

Braintree Bylaw Chapter 12.20 Wetlands

Rules and Regulations

Adopted on July 26, 2001

Amended June 11, 2009

Amended October 3, 2019

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Rules and Regulations

I. GENERAL PROVISIONS AND PROCEDURES

A. PURPOSE

In conjunction with Chapter 12.20, Section IX of the Braintree Wetland Bylaw [Bylaw], these Rules and Regulations are established to define key terms, to establish procedures governing the filing of Notices of Intent, Abbreviated Notices of Resource Area Delineation or Requests for Determinations of Applicability, to set fees for the processing of applications, and to establish additional regulations for areas subject to jurisdiction under the Bylaw. On July 26, 2001, the Conservation Commission voted to adopt these Rules and Regulations, and they were subsequently amended in 2009 and 2019.

B. WAIVERS

Strict compliance with the Bylaw and these Rules and Regulations may be waived when, in the judgement of the Conservation Commission, such action is in the public interest and is consistent with the intent and purpose of the Bylaw. Any request for a waiver must be submitted to the Commission in writing at the time of filing.

C. DEFINITIONS

Abbreviated Notice of Resource Area Delineation: an application to determine the accuracy of wetland resource area boundaries

Abutter: See Braintree Bylaw Chp. 12.20 Sec. V.A.1. For purposes of these Rules and Regulations, directly opposite a water body shall mean located within 100 feet of subject property

Activity: any form of construction, reconstruction or expansion of any building, structure, road, or alteration of the physical, chemical or biological characteristics of an area of land or water

Agriculture: See 310 CMR 10.04

Alter: See Braintree Bylaw Chp. 12.20 Sec. X.

Applicant: See Braintree Bylaw Chp. 12.20 Sec. X.

Certificate of Compliance: written determination by the Conservation Commission that all work authorized has been completed in accordance with the Order of Conditions

Conditions: those requirements set forth in a written Order of Conditions issued by the Conservation Commission to regulate or prohibit any activity

Conservation Commission: Braintree Conservation Commission

Creek: See definition for “Stream”

Date of Receipt: date of delivery in the Department of Planning and Community Development

Determination of Applicability: written findings by the Conservation Commission as to whether a site or the work proposed thereon is subject to the jurisdiction of the Bylaw

Dredge: to clean, deepen, widen or excavate, either temporarily or permanently

Erosion Control: the prevention or reduction of the detachment or movement of soil or rock fragments by water, wind, ice or gravity

Emergency: projects necessary to protect the health and safety of the public and which require immediate action

Fill: to deposit or place any material so as to raise an elevation, either temporarily or permanently

Flood Control: the prevention or reduction of flooding

Floodplain: any land susceptible to being inundated by a flood having a 1% chance of being equaled or exceeded in any given year [a 100-year storm event]

Flooding: local and temporary inundation of water or a rise in the surface or body of water such that it covers land not usually under water

Ground Water: water below the earth's surface in the Zone of Saturation

Issuing Authority: Braintree Conservation Commission

Land: any ground, soil, earth, [including wetlands and drainage ways] and any areas not permanently covered by water

Lake: any body of fresh water with a surface area of 10 acres or more, including Great Ponds

Notice of Intent: a written notice filed by any person intending to alter the physical or chemical properties of areas subject to the Bylaw

Order: Order of Conditions

Person: See Braintree Bylaw Chp. 12.20 Sec. X.

Person Aggrieved: A person who, because of an act or a failure to act by the Issuing Authority, may suffer an injury in fact which is different either in kind or magnitude from that suffered by the general public and which is within the scope of the interests defined by the Bylaw. Said person must specify in writing sufficient facts as to how he or she may be affected by said act or failure to act.

Plans: See Rules and Regulations Section I.

Pond: See Braintree Bylaw Chp. 12.20 Sec. X.

Prevention of Pollution: the prevention or reduction of contamination of surface or ground water

Private Water Supply: any source of water available for private use

Public Water Supply: any source of water available, or potentially available, for public use as a designated water supply

Quorum: the majority of the Conservation Commission

Remove: taking away or removing any material thereby changing the elevation, either temporarily or permanently

Resource Areas: See Braintree Bylaw Chp. 12.20 Sec. II.

