TOWN OF MASHPEE REGULATIONS – CHAPTER 172 OF THE MASHPEE CODE (THE MASHPEE WETLANDS PROTECTION BYLAW AS REVISED AND APPROVED AS OF FEBRUARY 15th, 2024)

PREFACE

As stated in Section 13 of Chapter 172, this Bylaw and its regulations are adopted and promulgated under the Home Rule Authority of the Town of Mashpee to protect additional resource areas and wetland values other than those of M.G.L. Chapter 131, Section 40 (the Massachusetts Wetlands Protection Act, hereafter referred to as the WPA). Procedures and standards inherent to Chapter 172 (and regulations promulgated thereunder) are in many cases quantitatively and qualitatively different from those of the WPA and its regulations, and are intended to address wetland/resource area protection needs inherent to Mashpee.

(1) REGULATION 1 -- (Part A) - Notice Requirements for Minor Projects
(Part B) - (1) Submission of Applications (Requirements);
(2) Requests for Amended Orders of Conditions (Revised and Approved February 16, 2006)

(Part A) Notice Requirements for Minor Projects:

The following projects generally require no formal applications. If the Commission (or Commission Staff) deems it necessary, a letter may be required describing: (a) the type and extent of work to be done, (b) the site where the work is to be done and (c) methodology for debris disposal:

- exterior repair of existing buildings, including (but not limited to) sidewalls, roofing, replacement/relocation of doors, windows, etc.
- replacement of decks (in the original footprint), and using the same footings, sono tubes, etc.
- replacement of existing fences, where all work is done by hand and where no new post holes (and/or other alterations to the ground surface) are involved.

There will be no fee associated with these types of work. In the event that there is any dispute regarding any work being thus exempt (and needing no applications nor fees), the matter will be brought to the Commission for a vote.

(Part B) (1) Submission of Applications (Requirements);
(2) Requests for Amended Orders of Conditions

(1) Submission of applications shall be by certified mail, or by hand to the Commission's Administrative Secretary, Clerk or Conservation Agent. When delivering by hand, an application shall be stamped with the date received. As noted in Section 172-5.D of the Mashpee Code, if such applications are complete according to this Chapter and its regulations, a hearing shall be conducted within 21 days, unless a written waiver is provided.

(2) Any request for any Amended Order of Conditions shall be filed in compliance with the Regulations (including Submittal Requirements) as they exist at the time of such request (regardless of the Regulations/Submittal Requirements as they existed at the time of the filing of the Original Notice of Intent). **Application of current performance standards shall be limited only to those aspects of the original Order of Conditions and/or plans that are being proposed for amendment.** If such a request is complete (according to Chapter 172 and its Regulations), a hearing shall be held within 21 days, unless written waiver (to extend the date of the hearing beyond 21 days from receipt of the application) is provided to the Commission.

Any request for an Amended Order of Conditions must include a written request (letter) with a complete description of any departures from the original Notice of Intent and the previous Plan of Record. Also to be included must be a new plan acceptable to the Commission. The description (letter) and plan shall include original features and any changes and/or additions to previously approved surface features, structures (as defined in Regulation No. 24), pools, patios, ground cover, landscaping, natural

vegetation, drainage characteristics, or any other changes which would affect any resource area's capacity to maintain its wetland values.

Any Amended Order of Conditions applies only to such changes as listed above which are cited **both on the Plan of Record** accepted by the Commission as part of the Amended Order filing **and in accompanying, written narratives** as accepted by the Commission. Failure to cite said changes (from the original filing) on both the Plan of Record and in the accompanying, written narratives will invalidate any such change not so (dually) cited.

The Commission's acceptance of a request for an Amended Order of Conditions shall be based upon the Commission's conclusion that:

a. the purpose of the project has not changed substantially
b. the scope of the project has not increased substantially
c. the potential for adverse impacts (to the protected statutory interest of the Massachusetts Wetlands Protection Act and/or wetland values of Chapter 172 of the Mashpee Code) has not increased substantially.

The Commission's conclusion that the three aforementioned criteria have not been met will be just cause for the requirement of the filing of a Notice of Intent and/or denial of the Request for an Amended Order of Conditions. Any request for an Amended Order of Conditions shall be filed in compliance with the Regulations (including Submittal Requirements) as they exist at the time of such request (regardless of the Regulations/Submittal Requirements as they existed at the time of the filing of the original Notice of Intent).

Abutter notification requirements for any hearing held for a Request for an Amended Order of Conditions shall be the same as such requirements as exist (at the time such request for an Amended Order is filed) for a Notice of Intent under 310 CMR 10.00 and the Regulations for Chapter 172 of the Mashpee Code.

(2) REGULATION 2

(A) Continuances

(B) Plan Revisions (Revised and approved February 16, 2006)

(A) Continuances – Continuances for reasons of deficient applications and/or plans are at the discretion of the Commission. **Continuances because of deficiencies with applications and/or plans may be due cause, as deemed appropriate by the Commission, for a $100 continuance fee.**

(B) Plan Revisions – The Commission will not consider revised plans (at a hearing) unless they have been in the possession of the Commission for five (5) days prior to said hearing.

This provision may be waived upon a clear showing of hardship, if the plan changes were requested by the Commission and upon a finding by the Commission that any impact(s) upon the wetland values of Chapter 172 will be negligible.

(3) REGULATION 3 *(Revised and approved on 4/7/2005)*
(Part A) -- Submittal Requirements for Notices of Intent
(Part B) -- Requirements/Procedures when Plans and/or Other Information are Incomplete
(Part C) -- Requirements for Additional Information
(Part D)-- Rules for Hiring Outside Consultants

PART A: SUBMITTAL REQUIREMENTS FOR NOTICE OF INTENT

(1) Notice of Intent: All Notice of Intent (NOI) applications must be submitted by hand or, if the applicant has a fax number (continuously ready to receive messages during normal business hours), the Notice of Intent may be sent by certified mail.

The date of filing for an NOI is the date that we receive it, by hand delivery or by mail. Whichever way the NOI is received, notice to abutters must be given (as per the provisions of section 5, part {3) of Chapter 172) to all property owners within one hundred seventy five (100) feet of the boundary of the property upon which the work is proposed, according to the most recent records of the Assessors, including those property owners across any public or private road or way, or a body of water and in another municipality.

The abutter-notice form (hearing notice), which the Commission will prepare and provide (contingent upon the applicant providing adequate information including the items listed below), shall include all information required by State and local statutes. The Commission will provide the applicant their abutter-notice after the filing has been reviewed for completeness and a hearing has been scheduled by the Commission (refer to Regulation 1, Part B {1} and {2}).

Though the Commission will supply the abutter-notice form, the applicant is required to do the mailing of the abutter-notice form; it must be mailed by certified mail, return receipt requested. **It must also be mailed the same day as it is received from the Conservation Commission.**

At the time of the scheduled hearing, the following must be provided to the Commission: (1) the sender's receipts for certified mailing (white slips) or photocopy of same; (2) the certified return receipts (green cards) indicating those abutters who (actually) received their notice of the hearing, as specified in section 172-5.A. of the Mashpee Code.

*****NOTE: see also all instruction pages that are part of the Notice of Intent package. These instructions are considered part of these regulations and must necessarily be followed for any NOI application to be considered complete.*****

(2) Fee Schedule: See Regulation # 5

(3) Specificity of work conditions: The work description (item 6 on page 1 of the Notice of Intent package) shall be **complete and inclusive of all alterations proposed. Failure to do so may result in delays, hindrances to approval and even the possibility of enforcement actions and**

revocation of a permit. All work/alterations (including structures) to be done in or within 150 feet of a wetland/wetland resource area must be:

a. specifically described in item 6, as described above.
b. specifically described in any accompanying narratives submitted as part of the Notice of Intent.
c. specifically shown on accompanying plans (plot plans, site plans, etc.)
d. plans and/or documents NOT specifically listed in item 6 on page 1 of the Notice of Intent package shall not be considered part of said NOI. Therefore, any alterations/work described in documents not so listed shall not be considered as part of any permitted work/alterations allowed under any Order of Conditions issued.

FAILURE TO FOLLOW THE ABOVE PROVISIONS MAY RESULT IN A DENIAL OF A PROJECT (OR PART THEREOF). WORK/ALTERATIONS/STRUCTURES THAT ARE NOT SO CITED SHALL NOT BE CONSIDERED TO BE PART OF AN APPLICATION.

(4) Compliance with Zoning Bylaw Chapter 174, Section 33: If any portion of the work/alterations proposed involves the construction and/or placement of a building or structure within seventy five (75) feet from any water or wetland as defined by M.G.L. Chapter 131, Section 40, then the applicant must, if the Commission so deems it appropriate, submit a letter of certification, with supporting documentation and explanation, from an attorney licensed to practice law within the Commonwealth of Massachusetts, that certifies the property that is subject to the Notice of Intent is exempt from the provisions of Chapter 174, section 33 of the Mashpee Code which reads as follows:

"Any building or structure, exclusive of fixed or floating piers, wharves, docks, bridges or boardwalks, shall be set back at least fifty feet (50) from any water or wetlands as defined by M.G.L. Chapter 131, section 40."

(5) Hearing process when other Mashpee Board Approvals are needed: Though a hearing on the project may commence before other Town boards (where applicable) have permitted the project, written proof of such board's approval of any project (according to the same plans submitted as part of the Notice of Intent to the Conservation Commission) must be provided before any hearing is closed and a permit (Order of Conditions) is issued.

(6) Plan Requirements:

a. Plans **must** accompany any submitted Request for Determination of Applicability (RDA) or Notice of Intent (NOI). Submissions without plans will not be accepted. Revised plans, after a hearing is open, must be submitted at least 5 business days prior to the continued hearing (i.e., must be available to the public in the Commission's office for 5 complete business days). **Non-compliance with the preceding shall constitute due cause for an application to be considered incomplete and subject to denial.**

b. Plans must be to scale. Normally, a 1 inch equals 20 foot scale is required. Where the applicant thinks another scale is appropriate because of site-specific conditions, the Commission staff should be consulted before use of said (alternative) scale. **Architectural scales (ex. ; ½ inch = 20 feet) are NOT to be used.**

c. (1) The following boundaries of **Resource Areas** must be shown on plans when applicable:

- any freshwater (regardless of size)*
- any coastal wetland* (including saltmarsh & fringe BVW is present. The Commission may require, if deemed necessary, the depiction, by survey, of the highest spring tide of the year)
- any beach (show Mean High Water)*
- any dune (both primary and secondary)*
- any (tidal) flat (show Mean High and Mean Low Water)
- rocky intertidal shores (show Mean High and Mean Low Water)
- any waterbody, such as:
- ponds (show mean annual high water, i.e., mean annual flood level)*
- rivers (show mean annual high water, i.e., mean annual flood level)*
- streams (show mean annual high water, i.e., mean annual flood level)* (including intermittent streams)
- estuaries or the ocean (mean high water)*
- any coastal bank* (defined by slope-ratio and including any such slopes within the 100-year flood zone. Thus a coastal bank may be some distance from salt-water. For example, slopes that meet the slope-ratio criteria on Fells Pond are actually coastal banks because Fells Pond is within the Land Subject to Coastal Storm Flowage. (See also part G of this regulation and Regulation 16 – Coastal Banks for Chapter 172 of the Mashpee Code).
- any inland bank* (defined as any slope with a ratio $\geq$:1 that leads to a freshwater wetland or waterbody) (see Note 1)
- any land subject to flooding or inundation by:
  groundwater (see Note 2)
  surface water (see Note 2)
  tidal action or storm (i.e., the "100-year Flood Zone") (see Note 3)
  (Note: Under the WPA, these are called Isolated Land Subject to Flooding, Bordering Land Subject to Flooding, and Land Subject Coastal Storm Flowage
- the Riverfront Area* (the area 200 feet from a river, stream, or creek, as measured from the top of the bank (of said river, stream or creek) if freshwater, or from the mean high water line if tidal (see Note 4)

For the above, Commission's jurisdiction extends 150 feet (200 feet for Rivers) from these resource areas. Setback lines of 75 feet and 150 feet landward of any of these above cited resource areas must be shown on the plan. Both the inner riparian zone (100 ft) and outer riparian zone (200 foot) delineations must be shown for rivers.)

- **Note:** Slope ratios are necessary for determining **Inland or coastal banks.** In order to make these determinations when slopes are adjacent to water bodies and/or wetland, it will necessary to show elevations from which to begin slope ratio calculations. For Bordering Vegetated Wetlands (fresh water wetlands) the elevation of wetland flags should be shown. For coastal wetlands (saltmarsh), the elevations of the highest spring tide of the year (= upper edge of saltmarsh) should be shown. Any such elevations should be the nearest tenth of a foot (ex. 1.3' or 0.2') **If there are clearly no adjacent slopes that might qualify as **coastal or inland banks,** none of the above elevations are necessary.**

- State Certified Vernal Pools and/or State designated (mapped) rare species areas as identified on the most recent MNH&ESP Estimated Habitat Maps
- CZM designated Barrier Beaches
- Shellfish beds
- Eelgrass beds (see additional requirements for docks and piers)
- Mapped DEM Restricted Areas (refer to Map and Number)

Note 1 – Inland Banks are defined differently under the Wetlands Protection Act (WPA) and Chapter 172. The $\geq$ 4:1 slope ratio is for a Chapter 172 Inland Bank. Under the WPA, the Inland Bank is the Mean Annual Flood Level, or the first break in slope, whichever is lower.

Note 2 – As defined by calculations; see the relevant regulations for WPA and Chapter 172.

Note 3 – As shown on FEMA maps and depicted by:
For A–Zones: (equivalent) flood elevations based on N.G.V.D.
For V-Zones: As projected from FEMA Maps to Plan-Scale.

(The type of flood zone {A, V or AE} and elevation must be shown on applicable plans, along with the FIRM Community Panel Number and {latest} revision date.)
Note: Please be advised that plans based on N.G.V.D. will ALWAYS be required when a surveyed/engineered plan is required for work involving a lot (or lots) within 150 feet of any A-Zone or V-Zone as depicted on the latest versions of:

FEMA Flood Insurance Map Panel 9
FEMA Flood Insurance Map Panel 8
FEMA Flood Insurance Map Panel 6
FEMA Flood Insurance Map Panel 5

For any plans involving the above, said delineations must be based on a specifically identified N.G.V.D. elevation reference from the appropriate (and most recent) FIRM Flood Insurance Rate Map.

Note 4 – The Inner and Outer 200-foot Riparian Zones associated with Riverfront must be shown. The Inner Riparian Zone is from the Rivers Edge to 100 feet; the Outer Riparian Zone is from 100 to 200 feet. **Note:** ***The WPA Regulations and Chapter 172 Regulations define the Riverfront Area in a significantly different way. See the appropriate sections of these Regulations.***

c.(2) **Other Features/Information to be Shown:**

- the exact boundary of the Waquoit Bay ACEC line
- areas of existing natural vegetation versus existing (or proposed) landscaped areas
- grade changes (existing versus proposed contours, at 2-foot intervals. Existing contours should be dashed lines; proposed contours as solid lines. As deemed necessary, less than 2-foot contour intervals may be required. Fill amounts should also be provided.)

- Footprint of any structures*, patios*, wells, utility (water, sewage and/or electrical) lines and/or other components of utility systems. Driveway(s) should be shown and permeability of said driveway(s) noted.
- Septic systems*, as per Board of Health requirements
- For buildings, means of managing roof-runoff should be depcited, including gutters, downspouts, drywells, etc.
- All trees with a basal diameter of 4 inches or more that are planned to be removed (unless they are within the foot-print of any structure shown on the plans; if within the structures, trees with a basal diameter of 12" or greater should be shown)
- Retaining walls and/or any other structures designed to control erosion and/or sedimentation; paths or any other alterations to vegetation/ground cover so as to provide access
- **(Note:** Both plan view and cross-sectional views are required for docks and retaining walls, and may be required for other structures and/or grade changes, as deemed necessary)
- **Any** alteration (including, but not limited to the above) which physically alters drainage patterns, topography and/or vegetation (including ground cover) should be depicted on plans, and the square footage altered (for each affected resource area) noted in the Notice of Intent.
- Proposed work-limits (with details of siltation/sedimentation control devices, ex. silt-screens, hay-bales, combinations of same and/or alternative erosion/sedimentation control systems)
- The square-footage of the lot must be included on the plan
- Whether or not any portion of the lot in question is a Zone II, as shown on the "Zone II Recharge Areas for the Town of Mashpee" (as per the most recent map prepared by the Mashpee Planning Department)
- Professional Engineer stamps are often necessary for some plans, always for septic systems (a Registered Sanitarian stamp is also acceptable), for saltwater docks and for retaining walls of 5 feet or more in height. *If a project involves zoning setbacks and/or septic setbacks from property lines, a Registered Land Surveyor stamp is required.*

*Must be shown on the plan AND in the field with **numbered** (if a **Resource Area**) or *lettered* (if a **Feature**) stations. Stations should always be used when the "line" (depicting a **Resource Area** or a **Feature**) takes a turn. Under conditions where a "line" is straight, stations may be 30 feet apart; where heavy vegetation obscures views, station should be no more than 20 feet apart. **All stations should be correlative on both the plan and in the field.**

The Commission reserves the right to require other features/information shown on a plan, (or, included as a separate narrative) as deemed necessary to ascertain impacts. (See also the definition of "Necessary Information and Plans" in Regulation 24 of the Regulations for Chapter 172 of the Mashpee Code.

d. Denial Policy for Failure to Follow Flagging/Staking Requirements:

1. When any resource area within jurisdiction (of the WPA or Chapter 172) has not been shown on the Plan of Record (POR), or has not been flagged/staked in the field the project shall be denied.

2. When two or more staking/flagging requirements are not followed completely/correctly (ex. flags/stakes not labeled/numbered), and the ConservationAgent or Assistant Conservation Agent makes a finding that these omissions cause an inability to properly assess impacts, a recommendation shall be made to the Commission for denial.
   Note: <u>All resource areas, nearest* structure corners and work/limit must be labeled/numbers or lettered. The work-limit must be numbered or lettered whenever it takes a turn. Nearest* structure corners must be lettered. (*Nearest to water or wetland)</u>

3. When one or more staking/flagging requirements are not followed completely/correctly (ex. flags/stakes not labeled/numbers), and the Conservation Agent or Assistant Conservation Agent makes a finding that these omissions can be corrected and a proper assessment of impacts can probably be made with a corrected plan and one additional site-visit, a recommendation shall be made to the Commission for a continuance, with a $100 continuance fee assessed.

   Note: Revised plans correcting the deficiency must be delivered to the Commission's office no later than five (5) business days prior to the continuance date. Failure to do so shall be grounds for denial. Upon a second site-visit by the Conservation Agent or Assistant Conservation Agent, a finding by said staff-person that the revised plan does not properly correct the previous deficiencies, a recommendation for denial shall be made to the Commission.

4. NOI applicants may not be accepted if the application is not complete or accurate in project description, fees, Board of Appeals sign-off's, etc.

(7) Additional requirements for delineation of inland or coastal banks: For delineation of the above Resource Areas, and/or determination of alteration impacts to any areas within 150 feet of the above resource areas, the Commission may require plan view and cross-sections showing transects depicting:

- the area being delineated (showing the slope profile)
- the linear distance used to calculate the slope profile
- the location of this linear distance
- contour and/or spot elevation intervals used

<u>Methodology</u>:

a. Transects should be, in fact, *transect corridors* within which *perpendicular lines between contours* {i.e., between one or two foot contour intervals, see (d) below} should be used to calculate slope ratios.

b. Width of *transect corridors* will vary. Beginning at the Mean Low Water Line, show a perpendicular line to next (upgradient) contour [whether 1-foot or 2-foot contours; see (c) below]. Continue showing perpendicular lines to each successive (upgradient) contour, off-setting each perpendicular line (to

contour) the minimum necessary to keep the *transect* perpendicular. Continue the process until the "top of the coastal bank" (plus 1 foot, according to Chapter 172) is reached, as per DEP's Wetlands Protection Policy 92-1, "Coastal Banks: Definition and Delineation Criteria for Coastal Banks" as in DEP's "Wetland Protection Program Policies (March 1995)."

(See sample illustration)

c. Transect corridors should be no more than 50 feet apart (with a minimum of four for a single family lot). For other than single family lots, contact the Conservation Commission. (See also d below.)

d. Additional *transect corridors* (supplementary to those 50 feet apart) may be required for any questionable areas, as deemed so by the Commission.

e. The Commission, as it deems appropriate, may require one foot contour intervals to calculate slope-ratios within *transect corridors.* Usually, plans should be at a 1" = 10' scale for 1-foot contours and a 1" = 20' scale for 2-foot contours.

f. Plan and narrative requirements related to the above shall be at the discretion of the Commission. In the event of a disagreement and/or when the Commission deems it necessary, the applicant shall submit additional information and/or plans, detailing the above, as per the direction and/or requirements of the Commission. Failure to submit same shall be considered just cause for denying a project, as per the provisions of sections 7.B and 12 of Chapter 172.

(8) Consultant services required under Chapter 172(12)(b): See Regulation 3 (Part D) below

(9) Additional submittal requirements for proposed (new) docks and piers:

The following must be shown on the plan(s):

a. A profile (side view) of all parts of the dock (including floats) on a scale no smaller than 1: = 10 feet, showing location of all piles, Mean High Water, Mean Low Water and boundaries or any resource areas [i.e., coastal bank, saltmarsh or freshwater wetland, beach and/or any other resource area as found in Chapter 172, section 1 and/or 310 CMR 10.02 (1)(a)] within which any part of the structure is (or is proposed to be) located.

b. Any shell fishing areas within 150 feet* of the proposed project. (This pertains to both seeded and naturally occurring beds.)

c. The presence of any Eelgrass beds within 150 feet.*

d. Marked navigation channels within 150 feet.*

e. Location of any commercial, public and/or private moorings within 150 feet.*

f. The location of any existing Town, commercial and or private piers within 150 feet.* A recent (summer) aerial photograph may be provided.

g. The boundaries of each coastal resource area (as designated in Section 172-2 of the Bylaw) within 150* feet of the proposed structure. Said resource areas shall be flagged and/or staked, and numbered AND shown on the plan.

h. Water depths **to the surface of bottom sediments (from Mean Low Water) within** a 150 foot radius of the proposed structure(s).

****** NOTE – The Commission, at its discretion and when it deems further information necessary to evaluate effects upon the resource areas/wetlands values inherent to Chapter 172, Section 1, 2 and 12, may require the expansion of these distances up to 300 feet. Such information may be required at any time prior to a final decision being rendered.******

Also to be provided on plans, notes on plans or supplemental attachments:

i. The berths and exact locations of the boats at the floats and the type, size, draft and depth to the bottom of propulsion units must be provided for each boat.

j. The exact dimensions of the proposed structure(s), (including plan and side views) and the location and size of each piling. Piers shall be designed and constructed so as to minimize the shading effects upon Eelgrass, macrophytic algae, saltmarsh and/or dune grasses. Exact height, width of decking, deck plank spacing and direction of deck planks shall be shown.

k. Any bubblers, boat lifts or other accessory structures must be shown, and information provided about such accessories as deemed necessary by the Commission.

l. All copies of plans, computations, calculations, maps and drawings shall be signed and stamped by a registered, professional engineer (with experience in the appropriate area expertise) licensed in Massachusetts or in a state acknowledged by Massachusetts for reciprocity for performance of hydrology design and studies and shall include his/her registration number.

ALL PLANS MUST BE STAMPED BY A REGISTERED PROFESSIONAL ENGINEER AND A REGISTERED LAND SURVEYOR (AS DETERMINED UNDER 275 CMR 3.05 AND MGL 112, SECTION 81D).

m. Provisions for ensuring continued public access (for fishing, fowling and navigating) to the foreshore and the tidelands must be provided.

n. The applicant must submit a description of removal and/or storage of any removable portions of the structure.

o. A description of how Mean Low Water was determined must be provided.

p. Whenever an applicant seeks to construct a new dock (or enlarge an existing dock), in order to compensate for adverse environmental effect from the construction and/or use of the dock, the Commission may require landscape modifications in the area of upland up to 25 feet inland of such dock and across the entire water/wetland frontage of the property. Such landscaping modifications may include the removal of a sod lawn and the planting of appropriate indigenous species in order to create a buffer strip along the wetland resource area edge, to reduce nutrient loading to wetlands/surface waters and/or enhance wildlife habitat.

q. If in the view of the Commission (after receiving the input of the shellfish warden) more information concerning shellfish/fisheries resources is needed, a shellfish/fisheries inventory (following methodology/reporting requirements of the Commission) may be required.

r. The Commission, at its discretion, may require written analysis concerning the proposed project's effects on changes in sediment transport and/or wave (or wake) energy (including implications for shoreline erosion). Such analysis shall be certified by a Registered Engineer and a Coastal Geologist.

(10) Additional submittal requirements related to storm water management:

a. Surface hydrology information and plans may be necessary depending upon the complexity and size of the proposed project. Except for minor proposed projects without potential significant effects to the water budget and water regime of wetlands and water bodies associated with the site, a thorough review and analysis of hydrologic calculations and the potential hydrological impacts affecting all statutory interests may be required by the Commission. This will include, but not be limited to, the effects to water quality (qualities, quantities, characteristics, temperature and velocities at surface, subsurface and point discharges, where applicable).

