

TOWN OF NEEDHAM **STORMWATER REGULATIONS**

SECTION 1 GENERAL PROVISIONS

These stormwater regulations are promulgated by the Needham Select Board pursuant to the authority granted under Section 7 of the General By-Laws of the Town of Needham (“Stormwater By-Law”).

The purpose of these regulations is to provide guidance in the implementation of the Stormwater By-Law, and to promote the removal of pollutants from stormwater, to encourage recharging of stormwater, to develop methods to maintain functional operation of stormwater, to utilize best management practices, to improve stormwater quality prior to discharging to a water body, and to education property owners. These regulations are intended to enable the Town of Needham to meet or exceed the minimum standards stipulated in the Stormwater By-Law, the Memorandum of Understanding (MOU) between the Town of Needham and the Environmental Protection Agency (EPA) (dated June 1996), the Massachusetts Stormwater Standards, and the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) requirements issued by the EPA.

These regulations may be revised periodically in order to remain consistent with other State, Federal, or local Laws, regulations, or policies.

The Stormwater Regulations establish specific standards, procedures, definitions, and technical requirements necessary to achieve the objectives of the Stormwater By-Law, including but not limited to performance standards, design criteria, review processes, and compliance measures.

Stormwater control measures that are designed, constructed, and maintained in accordance with the design and sizing criteria will be presumed to be protective of Massachusetts water quality standards.

SECTION 2 DEFINITIONS

For the purposes of these Regulations, refer to the definitions contained in the Stormwater By- Law.

SECTION 3 AUTHORITY

The Regulations have been adopted by the Town of Needham in accordance with the Stormwater By-Law.

Nothing in these Regulations is intended to replace or be in derogation of the requirements of the Town of Needham Zoning By-Law, Wetlands Protection By-Law, Subdivision Control Law or any other Regulations adopted thereunder.

3.1. Permitting Authority

For the purposes of these regulations, the term “Authority” refers to the municipal board, commission, or department responsible for issuing permits for construction and/or land-disturbing activities. This includes, but is not limited to:

- Planning Board – for development and site plan approvals;
- Conservation Commission – for work affecting wetlands or other resource areas;

- Department of Public Works (DPW) – for work affecting roadways, drainage systems, and public infrastructure;
- Building Department – for building permits and related inspections;
- Zoning Board of Appeals (ZBA) – for variances or special permits involving construction or land disturbance.

Each Permitting Authority retains its respective jurisdiction and shall review applications and enforce compliance with applicable local, state, and federal regulations.

3.2. Fees

The Town of Needham may review and recommend revisions to fees in relation to permitting, professional services, etc.

3.3. Emergency Suspension of Storm Drain System Access

The Town of Needham may suspend municipal storm drain system access if in the opinion of the Reviewing Authority or applicable department or committee, there is an actual or threatened discharge that presents an imminent risk to public health, safety, the environment, or the proper functioning of the storm drain system.

3.4. New and Existing Storm Drain Connections

The Stormwater By-Law and associated Regulations shall not apply to existing, previously approved infrastructure, including, but not limited to, small drainage connections installed prior to the effective date of these Regulations.

Any construction, redevelopment, or alteration of a property that results in a new or modified connection, or an increase in flow, to the municipal stormwater system will be subject to review and approval in accordance with the requirements of the Stormwater By-Law and Regulations in effect at the time of construction. A connection to municipal infrastructure will only be permitted when all practicable on-site infiltration options have been demonstrated to be infeasible. In such cases, the proposed connection requires review and approval by the DPW.

SECTION 4 APPLICABILITY

4.1. Activities Subject to the Stormwater By-Law

- A. All activities that involve the disturbance or removal of 100 cubic yards or more of soil, or that involve a change in grading requiring the addition of 100 cubic yards or more of soil.
- B. Building construction that increases impervious surface (like existing pavement or roofs) by more than 25% of the existing impervious footprint.
- C. Projects that increase impervious surface on a parcel by 500 sq ft or more.
- D. Construction or alteration of the Town of Needham Drainage system such as connecting to town drainage assets through small diameter drains and subdivision connections.
- E. Landscaping work, such as re-grading, retaining walls, etc. that have the potential to increase or change the flow of water from a parcel to the surrounding area in any way.
- F. Any permanent land disturbance or construction activity within 10 ft of the property line.

