

**HINGHAM WETLAND REGULATIONS
CONSERVATION COMMISSION
HINGHAM, MASSACHUSETTS**

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PART I. PURPOSE AND PROCEDURES

1.0. AUTHORITY, PURPOSE, AND WETLAND VALUES

1.1. Purpose. These Regulations were promulgated under the Town of Hingham Wetlands Protection Bylaw (General Bylaws of the Town of Hingham, Article 22), henceforth known as the Bylaw, in order to implement the purposes of the Bylaw and to protect the wetlands, related water resources and adjoining land areas of the Town of Hingham by controlling activities affecting Resource Areas. These Regulations set forth additional definitions, regulations and performance standards necessary to protect the values and/or intent of the Bylaw, protect additional Resource Areas and wetland values, and specify standards and procedures stricter than those of the Wetlands Protection Act, M.G.L. Ch. 131, § 40 and implementing regulations at 310 CMR 10.00.

1.2. Authority. The Town of Hingham Wetland Regulations (HWR) were promulgated by the Town of Hingham Conservation Commission (Commission), pursuant to the authority granted under the Bylaw and under the Home Rule authority of this municipality. The HWR shall complement the Bylaw, and shall have the force of law upon their effective date. Following public notice and a public hearing thereon, these Regulations may be amended and/or added to by a majority vote of the Commission.

1.3. Wetland Values. These regulations are promulgated in order to contribute to the following wetland values, including, but not limited to:

- (1) protection of public or private water supply;
- 2) protection of surface water and groundwater;
- 3) flood control;
- 4) erosion and sedimentation control;
- 5) storm damage prevention, including but not limited to coastal storm flowage;
- 6) prevention and abatement of water pollution;
- 7) protection of fisheries;
- 8) protection of shellfish;
- 9) protection of wildlife and wildlife habitat;
- 10) protection of rare species habitat, including rare plant and animal species;
- 11) protection of recreation and open space; and
- 12) protection of aesthetics.

2.0. JURISDICTION

The Bylaw and Regulations provide protection for Resource Areas and their wetland values. Resource Areas protected under the Bylaw are ANY of the following:

- (1) Any freshwater or coastal wetland, isolated wetland, beach, dune, flat, marsh, wet meadow, bog, swamp, vernal pool, creek, river, stream, pond, lake, estuary, or ocean;
- (2) Any bank bordering on a freshwater or coastal wetland or water body;
- (3) Land under water bodies, including but not limited to, land under the ocean, ponds, lakes, rivers, streams, creeks, any fresh water or coastal wetland, and estuaries;
- (4) Land bordering on the ocean, including but not limited to, beaches, dunes, tidal flats, coastal bank, salt marshes, salt meadows, and estuaries;
- (5) Land subject to flooding or inundation by groundwater or surface water, including but not limited to, fresh water wetlands, isolated wetlands, beaches, wet meadows, marsh, swamps, bogs, vernal pools, streams, rivers, ponds, lakes, or reservoirs;
- (6) Land within a minimum distance of 100 feet from any of the aforementioned Resource Areas (1-4 described above) (hereinafter referred to as the “Buffer Zone”);
- (7) Land subject to tidal action, coastal storm flowage, or flooding, including but not limited to, the coastal floodplain (FEMA Flood Zones AE, AO, and V, as shown on the Flood Insurance Rate (FIRM) maps for the Town of Hingham); or
- (8) Land within 200 feet of any river, stream, or creek (hereinafter referred to as the “Riverfront Area”, refer to HWR 21.1 (c)) Resource Areas shall be protected whether or not they border surface water.

3.0. REGULATED ACTIVITIES

Activities subject to regulation under the Bylaw and Regulations include the following:

- 3.1. Any activity proposed or undertaken within a Resource Area as described in HWR 2.0 et seq.;

3.2. Any activity deemed by the Commission as likely to have a significant or cumulative adverse effect upon Resource Areas as defined herein;

3.3. Any activity, including but not limited to, any and all of the following activities when undertaken to, upon, within or affecting Resource Areas or their wetland values, as determined by the Commission:

- a) Removal, excavation, or dredging of soil, sand, gravel, or aggregate materials of any kind;
- b) Changing of preexisting drainage characteristics, flushing characteristics, salinity distribution, sedimentation patterns, flow patterns, or flood retention characteristics;
- c) Drainage, or other disturbance of water level or water table;
- d) Dumping, discharging, or filling with any material which may degrade water quality;
- e) Placing of fill, or removal of material;
- f) Driving of piles, construction or expansion or repair of buildings or structures or construction of any kind whether it be for industrial, commercial, residential, recreational or other purposes, regardless of its size;
- g) Placing of obstructions including, but not limited to, dams, or objects in water or the surface water or groundwater hydrology of any resource area;
- h) Destruction or removal of plant life, including, but not limited to, cutting or trimming of trees and shrubs;
- i) Changing temperature, biochemical oxygen demand, or other physical, biological, or chemical characteristics of any waters;
- j) Any activities, changes, or work which may cause or tend to contribute to pollution of any body of water or groundwater; and
- k) Incremental activities which cause, or may cause, or contribute to a cumulative adverse effect on the resource areas and interests protected by this Bylaw.

3.4. Activities Outside the Areas Subject to Protection Under the Bylaw. Any activity proposed or undertaken outside the areas specified in HWR 2.0 is not subject to regulation under the Bylaw, and does not require the filing of a Permit Application unless and until that activity

actually alters a Resource Area. In the event that the Commission determines that such activity has in fact altered a Resource Area referenced in HWR 2.0(1) through (8), it shall impose such conditions on the activity or any portion thereof as it deems necessary to contribute to the protection of the wetland values identified in HWR 1.3.

4.0. EXCEPTIONS

Exceptions may be made for maintaining, repairing or replacing, but not substantially changing or enlarging, an existing and lawfully located structure or facility used in the service of the public and used to provide electric, gas, water, telephone, telegraph and other telecommunication services.

5.0. PROMULGATION OF REGULATIONS

The Commission may adopt such additional definitions, regulations, fees, and performance standards as they may deem necessary to protect the wetland values of this Bylaw. Said definitions, regulations, fees and performance standards shall become effective upon publication following a public hearing for which public notice has been provided.

6.0. DEFINITIONS

Definitions of selected words, terms and phrases used in these Regulations are provided below, where they have not already been defined in the Bylaw. Definitions of Resource Areas are found in subsequent sections for each Resource Area. Where applicable, the definitions, presumptions of significance, and performance standards, set forth in the Massachusetts Wetlands Regulations, 310 CMR 10.00 et seq., are hereby incorporated herein only when no definitions, presumptions of significance or performance standards are given in these regulations.

Activity means any form of draining, dumping, dredging, damming, discharging, excavating, filling or grading; the erection, reconstruction or expansion of any buildings or structures; the driving of pilings, the construction or improvement of roads and other ways; the changing of runoff characteristics, the intercepting or diverging of ground or surface water; the installation of drainage, sewage and water systems; the discharging of pollutants, the destruction of plant life; and any other changing of the physical characteristics of land.

Aesthetics means the relevant qualities to be protected under the Hingham Wetlands Bylaw which are due to those natural and natively scenic impressions of all Resource Areas protected under the Hingham Wetlands Bylaw including but not limited to our coastal and inland shores, ponds, lakes, streams, rivers, marshes, and the lands bordering them. Activities in or within 100 feet of any resource area shall not have significant effects on aesthetic values.

Alter The term “alter” shall include, without limitation, the following activities when undertaken to, upon, within or affecting resource areas protected by this bylaw: removal, excavation, or dredging of soil, sand, gravel, or aggregate materials of any kind; changing of preexisting drainage characteristics, flushing characteristics, salinity distribution, sedimentation patterns, flow patterns, or flood retention characteristics; drainage, or other disturbance of water level or water table; dumping, discharging, or filling with any material which may degrade water quality; placing of fill, or removal of material, which would alter elevation; driving of piles, erection, expansion or repair of buildings, or structures of any kind; placing of obstructions or objects in water; destruction of plant life including cutting or trimming of trees and shrubs; changing temperature, biochemical oxygen demand, or other physical, biological, or chemical characteristics of any waters; any activities, changes, or work which may cause or tend to contribute to pollution of any body of water or groundwater; incremental activities which have, or may have, a cumulative adverse impact on the resource areas protected by this bylaw.

Commission means the Hingham Conservation Commission.

Minimize means to make as small as possible. To achieve the least amount of adverse effect that can be attained using best available measures or best practical measures, whichever is referred to in the pertinent section.

Naturally vegetated condition means an area on a lot or parcel of land, or portion thereof, that is left in a natural, undisturbed vegetative state; has existed in a primarily natural, undisturbed state, but has been enhanced with indigenous plantings conducive to improved wildlife habitat according to a plan approved by the Commission; or has been disturbed, but is revegetated with indigenous plantings that will return the land to its predisturbance condition according to a plan approved by the Commission.

Navigation means the ability to traverse a waterway by water craft and is part of the wetland values of recreation under the Bylaw.

Person means any individual, group of individuals, association, partnership, corporation, company, business, organization, trust, estate, the Commonwealth or political subdivision thereof, administrative agency, public or quasi-public corporation or body, or any other legal entity or its legal representatives, agents, or assigns.

Pier means the entire structure of any pier, dock, wharf, walkway, bulkhead or float, and any part thereof including pilings, ramps, walkways, floats and/or tie-off pilings attached to the shore.

Rare species habitat means the following areas utilized by threatened, rare, or endangered plant or animal species, or species of Special Concern; or species on the "Watch List"; or Priority Sites of Rare Species habitat; or Exemplary Natural Communities; (all of which are determined by the Massachusetts Division of Fisheries and Wildlife, Natural Heritage & Endangered Species Program).

Recreation means the use and enjoyment of our natural surroundings in a manner consistent with their preservation. Activities should not hinder access to coastal and inland resources. Activities that shall be considered part of the use and enjoyment of our natural surroundings in a manner consistent with their preservation shall include but not be limited to recreational boating, swimming, fishing, shellfishing, nature study, painting and drawing, aesthetic enjoyment, walking, hiking, cross country skiing, and snowshoeing. The Commission's analysis of the project's effect on the wetland value of recreation should be relative to a proposal's potential impacts on other protected wetland values, with priority given to enhancing and protecting those recreational values which are not detrimental to the continued natural functions of wetlands or their wetland values.

Redevelopment means replacement, rehabilitation or expansion of structures currently existing on the site or improvement of currently existing roads or other surfaces passable to motor vehicles.

Resource Area means any of the areas specified in HWR 2.0. It is used synonymously with Area Subject to Protection Under the Bylaw, each one of which is described in HWR 17.0 through 22.0.

Significant means plays a role. A Resource Area is significant to a wetland value when the Resource Area plays a role in the provision or protection of that wetland value.

Water-dependent uses mean those uses and facilities which require direct access to, or location in, marine, tidal or inland waters and which therefore cannot be located away from said waters, such as: marinas, public recreational uses, navigational and commercial fishing and boating facilities, water-based recreational uses, navigation aids, basins, and channels.

Wildlife habitat means areas which, due to their plant community composition and structure, hydrologic regime or other characteristics, provide food, shelter, migratory or overwintering areas, or breeding areas for animals. This includes all areas in a naturally vegetated condition.

7.0. PROCEDURES

- a) If zoning relief will be required for the proposed construction or alteration of a building of any type, it must be obtained prior to filing with the Conservation Commission.
- b) All applications must follow the Hingham Conservation Commission Policy on Receipt of Information (see Appendix C).
- c) Correspondence, if any, with individual Conservation Commission members should be addressed to the Hingham Conservation Office.
- d) The applicant must sign all forms. If the applicant is not the owner of the subject property, written permission of the land owner must be obtained.

7.1. Request for Determination of Applicability (RDA)

- a) Any person who desires a determination as to whether the Bylaw applies to land, or to work that may affect a Resource Area protected under the Bylaw, may submit to the Commission by certified mail or hand delivery a Request for Determination of Applicability using forms provided by the Town of Hingham and according to instructions provided by the Town of Hingham. For work within Riverfront Areas, an applicant may submit to the Commission by certified mail or hand delivery a Request for Determination of Applicability to identify the scope of alternatives to be evaluated under HWR 21.1, including sufficient information to enable the Commission to determine the applicable scope of alternatives.
- b) Any person who proposes to perform work within the Buffer Zone or Riverfront Area shall submit to the Commission either a Notice of Intent for such work or a Request for Determination of Applicability. Said request shall include sufficient information, to enable the Commission to find and view the area and to determine whether the proposed work will alter a Resource Area under the Bylaw.
- c) A Request for a Determination of Applicability shall include certification in writing that the owner of the area subject to the request, if the person making the request is not the owner, has been notified that a determination is being requested under the Bylaw.

7.2. Determination of Applicability

- a) Within 21 calendar days after the date of receipt of the Request for a Determination of Applicability, unless the 21 day period is voluntarily waived by the applicant, the Commission shall hold a public meeting. Notice of the time and place of the public meeting at which the

determination will be made shall be given by the Commission at the expense of the person making the request not less than 5 (five) business days prior to such meeting, by publication in a newspaper of general circulation in the Town of Hingham, and by mailing a notice to the person making the request and the owner. Notice shall also be given in accordance with the open meeting law, M.G.L. c. 39, §23B. Said determination shall be signed by a majority of the Commission, and copies thereof shall be sent by the Commission to the person making the request and to the owner. Delivery of the copy to the person making the request shall be by hand delivery or certified mail, return receipt requested. Said determination shall be valid for 3 (three) years from the date of issuance.

The applicant may request to continue a meeting to a date certain announced at the meeting. Reasons for continuing a meeting may include, but are not limited to, failure of the applicant or others to provide information by the submittal deadline, lack of timely receipt of necessary information from the applicant, time needed by the applicant to provide additional or missing information and for the Commission to review such information, inability to view the proposed project, need for additional information to evaluate the potential impacts upon the wetland values. Once the Commission closes the public meeting it shall issue a Determination within 21 calendar days, unless the applicant has voluntarily waived the 21 day time period.

b) The Commission shall find that the Hingham Wetland Bylaw and Hingham Wetland Regulations apply to the land, or a portion thereof, if it is a Resource Area under the Bylaw. The Commission shall find that the Bylaw and Regulations apply to the work, or a portion thereof, if it is an Activity Subject to Regulation under the Bylaw as defined in HWR 3.0. The Commission shall identify the scope of alternatives to be evaluated, if requested, for work within Riverfront Areas under HWR 21.1.

c) The Commission may request a signed voluntary waiver of the 21 day requirement for issuing its decision.

d) A Notice of Intent which is filed as a result of a positive determination shall be filed with the Conservation Commission and all of the procedures set forth in HWR 7.4. A Determination of Applicability may be conditioned by the Commission to protect the wetland values of the Resource Areas involved.

7.3. Abbreviated Notice of Resource Area Delineation (ANRAD)

a) To establish the extent of Bordering Vegetated Wetland and other Resource Areas on land subject to protection under the Bylaw, applicants may use the Abbreviated Notice of Resource Area Delineation for the confirmation of a delineated boundary of bordering vegetated wetlands

and other Resource Areas on the site, prior to filing a Notice of Intent for proposed work. Alternatively, the boundary of Bordering Vegetated Wetland (or other Resource Area) may be determined through the filing of a Notice of Intent. If onsite conditions do not allow accurate identification of the wetlands line, the Commission may request that the applicant postpone its request until the site can be accurately viewed.

b) The ANRAD shall be submitted on the form and according to instructions provided by the Town of Hingham Conservation Commission. A public hearing shall be held as described under HWR 7.6. Procedures for an ANRAD filing, hearing, and issuance of a decision follow those outlined for the Notice of Intent as described in HWR 7.4. If the Commission determines that the Resource Areas are correctly delineated, an approval Order of Resource Area Delineation (ORAD) will be issued.

c) The Department of Environmental Protection (DEP) File Number for the ANRAD submitted under 310CMR 10.00 may serve as the File Number for the ANRAD submitted under the Bylaw. The designation of a file number shall not imply that the plans and supporting documents have been judged adequate for the issuance of an ORAD, but only that copies of the minimum submittal requirements contained in the General Instructions have been filed.

d) If the Commission determines that the Resource Areas are incorrectly or incompletely delineated, they shall request that the applicant provide the correct delineation or missing information. If the correct delineation or missing information is not provided, the Commission shall close the ANRAD hearing and issue a denial Order of Resource Area Delineation within 21 calendar days, unless the applicant has voluntarily waived the 21 day requirement, specifying each Resource Area that is incorrectly or incompletely delineated. The Commission shall have the authority to deny any proposed Resource Area delineation when 1) the application is incomplete; 2) the delineation is incorrect, or 3) the Commission requires additional information that is not provided by the applicant in a timely manner.

e) The applicant may request to continue a hearing to a date certain announced at the hearing. Reasons for continuing a hearing may include, but are not limited to, lack of timely receipt of necessary information from the applicant or others (including comments, recommendations, or action of other town boards and officials), time needed by the applicant to correct the delineation and for the Commission to review the corrected delineation, inability to view the proposed delineation, need for additional information to evaluate the potential impacts upon the wetland values, or incorrect or incomplete abutter notification as required under HWR 7.5. Once the Commission closes the public hearing it shall issue an ORAD within 21 calendar days unless the applicant has voluntarily waived the 21 day time period, specifying whether the proposed Resource Area boundaries are correct or not (i.e., approval or denial of the boundaries).

f) The Commission may request a signed voluntary waiver of the 21 day requirement for issuing its decision.

