

Article 21 TOWN OF CANTON GENERAL BY-LAWS  
STORMWATER REGULATIONS

**1.0 PURPOSE**

The purpose of these Storm water Regulations 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 storm water runoff, decreased groundwater recharge, and non-point source pollution associated with new development and redevelopment, as more specifically addressed in the Storm Water Bylaw of the Town of Canton.

**2.0 DEFINITIONS (not contained in BY-law)**

The definitions contained herein apply to issuance of Storm water Management Permit (SMP) established by the Town of Canton Storm Water Bylaw and implemented through these Storm Water Regulations. Terms not defined in this section shall be construed according to their customary and usual meaning unless the context indicates a special or technical meaning.

**APPLICANT:** A property owner or agent of a property owner who has filed an application for a storm water management permit.

**CERTIFICATE OF COMPLIANCE (COC):** A document issued by the *Conservation Commission* after all construction activities have been completed which states that all conditions of an issued Storm water Management Permit (SMP) have been met and that a project has been completed in compliance with the conditions set forth in a SMP.

**COMMISSION:** means the Town of Canton Conservation Commission.

**CONVEYANCE:** Any structure or device, including pipes, drains, culverts, curb breaks, paved swales or man-made swales of all types designed or utilized to move or direct storm water runoff or existing water flow.

**DEVELOPER:** A person who undertakes or proposes to undertake land disturbance activities.

**DEVELOPMENT:** The modification of land to accommodate a new use or expansion of use, usually involving construction.

**DISTURBANCE OF LAND:** Any action that causes a change in the position, location, or arrangement of soil, sand, rock, gravel of similar earth material.

**DRAINAGE EASEMENT:** A legal right granted by a landowner to a grantee allowing the use of private land for storm water management purposes.

**GRADING:** Changing the level or shape of the ground surface.

**EROSION CONTROL:** The prevention or reduction of the movement of soil particles or rock fragments.

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**EROSION CONTROL PLAN:** A plan that shows the location and construction detail(s) of the erosion and sediment reduction controls to be utilized for a construction site.

**FLOOD CONTROL:** The prevention or reduction of flooding and flood damage.

**FLOODING:** A local and temporary inundation or a rise in the surface of a body of water, such that it covers land not usually under water.

**GROUNDWATER:** All water beneath any land surface including water in the soil and bedrock beneath water bodies.

**IMPERVIOUS SURFACE:** Any material or structure on or above the ground that prevents water from infiltrating through the underlying soil. Impervious surface is defined to include, without limitation: paved parking lots, sidewalks, roof tops, driveways, patios, and paved, gravel and compacted dirt surfaced roads.

**INFILTRATION:** The act of conveying surface water into the ground to permit groundwater recharge and the reduction of storm water runoff from a project site.

**MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) or MUNICIPAL STORM DRAIN SYSTEM:** The system of conveyances designed or used for collecting or conveying storm water, including any road with a drainage system, street, gutter, curb, inlet, piped storm drain, pumping facility, retention or detention basin, natural or man-made or altered drainage channel, reservoir, and other drainage structure that together comprise the storm drainage system owned or operated by the Town of Canton.

**OPERATION AND MAINTENANCE PLAN:** A plan that defines the functional, financial and organizational mechanisms for the ongoing operation and maintenance of a storm water management system to insure that it continues to function as designed.

**OWNER:** A person with a legal or equitable interest in a property.

**POINT SOURCE:** Any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, or container from which pollutants are or may be discharged.

**RESOURCE AREA:** Any area protected under including without limitation: the Massachusetts Wetlands Protection Act, Massachusetts Rivers Act, or Town of Canton Wetlands Protection Bylaw.

**RUNOFF:** Rainfall, snowmelt, or irrigation water flowing over the ground surface.

**SEDIMENTATION:** A process of depositing material that has been suspended and transported in water.

**SITE:** The parcel of land being developed, or a designated planning area in which the land development project is located.

**STORMWATER AUTHORITY:** The Canton Conservation Commission is responsible for coordinating the review, approval and permit process as defined in this Bylaw. Other

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Boards and/or departments may participate in the review process as defined in Section 5 of these Storm water Regulations.

**STORMWATER MANAGEMENT:** The use of structural or non-structural practices that are designed to reduce storm water runoff pollutant loads, discharge volumes, *and/or* peak flow discharge rates.

**STORMWATER MANAGEMENT PERMIT (SMP):** A permit issued by the Conservation Commission, after review of an application, plans, calculations, and other supporting documents, which is designed to protect the environment of the Town from the deleterious affects of uncontrolled and untreated storm water runoff.

**STOP WORK ORDER:** An Enforcement Order issued, which requires that all construction activity on a site be stopped.

**TSS:** Total Suspended Solids.

**WATER QUALITY VOLUME (WQv):** The storage needed to capture a specified average annual storm water runoff volume. Numerically (WQv) will vary as a function of drainage area or **impervious area**.

