	<p>715.5-Packaged Dry, Hydraulic Cement Grout (Non-Shrink)</p> <p>A. Gillispie</p>	<p>1st time to Committee. Specification change to Section 715-Miscellaneous Materials. The revision adds a statement about test data from an independent AASHTO accredited lab.</p> <p>The specification is redline copy showing the revision.</p>
<p><u>720</u></p>	<p>720.3.2-Quality Assurance (QA) Testing</p> <p>V. Allison</p>	<p>1st time to Committee. Specification change to Section 720-Smoothness Testing. The revision updates the turnaround time for testing</p> <p>The specification is redline copy showing the revision.</p>

2024 Specifications Committee

The Specification Committee typically meet every other month; on the first Wednesday at 9:00am. 2024 meetings will be held in **February (2/7), April (4/3), June (6/5), August (8/8), October (10/2), and December (12/4).**

Calendar subject to change, updates will be given, as needed.

Deadline for new items & updates to these provisions is **January 6, 2024.**

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/modify them in a timely manner per comments and discussion in Spec Committee. *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 to either: Steve.D.Boggs@wv.gov
janie.k.matics@wv.gov

20231206 – December Specifications Committee Meeting

File Format Structure and Progression of items thru 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 thru 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. **Project Specific Special Provisions (SP)** – Are applied to specifically designated projects.
3. **Updates to previously approved SP** – Changes/edits/updated to SP that have been approved by spec committee.

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 or you can manually redline document with font color changes & strike-through.

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:

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.
- SP's in committee may be used in advertised project. Hope to work to address comments & finish approving at subsequent meeting.

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WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SPECIAL PROVISION

FOR

STATE PROJECT NUMBER: _____

FEDERAL PROJECT NUMBER: _____

**SECTION 636
MAINTAINING TRAFFIC**

636.19-PORTABLE MESSAGE SIGNS:

ADD THE FOLLOWING SUBSECTION:

636.19.3.3-Digital Speed Limit Sign: A Digital Speed Limit (DSL) Sign shall conform to the general requirements of 636.19. DSL shall only be used for work zones for High-Speed (≥ 55 mph) Multi-Lane Highways. The exact placement and any relocations of a DSL will be as directed by the Engineer.

Unless otherwise directed by the Engineer, the work zone speed limit referenced in the plans, shall be displayed on the DSL when workers are present. However, when workers are not present in the work zone, the design speed shall be based on the original posted speed limit or the warranted speed limit reduction for when workers are not present. The digital display legends and Speed Limit Sign Beacons on the DSL Sign Assemblies shall not be automatically changed/activated/deactivated using a pre-programmed schedule.

The Speed Limit Sign Beacons shall be in the alternating flashing mode (Activated) only when workers are present within the warranted work zone condition. All other times, the Speed Limit Sign Beacons shall not be flashing (Deactivated). Activate the Speed Limit Sign Beacons no earlier than 30 minutes before workers arrive in the warranted work zone condition and deactivate no later than 30 minutes after workers depart the warranted work zone condition. Change the digital display legend on the DSL Sign Assembly to the warranted speed limit no earlier than 30 minutes before workers arrive and no later than 30 minutes after workers depart from a warranted work zone condition. From the time of initial installation through the final removal, all activations and deactivations of the Speed Limit Sign Beacons, as well as all changes in the speed limit on the digital display legends of each DSL Sign Assembly, shall be logged at the time of occurrence. At any time, all or part of the logged time of occurrence may be requested by the Engineer or local law

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enforcement. Upon request, provide the log time of occurrence information to the Engineer within 1 working day.

636.23-METHOD OF MEASUREMENT:

636.23.22-Portable Message Signs:

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

636.23.22-Portable Message Signs:

636.23.22.1- Changeable Message Sign: The quantity of “Changeable Message Sign” shall be the actual number of days that the sign is used on the project.

636.23.22.2- Speed Motoring Trailer: The quantity of “Speed Motoring Trailer” shall be the actual number of days that the sign is used on the project.

636.23.22.3- Digital Speed Limit Sign: The quantity of “Digital Speed Limit Sign” shall be the actual number of days that the sign is used on the project.

636.25-PAY ITEMS:

ADD THE ITEM TO THE TABLE:

ITEM	DESCRIPTION	UNIT
636031-*	Digital Speed Limit Sign	Day

August 22, 2023

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 101

DEFINITION OF TERMS

101.1-ABBREVIATIONS:

DELETE NTPEP FROM THE SUBSECTION:

~~NTPEP — National Transportation Product Evaluation Program~~

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 401

ASPHALT BASE, WEARING, AND
PATCHING AND LEVELING COURSES

401.9-EQUIPMENT:

401.9.7-Trucks for Transporting Mixture:

DELETE THE CONTENTS OF THE FIRST PARAGRAPH IN THE SUBSECTION AND REPLACE WITH THE FOLLOWING:

The inside surfaces of trucks shall be thinly coated with a ~~National Transportation~~ AASHTO Product Evaluation ~~Program (NTPEP) approved and Audit Solutions evaluated~~ asphalt release agent. The use of diesel fuel, kerosene, or similar solvent-based products which can dissolve the asphalt film from the aggregate particles will not be permitted. Any commercial release agent which can be certified by ~~NTPEP -the AASHTO Product Evaluation and Audit Solutions~~ Producer/Supplier as harmless to the mix may be used; however, the Division reserves the right to restrict any release agent that is shown to cause problems during placement of the mix. In the case of mixtures composed of PG Binders which contain polymer modification, truck surfaces should be coated with a release agent recommended by the binder supplier. All excess coating material shall be removed from the truck bed prior to loading the asphalt.

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
SUPPLEMENTAL SPECIFICATION
FOR
SECTION 707
CONCRETE ADMIXTURES, CURING AND COATING MATERIALS

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707.1-AIR ENTRAINING ADMIXTURES FOR CONCRETE:

707.1.1-Acceptance Requirements for Air Entraining Admixtures:

707.1.1.1-

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

In the event that the Contractor elects to use an air-entraining admixture, evidence based on ~~testing-evaluation~~ by ~~NTPEP (National Transportation Product Evaluation Program)~~ AASHTO Product Evaluation and Audit Solutions shall be submitted to the Division to show that the material conforms to the requirements of AASHTO M 154. Tests for bleeding, bond strength and volume change will not be required unless specifically called for in the Plans.

707.2-WATER-REDUCING AND RETARDING ADMIXTURES FOR CONCRETE:

707.2.1-Acceptance Requirements for Approval of Retarders:

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

Water reducing and retarding admixtures for concrete shall be ~~tested-evaluated~~ by ~~NTPEP (National Transportation Product Evaluation Program)~~ AASHTO Product Evaluation and Audit Solutions. The ~~NTPEP testing test~~ results shall meet the requirements of AASHTO M 194, Type D or Type G.

707.3-WATER-REDUCING ADMIXTURES FOR CONCRETE:

707.3.1-Acceptance Requirements for Approval of Water Reducers:

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

Water-reducing admixtures for concrete shall be ~~tested-evaluated~~ by ~~NTPEP (National Transportation Product Evaluation Program)~~ AASHTO Product Evaluation and Audit Solutions. The ~~NTPEP testing test~~ results shall meet the requirements of AASHTO M 194, Type A or Type F.

707.9-LIQUID MEMBRANE-FORMING COMPOUNDS FOR CURING CONCRETE:

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

Curing compounds shall conform to the requirements of ASTM C309, Type 2, Class A-
~~All curing compound and~~ must be ~~tested-evaluated~~ by ~~NTPEP AASHTO Product Evaluation and Audit Solutions~~ and shown to meet the specification listed in the paragraph above.

707.13-ACCELERATING ADMIXTURES FOR CONCRETE:

707.13.1-Acceptance Requirements for Approval of Accelerators:

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

Accelerating admixtures for concrete shall be non-chloride and shall be ~~tested-evaluated~~ by ~~NTPEP (National Transportation Product Evaluation Program)~~ AASHTO Product Evaluation and Audit Solutions. The ~~NTPEP testing test~~ results shall meet the requirements of AASHTO M 194, Type C.

707.14-WATER-REDUCING AND ACCELERATING ADMIXTURES FOR CONCRETE:

707.14.1-Acceptance Requirements for Approval of Water-Reducing and Accelerating Admixtures:

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

Water-reducing and accelerating admixtures for concrete shall be ~~tested-evaluated~~ by ~~NTPEP (National Transportation Product Evaluation Program)~~ AASHTO Product Evaluation and Audit Solutions. The ~~NTPEP testing test~~ results shall meet the requirements of AASHTO M 194, Type E.

707.15-HYDRATION CONTROL STABILIZING ADMIXTURES FOR CONCRETE:

707.15.1-Acceptance Requirements for Approval of Hydration Control Stabilizing Admixtures:

DELETE THE CONTENTS OF THE SUBSECTION AND REPLACE WITH THE

FOLLOWING:

Water-reducing and accelerating admixtures for concrete shall be ~~tested~~ evaluated by ~~NTPEP (National Transportation Product Evaluation Program)~~ AASHTO Product Evaluation and Audit Solutions. The ~~NTPEP testing test~~ results shall meet the requirements of AASHTO M 194, Type B or D.

707.17- SPECIFIC PERFORMANCE ADMIXTURES FOR CONCRETE:

707.17.1-Acceptance Requirements for Approval of Specific Performance Admixtures:

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

Specific performance admixtures for concrete shall be ~~tested~~ evaluated by ~~NTPEP (National Transportation Product Evaluation Program)~~ AASHTO Product Evaluation and Audit Solutions. The ~~NTPEP testing test~~ results shall meet the requirements of AASHTO M 194, Type S.

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

**SECTION 708
JOINT MATERIALS**

708.3-JOINT AND CRACK SEALANT, HOT-POURED FOR CONCRETE AND ASPHALT PAVEMENTS:

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

This material shall meet the requirements of ASTM D6690, and shall be evaluated by AASHTO ~~National Transportation~~ Product Evaluation and Audit Solutions ~~Program (NTPEP)~~. Unless otherwise specified, Type II sealant shall be used.

708.4-SILICONE JOINT SEALANT; JOINT BACK-UP MATERIAL:

708.4.1-Silicone Joint Sealant:

708.4.1.2-Test Requirements:

DELETE THE CONTENTS OF THE FIRST PARAGRAPH IN SUBSECTION AND REPLACE WITH THE FOLLOWING:

The sealant shall meet the following requirements; and shall be evaluated by AASHTO ~~National Transportation~~ Product Evaluation and Audit Solutions ~~Program (NTPEP)~~.

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 709

METALS

709.1-STEEL BARS FOR CONCRETE REINFORCEMENT:

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

All plain and deformed bar reinforcement shall meet the requirements of AASHTO M31. The manufacturer shall also be actively an active member compliant in the ~~National Transportation Product Evaluation Program (NTPEP)~~ AASHTO Product Evaluation and Audit Solutions program as well as conform to the requirements of MP 709.01.55.

709.1.2-High Chromium Steel Bars for Concrete Reinforcement:

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

For corrosion resistant high chromium steel, the material shall meet testing requirements of tensile, yield, elongation, and bend requirements listed in ASTM A1035 and meet requirements set forth in MP 709.01.50 unless otherwise stated in the project plans.

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 711

PROTECTIVE COATINGS, STAINS, AND TRAFFIC PAINTS

711.5-CONCRETE PROTECTIVE COATINGS AND STAIN:

711.5.3-Approval:

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

For approval of concrete coatings, the manufacturer shall submit copies of certified test reports to the Materials Control, Soils and Testing (MCS&T) Division for review and approval. An independent testing laboratory acceptable to the Division shall perform the tests described herein on representative samples of the material. Tests listed herein are the minimum testing requirements to be met. Attach copies of test procedures which differ from those stated herein. In addition, provide brochures or booklets containing detailed instructions and explanatory remarks about surface preparation, application procedures, and operations. The Division may also choose materials ~~tested-evaluated~~ by the ~~National Transportation Product Evaluation Program (NTPEP)~~ AASHTO Product Evaluation and Audit Solutions and/or the North East Protective Coating Committee (NEPCOAT) to be placed on the approved source list.

711.23-MATERIAL/SYSTEM APPROVAL:

711.23.1-

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

The Division will develop an approved list of products meeting this specification. This list will be placed on the Division's website. The list may be based upon previous testing performed by the Division, or the Division may choose ~~materials from the National Transportation Product Evaluation Program (NTPEP) evaluated by~~ AASHTO Product Evaluation and Audit Solutions and/or the North East Protective Coating Committee (NEPCOAT) tested materials. Upon approval by the Division, further testing may not be required. The Division may request random samples to assure compliance with specification requirements.

Any materials not previously tested and or evaluted by MCS&T Division, ~~NTPEP~~ AASHTO Product Evaluation and Audit Solutions, or NEPCOAT shall be submitted for evaluation and approval testing. Paints and coatings submitted for approval testing shall be furnished to the MCS&T Division in appropriate containers not holding more than one gallon of material. Each component shall be labeled appropriately, and the following information shall be provided with the sample:

- i. Name and address of Manufacturer
- ii. Trade Name or ~~Trade Mark~~ Trademark
- iii. Type of Paint
- iv. Lot or Batch number
- v. Date of manufacturing
- vi. All SDS/PDS information pertaining to the material
- vii. Reference to the Division's Standard Specifications
- viii. One (1) one-gallon kit of product/thinner

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 715
MISCELLANEOUS MATERIALS

715.4-CONCRETE REPAIR MATERIALS:

715.4.1-Cementitious and Polymer-Modified Materials for Concrete Repairs:

DELETE THE CONTENTS OF THE FIRST PARAGRAPH IN THE SUBSECTION AND REPLACE WITH THE FOLLOWING:

Material to be used in concrete repair applications shall be ~~tested~~evaluated through AASHTO's ~~National Transportation Product Evaluation and Audit Solutions Program (NTPEP)~~ and meet the requirements in Table 715.4.1. In addition, ~~they must remain current with NTPEP's~~their audit status must remain active with the AASHTO Product Evaluation and Audit Solutions policy regarding periodic re-testing as required by the program. Product submittals shall include: a completed Form HL-468 (available on the WVDOH Materials Division Web Page), a copy of the technical data sheet, the current Material Safety Data Sheet (MSDS), and the results of ~~NTPEP AASHTO Product Evaluation and Audit Solutions testing~~evaluation. Any incomplete submittals will not be evaluated for inclusion on WVDOH approved list of concrete patching Materials.