River: See Braintree Bylaw Chp. 12.20 Sec. X.

Significant: plays a role in the protecting of the public interests under the Bylaw

Stream: a body of running water including brooks and creeks, continuous or intermittent, moving in a definite channel in the ground

Storm Damage Prevention: elimination or reduction of any damage caused by a storm

Water Pollution Prevention: See Prevention of Pollution [above].

Wildlife: mammals, birds, fish, reptiles, amphibians and invertebrates

Work: See Activity

Zone of Saturation: the subsurface zone in which all open spaces are filled with water

D. FORMS

All forms must be approved by the Conservation Commission prior to their use and will be available from the Department of Planning and Community Development. The same forms as those required by the Wetlands Protection Act, Massachusetts General Law (MGL) Chp. 131, Sec. 40, may be submitted if notice is given of application per Braintree Bylaw Chp. 12.20.

E. INCOMPLETE SUBMISSION

If the Conservation Commission determines that an application is incomplete, it shall notify the applicant within 21 days of the date of receipt.

F. NOTICE OF INTENT

Any Notice of Intent shall include plans, specifications and a complete description of all work proposed, all wetland resource areas on and adjacent to the site, impacts of proposed work on said resource areas, mitigation measures to reduce or eliminate said impacts, appropriate maps [locus, USGS] and calculations. In that the Bylaw considers public or private water supply, flood control, water quality, groundwater, storm damage prevention including coastal storm flowage, erosion and sedimentation control, water pollution control, fisheries, shellfish, wildlife habitat, rare species habitat, recreation and aesthetics, significant values of the wetlands, an applicant shall include a narrative addressing the impacts of any proposed activity on these values and how they will be mitigated. The narrative shall also address any relevant regulations in these Rules and Regulations. Due regard shall be shown for all natural features such as large trees, water courses and bodies, wetlands, wildlife habitat, and similar community assets.

In addition to these Rules and Regulations, the applicant shall consult MGL Chp. 131, Sec. 40, 310 CMR 10.00, Braintree Bylaw Chp. 12.20 before filing.

1. Submission Requirements

Under the Braintree Bylaw, the applicant shall submit to the Conservation Commission:

- a) a List of Direct Abutters- based on the most recent Assessors’ records, and including those adjacent to a road, across a water body or in another municipality;
- b) a stamped envelope addressed to each abutter and submitted in the order the names appear on the abutters’ list;
- c) a check to the Town of Braintree for the local filing fee (see FEE schedule to determine your fee);
- d) two (2) copies of the application and plans
- e) electronic copy of the application, plans and stormwater report or other supplemental material

See also the current filing checklist for full submission requirements under the both the state Wetlands Protection Act and Braintree Wetland Bylaw.

2. Fee Schedule

Fees apply to any of the following wholly or partially within any resource area or buffer zone.

Category 1: \$75 a) Minor project: house addition, swimming pool, grading on a single or two-family lot
Category 2: \$300 a) Construction of a single or two-family dwelling b) Crossing of a resource area for single or two-family lot c) Parking area for up to 10 parking spaces
Category 3: \$500 a) Each new subdivision lot and/or roadway b) Parking area for 11-50 parking spaces c) Alteration, greater than 2000 sq. ft., of site without any proposed building or pavement (i.e. removal of vegetation, removal of topsoil, grading, etc.) d) Any other activity not in Category 1, 2 or 4
Category 4: \$800 a) Parking area, 51 or more parking spaces b) Each building in a multifamily development c) Each commercial or institutional building d) Each new stormwater discharge e) Each crossing of resource area other than Category 2 f) Dredging g) Bridge

G. ABBREVIATED NOTICE OF RESOURCE AREA DELINEATION

Any Abbreviated Notice of Resource Area Delineation shall include site plans and shall indicate all wetland resource areas on and adjacent to the site.

In addition to these Rules and Regulations, the applicant shall consult MGL Chp. 131, Sec. 40, 310 CMR 10.00, Braintree Bylaw Chp. 12.20 before filing.

