



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

ROY COOPER  
GOVERNOR

J. ERIC BOYETTE  
SECRETARY

June 23, 2023

**MEMORANDUM TO:** All Holders of January, 2024 Edition of the Standard Specifications for Roads and Structures

**FROM:** R.E. Davenport, Jr., PE  
State Contract Officer

**SUBJECT:** NCDOT 2024 *Standard Specifications* Edition Release

DocuSigned by:  
*Ron Davenport*  
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This memo informs all holders of revisions made for the January 2024 edition of the Standard Specifications for Roads and Structures. The new edition will be effective with the January 2024 letting.

Listed below are a list of modifications made to the Standard Specifications for Roads and Structures since the January 2018 edition of the Standard Specifications for Roads and Structures.

**PLEASE NOTE: THE STANDARD SPECIFICATIONS HAVE UNDERGONE SIGNIFICANT REVISIONS AND UPDATES. WHILE EVERY ATTEMPT WAS MADE TO CAPTURE ALL CHANGES IN THIS MEMO, IT IS STRONGLY ADVISED YOU THOROUGHLY REVIEW AND FAMILIARIZE YOURSELF WITH ALL UPDATES AND MODIFICATIONS.**

All 2024 special provisions and the January 2024 edition of the Standard Specifications for Roads and Structures can be found at this website:

<https://connect.ncdot.gov/resources/Specifications/Pages/2024-Specifications-and-Special-Provisions.aspx>

For general questions about this publication, please contact the Contract Standards and Development unit at [specs@ncdot.gov](mailto:specs@ncdot.gov) or (919) 707-6900.

A special thank you to all the NCDOT committee team members representing central units and divisions; as well as the time spent reviewing changes and providing feedback for improvement by our North Carolina partners Federal Highway Administration (FHWA), Associated General Contractors (AGC), American Concrete Pavement Association (ACPA), Carolina Asphalt Pavement Association (CAPA), Carolina Concrete Pipe and Products Association (CCPPA), Carolinas Ready Mixed Concrete Association (CRMCA), Carolinas American Traffic Safety Services Association (CATSSA), and NC Aggregate Association.

# Updates from 2018 to the 2024 Standard Specifications Book

## Division 1: General Requirements

### Section 101: Definitions of Terms

- *Article 101-2* - Defined Abbreviations AMS-STD-595, SCM, and USACE.
- ***Article 101-2 - Integrated provision Z-4 Errata (effective December 2022 letting - Corrected Abbreviations ANSI and ESAL).***
- *Article 101-2* - Table 101-1 added mg/sf and VDC. Edited Table 101-1 VAC Unit Name. Removed “NTPEP” from the listing.
- *Article 101-3* - Edited Definitions: Article, Award, Bid (Or Proposal), Completion Date, Contract, Project Special Provisions, Section, Specifications, Standard Specifications, Supplemental Specifications. These changes created consistency on capitalization and italics use or appropriate definition term applied, also provided Subarticle clarification. Modified “Purchase Order Bidder” to “Purchase Order (PO) Prime Contractor” and modified the definition to reflect this change. Added a definition of Prime Contractor sentence in the Contractor definition.
- *Subarticle 102-2(A)(1)* - Added “Purchase Order Bidder Application”.
- *Subarticle 102-2(B)* - Modified “Purchase Order Bidder” to “Purchase Order (PO) Prime Contractor”. Provision SP1 G01 Contractor Prequalifications will be edited to reflect changing “bidders” to “Purchase Order (PO) Prime Contractors” for June 2023 lettings.
- *Subarticle 102-2(B)(1)* - Modified “Purchase Order Bidder Application” to “Department Prequalification Application”.
- *Subarticle 102-2(C)* - Modified “Purchase Order Bidder’s List” to “Purchase Order (PO) Prime Contractor’s List”.
- ***Article 101-3 - Integrated provision SP1 G140 Electronic Bidding.***

### Section 102: Bidding Requirements and Conditions

- *Article 102-2* - Terminology change to align with website naming convention, position and website title.
- *Throughout Section 102* - Italicized forms.
- ***Article 102-2 - Integrated Provision SP1 G01 Contractor Prequalifications.***
- *Subarticle 102-2(A)(1)* - Added “Purchase Order Bidder Application”.
- *Subarticle 102-2(B)* - Modified “Purchase Order Bidder” to “Purchase Order (PO) Prime Contractor”. Provision SP1 G01 Contractor Prequalifications will be edited to reflect changing “bidders” to “Purchase Order (PO) Prime Contractors” for June 2023 lettings.
- *Subarticle 102-2(B)(1)* - Modified “Purchase Order Bidder Application” to “Department Prequalification Application”.
- *Subarticle 102-2(B)(6)* - Added Article reference on certifications submitted.
- *Subarticle 102-2(C)* - Modified “Purchase Order Bidder’s List” to “Purchase Order (PO) Prime Contractor’s List”.
- *Subarticle 102-2(C)(1)* - Modified “Subcontractor Application” to “Department Prequalification Application”.

- *Article 102-7* - Removed “documents” from the end of the 2<sup>nd</sup> paragraph as there is not a contract document definition, but there is a contract definition.
- ***Article 102-3 and 102-8 - Integrated provision SP1 G02 Interested Parties List.***
- *Article 102-8* - Clarified Preparation and Submission of Bids in respect to paper bidding.
- ***Subarticle 102-8(B) and 102-9(C)(2) - Integrated provision SP1 G140 Electronic Bidding.***
- ***Subarticle 102-9(A)(2) - Integrated provision Z-4 Errata (effective December 2022 letting - Corrected U.S.C. number reference.)***
- *Article 102-10* - Bid Bond or Bid Deposit bond management company list removed as changes could occur and this was replaced in the previous paragraph with a general statement on using a compatible company to submit electronically. The approved options will continue to be available in the approved electronic bidding software site, but this will not be noted in the *Standard Specifications*.

#### Section 103: Award and Execution of Contract

- *Article 103-2* - For terms defined in the Definitions, created consistency on capitalization use.
- *Article 103-2* - Clarified Correction of Bid Errors for paper and electronic bids, information transferred from electronic to paper and vice versa adding additional items to the listing.
- *Subarticle 103-4(A)* - In Award of Contract General Subarticle added “or execute” in order to give NCDOT the ability to delay the execution of contract if any bid protest process occurs. Protects low bidder during any bid protest.
- ***Subarticle 103-4(B) - Removed Title VI and Nondiscrimination article. (Note: This is a provision Z-6 and will remain as so due to potential for changes.)***
- ***Subarticle 103-4(B) (formerly (C) - Integrated provision SP1 G141 Award Limits and SP1 G140 Electronic Bidding.***
- *Throughout Section 103* - Italicized forms.

#### Section 104: Scope of Work

- *Throughout Section 104* - Forms italicized and location provided.
- *Article 104-1* - Removed “documents” from the 1<sup>st</sup> sentence as there is not a contract documents definition, but there is a contract definition.
- *Article 104-12* - Modified Value Engineering Proposal for consistent terminology, submittal location direction, minimum requirements, review clarification, additional requirements for Design-Build Value Engineering Proposals, removed modifications drawing purchase, and grammar and title correction.
- *Article 104-13* - Modified Recycled Products or Solid Waste Materials updating submittal location, removing the form requirement and modifying the award dollar range.
- ***Article 104-13 - Integrated provision Z-4 Errata (effective December 2022 letting - Corrected subarticle reference).***

#### Section 105: Control of Work

- *Throughout Section 105* - For terms defined in the Definitions, created consistency on capitalization and italics use or appropriate term used.
- *Article 105-16* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.

#### Section 106: Control of Material

- ***Subarticle 106-1(A) - Integrated provision Z-4 Errata (effective December 2022 letting - Corrected SDS reference).***
- *Subarticle 106-1(B)* - Removed direction for the Engineer, as this document is direction for the Contractor.
- *Article 106-6* - In Inspection at Source Article, added sentence to ensure clear material samples are provided at no cost to the Department.

#### Section 107: Legal Relations and Responsibility to Public

- *Article 107-1* - In Laws to be Observed, paragraph added on Nondiscrimination.
- ***Article 107-3 - Integrated provision SP1 G88 Contractor’s License Requirements.***
- ***Article 107-15 - Integrated provision SP1 G05 Liability Insurance. (effective May 2023 Lettings - Certificate italicized, correct title of certificate integrated, and added \$5,000,000 before general aggregate.)***
- *Article 107-17* - For terms defined in the Definitions, created consistency on capitalization and italics use and appropriate term applied.
- *Article 107-25* - Removed direction for the Engineer, as this document is direction for the Contractor.
- *Article 107-25* - UST abbreviation defined in article.

#### Section 108: Prosecution and Progress

- *Throughout Section 108* - For terms defined in the Definitions, created consistency on capitalization and italics use and/or appropriate term applied.
- *Throughout Section 108* - Defined who reviews and approves “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Throughout Section 108* - Removed specific Engineer positions, changed to “Engineer” as that is the Contractors point of contact.
- *Article 108-8 and 108-11* - Term consistency correction.
- *Article 108-10* - Forms italicized and location provided.

#### Section 109: Measurement and Payment

- ***Article 109-1 - Integrated provision Z-4 Errata (effective December 2022 letting - Test Method reference update).***
- *Article 109-2 & Subarticle 109-3(D)* - Defined who accepts and directs “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Subarticle 109-4(A)* - For terms defined in the Definitions, created consistency on capitalization and italics use and/or appropriate term applied.

### Section 150: Maintenance of Traffic

- *Throughout Section 150* – Defined who accepts “by the Engineer” for consistency throughout the *Standard Specifications*.

## **Division 2: Earthwork**

### Section 200: Clearing and Grubbing

- *Throughout Section 200* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.

### Section 205: Sealing Abandoned Wells

- *Article 205-1* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 205-2* - Italicized and capitalized form.

### Section 210: Demolition of Buildings and Appurtenances

- *Article 210-2 - Integrated provision Z-4 Errata (effective December 2022 Lettings - Amended NCGS 130A-444 “to -452” to “to -453”. -453 is a placeholder for codification purpose).*

### Section 215: Removal of Existing Buildings

- *Article 215-5* - Added where payment for *Clearing and Grubbing* can be found “in accordance with Article 200-8.

### Section 220: Blasting

- *Throughout Section 220* - Defined who directs, approves and accepts “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Subarticle 220-3(B)(2)* - For terms defined in the Abbreviations, ensured the appropriate definition term applied.
- *Article 220-3(D)* - Removed specific Engineer positions, changed to “Engineer” as that is the Contractors point of contact.

### Section 225: Roadway Excavation

- *Throughout Section 225* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 225-2 - Integrated provision Z-4 Errata (effective December 2022 Lettings - changed “Sedimentation and Pollution Control Act” to Article 107-12).*
- *Article 225-7* - In Measurement and Payment Article, ensured pay item terminology consistency throughout and grammar correction.

### Section 226: Comprehensive Grading

- *Article 226-3* - Added pipe culverts to borrow sources to backfill list and amended payment in accordance with Article 104-7 to include unless there is a line item for *Borrow Excavation*.

### Section 230: Borrow Excavation

- *Throughout Section 230* - Defined who directs and determines, “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Subarticle 230-4(A)* - Clarified approved erosion control measures.
- *Throughout Section 230* - For terms defined in the Abbreviations and Definitions, created consistency on term used.
- *Subarticle 230-4(B)(2)* - Added where the *Borrow Pit Sampling Manual* can be found and removed sentence regarding obtaining copies from Materials and Tests Unit.
- ***Subarticle 230-4(B)(2) - Integrated provision Z-4 Errata (effective December 2022 Lettings - Procedure documentation title correction).***
- *Subarticle 230-4(B)(3)* - Added certification requirement for those that prepare the reclamation plan.
- *Subarticle 230-4(B)(3)(a)* - Grammar correction (“a least 4 feet” to “at least 4 feet”.)
- *Subarticle 230-4(B)(3)(d)* - In Evaluation for Potential Wetlands and Endangered Species Subarticle, italicized the form and modified “experienced environmental consultant from the approved list” to “prequalified environmental consultant” as you can find them as prequalified by the Department.
- *Article 230-5* - Clarified measurement and payment for seeding, mulching and establishment of temporary erosion control.

### Section 235: Embankments

- *Throughout Section 235* - Defined who directs and approves, “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Subarticle 235-3(C)* - In Embankment Compaction Subarticle, provided where the procedures are found to include the manual “Conventional Density Operator’s Manual” and the Department’s website, removed available upon request from Materials and Tests Unit.
- ***Article 250-3(E) - Integrated provision Z-4 Errata (effective December 2022 Lettings - Removed Department’s Materials and Tests Unit).***
- *Article 250-3(E)* - Clarified that structures includes foundations.

### Section 240: Embankments

- *Throughout Section 240* - Defined who directs, permits and accepts “by the Engineer” for consistency throughout the *Standard Specifications*.
- ***Article 240-4 - Integrated provision Z-4 Errata (effective December 2022 Lettings - corrected Section to specific payment Article for consistency).***

### Section 250: Removal of Existing Pavement

- *Throughout Section 250* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 250-3* - Added “final” before roadway pavement structure.

### Section 260: Proof Rolling

- *Subarticle 260-2(G)* - For terms defined in Table 101-1 Measurement Symbols, ensured the appropriate term applied.

- *Article 260-2* - Clarification made on ballast and the maximum gross weight of 50 tons.
- *Throughout Section 260* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.

#### Section 265: Select Granular Material

- *Article 265-1* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.

#### Section 270: Geotextile for Soil Stabilization

- *Article 270-2* - Added “a” after Type 4a to align with Division 10 change.
- *Throughout Section 270* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 270-3 and 270-4* - Removed sewing geotextile option.

#### Section 275: Rock Plating

- *Article 275-1* - For terms defined in the Abbreviations and Definitions, created consistency on term used (Roadway Standard Drawings is part of the contract, thus removed) and defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 275-4* - Subsurface Drainage reference changed to applicable pay items in that Section.
- ***Article 275-4 - Integrated provision Z-4 Errata (effective December 2022 Lettings - corrected Section to specific payment Article for consistency).***

### **Division 3: Pipe Culverts**

#### Section 300: Pipe Installation

- *Throughout Section 300* - Defined who directs, permits and accepts “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 300-2* - Modified Article 1000-6 to 1000-7 due to changes made in Division 10.
- *Article 300-2* - Added “a” after Type 4a.
- *Article 300-4* - Removed “documents” from the 1<sup>st</sup> sentence of the 1<sup>st</sup> paragraph as there is not a contract document definition, but there is a contract definition.
- *Subarticle 300-6(A)* - Removed “plastic”. Removed “documents” from the 1<sup>st</sup> sentence of the 2<sup>nd</sup> paragraph as there is not a contract document definition, but there is a contract definition.
- *Subarticle 300-6(B)* - Modified first sentence to remove corrugate before HDPE and added polypropylene. Added “corrugated steel and corrugated aluminum” to define the pipe further and added plastic pipe joining criteria. Added a paragraph stating “For HDPE, polypropylene, and PVC pipe use a gasketed bell and spigot connection where not otherwise specified in the plans.”
- *Article 300-7* - Removed “documents” from the last sentence of the 2<sup>nd</sup> paragraph as there is not a contract document definition, but there is a contract definition.

- *Article 300-8* - Relocated and clarified what the Engineer will do prior to final acceptance. Added reference to “PII” document, Department’s *Guidelines for Post Installation Evaluation and Repair of Newly-Installed Drainage Pipe*. Removed what is found in the “PII” document.
- *Subarticle 300-9(D)* - Removed “documents” from the 1st sentence of the 1st paragraph as there is not a contract document definition, but there is a contract definition.

#### Section 305: Drainage Pipe

- ***Article 305-1 - Integrated provision SP3 R35 Culvert Pipe.***
- *Article 305-2* - Added Class IV and V options for Reinforced Concrete Pipe and added a sentence stating where corrugated pipe without a smooth interior can be used.
- *Article 305-4* - Defined who accepts “by the Engineer” for consistency throughout the *Standard Specifications*.

#### Section 310: Pipe Culverts

- ***Throughout Section 310 - Integrated provision SPI 10-08 Corrugated Aluminum Alloy Pipe Arch Culvert.***
- ***Throughout Section 310 - Integrated provision SP3 R35 Culvert Pipe.***
- *Article 310-1* - Removed “documents” from the 1st sentence as there is not a contract document definition, but there is a contract definition.
- *Article 310-2* - Clarified list for suppliers as producer/suppliers list, added where to find it and removed repetitive information.
- *Article 310-3* - Added couplers to the pipe installation list.
- *Article 310-4* - In Side Drain Pipe Article, amended list for side drain pipe to include Class III, IV, or V reinforced concrete pipe and further described corrugated steel pipe adding plain, galvanized, aluminized or other coated description.
- *Article 310-5* - In Pipe End Sections Article, added “smooth lined corrugated plastic” between polypropylene pipe.
- *Article 310-6* - Added Couplers to list, *Side Drain Pipe Couplers* to pay item listing and modified provision Polypropylene Pipe pay item to Polypropylene Pipe Culvert.

#### Section 330: Welded Steel Pipe

- *Article 330-1* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 330-2* - Clarified list for suppliers as producer/suppliers list and removed repetitive information.

#### Section 340: Pipe Removal

- *Throughout Section 340* - Defined who directs and approves “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 340-2* - Modified Article 1000-6 to 1000-7 due to changes made in Division 10.

#### Section 350: Pipe Clean Out

- *Throughout Section 350* - Defined who directs and accepts “by the Engineer” for consistency throughout the *Standard Specifications*.



## Division 4: Major Structures

### Section 400: Temporary Structures

- *Throughout Section 400* - Defined who accepts and directs “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Subarticle 400-3(B)* - Added the engineer licensed seals the temporary structure.

### Section 402: Removal of Existing Structures

- ***Throughout Section 402 - Integrated unit provision Demolition Plan (effective Summer 2023 Let, where added to first paragraph that the contractor is responsible for determining the current condition of the structure(s) and that they should dismantle and remove in a safe and approved method to further describe the approved method, added bridge inspection reports are available from SMU, added when engineer licensed in the State of North Carolina is needed, described substructure includes footings or piles, relocated sentence to a new Subarticle 402-2(D) Demolition Plan which has Demolition plan requirements, added paragraphs to Subarticle 402-2(C) regarding partial removal, and payment now includes all demotions plans.)***
- *Subarticle 402-2(A)* - Clarified the substructure includes the piles.
- *Subarticle 402-2(B)* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.

### Section 410: Foundation Excavation

- *Throughout Section 410* - Defined who directs, permits and approves “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 410-6* - Term consistency applied. Aligns with *Subarticle 410-4(C)*.
- *Article 410-8* - Table shifted in Division 10, aligned to match this edit.
- *Article 410-10* - Amended that the payment includes but not limited to those items listed in *Article 410-1*. Like statement removed from *Subarticle 1410-10(B)* since covered above.

### Section 411: Drilled Piers

- *Throughout Section 411* - Defined who approves, accepts and directs “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Subarticle 411-2(B)* - Unit of measure and unit name consistency applied.
- *Subarticle 411-3(A) and 411-5(A)(2)* - Changed to electronic submittal process versus a multiple copy submittal requirement.
- *Subarticle 411-3(B)* - Removed specific Engineer positions, changed to “Engineer” as that is the Contractors point of contact for the Preconstruction meeting. Defined who to schedule the preconstruction meeting with, “with the Engineer”.
- *Article 411-4* - Grammar correction made.
- *Subarticle 411-4(C)* - Removed the sand content exception.
- *Subarticle 411-4(D)(1)(a)* - Removed “for the Engineer” as the Contractor will determine the continuity of rock below holes.
- *Subarticle 411-4(E)* - Clarified reinforcing bars are vertical.

- *Subarticle 411-4(E)(2)* - Extend changed to Keep and clarified tremies or pump pipes are embedded.
- ***Subarticle 411-5(C)(3) - Integrated provision Z-4 Errata (effective December 2022 Letting - removed withdrawn ASTM reference and replaced with methods acceptable to the Engineer).***
- *Subarticle 411-6(B)* - Added must meet compressive strength required in Table 1000-2. (Note: Table 1000-1 is changing to Table 1000-2 in Division 10.)
- *Subarticle 411-7* - Added pay item includes supplying and placing Drilled Pier concrete and temporary casing. Clarified tip elevation is referencing the casing.

#### Section 412: Unclassified Structure Excavation

- *Throughout Section 412* - Defined who directs, permits and approves “by the Engineer” for consistency throughout the *Standard Specifications*.

