

**CITY OF NEWTON**  
**Stormwater Management and Erosion Control Rules & Regulations**  
**Draft 04/04/22 Adopted \_\_\_\_\_**

**SECTION 1: AUTHORITY**

- A. These Rules and Regulations have been adopted by the Commissioner of the Department of Public Works in accordance with Chapter 29 of the Revised Ordinances of the City of Newton, Massachusetts, and will be administered by the City Engineer through the Engineering Division.
- B. Nothing in these Rules and Regulations is intended to replace or be in derogation of the requirements of the City of Newton's Floodplain/Watershed Ordinance (Ch. 22, Article II Sec. 22), the City of Newton's Zoning Ordinance (Ch. 30), or any other ordinance adopted by the City of the Newton. Any project or activity subject to the provisions of the above-cited Ordinances or related Rules and Regulations must comply with the specifications of each.
- C. These Rules and Regulations may be periodically amended by the Commissioner of the Department of Public Works in accordance with the procedures outlined in Ch. 29-149 of Newton's Stormwater Management and Erosion Control Ordinance, hereinafter referenced as the Stormwater Management Ordinance.
- D. Waivers. The Commissioner of Public Works, as delegated to the City Engineer may waive strict compliance with any of the requirements of the City of Newton Stormwater Management and Erosion Control Rules and Regulations (hereinafter referenced as the Stormwater Management Rules and Regulations), if it finds that strict application of some of the requirements is unnecessary or impracticable because of the size or character of the development project or because of the natural conditions at the site. Waivers may only be granted for projects disturbing less than 1 acre of land. Any applicant requesting a waiver must submit a written request for such a waiver. Such a request shall be accompanied by an explanation and documentation supporting the waiver request.

**SECTION 2: PURPOSE**

- A. The City's stormwater management system is strained by increased volumes of runoff from more frequent and higher intensity storms. Compounding the issue is a trend of increasing impervious areas and elevated grades around new structures limiting natural infiltration. Further, stormwater runoff from impervious surfaces is the greatest source of pollution to Newton's ponds, lake, and waterways. Development proposals provide an inconsistent level of detail, making review and analysis challenging.
- B. The purpose of these regulations is to clarify administration of Newton's Stormwater Management Ordinance, in order to achieve its objectives to:
  1. Limit land clearing and alteration of natural topography prior to (re)development.
  2. Prevent soil erosion and sedimentation resulting from construction.
  3. Promote filtration, infiltration, and the recharge of groundwater, and limit additional stormwater flow into the City's drainage system.
  4. Minimize flooding.
  5. Improve water quality.
  6. Prevent alteration or destruction of aquatic resources and wildlife habitat.
  7. Prevent clogging and pollution entering municipal catch basins and storm drainage systems.
  8. Establish a mechanism by which the City can meet the requirements of its National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer (Drainage) System (MS4) permit.

**SECTION 3: DEFINITIONS**

- A. All definitions are provided in Appendix A of these Rules and Regulations.
- B. These definitions apply to the Stormwater Management Ordinance and these Rules and Regulations.
- C. Terms not defined in the Stormwater Management Ordinance or Appendix A of these Rules and Regulations shall be construed according to their customary and usual meaning unless the context indicates a special or technical meaning.

#### **SECTION 4: APPLICABILITY**

These Rules and Regulations apply to all projects or activities subject to Ch. 29-148(c) the Applicability Section of the Stormwater Management Ordinance. All projects or activities referenced in Ch. 29-148 and not falling under an exception listed in Ch 29-148(d) shall require a Stormwater Management Permit in accordance with the Stormwater Management Ordinance.

Projects and/or activities within the jurisdiction of the Stormwater Management Ordinance must obtain a Stormwater Management Permit (SMP) from the City Engineer in accordance with the permit procedures and requirements defined in Sections 5 through 9 of these Rules and Regulations.

No work on a project within the jurisdiction of the City's Stormwater Management Ordinance may commence without a SMP or waiver from the City Engineer. Work commenced without an approved permit or waiver can result in an enforcement action and/or fines.

A. Exemptions. Notwithstanding Section 4.B, no SMP shall be required by the City Engineer for:

- 1) Normal maintenance and improvement of land for the primary purpose of agriculture, horticulture, floriculture, or viticulture, or the use, expansion, or reconstruction of existing structures for the primary purpose of agriculture, horticulture, floriculture, or viticulture, to the extent protected under the Zoning Act, M.G.L Chapter 40A, Section 3.
- 2) Normal maintenance of existing landscaping, gardens, or lawn areas.
- 3) Milling, excavating and replacement, including widening less than a single lane, adding shoulders, and correcting substandard intersections of existing pavement.
- 4) Overlaying of existing pavement, with no increase in impervious area.
- 5) Construction of a fence that does not alter the existing terrain or drainage patterns.
- 6) Drain connections declared necessary by the Commissioner of Public Works to remove groundwater and stormwater inflow from the sanitary sewer.
- 7) Emergency activities necessary for the protection of the health and safety of the public, provided that: (a) the work is to be performed by or has been ordered by an agency of the Commonwealth of Massachusetts or a political subdivision thereof, (b) advance notice, oral or written, has been given to the Commissioner of Public Works prior to commencement of work or within 24 hours after commencement, (c) the Commissioner certifies the work as an emergency activity, and (d) the work is performed only for the time and place certified by the Commissioner of Public Works for the limited purposes necessary to abate the emergency.
- 8) Maintenance, repair or replacement of an existing and lawfully located structure or facility used in the service of the public to provide electric, gas, water, sewer, drainage, telephone, telegraph or other telecommunication services, provided that applicable permits are obtained.

