

## SECTION 02206

### ROCKSLOPE PROTECTION

#### PART 1 - GENERAL

##### 1.01 WORK INCLUDED

- A. Clearing, grubbing and stripping work site.
- B. Grading and shaping of waterway or lagoon slopes.
- C. Placing borrow material for slope re-establishment.
- D. Placing rockslope protection on slopes.
- E. Dust alleviation and control.
- F. Cleanup and disposal of excess material.
- G. Supplying all labor, materials, equipment and apparatus not specifically mentioned herein or noted on the plans, but which are incidental and necessary to complete the work specified.

##### 1.02 APPLICABLE PUBLICATIONS

- A. Publications listed below form a part of this specifications to the extent referenced. The publications are referred to in the text by the general designation only.
- B. American Society for Testing and Materials (ASTM) Publication:

D - 1557	Moisture-Density Relations of Soils and Soil Aggregate Mixtures using 10-lb. (4.54 KG) Rammer and 18-in. (457mm) Drop.
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##### 1.03 QUALITY ASSURANCE

- A. Finish surface of the prepared rockslope subgrade shall not vary more than 0.15 feet from that called for on the plans or detail drawings when completed, and immediately prior to placement of the rockslope protection.
- B. Percentage of compaction specified shall be the minimum acceptable. The percentage represents the ratio of the dry density of the compacted material to the maximum dry density of the material as determined by the procedure set forth in ASTM Designation D1557.

#### **1.04 JOB CONDITIONS**

- A.** Contractor shall accurately grade and prepare the rockslope section to the lines and grades called for on the plans and detail drawings.
- B.** Fill required shall consist of suitable excavated material if available, and/or such imported borrow material as may be required for the work conforming to the requirements therefor.
- C.** Contractor shall provide satisfactory dust alleviation and control measures continuously during the course of work.
- D.** Surplus material including all waste, rubbish and construction debris shall be disposed of by the Contractor.

### **PART 2 - PRODUCTS**

#### **2.01 IMPORT MATERIAL FOR FILL**

- A.** Import material for fill shall conform to Section 02220, Grading and Earthwork.
- B.** Materials not conforming to the above specifications and requirements shall remain the property of the Contractor and shall be removed from the job site as directed.

#### **2.02 ROCK FOR ROCKSLOPE PROTECTION**

- A.** Rock shall be light grey in color and subject to approval by the Engineer.
- B.** Size of aggregate shall conform to the following gradation:

Size (inches)	Percent Passing
9	100
8	98
7	78
6	50
5	30
4	6
3	2

- C.** Aggregate shall be clean of dirt, clay and organic material.
- D.** Rock shall have a minimum specific gravity of 2.50.
- E.** Rock shall have a durability index of not less than 52 percent when tested in accordance with Test Method No. California 229.
- F.** All the rock shall be supplied from the same source.

## **PART 3 - EXECUTION**

### **3.01 PREPARATION**

- A.** Prior to placing fill or rockslope protection, all areas shall have been stripped of all vegetation and other objectionable materials as directed.
- B.** The slope shall be graded to the elevations shown on the plans, and compacted as specified in Section 02220 of these Specifications.

### **3.02 PLACEMENT**

- A.** Rock shall be placed at a nominal twelve (12) inch thickness measured perpendicular to the slope. The Contractor shall adjust spread rates to assure that this requirement is met.
- B.** Existing slopes shall be trimmed and graded as directed. In the event that erosion has taken place, regrade the slopes to the slope ratio shown on the plans, for a satisfactory rock placement.
- C.** Round boulders or cobbles shall not be allowed in the work. Angular shapes may be used. Flat or needle-shaped rocks will not be accepted unless the thickness of the individual pieces is greater than 1/3 the length.
- D.** Finished slope of the rock slope shall be as shown on the plans.
- E.** Rock shall not be stockpiled prior to placement higher than three (3) feet nor closer than fifteen (15) feet from the top of the bank.
- F.** Local surface irregularities of the slope protection shall not vary from the planned slopes by more than 6 inches measured at right angles to the slope.
- G.** Placing of rocks by dumping will not be permitted.

### **3.03 SITE DRAINAGE**

- A.** Contractor shall be solely responsible for provision of adequate site drainage at all times during the course of the work.
- B.** All in-progress work within the construction area detrimentally affected by surface runoff shall be satisfactorily corrected to comply with Specification section 02133.

### **3.04 CLEANUP**

- A.** Upon completion of rock slope protection operations, the Contractor shall thoroughly clean the rocks of all waste, rubbish and construction debris.
- B.** Surplus imported fill material remaining upon completion of rock slope protection operations shall be segregated as to type, and must be disposed of.

- C. Surplus rock slope material remaining upon completion of rock slope protection operations shall be transported off the site.

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