DUXBURY WETLAND REGULATIONS

CONSERVATION COMMISSION
DUXBURY, MASSACHUSETTS

CONTENTS

PART I. PURPOSE AND PROCEDURES

1.0. AUTHORITY, PURPOSE, AND WETLAND VALUES

1.1. Purpose. These Regulations were promulgated under the Town of Duxbury Wetlands Protection Bylaw (General Bylaws of the Town of Duxbury, Chapter 9), 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 Duxbury 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 Duxbury Wetland Regulations (DWR) were promulgated by the Town of Duxbury Conservation Commission (Commission), pursuant to the authority granted to them under the Bylaw and under the Home Rule authority of this municipality. The DWR 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 protect the following wetland values, including, but not limited to:

1) protection of public or private water supply;
2) protection of groundwater;
3) flood control;
4) erosion and sedimentation control;
5) storm damage prevention, including coastal storm flowage;
6) prevention 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;
12) protection of agriculture;
13) protection of aquaculture; and
14) 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 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;
5) Land bordering on the ocean, including but not limited to, beaches, dunes, tidal flats, coastal bank, salt marshes, salt meadows, estuaries;
6) Land within a minimum distance of 100 feet from any of the aforementioned Resource Areas (1-5 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 A and V, as shown on the Flood Insurance Rate (FIRM) maps for the Town of Duxbury); or
8) Land within 200 feet of any river, stream, or creek (hereinafter referred to as the "Riverfront Area", refer to DWR 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. Activity proposed or undertaken within a Resource Area as described in DWR 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 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, 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 DWR 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 DWR 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 DWR 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.

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 pre-disturbance condition according to a plan approved by the Commission.

Navigation means the ability to traverse a waterway and is part of the wetland value of recreation under the Bylaw.

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 and shellfishing. 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 DWR 2.0. It is used synonymously with Area Subject to Protection Under The Bylaw, each one of which is described in DWR 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

Any person filing with the Conservation Commission shall provide a copy thereof at the same time, by certified mail or hand delivery, to all appropriate town officials, committees, or boards having joint jurisdiction over the proposed project. The applicant shall inform the Commission, in writing, which have been given notice. The Commission shall not take final action until all officials and boards have had at least 14 days from receipt of notice to file written comments and recommendations with the Commission. The Commission may continue any project for which action by other town boards or town officials is required.

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 Duxbury and according to instructions provided by the Town of Duxbury. 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 DWR 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 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 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 days after the date of receipt of the Request for a Determination of Applicability, 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 days prior to such meeting, by publication in a newspaper of general circulation in the Town of Duxbury, and by mailing a notice to the person making the request, the owner, the Board of Health, and the Planning Board. 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 years from the date of issuance.

The Commission shall have the authority to continue the public meeting to a date certain announced at the meeting, for reasons stated at the meeting. The applicant may also 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 (including comments, recommendations, or action of other town boards and officials) 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.

b) The Commission shall find that the Duxbury Wetland Bylaw and Duxbury 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 DWR 3.0. The Commission shall identify the scope of alternatives to be evaluated, if requested, for work within Riverfront Areas under DWR 21.1.

c) 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 DWR 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.

b) The ANRAD shall be submitted on the form and according to instructions provided by the Town of Duxbury Conservation Commission. A public hearing shall be held as described under DWR 7.6. Procedures for an ANRAD filing, hearing, and issuance of a decision follow those outlined for the Notice of Intent as described in DWR 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, 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.

e) The Commission shall have the authority to continue the ANRAD hearing to a date certain announced at the hearing, for reasons stated at the hearing. 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 DWR 7.5. Once the Commission closes the public hearing it shall issue an ORAD within 21 calendar days, specifying whether the proposed Resource Area boundaries are correct or not (i.e., approval or denial of the boundaries).

