
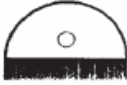

	Bowling Green, Kentucky Stormwater Best Management Practices (BMPs) Sediment Management Practices (SMPs)	SMP-05	
	Activity: Temporary Sediment/Detention Basin (DB)		
PLANNING CONSIDERATIONS: Design Life: 12-18 months Acreage Needed: Minimal Estimated Unit Cost: Medium Monthly Maintenance: 30% of Installation			
			
	Target Pollutants		
	Significant ♦	Partial ♦	Low or Unknown ◇
	Sediment ♦ Heavy Metals ◇ Nutrients ◇ Oil & Grease ◇ Bacteria & Viruses ◇	Oxygen Demanding Substances ◇ Floatable Materials ◇	Toxic Materials ◇ Construction Waste ◇
Description	Typically temporary sediment/detention basins require the construction of an embankment across the drainage path in order to create a pond to trap sediment and inhibit the potential of downstream flooding. Sediment basins are usually designed by a professionally licensed engineer.		
Suitable Applications	<ul style="list-style-type: none"> ➤ For disturbed areas between 5 to 10 acres. Areas greater than 10 acres will require a design by a licensed professional engineer. ➤ Collect and store sediment from areas that have been cleared in preparation for construction. ➤ Used in areas where sediment-laden runoff may enter waterways. ➤ Suitable for almost all construction projects. 		
Approach	<ul style="list-style-type: none"> ➤ The sediment control basin should be designed by using SEDCAD, or another suitable computer program. ➤ The intent of this BMP is to trap sediment before it leaves the construction area. ➤ Provide a detention time of 24-48 hours for a 10-year 24-hour wet weather event. ➤ Provide a minimum storage capacity of 3600 cf per acre of bare soil. ➤ The ratio of basin flow length to flow width is 2:1. ➤ There are three components to the successful design of a sediment basin: <ul style="list-style-type: none"> • Embankment • Principal Spillway • Emergency Spillway 		

**Approach
(cont'd)***Embankment Recommendations*

- Slopes of the embankments for a Class 1 basin shall not be steeper than 2:1 on the upstream side, and not steeper than 5:1 on the downstream side of the basin, in order to allow the area to be safely mowed and maintained. (See SMP-05-01).
- Slopes on either side of the embankment of Class 2 or 3 basins shall not be steeper than 2.5:1 for, in order to allow the area to be safely mowed and maintained. (See SMP-05-01).
- Provide for a minimum of 1-foot of freeboard for a 100-year 6-hour wet weather event.
- The minimum width at the top of the embankment is 12-inches.
- Stabilize the slope with vegetation or rip rap.

Principal Spillway Requirements

- Provide a subsurface drain or solid riser pipe with dewatering holes to allow sufficient detention time.
- The outlet pipe diameter shall be a minimum of 8-inches.
- The post construction peak flow shall exceed the pre-developed levels of the 2-year and 10-year 24-hour wet weather events.
- Install a trash rack and anti-vortex device on the riser pipe.
- Prepare a stabilized apron for the outlet pipe.

Emergency Spillway Requirements

- Emergency spillway shall be designed to pass a 100-year 6-hour wet weather event, to the top of the embankment.
- Provide a minimum of one foot of freeboard between the top of the riser pipe and the crest of the spillway.

**Installation
Procedures**

- Construct this BMP prior to any clearing and grading on the construction site.
- Fill material for the embankment shall be free of roots, woody vegetation, oversized stones, rocks and other deleterious materials.
- Place fill material in 6 inch lifts with continuous layers extending the entire length fill, and compacted to 95 percent of maximum density and +/- 2 percent of optimum moisture content.
- Construct the embankment to a height 10% higher than the required crest elevation to allow for settlement if construction traffic (hauling in/out) is used to compact the soil. If compaction equipment is used, reduce the height to 5%.
- Weld the principal spillway pipe to the discharge pipe with a watertight connection.
- The principal spillway and discharge pipes shall be placed on a firm, smooth soil foundation. Pervious materials such as sand, gravel or crushed stone shall not be used as backfill around the pipes.

Activity: Temporary Sediment/Detention Basin

SMP-05

Installation Procedures (cont'd)

- Do not construct the emergency spillway in fill.
- Securely anchor and install anti-seep collar on the outlet pipe/riser for events larger than 2-year storm events.
- Stabilize the embankment with vegetation immediately following construction.
- Check with local ordinances and state requirements to ensure proper fencing and signage are placed, warning the public of potential sediment and flooding hazards.
- The basin's volume should capture at least a 2 year 24 hour storm.

