



West Newbury

**Town of West Newbury Planning Board
Stormwater Management Regulations**

**Adopted by the West Newbury Planning Board
On December 21, 2021**

Proposed Revision April 19, 2023

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Section 1. Purpose

The purpose of these Stormwater Regulations is to protect, maintain and enhance public health, safety, environment, and general welfare by establishing minimum requirements and procedures to control the adverse effects of increased runoff, decreased ground water recharge, erosion and sedimentation, and nonpoint source pollution associated with new development and redevelopment of land, pursuant to the Town of West Newbury Stormwater Management Bylaw.

These Stormwater Management Regulations (Regulations) have been developed to provide reasonable guidance for the regulation of project design, construction, and post-development stormwater runoff, for the purpose of protecting local water resources from degradation. It is in the public interest to regulate construction and post-development stormwater runoff discharges in order to control and minimize increases in stormwater runoff rates and volumes, soil erosion and sedimentation, stream channel erosion, and nonpoint source pollution associated with construction site and post-development stormwater runoff.

Section 2. Definitions

- A. All definitions provided in the Town of West Newbury Stormwater Management Bylaw shall apply to these Regulations. Terms not defined in the Bylaw are included below.
- B. Additional definitions:

ALTERATION OF DRAINAGE CHARACTERISTICS: Any activity on an area of land that changes the water quality, force, direction, timing or location of runoff flowing from the area. Such changes include: change from distributed runoff to confined or discrete discharge, change in the volume of runoff from the area; change in the peak rate of runoff from the area; and change in the recharge to groundwater on the area.

AS-BUILT DRAWING: Drawings that completely record and document applicable aspects and features of conditions of a project following construction using Stormwater Management Plans derived from a Stormwater Management Permit.

CERTIFICATE OF COMPLETION (COC): A document issued by the Stormwater Authority after all construction activities have been completed and a final report has been submitted, which states that all conditions of an issued Stormwater Management Permit have been met and that a project has been completed in compliance with the conditions set forth in the permit.

CLEARING: Any activity that removes the vegetative surface cover of land.

COMMON PLAN OF DEVELOPMENT: A contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under one plan.

CONSTRUCTION AND WASTE MATERIALS: Excess or discarded building or site materials, demolition debris, concrete truck washout, chemicals, litter and/or sanitary waste at a construction site that may adversely impact water quality.

DISCHARGE OF POLLUTANTS: The addition from any source of any pollutant or combination of pollutants into the municipal storm drain system or into the Waters of the Commonwealth from any source.

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

ESTIMATED HABITAT OF RARE WILDLIFE AND CERTIFIED VERNAL POOLS: Habitats delineated for state-protected rare wildlife and certified vernal pools under the Wetlands Protection Act Regulations (310 CMR 10.00, et seq.) and the Forest Cutting Practices Act Regulations (304 CMR 11.00, et seq.).

ILLICIT DISCHARGE: Direct or indirect discharge to the municipal storm drain system or into a watercourse or the Waters of the Commonwealth that is not composed entirely of stormwater.¹

LAND USE WITH HIGHER POTENTIAL POLLUTANT LOAD (LUHPPL): Land uses such as auto salvage yards, auto fueling facilities, exterior fleet storage yards, vehicle service and equipment cleaning areas, commercial parking lots with high intensity use, road salt storage areas, outdoor storage and loading areas of hazardous substances, confined disposal facilities and disposal sites, marinas, boat yards or other uses as identified by the Massachusetts Stormwater Handbook.

LOT: An area of land in single ownership with definite boundaries, established by a recorded plan or deed, including a lot created by combining several previously recorded lots, and used or available for use as the site of one or more buildings or for any other purpose. For the purposes of these regulations, a lot also refers to an area of a leasehold on a larger parcel of land, as defined in the lease agreement and shown by approximation on the Assessor's Map.

MS4 REGULATED AREA (also known as NPDES PHASE II REGULATED AREA): The area within West Newbury identified by the U.S. Environmental Protection Agency (EPA) as an area subject to coverage under the National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems in Massachusetts (MS4 Permit). The boundaries of the MS4 Regulated Area are revised by EPA for each MS4 Permit cycle (typically every five years).²

OUTFALL: The point at which stormwater flows out from a point source discernible, confined and discrete conveyance into Waters of the Commonwealth.

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, watercourse or Waters of the Commonwealth. Pollutants include, but are not limited to:

- Paints, varnishes, and solvents;
- Oil and other automotive fluids;

¹ See Board of Health Regulation: <https://www.wnewbury.org/board-public-health/files/prohibiting-illicit-connections-and-discharge>

² See MS4 Regulated Area map at: <https://www.wnewbury.org/bylaws-policy-procedures>

- Nonhazardous liquid and solid wastes and yard wastes;
- Refuse, rubbish, garbage, litter, or other discarded or abandoned objects, ordnance, accumulations and floatables;
- Pesticides, herbicides, and fertilizers;
- Hazardous materials and wastes;
- Sewage, fecal coliform and pathogens;
- Dissolved and particulate metals;
- Animal wastes;
- Rock, sand, salt, soils;
- Construction wastes and residues; and
- Noxious or offensive matter of any kind.

POST-CONSTRUCTION: Synonymous with Post-Development, the conditions that reasonably may be expected or anticipated to exist after completion of the land development activity in accordance with approved plans on a specific site or tract of land. Post-construction refers to the phase of a new development or redevelopment project after completion and does not refer to the construction phase of a project.

PRE-CONSTRUCTION: All activity in preparation for construction.

PRIORITY HABITAT OF RARE SPECIES: Habitats delineated for rare plant and animal populations protected pursuant to the Massachusetts Endangered Species Act (M.G.L. c. 131A) and its regulations.

PROJECTS OR ACTIVITIES: Any alteration, disturbance, clearing, grading, excavation, development, or redevelopment that will disturb land surface area equal to or greater than 1 acre (43,560 square feet).

SLOPE: The incline of a ground surface expressed as a ratio of horizontal distance to vertical distance.

SOIL: Any earth, sand, rock, gravel, or similar material.

STABILIZATION: The use, singly or in combination, of mechanical, structural, or vegetative methods, to prevent or minimize erosion.

