



**CITY OF  
SWIFT CURRENT**  
where life makes sense

SECTION 03060  
GEOTEXTILE AND ROLLED EROSION CONTROL DEVICES

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## 1 GENERAL

### 1.1 DESCRIPTION

- 1.1.1 This section specifies requirements for the supply and installation of non-woven and woven geotextile filter fabric and rolled erosion control products (RECP).

### 1.2 DEFINITIONS

Non-woven: consists of synthetic yarns made into flexible, porous fabrics. Functions include separation, filtration, and gravity drainage. Non-woven geotextile filter fabric shall be used as a separation membrane for rip-rap or hydraulic filter for drainage systems.

Woven: consists of a planar textile structure produced by interlacing two or more sets of strands at right angles. Functions may include separation, filtration, reinforcement, confinement, and/or drainage. Woven geotextile filter fabric shall be used when in the opinion of the City the foundation conditions are considered soft and unstable.

### 1.3 RELATED SECTIONS

- 02010 Site Preparation and Grading
- 02015 Sub – Grade Preparation
- 03001 Aggregates General
- 03005 Granular Base Course
- 03010 Granular Sub – Base
- 03070 Rip – Rap
- 04000 Asphalt Pavement Crack Routing and Sealing
- 04001 Asphalt Pavement Crack Sealing
- 04015 Asphalt Concrete
- 04025 Prime, Tack and Fog Coats
- 04070 Asphalt Concrete Pavement Milling
- 06010 Concrete Side walk, Curb and Gutter Construction
- 07000 Pavement Markings
- 10000 Flexible Guide Posts and Delineators
- 12000 Regulatory Roadway Signs

## 1.4 MILL CERTIFICATES

- 1.4.1 At least one week prior to installation the Contractor shall submit a sample of the product to be used in the Work with copies of mill test data and Manufacturer's Certificate of Compliance that the product delivered to the job site meets the requirements of this section. The Manufacturer's Certificate shall state the name of the manufacturer, product name, style number, chemical composition of the filament or yarns, and other pertinent information to fully describe the geotextile.

## 1.5 APPROVAL

- 1.5.1 The Contractor shall obtain approval of the City for the geotextile filter fabric and rolled erosion control products material to be used in the work.

## 1.6 DELIVERY AND STORAGE

- 1.6.1 During delivery and storage the geotextile filter fabric and rolled erosion control products shall be protected from direct sunlight, ultraviolet rays, mud, dirt, dust, moisture, debris, and rodents. Care shall also be taken to protect the product from site construction damage or damage from equipment used to transfer or move the geosynthetic.

# 2 PRODUCTS

## 2.1 GEOTEXTILE FABRIC

- 2.1.1 The geotextile filter fabric shall be rot-proof, unaffected by the actions of oil or salt water and not subject to attacks by insects or rodents.
- 2.1.2 The geotextile filter fabric shall be supplied in rolls of minimum width of 3.0m and 50m lengths.
- 2.1.3 The non-woven and woven geotextile filter fabric shall meet the specifications and physical properties in accordance with the following table of minimum average roll value properties (MARVs) for each.

Specifications and Physical Properties			
	ASTM Test Method	AASHTO Class 2 Non- Woven	AASHTO Class 2 Monofilament Woven
Grab Strength	D 4632	700 N	1100 N
Elongation (Failure)	D 4632	≥50%	<50%
CBR Puncture Strength	D 6241	1375 N	2200 N
Trapezoidal Tear	D 4533	250 N	400 N
Apparent Opening Size (AOS)	D 4751	0.22 mm	0.22 mm
Permittivity	D 4491	1.5	0.1