#### Section 414: Box Culvert Excavation

- *Throughout Section 414* - Defined who directs, approves and permits “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 414-3* - Replaced reinforcing steel and concrete with foundation conditioning material.
- *Article 414-8* - In first sentence added cover weep holes with hardware cloth in accordance with Article 420-11 and clarified subdrain coarse aggregate will be standard size No. 78M.
- *Article 414-7* - Table 1000-1 is changing to Table 1000-2 in Division 10.
- *Article 414-9* - Added Box to the pay item description for consistency across Section.

#### Section 416: Channel Excavation

- *Article 416-3* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.

#### Section 420: Concrete Structures

- *Article 420-1* - Added anchors can be adhesive as well as the expansion option priorly listed.
- *Article 420-2* - Modified item description for Section 1026 to align with Division 10 title change, “Curing Agents” changed to “Curing Materials”. Epoxy Protective Coating Section reference change to new Article in Division 10 being added. Added Adhesive Anchor to the Item list. Replaced Joint Sealers with the type of Sealant allowed modifying the Section reference accordingly with this change.
- *Subarticle 420-3(A)* - Unit of measure consistency applied.
- *Throughout Section 420* - Defined who approves, accepts, directs, allows, may waive and permits “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Subarticle 420-3(C)(2)* - Amended 2<sup>nd</sup> to last paragraph with added direction when removable through ties are utilized and when sleeves shall be removed or cut back.
- *Subarticle 420-3(D)* - Term consistency applied, removed “latest” as appropriate version to reference direction can be found in Article 106-2.

- *Subarticle 420-3(D)(1)(j)* - New subarticle added, do not weld metal stay-in-place forms to flanges in link slab regions under the criteria list. Renumbered following subarticles.
- *Subarticle 420-3(D) and (E)* - Unit of measure consistency applied.
- *Subarticle 420-3(E)* - Term consistency applied.
- *Article 420-4* - Added paragraph on requirements when aluminum is in contact with fresh concrete.
- *Subarticle 420-6 and 420-20* - Added and/or modified to Table 1000-2 reference. (Note: Table 1000-1 is now Table 1000-2 in Division 10)
- *Subarticle 420-7(B)* - Removed Portland cement, now it is concrete referenced only.
- *Subarticle 420-7(C)* - Removed Portland, now it is cement referenced only. Barrels converted to lb/cy value, reduced the fly ash minimum lb/cy from 172 to 143, and modified acceptable commercial testing laboratory is an accredited one.
- *Article 420-9* - Added Subarticle reference.
- *Article 420-11* - Removed aluminum option and changed to only galvanized steel wire reinforcement.
- *Subarticle 420-13(A)* - Bonding replaced with anchor, Article changed to the overarching Section instead and added that the Manufacturer's Printed Installation Instructions (MPII) is submitted.
- *Subarticle 420-13(B)* - Introduction sentence added to subarticles to follow the MPII during adhesive anchor installations.
- *Subarticle 420-13(B)(4)* - Added clean in accordance with MPII, described adhesive is the adhesive anchor system, modified minimum anchor bolt/dowel embedment depth from the manufacturer to as listed in the plans and in accordance with Subarticle 1081-1(C), changed manufacturer's recommendations to MPII, clarified it is 40 degrees Fahrenheit unless the MPII requires a higher temperature, and modified sentence so adding additional adhesive to the hole is not allowed and direction when the adhesive fails to fill the hole occurs was provided instead.
- *Subarticle 420-13(C)* - Changed the calibration requirement from 6 months to 12 months.
- *Subarticle 420-14* - Added concrete girders to the list. Split up the last sentence of the 3<sup>rd</sup> paragraph, changing wetted panel surfaces to wetted concrete surfaces and removing a specific panel and replacing with all surfaces as well. Modified that set retarders may be waived by the Engineer versus is waived.
- *Subarticle 420-14(B)* - Overhaul of Finishing Subarticle reordering content, adding longitudinal screed clarification, expanded various skew instructions, removed repetitive content, added further testing with 10 foot straightedge if required by the Engineer and clarified when to correct low areas.
- *Subarticle 420-15(A)* - Grammar correction made.
- *Subarticle 420-18(A)* - Changed Type 4A to waterproofing epoxy, modified section and other Type 4A reference to new article in Division 10.
- *Subarticle 420-18(C)* - Modification of sentence to ensure dry before applying the coating. Added apply coating per the manufacturer's application procedures.

#### Section 422: Bridge Approach Slabs

- *Article 422-2* - Modified item description for Section 1026 to align with Division 10 title change, “Curing Agents” changed to “Curing Materials”.
- *Article 422-3* - Replaced Joint Sealers with the type of Sealant allowed modifying the Section reference accordingly with this change.

#### Section 425: Fabricating and Placing Reinforcement

- *Throughout Section 425* - For terms defined in the Definitions, created consistency on capitalization and italics use and/or appropriate term applied.
- *Article 425-2* - In the item list added section reference for Epoxy Coated Spiral Column Reinforcing Steel, replaced Wire Bar Supports with Reinforcing Steel Bar Supports to aligned item with the Section reference description.
- *Article 425-4* - Clarified tie is cross tie and requirement when drilled piers have double wire specifically, inspection should be done in a sufficient amount of time after placement and relocated 2<sup>nd</sup> to last paragraph to the end of the last paragraph.
- *Subarticle 425-5(B)* - Defined who approves “by the Engineer” for consistency throughout the *Standard Specifications*.

#### Section 430: Erecting Prestressed Concrete Members

- *Article 430-1* - Removed paint as removed tie rods used in intermediate diaphragms.
- *Article 430-2* - Removed Plain Steel Bars, Thread Ends and Reinforcing Steel as removed intermediate diaphragm.
- *Article 430-2 - Integrated provision Z-4 Errata (effective December 2022 letting, corrected Article 1080-9 should be 1080-7).*
- *Article 430-4* - Added safe installation.
- *Article 430-5* - Relocated the last two paragraphs to Subarticle 1079-2(A).
- *Subarticle 430-6(A)* - Removed the third paragraph as intermediate diaphragms is not an option.
- *Subarticle 430-6(B)* - Combined Subarticle 430-6(C) with this subarticle adding Box Beams as found duplicative language in both Subarticles. Documented specific process for tensioning to get a better final product. Added testing requirements sentence.
- *Article 430-7* - Removed tie rods and added painting damaged coated surfaces.
- *Article 430-8* - Removed Concrete Box Beams and creating Modified and FIB \*\*\* Prestressed Concrete Girders pay item.

#### Section 440: Steel Structures

- *Article 440-2 - Integrated provision Z-4 Errata (effective December 2022 letting, corrected Article 1080-9 should be 1080-7).*
- *Article 440-4* - Added “full” before dead load. Removed last two paragraphs moved to Subarticle 1079-2(A).
- *Article 440-6* - Overhaul of this Article. Added contractor responsibility paragraph, removed limit the drifting paragraph, modified bolt splices and field connections paragraph describing bolts as erection bolts and processes required, added paragraph regarding snug

condition of permanent bolts, connection prior to crane release and primary member splice connections, added paragraph on curved girder bridges crane release, added paragraph and limitation list regarding field reaming, and added defect and Engineer presence and submittal requirements. For consistency added Grade before A325.

- *Article 440-7* - Added after coating “from the weld heat affected zone”.
- *Subarticle 440-8(C)(4)* - Added a new paragraph on reuse direction.
- *Subarticle 440-8(C)(5)* - Abbreviated Direct Tension Indicators as DTI’s and made abbreviation replacements throughout article, changed 2 to 4 each of the metal feeler gauges, calibration details added, removed additional information after Table 440-1 for consistency and in 9<sup>th</sup> paragraph second sentence clarifying snug tightening is of all bolts such that plies of steel members are brought into full contact.

#### Section 442: Painting Steel Structures

- *Article 442-2 and Subarticle 442-7(A) - Integrated provision Z-4 Errata (effective December 2022 letting, corrected Article 1080-6 should be 1080-12).*
- *Article 442-4* - For terms defined in the Abbreviations, ensured appropriate term applied.
- *Throughout Section 442* - Italicized program reference.
- *Subarticle Section 442-7(A) - Defined who approves “by the Engineer” for consistency throughout the Standard Specifications.*
- *Article 442-11* - Added paragraph on requirements when aluminum is in contact with fresh concrete.
- *Subarticle 442-12(B)* - Removed 2<sup>nd</sup> to last paragraph and in last paragraph clarified steel is bare, added shop “or field” coated surfaces before “coating operations begin, during coating operations and after the coating is complete” rather than any painting operations begin as having issues with welding when not clean.
- *Subarticle 442-12(D)* - Added qualification and certification requirements.

#### Section 450: Piles

- *Throughout Section 450 - Integrated provision SP4 R05 Piles.*
- *Throughout Section 450* - Modified testing equipment and software from pile driving analyzer (PDA) to high-strain dynamic pile testing (dynamic pile testing).
- *Article 450-1* - In description moved spudding definition from Subarticle 450-3(D) for consistency.
- *Subarticle 450-3(A)* - In Handling and Storing Piles Subarticle, added some clarifying terms to include support “and lift” piles, store piles “level” above ground, and keep free from “standing water”.
- *Subarticle 450-3(C)* - Added approved welding procedures.
- *Subarticle 450-3(D)* - Added that the Engineer will review prior to approving and added vibratory hammer use requirements.
- *Throughout Section 450* - Defined who accepts and directs “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Subarticle 450-3(D)(1)* - Removed “If necessary or required”.

- *Subarticle 450-3(D)(2)* - Overhaul of this subarticle. Removed copy requirement and merged when to submit portion to earlier sentence, reduced maximum blows per foot to 120, removed prestressed concrete before piles, added other hammer options (air, steam, hydraulic or open end diesel denoting close end diesel is not allowed), removed specifics on air and steam hammer weight, removed not allowable diesel option paragraph portion, merged sentences, remove closely before fit, in the last paragraph added a helmet size sentence and modified dimensions and percent values as well as list on when must replace pile cushions.
- *Subarticle 450-3(D)(3)* - Grammar correction “will” added before provide and added (or blows per inch) unit of measure option.
- *Subarticle 450-3(D)(4)* - Removed “unless” portions of sentences in the last paragraph and extra phrase “in general”.
- *Subarticle 450-3(E)* - Removed “and center” before piles and instead noted in “their planned location within” excavations.
- *Subarticle 450-3(E)(1)* - Added to first sentence removing “and drill” and replacing with “to a depth of at least 5 feet deeper than the maximum pile excavation length shown on the plans”.
- *Subarticle 450-3(E)(2)* - Added more detail about the approved method and specifics on where to find the approved method with one exception.
- *Subarticle 450-3(F)* - Clarified testing piles in accordance with plans or as directed & defined who accepts and the criteria for acceptance.
- *Subarticle 450-3(F)(1)* - Added “including but not limited to driving piles deeper or to a higher driving resistance than stated in the plans”.
- *Subarticle 450-3(F)(3)* - Changed to electronic submittal process versus a multiple copy submittal requirement and clarified the report format requirements.
- *Subarticle 450-3(F)(3)(h)* - Removed Summary/Conclusions and replaced with Subarticle 450-3(F)(4) and Subarticle 450-3(F)(3)(h) less moved to an electronic submittal process and removed Subarticle 450-3(F)(4)(a) when moved.
- *Article 450-4* - Modified prestressed concrete pile measurement method and clarified piles throughout.

#### Section 452: Sheet Pile Retaining Walls

- *Article 452-2* - Joint Materials changed to Joint Fillers and Low Modulus Silicone Sealant with appropriate Section references.
- *Article 452-5* - Clarified "backfilling" as “placing and compacting backfill material” in compensation listing.

#### Section 453: CIP Gravity Retaining Walls

- *Article 453-2* - Joint Materials changed to Joint Fillers and Low Modulus Silicone Sealant with appropriate Section references.
- *Throughout Section 453* - Defined who accepts and approves “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 453-5* - Clarified "backfilling" as “placing and compacting backfill material” in compensation listing.

#### Section 454: Segmental Gravity Retaining Walls

- *Article 454-2* - Joint Materials changed to Joint Fillers and Low Modulus Silicone Sealant with appropriate Section references, Selection Materials added the s to align with title of Section, changed 4 foot to 5 foot maximum wall heights and replaced “design” with “wall” heights.
- *Article 454-2 - Integrated provision Z-4 Errata (effective December 2022 letting corrected reference for Subsurface Drainage Materials to Section 1044 from Article 815-2).*
- *Throughout Section 454* - Defined who accepts and approves “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 454-3(B)* - Unit of measure consistency applied and who to submit to defined “to the Engineer”.
- *Article 454-5* - Clarified "backfilling" as “placing and compacting backfill material” in compensation listing.

#### Section 455: Precast Gravity Retaining Walls

- *Article 455-2* - Joint Materials changed to Joint Fillers and Low Modulus Silicone Sealant with appropriate Section references, removed “Class IV” and changed to Select Materials.
- *Article 455-2 - Integrated provision Z-4 Errata (effective December 2022 letting corrected reference for Subsurface Drainage Materials to Section 1044 from Article 815-2).*
- *Throughout Section 455* - Defined who approves and accepts “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Subarticle 455-3(B)* - Who to submit to defined “to the Engineer”, removed 3<sup>rd</sup> sentence in 2<sup>nd</sup> paragraph, clarified horizontal load is nominal and unit of measure consistency applied.
- *Subarticle 455-3(B) - Integrated provision Z-4 Errata (effective December 2022 letting, corrected LRFD reference title).*
- *Article 455-3(C)* - Removed specific Engineer positions, changed to “Engineer” as that is the Contractors point of contact for the Preconstruction meeting. Defined who to schedule the preconstruction meeting with, “with the Engineer”. Defined who needs to attend from the Contractors staff.
- *Article 455-5* - Clarified "backfilling" as “placing and compacting backfill material” in compensation listing.

#### Section 458: Waterproofing and Dampproofing

- *Subarticle 458-3(B)* - Who to obtain permission from defined “from the Engineer”.
- *Throughout Section 455* - Defined who directs and permits “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 458-5 - Integrated provision Z-4 Errata.*

#### Section 460: Concrete and Metal Rails

- *Article 460-2* - Added Curing Agents with Section reference and removed Steel Bar Reinforcement from the materials list.

- *Article 460-4* - Relocated sentence. For consistency changed “provided” to “shown” in the plans.

#### Section 462: Slope Protection

- *Article 462-2* - Modified item description for Section 1026 to align with Division 10 title change, “Curing Agents” changed to “Curing Materials”. Added Low Modulus Silicone Sealant with appropriate Section reference.
- *Article 462-3 and 462-4* - Replaced “paving” or “concrete paving” with “concrete slope protection”.

### **Division 5: Subgrade, Bases and Shoulders**

#### Section 500: Fine Grading Subgrade, Shoulders and Ditches

- *Subarticle 500-2(C) - Conventional Density Operator’s Manual* location provided, “on the Department’s website”.

#### Section 501: Lime-Treated Soil

- *Article 501-2* - Modified Lime article reference to align with Division 10 Section change to just Lime Stabilizers.
- *Throughout Section 501* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.

#### Section 505: Aggregate Subgrade

- ***Throughout Section 505 - Integrated provision SP5 R08 Aggregate Subgrade.***
- *Throughout Section 505* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 505-2* - Changed soil to subgrade to align with title and changed to Type 5a from Type 4.
- *Article 505-3* - Added geotextile installation requirements paragraph and added specific subgrade stabilization “standard size no. ABC” to this new paragraph. Relocated heavy equipment sentence to a new paragraph that included requirements on damaged geotextiles.

#### Section 510: Aggregate Stabilization (No changes)

#### Section 520: Aggregate Base Course

- *Article 520-2* - Added additional Section to the item listed, for consistency with Article 520-3.
- *Article 520-6* - For terms defined in the Definitions, ensured appropriate term applied. The two articles comprise the overall Section, so modified to Section.

#### Section 535: Conditioning Existing Base

- *Article 535-3* - Due to 1,000 square yards unit of measure changed “sy” to “square yards”.



#### Section 540: Conditioning Existing Base

- *Article 540-2* - Subarticles changed to the full Section, as those were the only two articles in that section.
- *Subarticle 540-5(B)(2)* - Grammar correction.

#### Section 542: Soil-Cement Base (No Changes)

#### Section 543: Asphalt Curing Seal

- *Article 543-1* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.

#### Section 545: Incidental Stone Base

- *Article 545-2* - For terms defined in the Definitions, ensured appropriate term applied.

#### Section 560: Shoulder Construction

- *Article 560-3* - Added article reference where organic material can be found and defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Subarticle 560-4(C)* - Removed “If aggregate shoulder borrow (ASB) is used for borrow, a unit weight of 140 lb/cf will be used to convert the weight of ASB to cubic yards.”

### **Division 6: Asphalt Pavements**

#### Section 600: Prime Coat

- *Article 600-1* - For terms defined in the Definitions, created consistency on capitalization use.
- *Throughout Section 600* - Defined who directs and approves “by the Engineer” for consistency throughout the *Standard Specifications*.

#### Section 605: Asphalt Tack Coat

- *Article 605-1* - For terms defined in the Definitions, created consistency on capitalization use.
- *Article 605-4* - Added “dispose of” the grass, dirt and other material as directed by the Engineer.
- *Throughout Section 605* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.

#### Section 607: Milling Asphalt Pavement

- *Throughout Section 607* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.
- ***Article 607-2 - Integrated provision SP6 R59 Milling Asphalt Pavement.***
- ***Throughout Section 607 - Integrated provision SP6 R02R Incidental Milling***
- *Article 607-3* - Added “Scabbing” is defined as a thin layer of existing pavement that remains after milling and has the potential to delaminate.

### Section 609: Quality Management System for Asphalt Pavements

- *Article 609-1* - Reference title correction.
- ***Throughout Section 609 - Integrated provision Z-4 Errata (effective December 2022 Let, Section number correction made regarding the Asphalt QMS Manual).***
- *Article 609-3* - Added reference where further direction can be found on the *Allowable Mix Adjustment Policy*.
- *Throughout Section 609* - Defined who directs and approves “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Throughout Section 609* - For terms defined in the Definitions, created consistency on capitalization use or appropriate definition term applied.
- *Article 609-8* - Removal from the NCDOT Certified Asphalt Laboratory List was repetitively noted, replaced the first instance with technician certification revocation and removal.
- ***Article 609-9 - Integrated provision SP6 R65 Asphalt Concrete Plant Mix Pavements.***

### Section 610: Asphalt Concrete Plant Mix Pavements

- *Throughout Section 610* - For terms defined in the Definitions and Abbreviations, created consistency on capitalization and italics use or appropriate definition or abbreviation term applied.
- *Article 610-1* - Added “NCDOT approved” before WMA additives as options are available outside of the NCDOT APL as well as on the NCDOT APL by 2024 all will be on the NCDOT APL. *Throughout Section 610* - Defined who directs and approves “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Subarticle 610-3(A)* - Reasons why removed for consistency. Modified AASHTO reference, replacing with an Article reference.
- ***Throughout Section 610 - Integrated provision SP6 R65 Asphalt Concrete Plant Mix Pavement.***
- *Article 610-9* - Added bridges to the list where the Engineer may prohibit or restrict vibratory rollers.
- *Subarticle 610-13(A)* - Profile data filter change, Inertial Profiler operator requirements changed to an M&T certification process, removed AASHTO R 56 and R 57 reference, and added block and bounce tests prior to each day’s data collection and during operation with the presence of the Engineer.
- ***Throughout Section 610 - Integrated provision Z-4 Errata.***
- *Subarticle 610-13(B)* - Modified calibration reference from *NC Hearne Straightedge Calibration and Determination of Cumulative Straightedge Index* to where it is found in the *Asphalt QMS Manual* and removed copies being able to be procured from the Department.
- *Article 610-14* - Removed conducted in accordance with Section 610 of the Asphalt QMS Manual, as mentioned in the last sentence of this first paragraph and had an incorrect Section reference.

#### Section 620: Asphalt Binder for Plant Mix

- *Article 620-3* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.

