STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION

BID PROPOSAL

CONTRACT T202606504

OPEN END - PAVEMENT PRESERVATION, CENTRAL, FY 26 - 29

Advertisement Date: July 28, 2026

INCLUDED IN THIS DOCUMENT:	**ADDITIONAL BID PROPOSAL ITEMS:**
BID PROPOSAL: *GENERAL DESCRIPTION* *PROSPECTIVE BIDDER'S NOTES* *GENERAL NOTICES* *PREVAILING WAGES* *SPECIAL PROVISIONS* *QUANTITY SHEET SUMMARY*	**ATTACHED OR POSTED DOCUMENTS:** *PROJECT PLANS* *QUESTIONS & ANSWERS (if posted)* **PAPER BIDDERS CONTACT DELDOT FOR BID SUBMITTAL DOCUMENTS:** *DRUG TESTING AFFIDAVIT;* *CERTIFICATION FORM;* *BID BOND FORM;* *CD FOR BID PRICE ENTRY & PRINTING*

This Bid Proposal and related documents can be viewed on bids.delaware.gov and, for subscribers bidx.com/de/

Internet Bids for Bidders with Bid Express® accounts can be submitted at BIDX.com/de; **OR**;

Paper Bids With CD will be received at the DelDOT Administration Building, Dover, DE;

ALL BIDS DUE PRIOR TO 2:00 P.M. Local Time, AUGUST 25, 2026

DIGITAL ACCESSIBILITY NOTICE

The Delaware Department of Transportation (DelDOT) is committed to ensuring that its digital services, content, and documents are accessible to all users and is actively working to comply with applicable federal and state accessibility requirements. DelDOT continues to make improvements over time, with current efforts focused on programs, applications, content, and documents that are actively in use and available to the public.

Due to the nature and complexity of certain materials, including construction plans, technical drawings, historical documents, maps, and other graphic-intensive files, some documents may not currently be fully digitally accessible or compliant with current accessibility standards. In some cases, these documents are provided for historical, reference, informational, or procurement purposes only.

If you require an accessible version of a document or need assistance accessing any content, please contact DelDOT at (302) 760-2031 or DOT-ask@delaware.gov and reasonable efforts will be made to provide the information in an accessible format upon request. DelDOT appreciates your patience and understanding as accessibility improvements continue to be implemented.

GENERAL DESCRIPTION

A. BIDS DUE: AUGUST 25, 2026 PRIOR TO 2:00 P.M. Local Time – unless changed via Addendum.

BIDS MUST BE SUBMITTED VIA:

(a) Internet - Bidders with DelDOT Bid Express® accounts can submit bids at bidx.com/de/.
OR:
(b) Paper Bid Delivered To: Delaware Department of Transportation, Administration Building
North Entrance, Bidders Room, 800 Bay Road, Dover, DE 19901

For paper bids, contact DelDOT at dot-ask@delaware.gov or (302) 760-2031 to request a CD for bidding, required forms, and instructions. Bidders enter their Bid Item prices onto the supplied CD then print the form and deliver in a sealed envelope; the Bid Form, completed CD, and required documents prior to the Bid due date and time. *(CD's cannot be used to submit bids to bidx.com)*

Do not submit both Internet and Paper Bids. *If so, the Internet bid and documents will be rejected.*

BID OPENING: Bids will be publicly opened and read aloud at the Date and Time of the Bid Opening. The Bid Opening will be held at the 'Paper Bid Delivered To' address shown above. Bidder bears the risk of late delivery, bids received after the stated time will be returned unopened.

Attendance is not required. DelDOT offers a call-in number to hear the Bid Opening telephonically.
The telephone number to call is (302) 504-8986.
When prompted, enter Meeting number (access code): 651 529 280#
It is anticipated the telephone access information will remain the same for all Bid Openings.

B. PRE-BID MEETING: No

C. LOCATION: Kent County
These improvements are more specifically shown on the Location Map(s) of the attached Plans.

D. DESCRIPTION: The improvements consist of furnishing all labor and materials for work which may include bituminous overlays, bituminous patching, thin overlays, fog sealing, slurry sealing, crack and joint sealing, replacing pavement markings, adjusting utilities, backfilling along roadway edges and any other work needed to complete the work. Follow other incidental construction in accordance with the location, notes and details shown on the plans, and as directed by the Engineer.

E. COMPLETION TIME: All work on this contract must be complete within 1,095 Calendar Days.
Extensions of contract time due to weather are specified in the Standard Specifications Section 108.7F, weather days.
The Department's intent is to issue a Notice to Proceed for work to start on or about October 26, 2026.

F. SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, DELAWARE DEPARTMENT OF TRANSPORTATION, JANUARY 2026 apply to this Bid Proposal and Project. The Contractor shall make himself aware of any revisions and corrections and apply them to the applicable item(s) of this contract. The Standard Specifications can be viewed here. Units of Measure can be found at 101.4.

G. ATTACHMENTS: Included as part of this Bid Proposal are; *Project Plans*; *Questions & Answers* (if posted); *Addenda* (if issued)*, Referenced Documents, Documents Posted with this Bid Proposal*; and *Bid documents mailed to contractors.*

H. ADDENDA: All Addenda are posted on the internet at bids.delaware.gov, and bidx.com/de/and are included as part of the Bid Proposal. The Bidder is responsible to check the Website as needed to ensure that the Bidder is aware of Addenda that are included in the Bid Proposal. If Addenda are issued, the final Addendum will be posted no later than the end of the day two business days prior to the bid date. Each Addendum number and issue date must be entered on the submitted Certification Form. This original Bid Proposal will not be updated, you must refer to each Addendum.

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I. QUESTIONS: E-MAIL TO; **dot-ask@delaware.gov**

Questions regarding this project are to be e-mailed to the above address no less than **six business days** prior to the bid opening date in order to receive a posted response. Please include the Contract number in the subject line. Questions and responses are posted at bids.delaware.gov, and bidx.com/de/. The date of the final posted Questions and Answers document must be entered on the submitted Certification Form.

J. FLAGGERS:

A. Included in the Bid Proposal are the prevailing wages for highway construction as determined by the Department of Labor of the State of Delaware in accordance with Title 29 Del. C.§ 6960, relating to wages and the regulations implementing that Section.

B. Flaggers must be bid at a minimum equal to the Laborer wage rate and may be bid up to, but not to exceed, 3 times the Laborer wage rate in accordance with the County where the Work is being performed.

C. The Department will adjust the bid to the minimum for prices bid below the minimum acceptable bid and to the maximum for prices bid above the maximum allowable bid prior to award of the Contract.

1. Flagger overtime must be bid at minimum of 1.45 times and may be bid up to a maximum of 4.35 times, the Laborer wage rate in accordance with the County where the Work is being performed.
2. When a Contract for a Project contains both Federal Davis-Bacon and State of Delaware prevailing wage standards, the employer's minimum wage obligations are determined by whichever standards are higher.

D. Overtime:

1. Payment for overtime will be considered on a weekly basis for time worked in excess of 40 hours for a continuous 7-day period beginning Monday and ending Sunday inclusive.
2. Time worked on other Projects or Work activities other than flagging will not be counted in the normal 40 hours or the overtime.

E. The cost of the flagging operation when performed by others who are not the Contractor's employees will not be included in the 50% subcontracting limit as outlined in Section 108.1.

K. PROSPECTIVE BIDDERS NOTES:

1. **BIDDERS MUST BE REGISTERED** with DelDOT in order to submit a bid. Registrations are now completed online through SimpliGov. To complete registration or for more information, click here.

2. **SURETY BOND** - Each proposal must be accompanied by a deposit of either surety bond or security for a sum equal to at least 10% of the amount bid.

3. **DELAWARE'S CONTRACTOR REGISTRATION ACT** - 19 Del.C. §§ 3601 *et seq*, requires all contractors and subcontractors to register with the Delaware Department of Labor before performing construction services or maintenance. Refer to the GENERAL NOTICES section for further information.

4. **DRUG TESTING** - Regulation 4104; The state Office of Management and Budget has developed regulations that require Contractors and Subcontractors to implement a program of mandatory drug testing for Employees who work on Large Public Works Contracts funded all or in part with public funds pursuant to 29 Del.C. §6908(a)(6). **Refer to the full requirements at the following link:**
http://regulations.delaware.gov/register/december2017/final/21%20DE%20Reg%20503%2012-01-17.htm
Note a few of the requirements;
   * At bid submission - Each bidder must submit with the bid a single signed affidavit certifying that the bidder and its subcontractors has in place or will implement during the entire term of the contract a Mandatory Drug Testing Program that complies with the regulation (*a blank affidavit form is attached)*;
   * At least two business days prior to contract execution - The awarded Contractor shall provide to DelDOT copies of the Employee Drug Testing Program for the Contractor, each participating DBE firm, and all other listed Subcontractors;
   * Subcontractors - Contractors that employ Subcontractors on the job site may do so only after submitting a copy of the Subcontractor's Employee Drug Testing Program along with the standard required subcontractor information. A Subcontractor shall not commence work until **DelDOT** has approved the program in writing.

5. **PERFORMANCE-BASED RATING SYSTEM** - 29 Del.C. §6962 (c)(12)(a) requires DelDOT to include a performance-based rating system for contractors. The Performance Rating for each Contractor shall be used as a prequalification to bid at the time of bid. Refer to *'General Notices'* for details.

6. **NO RETAINAGE** will be withheld on this contract unless through the Performance-Based Rating System.

7. **EXTERNAL COMPLAINT PROCEDURE** can be viewed on DelDOT's Website, Contractor Compliance/EEO - Delaware Department of Transportation or request a copy by calling (302) 760-2555.

8. **DELAWARE BUSINESS LICENSE;** a copy of your firm's Business License must be submitted with your bid.

9. **FLATWORK CONCRETE** TECHNICIAN CERTIFICATION TRAINING:
   Section 501.3, 503.3, 505.3, 610.3, 701.3 and 702.3 of the 2026 Standard Specifications require contractors to provide an American Concrete Institute (ACI) or National Ready-Mix Concrete Association (NRMCA) certified concrete flatwork technician to supervise all finishing of flatwork concrete.

10. **SIGNAGE LANGUAGE**:
    In order to maintain effective communication with the traveling public, only place signs, banners, flags, or other displays within the projects limits that meet the requirements of the latest version of the Delaware Manual on Uniform Traffic Control Devices. Any signs or other materials which deviate from the MUTCD, must be preapproved by the Engineer. The only signage and materials which may be displayed upon vehicles and equipment within the Project area are signs denoting the name of the Contractor and any subcontractors and other signs and/or materials required and approved pursuant to the MUTCD and the Engineer. Contractor shall immediately remove any signs or materials within the Project that does not meet these requirements immediately upon notification by the Engineer. Failure to remove signs or other materials following notification from the Engineer will result in Liquidated Damages being assessed in the manner and amount specified in the Standard Specifications section 108.9.A.

11. No utility relocation involvement is anticipated. Should any conflicts be encountered during construction requiring adjustment and/or relocation of the agencies' existing facilities, the necessary relocation work shall be accomplished by the respective agencies' forces, as directed by the District Engineer. Any adjustments and/or relocations of municipally owned facilities shall be done by the State's contractor in accordance with the respective agencies' standard specifications as directed by the District Engineer.

12. No environmental permits are required for this work provided no jurisdictional wetlands or waters are impacted. If there is any question as to whether or not a water or wetland is jurisdictional, contact the DelDOT Environmental Section at 302-760-2264.

13. It is anticipated that all work will occur within DelDOT's existing right of way or easement areas. Should the need occur to trespass onto private property; it will be the responsibility of the Project manager to secure such trespass needs.

14. It is anticipated that all work will occur within DelDOT's right of way. Should the need occur to trespass onto railroad property, including the highway-rail crossing; it will be the responsibility of the Project Manager to contact the railroad Chief Engineer and obtain written authorization before entering.

15. The project manager shall be responsible for coordinating with the Traffic Section relating to any impacts to Traffic Section facilities (including but not limited to traffic loops, junction wells etc.) at least 4 weeks in advance of the start of the activity. Prior to initiating any work on this contract (or sites), the Project Manager shall be responsible for preparing and submitting for approval of the Safety Section, a Maintenance of Traffic Plan. Sufficient time shall be provided for the review and approval of the plan. The Maintenance of Traffic Plan shall include proposed time restrictions on the closure of travel lanes subject to the approval of the Safety Section.

16. The Project Manager is responsible for ensuring any required documents and analysis as part of the adopted Work Zone Safety and Mobility Procedures and Guidelines has been completed prior to any work starting on this contract.

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17. REVISED SPEC LANGUAGE:

The Revised Inspection Framework – January 2026 (2026 Inspection Framework) shall apply to this contract.

Delete from Section 101.3

Primary inspection. The inspection (formerly referred to as Final Inspection) conducted by the engineer to determine if the contractor has satisfactorily completed the project, or a portion of the project, in accordance with the contract.

Insert within Section 101.3

Acceptance Inspection. The inspection (formerly referred to as Primary Inspection) conducted by the Administering Section, contractor, and accepting section confirming that primary inspection punch list items have been addressed.

Primary inspection. The inspection (formerly referred to as initial inspection) conducted by the Department to review all contract work has been completed in accordance with the Plans, Standard Specifications, Special Provisions, and Standard Construction Details. The inspection is confirmation of the work completed per the contract documents.

Project Acceptance. The Department's notification to the Contractor that the time charges will cease, and construction activities are completed, releasing the contractor from liability and repairs or maintenance to the completed work.

Revise Section 104.12.A as follows.

A. Before acceptance inspection, clean rubbish, excess materials, temporary structures, and equipment from the project, from any publicly owned borrow source used to complete the work, and from areas affected by the contractor in connection with the work within the right-of-way. Cut all grass and weeds taller than 6-inches. The cost of the final cleanup is incidental to Item 763000, Initial Expense, De-Mobilization.

Revise Section 105.4.F as follows.

F. Submit copies of manufacturer's catalog cuts, drawings, wiring diagrams, and other relevant documents with working drawings for electrical and mechanical equipment. After the Department has reviewed all items of a particular system, prepare an instruction book for the particular system. Fasten and bind the items listed below in a leather or heavy plastic cover book with a title clearly shown. Provide five copies of the book to the engineer before acceptance inspection. Make the books available when connecting and energizing electrical and mechanical systems. Ensure that the final bound copies reflect changes or adjustments made during the work. Include the following in the instruction book:
   1. An equipment list.
   2. A complete description of the equipment.
   3. The sequence of operation including inter-locking and protective features.
   4. The use of by-pass switches.
   5. A detailed description of all wiring circuits.
   6. A recommended spare parts list.
   7. Renewal parts bulletins.
   8. Instruction bulletins for the provided equipment.
   9. Diagrams and drawings of reduced size suitable for binding.
   10. An index listing all items.

Revise Section 105.13.D as follows.

D. Include the cost of maintenance work during construction and before completion of the acceptance inspection punch list in the proposal. The Department will pay the cost of maintenance work occurring after completion of the acceptance inspection punch list.

Revise Section 105.14.A as follows.

A. The engineer may order opening of certain sections of the work to traffic or other use before the contractor completes the work or before the engineer accepts the work. The Department will not consider opening sections of the work as constituting acceptance of the work or a waiver of any contract provisions. The engineer will pay the cost of repairing damage to the work caused by opening work to vehicular traffic unless opening the roadway is due to the fault, or inactivity of, the contractor or the contractor caused the damage. All other maintenance costs including, but not limited to, mowing grass and general cleanup are the contractor's responsibility until completion of the acceptance inspection punch list to the Department's satisfaction. Maintenance costs for work involving landscaping and vegetative growth are the contractor's responsibility until final acceptance.

Revise Section 105.16 as follows.

A. Partial Acceptance.
   1. The decision to partially accept a portion of the project is solely at the discretion of the engineer. The engineer may partially accept portions of the work. The Department will not consider partial acceptance as constituting acceptance of the work that has not been partially accepted or a waiver of any contract provisions. The Department will maintain the partially accepted portion of the project, including repairing damage caused by the public.

B. Project Acceptance
   1. The Department will cease counting contract time when the project reaches substantial completion as defined in Section 101.3, Definitions.
   2. Substantial Completion Verification
      a. Upon receiving the contractor's notice of substantial completion of the project, the Department will verify all contract items are complete as defined in Section 101.3, Definitions. Items not deemed complete shall be completed by contractor prior to Department issuance of Substantial Completion.
      b. After issuance of Substantial Completion, request Primary Inspection from the Department.
      c. The Department will schedule the Primary Inspection within 30 calendar days of the request.
   3. Primary Inspection
      a. The Department/Administering Section will conduct a Primary Inspection with the completion of 105.16.2 Substantial Completion Verification. The Administering Section will note and provide a written punch list by stations and in detail identifying work or conditions requiring correction. The punch list will include ADA inspection deficiencies.
      b. Perform the corrective work noted on the punch list within 30 calendar days upon receipt of the punch list created by the Administering Section, unless the parties mutually agree to extend the time frame.
      c. Upon completion of the primary inspection punch list, request an acceptance inspection from the Department. Prior to acceptance inspection scheduling, the Administering Section will confirm and annotate the primary inspection punch list and ensure ADA Inspection deficiencies have been addressed and documented.
      d. The Administering Section will schedule Acceptance inspection with the Maintenance District within 30 days of confirmation of primary punch list item completion.
   4. Acceptance (formerly primary) Inspection.
      a. The Department will conduct an acceptance inspection with the completion of 105.16.B.3, primary inspection. The Administering Section will provide a written punch list identifying deficiencies not satisfactorily addressed from the primary inspection punch list within 7 calendar days of the acceptance inspection.
      b. Perform the corrective work noted on the punch list within 15 calendar days upon receipt of the punch list created by the Administering Section, unless the parties mutually agree to extend the time frame.

c. The Administering Section will verify remediation work and will provide a list with dates that remedial activities were resolved to the Maintenance District when requesting Project Acceptance.

