



TOWN OF MILFORD, NH
OFFICE OF COMMUNITY DEVELOPMENT

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Date: August 1, 2019
To: Planning Board
From: Lincoln Daley, Community Development Director
Subject: Stormwater Management Ordinance and Regulations

The purpose of this agenda item is to update the Board on the Town's Municipal Separate Storm Sewer System (MS4) Permit and discuss potential changes/amendments to Milford's stormwater management ordinance / development regulation in compliance with the federal EPA permit. To assist in the discussion, attached please find draft Ordinance and Regulations developed by the Nashua / Manchester Stormwater Coalition (of which Milford is a participating member) as templates for municipalities to use.

**STORMWATER BYLAWS/ORDINANCE/CODE AND
ILLICIT DISCHARGE DETECTION AND ELIMINATION (IDDE)
CHAPTER/ORDINANCE/CODE**

Section 1. Purpose & Intent

The Purpose is to protect water quality in the ##MUNICIPALITY while providing for the health, safety and general welfare of the citizens of Town/City. The intent is to protect the local natural resources of the Town/City by establishing and enforcing the minimum pre-construction, post construction and reconstruction stormwater management and design control standards in a Stormwater Management program. The intent will also prohibit illicit discharges that often contain pathogens, nutrients, surfactants and various toxic pollutants by setting up and enforcing an Illicit Discharge and Detection Elimination program.

Section 2. Definitions.

The following terms shall have the meanings indicated:

BEST MANAGEMENT PRACTICE (BMP)

An activity, procedure, restraint, or an accepted and proven structural, non-structural or vegetative measure which reduces the quantity or improves the quality of stormwater Runoff.

DISTURBANCE

Any construction, reconstruction, land altering or grading activities, other than for agricultural practices.

ENVIRONMENTAL PROTECTION AGENCY (EPA)

The Federal agency responsible for implementing the Federal Water Pollution Control Act, (3 U.S.C. § 1251 et seq.) AKA the “Clean Water Act”.

EROSION

The wearing away of the land surface by natural or artificial forces such as wind, water, ice, gravity, or vehicle traffic and the subsequent detachment or movement of soil.

EROSION CONTROL

The prevention or reduction of the movement of soil particles or rock fragments due to stormwater runoff.

ILLICIT CONNECTIONS

An Illicit, unauthorized or illegal connection that drains into or is connected to the Municipal Separate Storm Sewer System (MS4), shall mean either of the following:

1. Any pipe, drain, open channel or other conveyances that have the potential to allow an illicit discharge to enter the MS4 system. Including, but not limited to any conveyances
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which allow any non-storm water discharge including sewage, process wastewater, and wash water to enter the storm drain system. This includes any connections to the storm drain system from indoor drains and sinks regardless of whether said drain or connection had been previously allowed, permitted, or approved by an authorized enforcement agency.

Or

2. Any pipe, drain, open channel or conveyance connected from a residential, commercial or industrial land use, to the storm drain system which has not been documented in plans, maps, or equivalent records and approved by an authorized federal, state or local enforcement agency.

ILLICIT DISCHARGE

Any direct or indirect non-storm water discharge to the Municipal Separate Storm Sewer System (MS4), excepting discharges pursuant to a specific NPDES permit and firefighting activities.

INFILTRATION

The act of conveying the surface water into the ground, to permit the groundwater to be recharged resulting in the reduction of stormwater runoff from a project site.

MUNICIPAL SEPARATE STORM SEWER SYSTEMS (MS4)

Are publicly owned and operated facilities by which storm water is collected including but not limited to roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels or storm drains, piped storm drains, pumping facility retention or detention basins, reservoir or other drainage structure that discharges to the waters of the State of New Hampshire or the United States.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

The water quality program setup as part of the Clean Water Act, implemented by the EPA, to authorize the discharge of pollutants into surface waters of the United States.

NH STORMWATER MANUAL

Reference guide prepared by the NH Department of Environmental Services to manage stormwater, which, unless expressly exempted by the Town, shall include any and all amendments and updates adopted subsequent to the enactment of these standards.

NON-STORMWATER DISCHARGE

Discharge to the municipal storm drain system not composed entirely of stormwater.

OPERATION AND MAINTENANCE PLAN

A plan setting up the future responsible parties along with the functional, financial and organizational mechanisms for the ongoing operation and maintenance of a stormwater management system to insure that it continues to function as designed.

OUTFALL

The point at which stormwater flows out from a point source discernible, confined and discrete conveyance into waters of New Hampshire or of the United States.

OWNER

A person with a legal or equitable interest in the property.

PRE-CONSTRUCTION

All activity in preparation for construction.

POLLUTANT

Any element or property of sewage, agricultural, industrial or commercial waste, runoff, leachate, heated effluent or other matter, whether originating at a point or nonpoint source, that is or may be introduced into any sewage treatment works or waters of the State of New Hampshire or the United States.

PROJECT AREA

Disturbed area plus any area with associated off-site improvements.

RESPONSIBLE PARTY

Entity responsible for submitting a SWMP such as the owner, developer, applicant or owner's legally designated representative.

SEDIMENT

Mineral or organic matter transported or deposited by water or air.

STORMWATER AND LAND DEVELOPMENT MANAGEMENT PLAN REGULATIONS (SWMP)

The regulations required by the Town, which manages Stormwater Runoff through a parcel of land by using pollutant source controls, structural BMP's and construction phase practice.

STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

A plan, required by the Town, from a person or business to identify sources of pollution or contamination at a site and to eliminate or reduce pollutant discharges of the Stormwater Runoff through site design, pollutant source controls, structural BMPs and construction phase practices.

STORMWATER RUNOFF

Any water coming from rainfall, snowmelt or irrigation systems etc. that is not absorbed, evaporated or otherwise stored within the contributing drainage area.

WATER QUALITY STANDARDS (WQS)

Defines the water quality goals of a water body by designating the use or uses to be made of the water and by setting criteria necessary to protect the uses. NH and EPA have adopted WQS through the "303(d)" list to protect public health and welfare, enhancing the quality of water and serve the purposes of the Clean Water Act (CWA).

Section 3 – REGULATIONS

The **Town/City of XX MUNICIPALITY** may adopt, and periodically amend, regulations, rules and/or written guidance relating to the terms, conditions definitions, enforcement, fees, procedures and administration of this Stormwater and IDDE **Chapter/Ordinance/Bylaw** by majority vote after conducting a public hearing to receive comments. Such hearing shall be advertised in a newspaper of general local circulation at least fourteen (14) days prior to the hearing date. Failure of the **Town/City of XX MUNICIPALITY** to issue such rules or regulations or a legal declaration of their invalidity by a court shall not act to suspend or invalidate the effect of this **Chapter/Ordinance/Bylaw**.

Such regulations, rules and/or guidance may include without limitation, provisions for the establishment of one or more categories of administrative review approvals for specific types or sizes of projects. Administrative review applications that meet all the standard requirements may be issued by one or more agents designated in writing by the **Town/City of XX MUNICIPALITY** without the requirement of a public hearing as detailed in this bylaw. Administrative review approval shall comply with all other provisions of this **Chapter/Ordinance/Bylaw**.

Section 4 – SEVERABILITY

The provisions of this bylaw are hereby declared to be severable. If any provision, paragraph, sentence or clause of this bylaw or the application thereof to any person, establishment or circumstances shall be held invalid such invalidity shall not affect the other provisions or application of this bylaw.

Section 5 – NOTIFICATION

§ 7.1 – Notification of Spills or Other Non-Stormwater Discharges

1. As soon as any person responsible for a facility, site activity or operation has information of any known or suspected release of pollutants or non-stormwater discharges which are resulting or may result in illicit discharges or pollutants discharging into the **Town/City of XX MUNICIPALITY** municipal storm system, state waters or waters of the United States, said person shall take all necessary steps to ensure the discovery, containment and cleanup of such release so as to minimize the effects of the discharge.
 2. If the substance poses an immediate health or safety concern the **Town/City of XX MUNICIPALITY** and the State of New Hampshire Emergency Services shall be immediately notified.
 3. If the substance does not pose an immediate health or safety concern than the **Town/City of XX MUNICIPALITY Health** Department should be notified as soon as possible, however, no later than twenty four (24) hours post event.
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Section 6 – TRANSITIONAL PROVISIONS

Residential property owners shall have 60 days from the effective date of this bylaw to comply with its provisions provided good cause is shown for the failure to comply with the **Chapter/Ordinance/Bylaw** during that period.

Section 7. STORMWATER AND LAND DISTURBANCE MANAGEMENT PLAN REGULATIONS

§ 7.1 – Applicability.

Prior to any Construction Activity, Reconstruction or Land Disturbance, the Responsible Party shall submit a SWMP to the **##AGENCY OR DEPARTMENT** for any tract(s) of land that results in a total Disturbance equal to or greater than the amounts described within the Stormwater and Land Disturbance Management Regulations.

Any person that fails to follow the requirements of a Stormwater and Land Disturbance Management **Approval/Permit** and the related Erosion and Sedimentation Control Plan and including the Operations and Maintenance Plan issued under the Stormwater and Land Disturbance Management Regulations shall be in violation of the **Town/City of XX Municipality Chapter/Ordinance/Bylaws**.

§ 7.2 – **Approval and/or Permit**

The applicant shall seek approval and/or a permit prior to beginning to the commencement of land disturbing or redevelopment activity based on thresholds described in the Stormwater and Land Disturbance Management Regulations.

§ 7.3 – Entry

Filing an application for an approval or permit grants the **##AGENCY OR DEPARTMENT** and its employees or agent's permission to enter the site to verify the information in the application and to inspect for compliance with approval or permit conditions

§ 7.4 – Inspection and Site Supervision

The **##AGENCY OR DEPARTMENT** or its designated agent shall make inspections as outlined in the Regulations to verify and document compliance with the Stormwater and Land Disturbance Management **Approval/Permit**.

§ 7.5 – Compliance with EPA's General Permit for MS4's in New Hampshire

This allows the ##AGENCY OR DEPARTMENT the authority to implement the permit in accordance with the most recent General Permit for MS4s in New Hampshire. Regulations can be more stringent but must be at least as stringent as the MS4s.

§ 7. 6 – Surety

The **##AGENCY OR DEPARTMENT** may require the applicant to post a surety bond, irrevocable letter of credit, cash or other acceptable security prior to construction activity. The form of the bond and the bond amount shall be approved by the **##AGENCY OR DEPARTMENT** to ensure all of the work will be completed in accordance with the plans. Phasing may occur and the bonds may be released accordingly as the project comes into compliance with the permit.

§ 7. 7 – Final Reports

Upon completion of the work, the applicant shall submit a report (including certified as-built construction plans) from a Professional Engineer (PE), surveyor or Certified Professional in Erosion and Sedimentation Control (CPESC), certifying that all erosion and sedimentation control devices and approved changes and modifications, have been completed in accordance with the conditions of the approved Erosion and Sediment Control Plan, Operations and Maintenance Plan and Stormwater and Land Disturbance Management Plan. Any discrepancies shall be noted in the cover letter.

§ 7. 8 – Enforcement and penalties.

The purpose of this section is to enact locally, administrative and enforcement procedures set forth in RSA Title LXIV, specifically RSA 676:15, 17, 17-a and 17-b, and to authorize penalties and remedies for enforcement of the provisions of these Standards. Any violation of these Standards shall be subject to enforcement by either **##AGENCY OR DEPARTMENT** or their designated agent.

§ 7. 9 – Conflicts of law.

Nothing contained herein, or any SWPPP granted pursuant hereto, shall be construed to exempt any Responsible Party from complying with all applicable State or Federal laws/regulations. In the event of conflicting requirements, the stricter standard shall apply.

§ 7.10 – Waivers.

A waiver of these Standards, in whole or in part, may be granted when the strict application of these standards would impose unnecessary hardship because of the unique characteristics of the land including, but not limited to, to the size, character, location, nature of use, or other unspecified conditions of the Project Area. **Waivers shall only be granted with approval of both Community Development Department and Department of Public Works.**

§ 7.11 – SWMP Validity.

All construction contemplated by the Stormwater and Land Disturbance Plan and the SWPPP shall be completed within a period of four (4) years from the date of approval.

Section 8 – Illicit Discharge and Detection Elimination (IDDE)

§ 8.1 – Applicability

Illicit discharges enter the system through either direct connections (such as wastewater piping either mistakenly or deliberately connected to the storm drains) or by indirect connections. Indirect connections can include failing individual sewage disposal systems, cracked sanitary pipes, spills collected by drain outlets or by dumping an illicit discharge directly into the storm basin.

The Illicit discharges result in high levels of pollutants including heavy metals, toxics, oil and grease, solvents, nutrients, viruses and bacteria being released directly into the receiving waters of the State or the United States. The MS4 drainage system is not designed to accept, process, or discharge such non-stormwater wastes. The pollutant levels from these illegal discharges degrade the receiving water quality and threaten aquatic, wildlife and human health.

§ 8.2 – Prohibition of Illicit Discharges

No person shall discharge or cause to be discharged into the municipal storm drain system or watercourses any materials, including but not limited to pollutants or waters containing any pollutants that cause or contribute to a violation of applicable water quality standards, other than stormwater

The following items are not considered as Illicit Discharges:

- Water line flushing
 - Uncontaminated ground water infiltration
 - Uncontaminated pumped ground water
 - Discharges from potable water sources except landscape irrigation and lawn watering
 - Foundation & footing drains including crawl space pumps
 - Air conditioning condensation
 - Diverted/pumped stream flows, Springs & riparian habitats and wetlands and rising groundwater
 - Dechlorinated swimming pool discharges
 - Discharge from Street Sweeping
 - Dye testing as long as the officials are made aware prior to the test
 - Non-stormwater discharge permitted under an NPDES permit, waiver or waste discharge order administered under the authority of the US EPA, provided that the discharge is in full compliance with the requirements of the permit, waiver or order and applicable laws and regulations
 - Discharge for which advanced written approval is received from the Department of Public Works and the Planning and Zoning Administrator.
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§ 8.3. – Prohibition of Illicit Connections

- a. The construction, use, maintenance, or continued existence of illicit connections to the storm drain system is prohibited.
- b. This prohibition expressly includes, without limitation, illicit connections made in the past, regardless of whether the connection was permissible under law or practices applicable or prevailing at the time of connection.
- c. A person is considered to be in violation of this ordinance if the person connects a line conveying sewage to the MS4, or allows such a connection to continue.

§ 8. 4– IDDE Responsibility for Administration

The **AGENCY OR DEPARTMENT of XX MUNICIPALITY** shall administer, implement and enforce the provisions of the IDDE ordinance and shall prepare the associated regulations. Regulations can be more stringent but must be at least as stringent as the MS4s. Any powers granted or duties imposed upon the authorized enforcement agency may be delegated in writing by the **Authorized Agent** to persons or entities acting in the beneficial interest of or in the employ of the **XX MUNICIPALITY**.

The standards set forth herein are promulgated pursuant to these **Ordinances/Chapters/Bylaws** and regulations are minimum standards; therefore these regulations do not intend nor imply that compliance by any person will ensure that there will be no contamination, pollution, nor unauthorized discharge of pollutants.

§ 8. 4– IDDE Enforcement of Prohibitions

The **AGENCY OR DEPARTMENT of XX MUNICIPALITY** may order anyone responsible for an illicit connection or discharge to an MS4 to:

- 1. Eliminate it
- 2. Take measure to minimize the discharge of pollutants until such time as the illicit connection or discharge shall be eliminated and
- 3. Remediate the contamination

Town Council Chair

Date

Town Clerk / Tax Collector

Date

MCM 4

Construction Site Stormwater Runoff Control

Permit Part 2.3.5

PART 4 – STORMWATER AND LAND DEVELOPMENT MANAGEMENT REGULATIONS

4.01 Purpose and Goals

- A. The purpose of stormwater and land development management standards is to provide reasonable guidance for the regulation of stormwater runoff, during planning, design, construction and post-construction phases, to protect local natural resources from degradation and prevent adverse impacts to adjacent and downstream land, property, facilities and infrastructure. These standards regulate discharges from stormwater and runoff from land development projects and other construction activities to control and minimize increases in stormwater runoff rates and volumes, soil erosion, stream channel erosion, and nonpoint source pollution associated with stormwater runoff.

The goal of these standards is to establish minimum stormwater management requirements and controls to protect and safeguard the general health, safety, and welfare of the public in the Town of [REDACTED]. This regulation seeks to meet that goal through the following objectives:

1. Minimize increases in stormwater runoff from any development to reduce flooding, siltation and streambank erosion and maintain the integrity of stream channels.
2. Minimize increases in nonpoint source pollution caused by stormwater runoff from development which would otherwise degrade local water quality.
3. Minimize the total volume of surface water runoff which flows from any specific site during and following development to not exceed the pre-development hydrologic condition to the maximum extent practicable as allowable by site conditions.
4. Reduce stormwater runoff rates and volumes, soil erosion and nonpoint source pollution, wherever possible, through stormwater management controls and to ensure that these management controls are properly maintained and pose no threat to public safety or cause excessive municipal expenditures.
5. Protect the quality of groundwater resources, surface water bodies and wetlands.

4.02 Minimum Thresholds for Applicability

- A. The stormwater management standards apply to any development or redevelopment projects which are subject to Site Plan Review or Subdivision approval that disturb more than 20,000 square feet or disturb more than 10,000 square feet within 100 feet of a surface water body.
- B. These standards apply to disturbances of less than the limits above if that disturbance is part of a large common plan for development that would disturb 20,000 SF or more.
- C. The Planning Board may grant a waiver from these regulations upon appropriate demonstration by the applicant as to why these regulations should not apply.
1. All runoff from new impervious surfaces and structures shall be directed to a subsurface filtration and/or infiltration device or properly discharged to a naturally occurring or fully replanted and vegetated area with slopes of 15 percent or less and with adequate controls to prevent soil erosion and concentrated flow.
 2. Impervious surfaces for parking areas and roads shall be minimized to the extent possible (including minimum parking requirements for proposed uses).
- D. The following activities are considered exempt from preparing and submitting a stormwater and land development management plan:
1. Agricultural and forestry practices in accordance with BMPs published by the NH

Department of Agriculture.

2. Resurfacing and routine maintenance of roads and parking lots.
3. Interior alterations and exterior maintenance to existing buildings and structures.

E. **Application**

1. All projects subject to these standards require the applicant to **complete an application form** and submit plans and other required documents as required below. Prior to commencement of land disturbance, the applicant must obtain written approval under this regulation.

F. Other Required Permits

In addition to local approval, copies of the following permits shall be required if applicable:

1. RSA 485-A:17 requires a permit from the New Hampshire Department of Environmental Services (NHDES) Water Supply and Pollution Control Division for "...any person proposing to significantly alter the characteristic of the terrain, in such a manner as to impede natural runoff or create an unnatural runoff ..." Regulations require this permit for any project involving more than 100,000 contiguous square feet of disturbance or if such activity occurs in or on the border of the surface waters of the state.
2. National Pollutant Discharge Elimination System (NPDES) Stormwater Discharge Permit. A permit issued by the EPA or by the State under authority delegated pursuant to 33 USC, section 1342 (b) that authorizes the discharge of pollutants to waters of the United States. For a cumulative disturbance of one (1) acre of land that EPA considers "construction activity," which includes, but is not limited to clearing, grading, excavation, and other activities that expose soil typically related to landscaping, demolition, and construction of structures and roads, a federal permit will be required. Consult EPA for specific rules. This EPA permit is in addition to any state or local permit required.

4.03 Stormwater Management for New Development

- A. All proposed stormwater management practices and treatment systems shall meet the following performance standards:
1. Stormwater management and erosion and sediment control practices shall be located outside any specified buffer zones unless otherwise approved by the Planning Board.
 2. Low Impact Development (LID) site planning and design strategies shall be used to the maximum extent practicable (MEP) to reduce stormwater runoff volumes, protect water quality, and maintain predevelopment site hydrology. LID techniques with the goals of protecting water quality, maintaining predevelopment site hydrology, LID techniques that preserve existing vegetation, reduce the development footprint, minimize or disconnect impervious area, and use of enhanced stormwater BMP's (such as rain gardens, bioretention systems, tree box filters, and similar stormwater management landscaping techniques) shall be incorporated into landscaped areas. Capture and reuse of stormwater is strongly encouraged. The applicant must document in writing why LID strategies are not appropriate when not used to manage stormwater.
 3. All stormwater treatment areas shall be planted with plantings appropriate for the site conditions: trees, grasses, shrubs and/or other plants in sufficient numbers and density to

prevent soil erosion and to achieve the water quality treatment requirements of this section. Preference should be given to native plant materials or improved cultivars of native plants.

4. All stormwater installations and areas that receive rainfall runoff must be designed to drain within a maximum of 72 hours for vector control.
 5. Salt storage areas shall be fully covered with permanent or semi-permanent measures and loading/offloading areas shall be located and designed to not drain directly to receiving waters and maintained with good housekeeping measures in accordance with NH DES published guidance. Runoff from snow and salt storage areas shall enter treatment areas before being discharged to receiving waters or allowed to infiltrate into the groundwater.
 6. Surface runoff shall be directed into appropriate stormwater control measures designed for treatment and/or filtration to the maximum extent practicable and/or captured and reused onsite.
 7. All newly generated stormwater from new development shall be treated on the development site. A development plan shall include provisions to retain stormwater on the site by using the natural flow patterns.
 8. Runoff from impervious surfaces shall be treated to achieve at least 80% removal of Total Suspended Solids (TSS) and at least 60% removal of both total nitrogen and total phosphorus using appropriate treatment measures, as specified in the NH Stormwater Manual. Volumes 1 and 2, December 2008, as amended or other equivalent means. Where practical, the use of natural, vegetated filtration and/or infiltration practices or subsurface gravel wetlands for water quality treatment is preferred given its relatively high nitrogen removal efficiency. All new impervious area draining to surface waters impaired by nitrogen, phosphorus or nutrients shall be treated with stormwater BMP's designed to optimize pollutant removal efficiencies based on design standards and performance data published by the UNH Stormwater Center and/or included in the latest version of the NH Stormwater Manual.
 9. Measures shall be taken to control the post-development peak runoff rate so that it does not exceed pre-development runoff rate. Drainage analyses shall include calculations comparing pre- and post-development stormwater runoff rates (cubic feet/second) for the 1-inch rainstorm and the 2-year, 10-year, 25-year, and 50-year 24-hour storm events. Similar measures shall be taken to control the post-development runoff volume to infiltrate the groundwater recharge volume (GR_v) in accordance with NHDES Alteration of Terrain requirements. For sites where infiltration is limited or not practicable, the applicant must demonstrate that the project will not create or contribute to water quality impairment.
 10. The design of the stormwater drainage systems shall provide for the disposal of stormwater without flooding or functional impairment to streets, adjacent properties, downstream properties, soils, or vegetation.
 11. The design of the stormwater management systems shall account for existing site hydrology, including flows originating from off-site.
 12. Whenever practicable, native site vegetation shall be retained, protected, or supplemented. Any stripping of vegetation shall be done in a manner that minimizes soil erosion.
- B. Submission Requirements for Stormwater Management Report and Plans.
1. All applications required under Section 4.02.A, shall include a comprehensive

Stormwater Management Plan (SMP). The SMP shall include a narrative description and an Existing Conditions Site Plan showing all pre-development impervious surfaces, buildings and structures; surface water bodies and wetlands; drainage patterns, sub-catchment and watershed boundaries; building setbacks and buffers, locations of various hydrologic group soil types, mature vegetation, land topographic contours with minimum 2-foot intervals and spot grades where necessary for sites that are flat.

2. The SMP shall include a narrative description and a Proposed Conditions Site Plan showing all post-development proposed impervious surfaces, buildings and structures; temporary and permanent stormwater management elements and best management practices (BMP), including BMP GIS coordinates and GIS files; important hydrologic features created or preserved the site; drainage patterns, sub-catchment and watershed boundaries; building setbacks and buffers; proposed tree clearing and topographic contours with minimum 2-foot intervals. The plans shall provide calculations and identification of the total area of disturbance proposed on the site (and off site if applicable) and total area of new impervious surface created. A summary of the drainage analysis showing a comparison of the estimated peak flow and volumes for various design storms at each of the outlet locations shall be included. For residential subdivisions meeting the threshold for applicability in Section 4.02, an allowance for individual lot development shall be included in the drainage calculations, including an allowance for impervious area as a result of lot development, and hydrologic changes as a result of ground cover changes.
3. The SMP shall describe the general approach and strategies implemented, and the facts relied upon, to meet the goals of Section 4.01 and 4.03.: The SMP shall include design plans and/or graphical sketch(es) of all proposed above ground LID practices.
4. The SMP shall include calculations of the change in impervious area, removal rates for each best management practice, and GIS files containing the coordinates of all stormwater infrastructure elements (e.g. catch basins, swales, detention/bioretenion areas, piping).
5. The SMP shall include a description and a proposed Site Plan showing proposed erosion and sediment control measures, limits of disturbance, temporary and permanent soil stabilization measures in accordance with the NHDES Stormwater Manual Volume 3 (most recent version) as well as a construction site inspection plan including temporary water quality measures, phased installation of best management practices and final inspection upon completion of construction (see Section 4.07).
6. The SMP shall include a long-term stormwater management BMP Inspection and Management Plan (see Section 4.05) that describes the responsible parties and contact information for the qualified individuals who will perform future BMP inspections. Required inspections, inspection frequency, maintenance schedule and reporting protocols shall be included.
7. The SMP shall describe and identify locations of any proposed deicing chemical and/or snow storage areas. SMP will describe how deicing chemical use will be minimized or used most efficiently.
8. In urbanized areas that are subject to the EPA MS4 Stormwater Permit and will drain to chloride-impaired waters, any new developments and redevelopment projects shall submit a description of measures that will be used to minimize salt usage, and track and report amounts applied using the UNH Technology Transfer Center online tool (<http://www.roadsalt.unh.edu/Salt/>) in accordance with Appendix H of the NH MS4 Permit.

4.04 Stormwater Management for Redevelopment

- A. Redevelopment (as applicable to this stormwater regulation) means: Construction, alteration, or improvement that disturbs existing impervious area (including demolition and removal of road/parking lot materials down to the erodible subbase) or expands existing impervious cover, where the existing land use is commercial, industrial, institutional, governmental, recreational, or multifamily residential, and the area being disturbed or added reaches the threshold of the areas indicated in Section 4.02.
- B. The following activities are not considered redevelopment:
 - Interior and exterior building renovation.
 - Resurfacing of an existing paved surface (e.g. parking lot, walkway or roadway).
 - Pavement excavation and patching that is incidental to the primary project purpose, such as replacement of a collapsed storm drain.
 - Landscaping installation and maintenance.
- C. Redevelopment applications shall comply with the requirements of Sections 4.03.B - Submission Requirements for Stormwater Management Report and Plans, and 4.05.A - General Performance Criteria for Stormwater Management Plans.
- D. For sites meeting the definition of a redevelopment project and having less than 60% existing impervious surface coverage, the stormwater management requirements will be the same as other new development projects. The applicant must satisfactorily demonstrate that impervious area is minimized, and LID practices have been implemented on-site to the maximum extent practicable.
- E. For sites meeting the definition of a redevelopment project and having more than 60% existing impervious surface area, stormwater shall be managed for water quality in accordance with one or more of the following techniques, listed in order of preference:
 - 1. Implement measures onsite that result in disconnection or treatment of 100% of the additional proposed impervious surface area and at least 30% of the existing impervious area and pavement areas, preferably using filtration and/or infiltration practices.
 - 2. If resulting in greater overall water quality improvement on the site, implement LID practices to the maximum extent practicable to provide treatment of runoff generated from at least 60% of the entire developed site area.
- F. Runoff from impervious surfaces shall be treated to achieve at least 80% removal of Total Suspended Solids and at least 60% removal of both total nitrogen and total phosphorus using appropriate treatment measures, as specified in the NH Stormwater Manual. Volumes 1 and 2, December 2008, as amended, or other equivalent means. All new impervious area draining to surface waters impaired by nitrogen, phosphorus or nutrients shall be treated with stormwater BMP's designed to optimize pollutant removal efficiencies based on design standards and performance data published by the UNH Stormwater Center and/or included in the latest version of the NH Stormwater Manual.
- G. All newly generated stormwater from redevelopment shall be treated on the development site.

4.05 Stormwater Management Plan General Performance Criteria and Site Inspections

- A. General Performance Criteria for Stormwater Management Plans:
 - 1. All applications shall apply site design practices to reduce the generation of stormwater during construction and in the post-developed condition, reduce overall impervious surface coverage, seek opportunities to capture and reuse and minimize and discharge of stormwater to the municipal stormwater management system.

2. Water Quality Protection
 - a. No stormwater runoff generated from new development or redevelopment shall be discharged directly into a jurisdictional wetland or surface water body without adequate treatment.
 - b. All developments shall provide adequate management of stormwater runoff and prevent discharge of stormwater runoff from creating or contributing to water quality impairment.
 3. Onsite groundwater recharge rates shall be maintained by promoting infiltration through use of structural and non-structural methods. Capture and reuse of stormwater runoff is encouraged in instances where groundwater recharge is limited by site conditions. All stormwater management practices shall be designed to convey stormwater to allow for maximum groundwater recharge. This shall include, but not be limited to:
 - a. Maximizing flow paths from collection points to outflow points.
 - b. Use of multiple best management practices.
 - c. Retention of and discharge to fully vegetated areas.
 - d. Maximizing use of infiltration practices.
 - e. Stormwater System Design Performance Standards.
 4. Stormwater system design, performance standards and protection criteria shall be provided as prescribed in the NHDES Alteration of Terrain program. Calculations shall include sizing of all structures and best management practices, including sizing of emergency overflow structures based on assessment of the 50-year 24-hour frequency storm discharge rate.
 5. The sizing and design of stormwater management practices shall utilize new precipitation data from the Northeast Region Climate Center (NRCC) or the most recent precipitation atlas published by the National Oceanic and Atmospheric Administration (NOAA) for the sizing and design of all stormwater management practices. See the NRCC website at <http://precip.eas.cornell.edu/>.
 6. All stormwater management practices involving bioretention and vegetative cover as a key functional component must have a landscape plan detailing both the type and quantities of plants and vegetation to be in used in the practice and how and who will manage and maintain this vegetation. The use of native plantings appropriate for site conditions is strongly encouraged for these types of stormwater treatment areas. The landscape plan must be prepared by a licensed landscape architect, or another qualified professional.
- B. The applicant shall provide that all stormwater management and treatment practices have an Inspection and Maintenance Plan in place and agreement to ensure the system will continue to function as designed. This agreement will include all maintenance easements required to access and inspect the stormwater treatment practices, and to perform routine maintenance as necessary to ensure proper functioning of the stormwater system. The operations and maintenance plan shall specify the parties responsible for the proper maintenance of all stormwater treatment practices and frequency of inspections. The Operations and Maintenance Plan shall be provided to the Planning Board as part of the application prior to issuance of any local permits for land disturbance and construction activities.
- C. The applicant shall provide legally binding documents for filing with the Registry of Deeds, which demonstrate that the obligation for maintenance of stormwater best management practices and infrastructure runs with the land and that the Town has legal access to inspect the property to ensure their proper function or maintain onsite stormwater infrastructure when

necessary to address emergency situations or conditions.

- D. The property owner shall bear responsibility for the installation, construction, inspection, and maintenance of all stormwater management and erosion control measures required by the provisions of these regulations and as approved by the Planning Board, including emergency repairs completed by the Town.

4.06 Stormwater Management Plan Recordation

- A. Stormwater management and sediment and erosion control plans shall be incorporated as part of any approved site plan. A Notice of Decision acknowledging the Planning Board approval of these plans shall be recorded at the Hillsborough County Registry of Deeds. The Notice of Decision shall be referenced to the property deed (title/book/page number) and apply to all persons that may acquire any property subject to the approved stormwater management and sediment control plans. The Notice of Decision shall reference the requirements for maintenance pursuant to the stormwater management and erosion and sediment control plans as approved by the Planning Board.
- B. The applicant shall submit as-built drawings of the constructed stormwater management system to the **Community Development Department** following construction.
- C. Easements
 - 1. Where a development is traversed by or requires the construction of a watercourse or a drainage way, an easement to the Town of adequate size to enable construction, reconstruction and required maintenance shall be provided for such purpose. Easements to the Town shall also be provided for the purpose of periodic inspection of drainage facilities and BMPs should such inspections by the Town become necessary. All easements shall be recorded at the Hillsborough County Registry of Deeds. Where stormwater management or treatment facilities are constructed outside of public rights of way, a permanent easement to the town shall be recorded to allow construction, maintenance or inspection of the facility, as well as flowage rights.

4.07 Stormwater Management During Construction

- A. Applicant must implement erosion, sediment and good housekeeping controls as prescribed in the comprehensive Stormwater Management Plan (SMP) (see Section 4.05) and reduce potential pollutants during construction activities. Best Management Practices (BMP) must be followed and shall include management of non-stormwater discharges and materials, minimization of disturbed area, phased construction activity, good housekeeping practices, containment of materials and waste, perimeter controls, control for dust and particulate generating activities, street sweeping and the protection of all storm drain inlets and slopes.
- B. Controls must be regularly inspected and maintained per schedule established in SMP but in case shall be less than every seven days and within 24 hours after a storm of 0.25 inches or greater. Any deficiencies noted shall be corrected within 24 hours.
- C. Records of inspections any corrective actions and construction activities must be maintained on site **and submitted electronically to the DPW as requested.**
- D. SMP shall be updated if necessary during construction.
- E. Achieve final site stabilization.

4.08 Inspection and Maintenance Responsibility During and After Construction

- A. Municipal staff or their designated agent shall be granted site access to complete routine inspections to ensure compliance with the approved stormwater management and sediment and erosion control plans. Such inspections shall be performed at a time agreed upon with the landowner.
 - 1. If permission to inspect is denied by the landowner, municipal staff or their designated agent may secure an administrative inspection warrant from the district or superior court under RSA 595-B Administrative Inspection Warrants. Expenses associated with inspections shall be the responsibility of the applicant/property owner.
 - 2. If violations or non-compliance with a condition(s) of approval are found on the site during routine inspections, the inspector shall provide a report documenting these violations or non-compliance including recommend corrective actions. The Town shall notify the property owner in writing of these violations or non-compliance and corrective actions necessary to bring the property into full compliance. The Planning Board, at their discretion, may recommend to the **Board of Selectmen** to issue a stop work order if corrective actions are not completed within 10 days.
 - 3. If corrective actions are not completed within a period of 30 days from the Planning Board or Board notification, the Planning Board may exercise their jurisdiction under RSA 676:4-a Revocation of Recorded Approval.
- B. The applicant shall bear final responsibility for the installation, construction, inspection, and disposition of all stormwater management and erosion control measures as required by this regulation. Site development shall not begin before the Stormwater Management Plan receives written approval by the **Planning Board**.
- C. The municipality retains the right, though accepts no responsibility, to repair or maintain stormwater infrastructure if: a property is abandoned or becomes vacant; and in the event a property owner refuses to repair infrastructure that is damaged or is not functioning properly.
- D. Landowners subject to an approved Stormwater Management Plan shall be responsible for submitting an annual report to the Planning Board by September 1 each year by a qualified professional that all stormwater management and erosion control measures are functioning per the approved stormwater management plan. The annual report shall note if any stormwater infrastructure has needed any repairs other than routine maintenance and the results of those repairs. If the stormwater infrastructure is not functioning per the approved stormwater management plan the landowner shall report on the malfunction in their annual report and include detail regarding when the infrastructure shall be repaired and functioning as approved.
- E. If no report is filed by September 1, municipal staff or their designated agent shall be granted site access to complete routine inspections to ensure compliance with the approved stormwater management and sediment and erosion control plans. Such inspections shall be performed at a time agreed upon with the landowner.



SOUTHEAST WATERSHED ALLIANCE

POST CONSTRUCTION STORMWATER MANAGEMENT STANDARDS

**Southeast Watershed Alliance
Model Stormwater Standards, 2017 update**

Prepared by the Rockingham Planning Commission
and
University of New Hampshire Stormwater Center

Draft: November, 2017

**SOUTHEAST WATERSHED ALLIANCE
POST CONSTRUCTION STORMWATER MANAGEMENT STANDARDS
FOR SITE PLAN REVIEW REGULATIONS**

ELEMENT A: Purpose and Goals

1. Purpose and Goals. The purpose of post construction stormwater management standards is to provide reasonable guidance for the regulation of stormwater runoff to protect local natural resources from degradation and prevent adverse impacts to adjacent and downstream land, property, facilities and infrastructure. These standards regulate discharges from stormwater and runoff from land development projects and other construction activities to control and minimize increases in stormwater runoff rates and volumes, soil erosion, stream channel erosion, and nonpoint source pollution associated with stormwater runoff.

The goal of these standards is to establish minimum stormwater management requirements and controls to protect and safeguard the general health, safety, and welfare of the public in the Town of { }. This regulation seeks to meet that goal through the following objectives:

- a. Minimize increases in stormwater runoff from any development to reduce flooding, siltation and streambank erosion and maintain the integrity of stream channels.
- b. Minimize increases in nonpoint source pollution caused by stormwater runoff from development which would otherwise degrade local water quality.
- c. Minimize the total volume of surface water runoff which flows from any specific site during and following development to not exceed the pre-development hydrologic condition to the maximum extent practicable as allowable by site conditions.
- d. Reduce stormwater runoff rates and volumes, soil erosion and nonpoint source pollution, wherever possible, through stormwater management controls and to ensure that these management controls are properly maintained and pose no threat to public safety or cause excessive municipal expenditures.
- e. Protect the quality of groundwater resources, surface water bodies and wetlands.

ELEMENT B: Minimum Thresholds for Applicability

Insert the following Sections #1 and #2 for SITE PLAN REVIEW REGULATIONS:

1. The post-construction stormwater management standards apply to any development or redevelopment project which are subject to Site Plan Review and disturbs more than 5,000 square feet or disturbs more than 2,500 square feet within 100 feet of a surface water body.
2. The Planning Board may grant a waiver from these regulations upon appropriate demonstration by the applicant as to why these regulations should not apply.
3. The following activities are considered exempt from these regulations:
 - i. Agricultural and forestry practices located outside wetlands and surface water setbacks and/or buffers.
 - ii. Resurfacing and routine maintenance of roads and parking lots.
 - iii. Interior and exterior building renovation that do not exceed conditions in D.1.b.

Insert the following Sections #1 and #2 for SUBDIVISION REGULATIONS:

1. The Post-Construction Stormwater Management Standards apply to subdivisions that result in creation of a private road or a road intended for adoption as a public road. All stormwater runoff generated from the proposed private or public roadway(s) and any other stormwater runoff contributing to the roadway stormwater management system(s) shall be managed and treated in full compliance with these standards.
2. For subdivisions comprising lots with frontage on existing private or public roadways, roadside drainage and any other stormwater runoff from the new lots discharging to the roadside drainage system must be managed for: stormwater runoff quantity/volume; and water quality treatment if stormwater is discharged to the municipality's drainage system subject to the EPA MS4 permit.

ELEMENT C: Stormwater Management for New Development

1. All proposed stormwater management practices and treatment systems shall meet the following performance standards.
 - a. Stormwater management and erosion and sediment control practices shall be located outside any specified buffer zones unless otherwise approved by the Planning Board. Alternatives to stream and wetland crossings that eliminate or minimize environmental impacts shall be considered whenever possible.
 - b. Low Impact Development (LID) site planning and design strategies shall be used to the maximum extent practicable (MEP) to reduce stormwater runoff volumes, protect water quality, and maintain predevelopment site hydrology. Low Impact Development (LID) techniques with the goals of protecting water quality, maintaining predevelopment site hydrology. Low Impact Development (LID) techniques that preserve existing vegetation, reduce the development footprint, minimize or disconnect impervious area, and use enhanced stormwater BMP's (such as raingardens, bioretention systems, tree box filters, and similar stormwater management landscaping techniques) shall be incorporated into landscaped areas. Capture and reuse of stormwater is strongly encouraged. The applicant must document in writing why LID strategies are not appropriate when not used to manage stormwater.
 - c. All stormwater treatment areas shall be planted with native plantings appropriate for the site conditions: trees, grasses, shrubs and/or other native plants in sufficient numbers and density to prevent soil erosion and to achieve the water quality treatment requirements of this section.
 - e. Salt storage areas shall be fully covered with permanent or semi-permanent measures and loading/offloading areas shall be located and designed to not drain directly to receiving waters and maintained with good housekeeping measures in accordance with NH DES published guidance. Runoff from snow and salt storage areas shall enter treatment areas before being discharged to receiving waters or allowed to infiltrate into the groundwater. See NHDES published guidance fact sheets on road salt and water quality, and snow disposal at <http://des.nh.gov/organization/commissioner/pip/factsheets/wmb/index.htm>.
 - f. Surface runoff shall be directed into appropriate stormwater control measures designed for treatment and/or filtration to the maximum extent practicable and/or captured and reused onsite.
 - g. All newly generated stormwater from new development shall be treated on the development site. A development plan shall include provisions to retain natural predevelopment watershed areas on the site by using the natural flow patterns.

- h. Runoff from impervious surfaces shall be treated to achieve at least 80% removal of Total Suspended Solids and at least 50% removal of both total nitrogen and total phosphorus using appropriate treatment measures, as specified in the NH Stormwater Manual. Volumes 1 and 2, December 2008, as amended or other equivalent means. Where practical, the use of natural, vegetated filtration and/or infiltration practices or subsurface gravel wetlands for water quality treatment is preferred given its relatively high nitrogen removal efficiency. All new impervious area draining to surface waters impaired by nitrogen, phosphorus or nutrients shall be treated with stormwater BMP's designed to optimize pollutant removal efficiencies based on design standards and performance data published by the UNH Stormwater Center and/or included in the latest version of the NH Stormwater Manual.
 - i. Measures shall be taken to control the post-development peak runoff rate so that it does not exceed pre-development runoff rate. Drainage analyses shall include calculations comparing pre- and post-development stormwater runoff rates (cubic feet/second) and volumes (cubic feet) for the 1-inch rainstorm and the 2-year, 10-year, 25-year, and 50-year 24-hour storm events. Similar measures shall be taken to control the post-development runoff volume to infiltrate the groundwater recharge volume (GR_v) in accordance with NH DES Alteration of Terrain requirements. For sites where infiltration is limited or not practicable, the applicant must demonstrate that the project will not create or contribute to water quality impairment.
 - j. The design of the stormwater drainage systems shall provide for the disposal of stormwater without flooding or functional impairment to streets, adjacent properties, downstream properties, soils, or vegetation.
 - k. The design of the stormwater management systems shall account for existing site hydrology, including flows originating offsite.
 - n. Whenever practicable, native site vegetation shall be retained, protected, or supplemented. Any stripping of vegetation shall be done in a manner that minimizes soil erosion.
2. Submission Requirements for Stormwater Management Report and Plans.
- a. All applications shall include a comprehensive Stormwater Management Plan (SMP). The SMP shall include a narrative description and an Existing Conditions Site Plan showing all pre-development impervious surfaces, buildings and structures; surface water bodies and wetlands; drainage patterns, sub-catchment and watershed boundaries; building setbacks and buffers, locations of various hydrologic group soil types, mature vegetation, land topographic contours with minimum 2-foot intervals and spot grades where necessary for sites that are flat.
 - b. The SMP shall include a narrative description and a Proposed Conditions Site Plan showing all post-development proposed impervious surfaces, buildings and structures; temporary and permanent stormwater management elements and best management practices (BMP), including BMP GIS coordinates and GIS files; important hydrologic features created or preserved the site; drainage patterns, sub-catchment and watershed boundaries; building setbacks and buffers; proposed tree clearing and topographic contours with minimum 2-foot intervals. The plans shall provide calculations and identification of the total area of disturbance proposed on the site (and off site if applicable) and total area of new impervious surface created. A summary of the drainage analysis showing a comparison of the estimated peak flow and volumes for various design storms (see Table 1. Stormwater Infrastructure Design Criteria) at each of the outlet locations shall be included.

- c. The SMP shall describe the general approach and strategies implemented, and the facts relied upon, to meet the goals of Element A and Element C.: The SWP shall include design plans and/or graphical sketch(es) of all proposed above ground LID practices.
 - d. The SMP shall include calculations of the change in impervious area, pollution loading and removal volumes for each best management practice, and GIS files containing the coordinates of all stormwater infrastructure elements (e.g. catch basins, swales, detention/bioretention areas, piping).
 - e. The SMP shall include a description and a proposed Site Plan showing proposed erosion and sediment control measures, limits of disturbance, temporary and permanent soil stabilization measures in accordance with the NHDES Stormwater Manual Volume 3 (most recent version) as well as a construction site inspection plan including phased installation of best management practices and final inspection upon completion of construction.
 - f. The SMP shall include a long-term stormwater management BMP inspection and maintenance plan (see Element E) that describes the responsible parties and contact information for the qualified individuals who will perform future BMP inspections. The inspection frequency, maintenance and reporting protocols shall be included.
 - g. The SMP shall describe and identify locations of any proposed deicing chemical and/or snow storage areas. SMP will describe how deicing chemical use will be minimized or used most efficiently.
 - h. In urbanized areas that are subject to the EPA MS4 Stormwater Permit and will drain to chloride-impaired waters, any new developments and redevelopment projects shall submit a description of measures that will be used to minimize salt usage, and track and report amounts applied using the UNH Technology Transfer Center online tool (<http://www.roadsalt.unh.edu/Salt/>) in accordance with Appendix H of the NH MS4 Permit.
2. General Performance Criteria for Stormwater Management Plans.
- a. All applications shall apply site design practices to reduce the generation of stormwater in the post-developed condition, reduce overall impervious surface coverage, seek opportunities to capture and reuse and minimize and discharge of stormwater to the municipal stormwater management system.
 - b. Water Quality Protection.
 - i. No stormwater runoff generated from new development or redevelopment shall be discharged directly into a jurisdictional wetland or surface water body without adequate treatment.
 - ii. All developments shall provide adequate management of stormwater runoff and prevent discharge of stormwater runoff from creating or contributing to water quality impairment.
 - c. Onsite groundwater recharge rates shall be maintained by promoting infiltration through use of structural and non-structural methods. Capture and reuse of stormwater runoff is encouraged in instances where groundwater recharge is limited by site conditions All stormwater management practices shall be designed to convey stormwater to allow for maximum groundwater recharge. This shall include, but not be limited to:
 - i. Maximizing flow paths from collection points to outflow points.
 - ii. Use of multiple best management practices.
 - iii. Retention of and discharge to fully vegetated areas.

- iv. Maximizing use of infiltration practices.
 - v. Stormwater System Design Performance Standards.
- d. Stormwater system design, performance standards and protection criteria shall be provided as prescribed in Table 1 below. Calculations shall include sizing of all structures and best management practices, including sizing of emergency overflow structures based on assessment of the 100-year 24-hour frequency storm discharge rate.
 - e. The sizing and design of stormwater management practices shall utilize new precipitation data from the Northeast Region Climate Center (NRCC) or the most recent precipitation atlas published by the National Oceanic and Atmospheric Administration (NOAA) for the sizing and design of all stormwater management practices. See the NRCC website at <http://precip.eas.cornell.edu/>.
 - f. All stormwater management practices involving bioretention and vegetative cover as a key functional component must have a landscaping plan detailing both the type and quantities of plants and vegetation to be in used in the practice and how and who will manage and maintain this vegetation. The use of native plantings appropriate for site conditions is strongly encouraged for these types of stormwater treatment areas. The landscape plan must be prepared by a licensed landscape architect, soil conservation district office, or another qualified professional.
3. Spill Prevention, Control and Countermeasure (SPCC) Plan.
- Any existing or otherwise permitted use or activity having regulated substances in amounts greater than five gallons, shall submit to the local official such as Fire Chief, Emergency Response Official a SPCC plan for review and approval. The Plan will include the following elements:
- a. Disclosure statements describing the types, quantities, and storage locations of all regulated substances that will be part of the proposed use or activity.
 - b. Owner and spill response manager's contact information.
 - c. Location of all surface waters and drainage patterns.
 - d. A narrative describing the spill prevention practices to be employed when normally using regulated substances.
 - e. Containment controls, both structural and non-structural.
 - f. Spill reporting procedures, including a list of municipal personnel or agencies that will be contacted to assist in containing the spill, and the amount of a spill requiring outside assistance and response.
 - g. Name of a contractor available to assist in spill response, contaminant, and cleanup.
 - h. The list of available clean-up equipment with instructions available for use on-site and the names of employees with adequate training to implement containment and clean up response.

ELEMENT D: Stormwater Management for Redevelopment

- 1. Redevelopment (as applicable to this stormwater regulation) means:
 - a. Any construction, alteration, or improvement that disturbs existing impervious area (including demolition and removal of road/parking lot materials down to the erodible subbase) or expands existing impervious cover by any amount, where the existing land use is commercial, industrial,

institutional, governmental, recreational, or multifamily residential.

- b. Any redevelopment activity that results in improvements with no increase in impervious area shall be considered redevelopment activity under this regulation if capital cost of improvements is greater than 30% of the appraised property value.
- c. Any new impervious area over portions of a site that are currently pervious.

The following activities are not considered redevelopment:

- Interior and exterior building renovation that do not exceed conditions in D.1.b.
 - Resurfacing of an existing paved surface (e.g. parking lot, walkway or roadway).
 - Pavement excavation and patching that is incidental to the primary project purpose, such as replacement of a collapsed storm drain.
 - Landscaping installation and maintenance.
2. Redevelopment applications shall comply with the requirements of Sections C.2 Submission Requirements for Stormwater Management Report and Plans, C.3 General Performance Criteria for Stormwater Management Plans, and C.4 Spill Prevention, Control and Countermeasure (SPCC) Plan.
 3. For sites meeting the definition of a redevelopment project and having less than 60% existing impervious surface coverage, the stormwater management requirements will be the same as other new development projects. The applicant must satisfactorily demonstrate that impervious area is minimized, and LID practices have been implemented on-site to the maximum extent practicable.
 4. For sites meeting the definition of a redevelopment project and having more than 60% existing impervious surface area, stormwater shall be managed for water quality in accordance with one or more of the following techniques, listed in order of preference:
 - a. Implement measures onsite that result in disconnection or treatment of 100% of the additional proposed impervious surface area and at least 30% of the existing impervious area and pavement areas, preferably using filtration and/or infiltration practices.
 - b. If resulting in greater overall water quality improvement on the site, implement LID practices to the maximum extent practicable to provide treatment of runoff generated from at least 60% of the entire developed site area.
 5. Runoff from impervious surfaces shall be treated to achieve at least 80% removal of Total Suspended Solids and at least 50% removal of both total nitrogen and total phosphorus using appropriate treatment measures, as specified in the NH Stormwater Manual. Volumes 1 and 2, December 2008, as amended or other equivalent means. All new impervious area draining to surface waters impaired by nitrogen, phosphorus or nutrients shall be treated with stormwater BMP's designed to optimize pollutant removal efficiencies based on design standards and performance data published by the UNH Stormwater Center and/or included in the latest version of the NH Stormwater Manual.

Option to Allow for Off-Site Mitigation:

1. In cases where the applicant demonstrates, to the satisfaction of the planning board, that on-site treatment has been implemented to the maximum extent possible or is not feasible, off-site mitigation will be an acceptable alternative if implemented within the same subwatershed, within the project's drainage area or within the drainage area of the receiving water body. To comply with local watershed objectives the mitigation site would be preferably situated in the same subwatershed as the development and impact/benefit the same receiving water.

2. Off-site mitigation shall be equivalent to no less than the total area of impervious cover NOT treated on-site. Treatment of the impervious area shall comply with all standards of this regulation.
3. An approved off-site location must be identified, the specific management measures identified, and if not owned by the applicant, with a written agreement with the property owner(s) and an implementation schedule developed in accordance with planning board review. The applicant must also demonstrate that there is no downstream drainage or flooding impacts that would result from not providing on-site management for large storm events.

ELEMENT E: Stormwater Management Plan and Site Inspections

1. The applicant shall provide that all stormwater management and treatment practices have an inspection and maintenance plan in place and agreement to ensure the system will continue to function as designed. This agreement will include all maintenance easements required to access and inspect the stormwater treatment practices, and to perform routine maintenance as necessary to ensure proper functioning of the stormwater system. The operations and maintenance plan shall specify the parties responsible for the proper maintenance of all stormwater treatment practices. The operations and maintenance shall be provided to the Planning Board as part of the application prior to issuance of any local permits for land disturbance and construction activities.
2. The applicant shall provide legally binding documents for filing with the registry of deeds which demonstrate that the obligation for maintenance of stormwater best management practices and infrastructure runs with the land and that the Town has legal access to inspect the property to ensure their proper function or maintain onsite stormwater infrastructure when necessary to address emergency situations or conditions.
3. The property owner shall bear responsibility for the installation, construction, inspection, and maintenance of all stormwater management and erosion control measures required by the provisions of these regulations and as approved by the Planning Board, including emergency repairs completed by the town.

ELEMENT F. Stormwater Management Plan Recordation

1. Stormwater management and sediment and erosion control plans shall be incorporated as part of any approved site plan. A Notice of Decision acknowledging the Planning Board approval of these plans shall be recorded at the Registry of Deeds. The Notice of Decision shall be referenced to the property deed (title/book/page number) and apply to all persons that may acquire any property subject to the approved stormwater management and sediment control plans. The Notice of Decision shall reference the requirements for maintenance pursuant to the stormwater management and erosion and sediment control plans as approved by the Planning Board.
2. The applicant shall submit as-built drawings of the constructed stormwater management system following construction.
3. Easements: Where a development is traversed by or requires the construction of a watercourse or a drainage way, an easement to the Town of adequate size to enable construction, reconstruction and required maintenance shall be provided for such purpose. Easements to the Town shall also be

provided for the purpose of periodic inspection of drainage facilities and BMPs should such inspections by the Town become necessary. All easements shall be recorded at the County Registry of Deeds. Where stormwater management or treatment facilities are constructed outside of public rights of way, a permanent easement to the town shall be recorded to allow construction, maintenance or inspection of the facility, as well as flowage rights.

ELEMENT G. Inspection and Maintenance Responsibility

1. Municipal staff or their designated agent shall be granted site access to complete routine inspections to ensure compliance with the approved stormwater management and sediment and erosion control plans. Such inspections shall be performed at a time agreed upon with the landowner.
 - a. If permission to inspect is denied by the landowner, municipal staff or their designated agent shall secure an administrative inspection warrant from the district or superior court under RSA 595-B Administrative Inspection Warrants. Expenses associated with inspections shall be the responsibility of the applicant/property owner.
 - b. If violations or non-compliance with a condition(s) of approval are found on the site during routine inspections, the inspector shall provide a report to the Planning Board documenting these violations or non-compliance including recommend corrective actions. The Planning Board may notify the property owner in writing of these violations or non-compliance and corrective actions necessary to bring the property into full compliance. The Planning Board, at their discretion, may recommend to the Board of Selectmen to issue a stop work order if corrective actions are not completed within 10 days.
 - c. If corrective actions are not completed within a period of 30 days from the Planning Board or Board notification, the Planning Board may exercise their jurisdiction under RSA 676:4-a Revocation of Recorded Approval.
2. The applicant shall bear final responsibility for the installation, construction, inspection, and disposition of all stormwater management and erosion control measures required by the Planning Board. Site development shall not begin before the Stormwater Management Plan receives written approval by the Planning Board.
3. The municipality retains the right, though accepts no responsibility, to repair or maintain stormwater infrastructure if: a property is abandoned or becomes vacant; and in the event a property owner refuses to repair infrastructure that is damaged or is not functioning properly.

OPTIONAL STANDARD

4. Landowners subject to an approved Stormwater Management Plan shall be responsible for submitting an annual report to the Planning Board or other designated responsible municipal entity by September 1 each year by a qualified professional that all stormwater management and erosion control measures are functioning per the approved stormwater management plan. The annual report shall note if any stormwater infrastructure has needed any repairs other than routine maintenance and the results of those repairs. If the stormwater infrastructure is not functioning per the approved stormwater management plan the landowner shall report on the malfunction in their annual report and include detail regarding when the infrastructure shall be repaired and functioning as approved.

If no report is filed by September 1, municipal staff or their designated agent shall be granted site access to complete routine inspections to ensure compliance with the approved stormwater management and sediment and erosion control plans. Such inspections shall be performed at a time agreed upon with the landowner.

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For reference:

Table 1. Stormwater Infrastructure Design Criteria

Design Criteria	Description										
Water Quality Volume (WQV)	$WQV = (P)(R_v)(A)$ P = 1 inch of rainfall R _v = unitless runoff coefficient, $R_v = 0.05 + 0.9(I)$ I = percent impervious cover draining to the structure converted to decimal form A = total site area draining to the structure										
Water Quality Flow (WQF)	$WQF = (q_u)(WQV)$ WQV = water quality volume calculated as noted above q _u = unit peak discharge from TR-55 exhibits 4-II and 4-III Variables needed for exhibits 4-II and 4-III: I _a = the initial abstraction = 0.2S S = potential maximum retention in inches = $(1000/CN) - 10$ CN = water quality depth curve number $= 1000 / (10 + 5P + 10Q - 10[Q^2 + 1.25(Q)(P)]^{0.5})$ P = 1 inch of rainfall Q = the water quality depth in inches = WQV/A A = total area draining to the design structure										
Groundwater Recharge Volume (GRV)	$GRV = (A_i)(R_d)$ A _i = the total area of effective impervious surfaces that will exist on the site after development R _d = the groundwater recharge depth based on the USDA/NRCS hydrologic soil group, as follows: <table style="margin-left: 40px;"> <thead> <tr> <th>Hydrologic Group</th> <th>R_d (inches)</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>0.40</td> </tr> <tr> <td>B</td> <td>0.25</td> </tr> <tr> <td>C</td> <td>0.10</td> </tr> <tr> <td>D</td> <td>0.00</td> </tr> </tbody> </table>	Hydrologic Group	R _d (inches)	A	0.40	B	0.25	C	0.10	D	0.00
Hydrologic Group	R _d (inches)										
A	0.40										
B	0.25										
C	0.10										
D	0.00										
Channel Protection Volume (CPV)	If the 2-year, 24-hour post-development storm volume <u>does not increase</u> due to development then: control the 2-year, 24-hour post-development peak flow rate to the 2-year, 24-hour predevelopment level. If the 2-year, 24-hour post-development storm volume <u>does increase</u> due to development then: control the 2-year, 24-hour post-development peak flow rate to ½ of the 2-year, 24-hour pre-development level or to the 1-year, 24-hour pre-development level.										
Peak Control	Post-development peak discharge rates shall not exceed pre-development peak discharge rates for the 10-year and 50-year, 24-hour storms										
EIC and UDC	$\%EIC = \text{area of effective impervious cover} / \text{total drainage areas within a project area} \times 100$ $\%UDC = \text{area of undisturbed cover} / \text{total drainage area within a project area} \times 100$										

[After: NH DES Stormwater Manual: Volume2 Post-Construction Best Management Practices Selection & Design (December 2008)]

Submitted by:

With editorial comments and revisions incorporated from Bill Arcieri (VHB), Steve Keach (Keach-Nordstrom), and Jennifer Rowden (RPC).

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