715.4.2-Polymer Concrete Materials for Concrete Repairs:

DELETE THE CONTENTS OF THE FIRST PARAGRAPH IN THE SUBSECTION AND REPLACE WITH THE FOLLOWING:

A Polymer Product is a composite material formed by polymerization of a monomer and an aggregate mixture, in which the polymerized monomer acts as the sole binder for the aggregate. Polymer concrete uses a polymer binder in place of Portland cement. These materials are required to be ~~tested~~evaluated through AASHTO's ~~National Transportation Product Evaluation and Audit Solutions Program (NTPEP)~~ and meet the requirements in Table 715.4.2. In addition, ~~they must remain current with NTPEP's~~their audit status must remain active with~~NTPEP's~~ AASHTO Product Evaluation and Audit Solutions policy regarding periodic re-testing as required by the program. Product submittals shall include: a completed Form HL-468 (available on the WVDOH Materials Division Web Page), a copy of the technical data sheet, the current Material Safety Data Sheet (MSDS), and the results of ~~NTPEP AASHTO~~

Product Evaluation and Audit Solutions testing evaluation. Any incomplete submittals will not be evaluated for inclusion on WVDOH approved list of patching Materials.

715.9-WARNING DEVICES:

715.9.2-Signs:

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

All references herein to ASTM specification D4956 shall be interpreted as referencing version D4956–11a. Any portion of this specification which is in contradiction to ASTM D4956 shall supersede ASTM D4956. All references herein to AASHTO specification M268 shall be interpreted as referencing version M 268-10. Any portion of this specification which is in contradiction to AASHTO M 268 shall supersede AASHTO M 268. ~~All AASHTO NTPEP references herein shall be interpreted as referring to the AASHTO National Transportation Product Evaluation Program (NTPEP).~~ All retroreflectivity values referenced herein shall be in units of cd/fc/ft². All “matched component” references herein shall be interpreted as referencing the retroreflective sheeting manufacturer’s recommended inks and overlay films to be used for manufacturing purposes with the manufacturer’s sheeting. All APL references herein shall be interpreted as referring to the Division’s Approved Products List (APL) for Retroreflective Sheeting. All CSS references herein shall be interpreted as referring to the Division’s Central Sign Shop (CSS) internal sign manufacturing facility in Charleston, WV.

715.9.2.9-Approval Processes:

715.9.2.9.1-Retroreflective Sheeting Materials & Matched Components

715.9.2.9.1.1-Independent Test Results:

DELETE THE CONTENTS OF THE FIRST PARAGRAPH IN THE SUBSECTION AND REPLACE WITH THE FOLLOWING:

In order for the material to be evaluated and considered for approval, independent test results must be supplied by the manufacturer demonstrating the sheeting material’s conformance with the requirements specified within the applicable Section 715.9.2.1, 715.9.2.2, 715.9.2.3, or 715.9.2.4, with the exception of the requirements specified in the “Shelf Life”, “Backing Class”, and “Durability” subsections. The independent test results shall include accelerated outdoor weathering test results conducted in conformance with ASTM D4956. Artificial accelerated lab weathering shall not be accepted except for materials intended for work zone applications. Materials intended for work zone applications shall include all Type ASTM-VI materials and shall include, but may not be limited to, other “Type” materials intended for use on plastic posts, tubes, barricades, drums, cones, and channelizer cones, including “permanently” installed plastic posts and tubes. However, any approval granted based on the results of artificial accelerated lab weathering shall be provisional in nature and noted as such on the APL. As a condition of the acceptance of artificial accelerated lab weathering results in lieu of accelerated outdoor weathering results, the accelerated outdoor weathering process shall be ongoing at the time

of issuance of the provisional approval. In addition, the material manufacturer shall submit the standard outdoor weathering test results to the WVDOH within nine (9) months after the effective date of the provisional approval for Type 852 ASTM- VI materials, and within fifteen (15) months after the effective date of the provisional approval for all other material “Types”. AASHTO Product Evaluation and Audit Solutions-NTPEP results shall be considered acceptable for meeting the accelerated outdoor weathering test results requirement.

715.9.3-Channelizing Devices:

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

Devices which are included as part of the AASHTO ~~National Transportation~~-Product Evaluation and Audit Solutions-Program (AASHTO-NTPEP), and for which an APL is maintained, shall be ~~tested~~-evaluated as part of the AASHTO Product Evaluation and Audit Solutions-NTPEP in order to be considered for approval.

715.9.3.9-Product Submission and Approval:

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

The manufacturer should include all relevant documentation and information, including but not limited to product data sheets, product flyers, manufacturer product specifications and recommendations, product bulletins, engineering drawings, AASHTO Product Evaluation and Audit Solutions-NTPEP ~~test~~ results, and crash testing performance documentation.

715.11-ENGINEERING FABRIC:

715.11.2-Acceptance:

DELETE THE CONTENTS OF THE FIRST PARAGRAPH IN THE SUBSECTION AND REPLACE WITH THE FOLLOWING:

All engineering fabric shall be approved before use. ~~NTPEP-AASHTO Product Evaluation and Audit Solutions~~ ~~test~~ data shall be furnished for the engineering fabric to be approved. The ~~test~~ data must be for the current 3-year cycle for the manufacturer or private labeler providing the material. The engineering fabric shall have a manufacture date within the current three-year-~~NTPEP AASHTO Product Evaluation and Audit Solutions~~ evaluation cycle of the manufacturer’s, or private labeler’s facility providing the material. The manufacturer or private labeler must be listed as ~~NTPEP AASHTO Product Evaluation and Audit Solutions~~ compliant for the current calendar year or be listed as compliant for the previous calendar year and have an application for audit during the current year.

DRAFT

715.14-ELASTOMERIC BEARING PADS:

715.14.2-Approval for Bearing Pads Without Shims:

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

~~Beginning January 1, 2024~~ **B**earing pads that do not include shims or internal stiffeners will only be accepted using ~~NTPEP AASHTO Product Evaluation and Audit Solutions~~ test results and a certificate of compliance ~~from NTPEP~~.

~~Prior to January 1, 2024 the WVDOH will accept NTPEP test results and a certificate of compliance from NTPEP for approval of bearing pads without shims or internal stiffeners, or a company without NTPEP test results and a certificate of compliance from NTPEP can still submit bearing pads for acceptance testing using 715.14 and 715.14.1 until December 31, 2023.~~

715.40-PAVEMENT MARKING MATERIAL:

715.40.2-Preformed Intersection Traffic Markings (Type V Material):

715.40.2.3-Approved Products Listing:

DELETE THE FIRST PARAGRAPH OF THE SUBSECTION AND REPLACE WITH THE FOLLOWING:

Material approvals are based on results from AASHTO Product Evaluation and Audit Solutions's ~~NTPEP testing evaluation~~ program and/or WVDOH field evaluation tests. Approvals may also be granted or rescinded based on actual performance on WVDOH projects. A list of approved materials, code numbers, and approved Contractor personnel may be obtained by contacting:

715.40.4-Temporary Pavement Marking Tape (Types VIIB and VIIC):

715.40.4.2-Temporary Pavement Markings (Type VIIB):

715.40.4.2.1-Requirements:

DELETE THE FIRST PARAGRAPH IN BULLET xi OF THE SUBSECTION AND REPLACE WITH THE FOLLOWING:

- xi. **Approved Products Listing (APL):** Approvals are based on results from AASHTO's Product Evaluation and Audit Solutions ~~NTPEP testing evaluation~~ program and/or WVDOH field evaluation tests. Approvals may also be granted or rescinded based on actual performance on WVDOH projects. A list of approved suppliers and their code numbers may be obtained by contacting:

715.40.4-Temporary Pavement Marking Tape (Types VIIB and VIIC):

715.40.4.3-Temporary Pavement Markings (Type VIIC):

715.40.4.3.1-Requirements:

DELETE THE FIRST PARAGRAPH IN BULLET xii OF THE SUBSECTION AND REPLACE WITH THE FOLLOWING:

- xii. Approved Products Listing (APL): Approvals are based on results from AASHTO's ~~Product Evaluation and Audit Solutions-NTPEP~~ testing-evaluation program and/or WVDOH field evaluation tests. Approvals may also be granted or rescinded based on actual performance on WVDOH projects. A list of approved suppliers and their code numbers may be obtained by contacting:

715.40.6-Raised Pavement Markers (RPM's):

715.40.6.1-Type P-2 Markers:

715.40.6.1.1-Casting Requirements:

DELETE THE FIRST PARAGRAPH IN BULLET j OF THE SUBSECTION AND REPLACE WITH THE FOLLOWING:

Castings shall have fully completed testing-evaluation on the ~~American Association of State and Highway Transportation Officials National Transportation Product Evaluation Program (AASHTO-NTPEP)~~ AASHTO Product Evaluation and Audit Solutions test deck in a location having a similar climate to West Virginia. Upon review, the performance of the castings on the test deck shall meet or exceed the historical performance of other industry standard castings approved by the WVDOH. This determination shall be made solely by the WVDOH.

715.40.6-Raised Pavement Markers (RPM's):

715.40.6.1-Type P-2 Markers:

715.40.6.1.2-Lens Requirements:

DELETE THE FIRST PARAGRAPH IN BULLET m OF THE SUBSECTION AND REPLACE WITH THE FOLLOWING:

Lenses shall have fully completed testing-evaluation on the ~~American Association of State and Highway Transportation Officials National Transportation Product Evaluation Program (AASHTO-NTPEP)~~ AASHTO Product Evaluation and Audit Solutions test deck in a location having ~~s~~a similar climate to West Virginia. Upon review, the performance of the lenses on the test deck shall meet or exceed the historical performance of other industry standard lenses approved by the WVDOH. This determination shall be made solely by the WVDOH.

715.40.6-Raised Pavement Markers (RPM's):

715.40.6.1-Type P-2 Markers:

715.40.6.1.4-Product Submission and Approval:

DELETE THE CONTENTS OF SUBSECTION AND REPLACE WITH THE FOLLOWING:

Type P-2 marker castings and/or lenses to be considered for inclusion on the WVDOH

Approved Products List (APL) shall be submitted to the Materials Division following the current procedures specified by the Materials Division. The manufacturer may contact the Traffic Engineering Division for verification. The manufacturer should include all relevant documentation and information with this form, including but not limited to Product Data Sheets, Product Flyers, Manufacturer Product Specifications, Product Bulletins, Engineering Drawings, AASHTO Product Evaluation and Audit Solutions -NTPEP test results, and the independent testing facility test results described herein.

In addition to the above, the WVDOH may also require that the casting and/or lens product(s) submitted for evaluation be field tested in one or more locations in West Virginia in order to validate the acceptable performance of the product(s). This field testing shall typically be a minimum of six months to one year in duration including a full winter season. Specific details related to this testing, such as locations and quantities, shall be determined by the WVDOH.

All submitted information will be forwarded to the WVDOH Traffic Engineering Division, which will in turn contact and work directly with the manufacturer during the evaluation process. The Traffic Engineering Division will evaluate all submitted literature and documentation for compliance with the specified requirements as well as satisfactory performance on the AASHTO Product Evaluation and Audit Solutions -NTPEP test deck. The Traffic Engineering Division may also arrange for the manufacturer to furnish test samples and arrange for the product to be installed for field testing as previously described. After the evaluation is complete, the Traffic Engineering Division will inform the Materials Division in writing of the outcome of its evaluation.

715.40.6-Raised Pavement Markers (RPM's):

715.40.6.2-Type R-4 Markers:

DELETE THE FIRST PARAGRAPH IN BULLET q OF THE SUBSECTION AND REPLACE WITH THE FOLLOWING:

- q. The markers shall have fully completed ~~testing~~ evaluation on the ~~American Association of State and Highway Transportation Officials National Transportation Product Evaluation Program (AASHTO NTPEP)~~ AASHTO Product Evaluation and Audit Solutions test deck. Upon review, the performance of the markers on the test deck shall meet or exceed the historical performance of other industry standard Type R-4 markers approved by the WVDOH. This determination shall be made solely by the WVDOH.

715.40.6-Raised Pavement Markers (RPM's):

715.40.6.2-Type R-4 Markers:

715.40.6.2.2-Product Submission and Approval:

DELETE THE CONTENTS OF SUBSECTION AND REPLACE WITH THE FOLLOWING:

Type R-4 markers to be considered for inclusion on the WVDOH Approved Products List (APL) shall be submitted to the Materials Division following the current procedures specified by the Materials Division. The manufacturer may contact the Traffic Engineering

Division for verification. The manufacturer should include all relevant documentation and information with this form, including but not limited to Product Data Sheets, Product Flyers, Manufacturer Product Specifications, Product Bulletins, Engineering Drawings, AASHTO Product Evaluation and Audit Solutions ~~-NTPEP test~~ results, and the independent testing facility test results described herein.

In addition to the above, the WVDOH may also require that the markers submitted for evaluation be field tested in one or more locations in West Virginia in order to validate the acceptable performance of the product(s). This field testing shall typically be a minimum of six months to one year in duration including a full winter season. Specific details related to this testing, such as locations and quantities, shall be determined by the WVDOH.

All submitted information will be forwarded to the WVDOH Traffic Engineering Division, which will in turn contact and work directly with the manufacturer during the evaluation process. The Traffic Engineering Division will evaluate all submitted literature and documentation for compliance with the specified requirements as well as satisfactory performance on the AASHTO Product Evaluation and Audit Solutions ~~-NTPEP~~ test deck. The Traffic Engineering Division may also arrange for the manufacturer to furnish test samples and arrange for the product to be installed for field testing as previously described. After the evaluation is complete, the Traffic Engineering Division will inform the Materials Division in writing of the outcome of its evaluation.

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 101
DEFINITION OF TERMS

101.2-DEFINITIONS:

DELETE AND REPLACE THE DEFINITION OF ENGINEER IN THE SUBSECTION WITH THE FOLLOWING:

~~**Engineer**-The State Highway Engineer of the Division, or an authorized representative, limited by the scope of duties assigned.~~

Engineer-The Chief Engineer, assigned by the Commissioner, or a designated representative, who acts within the scope of particular duties or authority given to them by West Virginia State Code, the Commissioner, these Specifications, or the Contract Documents.

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION**DIVISION OF HIGHWAYS****SUPPLEMENTAL SPECIFICATION****FOR****SECTION 106
CONTROL OF MATERIALS****106.3-SAMPLES:**

ADD THE FOLLOWING CONTENTS TO THE SECTION:

All materials will be inspected, tested and approved prior to incorporation into the work. Any work which incorporates materials prior to the above evaluation shall be performed at the Contractor's risk, and may subsequently be considered as unacceptable. Unless otherwise specified, the materials shall meet the applicable Standard or Interim Specifications of the American Association of State Highway and Transportation Officials (AASHTO), the Standard or Tentative Specifications of the American Society for Testing and Materials (ASTM), or Standards adopted by other specifying agencies, with preference given in the same order in which the above agencies are listed. The specification which is current at the time of advertisement for bids shall govern, except that, with the approval of the Engineer, subsequent revisions or adoptions may govern. All materials being used are subject to inspection, testing or rejection at any time prior to final acceptance of the completed work.

