ADDENDUM REPORT

Project: 13286
Bid Package: 2
Current Let: 06/24/2005 11:00 AM
Version: Addendum
Addendum : 1

District: 06
County: BUCKS
SR/SEC/GROUP ID: 4027/33M/R26\Kantner

Description

R26 - Script C - ST/UAT Test
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BID PACKAGE SUMMARY

Project: 13286
Bid Package: 2

Project Type: Standard
State Type of Work: MISCELLANEOUS
Prequalification Required: Yes
Pre-Bid Meeting: None

Scheduled Let: 06/24/2005 11:00 AM
Anticipated NTP: 06/24/2005
Required Completion: 06/24/2007

Project Cost Range: $500,000.00 - $999,999.99
Structure: 17.06%
MBE / WBE: 3% / 3%

Description:
R26 - Script C - ST/UAT Test

Additional Information:

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Addenda

Addendum : 1

R26 - Script C - ST/UAT Test

Project Cost Range: $500,000.00 - $999,999.99
Federal Project Status: Non - Federal (100% State)
MBE/WBE: 3% / 3%
Structure Work: 17.06%
Wage Rates: Yes
Project Type: Standard
State Type of Work: MISCELLANEOUS
Prequalification Required: Yes
Pre-Bid Meeting: None
Actual Let: 06/24/2005 11:00 AM
New Let:
Anticipated NTP: 06/24/2005
Required Completion: 06/24/2007

Additional Information

None

Item and Quantity

added, modified

Special Provision

added, modified

Other

just some text here
## PROJECT ITEMS AND QUANTITIES

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<th>Unit of Measure</th>
<th>Special Provision</th>
<th>Addendum Action</th>
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Apr 18, 2005 11:13:08 AM
SPECIAL PROVISIONS

Special Provision: G34A - District 6-0 for 100% State
Addendum: 1
Addendum Action Code: Modified

Header:

Provision Body:

409.1 DESCRIPTION—This work is the standard and RPS construction of plant-mixed HMA on a prepared surface using a volumetric mixture design developed with the Superpave Gyratory Compactor.

409.2 MATERIALS—

(a) Bituminous Material

1. Virgin Mix or Mix Containing 5% to 15% RAP. Furnish material conforming to the requirements of Standard Specifications for Performance-Graded Asphalt Binder, AASHTO M 320, except as revised in Bulletin 25. Obtain material from a source listed in Bulletin 15 for the specified grade. Provide QC testing and certification as specified in Sections 106.03(b) and 702.1(b).1. Provide the Representative a copy of a signed Bill of Lading for bituminous material on the first day of paving and when the batch number changes.

2. Mix Containing More than 15% RAP. The MTD will evaluate the asphalt cement in the RAP source material. The MTD will determine the class (grade) of asphalt cement that the Contractor is required to use in the mixture.

Furnish material conforming to the requirements of Standard Specifications for Performance-Graded Asphalt Binder, AASHTO M 320, except as revised in Bulletin 25. Obtain material from a source listed in Bulletin 15 for the specified grade. Provide QC testing and certification as specified in Sections 106.03(b) and 702.1(b).1. Provide the Representative a copy of a signed Bill of Lading for bituminous material on the first day of paving and when the batch number changes.

(b) Aggregate and RAM.

1. General Requirements. Provide aggregate from sources listed in Bulletin 14. Aggregate and RAM shall conform to the quality requirements for Superpave Asphalt Mixture Design as specified in Bulletin 27. For wearing courses, provide aggregate with at least the SRL designation specified. To achieve the specified SRL, the Contractor may provide a blend of two aggregates if the blend has an SRL designation equal to or better than that specified. Blends are 50% by mass (weight) of each aggregate. Blend the aggregates using an approved method.

2. Fine Aggregate. Section 703.1, except Table A gradation does not apply and as follows:

Determine the uncompacted void content according to AASHTO T 304, Method A, or use the value listed in Bulletin 14, and conform to AASHTO MP2, Table 4. Determine the sand-equivalent value according to AASHTO T 176 and conform to AASHTO MP2, Table 4.

3. Coarse Aggregate. Type A, Section 703.2, except Table C gradation does not apply and revise the following quality requirements of Table B:

• Abrasion, Maximum Percent as specified in Bulletin 27, Chapter 2A, Table 5A
• Thin and Elongated Pieces, Maximum Percent as specified in AASHTO MP2, Table 5, for Flat and Elongated
• Crushed Fragments, Minimum Percent, as specified in AASHTO MP2, Table 5, for Coarse Aggregate Angularity

(c) RAP. If RAP material is proposed for use in the mixture, use at least 5% RAP consisting of cold milled or crushed hot–mix bituminous mixture. Include a plan to control RAP and the procedures to handle RAP of significantly different composition in the producer’s QC Plan. Maintain all processed material free of foreign materials and minimize segregation. Process the RAP so that the final mixture conforms to Section 409.2(e).

(d) Filler. Section 703.1(c)1. Do not use flyash if the design traffic is greater than or equal to 3 million Equivalent Single Axle Loads (ESALs).

(e) Mixture Composition for Standard and RPS Construction.

1. Virgin Material Mixtures. Size, uniformly grade, and combine aggregate fractions in proportions to produce a JMF that conforms to the material, gradation, and volumetric Superpave Asphalt Mixture Design requirements as specified in Bulletin 27, Chapter 2A, for the specified nominal maximum aggregate size and design ESALs.

Submit a copy of each completed JMF, signed by a certified HMA Level 2 plant technician, to the District Materials Engineer (DME) at least 3 weeks before the planned start of mixture production. Include a list of all material sources and the HMA producer in the JMF. Provide the calibration factors \( C_1 \) and \( 200 C_1 \) required by PTM No. 757 with the JMF. Do not start mixture production until after the DME reviews the JMF.

Submit a new JMF with a change in material sources or if a new JMF is necessary to produce a mixture conforming to this specification.

1.a Producer QC Plan. Each producer must prepare a QC Plan as specified in Section 106 and conforming to the additional QC requirements of this specification. Submit the QC Plan to the DME annually at least 3 weeks before the planned start of mixture production and do not start production until the DME reviews the QC Plan.

1.a.1 QC Organization Chart.
• Names of personnel responsible for QC.
• Area of responsibility of each individual.
• List outside agencies, e.g., testing laboratories and a description of services provided.

1.a.2 Testing Plan with Action Points.
• List of all tests to be performed.
• Frequency of testing.
• List action points to initiate corrective procedures.
• Recording method to document corrective procedures.
• Procedures for conducting JMF verification testing.

1.a.3 Materials Storage and Handling.
• Aggregate/RAP/RAM stockpiles.
• Cold-feed systems for aggregates/RAP/RAM.
• Additives or modifiers for mixture.
• Modified asphalt/liquid additive storage tanks.
• Surge/storage silos for mixture.
• All measuring and conveying devices, including calibration procedures.
• Haul vehicle loading procedures.

1.b Plant Technicians. During mixture production, provide a certified HMA Level 1 plant technician at the plant and an on-call certified HMA Level 2 plant technician, both meeting the requirements outlined in Publication 351. Instruct and train the certified technicians to perform all tests and to control plant operation. The Department may use its own certified HMA plant technicians to verify tests and to work in close cooperation with the producer’s technicians. All technicians must carry a valid certification card during mixture production.

1.c Annual JMF Verification. During initial production of each JMF, verify, according to the QC Plan, that the mixture conforms to this specification. If the mixture does not conform to the single and multiple sample tolerances in Tables A and B within 2 days of production, suspend shipping the mixture to the project. Do not ship the mixture to the project until after the Representative reviews and verifies that results conform to the single and multiple sample tolerances in Tables A and B. During JMF verification, mixture acceptance is according to the approved acceptance level of Table C.