STORMWATER AUTHORITY: Town of West Newbury Planning Board or its authorized agent(s).

STORMWATER MANAGEMENT PLAN: A document containing narrative, drawings, details and reporting requirements developed by a qualified Professional Engineer (PE) licensed in the Commonwealth of Massachusetts which describes structural and non-structural best management practices designed to control the discharge of pollutants from impervious surfaces and onsite activities as well as the volume and peak rate of surface runoff from a site on an ongoing basis after construction has been completed.

VERNAL POOLS: Temporary bodies of freshwater which provide critical habitat for a number of vertebrate and invertebrate wildlife species. Certified vernal pools have received official certification by the Massachusetts Natural Heritage and Endangered Species Program (NHESP). Potential vernal pools have not been certified but were identified by NHESP based on interpretation of aerial photographs.

WATERCOURSE: A natural or man-made channel through which water flows or a stream of water, including a river, brook or underground stream.

WATERS OF THE COMMONWEALTH: All waters within the jurisdiction of the Commonwealth, including, without limitation, rivers, streams, lakes, ponds, springs, impoundments, estuaries, wetlands, coastal waters, and groundwater and Waters of the United States as defined under the Federal Clean Water Act (33 U.S.C. § 1251, et seq.) as hereafter amended.

WETLAND RESOURCE AREA: Areas specified in the Massachusetts Wetlands Protection Act M.G.L. c. 131, § 40.

Section 3. Authority

- A. The Stormwater Regulations have been adopted by the Stormwater Authority in accordance with the Town of West Newbury Stormwater Bylaw.
- B. The Stormwater Authority may periodically amend these regulations pursuant to Section 7 of the Stormwater Bylaw and other relevant provisions of the General Bylaws of the Town of West Newbury.
- C. Nothing in these Regulations is intended to replace or be in derogation of the requirements of the Town of West Newbury Zoning Bylaw, Subdivision Control Law or any other Town of West Newbury Bylaw or Rules and Regulations adopted thereunder.

Section 4. Administration

- A. The Stormwater Authority under the Town of West Newbury Stormwater Bylaw shall administer, implement, and enforce these regulations. Any powers granted to or duties imposed upon the Stormwater Authority may be delegated in writing by the Stormwater Authority to its employees, or agents including other town departments and staff.
- B. Waiver. Following a public meeting on a written waiver request, the Stormwater Authority may, at its discretion, waive strict compliance with any requirement of these regulations, if it finds that:
 - (1) Application of some of the requirements is unnecessary or impracticable because of the size or character of the development activity or because of the natural conditions at the site;
 - (2) The project is consistent with the purpose and objectives of the Stormwater Management Bylaw; and
 - (3) The project provides substantially the same level of protection to the public health, safety, environment, and general welfare of the Town as required by the Stormwater Management Bylaw.

Section 5. Applicability

- A. These Regulations apply to all projects or activities subject to the Applicability Section of the

Town of West Newbury Stormwater Management Bylaw. Projects and/or activities within the jurisdiction of the Bylaw must obtain a Stormwater Management Permit (SMP) from the Stormwater Authority in accordance with the permit procedures and requirements defined in these Regulations.

No work on a project within the jurisdiction of the Bylaw may commence without a Stormwater Management Permit issued by the Stormwater Authority. If work commences without approval, enforcement action and/or fines may be pursued. Activities listed in Section 6 of the Bylaw are exempt from these Regulations.

- B. These Regulations establish two categories of Stormwater Management Permits (Tier One and Tier Two), each with distinct procedures and performance standards. The following criteria shall apply for determining eligibility for Tier One and Tier Two Stormwater Management Permit categories:
 - (1) Tier One: All projects and activities that are located, partially or fully, inside West Newbury's MS4 Regulated Area. For areas outside West Newbury's MS4 Regulated Area, all projects and activities except those that are eligible for a Tier Two permit.
 - (2) Tier Two: Projects or activities located fully outside West Newbury's MS4 Regulated Area that are associated with single- and two-family housing and will have a total land disturbance of less than 4 acres.
- C. Applicants eligible for Tier Two Stormwater Management Permits may choose to apply instead for a Tier One Stormwater Management Permit.

Section 6. Procedures

- A. Permit Required. A permit must be obtained prior to the commencement of a disturbance activity that may result in the disturbance of an area of one acre or more, or activities that are part of a larger common plan of Development disturbing one acre or more. A Stormwater Management Permit must be obtained prior to issuance of a building permit.
- B. Application. A completed application for a Stormwater Management Permit shall be filed with the Stormwater Authority. The required contents of Tier One and Tier Two permit applications are detailed in Appendix C and Appendix D, respectively. Applicants shall file one (1) copy of the Application Form with the Town Clerk and include proof of filing with the application package filed with the Stormwater Authority.
- C. Information Requests. The Applicant shall submit all additional information requested by the Stormwater Authority to issue a decision on the application.
- D. Determination of Completeness. The Stormwater Authority shall make a determination as to the completeness of the application and adequacy of the materials submitted. No review shall take place until the application is determined complete.
- E. Fees. Each application must be accompanied by the appropriate application fee, as detailed in Appendix E of these Regulations. The application may be subject to additional consultant fees as authorized in Section 6.F.

F. Employment of Outside Technical Consultants. In accordance with M.G.L. c. 44, §53G, as amended, the Stormwater Authority may impose project review fees for those applications which require the services of outside consultants for the review process due to the size, complexity, or scale of a proposed project; the need for additional expertise in the review; inspection services, or because of the potential impacts of a project. The Stormwater Authority may engage engineers, or other appropriate professionals to perform a peer review and project inspections at the Applicant's expense.

