Filter Berms

Source: Minnesota Stormwater Manual

BENEFITS

	L	M	H
Flow Control	■		
Erosion Control	■		
Sediment Control	■	■	
Runoff Reduction			
Flow Diversion	■		

Description: A filter berm is a windrow-shaped structure constructed of 'filter material'; typically constructed from slash mulch generated during site clearing and grubbing, organic products used to slow flow velocity, capture and degrade chemical pollutants, and trap sediment.

Typical Uses: Perimeter control, slope length reduction, environmentally sensitive areas such as wetlands and waterways, at the edge of gravel parking lots, and general areas under construction.

Advantages:

- Maintains a separation between clean off-site water and sediment-laden water allowing sediment basins and traps to function more efficiently.
- Easily constructed and maintained with equipment found on most construction sites.
- Less likely to obstruct wildlife movement and migration than other practices.
- Does not always need to be removed, thereby eliminating removal and disposal costs.
- Can be installed year-round in difficult soil conditions such as frozen or wet ground, on hard compacted soils, near pavements, and in wooded areas.

Limitations:

- Not suitable for areas of concentrated water flow or below culvert outlet aprons.
- Equipment operators may drive over berms, damaging the practice.

Longevity: Six months

SUDAS Specifications: Refer to Section 9040, 2.03 and 3.06

A. Description/Uses

A filter berm typically consists of a windrow slash mulch that diverts flow or slows and filters water to capture sediment. Its natural permeability allows water to seep through it while capturing sediment behind its mass, slowing water velocity and absorbing water pollutants such as nutrients.

B. Design Considerations

Filter berms are typically constructed from slash mulch generated from on-site clearing and grubbing operations or may be imported from off-site.

1. General Guidelines:

a. Typical filter berms should be trapezoidal with a bottom width of 5 to 7 feet and a minimum height of 2 feet. For small drainage areas and individual residential lots, more compact filter berms with a bottom width of 3 to 5 feet and a minimum height of 18 inches may be used.

b. When possible, filter berms should be placed away from the toe of a slope on the flattest area possible to allow concentrated flow to dissipate into sheet flow and to provide greater storage area for sediment.

c. Filter berms should typically not be used in areas of concentrated flows such as ditches, swales, or around pipe outlets; however, filter berms may be appropriate as ditch checks for very small drainage areas.

2. Slope Control:

a. When installed on slopes, filter berms should be installed along the contour of the slope, perpendicular to sheet flow, with the ends turned up to prevent flows from bypassing the berm.

b. The upland drainage area slope should not exceed 10%. On steep slopes (> 6%) and/or long slopes (> 50 to 75 feet), multiple berms should be placed at regular intervals down the slope.

c. A common location to place filter berms for sediment control is at the toe of a slope. When used for this application, the berm should be located as far away from the toe of the slope as practical to ensure that a large storage volume is available for runoff and sediment.

C. Application

When utilized for slope control, filter berms should be spaced according to Table 7E-3.01.

Table 7E-3.01: Maximum Filter Berm Spacing*

Slope	Maximum Spacing (feet)
0% to 2%	100
2% to 5%	40
5% to 10%	20

*For typical filter berms with a 2 foot height

D. Maintenance

Surface erosion should be repaired and the surface stabilized. Accumulated sediment should be removed when it reaches approximately one-half of the berm height. If concentrated flows are bypassing or breaching the berm, it must be expanded, enlarged, or augmented with additional erosion and sediment control practices. Additional filter material should be added as required to maintain the dimensions of the berm. Any damage should be repaired immediately.