



Town of Barnstable Conservation Commission

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CHAPTER 704

REGULATION GOVERNING ACTIVITY IN THE 100 FT. BUFFER ZONE UNDER NOTICE OF INTENT APPLICATIONS

704 PREAMBLE

A. Introduction

The Massachusetts Wetlands Protection Act (MGL Ch. 131, Sec. 40), its attendant regulations (310 CMR 10), and Chapter 237, Wetlands Protection Ordinance of the Code of the Town of Barnstable, were promulgated to protect wetland resource areas and the values or interests they serve. Moreover, the Town of Barnstable Zoning Ordinance embraces several construction setbacks from wetlands (35') and MHW in coastal areas and inland great ponds (50'). By extending potential regulatory jurisdiction over proposed activity within the resource areas themselves and also within a 100' buffer zone landward of such areas (when activity may elicit a deleterious resource area impact), the foregoing statute, regulations and ordinances provide the Conservation Commission with a meaningful set of tools for protecting the long-term integrity of areas under its jurisdiction.

B. Prevention of Pollution

- (1) The role that a protective buffer zone plays in the maintenance of viable wetland resource areas has been frequently discussed in the scientific literature. Omernik (1977) thoroughly documented the dramatic increase in nitrogen and phosphorous loading to wetlands and waterbodies as their adjacent watersheds are cleared. Water quality, it was demonstrated, can be better maintained if protective buffer strips are preserved along stream edges.
- (2) As surface runoff from developed sites flows toward a wetland resource area, the buffer zone can provide a site where eroded sediments settle, where nutrients from fertilizers are adsorbed onto soil elements, and where transition zone vegetation can uptake unbound nutrients preventing nuisance algal blooms in adjacent waters (Harris and Gosselink, 1989).
- (3) Nutrients are by no means the only pollutant which may degrade wetland resource areas. Surface runoff from developed sites carries a diverse and potent pollution load: hydrocarbons, lawn chemicals, metals, bacteria, and viruses are common constituents (Diamond and Nilson, 1988). While it has been demonstrated that wetlands can play an effective role, in "cleansing" pollutant loads (Nickerson, 1978), little is known of the assimilative capacity of wetland systems in accommodating the broad spectrum of nonpoint pollutants in a given watershed. Indeed, evidence of our swamping of the natural thresholds for wetland resiliency abound.

C. Wildlife

The transitional assemblage of trees, shrubs and groundcover (containing both wetland and upland elements) frequently found in buffer zones has been found significant to the support of a greater number of native and specialist wildlife species in the interior of resource areas which they border. Put another way, similar habitats provide, a gradual transition zone that is not as inhospitable as an abrupt habitat “edge” (Harris, 1984b). It seems that the relationship between the width of the transitional buffer zone along a bordering marsh, for example, and the provision of Optimum wildlife habitat for its native marsh fauna is a proportional one. On the other hand, more common edge species, including many opportunistic exotics and generalists may find their habitat proportionately diminished. ‘

D. Cumulative Effects

Cumulative effects are defined and discussed in Chapter 237, Wetlands Protection Ordinance of the Code of the Town of Barnstable. Cumulative effects result from individually minor but collectively significant actions taking place over a period of time (Council on Environmental Quality, 1978). While Chapter 237 provides that the Commission may deny any project which will have a significant cumulative effect on a wetland or its values, our permit—level activities (i.e. site disturbance) are difficult to measure on the scale of cumulative impacts (i.e. watersheds) (Gosselink & Lee, 1989). Thus, techniques employed for individual permit review are not robust enough to resolve potential significant cumulative impacts, even though it may be clear that the collective impact of many such proposals could adversely affect or imperil a wetland resource area. A reasonable hedge against the cumulative impact is the ascription of a flanking undisturbed buffer of suitable width.

E. Storm Damage Prevention/Flood Control

- (1) The Town of Barnstable’s 100 miles of coastline have long provided an active interface for the power of the sea and the buffering capacity of its coastal land forms (marshes, beaches, dunes and banks).
- (2) The concern for continued efficacy of the foregoing resource areas in buffering, storing, or containing floodwaters has recently been elevated in the face of predictions for sea level rise in the next century. Due to an increasingly warm atmosphere, a rise in mean sea level of 20-40 cm has been predicted by the year 2100 (Oerlemans, 1989). However, other projections find mean sea level will increase by 66 cm in the same period (Steward, 1989). However, it is important to note that only the relative rate of increase in sea level is being debated, not the tendency to sustained increase in the centuries ahead. The effect of an accelerated rise in sea level will be an appreciable acceleration in coastal erosion processes and their notable manifestations: land erosion, storm damage, flooding, and loss of coastal wetlands.
- (3) Additionally, impacts to coastal resource areas may be incurred as a result of site development. Rill erosion of coastal banks and sedimentation of salt marshes may result from lack of appropriate drainage conveyance systems or erosion control practices for surface flows. In the face of the scientific concern over the acceleration

of the rate of sea level rise, and so that upland—induced impacts to coastal resource areas may be minimized, the imposition of a flanking undisturbed buffer zone of suitable width is found both advisable and necessary, respectively.