The Contractor shall be responsible for the quality of construction and materials incorporated. When called for in the Specifications and/or Materials Procedure, the Contractor shall perform all necessary process control inspection, sampling and testing. All materials will be approved for acceptance through the Division's acceptance procedures. The Division has the exclusive right and responsibility for determining the acceptability of the construction and materials incorporated. The Division may use the results of the Contractor's inspection, sampling and testing for acceptance purposes.

Tests shall not be considered complete until they are submitted by the Contractor to the Division. The submission of test results shall be provided in a timely manner as specified in MP 109.00.21. Failure to submit test results by the established guideline will result in a price penalty assessed based on MP 109.00.21.

The Contractor may submit for acceptance, materials that appear on the Division Approved Source/Product Listing (APL). These submissions shall include a clear and legible invoice from the manufacturer and contain the product's approved lab number. Products that are not on the approved product list may be used on projects as long as these products meet the requirements for that material. Prospective new products for the approved product list shall follow the guidelines of MP 106.00.02. and MP 106.00.03.

Lot or subplot sizes will normally be designated. In the event that operational conditions cause work to be interrupted, or only partially completed before the lot size designated has been achieved, the lot or subplot may be redefined by the Engineer as being either the amount of work accomplished within the day or that work partially completed combined with the next lot or subplot of work. It is the intent of these Specifications that the number of samples required to evaluate each lot or subplot will be unchanged even when the lot or subplot is redefined.

When an acceptance plan is cited, it shall be in accordance with 106.3.1.

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 109

MEASUREMENT AND PAYMENT

109.20-WEIGH TICKETS:

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

The Allowable Gross Weight for any vehicle being used to haul materials on publicly maintained highways under the terms of this contract shall be as follows.

Title 23 Code of Federal Regulations, Section 658.17, establishes maximum allowable gross weight on the Interstate System. The maximum allowable gross weight on WV and US Routes will be as established in Chapter 17C, Articles 17 and 17A of the Official Code of West Virginia, as amended. The Public Service Commission, Weight Enforcement Section is responsible for the enforcement of these provisions.

A weigh ticket shall be required with each load of material from a commercial source which would normally have truck scales. This includes, but is not limited to, all asphalt paving materials and all aggregates regardless of the contract pay unit. The weigh ticket shall include gross, tare, and net weights, time and date of loading, Item Number and Description of Materials, ~~Contract Number or~~ Project Number, **Contract ID, Line number, Source (AWP Facility code)**, number of axles on haul unit, license number of haul unit, and signature of the weigher certifying that all information on the ticket is correct, **All asphalt will require the Target Density and Plant test lab numbers, All concrete items will require the concrete mix design, cement factor, and batch weights.** If the weigher's name is printed by the computer on the ticket, then it only needs to be initialed by the weigher.

For material from a commercial source or a batch plant, which would not normally have truck scales, a weigh ticket documenting the tare weight, number of axles on the haul unit, license number of haul unit, date weighed, location of scales, and signature of the weigher certifying that all information on the ticket is correct, may be supplied for each haul unit as an alternate to the ticket required in the previous paragraph. The tare weight ticket shall be supplied for each contract on a yearly basis and when modifications are made to the vehicle or combination of vehicles. The weight of the material delivered shall be calculated and furnished by the vendor/supplier shipping the material to the project site or DOH facility. This includes, but is not limited to, concrete, structural steel, piling, reinforcing steel and all prepackaged material of known weight, such as cement, grout, fertilizer, lime, abrasives, etc.

If the haul unit is a combination of vehicles, the license number shall be supplied for each component. The tare weight shall be for the complete haul unit.

All weighing shall be done on scales approved and sealed by the West Virginia Division of Labor, Bureau of Weights and Measures. If the scales are moved or upon the request of the Engineer, the scales shall be reapproved and sealed. The Engineer shall be notified of any scale malfunctions. The Division of Highways may, at its option, accept inspection and sealing by out of state agencies when the material is being loaded outside West Virginia.

Any material, covered by this provision, which is delivered without the proper weigh ticket shall not be accepted by the Division of Highways.

Nothing in this provision relieves any party from compliance with the State Law on load limits or any fines which may be assessed for violation of said law.

ADD THE FOLLOWING:

109.20.1-Electronic Ticket Delivery: In addition, for asphalt, aggregate, and concrete, electronic ticket delivery (e-tickets) shall be required with the standard information provided as on the paper ticket. The e-ticketing system must interface with the WVDOH e-ticketing portal and provide WVDOH field personnel the ability to access tickets from a smartphone, tablet, or laptop and to make notes associated with each ticket if needed. The service must also provide a daily summary report. A digital signature of the weigh person on an e-ticket or daily summary report shall be considered the equivalent as a hand-signed/initialed, printed ticket.

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 402

ASPHALT SKID RESISTANT PAVEMENT

402.2-MATERIALS:

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

The coarse aggregate shall consist of gravel, slag, or other acceptable polish resistant aggregate, or combinations thereof, meeting the requirement of Subsections 703.1 through 703.3, ~~except as amended in this subsection.~~

When stone or gravel is specified in the contract, the coarse aggregate shall consist of gravel or other acceptable polish resistant aggregate, or combination thereof meeting the requirements of 703.1 through 703.3, ~~except as amended in this subsection.~~ When slag is specified in the contract, the coarse aggregate shall be slag which meets the requirements of 703.3, ~~except as amended in this subsection.~~

Acceptable dolomite may be used alone or as a part of a coarse aggregate blend on roadways with a projected ESAL value of less than 3,000,000. On roadways with a projected ESAL value of 3,000,000 or greater, acceptable dolomite may be used only as a part of the coarse aggregate blend and shall not exceed 50% of that blend.

~~The total of shale (determined by MP 703.00.27), coal and other lightweight deleterious material (determined by ASTM C123) and friable particles (determined by MP 703.01.20) shall not exceed three percent (3%).~~

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 601
STRUCTURAL CONCRETE**601.3-PROPORTIONING:****601.3.2-Field Tolerances and Adjustments:****601.3.2.4-Total Solids \bar{A} :****601.3.2.4.1-Optimized Aggregate Gradation:**

DELETE THE TABLE AND 601.3.2.41B AND REPLACE WITH THE FOLLOWING:

Table 601.3.2.4.1B

Sieve Size	Allowable variation from Combined % Retained in Design Mix ^{Note 1}
1 in	± 10% of the % retained on this sieve in the Design Mix
¾ in	± 10% of the % retained on this sieve in the Design Mix
½ in	± 10% of the % retained on this sieve in the Design Mix
⅜ in	± 10% of the % retained on this sieve in the Design Mix
No. 4	± 5% of the % retained on this sieve in the Design Mix
No. 8	± 5% of the % retained on this sieve in the Design Mix
No. 16	± 4% of the % retained on this sieve in the Design Mix
No. 30	± 4% of the % retained on this sieve in the Design Mix
No. 50	± 4% of the % retained on this sieve in the Design Mix
No. 100	± 3% of the % retained on this sieve in the Design Mix
No. 200	± 3 2% of the % retained on this sieve in the Design Mix

Note 1 The maximum and minimum allowable % retained on each sieve size noted in Table 601.3.2.4.1A shall not be exceeded during production. For example, if the ½" sieve has a combined % retained of 15% in design mix, then the allowable % retained on ½" sieve during production would be 5% to 20%.

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 625

ROCK SOCKETED DRILLED SHAFT

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

625.1-DESCRIPTION:

The work of this section includes the furnishing of all materials and the construction of rock socketed drilled shaft foundations consisting of reinforced concrete placed within the drilled excavations. Each rock socketed drilled shaft foundation shall consist of an upper drilled shaft portion in a steel casing and a lower rock socket portion.

625.2-SUBMITTALS:

The Contractor shall deliver all submittals required by this specification to the Engineer no later than one month prior to constructing any rock socketed drilled shafts ~~shown in the plans~~. No rock socketed drilled shafts shall be constructed prior to the Engineer's review and acceptance of all submittals.

625.2.1-Experience:

1. A satisfactory record of experience in rock socketed drilled shaft construction is of the utmost importance in obtaining a satisfactory rock socketed drilled shaft installation. The installation of ~~the~~ drilled shafts is required to be performed by a Contractor, or specialty subcontractor specializing in installing and having experience with rock socketed drilled shafts of similar length, diameter, and subsurface conditions as those shown in the contract documents.
2. The Contractor shall submit data on at least two projects performed during the past ten years, for which the Contractor, or Contractor's key personnel who will be the on-site supervisor, have installed rock socketed drilled shafts of a range of diameters and lengths similar to those shown in the plans, in similar quantities, and under similar subsurface conditions. The list of projects shall contain names and phone numbers of owners' representatives who can verify the participation in those projects.
3. The Engineer shall review and approve the Contractor's ~~(Subcontractor's)~~ qualifications. If in the opinion of the Engineer the Contractor's qualifications are not adequate, the Contractor shall submit to the Engineer a proposed method of obtaining the necessary qualifications.

4. The installation of all components of the drilled shaft ~~including; drilling, reinforcement placement, concrete placement, and required wet hole condition work, casing installation and removal, slurry placement,~~ and any other work required to complete the rock socketed drilled shaft, shall be performed by the approved Contractor ~~or specialty subcontractor.~~

625.2.2-Site Inspection: A signed statement shall be submitted affirming that the Contractor (or the Subcontractor if applicable) has inspected the project site and the available subsurface information including any available soil or rock samples.

625.2.3-Installation: The Contractor shall comply with applicable environmental regulations, including but not limited to the protection of river/stream water from degradation due to material excavated, ~~from rock socketed drilled shaft locations or due to other harmful~~ erosion, ~~protection of the environment from~~ slurry spillage/~~or discharge, if slurry is used, and general environmental protection of the area from~~ and all other operations related to rock socketed drilled shafts.

The installation shall be in accordance with the Contractor's proposed Safety Plan per Section 625.6.1.7.

The Contractor shall provide a projected schedule of work to the Technical Support Division, DOHDrilledShafts@wv.gov, thirty (30) days in advance of construction of drilled shafts. ~~This projected schedule will be used by the Technical Support Division to schedule preinstallation core hole drilling and drilled shaft inspection.~~

625.2.4-As-Built Records: Within 24 hours of the completed construction of each drilled shaft, the Contractor shall submit a report on the actual location, alignment, elevation, and dimensions of the drilled shaft, and ~~will also submit~~ a completed drilled shaft log to the Engineer.

625.3: Blank

625.4-DIMENSIONAL REQUIREMENTS:

If the specified dimensional requirements are not met, the Contractor shall submit a corrective plan for any deviation from the drilled shaft location, alignment and elevation tolerances, and reinforcement dimensional requirements to the Engineer for approval. This approval may take up to fourteen (14) calendar days. The corrective plan shall be certified (signed by a Professional Engineer licensed in West Virginia knowledgeable in rock socketed drilled shaft installation). The cost of any corrective action shall be borne by the Contractor.

625.5-MATERIALS:

625.5.1-Concrete: Concrete for the rock socketed drilled shafts shall be Class DC and shall conform to the requirements of Section 601.

The design 28-day compressive strength shall not be less than 4500 psi unless shown otherwise in the Plans. The Contractor shall prepare a mix design in accordance with MP 711.03.23 to attain this strength. Slump for dry placement shall be seven (7) inches plus-or-minus one (1) inch. Unless otherwise specified in the Plans, the cement shall be Type I.

For placement of concrete by tremie or pumping, the cement factor shall be increased by 94 lbs. from the original design cement factor, the slump shall be eight (8) inches plus-or-minus one (1) inch and shall maintain a slump in excess of four (4) inches throughout the

concrete placement.

625.5.2-Reinforcing Steel: Reinforcing steel for main vertical bars and ties shall conform to Section 709.1, deformed type, grade 60. Reinforcing steel for use as spirals shall conform to Section 709.1, plain type, grade 60.

625.5.3-Casing: Metal casing shall be used in the upper drilled shaft portion of the rock ~~socket~~ socketed drilled shaft to prevent caving of the soil material or to exclude ground water. Casing shall be metal, of unit or sectional construction, be strong enough to withstand handling stresses, withstand the pressures of concrete and of the surrounding earth and ground water, and prevent seepage of water. ~~Also, the~~ casing used shall be selected by the Contractor to control dimensions and alignment of excavations within tolerances, to seal the casing into impervious materials, and to execute all other construction operations.

Casing pipe used for permanent applications shall be new material and conform to ASTM A252, Grade 2. ~~Casing pipe, When used for temporary applications only, will initially be required to meet the requirements of permanent pipe but when removed can be transferred to the contractor's stock and reused on subsequent projects~~ casing pipe shall conform to ASTM A252, Grade 2.

Any required casing splices shall be welded with no interior splice plates, producing true and straight casing. All welding shall be in accordance with ANSI/AWS D1.1.

Permanent casing is required in all drilled shafts where noted on the plans. All temporary casing shall be removed during placement of concrete unless otherwise noted on the plans. Should the Contractor be unable to remove the temporary casing or if conditions require the temporary casing remain in place, the Contractor shall pressure grout the annular space between the casing and soil. Materials and methods for grouting operation shall be submitted to the Engineer for approval for the grouting operation. There shall be no additional cost to the Division for the grouting operation.

625.5.4-Crosshole Sonic Logging (CSL) Testing Tubes: Tubes required for CSL Tests shall be ASTM A53, Grade B, nominal two (2) inch diameter. Hydrostatic test requirements are waived. Threaded Couplings shall be used per ASTM A865.

625.5.5-Thermal Integrity Profiler (TIP) Wires: Wire, equipment, and testing procedure shall conform to ASTM D7949, Method B.

625.6-CONSTRUCTION:

The following sequence describes a generalized construction method that is expected to be appropriate for the installation of the rock socketed drilled shafts. Deviations will be permitted with the Engineer's approval.

- a. Contractor shall provide suitable access to the "Preinstallation Core Hole" location at each rock socketed drilled shaft.
- b. Drilling of a "Preinstallation Core Hole"; ~~will be performed by the Division*~~ as specified in subsection 625.7.2.1.
- c. Drilling of cased hole through the soil overburden down to top of competent rock. Seating bottom of casing to minimize entry of ground water.

