Commonwealth of Virginia

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

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Matthew J. Strickler
Secretary of Natural Resources

David K. Paylor
Director
(804) 698-4000

November 27, 2018

Mr. Graham Bryant, M.Sc., P.E
President
Hydroworks, LLC
136 Central Ave, FL2
Clack, NJ 07066

Transmitted electronically to: gbryant@hydroworks.com

Re: Assignment of Percent Removal Efficiencies for Total Phosphorus

Dear Mr. Bryant:

The Department of Environmental Quality has reviewed the Manufactured Treatment Device (MTD) Registration Form and supporting documentation for the HydroStorm Hydrodynamic Separator received on November 12, 2018. The submittal included certification from the New Jersey Department of Environment Protection Laboratory (attached).

In accordance with § 62.1-44.15:28 of the Stormwater Management Act, 9VAC25-870-65 C, and Guidance Memo No. 14-2009 Interim Use of Stormwater Manufactured Treatment Devices to meet the New Virginia Stormwater Management Program (VSMP) Technical Criteria, Part IIB Water Quality Design Requirement, the HydroStorm Hydrodynamic Separator is hereby approved.

The HydroStorm Hydrodynamic Separator is approved with a 20 percent total phosphorous pollutant removal efficiency. This information will be posted on the Virginia Stormwater Clearinghouse website. This device and the assigned removal efficiency can be manually added into Virginia Runoff Reduction spreadsheet to demonstrate compliance with Runoff Reduction Method.

If you have any questions regarding this information, please contact Robert E. Cooper, P.E. at (804) 698-4033 or e-mail at Robert.Cooper@deq.virginia.gov.

Sincerely,

Jaime B. Robb

Jaime B. Robb, Manager
Office of Stormwater Management

Appendix A
Certification letter from
New Jersey Department of Environmental Protection

State of New Jersey

PHILIP D. MURPHY
Governor

SHEILA Y. OLIVER
Lt. Governor

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Mail Code – 401-02B
Division of Water Quality
Bureau of Nonpoint Pollution Control
P.O. Box 420 – 401 E. State St.
Trenton, NJ 08625-0420
Phone: (609) 633-7021 / Fax: (609) 777-0432
http://www.state.nj.us/dep/dwq/bnpc_home.htm

CATHERINE R. McCABE
Acting Commissioner

March 27, 2018

Graham Bryant, M.Sc., P.E.
President
Hydroworks, LLC
136 Central Avenue
Clark, NJ 07066

Re: MTD Lab Certification
HydroStorm Hydrodynamic Separator by Hydroworks, LLC
Online Installation

TSS Removal Rate 50%

Dear Mr. Bryant:

The Stormwater Management rules under N.J.A.C. 7:8-5.5(b) and 5.7 (c) allow the use of manufactured treatment devices (MTDs) for compliance with the design and performance standards at N.J.A.C. 7:8-5 if the pollutant removal rates have been verified by the New Jersey Corporation for Advanced Technology (NJCAT) and have been certified by the New Jersey Department of Environmental Protection (NJDEP). Hydroworks, LLC has requested an MTD Laboratory Certification for the Hydroworks HydroStorm Hydrodynamic Separator.

The project falls under the "Procedure for Obtaining Verification of a Stormwater Manufactured Treatment Device from New Jersey Corporation for Advance Technology" dated January 25, 2013. The applicable protocol is the "New Jersey Laboratory Testing Protocol to Assess Total Suspended Solids Removal by a Hydrodynamic Sedimentation Manufactured Treatment Device" dated January 25, 2013.

NJCAT verification documents submitted to the NJDEP indicate that the requirements of the aforementioned protocol have been met or exceeded. The NJCAT letter also included a recommended certification TSS removal rate and the required maintenance plan. The NJCAT Verification Report with the Verification Appendix (dated February 2018) for this device is published online at http://www.njcat.org/verification-process/technology-verification-database.html.

