

## PART 1 GENERAL

### 1.1 SUMMARY

- A. Section Includes:
  - 1. Coarse aggregate materials.
  - 2. Fine aggregate materials.
  
- B. Related Sections:
  - 1. Section 31 05 13 - Soils for Earthwork: Fill and grading materials.
  - 2. Section 31 22 13 - Rough Grading.
  - 3. Section 31 23 17 - Trenching.
  - 4. Section 32 11 23 - Aggregate Base Courses.
  - 5. Section 32 91 19 - Landscape Grading.

### 1.2 REFERENCES

- A. American Association of State Highway and Transportation Officials:
  - 1. AASHTO M147 - Standard Specification for Materials for Aggregate and Soil-Aggregate Subbase, Base and Surface Courses.
  - 2. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.
  
- B. ASTM International:
  - 1. ASTM C136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
  - 2. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft<sup>3</sup>).
  - 3. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft<sup>3</sup>).
  - 4. ASTM D2487 - Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System).
  - 5. ASTM D4318 - Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

### 1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
  
- B. Materials Source: Submit name of imported materials suppliers.

### 1.4 QUALITY ASSURANCE

- A. Furnish each aggregate material from single source throughout the Work.

## PART 2 PRODUCTS

### 2.1 COARSE AGGREGATE MATERIALS

- A. Coarse Aggregate Type A1 (Gravel): AASHTO M147, Grade; passing No. sieve with liquid limit of not more than 25; plasticity index of not more than five in accordance with ASTM D4318.
- B. Coarse Aggregate Type A2 (Gravel): Coarse Stone Crushed Gravel: Pit run Angular crushed natural washed stone; free of shale, clay, friable material and debris; graded in accordance with ASTM C136 Group Symbol GW; within the following limits:

Sieve Size	Percent Passing
2 inches	100
1 inch	95
3/4 inch	95 to 100
5/8 inches	75 to 100
3/8 inches	55 to 85
No. 4	35 to 60
No. 16	15 to 35
No. 40	10 to 25
No. 200	5 to 10

- C. Aggregate Type A3 (Pea Gravel): Natural stone; washed, free of clay, shale, organic matter; graded in accordance with ASTM C136 ASTM D2487 Group Symbol GM; to the following limits:
1. Minimum Size: 1/4 inch.
  2. Maximum Size: 5/8 inch.

### 2.2 FINE AGGREGATE MATERIALS

- A. Fine Aggregate Type A4 (Sand): Natural river or bank sand; washed; free of silt, clay, loam, friable or soluble materials, and organic matter; graded in accordance with ASTM C136 Group Symbol SW; within the following limits:

Sieve Size	Percent Passing
No. 4	100
No. 14	10 to 100
No. 50	5 to 90
No. 100\	4 to 30
No. 200	0

## 2.3 SOURCE QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Testing and inspection services.
- B. Coarse Aggregate Material - Testing and Analysis: Perform in accordance with ASTM D698.
- C. Fine Aggregate Material - Testing and Analysis: Perform in accordance with ASTM D698.
- D. When tests indicate materials do not meet specified requirements, change material and retest.

## PART 3 EXECUTION

### 3.1 EXCAVATION

- A. Excavate aggregate materials from on-site locations indicated designated by Architect/Engineer as specified in Section 31 22 13.
- B. Stockpile excavated material meeting requirements for coarse aggregate materials and fine aggregate materials.
- C. Remove excess excavated materials intended for reuse, from site.
- D. Remove excavated materials not meeting requirements for coarse aggregate materials and fine aggregate materials from site.

### 3.2 STOCKPILING

- A. Stockpile materials on site at locations indicated designated by Architect/Engineer.
- B. Stockpile in sufficient quantities to meet Project schedule and requirements.
- C. Separate different aggregate materials with dividers or stockpile individually to prevent mixing.
- D. Direct surface water away from stockpile site to prevent erosion or deterioration of materials.
- E. Stockpile unsuitable materials on impervious material and cover to prevent erosion and leaching, until disposed of.

### 3.3 STOCKPILE CLEANUP

- A. Remove stockpile, leave area in clean and neat condition. Grade site surface to prevent free standing surface water.
- B. When borrow area is indicated, leave area in clean and neat condition. Grade site surface to prevent free standing surface water.

END OF SECTION