7.4. Notice of Intent (NOI)

a) Any person who proposes to do work that will alter or affect any Resource Area under the Bylaw shall file a NOI on Forms provided by the town of Duxbury and other

application materials in accordance with the submittal requirements by the Town of Duxbury Conservation Commission. Eight copies of the completed Forms with supporting plans and documents shall be sent by certified mail or hand delivery to the Commission.

b) 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.

c) 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.

d) 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 Duxbury; 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 has in fact altered a Resource Area, it may require such plans, supporting calculations and other documentation as are necessary to describe the entire activity.

e) The requirement under these Regulations to obtain or apply for all obtainable permits, variances and approvals required by local bylaw with respect to the proposed activity shall mean only those which are feasible to obtain at the time the Notice of Intent is filed.

f) If the Commission rejects a Notice of Intent because of a failure to obtain or apply for all permits, variances and approvals required by local 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.

g) A Notice of Intent shall expire when the applicant has failed to diligently pursue the issuance of a Final Order in proceedings under the Duxbury Wetland Regulations. A Notice of Intent shall be presumed to have expired two (2) years 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.

h) 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.

i) The Commission shall have the authority to continue the hearing to a date certain announced at the hearing, for reasons stated at the hearing. The applicant may also 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 (including comments, recommendations, or action of other town boards and officials) 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.

j) 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.

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 of the lot, or lots upon which work is proposed, by certified mailing or hand delivery on the form and according to instructions provided by the Town of Duxbury 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) must be provided to the Commission at the public hearing, if requested.

7.6. Public Hearings/Public Meetings. 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. The public hearing/public meeting shall be held under both M.G.L. c.131, § 40 and the Duxbury Wetlands Bylaw, unless the project is located in only one of the two jurisdictions. The Commission shall send notice of the public hearing or public meeting to a newspaper of local circulation. The applicant is responsible for the cost of the legal notice.

7.7. Orders of Conditions Regulating Work

a) Within 21 days of the close of the public hearing, 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.

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 DWR 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 DWR 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.

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.

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) 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, abutters, and town boards, pursuant to DWR 7.6 (Public Hearings) and DWR 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 three (3) 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;
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;
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, which ever 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 it applies, if it does not apply to all the work regulated by the Order.

f) The Certificate of Compliance shall be recorded in the Land Court or Registry of Deeds, which ever 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 Duxbury 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. In no case shall any removal, filling, dredging or alteration authorized by such certification extend beyond the minimum amount of work and time necessary to abate the emergency. The Commission or its agent may impose conditions to protect wetland values of this Bylaw. 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. RIGHT OF ENTRY

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 thereunder by undertaking and issuing violation notices, 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.

b) Fines. Any person who violates any provision of the Bylaw and these implementing regulations or permits issued thereunder, shall be punished by a fine set by the Conservation Commission. 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 thereunder 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 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

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.

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 following public notice and a public hearing. The Commission may, at its discretion, waive the application fee, costs and expenses for a permit application.

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

13.2. Consultant Fees

a) 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 Duxbury non-zoning wetlands bylaw (Town of Duxbury Wetlands Protection Bylaw Chapter 9), 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 Administrator.

The Conservation Commission shall give written notice to the applicant of the selection of an outside consultant, which notice shall state the identity of the consultant, the amount of the fee to be charged to the applicant, and a request for payment of said fee in its entirety. Such notice shall be deemed to have been given on the date it is mailed or delivered. No such costs or expenses shall be incurred by the applicant if the application or request is withdrawn 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 ten (10) business days of the request for payment shall be cause for the Commission to determine that the application is administratively incomplete (except in the case of an appeal).