1.d Production. After JMF verification, sample and test the mixture according to the QC Plan. For daily production of each JMF greater than 45 tonnes (50 tons), determine asphalt content, gradation, and theoretical maximum specific gravity from the same sample at least once each day. For daily production of each JMF greater than 140 tonnes (150 tons), determine asphalt content, gradation, theoretical maximum specific gravity and perform volumetric analysis of compacted specimens from the same sample at least once each day. Perform additional sampling and testing as directed. Produce a mixture within the following production limits:

1.d.1 Apparent Moisture Content. If the water absorption of a coarse aggregate, as determined by AASHTO T 85, exceeds 2.0%, sample the mixture according to PTM No. 1 and at the frequency in the producer’s QC Plan. Determine the apparent moisture content in the mixture according to PTM No. 749. Produce a mixture with the apparent moisture content not to exceed 0.5%.

1.d.2 Asphalt Content. Include in the producer’s QC Plan a frequency of obtaining mixture samples according to PTM No. 1 and performing asphalt content tests to verify that the mixture conforms to the tolerances of Table A. Test the samples according to either PTM No. 757, PTM No. 702, or PTM No. 742. After obtaining a minimum of three test results, determine compliance with the multiple sample tolerances in Table A. After obtaining five or more test results, determine compliance with the multiple sample tolerances in Table A using the running average of the last five consecutive test results.

Printed ticket results may be used in place of laboratory test results for QC of asphalt content of the mixture if the producer is currently approved to use printed tickets according to Bulletin 27. During mixture production, maintain 90% of printed ticket results for each day of production within 0.2 percentage points of the JMF. If RAP is used in the mixture, determine asphalt content by testing samples of the completed mixture.

1.d.3 Gradation. Sample the completed mixture, or sample the combined aggregate from the hot bins of a batch plant or the combined aggregate belt of a drum plant, according to PTM No. 1 and at the frequency in the producer’s QC Plan. If mineral filler or RAP are used in the mixture, determine gradation by testing samples of the
completed mixture.
  • Test the completed mixture according to PTM No. 757 or according to PTM No. 702 and PTM No. 739.
  • Test combined aggregate samples according to PTM No. 743.

Produce a mixture within the tolerances of Table A. Determine compliance with the multiple-sample tolerance after obtaining a minimum of three test results for the mixture. After obtaining five or more test results for the mixture, determine compliance with the multiple-sample tolerances using the running average of the last five consecutive test results.

1.d.4 Theoretical Maximum Specific Gravity. Sample the mixture according to PTM No. 1 at the frequency required in Bulletin 27. Condition and test the samples according to Bulletin 27.

Calculate the percentage of unfilled voids and the theoretical maximum density of the mixture using the most recently determined theoretical maximum specific gravity value or average value as specified in Bulletin 27. Certify the theoretical maximum specific gravity value to the Inspector daily using Form CS-4171 or another acceptable form. If the theoretical maximum specific gravity value varies 0.030 or more from the previous test or from the JMF value, immediately notify the DME.

1.d.5 Volumetric Analysis of Compacted Specimens. Sample the completed mixture according to PTM No. 1 and at the frequency in the producer QC Plan. Prepare a minimum of two specimens from each sample according to AASHTO T 312.

Produce a mixture with volumetric properties conforming to the tolerances of Table B. Determine the bulk specific gravity of the specimens as specified in AASHTO T 312 and calculate air voids (Va) and Voids in Mineral Aggregate (VMA) at Ndesign according to AASHTO PP28.

TABLE A

<table>
<thead>
<tr>
<th>Job-Mix Formula</th>
</tr>
</thead>
</table>

| Composition Tolerance Requirements of the Completed Mix |

<table>
<thead>
<tr>
<th>Gradation</th>
<th>Single Sample (n = 1)</th>
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</thead>
<tbody>
<tr>
<td>Passing 12.5 mm (1/2 inch) and Larger Sieves</td>
<td>±8%</td>
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<tr>
<td>Passing 9.5 mm (3/8 inch) to 150 μm (No. 100) Sieves (Inclusive)</td>
<td>±6%</td>
</tr>
<tr>
<td>Passing 75 μm (No. 200) Sieve</td>
<td>±3.0%</td>
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<table>
<thead>
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<th>Asphalt Content</th>
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<td>19.0 mm HMA mixtures and smaller</td>
<td>±0.7%</td>
</tr>
<tr>
<td>25.0 mm HMA mixtures and larger</td>
<td>±0.8%</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Temperature of Mixture (°C (F))</th>
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</table>
### TABLE B

**Job-Mix Formula**

**Volumetric Tolerance Requirements of the Completed Mix**

<table>
<thead>
<tr>
<th></th>
<th>Single Specimen (n = 1)</th>
<th>Multiple Specimens (n ≥ 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Voids at Ndesign (Va)</td>
<td>±2%</td>
<td>±1.5%</td>
</tr>
<tr>
<td>Voids in Mineral Aggregate (VMA)</td>
<td>±2%</td>
<td>±1.5%</td>
</tr>
</tbody>
</table>

**1.e Corrective Actions.** Immediately take corrective actions if one or more of the following occurs:

- QC test results on a single sample (n=1) for percent passing the 2.36 mm (No. 8) sieve, the 75 Mm (No. 200) sieve, or asphalt content are not within the tolerances in Table A.

- The average of multiple samples (n≥3) for percent passing any sieve or asphalt content, as determined according to Section 409.2(e)1.d, are not within the tolerances in Table A.

- QC test results on a single specimen (n=1) or on multiple specimens (n≥2) are not within the tolerances in Table B.

- Independent assurance (IA) or QA sample results tested at the producer’s plant are not within the tolerances of Tables A or B.

After taking corrective actions, sample the completed mixture within 140 tonnes (150 tons) of production. After sampling, test the mixture and provide test results to the Representative before shipping additional mixture to the project. If the mixture does not conform to the single sample tolerances in Table A and the single and multiple specimen tolerances in Table B, suspend production and determine the cause of the problem. Provide a written explanation of the problem and a proposed solution to the problem to the Department. After the Representative reviews the proposed solution and authorizes production to continue, resume production and perform JMF verification according to the QC Plan. During corrective actions and JMF verification, mixture acceptance is according to the approved acceptance level of Table C.
2. Mixtures with RAM or 5% or More RAP. Section 409.2(e)1 and as follows:

2.a RAM and RAP SRL. For HMA wearing courses, limit the total combination of RAM and RAP to a maximum of 15% of the mixture by mass (weight) unless documentation of the SRL designation of the coarse aggregate in the RAM and RAP materials is provided to the DME and the RAM and RAP meet the specified SRL or can be blended for SRL as specified in Section 409.2(b)1.

2.b RAP Asphalt Content and Gradation. Determine the average asphalt content and gradation of the RAP stockpile according to Bulletin 27. Determine the proportions of RAP, RAM, and virgin materials necessary to conform to the JMF requirements. Maintain and provide the Representative access to records of all sampling, testing, and calculations.

(f) Mixture Acceptance.

1. General. For standard construction, the Department will accept the mixture according to the appropriate level in Table C. For RPS construction, the Department will accept the mixtures by lot acceptance as specified in Section 409.3(h)2.