#### Section 650: Open-Graded Asphalt Friction Course

- *Article 650-1* - For terms defined in the Definitions, created consistency on capitalization use. Added warm mix asphalt (WMA) additive.
- *Subarticle 650-2(B)* - Added more details on fiber stabilization or RAS, dosage rate, specifics to prevent draindown when using WMA additive.
- *Subarticle 650-3(A)* - Removed copies being able to be procured from the Department. Added where to find the Department’s mix design procedures.
- *Throughout Section 650* - Defined who directs and approves “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 650-5 - Integrated provision SP6 R63 Open Graded Asphalt Friction Course.*
- *Article 650-5 - Integrated provision Z-4 Errata (effective December 2022 Let, Section number correction made regarding the Asphalt QMS Manual).*

#### Section 652: Permeable Asphalt Drainage Course Types P-78M and P-57

- *Article 652-1* - For terms defined in the Definitions, created consistency on capitalization use.
- *Throughout Section 652* - Defined who approves “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Subarticle 652-3(B)* - Added Asphalt Binder Grade to Table 652-1.

#### Section 654: Asphalt Plant Mix, Pavement Repair

- *Throughout Section 654* - Defined who directs and approves “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 654-2* - For terms defined in the Definitions, created consistency on capitalization use.
- *Article 654-4* - Grammar correction and removed 2<sup>nd</sup> paragraph and replaced with Furnishing asphalt binder will be paid as provided in Article 620-4 for *Asphalt Binder for Plant Mix* for each grade required.

#### Section 657: Sealing Existing Pavement Cracks and Joints (No changes)

#### Section 660: Asphalt Surface Treatment

- *Article 660-3* - Modified 50°F to 55°F.
- *Article 660-4* - Added “dispose of” the dust, dirt, clay, grass, and any other deleterious matter as directed by the Engineer.
- *Throughout Section 660* - Defined who directs, requires, approves and rejects, “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 660-8* - Overhaul of article to include increasing the minimum foot test section requirement and added when to perform calibration and construction of the test strip.

- *Subarticle 660-8(A)* - Overhaul of subarticle to include added blotting sand requirement to Asphalt Seal Coat Subarticle, added that aggregate is not an acceptable cover material on an AST Seal Coat, water spray bars on the rollers may be required, smooth tread requirement when pneumatic tire rollers are used, listed what is not allowed, defined what is at no cost to the department, modified 2<sup>nd</sup> paragraph and removed the last paragraph.
- ***Subarticle 660-8(B) - Integrated provision Z-4 Errata (effective December 2022 Let, Subarticle correction made).***
- *Subarticle 660-8(C)* - Additional mat coat directives and removed seal coat or plant mix being able to be applied on the same day as the mat coat.
- *Subarticle 660-8(D)* - Added a paragraph about application of plant mix material.
- ***Article 660-8(E) & 660-12 - Integrated provision SPI 6-19 Fog Seal.***

#### Section 661: Ultra-Thin Bonded Wearing Course

- *Article 661-2* - Added NTHA abbreviation to first instance non-tracking hot applied was noted and aligned APL description with APL listing.
- ***Article 661-4 - Integrated provision SP6 R64 Ultra-Thin Bonded Wearing Course.***
- *Throughout Section 661* - Defined who approves “by the Engineer” for consistency throughout the *Standard Specifications*.

#### Section 665: Milled Rumble Strips on Asphalt Concrete Shoulders (No Changes)

### **Division 7: Concrete Pavements and Shoulders**

#### Section 700: General Requirements for Portland Cement Concrete Pavement

- *Throughout Section 700* - Defined who directs and approves “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 700-1* - Defined who submit to, “to the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 700-4* - For terms defined in the Definitions, created consistency on capitalization use.
- *Subarticle 700-11(G)* - Modified the dowel bar alignment verification joint scan requirements.
- *Article 700-14 and Subarticle 700-15(C)* - Modified Article 1000-3 to 1000-4, since reversed order in Division 10.
- ***Subarticle 700-15(E) - Integrated provision Z-4 Errata (effective January 2023 corrected AASHTO T 23 to AASHTO R 100).***

#### Section 710: Concrete Pavement

- *Article 710-3* - Narrowed Section referenced to the Article where major change is defined.
- *Throughout Section 710* - Defined who approves, directs and permits “by the Engineer” for consistency throughout the *Standard Specifications*.

- *Article 710-7* - Changed profile data filter, added operator certification requirement, removed certification of the system, added a block and bounce test requirement in the presence of the Engineer with each days Inertial Profiler data collection, to operate in the presence of the Engineer as well and removed DVD-R media changing to electronic media method approved by the Engineer.
- *Subarticle 710-7(A)* - Removed “New” in title of subarticle.
- *Subarticle 710-7(B)* - Modified localized roughness from 150 to 165 inches per mile.

#### Section 720: Concrete Shoulders

- *Article 720-2* - Modified item description for Section 1026 to align with Division 10 title change, “Curing Agents” changed to “Curing Materials”.
- *Article 720-9* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.

#### Section 723: Concrete Repair

- *Article 723-2* - Modified item description for Section 1026 to align with Division 10 title change, “Curing Agents” changed to “Curing Materials”. For terms defined in the Definitions, created consistency on appropriate term applied.
- *Article 723-4* - Relocated materials related content to a new Article in Division 10, will be Article 1000-5 with the same name.
- ***Throughout Section 723 - Integrated provision Z-4 Errata (effective January 2023 let corrected AASHTO T126 with R 39, corrected Section with Article where measured and paid for consistency through the Standard Specification).***

#### Section 724: Nonwoven Geotextile Interlayer

- *Article 724-1* - Removed specific Engineer positions, changed to “Engineer” as that is the Contractors point of contact for the Pre-Pave Meeting. Defined who to schedule the Pre-Pave Meeting with, “with the Engineer”.
- *Article 724-3* - Added that the Geotextile Manufacturer remains on-site until the Engineer accepts that the crew has comfort level working with this material, to handle and store the geotextiles in accordance with Article 1056-2, modified 3 days to 24 hours along with unless otherwise approved by the Engineer and driving on interlay is restricted to concrete paving operations only.
- ***Article 724-4 - Integrated provision Z-4 Errata (Article number changed from 725-1 to 724-4).***

#### Section 725: Field Laboratory for Portland Cement Concrete Pavement

- *Article 725-2* - Added telephone service, internet connection service with modem with ethernet port for Wi-Fi and the field office must be OSHA compliant.
- ***Article 725-3 - Integrated provision Z-4 Errata (Article number changed from 725-1 to 725-3)***

#### Section 730: Milled Rumble Strips on Concrete Shoulders

- *Article 730-1* - For terms defined in the Definitions, created consistency on appropriate term used (plans includes *Roadway Standard Drawings*).

## Division 8: Incidentals

### Section 800: Mobilization (No Change)

#### Section 801: Construction Stakes, Lines and Grade

- *Article 801-1* - Grammar correction and changed manual to being available on the Department's website.
- *Subarticle 801-2(E)* - Defined who directs "by the Engineer" for consistency throughout the *Standard Specifications*.
- *Subarticle 801-2(F)(1) and 801-2(G)* - Moved to a single electronic submittal process.
- ***Article 801-3 - Integrated provision SP8 R03 Supplemental Surveying.***
- *Article 801-3* - Clarified *Exploratory Excavation* required to locate a utility "not identified in the plans" will be paid in accordance with Article 104-7.

#### Section 802: Disposal of Waste and Debris

- *Subarticle 802-2(F)* - For terms defined in the Abbreviations, ensured consistency on term applied.
- *Subarticle 802-2(H)* - Defined who to submit to "to the Engineer" for consistency throughout the *Standard Specifications*.

#### Section 806: Right-of-Way and Control-of-Access Markers

- *Article 806-2* - Removed "Deformed" from Steel Bar Reinforcement in item list.
- *Article 806-3* - Removed "plastic" before concrete.

#### Section 808: Obliteration of Existing Road

- *Article 808-3* - Merged the first two paragraphs together as like language less the pay item.

#### Section 815: Subsurface Drainage

- *Article 815-1* - Defined who directs "by the Engineer" for consistency throughout the *Standard Specifications* and clarified that the markers are painted (painted is indicated in the plans).
- ***Article 815-2 - Integrated provision Z-4 Errata (effective January 2023 let Steel Marker Paint article corrected).***
- *Article 815-2* - Removed additional information in the () details will be provided elsewhere in the contract. Removed PVC (also removed in Article 815-3) and changed AASHTO M 278 to Article 1044-6 or 1044-7.

#### Section 816: Shoulder Drains

- ***Article 816-2 - Integrated provision Z-4 Errata (effective January 2023 let Steel Marker Paint article corrected).***

#### Section 818: Blotting Sand (No Changes)

#### Section 820: Funnels and Funnel Drains

- *Section 820* - Removed as better alternatives for this available, such as 2 GI's.

#### Section 825: Incidental Concrete Construction

- **Article 825-1 - Integrated provision Z-4 Errata (effective January 2023 removed two sections from the provisions list, 853 and 855 as no longer part of the 2018 or 2024 Standard Specifications).**
- **Article 825-4 - Modified Subarticle 1000-4(E) to 1000-3(E) due to changes made in Division 10.**

#### Section 828: Temporary Steel Cover for Masonry Drainage Structures

- **Article 828-1 - Defined who directs “by the Engineer” for consistency throughout the Standard Specifications.**

#### Section 830: Brick Masonry Construction (No Changes)

#### Section 832: Reinforced Brick Masonry Construction (No Changes)

#### Section 834: Block Masonry Construction

- **Article 834-6 - Changed title from Compensation to Measurement and Payment for consistency.**

#### Section 836: Sluice Gate

- **Throughout Section 836 - Integrated provision Z-4 Errata. (Note: Article number correction only.)**
- **Article 836-1 - Added sentence stating, “Sluice gate includes other types of gates such as shear gates, ball valves, butterfly valves or other alternatives approved by the Engineer.”**

#### Section 838: Endwalls

- **Article 838-2 - Modified item description for Section 1026 to align with Division 10 title change, “Curing Agents” changed to “Curing Materials”. Changed two item descriptions to align with section referenced language.**
- **Subarticle 838-3(A) - Defined who approves “by the Engineer” for consistency throughout the Standard Specifications.**

#### Section 840: Minor Drainage Structures

- **Article 840-2 - Modified item description for Section 1026 to align with Division 10 title change, “Curing Agents” changed to “Curing Materials”. Changed one item description to align with section referenced language and adjusted Joint Sealers to include both joint sealer type options.**
- **Subarticle 840-3(B) - Precast foundation slabs changed to precast structure foundations.**
- **Throughout Article 840-3 - Defined who directs “by the Engineer” for consistency throughout the Standard Specifications.**

#### Section 846: Concrete Curb, Curb and Gutter, Concrete Gutter, Shoulder Berm Gutter, Concrete Expressway Gutter and Concrete Valley Gutter

- **Article 846-2 - Changed one item description to align with section referenced language.**

- *Article 846-4* - Changed curb to gutter for non-curb related pay items and merged sentences like the first pay item.

#### Section 848: Concrete Sidewalks, Driveways and Curb Ramps

- *Article 848-2* - Modified item description for Section 1026 to align with Division 10 title change, “Curing Agents” changed to “Curing Materials”. Changed one item description to align with section referenced language and removed sentence that is a criteria for the product to be on the NCDOT APL.
- *Article 848-3* - Defined who approves “by the Engineer” for consistency throughout the *Standard Specifications*. Removed “documents” from the 6th paragraph as there is not a contract document definition, but there is a contract definition.
- *Article 848-4* - For the pay items, added Concrete before Curb Ramps for pay item term consistency throughout all pay items and added removing in remove and replace existing pay item.

#### Section 850: Concrete Paved Ditch

- *Article 850-2* - Modified item description for Section 1026 to align with Division 10 title change, “Curing Agents” changed to “Curing Materials”. Changed one item description to align with section referenced language.
- *Article 850-3* - Defined who approves “by the Engineer” for consistency throughout the *Standard Specifications*.

#### Section 852: Traffic Islands and Medians

- *Article 852-2* - Modified item description for Section 1026 to align with Division 10 title change, “Curing Agents” changed to “Curing Materials”. Changed item descriptions to align with section referenced language.

#### Section 854: Concrete Barrier

- *Article 854-2* - Modified item description for Section 1026 to align with Division 10 title change, “Curing Agents” changed to “Curing Materials”. Changed item descriptions to align with section referenced language and removed pin and eye before assemblies to broaden the options.
- *Subarticle 854-3(A)* - Corrected sentence to define the full process.
- *Subarticle 854-3(C)* - Changed crystal to white delineators.
- ***Article 854-4 - Incorporated provision insert not numbered Median Hazard Protection.***

#### Section 857: Precast Reinforced Concrete Barrier – Single Faced

- *Article 857-3* - Changed crystal to white delineators.

#### Section 858: Adjustment of Catch Basins, Manholes, Drop Inlets, Meter Boxes and Valve Boxes

- *Article 858-2* - Modified item description for Section 1026 to align with Division 10 title change, “Curing Agents” changed to “Curing Materials”. Changed one item description to align with section referenced language, narrowed the section reference for Joint Sealers for consistency throughout the *Standard Specifications*.



- *Article 858-3* - Modified to include construction methods of a maximum 24 inch chimney and frame and cover height.
- *Article 858-4* - Added pay item to *Reconstruct Manhole Structures* for the modification in Article 858-3, added details that there will not be payment for both an adjustment and reconstructing, removed manhole from list of items that can be raised more than 2 feet and added manhole steps to price includes list.
- ***Article 858-4 - Integrated provision SP8 R94R Adjustment of Oversized Manholes (Slight modification of provision when integrated.) and Integrated provision SP8 R98R Adjustment of Catch Basins, Manholes, Drop Inlets, Meter Boxes and Valve Boxes.***

#### Section 859: Converting Existing Catch Basins, Drop Inlets and Junction Boxes

- *Article 859-2* - Modified item description for Section 1026 to align with Division 10 title change, “Curing Agents” changed to “Curing Materials”. Changed one item description to align with modified section referenced narrowing to only one Joint Sealer option.

#### Section 862: Guardrail

- *Throughout Section 862* - Defined who directs and approves “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 862-2* - Removed () portion after Guardrail Steel Post as only found in pay item, clarified further the Department’s Brand Certification program regarding where to find the options and what should be submitted along with the fact no modification can be made once approved and on the NCDOT APL. Removed FHWA acceptance letter requirement.
- *Article 862-3* - Removed “documents” from the 8th paragraph as there is not a contract document definition, but there is a contract definition.
- *Article 862-4* - Added construction method from SP8 R64 and R65 Guardrail End Unit TL-2 and TL-3.
- *Article 862-4* - Changed crystal to white delineators.
- *Article 862-6* - Added “either” where either is “or the w-beam midspan panel splice point of the guardrail” for pay item where states center to center of the outermost post to align with the *Roadway Standard Drawings*. Added Temporary Additional Guardrail Posts, applied to more recent projects. Added how paying for anchor plates when not in the contract. Added delineation to incidental list for Guardrail End Units.
- ***Article 862-6 - Integrated provision SP8 R70 Guardrail Anchor Units and Temporary Guardrail Anchor Units.***

#### Section 863: Remove Existing Guardrail and Guiderail (No Changes)

#### Section 864: Remove and Reset Existing Guardrail and Guiderail (No Changes)

#### Section 865: Remove and Reset Existing Guardrail and Guiderail

- *Article 865-1* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.

#### Section 866: Fence

- *Throughout Section 866* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.

#### Section 867: Fence Reset

- *Article 867-1* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.

#### Section 869: Relapping Guardrail

- *Throughout Section 869* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.

#### Section 873: Preformed Scour Hole with Level Spreader Apron

- ***Throughout Section 873 - Integrated provision Z-4 Errata. (Note: Article number correction only.)***
- *Article 873-1* - Changed plans to contract for consistency, added abbreviation of permanent soil reinforcement matting and noted where this and others on the list are specified “in the contract”.
- *Article 873-2* - Replaced paragraph and table following the item list with “Use PSRM Type 3 in accordance with the contract.” Where the former content will be modified and found in a provision instead of the *Standard Specifications*.

#### Section 876: Rip Rap

- *Throughout Section 876* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 876-4* - For terms defined in the Definitions, ensured consistency on term applied.

### **Division 9: Signing**

#### Section 900: General Requirements for Signing

- *Article 900-2* - Modified site to sign in first paragraph of Article 900-2.
- *Throughout Section 900* - Defined who accepts and approves “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 900-2* - For terms defined in the Definitions, ensured the appropriate definition term applied or included.

#### Section 901: Sign Fabrication

- *Article 901-2 & Subarticle 901-3(A)* - Added reference to RFID Tracking Program.
- *Throughout Section 901* - Defined who approves “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Subarticle 901-3(A)* - The fifth paragraph was modified for the labeling requirements of the sign to include marking technique change and RFID label inclusion.
- *Subarticle 901-3(C)(2)* - Aligned text with Table referenced.

- *Subarticle 901-3(H)(1)* - Added MUTCD conformance for letters and numeral design and corrected title of reference that resided priorly.
- *Throughout Section 901* - Grammatic, numeric display, and reference title format corrections made.
- *Subarticle 901-3(K)* - For terms defined in the Definitions, ensured the appropriate definition term applied or included.
- *Subarticle 901-3(M)* - Define who may apply all legends and borders on Type E and F signs using digital printing “The manufacturer”. Replaced National Transportation Product Evaluation Program (NTPEP) with AASHTO Product Evaluation & Audit Solutions.
- *Subarticle 901-4(E)(1)* - Removed specific manufacturer of retroreflectometers.

#### Section 902: Foundations for Ground Mounted Signs

- *Article 902-2* - Aligned material item titles with section reference.
- *Article 902-4* - In measurement and payment, modified actual to computed to align with following sentence for consistency on how to measure.
- *Article 902-4* - Pay item consistency applied.
- *Article 902-4* - Added what payment includes for consistency.

#### Section 903: Ground Mounted Sign Supports

- *Article 903-2* - Aligned material item titles with section reference.
- *Throughout Section 903* - Term consistency applied non-aerosol organic-zinc repair paint instead of zinc-rich paint.
- *Subarticle 903-2(D)(2)* - Added for enhanced milepost signs and clarified milemarkers as milepost signs.

#### Section 904: Sign Erection

- *Article 904-2* - Aligned material item titles with section reference.
- *Throughout Section 904* - Term consistency applied non-aerosol organic-zinc repair paint instead of zinc-rich paint.
- *Subarticle 904-3(B)(3)* - Standardized AASHTO reference description across Divisions where referenced.
- ***Subarticle 904-3(G) and Article 904-4 - Integrated unit provision Sign Erection, Logo Mileage Panel to Sign and clarified when this will be paid versus incidental to Sign Erection.***

#### Section 906: Overhead Sign Supports

- *Article 906-2* - Aligned material item titles with section reference.
- *Article 906-2* - Removed Reinforcing Steel from materials list, as not applicable to this Section.
- *Subarticle 906-3(A)* - For terms defined in the Definitions, created consistency on capitalization and italics use and appropriate definition term applied.
- *Subarticle 906-3(A)* - Term consistency applied non-aerosol organic-zinc repair paint instead of zinc-rich paint.

- *Subarticle 906-3(A)* - Added Article to reference for further information on direct tension indicators, Article 440-8.
- *Subarticle 906-3(C)(2)* - Defined equations referenced further.
- *Throughout Section 906* - Standardized AASHTO reference description across Divisions where referenced.
- *Article 906-4* - “@ Sta” and “at Sta.” removed from pay item as could be in or outside of station limits.
- *Article 906-4* - Added sentence to ensure it is understood the pay item does not include the cost for foundations as this item will be paid for elsewhere in the contract.

Section 907: Disposal and Stockpiling of Signing Components (No Changes)

**Division 10: Materials**

Section 1000: Portland Cement Concrete Production and Delivery

- *Article 1000-1* - Overhaul of article which included grammar corrections, added what each type means and added Section where more information can be found about their use, added department approval and use admixtures on the NCDOT APL, clarified certified technicians are through NCDOT, lower cased engineer as this is the contractors engineer not NCDOT’s Engineer referenced throughout, relocated pour with multiple concrete plants paragraph to the 2<sup>nd</sup> to last paragraph in the article, merged sentences and clarified the criteria, defined major change, pozzolan changed to SCM and created a new list of minor change requirements that should be submitted to M&T using a specific form when the changes occur.
- *Subarticle 1000-3(A) (formerly Subarticle 1000-4(A))* - Added higher strength classes of concrete are permissible if approved, removed determination of mix proportions by testing laboratory and replaced with design requirements of Table and the section and laboratory trial batches confirm the requirements are met and removed the last sentence.
- *Subarticle 1000-3(C) (formerly Subarticle 1000-4(C))* - Removed “in Table 1000-1” in sentence and replaced with “for the class of concrete”, grammar corrections and test change to investigate.
- *Subarticle 1000-3(D) (formerly Subarticle 1000-4(D))* - Grammar correction.
- ***Subarticle 1000-3(D) (formerly Subarticle 1000-4(D)) - Integrated provision SP10 R01 Portland Cement Concrete Production and Delivery.*** (Includes further changes made)
- *Subarticle 1000-3(F) (formerly Subarticle 1000-4(F))* - Clarified retarding admixture location and added at the manufacturer’s recommended dosage rate.
- *Subarticle 1000-3(G) (formerly Subarticle 1000-4(G))* - Clarified retarding admixture location, added at the manufacturer’s recommended dosage rate, added rejection criteria and areas of caution to avoid possible rejection.
- *Subarticle 1000-3(H) (formerly Subarticle 1000-4(H))* - Modified sentence for clarity that the solution is in order to convert calcium chloride to liquid form.
- *Subarticle 1000-3(I)&(J) (formerly Subarticle 1000-4(I)&(J))* - Merged together and retitled as SCM, added table where maximum amount can be found and that the maximum

allowable water/cementitious material ratio shall not be exceeded for the designed concrete class.

