

DeIDOT 2020 Standard Specifications

October 27, 2020

2020 Standard Specifications

- Overall formatting and language changes
- Examples of 2020 Standard Spec changes with a side by side comparison (2016 vs. 2020)

Standard Specifications for Road and Bridge Construction

AUGUST 2016



Prepared by
The State of Delaware
DEPARTMENT OF TRANSPORTATION
Excellence in Transportation • Every Trip • Every Mode • Every Dollar • Everyone

Jennifer Cohan, Secretary
Robert McCleary, Chief Engineer

VS.

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2020 Standard Specifications Formatting and Language Changes

- On-line Navigation
- Formatting
- Voice and Mood
- More concise language
- Use of lists
- Use of References





Standard Specifications

Resources

Standard Specifications 2020

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 [Memo to Current Holders](#)

Standard Specifications 2016

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 [04-29-2019 Additions & Revisions](#)

 [12-28-2018 Additions & Revisions](#)

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Navigation



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 - 101.2 Abbreviations.
 - 101.3 Definitions.
 - 101.4 Units of Measure.
- SECTION 102 — BIDDING REQUIREMENTS AND CONDITIONS
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 - 102.2 Bid Proposal Contents.
 - 102.3 Bid Proposal Issuance.
 - 102.4 Interpretation of Quantities in the Bid Proposal Form.
 - 102.5 Examination of Plans, Specifications, Bid Proposal, and Site of Work.
 - 102.6 Proposal Preparation.
 - 102.7 Irregular Proposals.
 - 102.8 Proposal Guaranty.
 - 102.9 Proposal Delivery.
 - 102.10 Proposal Withdrawals or Revisions.
 - 102.11 Public Opening of Proposals.
 - 102.12 Bidder Disqualification.

Jennifer Cohan, Secretary
Shanté A. Hastings, Chief Engineer

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Format

Section 000 – Title

- **000.1 – Description.**
 - short and brief
- **000.2 – Materials.**
 - item materials
- **000.3 – Construction.**
 - how to construct
- **000.4 – Method of Measurement.**
 - measurement
- **000.5 – Basis of payment.**
 - payment information

Description

DIVISION 400 – BITUMINOUS MATERIALS

SECTION 401 – BITUMINOUS PAVEMENT

~~401.1~~ 401.1 Description.

~~Construct one or more courses of bituminous pavement on either a prepared foundation or an existing surface course. Construct butt joints by saw cutting and removing the existing hot laid bituminous concrete or Portland cement concrete pavement to provide an area to butt the new hot laid bituminous concrete pavement against the existing pavement.~~

DIVISION 400 — BITUMINOUS MATERIALS

SECTION 401 — BITUMINOUS PAVEMENT

401.1 Description.

This work consists of providing, placing, and compacting bituminous pavement.

Materials

401.2 Materials.

- | | |
|------------------------|--------------|
| A. Release Agents | Section 1010 |
| B. Tack Coat | Section 1011 |
| C. Thin Lift Tack Coat | PG 64-22 |
| D. Asphalt Cement | Section 1012 |
| E. Asphalt Production | Section 1014 |
| F. Joint Sealant | Section 1042 |

Construction

2016 Specifications

401.03 Construction

- A. Mix Design.
- B. Delivery of Mixture.
- C. Hauling Equipment.
- D. Paver.
- E. Rollers.
- F. Weather Limitations.
- G. Preparing Base or Excising Surface.
- H. Tack Coat.
- I. Placement.
- J. Compaction.
- K. Compaction Testing.
- ~~L. Material Production.~~
- M. Joints.
- N. Surface Tolerances.

2020 Specifications

401.3 Construction.

- A. **Before Paving**
- B. Mix Design.
- C. Delivery of Mixture.
- D. Hauling Equipment.
- E. Paver.
- F. Rollers.
- G. Weather Limitations.
- H. Preparing Base or Existing Surface.
- I. Tack Coat.
- J. Placement.
- K. Compaction.
- L. Compaction Testing.
- M. Joints.
- N. Wearing Surface.

Method of Measurement

401.4 Method of Measurement.

- A. The quantity of bituminous pavement materials will be measured as the actual number of tons placed and accepted. The weight will be calculated in accordance with Section 109.1.
- B. The Department will not measure the safety edge.

Basis of Payment

- A. The Department will pay for the accepted quantity of bituminous pavement materials at the contract unit price per ton. Payment constitutes full compensation for:
 - 1. Preparing the surface;
 - 2. providing, preparing, and placing all materials, including tack coat, joint sealant, and safety edge;
 - 3. removing material from around manholes, drainage valves, and similar features;
 - 4. removing and replacing excess asphalt cement; and
 - 5. constructing the safety edge.
- B. The Department will pay for Superpave Type B, placed instead of Superpave Type BCBC, at the contract unit price for Superpave Type BCBC. The Department will make the asphalt cement cost adjustment based on the virgin asphalt of the Superpave Type B.
- C. The Department will make adjustments to payments in accordance with Special Provision 401699.
- D. The Department will apply any incentive or disincentive pay adjustments as established by special provision 401699.

Voice and Mood

- The 2020 Specifications are written in Active Voice and Imperative Mood
- Passive Voice Sentence: “A sample will be taken.”
- Active Voice Sentence: “The Engineer will take a sample.”
- Imperative Mood is used for instructions to the contractor.
- Example – “Pour the concrete”
 - It is understood that the manual is providing direction to the responsible party, the contractor.



More Concise Language

- The 2020 Specifications eliminates unnecessary language.

2016 Specifications



701.01 Description. Construct Portland Cement Concrete Curb, Integral Portland Cement Concrete Curb, Portland Cement Concrete Median and Curb Openings in accordance with Contract Documents or as directed by Engineer.

2020 Specifications

701.1 Description.

This work consists of constructing PCC curbing.



Use of Lists

- The 2020 Specifications utilize itemize lists for easier reading.

2016 Specifications



705.05 Basis of Payment.

705.05.1 Sidewalk. The quantity of sidewalk shall be paid for at the Contract Unit Price per square foot of sidewalk acceptably completed. Price and payment constitutes full compensation for excavation within the template of this Item, forms and forming, GABC, concrete, expansion joint material, backfill and backfilling, removal of surplus Materials, removal and replacement of cracked and/or damaged sidewalk in complete 5 foot long sections, and for all labor, Equipment, tools and incidentals required to complete the Work.



2020 Specifications

705.5 Basis of Payment.

705.5.1 Sidewalk.

- A. The Department will pay the quantity at the contract unit price per square feet. Price and payment constitute full compensation for:
1. Excavation within the template of the item including the foundation;
 2. removal and disposal of existing materials;
 3. foundation preparation;
 4. providing and placing all materials;
 5. compaction;
 6. forms and forming;
 7. supplying, placing, finishing, and curing PCC;
 8. joints;
 9. expansion joint material;
 10. sealing;
 11. backfill and backfilling;
 12. removing surplus materials; and
 13. removing and replacing cracked or damaged sidewalk in complete 5-foot-long sections.

Use of References

- The 2020 Specifications utilize references instead of repeating information that has already been stated.

2020 Specifications

- B. Place concrete in accordance with **Section 501.3** with special attention to the weather limitations described in **Section 501.3.8**.
- C. Construction of PCC Sidewalk and Pedestrian Connections.
 1. Saw cut in accordance with **Section 701.3**.
 2. Remove bituminous concrete pavement, or PCC pavement, and dispose of in accordance with **Section 202**.
 3. Prepare the foundation in accordance with **Section 701.3**.
 4. Place GABC at the location and depths shown in the contract and in accordance with **Section 301.3**.
 5. Layout and place concrete in accordance with **Section 701.3**, unless otherwise specified in the contract.

2020 Standard Specifications

Section 100: General Provisions

- **Section 101: General Information, Definitions, and Terms**
- **Section 102: Bidding Requirements and Conditions**
- **Section 103: Award and Execution of the Contract**
- **Section 104: Scope of Work**
- **Section 105: Responsibilities of the Department; Interpretation of the Contract Documents; Maintenance During Construction; Claims; Project Acceptance**
- **Section 106: Material Quality and Testing Requirements**
- **Section 107: Legal Relations and Responsibility to the Public**
- **Section 108: Subcontracting; NTP; Progress Schedules; Time Extensions; Liquidated Damages; Termination**
- **Section 109: Measurement and Payment**

- **Section 101: General Information, Definitions, and Terms**

- 101.3 Definitions
- 101.4 Units of Measure

- **Section 102: Bidding Requirements and Conditions**

- Added electronic bidding

- **Section 103: Award and Execution of the Contract**

- Escrow requirements

- **Section 104: Scope of Work**

- Scope of work with bid amounts
- 104.3 Notification of Contract Changes
- 104.8 Maintaining Traffic (4 options for the TTC)
- 104.13 Contractor's Responsibility for Work



104.13 Contractor's Responsibility for the Work.

The only place you will see written in the 2020 specifications

- A. The contractor is solely and absolutely responsible for the work. Provide for the protection and safety of all agents and employees of State and federal agencies, contractors, subcontractors, suppliers, and members of the general public until achieving substantial completion or the engineer permits opening a section of the work in accordance with Section 105.14, Opening Sections of the Project to Traffic.
- B. Rebuild, repair, restore, and make good all losses, injuries, or damage to any portion of the work under the contractor's control due to the contractor's fault or inactivity, at no cost to the Department, except as allowed by Section 105.14, Opening Sections of the Project to Traffic. Rebuild, repair, restore, and make good all losses, injuries, or damage to any portion of the work, not under the control of the contractor, under agreed unit prices or as extra work under Section 109.4, Compensation for Changes. The Department defines "items not under the control of the contractor" as earthquakes, tidal waves, tornadoes, or hurricanes; catastrophic conditions such as hazardous waste materials spills or explosions; or, acts of public enemy or of governmental authorities.

104.13 Contractor's Responsibility for the Work. (Cont.)

C. In case of a work suspension:

1. Maintain responsibility for the project and take precautions necessary to prevent damage to the project.
2. Provide for normal drainage and normal traffic operations.
3. Erect temporary bridges, signs, or other facilities as needed.
4. Continuously maintain living material in newly established plantings, seedings, and sod provided under the contract.