TABLE C
Mixture Acceptance

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<th>Acceptance Level</th>
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<td>Certification Acceptance</td>
<td>Producer Certification of Mixture (Section 409.2(f)2.)</td>
</tr>
<tr>
<td>Lot Acceptance</td>
<td>Mixture Acceptance Sample Testing (Section 409.3(h)2.)</td>
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</table>

2. Certification Acceptance. Acceptance by certification is appropriate for the following mixtures, conditions, or applications:

- Scratch courses, leveling courses less than 50 mm (2 inch) depth and driveway adjustments.
  - Mixtures used by Department maintenance forces.
  - Mixtures purchased by local or municipal governments.
- Mixtures placed in quantities too small for consistent plant operation, but not to exceed 360 tonnes (400 tons) in a continuous placement operation.
  - Other mixtures, conditions, or applications as approved by the Representative.

2.a General. Obtain certification from the mixture producer. Use all QC tests during mixture production as acceptance tests. Certify mixtures using Form CS-4171 or another acceptable form. Include, or attach, the QC test results on the form. Provide the form to the Inspector-in-Charge within 1 working day after completing the QC tests. Certify mixtures as specified in Section 106.03(b)3 and the requirements below.

2.b Certification of Mixture. Certify each mixture daily if QC test results conform to the single sample and multiple sample JMF production tolerances of Table A. The acceptance values will be:

- Asphalt Content
  - Percent Passing the 2.36 mm (No. 8) sieve
• Percent Passing the 75 µm (No. 200) sieve

If using printed ticket results in place of laboratory test results for asphalt content, certify that at least 90% of each day's printed ticket results for asphalt content are within 0.2 percentage points of the JMF.

If the mixture does not conform to the above requirements, do not certify the mixture. Instead, provide all QC test results to the Inspector-in-Charge. If using printed ticket results for asphalt content, provide the percentage of daily printed ticket results within 0.2 percentage points of the JMF to the Inspector-in-Charge. Payment will be determined according to Table H based on the QC test results.

If a day's production is interrupted by corrective action, material produced after the corrective action may be certified if QC test results conform to production tolerances.

2.c Maintaining Approval to Certify Mixtures. The Department may suspend a plant's approval to certify mixtures if QC is not performed according to the producer's QC Plan, mixtures are not produced according to Bulletin 27, a mixture cannot be certified on 2 consecutive production days, or as described below.

The Department may take IA samples of the completed mixture at the plant. In the presence of the Department, test the IA samples for asphalt content and gradation according to the test methods indicated in the producer's QC Plan. Take immediate corrective actions if the mixture does not conform to Table A.

The Department may take QA samples of the completed mixture at the plant or from directly behind the paver. The Department will test QA samples according to PTM No. 757 or PTM No. 702, Modified Method D, if previously identified problematic aggregates are used in the mixture, for conformance to Table A. If the results of the QA samples do not comply with Table A, review the producer's QC Plan and the QC test results that followed the QA samples for conformance to Table A. If QC results do not conform to Table A, perform the corrective actions necessary to provide a mixture conforming to Table A.

After completing corrective actions or the sample review, the Department will perform an on-site evaluation of the producer's plant operation and QC and then take a sample of the completed mixture at the plant. In the presence of the Representative, test the sample. If the sample does not comply with Table A, the Department will suspend certification. Immediately suspend shipping mixtures accepted by certification to the project.

After testing verifies that the produced mixture conforms to Tables A and B and with the Representative present, conduct JMF verification according to the producer QC Plan. After successfully completing JMF verification, resume both certification and shipping mixtures accepted by certification to the project.

409.3 CONSTRUCTION—

(a) Paving Operation QC Plan. Prepare a paving operation QC Plan, as outlined on Form CS-401, for field control and evaluation of bituminous concrete paving operations. Submit the QC Plan to the Representative before or at the pre-construction conference. The QC Plan shall describe the construction equipment and methods necessary to construct and test the bituminous concrete courses as specified in Section 409.3. Do not start paving until after the Representative reviews the QC Plan.

(b) Weather Limitations. Do not place bituminous paving mixtures from November 1 to March 31, unless allowed in writing by the District Executive. Do not place bituminous paving mixtures when surfaces are wet or when the air or surface temperature is 4 °C (40F) or lower. If work is halted because of weather conditions, the Representative may allow
the Contractor to place limited quantities of mixture that are en route to the project.

1. **Wearing Courses.** Do not place wearing courses specified with design ESALs of 10 million or greater or wearing courses specified with PG 76-22 from October 1 to March 31 in Districts 1-0, 2-0, 3-0, 4-0, 5-0 (Monroe and Carbon Counties), 9-0 (Cambria and Somerset Counties), and 10-0; and from October 16 to March 31 in Districts 5-0 (except Monroe and Carbon Counties), 6-0, 8-0, 9-0 (except Cambria and Somerset Counties), 11-0, and 12-0. No exceptions to paving weather limitations will be allowed, unless directed in writing by the District Executive.

(c) **Bituminous Mixing Plant.** Obtain bituminous mixtures from a plant fully automated and recordated and currently listed in Bulletin 41. The necessary facilities for inspection include a plant office as specified in Section 714.5(a), except the minimum floor space is 11.1 m² (120 square feet). For recycled mixtures, add the following requirements:

1. **Batch Plant.** Modify the batch plant to measure the mass (weight) of the RAP before adding it into the pug mill. Design the cold-feed bin(s), conveyor system(s), charging chute(s), and all special bins to prevent RAP from segregating and sticking. Dry the virgin aggregate and RAM and then heat the virgin aggregate and RAM to a temperature that, after adding RAP, produces a completed mixture within the temperatures specified in Table A for the class and type of material used. Ensure that virgin aggregate is free of unburned fuel oil when delivered to the pug mill.

2. **Drum Mixer Plant.** Modify the drum mixer plant to prevent RAP from directly contacting the burner flame and prevent RAP from overheating. Design the cold-feed bin(s), conveyor system(s), charging chute(s), and all special bins to prevent RAP from segregating and sticking. Produce a completed mixture within the temperatures specified in Table A for the class and type of material used.

(d) **Hauling Equipment.** Haul the mixtures in tightly sealed vehicles that do not contain petroleum oils, solvents, or other materials that adversely affect bituminous concrete. Provide covers of sufficient size and quality to protect the entire load under all conditions. Maintain the proper and uniform placement temperature specified in Section 409.3(h). Provide insulation on all sides of the truck body, a double-walled truck body, or a heated truck body when the air temperature is below 10 °C (50F) from October 1 to April 30.

(e) **Bituminous Pavers.** Provide self-contained, power-propelled units with activated screeds or activated strike-off assemblies and with automatic screed controls, capable of producing a finished surface of specified evenness and texture. Provide heated units capable of spreading and finishing the mixture to the widths and depths indicated. Provide units capable of being operated at forward speeds consistent with satisfactory laying of the mixture, equipped with receiving hoppers having sufficient capacity for uniform spreading, and equipped with distribution systems that place the mixture uniformly in front of the screeds.

Use hydraulic or other extension types against abutting lanes or longitudinal joints only if the unit feeds and activates the extension by the same method as the main screed. At the outside edge of pavement widths that cannot be uniformly placed, the Contractor may use a non-activated extension when approved by the Inspector-in-Charge.

Do not use equipment that tears, shoves, or gouges the mixture or that causes tracks, indented areas, flushing, segregation, or other permanent blemishes. Do not use blade graders or drags.

(f) **Rollers.** Use steel–wheel, pneumatic–tire, or vibratory rollers as specified in Section 108.05(c). Operate rollers according to manufacturer's recommendations. Use vibratory rollers with separate controls for vibration and propulsion.

