

**SECTION 32 12 16  
ASPHALT PAVING**

**PART 1 - GENERAL**

**1.1 DESCRIPTION**

- A. This work shall cover the composition, mixing, construction upon the prepared subgrade, and the protection of hot asphalt concrete pavement, Cold Milling, and Patching. The hot asphalt concrete pavement shall consist of an aggregate or asphalt base course and asphalt surface course constructed in conformity with the lines, grades, thickness, and cross sections as shown. Each course shall be constructed to the depth, section, or elevation required by the drawings and shall be rolled, finished, and approved before the placement of the next course.
- B. The Contractor shall retain and reimburse a laboratory to perform said duties; or to obtain a certification from the authorized representative of the State; or to obtain certification from the asphalt paving producer. Certificate of compliance shall cover quality and gradation of aggregate base, quality and grades of asphalt course materials, and that the job-mixture meets or exceeds the State requirements.

**1.2 RELATED WORK**

- A. Laboratory and field testing requirements: Section 01 45 29, TESTING LABORATORY SERVICES.
- B. Subgrade Preparation: Paragraph 3.3 and 31 20 11 EARTH MOVING (SHORT FORM).

**1.3 INSPECTION OF PLANT AND EQUIPMENT**

The COR shall have access at all times to all parts of the material producing plants for checking the mixing operations and materials and the adequacy of the equipment in use.

**1.5 SUBMITTALS**

- A. In accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES, furnish the following:
- B. Data and Test Reports:
  - 1. Aggregate Base Course: Sources, gradation, liquid limit, plasticity index, percentage of wear, and other tests required by State Highway Department.
  - 2. Porous Asphalt and Asphalt Base/Surface Course: Aggregate source, gradation, soundness loss, percentage of wear, and other tests required by State Highway Department.
  - 3. Job-mix formula.
- C. Certifications:

1. Asphalt prime and tack coat material certificate of conformance to State Highway Department requirements.
  2. Asphalt cement certificate of conformance to State Highway Department requirements.
  3. Job-mix certification - Submit plant mix certification that mix equals or exceeds the State Highway Specification.
- D. One copy of State Highway Department Specifications (Latest Version).
- E. Provide MSDS (Material Safety Data Sheets) for all chemicals used on ground.

**1.6 APPLICABLE PUBLICATIONS**

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.

SPEC WRITER NOTE:  
Delete publications which do not apply to the project.

- B. American Association of State Highway and Transportation Officials (AASHTO):

- HM29M ..... Standard Specifications for Transportation Materials and Methods of Sampling and Testing, 29th Edition and AASHTO Provisional Standards, 2009 Edition
- MP1 ..... Specification for Performance Graded Asphalt
- T 283 ..... Standard Method of Test for Resistance of Compacted Hot Mix Asphalt (HMA) to Moisture-Induced Damage

- C. American Society for Testing and Materials (ASTM):

- C29-07 ..... Standard Test Method for Bulk Density ("Unit Weight") and Voids in Aggregate
- C977-03 ..... Standard Specification for Quicklime and Hydrated Lime for Soil Stabilization
- D3786 ..... Standard Test Method for Bursting Strength of Textile Fabrics—Diaphragm Bursting Strength Tester Method
- D4355-07 ..... Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture and Heat in a Xenon Arc Type Apparatus
- D4632-08 ..... Standard Test Method for Grab Breaking Load and Elongation of Geotextiles
- D6390-05 ..... Standard Test Method for Determination of Draindown Characteristics in Uncompacted Asphalt Mixtures

D. National Asphalt Paving Association (NAPA):

131 (2003).....Design, Construction, and Maintenance Guide for Porous  
Asphalt Pavements, Information Series

**PART 2 - PRODUCTS**

**2.1 GENERAL**

- A. Aggregate base and asphalt concrete materials shall conform to the requirements of the following and other appropriate sections of the latest version of the State Highway Material Specifications, including amendments, addenda and errata. Where the term "Engineer" or "Commission" is referenced in the State Highway Specifications, it shall mean the NCA MSN Engineer or COR.

**2.2 AGGREGATES ASPHALT PAVING**

- A. Provide aggregates consisting of crushed stone, gravel, sand, or other sound, durable mineral materials processed and blended, and naturally combined.
- B. Subbase aggregate (where required) maximum size: 1-1/2 inches (38 mm).
- C. Base aggregate maximum size:
  - 1. Base course over 6 inches (152 mm) thick: 1-1/2 inches (38 mm);
  - 2. Other base courses: 3/4 inches (19 mm).
- D. Asphaltic base course:
  - 1. Maximum particle size not to exceed 1 inch (25.4 mm).
  - 2. Where conflicts arise between this specification and the requirements in the latest version of the State Highway Specifications, the State Specifications shall control.
- E. Aggregates for asphaltic concrete paving: Provide a mixture of sand, mineral aggregate, and liquid asphalt mixed in such proportions that the percentage by weight will be within:

Sieve Sizes	Percentage Passing
3/4 inch (19 mm)	100
3/8 inch (9.5 mm)	67 to 85
1/4 inch (6.4 mm)	50 to 65
No. 8 mesh (2.4mm)	37 to 50
No. 30 mesh (600 μm)	15 to 25
No. 200 mesh (75 μm)	3 to 8

plus 50/60 penetration liquid asphalt at 5 percent to 6-1/2 percent of the combined dry aggregates.