C. Project Acceptance
1. The Administering Section will notify the Maintenance District that acceptance inspection punch list items have been addressed.
2. The Maintenance District and/or other accepting entities will verify acceptance inspection punch list items have been addressed within 30 calendar days of notice from the Administering Section.

D. Final Acceptance
1. The engineer will provide final acceptance in writing that will state the acceptance date as defined in Section 101.3, Definitions.

E. Project Closeout
1. Upon final acceptance, provide the exempted documents, certificates, or proofs of compliance within 90 calendar days.
2. The Department will not issue the final payment until the contractor executes and delivers the required documents.

Revise Section 108.8.K as follows.

K. Once the Department determines that the work is substantially complete, the Department will suspend time charges and the assessment of liquidated damages. Failure to complete all punch list work identified during the primary and acceptance inspections within the timeframes allotted, will result in the Department restarting liquidated damages in accordance with the chart specified in Section 108.9, Schedule of Liquidated Damages. The assessment of post-substantial-completion liquidated damages will continue until project completion.

Revise Section 610.3.9.A.2 as follows.

2. The engineer will measure the width, length, and depth of each crack and establish the precise location of the crack termination points relative to permanent reference points on the member. The engineer will monitor and document the growth of individual cracks at an inspection interval the engineer will choose to determine if cracks are active or dormant after acceptance inspection.

Revise Section 722.3.2.A as follows.

A. Provide on-site field instruction by the system manufacturer, at a location determined by the engineer. Provide a minimum of 2 training sessions consisting of installation training before beginning cable barrier construction and maintenance training before acceptance inspection. The manufacturer shall establish the training duration and shall provide field training on all aspects of the system. Coordinate the training schedule and location with the engineer. The engineer will advise the appropriate department staff, including construction inspectors and maintenance personnel regarding the training location and schedule. Provide all training materials in both hard copy and electronic PDF format.

Revise Section 722.3.2.C.1 as follows.

1. Hold the maintenance training a minimum of 7 calendar days before acceptance inspection of the system. Submit the proposed training date to the engineer a minimum of 14 calendar days prior to the training session date for review and approval. Include the following participants:
a. District Maintenance Engineer, or designated representative;
b. District Maintenance Superintendent, or designated representative;
c. Area Yard Supervisor, or designated representative; and
d. District maintenance personnel.

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Revise Section 722.3.3.L as follows.

L. Within 10 calendar days of the primary inspection, supply spare parts for the HTCB system. Deliver the parts to the DelDOT maintenance facility as directed by the engineer. Provide an extra supply of the following:
   1. Socketed-type line posts, including post hardware, caps, reflective sheeting, straps, spacers, and socket covers. Include 200 posts and accessories.
   2. Rigging screws and threaded terminals. Provide enough materials to complete 8 turnbuckle assemblies.
   3. Anchor posts including post hardware and caps, reflective sheeting, straps, fittings, spacers, and socket covers. Provide enough materials to complete 3 end anchor installations.
   4. Fitting gaskets or socket covers. Provide 100 socket covers.

Revise Section 843.3.5.C as follows.

C. Repair defects identified by the Department during periodic or primary inspections in accordance with this specification, including all highway lighting systems and components within the project limits. Begin highway lighting system repairs immediately following notice of the lighting system defect unless weather limitations prevent the corrective work. Provide notification to the Department before beginning corrective work.

Revise Section 843.3.5.D as follows.

D. The Department will not consider the highway lighting system as substantially complete until correction of the deficiencies noted during the primary and acceptance inspections. Provide a maintenance bond for item 843001 – Electrical Testing upon substantial completion. Provide a maintenance bond meeting the following requirements:
   1. A bond sum equal to 100 percent of the value of all highway lighting system items the Department paid to the contractor;
   2. With original signatures, in ink, and not mechanical reproductions or facsimiles of any kind, naming the contractor as the principle;
   3. term of 1-year beyond the completion of the highway lighting system work; and
   4. written by a surety or insurance company licensed to write surety bonds in the State of Delaware by the Delaware Department of Insurance.

Revise 911.3.6.G as follows.

G. Water bi-weekly during the period June 15 through October 1. Continue watering, without interruption, until completing watering of all the plants on the project. Use water in accordance with Section 911.2.9. The Department will allow use of tree watering bags as a part of the watering operation. Remove the tree watering bags before acceptance inspection.

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GENERAL NOTICES

CONTRACTOR REGISTRATION ACT

On July 1, 2021, the Contractor Registration Act, as codified in 19 Del.C. §§ 3601 *et seq,* took effect. This law requires all contractors to register with the Delaware Department of Labor before performing construction services or maintenance. The Contractor Registration Act applies to all contractors that engage in construction and maintenance within the State of Delaware. Additionally, it requires contractors to have Delaware workers' compensation insurance where required, compliance with labor laws, and proof of a state business license. The Delaware Department of Labor's Office of Contractor Registration is responsible for enforcement of the requirements of the Contractor Registration Act. If you have any questions about the contractor registration process, please call 302-430-7739 or email Contract.Registry@delaware.gov. Registration at https://onestop.delaware.gov/.

SPECIFICATIONS :

The Delaware specifications entitled "*Standard Specifications for Road and Bridge Construction January, 2026*", hereinafter referred to as the *Standard Specifications*; the *Supplemental Specifications* to the Standard Specifications effective as of the advertisement date of this Bid Proposal and hereby included by reference; the *Special Provisions*; *Notes on the Plans*; this *Bid Proposal* including referenced documents; any *Addenda* thereto; and any posted *Questions and Answers*; shall govern the work to be performed under this contract. The Contractor shall make itself aware of these specifications, revisions, and corrections, and apply them to the applicable item(s) of this contract.

CLARIFICATIONS :

Under any Section or Item included in the Contract, the Contractor shall be aware that when requirements, responsibilities, and furnishing of materials are outlined in the details and notes on the Plans and in the paragraphs preceding the " Basis of Payment" paragraph in the Standard Specifications or Special Provisions, no interpretation shall be made that such stipulations are excluded because reiteration is not made in the "Basis of Payment" paragraph.

The Department requires the use of various electronic applications for various documentation processes.
These processes will be identified, and the Contractor's required use will be detailed during the Preconstruction Meeting.
No additional payments will be made to the contractor to use or interface with the applications.

ATTESTING TO NON-COLLUSION :

The Department requires as a condition precedent to acceptance of bids a sworn statement executed by, or on behalf of, the person, firm, association, or corporation to whom such contract is to be awarded, certifying that such person, firm, association, or corporation has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with such contract. The form for this sworn statement is included in the proposal and must be properly executed in order to have the bid considered.

QUANTITIES :

The quantities shown are for comparison of bids only. The Department may increase or decrease any quantity or quantities without penalty or change in the bid price.

PERFORMANCE-BASED RATING SYSTEM

29 Del.C. §6962 (c)(12)(a) requires a Department of Transportation project, excluding municipal street aid contract, to include a performance-based rating system. At the time of bid, the Performance Rating for each Contractor shall be used as a prequalification to bid.

Bidders with Performance Rating scores equal to or greater than 85% shall be permitted to bid. Bidders with scores of less than 85% who comply with the retainage requirements of 29 Del.C. §6962 shall be permitted to bid provided the *Agreement to Accept Retainage* (located on the Certification Page) is executed and submitted with the bid. Lack of an executed *Agreement to Accept Retainage* will result in the rejection of the bid by the Department. Successful bidders awarded

Department contracts who have no performance history within the last five (5) years will be assigned a provisional Performance Rating of 85% at the date of advertisement.

Notification of Performance Rating. The Department shall post publicly the Performance Rating for all Contractors on the Department's website. DelDOT will complete performance-based evaluations on the construction company contracted by the Department to build the project (the "Contractor"). Provisions to appeal Performance Ratings are described in the regulations. The regulations are set forth in Section 2408 of Title 2, Delaware Administrative Code, found here.

PREFERENCE FOR DELAWARE LABOR:

Delaware Code, Title 29, Chapter 69, Section 6962, Paragraph (d), Subsection (4)b: "In the construction of all public works for the State or any political subdivision thereof, or by firms contracting with the State or any political subdivision thereof, preference in employment of laborers, workmen or mechanics shall be given to bona fide legal citizens of the State who have established citizenship by residence of at least 90 days in the State. Each public works contract for the construction of public works for the State or any political subdivision thereof shall contain a stipulation that any person, company or corporation who violates this section shall pay a penalty to the Secretary of Finance equal to the amount of compensation paid to any person in violation of this section."

EQUALITY OF EMPLOYMENT OPPORTUNITY ON PUBLIC WORKS :

Delaware Code, Title 29, Chapter 69, Section 6962, Paragraph (d), Subsection (7) states;

a. As a condition of the awarding of any contract for public works financed in whole or in part by State appropriation, such contracts shall include the following provisions:

   During the performance of this contract, the contractor agrees as follows:

   1. The contractor will not discriminate against any employee or applicant for employment because of race, creed, color, sex, sexual orientation, gender identity or national origin. The contractor will take positive steps to ensure that applicants are employed and that employees are treated during employment without regard to their race, creed, color, sex, sexual orientation, gender identity or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places available to employees and applicants for employment notices to be provided by the contracting agency setting forth this nondiscrimination clause.

   2. The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, creed, color, sex, sexual orientation, gender identity or national origin.

   3. The contractor will ensure employees receive equal pay for equal work, without regard to sex. Employee pay differential is acceptable if pursuant to a seniority system, a merit system, a system which measures earnings by quantity or quality of production, or if the differential is based on any other factor other than sex.

TAX CLEARANCE :

As payments to each vendor or contractor aggregate $2,000, the Division of Accounting will report such vendor or contractor to the Division of Revenue, who will then check the vendor or contractor's compliance with tax requirements and take such further action as may be necessary to ensure compliance.

LICENSE :

A person desiring to engage in business in this State as a contractor shall obtain a license upon making application to the Division of Revenue.

CONTRACTOR / SUBCONTRACTOR LICENSE: 29 DEL. C. §6967:

(b) No agency shall accept a proposal for a public works contract unless such contractor has provided a proper and current copy of its occupational and/or business license, as required by Title 30, to such agency.
(c) Any contractor that enters a public works contract must provide to the agency to which it is contracting, within 30 days of entering such public works contract, copies of all occupational and business licenses of subcontractors and/or independent contractors that will perform work for such public works contract. However, if a subcontractor or independent contractor is hired or contracted more than 20 days after the contractor entered the public works contract the occupational or business license of such subcontractor or independent contractor shall be provided to the agency within 10 days of being contracted or hired.

DIFFERING SITE CONDITIONS:

SUSPENSIONS OF WORK and SIGNIFICANT CHANGES IN THE CHARACTER OF WORK:

Differing site conditions: During the progress of the work, if subsurface or latent physical conditions are encountered at the site differing materially from those indicated in the contract or if unknown physical conditions of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the work provided for in the contract are encountered at the site, the party discovering such conditions shall promptly notify the other party in writing of the specific differing conditions before they are disturbed and before the affected work is performed.

Upon written notification, the engineer will investigate the conditions, and if he/she determines that the conditions materially differ and cause an increase or decrease in the cost or time required for the performance of any work under the contract, an adjustment, excluding loss of anticipated profits, will be made and the contract modified in writing accordingly. The engineer will notify the contractor of his/her determination whether or not an adjustment of the contract is warranted.

No contract adjustment which results in a benefit to the contractor will be allowed unless the contractor has provided the required written notice. No contract adjustment will be allowed under their clause for any effects caused on unchanged work.

Suspensions of work ordered by the engineer: If the performance of all or any portion of the work is suspended or delayed by the engineer in writing for an unreasonable period of time (not originally anticipated, customary or inherent to the construction industry) and the contractor believes that additional compensation and/or contract time is due as a result of such suspension or delay, the contractor shall submit to the engineer in writing a request for adjustment within 7 calendar days of receipt of the notice to resume work. The request shall set forth the reasons and support for such adjustment.

Upon receipt, the engineer will evaluate the contractor's request. If the engineer agrees that the cost and/or time required for the performance of the contract has increased as a result of such suspension and the suspension was caused by conditions beyond the control of and not the fault of the contractor, its suppliers, or subcontractors at any approved tier, and not caused by weather, the engineer will make an adjustment (excluding profit) and modify the contract in writing accordingly. The engineer will notify the contractor of his/her determination whether or not an adjustment of the contract is warranted.

No contract adjustment will be allowed unless the contractor has submitted the request for adjustment within the time prescribed. No contract adjustment will be allowed under this clause to the extent that performance would have been suspended or delayed by any other cause, or for which an adjustment is provided for or excluded under any other term or condition of this contract.

Significant changes in the character of work: The engineer reserves the right to make, in writing, at any time during the work, such changes in quantities and such alterations in the work as are necessary to satisfactorily complete the project. Such changes in quantities and alterations shall not invalidate the contract nor release the surety, and the contractor agrees to perform the work as altered.

If the alterations or changes in quantities significantly change the character of the work under the contract, whether or not changed by any such different quantities or alterations, an adjustment, excluding loss of anticipated profits, will be made to the contract. The basis for the adjustment shall be agreed upon prior to the performance of the work. If a basis cannot be

agreed upon, then an adjustment will be made either for or against the contractor in such amount as the engineer may determine to be fair and equitable.

The term "significant change" shall be construed to apply only to the following circumstances:

(A) When the character of the work as altered differs materially in kind or nature from that involved or included in the original proposed construction, or

(B) When a major item of work, as defined elsewhere in the contract, is increased in excess of 125 percent or decreased below 75 percent of the original contract quantity. Any allowance for an increase in quantity shall apply only to that portion in excess of 125 percent of original contract item quantity, or in case of a decrease below 75 percent, to the actual amount of work performed.

RIGHT TO AUDIT

The Department shall have the right to audit the books and records of the contractor or any subcontractor under this contract or subcontract to the extent that the books and records relate to the performance of the contract or subcontract. The books and records shall be maintained by the contractor for a period of 3 years from the date of final payment under the prime contract and by the subcontractor for a period of 3 years from the date of final payment under the subcontract (29 Del.C. §6930).

PREVAILING WAGES

Included in this proposal are the minimum wages to be paid various classes of laborers and mechanics as determined by the Department of Labor of the State of Delaware in accordance with Title 29 Del.C. §6960, relating to wages and the regulations implementing that Section.

REQUIREMENT BY DELAWARE DEPARTMENT OF LABOR FOR SWORN PAYROLL INFORMATION

Title 29 Del.C. §6960 stipulates;

(b) Every contract based upon these specifications shall contain a stipulation that the employer shall pay all mechanics and laborers employed directly upon the site of the work, unconditionally and not less often than once a week and without subsequent deduction or rebate on any account, the full amounts accrued at time of payment, computed at wage rates not less than those stated in the specifications, regardless of any contractual relationship which may be alleged to exist between the employer and such laborers and mechanics. The specifications shall further stipulate that the scale of wages to be paid shall be posted by the employer in a prominent and easily accessible place at the site of the work, and that there may be withheld from the employer so much of accrued payments as may be considered necessary by the Department of Labor to pay to laborers and mechanics employed by the employer the difference between the rates of wages required by the contract to be paid laborers and mechanics on the work and rates of wages received by such laborers and mechanics to be remitted to the Department of Labor for distribution upon resolution of any claims.

(c) Every contract based upon these specifications shall contain a stipulation that sworn payroll information, as required by the [Delaware] Department of Labor, be furnished weekly. The Department of Labor shall keep and maintain the sworn payroll information for a period of 6 months from the last day of the work week covered by the payroll.

Bidders are specifically directed to note the Department of Labor's prevailing wage regulations implementing §6960 relating to the effective date of the wage rates, at Part VI., Section C., which in relevant part states:

"Public agencies (covered by the provisions of 29 Del.C. §6960) are required to use the rates which are in effect on the date of the publication of specifications for a given project. In the event that a contract is not executed within one hundred twenty (120) days from the date the specifications were published, the rates in effect at the time of the execution of the contract shall be the applicable rates for the project."

