## SECTION 309

## AGGREGATE BASE COURSE

### I. GENERAL

1.1 DESCRIPTION OF WORK

The Contractor shall furnish all labor, supervision, material (except as herein provided), tools, equipment, supplies, and services; and, shall perform all Work necessary for the furnishing and placement of aggregate base course material. The Work shall consist of furnishing and placing one or more courses of aggregates and additives, if required, on a prepared surface in accordance with the requirements of these specifications and in conformity with the lines, grades, typical sections, and cross sections shown in the Contract Documents or as established by the Owner.

1.2 MATERIALS

Materials shall be furnished by the Contractor in accordance with Section 200.

1.3 SUBMITTALS

Submittals shall be made by the Contractor in accordance with the procedures set forth in Section 105 and Section 200.

### II. EXECUTION

2.1 PROCEDURES

A. Equipment used for the construction of aggregate base course shall be approved by the Owner prior to performance of such work. Any machine, combination of machines, or equipment that will handle the material without undue segregation and produce the completed base in accordance with the requirements of these specifications for spreading, moistening, mixing, and compacting will be acceptable to the Owner.

B. The surface upon which the base course is to be placed shall be prepared in accordance with the requirements of the applicable provisions of Section 305 of these Standards.

C. Where the required thickness is more than 6-inches, the material shall be spread and compacted in two or more layers of approximately equal thickness. The compacted thickness of any one layer shall be not more than 6-inches except when vibrating or other approved types of special compacting equipment are used. In such event, the compacted depth of a single layer of base course may be increased to 8-inches upon the approval of the Owner.

D. After mixing and shaping, each layer of base course shall be compacted at optimum moisture, within $\pm$2 percent of optimum moisture content. The density of each layer of base aggregate material, when compared to the theoretical maximum density as determined in accordance with the requirements of the *Virginia Test Methods ManualVTM-1*, shall conform to the following:

| % Material Retained on No. 4 Sieve | Min. % Density |
|---|---|
| 0 - 50 | 100 |
| 51 - 60 | 95 |
| 61 - 70 | 90 |

Percentages will be reported to the nearest whole number.

E. Not more than one sample in every five shall have a density less than that specified, and the density of such a sample shall be not more than 2 percent below that specified. The surface of each layer shall be maintained during the compaction operations in a manner such that a uniform texture is produced and the aggregates are firmly keyed. Water shall be uniformly applied over the base materials during compaction in the amount necessary to obtain proper density.

F. Irregularities in the surface shall be corrected by scarifying, remixing, reshaping, and recompacting until a smooth surface is secured. The surface shall thereafter be protected against the loss of fine materials by the addition of moisture, when necessary, and shall be maintained in a satisfactory and smooth condition until accepted by the Owner.

G. The base course shall be tested in place by the Contractor for depth and density. Field density determinations will be performed with a nuclear field density device in accordance with the *Virginia Test Methods Manual VTM-10* or in accordance with the requirements of AASHTO T191. The method of density determination will be as directed by the Owner.

2.2 TOLERANCES

A. The thickness of the base course will be determined by the depth measurement of holes dug in the base in accordance with the requirements of the *Virginia Test Methods Manual VTM-38B*.

B. Acceptance of the base course for the physical property of depth will be based on the mean result of tests performed on samples taken from each lot of material placed. A *lot* of material is defined as the quantity being tested for acceptance except that the maximum lot size will be 2 miles of paver application width.

C. A lot will be considered acceptable for depth if the mean result of the tests is within the following tolerance of the Drawing depth for the number of tests taken except that each individual test shall be within ± 1.00-inch of the Drawing depth: mean of two tests, ± 0.75-inch; mean of three tests, ± 0.60-inch; and mean of four tests, ± 0.50-inch.

D. Areas that are deficient in depth by more than 1-inch and areas that do not provide a smooth uniform surface shall be scarified, material added or removed, reshaped, and recompacted to the specified density so as to conform to the depth tolerance and provide a smooth, uniform surface.

## III. MEASUREMENT FOR PAYMENT

A. Base course will be measured in cubic yards or tons as specified. When the cubic yard unit is specified, the quantity will be determined by compacted measurements based on plan quantities. When the ton unit is specified, the quantity shall be measured based on plan quantities using a unit weight of 110 pounds per inch per square yard.

B. Aggregate for curb and curb and gutter base shall be measured in cubic yards or tons, for the specified aggregate material, as indicated on the Bid form and paid based on plan quantities.

C. Items considered incidental work will not be measured for payment or paid for as such. Incidental items are identified in Section 109 and also include the following:

1. Furnishing, hauling, placing, manipulating, and compacting material (including preparing and shaping the subgrade or subbase and shoulders).

2. Adding moisture.

3. Removing and replacing previously prepared subgrade or subbase and constructing the base course thereon

End of Section