- d. Drilling of rock socket to the minimum diameter shown in the plans and to an elevation shown on the drawings or otherwise directed by the Engineer.
- e. Determination of wet or dry hole condition, ~~by the Division*~~, as specified in subsection 625.7.2.2.
- f. Inspection of drilled hole for plumbness, ~~by the Division*~~, as specified in subsection 625.7.2.3.
- g. Cleaning of the drilled hole by the Contractor, particularly the rock socket and the inside face of the casing, as specified in subsection 625.7.2.5.
- h. Inspection of the drilled shaft sidewall and bottom cleanliness, ~~by the Division*~~ as specified in subsections 625.7.2.4 and 625.7.2.5.
- i. Placement of the pre-assembled cage of reinforcing steel with CSL tubes and/or TIP wires and securing it in place against movement during concreting and during casing withdrawal, as specified in subsection 625.6.2. It also must be secured in such a way that the minimum clear cover over the bars is maintained.
- j. Placement of concrete in either dry or wet conditions. The temporary casing shall be withdrawn carefully and slowly so as not to leave any voids in the concrete and so as not to dislocate any reinforcing steel. Any concrete not meeting this specification's slump requirements will be rejected.
- k. Curing, stripping, and finishing shall be the same as for other structural concrete. Casing may be used as forms.
- l. Inspection of the concrete, ~~by the Division*~~ as specified in subsection 625.7.2.6.
- m. Corrective measures for any unacceptable drilled shaft, removal of water from the CSL tubes and filling with an approved grout. All core holes, as specified in subsection 625.7.3, must be filled with an approved grout.

~~*—For Design Build / Alternative Project Delivery projects, the Design Build Team are responsible for the testing, however all notifications to the Division are required.~~

625.6.1-Excavation:

625.6.1.1-Scope: The Contractor shall perform all excavations required for the drilled shafts and the rock sockets, through whatever materials are encountered, to the dimensions shown in the plans, or required by the site conditions, or directed by the Engineer. The Contractor shall make each drilled shaft excavation available to the Engineer for inspection, providing tools, equipment, and safety measures as hereinafter specified. Based on preinstallation core hole information or on general inspection of the rock socket, the Contractor shall drill the rock socket deeper if directed by the Engineer.

625.6.1.2-Excavation Through Overburden: Unless otherwise shown in the plans, rock socketed drilled shaft excavations in the overburden shall be vertical bored holes extending from the ground surface down to the surface of competent rock. Temporary or permanent casings shall be required down to the competent rock surface and be seated in rock in a manner that prevents caving and minimizes the entry of ground water. In the event of a groundwater condition, appropriate measures shall be taken subject to the Engineer's approval. Such measures may include pumping from within the excavation, external dewatering, or excavation through a slurry-filled hole until the casing can be seated and sealed.

625.6.1.3-Excavation in Rock: Rock sockets shall be excavated to the dimensions and

depths shown in the plans, forming a bearing area at the bottom of the socket, flat to within a tolerance of ½ inch per foot. Each socket shall be excavated into continuous rock for the indicated length. Blasting methods will not be permitted.

The top elevation of competent rock must be confirmed as the socket drilling is started. The effective “top elevation” is based on observation of the boundary zone where broken or weathered rock becomes competent rock and is also influenced by the presence of any shale or coal seams. Based on that elevation, and the information from the preinstallation core hole, the Engineer will determine the final depth of socket and bottom elevation.

Upon completion of each rock socket excavation, the Engineer may (1) accept the socket, or (2) order deeper excavation based upon preinstallation core hole data or general inspection of the socket. The adequacy of each socket will depend on the soundness of its bottom surface and on the soundness of its underlying layers.

Contractor is cautioned not to over-drill the rock sockets. Unauthorized over-drilling will be at the Contractor’s expense. In the case where over-drilling would bring the drilled shaft base too close to a coal seam or other weak layer, then drilling must be extended through such weak layer, at the Contractor’s expense, to a satisfactory deeper bearing level as determined by the Engineer.

No portion of the rock socket shall be exposed to drilling fluid or groundwater for more than 96 hours. Any portion of the rock socket exposed to drilling fluid or water for more than 96 hours, and any portion of the rock socket which, in the opinion of the Engineer, has deteriorated due to exposure to air or water, shall be reamed with an approved grooving tool to a depth of not less than ¼ inch, or as directed by the Engineer. Reaming of the socket, if necessary, is considered incidental to the cost of drilling the rock socket, and no separate payment will be made for this work.

~~**625.6.1.4-Providing for Socket Inspection:** Upon completion of the excavation of each rock socket, and upon mechanical cleaning of the socket, the Contractor shall make the socket available to the Engineer for inspection, as specified in subsection 625.7. Blank.~~

625.6.1.5-Disposal of Materials: Disposal of excavated materials shall be accomplished under the general provisions of Section 207.6.

625.6.1.6-River/Stream Area: Rock socketed drilled shaft construction in the river/stream shall employ whatever special methods the Contractor finds necessary for access and for accomplishing the work. These methods may include cofferdams, temporary causeway, or other suitable measures. The Contractor will be responsible for conforming to all regulatory and environmental requirements related to the river/stream and for obtaining any permits that are required by their river/stream operations.

625.6.1.7-Safety Measures: Safety of all persons is to be considered an objective of the utmost importance on all projects. Therefore, the Contractor shall take whatever measures are necessary to protect their own personnel, subcontractors’ personnel, the Engineer or other agents of the state, regulatory personnel, and others including the general public. The following list is presented as representative of issues that the Contractor must address. It is not intended as all-inclusive and does not relieve the Contractor of conforming to other regulations, laws, requirements, or other measures reasonably required for safe excavating

operations. The Contractor shall develop a safety plan in accordance with these requirements and provide this plan to the Engineer for their review.

- a. Any required equipment within an excavation shall be operated by air or electricity. The use of gasoline-driven engines or diesel engines within an excavation will not be permitted. All lighting shall be electric, and precautions shall be taken regarding potential short circuits of electric current within ground water.
- b. The Contractor will take precautions to assure that no explosive or noxious gases are present. Fresh air shall be supplied into the excavation and foul air shall be removed whenever any personnel are present in the hole.
- c. A safety harness or chair lift, with separate safety line, protective cage, and two-way radio communication shall be used for any entry into an excavation.
- d. No open excavation shall be left unattended. During non-working hours, excavations shall be protected using solid, safe covers that are firmly fastened in place.

625.6.2-Reinforcing Steel Installation: Prior to installation of reinforcing steel, the steel cage shall be checked and cleaned of any materials that would tend to prevent bonding. The excavated hole shall also be checked, and any remaining or newly deposited debris shall be removed. Immediately upon the Engineer's approval of the condition of the cage and acceptance of the socket, and just prior to placement of concrete, the fully assembled cage of reinforcing steel shall be installed into the excavation.

The cage will consist of longitudinal (vertical) bars, spiral or tie bars, cage stiffener bars as required, spacing devices, and any other appurtenances required to maintain alignment, shape, and clearances. Cages shall include steel tubes and TIP wires in shafts where CSL and TIP testing is to occur as outlined in subsection 625.6.2.1. Each cage shall be placed in one unit by lowering into the hole in a manner that will prevent distortion. Concrete spacers or other approved noncorrosive spacing devices shall be used at sufficient intervals (near the bottom and at intervals not exceeding ten (10) feet along the rock socketed drilled shaft) to ensure concentric spacing for the entire cage length. The minimum number of centering devices at each level shall be three (3). All steel centering devices with less than three (3) inches of concrete cover shall be epoxy coated. The cage shall be supported from the top by use of a ground surface frame or other positive means. Setting the cage on the socket bottom without support will not be permitted. The Contractor may, with the approval of the Engineer, remove the top support after sufficient concrete has been placed to adequately support the cage vertically and prevent distortion or racking of the cage.

The bottom of the reinforcing steel cage shall be a minimum of three (3) inches and a maximum of twenty-four (24) inches from the bottom to the rock socketed drilled shaft excavation. Additional clearance may be approved by the Engineer.

All intersections of rock socketed drilled shaft reinforcing steel shall be tied with cross or "figure 8" ties. The reinforcing steel in the drilled shaft shall be 100% tied and supported so that the reinforcing steel will remain within allowable tolerances for position. Unless otherwise shown in the plans, splicing shall be by mechanical connectors or couplers which develop at least 125% of yield strength of the reinforcing bar. No more than 50% of the longitudinal reinforcing shall be spliced within 60 bar diameters of any lapped splice location or within two (2) feet of any mechanical splice or coupler location. Cage stiffener bars shall be used as required to provide a reinforcement cage of sufficient rigidity to prevent racking, permanent deformations, etc. during installation. If the concrete is to be placed by the free-fall method, these bars must first be removed.

In the event that the rock socketed drilled shaft has been excavated below the anticipated tip elevation, the reinforcing cage may be extended at the tip (bottom) end by lap splices, mechanical connectors, or welded splices in conformance with the Standard Specifications. In this instance, splices need not be staggered and 100% of the reinforcing bars may be spliced at a given location. Lap splice lengths shall be as shown in the plans or approved by the Engineer.

Prior to placing the reinforcement cage, the Contractor shall demonstrate to the satisfaction of the Engineer that the fabrication and handling methods to be used will result in a reinforcing cage placed in the proper position, with the proper clearances, and without permanent bending or racking of the reinforcement cage.

The elevation of the top of the steel cage shall be checked before and after the concrete is placed. If the rebar cage is not maintained within the specified tolerances, corrections shall be made by the Contractor to the satisfaction of the Engineer. No additional drilled shafts shall be constructed until the Contractor has modified the reinforcement cage support system in a manner satisfactory to the Engineer.

625.6.2.1-Contractor Preparation for Testing: To accommodate the CSL and TIP test requirements, the Contractor shall install the appropriate number of tubes and/or TIP wires in each drilled shaft to be tested. The number of tubes and wires per drilled shaft shall be as tabulated below:

TABLE 625.6.2.1

Drilled Shaft Diameter	Number of CSL Tubes	Number of TIP wires	Tube / Wire Spacing
Less than 42"	3	0	120°
42" to ≤ 60"	4	0	90°
> 60" to ≤ 96"	6	6	60°
Greater than 96"	8	8	45°

The tubes shall be per subsection 625.5.4. Each tube shall have a round, regular internal diameter free of defects or obstructions including defects or obstructions at pipe joints; in order to permit the free, unobstructed passage of 1½ inch diameter source and receiver probes. The tubes shall be watertight and free from corrosion with clean internal and external faces to ensure passage of the probes inside and a good bond with the concrete outside.

Each tube shall be fitted with a watertight shoe on the bottom and a removable cap or plug on the top. The tubes shall be securely attached to the interior of the reinforcing steel cage. The tubes are typically wire-tied to the reinforcing cage every forty (40) inches, or otherwise secured such that the tubes stay in position during placement of the cage and during placement of concrete. The tubes shall be installed in each shaft in a regular, symmetric pattern such that the tube spacing in degrees will correspond to that shown in the table above.

The tubes shall be as near to parallel as possible. They shall extend from six (6) inches above the drilled shaft bottom to at least forty (40) inches above the drilled shaft top. No tube may be allowed to rest on the bottom of a drilled excavation. If the drilled shaft top is sub-surface, then the tubes shall extend at least two (2) feet above the ground surface or above the water surface if the ground surface is below water. Any joints required to achieve full length tubes shall be made watertight. The Contractor shall investigate all CSL tubes, making sure

that there are no bends, crimps, obstructions or other impediments to the free passage of the testing probes. A record of the tube lengths, including a note of the projection of the tubes above the top of the shaft shall be made. The Contractor shall provide information on the shaft bottom and top elevations, length and construction dates to the Engineer prior to the CSL tests. Care shall be taken during placement of the reinforcing steel cage so as not to damage the tubes.

After placement of the cage, and before placement of concrete, the tubes shall be filled with clean water and the tube tops shall be capped or sealed to keep debris or other foreign matter out of the tubes. Care shall be exercised in the removal of caps or plugs so as not to apply excess torque, hammering, or other stresses that could break the bond between the tubes and the concrete.

The TIP wires shall be per subsection 625.5.5.

625.6.3-Placement of Concrete: Method of placement shall be determined by measuring the water infiltration rate into the shaft as specified in Section 625.7.2.2. Concrete placement for wet hole shall be placed by tremie. Free fall placement shall be permitted for dry hole condition, except that free fall height shall not exceed five (5) feet unless the concrete is placed using a drop chute or centering device. Free fall height is not restricted as long as a drop chute or centering device is used, and the concrete is directed down through the center of the shaft without directly hitting the reinforcing cage or the sides of the hole. Dry hole shall not have more than three (3) inches of water in the bottom of hole at start of concrete placement.

Prior to concrete placement, the Contractor shall make all necessary arrangements to ensure the uninterrupted delivery of concrete so that there will not be any cold joints in the drilled shafts. Placement of concrete shall generally conform to the applicable portions of Section 601.10. The rate of placement of concrete, as related to the height of fresh concrete at any time, will be subject to the Engineer's approval. The placement method will be developed by the Contractor, taking account of set time, hydraulic pressures and casing removal.

All costs of replacement of defective drilled shafts shall be the responsibility of the Contractor and shall be at no cost to the Division.

After the concrete level has reached the required top elevation, it shall be forced to overflow in the case of tremie or pump placement, leaving only fresh, uncontaminated concrete. In the case of placement by free fall (dry conditions), the concrete shall be continued high enough to compensate for any settlement due to removal of casing.

The top ten (10) feet of each rock socketed drilled shaft shall be vibrated except when more than ten (10) feet is to be exposed above the ground line or the riverbed/streambed, then the entire exposed portion shall be vibrated. The concrete shall not be vibrated until after any temporary casing is removed. Exposed portions of each rock socketed drilled shaft shall be cured in accordance with Section 601.12.

625.6.4-Removal of Casing: Removal of the casing from a shaft may occur gradually as concrete is placed. Insofar as possible, casing extraction shall be done at a slow uniform rate by application of a steady vertical upward pull in the direction of the axis of the shaft. To facilitate extraction, tapping on the casing, exertion of temporary downward pressure, slight rotation, or the controlled use of a vibratory hammer will be permitted, but care must be taken to avoid harmful impacts or disturbances to the fresh concrete. Vibration or rodding may not be used to break the casing loose for extraction.

If, during extraction of casing, upward movement of concrete and/or reinforcing steel occurs,

the Engineer shall be notified immediately. If the Engineer considers the movement to be minor, then the extraction of the casing may continue. If, however, the movement is deemed significant and indicative of squeezing of the surrounding soil thus resulting in a reduction of the drilled shaft diameter, then the Engineer may order the casing to be left in place, or permit extraction to proceed and order a later non-destructive load test, or may order other procedures as appropriate at no additional cost to the Division.

For the upper portions of rock socketed drilled shafts that will be exposed and visible, the casing may remain in place as a form until the concrete has attained a strength that enables it to stand alone without further deformation. Casing shall then be removed.

