TREE BOX FILTER

Fact Sheet TR-3

DESCRIPTION

Tree box filters are typically manufactured systems that provide biofiltration and media filtration to treat storm water runoff. Storm water typically flows into a pretreatment chamber to remove large sediment, debris and trash before passing into the biotreatment chamber where physical straining, and biological and chemical reactions in the mulch, root zone, and soil matrix occurs. Tree box filters are similar in concept to bioretention areas in function and application, with the major distinction that a tree box filter has been optimized for high volume/flow treatment, therefore the ratio of impervious area to treatment area is less. A tree box filter takes up little space and may be used on highly developed sites in areas such as landscaping, green space, parking lots and streetscapes.

Photo Source: Oldcastle Storm water Solutions ™

An underdrain in the tree box filter collects treated storm water to be discharged to the storm water conveyance system or other appropriate location. Manufactured tree box filters typically incorporate a high flow bypass to prevent scouring in the bioretention basin and mobilization of treated pollutants. The overflow can be directed to another treatment system or the municipal storm system.

MAINTENANCE CONSIDERATIONS

Maintenance activities and frequencies are specific to each manufactured product. Semiannual maintenance is typical and should be performed per manufacturer specifications. Maintenance agreements are available from some manufacturers.

Tree box filters may exhibit decreased effectiveness after a single year of operation, depending on the activities occurring in the drainage area and filter loading. They clog easily when subjected to high sediment loads, and sediment reducing pretreatment practices placed upstream of the filter should be maintained properly to reduce sediment loads into the filter.

Maintenance efforts will need to focus on basic housekeeping practices such as removal of sediment and debris accumulations to prevent clogs and/or ponds of standing water. To minimize the potential for clogging, frequent maintenance and inspection practices are required. Waste sand, gravel, soil, mulch, or filter media must be disposed of properly and in accordance with all applicable laws.

Tree box filters can become a nuisance due to mosquito or midge breeding if not properly designed and maintained. Installations should dewater completely (recommended 72 hour or less residence time) to prevent creating mosquito and other vector habitats.

If applicable, contact the proprietary product manufacturer for specific maintenance requirements.

REFERENCES

Alameda Countywide Clean Water Program. C.3 Storm water Technical Guidance, A Handbook for Developers, Builders, and Project Applicants, Version 3.1. 2012. Available online at: http://cleanwaterprogram.org/c3-guidance-table/item/c3-guidance-table.html

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