- 9) Maintenance, repair or replacement of existing stormwater infrastructure or stormwater Best Management Practices (BMPs) provided that: (a) there is no alteration of the existing terrain or drainage patterns; (b) there is no increase in the size or capacity of over 25%; (c) there is no change in the drainage area contributing to the system; and (d) best practical measures are utilized to avoid any negative impacts on stormwater quality or runoff rate or volume.
- 10) Normal maintenance of City-owned public land, rights-of-way, public utilities, and appurtenances, including roadway reconstruction.
- 11) Any work or projects for which all necessary approvals and permits, including building permits, have been issued before the effective date of the City of Newton's Stormwater Management Ordinance.
- 12) Activities that are temporary in nature, have negligible impacts, and are necessary for planning and design purposes (e.g., installation of monitoring wells, exploratory borings, sediment sampling, surveying and percolation tests).

**B. A Land Disturbance Stormwater Management Permit** is required for the following activity, as stated in Ch. 29-148(c).

1. Projects that will or could disturb over 5,000 square feet (SF) of land (i.e., the limit of work line encompasses over 5,000 SF of land).

**C. A Minor Stormwater Management Permit** is required for any one or more of the following activities, as stated in Ch.29-148(c):

1. Any residential development or redevelopment up to 4 units, provided the land disturbance is less than 0.5-acre.
2. Any residential, commercial, industrial, institutional, or municipal alteration, development or redevelopment creating 401 to 1,000 SF of new impervious area.
3. The construction of a new retaining wall, unless already approved by Special Permit (per Zoning Sec. 5.4.2).
4. Trench excavation that requires dewatering.

**D. A Major Stormwater Management Permit** is required for any alteration, disturbance, development, or redevelopment exceeding the thresholds listed above for Land Disturbance or Minor Stormwater, as stated in Ch. 29-148(c).

## SECTION 5: DESIGN STANDARDS

**A.** All SMP applications must clearly illustrate compliance with the following standards.

1. Calculate and depict prominently on the plans: the existing and proposed impervious surface areas. This information shall be included as a table with other zoning information.
2. Grading. Topographic contours shall be shown at 1-foot intervals on plans. Changes in grading of the land must demonstrate to the City Engineer's satisfaction that there will be no net increase in stormwater runoff to abutting properties or the City's stormwater drainage system. Changes to landforms (i.e., ledge removal, blasting) shall be avoided and where necessary conducted to minimize land disturbance and avoid negative impacts to adjacent properties.

3. Retaining walls. In order to prevent potential flooding caused by the construction of a retaining wall, any proposed retaining wall shall be designed and constructed so as not to block or exacerbate any existing stormwater or groundwater flow patterns to or from abutting properties, as well as to or from the city's right of way.
4. Tree removal. Preserving healthy trees is encouraged due to the many benefits trees provide. Existing condition plans shall identify and note the sizes of all trees eight (8) inches dbh and larger on the subject property. Trees 8 inches dbh and larger that are proposed for cutting shall be clearly identified as such on a plan sheet. A clearly illustrated replacement planting plan shall be provided on a proposed condition plan sheet. Protected trees shall be replaced with an appropriate quantity of trees equaling the caliper inches lost due to development, in accordance with the City's Tree Preservation Ordinance<sup>1</sup>, unless the project is exempt from compliance with the Tree Ordinance. If unable to meet this replacement policy the applicant may contribute to the City's tree fund.
5. Groundwater Intrusion: The bottom (underside) of the basement slab must be 1-foot above the seasonal high groundwater elevation as determined by a Soil Evaluator licensed in Massachusetts or determine the seasonal high groundwater table using Frimpter Method<sup>2</sup>.
6. Erosion and Sedimentation Control. Sediment that washes off construction sites and into the City's catch basins, ponds, lake, and wetlands has considerable cost and ecological implications for the City. Runoff, erosion, and sediment control are important at every phase of the construction process. Implementing and maintaining the right control practice saves money, time and the environment. The application will be evaluated on the following criteria.
  - a) Minimize disturbance of natural vegetation wherever possible. This is the best and most economical control measure.
  - b) Control stormwater runoff and minimize soil erosion potential during construction. Divert flows around exposed soils, material stockpiles and slow down stormwater flows.
  - c) Control soil movement and retain sediment within the 'limits of work' during and after construction. These measures may include but are not limited to perimeter controls such as straw wattles and silt fence, stabilized construction entrances/exits, sediment basins, catch basin silt sacks, proper dewatering practices (as needed).
  - d) Stabilize disturbed soils, particularly unvegetated slopes, during any lapse in construction and immediately post-construction.
  - e) Include a note (on the plans) for the contractor to regularly inspect and maintain the erosion and sediment controls measures. See additional note requirement in Section 6.B.
  - f) Construction phasing or sequencing is encouraged for larger projects (e.g.,  $\geq 2$  acres).

**B. Minor Stormwater Management Permits.** In addition to Section 5.A above, all projects subject to a Minor Stormwater Management Permit shall be designed to the following standards.

1. Stormwater management systems for new development and redevelopment sites shall be designed to retain the volume of runoff equivalent to, or greater than, two (2) inches multiplied by the *net increase* in impervious surface area on the site, except for projects that propose to tear

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<sup>1</sup> Newton's [Tree Preservation Ordinance](#)

<sup>2</sup> Frimpter Method: [https://www.usgs.gov/centers/new-england-water/science/updating-a-method-estimate-probable-high-groundwater-levels?qt-science\\_center\\_objects=0#qt-science\\_center\\_objects](https://www.usgs.gov/centers/new-england-water/science/updating-a-method-estimate-probable-high-groundwater-levels?qt-science_center_objects=0#qt-science_center_objects)

down, dismantle, or remove a primary structure from its existing location such that a majority of the structural elements are replaced, in which case retaining two inches of runoff for the total of all impervious surfaces is required (not the net).

2. There must be a minimum two-foot separation between the bottom of any stormwater management system and seasonal high groundwater.
3. Stormwater infiltration systems shall be design with the following setbacks:
  - a) A minimum of 10 feet from any building.
  - b) A minimum of 50 feet from any slope greater than 15%. A variance may be allowed if an impermeable barrier is installed.
4. Proposals must analyze, propose, and implement Low Impact Development (LID) Best Management Practices (BMPs), unless proven in writing to the satisfaction of the City Engineer to be infeasible. See Appendix B for LID BMPs. If infeasible, Applicants shall demonstrate reasons why LID BMPs are infeasible and demonstrate compliance with design standards through generally accepted methods.
5. Soils tests must be conducted by a Soil Evaluator licensed in Massachusetts and must be performed within 25 feet of the location of every proposed infiltration BMPs and LID technique, to clearly identify soil descriptions, depth to estimated seasonal high groundwater, depth to bedrock, and soil texture. Any soil test conducted between the months of June and February must also be accompanied by a determination of the seasonal high groundwater table using Frimpter Method<sup>3</sup>.
6. Drainage Design: Drainage calculations shall be performed for existing site conditions (pre-development) and proposed site conditions (post-development) based on proposed site plans. Storms of 2, 10, 25, and 100-year frequency events shall be analyzed to demonstrate no net increase in stormwater runoff volume or peak flow for any storm event. The rainfall amounts used shall be based on the 1998 Cornell University Study, NOAA Atlas 14 Volume 10 Point Precipitation Frequency Estimates for Newton.

Note: the 100-year design storm is based on 8.78 inches of precipitation in 24 hours. For purposes of choosing a Runoff Curve Number, all pervious lands on the Site shall be assumed prior to development to be in “good” hydrologic condition regardless of conditions existing at the time of computation. All drainage calculations shall be stamped by a Registered Professional Civil Engineer.

7. Infiltration systems shall be designed to drain fully within 72 hours.
8. Plan submission requirements are detailed in Section 6 – Application Requirements and Procedures.

**C. Major Stormwater Management Permits. In addition to Section 5.A. and 5.B., above, all projects subject to a Major Stormwater Management Permit shall be designed to meet the following additional standards.**

1. All projects triggering the thresholds for a Major Stormwater Permit must meet the minimum pollutant removal requirements and on-site stormwater volume retention requirements identified

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<sup>3</sup> Frimpter Method: [https://www.usgs.gov/centers/new-england-water/science/updating-a-method-estimate-probable-high-groundwater-levels?qt-science\\_center\\_objects=0#qt-science\\_center\\_objects](https://www.usgs.gov/centers/new-england-water/science/updating-a-method-estimate-probable-high-groundwater-levels?qt-science_center_objects=0#qt-science_center_objects)

in C.3 and C.4 below; if due to site conditions this is technically infeasible, then the Applicant may request a waiver (waivers are only applicable for projects less than 1 acre).

2. Projects shall comply with the Stormwater Standards of the most recent version of Massachusetts Stormwater Management Handbook (Handbook)<sup>4</sup>, and the City of Newton General Construction Detail Book and Streets Design Guide. Where an inconsistency exists between the Handbook and these Regulations, the stricter shall apply.
3. Stormwater management systems on **new development** sites shall be designed to:
  - a) Retain the volume of runoff equivalent to, or greater than, two (2) inches multiplied by the total post-construction impervious surface area on the site; and
  - b) Remove 90% of the average annual load of Total Suspended Solids generated from the total post-construction impervious area on the site; and
  - c) Calculate the existing and proposed average annual Total Phosphorus (TP) load based on the land use(s) and demonstrate 60% reduction of the TP load generated from the total post-construction impervious surface area on the site; and
  - d) Whenever feasible exceed the above minimum phosphorus removal<sup>5</sup> requirement. Infiltration BMPs, bioretention areas, constructed stormwater wetlands, and filter systems are recommended ways to reduce phosphorus in stormwater discharges.
4. Stormwater management systems on **redevelopment** sites shall be designed to improve existing conditions by:
  - a) Retain the volume of runoff equivalent to, or greater than, two (2) inches multiplied by the total post-construction impervious surface area on the site; and
  - b) Remove 80% of the average annual load of Total Suspended Solids generated from the total post-construction impervious area on the site; and
  - c) Calculate the existing and proposed average annual Total Phosphorus load based on the land use(s) and demonstrate 50% reduction of the average annual TP load generated from the total post-construction impervious surface area on the site; and
  - d) Whenever feasible exceed the minimum total phosphorus removal<sup>2</sup> requirement. Infiltration BMPs, bioretention areas, constructed stormwater wetlands, and filter systems are recommended ways to reduce phosphorus in stormwater discharges.
5. To support compliance with the City's MS4 Permit, all new stormwater management BMPs located on commercial and industrial property shall incorporate shutdown and containment in the

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<sup>4</sup> Massachusetts Stormwater Handbook, as most recently updated.

<http://www.mass.gov/eea/agencies/massdep/water/regulations/massachusetts-stormwater-handbook.html>

<sup>5</sup> The required removal percentages are not required for each storm, it is the average removal over a year that is required. Pollutant removal shall be calculated consistent with EPA Region 1's Opti-Tool found here; <https://www.epa.gov/tmdl/opti-tool-epa-region-1s-stormwater-management-optimization-tool>, Or use the performance curves in the MS4 Permit, Appendix F, Attachment 3, found here: <https://www3.epa.gov/region1/npdes/stormwater/ma/2016fpd/appendix-f-attach-3-2016-ma-sms4-gp-mod.pdf>.

design to isolate the drainage system in the event of an emergency spill or other unexpected event.

6. To support the City's efforts to remove illicit sewer connections and discharges to our drainage system, the applicant shall confirm no illicit connections / discharges are present for projects where the sewer and storm drain infrastructure remain on site.

## **SECTION 6: APPLICATION REQUIREMENTS AND PROCEDURES FOR STORMWATER MANAGEMENT PERMITS**

### **A. All Stormwater Management Permits (SMP) Applications**

1. One (1) completed Stormwater Management Permit Application Form with the following:
  - a) Name, contact information, and original signatures of owner(s), Applicant(s), and, if applicable, representative.
  - b) Address of property and parcel ID.
  - c) Project description.
  - d) Site plan reference(s).
  - e) Signature of Applicant, property owner (if different), and representative, if applicable.
  - f) Payment of the Application fee.
2. Supporting engineering plans for a SMP shall include the materials as specified in this section.

### **B. Land Disturbance Permit Submission Requirements**

1. In addition to the signed, completed application, the Applicant shall provide a brief narrative explaining the purpose of the proposed land disturbance.
2. A Site Plan denoting property lines, existing buildings, existing and proposed trees (clearly noting any trees to be cut), existing and proposed edge of lawn and ground cover materials and existing and proposed topographic contours. This plan shall be stamped and signed by a Professional Civil Engineer (PE) licensed in the Commonwealth of Massachusetts and/or Professional Land Surveyor (PLS).
3. Methods to minimize the potential for soil erosion and control soil / sediment from leaving the property shall be depicted on the Site Plan.

### **C. Minor Permit Submission Requirements**

1. In addition to the signed, completed permit application, the Applicant shall provide: one (1) set of full-size plans, stapled, and rolled; plus, an electronic copy (pdf) provided on a flash drive. Additional copies may be requested by the City Engineer.
2. A Stormwater Management Site Plan that may be prepared by drafting or hand sketching, depending on project size and complexity, at the discretion of the City Engineer, to include:
  - a) General Information:

- (1) Sheet size: Sheets shall have a maximum dimension of 24" x 36" and formatted for landscape layout. Large plans should be rolled rather than folded. If more than one sheet is needed to describe the proposed work, a key sheet is required showing a general composite of all work proposed.
  - (2) Scale: Not more than 1" = 40' (the Engineering Division routinely accepts plans at 1" = 20' or 1" = 40'). If project sites are large, an overall site plan at 1" = 100' is acceptable, but detailed plans must be at or less than 1" = 40'. Include graphical scales on all plans. Coordinate system shall be 1983 North American Datum, Massachusetts State Plane, feet, and North American Vertical Datum (NAVD) of 1988.
  - (3) Title Block: A title block shall be included on all plans, located at the lower right-hand corner, oriented to be read from the bottom when bound at the left margin. Include:
    - (a) Plan title.
    - (b) Original date plus additional space to reference the title and dates of all plan revisions.
    - (c) Name and address of record owner and engineer and/or surveyor.
    - (d) Address of property, Assessor Map and Parcel ID.
  - (4) Legend: Include legend identifying line types and symbols used in plan set
  - (5) Locus Map.
- b) An Existing Conditions Plan containing the following:
- (1) Property lines.
  - (2) The existing zoning, and land use at the site and abutting properties.
  - (3) The location(s) of existing easements.
  - (4) The location of existing utilities.
  - (5) Existing contours at 1-foot minimum vertical increments.
  - (6) Existing landscaping and vegetation including all existing trees within 25 feet of the work area that are over 8 inches in diameter breast height (dbh) and major vegetative cover types, including wooded areas defined by tree line drip line, shrub communities, limits of lawn, and edge of tree canopy.
  - (7) Locations of existing structures, pipes, swales, and detention ponds.
  - (8) Locations of bodies of water, including wetlands.
  - (9) A delineation of FEMA Special Flood Hazard areas and calculation of FEMA flood elevation, if applicable. Floodplain elevation data shall be based on 1988 NAVD (North American Vertical Datum) and reference the appropriate National Flood Insurance Rate Map and/or Flood Study.
  - (10) Location of existing septic systems, monitoring and private wells, if present.
  - (11) The location(s) of soil tests and description of soil from test pits performed at the location of proposed stormwater management facilities, including but not limited to soil description, depth to seasonal high groundwater table (SHGWT), depth to bedrock, and



percolation rates. Soils and the SHGWT elevation shall be based on site test pits logged by a Soil Evaluator licensed in Massachusetts.

- (12) The existing vegetation (e.g., lawn area, mature trees, etc.) and ground surfaces with runoff coefficients for each.
  - (13) Stamp and signature of a Professional Civil Engineer (PE) licensed in the Commonwealth of Massachusetts and/or Professional Land Surveyor (PLS).
- c) A Proposed Conditions Plan containing the following:
- (1) Property lines, building envelope restrictions and/or easement areas, including areas affected by conservation restrictions, if applicable.
  - (2) Proposed improvements including location of buildings or other structures, utilities, easements, etc., if applicable, and impervious surfaces. For single family homes plans shall show, at a minimum, house footprint, decks, garages, sheds, roof drainage and stormwater drainage structures, as applicable) and all areas of existing and proposed impervious areas: including tennis courts, patios, and driveways, etc.
  - (3) **Proposed total impervious surface areas in square feet**, shown as a table with comparison to existing impervious surface area conditions.
  - (4) FEMA Flood Hazard areas and Newton Floodplain Ordinance areas, if applicable.
  - (5) Limit of work.
  - (6) Proposed grading for work area. Proposed contours at 1-foot vertical increments.
  - (7) Locations for storage of materials, equipment, soil, snow, and other potential pollutants.
  - (8) A note on the plan indicating the Contractor shall sequence construction activities to avoid stockpiling materials and soil compaction where proposed stormwater BMPs will be located.
  - (9) Location(s) and description of existing stormwater conveyances, impoundments, wetlands, drinking water resource areas, or other critical environmental resource areas on or adjacent to the site or into which stormwater flows.
  - (10) Proposed drainage facilities (plan view and details) including drawings of all components of the proposed stormwater management system including:
    - 1. Locations, cross sections, and profiles of all brooks, streams, drainage swales and their method of stabilization.
    - 2. All measures for the detention, retention, or infiltration of water.
    - 3. All measures for the protection of water quality.
    - 4. For engineered systems designed to provide drainage or stormwater management including, but not limited to, culverts, drainage outfalls, catch basins and pervious pavement 'systems'; provide an appropriate plan detail with notes on drawings specifying materials to be used, and construction specifications.