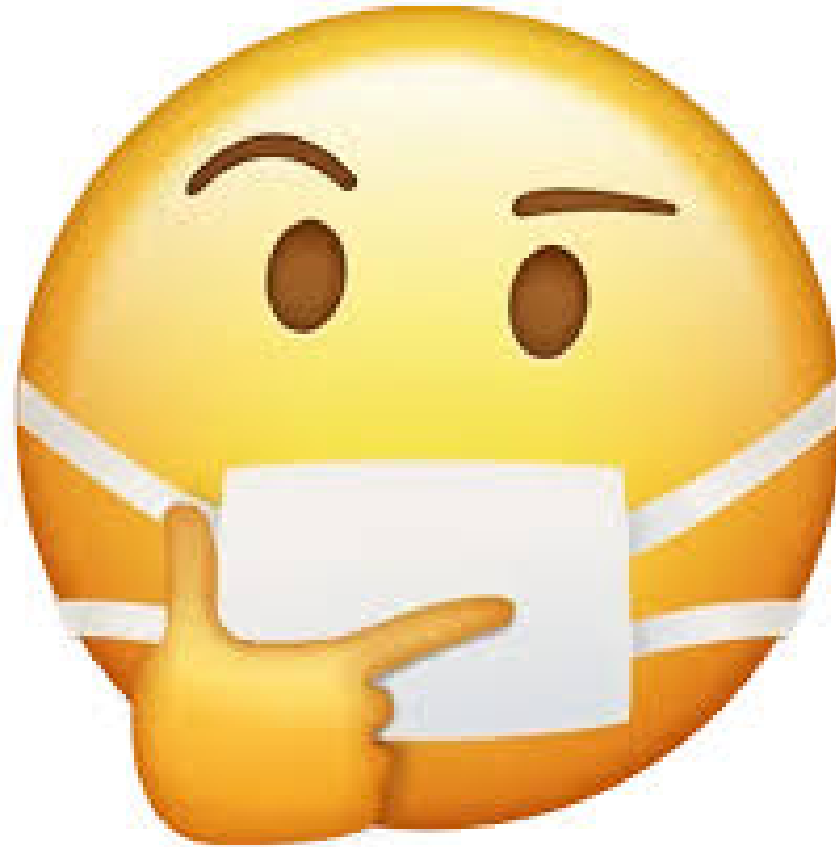


- **Sections 105: Responsibilities of the Department; Interpretation of the Contract Documents; Maintenance During Construction; Claims; Project Acceptance**

- **105.4 Plan, Shop Drawings, and Working Drawings**
- **105.9 Utilities within the Project Limits; Miss Utility One-Calls**
- **105.15 Claims Resolutions**
 - Complete edit
 - Waiver considerations for claims under \$50,000.00
 - Edits made to the day requirements for responsible parties
 - Removed Arbitration, Secretary's Decision is final
- **105.16 Partial Acceptance; Project Acceptance; Final Acceptance; and Project Closeout**
 - Edits with calendar day responsibility

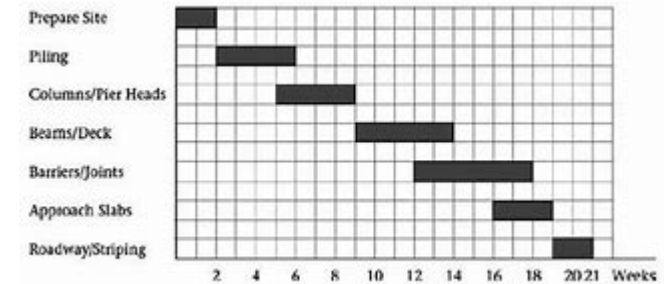


- **Section 106: Material Quality and Testing Requirements**
- **Section 107: Legal Relations and Responsibility to the Public**
 - General edits and listing for reading
 - Clarify responsibilities



• Section 108: Subcontracting; NTP; Progress Schedule; Time Extensions; Liquidated Damage; Termination

- **108.1 Contractor Subletting**
 - Specialty items clarification
- **108.4 Progress Schedules**
 - Definitions for scheduling
 - *Per the Bid Proposal as items are required
 - Barchart Schedules
 - Type 1 CPM
 - Type 2 CPM
 - Contract factors will determine if required
- **108.7 Extensions of Contract Time**



- **Sections 109: Measurement and Payment**

- General edits and listing for reading
- Clarify responsibilities



2020 Standard Specifications

Section 200: Earthwork

- **Section 201: Clearing and Grubbing**
- **Section 202: Excavation and Embankment**
- **Section 203: Channel Excavation**
- **Section 204: Test Holes**
- **Section 207: Structural Excavation and Backfilling**
- **Section 208: Flowable Fill**
- **Section 209: Borrow**
- **Section 211: Removal of Structures and Obstructions**

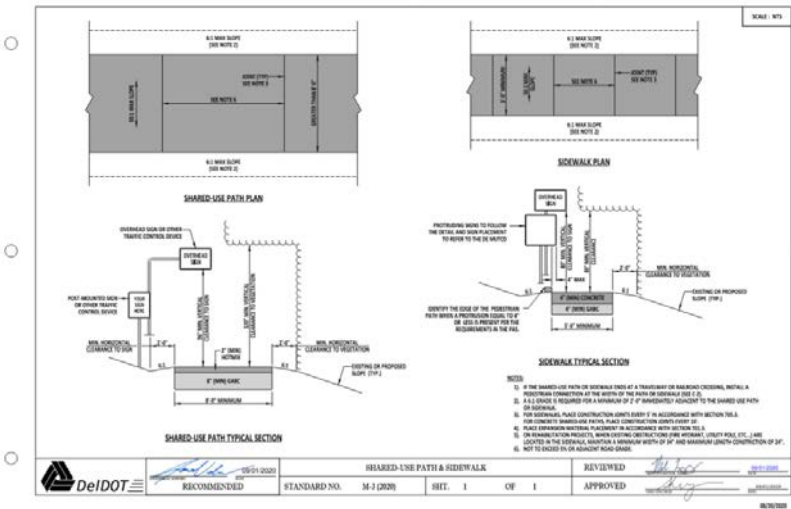


• Section 201: Clearing and Grubbing



- Added to 201.3 Construction (201.3.2.F)
 - D. Prune tree branches overhanging the roadbed to maintain a vertical clearance height of 20 feet above the roadway.
 - E. Prune trees or shrubs overhanging the pedestrian path to achieve a vertical clearance height of 10 feet above and 2 feet adjacent to the sidewalk, trail, or shared-use path on either side.
 - F. Prune trees and shrubs overhanging the utility limits within the right of way and easement limits of construction. Remove obstructions at the edges of the utility limits and the easement limits from the ground up in a vertical plane until no trees or shrubs cross the utility and easement limit lines at any point.

- Revised 201.3 Construction (201.3.4.D)
 - D. If the contract requires cross sectioning, level **and fill voids** or cavities caused by the clearing and grubbing activities. Compact the existing material after clearing and grubbing before cross sectioning and placement of embankment lifts.



• Section 202: Excavation and Embankment



- Major Rewrite and Format Change

2016 Construction	2020 Construction
<ul style="list-style-type: none">• General• Obstruction• Stockpile suitable Excess Material for Later Use• Topsoil• Common Excavation• Rock Excavation• Borrow Excavation• Unsuitable Excavation• Undercut Excavation• Embankment Construction	<ul style="list-style-type: none">• General• Preparing for Earthwork Operations and Maintaining the Site during Earthwork Operations• Excavation• Obstructions Encountered during Excavation• Preparation of Subgrade• Proof Rolling• Undercut Excavation• Embankment Construction• Compaction Procedures• Rock Excavation



• Section 202: Excavation and Embankment

- Major Rewrite and Format Change
- Specified Borrow Type For Undercut (202.3.7.B.5)

5. Upon acceptance of the undercut excavation, unless otherwise directed, use **Borrow Type C** in accordance with Section 1001 to backfill and compact the area in accordance with this section. Conduct undercut operations in a manner that allows the engineer time to take necessary measurements before placing backfill. The Department will not allow placement of backfill material in water unless approved by the engineer

- Added Method of Measurement (202.4.1.B.2)

B. The Department may compute the volume by any of the following methods:

- 1. The method of average end areas measured by cross-sections taken by the Department at regular intervals and at breaks in grade.
- **2. Comparison of electronic surveyed surfaces.**
- 3. Other means as determined by the engineer.




- **Section 203 – Channel Excavation**

- Minor Changes

- **Section 204 – Test Holes**

- Minor Changes

- **Section 207 – Structural Excavation and Backfilling**

- Changed Title and Backfill References to Backfilling 
- Changed Cover from 18” to 24” (207.3.D.2.c)
 - c. When backfilling over structures, use heavy mechanical compacting equipment only after placing a minimum of 24 inches of cover over the structural unit or in accordance with the structure manufacturer’s recommendations.
- Method of Measurement Volume limits, Added 18” Vertical Plane for Pipes (207.4.A.1.a)
 - a. Excavation volume by vertical planes located 24 inches outside of the neat line perimeter of the vertical faces of the structural element and 18 inches outside of the pipe.

- **Section 208 – Flowable Fill**

- Minor Changes



• Section 209 – Borrow

- **Method of Measurement, Borrow for Utility Companies or Others (209.4.E)**
 - E. The Department will measure borrow material provided and stockpiled for utility companies or others using the borrow source tickets only.
- **Furnishing Borrow Pay Items Now Titles “Borrow, Type F, Providing Only”**
 - **Measured in Ton**
 - BORROW, TYPE B, PROVIDING ONLY, TON
 - BORROW, TYPE C, PROVIDING ONLY, TON
 - BORROW, TYPE F, PROVIDING ONLY, TON



• Section 211 – Removal of Structures and Obstructions

- **New Standard Item - 211002 – REMOVAL OF GUARDRAIL AND FENCE, LF**



2020 Standard Specifications

Section 300: Base Courses

- **Section 301: Graded Aggregate Base Course**
 - Minor Changes
- **Section 302: Stone**
 - Minor Changes



2020 Standard Specifications

Section 400: Bituminous Materials

- **Section 401: Bituminous Pavement**
- **Section 402: Bituminous Pavement Materials, Patching**
- **Section 403: Bituminous Pavement Materials for Temporary Roadway Material**



- **Section 401: Bituminous Pavement**

- **Changed Review Time (401.3.B)**
 - B. Mix Design. Develop the JMF in accordance with Section 1014 and submit test results for review a minimum of **30 calendar days** before application. Include aggregate type and gradation and percentages of polymer-modified emulsion, water, and cement by dry aggregate weight.
- **Added to 401.3 Construction (401.3.J.2)**
 - “...Place a longitudinal joint between the travel way and shoulder on the shoulder side with a 6 inch offset of the lane line...”
- **Added to 401.3 Construction (401.3.F.4)**
 - 4. Do not use rollers that mar the surface.