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

13.3. Fee Waiver. The Conservation Commission may, at its discretion waive fees.

14.0. APPEALS

Any applicant, owner or abutter, any person aggrieved or any ten (10) residents of the Town of Duxbury may appeal an order of the Conservation Commission under the Bylaw to the Superior Court of Plymouth County within sixty (60) days following the date of issuance of the order, in accordance with M.G.L. Ch. 249 § 4. If an appeal under the Wetlands Protection Act is made to DEP within ten (10) days of the issuance of the Order, the 60-day appeal period under the Bylaw will be suspended during this period of appeal to DEP. Said appeal period under the Bylaw shall commence upon the date of issuance of a superseding order from DEP and shall continue for no more than sixty (60) days from that date, even if a further appeal has been made for a final order of conditions before a DEP adjudicatory hearing.

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 Duxbury Wetlands Protection Bylaw 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 forty-five (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 Duxbury Wetland Bylaw (Bylaw) are described in this section of the Duxbury Wetland Regulations (DWR).

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 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.

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 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; 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 specified habitat of rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.37.
(4) Refer to DWR 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 DWR 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 juvenile fish. Bottom sediments and shallow water are excellent areas for many bivalves. The ponds also serve as spawning and nursery areas for crabs and fish. 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, 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 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; 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 DWR 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 DWR 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 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 this 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 salomoides*), small-mouth bass (*Micropterus dolomieui*), 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 wildlife, birds and animals. Ponds and other water bodies provide habitat for insects which serve as food by several species of birds, particularly swallows. Ducks, geese, swans, and herons all use water bodies and surrounding borders for feeding, shelter, and/or nesting areas. Many other birds, animals, 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 Duxbury 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.

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 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; 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.

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, as identified by procedures established under 310 CMR 10.59.
(3) Refer to DWR 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 DWR 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.

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, 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 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), Coastal Dune, or Barrier Beach. 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, Coastal Dune, or Barrier Beach.

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.
e) Refer to DWR 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.
e) Refer to DWR 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 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, 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 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.

Coastal beaches and tidal flats are the most heavily used recreation areas of 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 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 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 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; 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) Definition – Same as 310 CMR 10.27 (2).

d) Performance Standards. When a Coastal Beach, Tidal Flat or land within a minimum distance of 100 feet of a Coastal Beach 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 an adjacent or downdrift coastal beach.

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.

3) When tidal flats are significant to protection of shellfish, shellfish habitat, fish or fisheries, the performance standards for Land Containing Shellfish (DWR 18.5) shall apply.

4) In addition to complying with the requirements of DWR 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 DWR 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 or Tidal Flat are specified in DWR 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 dunefield, 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 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; 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 and rare plant species, as identified by procedures established under 310 CMR 10.37.
(5) Refer to DWR 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 DWR 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 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 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; 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 – Same as CMR 310 10.32 (2).

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 and rare plant species, as identified by procedures established under 310 CMR 10.37.
(3) Refer to DWR 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 DWR 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 Duxbury 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.

Characteristics of land containing shellfish which are critical to the protection of shellfish include, but are not limited to, are: 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 enhances 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 of water pollution; protection of fisheries; protection of shellfish; protection of recreation; 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 habitat 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 DWR 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 DWR 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. Bordering land subject to flooding often is located near or adjacent to historic farming activities.

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 aquifer. Contamination in these area 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 birding. 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 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, 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.

c) Definition – Same as 310 CMR 10.57 (2) with the following addition:

The term "vernal pool" shall include 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, contains at least 200 cubic feet of water at some time during most years, is free of adult predatory 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 presumption of essential vernal pool habitat value may be overcome by the presentation of credible evidence which in the judgment of the Commission demonstrates that the basin or depression does not provide the habitat functions as specified in the Bylaw regulations. 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 include an area, depression, or basin that holds at minimum one-eighth 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 DWR 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 DWR 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 DWR 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 farm 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 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. 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 DWR 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 DWR 22.0.

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), and bacteria 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.

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 DWR 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 birdwatching, 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 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 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 DWR 19.3(c)(1)(a-c) 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 DWR 19.1, a proposed project shall not cause any adverse effect or cumulate adverse effect upon the wetland values of vernal pool habitat. The Commission may require more than the minimum protective undisturbed buffer strip (i.e., a buffer strip setback greater than the 50' minimum, up to the limit specified by the Bylaw) in order to protect the values.
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 DWR 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 DWR 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 Duxbury 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 10-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 10-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 and mollusks 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 of waterfowl.