5. Notes indicating the required inspections for the site and the stormwater drainage facilities during construction.
  - (11) Proposed landscaping, vegetation, and ground surfaces. When trees 8-inches dbh and larger are proposed for cutting, a clearly illustrated planting plan shall be provided. The replacement planting plan shall comply with the City's Tree Preservation Ordinance (see footnote 1). If it is not feasible to plant the required number of trees, an applicant may propose a combination of trees and shrubs for approval.
  - (12) Locations where stormwater discharges to surface water (include all roads, drains and other structures that could carry stormwater to a wetland or other water body, on or offsite).
  - (13) A general construction note stating the Engineering Division Inspector shall be notified 48 hours prior to any site work in accordance with project permits.
  - (14) Stamp and signature of a Professional Civil Engineer (PE) licensed in the Commonwealth of Massachusetts to certify that the Stormwater Management Plan is in accordance with the criteria established in the Stormwater Regulations; a stamp and signature of a Professional Land Surveyor (PLS) is acceptable if no drainage facilities are proposed and they have the experience and capability to prepare the required Site Plan and to provide the required existing and proposed grading and erosion control provisions.
4. The Erosion and Sediment Control Plan shall demonstrate that erosion will be minimized, and sediment contained. The plan shall include, at a minimum, the following:
  - c) Estimates of the total area expected to be disturbed by excavation, grading, or other construction activities, including dedicated off-site borrow and fill areas.
  - d) Location and design of all proposed soil erosion and sediment control measures.
  - e) Pollution control measures to be implemented during construction to mitigate pollutants from entering the public right of way and storm drains. Consider construction and waste materials expected to be stored on-site, describe source control and storage methods to minimize exposure of the materials to stormwater.
  - f) Location of anti-tracking area at each construction entrance or other means to minimize off-site tracking of soil and sediment onto paved surfaces.
  - g) Means to protect all existing drainage infrastructure (i.e., catch basins) and proposed drainage infrastructure from clogging during construction. For projects anticipated to encounter or manage groundwater, show proposed dewatering operations, including proposed locations of discharge and related details.
  - h) Location of proposed construction stockpiling areas with appropriate erosion and sediment control measures.
  - i) The intended sequence and timing of activities that disturb soils at the site and the general sequence during the construction process in which the erosion and sediment control measures will be implemented. Or include this note on the plan: "The contractor shall sequence construction activities to minimize the potential for soil, stone or sediment to migrate off-site; divert flows around bare soils, to the maximum extent practicable; stabilize unvegetated areas as soon as practical and prevent pollutants from entering the City's storm drainage system."

- j) Measures to control wastes, including discarded building materials, concrete truck wash-out, chemicals, litter, and sanitary wastes during construction and prevent the discharge of these and any solid material to Newton's MS4 or waters of the United States, unless authorized by a permit issued under Section 404 of the Clean Water Act.
  - k) Where a site is located in whole or in part within the floodplain, a Floodplain Contingency Plan shall be included with the Erosion and Sediment Control Plan. This Plan shall describe the steps necessary to stabilize the site during construction in the event of a possible flood. A possible flood shall be defined as period when a flood watch is declared for the Charles River by the National Weather Service.
5. A Stormwater Management Report shall be prepared in conformance with the Design Standards contained in Section 5 and contain the following elements:
- a) The existing site hydrology.
  - a) A drainage area map showing pre- and post-construction watershed boundaries, drainage area and stormwater time of concentration (Tc) flow paths, including drainage system flows.
  - b) 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 (CN) based on land use and soil hydrologic group.
    - (iv) Peak runoff rates and total runoff volumes for each watershed area.
    - (v) Infiltration rates, where applicable.
    - (vi) Culvert capacities, where applicable.
    - (vii) Flow velocities.
    - (viii) Data on the rate and volume of runoff for the specified design storms.
    - (ix) Documentation of sources for all computation methods and field test results.
  - c) If a project requires a Stormwater Pollution Prevention Plan (SWPPP) per the NPDES General Permit for Storm Water Discharges from Construction Activities (applicable to construction sites that disturb one or more acres of land), then the Applicant is required to submit a complete copy of the SWPPP (including the signed Notice of Intent and approval letter) as part of its Application for a SMP.
6. Post Construction Operation and Maintenance Plan (O&M)
- a) The Post-Construction O&M Plan shall be designed to ensure compliance with the SMP, the Stormwater Management Ordinance and these Rules and Regulations 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 O&M Plan shall be a stand-alone document and shall remain on file with the Engineering Division and shall be an ongoing requirement.
  - b) The Post-Construction O&M Plan shall include, at a minimum:

- i. The name(s) of the owner(s) for all components of the system and emergency contact information.
- ii. The signature(s) of the owner(s).
- iii. The names and addresses of the person(s) currently responsible for O&M.
- iv. An Inspection and Maintenance Schedule for all stormwater management facilities including routine and non-routine maintenance tasks to be performed.
- v. A reduced size plan or map clearly showing the location of the systems and facilities including easements, catch basins, manholes/access lids, main, and stormwater devices.
- vi. If applicable, a list of easements necessary for the construction and O&M of the stormwater system, with the purpose and location of each. Easements shall be recorded with the South Middlesex County Registry of Deeds prior to issuance of a Stormwater Management Certificate of Compliance by the Engineering Division.
- vii. O&M inspection schedule and log form.
- viii. Provisions for the, City Engineer or his/her designee to enter the property at reasonable times and in a reasonable manner for the purpose of inspection.

