



OFFICE OF BOARD OF HEALTH
856 MAIN ROAD

Stormwater Quality and Quantity Control Regulation

DRAFT April 15, 2009

1. Authority:

The Westport Board of Health (“the Board”) adopts the following regulation in accordance with the provision of Massachusetts General Laws, Chapter 111, section 31. They are enacted under the authority which includes but is not limited to one or more of the following: M. G. L., c. 111, sections 31, 122, 122A, 127, 143, 187, Sections 310 CMR 11.02; Board of Health regulations are an exercise of the power under which various levels of government are responsible for protection of the public, health, safety welfare, and the environment.

2. Purpose:

The purpose of this Regulation is to protect, maintain and enhance the public health, safety, environment and general welfare by establishing minimum requirements and procedures to control the adverse effects of increased post-development stormwater runoff and non-point source pollution associated with new development and re-development. It has been determined that proper management of post-development stormwater runoff will minimize damage to public and private property and infrastructure, safeguard the public health, safety, environment and general welfare of the public, protect water and aquatic resources, and promote groundwater recharge to protect surface and groundwater drinking supplies.

3. Regulation:

Except as permitted by these regulations, no person shall alter land within the town without having obtained a Stormwater Drainage Permit (“the Permit”) for the property with the following exceptions:

- 3.1.** Any activity that will alter an area less than 5,000 square feet or less than 25% of a contiguous property, whichever is less. This exception may not be applied for contiguous properties held in common ownership at the time of adoption of this Regulation that may have been previously subdivided and/or are attributed to multiple separate owners;
- 3.2.** Normal maintenance and improvement of land in agricultural use as defined by the Wetlands Protection Act Regulation 310 CMR 10.04 and M.G.L., Chapter 40A § 3.
- 3.3.** Maintenance of existing landscaping, gardens or lawn areas associated with a single family dwelling;
- 3.4.** Repair or replacement of an existing roof of a single-family dwelling;
- 3.5.** Repair or replacement of an existing septic system to comply with Title V Regulations

3. Regulations: *(Continued)*

- 3.6. The construction of any fence that will not alter existing terrain or drainage patterns;
- 3.7. Construction of utilities (gas, water, electric, telephone, etc.) other than drainage, which will not alter terrain, ground cover, or drainage patterns;
- 3.8. Emergency repairs to any Stormwater Management System (“SMS”) or Stormwater Management Practice (“SMP”) that poses a threat to public health or safety, or as deemed necessary by the Board; the Building Inspector, and/or Highway Department.
- 3.9. Re-development projects are presumed to meet the specified stormwater management requirements described in these regulations if the total impervious cover is reduced by 40% from existing conditions.
- 3.10. Notwithstanding section 3, 1-12, any alteration, re-development, or conversion of land use to a hotspot such as, without limitation: auto salvage yards, auto fueling facilities, fleet storage yards, commercial parking lots with high intensity use, road salt storage areas, commercial nurseries and landscaping, outdoor storage and loading areas of hazardous substances, or marinas, shall require a Stormwater Management Plan (“the Plan”).
- 3.11. Notwithstanding section 3, 1-12, where a lot is within a subdivision that has been subject to review pursuant to this regulation, that lot may receive appropriate credit towards meeting the provisions of this regulation based on the design of the subdivision stormwater controls and design assumptions thereto.
- 3.12. Work or projects for which all necessary approvals and permits have been issued as of the enactment of this regulation including:
 - 3.12a. Projects for which a Board of Health septic system installation permit has been issued or for which a permit application has been submitted as of May XX, 2009,
 - 3.12b. Projects that have received an Order of Conditions pursuant to the Wetlands Protection Act, Chapter 131, section 40 or for which a Notice of Intent has been filed as of May XX, 2009, and
 - 3.12c. Projects that have received a building permit as of May XX, 2009

4. Permits Required:

Any activity that will alter an area no less than 5,000 square feet and no more than 20,000 square feet may be allowed an expedited permit provided the amount of impervious surfaces does not exceed 7% of the property and the on-site impervious surfaces must be disconnected from any other impervious surface or drainage system. Stormwater runoff generated from the on-site impervious surface must be directed to an on-site storage area that provides a minimum of 800 cubic feet of storage.

