



## 4.4.5 Proprietary Structural BMPs

Limited Application  
Stormwater BMP

**Description:** Proprietary systems are defined as manufactured stormwater treatment systems that are available from commercial vendors.

<p style="text-align: center;"><b><u>REASONS FOR LIMITED USE</u></b></p> <p>Depending on the proprietary system, there may be:</p> <ul style="list-style-type: none"> <li>• Limited performance data</li> <li>• Application constraints</li> <li>• High maintenance requirements</li> <li>• Higher costs than other structural control alternatives</li> </ul> <p style="text-align: center;"><b><u>KEY CONSIDERATIONS</u></b></p> <ul style="list-style-type: none"> <li>• Independent performance data must be available to prove a demonstrated capability of meeting stormwater management goal(s)</li> <li>• System or device must be appropriate for use in Knox County conditions</li> <li>• Installation and operations/maintenance requirements must be understood by all parties approving and using the system or device in question</li> </ul>	<p style="text-align: center;"><b><u>STORMWATER MANAGEMENT SUITABILITY</u></b></p> <ul style="list-style-type: none"> <li>* <b>Water Quality</b></li> <li>* <b>Channel/Flood Protection</b></li> </ul> <p style="text-align: center;"><b><u>SPECIAL APPLICATIONS</u></b></p> <ul style="list-style-type: none"> <li>* <b>Pretreatment</b></li> <li>* <b>High Density/Ultra-Urban</b></li> <li>* <b>Other:</b></li> </ul> <p style="margin-left: 20px;"><b>Residential Subdivision Use: *</b></p> <p>* Depends on the specific proprietary structural control</p>
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*Note: Knox County does not recommend any specific commercial vendors for proprietary systems. This subsection is being included in order to provide Knox County with a rationale for approving the use of a proprietary system or practice.*

### 4.4.5.1 General Description

There are many types of commercially-available proprietary stormwater structural controls for both water quality treatment and quantity control. These systems include:

- Hydrodynamic systems such as gravity and vortex separators
- Filtration systems
- Catch basin media inserts
- Chemical treatment systems
- Package treatment plants
- Prefabricated detention structures

Many proprietary systems are useful on small sites and space-limited areas where there is not enough land or room for other structural BMP alternatives. Proprietary systems can often be used in pretreatment applications in a treatment train. However, proprietary systems are often more costly than other alternatives and may have high maintenance requirements. Perhaps the largest difficulty in using a proprietary system is the lack of adequate independent performance data, particularly for use in Knox County conditions. Below are general guidelines that should be followed before considering the use of a proprietary commercial system.

#### 4.4.5.2 Guidelines for Using Proprietary Systems

In order for use as a limited application control, a proprietary system must have a demonstrated capability of meeting the stormwater management goals for which it is being intended. This means that the system must provide:

- (1) Independent third-party scientific verification of the ability of the proprietary system to meet water quality treatment objectives and/or to provide water quantity control (channel or flood protection);
- (2) Proven record of longevity in the field; and,
- (3) Proven ability to function in Knox County conditions (e.g., climate, rainfall patterns, soil types, etc.).

For a propriety system to meet item (1) listed above, the following monitoring criteria should be met for supporting studies:

- At least 15 storm events must be sampled
- The study must be independent or independently verified (i.e., may not be conducted by the vendor or designer without third-party verification)
- The study must be conducted in the field, as opposed to laboratory testing
- Field monitoring must be conducted using standard protocols which require proportional sampling both upstream and downstream of the device
- Concentrations reported in the study must be flow-weighted
- The propriety system or device must have been in place for at least one year at the time of monitoring

Although local data is preferred, data from other regions can be accepted as long as the design accounts for the local conditions.

Knox County may submit a proprietary system to further scrutiny based on the performance of similar practices. A poor performance record or high failure rate is valid justification for not allowing the use of a proprietary system or device. Consult Knox County Engineering & Public Works Stormwater Management Section for more information in regards to the use of proprietary structural stormwater controls.