4.2. Activities Exempt from the Stormwater By-Law

- A. Maintenance of existing landscaping, gardens or lawn areas associated with a single family dwelling conducted in such a way as not to cause a nuisance;
- B. Construction of fencing that will not substantially alter existing terrain or drainage patterns;
- C. Construction of utilities other than drainage (gas, water, electric, telephone, etc.) which will not alter terrain or drainage patterns or result in discharge of sediment to the abutters;
- D. Normal maintenance and improvement of land in agricultural or aquacultural use; and
- E. Disturbance of land or redevelopment that are subject to jurisdiction under the Wetlands Protection Act and demonstrate compliance with the Massachusetts Stormwater Management Standards and Stormwater Handbook and the Town of Needham Stormwater Management Regulations as reflected in a valid Order of Conditions issued by the Conservation Commission.
- F. Disturbance of land or redevelopment that are subject to jurisdiction under a special permit or approval of a subdivision plan through the Town Zoning Bylaw and demonstrate compliance with the Massachusetts Stormwater Management Standards and Stormwater Handbook and the Town of Needham Stormwater Management Regulations as reflected in a valid decision issued by the Planning Board or Zoning Board of Appeals.

4.3. Modification of Stormwater Plan

Applicants may submit minor modifications to a Stormwater Plan during the review process to address technical comments or to ensure compliance with the requirements of the

Stormwater By-Law and Stormwater Regulations. Minor modifications may be approved at the discretion of the Reviewing Authority without requiring a new application.

Any modifications deemed by the Reviewing Authority to constitute a major change—such as, but not limited to, alterations in the overall site layout, proposed drainage system, or stormwater management practices—shall require the applicant to submit a new application in accordance with the procedures set forth herein.

SECTION 5 ADMINISTRATION

- 5.1.** The Building Department shall have administrative responsibility, with input and comment from the Engineering Division, for ensuring compliance with stormwater management requirements in connection with the permitting of residential and commercial building construction activities.
- 5.2.** The Engineering Division shall have administrative responsibility for ensuring compliance with stormwater management requirements in connection with the permitting of projects not involving building construction, through the issuance of Street Permits.
- 5.3.** The Conservation Department shall have administrative responsibility for ensuring compliance with stormwater management requirements in connection with the permitting of activities, whether construction-related or otherwise, that occur within jurisdictional wetlands or within the associated buffer zone.
- 5.4.** The Planning and Zoning Department shall have administrative responsibility for ensuring compliance with stormwater management requirements in connection with projects subject to its jurisdiction.

SECTION 6 REGULATIONS

[Reserved]

SECTION 7 STORMWATER ASSESSMENT

[Reserved]

SECTION 8 ILLICIT DISCHARGE, DETECTION & ELIMINATION (IDDE)

Section 7.8 of the Stormwater By-Law identifies prohibited activities, regulated activities, and exemptions related to compliance with the Illicit Discharge Detection and Elimination (IDDE) Program. The purpose of the IDDE Program is to prevent the discharge of sanitary waste into the storm drain system. Because stormwater discharges are not treated, any waste entering the system is released directly into the surrounding environment. Sanitary waste poses significant health risks to both people and animals, potentially causing illness and disease. Accordingly, discharges of stormwater, groundwater, or runoff into the sanitary sewer system are prohibited, as they can overwhelm the sewer system, resulting in overflows into the storm drain system or directly into the environment, where they also pose public health risks.

- 8.1.** Project plans shall identify all sanitary sewer connections from the subject property and confirm that they are not connected to any stormwater drain system. The applicant shall

also identify and confirm that all connections from the property to the stormwater drain system are free from pollutants or consists of clean sump pump discharges.