It shall be the responsibility of the applicant to obtain the Permit from the Board prior to any alteration of land unless otherwise specified in **Section 3**. Obtaining the Permit from the Board does not relieve the applicant from obtaining all other relevant permits and/or approvals from other State and Federal agencies and local town boards (such as, but not limited to the Planning Board, Conservation Commission, Building Department, and Highway Department).

5. General Requirements:

Control of stormwater runoff shall meet the design criteria as stated in the most recent Department of Environmental Protection's (DEP) Massachusetts Stormwater Handbook ("DEP Handbook") <http://www.mass.gov/dep/water/wastewater/stormwat.htm> (regardless of the presence or absence of jurisdiction under any other General Laws of the Commonwealth), unless otherwise stated in this Regulation. The design, construction, and maintenance of SMS shall be consistent with the following:

- 5.1 Discharging untreated runoff directly into rivers, streams, watercourses, or wetlands, is prohibited;
- 5.2 Natural watercourses shall not be dredged, cleared of vegetation, deepened, widened, straightened, stabilized, or otherwise altered unless all necessary permits (local, state and/or federal) are obtained.
- 5.3 Neighboring properties shall not be used in the Plan unless a recordable easement has been granted for such use, and a copy of the easement has been submitted to the Board as part of the Plan;
- 5.4 The site shall be graded so that surface water shall be directed into the SMS;
- 5.5 Intermittent watercourses such as swales shall be vegetated;
- 5.6 Prior to discharging any stormwater runoff into a SMS the following conditions must also be met:
 - 5.6a the SMS shall be installed according to applicable standards and specifications,
 - 5.6b all components of the SMS shall be stabilized; and
 - 5.6c all upland areas contributing stormwater runoff to the SMS shall be stabilized (non-erosive);
- 5.7 Where stormwater basins are designed with a permanent pool depth, a suitable fence shall be used when the basin is in close proximity to residential units.
- 5.8 The discharge of sump pump water onto town-owned roads or SMS is not permitted.
- 5.9 Operational failure of the infiltrative capacity of the system must be manifested by indicators that are readily visible.

6. Submittal Requirements:

The application for the Permit shall consist of submittal of the Plan and applicable fees to the Board. The Plan shall contain sufficient information for the Board to evaluate the environmental impact, and the effectiveness and acceptability of those measures proposed by the applicant for reducing adverse impacts from stormwater. The Plan shall contain all information listed as well as any other information requested by the Board to evaluate the Plan.

7. Design Requirements

The control of stormwater runoff shall meet the design requirements for both flood (volume and peak discharge) control and non-point source pollution as indicated the Plan and in Volume 3 of the Massachusetts Stormwater Design Requirements of the Handbook with the following exceptions and additions:

- 7.1. **Standard 4 – Water Quality:** Water Quality Depth (*D_{wq}*) as described in Volume 3, Chapter 1, page 32, shall be 1.25 inches for all projects. Prior to discharge into all treatment SMSs, the removal of a minimum of 44% TSS is required.

7 Design Requirements (*Continued...*)

- 7.2. Standard 11 – Volume Control:** The volume of stormwater discharged (V_{10}) for the ten (10) year, twenty-four (24) hour design storm shall not increase as from pre-development conditions. If the stormwater discharge is into the ocean or estuary, the control of the discharge volume (V_2) *may* be limited to the pre-development conditions of the two (2) year, twenty-four (24) hour design storm. When using infiltration to control V_{10} or V_2 , basin sizing shall be determined utilizing the static method as described in Volume 3, Chapter 1, and page 17. For the purposes of volume control, basin design does not require a drawdown time of 72 hours, and basins shall not be located on Hydrologic Group D soils.
- 7.3. Design Point:** In addition, the design points shall be at the edge of wetlands, the property line and/or the existing storm drain system, whichever is first intercepted by the flow path. For each pre-development design point there shall be a corresponding post-development design point.
- 7.4. Low Impact Development (LID) Credits:** LID credits as stipulated in the Handbook are not recognized by this Regulation. The Board encourages reduction of impervious areas and the disconnecting of impervious surfaces, both of which are recognized in TR-55 and TR-20 modeling. For some LID practices, research is ongoing and use of Runoff Curve Numbers (“RCN”) not listed below should be reviewed by the Buzzards Bay National Estuary Program (“BBNEP”) (i.e. practices such as block pavers). The review of the proposed RCN by the BBNEP should be submitted with the Plan. For the LID land uses listed below, use the RCN provided:

New Runoff Curve Numbers (not currently found in TR-55 or TR-20)

- Greenroofs - 88¹
- Paved areas w/tree canopy - 92³
- Gravel road or parking lot - 95
- Gravel road or parking lot w/tree canopy - 89
- Subdivisions by special permit, user defined⁵
- Water - 100
- Bioretention facility - 80⁶
- Pervious pavers - 75⁷
- Bioretention facility - 80²
- Bioretention w/tree canopy -74
- Lawn, no soil amendment – 80
- Lawn w/ 4" Compost Soil Amendment⁴
- HSG A - 36
- HSG B - 58
- HSG C – 72
- HSG D – 77

7. Design Requirements (*Continued...*)

7.5. Design Storms: Use the following rainfall amounts for the corresponding design storms. Storms are based on a 24 hour event using the “Atlas of Precipitation Extremes for the Northeastern United States and Southeastern Canada”⁸:

- 2 year 3.4 inches
- 10 year 5.1 inches
- 25 year 6.2 inches
- 100 year 9.0 inches

7.6. Impervious Cover: Impervious cover is measured from the site plan and includes all impermeable surfaces and any other surfaces that are not vegetated (such as a gravel surface). Pervious pavers utilized for driveways, sidewalks, patios, etc can be considered pervious.

7.7. Treatment Train Calculations: To achieve the water quality discharge limits, treatment trains are permitted. Calculations as to the additive nature of specific BMP strategies must be documented using the Handbook, but street sweeping shall receive no credit.

¹ The RCN of 88 is based on study by Amy Moran with 4 inches of growth medium. Curve numbers for differing depths may be accepted by the Board provided proper documentation is provided to and approved by the Buzzards Bay National Estuary Program.

² North Carolina State University is performing extensive research on this subject. Visit their website for the latest research results. Biofilters treat pollutants but also reduce volume through evapotranspiration.

³ Tree canopy may be determined by documentation of species canopy size at ten years growth. For more information on the effect of trees on the RCN use CITYgreen software from American Rivers.

⁴ Installed pursuant to “Hydrologic Response on Residential Scale Lawns on Till Containing Various Amounts of Soil Amendment.”

⁵ RCN for a subdivision must consider not only the lot itself but the lot share of the road, sidewalk etc. Since larger lots will be less than 30% impervious, a disconnected impervious design should be considered.

⁶ North Carolina State University is performing extensive research on this subject. Visit their website for the latest research results. Biofilters treat pollutants but also reduce volume through evapotranspiration.

⁷ See the North Carolina State University Urban Waterways fact sheet “Permeable Pavement: Research Update and Design Implications” available at <http://www.bae.ncsu.edu/stormwater/PublicationFiles/PermPave2008.pdf>

⁸ For work in or near wetlands, additional design storms may be required to meet the requirements of the Handbook

7.8. Prohibited Practices: The following practices are prohibited

- Pervious pavements for road surfaces.
- Below grade infiltration structures in residential settings for the treatment and/or control of road runoff.

8. Inspection and Maintenance

- 8.1** All SMS shall be inspected and maintained by the owner(s) in accordance with these regulations and the Handbook. The applicant shall post acceptable surety to cover the cost of maintenance of the selected SMS. The cost shall cover anticipated maintenance costs (including full or partial replacement, if necessary) and will be determined by the Board. The surety mechanism shall be structured to allow the Town to draw funds as necessary to conduct maintenance activities.
- 8.2** After the SMS has been constructed and before the Performance Guarantee for the development has been released, the applicant shall submit an "as-built" plan detailing the actual SMS as installed. The consulting engineer for the Board shall inspect the SMS to confirm its as-built features. This engineer shall also evaluate the effectiveness of the SMS in an actual storm. If the system is found to be inadequate by virtue of physical evidence of operational failure, even though it was built as called for in the Plan, it shall be corrected

8. Inspection and Maintenance - (Continued)

before the performance guarantee is released. Cases of inadequacy shall be limited to: errors in the infiltrative capability, errors in the maximum ground water elevation, failure to properly define or construct flow paths, or erosive discharges from basins.