7.4. Notice of Intent (NOI)

a) Any person who proposes to do work that may alter or affect any Resource Area under the Bylaw shall file a NOI on Forms provided by the town of Hingham and other application materials in accordance with the submittal requirements by the Town of Hingham Conservation Commission. Two copies of the completed Forms with supporting plans and documents shall be sent by certified mail or hand delivery to the Commission.

b) As a minimum, all Notices of Intent shall include the following:

(1) The location of all resource areas subject to protection under the Town of Hingham's Wetlands Protection Bylaw.

(2) Topography of site in 2' contour intervals based on N.G.V.D. (National Geodetic Vertical Datum of 1929).

(3) Existing site amenities both above and below the ground.

(4) All above ground structures development or alterations proposed for the site.

(5) All below ground structures, development or alterations proposed.

(6) Location of temporary erosion controls.

(7) The drainage basin in which the site is located shall be delineated on the locus plan.

(8) All trees 6” or greater in diameter at breast height (DBH).

c) Construction Setbacks

The following MINIMUM setbacks shall apply between the activity or structure listed and any resource area subject to protection under the Bylaw:

1. Structures to be used for living quarters including breezeways, porches and decks.....50'
2. Structures not to be used for living quarters including commercial and industrial buildings, garages, etc.....50'
3. Swimming pools (both below and above ground).....50'
4. Driveways, roadways, parking areas, any other paved area and any area paved or gravel to be used for the storage, transport or repair of motorized vehicles.....50'
5. Clear cutting or grading and/or filling.....50'
6. No new construction for the storage of gasoline, oil or other fuels or hazardous materials shall be permitted in, or within 100' of any resource area as described in Sections 17.1-3, 18.1-5, 19.2-3, 21.1-2. In addition, no new construction of such storage tanks shall be permitted within flood zones as indicated on the FEMA flood zone map. Note: present tanks may be replaced under guidelines as set by the Town of Hingham Fire Prevention Officer.

d) To establish the extent of Bordering Vegetated Wetland and other Resource Areas on land subject to protection under the Bylaw, applicants may use the Abbreviated Notice of Resource

Area Delineation for the confirmation of a delineated boundary of bordering vegetated wetlands and other Resource Areas on the site, prior to filing a Notice of Intent for proposed work. Alternatively, the boundary of Bordering Vegetated Wetland (or other Resource Area) may be determined through the filing of a Notice of Intent.

e) The Department of Environmental Protection File Number for the Notice of Intent submitted under 310 CMR 10.00 may serve as the File Number for the Notice of Intent submitted under the Bylaw. The designation of a file number shall not imply that the plans and supporting documents have been judged adequate for the issuance of an Order, but only that copies of the minimum submittal requirements contained in the General Instructions have been filed.

f) In the event that only a portion of a proposed project or activity lies within a Resource Area under the Bylaw, and the remainder of the project or activity lies outside those areas, only that portion within those areas must be described in the detail called for by the General Instructions and by the Town of Hingham; provided, however, that in such circumstances the Notice of Intent shall also contain a description and calculation of peak flow and estimated water quality characteristics of discharge from a point source (both closed and open channel) when the point of discharge falls within a Resource Area under the Bylaw. Notwithstanding the foregoing, when the Commission has determined that an activity outside the Resource Areas may alter a Resource Area, it may require such plans, supporting calculations and other documentation as are necessary to describe the entire activity.

g) The requirements under the Bylaw to obtain or apply for all obtainable permits, variances and approvals required by other local Bylaws and Laws with respect to the proposed activity shall mean only those which are feasible to obtain at the time the Notice of Intent is filed. Permits, variance, and approvals required by local Bylaw may include, among others, building permits under the State Building Code, G.L. C. 23B S16, or subdivision control approvals under the State Subdivision Control Law, G.L. c.41, S81K-881GG, which are issued by local authorities. When an applicant for a comprehensive permit (under G.G. c. 40B, S20-23) from the Board of Appeals has received a Determination from the Board granting or denying the permit and, in the case of a denial, has appealed to the Housing Appeals Committee (established under G.L. c.23B, S5A), said applicant shall be deemed to have applied for all permits obtainable at the time of filing.

h) If the Commission rejects a Notice of Intent because of a failure to obtain or apply for all permits, variances and approvals required by the Town of Hingham Bylaw, it shall specify in writing the permit, variance or approval that has not been applied for. A ruling by the municipal agency which has jurisdiction for the issuance of the permit, variance or approval, or by the Town Counsel or Board of Selectmen, concerning the applicability or obtainability of such permit, variance or approval shall be accepted by the Commission. In the absence of such a ruling, other evidence may be accepted.

i) A Notice of Intent shall expire when the applicant has failed to diligently pursue the issuance of a Final Order in proceedings under the Hingham Wetland Regulations. A Notice of Intent shall be presumed to have expired 6 (six) months after the date of filing unless the applicant submits information showing that (a) good cause exists for the delay of proceedings under the Bylaw; and (b) the applicant has continued to pursue the project diligently in other forums in the intervening period; provided, however, that unfavorable financial circumstances shall not constitute good cause for delay. No NOI shall be deemed expired under the Bylaw when an appeal under the Bylaw is pending and when the applicant has provided all information necessary to continue with the prosecution of the case.

j) The Commission may require that supporting plans and calculations be prepared and stamped by a registered professional engineer (P.E.) when, in its judgment, the proposed work warrants this professional certification. The Commission may also require preparation and submission of supporting materials by other professionals including, but not limited to, registered landscape architect, registered land surveyor, environmental scientist, geologist or hydrologist when in its judgment the complexity of the proposed work and/or the wetland values of the Resource Areas warrants the relevant specialized expertise. Submitted materials may be used by the Commission to evaluate the effects of the proposed project on wetland values. Submission of requested materials does not imply approval of the project.

k) The applicant may request to continue a hearing to a date certain announced at the hearing. Reasons for continuing a hearing may include, but are not limited to, failure of the applicant or others to provide information by the submittal deadline, lack of timely receipt of necessary information from the applicant, time needed by the applicant to provide additional or missing information and for the Commission to review such information, inability to view the proposed project, need for additional information to evaluate the potential impacts upon the wetland values, and incorrect or incomplete abutter notification as required under these regulations. Should the applicant refuse to continue the hearing or to provide the requested information, the Commission shall close the public hearing and issue an Order of Conditions within 21 calendar days unless the applicant has voluntarily waived the 21 day requirement.

l) The Commission shall have the authority to deny any NOI application for which 1) the application is incomplete and the applicant fails to provide the Commission with additional information that the Commission deems necessary in order to evaluate the potential impacts of the proposed project on the wetland values; and/or 2) the proposed work or activity does not meet the performance standards specified herein and cannot be conditioned to meet the performance standards specified herein.

m) The Commission may request a signed voluntary waiver of the 21 day requirement for issuing its decision.

7.5. Abutter Notification.

Any applicant filing a Notice of Intent or Abbreviated Notice of Resource Area Delineation, for work within jurisdiction of the Bylaw, must notify abutters within 100 feet, except when the project is a coastal application and then they must notify abutters within 300 feet of the property line of the lot, or lots upon which work is proposed, including any in another municipality or across a body of water, by certified mailing or hand delivery on the form and according to instructions provided by the Town of Hingham Conservation Commission. Mailing at least seven days prior to the public hearing shall constitute timely notice. Notification shall be at the applicant's expense. Proof of abutter notification (e.g., certified mail receipts, certificate of mailing, or hand delivery with written acknowledgement) must be provided to the Commission either prior to or at the public hearing.

7.6. Public Hearings/Public Meetings.

a) A public hearing or public meeting shall be held by the Commission within 21 days of receipt of the minimum submittal requirements set forth in the General Instructions for Completing Notice of Intent (Form 3), Abbreviated Notice of Intent (Form 4), Request for Determination of Applicability (Form 1) or Abbreviated Notice of Resource Area Delineation (Form 4A) unless the 21 day requirement is voluntarily waived by the applicant. The public hearing/public meeting shall be held under both M.G.L. c.131, § 40 and the Hingham Wetlands Bylaw, unless the project is located in only one of the two jurisdictions. The Commission shall publish notice of the public hearing or public meeting to a newspaper of local circulation 5 business days prior to the hearing. The applicant is responsible for the cost of the legal notice.

b) If the Commission requests additional information from the applicant, it must be submitted to the Conservation Office at least 7 days prior to the next hearing. If the additional information is subject to peer review, it must be submitted at least 2 weeks prior to the next hearing.

7.7. Orders of Conditions Regulating Work

a) Within 21 days of the close of the public hearing, or longer if the applicant has voluntarily waived the 21 day requirement, the Commission shall either:

(1) Make a determination that the area on which the work is proposed to be done, or which the proposed work will remove, fill dredge or alter, is not significant to any of the wetland values identified in the Bylaw and shall so notify the applicant; or

(2) Make a determination that the area on which the work is proposed to be done, or which the proposed work will remove, fill, dredge or alter, is significant to one or more of the wetland values identified in the Bylaw and shall issue an Order of Conditions for the protection of said values; or

(3) Issue a denial.

b) The standards and presumptions to be used by the Commission in determining whether an area is significant to the wetland values in the Bylaw are found in HWR 17.0 through 23.0.

c) The Order of Conditions shall impose such conditions as are necessary to meet the performance standards set forth in HWR 17.0 through 23.0 for the protection of those areas found to be significant to one or more of the wetland values identified in the Bylaw. The Order shall prohibit any work or any portion thereof that cannot be conditioned to meet said standards.

d) The Commission may request a signed voluntary waiver of the 21 day requirement for issuing its decision.

e) If a peer review has been required by the Commission, all outstanding bills for the peer review must be paid in full before a permit is issued.

7.8. Denials

a) Procedural Denials. If the Commission finds that the information submitted by the applicant is not sufficient to describe the site, the work, or the effect of the work on the wetland values of the Resource Area, it may issue a denial prohibiting the work. The denial shall specify the information which is lacking and why it is necessary. In writing the procedural denial, the Commission shall:

(1) State that the denial is specifically based on lack of information describing the site, the work and/or the effect of the work on the wetland values; and

(2) List specific information needed in each of the three possible problem areas mentioned above, citing appropriate sections of the Regulations.

(3) If 3 (three) continuances are granted to the applicant in which no new information is presented at the meeting or hearing, the Commission may close the meeting or hearing and issue a decision.

b) Substantive Denials. The Commission may deny permission for any activity within areas under its jurisdiction if, in its judgment, such denial is necessary to protect the wetland values. Due consideration shall be given to all possible effects of the proposal on all wetland values. Substantive denials are based on a reasoned analysis of the proposed activity and the likely effects of this activity on the wetland values. In most cases, neither the assumption of protection nor the assumption of damage will be able to be proven with certainty. The Commission will base its judgment on the best information available to it at the time and in all cases will act to protect the wetland values. The written decision will include the reasons for the denial, citing wetland values protected, and relevant regulations. The written decision will be signed by a majority of the Commission.

c) Applicants and professionals assisting with an application are responsible for the accuracy of information submitted to the Conservation Commission and its Office. Any false information submitted either in writing or orally is sufficient grounds for denial of the application.

d) Revocation for good cause. The Commission may revoke or modify any permit, order, determination or other decision issued under the Bylaw after notice to the holder of the permit, the public, and abutters, pursuant to HWR 7.6 (Public Hearings) and HWR 16.2 (Coordination of Permitting), and holding a public hearing.

7.9. Recording in Registry of Deeds or Land Court. In no case shall any work or construction commence unless and until the Order of Conditions or Order of Resource Delineation has been recorded at the Registry of Deeds or Land Court and the proof of recording is delivered to the Commission.

7.10. Validity. A Determination of Applicability, Order of Resource Delineation and Orders of Conditions shall be effective for 3 (three) years from the date of issuance.

7.11. Extensions of Orders of Conditions and Orders of Resource Area Delineations

a) The Commission may extend an Order for one or more periods of up to three years each, which shall be made on Form 7. The request for an extension shall be made to the Commission at least 30 days prior to expiration of the Order.

b) The Commission may deny the request for an extension and require the filing of a new Notice of Intent for the remaining work or a new Abbreviated Notice of Resource Area Delineation in the following circumstances:

(1) Where no work has begun on the project, except where such failure is due to an unavoidable delay, such as appeals, in the obtaining of other necessary permits; or

(2) Where new information, not available at the time the Order was issued, has become available and indicates that the Order is not adequate to protect the wetland values identified in the Bylaw; or

(3) Where incomplete work is causing damage to the Resource Area and wetland values in the Bylaw; or

(4) Where work has been done in violation of the Order or Bylaw and Regulations; or

(5) Where a resource area delineation or certification in an Order of Resource Delineation is no longer accurate.

c) The Extension Permit shall be recorded in the Land Court or the Registry of Deeds, whichever is appropriate and evidence of the recording delivered to the Commission.

7.12. Certificates of Compliance

a) Upon completion of the work described in the Final Order of Conditions the applicant shall request in writing the issuance of a Certificate of Compliance stating that the work has been satisfactorily completed. Upon written request by the applicant, a Certificate of Compliance shall be issued by the Commission within 21 days of receipt thereof, and shall certify on Form 8 that the activity or portions thereof described in the Notice of Intent and plans has been completed in compliance with the Order.

b) Prior to issuance of a Certificate of Compliance a site inspection shall be made by the Commission or its administrative agent.

c) If the Commission determines, after review and inspection, that the work has not been done in compliance with the Order, it may refuse to issue a Certificate of Compliance. Such refusal shall

be issued within 21 days of receipt of a request for a Certificate of Compliance shall be in writing and shall specify the reasons for denial.

d) If a project has been completed in accordance with plans stamped by a registered professional engineer, architect, landscape architect or land surveyor, a written statement by such a professional person certifying substantial compliance with the plans and setting forth what deviation, if any, exists from the plans approved in the Order shall accompany the request for a Certificate of Compliance.

e) If the final Order contains conditions which continue past the completion of the work, such as maintenance or monitoring, the Certificate of Compliance shall specify which, if any, of such conditions shall continue. The Certificate shall also specify to what portions of the work to which it applies.

f) The Certificate of Compliance shall be recorded in the Land Court or Registry of Deeds, whichever is appropriate and evidence of the recording delivered to the Conservation Commission.

8.0. EMERGENCY CERTIFICATION

The notice required by this Bylaw shall not apply to emergency projects necessary for the protection of the health or safety of the citizens of Hingham and to be performed or ordered to be performed by an administrative agency of the Commonwealth or by the Town. Emergency projects shall mean any projects certified to be an emergency by the Commission or its agent. The certification shall include a description of the work which is to be allowed and shall not include work beyond that which is necessary to abate the emergency. A site inspection shall be made prior to the certification. The Commission or its agent may impose conditions to protect wetland values of this Bylaw. An emergency certification shall be issued only for the protection of public health and safety. The time limitation for performance of emergency work shall not exceed 30 days unless written approval of the Conservation Commission or its agent is obtained. Failure to agree to or follow these conditions shall be due cause for stopping all work. Upon failure to meet these requirements, the Commission may order all such work stopped and require the filing of a Notice of Intent or other application. The Commission may adopt emergency regulations in conformance with the Bylaw for limited durations after severe storms, notice of which shall be provided as soon as possible after their adoption.

9.0. ENTRY TO PROPERTY FOR REVIEW PURPOSES

The Commission, its agent, employees, consultants, and officers, may enter upon the land upon which proposed work is to be done in response to a request for a prior determination or for the purpose of carrying out its duties under the Bylaw and Regulations and may make or cause to be made such examination or survey as deemed necessary.

10.0. ENFORCEMENT

a) Authority. The Conservation Commission shall have the authority to enforce these implementing regulations and permits issued there under by undertaking and issuing enforcement orders, administrative orders, and civil and criminal court actions. Upon request of the Commission to the Board of Selectmen, the Town Counsel may take legal action for enforcement under civil law. Upon request of the Commission, the Chief of Police may take legal action for enforcement under criminal law.

Violations include, but are not limited to: failure to comply with an Order of Conditions, such as a failure to observe a particular condition or time period specified in the Order; or failure to complete work described in an Order of Conditions, when such failure causes damage to the interest identified in the Bylaw; or failure to obtain a valid Order of Conditions or an Extension of an existing Order prior to conducting an activity subject to regulations under the Bylaw.

b) Fines. Any person who violates any provision of the Bylaw and these implementing regulations or permits issued there under shall be punished by a fine set under the provisions of the Bylaw. Each day or portion thereof during which a violation continues shall constitute a separate offense, and each provision of the Bylaw, regulations or permit violated shall constitute a separate offense.

c) Non-criminal Disposition. In addition to the procedure of enforcement as described above, the provision of the Bylaw and these implementing regulations or permits issued hereunder may also be enforced by the Commission or its agent, by non-criminal complaint pursuant to the provisions of M.G.L. Ch. 40, § 21D. Each provision of the chapter, regulations or permit violation that is violated also shall constitute a separate offense.

11.0. SECURITY

As part of a permit issued under the Bylaw, in addition to any security required by any other municipal or state board, agency or official, the Commission may require that the performance and observance of the conditions imposed thereunder (including requiring mitigation work) be secured wholly or in part by one or more of the methods described below.

a) By a proper bond or deposit of money or negotiable securities or other undertaking of financial responsibility sufficient in the opinion of the Commission, to be released in whole or in part upon issuance of a Certificate of Compliance for work performed pursuant to the permit. Such bond or deposit shall be released only upon issuance of a Certificate of Compliance.

b) By accepting a conservation restriction, easement, or other covenant enforceable in a court of law, executed and duly recorded by the owner of record, running with the land to the benefit of this municipality whereby the permit conditions shall be performed and observed before any lot may be conveyed other than by mortgage deed. This method shall be used only with the consent of the applicant.