- 8.2.** Any connections to the stormwater system that does not meet the requirements of the Stormwater By-Law and/or Regulations shall be eliminated and disconnected from the stormwater drain system by the applicant within 30 calendar days unless an alternate schedule has been defined and approved by the DPW.
- 8.3.** For any project seeking connection to Town infrastructure, the applicant shall provide an Illicit Discharge Compliance Statement verifying that no illicit discharges exist on the site and that measures are in place to prevent any illicit discharges from entering the stormwater management system. Illicit discharges include, but are not limited to, wastewater and stormwater contaminated by contact with process wastes, raw materials, toxic pollutants, hazardous substances, oil, or grease. The statement shall be consistent with the requirements of the MassDEP Stormwater Management Standards and shall be submitted as part of the permitting process.
- 8.4.** Any observed or suspected illicit discharge may be reported by Town employees, members of the community, or the public at large. Reports can be submitted in several ways:
- i. Online Reporting Form
Through SeeClickFix on the Town website at www.needhamma.gov.
 - ii. Email Reporting
DPW Administration at DPWAdmin@Needhamma.gov.
 - iii. In-Person Reporting
DPW Administration office at 500 Dedham Avenue during business hours.
 - iv. Mail Submission
A letter addressed to DPW Administration office at 500 Dedham Avenue.
- All reported or suspected illicit discharges into the MS4 shall be promptly investigated by the appropriate Town staff. If mitigation is deemed necessary, the responsible parties will be notified and required to implement corrective actions.
- 8.5.** The process for investigating a reported or suspected illicit discharge into the MS4 is outlined in the Needham Illicit Discharge Detection and Elimination Plan, which is available on the Town website or by request from the Engineering Division.

SECTION 9 PERMITS

Permits are issued by the municipal board, committee or department with authority for issuing permits for construction and/or land disturbing activities. These include the Planning Board, Conservation Commission, Department of Public Works, Building Department, and Zoning Board of Appeals.

9.1. Fees

See Regulations 3.2.

9.2. Permit Amendments

Permits are issued based on the approved project plan. Any changes to the approved plan must be reviewed and approved by the Permitting Authority before implementation on site. See Regulation 4.3 for additional details.

SECTION 10 STORMWATER MANAGEMENT AND EROSION CONTROL PLAN REQUIREMENTS

10.1. Low Impact Development (LID)

Applicants should first consider incorporating Low Impact Development (LID) design practices into the site planning process to the maximum extent practicable. The goal is to minimize stormwater impacts, preserve natural hydrology, and promote on-site infiltration and treatment. LID practices may include, but are not limited to, the following:

A. Site Design and Planning

- Minimizing land disturbance and clearing;
- Preserving existing vegetation, topography, and natural hydrologic features;
- Clustering development to reduce impervious surface area;
- Reducing roadway widths and driveway lengths where feasible;
- Utilizing permeable or porous pavement materials.

B. Stormwater Management Practices

- Installing bioretention areas, including rain gardens;
- Using vegetated swales and filter strips for stormwater conveyance and treatment;
- Incorporating infiltration trenches, dry wells, or subsurface infiltration systems;
- Installing green roofs or rooftop gardens;
- Capturing and reusing stormwater through rainwater harvesting systems or cisterns.

C. Landscaping and Vegetation

- Preserving and enhancing tree canopy cover;
- Using native, non-invasive, and drought-tolerant plant species;
- Applying soil amendments to improve infiltration capacity;
- Diverting stormwater from paved surfaces to adjacent green spaces or landscaped areas.

D. Construction and Post-Construction Controls

- Limiting compaction of soils during construction;
- Stabilizing disturbed soils promptly with vegetation or other erosion control measures;
- Implementing sediment control practices to protect downstream resources.

E. Documentation and Justification

Project plans shall document all Low Impact Development (LID) measures considered and provide reasoning for all measures considered but not implemented. The Reviewing Authority may require additional information or modifications to the proposed plan to

promote the use of LID strategies and ensure their application to the maximum extent practicable.

10.2. Regulated Activities

Prior to the commencement of any construction or project that qualifies as an applicable activity, as defined in Section 4 of these Regulations, a Stormwater Management and Erosion Control Plan, stamped by a Massachusetts-registered Professional Engineer, and an Operation and Maintenance (O&M) Plan, signed by the property owner, shall be submitted for all activities subject to the Stormwater By-Law. No land disturbance shall occur until these plans have been reviewed and approved by the Reviewing Authority.

