

Barriers are designed to detain sediment on site. Barriers can trap significant amounts of sediment in stormwater runoff and prevent discharge offsite.

Description
(Sandbags)

Sandbag barriers are an effective method for paved areas where the installation of other BMPs would be difficult or create other potential issues. Sandbags can be effective check dams, temporary sediment trap, or temporary dewatering areas. They can also be an effective BMP when site conditions require quick adjustment or response to evolving site conditions. Sandbags can also be useful components to other BMP's by providing additional stability and/ or weight to keep a BMP in place and performing effectively.

Selection Criteria
(Sandbags)

Sandbag Barriers are not designed to filter stormwater runoff but can be used to provide an effective area for sediment to settle. It is necessary to install a drainage pipe in the upper courses of the barrier or to create a drainage weir to allow overflows to escape while still allowing the sediment to settle out. The use of sandbags can be labor intensive due to the weight and number of bags to create an effective barrier. Sandbags can be useful in areas that are difficult to access or where other BMP's would be ineffective.

Design Considerations
(Sandbags)

Sandbags are generally 24" by 16" and weigh between sixty to eighty pounds; the bag material must be of synthetic materials resistant to rot and deterioration when wet or exposed to sunlight. The bags also need to be burst resistant and should have a minimum burst strength exceeding 300 psi. Only clean coarse sand or gravel should be used to fill the bags; never use dirt or soil in the bags. All bags must be securely fastened to prevent any leakage or filler material.

Maintenance
(Sandbags)

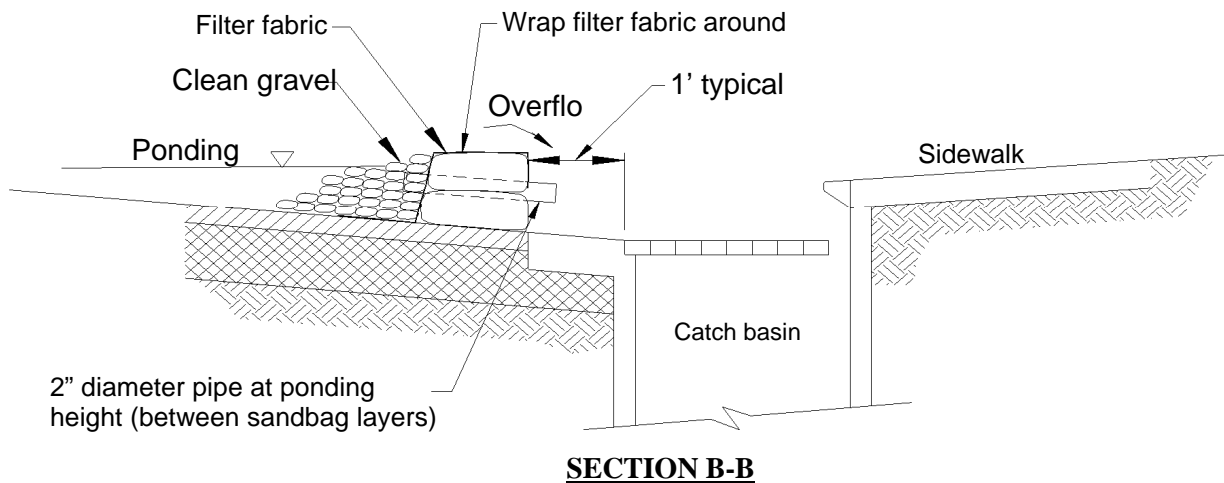
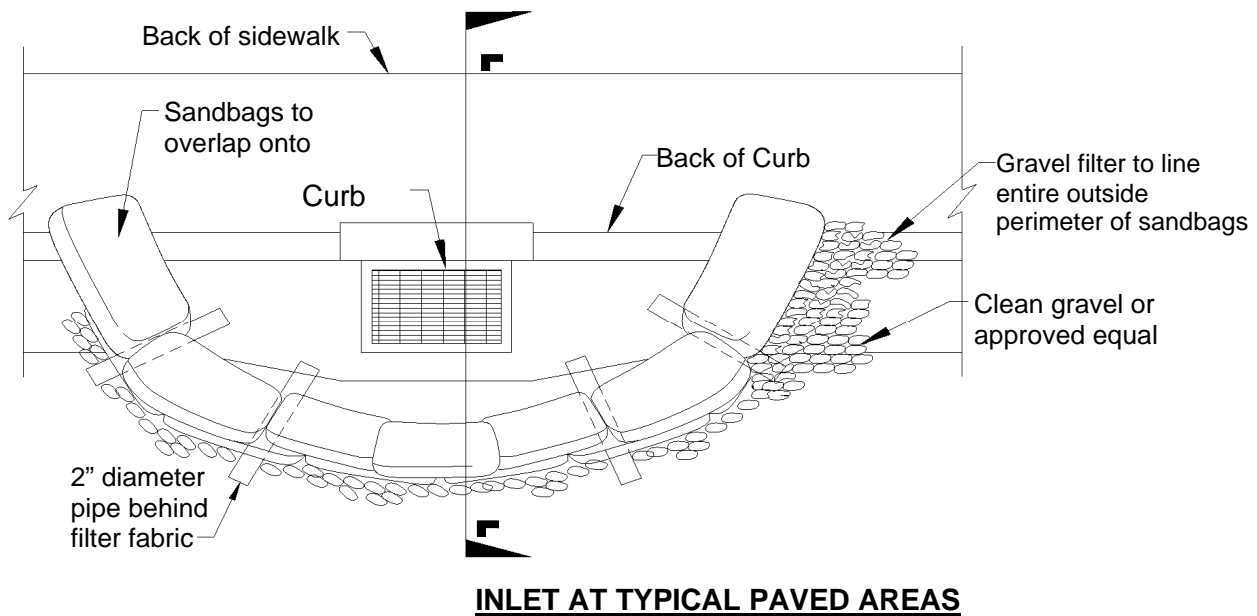
Sandbag barriers should be inspected weekly and after every rainfall event; bags will need to be reshaped or replaced. Repair washouts and other damage as needed. Inspect barriers for sediment buildup and remove when depth of sediment reaches a maximum of one-third barrier height. Remove the barrier when it is no longer needed on the site.