12.0. BURDEN OF PROOF AND BURDEN OF GOING FORWARD

BURDEN OF PROOF

Any person who files a Notice of Intent to perform work within an area subject to protection under the Bylaw or within the buffer zone has the burden of demonstrating by a preponderance of credible evidence to the Conservation Commission:

(1) That the area is not significant to the protection of any of the interests identified in the Bylaw, or

(2) That the proposed work will contribute to the protection of the interests identified in the Bylaw complying with the general performance standards established by these regulations for that area. Any person who requests the Conservation Commission regulate work taking place outside an Area subject to protection under the Bylaw and outside the buffer zone has the burden of demonstrating to the satisfaction of the Conservation Commission that the work has in fact altered an area subject to protection under the Bylaw.

The applicant shall have the burden of proof by a preponderance of credible evidence that the work proposed will not have a significant or cumulative detrimental effect upon Resource Areas or their wetland values protected herein. No project determined to have a significant or cumulative detrimental effect upon Resource Areas or wetland values protected herein shall be allowed. Failure to provide adequate evidence to the Commission supporting this burden shall be sufficient cause for the Commission to deny the proposed project. In all instances herein, the Commission, after due deliberation, shall have the discretion to determine the weight of the information presented or omitted. The Commission maintains the right to condition any project as it deems necessary to protect one or more of the wetland values set forth herein.

BURDEN OF GOING FORWARD

The burden of going forward means having to produce at least some credible evidence from a competent source in support of the position taken. This burden shall be upon the person contesting the Conservation Commission's position

13.0. FEES

13.1. Application Fees: At the time of a filing a Notice of Intent (NOI), Abbreviated Notice of Resource Area Delineation (ANRAD), Request for Determination of Applicability (RDA), or application for Certificate of Compliance, the applicant shall pay a filing fee specified in Appendix A of these Regulations. The fee is in addition to that required by the Wetlands Protection Act (M.G.L. Ch. 131 § 40) and Regulations (310 CMR 10.00). The Commission is authorized to require an applicant (for an ANRAD, RDA or NOI or other filing) to pay a fee to cover the reasonable costs and expenses borne by the Commission in processing and evaluating the permit application. The fee schedule will be set by the Commission according to the provisions of the Hingham Wetlands Bylaw, Article 22. The Commission may, at its discretion, waive the application fee, costs and expenses for a permit application. Application fees are not refundable.

Refer to Appendix A for the Bylaw Application Filing Fee Schedule.

13.2. Consultant Fees: Consultant Fee Under M.G.L. Ch. 44 §53G. As provided by M.G.L. Ch. 44, § 53G, the Conservation Commission may impose reasonable fees for the employment of outside consultants, engaged by the Commission, for specific expert services deemed necessary by the Commission to come to a final decision on an application submitted to the Commission pursuant to the requirements of the Massachusetts Wetlands Protection Act (M.G.L. Ch. 131, § 40), the Hingham non-zoning wetlands bylaw (Town of Hingham Wetlands Protection Bylaw Article 22), Conservation Commission Act (M.G.L. Ch. 40, §8C), or any other state or municipal statute, bylaw or regulation, as they may be amended or enacted from time to time. Funds received by the Conservation Commission pursuant to these rules shall be deposited with the Town Treasurer who shall establish a special segregated account (Account) for this purpose. Expenditures from this Account may be made at the direction of the Conservation Commission without further appropriations as provided in M.G.L. Ch. 44, § 53G. Expenditures from this Account shall be made only in connection with the review of a specific project or projects for which a consultant fee has been collected from the applicant. Any unused portion of the consultant fee, including interest, shall be returned to the applicant. Specific consultant services may include but are not limited to resource area survey and delineation, analysis of resource area values, hydrogeologic and drainage analysis, impacts on municipal conservation lands,

inspections during construction, any reports necessary for a Certificate of Compliance, and environmental or land use law. The consultant shall be chosen by, and report only to, the Conservation Commission and/or its agent.

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 in writing within five days of the date such notice is given. The fee must be received in its entirety prior to the initiation of consulting services. Failure by the applicant to pay the consultant fee specified by the Commission within 10 (ten) business days of the request for payment shall be cause for the Commission to determine that the application is administratively incomplete.

14.0. APPEALS

Any person with standing to challenge a decision may appeal pursuant to M.G.L. c.249, § 4 a decision of the Conservation Commission to the Superior Court of Plymouth County within 60 days following the date of the issuance of the decision.

15.0. SEVERABILITY

Should any term, condition, definition, language, section or provision of these Regulations be found invalid by competent legal authority, the validity of any other term, condition, definition, language, section or provision thereof shall not be affected, nor shall it invalidate any permit, approval, enforcement order or determination which previously has been issued.

16.0. RELATION TO OTHER FEDERAL, STATE AND LOCAL STATUTES

16.1. Relation to the Wetlands Protection Act and Other Federal, State and Local Statutes. These implementing regulations under the Town of Hingham Wetlands Protection Bylaw (Article 22) are adopted under the Home Rule Amendments of the Massachusetts Constitution and the Home Rule statutes, independent of the Wetlands Protection Act M.G.L. Ch. 131 § 40 and implementing regulations, and other federal, state and local environmental statutes. Activities that may not require review or permitting under the Massachusetts Wetlands Protection Act, the Rivers Protection Act, the federal or state Clean Water Act or other federal, state or local statutes are not assumed to be exempt from these implementing regulations.

16.2. Coordination of Permitting. In order to ensure that various permit granting authorities review the impacts upon resources protected by these implementing regulations in a coordinated manner, and where the provisions of these implementing regulations are applicable, applicants for permits under federal, state or local statute or regulation shall comply with the requirements for filing under these regulations within 45 days of said application made under federal, state or local statute or regulation.

PART II. PERFORMANCE STANDARDS FOR RESOURCE AREAS

Resource Area definitions and performance standards for work proposed in Resource Areas protected under the Town of Hingham Wetland Bylaw (Bylaw) are described in this section of the Hingham Wetland Regulations (HWR).

17.0. LAND UNDER WATER BODIES

17.1. Land Under the Ocean

a) Preamble. Land under the ocean provides feeding areas, spawning and nursery grounds and shelter for many coastal organisms related to marine fisheries and wildlife. Eelgrass (*Zostera maritima*) is important for the prevention of pollution, protection of water quality, as well as fisheries and fish/shellfish habitat. Nearshore areas, and in some cases offshore areas of land under the ocean help reduce storm damage, erosion, and flooding by diminishing and buffering the high-energy effects of storms. Submerged sand bars dissipate wave energy. Such areas provide a source of sediment for seasonal rebuilding of coastal beaches and dunes. The bottom topography and sediment type of nearshore areas of land under the ocean are critical to erosion control, prevention of storm damage, and flood control. Water circulation and flushing rates, distribution of sediment grain size, water quality (including but not limited to turbidity, temperature, nutrients, pollutants, salinity, and dissolved oxygen), and the habitat of wildlife, finfish, and shellfish, including rare species when they occur, are all factors critical to the protection of wildlife and marine finfish and shellfish fisheries, and marine vegetation. Land under the ocean in an unobstructed state is important for the protection of recreational swimming, fishing, shellfishing, boating and sailing, commercial fishing and shellfishing, and aesthetics. Land under the ocean is important for aquaculture. Land within 100 feet of land under the ocean is significant to the protection and maintenance of land under the ocean and therefore to the wetland values which this land serves to protect.

b) Wetland Values and Presumption of Significance. Whenever a proposed project involves removing, filling, dredging, altering or building upon land under the ocean, the Commission shall presume that such land is significant to the protection of the following wetland values: flood control, erosion and sedimentation control; storm damage prevention, including coastal

storm flowage; prevention and abatement of water pollution; protection of fisheries; protection of shellfish; protection of wildlife and wildlife habitat; protection of rare species habitat, including rare plant and animal species; protection of recreation and open space; protection of aquaculture; and protection of aesthetics. These presumptions may be overcome only upon a clear showing that the land under the ocean does not play a role in protecting one or more of the wetland values given above.

c) Definitions – same as 310 CMR 10.25(2).

d) Performance Standards. When Land Under the Ocean, or land within a minimum distance of 100 feet of Land Under the Ocean is determined to be significant to a protected value, the following regulations shall apply:

(1) Proposed work shall not have any significant adverse effect or cumulative adverse effect on the wetland values of Land Under the Ocean.

(2) Proposed work shall not destroy any portion of eelgrass beds and shall not have any adverse effect or cumulative adverse effect on eelgrass beds.

(3) Notwithstanding the above provisions, no project may be permitted which will have any adverse effect on shell fish or migrating, spawning fish, or specified habitat of rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.37.

(4) Refer to HWR 23.0 et seq. for additional project-specific performance standards;

(5) Performance standards for proposed work or activities within the buffer zone to Land Under the Ocean are specified in HWR 22.0.

(6) The Commission may impose such additional requirements as are necessary to protect the wetland values protected under the Bylaw.

17.2. Land Under Salt Ponds

a) Preamble. Salt Ponds provide excellent habitat for marine fisheries and shellfish. The high productivity of plants and phytoplankton in salt ponds provides food for shellfish, crustaceans and other invertebrates, and juvenile fish. Bottom sediments and shallow water are excellent areas for many bivalves. The ponds also serve as spawning and nursery areas for both vertebrate and invertebrate species. The productivity of salt ponds and the food web they support provide ideal habitat for many types of wildlife, particularly ducks and shore birds, and for rare species of plants and animals where they occur. Salt ponds may provide suitable habitat for aquaculture.

The enclosed nature of the ponds also provides shelter for wildlife. Salt ponds and the area around them are important aesthetically and provide the public with many recreational opportunities including: shellfishing, fishing, boating and sailing, swimming, hunting, and wildlife observation. Because of their semi-enclosed nature, salt ponds are sensitive to pollution or nutrient inputs. These inputs can change the plant and animal species composition of the pond, and thus can be detrimental to fish, shellfish, and wildlife. Bioaccumulation through food webs can also create dangerous levels of pollutants or toxins for wildlife and humans.

Characteristics of salt ponds which are critical to various wetland values include, but are not limited to, water circulation, distribution of sediment grain size, amount of freshwater and saltwater inflow, productivity of plants, and water quality (including but not limited to amounts of dissolved oxygen, nutrients, temperature, turbidity, pollutants, pH, and/or salinity). Land within 100 feet of a salt pond is considered to be significant to the protection and maintenance of a salt pond and the land beneath it and therefore to the protection of the wetland values of the salt pond.

b) Wetland Values and Presumption of Significance. Whenever a proposed project involves removing, filling, dredging, altering or building upon a Salt Pond or land within a minimum distance of 100 feet from a salt pond, the Commission shall presume that the salt pond is significant to the protection of the following wetland values: protection of public or private water supply; protection of groundwater; flood control; erosion and sedimentation control; storm damage prevention, including coastal storm flowage; prevention and abatement of water pollution; protection of fisheries; protection of shellfish; protection of wildlife and wildlife habitat; protection of rare species habitat, including rare plant and animal species; protection of recreation and open space; protection of aquaculture; and protection of aesthetics. These presumptions may be overcome only upon a clear showing that the salt pond does not play a role in protecting one or more of the wetland values stated above.

c) Definition – Same as 310 CMR 10.33(2).

d) Performance Standards. When a Salt Pond or land within a minimum distance of 100 feet of a Salt Pond is determined to be significant to a wetland value, the following regulations shall apply:

(1) Proposed work shall have no significant adverse effect or cumulative adverse effect upon the wetland values of a Salt Pond.

(2) Notwithstanding the above provisions, no project may be permitted which will have any adverse effect on specified habitat of rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.37.

(3) Refer to HWR 23.0 et seq. for additional project-specific performance standards.

(4) Performance standards for proposed work or activities within the buffer zone to a Salt Pond are specified in HWR 22.0.

(5) The Commission may impose such additional requirements as are necessary to protect the wetland values protected under the Bylaw.

17.3. Land Under Inland Water Bodies and Waterways - Rivers, Creeks, Streams, Ponds, Lakes, Ditches or Flats

a) Preamble. Where land under water bodies is composed of pervious material, such land represents a point of exchange between surface and groundwater. Depending upon the hydrological conditions and water levels at a given time, these areas may serve as recharge or discharge points, or both, with groundwater. An area may serve as recharge area at one season and a discharge point at another time. This allows pollutants and nutrients easy access into private wells or the general groundwater supply. The physical nature of land under water bodies is highly variable, ranging from deep organic and fine sedimentary deposits to gravel and large rocks. The organic soils and sediments play an important role in the process of detaining and removing dissolved and particulate nutrients from the surface water above. These also serve as traps for toxic substances (such as but not limited to heavy metal compounds).

Land under water bodies in conjunction with banks serves to confine floodwater within a definite channel during the most frequent storms. Filling within such a channel blocks flows which in turn causes backwater and overbank flooding during such storms. An alteration of land under water bodies that causes water to frequently spread out over a larger area at lower depth increases flooding. Additionally, it results in an elevation of water temperatures and decrease in habitat in the main channel, both of which are detrimental to fisheries and shellfish, particularly during periods of warm weather and low flows. It may also flood waterfowl nesting sites which otherwise would not be disturbed. Land under ponds and lakes is vital to a large assortment of warm water fish during spawning periods. Species such as large-mouth bass (*Micropterus salmoides*), small-mouth bass (*Micropterus dolomieu*), blue gills (*Lepomis macrochirus*), pumpkinseeds (*Lepomis gibbosus*), black crappie (*Pomoxis nigromaculatus*), and rock bass (*Ambloplites rupestris*) build nests on the lake and bottom substrates within which they shed and fertilize their eggs. Land within 100 feet of any bank abutting land under a water body is significant to the protection of the values which these water bodies serve to protect.

Characteristics of water bodies which are critical to protection of wildlife and fisheries include water circulation and flushing rates, distribution of sediment grain size, water quality (including

concentrations of dissolved oxygen, turbidity, nutrients, temperature, and pollutants). Leaving ponds and the land bordering ponds in an unobstructed state may be important to recreational swimming, fishing, and boating. Water bodies and the area around them also provide other recreational opportunities such as hunting and wildlife observation. Vegetated borders of large ponds are important in reducing shoreline erosion and storm damage by dissipating the high energy of storm waves and by anchoring the sediments. Water bodies provide important feeding and/or drinking areas for many types of aquatic and terrestrial wildlife including but not limited to reptiles, amphibians, birds and mammals. Ponds and other water bodies provide habitat for many species of invertebrates including but not limited to insects and crustaceans that serve as food for several species of birds and bats. Ducks, geese, swans, herons, and other water fowl all use water bodies and surrounding borders for feeding, shelter, and/or nesting areas. Many other birds, reptiles and amphibians use land under water bodies, water bodies, and the borders of water bodies for parts of their life cycles. Such areas may be suitable for aquaculture of fresh or brackish aquatic plants or animals. Changes in sediments, water quality, water level, or species composition of food sources or ground cover may be detrimental to any of the above wildlife and to any rare species of plants or animals which occur in water bodies.

Ponds and the land surrounding them often provide important aesthetic wetland scenic views, particularly when they are in a natural condition. Ponds provide recreational swimming, boating, fishing, shellfishing, and sightseeing opportunities. The enclosed area and limited size of most fresh water bodies in the Town of Hingham make them particularly sensitive to pollution or nutrient inputs. These inputs can change the plant and animal species composition of the water body and thus can be detrimental to fish and wildlife. Bioaccumulation of pollutants through food webs can also create dangerous levels of pollutants or toxins for wildlife and humans. Groundwater may also be adversely affected. Surrounding vegetation, especially native species, serves to protect ponds from overland runoff of pollutants. Bordering trees and vegetation provide shade that helps maintain cool water temperatures in ponds.

b) Wetland Values and Presumption of Significance. Whenever a proposed project involves removing, filling, dredging, altering or building upon water bodies or the land beneath them or land within a minimum distance of 100 feet from such land, the Commission shall presume that the water bodies and the land beneath them are significant to the protection of the following wetland values: protection of public or private water supply; protection of groundwater; flood control; erosion and sedimentation control; storm damage prevention, including coastal storm flowage; prevention and abatement of water pollution; protection of fisheries; protection of shellfish; protection of wildlife and wildlife habitat; protection of rare species habitat, including rare plant and animal species; protection of recreation and open space; protection of aquaculture; and protection of aesthetics. These presumptions may be overcome only upon a clear showing that the water body or the land beneath it does not play a role in protecting one or more of the wetland values given above.

c) Definition – Same as 310 CMR 10.56(2) with the following addition: The term “pond” shall include any open body of fresh water with a surface area observed or recorded within the last ten years of at least 5,000 square feet. Ponds shall contain standing water except for periods of extended drought as determined by the standards of the Massachusetts Department of Environmental Protection.

d) Performance Standards. When Land Under an Inland Water Body or land within a minimum distance of 100 feet of Land Under an Inland Water Body is determined to be significant to a wetland value, the following regulations shall apply:

(1) Proposed work shall not cause a significant adverse effect or cumulative adverse effect upon the wetland values of Land Under an Inland Water Body.

(2) Notwithstanding the above provisions, no project may be permitted which will have any adverse effect on specified habitat of rare vertebrate or invertebrate species or rare plant species, as identified by procedures established under 310 CMR 10.59.

(3) Refer to HWR 23.0 et seq. for additional project-specific performance standards.

(4) Performance standards for proposed work or activities within the buffer zone to Land Under an Inland Water Body are specified in HWR 22.0.

(5) The Commission may impose such additional requirements as are necessary to protect the wetland values protected under the Bylaw.

