

6.2.2 Filter Strip

PURPOSE & DESCRIPTION

Filtrex[®] Filter Strips are a **temporary or permanent vegetative filtration** practice used to reduce the amount of sediment and soluble pollutants, such as nutrients, heavy metals, and petroleum hydrocarbons, in storm water runoff prior to leaving a site or entering a receiving water or wetland. The primary purpose of a filter strip is to reduce sediment and pollutant loading of surface sheet flow runoff and subsurface flow (interflow) by:

- Reducing pollutant loads by reducing runoff volume,
- Reducing runoff volume through increased water holding capacity and infiltration,
- Increasing infiltration by reducing runoff velocity,
- Trapping and settling of pathogens and sediment by reducing runoff velocity,
- Chemical adsorption of nutrients and metals to humus colloids in compost,
- Recycling of nutrients and metals by plant uptake and microbial decomposition and uptake.

Filter strips consist of a 1 to 2 in (25-50mm) deep layer (135 to 270 cubic yards/acre, 257 to 513 cubic meters/ha) of Filtrex[®] GrowingMedia[™] blended with a specified seed mix and applied to ground surfaces with pneumatic blower trucks. Planting of perennials such as shrubs and trees will also improve storm water infiltration and filtration of pollutants in storm water.

APPLICATION

Filter strips are generally used for post construction applications where permanent vegetation is established to increase infiltration of storm water and filtration of storm water pollutants. Locations where filter strips may be required or recommended to filter storm runoff include:

- From highways, streets, and parking lots,
- Prior to surface waters, riparian areas, and wetlands,
- Above stream bank or shoreline structural stabilization projects,
- Prior to channels and ditches,
- Prior to bioretention ponds, rain gardens, and storm water detention ponds,
- Around site perimeters where land disturbing/construction activities may occur,
- Prior to structural sediment control devices as a pretreatment practice,
- Around and prior to sediment detention ponds where land disturbing/construction activities may occur.

Filter strips can also be designed to reduce runoff velocity leaving or entering the locations described above. Reducing runoff velocity will increase infiltration of storm runoff, thereby reducing runoff volume and pollutant loading (by increasing the propensity for sediment deposition and decreasing the propensity for pollutant transport). Additionally, GrowingMedia in filter strips will further reduce pollutant loading in storm water by reducing runoff volume and increasing chemical adsorption of soluble pollutants.

Filter strips are generally used in permanent, post-construction applications where a variety of vegetation including legumes, grasses, shrubs and trees can be utilized; however, temporary applications that include fast establishing grasses on or near land disturbing/construction activities are acceptable.

Filter strips can be applied as part of a Low Impact Development design plan or to assist in point accrual in LEED

Green Building Certification programs (Filtrex[®] Tech Link #3301 and #3306).

INSTALLATION

1. Filter strips shall meet Filtrex Filter Strip and Filtrex Certified GrowingMedia Specifications.
2. Call Filtrex at 877-542-7699 or visit www.filtrex.com for a current list of installers and distributors of Filtrex products.
3. Filter strips will be placed at locations indicated on plans as directed by the Engineer.
4. Filter strips shall be installed down slope and around areas contributing storm runoff polluted with sediment, nutrients, heavy metals, petroleum hydrocarbons, and/or pathogens.
5. Filter strips shall be applied to 100% of the area where a vegetated filter strip is required.
6. Filter strips shall be applied to the soil surface at a depth of 1 to 2 in (25-50mm) or 135 to 275 cubic yards/ac. (257-513 cubic meters/ha).
7. Filter strips designed for maximum infiltration may use Filtrex[®] Engineered soil and should consult those installation specifications.
8. Seed shall be thoroughly mixed with the GrowingMedia prior to application or surface applied with GrowingMedia at time of application.
9. Filter strips shall not be installed in areas of concentrated runoff flow.
10. Filter strips shall not be installed in areas where contributing sediment loads are greater than 10 tons/ac/yr (22.5 Mg/ha/yr).
11. Filter strips shall not be installed on slopes greater than 15%.
12. Filter strips shall be applied at a minimum width of 5 ft (4.5 m).

Table 2.1. Minimum Width Requirements by Slope Degree for Filter Strips

Slope	w/structural sediment control device	Minimum Width
1-3%	Yes	15 ft (5m)
1-3%	No	25 ft (5m)
4-7%	Yes	25 ft (5m)
4-7%	No	35 ft (5m)
8-10%	Yes	35 ft (5m)
8-10%	No	50 ft (5m)
11-15%	Yes	75 ft (5m)
11-15%	No	100 ft (5m)

Source: USEPA, 2006; USDA-NRCS, 2004.

INSPECTION & MAINTENANCE

Routine inspection should be conducted within 24 hrs of a runoff event for the first year after installation, until permanent vegetation has established, or as designated by the regulating authority. If sediment accumulation is 25% of the height of the vegetation, sediment removal is recommended. If rilling occurs or vegetation does not establish, the area of application should be reapplied with a filter strip. If failure continues, the use of runoff diversion devices, compost erosion control blankets, rolled erosion control blankets,

or soil stabilizers should be considered. Vegetation practices should always be inspected for noxious or invasive weeds.

1. The Contractor shall maintain the filter strip in a functional condition at all times and it shall be routinely inspected.
2. Filter strips shall be maintained until a minimum of 70% uniform cover of the applied area has been vegetated, permanent vegetation has established, or as required by the jurisdictional agency.
3. Filter strips may need to be irrigated in hot and dry weather and seasons, or arid and semi-arid climates to ensure vegetation establishment.
4. Where a Filter strips fails, rilling occurs, or vegetation does not establish the Contractor will repair or provide an approved and functioning alternative.
5. If a filter strip is damaged by storm water runoff, temporary runoff diversion devices installed above the filter strip may be required.
6. No additional fertilizer or lime is required for vegetation establishment and maintenance.
7. No disposal is required for this product/practice.
8. Regular mowing of filter strips to a minimum height of 4 in (100mm) and a maximum height of 10 in. (250mm) will deter invasive weeds, allow sunlight to kill captured pathogens, and provide maximum sediment removal efficiency and sediment storage capacity in the filter strip.
9. Sediment shall be removed once it reaches 25% of the height of the vegetation (mowed) to prevent diversion of storm runoff and reduction of vegetation health and cover.

ADDITIONAL INFORMATION

For other references on this topic, including additional research reports and trade magazine and press coverage, visit the Filtrexx website at filtrexx.com

Filtrexx International, Technical Support
877-542-7699 | www.filtrexx.com | info@filtrexx.com
Call for complete list of international installers and distributors.

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Figure 2.1. Engineering Design Drawing for Filter Strip

