



March 26, 2012

HYDROLOGIC SOLUTIONS
BOB MAESTRO
PO BOX 672
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Re: Description: STORMWATER DETENTION AND/OR INFILTRATION SYSTEM, ALTERNATE PLBG SYS
Manufacturer: HYDROLOGIC SOLUTIONS
Product Name: STORMCHAMBER™
Model Number(s): STORMCHAMBER™ Start Chamber, Middle Chamber, End Chamber and Sedimentrap™

[CHAMBER DIMENSIONS = 102 IN. L X 60 IN. W X 34 IN. H; MAX. DEPTH OF BURY = 80 IN. INCLUDING STACKED/LAYERED INSTALLATIONS; 10 CF STORAGE PER LINEAL FOOT; SEE ATTACHMENT FOR CHAMBER VOLUME IN CU. FT. BY ONE-INCH INCREMENTS]

Product File No: 20120093

The specifications and/or plans for this plumbing product have been reviewed and determined to be in compliance with chapters SPS 382 through 384, Wisconsin Administrative Code, and Chapters 145 and 160, Wisconsin Statutes.

The Department hereby issues an approval based on the Wisconsin Statutes and the Wisconsin Administrative Code. **This approval is valid until the end of March 2017.**

This approval is contingent upon compliance with the following stipulation(s):

- Prior to installation of this product, plans and specifications must be submitted to the department or to an approved agent municipality for review and approval in accordance with s. DPCS 382.20 (1) of the Wis. Admin. Code. Written approval for the plans and specifications shall be obtained prior to installation of the product.
- The review undertaken by department staff does not include review and/or approval of this submittal as meeting DNR specifications for ch. NR 151.
- This product submittal has been reviewed and approved for plumbing treatment standards for subsurface infiltration and irrigation using stormwater as the source, as listed in Table DPCS 382.70-1.
- When this product is installed as a subsurface detention/infiltration system or an infiltration system, the design and installation must be in accordance with the manufacturer's printed StormChamber Installation Brochure by Hydrologic Solutions, ch. DPCS 382 and its Plan approval under s. DPCS 382.20. When there is a conflict between manufacturer's installation instructions and plan approval or product approval stipulations, the plan approval or product approval stipulations will take precedence.
- Stone aggregate used for backfill and base must be $\frac{3}{4}$ to 2 inch washed hard stone.

- Fabric used for soil/stone interface between the trench walls and top of excavation must comply with the following specifications:
 - . Grab Tensile Strength of 90 lbs per ASTM D-4632; Grab Tensile Elongation of 50% per ASTM D4632
 - . Mullen Burst of 225 psi per ASTM D3786; Puncture of 65 lbs per ASTM 4833
 - . Trapezoid Tear of 45 lbs per ASTM D4533
 - . UV Resistance of 70% per ASTM D-4355; Apparent Opening Size of 70 US Sieve per ASTM 4751
 - . Permittivity of 2.5 Sec.-1 per ASTM D4491; and Flow Rate of 175 gal/min/sq.ft. per ASTM D 4491.
- Minimum 8-inch diameter pipe must be used to discharge stormwater into the chambers. Additional connections across all rows of StormChambers must be made so the combined area of the connection pipes at least equal the area of the inflow storm drain pipe(s).
- The storage volume of the aggregate is calculated at 40% of the total volume of the aggregate (i.e., 10 cubic feet of stone = 4 cubic feet of water storage).
- When this product is installed, the installation must be in accordance with the manufacturer's printed design installation instructions, ch. DSPS 382, plan approval under s. DSPS 382.20, and any product approval stipulations. When there is a conflict between manufacturer's installation instructions and plan approval conditions or product approval stipulations, the plan approval conditions or product approval stipulations will take precedence.
- Installation-- Installation of this product must be in accordance with the manufacturer's printed installation instructions. A copy of the manufacturer's installation instructions must be given to the property owner, installer and submitted along with other information required by the governing agency for the installation.
- This product may be installed without a waterproof membrane under the following conditions:
 1. The installation is not for a subsurface detention system;
 2. The soils on which that detention system is placed have a maximum soil application rate of 0.2 gallons/square foot/day based upon morphological soil evaluation as listed in SPS Table 383.44-2 under the column for BOD5 and TSS > 30mg/L; and
 3. A geotextile fabric that meets the chamber manufacturer's specifications is in place on the bottom of the product is required.
- When this product is installed as a subsurface detention system, the installation must be in accordance with the manufacturer's printed instructions. When there is a conflict between the manufacturer's installation instructions and plan approval or product approval stipulations, the plan approval or product approval stipulations will take precedence.

Sizing of piping for stormwater and clearwater subsurface detention shall be made using hydraulic calculations as specified in manufacturer's instructions.

- Any plumbing plans that include this device(s) and submitted to the department (or its agents) shall be accompanied by an acceptable modeling analysis for the specific site where the installation of this device(s) is planned. The submitted calculations, based on site-specific inputs, shall predict the removal efficiencies by concentration and percentage for both TSS and O&G. For particle size distribution, use the EPA-NURP (National Urban Runoff Program] distribution.
- **PRE-TREATMENT: Sediment Trap™ is an added pre-treatment device to aid in sediment settling and removal. Generally each design would incorporate two Sediment Traps located at first and last chamber per design. A 10- or 12-inch cleanout and raiser are attached to facilitate ease in maintenance.**

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- Written approval for the plumbing plans shall be obtained from the department or its agent for each installation of this system. If the project is located within the city of Milwaukee or another agent having plumbing stormwater review status, plans may be submitted to either the department or to the agent municipality; see <http://dsps.wi.gov/sb/SB-PlumbingAgentMunis.html> .
- For detention and waterproof membranes: The installation of waterproof membranes must be either PVC or linear low density polyethylene (LLDPE) material having a minimum 20 mil thickness with all seams sealed. PVC membrane seams must be sealed using solvent cement. LLDPE membrane seams must be sealed using thermal welding.
- **Additional information is included as attachment(s) to this letter; see attachment A and B.**

This approval supersedes the approval issued on 4/30/2007 under product file number 20050612.

The department is in no way endorsing this product or any advertising, and is not responsible for any situation which may result from its use.

Sincerely,

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