18.0. LAND BORDERING ON THE OCEAN

18.1. Coastal Banks

a) Preamble. Coastal banks composed of unconsolidated sediment and exposed to wave action serve as a major source of sediment for other coastal landforms, including beaches, dunes, and barrier beaches. The supply of sediment is removed from such *sediment source* banks by wave action. It is a naturally occurring process necessary to the continued existence of coastal beaches, coastal dunes, and barrier beaches. These areas protect public safety because they dissipate storm wave energy, thus protecting structures and coastal wetlands landward of them from storm damage, erosion, and flooding.

Coastal banks, because of their height and stability, may act as a *vertical buffer* or natural wall, which protects upland areas from storm damage, erosion, and flooding. While erosion caused by wave action is an integral part of shoreline processes and furnishes important sediment to downdrift landforms, erosion of a coastal bank by wind and rain runoff, which plays only a minor role in beach nourishment, should not be increased unnecessarily. Disturbance to a coastal bank which reduce its natural resistance to wind and rain erosion causes cuts and gullies in the bank, and decrease its value as a vertical buffer. Vegetation tends to stabilize a coastal bank and reduce the rate of erosion due to wind and rain runoff. Undisturbed vegetated areas along banks are critical to reducing wind and rain erosion from at the top of the bank. Large trees either growing directly in a Coastal Bank or within the buffer zone to a Coastal Bank provide bank stability through their extensive root systems. Their canopy areas serve to dissipate storm energy and partially limit the amount of rainfall reaching the ground. They also serve as valuable habitat for many bird, mammal, and other species.

A particular coastal bank may serve as a *sediment source* and a *vertical buffer* or it may serve only one role. Coastal banks of either type provide habitat for wildlife, particularly nesting birds and provide habitat for rare plant and animal species where these occur. Characteristics of coastal banks which are critical to wildlife are bank steepness (i.e. slope), height, stability, soil grain size and compaction or consolidation, and vegetation cover and type. Coastal banks provide scenic views of the coast and in a natural condition are scenic in themselves, thus providing opportunities for birdwatching and nature study, hiking, photography, and other recreation. Land within 100 feet of the top of any coastal bank is significant to the protection and maintenance of a bank and therefore the wetland values.

b) Wetland Values and Presumption of Significance. Whenever a proposed project involves removing, filling, dredging, altering or building upon a coastal bank or land within a minimum of 100 feet from the top of a coastal bank, the Commission shall presume that the bank is significant to the protection of the following wetland values: flood control; erosion and sedimentation control; storm damage prevention, including coastal storm flowage; protection of wildlife and wildlife habitat; protection of rare species habitat, including rare plant and animal species; protection of recreation and open space; and protection of aesthetics. These presumptions may be overcome only upon a clear showing that the coastal bank does not play a role in protecting one or more of the wetland values given above.

c) Definition – Same as 310 CMR 10.30 (2). In addition, a Sediment Source (i.e. eroding) Coastal Bank is a coastal bank which is or could be, as determined by the Conservation Commission, undergoing erosion or landward retreat and which is supplying sediment to a nearby Coastal Beach (including Tidal Flat), or Coastal Dune. A non-eroding, Vertical Buffer Coastal Bank is a coastal bank which is stable and is not undergoing and never will be, as

determined by the Conservation Commission, erosion or landward retreat and which is not supplying sediment to a nearby Coastal Beach, or Coastal Dune.

d) Performance Standards.

(1) When a Coastal Bank is determined to be a Sediment Source (i.e., eroding coastal bank), the following regulations shall apply:

- a) Proposed work shall not cause any adverse effect or cumulative adverse effect on the wetland values of the Coastal Bank.
- b) All projects shall be restricted to activities as determined by the Commission to have no adverse effect and no cumulative adverse effect on the ability of the eroding coastal bank to serve as a sediment source to coastal Resource Areas, bank height, bank stability, bank vegetation and wildlife habitat.
- c) All projects must provide a buffer strip to the top of the Coastal Bank that is sufficient to protect the values and functions of this type of Coastal Bank and to allow such Coastal Banks to continue to serve as a sediment source to coastal Resource Areas.
- d) Notwithstanding the above, minimal elevated walkways designed not to affect bank vegetation and sediment transport may be permitted to allow for pedestrian passage over a bank, provided that the ability of the bank to serve as a sediment source and its stability are not adversely affected. Public access must not be limited or impaired in any way.
- e) Refer to HWR 23.0 et seq. for additional project-specific performance standards.
- f) The Commission may impose such additional requirements as are necessary to protect the wetland values protected under the Bylaw.

(2) When a Coastal Bank is determined to serve solely as a Vertical Buffer Coastal Bank, the following regulations shall apply:

- a) Proposed work shall not cause any adverse effect or cumulative adverse effect on the wetland values of the Coastal Bank.
- b) All projects shall be restricted to activities as determined by the Commission to have no adverse effect on bank height, bank stability, bank vegetation and wildlife habitat.

c) The Commission may allow projects to approach the top of such a Vertical Buffer Coastal Bank, which meet all other performance standards for the Coastal Bank, or condition such projects so that they meet all performance standards.

d) Notwithstanding the above, elevated walkways designed not to affect bank vegetation and bank stability may be permitted to allow for pedestrian passage over a bank, provided that the stability of the bank and wildlife habitat are not adversely affected. Public access must not be limited or impaired in any way.

e) Refer to HWR 23.0 et seq. for additional project-specific performance standards.

f) The Commission may impose such additional requirements as are necessary to protect the wetland values protected under the Bylaw.

(3) When a Coastal Bank is determined to serve as both a Sediment Source and a Vertical Buffer Coastal Bank, the performance standards specified for Sediment Source Coastal Banks shall take precedence over the performance standards specified for Vertical Buffer Coastal Banks.

(4) Notwithstanding the above provisions, no project may be permitted which will have any adverse effect on specified habitat of rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.37.

18.2. Coastal Beaches, Rocky Intertidal Shores, and Tidal Flats

a) Preamble. Coastal beaches dissipate wave energy by their gentle slope, their permeability, and their granular nature which permit changes in beach form in response to changes in wave conditions. Coastal beaches serve as a sediment source for dunes and subtidal areas. Steep storm waves cause beach sediment to move offshore, resulting in a gentler beach slope and greater energy dissipation. Less steep waves cause an onshore return of beach sediment, where it will be available to provide protection against future storm waves. A coastal beach at any point serves as a sediment source for coastal areas downdrift from that point. The oblique approach of waves moves beach sediment along shore in the general direction of wave action. Thus a coastal beach is a body of sediment which is moving along the shore. Coastal beaches serve to prevent storm damage, provide erosion control, and flood control by dissipating wave energy, by reducing the height of storm waves, and by providing sediment to supply other coastal features, including coastal dunes, land under the ocean, and other coastal beaches. Interruptions of these natural processes by man-made structures reduce the ability of the coastal beach to perform these functions.

Coastal beaches and rocky intertidal shores are important for wildlife, shellfish and fisheries habitat and provide habitat for rare species of plants and animals where these occur. Coastal beaches are extremely important in recycling of nutrients derived from storm drift and tidal action. Vegetative debris along the drift line is vital for resident and migratory shorebirds, which feed largely on invertebrates which eat the vegetation. Below the drift line in the lower intertidal zone are infauna (invertebrates such as mollusks and crustacea) which are also eaten by shore birds. A number of birds also nest in the coastal berm between the toe of a coastal dune and the high tide line. In addition, isolated coastal beaches are important as haul out and resting areas for seals.

Rockweeds inhabit intertidal zones with rocky substrates. Rockweeds are primary producers converting inorganic nutrients such as phosphate and nitrate into organic matter for marine grazers. They play an essential role in removing inorganic nutrients and trace metals and converting them into useable products for both commercial and ecological uses. By removing nutrients and metals such as arsenic, copper, and zinc from the water column they help maintain water quality in bays, estuaries, and rocky shores. Like eel grass and kelp, portions of the algae break apart and are transported by tides and currents to nearshore areas forming deposits of organic detritus. This detritus forms one of the bases of estuarine and marine food webs. The detritus formed from the dead algal matter is consumed by microscopic organisms, small marine invertebrates, and insects which in turn are a food source for fish, birds, and mammals. Algal fragments also are carried offshore and enter the oceanic food chain. Rockweed beds add structural complexity and surface area to rocky habitats. During low tides when intertidal areas are exposed to air and direct sunlight, rockweeds provide protection to intertidal organisms from temperature fluctuations and desiccation. They provide shelter from predation and wave action, attachment sites for epiphytes and larvae, food sources for invertebrates and fish, and feeding and nursery grounds for both vertebrate and invertebrate species. Rockweeds are commercially harvested and sold as health food, nutritional supplements, fertilizer, and stabilizers in food and cosmetic products.

Coastal beaches, rocky intertidal shores, and tidal flats are used as recreation areas in the town and provide opportunities for recreation, fishing, fowling, hunting and navigation. They are important for recreational and commercial shellfishing, fishing, and aquaculture. Coastal beaches are aesthetically important when they are in a natural condition and do not contain imposing structures. They are part of the classic New England landscape. Tidal flats are significant to fisheries and wildlife habitat because they provide habitats for marine organisms such as polychaete worms and mollusks, which in turn are food sources for fisheries and migratory and wintering birds. Tidal flats are also sites where organic and inorganic materials may become entrapped and then returned to the photosynthetic zone of the water column to support algae and other primary producers of the marine food web.

Coastal beaches, rocky intertidal shores, and tidal flats serve as important habitats for a wide variety of wildlife. The degree of isolation from human-caused disturbances is a feature of a coastal beach, which is critical for the protection of wildlife. Coastal beaches, rocky intertidal shores, and tidal flats are used by coastal birds for feeding areas, nesting sites, and resting sites. The natural erosional and depositional cycles, sediment grain size, water quality (including but not limited to turbidity, temperature, nutrients, pollutants, salinity, and dissolved oxygen) and circulation, and elevation of the land surface are all features of wildlife habitat which are critical elements for the protection of wildlife.

Characteristics of coastal beaches and tidal flats which are critical to the protection of fisheries, shellfish, and aquaculture include: distribution of sediment grain size, movement of sediment, water quality (including the characteristics given above), and water circulation, and beach relief topography, slope and elevation. Characteristics of coastal beaches and tidal flats which are critical to prevention of storm damage, erosion control, or flood control include sediment volume and form, their ability to respond dynamically to wave action, natural erosional and depositional cycles, and wave intensities.

Characteristics of coastal beaches and tidal flats which are critical to recreation are topography, sediment grain size, water quality (including the characteristics given above), water circulation rates and patterns, unobstructed access along shore, natural erosional and depositional cycles, and wave intensity. Characteristics of coastal beaches which are critical to aesthetics are natural erosion and deposition cycles, relief topography, slope and elevation, sense of openness and solitude. Land within 100 feet of a coastal beach or tidal flat is considered to be important to the protection and maintenance of coastal beaches and tidal flats, and therefore to the protection of the wetland values. The degree of isolation from human-caused disturbances is a desirable feature of a coastal beach, which is a critical element for the protection of wildlife.

b) Wetland Values and Presumption of Significance. Whenever a proposed project involves removing, filling, dredging, altering, building upon or degrading a coastal beach or flat or within a minimum distance of 100 feet of a coastal beach or flat, the Commission shall presume that the beach or flat is significant to the protection of the following wetland values: flood control; erosion and sedimentation control; storm damage prevention, including coastal storm flowage; prevention and abatement of water pollution; protection of fisheries; protection of shellfish; protection of wildlife and wildlife habitat; protection of rare species habitat, including rare plant and animal species; protection of recreation and open space; protection of aquaculture; and protection of aesthetics. These presumptions may be overcome only upon a clear showing that the coastal beach or tidal flat does not play a role in protecting one or more of the wetland values given above.

c) Definitions – Same as 310 CMR 10.27 (2) for Coastal Beach and Tidal Flat. Same as 310 CMR 10.31 (2) for Rocky Intertidal Shore.

d) Performance Standards. When a Coastal Beach, Rocky Intertidal Shore, or Tidal Flat or land within a minimum distance of 100 feet of a Coastal Beach, Rocky Intertidal Shore, or Tidal Flat is determined to be significant to a wetland value, the following regulations shall apply:

(1) Any project on a coastal beach shall not cause an adverse effect or cumulative adverse effect by increasing erosion, decreasing the volume or changing the form of any such coastal beach or rocky intertidal shore, or an adjacent or downdrift coastal beach or rocky intertidal shore.

(2) Notwithstanding the above, beach nourishment with clean sediment of a grain size compatible with that on the existing beach may be permitted provided there is no permanent adverse effect upon the wetland values or upon submerged aquatic vegetation, intertidal vegetation such as but not limited to salt marshes, or shellfish habitat.

(3) When tidal flats are significant to protection of shellfish, shellfish habitat, fish or fisheries, the performance standards for Land Containing Shellfish (HWR 18.5) shall apply. All Coastal Beaches and Tidal Flats within the Town of Hingham have been designated by the Commonwealth of Massachusetts as Designated Shellfish Growing Areas. A Designated Shellfish Growing Area is considered to be significant to the growth and health of shellfish whether or not shellfish are present. Thus the performance standards for Land Containing Shellfish (HWR 18.5) shall apply to all Coastal Beaches and Tidal Flats in the Town of Hingham.

(4) In addition to complying with the requirements of HWR 18.5, a project on a tidal flat shall have no adverse effect or cumulative adverse effect, on fisheries and/or wildlife habitat caused by alterations in water circulation, alterations in the distribution of sediment grain size, and changes in water quality, including, but not limited to, other than natural fluctuations in the levels of dissolved oxygen, temperature or turbidity, or the addition of pollutants.

(5) Notwithstanding the above provisions, no project may be permitted which will have any adverse effect or cumulative adverse effect on specified habitat of rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.37.

(6) Refer to Section HWR 23.0 et seq. for additional project-specific performance standards.

(7) Performance standards for activities or work proposed in the buffer zone to a Coastal Beach, Rocky Intertidal Shore, or Tidal Flat are specified in HWR 22.0.

(8) The Commission may impose such additional requirements as are necessary to protect the wetland values protected under the Bylaw.

18.3. Coastal Dunes

a) Preamble. Coastal dunes aid in storm damage prevention, erosion control, and flood control by supplying sand to coastal beaches. Coastal dunes protect inland coastal areas from storm damage and flooding by storm waves and elevated sea levels because such dunes are higher than the coastal beaches which they border. Vegetated cover contributes to the growth and stability of coastal dunes by providing conditions favorable to sand deposition. On retreating shorelines, the ability of coastal dunes bordering a coastal beach to move landward at the rate of shoreline retreat allows these dunes to maintain their form and volume. Characteristics of coastal dunes which are critical for storm damage prevention, flood control, and erosion control include: ability of dune to erode and change in response to coastal beach conditions; dune volume, sediment grain size, and slope; dune form which can change with wind and natural water flow; amount, continuity, and density of vegetative cover; and ability of the dune to move landward or laterally. Coastal dunes are important habitats for a wide variety of wildlife, particularly birds and rare species of plants and animals where these occur, for feeding and nesting areas. Amount of vegetation, dune height and slope, sediment grain size, and degree of isolation from human-caused disturbances are all features of dunes which are critical characteristics for the protection of wildlife. The pervious nature of coastal dunes allows for the infiltration of surface waters and therefore recharges groundwater and public and private water supplies, and also filters out pollutants.

Characteristics of coastal dunes which are critical to protection of aesthetic values and wetland scenic views are dune form, slope, elevation, size of dune field, degree of isolation, proportion and scale of dunes in relationship to other land forms. Land within 100 feet of a coastal dune is considered to be significant to the protection and maintenance of coastal dunes, and therefore to the protection of the wetland values which these areas contain. The degree of isolation from human-caused disturbances is a desirable feature of a coastal dune, which is a critical element for the protection of wildlife.

b) Wetland Values and Presumption of Significance. Whenever a proposed project involves removing, filling, dredging, altering or building upon a coastal dune or within 100 feet of a coastal dune, the Commission shall presume that the dune is significant to the protection of the following wetland values: protection of public or private water supply; protection of groundwater; flood control; erosion and sedimentation control; storm damage prevention, including coastal storm flowage; prevention of and abatement of water pollution; protection of fisheries; protection of shellfish; protection of wildlife and wildlife habitat; protection of rare species habitat, including rare plant and animal species; protection of recreation and open space;

protection of aquaculture; and protection of aesthetics. These presumptions may be overcome only upon a clear showing that the dune does not play a role in protecting one or more of the wetland values given above.

c) Definition – Same as 310 CMR 10.28 (2).

d) Performance Standards. When a Coastal Dune or land within a minimum distance of 100 feet of a Coastal Dune is determined to be significant to a wetland value, the following regulations shall apply:

(1) A proposed project shall not cause any adverse effect or cumulative adverse effect on the ability of a Coastal Dune to migrate or undergo other change in shape, volume of sediment or location due to natural processes.

(2) With the exception of engineered coastal dunes, no new coastal revetments or coastal engineering structures of any type shall be constructed on a Coastal Dune.

(3) Pedestrian walkways must be designed as determined by the Commission so as to minimize disturbance of vegetative cover.

(4) Notwithstanding the above provisions, no project may be permitted which will have any adverse effect on specified habitat of rare vertebrate or invertebrate, as identified by procedures established under 310 CMR 10.37.

(5) Refer to HWR 23.0 et seq. for additional project-specific performance standards.

(6) Performance standards for activities or work proposed in the buffer zone to a Coastal Dune are specified in HWR 22.0.

(7) The Commission may impose such additional requirements as are necessary to protect the wetland values protected under the Bylaw.