10.3. Exempt Activities

[Reserved]

10.4. General Requirements

A. Pre-Construction Requirements

i. Design Standards

- A plot plan shall be submitted prior to construction. Refer to Appendix A: Preparation of Plans and Specifications for detailed requirements.
- Post-construction measures shall, at a minimum, provide a combined volumetric capacity to recharge at least one and a half inches (1.5") of rainfall over the total impervious area of the site, including all buildings and other impervious surfaces.
- Compliance shall be demonstrated through pre- and post-development hydrologic and hydraulic analyses, drainage calculations, and supporting documentation prepared, stamped, and certified by a qualified professional engineer and submitted to the Permitting Authority for review and approval, if required.

ii. Runoff Quality and Pretreatment Requirements

- For commercial projects and large residential projects, the Stormwater Management and Erosion Control Plan shall include stormwater runoff quality controls and other structural and non-structural stormwater control measures (SCMs) consistent with the Massachusetts Stormwater Handbook to increase groundwater recharge and remove pollutants from stormwater.
- Stormwater runoff collected from rooftops may be recharged directly into the ground without pretreatment.
- Stormwater runoff from impervious areas, greater than 500 square feet, subjected to motor vehicles or other potential sources of contamination shall be pretreated prior to infiltration or recharge to remove sediment, suspended solids, oils, volatile organic compounds (VOCs), and other contaminants that could impact groundwater quality.

iii. Landscaping and Tree Planting Requirements

- In the absence of any other applicable law, by-law, or regulation, the Stormwater Management and Erosion Control Plan shall include the planting of three (3) native trees, each with a minimum caliper of two (2) inches or greater, for every required infiltration chamber system or designed drywell installed to achieve the combined volumetric capacity.
- iv. During project design, soil testing shall be conducted by a qualified soil evaluator, and the results shall be submitted and incorporated into the design plans for review and evaluation by the Permitting Authority. At a minimum, soil testing results shall provide information on the following criteria:
- Elevation of test pits
 - Soil texture, classification (USDA classification) and horizons
 - Soil permeability and infiltration rates based on RAWLS tables
 - Depth to seasonal high groundwater
 - Depth to refusal

The Permitting Authority may require additional testing or information based on site-specific conditions to ensure compliance with the objectives of the Stormwater By-Law.

B. Construction Requirements

i. Dewatering Plan

- A dewatering plan shall be submitted with the project permit application. The plan shall describe methods for managing groundwater and surface water during construction, including pumping, settling, and discharge procedures.
- All dewatering activities must minimize erosion and prevent sediment-laden water from entering the MS4, wetlands, or neighboring properties.

ii. Erosion and Sediment Controls

- Temporary erosion and sediment control measures, such as silt fences, sediment basins, stabilized construction entrances, or other stormwater control measures (SCMs), shall be installed and maintained for the duration of construction.
- Stormwater runoff velocities must be minimized as much as possible. The removal of existing vegetative cover during development and the resulting increase in impermeable surface area after development will increase both the volume and velocity of runoff. These increases must be considered when providing for erosion control.
- Erosion control measures that minimize site disturbance shall be chosen and are based on site conditions.
- Erosion control measures are to be installed and maintained in accordance with the manufacturer's specifications and good engineering practices to perform as intended.

- Replacement control materials shall be kept on-site to allow for the repair or replacement of erosion control measures that are damaged or displaced during construction, by wildlife or human activity, or as a result of weather events.
- Prior to the commencement of any land-disturbing activities, areas of the site designated for protection shall be clearly marked with tape, signs, or orange construction fencing, as applicable, to alert workers to restricted areas. These physical markers should be inspected on a weekly basis by the contractor and/or their designee to ensure visibility and effectiveness. Documentation of these inspections is required to be maintained throughout project duration and be provided to the Permitting Authority upon request.

iii. Monitoring and Maintenance

To the extent permitted by state law, or if authorized by the owner or other party in control of the property, the Department of Public Works, its agents, officers, and employees may enter upon privately owned property for the purpose of performing their duties under the Stormwater By-Law and promulgated Regulations, and may make or cause to be made such examinations, surveys or sampling as the Director of Public Works or their designee deems reasonably necessary.