F. How Wide a Buffer?

The Massachusetts Audubon Society has recommended the imposition of 300 foot wide natural undisturbed buffers in those areas that directly abut critical resource areas. Projects proposed for prohibition within the buffer zone include both non-water-dependent activities (building construction, sewage disposal systems) and water-dependent activities (bulkheads, revetments) (Brady and Buchsbaum, 1989). Minimum buffer zone widths as mandated by other Northeast states for areas of critical environmental concern range from 200 ft. in Rhode Island to up to 300 ft. in Maine, Maryland and New Jersey.

G. Conclusion

The Conservation Commission finds that the uniform provision of an undisturbed buffer zone width of 50' will serve to insulate wetland resource areas from adverse impacts stemming from development elsewhere in the buffer zone. In cases where the slope of an undisturbed buffer exceeds 18%, or in any instance where the scope or nature of the project is likely to require a greater spatial offset to wetland resource areas, the Commission reserves the right to increase buffer zone width to a more suitable dimension.

H. LITERATURE CITED

- (1) Brady, Pond R. Buchsbaum. 1989. Buffer zones: the environment's last defense. Mass. Audubon Society. 15 pp.
- (2) Gosselink, J. and L. Lee. 1989. Cumulative impact in Bottomland Hardwood Forests. *Journal Society of Wetland Scientists* (9): 95—174.
- (3) Harris, L. 1984b. *The Fragmented Forest: Island Biogeography Theory and the Preservation of Biotic Diversity*. University of Chicago Press, Chicago, IL
- (4) Harris, L. and J.G. Gosselink. 1989. Cumulative impacts of bottomland hardwood conversion on hydrology, water quality, and terrestrial wildlife. In *Ecological Processes and Cumulative Impacts: Illustrated by Bottomland Hardwood Wetland Ecosystems*. Lewis Publishers, Inc., Chelsea, MI. In press.
- (5) Nickerson, N. 1978. *Freshwater wetlands: their nature and importance to man*. New England Environmental Network. 8 pp.
- (6) Oerlemans, J. 1989. A projection of future sea level. *Climatic Change* (15): 151—74.

(7) Omerik, J. 1977. Nonpoint source stream nutrient level relationships: a nationwide study. Corvallis Environmental Research Lab., Office of Research Development, U.S. Environmental Protection Agency, Corvallis, OR. EPA-600/3-77-105.

(8) Stewart, R. 1989. Causes and estimates of sea-level rise with changing climate. In oceanography 1988, UNAM press, Mexico. p 65-68.

704-1 PURPOSE

Pursuant to the regulation of activity under Chapter 237 Wetlands Protection Ordinance, Code of Town of Barnstable, in the 100 ft. buffer zone to resource areas¹ listed in 310 CMR 10.02 (1)(a) and in Chapter 237 section 2, the following Regulations shall apply:

704-2 DEFINITIONS

- A. A 50 FT UNDISTURBED BUFFER ZONE - is that area of land extending 50 ft horizontally outward from the boundary of resource areas. A 50 ft undisturbed buffer zone consists entirely of unmanaged/unmaintained vegetation or long-established meadow. All of the following are absent from a 50 ft undisturbed buffer zone: hardscape (except for permitted access paths and/or bank access stairs), lawns, ornamental plants and shrubs, gardens of any kind. This zone may be referred to herein as the "50 foot undisturbed buffer."
- B. A 50 FT BUFFER ZONE - is that area of land extending 50 ft horizontally outward from the boundary of resources areas, whether or not said buffer is in a disturbed or undisturbed/natural state.
- C. A 50 TO 100 FT BUFFER ZONE - is that area of land extending 50 ft horizontally outward from the boundary of the 50 ft buffer zone and terminating at the outer edge of the Commission's 100 ft jurisdictional zone.
- D. A 100 FT BUFFER ZONE - is that area of land extending 100 ft horizontally outward from the boundary of resource areas. The 100 ft buffer zone is comprised of the 50 ft buffer zone and the 50 to 100 ft buffer zone and constitutes the Conservation Commission's 100 ft jurisdictional zone.
- E. HARDSCAPE – is any structure or other covering on or above the ground that includes materials commonly used in building construction such as wood, asphalt and concrete, and also includes but is not limited to, all structures, decks and patios, sidewalks, landscape walls, and paving including gravel, shell, pervious or impervious concrete and asphalt.
- F. WATER DEPENDENT FACILITY - is any structure or works associated with water dependent industrial, maritime, recreational, educational, or fisheries activities that must be located at or near the shoreline and within the 100 ft buffer zone. An activity is water