1. Submission Requirements

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- c) a check to the Town of Braintree for the local filing fee (see FEE schedule to determine your fee);
- d) two (2) copies of the application and plans
- e) electronic copy of the application, plans and other supplemental material

See also the current filing checklist for full submission requirements under the state Wetlands Protection Act and Braintree Wetland Bylaw.

2. Fee Schedule

- a) \$100 for less than 500 feet of resource area delineation
- b) \$300 for 500 or more feet of resource area

H. REQUEST FOR DETERMINATION OF APPLICABILITY

Any person who desires a determination as to whether the Bylaw applies to an area or to work to be performed on said area shall submit a written request to the Conservation Commission, as well as a site plan (or, subject to approval by the Commission, a sketch plan or an aerial photo of the site depicting the site as well as existing and proposed conditions and resource areas).

1. Submission Requirements

- a) a List of Direct Abutters- based on the most recent Assessors' records, and including those adjacent to a road, across a water body or in another municipality;
- b) a stamped envelope addressed to each abutter and submitted in the order the names appear on the abutters' list;
- c) two (2) copies of the application and plans and any supplemental material;
- d) proof that the owner has been notified (if the applicant is not the owner).

See also the current filing checklist for full submission requirements under the state Wetlands Protection Act and Braintree Wetland Bylaw.

2. Fee Schedule

There are no filing fees for a Request for Determination of Applicability.

I. PLANS AND REPORTS

The regulations below are set out as a minimum standard for submission of plans and reports. The applicant may be required to submit any additional information deemed necessary to determine the proposed effect on the interests protected by the Bylaw.

1. Plans

Plans shall show the location of all statutory wetlands on site and indicate the location of all wetland flags. Wetland delineations shall be based upon the current State of Massachusetts Wetland Plant List (<http://wetland-plants.usace.army.mil/>). All plans shall be drawn to an appropriate scale and include the name and location of the project, the names of the person(s) preparing the drawing and the date prepared, including the latest revision date. Drawings shall be stamped and signed by a qualified Registered Professional Engineer or Registered Land Surveyor of the Commonwealth of Massachusetts. Plans shall also include the following:

- a) names and addresses of the applicant and owner of record
- b) names of all abutters, as determined from the most recent local tax list
- c) maximum and minimum ground water elevations with dates of measurement, samplings, and test pit locations and logs
- d) soil characteristics in representative portions of the site,
- e) methods to be used to control erosion and maintain embankments facing any wetland and location of erosion control structures
- f) existing and final surface contours and contour intervals [not greater than two (2) feet], and stream invert contours
- g) locations and elevations of sills
- h) invert elevations on catchbasins
- i) locations, sizes and slopes of existing and proposed culverts and pipes
- j) existing and proposed flood storage capacity of the property at one foot elevation increments including calculations and data upon which capacity is base [If filling is proposed, the effect of loss of storage on downstream channels and culverts shall be indicated.]
- k) location and elevation of Bench Mark used for survey; plans shall be in NAVD 88 datum
- l) existing stone wall, fences, buildings, historic sites, rock ridges and outcroppings
- m) proposed pollution control devices on site, such as hooded catchbasins, oil absorption pillows, detention/retention basins, proprietary separators, flow dissipaters, or vegetative buffers, rain gardens or other low impact best management practices

2. Reports

- a) hydraulic calculations for the 2, 10, 25 and 100-year design storms and the data on which they are based
- b) a list of all required permits, variances or approvals and proof of application for same
- c) description of any alterations to flood storage capacity on the site and compensatory flood storage calculations
- d) runoff plan and calculations for the 2, 10, 25 and 100-year design storms using appropriate methodology and showing existing and proposed runoff conditions for comparative purposes
- e) hydrographs that illustrate runoff characteristics before and after the proposed activity

J. CHANGE IN SUBMITTED PLANS

Should there be any significant change in proposed activity subsequent to filing an application, the applicant must notify the Conservation Commission in writing. No work shall be done on the subject area until the Commission has reviewed the changes. Within 21 days of receipt of notification of changes, the Commission shall determine if a new application must be filed.

K. CERTIFICATE OF COMPLIANCE

A Certificate of Compliance will be issued only after a project is completed in its entirety. An applicant shall request in writing a Certificate of Compliance and provide the Conservation Commission with as-built plans.