It is suggested that the initial contact with the Commission and/or its Conservation Agent be implemented to schedule a pre-hearing conference with the applicant (and/or his/her representatives) along with other municipal representatives, if necessary, to review the scope and complexities of the proposed activities to determine some of the anticipated submittal requirements prior to design and preparation of the plans.

b. The site plan shall include all existing and proposed drainage structures, natural and/or man-made, with details as required to show where all runoff generated on, onto or off the site will be directed, and shall include mitigation and/or corrective designs and proposed construction and changes to drainage/structures or actual effect(s) to adjacent properties, wetlands and/or resource areas protected by section 172-2 of the Mashpee Code.

c. Where any modifications and or changes to existing drainage structures, site soil composition, vegetation and/or topography are proposed, said modifications may affect surface or subsurface

hydrology and impact the function/capacity of structures (as described in b above). This may create the requirement for modification(s) or additional structures. Copies of all maps and drawings used to calculate runoff or design data including delineation of watershed areas used in calculations, if applicable, shall be included with the submittal. This is to include copies of all such calculations, and a list of all charts, tables, graphs etc. used as reference to obtain data, formulas and methodology in performing computations.

d. Where access, storage, parking and the use of proposed or existing areas by equipment, vehicles, materials etc., specific design details and criteria for prevention of damage from pollutants (such as, but not limited to, toxic chemicals, heavy metals, wastes, oils, salts, coliform bacteria, sedimentation, turbidity, nutrients, fertilizers, etc.) that may be generated and which could affect runoff, impact and/or degrade water quality shall be submitted, including the maintenance proposed for/to such proposed systems for assurance of continued protective performance.

e. All copies of computations and calculations, maps and drawings shall be signed and stamped by a registered, professional engineer (with experience in the appropriate area expertise) licensed in Massachusetts (or in a state acknowledge by Massachusetts for reciprocity) for performance of hydrology design and studies, and shall include his/her registration number.

(11) Additional submittal requirements for vernal pools and Isolated Land Subject to Flooding: (See also Sections 22 (B) and 23 of the Regulations for Chapter 172 of the Mashpee Code.)

The following must be provided:

a. A plan showing the **entire contributing watershed with 2-foot intervals** shall be submitted with the required calculations.

b. Hydraulic calculations, including statement(s) showing how limits of all relevant resource areas (including vernal pools, rare species habitat(s) and/or Isolated Land Subject to Flooding) were determined, must be provided.

c. **INFORMATION AS INDICATED IN (a) AND (b) ABOVE MUST BE STAMPED BY A REGISTERED PROFEESSIONAL ENGINEER AND A REGISTERED LAND SURVEYOR (AS DETERMINED UNDER 275 CMR 3.05 AND MGL 112, SECTION 81D).**

(Part B) REQUIREMENT/PROCEDURES WHEN PLANS ARE INCOMPLETE

When the Commission requests further plans and/or other information in order to obtain complete information to carry out its statutory role in Requests for Determinations of Applicability (RDA's) and Notices of Intent (NOI's), the following shall apply:

1. When plans and/or information supplied with an RDA are deemed by the Commission to lack sufficient information with which to render a proper decision, the Commission may:

a. continue the hearing (with the permission of the applicant, either written or expressed at the RDA hearing) to a date certain, so as to allow the applicant sufficient time to obtain/prepare the information required by the Commission.

b. If the applicant does not give permission for a continuance, or fails to appear, issue a positive determination.

2. Under the Mashpee Wetlands Protection Bylaw, an application will be deemed incomplete, the hearing continued, and no Order of Conditions will be issued until all other applicable, local, and obtainable permits/licenses have been issued.

3. When plans and/or information supplied with a Notice of Intent are deemed by the Commission to lack sufficient information with which to close a hearing and to render a decision, the Commission may require that information.

Notice of Intent hearing thus affected may be closed upon the next available hearing date (following receipt of such plans and/or information that the applicant has furnished in response to the Commission's requirement for clarification/additional information) if the Commission so votes. If the Commission votes to so close the hearing, an Order of Conditions or a denial will be issued within 21 days of said hearing or within such later time as may be agreed to by the applicant in writing.

(Part C): REQUIREMENTS FOR ADDITIONAL INFORMATION

The Commission will permit an activity when an applicant demonstrates that any proposed project (activity), or its natural and consequential impacts and effects, will not have an adverse effect upon the wetland values protected in this Bylaw (Section 171-1). It shall be the responsibility of the applicant to provide the Commission with any and all information which the Commission may in writing (or orally, at a hearing) request in order to enable the Commission to ascertain such adverse effects. Such information may require professional services as described in the "Requirement for professional services section of the General Instructions for completing Notice of Intent for the Massachusetts Wetlands Protection Act (MGL Chapter 131, Section 40) and the following additional requirement: any new application for a dock, pier, groin, seawall, bulkhead, revetment, breakwater or jetty filed after August 1, 1990 shall require certification by a professional engineer.

(Part D) RULES FOR HIRING OUTSIDE CONSULTANTS UNDER MGL CHAPTER 44, SECTION 53G

As provided by GL Chapter 44, section 53G, the Mashpee Conservation Commission may impose reasonable fees for the employment of outside consultants, engaged by the Conservation Commission, for specific expert services deemed necessary by the Commission to come to a final decision on an application submitted to the Conservation Commission pursuant to the requirements of the Wetlands Protection Act (GL Chapter 131, section 40) and Conservation Commission Act (GL Chapter 40, section 8C).

Funds received by the Conservation Commission pursuant to these rules shall be deposited with the Mashpee treasurer who shall establish a special account for this purpose. Expenditures from this special account may be made at the direction of the Conservation Commission without further appropriation as provided in GL Chapter 44, section 53G. Expenditures from this account shall be made only in connection with the review of a specific project or projects fro which a consultant fee has been collected from the applicant.

Specific consultant services may include but are not limited to providing any information as described in **"necessary information and plans"** as cited in Regulation 24 for Chapter 172 of the Mashpee Code, **information related to impacts to Conservation Lands and/or interpretation of any environmental and/or land-use law related to the Commission's role in administering M.G.L. Chapter 40, section 8C.** The consultant shall be chosen by, and report only to, the Commission and/or its Administrator.

The Conservation Commission shall give written notice to the applicant of the selection of an outside consultant, which notice shall state the identity of the consultant, the amount of the fee to be charged to the applicant, and a request for payment of said fee in its entirety. Such notice shall be deemed to have been given on the date it is mailed or delivered. No such costs or expenses shall be incurred by the applicant if the application or request is withdrawn within five days of the date notice is given.

Access (by any permit applicant) to any consultant retained by the Commission under this section of the regulations shall only be through the Conservation Office. Questions, inquiries, comments shall be submitted to the Conservation Office in writing (unless at an on-site meeting as arranged through the Conservation Commission) and then be provided to the consultant by the Commission. Responses (from the consultant, in response to the applicant's written communication) shall be returned to the Commission, whereupon the Commission will provide a copy of said response to the applicant.

The fee must be received in its entirety prior to the initiation of consulting services. The Commission may request additional consultant fees if necessary review requires a larger expenditure than originally anticipated or new information required additional consultant services. Failure by the applicant to pay the consultant fee specified by the Commission within ten (10) business days of the request for payment shall be cause for the Commission to determine that the application is administratively incomplete (except in the case of an appeal). The Commission shall state such in a letter to the applicant, copies to the DEP. No additional review of action shall be taken on the permit request until the applicant has paid the requested fee.

The applicant may appeal the section of the outside consultant to the Mashpee Board of Selectmen, who may disqualify the outside consultant selected only on the grounds that the consultant has a conflict of interest or does not possess the minimum required qualifications. The minimum qualifications shall consist of either an educational degree or three or more years of practice in the field at issue or a related field. Such an appeal must be in writing and received by the Mashpee Board of Selectmen and a copy received by the Conservation Commission, so as to be received within ten (10) days of the date consultant fees were required by the Conservation Commission. The required time limits for action upon the application shall be extended by the duration of the administrative appeal.

METHOD OF PAYMENT FOR CONSULTANT SERVICES ORDERED UNDER SECTION 172-12.B. OF THE MASHPEE CODE:

In the event that the Commission may require (as is within its powers under Section 172-12.B of the Mashpee Code – The Mashpee Wetlands Protection Bylaw) additional consulting/engineering services, the method of payment shall be as follows:

1. The Commission shall provide to the consultant of its choice a written description of the specific information sought in order for the Commission to complete its review of the project (a copy of same will also be provided to the applicant).

2. The consultant's estimated charges for the study will be supplied to the Commission; the Commission will then supply a copy of these estimated charges to the applicant.

3. The applicant will provide a check for the amount of the estimated charges (made out to the **Mashpee Conservation Fund**). The consultant will not begin the study ordered by the Commission until this is done.

4. If the actual charges (after the consultant has completed the study) are less than the estimated charges, the applicant will be refunded the difference. If the actual charges are more than the estimated charges, the applicant will pay the difference with another check to the Mashpee Conservation Fund. In no case can the total of all charges exceed the $2,500 limit as prescribed in Chapter 172-12 B.

5. No Order of Conditions (or Determination, when the application is a Request for Determination of Applicability) will be issued until such time as the applicant submits payment of the entire bill, as described in 1 through 4.

6. Upon payment to the Conservation Fund as described in nos. 1-5 above, the Commission would vote to pay the Consultant for the work done.

Access by the applicant to any consultant retained by the Commission under this section of the regulations shall only be through the Conservation Office. Questions, inquiries, comments shall be submitted to the Conservation Office in writing unless at an on-site meeting, as specified in the next paragraph, and then be provided to the consultant by the Commission. Response from the consultant, in response to the applicant's written communication shall be returned to the Commission, whereupon the Commission will provide a copy of said response to the applicant.

In any meeting between the Commission's consultant and the Commission, its Conservation Agent or any individual member(s) of the Commission, the applicant will be notified at least three business days prior to said meeting and shall have the right to attend.

(4) REGULATION 4 – (Reserved)

(5) REGULATION 5 – FILING FEES *(Revised and approved March 24, 2011 & March 23rd, 2023)*

Filing fees, both state and/or local (whichever applies), should accompany the submission of an Administrative Review, Request for Determination of Applicability or a Notice of Intent. The submission must be by certified mail. Payment may be made by personal check, bank check or money order.

Submission of an incorrect filing fee will mean that any submission is incomplete; thusly, the 21 days statutory time limit (for RDA's and/or NOI's) for a hearing will not be in effect. The applicant will be notified that the filing is incomplete because of the insufficient filing fee. Upon receipt of the proper filing fee, or notice that the applicant is appealing (according to regulations of 310 CMR 10.00) the amount of the filing fee, the NOI or RDA application will be declared complete (unless other required information is lacking) and the 21 day statutory time period within which a hearing will be held will commence, where applicable.

Applicants should carefully read the information provided with the application regarding computation of proper filing fees. If in doubt, an appointment can be made for consultation regarding proper filing fees before a filing is submitted.

MASHPEE BYLAW FEE SCHEDULE:

NOTE: FEES FOR ALL AFTER-THE FACT FILINGS ARE NOTED BELOW WITH AN *

(All fees include advertising, where applicable)

Administrative Review ……	$150
After-the-fact filing……..	$300
Reissue of Order of Conditions, Certificates of Compliance, Extension Permits…….	$150
Request for Determination of Applicability…….....	$200
After-the-fact filing……..	$400
Business, Commercial and/or Industrial projects; Sub-Divisions…….	$240
After-the-fact filing……	$480
plus an additional $160 ($260 for after the fact filing) for each increment of 10,000 square feet (or portion thereof) of building/structure footprint(s)	
Certificate of Compliance – First Request…….....	$150
Certificate of Compliance – Second Request…….	$150
Certificate of Compliance – Third Request…….	$250
First Inspection…….	$50
Second Inspection……	$100
Third Inspection……	$150

At times COC inspections reveal that the project did not follow the permit guidelines, plan of record or that additional projects had taken place outside of the original permit parameters without notification to Conservation. If such is the case and it requires additional inspections, then additional charges will be implemented as according to the schedule above.

Amended Order of Conditions (includes advertising)…….	$200

After-the-fact filing……..	$400
Extension Permits…….	$200
Re-advertising of hearing notice…….	$75

NOTICES OF INTENT (all fees include advertising)

Category 1	$200
After-the-fact filing	$400
Category 2	$300
After-the-fact filing	$600
Category 3 (Business, commercial and/or industrial projects; sub-divisions) Plus an additional $190 ($270 for after-the-fact filing) for each increment of 10,000 square feet (or portion thereof) of building/structure footprint(s)	$550
After-the-fact filing	$1,100
Category 4	$610
After-the-fact filing	$1,120
Category 5 **(per linear foot**)	$4.50
After-the-fact filing	$9.00
For docks, floats, and walkways in same axis: total linear length of structure. Where float is perpendicular to the axis of the walkway, **ADD** linear length of walkway and ramp to longest dimension of float.	
Abbreviated Notice of Resource Area Delineation **(per linear foot)**	$3.50
$1.75 x total number of linear feet of Bordering Vegetated Wetland	

NOTE – ADD AN ADDITIONAL 50% OF THE CALCULATED FEE WHEN THE WORK INVOLVES ACTIVITIES WITHIN A RIVERFRONT AREA

The Commission may, at its discretion, waive fees for Town agencies, scientific, educational and/or non-profit entities.

(6) REGULATION 6 – Discretionary Requirements

(A) Recording of Plans (with Orders of Conditions)
(B) Notarized Statements by Owners/Project Supervisors

(A) Recording of Plans (with Order of Conditions)

The Commission may, at its discretion, require the recording of (in addition to the Order of Conditions) a plan which (1) shows the location of the work, (2) is prepared by a registered Professional Engineer, Land Surveyor and (3) is in recordable form. In such situations where the recording of such a plan is required, no work proposed in the Notice of Intent (or Determination emanating from a Request for Determination of Applicability) shall be undertaken until such plans have been recorded in the Registry of Deeds or, if the land affected is registered land, in the registry section of the land court for the district where such land lies.

(B) Notarized Statements by Owners/Project Supervisors

The Commission may, at its discretion, require the owner of the property where work is permitted and/or the project supervisor, and any other persons involved with the project, to sign a notarized statement that they have read and understand the Notice of Intent and the Order of Conditions for said approved project. Such statement(s) will have to be submitted to the Commission before work can begin.

(7) REGULATION 7 (Reserved)

(8) REGULATION 8 (Reserved)

(9) REGULATION 9 (Reserved)

(10) REGULATION 10 (Reserved)

(11) REGULATION 11 (Reserved)

(12) REGULATION 12 -- Mitigation (Adopted June 30, 2005. Revised and promulgated April 28th, 2022)

PREFACE

The aim of mitigation is to recapitulate, to the greatest degree possible, the wildlife habitat and water pollution control values (of Chapter 172) diminished when alterations, permitted or illegal, occur in naturally vegetated areas under the jurisdiction of said Chapter. Wetland resource area replication, buffer zone mitigation/compensation will not be considered unless the project proponent has demonstrated to the Commission's satisfaction that there are no reasonable alternatives; that the project as proposed minimizes the amount of replication, mitigation/compensation necessary; that the mitigation proposed is at a minimum of 2:1 ratio; that the mitigation proposed enhances existing wetland resources and public wetland interests and that adequate construction and monitoring protocols are provided.

As per section 7.B. of Chapter 172, the Commission has the discretion to promulgate ***design specifications*** as a component of regulations adopted pursuant to section 8 (of said Chapter). The following involves said specifications for mitigation plantings pursuant to Chapter 172. Any or all of the elements below may be invoked at the discretion of the Commission, depending upon the Commission's assessment of the wetland values diminished by a violation or other alteration of a resource area and/or the Naturally Vegetated Buffer Strip (NVBS), as per section 7.A.(1) of Chapter 172. Said assessment, if deemed necessary by the Commission, is subject to the provisions of M.G.L. Ch. 44, sec. 53G.

I. Definitions:

Biomass: All of the living material in a given area; generally refers to vegetation. For example, biomass in resource areas is generally significant to prevention of pollution, wildlife habitat value, recreation, storm water damage and flood damage prevention. Thus, when vegetation is destroyed, removed, cut or mowed, there is a loss of biomass and the benefits of that biomass. Rapid replacement of that biomass by mitigation plantings is required, as re-growth of cut plants is not sufficiently immediate to compensate for the lost biomass.

DBH *(Diameter at Breast Height):* A standard method of expressing the diameter of a trunk or bole of a standing tree. Tree trunks are measured at the height of an adult's breast, which is defined as 4.3 feet above ground.

Mitigation: Measures taken to reduce adverse impacts on the environment. Such measures may be required to compensate for illegal, excessive and/or unauthorized dredging, filling, cutting or other destruction of vegetation. Mitigation may also be recommended or required to compensate for impacts to resource areas from approved projects. ***Mitigation shall not be limited to allowing cut plants to grow back.*** Seeded meadows (i.e., native grasses plantings) shall be accepted as mitigation only for appropriate sites and shall not be considered adequate mitigation alone, especially for sites where the original vegetation was predominantly shrubs and/or trees, unless the Commission specifically permits it.

Plant Community Structure: An assemblage of plant species which interact among themselves and with their environment within a time-space boundary. For example, a coastal shrub-land community typically consists of grasses, vines and herbaceous plants and shrub and tree species typically found along the sandy, exposed coast of Cape Cod. Plant community structure is the various vertical layers of that plant community: typically for a forest plant community, a canopy tree layer, saplings and small, understory trees, shrubs, groundcovers and a herbaceous plant layer, and vines. Refer to the "Guidelines for Activities within Naturally Vegetated Buffer Strips (NVBS)", adopted November 18, 1999 and revised and approved on April 7, 2005 for more information on plant community structure, wildlife habitat and biodiversity, or plant species composition.

Tree Caliper: A special caliper to measure the diameter at breast height of a tree.

II. Applicability of Mitigation provisions

(A) When do these provisions apply? These provisions will generally apply whenever there is a violation of the Mashpee Wetland Bylaw, Chapter 172 or when compensatory mitigation is a condition of a permitted project. Here are some principal examples of when these provisions would apply:

- When there is a violation in the 75 foot buffer zone to a resource area that exceeds the "Guidelines for Activities within Naturally Vegetated Buffer Strips (NVBS)", adopted November 18, 1999 and revised and approved on April 7, 2005.
- When there is a violation in the 100-foot inner riparian zone to a river or stream, as defined in Chapter 172.
- When impacts in the outer riparian zone (the 100 foot to 200 foot zone) to a river or stream exceeds the 5,000 square foot limit, as defined in Regulation 33, E. for Chapter 172 of the Mashpee Code.
- When significant compensatory planting is required or recommended for a project that impacts within the 75 foot buffer zone to be approved by the Conservation Commission.

(A) When may these provisions not apply? Here are some principal examples of when these provisions, at the discretion of the Conservation Commission or its agents, may not apply:

- When any illegal or unauthorized activities occurring in the 75 foot buffer zone could potentially have been issued a permit, had the required permit been requested by the appropriate filing. This is principally for activities that would meet the *"Guidelines for Activities within Naturally Vegetated Buffer Strips (NVBS)"*. In such a circumstance all applicable permits must be obtained and after-the-fact filing fees apply.
- When any illegal or unauthorized activities occur in the 75 to 150 foot buffer zone, these provisions may be waived if a satisfactory mitigation plan is agreed to by the owner or their authorized representative.
- When only minor compensatory planting is required for a project to be approved, some or all of these provisions may be waived.

III. Mitigation Plan Submittal Timelines

(A) Enforcement Orders/violations

- Production of a mitigation planting plan within 30 days of the date Enforcement Order is received *(see plan requirements under section C below).*
- Implementation of mitigation plantings at the earliest available opportunity during the spring or fall growing seasons (or at a date agreed upon in writing by the Commission and/or its staff).
- Any deficiencies in implementing mitigation plantings must be resolved within 15 days of notice thereof or said deficiencies shall constitute due cause for further enforcement action.

(B) Permitted Projects: If a proposed project requires mitigation plantings, details thereof must be included in the project plan and narrative in order for the application to be reviewed by the Commission. Failure to provide mitigation details may result in delays, continuances and/or denial of proposed projects.

The above provisions shall apply unless otherwise agreed to in writing by the Conservation Commission. Failure to abide by these provisions will be due cause for the Conservation Commission to pursue further enforcement action, including issuance of daily fines and/or seeking injunctive relief in Superior Court.

(C) Mitigation Plan Requirements: A Mitigation Plan/Project must achieve the following: restoration of lost wildlife habitat, including biomass, biodiversity and plant community structure, to the maximum extent feasible and in as timely a manner as possible. The following criteria is required for a mitigation planting plan:

1. A surveyed plot plan noting areas designated for mitigation (the Commission cannot accept an edited existing surveyed/engineered plan without written approval from the original creator of said plan).
2. A plan narrative including details on what vegetation was removed, proposed vegetation (species, sizes, spacing), site preparation based on abiotic features (topography, erosion, soil types, soil compaction, micro-climates, hydrology, invasive species, etc).
3. A minimum of three (3) species of native vegetation.
4. Selected species must include a variety of vegetative strata, including ground cover/herbaceous, native grasses, shrubs and trees as deemed appropriate based on site conditions.

The Commission and/or its Agents may require that mitigation plans be prepared by a qualified professional (*Professional Landscaper, Landscape Designer/Architect, Horticulturalist, Botanist, Certified Arborist and/or Professional Wetland Scientist/Consultant),* with proof of demonstrated qualification/experience. The Commission reserves the right to require additional information on a mitigation plan/narrative should the situation so warrant.

(D) Additional Requirements:

1. **Monitoring and maintenance**- The Commission may require the submission of a signed contract between the property owner and a qualified professional to monitor and maintain mitigation plantings for a period of three (3) years unless otherwise specified by the Commission. Monitoring and maintenance is essential to ensure mitigation is successful and thriving. A 90% survival rate must be achieved in order for mitigation to be deemed successful and in compliance. Any plantings that fail, must be replaced in kind immediately (*or at the earliest growing season opportunity*) during the monitoring period. Should compliance not be achieved within the required monitoring period, the Commission may extend the monitoring for an additional term of years until a 90% success rate is achieved. Monitoring and maintenance contracts must include bi-annual (spring and fall) inspections and reports of mitigation planting health, including a list of expired plants and replacements, overall plant health assessments, photos of mitigation sites and any recommendations for improvements, as needed (soil amendments, replacements, irrigation, etc).

2. **General Protocols for Mitigation Plantings**

- For areas of illegally cleared and/or altered vegetation within wetlands jurisdiction, a minimum 2:1 mitigation area of the square footage of alteration is required. Said mitigation must be sited in the same general area of cleared/altered vegetation.

- Tree replacements should be a minimum size of 2 inch caliper. If minimum sizes are not available, then additional plantings may be required for lost biomass.

- Tree and tree sapling spacing may vary. For replacement of illegally cut trees: the combined (added) calipers of the replacement trees shall be equal to or greater than the caliper of the illegally cut tree(s). In situations where planting of trees to compensate for illegally cut trees is not feasible due to site constraints (steep slopes, proximity to structures, etc), additional shrub plantings will be required to increase overall biomass of impacted area.

- Trees should be located on the plan and planted as they might appear in nature—as a grove or cluster, for example. The Conservation Commission may, at its discretion, specify tree sizes required and/or replacement tree locations

- Detailed methodology of any restoration pruning and guiding of topped or otherwise improperly or illegally pruned trees and shrubs. This includes thinning and pruning of stump sprouts and mowed shrubs. All such work shall be supervised by an I.S.A. or Massachusetts Certified Arborist or a Registered Consulting Arborist

- Seed grown native species are preferred instead of cultivars. Cultivars are only to be used if seed grown species are unavailable.

- In general, mulch will not be needed except for on disturbed soils immediately around the new plants. Where proposed, the type of temporary mulch that will be used shall be specified. Aged, native wood chips are preferred.

- Use of fresh wood chips in the vicinity of 2 or 3 needled pines, such as the native pitch pine (*Pinus rigida*), shall not be permitted between February 15 and September 15 without provision for management of black turpentine beetle infestations.

- For plantings on slopes or disturbed sites specify the erosion control measures that will be used during and after planting. This may require use of silt fencing, erosion control/jute matting or other measures to prevent erosion or sedimentation.

- Existing native plants shall not be cut from mitigation areas, including briars (*Smilax spp*.), grapes (*Vitus spp*.) and poison ivy (*Toxicodendron radicans*)—all of which have high wildlife habitat value—without permission of the Conservation Commission

The following chart is for guidance on spacing of mitigation plantings *(plugs, shrubs, potted plants).* For tree spacing, consultation with a certified arborist is recommended. OC= "On Center"

Stock sizes	1 gallon	2 gallon	3 gallon	2 inch plugs	3-4" pots
Spacing	2.5 ft OC	3.5ft OC	4.5 ft OC	12 inches OC	12-18 inches OC

IV. Waiver of Requirements (Ch.172, 7A(3)) Waivers from Chapter 172 regulations and/or performance standards shall only granted for "good cause shown". Waivers may be granted by the Commission on permitted projects at its discretion. On a case-by-case basis, the following waiver criteria shall be considered:

(A) How compelling is the need (for the requested waiver) on the part of the applicant? The denial of a waiver that would make it impossible to build a home (on an otherwise legal parcel), would generally be considered compelling. So, too, might be the need of a waiver for demonstrable health and/or safety reasons. At the other "non-compelling" extreme, would be (for example) the "need" for a swimming pool as an appurtenance to an already existing and functional house.