The NJDEP certifies the use of the HydroStorm by Hydroworks, LLC at a TSS removal rate of 50% when designed, operated, and maintained in accordance with the information provided in the Verification Appendix and the following conditions:

1. The maximum treatment flow rate (MTFR) for the manufactured treatment device (MTD) is calculated using the New Jersey Water Quality Design Storm (1.25 inches in 2 hrs) in N.J.A.C. 7:8-5.5.

2. The HydroStorm shall be installed using the same configuration reviewed by NJCAT and shall be sized in accordance with the criteria specified in item 6 below.

3. This HydroStorm cannot be used in series with another MTD or a media filter (such as a sand filter) to achieve an enhanced removal rate for total suspended solids (TSS) removal under N.J.A.C. 7:8-5.5.

4. Additional design criteria for MTDs can be found in Chapter 9.6 of the New Jersey Stormwater Best Management Practices (NJ Stormwater BMP) Manual, which can be found online at www.njstormwater.org.

5. The maintenance plan for a site using this device shall incorporate, at a minimum, the maintenance requirements for the Hydrostorm. A copy of the maintenance plan is attached to this certification. However, it is recommended to review the maintenance website at http://www.hydroworks.com/hydrostormo&m.pdf for any changes to the maintenance requirements.

6. Sizing Requirement:

   The example below demonstrates the sizing procedure for the Hydrostorm:

   Example: A 0.25-acre impervious site is to be treated to 50% TSS removal using a HydroStorm. The impervious site runoff (Q) based on the New Jersey Water Quality Design Storm was determined to be 0.79 cfs.

   Maximum Treatment Flow Rate (MTFR) Evaluation:

   The site runoff (Q) was based on the following:
   time of concentration = 10 minutes
   i = 3.2 in/hr (page 5-8, Fig. 5-3 of the NJ Stormwater BMP Manual)
   c = 0.99 (runoff coefficient for impervious)
   Q = ciA = 0.99 x 3.2 x 0.25 = 0.79 cfs

   Given the site runoff is 0.79 cfs and based on Table 1 below, the HydroStorm Model HS4 with a MTFR of 0.88 cfs could be used for this site to remove 50% of the TSS from the impervious area without exceeding the MTFR.

   The sizing table corresponding to the available system models is noted below. Additional specifications regarding each model can be found in the Verification Appendix under Table A-1.

Table 1 HydroStorm Sizing Information

HydroStorm Model	NJDEP 50% TSS Maximum Treatment Flow Rate (cfs)	Treatment Area (ft^2)	Hydraulic Loading Rate (gpm/ft^2)	50% Maximum Sediment Storage (ft^3)
HS3	0.50	7.1	31.4	3.6
HS4	0.88	12.6	31.4	6.3
HS5	1.37	19.6	31.4	9.8
HS6	1.98	28.3	31.4	14.2
HS7	2.69	38.5	31.4	19.3
HS8	3.52	50.3	31.4	25.2
HS9	4.45	63.6	31.4	31.8
HS10	5.49	78.5	31.4	39.3
HS11	6.65	95.0	31.4	47.5
HS12	7.91	113.0	31.4	56.5

A detailed maintenance plan is mandatory for any project with a Stormwater BMP subject to the Stormwater Management Rules, N.J.A.C. 7:8. The plan must include all of the items identified in the Stormwater Management Rules, N.J.A.C. 7:8-5.8. Such items include, but are not limited to, the list of inspection and maintenance equipment and tools, specific corrective and preventative maintenance tasks, indication of problems in the system, and training of maintenance personnel. Additional information can be found in Chapter 8: Maintenance and Retrofit of Stormwater Management Measures.

If you have any questions regarding the above information, please contact Brian Salvo or Nick Grotts of my office at (609) 633-7021.

Sincerely,

James J. Murphy, Chief
Bureau of Nonpoint Pollution Control

Attachment: Maintenance Plan

cc: Chron File
Richard Magee, NJCAT
Vince Mazzei, NJDEP - DLUR
Ravi Patraju, NJDEP - BES
Gabriel Mahon, NJDEP - BNPC
Brian Salvo, NJDEP – BNPC
Nick Grotts, NJDEP – BNPC