

## **28000400 PERIMETER EROSION BARRIER (LCDOT)**

Effective: January 1, 2007

Revised: October 17, 2016

**Description:** This work shall consist of constructing, removing and disposing of perimeter erosion barrier as part of the project's temporary erosion control system. **For use on LCDOT let projects only - do not include in IDOT let projects. Delete this note from the Contract Specifications.**

**Description:** This work shall consist of constructing, maintaining, removing and disposing of perimeter erosion barrier as part of the project's temporary erosion control system. **For use on IDOT let projects w/Federal Funds only - do not include in LCDOT let projects. Delete this note from the Contract Specifications.**

**General:** The work shall be performed according to Section 280 of the "Standard Specifications" and the following:

The perimeter erosion barrier shall be limited to temporary silt filter fence meeting the requirements of AASHTO Standard M 288-00. This specification is applicable to the use of a geotextile as a vertical, permeable interceptor designed to remove suspended soil from overland water flow. The function of a temporary silt fence is to filter and allow settlement of soil particles from sediment-laden water. The purpose is to prevent the eroded soil from being transported off the construction site by water runoff.

All removed materials shall be disposed of outside the right-of-way according to Article 202.03 of the "Standard Specifications".

### **Materials:**

**Geotextile Requirements:** The geotextile used for the temporary silt fence shall be classified as supported (with a wire or polymeric mesh backing) or unsupported (no backing). The temporary silt fence geotextile shall meet the requirements of Table 6 included below. All numeric values except Apparent Opening Size (AOS) represent Minimum Average Roll Values (MARV as defined in ASTM D4439). The values for AOS are the Maximum Average Roll Values.

Table 6 – Temporary Silt Fence Requirements

Requirements	Test Methods	Wire Backed Supported Silt Fence <sup>a</sup>	Unsupported Silt Fence	
			Geotextile Elongation $\geq 50\%$ <sup>b</sup>	Geotextile Elongation $< 50\%$ <sup>b</sup>
Maximum Post Spacing		4 feet	4 feet	6 feet
Grab Strength	ASTM D 4632			
Machine direction		90 lbs	124 lbs	124 lbs
X-Machine direction		90 lbs	100 lbs	100lbs
Permittivity <sup>c</sup>	ASTM D 4491	0.05 sec <sup>-1</sup>	0.05 sec <sup>-1</sup>	0.05 sec <sup>-1</sup>

Apparent Opening Size	ASTM D 4751	0.024in maximum average roll value
Ultraviolet stability (retained strength)	ASTM D 4355	70% after 500 hours of exposure

Notes:

- a) Silt fence support shall consist of 14-gauge steel wire with a mesh backing of 6" x 6" or prefabricated polymeric mesh of equivalent strength.
- b) As measured according to ASTM D 4632.
- c) These default filtration property values are based on empirical evidence with a variety of sediments. For environmentally sensitive areas, a review of previous experience and/or site or regionally specific geotextile tests should be performed by the agency to confirm suitability of these requirements.

**Support Posts:** The support posts may be composed of wood, steel or a synthetic material. The posts shall be a minimum length of 3 feet plus the buried depth. They shall have sufficient strength to resist damage during installation and to the support the applied loads due to material build up behind the silt fence.

- 1) Hardwood posts shall be a minimum of 1.2" x 1.2"
- 2) No. 2 southern pine posts shall be a minimum of 2.6" x 2.6"
- 3) Steel posts may be U, T, L, or C shape, weighing 1.3 lbs per foot.

**Fence Support:** The wire or polymer support fence shall be at least 30" high and strong enough to support the applied loads. Polymer support fences shall meet the same ultraviolet degradation requirements as the geotextile material (see table 6).

The wire support fence shall:

- Be a minimum of 14-gauge.
- Have a minimum of six horizontal wires.
- The maximum vertical wire spacing shall be 6".

