New Technology Report - January 2013

**StormTreat Systems**

| Innovative Technology: | • StormTreat Systems  
• Modular treatment train |
|------------------------|--------------------------------|
| Claimed Benefits of Technology: | • Up to 98% TSS removal and 90% Dissolved P removal  
• Units small size allows for flexible site placement  
• Compares favorably with other stormwater BMP’s on a cost per-acre treated basis  
• Can function as standalone BMP or pretreatment prior to larger bioretention area  
• Standard sump catch basin maintenance is required every other year  
• Flexible layout options allow for a variety of catchment area treatment options  
• Incorporates plants for aesthetic benefit |
| Drawbacks: | • Proprietary tank requires specialty shipping from Massachusetts as no local representative exists  
• Despite incorporating plants the system still looks unusual and industrial after installation |
| Suppliers/Contacts: | • StormTreat Systems  
Cotuit, Massachusetts  
www.stormtreat.com |
| Conclusion: | • Unlike other proprietary stormwater treatment devices, the StormTreat System specifically incorporates plants and biofiltration into its treatment train. Due to its flexible design placement, small footprint, and tested pollutant removal technologies, the StormTreat System doesn’t do anything new but does it in a small, robust, inexpensive package worth further consideration. |
**Technology Description**

StormTreat System is a modular, multistage stormwater runoff treatment technology that offers pollutant removal via sedimentation, mechanical filtration, adsorption, and biofiltration. The system is housed in a single, round recycled polyethylene chamber that accepts runoff and discharges filtered runoff. The StormTreat System is designed to manage and treat the first flush and not as a volume reduction tool or for continuous treatment during large rainfall events.

Through a subsurface inlet from a catch basin or other stormwater runoff retention area, the StormTreat System combines a sedimentation chamber with skimmer and a gravel filter to quickly clean runoff prior to discharging it via an outlet. Multiple chambers can be linked together according to the size of catchment area and the degree of stormwater pollutant expected. A single chamber is approximately 9’ wide by 4’ tall.

![StormTreat System Chamber](image)

**Figure 1 - StormTreat System Chamber**

The baffled sedimentation chamber is surrounded by a void for the installation of gravel filter material, that allows for the installation of plants to encourage evapotranspiration and bioaccumulation to further remove heavy metals and PAH’s not removed via sedimentation. Dissolved nutrients retained in the gravel filter are also available for absorption by the plants. The plants can also serve to potentially improve the look of the system after it is installed.
Removal Efficiency

Independent testing by the State of Massachusetts Department of Natural Resources and the University of Vermont has concluded that the StormTreat System is capable of removing up to 97% fecal coliform, 99% TSS, 77% dissolved nitrogen, and 90% dissolved phosphorus.

Costs

Without a potential project to refer to, the StormTreat representative was unwilling to provide a quote for installation, however, one of the case studies cited by the University of Vermont included some cost information. For a six-chamber system including installation the costs were listed at $68,000. This price does not include engineering, any separate fore bays or additional inlet costs such as a new catch basin, or the cost of tying into an existing outlet feature.
**Maintenance**

Depending on the stability or pollutant loading of the catchment area, the StormTreat System will have to be vacuumed out as one would a sump catch basin, typically twice every year in the spring after snow melt and after leaf off in the fall. The plants would have to be maintained as a normal planting bed. All the interior skimmers and pipe fittings need to be inspected for clogging or other blockage from debris. No confined space entry is required for normal maintenance.

**Conclusion**

By containing a series of proven yet simple techniques for pollutant reduction in a modular unit, the StormTreat System appears to be appropriate for a trial test at a site with space constraints.