18.4. Salt Marshes

a) Preamble. A salt marsh is a highly productive type of coastal wetland that produces large amounts of organic matter and provides valuable habitat. A significant portion of this material is exported as detritus and dissolved organics to estuarine and coastal waters, where it provides the basis for a large food web that supports many marine organisms, including fish and shellfish. Salt marshes also provide spawning and nursery habitat for several important estuarine forage fish. Salt marsh plants and substrate remove pollutants from surrounding waters. The network of

salt marsh vegetation roots and rhizomes bind sediments together. The sediments absorb chlorinated hydrocarbons and heavy metals such as lead, copper and iron. The marsh also helps retain nitrogen and phosphorus compounds which can cause algal blooms and changes in ocean plankton and plant communities, particularly eelgrass. The marsh and its underlying peat play a significant role in carbon sequestration. The underlying peat serves as a barrier between fresh groundwater landward of the marsh and the ocean, thus helping to maintain the level of the groundwater and protecting public and private water supplies by preventing saltwater intrusion. Salt marsh vegetation, cord grass, and underlying peat and soils are resistant to erosion and dissipate wave energy, thereby providing a buffer that reduces wave damage and coastal erosion. Salt marshes are important feeding areas for many types of fish, shellfish, invertebrates, and aquatic and terrestrial wildlife. The marsh, including its creeks and open water, also provides important shelter for many aquatic and migratory birds. The degree of isolation from human-caused disturbances is critical for the protection of wildlife. Where rare species of plants and animals occur, salt marsh provides important rare species habitat.

Marshes help absorb pollutants, but there is a careful balance of nutrient and pollutant input. Because the marsh is the basis for such a large food web, bioaccumulation of pollutants and toxins can mean that relatively low levels of pollutants may be detrimental. Some of the characteristics of salt marshes which are critical to their health and ability to protect wetland values include: the growth, composition, and distribution of salt marsh vegetation; the amount of flow and level of both tidal and fresh water; the water quality (including but not limited to turbidity, temperature, nutrients, pollutants, salinity, and dissolved oxygen) of both tidal and fresh water; the presence and depth of peat; rate of marsh productivity; and the diversity of the animals and plants making up the marsh community. Salt marshes provide excellent areas for recreational activities such as bird watching, boating, hunting, fishing and shellfishing. Salt marshes in a natural condition are aesthetically valuable. Land within 100 feet of a salt marsh is considered to be significant to the protection and maintenance of salt marshes, and therefore to the protection of the wetland values.

b) Wetland Values and Presumption of Significance. Whenever a proposed project involves removing, filling, dredging, altering or building upon a salt marsh or within a minimum distance of 100 feet of a salt marsh, the Commission shall presume that the salt marsh is significant to the protection of the following protected values: protection of public or private water supply; protection of groundwater; flood control; erosion and sedimentation control; storm damage prevention, including coastal storm flowage; prevention and abatement of water pollution; protection of fisheries; protection of shellfish; protection of wildlife and wildlife habitat; protection of rare species habitat, including rare plant and animal species; protection of recreation and open space; protection of aquaculture; and protection of aesthetics. These presumptions may be overcome only upon a clear showing that the salt marsh does not play a role in protecting one or more of the wetland values given above.

c) Definition – A vegetated area characterized by but not limited to the presence of *Spartina patens*, *Spartina alterniflora*, or High Tide Bush or any area that meets the criteria of Salt Marshes (310CMR 10.32).

d) Performance Standards. When a Salt Marsh or land within a minimum distance of 100 feet of a Salt Marsh is determined to be significant to a wetland value, the following regulations shall apply:

(1) A proposed project shall not cause any adverse effect or cumulative adverse effect upon salt marsh productivity and wetland values of a salt marsh.

(2) Notwithstanding the above provisions, no project may be permitted which will have any adverse effect on specified habitat of rare vertebrate or invertebrate, as identified by procedures established under 310 CMR 10.37.

(3) Refer to HWR 23.0 et seq. for additional project-specific performance standards.

(4) Performance standards for activities or work proposed in the buffer zone to a Salt Marsh are specified in HWR 22.0.

(5) The Commission may impose such additional requirements as are necessary to protect the wetland values protected under the Bylaw.

18.5. Land Containing Shellfish

a) Preamble. Shellfish are one of the wetland values protected by the Bylaw. Land containing shellfish is found within many of the Resource Areas protected by the Bylaw. In addition to the regulations for those Resource Areas as given above in these regulations, this section discusses additional protection for shellfish and shellfish habitat. Land containing shellfish is important to the protection of marine fisheries in addition to the protection of shellfish. Shellfish in the Town of Hingham are a very important recreational and commercial resource and an important economic commodity for fishermen and the Town. Shellfish used as a human food resource need very clean, uncontaminated water, since they have the ability to concentrate very low levels of

pollutants. Shellfish are a valuable renewable resource. The maintenance of productive shellfish beds not only assures the continuance of shellfish themselves but also plays a direct role in supporting fish stocks by providing a major food source. Because shellfish are filter feeders, they play a significant role in removal of bacteria and other microorganisms from the water. Characteristics of land containing shellfish which are critical to the protection of shellfish include, but are not limited to: water circulation patterns, rates of water flow, and amounts of water; the relief, elevation, distribution, grain size, and pollutant load of the sediments; water quality (including turbidity, temperature, pollutants, nutrients, salinity, and dissolved oxygen); and public access to the site for the purpose of shellfishing, fishing, hunting, or navigating. Opportunities for recreational shellfishing and shellfish aquaculture help maintain the coastal aesthetics values and enhance the coastal experience of the Town.

b) Wetland Values and Presumption of Significance. Whenever a proposed project involves removing, filling, dredging, altering or building upon land containing shellfish or the water over land containing shellfish or within a minimum distance of 100 feet of such land, the Commission shall presume that the land containing shellfish is significant to the protection of the following wetland values: prevention and abatement of water pollution; protection of fisheries; protection of shellfish; protection of recreation and open space; protection of aquaculture; and protection of aesthetics. These presumptions may be overcome only upon a clear showing that land containing shellfish does not play a role in protecting one or more of the values given above. The Commission may require information on historical abundance or harvests of shellfish, a shellfish survey, or other information concerning historical or existing shellfish habitat at the site.

c) Definition – Same as 310 CMR 10.34 (2).

d) Performance Standards. When a Land Containing Shellfish or land within a minimum distance of 100 feet of Land Containing Shellfish is determined to be significant to a wetland value, the following regulations shall apply:

(1) A proposed project shall not cause any adverse effect or cumulative adverse effect on Land Containing Shellfish.

(2) A proposed project shall not change water quality (including but not limited to changes in turbidity, temperature, salinity, dissolved oxygen, nutrients and pollutants), water circulation, or natural drainage from adjacent land.

(3) A proposed project shall not obstruct or limit the ability of the public to gather shellfish recreationally or the ability of commercial fishermen to harvest shellfish or obstruct or limit an existing aquaculture project.

(4) Notwithstanding the above provisions, no project may be permitted which will have any adverse effect on specified habitat of rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.37.

(5) Refer to HWR 23.0 et seq. for additional project-specific performance standards.

(6) Performance standards for activities or work proposed in the buffer zone to Land Containing Shellfish are specified in HWR 22.0.

(7) The Commission may impose such additional requirements as are necessary to protect the wetland values protected under the Bylaw.

19.0. LAND SUBJECT TO FLOODING OR INUNDATION BY GROUNDWATER OR SURFACE WATER

19.1. Land Subject to Flooding (Bordering and Isolated Land Subject to Flooding and Vernal Pools)

a) Preamble. Bordering land subject to flooding provides a temporary storage area for floodwater, which has overtopped the bank of the main channel of a creek, river, or stream or the basin of a pond or lake. During periods of peak stormwater run-off, flood waters are both retained (i.e., slowly released through evaporation and percolation) and detained (slowly released through surface discharge). Over time, incremental filling of these areas causes displacement of flooding effects and increases the extent and level of flooding by eliminating flood storage volume or by restricting flows, thereby causing increases in damage to public and private properties due to flooding and erosion. Pollutants or contaminants located on bordering land subject to flooding may be washed into surface waters and subsequently into ground water, or percolate directly into ground water. Sources of pollutants within these areas will have widespread effect on wetland values.

Bordering land subject to flooding provides an important source of microscopic plant and animal material which enriches the nearby water body and serves as the basis for a food web which supports fish and wildlife. Bordering land subject to flooding provides important wildlife habitat and wildlife access to surface water resources. Bordering land subject to flooding is often low and level and thus helps prevent erosion of soil into water bodies due to surface water run-off. The topography and location of bordering land subject to flooding is critical for protection of flood control capabilities.

Isolated land subject to flooding provides a temporary storage area where run-off and high ground water collects and slowly evaporates or percolates into the ground. These areas, often

small, are usually numerous and thus very important in preventing more serious flooding somewhere else. Filling causes lateral displacement of ponded water or increased run-off onto contiguous properties, which may result in damage to those properties or other properties which were not significantly affected. The additive nature of the flood protection provided by isolated land subject to flooding and the fact that filling one may redirect water so as to radically change watershed sizes means that small changes in one area may have a direct impact on another area. Isolated land subject to flooding helps prevent erosion by breaking up watersheds so that run-off does not become so great as to have enough force to erode soil.

Areas where the isolated land subject to flooding is pervious are likely to serve as significant recharge points to the ground water. Contamination in these areas may easily migrate into ground water and neighboring wells. Isolated land subject to flooding which is covered by a mat of organic peat or muck may help remove contaminants before the flood water enters the ground water.

Isolated land subject to flooding may provide important habitat for amphibians, particularly during their breeding period, and some rare species. It may also provide important habitat for wildlife and in particular waterfowl. The degree of isolation from human-caused disturbances is a desirable feature of land subject to flooding, which is a critical element for the protection of wildlife, rare plant and animal species. Both bordering and isolated land subject to flooding are aesthetically attractive in a natural condition and provide opportunities for passive recreational activities such as hiking, wildlife-viewing, or bird watching. Land within 100 feet of land subject to flooding is significant to the protection and maintenance of land subject to flooding and therefore to the wetland values of this land.

b) Wetland Values and Presumption of Significance. Whenever a proposed project involves removing, filling, dredging, altering or building upon land subject to flooding or within a minimum distance of 100 feet of such land, the Commission shall presume that the land is significant to the protection of the following wetland values: protection of public or private water supply; protection of groundwater; flood control; erosion and sedimentation control; storm damage prevention, including coastal storm flowage; prevention and abatement of water pollution; protection of fisheries; protection of wildlife and wildlife habitat; protection of rare species habitat, including rare plant and animal species; protection of recreation and open space, protection of agriculture; and protection of aesthetics. These presumptions may be overcome only upon a clear showing that land subject to flooding does not play a role in protecting one or more of the wetland values given above. Except as authorized by the Commission, no activity or alteration shall be permitted within 100 feet of a vernal pool, whether it be certified or uncertified but accompanied by credible evidence of its viability as a vernal pool. The 100 foot zone around the defined vernal pool boundaries shall be known as "Vernal Pool Protection

Zone.” Isolated Land Subject to Flooding is protected under the Hingham Wetlands Protection Bylaw.

c) Definitions – Same as 310 CMR 10.57 (2) with the following addition: The term “vernal pool” shall be included and shall be defined as any confined basin or depression not occurring in existing lawns, gardens, landscaped areas, or driveways which, at least in most years, holds water for a minimum of two continuous months during the spring and/or summer, is free of adult fish populations, and provides essential breeding and rearing habitat functions for amphibian, reptile, or vernal pool community species, regardless of whether the wetland site has been certified as a vernal pool by the Massachusetts Division of Fisheries and Wildlife and Fisheries. The buffer zone for vernal pools shall extend 100 feet from the mean annual high-water line defining the depression. The term “isolated land subject to flooding” shall be included and shall be defined as an area, depression, or basin that holds at minimum one-sixteenth acre-foot of water and at least six inches of standing water once a year. The buffer zone for isolated land subject to flooding shall extend 100 feet from the highest extent of flooding.

d) Performance Standards. When a Land Subject to Flooding, (Bordering or Isolated), or land within a minimum distance of 100 feet of Land Subject to Flooding (Bordering or Isolated) is determined to be significant to a wetland value, the following regulations shall apply:

(1) A proposed project shall not cause any adverse effect or cumulative adverse effect on the wetland values of Land Subject to Flooding.

(2) Projects on land subject to flooding shall be permitted only in connection with such procedures determined by the Commission as not having the effect of reducing the ability of the land to absorb and contain floodwaters.

(3) The Commission may require compensating or greater flood storage capacity in the same watershed if it permits any filling of land subject to flooding, and all filling of areas subject to flooding shall be strictly minimized. Except as stated in the preceding sentence, no proposed projects shall be permitted to displace or direct floodwaters, through fill or other means, to other areas.

(4) Projects shall not have any adverse effect on vernal pools, whether certified or uncertified, provided such wetlands meet the physical and biological requirements for certification as described in the Massachusetts Division of Fisheries and Wildlife 1988 Guidelines for Certification of Vernal Pools. The Commission may require more than the minimum protective undisturbed buffer strip. These performance standards are also applicable to vernal pools which are isolated vegetated wetlands (see HWR 19.3).

(5) Notwithstanding the above provisions, no project may be permitted which will have any adverse effect on specified habitat of rare vertebrate or invertebrate and rare plant species, as identified by procedures established under 310 CMR 10.59.

(6) Refer to HWR 23.0 et seq. for additional project-specific performance standards.

(7) Performance standards for activities or work proposed in the buffer zone to Land Subject to Flooding are specified in HWR 22.0.

(8) The Commission may impose such additional requirements as are necessary to protect the wetland values protected under the Bylaw.

19.2. Inland Banks and Beaches

a) Preamble. Banks are areas 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 and siltation. Banks act to confine floodwaters during most storms, preventing the spread of water to adjacent land. Bank alterations which allow water to frequently and consistently spread over a larger and shallower area result in an increase in the amount of land routinely flooded and elevated water temperatures.

Banks may provide shade that moderates water temperatures as well as providing breeding habitat, escape cover and feeding areas, all of which are important for the protection of fish and wildlife, including any rare species which may occur. Banks may also help channel water and thus maintain a water depth which helps keep the water temperatures cool in warm weather, thus providing habitat necessary for both fish and the food sources for fish. Inland banks may act as a sediment source for inland beaches. By confining floodwaters, banks decrease the erosion of topsoil from adjacent land surfaces and help prevent flood and storm damage to buildings and roads. Confining floodwaters also decreases water pollution and helps to protect public or private water supplies by preventing floodwaters from mixing with many contaminants found on roads, near and in dwellings, from fertilized soil, from domestic animals and from septic tanks. Banks may provide nesting habitat for some species of birds. Banks and particularly beaches provide wildlife and human access to water bodies for recreation and for aesthetic enjoyment of the scenery. Land within 100 feet of inland banks and beaches is significant to the protection and maintenance of inland banks and beaches and therefore to the wetland values of these Resource Areas. Land within a minimum distance of 100 feet of a bank is likely to be significant to the protection and maintenance of the bank, and therefore to the protection of the wetland values of these Resource Areas.

b) Wetland Values and Presumption of Significance. Whenever a proposed project involves removing, filling, dredging, altering or building upon an inland bank or beach or within a minimum distance of 100 feet of an inland bank or beach, the Commission shall presume that the bank or beach is significant to the protection of the following wetland values: protection of public or private water supply; protection of groundwater; flood control; erosion and sedimentation control; storm damage prevention, including coastal storm flowage; prevention and abatement of water pollution; protection of fisheries, protection of wildlife and wildlife habitat; protection of rare species habitat, including rare plant and animal species; protection of recreation and open space; and protection of aesthetics. These presumptions may be overcome only upon a clear showing that the inland bank or beach does not play a role in protecting one or more of the wetland values given above.

c) Definition – Same as 310 CMR 10.54 (2) (a), (b) and (c).

d) Performance Standards. When an Inland Bank or Beach or land within a minimum distance of 100 feet of an Inland Bank and Beach is determined to be significant to a wetland value, the following regulations shall apply:

(1) A proposed project shall not cause any adverse effect or cumulative adverse effect upon the wetland values of Inland Bank or Inland Beach.

(2) A proposed project shall be permitted only if there is no adverse effect on bank stability, bank height, ground water and surface water quality, the water carrying capacity of an existing channel within a bank, and the capacity of the bank to provide habitat for fisheries and/or wildlife.

(3) Notwithstanding the above provisions, no project may be permitted which will have any adverse effect on specified habitat of rare vertebrate or invertebrate and rare plant species, as identified by procedures established under 310 CMR 10.59.

(4) Refer to HWR 23.0 et seq. for additional project-specific performance standards.

(5) Performance standards for activities or work proposed in the buffer zone to an Inland Bank or Inland Beach are specified in HWR 22.0.

(6) The Commission may impose such additional requirements as are necessary to protect the wetland values protected under the Bylaw.

19.3. Bordering and Isolated Vegetated Wetlands (Wet Meadows, Marshes,

Swamps and Bogs)

a) Preamble. Bordering and Isolated Vegetated Wetlands are areas where ground water discharges to the surface and where, in some circumstances, surface water discharges to the ground water. The profusion of vegetation and the low, flat topography of vegetated wetlands slow down and reduce the passage of stormwater runoff and flood waters during periods of peak flows by providing temporary flood water storage, and by facilitating water removal through evaporation and transpiration. This reduces downstream flood crests, erosion, sedimentation, and resulting damage to private and public property. During dry periods the water retained in vegetated wetlands is essential to the maintenance of base flow levels in streams or into the groundwater which in turn is important to the protection of water quality, public and private water supplies, fisheries and wildlife.