Limitations
(Sandbags)

Sandbag barriers do not filter sediment or prevent erosion. Sandbags only provide support to other BMP or act as a temporary sediment trap.

Description (Brush Barrier)	A brush barrier is typically used as perimeter or contour sediment barrier made of brush materials cleared on site which can have the addition of fabric filter material added to the brush depending on the size of the drainage area. Another option is to use compost filter socks (see Section 4.3). Multiple layers of compost filter socks may be needed. This BMP is best suited for sites where sheet and rill erosion is the primary erosion issue, and where there is enough residual brush and mulch material available for the construction of this type of barrier.
Selection Criteria (Brush Barrier)	Generally, the size of the drainage area should be no greater than .25 acre per 100 ft. of barrier length and the maximum slope gradient behind the barrier is 2:1.
Design Considerations (Brush Barrier)	<p>The material for the barrier should be made up of organic material from site clearing; the materials can be pushed to the toe of the slope where it is need for sediment control. The material should be less than six inches in diameter otherwise it will not effectively remove sediment. Brush barriers do not have to have filter fabric installed with them, but its use will enhance this BMP's performance.</p> <p>The height of the barrier should be a minimum of three feet tall with a base at least five feet wide. If filter fabric is used it should be cut into lengths sufficient to cover the barrier and allow for the fabric to be placed in six inch deep trenches which are back filled. The fabric should also be staked on 36-inch centers to keep in place in the trench. See diagram at end of section.</p>
Maintenance (Brush Barrier)	Brush Barriers should be inspected after every rainfall and repaired if necessary. Sediment should be removed when it reaches a maximum of ½ the height of the barrier.
Limitations (Brush Barrier)	It is only effective as a perimeter or contour sediment control. Many sites may lack the organic material need to construct an adequate brush barrier. Brush barriers cannot handle large volumes of stormwater flow at higher velocities.

