SECTION 3

ASPHALT CONCRETE

OBJECTIVE

The performance of Hot Mix Asphalt (HMA) and Rubberized Hot Mix Asphalt (RHMA) pavement is as much affected by the careful construction of the subgrade and base as it is by the control of the mix itself. Therefore, the paving inspector must also be knowledgeable in soils. The purpose of observation and testing of HMA and RHMA paving is to verify that paving contractors and their suppliers are exercising adequate quality control in their operations and are providing a finished product that complies with the project plans and specification requirements. This is also to be accompanied by adequate sampling of HMA and RHMA for acceptance testing in accordance with the Quality Assurance Plan.

This objective can best be achieved by qualified special inspectors performing the following duties under the direct supervision of the materials engineering laboratory.

OBSERVATION DUTIES

A. Documents

1. Review the approved plans and specifications, and meet with contractor and suppliers before construction to discuss project and to verify that requirements for testing and observation are well understood.
2. Review material certificates and test reports for compliance with job specifications.
3. Review Job Mix Formula (JMF) submittals for compliance to project requirements.

B. Sampling of Materials

1. Sample and perform preliminary tests on proposed aggregates and asphalt cement (virgin asphalt cement, Rubberized Asphalt Binder, or Asphalt Rubber Binder) to verify JMF (gradation, sand equivalent, abrasion, air voids, etc.)

C. Subgrade and Base

1. Confirm that sources of materials have been sampled and approved.
2. Verify that materials delivered are of uniform quality.
3. Verify that control testing of subgrade materials is being performed and recorded as required.
4. Verify that subbase and base courses are of the source, type, thickness and density specified.
5. Verify that soil stabilization is provided, if required.
6. Refer to Section 1, Earthwork, for additional details.

D. Plant (Drum Mix or Batch)

1. The inspector should become familiar with the appearance and physical characteristics of the mix to be used by observing visually the finished mixture so that unsatisfactory conditions may be readily recognized.
2. Check the plant facilities prior to production of HMA or RHMA.
3. Check aggregates in stockpile to verify conformance to materials utilized in the design.
4. Check the temperature and weights of the aggregate fractions and asphalt cement.
5. Check the mixing temperature and the temperature of the mixed batches on the truck.
6. Conduct sampling of the asphalt cement and blended aggregates (and RAP, if any) to verify the (cold feed or hot-bins, whichever is applicable) job mix formula is within tolerance.
7. Before loading, truck beds should be checked for cleanliness and absence of materials that might be detrimental to the mix (such as cleaning solvents). Ensure the trucks are tarped after loading.
8. Coordinate with the job site inspector to obtain a uniform and consistent HMA.

E. Spreading and Paving

1. The field inspector should contact the plant inspector promptly should the observed conditions during placement and spreading operations suggest a need for change at the plant. The following items should be addressed prior to and during placement operations:
   a) Area to be paved, cleaned, crack sealed and properly primed, or tack coated.
   b) Leveling course installed where required.
   c) Suitability of spreading and paving equipment.
   d) Ambient and Base temperature to be noted.
   e) Mix temperature when delivered, during placement, and after final rolling is within limits required.
   f) Density tests by nuclear gauge during rolling (when applicable).
   g) Thickness control by adequate placement and compaction.
   h) Sampling of HMA or RHMA at jobsite during placement for laboratory testing (asphalt content, air voids, etc.).
   i) Core samples taken for verification of thickness and in-place density of the mat.
   j) Application of seal coat and curing in accordance with specification requirements, if required.

F. Verification Tests

1. Stability and air voids.
2. Asphalt content and gradation by extraction (solvent or ignition oven).
3. Physical properties of the asphalt cement: penetration, viscosity, softening point, resilience, ductility, and specific gravity (when applicable).
4. Aggregate quality: gradation, LA abrasion, and equivalent, fractured faces, uncompacted voids, etc.
5. Thickness and Field density of core samples.
6. Smoothness tolerance.

G. Reports

1. Submit written reports describing the observations made and showing the action taken to correct nonconforming work. Itemize any changes authorized by architect/engineer. Report all deviations from plans or specifications.