(g) **Preparation of Existing Surface.**

1. **Conditioning of Existing Surface.** Before delivering bituminous mixtures, remove and dispose of loose and foreign material and excess joint sealer and crack filler from the surface of existing pavement or previously placed pavement courses. If necessary, use a broom.

Before placing a wearing course, correct irregularities in the binder course. If practical, do not allow traffic on the
binder course to prevent contamination. Remove and replace binder course that cannot be cleaned to the Representative’s satisfaction.

Paint existing vertical surfaces of curbs, structures, gutters, and pavements that will be in contact with bituminous mixtures with a uniform coating of bituminous material, Class E-6 (AASHTO SS-1 or CSS-1), E-8 (AASHTO SS-1h or CSS-1h), Class AET applied in two or more applications, or of the class and type designated for the bituminous course.

Before overlaying existing surfaces, apply a tack coat as specified in Section 460 unless otherwise indicated. Apply a tack coat to previously placed courses if the Representative determines a tack coat is necessary to ensure bonding between the two courses.

2. **Scratch and Leveling Courses.** Where indicated, place a separate scratch or leveling course ahead of resurfacing operations. Use a scratch course to fill wheel ruts and other local small depressions even with the surrounding pavement. Use a leveling course to provide a relatively uniform working platform for placing binder or wearing courses.

(h) **Spreading and Finishing.**

1. **General Requirements.**

1.a **Placing.** Unless otherwise allowed, deliver, place, and compact bituminous paving mixtures during daylight hours. Ensure the mixture does not contain lumps of cold material. Deliver and place mixtures at the laying temperatures specified in Table A for the type and class of material used.

1.b **Spreading and Finishing.** Spread and strike off the mixture for the entire lane width or as much lane width as practical. Adjust screed assemblies to provide the required cross section and depth. After spreading, do not add mixture to the pavement mat that is segregated, below the minimum temperature, contains either a deficiency or an excess of asphalt content, or is otherwise unsuitable to add to the pavement mat.

If the course is more than 150 mm (6 inches) in compacted depth, construct it in two or more layers of approximately equal depth, with no layer less than 80 mm (3 inches) or more than 150 mm (6 inches) in compacted depth. For binder or leveling courses that have isolated areas exceeding 150 mm (6-inch) compacted depth, use a scratch or leveling course to eliminate the isolated areas before full-depth paving.

Immediately after placing the bituminous mixture, work the exposed outer edges to eliminate sharp, ragged, and open edges, to eliminate an unfinished appearance, and to reduce edge breakdown. Immediately repair edge breakdowns.

In areas where mechanical spreaders cannot be used, place and screed the mixture with suitable hand tools. Do not use rakes.

Adjacent to flush curbs, gutters, and other abutting structures, place the wearing course mixture uniformly higher so that after compaction the finished surface is slightly above the edge of the abutting structure. Remove harmful material, clean, and seal the surface of wearing courses adjacent to curbs to form a bituminous gutter. Seal the mixture surface with a hot bituminous material of the class and type listed in Table A. Evenly apply the bituminous material a minimum width of 300 mm (12 inches) from the curb. The Contractor may use Class AET, Class E-6 (AASHTO SS-1 or CSS-1), or E-8 (AASHTO SS-1h or CSS-1h) emulsified asphalt instead of hot bituminous material if allowed by the Inspector-in-Charge. Control the application rate so residual asphalt completely fills surface voids and provides a watertight joint along the curb. If necessary, apply emulsified asphalt in two or more applications. After sealing, remove excess sealant material.

1.c **Field Technician.** Provide a certified HMA field technician, with the qualifications outlined in Publication 351, to control the placement of bituminous mixtures. Instruct and train the certified HMA field technician to control the paving operation so that the completed paving work complies with the specified requirements. A certified HMA field technician
must be onsite and carry a valid certification card during placement of all HMA mixtures.

2. Mixture Lot Acceptance (Standard and RPS Construction). Lot acceptance is appropriate for standard construction placed in quantities that allow consistent operation of the plant and is appropriate for RPS construction.

2.a Lots and Sublots. Material will be accepted in the field on a lot by lot basis. Lots will be established cumulatively and will be specific for each State Route and each JMF. Each lot consists of three equal sublots (n=3). A completed subplot has a mixture acceptance box sample as specified in Section 409.3(h)2.b and either a core collected according to PTM No. 1 or other density acceptance as specified in Section 409.3(j).

It is the intent of these specifications that a normal lot size is 1080 tonnes (1,200 tons) with three 360 tonnes (400 tons) sublots (n=3). The number of samples to evaluate each lot is the same, unless operational conditions or project size dictate otherwise. A lot will not exceed 1080 tonnes (1,200 tons) nor will a subplot exceed 360 tonnes (400 tons), except as noted in Table D. If the final lot of paving course is less than 1080 tonnes (1,200 tons), readjustment of the final lot will be made as specified in Table D.

TABLE D

<table>
<thead>
<tr>
<th>Remaining Quantity (*tons)</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Following Last Full Lot</td>
<td></td>
</tr>
<tr>
<td>Less than 360 tonnes (400 tons) without a combination of one mixture acceptance sample and one core**</td>
<td>Quantity combined with the previous lot, (n=3)</td>
</tr>
<tr>
<td>Less than 360 tonnes (400 tons) with a combination of one mixture acceptance sample and one core</td>
<td>One new subplot defined and quantity combined with the previous lot, (n=4)</td>
</tr>
<tr>
<td>360 tonnes (400 tons) to less than 720 tonnes (800 tons) without a combination of two mixture acceptance samples and two cores**</td>
<td>One new subplot defined and quantity combined with the previous lot, (n=4)</td>
</tr>
<tr>
<td>360 tonnes (400 tons) to less than 720 tonnes (800 tons) with a combination of two mixture acceptance samples and two cores</td>
<td>Two new sublots defined and quantity combined with the previous lot, (n=5)</td>
</tr>
<tr>
<td>720 tonnes (800 tons) to less than 1080 tonnes (1,200 tons) without a combination of three mixture acceptance samples and three cores**</td>
<td>Two new sublots defined and quantity combined with the previous lot, (n=5)</td>
</tr>
<tr>
<td>720 tonnes (800 tons) to less than 1080 tonnes (1,200 tons) with a combination of three mixture acceptance samples and three cores</td>
<td>New lot defined, (n=3)</td>
</tr>
</tbody>
</table>

* Contract items bid on an area basis may compute equivalent tons based on design depth of paving course and design density as specified in Section 110.04(b)4.a.

** Discard any mixture acceptance sample not combined with a pavement core or discard any pavement core not combined with a mixture acceptance sample.
The original lot designation will be continued when work resumes after short stoppages of 5 days or less. If work stoppages exceed 5 days, a new lot will be established.

Breakdowns or stoppages of short periods due to such causes as weather or equipment failure will not be considered as reason to adjust the lot size. When short stoppages occur, the original lot designation will continue when work resumes.

2.a.1 Partially Completed Lots (n=2 or less). When process conditions change to an extent that a partially completed lot cannot be combined with the most recently completed lot, samples will be independently evaluated on the partially completed lot. For asphalt content and percent passing the 75 mm (No. 200) sieve, mixture acceptance samples will be evaluated individually using Section 409.2(e), Table A (n=1) criteria. For density, mat density acceptance samples will be evaluated individually using the criteria in Table E.

If samples tested for asphalt content and percent passing the 75 mm (No. 200) sieve meet the n=1 criteria of Table A, and samples tested for density meet the criteria in Table E, payment will be 100 percent of the contract unit price. If samples tested for asphalt content and percent passing the 75 mm (No. 200) sieve do not meet the n=1 criteria of Table A, the material will be considered defective work. If samples tested for density are no more than 2 percent below the minimum or no more than 2 percent above the maximum limits of Table E, payment will be 90 percent of the contract unit price. If samples for density are more than 2 percent below the minimum or more than 2 percent above the maximum limits of Table E, the pavement will be considered defective work.