¹ For purposes of this Regulation, land subject to coastal storm flowage shall not be treated as a resource area.

dependent if it is dependent on the water as part of the intrinsic nature or function of the operation. Examples of water dependent facilities include ports, marinas, community piers, public beaches, recreational areas and fisheries. Residences, restaurants, restrooms and concession stands are not water dependent.

704-3 PERFORMANCE STANDARDS FOR PROJECTS REQUIRING A NOTICE OF INTENT

- A. A 50 ft undisturbed buffer zone shall be retained between the landward-most wetland resource areas and the limit of proposed site disturbance.
- B. WHERE A 50 FT UNDISTURBED BUFFER ZONE, as measured in accordance with 704-2A, EXISTS prior to the proposed work and is proposed to remain intact, proposed work within the 50 to 100 ft. buffer zone shall not require further buffer zone enhancement.
- C. WHERE A 50 FT UNDISTURBED BUFFER ZONE, as measured in accordance with 704-2A, DOES NOT EXIST prior to the proposed work, any work proposed within the 100 ft. buffer zone shall be subject to mitigation planting requirements intended to restore, in so far as possible, both the dimensions of a 50 ft undisturbed buffer and its vegetation. For such work proposed within the 50-100 ft zone, the calculation of mitigation is set forth in 704-3D.
- D. CALCULATION OF MITIGATION FOR WORK PROPOSED WITHIN THE 50 TO 100 FT BUFFER – The amount of mitigation planting required for work proposed within the 50 to 100 ft. buffer zone shall be determined by the following method:
 - a. Calculate area of proposed hardscape within the 50 to 100 ft. buffer zone;
 - b. Multiply the area found in 704-3D(a) by 3 to obtain the area of required mitigation at a 3:1 planting to disturbance ratio.
 - c. In no case shall the total area of mitigation plantings required be greater than that which is necessary to restore a 50 ft. undisturbed buffer in its entirety.
- E. LOCATION OF MITIGATION PLANTING - Mitigation planting location(s) shall clearly be shown on the site plan. The plan shall also provide area calculations for the amount of mitigation planting herein required, and the amount of mitigation planting proposed.
- F. BEST PRACTICES
 - (1) The Conservation Commission shall exercise a preference for pervious surface types of hardscape.
 - (2) Where possible and practical, proposed hardscape within the 50 to 100 ft. buffer zone shall be located no closer than 10 ft from the landward limit of the 50 ft buffer zone, so that attendant construction, landscaping and maintenance activities may proceed without impact to the 50 ft buffer zone.

704-4 REQUIRED WAIVER OF PERFORMANCE STANDARDS FOR PROJECTS PROPOSED IN THE 50 FT. BUFFER

- A. HARDSCAPE OR LANDSCAPE ALTERATION PROPOSED WITHIN THE 50 FT. BUFFER, (except as noted in Section 704-6 below) shall require a full or partial waiver

of the Performance Standards found in Section 704-3 . The Conservation Commission shall have the discretion to grant a waiver should it find that the overall project, when considered with its proposed mitigation, will protect the wetland interests contained in Ch. 237. The waiver shall specify the terms of acceptable mitigation in accordance with Section 704-4(B), and either Section 704-4(C) or 704-5 below. To the extent feasible and practical, work should be avoided within the 50 ft buffer. Therefore, the granting of a waiver and acceptance of mitigation for work performed within the 50 ft. buffer should be considered only under exceptional, limited circumstances. In the absence of a waiver, hardscape or landscape alteration proposed within the 50 ft. buffer shall not be undertaken.

B. CALCULATION OF MITIGATION UNDER A WAIVER

- (1) The minimum amount of mitigation planting required for a waiver of Performance Standards (Section 704-3) shall be determined using the following formula:
 - a. Calculate area of disturbance from proposed hardscape and landscape alterations within the 50 ft. buffer zone; and
 - b. Multiply the area found in Section 704-4(B)(1)a by 4 to obtain the area of required mitigation at a 4:1 planting to disturbance ratio.

C. ON-SITE MITIGATION UNDER A WAIVER

- (1) When the required mitigation is to be provided on site, mitigation planting location(s) shall clearly be shown on the site plan. The plan shall also provide area calculations for the amount of 50 ft buffer zone altered, the amount of mitigation planting herein required, and the amount of mitigation planting proposed.