The Commission may include the requirement for a cash as-built guarantee in the Order of Conditions to ensure that an as-built plan is provided in a timely manner and that the project complies with the Order prior to issuance of a Certificate of Compliance.

II. ADDITIONAL REGULATIONS FOR RESOURCE AREAS SUBJECT TO JURISDICTION

A. TREE PROTECTION

1. Preamble

Trees play a significant role in preserving the wetland values protected by the Bylaw. Cutting and destruction of shade, ornamental and evergreen trees increases surface drainage problems, increases municipal costs to control drainage, contributes to problems with soil erosion, decreases water quality, decreases wildlife habitat, including potentially rare species habitat, reduces shading of wetlands and streams with associated negative impacts to water quality and aquatic wildlife, decreases the ability of wetlands to mitigate climate change, negatively impacts property values, increases the likelihood that wetlands will be altered, and may cause barren and unsightly conditions. The removal of trees adversely affects the health, safety, environment and general welfare of the residents of the Town of Braintree.

2. Regulations

These regulations are intended to deter the removal of trees from Resource Areas by requiring avoidance and minimization of tree removals, as well as requiring mitigation plantings for any permitted removals.

The Conservation Commission allows no loss of trees four inches (4”) in diameter at breast height (dbh) or greater for any activity within the Commission’s jurisdiction without replacement as follows.

Tree Removed	Replacement Required
Within 50-100 foot buffer zone	One to one replacement
Within 0-50 foot buffer zone	Two to one replacement
Within a resource area	Three to one replacement

Notes:

1. Replacement trees shall be 1.5”-2” minimum caliper [diameter or diameter at breast height (dbh)].
2. Species native to Massachusetts and appropriate for the site shall be used.
3. Cultivars shall not be permitted unless specifically authorized by the Commission.
4. Shrub species may be used at the discretion of the Commission. If permitted, the shrub replacement ratio shall be higher than the respective tree replacement ratio.

Should the applicant not have sufficient area on site to replant all the trees/shrubs required by this policy, the applicant shall make a monetary contribution of \$250 for each tree/shrub that is not replaced, to the Commission’s

Tree Planting Fund. The Tree Planting Fund is maintained by the Commission for planting and maintenance of trees on Town property.

As part of any application subject to the Commission’s jurisdiction, the applicant shall clearly indicate the location and number of trees four inches (4”) in diameter at breast height (dbh) or greater to be removed. Both the location and number of trees shall be verified by the Staff of the Department of Planning and Conservation as part of its project review on behalf of the Commission.

Documentation of a 75% survival rate at the end of two growing seasons shall be submitted to the Commission. If 75% survival is not achieved, replacement plantings of the same species shall be made by the applicant.

Dead or diseased trees which present a hazard to the public safety shall be exempt from this policy. The Commission may require documentation from a Massachusetts Certified Arborist (MCA), arborist certified by the International Society of Arboriculture (ISA), or other qualified arborist certifying that the tree(s) is an immediate safety hazard.

At the discretion of the Conservation Commission, owner-occupied, single-family homes may be allowed to replace trees at a lower ratio based on lot constraints.

B. BUFFER ZONE PROTECTION

1. Preamble

The buffer zone is critical in preserving the wetland values protected by the Bylaw. Buffer zones and their condition and activities undertaken within buffer zones affect the water quality of runoff into wetlands as well as the rate and volume of runoff, amount and type of pollution reaching resource areas, recharge of groundwater, quality and quantity of water supplies, potential for erosion and sedimentation into resource areas, ability of resource areas to contain flood waters and prevent storm damage, extent and quality of wildlife habitat and ability of wildlife to access habitat within resource areas, physical characteristics of resource areas for example by shading and by contributing organic matter, carbon sequestration and storage, climate change adaptation, resiliency and mitigation, educational and scientific research opportunities, recreational access and quality, and aesthetics. Vegetated buffer zones, especially naturally vegetated areas with mature vegetation, are particularly significant to preserving wetland values.

