

SECTION 32 12 16 - ASPHALT PAVING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes
 - 1. Hot-mix asphalt paving.
 - 2. Hot-mix asphalt patching and overlays.

1.2 SUBMITTALS

- A. Job-Mix Designs: Certification, by authorities having jurisdiction, of approval of each job mix proposed for the Work.
- B. Material Certificates: For each paving material, from manufacturer.

1.3 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer shall be registered with and approved by authorities having jurisdiction or the DOT of the state in which Project is located.
- B. Regulatory Requirements: Comply with state or local DOT for asphalt paving work.
- C. Asphalt-Paving Publication: Comply with AI MS-22, "Construction of Quality Asphalt Pavements," unless more stringent requirements are indicated.

1.4 FIELD CONDITIONS

- A. Environmental Limitations: Do not apply asphalt materials if subgrade is wet or excessively damp or if the following conditions are not met:
 - 1. Tack Coat: Minimum surface temperature per requirements of asphalt course.
 - 2. Asphalt Base and Surface Course: Minimum surface temperature of 40 deg F (4.4 deg C) and rising at time of placement.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Coarse Aggregate: MDOT 6A. Sound; angular crushed stone, or crushed gravel.

- B. Fine Aggregate: MDOT 21AA. Sharp-edged natural sand or sand prepared from stone, gravel, cured blast-furnace slag, or combinations thereof.
- C. Mineral Filler: 3MF. Rock or slag dust, hydraulic cement, or other inert material.
- D. Asphalt Binder: 2020 MDOT Standard Specifications for Plant Mixed HMA section 501 and Asphaltic Materials section 904.
- E. Tack Coat: 2020 MDOT Standard Specifications for Plant Mixed HMA section 501 and Asphaltic Materials section 904.
- F. Overlay Fabric or Paving Mat: Fiberglass non-woven geotextile fabric; resistant to chemical attack, rot, and mildew; and specifically designed for paving applications.
 - 1. Basis-of-Design Product: Owens Corning; TruPave.

2.2 MIXES

- A. Hot-Mix Asphalt: Dense, hot-laid, hot-mix asphalt plant mixes approved by authorities having jurisdiction; designed according to procedures in AI MS-2, "Asphalt Mix Design Methods"; and complying with the following requirements:
 - 1. Provide mixes with a history of satisfactory performance in geographical area where Project is located.
 - 2. Base Course: MDOT 1500L-20AAA
 - 3. Surface Course: MDOT 1500T-20AAA.
 - 4. Provide mixes with a history of satisfactory performance in geographical area where Project is located.

PART 3 - EXECUTION

3.1 COLD MILLING

- A. Clean existing pavement surface of loose and deleterious material immediately before cold milling. Remove existing asphalt pavement by cold milling to grades and cross sections indicated.

3.2 PATCHING

- A. Hot-Mix Asphalt Pavement: Saw cut 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 unbound-aggregate base course to form new subgrade.
- B. Tack Coat: Apply uniformly to vertical surfaces abutting or projecting into 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).

- C. Patching: Fill excavated pavements with hot-mix asphalt base mix and, while still hot, compact flush with adjacent surface.
- D. Joint/Crack Treatment: Install joint sealant, emulsion, or “gutter seal” type products as specified in Division 32 Section "Paving Joint Sealants" to seal joints of patched surfaces.

3.3 SURFACE PREPARATION

- A. Proof-roll subbase as specified in Division 31 Section "Earth Moving."
- B. General: Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces. Ensure that prepared subgrade is ready to receive paving.
- C. Tack Coat: Apply when overlaying existing pavement, on adjacent horizontal surfaces such as curbs, and between base and surface courses when the two courses are not installed in a continuous installation.
 - 1. Apply at a rate of 0.05 to 0.15 gal./sq. yd. (0.2 to 0.7 L/sq. m).
 - 2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.

3.4 HOT-MIX ASPHALT PLACING

- A. Machine place hot-mix asphalt on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand to areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness when compacted.
 - 1. Spread mix at minimum temperature of 250 deg F (121 deg C).
 - 2. Regulate paver machine speed to obtain smooth, continuous surface free of pulls and tears in asphalt-paving mat.
- B. Place paving in consecutive strips not less than 10 feet (3 m) wide unless infill edge strips of a lesser width are required.
- C. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot-mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.

3.5 JOINTS

- A. Construct joints to ensure a continuous bond between adjoining paving sections. Construct joints free of depressions, with same texture and smoothness as other sections of hot-mix asphalt course.

3.6 COMPACTION

- A. General: Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact hot-mix paving with hot, hand tampers or with vibratory-plate compactors in areas inaccessible to rollers.
 - 1. Complete compaction before mix temperature cools to 185 deg F (85 deg C).
 - 2. Install and compact longitudinal joints to achieve a uniform density of pavement.
- B. Breakdown Rolling: Complete breakdown or initial rolling immediately after rolling joints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Correct laydown and rolling operations to comply with requirements.
- C. Intermediate Rolling: Begin intermediate rolling immediately after breakdown rolling while hot-mix asphalt is still hot enough to achieve specified density. Continue rolling until hot-mix asphalt course has been uniformly compacted to the following density:
 - 1. Average Density: 92 percent of reference maximum theoretical density according to ASTM D 2041, but not less than 90 percent nor greater than 96 percent.
- D. Finish Rolling: Finish roll paved surfaces to remove roller marks while hot-mix asphalt is still warm.
- E. Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while asphalt is still hot; compact thoroughly.
- F. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.
- G. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

3.7 INSTALLATION TOLERANCES

- A. Pavement Thickness: Compact each course to produce the thickness indicated within the following tolerances:
 - 1. Base Course: Plus or minus 1/4 inch (6 mm).
 - 2. Surface Course: Plus 1/4 inch (6 mm), no minus.
- B. Pavement Surface Smoothness: Compact each course to produce a surface smoothness within the following tolerances as determined by using a 10-foot (3-m) straightedge applied transversely or longitudinally to paved areas:
 - 1. Base Course: 1/4 inch (6 mm).
 - 2. Surface Course: 1/8 inch (3 mm).

3.8 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections. Coordinate Work with the Owner's testing agency.
- B. Replace and compact hot-mix asphalt where core tests were taken.
- C. Additional testing and inspection work to correct or repair unsatisfactory work will be at the expense of the Contractor.
- D. Remove and replace or install additional hot-mix asphalt, at the Contractor's expense, where test results or measurements indicate that it does not comply with specified requirements.

3.9 DISPOSAL

- A. Except for material indicated to be recycled, remove excavated materials from Project site and legally dispose of them in an EPA-approved landfill.

END OF SECTION 32 12 16