- 8.3** All SMS must undergo inspections to document maintenance and repair needs and ensure compliance with the requirements of this regulation and accomplishment of its purposes as specified in the O&M Plan. A maintenance agreement between the owner and the Board shall be executed for privately-owned SMS that specifies the responsible party for conducting long term inspections. At a minimum, inspections shall occur during the first year of operation and at least once every three (3) years thereafter.
- 8.4** Inspection reports shall be submitted to and maintained by the Board for all SMS. Inspection reports for SMS shall include the name of the inspector, the date of inspection; and the condition of the following:
- Pretreatment devices
 - Vegetation or filter media
 - Fences or other safety devices
 - Spillways, valves, or other control structures
 - Embankments, slopes, and safety benches
 - Reservoir or treatment areas
 - Inlet and outlet channels and structures
 - Underground drainage
 - Sediment and debris accumulation in storage and fore bay areas (including catch basins)
 - Any nonstructural practices
 - Any other item that could affect the proper function of the SMS
- 8.5** Parties responsible for the operation and maintenance of a SMS shall provide records of all maintenance and repairs to the Board upon request. Parties responsible for the operation and maintenance of a SMS shall make records of the installation and of all maintenance and repairs, and shall retain the records for at least five (5) years. These records shall be made available to the Board during inspection of the facility and at other reasonable times upon request.
- 8.6** If a responsible person fails or refuses to meet the requirements of the inspection and maintenance agreement, the Board, after thirty (30) days written notice (except, that in the event the violation constitutes an immediate danger to public health or public safety, twenty-four (24) hours notice shall be sufficient), may correct a violation of the design standards or maintenance requirements by performing the necessary work to place the facility or practice in proper working condition. The Board may assess the owner(s) of the facility for the cost of repair work, which shall be a lien on the property.
- 8.7** After notification is provided to the person responsible for carrying out the maintenance plan of any deficiencies discovered from an inspection of a SMS, the person responsible for carrying out the maintenance plan shall have 30 days or other time frame mutually agreed to between the Board and the person responsible for carrying out the maintenance plan to correct the deficiencies. The Board shall then conduct a subsequent inspection to ensure completion of repairs.

9. Definitions

Except for the following definitions, terms are defined in the 1996/1997 Stormwater Management Policy & Handbook, Volume 2, Appendix A. www.mass.gov/dep/water/laws/swmpolv2.pdf

Alter: Activities such as demolition, construction, clearing, excavation, grading, filling, and reconstruction that result in a change in the natural cover or topography.

Biofiltration, Bioretention and/or Rain Garden: A stormwater treatment practice that uses soils, plants, and microbes to treat stormwater before it is infiltrated and/or discharged. Bioretention cells are shallow depressions filled with sandy soil topped with a thick layer of mulch and planted with dense native vegetation.

Disconnected Impervious: Impervious surfaces that are separated from drainage collection systems by pervious surface or infiltrating Stormwater Management Practices.

First Flush: Pollutant concentrations, including suspended sediments, carried by stormwater in the beginning of a storm. These concentrations are typically higher than at the middle or end of the storm. To determine “first flush”, see Water Quality Volume (1.25 inches) definition.

Green Roof: The roof of a building that is partially or completely covered with vegetation and soil, or a growing medium, planted over a waterproofing membrane. A green roof is used to mitigate the effects of urbanization on water quality by filtering, absorbing or detaining rainfall.

Impervious Area: Any manmade cover that is not vegetated. In residential areas, the % impervious is obtained from the TR-55 table "Runoff Curve Numbers for Urban Areas, Residential District by Average Lot Size."