- *Subarticle 1000-4(A) (formerly Subarticle 1000-3(A))* - Grammar correction, define who to submit to “to the Engineer” for consistency throughout the Standard Specifications, changed to 30 day to 35 days for consistency, replaced text with a Table introduction and Table to include a portion of *2018 Standard Specifications* Table 1000-1 too, Article 1000-3 and 1000-4 reversed ordered to hold Table 1000-1 as the same Table identifier, replaced fly ash and slag with SCM and added content about water/cementitious ratio definition.
- ***Throughout Section 1000 - Integrated provision Z-4 Errata. (effective January 2023 letting, Changed Chase Indicator to Chace Indicator and AASHTO T 23 to R 100).***
- *Subarticle 1000-4(E) (formerly Subarticle 1000-3(E))* - New Subarticle on “Use of Supplementary Cementitious Materials (SCMs)” which changed the lettering of following subarticles.
- *Throughout Section 1000* - For terms defined in the Definitions, created consistency on italics and capitalization use and ensured appropriate term applied.
- *Article 1000-5* - Portion of “Very High Early Strength Concrete for Concrete Pavement Repair” from Article 723-4 moved to Division 10.
- *Article 1000-5* - Moved materials portions of Division 7 to Division 10.
- *Subarticle 1000-7 through Article 1000-13 (formerly Article 1000-6 through Article 1000-12)* - With the addition of new Article 1000-5, this increased each of these articles by one digit.
- *Article 1000-7 (formerly Article 1000-6)* - Removed testing laboratory sentence with Table 1000-1 table reference and added excavatable and non-excavatable flowable fill maximum and minimum strengths instead since removed from that table, added consistency in form reference.
- *Subarticle 1000-8(A) (formerly Subarticle 1000-7(A))* - Added abbreviation of latex modified concrete and noted as abbreviation following, and modified submittal requirement. With Article order this should be Table 1000-4 not remain Table 1000-3. With Article order this should be Table 1000-5 not remain Table 1000-4.
- *Subarticle 1000-12(A) (formerly Subarticle 1000-11(A))* - Article 1000-4 is now 1000-3 with order change.
- *Subarticle 1000-12(B) (formerly Subarticle 1000-11(B))* - Table 1000-5 is now 1000-6 with the new Table 1000-3 with order change.
- *Subarticle 1000-13(D & F) (formerly Subarticle 1000-12(D & F))* - Table 1000-6 is now 1000-7 with the new Table 1000-3 with order change.

#### Section 1002: Shotcrete Production and Delivery

- *Article 1002-1* - Changed ground granulated blast furnace slag, fly ash or silica fume to SCMs and abbreviated SCM in text since in Division 1 Abbreviations listing. Added that dry-mix shotcrete shall be on the NCDOT APL.
- *Subarticle 1002-3(A)* - Removed submittal requirement.
- *Subarticle 1002-3(E)* - Article range changed with the addition of a new Article 1000-5.
- *Subarticle 1002-3(F)&(H)* - Grammar correction applied.

### Section 1003: Grout Production and Delivery

- *Article 1003-1* - Changed “foundations, ground anchors and soil nails” to “foundation and rock anchors” for Type 2 grout. Added Type 5 neat cement grout typically used for soil nails and ground anchors. Modified former Type 5 grout to Type 6 grout.
- *Article 1003-2* - Due to grout changes in Article 1003-1 made corresponding grout number alternations to include Table 1003-1 title.
- *Article 1003-3* - Added a Type 5 grout exception as has prescribed mix design in Article 1003-4. Removed written request requirement for grout mix design use on other projects.
- ***Article 1003-4 - Integrated provision Z-4 Errata (effective January 2023 letting, Changed AASHTO T 23 to R 100).***
- *Article 1003-4* - Modified the Type grouts range to add Type 5 grout. Added Type 5 grout requirements as paragraph and to Table 1003-2. Modified former Type 5 grout to Type 6 grout.
- *Article 1003-7* - Article range changed with the addition of a new Article 1000-5.

### Section 1005: General Requirements for Aggregate

- *Article 1005-1* - Added approval is through the Department’s Aggregate QC/QA Program and removed sentence as that is criteria for being on the NCDOT APL only and not for the Contractor. For terms defined in the Definitions, ensured appropriate term applied.
- *Article 1005-2* - Clarification made regarding what stockpiled aggregates should contain and added sampling stockpile requirement.
- ***Article 1005-4 - Integrated provision Z-4 Errata (Effective January or February Let Table 1005-1 (E) corrected in footnote and modification to Light Weight foot note reference.)***
- *Subarticle 1005-4(B)* - For ABC and ABC(M) added what happens when PI is 4 to 6 and exceeds 6 to align with the Department’s Aggregate QC/QA Program. Removed ABC in asphalt plant mix allowance as obsolete.

### Section 1006: Aggregate Quality Control/Quality Assurance

- *Section 1006* - Grammar correction and added “and participation requirements” to what is available in the *Aggregate QC/QA Program Manual*.

### Section 1008: Aggregate for Stabilization (No Changes)

### Section 1010: Aggregate for Base Materials (No Changes)

### Section 1012: Aggregate for Asphalt Pavements and Surface Treatments

- Throughout Section 1012 - For terms defined in the Definitions and Abbreviations, created consistency on italics and capitalization use and ensured appropriate term applied.
- Throughout Section 1012 - Defined who approves, “by the Engineer” for consistency throughout the Standard Specifications.
- ***Subarticle 1012-1(B)(4) - Integrated provision Z-4 Errata (Effective February 2023 Let, removed Type SF9.5A as not available anymore.)***
- ***Subarticle 1012-1(B)(5) - Integrated provision SP6 R65 Asphalt Concrete Plant Mix Pavements.***

- *Subarticle 1012-1(B)(6)* - Changed OG AFC to OG FC that is defined in Article 101-2 for consistency. This change was also made in SP6 R65 Asphalt Concrete Plant Mix Pavements starting June 2023 lettings.
- *Subarticle 1012-1(B)(7) & 1012-1(C)(5)* - Increased the maximum allowable percentage value.
- *Subarticle 1012-1(E)* - Removed “or RAP” and added a sentence about stockpiling RAS requirements, grammar correction, and table below changed to the table number for consistency.
- *Subarticle 1012-1(F)(1)* - Modified Subarticle title, indicated when and added stockpile requirements.
- *Subarticle 1012-1(F)(1)(a)* - Modified sieve size.
- *Subarticle 1012-1(F)(1)(b)* - Definition and requirements clarified.
- *Subarticle 1012-1(F)(1)(c)* - Definition and requirements clarified.
- *Subarticle 1012-1(F)(1)(d)* - Needed stockpile requirements incorporated into Subarticle 1012-1(F)(1) and Subarticle was deleted.
- *Subarticle 1012-1(F)(2)* - Title change, modified first sentence merging with (b) and moved content that followed the table to prior to the table.
- *Subarticle 1012-1(F)(2)(a)* - Deleted the Subarticle.
- *Subarticle 1012-2(A) & 1012-2(G)* - Removed crushed slag.
- ***Subarticle 1012-2(E) and Article 1012-4 - Integrated provision Z-4 Errata.***
- *Article 1012-4* - Removed “Sections 3,6,8” as exceptions regarding AASHTO M 195.

#### Section 1014: Aggregate for Portland Cement Concrete

- *Subarticle 1014-2(C)* - Coarse aggregate deleterious substances changed to 3% from 3.2% by weight.

#### Section 1016: Select Materials

- *Article 1016-1* - Relocated sentence to *Article 1016-2*.
- *Article 1016-2* - Removed select material list and altered to apply sentence “Use select material called for in the contract.” that was in *Article 1016-1*.
- *Article 1016-3* - Broadened direction of Type 1 select material paragraph to remove “gradation” before requirements and Table 1005-2 where meeting requirements of standard size 2S or 2MS as described in Sections 1005 and 1006. For Type 3 clarified gradation is found in the table following and then relocated the later portion of the sentence to follow Table 1016-2. Class IV again removed gradation to make requirements more broad in scope, added Section 1005, 1006 and 1043 as a reference. Class V and VI removed gradation and Table 1005-1 reference.

#### Section 1018: Borrow Materials

- *Article 1018-2* - Modified borrow sources to borrow material in title and sentence.
- *Article 1018-2* - Removed select material list and altered to apply sentence “Use select material called for in the contract.” that was in *Article 1016-1*.
- *Subarticle 1018-2(B)* - Defined who approves and rejects, “by the Engineer” for consistency throughout the Standard Specifications.

### Section 1019: Shoulder and Slope Material

- Article 1019-2 - Replaced Article 1018-2 reference with Section 230 for borrow sources. Aligned pH range in paragraph with table range. Defined who accepts “by the Engineer” for consistency throughout the *Standard Specifications*. Changed Roadside Environmental Unit to the Engineer as that is the Contractors point of contact as not direction for the Contractor.

### Section 1020: Asphalt Materials and Additives

- *Article 1020-1* - Changed Asphalt Institute Publication MS 18 to Asphalt QMS Manual. Removed list to replace with delivery ticket paragraph and reference that has the list requirements. Removed paragraph about what the supplier furnishes and certification details replaced with manual that has those details.
- *Throughout Section 1020* - For terms defined in the Definitions and Abbreviations, created consistency on italics and capitalization use and ensured appropriate term applied.
- *Article 1020-2* - Add manual conformance and specifically where in materials and test to submit.
- *Article 1020-3* - Removed Subarticle (A) Anionic and (B) Cationic and replaced with a new paragraph on the program where this information should be found and met. Removed Article 1020-6 and are now just referencing the program and added where to submit to.
- *Article 1020-4* - In Table 1020-1, added Saybolt before Viscosity, from residue from distillation removed @ 400°F, removed description C and made elastic recovery corrections removing 20 cm elongation %, subscript D and 50°F.
- *Article 1020-5* - Removed test method and replaced with NCDOT APL.
- *Subarticle 1020-5(B)* - Restrictions will come from the Engineer not the list of approved products, sampling added as directed by the Engineer.
- *Subarticle 1020-5(C)* - Removed as described how to get on the NCDOT APL.
- *Subarticle 1020-5(E)* - Removed as prime coat is not required.
- *Subarticle 1020-5(F)* - (formerly H) Removed Section 55 and made reference consistently labeled T 59 not T-59.
- *Article 1020-8* - Added must be current with the applicable AASHTO Product Evaluation & Audit Solutions workplan.
- ***Subarticle 1020-10(A) - Integrated provision Z-4 Errata (Effective March 2023 Let, corrected Table 1012-5 replaced with Table 1020-2.)***
- Article 1020-10 - Defined who approves “by the Engineer” for consistency throughout the *Standard Specifications*.

### Section 1024: Materials for Portland Cement Concrete

- *Throughout Section 1024* - For terms defined in the Definitions and Abbreviations, created consistency on italics and capitalization use and ensured appropriate term applied.
- *Article 1024-1* - Replaced fly ash, slag and microsilica with SCM. In Table 1024-1 changed Rate to Substitution Rate (1 lb SCM per 1 lb Cement), aligned Subarticle with changes made in Division 10, and removed the by weight portions of the SCM options leaving just the % range values. The paragraph after the Table about blended cements requirements and permission needed. Removed Portland cement in high early strength concrete.



Changed the pozzolanic content limit measurements have changed to 20 and 30% from 17 and 23%. Changed “Class F fly ash” to “SCMs”. Removed the last sentence of the 4<sup>th</sup> to last paragraph as repetitive with the last sentence of the 2<sup>nd</sup> paragraph in the same article. Changed precasting plant to batching plant to make the term more flexible to sample anywhere someone is making concrete.

- *Subarticle 1024-3(A)* - Prior changed to further testing. Modified to NCDOT APL versus approved by the Department for consistency. Added product AASHTO Product Evaluation & Audit Solutions workplan requirements to remain on the NCDOT APL.
- *Subarticle 1024-3(B)* - Changed “sources” to “admixture” for clarity and defined if approved on the NCDOT APL. Removed “The Engineer maintains a list of approved sources on file.” as they are on the NCDOT APL. Replaced National Transportation Product Evaluation Program (NTPEP) with AASHTO Product Evaluation & Audit Solutions.
- *Subarticle 1024-3(D)(2)* - Clarified mid-range will be considered as high range water reducing admixtures when meets the requirements of AASHTO M 194 for Type F.
- *Article 1024-4* - Clarified testing requirements. Removed pH property requirement.
- *Article 1024-4 - Integrated provision SP10 R24 Materials for Portland Cement Concrete.*
- *Article 1024-5 - Integrated provision Z-4 Errata (Effective March 2023 Let, corrected Table 2 replaced with Table 3.)*
- *Article 1024-8* - Added Natural Pozzolans article.

#### Section 1026: Concrete Curing Materials (Title Change)

- *Article 1026-1* - Changed curing agent to moisture retaining materials. Moved sentence from Article 1026-1 to Subarticle 1026-2(A).

#### Section 1028: Joint Materials

- *Throughout Section 1028* - Removed evaluated by NTPEP and replaced with NCDOT APL as NTPEP evaluation is part of the process to get on the NCDOT APL. Added product AASHTO Product Evaluation & Audit Solutions workplan requirements to remain on the NCDOT APL.

#### Section 1030: RFID Tracking Program for Manufactured Products (New Section)

- *Throughout Section 1030* - Added this as a new Section to describe RFID tagging requirements for manufactured products. This Section is referenced in the various manufactured products throughout the *Standard Specifications*.

#### Section 1032: Culvert Pipe

- *Article 1032-1* - Described where to find the pipe list, producer/supplier list. Added producer/supplier AASHTO Product Evaluation & Audit Solutions workplan requirements to remain on the NCDOT producer/supplier list. Added pipe arches to the list. References modified ASTM B745 changed to AASHTO M 196, ASTM A796 changed to AASHTO M 36 as well as clarifying corrugated steel pipe is galvanized, ASTM A760 changed to AASHTO M 36 and removed Polymer Pre-coated Corrugated Steel Pipe option. Added paragraph on requirements when aluminum and aluminized pipe is in contact with fresh concrete.

- ***Throughout Section 1032 - Added provision 10-08 Corrugated Aluminum Alloy Pipe Arch Culvert.***
- *Subarticle 1032-2(C), Subarticle 1032-3(E), & Article 1032-5* - Clarified acceptance is “by the Engineer”. Removed if not met rejection and written approval exception sentence as covered by brand registration process and Division 1 of the *Standard Specifications* processes.
- *Subarticle 1032-3(A)(6)* - Added Type IIA for the pipe arch.
- *Subarticle 1032-3(E)* - Defined who accepts, “by the Engineer”. Defined who rejects “by the Department”.
- *Article 1032-4* - Removed Coated, Paved and Lined Corrugated Steel Culvert Pipe article (in 2024 this will be a SPI for rail projects when needed). Added to Subarticle 1032-4(A) a sentence “Bell and spigot joint seals shall meet ASTM F477.” Added ASTM F2881, Section 7.11 to the AASHTO/ASTM listings in Subarticle 1032-4(B) as missed this for Couplers.
- ***Article 1032-4 - Integrated provision SP3 R35 Polypropylene Culvert Pipe. (Added RFID tagging policy requirements and added producer/supplier NTPEP workplan requirements to remain on the NCDOT producer/supplier list in addition to this provision integrated)***
- *Subarticle 1032-4(A)* - Replaced National Transportation Product Evaluation Program (NTPEP) with AASHTO Product Evaluation & Audit Solutions.
- *Article 1032-5* - Removed sentence covered by brand certification.
- *Subarticle 1032-6(A)* - Changed list from M&T to on the Department’s approved producer/supplier list. Added ACPA and NPCA audit program requirement to remain on the NCDOT producer/supplier list.
- *Subarticle 1032-6(E)(2)* - Changed stamp to RFID label process removing (2) and adding to paragraph text in Subarticle 1032-6(E).
- *Subarticle 1032-6(F)* - Added clarification that this is for connections to precast structures using grout. AASHTO M 198 changed to ASTM C990 and removed Type B.
- *Subarticle 1032-7(A)* - Changed sources to producer/supplier list. Added producer/supplier AASHTO Product Evaluation & Audit Solutions workplan requirements to remain on the NCDOT producer/supplier list. Replaced National Transportation Product Evaluation Program (NTPEP) with AASHTO Product Evaluation & Audit Solutions. Added “Bell and Spigot joint seals shall meet ASTM F477.”
- *Subarticle 1032-7(B)* - Added couplers.
- *Subarticle 1032-7(C)* - Added couplers and changed stamp to RFID label process.
- *Article 1032-8* - Added “Bell and Spigot joint seals shall meet ASTM F477.” Also, removed “When rubber gaskets are to be installed in the pipe joint”.

#### Section 1034: Sanitary Sewer Pipe and Fittings

- *Throughout Section 1034* - Removed “ANSI” from “ANSI/AWWA” as this is a AWWA specification not a “ANSI/AWWA” specification.
- ***Article 1034-3 - Integrated provision Z-4 Errata. (effective February 2023 letting, AASHTO M198 Type A and Type B changed to AASHTO C990.)***

#### Section 1036: Water Pipe and Fittings

- *Throughout Section 1036* - Removed “ANSI” from “ANSI/AWWA” as this is a AWWA specification not a “ANSI/AWWA” specification.
- *Article 1036-2* - For terms defined in the Definitions, created consistency on capitalization use.
- *Subarticle 1036-7(D) & (E)* - Added insertion valves subarticle and plug valves subarticle.
- *Subarticle 1036-8(A)* - Removed cast iron tapping sleeves option.

#### Section 1040: Masonry

- ***Article 1040-1 - Integrated provision Z-4 Errata (effective January 2023 let added an alternative ASTM reference to be in compliance).***
- *Throughout Section 1040* - For terms defined in the Definitions and Measurement Symbols, ensured appropriate term applied.
- *Article 1040-4* - Defined who approves “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 1040-10* - Added admixtures Subarticle noting use what is on the NCDOT APL.

#### Section 1042: Rip Rap Materials (No Changes)

#### Section 1043: Aggregate from Crushed Concrete

- *Article 1043-1* - Removed transported from and replaced with processed from a crushing facility. Removed “Deleterious materials shall not be more than 3%.”
- *Article 1043-2* - Changed title adding “AND SELECT MATERIAL CLASS IV”.
- *Article 1043-4 and 1043-5* - Added Subarticle references to deleterious material requirements.

#### Section 1044: Subsurface Drainage Materials

- *Article 1044-6* - Defined PVC as Solid Wall PVC and added another a sentence with AASHTO reference for perforated option.
- *Article 1044-7* - Changed plastic to HDPE.
- ***Article 1044-7 - Integrated provision Z-4 Errata (effective February 2023 let added meeting Article 1032-7, changed AASHTO M 294 to M 252 and removed that this is only for heavy duty tubing.)***
- *Article 1044-8* - Modified ASTM D2665 to D1785 and AASHTO M 294, Type S changed to AASHTO M 252.

#### Section 1046: Guardrail Materials

- *Article 1046-1* - Edited like other Sections to include where to find the materials list and removed evaluation program process requirements. Added producer/supplier and product AASHTO Product Evaluation & Audit Solutions workplan requirements to remain on the NCDOT producer/supplier list and NCDOT APL.

