

## Article 109

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# Innovative Leaf Compost System Used to Filter Runoff in Northwest

The use of organic media to filter out stormwater pollutants appears to be a promising direction for urban best management practices. An example is the leaf compost system developed by W&H Pacific in Portland, Oregon. About 30 compost systems have been installed in the Pacific Northwest to treat runoff from small sites. Performance data on a prototype of the compost treatment system has recently become available.

The basic design of the system is shown in Figure 1. Runoff enters a forebay, and then passes into a series of compost treatment cells. Each cell contains a one-foot depth of compost, followed by a filter fabric, a six-inch layer of small diameter rock, and two inches of pea gravel. Runoff filters through the compost and is then collected by a perforated pipe and directed toward the outlet. The slope from the inlet to the outlet of the hundred foot long filter bed is two percent and requires about three feet of head. Like most stormwater filtering

systems, the filter bed and subsoils are separated by an impermeable polyliner.

The filter system served a 74-acre mixed-residential watershed, and was sized to provide 200 square feet of surface area per cfs of incoming flow. The local target for runoff treatment is to capture one-third of the two year design flow. This roughly translates to about 0.10 watershed-inches of storage, assuming a 2.25 gpm/ft<sup>2</sup> rate for the first 30 minutes of runoff.

The key to good performance is proper selection of compost. A suitable compost has the following characteristics:

- Mature (i.e., organic matter no longer rapidly degrades)
- Hemic
- Low contaminant levels
- High permeability
- Locally obtainable at a reasonable cost

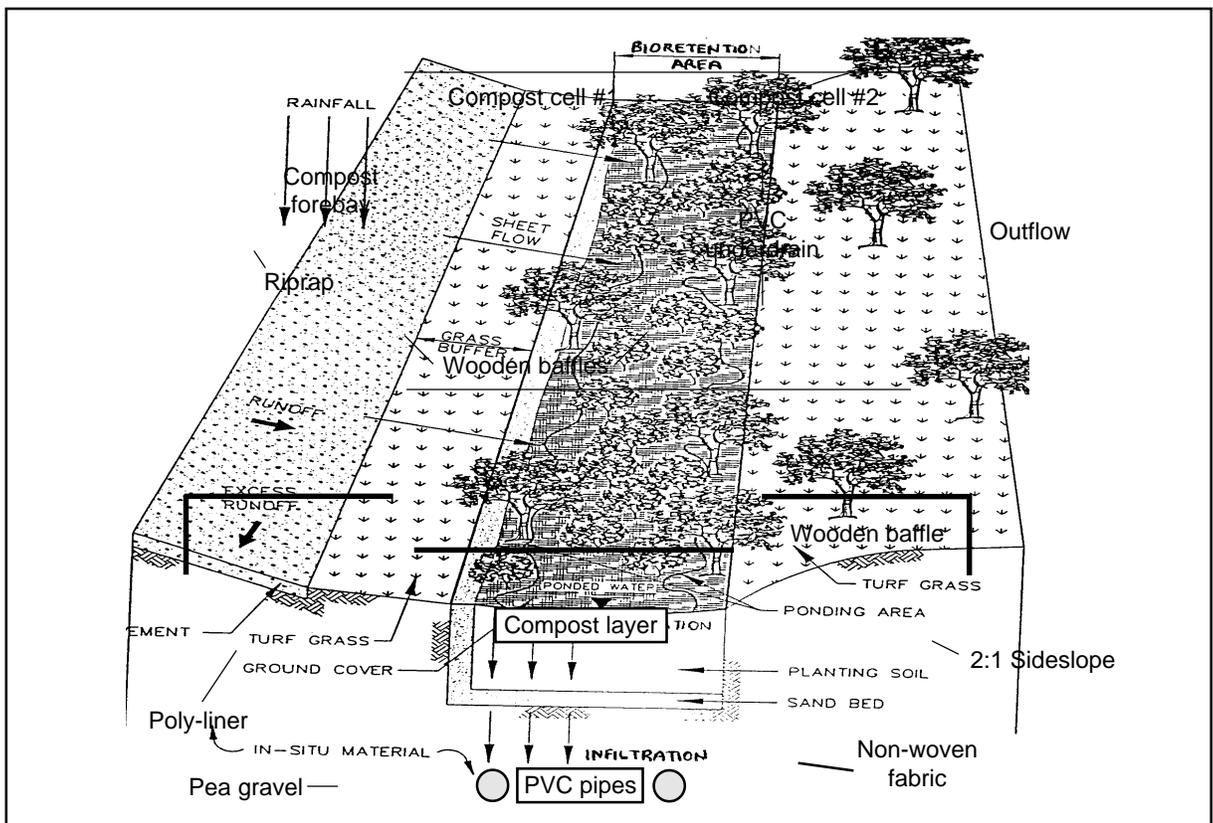


Figure 1: Plan View and Cross-Section of the Leaf Compost Treatment System (Stewart, 1992)