The potential for adverse impacts to resource areas from work in the buffer zone may increase with the extent of work and the proximity to the resource area, as well as being influenced by other characteristics of the buffer zone, such as steep slopes and the presence or absence of vegetation. Activities undertaken in close proximity to resource areas have a high likelihood of adverse impacts or cumulative adverse impacts to wetland values and subsequently to resource areas.

2. Regulations

In order to protect, improve and restore the wetland values of Resource Areas, the intent of the Conservation Commission is to:

- a) Move all structures, alterations and activities as far away as possible and feasible from any wetland resource area. Alteration to the buffer zone should be avoided first and then minimized, to the extent possible and feasible.
- b) Maintain naturally vegetated buffer zones, including wildlife habitat, whenever possible and feasible.
- c) Require mitigation and/or restoration of lawn or other altered or degraded areas within the buffer zone when deemed appropriate based on project scope, including but not limited to type, size, extent of

permanent disturbance, distance to wetlands resource areas and alteration to naturally vegetated buffer zone, and the existing and historical condition of the buffer zone. Restoration may include removal of debris, impervious surfaces, and/or non-native invasive species, grading to a topography which reduces runoff and increases infiltration if needed, coverage by topsoil at a depth consistent with natural site conditions if needed, seeding and/or replanting with appropriate native species or allowing natural revegetation if appropriate, and enhancing wildlife habitat if appropriate.

- d) Prohibit activities that are likely to be harmful to resource areas, including dumping of yard waste and debris in close proximity to resource areas, and application of pesticides, herbicides, fungicides and fertilizers, other than slow-release, low or no phosphorus fertilizers in the buffer zone, unless authorized by the Commission.
- e) Encourage voluntary restoration of degraded buffer zones when appropriate.

C. EROSION AND SEDIMENTATION CONTROL

1. Preamble

Uncontrolled excavation, grading and construction activities may cause soil and/or rock fragments to erode and negatively affects Resource Areas and their associated wetland values. Erosion and resulting sedimentation creates excess turbidity, which muddies streams and silts rivers and lakes, decreases water quality, negatively affects wildlife habitat and wildlife, including fish, shellfish and other aquatic organisms, clogs storm drains and swales and reduces channel capacity, which may result in flooding and associated damages, limits the use of water for most beneficial purposes, may require the costly repair of washed-out roads, bridges and embankments and may create unsightly conditions.

The following regulations apply to construction site stormwater runoff control.

2. Objectives

The objectives of these regulations are to:

- a) Reduce environmental drainage from sediment and erosion by requiring adequate provisions to control stormwater runoff [*Runoff*] and by protecting exposed or disturbed areas;
- b) Restrict runoff entering or leaving sites to non-erosive velocities through the use of erosion and runoff control measures [*Control Measures*] so that surface and ground water quality are protected, erosion is minimized and flooding potential is reduced;
- c) Assure that *Control Measures* are incorporated into site planning at an early stage in the design process;
- d) Prevent the unnecessary stripping of vegetation and loss of soils, especially adjacent to water bodies;
- e) Prevent construction activities that may cause mass movement, slumping or erosion of land surfaces;
- f) Prevent excess turbidity in water bodies;
- g) Eliminate costly maintenance and repairs to roads, embankments, swales, streams, water bodies, stormwater control facilities, and adjacent properties.

3. Intent

These regulations are designed to allow broad discretion for addressing the impacts from construction activities so long as *Control Measures* comply with the Objectives and Design Standards. These regulations therefore do not specify or mandate specific *Control Measures*. They provide the flexibility to choose or design *Control Measures* subject to review by the Conservation Commission.

