

## Appendix A

### Response To Comments On Draft PDM

**COMMENT:** The Historical Damage/Events section of the plan does not include recognition of the “Perfect Storm” of October 1991 which had significant erosion and flooding impacts.

Commenter: Ken Collins - Selectmen (at Public Hearing)

**RESPONSE:** The following language was added to the “Floods” sub-section on Page 10 to acknowledge impact of the storm:

*In October of 1991, the so called "Perfect Storm" formed in the Atlantic Ocean as a result of three storm systems combining into one massive storm. As this storm traveled off the coast of Cape Cod, strong storm surf, driving rain and associated high winds, with gusts above hurricane force recorded at Chatham, damage rivaling the "Blizzard of 78" was experienced. Along the western shore of Town Cove, flooding at Collins Cottages far exceeded that associated with the "Blizzard of 78" by over 20 inches, with close to 4 ½ feet of water flooding the "shucking house" and the lower level of the main house above the existing seawall on the site. Additionally State Highway (Route 6) flooded in the vicinity of Mary Chase Marsh and was closed for approximately two (2) hours.*

**Appendix B**

**Floodplain Regulations  
Section IV Of Eastham's Zoning By-Laws**

## SECTION IV -- FLOOD PLAIN ZONING

See definitions of flood plain zone designations in ARTICLE V of this SECTION.

- A. The installation of underground systems for the storage of petroleum products (including but not limited to oil, gasoline, kerosene, and any hazardous materials) shall be prohibited in the 100 year flood plain (Zones A, AO, AH, A1-30, A99, V and V1-30 on the Flood Insurance Rate Maps 250006-0005, prepared by the National Flood Insurance Program for the Town of Eastham). Storage system shall mean storage tank and all supply lines between storage tank and burner. Underground shall mean under the surface of the earth or under pavement, including cement floors of cellars or basements. Storage systems may be located in basements or cellars provided they are on or above the paved floor of the cellar or basement.
- B. Any new construction, alteration of structures or other development which is removed from the A or V zones by subsequent flood insurance map amendments shall only have to meet the requirements of its new zone designation.
- C. All subdivision proposals and other proposed new developments greater than fifty (50) lots or five (5) acres whichever is the lesser shall include in such proposals base flood elevation data.
- D. Subdivision proposals and proposals for other developments, including their utilities and drainage, are located and designed to be consistent with the need to minimize flood damage.

## ARTICLE I -- STATEMENT OF PURPOSE, EXISTING REGULATIONS

### SECTION A. -- STATEMENT OF PURPOSE

The purposes of the Floodplain District are to:

- 1. Ensure public safety through reducing the threats to life and personal injury.
- 2. Eliminate new hazards to emergency response officials.
- 3. Prevent the occurrence of public emergencies resulting from water quality, contamination, and pollution due to flooding.
- 4. Avoid the loss of utility services which if damaged by flooding would disrupt or shut down the utility network and impact regions of the community beyond the site of flooding.
- 5. Eliminate costs associated with the response and cleanup of flooding conditions.
- 6. Reduce damage to public and private property resulting from flooding waters.

7. Facilitate accurate insurance ratings and promote the awareness of flood insurance.

#### SECTION B. -- EXISTING REGULATIONS

All development in the district including structural and non-structural activities whether permitted by right or by special permit must be in compliance with the following:

- 780 CMR 3107.0, of the Massachusetts Building Code which addresses floodplain and coastal high hazard areas.
- 310 CMR 10.0, Wetlands Protection Regulations, Department of Environmental Protection (DEP).
- 302 CMR 6.00, Inland Wetlands Restriction, DEP
- 302 CMR 4.00, Coastal Wetlands Restriction, DEP
- 310 CMR 15, Title 5, Minimum Requirements for the Subsurface Disposal of Sanitary Sewage, DEP
- Any variances from the provisions and requirements of the above referenced state regulations may only be granted in accordance with the required variance procedures of these state regulations.