Unless otherwise directed in writing by the District Executive, remove and replace defective work.

TABLE E

Density Limits for Partially Completed Lots

<table>
<thead>
<tr>
<th>MIXTURE NOMINAL MAXIMUM AGGREGATE SIZE</th>
<th>DENSITY LIMITS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Min</td>
</tr>
<tr>
<td>All RPS 9.5 mm, 12.5 mm, 19 mm and 25 mm Wearing or Binder Courses</td>
<td>92</td>
</tr>
<tr>
<td>All Standard 9.5 mm, 12.5 mm, 19 mm and 25 mm Wearing or Binder Courses</td>
<td>90</td>
</tr>
<tr>
<td>All 25 mm and 37.5 mm Base Courses</td>
<td>88</td>
</tr>
</tbody>
</table>

2.a.2 For State Routes and JMF’s containing >360 tonnes (400 tons) and < 1080 tonnes (1,200 tons). For State Routes and JMF’s containing quantities of greater than 360 tonnes (400 tons) and less than 1080 tonnes (1,200 tons), the tonnage will be considered a lot. Each lot will be divided into three equal sublots.

2.b Mixture Acceptance Samples. The Inspector will select different sample locations in each subplot according to PTM No. 1 and PTM No. 746. In the presence of the Inspector, take one loose sample for each subplot from directly behind the paver.

Identify the samples by lot and subplot number, location, date of placement, mixture type, and as acceptance samples (Sample Class AS). Immediately package individual samples in cardboard boxes dimensioned approximately 95 mm x 120 mm x 240 mm (3 3/4 inches by 4 3/4 inches by 9 1/2 inches). Place the individually packaged samples for one lot in one container or tie the individually packaged samples for one lot together and submit the samples to the Inspector.
2. **Mixture Acceptance Sample Testing.** Utilize MTD Testing unless otherwise indicated in the proposal. These procedures apply to standard and RPS construction.

2.c.1 **MTD Testing.** The MTD will test the mixture acceptance samples according to PTM No. 757 or PTM No. 702, Modified Method D, if previously identified problematic aggregates are used in the mixture, to determine asphalt content and the percent passing the 75 mm (No. 200) sieve. The MTD will use the calibration factors (C_f and 200 C_f) provided with the JMF for PTM No. 757. The MTD will analyze the test results for extreme values according to PTM No. 4 at the 5% significance level. The Department will accept the lot as specified in Section 409.4(a)4 or Section 409.4(b).

If the asphalt content or the percent passing the 75 mm (No. 200) sieve is not within the single sample (n=1) or multiple sample (n≥3) tolerances in Table A for two consecutive lots or a total of three lots, stop all production of the JMF. Determine the cause of the problem and provide a proposed solution to the Department. Do not resume production of the JMF until the Representative reviews the proposed solution and authorizes production to continue.

3. **Pattern Segregation.** Pattern segregation is continuous or repeated areas of non-uniform distribution of coarse and fine aggregate particles in the finished mat. The Department will address pattern segregation as follows:

3.a **Evaluating Pattern Segregation.** If the Representative observes pattern segregation that may result in defective pavement, then:
- The Inspector will notify the Contractor of the observed pattern segregation.
- The Contractor may continue to work at his or her own risk while he or she immediately and continually adjusts the operation to eliminate the pattern segregation from future work.
- As a minimum and in the presence of the Representative, determine the average depth of pavement surface macrotexture according to PTM No. 751 in areas with the pattern segregation and in areas with non-segregated pavement. The pattern segregation is unacceptable if the difference in average pavement texture depth between the non-segregated and segregated areas exceeds 0.610 mm (0.024 inch). The Representative will determine if the pavement is defective as specified in 409.3(h)3.c.

3.b **Test Section.** If the macrotexture tests identify unacceptable pattern segregation, then:
- Immediately suspend placing the bituminous course. Evaluate the cause of pattern segregation according to the Paving Operation QC Plan and as directed. Provide proposed corrective actions to the Representative and do not resume placing the bituminous course until after the Representative reviews the proposed corrective actions and authorizes paving to continue.
- Determine if the pattern segregation resulted in defective pavement as specified in 409.3(h)3.c.
- After the Representative allows paving to resume, place a test section not to exceed 180 tonnes (200 tons). If the corrective actions do not eliminate observed pattern segregation, the Department will suspend paving, even if it is before the Contractor places the entire test section. Propose additional corrective actions, and construct another test section. Resume normal paving operations after constructing an entire test section without pattern segregation as determined by the Representative.

3.c **Defective Pavement.** At locations selected by the Inspector and with the Inspector present, drill a minimum of three 152 mm (6-inch) diameter cores from the area of pattern segregation and a minimum of three cores from the pavement representing a non-segregated area. Do not compress, bend, or distort samples during cutting and handling and immediately provide the cores to the Inspector. The Inspector will transport cores to the producer's laboratory. With the Inspector present, test the cores at the plant for density, asphalt content, and gradation. The Department may request additional tests as part of its evaluation of pattern segregation. Determine the maximum theoretical density according to Bulletin 27, the core density according to PTM No. 715, and asphalt content according to PTM No. 757 or if previously...
identified problematic aggregates are used in the mixture PTM No. 702, Modified Method D or other test method identified in the producer's QC Plan.

An area of pattern segregation contains defective pavement if the summation of absolute deviations from any two sieves is 20% or more from the JMF, the core density is defective, the mixture is defective in asphalt content, or the mixture is defective for percent passing the 75 Mm (No. 200) sieve. Remove and replace the full width of the affected lane and a minimum of 1.5 m (5 feet) beyond each end of the area with unacceptable pattern segregation. Construct replacement pavement conforming to the appropriate surface tolerances as specified in Section 309.3(l) or Section 409.3(l).

(i) Compaction. Compact the mixture to achieve the density acceptance requirements and to eliminate all roller marks. Compact the mixture while it is in proper condition and adjust roller speed, amplitude, frequency, pattern, and roller size to eliminate displacement, shoving, cracking, and aggregate breakage. Satisfactorily correct displacement resulting from reversing roller directions and other causes.

Without using excess water, maintain wheels of steel–wheel rollers moist and clean to prevent the mixture from adhering to the wheels. Use suitable methods to clean wheels of pneumatic–tire rollers.

Use pneumatic-tire rollers for compacting scratch courses.

For areas inaccessible to rollers, compact with mechanical vibrating hand tampers.

Remove areas that are loose, broken, mixed with dirt, or show an excess or deficiency of bituminous material. Replace removed mixture with fresh hot mixture and compact the mixture even with the surrounding pavement surface.

(j) Mat Density Acceptance.

1. General. The Department will accept the mat density of standard construction according to one of the levels in Table F. Areas may be accepted by non-movement or optimum-rolling pattern based on the criteria in Sections 409.3(j)2 and 409.3(j)3. Do not place mixtures for non-movement or optimum-rolling pattern acceptance until the Department has approved the density-acceptance level. For courses with mixture acceptance by certification, the density acceptance level will be either non-movement or optimum-rolling pattern.

The Department will accept the mat density of RPS construction by lots and pavement cores as specified in Section 409.3(j)4.

