

1-15-03

## **Filtrexx Filter Berms - Overview**



### **Description**

Filtrexx Filter Berms are sediment-trapping devices using composted materials applied with a pneumatic blower device or equivalent. Filtrexx Filter Berms trap sediment by filtering water passing through the berm and allowing water to pond, creating a settling of solids.

### **Conditions where practice applies**

Filtrexx Filter Berms are to be used in any area requiring sediment or erosion control where runoff is in the form of sheet flow or in areas that silt fence is normally considered acceptable. For the purposes of this document, Filtrexx Filter Berms and silt fence are considered approved equals. The use of Filtrexx Filter Berms apply to areas of high sheet erosion, on steep slopes up to and exceeding a 2:1 slope, around inlets, and in other disturbed areas of construction sites requiring sediment control. Filtrexx Filter Berms may also be used in sensitive environmental areas, where migration of aquatic life, including turtles, salamanders and other aquatic life is impeded by the use of silt fence.

### **Planning Considerations**

Filtrexx Filter Berms control erosion by trapping sediment and slowing water that filters through the Filtrexx Filter Berms. This will create temporary ponding during heavy rains. On slopes, compost protects round soil particles from gaining momentum and creating erosion because compost is flat and does not roll like soil. It is possible to drive over Filtrexx Filter Berms during construction, but these areas should be immediately

repaired with a rake or shovel. Continued heavy construction traffic will reduce the effectiveness of the Berms.

**Design Criteria for Filtrexx Filter Berms:**

The sedimentation removal process associated with filter berms involves both filtering and deposition from settling. This is different than other methods using only ponding for deposition of sediment. Ponding occurs when water flowing to and through the filter berm accumulates faster than it can flow through the berm. Typically, berms can handle the same water flow or slightly more than silt fence. However, installation technique is especially important for them to work effectively.

For most applications, it is important to maintain a 2:1 base to height ratio for the berms to be dependably stable.

**Level Contour:**

Place berms on level contours to assist in dissipating flow into sheet flow rather than concentrated flows. Do not construct berms, which concentrate runoff or channel water. Sheet flow of water should be perpendicular to the berm at impact and relatively un-concentrated.

**Flat Slopes:**

When possible, place berms at a 5’ or greater distance away from the toe of the slopes in order for the water coming from the slopes to maximize space available for sediment deposit (see fig. 4.5). When this 5’ distance is not available due to construction restrictions, a second berm may be required (see drainage area chart below).

**Flow around ends:**

In order to prevent water flowing around the ends of berms, the ends of the berm must be constructed pointing upslope so the ends are at a higher elevation.

**Vegetation:**

For permanent areas, seeded berms allow vegetation to be established directly on the berm and immediately in front and back of the berm at a distance of 5 feet. Vegetation on and around the berms will assist in slowing down water for filtration. The option of adding vegetation will be at the discretion of the Engineer. No other soil amendments or fertilizer are required for vegetation establishment.

**Drainage area:**

Compost Filter Berm Maximum Drainage Area  
Based on Slope and Slope Length

Slope		Slope Length (linear feet)	Berm Size Required (Height x width)
0%-2%	Flatter than 50:1	250	1 ft. x 2 ft.
2%-10%	50:1-10:1	125	1 ft. x 2 ft.
10%-20%	10:1-5:1	100	1 ft. x 2 ft.
20%-33%	3:1-2:1	50	1.3 ft. x 2.6 ft.
>50%	>2:1	25	1.5 ft. x 3 ft.

\*Independent research indicates that Filter Berms are acceptable alternates to silt fence

**Dispersing flow:**

Sheet flow and runoff should not exceed height of berm capacity in most storm events. If overflow of the berm is a possibility, larger berms should be constructed, or other possible sediment control tools may be used. Alternatively, a second berm may be constructed or used in combination with compost blankets to prevent sediment from moving.

**Maintenance Requirements:**

Filtrexx Filter Berms should be regularly inspected to make sure they hold their shape and are producing adequate flow through. If ponding becomes excessive, berms should be dispersed and reconstructed. For purposes of long-term sediment control objectives, berms can be seeded at the time of installation to create an additional vegetative filtering component.

When construction is completed on site, the berms may be dispersed with a loader, rake, bulldozer or other device to be incorporated in the soil or left on top of the soil for final seeding to occur. No other disposal is required.

**Specifications for Using Filtrexx Filter Berms**

*(note: a 12" high berm is interchangeable with a 12" round filtersock)*

Section \_\_\_\_: Filtrexx Filter Berm Installation and Maintenance

**1.0 Description:** This works shall consist of furnishing, installing, maintaining and dispersing (if needed) a water permeable compost filter berm (Filtrexx Filter Berms) to contain soil erosion and sediment by removing soil particles from water moving off site into adjacent waterways or storm water drainage systems.