4. Definitions

Adjacent Property: property which may experience erosion, sedimentation or construction impacts directly related to activities from a separate site

Certification: determination by the Commission that an Erosion and Stormwater Runoff Control Plan [*Plan*] complies with these regulations

Certified Professional: a geologist, a professional engineer, landscape architect, or wetland scientist

Construction Activity: developing, redeveloping, enhancing and maintaining land, including but not limited to land disturbance, building, construction, paving and surfacing, storage and disposal of construction related materials

Development: any construction or grading activities

Dewatering: removal and disposal of surface water or ground water to prepare a site for construction

Directly Drains: conveyance and discharge of *runoff*, either on the surface or by an open channel or pipe, into an adjacent water body

Disturbed Area: an area where the ground cover is destroyed or removed

Erosion: detachment and movement of soil or rock fragments by water, wind, ice or gravity

Erosion Prevention: measures to prevent and/or minimize erosion, sedimentation and other impacts associated with construction activities

Grading: excavating, grubbing, filling or stockpiling of earth materials

Highly Erodible Soils: soil map units classified as such by the Natural Resources Conservation Service

Land Disturbance: activities that can change the physical conditions of a landform, vegetation or hydrology including, but not limited to, clearing, grading, grubbing, excavation, filling and storing of materials

Soil: any unconsolidated mineral or organic material

Untreated Runoff: contaminated runoff that has not been filtered, screened, settled or otherwise treated for removal of pollutants prior to discharge into a stormwater system or adjacent water body

Water Body: permanent or intermittent bodies of water including creeks, streams, ponds, rivers, lakes, drainage channels and wetlands

Wetland: any land which meets local, state or federal definition of wetland and is subject to the jurisdiction of the Commission

5. Applicant's Responsibilities

- a) Persons engaged in development shall file a *Plan* in accordance with these regulations.
- b) Development shall not begin unless a *Plan* has been certified and those *Control Measures* identified in

the *Plan* are installed and functional.

- c) All *Control Measures* shall be maintained in effective conditions to ensure compliance with the *Plan*.

6. Erosion and Stormwater Runoff Control Plan

- a) A *Plan*, prepared in accordance with the methods and measures identified in the publications below, shall be submitted with every Notice of Intent subject to these regulations.
- "The Massachusetts Erosion and Sediment Control Guidelines for Urban and Suburban Areas: A Guide For Planners, Designers, and Municipal Officials" (EOEA) and
 - "Guidelines for Soil and Water Conservation in Urbanizing Areas of Massachusetts" (Soil Conservation Service) and
 - Massachusetts Stormwater Handbook [Massachusetts Department of Environmental Protection (Mass DEP)]
- b) Said *Plan* shall have a Project Narrative which includes a description of:
- the nature and purpose of the development and the amount of grading involved,
 - the proposed stages of development including start and completion dates, the sequence of construction and grading activities, the sequence for installing *Control Measures* and for final stabilization, current site conditions,
 - neighboring areas that might be affected by the development, i.e. roads, water bodies and residences,
 - the soils on site including soil names, map unit, erodibility, permeability, texture and soil structure,
 - areas with potentially serious erosion problems,
 - the methods which will be used to control runoff, erosion and sedimentation,
 - specifications and calculations of how the site will be stabilized during and after construction,
 - maintenance activities for the *Control Measures*.
- c) Said *Plan* shall have a Site Plan which includes:
- north arrow, scale, benchmark and datum,
 - existing and final contours at two (2)-foot intervals extending at least 50 feet beyond the site's boundary,
 - existing vegetation including tree lines, grassy areas and unique vegetation,
 - boundaries of the different soil types on site,
 - property lines,
 - elevations of streets, parking lots, water levels of ponds and wetlands, storm sewer inlets and outlets and the first floor of all existing and proposed structures,
 - drainage dividing lines and direction of flow for the catchment areas on site during and after construction,
 - areas with potentially serious erosion problems,
 - limits of clearing and grading,
 - location of:
 - 1) utilities,
 - 2) *Control Measures* to be installed on site illustrated with detail drawings,

- 3) off-site and on-site access routes for construction and maintenance vehicles,
- 4) borrow and waste disposal areas,
- 5) debris and garbage disposal area,
- vegetation specifications for temporary and permanent stabilization,
- methods and location of concrete-wash disposal.

