

**SECTION 02227**

**AGGREGATE MATERIAL**

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## SECTION 02227

### AGGREGATE MATERIAL

#### **PART 1 - GENERAL**

##### **1.01 SECTION INCLUDES**

- A. Aggregate Materials

##### **1.02 RELATED SECTIONS**

- A. Section 02100 - Site Preparation
- B. Section 02180 - Subsurface Soil Investigation
- C. Section 02200 - Earthwork
- D. Section 02220 - Excavation, Backfill and Compaction
- E. Section 02229 - Rock Excavation
- F. Section 02270 - Slope Protection and Erosion Control
- G. Section 02505 – Paving Base and Subbase Course
- H. Construction Drawings

##### **1.03 REFERENCE STANDARDS**

- A. American Society for Testing and Materials (ASTM): latest edition ANSI/ASTM C136 - Method for Sieve Analysis of Fine and Course Aggregates. ANSI/ASTM D698 - Test Methods for Moisture-Density Relations of Soils and Soil-aggregate Mixtures, Using 5.5 lb (2.49 Kg) Rammer and 12 inch (304.8 mm) Drop.

ANSI/ASTM D1157 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 lbs (4.54 Kg) Rammer and 18 inch (457 mm) Drop.

ASTM D2167 - Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.

ASTM D2487 - Classification of Soils for Engineering Purposes.

ASTM D2922 - Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

ASTM D3017 - Test Methods for Moisture Content of Soil and Soil-Aggregate Mixtures.

ASTM D4318 - Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

- B. American Association of State Highway and Transportation Officials (AASHTO) latest edition. AASHTO T180 - Moisture-Density Relations of Soils Using A 10 lb (4.54 Kg) Rammer and an 18 inch (457 mm) Drop.

AASHTO M147 - Materials for Aggregate and Soil Aggregate.

**1.04 QUALITY ASSURANCE**

Test and analysis of aggregate material will be performed in accordance with standard ASTM and AASHTO procedures listed herein.

**1.05 SUBMITTALS**

- A. Submit in air tight containers a 10 pound sample of each aggregate or mixture that is to be incorporated into the project to the independent testing laboratory.
- B. Submit the names of each material supplier and specific type and source of each material. Any changes in source throughout the job requires approval of the Owner or Engineer.
- C. Submit materials certificate to on-site Independent Testing Laboratory which is signed by material producer and Contractor, certifying that materials comply with, or exceed, the requirements herein.

**PART 2 - PRODUCTS**

**2.01 MATERIALS**

- A. All construction and materials shall meet or exceed the requirements of this section and the MDOT highway department specification section referred to or noted on the drawings which pertain to paving base course design, materials, preparation, and/or execution. All materials shall be as indicated on Drawings and shall comply with applicable state highway specification regarding source, quality, gradation, liquid, limit, plasticity index, and mix proportioning.
- B. The following tables serve as a guidance for the gradation of the various aggregate materials. Local availability and variances with each States requirements may change the gradations and parameters of these materials. The Contractor shall indicate when submitting materials to be tested what the various applications will be.

Material Description	2"	1"	3/4"	1/2"	3/8"	1/4"	4	10	40	200
Select Backfill	--	--	--	--	--	--	85-100	--	10-30	0-5
3/4 Inch Crushed Stone	--	100	90-100	--	20-50	--	0-10	--	--	--
Riprap Bedding Material	--	--	--	--	--	25-70	--	--	0-30	0-7
Pipe Bedding	--	100	90-100	--	20-55	--	0-10	0-5	--	--
Base Course Crushed Gravel**	100	--	--	45-70	--	30-55	--	--	0-20	0-5
Subbase Course Gravel***	--	--	--	--	--	25-70	--	--	0-30	0-7

\* Aggregate base course shall not contain particles of rock which will not pass the 2 inch square mesh sieve.

\*\* Aggregate subbase course shall not contain particles of rock which are larger than 4 inches.

**PART 3 - EXECUTION**

### **3.01 STOCKPILING**

Stockpile on-site at locations indicated by the owner in such a manner that there will be no standing water or mixing with other materials.

### **3.02 BORROW SITES**

Upon completion of borrow operations, clean up borrow areas as indicated on the plans and in neat and reasonable manner to the satisfaction of the property Owner or the Engineer.

### **3.03 TRANSPORTATION**

Off-site materials shall be transported to the project using well maintained and operating vehicles. Once on the job site, all transporting vehicles shall stay on designated haul roads and shall at no time endanger any of the improvements by rutting, overloading or pumping the haul road.

**---END OF SECTION 02227---**