Special Note

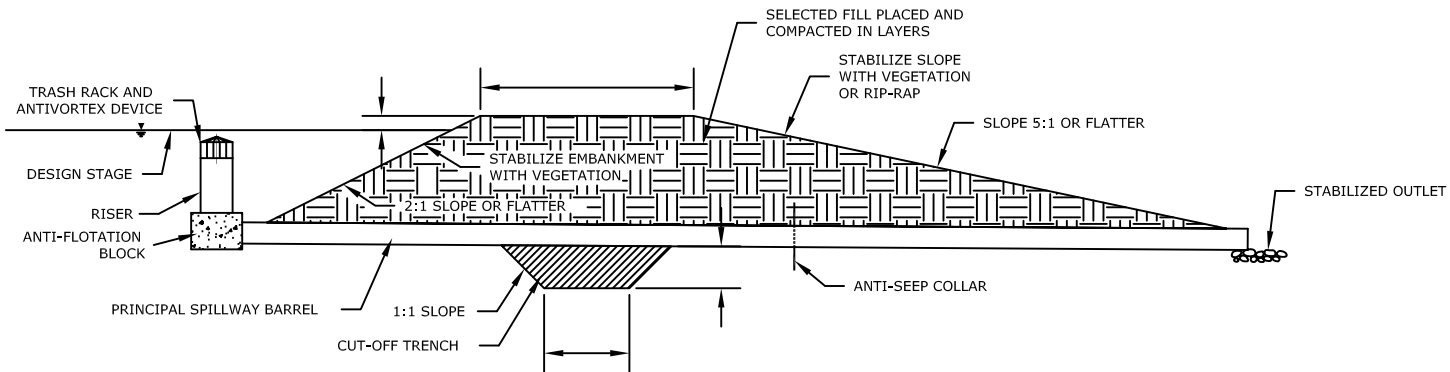
Any sediment basin may be required to meet the dam safety requirements and approval of the Kentucky Division of Water. The definition of a dam is any impounding structure that is 25-feet in height from downstream toe to crest, or has the capacity to impound up to 50 acre feet of water. Structures that do not meet these requirements but may have the same detrimental impact downstream are subject to similar criteria as the dams.

Maintenance

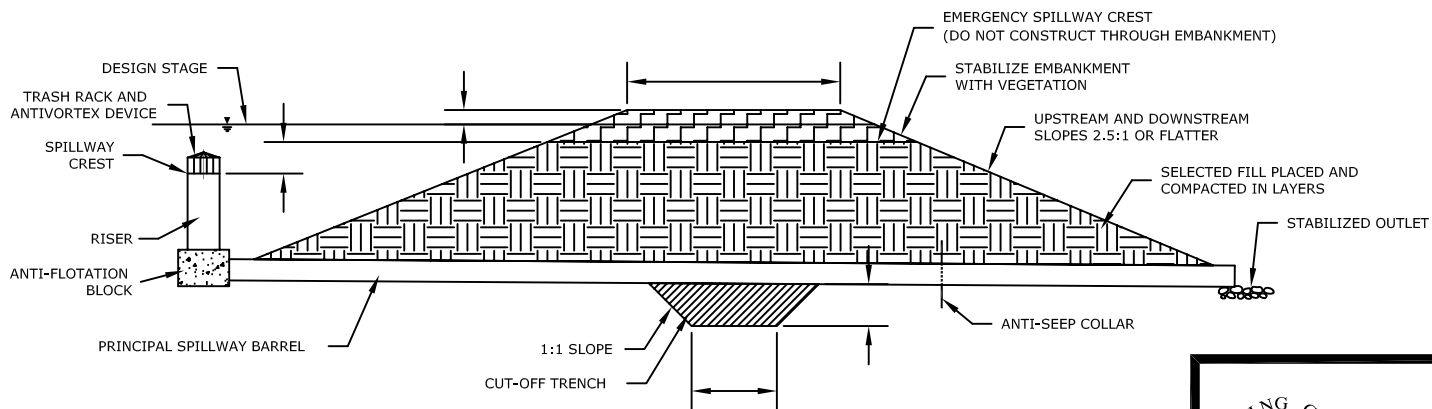
- Inspect weekly as well as before and after wet weather events.
- Repair all damages to and within the basin due to construction by the end of the work day.
- Maintain all aspects of the basin (outlet area, outlet structures, etc.).
- Remove sediment when storage is $\frac{1}{2}$ full.
- Ensure that all sediment removed from the basin will not erode from the site.
- Basin failure should not affect loss in life, property, roads, or utilities.

Inspection Checklist

- Structure has appropriate outlet design.
- Stabilized outlet prevents erosion.
- Sediment accumulation does not exceed $\frac{1}{2}$ depth of basin.
- Outlet is free of trash and deleterious materials that will clog the pipe and restrict flow.
- Trash rack and anti-vortex device on riser is free of debris and other deleterious materials that will clog and restrict flow.



SECTION THROUGH EMBANKMENT AND CONTROLS - CLASS 1 BASIN



SECTION THROUGH EMBANKMENT AND CONTROLS CLASS 2 AND CLASS 3 BASINS



City of Bowling Green

Public Works Planning and Design
1011 College Street
Bowling Green, Kentucky 42101

TEMPORARY SEDIMENT BASIN

STANDARD DRAWING NO. SMP-05-01

SOURCE: LOUISVILLE MSD

APPROVED BY: _____ DATE _____
DIRECTOR OF ENGINEERING