- Construction Inspections
 - a. The Applicant shall notify the Permitting Authority at least three (3) business days (Saturdays, Sundays and legal holidays excluded) before each of the following events with the purposes of scheduling construction inspections:
 1. Erosion and Sedimentation control and tree protection measures are in place and stabilized. Purpose of inspection is to assess overall effectiveness of protecting resources;
 2. Site Clearing and rough Grading have been substantially completed;
 3. Pre-bed: rough final grading/soil bedding prior to placement of any underground recharge or stormwater conveyance structure. Purpose of inspection is to ensure adequate separation of the stormwater system from ground water and presence of approved soil type;
 4. Bury Inspection: prior to backfilling of any underground recharge or stormwater conveyance structure. Purpose of inspection is to ensure installation is correct per approved plans;
 5. Final grading has been substantially completed.

The Permitting Authority may require, throughout construction, the submission of periodic inspections and reporting by the Applicant as dictated by site conditions.

- b. Sedimentation and erosion control measures identified in the Stormwater Management and Erosion Control Plan must be observed to ensure proper operation. Discharge locations must be inspected to verify that erosion control measures are effectively preventing significant impacts to the MS4 or receiving

waterbodies. Where discharge locations are inaccessible, nearby downstream locations must be inspected to the extent practicable.

- c. Areas where vehicles enter or exit the site must be inspected for evidence of off-site sediment tracking. SCMs must be inspected daily and maintained promptly to ensure continued effectiveness. Any failure or breach must be corrected immediately to prevent sediment discharge and may require notification to the Permitting Authority.

- Compliance with Applicable Standards

All measures shall be designed, installed, and maintained in accordance with the latest Massachusetts Stormwater Handbook, local Stormwater By-Law, and other applicable standards.

C. Post-Construction Requirements

- i. General Performance Standards

For all projects subject to the Stormwater By-Law, the Stormwater Management and Erosion Control Plan shall include measures designed and implemented to prevent or minimize increases in stormwater volumes and flows to the MS4, as well as pollutant loading to the MS4 and receiving waters.

Post-construction conditions shall not result in changes to existing conditions on abutting properties or public ways due to increased volume or peak rate of stormwater runoff, erosion, silting, flooding, displacement, sedimentation, or adverse impacts to wetlands and other resource areas as defined in the Massachusetts Wetlands Protection Act and/or the Needham Wetlands Protection By-Law.

Where any proposed discharge may affect streams, wetlands, and/or the MS4 or its conveyance system, the DPW Director or Permitting Authority may require minimization or elimination of such impacts based on site conditions and the capacity of the existing stormwater system.

10.5. Low-Permeability Soil

During the design of the Stormwater Management and Erosion Control Plan, the site, in whole or in part, may be found to contain soils with low permeability that do not allow stormwater to infiltrate effectively. Low-permeability soils are those that absorb water slowly due to natural soil properties, compaction, or seasonal saturation. Supporting information, such as soil test locations prepared by a qualified soil evaluator, should be provided to document how these areas were identified and how they influence the design of stormwater management measures.

The alternative approaches provided are approved methods that should be considered during project development and design to manage stormwater. These methods may be used in place of, or in conjunction with, the traditional infiltration methods described in these Regulations to meet or exceed the required 1.5" infiltration standard. While these alternatives can enhance infiltration, their applicability still depends on soil conditions and site constraints and must be evaluated for suitability at each project site.

Any alternative approaches are subject to the acceptance and approval of the Permitting Authority and will only be considered in cases of existing infrastructure, not for new construction projects that could be designed to accommodate infiltration.

A. On-Site Infiltration/Green Infrastructure Options

- Bioretention / Rain Gardens
Suitable where some infiltration is possible; amended soils or underdrains can help improve performance in low-permeability areas.
- Infiltration Basins or Ponds
Performance depends on level of soil permeability; may be ineffective if soils are very low-permeability.
- Green Roofs
Do not depend on native soils; ideal when ground infiltration is limited.
- Vegetated Swales / Infiltration Swales
Can provide some infiltration along flow paths; performance depends on soil permeability.
- Engineered Soil Strips
Engineered soil allows infiltration even where native soils are poorly permeable.
- Rainwater Harvesting Collection System
Roof runoff is collected and either reused or directed into infiltration systems; useful where soils cannot infiltrate stormwater directly.
- Tree Trenches or Tree Boxes
Use engineered soil and storage to provide infiltration where native soils are restrictive.