<table>
<thead>
<tr>
<th>TABLE F</th>
</tr>
</thead>
</table>

### Density Acceptance

<table>
<thead>
<tr>
<th>Density Acceptance Level</th>
<th>Acceptance Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Movement</td>
<td>Table H</td>
</tr>
<tr>
<td>Optimum-Rolling Pattern</td>
<td>Table H</td>
</tr>
<tr>
<td>Pavement Cores*</td>
<td>Table I</td>
</tr>
</tbody>
</table>

* Use only when mixture acceptance is by lots.

2. Non-Movement. The Inspector-in-Charge will approve density acceptance by non-movement for the following materials, conditions, or applications:

- Scratch courses or leveling courses less than 30 mm (1-inch) in depth or equal to or less than 60 kg/m2 (110
pounds per square yard).

- Areas of paving or patching less than 1.2 m (4 feet) in width or narrow enough to cause bridging of the area by approved compaction equipment.

The Inspector-in-Charge will accept density by non-movement for the following materials, conditions, or applications if they are determined by the Representative to be non-critical for density:

- Materials placed in quantities too small for consistent plant operation, but not to exceed 360 tonnes (400 tons) in a continuous placement operation.

- Mixtures placed on unstable or non-uniform bases.

- Mixtures used for patching, road widening, shoulders, driveway adjustments, and other miscellaneous applications determined by the Representative.

The Department will accept the density when the mixture does not move under the compaction equipment.

3. **Optimum-Rolling Pattern.** The Inspector-in-Charge may accept density using an optimum-rolling pattern for the following materials, conditions, or applications:

- Materials placed in quantities too small for consistent plant operation, but not to exceed 360 tonnes (400 tons) in a continuous placement operation.

- Mixtures placed on unstable or non-uniform bases.

- Leveling courses or other courses that are greater than or equal to 30 mm (1-inch) in depth or greater than or equal to 60 kg/m² (110 pounds per square yard).

- Mixtures used for patching, road widening, shoulders, driveway adjustments, and other miscellaneous applications determined by the Representative.

- Mixtures placed at less than the minimum compacted depths in Table G.

With the Inspector and the Contractor's certified HMA field technician present, determine density with an approved nuclear gauge according to PTM No. 402, or determine density with an approved electrical impedance gauge according to PTM No. 403. Nuclear gauges must be operated by a licensed nuclear gauge operator. In the presence of the Inspector, follow the control strip technique specified in PTM No. 402 to construct at least one control strip to establish the optimum-rolling pattern for each course. Document readings using the forms provided in PTM No. 402 and provide the completed forms to the Inspector. Compact the course according to the optimum-rolling pattern. During paving, the Representative may require the Contractor to construct a new control strip to verify the optimum-rolling pattern.

Use one of the following gauges or approved equal:

- Troxler Electronics, Model 3411B or Model 4640B
- Campbell Pacific Nuclear, Model MC-2
- Seaman Nuclear, Model MC-2
- TransTech Systems, Inc., PQITM, Model 300 or Model 301
- Troxler Electronic Laboratories, PaveTrackerTM
Submit a copy of the certificate of nuclear gauge annual calibration according to ASTM D 2950 and documentation of training of the nuclear gauge operator. Recalibrate any nuclear gauge that is damaged or repaired.

4. Pavement Cores (Standard and RPS Construction).

4.a General. Pavement cores are required for accepting the density of RPS construction. Pavement cores are appropriate for accepting the density of standard construction if all of the following materials, conditions, or applications exist:

- Mixture acceptance is by lots.
- Materials placed in quantities that allow consistent operation of the plant.
- Materials placed at uniform minimum compacted depths according to Table G
- Materials placed on stable and uniform bases.

<table>
<thead>
<tr>
<th>TABLE G</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mixture Minimum Compacted Depths</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mixture</th>
<th>Minimum Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.5 mm Wearing Course</td>
<td>40 mm (1 1/2 in.)</td>
</tr>
<tr>
<td>12.5 mm Wearing Course</td>
<td>40 mm (1 1/2 in.)</td>
</tr>
<tr>
<td>19 mm Wearing and Binder Courses</td>
<td>50 mm (2 in.)</td>
</tr>
<tr>
<td>25 mm Binder Course</td>
<td>80 mm (3 in.)</td>
</tr>
</tbody>
</table>

4.b Lots and Sublots. Section 409.3(h)2.a.

4.c Density Acceptance Samples. The Inspector will select different sample locations in each sublot according to PTM No. 1, PTM No. 729, and PTM No. 746. With the Inspector present, drill 152 mm (6-inch) diameter cores as soon as possible but no later than the day following placement. Do not compress, bend, or distort samples during cutting, handling, transporting, and storing. If samples are damaged, immediately obtain replacement samples, as directed by the Inspector, from within 300 mm (12 inches) of the original sample location. Within 24 hours after coring, backfill the hole with mixture of the same JMF or with mixture used for subsequent courses and compact and seal the mixture.

Identify the samples by lot number, location, date of placement, mixture type, and as acceptance samples (Sample Class AS). Provide the daily theoretical maximum specific gravity value from Section 409.2(e)1.d.4 for the density calculation of the lot. If density samples from the lot are taken from more than 1 day's placement, the average of the daily theoretical maximum gravity values from the days the lot was placed will be used to calculate the density. Immediately package and deliver the samples to the Inspector according to the QC Plan. Use sample containers of sufficient strength to prevent samples from being damaged during transport. Submit samples for one lot in one container.

4.d Acceptance Sample Testing. These procedures apply to standard and RPS construction.

4.d.1 MTD Acceptance Testing. The MTD will test the density acceptance samples according to PTM No.
715, and if necessary PTM No. 716, to determine the percent compaction. The Department will determine acceptance, with respect to density, as specified in Section 409.4(a)4 or Section 409.4(b).

If cores are not taken within 1 day after placing the mixture, or if the density for two consecutive lots or for a total of three lots does not meet the density payment factor percentage of 100, stop paving operations for the project as directed. Review and evaluate the operation and determine the cause of the problem. Do not resume paving until after the Representative reviews the proposed solution and authorizes paving to continue.

(k) Joints.

1. Longitudinal Joints.

1.a General. Offset joints in a layer from the joint in the layer immediately below by approximately 150 mm (6 inches). Plan joint locations to ensure that the joint in the top layer is at the approximate pavement centerline for two-lane roadways and within 300 mm (12 inches) of the lane lines for roadways with more than two lanes.

Before placing abutting lanes, paint the entire area of the joint with a thin coating of bituminous material, Class AET, Class E-6 (AASHTO SS-1 or CSS-1), E-8 (AASHTO SS-1h or CSS-1h), or PG 64-22. Use two applications of AET emulsified asphalt.

Place and compact the mixture at the joint according to the Paving Operation QC Plan. Ensure the surface across the joint is smooth and the surface along the joint is within the surface tolerances specified in Section 409.3(l).

If traffic or other cause distorts the lane edge, restore the lane edge to its original shape, using acceptable procedures.

1.b Vertical Joints.
• The Contractor may use vertical joints for base, binder, and wearing courses.
• If traffic or other cause distorts the lane edge, carefully saw a vertical lane edge before painting.
• Place the abutting lane on the same day, and if necessary, leave only short lane sections, normally less than 8 m (25 feet) in length, where the abutting lane is not placed the same day.

