

**SECTION 32 11 23**  
**AGGREGATE BASE COURSES**

**PART 1 – GENERAL**

**1.01 SECTION INCLUDES**

- A. Aggregate base material.
- B. Installation standards.
- C. Spreading of material.
- D. Compacting.
- E. Field quality control.

**1.02 RELATED SECTIONS**

- A. Aggregate subbase for pavements and foundations is specified in Contract Specifications Section 32 11 17, Aggregate Subbase Courses.
- B. Preparation of sub grade is specified in Contract Specifications Section 31 00 00, Earthwork.

**1.03 CLASSIFICATION**

- A. Aggregate bases are designated as Class 2 or Class 3. The class of aggregate base shall be as indicated.

**1.04 MEASUREMENT AND PAYMENT**

- A. General: Measurement and payment for aggregate base course will be by the lump-sum method or by the unit-price method as determined by the listing of the bid item for aggregate base course indicated in the Bid Schedule of the Bid Form.
- B. Lump Sum: If the Bid Schedule indicates a lump sum for aggregate base course, the Lump-sum method of measurement and payment will be in accordance with the Lump-Sum Measurement in Contract Specifications Section 01 20 00, Price and Payment Procedures.
- C. Unit Price:
  - 1. If the Bid Schedule indicates a unit price for aggregate base course, the unit price method of measurement and payment will be as follows:

- a. Measurement: Aggregate base course will be measured for payment by the ton or cubic yard, as designated in the contract item, for each class of aggregate placed in the Work. If designated by cubic yard, the quantity for payment will be based on the dimensions, neat lines or pay lines, and sections indicated in the Contract Drawings.
- b. Payment: Aggregate base course will be paid for at the indicated Contract unit prices for the computed quantities as determined by the measurement method specified in Article 1.04.C., herein.

**1.05 REFERENCES**

A. American Society for Testing and Materials (ASTM):

- 1. ASTM C136/  
C136M      Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
- 2. ASTM D1241      Specification for Materials for Soil-Aggregate Subbase, Base, and Surface Courses
- 3. ASTM D1557      Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort
- 4. ASTM D2419      Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate
- 5. ASTM D2844/  
D2844M      Standard Test Method for Resistance R-Value and Expansion Pressure of Compacted Soils
- 6. ASTM D3744/  
D3744M      Standard Test Method for Aggregate Durability Index
- 7. ASTM D6913/  
D6913M      Standard Test Methods for Particle Size Distribution (Gradation) of Soils Using Sieve Analysis
- 8. ASTM D6938      Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

B. State of California, Department of Transportation (Caltrans), Standard Specifications, latest edition:

- 1. Section 10-6      Watering
- 2. Section 26      Aggregate Bases

**1.06 SUBMITTALS**

A. General: Refer to Contract Specifications Section 01 33 00, Submittal Procedures, for submittal requirements and procedures.

- B. Product Data: Submit source, gradation, R-value, sand equivalent, and durability for the proposed base course material.
- C. Test Reports: Submit plant and field test reports as specified in Articles 2.02 and 3.05 herein.

## **PART 2 – PRODUCTS**

### **2.01 AGGREGATE BASE MATERIAL**

- A. Aggregates for the two classes of aggregate bases shall conform to the requirements described in the materials section of Caltrans Standard Specifications Section 26-1.02.
- B. Aggregate for the two classes of aggregate bases at the time the base material is deposited on the prepared sub grade or sub base shall be free from vegetable matter and other deleterious substances and conform with ASTM D1241.

### **2.02 SOURCE QUALITY CONTROL**

- A. The Contractor shall perform sampling and tests of the aggregate base material in accordance with the ASTM D6913/D6913M and tests required in Caltrans Standard Specification Section 26 to determine compliance with specified requirements.
- B. Aggregate grading or sand equivalent test shall represent no more than 500 cubic yards of base course material or one day's production, whichever is the lesser amount.

## **PART 3 – EXECUTION**

### **3.01 EXAMINATION**

- A. The Contractor shall call for an inspection by the Engineer and obtain written acceptance of the prepared sub grade or sub base before proceeding with the placement of aggregate base course.
- B. The sub grade or sub base to receive aggregate base course, immediately prior to spreading, shall conform to the compaction and elevation tolerances indicated for the material involved and shall be free of standing water and loose or extraneous material.

### **3.02 INSTALLATION STANDARDS**

- A. Aggregate base course shall be applied over the prepared sub grade or sub base and compacted in accordance with Section 26 of the Caltrans Standard Specifications.

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- B. Aggregate base course shall have minimum uniform thickness after compaction of dimensions indicated. Where not indicated, compacted thickness shall be six inches for parking stalls and eight inches for roads, driveways, and aisles of parking areas.
- C. All compaction expressed in percentages in this section refers to the maximum dry density as determined by ASTM D1557.

### **3.03 SPREADING OF MATERIAL**

- A. Spreading of aggregate base material shall be approved methods and conform to the requirements as described in Section 26 of the Caltrans Standard Specification.

### **3.04 COMPACTING**

- A. Compaction of aggregate base material shall be approved methods and conform to the requirements as described in Section 26 of the Caltrans Standard Specification.

### **3.05 FIELD QUALITY CONTROL**

- A. The Contractor shall perform field tests in accordance with ASTM D6938 to determine compliance with specified requirements for density and compaction of aggregate base material, and with ASTM D6938 to determine moisture-content compliance of the installed base course.
- B. Testing frequency shall be not less than one test for every 2,000 square feet of base course material, per layer or lift.

**END OF SECTION 32 11 23**