Contractors with questions may contact:

Department of Labor, Division of Industrial Affairs,
4425 N. Market Street, Wilmington, DE 19802

Telephone (302) 761-8200
https://dia.delawareworks.com/labor-law/

STATE OF DELAWARE
DEPARTMENT OF LABOR
DIVISION OF INDUSTRIAL AFFAIRS
OFFICE OF LABOR LAW ENFORCEMENT
PHONE: (302) 318-2769

Mailing Address:
252 Chapman Road
Suite 210
Newark, DE 19702

Located at:
252 Chapman Road
Suite 210
Newark, DE 19702

PREVAILING WAGES FOR **HIGHWAY CONSTRUCTION** EFFECTIVE MARCH 13, 2026

CLASSIFICATION	NEW CASTLE	KENT	SUSSEX
BRICKLAYERS	68.29	68.29	73.01
CARPENTERS	69.62	64.06	52.30
CEMENT FINISHERS	74.68	45.80	46.69
ELECTRICAL LINE WORKERS	37.71	60.93	29.82
ELECTRICIANS	86.87	86.87	86.87
IRON WORKERS	91.78	33.47	35.55
LABORERS	58.11	53.49	52.49
MILLWRIGHTS	22.60	21.94	18.96
PAINTERS	84.99	84.99	84.99
PILEDRIVERS	100.98	33.34	93.69
POWER EQUIPMENT OPERATORS	87.03	55.57	50.91
SHEET METAL WORKERS	31.93	28.51	25.80
TRUCK DRIVERS	54.70	39.63	48.26

CERTIFIED: 6/18/2026 BY: For Fran Chudzik
ADMINISTRATOR, OFFICE OF LABOR LAW ENFORCEMENT

NOTE: THESE RATES ARE PROMULGATED AND ENFORCED PURSUANT TO THE PREVAILING WAGE REGULATIONS ADOPTED BY THE DEPARTMENT OF LABOR ON APRIL 3, 1992.

CLASSIFICATIONS OF WORKERS ARE DETERMINED BY THE DEPARTMENT OF LABOR. FOR ASSISTANCE IN CLASSIFYING WORKERS, OR FOR A COPY OF THE REGULATIONS OR CLASSIFICATIONS, PHONE (302) 318-2769.

NON-REGISTERED APPRENTICES MUST BE PAID THE MECHANIC'S RATE.

PROJECT: T202606504 OPEN END PAVEMENT PRESERVATION CENTRAL FY 26 29 KENT COUNTY, Kent County

SPECIAL PROVISIONS

S.P. Code	SPECIAL PROVISION DESCRIPTION
401500-25	FOG SEAL
401501-25	BITUMINOUS ASPHALT TACK COAT
401502-25	ASPHALT CEMENT COST ADJUSTMENT
401504-25	HIGH PERFORMANCE BITUMINOUS CONCRETE WEARING SURFACE
401510-25	TACK COAT
401580-25	RIDE QUALITY OF BITUMINOUS CONCRETE PAVEMENT
401699-25	QUALITY CONTROL/QUALITY ASSURANCE OF BITUMINOUS CONCRETE
403500-25	POLYMER-MODIFIED HIGH PERFORMANCE SLURRY SEAL, (TON)
403501-25	POLYMER-MODIFIED HIGH PERFORMANCE SLURRY SEAL, (SQUARE YARDS)
710503-25	ADJUST GAS VALVE BOXES
760503-25	PAVEMENT MILLING, PATCHING
763520-25	ELECTRONIC TICKETING
801500-25	MAINTENANCE OF TRAFFIC, REHABILITATION
806500-25	TRAFFIC OFFICERS

401500 - FOG SEAL

DESCRIPTION:

This work consists of preparing the surface, providing, and applying an emulsified asphalt and water mixture as a surface seal.

MATERIALS:

A. Emulsified Asphalt Section 1016 (CQS-lhP)

1. The CQS-lhP must meet the chart below.

Emulsion Tests	Method	Specification
Saybolt Viscosity, 25°C, sfs	AASHTOT59	20-100
Saybolt Viscosity, 50°C, sfs	AASHTOT59	NA
Quick Sieve Test	AEITM4	Pass/Fail
Sieve Test, % by weight	AASHTOT59	max. 0.1
Particle Charge	AASHTOT59	Positive
Demulsibility, %	AASHTOT59	NA
Residue by Hot Plate Evaporation	AEITM 2,3	min. 62
Residue by Oven Evaporation	AASHTOT59	

Residue Tests	Method	Specification
Penetration, 25°C, 100g, 5 sec	AASHTOT49	40-90
Softening Point, R&B, °C	AASHTOT53	mm. 60°C/140°F
Ductility, 25°C, 5crn/min, cm	AASHTO 51	NA
Elastic Recovery, 10°C, %	AASHTO T301	NA

2. The contractor/supplier shall submit a Certificate of Analysis for each lot of CQS-lhP for approval.
3. The manufacturer shall dilute the emulsion no more than 24 hours before its intended use. This is to avoid settlement of the diluted emulsion. The dilution shall be completed at the manufacturer's facility.
4. The emulsion may be circulated using a centrifugal or other suitable pump to ensure uniformity.

B. Water Section 1021

CONSTRUCTION METHODS:

A. Construction

1. Surface Preparation.
   a. Thoroughly clean the surface upon which the fog seal is to be placed to the satisfaction of the engineer. Remove all vegetation and debris prior to placing material.
   b. Blow off the surface using an approved industrial jet blower or with an approved vacuum broom truck.
   c. All preparation work shall be performed just prior to the application of the fog seal and be approved by the engineer.
2. Application Rate & Conditions
   a. Apply fog seal at a rate of 0.05 to 0.17 gal/yd2 at ambient temperature.
   b. The engineer shall determine the appropriate application rate for the surface being sealed. This rate will be determined by test strip.
   c. The rate of application of the distributer shall be calibrated by an approved method determined by the engineer.
   d. Apply the fog seal when the air and surface temperature is 60°F and above. Measure the air and surface temperature in the shade away from artificial heat.
   e. The application shall not begin if rain or high winds are eminent. The engineer will determine when weather conditions are suitable for application.
   f. The fog seal should be a thin, uniform coating that is sufficient to seal the underlying pavement.
   g. Care must be taken to prevent splattering of adjacent pavement, curb and gutter, and structures during application.

B. Equipment:

1. Apply the fog seal using pressurized distributing equipment with a spray bar or other approved distribution system.
2. Distributors. The distributors used shall be capable of uniformly applying the bituminous material in liquid form. Devices to control the pressure, volume, and temperature shall be provided. Each distributor shall have an approved calibration chart, be equipped with an approved sampling device, and conform to the following:
   a. *Pressure.* The pressure shall be supplied by a positive displacement pump or air compressor. The pressure shall be uniform throughout the entire width of spray. If pressure is supplied by an air compressor, automatic controls must be provided to maintain sufficient and even pressure throughout the application of an entire load.
   b. *Temperature.* The distributor shall be equipped with a heating system that applies heat

uniformly across the width of the tank. Provisions shall be made for circulating or agitating the material whenever necessary while heating. The distributor shall be equipped with a thermometer marked in degrees Fahrenheit of sufficient range to determine the actual temperature of the material.

c. *Tachometer.* All distributors shall be provided with an approved tachometer recording feet per minute with a tabulation of feet per load with adjustments. Each load tabulation shall start at zero. There shall also be a totaling tabulation of this instrument.

d. *Volume.* A tachometer shall give correct readings of the speed, and the volumetric efficiency of the distributor shall ensure the correct volume at various speeds. Tests shall be required to prove the volumetric efficiency of the distributor at various speeds as directed by the engineer.

e. *Circulating System.* All pump distributors shall be equipped with a circulating system designed to maintain a homogenous liquid while circulating in the distributor tank. This circulating system shall also be arranged to circulate the material in the tank truck before application.

   i. Air distributors shall be equipped with a device for agitating the bituminous material in the tank trucks when necessary.

f. *Tests.* Necessary tests shall be made to determine the accuracy of all pressure gauges, tachometers, and pump efficiencies. The tests shall be made by the Contractor when and as required by the engineer.

g. *Spray Bars.* Each distributor shall be equipped with spray bars capable of applying material uniformly throughout the entire length of the spray bars when they are extended. Spray bar extensions shall be provided for applying up to a 12' width in one operation. Spray bars shall be equipped with a cleaning device and a shut-off valve to prevent dribbling, dripping, or streaking.

h. *Tank Capacity Gauge.* A float or other approved type tank capacity gauge shall be furnished to indicate the volume in the tank in not less than 25-gallon units. The gauge shall have adjustments for correction.

3. Tanks shall have a minimum capacity of 750 gallons.
4. If the engineer deems that the equipment applying the material is inadequate or fails to comply with all regulations, the engineer will order the equipment to be removed from the job and require that another unit be placed on the work.

C. Application of Fog Seal Material:

1. Apply the fog seal in one application at the rates specified using the pressure distributor for the full width of the sealing operation, unless otherwise directed. Apply at the temperature that is recommended by the manufacture.
2. The contractor must always keep the nozzles of the spray bar clean. If one or more nozzles becomes blocked during the application of bituminous materials, the distributor shall be stopped immediately,

and the nozzles shall be cleaned. The streaked areas shall be made uniform using a hand hose or other approved method.

3. If the Contractor is unable to keep the application uniform, the operation shall be discontinued until a more experienced operator or a better distributor, or both, can be provided; or, the Contractor shall take such other precautions as may be necessary to keep the application within specified limits.
4. The Contractor shall provide effective means of protecting the structures or curbs from discoloration when applying bituminous materials adjacent to structures or curbs.

METHOD OF MEASUREMENT:

A. The Department will measure the quantity of Fog Seal in Gallons. The actual number of gallons of fog seal applied will be measured and paid. The quantity will be determined by any or all of the following methods and verified for accuracy by computations based on field measurements taken on and along the completed finished surfaces. Multiple layers will not be measured separately.

1. **Truck Measurement:** If bituminous materials are delivered to the Project in tank trucks, distributor tanks, or drums, the Contractor shall not remove any bituminous material from the transporting vehicle or container until necessary measurements have been made, nor shall the transporting vehicle or container be released until final outage has been measured. If weighing is not convenient, the Contractor shall furnish the engineer with a certified chart showing the dimensions and volume of each container together with a gauge or calibrated measuring rod which will permit the volume of the material to be determined by vertical measurement.
2. **Metering:** The volume may be determined by metering, in which case the metering device used and the method of using it shall be subject to the approval of the engineer.
3. **Time of Deliveries:** The arrival and departure of vehicles delivering bituminous materials to the Project site shall be so scheduled that the engineer is afforded proper time for the measurements of delivered volume and final outage. The engineer will make the necessary measurements only during the Contractor's normal daily working hours.

BASIS OF PAYMENT:

A. The quantity of fog seal will be paid for at the contract unit price per gallon (GAL) of diluted CQS- lhP. Price and payment will constitute full compensation for:

1. preparing the surface
2. mobilization
3. furnishing all equipment, materials, and labor
4. placing the material
5. all labor, equipment, tools, and incidentals necessary to complete the work.

401501 - BITUMINOUS ASPHALT TACK COAT

Description:

This work consists of preparing the surface, providing, and applying un-cut PG 64-22 graded asphalt tack coat.

Materials:

A. Tack Coat (Thin Lift PG 64-22) Section 1011
B. Asphalt Cement Section 1012
(A certificate of analysis shall be submitted for each lot of material for approval.)

Construction Methods:

A. Construction

1. Surface Preparation

a. Thoroughly clean the surface upon which the tack coat is to be placed.
b. Remove all vegetation and debris prior to placing material.
c. All preparation work must be approved by the Engineer and shall be performed just prior to the application of the tack coat.

2. Application Rate & Conditions

a. Apply tack on all dry and broom-cleaned surfaces at a uniform surface application rate of 0.08 GAL/SY to 0.17 GAL/SY. The actual rate will be determined during the application of the bituminous test strip and shall be appropriate for the surface being overlaid as determined by the Engineer.
b. Apply at a temperature of 310°F to 340°F
c. The tack coat should be a thin, uniform coating sufficient to bond the overlay to the underlying pavement.
d. Apply in advance of the asphalt paving operation, but no further than 500 feet in front of the paver.
e. Do not permit activity on the tacked surface unless necessary for construction.
f. All contact surfaces of curbing, gutters, manholes, and other facilities shall be coated with a uniform coat of tack just prior to the asphalt paving operations.
g. During the application of the tack coat, care shall be taken to prevent spattering of tack on adjacent pavement, curb, gutter, and other structures.
h. Prior to paving, verify that the tack coat has adequate adhesive properties. The Engineer may suspend paving operations until adequate adhesion is achieved.

B. Equipment

1. Apply tack using pressurized distributing equipment with a spray bar or other approved system that results in uniform coverage across the pavement surface.

2. The distributors shall be capable of uniformly applying the bituminous material in liquid form. Devices to control the pressure, volume, and temperature shall be provided. Each distributor shall have an approved calibration chart, be equipped with an approved sampling device, and conform to the following:

a. *Pressure.* The pressure shall be supplied by a positive displacement pump or air compressor. The pressure shall be uniform throughout the entire width of spray. If pressure is supplied by an air compressor, automatic controls must be provided to maintain sufficient and even pressure throughout the application of an entire load.
b. *Temperature.* The distributor shall be equipped with a heating system that applies heat uniformly across the width of the tank. Provisions shall be made for circulating or agitating the material whenever necessary while heating. The distributor shall be equipped with a thermometer marked in degrees Fahrenheit of sufficient range to determine the actual temperature of the material.
c. *Tachometer.* All distributors shall be provided with an approved tachometer recording feet per minute with a tabulation of feet per load with adjustments. Each load tabulation shall start at zero. There shall also be a totaling tabulation of this instrument.
d. *Volume.* A tachometer shall give correct readings of the speed, and the volumetric efficiency of the distributor shall ensure the correct volume at various speeds. Tests shall be required to prove the volumetric efficiency of the distributor at various speeds as directed by the Engineer.
e. *Circulating System.* All pump distributors shall be equipped with a circulating system designed to maintain a homogenous liquid while circulating in the distributor tank. This circulating system shall also be arranged to circulate the material in the tank truck before application.
f. Air distributors shall be equipped with a device for agitating the bituminous material in the tank trucks when necessary.
g. *Tests.* Necessary tests shall be made to determine the accuracy of all pressure gauges, tachometers, and pump efficiencies. The tests shall be made by the Contractor when and as required by the Engineer.
h. *Spray Bars.* Each distributor shall be equipped with spray bars capable of applying material uniformly throughout the entire length of the spray bars when they are extended. Spray bar extensions shall be provided for applying up to a 12' width in one operation. Spray bars shall be equipped with a cleaning device and a shut-off valve to prevent dribbling, dripping, or streaking.
i. *Tank Capacity Gauge.* A float or other approved type tank capacity gauge shall be furnished to indicate the volume in the tank in not less than 25 gal units. The gauge shall have adjustments for correction.
j. Tanks shall have a minimum capacity of 750 gallons.

3. The rate of application of the distributer shall be calibrated by an approved method determined by the Engineer.

4. If the Engineer deems that the equipment applying the material is inadequate or fails to comply with all regulations, the Engineer will order the equipment to be removed from the job and require that another unit be placed on the work.

C. Heating and Application of Bituminous Material

1. Bituminous materials used for each treatment shall be heated in a manner that ensures even heating of the entire mass and maintained within the specified temperature and pressure range during application. Any material which has been damaged shall be rejected, and any section treated with damaged material shall be removed and replaced.

2. The bituminous material shall be applied in one application at the rates specified using the pressure distributor for the full width of the paving operation, unless otherwise directed.

3. The nozzles of the spray bar shall be kept clean at all times. If one or more nozzles becomes blocked during the application of bituminous materials, the distributor shall be stopped immediately, and the nozzles shall be cleaned. The streaked areas shall be made uniform using a hand hose or other approved methods.

4. If the Contractor is unable to keep the application uniform and within the specified limits, the operation shall be discontinued until an operator and distributer truck can be provided that is capable of providing a uniform application within the specified limits.

5. When applying bituminous materials adjacent to structures or curbs, the Contractor shall furnish and use effective means of protecting the structures or curbs from discoloration.

Method of Measurement:

A. The quantity of Bituminous Asphalt Tack Coat will be measured as the actual number of gallons of tack coat applied and accepted. The quantity will be determined by any or all of the following methods and should be verified for accuracy by computations based on field measurements taken on and along the completed finished surfaces. Multiple layers will not be measured separately.

1. **Truck Measurement:** If bituminous materials are delivered to the Project in tank trucks, distributor tanks, or drums, the Contractor shall not remove any bituminous material from the transporting vehicle or container until necessary measurements have been made, nor shall the transporting vehicle or container be released until final outage has been measured. If weighing is not convenient, the Contractor shall furnish the Engineer with a certified chart showing the dimensions and volume of each container together with a gauge or calibrated measuring rod which will permit the volume of the material to be determined by vertical measurement.

2. **Metering:** The volume may be determined by metering, in which case the metering device used and the method of using it shall be subject to the approval of the Engineer.

3. **Time of Deliveries:** The arrival and departure of vehicles delivering bituminous materials to the project site shall be scheduled so that the Engineer is afforded proper time for the measurements of delivered volume and final outage. The Engineer will make the necessary measurements only during the Contractor's normal daily working hours.

