State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Nonpoint Pollution Control
Division of Water Quality
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http://www.state.nj.us/dep/dwq/bnpc_home.htm

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Governor

KIM GUADAGNO
Lt. Governor

BOB MARTIN
Commissioner

March 21, 2017

Dino Pezzimenti
Environment 21, LLC
8713 Read Road
East Pembroke, NY 14056-0055

Re: Revised MTD Lab Certification
Environment 21 StormPro Stormwater Treatment Device by Environment 21, LLC
On-line Installation

TSS Removal Rate 50%

Dear Mr. Pezzimenti:

This revised certification letter supersedes the Department's prior certification dated January 8, 2015. This revision was completed to reflect the updated Manufactured Treatment Device (MTD) scaling methodology as agreed upon by the manufacturers' working group on September 19, 2016. In part, the updated scaling for hydrodynamic MTDs is based on the depth of the reference (tested) MTD from the top of the false floor utilized during removal efficiency testing, not from the physical bottom of the unit. Based on the above decision, Table A-2 of the NJCAT Technology Verification report located at http://www.njcat.org/uploads/newDocs/NJCATStormProVerificationReportFinal.pdf has been revised, and Table 1 noted below has been added.

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). Environment 21, LLC has requested an MTD Laboratory Certification for the StormPro Stormwater Treatment Device.

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 dated October 2014 (revised January 2017) with the Verification Appendix for this device is published online at http://www.njcat.org/verification-process/technology-verification-database.html.

The NJDEP certifies the use of the StormPro Stormwater Treatment Device by Environment 21, 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 StormPro Stormwater Treatment Device 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 StormPro Stormwater Treatment Device 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 on-line at www.njstormwater.org.

5. The maintenance plan for a site using this device shall incorporate, at a minimum, the maintenance requirements for the StormPro Stormwater Treatment Device. A copy of the maintenance plan is attached to this certification. However, it is recommended to review the maintenance website at http://www.env21.com/media/docs/StormPro/drawings/StormPro%20System%20Maintenance.pdf for any changes to the maintenance requirements.

6. Sizing Requirements:

   The example below demonstrates the sizing procedure for the StormPro:

   Example: A 0.25-acre impervious site is to be treated to 50% TSS removal using a StormPro. 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=0.99x3.2x0.25=0.79 cfs

Given the site runoff is 0.79 cfs and based on Table 1 below, the StormPro Model V48 with an MTFR of 1.29 cfs would be the smallest model approved that could be used for this site that could 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 and A-2.

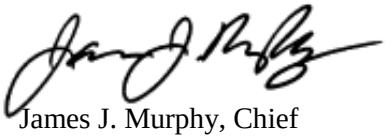
Table 1 StormPro Models

Model No.	Maximum Treatment Flowrate, MTFR (cfs)	Physical Dimensions Length x Width x Depth (feet)
V48	1.29	8 x 4 x 2.5
V510	2.02	10 x 5 x 2.5
V612	2.91	12 x 6 x 2.5
V816	5.17	16 x 8 x 4.0
V1020	8.08	20 x 10 x 4.5

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 Mr. Shashi Nayak 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
Shashi Nayak, NJDEP – BNPC

STORMPRO SYSTEM MAINTENANCE

1.0 STORMPRO DESCRIPTION/THEORY OF OPERATION

1.1 The StormPro System is manufactured from concrete. There are no moving parts thus it is not subject to mechanical failure.

1.2 The StormPro System consists of a single structure split into two chambers by a baffle wall. There is an interconnecting bypass pipe between these two chambers. The first chamber has a separation slab that extends the width of the chamber and for approximately 85% of the length of the first chamber. The second chamber has an anti-scour vane in it that extends part way from the three walls (horseshoe shape) of the chamber but not the baffle wall.

1.3 Stormwater runoff enters the first chamber. Sediment settles out in this chamber and floatables (oils and litter) are hydraulically trapped in this chamber. The stormwater passes over and then under the separation slab in the first chamber before passing through opening(s), located below the dry weather water surface elevation, in the baffle wall to the second chamber where the treated water diverts up past the anti-scour vane to the outlet.

1.4 The StormPro System sump dry weather water depth is approximately 3' – 6' dependent on the project requirements and the specific StormPro Model. The sump can be accessed from a standard vacuum truck (13' lift).

1.5 Maintenance access is through cast iron frames with vented covers or hatches that are provided, generally three per structure, in the StormPro System roof.

1.6 The most common cause of poor performance of the StormPro System is lack of maintenance. The StormPro System removes pollution from the environment. If this pollution is not routinely removed the effectiveness of the StormPro System may be compromised. The following are things that trigger the need for maintenance and the consequences of not completing the maintenance.

1.6.1 Sediment build-up in the chambers. As the sediment level increases past the recommended maintenance interval, less sediment may be removed. Additionally a large storm could also cause entrainment of some of the sediment that was already captured.

1.6.2 Excess floatables in the chambers – Similar to sediment build-up, floatables (oil and litter) build-up past the recommended maintenance level and risk downstream release of future floatables entering the StormPro System.

1.6.3 Obstructed piping/baffles due to improper maintenance and removal of floating debris – If the piping or baffles become obstructed flooding may occur upstream of the StormPro System. In addition, as with most buried structures, the vented covers could be moved out of position during extreme flooding conditions.

2.0 TRAINING MATERIAL

2.1 Other than this procedure and the specific project data there is currently no other training media (e.g., videos). This document along with the project specific data captures the maintenance procedure and training. Maintenance questions can be answered by calling Environment 21 at 800-809-2801.

3.0 SAFETY

3.1 Safety is a priority and the most stringent of regulations (local, OSHA, etc.) should be followed while performing maintenance on StormPro System.

3.2 An advantage of the design of the StormPro System is such that all of the maintenance may be completed without entry. In the remote chance that entry into the StormPro System is required refer to regulations (local, OSHA, etc.) for requirements and definitions.

3.3 A running inventory of all tools and equipment used for completion of this procedure should be maintained while performing maintenance on the StormPro System. Some of the recommended tools are a flood light, proper lifting and rigging equipment, and an unbending measuring rod (increments in inches marked on the rod) that will reach the floor of the

StormPro System and still extend a minimum of 2' above the cast iron access frame.

3.4 The StormPro System has cast iron access frames with vented covers or hatches, which provide access to all of the StormPro System. The openings are normally at ground level so the work area should be staged properly with safeguards to prevent anyone or anything from inadvertently falling through an opening in the StormPro System.

3.5 After maintenance has been completed on the StormPro System, the cast iron vented covers or hatches should be set securely in place, all materials and equipment should be removed, and the area should be cleared of slip and trip hazards.

4.0 RECOMMENDED MAINTENANCE FREQUENCY

4.1 The recommended maintenance practice for the StormPro System is to initially plan on quarterly inspections and an annual pump-out. After experience is gained the schedule can be more accurately determined.

4.2 Environment 21 recommends that the StormPro System should be pumped out when the sediment depth in the first chamber is at 50% of the design sediment storage depth or, minimally, once per year. Refer to the project design package for the storage depth.

4.3 Oil sheen and floating debris will be retained in the first chamber of the StormPro System. Annual accumulation of floatables is estimated at less than 0.50 inches but is site dependent.

5.0 INSPECTION

5.1 The most common cause of StormPro System failure is lack of inspection and maintenance. In addition to StormPro System internal inspections, frequent site inspections should be conducted. These frequent site inspections are recommended as visual only and do not require tools or equipment and do not require removal of the vented covers. Things to look for during these inspections are flooding at catch basins upstream of the StormPro System, unexpected loss of outlet flow, out of place vented covers and downstream pollution (oil sheen, litter, etc.).

5.2 Refer to previous sections of this procedure as required for the internal inspection of the StormPro System.

5.3 Remove one of the cast iron vented covers or hatches of the StormPro System. The floatables observation and measurement can be obtained from all access points into the first chamber.

5.4 Illuminate the water surface in the first stage of the StormPro System while gently stirring the floatables to estimate the depth. Obtain a sample of the floatables, water, or sediment, if required to determine disposal. The depth of the oil sheen and floating debris will typically be less than one inch and can be skimmed from the surface prior to the pump-out of the sediment. Organic debris that has become waterlogged and settled to the floor is expected to be present in relatively small quantities that will be removed during the pump out of the mineral sediment.

5.5 Inspect all surfaces, which can be seen, of the StormPro System for wear (e.g., cracking, spalling, etc.). Also, examine the internal bypass pipe for wear, blockage and damage (cracks, etc.). Report signs of degradation to the proper authorities (i.e., owner, municipality, etc.) as required.

5.6 The separation slab in the first chamber can be opened (hinged covers) or has plugs with recessed bales that can be accessed from the cast iron vented covers or hatches in the first chamber. (NOTE: If there is enough sediment on the separation that it makes it too difficult to access the area below the separation slab for maintenance, stop the inspection and plan on immediate pump-out of the StormPro – Section 6.0.)
Lower the measuring rod into the StormPro System until a slight resistance to movement occurs; the rod is now at the top of the sediment pile. Obtain a sight measurement by sighting the rod measuring increments to a point on the cover frame. This is measurement A.

5.7 Twist the measuring rod into the sediment pile until the measuring rod is on the floor (verify the expected level using project submittal drawings). Obtain a sight measurement by sighting the rod increments to the same point on the access frame as was used in step 5.6. This is measurement B.

5.8 Refer to the Environment 21 system specific design package for the design sediment storage depth. This is measurement C.

5.9 Plug the numbers obtained from the previous three steps into the following equation:

(B – A)/C. Multiply the answer by 100 to obtain the percent full sediment depth of the StormPro System.

5.10 Complete Steps 5.2 through 5.9 for the second chamber of the StormPro System.

6.0 CORRECTIVE ACTIONS

6.1 Contact the following for approval and notification of the intent to pump out the StormPro System:

6.1.1 Obtain permission from the Owner to pump out the contents of the StormPro System.

6.1.2 Verify disposal requirements with the local regulatory agency

6.2 Obtain a standard truck-mounted sewer and catch basin cleaner with positive displacement rotary lobe vacuum pumps or other acceptable pump-out equipment.

6.3 Using the pump-out equipment remove the floatables and hydrocarbons from the StormPro System. Segregate this waste from the sediment and water as required.

6.4 Using the pump-out equipment remove the standing water and sediment from the StormPro System. Segregate this waste from the hydrocarbons and floatables as required.

6.5 Locate and use a water supply to wash down the interior surface of the StormPro System and remove the remaining waste from the bottom of the structure.

6.7 Repeat steps 6.3 through 6.5 for the second chamber of the StormPro System.

6.8 Using a flood light inspect all surfaces, which can be seen, of the StormPro System for wear (e.g., cracking, spalling, etc.). Also, examine the internal pipe for wear, blockage and damage (cracks, etc.). Report

signs of degradation to the proper authorities (i.e., owner, municipality, etc.) as required.

6.9 It is recommended to refill the StormPro System with clean water to the inlet/outlet pipe invert elevation.

6.10 Properly dispose of the waste removed from StormPro System

6.11 Any replacement parts may be obtained locally. Environment 21, LLC should be contacted if any repairs or replacement of parts are required so the correct repairs and parts may be obtained.

7.0 SECURING THE AREA

7.1 Verify that no personnel, tools or equipment are in the StormPro System.

7.2 Inspect the cast iron access frames and covers or hatches for damage (e.g., cracks, excessive wear, etc.).

7.3 Clear the cast iron access frames or hatches of any extraneous material and carefully replace the cast iron vented covers or hatches using proper lifting and rigging equipment. Verify that the covers are properly seated.

7.4 Remove the site set-up (tools, equipment, etc.) and verify the work area has been returned to its pre-work, or better, condition.

7.5 Complete an inventory of all tools and equipment used for this work, accounting for lost, damaged, or stolen tools or equipment.

8.0 RECORD KEEPING

8.1 Maintenance is a very important aspect in keeping the StormPro System performance up to par. The attached "StormPro SYSTEM MAINTENANCE DATA SHEET" is provided and should be used to document the maintenance performed on the StormPro System.

8.2 Provide a copy of the "StormPro SYSTEM MAINTENANCE DATA SHEET" to the owner, required government agencies, and Environment 21, LLC (P.O. Box 55, East Pembroke, NY 14056-1055.

environment 21
Global Stormwater Solutions
P.O. Box 55 | East Pembroke | NY 14056
Phone: 1-800-809-2801 | Fax: 1-585-815-4701
www.env21.com | enveng@env21.com
ENV 21
Technology That Separates

STORMPRO SYSTEM MAINTENANCE DATA SHEET

STRUCTURE NO.:_____ **ADDRESS:**_____

OWNER:_____ **StormPro MODEL**_____

DATE INSTALLED:_____ **MUNICIPALITY:**_____

DATE	SEDIMENT PILE DEPTH 1st Chamber	OIL SHEEN YES/NO 1st Chamber	SEDIMENT PILE DEPTH 2nd Chamber	PUMPOUT REQ. YES/NO	SAMPLED YES/NO	SAMPLE RESULTS

PUMPOUT DATA (IF APPLICABLE)

DATE	SEDIMENT VOLUME REMOVED	FLOATABLES VOLUME REMOVED	DISPOSAL INFORMATION	
			SEDIMENT	FLOATABLE:

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Phone: 1-800-809-2801 | Fax: 1-585-815-4701
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PRIOR TO START OF WORK

OWNER NOTIFIED AS REQUIRED. ☐

LOCAL AGENCIES NOTIFIED AS REQUIRED. ☐

INSPECTION

PIPING	YES	NO
ANY VISIBLE CRACKS/DAMAGE	☐	☐
ANY VISIBLE DISPLACEMENT/LEAKS	☐	☐
ANY VISIBLE OBSTRUCTIONS	☐	☐

STRUCTURE	YES	NO
ANY VISIBLE CRACKS/SPALLING/DAMAGE	☐	☐
ANY VISIBLE LEAKS	☐	☐
ANY VISIBLE SURFACE WEAR	☐	☐

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VENTED COVERS/FRAMES	YES	NO
ANY VISIBLE CRACKS/DAMAGE	☐	☐
ANY VISIBLE SEAT SURFACE OBSTRUCTIONS	☐	☐
WERE COVERS PROPERLY SEATED AS FOUND	☐	☐

AFTER WORK COMPLETION

ALL CAST IRON COVERS HAVE BEEN PROPERLY REPLACED. ☐

NO HAZARDOUS CONDITIONS EXIST AS A RESULT OF THE MAINTENANCE WORK. ☐

ALL PPE, TOOLS, AND EQUIPMENT HAVE BEEN INVENTORIED AND REMOVED FROM THE SITE. ☐

THE WORK AREA HAS BEEN RETURNED TO A SAFE PRE-WORK CONDITION. ☐

ALL NOTIFICATIONS HAVE BEEN MADE, AS REQUIRED, THAT THE WORK IS COMPLETED. ☐

CORRECTIVE ACTIONS TAKEN: _____

_____

_____

DATE: _____ **SIGNATURE:** _____