- (1) Fee Payment. The Stormwater Authority shall determine the amount of the initial deposit to be made and the amount of any additional funds that may be required during the review process. The Applicant shall pay such fees to the Town of West Newbury and such fees shall be deposited in a special account with the Town.
- (2) The Stormwater Authority shall notify the Applicant in writing of its selection of a consultant prior to engaging the services of a consultant. See Section 6.F.(6) for Administrative Appeals.
- (3) Expenditure of Fees. Outside consultants retained by the Stormwater Authority shall be paid from this special account. The expenditure of said fees shall be at the direction of the Stormwater Authority, without further appropriation. Said fees are to be expended only in connection with services rendered for the specific project for which the fees were collected.
- (4) Excess Fees. After completion of the Stormwater Authority review of a project, any excess fee amount, including interest, shall be refunded to the Applicant or the Applicant's successor in interest and a final report of said account shall be made available to the Applicant or Applicant's successor in interest.
- (5) Failure to Pay Fee. Failure to pay a Review Fee by the Applicant shall be grounds for disapproval of the subject Application.
- (6) Administrative Appeals. The choice of a consultant selected by the Stormwater Authority for the review of an application may be appealed in writing to the Select Board by the Applicant, provided such appeal is initiated within two weeks of the date of issuance of the Stormwater Authority's written notification of selection of the consultant. The Select Board shall hold a public hearing on any such appeal within thirty (30) days of receipt of the appeal. The grounds for such an appeal shall be limited to claims that the consultant selected has a conflict of interest or does not possess the minimum required qualifications.
- (7) The required time limits for action upon an application by the Stormwater Authority shall be extended by the duration of the administrative appeal. In the event that no decision is made by the Select Board within one month following the filing of an Administrative Appeal, the selection made by the Stormwater Authority shall stand.
- (8) W-9 Form. The Applicant shall be responsible for filing a completed W-9 Form with the Stormwater Authority in order to facilitate the opening of the consultant fee account.

G. Entry. By filing an application for a permit, the Applicant grants the Stormwater Authority permission to enter the site to verify the information in the application and to inspect for

compliance with permit conditions. Refusal to grant access may be grounds for denial and/or revocation of the permit.

- H. Other Boards. The Stormwater Authority shall provide one (1) copy of the application package each to the Conservation Commission, Board of Health, Department of Public Works, and the Building Department.
- I. Public Meeting. The Stormwater Authority shall hold a public meeting within twenty-one (21) days and shall take final action within sixty-five (65) days of the receipt of a complete application (see Section 6.D.), unless such time is extended by agreement between the Applicant and Stormwater Authority. The Stormwater Authority shall make the application available for inspection by the public at the Town Offices during business hours.

The time limit may be extended by agreement between the Applicant and Stormwater Authority in the event that hearings on other permit application(s) (i.e., Subdivision, Special Permit) before the Stormwater Authority are required for the project. In such instances, the Stormwater Authority shall conduct public meetings on the Stormwater Management Permit Application concurrently with and on the same timeline as the other permit application(s).

- J. Action by the Stormwater Authority. The Stormwater Authority may:
 - (1) Approve the Stormwater Management Permit Application and issue a permit if it finds that the proposed plan meets the objectives and requirements of the Town of West Newbury Stormwater Bylaw and related regulations;
 - (2) Approve the Stormwater Management Permit Application and issue a permit with conditions, modifications, or restrictions that the Stormwater Authority determines are required to ensure that the project meets the objectives and requirements of the Town of West Newbury Stormwater Bylaw and related regulations. Model Conditions are included in Appendix A.
 - (3) Disapprove the Stormwater Management Permit Application and deny the permit if it finds that the proposed plan fails to meet the objectives and requirements of the Town of West Newbury Stormwater Bylaw and related regulations; or
 - (4) Disapprove the Stormwater Management Permit Application "without prejudice" where an Applicant fails to provide requested additional information or review fees that in the Stormwater Authority's opinion are needed to adequately describe or review the proposed project.
- K. Final Approval. Final approval, if granted, shall be endorsed on the Stormwater Management Permit by the signature of the majority of the Stormwater Authority (or by the signature of the person officially authorized by the Stormwater Authority), and filed with the Town Clerk within 14 days of final action.
- L. Recording. The Applicant shall record the Stormwater Permit, with the Operation and Maintenance Plan attached, at the Southern Essex District Registry of Deeds, or, if the land affected is registered land, in the registry section of the land court for the district wherein the land lies. For condominiums, the Stormwater Permit shall be recorded with the Master Deed.

- M. **Project Changes.** The permittee, or their agent, must notify the Stormwater Authority in writing of any proposed change or alteration of a land-disturbing activity authorized in a Stormwater Management Permit before any change or alteration occurs. If the Stormwater Authority determines that the change or alteration is significant, the Stormwater Authority may require that an amended Stormwater Management Permit application be filed, and a public meeting be held in the same manner as Section 6.I. If any change or alteration from the Stormwater Management Permit occurs during any land disturbing activities, the Stormwater Authority may require the installation of interim erosion and sedimentation control measures and/or other measures as the Stormwater Authority deems appropriate before approving the change or alteration.
- N. **As-Built Drawings.** Permittees shall submit as-built drawings no later than 60 days after completion of construction projects. The as-built drawings must depict all on-site controls, both structural and non-structural, designed to manage stormwater associated with the completed site. For subsurface components of stormwater management systems, such as subsurface infiltration chambers, the as-built drawings shall be based on Permittee inspections completed before the structures were backfilled.
- O. **Final Reports.** Upon completion of the work allowed under a Stormwater Management Permit, and no later than 60 days after completion, the permittee shall submit a report (including certified as-built construction plans) stamped by a Professional Engineer (P.E.), surveyor, or Certified Professional in Erosion and Sediment Control (CPESC), certifying that all best management practices (BMPs), erosion and sediment control devices, and approved changes and modifications, have been completed in accordance with the conditions of the approved permit. Any discrepancies should be noted in the cover letter.
- P. **Certificate of Completion.** The Stormwater Authority shall issue a letter certifying completion upon receipt and approval of the final reports and/or upon otherwise determining that all work has been conducted in conformance with these regulations and the Stormwater Management Permit conditions.

Section 7. Performance Standards for Tier One Stormwater Management Permits

7.1 Post-Construction Stormwater Management

A. General Performance Standards

- (1) Applicants shall evaluate and, unless infeasible, implement low-impact development (LID) site planning and design practices. LID practices shall include, but not be limited to, protection and restoration of natural resources, minimizing impervious surfaces, and grading to direct runoff onto pervious surfaces. Post-construction stormwater practices shall be located in areas that minimize impacts to steep slopes, trees, wetland resource areas, and buffer zones, to the extent feasible. Further guidance on LID practices may be found in the Massachusetts Stormwater Handbook. If the Applicant finds that LID practices are infeasible, the Applicant shall demonstrate which LID practices were evaluated and reasons why those practices were deemed infeasible.