Basis of Payment:

A. The quantity of Bituminous Asphalt Tack Coat will be paid for at the Contract unit price per gallon (GAL) of uncut PG 64-22 graded asphalt tack. Price and payment will constitute full compensation for:

1. Preparing the surface;
2. Mobilization;
3. test strip;
4. placing the material; and
5. all labor, equipment, tools and incidentals necessary to complete the work.

NOTE:

The Asphalt Cement Cost Adjustment for this item will use the conversion factor of 8.42 lb/gal. to convert to a weight for payment under item 401502 - Asphalt Cement Cost Adjustment.

11/7/2022

401502 - ASPHALT CEMENT COST ADJUSTMENT

For Sections 304, 401, 402, 403, 404, and 405, payments to the Contractor shall be adjusted to reflect increases or decreases in the Delaware Posted Asphalt Cement Price when compared to the Project Asphalt Cement Base Price, as defined in these Special Provisions.

The Delaware Posted Asphalt Cement Price will be issued monthly by the Department and will be the industry posted price for Asphalt Cement, F.O.B. Philadelphia, Pennsylvania. The link for the posting is https://deldot.gov/Business/bids/index.shtml?dc=asphalt_cement_english.

The Project Asphalt Cement Base Price will be the Delaware Posted Asphalt Cement Price in effect on the date of advertisement.

All deviations of the Delaware Posted Asphalt Cement Price from the Project Asphalt Cement Base Price are eligible for cost adjustment. No minimum increases or decreases or corresponding percentages are required to qualify for cost adjustment.

Actual quantity of asphalt cement qualifying for any Asphalt Cement Cost Adjustment will be computed using the weight of eligible asphalt that is shown on the QA/QC pay sheets as a percentage for the delivered material.

If the mix was not inspected and no QA/QC pay sheet was generated, then the asphalt percentage will be obtained from the job mix formula for that mix ID. The asphalt percentage eligible for cost adjustment shall only be the virgin asphalt cement added to the mix.

There shall be no separate payment per ton cost of asphalt cement. That cost shall be included in the various unit prices bid per ton for those bid items that contain asphalt cement (mentioned above).

The Asphalt cement cost adjustment will be calculated on grade PG 64-22 asphalt regardless of the actual grade of asphalt used.

If the Contractor exceeds the authorized allotted completion time, the price of asphalt cement on the last authorized allotted workday, shall be the prices used for cost adjustment during the time

liquidated damages are assessed. However, if the industry posted price for asphalt cement goes down, the asphalt-cement cost shall be adjusted downward accordingly.

NOTE:

Application of Asphalt Cement Cost Adjustment requirements as indicated above shall apply only to those contracts involving items related to bituminous base and pavements, and with bitumen, having a total of 1,000 tons or more of hot-mix bid quantity in case of Sections 401, 402 and 403; and 15,000 gallons or more in case of Sections 304, 404 and 405.

12/14/2020

401504 – HIGH PERFORMANCE BITUMINOUS CONCRETE WEARING SURFACE

Description:

This work consists of mixing and placing a High Performance Bituminous Concrete Wearing Surface (HPBC) on a prepared foundation. The requirements of Section 401 apply except as modified herein.

Materials:
Materials used must conform to the applicable requirements of Standard Specifications Section 1014 with the modifications listed below.

Coarse Aggregates:
Use non-carbonate aggregates in the HPBC. Gravel and slag are not permitted. A maximum of 10% RAP can be incorporated into the HPBC but not for use as asphalt substitution. Use coarse aggregates that meet the requirements shown in the table below.

Test Property	Test Method	Specification Limits
Sodium Sulfate Soundness Loss, % Max. (5 cycles)	AASHTO T104	12
Absorption, % Max.	AASHTO T85	2.0
LA Abrasion Loss, % Max.	AASHTO T96	30
Flat and Elongated Particles: Retained on #4 Sieve, % Max. (Length to Thickness) 5:1 3:1	ASTM D4791	 5 20

Fine Aggregates:
Use 100% crushed aggregate that conforms to the table below.

Test Property	Test Method	Specification Limits
Sodium Sulfate Soundness Loss, % Max (5 cycles)	AASHTO T104	12
Sand Equivalent Value, % Min.	AASHTO T176	45
Uncompacted Void Content, % Min.	AASHTO T304	45
Liquid Limit, % Max.	AASHTO T89	25
Plasticity Index, %	AASHTO T90	Non-Plastic

Mineral Filler:

Use rock dust or crushed limestone free of organic impurities that conforms to AASHTO M17 and meets the properties listed below.:

Test Property	Test Method	Specification Limits
Plasticity Index, % Max.	AASHTO T90	4

Provide a sample of mineral filler to the Materials & Research for hydrometer analysis in accordance to AASHTO T88 for mineral filler.

Asphalt Cement:
Use a PG 88-22 binder in accordance with AASHTO M320 and the following modifications:

Test Property	Test Method	Specification Limits
Elastic Recovery (original binder) at 25º C	AASHTO T301 (ASTM D6084)	Minimum 85%
Binder temperature difference	AASHTO T53 (ASTM D36) Ring and ball apparatus in accordance to ASTM D7173	Maximum 4º C
% Weight loss by fuel immersion	See method below	Maximum 1.5%

Binder test for weight loss by fuel immersion:

1. Prepare three test specimens meeting mix design requirements at optimum binder content and 2.5 ± 0.7% air voids
2. Dry specimens under a fan at room temperature (68ºF - 80ºF) for 24 hours
3. Immerse the sample completely in kerosene meeting ASTM D3699 at room temperature (68ºF - 80ºF) for 2 minutes ± 30 seconds.
4. Remove the sample and surface dry it with a clean paper towel.
5. Weigh the sample to the nearest 0.1 grams and record this value as weight “A”.
6. Immerse the sample in the kerosene for 24 hours ± 10 minutes.
7. Towel dry the sample and place under a fan at room temperature for 24 hours ± 10 minutes.
8. Weigh the sample to the nearest 0.1 grams and record this value as weight “B”.
9. Calculate the weight of loss by fuel immersion:

$$\% \text{ weight loss by fuel immersion} = ((A - B) / A) * 100$$

Where: A = weight of sample after 2 minute immersion in kerosene
B = Weight of sample after 24 hour immersion in kerosene and 24 hour dry time.

Stabilizers: Use stabilizers or cellulose or mineral fibers to meet draindown requirements (<0.3% draindown). If other technologies or fibers are used, test data and field performance must demonstrate that specifications are met. Provide certified test results showing the method and material are specifically designed for use with hot-mix asphalt paving mixtures. A manufacturer’s representative must be present at initial production to provide technical assistance.

Cellulose fibers must conform to the following requirements:

Test Property	Test Method	Specification Limits
Ash Content, % Non-Volatiles Max.	ASTM D128	23
pH	AASHTO MP8	6.5 to 8.5
Moisture Content, % Max by Mass	AASHTO MP8	5.0
Fiber Length, Max inches	AASHTO MP8	0.25

Mineral fibers must be made from virgin basalt, diabase, slag, or other silicious rock and conform to the following requirements:

Test Property	Test Method	Specification Limits
Fiber Length, Max inches	AASHTO MP8	0.25
Fiber Thickness, Max inches	AASHTO MP8	0.0002
Shot Content No. 60 Sieve No. 230 Sieve	ASTM C612	 85 – 95 60 - 80

Antistripping Additives: Conform to Standard Specifications 1013.

Mix Design:

Aggregates: The washed gradation (AASHTO T11) of the HPBC mixture must conform to the following gradation:

Sieve	% Passing
19.0 mm (3/4”)	100
12.5 mm (1/2")	90-100
9.5 mm (3/8")	50-80
4.75 mm (#4)	20-35
2.36 mm (#8)	16-34
1.18 mm (#16)	0 - 21
0.60 mm (#30)	0 - 18
0.30 mm (#50)	0 - 15
0.075 mm (#200)	8.0 – 11

The HPBC must meet the following mix design parameters at 100 design gyrations (N_d=100) in the Superpave Gyratory Compactor:

Property	Requirement
Air Voids, %	4.0

VMA, % Min.	18.0
Draindown at production temperature (AASHTO T305), % Max at 1 hour	0.30

Anti-Strip Additives: Tensile Strength Ratio (TSR) values, as determined by the AASHTO T283 Test Method, must be a minimum of 80. If an anti-strip additive is required, the amount of the additive used must be 0.25 to 1.0 % by weight of the asphalt cement as determined by the TSR testing, recommended by the additive manufacturer, and approved by the Engineer.

Stabilizer Content: The dosage rates of any stabilizing agent must be determined by the Contractor to meet these specifications.

Plant Control:

Mineral Filler Supply. Add mineral filler dust to the mixture in a consistent manner to ensure the job mix formula requirements are met. Submit the mineral filler supply system to the Engineer for review. Approval of the submitted system will be at the discretion of the Engineer.

Stabilizer Supply System. When stabilizing additives are required in the mixture, use a separate feeding system to proportion the required amount into the mixture to obtain a uniform distribution. The feeding system must be interlocked into the production plant to ensure correct proportioning.

When a batch plant is used, add the stabilizer through a separate inlet directly into the weigh hopper above the pugmill. Time the addition of the stabilizer to occur during the hot aggregate charging of the hopper. Adequate dry mixing time is required to ensure proper blending of the aggregate and the stabilizer. Increase dry mixing time by 5 to 15 seconds. Increase wet mixing time by at least 5 seconds to ensure adequate blending of the stablizer with asphalt cement.

When a drum plant is used, add the stabilizer into the drum mixer to ensure complete blending of the stabilizer into the mix. When adding loose fiber, use a separate fiber feeding system that can accurately and uniformly introduce fiber into the drum at such a rate as not to limit the normal production of mix through the drum. Install an in-line no-flow detector in the output side of the fiber blower to ensure that a flow of fiber is entering the drum. Connect the no-flow detector to an approved alarm system which will indicate when fiber is not entering the drum. An easily visible portion of the fiber feed tube must be clear to allow the Engineer to ensure that fiber is flowing into the drum. There may be no evidence of fiber in the baghouse or returned/wasted baghouse fines at any time.

All stabilizer addition systems will be approved by the Engineer prior to start-up of the contract.

Construction Methods:

Place HPBC in accordance to Section 400 of the standard specifications with the following modifications.

Weather Restrictions:

Placement of HPBC will be permitted only when the ambient and surface temperatures are at least 50°F and rising. The surface must be free of any moisture.

Hauling Units:

Hauling units are specified in Section 401. 3 and the following:

The time between plant mixing and shipment may not exceed one half hour. Do not store material in the silo for greater than one half hour.

The haul trucks must deliver the HPBC to a material transfer device capable of continuously re-mixing and/or re-blending the material internally to ensure that the HPBC is free from physical and thermal segregation. The material transfer device must be self-propelled and capable to move freely between delivery trucks and the asphalt paver, equipped with a hopper insert, without requiring additional equipment.

Tack Coat:
A tack coat must be applied to the ground surface prior to paving. The tack coat used must be a PG 64-22 neat binder. Use the application rate for tack coat in the standard specifications for milled surfaces.

Mix Placement Temperature:

Spread (lay down) temperature for this mix is specified as 290ºF to 325ºF.

Opening to Traffic:

Traffic is not permitted on the finished roadway until the roadway temperature cools to 140ºF or less.

Compaction Requirements:

Compact the pavement to 94% of maximum theoretical density or 6% air voids. Item 401699 will be used by the Engineer to calculate payment for this item; Table 5 is modified as referenced below for this item:

Table 5: Compaction Price Adjustment

Highway Locations

Degree of Compaction (%)	Range	Pay Adjustment Factor (%)
>97.0	≥ 96.75	-100*
96.5	96.26 ≤ 96.74	-3
96.0	95.75 ≤ 96.25	-2
95.5	95.26 ≤ 95.74	0
95.0	94.75 ≤ 95.25	1
94.5	94.26 ≤ 94.74	3
94.0	93.75 ≤ 94.25	5
93.5	93.26 ≤ 93.74	3
93.0	92.75 ≤ 93.25	0

92.5	92.26 ≤ 92.74	0
92.0	91.75 ≤ 92.25	-5
91.5	91.26 ≤ 91.74	-15
91.0	90.75 ≤ 91.25	-20
90.5	90.26 ≤ 90.74	-25
90.0	89.75 ≤ 90.25	-30
89.5	89.26 ≤ 89.74	-50
≤ 89.0	≤ 89.25	-100*

*or remove and replace at Engineer's discretion.

Method of Measurement and Basis of Payment:

This work will be measured and paid for at the Contract unit price bid per ton for High Performance Bituminous Concrete complete, in place, and accepted, which price and payment will be full compensation for furnishing, hauling, preparing and placing all materials; for labor, equipment, tools; and incidentals necessary to complete this item.

Payment for PG 64-22 Tack will be incidental to this item.

Basis of Payment will also include applicable pay adjustments per 401699.

401510 – TACK COAT

Description:

The Department will not measure and will make no payment for this item. This language replaces Section 1011 of the Standard Specifications.

SECTION 1011 -TACK COAT

1011.1 Description.

Provide material in accordance with 1011.2 for thin lift maintenance applications, or as directed by the engineer. Provide material in accordance with Section 1011.3 and selected from the approved product list and in accordance with manufacturer recommendations for all other applications.

1011.2 Asphalt Cement (PG Graded).

Provide PG-64-22 (PG 64S-22) as tack coat in lieu of emulsified asphalts.

1011.3 Emulsified Asphalts.

1. Anionic emulsified asphalt in accordance with M140 except the sieve test requirement for field samples collected at the point of use shall be a maximum of 0.4 percent.
2. Cationic emulsified asphalt in accordance with M208 except the sieve test requirement for field samples collected at the point of use shall be a maximum of 0.4 percent.
3. Polymer-modified cationic emulsified asphalts in accordance with M316 except the sieve test requirement for field samples collected at the point of use shall be a maximum of 0.4 percent.
4. Non-Tracking emulsified asphalt in conformance with Table 1011.3-1.

Table 1011.3-1 Non-Tracking Emulsified Asphalt Requirements.

Property	Test Method	Requirement
Saybolt Viscosity at 77 F, (SFS)	AASHTO T59	15-100
Storage Stability Test, 24 hours, (%)	AASHTO T59	1 maximum
Residue by Distillation or Residue by Evaportation, (%)	AASHTO T59	50 minimum
Sieve Test, No. 20, (%)	AASHTO T59	0.4 maximum for field samples
Penetration at 77 F, 100 g, 5 s, (dmm)	AASHTO T49	10-40
Solubility in Trichloroethylene, (%)	AASHTO T44	97.5 minimum

6/11/2024

401580 - RIDE QUALITY OF BITUMINOUS PAVEMENT

Description:

This specification outlines requirements for an acceptable ride surface in addition to requirements established in DelDOT Standard Specifications. The Contractor is responsible for providing smoothness characteristics that meet these requirements. The Contractor is responsible for providing equipment, maintenance of traffic (MOT) as required by the Delaware MUTCD, and performing testing in accordance to this specification. All costs for testing and MOT are incidental to this item. Both the International Roughness Index (IRI) and deviations located within a 10' straightedge are used to characterize smoothness in this Special Provision.

Definitions:

Class 1 Project - a project that consists of full depth construction. Full depth construction is considered to be when contract documents or modifications provide opportunity for preparation of the subgrade prior to paving.

Class 2 Project - a project that consists of a minimum of two smoothness opportunities.

Class 3 Project - a project that consists of one smoothness opportunity.

Deviation - a hump or depression that exceeds defined tolerances.

Smoothness Opportunity - a smoothness opportunity is considered to be any of the following; roadway milling, placement of a leveling course, in-place recycling, or placement of a lift of bituminous concrete. The final wearing surface is considered one smoothness opportunity.

Equipment:

The Contractor must have a 10' straightedge available during all paving operations.

The Contractor must also have a high speed or lightweight inertial profiling system that meets requirements of AASHTO M328 capable of collecting data in both wheelpaths simultaneously.

Prior to the start of corrective actions, the Contractor must provide to the Engineer:

1. Manufacturer, Make, and Model of the test system
2. Equipment Owner,
3. Relevant Certifications,
4. Manufacturer Calibration Procedures, and
5. Relevant Operator Training information.

Testing:

The Contractor is responsible for testing the pavement surface using an approved inertial profiler in accordance to manufacturer and AASHTO R57 from the start of paving limits to the end of pavement

limits. Testing must be performed 3 times in each lane paved in the direction of traffic flow. Testing must be performed within seven (7) days of completion of project paving operations in each location.

The Contractor is responsible for providing information relative to locations that are to be excluded from calculation of the International Roughness Index. These areas must still meet 10' straightedge requirements.

Areas that are to be tested but will be removed prior to IRI analysis are:

1. 50 feet prior to the first bridge deck expansion joint and 50 feet after the last expansion joint if a bridge deck is excluded from smoothness operations.
2. 50' longitudinally from the center of an existing obstruction within the test area such as a manhole, water main, or catch basin that impedes paving operations.
3. 50' longitudinally from transverse joints that separate it from existing pavement not included on this contract.

Areas that are not to be profiled but are still subject to 10' straightedge requirements are:

1. Shoulder areas
2. Parking lots
3. Ramps, Streets, or Acceleration / Deceleration lanes less than 1000' in length.

Submission Requirements:

Test results must be submitted to the Engineer within five working days of completion of testing. Results not received within the allotted time frame will be assessed a charge of $1,000.00 per day at the discretion of the Engineer.