(B) To what degree are normal standards being asked to be put aside**? Is the request for relaxing of standards minor, moderate or major**, in both scope and impact?

(C) To what degree will compensatory/mitigating measures offset impacts? How will the waived standards, and compensatory/ mitigating measures imposed in consideration

thereof, **result in a significant enhancement of** the capacity of the pre-existing Resource Area (and/or adjacent buffer) to protect the **wetland values** of Chapter 172, section 1:

- protection of: public or private water supply, groundwater, surface water quality
- control of flooding, water pollution, erosion and sedimentation
- storm damage prevention (including coastal storm flowage)
- protection of fisheries, shellfish, wildlife habitat and biodiversity and rare species
- protection of recreation, agriculture and aquaculture

On a case-by-case basis, A, B & C above, must always be evaluated. Obviously, if (A) is less than very compelling and (B) the requested relaxation of standards are more than minor, then chances for a waiver diminish significantly. Similarly, the larger (C) wetland value enhancement that can be achieved, the better are chances for a waiver.

Mitigation must (to the greatest degree possible):

- Be as close as possible to the closest resource areas, or, nearest to other pre-existing naturally-vegetated and/or other areas with significance pertaining to the wetland values of Chapter 172, section 1.

- Be designed to augment the same **wetland value(s)** that would be compromised by alteration. For example, attenuation of nitrogen does not mitigate loss of wildlife habitat, whereas appropriate planting might compensate for said loss.

- Demonstrate, by a preponderance of credible evidence a significant enhancement of the capacity of the (pre-existing) Resource Area (and/or adjacent buffer) to protect the wetland values inherent to said Resource Area (or adjacent buffer).

- Utilize best available technologies/design/methodologies/products to make mitigation improvements as effective (and significant) as possible. It is likely that the services of competent professionals, with up-to-date knowledge of these rapidly evolving fields, will be necessary. The Commission reserves the right to examine the credentials of any professional services/companies/personnel involved in mitigation plans

(D) Where the provisions of Ch. 172, sec. (3) involve alterations within previously altered areas[1] within 150 feet of the closest resource area, the following table provides guidance for size of mitigation[2] areas:

(A) Alteration-Distance to Closest Resource Area	(B) Type of Resource Area/Riparian (R) or Non-Riparian (NR)[3]	(C) Area Altered within (A) (Square Feet)	Required Mitigation Area
<150-75 ft.			**R** 2.00 X C **NR** 2.00 X C
<75-50 ft.			**R** 2.25 X C **NR** 2.10 X C
<50-45 ft.			**R** 2.45 X C **NR** 2.20 X C
<45-40 ft.			**R** 2.65 X C **NR** 2.30 X C
<40-35 ft.			**R** 2.85 X C **NR** 2.40 X C
<35-30 ft.			**R** 3.00 X C **NR** 2.50 X C
<30-25 ft.			**R** 3.50 X C **NR** 3.00 X C
<25-20 ft.			**R** 3.75 X C **NR** 3.50 X C
<20-15 ft.			**R** 4.50 X C **NR** 4.00 X C
<15-10 ft.			**R** 5.00 X C **NR** 4.50 X C
<10-5 ft.			**R** 6.00 X C **NR** 5.00 X C

[1] within previously altered areas means areas already devoid of natural vegetation, such as lawns, parking areas, pavement, etc.

[2] mitigation areas refers to areas that are planted, or otherwise improved*, to compensate for incursions closer to resource areas. (*Some examples of improvements other than planting to augment wildlife habitat or stabilize soils, are additions of vegetated berms to prevent run-off or creation of ecological niches to provide for additional habitat and wildlife diversity.)

[3] **Riparian** (abbreviated **R**) Resource Areas are those bordering waterbodies, such as ponds, lakes, rivers, streams, estuaries, etc. For purposes of this guidance, wetlands, too (ex. saltmarshes and Freshwater Wetlands) will be considered **Riparian**.
Non-Riparian (abbreviated **NR)** Resource Areas are not as directly associated with water. They include dunes, coastal banks and inland banks.

(13) REGULATION 13 – Biodiversity (Adopted: February 16, 2006)

A. Definition: Biodiversity is the quality of manifesting the broadest possible range of plants and animals (both vertebrate and non-vertebrate) that naturally occur (or have historically naturally occurred) in the habitats of Upper Cape Cod.

B. Critical Characteristics and Presumptions of Significance: are as described in the **BioMap and Living Waters (Guiding Land Conservation and Biodiversity in Massachusetts Core Habitats in Mashpee,** as produced in 2004 by the **Natural Heritage & Endangered Species Program, the Massachusetts Division of Fisheries and Wildlife, and the Massachusetts Office of Environmental Affairs.**

The basis for this regulation emanates from section 1. of Chapter 172, where Biodiversity is a cited wetland value, and the section **Legal Protection of Biodiversity,** as cited on p. 3 of **BioMap and Living Waters.**

As shown on the Mashpee BioMap (displayed in the Mashpee Conservation Office and/or available as GIS datalayers at www.massgov/mgis) and as described in **BioMap and Living Waters,** areas that are BioMap Core Habitats and/or Living Waters Core Habitats are critically important in the maintenance of biodiversity. As stated on p.4 of **BioMap and Living Waters,** the use of the information contained in said publication is to "…help cities and towns to prioritize their land protection efforts."

C. Performance Standards: for any project or activity (except as noted in section 172-3 Exceptions of the Bylaw) within Biomap Core Habitats and/or Living Waters Core Habitats of the Mashpee BioMap and/or as described in BioMap and Living Waters, there shall be no adverse effect on the wetland value of Biodiversity by altering its topography, soil structure, plant community composition, hydrologic regime and/or water quality in such a way so as to result in any short-term, intermediate, and/or long-term adverse effects upon Biodiversity.

It shall be presumed that work/alteration of any NVBS (as defined in No. 29 of these regulations) between any resource areas (as described with section 2 of Chapter 172) within Biomap Core Habitats and/or Living waters Core Habitats shall have unacceptable significant and cumulative effects upon Biodiversity.

As per section 12 of Chapter 172, the burden of proof is upon the applicant for any work/alterations (as described above) to demonstrate that said work/alterations will have no adverse effect, either short term or cumulative, as described above. As part of this burden of proof, the applicant shall provide, as deemed necessary by the Commission, assessments of the specific characteristics of, and/or potential impacts to, any areas (as described in the paragraph above) proposed for work/alterations that fall within the jurisdiction of Chapter 172. In assessing the impacts, and/or in conditioning or denying activities, the Commission shall consider the Core Habitat Summaries of the Core Habitats of Mashpee as found within BioMap and Living Waters, and/or the input of biologists of the Natural Heritage & Endangered Species Program and/or other information requested or required by the Commission, including information required as per M.G.L. Chapter 44, s.53G.

(14) REGULATION 14 – Waquoit Bay Area of Critical Environmental Concern (Adopted February 16, 2006)

A. Definition: The Waquoit Bay Area of Critical Environmental Concern (henceforth referred to as ACEC) is defined by the Boundary Description as defined in the *Coastal ACEC Boundary Clarification Project, November 2002,* or as subsequently re-defined by the Massachusetts Department of Environmental Management, ACEC Program.

B. Critical Characteristics and Presumptions of Significance: As per the September 30, 1994 letter from Michael J. Stroman of the Massachusetts Department of Environmental Protection, the ACEC is significant to the interests/wetland values of flood control, the prevention of storm damage and the protection of land containing shellfish and fisheries. Further, given the importance of **Natural Vegetated Buffer Strips (NVBS),** as defined in Regulation 29 for Chapter 172, the protection of NVBS is critical to the protection of the water resources that provide the basis for said (land containing) shellfish and fisheries. This regulation is promulgated pursuant to the objectives of the ACEC program: "Municipalities….are encouraged to apply high environmental standards to proposed development and to the management of critical resources in their own areas of responsibility and concern" (p.1.5 of the ACEC Program Guide, June 1993).

C. Performance Standards – for any project or activity (except as noted in section 172-3 Exceptions of the Bylaw) there shall be no adverse effect on the interests/wetland values as expressed in B above by altering its topography, soil structure, plant community composition, hydrologic regime and/or water quality in such a way so as to result in any short-term, intermediate, and/or long-term adverse effects to these wetland interests/values, the resource areas of lands under water bodies within the ACEC, and the 75-foot buffer between areas of alteration and said water bodies.

As per section 12 of Chapter 172, the burden of proof is upon the applicant for any work/alterations (as described above) to demonstrate that said work alterations will have no adverse effect, either short term or cumulative, upon the Critical Characteristics and Presumptions of Significance of part B above.

(15) REGULATION 15 – Shellfish (Adopted February 16, 2006)

For the protection of shellfish, this regulation shall be the same as 310 CMR 10.34 (Land Containing Shellfish) with the following exceptions:

In terms of Significance, in addition to (3)(a) and (b) of 310 CMR 10.34, the following shall apply:

> Whether mapped or not, areas where the substrate (benthos) is deemed suitable as shellfish habitat as determined by the Mashpee Shellfish Warden, or the Shellfish Commission, or as determined by analysis as per the guidelines for Chapter 44, s53G, said area shall be considered significant and subject to the jurisdiction of Chapter 172.

(16) REGULATION 16 – Coastal Bank (Revised and approved August 3, 2006)

A. DEFINITION: A Coastal Bank means the seaward face or side of any elevated landform, other than a coastal dune, which lies at the landward edge of a coastal beach, land subject to tidal action or storm flooding, or other wetland. Any minor discontinuity of the slope notwithstanding, the top (uppermost boundary) of the coastal bank shall be defined as per descriptions/definitions/illustrations as appear in **Wetlands Protection Program Policy 92-1 (Definition and Delineation Criteria for Coastal Bank,** issued on March 3, 1992 by DEP's Division of Wetlands and Waterways), but with the following exceptions:

- under Chapter 172 of the Mashpee Code, the top of the coastal bank shall be considered to be (1) vertical foot higher (upslope) from the top of bank as defined/illustrated in **Program Policy 92-1.** This additional foot is warranted because of anticipated sea-level rise. (Note: The additional one-foot higher top of bank designation shall only apply where the slope continues to manifest a slope ratio of equal to (or greater than)1' in 10'.
- The coastal bank should be delineated and mapped on a plan (or plans) to a scale of 1 inch = 20 feet, including a plan view and a cross section (or cross sections) of the area being delineated and showing the slope profile, and the location of the linear distance. In addition, there needs to be an indication as to which of the five diagrams (as shown in **Wetlands Protection Program Policy 92-1**) is (are) representative of the site(s). The Commission reserves the right to require additional plans/information, scales as it so deems appropriate.

B. CRITICAL CHARACTERISTICS AND PRESUMPTIONS OF SIGNIFICANCE: The critical characteristics and presumptions of significance for Coastal Banks under the Mashpee Wetlands Protection Bylaw are the same as is expressed in the regulations for M.G.L. Chapter 131, section 40: section 10:30 (1) Preamble of 310 CMR 10:00, with the exception of the addition of the following paragraph:

Whenever any portion of a coastal bank is vegetated, such portion's topography, plant community composition and structure, and soil characteristics provide important food, shelter, migratory and over-wintering areas and breeding, nesting and brood-rearing areas for wildlife, especially birds and mammals.

Coastal banks, especially those bordering salt marshes and/or waterbodies, are very important ecologically. "Riparian areas are transitional between terrestrial and aquatic ecosystems and are distinguished by gradients in biophysical conditions, ecological processes and biota. They are areas through which surface and subsurface hydrology connect waterbodies with their adjacent uplands. They include those portions of terrestrial ecosystems that significantly influence exchanges of energy and matter with aquatic ecosystems (i.e., zone of influence). Riparian areas are adjacent to….estuarine-marine shorelines (NCR 2002). (Brennan and Culverwell, p.1)*

Vegetated coastal banks are important to the wetland value of (protection of) wildlife habitat. "Healthy (i.e., intact and functional) along marine shorelines support abundant and diverse assemblages of wildlife"). (Brennan and Culverwell, p.4)*

"Many wildlife species are dependent upon riparian areas for their entire life cycle, with requirements for feeding, breeding, refuge, cover, movement, migration and climate that are intricately interwoven into the ecological balance of riparian structure, functions and processes."). (Brennan and Culverwell, p.4)*

"Maintaining the natural vegetation on coastal banks is vitally important to the stability of the slope and, ultimately, to the integrity of adjacent ecotones and water quality." "….water that is not intercepted by tree canopy, understory, or shrubs will infiltrate into the ground, or run off the surface. This can lead to significant surficial erosion of soils that result in lost topsoil, siltation, burial of aquatic environs, and the introduction of contaminants into waterways." (Brennan and Culverwell, p.3)*

"…for all shoreline, and particularly for those in areas with steep and eroding bluffs, native vegetation is usually the best tool for keeping the bluff intact and for minimizing erosion…. The loss or removal of slope vegetation can result in increased rates of erosion and higher frequencies of slope failure…. Disturbing the face or toe of a bluff or bank may cause destabilization, slides and cave-ins"….Removal of the vegetation that helps to stabilize the face, or excavating along the face, increases the chance of slumping, which results in imperiled structures, lost land, a disruption to the ecological edge-zone and increased sedimentation to the aquatic environment." (Brennan and Culverwell, pp. 3 & 4)*

*from: Brennan, J.S., and H. Culverwell. 2004 Marine Riparian: An Assessment of Riparian Functions in Marine Ecosystems. Published by Washington Sea Grant Program Copyright 2005, UW Board of Regents, Seattle, WA 34 p.

Because of their role in the supply of sediments to beaches, Coastal Banks are considered important to the protection of shellfisheries, aquaculture and fisheries. Also, because of this, and the role that vegetated portions of Coastal Banks have as wildlife habitat, they are important to recreation.

C. PERFORMANCE STANDARDS: The physical characteristics and location of coastal banks are critical to the protection of the wetland values specified in section 172-1 of the Mashpee Wetlands Protection Bylaw.

Activities, which will result in the building within or upon, removing, filling and/or altering (as defined in section 172-9 of the Mashpee Wetlands Protection Bylaw) of a Coastal Bank or within 75 feet of said Bank, may be permitted if necessary for access to beach/water, including visual access, if the activity will not induce cumulative impairment of said Critical Characteristics. The following projects (activities) may qualify:

- the maintenance of an already existing and lawful structure
- the construction of an elevated walkway for access to a water body at the lower boundary of said bank (or to a lawful dock on said waterbody). Such walkway shall have no adverse effects other than blocking sunlight from the underlying vegetation for a portion of each day. Such structure shall be constructed in such a way that its surface area and design shall allow the maximum possible amount of sunlight to penetrate and reach the underlying vegetation. vista pruning, subject to a Notice of Intent and issuance of an Order of Conditions

- .any other activity (on a single lot) which alters up to 5% of the bank (square footage) or 100 square feet (whichever is less) if the applicant has demonstrated to the satisfaction of the Commission that such alteration will not have any adverse effects (including erosion and the creation of channelized sedimentation) on the wetland values expressed in 172-2 of the Bylaw.

Any proposed work permitted by the Commission on a coastal bank or within 150 feet of such bank, other than as permitted above, shall not destroy any portions of the existing bank, nor shall the work impair the bank's ability to perform any of the functions expressed in the CRITICAL CHARACTERISTICS AND PRESUMPTIONS OF SIGNIFICANCE as expressed in part B above. Pursuant to the above, the Commission may, at its discretion, require, as per the guidelines adopted by the Commission for M.G.L. Ch 44, s.53G, require any applicant proposing work on a coastal bank, an analysis of the specific proposal vis-à-vis any or all of the issues cited in part B above.

No new bulkhead, revetment, seawall, groin or other coastal engineering structure shall be permitted on or within 150 feet of a coastal bank, except that such a coastal engineered structure shall be permitted when required to prevent storm damage to buildings constructed prior to August 10, 1978 or constructed pursuant to a Notice of Intent (issued under MGL 131, section 40) filed prior to August 10, 1978, including reconstruction of such buildings subsequent to the effective date of these regulations, provided that the following requirements are met:

- a coastal engineering structure or modification thereto shall be designed and constructed so as to minimize, using best available measures, adverse effects on adjacent or nearby coastal beaches due to changes in wave action, and
- the applicant demonstrates that no method of protecting the building other than the proposed coastal engineering structure is feasible.
- protective planting designed to reduce erosion may be permitted.
- the applicant provides sufficient evidence that the building was constructed pursuant to a Notice of Intent filed before August 10, 1978.

Any project on a Coastal Bank or within 150 feet of the top of a coastal bank, other than a structure permitted under 310 CMR 10.24 (7)(a), shall not have an adverse effect due to wave action on the movement of sediment from the coastal bank to coastal beaches or land subject to tidal action of flooding, and shall not have an adverse effect on the stability of a coastal bank.

The Order of Conditions and the Certificate of Compliance for any project within 150 feet of the top of a coastal bank permitted by the Commission under this Bylaw shall contain this specific condition: "Section….of the Wetlands Regulations promulgated under the Mashpee Wetlands Protection Bylaw (Chapter 172 of the Mashpee Code) requires that no coastal engineering structure, such as bulkhead, revetment, groin or seawall shall be permitted at any time in the future to protect the project allowed by this permit".

(17) REGULATION 17 – Coastal Resource Areas (Revised and approved April 13, 2000)

The definitions (except for 10.32 – Salt Marshes), boundaries, critical characteristics and presumptions of significance for the following coastal resource areas (Bylaw section 172-2, Jurisdiction) shall be the same as expressed in M.G.L. Chapter 131, section 40 and/or its regulations, 310 CMR 10.00:

section 10.27: Coastal Beaches ("beach")
section 10.29: Barrier Beaches ("beach")
section 10.25: Land Under the Ocean ("land under said waters")
section 10.33: Land Under Salt Ponds ("land under said waters")
section 10.34: Land Containing Shellfish ("land under said waters")
section 10.28: Coastal Dune ("dune")
section 10.32 : Salt Marshes ("coastal wetland")

DEFINITION: A vegetated area between mean low water (where a waterbody exhibits tidal influences) to the point (upland) where less than 75% of the plant community is salt tolerant, i.e., characterized by plants that are well adapted to or prefer living in saline environments.* (Thus the upper boundary of a Coastal Wetland does not necessarily end at the line coincident with the highest spring tide of the year).

In the event of a dispute, botanical survey plots, transects shall be used for measuring the abundance of salt-tolerant plants. Methodology for number and location of such plots shall be as approved by the Commission on a site-by-site basis. However, in general, plots should be located in vegetative communities that are not clearly Coastal Wetland or upland. Also, plot locations should generally be determined so that the vegetation in a Coastal Wetland delineation, the Commission may require, as it deems necessary, additional plots (at additional locations) and/or supplemental soils analysis.

*Salt-tolerant plants shall include, but are not limited to, those included in "A Field Guide to Coastal Wetland Plants", by Ralph W. Tiner (1987, the University of Massachusetts Press, Amherst, MA).

Section 10.35: Banks of or Land Under the Ocean, Ponds, Streams, Rivers, Lakes or Creeks that Underlie Anadromous/Catadromous ("Fish Run") ("bank" and/or "land under said waters")

For all of the above, the following shall apply:

Activities, which will result in the building within or upon, removing, filling and/or altering (as defined in section 172-9 of the Mashpee Wetlands Protection Bylaw) of any of the above-mentioned resource areas, or within 75 feet of said resource area, may be permitted if they are water-dependent and will not induce cumulative impairment of the functions for which the resource is presumed to be significant. The following activities may qualify:

- the maintenance of an already existing and lawful structure

- the construction of an elevated walkway for access to a waterbody at the lower boundary of said waterbody (where applicable). Such walkways shall have no adverse effects other than blocking sunlight from the underlying vegetation for a portion of each day. Such structures shall be constructed in such a way that its surface area and design shall allow the maximum possible amount of sunlight to penetrate and reach the underlying vegetation.
- Projects designed to preserve and/or protect the natural qualities of the resource area, such as: beach nourishment, fencing and other devices designed to increase dune development, or a pedestrian walkway designed to minimize the disturbance to the vegetation and/or wildlife habitat characteristics of a coastal wetland.
- Any other activity may be permitted only when it is demonstrated by the applicant that such alteration shall have no adverse effect upon the wetland values as expressed in 172-9 of the Bylaw.

Except as specifically provided by these regulations, the Commission shall not permit any work on coastal resource areas, or within 150 feet of resources areas, that will impair the resource area's functional characteristics.

(18) REGULATION 18 – Inland Banks (revised and approved March 3, 2005)

(A) DEFINITION: An Inland Bank is a sloping (1:4 or steeper slope ratio*) portion of the land surface which: (1) confines and/or abuts a waterbody and/or freshwater wetland, or, (2) without touching a freshwater wetland, is within 150 feet of said wetland.
*(1 foot vertical change in 4 feet of horizontal change, i.e. "run")

For the purposes of Chapter 172, the Commission shall exercise jurisdiction for Inland Banks according to the following:

For (1), above, the lower boundary of an Inland Bank is the mean annual low water level (for a waterbody) or, in the case of a bank abutting a freshwater wetland, the upper boundary of said freshwater wetland {as defined in section 19(a) of these Regulations}. For (2), above, the lower boundary of an Inland Bank is the point where any slope with a minimum 1:4 ratio begins within seventy five (75) feet of a freshwater wetland.

The upper boundary of an Inland Bank is the most landward portion of the land surface (as described above) where the slope becomes less than 1:4.

Bank delineations are typically done on plan scales of 1 inch = 20 feet (1:20) or 1 inch = 10 feet (1:10). In bank delineations (as depicted on plans) where 1:4 (1 foot vertical change in 4 feet of horizontal change, i.e., "run") is the determining slope ratio, said ratios shall normally be calculated **across** horizontal distances (measured) of no less than eight (8) feet for scales measured on 2-foot contour intervals, and no less than ten (10) feet horizontal distance (measured) for 1-foot contour intervals. When depicted on slope profiles, departures where the slope ratio is purported to be shallower than 1:4 (as compared to areas above or below on the slope being shown) on spans of less than eight (8) feet shall be presumed to not be of sufficient significance to represent a "break in slope", i.e., the continuity of the bank. This presumption can be rebutted upon acceptance of evidence presented to the Commission that sediments/debris could not be transported across the (purported) "break in slope" by sheet flow as calculated via the methodology as described in 310 CMR 10.57(2)(b)3.

A bank may be partially or totally vegetated, or it may be comprised of exposed soil, gravel, sand and/or stone.

B. CRITICAL CHARACTERISTICS AND PRESUMPTIONS OF SIGNIFICANCE: Inland Banks are likely to be significant as wildlife habitat, public or private water supply, to flood control, to storm damage prevention, to the prevention of pollution, to the protection of fisheries, to agriculture, to aquaculture and to recreation.

The function of inland banks in flood control, the prevention of pollution, and preservation of water supply also serves to render them important to aquaculture and agriculture.

Such Banks are where ground water discharges to the surface and where, under some circumstances, surface water recharges the ground water.

Where Banks are partially or totally vegetated, the vegetation serves to maintain the Bank's stability, which in turn protects water quality by reducing erosion or siltation.

Banks may also provide shade that moderates water temperatures, as well as provide breeding habitat, escape cover and food, all of which are important to the protection of fisheries and wildlife habitat. Banks which drop off quickly or overhang the water's edge often contain numerous undercuts which are favorite hiding spots for important game species, including Largemouth Bass (Micropterus salmoides).

Banks act to confine floodwaters during the most frequent storms, preventing the spread of water to adjacent land. Because Banks confine water during such storms to an established channel, they maintain water temperatures and depths necessary for the protection of fisheries. The maintenance of cool water temperatures during warm weather is critical to the survival of important game species, including but not limited to Brook Trout (Salvelinus frontinalis), Rainbow Trout (Salmo gairdneri) and Brown Trout (Salmo trutta). An alteration of a Bank that permits water to frequently and consistently spread over a larger and shallower area increases the amount of property which is routinely flooded, as well as the elevating water temperature and reducing fish habitat within the main channel or waterbody, particularly during warm weather.

The topography, plant community composition and structure, and soil structure of Inland Banks provide important food, shelter, migratory and overwintering areas, and breeding areas for wildlife. Topography plays a role in determining the suitability of banks to serve as burrowing of feeding habitat. Soil structure also plays a role in determining the suitability of banks for burrowing, hibernation and other cover. Bank topography and soil structure impact the bank's vegetative community as well. Bushes and other undergrowth, trees, vegetation extending from the top of the bank into the water, and vegetation growing along the water's edge are also important to a variety of wildlife. A number of berry bushes and tubers also grow in banks and serve as important food for wildlife. Finally, Inland Banks may provide important shelter for wildlife which needs to move between wetland areas.