#### **D. Major Permit Submission Requirements**

In addition to all the requirements for a Minor Stormwater Permit, provide:

1. A Project Narrative that includes a description of the proposed project and a description of how and where stormwater will be controlled and erosion and sedimentation controls implemented, and an explanation of how the proposed project:
  - a) Meets the Design Standards enumerated in Section 5C.
  - b) Meets the Stormwater Standards outlined in the Massachusetts Stormwater Handbook<sup>6</sup>;
  - c) Attempt to reproduce natural hydrologic conditions with respect to groundwater and surface water.<sup>7</sup>
  - d) Include square footage summaries indicating square footage of work area as well as existing, proposed, and net changes in impervious surface areas.

### **SECTION 7: ADMINISTRATION**

- A.** Administration of Rules and Regulations. The City Engineer through its Engineering Division shall administer, implement, and enforce these Rules and Regulations.
- B.** Stormwater Management Permit Application Approval Process.

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<sup>6</sup> Massachusetts Stormwater Handbook, as most recently updated.  
<http://www.mass.gov/eea/agencies/massdep/water/regulations/massachusetts-stormwater-handbook.html>

<sup>7</sup>Guidance on these practices is provided in Appendix C of these Regulations and the MA Stormwater Management Handbook.

Actions by the City Engineer / Engineering Division:

1. **Determination of Completeness:** The City Engineer shall review the Stormwater Management Permit Application for completeness with the requirements and standards of Sections 5 through 8 within fifteen (15) business days of receipt.
2. **Incomplete Applications:** If the City Engineer determines the Application is incomplete, including, but not limited to, insufficient information to describe the site, the work, or the effect that work has on water quality and runoff volume, the Engineering Division may reject the application, require the submission of additional information, or deny the Permit.
3. **Complete Applications.** Each Application for a Stormwater Management Permit Application that is determined to be a complete Application shall be reviewed by the City Engineer. The Application shall be acted upon within fifteen (15) business days of the date that the Engineering Division determines that the Application is complete unless such Application has been withdrawn from consideration. The Engineering Division may:
  - a) Approve the Permit Application upon finding that the proposed project will meet the objectives of the Stormwater Management Ordinance and the Design Standards.
  - b) Approve the Permit Application with conditions, modifications and/or restrictions that are required to ensure that the project will protect water resources and meets the objectives of the Stormwater Management Ordinance and the Design Standards.
  - c) Deny the Permit Application due to non-compliance with Design Standards (in Section 5) or insufficient information to make a determination.

**C. Plan Changes.**

The Applicant must notify the City Engineer, in writing, of any proposed change to or alteration of the site plans and details authorized in any Stormwater Management Permit before any change or alteration is made. Proposed changes are only considered approved by the Engineering Division if the changes are *noted in writing by the Engineering Division and/or revised plans / documents are stamped approved by the Engineering Division*. If the Engineering Division determines that a proposed change or alteration is significant, based on the Design Standards in Section 5 of these Rules and Regulations and accepted construction practices, it may require an amended Application be filed.

**D. Expiration of Permits and Permit Extensions.**

1. Should a land-disturbing project or activity associated with an approved plan in accordance with this City Ordinance not begin within one (1) year following permit issuance, the permit shall lapse and should the Applicant wish to continue with the previously approved plan, the Applicant must re-apply for a new permit.
2. If the project associated with an approved Stormwater Management Permit granted under the Ordinance has not been completed within three (3) years of permit issuance, a new permit or a permit extension will be required by the Engineering Division. The Engineering Division may require revisions to the project to comply with current regulations and standards as a condition of the permit extension.
3. Applicants may request permit extensions in one (1) year increments.

**E. Project Completion.** A Stormwater Management Certificate of Compliance (SMCC) is required for completion of all Minor and Major Stormwater Management Permits. Upon request by the permittee and following review and approval that all work of the permit has been satisfactorily completed in

conformance with the Stormwater Management Ordinance and Permit, the Engineering Division will issue a Stormwater Management Certificate of Compliance. (See Section 10 for details.)

## **SECTION 8: PRE-CONSTRUCTION NOTICE and CONSTRUCTION INSPECTIONS**

### **A. Pre-Construction Meetings and Site Inspections.**

1. **Pre-Construction Meeting:** Once a permit has been approved, the Engineering Division may require a pre-construction meeting prior to starting any clearing, excavation, construction, or land-disturbing activity by the Applicant. The Applicant's technical representative, the general contractor, or any other person with authority to make changes to the project, shall meet with the Engineering Division or its representative to review construction sequencing and the permitted plans and their implementation.
2. **Notice of Construction Commencement:** The Applicant must notify the Engineering Division City Engineer two (2) business days prior to the commencement of any construction or land disturbance activities. In addition, the Applicant must notify the assigned Engineering Division inspector two business (2) days prior to construction of any stormwater management structural Best Management Practices (BMPs).
3. **Initial Site Inspection:** An inspection may be made of erosion and sedimentation controls prior to any land-disturbance to assess overall effectiveness and functioning to protect resources

### **B. Construction-Period Inspections.**

1. Upon issuance of any Stormwater Management Permit, and until issuance of a SMCC, representatives from the Engineering Division and their designees shall be granted the right to enter the property at reasonable times and in a reasonable manner for the purpose of inspection.
2. The Engineering Division may, at a minimum, inspect the project site at the following stages:
  - a) Prior to any vegetation clearing and upon installation of all soil erosion and sediment control measures. Periodic inspections will be made thereafter to ensure the durability and function of these measures.
  - b) **Stormwater Management System Excavation Inspection:** The Engineer of Record shall inspect the excavation of the stormwater management system(s) to ensure adequate separation of the stormwater system from ground water. This is required for Major Stormwater Permits and highly encouraged for Minor Stormwater Permits.
  - c) **Stormwater Management System Inspection:** An inspection will be made prior to backfilling of any underground drainage or stormwater conveyance structures and management.
  - d) The City Engineer may require the submission of periodic inspections and reporting by the Applicant as dictated by site conditions. Inspections must be completed by qualified persons approved by the Engineering Division.

