



A Fairfax County, VA,  
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## PROTECTING OUR ENVIRONMENT, ONE STORMWATER PRACTICE AT A TIME

# FAIRFACTS

- ✓ Vegetated swales may be adapted for use in most land development projects. However they should not be constructed on steep slopes or areas with very limited space.
- ✓ Dry swales may be planted with a mix of turf grass, tall meadow grass, herbaceous cover and trees. Dry swales located along roads should be planted with salt-tolerant species. Beautyberry, Red Osier Dogwood, Sweetgum and Sweetbay Magnolia are all tolerant to road salt.
- ✓ Grass channels should be planted with native, broadleaf species of grass that have a deep root system to resist scouring and that are water-tolerant. Bottlebrush Grass, Virginia Wild Rye, Little Bluestem and Switchgrass are all grass species native to Virginia.
- ✓ Engineered soil media replaces native soils with a prepared media that provides adequate drainage, supports plant growth and facilitates pollutant removal.

# VEGETATED SWALES

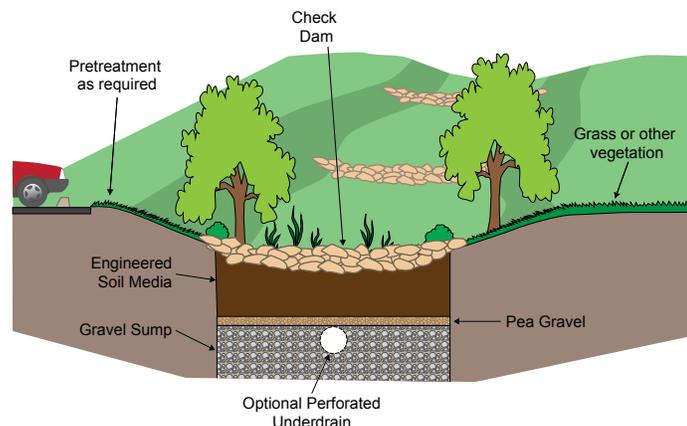
## OVERVIEW

Vegetated swales are open, gently sloping channels that are designed to convey and treat stormwater runoff. There are two types of vegetated swales: dry swales and grass channels. They perform the same hydraulic function as a traditional curb or ditch but with the added benefit of water quality treatment. Dry swales, which may also include grass swales, are similar to linear bioretention facilities. They provide water quality and quantity treatment through filtration (or infiltration), settling and plant uptake. Grass channels are typically designed as conveyance systems and provide a modest amount of water quality and quantity treatment. The main features of dry swales are engineered soil media, turf cover or plantings, check dams and an underdrain. Grass channels feature turf cover, compost soil amendments and a check dam but do not include engineered soil media or an underdrain.

## HOW VEGETATED SWALES WORK

Dry swales use plants to slow excess runoff and allow sediment to settle on the channel bottom. In addition, engineered soil media filter out other pollutants. Small check dams or weirs can be added to further slow the runoff and reduce the potential of downstream erosion. Vegetation improves stormwater quality through biological uptake; plants will absorb nutrients in the runoff for nourishment and growth. Plants are selected with deep root systems and a tolerance for fluctuations in soil moisture. Runoff percolates through the engineered soil media and either infiltrates or enters the underdrain. The underdrain is a perforated PVC pipe that lies in a bed of gravel beneath the engineered soil media. It is either connected to the stormwater drainage system or daylighted further down the swale.

## DRY SWALE WITH UNDERDRAIN

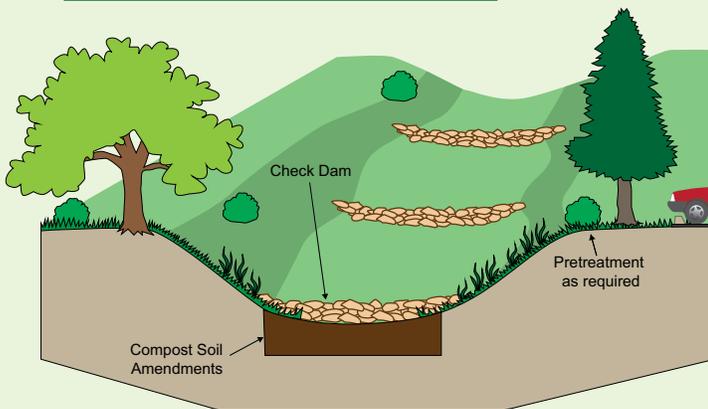




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Grass channels provide less filtering and pollutant removal benefits due to the lack of engineered soil media. Grass channels can be enhanced by incorporating a soil compost amendment along the bottom of the channel.

### GRASS CHANNEL WITH AMENDMENTS



### HOW TO MAINTAIN VEGETATED SWALES

#### DRY SWALES

- ✓ Weeding is required when invasive species make up more than ten percent of the vegetation
- ✓ Replant in spring and fall to maintain a plant composition that is consistent with the design
- ✓ Prune in early spring
- ✓ Inspect overflow pipe for damage and functionality twice a year
- ✓ Remove organic litter and debris as needed
- ✓ Remove any accumulated sand or sediment deposits behind check dams as needed

#### GRASS CHANNELS

- ✓ Mow grass to keep at a height of six inches
- ✓ Remove grass clippings after mowing
- ✓ Maintain 95 percent turf cover and reseed as necessary
- ✓ Remove organic litter and debris as needed
- ✓ Remove any accumulated sand or sediment deposits behind check dams as needed

### VEGETATED SWALES SUGGESTED MAINTENANCE TIMELINE

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Inspect overflow pipe				*						*		
Pruning			*									
Replanting				*						*		
Remove organic litter and debris	←					AS NEEDED		→				
Weeding	←					AS NEEDED		→				
Reseeding	←					AS NEEDED		→				
Mowing	←					AS NEEDED		→				
Remove sediment behind check dams	←					AS NEEDED		→				