- *Subarticle 1046-3(A)* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Subarticle 1046-3(C)* - Changed two articles to full Section being met.
- *Subarticle 1046-3(D)* - For terms defined in the Definitions, ensured appropriate term applied. (*Roadway Standard Drawings* are part of the plans definition so removed). Removed “required by Specifications” as only as directed or in the plans is where you will know if treated timber blocks with steel beam guardrail will not be allowed.  
***Integrated provision Z-4 Errata (effective January 2023 let corrected title of Table 1046-1)***. Changes made to Table 1046-1, removed Testing FHWA approval requirement and changed to found on the NCDOT APL requirement. In Subarticle 1046-3(D) also removed FHWA approval sentence.
- *Article 1046-5 and 1046-8* - Defined who rejects “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 1046-7* - Added cable guiderail must be current with the applicable NTPEP workplan.
- *Article 1046-8* - Removed the last sentence as requirements are listed in the remainder of that paragraph.

#### Section 1050: Fence Materials (No Changes)

#### Section 1052: Lime Stabilizers (Title change)

- *Section 1052* - Removed “Salt and” from title.
- *Article 1052-1 and 1052-2* - Removed subarticles as not a stabilizer use but used for snow and ice removal which is not part of these contract types.
- *Article 1052-3* - Changed to *Article 1052-1*.
- *Subarticle 1052-1(C)* - For terms defined in the Definitions, created consistency on capitalization use and ensured appropriate term applied.

#### Section 1054: Drains

- *Article 1054-1* - Removed steel pipe option and changed 3 to 4 inches to align with bridge plans.

#### Section 1056: Geosynthetics

- ***Throughout Section 1056 - Integrated provision SP10 R056 Geosynthetics (released March 2023)***.
- *Article 1056-1* - Added product AASHTO Product Evaluation & Audit Solutions workplan requirements to remain on the NCDOT APL.
- *Article 1056-3 & Article 1056-4 Table 1056-1* - Modified geotextile type certification requirements and naming convention of that Type with these changes.
- *Article 1056-4* - In Table 1056-1 modified geotextile Type 4 to Type 4a and Type 5 to Type 5a.

#### Section 1060: Landscape Development Materials

- *Article 1060-1 and 1060-4, Subarticle 1060-10(E)* - For terms defined in the Definitions, created consistency on italics and capitalization use and ensured appropriate term applied.
- *Article 1060-2* - Corrected Fertilizer Law title.
- ***Article 1060-2 - Integrated provision Z-4 Errata (effective March 2023 let Fertilizer Law changed to Commercial Fertilizer Law).***
- ***Article 1060-5 - Integrated unit provision Tack or Mulch for Erosion Control (Note: Adding tacking material options. In Division 16, Section 1615 also updated).***
- ***Article 1060-9 - Integrated provision Z-4 Errata (effective January 2023 let NCAC correction).***
- *Subarticle 1060-10(A)* - Removed fire ant treatment requirement (originally), after further discussion with North Carolina Department of Agriculture and Consumer Services, Entomology Division discovered continued requirement for select counties, thus did not remove ultimately.
- *Subarticle 1060-10(F)* - Defined who rejects “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 1060-14* - Clarified tensile strength is dry, removed elongation, removed coir fiber mat flexibility requirement, alternated size of specific feet by feet value to minimum width of 6.5 feet.
- ***Article 1060-15 - Removed special stilling basin article. Replaced with Integrated unit provision Compost Blanket. (Note: Also integrated into Division 16 as a new Section 1657).***

#### Section 1070: Reinforcing Steel

- *Article 1070-1* - Added product AASHTO Product Evaluation & Audit Solutions workplan requirements. For terms defined in the Definitions, created consistency on capitalization use and ensured appropriate term applied.
- *Article 1070-2* - Title change for consistency in term throughout the *Standard Specifications*. Added where can find the approved list, producer/supplier list. Added producer/supplier AASHTO Product Evaluation & Audit Solutions workplan requirements to remain on the NCDOT producer/supplier list. Removed *Manual of Standard Practice* published by the Concrete Reinforcing Steel Institute as referenced in AASHTO LRFD Bridge Construction Specifications, Section 9.
- *Throughout Section 1070* - M&T spelled out for consistency.
- *Article 1070-3* - Removed smooth welded wire reinforcement, merged deformed sentence with this sentence and added plain.
- ***Throughout Section 1070 - Integrated provision Z-4 Errata (effective March 2023 Let replaced AASHTO M 32 and M 55 with AASHTO M 336).***
- *Article 1070-4* - Modified plastic bar supports reference from “Manual of Standard Practice” to “ANSI/CRSI-RB4” and added the same reference on the plastic tip sentence.
- *Article 1070-6* - Removed “when required by the plans”.
- *Subarticle 1070-7(A)* - Added where to find epoxy coating and fabricating companies, “on the approved producer/suppliers list”. Added producer/supplier AASHTO Product Evaluation & Audit Solutions workplan requirements to remain on the NCDOT producer/supplier list.

- ***Subarticle 1070-7(D) - Integrated provision Z-4 Errata (effective March 2023 Let replaced Section with Subarticle).***
- *Article 1070-8* - Facility changed to supplier and described where to find the list.
- *Article 1070-9* - Moved from directed to approved and added the approved source can be found on the producer/supplier list.
- *Article 1070-10* - Defined who rejects “by the Engineer” for consistency throughout the *Standard Specifications*.

#### Section 1072: Structural Steel

- *Article 1072-1, Subarticle 1072-1(B)(1) and Subarticle 1072-18(F)* - Changed “high mount lighting standards” to “high mount light standards” for “light standards” consistency terminology throughout the *Standard Specifications*.
- Subarticle 1072-1(A) - Described where qualifications should be sent to.
- Subarticle 1072-1(B) - Added fabricators shall possess an AISC Bridge Quality Management Systems (QMS) certification and details about that requirement throughout the Subarticle.
- ***Article 1072-3 - Integrated provision Z-4 Errata (effective March 2023 Let replaced Article 1089-9 with Article 1080-7).***
- ***Article 1072-5(A) - Integrated provision Z-4 Errata (effective March 2023 Let amended Title of Table 1072-1). (Note: In 2024’s update added DTI abbreviation and included DTI’s in Table 1072-1.)***
- *Article 1072-5(A)* - Defined who rejects “by the Department” for consistency throughout the *Standard Specifications*.
- ***Subarticle 1072-5(D)(7) - Integrated provision Z-4 Errata (effective January 2023 Let added abbreviation as found in Subarticle 1072-5(E)).***
- ***Subarticle 1072-5(F)(5) - Integrated provision Z-4 Errata (effective March 2023 Let corrected article reference Article 1080-9 changed to 1080-7).***
- *Article 1072-6* - Grammar corrections made and changed “connected to a suitable source connected to an electrode negative (DCEN) power” and changed to “in accordance with AWS D1.5 Bridge Welding Code and manufacture’s requirements”.
- *Throughout Section 1072* - For terms defined in the Definitions, created consistency on italics and capitalization use and ensured appropriate term applied.
- *Throughout Section 1072* - Defined who accepts, directs and approves, “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 1072-8* - Moved to a single electronic copy submittal process and removed maximum size changing to needing to be printed in the size provided.
- *Article 1072-12* - Clarified sentence that heat treating procedures are the only procedure requiring approval by the Engineer.
- ***Subarticle 1072-18(B) - Integrated provision Z-4 Errata (effective March 2023 Let corrected AWS D1.4 title).***
- *Subarticle 1072-18(F)* - Removed “latest edition of the” American Society for Nondestructive Testing’s (ASNT) as covered by Article 106-2, version on the date of advertisement.
- *Subarticle 1072-19(A)* - Grammar correction “compressing” to “compression”

#### Section 1074: Miscellaneous Metals and Hardware

- **Article 1074-1 - Integrated provision Z-4 Errata (effective March 2023 Let corrected AWS D1.4 title).**
- **Subarticle 1074-5(B)** - Added materials will be mill finished.
- **Subarticle 1074-7(A)** - Changed “perfect” to “precise”.
- **Subarticle 1074-7(B) - Integrated provision Z-4 Errata (effective March 2023 Let corrected M306 to AASHTO M 306).**
- **Article 1074-13** - For terms defined in the Definitions, created consistency on italics and capitalization use and ensured appropriate term applied.

#### Section 1076: Galvanizing

- **Article 1076-7 - Integrated provision Z04 Errata (Article 1080-9 to 1080-7).**

#### Section 1077: Precast Concrete Units

- **Article 1077-1** - Added where to find participating sources “on the approved producer/supplier list” and removed available from M&T Unit.
- **Subarticle 1077-1(A)** - Added a new subarticle on Producer Qualification to align with Section 1078.
- **Article 1077-2** - Reduced the number of copies submitted, included steel weight in drawings and removed the Blended Cement type.
- **Article 1077-4** - Increased the number of business days in advance to notify the Engineer and added internet access to office area.
- **Subarticle 1077-4(A)** - Added inspection access requirements.
- **Subarticle 1077-4(B)** - Changed stamping to RFID tagging policy.
- **Subarticle 1077-5(A)** - Modified air content values to the table that has the air content value, modified fly ash rate to 1 lb. of fly ash for each pound of cement instead of 1.2 lbs., changes to slump, 20% changed to 30% for cement content, and added submittal and laboratory test requirements to include Engineer review.
- **Subarticle 1077-5(B)(New)** - Added Self-Consolidating Concrete and Intermediate Flow Concrete option, modified Table 1077-1 spelling out Section with correct section reference and removed Retaining Wall, and defined who to submit concrete mix design to “to the Engineer”.
- **Subarticle 1077-5(C) (formerly Subarticle 1077-5(B))** - Modified items with strength requirements of 2500 psi to incidental precast items listed in Table 1077-1, removed Chase indicator requirement and changed to air content determination by the various AASHTO references already provided and to do a second test on the same load if it fails which will determine if accepted or rejected, added spread test, modified slump allowance value to a M&T 312U form reference.
- **Subarticle 1077-5(C) (formerly Subarticle 1077-5(B)) - Integrated provision Z-4 Errata (effective January 2023 Let replaced AASHTO T 23 with R 100 which is its replacement).**
- **Subarticle 1077-5(E)** - Articles inverted which changed Subarticle 1000-4(G) to Subarticle 1000-3(G).
- **Article 1077-6** - Added form additional requirements to ensure good working order and damage corrective action.

- *Subarticle 1077-8* - Added sentence about cold weather precast member reference to new Article 1078-10 “Placing Prestressed Concrete in Cold Weather”.
- *Subarticle 1077-7(B)(3)* - Combined sentences and added a fiber test result ASTM reference.
- *Subarticle 1077-7(B)(4)* - Modified air content values to the table that has the air content values and removed paragraph as ASTM reference is withdrawn and removed workability sentence as up to the contractor.
- *Subarticle 1077-9(B)* - Added a new Article 1078-10, changing Subarticle 1078-10(B) to 1078-11(B). Added temperature calibration and maximum curing temperature with a submittal of temperature records to the Engineer requirement for all cures before final approval of the members.
- *Article 1077-11* - Added exception found in Article 1077-16.
- *Article 1077-12* - Defined who accepts, “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 1077-13* - Over 3.5 feet in height changed to 3.5 feet or greater to align with *Roadway Standard Drawings*.
- *Article 1077-14* - Removed Subarticle (D) and added RFID tagging policy.
- *Article 1077-16* - Removed the 2<sup>nd</sup> sentence because redundant information provided.
- *Article 1077-17* - Added new article on Sound and Noise Wall Panels and Noise Wall Posts.

#### Section 1078: Prestressed Concrete Members

- *Subarticle 1078-1(B)* - Changed girders to members.
- *Throughout Section 1078* - For terms defined in the Definitions, created consistency on italics and capitalization use and ensured appropriate term applied.
- *Article 1078-2* - Removed the Blended Cement type.
- *Article 1078-3* - Corrected business days from 7 days to 15 business days. Changed stamping to RFID tagging policy.
- *Article 1078-4(A)* - Defined who approves, “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Subarticle 1078-4(A)* - Added air content and slump to align with Article 1077-5(A), removed Table 1078-1, added laboratory trial batch requirement, Table 1078-2 header of table removed the chart is a property and test method list to align with other areas of the *Standard Specifications*, removed the 2<sup>nd</sup> to last paragraph, in the last paragraph cleaned up grammar consistency and removed the last sentence as covered by approved list.
- *Throughout Section 1078* - M&T spelled out as Materials and Tests for consistency.
- ***Throughout Section 1078 - Integrated provision Z-4 Errata (effective January 2023 Let replaced AASHTO T 23 with R 100 which is its replacement & Figure corrections).***
- *Throughout Section 1078* - Defined who approves and rejects, “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Subarticle 1078-4(B)(New)* - Added Self-Consolidating Concrete and Intermediate Flow Concrete option.
- *Subarticle 1078-4(C)(1) (formerly Subarticle 1078-4(B)(1))* - Removed Chase indicator requirement and changed to air content determination by the various AASHTO references



already provided and to do a second test on the same load if it fails which will determine if accepted or rejected.

- *Subarticle 1078-4(C)(3) (new subarticle)* - Added a new spread subarticle.
- *Subarticle 1078-4(C)(4) (formerly Subarticle 1078-4(B)(4))* - Clarified testing requirements are for all prestressed members.
- *Subarticle 1078-4(C)(4)(a) (formerly Subarticle 1078-4(B)(4)(a))* - Changed to release strength requirements.
- *Subarticle 1078-4(C)(4)(b) (formerly Subarticle 1078-4(B)(4)(b))* - Changed to acceptance strength requirements.
- *Subarticle 1078-4(D) (formerly Subarticle 1078-4(C))* - Changed “do not” sentence to what should do, added form temperature requirements.
- *Subarticle 1078-4(E) through (L) (formerly Subarticle 1078-4(D) through (K))* - Subarticle letter change due to added Subarticle.
- *Subarticle 1078-4(E)* - Articles inverted which changed Subarticle 1000-4(E) to Subarticle 1000-3(E).
- *Subarticle 1078-4(G)* - Articles inverted which changed Subarticle 1000-4(G) to Subarticle 1000-3(G).
- *Subarticle 1078-4(I)* - New Article 1000-5 changed Article 1000-8 to 1000-9.
- *Subarticle 1078-4(J)* - New Article 1000-5 changed Article 1000-10 to 1000-11.
- *Subarticle 1078-4(K)(2) (formerly Subarticle 1078-4(J)(2))* - Table 1078-2 was changed to Table 1078-1, an Errata is forthcoming for June 2023 lettings to change Table 1078-2 to 1078-3 for 2018 Standard Specifications. Changed Table 1078-2 to Subarticle 1078-4(A) and (B) since the table was replaced by this article. Table number changes with Table 1078-1 and 1078-2 removed (Table 1078-3 is now Table 1078-1).
- *Article 1078-5* - Broadened girder’s, dropping bulb tee.
- *Article 1078-7* - Modified taping requirement.
- *Article 1078-8* - Per PCI MNL 116 manual, added additional draped strands tensioning requirements and what to do when final stressing is done by jacking strands as well as adding ensuring all parts are in good working order and roll freely.
- *Article 1078-9* - Added Intermediate Flow Concrete use, grammar correction, added segregation requirements, removed cold weather sentence which was replaced by a new Article that follows this article now, and approved external and internal hold-down system direction provided. Article 1078-15 changed to Article 1078-16 with the addition of Article 1078-10.
- *Article 1078-10 (New Article)* - Added Placing Prestressed Concrete in Cold Weather article. Replaces sentence in Article 1078-9 which once reference Article 420-7. Added two sentences clarifying thermometer placement to ensure the ambient temperature surrounding the casting does not exceed 35°F.
- *Subarticle 1078-11(A) (formerly Subarticle 1078-10(A))* - Added portable heater option to curing concrete and made last sentence in paragraph consistent with *Article 1078-10 (New Article)*.
- *Article 1078-11(C) (formerly Article 1078-10(C))* - Changed “concrete continuously wet” to “concrete members damp” and added water application addition of “and as needed to maintain damp conditions”.

- *Article 1078-12 (formerly Article 1078-11)* - Subarticle 1078-4(B)(3) changed to Subarticle 1078-4(C)(3) as there is a new Subarticle B in this Article.
- *Article 1078-14 (formerly Article 1078-13)* - Changed to 100% solids. Removed the last portion of article regarding web cracks, if cracking occurs list and no separate payment is made for debonding strands since it is no longer required.
- *Article 1078-15 (formerly Article 1078-14)* - Grammar correction and changed stamping to RFID tagging policy.
- *Article 1078-16 (formerly Article 1078-15)* - Added rough float the tops of girders exception, changed 3/8 inch to 1/4 inch for consistency in the article, and changed diagonal face to diagonal/curved face. Patching material location provided “on the NCDOT APL” rather than the requirements to be approved.
- *Article 1078-17 (formerly Article 1078-16)* - Corrected Table references.
- *Article 1078-18 (formerly Article 1078-17)* - Added RFID tagging policy. Corrected Table and Figure references.
- *Article 1078-19 (formerly Article 1078-18)* - Corrected Table and Figure references. Table 1078-4 (formerly Table 1078-6) changed Horizontal alignment tolerance from (Not to exceed 1”) to (Not to exceed 1.5”). Corrected Position of Strand Horizontal and Vertical Dimensions in Table 1078-5 to +/- ¼ inch to align with previous Table.

#### Section 1079: Bearings and Bearing Materials

- ***Throughout Section 1079 - Integrated provision Z-4 Errata (effective January 2023 Let corrected Military Specification).***
- *Article 1079-1* - For terms defined in the Definitions, created consistency on capitalization and italics use and ensured appropriate term applied.
- *Article 1079-1 & Subarticle 1079-2(A)* - Relocated two paragraphs from Article 1079-1 to Subarticle 1079-2(A) as more appropriate to just Elastomeric Bearings.
- *Throughout Section 1079* - Defined who approves, “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Subarticle 1079-2(A)* - Added where to find elastomeric bearings, on the producer/supplier list. Added producer/supplier AASHTO Product Evaluation & Audit Solutions workplan requirements to remain on the NCDOT producer/supplier list. Added “and manufacturing procedures and removed Subarticle 1079-2(E) reference.
- *Subarticle 1079-2(D)* - Reduced the number of copies submitted and added procedures are also to be submitted of laminated (reinforced) bearings.

#### Section 1080: Paint and Paint Materials

- *Throughout Section 1080* - Defined who rejects, “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 1080-1* - Defined how to obtain Department approval “by the Materials and Tests Unit”.
- *Article 1080-4* - Clarified Materials and Tests is the approving representative and modified Article range list with Articles change and through Article 1080-10 not Article 1080-9. Replaced National Transportation Product Evaluation Program (NTPEP) with AASHTO Product Evaluation & Audit Solutions.

- *Article 1080-5* - Defined who to submit samples to “to the State Materials Engineer” and removed “the latest” as defined in Division 1 “at time of advertisement”.
- *Article 1080-7* - Added where to find organic-zinc repair paint, on the NCDOT APL.
- *Article 1080-5 - Integrated provision Z-4 Errata (effective March 2023 Let corrected AASHTO M 252 or M 253 to AASHTO M 300).*
- *Subarticle 1080-9(A)&(B)* - Corrected color standard, early rust requirement reference and Table references.
- *Article 1080-9(A)&(B) - Integrated provision Z-4 Errata (effective March 2023 Let corrected Table range).*
- *Subarticle 1080-9(E)* - Changed some Test Methods in Table 1080-1, Table 1080-2 and Table 1080-3. In Table 1080-2 removed “Total Vehicle” row. In Table 1080-3 corrected color standard. ***Integrated provision Z-4 Errata (effective April 2023 Let reference corrections in Tables).***
- *Article 1080-10 (New Article)* - Waterproofing Epoxy article added, shifting following articles and Tables up by one sequentially.
- ***Article 1080-50 through 1080-83 - Integrated provision Z-4 Errata (Article number correction).***
- *Article 1080-11* - Corrected color standard.
- *Article 1080-12* - First paragraph altered to be clearer on submittal requirements.
- *Subarticle 1080-13(C)* - Clarified Department is Materials and Tests Unit, removed what the ASTM and SSPC reference is titled for consistency. Removed “documents” from the last sentence of the 2nd paragraph as there is not a contract document definition, but there is a contract definition.