- **Section 402: Bituminous Pavement Materials, Patching**

- **Changed Reference for Sealing (402.3.C)**
 - C. For patches that will not receive an overlay, apply a perimeter joint seal in accordance with **Section 504**.

- **Section 402: Bituminous Pavement Materials for Temporary Roadway Material (TRM)**

- **Minor Changes**



Item No.
401
side-by-side
at a
Glance

format

2020

DIVISION 400 — BITUMINOUS MATERIALS

SECTION 401 — BITUMINOUS PAVEMENT

401.1 Description.

This work consists of providing, placing, and compacting bituminous pavement.

401.2 Materials.

- A. Release Agents Section 1010
- B. Tack Coat Section 1011
- C. Thin Lift Tack Coat PG 64-22
- D. Asphalt Cement Section 1012
- E. Asphalt Production Section 1014
- F. Joint Sealant Section 1042

401.3 Construction.

A. Before Paving.

Conduct a pre-paving meeting to discuss joint layout, material delivery, striping layout, maintenance of traffic for paving, and equipment. Include the engineer, the Department's Materials & Research Section, and other appropriate parties.

B. Mix Design.

Develop the JMF in accordance with Section 1014 and submit test results for review a minimum of 30 calendar days before application. Include aggregate type and gradation and percentages of polymer-modified emulsion, water, and cement by dry aggregate weight.

C. Delivery of Mixture.

Deliver no less than 100 tons per hour to the project site or as approved by the engineer.

D. Hauling Equipment.

1. Provide trucks with tight, clean, smooth, metal beds thinly coated with an emulsified oil, soap solution, or other approved release agent to prevent the bituminous mixture from adhering to the truck bed.
2. Ensure that truck beds have no holes or cracks and are free from debris.
3. Provide truck bed tarps made of canvas or other waterproof material, and free of rips, tears, and holes, that will cover the truck bed from front to back and will overlap the sides and rear of the truck body.
 - a. Fasten the front of the tarp to the truck body and protect the fastening using an air foil or air dam.
 - b. Use a minimum of 3 straps on the sides to hold the tarp over the sides of the body. If the tarp does not reach over the back of the body, straps on the rear of body are also required.

JMF
30 days

2016
with updates

DIVISION 400 — BITUMINOUS MATERIALS

SECTION 401 — BITUMINOUS PAVEMENT

401.01 Description.

Construct one or more courses of bituminous pavement on either a prepared foundation or an existing surface course. Construct butt joints by saw cutting and removing the existing hot-laid bituminous concrete or Portland cement concrete pavement to provide an area to butt the new hot-laid bituminous concrete pavement against the existing pavement.

401.02 Materials.

Provide Materials as specified in:

- Asphalt Cement Section 1012
- Asphalt Production Section 1014
- Tack Coat* Section 1011
- * For Thin-Lift items: PG64-22
- Release Agents Section 1010
- Joint Sealant Section 1042

401.03 Construction.

Prior to paving, conduct a pre-paving meeting to discuss joint layout, Material delivery, striping layout, maintenance of traffic for paving, and Equipment. Include the Engineer, the Department's Materials and Research Section, and any other pertinent parties.

- A. *Mix Design.* Develop job-mix formula (JMF) in accordance with Section 1014 Asphalt Production and submit test results for review a minimum of three (3) Days before application. Include aggregate type and gradation and percentages of polymer-modified emulsion, water, and cement by dry aggregate weight (mass).
- B. *Delivery of Mixture.* Minimum of 100 tons per hour delivered to the Project site.

C. Hauling Equipment. Furnish trucks with tight, clean with an emulsified oil, soap solution, or other appropriate waterproof material that covers the bed of the tarp securely to the body or protected by an air straps on the back to prevent the cover from ballooning prevent heat loss. Do not remove any loads late in the day that spreading and compacting of the mixture cannot be completed by sunset unless approval for night paving has been granted by the Engineer.

Subsection 401.03 Construction, 06/15/2018
C. Hauling Equipment
Replace with the following:
C. Hauling Equipment. Trucks shall be furnished with a tight, clean and smooth metal body that is free from any holes, cracks or debris. Only approved release agents shall be used to thinly coat the body to prevent any adherence of material. Provide each truck with a security fastened cover of canvas or other suitable waterproof material that covers the bed from front to back and over the sides and rear of the body. Each tarp shall be free of rips, tears, and holes. Fasten the front of the tarp securely to the body and protect by an air foil/dam. A minimum of three straps shall be used on the sides to securely hold the tarp over the sides of the body. If the tarp does not reach over the back of the body, straps on the rear of the body shall be required. Do not remove any loads late in the day that spreading and compacting of the mixture cannot be completed by sunset unless approval for nighttime paving has been granted by the Engineer.

Replaced Revision 06/15/2018

D. Paver. Self-propelled unit with automated screed or leading or trailing screed that automatically controls grade leveling and slope, truss, and capable of spreading and finishing bituminous pavement materials in two widths specified. Equip with an attachment that catches the material at the end of the gate and within the spreader material to such a way results in a compacted wedge shape placement edge safety edge of the paver. The paver shall be adjusted at all times, forward, and distribution is not permitted. Over the safety edge allowing the full of the top wearing course to less than 1/2 inch.

Subsection 401.03 Construction, 06/15/2018
D. Paver
Replace with the following:
1. Paver. Self-propelled unit with automated screed or strike-off assembly that automatically controls grade leveling and slope, truss, and capable of spreading and finishing bituminous pavement materials in two widths specified. Equip with an attachment that catches the material at the end of the gate and within the spreader material to such a way results in a compacted wedge shape placement edge safety edge of the paver. The paver shall be adjusted at all times, forward, and distribution is not permitted. Over the safety edge allowing the full of the top wearing course to less than 1/2 inch.

Replaced Revision 06/15/2018

- E. *Rollers.* Self-propelled, static and/or vibratory steel wheel type equipped with scrapers, or pneumatic-tire oscillating type, equipped with smooth tires of equal size and diameter with a system for moistening each wheel or roller. Use number and weight of rollers sufficient to compact the mixture to the required density without crushing aggregate or displacing the mixture.

- F. *Weather Limitations.* Place bituminous pavement Materials only when the surface is dry, unfrozen, and the weather is not foggy or rainy. Presence of frost particles in the roadbed or on the surface is sufficient evidence

Item No. 401

side-by-side at a Glance

2020

see detail

- E. Paver.
 1. Use a self-propelled unit with a screed or strike-off assembly that automatically controls grade leveling and slope, is heated, and is capable of spreading and finishing bituminous pavement materials to the specified lane widths and thicknesses.
 2. Equip the paver with an attachment that confines the material at the end of the gate and extrudes the asphalt material to form a compacted wedge-shaped pavement safety edge.
 3. Equip the paver with a tack spray application system for thin lift paving operations.
- F. Rollers.
 1. Provide a self-propelled static or vibratory steel wheel type roller equipped with scrapers or a pneumatic-tire oscillating type roller equipped with smooth tires of equal size and diameter.
 2. Use rollers equipped with a system for moistening each wheel or roller while in use.
 3. Use a number and weight of rollers sufficient to compact the mixture to the required density without crushing aggregate or displacing the mixture.
 4. Do not use rollers that mar the surface.
- G. Weather Limitations.
 1. Place bituminous pavement materials only when the surface is dry and unfrozen, and the weather is not foggy or rainy. The Department will consider the presence of frost particles in the roadbed or on the surface as a reason to prohibit placement.
 2. Do not place subsequent lifts, release materials, or open to traffic until the mat temperature is below 140 degrees F.
 3. The Department will not allow placement of bituminous concrete when the air temperature at the paving location is below the temperatures indicated in Table 401-A below.

Mar the surface

Material Type	Temperature
BCBC	32 °F
B	32 °F
C	40 °F
Stone Matrix Asphalt, Thin Lift, and Wedge Lift	50 °F

Tack coat

- H. Preparing Base or Existing Surface.

Clear surface of debris. Apply and cure tack coat before placing the mixture. Apply a tack coat on all curbs, gutters, manholes, or other structure surfaces the mixture will contact.
- I. Tack Coat.

Apply on all dry and broom-cleaned surfaces at a uniform surface application rate in accordance with Table 401-B. Apply at a temperature range of 120 to 160 degrees F using pressurized distribution equipment with a spray bar or other approved system that results in uniform coverage across the pavement surface. Apply in advance of the asphalt paving operation. Do not

2016 with updates

to prohibit placement.

Do not permit placement of subsequent lifts or release of traffic until the mat temperature is below 140 degrees Fahrenheit.

Placement of bituminous concrete is not permitted when the ambient air temperature at the location of the paving operation is below the temperatures indicated in Table 401-A below:

Table 401-A Replaced Revision 06/15/2018

Table 401-A. Minimum Ambient Air Temperature for Placement of Types of Bituminous Concrete

Material Type	1" Lift or Less	1.25 to 2" Lift
B	50 °F	40 °F
C	50 °F	40 °F

Table 401-A. Minimum Ambient Air Temperature for Placement of Types of Bituminous Concrete

Material Type	Temperature
B	32 °F
C	40 °F
Stone Matrix Asphalt, Thin Lift, and Wedge Lift	50 °F

- G. *Preparing Base or Existing Surface.* Clear surface of debris. Apply and cure tack coat before placing the mixture. Apply a tack coat on all curbs, gutters, manholes, or other structure surfaces that will be in contact with the mixture.