## **2.3 ASPHALTS**

- A. Comply with provisions of Asphalt Institute Specification SS2:
  - 1. Asphalt cement: Penetration grade 50/60
  - 2. Prime coat: Cut-back type, grade MC-250
  - 3. Tack coat: Uniformly emulsified, grade SS-1H

## **PART 3 - EXECUTION**

### **3.1 GENERAL**

The Asphalt Concrete Paving equipment, weather limitations, job-mix formula, mixing, construction methods, compaction, finishing, tolerance, and protection shall conform to the requirements of the appropriate sections of the State Highway Specifications for the type of material specified.

### **3.2 MIXING ASPHALTIC CONCRETE MATERIALS**

- A. Provide hot plant-mixed asphaltic concrete paving materials.
  - 1. Temperature leaving the plant: 290 degrees F (143 degrees C) minimum, 320 degrees F (160 degrees C) maximum.
  - 2. Temperature at time of placing: 280 degrees F (138 degrees C) minimum.

### **3.3 SUBGRADE**

- A. Shape to line and grade and compact with self-propelled rollers.
- B. All depressions that develop under rolling shall be filled with acceptable material and the area re-rolled.
- C. Soft areas shall be removed and filled with acceptable materials and the area re-rolled.
- D. Should the subgrade become rutted or displaced prior to the placing of the subbase, it shall be reworked to bring to line and grade.
- E. Proof-roll the subgrade with maximum 50 ton (45 metric tonne) gross weight dump truck as directed by VA Resident Engineer or VA Contracting Officer. If pumping, pushing, or other movement is observed, rework the area to provide a stable and compacted subgrade.

### **3.4 BASE COURSES**

- A. Subbase (when required)
  - 1. Spread and compact to the thickness shown on the drawings.
  - 2. Rolling shall begin at the sides and continue toward the center and shall continue until there is no movement ahead of the roller.

3. After completion of the subbase rolling there shall be no hauling over the subbase other than the delivery of material for the top course.
- B. Base
1. Spread and compact to the thickness shown on the drawings.
  2. Rolling shall begin at the sides and continue toward the center and shall continue until there is no movement ahead of the roller.
  3. After completion of the base rolling there shall be no hauling over the base other than the delivery of material for the top course.
- C. Thickness tolerance: Provide the compacted thicknesses shown on the Drawings within a tolerance of minus 0.0 inch (0.0 mm) to plus 0.5 inch (12.7 mm).
- D. Smoothness tolerance: Provide the lines and grades shown on the Drawings within a tolerance of 3/16 inch in ten feet (5 mm in 3 m).
- E. Moisture content: Use only the amount of moisture needed to achieve the specified compaction.

### **3.5 PLACEMENT OF ASPHALTIC CONCRETE PAVING**

- A. Remove all loose materials from the compacted base.
- B. Apply the specified prime coat, and tack coat where required, and allow to dry in accordance with the manufacturer's recommendations as approved by the Architect or Engineer.
- C. Receipt of asphaltic concrete materials:
1. Do not accept material unless it is covered with a tarpaulin until unloaded, and unless the material has a temperature of not less than 280 degrees F (130 degrees C).
  2. Do not commence placement of asphaltic concrete materials when the atmospheric temperature is below 50 degrees F (10 degrees C), not during fog, rain, or other unsuitable conditions.
- D. Spreading:
1. Spread material in a manner that requires the least handling.
  2. Where thickness of finished paving will be 3 inches (76 mm) or less, spread in one layer.
- E. Rolling:
1. After the material has been spread to the proper depth, roll until the surface is hard, smooth, unyielding, and true to the thickness and elevations shown on the drawings.
  2. Roll in at least two directions until no roller marks are visible.
  3. Finished paving smoothness tolerance:
    - a. No depressions which will retain standing water.
    - b. No deviation greater than 1/8 inch in six feet (3 mm in 1.8 m).

### **3.6 COLD MILLING**

- A. Clean existing pavement surface of loose or deleterious material immediately before cold milling. Remove existing asphalt pavement to grades and cross sections indicated.
  - 1. Mill to a depth of 2 inches (50 mm).

### **3.7 PATCHING**

- A. Hot Mix Asphalt Pavement: Sawcut perimeter of patch and excavate existing pavement section to sound base. Excavate rectangular or trapezoidal patches, extending 12 inches (300 mm) into adjacent sound pavement, unless otherwise indicated. Cut excavation faces vertically. Remove excavated material. Recompact existing aggregate base course to provide new subgrade.
- B. Tack Coat: Apply uniformly to vertical and horizontal surfaces abutting area to receive new hot mix asphalt paving at a rate of 0.05 to 0.15 gal./sq. yd (0.2 to 0.7 L/sq.M.).
  - 1. Allow tack coat to cure before applying hot mix asphalt paving.
  - 2. Avoid smearing or staining adjoining surfaces, remove spillage and clean affected surfaces.
- C. Patching: Fill excavated pavement with hot mix asphalt base mix for full thickness of patch; while still hot compact flush with adjacent pavement surface.

### **3.8 PROTECTION**

Protect the asphaltic concrete paved areas from traffic until the sealer is set and cured and does not pick up under foot or wheeled traffic.

### **3.9 FINAL CLEAN-UP**

Remove all debris, rubbish, and excess material from the work area.

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