



# CITY OF PORTLAND ENVIRONMENTAL SERVICES



1120 SW Fifth Avenue, Room 1000, Portland, Oregon 97204 ■ Nick Fish, Commissioner ■ Michael Jordan, Director

November 28, 2016

## Stormwater Management Manual Approved Manufactured Stormwater Treatment Technology

### Oldcastle PerkFilter™ Media Filtration Device (using ZPC Filter Media)

Approval: November 28, 2016 through November 28, 2019

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

The Oldcastle PerkFilter™ Media Filtration Device (using ZPC Filter Media) meets the City of Portland pollution reduction requirements as per the 2014 Stormwater Management Manual (SWMM) under the criteria laid out in Appendix B: Submission Guidelines for Manufactured Stormwater Treatment Technologies.

#### **Background:**

As part of the application process, Oldcastle Stormwater Solutions (Oldcastle) submitted the Washington State Department of Ecology (DOE) Technology Assessment Protocol (TAPE) Technology Evaluation Report, including all appendices and performance monitoring data, to demonstrate that the PerkFilter Media Filtration Device (using ZPC Filter Media) meets the City of Portland's pollution reduction requirements.

Oldcastle gave a technical presentation to City staff, Portland State University students and faculty, and the public on July 20, 2016. The presentation was followed by a technical interview with the City of Portland review committee to discuss water quality performance, maintenance and overall use in the public right-of-way.

The City of Portland contracted with Portland State University's Department of Civil and Environmental Engineering (PSU) to provide third-party review of the submitted water quality performance data. PSU analyzed the provided data and found that the PerkFilter Media Filtration Device (using ZPC Filter Media) meets the pollution reduction requirements of the [2014 SWMM](#).

Additional information is available online for this system, including:

- [Oldcastle PerkFilter product website](#)
- [DOE General Use Level Designation](#) (GULD) for Basic (TSS) and Phosphorous Treatment for the PerkFilter Media Filtration Device (using ZPC Filter Media).

**Conditions of Use:**

1. All configuration options for the PerkFilter Media Filtration Device (using ZPC Filter Media) are approved for pollution reduction. Selection of a specific configuration is the responsibility of the project designer.
2. Use of a PerkFilter Media Filtration Device (using ZPC Filter Media) 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.
  - The Operations and Maintenance Plan for the two-year warranty period must address inspection frequencies.
4. Oldcastle-certified providers 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 use are met.
2. Ensuring that the project meets all applicable requirements of the Stormwater Management Manual, such as the Stormwater Infiltration and Discharge Hierarchy, in order to use PerkFilter Media Filtration Device (using ZPC Filter Media).
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 Stormwater Management Manual 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 PerkFilter Media Filtration Device (using ZPC Filter Media) units, based on those assumptions, are provided in Table 1. For sites with different times of concentration, different rainfall intensities may be appropriate. See SWMM Chapter 1.3.4, page 1-40 for additional information.

<b>Table 1. PerkFilter (using ZPC Filter Media) Sizing to Meet City of Portland Pollution Reduction Requirements</b>			
<b>Cartridge Size/Stack Configuration</b>	<b>Cartridge Design Flow Rate (gpm/cartridge stack)</b>	<b>Maximum Drainage Area (acres/cartridge stack)</b>	<b>Cartridge Stacks Per Impervious Acre</b>
12"	6.8	0.089	11.2
18"	10.2	0.133	7.5
12" + 12"	13.6	0.177	5.6
12" + 18"	17	0.221	4.5

5. Each site plan must undergo Oldcastle review before the City of Portland can approve the unit(s) for site installation. A letter that certifies that the project has been designed to 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 building permit plan approval. The project designer is highly encouraged to work with Oldcastle prior to the appropriate review milestone in order to maximize placement and performance of the unit(s).
6. If the project designer wishes to vary from these conditions of approval, the project designer must use the Performance Design Approach.

Approval Conditions:

1. BES may at any time suspend or revoke approval if the performance of the technology does not meet performance criteria, or if the performance criteria change due to the local, state, or federal pollution reduction standards.
2. This approval expires on November 28, 2019, three years from the approval date. If no changes to the PerkFilter (using ZPC Filter Media) have occurred (such as, but not limited to, dimensional changes to the physical device, changes to the filtration media, changes to maintenance requirements, or changes in expected performance or device design criteria), the approval can be renewed as per the guidelines in effect at the time of renewal. If any changes, updates, or revisions have occurred to the PerkFilter (using ZPC Filter Media), the applicant must obtain DOE TAPE GULD certification and re-apply following submission guidelines in effect at the time of application.