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Benefits:

Removes pollutants from runoff
Decrease stormwater runoff volume,
flow rate, and temperature
Few site constraints

Target Pollutants:

Total Suspended Solids
Heavy Metals
Nitrogen
Phosphorus

Uses:

Constrained sites
Retrofits
Highly impervious tributary areas

Limitations:

Not designed for vegetative growth
Potential clogging
Requires a stable watershed
Limited nitrate removal

Resources:

Urban Drainage and Flood Control
District; Volume 3, Bioretention
EPA NPDES Post-Construction Menu
of Stormwater BMPs; Sand and Organic
Filters

SAND FILTERS

DESCRIPTION

Sand filter basins are stormwater filters that consist of a settling chamber and a sand filter bed with an underdrain system (when necessary). As stormwater flows into the first chamber, large particles settle out. Finer particles and other pollutants are removed as the water gradually infiltrates through to the underlying sand filter bed. Sand filters are not specifically designed for vegetative growth and work well in areas that have little room for stormwater management.

DESIGN AND INSTALLATION

- Soils, drainage area, amount of rainfall, slopes, and percentage of impervious surface in the contributing watershed determine size and specifications.
- Sand filters require a stable watershed. If contributing areas is not stabilized a pretreatment BMP is required.
- The filter layer should be designed with an underdrain when the subgrade does not allow for infiltration, where infiltration can damage foundations, and in locations with expansive soils.
- Install cleanouts to allow for easy inspection and maintenance.
- Provide vegetative side slopes to provide pretreatment of runoff and reduce maintenance requirements.
- Avoid overcompaction of the sand filter to preserve infiltration capacities.

MAINTENANCE

- Routinely remove litter and debris to minimize clogging of sand media.
- Remove sediment as layers become visually clogged.
- Once a year rake the top 3-5 inches of the filter surface to promote drainage.
- Routinely inspect inlets, outlets, and overflow spillway.
- Repair eroded areas as needed.
- Remove by hand any invasive or noxious weeds before they flower.