625.7-INSPECTION AND TESTING OF SOCKETS:

625.7.1-Inspection: ~~The Engineer will inspect the shaft as outlined in subsections 625.7.2.4 and 625.7.2.5.~~

~~Time required for inspection will be considered incidental to the work and will not be cause for extra compensation related to a claim or extension of contract time.~~

~~The Contractor shall make each drilled shaft excavation available to the Engineer for inspection, providing tools, equipment, and safety measures.~~

~~The Contractor shall comply with the notification requirements for drilled shaft construction outlined in Section 625.2.3, as well as five (5) working day prior notification to the Technical Support Division via e-mail (DOHDrilledShafts@wv.gov) of the following testing:~~

- ~~1. Preinstallation core hole~~
- ~~2. Plumbness~~
- ~~3. Rock socket sidewall inspection~~
- ~~4. Shaft bottom cleanliness~~
- ~~5. In-place concrete quality testing~~

625.7.2-~~Division~~ Drilled Shaft Testing:

625.7.2.1-Preinstallation Core Holes: ~~The Contractor shall provide notice to the Technical Support Division via e-mail (DOHDrilledShafts@wv.gov) when each site is ready for drilling. The Division will commence drilling of the preinstallation core hole within 5 working days after notification from Contractor that site has suitable access for drilling.~~

A preinstallation test boring will be drilled by the ~~Division~~ Contractor at each rock socketed drilled shaft location, or as shown on the plans, to determine the character of the material that the rock socketed drilled shaft extends through and the material that is at the base of the shaft in order to ensure the material along and below the tip of the rock socket is capable of carrying the load that will be imposed on it. The preinstallation borings are to be drilled prior to beginning excavation for each representative rock socketed drilled shaft. ~~The Contractor shall provide all work necessary to allow access for the drill rig to the preinstallation test boring location, which at a minimum shall include constructing drill pads and access roads.~~

Unless otherwise directed, the preinstallation test borings are to be extended a minimum depth of two (2) upper drilled shaft diameters but not less than ten (10) feet below the planned tip elevation of the rock socketed drilled shaft shown on the plans. Standard Penetration Testing (SPT) and sampling shall be performed at five (5) foot intervals in the preinstallation borings in accordance with AASHTO T 206. Rock coring will be performed

in accordance with ASTM D2113 using a wireline core barrel system and will commence immediately upon obtaining an SPT value of 50 blows per six (6) inches or less on bedrock. The recovered core sample size will be approximately two (2) inch diameter (NX or NQ size). Additional preinstallation test borings in other locations may be required where directed by the Engineer.

Test boring logs of each preinstallation boring ~~will be prepared by the Division and~~ will be provided to the ~~Contractor~~ Division within three (3) working days of completion of the test boring. The preinstallation test borings logs will describe the type and thickness of all soil and rock layers, and locate the presence of groundwater, open joints, voids, soft rock, or other deleterious material. All recovered soil and rock samples shall be maintained by the ~~Division~~ Contractor and stored on site at suitable location ~~, provided by the Contractor,~~ until completion of the project.

Within 10 working days after completion of preinstallation core hole, the Engineer will notify the Contractor of the final tip elevations for each drilled shaft location.

625.7.2.2-Wet or Dry Hole Determination: The ~~Division will~~ Contractor and Engineer shall check the depth of water at the bottom of the drilled shaft. If the depth does not increase by more than twelve (12) inches over a 1-hour period, the hole will be considered dry. Otherwise, the hole will be considered wet. The Contractor shall coordinate with the Engineer when this determination is being made.

625.7.2.3-Plumbness: ~~Contractor shall provide notice to the Technical Support Division via e-mail (DOHDrilledShafts@wv.gov) five (5) working days prior to the date each drilled shaft will be ready for inspection.~~

Plumbness of the rock socketed drilled shaft/rock socket shall be measured by the ~~Division~~ Contractor by measuring the geometry of the drilled shaft excavation using SHAPE, Sonicaliper, or other suitable means approved by the Engineer. For any rock socketed drilled shaft, the maximum permissible deviation from plumb shall be 1.5% measured with respect to the vertical axis at the center of the drilled shaft excavation.

~~—The Contractor shall provide suitable access and means for lowering inspection equipment into the drilled shaft excavation.~~

For any rock socketed drilled shaft at its top, the maximum deviation of the center shall be three (3) inches from its project plan location. The maximum deviation of the finished top of shaft from the plan elevation shall be minus one (1) inch or plus three (3) inches. An absolute minimum cover of three (3) inches to the reinforcing steel is strictly required. In the event of any deviations in the dimensional requirements, the contractor shall not proceed with construction of pier columns or cap until submission and approval of a corrective plan has been granted.

625.7.2.4-Rock Socket Sidewall Inspection: ~~Contractor shall provide notice to the Technical Support Division via e-mail (DOHDrilledShafts@wv.gov) five (5) working days prior to the date each drilled shaft will be ready for inspection.~~

The ~~Division will~~ Contractor shall inspect the rock socket side walls with a downhole camera or other suitable device in the presence of the Engineer.— The Engineer shall evaluate the rock quality and construction, as outlined in 625.6.1.3.

625.7.2.5-Shaft Bottom Cleanliness: ~~Contractor shall provide notice to the Technical Support Division via e-mail (DOHDrilledShafts@wv.gov) five (5) working days prior to the date each drilled shaft will be ready for inspection.~~

The Contractor shall clean the rock socket so that a minimum of 75% of the base will have less than ½ inches of sediment at the time of placement of the concrete. Sediment depth at any location shall not exceed 1 ½ inches. The ~~Division~~Contractor shall determine shaft cleanliness by using a mini-SID, SQUID, or other suitable device approved by the Engineer. The contractor shall use an air-lift to achieve the required bottom cleanliness.

The Contractor shall begin concrete placement in the shaft within 3 hours after the shaft bottom cleanliness is approved. If concrete placement in the drilled is not started within 3 hours, the rebar cage shall be removed, and hole shall be re-inspected at no additional time to the Contractor or cost to the Division.

625.7.2.6-In-place Concrete Quality Testing: The Contractor shall furnish and place the Crosshole Sonic Logging (CSL) tubes and thermal integrity profiler (TIP) wires in all drilled shafts. The number of tubes and tip wires to be used shall be as specified in subsection 625.6.2.1. The ~~Division will~~Contractor shall perform the testing and provide a report of the drilled shaft integrity testing to the ~~Contractor~~Engineer. The CSL tubes shall remain open in the shaft and be grouted by the Contractor after acceptance of that shaft.

625.7.2.6.1-Crosshole Sonic Logging (CSL): The nondestructive testing method known as CSL shall be used on ~~any rock socketed drilled shaft which is constructed with the placement of concrete under wet conditions or as required in the plans~~ all rock socketed drilled shafts. The testing shall not be conducted until at least three (3) calendar days after placement of concrete is concluded in the drilled shaft and will be completed within fourteen (14) calendar days after such placement.

The CSL tests shall be conducted in conformance with ASTM D6760 ~~and by a testing company approved by Technical Support Division~~.

~~The Contractor shall comply with the scheduling and notification requirements for drilled shaft construction outlined in Section 625.2.3 by contacting the following Technical Support Division e-mail address: (DOHDrilledShafts@wv.gov). This will allow Technical Support Division to provide a qualified company to perform testing within the time frames allotted for in this subsection.~~

625.7.2.6.1.1-CSL Testing Results: The CSL test results ~~will~~ shall be compiled into a drilled shaft integrity testing report for each drilled shaft. The report will summarize and analyze any defect zones indicated on the logs. A copy of each report ~~will~~ shall be provided to the ~~Contractor~~Engineer.

625.7.2.6.1.2-Evaluation of CSL Test Results: ~~The Engineer will review the report and, if the report determines that the drilled shaft is acceptable, will submit to the Contractor in writing within seven (7) calendar days approval to proceed with the work.~~

The rating of the rock socketed drilled shaft integrity ~~will~~ shall consider the increases in first arrival time (FAT) and the energy reduction relative to the FAT or energy in a nearby zone of good concrete. The criteria for rating the concrete from the CSL test will be:

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TABLE 625.7.2.6.1.2	
Rating	Criteria
Good (G)	FAT increases 0-10% and energy reduction < 6 db
Questionable (Q)	FAT increases 11-20% and energy reduction < 9 db
Poor / Flaw (P/F)	FAT increases 21 to 30% or energy reduction of 9 to 12 db
Poor / Defect (P/D)	FAT increases 31% or more or energy reduction >12 db

Flaw or defect zones as indicated in Table 625.7.2.6.1.2 will be indicated on the logs and listed in a table within the report. The flaw or defect zones and their horizontal and vertical extent will be discussed in the report text. Flaws ~~will~~ shall be addressed by the ~~Division~~ Contractor if they affect more than 50% of the tested tube pairs at the same depth. Defects will be addressed by the ~~Division~~ Contractor if they affect two or more of the tested tube pairs at the same depth. At a minimum, addressing flaws and defects will include Crosshole Tomography (CT). If it is determined that the rating is less than Questionable, based on the results of the CSL and CT testing, the ~~Division will require core drilling and sampling by the Contractor~~ Contractor shall core and sample for further evaluation of the flaw or defect at no additional cost to the Division. The diameter, number, depth, and location of cores shall be as directed by the Engineer.

~~—The acceptance of each drilled shaft shall be the decision of the Engineer, based on the results of the drilled shaft integrity testing report and other information on the drilled shaft placement. Rejection of a drilled shaft shall require conclusive evidence that a defect exists in the drilled shaft, which will result in inadequate or unsafe performance under service loads. If the Non-Destructive Testing records are complex or inconclusive, the Engineer will require the Contractor to verify drilled shaft conditions by core drilling. If a flaw or defect is confirmed, the Contractor shall pay for all coring and grouting costs. If no flaw or defect is encountered, compensation for all coring and grouting will be in accordance with subsection 104.3 and 109.4.~~

~~—**625.7.2.6.1.3 Remedial Action:** In the case that any rock socketed drilled shaft is determined to be unacceptable, the Contractor shall submit a plan for remedial action to the Engineer for approval. The approval or rejection of the remediation plan may take up to fourteen (14) calendar days. If the remediation plan is rejected the Contractor shall revise the plan and submit it for approval and the approval time is restarted. Any modifications to the rock socketed drilled shaft and load transfer mechanisms caused by the remedial action will require calculations and working drawings stamped by a Professional Engineer licensed in the State of West Virginia for all foundation elements affected. All labor and materials required to perform remedial drilled shaft action shall be provided at no cost to the Division and with no extension of the contract time.~~

625.7.2.6.2-Thermal Integrity Profiler (TIP): Perform TIP testing using the embedded thermal wire array, and in accordance with the ASTM D7949 (method b). Thermal integrity profiling is performed to evaluate shaft integrity and location of the reinforcing cage. The number of wires to be used shall be as specified in subsection 625.6.2.1. Thermal wire cables shall be connected to a thermal access port (TAP) immediately following casting.

~~—The Contractor shall provide cooperative assistance and labor as required to assist the Division in inspecting the thermal wires prior to concreting the shaft. Prior to TIP testing, the contractor shall provide shaft installation details to the TIP consultant. Because the method relies on the heat of hydration, tip testing is generally performed between 8 and 48 hours of concrete placement (note the optimum TIP testing time is dependent on shaft size and concrete mix and could range from 4 to 72 hours).~~

625.7.2.6.2.1-Criteria to be used for acceptance or rejection of rock socketed drilled shaft using TIP testing: The rating of the shaft integrity using tip shall consider variations in temperature as measured by the thermal wires. Potential local anomalies may be indicated by locally low temperatures relative to the average temperature at that depth, or average temperatures significantly lower than the average temperatures at other depths. The criteria for rating the concrete from the TIP test shall be:

Satisfactory (s) = 0 to 6% effective radius reduction and cover criteria met
Anomaly (a) = effective radius reduction > 6% or cover criteria not met

When a tested shaft is categorized as anomaly (a), slices modeled at the area of question may be provided so that a structural evaluation of the shaft can be performed prior to implementing any corrective measures. Core drilling shall be performed to investigate problem areas found during TIP testing at no additional cost to the Division.

625.7.3-Evaluation by Core Drilling: A rock socketed drilled shaft that is found to be unacceptable, shall be core drilled by the Contractor in accordance with ASTM C42. Cores shall be four (4) inch nominal diameter. ~~One or more core holes shall be drilled at the location(s) as determined by the Engineer.~~ An accurate log of the core shall be kept, and the core shall be crated and properly marked showing the drilled shaft depth at each interval of core recovery. The core and one copy of the coring log shall be provided to the Engineer.

The Engineer shall determine if the rock socketed drilled shaft is acceptable. The Engineer will submit to the Contractor in writing within seven (7) calendar days approval to proceed with the work. If the quality of the drilled shaft is determined to be unacceptable, then the Contractor shall proceed in accordance with subsection 625.7.2.6.1.3.

The acceptance of each drilled shaft shall be the decision of the Engineer, based on the results of the drilled shaft integrity testing report and other information on the drilled shaft placement. Rejection of a drilled shaft shall require conclusive evidence that a defect exists in the drilled shaft, which will result in inadequate or unsafe performance under service loads. If the Non-Destructive Testing records are complex or inconclusive, the Engineer will require the Contractor to verify drilled shaft conditions by core drilling. If a flaw or defect is confirmed, the Contractor shall pay for all coring and grouting costs. If no flaw or defect is encountered, compensation for all coring and grouting will be in accordance with subsection 104.3 and 109.4.

625.7.4-Remedial Action: In the case that any rock socketed drilled shaft is determined to be unacceptable, the Contractor shall submit a plan for remedial action to the Engineer for approval. The approval or rejection of the remediation plan may take up to fourteen (14) calendar days. If the remediation plan is rejected the Contractor shall revise the plan and submit it for approval and the approval time is restarted. Any modifications to the rock socketed drilled shaft and load transfer mechanisms caused by the remedial action will require calculations and working drawings stamped by a Professional Engineer licensed in the State of West Virginia for all

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foundation elements affected. All labor and materials required to perform remedial drilled shaft action shall be provided at no cost to the Division and with no extension of the contract time.

625.8-METHOD OF MEASUREMENT:

Rock socketed drilled shafts and Rock Socket foundations will be measured by the linear foot. For payment purposes, the drilled shafts are the portion from the finished top of each rock socketed drilled shaft to the top of competent rock. Rock Socket is the portion from the top of competent rock to the bottom of the drilled shaft rock socket as shown in the plans or as directed by the Engineer. Each measured drilled shaft is to be complete in place, accepted, and ready to function. "Top of drilled shaft" is the top of concrete as shown in the plans. "Top of competent rock" is as tabulated in the drilled shaft schedules in the plans unless a difference of one (1) foot or more is found during drilling.