Hunting, fishing and observing wildlife are also important recreational activities which are fostered by the protection of the critically characteristics of Inland Banks.

C. PERFORMANCE STANDARDS – The physical characteristics and location of Inland Banks are critical to the protection of the wetland values specified in section 172-1 of the Mashpee Wetlands Protection Bylaw.

Any proposed work and/or activity on an Inland Bank, or within 150 feet of the top of the bank, shall not impair or destroy the following:

1. the physical stability of the bank;
2. the water carrying capacity of the existing channel within the bank;
3. ground water and surface water quality;
4. the capacity of the Bank to provide breeding habitat, escape cover and food for fisheries and terrestrial and/or aquatic birds, mammals, reptiles, amphibians and invertebrates.

Activities, which will result in the building within or upon, removing, filling and/or altering (as defined in section 172-9 of the Mashpee Wetlands Protection Bylaw) of an Inland Bank or within 75 feet of said Bank, may be permitted if the activity will not induce cumulative impairments of the Critical Characteristics. The following projects (activities) may qualify:

- The maintenance of an already existing and lawful structure
- The construction of an elevated walkway for access to a water body at the lower boundary of said bank (or to a lawful dock on said waterbody). Such walkway shall have no adverse effect other than blocking sunlight from the underlying vegetation for a portion of each day. Such structure shall be constructed in such a way that its surface area and design shall allow the maximum possible amount of sunlight to penetrate and reach the underlying vegetation.
- Vista pruning, which shall be shown on a plan acceptable to the Commission, and which has been certified as not being detrimental to the vegetative cover by a certified arborist of the Commission's choosing. (A $75 charge will be assessed to the applicant for the review of the vista pruning plan).
- Any other activity (on a single lot) which alters up to 500 square feet of said bank shall be permitted only when it is demonstrated by the applicant that such alteration shall have no adverse effect on the wetland values as expressed in 172-9 of the Bylaw. Any proposed work permitted by the Commission on an inland bank or within 150 feet of such bank, other than as permitted above, shall not destroy any portions of that bank, nor shall the work impair the functional capacity or values of the bank as described in the foregoing (B).
- In the event that the proposed activity is the construction of a new house, and where there is no alternative positioning that will enable the house to be placed on a portion of the property where the slope ratio is less than 4:1, mitigation (to prevent erosion and/or any alteration of resource areas as described in Chapter 172 of the Mashpee Code) employing best available measures will be required.

For that portion of the bank between mean annual high water and mean annual low water, no project or projects on a single lot shall alter more than 20 linear feet or 10 percent of the length of the bank, whichever is less.

(19) REGULATION 19 – Freshwater Wetlands

A. DEFINITION: Freshwater Wetlands are areas where a predominance of the vegetative community is adapted to and/or tolerant of un-drained hydric soils for all or a portion of the year (in most years, except during periods of drought). Freshwater Wetlands may occur in a depression or closed basin. Water may pool above the surface, or may be contained in the top 24 inches of soil. Some Freshwater Wetlands occur downslope of side hill seeps, depending upon the topography, soils and water regime. Additionally, some Freshwater Wetlands may be perched, that is, situated atop an impervious (or semi-impervious) layer of surface (or sub-surface) soil; in such cases, standing water (or saturated soil) may not be contiguous with ground water.

Often, but not necessarily, Freshwater Wetlands share a ground and surface water regime and vegetative community similar to the types specified in M.G.L. Chapter 131, section 40, as existing on 7/1/90:

WET MEADOWS – paragraph 9 (lines 94-103)
MARSHES – paragraph 10 (lines 104-117)
SWAMPS – paragraph 8 (lines 78-93)
BOGS - paragraph 5 (lines 54-68)

Regardless of any similarities or differences from the types of Freshwater Wetlands as described above, for determinations of Freshwater Wetlands and their boundaries under the Mashpee Wetlands Protection Bylaw, (Chapter 172 of the Mashpee Code), the following shall apply:

the wetlands boundary shall be that line within which 50 percent (or more) of the vegetational community shall consist of those wetland plant species identified in M.G.L. Chapter 131, section 40 (as existed on 6/18/93) and/or any plant species defined as either "Facultative", "Facultative+", "Facultative Wetland-", "Facultative Wetland+", or "Obligate Wetland" by the United States Fish and Wildlife Service, as in the National List of Plant Species That Occur in Wetlands: Massachusetts (U.S. Fish and Wildlife Service, U.S. Department of the Interior (1988). Cranberry bogs, though they may enjoy an exemption as to some activities (as per regulations of the Commission and 310 CMR 10.00) are considered Freshwater Wetlands.

As corroborating evidence for the existence of and/or delineation of a Freshwater Wetland, the Commission may, as it deems appropriate, accept and/or require evidence relating to the presence of hydric soils and/or other evidence of hydrology. This type of evidence might be especially appropriate where wetlands vegetation has been disturbed, removed and/or destroyed. Where the Commission considers evidence regarding the presence of hydric soils and/or evidence of hydrology (along with evidence regarding plant community composition, as specified above), the wetland line shall be considered that line (from each of the three sources of evidence: vegetation, hydrology or {hydric} soils) resulting in the greatest area/extent of Freshwater Wetland.

In any case where the applicant for a Request for Determination of Applicability and/or a Notice of Intent and the Commission do not agree on a Freshwater Wetlands boundary, the Commission may require a boundary determination by a consultant of its choosing. The costs of such determination shall be paid by the applicant, as per the provisions of section 12.B of Chapter 172 and Regulation no. 15, as promulgated under that section.

Under the Mashpee Wetlands Protection Bylaw, all Freshwater Wetlands, whether bordering a stream, creek, river, pond and/or lake or not, and regardless of size, are protected as described in section 172-2. Jurisdiction. {See also section 22(b) of these regulations.}

B. CRITICAL CHARACTERISTICS AND PRESUMPTIONS OF SIGNIFICANCE: Freshwater Wetlands are likely to be significant to the protection of wildlife, public or private water supply, to ground water supply, to flood control, to storm damage prevention, to prevention of pollution, to the protection of shellfish, to the protection of fisheries and to aquaculture, agriculture and recreation.

The plant communities, soils and associated low, flat topography of Freshwater Wetlands remove or detain sediments, nutrients (such as phosphorus and nitrogen) and toxic substances (such as heavy metal compounds) that occur in run-off and flood waters.

Some nutrients and toxic substances are detained for years in plant root systems and/or in the soils. Others are held by plants during the growing season and released as the plants decay in the fall and winter. The latter phenomenon delays the impacts of nutrients and toxins until the cold weather period, when such impacts are less likely to reduce water quality.

Freshwater Wetlands are areas where ground water discharges to the surface and where, under some circumstances, surface water discharges to the ground water.

The profusion of vegetation and the low, flat topography of Freshwater Wetlands slow down and reduce the passage of flood waters during peak flows by providing temporary flood water storage, and by facilitating water removal through evapotranspiration. This reduces downstream flood crests and resulting damage to private and public property. During dry periods, the water retained in Freshwater Wetlands is essential to the maintenance of base flow levels in rivers and streams, which in turn is important to the protection of water quality and water supplies.

Freshwater Wetland vegetation provides shade that moderates water temperatures important to fish life. Wetlands flooded by adjacent water bodies and waterways provide food, breeding habitat and cover for fish. Fish populations in the larval stage are particularly dependent upon food provided by overbank flooding which occurs during peak flow periods (extreme storms) because most river and stream channels do not provide quantities of the microscopic plant and animal life required.

Freshwater Wetland vegetation supports a wide variety of insects and other invertebrates, reptiles, amphibians, mammals and birds. Many of these are an important food source for important game fish such as members of the Salmonidae, Centrarchidae, Percidae, Serranidae and Esoscidae families.

Freshwater Wetlands, together with land within 150 feet of such vegetated wetlands, serve to moderate and alleviate thermal shock and pollution resulting from runoff from impervious surfaces which may be detrimental to wildlife, fisheries and shellfish downstream of the freshwater vegetated wetland.

The maintenance of base flows by Freshwater Wetlands is likely to be significant to the maintenance of estuarine areas downstream of such wetlands. A proper salinity ratio, in turn, is essential to the ability of shellfish to spawn successfully, and therefore to the protection of shellfisheries.

The hydrologic regime, plant community composition and structure, soil composition and structure, topography and water chemistry of Freshwater Wetlands provide important food, shelter, migratory and overwintering areas, and breeding areas for many birds, mammals, amphibians, reptiles and invertebrate species. A wide variety of Freshwater Wetland plants, the nature of which are determined in large part by the depth and duration of water, as well as soil and water composition, are utilized by varied species as important areas for mating, nesting, brood rearing, shelter and (directly or indirectly) food. The diversity and interspersion of the vegetative community of Freshwater Wetlands is also important in determining the nature of the wildlife habitat. Different habitat characteristics are used by different wildlife species during summer, winter and migratory seasons.

Because of the role of Freshwater Wetlands in water supply, the protection of shellfisheries, the protection of fisheries and pollution protection, such wetlands are likely to be significant to aquaculture and agriculture. Due to the fore-mentioned role in providing protection to fisheries and wildlife, Freshwater Wetlands are also presumed to be significant to recreation.

C. PERFORMANCE STANDARDS: The physical characteristics and location of Freshwater Wetlands are critical to the protection of the wetland values specified in section 172-1 of the Mashpee Wetlands Protection Bylaw.

Activities, which will result in the building within or upon, removing, filling and/or altering (as defined in section 172-9 of the Mashpee Wetlands Protection Bylaw) of 300 or more square feet of Freshwater Wetland or within 75 feet of said wetland may be permitted if the activity will not induce cumulative impairment of said Critical Characteristics. The following projects (activities) may qualify:

- The maintenance of an already existing and lawful structure
- Projects that do NOT, as deemed so by the Commission, affect any vernal pool (see section 23 of these regulations). All vernal pools, regardless of size, are protected under the Mashpee Wetlands Protection Bylaw and its regulations.

Any proposed work permitted by the Commission in a Freshwater Wetland or within 150 feet of such wetland, other than as permitted above, shall not alter any portions of that wetland, nor shall the work impair the wetland's ability to perform any of the functions expressed in the CRITICAL CHARACTERISTICS AND PRESUMPTIONS OF SIGNIFICANCE as expressed in the preceding for Freshwater Wetlands.

(20) REGULATION 20 – Wildlife Habitat Evaluation Requirements/Replication Requirements

1. Wildlife Habitat Evaluation Requirements:

a. Wildlife habitat evaluations shall be required when the following thresholds of alterations are proposed (exceeded):

Inland Bank – 20 linear feet and/or 500 square feet
Coastal Bank – 20 linear feet and /or 500 square feet
Land under a pond, river, stream – 500 square feet
Freshwater Wetland – 300 square feet
Coastal dune, flat, bank and/or land under ocean or estuary – 300 square feet
Land subject to flooding or inundation by…coastal flowage – See Regulation No. 25

b. In addition to the requirements of 310 CMR 10.60(1)(b), the Commission shall require documentation of competence/experience as deemed necessary to establish the adequacy of any individual(s) carrying out wildlife habitat evaluations. The final decision as to the adequacy of any such individual(s) shall be solely that of the Commission.

c. Minimum parameters to be assessed:

Inland Banks (from mean annual flood level to first break in slope)

1. Topography, including a surveyed plan with 2-foot contours, with profiles showing % of slope every 10 feet
2. Soil structure, including
   substrate composition, soil
   horizon depth
   presence of cavities (if any).
3. Plant Community (**canopy, shrub and herbaceous layers)** and structure, including:
   % cover
   Interspersion
   Species List (including a description of food value for indigenous wildlife)
   Distribution pattern
   Height/basal diameter of trees
   Litter depth
   Trees with cavities (including cavity sizes)
4. Additional features, including –
   Square footage of water overhung by vegetation
   Snags/dead trees, including that hanging over and/or into water
   Potential migratory areas adjacent wildlife habitats within 500 feet

Inland Land Under Water (from mean annual flood level to deepest portion of alteration)

1. Topography, including a surveyed plan with 2-foot contours (depths below mean annual flood level), with profiles every 10 feet. Also, mean annual low water level; protruding and submerged rocks and boulders of 2 feet or over diameter.
2. Soil Structure, including substrate composition, soil horizon depth.
3. Plant Community and structure, including:
   % cover
   Interspersion
   Species List (including a description of food value for indigenous wildlife)
   Distribution pattern (on plan, including 2 above, for non-vegetated areas)
4. Hydrologic regime, including
   pool/riffle ratio (if applicable)
   water chemistry, including ph, alkalinity, dissolved oxygen, etc. (at discretion of the Commission)
   turbidity/suspended solids
   water velocity (if stream or river)
5. Additional features, including –
   Square-footage of water overhung by vegetation
   Snags/dead trees, including that hanging over, into and/or out of water
   Potential migratory areas adjacent wildlife habitats within 500 feet

Freshwater Wetlands –

1. Topography, including a surveyed plan with 2-foot contours, and profiles as deemed necessary by the Commission.
2. Soil structure, including:
   substrate composition
   presence of moist and/or hydric soils
   presence of organic soils
   sandy/gravelly solids
3. Plant community (including emergent, aquatic, and/or floating vegetation in standing water and canopy, shrub and herbaceous layers) and structure, including:
   % cover
   Interspersion
   Species list (including a description of food value for indigenous wildlife)
   Distribution pattern
   Height/basal diameter of trees
   Litter depth
   Trees with cavities (including cavity sizes)
4. Additional features, including:
   Snag/dead trees
   Potential migratory areas adjacent wildlife habitats within 500 feet
5. Groundwater elevations in spring and summer

Replication Requirements:

Preamble – Scientific documentation thus far does not conclusively demonstrate that replicated wetlands can provide the same functions as lost wetland areas. (The Mass. Dept. of Environmental Protection's Wetlands White Paper: A Report on the Protection of Wetlands in Massachusetts (Feb. 1991) refers to replication with the heading: "Replication: a Poor Track Record"). It is therefore incumbent upon any applicant proposing replication to provide truly superior replication plans, in order to have an optimal chance for success. Such plans must be based upon the best available scientific knowledge, and must be formulated with a full understanding of the characteristics of the wetland to be "lost" (and then "reproduced"), as well as a sound and complete methodology for achieving accurate reproduction of the various parameters necessary for success. Therefore, where replication is proposed, the following will be required:

a. 1. Replication shall be done on a 2:1 ratio (replicated area: original area altered). The **type of plant community** must be similar; for example, it would be inappropriate to attempt to replicate a shrub swamp by creating a cattail marsh. **No replication will be permitted in WILDLIFE HABITAT ZONES as described in 20 (B).**

2. The original area altered cannot be more than 2500 square feet in area.

3. A direct hydrologic connection between the **Wetland Replacement Area (WRA)** and the adjacent wetland shall be required, where applicable.

4. Unless the applicant can demonstrate the necessity of proceeding otherwise, the installation of the **WRA** must be done before other work on the site. If this cannot be done, it must be demonstrated to the Commission that the sequence of work will in no way interfere with the successful establishment of the **WRA.**

5. The **Original Wetland Area to be Altered (OWATBA)** must have a **Wildlife Habitat Evaluation** (as above) performed. In additional to the requirements of 310 CMR 10.60(1)(b), the Commission shall require documentation of competence/experience as deemed necessary to establish the adequacy of any individual(s) carrying out wildlife habitat/replication evaluations. The final decision as to the adequacy of any such individual(s) shall be solely that of the Commission.

   In addition to the **Wildlife Habitat Evaluation, the following additional requirements will be necessary (as in no. 6 which follows):**

6. The **Replication plan(s)/submissions** must include the following **additional requirements:** the following parameters (also required in the **Wildlife Habitat Requirements for Freshwater Wetlands)** must be assessed (on the original area to be altered) on transects no less than 15 feet apart, with a minimum of 10 quadrats sampled, each quadrat being a minimum of 5 feet x 5 feet (25 square feet):

a. Soil structure, including substrate composition, presence of moist and/or hydric soils presence of organic soils sand/gravelly soils
b. Plant community (including emergent, aquatic, and/or floating vegetation in standing water, and shrub and herbaceous layers) and structure, including:

    % cover
    Interspersion
    Species list (including a description of food value for indigenous wildlife)
    Distribution pattern
    Height/basal diameter of trees
    Litter depth
    Trees with cavities (including cavity sizes)

c. The % of canopy cover must be assessed for the entire (original) area to be altered.
d. **Groundcover elevations in spring and summer.**
e. Additional features, including, but not limited to, snags/dead trees, etc. (at the discretion of the Commission).
f. **The area to be replicated (OWATBA) must have adequate study to rule it out as a certifiable vernal pool (under these regulations).**
g. In no case shall the area of the (combined) quadrats sampled be less than 10% of the original wetland area to be altered (and replicated).

7. Where possible, original soils from the **OWATBA** must be used to establish a matching soil profile for the **WRA**. Said soil profile shall be analyzed and compared to original parameters as described in (2)(a)6.a above before any work may continue.
A wetland scientist, with qualifications (including knowledge of wetland soils) acceptable to the Commission (as described in (2)(A)(1)(b) above) must be present at the time of excavation/replacement of soils to assure that proper depths/profiles/contours are achieved; the peat/organic and/or hydric soils muck must be spread into the **WRA** to a depth equal to the original wetland (if applicable). After grading the **WRA** to its predetermined surface elevation, slope, etc., another as-built plan shall be submitted to the Commission for verification. Said plans must be stamped by both a Registered Professional Engineer and a Registered Land Surveyor.

   If soils from the **OWATBA** are inadequate, unsuitable and/or insufficient in volume (for placement in the **WRA**) the burden of proof shall be on the applicant to demonstrate that soils obtained elsewhere are equivalent and/or were obtained from a legal source.

   In the case where soils from the **OWATBA** cannot be utilized, replication must be completed before the original area to be altered has been disturbed.

   In either case, <u>as-built plans must be provided (to the Commission showing departures, if any, from the plans for the original area. All differences must be noted for all parameters assessed.</u>

Revegetation Procedures:

8. To the maximum degree possible, the wetland replacement area **(WRA) should be established with indigenous wetland vegetation transported from the OWATBA.** Use of other plant materials is acceptable only when the applicant can prove to the Commission's satisfaction that alternative sources of plant materials are compatible and have a high probability of acclimating to the new environment.

   Detailed plans for transplanting or "new" plantings procedure must be provided. (Recommended, if feasible; the wetland plants in the original wetland area to be altered, the **OWATBA**, may be removed in plugs or culms, protected against desiccation, and used to replicate the **WRA**.)

9. If the **WRA** is to be established by planting individual seeds and/or root-stock, a detailed description describing the methodology must be provided. Such a description must include a list of indigenous seed and/or root-stock, with appropriate plantings requirements.

Recommended Construction Sequence Guidelines:

10. The **Replication Plan** shall include a milestone schedule of events for all proposed construction sequencing, monitoring, and periodic reporting to the Commission. This schedule of events shall also specify dates for each anticipated procedure included in the Replication Plan.

    Where transplanting will be used (from **OWATBA** directly to the **WRA**) such should be done as promptly as possible and in the spring (unless credible evidence can be presented to the Commission that another time of the year will give good results).

    Where "new" plantings shall be used (in lieu of transplanting), excavation of the **OWATBA** soils shall be done in the summer, with plantings to be done in the spring or early fall.

11. An **encroachment limit line** shall be identified on the Replication Plan and in the field (using staking and/or flagging) for the wetland areas that will be altered as well as for the upland areas where replication will take place. The **WRA** must be similarly delineated.

    No alteration, at any time, must occur beyond the boundaries of the encroachment limit line.

12. Before proceeding with revegetation of the **WRA**, the topography/grading of the proposed **WRA** must be verified to see that it matches the plans/parameters for the wetland to be replicated.

Also, the seasonal elevation of groundwater must be verified in the proposed **WRA,** once said **WRA** has been brought to near final grade. If seasonal high groundwater is not present at or within sufficient depth to support the matching (to the original wetland area to be altered) wetlands vegetation, then the applicant will be required to create a perched condition, or substantiate the same elevation of groundwater to be the same in the **OWATBA**.

An as-build plan must be presented at this time, showing both topography and seasonal elevations of groundwater; it must be approved by the Commission before work can proceed. Said plan must be stamped by both a Registered Professional Engineer and a Registered Land Surveyor.

13. Exposed substrate should be protected from erosion until re-establishment of wetland vegetation occurs. The substrate should be tested for nutrient deficiencies, and said deficiencies corrected, if necessary.

Performance Standards and Monitoring:

14. A performance bond sufficient to cover the planning, installation, monitoring/evaluation and further mitigative measures (if necessary, as described in no. 18 below) shall be posted, in a form and amount agreeable to the Town Treasurer and the Commission, before work on the project begins.

    An additional performance bond, to cover extended monitoring (for 5 years) may be required. The Commission must have continual access to the site for inspection purposes during this time. When an inspection is to be done for the specific purpose of ascertaining whether or not replication has succeeded well enough for release of such a bond, the applicant will be notified by the Commission no less than 10 days prior to said inspection by certified mail of the time and date of that inspection.

15. The replication must comply with 310 CMR 10.55(4)(b)(6): 75% re-establishment within two growing seasons.

16. At the end of each growing season, an analysis of the relative success or failure of the replication effort shall be conducted by consultants of the Commission's choice. Such consultants may include Professional Biologists, Botanists, Wetlands Scientists and/or Professional Engineers. The costs of such analysis/preparation of a report shall be borne by the applicant.

17. Either at the end of the first growing season, or the second growing seasons, or both growing seasons, if the success rate of successful revegetation is not expected to be or is not 75%, active planting of the **WRA** shall be required.

18. At the end of the second growing season, an as-built plan and report must be supplied. Said plan must be stamped by both a Registered Professional Engineer and a Registered Land Surveyor and must be certified as accurate by consultants of the Commission's choice (as in no. 15, above). The costs of such analysis and as-built plan shall be borne by the applicant.

    Together, the plan and consultant's report shall indicate that agreed-upon performance standards, including hydrology, topography, soils and/or composition of plant community have been met in the **WRA**. This would include, but would not be limited to, achieving the standards as described in 310 CMR 10.55(4)(b)(6). If said performance standards are not achieved, the Commission retains the right to require further mitigative/improvements measures.

19. Assuming the standards as expressed in no. 17 above are met, a Certificate of Compliance could be issued. Said Certificate of Compliance would be subject to the following conditions in perpetuity:

    a. Additional assessment(s) will have to be performed after the 5th, 10th, and 15th growing season years following the replication. Said assessments will follow the requirements of Replication Requirements, section no. 6.b., as expressed above, and must be submitted to the Commission before December 31 of the calendar year in which the assessment was done. For parameters deemed by the Commission to not be compatible with the initial assessment of the **OWATBA**, additional measures/plantings to achieve compatibility may be required. If a canopy layer is involved, said assessments must include measures of progress toward achieving an identical % cover as in the original assessment of the **OWATBA.**

(21) REGULATION 21 – Land Under Waterbodies and Waterways

The definitions, boundaries, critical characteristics and presumptions of significance for the following inland resource area (Bylaw section 172-2, Jurisdiction) shall be the same as expressed in M.G.L. Chapter 131, section 40 and/or its regulations, 310 CMR 10.00:

Section 10.56: Land Under Waterbodies and Waterways (Under any Creek, River, Stream, Pond or Lake) –
("land under said waters" in Chapter 172, section 2)

(22) REGULATION 22 – Land Subject to Flooding or Inundation by Groundwater or Surface Water (Bylaw Section 172-2)

A. For land subject to flooding which borders a creek, stream, pond or lake, the definitions, critical characteristics and presumptions of significance shall be the same (except as may be stated in these regulations) to M.G.L. Chapter 131, section 40 and/or its regulations 310 CMR 10.57(1)(a); 10.57(2)(a); 10.57(3) and 10.57(4)(a).

B. For isolated wetlands, the following shall apply:

DEFINITION - Isolated Wetlands may be un-vegetated, vegetated with a plant community which does not comprise a Freshwater Wetland, or may qualify as a Freshwater Wetland under section 19(A) of these regulations. In many cases, the vegetated community in Isolated Wetlands conforms to that specified in section (19)(A) of these regulations. Thus such Isolated Wetlands are also protected under the provisions of the section of these regulations for Freshwater Wetlands (section 19). Occasionally, the presence of water is so temporary that a Freshwater Wetland vegetative community is not established. Regardless of the vegetative community, an Isolated Wetland may qualify as a Vernal Pool (Seasonal Wetlands); see section 23 of these regulations.

Isolated Wetlands do not border on creeks, rivers, streams, ponds and lakes. Some isolated depressions which hold standing water for extended periods of time, perhaps continuously, such as kettle holes too small to be called ponds or lakes, are Isolated Wetlands.

Isolated Wetlands may occur in a depression or closed basin in otherwise flat topography. In these areas, water may pool above the surface at least once a year, except in times of drought, or may be contained in the top 24 inches of soil. In addition, some Isolated Wetlands occur downslope of sidehill seeps, depending upon the topography, soils and water regime.