### **3.0 AUTHORITY**

The Canton Conservation Commission in accordance with the Town of Canton Storm Water Bylaw has adopted the Rules and Regulations contained herein. Nothing in these Rules and Regulations is intended to replace or be in derogation of the requirements of the Town of Canton Wetlands Protection Bylaw or Town of Canton Erosion and Sediment Control By-law or the Town of Canton Floodplain Zoning Bylaw or any Rules and Regulations adopted there under. These Storm water Regulations may be periodically amended by the Conservation Commission in accordance with the procedures outlined in Section 5.0 of the Town of Canton Storm Water Bylaw.

### **4.0 ADMINISTRATION**

The *Canton Conservation Commission* shall administer, implement and enforce these Regulations.

### **5.0 APPLICABILITY**

These Storm water Regulations apply to all activities in accordance with the applicable section of the Town of Canton Storm Water Bylaw and further described in this section. Projects *and/or* activities not specifically under the currently regulated jurisdiction of any of the Town of Canton boards, commissions or departments but still within the jurisdiction of the Town of Canton Storm Water Bylaw must obtain a Storm water Management Permit(SMP) from the Canton Conservation Commission in accordance with the permit procedures and requirements defined in Section 6 of these Regulations.

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**6.0 PERMIT PROCEDURES AND REQUIREMENTS**

A) Storm Water Permit

Projects requiring a storm water management permit shall be required to submit the materials as specified in this section, and are required to meet the storm water management criteria as specified in Section 7. Applicants filing storm water permit application under the currently regulated jurisdiction of the Town of Canton Conservation Commission need only to comply with Subsections 6.0 L, and 6.0 M of these Regulations.

B) Permit Required

1. No land owner or land operator shall receive any building, grading or other land development permits required for land disturbance activities without first meeting the requirements of this Bylaw prior to commencing the proposed activity.

2. Should a land-disturbing activity associated with an approved plan in accordance with this section not begin during the 180 day period following permit issuance, the Conservation Commission *may* evaluate the existing storm water management plan to determine whether the plan still satisfies local program requirements and to verify that all design factors are still valid. If the authority finds the previously filed plan to be inadequate, a modified plan shall be submitted and approved prior to the commencement of land-disturbing activities.

(C) Filing Application

1. The applicant shall file with the *Conservation Commission* three (3) copies of a completed application package for a Storm Water Management Permit (SMP). Permit issuance is required prior to any site altering activity. While the applicant can be a representative, the permittee must be the owner of the site. The SMP Application package shall include:

a) A completed Notice of Intent with original signatures of all owners:

b) A list of abutters certified by the Assessors Office; (abutters at their mailing addresses shown on the most recent applicable tax list of the assessors, including owners of land directly opposite on any public or private street or way, and abutters to the abutters within 300 feet of the property line of the applicant, including any in another municipality or across a body of water).

c) Storm water Management Plan and project description;

d) Operation and Maintenance Plan;

e) Payment of the application and review fees; AND SEPERATE \$25<sup>00</sup> LEGAL AD PAYABLE TO:

f) Inspection and Maintenance agreement;

g) Erosion and Sediment Control Plan;

h) Surety bond.

D) Entry

Filing an application for a permit grants the Conservation Commission or its agent, permission to enter the site to verify the information in the application and to inspect for compliance with the resulting permit.

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E) Fees

The Conservation Commission shall obtain with each submission an Application Fee established by the Commission to cover expenses connected with the review of the Storm water Management Permit and a technical review fee sufficient to cover professional review services for the project. The conservation Commission is authorized to retain a Registered Professional Engineer or other professional consultant to advise the Commission on any or all aspects of these plans. Applicants must pay review fees before the review process may begin.

1. Rules

- a) Application fees are payable at the time of application and are non-refundable.
- b) Application fees shall be calculated by the Commission in accordance with the fee schedule below.
- c) These fees are in addition to any other local or state fees that may be charged under any other law, Bylaw, or local ordinance.
- d) The fee schedule may be reduced or increased by the Commission. Any such change shall be made at a posted public hearing of the Commission not less than 30 days prior to the date upon which the change is to be effective.

2. Application Fees

- a) A non-refundable application fee of the larger of \$500.00 or \$0.025 per square foot of the parcel to which the permit will be issued shall be due and payable to the Town of Canton at the time an application is filed.
- b) Application fees for permits issued under General Storm water Management Permits (GSMP)s under Section 5 of the Town of Canton Storm water Bylaw shall be \$250.00 when such permits are issued for those projects that qualify. Currently only single-family homes qualify for this permit.

3. Engineering and Consultant Reviews and Fees

- a) The Commission is authorized to require an applicant to pay a fee for the reasonable costs and expenses for specific expert engineering and other consultant services deemed necessary by the Commission to come to a final decision on the application. This fee is called the "Engineering and Consultant Review Fee."
- b) Payment may be required at any point in the deliberations prior to a final decision.
- c) Consultant fees shall be determined at the time of project review based on a specific scope of work, and shall be calculated at a rate of as the Commission may determine.

