



# CITY OF PORTLAND ENVIRONMENTAL SERVICES



1120 SW Fifth Avenue, Room 1000, Portland, Oregon 97204 ■ Nick Fish, Commissioner ■ James Hagerman, Interim Director

**February 2019**

## **Stormwater Management Manual Approved Manufactured Stormwater Treatment Technology**

### **BaySaver Technologies BayFilter™ using Enhanced Media Cartridges (EMC)**

#### **City of Portland Decision:**

The BaySaver Technologies BayFilter™ using Enhanced Media Cartridges (EMC) meets Portland's pollution reduction requirements, per the requirements of the 2016 Stormwater Management Manual, and is approved for use in the City of Portland.

#### **Background:**

As part of the application process, BaySaver Technologies submitted the Washington State Department of Ecology (DOE) Technology Assessment Protocol (TAPE) Technology Evaluation Report, including all appendices and performance monitoring data to demonstrate the BayFilter EMC meets the City of Portland's pollution reduction requirements.

BaySaver Technologies gave a technical presentation to City staff, PSU faculty, and the public on November 1, 2017. The presentation was followed by a technical interview with the City review committee to discuss water quality performance, maintenance, and overall use in the public right-of-way.

Additional information is available online for this system, including:

- [BaySaver BayFilter Website](#)
- [WA DOE General Use Level Designation for the BayFilter with EMC](#)

#### **Conditions of Use:**

1. All configuration options for the BayFilter EMC are approved for TSS removal. Selection of a specific configuration is the responsibility of the project designer.
2. Use of a BayFilter EMC does not exempt a project or site from required flow control requirements, operations and maintenance requirements, or other applicable requirements of the SWMM.
3. For use in the public right-of-way, the following conditions must be met:
  - Units must meet City of Portland street design requirements, including but not limited to H-20 vehicle load rating, non-slip surface, and American with Disabilities Act tolerances specific to surface grates or vault lids.

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- The O&M Plan must call for an assessment during the two-year warranty period of project-specific maintenance requirements and frequencies.
4. Providers certified by BaySaver Technologies should be utilized for activation, inspection and maintenance of the system, unless otherwise trained and certified by the manufacturer.

**Project Designer Responsibilities:**

1. Ensuring that the Conditions of Approval are met.
2. Ensuring that the project meets all applicable requirements of the Portland SWMM, including the Stormwater Infiltration and Discharge Hierarchy.
3. Ensuring that the design and installation of the units are appropriate for the project goals, site conditions, long-term maintenance requirements, and any other site-specific design requirements on private property or for use in the public right-of-way.
4. Sizing units to meet the current Portland SWMM presumptive design approach and pollution reduction requirements. The pollution reduction capacity is flow-based and assumes a treatment flow intensity of 0.19 inches per hour, 5-minute time of concentration, and a 0.90 runoff coefficient using the Rational Method with treatment rates based upon WA GULD approved flow rates, in lieu of the manufacturer’s standard flow rate. The treatment capacities for BayFilter EMC cartridges, based on those assumptions, are provided in Table 1. For sites with different times of concentration, different rainfall intensities may be appropriate.

<b>Table 1. BayFilter EMC Sizing to Meet City of Portland Pollution Reduction Requirements</b>			
Cartridge Configuration	Maximum Cartridge Flow Rate (gpm)	Maximum Drainage Area (acres/ cartridge)	Maximum Drainage Area (sf/cartridge)
545	45	0.585	25,482
530	30	0.392	17,075
522	22.5	0.292	12,719

5. Each site plan must undergo review by BaySaver Technologies before the City of Portland can approve the unit(s) for site installation. A letter certifying the project has been designed to the manufacturer’s specification must be submitted to BES prior to the appropriate design milestone. For public improvements, including public works permits, the letter must be submitted to BES prior to 60% plan review. For installation on private property, the letter must be submitted prior to approval of the building permit plan. The project designer is highly encouraged to work with BaySaver Technologies prior to the appropriate review milestone.
6. If the project designer wishes to vary from these conditions of approval, the project designer must use the Performance Design Approach.

**General Conditions:**

1. BES may at any time suspend or revoke approval if the performance of the technology does not meet performance criteria, if there are changes to the TAPE certification, or the performance criteria change due to local, state, or federal pollution reduction standards.
2. If any changes, updates, or revisions have occurred to the BayFilter EMC, the applicant must obtain WA DOE TAPE GULD certification and re-apply following submission guidelines in effect at the time of application.

**Revision History:**

Date	Action
January 2018	The device was approved for use in the City of Portland
July 2018	Removed 3-yr expiration date for the approval, per a change in BES policy.
February 2019	Removed "Cartridges per Impervious Acre" from Table 1 due to the potential for associated rounding errors.