Repair damaged areas of the tacked surface, and restore the existing pavement or base to a uniform grade and cross section before placing the mix.
- H. *Tack Coat.* Apply on all dry and broom cleaned surfaces at a uniform rate of 0.05 gallons per square yard to 0.15 gallons per square yard at a temperature of 70 degrees Fahrenheit to 160 degrees Fahrenheit using pressurized distributing Equipment with a spray bar or other approved distribution system. Apply in advance of the asphalt paving operation, but no further than is anticipated for the current day's operation.
- I. *Placement.* Place mixture in a continuous operation by paving machine methods of spreading and screeding to the thickness shown in the Contract Documents and conform to the grade and surface contour required.
 1. Outside edges of pavement are to be in true alignment, parallel to the centerline of the roadway with the longitudinal joint in the surface course at the lane line.
 2. When paving multiple lifts or courses, offset individual successive lifts a minimum of 6 inches.
 3. Place the base course with an approved paver or spreader in approximately equal layers of not less than 3 inches and not to exceed 6 inches in depth after compaction. Submit for approval requests, if any, to use Type B Superpave in lieu of BCBC. If approved by the Engineer, the Type B Superpave may be placed in lifts of not less than 3 inches and not to exceed 6 inches in depth after compaction.

Paragraph replaced Revision 06/15/2018

The Type B Superpave

Replace the second paragraph with the following:
 The Type B Superpave placed in lieu of BCBC will be paid at the Contract Unit Price for BCBC and the Asphalt Cement Cost Adjustment will be based on the virgin asphalt of the Type B Superpave.

BCBC and the Type B

After the bituminous concrete base course is placed, exposure is not permitted for a period longer than ten days. If, due to conditions of emergency, more than ten (10) Days elapse, uniformly spray a fog coat of CSS-l-h on the exposed base course before placing the wearing course of bituminous concrete. In addition, the Contractor shall plan the paving operation so that no bituminous base courses remain unsurfaced after the "winter shut-down" unless authorized by the Engineer.

- 4. Carefully plan the placement of the surface course to ensure that the joints in the surface course will correspond with the proposed traffic lanes and will not be located in the wheel path of vehicles using the roadway. Locate longitudinal joints at the lane line (center and edge). Longitudinal joints must also be parallel to the centerline unless otherwise shown on the Plans. Place the longitudinal joint between the travel way and shoulder on the shoulder side of the lane line. Establish and follow reference lines or other approved markings to control the true alignment of the longitudinal joints.

Take immediate action to correct unsatisfactory Work should unevenness of texture, tearing, or shoving occur during the paving operation due to unsatisfactory Material, methods, or Equipment.

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with updates

Tack coat
Cont.

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permit activity on the tack surface until the material has set per the manufacturer's recommendations, but no farther than needed for the current working day's operation.

Table 401-B. Tack Coat Application Rates

Surface Type	Residue Rate (gallons per sy)	Application Rate, Undiluted* (gallons per sy)	Application Rate, Diluted 1:1 (gallons per sy)
New Asphalt	0.03 - 0.05	0.05 - 0.08	0.09 - 0.15
Existing (aged) Asphalt	0.05 - 0.07	0.08 - 0.11	0.15 - 0.21
Milled Surface (asphalt and PCC)	0.06 - 0.08	0.09 - 0.12	0.18 - 0.24
PCC	0.04 - 0.07	0.06 - 0.11	0.12 - 0.21

*Undiluted emulsion is 67% asphalt and 33% water

J. Placement.

- Place the mixture in a continuous operation using an approved paver. The Department will not allow stopping the paver to adjust the attachment described in Section 401.3.E.2. at crossroads, driveways, or obstructions.
- Ensure that the outside edges of pavement are in true alignment parallel to the roadway centerline with the longitudinal joint in the surface course at the lane line. Plan placement of the surface course to ensure that the longitudinal joints in the surface course are parallel to the lane lines and not in the wheel path of vehicles using the roadway. Conduct surface course paving operations to utilize the full lane width unless directed by the engineer. Make longitudinal joints parallel to the centerline unless otherwise specified in the contract. Place a longitudinal joint between the travel way and shoulder on the shoulder side with a 6 inch offset of the lane line. Establish and follow reference lines or other approved markings to control the true alignment of the longitudinal joints.
- When paving multiple lifts or courses, offset individual successive lifts a minimum of 6 inches.
- After placement of a bituminous concrete course, place the subsequent bituminous concrete lift within 10 calendar days. If more than 10 calendar days elapse between the placement of any 2 bituminous courses, spray a fog coat of CSS-I-h on the exposed base course.
- If the contractor cannot complete spreading and compacting a full truck load of mixture by sunset, do not unload the truck unless the engineer has granted approval for nighttime paving.

K. Compaction.

Compact the bituminous pavement mixture after spreading, striking off, and correcting surface irregularities.

L. Compaction Testing.

- Perform quality control of pavement compaction by testing in-place pavement density. The contractor is limited to taking a single core on the first day of paving or after the change of a JMF for gauge calibration. Repair core holes in accordance with 401699 - Quality Control/Quality Assurance of Bituminous Concrete, Appendix A Repairing Core Holes in Hot-Mix Asphalt Pavement.
- The engineer will perform quality assurance testing, evaluate material production, and evaluate compaction quality in accordance with 401699 - Quality Control/Quality Assurance of Bituminous Concrete.

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- Compaction. Compact by rolling after the bituminous pavement has been spread, struck off, and surface irregularities adjusted.
- Compaction Testing. Perform Quality Control of in-place compaction by testing in-place pavement density. At the option of the Contractor, a single core on the first day of paving and after the change of a JMF may be required for laboratory testing for gauge calibration. Repair all core holes in accordance with 401699 Appendix A.
Engineer will perform Quality Assurance testing per 401699.
- Material production quality evaluated per item 401699 - Quality Control/Quality Assurance of Bituminous Concrete .03 (a) Material Production - Tests and Evaluations.
Compaction quality evaluated per Item 401699 - Quality Assurance of Bituminous Concrete .03 (b) Pavement Construction - Tests and Evaluations.

M. Joints. Seal from place dimensions requirement joint opening Department

M. Joints. Seal from place dimensions requirement joint opening Department

M. Joints. Construct joints to ensure surface and compaction requirements are met. Tack all vertical contact surfaces before placing any new mixture against the joint. Seal all newly created pavement joints that will not be overlaid, with the exception of those created from placement of newly laid adjacent passes. Seal all joint openings. Submit the joint sealant Material(s), appropriate for the dimension of the opening(s), for approval in accordance with the Contract Documents. For joint openings exceeding 1/4 inch width, the Engineer may require additional corrective action at no expense to the Department.

the exception of those created from placement of newly laid adjacent passes. Seal all joint openings. Submit the joint sealant Material(s), appropriate for the dimension of the opening(s), for approval in accordance with the Contract Documents. For joint openings exceeding 1/4 inch width, the Engineer may require additional corrective action at no expense to the Department.

- For butt joints, saw cut and construct in accordance with Section 762 of the Contract Documents. Fill any saw cut beyond the limits shown on the Plans with approved sealant. Dispose of all Material removed for construction of the butt joint in accordance with Section 106.08.
- Surface Tolerances. Maximum deviation both longitudinal and transverse is 1/4 inch in 10 feet. Correct or remove areas exceeding these tolerances at no expense to the Department.

401.04 Method of Measurement.

The Engineer will measure the bituminous pavement Materials acceptably placed as specified in Section 109.01.

The quantity of the safety edge will not be measured.

401.05 Basis of Payment.

Subsection 401.05 Basis of Payment, (6/15/2018)

Replace the first paragraph with the following:

Payment will be for the accepted quantity of bituminous pavement Materials at the Contract Unit Price per ton for furnishing, preparing, hauling, and placing all Materials, including tack coat, joint sealing, and safety edge; for removing Material from around manholes, drainage valves, and similar features; for removing and replacing excess asphalt cement; and for all labor, Equipment, tools, and incidentals required to complete the Work, including the correction of defective work.

Payment will be for the accepted quantity of bituminous pavement Materials at the Contract Unit Price per ton for furnishing, preparing, hauling, and placing all Materials, including tack coat, joint sealing, and safety edge; for removing Material from around manholes, drainage valves, and similar features; for removing and replacing excess asphalt cement; and for all labor, Equipment, tools, and incidentals required to complete the Work, including the correction of defective work.

Adjustments to payment will be made in accordance with Special Provision 401699.

The quantity of the safety edge is incidental to the respective paving Item.

ITEM	DESCRIPTION	UNIT
401001	BITUMINOUS CONCRETE, SUPERPAVE, TYPE C, 115 GYRATIONS, PG 64-22 (CARBONATE STONE)	TON
401002	BITUMINOUS CONCRETE, SUPERPAVE, TYPE C, 160 GYRATIONS, PG 64-22 (CARBONATE STONE)	TON
401003	BITUMINOUS CONCRETE, SUPERPAVE, TYPE C, 160 GYRATIONS, PG 70-22 (CARBONATE STONE)	TON
401004	BITUMINOUS CONCRETE, SUPERPAVE, TYPE C, 160 GYRATIONS, PG 76-22 (CARBONATE STONE)	TON
401010	BITUMINOUS CONCRETE, SUPERPAVE, TYPE B, 115 GYRATIONS, PG 64-22	TON
401011	BITUMINOUS CONCRETE, SUPERPAVE, TYPE B, 160 GYRATIONS, PG 64-22	TON
401012	BITUMINOUS CONCRETE, SUPERPAVE, TYPE B, 160 GYRATIONS, PG 70-22	TON
401013	BITUMINOUS CONCRETE, SUPERPAVE, TYPE B, 160 GYRATIONS, PG 76-22	TON

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Wearing not Tolerance

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Listed as what the Department will pay for as compensation to the item description vs what the Department will pay for separately.