**Construction:**

The silt fence shall be installed with a minimum height above ground of 30". The geotextile at the bottom of the fence shall be buried, in a "J" configuration to a minimum depth of 6", in a trench so that no flow can pass under the silt fence. The trench shall be backfilled and the soil compacted over the geotextile.

The geotextile shall be spliced together with a sewn seam or two sections of fence may be overlapped instead. The sewn seam shall be positioned only at a support post.

The Contractor must demonstrate to the satisfaction of the Engineer that the geotextile can withstand the anticipated sediment loading.

The posts shall be placed at the spacing shown on the project plans. The posts shall be driven or placed a minimum of 20" into the ground. The depth shall be increased to 24" if the fence is placed on a slope of 3:1 or greater. If the 20" depth is impossible to

obtain, the posts shall be adequately secured to prevent overturning of the fence due to sediment loading.

The support fence shall be securely fastened to the upslope side of the fence post. The support fence shall extend from the ground surface to the top of the geotextile.

When un-supported fence is used, the geotextile shall be securely fastened to the fence posts.

Field monitoring shall be performed to verify that the placement of an armor system does not damage the geotextile.

Silt fences should be continuous and transverse to the flow. The silt fence should follow the contours of the site as closely as possible. The fence shall also be placed such that run off cannot flow around the end(s) of the fence.

The silt fence should be located so that the drainage area is limited to an area equivalent to 1000 square feet for each 10 feet of fence length. Caution should be used where the site slope is greater than 1:1, and/or water flow rates exceed 0.1 cubic feet per second for each 10 feet of fence length.

#### **Maintenance:**

The Contractor shall inspect all temporary silt fences immediately after each rainfall and at least daily during prolonged rainfall. The Contractor shall immediately correct any deficiencies.

The Contractor shall also make a daily review of the location of silt fences in areas where construction activities have altered the natural contour and drainage runoff to ensure that the silt fences area properly located for effectiveness. Where deficiencies exist as determined by the Engineer, additional silt fence shall be installed as directed by the Engineer.

Damaged or otherwise ineffective silt fences shall be repaired or replaced promptly.

Sediment deposits shall either be removed when the deposit reaches half the height of the fence or a second silt fence shall be installed as directed by the Engineer.

The silt fence shall remain in place until the Engineer directs it to be removed. After the fence removal, the Contractor shall remove and dispose of any excess sediment accumulations, dress the area to give it a pleasing appearance, and cover with vegetation all bare areas according to the contract requirements.

The removed silt fence may be used at other locations provided the geotextile and other material requirements continue to be met to the satisfaction of the Engineer.

During the construction operation when any loose material is deposited in the flow line of ditches, gutters or drainage structures so the natural flow of water is obstructed, the material shall be removed at the close of each working day.

At the conclusion of the construction operations all drainage structures shall be free from all dirt and debris. This work will not be paid for separately but shall be considered included in the unit cost of PERIMETER EROSION BARRIER.

**Method of Measurement:** This work will be measured for payment in place in feet.

**Basis of Payment:** This work will be paid for at the contract unit price per foot for PERIMETER EROSION BARRIER. *The unit price shall include all work and materials necessary to properly install the barrier and to remove and dispose of the used materials at the completion of the project. Maintenance requirements shall be included and paid for under the special provision for MAINTENANCE OF TEMPORARY EROSION CONTROL SYSTEMS.* **For use on LCDOT let projects only - do not include in IDOT let projects. Delete this note from the Contract Specifications.**

**Basis of Payment:** This work will be paid for at the contract unit price per foot for PERIMETER EROSION BARRIER. *The unit price shall include all work and materials necessary to properly install the perimeter erosion barrier, maintain the perimeter erosion barrier throughout the project, and to remove and dispose of the used materials at the completion of the project.* **For use on IDOT let projects w/Federal Funds only - do not include in LCDOT let projects. Delete this note from the Contract Specifications.**