B. Alternative Compliance / Off-Site Solutions

These options are used when site conditions, such as low-permeability soils, make it infeasible to meet infiltration requirements on-site.

a. Small Diameter Drain

If sufficient evidence and supporting documentation demonstrate that a proposed project site contains, in whole or in part, soils with low permeability and is located within 100 feet of the Town's drainage system, the installation of a small-diameter Schedule 40 PVC drain (minimum 6 inches in diameter) may be proposed to the Permitting Authority to collect roof runoff from the dwelling, building, and/or outbuildings and discharge to the Town's drainage system. The drain must connect to a catch basin, another small-diameter drain, or a drain manhole located adjacent to the edge of pavement or curb and shall be designed to allow future extension to adjacent properties. Refer to the Construction Detail Plan – Typical Small Diameter Drain Construction for additional information.

b. Foundations in Groundwater Table

Foundations constructed within the groundwater table must provide on-site storage equal to the displaced water volume, in addition to other required SCMs, before consideration of a Small Diameter Drain connection.

- c. Stormwater Mitigation Fund
[Reserved]

10.6. Operation and Maintenance Plan

An Operations and Maintenance (O&M) plan is a critical component of stormwater management because it ensures that stormwater systems continue to function as designed over time. Without proper operation and maintenance, even the best-designed stormwater controls can fail, leading to flooding, erosion, water quality degradation, or regulatory noncompliance.

- A. An Operation and Maintenance Plan (O&M Plan) shall be submitted with the application for a Building Permit, Street Permit, Planning Board application, Board of Appeals application, or Conservation Commission application pursuant to the Stormwater By-Law and these Regulations. The O&M Plan must be designed to ensure year-round compliance with the Stormwater By-Law and remain effective throughout the life of the system.
- B. The O&M Plan shall apply to the entire property and shall encompass all existing SCMs and green infrastructure and not be limited to the most recently permitted area.
- C. The O&M Plan must be recorded prior to issuance of an Occupancy Permit or Certificate of Compliance with the Registry of Deeds, and proof of recording must be submitted to the Permitting Authority.
- D. The owner of the property shall maintain a log of all operation and maintenance activities, including without limitation, inspections, repairs, replacement and disposal. Annual inspection and maintenance records for all stormwater control measures (SCMs) shall be made available to the DPW and Permitting Authority upon request.
- E. For residential and commercial development, the O&M Plan, signed by the property owner, shall consist of:
 - An annual inspection of the SCM, and removal of sediment, leaves and/or debris as needed.
 - A plan or map showing the location of the systems and facilities including easements, catch basins, manholes/access lids, main, and stormwater devices.
 - An Inspection and Maintenance Schedule for all stormwater management facilities including routine and non-routine maintenance tasks to be performed.
 - Any other information required by the Director of Public Works/designee.

10.7. As-Built Drawing

- A. An As-Built drawing showing all stormwater management systems as constructed shall be submitted to the Permitting Authority prior to the issuance of an Occupancy Permit.
- B. As-Built drawings must be prepared, signed, and stamped by a Massachusetts Registered Professional Engineer and include a statement of compliance with approved plans, stormwater regulations, and permit conditions.
- C. As-Built drawings shall accurately reflect the final configuration, elevations, dimensions, and materials of all stormwater infrastructure, including but not limited to

infiltration systems, green infrastructure, drainage pipes, manholes, catch basins, and outfalls.