1.c Notched Wedge Joints.
• The Contractor may use notched wedge joints for wearing and binder courses with nominal maximum aggregate size of 19.0 mm or smaller.
• Remove and dispose of all loose and foreign material before opening the lane to traffic.
• Construct the joint according to Standard Drawing RC-28.
• If the joint is next to opposing traffic, place the abutting lane within 1 working day after placing the mixture. If the joint is next to traffic in the same direction, place the abutting lane within 2 working days after placing the mixture.
• If both lanes that make the joint are not placed on the same day, amend the Maintenance and Protection of Traffic Plan and install additional signing for uneven pavements at no additional cost to the Department. Install "Uneven Pavement" signs according to Publication 203 and 1 km (1/2-mile) before the notched wedge joint area and every 1 km (1/2-mile) within the uneven pavement area.
2. **Transverse Joints.** Construct joints perpendicular to the pavement centerline. The Contractor may saw transverse joints. If used, install bulkheads straight and perpendicular to the surface. If a bulkhead is not used and the roller moves over the rounded edge of new mixture, locate the joint a sufficient distance from the rounded edge to provide a true surface and cross section. Paint the joint face with a thin coating of bituminous material, Class AET, Class E-6 (AASHTO SS-1 or CSS-1), E-8 (AASHTO SS-1h or CSS-1h), or PG 64-22, before placing fresh mixture against the joint face. If necessary, use two applications of AET emulsified asphalt.

3. **Other Joints.** Where placing a wearing course abutting to existing pavement at locations such as paving notches, lane additions, or utility openings, seal the joint with hot bituminous material of the class and type designated for the wearing course. Evenly apply the sealant a minimum of 150 mm (6 inches) on both sides of the joint. The Contractor may use a Class AET, Class E-6 (AASHTO SS-1 or CSS-1) or E-8 (AASHTO SS-1h or CSS-1h) emulsified asphalt instead of hot bituminous material. Before sealing, clean and remove harmful material from the area to be sealed. Control the application rate so residual asphalt completely fills surface voids and provides a watertight joint. If necessary, use two or more applications of emulsified asphalt. Remove excess bituminous material and immediately cover the sealed area with a light application of dry sand that is acceptable to the Representative.

3(l) **Surface Tolerance.** Test the finished surface with a 3 m (10-foot) straightedge at areas the Representative determines may be deficient or irregular, and at transverse joints and paving notches. Hold the straightedge in contact with the surface and in successive positions parallel to the road centerline to check the entire width of the pavement. Advance along the pavement in stages of not more than one-half the length of the straightedge until the entire area is tested. The pavement is defective if irregularities are more than 5 mm (3/16 inch).

3(m) **Tests for Depth: Binder and Wearing Courses.** Construct the pavement to the depth indicated and within the specified tolerances.

   For courses with density acceptance by lots, the Inspector will measure the depth of each sublot according to PTM No. 737 using the density acceptance samples.

   For courses with a designed course depth and density acceptance by non-movement or rolling pattern, the Inspector will calculate the mass per square meter (weight per square yard) for verification of yield. If yield results indicate insufficient course depth, drill one 152 mm (6 inch) diameter core for each 360 tonnes (400 tons) to determine the extent of pavement with deficient depth. Core locations will be determined using PTM No. 1.

   Pavement deficient in depth by more than 6 mm (1/4 inch) and that cannot be satisfactorily corrected is defective. Pavement deficient by more than 3 mm (1/8 inch) in three adjacent core locations and that cannot be satisfactorily corrected is defective. After the Inspector completes depth measurements, backfill, compact, and seal core holes with the mixture used to construct the course. Immediately start correcting courses or pavement that are deficient in depth at the core location and proceed longitudinally and transversely until the depth is within 6 mm (1/4 inch) of the design depth.

3(n) **Protection of Courses.** Do not allow vehicular traffic or loads on newly compacted courses for 24 hours or until the course uniformly cools to a temperature of 60 oC (140F) or less. Provide alternate routes as indicated or as directed. If both lanes that form a longitudinal joint are placed on the same day and public safety is not restricted, do not allow vehicular traffic or loads on the lanes until adequate stability and adhesion is obtained and the material has uniformly cooled to 60 oC (140F) or less. Maintain the course, as specified in Sections 105.13, 107.15, and 901.

3(o) **Defective Work.** As specified in Section 105.12 and as follows:

   Department acceptance and QA testing shall not relieve the Contractor of responsibility for material or workmanship that the Representative determines is defective before the Department issues the acceptance certificate. Remove and replace or repair defective work as directed. The BOCM will review Representative determinations of defective material or workmanship.

   Unless otherwise directed in writing by the District Executive, remove and replace pavement defective for pattern...
segregation as specified in Section 409.3(h)3, surface tolerance as specified in Section 409.3(l) or Section 309.3(l) and depth as specified in Section 409.3(m), or Section 309.3(m). Remove and replace pavement defective for percent within tolerance or Payment Factor Percentages as specified in Tables H and I.

409.4. MEASUREMENT AND PAYMENT—

(a) Standard HMA Construction.

1. HMA Courses.

   1.a Superpave Asphalt Mixture Design, HMA Wearing Course. Square Meter (Square Yard) or Tonne (Ton)

   1.b Superpave Asphalt Mixture Design, HMA Wearing Course (Scratch). Tonne (Ton)

   1.c Superpave Asphalt Mixture Design, HMA Wearing Course (Leveling). Tonne (Ton)

   1.d Superpave Asphalt Mixture Design, HMA Binder Course. Square Meter (Square Yard) or Tonne (Ton)

   1.e Superpave Asphalt Mixture Design, HMA Binder Course (Leveling). Tonne (Ton)

2. Bituminous Tack Coat. Section 460.4.

3. Mixture Acceptance by Certification and Density Acceptance by Non-Movement and Optimum-Rolling Pattern. The Representative will pay at the contract unit price, adjusted according to Table H. The total payment factor percentage is the sum of adjustments for each test criterion subtracted from 100%. The adjustment for an individual test criterion is the payment factor percentage subtracted from 100%. The pavement will be considered defective if the payment factor for asphalt content, percent passing the 75 Mm (No. 200) sieve, and percent passing the 2.36 mm (No. 8) sieve are all 85%.

TABLE H

<table>
<thead>
<tr>
<th>Contract Unit Price Adjustments - Mixture Acceptance by Certification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mixture Nominal Maximum Aggregate Size</strong></td>
</tr>
<tr>
<td>-------------------------------------------</td>
</tr>
<tr>
<td>Asphalt Content</td>
</tr>
<tr>
<td>All sizes</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>19.0 mm and smaller</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
### Gradation

<table>
<thead>
<tr>
<th></th>
<th>Single Sample (n=1)</th>
<th>Multiple Sample (n≥2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25.0 mm and larger</td>
<td>QC Sample Testing**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>±0.8%</td>
<td>±0.6%</td>
</tr>
<tr>
<td></td>
<td>≥ ±0.7%</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>±0.9% to ±1.2%</td>
<td>±0.7%</td>
</tr>
<tr>
<td></td>
<td>85</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt; ±1.2%</td>
<td>≥ ±0.8%</td>
</tr>
</tbody>
</table>

** For these test criterion, the daily Payment Factor Percentage will be determined by the single sample test result from the daily QC sample. If more than one QC sample test result is available for a day, the Payment Factor Percentage will be determined based on the average of the results using multiple sample tolerances. If corrective action is taken, Payment Factor Percentages will be independently determined for material placed before and after the corrective action.

### Mat Density

<table>
<thead>
<tr>
<th></th>
<th>Non-Movement</th>
<th>Optimum-Rolling Pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>All sizes</td>
<td>Section 409.3(j)2.</td>
<td>Section 409.3(j)3.</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

** Defective pavement. Remove and replace or, when permitted by the District Executive in writing, leave in place and the Department will pay 50% of the contract unit price.

