

SECTION 32 12 16

ASPHALT PAVING

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The Work of this Section shall include 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 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 include quality and gradation of aggregate base, quality and grades of asphalt course materials, and indicate that the job mixture meets or exceeds the State requirements.

1.2 RELATED WORK

- A. General requirements: Section 01 00 00, GENERAL REQUIREMENTS.
- B. Laboratory and field testing requirements: Section 01 45 29, TESTING LABORATORY SERVICES.
- C. Subgrade Preparation: Paragraph 3.3 and Section 31 20 00, EARTH MOVING.

1.3 INSPECTION OF PLANT AND EQUIPMENT

- A. 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.

1.4 ALIGNMENT AND GRADE CONTROL

- A. The Contractor's Registered Professional Land Surveyor specified in Section 01 00 00, GENERAL REQUIREMENTS shall establish and control the pavement (aggregate base course and asphalt surface course) alignments, grades, elevations, and cross sections as shown on the Drawings.

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. Asphalt 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. Provide SDS (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.
- B. American Society for Testing and Materials (ASTM):
 - C29 Standard Test Method for Bulk Density ("Unit Weight") and Voids in Aggregate
 - D1557 Test Methods for Laboratory Compaction of Soil
 - D6390 Standard Test Method for Determination of Draindown Characteristics in Uncompacted Asphalt Mixtures

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 VA 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. Aggregate Base: In accordance with State of California Department of Transportation for Class 2 Aggregate Base, 1-1/2" maximum gradation.

- C. Aggregate for Asphalt Course Mix: In accordance with Type B for 1/2" maximum aggregate (medium) in accordance with State of California Department of Transportation Standard Specification Section 39:
1. Aggregates shall be clean and free from decomposed materials, organic material and other deleterious substances. Coarse aggregate is material retained on the No. 4 sieve; fine aggregate is material passing the No. 4 sieve; and supplemental fine aggregate is added fine material passing the No. 30 sieve, including, but not limited to, cement and stored fines from dust collectors.
 2. The aggregate grading of the various types of asphalt concrete shall conform to the following:

Type	Grading
B	1/2 inch maximum, Medium

3. The proposed gradation shall meet the gradation shown in the table below. Changes from one mix design to another shall not be made during the progress of the Work.

1/2 inch Maximum, Medium

Sieve Sizes	Range
3/4"	100
1/2"	95-99
3/8"	75-95
No. 4	55-66
No. 8	38-49
No. 30	15-27
No. 200	2-8

- D. Mineral Filler: Finely ground particles of limestone, hydrated lime or other mineral dust, free of foreign matter.

2.3 ASPHALTS

- A. Asphalt Cement: In accordance with State of California Department of Transportation Standard Specification:
1. Asphalts shall be classified by penetration grade PG 64-10.
 2. Asphalt shall not be heated during the process of its manufacture or during construction so as to cause injury as evidenced by the formation of carbonized particles.
 3. During the progress of the Work no change affecting the uniformity of the asphalt shall be made in either the source of crude stock or the method of manufacture without notifying the COR of the proposed change and obtaining the COR's approval.

- B. Prime Coat: ASSHTO MC-250. In accordance with State of California Department of Transportation standard specification.
- C. Tack Coat: ASSHTO SS1H. In accordance with State of California Department of Transportation standard specification.

PART 3 - EXECUTION

3.1 GENERAL

- A. 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 minimum, 320 degrees F maximum.
 - 2. Temperature at time of placing: 280 degrees F minimum.

3.3 SUBGRADE

- A. Prepare subgrade per requirements of 31 20 00, EARTH MOVING.
- B. Shape to line and grade and compact with self-propelled rollers.
- C. All depressions that develop under rolling shall be filled with acceptable material and the area re-rolled.
- D. Soft areas shall be removed and filled with acceptable materials and the area re-rolled.
- E. Should the subgrade become rutted or displaced prior to the placing of the subbase, it shall be reworked to bring to line and grade.
- F. Proof-roll the subgrade with maximum 50 ton gross weight dump truck as directed by COR. If pumping, pushing, or other movement is observed, rework the area to provide a stable and compacted subgrade.

3.4 BASE COURSES

- A. Base
 - 1. Spread to the thickness shown on the Drawings.
 - 2. Compact to 95 percent per ASTM D1557.
 - 3. Rolling shall begin at the sides and continue toward the center and shall continue until there is no movement ahead of the roller.
 - 4. After completion of the base rolling there shall be no hauling over the base other than the delivery of material for the asphalt paving courses.

- B. Thickness tolerance: Provide the compacted thicknesses shown on the Drawings within a tolerance of minus 0.0" to plus 0.5".
- C. Smoothness tolerance: Provide the lines and grades shown on the Drawings within a tolerance of 3/16 inch in ten feet.
- D. 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 COR.
- C. A tack coat shall be furnished and shall be applied to all vertical surfaces of existing pavement, to horizontal surfaces where milling has occurred, to curbs, gutters and construction joints in the surfacing against which additional material is to be placed, to a pavement to be surfaced, and to other surfaces designated.
 - 1. Tack coat shall be applied in one application at a rate of from 0.05- to 0.15-gallon per square yard of surface covered.
- D. 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.
 - 2. Do not commence placement of asphaltic concrete materials when the atmospheric temperature is below 50 degrees F nor during fog, rain, or other unsuitable conditions.
- E. Spreading:
 - 1. Spread material in a manner that requires the least handling.
 - 2. Where thickness of finished paving will be 3" or less, spread in one layer.
- F. 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" in six feet.

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 1-1/2 inches.

3.7 PATCHING

- A. Hot Mix Asphalt Pavement: Sawcut perimeter of patch and excavate existing pavement section to sound base or to existing subgrade as indicated in the Drawings. Excavate rectangular or trapezoidal patches, extending 12 inches into adjacent sound pavement, unless otherwise indicated. Cut excavation faces vertically. Remove excavated material. Provide new aggregate base course or recompact existing aggregate base course to provide new subgrade, as indicated in the Drawings.
- 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-gallon per square yard.
 - 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 wearing course mix for full thickness of patch; while still hot compact flush with adjacent pavement surface.

3.8 PROTECTION

- A. 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

- A. Remove all debris, rubbish, and excess material from the Work area.

END OF SECTION