

**Targeted Constituents**

● Significant Benefit		◐ Partial Benefit		○ Low or Unknown Benefit	
● Sediment	○ Heavy Metals	◐ Floatable Materials	○ Oxygen Demanding Substances	○ Nutrients	○ Toxic Materials
○ Oil & Grease	○ Bacteria & Viruses	○ Construction Wastes			

**Description** Stacking sandbags is a quick and efficient way to create a barrier for detaining sediment-laden water to allow sediment to settle. A sandbag barrier can be deployed on paved surfaces and other areas where it is not feasible to install posts or stakes. This practice is likely to create a significant reduction in sediment.

- Suitable Applications**
- On paved surfaces, such as streets and parking lots, where it is difficult to install posts and stakes for other types of sediment control devices.
  - For use as a check dam across a ditch or channel.
  - To create a temporary sediment trap or dewatering impoundment.
  - When changing site conditions call for a rapid deployment or adjustment of a sediment barrier.
  - Across channels or small streams to serve as a barrier for utility trenches or provide a temporary channel crossing for construction equipment. All activities within a stream require permits that must be approved by TDEC; see ES-03 for typical stream crossings.
  - Sandbags are frequently used for purposes other than erosion control, such as weights for securing materials such as geotextiles, tarps, plywood and tarpaper against wind uplift.

**Approach** Sandbag barriers do not filter stormwater runoff. However, sandbags provide a barrier which is easily deployed, portable, durable, reusable and inexpensive. Sandbag barriers are used to create a dam or backwater area, which slows the water down to allow sediment to settle out. Sandbag barriers are typically more durable than straw bales or silt fences, and sandbags tend to conform to the ground surface.

Since sandbag barriers impound water, provisions may be necessary for an outlet structure. Small sections of small-diameter (typically 3” or 4”) PVC pipe may be placed within the sandbag barrier to drain water. An overflow weir can be fashioned by stacking a portion of the sandbag barrier to a lower height.

Placing a drainage pipe at the invert of the barrier allows it drain completely. Placing a drainage pipe at the level of the first or second row of sandbags will allow the pipe to decant the top of the water impoundment, in essence functioning as a temporary sediment trap. A filter cloth can be placed over the drainage pipe to produce a cleaner stormwater

discharge.

Installation of sandbag barriers can be labor intensive when compared to silt fence, depending on the potential sources of sand or gravel. However, sandbag barriers may be used for sediment trapping in locations where silt fences and straw bale barriers are not strong enough. In addition, sandbag barriers are appropriate to use when construction of rock check dams is too difficult due to inaccessibility. Sandbag berms may cause less disturbance to established vegetation than a rock check dam.

Sandbags are particularly useful for construction projects in the urban environment. Sandbags can be placed along curbs and gutters, across catch basins and drop inlets, across closed streets, and many other configurations. Sandbags can be easily relocated as needed, even to the point of being momentarily removed for vehicle traffic.

### **Materials**

- Sandbag lengths vary but a typical value is 24 inches. A typical width is 16 inches. Sandbag thickness is 6 to 8 inches. Based on these dimensions, the typical weight of a full sandbag is approximately 80 pounds. The recommended minimum weight of a sandbag is typically 50 pounds. Use large sandbags (fully loaded) in drainage channels or other applications with large flows.
- Sandbag material is typically polypropylene, polyethylene or polyamide woven fabric. Minimum unit weight is 4 ounces per square yard, with a burst strength exceeding 300 psi and ultraviolet stability exceeding 70 percent. Use of burlap is not allowed since it rots and deteriorates easily when wet.
- Clean coarse sand or gravel shall be used inside the sandbag. Do not use dirt or soil within sandbags to be placed for erosion control.
- Fasten sandbags securely using hog rings, sewing, or other suitable methods that prevent leakage from bags.

### **Installation**

Sandbag barriers can be placed in several types of locations (streets and parking lots, curb and gutter, ditches). A general recommendation is to install across the direction of stormwater flow, along a level contour, with ends angled uphill at least 6 feet to provide an impoundment and to prevent washout from scour. Stormwater runoff can either be allowed to flow over the tops of the sandbags (by creating an overflow weir) or through short drainage pipes embedded within the sandbag barrier wall.

Barriers which are more than two sandbags high should be constructed by a pyramid approach or with additional reinforcement behind the direction of flow. Sandbags should be stacked in a brick-like fashion so that each sandbag in a row should sit on top of two other sandbags. See Figure ES-16-1 for typical installation.

### **Maintenance**

- Inspect sandbag barriers weekly and after each rainfall event. Reshape or replace damaged sandbags immediately. Repair washouts or other damages as needed.
- Inspect sandbag barriers for sediment accumulations and remove sediments when depth reaches one-third of the barrier height. Dispose of removed sediment properly.
- Remove sandbags when no longer needed. Clean, regrade and stabilize the area.

### **Limitations**

Sandbags do not filter sediment or prevent erosion. Therefore, they only provide a supporting role in reducing stormwater pollution. A sandbag barrier typically functions as a temporary sediment trap.

References 30, 31, 32, 33, 34, 35, 43, 114 (see BMP Manual Chapter 10 for list)

Sandbags, minimum 50 pounds, securely fastened or tied

Do not stack more than 2 sandbags without forming pyramid shape

Drain pipe (if specified), fasten securely

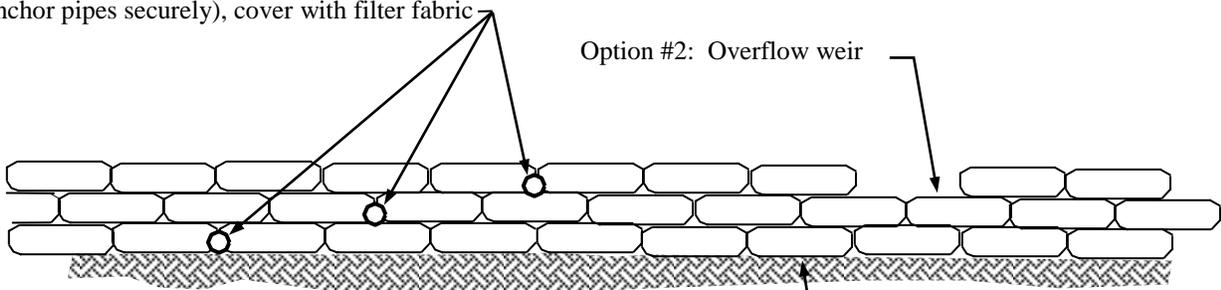
Key at least one sandbag into ground approximately 3 inches

**Embedded into soil**

**On streets and curbs**

Option #1: Drain pipe, alternate locations shown (anchor pipes securely), cover with filter fabric

Option #2: Overflow weir



**Profile**

Stack sandbags in brick-like fashion to rest on 2 other sandbags

NOT TO SCALE

**Figure ES-16-1  
Sandbag Barrier**