Wetlands are important for the prevention of pollution. The plant communities, soils, and associated low, flat topography of vegetated wetlands remove or detain sediments, nutrients (such as nitrogen and phosphorus), bacteria and other microorganisms, and toxic substances such as heavy metal compounds) that occur in run-off and flood waters. Some nutrients and toxic substances are retained for years in plant root systems or in soils. Bordering vegetated wetlands in coastal areas act to filter out pollutants in flood waters and stormwater runoff, thereby protecting water quality and protecting shellfish beds in adjacent coastal resource areas. Bordering and isolated vegetated wetlands and their underlying peat provide a significant role in carbon sequestration. Disturbance of these wetlands can lead to significant carbon release to the atmosphere.

Wetlands provide critical fish and wildlife habitat. Isolated vegetated wetlands can provide critical vernal pool habitat and rare species habitat, just as Isolated Land Subject to Flooding (see HWR 19.1). Wetland vegetation provides shade that moderates water temperatures important to fish life. Vegetated wetlands that are always wet or that are 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 these wetlands since they provide large quantities of microscopic plant and animal food material. Wetland vegetation provides habitat for a wide variety of insects, reptiles, amphibians, mammals and birds. The degree of isolation from human-caused disturbances is a desirable and aesthetically pleasing feature of a vegetated wetland, which is a critical characteristic for the protection of wildlife. Many of these, particularly insects, are food sources for fish.

Vegetated wetlands, together with land within 100 feet of a vegetated wetland, 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 vegetated wetland. The maintenance of base flows by vegetated wetlands is significant to the maintenance of a proper

salinity ratio in estuarine areas downstream of the vegetated wetland. A proper salinity ratio, in turn, is essential to the ability of shellfish to spawn successfully and for the continuing success of shellfisheries. A proper salinity ratio is also important for many species of fish.

Vegetated wetlands are excellent places for bird watching, and hunting, fishing, and other recreational activities and provide aesthetically pleasing areas for such activities. Some vegetated wetlands, particularly bogs, provide habitat for rare plants and animals. Vegetated wetlands along pond edges can prevent erosion by wind driven waves. Land within 100 feet of a vegetated wetland is considered to be significant to the protection and maintenance of vegetated wetlands, and therefore to the protection of the wetland values of these Resource Areas.

b) Wetland Values and Presumption of Significance. Whenever a proposed project involves removing, filling, dredging, altering or building upon a vegetated wetland or within a minimum distance of 100 feet of a vegetated wetland, the Commission shall presume that the vegetated wetland is significant to the protection of the following wetland values: protection of public or private water supply; protection of groundwater; flood control; erosion and sedimentation control; storm damage prevention, including coastal storm flowage; prevention and abatement of water pollution; protection of fisheries; protection of shellfish; protection of wildlife and wildlife habitat; protection of rare species habitat, including rare plant and animal species; protection of recreation and open space; and protection of aesthetics. These presumptions may be overcome only upon a clear showing that the vegetated wetland does not play a role in protecting one or more of the wetland values given above.

c) Definition. Vegetated Wetlands are freshwater wetlands, including both bordering vegetated wetlands (i.e., bordering on freshwater bodies such as on creeks, rivers, streams, ponds and lakes, and bordering on coastal resource areas such as salt marshes and estuaries) and isolated vegetated wetlands which do not border on any permanent water body. The types of freshwater wetlands are wet meadows, marshes, swamps, bogs and vernal pools. Vegetated Wetlands are areas where soils are saturated and/or inundated such that they support a predominance of wetland indicator plants. The ground water and surface water hydrological regime, soils and the vegetational community which occur in each type of freshwater wetlands, including both bordering and isolated vegetated wetlands, are defined under the Bylaw based on M.G.L. c. 131 s. 40, and the Massachusetts Department of Environmental Protection Guidance for Delineating Bordering Vegetated Wetlands (1995).

The boundary of Vegetated Wetland, whether Bordering or Isolated is the line within which 50% or more of the vegetational community consists of wetland indicator plants and saturated or inundated conditions exist. Wetland indicator plants shall include but not necessarily be limited to those plant species identified in the Act. Wetland indicator plants are also those classified in the indicator categories of Facultative, Facultative+, Facultative Wetland-, Facultative Wetland,

Facultative Wetland+, or Obligate Wetland in the National List of Plant Species That Occur in Wetlands: Massachusetts Fish & Wildlife Service, U.S. Department of the Interior, 1988 or plants exhibiting physiological or morphological adaptations to life in saturated or inundated conditions.

The boundary shall be defined or delineated by the following:

(1) Areas containing a predominance of wetland indicator plants are presumed to indicate the presence of saturated or inundated conditions. Therefore, the boundary as determined by 50% or more wetland indicator plants shall be presumed accurate when:

(a) all dominant species have an indicator status or of obligate, facultative wetland+, facultative wetland, or facultative wetland- and the slope is distinct or abrupt between the upland plant community and the wetland plant community; or

(b) the Conservation Commission determines that sole reliance on wetland indicator plants will yield an accurate delineation.

(2) When the boundary is not presumed accurate as described in HWR 19.3(1)(a-b) or to overcome the presumption, credible evidence shall be submitted by a competent source demonstrating that the boundary of Vegetated Wetlands is the line within which 50% or more of the vegetational community consists of wetland indicator plants and saturated or inundated conditions exist. The issuing authority must evaluate vegetation and indicators of saturated or inundated conditions if submitted by a credible source, or may require credible evidence of saturated or inundated conditions sufficient to support wetland indicator plants, which shall include one or more of the following: (a) groundwater, including the capillary fringe, within a major portion of the root zone; (b) observation of prolonged or frequent flowing or standing surface water; (c) characteristics of hydric soils.

(3) Where an area has been disturbed (e.g., by cutting, filling, or cultivation), the boundary is the line within which there are indicators of saturated or inundated conditions sufficient to support a predominance of wetland indicator plants, a predominance of wetland indicator plants, or credible evidence from a competent source that the area supported, or would support under undisturbed conditions, a predominance of wetland indicator plants prior to the disturbance or characteristic of hydric soils.

d) Performance Standards. When a Vegetated Wetland, whether Bordering or Isolated, or land within a minimum distance of 100 feet of a Vegetated Wetland is determined to be significant to a wetland value, the following regulations shall apply:

(1) A proposed project shall not cause any adverse effect or cumulative adverse effect upon the wetland values of a Vegetated Wetland.

(2) Where an Isolated Vegetated Wetland meets the criteria for a vernal pool, whether or not it has been certified, as described in HWR 19.1. Except as authorized by the Commission, no activity or alteration shall be permitted within 100 feet of a vernal pool, whether it be certified or uncertified but accompanied by credible evidence of its viability as a vernal pool. The 100 feet around the defined vernal pool boundaries shall be known as “Vernal Pool Protection Zone”. A proposed project shall not cause any adverse effect or cumulate adverse effect upon the wetland values of vernal pool habitat.

(3) Notwithstanding the above provisions, no project may be permitted which will have any adverse effect on specified habitat of rare vertebrate or invertebrate and rare plant species, as identified by procedures established under 310 CMR 10.59.

(4) Refer to HWR 23.0 et seq. for additional project-specific performance standards.

(5) Performance standards for activities or work proposed in the buffer zone to a Vegetated Wetland are specified in HWR 22.0.

(6) The Commission may impose such additional requirements as are necessary to protect the wetland values protected under the Bylaw.

20.0. LAND SUBJECT TO COASTAL STORM FLOWAGE

20.1. Land Subject to Coastal Storm Flowage (LSCSF)

a) Preamble. Land Subject to Coastal Storm Flowage (LSCSF) is significant to storm damage prevention and flood control. LSCSF is also likely to be significant to the protection of wildlife habitat and the prevention of water pollution.

Velocity zones (V-zones) and Overwash zones (AO-zones) of LSCSF (V-zones especially so) are areas which are subject to hazardous flooding, wave impact, and, in some cases, significant rates of erosion as a result of storm wave impact and scour. V and AO-zones in coastal areas are generally subject to repeated storm damage which can result in loss of life and property, increasing public expenditures for storm recovery activities, historic taxpayer subsidies for flood insurance and disaster relief, and increased risks for personnel involved in emergency relief programs. Alteration of land surfaces in Stillwater zones (A-zones) could change drainage characteristics that could cause increased flood damage on adjacent properties. A number of

complex and inter-related factors determine the wave height and the landward extent of wave run-up in V- and AO-zones, including shoreline orientation, nearshore/offshore bathymetry, onshore topography, wave fetch, storm frequency and magnitude, and the presence of coastal engineering structures. The topography, soil characteristics (e.g., composition, density, and shape of soil material), vegetation, erodibility and permeability of the land surface within V- and AO-zones are critical characteristics which determine how effective an area is in dissipating wave energy and in protecting areas within and landward of these zones from storm damage and flooding.

The more gentle and permeable a seaward-sloping land surface is, the more effective that land surface is at reducing the height and velocity of incoming storm waves. Wave energy may be expended by eroding and transporting materials comprising the land surface within the V- and AO-zones, as well as by percolation or the downward movement of the stormwater runoff through more permeable land surfaces, thereby lessening the effects of backrush, scour and erosion. Development in V- and AO-zones poses environmental problems since construction and development activities can impair or destroy those characteristics cited above which are critical to the stated values.

Dredging or removal of materials within V- and AO-zones acts to increase the landward velocity and height of storm waves, thereby allowing storm waves to break further inland and to impact upland and wetland Resource Areas which might not otherwise be impacted. Filling and the placement of solid fill structures within V- and AO-zones may cause the refraction, diffraction and /or reflection of waves, thereby forcing wave energy onto adjacent properties, natural resources, and public or private ways potentially resulting in otherwise avoidable storm damage. When struck with storm waves, solid structures within V- and AO-zones also may increase localized rates of erosion and scour (Shore Protection Manual, U.S. Army Corps of Engineers, 1984, V.1, pp.5-3 and 5-5).

LSCSF (the coastal floodplain) buffers and protects upland areas from severe storm conditions. Since the floodplain contains areas where the water table is close to the surface (as well as other wetland Resource Areas) pollutants in a flood plain, including contents of septic systems and fuel tanks, may affect public or private water supplies, groundwater quality, wildlife, fisheries and shellfish during a storm. Direct and collateral damage to man-made structures in the floodplain is caused by wave impacts and inundation by floodwaters and storm-driven debris. Protecting lives and property in floodplains during a storm can be expensive to the Town of Hingham and unsafe for its police, fire, and medical personnel involved in such efforts. Hardened surfaces deflect wave energy; they do not dissipate it. Soft structures and surfaces dissipate wave energy and protect property. Desires of property owners to protect themselves from the effects of storms can lead to pressure on the Town and its regulatory bodies to erect engineering structures in wetlands which can have detrimental effects on wetland values.

Certain portions of LSCSF are significant to the protection of wildlife habitat; these significant wildlife habitat areas include all areas within the 100-year floodplain that are within a zone 100 feet landward of any other coastal or freshwater Resource Area, except for those portions which have been so extensively altered by human activity that their important wildlife habitat functions have been effectively eliminated.

Coastal floodplain areas are often low-lying areas that are ecologically transitional areas between marine/estuarine ecosystems and upland areas. Resource Areas within the 100- year floodplain are important habitats for a large variety of wildlife species, including a number of rare species. Salt marshes provide habitat for many crustaceans, mollusks, and other invertebrates and serve as critical nursery areas for numerous finfish species which in turn provide food for species higher in the food chain, including birds, mammals, and others. These Resource Areas provide important over-wintering and stopover areas for many species. Areas of coastal floodplains adjacent to other wetland Resource Areas provide important wildlife functions, such as nesting and roosting habitat, rare species habitat, and wildlife corridors connecting coastal resources with freshwater wetland resources. The coastal floodplain serves as a transitional zone which is needed to protect the habitat values of coastal wetland resources.

Certain portions of LSCSF are significant to the prevention of pollution. These significant pollution prevention areas include all areas within the 100-year floodplain that are within 100 feet of any other coastal or freshwater Resource Area. These pollution prevention areas can mitigate adverse effects associated with human disturbance and pollutants. Natural or relatively undisturbed coastal floodplains can reduce erosion and sedimentation, and in a vegetated state can prevent pollutants contained in surface runoff from directly entering waterways and other wetland areas during flood events. While erosion of stream banks and shorelines is an important natural process, the design and management of activities in the floodplain should aim to avoid excessive erosion (and thus possible pollutant-laden runoff) due to human activities.

b) Wetland Values and Presumption of Significance. Whenever a proposed project involves removing, filling, dredging, altering or building upon on LSCSF, the Commission shall presume that the land is significant to the protection of the following wetland values: protection of public or private water supply, protection of groundwater; flood control; erosion and sedimentation control; storm damage prevention, including coastal storm flowage; prevention and abatement of water pollution; protection of fisheries; protection of shellfish; protection of wildlife and wildlife habitat; and protection of rare species habitat, including rare plant and animal species; protection of recreation and open space; protection of aesthetics. These presumptions may be overcome only upon a clear showing that LSCSF does not play a role in protecting one or more of the wetland values given cited above.

c) Definitions. LSCSF means land subject to any inundation caused by coastal storms up to and including those that resulting in a 100 year flood as designated by the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM), surge of record, or flood of record, whichever is greater.

One hundred year flood (or base flood as it is also referred to) means the flood having a one percent chance of being equaled or exceeded in any given year.

The seaward limit is mean low water.

Velocity Zones (Zone V) are those portions of LSCSF which are coastal high hazard areas or areas of special flood hazard extending from the mean low water line to the inland limit within the 100 year floodplain supporting waves greater than three feet height.

AO-Zones are those portions of LSCSF which are subject to inundation by moving water (usually sheet flow on sloping terrain) where average depths are between one and three feet. In Massachusetts, coastal AO-zones are commonly associated with `overwash` and generally border on the landward side of V-zones.

AE-zones (Zone AE) are those portions of LSCSF which are subject to inundation by types of 100 year flooding where stillwater flooding predominates.

Overwash – that portion of storm wave uprush that carries over the crest of a berm, dune, or man-made structure, often times depositing sediment or other storm laden material.

d) Performance Standards. When a LSCSF is determined to be significant to a wetland value, the following regulations shall apply:

(1) A proposed project shall not cause any adverse effect or cumulative adverse effect upon the wetland values of LSCSF.

(2) When LSCSF is significant to protection of wildlife habitat, a proposed activity shall not impair the capacity of LSCSF to provide important wildlife habitat functions.

(3) When LSCSF is significant to pollution prevention, a proposed activity shall not cause ground, surface or salt water pollution triggered by coastal storm flowage or flooding. For those areas within at least 100 feet of another Resource Area, activities shall minimize adverse effects in order to maintain the capability to remove suspended solids and other contaminants from runoff before it enters other Resource Areas.

(4) For activities proposed in V-zones and A-zones, at a minimum, the historic rate of relative sea level rise in Massachusetts of 1 foot per 100 years shall be incorporated into the project design and construction. The commission may also take other credible evidence of projected sea level rise, such as the Intergovernmental Panel on Climate Change into consideration.

(5) The following activities proposed within Velocity zones (V-zones) are likely to have an adverse effect on the protected values and are therefore prohibited:

a) New construction or placement of new structures, including buildings, sheds, and garages. Existing buildings may be renovated or reconstructed but must be built using flood-resistant construction.

b) Impermeable paving for new or existing roads, driveways and parking lots.

c) New or proposed expansions of coastal engineering structures unless such structures are of a loose, sloped-stone design.

d) New or expanded septic systems. Replacement or repair of an existing septic system shall be allowed within an V-Zone only if no alternative location is available on the lot or other parcel under the ownership or control of the owner of the system proposed and, where applicable, provided that variance of property line and/or street layout setbacks have been applied for from the Town of Hingham Board of Health.

(6) The following activities proposed within AO-Zones are likely to have an adverse effect on the protected values and are therefore prohibited:

a) New construction or placement of new structures, including buildings, sheds, and garages, or walls on vacant lots.

b) New or proposed expansions of coastal engineering structures unless such structures are of a loose sloped-stone design.

c) New or expanded septic systems. Replacement or repair of an existing septic system shall be allowed within an AO-Zone only if no alternative location is available on the lot or other parcel under the ownership or control of the owner of the system proposed and, where applicable, provided that variance of property line and/or street layout setbacks have been applied for from the Town of Hingham Board of Health.

(7) Notwithstanding the above, the Commission may permit the following activities in V-zones and AO-zones provided that the applicant demonstrates to the satisfaction of the Commission

that best available measures are utilized to avoid or minimize adverse effects on all wetland values of all Resource Areas:

- a) Beach, dune and bank nourishment and restoration projects that incorporate natural vegetative cover and do not otherwise impede the landward migration of these landforms over time.
- b) Elevated pedestrian walkways that are minimal. Walkways must meet the performance standards for docks and piers specified in HWR 23.4.
- c) Docks and piers provided they meet the performance standards specified in HWR 23.4.
- d) Projects to restore salt marsh, freshwater wetland, shellfish habitat or fisheries.
- e) Improvements necessary to maintain the structural integrity or stability of existing coastal engineering structures.
- f) Projects and activities associated with water-dependent uses such as boat yards, and yacht clubs.
- g) Maintenance dredging and channel maintenance dredging.

8. Notwithstanding the above provisions, no project may be permitted which will have any adverse effect on specified habitat of rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.37.

9. Refer to HWR 23.0 et seq. for additional project-specific performance standards.

10. Performance standards for activities or work proposed in buffer zone to LSCSF are specified in HWR 23.0.

11. The Commission may impose such additional requirements as are necessary to protect the wetland values protected under the Bylaw.