#### Section 1081: Epoxy and Adhesives

- *Article 1081-1* - Added adhesive to the title.
- *Subarticle 1081-1(A) (New Subarticle)* - Added epoxy and adhesive content general subarticle direction. This increased all following subarticles by one letter alphabetically (A is now B, etc.).
- *Subarticle 1081-1(B) (formerly Subarticle 1081-1(A))* - Added adhesives, changed epoxy types, added epoxy grades and added direction when meeting more than one epoxy type.
- *Subarticle 1081-1(C) (formerly Subarticle 1081-1(B))* - Added selecting epoxy system direction, Type IV epoxy resin system direction, and anchor system definition and direction were provided.
- *Subarticle 1081-1(D) (formerly Subarticle 1081-1(C))* - Epoxy type change and Table 1081-1 updated to include new epoxy types.
- *Subarticle 1081-1(E) (formerly Subarticle 1081-1(D))* - Test methods updated to align with Table 1081-1 changes.
- ***Subarticle 1081-1(F) (formerly Subarticle 1081-1(E)) - Integrated provision Z-4 Errata (effective March 2023 Let corrected Value Management Unit changing to Product Evaluation Program).***
- *Subarticle 1081-1(F) (formerly Subarticle 1081-1(F))* - Removed “Material” before Safety Data Sheets. Removed sampling requirement and modified certified test data being published via AASHTO Product Evaluation & Audit Solutions program to meet Table 1081-1 instead.

- *Subarticle 1081-1(I)(1) (formerly Subarticle 1081-1(H)(1))* - For terms defined in the Abbreviations, ensured appropriate term applied.
- *Subarticle 1081-1(I)(3) (formerly Subarticle 1081-1(H)(3))* - Removed microwave oven option, added Epoxy Class direction.
- *Article 1081-2* - Removed epoxy from title.
- *Subarticle 1081-2(A)* - Added polyester resin adhesive system direction and anchor system definition and direction were provided.
- ***Subarticle 1081-3(A) - Integrated provision Z-4 Errata (effective March 2023 Let corrected Subarticle references in Table 1081-2).***
- *Subarticle 1081-3(C)* - Removed some prequalification process direction, leaving sampling portion only.
- *Subarticle 1081-3(E)* - For terms defined in the Definitions, created consistency on capitalization use and ensured appropriate term applied.
- *Subarticle 1081-3(F)* - Grammar correction and removed conforming to Federal Specifications TT-T-291 since withdrawn.

#### Section 1082: Structural Timber and Lumber

- *Article 1082-1* - Added where to find where specified, broadened to wood products, relocated at no cost to the department to stand alone sentence, removed report requirement and spelled out AWPAs since not in the abbreviation of terms in Division 1.
- *Throughout Section 1082* - Changed lumber conformance requirements.
- *Subarticle 1082-3(A)* - added after treatment handling requirements.
- *Subarticle 1082-3(B)* - Added fender systems, lumber changed to timbers, removed sap ring requirement and removed dressed lumber requirement.
- *Subarticle 1082-3(C)* - Changed lumber to sawn timbers, added blockouts and related components and wood type provided “Southern Pine”.
- *Subarticle 1082-3(D)* - Wood type provided “Southern Pine”, relocated S4S direction, provided direction when posts are Grade No. 1 and 2, changed lumber to posts and braces and removed allowable tolerances.
- *Subarticle 1082-3(E)* - Removed “allowable”.
- *Subarticle 1082-3(F)* - Added grammar correction adding “either” and clarified Douglas Fir is Coastal type.
- *Subarticle 1082-4(A)* - Added AASHTO reference, added more requirements about the preservative, removed rope slings after treatment requirement, added human contact requirements and definition.
- *Subarticle 1082-4(B) through 1082-4(G)* - Added AASHTO reference, added AWPAs Standard U1 specific portion to reference and removed AWPAs Standard T1 reference.
- *Subarticle 1082-4(D)* - Added blockouts and related component to the title.
- *Subarticle 1082-4(D) to 1082-4(G)* - Removed minimum retention requirements and removed preservative treatment requirement.

#### Section 1084: Piles

- *Throughout Section 1084* - Changed to active voice.
- *Subarticle 1084-1(B)* - Added direction to coat as required by the plans, relocated galvanizing steel piles sentence and added metallize option with direction provided and

removed sentence on applying to both domestic where there is no other option such as foreign listed.

- *Article 1084-2* - Moved content to Subarticle 1084-1(A) and 1084-1(B)(3), modified to added where to find the approved product on the NCDOT APL and certification article direction referencing Article 106-3.

#### Section 1086: Pavement Markers

- *Subarticle 1086-1(A)* - Modified “evaluated by NTPEP” to “found on the NCDOT APL”. Added product AASHTO Product Evaluation & Audit Solutions workplan requirements to remain on the NCDOT APL.
- *Throughout Section 1086* - Corrected color standard.
- *Through Section 1086* - Defined who approves, “by the Engineer” for consistency throughout the Standard Specifications.
- *Throughout Section 1086* - For terms defined in the Definitions, created consistency on italics and capitalization use and ensured appropriate term applied.
- *Subarticle 1086-2(A)* - Modified “evaluated by NTPEP” to “found on the NCDOT APL”. Added product AASHTO Product Evaluation & Audit Solutions workplan requirements to remain on the NCDOT APL.
- ***Article 1086-3 - Integrated unit provision Non-Cast Iron Snowplowable Pavement Markers.***
- *Subarticle 1086-3(A)* - Modified “evaluated by NTPEP” to “found on the NCDOT APL”. Added product AASHTO Product Evaluation & Audit Solutions workplan requirements to remain on the NCDOT APL.

#### Section 1087: Pavement Markings

- ***Subarticle 1087-2(A) - Integrated provision Z-4 Errata (effective March 2023 Let corrected Federal Specification).***
- *Subarticle 1087-2(C)* - Removed yellow pigment requirement from Table 1087-1 and 2<sup>nd</sup> paragraph that follows that table.
- *Throughout Section 1089* - Reflective media terminology consistency applied, removed specifics of glass bead, drop on beads, layers of beads and highly terminology.
- *Throughout Section 1089* - Corrected color standard.
- *Throughout Section 1086* - For terms defined in the Definitions or Abbreviations, created consistency on capitalization use and ensured appropriate term applied.
- *Subarticle 1087-7(B)(3)* - Removed lead chromate pigment test as no longer in pavement marking material.
- ***Subarticle 1087-7(B) - Integrated unit provision Thermoplastic Intermixed Bead Testing.***
- *Subarticle 1087-7(C)* - Spelled out COC since not in the abbreviations in Division 1.
- *Subarticle 1087-7(D)(1)(b)* - Added ASTM reference and corrected yellowness index value.
- ***Subarticle 1087-7(D)(1)(b) - Integrated unit provision Thermoplastic Pavement Marking Material - Color Testing***
- *Subarticle 1087-7(D)(3)* - Grammar correction.
- *Subarticle 1087-7(D)(7)* - Added maleic for consistency.

- **Article 1087-8 - Integrated unit provision Polyurea Pavement Marking Material - Type 2 Typical Certified Mill Test Report.** Added statement preceding the table about standard glass beads meeting AASHTO M 247 Type 3 or 4 and NCDOT Type 2 Material Certification requirement. Modified the table adding Intermix Reflective Media and Heated-In-Place Thermoplastic. Thermoplastic clarified as Extruded Thermoplastic.

#### Section 1088: Delineators

- *Subarticle 1088-5(A)* - Changed evaluated by NTPEP to found on the NCDOT APL. Added product AASHTO Product Evaluation & Audit Solutions workplan requirements to remain on the NCDOT APL. Removed orange and added grey tubular markers to align with Article 1266-3 changes.
- *Subarticle 1088-6(A)* - Changed evaluated by NTPEP to found on the NCDOT APL. Added product AASHTO Product Evaluation & Audit Solutions workplan requirements to remain on the NCDOT APL.
- *Subarticle 1088-6(B)* - Removed crystal retroreflective sheeting as white is available.
- *Subarticle 1088-6(G)* - Replaced National Transportation Product Evaluation Program (NTPEP) with AASHTO Product Evaluation & Audit Solutions.

#### Section 1089: Traffic Control

- *Subarticle 1089-1(A)* - Added where to find approved sheeting, “on the NCDOT APL”.
- *Throughout Section 1089* - NCHRP 350 update.
- *Subarticle 1089-1(A)(1)* - Added where to find aluminum substrate thickness.
- **Article 1089-4 - Integrated unit provision Sequential Flashing Warning Lights (modified Material Certification to align with other articles). This replaces Cones that was moved to a Subarticle in Article 1089-5.**
- *Subarticle 1089-5(A)&(B)* - Removed evaluated by NTPEP requirement.
- *Subarticle 1089-5(C)* - Cones was relocated here from Article 1089-4, correction made to retroreflectivity reference to align with other articles.
- *Throughout Section 1089* - Corrected color standard.
- *Subarticle 1089-6(A)* - Changed evaluated by NTPEP to found on the NCDOT APL. Added product AASHTO Product Evaluation & Audit Solutions workplan requirements to remain on the NCDOT APL.
- *Subarticle 1089-7(A)* - Changed evaluated by NTPEP to found on the NCDOT APL. Added product AASHTO Product Evaluation & Audit Solutions workplan requirements to remain on the NCDOT APL.
- **Subarticle 1089-7(D) - Integrated unit provision Portable Changeable Message Signs.**

#### Section 1090: Portable Concrete Barrier

- *Throughout Section 1090* - NCHRP 350 update.
- *Subarticle 1090-1(B)* - Repurposed Used Portable Concrete Barrier with Material Certifications explaining the RFID tagging policy.
- **Subarticle 1090-1(C) - Integrated provision Z-4 Errata (effective January 2023 Let corrected ASTM reference).**

#### Section 1091: Electrical Materials

- *Subarticle 1091-1(B)* - Noted UL standard is defined in the plans, all electrical materials shall be listed, clarified qualified testing laboratory definition, added Intertek and removed NRTL language.
- *Article 1091-2* - For terms defined in the Definitions, ensured appropriate term applied (*Standard Specifications* are part of the contract) and added UL standards listed should meet at minimum the standards noted.
- *Subarticle 1091-3(D)* - Added abbreviation in title and clarified when used as well as requirements.
- ***Subarticle 1091-3(F) - Integrated provision Z-4 Errata (effective January 2023 Let corrected Table reference).***
- *Subarticle 1091-3(F)* - Spelled out PE since not in the Abbreviations in Division 1 and removed “factory lubricated, low friction” leaving just furnish conduit.

#### Section 1092: Signing Materials

- *Article 1092-1* - Standardized AASHTO reference description across Divisions where referenced and modified failure % and added failure if 3 or more failed studs in a row, and corrective action will be determined by the Engineer.
- *Article 1092-2* - Added product AASHTO Product Evaluation & Audit Solutions workplan requirements to remain on the NCDOT APL. AASHTO Product Evaluation & Audit Solutions replaces NTPEP due to rebranding.
- *Subarticle 1092-2(A)(2)* - Grammar correction and added installer adding a date (month, year) at completion of installation.
- *Subarticle 1092-2(B)(2)* - ASTM reference consistency applied.

#### Section 1094: Ground Mounted Signs

- ***Subarticle 1094-1(A) & (D) - Integrated provision Z-4 Errata (effective January or March 2023 Let corrected ASTM reference (A corrected in March, D corrected in January)).***
- *Subarticle 1094-1(B)&(C)&(D)* - Modified posts to supports to align with other Divisions, Standard Drawings and pay items.
- *Throughout Section 1094* - For terms defined in the Definitions, created consistency on capitalization use and ensured appropriate term applied.
- *Subarticle 1094-1(C)* - Defined who approves “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Subarticle 1094-1(D)* - Added perforated square tubes regarding galvanizing. Changed 3/8 to 7/16 inch and added on all four sides. Changed 3/8 to 7/16 and 5/16 to 3/8.
- ***Subarticle 1094-1(E) - Integrated provision Z-4 Errata (effective January 2023 Let corrected conforming to reference Articles to full Section).***

#### Section 1096: Overhead Sign Structures

- *Article 1096-1* - Standardized AASHTO reference description across Divisions where referenced.

## Section 1098: Signals and Intelligent Transportation System Materials

- *Throughout Section 1098* - Defined who requires and approves, “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Throughout Section 1098* - For terms defined in the Definitions, created consistency on capitalization use and ensured appropriate term applied.
- *Subarticle 1098-1(B)* - 40 days for review changed to 30 days to align with Article 105-2.
- *Throughout Section 1098* - Moved to a single electronic copy submittal process.
- *Subarticle 1098-1(E)* - Removed compact discs option.
- *Subarticle 1098-1(F)* - Added placing a hard copy in the cabinet requirement for the system connection diagrams.
- ***Subarticle 1098-1(H) - Integrated provision Z-4 Errata (effective March 2023 Let corrected terminology to include for consistency removed Type before 3R and UL- after UL Standard).***
- *Subarticle 1098-1(H)* - Added “for Traffic Signals” to the title, added Advanced Transportation Controller cabinet electrical service requirements, changed to having at least 5 terminals versus priorly 4 to meet current NEC requires, added ensuring only one disconnecting means in the enclosure per service and placing barriers in service equipment requirements.
- ***Throughout Section 1098 - Added unit provision Signal Cable as a new Article 1098-2. This changed the numbering sequence for all following Articles and Subarticles referenced to include Article 1098-2 (i.e. Article 1098-2 is now Article 1098-3).***
- *Article 1098-3 (formerly Article 1098-2)* - Added “or composite material” as a backplate option, added composite material and backplate requirements. 0.078 inch changes to 0.074 inch. Added “polyester” coating option. Modified sentence, describing sections as “corner sections”, replaced most of the sentence with new content due to overlap issues. Added method for retroreflective sheeting strip application. This will be released in the new update to the ITS and Signals PSP 18.8 that will be posted.
- *Article 1098-7 (formerly Article 1098-6)* - Spelling error correction, thimble eyelets corrected.
- *Subarticle 1098-11(B) & Article 1098-12 (formerly Subarticle 1098-10(B) & Article 1098-11)* - Removed ST-PC connectors and replaced with approved connectors as other options are available.
- *Subarticle 1098-11(D) (formerly Subarticle 1098-10(D))* - Changed “guides” to “racks”.
- *Article 1098-15 (formerly Subarticle 1098-14)* - Standardized AASHTO reference description across Divisions where referenced.
- *Subarticle 1098-15(A) (formerly Subarticle 1098-14(A))* - Removed latest and added AWS Code indicated “on the plans”.
- *Subarticle 1098-15(B)&(F) (formerly Subarticle 1098-14(B)&(F))* - NCHRP Report 350 update. Removed certification submittal to FHWA.
- ***Subarticle 1098-15(H)(1) (formerly Subarticle 1098-14(H)(1)) - Integrated provision Z-4 Errata (effective January 2023 Let corrected ASTM reference).***
- ***Article 1098-17 (formerly Article 1098-16) - Integrated provision Z-4 Errata (effective January 2023 Let corrected CALTRANS TEES reference).***
- *Subarticle 1098-19(C) (formerly Subarticle 1098-18(C))* - Added to first paragraph “with built-in web-based setup” requirement. Table 1098-5 modifications made.



- *Subarticle 1098-19(D) (formerly Subarticle 1098-18(D))* - Retitled
- *Subarticle 1098-19(E) (formerly Subarticle 1098-18(E))* - Retitled
- *Subarticle 1098-19(J) (formerly Subarticle 1098-18(J))* - Table 1098-11 modified the last three descriptions listed requirements.
- *Subarticle 1098-19(K) (formerly Subarticle 1098-18(K))* - Added a new Subarticle 1098-19(K)(2)(c).
- *Subarticle 1098-19(D)&(E) (formerly Subarticle 1098-18(D)&(E))* - Removed 2070L/2070E controllers and replaced with approved controllers as there are other options.
- *Subarticle 1098-19(E) (formerly Subarticle 1098-18(E))* - Added that each Data Interface Cable has to be in compliance with minimum of 6 feet long and compatible with approved controllers rather than CALTRANS TEES material reference.

## **Division 11: Work Zone Traffic Control**

### Section 1101: Work Zone Traffic Control General Requirements

- *Article 1101-1* - Removed TTC location as not direction for Contractor but instead the Design phase.
- *Subarticle 1101-2(B)* - Removed comma per word grammar check.
- *Article 1101-7* - In Hauling Operations Article, added information found in the traffic control plans.
- *Article 1101-8 and 1101-9 - Integrated provision SP11 R03 Material and Equipment Storage & Parking of Personal Vehicles.*
- *Article 1101-9 and Subarticle 1101-11(A)* - For terms defined in the Definitions, ensured the appropriate definition term applied.
- *Article 1101-13* - Clarified what “these” are and the specific webpage where the approved training agencies can be found.
- *Article 1101-13* - Added paragraph requiring that certification records be uploaded into the Department’s Work Zone Education Verification App (WZ-EVA).
- *Article 1101-14 - Integrated provision SP11 R04 Work Zone Installer as new Article 1101-14, shifting subsequent article numbers.*
- *Article 1101-16 (formerly Subarticle 1101-15)* - Modified Pedestrian Access Article, to align with planner and designers’ guidelines, removed duplicative language and clarified terms for safety reasons.

### Section 1105: Temporary Traffic Control Devices (No Changes)

### Section 1110: Work Zone Signs

- *Article 1110-2* - Removed Barricade Mounted Signs from Materials as covered in Work Zone Signs Article 1089-1.
- *Article 1110-2* - Removed first sentence after Materials Item list as duplicative language in Article 1089-1.
- *Article 1110-2* - Removed NCHRP 350 references, those required edits will be covered in Division 10 of the *Standard Specifications* only.
- *Subarticle 1110-3(C)* - Terminology consistency applied.

- *Article 1110-4* - For Work Zone Signs (Stationary) payment method established to ensure work zones signs are properly removed.

#### Section 1115: Flashing Arrow Boards

- *Article 1115-2* - Terminology consistency applied.
- *Article 1115-3* - Paragraph added on how long a flashing arrow board can be unshielded and inside the clear zone when not in use for safety reasons.

#### Section 1120: Portable Changeable Message Signs

- *Article 1120-2* - Terminology consistency applied.
- ***Article 1120-3 - Integrated provision SP11 R10 Portable Changeable Message Signs.*** Paragraph added on how long a portable changeable message signs can be unshielded and inside the clear zone when not in use for safety reasons.

#### Section 1130: Drums

- *Article 1130-3* - Added language on not intermixing with other devices in either the taper or the tangent sections.

#### Section 1135: Cones

- *Article 1135-2* - Modified section reference for cones from 1089-4 to 1089-5 to align with the changes made to Division 10 after this was released for review and comment.
- *Article 1135-3* - Modified cone use requirements.
- *Article 1135-3* - Added language on not intermixing with other devices in either the taper or the tangent sections.

#### Section 1140: Sequential Flashing Warning Lights (New Section)

- ***Section 1140 - Integrated provision RWZ Sequential Flashing Warning Lights with some slight modification to ensure Standard Specifications format consistency such as adding a Maintenance Article and modified section reference for sequential flashing warning lights from 1089-11 to 1089-4 as Cones moved as Subarticle in Article 1089-5 in Division 10.***

#### Section 1145: Barricades

- *Article 1145-2* - Removed NCHRP 350 references, those required edits will be covered in Division 10 of the *Standard Specifications* only.

#### Section 1150: Flaggers

- *Article 1150-4* - Clarified the full day definition further by adding an hour range. Corrected grammar, “in” changed to “on”.

#### Section 1160: Temporary Crash Cushions

- *Article 1160-2* - Terminology consistency applied.
- *Article 1160-2* - Removed NCHRP 350 references, those required edits will be covered in Division 10 of the *Standard Specifications* only.
- *Article 1160-3* - Removed repetitive information and directional clarification added. Added a comma per word grammar check.

### Section 1165: Truck Mounted Attenuators

- *Article 1165-2* - Terminology consistency applied.
- *Article 1165-2* - Removed NCHRP 350 references, those required edits will be covered in Division 10 of the *Standard Specifications* only.
- *Article 1165-3* - Grammar corrections.
- *Article 1165-3* - Removed sentence regarding using TMAs that meet the crash test requirements of Subarticle 1089-9(A) as covered in the Item list Article 1089-9.
- *Article 1165-3* - Added Article where “appropriate lighting” is defined, “Article 1101-5”.

### Section 1170: Positive Protection

- *Article 1170-2* - Added Concrete Barrier to the material item list.
- *Article 1170-2* - Removed NCHRP 350 references, those required edits will be covered in Division 10 of the *Standard Specifications* only.
- *Article 1170-2* - Removed the term “future” as this paragraph relates to the current project under contract.
- *Throughout Section 1170* - Clarified portable concrete barrier and water filled barrier requirements separating content into specific Subarticles or general if applies to both for ease of reference.
- ***Article 1170-4 - Integrated provision SP11 R25 Remove and Reset Water Filled Barrier.***

### Section 1180: Skinny Drums

- *Article 1180-3* - Retroreflective adhesive sheeting clarification added.
- *Article 1180-3* - Modified skinny drum use requirements.
- *Article 1180-3* - Added language on not intermixing with other devices in either the taper or the tangent sections.
- *Article 1180-3* - Relocated paragraph on damaged direction to the end of Construction Methods.

