



Town of Brewster

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BREWSTER BOARD OF HEALTH NITROGEN LOADING REGULATION

I. Authority:

In accordance with Massachusetts General Laws, Chapter 111, Sections 31 and 127A, the Brewster Board of Health hereby adopts the following regulation to specify the process for developing nitrogen loading calculations for use by the Board and for compliance with other Town zoning articles and regulations including the Water Quality Protection District Bylaw, (Chapter 179 Sections 53-62).

II. Purpose:

To protect public health through the protection of water resources in the Town of Brewster, including, but not limited to public drinking water supplies, coastal estuaries and freshwater ponds, the Board of Health has adopted this regulation to create a standardized method to estimate the nitrogen loading impacts to water quality from new, altered, or expanded land uses. The regulation specifies how nitrogen loading analyses are to be conducted for the Board and for use under other town zoning articles and associated regulations, including the Water Quality Protection District Bylaw.

This regulation includes requirements for the specific nitrogen loading factors used in the nitrogen loading calculations and specific spreadsheets that must be used to document the results of an analysis.

III Review of Nitrogen Loading Projections.

- A. For any project required to meet the performance standards in the Town's Water Quality Protection Bylaw (the Bylaw), or any other applicable law, the following procedures shall be used to determine whether the project will meet the maximum 5 ppm nitrogen loading standard.
- B. The project applicant shall request review of the project nitrogen loading calculations on a form provided by the Board of Health.
- C. The review will commence upon receipt of a completed application, including payment of any applicable fee.

IV. Required Inputs for Nitrogen Loading Calculations:

- A. Table 1 attached to this regulation contains the nitrogen loading input parameters that must be used for any such project. These input values are based on standard inputs used by the Cape Cod Commission (Cape Cod Commission Technical Nitrogen Loading Technical Bulletin 91-001, April 1992) with some additional requirements specified by the Board of Health. Any changes to these input values must be approved by the Health Agent or their designee. The Health Agent or the applicant can refer a proposed change to the Board for its review and approval.
- B. If a use is proposed for a property for which a nitrogen loading value is not provided in Table 1, the applicant must request approval for an appropriate nitrogen loading rate and/or

recharge rate from the Health Agent or their designee. The Health Agent or their designee can refer the request for approval to the Board of Health.

V. Site Plan:

- A. A site plan must be provided with the calculations to document the information used in the nitrogen loading analysis. This includes:
- the existing or proposed lot area
 - the areas of driveways
 - impervious patios and roof areas
 - and undisturbed natural areas
 - existing and proposed lawn areas

Lawn Area Definition: The lawn area used in the calculations should reflect the lawn area shown on the site plan. A lawn is defined as a ground covered with grass or other vegetation that is mowed more than twice per year. A minimum lawn area of 1,000 square foot must be included for all projects subject to the Bylaw.

B. Septic System:

The site plan also needs to document the location and size of the existing or proposed septic system serving the property. If an innovative/alternative septic system is proposed to reduce the concentration of nitrogen in septic system effluent, the applicant must provide documentation that the system has been approved for pilot, provisional or general use by the Massachusetts Department of Environmental Protection (DEP) as required by Title 5 (310 CMR 15.00). This documentation must include the nitrogen concentration in the treated effluent approved by DEP. If an applicant has reason to request a nitrogen concentration in treated effluent from an alternative treatment system that is different from that approved by DEP, they need to receive approval for the proposed concentration from the Health Agent or their designee.

VI. Wastewater Flow:

- A. Consistent with the procedures used by the Cape Cod Commission, the wastewater flow used to calculate the nitrogen input from onsite septic systems on residential properties will be based on an average of:
1. The Title 5 design flow for the system based on the number of bedrooms in the house (310 CMR 15:203) and
 2. The average flow based on the occupancy rate provided in the most recent U.S Census data for Brewster.
- B. According to the 2020 Census, the average occupancy rate for Brewster is 2.3 people per house. Therefore, until adjusted based on future, updated census data, using a septic system flow rate of 55 gallons per day per person, a total of 126.5 gallons per day must be used to calculate the average occupancy nitrogen load. Together, the Title 5 design flow volume and the average occupancy volume will be averaged to calculate the wastewater flow.
- C. This calculation shall be used solely for purposes of determining the average Nitrogen Load for the property and shall not affect the design flow of the system as required by Title 5 and/or applicable regulations of the Board of Health.

VII. Use of Brewster Board of Health Spreadsheet for Nitrogen Loading Calculations:

Nitrogen loading calculations developed for use under this regulation must be developed and documented on one of the nitrogen loading calculation spreadsheets attached to this regulation and available electronically from the Health Department. The applicant should use one spreadsheet based on the type of project they propose: either a residential, commercial/industrial, or mixed-use project. The mixed-

use spreadsheet should only be used for a project that combines a commercial/industrial use with a residential use on the same property. The use of the required spreadsheet ensures calculations are done in a consistent manner that can be reviewed and approved by the Board or its designee. The outcome of the calculation is a prediction of the average nitrogen concentration entering groundwater from a property which can be used to confirm it will meet the performance standards for water quality protection established by the Board of Health or included in other Town zoning articles or regulations, including the Water Quality Protection District Bylaw.

VIII. Confirmation of Nitrogen Load:

- A. Upon receipt of a completed Nitrogen Loading plan, the Health Agent shall review the plan for completeness and confirm the accuracy of the calculation. Any plan that is incomplete or that is not in full compliance with this regulation will be rejected.
- B. The Health Agent will either confirm or deny the Nitrogen Loading projection submitted by the applicant. If the projection is denied, the Health Agent shall state the reasons for denial and the applicant will have an opportunity to resubmit the plan.
- C. The Health Agent or the applicant may refer the plan to the Board of Health for its review of the Health Agent's determination.
- D. Approval of the plan shall not constitute an approval of the project or any component thereof.

IX. Variances:

Variances from this regulation, if referred by the Health Agent or requested by the applicant, may be granted by the Board of Health after a hearing at which the applicant establishes the following:

- A. The enforcement thereof would do manifest injustice;
- B. Submittal of documentation and up-to-date data that supports the requested variance;
- C. The person requesting a variance has established that a level of environmental protection that is at least equivalent to that provided under this regulation can be achieved without strict application of the provision of regulation from which a variance is sought.


X. Invalidation:

If any section, paragraph, sentence, clause or phrase of the regulations shall be decided invalid for any reason, whatsoever, such decision shall not affect the remaining portion of these regulations, which shall remain in full force and effect, and to this end of the provision of these regulations are hereby declared severable.

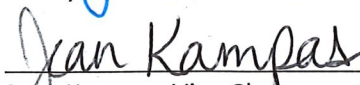
Adopted: February 16, 2022

Effective: February 16, 2022

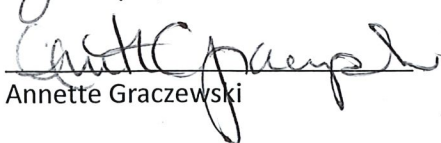
Board of Health:



Penny Holeman, Chairman



Jean Kampas, Vice Chairman

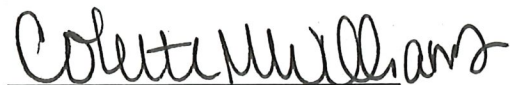


Annette Graczewski

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Dr. Kimberley Crocker Pearson



Town Clerk