

Stormwater Biofiltration

Know the Facts, See the Future



Nick Garner, Product Manager of Green Infrastructure for Oldcastle Infrastructure, inspects a traditional bioswale, a common piece of green infrastructure that utilizes biofiltration to remove stormwater pollutants.

While the earliest stormwater management plans involved sending stormwater into storm sewers, a shift in thinking has resulted in stormwater now being viewed as a valuable water resource, making storm sewers a less-attractive solution. Enter the perfect solution: biofiltration.

It's a little-known fact that pollutants in stormwater runoff can often exceed those of untreated wastewater. Today, sites create a Stormwater Pollution Prevention Plan (SWPPP), a site-specific strategy designed to prevent and eliminate pollutants from stormwater runoff. With urban development increasing stormwater runoff

volume and decreasing the amount of pervious green surfaces in urban environments, the birth of Low-Impact Development (LID) and green infrastructure solutions presented new and effective options.

Oldcastle Infrastructure's BioPod[™], offered in various figurations to include underground, is sustainable green infrastructure for stormwater management. BioPod systems utilize an advanced biofiltration design for filtration, sorption and biological uptake to remove Total Suspended Solids (TSS), dissolved metals, nutrients, gross solids, trash and debris as well as petroleum hydrocarbons from stormwater runoff.

Environmentally friendly and aesthetically pleasing, BioPod systems are a proven LID solution for stormwater treatment. BioPod systems integrate seamlessly into standard site drainage and can accommodate a wide variety of vegetation to meet green infrastructure requirements.

BioPod's primary internal component is a high-flow, engineered media called StormMix™. Approved by the two leading environmental regulatory bodies in the United States—the New Jersey Department of Environmental Protection and the Washington State Department of Ecology—to remove TSS, phosphorus, copper and zinc, BioPod can remove these pollutants at a high flowrate, allowing the device to be designed at a fraction of the size of a traditional bioswale (up to 70% less, according to an internal case study).

The BioPod significantly reduces installation time when compared to other options. BioPod reduces the site footprint requirement for stormwater management, saves installation time and jobsite space, saves installation costs, meets pollutant removal requirements for several pollutants, and provides ancillary green infrastructure benefits when vegetation is included.

What's Next for Biofiltration?

What does the future of biofiltration look like? According to Nick Garner, product manager of green infrastructure and deep infiltration for Oldcastle Infrastructure, a CRH company, the industry's next focus should be how to take the devices we have and adapt them to



Installation of an Underground BioPod Biofiltration system from Oldcastle Infrastructure eliminated the need for multiple units and still met green infrastructure requirements in Fredrickson, Wash.

treat for nitrogen and bacteria removals in stormwater. “Our focus should be on how to expand pollutant removal capabilities to other pollutants.”

Garner adds that, “Jobsite restrictions will never go away, and we will always need to optimize space; it’s about continual learning and improving flow rates of our devices to make them smaller and smaller.”



The high-flow StormMix media used in the BioPod meets regulatory requirements to remove TSS, phosphorus, copper and zinc at a fraction of the size of a traditional bioswale.