7. Design Standards

- a) Development shall be fitted to topography and soils so as to minimize erosion.
- b) In no event shall any site work be started prior to the starting date specified in the *Plan*.
- c) Natural vegetation shall be retained and protected wherever possible.
- d) Clearing, grading or other site work shall be performed in a manner that will minimize erosion and shall be limited to the area of immediate construction operations and for the shortest practical period of time.
- e) Site drainage shall be designed to effectively control runoff.
- f) Uncontrolled runoff shall not be diverted onto adjacent properties or into the storm drain or sewer system. Said runoff shall be disposed of at non-erosive velocities at established drainage locations.
- g) Sediment transported by runoff shall be retained on site through the use of sediment basins, silt traps or other appropriate measures, which to the extent possible, shall be installed before clearing and grading begin.
- h) Cut and fill slopes shall be constructed in a manner that will minimize erosion. No slope shall be steeper than two horizontal to one vertical unless approved by the Commission.
- i) Diversions or other appropriate measures shall be installed at the top of cut and fill slopes to prevent uncontrolled drainage flows on the disturbed slopes.
- j) Drainage swales used to divert runoff shall be vegetated and stabilized to control erosion in concentrated flow areas.
- k) All functioning storm drain inlets shall be protected so that runoff will not enter the conveyance system without first being filtered or otherwise treated to remove sediment.
- l) Suitable *Control Measures*, such as temporary seeding or mulching, shall be used to protect exposed critical areas during construction.
- m) A site shall be maintained and/or watered to prevent dust erosion.
- n) Grading shall not be permitted to continue if the Commission determines that fugitive dust is significantly impacting adjacent ways or property.
- o) Topsoil shall be stockpiled on site to the extent practicable for use on areas to be revegetated. Said soil shall be protected so that it does not erode.
- p) Stockpiled construction materials shall be protected so that they do not erode. Excavated materials shall not be deposited or stored near water bodies unless authorized by the Commission.
- q) Construction equipment shall not cross or disturb stream channels except at approved crossings.
- r) In areas of the site where construction activities will cease for more than 21 days or have permanently ceased, temporary vegetation or other stabilization measures shall be initiated within 14 days of cessation of said activities, weather permitting.
- s) Where inadequate vegetation exists, temporary or permanent vegetation shall be established.
- t) Permanent protective vegetation and erosion control structures shall be installed as soon as practical and shall not be considered established until the ground cover is mature enough to satisfactorily control erosion. Ground cover shall not be considered mature until at least two growing seasons have elapsed.
- u) Whenever access routes for construction vehicles intersect public roads, provisions shall be made to minimize the transport of sediment by runoff or by vehicles onto said roads. When sediment is transported onto a public road surface, the road shall be cleaned thoroughly at the end of each day, or more often if required by the Commission.

8. Maintenance

- a) All Plans shall include a maintenance element which shall:
 - identify all of the *Control Measures* that will be inspected and maintained,
 - provide an inspection schedule for each *Control Measure*,
 - list typical maintenance procedures for each *Control Measure*,
 - describe steps to take if *Control Measures* prove inadequate,
 - provide forms and instructions for record keeping,
 - list the names and personnel assigned to each task and the training needed to perform each job
 - provide for inspection and review of records by the Town of Braintree
- b) *Control Measures* installed under these regulations shall be adequately maintained in perpetuity in accordance with the *Plan* by the applicant and any owner of lots on which said measures have been installed.

9. Inspection and Enforcement

The Commission shall enforce these regulations. If the Commission or its staff finds that on-site conditions are in violation of these regulations or not as stated in the *Plan*, the Commission may issue a stop work order and direct the applicant to take corrective measures. Additionally, under the Braintree Stormwater Management Regulations the Department of Public Works may inspect and enforce the stormwater regulations.

10. Construction Certification by Registered Professional

For any site that requires a professional site plan, the Commission may require that a certified professional verify in writing that all *Control Measures* have been installed in accordance with the *Plan*.

11. Sequencing of Control Measures

If a project is so large or complex that a Plan encompassing the total project cannot reasonably be prepared prior to initial groundbreaking, an applicant may seek authorization from the Commission to undertake major grading activities incrementally. Approval by the Commission of phased grading activities shall take place in two steps. The applicant shall submit to the Commission for review and approval:

- a) a conceptual plan of the entire development, and
- b) detailed plans prepared by a Professional Engineer registered in the Commonwealth for each phase of the project showing the nature and extent of the work to be completed in that phase.