The Contractor is required to submit summary table IRI reports from their test equipment for 1 run for each lane and direction of paving. This report must also include:

1. Profiling Company Name
2. Date of Test
3. Contract Number
4. Location Description
5. Testing Personnel

The Contractor is required to submit ERD files for each of the 3 tests run in each lane and direction of paving to the Engineer for analysis. The Contractor must provide to the Engineer written documentation indicating the start and end of bridges and the center of obstructions relative to the stationing used on the testing that are not subject to IRI analysis.

Acceptance and Payment:

Acceptance of the final pavement will be based on Engineer calculated IRI values using ProVAL software upon removal of allowable areas of exemption and the number of deviations found in the pavement surface. The IRI measurements will be calculated in 0.1 mile (528 foot) sections for payment purposes. The average value of the three test runs will be used and the average value will be rounded to the nearest tenth. Payments for each section will be based on estimated tonnage calculated from plan

thickness and widths using the average maximum specific gravity ("Rice") for all surface mix used at that location.

Deviations equal to or in excess of 0.25" in 10' are to be corrected at the Contractor's expense or will have a discount charge of $200.00 per deviation.

*Estimated Tonnage = [L*W*T) * Rice * 62.4 (lb/ft;)*(0.0005 tons / 12 in.)*

Where: L = Length Segment (ft.)
W = Lane Width (ft.)
T = Plan Thickness (in.)

*IRI Incentive / Disincentive = Estimated Tonnage * UP * (PA-100)/100*

Where: UP = Contract Unit Price (Dollars)
PA = Pay Adjustment (Table A)

The total pay adjustment for paving work performed on each location is:

*(3 IRI adj for each section) - Total Deviations * 200*

It is possible to receive incentive for IRI measurements and a discount charge for excessive deviations on the same project. If a 528' section has an IRI value resulting in a deduction of at least 84% of the section pay, the deviation discount charge for that section is disregarded and the IRI discount charge is the only action taken for that section.

Table A: Payment Adjustments for IRI	
Class 1	
IRI per 0.1 mile Segment (in./mi.)	**Pay Adjustment**
≤ 50	103%
> 50 and < 145	100+ 0.2(65- IRI)
≥ 145	84%
Class 2	
IRI per 0.1 mile Segment (in./mi.)	**Pay Adjustment**
≤ 60	106%
> 60 and < 170	100+ 0.2(90- IRI)
≥ 170	84%

Correction to the paving surface, such as diamond grinding with approved equipment, patching, or other measures may be taken at the Contractor's expense and at the Engineers discretion to correct pavement surfaces assessed a discount charge. The Engineer may require corrective actions including remove &

replace if the deviation discount charge exceeds 50% of the cost of materials or the IRI pay adjustment is 84%. Deviations must be corrected if it is determined that they are at a height or depth that may create a safety concern.

4/10/2019

401699 - QUALITY CONTROL/QUALITY ASSURANCE OF BITUMINOUS CONCRETE

.01 Description

This item shall govern the Quality Assurance Testing for supplying bituminous asphalt plant materials and constructing bituminous asphalt pavements and the calculation for incentives and disincentives for materials and construction. The Engineer will evaluate all materials and construction for acceptance. The procedures for acceptance are described in this Section. Include the costs for all materials, labor, equipment, tools, and incidentals necessary to meet the requirements of this specification in the bid price per ton for the bituminous asphalt. Payment to the Contractor for the bituminous asphalt item(s) will be based on the Contract price per ton and the pay adjustments described in this specification.

.02 Bituminous Concrete Production B Quality Acceptance

(a) Material Production - Tests and Evaluations.

All acceptance tests shall be performed by qualified technicians at qualified laboratories following AASHTO or DelDOT procedures and shall be evaluated using Quality Level Analysis. The Engineer will conduct acceptance tests. The Engineer will directly base acceptance on the acceptance test results, the asphalt cement quality, the Contractor=s QC Plan work, and the comparisons of the acceptance test results to the QC test results. The Engineer may elect to utilize test results of the Contractor in some situations toward judging acceptance.

Supply and capture samples, as directed by the Engineer under the purview of the Engineer from delivery trucks before the trucks leave the production plant. Hand samples to the Engineer to be marked accordingly. The sample shall represent the material produced by the Contractor and shall be of sufficient size to allow the Engineer to complete all required acceptance tests. The Engineer will direct the Contractor when to capture these samples, on a statistically random, unbiased basis, established before production begins each day based upon the anticipated production tonnage. The captured sample shall be from the Engineer specified delivery truck. The Contractor may visually inspect the specified delivery load during sampling and elect to reject the load. If the contractor elects to reject the specified delivery truck, each subsequent load will be inspected until a visually acceptable load is produced for acceptance testing. All visually rejected loads shall not be sent to a Department project.

The first sample of the production day will be randomly generated by the Engineer between loads 0 and 12 (0-250 tons). Subsequent samples will be randomly generated by the Engineer on 500-ton sub-lots for the production day. Samples not retrieved in accordance with the Contractor’s QC plan will be deemed unacceptable and may be a basis for rejection of material produced. Parallel tests or dispute resolution tests will only be performed on material captured at the same time and location as the acceptance test sample. Parallel test samples or Dispute Resolution samples will be created by splitting a large sample or obtaining multiple samples that equally represent the material. The Engineer will perform all splitting and handling of material after it is obtained by the Contractor.

The Contractor may retain dispute resolution samples or perform parallel tests with the Engineer on any acceptance sample.

The Engineer will evaluate and accept the material on a lot basis. All the material within a lot shall have the same JMF (mixture ID). The lot size shall be targeted for 2000 tons or a maximum period of three days, whichever is reached first. If the 2000th ton target lot size is achieved during a production day, the lot size shall extend to the end of that production day. The Contractor may interrupt the production of one JMF in order to produce different material; this type of interruption will not alter the determination of the size or limits of material represented by a lot. The Engineer will evaluate each lot on a sublot basis. The size for each sublot shall be 100 to 500 tons and testing for the sub lots will be completed on a daily basis. For each sublot, the Engineer will evaluate one sample.

The target size of sub-lots within each lot, except for the first sample of the production day, is equal-sized 500 ton sub lots and will be based upon anticipated production, however, more or fewer sublots, with differing sizes, may result due to the production schedule and conditions. If the actual production is less than anticipated, and it's determined a sample will not be obtained (based upon the anticipated tonnage), a new sample location will be determined on a statistically random, unbiased basis based upon the new actual production. If the actual production is going to be 50 tons or greater over the anticipated sub lot production, a new sample location will be determined on a statistically random, unbiased basis based upon the new actual production. The Engineer will combine the evaluation and test results for all of the applicable sublots in order to evaluate each individual lot.

If the Engineer is present, and the quantity exceeds 25 tons, a statistically random sample will be used for analysis. When the anticipated production is less than 100 tons and greater than 25 tons, and the Engineer is not present, the contractor shall randomly select a sample using the Engineer=s random location program. The captured sample shall be placed in a suitable box, marked to the attention of the Engineer, and submitted to the Engineer for testing. A box sample shall also be obtained by the contractor at the same time and will be used as the Dispute Resolution sample if requested by the Engineer. The Contractor shall also obtain one liquid asphalt sample (1 pint) per grade of asphalt used per day and properly label it with all pertinent information.

The Engineer will conduct the following tests in order to characterize the material for the pavement compaction quality and to judge acceptance and the pay adjustment for the material:

- AASHTO T312 - Preparing and Determining the Density of Hot Mix Asphalt (HMA) Specimens by Means of the Superpave Gyratory Compactor
- AASHTO T166, Method C (Rapid Method) - Bulk Specific Gravity of Compacted Hot Mix Asphalt (HMA) Using Saturated Surface Dry Specimens
- AASHTO T308 - Determining the Asphalt Binder Content of Hot Mix Asphalt (HMA) by the Ignition Method
- AASHTO T30 - Mechanical Analysis of Extracted Aggregate
- AASHTO T209 - Theoretical Maximum Specific Gravity and Density of Hot Mix Asphalt (HMA)
- ASTM D7227 - Standard Practice for Rapid Drying of Compacted Asphalt Specimens using Vacuum Drying Apparatus

(b) Pavement Construction - Tests and Evaluations.

The Engineer will directly base acceptance on the compaction acceptance test results, and on the inspection of the construction, the Contractor's QC Plan work, ride smoothness as referenced in the contract

documents, lift thickness as referenced in the contract documents, joint quality as referenced in the contract documents, surface texture as referenced in the contract documents, and possibly the comparisons of the acceptance test results to the independent test results. For the compaction acceptance testing, the Engineer will sample the work on a statistically random basis and will test and evaluate the work based on daily production.

Notify the Engineer of any locations within that road segment that may not be suitable to achieve minimum (93%) compaction due to existing conditions prior to paving the road segment. Schedule and hold a meeting in the field with the Engineer in order to discuss all areas that may potentially be applicable to Table 5a before paving starts. Areas that will be considered for Table 5a will be investigated in accordance with the method described in Appendix B. If this meeting is not held prior to paving, no areas will be considered for Table 5a. Areas of allowable exemptions that will not be cored include the following: partial-depth patch areas, driveway entrances, paving locations of less than 100 tons from cold joint to cold joint, areas around manholes and driveway entrances, and areas of paving that are under 400 feet in continuous total length and/or 5 feet in width.

The exempt areas around manholes will be a maximum of 4 feet transversely on either side from the center of the manhole, and 20 feet longitudinally on either side from the center of the manhole. The exempt areas around driveway entrances shall be the entire width of the driveway, and 3 feet from the edge of the longitudinal joint next to the driveway. Areas of exemption that will be cored for informational purposes only include: areas where the mat thickness is less than three times the nominal maximum aggregate size as directed by the Engineer, violations of Section 401.08 in the Standard Specifications as directed by the Engineer, and areas shown to contain questionable subgrade properties as proven by substantial yielding under a fully legally loaded truck. Failure to obtain core samples in these areas will result in zero payment for compaction regardless of the exempt status.

The Engineer will evaluate and accept the compaction work on a daily basis. Payment for the compaction will be calculated by using the material production lots as referenced in **.02 Acceptance Plan (a) Material Production - B Tests and Evaluation** and analyzing the compaction results over the individual days covered in the material production lot. The compaction results will be combined with the material results to obtain a payment for this item.

The minimum size of a compaction lot shall be 100 tons. If the compaction lot is between 101 and 1000 tons, the Engineer shall randomly determine four compaction acceptance test locations. If the compaction lot is between 1001 and 1500 tons, the Engineer shall randomly determine six compaction acceptance test locations. If the compaction lot is between 1501 and 2000 tons, the Engineer shall randomly determine eight compaction acceptance test locations. If the compaction lot is greater than 2000 tons, the Engineer shall randomly determine two compaction acceptance test locations per 500 tons.

If a randomly selected area falls within an Engineer approved exemption area, the Engineer will select one more randomly generated location to be tested per the requirements of this Specification. If that cannot be accomplished, or if an entire location has been declared exempt, the compaction testing shall be performed as per these Specifications, but a note will be added to the results that the location was an Engineer approved exempt location.

Testing locations will be a minimum of 1.0 feet from the newly placed longitudinal joint and 50 feet from a new transverse joint. Cut one six (6) inch diameter core through the full lift depth at the exact location marked by the Engineer. Cores submitted that are not from the location designated by the Engineer will not be tested and will be paid at zero pay. Notify the Engineer prior to starting paving operations with

approximate tonnage to be placed. The Contractor is then responsible for notifying the appropriate Engineer test personnel within 12 hours of material placement. The Engineer will mark core locations within 24 hours of notification. After determination of locations, the Contractor shall complete testing within two operational days of the locations being marked. If the cores are not cut within two operational days, the area in question will be paid at zero-pay for compaction testing.

Provide any traffic control required for the structural number investigation, sampling, and testing work at no additional cost to the Department. Commence coring of the pavement after the pavement has cooled to a temperature of 140°F or less. Cut each core with care in order to prevent damaging the core. Damaged cores will not be tested. Label each core with contract number, date of construction, and number XX of XX upon removal from the roadway Place cores in a 6-inch diameter plastic concrete cylinder mold or approved substitute for protection. Separate cores in the same cylinder mold with paper. Attach a completed QC test record for the represented area with the corresponding cores. The Engineer will also complete a test record for areas tested for the QA report and provide to Materials & Research. Deliver the cores to the Engineer for testing, processing, and report distribution at the end of each production day. Repair core holes per Appendix A, Repairing Core Holes in Bituminous Asphalt Pavements. Core holes shall be filled immediately. Failure to repair core holes at the time of coring will result in zero pay for compaction testing for the area in question.

The Engineer will conduct the following tests on the applicable portion of the cores in order to evaluate their quality:

- AASHTO T166, Method C (Rapid Method) B Bulk Specific Gravity of Compacted Hot Mix Asphalt (HMA) Using Saturated Surface Dry Specimens
- AASHTO T209 - Theoretical Maximum Specific Gravity and Density of Hot Mix Asphalt
- ASTM D7227 - Standard Practice for Rapid Drying of Compacted Asphalt Specimens using Vacuum Drying Apparatus

The Engineer will use the average of the last five test values of the same JMF (mixture ID) material at the production plant in order to calculate the average theoretical maximum specific gravity of the cores. The average will be based on the production days test results and as many test results needed from previous days' production to have an average of five samples. If there are less than five values available, the Engineer will use the JMF design value in addition to the available values to calculate the average theoretical maximum specific gravity.

.03 Payment and Pay Adjustment Factors

The Engineer will determine pay adjustments for the bituminous asphalt item(s) in accordance with this specification. The Engineer will determine a pay adjustment factor for the material produced and a pay adjustment factor for the pavement construction. Pay adjustments for material and construction will be calculated independently. When the pay adjustment calculation for either material or construction falls to zero payment per tables 4, 5, or 5a, the maximum pay adjustment for the other factor will not exceed 100.

Pay Adjustment factors will only be calculated on in place material. Removed material will not be used in payment adjustment calculations. Material Production Pay Adjustments will be calculated based upon 70% of the contract unit price and calculated according to section .03(a) of this specification. Pavement construction Pay Adjustments will be calculated based upon 30% of the contract unit price and

calculated according to section .03(b) of this specification.

(a) Material Production - Pay Adjustment.

Calculate the material pay adjustment by evaluating the production material based on the following parameters:

Table 2 - Material Parameter Weight Factors		
Material Parameter	**Single Test Tolerance (+/-)**	**Weight Factor**
Asphalt Content	0.4	0.30
#8 Sieve (>=19.0 mm)	7.0	0.30
#8 Sieve (<=12.5 mm)	5.0	0.30
#200 Sieve (0.075mm Sieve)	2.0	0.30
Air Voids (4.0% Target)	2.0	0.10

Using the JMF target value, the single test tolerance (from Table 2), and the test values, the Engineer will use the following steps to determine the material pay adjustment factor for each lot of material:

1. For each parameter, calculate the mean value and the standard deviation of the test values for the lot to the nearest 0.1 unit.
2. For each parameter, calculate the Upper Quality Index (QU):
   QU = ((JMF target) + (single test tolerance) - (mean value)) / (standard deviation).
3. For each parameter, calculate the Lower Quality Index (QL):
   QL = ((mean value) - (JMF target) + (single test tolerance)) / (standard deviation).
4. For each parameter, locate the values for the Upper Payment Limit (PU) and the Lower Payment Limit (PL) from Table 3 - Quality Level Analysis by the Standard Deviation Method. (Use the column for An@ representing the number of sublots in the lot. Use the closest value on the table when the exact value is not listed).
5. Calculate the PWL for each parameter from the values located in the previous step:
   PWL = PU + PL - 100.
6. Calculate each parameter=s contribution to the payment adjustment by multiplying its PWL by the weight factor shown in Table 2 for that parameter.
7. Add the calculated adjustments of all the parameters together to determine the Composite PWL for the lot.
8. From Table 4, locate the value of the Pay Adjustment Factor corresponding to the calculated PWL. When all properties of a single test are within the single test tolerance of Table 2, Pay Adjustment factors shall be determined by Column B. When any property of a single test is outside of the Single Test Tolerance parameters defined in Table 2, the Material Pay Adjustment factor shall be determined by Column C.
9. For each lot, determine the final material price adjustment:

Final Material Pay Adjustment =

(Lot Quantity) x (Item Bid Price) x (Pay Adjustment Factor) x 70%. This final pay calculation will be paid to the cent.

In lieu of being assessed a pay adjustment penalty, the Contractor may choose to remove and replace the material at no additional cost to the Department. When the PWL of any material parameter in Table 2 is below 60, the Engineer may require the removal and replacement of the material at no additional cost to the Department. Test results on removed material shall not be used in calculation of future PWL calculations for Mixture ID.

The test results from the Engineer on production that is less than 100 tons will be combined with the two most recently completed Engineer tests with the same Mixture ID to calculate payment for the lot encompassing the single test. If that cannot be accomplished, the approved JMF will be used to calculate payment for the lot encompassing the single test. Payment for previously closed lots will not be affected by the analysis.

When a sample is outside of the allowable single test tolerance for any Materials criteria in Table 2, that sample will be isolated. For payment purposes, the test result of the out of acceptable tolerance sample will be combined with the two previous acceptable samples of the same JMF and analyzed per this specification. The material that is considered out of the acceptable tolerance will only include the material within the represented sub-lot (i.e., a maximum of 500 tons). If the previous acceptable test result is from the previous production day, only the material produced on the second production day will be considered out of tolerance. All future sub lots will not include the isolated test. The pay factors for the out of tolerance sample lot will be calculated using column C of table 4.

If, during production, a QA sample test result does not meet the acceptable tolerances and the Contractors QC sample duplicates the QA sample test result, the Contractor can make an appropriate change to the mixture (within the JMF boundaries), and request to have that sample further isolated. After the Contractor has made appropriate changes, the Contractor will visually inspect each produced load. The first visually acceptable load will be sampled and tested. If that sample test result shows compliance with the specifications, the material that is considered out of the acceptable tolerance will include the material from the previous acceptable test result to the third load after the initially sampled and tested sample. If the sample does not meet the specification requirements, the Engineer will no longer accept material. Production may resume when changes have been made and an acceptable sample and test result is obtained.

Table 3 B Quality Level Analysis by the Standard Deviation Method

	QU and QL for An@ Samples						
PU or PL	**n = 3**	**n = 4**	**n = 5**	**n = 6**	**n = 7**	**n = 8**	**n = 9**
100	1.16	1.50	1.79	2.03	2.23	2.39	2.53
99	-	1.47	1.67	1.80	1.89	1.95	2.00
98	1.15	1.44	1.60	1.70	1.76	1.81	1.84
97	-	1.41	1.54	1.62	1.67	1.70	1.72
96	1.14	1.38	1.49	1.55	1.59	1.61	1.63
95	-	1.35	1.44	1.49	1.52	1.54	1.55

94	1.13	1.32	1.39	1.43	1.46	1.47	1.48
93	-	1.29	1.35	1.38	1.40	1.41	1.42
92	1.12	1.26	1.31	1.33	1.35	1.36	1.36
91	1.11	1.23	1.27	1.29	1.30	1.30	1.31
90	1.10	1.20	1.23	1.24	1.25	1.25	1.26
89	1.09	1.17	1.19	1.20	1.20	1.21	1.21
88	1.07	1.14	1.15	1.16	1.16	1.16	1.17
87	1.06	1.11	1.12	1.12	1.12	1.12	1.12
86	1.04	1.08	1.08	1.08	1.08	1.08	1.08
85	1.03	1.05	1.05	1.04	1.04	1.04	1.04
84	1.01	1.02	1.01	1.01	1.00	1.00	1.00
83	1.00	0.99	0.98	0.97	0.97	0.96	0.96
82	0.97	0.96	0.95	0.94	0.93	0.93	0.93
81	0.96	0.93	0.91	0.90	0.90	0.89	0.89
80	0.93	0.90	0.88	0.87	0.86	0.86	0.86
79	0.91	0.87	0.85	0.84	0.83	0.82	0.82
78	0.89	0.84	0.82	0.80	0.80	0.79	0.79
77	0.87	0.81	0.78	0.77	0.76	0.76	0.76
76	0.84	0.78	0.75	0.74	0.73	0.73	0.72
75	0.82	0.75	0.72	0.71	0.70	0.70	0.69
74	0.79	0.72	0.69	0.68	0.67	0.66	0.66
73	0.75	0.69	0.66	0.65	0.64	0.63	0.63
72	0.74	0.66	0.63	0.62	0.61	0.60	0.60
71	0.71	0.63	0.60	0.59	0.58	0.57	0.57
70	0.68	0.60	0.57	0.56	0.55	0.55	0.54
69	0.65	0.57	0.54	0.53	0.52	0.52	0.51
68	0.62	0.54	0.51	0.50	0.49	0.49	0.48
67	0.59	0.51	0.47	0.47	0.46	0.46	0.46
66	0.56	0.48	0.45	0.44	0.44	0.43	0.43
65	0.52	0.45	0.43	0.41	0.41	0.40	0.40
64	0.49	0.42	0.40	0.39	0.38	0.38	0.37
63	0.46	0.39	0.37	0.36	0.35	0.35	0.35

62	0.43	0.36	0.34	0.33	0.32	0.32	0.32

Table 3 B Quality Level Analysis by the Standard Deviation Method							
	QU and QL for An@ Samples						
PU or PL	n = 3	n = 4	n = 5	n = 6	n = 7	n = 8	n = 9
61	0.39	0.33	0.31	0.30	0.30	0.29	0.29
60	0.36	0.30	0.28	0.27	0.27	0.27	0.26
59	0.32	0.27	0.25	0.25	0.24	0.24	0.24

Table 4 - PWL Pay Adjustment Factors		
PWL	Pay Adjustment Factor (%) Column B	Pay Adjustment Factor (%) Column C
100	+5	0
99	+4	-1
98	+3	-2
97	+2	-3
96	+1	-4
95	0	-5
94	-1	-6
93	-2	-7
92	-3	-8
91	-4	-9
PWL<91	PWL - 100	PWL - 100

(b) Pavement Construction - Pay Adjustments.

The Engineer will determine the pavement construction pay adjustment by evaluating the construction of the pavement, based on the following parameter:

- Degree of compaction of the in-place material

Using the test values for the cores, the Engineer will use the following steps to determine the pavement construction pay adjustment for each lot of work.

1. Calculate the core bulk specific gravity values from the sublot tests values, to the nearest 0.001 unit. Obtain the Theoretical maximum Specific Gravity values from the corresponding laboratory sublot tests.
2. Calculate the Degree of Compaction:
   Degree of Compaction =
   ((Core Bulk Specific Gravity) / (Theoretical Maximum Specific Gravity)) x 100% recorded to the nearest 0.1%.
3. The average compaction for the sublots shall be averaged together for the compaction level of the lot. The lots compaction test level shall be averaged and recorded to the nearest whole percent.
4. Locate the value of the Payment Adjustment Factor corresponding to the calculated degree of compaction from Table 5 or Table 5a.

5. Determine the pavement construction price adjustment by using the following formula:
   Construction Pay adjustment = (Lot Quantity) x (Bid Price) x (Pay Adjustment Factor) x 30%.

Table 5: Compaction Price Adjustment Highway Locations

Degree of Compaction (%)	Range	Pay Adjustment Factor (%)*
>= 97.0	>= 96.75	1
96.5	96.26 B 96.74	1
96.0	95.75 B 96.25	1
95.5	95.26 B 95.74	1
95.0	94.75 B 95.25	1
94.5	94.26 B 94.74	1
94.0	93.75 B 94.25	1
93.5	93.26 B 93.74	3
93.0	92.75 B 93.25	5
92.5	92.26 B 92.74	3
92.0	91.75 B 92.25	0
91.5	91.26 B 91.74	0
91.0	90.75 B 91.25	-5
90.5	90.26 B 90.74	-15
90.0	89.75 B 90.25	-20
89.5	89.26 B 89.74	-25

89.0	88.75 B 89.25	-30
88.5	88.26 B 88.74	-50
=<88.0	=<88.25	-100*

*remove and replace it at Engineer's discretion for Pay adjustment factor equal to -100% or breaking the mat by crushing aggregate or displacing mixture.

Table 5A: Compaction Price Adjustment Other[1] Locations		
Degree of Compaction	Range	Pay Adjustment Factor (%)*
>= 97.0	>= 96.75	1
96.5	96.26 B 96.74	1
96.0	95.75 B 96.25	1
95.5	95.26 B 95.74	1
95.0	94.75 B 95.25	1
94.5	94.26 B 94.74	1
94.0	93.75 B 94.25	1
93.5	93.26 B 93.74	1
93.0	92.75 B 93.25	3
92.5	92.26 B 92.74	1
92.0	91.75 B 92.25	0
91.5	91.26 B 91.74	0
91.0	90.75 B 91.25	0
90.5	90.26 B 90.74	0
90.0	89.75 B 90.25	0
89.5	89.26 B 89.74	0
89.0	88.75 B 89.25	-1
88.5	88.26 B 88.74	-3
88.0	87.75 B 88.25	-5
87.5	87.26 B 87.74	-10
87.0	86.75 B 87.25	-15
86.5	86.26 B 86.74	-20
86.0	85.75 B 86.25	-25
85.5	85.26 B 85.74	-30
85.0	84.75 B 85.25	-40

84.5	84.26 B 84.74	-50
=< 84.0	=<84.25	-100*

* remove and replace at Engineer's discretion for Pay adjustment factor equal to -100% or breaking the mat by crushing aggregate or displacing mixture.

[1]This chart is to be used for areas where the structural value of the area to be paved is less than 1.75 as determined by the Engineer. See Appendix B - Method for Obtaining Cores for Determination of Roadway Structure. This chart is applicable to rehabilitation work only; full depth construction will not be considered for Table 5a.

.04 Dispute Resolution

Disputes or questions about any test result shall be brought to the attention of the Contractor and the Engineer within two operational days of reported test results. The following dispute resolution procedures will be used. The Engineer and the Contractor will review the sample quality, the test method, the laboratory equipment, and the laboratory technician. If these factors are not the cause of the dispute, a third-party dispute resolution will be used.

Third party resolution testing can be performed at either another Contractor=s laboratory, the Engineer=s laboratory, or an independent accredited laboratory. Unless otherwise mutually agreed upon by DAPA and the Engineer, the Engineer=s qualified laboratory in Dover and qualified personnel shall conduct the necessary testing for third party Dispute Resolution after the Engineer has provided reasonable notice to allow the Contractor to witness this testing. When disputes over production testing occur, the samples used for Dispute Resolution testing will be those samples the properly captured, labeled, and stored, as described in the second paragraph of the section of these specifications titled **.02 Acceptance Plan, (a) Material Production - Tests and Evaluations**. If no samples are available, the original testing results will be used for payment calculations.

Dispute Resolution samples for air void content will be heated by a microwave oven.

If there is a discrepancy between the Engineer=s acceptance test result and the Contractor=s test result, the Contractor may ask for the Dispute Resolution sample to be tested. The Contractor may request up to two dispute resolution samples be tested per calendar year without charge. Any additional Dispute Resolution samples run at the Contractors request where the results substantiate the acceptance test result will be assessed a fee of $125. Any additional Dispute Resolution samples that substantiate the Contractors test result will not be assessed the fee.

When disputes over compaction core test results occur, the Engineer=s acceptance core will be used for the dispute resolution sample. The Contractor will be advised on when the testing will occur as referenced above to witness the testing. The results of the dispute resolution testing shall replace all of the applicable disputed test results for payment purposes.

Appendix A - Repairing Core Holes in Bituminous Asphalt Pavement

Description.

This appendix describes the procedure required to repair core holes in a bituminous concrete pavement.

Materials and Equipment.

The following material shall be available to complete this work:

- Patch Material - DelDOT approved High Performance Cold Patch material shall be used.

The following equipment shall be available to complete this work:

- Sponge or other absorbent material - Used to extract water from the hole.
- Compaction Hammer - mechanical (electrical, pneumatic, or gasoline driven) tamping device with a flat, circular tamping face smaller than 6 inches in diameter.

Construction Method.

After core removal from the hole, remove all excess water from within the hole, and prevent water from re-entering the hole.

Place the patch material in lifts no greater than 3 inches and compact with mechanical tamping device. If the hole is deeper than 3 inches, use two lifts of approximately equal depths so that optimum compaction is achieved. Make sure that the patch surface matches the grade of the existing roadway. Make every effort to achieve the greatest possible compaction

Performance Requirements.

The Engineer will judge the patch on the following basis:

- The patch shall be well compacted
- The patch surface shall match the grade of the surrounding roadway surface.

Basis of Payment.

No measurement or payment will be made for the patching work. The Contractor must gain the Engineer=s acceptance of the patching work before the Engineer will accept the material represented by the core.

Appendix B - Method for Obtaining Cores for Determination of Roadway Structure

The Contractor is responsible for obtaining cores in areas that they propose are eligible for compaction price adjustments according to Table 5a in this specification. Table 5a is not applicable for new full-depth pavement box construction. Cores submitted for this process shall be obtained according to the following process.

1. Contact Materials & Research (M&R) personnel to determine if information about the area is already available. If M&R has already obtained cores in the location that is being investigated, the contractor may opt to use the laboratory information for the investigation and not core the area on their own.

2. If M&R does not have information concerning the section of the roadway, the contractor needs to contact M&R to arrange for verification of coring operations. Arrangements shall be made to allow for an individual from M&R to be on the site when the cores are obtained. Cores will be turned over to M&R for evaluation.

3. The Contractor is responsible for providing all traffic control and repairing core holes in accordance to 401699 Appendix A - Repairing Core Holes in Bituminous Asphalt Pavements.

4. Cores are to be taken throughout the entire project for the area in question. Cores will be spaced, from the start of the project in increments determined based on field and project specifics. Cores will be evenly distributed throughout the project location. The cores will be taken in the center of the lane in question.

5. Additional cores may be taken at other locations, if surface conditions indicate that there may be a substantial difference in the underlying section. The location of these cores should be documented and submitted to M&R.

6. Cores shall be full depth and include underlying materials. If there is a stone base included in the pavement section, at a minimum 1 core must have information concerning the thickness of the base. This is determined by augering to the subgrade surface.

7. The calculations used to determine the structural capacity of the roadway is as follows. If the contractor finds, upon starting the coring process, that the areas are of greater thickness than applicable to Table 5a, they may terminate the coring process on their own and retract the request.

Structural Number Calculations

Each pavement box material is assigned a structural coefficient based upon AASHTO design guides. The structural coefficient is used to determine the total strength of the pavement section.

Materials used in older pavement sections are assigned lower structural coefficients to compensate for aging of the materials. The coefficients used to determine the structural number of an existing pavement are:

Existing Material	Structural Coefficient
HMA	0.32
Asphalt Treated Base	0.26
Soil Cement	0.16
Surface Treatment (Tar & Chip)	0.10
GABC	0.14
Concrete	0 - 0.7*

* The Structural Coefficient of Concrete is dependent upon the condition of the concrete. Compressive strengths & ASR analysis are used to determine condition - contact the Engineer if this situation arises.

Newly placed materials use a different set of structural coefficients. They are as follows:

New Material	Structural Coefficient
HMA	0.40
Asphalt Treated Base (BCBC)	0.32
Soil Cement	0.20
GABC	0.14

Example:

Location includes placement of a 1.25" Type C overlay on 2.25" Type B. Existing roadway is cored and is shown to consist of 2" HMA on 7" GABC.

Calculation:

For the Type B lift the calculation would be:

Existing HMA	2 * 0.32	=	0.64
GABC	7 * 0.14	=	0.98
			1.62

For the Type C lift the calculation would be:

Newly Placed B	2.25 * 0.4	=	0.90
Existing HMA	2 * 0.32	=	0.64
GABC	7* 0.14	=	0.98
			2.52

4/21/2026

403500 - POLYMER-MODIFIED HIGH PERFORMANCE SLURRY SEAL, (TON)

403501 - POLYMER-MODIFIED HIGH PERFORMANCE SLURRY SEAL, (SQUARE YARDS)

Description:

Provide and construct a polymer-modified emulsion paving system on a prepared foundation.

Item 403500 is used where a variable thickness of material is required such as a leveling course; item 403501 is used where a uniform thickness of material is to be placed.

Materials:

A. Bituminous Materials:

	Type	*Quick-Setting*			
		CQS-2hL[g]		**CQS-2L[g]**	
	Grade	Min	Max	Min	Max
Test on emulsified asphalt:	Viscosity, Saybolt Furol at 50˚C (122˚F). S [b,c]	100	400	100	400
	Or				
	Viscosity, Rotational Paddle at 50˚C (122˚F). mPa. S [b,c]	200	800	200	800
	Storage Stability Test. 24 h. % b,c		1		1
Demulsibility:					
	35 mL. 0.8% Sodium Dioctyl Sulfosuccinate. % [b]	40		40	
	Particle charge test	Positive		Positive	
	Sieve test. % [b,c]		0.1		0.1
Distillation:					
	Residue. % [d]	65		65	
Test on residue from distillation:					
	Penetration. 25˚C (77˚F). 100 g. 5 s. 0.1 mm	40	90	90	200
	Elastic Recovery. 25˚C (77˚F). Straight Sided. 5 cm/min. 20 cm elongation. 5 min hold. %[f]	65	70	65	70
	Softening Point, Ring & Ball (˚F) (AASHTO T-53)	150	160	150	160
	Ash Content. %		1		1

a Refer to R 5 for typical applications

b This test requirement and associated specification limits are waived for emulsified asphalt products following dilution.

c This test requirement on representative samples may be waived if successful applications of the material has been achieved in the field.

d For emulsions that are diluted, the percent residue requirements must be adjusted accordingly.

e For information on residue from evaporation, See Section 5.1.2.

f Elastic Recovery at 50˚F may be used as an alternate if approved by the owner.

g By certification of compliance, the minimum polymer solids by percent mass of residual asphalt content shall be 3% for latex and rubber.

Note: Latex may not be substituted by another polymer unless directed and approved by the engineer.

B. Mineral Filler: AASHTO M 17, hydrated lime, or non-air-entrained portland cement Type I meeting AASHTO M 85

C. Field Control Additive: Liquid additive compatible with the Bituminous emulsion used to control the set time of the slurry mix in order to meet return to traffic time requirements

D. Tack Coat: Bituminous materials conforming to this specification that may be diluted in accordance with manufacturer recommendations at the rates in section C.8 of this specification.

E. Water: Section 1021

F. Aggregate: Use mineral aggregate that is the type specified for the particular application requirements of the slurry mixture. The aggregate shall be a crushed stone such as granite, slag, limestone, chat, or other high-quality aggregate, or combination thereof. To assure the material is 100 percent crushed, the parent aggregate shall be larger than the largest stone in the gradation used. The use of gravel or crushed gravel will not be permitted.

1. All aggregate should meet these minimum requirements:

TEST	AAHSTO TEST	SPECIFICATION
Sand Equivalent Value of Soils and Fine Aggregate	T 176	65 Minimum
Soundness of Aggregates by Use of Sodium Sulfate of Magnesium Sulfate	T 104	15% Maximum w/NA2SO4 25% Maximum w/MgSO4

Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine*	T 96	30% Maximum

*The abrasion test is run on the parent aggregate.

G. Mix Design: Prepare and submit a job mix formula (JMF) including all materials, methods and proportions to the engineer for approval prior to the start of work. Submit test results for review a minimum of 10 days before application. Include aggregate type and gradation and percentages of polymer-modified emulsion, water, cement by dry aggregate weight, and the design cure time.
   1. JMF acceptance is subject to satisfactory field performance;
   2. Unsatisfactory field performance requires re-design and re-submittal of the JMF design for approval.
   3. Formulate with a minimum polymer content, based on asphalt weight, of 3 percent;
   4. Formulate so a 1-inch thick application, at a maximum 50 percent humidity and 75°F minimum ambient air temperature, supports rolling traffic without surface damage after a 1-hour cure
   5. Submit a revised JMF design when changes occur in the source or the qualities of the component materials.
   6. The exact proportions used in the preparation of the slurry seal shall be determined by a testing laboratory, experienced in slurry seal JMF design procedures. Identify the proportions and gradations of all component materials for the JMF design with a single percentage.
      a. Bituminous Material. Identify the type (such as natural latex rubber, styrene-butadiene rubber, styrene-butadiene-styrene, or ethylene-butadiene-styrene) and percentage of modifier on the certificate of analysis.
         i. Ensure the mixed emulsified asphalt shall not separate;
         ii. Do not allow the temperature of the material to exceed 120°F;
         iii. Accompany each shipment of emulsified asphalt with a certificate of analysis/compliance from the manufacturer.
         iv. The emulsion modifier shall be adjusted at the emulsion manufacturer's facility.
         v. The specific gravity of each shipment of bituminous material shall be determined by the Contractor and provided with each shipment.
      b. Field Control Additive. An additive may be added to the mixture in order to provide an altered set time.
         i. The additive must be identified (such as the emulsifier type) and be included as part of the JMF design submission.

ii. Ensure with the certification of analysis that the additive was tested and demonstrated compatible with all the other components of the mixture.

c. Gradation. The JMF design aggregate gradation including the mineral filler must be within one of the following bands when tested in accordance with AASHTO T27 and AASHTO T11.

SCREEN SIZE	TYPE B (% Passing)	TYPE C (% Passing)	RUTFILLING (% Passing)
No. 3/8	100	100	100
No. 4	90-100	70-95	70-95
No. 8	65-90	45-70	45-70
No. 16	45-70	32-54	32-54
No. 30	30-50	23-38	23-38
No. 50	18-33	16-29	16-29
No. 100	10-21	9-20	9-20
No. 200	5-15	5-12	5-12

7. The JMF gradation shall be within the gradation band for the desired type. After the target gradation has been submitted (this should be the gradation that the JMF is based on), then the percent passing each sieve shall not vary by more than the stockpile tolerance shown in the above table for each individual sieve, and still remain within the gradation band. It is recommended that the percent passing shall not go from the high end to the low end of the range for any two consecutive screens.

   a. Screen the stockpile prior to delivery to the paving machine. Screen through a 3/8-inch sieve.

   b. Submit laboratory test results ensuring that the proposed mixture conforms to the requirements of the following referenced International Slurry Surfacing Association standard test methods:

Test Method	Property	Requirements
TB100	Wet Track Abrasion Loss - 1 hour soak Wet Track Abrasion Loss - 6 day soak	50 g/sq ft max 75 g/sq ft max
TB102	Mixing, Setting, and Water Resistance	10 minute, maximum, clear water set time
TB113	Mix Time 77°F	Controllable to 120 seconds, minimum

TB114	Wet Stripping	Pass, 90% minimum
TB139	Wet Cohesion - 30 Minutes Wet Cohesion - 60 Minutes	12 kg-cm, minimum 20 kg-cm, minimum
TB144	Classification Compatibility	11 grade points, minimum
TB147A	Loaded Wheel Test	5% lateral displacement, maximum 2.10 compacted specific gravity

Proportioning of the mix design shall be within the following limits:

	Type B	Type C	Rutfilling
% Residual Asphalt (by wt. of dry aggr.)	5.5 - 10	5.5 - 10	4.5 - 10
% Mineral Filler	0.26 - 3.00	0.25 - 3.00	0.25 - 3.00
% Latex Modified-Solids (by wt. of residual asp.)	3.0 Min.	3.0 Min.	3.0 Min.
Additive	As Required	As Required	As Required

c. The amount of field control additive, when used, shall be identified with a specific percentage value. If the amount is expected to change to another value for specific conditions anticipated on the project site, the mix proportions and the auxiliary value shall be considered a separate JMF. The specific conditions that cause a change to the auxiliary JMF shall be identified with the submission of the proposed JMF. The allowable production tolerance for the amount of field control additive shall be based on acceptable performance in the field.

d. Water shall be added during the material mixing to produce the needed mix consistency. The optimum amount of water can be determined during mix design, however, it is understood that this value may be changed in the field due to ambient humidity, wind, air temperature, moisture absorbed by the pavement, etc. The mixture shall be homogeneous, free of excess water or emulsion, free of segregation of emulsion, and free of segregation of aggregate sizes.

e. The mixture shall also have satisfactory workability and performance when placed in a test strip. Requirements for the test strip construction are in the Equipment section of this specification. If a change occurs in the source or the qualities of the component materials, a revised JMF shall be submitted. When unsatisfactory results or other conditions make it necessary, a revised JMF shall be developed and submitted by the Contractor.

Construction Methods:

A. Weather Limitations.
   1. Place slurry seal material when the following conditions apply:
      a. Minimum air temperature is 50 degree F and rising;
      b. The surface must be dry;
      c. 24 hour forecast predicts temperatures above 40°F after application;
      d. Surface temperature is at least 50 degree F; and
      e. Rain is not imminent within 24 hours.
   2. If the temperature is expected to be over 95 degree F the contractor must inform the engineer of their methods to control set times and must obtain approval from the engineer prior to placing material.

B. Aggregate and Asphalt.
   1. Weigh aggregate before delivery to roadway. Proportion emulsified asphalt by weight.
   2. Submit the following signed, written reports to the engineer for each staging location:
      a. A report indicating the amount of aggregate and emulsion delivered, aggregate and emulsion used on the project, and the amount of area in square yards completed.
      b. A report indicating the percentage of emulsion used to aggregate used and the application rate in pounds of aggregate applied per square yard of area covered. This report shall verify compliance with the mixture of materials to the mix design and the specified aggregate application rate.
   3. Submit to the engineer, from the aggregate and emulsion suppliers, an original copy of the bill of lading weekly for each delivery of material to be used on the project. Submit with each emulsion bill of lading a certificate of analysis from the emulsion supplier verifying that each delivery of emulsion is in compliance with the contract requirements.

C. Preparing Existing Surface.
   1. Clean/clear the roadway surface of all loose aggregate, rubber from skid marks, vegetation, dirt, mud, free water, and any other foreign material.
   2. Clear vegetation and debris from edges of road.
   3. Scrub and remove extensive grease spots or saturated oil from the pavement surface with industrial detergent and/or use acrylic sealers for severe problem areas.
   4. Fill/seal cracks greater than 1/4-inch.
   5. Completely remove thermoplastic markings.

6. Grind all traffic paint lines to remove paint not tightly bonded to the surface or to reduce the thickness of paint lines with excessive build up. Care should be taken to not damage crack sealing.
7. Where necessary use the slurry material to fill potholes, utility cuts, and ruts with the mixture to restore roadway cross section.
    a. Use of a rut-filling box is required to fill ruts/cuts of 1/2-inch, or greater in depth.
    b. Ruts in excess of 1 1/2-inch in depth require multiple applications with the rut-filling box to restore the cross-section.
    c. When rutting or deformation is less than 1/2-inch, a full width scratch course may be applied with the spreader box using a metal or stiff rubber strike-off. Apply at a sufficient rate to level the pavement surface.
    d. All rut-filling and level-up material should cure under traffic for at least 24 hours before additional material is placed.
8. Apply tack coat on each location to receive slurry seal. The emulsified asphalt should be the slurry emulsion (CQS-2hL). Other grades of emulsion may be considered but it is the contractor's responsibility to demonstrate and ensure the tack emulsion is compatible with the slurry emulsion prior to use. The tack coat may consist of one part emulsified asphalt/one part water. Consult with the slurry emulsion supplier to determine dilution stability. Apply tack with a standard distributor capable of applying the dilution evenly at a rate of 0.10 gal/SY minimum. Allow tack to cure sufficiently before the application of slurry.

D. Equipment.
1. The mixing and placement equipment must be approved prior to use. The material shall be mixed by an automatically sequenced, self-propelled machine; it shall be capable of accurately proportioning and delivering all component materials to a revolving multi blade twin shaft pug mill type mixer; thoroughly mixing the component materials; and it shall be capable of discharging the mixture on a continuous flow basis.
2. The rate of water and field control additive shall be easily adjusted. Sufficient storage capacity shall be provided on the equipment for aggregates, bituminous material, mineral filler, field control additive, and water of adequate supply to the proportioning devices to maintain a continuous operation.
3. Calibrate and properly mark proportioning controls for easy verification, at a Department approved location; to the JFM proportion targets in the presence and to the satisfaction of the engineer prior to the start of the work. Check calibration whenever there is a question about the accuracy of the proportioning. Documentation is to be generated for the Engineer, including

individual calibrations of each material at various settings. A minimum of 3 runs for each material shall be performed. During calibration of the aggregate and the asphalt emulsion a minimum of 250 pounds of each material shall be dispensed continuously for each of the calibration runs. The controls for proportioning the mixture, including the components of water and field control additive, shall be readily visible to the engineer in order evaluate whether a change to the calibrated settings has occurred.

4. For each combination of equipment and JMF, prior to performing work measured for payment, an approved test strip shall be constructed. The minimum size of the test strip for each combination must be of 100 ft long and 12 ft wide and demonstrate the required specification conformance. It shall be placed in the same equipment, methods, mixes, and number of passes and spread rate specified for each location. If a test section proves to be unsatisfactory, the necessary adjustments to the mix design, equipment, and placement methods shall be made and a new test strip shall be made to verify conformance.
5. Proportion emulsified asphalt by weight.
6. Equip the mixing machine with a pressure water system and nozzle-type spray bars to provide a water spray to the tacked surface immediately ahead of and outside the spreader box.
7. Add filler at the loading facility or at the roadway. Provide a documented record of filler weight. Add Field Control additives according to the manufacturer's recommendations to meet field conditions and/or return to traffic times.
8. The mixing equipment shall also have an attached spreader box which is equipped with augers that agitate and spread the material evenly throughout the box. A front seal shall be provided to insure no loss of the mixture at the road contact point. A rear seal shall act as primary strike off and shall be height adjustable. The spreader box and rear strike off shall be designed so that a uniform pavement surface consistency is achieved; these shall be clean and not excessively worn. The spreader box shall be kept clean and buildup of asphalt and aggregate on the box shall not be permitted.
9. A secondary strike off shall be provided to improve surface texture. The secondary strike off shall have the same adjustments as the spreader box.
10. Roller
    a. Pneumatic rollers with all tires inflated to manufacturer recommended pressures. Tires shall be clean, smooth, and free of any deformation that would leave marks in the finished surface.

E. Applying Mixture.

1. The mixture shall be uniformly spread at a final total mix application rate of a minimum of 30 lbs/SY. This may be accomplished by placing two separate layers of material with each layer

being placed on the same or successive days at the sole discretion of the Engineer. When necessary, the materials shall be spread in variable thick cross sections, to fill in ruts and minor deformations, and to create a smooth riding, high skid resistant, roadway surface having a well draining cross slope.

2. Any area of the constructed surface which has a deviation, higher or lower that is greater than 3/16-inch from a 10 ft straightedge placed on the surface is unacceptable. No streaks, scratch marks, drag marks, tears, rippling, streaks, lumps, segregation, or other surface irregularities will be acceptable.
3. Handwork will be permitted only for those areas that cannot be reached with the mixing machine. Handwork must produce a surface finish and appearance similar to that produced by the spreader box.
4. No excess buildup, uncovered areas, or unsightly appearance shall be permitted on longitudinal or transverse joints. Transverse joints shall appear neat and uniform. The contractor shall provide suitable width spreading equipment to produce a minimum number of longitudinal joints throughout the project. Partial width passes will only be used when necessary and shall not be the last pass of any paved area. A maximum of 3-inch shall be allowed for overlap of longitudinal joints. Also, the joint shall have no more than a 1/4-inch difference in elevation when measured by placing a 10 ft straight edge over the joint and measuring the elevation difference. The edge lines shall be straight, no more than 2-inch variance in any 100 ft length.
5. The mix shall be placed to allow traffic on the constructed pavement surface within one hour without any pick up of material by the traffic. At intersections, or other points requiring earlier opening, the Contractor shall shorten the road closure time to a maximum of 15 minutes; a different amount of field control additive in the mixture may be used by the Contractor to meet this requirement.
6. Slurry seal shall be compacted with a smooth pneumatic tire roller with a minimum weight of 10 tons. Allow the slurry to set sufficiently that it does not pick up on the pneumatic tires. Roll all areas a minimum of 3 passes or until a uniform surface profile meeting the requirements of this specification is obtained.

F. Maintaining Traffic.

1. Meet traffic control plan.
2. Protect the slurry material from traffic damage until the mixture cures and shall not be damaged by traffic. Repair traffic damage to the slurry application before acceptance and at no cost to the Department.

Method of Measurement:

A. The Department will measure 403500 - Polymer-Modified High Performance Slurry Seal as the actual number of tons of polymer-modified High Performance Slurry Seal placed and accepted.
   1. The quantity will be based on the combined tonnage of aggregate, mineral filler, and emulsion used and accepted in place. The quantities will be computed as follows:
      a. Aggregate. Measure the quantity of aggregate using the calibrated, dry weight of aggregate control device.
      b. Mineral Filler. Compute this quantity from a count off the calibrated metering device for mineral filler.
      c. Emulsion. Compute the quantity of polymer-modified asphalt emulsion by weight used, as determined by the calibrated metering device.

B. The Department will measure 403501 - Polymer-Modified High Performance Slurry Seal as the actual number of square yards of polymer-modified High Performance Slurry Seal placed and accepted.
   1. The quantity will be determined by computations based on field measurements taken on and along the completed finished surfaces and verified by section B.2.a. and B.2.b. of the Construction Methods section of this specification. Multiple layers will not be measured separately.

C. The amount of field control additive will not be measured separately.

Basis of Payment:

A. The Department will pay for 403500 Polymer-Modified High Performance Slurry Seal at the contract unit price per ton.

B. The Department will pay for 403501 - Polymer-Modified High Performance Slurry Seal at the contract unit price per square yard.

C. Price and payment will constitute full compensation for:
   1. designing the mixture;
   2. mobilizing and providing all equipment, materials, and labor;
   3. preparing the foundation;
   4. cleaning the roadway surface;
   5. clearing the debris from the edge of the road;
   6. grinding of striping;
   7. placing the materials;
   8. tack coat;

9. protecting and repairing damage to the surface; and
10. for all incidentals necessary to complete the Work.

D. The Department will not pay for unsatisfactory test strips and required repairs.

E. The Department will pay for Thermoplastic marking removal under the respective items.

NOTE:

The Asphalt Cement Cost Adjustment for this item will be applied when the total emulsified asphalt used exceeds 15,850 gal. This note supersedes the Note with item 401502 - Asphalt Cement Cost Adjustment.

Slurry seal will not be placed between September 30th and May 1st without approval from the engineer.

6/2/2026

710503 – ADJUST GAS VALVE BOXES

Description:

This work consists of adjusting gas valve boxes.

Construction:

Adjust the gas valve box to be flush with the pavement surface in accordance with the contract or as directed by the engineer. Locate the valve box directly over the valve, plumb and level.

Method of Measurement:

The Department will measure the adjusting of gas valve boxes as the number of each adjusted.