BOUNDARY - The boundary of an Isolated Wetland shall be determined by one or more of the following, depending upon the availability of information. Where more than one method is possible, the method leading to the largest area shall be used. That boundary shall be:

1. the line enclosing that area having a vegetative cover of 50% or more of freshwater species, as defined in section (19)(A) of these regulations, or

2. the line enclosing the largest observed or recorded area of water confined in said area, or

3. the area calculated to be inundated by run-off from the 100-year storm. Such calculation shall be done in accordance with 310 CMR 10.57(2)(b)3.

Where a proposed activity involves filling, dredging, removing, building upon and/or altering an Isolated Wetland, the Commission shall assume that such area is significant to the CRITICAL CHARACTERISTICS AND PRESUMPTIONS OF SIGNIFICANCE as described herein:

In addition to the first four paragraphs of (19)(B) of these regulations (CRITICAL CHARACTERISTICS AND PRESUMPTIONS OF SIGNIFICANCE), the following shall apply:

Isolated Wetlands may be found either in areas with low, flat topography or below sidehill seeps. These areas provide for the temporary storage of water which results from run-off, rising ground water, or where ground water breaks out of a slope forming a sidehill seep. In this way, they provide for flood control and prevention of flood damage. Alteration can result in a lateral displacement of retained water into contiguous properties, which may result in damage to said properties.

Isolated Wetlands are areas where ground water discharges to the surface by run-off, a rising water table or a sidehill seep. Under some circumstances, surface water discharges to the ground water in these areas, particularly where they are underlain by pervious materials. Contaminants introduced into such areas, such as septic system discharges, salts, oils and hydrocarbons from roads and impervious parking lots, and pesticides and/or herbicides find easy access into the ground water and public wells. When Isolated Wetlands are underlain by pervious material and/or are covered by a mat of peat, mud and/or vegetation, they are likely to be significant to the prevention of pollution.

Isolated Wetlands providing Seasonal Wetland habitats are essential breeding sites for certain amphibians that require isolated areas that generally flood in the spring and/or summer. Many birds, reptiles and mammals also depend upon these wetlands as a source of food, shelter and breeding habitat. Hunting and wildlife observing are recreational values that are served by protection of Isolated Wetlands.

Isolated Wetlands are significant to pubic or private water supply, to ground water supply, to flood control, to storm damage prevention, to prevention of pollution, to wildlife habitat and recreation.

PERFORMANCE STANDARDS:

Activities, which will result in the building within or upon, removing, filling and/or altering as defined in section 172-9 of the Mashpee Wetlands Protection Bylaw of an Isolated Wetland may be permitted if the activity will not induce cumulative impairment of said Critical Characteristics. Such following projects (activities) may include:

- the maintenance of an already existing and lawful structure
- projects designed to preserve and/or protect the natural qualities of the resource area, such as a pedestrian walkway designed to minimize the disturbance to the vegetation and/or wildlife habitat
- any other activity which alters 100 or more square feet shall be permitted only when it is demonstrated by the applicant that such alteration shall have no adverse effect upon the wetland values as expressed in 172-9 of the Bylaw and/or the Isolated Wetlands area's functional characteristics described as follows:

A proposed project that may result in alteration of an Isolated Wetland shall not result in the following:

a. Flood damage due to filling which causes lateral displacement of water that would otherwise be confined to such area.

b. An adverse effect on public or private water supply or ground water supply, where such area is underlain by pervious material.

c. An adverse effect on the capacity of said area to prevent pollution of the ground water, where the area is underlain by pervious material which in turn is covered by a mat of organic peat or muck, or vegetation.

d. An impairment of its capacity to provide for wildlife habitat, including Seasonal Wetland (Vernal Pool) habitat as determined by section 23 of these regulations.

(23) REGULATION 23 – Vernal Pools (Part I) and Rare Species Habitat (part II) (Revised and Approved December 2, 2004)

Part I – (A) DEFINITION – A Vernal Pool: may be an Isolated Wetland, and/or a Freshwater Wetland (or part of same); it may be a confined basin depression (such as a kettlehole) or land (or part thereof) subject to flooding which borders a creek, stream, pond or lake, as defined in the Mashpee Wetlands Protection Bylaw and these regulations. *It may lie within a coastal beach and/or dune system, or within land subject to flooding or inundation by tidal action or coastal flowage.* It may be of any size, and can include areas previously altered by human activity.

Vernal Pools

- must hold water for at least one month during spring and/or fall for most years;
- must be free of adult fish populations or dry up sometime during the year;
- must provide essential breeding habitat for certain amphibians and/or food, shelter, migrating, and breeding habitat for other vertebrate or invertebrate wildlife species.

Vernal Pools shall be presumed to exist when:

1. they have been certified by the Massachusetts Division of Fisheries and Wildlife (Natural Heritage & Endangered Species Program), or …

2. the certification process has been begun, but actual certification (as described in no. 1) has not yet been obtained. See "GUIDELINES FOR CERTIFICATION OF VERNAL POOL HABITAT" as published by the Commonwealth of Massachusetts Division of Fish and Wildlife (May 1988, PUBLICATION # 15498-10-600-6-1-88C.R., pp. 3 through 5, sections A, B, C, D and E, and pp. 6 and 7) or…

3. a preponderance of credible evidence has been presented at a public hearing testifying to the likelihood that a resource area would qualify as a vernal pool (according to the requirements of the certification process as described in no. 2, above). Such evidence may be presented by public comment, or the Conservation Commission may introduce the evidence itself (for example, but not limited to, if evidence of breeding vernal pool species – i.e., any species or group as specified in **The Natural Heritage Program's List of Vernal Pool Animals** as found on p. 50 of "Certified – A Citizen's Guide to Protecting Vernal Pools", third edition, April 1989, by the Massachusetts Audubon Society – was found during the on-site visit in preparation for the hearing).

The **Vernal Pool Habitat**, if located in an **Isolated** Wetland (as described in section 22 of these regulations), shall be the area calculated to be inundated by run-off from the 100-year storm. Such calculation shall be done in accordance with 310 CMR 10.57(2)(b)3. **Vernal Pool Habitat**, if found within land bordering a creek, stream, pond or lake, shall be the area calculated according to 310 CMR 10.57(2)(a)3, parts a., b. and c. **Vernal Pool Habitat** within any Freshwater Wetland as described in section 19 of these regulations, shall be the area within said Freshwater Wetland's boundary, as defined within said section 19.

Around such **Vernal Pool Habitat**, there shall be presumed to be a **Vernal Pool Buffer Zone**. This **Vernal Pool Buffer Zone** shall include the area within 150 feet of the boundary of the **Vernal Pool Habitat**, regardless of whether or not any portion of this **Vernal Pool Buffer Zone** comprises a resource area as described in section 172-2 of the Mashpee Wetlands Protection Bylaw and its Regulations and/or the Massachusetts Wetlands Protection Act or its Regulations (310 CMR 10.00).

The Commission may accept evidence and verify a vernal pool on any parcel of land at any time, including during the review of an application.

In no case, however, shall the certification of the of the existence of a vernal pool cause the Commission to modify an existing Order of Conditions, unless agreed to by the owner of the land under the jurisdiction of said Order of Conditions.

B. **CRITICAL CHARACTERISTICS AND PRESUMPTIONS OF SIGNIFICANCE:** shall be the same as those described in the section Importance of Vernal Pools on page 1of "GUIDELINES FOR CERTIFICATION OF VERNAL POOL HABITAT" as published by the Commonwealth of Massachusetts Division of Fish and Wildlife (May, 1988, PUBLICATION # 15498-10-600-6-1-88C.R.)

Of particular importance is the **Vernal Pool Buffer Zone.** The above citation states, "Areas in the immediate vicinity of the pool also provide these species with important nonbreeding habitat functions, such as feeding, shelter and overwintering sites."

Further support for the preservation of **Vernal Pool Buffer Zones** is found in **Biological Criteria for Buffer Zones around Wetlands and Riparian Habitats for Amphibians and Reptiles** by Semlitsch and Bodie. The article states "…terrestrial habitats surrounding wetlands are important to more than just the protection of water resources. They are also essential to the conservation and management of semiaquatic species… For example, amphibians, such as frogs and salamanders, breed and lay eggs in wetlands during short breeding seasons lasting only a few days or weeks and during the remainder of the year emigrate to terrestrial habitats to forage and overwinter…. For example, adult frogs, salamanders and turtles are generally philopatric to individual wetlands and migrate annually between aquatic and terrestrial habitats to forage, reproduce and overwinter…. The amount of terrestrial habitats used during migrations to and from wetlands and for foraging defines the terrestrial core habitat of a population."

On page 1222 of the Semlitsch and Bodie article, they proposed a 30-60 meter **Aquatic Buffer** around wetlands. This provides "… a first terrestrial zone immediately adjacent to the aquatic habitat, which is restricted from use and designed to buffer the core aquatic habitat and protect water resources".

Citation:

Raymond D. Semlitsch and J. Russell Bode. (2003) Biological Criteria for Buffer Zones around Wetlands and Riparian Habitats for Amphibians and Reptiles. Conservation Biology 17:5, 1219-1228

It should be noted that the 30-60 meters (cited above) corresponds to 98.4 to 196 feet. Thus the Vernal Pool Buffer Zone of 150 feet, as promulgated in this regulation, represents the lower end of the range necessary to afford protection for vernal pools.

C. **PERFORMANCE STANDARDS:** Upon acceptance of the verification of a vernal pool as described above by the Commission, the **PERFORMANCE STANDARD** shall be that no project or activity (except as noted in section 172-3 EXCEPTIONS of the Bylaw) shall have an adverse effect on the **Vernal Pool Habitat or the Vernal Pool Buffer Zone** by altering its topography, soil structure, plant community composition, hydrologic regime and/or water quality in such a way so as to result in any short-term, intermediate, and/or long-term adverse effect upon the capacity of said **Vernal Pool Habitat or Vernal Pool Buffer Zone** to provide the functions as described in the CRITICAL CHARACTERISTICS AND PRESUMPTIONS OF SIGNIFICANCE (above). No diversion of any new (not pre-existing) stormwater run-off into the **Vernal Pool Habitat or Vernal Pool Buffer Zone** shall be permitted. It shall be presumed, unless compelling evidence can be provided to the contrary, that the following activities within the area of **Vernal Pool Habitat or Vernal Pool Buffer Zone** would fail to meet the PERFORMANCE STANDARDS:

1. Disturbing the soil, humus layer and/or leaf litter at any time of the year.
2. Adding sediments, brush, clippings or other fill.
3. Altering drainage patterns and/or hydrologic regime.
4. Alterating vegetation, including changing patterns of shade by alterations to the canopy and/or understory (shrub layer).

The burden of proof shall be on the applicant to demonstrate that any proposed project (activity) within the **Vernal Pool Habitat or Vernal Pool Buffer Zone** shall meet the PERFORMANCE STANDARDS as described above.

Notwithstanding, the Commission, may, at its discretion, permit alterations not in conformance with the above when an area comprising the **Vernal Pool Buffer Zone** has already been disturbed (i.e., is partially or wholly devoid of natural groundcover and vegetation), and when the following criteria are met:

The absence of a naturally vegetated **Vernal Pool Buffer Zone** is not the result of activities/alterations that are or were done in violation of Chapter 172.

Enhancement plantings and/or other landscaping changes are employed to create the maximum feasible **Vernal Pool Buffer Zone** (in terms of area and/or critical characteristics). Said plantings and/or landscaping changes must be depicted on a plan acceptable to the Commission.

Site development/alteration is minimized to the maximum extent possible so as to allow for the maximum feasible **Vernal Pool Buffer Zone.**

The combination of the two above results in a significant improvement of a **Vernal Pool Buffer Zone** beyond that in existence at the time of permit application.

Part II: **Rare Species Wildlife Habitat**

A. DEFINITION: any resource areas as defined in 172-2 of the Mashpee Code within which any state rare species (plant and/or animal) officially listed by the Massachusetts Division of Fisheries and Wildlife under 321 CMR 8.00 has been documented by the Commission, or for any such resource area falling within any of the most recent Estimated Habitat Maps of the Massachusetts Natural Heritage and Endangered Species Program or the Association for the Preservation of Cape Cod's Critical Habitat Atlas), shall be considered to be **Rare Species Wildlife Habitat.**

Around such **Rare Species Wildlife Habitat**, there shall be presumed to be a **Rare Species Wildlife Habitat Buffer Zone.** This **Rare Species Wildlife Habitat Buffer Zone** shall include the area within 175 feet of the boundary of any resource area under Chapter 172 and its regulations as described in the preceding paragraph.

B. CRITICAL CHARACTERISTICS AND PRESUMPTIONS OF SIGNIFICANCE – Rare Species Wildlife Habitat is essential because these often uncommon habitats are rapidly becoming diminished in numbers, size and quality, as reflected in the growing number of species that have been classified as (by the Natural Heritage program) "endangered", "threatened" or of "special concern". The public welfare requires the conservation of native wild plants and animals and their habitats for the purposes of: maintaining healthy ecosystems upon which the agricultural community depends; contribution to the economic prosperity of the recreation industry, protecting the public's rights to the natural, scenic, historic and aesthetic qualities of the environment; and providing continuing opportunities for the public to enjoy, study and research the natural history of the plants and animals that depend upon **Rare Species Wildlife Habitat.**

C. PERFORMANCE STANDARDS – Upon acceptance of any area as **Rare Species Wildlife Habitat** by the Commission, the **PERFORMANCE STANDARD** shall be that no project or activity (except as noted in section 172-3 EXCEPTIONS of the Bylaw) shall have an adverse effect on the **Rare Species Wildlife Habitat** by altering its topography, soil structure, plant community composition, hydrologic regime and/or water quality in such a way so as to result in any short-term, intermediate, and/or long-term adverse effect upon the capacity of said **Rare Species Wildlife Habitat** to provide the function as described in the **CRITICAL CHARACTERISTICS AND PRESUMPTIONS OF SIGNIFICANCE** (above). The diversion of any new (not pre-existing) stormwater run-off into **Rare Species Wildlife Habitat** shall not be permitted unless the applicant can prove that there will be no adverse effect upon the water quality and/or biological community of said vernal pool, and unless the applicant has obtained a 401 Water Quality Certificate. It shall be presumed, unless compelling evidence can be provided to the contrary, that the following activities within the area of **Rare Species Wildlife Habitat** would fail to meet the PERFORMANCE STANDARDS:

1. Disturbing the soil, humus layer and/or leaf litter at any time of the year.
2. The placement of sediments, brush, clippings or other fill.
3. The changing of drainage patterns.
4. Alterations to vegetation, including changing patterns of shade by alterations to the canopy and/or understory (shrub layer).

The burden of proof shall be on the applicant to demonstrate that any proposed project (activity) within the **Rare Species Wildlife Habitat** shall meet the PERFORMANCE STANDARDS as described above.

Within the **Rare Species Wildlife Habitat Buffer Zone**, all work and/or alterations shall be judged in terms of their likelihood of impacting the **Rare Species Wildlife Habitat** in such a way as to fail to meet the PERFORMANCE STANDARDS as described above. Factors to be considered shall include but not be limited to alterations resulting in:

1. Disturbing the soil, humus layer and/or leaf litter.
2. The placement of sediments, brush clippings.
3. The changing of drainage patterns.
4. Alterations to vegetation, including changing patterns of shade by alterations to the canopy and/or understory (shrub layer).
5. The current of foreseeable threats to the population and/or habitat of any State listed species listed by the Natural Heritage program as “endangered”, “threatened” or of “special concern.”

(24) REGULATION 24 – Definitions

D.E.Q.E. – (Formerly, the Department of Environmental Engineering) is now called the Department of Environmental Protection (DEP). Any reference in Chapter 172 to D.E.Q.E. means DEP.

Stream – a body of running water, including brooks and creeks, which moves in a definite channel in the ground due to a hydraulic gradient, and which flows within, into or out of any resource area as specified in 172-2 of the Mashpee Wetlands Protection Bylaw. A portion of a stream may flow through a culvert or under a bridge. Such a body of running water that does not flow throughout the year (i.e., which is intermittent) is a stream including any portions upgradient of any resource areas as specified in section 172-2 of the Mashpee Wetlands Protection Bylaw and these Regulations.

Structure – any man-made object which is intended to remain in place in, over or under any area in (or within 150 feet) of any of the resource areas as listed in section 2 of Chapter 172 of the Mashpee Code; anything constructed or erected and the use of which requires more or less permanent location on the ground or attachment to something having permanent location on ground; an edifice or building of any kind, including but not limited to walls, including retaining walls, fences, walkways, boardwalks, docks, piers, groins, seawalls, jetties, breakwaters, wharfs, dams, weirs, booms, bulkheads, revetments, ripraps, culverts or any pile-held or other permanently fixed floats, vessels or aquacultural gear.

Living space – shall be the same as "bedroom" in DEQE correspondence 935-2160, dated October 22, 1985, which states: "bedroom means any portion of a dwelling which is so designed as to furnish minimum isolation necessary for use as a sleeping area and includes, but is not limited to, bedroom, den, study, sewing room, sleeping loft or enclosed porch, but does not include kitchen, bathroom, dining room, halls or unfinished cellar."

"Unacceptable significant or cumulative effect upon the wetland values protected by this chapter" (from section 12.A of Chapter 172) – shall mean any effects, which because of any short-term, intermediate, or long-term changes to pre-existing conditions, would adversely alter any resources area's capacity to:

- protect public or private water supply
- protect groundwater
- enhance flood control
- prevent erosion and/or sedimentation
- prevent storm damage
- prevent water pollution
- protect wildlife habitat, fisheries, shellfish and shellfish habitat
- protect recreational opportunities and lawfully permitted aquacultural and agricultural practices

Any activities and/or alterations that do not meet the **performance standards for resource areas** as stated in regulations promulgated under section 8 of Chapter 172 are unacceptable.

Wetland values – include, but are not limited to:

- the protection of public or private water supply
- the protection of groundwater
- the enhancement of flood control
- the prevention of erosion and/or sedimentation
- the prevention of storm damage
- the prevention of water pollution
- the protection of wildlife habitat, fisheries, shellfish and shellfish habitat
- the protection of recreational opportunities and lawfully permitted aquacultural and agricultural practices

Cumulative Effect – effects emanating from repetition of activities and/or impacts from intermediate and/or long-term presence or use (one week or longer) of any structure in, over or under (or any alteration to) a resource area as listed in section 2 of Chapter 172 of the Mashpee Code.

Pond (inland) – any open body of fresh water, either naturally occurring or man-made by excavation and/or impoundment (including reservoirs), with a surface area observed or recorded within the last ten (10) years of at least 7,850 square feet, and which is never without standing water due to natural causes, except during periods of extended drought. For purposes of this definition, extended drought shall mean any period of four (4) or more months during which the average rainfall for each month is 50 percent or less of the ten (10) year average for that same month. Basins or lagoons which are part of wastewater treatment plants shall not be considered ponds, nor shall swimming pools or other impervious man-made retention basins (unless such impervious, man-made basins have an hydraulic and/or vegetative connection to any resource area as listed in Chapter 172, section 2. In such a case, such basins would be considered ponds, if they meet the thresholds as described above.)

Erosion and sedimentation control – the ability of any resource area as listed in section 2 of Chapter 172 to buffer forces and/or processes which would threaten or cause to be threatened the stability of landforms and the soil and/or vegetation associated with wetlands and adjoining land areas, in particular coastal and inland banks. Erosion can be a wearing away of the surface soil or by undermining the interior portion of the landform.

Sedimentation control is the ability of wetlands to settle out sediments and other waterborne materials by reducing water flow by passing it through vegetation or by diffusing flow and reducing velocity.

Flood control – the ability of wetlands to absorb, store and slowly release flood waters, or the ability of resource areas to block or deflect the flow of flood waters, so as to minimize the effects of flooding caused by precipitation, snow-melt, a rising water table and/or storm surges.

Recreation – any leisure activity or sport taking place in, on, or within 150 feet of a resource area, including but not limited to noncommercial fishing or shellfishing, hunting, boating, canoeing, swimming, walking, painting, photography, birdwatching, aesthetic enjoyment or any leisure activity

which is dependent on the resource area and its values, directly or indirectly, for its conduct and enjoyment.

Storm Damage Prevention – the ability of wetland soils, vegetation and physiography to prevent damage from storms, including, but not limited to: erosion and sedimentation, damage to vegetation, property or structures; and/or damage cause by flooding, waterborne debris or waterborne ice.

Wildlife Habitat – those areas subject to the jurisdiction of Chapter 172, section 2 which, due to their plant community composition, soils, hydrologic characteristics, geomorphology, proximity to resource areas and/or other characteristics, provide food, shelter, migratory or over wintering areas, breeding and/or rearing areas for wildlife. Vernal pools are a special and important type of wildlife habitat; they are defined in Regulation 23.

Buffer Zone – that area of land extending one hundred fifty (150) feet horizontally from the boundary of any resource area specified in section 2 of Chapter 172 of the Mashpee Code.

Body of Water/Waterbody/Waterbodies – means any lakes; ponds; rivers; streams; creeks; estuaries and/or the ocean.

Rare Species – unless as otherwise stated in regulations as promulgated pursuant to section 8 of Chapter 172, those species (including plants) listed as Endangered (E), Threatened (T) or of Special Concern (SC), as contained in the most recent "Massachusetts List of Endangered, Threatened and Special Concern Species", as published by the Natural Heritage & Endangered Species Program of the Massachusetts Division of Fisheries & Wildlife.

Destruction of plant life, including cutting of trees – destruction, removal and/or damaging of any plant life or any part thereof, including the cutting of trees, shrubs, and/or non-woody plants. (The preceding does not apply to the mowing of legally-established lawns, nor to normal maintenance/harvesting work within legally-established gardens. Such activities do not require an application under Chapter 172.) In most cases, the maintenance pruning of planted shrubs within maintained, legally-established landscaped areas will not require an application. However, any such waiver from the requirements of Chapter 172 is entirely at the discretion of the Commission and/or its designated agents or representatives (upon request, such a waiver will be provided by the Commission in writing). Any person proceeding with any such cutting/removal of vegetation without prior consultation with the Commission (or its agents/representative) does so at their own risk in terms of the applicability of section 11 of Chapter 172 (Enforcement: violations and penalties).

Water Quality – see Regulation No. 32 for Chapter 172.

Necessary Information and Plans – means information and/or plans that provide a depiction of area(s) to be altered and alteration/work to be done. Said information and/or plans shall be accurate, complete and at a level of detail, as deemed adequate by the Commission, so as to provide for a thorough review of:

- effects (including cumulative) upon the wetland values of Chapter 172

- congruence with performance standards for any resource area in regulations for Chapter 172

The Commission (and/or the Conservation Agent/Assistant Conservation Agent) shall require, if deemed necessary*, any of the following information (and/or plans):

. topography (for particularly sensitive areas in which microtopography may be critical, for example if replication is proposed, contours may be have to be shown to the nearest tenth of a foot)

. delineations (of and possibly, descriptions/inventories of **resource areas** as listed in Chapter 172 **always required)**

. setback distances from said **resource areas:** 75', 150' (or 200' for rivers, streams or creeks)

. drainage characteristics (including hydraulic and hydrologic calculations)

. soil surveys/analyses

. descriptions/inventories of flora and/or fauna

. wildlife habitat analyses (see also Regulation No. 20 for Chapter 172)

. water quality analyses (see also Regulation No. 32 for Chapter 172)

. assessment of existing or potential vernal pool characteristics

. descriptions** and delineations of areas of natural vegetation (including groundcover)

. groundwater analyses (including groundwater flow)

. watershed delineations

. construction methodologies

. monitoring plans

. restoration or replication plans (see also Regulation No. 20 for Chapter 172)

*The above list does not represent what is required in a typical filing. Ordinarily, most of the above is not required. Information/plan details needed are decided on a case-by-case basis. Type of information required is not necessarily limited to the above. The Commission reserves the right to ask for any of the above (or other information) at any time during the review process. It is always prudent to check with the Conservation Agent/Assistant Conservation Agent before filing an application.

Information may be required in specific forms, for example (but not necessarily limited to) narratives, plans, graphs, charts, calculations and/or spreadsheets. When necessary, information deemed may have to include both pre-existing conditions and projected conditions after work/alterations are complete. Assessments of projected impacts for any work/alterations may require consideration of immediate, short-term and long-term impacts.

Since Chapter 172 (and its regulations) differs considerably from the Massachusetts Wetlands Protection Act (especially in terms of definitions, descriptions and delineations of **resource areas** and **performance standards**), the Commission may require plans and/or information specifically applicable to Chapter 172 to be so labeled when included in a Notice of Intent submission. (See Regulation 3, page 15, Rules for Hiring Outside Consultants under GL Chapter 44, Section 53G.)

**In sensitive or ecologically significant areas, the Commission may require such information as percent cover by different species, interspersion, distribution patterns, relationships of vegetation to water – i.e. plants emerging from standing water and/or vegetation overhanging water – and/or separate evaluations of the herbaceous, shrub/sapling and/or tree layer.