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- A. Joints.
 - Construct joints to meet surface and compaction requirements. Tack all vertical contact surfaces before placing new mixture against the surface. Except for joints created from newly placed adjacent passes, seal all new pavement joints that do not call for an overlay. Seal all joint openings. Submit the joint sealant material appropriate for the dimension of the opening, for approval. For joint openings exceeding 1/4-inch width, the engineer may require corrective action.
- I. Wearing Surface.
 - The maximum allowable longitudinal or transverse deviation is 1/4-inch in 10 feet. Provide a 10-foot straight edge for testing.
- L.4 Method of Measurement.
 - i. The quantity of bituminous pavement materials will be measured as the actual number of tons placed and accepted. The weight will be calculated in accordance with Section 109.1.
 - l. The Department will not measure the safety edge.
- L.5 Basis of Payment.
 - l. The Department will pay for the accepted quantity of bituminous pavement materials at the contract unit price per ton. Payment constitutes full compensation for:
 1. Preparing the surface;
 2. Providing, preparing, and placing all materials, including tack coat, joint sealant, and safety edge;
 3. Removing material from around manholes, drainage valves, and similar features;
 4. Removing and replacing excess asphalt cement; and
 5. Constructing the safety edge.

The Department will pay for Superpave Type B, placed instead of Superpave Type BCBC, at the contract unit price for Superpave Type BCBC. The Department will make the asphalt cement cost adjustment based on the virgin asphalt of the Superpave Type B.
 - m. The Department will make adjustments to payments in accordance with Special Provision 401699.
 - n. The Department will apply any incentive or disincentive pay adjustments as established by special provision 401699.

ITEM	DESCRIPTION	UNIT
401005	SUPERPAVE, TYPE C, PG 64-22 (CARBONATE STONE)	TON
401006	SUPERPAVE, TYPE C, PG 70-22 (CARBONATE STONE)	TON
401007	SUPERPAVE, TYPE C, PG 76-22 (CARBONATE STONE)	TON
401014	SUPERPAVE, TYPE B, PG 64-22	TON
401015	SUPERPAVE, TYPE B, PG 70-22	TON
401016	SUPERPAVE, TYPE B, PG 76-22	TON
401021	SUPERPAVE, TYPE BCBC, PG 64-22	TON
401029	SUPERPAVE TYPE C, PG 64-22, PATCHING	TON

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401019	BITUMINOUS CONCRETE, SUPERPAVE, BITUMINOUS CONCRETE COURSE, 115 GYRATIONS, PG 64-22	TON
401020	BITUMINOUS CONCRETE, SUPERPAVE, BITUMINOUS CONCRETE BASE COURSE, 160 GYRATIONS, PG 64-22	TON
401026	BITUMINOUS CONCRETE, SUPERPAVE, TYPE C, 160 GYRATIONS, PG 64-22, PATCHING	TON
401027	BITUMINOUS CONCRETE, SUPERPAVE, TYPE B, 160 GYRATIONS, PG 64-22, PATCHING	TON
401028	BITUMINOUS CONCRETE, SUPERPAVE, BITUMINOUS CONCRETE BASE COURSE, 160 GYRATIONS, PG 64-22, PATCHING	TON
401034	BITUMINOUS CONCRETE, SUPERPAVE, TYPE C, 160 GYRATIONS, PG-64-22, WEDGE	TON
401035	BITUMINOUS CONCRETE, SUPERPAVE, TYPE B, 160 GYRATIONS, PG-64-22, WEDGE	TON
401041	BITUMINOUS CONCRETE, SUPERPAVE, TYPE C, 160 GYRATIONS, PG 64-22, (NON-CARBONATE STONE)	TON
401042	BITUMINOUS CONCRETE, SUPERPAVE, TYPE C, 160 GYRATIONS, PG 70-22, (NON-CARBONATE STONE)	TON
401043	BITUMINOUS CONCRETE, SUPERPAVE, TYPE C, 160 GYRATIONS, PG 76-22, (NON-CARBONATE STONE)	TON
401049	THIN BITUMINOUS CONCRETE, SUPERPAVE, TYPE C, 115 GYRATIONS, PG 64-22	TON
401050	THIN BITUMINOUS CONCRETE, SUPERPAVE, TYPE C, 160 GYRATIONS, PG 64-22	TON
401051	THIN BITUMINOUS CONCRETE, SUPERPAVE, TYPE C, 160 GYRATIONS, PG 70-22	TON
401052	THIN BITUMINOUS CONCRETE, SUPERPAVE, TYPE C, 160 GYRATIONS, PG 76-22	TON

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ITEM	DESCRIPTION	UNIT
401030	SUPERPAVE TYPE B, PG 64-22, PATCHING	TON
401031	SUPERPAVE TYPE BCBC, PG 64-22, PATCHING	TON
401036	SUPERPAVE TYPE C, PG 64-22, WEDGE	TON
401037	SUPERPAVE TYPE B, PG 64-22, WEDGE	TON
401044	SUPERPAVE TYPE C, PG 64-22 (NON-CARBONATE STONE)	TON
401045	SUPERPAVE TYPE C, PG 70-22 (NON-CARBONATE STONE)	TON
401046	SUPERPAVE TYPE C, PG 76-22 (NON-CARBONATE STONE)	TON
401053	SUPERPAVE TYPE C, PG 64-22, THIN LIFT	TON
401054	SUPERPAVE TYPE C, PG 70-22, THIN LIFT	TON
401055	SUPERPAVE TYPE C, PG 76-22, THIN LIFT	TON

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2020 Standard Specifications

Section 500: Rigid Pavement

- **Section 501: Portland Cement Concrete Pavement**
- **Section 503: Patching Portland Cement Concrete Pavement**
- **Section 504: Crack and Joint Sealing**
- **Section 505: PCC Patching, Partial Depth**

• Section 501 – Portland Cement Concrete Pavement

- **Reduced Slip-Form and Fixed-Form with a Reference to 501.3.1**
- **Added to 501.2 Materials – L. Joint Sealants, Section 1042**
- **Added to 501.3 Construction, Texturing (501.3.5.F)**
 - “Submit information on similar types of work performed with the proposed grinding equipment, including references if requested by the engineer.”
- **Changed 501,3 Construction, Weather Limitations (501.3.8.A.3)**
 - 3. Maintain a temperature of not less than **40 degrees F** surrounding the concrete pavement for a curing period of **3 days** following placement. Provide all necessary monitoring devices such as high-low thermometers or other tools and a plan for monitoring the temperature during the 3day period. Address use of insulating blankets, straw, polyethylene, or other protection, in the quality control plan (Was 50 degrees and 5 days)
- **Added to 501.3 Construction (501.3.9.B)**
 - B. Clean and seal all joints with hot-poured sealant material within 5 days after concrete placement in accordance with Section 504, if no overlay is planned



• Section 503 – Patching Portland Cement Concrete Pavement

- **Removed**

- “Patch lengths shall be at least 6 feet and no more than 15 feet without a load-transfer device. The patch shall be the full width of the existing slab or as noted on the Contract Documents. The patch depth shall be no less than the existing slab.”

- **Added to 503.3 Construction, Dowel Hole Cleanout (503.3.5.C.2)**

- “...Use compressed air that is dry and oil free at a continuous pressure of at least 100 pounds per square inch, measured at the source, to clean the holes before placing grout or epoxy.”

- **Added to 503.3 Construction (503.3.6.E)**

- E. Do not place plastic concrete if the temperature reaches 95 degrees F, unless otherwise allowed by the engineer.

- **Removed Broom Finish and Replaced (503.3.8.B)**

- “Provide a tined finish on the concrete patch....”

- **Curing (503.3.9)**

- Removed burlap material removed from curing methods.

- **Added to 503.3 Construction, Joints (503.3.10.A)**

- A. Install in accordance with the Standard Construction Details.

- **Section 504 – Crack and Joint Sealing** - Removed Backer Rods

- **Section 505 – PCC Patching, Partial Depth** - Minor Changes

2020 Standard Specifications

Section 600: Structures

- **Section 601: Pipe Culverts**
- **Section 602: Drainage Structures**
- **Section 604: Temporary Works**
- **Section 605: Driven Piles**
- **Section 606: Drilled Shafts**
- **Section 607: Earth Retaining Wall Systems**
- **Section 608: Permanent Sheet Piles**
- **Section 610: Concrete Structures**
- **Section 611: Concrete Reinforcement**
- **Section 612: Precast Concrete**
- **Section 613: Concrete Coatings and Membranes**
- **Section 615: Steel Structures**
- **Section 616: Steel Coatings**
- **Section 617: Steel Sign Structures**
- **Section 619: Stone and Brick Masonry**
- **Section 621: Wood Structures**
- **Section 623: Bearing Devices**
- **Section 624: Joints**
- **Section 625: Concrete Overlays**
- **Section 626: Metal Railings**
- **Section 628: Concrete Repair and Rehabilitation**

• Section 601 – Pipe Culverts

- **Revised 601.3 Construction (601.3.3.C)**
 - “The engineer will reject pipe pre-installation for any of the following reasons: c. cracks greater than 0.01 inch in width extending 12” or greater regardless of position in the pipe wall or is continuous through the wall of the pipe and in accordance with AASHTO M207 or M170.” (Was 0.1 inch or 0.01 inch in width and showing efflorescence or differential movement.)
- **Removed** – Metal pipe deleted from Section.
- **Changed** - High Density Polyethylene Pipe to Thermoplastic Pipe.
- **Added to 601.3 Construction, Defects (601.3.4.C.2.f)**
 - “one inch” for joint separation.
- **Changed 601.3 Construction (601.3.6.C)**
 - Backfill lifts from 12 inches to 8 inches.

• Section 602 — Drainage Structures

- **Changed** – loading requirement from HS-20 to HS-25



• Section 604 — TEMPORARY WORKS

- Collected all language concerning construction and removal of formwork in 604.3.2. Some language from section 610 moved here, however, section on when to remove formwork remains in 610.3.7
- **Added** – Section on form liners from item 610502 and project notes. New item 604005.
- Reorganized section 604.3.8 and included temporary timber matting. Former item 621500 is now part of standard item 604004.

