

Filter Strip

PURPOSE: Filter strips remove sediment and other pollutants from runoff before they are carried into storm sewer systems or streams. Filter strips also aid with reducing the flow rate of runoff and allowing runoff to infiltrate into the soil to recharge the groundwater supply.

Filter strips are gently sloping, densely vegetated areas used to treat stormwater runoff, acting as a buffer between impervious areas and storm sewer systems or streams.

The filter strip's ability to increase water quality depends on the varieties and mix of vegetation (grass, shrubs or trees) selected. It is important to note that filter strips are only effective when runoff flows in sheets; concentrated flow leads to erosion, which will result in failure of the filter strip. Level spreading devices, such as a gravel-filled trench, curb stops, or berms, are recommended to convert runoff into sheetflow that washes evenly over the filter strip. As runoff flows across the filter strip, its vegetated top layer filters sediment and pollutants, such as pesticides, from runoff. Vegetation also slows the rate of runoff, which allows for increased absorption into the underlying soil for additional filtering and some infiltration to the groundwater supply.

Filter strips can be designed to collect and convey filtered runoff to other types of BMPs, such as vegetated swales, infiltration basins and natural buffer areas.

NOTE: Roof drainage discharged to filter strips should be at least ten feet from the building foundation to prevent water damage.



Benefits and Uses

- Filters contaminants from runoff prior to its discharge to the storm sewer system
- Reduces peak velocity and volume of stormwater runoff delivered to storm sewer system or stream
- Provides some recharge to groundwater supply
- Can be used to treat runoff along residential streets, stream corridors, and small parking lots
- Provides an ideal habitat for wildlife, depending on vegetation selected
- Inexpensive to install and maintain
- Enhances aesthetics of local landscape
- Area can be used for snow storage during winter
- Applicable to all types of sites (residential/commercial/industrial)

Additional Resources

PA Department of Environmental Protection

- www.dep.state.pa.us

- Pennsylvania Stormwater Best Management Practices Manual

US Environmental Protection Agency

www.epa.gov

Stormwater Manager's Resource Center

www.stormwatercenter.net

General Design Considerations

- Length of filter strip is a function of the slope, vegetated cover and soil type
- Effective for areas with slope less than 8%; grades more than 5% will require more dense vegetation to effectively dissipate energy from flow
- Recommended for drainage areas of less than 5 acres
- For every acre of drainage, filter strip width should be 100 feet perpendicular to flow of runoff and 50 feet long
- Design for wooded areas should include a healthy layer of mulch
- Ratio of drainage area to filter strip area must not exceed 6:1
- Lateral slope of filter strip is 1%
- Use of a level spreading device is recommended to provide sheet flow conditions
- Filter strips should be protected against pedestrian and vehicular traffic
- Length and slope of contributing drainage should be considered to avoid erosion of filter strip

- Minimize excessive soil compaction and land disturbance during construction
- Follow erosion control procedures
- Inspect regularly for clogging, rills or gullies caused by erosion, damage by foot traffic