Preinstallation core hole shall be measured by the linear foot based upon actual length drilled. The plan quantity will be based on one core hole, per drilled shaft, measured from the top shaft elevation to two drilled shaft diameters below the bottom of rock socket unless otherwise noted in the plans. No payment shall be made for additional length of preinstallation core hole drilled above the top of the drilled shaft.

All Drilled Shaft testing of each rock socketed drill shaft, shall be measured per each shaft tested, including all applicable tests required in subsection 625.7.2. However, preinstallation core drilling shall be paid separately.

625.9-BASIS OF PAYMENT:

The accepted quantities of rock socketed drilled shaft foundations, measured as provided above, will be paid for at the contract unit price per linear foot; complete in place including excavation, slurry if required, temporary or permanent metal casing, steel reinforcing, concrete, curing, and any required forming and finishing. No additional payment will be made for temporary casing that remains in place and pressure grouting due to the Contractor's inability to stabilize a drilled excavation, for the need to place concrete by tremie or pumping, for the need to use slurry for drilling, or for extra excavation and concrete that may be required due to drilling diameters larger than the minimum diameters specified. No additional payment will be made for methods employed to gain access to rock socketed drilled shaft construction or for means required to provide a dry working environment within the drilled shafts.

The quantity of Preinstallation Core Hole drilling, measured as provided above, will be paid for at the contract unit price per linear foot.

The quantity of Drilled Shaft Testing, measure as provided above, will be paid for at the contract unit price per each shaft tested. Tubes for CSL testing, TIP wires, and other responsibilities related to testing and inspection assistance are incidental, with no separate payment being made.

625.10-PAY ITEMS:

ITEM	DESCRIPTION	UNIT
625001-*	Drilled Shaft "D" Diameter	Linear Foot
625003-*	Rock Socket "D" Rock Socket Diameter	Linear Foot
<u>625005-*</u>	<u>Preinstallation Core Holes</u>	<u>Linear Foot</u>
<u>625007-*</u>	<u>Drilled Shaft Testing</u>	<u>Each</u>

* Sequence number
 D = Diameter of shaft or socket, in inches

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

**SECTION 703
COARSE AGGREGATE**

703.1-CRUSHED STONE:

703.1.5-Limestone Anti-Skid Aggregates:

703.1.5.2-Dolomite Limestone:

DELETE AND REPLACE THE CONTENTS OF THE FOLLOWING SUBSECTION:

When produced for anti-skid, shall be sampled from the stockpile by the Division. The stockpile shall meet the requirements for Section 703.1, with the addition of ASTM C1271 ~~and~~ or ASTM C1301. Dolomite shall contain a minimum of 10% elemental magnesium.

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 707

CONCRETE ADMIXTURES, CURING AND COATING MATERIALS

707.2-WATER-REDUCING AND RETARDING ADMIXTURES FOR CONCRETE:

707.2.2-Performance Requirements for Concrete Retarders:

707.2.2.1-

DELETE THE THIRD PARAGRAPH IN THE SUBSECTION:

~~When a Type G admixture is used for the sole purpose of increasing the slump of the subject concrete mix (no water is removed when this admixture is added), the requirements of AASHTO M 194 for water reduction and compressive strength increases will be waived.~~

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

**SECTION 715
MISCELLANEOUS MATERIALS**

715.9-WARNING DEVICES:

715.9.6-Portable Sign Stands:

715.9.6.1-Product Submission and Approval:

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

Stands to be considered for inclusion on the Division's Approved Products List (APL) shall be submitted to the Materials Division following the current procedures specified in MP 106.00.02. The Division maintains an APL of MASH compliant stands only. Stands utilized based on compliance with NCHRP-350 are not required to be listed on an APL.

The manufacturer should include all relevant documentation and information, including but not limited to Product Data Sheets, Product Flyers, Manufacturer Product Specifications, Product Bulletins, Engineering Drawings, and crash testing performance documentation. The crash testing performance documentation to be submitted shall be in accordance with official guidance issued by the WVDOH.

The stands shall be evaluated as per MP 715.09.20, "Standard Method for Determining the Stability of Portable Sign Stands."

Approvals of stands may be rescinded based on performance on Division projects determined to be non-compliant with these specifications.

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WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SPECIAL PROVISION

FOR

STATE PROJECT NUMBER: _____

FEDERAL PROJECT NUMBER: _____

ADD THE FOLLOWING:

**SECTION 900
RAILROAD**

900.1-GENERAL:

The work shall include all material for the replacement of existing rail and components along the South Branch Valley Railroad (SBVR) and shall meet requirements as set for by SBVR.

The limits of work are MP 23.2 to MP 31.5 and MP 32.0 to MP 34.3

900.2-900.5-Blank

900.6-OTHER TRACK MATERIAL

The work shall include the procurement, storage, and distribution of Other Track Material (OTM) for use during the removal of the existing jointed rail followed by the installation of new continuous welded rail (CWR).

900.6.1-Materials: The Contractor shall procure all OTM required for the installation of the CWR. The OTM shall include, but is not limited to Spikes, Tie Plugs and Synthetic Tie Plugging Materials, Rail Anchors, Bolts and Nuts, Spring Washers, Joint Bars and Compromise Bars, and Rail Welds.

Spikes - The Contractor shall procure 6” soft-steel track spikes to fasten the CWR to ties. The track spikes shall be manufactured to meet the requirements of AREMA Chapter 5, Track, Part 2, Section 2.1 Specifications for Soft-Steel Track Spikes, current issue.

Tie Plugs and Synthetic Tie Plugging Materials-The Contractor shall procure wood tie plugs and/or synthetic tie plugging material to fill holes in ties after spikes have been removed. Tie plugs and/or synthetic tie plugging materials shall be manufactured to meet the requirements of AREMA Chapter 30, Ties, Part 3, Section 1.5 Specifications for Tie Plugs and Synthetic Tie Plugging Materials, current issue.

Rail Anchors-The Contractor shall procure and apply rail anchor to all newly laid CWR as required in CWR Procedures – SBVR. Rail anchors shall be drive-on or spring-type either new, or remanufactured to meet the requirements of AREMA Chapter 5, Track, Part 7, Section 7 Rail Anchors, current issue.

Bolts, and Nuts-The Contractor shall procure sufficient bolts and nuts to fasten joint bars between strings of CWR as the work progresses. Bolts and nuts shall be heat-treated carbon steel track bolts, and carbon-steel nuts manufactured to meet the requirements of AREMA Chapter 4, Part 3, Section 5 Specifications for Heat-Treated Carbon Steel Track Bolts and Carbon-Steel Nuts, current issue.

Spring Washers-The Contractor shall procure sufficient spring washers to be used on the bolt between the splice or compromise bar and the nut. Spring washers shall be steel manufactured to meet the requirements of AREMA Chapter 4, Part 3, Section 6 Specifications for Spring Washers current issue.

Joint Bars and Compromise Joint Bars-The Contractor shall procure sufficient joint bars to connect similar weight / section strings of CWR and compromise joint bars to connect CWR to a differing weight / section of the existing bolted rail as the work progresses. They shall be quenched carbon-steel joint bars, or microalloyed joint bars, or forged compromise joint bars that meet the requirements of AREMA Chapter 4, Part 3, Section 4, Specifications for Quenched Carbon-Steel Joint Bars, Microalloyed Joint Bars, and Forged Compromise Joint Bars, current issue.

Rail Welds-The Contractor shall procure sufficient thermite welds to connect the strings of rail after they are laid, and adjusted for the Desired Rail Neutral Temperature per the South Branch Valley Railroad CWR Plan. Rail Welds shall meet the requirements of AREMA Chapter 4, part 3, Section 13, Specifications for the Quality Assurance of Thermite Welding of Rail, current issue.

900.6.2-Submittals: Submit documentation for all OTM confirming that all OTM meets AREMA specification.

Submit storage locations, and timing for delivering, unloading, handling, and storing OTM.

Submit plan for distributing all OTM at locations where it is required for the installation of the CWR.

Submit documentation that the thermite welds meet the requirements of AREMA Chapter 4, Part 3, Section 13, Specifications for the Quality Assurance of Thermite Welding of Rail, current issue.

Submit documentation that thermite welds have been tested at the frequency required in AREMA Chapter 4, Part 3, Section 13.5 Frequency of Testing, current issue.

Submit documentation that all thermite welds have been tested to meet AREMA Chapter 4, Part 3, Section 13.3.4, 5, and 5a Weld Finished Dimensional Tolerances of the Railhead, current issue.

900.6.3-Delivery, Storage and Handling: Load, transport, unload, store, and handle OTM in a manner which will prevent damage to the trackwork materials. Items which are included in the AREMA "Manual of Railway Engineering" shall be handled as described therein.

Move all material on site in a manner which prevents damage to existing above and below ground installations.

Repair, correct, or replace damage to existing installation or SBVR owned materials caused by Contractor at no cost to the SBVR.

Unload OTM at locations where it will not be a tripping hazard, near where it is intended to be installed, not in the gage of the track, and clear of the top of the ends of the ties and ballast shoulder.

900.6.4-Inspection: Inspect the construction site prior to work for any discrepancies with proposed installation plans and bring the discrepancies to the Engineer's attention.

Examine alignment and elevation of existing work for interface with work of this Section. Obtain authorization from Engineer before work of this Section is started for adjustments at interfaces with existing work.

Inspect locations where CWR is distributed prior to distribution of OTM.

900.6.5-Execution: All OTM installed in conjunction with the installation of the CWR shall meet the requirements of the "South Branch Valley Railroad CWR Plan Procedures for the Installation, Adjustment, Maintenance, and Inspection of CWR as Required by 49 CFR 213.118"

The Contractor shall have on site appropriate supervision that is qualified under CFR 213.7 to supervise the installation of CWR. Contractor's supervisor is to be properly equipped and qualified to properly determine that the rail installation temperature is within the designated rail installation range. The Desired Rail Neutral Temperature (DRNT) and designated rail installation range is as indicated in the CWR Procedures – SBVR.

900.6.6-Method of Measurement: No separate measurement shall be made for work of the Section.

900.6.7-Basis of Payment: No separate payment will be made for work of this Section. All labor, materials, equipment, and other incidentals expenses associated with OTM shall be incidental to the project or as specified in following sections.

900.7-SURVEYING

The Contractor shall employ a Land Surveyor licensed in West Virginia to conduct a centerline survey of the existing SBVR track at full stations and half stations. From that existing survey, design a Best-Fit Existing Centerline.

The Contractor may utilize the RailPod survey to complete this work. Contact Joe Mahoney jmahoney@rail-pod.com 815-641-0957.

900.7.1-Submittals: The Contractor shall submit the credentials of the Land Surveyor licensed in West Virginia to the Engineer.

The Contractor shall submit a Survey Control Plan that identifies horizontal and vertical survey control points and base lines the Contractor will use during survey to the Engineer for review and approval.

The Contractor shall compare the Best-Fit Existing Centerline survey to the SBVR Track Maps and resolve discrepancies with the Engineer. A Proposed Track Centerline will be designed by the Contractor for the review and approval of the Engineer.

The Proposed Track Centerline shall be made a part of the Install Ballast and Surface.

Record and submit all field survey data in both AutoCAD Version 2018 and Microsoft Excel format.

On request, the Contractor shall submit documentation verifying accuracy of survey work.

900.7.2-Inspections: The Contractor shall, at the request of the Engineer, jointly inspect and verify the accuracy of any part or parts of the survey work.

The Contractor shall maintain a complete and accurate log of survey control and field measurement data as work progresses and make that data available to the Engineer immediately upon request.

900.7.3-Execution: The Contractor shall tie into the identified control points and conduct a Best-Fit Centerline survey of the existing SBVR track at full stations and half stations prior to laying CWR.

The survey shall include locations by station of road crossing centerline, length of the crossing and the name or identification of the crossing, existing Mile Post markers, bridge ends, the middle of the bridge, the supporting structures, and the name of the bridge, and other points as directed by the Engineer.

After comparing this survey of the existing track to the SBVR Track Maps, a Proposed Track Centerline will be designed by the Contractor as the basis for a proposed track alignment. The Proposed Track Centerline will be reviewed, and if acceptable, approved by the Engineer. It shall be made a part of the Install Ballast and Surfacing Work Plan.

900.7.4-Method of Measurement: Payment of surveying shall be on a lump sum basis.

900.7.5-Basis of Payment: The price bid shall include the cost of furnishing all labor, materials, and equipment necessary to satisfactorily complete the work. Progress payments can be made in proportion to the amount of work determined to be completed by the Engineer.

900.8-FURNISH RAIL (CWR MATERIAL)

The work shall include the procurement, of rail, and welding the rail into strings of CWR delivered to SBVR.

The rail will be unloaded at locations as directed by the SBVR Employee-in-Charge (EIC).

900.8.1-Materials: Rail shall be new 136# or second hand 133# CWR manufactured to meet American Railway Engineering and Maintenance-of-Way Association (AREMA), Manual for Railway Engineering (MRE), current issue. The 133# rails shall be classified as Second Hand, and Controlled Cooled per AREMA Chapter 4, Rail, Part 3, Section 3.12. They shall be Reconditioned and Graded as Class 1 per AREMA Table 4-3-17. Rail Grading Classification by Wear.

Weld sample testing shall be submitted prior to acceptance of the CWR.

The welding of the individual rails to form CWR shall be as required by AREMA Chapter 4, Part 3, Section 3.11 Specification for Fabrication of Continuous Welded Rail shall apply.

900.8.2-Submittals: Submit certification that the Second Hand 133# rail is Controlled Cooled, Reconditioned, and Graded as Class 1 per AREMA Table 4-3-17, Rail Grading Classification by Wear, current issue, prior to shipping the rail, or CWR to SBVR.

Submit certification that the electric flash-butt welding process(es) if used to fabricate the CWR meets the requirements of AREMA Chapter 4, Part 3, Section 3.10 Specification for the Quality Assurance of Electric-Flash Butt Welding of Rail, current issue, prior to delivering the CWR to SBVR, or fabricating CWR at SBVR site(s).

Submit weld testing data including Dimensions, and Magnaflux tests for every weld, copies of all Microstructure tests performed as needed, and copies of the several other tests as specified in AREMA Chapter 4, Part 3, Section 10, and Table 4-3-16 Frequency of Testing, current issue, prior to acceptance of the CWR by SBVR.

Submit a CWR Work Plan for the Engineer's review and approval that includes procedures for fabricating, delivering, staging, handling, and unloading the CWR prior to shipment of the rail or CWR.

Submit as a part of the CWR Work Plan details of all pre-inspections, site preparation, handling methods, unloading equipment, methods, and access requirements. Include equipment, labor, and schedule requirements for each activity.

Submit unloading equipment data for review and approval by the Engineer showing compliance with gage, loads, and clearances for on-track equipment.

900.8.3-Inspection: Inspect the construction site prior to work for any discrepancies with the CWR Work Plan, or proposed rail or CWR unloading, distribution, or installation plans.