704-5 REQUEST FOR MITIGATION ALTERNATIVES

A. MEADOW RESTORATION

- (1) Certain sites requiring mitigation planting may be candidates for meadow restoration. By request of the applicant or of its own accord, the Commission shall determine which sites are appropriate for this mode of mitigation.

B. MITIGATION-CONSTRAINED SITES

- (1) Certain sites requiring mitigation may not, from the perspective of the Commission, lend themselves to mitigation planting or meadow restoration (in part or in full) because of their landscape setting. For example an existing house close to the top of a coastal bank may have limited space for an expanded buffer to mitigate under this Regulation.

For such "mitigation-constrained" projects, the Commission may, at the applicant's request, consider off-site mitigation or in-lieu fees in order to achieve the required mitigation, as provided in Sections 704-5(C) and 704-5(D) below.

C. REQUEST TO PROVIDE MITIGATION OFF-SITE

- (1) Request For Off-site Mitigation – For off-site mitigation to be considered the following preconditions must be satisfied:
 - a. the Commission must find that the project site is "mitigation-constrained";
 - b. the applicant/representative must request in writing that the Commission consider off-site mitigation for the project;
 - c. when off-site mitigation is proposed the applicant/representative must identify the proposed off-site mitigation location and demonstrate the property owner's consent to (a) use of the property for this purpose and (b) record an Order of Conditions and Certificate of Compliance, or similar legally binding restriction on the off-site mitigation property for this purpose;
 - d. when off-site mitigation is proposed the area of required mitigation planting is calculated as set forth in 704-3D for work proposed within the 50 ft. to 100 ft. buffer zone, and as set forth in 704-4B(1) for work proposed within the 50 ft. buffer zone; and
 - e. the acceptance of off-site mitigation is at the sole discretion of the Commission.
- (2) When the required mitigation is to be provided off site, mitigation planting location(s) shall clearly be shown on a site plan. The plan shall also provide area calculations for the amount of 50 ft buffer altered, the amount of mitigation planting herein required, and the amount of mitigation planting proposed.

D. REQUEST TO PAY FEES IN LIEU OF MITIGATION

- (1) Request to Pay Fees in Lieu of Off-site Mitigation – For payment of fees in lieu of mitigation to be considered the following preconditions must be satisfied:
 - a. the Commission must find that the project site is "mitigation-constrained";
 - b. the applicant/representative must request in writing that the Commission consider payment of fees in lieu of mitigation for the project;
- (2) In-Lieu Fees may be calculated as follows: multiply the total area of required mitigation planting calculated for the project by \$3.50 per square foot or in accordance with the current Conservation Commission Fee Schedule.
- (3) In-Lieu Fees may be made payable to the Conservation Commission's "Hamblin Conservation Fund", dedicated exclusively to the improvement of conservation land throughout Barnstable and across a variety of habitats. Alternatively, In-Lieu Fees may be made payable to the Town of Barnstable Conservation Fund, as established by MGL Ch 40A Sec 8 or other suitable entity acceptable to the Conservation Commission In-Lieu Fees shall paid at the time of recording of the Order of Conditions. Once received, such payments shall be non-refundable.

704-6 APPLICABILITY

- A. This Regulation shall not be construed to preclude the following activities, any of which may be permitted at the Commission's discretion, and without accompanying requirement for mitigation planting:
 - (1) Access paths;

- (2) The following maintenance activities: vista pruning; invasive species control; repair/replacement of subsurface septic disposal systems; or removal/replacement of underground fuel tanks or 21e cleanup;
- (3) Projects undertaken by a government agency that can be demonstrated to provide an overriding public benefit such as the area-wide improvement of water quality or the reduction of ground or surface water pollution;
- (4) The construction or reconstruction, without expansion or intensification of use, of all or a portion of a previously existing structure which utilizes a pre-existing foundation or footprint without need of additional excavation or filling, and either: (a) is approved, or (b) was constructed prior to 1973;
- (5) The construction of water dependent facilities as defined in 704-2(F) herein.

B. Projects filed under an application for a Request for Determination of Applicability are not subject to this regulation unless and until such time as they are required to file a Notice of Intent.

704-7 INDIVIDUAL CONSIDERATION

These regulations notwithstanding, the Conservation Commission will consider any and all proposals for activity within the 100 ft. buffer zone on a site specific basis, disposing of each according to its merit and the degree to which wetland interests have been protected and preserved at the locus.

Approved by the Conservation Commission on:	June 5, 1990
Revised:	March 14, 2006
Revised:	October 25, 2011