Land Uses With Higher Potential Pollutant Loads (“LUHPPL”): Defined in 310 CMR 10.04 and 314 CMR 9.02 to include the following: Land uses identified in 310 CMR 22.20B(2), 310 CMR 22.20C(2)(a-k) and (m), 310 CMR 22.21(2)(a)(1-8) and 310 CMR 22.21(2)(b)(1-6), areas within a site that are the location of activities that are subject to an individual National Pollutant Discharge Elimination System (“NPDES”) permit or the NPDES Multi-Sector General Permit⁹; auto fueling facilities (gas stations); exterior fleet storage areas; exterior vehicle service and equipment cleaning areas; marinas and boatyards; parking lots with high-intensity-use; confined disposal facilities and disposal sites.

Low Impact Development (“LID”): A comprehensive land planning and engineering design strategy that emphasizes conservation and use of existing natural site features integrated with distributed small-scale stormwater controls to closely mimic natural hydrological patterns.

⁹ As of the date of publication of this Handbook, the NPDES Multi-Sector General Permit issued in 2000 has expired and has been administratively continued. To date, EPA has not issued a new permit. For purpose of the Town of Westport Stormwater Regulations, the land uses subject to the 2000 NPDES Multi-Sector General Permit are land uses with higher potential pollutant loads. A full list of these land uses is set forth in the 2000 NPDES Multi-Sector General Permit. See http://cfpub1.epa.gov/npdes/stormwater/msgp.cfm#permit_factsheet.

Definitions (Continued...)

Permeable, Pervious or Porous Pavement: is a paved surface with a higher than normal percentage of air voids to allow water to pass through it and infiltrate into the subsoil. Permeable paving techniques include porous asphalt, pervious concrete, paving stones, and manufactured “grass pavers” made of concrete or plastic.

Stormdrain System: The conveyance system, including catchbasins, manholes, pipes and drainage ditches to transport stormwater runoff [usually to a stormwater management practice(s)].

Stormwater Management Practice(s) [“SMP”]: Techniques used to control the impacts (flooding, increased volume, and pollution) of stormwater runoff.

Stormwater Management System [“SMS”]: All components associated with the management of stormwater runoff including the Stormdrain System and the Stormwater Management Practice(s)

Soil Mottling: Redoximorphic features.

Stormwater Pollution Prevention Plan [SWPPP]: A plan required under the Environmental Protection Agency’s (EPA) NPDES Construction General Permit for projects that that disturb one acre or more of land (See DEP Handbook Chapter 1, Volume 1).

Water Quality Volume: the volume generated by the first 1.25 inches of stormwater runoff. This first inch of runoff carries the majority of accumulated pollutants from impervious surfaces. The first flush volume in cubic feet (V_{WQ}) is determined by the following formula:

$$V_{WQ} = (1.25/12 \text{ inches}) (R_{WQV}) (\text{Site Area in square feet});$$

Where: $R_{WQV} = 0.05 + 0.009(I)$;

$I =$ the % impervious area.

10. Fees

The fees for any permit, approval or review by the Stormwater Review Board shall be determined by said Board.

11. Effective Date

The effective date of this regulation shall be 30 days from the date of enactment.

12. Enforcement

The Board or its authorized Agent shall enforce these Stormwater Regulations, orders, violation notices and/or enforcement orders issues there under, and may pursue all civil and criminal remedies for such violations. Any person who violates any provision of this Regulation or any order or permit issued there under may be punished by a fine of not more than three hundred (\$300). Each day during which a violation exists shall constitute a separate offense. As an

12 Enforcement (Continued...)

alternative to criminal prosecution in a specific case, the Board may issue citations pursuant to the non-criminal disposition procedure set forth in Massachusetts General Law, Chapter 40: Section 21D set forth in the By-Laws of the Town of Westport. For purposes of Non-Criminal Disposition, the penalty for a first offense shall be \$100, for a second offense \$200, and for a third and subsequent offenses \$300.

13. Severability

The invalidity of any section, provision, paragraph, sentence or clause of this Stormwater Regulation shall not invalidate any other section, provision, paragraph, sentence, or clause thereof, nor shall it invalidate any permit or determination that previously has been issued.

John J. Colletti, Chairman

Date

Sean M. Leach, Vice-Chair

Donna Lambert, Member