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d) The services for which a fee may be utilized include, but are not limited to, wetland survey and delineation, hydrologic and drainage analysis, wildlife habitat evaluation, storm water quality analysis, site inspections, as-built plan review, and analysis of legal issues.

e) The Commission is authorized to require an applicant to pay reasonable costs and expenses for certain activities, which utilize the services of the Commission's Consultant. This includes such activities as inquiries concerning potential projects as well as site inspections not associated with a pending permit application.

f) The Commission may require any applicant to pay an additional fee of \$125.00 per hour for review, inspection and monitoring services for any project filing that requires an excess of two (2) hours of review, inspection, and monitoring time by a its Consultant.

g) Subject to applicable law, any unused portion of any fees collected shall be returned by the Commission. to the applicant within forty-five calendar days of the issuance of a Certificate of Compliance, unless the Commission decides in a public meeting that other action is necessary.

h) The Engineering and Consultant Review fees collected under this section shall be deposited in a revolving account. The Commission shall include a full accounting of the revolving account as part of its annual report to the Town.

#### 4. Revision Of Fee Schedules And Regulations Governing Fees

The Commission may review and revise its regulations and fee schedules periodically as it sees fit.

a) A public hearing shall precede amendments.

b) A copy of the written decision will be filed with the town clerk within 10 days after final action is taken.

#### F) Public Hearings

The Commission will hold a public hearing for projects or activities outside the currently regulated jurisdiction of the Commission. For projects or activities within the currently regulated jurisdiction of the Commission, the Commission shall hold a public hearing in accordance with their own regulations and procedures.

#### G) Actions

The Commission's action, rendered in writing, shall consist of either:

1. Approval of the Storm Water Management Permit Application based upon determination that the proposed plan meets the Standards in Section 7 of the Regulations and will adequately protect the water resources of the community and is in compliance with the requirements set forth in this Bylaw,

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2. Approval of the Storm water Management Permit Application subject to any conditions, modifications or restrictions required by the Commission which will ensure that the project meets the Standards in Section 7 of the Regulations and adequately protects water resources, set forth in this Bylaw,

3. Disapproval of the Storm water Management Permit Application based upon a determination that the proposed plan, as submitted, does not meet the Standards in Section 7 or adequately protects water resources, as set forth in this Bylaw.

4. The Commission may disapprove an application "without prejudice" where an applicant fails to provide requested additional information that in the Commission's opinion is needed to adequately describe the proposed project. Information shall generally be limited to those items listed in Section 6.0 L) of these Regulations.

H) Final Action

Failure of the Commission to take final action upon an Application within 21 calendar days of receipt of a complete application **shall not be** deemed to be approval of said Application. Commission shall issue its decision within 21 calendar days after the closing of the Public Hearing.

I) Plan Changes

The permittee must notify the Commission in writing of any drainage change or alteration in the system authorized in Storm water Management Permit before any change or alteration is made. If the Commission determines that the change or alteration is significant, based on the Storm water Management Standards in Section 7 and accepted construction practices, the Commission may require that an amended application be filed.

J) Appeals of Actions of the Conservation Commission

A decision of the Commission shall be final. Further relief of a decision by the Commission made under these Regulations shall be reviewable in the Superior Court in an action filed within 60 days thereof, in accordance with M.G.L. Ch 249. § 4.

K) Project Completion

At completion of the project the permittee shall submit as-built record drawings of all structural storm water controls and treatment best management practices required for the site as required in Section 7. The as-built drawing shall show deviations from the approved plans, if any, and be certified by a Registered Professional Civil Engineer. If the Commission determines that the change or alteration is significant, based on the Storm water Management Standards in Section 7 and accepted construction practices, the Commission may require that an amended application be filed.

L) Storm Water Management Plan Contents

1. The application *for* a Storm Water Management Permit shall include the submittal of a Notice of Intent (Storm water Management Plan). It shall contain sufficient information for the Commission to evaluate the environmental impact, effectiveness, and acceptability of the measures proposed by the applicant for reducing adverse impacts from storm water


B. Fees.

- (1) Minor project (house addition, tennis court, swimming pool, utility work, etc.): **\$250.**
- (2) Single-family dwelling: **\$500.**
- (3) Subdivisions (road(s) and utilities only): **\$500(550)** plus \$2 per foot of roadway(s) side line within 100 feet of wetlands or within land subject to flooding.
- (4) Multiple dwelling structures: **\$500(550)** plus \$ 100 per unit all or part of which lies within 100 feet of wetlands or within land subject to flooding.
- (5) Commercial and industrial projects: **\$500(550)** plus \$ .50(\$1) per square foot of wetland disturbed plus \$.50(\$1) per square foot of land subject to flooding or one-hundred-foot buffer disturbed.
- (6A) Extensions and Certificates of Compliance
  - (a) Single-family dwelling or minor project: **\$100.**
  - (b) Other: **\$150(200).**
- (7) Re-filing of previously denied projects within three years: original fee or \$1,000 whichever is less.
- (8) Determination:  
Formal: **\$25.(\$100.)** - Abbreviated Notice of Resource Area Delineation: \$1.00 per foot of resource Area  
Informal: **\$15. (Resident \$25, other \$100.)** → REAL ESTATE BROKERS, - ATTORNEY'S -
- (9) Filing a Notice of Intent or an Amended Notice of Intent after the fact (i.e. work commenced with out permit) or a violation the fee is doubled.
- (10) Amended Notice of Intent - ½ of the original fee.