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(25) REGULATION 25 – Land Subject to Flooding or Inundation by Coastal Flowage (LSCSF) (Revised and approved 4/7/05)

A. DEFINITION – shall be the same as in 310 CMR 10.04 for Land Subject to Coastal Storm Flowage. Henceforth, the abbreviation for Land Subject to Coastal Storm Flowage (LSCSF), shall be used to mean Land Subject to Flooding or Inundation by Coastal Flowage.

B. CRITICAL CHARACTERISTICS AND PRESUMTPIONS OF SIGNIFICANCE:

LSCSF is highly variable, but its vegetation, soil qualities, surface characteristics/topography are directly related to its ability to ameliorate damage from storm flowage (including damage from waves and flooding).

LSCSF is important to the protection for public or private water supplies, the protection of groundwater and the prevention of water pollution; storm events that flood LSCSF often result in the damage and/or destruction of fuel tanks and septic systems, liberating the contents into the environment. In fact, any hazardous materials stored on both private and commercial properties are likely to be set free by flooding and/or wave damage, and then dispersed widely into the environment.

The filling, removing of soil, altering of topography and/or vegetation are likely to have significant effects upon the ability of LSCSF to dissipate wave energy and absorb flood waters. The erection of structures (and/or changing of topography) may alter and/or divert wave energy in such a way so as to increase damage to other structures, property and/or to natural features, such as (but not limited to) dunes, banks, beaches, saltmarshes, etc. Singularly, unanchored structures and/or debris in LSCSF may be transported by storm waters and impact/damage structures, property and natural features. Storm waters also result in substantial erosion and sedimentation, thus altering and frequently damaging structures (especially roads and bridges), property and natural features (saltmarshes are often impacted by sedimentation). Thus, storm damage prevention is accomplished by the judicious control over the filling, dredging building upon and/or altering of LSCSF.

LSCSF bordering saltmarshes, beaches, banks and dunes also provides important wildlife habitat functions: contiguous areas within 300 feet lying within LSCSF provide breeding and nesting habitats, shelter, food and water and connecting corridors for diverse plant and animal species. Often, these transitional zones (ecotones), to more typically vegetated upland areas, are uniquely important, and serve as vital habitat for certain species. These transitional areas also serve to mitigate harmful effects from the disturbances of human activity and from pollutants (including, but not limited to fertilizer, pesticide, herbicide runoff, and road runoff/automobile gasoline and oil residues). Additionally, the protection of recreational opportunities is enhanced by mitigating alterations within LSCSF.

C. PERFORMANCE STANDARDS –

1. A plan delineating naturally vegetated areas* shall accompany any request for a permit to alter within LSCSF; said plan shall have to be accepted by the Commission in order for any permit to be granted. This plan need not be done by a Registered Land Surveyor and/or Professional Engineer, unless is so

voted by the Commission. The plan must be drawn on a scale of 1 inch = 20 feet (unless otherwise agreed to by the Commission). The plan must identify areas of natural vegetation and describe general vegetation types (ex. "Pitch pine/Black Oak community with an understory of Highbush Blueberry, Sheep Laurel and Inkberry; the Commission can give some assistance in such general identifications). Individual trees and shrubs need not generally be specifically located, unless said trees are over 9 inches in basal diameter.

*Naturally vegetated areas, means areas of indigenous vegetation. The Commission may allow areas of plantings to be considered as naturally vegetated areas, if done according to a plan approved by the Commission.

2. Activities, which will result in the building within or upon, removing, filling and/or altering (as defined in Chapter 172, section 9 of the Mashpee Code) of a total of 5,000 or more square feet of any naturally vegetated area(s) on a lot or on any portion thereof in LSCSF (with the exception of the construction of a single-family home; see part 2 of this section) shall be presumed to have unacceptable significant or cumulative effects upon the protection of wildlife habitat. The applicant will be given the opportunity to rebut this presumption, based upon the provisions of Chapter 172, section 12 of the Mashpee Code.

3. All efforts should be made to avoid altering naturally vegetated areas within LSCSF. Where alterations/construction impact naturally vegetated areas, the following performance standards shall apply. Failure to meet these performance standards shall be cause for the Commission to presume that unacceptable and significant effects will be exacted upon the wetlands values protected by Chapter 172 of the Mashpee Code. The applicant will be given the opportunity to rebut this presumption, based upon the provisions of Chapter 172, section 12 of the Mashpee Code.

   (a). If the Commission finds that home construction (or construction of accessory structures, such as, but not limited to, additions, decks, garage, pools, patios, sheds or driveways), would alter 500 or more square feet of naturally vegetated areas, compensatory planting (equal to the area of the foot-print of the proposed construction) may be required. Said compensatory planting would have to be described/shown on a plan acceptable to the Commission, and would be subject to the Commission's approval. This requirement may be waived, according to {c} below. Planting, according to these provisions, will not be charged to the applicant as a separate fee, but will be assumed to be part of the normal, statutory fee schedule.

   (b). Within LSCSF, a naturally vegetated* buffer strip (NVBS) must be maintained. The width of this NVBS must be equal to 20% of the average depth (a line perpendicular to the water line/associated resources areas) of that area of the lot within LSCSF. Where a lot within LSCSF borders the ocean and/or has within it any of the following resource areas: a coastal wetland, freshwater wetland, coastal bank, beach, dune or flat, the NVBS will originate at Mean High Water or where any of the resource areas listed above touches mean high water, at the most landward edge of said resource area. In the case where one of a series of adjacent resource areas touches (borders) Mean High Water, the NVBS will originate from the landward edge of the most landward of the series of resource areas.

Said NVBS strip shall be at a minimum equal to 20% of the average depth (a line perpendicular to the water line/associated resource areas) of that area of the lot within LSCSF. This requirement would not preclude pathways through the buffer strip, not to exceed two such pathways for each 100 feet of frontage where the buffer strip borders a coastal resource area. The aggregate width of any such pathways should not exceed eight feet, unless a compensatory area equal to that occupied by the path or paths, is added to the buffer strip. Proposed pathways would have to be staked in the field and shown on a plan prior to an approval by the Commission. Vista pruning, also, would not be precluded, subject to the requirements of the Commission. Vista pruning may be allowed in perpetuity, at the discretion of the Commission, if described in sufficient detail in a filing requesting same.

For lots with less than 100 feet of frontage, the same (above) shall apply, except that a compensatory area (equal to 1.5 x the area occupied by the pathways) must be added to the buffer strip if the aggregate width of said pathways exceeds 8 feet.

c. Thirty percent (30%) of LSCSF within any lot should be left in a naturally vegetated* state. The buffer strip described in (b) above would contribute to a large portion of this 30%. If the additional (naturally vegetated) area necessary to reach the 30% level is consolidated with the buffer strip as described in (b) above, then the requirements of (a) above, shall be waived.

d. For landlocked lots within LSCSF (i.e., those not bordering a coastal wetland, freshwater wetland, coastal bank, beach, dune or flat, estuary or the ocean), (b) and (c) above shall not apply. Filings on such landlocked lots shall have to meet the following requirements as to how much of said lot must remain in a naturally vegetated* state:

Where the area of a lot within LSCSF is ….	The area of LSCSF (within a lot) to be left in a naturally vegetated* state must be a minimum of:
less than 5, 000 sq. ft……..	no requirement
5,000 to 10,000 sq. ft……..	10 percent
10,000 to 20,000 sq. ft……	20 percent*
greater than 20,000 sq. ft……	30 percent*

These areas may be reduced to 15% (for 10,000 to 20,000 square feet) and to 25% (for greater than 20,000 sq. ft.) where such naturally vegetated areas are contiguous with another naturally vegetated area (of at least 2,500 square feet) on an adjacent lot.

Note: the provisions of (b), (c) and (d) above will not apply to:

- **any lots (or portions thereof) and/or existing and legally permitted development, construction and/or alterations that are not the subject of a filing under Chapter 172 (i.e., these provisions are not retroactive for existing projects that were done legally).**
- **the 150-foot buffer zone, as cited in section 2 of Chapter 172, landward of LSCSF.**

The buffer strip, as described in (b) and (c) above, shall NOT represent the point from which septic distances shall be measured, as per the regulations of the Mashpee Board of Health, from the resource areas as previously described in section 2 of Chapter 172 of the Mashpee Code.

The provisions of (b) and (c) above shall also not apply to Board of Health mandated septic upgrades, where there is no alternative to the alteration of naturally vegetated areas*.

4. (a) Any objects and/or structures constructed or placed on a lot within LSCSF must be properly secured so as to be resistant to displacement by the action of storm surges/waves. All such structures must also meet the requirements of the State of Massachusetts Building Code.

(b) Activities, which will result in the building within or upon, removing, filling and/or altering (as defined in Chapter 172, section 9 of the Mashpee Code) of any portion of the Velocity Zone of LSCSF shall be reviewed by the Commission to determine the effect on storm flowage. If proposed structures, changes to topography and/or altering are deemed by the Commission to be likely to increase the height, velocity and/or horizontal extent of storm flowage, or to divert storm flowage so as to present a greater threat to resource areas (as described in section 2 of Chapter 172), said structures, changes to topography and/or alteration shall be considered to have unacceptable effects upon the wetland values of Chapter 172. The applicant will be given the opportunity to rebut this presumption, based upon the provisions of Chapter 172, section 12 of the Mashpee Code and/or to proposed modifications to proposed construction, changes to topography and/or alterations so as to protect the wetland values of Chapter 172.

5. When alterations within the A-Zone of **LSCSF** within 150 feet of a coastal water-body, the following shall apply:

"Waves 2-3 feet high (i.e., too small for an area to be classified as a V zone, but still capable of causing structural damage and erosion) will occur in the base flood conditions in many coastal A zones"[1]

Because a significant proportion of wave energy (during a storm event) reflecting off a vertical wall is directed downward, the sediments supporting such a wall are likely to be eroded. Vertical walls are thus prohibited within the A-Zone of **LSCSF** within 150 feet of a coastal water-body. Other walls may be permitted upon a clear showing that said walls are properly designed and will not (in a storm flowage event) exacerbate erosion in adjoining areas.

6. The following activities within Velocity Zones of **LSCSF** are likely to have an adverse effect on the protected interests: Construction of:

a. new structures, including buildings, sheds and garages, and additions and substantial improvements to existing structures supported on a solid foundation or proposed below the base flood elevation;

b. new parallel/shear walls or vertical walls for existing structures;

c. impermeable paving for new roads, driveways and parking lots;
d. new or proposed expansions of coastal engineering structures;
e. new mounded septic systems.[2]

As per section 12 of Chapter 172, the burden of proof is upon the applicant for any work/alterations described above to demonstrate that said work/alterations will not have unacceptable significant or cumulative effects upon the **CRITICAL CHARACTERISTICS AND PRESUMPTIONS OF SIGNIFICANCE** as per part B of this regulation.

7. A proposed project within a Velocity-zone of a beach, dune, barrier beach, or coastal bank shall not destroy or otherwise impair the function of any portion of said landform and/or shall not have an adverse effect on adjacent wetland resources. Activities and their ancillary uses in Velocity zones which result in alterations to vegetative cover, interruptions in the supply of sediment to other wetland resources, and/or changes to the form or volume of a dune or beach will have an adverse effect on said landform's ability to provide storm damage prevention and flood control and are, therefore, prohibited. These activities include, but are not limited to: construction of:

   a. new structures, including buildings, sheds and garages and additions or substantial improvements to existing structures;

   b. foundations other than open pilings or columns;

   c. new or proposed expansions of roads, driveways or parking lots, or impermeable paving for existing unpaved roads, driveways or parking lots;

   d. new or proposed expansions of coastal engineering structures;

   e. new septic systems.[3]

8. Setbacks/Critical Erosion Areas

a. Significance: "Building close to the shoreline is a common, but possibly poor, siting practice; it may render a building more vulnerable to wave, flood, and erosion effects; may remove any margin of safety against multiple storms or erosion events; and it may require moving, protecting, or demolishing the building if flood hazards increase over time."[4]

b. Definitions:
(1) A setback is the minimum distance from the inland boundary of a coastal feature at which an approved activity or alteration may take place.

(2) Critical Erosion Areas are areas, as shown on the maps prepared by the Massachusetts CZM Shoreline Change Analysis project where average erosion rates are greater than 2 feet per year.

9. Setback requirements:
Setbacks shall be maintained in areas contiguous to coastal beaches, coastal wetlands, coastal cliffs and banks, rocky shores, and existing manmade shorelines, and apply to the following categories of activities and alterations:

1. Filling, removal, or grading, except when part of an approved alteration involving a water-dependent activity or structure;

2. Residential building and garages;

3. New individual sewage disposal systems, sewage treatment plants, and associated sewer facilities excluding outfalls. Repairs and replacements of existing (permitted) individual sewage disposal systems shall be exempt from this provision.

4. Industrial structures, commercial structures, and public recreation structures that are not water-dependent;

5. Transportation facilities that are not water-dependent.

Setbacks shall extend a minimum of either seventy five (75) feet from the inland boundary of the coastal feature or twenty-five (25) feet inland of the edge of a Coastal Buffer Zone, whichever is further landward. In areas designated as Critical Erosion Areas (Table 2), the minimum distance of the setback shall be not less than 30 times the calculated average annual erosion rate for less than four dwelling units and not less than 60 times the calculated average annual erosion rate for commercial, industrial or dwellings of more than 4 units. Due to site conditions over time, field verification of a coastal feature or coastal buffer zone may result in a setback determination different than that calculated using a shoreline change rate.[5]

Table 2. Setbacks in Critical Erosion Areas.

Erosion Category Distance** (on accompanying maps)	Annual Estimated Rate (in feet)	Setback Distance (in feet)	Setback (in feet)
			**
(A)	2-2 ½	75	175
(B)	3-4	120	240
(C)	4-5	175	300
(D)	5-6	180	360

*4 units or less
**more than 4 units

From **Rhode Island Coastal Resources Management Program, Section 140, p. 20**

Citations:

[1]**Coastal Construction Manual** (Federal Emergency Management Agency) section 2.3:1, p. 2-36

[2]**Scientific Recommendations for Performance Standards for LAND SUBJECT TO COASTAL STORM FLOWAGE by the Coastal Floodplain Task Force, July 14, 1995, (General Performance Standards), Section F., p. 11**

[3]**Scientific Recommendations for Performances Standards for LAND SUBJECT TO COASTAL STORM FLOWAGE by the Coastal Floodplain Task Force, July 14, 1995, (General Performance Standards) Section G., p. 11**

[4]**Coastal Construction Manual** (Federal Emergency Management Agency) section 2:3:2, p. 2-37

[5]**Rhode Island Coastal Resources Management Program, Section 140, p. 20**

(26) REGULATION 26 – Mashpee Conservation Commission Policies (Revised 1/12/93)

The Mashpee Conservation Commission adopts as policies, unless otherwise specified by vote of the Commission, the policies as promulgated by the Massachusetts Department of Environmental Protection.

Such policies describe the criteria the Commission will use in making decisions; they are designed to create consistency in the decision-making process. The Commission may choose, on-a-case-by-case basis, to depart from these policies when the situation warrants such.

1. Due to the complexity/need for a compliance procedure, it will not ordinarily be the Commission's practice to issue Negative Determinations with conditions (for a Request for a Determination of Applicability). Instead, we will offer suggested conditions which applicant can incorporate into a revised RDA submission. The Commission would then issue a Negative Determination without these conditions. If the applicant is not amenable to revising their submission to accommodate conditions that the Commission deems necessary in order to justify a Negative Determination, then a Positive Determination will be issued.

2. When a Certificate of Compliance {COC} cannot be issued (because of work/alterations beyond the scope of the Order of Conditions), no COC will be issued until said work/alterations has been the subject of a complete Request for Determination of Applicability or (more commonly) a Notice of Intent filing.

3. Violations that exceed the performance standards (under the Wetlands Protection Act or Chapter 172 of the Mashpee Code) cannot be the subject of an RDA; such filings must be done as an NOI. Said NOI filing should be required to accurately address/describe restoration/ replication/mitigation; it cannot be for permitting/legalizing any work done that has abrogated performance standards. Such an NOI may include other "new" alterations/work the applicant wants done, as long as said NOI properly addresses the measures necessary to properly restore the illegally altered wetland resource areas).

Violations that **involve alterations in any resource area, or involve alterations in the buffer zone within 25 feet of any resource area or under whether the WPA or Chapter 172 of the Mashpee Code** or that exceed performance standards under the WPA of Chapter 172 cannot be the subject of an RDA, a NOI will be required. Said NOI and plan should be required to accurately address/describe the alterations involved in the violation and restoration/replication/mitigation; it cannot be for permitting/legalizing any work that has abrogated performance standards. Such an NOI may include other "new" alterations/work the applicant wants done, as long as said NOI properly addresses the measures necessary to properly restore the illegally altered wetland resource areas.

4. When the Department of Environmental Protection (DEP) issues a Superseding Order of Conditions (SOC), the Commission's practice is to issue a "mirroring" local Order of Conditions under Chapter 172 of the Mashpee Code. However, the Mashpee Conservation Commission reserves the right to impose additional conditions strengthening protection (based upon the distinct performance standards/ wetlands values of Chapter 172). The Commission may even

deny a project based upon these disparate provisions of Chapter 172. In composing said Order of Conditions which varies from the SOC issued by DEP, the Commission will not impose conditions which contravene DEP's SOC.

5. Notwithstanding amnesty provisions of Chapter 91 and regardless of whether or not there have been recent alterations/work, previously unpermitted through the WPA and/or Chapter 172 of the Mashpee Code, existing docks that are clearly having impacts that violate performance standards (of either the WPA or Chapter 172) will be subject to enforcement. The owners of said docks shall have the choice of filing an NOI (with "re-engineering" that may obviate their amnesty status) or removing the structure.

6. For structures on coastal or inland banks (such as tie-walls, small retaining walls, etc.), no condition giving perpetual maintenance shall be issued without a certified (surveyed) plan.

7. The Commission adopts as its policies on Vista Pruning "**Guidelines for Activities Within Naturally Vegetated Buffer Strips", adopted** by the Mashpee Conservation Commission on November 18, 1999 and revised and approved on October 6th, 2011.

8. For existing docks (or any coastal engineered structure) that are the subject of a filing due to an application for a Chapter 91: 99-year Amnesty License (and thus are requesting rights of perpetual maintenance) applicants must file a Notice of Intent and must adhere to the Submittal Requirements) of the Commission.

9. For any project proposing demolition of a house with subsequent construction of a new house, the Commission does not consider the demolition to be ancillary to the house construction; thus such demolition will be subject to a (State and local) category 2.1. fee, with the new house itself being a category 2.A.

10. For fee determinations related to walkways which are connected to a dock, the length of the walkway will be considered terminating directly above the mean high water mark (if on a water body subject to tidal action) or mean annual flood level (if on a pond or lake) as shown on the plan.

11. For Notices of Intent for docks and other coastal structures where no violation and/or illegal alterations have been involved and where a valid Chapter 91 license exists, the Commission may, at its discretion, waive the submittal requirements normally imposed on such filings. For Notices of Intent for docks and other coastal structures where violation and/or illegal alterations have been involved and where a valid Chapter 91 license exists, the Commission will require that the submittal requirements currently in effect under regulations promulgated by the Commission will be imposed on such filings.

12. For after-the-fact filings, the after-the-fact filing fees will be imposed for each separate category under which a violation has occurred.

13. Unless specified to the contrary at the relevant public hearing, or asked for in writing by the owner of a parcel or property upon which an Order of Conditions is issued, the Commission shall provide the original copy of the Order of Conditions to that party listed as the applicant on the first page of the Notice of Intent upon which the Order of Conditions was based.

14. Parties who have had previous violations/enforcement orders issued to them shall not be eligible for other than routine, minimal assistance in the preparations of filings.

15. Alterations to docks and coastal engineering structures which come under the jurisdiction of M.G.L. Chapter 91 shall adhere to the following:

    a. holders of a valid Chapter 91 license (including 30-year Amnesty Interim Approvals) will be able to do most repairs with the Consent of the Commission or its Agent or, if the Commission and/or Agent so requires, with a Request for Determination of Applicability.

    b. holders of a valid Chapter 91: 99-year Amnesty License will be able to do repairs according to the Order of Conditions issued them as part of the Chapter 91: 99-year Amnesty License process.

    c. those without any Chapter 91 licensing will be required to (before doing repairs) receive a Negative Determination or an Order of Conditions, as deemed appropriate by the Commission based upon the nature of such repairs and/or impacts to areas subject to protection under M.G.L. Chapter 131, Section 40 and/or Chapter 172 of the Mashpee Code. All after-the-fact repairs which alter any such areas subject to protection shall require a Notice of Intent with the relevant after-the-fact fees.

(27) REGULATION 27 –Residential Docks, Piers and Floats: (Revised & Promulgated on 12/2/10; 7/26/18 & 4-28-22)

PREFACE:

The Mashpee Conservation Commission requires permitting for all docks in the Town of Mashpee, including seasonal, permanent, freshwater, coastal, temporary and/or existing unlicensed docks. The construction, use and maintenance of docks, piers and floats are likely to have significant or cumulative adverse effect on the wetland resource values of storm damage prevention, fin and shellfisheries, wildlife habitat, water quality, water pollution control, erosion and sediment control and recreation. In order to mitigate these environmental impacts, the Commission is empowered to require specific design standards and compensatory measures as conditions of permit approval. For the purposes of this regulation, the term "dock" shall be defined as any assemblage of raised fixed pier, floating walkway, ramp and float

I. JURISDICTION:

This Regulation shall apply to private docks, piers and floats located in all coastal and inland water bodies, including bays, inlets, estuaries, lakes, ponds, creeks, and rivers. In addition to a local permit, docks may also require a waterways license from Chapter 91 (MA Division of Waterways). Any waterbody less than 10 acres in size exempt from Chapter 91 jurisdiction; however, a local permit is still required A Chapter 91 license can only be applied for once a local permit has been issued.

II. RESTRICTIONS:

A. Areas of Critical Environmental Concern (ACEC):

ACEC designation in Mashpee covers all of Waquoit Bay, Hamblin Pond, Jehu Pond, and portions of Great River. ACEC designation of the Waquoit Bay watershed began in 1979, thus some docks in this watershed are considered to be grandfathered if constructed prior to ACEC designation year. No new or expansion of an existing dock shall be permitted within an ACEC *(see Regulation 14 for ACEC details and performance standards)*

B. Natural Heritage & Endangered Species Program (NHESP):

NHESP jurisdiction covers all of Mashpee's Great Ponds (ponds larger than 10 acres in size), including Mashpee/Wakeby, Santuit, Johns Pond and Ashumet Pond. These ponds are designated as estimated and/or priority status habitat for rare or endangered species. Any dock work proposed on a Great Pond in Mashpee is subject to review by NHESP as part of a Notice of Intent permit application. NHESP may invoke restrictions and/or conditions of dock projects depending on specific locations.

III. GRANDFATHERED/ UNPERMITTED DOCKS

A grandfathered dock is a dock that has been in use (and unchanged in use and/or in dimensions) **since January 1, 1984 (or, if seasonally removed since the summer of 1983) and has no local**

permit, though some may have a state Chapter 91 permit. If there is no photographic evidence or other proof of the grandfathered status of the dock, then a scheduled site visit with Conservation staff is recommended. A determination of permit filing requirements will be made by Conservation staff once the site visit is complete**.** The purpose of permitting grandfathered docks is to record the existing footprint of the dock and thus establish a point of reference for proposed future work and/or repairs. Docks that do not qualify as grandfathered and have no permitting history will require the submission of a Notice of Intent permit application and engineered or surveyed plan.

IV. NEW DOCKS, DOCK REBUILDS & MODIFICATIONS

Proposals for new docks, dock rebuilds and substantial modifications of existing docks require the submittal of a Notice of Intent (NOI) permit application or a Request for an Amended Order of Conditions should the Commission deem it appropriate. A Request for Determination of Applicability (RDA) may be deemed appropriate for any work requested within the existing footprint of a dock Once a dock permit is approved, issued and recorded, the applicant must apply for a state Chapter 91 waterways license (as applicable). A copy of the recorded local permit (Order of Conditions) AND Chapter 91 license (as applicable) must be provided to the Conservation Department prior to any commencement of dock work.

A) Performance Standards for Coastal Docks:

1. Registered civil engineer stamped plans are required for all water dependent engineered structures (docks, bulkheads, seawalls, revetments, groins, jetties, etc). *See performance standards/plan requirements for freshwater docks in Section B below*
2. Fixed piers and/or seasonal docks shall be no wider than four (4) feet. Additional width may be allowed for demonstrated handicap access needs.
3. Only non-CCA treated materials may be used in the construction of a dock. Lead caps are not permitted. No creosote materials may be used. *NOTE: CCA piles and structural timber 3 inches or more in thickness may continue to be used until such time the Commission determines that suitable alternatives exist.*
4. Cutting of piles over water and/or within other wetland resource areas is strictly prohibited without the express written consent of the Commission.
5. Installation of pile methodology must be included as part of a project narrative accompanying a permit application. Piles must be driven to refusal; however, there may be allowance for limited jetting to set piles in place. Should this method be proposed, silt curtains are required.
6. The combined size of all floats shall be consistent with the impact of the entire project on the protected values at the site, but not greater than 200 square feet (including jetksi floats). A minimum depth of 12 inches of water measured at Mean Low Water (MLW) is required under the floats.
7. Storage of floats, other seasonal pier material and boats is not allowed on marshes, bordering vegetated wetlands, coastal dunes or coastal banks/flats at any time.
8. The number of dock pilings and overall dock footprint must be kept to a minimum to reduce impacts to coastal aquatic resource areas.