**2.0 Compost Products**

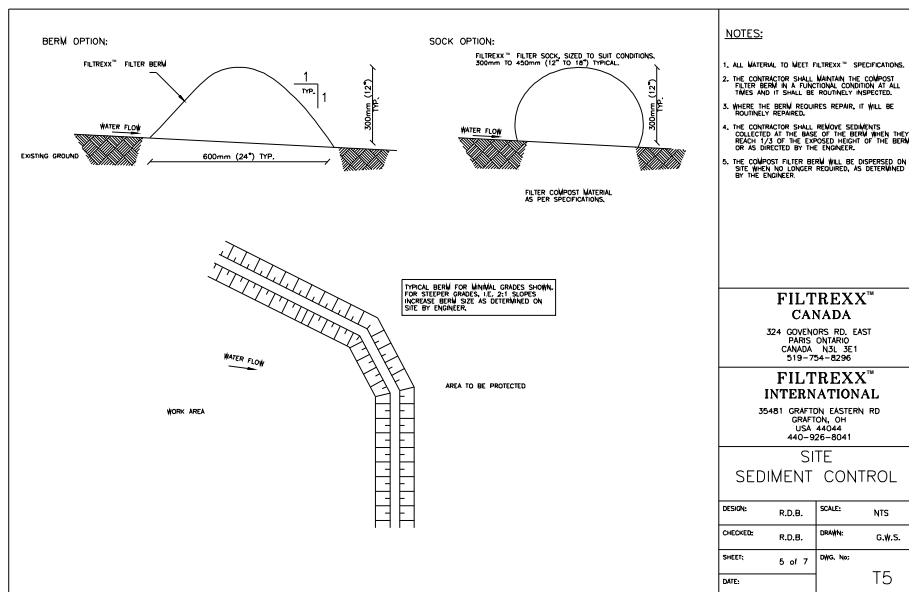
**1. Compost:** Compost used for Filtrexx Filter Berms shall be weed free and derived from a well-decomposed source of organic matter. The compost shall be produced using an aerobic composting process meeting CFR 503 regulations, including time and temperature data indicating effective weed seed, pathogen and insect larvae kill. The compost shall be free of any refuse, contaminants or other materials toxic to plant growth. Non-composted products will not be accepted. Test methods for the items below should follow USCC TMECC guidelines for laboratory procedures:

- A. PH – 5.0-8.0 in accordance with TMECC 04.11-A, “Electrometric pH Determinations for Compost”
- B. Particle size – 99% passing a 2” sieve and a minimum of 70% greater than the 3/8” sieve, in accordance with TMECC 02.02-B, “Sample Sieving for Aggregate Size Classification”. (In the field, the product commonly requested is between ½” and 2” particle size.)

- C. Moisture content of less than 60% in accordance with standardized test methods for moisture determination.
- D. Material shall be relatively free (<1% by dry weight) of inert or foreign man made materials.
- E. A sample shall be submitted to the engineer for approval prior to being used and must comply with all local, state and federal regulations.

**3.0 Construction:**

1. Filtrexx Filter Berms will be placed at locations indicated on plans as directed by the engineer. Berms should be installed parallel to the base of the slope or other affected areas construct a 1-foot high by 2-foot wide berm of compost. In extreme conditions (i.e., 2:1 slopes), a second berm shall be constructed at the top of the slope. (See berm size indications in the drainage chart attached)
2. If the berm is to be left as a permanent filter or part of the natural landscape, the compost filter berm may be seeded at time of installation for establishment of permanent vegetation. The engineer will specify seed requirements.
3. Filtrexx Filter Berms are not to be used in direct flow situations or in runoff channels. If direct water flow is possible, use Filtrexx FilterSocks in similar diameters and stake according to specifications.
4. See attached schematic for Compost Filter Berm Installation:



**4.0 Maintenance:**

1. The contractor shall maintain the Compost Filter Berm in a functional condition at all times and it shall be routinely inspected.
2. Where the berm requires repair, it will be routinely repaired.

3. The contractor shall remove sediments collected at the base of the berm when they reach 1/3 of the exposed height of the berm, or as directed by the Engineer. Alternatively, an additional berm may be placed upslope of the existing berm in order to minimize sediment disturbance activities.
4. The Compost Filter Berm will be dispersed on site when no longer required, as determined by the Engineer.

#### **5.0 Method of measurement:**

Bid items shall show measurement as (height x width) 'Filtrexx Filter Berm' per linear foot, installed. (ie., 1' x 2' Filtrexx Filter Berm).

#### **6.0 Performance:**

1. Contractor is responsible for establishing a working erosion control system and may, with approval of the Engineer, work outside the minimum construction requirements as needed.
2. Where the Compost Filter Berm deteriorates or fails, it will be repaired or replaced with a more effective alternative.

#### **7.0 Application guidelines:**

1. Contractor shall provide the Engineer with an approved method of measurement identifying that the berms installed have achieved the targeted 2:1 base to height ratio outlined earlier in this section, regardless of overall berm size. Commercially available berm forms are required for installation or bids may be rejected due to non-conformance of berm size.
2. Contractor is required to be a certified Filtrexx Installer as determined by Filtrexx International, LLC (440-926-8041 or visit website at [Filtrexx.com](http://Filtrexx.com)). Certification shall be considered current if appropriate identification is shown during time of bid or at time of application.

#### **8.0 Available Vendors**

Filtrexx Filter Berms and installation may be purchased from the following companies:

Filtrexx International, LLC  
35481 Grafton Eastern  
Grafton, OH 44044  
440-926-8041  
440-926-4021 (fax)

Contact website for complete list of installers:

[www.filtrexx.com](http://www.filtrexx.com)

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