**NOTE: These fees are in addition to the wetlands filing fees for notice of intent charged under MGL Chapter 131 section 40.**

5.03. Plan Requirements.

- A. Plans shall describe the proposed activity and its effect on the environment. Due regard shall be shown for all natural features such as large trees, watercourses and water bodies, wildlife habitat and similar community assets.
  - (1) The following items are set out as a minimum standard. The applicant may submit, or be required to submit, any further information which will assist in the review and which is deemed necessary to determine the proposed effect of the interests protected by the Bylaw. **The Conservation Commission may waive any of these plan requirements for projects deemed insignificant.**
  - (2) The applicant must submit the original material to the Conservation Commission, plus seven copies of the following: (8 in total)

  
KDM 6/20/07  
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runoff. This plan shall be in accordance with the criteria established in these regulations and must be submitted with the stamp and signature of a Civil Engineer (PE) licensed in the Commonwealth of Massachusetts.

2. The Storm Water Management Plan shall fully describe the project in drawings, narrative, and calculations. It shall include:

- a) Contact Information. The name, address, and telephone number of all persons having a legal interest in the property and the tax reference number and parcel number of the property or properties affected;
- b) A locus map;
- c) The existing zoning, and land use at the site;
- d) The proposed land use;
- e) The location(s) of existing and proposed easements;
- f) The location of existing and proposed utilities ( including all wells);
- g) The site's existing & proposed topography with contours at 2 foot intervals,
- h) The existing site hydrology;
- i) A description & delineation of existing storm water conveyances, impoundments, and wetlands on or adjacent to the site or into which storm water flows;
- j) A delineation of 100 -year flood plains, if applicable;
- k) Estimated seasonal high groundwater elevation in areas to be used for storm water retention, detention, or infiltration(established by mottling, monitoring wells or established during time of seasonally high ground water);
- l) The existing and proposed vegetation and ground surfaces with runoff coefficients for each;
- m) A drainage area map showing pre and post construction watershed boundaries, drainage area and stoneware flow paths, including municipal drainage system flows;
- n) A description and drawings of all components of the proposed storm water management system including (including responsible party):
  - i. Locations, cross sections, and profiles of all brooks, streams, drainage swales and their method of stabilization;
  - ii. All measures for the detention, retention or infiltration of water,
  - iii. All measures for the protection of water quality (erosion control);
  - iv. The structural details for all components of the proposed drainage systems and storm water management facilities;
  - v. Notes on drawings specifying materials to be used, construction specifications, and expected hydrology with supporting calculations;
  - vi. Proposed improvements including location of buildings or other structures, impervious surfaces, and drainage facilities, if applicable;
  - vii. Any other information requested by the Commission.
- o) Hydrologic and hydraulic design calculations for the pre-development and post development conditions for the design storms specified in this Regulation. Such calculations shall include:
  - i. Description of the design storm frequency, intensity and duration;
  - ii. Time of concentration;
  - iii. Soil Runoff Curve Number (RCN) based on land use and soil hydrologic group;
  - iv. Peak runoff rates and total runoff volumes for each watershed area;
  - v. Information on construction measures used to maintain the infiltration capacity of the soil where any kind of infiltration is proposed;

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- vi. Infiltration rates, where applicable (rates established by soil evaluation, percolation testing or laboratory analysis);
- vii. Culvert capacities;
- viii. Flow velocities;
- ix. Data on the increase in rate and volume of runoff for the specified design storms, and
- x. Documentation of sources for all computation methods and field test results.

p) Post-Development downstream analysis if deemed necessary by the Commission

q) Soils Information from test pits performed at the location of proposed storm water management facilities, including but not limited to soil descriptions, depth to seasonal high groundwater, depth to bedrock, and percolation rates. Soils information will be based on site test pits logged by a Massachusetts Registered Soil Evaluator, or a Soil Scientist;

r) Landscaping plan describing the woody and herbaceous vegetative stabilization and management techniques to be used within and adjacent to the storm water practice.

M) Operation and Maintenance Plan Contents

An Operation and Maintenance plan (O&M Plan) is required at the time of application for all projects. The maintenance plan shall be designed to ensure compliance with the Permit, this Bylaw and that the Massachusetts Surface Water Quality Standards, 314, CMR 4.00 are met in all seasons and throughout the life of the system. The Operation and Maintenance Plan shall remain on file with the Commission and the Town Engineering Department and shall be an ongoing requirement. The O&M Plan shall include:

1. The name(s) of the owner(s) for all components of the system;
2. A map showing the location of the systems and facilities including catch basins, manholes/access lids, main, and storm water devices;
3. Maintenance agreements that specify:
  - a) The names and addresses of the person(s) responsible for operation and maintenance;
  - b) The person(s) responsible for financing maintenance and emergency repairs;
  - c) An Inspection and Maintenance Schedule for all storm water management facilities including routine and non-routine maintenance tasks to be performed;
  - d) A list of easements with the purpose and location of each;
  - e) The signature(s) of the owner(s).
4. Storm water Management Easement(s)
  - a) Storm Water Management Easements shall be provided (to responsible party) by the property owner(s) as necessary for:
    - i. Access for facility inspections and maintenance;
    - ii. Preservation of storm water runoff conveyance, infiltration, and detention areas and facilities, including flood routes for the 100-year storm event
    - iii. Direct maintenance access by heavy equipment to structures requiring regular maintenance.
  - b) The purpose of each easement shall be specified in the maintenance agreement signed by the property owner.