Examine alignment and elevation of existing track for interface with work of this Section. Obtain authorization from Engineer before beginning the work of this section for adjustments at interfaces with existing work.

900.8.4-Execution: Equipment: Operate work trains and equipment over track and turnouts only after approval by EIC.

CWR strings shall be delivered by train, or other means if fabricated on SBVR site.

It shall be distributed in strings of CWR alongside the track adjacent to the location in which the CWR will be laid.

Receive, transport, handle and distribute rail as shown in the approved CWR Work Plan in a manner which will prevent damage to the rail or surrounding structures.

Unless specified otherwise herein, rail distribution shall comply with AREMA Specifications.

900.8.5-Method of Measurement: The quantity to be paid for CWR material shall be the lineal feet of CWR material delivered and unloaded as shown in the approved CWR Work Plan and accepted by the Engineer.

900.8.6-Basis of Payment: The Unit Price bid for this item shall be full compensation for furnishing all labor, materials, tools, and equipment necessary to furnish, deliver, and unload the CWR as shown in the approved CWR Work Plan.

900.9-INSTALL CONTINUOUS WELDED RAIL (CWR)

The work shall include the removal of the existing jointed rail followed by the installation of CWR. The CWR will be installed at locations as indicated in the Contractor prepared, and SBVR accepted Rail Laying Work Plan.

900.9.1-Materials: CWR: The Contractor shall remove the existing bolted rail, and install CWR.

Alternate 1 – The Contractor shall assume possession of the jointed rail removed from track, and any removed OTM or scrap. The jointed rail, OTM, and scrap shall be removed from SBVR property within 30 days.

Alternate 2 – The SBVR shall retain possession of the jointed rail removed from track. The Contractor shall neatly stack the released rail with its base down, and adequately supported, in areas designated by the Engineer. The Contractor shall assume possession of the removed OTM, and scrap removed from track. The OTM shall be removed from SBVR property within 30 days.

All OTM used for this work shall be furnished and distributed by the Contractor. Any material distributed by the Contractor, which has not been approved, is lost, stolen, or damaged shall be replaced by the Contractor at its cost and expense. OTM released during the removal of the bolted rail shall be collected into piles placed clear of the end of ties and ballast shoulder.

Existing compromise bars between existing CWR and existing jointed rail may be removed and moved forward to the end of the CWR that is laid during a track outage. The compromise bars shall remain the property of SBVR and shall be wired together and promptly returned to SBVR at the end of their use.

900.9.2-Submittals: The Contractor shall submit a Rail Laying Work Plan to the Engineer for his review and approval prior to the delivery of the CWR or OTM. The Rail Laying Work Plan shall include all preconstruction, construction, and post construction activities. It shall include the selection of alternatives for the released bolted rail and OTM as well as all required inspections, site access points, material storage locations and handling methods, testing

activities, and checking procedures. It shall include equipment, labor, and schedule requirements for each activity.

Submit construction equipment data showing compliance with track gage, loads and clearances for on-track equipment.

Submit rail laying records as required by “Procedures for the Installation, Adjustment, Maintenance, and Inspection of CWR for South Branch Valley Railroad.”(CWR Procedures – SBVR).

900.9.3-Inspections: The Contractor and Engineer shall jointly walk the CWR in its unloaded location prior to beginning installation of the CWR.

The CWR installed during an authorized track outage period shall be inspected by the Supervisor of the contractor to assure that the CWR is fully spiked, rail temperatures measured and recorded, properly anchored, and properly joined with appropriate straight joint bars, or compromise joint bars, or welds to form a continuous line of rail. Adjacent strings may be joined by welds if the laid strings are anchored within the designated rail neutral temperature safe range.

Prior to returning the track to revenue service, the rail laid during each track outage shall be inspected by the Supervisor of the contractor, and a qualified SBVR employee. This inspection is to be accomplished prior to returning the track to service to assure the safe passage of trains.

900.9.4-Execution: Unless specified otherwise herein, installation shall comply with AREMA Specifications.

All jointed rail, and OTM that has been removed from track shall be picked up, or removed from the ballast shoulders at the work site to facilitate ballast unloading.

The Contractor is to remove all bolt holes from rail before welding.

The Contractor shall only begin work during a track outage period installing the new CWR after authorization is received from the SBVR Employee-in-Charge (EiC) of Track Safety under the Roadway Worker Protection (RWP) of the Federal Railroad Administration (FRA).

The Contractor shall only remove the length of bolted rail that can be replaced with properly installed, and anchored CWR by the end of that authorized track outage period.

The Contractor shall pull the rail holding spikes, remove the bolted rail, plug the spike holes, and lay the new CWR in the existing plates. Then the Contractor shall spike every third tie to hold proper gage. Then all the ties shall be tamped to bring all of the ties tight to the bottom of the tie plate with the rail properly seated in each tie plate. Then the Contractor shall fully spike all of the ties.

As each string or portion of a string of CWR is laid and spiked, its Rail Temperature (RT) shall be noted, recorded as required by Chapter 3 Maintaining a Desired Rail Neutral Temperature Range, and noted on the Rail Installation Adjustment Report. Then the RT shall be compared to the Desired Rail Neutral Temperature (DRNT). The designated rail installation range is +/-20⁰F from the DRNT. The South Branch Valley Railroad DRNT is 95⁰F. Therefore, the designated Rail Neutral Temperature (RNT) safe range is between 75⁰F and 115⁰F.

If the RT is lower than the designated Rail Neutral Temperature (RNT), the temperature differential shall be calculated, and the required expansion is determined based on the temperature differential and the rail length. The rail shall then be uniformly expanded, and the CWR anchored. The actual length and expansion are then used to verify the new RNT. The adjustment details will be logged on the SBVR Rail Installation Adjustment Report and submitted to the Engineer at the end of each track outage period in which CWR was installed.

If the RT is higher than the designated rail installation range the installation must stop until the rail temperature returns within the range, or provisions for later readjustment must be made before the arrival of cold weather as required by the CWR Procedures – SBVR. The details of the RT being higher than the temperatures will be logged on the SBVR Rail Installation Adjustment Report and submitted to the Engineer at the end of each track outage period in which CWR was installed.

The Contractor shall anchor CWR after the CWR has been fully spiked, rail temperatures measured and recorded, proper adjustment made, if required, and recorded. The Contractor shall box anchor every tie for 195' in each direction from any joint. At that point the Contractor shall follow the Standard Box Pattern, box anchoring every other tie.

At the following locations the Contractor shall box anchor every tie for 195' in each direction from:

- 900.9.4.1** Turnouts
- 900.9.4.2** Rail Crossings
- 900.9.4.3** Road Crossings
- 900.9.4.4** Joints where CWR abuts Jointed Rail
- 900.9.4.5** Severe Grades, and Sharp Curves.

On ballast deck bridges the Contractor shall anchor CWR as listed in the sections above.

On open deck bridges. the Contractor shall anchor CWR as shown on “Track Standard Drawing Example Rail Anchor Patterns for CWR on Open Deck Bridges”, Page 33 of the CWR Procedures – SBVR.

The Contractor shall NOT apply anchors at locations where they will interfere with signal, or other track appliances, where they are inaccessible for adjustment or inspection, or on the rail opposite a joint.

The Contractor shall field weld adjacent strings of CWR together with thermite field welds. Before making the welds, any rail with bolt holes shall be removed.

900.9.5-Method of Measurement: The quantity to be paid for CWR shall be the lineal feet of CWR Installed as shown in the approved CWR Work Plan and accepted by the Engineer.

900.9.6-Basis of Payment:

Alternate 1: The Unit Price bid for this item shall be full compensation for furnishing all labor, materials, tools, and equipment necessary to remove and dispose of existing rail and Install the CWR as shown in the approved CWR Work Plan.

Alternate 2: The Unit Price bid for this item shall be full compensation for furnishing all labor, materials, tools, and equipment necessary to remove and stockpile the removed rail and Install the CWR as shown in the approved CWR Work Plan.

900.10-INSTALL BALLAST AND TRACK SURFACE

This work shall not be performed until after the CWR has been laid, the released rail, and all scrap, and OTM have been removed from the CWR installation areas. It shall not proceed until after the Track Survey is completed, and a Proposed Track Centerline is reviewed, and accepted by the Engineer.

The work shall include the procurement and timely distribution of suitable ballast prior to surfacing the track as indicated in the Contractor prepared, and Engineer approved, Install Ballast and Surfacing Work Plan.

The surfacing of track shall include raising, aligning, and tamping the track and turnouts as indicated in the Contractor prepared, and Engineer approved, Install Ballast and Surfacing Work Plan.

900.10.1-Materials: Ballast used for this work shall be furnished by the Contractor, conform to AREMA Chapter 1, Part 2, Part 3, granite, or trap rock, that meet or exceed the recommended ballast gradations shown in Table 1-2-2.

900.10.2-Submittals: The Contractor shall submit an Install Ballast and Surfacing Work Plan for approval by the Engineer prior to beginning any procurement of ballast or surfacing the track for its Proposed Track Centerline.

The Contractor shall submit to the Engineer, for his review and approval, current certifications and test results verifying that the ballast from the proposed quarries conforms to AREMA Chapter 1, Part 2, Part 3, current issue, prior to purchase or delivery of the ballast.

The Contractor shall submit to the Engineer, for his review and approval, ballast unloading rail car and/or ballast unloading equipment data showing compliance with gage, loads, and clearances for on-track equipment on SBVR.

The Contractor shall submit to the Engineer, for his review and approval, planned ballast stockpiling locations and method(s) of delivery and unloading procedures to prevent segregation of the gradation of the ballast stockpiles.

The Contractor shall submit to the Engineer, for his review and approval, equipment data for ballast regulating and surfacing equipment showing compliance with gage, loads, and clearances for on-track equipment on SBVR.

The Contractor shall submit to the Engineer, for his review and approval, equipment data for the track raising, aligning, and tamping equipment certifying its ability to raise and align the track simultaneously prior to tamping each tie.

900.10.3-Inspections: The Engineer reserves the right to make unannounced quarry visits to verify compliance with the requirement of the specifications, obtain samples of stockpiled, or distributed ballast, and review prior inspections, delivery and handling methods, and review test results of current and previous ballast tests.

The Contractor shall demonstrate to the Engineer's satisfaction that the track ballast regulating, and track raising, aligning, and tamping equipment operates as intended in the field.

The Engineer reserves the right to make unannounced visits to the surfacing work site(s) to inspect the progress and quality of the work, and to reject unsatisfactory work, and require its remediation.

900.10.4-Execution: Ballast shall be procured by the Contractor and delivered in rail cars or trucks for distribution or stockpiling as determined in the Install Ballast and Surfacing Work Plan.

The distribution or stockpiling of ballast will be as outlined in the Install Ballast and Surfacing Work Plan.

The surfacing of track shall follow the distribution of ballast. Surfacing shall include raising, aligning, and tamping the track, grade crossings, and turnouts as indicated in the Contractor prepared, and Engineer approved, Install Ballast and Surfacing Work Plan.

After the track is surfaced, the ballast shall be regulated to fill the cribs between the ties level with the tops of the ties and provide a shoulder at the ends of the ties that conforms to the SBVR standard ballast section.

900.10.5-Method of Measure: Measurement of quantities of ballast shall be by the Ton as determined by individual weight tickets from ballast delivered by the truckload, and unloaded, or ballast delivered by rail car, and unloaded, and accepted by the Engineer.

Measurement of the track surface shall be by the Linear Foot of track raised, aligned, surfaced, and accepted by the Engineer.

900.10.6-Basis of Payment: Payment for ballast purchased, delivered, and unloaded to raise, align, and surface track will be by weight tickets submitted, and the Contract price per Net Ton

Payment for track Surfacing will be by the Linear Foot of track raised, aligned, and surfaced, and accepted by the Engineer.

900.11-INSTALL RAIL SEAL

The work shall include the removal of existing grade crossing, pavement approaches, and jointed rail on the side being renewed. Following the installation of the CWR, the rubber rail seal shall be installed on the CWR, and the grade crossing surface replaced with suitable asphalt material. There are 6 active at grade crossings within this project.

900.11.1-Materials: The rail seal system including the rail seal and fasteners to hold the rail seal product in place shall be one of the following systems or approved equal.

900.11.1.1-Rail Seal from Iron Horse Engineering Company

900.11.1.2-Rail Seal from HiRAIL

900.11.1.3-Rail seal form Polycorp

The Asphalt shall meet WVDOT standards

900.11.2-Submittals: The Contractor shall submit product data on the rail seal system for review and approval by the Engineer.

The Contractor shall, submit specifications for the asphalt to be used to repave the road crossing for review and approval by the Engineer.

The Contractor shall submit a Road Crossing Replacement Plan for each grade crossing. The grade crossing plan shall include the following. The Road Crossing Replacement Plan shall be submitted to the Engineer for his review and approval prior to beginning installation of CWR.

900.11.2.1-Length and Limits for Rail Seal installation.

900.11.2.2-Pavement removal Limits

900.11.2.3-Pavement replacement limits and estimated tons of asphalt to be used.

900.11.3-Inspections: The Contractor shall inspect each road crossing, prior to submitting the Road Crossing Replacement Plan, for any discrepancies with the proposed installation of the CWR and rail seal.

900.11.4-Execution: The Contractor shall remove and if necessary, disassemble the existing crossing surface, pavement in the gage of the track, and pavement approaches of the grade crossing prior to the CWR being installed. The material removed shall become the property of the Contractor for his proper disposition offsite.

As the CWR may be laid on each side of the track through the crossing on separate days, the Contractor shall make provisions in the Road Crossing Replacement Plan to close the crossing for road traffic with the proper authority, remove the crossing surface to permit the installation of the CWR on one rail, then restore the crossing for road service. On a separate day the same crossing may need to be again closed for road traffic, the crossing surface removed to permit the installation of CWR on the opposite side of the track, and the crossing restored for road service another time.

Following the installation of the CWR, and before the road crossing surface is restored, the rubber rail seal shall be installed on the CWR. Rail Seal and Rail Seal clamps to be installed per manufacturer's specifications. Rail seal must extend a minimum of 4 feet beyond the roadway travelled way. The rail seal must bear firmly against the rail and be free of any dirt or foreign matter when installed. Rail Seal clamps must be installed within in each crib and at the ends of the rubber rail seal to ensure the rubber rail seal is secured to the rail. Heavy Tape (such as duct or Gorilla) should be placed on the seam between top of rail and rail seal to cover existing gap prior to paving.

The road crossing surface may need to be removed on a separate occasion, to permit the raising, aligning, and tamping of the track to meet the requirements of the Proposed Track Centerline and the Install Ballast and Surfacing Work Plan.