#### ARTICLE II. -- FLOODPLAIN DISTRICT BOUNDARIES AND BASE FLOOD ELEVATION DATA

##### SECTION A. -- FLOODPLAIN DISTRICT BOUNDARIES AND BASE FLOOD ELEVATION DATA

The Floodplain District is herein established as an overlay district. The District includes all special flood hazard areas designated on the Town of Eastham Flood Insurance Rate Map (FIRM) issued by FEMA (successor to the U.S. Department of Housing and Urban Development, HUD) for the administration of the NFIP dated July 2, 1992 as Zone A, AE, AH, A1-30, A99, V, V1-30, VE, and if available the FEMA Flood Boundary and Floodway Map dated July 2, 1992, both maps which indicate the 100-year regulatory floodplain. The boundaries of the District may be defined by the 100-year base flood elevations shown on the FIRM and further defined by the Flood Insurance study booklet dated July 3, 1986. The FIRM (and Flood Boundary and Floodway Map if available) and Flood Insurance Study booklet are incorporated herein by reference and are on file with the Town Clerk, Planning Board, Building Official and Conservation Commission.

### ARTICLE III -- USE REGULATIONS

Flood plain District I is established as an overlay district to all other districts. All development, including structural and non-structural activities, whether permitted by right or by special permit must be in compliance with Chapter 131, Section 40 of the Massachusetts General Laws and with the requirements of the Massachusetts State Building Code pertaining to construction in floodplains (currently Section 2102). Additionally any required federal permits must be obtained prior to the issuance of a development permit in the Flood plain District as follows:

1. Within Zones AH and AO on the FIRM, require adequate drainage paths around structures on slopes, to guide floodwaters around and away from proposed structures.
2. Prohibit man-made alteration of sand dunes and salt marshes within Zones V1-30, VE, and V which would increase potential flood damage.
3. Provide that all new construction within Zones V1-30, VE and V be located landward of the reach of mean high tide.
4. Existing contour intervals of site and elevations of existing structures must be included on plan proposal.
5. There shall be established a "routing procedure" which will circulate or transmit one copy of the development plan to the Conservation Commission, Planning Board, Board of Health, Department of Public Works, Building Inspector, Board of Appeals and Fire Department for comments which will be considered by the appropriate permitting board prior to issuing applicable permits.
6. The Building Inspector shall (a) review all proposed development within the flood district to assure that all necessary permits have been received from those governmental agencies from which approval is required by Federal or State law, including Section 404 of the Federal Water Pollution and Control Act Amendments of 1972, U.S.C. 1334, and (b) obtain and maintain records of elevation and floodproofing levels for new construction or substantial alteration within the flood district.

### ARTICLE IV. -- PERMITTED USES

The following uses of low flood damage potential and causing no obstructions to flood flows are encouraged provided they are permitted in the underlying district and comply with other requirements:

1. Agricultural uses such as farming, grazing, truck farming, horticulture, etc.
2. Forestry and nursery uses.
3. Outdoor recreational uses, including fishing, boating, play areas, etc.

4. Conservation of water, plants, wildlife.
5. Wildlife management areas, foot, bicycle, and/or horse paths.
6. Temporary non-residential structures used in connection with fishing, growing, harvesting, storage, or sale of crops raised on the premises.
7. Buildings lawfully existing prior to the adoption of these provisions.

#### ARTICLE V. -- DEFINITIONS

**ALTERATION** -- As applied to a building or structure, a change, modification, renovation or rearrangement in the structural parts or in the exit facilities or an enlargement whether by extending on a side or by increasing in height, or the moving from one location or position to another.

**AREA OF SPECIAL FLOOD HAZARD** -- is the land in the flood plain within a community subject to a one percent or greater chance of flooding in any given year. The area may be designated as Zone A, AO, AH, A1-30, AE, A99, VO, V1-30, VE, or V.

**BASE FLOOD** -- means the flood having a one percent chance of being equaled or exceeded in any given year.

**COASTAL HIGH HAZARD AREA** -- means the area subject to high velocity waters, including but not limited to hurricane wave wash or tsunamis. The area is designated on a FIRM as Zone V, V1-30, VE.

**DEVELOPMENT** -- means any manmade change to improved or unimproved real estate, including but not limited to building or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations.

**DISTRICT** -- means floodplain district.

**FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)** administers the National Flood Insurance Program. FEMA provides a nationwide flood hazard area mapping study program for communities as well as regulatory standards for development in the flood hazard areas.