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c) Storm Water Management Easements are required for all areas used for off-site storm water control, unless a waiver is granted by the Commission

d) Easements shall be recorded with the Norfolk County Registry of Deeds prior to issuance of a Certificate of Compliance by the Commission.

5. Changes to Operation and Maintenance Plans

a) The owner(s) of the storm water management system must notify the Commission of changes in ownership or assignment of financial responsibility.

b) The maintenance schedule in the Maintenance Agreement may be amended to achieve the purposes of this Regulation by mutual agreement of the Commission and the Responsible Parties. Amendments must be in writing and signed by all Responsible Parties. Responsible Parties shall include owner(s), persons with financial responsibility, and persons with operational responsibility.

**7.0 POST-DEVELOPMENT STORMWATER MANAGEMENT CRITERIA**

A) At a minimum all projects shall comply with the performance standards of the most recent version of Massachusetts Department of Environmental Protection (DEP) Storm water Management Policy, as well as the following:

B) General Criteria

The following general performance criteria shall be applicable to all storm water management plans, unless otherwise provided for in this Regulation:

1. No Untreated Discharges

All storm water runoff generated from land development and land use conversion activity shall not discharge untreated storm water runoff directly to a wetland, local water body, streams or brooks, municipal drainage system, or abutting property, without adequate treatment.

2. Channel Protection

Protection of channels from bank and bed erosion and degradation shall be provided by:

a) attenuating the 24-hour extended detention storage of runoff of the post-development 1-year, 24-hour return frequency storm event (default option - optimal) OR

*b) controlling the peak discharge rate from the 2-yr storm event to the pre-development rate required by the MA DEP Storm water Management Policy (alternative option-minimum)*

3. Over bank Flooding Protection

Downstream over Bank flood and property protection shall be provided by

*attenuating the post-development peak discharge rate to the pre-development rate for the 10-year, 24-hour return frequency storm event as required by the MA DEP Storm Water Management Policy. (default option - optimal)*

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*Note: no increase flows to dams shall be permitted.*

4. Extreme Flooding Protection

Extreme flooding and public safety protection shall be provided by

*[attenuating the peak discharge rate from the 100-yr, 24-hour return frequency storm even the pre-development rates} (default option - optimal) OR*

*[controlling and safely conveying the 100-year, 24 hour return frequency storm event such that flooding is not exacerbated} (alterative option - minimum) OR*

*[evaluating the 100-year, 24-hour return frequency storm event to demonstrate no increase flooding impacts off-site, as required by the MA DEP Storm Water Management Policy} (another alternative option - minimum)*

5. Recharge

a) Annual groundwater recharge rates shall be maintained, by promoting infiltration through the use of structural and non-structural methods. At a minimum, annual recharge from the post development site shall mimic the annual recharge from pre-development site conditions.

b) The storm water runoff volume to be recharged to groundwater should be determined using the methods prescribed in the latest version of *[the Massachusetts DEP Storm Water Management Manual or an equivalent qualifying local manual]*. The recharge requirements shall apply to all activities within the jurisdiction of this Regulation except as noted, and unless specifically waived by the Commission. The recharge criterion is not required for any portion of a site designated as a storm water hotspot (see Section 7.10 of this Regulation). In addition, the Commission may relax or eliminate the recharge requirement at its discretion, if the site is situated on unsuitable soils or is in a redevelopment area with documentation of prior contaminated soils.

6. Structural Practices for Water Quality

a) Presumed Compliance with Massachusetts Water Quality Standards *(default option--minimum)*

All structural storm water management facilities shall be selected and designed using the appropriate criteria from the most recent version of the Massachusetts DEP Storm Water Management Manual.

For other structural storm water controls not included in the Massachusetts Storm Water Management Manual, or for which pollutant removal rates have not been provided, the effectiveness and pollutant removal of the structural control must be documented through prior studies, literature reviews, or other means and receive approval from the Commission before being included in the design of a storm water management system.