21.0. RIVERS

21.1. Riverfront Area

a) Preamble. Riverfront areas are likely to protect private or public water supply, protect groundwater, provide flood control, provide erosion and sedimentation control, provide storm

damage prevention, prevent pollution, protect land containing shellfish, provide wildlife and wildlife habitat, protect fisheries, provide rare species habitat where rare species occur, and provide recreational and aesthetic values. Land adjacent to rivers and streams can protect the natural integrity of these water bodies. The presence of natural vegetation within riverfront areas is critical to sustaining rivers as ecosystems and providing these public values. The riverfront area can prevent degradation of water quality by filtering sediments, toxic substances (such as heavy metals), and nutrients (such as phosphorus and nitrogen) from stormwater, nonpoint pollution sources, and the river itself. Sediments are trapped by vegetation before reaching the river. Nutrients and toxic substances may be detained in plant root systems or broken down by soil bacteria.

Riverfront areas can trap and remove disease-causing bacteria that otherwise would reach rivers and coastal estuaries where they can contaminate shellfish beds and prohibit safe human consumption. Natural vegetation within the riverfront area also maintains water quality for fish and wildlife. Where rivers serve as water supplies or provide induced recharge to wells; the riverfront area can be important to the maintenance of drinking water quality and quantity. Land along rivers in its natural state with a high infiltration capacity increases the yield of a water supply well. When riverfront areas lack the capacity to filter pollutants, contaminants can reach human populations served by wells near rivers or by direct river intakes. The capacity of riverfront areas to filter pollutants is equally critical to surface water supplies, reducing or eliminating the need for additional treatment. In the watershed, mature vegetation within riverfront areas provides shade to moderate water temperatures and slow algal growth, which can produce odors and taste problems in drinking water.

Within riverfront areas, surface water interaction with groundwater significantly influences the stream ecosystem. The dynamic relationship between surface and groundwater within the “hyporheic zone” sustains communities of aquatic organisms which regulate the flux of nutrients, biomass and the productivity of organisms including fish within the stream itself. The hyporheic zone extends to greater distances horizontally from the channel in large, higher order streams with alluvial floodplains, but the interaction within this zone is important in smaller streams as well.

By providing recharge and retaining natural flood storage, as well as by slowing surface water runoff, riverfront areas can mitigate flooding and damage from storms. The root systems of riverfront vegetation keep soil porous, increasing infiltration capacity and preventing erosion. Vegetation also removes excess water through evaporation and transpiration. This removal of water from the soil allows for more infiltration when flooding occurs. Increases in storage of floodwaters can decrease peak discharges and reduce storm damage. Vegetated riverfronts also dissipate the energy of storm flows, reducing damage to public and private property.

Riverfront areas are critical to maintaining thriving fisheries. Maintaining vegetation along rivers provides shading, promotes fish cover, increases food and oxygen availability, decreases sedimentation, and provides spawning habitat. Maintenance of water temperatures and depths is critical to many important fish species. When groundwater recharges surface water flows, loss of recharge as a result of impervious surfaces within the riverfront area may aggravate low flow conditions and increase water temperatures. In some cases, summer stream flows are maintained almost exclusively from groundwater recharge. Small streams are most readily impacted by removal of trees and other vegetation along the shore.

Riverfront areas are important wildlife habitat, providing food, shelter, breeding, nesting, migratory, and overwintering areas for wildlife and for rare species where they occur. Even some predominantly upland species use and may be seasonally dependent on riverfront areas. Riverfront areas promote biological diversity by providing habitats for an unusually wide variety of upland and wetland species, including several species of egrets and herons, Bald Eagles, Osprey, and Belted Kingfishers. Large dead trees provide nesting sites for bird species that typically use the same nest from year to year. Sandy areas along rivers may serve as nesting sites for turtles and water snakes. Riverfront areas provide food for species such as wood turtles which feed and nest in uplands but use rivers as resting and overwintering areas. Riverfront areas provide corridors for the migration of wildlife for feeding or breeding. Loss of this connective function, from activities that create barriers to wildlife movement within riverfront areas, results in habitat fragmentation and causes declines in wildlife populations. Wildlife must also be able to move across riverfront areas, between uplands and the river.

Vernal pools are frequently found within depressions in riverfront areas. These pools are essential breeding sites for certain amphibians and obligate and facultative vernal pool species of plants and animals which require isolated, seasonally wet areas without predator fish. Some vernal pool species, particularly amphibians, require areas of undisturbed woodlands as upland habitat during the non-breeding seasons. Some species require continuous woody vegetation between woodland habitat and the breeding pools. Depending on the species, during non-breeding seasons these amphibians may remain near the pools or travel one-fourth mile or more from the pools. Reptiles, especially turtles, often require areas along rivers to lay their eggs. Since amphibians and reptiles are less mobile than mammals and birds, maintaining integrity of their habitat is critical.

Riverfront areas in a natural condition are aesthetically valuable and offer opportunities for recreational fishing, hunting, canoeing and kayaking, camping, swimming and other recreational activities. In those portions so extensively altered by human activity that their important wildlife habitat functions have been effectively eliminated, riverfront areas are not significant to the protection of important wildlife habitat and vernal pool habitat.

b) Wetland Values and Presumption of Significance. Whenever a proposed project involves removing, filling, dredging, altering or building upon a Riverfront Area, the Commission shall presume that the land is significant to the protection of the following wetland values: protection of public or private water supply; protection of groundwater; flood control; erosion and sedimentation control; storm damage prevention, including coastal storm flowage; prevention of water pollution; protection of fisheries; protection of shellfish; protection of wildlife and wildlife habitat; protection of rare species habitat, including rare plant and animal species; protection of recreation; and protection of aesthetics. These presumptions may be overcome only upon a clear showing that the Riverfront Area does not play a role in protecting one or more of the wetland values given above.

c) Definition – Same as 310 CMR 10.58 (2). The Inner Riparian Zone is the area from 0 – 100 feet from the river’s mean annual high water line; and the Outer Riparian Zone is the area from 100 – 200 feet from the river’s mean annual high water line.

d) Performance Standards. When a Riverfront Area is determined to be significant to a protected value, the following regulations shall apply:

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

(2) Notwithstanding the above, a river is any natural flowing body of water that empties to any ocean, lake, pond, other river, stream or wetland and which flows throughout the year. Perennial rivers, streams and creeks are rivers; intermittent streams are not. Notwithstanding 310 CMR 10.58, the burden of proof shall be on any applicant to show that a river, stream or creek is not perennial (i.e., is intermittent).

(3) For any river or stream that is tidally influenced, the Commission shall use the DEP mouth of the river designation line.

(4) Notwithstanding any provisions of 310 CMR 10.58, the Commission shall presume that the mean annual high water line of a non-tidal river is coincident with the outer (landmost) boundary of any Bordering Vegetated Wetland (as defined in these regulations) that may be adjacent to the river. This presumption may be overcome upon a clear showing that the mean annual high water line is closer to the river. Such evidence may include hydrological measurements and calculations prepared by a registered professional engineer and/or hydrologist, and/or stream flow stage data from U.S. Geological Survey stream gauges and survey. For non-tidal rivers lacking any Bordering Vegetated Wetland, the inner boundary of the 200- foot Riverfront Area shall be the top of Inland Bank as determined by the first observable break in slope or the mean

annual flood level, whichever is lower. For tidal rivers, the inner boundary of the 200-foot Riverfront Area shall be the mean annual high water line.

(5) Notwithstanding any provisions of 310 CMR 10.58, the alternatives analysis shall include only lots adjacent to the lot(s) being proposed for development, or located in the near vicinity.

(6) Notwithstanding the above provisions, no project may be permitted which will have any adverse effect on specified habitat of rare vertebrate or invertebrate and rare plant species, as identified by procedures established under 310 CMR 10.59.

(7) The Commission may impose such additional requirements as are necessary to protect the wetland values protected under the Bylaw.

(8) Refer to HWR 23.0 et seq. for additional project-specific performance standards.

21.2. Anadromous/Catadromous Fish Runs, Banks along Fish Runs, and Lands Under Fish Runs

a) Preamble. Fisheries are one of the wetland values under the Bylaw. Anadromous and catadromous fish are renewable natural resources that provide recreational and commercial benefits. In addition, throughout their life cycle such fish are important components of freshwater, estuarine, and marine environments and are food sources for other organisms. Fish runs provide habitats for other fish, shellfish and wildlife. Characteristics of fish runs which are critical to the protection of anadromous/catadromous fish include: ease of fish passage upstream and downstream, accessibility of spawning and nursery grounds to fish, volume and rate of water flow in both migratory and spawning areas, and water quality (including turbidity, temperature, pollutants, nutrients, salinity, pH, and dissolved oxygen). Fish runs are important for recreational and commercial fisheries, and provide aesthetically valuable areas for such activities.

b) Wetland Values and Presumption of Significance. Whenever a proposed project involves removing, filling, dredging, altering, or building upon a fish run or within a minimum distance of 100 feet of a fish run, the Commission shall presume that the fish run is significant to the protection of the following wetland values: prevention of water pollution; protection of fisheries; protection of shellfish; protection of wildlife and wildlife habitat; protection of rare species habitat, including rare plant and animal species; protection of recreation; and protection of aesthetics. These presumptions may be overcome only upon a clear showing that the fish run and the land under a fish run does not play a role in protecting one or more of the wetland values given above.

c) Definition – Same as 310 CMR 10.35 (2).

d) Performance Standards. When a Fish Run or land within a minimum distance of 100 feet of a Fish Run is determined to be significant to a wetland value, the following regulations shall apply:

(1) A proposed project shall not cause any adverse effect or cumulative adverse effect upon the wetland values of a Fish Run.

(2) Proposed projects shall not be permitted to fill a fish run, impede the upstream or downstream migration of fish, or change the volume, rate or quality of water flow or water quality in a fish run.

(3) Notwithstanding the above provisions, no project may be permitted which will have any adverse effect on specified habitat of rare vertebrate or invertebrate and rare plant species, as identified by procedures established under 310 CMR 10.37 for Coastal Resource Areas or 310 CMR 10.59 for Inland Resource Areas.

(4) Refer to HWR 23.0 et seq. for additional project-specific performance standards.

(5) Performance standards for work or activities proposed in the buffer zone to a Fish Run are specified in HWR 22.0.

(6) The Commission may impose such additional requirements as are necessary to protect the wetland values protected under the Bylaw.

22.0. BUFFER ZONE

a) Preamble. The 100-foot buffer zone to Resource Areas specified in the Bylaw and in HWR 2 (1-5) provides critical protection for Resource Areas. Most human activities likely to come under the review of the Commission take place in the buffer zone. Adverse effects to Resource Area buffers are likely to have an adverse effect and cumulative adverse effect on the wetland values. A buffer zone in a naturally vegetated condition can act like wetlands in removing nitrogen and phosphorus from entering receiving waters by serving as sinks, filters and transformers of suspended and dissolved nutrients. A buffer can remove 50-100% of sediments via filtration

through natural organic litter. Absorption of ground water via mature trees can take up 14 times more water than an equivalent area of grass. Bank and stream channel stability is dependent on the anchoring ability of root systems and slowing of runoff velocity and flow diffusion provided by the buffer. Vegetation in the buffer can act to moderate water column temperatures and levels of dissolved oxygen. The higher the water temperature is, the more deleterious the effects of release of nutrients (such as, but not limited to, phosphorus and nitrogen) from sediments are. As nutrient concentrations in water increase, the likelihood of algal blooms and eutrophication increases, resulting in lower oxygen levels. The buffer provides corridors and connector and dispersal routes for wildlife, as well as habitat for breeding, nesting, development, feeding, basking, cover, hibernation, aestivation, and migratory activities.

Buffers reduce the adverse effects of adjacent land uses on wetlands. Buffers reduce wetland impacts by moderating impacts of stormwater runoff including stabilizing soil to prevent erosion; filtering suspended solids, nutrients, and harmful or toxic substances; and moderating water level fluctuations. Buffers help to prevent water pollution and protect public or private water supplies. They reduce the adverse impacts of human disturbance on wetland habitat including blocking noise and glare; reducing sedimentation and nutrient input; reducing direct human disturbance from dumped debris, cut vegetation, and trampling; and providing visual separation. They also provide essential habitat for wetland-associated species for use in feeding; roosting; breeding and rearing of young; and cover for safety, mobility and thermal protection. Wetlands with important functions and values or wetlands which are sensitive to disturbance will require greater buffers to reduce the risk of disturbance. Wetland functions, values, and sensitivity are attributes that will influence the necessary level of protection for wetlands. Where wetland systems are rare or irreplaceable (e.g., high quality estuarine wetlands, mature swamps, and bogs) larger buffer widths will ensure a lower risk of disturbance.

Uplands immediately adjacent to wetlands vary in their ability to reduce adverse effects of development, most importantly in relationship to slope and vegetative cover. Buffers with dense vegetative cover on slopes less than 15% are most effective for protection of water quality. Dense shrub or forested vegetation with steep slopes provides the greatest protection from direct human disturbance. Appropriate vegetation for wildlife habitat depends on wildlife species present in the wetland and buffer. Effectiveness is also influenced by ownership of the buffer. Land uses associated with significant construction and post-construction impacts need greater buffers. Construction impacts include erosion and sedimentation, debris disposal, vegetation removal and noise. Post-construction impacts are variable depending on the land use, but residential land use, in particular, can have significant impacts. Residential land use is associated with yard maintenance debris, domestic animal predation, removal of vegetation and trampling, nitrogen and phosphorus loading, and excessive herbicide and pesticide application. Buffers in a natural condition are aesthetically and economically valuable. Buffers provide recreational opportunities for hunting, fishing, walking, photography and other recreational activities. Buffer

effectiveness increases as buffer width increases. As buffer width increases, the effectiveness of removing sediments, nutrients, bacteria, and other pollutants from surface water runoff increases. However, for incrementally greater sediment removal efficiency (e.g., from 90 to 95%), disproportionately larger buffer width increases are required. As buffer width increases, direct human impacts, such as dumped debris, cut or burned vegetation, fill areas, and trampled vegetation, will decrease. As buffer width increases, the numbers and types of wetland-dependent and wetland-related wildlife that can depend on the wetland and buffer for essential life needs increases. Appropriate buffer widths vary according to the desired buffer function(s). Temperature moderation, for example, will require smaller buffer widths than some wildlife habitat or water quality functions. Buffer widths for wildlife may be generalized, but specific habitat needs of wildlife species depend on individual habitat requirements. Buffers of less than 100 feet in width are generally ineffective in protecting wetlands and water bodies. A buffer is necessary to protect a wetland from direct human disturbance in the form of human encroachment (including, but not limited to, foot traffic, trampling, debris, noise). The appropriate width to prevent direct human disturbance depends on the type of vegetation, the slope, and the adjacent land use. Some wetlands are more sensitive to direct disturbance than others. In some cases, buffers greater than 100 feet may be necessary to protect wetland values. To retain wetland-dependent wildlife in important wildlife areas, buffers need to retain plant structure for the maximum distance allowed by the Bylaw. This is especially true where open water exists or where the wetland is used extensively by migratory or overwintering species including birds or rare species. The buffer width needed would depend upon disturbance from adjacent land use and resources involved. Priority species may need even larger buffers to prevent their loss due to disturbance or isolation of subpopulations.

Notwithstanding the critical importance of the buffer zone for protection of Resource Area values, there may be some minor or temporary work or activities which may have no adverse effect or cumulative adverse effect upon the wetland values. Such work or activities may be allowable within the outer portion of the buffer zone, provided the Commission finds that there is no adverse effect or cumulative adverse effect upon the wetland values.

b) Wetland Values and Presumptions of Significance. The buffer zone is significant to the wetland values of the Resource Area which it borders. In addition, where rare species or vernal pools occur in the buffer zone, the buffer zone itself is significant for protection of rare species, rare species habitat, vernal pool organisms, and vernal pool habitat, respectively. Where a project involves removing, building upon, degrading, or otherwise altering a Resource Area buffer adjacent to a Resource Area specified in HWR 2.00 (1-4), the Commission shall presume that such area is significant to, or will have a cumulative effect upon, the following wetland values: protection of public or private water supply; protection of groundwater; flood control; erosion and sedimentation control; storm damage prevention, including coastal storm flowage; prevention of water pollution; protection of fisheries, protection of wildlife and wildlife habitat;

protection of rare species habitat, including rare plant and animal species; protection of recreation; and protection of aesthetics. This presumption may be overcome upon a clear showing that said land does not play a role in protecting one or more wetland values given above.

If the Resource Area buffer is not present (i.e., has already been altered and/or encroached upon), the Commission shall presume that there already exists a significant adverse effect or cumulative adverse effect upon the wetland values of the Resource Area. This presumption may be overcome upon a clear showing that there is no significant or cumulative effect to the protection of said wetland values.

c) Definition. The buffer zone is the area within a minimum distance of 100 horizontal feet of any Resource Area specified in HWR 2.0 (1-4), excluding the buffer zone itself, Land Subject to Coastal Storm Flowage, and the Riverfront Area. The buffer width shall be measured horizontally in a landward direction from the Resource Area boundary as surveyed in the field.

d) Performance Standards.

(1) The intent of the Conservation Commission is to move all structures and activities as far away as possible from any Resource Area, in order to protect the wetland values of Resource Areas.

(2) Except as otherwise specified, Resource Area buffers shall be retained and maintained in a naturally vegetated condition. Where buffer disturbance has occurred during construction, revegetation with native vegetation may be required.

(3) The Commission may require that already-altered buffer zone be restored in order to protect or improve Resource Area values. Restoration means planting native vegetation, grading, correcting site drainage, removing debris, or other measures which will improve, restore and protect the wetland values of the Resource Area.

(4) Notwithstanding the above provisions, no project may be permitted which will have any adverse effect on specified habitat of rare vertebrate or invertebrate and rare plant species, as identified by procedures established under 310 CMR 10.37 for Coastal Resource Areas or 310 CMR 10.59 for Inland Resource Areas.

(5) The Commission may impose such additional requirements as are necessary to protect the wetland values protected under the Bylaw.

