

DELAWARE CONSTRUCTION SPECIFICATION

LOOSE ROCK RIPRAP CS 51

1. SCOPE

The work shall consist of the construction of loose rock riprap revetments and blankets, including filter layers or bedding where specified.

2. MATERIALS

Rock for loose rock riprap shall conform to the requirements of Delaware Material Specification 213 or, if so specified shall be obtained from designated sources. It shall be free from dirt, clay, sand, rock fines and other materials not meeting the required gradation limits.

When rock is to be delivered from other than designated sources, the contractor shall notify the landowner and the Natural Resources Conservation Service of the intended source at least 3-5 days prior to the start of construction. The contractor shall provide the technician free access to the source for the purpose of obtaining samples for testing. The size and grading of the rock shall be as specified on the drawings.

Filter or bedding materials when required, shall conform to the requirements of Delaware Material Specification 214 or Delaware Material Specification 215 unless otherwise specified on the drawings.

3. SUBGRADE PREPARATION

The subgrade surfaces on which the riprap or bedding course is to be placed shall be cut or filled and graded to the lines and grades shown on the drawings. When fill to subgrade lines is required, it shall consist of approved materials and shall conform to the requirements of the specified class of fill.

Riprap shall not be placed until the foundation preparation is completed and the subgrade surfaces have been inspected and approved by the technician.

4. EQUIPMENT-PLACED ROCK RIPRAP

The rock shall be placed by equipment on the surfaces and to the depths specified. The riprap shall be constructed to the full course thickness in one operation and in such a manner as to avoid serious displacement of the

underlying materials. Care shall be taken during placement to avoid mixing fines with the rock.

The rock shall be delivered and placed in a manner that will insure that the riprap in place shall be reasonably homogeneous with the larger rocks uniformly distributed and firmly in contact one to another with the smaller rocks and spalls filling the voids between the larger rocks.

When placing riprap on geotextile fabric, care shall be taken to place the riprap in its proper position. Pushing or pulling the rock on the fabric will not be allowed.

Riprap shall be placed in a manner to prevent damage to structures. Hand placing will be required to the extent necessary to prevent damage to the permanent works.

5. **HAND-PLACED RIPRAP**

The rock shall be placed by hand on the surfaces and to the depths specified. It shall be securely bedded with the larger rocks firmly in contact one to another. Spaces between the larger rocks shall be filled with smaller rocks and spalls. Smaller rocks shall not be grouped as a substitute for larger rock. Flat slab rock shall be laid on edge.

6. **FILTER LAYERS OR BEDDING**

When the drawings specify filter layers or bedding beneath riprap, the filter or bedding material shall be spread uniformly on the prepared subgrade surfaces to the depth specified. Compaction of filter layers or bedding will not be required, but the surface of such layers shall be finished reasonably free of mounds, dips or windrows.

7. **TESTING**

The technician will perform such tests as are required to verify that the riprap, filter, and bedding materials and the completed work meet the requirements of the specifications. These tests are not intended to provide the contractor with the information he needs to assure that the materials and workmanship meet the requirements of the specifications, and their performance will not relieve the Contractor of the responsibility of performing his own tests for that purpose.