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Structural best management practices (BMPs) must be designed to remove [80%] of the average annual post development total suspended solids (TSS) and [40%] for total phosphorus [TP], and [30%] for total nitrogen (TN). It is presumed that a BMP complies with this performance goal if it is:

- i) Sized to capture the prescribed water quality volume;
- ii) Designed according to the specific performance criteria outlined in the *[Massachusetts Storm Water Management Manual or an approved local equivalent]*;
- iii) Constructed properly; and
- iv) Maintained regularly.

b) Pollutant Loading Calculation Assessment (*additional option - optimal*)

i) For subdivisions of 3 lots or more, any commercial project with a building 10,000 square feet or more, or any project in an area designated by the Commission Authority as a sensitive/critical area, a pollutant loading calculation shall be conducted to document compliance with water quality standards by calculating predevelopment loads, calculating uncontrolled post-development loads and then applying a prescribed pollutant removal efficiency to selected practices to arrive at a net pollutant load delivery. The post-developed load must be equal to or less than the pre-developed load.

## 7. Water Quality Volume

The prescribed water quality volume required in the sizing of a structural storm water practice shall be:

*calculated as  $1.2 \times \text{total watershed area} \times \text{runoff coefficient (Rv)}$ . where  $Rv = 0.05 + 0.009$  (1%) and 1% = percent of impervious area (default option - optimal) OR*

*0.50 inches x the total impervious area of the drainage area and 1.0 inches x the total impervious area of the drainage area in critical areas, as specified in the Massachusetts DEP Storm water Policy (alterative option - minimum)*

## 8. Hydrologic Basis for Design of Structural Practices

For facility sizing criteria, the basis for hydrologic and hydraulic evaluation of development sites are as follows:

- a) Impervious cover is measured from the site plan and includes any material or structure on or above the ground that prevents water from infiltrating through the underlying soil. Impervious surface is defined to include, without limitation: paved parking lots, sidewalks, roof tops, driveways, patios, and paved, gravel and compacted dirt surfaced roads.
- b) Off-site areas shall be assessed based on their 'pre- developed condition' for computing the water quality volume (i.e., treatment of only on-site areas is required). However, if an offsite area drains to a proposed BMP, flow from that area must be accounted for in the sizing of a specific practice.
- c) Off-site areas draining to a proposed facility should be modeled as "present condition" for peak-flow attenuation requirements.

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d) The length of sheet flow used in time of concentration calculations is limited to no more than 50 feet for predevelopment conditions and 50 feet for post development conditions.

e) Detention time for the one-year storm is defined as the center of mass of the inflow hydrograph and the center of mass of the outflow hydrograph.

f) The models TR-55 and TR-20 (or approved equivalent) will be used for determining peak discharge rates.

g) The standard for characterizing pre-development land use for on-site areas shall be woods.

h) For purposes of computing runoff, all pervious lands in the site shall be assumed prior to development to be in good condition regardless of conditions existing at the time of computation.

i) If an off-site area drains to a facility, off-site areas should be modeled, assuming an "ultimate build out condition" upstream.

j) Determination of flooding and channel erosion impacts to receiving streams due to land development projects shall be measured at each point of discharge from the development project and such determination shall include any runoff from the balance of the watershed which also contributes to that point of discharge.

k) The specified design storms shall be defined as a 24-hour storm using the rainfall distribution recommended by the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) or the Northeast Regional Climate Center" Atlas of Precipitation Extremes for the Northeastern United State and Southeastern Canada."

L) Proposed residential, commercial, or industrial subdivisions shall apply these storm water management criteria to the land development as a whole. Individual lots in new subdivisions shall not be considered separate land development projects, but rather the entire subdivision shall be considered a single land development project. Hydrologic parameters shall reflect the ultimate land development and shall be used in all engineering calculations.

#### 9. Sensitive Areas

Storm water discharges to critical areas with sensitive resources (i.e., shellfish beds, swimming beaches, aquifer recharge areas, water supply reservoirs) may be subject to additional criteria, or may need to utilize or restrict certain storm water management practices at the discretion of the Commission. The Commission may designate sensitive areas and specific criteria for these areas after conducting a public hearing in accordance with the provisions of Section 4.0 of the Town of Canton Storm Water Bylaw.

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10. Hotspots

Storm water discharges from land uses or activities with higher potential pollutant loadings, known as "hotspots", as defined in the most recent version of the [MA DEP Storm Water Management Manual or an equivalent qualifying local manual] -require the use of specific storm water management BMPs as specified in the most recent version of the [MA DEP Storm water Management Manual or an equivalent qualifying local manual]. The use of infiltration practices without pretreatment is prohibited.

11. Storm water Credits

The applicant may, if approved by the Commission take credit for the use of B.M.P.S on existing Town of Canton drainage system (MS4) when existing site conditions make it difficult to comply with the **REGULATIONS**. This would allow the applicant to reduce some of the requirements specified in the criteria section of these regulations.

**8.0 WAIVERS**

A) The Commission may waive strict compliance with any requirement of the Town of Canton Storm Water Bylaw or the rules and regulations promulgated hereunder, where:

- 1.federal, state and local statutes and/or regulations allow such action,
- 2.is in the public interest, and
- 3.is not inconsistent with the purpose and intent of the Town of Canton Storm Water Bylaw.

B) Any applicant may submit a written request to be granted such a waiver. Such a request shall be accompanied by an explanation or documentation supporting the waiver request and demonstrating that strict application of the Bylaw does not further the purposes or objectives of this bylaw.