4. **Mixture Acceptance by Lot and Density Acceptance by Non-Movement, Optimum-Rolling Pattern, or Pavement Cores.** The Department will pay on a lot-by-lot basis at the contract unit price, adjusted for Payment Factor Percentages as specified in Table I. For the payment factor percentages based on percent within tolerance, the Department will determine the percent within tolerance according to Section 106.03(a)3, using the upper and lower specification limits in Table J.

**TABLE I**
<table>
<thead>
<tr>
<th>Mixture Nominal Maximum Aggregate Size</th>
<th>Test Criteria</th>
<th>Test Value</th>
<th>Payment Factor Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Asphalt Content</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All sizes</td>
<td>Acceptance Sample Testing</td>
<td>All individual sublot acceptance sample test results for the lot are within the n=1 tolerances in Table A and the lot average is within the n≥3 tolerances in Table A*</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Percent Within Tolerance if any individual sublot acceptance sample test result for the lot is not within the n=1 tolerances in Table A or the lot average is not within the n≥3 tolerances in Table A</td>
<td>Table K</td>
</tr>
<tr>
<td><strong>Gradation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All sizes</td>
<td>Acceptance Sample Testing for % Passing 75 Mm (No. 200) Sieve</td>
<td>All individual sublot acceptance sample test results for the lot are within the n=1 tolerances in Table A and the lot average is within the n≥3 tolerances in Table A*</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Percent Within Tolerance, if any individual sublot acceptance sample test result for the lot is not within the n=1 tolerances in Table A or the lot average is not within the n≥3 tolerances in Table A</td>
<td>Table K</td>
</tr>
<tr>
<td><strong>Mat Density</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All sizes</td>
<td>Non-Movement</td>
<td>Section 409.3(j)2.</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Optimum-Rolling Pattern</td>
<td>Section 409.3(j)3.</td>
<td>100</td>
</tr>
<tr>
<td>All RPS 9.5 mm, 12.5 mm, 19 mm and 25 mm Wearing or Binder Courses</td>
<td>Acceptance Sample Testing of Pavement Cores</td>
<td>All individual sublot test results for the lot are ≥92% and &lt;97% of maximum theoretical density</td>
<td>100</td>
</tr>
</tbody>
</table>
Percent Within Tolerance if any individual sublot test result for the lot is not ≥ 92% and < 97% of maximum theoretical density

Table K

All Standard 9.5 mm, 12.5 mm, 19 mm and 25 mm Wearing or Binder Courses
Acceptance Sample Testing of Pavement Cores
All individual sublot test results are ≥90% and <97% and the lot average is ≥92% and <97% of the maximum theoretical density
100

Percent Within Tolerance if any individual sublot test result is not ≥90% and <97 or if the lot average is not ≥92% and <97% of the maximum theoretical density
Table K

All 25 mm and 37.5 mm Base Courses
Acceptance Sample Testing of Pavement Cores
All individual sublot test results are ≥88% and <97% and the lot average is ≥90% and <97% of the maximum theoretical density
100

Percent Within Tolerance if any individual sublot test result is not ≥88% and <97 or if the lot average is not ≥90% and <97% of the maximum theoretical density
Table K

* The Department may elect to randomly select and test only one sublot mixture acceptance sample from each lot to verify conformance to the specifications. If only one sublot mixture acceptance sample is tested, tighter tolerances than those in Table A will be used to verify conformance to the specifications for the entire lot. If the one sublot is within ±0.2% of the JMF for asphalt content and within ±1.0% of the JMF for percent passing the 75 µm (No. 200) sieve, the lot will be considered to conform with the specifications and the lot’s payment factor percentage will be determined according to this table. If the one sublot fails to meet the tighter tolerances, all mixture acceptance samples from the lot will be tested to determine the payment factor percentage according to this table.

**TABLE J**

| Upper and Lower Specification Limits for Calculating Percent Within Tolerance |
| Testing Criteria |
| Mixture Nominal Maximum Aggregate Size | Lower Specification Limit (L) | Upper Specification Limit (U) |

Apr 18, 2005 11:13:08 AM
<table>
<thead>
<tr>
<th>Asphalt Content from JMF Value, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.5 mm, 12.5 mm, 19 mm</td>
</tr>
<tr>
<td>25 mm and 37.5 mm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Percent Passing the 75 µm (No. 200) sieve from JMF Value, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>All sizes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mat Density*</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.5 mm, 12.5 mm, 19 mm, and 25 mm Wearing and Binder Courses</td>
</tr>
<tr>
<td>25 mm and 37.5 mm Base Courses</td>
</tr>
</tbody>
</table>

* Where T = Current Maximum Theoretical Density, kg/m³ (lbs./cu. ft.)

### TABLE K

Payment Factor Based on Percent Within Tolerance

<table>
<thead>
<tr>
<th>Percent Within Tolerance</th>
<th>Payment Factor Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>99</td>
<td>97</td>
</tr>
<tr>
<td>98</td>
<td>97</td>
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<tr>
<td>97</td>
<td>97</td>
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<td>96</td>
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<td>91</td>
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<td>90</td>
<td>95</td>
</tr>
<tr>
<td>89</td>
<td>93</td>
</tr>
<tr>
<td>88</td>
<td>91</td>
</tr>
</tbody>
</table>
**Remove and replace the lot. If only one lot characteristic has a percent within tolerance less than 64, the District Executive, with the concurrence of the Chief Engineer, may allow the Contractor to leave the defective lot in place. The
Department will pay for the defective lot at 50% of the contract unit price.

4.a Payment. The Representative will compute the percent of the contract unit price paid as follows:

\[ \text{Lot Payment} = \frac{Cp(2PD + PB + PA)}{400} \]

- \( CP \) = Contract unit price per lot (unit price times lot quantity)
- \( PD \) = Payment Factor Percentage for density
- \( PB \) = Payment Factor Percentage for asphalt content.
- \( PA \) = Payment Factor Percentage for percent passing the 75 \( \mu \)m (No. 200) sieve

4.b Retesting. For mixture acceptance testing or density acceptance testing performed by the MTD, the Contractor may request that the Department retest a lot. The Department may allow retesting if the Contractor has a reasonable basis to conclude the test results do not represent the lot. With the Contractor present, the MTD will perform the retest. The MTD will not retest cores coated with paraffin wax as a result of PTM No. 716. The MTD will perform analysis of the original test values and the retest values according to PTM No. 5.

The MTD will evaluate a re-tested lot with:
- The original test values if repetition is established.
- The retest values if lack of repetition is established.

If the retest values indicate repetition of the original test values, the Department will deduct from the payment an amount equal to ten times the contract unit price per tonne (ton) or, for a contract with a unit price per square meter (square yard), ten times the calculated price per tonne (ton).

(b) HMA RPS Construction. Square Meter (Square Yard) or Tonne (Ton)

1. Mixture Acceptance by Lot and Density Acceptance by Pavement Cores. Section 409.4(a)4, except for RPS, the Department will determine mat density by pavement cores only.

Special Provision: G32A - District 6-0 for All Projects

Addendum: 1
Addendum Action Code: Modified

Header:

Provision Body:

This is a district-wide standard provision for all projects in District 6-0. It is for test purposes only. I will continue to enter text into this provision so that it will have at least a paragraph of data to read, and it won't look weird. It will also allow us to test the display functionality of both the Standard Special Provision Maintenance Screen and the Ad Hoc Special Provision Screen. Thanks for your support...we now return you to our regular program. By the way, the following is a table for display purposes:
Special Provision: 00 - Test Title Tags

Addendum: 1
Addendum Action Code: Modified
Item(s) Associated: 8123-4567

Header:

Provision Body:

This is line 1 This is line 2 This is line 3 - but all three of these sentences should appear on the same line.

Project Specific Details: