



METROPOLITAN GOVERNMENT OF NASHVILLE AND DAVIDSON COUNTY

DEPARTMENT OF WATER AND SEWERAGE SERVICES
STORMWATER DIVISION
DEVELOPMENT REVIEW
800 2ND AVENUE, SOUTH
NASHVILLE, TENNESSEE 37210

August 28, 2014

Zach Kent
Bio Clean Environmental Services, Inc.
Modular Wetland Systems, Inc.
2972 San Luis Rey Road
Oceanside, CA 92058

RE: Metro Water Services Proprietary BMP Approval
Modular Wetland Systems- Linear Modular Wetland Stormwater Treatment System

Dear Mr. Kent,

Metro Water Services (MWS) maintains an approved listing of proprietary BMPs for use in Metropolitan Nashville and Davidson County, Tennessee (Metro). The Stormwater Management Manual, Volume 1 – Regulations Section 7.6 allows for the use of proprietary BMPs as Limited Application BMPs. Proprietary devices must be approved by MWS before they can be considered for use in Metro through an application and acceptance process. As stated in the Stormwater Management Manual Volume 1 – Regulations (September 2013):

MWS will also accept current proprietary BMP certifications from the New Jersey Department of Environmental Protection (NJDEP). MWS will consider the results of other verification systems and review them on a case by case basis.

Since the Modular Wetland Systems, Inc. has not yet been evaluated or certified by NJDEP, the application submitted will be evaluated for compliance with the Technology Assessment Protocol –Ecology (TAPE) as defined by the Washington State Department of Ecology.

Based on the Washington State Department of Ecology's General Use Level Designation for Basic and Phosphorus Treatment for Modular Wetland Systems, Inc. **Linear Wetland Stormwater Treatment System, has been approved for use in Metro as a treatment unit with an 80% TSS removal rate**, provided that the project design is consistent with the following conditions:

1. The model selected for the project design must be sized in accordance with the following table and based on the peak flow of the Metro water quality design storm as specified in Volume 1 – Regulations Section 7.6.2.

$$Q_p = C * I * A$$

Where:

Q_p = the peak flow through the proprietary BMP in cfs (Water Quality Treatment Flow)

C = runoff coefficient

I = rainfall intensity, 2.45 inches/hour for Metro

A = the contributing drainage area for the BMP, in acres

2. The peak inflow of the Water Quality Treatment Flow is limited to a hydraulic loading rate of 1 gallon per minute (gpm) per square foot (sq ft) of wetland cell surface area. Prefilters are to be sized at 2.1 gpm/sq ft cartridge surface area.
3. Modular Wetland Systems must ensure all system designs conform to MWS Stormwater Regulations.
4. The design engineer (a Tennessee Professional Engineer) must approve the shop drawings for conformance to dimensions and design features. These approved shop drawings are to be submitted to MWS as part of the grading permit application. As-built certification of the units by a Tennessee Professional Engineer will be required prior to issuance of the Use and Occupancy Permit to the owner.
5. The maintenance plan for sites using this device shall incorporate, at a minimum, the manufacturer's recommended maintenance which must be submitted for approval by MWS.
6. MWS reserves the right to recall approvals for reasons including, but not limited to: 1) restrictions placed by the Tennessee Department of Environment and Conservation, 2) product modifications or system failures indicating questionable performance capability, 3) changes in MWS stormwater regulations or policy, or 4) changes in the Technology Acceptance Reciprocity Partnership (TARP) or NJDEP protocols.
7. MWS approvals based on Washington State Department of Ecology General Use Level Designation will run with the certification dates and deadlines defined by the Department of Ecology. If at any time the manufacturer submits an application to NJCAT and/or NJDEP, the manufacturer must notify MWS of the status of the application. MWS reserves the right to modify the certification based on the status of the application with NJCAT and/or NJDEP.
8. MWS approval will expire July 10, 2016 at which time the technology will be reviewed prior to continued certification.

As a condition of this approval, Modular Wetland Systems must submit for approval the following information no later than **November 28, 2014**. Submit the following information in electronic format for review and distribution (such as PDF, TIF, JPEG, Word, Excel).

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- The manufacturer recommended maintenance plan which contains, at a minimum, the requirements included in the Proprietary BMP Inspections and Maintenance Checklist, attached.
- Calculations for sediment load capacity and maximum impervious area sizing.
- Design worksheet providing the following information:
 - a. Manufacturer and treatment device
 - b. Site specific information (total contributing drainage area, total contributing impervious drainage area, runoff coefficient)
 - c. Design data (cartridge/filter flow rate, water quality treatment flow required)
 - d. Calculations (show sizing for flow rate and maximum impervious area)
 - e. Selected model and parameters
 - f. Bypass flow and configuration
 - g. Details
 - h. Other relevant information specific to the treatment device

Additional information regarding the Stormwater Management Regulations may be found at www.nashville.gov. If you have any questions regarding the above information, please contact Laura Jones with Stormwater Development Review by phone, 615-880-3832, or email, laura.jones2@nashville.gov.

Sincerely,



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