Asphalt shall be laid between the existing road surface and the rail. That area shall be leveled and free of all foreign material (mud, dirt, trash, etc.). Existing road surface should be milled to eliminate poor existing conditions.

Asphalt base material should be placed in the gage of the track in at least 2 equal lifts and each lift compacted.

Asphalt surface material may be placed in 1 lift and compacted to height of top of rail. A key edge shall be made, and tack applied to existing road surface. A minimum of 20' runoff should be included for all traffic directions. Final roadway surface shall not allow standing water, seams must be thoroughly rolled, and edges compacted tight. Asphalt to extend and wrap around outer edges of rail seal. All excessive or extra asphalt must be properly disposed of offsite by contractor.

Existing signage at the crossing shall be protected from damage, or removed and replaced after all work is completed at the crossing. Crossbucks and other signage shall be installed to manufacturers specification and in accordance with FRA and MUTCD guidelines. Required signage, if applicable, will be defined at the pre-bid conference.

The Contractor shall have 24 hours to complete work of an individual at grade crossing.

900.11.5-Method of Measurement: The work to be measured for payment under this item shall be actual number of linear feet of Rail Seal, measured along the rail installed and accepted by the Engineer.

The work to be measured for payment under this item shall be actual number of tons of asphalt, installed and accepted by the Engineer.

900.11.6-Basis of Payment: The Unit Price bid for this item shall be full compensation for furnishing all labor including preparation of any/all plan submittals, materials, tools and equipment necessary to furnish, deliver, and complete the work of Rail Seal, as required to perform the work.

The Unit Price bid for this item shall be full compensation for furnishing all labor, materials, tools and equipment necessary to remove and properly dispose of the existing pavement, furnish, deliver, and install the pavement as required to perform the work and the rail seal installation instructions.

900.12-CONTRACTOR DELAY DAYS

When work is not able to be performed because of an unplanned railroad operation on a day or period of days the contractor will be compensated, for the delay.

900.12.1-Submittals: Submittals for Contractor Delay Days must include what days what will be impacted and when the days will occur during the build schedule.

Submittals for Contractor Delay Days must be sent within 10 working days of occurrence.

900.12.2-Execution: Contractor Delay Days will be paid in 1/8-day increments.

There must be a 30-minute delay before claiming the first 1/8-day payment, less than that will result in no payment for the delay.

Any delay scheduled 2 weeks in advance is not eligible for contractor delay day

900.12.3-Method of Measurement: Payment for Contractor Delay Days will be based on the actual number of delay days incurred by the contractor in 1/8-day increments.

900.12.4-Basis of Payment: The payment shall include all labor and equipment costs incurred by the contractor for a delay day.

900.13-PAY ITEMS

ITEM	DESCRIPTION	UNIT
9000005-001	Miscellaneous Railroad, Surveying	Lump Sum
9000005-002	Miscellaneous Railroad, CWR Material	Linear Foot
9000005-002	Miscellaneous Railroad, CWR Install Alternate 1	Linear Foot
9000005-002	Miscellaneous Railroad, CWR Install Alternate 2	Linear Foot
9000005-004	Miscellaneous Railroad, Ballast	Ton
9000005-002	Miscellaneous Railroad, Track Surfacing	Linear Foot
9000005-002	Miscellaneous Railroad, Rail Seal	Linear Foot
9000005-004	Miscellaneous Railroad, Asphalt	Ton
9000005-006	Miscellaneous Railroad, Contractor Delay Days	Day

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 106

CONTROL OF MATERIALS

106.1-SOURCE OF SUPPLY AND QUALITY REQUIREMENTS:

106.1.1-Definitions: Unless the context in which used clearly requires a different meaning, as used in this section:

“Aluminum and glass products” means products rolled, formed, shaped, drawn, extruded, forged, cast, fabricated, or otherwise similarly processed from aluminum and glass.

“Coating” means all processes that protect or enhance the value of a material or product to which it is applied, such as, but not limited to, epoxy coatings, galvanizing, and painting.

“Construction material” means an article, material, or supply that is or consists primarily of non-ferrous metals, plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables), glass (including optic glass), fiber optic cable (including drop cable), optic fiber, engineered wood, lumber, or drywall. A “construction material” does not include an item of primarily iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives. Items that consist of two or more of the listed materials that have been combined together through a manufacturing process, and items that include at least one of the listed materials combined with a material that is not listed through a manufacturing process, are treated as manufactured products and not as construction materials.

“Domestic aluminum and glass products” means aluminum and glass products for which all manufacturing processes, including application of a coating, have occurred in the United States.

“Domestic steel products” means steel products for which all manufacturing processes, including application of a coating, have occurred in the United States.

“Federal-aid highway project” means highway construction, maintenance, and utility projects funded in whole or in part with Federal-aid funds.

“Manufacturing process” means any process which modifies the chemical content, the physical size or shape, or the final finish of a material, including melting and mixing, rolling, extruding, machining, bending, grinding, drilling, and coating.

“Manufacturing process” for construction materials means the final manufacturing process and the immediately preceding manufacturing stage for the construction material.

“Manufacturing process” for steel and iron means any process which modifies the chemical content, the physical size or shape, or the final finish of a material, including melting and mixing, rolling, extruding, machining, bending, grinding, drilling, and coating.

“Material” means any tangible substance incorporated into a highway project.

“Public Works” includes roads, highways, streets, bridges, sidewalks, sewage systems, buildings, engineering and architectural works, and any other structure, facility or improvement constructed or undertaken by the Division.

“State contract project” means any erection or construction of, or any addition to, alteration of or other improvement to any building or structure, including, but not limited to, roads or highways, or the installation of any heating or cooling or ventilating plants or other equipment, or the supply of any materials for such projects, pursuant to a contract with the State of West Virginia for which bids were solicited.

“Steel products” means products rolled, formed, shaped, drawn, extruded, forged, cast, fabricated or otherwise similarly processed, or processed by a combination of two or more of such operations, from steel made by the open hearth, basic oxygen, electric furnace, Bessemer or other steel making process.

“United States” means the United States of America and includes all territory, continental or insular, subject to the jurisdiction of the United States.

106.1.2-State and/or Federal Use of Domestic Steel and Iron: Any steel or iron materials used for either Federal-aid highway and state contract projects shall be manufactured, including the applications of any coatings, in the United States and compliant with 23 U.S.C. 313 and 23 CFR 635.410, entitled “Buy America Requirements.” and compliant with Chapter 5, Article 19 and Chapter 5A, Article 3, Section 56 of the West Virginia Code, entitled the “West Virginia American Steel Act of 2001.

Buy America requirements do not apply to non-ferrous alloy materials used to make steel or any raw materials (iron ore and alloys), scrap, pig iron, or processed, pelletized, and reduced iron ore. Buy America requirements do not apply to temporary elements not permanently incorporated into a project, such as falsework, temporary sheet piling, detour bridges and the like; temporary elements left in place at the Contractor’s convenience, unless the contract plans and specifications require steel or iron components (i.e. stay-in-place forms, ties for steel, sheet piling, etc.) or imply that the item be left in place; or items that are simply moved from one place to another within the same project.

When steel or iron materials are used, the Contractor shall furnish a certificate of compliance which covers all materials and products involved, including those of any subcontractors and suppliers certifying compliance with Buy America requirements prior to the permanent incorporation of the materials into the project. The Division shall not authorize or make any payments to a Contractor not fully compliant with this requirement. Any payment made to any Contractor who did not fully comply with this requirement may be recovered by the Division.

Any exception to Federal Buy America requirements for domestic steel and iron will be in accordance with MP 106.10.50 and shall be compliant with 23 U.S.C. 313 and 23 CFR 635.410

106.1.3-Preference for Domestic Aluminum and Glass Products: Any aluminum or glass products to be supplied in the performance of any contract or subcontract for the construction, reconstruction, alteration, repair, improvement, or maintenance of public works or for the purchase of any item of machinery or equipment to be used at the sites of public works shall be manufactured in the United States and compliant with Chapter 5, Article 19 of the West Virginia Code. This requirement applies to all federal and state public works

contracts, including state purchase order contracts; however does not apply to any State funded projects with a contract award amount of \$50,000, or less.

The Division shall not authorize or make any payments to a Contractor not fully compliant with this requirement. Prior to any payment, the Division shall require the Contractor to furnish a certificate of compliance which covers all materials and products involved, including those of any subcontractors and suppliers. Any payments made by the Division to any Contractor who did not fully comply with this requirement may be recovered by the Division.

106.1.4-Use of Domestic Construction Materials: 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 “Preliminary Guidance for Construction Materials” in OMB Memorandum M-22-11. No construction material may be used unless the manufacturing process for the manufacture of the construction material occurs in the United States.

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 an infrastructure 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 ~~used~~ **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.

Any exceptions to Buy America requirements for domestic construction materials will be in accordance with MP 106.10.50 and shall be compliant with the Build America, Buy America Act.

106.1.5-Exceptions: Any exceptions to state preference requirements for domestic aluminum, glass, and steel products will be in accordance with MP 106.10.50 and shall be compliant with Chapter 5, Article 19 and Chapter 5A, Article 3, Section 56 of the West Virginia Code.

When foreign-made aluminum, glass, and steel products are used or supplied in compliance with an approved exception, the Contractor shall be responsible for providing procedures acceptable to the Division for determining that specification requirements are met, including all inspections at no additional cost to the Division. The use of foreign-made products will not be reason for grant an extension of contract time.

DRAFT

SECTION BREAK

NEW BUSINESS ITEMS

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 601
STRUCTURAL CONCRETE

601.11-FINISHING CONCRETE SURFACES:

601.11.4-Finishing Concrete Bridge Decks:

601.11.4.4-Class H Concrete Finished Deck Grooving:

601.11.4.4.1-Transverse Grooving:

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

After corrective grinding and before opening to traffic, grooves shall be cut into the concrete using a mechanical saw. These grooves shall be ~~0.40~~ 0.125 to 0.188 inch wide and extend 0.125 to 0.25 inch deep. Groove spacing shall be ~~1.5-0.75~~ inches center to center. No later than one week prior to grooving operations, the Contractor shall provide the Engineer with two accurate, easily readable gauges with which to verify groove dimensions. Groove depth and spacing tolerances are limited to $\pm 1/16$ inch. ~~Groove width tolerances are +0.02 inch and -0.0 inch.~~ The grooves shall be cut in a direction that is transverse to the centerline of the roadway or parallel to the skew. On any one bridge the direction of the grooves shall be consistent. Grooves shall be cut continuously across the deck to within one foot of gutter lines or drainage structures. Grooves shall also be continuous across the full width of the deck surface including construction joints. Grooves shall terminate within one (1) inch of any exposed metal component or elastomeric concrete of an expansion joint. When the deck is skewed and the contractor is using gang blades to saw the grooves, the maximum distance (measured perpendicular to the centerline of the expansion joint) from the last groove termination in the pass to the expansion joint shall be one (1) foot – eight (8) inches. Radial grooving shall be performed in increments limited to twelve (12) feet of bridge length.

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WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
SUPPLEMENTAL SPECIFICATION
FOR
SECTION 679
OVERLAYING OF PORTLAND CEMENT CONCRETE BRIDGE DECKS

679.5-FINAL BRIDGE DECK FINISH:

679.5.2-Finished Deck Grooving:

679.5.2.1-Transverse Grooving:

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

After corrective grinding and before opening to traffic, grooves shall be cut into the concrete using a mechanical saw. These grooves shall be ~~0.10~~ 0.125 to 0.188 inch wide and extend 0.125 to 0.25 inch deep. Groove spacing shall be ~~4.5~~ 0.75 inches center to center. No later than one week prior to grooving operations, the Contractor shall provide the Engineer with two accurate, easily readable gauges with which to verify groove dimensions. Groove depth and spacing tolerances are limited to $\pm 1/16$ inch. ~~Groove width tolerances are +0.02 inch and -0.0 inch.~~ Grooves shall be cut continuously across the deck to within one (1) foot of gutter lines or drainage structures. Grooves shall also be continuous across the full width of the deck surface including construction joints. Grooves shall terminate within one (1) inch of any exposed metal component or elastomeric concrete of an expansion joint. When the deck is skewed and the contractor is using gang blades to saw the grooves, the maximum distance (measured perpendicular to the centerline of the expansion joint) from the last groove termination in the pass to the expansion joint shall be one (1) foot, eight (8) inches. Radial grooving shall be performed in increments limited to twelve (12) feet of bridge length.

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 688

FIELD PAINTING OF METAL STRUCTURES

688.6-ENVIRONMENTAL, WORKER PROTECTION, AND WASTE HANDLING:

688.6.2-Permits for Disposal of “Spent Material”:

688.6.2.1-“Spent Material”:

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

This shall include material generated by surface preparation operations and shall be sampled and tested in accordance with the current revision of SSPC Guide 7 The Contractor shall, at the Contractor’s expense, select a laboratory certified by the WVDEP that will sample and analyze the “spent materials”. ~~The laboratory must be certified by the WVDEP, EPA or by another state’s DEP equivalent.~~ Certification will be provided to the Engineer prior to the beginning of work. The waste transporter for both hazardous and non-hazardous waste will be listed on the Contractor’s Containment/Disposal Control Plan.

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

**SECTION 712
GUARDRAIL AND FENCE**

712.4- GALVANIZED STEEL DEEP BEAM GUARDRAIL, FASTENERS AND ANCHOR BOLTS:

ADD THE FOLLOWING TO THE END OF THE SECTION:

Galvanized steel deep beam guardrail, fasteners and anchor bolts shall conform to AASHTO M 180, Type II, Class A. Fabricators of guardrail who supply to WVDOH projects shall meet MP 712.04.50 and shall be audited by AASHTO Product Evaluation and Audit Solutions.

October 16, 2023

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

**SECTION 715
MISCELLANEOUS MATERIALS**

715.5- PACKAGED DRY, HYDRAULIC-CEMENT GROUT (NON-SHRINK):

ADD THE FOLLOWING SENTENCE TO THE SUBSECTION

The material shall conform to the requirements of ASTM C1107. Testing data shall be from an independent AASHTO accredited testing laboratory.

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

SUPPLEMENTAL SPECIFICATION

FOR

SECTION 720
SMOOTHNESS TESTING

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720.3-RIDE QUALITY TESTING

REMOVE THE FOLLOWING FROM THE SUBSECTION:

720.3.2-Quality Assurance (QA) Testing: QA testing is the responsibility of the Division. The Engineer shall submit a “Bridge and Pavement Testing Request Form” form to MCS&T via email, ~~within five (5) calendar days~~ after all lanes are continuously open to traffic. ~~Within fourteen (14) calendar days from receiving the request, the Division will conduct QA testing.~~ The Division will use a certified inertial profiler and certified operator for QA testing.