- (2) At a minimum, the selection, design and construction of all pre-treatment, treatment and infiltration BMPs shall be in accordance with the Massachusetts Stormwater Handbook and shall be consistent with all elements of the Massachusetts Stormwater Standards including but not limited to those regarding new stormwater conveyances, peak runoff rates, recharge, land uses with higher potential pollutant loads, discharges to Zone II or interim wellhead protection areas, sediment and erosion control, and illicit discharges. These requirements shall apply for all Tier One projects subject to these Regulations, including projects that are otherwise exempted under the Massachusetts Wetlands Protection Act from meeting the Massachusetts Stormwater Standards.

B. New Development

- (1) Stormwater management systems for new development shall be designed to remove, at a minimum, 90% of the average annual load of Total Suspended Solids (TSS) and 60% of the average annual load of Total Phosphorus (TP) generated from the total post-construction impervious surface area on the site. Average annual pollutant removal requirements shall be achieved through one of the following methods:
 - (a) Installing BMPs that meet the pollutant removal percentages based on calculations developed consistent with EPA Region 1's BMP Accounting and Tracking Tool (2016 or most recent version) or other BMP performance evaluation tool provided by EPA Region 1, where available. If EPA Region 1 tools do not address the planned or installed BMP performance, then any federally or state-approved BMP design guidance or performance standards (see Massachusetts Stormwater Handbook and design guidance manuals) may be used to calculate BMP performance; or
 - (b) Retaining the volume of runoff equivalent to, or greater than, one (1.0) inch multiplied by the total post-construction impervious surface area on the site; or
 - (c) Providing a combination of retention and treatment that achieves the above standards.

C. Redevelopment

- (1) Stormwater management systems for redevelopment shall be designed to remove, at a minimum, 80% of the average annual load of TSS and 50% of the average annual load of TP generated from the total post-construction impervious surface area on the site. Annual pollutant removal requirements shall be achieved through one of the following methods:
 - (a) Installing BMPs that meet the pollutant removal percentages based on calculations developed consistent with EPA Region 1's BMP Accounting and Tracking Tool (2016 or most recent version) or other BMP performance evaluation tool provided by EPA Region 1, where available. If EPA Region 1 tools do not address the planned or installed BMP performance, then any federally or state-approved BMP design guidance or performance standards (see Massachusetts Stormwater Handbook and design guidance manuals) may be used to calculate BMP performance; or

- (b) Retaining the volume of runoff equivalent to, or greater than, 0.8 inch multiplied by the total post-construction impervious surface area on the site; or
 - (c) Providing a combination of retention and treatment that achieves the above standards.
- (2) Redevelopment activities that are exclusively limited to maintenance and improvement of existing roadways (including widening less than a single lane, adding shoulders, correcting substandard intersections, improving existing drainage systems, and repaving projects) shall improve existing conditions unless infeasible and are exempt from the requirements of Section 7.1.C.(1).

D. Stormwater Management Design Standards

- (1) Projects must use TR-55 and TR-20 methodologies to calculate peak rate and volume of runoff from pre-development to post-development conditions.
- (2) For purposes of computing runoff, all pervious lands in the site are assumed prior to Development to be in "good hydrologic condition" regardless of the conditions existing at the time of the computation.
- (3) The length of sheet flow used for times of concentration is to be no more than 50 feet.
- (4) At a minimum, utilize the 24-hour rainfall data taken from the NOAA Atlas 14 Point Precipitation Frequency Estimates unless the Massachusetts DEP Stormwater Management Standards adopts other sources for 24- hour rainfall data.
- (5) Size drainage pipes to accommodate the 25-year storm event and maintain velocities between 2.5 and 10 feet per second using the Rational Method.
- (6) Size drainage swales to accommodate the 25-year storm event and velocities below 4 feet per second.
- (7) Size culverts to accommodate the 50-year storm event and design adequate erosion protection. Design stream crossing culverts in accordance with the latest addition of the Massachusetts Stream Crossing Handbook.
- (8) Size stormwater basins to accommodate the 100-year storm event with a minimum of one foot of freeboard.
- (9) All drainage structures are to be able to accommodate HS-20 loading.
- (10) Catch basin structures are to be constructed as required by the Town Department of Public Works or other local law and spaced a maximum of 250 feet apart in roadways.
- (11) Catch basins adjacent to curbing are to be built with a granite curb (or bituminous concrete berm) inlet as required by the Department of Public Works.
- (12) Catch basins in low points of road and on roads with profile grades greater than 5 percent are to be fitted with double grates (parallel with curb) as required by the Town Department of Public Works.
- (13) All drainpipes are to be reinforced concrete pipe or High-Density Polyethylene pipe and have a minimum diameter of 12 inches.

- (14) Outfalls are to be designed to prevent erosion of soils, and pipes 24 inches or larger are to be fitted with grates or bars to prevent ingress.
- (15) Drainage easements are to provide sufficient access for maintenance and repairs of system components and be at least 20 feet wide.