D. Please refer to Appendix B: Example Site Plan for details.

10.8. Design Criteria

- A. Post-construction measures shall, at a minimum, provide a combined volumetric capacity to recharge at least one and a half inches (1.5") of rainfall over the total impervious area of sites with no more than 4,000 square feet of impervious surface, including all buildings and other impervious surfaces.
- B. For sites with total impervious area equal to or greater than 4,000 square feet, compliance with combined volumetric capacity to recharge at least one and a half inches (1.5") of rainfall shall be demonstrated through supporting hydrologic and hydraulic calculations, design details, and supporting documentation prepared by a qualified professional and submitted to the Permitting Authority for review and approval. Showing that post construction rate of runoff and volume does not exceed the pre-construction rates for the 2-, 10- and 100-year storm events.
- C. For new construction, the stormwater management system must be designed to remove 80% of the average annual load of Total Suspended Solids (TSS), generated from the post-construction impervious area. Refer to the Massachusetts Stormwater Handbook for methodology of calculation.
- D. In accordance with the MS4 General Permit, projects must be designed to remove 60% of the average annual load of Total Phosphorous (TP) generated from the post-construction impervious surface areas and remove pathogens.
- E. The bottom of stormwater infiltration systems shall be a minimum of 2 feet above the estimated seasonal high groundwater elevation.
- F. A groundwater mounding analysis may be required, at the discretion of the Permitting Authority, to ensure that the infiltration system will not cause groundwater to break out above land surface, seep into basements of nearby buildings, or cause other problems. All infiltration systems shall be designed to drain within 72 hours.
- G. Detention/retention basins shall be designed to have a minimum of 1 foot of freeboard during the 100-year design storm. The volume of sediment forebays (if applicable) shall not be counted towards the storage volume of the detention/retention basin. For design purposes, it shall be assumed that there will be no infiltration of stormwater within the drainage basin unless the basin is designed as an infiltration basin in accordance with the MSH. Detention/retention basins and associated forebays shall be required to drain within 72 hours. Basins shall be designed with an emergency overflow device, such as a weir, to safely pass the 100-year design storm to prevent overtopping and potential erosion of the berm, assuming the primary outlet is not functioning. The bottom of any sediment forebay shall be constructed of concrete or grass that may be mowed, for ease of maintenance. Depending on the depth and size of the basin, the Permitting Authority

may require fencing or other effective measures to be installed to prevent unauthorized persons and vehicles from entering the basin.

1. Place inlets and outlets to maximize the flow path through the basin.
2. Low flow outlets shall be designed to prevent clogging.
3. At the discretion of the Permitting Authority, these requirements may be waived or modified.

H. Minimize the total area of site disturbance and avoid unnecessary clearing and grading. Clearing and grading shall be limited to areas required for construction of structures, utilities, roads, recreational amenities, post-construction stormwater management facilities, and associated infrastructure.

SECTION 11 ENFORCEMENT

The Director of Public Works, their designee, shall enforce the Stormwater By-Law and these regulations and may pursue all applicable civil and criminal remedies for violations. Enforcement provisions are detailed in the Needham Stormwater By-Law.

Issued by the Select Board

DATE

TRUE COPY ATTEST: _____

Louise L. Miller, JD, Town Clerk

Appendix A: Preparation of Plans and Specifications

I. General Requirements

- a. All stormwater system plans and specifications shall be prepared as follows:
 - Professional Preparation
 - Every system shall be designed by a Massachusetts Registered Professional Engineer for permits triggered through the Building Department or Conservation Commission.

II. Street Permits

For street permits, the Department of Public Works may authorize an agent for the property owner if, in their opinion, the individual has sufficient background, experience, and certification, and the project will result in less than 500 square feet of impervious area.

- a. Stamp and Signature
 - Every plan submitted for approval must be dated and bear the stamp and signature of the designer.
- b. Scale
 - Plans shall be at a suitable scale (not more than 1 inch = 20 feet for plot plans).

III. Required Plan Information

- a. Each plan shall include the following information:
 - Legal boundaries of the property
 - Holders and locations of any easements
 - Location of all existing and proposed dwellings/buildings
 - Existing and proposed impervious areas (driveways, parking areas, walks, patios, pools, decks, etc.)
 - Dimensions and details of the stormwater system(s)
 - System design calculations
 - North arrow and existing/proposed 1-foot contours
 - Location and logs of deep observation hole tests, including:
 - Date of test
 - Existing grade elevations
 - Soil evaluator of record
 - Subsurface utilities
 - Drainage system details
 - Benchmark (NAVD 88 or Town of Needham sewer base) within 50–75 feet of the system.
 - Materials of construction and specifications.
- b. Engineered Site Plan
 - Title Block
 - Preparer's name, address, and phone number
 - Owner's name
 - Date