Basis of Payment:

The Department will pay for the quantity of adjusted gas valve boxes at the contract unit price per each. Price and payment will constitute full compensation for all incidentals to complete the Work.

8/15/2024

760503 - PAVEMENT MILLING, PATCHING

Description:

This work consists of milling the existing bituminous concrete pavement patch areas at the locations and to the depths shown on the plans and/or as directed by the engineer.

Construction Methods:

Section 760 Pavement Milling of the Standard Specifications shall be applicable to this item, except the milled patch areas must be paved with material designated on the plans flush with the adjacent pavement prior to opening to traffic.

Method of Measurement:

A. The Department will measure the quantity of pavement milling, patching in square yard per inch of depth.

B. Any additional depth, not approved by the engineer in writing, will not be measured.

Basis of Payment:

A. The Department will pay for pavement milling, patching at the contract unit price per square yard per inch of depth. Price and payment will constitute full compensation for:

   1. Milling or planning the existing pavement;
   2. removing and disposing of milled material; and
   3. all labor, tools, equipment, and incidentals to complete the Work.

10/03/2022

763520 - ELECTRONIC TICKETING

Description:

This work consists of providing electronic data for material weight tickets delivered to the project. This work also consists of placing an identifying vehicle number on the driver side and the passenger or rear sides of the delivery vehicle. This does not preclude or dismiss any requirement for paper tickets required by the Standard Specifications or other rules and regulations.

General Requirements:

A. Send electronic tickets (eTicket) to the Department's Electronic Ticketing Portal https://tickets.deldot.gov as they are generated. The Department will reject any load that does not have a corresponding eTicket unless the cause is beyond the contractor's control. In such circumstances paper tickets may be permitted at the discretion of the engineer.

B. Payment for material weight delivered to the project will be based upon the eTickets marked *"Delivered",* less waste, excess material weight as noted in 105.12 of the Standard Specifications, and any audit corrections.

C. Do not reissue or reprint tickets that have been marked "*Delivered"* or *"Rejected"* without first notifying the engineer. The engineer may reject a reissued or reprinted ticket at their discretion. When a reissued or reprinted ticket is rejected, payment will be based upon the original ticket.

Data Integration:

Request a list of the Department's naming nomenclature. Include in the request an identification of what system the supplier utilizes for its load read-out weighing system. If necessary, create an Application Programming Interface (API) to integrate with the Department's eTicketing Portal. Utilize the API to provide electronic data from the load read-out weighing system at the material source that is readable by the Department's eTicketing Portal. Update the load read-out weighing system and API as necessary to maintain connection the Department's eTicketing Portal.

The data shall be provided as follows:

Reference Field No.	Description	Examples	Data Type	Required
1	Ticket Number	5126349, 101R, 539-19	String	Yes
2	Contract Number	T202011001	String	Yes

3	Contract Name (Job)	Walnut Street Streetscape Improvements	String	Yes
4	Contractor Name (Customer)	Mumford & Miller, Inc.; A Del Construction	String	Yes
5	Supplier Name	River Asphalt; Allan Myers Materials	String	Yes
6	Supplier Plant	Plant #1 Dagsboro; Dover Asphalt	String	Yes
7	Job Number (Location)	Task 1; Location 5	String	Yes
8	Weigh Master Name	Johnny Scales	String	Yes
9	Weigh Master ID	1234567	String	Yes
10	Left Intentionally Blank			No
11	Mix Design ID (Product)	1628p; AM-WILM-29 76-22	String	Yes
12	Material Type (Product Description)	9.5mm top; 19MM 76-22 NON CARB	String	Yes
13	Item No. (Product Code)	401005; 401016	String	Yes
14	Load Number	75	Number	Yes
15	Identifying Vehicle Number	T-1	String	Yes
16	Hauler	John Doe Trucking	String	Yes
17	Legal Gross Vehicle Weight	73,280	Number	Yes
18	Loading Date & Time	2020-06-15T13:45:30	String	Yes
19	Gross Weight	72,980	Number	Yes
20	Net Weight	27,900	Number	Yes
21	Truck Tare Weight	45,080	Number	Yes
22	Void	280	Number	No
23	Daily Running Total	44.43	Number	Yes

All provided weights shall be accurate to 0.01 tons.

Loads which do not have the required data shall be rejected.

Setup and Calibration:

Conduct a test of each supplier's integration with the Department's eTicketing Portal prior to shipping material. Complete test at least 14 days prior to shipping material unless otherwise approved by the engineer. The test must involve at least four calibration eTickets from each supplier approved for use on the project. The calibration eTickets must accurately reflect the categories 1-7 shown above; all other categories shall be marked *"TEST"*. After the engineer confirms the calibration eTickets have been entered into the Department's eTicket Portal, void the eTickets with the reason *"Calibration Testing"*.

Uptime:

Uptime reliability of the material supplier's ticketing system must be 99.5% over any 30-day rolling period. Uptime is defined as the ability for the Department to receive electronic tickets within a maximum of 10 minutes from when the ticket was created.

Load Identification:

Ensure the identifying vehicle numbers on the delivery vehicle correspond to the ticket. Place the numbers on the delivery vehicles such that at least one can be safely read from within the work area. Delivery vehicles without identifying vehicle numbers shall be rejected.

Method of Measurement:

The Department will not measure electronic ticketing.

Basis of Payment:

A. The cost associated with creating and maintaining an API, providing electronic ticketing data, and placing identifying vehicle numbers on the delivery vehicles is incidental to the item being placed.
B. The Department will make no payment for material that is rejected.

01/18/2022

801500 – MAINTENANCE OF TRAFFIC, REHABILITATION

DESCRIPTION:

This work consists of providing temporary traffic control to maintain vehicular, bicycle, and pedestrian traffic through the project work zone where roadway and/or full sidewalk detours are specified to be used for completion of repair work.

MATERIALS:

A. Crashworthy temporary traffic control devices in accordance with current AASHTO MASH standards.

B. Category I through Category III temporary traffic control devices - Certification of compliance with MASH required.
   1. Category I devices - The manufacturer or contractor may self-certify that the devices meet the MASH criteria.
   2. Category II and III devices - MASH eligibility letter, including all applicable attachments required for each type of device.

C. Submit documentation requesting approval of temporary traffic control devices 14 days before the start of work. Submission requirements and instructions for source information are listed on DelDOT's website: https://deldot.gov/Business/prodlists/index.shtml. The Department approves temporary traffic control devices based on:
   1. Self-Certification
   2. Approved products lists

CONSTRUCTION:

A. Place temporary traffic control devices in accordance with the contract and DE MUTCD. Follow the manufacturer's installation instructions.

B. Maintain temporary traffic control devices throughout the project duration. Replace damaged temporary traffic control devices within 24 hours of notification or when directed by the engineer.

C. Maintain temporary traffic control devices at a minimum in a "marginal" condition in accordance with the brochure entitled "Quality Guidelines for Temporary Traffic Control Devices," available from the American Traffic Safety Services Association (ATSSA). The engineer may reject a temporary traffic control device that does not meet the "marginal" condition.

D. Temporary traffic control devices are the contractor's property unless otherwise indicated in the contract.

E. General Temporary Traffic Control and Traffic Maintenance.
   1. Maintain a work zone that protects the travelling public and persons working on the project. If

necessary, implement additional safety measures not expressly required by the contract to ensure the safety of all persons.

2. The contractor may adjust longitudinal dimensions for maintenance of traffic configurations to fit field conditions.
3. Inventory existing signs within the contract limits
    a. Maintain existing signs that must remain in place during the project as noted in the contract or as directed by the engineer.
    b. Remove other existing signs and store.
4. Always maintain access within the project limits for businesses and residences
    a. Coordinate temporary driveway or entrance closures for tie-in purposes with the engineer and the property owner in advance of the closures.
5. Regarding bus stops, unless otherwise directed by the contract or the engineer:
    a. Maintain an area for the bus vehicle to safely pick-up and drop-off passengers.
    b. Provide an accessible path for pedestrians to safely access the bus stop.
6. Maintain existing access for bicycles and pedestrians. If temporary sidewalk closures are necessary, install pedestrian detours in accordance with the DE MUTCD. Damage to existing sidewalk will be repaired at the Contractor's expense. Clear sidewalks of all construction debris at the end of each workday.
7. Conduct construction operations in a manner that minimizes delays to traffic.
    a. Follow the requirements of the memorandum titled, "Temporary Traffic Control within Intersections," of the DE MUTCD for work within intersections or in close proximity to intersections.
    b. Schedule work in the vicinity of traffic signals to minimize the time during which the signal operates without detection.
    c. Set temporary traffic control devices on the work zone side of the pavement marking, if possible, when closing a lane adjacent to an open lane.
    d. Do not close lanes unless a construction activity requiring a lane closure is taking place or will take place within 1 hour of closure, except for buffer lanes on high volume or high-speed roadways. Reopen lanes immediately upon completing the work. Shorten the lane closure for moving operations as work progresses, and as traffic conditions warrant, to keep the length of the closure to a minimum. Conduct construction operations in a manner that minimizes disruption to traffic during peak hours and periods of heavy traffic flow. The Department will stop the contractor's operations if, in the opinion of the engineer, such operations are unnecessarily impeding traffic.

F. Notification to the engineer for road closures and detours.
   1. Submit notification no less than 14 calendar days before the start of detours and road closures.
   2. Obtain the approval of the chief traffic engineer, or designee, a minimum of 48 hours in advance of proposed restrictions beyond those specified in the contract.

G. Written notice to property owners, businesses, and residents.
   1. Provide written notice 48 hours in advance of the start of construction work including the following:
      a. The scope of work, working hours, anticipated start and completion dates, and a summary of construction activities that might interfere with property access.
      b. A schedule and access coordination plan.
      c. The contractor's name, address, and a Department contact phone number.

H. Provide written verification to the engineer that the property owners and residents were notified.

I. Failure to give proper notice may result in suspension of work in accordance with Section 104.8 of the standard specifications.

J. Before obstructing a fire hydrant, notify the local 911 center and provide the engineer with written confirmation of the notice.

K. Keep lanes open for a period of time that depends on the day of the week that the legal or observed holiday falls. The following schedule determines the periods of time the lanes must remain open, unless otherwise allowed by the contract:

TABLE 1: DAY OF HOLIDAY LANE CLOSURES

Day of holiday or event	***Time all lanes must be open to traffic***
Sunday	12:00 PM Friday through 5:59 AM Monday
Monday	12:00 PM Friday through 11:59 PM Monday
Tuesday	12:00 PM Monday through 11:59 PM Tuesday
Wednesday	12:00 PM Tuesday through 11:59 PM Wednesday
Thursday	12:00 PM Wednesday through 11:59 PM Thursday
Thursday (Thanksgiving)	6:00 AM Wednesday through 11:59 PM Sunday
Friday	12:00 PM Thursday through 5:59 AM Monday
Saturday	12:00 PM Friday through 5:59 AM Monday

L. Do not close travel lanes or roads within 1 mile of a designated polling place during the primary and general elections that fall during an even numbered year.

M. Follow all additional restrictions that may apply as noted in the contract or as directed by the engineer.

N. The Department will consider failure to comply with the requirements of this section as justification for suspension of work in accordance with Section 104.2.D of the standard specifications. The Department will continue assessing time charges until the contractor corrects the deficiencies.

O. Non-compliance includes:

1. Failure to correct deficiencies within 24 hours of written deficiency notices related to temporary traffic control.
2. Non-compliance with the DE MUTCD or the contract.
3. Unsafe operations.
4. Placement of non-compliant temporary traffic control devices.

METHOD OF MEASUREMENT:

The Department will not measure this item.

BASIS OF PAYMENT:

A. The Department will pay for temporary traffic control at the lump sum contract price. Price and payment will constitute full compensation for:
   1. Maintenance of traffic activities accepted by the engineer;
   2. supply, installation, maintaining, and removing maintenance of traffic devices, including, but not limited to:
      a. temporary warning signs and plaques;
      b. plastic drums;
      c. traffic cones;
      d. arrow panels; and
      e. truck mounted attenuators.
   3. submitting TTCPs;
   4. submitting certifications;
   5. correcting edge drop-offs; and
   6. a certified ATSSA traffic control supervisor.

B. No additional payment will be made to move temporary traffic control devices in accordance with the TTCPs or as necessary to address safety issues as included in this item.

04/29/2026

806500 – TRAFFIC OFFICERS

Description:

In accordance with Section 806.1.

Materials:

Not applicable.

Construction:

In accordance with Section 806.3.

Method of Measurement:

In accordance with Section 806.4.

Basis of Payment:

A. The Department will pay for traffic officers at the contract unit price per hour. Price and payment constitute full compensation for providing traffic officers, vehicles, and equipment.
B. For bidding purposes, the Department has fixed the unit price at $180.00 per hour. The Department will pay for traffic officers based on a submitted invoice from the police department plus 10 percent.

07/17/2025

DelDOT

Delaware Department of Transportation
Quantity Sheet Summary

Proposal ID: T202606504

Project Descripton: OPEN END, PAVEMENT PRESERVATION, CENTRAL, FY 26 - 29

NOT TO BE USED FOR BIDDING

Item Number	Description	Unit	Quantity
401005	SUPERPAVE TYPE C, 9.5 mm, PG 64-22 (CARBONATE STONE)	TON	6150
401029	SUPERPAVE TYPE C, 9.5 mm, PG 64-22, PATCHING	TON	1000
401030	SUPERPAVE TYPE B, PG 64-22, PATCHING	TON	1000
401053	SUPERPAVE TYPE C, 4.75 mm (THIN LIFT), PG 64-22	TON	1000
401054	SUPERPAVE TYPE C, 4.75 mm (THIN LIFT), PG 70-22	TON	6200
401500	FOG SEAL	GAL	128293
401501	BITUMINOUS ASPHALT TACK COAT	GAL	5000
401504	HIGH PERFORMANCE BITUMINOUS CONCRETE WEARING SURFACE	TON	250
403500	POLYMER-MODIFIED HIGH PERFORMANCE SLURRY SEAL, (TON)	TON	1272
403501	POLYMER-MODIFIED HIGH PERFORMANCE SLURRY SEAL, (SQUARE YARDS)	SY	78370
504001	CRACK AND JOINT SEALING LESS THAN 3/4 INCH WIDE	LF	10000
504002	CRACK AND JOINT SEALING, 3/4 INCH TO 1 3/4 INCH WIDE	LF	9000
602130	ADJUSTING AND REPAIRING EXISTING DRAINAGE INLET	EACH	75
602131	ADJUSTING AND REPAIRING EXISTING DOUBLE DRAINAGE INLET	EACH	20
602132	ADJUSTING AND REPAIRING EXISTING MANHOLE	EACH	75
710002	ADJUST WATER VALVE BOXES	EACH	75
710503	ADJUST GAS VALVE BOXES	EACH	21

This page is for information only. Do not use this page to submit a Bid.

DelDOT

Delaware Department of Transportation
Quantity Sheet Summary

Proposal ID: T202606504

Project Descripton: OPEN END, PAVEMENT PRESERVATION, CENTRAL, FY 26 - 29

NOT TO BE USED FOR BIDDING

Item Number	Description	Unit	Quantity
760503	PAVEMENT MILLING, PATCHING	SYIN	35000
763000	INITIAL EXPENSE/DE-MOBILIZATION	LS	1
801500	MAINTENANCE OF TRAFFIC, REHABILITATION	LS	1
803001	PROVIDE AND MAINTAIN PORTABLE CHANGEABLE MESSAGE SIGN	EADY	100
806500	TRAFFIC OFFICERS	HOUR	150
808002	PROVIDE AND MAINTAIN TRUCK MOUNTED ATTENUATOR, TYPE II	EADY	100
810001	TEMPORARY WARNING SIGNS AND PLAQUES	EADY	4100
811002	FLAGGER, KENT COUNTY	HOUR	6350
811014	FLAGGER, KENT COUNTY, OVERTIME	HOUR	660
813001	TEMPORARY BARRICADES, TYPE III	LFDY	400
861001	PERMANENT PAVEMENT STRIPING, EPOXY RESIN PAINT, 6"	LF	53000
862002	PERMANENT PAVEMENT STRIPING, ALKYD-THERMOPLASTIC, 6"	LF	4000
862004	PERMANENT PAVEMENT STRIPING, ALKYD-THERMOPLASTIC, 12"	LF	7000
862006	PERMANENT PAVEMENT STRIPING, ALKYD-THERMOPLASTIC, SYMBOL/LEGEND	SF	3500
864010	PREFORMED RETROREFLECTIVE MARKINGS, BIKE SYMBOL	EACH	10
867001	SNOWPLOWABLE RAISED PAVEMENT MARKER	EACH	200
908001	TOPSOIL	TON	440

Delaware Department of Transportation
Quantity Sheet Summary

Proposal ID: T202606504

Project Descripton: OPEN END, PAVEMENT PRESERVATION, CENTRAL, FY 26 - 29

NOT TO BE USED FOR BIDDING

Item Number	Description	Unit	Quantity
908016	PERMANENT GRASS SEEDING, SUBDIVISION	SY	9000
908020	EROSION CONTROL BLANKET MULCH	SY	9000