1.0 Slope Interruption Devices

1.1 Description

Slope Interruption Devices are temporary erosion prevention devices placed along (parallel to the contour) slopes to minimize concentrated flow from forming on the face of the slope. Locations for installation are designated on the Plans or by the Engineer.

Use non-weighted Type F inlet tubes as Slope Interruption Devices for erosion prevention on slopes greater than 50 feet in length for Hydraulic Erosion Control Products (HECP) and Temporary Erosion Control Blanket (ECB) slope applications. For longer slopes, multiple Slope Interruption Devices may be necessary to ensure there are no continuous slope lengths greater than 50 feet. At the discretion of the Engineer, use Slope Interruption Devices on slope lengths less than 50 feet when slope erosion is observed.

1.2 Materials

1.2.1 Slope Interruption Device

Provide Slope Interruption Devices that exhibit the following properties:

- Machine produced by a manufacturer experienced in sediment tube manufacturing.
- Materials are certified 100% weed free.
- Composed of processed degradable natural material within a synthetic or natural fiber tubular, flexible outer netting.
- When curled excelsior wood fiber is used, 80% of the fiber materials are a minimum of four (4) inches in length.
- Ensure that the inner material is long term biodegradable and/or photodegradable.

Do not use straw, curled excelsior wood, or natural coconut rolled erosion control products (RECPs) that are rolled up to create a Slope Interruption Device.

Do not use straw bales, pine bales, leaf mulch, and or grass clippings.

Provide stakes or other means to stabilize Slope Interruption Devices to keep them safely in place. Provide a Type F non-weighted inlet tube that meets the minimum performance requirements shown in Table 1.
Table 1: Minimum Requirements for Slope Interruption Devices

<table>
<thead>
<tr>
<th>Property</th>
<th>Test Method</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-installed Diameter</td>
<td>Field Measured</td>
<td>6.0 inch to 12.0 inch</td>
</tr>
<tr>
<td>Mass per Unit Length</td>
<td>Field Measured</td>
<td>6 inch = 1.0 lbs/ft minimum</td>
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<tr>
<td></td>
<td></td>
<td>9 inch = 1.5 lbs/ft minimum</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12 inch = 2.0 lbs/ft minimum</td>
</tr>
<tr>
<td>Length per Tube</td>
<td>Field Measured</td>
<td>6 foot minimum</td>
</tr>
<tr>
<td>Filtering Efficiency Performance</td>
<td>ASTM D5141 or</td>
<td>80% Total Suspended Solids (TSS)</td>
</tr>
<tr>
<td></td>
<td>ASTM D7351</td>
<td></td>
</tr>
<tr>
<td>Clean Water Flow Rate</td>
<td>ASTM D4491 or</td>
<td>100 gal/min/ft² minimum</td>
</tr>
<tr>
<td></td>
<td>Equivalent</td>
<td></td>
</tr>
<tr>
<td>Netting Ultraviolet Stability</td>
<td>ASTM D4355</td>
<td>70%</td>
</tr>
<tr>
<td>(retained strength after 500 hr)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1.2.2 Quality Assurance

Provide Type F non-weighted inlet tubes listed on the most recent edition of SCDOT Qualified Product List 58 in the appropriate category, or equivalent, for use as Slope Interruption Devices.

At the time of delivery, the Engineer will provide the Slope Interruption Devices tubes packing list containing complete identification, including but not limited to the following:

- Manufacturer name and location,
- Manufacturer telephone number and fax number,
- Manufacturer’s e-mail address and web address, and
- Slope Interruption Device name, model and/or serial number.
- Certification that the specific Slope Interruption Device meets the physical and performance criteria of this specification.

1.3 Construction Requirements

1.3.1 Site Preparation

Proper site preparation is essential to ensure that Slope Interruption Devices are in complete contact with the underlying soil or underlying surface. Remove all rocks, clods, vegetation or other obstructions so that installed Slope Interruption Devices have direct contact with the underlying surface.

1.3.2 Installation

Install Slope Interruption Devices in accordance with the manufacturer’s written installation instructions, in compliance with these specifications and with all OSHA, local, state, and federal codes and regulations.

Install Slope Interruption Devices for Hydraulic Erosion Control Products (HECPs) application prior to the HECP installation. Excavate a trench along (parallel) the contour of the slope to a depth that is 1/3 the tube diameter. Place the excavated soil on the up-slope side of the trench. Place the Slope Interruption Device into the trench so it contours to the soil surface, ensuring no gaps exists underneath the tube. Compact the excavated soil against the tube on the up-slope side. Ensure the installation of the Slope Interruption Device does not damage the prepared seedbed.

For temporary Erosion Control Blanket (ECB) applications, install Slope Interruption Devices on top of the ECB after ECB installation. Tube trenching is not required for ECB applications. Ensure the installation of the Slope Interruption Device does not damage the installed ECB.
Install Slope Interruption Devices using wooden stakes with a minimum length of 3 feet with a minimum measured dimension of 3/4 inch x 3/4 inch and a maximum measured dimension of 1 inch x 1 inch. Do not use steel posts for this application. Install a stake at each end of each tube and space stakes on maximum 4 foot centers. Drive stakes into the ground perpendicular to the slope to a depth of 2 feet or to the maximum extent practicable.

Install the stakes through the center of Slope Interruption Devices. Abut adjacent tubes tightly, end to end, without overlapping the ends. Tie the tube ends together using heavy twine or plastic locking ties. Dog leg terminal ends of Slope Interruption Devices up slope to ensure containment and the prevention of channeling of runoff.

Ensure the areas for post installation are compacted so the posts are properly installed.

1.3.3 Delivery, Storage, and Handling

Follow the manufacturer’s written procedures for Slope Interruption Devices labeling, shipment handling, and storage. Ensure that the manufacturer or supplier name, the structures size, shape, and weight clearly show on product labels.

Store Slope Interruption Devices off the ground and cover adequately to protect them from the following:

- Construction damage,
- Precipitation,
- Extended exposure to ultraviolet radiation including sunlight,
- On-site chemicals,
- Flames including welding sparks,
- Excess temperatures,
- Other environmental conditions that can damage the physical properties of the Slope Interruption Devices.

1.3.4 Inspection and Maintenance

Inspect Slope Interruption Devices after installation for gaps that may allow concentrated flow to establish. Inspect Slope Interruption Devices every 7 days and inspections are recommended within 24-hours after each rainfall event that produces ½-inches or more of precipitation until final stabilization is achieved. Correct any damage or needed repairs.

Remove and/or replace Slope Interruption Devices as needed to adapt to changing construction site conditions.

Replace Slope Interruption Devices damaged during installation as directed by the Engineer or manufacturer’s representative.

1.3.5 Acceptance

Obtain Engineer approval of Slope Interruption Device installations. When requested by the Engineer, ensure that a manufacturer’s representative is on-site to oversee and approve the installation of Slope Interruption Devices. Obtain a letter from the manufacturer approving the installation when requested by the Engineer.