9. Platforms may be allowed in lieu of a float but cannot exceed 200 square feet in size. Platforms on any other portion of a fixed pier design are prohibited.
10. All floats and floating walkways must be fully encapsulated.
11. All docks must have the property address and dock (DEP) permit number conspicuously displayed on both the fixed pier and the float in perpetuity.
12. Plank spacing shall be a minimum of ¾ inch; however, where any portion of the dock (walkway, ramp, pier, etc) crosses a salt marsh, a minimum of 65% light penetration is required.
13. Public access below Mean High Water (MHW) must be provided for by having a minimum of 5 feet of clearance between the bottom of the fixed pier and MHW or steps providing access up and over the fixed pier at MHW. If access steps are proposed, they must be constructed to minimize impacts on salt marsh.

B) Performance Standards for freshwater seasonal docks

1. All freshwater seasonal dock proposals require registered surveyor stamped plans.
2. Walkway width cannot exceed 4 feet
3. Platforms are allowed in lieu of a float. Platforms cannot exceed 200 square feet in size.
4. Off season storage of seasonal dock components is prohibited on any wetland resource areas at any time. Storage may be allowed on sandy beach areas should the Commission deem appropriate in the permit review process.
5. Any floats or floating walkways must be fully encapsulated
6. The property address and DEP permit number must be conspicuously and permanently displayed on the most seaward portion of a seasonal dock

C) SHELLFISH CONSTABLE & HARBORMASTER REVIEW

Any dock/coastal structure will be evaluated in keeping with the current performance standards under M.G.L. Chapter 131, Section 40 and/or Chapter 172 of the Mashpee Code. Copies of project plans and associated narratives must be provided to the Shellfish Constable and Harbor Master at the earliest possible time to allow for proper assessment and evaluation. An evaluation by the Mashpee Shellfish Constable and Harbor Master shall be performed and shall be considered by the Commission in its evaluation of docks & other coastal engineered structures. It is strongly recommended that consultation with the Harbor Master and Shellfish Constable take place during the conceptual planning stages for a given proposal.

**** <u>DETAILED PLAN REQUIREMENTS FOR DOCKS AND OTHER COASTAL ENGINEERED STRUCTURE, SEE REGULATION</u> 3****

<u>V. MAINTENANCE:</u>

The Commission may, at its discretion, allow maintenance in perpetuity (subject to conditions) for docks and/or coastal/engineering structures which have gone through a Notice of Intent filing and received an Order of Conditions, with plans stamped according to the Submittal Requirements contained in the regulations for Chapter 172 of the Mashpee Code by a Registered Land Surveyor and/or a Professional Engineer. In the absence of Maintenance in Perpetuity as noted in an Order of

Conditions, small scale repairs to existing permitted docks and floats such as plank or railing replacement require advanced notification to the Conservation Department; however, permitting for said activities is typically waived. Any repairs that alter the existing footprint as documented in the plans on file, including changes to dock or float location, pilings or other support mechanisms must be preceded by a Notice of Intent or Request for Amended Order.

VI. MITIGATION:

The construction, presence, maintenance and continued use of docks can have adverse impacts on wetland resource areas, including but not limited to permanent habitat loss (salt marsh, land under ocean and land containing shellfish), reduction of salt marsh vegetation density from shading impacts, alteration of water flow patterns and wrack distribution, turbidity from the resuspension of nutrient laden sediment particles resulting from boating activities, which can adversely impact water quality.

The cumulative impacts of the construction, maintenance and use of docks threaten to decrease the overall productivity of the marsh ecosystem, to reduce its ability to absorb storm wave energy and to reduce its contribution to groundwater and surface water quality. Cumulative impacts also affect shellfish habitat, shellfish harvesting and shellfish propagation efforts.

The Commission is empowered to require compensatory measures to offset the impacts of docks and maintenance/use thereof. Such measures include compensatory planting to either enhance existing vegetated buffer zones or, in the absence of a buffer zone, require the establishment of a vegetated buffer. The commission may also require a shellfish mitigation fee when areas impacted by new structure are deemed to be either Land Containing Shellfish or land mapped as suitable shellfish habitat by the MA Division of Marine Fisheries and/or the Town of Mashpee Shellfish Constable. Said fee is assessed using a calculated formula based on square footage of structure and impact within these resource areas. The Mashpee Shellfish Constable will evaluate all permit applications to determine this fee. The calculated shellfish mitigation fee will be due within 1 week of the issuance date of an order of conditions. Fees are based on the following mitigation calculations and criteria:

Impact square footage x Habitat Loss Score (per structure) x (Market value of Species of Shellfish Impacted x 10 shellfish per square foot) = Total Mitigation Payment. Ten shellfish per square foot is classified as a productive standing stock, and thus a shellfish suitability area.

VII . ENFORCEMENT

The Commission may, at its discretion, assess fines and/or after-the-fact filing fees for any work that goes beyond the scope as described in the approved permit and/or as shown on a plan of record, or for any work that is started without the proper permit. Violations for any un-permitted work and/or violations of any cease and desist order issued verbally, posted at the property and/or by certified mail **are subject to fines of up to $300 per violation. Each day a violation continues after notification thereof has been received shall constitute a separate violation.**

Policy for Docks Crossing Town Property: Policy No: 029:

It is the Policy of the Board of Selectmen that any permission granted for docks crossing Town Property shall be in accordance with the following guidelines:

1. Permission for docks to cross Town property shall be extended only to those property owners with docks in place as of July 1, 1995, and no such permission shall be granted to new docks not in existence as of July 1, 1995.

2. Permission shall be limited to the dock in place as of July 1, 1995 and no extension, alteration, or reconstruction shall be permitted. This does not apply to routine maintenance.

3. Permission shall be granted by license agreement in the form, and with the conditions, of the license agreement attached to and hereby made a part of this policy.

4. Permission shall be initially granted to those property owners of which the Town is aware, and may be extended in the future to any property owner whose dock was in existence in its current form as of July 1, 1995.

(28) REGULATION 28- (Reserved)

(29) REGULATION 29 – Buffer Zones and Naturally Vegetated Buffer Strips (REVISED ON 10/6/2011)

A. Buffer Zones mean any area of land extending one hundred fifty feet (150) feet horizontally from the boundary of any resource area specified in section 2 of Chapter 172 of the Mashpee Code, with the exception of the resource area: "lands within 200 feet of rivers". Such "lands within 200 feet of rivers" are a protected resource area, but have no buffer zone.

B. Naturally Vegetated Buffer Strips (NVBS) (as per section 7.A of Chapter 172) are continuously vegetated areas adjacent to resource areas that serve the purpose of minimizing erosion, siltation, loss of groundwater recharge, poor water quality and loss of wildlife habitat. They are usually at least 75 feet in width (see the language of section 7.A. for exceptions). The Commission may require more than 75 feet where conditions on a lot make such possible. Table 29-1 (below) shall be used by the Commission in determining impacts and the widths of NVBS required to carry out the mandates of section 1 of Chapter 172. The Commission shall presume that any NVBS of less than 75 feet will have unacceptable effects upon the wetland values of Chapter 172.

On previously legally altered lots, the Commission may require mitigation plantings to create or enhance an NVBS before allowing any alteration that is within the NVBS.

The Commission cites the following references as background and substantiation for this regulation.

Castelle, A.J., C. Conolly, M. Emers, E.D. Metz, S. Meyer, M.Witter, S. Mauermann, T. Erickson,S.S. Cooke. 1992. Wetland Buffers: Use and Effectiveness. Adolfson Associates, Inc. Shorelands and Coastal Zone Management Program, Washington Department of Ecology, Olympia, Pub. N. 92-10. 171 pp.

Desbonnet, A., P. Pogue, V. Lee, N. Wolfe, 1994. Vegetated Buffers in the Coastal Zone : A Summary Review and Bibliography.Coastal Resource Center, Technical report.no. 2064. Univ. of Rhode Island Graduate School of Oceanography, Narragansett, R.I., 02882. 72 pp.

Copies of the above are available for examination in the Commission's office. Summaries of the above are available upon request.

Note: Requirements for areas of natural vegetation to be left intact are different for areas adjacent to rivers, streams and creeks. See Regulation No. 33.

C. <u>Shoreline Access Paths/Fencing</u>

Pathways which provide access to the shoreline may be approved under a Request for Determination of Applicability filing. Pathways may be 4 feet in width or smaller and they should be designed to minimize the amount of vegetation to be removed. Paths shall follow a winding but direct route that does not promote erosion within the buffer strip. One 4' wide foot

pathway or 2 two foot wide pathways per parcel within the **NVBS** is acceptable. Native grasses, crushed stone, shells or mulch maybe used, as appropriate, on the path to prevent erosion. Prior to an on-site inspection, the proposed pathway should be flagged by the applicant.

Fences within the **NVBS** may be allowed as long as they do not impede wildlife movement, prevent public access between MHW and MLW, or cause erosion. The bottom of the fence should be a minimum of 1.5 feet above existing grade.

D. Alterations allowed within the NVBS – activities are subject to *Protocols for Activities Within Naturally Vegetated Buffer Strips* as adopted by the Commission 11/18/99. This document is hereby incorporated as part of this regulation. It is available upon request. Adapted* from Table No. 7 (p. 33)

"A Summary of pollutant removal effectiveness and wildlife habitat value of vegetated buffers according to buffer width: (A compilation of research findings),from: Desbonnet, A., P. Poque, V. Lee, N. Wolfe, 1994.

*Vegetated Buffers in the Coastal Zone; A Summary Review and Bibliography. Coastal Resource Center, Technical Report No. 2064.University of Rhode Island Graduate School of Oceanography, Narragansett, R.I., 02882. 72 pp.(*NVBS originally in meters, changed to feet/R.S.)*

PROTOCOLS FOR ACTIVITIES WITHIN NATURALLY VEGETATED BUFFER STRIPS (NVBS)

The purpose of these protocols is to protect water pollution control and wildlife habitat interest/values under the State *Wetlands Protection Act Regulations, 310 CMR 10.00* and the Town of *Mashpee's Wetlands Protection Bylaw, Chapter 172* while allowing property owners to conduct certain activities within these significant buffer areas to our wetland resources. Naturally Vegetated Buffer Strips (NVBS) are defined as any naturally vegetated areas within 75 feet of a wetland resource area including 100 year flood-plain and inland and coastal banks.

In order to protect wildlife habitat, as well as other wetland functions such as flood control and prevention of pollution that NVBSs protect, the following protocols are to be followed for work in areas within 75 feet of wetland resources, also referred to as a **Naturally Vegetated Buffer Strip (NVBS).** Naturally vegetated buffer strips are measured horizontally from all wetland resource areas including inland and coastal banks.

Selective Vista Pruning for View Corridors A Request for a Determination of Applicability, or if pruning is proposed within 75 feet of a water body or vegetated wetland, a Notice of Intent is required to be filed with the Conservation Commission for any vista pruning within 150 feet of a wetland resource, including coastal and inland banks and the 100 year floodplain. The application must clearly show a defined view corridor from the dwelling on a plan or sketch. The main goal here is to minimize the amount of vegetation removed for a view corridor.

On residential lots of two acres or less only one view corridor shall be acceptable. View corridor width at the wetland edge may not alter more than 25% of the width of the Naturally Vegetated Buffer Strip as measured linearly from property line to property line along the edge of the wetland resource or 50 feet in width as measured along the wetland edge whichever is smaller (see attached example diagrams). View corridors shall be trapezoidal in shape with the landward end being no more than 80% of the width of the wetland end.

A view corridor shall be created by selective pruning and cutting of vegetation in the NVBS. Most view corridors can be accomplished by only removing limbs, not trees. Only 30% of the limbs per tree may be cut for view corridors. In some instances, after an MCC staff inspection has been conducted, up to 20% of the saplings (<5 inches dbh (diameter at breast height)) within the view corridor may be removed. The stumps of the saplings must remain in place for a follow-up inspection. Some pruning of shrubs may be allowed within the corridor in order to achieve a view, but never below 5 feet in height above the brush ground level. In view corridors on slopes, shrubs often do not need to be pruned at all. After obtaining a valid permit from the Conservation Commission and prior to any removal of vegetation, the applicant shall clearly define the desired view corridor in the field. This includes the top, bottom and side perimeters of the corridor.

Vista Pruning Protocols for Condominium Complexes:

Vista Pruning protocols for condominium properties that have extensive frontage along wetland resource areas shall be accommodated on a case by case basis. A site visit with the conservation agent is required prior to any permitted pruning taking place within the Chapter 172 Wetlands jurisdiction. All proposed pruning on sapling and mature sized trees shall be clearly marked in the field with colored tape indicating a specific type of cutting activity. All pruning work must be carried out by a licensed and certified landscaper, arborist and/or horticulturalist without exception. Proof of contractor certification must be supplied to the Conservation Dept upon request. All pruning shall be carried out in such a way as to preserve vegetative layers, habitat and bio-diversity to the greatest extent possible.

All vista pruning shall be limited to a time of year restriction from November 1rst to March 1rst of each calendar year so as not to interfere with bird nesting season. The commission may extend the vista pruning window in any given year in the event of adverse weather conditions that prohibit pruning work to take place during the allowable time period.

No new view corridors will be permitted where existing views/view corridors exceed that described in the underlined passage above. Prior to the commencement of any pruning, there shall be a pre-work on-site by Conservation staff. View corridors may be prohibited in sensitive or critical habitat areas.

Lawns/Installation and Maintenance

For installation, expansion and maintenance of lawn areas within jurisdiction of the *Mashpee Wetlands Bylaw Chapter 172* please refer to Regulation 31 Nitrogen-Loading/Lawn Standards in Chapter 172.

What is Wildlife Habitat?:

Habitat is where animals find what they need to survive: **food, cover from predators and weather, and breeding areas.** Wildlife habitat is the eighth protected interest under theMassachusetts Wetland Protection Act. It is defined as "those areas subject to the *Wetlands Protection Act* which due to their plant community composition and structure, hydrologic regime or other characteristics, provide important food, shelter, migratory or overwintering areas, or breeding areas forwildlife". Under the *Mashpee Wetlands by Law Regulations, Chapter 172, Regulation 24,* wildlife habitat is defined as "those areas subject to the jurisdiction of Chapter 172, Section 2 which, due to their plant community composition, soils, hydrologic characteristics, geomorphology, proximity to resource areas and/or other characteristics, provide food, shelter, migratory or overwintering areas, and breeding and/or rearing areas for wildlife. Vernal pools are a special and important type of wildlife habitat".

The two most important components of wildlife habitat are the **plant community structure and the plant species composition.** Plant community structure is the various vertical layers such as herbaceous, shrub, sapling and tree layers and the density of vegetation an area may have. Each of these types of plants represents a vertical layer (see illustration). These layers differ from one another in temperature, amount of sunlight, species of insects, and food sources. Each of these layers provides nesting, food and cover habitat for specific animals. For example, ruby-crowned kinglets, blue-winged warblers, Carolina wrens, and yellow warblers are species that utilize the mid and lower limbs on trees for foraging purposes. Plant species composition is the amount of different kinds of plants that occupy an area. In general, the more diverse vertical structure an area has, that is low growth, shrubs and trees, the more feeding, cover and nesting opportunities are provided for different wildlife. A typical buffer area to a wetland resource in Mashpee will have sedge, winterberry, huckleberry, sweet pepperbush, pitch pine, scrub oaks and hickory trees. These plants are providing important nesting, cover and feeding habitat for many different species of wildlife such as songbirds, owls, amphibians, possums, long-tailed weasel and southern flying squirrel.

The Importance of Snags:

Snags, which are dead standing trees and logs which are dead down wood provide very valuable breeding, cover and feeding habitat for many wildlife species such as black-capped chickadees, woodpeckers, nuthatches, herons, hawks, raccoons, southern flying squirrels, and amphibians, to name a few. Dead wood is inhabited by insects that in turn provide an important food source for many species of birds that feed on insects for all or part of their life cycle. Insects are an essential source of protein for many birds during breeding and brooding seasons. Snags provide important perching sites for raptors. Logs provide safe, moist habitat for species such as red-backed and

spotted salamanders. Small mammals, such as shrews, voles and long-tailed weasels will burrow under logs, using the log for safe entrance cover. However, manicured landscaping practices today that remove dead limbs, snags and down wood have contributed to the decline of some species of wildlife that depend on these landscape features. Because of the valuable habitat dead wood provides to wildlife, homeowners are encouraged to keep this landscape feature within the **NVBS** intact whether it's snags, dead limbs or down logs.

Only 25% of snags and logs may be removed within the **NVBS** (see Appendix A).
Uplifting, a popular landscaping practice, consists of removing a large number of lower and mid-canopy limbs along the trunks of trees, leaving only the canopy. Although this may provide views and more sunlight penetration for homeowners, it destroys nesting and feeding habitat for many birds and mammals by removing the most important part of the tree's structure, the lower and mid-canopy layers. Limbs and branches are where birds nest. Limbs and branch surfaces are also where birds feed on insects (called gleaning), seeds and fruit that are produced by the tree. It is also where birds seek cover from avian and mammalian predators. Topping of trees and shrubs can diminish that plant's ability to produce fruit or mast for many years after being cut. This can in turn mean a reduced food source for wildlife, particularly when the practice is used in entire neighborhoods. In addition, this practice can weaken trees and make them more vulnerable to diseases. Uplifting and topping of trees is not allowed within the **NVBS.**

Trees and limbs in close proximity to dwellings that pose legitimate safety and welfare concerns may be approved for removal on a case by case basis. Applicants may be required to file a Request for Determination of Applicability with the Conservation Commission if removal will be within 150 feet of a wetland or within the 100 year flood-plain.

Table 29-1 Naturally Vegetated Buffer Strip Characteristics

NATURALLY VEGETATED BUFFER STRIP (NVBS) (WIDTH IN FEET)	SEDIMENT AND POLLUTION REMOVAL (Approx %)	WILDLIFE HABITAT VALUES ASSOCIATED WITH SPECIFIED NVBS WIDTH
15	75%	Poor habitat value; useful for temporary wildlife activities
35	60%	Minimally protects stream habitat; poor habitat value; useful for temporary activities for wildlife
75	>60%	Minimal general wildlife and avian habitat value
65	70%	Minimal wildlife habitat value; some value as avian habitat
175	70%	May have use as a wildlife travel corridor as well as general avian habitat
165	75%	Minimal general wildlife habitat value
275	80%	Fair-to-good general wildlife and avian habitat value
330	80%	Good, general wildlife habitat value; may protect significant wildlife habitat
675	90%	Excellent general wildlife habitat value; likely to support a diverse wildlife community

(30) REGULATION 30 – Prevention of Pollution: Effect of Nutrient-Loading on Waterbodies (Rivers, Ponds, Streams, Estuaries and/or the Ocean) and Impacts to Public or Private Water Supply). (*Regulation rescinded on 4-27-17. Amended and re-promulgated on March 23rd, 2023)*

PREAMBLE

The water quality of Mashpee's bays, estuaries, rivers, creeks, lakes and ponds has been steadily declining over the years due to a variety of impacts including dense development within close proximity of coastal areas, within the 100 year floodplain and areas abutting inland waterbodies and contributing watersheds thereof. Nutrient loading from onsite septic systems, cesspools, fertilizer usage and storm water runoff are the primary catalysts for poor water quality conditions. Phosphorous loading provides fuel for the growth of algae in freshwater bodies. Nitrogen provides fuel for algae growth in coastal waterbodies (estuaries, bays and coastal beach areas). When algae blooms form under these conditions, they can often produce toxic conditions such as cyanobacteria, which is a widely prevalent and well known public health issue. When algal blooms decompose, the process reduces the amount of dissolved oxygen in the water, resulting in impacts to aquatic life, including fish kills. When the algae decomposes, it sinks to the bottom and leaves a thick layer of muck which covers the underlying sediments of these water bodies, effectively smothering and killing essential aquatic species such as eelgrass and widgeon grass. This repeated cycle has led to significant degradation of most of Mashpee's aquatic environments.

I. JURISDICTION:

Collectively, Rivers, Ponds, Streams, Estuaries and/or the Ocean, unless specifically noted herein, will be referred to in this regulation as waterbodies. Subject to this regulation is any alteration as cited in section 9.A of Chapter 172 occurring within areas of jurisdiction as cited in section 2 of Chapter 172. Such alterations, subject to review under this regulation, would include, but not be limited to, any construction or addition(s) to dwellings, construction of impervious surfaces such as, but not limited to, driveways, patios, swimming pools, sports courts, etc.) and addition of lawn areas. The Commission shall require innovative and alternative (I/A) septic system technology approved for use by the Massachusetts Department of Environmental Protection and the Mashpee Board of Health in accordance with applicable provisions of 310 CMR 15.00 (Title 5) under the following scenarios: (1) Construction of new septic systems associated with new development; (2) upgrading of septic systems in the interest of increased flow/living space; (3) any septic system upgrades due to failure on properties outside of any pre-approved waste water collection areas. For septic upgrades due to failure on properties within a pre-approved wastewater collection area, the Commission may grant a waiver from requiring an I/A (Innovative/Alternative) septic system.

II. DEFINITIONS:

a. **Nitrates**: A form of nitrogen useful for plant growth. Nitrates are of natural or non-natural origin (mineral nitrogen fertilizers). Nitrate is a compound combining the Nitrate ion (NO3) with one or more cations
b. **Nitrogen**: A colorless, odorless, tasteless gas that is the most plentiful element in Earth's atmosphere and is a constituent of all living matter.

c. **Phosphorous**: a chemical element with the symbol P and atomic number 15. Elemental phosphorus exists in two major forms, white phosphorus and red phosphorus, but because it is highly reactive, phosphorus is never found as a free element on Earth.
d. **Parts per Million**: This measurement is the mass of a chemical or contaminate per unit volume of water.
e. **Nutrient loading**: Quantity of nutrients entering an ecosystem in a given period of time.
f. **Microalgae**: (microphytes) are microscopic algae invisible to the naked eye. They are phytoplankton typically found in freshwater and marine systems, living in both the water column and sediment. They are unicellular species which exist individually, or in chains or groups
g. **Macro algae**: A broad group of eukaryotic photosynthetic marine organisms. Unlike microalgae, they are multicellular class of algae and possess plant-like structural features that grow to large size (50 cm up to 60 m in length).
h. **Eutrophication**: Eutrophication is the process by which an entire body of water, or parts of it, becomes progressively enriched with minerals and nutrients, particularly nitrogen and phosphorus. It has also been defined as "nutrient-induced increase in phytoplankton productivity" Eutrophication can result in diminished dissolved oxygen content in a waterbody, which can result in fish kills
i. **Dissolved oxygen**: A measure of how much oxygen is dissolved in the water – the amount of oxygen available to living aquatic organisms. The amount of dissolved oxygen in a stream or lake can tell us a lot about its water quality.
j. **Groundwater**: The water present beneath Earth's surface in rock and soil pore spaces and in the fractures of rock formations. About 30 percent of all readily available freshwater in the world is groundwater. A unit of rock or an unconsolidated deposit is called an aquifer when it can yield a usable quantity of water.
k. **Impervious surface**: A constructed surface such as sidewalks, roads, parking lots or driveways covered by water impenetrable materials such as asphalt.
l. **Storm Water**: Rainwater or melted snow that runs off streets, lawns and other sites. When stormwater is absorbed into soil, it is filtered and ultimately replenishes aquifers or flows into streams and rivers.
m. **Eelgrass**: A marine plant with long ribbon-like leaves that grows in coastal waters and brackish inlets. Eelgrass is essential for juvenile finfish and shellfish (particularly scallop) habitat. A healthy eelgrass population is an indicator of good water quality.