- C. Post-Construction Inspection.** The Engineering Division shall inspect the site and all stormwater infrastructure / BMPs to confirm its "as-built" features and full compliance with all approved plans and permit conditions, including final site stabilization.

## **SECTION 8: STANDARD CONDITIONS**

- A. A copy of the approved and signed plans and permits shall always be kept on the construction site.
- B. Notes indicating the required inspections must appear on the final approved Site Plan(s).
- C. Post-Construction Annual Reporting on O&M of Stormwater Management System for Major Stormwater Permits only. Annual stormwater management systems inspection reports shall be submitted to the Engineering Division by January 15<sup>th</sup> of the following year. Inspection reports *including photographs or videos* (as appropriate) for stormwater management systems shall include:
  - 1. The date of inspection.
  - 2. Name of inspector.
  - 3. The condition of each BMP including components such as:
    - a) Pretreatment devices.
    - b) Vegetation or filter media.
    - c) Spillways, valves, or other control structures.
    - d) Embankments and slopes.
    - e) Inlet and outlet channels and structures.
    - f) Underground drainage.
    - g) Sediment and debris accumulation in storage and forebay areas (including catch basins).
    - h) Any nonstructural practices.
    - i) Any other item that could affect the proper function of the stormwater management system.
  - 4. Description of the need for maintenance.
  - 5. Observations of any physical changes to system in comparison with the approved as-built plan.

#### **SECTION 9: STORMWATER MANAGEMENT CERTIFICATE OF COMPLIANCE (SMCC)**

- A. Upon completion of the work done under any minor or major stormwater management activity, the permittee shall request a final inspection and submit the following: Note: Land disturbance only permits do not require a certificate of compliance.

The permittee shall submit:

- 1. A written request for a Stormwater Management Certificate of Compliance from the Engineering Division.
- 2. As-built plans detailing all aspects of the construction project including the stormwater management systems, structures, and devices, as installed. As-built plans shall be stamped by a Registered Professional Engineer.
- 3. A letter from the Engineer of Record indicating that the constructed facility(s) have been constructed in accordance with, and meet the requirements of, the Stormwater Management

Permit, including compliance with performance standards for Best Management Practices (BMPs) as noted in manufacturer's literature and/or EPA's performance curves in the NPDES Small MS4 Permit.

4. Proof of recording the Operations and Maintenance Plan at the South Middlesex Registry of Deeds.
- B.** After receipt of a written request for a Stormwater Management Certificate of Compliance, as-built plans, and a letter from the Engineer of Record, the Engineering Division shall inspect the stormwater management system to confirm its "as-built" features, determine if the site has been stabilized and determine whether to issue a Stormwater Management Certificate of Compliance.
1. The Engineering Division shall issue a Stormwater Management Certificate of Compliance upon finding that the permit and all its conditions have been complied with.
  2. The Engineering Division shall not issue a Stormwater Management Certificate of Compliance upon physical evidence of operational failure, even though it was built as called for the Engineering Plans. In such a case, the Engineering Division shall have the right to require corrections or improvements to the "as-built" system before issuing a Stormwater Management Certificate of Compliance.

**SECTION 10: SECURITY**

- A.** As part of any Minor or Major Stormwater Management Permit issued, in addition to any security required by another municipal or state board, agency or official, the Engineering Division may require that the performance and observance of the conditions imposed hereunder be secured wholly or in part by a proper bond or deposit of money or negotiable securities or the undertaking of financial responsibility sufficient in the opinion of the Engineering Division, to be released in whole or in part upon issuance of a SMCC for work performed pursuant to the Permit.

**SECTION 12: SEVERABILITY**

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

**END OF NEWTON'S STORMWATER MANAGEMENT ORDINANCE RULES AND REGULATIONS**

**APPENDICES FOLLOW**



**APPENDIX A: DEFINITIONS**

For the purposes of these rules and regulations, which supplement the ordinance, the following words and phrases shall have the meanings respectively ascribed to them by this section:

***Abutter:*** Any property owner whose land directly abuts the land upon which work is being proposed.

***Applicant:*** Any "person", as defined in the ordinance, who has filed an application for a Stormwater Management and Erosion Control Permit.

***Engineer of Record:*** The registered professional civil engineer (P.E.) who seals/stamps drawings, reports, or documents for a project on behalf of the owner/developer. The seal/stamp shall acknowledge that the professional engineer prepared, coordinated, or had subordinates prepare under the direct supervision of the professional engineer, drawings, reports, or documents for a project, all in accordance with the standards of the civil engineering profession.

***Estimated seasonal high groundwater:*** The shallowest depth to free groundwater that stands in an unlined borehole or test pit.

***Erosion and sediment control:*** The prevention or reduction of the movement of soil particles or rock fragments.

***Existing lawn:*** Grass area which has been maintained and mowed in the previous two years.

***Fill:*** The placement or deposit of any material that raises, either temporarily or permanently, the elevation of any area subject to the Ordinance, and rules and regulations.

***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.

***General construction detail book:*** The latest version of general construction details promulgated by the City of Newton's Department of Public Works, which is available from the Engineering Division.

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

***Hooded catch basin:*** A catch basin that is fitted with an inverted elbow over its outlet pipe or similar structure that is designed to retain oils and other floatables (solids or liquids) within the catch basin sump and prevent them from flowing into the drainage system.

**New development:** Any construction or disturbance of land that is currently in a natural vegetated state. New development also includes any disturbance beyond existing impervious and disturbed areas that is contiguous to redevelopment projects.

**Pervious material:** Soil Types that are listed as Class I, II and III soils as defined in 310 CMR 15.243 and 15.244 based upon the general soil classification used by the U.S. Department of Agriculture and depicted in the Soil Textural Triangle.

**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.

**Redevelopment:** Any construction, land alteration, demolition or improvement of impervious surfaces that does not meet the definition of new development. The following activity is excluded from this definition: Maintenance and improvement of existing roadways, including widening less than a single lane, adding shoulders, and correcting substandard intersections and drainage, repaving, and adding sidewalks and curbing.