• Section 605 — DRIVEN PILES

- Information on submittals (esp. the wave equation) was scattered and repeated in the old section. Collected and streamlined requirements in section 605.3.1 (subsection D for wave equation)
- Jetting and Auguring removed as these are uncommon activities.
- Pile driving procedures re-organized into sections for Test Piles (605.3.3), Production Piles (605.3.4) and Pile Re-Strikes (605.3.5) and follow the same format with subsections of Preparation, Driving and Post-driving.



- **Section 606 – Drilled Shafts**

- Significant edit for organization
- Added rock sockets (606.3.7) and added new items 606040-606047
- Updated testing requirement in 606.3.11
- Added subsection about Exploratory Drilling. Item 606031 existed, but there was no guidance. Used in conjunction with Rock Socket section.

- **Section 607 – EARTH RETAINING WALL SYSTEMS**

- Changed title from - MECHANICALLY STABILIZED EARTH WALL
- Added to 607.3 Construction, Type of Stone Backfill (607.3.5.A)
 - “Place #57 stone for at least the first 3 feet perpendicular to the back face of the panel for the full height of the wall.”

- **Section 608 – Permanent Sheet Piles** - Minor Changes



• Section 610 – Concrete Structures

- Revised to give a uniform structure and make referencing a particular point easier.
- Not much change in content for the section, but significantly re-organized.
- A couple of specific points:
 - Mass concrete pours need to be noted on the plans (610.3.1.A.2.c). Applies to both CIP and precast. The designer should discuss with M&R during design to decide which elements are designated mass concrete.
 - Slip forming of bridge barrier (subsection 610.3.4.D.6) is not allowed unless the contract includes a special provision allowing it. In cases where it is not allowed, but the contractor requests the change and it is allowed, then follow the same provision performance spec.
 - UHPC remains a special provision item for now, but expect it to become standard in the future.
- **Added to 610.3 Construction (610.3.4.D.2.a)**
 - “Submit a placement plan when placing concrete underwater.”
 - Changed 610.3 Construction, Tremie Tube Minimum from 10” to 8” (610.3.4.D.2.c.i)
 - Use a minimum 8-inch diameter tremie tube with a smooth interior face, a watertight discharge, long enough to reach the bottom of the placement and marked in 1-foot increments.

• Section 611 – Concrete Reinforcement - Minor Changes

• Section 612 – Precast Concrete - Minor Changes



- **Section 613 – Concrete Coatings and Membranes**

- Removed several specific requirements (like the type of brush was specified) that may conflict with manufacturer's instructions.
- **Added** – Section on Aesthetic Staining (613.3.G) - Intended for use with form-liners to create stone or brick patterns.

- **Section 615 – Steel Structures** – Minor Changes

- **Section 616 – Steel Coatings** – Minor Changes

- **Section 617 – Steel Sign Structures** – Minor Changes

- **Section 619 – Stone and Brick Masonry** – Minor Changes

- **Section 621 – Wood Structures** – Minor Changes



• Section 623 – Bearing Devices

- It is the intent to pay for all bearing devices as separate items. In new construction, past practice had been to make the bearings incidental to the beams. The items were used for replacement of bearings on rehab projects. However, there was no reason for this distinction.
- **Moved** – Language about designing bearings using Method B of AASHTO moved from 623.3.D to 623.3.B.2.
- **Added** – Pay Item for Steel Reinforced Elastomeric Bearings, 623005 - STEEL REINFORCED ELASTOMERIC BEARINGS, EA – added this item to have standard items for the common bearing types.

• Section 624 – JOINTS

- **Changed 624.2 Materials** – Steel Coating to Galvanizing and changed Reference. (624.2.B)
- This section was assembled from a number of special provision items ('01 specs). The text was repetitive between subsections and highly directive. Significantly condensed.



- **Section 625 – CONCRETE OVERLAYS**
 - **Removed** – Microsilica Modified Concrete (MSMC)
 - **Added to 625.2 Materials** – Polyester Polymer Concrete (PPC) (625.2.B)
 - **Added to 625.2 Materials** – Modified Class D PCC (MCD) (625.2.C)
- **Section 626 – Metal Railings** – Minor Changes
- **Section 628 – Concrete Repair and Rehabilitation** – Minor Changes



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Section 700: Miscellaneous Construction

- **Section 701: PCC Curb, Integral PCC Curb, PCC Monolithic Median, and Curb Openings**
- **Section 702: Triangular Channelizing Islands**
- **Section 705: PCC Sidewalk, Pedestrian Connections, and Detectable Warning Surface**
- **Section 706: Monument**
- **Section 707: Riprap**
- **Section 708: Geotextiles**
- **Section 709: Underdrains**
- **Section 710: Sanitary Sewer System**
- **Section 720: Guardrail**
- **Section 721: Guardrail End Sections and Transitions**
- **Section 722: High-Tension Cable Barrier**
- **Section 723: Concrete Barrier**
- **Section 724: Impact Attenuator**
- **Section 727: Fence**
- **Section 760: Pavement Milling and Rumble Strips**
- **Section 762: Saw Cutting and Butt Joints**
- **Section 763: Initial Expense, De-Mobilization**

- **Section 701 – PCC CURB, INTEGRAL PCC CURB, PCC MONOLITHIC MEDIAN, AND CURB OPENINGS**

- **Added to 701.3 Construction (701.3.F.2)**
 - 2. Remove bituminous concrete pavement, or PCC pavement, and dispose of in accordance with Section 202.
- **Changed 701.3 Construction – Expansion Joints from 160' to 150' (701.3.G.3.b)**
 - b. at a maximum of 150-foot intervals and aligned with adjacent joints;
- **Added to 701.3 Construction (701.3.J.1)**
 - 1. Construct contraction joints in accordance with the Standard Construction Details at a maximum of 10-foot and a minimum of 4-foot intervals using a tool or by saw cutting to a 1/8-inch minimum width and to a depth of 1 inch minimum on all finished surfaces.
- **Added to 701.3 Construction (701.3.L)**
 - L. For cracked or damaged curbs, remove and replace within the joint sections in accordance with Section 701.3.J.
- **Added to 701.5 Basis of Payment (701.5.D.1)**
 - “Excavation and embankment outside the template of the item in accordance with Section 202 **at the direction of the engineer** or as otherwise required by the contract.”

- **Section 702 – Triangular Channelizing Islands – Minor Changes**



• Section 705 – PCC Sidewalk, Pedestrian Connections, and Detectable Warning Surface

- Added to 705.3 Construction, Joint Width, Reduced Interval from 10' to 5' (705.3.C.6.a)
 - a. Construct contraction joints by tool or saw cutting at a maximum width of 1/2-inch. Place at 5-foot intervals, with the exception of pedestrian connection items, when concrete has cured sufficiently.
- Added to 705.3 Construction, Detectable Warning Surface (705.3.1.M)
 - M. Place the mortar in accordance with manufacturer's recommendations. *(New Specification does not give direction to a manufacturer's item)*
- Added to 705.5 Basis of Payment (705.5.3.B)
 - B. including all curb and curb taper lengths required for connection compliance.

• Section 706 – Monument – Minor Changes

• Section 707 – Pre-Sacked Concrete Riprap

- Added to 707.3 Construction (707.3.1.B)
 - B. Follow the manufacturer's recommendations for weather limitations.



- **Section 708 – Geotextiles** – Minor Changes
- **Section 709 – Underdrains** – Minor Changes
- **Section 710 – Water Services**

- Section has been reduced to convey guidance to the Utility owner's specifications for all construction, installation, testing, connecting and necessary sterilization for water service. If the utility owner does not provide a specification, then construction is to follow the DeIDOT Standard Specifications, the DeIDOT Standard Details, and DeIDOT Utility Manual.
- **Added to 710.3 Construction (710.3.A)**
 - **A. Perform the work in accordance with the contract and the utility owner's specifications. In cases of conflict between the contract and the utility owner's specifications, the utility owner's specifications take precedence.**



• Section 710 – Water Services (Cont.)

• Added to 710.3 Construction– Adjusting Water Service within Pavement (710.3.B)



• B. Adjusting water services within pavement.

- 1. Saw cut existing bituminous concrete or PCC pavement a minimum of 2 feet from the face of the utility service.
- 2. Excavate materials from the perimeter in accordance with Section 207.3. Dispose of waste materials in accordance with Section 106.08.
- 3. Remove existing castings. Clean and set castings aside for reuse or replacement in accordance with the contract. If the engineer determines the casting is damaged and not suitable for reuse, provide a new casting as provided by the utility owner.
- 4. Place forms for the top unit.
- 5. Do not place the frame on bricks, blocks, or other materials.
- 6. Place required steel reinforcement and encase in PCC, Class B.
- 7. Dispose of removed utility as directed by the utility owner.

• C. Pavement Patching.

- 1. Prepare subgrade for patching to match contract documents or the existing pavement section.
- 2. Provide bituminous patching material in accordance with Section 403.3.
- 3. Seal all patches in accordance with Section 504.



• Section 711 – Sanitary Sewer System

- Section has been reduced to convey guidance to the Utility owner's specifications for all construction, installation, testing, connecting and necessary sterilization for water service. If the utility owner does not provide a specification, then construction is to follow the specifications Details and DeIDOT utility manual.
- “Perform the work in accordance with the contract and the utility owners' specifications. In case of conflicts between the contract and the utility owner's specifications, the utility owner's specifications take precedence.” (711.3A)



• Section 711 – Sanitary Sewer System (Cont.)



• Added to 711.3 Construction – Adjusting Sanitary Sewer Service within Pavement (711.3.B)

• B. Adjusting Sanitary Sewer Services Within Pavement.

- 1. Saw cut existing bituminous concrete or PCC pavement a minimum of 2 feet from face of the utility service.
- 2. Excavate materials from the perimeter in accordance with Section 207.03. Dispose of waste materials in accordance with Section 106.08.
- 3. Remove existing castings. Clean and set castings aside for reuse or replacement in accordance with the contract. If the engineer determines the casting is damaged and not suitable for reuse, provide a new casting as provided by the utility owner.
- 4. Place forms for the top unit.
- 5. Do not place the frame on bricks, blocks, or other materials.
- 6. Place required steel reinforcement and encase in PCC, Class B.
- 7. Dispose of removed utility as directed by the utility owner.