D. STORMWATER MANAGEMENT

1. Preamble

Increases in impervious surfaces and other land use changes associated with development can increase the volume and/or rate of stormwater runoff and negatively affect Resource Areas and their associated wetland values. Stormwater runoff increases flooding, leads to decreased groundwater recharge, causes soil erosion and sedimentation, carries pollutants and decreases water quality, negatively affects wildlife habitat and wildlife, including fish, shellfish and other aquatic organisms, and can impact the quality of drinking water.

The following regulations apply to post-construction stormwater management.

2. Low Impact Design and Green Infrastructure

- (a) The design of the project shall, to the maximum extent feasible, employ environmentally sensitive site design as outlined in the Mass DEP Stormwater Handbook, as amended, and shall attempt to reproduce natural hydrologic conditions with respect to ground and surface waters.
- (b) Evaluation of Low Impact Development practices is required and implementation of such practices to the maximum extent practicable is encouraged. If the proposed stormwater management system design does not fully utilize Low Impact Development techniques, the applicant shall provide written documentation of which Low Impact Development Best Management Practices were evaluated for the proposed project and the reasons such practices were found to be infeasible. Guidance on these practices is provided in the 2008 Mass DEP Stormwater Management Handbook.
- (c) In order to conserve potable water supplies and maximize recharge, it may be appropriate on some sites to store clean runoff (e.g. from roofs) for reuse on the site for irrigation or other gray water purposes. This can be accomplished, through the use of cisterns and rain barrels. Where appropriate, a water budget may be required to be prepared to determine applicability.

3. Hydrologic and Hydraulic Criteria

- (a) Hydrologic analyses using TR-55/TR-20 methodology shall be performed on the entire project site and include any off-site areas that drain to or through the project site.
- (b) The analyses shall be performed for the 2, 10, 25 and 100-year design storms under pre-development and post-development conditions. The specified design storms shall be defined as a 24-hour storm using the most recent rainfall distribution recommended by the National Oceanic and Atmospheric Administration Atlas 14, as amended.
- (c) The post-development peak discharge rate shall be equal to or less than the pre-development peak discharge rate, based on 2-year, 10-year, 25-year and 100-year 24-hour storms.
- (d) Hydrologic analyses are to be performed in a pre and post sub-watershed basis with designated control points at each location where runoff leaves the site or enters a water body.
- (e) The same land area shall be used in the analysis to facilitate comparison of existing and proposed conditions.
- (f) The total volume of discharge, as well as peak rate, shall be evaluated at each control point.
- (g) The site shall be designed to ensure that all runoff from the site up to the 100-year storm enters the control structure. For example, the drainage system may only be sized to handle a 25-year storm, with larger storms flooding the distribution system and traveling overland. This overland flow, or overflow, must be directed into the peak control structure or otherwise managed to attenuate flow.
- (h) For purposes of computing runoff, all pervious lands on the site shall be assumed, prior to development, to be in "good" condition regardless of conditions existing at the time of computation.
- (i) Off-site areas should be modeled as their present land use condition in good hydrologic condition.
- (j) The length of overland sheet flow used in time of concentration (TC) calculations shall be limited to no more than 50 feet for pre and post development conditions.
- (k) Stormwater Management Systems shall be designed to retain and/or treat the first one inch (1") of runoff from all impervious surfaces on the site. The portion of the first one inch (1") which cannot be feasibly retained and/or infiltrated shall be treated using treatment methods consistent with the Final Total Maximum Daily Loads for affected receiving waters and any additional treatment requirements in the Town of Braintree's MS4 Permit. Pre-treatment of runoff from paved surfaces is required to remove 44% of the Total Suspended Solids prior to infiltration. Driveways associated with applications for single-family dwellings are exempt from this requirement as per the 2008 Mass DEP Stormwater Handbook, but to the extent practicable, runoff from such driveways shall be directed to adjacent pervious surfaces.
- (l) Stormwater outlets shall be designed to prevent erosion.
- (m) For other structural stormwater controls not included in the Mass DEP Stormwater Handbook, or for which pollutant removal rates have not been provided, the effectiveness and pollutant removal of the

structural control must be documents through third party studies and receive approval from the Department before being included in the design of a stormwater management system.