7.2 Construction-Site Stormwater Management

- A. Applicants shall implement practices to control construction-related erosion, sedimentation, and wastes in accordance with the latest versions of the Massachusetts Stormwater Handbook, the NPDES Construction General Permit for Stormwater Discharges from Construction Activities, the Massachusetts Erosion and Sediment Control Guidelines for Urban & Suburban Areas, or more stringent standards as specified in these Regulations. For projects within jurisdiction of the West Newbury Conservation Commission, the Stormwater Authority shall coordinate with the Conservation Agent on review, inspection, and removal of erosion and sediment controls and construction-waste management. The following performance standards shall be met.
- (1) **Natural Resource Protection:** Before commencing land disturbance activities, the limits of permitted disturbance areas shall be marked with high-visibility flagging, fencing, and/or signage. Areas designated for revegetation and/or infiltration-based stormwater practices shall be marked with flagging, fencing, and/or signage to restrict use of heavy vehicles and equipment in these areas to avoid soil compaction. Tree protection shall be installed around the dripline for all trees to be preserved. Wetland resource areas, wetland buffers, and other areas under the jurisdiction of the West Newbury Conservation Commission shall be maintained as required in the permit, Determination, or Order issued by the West Newbury Conservation Commission and/or Massachusetts Department of Environmental Protection.
 - (2) **Area of Disturbance:** Clearing and grading shall only be performed within areas needed to build the project, including structures, utilities, roads, recreational amenities, post-construction stormwater management facilities, and related infrastructure. Such areas shall be staked to ensure that the work is completed within the appropriate areas. Construction activities shall be phased to minimize the area of disturbed soil at any one time.
 - (3) **Soil Stabilization:** The time that soil is exposed shall be minimized by stabilizing dormant areas as work progresses. Exposed areas shall be vegetated, hydromulched, protected with erosion control blankets, or otherwise stabilized within 14 days after land disturbance activities have permanently ceased or will be temporarily inactive for 14 or more days. Vegetative cover shall be prepared by November 1st to ensure that exposed areas have cover before the first freeze.
 - (4) **Stockpiles:** Materials shall not be stored or stockpiled near a storm drain, a tree to be preserved, or a wetland resource area. Stockpiled materials that will be unused for 14 or more days shall be covered with roof, tarp, or temporary seeding (of soil stockpiles). Perimeter controls shall be installed around stockpile and staging areas.
 - (5) **Perimeter Controls:** Perimeter sediment controls, such as silt fencing and filter tubes, shall be installed around downgradient boundaries, along all resource areas, and around

stockpile and staging areas. Compost socks and straw bale shall be free of invasive species. Perimeter controls shall not be removed until the drainage areas have been permanently stabilized.

- (6) Stabilized Construction Entrance: Track-out controls (e.g., gravel apron) shall be installed at each construction entrance to remove sediment from vehicles and prevent tracking onto public roads. Where sediment has been tracked-out from the site, paved roads, sidewalks, or other paved areas shall be swept or vacuumed at the end of the workday. Sediment shall not be swept, hosed, or otherwise deposited into any stormwater conveyance, storm drain inlet, or waterbody.
- (7) Inlet Protection: Filter bags, filter tubes, or other inlet protection controls shall be installed to prevent sediment from entering downgradient storm drains. Inlet protection shall be cleared of sediment and debris on a regular basis to ensure that storm drains function properly during rain events. Inlet controls shall not be removed until the drainage areas have been permanently stabilized.
- (8) Runoff Diversion: Runoff shall be intercepted and diverted away from disturbed areas with berms, swales, or pipes toward stabilized outlets. Conveyances and outlets shall be stabilized with vegetation, erosion control blankets, check dams, stone aprons, or similar practices to slow velocities and prevent erosion. Runoff shall not be redirected to discharge toward wetland resource areas without approval by the Stormwater Authority in consultation with the Conservation Commission or Conservation Agent. Runoff shall not be redirected to discharge toward or onto a property not owned by the Applicant without a drainage easement or written agreement by the property owner.
- (9) Sediment Removal: Sediment traps and basins shall be used to remove suspended solids from runoff before it discharges from the site. Traps and basins shall be designed to use baffles, multiple cells, and other practices to maximize the flow path and settling time. Sediment controls shall not be removed until the drainage areas have been permanently stabilized. Sediment traps and basins shall be cleaned of sediment and debris routinely to ensure proper functioning during rain events.
- (10) Dewatering: Dewatering activities shall use tanks, filter bags, or other practices to remove sediment before discharge, in accordance with the standards and requirements contained within the NPDES Construction General Permit. Water shall not be discharged in a manner that causes erosion or flooding.
- (11) Outlet Protection: Pipe outlets shall have stone aprons, level spreaders, or other energy dissipation practices installed to prevent erosion.
- (12) Construction Waste Management: Trash, debris, and sanitary wastes shall be removed from the site on a regular basis. Dumpsters shall be covered at the end of every workday and before rain events. Dumpsters shall be located outside the 100-foot buffer zone for wetland resource areas. Dumpsters shall not be allowed to leak or otherwise discharge to any stormwater conveyance, storm drain inlet, or wetland resource area. Concrete mixers shall be washed out only in designated areas with liners. Designated areas for washing concrete mixers shall be located outside the 100-foot buffer zone for wetland resource areas and outside the 200-foot Riverfront Area. Demolition debris, discarded building materials, concrete truck wash out, chemicals, litter, and sanitary

wastes shall not be discharged to the MS4 and shall be disposed of in compliance with all local, state, and federal requirements.

- (13) Post-Construction BMPs: Stormwater management facilities to be used after construction shall not be used as BMPs during construction unless otherwise approved by the Stormwater Authority. Many technologies are not designed to handle the high concentrations of sediments typically found in construction runoff, and thus must be protected from construction-related sediment loadings.
- (14) Dust Control: Dust control shall be used during grading operations. Dust control methods may consist of grading fine soils on calm days only or dampening the ground with water; no salts or other wetting agents shall be used for dust control within wetland resource areas, 100-foot buffer zone for wetland resource areas, or 200-foot Riverfront Area.
- (15) Inspection and Maintenance: Erosion and sediment controls shall be inspected as needed and at a minimum before and after rain events. Accumulated sediments shall be removed, and erosion and sediment controls shall be repaired or replaced as needed to ensure they perform as intended.

Section 8. Performance Standards for Tier Two Stormwater Management Permits

8.1 Post-Construction Stormwater Management

- A. Projects eligible for Tier Two Stormwater Management Permits shall evaluate and, unless impracticable, implement LID planning and design strategies. LID practices shall include, but not be limited to, protection and restoration of natural resources, minimizing impervious surfaces, and grading to direct runoff onto pervious surfaces. Post-construction stormwater practices shall be located in areas that minimize impacts to steep slopes, trees, wetland resource areas, and buffer zones, to the extent feasible. Further guidance on LID practices may be found in the Massachusetts Stormwater Handbook.
- B. Projects shall implement at least one stormwater BMP to mitigate the impacts from stormwater runoff and pollutants generated from impervious surfaces on the property. The Stormwater Authority may, at its discretion, require additional BMPs if needed to mitigate a project's stormwater impacts. The Applicant may select a BMP type including but not limited to:
 - (1) Impervious area disconnection
 - (2) Rain barrel for roof runoff
 - (3) Rain garden
 - (4) Pervious pavement
 - (5) Dry well
 - (6) Infiltration trench
 - (7) Vegetated wet- or dry-swale.
- C. Stormwater BMPs shall be designed in accordance with the Massachusetts Stormwater

Handbook and shall have a storage volume equivalent to 1 inch multiplied by the net increase in impervious surface area or by 500 square feet of impervious surface area, whichever is greater.