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 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. 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) Definition. LSCSF means land subject to any inundation caused by coastal storms up to and including 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 (including V-, VE-, and Va-30) 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.

A-zones (including A-, AE-, A1-30 & and A99) are those portions of LSCSF which are subject to inundation by types of 100 year flooding where stillwater flooding predominates.

AH-zones are those portions of LSCSF which are subject to shallow flooding, usually ponding resulting from overwash, where average water depths are between one and three feet.

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 A-zones, 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.
(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) Additions to existing structures, including additional floors on the existing structures.

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

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

e) New or expanded septic systems.

(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.

(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.

c) Docks and piers, provided they meet the performance standards specified in DWR 23.6.

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, yacht clubs, and maritime schools.

g) Dredging, including 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 DWR 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 DWR 23.0.

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

20.2. Barrier Beaches

a) Preamble. Barrier beaches protect landward areas from flooding and erosion because they provide a buffer to storm waves and to sea levels elevated by storms. Barrier beaches provide protection from wave action for such highly productive areas as salt marshes, estuaries, tidal flats, lagoons, harbors, salt ponds, and freshwater marshes and ponds, which are in turn important to fisheries, shellfish, wildlife and rare species where they occur. This system of interrelated coastal Resource Areas containing a barrier beach is called a barrier beach system. The along-shore movement of beach sediment caused by wave action maintains barrier beaches. The coastal dunes, beaches, and tidal flats of a barrier beach system are made up of sediment supplied by wind action, storm wave overwash, and tidal inlet deposition. Barrier beaches in Massachusetts undergo a landward or along-shore migration caused by the landward and along-shore movement of sediment by wind, storm waves, and tidal current processes. The continuation of these processes maintains the volume of the landform which is necessary to carry out its storm and flood buffer functions. The ability of barrier beaches to respond to wave action, including storm overwash sediment transport is critical to the protection of the wetland values of barrier beaches. Barrier beaches in a natural condition are aesthetically attractive and provide opportunities for recreational fishing, shellfishing, swimming, and navigation.

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

c) Definition – Same as 310 CMR 10.29 (2).

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

(1) No proposed project which may cause an adverse effect or cumulative adverse effect upon the wetland values of a Barrier Beach or Barrier Beach System shall be permitted.
(2) No new coastal revetments or hard coastal engineering structures of any type shall be constructed on a barrier beach.
(3) No activities or structures shall be permitted which prohibit the natural movement of sand and water along the beach, or which prohibit the inland migration of the barrier beach.
(4) No activities or structures shall be permitted which increase storm damage, erosion, sedimentation, flooding of adjacent properties or Resource Areas, or which cause adverse effects on the wetland values.
(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 10.37.
(6) Refer to DWR 23.0 et seq. for additional project-specific performance standards.
(7) Performance standards for activities or work proposed in the buffer zone to a Barrier Beach are specified in DWR 22.0.
(8) 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 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 bald eagles, osprey,

and 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, 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, stream or creek.

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, upon any claim that any such waters do not qualify as a river under these regulations, shall consider factual information and evidence concerning the degree of tidal effects, including but not limited to, water body morphology, flow, volume, tidal range, salinity, wildlife habitat, shellfish habitat, fish and fisheries, and the nature of other Resource Areas in determining whether or not the water body is a river or stream or not. The burden of proof shall be on the applicant to demonstrate that the flowing body of water does not have primarily riverine characteristics.
(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 DWR 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 nursing 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 an 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 DWR 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 DWR 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 DWR 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, the more deleterious the effects of release of nutrients (phosphorus and nitrogen) from sediments. 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 provide 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 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 DWR 2.00 (1-5), 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 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 DWR 2.0 (1-5), 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 Duxbury 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 is likely to 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.

b) Presumptions concerning Septic Systems.