### Section 1190: Law Enforcement

- ***Throughout Section 1190 - Integrated provision SP11 R30 Law Enforcement and Law Enforcement italicized in measurement and payment for consistency.***

## **Division 12: Pavement Markings, Markers and Delineation**

### Section 1205: Pavement Marking General Requirements

- *Article 1205-3* - Terminology consistency applied.
- *Subarticle 1205-3(A) and Subarticle 1205-4(C)* - Removed 30 m requirement, to just stating Department approved retroreflectometer found on the NCDOT Approved Products List as there are other options.
- *Throughout Section 1205* - Reflective media terminology consistency applied, removed specifics of glass bead, drop-on beads and highly terminology.
- *Subarticle 1205-3(D)* - Clarified table requirement of applying center line markings prior to edge line markings as have had instances where the table was not properly followed.

- *Throughout Section 1205* - Defined who directs, approves and requires “by/from the Engineer” for consistency throughout the *Standard Specifications*.
- *Subarticle 1205-3(F)* - Grammar correction applied.
- *Subarticle 1205-3(G)(1)* - Corrected Federal references naming convention and defined new term in Division 1.
- *Subarticle 1205-3(I)* - Added paragraph to account for direction when traffic patterns are changed in the work zone due to construction or reconstruction.
- *Throughout Article 1205-4* - Removed term alkyd/maleic as covered in Section 1087.
- ***Subarticle 1205-4(A)(1) & Subarticle 1205-4(C) Table 1205-3 - Integrated provision SP12 R05 Extruded Thermoplastic Pavement Marking Thickness.***
- *Subarticle 1205-4(C)* - Application rate removed in paragraph and replaced with manufacturer’s recommendations and Table reference adherence.
- *Subarticle 1205-5(B)* - Made adjustments that all minimum dry thickness shall be 30 mils.
- *Subarticle 1205-5(B)* - Redescribed double drop system for clarity.
- *Subarticle 1205-5(B)* - Removed redundant payment sentence.
- ***Subarticle 1205-5(B) and 1205-5(C) - Integrated unit provision Polyurea Pavement Marking Media and Thickness.***
- *Subarticle 1205-6(B)* - Removed Type 1 and 2 ADT criteria and Type 2 description for permanent tape. Added Type 3 payment clarification to align with plans.
- ***Subarticle 1205-7(C) and Article 1205-10 - Integrated unit provision In Lane Route Shields.***
- *Subarticle 1205-10* - Added Thermoplastic after Heated-In-Place for pay item consistency.

#### Section 1250: Pavement Markers General Requirements

- *Subarticle 1250-2(C)* - Removed as the information provided was not for the Contractor.
- ***Subarticle 1250-3(C) - Integrated provision SP10 R08 Non-Cast Iron Snowplowable Pavement Markers.***
- *Subarticle 1250-3(C)* - Clarified when removal of existing pavement markers are required.

#### Section 1251: Raised Pavement Markers

- *Article 1251-3* - Removed primer/sealer specific item and generalized install per the manufacturer’s specifications instead.

#### Section 1253: Snowplowable Pavement Markers

- ***Throughout Section 1253 - Integrated provision SP10 R08 Non-Cast Iron Snowplowable Pavement Markers.***
- *Subarticle 1253-3(B)* - Clarified that if more significant housing issue (missing or broken) that Reflector Replacement should be paid as Non-Cast Iron Snowplowable Pavement Markers instead.
- *Article 1253-4* - Defined who accepts “by the Engineer” for consistency throughout the *Standard Specifications*.

#### Section 1264: Object Markers

- *Article 1264-2* - Terminology consistency applied.

### Section 1266: Tubular Markers

- *Article 1266-3* - Removed epoxy or other adhesive specific item and generalized install per the manufacturer's specifications instead.
- *Article 1266-3* - Removed crystal retroreflective sheeting as white is available.
- *Subarticle 1266-3(C)* - Added white tubular markers as an option.
- *Subarticle 1266-5(B)* - Removed orange tubular marker requirement.

### Section 1267: Flexible Delineators

- *Throughout Section 1267* - Removed crystal and replaced with white retroreflective sheeting as white is available.
- *Article 1267-4* - Defined who accepts "by the Engineer" for consistency throughout the *Standard Specifications*.

## **Division 14: Lighting**

### Section 1400: Roadway Lighting

- *Throughout Section 1400* - For terms defined in the Definitions, created consistency on capitalization and italics use and/or appropriate term applied.
- *Article 1400-1* - Clarified not be shown or described as not fully shown or described.
- *Article 1400-1* - Added Electrical Contractors General Statute compliance along with license requirement.
- *Subarticle 1400-2(A)* - Clarified an acceptable organization definition, to include qualified testing laboratory and defined that term.
- *Subarticle 1400-2(C) and 1400-2(D)* - Removed duplicative language with Division 10 referenced in Materials item list. For Subarticle 1400-2(D) moved construction method content to Subarticle 1400-4(G), while moving changed 6 inches to 4 inches to align with the *Roadway Standard Drawings*.
- *Subarticle 1400-2(E)* - Added sentence in Fuseholders Subarticle that prohibits plastic locking tabs, since damaged when tested.
- *Article 1400-3* - Retitled Subarticle and clarified drawing type.
- *Subarticle 1400-3(C)* - Random samples may be taken instead of will be taken.
- *Subarticle 1400-3(D)* - Changed to electronic submittal process versus a multiple copy submittal requirement.
- *Subarticle 1400-3(E)* - Clarified who to turn over warranties to, "to the Engineer".
- *Subarticle 1400-4(A)* - In Location Surveys Subarticle added that high mast light standards can be moved no closer than 50 feet to the edge of travel and relocated actual measurements always takes precedence over scaled plan dimensions. Relocated a sentence about approval before construction after describing move parameters for better flow of information and ensure clear "approval" is "by the Engineer".
- *Subarticle 1400-4(B)* - In Damage to Facilities Subarticle added if closer than 10 feet requirements to avoid damage. This clarifies the removed statement of what might affect the foundation stability. Defined who directs, "by the Engineer". Removed "located in certain areas" as want to avoid damage to existing underdrains and other buried facilities.

- *Throughout Section 1400* - Defined who approves, requires, and directs, “the Engineer” for consistency throughout the *Standard Specifications*.
- *Subarticle 1400-4(C)* - Changed “lighting standards” to “light standards” for consistency throughout the *Standard Specifications*. Changed “lines” to “existing utilities” and reordered sentence for clarity.
- *Subarticle 1400-4(D)* - In Operation of Equipment Subarticle remove lamps as obsolete, clarified the standard referenced (light standard) and “taking down” as dismantling and lowering.
- *Subarticle 1400-4(E)* - In Conduit Installation Subarticle added where to find galvanizing Section for further requirements and removed specific fastener spacing requirements and instead referenced NEC spacing requirements to ensure not missing any future amendments.
- *Subarticle 1400-4(F)* - In Wiring Methods Subarticle had several changes. Approved wire pulling lubricant sentence replaced with requirements aligning with Division 17. Removed white conductor option as white can only be used as neutral, non-current carrier. Added when breakaway fuseholders are not acceptable, splicing in junction boxes. Added requirement for splices to be at the top of the junction box in order for it not to be submerged during heavy rain.
- *Subarticle 1400-4(G)* - For Subarticle 1400-4(G) added construction method content from Subarticle 1400-2(D), while moving changed 6 inches to 4 inches to align with the Roadway Standard Drawings.
- *Subarticle 1400-4(K)* - In Foundations Subarticle added sentence on what to do if not practical to meet the requirements specified, notify the Engineer. The reason for contacting the Engineer is typically when significant alternation to ditches or other slopes are required to meet these requirements.
- *Article 1400-5* - Reasons “why” removed for consistency. Defined as a list the inspections and tests that are required. Terminology change to align with official organization and group title. Added as-built plans are required to be submitted to the Engineer prior to the final inspection.
- *Article 1400-6* - Added all burn-in testing shall be performed using power from the local utility and not from mechanical generators and added that the Contractor is responsible for the maintenance of the lighting system(s) in accordance with Subarticle 105-17(D) as well as prior statement of final project acceptance.
- *Article 1400-8* - For Locks and Keys Article added a lock requirement for high mount poles to be consistent with Section 1401.
- *Article 1400-11* - Removed specific Engineer positions, changed to “Engineer” as that is the Contractors point of contact for the Pre-Lighting Work meeting.

#### Section 1401: High Mount Standard

- *Subarticle 1401-2(A)* - Standardized licensed statement and AASHTO reference description across Divisions where referenced.
- *Subarticle 1401-2(A)* - In High Mount Standard Subarticle overhauled 4<sup>th</sup> paragraph adding drawing requirements, removed the detail and process statement replacing with complete joint penetration or partial joint penetration, reference modifications, submittal direction change and timing clarification.

- *Throughout Section 1401* - For terms defined in the Definitions, created consistency on capitalization and italics use and/or appropriate definition term applied.
- *Subarticle 1401-2(A)* - Defined who approves, “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Subarticle 1401-2(A)* - Clarified lock requirement, provide locks and keys in accordance with Article 1400-8. Grammar and consistent term correction made.
- ***Subarticle 1401-2(B) - Integrated provision Z04 Errata (effective December 2022 Let)*** (Changed “lighting standard” to “light standard” to align with Section title. Also, “is” changed to “are” as multiple items in the list.)
- *Subarticle 1401-2(D)* - Clarified junction box provided, metal NEMA 3R weatherproof.
- *Subarticle 1401-2(D)* - Consistent phrasing when Section referenced applied.
- *Subarticle 1401-2(D)* - In Circuitry Subarticle added provide a ground rod in accordance with Subarticle 1400-2(D). Ground rods was mentioned in Construction Methods and Measurement and Payment only priorly.
- *Article 1401-4* - Modified “lighting standard” to “light standard” for consistency throughout the *Standard Specifications*.

#### Section 1404: Light Standards

- *Article 1404-2* - Added certified computations and fabrication drawing by an engineer licensed by the State of North Carolina requirement.
- *Article 1404-2* - Standardized AASHTO reference description across Divisions where referenced.
- *Article 1404-2* - Modified “lighting standard” to “light standard” for consistency throughout the *Standard Specifications*.
- *Throughout Section 1404* - For terms defined in the Definitions, created consistency on capitalization and italics use or appropriate definition term applied.
- *Article 1404-2* - Added sentence to refer to specifications for luminaire weight and effective projected area (EPA).
- *Article 1404-2 and 1404-3* - Consistent phrasing when Section referenced applied.

#### Section 1407: Electrical Service Pole and Lateral

- *Article 1407-3* - Added direction for the Contractor to coordinate with the utility company to determine when installation of a service pole, CT cabinet, or meter base is needed and gain approval from the Engineer on when a service pole can be deleted from the contract. Rearranged article for better flow of content.
- *Article 1407-3* - Allowed the use of PVC conduit for the conductors.

#### Section 1408: Light Control Equipment

- *Article 1408-1* - Added to description, furnish and install current transformer cabinet when required by the utility company.
- *Article 1408-2* - Added Ground Rod to the Item list. Modified Article 1000-4 to 1000-3 as reversed order in Division 10.
- *Throughout Section 1408* - For terms defined in the Definitions, created consistency on capitalization and italics use and/or appropriate definition term applied.

- *Article 1408-2* - Ensured clear that the threaded conduit cap is galvanized steel.
- *Article 1408-2* - Number format consistency applied to align with plans.
- *Article 1408-2* - Added Article reference for galvanizing sentence.
- *Article 1408-2* - Relocated galvanizing sentence directing contractors where to find galvanizing requirements.
- *Article 1408-2* - Grammar correction.
- *Article 1408-2* - Added direction to provide a service barrier as required by NEC Article 230-62(C) for the line side lugs.
- *Article 1408-2* - Removed specific VAC values and replaced with the voltage shown in the plans.
- *Article 1408-2* - Added requirement of selector switch contracts shall be rated for the voltage shown in the plans.
- ***Article 1408-2 - Integrated Lighting provision Electrical Services (effective January 2023 - Added arc flash label requirement and Modified Type 1 surge protection device Amp value and added to include with a short circuit current rating of 200,000 A; UL Panel Shop update had been previously integrated.)***
- *Article 1408-2* - Consistent phrasing when Section referenced applied.
- *Article 1408-3* - Removed spelled out version of abbreviation term as in definition key.
- *Article 1408-3* - Reasons “why” removed for consistency.
- *Article 1408-3* - Clarified appropriately sized bonding jumper, “sized in accordance with NEC Article 250.66”.

#### Section 1409: Electrical Duct

- *Article 1409-3* - Removed obsolete process of plugging the duct with oakum or duct seal after feeder circuits in conduit are extended through duct. Added duct shall be installed as buried or trenchless as indicated on the plans. Replaced “jacked” with “trenchless”.
- *Article 1409-3* - Overhauled (A) through (D) Subarticle trenchless methods list, referencing directives in other subarticles, tools changed, and merged option (D) with (B). Moved sentence following (A) to (D) list to (A) as only in regard to bore and jack method.
- *Article 1409-3 and 1409-4* - Terminology consistency applied.
- *Article 1409-3* - Grammar correction.
- *Article 1409-3* - Defined boxes as junction boxes.

#### Section 1410: Feeder Circuits

- *Article 1410-2* - Replaced conductor marking and stripping directive sentence with the NEC terminology and reference instead.
- *Article 1410-3* - Grammar correction.
- *Article 1410-3* - Added Subarticle reference.
- *Article 1410-3* - Modified where to locate underground feeder circuits a minimum of 15 feet back from the edge of travel lane or as directed.
- *Article 1410-3* - Defined who directs and accepts, “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 1410-3* - Removed legacy design method paragraph and sentence.
- *Article 1410-3* - Clarified electrical duct adding (sleeve).



- *Article 1410-3* - Defined circuit as feeder circuit and added sentence regarding use of a raceway is only permissible under road crossings, unless otherwise indicated on the plans.
- *Article 1410-3* - Clarified the last paragraph in Construction Methods is about conduit and added feeder circuits must be installed in individual conduits sized as shown on the plans.

#### Section 1411: Electrical Junction Boxes

- *Article 1411-1* - Added the in ground junction box must be stackable to the description.
- *Article 1411-3* - Clarified boxes are the junction boxes and traffic loadings are continuous. Moved the seal requirement to a clarifying sentence on when and what you should seal. Corrected vertical to vertically. Changed “The junction box” to “The HMJB” to align with other junction box paragraphs.
- *Article 1411-4* - Removed types of electrical junction boxes so list can be altered elsewhere in the contract.
- *Article 1411-4* - Added to incidental items to include covers and washed stone, this change aligns with Division 17.

#### Section 1412: Under Pass Lighting

- *Article 1412-1* - Further described circuit breakers and enclosure adding with photocell receptacle.
- *Article 1412-2* - Added article reference in the item list.
- *Article 1412-2 - Integrated provision Z04 Errata (effective December 2022 Let)*
- *Article 1412-2 - Integrated Lighting General Special Provision, Underpass Lighting Materials. (effective January 2023 removed specific VAC value and replaced with the voltage shown in the plans).*
- *Article 1412-4* - Consistency in pay item description throughout Division.

#### Section 1413: Portable Construction Lighting

- *Article 1413-1* - Removed article title for consistency throughout the *Standard Specifications*.
- *Article 1413-2* - Changed “retain” to “remove” after the work is completed.
- *Throughout Section 1413 - Integrated Lighting General Special Provision, Portable Construction Lighting.*
- *Article 1413-5* - Defined what a continuous moving construction operation is.

### **Division 15: Utility Construction**

#### Section 1500: General Utility Requirements

- *Article 1500-1* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 1500-2* - Clarified owner as utility owner and Department personnel as the Engineer.
- *Article 1500-3* - Added the same sentence as Article 801-3, where clear that *Exploratory Excavation* required to locate a utility not identified in the plans will be paid in accordance with Article 104-7.

- **Article 1500-5 - Integrated unit provision Relation of Water Mains to Non-Potable Water Lines and Other Utilities, aligning 15A NCAC 18C .0906 language update (May 2023 Let).**
- *Article 1500-7 - Changed to electronic submittal process versus a multiple copy submittal requirement for NCDOT and hard and electronic files for utility requirements.*
- **Article 1500-7 - Integrated unit provision, Submittals and Records (May 2023 Let, clarified plans are sealed by a North Carolina Professional Land Surveyor and as-built plans submittal requirements).**

#### Section 1505: Excavation, Trenching, Pipe Laying and Backfilling for Utilities

- *Article 1505-2 - Aligned Item description with the Section heading.*
- *Article 1505-3 - Added Article 300-7 regarding backfill requirements.*
- *Subarticle 1505-3(A) - Modified Subarticle 1505-3(A) since about more than shoring, shielding and shoring is the new title.*
- *Subarticle 1505-3(A) - Defined who to provide plans and designs to, “to the Engineer”.*
- *Article 1505-5 - Defined who directs, “by the Engineer” for consistency throughout the Standard Specifications.*
- *Article 1505-6 - Aligned pay item titles with Article 300-9 titles.*

#### Section 1510: Water Lines

- *Article 1510-2 - Clarified where to find approved bituminous paint, on NCDOT APL.*
- *Throughout Section 1510 - Defined who directs and approves, “by the Engineer” for consistency throughout the Standard Specifications.*
- **Subarticle 1510-3(B) - Integrated provision Z-4 Errata (effective January 2023, corrected Section number for Continuous Feed Method).**
- *Subarticle 1510-3(B) - Changed to a NCDOT electronic submittal process and clarified a hard and electronic copy with the water line owner.*
- *Article 1510-4 - Aligned measurement and payment with Drainage Pipe Section 305 processes. Grammar and source name correction. Added measurement based on AWWA C153 when not listed in AWWA C110/A21.10for Ductile Iron Water Pipe Fittings.*

#### Section 1515: Utility Controls

- *Article 1515-2 & Subarticle 1515-3(F) & Article 1515-4 - Added combination air valves.*
- *Article 1515-2 - Grammar correction.*
- *Article 1515-4 - Added Insertion Valves and Plug Valves that were added to Article 1036-7. Capitalized “Release” in Air Release Valve for consistency in Pay Item list. Added clarity that valves for fire hydrant leg will be paid separately as \_\_\_” Valves.*

#### Section 1520: Sanitary Sewer

- *Article 1520-2 - Added paragraph “For sewer services and laterals use pipe conforming to the current requirements of the North Carolina State Building Code: Plumbing Code for building sewer pipe.”*
- *Subarticle 1520-3(A)(c) - Removed ASTM C924 as withdrawn.*

- *Throughout Section 1520* - Defined who approves “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 1520-4* - Aligned measurement and payment with Drainage Pipe Section 305 processes. Source name correction.

#### Section 1525: Utility Manholes

- *Article 1525-2 - Integrated provision Z-4 Errata (effective January 2023, replaced AASHTO M 198 with ASTM C990 and removed “in the Grout Production and Delivery provision” as the content was in the 2018 Standard Specifications)*. Modified item description for Section 1026 to align with Division 10 title change, “Curing Agents” changed to “Curing Materials”.
- *Throughout Section 1525* - Defined who approves “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 1525-4* - Added “or reconstruction” of existing manholes will be paid in accordance with Article 858-4.

#### Section 1530: Abandon or Remove Utilities

- *Article 1530-2* - Changed Article 1000-6 to 1000-7 as a new Article 1000-5 was added in Division 10.
- *Throughout Section 1530* - Clarified that flowable fill is an option or grout, flowable fill was in Materials article as reference only priorly.
- *Article 1530-4* - Clarified flowable fill or grout is incidental to pay item.

#### Section 1540: Encasement

- *Article 1540-2* - Changed Article 1000-6 to 1000-7 as a new Article 1000-5 was added in Division 10.
- *Subarticles 1540-3(C) and (E)* - Removed design life of 100 years certification requirement as moved to design phase and in (E) added if required in the plans to the first sentence.
- *Article 1540-4* - Added material used to fill the annual void is incidental to the work being performed.
- *Article 1540-4* - Clarified flowable fill or grout is incidental to pay item.