- D. At a minimum, controls for post-construction stormwater runoff shall be implemented to prevent nuisance conditions such as flooding, erosion, and sedimentation on downgradient properties, public rights of way, or wetland resource areas. To the maximum extent practicable, projects shall manage post-construction stormwater on site such that there is no increase in the rate or volume of runoff exiting the site.

8.2 Construction-Site Stormwater Management

- A. Projects eligible for Tier Two Stormwater Management Permits shall meet the construction-site stormwater management performance standards detailed in Section 7.2 to the maximum extent practicable. At a minimum, controls for erosion, sediment, and construction wastes shall be implemented to prevent nuisance conditions, such as sediment or debris washouts onto abutting properties, public rights of way, or wetland resource areas.

Section 9. Long-Term Operation and Maintenance

9.1. Tier Two Stormwater Management Permits

- A. For Tier Two Stormwater Management Permits, the Permittee shall maintain post-construction BMPs to ensure that they continue to function as intended.

9.2. Tier One Stormwater Management Permits

- A. The Applicant shall ensure that all components of the proposed stormwater management system are functioning according to manufacturer or design specifications for the life of the system. All components shall be maintained in good condition and promptly repaired, in accordance with the approved Operation and Maintenance Plan. This shall constitute a perpetual condition of any Stormwater Management Permit issued under these Regulations.
- B. The Applicant shall provide copies of the Operation and Maintenance Plan to all persons responsible for maintenance and repairs.
- C. Stormwater Management Easement(s).
 - (1) For public or shared stormwater systems, stormwater management easements shall be provided by the property owner(s) as necessary for:
 - (a) Access for facility inspections and maintenance;
 - (b) Preservation of stormwater runoff conveyance, infiltration, and detention areas and facilities, including flood routes for the 100-year storm event; and
 - (c) Direct maintenance access by heavy equipment to structures requiring maintenance.

- (2) Easements shall be recorded with the Southern Essex District Registry of Deeds prior to issuance of a Certificate of Completion by the Stormwater Authority pursuant to Section 6.P.

D. Changes to Operation and Maintenance Plans

- (1) The owner(s) of record of the Stormwater Management System must notify the Stormwater Authority of changes in ownership, assignment of Operation and Maintenance responsibilities, or assignment of financial responsibility within 30 days of the change in ownership. The owner of record shall be responsible for Operation and Maintenance activities until a copy of the updated Operation and Maintenance Plan has been furnished to the Stormwater Authority signed by the new owner or any new responsible person.
- (2) The maintenance schedule in the Maintenance Agreement may be amended to achieve the purposes of the Stormwater Management Bylaw by mutual agreement of the Stormwater Authority and the Responsible Parties. Amendments must be in writing and signed by all Responsible Parties. Responsible Parties shall include owner(s), persons with financial responsibility, and persons with operational and/or maintenance responsibility.

E. Annual Reporting

- (1) The Permittee shall submit an Annual Operation and Maintenance Report to the Stormwater Authority documenting the work that has been done over the last 12 months to properly operate and maintain the permitted stormwater management system. The certification shall be signed by the person(s) or authorized agent of the person(s) named in the permit as being responsible for ongoing operation and management.
- (2) Annual Operation and Maintenance Reports are not required for Stormwater Management Permits issued for individual single- and two-family homes that do not utilize stormwater management systems that are shared with or located on other properties and that are not part of a larger common plan of development.

F. To ensure adequate long-term operation and maintenance of stormwater management practices, the Stormwater Authority may require applicants to implement one or more of the following procedures:

- (1) Establishment by the Applicant of a dedicated fund or escrow account in the form of a Bond, Insurance Policy, or similar instrument, to be maintained for a number of years and for an amount specified by the Stormwater Authority. Such fund or account may be used by the Applicant to perform its operation and maintenance responsibilities or, if the Stormwater Authority finds that the Applicant has failed to comply with the Plan, by the Stormwater Authority to perform or cause to be performed the required operation and maintenance tasks;
- (2) If the infrastructure is accepted as public by the Town, payment shall be made by the Applicant to the Town of an amount specified by the Stormwater Authority as compensation for its acceptance of ownership of all privately constructed BMPs.

Section 10. Construction Inspections

10.1 Tier Two Stormwater Management Permits

- A. For Tier Two Stormwater Management Permits, inspection requirements will be determined by the Stormwater Authority based on the proposed project's scale and complexity.

10.2. Tier One Stormwater Management Permits

- A. Pre-construction Meeting. Prior to starting the clearing, excavation, construction, redevelopment or land disturbing activity, the Applicant or the Applicant's technical representative, general contractor, or other person with authority to make changes to the project, herein referred to as the Applicant's agent, may be required to meet with the Stormwater Authority, to review the approved plans and their proposed implementation. The need for a pre-construction meeting shall be determined by the Stormwater Authority based on the project scope.
- B. For projects subject to the NPDES Construction General Permit, construction may not commence until the Applicant has submitted EPA's approval of the Construction General Permit Notice of Intent to the Stormwater Authority and posted the final Stormwater Pollution Prevention Plan (SWPPP) at the site.
- C. The approved Stormwater Management Plan bearing the signature of approval of the Stormwater Authority shall be maintained at the site during the progress of the work.
- D. Stormwater Authority Inspections. The Applicant or the Applicant's agent shall provide an estimated schedule of construction milestones and a list of contacts before commencing land disturbance activities. This may be completed during the pre-construction meeting, if applicable. The Applicant or the Applicant's agent shall notify the Stormwater Authority at least two (2) business days before each of the following events, to keep the Stormwater Authority informed of construction progress and to facilitate timely inspections by the Stormwater Authority, at the Authority's discretion:
 - (1) Erosion and sedimentation control measures are in place and stabilized, prior to commencement of land disturbance activities;
 - (2) Site clearing has been substantially completed;
 - (3) Rough grading has been substantially completed;
 - (4) Excavation for stormwater BMPs has been completed;
 - (5) Subsurface components of stormwater BMPs have been installed, prior to backfilling;
 - (6) Stormwater BMP surface features have been substantially completed;
 - (7) Final grading has been substantially completed;
 - (8) Close of the construction season; and,
 - (9) Final Landscaping (permanent stabilization) and project final completion.