1) A septic system is presumed to protect the wetland values when it is sited according to the provisions of Title 5 and the Duxbury Board of Health regulations and when it meets the Duxbury Conservation Commission standards for setbacks from Resource Areas.

2) Any proposed septic system or repair to an existing septic system that does not meet the provisions of Title 5 or the Duxbury Board of Health Regulations or the Duxbury Conservation Commission standards for setbacks from Resource Areas shall be presumed to have a significant or cumulative adverse effect on the wetland values specified in DWR 2.0.

3) Septic System Location. A septic system is considered to be properly sited only if all of the following conditions are met:

a) None of the septic system components is located within any Resource Area as defined in DWR 2.00 (1-6) or within the Inner Riparian Zone of a Riverfront Area.

b) The leaching field is not located in the V-zone portion of LSCSF.

c) Existing Septic Systems. The minimum 100-foot setback requirement shall not be required for the renovation or routine replacement of septic systems provided that no alternative location is available on the lot or other parcel under the ownership or control of the owner of the system proposed for upgrade, and, where applicable, provided that variance of property line and/or street layout setbacks have been applied for from the Town of Duxbury Board of Health.

The setback requirement from the wetland Resource Areas listed in DWR 23.0 shall be required for any enlargement of a system which accompanies expanded scope of use, or an increase in flow.

d) Presumption Concerning Board of Health Variance. If a proposed septic system requires a variance from the requirements of 310 CMR 15.00 and/or the Duxbury Board of Health regulations, it is presumed that the septic system does not protect the wetland values of the Resource Area. 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 DWR 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 DWR 2.0 (1-5)

23.3. Landscaping

No lawns or driveways may be constructed within 25 feet of any Resource Area, as defined in DWR 2.00 (1-5).

23.4. Coverage

1) Total coverage of any type shall not exceed 15% in residential zoned areas in the Buffer Zone to any Resource Area as defined in DWR 2.00(6). Coverage calculations shall include, but not be limited to, all structures, impervious driveways, impervious walkways, impervious roadways, decks, pools, tennis courts, and any other similar surfaces that cover the ground. The Commission may consider greater than 15% coverage on a lot where both the wetlands resource and the Buffer Zone are located substantially outside of the lot.

23.5.Impervious Coverage

1) Beach Front- Gurnet Road Area

a) The Conservation Commission wishes to limit hardened surfaces on the Town of Duxbury's barrier beaches. During coastal flood events, flowing floodwaters move sediment as part of the natural cycle of the barrier beach. The energy in these floodwaters is dissipated by soft relatively flat surfaces. Limiting the amount of hard impervious surfaces is necessary to preserve barrier beach values of flood control, prevention of storm damage, prevention of pollution, and public safety. In light of this, the Commission has established the following regulation. This is a regulation for the installation of impervious driveways and walkways in the Duxbury Beach Area as shown on Town of Duxbury Assessors Maps 210b, 211, and 212. Applicants must file an application with the Commission and obtain approval for the project prior to the commencement of any work.

b) Beachfront Properties in this area – AO zones (as defined herein) along the seawall.

Only pervious driveways and walkways may be permitted for the beachfront properties along the seawall – in overwash zones, they may be installed from the roadway to the house only.

i) The total combined area of the impervious driveway and walkways shall not be more than exceed 500 square feet.
ii) Pervious walkways shall be no more than 36 inches wide.
iii) The area between the house and seawall shall be pervious material.

c) Non-Beach Front Properties in this area – A zone (as defined herein) - Still Water Flood Zones

i. Impervious driveways and walkways may be installed on the lot.
ii. The total combined area of the impervious driveway and walkways shall not be more than 500 square feet.
iii. Impervious walkways shall be no more than 36 inches wide.

23.6. Piers

(1) 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.

(2) No pier (dock or walkway) may cause an adverse effect or cumulative adverse effect to any Resource Area, except as permitted below.