2.2 ROLLED EROSION CONTROL PRODUCTS (RECP)

- 2.2.1 The Contractor shall provide and install Erosion Control Blankets for the prevention of soil erosion and shall be constructed in accordance with Best Management Practice (B.M.P.)
- 2.2.2 The Contractor shall provide and install Silt Fences for the prevention of soil erosion as, and where required during the course of their activities. This work will be incidental to the work and no separate payment is to be made.
- 2.2.3 All Environmental Control Device materials for this project shall be provided by the Contractor.
- 2.2.4 Environmental Control Devices shall conform to the applicable BMP. When installed, no product shall produce substances that are toxic to vegetation, seed germination, animals, or humans.
- 2.2.5 Environmental Control materials shall be commercially available and shall meet the Performance Properties. Other suitable materials meeting the construction requirements may be used with the approval of the Consultant.
- 2.2.6 C-factor calculated as ratio of soil loss from RECP protected slope to ration of soil loss from unprotected (control) plot in large-scale testing. These performance test values should be supported by periodic bench testing under similar test conditions using ECTC Test Method #2.
- 2.2.7 Acceptable large-scale testing protocol may include ASTM D6459 or other independent testing deemed acceptable by the Project Manager.
- 2.2.8 Minimum shear stress RECP (unvegetated) can sustain without physical damage or excess erosion [ $>12.7$  mm soil loss] during a 30-minute flow event in large-scale testing. These performance test values should be supported by periodic bench scale testing under similar test conditions using ECTC Test Method #2.
- 2.2.9 Acceptable large-scale testing protocol may include ASTM D6460 or other independent testing deemed acceptable by the Project Manager.

	Cover Factor, C1, 2	Permissible Shear Stress 3, 4 (N/m <sup>2</sup> )
Material with a minimum 18 months Functional Longevity, Double-net Erosion Control Blankets / Open Weave Textiles with minimum 70% Coir Fiber	0.20 @ 2:1 (h:v) and flatter	84

### 3 EXECUTION

#### 3.1 GEOTEXTILE

3.1.1 Where geotextile fabric is specified, the sloped or horizontal surface shall be graded to provide a smooth, uniform surface. All stumps, large rocks, brush or other debris that could damage the fabric shall be removed. All holes and depressions shall be filled so that the fabric does not bridge them. Loose soils shall be replaced.

3.1.2 The fabric shall be laid parallel to the slope direction in one continuous length from toe of slope to upper extent of fabric. It shall be placed in a loose fashion; however creases, folds, wrinkles and tensile stresses shall be avoided. Adjacent strips of fabric shall be overlapped as required in the plans. Overlaps shall be pinned using 6mm diameter steel pins fitted with washers and spaced at 1.0m intervals along the overlaps. Overlap requirements shall be as follows:

CBR $\geq$ 3	300 – 450 mm overlap
1% $\leq$ CBR < 3%	600 – 900 mm overlap
0.5% $\leq$ CBR < 1%	900 mm overlap or sewn
CBR < 0.5%	sewn

3.1.3 The top edge of the filter fabric shall be anchored by digging a 300mm deep trench, inserting the top edge of the fabric and backfilling with compacted soil.

3.1.4 Rip-rap placement shall commence at the base of the filter fabric area and proceed up the slope. The height of drop of rip-rap shall be limited to 1.0m or less, and the rip-rap shall not be allowed to roll down the slope. Heavy equipment will not be permitted to operate directly on the geotextile.

#### 3.2 ROLLED EROSION CONTROL

3.2.1 The Contractor shall install all Environmental Control Devices as per the manufacturer's recommendations and to the satisfaction of the Consultant.

#### 3.3 PROTECTION

3.3.1 After installation the filter fabric shall be covered with overlaying layer within 3 days of placement.

3.3.2 Passage of any vehicle or equipment directly on geotextile or rolled erosion control product shall not be permitted at any time.

3.3.3 Geotextile, or rolled erosion control product shall be protected from displacement and damage until and during placement of the rip-rap, granular material, or the gabion mat.

3.3.4 Care shall be taken to prevent puncturing or tearing the geotextile or rolled erosion control product. Any damage shall be repaired by use of patches that extend at least 1m beyond the perimeter of the tear or puncture.

- 3.3.5 Damaged or deteriorated geotextile or rolled erosion control products shall be removed and replaced as directed by the City.

## 4 MEASUREMENT AND PAYMENT

### 4.1 MEASUREMENT

- 4.1.1 Geotextile or Rolled Erosion Control Products, if identified as a separate item, shall be measured by the square meter (m<sup>2</sup>) of coverage for the quantity of product acceptably supplied and placed within the dimensions indicated on the drawings, or as required by the engineer.
- 4.1.2 Measurement for all other Environmental Control Devices or Geotextile shall be measured based off field measurements applicable to the product or noted in the unit price schedule.

### 4.2 PAYMENT

- 4.2.1 Payment for all Environmental Control Devices or geotextile will be paid for at their applicable unit price as noted in the unit price schedule.

END OF SECTION