- E. Applicant Inspections. The Applicant or the Applicant's agent shall conduct and document inspections of all erosion and sediment control measures no less than weekly or as specified in the permit, and prior to and following anticipated storm events as specified in the NPDES Construction General Permit. The purpose of such inspections will be to determine the overall effectiveness of the Erosion and Sedimentation Control Plan, and the need for maintenance or additional control measures as well as verifying compliance with the Stormwater Management Plan. The Applicant or the Applicant's agent shall submit monthly reports to the Stormwater Authority in a format approved by the Stormwater Authority.

Section 11. Surety

The Stormwater Authority may require the permittee to post before the start of disturbance activity, a surety bond, irrevocable letter of credit, cash, or other acceptable security. The form of the bond shall be approved by town counsel and be in an amount deemed sufficient by the Stormwater Authority to ensure that the work will be completed in accordance with the permit. If the project is phased, the Stormwater Authority may release part of the bond as each phase is completed in compliance with the permit, but the bond may not be fully released until the Stormwater Authority has received the final report as required by Section 6.O and issued a Certificate of Completion pursuant to Section 6.P. Said surety funds shall be maintained in a special account established by the Stormwater Authority pursuant to M.G.L. c. 44, §53G1/2.

APPENDIX C.

Stormwater Management Plan Contents for Tier One Stormwater Management Permit Applications

The application for a Tier One Stormwater Management Permit shall contain sufficient information for the Stormwater Authority to evaluate the environmental impact, effectiveness, and acceptability of the site planning process and the measures proposed by the Applicant to reduce adverse impacts from stormwater runoff during and after construction.

The Applicant shall submit one digital copy and six (6) printed copies of the Tier One Permit application package, which shall contain the following minimum components:

1. Completed Application Form with original signatures of the Applicant and all property owners;
2. Site Plan;
3. Stormwater Management Report; and
4. Operation and Maintenance Plan.

More information than the minimum required herein may be required by the Stormwater Authority, provided that such information is reasonably necessary for the proper evaluation of the Stormwater Management Plan.

Site Plan

The Site Plan shall be prepared to fully detail and explain the intentions of the Applicant. Site Plan sheets shall be prepared at a standard scale (1" = 20', 1" = 40', or 1" = 80', whichever is appropriate to the size of the proposal). All sheets shall include a reasonable numbering system with an appropriate title block, north arrow, signature block, and legend identifying any representative symbols used on the sheet in question.

Plans must be stamped and certified by a qualified Professional Engineer registered in Massachusetts or a Certified Professional in Erosion and Sediment Control.

The Site Plan shall include, at a minimum:

1. Portion of the USGS Map indicating the site locus and properties within a minimum of 500 feet of project property line.
2. Existing conditions and proposed design plans showing:
 - a. Location and description of natural features including:
 - Watercourses and water bodies, wetland resource areas and all floodplain information, including the 100-year flood elevation based upon the most recent Flood Insurance Rate Map, or as calculated by a professional engineer for areas not assessed on these maps.
 - Existing vegetation, including tree lines, canopy layer, shrub layer, and ground cover. Within the limit of work and within a 25-foot setback from the limit of work boundary, trees with a caliper twelve (12) inches or

- larger, noting specimen trees and forest communities.
- Habitats mapped by the Massachusetts Natural Heritage & Endangered Species Program as Endangered, Threatened or of Special Concern, Estimated Habitats of Rare Wildlife, Certified Vernal Pools, Potential Vernal Pools (as mapped by Massachusetts GIS), and Priority Habitats of Rare Species within five hundred (500) feet of any construction activity.
- b. Lines of existing abutting streets showing drainage and driveway locations and curb cuts.
- c. Existing soils, volume and nature of imported soil materials.
- d. Topographical features including existing and proposed contours at intervals no greater than two (2) feet with spot elevations provided when needed.
- e. Surveyed property lines showing distances and monument locations, all existing and proposed easements, rights-of-way, and other encumbrances, the size of the entire parcel, and the delineation and number of square feet of the land area to be disturbed.
- f. Buildings and/or structures including materials, approximate height.
- g. Utilities including size, material, and invert data.
- h. Regulated wetland resource areas within proximity of the site.
- 3. Stormwater management design plan(s) and details showing:
 - a. Location, size, material, inverts data and details for all existing and proposed stormwater management system components including structures, pipes, swales, detention, retention, and infiltration systems and any other Low Impact Development techniques or BMPs.
 - b. Profiles of drainage trunk lines.
 - c. Drainage easements.
- 4. Erosion and Sedimentation Control Plan and details showing:
 - a. Drainage patterns and approximate slopes anticipated after major grading activities (Construction Phase Grading Plans).
 - b. Location and details of erosion and sediment control measures with a narrative of the construction sequence/phasing of the project, including both operation and maintenance for structural and non-structural measures, interim grading, and material stockpiling areas.
 - c. Path and mechanism to divert uncontaminated water around disturbed areas, to the maximum extent practicable.
 - d. Location and description of industrial discharges, including stormwater discharges from dedicated asphalt plants and dedicated concrete plants, which are covered by this permit.
 - e. Location and description of and implementation schedule for temporary and permanent seeding, vegetative controls, and other stabilization measures.
 - f. A description of construction and waste materials expected to be stored on-site. The Plan shall include a description of controls to reduce pollutants from these materials, including storage practices to minimize exposure of the materials to

stormwater, and spill prevention and response.

- g. A description of provisions for phasing the project where one acre of area or greater is to be altered or disturbed.