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

(4) In addition to meeting performance standards for Resource Areas, construction of piers (docks or elevated walkways) shall not adversely affect the following: shoreline movement of sediments, shellfish habitat, fisheries and fish habitat, water quality, nor shall it obstruct shellfishing or obstruct the reserved public rights of fishing, fowling, navigation, or passage, or significantly destroy a public view or degrade aesthetic value. No solid fill piers (docks or walkways) shall be permitted. No creosote wood or CCA-treated wood (i.e., copper-chromium-arsenate-treated wood) shall be permitted.

(5) Any pilings permitted shall be driven, not washed or jetted, into any salt marsh.

(6) No pier (dock or walkway) shall extend any greater distance than necessary to reach just beyond vegetated salt marsh.

(7) The Commission may allow at its discretion, a pier (dock or walkway) no greater than 4 feet wide at any point; 200 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.

(8) Railings and walkways shall be unobtrusive as possible and their construction shall be of such material, color, shade or tone as to blend in with the natural surroundings.

(9) No floats may be stored in a wetland resource area.

(10) Piers (docks or walkways) shall be constructed using procedures determined by the Commission to be the best available measures to minimize adverse effects and cumulative adverse effects on wetland values of the Bylaw.

23.7. Underground Storage Tanks

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

23.8. Filling

(1) 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).
(2) No filling or excavation or other alteration of salt marshes shall be permitted.
(3) 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 may require replication of the wetland at a ratio of at least 2:1, in an area that is hydrologically suitable for supporting wetland functions, 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.
(4) A bridge covering a Resource Area is considered fill.
(5) 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.

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

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

23.9. Structures

(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 structure on a wall-type foundation within 100 to 50 feet of the Resource Area, as defined in DWR 2.0 (1-5), if satisfied that mitigation required in the Order of Conditions is sufficient to protect the Resource Area.

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

(4) The Commission may at its discretion allow a structure on an open pile foundation within 100 to 35 feet of a Resource Area, as defined in DWR 2.0 (1-5).

(5) No mitigation is sufficient to allow a structure on an open pile foundation less than 35 feet to a Resource Area, as defined in DWR 2.0 (1-5).

(6) New structures and substantially renovated or reconstructed structures on any barrier beach are required to be constructed on an open pile-type foundation.

23.10. Sheds

Sheds up to 192 square feet built on open-sonotube foundations and located 75 feet or more from the edge of bordering vegetated wetlands (BVW) do not require a permit under this Bylaw.

23.11. Decks

Reconstruction of an existing deck on an open-pile foundation that is located 75 feet or more from bordering vegetated wetlands (BVW) does not require a permit under this Bylaw.