#### Section 1550: Trenchless Installation of Utilities

- *Article 1550-1* - Added in the native soil to the description.
- *Throughout Section 1550* - Consistency in terms applied.
- *Article 1550-2 - Integrated provision Z-4 Errata (effective January 2023, corrected AASHTO LRFD reference from Bridge Design to Bridge Construction)*.
- *Article 1550-2* - Changed Article 1000-6 to 1000-7 as a new Article 1000-5 was added in Division 10.
- *Subarticle 1550-3(B)* - In the first paragraph added Contractor’s equipment to the list.
- *Subarticle 1550-3(D)* - Removed portion of the first paragraph that will be handled in the design phase such as the design life of 100 years.

- *Article 1550-6* - Changed horizontally to the pay item term and removed nearest tenth for improved measurement processes. Clarified no additional payment for changes or modifications to the design method. Clarified flowable fill or grout is incidental to pay item.

## **Division 16: Erosion Control and Roadside Development**

### Section 1605: Temporary Silt Fence

- *Throughout Section 1605* - Defined who directs and accepts “by the Engineer” for consistency throughout the *Standard Specifications*.

### Section 1606: Special Sediment Control Fence

- *Throughout Section 1606* - Defined who directs and accepts “by the Engineer” for consistency throughout the *Standard Specifications*.

### Section 1607: Gravel Construction Entrance

- *Article 1607-3* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.

### Section 1609: Clean Water Diversion

- ***Throughout Section 1609 - Integrated unit provision Clean Water Diversion.***

### Section 1610: Stone for Erosion Control

- *Throughout Section 1610* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 1610-2* - Removed “documents” from the last paragraph as there is not a contract document definition, but there is a contract definition.

### Section 1615: Temporary Mulching

- *Throughout Section 1615* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 1615-2* - Added tacking material to item list and removed sentence following the item list.
- *Article 1615-3* - Removed “a sufficient amount of asphalt or other type binding material” and replaced with “tack in accordance to Article 1060-5” when using grain straw. Binding material changed to tacking material.
- ***Throughout Section 1615 - Integrated unit provision Tack or Mulch for Erosion Control (Note: In Division 10, Article 1060-5 also updated).***

### Section 1620: Temporary Seeding

- *Throughout Section 1620* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.

#### Section 1622: Temporary Slope Drains

- *Throughout Section 1622* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 1622-2* - Removed “Provide plastic pipe and fittings meeting AASHTO M 294.” as repetitive with item listing Section 1044-7 referenced.

#### Section 1629: Coir Fiber Mat

- ***Throughout Section 1629 - Integrated unit provision Coir Fiber Mat.***

#### Section 1630: Construction and Maintenance of Silt Detention Devices

- *Subarticle 1630-2(A)* - Added criteria on when to clean out, “when sediment volume reaches 50% of the storage volume”, as well as when directed. This statement relocated from *Article 1637-4*.
- *Throughout Section 1630* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.
- ***Subarticle 1630-2(C) & (D) - Integrated unit provision Stockpile Areas.***
- ***Article 1630-3 - Integrated provision Z-4 Errata (effective January 2023 let changed paid section reference to measurement and payment article within that section).***

#### Section 1631: Rolled Erosion Control Products

- *Throughout Section 1631* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 1631-2* - Added subarticle where staples can be found.

#### Section 1632: Rock Inlet Sediment Trap

- *Throughout Section 1632* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 1632-4* - Removed “when necessary” and explained when necessary.

#### Section 1633: Temporary Rock Silt Checks

- *Throughout Section 1633* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.
- ***Throughout Section 1633 - Integrated unit provision Silt Check Type A with Matting and Polyacrylamide. (Note: Polyacrylamide changed to Flocculant)***

#### Section 1634: Temporary Rock Sediment Dams

- *Throughout Section 1634* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.

#### Section 1635: Rock Pipe Inlet Sediment Trap

- *Throughout Section 1635* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.

#### Section 1636: Temporary Stream Crossing

- *Article 1636-1* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.

#### Section 1637: Riser Basin

- *Throughout Section 1637* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 1637-3* - For terms defined in the definitions, ensured appropriate term applied. Changed “and” to “or” directed by the Engineer.
- *Article 1637-4* - Removed “when sediment volume reaches 50% of the storage volume” as repetitive with *Section 1630* which is referenced, added to *Subarticle 1630-2(A)*.
- *Article 1637-5* - Changed Outlet Pipe to Pipe for the outlet to align with *Article 310-6*.
- *Article 1637-5 - Integrated provision Z-4 Errata (effective January 2023 let changed paid section reference to measurement and payment article within that section).*

#### Section 1638: Stilling Basin

- *Throughout Section 1638* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 1638-3* - Changed “and” to “or” directed by the Engineer.

#### Section 1639: Special Stilling Basin

- *Throughout Section 1639* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 1639-2* - In Table 1639-1 removed Permittivity requirement.

#### Section 1640: Coir Fiber Baffle

- *Article 1640-1* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 1640-2* - Changed 12 inches to 6 inches.

#### Section 1642: Wattle Devices (New Section)

- *Throughout Section 1642 - Integrated unit provisions Wattle, Battle Barrier, Wattles with Polyacrylamide and Silt Fence Wattle Break. (Note: Polyacrylamide changed to Flocculant. Also, there is a blank before pay item to cover the coir fiber and excelsior options)*

#### Section 1644: Skimmer Basins (New Section)

- *Throughout Section 1644 - Integrated unit provisions Skimmer Basin with Baffles East, Skimmer Basin with Baffles, Earthen Dam with Skimmer East, Earthen Dam with Skimmer, Tiered Skimmer Basin East, Tiered Skimmer Basin. (Note: East is now the standard in 2024.)*

#### Section 1650: Wooded Area Cleanup

- *Article 1650-4* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.

#### Section 1651: Selective Vegetation Removal

- *Throughout Section 1651* - For terms defined in the Definitions, ensured appropriate term applied.

- *Subarticle 1651-3(A)* - Defined who designates “by the Engineer” for consistency throughout the *Standard Specifications*.

#### Section 1657: Compost Blanket (New Section)

- ***Throughout Section 1657 - Integrated unit provision Compost Blanket. (Note: Also integrated into Division 10 as a new Article 1060-15 (Article 1060-15 SPECIAL STILLING BASIN has been removed as found in Article 1639-2).***

#### Section 1660: Seeding and Mulching

- *Throughout Section 1660* - Defined who directs, revokes, permits and approves “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 1660-2* - Removed sentence “Use undiluted emulsified asphalt for tacking material.” Tacking Material with reference added to the item list that has those options.
- *Subarticle 1660-6(C)* - Removed first paragraph and replaced with “Provide and apply tacking material to hold mulch in place in accordance with Article 1060-5 and Section 1615”.
- *Article 1660-7* - For terms defined in the Definitions, ensured appropriate term applied.
- ***Subarticle 1660-6(C) and Article 1660-8 - Integrated unit provision Tack for Mulch for Erosion Control.***

#### Section 1661: Repair Seeding

- *Article 1661-1* - For terms defined in the Definitions, ensured appropriate term applied.
- *Throughout Section 1661* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.

#### Section 1662: Supplemental Seeding

- *Article 1662-1* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.

#### Section 1664: Sodding

- *Throughout Section 1664* - Defined who rejects, directs and approves “by the Engineer” for consistency throughout the *Standard Specifications*.

#### Section 1665: Fertilizer Topdressing

- *Article 1665-3* - Defined who directs and approves “by the Engineer” for consistency throughout the *Standard Specifications*.

#### Section 1667: Specialized Hand Mowing

- *Throughout Section 1667* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.

#### Section 1670: Planting

- *Throughout Section 1670* - Defined who directs, permits and approves “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 1670-1* - For terms defined in the Definitions, ensured appropriate term applied.

- *Article 1670-3* - Removed “in writing” requirement for Engineer permission for outside of contract date planting.
- *Article 1670-15* - Added other replacement planting criteria where some content came from following sentence. Clarified replacement plant guidelines.

#### Section 1675: Response for Erosion Control (New Section)

- ***Throughout Section 1675 - Integrated unit provision Response for Erosion Control.***

### **Division 17: Signals and Intelligent Transportation Systems**

#### Section 1700: General Requirements

- *Article 1700-2* - Added specific Subarticle reference and QPL location for consistency across division.
- *Subarticle 1700-3(A)* - Defined where the locations of existing inductive detection loops are shown.
- *Subarticle 1700-3(B)* - Clarified local traffic enforcement agency, adding law before enforcement.
- *Subarticle 1700-3(D)* - Removed outdated technology requirements and did not specify type of phone number furnished.
- *Subarticle 1700-3(D)* - Included where to find observation period details in the *Standard Specifications*.
- *Subarticle 1700-3(D)* - Amended specific Conflict Monitor Tester model to include or newer option.
- *Throughout Section 1700* - For terms defined in the Definitions, created consistency on capitalization and italics use and appropriate term applied.
- *Subarticle 1700-3(I)* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Subarticle 1700-3(J)* - Included where to find the splice electrical wire and cable in junction boxes or condulets, as shown in the *Roadway Standard Drawings*.
- *Subarticle 1700-3(K)* - Overhaul of Electrical Service and Grounding Subarticle to ensure appropriate standards and test requirements are followed and created consistency with Subarticle 1400-2(D).
- ***Subarticle 1700-3(K) - Integrated Section 1.1 ITSS Project Special Provision***
- ***Subarticle 1700-3(M) - Integrated Section 1.2 ITSS Project Special Provision into Traffic Signal Activation Subarticle.***

#### Section 1705: Signal Heads

- *Article 1705-2* - In Material article, added QPL location.
- *Subarticle 1705-3(F) and Article 1705-4* - Removed outdated Modify Existing Vehicle Signal Heads Subarticle and pay item as we now have LED signal heads throughout the state and this action is no longer needed.
- *Article 1705-4* - Clarified Lead-in Cable payment Article versus Section for consistency.



### Section 1706: Backplates

- *Article 1706-2* - In Material article, modified section number as shifted with new Article 1098-2 Signal Cable insert from Signals and ITS PSP integrated and added QPL location.
- *Article 1706-3* - Added sentence, Slot or tether backplates as required by the Engineer.

### Section 1710: Messenger Cable

- *Article 1710-1 and 1710-4* - Added strandwise to the description and measurement and payment as being incidental to the Messenger Cable pay item.
- *Article 1710-2* - In Material article, modified Section 1098 section numbers as shifted with new Article 1098-2 Signal Cable insert from Signals and ITS PSP integration and added QPL location.

### Section 1715: Underground Cable Installation

- *Article 1715-2* - In Material article, added QPL location.
- *Subarticle 1715-3(A)(1)(a)* - Removed twisted pair as obsolete.
- *Throughout Section 1715* - Defined who approves and accepts “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Subarticle 1715-3(D)(1)* - Clarified that preceding sentence is shown in Table 1715-1 that follows for consistency.
- *Subarticle 1715-3(D)(1)* - In Table 1715-1 modified the 60” value to 48” as the less than/greater than value and for Drainage Pipes 48” or Less modified the minimum clearance requirement to align with the NCDOT Utilities Accommodations Manual.
- *Subarticle 1715-3(D)(1)* - Defined who to submit to, “to the Engineer” for consistency throughout the *Standard Specifications*.
- *Subarticle 1715-3(D)(2)* - For terms defined in the Definitions, created consistency on capitalization and italics use and appropriate term applied.
- ***Subarticle 1715-3(E) and Article 1715-4 - Integrated provision Z-4 Errata.***
- *Article 1715-4* - For consistency in Measurement and Payment added installed and accepted to *Unpaved Trenching for Temporary Lead-in* pay item description.

### Section 1716: Junction Boxes

- *Article 1716-2* - In Material article, modified Section 1098 section number as shifted with new Article 1098-2 Signal Cable insert from Signals and ITS PSP integration and added QPL location.
- *Article 1716-3* - Added sentence to ensure the junction box is not at the lowest part of the ditch to prevent ponding water in the box, install a minimum 4 feet from the centerline of any ditch.
- *Article 1716-3* - Corrected that the spreadsheet in Figure 1716-1 is not provided by the Department and should be placed in the signal cabinet and submitted to the Engineer. Also corrected Figure 1716-1 Latitude and Longitude reversing values so the example is in North Carolina.

### Section 1720: Wood Poles

- *Article 1720-2* - In Material article, standardized QPL sentence.

- ***Article 1720-3 - Integrated Section 1.3 ITSS Project Special Provision.***

#### Section 1721: Guy Assemblies

- *Article 1721-2* - In Material article, modified section numbers as shifted with new Article 1098-2 Signal Cable insert from Signals and ITS PSP integrated and added QPL location.

#### Section 1722: Riser Assemblies

- *Article 1722-2* - In Material article, modified Section 1098 section numbers as shifted with new Article 1098-2 Signal Cable insert from Signals and ITS PSP integration and added QPL location.
- *Article 1722-3* - Modified “Use separate (1 inch riser)” to “Use separate riser (1 inch minimum)” so it is understood contractor will be paid for material installed if 2 inches are required based on amp service requirements. Removed “and coaxial cable” and added paragraph about separating the 2 inch riser with weatherhead for coaxial cables for spread spectrum radio antennae as heat shrink tubing is not required for coaxial cables.

#### Section 1725: Inductive Detection Loops

- *Article 1725-2* - In Material article, modified section number as shifted with new Article 1098-2 Signal Cable insert from Signals and ITS PSP integrated and added QPL location.
- *Article 1725-4* - Added trenching as incidental between edge of pavement and junction box.

#### Section 1726: Lead-In Cable

- *Article 1726-2* - In Material article, modified section numbers as shifted with new Article 1098-2 Signal Cable insert from Signals and ITS PSP integrated and added QPL location.

#### Section 1730: Fiber-Optic Cable

- *Article 1730-2* - In Material article, modified section numbers as shifted with new Article 1098-2 Signal Cable insert from Signals and ITS PSP integrated, added specific Subarticle reference and QPL location.
- *Subarticle 1730-3(A)* - Clarified when OTDR testing data is provided, “prior to installation”.
- *Article 1730-3* - Defined who requests and approves “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Subarticle 1730-3(A)* - Changed to electronic submittal process versus a multiple copy submittal requirement.
- *Subarticle 1730-3(B)* - Defined where to store 100 feet of fiber-optic cable, “as shown on the plans”.
- *Subarticle 1730-3(D)* - Changed specific ST-PC connectors to approved connectors, where approved connectors are found on the QPL as mentioned in the Materials article.
- *Article 1730-4* - Clarified the way we measure and pay for *Drop Cable* to be consistent with the Communication Cable pay item in the same Section. Removed assemblies from drop cable description as “assemblies” removal makes the description a more uniform term.

### Section 1731: Fiber-Optic Splice Centers

- *Article 1731-2* - In Material article, modified section number as shifted with new Article 1098-2 Signal Cable insert from Signals and ITS PSP integrated and added QPL location.
- *Subarticle 1731-3(B)* - Modified method to distribute electronic documents, File Transfer System versus formerly compact disk.
- *Throughout Section 1731* - Defined who approves and accepts “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Subarticle 1731-3(E)* - “/or” removed as both actions are required where modified.
- *Subarticle 1731-3(F)* - For Testing Subarticle, modified that notification does not have to be written and the 10 days are 10 business days and clarified provided “to the Engineer”.
- ***Subarticle 1731-3(F) - Integrated standard provision for municipal signal systems, moving to Standard Specifications to allow for use in all project types. This incorporates OTDR testing methodology requirements.***
- *Subarticle 1731-3(F)* - Changed to electronic submittal process versus a multiple copy submittal requirement.
- *Subarticle 1731-3(F)* - Removed furnishing 2 copies of the software to view the OTDR traces electronically, as clarified in prior paragraph providing a pdf copy is required.

### Section 1732: Fiber-Optic Transceivers

- *Article 1732-2* - In Material article, modified section number as shifted with new Article 1098-2 Signal Cable insert from Signals and ITS PSP integrated and added QPL location.

### Section 1733: Delineator Markers

- *Article 1733-2* - In Material article, modified section number as shifted with new Article 1098-2 Signal Cable insert from Signals and ITS PSP integrated and added QPL location.

### Section 1734: Remove Existing Communications Cable

- *Article 1734-2* - Removed backfill hole to 95% of surrounding density to backfill hole with an approved material and compact hole as required in accordance with Section 235-3(C).
- *Article 1734-3* - Defined who specifies and accepts “by the Engineer” for consistency throughout the *Standard Specifications*.

### Section 1735: Cable Transfers

- *Article 1735-2* - Modified section number as shifted with new Article 1098-2 Signal Cable insert from Signals and ITS PSP integrated.

### Section 1736: Spread Spectrum Radio

- *Article 1736-2* - In Materials Article, modified Section 1098 section numbers as shifted with new Article 1098-2 Signal Cable insert from Signals and ITS PSP integration and added sentence for consistency after the item list.
- *Throughout Section 1736* - Term consistency modification to align with all Articles in the Section.

- *Article 1736-4* - Removed configuration software. Modified radio path Site Survey test and warranties to radio path signal strength test and warranties for clarity.

#### Section 1737: Modify Spread Spectrum Wireless Radio (New)

- ***Section 1737 - Integrated Section 20 ITSS Project Special Provision, Modify Spread Spectrum Wireless Radio.***
- *Article 1737-2* - In Materials Article, added sentence for consistency after the item list.

#### Section 1738: Back Pull Fiber Optic Cable (New)

- ***Section 1738 - Integrated Section 15 ITSS Project Special Provision, Back Pull Fiber Optic Cable.***
- *Article 1738-3* - Defined who accepts “by the Engineer” for consistency throughout the *Standard Specifications*.

#### Section 1743: Pedestals

- *Article 1743-1* - Standardized AASHTO reference description across Divisions where referenced.
- *Article 1743-2* - In Material article, modified Section 1098 section number as shifted with new Article 1098-2 Signal Cable insert from Signals and ITS PSP integration and added QPL location.
- *Subarticle 1743-3(A)* - For terms defined in the Definitions, ensured the appropriate definition term applied. Plans includes *Roadway Standard Drawings*.

#### Section 1745: Signs Installed for Signals

- *Article 1745-2* - In Materials Article, added sentence for consistency after the item list.
- *Article 1745-2* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.

#### Section 1746: Relocated Existing Sign (No Changes)

#### Section 1747: LED Blankout Sign

- *Article 1747-1* - Modified Description Article to be less specific and instead resource the MUTCD for fabrication requirements.
- *Article 1747-2* - In Material article, added QPL location.

#### Section 1750: Signal Cabinet Foundations

- *Throughout Section 1750* - Defined who approves and accepts “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Article 1750-2* - In Material article, modified Section 1098 section number as shifted with new Article 1098-2 Signal Cable insert from Signals and ITS PSP integration and added QPL location. Changed Article 1000-4 to 1000-3 as reversed order in Division 10.

#### Section 1751: Controllers with Cabinets

- *Article 1751-2* - In Material article, added QPL location.

- *Subarticle 1751-3(A)* - Defined who directs “by the Engineer” for consistency throughout the *Standard Specifications*.
- *Subarticle 1751-3(B)* - Clarified upload/download as bidirectional communication.
- *Subarticle 1751-3(C)* - For terms defined in the Definitions, ensured the appropriate definition term applied.
- *Subarticle 1751-3(C)* - Form italicized and number reference was changed from text format to a number format for consistency.

#### Section 1752: Modify Cabinet Foundations

- *Subarticle 1752-3(A)* - Removed when possible and replaced with unless approved by the Engineer for maintaining traffic signal operations while drilling is performed.

#### Section 1753: Cabinet Base Adapter/Extender

- *Article 1753-2* - Aligned Item description with the Article heading.
- *Article 1753-2* - In Material article, modified section number as shifted with new Article 1098-2 Signal Cable insert from Signals and ITS PSP integration and added QPL location.

#### Section 1755: Beacon Controller Assemblies

- *Article 1755-2* - In Material article, modified Section 1098 section number as shifted with new Article 1098-2 Signal Cable insert from Signals and ITS PSP integration and added QPL location.
- *Article 1755-3* - Defined who directs and specifies “by the Engineer” for consistency throughout the *Standard Specifications*.

#### Section 1757: Removal of Existing Traffic Signals

- *Subarticle 1757-2(C)* - Modified Disposal Subarticle, removing “that will not be reused” as all listed will be removed, clarified pole type as span poles, removed “all other” term and instead provided the Subarticle where the list is defined, and finally added the location where to return the removed equipment to.

## **INDEX**

#### Changes to the 2024 Standard Specifications Index

- *Index note changes* - Added “This index references the Division, Section, Article, or Subarticle.” Page numbers correspond to the Division number (i.e. Division 1 = page 1- (1, 100, 101-2, 103-4(B)), Division 10 = page 10- (10, 1000, 1080-13, 1000-3(F))).