• B. Adjusting Sanitary Sewer Services Within Pavement.

- 1. Prepare subgrade for patching to match contract documents or the existing pavement section.
- 2. Provide bituminous patching material in accordance with Section 403.3.
- 3. Seal all patches in accordance with Section 504.



BREAK !!



• **Section 720 – Guardrail**

• **720.2.H.2 – Recycled Composite Offset Blocks**

- Removed reference to NCHRP 350
- Must meet latest MASH testing requirements

• **720.3 – Construction**

- Added *“Provide and install guardrail and components in accordance with the Contract Documents.”*
- 720.3.4 – Guardrail reflectors
 - Removed sheeting information and placed in the Standard Construction Details (Detail B-13, Sheet 9)
 - Added *“Provide reflective sheeting meeting the requirements of ASTM D4956 Type IV.”*
- 720.3.5 – removed payment reference from sub-section and relocated to Basis of Payment.
- 720.3.7 – added new sub-section for installation of Standard Construction Items in accordance with Standard Construction Details (see Detail B-3)

• **720.4 – Method of Measurement**

- Added reference to the limit of payment shown in the Standard Construction Details for the components and guardrail-over-culverts

• **720.5 – Basis of Payment**

- Added test pits as an item included to the pay item
- All items within Section 720 are to be paid according to the construction section 720.3 with the items listed.

• **Section 721 – Guardrail End Sections and Transitions**

• **721.2 – Materials**

- Remove NCHRP 350 and MASH references
- Products will need to be submitted and approved per the Approved Products List (https://deldot.gov/Business/prodlists/pdfs/APL_EndTerminals.pdf?cache=1603391579291)
- Added requirements for retroreflective material and sizes according to end treatment type

• **721.3 – Construction**

- 721.3.A: Removed the “purpose” of the pre-installation field meeting
- 721.3.3: Added “Entrance Special End Anchorage” as an item to the title
- 721.3.4: Removed unnecessary language covered in the 100 Division

• **721.4 – Method of Measurement**

- 721.4.1 – added the limit of payment length of 50 feet (per Detail B-2)
- 721.4.2 – Added “Entrance Special End Anchorage” as an item to the title.
- 721.4.2 – Combined items as they are measured as similar products per the Standard Construction Details

• **721.5 – Basis of Payment**

- 721.5.3 – Buried End Section is now “Buried in Back Slope” and added “Entrance Special End Anchorage” as an item to the title.
- Added pay item listings according to item payment to be consistent with guardrail and components in Section 720.3

- **Section 722 – High-Tension Cable Barrier (HTCB)**
 - Section rewritten to accommodate the manufacturer's recommendations for HTCB
 - **722.2 – Materials**
 - MASH Test Level 4 system
 - Maximum lateral deflection of 8 feet
 - One HTCB system for entire length of contract
 - Compatible HTCB end terminals meeting MASH Test Level 3



- **Section 723 – Concrete Barrier**

- New items (see Standard Construction Details)
- **723.3 – Construction**
 - **723.3.J.2 – updated to account for changes in barrier heights:**
 - Barriers 42” or taller – place reflector 39” above final roadway surface
 - Barriers less than 42” tall – place reflector 29” above final roadway surface
 - **723.5 – Basis of Payment**
 - 723.5.A – added reinforcing steel and joints
 - 723.5.A.4 – clarified backfill and backfilling



• **Section 724 – Impact Attenuator**

• **724.2 – Materials**

- Remove NCHRP 350 and MASH references
- Products will need to be submitted and approved per the Approved Products List (https://deldot.gov/Business/prodlists/pdfs/APL_ImpactAttenuators.pdf?cache=1603394172900)

• **724.3 – Construction**

- Removed damage replacement caused by contractor as this is referenced in the 100 Division.
- 724.3.B – Added reference to construct as applicable to Section 720.3

• **724.4 – Method of Measurement**

- 724.4.B – Added *“The Department will measure the quantity of impact attenuators replaced due to damage not caused by the contractor as the number of provided, assembled, installed, and accepted.”*

• **724.5 – Basis of Payment**

- **724.5.A – Added the pay item listing according to item payment to be consistent with guardrail and components in Section 720.3**
- **724.5.B – Foundation will be paid in accordance with the following:**
 - Excavation and backfill in accordance with Section 202
 - Saw cutting in accordance with Section 762
 - Pavement patching in accordance with Section 402 or Section 503
- **724.5.C – Added** *“The Department will pay the quantity of damaged impact attenuators replaced and disposed of at the contract unit price, if complete replacement is required, or at a negotiated price if a partial replacement or repair is required.”*



• Section 727 – Fence

- Added to 727.3 Construction (727.3.6.A)
 - A. Place metal right-of-way fence posts plumb and in accordance with the Standard Construction Details.

• Section 760 – Pavement Milling and Rumble Strips

- Removed
 - “An entrance, driveway and intersecting street pavement surcharge (a separate pay item) will only be considered for areas adjacent to the roadway milling that cannot be completed as part as the mainline or auxiliary operations, as determined by the Engineer. An intersecting street milling, measured along the centerline, that is 300 linear feet or greater will not be paid as a surcharge.”

• Section 762 – Saw Cutting and Butt Joints

- Added to 762.4 Method of Measurement (762.4.B)
 - B. Composite pavement of asphalt over concrete is to be measured as sawcutting concrete.
- Added to 762.5 Basis of Payment (762.5.B.4)
 - 4. sealing overcuts in accordance with Section 504.3.



• Section 763 – Initial Expense, De-Mobilization

- **Added to 763.3 Construction (763.3.A,B)**
 - **A. Perform operations necessary for assembling and setting up of the project, including:**
 - 1. The initial movement of personnel and equipment to the project site;
 - 2. establishing the contractor's offices, shops, plants, storage areas, and sanitary facilities;
 - 3. other activities required by the contract and by law or regulation;
 - 4. other work and operations required before beginning compensable items of work; and
 - 5. obtaining the required insurance, bonds, and all other items required for the start of work.
 - **B. Perform operations necessary for final jobsite cleanup including:**
 - 1. De-mobilization of personnel and equipment; and
 - 2. Submitting all project closeout paperwork including subcontractor releases.



2020 Standard Specifications

Section 800: Traffic

- **Section 801: Temporary Traffic Control-General**
- **Section 802: Arrow Boards**
- **Section 803: Portable Changeable Message Sign**
- **Section 804: Portable Light Assembly**
- **Section 805: Plastic Traffic Control Drums**
- **Section 806: Traffic Officers**
- **Section 807: Temporary Safety Barrier**
- **Section 808: Truck Mounted Attenuator**
- **Section 809: Temporary Impact Attenuator**
- **Section 810: Temporary Warning Signs**
- **Section 811: Flaggers**
- **Section 812: Certified Traffic Control Supervisor**
- **Section 813: Temporary Barricades**
- **Section 817: Pavement Markings**
- **Section 818: Sign Panels**
- **Section 819: Signposts**
- **Section 820: Breakaway I-Beam Signs**
- **Section 821: Barrier Mounted Signs**
- **Section 822: Overhead and Cantilever Sign Panels**
- **Section 823: Span Wire and Mast Arm Sign Panels**
- **Section 824: Delineators**
- **Section 826: Permanent Wood Barricade**
- **Section 830: Conduit Junction Wells**

2020 Standard Specifications

Section 800: Traffic (Cont.)

- **Section 831: Conduit**
- **Section 832: Electric and ITMS Cable and Splicing**
- **Section 833: Grounding**
- **Section 834: Pole Bases, Extensions, and Sheeting**
- **Section 835: Cabinet Bases**
- **Section 836: Traffic Signal Poles and Mast Arms**
- **Section 837: Traffic Signal Indications**
- **Section 838: Span Wire and Messenger Wire**
- **Section 839: Wood Poles**
- **Section 840: Down Guys and Anchors**
- **Section 841: Weatherheads**
- **Section 842: Service Pedestal and Safety Switch**
- **Section 843: Electrical Testing**
- **Section 844: Emergency Preemption Detector**
- **Section 846: Loop Detector**
- **Section 847: Lighting Control Cabinets**
- **Section 850: Luminaire**
- **Section 851: Aluminum Lighting Standard**



- **Section 801 – Temporary Traffic Control, General**

- **801.3 Construction, Travel Lane and Road Closure Restrictions (801.3.5)**
 - Added - # 7- Special Events

- **Section 802 – Arrow Boards** – Minor Changes

- **Section 803 – Portable Changeable Message Sign** – Minor Changes

- **Section 804 – Portable Light Assembly** – Minor Changes

- **Section 805 – Plastic Traffic Control Drums** – Minor Changes

- **Section 806 – Traffic Officers**

- Updated 806.5 Basis of Payment (806.5.B)

B. For bidding purposes, the Department has fixed the unit price at \$110.00 per hour. The Department will pay for traffic officers based on a submitted invoice from the police department plus 10 percent.

- **Section 807 – Temporary Safety Barrier** – Minor Changes
- **Section 808 – Truck Mounted Attenuator** – Minor Changes
- **Section 809 – Temporary Impact Attenuator** – Minor Changes
- **Section 810 – Temporary Warning Signs** – Minor Changes
- **Section 811 – Flaggers** – Minor Changes
- **Section 812 – Certified Traffic Control Supervisor** – Minor Changes
- **Section 813 – Temporary Barricades** – Minor Changes



• Section 817 – Pavement Markings

• General Updates to Construction (8.17.3)

817.3.1 – General

- 817.3.1.A – Removed “and as directed by the Engineer”
- 817.3.1.B – Added “Use only application equipment approved by the engineer before starting work”
- 817.3.1.C – Added “Provide free access to the epoxy application equipment for inspection by the engineer at any time during the project”
- 817.3.1.D – Added “Do not use an application speed of the paint machine greater than 10 miles per hour, unless approved by the engineer”
- 817.3.1.G – Removed “Due to safety requirements, this section overrules section 108.03 which prevents work on Sundays and holidays”
- 817.3.1.G – Added “...in accordance with Section 801”

817.3.2 – Equipment

- 817.3.2.A.1 – Removed “Use Equipment meeting the following minimum requirements to apply latex paint pavement markings”.
- 817.3.2.B.1 – Removed “Use only application Equipment, approved by the Engineer prior to the start of Work, for the placement of epoxy reflectorized pavement markings”
- 817.3.2.B.2 – Removed “At any time throughout the duration of the Project, provide free access to the epoxy application Equipment for inspection by the Engineer”
- 817.3.2.B.4 – Replaced “The Engineer may approve the use of a portable applicator in lieu of truck-mounted accessories, for use in applying special markings only, provided such Equipment can demonstrate satisfactory application of reflectorized epoxy markings in accordance with these Specifications” with “817.3.2.B.2 Portable Applicator; 817.3.2.B.2.a. for use in applying special markings only”



• Section 817 – Pavement Markings (Cont.)