C) All waiver requests shall be acted on within 30 *calendar days* and the Commission will provide written finding

D) If in the Commission's opinion, additional time or information is required for review of a waiver request, the Commission may request an extension of the review period. In the event the applicant objects to an extension, or fails to provide requested information, the waiver request may be denied, "without prejudice" by the Commission.

**9.0 SURETY**

The Commission may require the permittee to post before the start of land disturbance or construction activity, a surety bond, irrevocable letter of credit, cash, or other acceptable security. The form of the bond shall be approved by town counsel, and be in an amount deemed sufficient by the Commission to ensure that the work will be completed in accordance with the permit If the project is phased, the Commission may release part of the bond as each phase is completed in compliance with the permit but the bond may not be fully released until the Commission has received the final inspection report as required by Section 11 of these Regulations and issued a Certificate of Compliance.

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**10.0 CONSTRUCTION INSPECTIONS**

A) Notice of Construction Commencement. The applicant must notify the Commission 10 days in advance before the commencement of construction. In addition, the applicant must notify the Commission in advance of construction of critical components of the SWM facility.

B) At the discretion of the Commission periodic inspections of the storm water management system construction shall be conducted by the Town Officer or a professional engineer or their designee who has been approved by the Commission. All inspections shall be documented and written reports prepared that contain the following information:

1. The date and location of the inspection;
2. Whether construction is in compliance with the approved storm water management plan,
3. Variations from the approved construction specifications; and
4. Any other variations or violations of the conditions of the approved storm water management plan.

C) The Commission or its designee shall inspect the project site at the following stages, at a **minimum**:

1. Initial Site Inspection: prior to approval of any plan;
2. Erosion Control Inspection: to ensure erosion control practices are in accord with the filed plan,
3. Storm water Management System Inspection: An inspection will be made of the completed storm water management system, prior to backfilling of any underground drainage or storm water conveyance structures.
4. Final inspection
  - a) After the storm water management system has been constructed and before the surety has been released, all applicants are required to submit actual "as built" plans for any storm water management facilities or practices after final construction is completed and must be certified by a Massachusetts Registered Land Surveyor. Plan must show bearing and distance to a property corner, which must be bounded ( with elevation assigned).
  - b) The Commission shall inspect the system to confirm its "as-built" features. This inspector shall also evaluate the effectiveness of the system in an actual storm. If the inspector finds the system to be adequate he shall so report to the Conservation Commission which will issue a Certificate of Completion. As built plans shall be full size plans which reflect the "as built conditions, including all final grades, developed by a Massachusetts Registered Civil Engineer. All changes to project design should be recorded in red ink on plans to define changes made. All work deleted, corrections in elevations, and changes in materials, should be shown on the as-built drawings.



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D) Inadequacy of System

1. 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 Storm Water Management Plan, it shall be corrected by the applicant before the Certificate of Compliance is released. If the applicant fails to act the Commission *may* use the surety bond to complete the work.
2. If the Commission determines that there is a failure to comply with the plan, the property owner shall be notified in writing of the nature of the violation and the required corrective actions. An Enforcement Order (Stop Work Order) shall be issued until any violations are corrected and all work previously completed has received approval by the Commission.

**11.0 CERTIFICATE OF COMPLIANCE**

- A) Upon completion, the applicant is responsible for certifying that the completed project is in accordance with the approved plans and specifications and shall provide regular inspections sufficient to adequately document compliance.
- B) The Commission will issue a letter certifying completion upon receipt and approval of the final inspection and reports and/or upon otherwise determining that all work of the permit has been satisfactorily completed in conformance with this Regulation.

**12.0 PERPETUAL INSPECTION AND MAINTENANCE**

A) Maintenance Responsibility

1. Storm water management facilities and practices included in a Storm Water Management Plan with an inspection and maintenance agreement in accordance with Section 6. M of these Regulations must undergo ongoing inspections to document maintenance and repair needs and ensure compliance with the requirements of the agreement, the plan and this Regulation
2. The owner of the property on which work has been done pursuant to this Regulation for private storm water management facilities, or any other person or agent in control of such property, shall maintain in good condition and promptly repair and restore all grade surfaces, walls, drains, dams and structures, vegetation, erosion *and* sedimentation controls, and other protective devices. Such repairs or restoration and maintenance shall be in accordance with approved plans.

B) Maintenance Inspections

1. All storm water management facilities must undergo inspections to document maintenance and repair needs and ensure compliance with the requirements of this bylaw and accomplishment of its purposes as specified in the Operation and Maintenance Plan and Maintenance Agreement described under Section 6. (M) Of these regulations.
2. At a minimum, inspections shall occur during the first year of operation and at least once every three years thereafter. In addition, a maintenance agreement as specified under Section 6. M of these regulations between the owner and the Commission shall be executed for privately owned storm water management systems that specify the Responsible Party for conducting long term inspections and repairs.