**Resource area:** Any area protected under including without limitation: the Massachusetts Wetlands Protection Act, Massachusetts Rivers Act, or City of Newton General Wetlands Protection Ordinance.

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

**Slope:** The incline of a ground surface expressed as a ratio of horizontal distance to vertical distance (*e.g.*, a 4h:1v slope). It can also be expressed as a percentage of the vertical rise divided by the horizontal distance (*e.g.*, a twenty-five (25) percent slope).

**Total phosphorus (TP):** Phosphorus is a nutrient commonly contaminating stormwater, derived from the natural decay of plant material and human activities. Total phosphorus is a measure of all forms of phosphorus, dissolved and suspended particulate found in a sample.

**Total suspended solids (TSS):** Total Suspended Solids. Material, including but not limited to trash, debris, and sand suspended in stormwater runoff.

## APPENDIX B: LOW IMPACT DEVELOPMENT PRACTICES

Low Impact Development (LID) strategies use careful site design and decentralized stormwater management to reduce the environmental footprint of new growth and redevelopment. This approach improves water quality, minimizes the need for expensive pipe and pond stormwater systems, and creates more attractive developments. The following are LID strategies and various benefits of implementation.

1. Bioretention cells, commonly known as rain gardens, are small-scale, landscaped depressions containing plants and a soil mixture that absorbs and filters runoff.

Management Objectives:

- Provide quality treatment.
- Remove suspended solids, metals, nutrients.
- Increase groundwater recharge through infiltration.
- Reduce peak discharge rates and total runoff volume.

2. Permeable and porous pavements allow water to soak through the paved surface into the ground beneath. Permeable pavement encompasses a variety of mediums including porous concrete and asphalt, plastic grid systems and interlocking paving bricks.

Management Objectives:

- Reduce stormwater runoff volume from paved surfaces.
- Reduce peak discharge through infiltration.
- Reduce pollutant transport through direct infiltration.
- Improve site landscaping benefits (grass pavers).

3. Grass swales are broad, open channels sown with erosion resistant and flood tolerant grasses.

Management Objectives:

- Provide water quality treatment; remove suspended solids; heavy metals, trash.
- Reduce peak discharge rate and total runoff volume.
- Infiltrate water into the ground.
- Provide a location for snow storage.

4. Infiltration Trenches and Dry Wells These are standard stormwater management structures that store water in the void space between crushed stone or gravel; the water slowly percolates downward into the subsoil.

Management Objectives:

- Remove suspended solids, heavy metals trash, oil, and grease.
- Reduce peak discharge rate and total runoff volume.
- Provide modest infiltration and recharge.
- Provide snow storage areas.

5. Grass Filter Strips are low-angle vegetated slopes designed to treat sheet flow runoff from adjacent impervious areas.

Management Objectives:

- Remove suspended solids, heavy metals, trash, oil, and grease.

Reduce peak discharge rate and total runoff volume.  
 Provide modest infiltration and recharge.  
 Provide snow storage areas.

6. Roadway and Parking Lot Design:

Management Objectives:

Remove suspended solids, heavy metals trash, oil, and grease.  
 Reduce peak discharge rate and total runoff volume.  
 Provide modest infiltration and recharge.  
 Provide snow storage areas.

7. Cisterns and rain barrels harvest and store rainwater collected from roofs [Note: not to be used as part of measures to meet minimum recharge volumes]:

Management Objectives:

Storing and diverting runoff.  
 Reduce flooding and erosion caused by stormwater runoff.  
 They contain no salts or sediment which provides "soft" chemical-free water for garden or lawn irrigation, reducing water bills and conserving municipal water supplies.

8. Other LID Implementations:

Shared Driveways  
 Green Roofs  
 Blue Roofs  
 Tree box filters  
 Eliminating curbs and gutters or minimizing in new construction.  
 Soil Amendments.  
 Creating long flow paths over landscaped areas.  
 Creating terraces and check dams.  
 Pervious pavers.  
 Infiltration, Filtration
 

- Rain gardens.
- Disconnected downspouts (not on hills).
- Filter Mitts.

9. Low Impact Landscaping:

Native, drought tolerant species.  
 Turf area conversion (shrubs, etc.).  
 Encouraging longer grass length.  
 Planting wildflower meadows rather than turf along medians.

### Conservation Development

Like LID, Conservation Development tries to mitigate the effects of urbanization, but it places additional emphasis on protecting aquatic habitat and other natural resources. Conservation Development subdivisions are characterized by compact clustered lots surrounding a common open space.

Conservation Development's goal is to disturb as little land area as possible while simultaneously allowing for the maximum number of residences permitted under zoning laws.

Prior to new construction, conservation developers evaluate natural topography, natural drainage patterns, soils, and vegetation. They deploy stormwater Best Management Practices to help prevent flooding and protect natural hydrology. By maintaining natural hydrological processes, Conservation Development creates conditions that slow, absorb, and filter stormwater runoff onsite.

Because future development threatens valuable natural features, Conservation Development provides specific provisions for long-term and permanent resource protection. Conservation easements, transfer of development rights, and other "in perpetuity" mechanisms ensure that protective measures are more than just temporary.

### **Effective Site Design**

The goals of Effective (or Better) Site Design are to reduce impervious cover, preserve natural lands, and capture stormwater onsite. To meet these goals, designers employ a variety of methods. To reduce impervious cover, they narrow streets and sidewalks, minimize cul-de-sacs, tighten parking spaces, and reduce the size of driveways and housing lots.

To reduce stormwater runoff, designers preserve natural lands, using them as buffer zones along streams, wetlands, and steep slopes. They employ landscaping techniques that flatten slopes and preserve native vegetation and clusters of trees. They create bio-retention areas - open channels, filter strips and vegetated swales - to increase stormwater infiltration, helping to protect streams, lakes, and wetlands.