23.12.Other – RESERVE

APPENDIX A

DUXBURY CONSERVATION COMMISSION
APPLICATION FILING FEE SCHEDULE

REQUEST FOR DETERMINATION	100.00
ABBREVIATED NOTICE OF RESOURCE AREA DELINEATION	100.00
NOTICE OF INTENT	
Category 1a - Existing House/Residential Lot (**each** addition, deck, pool, shed, garage, driveway, etc.)	75.00
Category 1b - Site Work (Yard Landscaping, Grading)	
Existing House	75.00
New House	150.00
Category 1c - Control of Nuisance Vegetation	150.00
Category 1d - Resource Area Improvement	150.00
Category 1e - Septic Systems	150.00
Category 1f - Monitoring Wells	75.00
Category 1g - New Agricultural or Aquacultural Projects	75.00
Category 2a - Construction of Each New SFH	362.50
Category 2b - Parking Lot	362.50
Category 2c - Beach Nourishment	362.50
Category 2d - Coastal Activities	362.50
Category 2e - Limited Project Activities	362.50
Category 2f - Each Driveway Crossing	362.50
Category 2g - Control of Nuisance Vegetation	362.50
Category 2h - Raising or Lowering Surface Water Levels	362.50
Category 2i - Any Other Activity	362.50
Category 3 - Site Preparation for Development	625.00
Category 3b - Construction of Each Building within Commercial, Industrial, Institutional or Apartment/Condo/Townhouse Development	625.00
Category 3c - Each Roadway/Driveway Crossing	625.00
Category 3d - Hazardous Waste Cleanup	625.00
Category 4a - Each Roadway/Driveway Crossing	825.00
Category 4b - Flood Control Structures	825.00
Category 4c - Landfills	825.00
Category 4d - Sand & Gravel Operations	825.00
Category 4e - Railroad Lines	825.00
Category 4f - Bridges	825.00
Category 4g - Alteration of Resource Area to Divert Water	825.00
Category 4h - Dredging Activities in Water Bodies	825.00
Category 4i - Package Sewage Treatment Plant	825.00
Category 5a - Docks, Piers, Revetments, Dikes, or Other Engineering Structures	$4/linear foot
Activites in a Riverfront Area	50% of other fees (when only a riverfront fee shall be 100% of fee for each activity)
AMEND ORDER OF CONDITIONS	100.00
EXTENSION PERMIT	100.00
CERTIFICATE OF COMPLIANCE	75.00
PARTIAL CERTIFICATE OF COMPLIANCE	75.00
FULL CERTIFICATE OF COMPLIANCE AFTER PARTIAL	75.00
EMERGENCY CERTIFICATION	
DUPLICATE ORIGINALS	75.00
WETLAND DELINEATION	$80 for a lot up to 2 acres & additional $50 for each additional acre

IF WORK IS STARTED WITHOUT A PERMIT OR IS A RESULT OF AN ENFORCEMENT ORDER THEN ALL FEES ARE DOUBLE.

APPENDIX B

Application forms and requirements for filing an application are listed on the following pages and are available on the Town of Duxbury Web Page.
(www.town.duxbury.ma.us/conservation)

TOWN OF DUXBURY
REQUIREMENTS TO FILING
A REQUEST FOR DETERMINATION OF APPLICABILITY (RDA)

Information submitted to Duxbury Conservation Commission:

1. The RDA should include a written description of the proposed work, and a site plan that shows the pre-construction and post construction conditions. The site plan should show the wetland location and type of wetlands and distance from the proposed project to the wetlands. Also, photographs are helpful to show the existing conditions of the site.

2. **Filing fee** – $100 payable to "Town of Duxbury"

3. The public meeting for the project must be advertised in the local paper so include a $35 check payable to "Duxbury Clipper" with the RDA.

4. **Submit ONE (1) complete RDA form and seven (7) copies of the first page of the RDA along with eight (8) copies of all accompanying material (plans, specifications, calculations, etc.) to the Duxbury Conservation Commission**.

5. Send one (1) copy of the RDA and plans as soon as possible by certified mail to:

   Department of Environmental Protection (DEP)
   Southeast Region
   20 Riverside Drive
   Lakeville, MA 02347

6. Upon receipt of the application by the Duxbury Conservation Commission, a public meeting will be scheduled between you and the Commission. You or your representatives should attend the public meeting to explain the project and answer questions.

TOWN OF DUXBURY
REQUIREMENTS TO FILING A NOTICE OF INTENT (NOI)

1. When filing a Notice of Intent an applicant uses the MA Wetland Protection Act (WPA) form 3. The Town of Duxbury does not have separate application form under the Town Wetlands Protection Bylaw. The applicant will however be paying fees both under the Wetland Protection Act and the Town Wetlands Protection Bylaw. The fees under the Town Wetlands Protection Bylaw are listed in the Duxbury Conservation Commission Rules & Regulations (Appendix A) and on the Town's web page (www.town.duxbury.ma.us).

2. The NOI should include a written description of the proposed work, and a site plan that shows the pre-construction and post construction conditions. **The site plan should show the wetland location and type of wetlands**. Also, photographs are helpful to show the existing conditions of the site.

