

SECTION 806—WATER COURSE AND SLOPE EROSION PROTECTION

806.1 DESCRIPTION—This work is furnishing, placement, and maintenance of soil erosion control material.

806.2 MATERIAL—From a manufacturer listed in [Bulletin 15](#) and conforming to the following requirements:

(a) Erosion Control Mats (ECM) and Mulch Blankets (ECB).

1. Erosion Control Mat. Undyed, flexible, non-treated biodegradable heavy jute, coconut coir, photodegradable polypropylene multifilament, and tape yarn or other yarns woven into a dimensionally stable uniform open plain weave mesh conforming to the physical properties of one of the following:

- Organic yarns—Mesh with approximately 15 mm to 25 mm (0.6-inch to 1-inch) square openings and having a mass (weight) not less than 470 g/m² (14 ounces per square yard).
- Synthetic fibers—Mesh with either nominal 4 mm x 4 mm (0.15-inch by 0.15-inch) or 2.5 mm x 3 mm (0.10-inch by 0.12-inch) (minimum average roll values) openings and having a mass (weight) not less than 55 g/m² (1.75 ounces per square yard).

2. Erosion Control Mulch Blanket. One of the following:

2.a Organic Mulch Material. A machine produced mat of organic, biodegradable mulch material such as straw, curled wood cellulose, coconut fiber, or combinations of material evenly distributed and attached on one side of a photodegradable polypropylene mesh with high-strength threads conforming to the following physical properties:

- Mass (weight) 270 g/m² (8 ounces per square yard), minimum
- Mat thickness Approximately 3 mm to 15 mm (0.125 inch to 0.6 inch)

2.b Reprocessed Wood Fiber. A flexible, non-woven, biodegradable water absorbing mat of mechanically defibrated wood fibers and synthetic fibers with a photodegradable polypropylene netting laminated to one side of the mat and conforming to the following physical properties:

- Mass (weight) 215 g/m² to 270 g/m² (6.4 ounces per square yard to 7.9 ounces per square yard)
- Mat thickness 2.6 mm (0.105 inch), minimum

3. High Velocity Erosion Control Mulch Blanket. [Section 806.2\(a\)2.a](#), except mulch material is evenly distributed between two layers of photodegradable polypropylene mesh.

(b) Turf Reinforcement Mat (TRM). A machine-produced, three-dimensional, matrix web of mechanically or melt-bonded monofilaments or fibers processed to form a strong, entangled, and dimensionally stable rolled erosion control product. Matrix manufactured to have sufficient thickness, resiliency, and void space to fill with soil thereby providing erosion protection while facilitating vegetative establishment. The Contractor may supplement the matrix with polyethylene or polyolefin fibers, or degradable natural organic coconut fibers, stitched between biaxially oriented process synthetic netting with synthetic or natural threads. Matrix components, other than the supplemental fibers, stabilized against ultraviolet degradation, and conforming to the following physical properties:

- Wide width Tensile strength 2.1 kN/m x 0.70 kN/m* (12 by 4 pounds force per inch*)
([ASTM D 4595](#) or [ASTM D 3776](#))
- Ultraviolet stability 85% tensile strength retained
([ASTM D 4355](#))

* Minimum Average Roll Value

(d) Anchoring Devices.

1. Staples. 4 mm (No. 8 gauge) steel wire, bent U-shaped or square top with a throat width of 25 mm to 50 mm (1 inch to 2 inches), with an effective minimum driving depth of 200 mm (8 inches).

2. Metal Pin. Carbon steel pin, 5 mm (3/16-inch) shank diameter, 460 mm (18-inch) length with attached 38 mm (1 1/2-inch) minimum outside diameter steel washer head.

3. Wood Stakes. Sound, rough sawn, approved hardwood 25 mm x 100 mm (1-inch by 4-inch) nominal stake tapered to a point throughout, with a minimum length of 450 mm (18 inches).

4. Substitutes. Submit other anchoring devices, as recommended by the mat manufacturer, for review and approval.

(e) Seeding and Soil Supplements. [Section 804](#)

(f) Mulch for Seeded Areas. [Section 805](#)

(g) Certification. [Section 106.03\(b\)3](#)

806.3 CONSTRUCTION—

(a) Erosion Control Mats and Mulch Blankets.

1. General. [Place erosion control materials](#) after final grading and dressing slope, swale, or channel to define flow area and after applying designated soil supplements, seed, and mulch, as indicated. Install erosion control materials to conform to shape of soil surface.

Unroll, place, and anchor mat evenly and smoothly, without stretching, to maintain contact with mulch surface at all points. Use appropriate anchoring devices and follow installation directions of the mat manufacturer. If staples are used, drive staple flush with the top of the mat or the mulch blanket surface so that the staple does not extend above the mat or the mulch blanket. [Click to view Video of ECM/ECB installation.](#)

2. Erosion Control Mulch Blanket and High Velocity Erosion Control Mulch Blanket. Install blanket having mesh on only one side with mesh side on top. If erosion control blankets are installed, the mulch application normally associated with seeding operation is not required.

(b) Turf Reinforcement Mat.

1. Site Preparation. Prepare final graded and dressed soil surfaces to receive permanent seeding in accordance with [Section 804.3](#). Soil surfaces to be free of rocks or other obstructions that prevent the mat from lying in direct contact with soil.

2. Mat Installation. Unroll, place, and anchor mat evenly and smoothly, without stretching, to conform to the shape of and be in uniform contact with the soil surface. Use appropriate anchoring devices and follow installation directions of mat manufacturer. Drive staples or anchoring pins flush with soil surface.

3. Seeding. After mat installation, broadcast designated seed formula mixture into mat matrix in accordance with [Section 804.3](#).

4. Topsoil Placement. After seeding, uniformly place 13 mm to 20 mm (1/2 inch to 3/4 inch) of approved topsoil on mat. Work soil into mat voids to completely fill mat matrix flush with top of mat. Remove excess topsoil.

5. Mulching. Mulch area with designated mulch as specified in [Section 805.3](#).

(c) Erosion Control and Revegetation Mat.

1. Site Preparation. Prepare final graded and dressed soil surfaces to receive permanent seeding as specified in [Section 804.3](#). Soil surfaces to be free of rocks or other obstructions that prevent mat from lying in direct contact with soil.

2. Seeding. Place designated seed formula mixture as specified in [Section 804.3](#). Mulch application normally associated with seeding operation is not required for installation of mats.

3. Mat Installation. Unroll, place, and anchor mat evenly and smoothly without stretching. Use appropriate anchoring devices and follow installation directions of mat manufacturer. Drive staples or anchoring pins flush with soil surface.

(d) Maintenance. Properly maintain designated erosion control system until entire project is accepted. If a protected slope, swale, or other soil surface failure occurs after installation of work, redress affected soil areas and reinstall protection material as specified for original treatment, unless directed otherwise.

806.4 MEASUREMENTS AND PAYMENT—

(a) Erosion Control Mat. Square Meter (Square Yard)

(b) Erosion Control Mulch Blanket. Square Meter (Square Yard)

(c) High-Velocity Erosion Control Mulch Blanket. Square Meter (Square Yard)

(d) Turf Reinforcement Mat. Square Meter (Square Yard)

(e) Erosion Control and Revegetation Mat. Square Meter (Square Yard)

(f) Seeding and Soil Supplements. [Section 804.4\(a\)](#) for the type indicated.

(g) Mulch. [Section 805.4\(a\)](#) and [\(c\)](#) for the type indicated.