Figure 1
Inlet Protection - Sandbag Barrier



Notes:

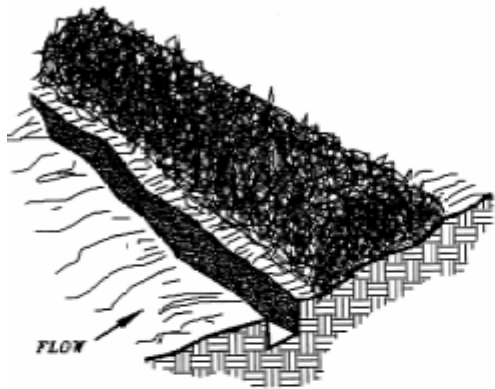
1. Use clean aggregate ($\frac{1}{2}$ " - $\frac{3}{4}$ ") such as TDOT #4 or #5 or washed #57.
2. Periodically replace old gravel with new clean gravel. Old gravel may be used as backfill material.
3. Use geotextile filter fabric for stormwater with high content of silt and clay (as shown in Section B-B).

Figure 2

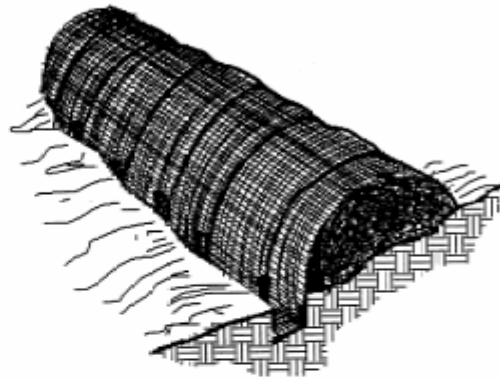
Brush Barrier

CONSTRUCTION OF A BRUSH BARRIER COVERED BY FILTER FABRIC

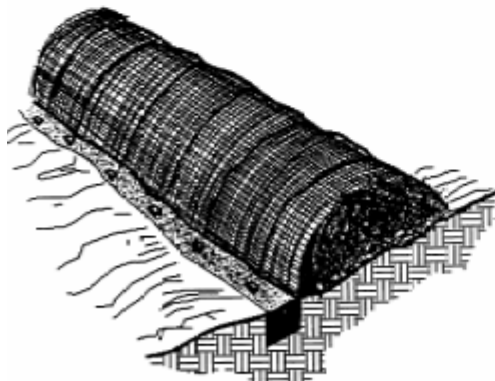
(TREE/RESIDUAL MATERIAL WITH DIAMETER > 6")



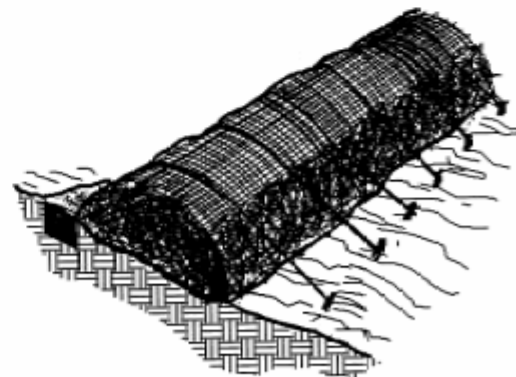
1. EXCAVATE A 4" X 4" TRENCH ALONG THE UPHILL EDGE OF THE BRUSH BARRIER.



2. DRAPE FILTER FABRIC OVER THE BRUSH BARRIER AND INTO THE TRENCH. FABRIC SHOULD BE SECURED IN THE TRENCH WITH STAKES SET APPROXIMATELY 36" O.C.



3. BACKFILL AND COMPACT THE EXCAVATED SOIL.



4. SET STAKES ALONG THE DOWNHILL EDGE OF THE BRUSH BARRIER, AND ANCHOR BY TYING TWINE FROM THE FABRIC TO THE STAKES.

Pictures 1 - 2

Brush Barriers



References

USEPA (U.S. Environmental Protection Agency). 1992. *Stormwater Management for Industrial Activities: Developing Pollution Prevention Plans and Best Management Practices*. U.S. Environmental Protection Agency, Office of Water, Washington, DC.

USEPA (U.S. Environmental Protection Agency). 1993. *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters*. EPA 840-B-92-002. U.S. Environmental Protection Agency, Office of Water, Washington, DC.