23.0. PROJECT-SPECIFIC PERFORMANCE STANDARDS

The following performance standards shall be applied to projects that are proposed in one or more of the Resource Areas as defined herein. The Conservation Commission has frequently reviewed certain activities and as a result has developed standards that the Commission feels are sufficient in most cases to protect the wetland values of each affected Resource Area. In addition to the following specific performance standards, the Conservation Commission may require a Conservation Restriction on land associated with new projects in any Resource Area defined herein, if the Commission deems it necessary to protect the wetland values of the Resource Area.

23.1. Septic Systems

a) Subsurface Disposal of Sanitary Sewage (Title 5). The State Environmental Code (310 CMR 15.00 et seq.), administered locally by the Town of Hingham Board of Health, is a minimal public health regulation that may be supplemented at the local level. This code was developed to protect public health against bacteria-caused disease; it was not designed to protect public health from viral contamination nor was it designed to protect environmental quality from septic-derived nutrient and toxic contamination. The use of septic systems may have a significant or cumulative adverse effect on the protection of public and private water supply; protection of ground water; flood control; erosion and sedimentation control; prevention of water pollution; protection of fisheries; protection of shellfish; protection of wildlife and wildlife habitat; protection of rare species, including rare plant and animal species; protection of recreation; protection of agriculture; protection of aquaculture; and protection of aesthetics.

Presumption Concerning Title 5 of the State Environmental Code

(1) A subsurface sewage disposal system that is to be constructed in compliance with the requirements of Title 5 of the State Environmental Code (310 CMR 15.00 et seq.), or more stringent local Board of Health requirements, shall be presumed to protect any and all interests identified in the Bylaw, but only if none of the components of said system is located within the following resource areas: (a) Coastal: coastal bank, coastal beach, coastal dune, salt marsh; (b) Inland: wet meadows, marsh, swamp, bog, river, stream pond, reservoir, creek, and only if the leaching facility of said system is set back at least 100 feet horizontally from the boundary of said areas as required by Title 5 (310 CMR 15.03(7)) or local Board of Health Requirements, within the Inner Riparian Zone or a greater distance as required by the Bylaw and these regulations, and set back at least 175 feet horizontally from the boundary of any resource areas whenever said area is tributary to a surface water supply. All distances shall be measured from the natural edge of the wetlands, and no setbacks may be obtained by filling, altering, or relocating a resource area. This presumption, however, shall apply only to impacts or the discharge from a sewage disposal system and not to the impacts from construction of that system, such as erosion and siltation from the excavation, placement of fill, or removal of vegetation. The setback distance

specified above shall not be required for the renovation or replacement (but is required for the substantial enlargement) of septic systems constructed prior to the effective date of these regulations and Bylaw, provided no alternative location is available on the lot and such work has been approved by the local Board of Health or the Conservation Commission as required by law. The setback requirement from the wetland Resource Areas listed in HWR 23.0 shall be required for any enlargement of a system which accompanies expanded scope of use, or an increase in flow. This presumption may be overcome only by credible evidence from a competent source that compliance with Title 5 and more stringent local requirements will not protect the interests identified in the Bylaw.

(2) Obtaining all necessary permits from other agencies does not ensure issuance of an approval Order of Conditions.

23.2. Pools and Tennis Courts

(1) The intent of the Conservation Commission is to move all structures and activities as far away as possible from any Resource Area.

(2) The Commission may at its discretion allow a proposed pool or tennis courts and all associated structures and facilities if they are at least 50 feet from a Resource Area, as defined in HWR 2.0 (1-5) if it is satisfied that mitigation required in the Order of Conditions is sufficient to protect the Resource Area.

(3) No mitigation is sufficient to allow a pool or tennis court less than 50 feet to a Resource Area, as defined in HWR 2.0 (1-5).

23.3. Landscaping

No new lawns or driveways may be constructed within 50 feet of any Resource Area, as defined in HWR 2.00 (1-5).

23.4 Docks and Piers

The purpose of these regulations is to establish performance standards for docks located at private residences. The intent of the Commission is to have the size of all piers as small and low as possible to avoid or minimize adverse effects and cumulative adverse effects upon the wetland values. The Commission will consider the impact of both existing docks and docks with pending applications in determining the cumulative effects upon the protected resource areas. These regulations notwithstanding, the Conservation Commission will consider any and all pier proposals on a site-specific basis. Applicants are encouraged to review the Mass. DEP's "Small

Dock and Piers” publication and also the Chapter 91 introduction and filing requirements information listed on the DEP’s website.

a) Preamble: The construction, use, and maintenance of docks and piers are likely to have a significant or cumulative adverse effect on the Resource area values of erosion and sediment control; storm damage prevention; protection of shellfish; protection of fisheries; protection of wildlife and wildlife habitat, protection of rare species habitat, including rare plant and animal species; protection of recreation and open space, and protection of aesthetics. Construction, maintenance and use of private docks can have adverse effects on Resource areas and navigation for recreational purposes. Further, docks destroyed by storm pose a threat to nearby properties by increasing water-borne debris.

Turbulence and prop dredging generated by boat traffic significantly increase turbidity levels. High turbidity levels attenuate the sunlight necessary for photosynthetic processes responsible for the primary productivity and oxygen regeneration of the water. The suspended sediments settle on shellfish beds, smothering existing shellfish and altering the quality of the sand bottom essential for spat (mollusk larvae) settlement. Resuspension of bottom sediments causes redistribution of sediments, alteration in sediment grain size distribution and causes changes in bottom topography relief, elevation and grade, including creation of depressions in the bottom. Resuspension of sediments into depressions creates deep pockets of sediment which may not be able to physically support shellfish or which can become anoxic and therefore not support shellfish. Resuspension of sediments during the period of shellfish larval settlement hinders or prevents the effective settlement of shellfish larvae. Boat traffic generated from docks will add to this disruption and will cause erosion of banks and marshes.

Construction of docks and subsequent boat activity causes resuspension of nutrient laden sediment particles which may cause a release of sediment-bound nutrients to the water column resulting in a “bloom” of vegetation, release of nutrients to the water column leads to eutrophication and anoxic bottom conditions. Anoxic sediments and anoxic bottom conditions create adverse impacts on benthic resources, including shellfish and fisheries.

While dock construction is typically the least environmentally destructive method of crossing a marsh, it may adversely affect the physical characteristics and functional value of a marsh. Marsh plants provide the major energy flow (detritus food chain) between the autotrophic and heterotrophic levels in a marsh-estuarine system. Many species of sport and commercial fish and shellfish are dependent upon this system. Plants adapted to high ambient light intensity, such as marsh grasses, are ill-adapted to the shaded conditions created by a dock. Shading may result in the loss of vegetative biomass (decreased plant height, population density, and leaf thickness) or alteration of species composition. Reductions in plant density result in the loss of sediment normally trapped by roots and culms. Tidal washout of sediment could result in localized

depressions which, through evaporation of trapped water, concentrate salt. High sediment salt levels effectively preclude recolonization by original vegetation. Localized tidal washout may lead to further vegetative regression, extension, and disruption of natural communities in the area.

Propeller turbulence near or in areas of submerged aquatic vegetation, such as eel grass or salt marsh, damages vegetation, thereby increasing the rate at which organic detritus is produced. If this organic detritus does not completely decompose aerobically, then anoxic bottom conditions will ensue, which adversely impact shellfish and fisheries. 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. Docks and piers when placed in land containing shellfish have an adverse impact on the resource area value of aquaculture. The placement length and size of the dock and the floats can interfere with the harvesting of shellfish. Docks, depending on their length, can have an adverse impact on recreation by interfering with recreational boating activities. If not properly designed, docks can interfere with intertidal lateral access for recreational fishing and fowling. Any proposal that affects navigation is likely to have a significant or cumulative adverse effect on recreation. Depending on their height, length compatibility with surrounding environs and overall visibility docks can create an adverse impact to the aesthetics of the area. Excessive lighting on docks can interfere with recreational activities, cause temporary “night blindness” in recreational boaters, and have an adverse impact to the aesthetics of the night sky.

Higher piers allow for better light penetration to underlying vegetation and assist in preventing storm damage. Constructing the decking at least 5 (five) feet above mean high water serves to minimize adverse shading impacts on vegetation. Floats should be located at the end of the pier in deeper water. Floats or piers with at least 18 inches from the bottom measured at low tide minimize impacts on vegetation and invertebrates located under the structure. Shorter piers produce less adverse shading effects on vegetation than longer piers. Narrower piers provide less adverse shading effects on plant productivity than wider piers. Planks that are spaced at least $\frac{3}{4}$ inch apart permit light penetration to vegetation below. A north-south orientation of a pier is least likely to adversely affect vegetation through shading.

b) Definitions

(1) Docks and Piers — The terms "dock" and "pier" shall be used interchangeably for the purposes of these regulations and shall mean the entire structure of any pier, wharf walkway, bulkhead, or float, and any part thereof, including pilings, ramps, walkways, float, tie-off pilings,

dolphins and/or outhaul posts, that is located on a bank (inland) (310 CMR 10.54), land under water bodies and waterways (310 CMR 10.56), land under the ocean (310 CMR 10.25), coastal beaches (CMR 310 10.27), coastal dunes (CMR 10.28), barrier beaches, (CMR 310 10.29, coastal banks (CMR 310 10.30), salt marsh (CMR 310 10.32), land under a salt pond (310 CMR 10.33), or rocky intertidal shore (310 CMR 10.31).

(2) Mean high water (MHW) — The present arithmetic mean of water heights observed at high tide over a specific 19-year metonic cycle determined by using hydrographic survey data of the National Ocean Survey and the U.S. Department of Commerce.

(3) Mean low water (MLW) — The arithmetic mean of water heights observed at low tide over a specific 19-year metonic cycle determined by using hydrographic survey data of the National Ocean Survey and the U.S. Department of Commerce.

(4) Mean lower low water (MLLW) — The average of the lower low water heights of each tidal day as established by the arithmetic mean of water heights observed at low tide over a specific 19-year metonic cycle determined by using hydrographic survey data of the National Ocean Survey and the U.S. Department of Commerce.

(5) Navigation — The ability to traverse a waterway by watercraft.

(6) Private pier — A water-dependent structure accessory to a residential use.

(7) Salt Marsh – A vegetated area characterized by but not limited to the presence of *Spartina patens* or *Spartina alterniflora* or High Tide Bush or any area that meets the criteria of Salt Marshes (310CMR 10.32) or HWR 18.4.

(8) Seasonal use — The dock, ramp, floats and all supporting materials are not allowed in place in any wetland resource area prior to April 1 of each year and are removed prior to November 1 of each year.

(9) Shellfish habitat — Areas below MHW that exhibit, or can be demonstrated to have exhibited within a reasonable historical period, characteristics generally recognized as supportive of shell fish life including but not limited to sediment type, grain size, circulation patterns, hydrologic regime, water chemistry, plant and algal communities, food supply, and normal predation patterns necessary to support shellfish species populations or any area that meets the criteria of Land Containing Shellfish (310 CMR10.34) or HWR 18.5. A determination of shellfish habitat can be based on the results of a site analysis and/or on current or historic shellfish productivity, or municipal shellfish population development programs. Absence of shellfish shall not be solely determinative of the quality of shellfish habitat due to the cyclic nature of shellfish population. All coastal waters in Hingham have been identified as Designated Shellfish Growing Areas by the Commonwealth of Massachusetts.

c) Regulations: These regulations shall apply to docks and piers constructed at private residences.

(1) When a dock, pier, or walkway is located at a private residence, The Commission may allow at its discretion, a pier (dock or walkway) no greater than 4 feet wide at any point; no greater than 150 feet long; a platform no greater than 6 feet by 8 feet including the walkway; and only one float no greater than 10 feet by 20 feet, if satisfied that mitigation required in the Order of Conditions is sufficient to protect the Resource Area. The length of the dock is measured from the landward end of the pier to the seaward end of the attached float.

(2) Private docks will be permitted only on land contiguous to the dwelling being served, except where unusual circumstances of longstanding may apply, such as where the dwelling is separated from the shore by a road. The dwelling must have a valid occupancy permit. Private docks shared by two or more residential properties with contiguous beach frontage may be considered by the Commission.

(3) Only non-chromated copper arsenate (CCA) material may be used in the construction of the dock. Lead caps are not permitted. No creosote treated materials may be used. Wood preservative, if used, must be dry before the treated wood is used in construction.

(4) Any pilings permitted shall be driven, not washed or jetted, into any salt marsh, coastal beach, or land under the ocean.

(5) Lighting, if installed, shall not exceed a 25 watt incandescent bulb, set a minimum of 12 feet apart and a maximum of two feet high from the walking surface. These lights must be baffled or shaded to direct light downward only. The lights cannot utilize timers and should be switched at the beginning and end of dock. No lighting shall interfere with safe navigation, as determined by the Harbormaster.

(6) All piers and walkways shall be provided with access stairs at or proximate to MHW or other means provided for along shore public traverse. All structures shall be provided with suitable signage notifying the public of its right to free access as provided by the commonwealth, or equivalent.

(7) The DEP permit number shall be permanently and conspicuously placed on the dock so as to be visible from seaward. The DEP permit number shall be placed permanently and conspicuously on all floats.

(8) Storage of floats, other seasonal pier material, and boats must be stored in an area outside of any wetland resource area and transported thereto without causing damage to any resource area. A storage plan for seasonal pier material must be included in the application.

(9) Where the project includes the use of floats, 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 10' x 20'. Floats must be at least 18" from the bottom measured at low tide. They shall be supported either by piles or skids.

(10) Plank spacing shall be a minimum of 3/4 inch. Where any portion of the dock crosses a salt marsh, a minimum of 65% light penetration is required. The maximum deck width shall be 4 feet. Alternate spacing may be used if the deck material used provides a similar or greater degree of light penetration.

(11) The base of the pier shall be as close as possible to the center line of the lot, and it shall project outwards at an angle as nearly perpendicular to the shoreline as possible. An exception may be made in order to attain 65% light penetration when a dock crosses a salt marsh.

(12) Notwithstanding any other provisions contained herein, no new construction or expansion of an existing dock shall be permitted within an ACEC (area of critical environmental concern).

(13) If any salt marsh is eliminated, a replication with a ratio of 3:1 must take place in an area suitable for salt marsh growth approved by the Commission.

(14) A shellfish study is required. If dock or pier construction occurs within shellfish habitat, the following steps must be followed:

a. Before any construction begins in an area under and around the dock and float, all soft shelled clams must be harvested to as near depletion as possible. This will be done in cooperation with the MA Division of Marine Fisheries and the Hingham Shellfish Constable. This shellfish harvesting shall occur around any rainfall closures. Any undersized clams must be quickly transported to an area approved by the Shellfish Constable or the MA Division of Marine Fisheries. The Hingham Conservation Commission must be notified before the harvesting begins.

b. The first full season following the completion of the work, the reseeding of shellfish shall occur under the supervision of the Division of Marine Fisheries. Reseeding shall be at a 3:1 ration of the amount of racks and undersized shellfish taken out. Seed stock clams must be at a minimum size of ¼ inch.

(15) Private piers shall be constructed so as to not interfere with any established public recreational use of the waterway, e.g., an area used by sailboats tacking through a narrow waterway, an area used by boaters or others because of unique wind or current conditions, a structure that would interfere with public access to or from a way to water or public, swimming area, waterskiing area, or interfere with use of paddled or oared boats.

(16) No more than one pier (dock or walkway) shall be permitted to be constructed located on any residential property or parcel of land at any time.

23.5. Underground Storage Tanks

No underground storage tank for oil or hazardous material is permitted in any Resource Area as described in HWR 2.00 (1-5, 7) or within 50 feet of these areas, or within the Inner or Outer Riparian Zone.

23.6. Filling

a) No fill shall be placed in any Resource Area or any buffer zone so as to alter the flow of surface water in a way that the Conservation Commission feels will adversely affect the wetland values of the Resource Area(s).

b) No filling or excavation or other alteration of salt marshes shall be permitted.

c) The Commission at its discretion may allow the filling of up to 2,500 square feet of Vegetated Wetland for a limited project, if satisfied that mitigation required in the Order of Conditions is sufficient to protect the Resource Area. If filling is allowed, the Commission shall require replication of the wetland at a ratio of at least 2:1, in an area that is hydrologically suitable for supporting wetland functions, similar in type or function to the wetland being altered, hydrologically connected to the altered wetland, and must be accomplished by using wetland soils and by using native wetland plant species removed from the area to be filled. The replicated wetland must be established prior to commencing the upland activity. The replicated wetland must be monitored for at least two growing seasons and must be maintained as a functional wetland with wetland values at least equaling those of the filled wetland for at least five years following the completion of the main project.

d. Compatible fill shall be used for beach and dune nourishment projects. Compatible fill means clean sediment of a grain size that is approximately the same as the area being nourished (e.g., if the area being nourished consists of gravel, sand, silt or clay, then the fill brought in for nourishment should be gravel, sand, silt or clay). Clean means the sediment does not contain contaminants and is free of debris.

e. Dumping of lawn wastes, brush or leaves or other materials or debris is not permitted in any Resource Area.

f. The Commission is authorized to deny any filling of any Resource Area in order to protect the wetland values of the Resource Area.

23.7. Structures

a. The intent of the Conservation Commission is to move all structures and activities as far away as possible from any Resource Area.

b. The Commission may at its discretion allow a proposed structure on a wall-type foundation within 100 to 50 feet of the Resource Area, as defined in HWR 2.0 (1-5), if satisfied that mitigation required in the Order of Conditions is sufficient to protect the Resource Area.

c. No mitigation is sufficient to allow a structure on a wall-type foundation less than 50 feet from a Resource Area, as defined in HWR 2.0 (1-5).