3. **Filing fee** – The filing fee for a NOI under the MA Wetlands Protection Act M.G.L. c. 131, s.40 is determined from the WPA Fee Transmittal Form. **The Town's portion of the total application fee is the sum of the town's share of fee under the Wetlands Protection Act plus the fee under the Town Bylaw and should be made payable to "Town of Duxbury" and submitted with the NOI**. The Department of Environmental Protection's (DEP) portion of the fee is sent to DEP, Box 4062, Boston, MA 02211 along with the Fee Transmittal Form and calculation sheet. Attach a copy of the checks, transmittal form and calculation sheet to the NOI.

4. First contact the Conservation Commission Office to obtain the date of the public hearing with the Conservation Commission. An abutter's notification form must be sent by certified mail to all abutters within 100 feet of the property line where the proposed project is located. The abutter's notification should include the date and time of the public hearing.

5. The applicant shall provide a copy of the NOI and plans, and as a cover letter the notification to abutters & town boards and departments form, by certified mail or hand delivery to all appropriate town officials, committees, or boards having joint jurisdiction over the proposed project**.**

6. The public hearing must also be advertised so include a $35 check payable to "Duxbury Clipper" with the NOI.

7. **Submit ONE (1) complete copy of the NOI and seven (7) copies of the first page of the NOI and eight (8) copies of all accompanying material (plans, specifications, calculations, etc.) to the Duxbury Conservation Commission**.

8. Hand-deliver or send TWO (2) complete copies of the NOI and plans as soon as possible by certified mail to:
   Department of Environmental Protection
   Southeast Region
   20 Riverside Drive
   Lakeville, MA 02347
9. You or your representatives should attend the public hearing to explain the project and answer questions.

TOWN OF DUXBURY
REQUIREMENTS TO FILING

AN ABBREVIATED NOTICE OF RESOURCE AREA DELINEATION (ANRAD)

1. The ANRAD should include a site plan showing the wetland flag location and type of wetlands.

2. When filing an ANRAD an applicant uses the MA Wetland Protection Act (WPA) form 4A. The Town of Duxbury does not have a separate application form under the Town Wetlands Protection Bylaw. The applicant will however be paying fees both under the Wetland Protection Act and the Town Wetlands Protection Bylaw. The fees under the Town Wetlands Protection Bylaw are listed in the Duxbury Conservation Commission Rules & Regulations (Appendix A) and on the Town's web page (www.town.duxbury.ma.us).

3. **Filing fee** – The filing fee for an ANRAD under the MA Wetlands Protection Act M.G.L. c. 131, s.40 is determined from the WPA Fee Transmittal Form. **The Town's portion of the total application fee is the sum of the town's share of fee under the Wetlands Protection Act plus the fee under the Town Bylaw and should be made payable to "Town of Duxbury" and submitted with the ANRAD**. The Department of Environmental Protection's (DEP) portion of the fee is sent to DEP, Box 4062, Boston, MA 02211 along with the Fee Transmittal Form. Attach a copy of the checks, transmittal form to the ANRAD.

4. First contact the Conservation Commission Office to obtain the date of the public hearing. An abutter's notification form must be sent by the applicant by certified mail to all abutters within 100 feet of the property line where the proposed project is located.

5. The public hearing must also be advertised so include a $35 check payable to "Duxbury Clipper" with the ANRAD.

6. **Submit ONE (1) complete copy of the ANRAD and seven (7) copies of the first page of the ANRAD along with eight (8) copies of all accompanying material (plans, specifications, calculations, etc.) to the Duxbury Conservation Commission.**

7. Hand-deliver or send TWO (2) copies of the ANRAD and plans as soon as possible by certified mail to:
   Department of Environmental Protection (DEP)
   Southeast Region
   20 Riverside Drive
   Lakeville, MA 02347
8. You or your representatives should attend the public hearing to explain the project and answer questions.