III. CRITICAL CHARACTERISTICS AND PRESUMTPIONS OF SIGNIFICANCE:

Pollution of waterbodies is the addition of any substances which erode the capacity of said water bodies to sustain wildlife habitat. Pollution of groundwater and/or surface water bodies also degrades the quality of drinking water supplies, endangering human health. Among the principal sources of pollution is excess nitrogen loading from such sources as onsite septic systems/cesspools, lawn/agriculture fertilizer run-off and/or infiltration to groundwater, run-off from roofs and other impervious surfaces. Research shows clear correlations between housing and commercial development and their associated activities and nitrogen inputs into groundwater

and adjacent waterbodies. Phosphorous, from septic systems and erosion and subsequent siltation, also pollutes certain waterbodies.
The Cape Cod Commission's Regional Policy Plan recommends drinking water standards (for either surface waterbodies or groundwater) of no more than 5 parts per million (ppm) Nitrate nitrogen. However, much research suggests that this level (5 ppm) may be excessive for sensitive coastal waterbodies, many already impacted by nitrogen-loading. Additionally, the situation is likely to worsen in the future, as nitrogen emanating from development in watersheds (to said waterbodies) is still in transit – in groundwater not having yet reached affected waterbodies. Critical loading limits in different coastal waterbodies may vary, depending upon direction of groundwater flow, flushing rate, depth, geomorphology and species composition within said waterbodies.
Waterbodies serve as habitat for finfish, shellfish and provide vital parts of food-webs for a multitude of wildlife not all of which reside within the waterbodies themselves. Important examples would include ospreys, mink, otters, kingfishers, herons and terns; also included would be a host of amphibians, reptiles and invertebrates. All such organisms are dependent upon maintaining water quality; anthropogenic pollution (such as the introduction of Nitrogen and/or Phosphorus compounds) can result in excess turbidity, fluctuation of oxygen levels and eutrophication – which, in itself, causes excessive growth of phytoplankton and microalgae. Such abnormal plant growth has been shown to cause changes in species composition ties to the crowding-out of more desirable aquatic plants (such as Eelgrass in coastal water-bodies). Under certain conditions, an excessive biomass of aquatic vegetation stimulated by eutrophic conditions can cause fish kills and mortality of aquatic invertebrates, including shellfish). Coastal and estuarine waterbodies which are the recipients of nitrogen compounds are particularly susceptible to the types of ecosystem disruption as is described above. In freshwater waterbodies, phosphorus compounds are often the stimulus for excessive and damaging levels of primary production. Studies have shown that reduction of nitrogen and phosphorus compounds have resulted in water quality improvement and subsequent betterment of water-clarity, oxygen levels and reduction of excessive algae growth.
Nutrient-loading thus is one of the most damaging components of pollution, with excessive levels of nutrients having adverse effects upon aquatic wildlife habitat. The maintenance of sound wildlife habitat is inherent to the recreational values of Chapter 172, as fishing, shell fishing, hunting and the viewing of wildlife are important to many residents and visitors.

IV. PERFORMANCE STANDARDS:

A. For the protection of public or private water supplies, alteration(s) occurring on a residential lot or subdivision, or a commercial/industrial lot or subdivision, within any area of jurisdiction should result in a Nitrate Nitrogen load not exceeding **19 mg/l** for areas contributing to freshwater waterbodies or groundwater. {See (D) and (E) below.}. Phosphorous loading must be reduced to the greatest extent possible, including elimination of the use of fertilizers containing phosphorous; Restrictions on lawn size and seed/sod types to native grass species only *(see Regulation 31-Nitrogen Loading/Lawn Standards)*; Planting of native shrubs in landscaped areas; And implementation of rain gardens to capture and treat storm water runoff.

B. For wildlife habitat, fisheries and shellfish, no alteration(s) occurring on a residential lot or subdivision, or a commercial/industrial lot or subdivision within any area of jurisdiction and contributing to coastal waterbodies (where salinity is greater than 1 part per thousand) should cause pollution levels that result in the deterioration of wildlife habitat and/or chemical parameters of said waterbody that serve to support the integrity of wildlife habitat, fisheries and/or shellfish populations. *It shall be presumed, unless clear and compelling evidence is supplied in a form acceptable to the Commission to the contrary, that any level exceeding **19 mg/l** Nitrogen Nitrate load has a high likelihood of causing deteriorative effects upon said wildlife habitat, fisheries and/or shellfish populations.* {See (D) and (E) below.}

C. Some receiving coastal waterbodies are likely to suffer unacceptable effects from pollution at a level of less than ***19 mg/l*** of Nitrogen as Nitrate. *Upon a finding that a particular waterbody (wholly or partly within any area of jurisdiction) possesses characteristics that make it likely to suffer unacceptable, adverse effects to wildlife habitat, fisheries and/or shellfish from levels of less than **19 mg/l,** the Commission may set a reduced **standard range of 5-18 mg/l** for Nitrogen loads emanating from alterations (as described above) occurring on a lot within any area of jurisdiction.* Said standards shall be that deemed necessary to protect the interests of Chapter 172 and the performance standards as expressed in this regulation.

D. In determining as to whether or not any activities/alterations meet the performance standards as described above, the Commission will require a Notice of Intent or a Request for Determination of Applicability, as deemed appropriate that includes calculations on forms designated for said calculations to establish Nitrate Nitrogen loading for the project or any part thereof. The Commission may require that said calculations must be certified by a Professional Engineer, certified in the State of Massachusetts. The Commission may, upon the applicant rebutting the presumption as stated in part (2), above, or the finding as referenced in part (C) above, require additional information, such as but not limited to:

- The direction of groundwater flow (under land where any project is proposed)
- Drainage patterns on land where any project is proposed
- Chemical analysis of receiving waterbodies including, but not limited to, ambient levels of nutrients including Phosphorus and Nitrogen compounds – in both the water column and as contained in micro and macro algae.

E. For any proposed activities exceeding the Nitrate Nitrogen levels as cited in (A), (B) and/or (C) above, the applicant will be permitted to submit revised plans so as to diminish the projected Nitrate Nitrogen load to achieve the designated levels. Such revisions may include reductions in living space of dwellings, lawn areas, surface area of impervious surfaces and/or changes in septic system type/design. In issuing a permit, the Commission may impose conditions, including the requirement for utilizing best available measures, to lower the Nitrate Nitrogen load toward achieving the performance standards herein.

(31) REGULATION 31 – NITROGREN LOADING/LAWN STANDARDS (Part 1, Rationale/Science Background)

Waquoit Bay and Popponesset Bay have long been known to be suffering from the effects of too much nitrogen. Continued research has documented that "…anthropogenic additions of nitrogen to embayments and salt ponds are responsible for a number of disturbing trends, such as:

> **decreasing water quality (e.g., decreased water clarity, changes in patterns of dissolved oxygen fluctuation),**
>
> **decreasing areas of Eelgrass beds, an important habitat for shellfish,**
>
> **decreasing finfish and scallop larvae,**
>
> **incidence of fish kills,**
>
> **increasing abundance of microalgae,**
>
> **changes in species composition."**
>
> **(Nitrogen Removal Onsite Wastewater Treatment Systems: Technologies and Regulatory Strategies, p.8).**

Like all coastal embayments, Waquoit Bay and Popponesset Bay receive most of their excess nitrogen from surface run-off and the ground water that drains into them. **(Managing Nitrogen to Sensitive Embayments, p.2).**

A significant portion of that nitrogen comes from fertilizers used in agriculture and from lawns, some estimates are as much as 20 to 23%. **(Waquoit Bay research report 1994-1995, p.7).**

Studies in areas with similar sandy soils as on Cape Cod show that leaching from fertilizers used on lawns can introduce significant amounts of nitrogen into the ground water and ultimately to sensitive coastal embayments. A Long Island study estimated that as much as 60% of the amount of nitrogen applied to lawns can reach ground water. **(Nitrogen Loading Technical Bulletin 91-001, p. 10;** Flipse, p. 422). Studies have demonstrated a range of the percent of nitrogen that leaches from fertilizer applications and reaches ground water. Much depends upon "… soil type, application rate, precipitation, temperature, turf type, and applied nitrogen forms". **(Nitrogen Loading Technical Bulletin 91-001, p.10).** Of these variable, application rates, time of year (temperature) and the type of fertilizer (nitrogen form) used are entirely at the discretion of homeowners and/or their hired lawn professional. So too, is watering lawns. Over-watering of lawns to which nitrogen, as nitrate fertilizer, has been applied can result in "substantial N-leaching from turfgrass". (Gold, p. 309). In **"The Fate of Nitrogenous Fertilizers Applied to Turfgrass",** A. Martin Petrovic reports that "…if a significantly higher than normal rate of a soluble N source is applied to a sandy turfgrass site that is highly irrigated, significant NO3 leaching could occur." (Petrovic, p.13).

The Buzzards Bay Project, in its 2/92 Fact Sheet, "Managing Nitrogen to Sensitive Embayments", recommends that Conservation Commissions use their Home Rule authority to limit nitrogen inputs into surface waters and ground water. One such way, according to Buzzards Bay Project Fact Sheet, is via "… reducing lawn sizes and fertilizer use". **(Managing Nitrogen to Sensitive Embayments, p.4).** Correspondingly, the Mashpee Conservation Commission has adopted design specifications for lawns so that the threat of excessive nitrogen loading is mitigated. These standards (based in significant part on recommendations from the Barnstable County Extension Service, Bartlett Tree Experts and research at the University of Minnesota) are published in the Commission's "Nitrogen Loading/Lawn Standards (Part 2), Design Specifications)".

Section 12 of Chapter 172 states: "The applicant for a permit shall have the burden of providing by a preponderance of credible evidence that the work proposed in the application will not have unacceptable significant or cumulative effect upon the wetland values protected by this Chapter. Failure to provide evidence to the Commission supporting this burden shall be sufficient cause for the Commission to deny a permit or grant a permit with conditions".

Section 7.B of Chapter 172 empowers the Commission "… to deny a permit for failure to meet the requirements of this Chapter; for failure to submit necessary information and plans requested by the Commission; for failure to meet the design specifications, performance standards and other requirements in regulations of the Commission; for failure to avoid or prevent unacceptable or cumulative effects upon the wetland values protected by this chapter; and where no conditions are adequate to protect those values." Failure to comply with the "Nitrogen Loading/Lawn Standards" design specifications shall be considered due cause for denial, as such failure will be deemed to result in "failure to avoid or prevent unacceptable significant or cumulative effects" upon the values of Chapter 172.

References:

Flipse, William J., Jr., Brian G. Katz, Juli B. Lindner and Richard Markel. **Sources of Nitrate in Ground Water in a Sewered Housing Development, Central Long Island, New York.** Groundwater, Vol. 22, No. 6, 1984, pp. 418-425.

Gold, Arthur J., William R. DeRagon, W. Michael Sullivan and Jerrell L. Lemunyon. **Nitrate-Nitrogen Losses to Groundwater Rural and Suburban Land Uses.** Journal of Soil and Water Conservation. March-April, 1990, pp. 305-309.

Managing Nitrogen to Sensitive Embayments (Fact Sheet 2/92); The Buzzards Bay Project, Marion, MA; 4 pp.

Nitrogen Loading (Technical Bulletin 91-001) Cape Cod Commission, Barnstable, MA; April 1992, 26 pp.

Nitrogen Removal Onsite Wastewater Treatment Systems: Technologies and Regulatory Strategies (Position Paper from the Conference). Waquoit Bay National Estuarine Research Reserve, Falmouth, MA; February 27 & 28, 1992. 12 pp.

Petrovic, A. Martin. **The Fate of Nitrogenous Fertilizers Applied to Turfgrass.** Journal of Environmental Quality. Vol. 19, no. 1, January-March 1990. pp. 1-14.

Rosen, Dr. C.J., Dr. Taylor, Dr. D.B. White, **American Nurseryman,** December 15, 1986

Waquoit Bay Research Report 1994-1995 (Waquoit Bay National Estuarine Research Reserve Science and Policy Series), Falmouth, MA, June 1995. 14 pp.

……

NITROGEN-LOADING/LAWN STANDARDS
(Part 2, Design Specifications)

Barnstable County Extension Service Recommendations:

1. Grass species should be used that will need less fertilization and can tolerate drier conditions (for example, fescues and ryes, as opposed to bluegrass). Bluegrass varieties should comprise no more than 10% of the mix.

2. A minimum of 6" loam is recommended prior to planting of a new lawn. This will reduce chances of nutrient leach through the soil.

3. A buffer strip should be maintained between the lawn area and resource areas. Such a buffer strip "along the edge of a resource area will separate it from the impacts of the lawn." (Rask)

Based upon the above (and additional information from the sources listed in the "References" at the end of this section), the following are conditions that the Commission insists upon for renovating existing lawns:

1. The area of the lawn to be installed/renovated shall not exceed 10% of the area of the lot subject to jurisdiction under Chapter 172. (This will limit additional Nitrogen to less than 1 part per million.)

2. A vegetated berm must be established between the lawn areas and any resource area (top of coastal or inland bank; water body or wetland) that is down-gradient. Said berm should be as much as 10 feet wide and 1-foot high, (the greater the slope of the contributing lawn area, the larger the berm), but may be less if the applicant can prove that physical constraints preclude a berm of such size and/or the Commission determines that a lesser berm will suffice. Ground cover must be established on the berm (wood chips/bark mulch will not suffice). The vegetation on the berm must be approved by the Conservation Commission.

3. The depth of loam in the lawn must be established (corroboration of same may be required by the Commission). There should be at least 6 inches of loam underlying any lawn. If there isn't at least 6 inches of loam, additional loam to bring the depth to said 6 inch minimum must be added.

4. A low-impact/minimum fertilizer lawn-fertilizer lawn-maintenance plan (by a professional

lawn maintenance company) must be submitted to the Commission for approval. Said plan, should at a minimum, provide for:

a. fertilizer applications to be "split" (spring and fall, not before April 15 or after November 1); no more than one pound of actual nitrogen per thousand square feet of lawn shall be applied in each application.

b. no more than two pounds of actual nitrogen per thousand square feet of lawn shall be applied annually; see (a) above.

c. fertilizer should be of a slow-release, organic variety;

d. at least one-third of the nitrogen should be in a water insoluble form.

5. Annual reports, receipts from the lawn-maintenance company must be provided to the Commission. Obviously, said reports should conform to the provision of (4) above.

6. No lawn alterations (including top-dressing, re-seeding or sodding) shall be done without the express, written consent of the Conservation Commission.

7. Lawn-clippings (from mowing) should not be disposed of in areas on the down-slope side of the berm, within areas between the lawn and any waterbody or wetland or within any designated Naturally Vegetated Buffer Strip.

It should be noted that new or expanded lawns are not generally permitted unless:

a. the Nitrate-load from the lot (i.e., any areas under the jurisdiction of Chapter 172) can be shown to be below 5 parts per million (the 5 ppm standard is subject to change);

b. a Naturally Vegetated Buffer Strip (a minimum of 75 foot wide, as per the provisions of section 7 of Chapter 172 of the Mashpee Code) is maintained/established between the water (or any associated wetland) and lawn (or other areas of alteration);

c. all of the provisions of number 1 through 7 above are followed.

REFERENCES

Rask, Karl. **Plant Materials for Coastal Landscapes,** a joint publication of the Barnstable County Extension Service (University of Massachusetts) and the United States Department of Agriculture Soil Conservation Service; June, 1990.

Letter from William F. Clark of the Barnstable County Extension Service (University of Massachusetts). September 1, 1994.

Letter from James B. Ingram of Bartlett Tree Experts. June 27, 1990.

Rosen, C.J., Dr. D.H. Taylor and Dr. B.D. White. **Use Fertilizer Wisely to Combat Groundwater Pollution.** American Nurserman, De. 15, 1986.

(32) REGULATION 32 – Water Quality

The following is a Summary of Selected Minimum Water Quality Standards designed to maintain water quality for fish, wildlife, aquatic life, and Primary and Secondary Contact Recreation for inland and coastal surface water bodies.

(All standards represent minimum allowable water quality during extreme low-flow conditions.)

Dissolved Oxygen:

1. Not less than 6.0 mg/1 in cold water fisheries nor less than 5.0 mg/1 in warm water fisheries unless (natural) background conditions are lower. Not less than 5.0 mg/1 in coastal water unless background levels are lower.

2. Natural seasonal and daily variations above these levels shall be maintained. Levels shall not be lowered below 75 percent of saturation in cold water fisheries nor 60 percent of saturation in warm water fisheries or coastal waters from a discharge.

Temperature:

1. Shall not exceed 60 degrees F (20 degrees C) in cold water fisheries, nor 83 degrees F (28.3 degrees C) in warm water fisheries, nor 85 degrees F (29.4 degrees C) in coastal waters, nor a maximum daily mean of 80 degrees F (26-7 degrees C) in coastal waters.

2. There shall be no changes from background that will impair site-specific habitat for fish, aquatic life, and wildlife or primary and secondary contact recreation.

3. The rise in temperature due to a discharge shall not exceed 3 degrees F degrees C) in rivers and streams designated as cold water fisheries, nor 5 degrees F (2.8 degrees C) in rivers and streams designated as warm water fisheries, nor 1.5 degrees F (0.8 degrees C) for coastal waters.

Sediment: These waters shall be free of floating, suspended and settleable solids in concentrations and combinations that would impair any use, that would cause objectionable conditions, or that would impair the benthic biota or degrade the chemical compositions of the bottom.

Nutrients: Shall not exceed the site-specific limits necessary to control accelerated or cultural eutrophication. (See also Regulation 30)

Toxic Pollutants: All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life, or wildlife.

(33**) REGULATION 33 – Requirements re Lands Within 200 Feet of Rivers and Streams** (Revised and approved October 19, 2000)

Except as stated below, the Commission hereby incorporates 310 CMR 10.58 in its regulations for all matters related to Chapter 172 jurisdiction in lands within 200 feet of rivers and streams.

A. Notwithstanding any provisions of 310 CMR 10.58(2)(a)1: A river is any natural flowing body of water that empties to any ocean, lake, pond, other river or wetland and which flows throughout the year. Perennial rivers, streams and creeks are rivers; intermittent streams are not.

For any flowing waters influenced by tides, the Commission, upon any contention that any such waters do not qualify as a river under this regulation, shall consider information concerning salinity gradients (both vertical and horizontal). The Commission reserves the right, however, to require that any such salinity measurements submitted be done in accordance with the following:

1. Said measurements shall be done at least six times over a monthly tidal cycle, one on the date of spring tide and once on the date of neap tide, and four times in between, averaging six days apart. Any such measurements shall be taken, as nearly as possible on these given days, at the estimated time of high and low tides. No measurements shall be taken on days where wind speeds exceed 25 m.p.h.

2. A narrative shall be included describing methodology of measurements(s), including instrumentation, calibration of same, how monthly and daily tidal cycles where determined and the qualifications/experience of those performing these measurements.

   The burden of proof shall be on the applicant to show that salinity gradients are such that that the flowing body of water in question does not have primarily riverine characteristics. In making this determination, the Commission shall consider such salinity measurements in terms of the extent to which said tidally-influenced, flowing water-body derives its flow from freshwater input (both as surface flow and groundwater input). Nothing in the preceding shall preclude the Commission, in determining what constitutes primarily riverine characteristics, from considering geomorphological origins, functionality and wildlife habitat characteristics.

B. Notwithstanding any provisions of 310 CMR 10.58(2)(a)(1)a.i. and ii., the burden of proof (as per the provisions of Chapter 172, section 12) shall be on any applicant for a permit to show that a river, stream or creek is not perennial (i.e., is intermittent).

C. Notwithstanding any provisions of 310 CMR 10.58(2)(a) or 320 CMR 10.58(2)(c), the Commission shall presume that the mean annual high water line of a non-tidal river is coincident with the outer boundary of any Bordering Vegetated Wetland as defined in 310 CMR 10.55 that may be adjacent to the river. This presumption is rebuttable and may be overcome upon a clear showing that the mean annual high water line is closer to the river. Such evidence may include hydrological calculations prepared by a

registered professional engineer and/or stream flow stage data from U.S.G.S. stream gauges and survey.

Thus, unless the presumption is overcome as stated above, along non-tidal rivers with associated Bordering Vegetated Wetlands, the inner boundary (i.e., beginning of) of the 200-foot wide Riverfront Area shall be the outer boundary of said Bordering Vegetated Wetland.

For non-tidal rivers lacking any Bordering Vegetated Wetland, the inner boundary of the 200-foot wide Riverfront Area shall be the top of bank as determined by the first observable break in slope or the mean annual flood level, if it is lower.

For tidal rivers, the inner boundary of the 200-foot wide Riverfront Area shall be the mean high water line.

D. Notwithstanding any provisions of 310 CMR 10.58(4)(d)1. and 1.a., the 5,000 square feet or 10% of the Riverfront Area within the lot, whichever is greater of allowable alteration shall be located as far from the river as is feasible without seeking zoning variances, if applicable.

1. The burden of proof shall be on the applicant, as per the provisions of section 12 of Chapter 172, in establishing why a project cannot be reduced in scope.

2. The accompanying table shall be used by the Commission for guidance.

3. Where a 200 foot Riverfront Area exists, a minimum 100 foot wide area of natural vegetation must be left undisturbed (or provided). This required area of natural vegetation shall be in the innermost (closest to the river) 100 feet of the Riverfront Area, unless the applicant clearly demonstrates that an alternative location is more protective of the wetland values of Chapter 172.

4. Where areas within the required 175-foot wide are of natural vegetation as described in no. 3 above are deemed by the Commission to be devoid of or lacking in such natural vegetation, the Commission may in order to maximize sediment and pollution removal and/or wildlife habitat require enhancement/compensatory plantings according to an approved plan.

E. Notwithstanding any provisions of 310 CMR 10.58(4)(d)3.a. and b. (where because of the shape or size of the lot, it is not possible to prevent alteration of the innermost 100 feet of the Riverfront Area), the following shall apply:

1. The house and septic, or any accessory, as per (5) below, shall be as far away from the river as possible to maximize sediment and pollution removal and/or wildlife habitat. In determining such, the attached table shall be sued to guidance. The Commission may require the seeking of a Board of Appeals and/or Board of health variance.

2. The proposed work (for house, septic and driveway) shall not exceed 5,000 square feet or 10% of the Riverfront Area within the lot, whichever is greater.

3. The burden of proof (as per the provisions of section 12 of Chapter 172) shall be on the applicant in terms of establishing why a project cannot be reduced in scope so as to comply with (1) and (2) above.

4. Where areas within the first 100 feet of the Riverfront Area are devoid of or lacking in natural vegetation, the Commission may (in order to maximize sediment and pollution removal and/or wildlife habitat) require enhancement/compensatory plantings according to an approved plan.

5. Accessories to a house such as pools, garages, sheds, pools and patios shall not be considered integral to a house and are not allowed unless the applicant clearly demonstrates by a preponderance of evidence from a competent source that a partial rebuttal of the presumptions of significance (as expressed in the preamble to 310 CMR 10.58) is sufficient to allow the proposed accessory (accessories), or the applicant clearly demonstrates that:

    . the proposed work does not impair the capacity of the Riverfront Area to provide important wildlife habitat functions

    . the proposed work (including house, septic and driveway) does not exceed 5,000 square feet or 10% of the Riverfront Area within the lot, whichever is greater

F. For jurisdiction under Chapter 172, the provisions of 310 CMR 10.58(6)(a)(b)(d)(e)(f)(g) and (h) do not apply, these activities are not grandfathered or exempted.

Notwithstanding the provisions of 310 CMR 10.58(4)(d)4, a minimum 100 foot wide inner riparian area of undisturbed vegetation must be provided for structures and/or alterations for any commercial purpose or use.

G. For jurisdiction under Chapter 172, the provisions of 310 CMR 10.58(2)(a)3.b do not apply. All lots shall be reviewed on an individual basis, without regard to the density of development surrounding said lots.

H. Fees -- For alterations within the Riverfront Area, there will be a 50% surcharge under Town of Mashpee (Chapter 172) fees. To calculate fees, take the TOTAL OF ALL FEES line on SHEET # 4 (FEES TO BE PAID TO THE TOWN OF MASHPEE AND MULTIPLY X 1.5.

I. Permits -- Requests for a Determination of Applicability are generally not appropriate for permitting work in the Riverfront Area. The Commission will issue a Negative Determination for a Request for a Determination of Applicability only in circumstances where it determines that alterations will not result in impairment of the Riverfront Area's capacity to perform the functions as detailed in the Preamble of 310 CMR 10.58.

J. Notwithstanding sections D and E above, the Commission adopts and incorporates 310 CMR 10.58(5) for regulating Redevelopment within Previously Developed Areas: Restoration and Mitigation, with the following exception:

In place of section {c} of 310 CMR 10.58(5), substitute the following:
Within the 200 foot riverfront area, proposed work shall not be located closer to the river than existing conditions or 175 feet, whichever is less. Any such development shall not alter Vernal Pool Habitat or the Vernal Pool Buffer Zone, as defined in section 23 of these regulations.
Adapted from Table No. 7, (p. 33) "A summary of pollutant removal effectiveness and wildlife habitat value of vegetated buffers according to buffer width" (A compilation of research findings), from: Desbonnet, A., P. Pogue, V. Lee, N. Wolfe, 1994. Vegetated Buffers in the Coastal Zone : A Summary Review and Bibliography. Coastal Resource Center, Technical Report No. 2064, University of Rhode Island Graduate School of Oceanography, Narragansett, R.I., 02882. 72 pp. (*NVBS originally in meters, changed to feet/R.S.)

NATURALLY VEGETATED BUFFER STRIP (NVBS) (Width in feet)	**SEDIMENT AND POLLUTION REMOVAL (Approx. %)**	**WILDLIFE HABITAT VALUES ASSOCIATED WITH SPECIFIED NVBS WITDH**
15	50%	Poor habitat value; useful for temporary wildlife activities
35	60%	Minimally protects stream habitat; poor habitat value; useful for temporary activities of wildlife
75	>60%	Minimal general wildlife and avian habitat value
65	70%	Minimal wildlife habitat value; some value as avian habitat
175	70%	May have use as a wildlife travel corridor as well as general avian habitat
165	75%	Minimal general wildlife habitat value
275	80%	Fair-to-good general wildlife and avian habitat value
330	80%	Good general wildlife habitat value; may protect significant wildlife habitat
675	90%	Excellent wildlife habitat