• General Updates to Construction (8.17.3)

817.3.3 – Latex Paint

- 817.3.3.A.1 – Replaced “temporary paint be applied at approximately 7 mils.” With “apply temporary paint at 9 mils plus or minus one mil.”
- 817.3.3.A.1 – Added “Refresh temporary paint as necessary to maintain the minimum reflectivity specified in section 1071”
- 817.3.3.B – Removed subsections 1 and 2
- 817.3.3.B – Replaced “During and after Material application, both daylight and nighttime inspections of the markings will be made by the Engineer, and if found to be defective or if they fail in any way to meet these Specifications, such markings will be rejected and shall be replaced at no cost to the Department within the time limit specified by the Engineer” with “The engineer will perform both daylight and nighttime inspections of the markings, during and after material application”



- **Section 818 – Sign Panels**

- **Materials (818.2)**

- **Removed** – The Department actions to date all signs at the time of application as the signs will be provided by the contractor rather than ordering the signs from the sign shop.”

- **Section 819 Signposts**

- **Added to 819.3 Construction (819.3.A)**

- **A. Traffic Signs.**

- **The contractor shall provide sign materials for use on the project, including signs, posts, and associated hardware, unless otherwise indicated in the contract.**

- **Replaced (819.3.B.2)**

- **Replaced** – *“Install signpost at the location depicted in the Contract Documents”* with **“Place signpost in accordance with the DE MUTCD and MASH.”**

- **Section 820 – Breakaway I-Beam Signs** – Minor Changes

- **Section 821 – Barrier Mounted Signs**

- **Removed from Construction (821.3)**

- **Handling and Transport Information (821.3.B.2-3), (Contractors Responsibility)**



- Section 821 – Barrier Mounted Signs – Minor Changes
- Section 822 – Overhead and Cantilever Sign Panels – Minor Changes
- Section 823 – Span Wire and Mast Arm Sign Panels – Minor Changes
- Section 824 – Delineators – Minor Changes
- Section 825 – Flexible Tubular Markers, Permanent – **REMOVED**
- Section 826 – Permanent Wood Barricade – Minor Changes
- Section 830 – Conduit Junction Wells – Minor Changes
- Section 831 – Conduit – Minor Changes
- Section 832 – Electric and ITMS Cable and Splicing – Minor Changes
- Section 833 – Grounding – Minor Changes



- **Section 834 – Pole Bases, Extensions, and Sheeting** – Minor Changes
- **Section 835 – Cabinet Bases** – Minor Changes
- **Section 836 – Traffic Signal Poles and Mast Arms**
 - Added to 836.3 Construction (836.3.1.B)
 - “...Before erecting a pole, ensure that the anchor bolt is revealed per the manufacturer’s specifications and Standard Construction Details....”
- **Section 837 – Traffic Signal Indications** – Minor Changes
- **Section 838 – Span Wire and Messenger Wire** – Minor Changes
- **Section 839 – Wood Poles** – Minor Changes
- **Section 840 – Down Guys and Anchors** – Minor Changes
- **Section 841 – Weatherheads** – Minor Changes
- **Section 842 – Service Pedestal and Safety Switch** – Minor Changes



- **Section 843 – Electrical Testing** – Minor Changes
- **Section 844 – Emergency Preemption Detector** – Minor Changes
- **Section 846 – Loop Detector** – Minor Changes
- **Section 847 – Lighting Control Cabinets** – Minor Changes
- **Section 850 – Luminaire**
 - Added to 850.2 Materials, Chart to include LED Fixtures and HPS Equivalents (850.2.D)

Table 850.2.D – Luminaire and Lamp Characteristics					
LED Fixtures (HPS Equivalent)	Wattage	Lumens Range	Drive Current	Color Temperature*	Rated Life
150	90 Watts Maximum	8,000 -12,000	1050 mA Maximum	3,000K and 4,000K	60,000 Hours
250	175 Watts Maximum	16,000 -20,000	1050 mA Maximum	3,000K and 4,000K	60,000 Hours
400	250 Watts Maximum	27,000 -31,000	1050 mA Maximum	3,000K and 4,000K	60,000 Hours

*High mast luminaires may have a color temperature up to 5,000K



- **Section 851 – Aluminum Lighting Standard** – Minor Changes

2020 Standard Specifications

Section 900: Erosion, Sediment, and Stormwater Measures

- **Section 901: Erosion, Sediment, and Stormwater Management**
- **Section 902: Pumping or Dewatering Operations**
- **Section 903: Pollution Prevention**
- **Section 905: Sediment Trapping Devices**
- **Section 906: Dewatering Practices**
- **Section 907: Water Control Practices**
- **Section 908: Soil Stabilization Practices**
- **Section 909: Waterway Construction Practices**
- **Section 910: Stormwater Management Facilities**
- **Section 911: Plantings**



• **Section 901 – Erosion, Sediment, and Stormwater Management**

- **Added to 901.1 Description, Definition (901.1.1.E)**
 - **E. Responsible Person - A foreman or superintendent in charge of on-site clearing and land disturbing activities and for sediment and stormwater control.**
- **Added to 901.3 Construction, Responsibility (901.3.2.D)**
 - **D. Ensure that the responsible person oversees implementation of the Sediment and Stormwater Management Plan and provides daily oversight and guidance to construction personnel during land disturbing activities.**
- **Clarified Responsibility, 901.3 Construction (901.3.2.F,H)**
 - **F. The contractor may be subject to violations or fines received from regulatory agencies as a result of site conditions.**
 - **H. Designate a certified Erosion & Sediment Control (ESC) supervisor...**

• **Section 902 – Pumping or Dewatering Operations**

- **Minor Changes**



• Section 903 – Pollution Prevention

- **Added to 903.3 Construction**

- 903.3.1 Application Law and Regulations. Follow the Delaware Erosion and Sediment Control Handbook. (<http://www.dnrec.delaware.gov/swc/Pages/SedimentStormwater.aspx>)

- **Added to 903.3 Construction, List of Prohibited Discharges (903.3.2)**

- A. Wastewater from concrete washout operations, unless managed by an appropriate control;
- B. Wastewater from stucco washout, paint, form release oils, curing compounds, and other construction materials, unless managed by an appropriate control;
- C. Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance;
- D. Soaps, solvents, or detergents used in vehicle and equipment washing; and
- E. Toxic or hazardous substances from a spill or other release.

- **Added to 903.3 Construction, Direction for Clean-up Methods (903.3.2)**

- 903.3.3 Maintenance.

- A. Inspect pollutant-generating activities and the pollution prevention Best Management.
 - 1. Immediately upon discovery of spilled pollutants, initiate clean-up operations.
 - 2. **Do not hose down surfaces, use dry clean-up methods only**



• Section 905 – Sediment Trapping Devices

- Added to 905.3 Construction (905.3.B.3)
 - 3. Super Silt Fence
 - Place fence in accordance with the Standard Construction Details and Section 905.3.A. Fasten geotextile to chain link fence with ties spaced every 24 inches at the top and midsection.

• Section 906 – Dewatering Practices

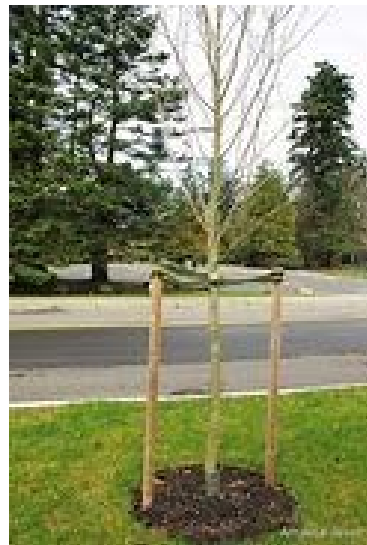
- Added to 906.2 Materials (906.2.B)
 - B. Approved equal sediment tank.

• Section 907 – Water Control Practices

- Added to 907.3 Construction (907.3.A)
 - A. Inspect weekly and immediately after every rainfall to maintain and make repairs as needed.
- Added to 907.3 Construction (907.3.B.2)
 - Check Dam, Compost Filter Log section



- **Section 908 – Soil Stabilization Practices** – Minor Changes
- **Section 909 – Waterway Construction Practices**
 - Added to 909.3 Construction (909.3.A)
 - A. Inspect weekly and immediately after every rainfall to maintain and make repairs as needed.
- **Section 910 – Stormwater Management Facilities** – Minor Changes
- **Section 911 – Plantings**
 - Moved from Basis of Payment and 1021 and added to 911.2 Materials (911.2.9.A-C)
 - A. Provide clean water free of oil, salts, acids, alkalis, sugars, organics, or other undesirable materials. Where water is drawn from a surface source, enclose the intake to exclude silt, mud, organics, trash, or other foreign materials.
 - B. Watering quantity is per 1,000 gallons of water applied and based on the following schedule:
 - 1. Major trees-15 gallons per tree;
 - 2. minor trees-10 gallons per tree;
 - 3. shrubs-5 gallons per shrub; and
 - 4. perennials-10 gallons per 100 square feet of planting bed.
 - C. Document the quantity of watering on the breakout sheet provided for this item.



Too Much to Cover in One Presentation



READ THE SPECIFICATIONS!!

When questions arise, I can still hear my first boss.....

“What does the Spec say?”

“What does the Standard Detail show?”