**FLOOD BOUNDARY AND FLOODWAY MAP** -- means an official map of a community issued by FEMA that depicts, based on detailed analyses, the boundaries of the 100-year and 500- year floods and the 100-year floodway. (For maps done later than 1987, floodway is designated on FIRM.)

**FLOOD INSURANCE RATE MAP (FIRM)** -- means an official map of a community on which FEMA has delineated both the areas of special flood hazard and the risk premium zones applicable to the community.

**FLOOD INSURANCE STUDY** -- means an examination, evaluation, and determination of flood hazards, and, if appropriate, corresponding water surface elevations, or an examination, evaluation and determination of mudslide (i.e., mudflow) and/or flood-related erosion hazards.

**FLOODWAY** -- means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation.

**LOWEST FLOOR** -- means the lowest floor of the lowest enclosed area (including basement or cellar). An unfinished or flood resistant enclosure, usable solely for parking of vehicles, building access or storage in an area other than a basement area is not considered a building's lowest floor, PROVIDED that such enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirements of NFIP Regulations 60.3.

**MANUFACTURED HOME** -- means a structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when connected to the required utilities. For floodplain management purposes the term "manufactured home" also includes park trailers, travel trailers, or other similar vehicles placed on a site for greater than 180 consecutive days. For insurance purposes, the term "manufactured home" does not include park trailers, travel trailers, and other similar vehicles.

**MANUFACTURED HOME PARK OR SUBDIVISION** -- means a parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

**NEW CONSTRUCTION** -- means, for floodplain management purposes, structures for which the 'start of construction' commenced on or after the effective date of a floodplain management regulation adopted by a community. For the purpose of determining insurance rates, NEW CONSTRUCTION means structures for which the 'start of construction' commenced on or after the effective date of an initial FIRM or after December 31, 1974, whichever is later.

**ONE-HUNDRED-YEAR FLOOD** - see BASE FLOOD.

**REGULATORY FLOODWAY** - see FLOODWAY.

**SPECIAL FLOOD HAZARD AREA** -- is the land in a community's flood plain subject to a one percent or greater change of flooding in any given year. The area may be designated on the FIRM as Zone A, AO, A1-30, AE, A99, AH, V1-30, VE.

**STRUCTURE** -- means, for flood plain management purposes, a walled and roofed building, including a gas or liquid storage tank, that is principally above ground, as well as a manufactured home. For insurance coverage purposes, STRUCTURE means a walled and roofed building, other than a gas or liquid storage tank, that is principally above ground and affixed to a permanent site, as well as a manufactured home on foundation. For the latter purpose, the term includes a building while in the course of construction, alteration, or repair, does not include building materials or supplies intended for use in such construction, alteration, or repair, unless such materials or supplies are within an enclosed building on the premises.

**SUBSTANTIAL IMPROVEMENT** -- means any repair, reconstruction, or improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure either (a) before the improvement or repair is started, or (b) if the structure has been damaged and is being restored, before the damage occurred. For the purpose of this definition, "substantial improvement" is considered to occur when the first alteration of any wall, ceiling, floor, or other structural part of a building commences, whether or not that alteration affects the external dimensions of the structure.

**ZONE A** -- means the 100-year flood plain area where the base flood elevation (BFE) has not been determined. To determine the BFE, use the best available federal, state, local or other data.

**ZONE A1-30 and ZONE AE** -- means the 100-year flood plain where the base flood elevation has been determined.

**ZONE AH and ZONE AO** -- means the 100-year flood plain with the flood depths of 1 to 3 feet.

**ZONE A99** -- means areas to be protected from the 100-year flood by federal flood protection system under construction. Base flood elevations have not been determined.

**ZONE V** -- means special flood hazard area along a coast subject to inundation by the 100-year flood with the additional hazards associated with storm waves. Base flood elevations have not been determined.

**ZONE V1-30 and ZONE VE** (for new and revised maps) -- means a special flood hazard area along a coast subject to inundation by the 100-year flood with additional hazards due to velocity (wave action). Base flood elevations have been determined.