DIVISION 300 - BASES

SECTION 301 - HOT MIX ASPHALT BASE COURSE

301.01 Description. This section describes furnishing and placing hot mix asphalt base (HMAB) course on a prepared surface.

301.02 Materials.

Asphalt Cement (PG 64-16) 702.01
aggregate for Hot Mix Asphalt Base Course 703.03
Filler 703.15
Hydrated Lime 712.03

(A) General. HMAB shall include mixture of aggregate and asphalt cement, and may include reclaimed asphalt pavement (RAP) or filler, or both.

RAP is defined as removed or reprocessed pavement materials containing asphalt and aggregates. Process RAP by crushing until 100 percent of RAP passes 1-1/4-inch sieve. Size, grade uniformly, and combine materials such that blend of RAP and aggregate material conforms to grading requirements of Subsection 703.03 - Aggregate for Hot Mix Asphalt Base Course.

For batch plants, aggregate for HMAB may include RAP quantities up to 30 percent of total mix weight. For drum dryer-mixer plants, aggregate for HMAB may include RAP quantities up to 40 percent of total mix weight. Use 100 percent virgin aggregate only with written acceptance by the Engineer.

Furnish only one grade of asphalt cement for the project.

(B) Job-Mix Formula and Tests. Design job-mix formula in accordance with procedures contained in current edition of Asphalt Institute’s Mix Design Methods for Asphalt Concrete and Other Hot Mix Types, Manual Series No. 2 (MS-2) for either Marshall Method or Hveem Method of Mix Design.

Design asphalt content shall be between 3.8 percent and 5.7 percent, based on total weight of mix. Meet job-mix formula design criteria specified in Table 301.02-1 - Job Mix Formula Design Criteria.
### TABLE 301.02-1 – JOB-MIX FORMULA DESIGN CRITERIA

<table>
<thead>
<tr>
<th>Description</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hveem Method Mix Criteria (AASHTO T 246 and AASHTO T 247)</strong></td>
<td></td>
</tr>
<tr>
<td>Stability, minimum</td>
<td>37</td>
</tr>
<tr>
<td>Air Voids (percent)(^1)</td>
<td>4 - 6</td>
</tr>
<tr>
<td><strong>Marshall Method Mix Criteria (AASHTO T 245)</strong></td>
<td></td>
</tr>
<tr>
<td>Compaction (number of blows each end of specimen)</td>
<td>75</td>
</tr>
<tr>
<td>Stability, minimum (pounds)</td>
<td>1,800</td>
</tr>
<tr>
<td>Flow (x 0.01 inch)</td>
<td>8 - 16</td>
</tr>
<tr>
<td>Air Voids (percent)(^1)</td>
<td>4 - 6</td>
</tr>
<tr>
<td>Voids In Mineral Aggregate (VMA), minimum (percent)(^2)</td>
<td>Table 401.02-3</td>
</tr>
</tbody>
</table>

**Notes:**
1. Air Voids: AASHTO T 166 or AASHTO T 275; AASHTO T 209, AASHTO T 269.
2. VMA: See Asphalt Institute Manual MS-2, Chapter 4.

### (C) Submittals
Establish and submit job-mix formula for HMAB mixture as follows:

1. Design percent of aggregate passing each required sieve size.
2. Design asphalt content added to aggregate, based on total weight of mix.
3. Design proportion of processed RAP.
4. Design temperature of mixture at point of discharge at paver.
5. Source of aggregate.
6. Grade of asphalt cement.
7. Test data used to develop job-mix formula.
With the exception of item (4) in this subsection, if design requirements are modified after the Engineer accepts job-mix formula, submit new job-mix formula before using HMAB produced from modified mix design.

Submit certificate of compliance for asphalt cement, accompanied by substantiating test data.

(D) **Range of Tolerances for HMAB.** Provide HMAB within allowable tolerances of accepted job-mix formula as specified in Table 401.02-4 - Range of Tolerances for HMA.

### 301.03 Construction

Construct HMAB course in accordance with Subsection 401.03 - Construction and this subsection.

(A) **Material Transfer Vehicle (MTV).** When placing HMAB, use of a MTV will not be required.

(B) **Compaction.** Where compacted thickness is greater than 6 inches, spread and compact mixture in two or more lifts approximately equal in thickness. Maximum compacted thickness of one lift shall be 6 inches.

Compact mixture immediately upon completion of spreading operations to density of not less than 92 percent of maximum theoretical specific gravity in accordance with AASHTO T 209, modified by deletion of Supplemental Procedure for Mixtures Containing Porous Aggregate.

(C) **HMAB Surface and Thickness Tolerances.** Place HMAB to a thickness that when thoroughly compacted conforms to shape and dimension indicated in the contract documents. Limit surface deviations to not more than 1/2 inch above or below theoretical grade.

The combined thickness of HMAB and asphalt concrete pavement shall be within 1/2 inch of combined thickness indicated in the contract documents.

### 301.04 Measurement

HMAB will be paid on a lump sum basis in accordance with and under Section 312 - Hot Mix Glassphalt Base Course. Measurement for payment will not apply.

### 301.05 Payment

The Engineer will pay for the accepted HMAB as Hot Mix Glassphalt Base Course in accordance with and under Section 312 - Hot Mix Glassphalt Base Course. Payment will be full compensation for the work prescribed in this section and the contract documents.
The Engineer may, in lieu of requiring removal and replacement, use a sliding scale pay factor to accept HMAB compacted below 92 percent. The Engineer will pay for material in that production day at a reduced price arrived at by multiplying proportionate unit price by the factor as shown in Table 312.05-1 - Sliding Scale Pay Factor.

END OF SECTION 301