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3. Inspection reports shall be submitted to and maintained by the Commission and/or Town of Canton Engineering Department for all storm water management systems. Inspection reports for storm water management systems shall include:

- a) The date of inspection;
- b) Name of inspector,
- c) The condition of:
  - i. Pretreatment devices
  - ii. Vegetation or filter media
  - iii. Fences or other safety devices
  - iv. Spillways, valves, or other control structures
  - v.. Embankments, slopes, and safety benches
  - vi. Reservoir or treatment areas
  - vii. Inlet and outlet channels and structures
  - viii. Underground drainage
  - ix Sediment *and* debris accumulation in storage and fore bay areas (including catch basins)
  - x. Any nonstructural practices
  - xi. Any other item that could affect the proper function of the storm water management system
- d) Description of the *need* for maintenance or repair;

C) Right-of-Entry for Inspection

The terms of the inspection and maintenance agreement as specified in Section 6.M of these regulations shall provide for the Commission or its designee to enter the property at reasonable times and in a reasonable manner for the purpose of inspection. The Commission its agents, officers, and employees shall have authority to enter upon privately owned land for the purpose of performing their duties under this Regulation and may make or cause to be made such examinations, surveys, or sampling as the Commission deems necessary, subject to the constitutions and laws of the United States and the Commonwealth.

D) Records of Maintenance and Repair Activities

Parties responsible for the operation and maintenance of a storm water management facility shall provide records of all maintenance and repairs to the Commission or Town of Canton Engineering Department upon request. Parties responsible for the operation and maintenance of a storm water management facility shall make records *at* the installation and of all maintenance and repairs, and shall retain the records *for* at least 5 years. These records shall be made available to the Commission and/or the Town of Canton Engineering Department during inspection of the facility and at other reasonable times upon request.

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E) Failure to Maintain

1. If a responsible person fails or refuses to meet the requirements of the inspection and maintenance agreement, the Commission after *thirty (30)* days written notice (except, that in the event the violation constitutes an immediate danger to public health or public safety, 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 Town of Canton may assess the owner(s) of the facility for the cost of repair work that shall be a lien on the property.

2. After notification is provided to the person responsible for carrying out the maintenance plan of any deficiencies discovered from an inspection of a storm water management system, the person responsible for carrying out the maintenance plan shall have 30 days or other time frame mutually agreed to between the Commission and the person responsible for carrying out the maintenance plan to correct the deficiencies. The Commission shall then conduct a subsequent inspection to ensure completion of maintenance or repairs.

**13.0 ENFORCEMENT**

A) The Commission or an authorized agent of the Commission shall enforce this Bylaw, regulations, orders, violation notices, and enforcement orders, and may pursue all civil, criminal and non-criminal remedies for such violations.

B) Notices and Orders

1. The Commission or an authorized agent of the Commission may issue a written notice of violation or enforcement order to enforce the provisions of this Bylaw or the regulations there under, which may include requirements to:

a) Cease and desist from construction or land disturbing activity until there is compliance with the Bylaw and the storm water management permit;

b) Repair, maintain; or replace the storm water management system or portions thereof in accordance with the operation and maintenance plan;

c) Perform monitoring, analyses, and reporting;

d) Fix adverse impact resulting directly or indirectly from malfunction of the storm water management system.

2. If the enforcing person determines that abatement or remediation of adverse impacts is required, the order may set forth a deadline by which such abatement or remediation must be completed. Said order may further advise that, should the violator or property owner fail to abate or perform remediation within the specified deadline, the Town of Canton may, at its option, undertake such work, and the property owner shall reimburse the Town of Canton for expenses incurred.

3. Within thirty - days (30) after completing all measures necessary to abate the violation or to perform remediation, the violator and the property owner shall be notified of the costs incurred by the Town of Canton including administrative costs. The violator or property owner may file a written protest objecting to the amount or basis of costs with the

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Commission within thirty - days (30) of receipt of the notification of the costs incurred. If the amount due is not received by the expiration of the time in which to file a protest or within thirty (30) days following a decision of the Town of Canton affirming or reducing the costs, or from a final decision of a court of competent jurisdiction, the costs shall become a special assessment against the property owner and shall constitute a lien on the owner's property for the amount of said costs. Interest shall begin to accrue on any unpaid costs at the statutory rate provided in G.L. Ch. 59, § 57, after the thirty-first day at which the costs first become due.

C) Any person who violates any provision of the Town of Canton *Storm Water* Bylaw, or regulation, order or permit issued there under may be ordered to correct the violation and/or shall be punished by a fine of not more than \$300.00. Each day or part thereof that such violation occurs or continues shall constitute a separate offense.

D) Non-Criminal Disposition. As an alternative to criminal prosecution or civil action, the Town of Canton may elect to utilize the non-criminal disposition procedure set forth in G.L. Ch. 40, §210 and (the citation town enabling vote/by/aw (if applicable/el/ of the Town of Canton in which case the *agent* of the Town of Canton Conservation Commission with a vote of the Commission shall be the enforcing person.

E) Appeals. The decisions or orders of the Commission shall be final. Further relief shall be to a court of competent jurisdiction.

F) Remedies Not Exclusive. The remedies listed in this Bylaw are not exclusive of any other remedies available under any applicable federal, state or local law.

**14.0 SEVERABILITY**

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