Stormwater Management Report

1. Contact Information. The name, address, and telephone number of all persons having a legal interest in the property and the tax reference number and parcel number of the property or properties affected;
2. Narrative describing:
 - a. Purpose;
 - b. Methodologies and assumptions;
 - c. Existing and proposed uses and conditions;
 - d. Project impacts and mitigation techniques including:
 - Summary of proposed land area to be cleared, proposed impervious area, work within proximity of regulated wetland resource area(s), aquifer protection zones, and other sensitive environmental areas.
 - Low Impact Development (LID) techniques considered for this project and an explanation as to why they were included or excluded from the project.
 - Proposed best management practices.
 - The immediate downgradient waterbody(s) that stormwater runoff from the project site discharges to, TMDL and/or impairment status of the waterbody(s), and the BMPs included in the project to address the pollutant(s) of concern.
 - e. Summary of pre- and post-development peak rates and volumes of stormwater runoff demonstrating no adverse impacts to down- gradient properties, stormwater management systems and wetland resources
3. Calculations
 - a. Hydrologic analysis to determine pre- and post-development peak rates and volumes of stormwater runoff for 2-, 10-, 25- and 100-year 24-hour storm events.
 - b. Groundwater recharge calculations and BMP drawdown (time to empty).
 - c. Water quality calculations including:
 - Total Suspended Solids (TSS) and Total Phosphorus (TP) percent reduction.
 - Specific BMPs utilized in critical areas, if applicable.
 - Specific BMPs utilized for land uses of higher potential pollutant loads, if applicable.
 - Specific treatment for pollutant causing impairment of down-gradient waterbody identified by U.S. Environmental Protection Agency and Massachusetts Department of Environmental Protection, if applicable.
 - d. Hydraulic calculations to size drainage pipes, swales, and culverts.

- e. Supplemental calculations for sizing BMPs and addressing impairments to water bodies.
- 4. Figures illustrating pre- and post-development drainage areas, indicating:
 - a. Structures, pavements, surface vegetation and other ground cover materials;
 - b. Topography sufficient to delineate drainage areas;
 - c. Point(s) of analysis;
 - d. Drainage areas including upgradient areas that contribute stormwater flow onto the project site, labeled to be easily identified in calculations. Total pre- and post-development drainage areas should be equivalent;
 - e. Breakdown summary of various surface conditions by soil hydrologic group rating; and
 - f. Flow path for time of concentration (Tc) calculation.
- 5. Soil mapping and test data;
- 6. Massachusetts Department of Environmental Protection Checklist for Stormwater Report completed, stamped and signed by a Professional Engineer (PE) licensed in the Commonwealth of Massachusetts to certify that the Stormwater Management Plan is in accordance with the criteria established in the Massachusetts Stormwater Management Standards, Town of West Newbury Stormwater Management Bylaw and these regulations.

Operation and Maintenance Plan

- 1. The name(s) of the owner(s) for all components of the system.
- 2. A map showing the location of the systems and facilities including all structural and nonstructural stormwater best management practices (BMPs), catch basins, manholes/access lids, pipes, and other stormwater devices.
- 3. The names and addresses of the person(s) responsible for operation and maintenance.
- 4. The person(s) financially responsible for maintenance and emergency repairs.
- 5. An Inspection and Maintenance Schedule for all stormwater management facilities including routine and non-routine maintenance tasks to be performed. Where applicable, this schedule shall refer to the Maintenance Criteria provided in the Stormwater Handbook or the EPA National Menu of Stormwater Best Management Practices or equivalent.
- 6. Instructions for routine and long-term operation and maintenance shall have sufficient detail for responsible parties to perform necessary maintenance activities and preventative actions that may adversely affect the performance of each structural and/or nonstructural stormwater BMP.
- 7. A schedule for submitting written reports to the Stormwater Authority describing inspection results, recommendations, and actions taken to ensure continued compliance with the Standards and permit requirements. The certification shall be signed by the person(s) or authorized agent of the person(s) named in the permit as being responsible for ongoing operation and management.
- 8. A list of easements with the purpose and location of each.

9. The signature(s) of the owner(s) and all persons responsible for operation and maintenance, financing, and emergency repairs, as defined in the Maintenance Agreement, if maintenance is to be performed by an entity other than the owner.

APPENDIX D.
Stormwater Management Plan Contents for
Tier Two Stormwater Management Permit Applications

The application for a Tier Two Stormwater Management Permit shall contain sufficient information for the Stormwater Authority to evaluate the environmental impact, effectiveness, and acceptability of the measures proposed by the Applicant to reduce adverse impacts from stormwater runoff during and after construction.

The Applicant shall submit one digital copy and six (6) printed copies of the permit application package. The Tier Two Permit application package shall include:

1. Completed Application Form with original signatures of the Applicant and all property owners;
2. Narrative describing the proposed work including:
 - a. Existing and proposed site conditions (including structures, vegetation, and drainage);
 - b. The square footage of the proposed land disturbance area, existing impervious surface area, and proposed impervious surface area;
 - c. Proposed low impact development practices; and
 - d. Proposed measures to control erosion, sediment, and waste during construction and to mitigate any long-term stormwater impacts.
3. For proposed stormwater BMPs, calculations for the stormwater volume to be managed.
4. For proposed stormwater BMPs, a description of anticipated maintenance activities and schedule to ensure that the stormwater BMP continues to function as intended.
5. A drawing, map, or plan that shows:
 - a. Existing site features including structures, pavement, trees, plantings, utilities, and stormwater management systems, etc.;
 - b. Proposed work including proposed stormwater management systems and limits of disturbance; and
 - c. Proposed erosion and sedimentation controls.

APPENDIX E. FEE SCHEDULE

Tier One Stormwater Management Permit Application:

Base price \$500 for one acre of land disturbance plus an additional \$100 for each additional acre of land disturbance or fraction of an acre that would be rounded to the next full number.

For example, 1 acre to 1.49 acres = \$500, 1.5 acres to 2.49 acres = \$600, 2.5 acres to 3.49 acres = \$700.

Tier Two Stormwater Management Permit Application:

Base price \$250 for one acre of land disturbance plus an additional \$50 for each additional acre of land disturbance or fraction of an acre that would be rounded to the next full number.

For example, 1 acre to 1.49 acres = \$250, 1.5 acres to 2.49 acres = \$300, 2.5 acres to 3.49 acres = \$350.