- Engineer's PE stamp and signature
- Land Surveyor's stamp/signature (if applicable)
- Assessor's reference, deed reference, and plan reference
- Zoning district
- Existing Conditions
 - Street bounds found and set
 - Lot area, lot and house number
 - Zoning setback lines
 - Adjacent abutter names (N/F)
 - Legend
 - Topography (lot and ROW): contours, spot elevations, retaining walls, utilities, structures
 - Utility mains: water, drain, sewer (size, type, slope), gas, electric, communications.
 - Sewer/drain structures: rim and invert grades for catch basins, manholes, point discharges, inlets
 - Street trees (size, type, drip edge)
 - Sidewalks and curbing (type/material)
 - Wetland line with flags/numbers, 100-ft buffer zone, and other jurisdictional zones
 - Nearest catch basin or measured distance to nearest catch basin (for foundation drain connections)
 - Existing building footprint (sf)
 - Total impervious area (sf)
- Proposed Conditions
 - New structures with dimensions and offsets to property lines
 - Proposed utility services: water, sewer, drain, gas, electric
 - Driveways: max. grade 12%, max. width 24 ft (at back of sidewalk or property line)
 - Major tree clearing limits
 - Slopes: no toe of slope within 5 ft of property line
 - Proposed topography, contours, spot elevations, structures, retaining walls, impervious areas
 - Spot elevations: building corners, driveway apron centerline, gutter line
 - Elevations: top of concrete, garage floor
 - Erosion control barrier
 - Stormwater requirements: plan and details
 - Building footprint (sf)
 - Total impervious area (sf)
 - Foundation drain(s) with invert elevations at structure and outfall
- General Notes
 - Reference Appendix B (sample engineered site plan).

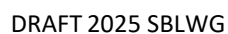
IV. Design Standards and Construction Requirements

- a. Porous pavement is considered an impervious surface for calculating Required Water Quality Volume and Required Recharge Volume. The larger of the two must be used to size the storage media beneath porous pavement.

- b. Subsurface components shall not be backfilled or concealed until final inspection is conducted by the Approving Authority and written permission to backfill is granted by both the Approving Authority and the design engineer. Any covered components without such permission shall be uncovered at the request of the Approving Authority or the Department.
- c. Upon request, the designer shall submit an electronic ACAD-compatible site plan.

V. Field Testing and Infiltration System Requirements

- a. Every proposed infiltration area shall be assessed using:
 - Deep observation hole testing.
 - Soil profile determination.
 - Landscape position.
 - Hydrogeologic properties.
- b. Minimum Setbacks and Separation Distances
 - Minimum horizontal setback: 10 feet to property lines or basement structures.
 - If setback cannot be met, applicant must evaluate and provide protection to nearest receptors.
 - Minimum vertical separation: 2 feet between bottom of stone beneath infiltration system and high groundwater elevation.
 - For systems with <4 feet separation, a mounding analysis may be required by the approving permit authority.



Appendix C: Sample Operations and Maintenance Plan (O&M)

Stormwater Management System Operation and Maintenance (O&M) Plan

This Stormwater Management System Operation and Maintenance (O&M) Plan describes the inspection and maintenance of the drainage and stormwater management system installed system at (address) in Needham, Massachusetts.

Responsible Party

The Property Owner is responsible for the operation and maintenance of the stormwater management system on the property.

Inspection and Maintenance

The stormwater management system covered by this O&M Plan consists of *(describe system and location)*.

In general, inspection and maintenance activities shall be conducted by qualified personnel and in accordance with best management practices and manufacturer's recommendations.

Inspection to be carried out every six months for the first year of service. Future inspection frequency can be adjusted based upon previous inspection observations however, inspections will be provided no less than annually.

Record-Keeping

Homeowner shall maintain a log of all inspections and maintenance activities which shall be made available to the Conservation Department upon request. The log shall include the following information:

- Date of inspection or maintenance
- Name of inspector or maintainer
- Conditions observed
- Description of cleaning or maintenance needs
- Description of maintenance provided

This O&M Plan shall be signed by the Property Owner and filed with the Registry of Deeds along with the Certificate of Compliance.

This O&M Plan is valid in perpetuity and any future Property Owners are solely responsible for management of the stormwater system on-site in accordance with this O&M Plan.

Property Owner

Name: _____ Signature: _____

Address: _____

(Attachments: if any)