

**TOWN OF BOXBOROUGH  
MASSACHUSETTS**



**BOARD OF HEALTH  
29 MIDDLE ROAD  
BOXBOROUGH, MASSACHUSETTS 01719**

**REGULATIONS**

**ARTICLE I**

**SUBSURFACE DISPOSAL OF SEWAGE  
(adopted 10/18/00)**

<b><u>SECTION</u></b>	<b><u>TITLE</u></b>
1	Authorization
2	Definitions
3	Administration
4	General Requirements
4.1	Application for Disposal Works Construction Permit
4.2	Application for Lot Inspection
4.3	Fill Easement
4.4	Availability of Water Supply
4.5	Issuance of Disposal Works Construction Permit
4.6	Inspections During Construction
4.7	As-Built Plan
4.8	Certificate of Compliance
4.9	Shared Systems
4.10	Hydrogeologic Studies
5	Field Tests
5.1	Preparation for Field Tests
5.2	Deep Test Holes
5.2.1	Soil Descriptions
5.2.2	Estimated Seasonal High Groundwater Elevation
5.3	Percolation Tests
5.4	Restoration
5.5	Location of Reserve Area
6	System Design Criteria
6.1	Leaching Area
6.2	Perimeter Drain
6.3	Distance to Watercourse
6.4	Distance to Wells
6.5	Distance to Property Line
6.6	Retaining Walls
6.7	Pump Systems
6.8	Additions or Alterations to Existing Structures
7	Plans
7.1	Scale
7.2	Required Information
8	Maintenance
8.1	Septic Tank Pumping Program
8.2	Repairs
9	Revocation
10	Severability

Previous issues of Boxborough Board of Health Regulations controlling the subsurface disposal of sewage are rescinded and superseded hereby.

**SECTION 1. AUTHORIZATION**

These regulations are adopted pursuant to Sections 31 and 127 of Chapter 111 of the General Laws and shall be interpreted so as to be consistent with the provisions of Title 5 of the State Environmental Code (310 CMR 15.001-15.505) “Minimum Requirements for the Subsurface Disposal of Sanitary Sewage,” dated 3/24/95 (effective 3/31/95) and as amended in the future.

**SECTION 2. DEFINITIONS**

The definitions in 310 CMR 15.002 shall apply except as modified or added to in this section.

**Agent:** See Nashoba Associated Boards of Health

**As-Built Plan:** A drawing as described in Section 4.8 and Title 5, 310 CMR 15.021, prepared, signed and stamped by the design engineer/sanitarian, showing the system as constructed.

**Board:** The Board of Health of the Town of Boxborough, the approving authority as defined in 310 CMR 15.002.

**Completed Application:** A plan as described in 310 CMR 15.220 and in Section 7 hereof, and any other information or documentation necessary for the Board to issue or deny a Sewage Disposal Works Construction Permit.

**Construction:** Refers to installation and repairs of subsurface sewage disposal systems.

**Date of Filing of Completed Application:** The date of which the Board and Nashoba receive a completed application; or, if the Board and Nashoba receive a completed application on separate dates, then the later of those dates.

**Deep Test Hole:** An open pit dug to permit the examination of the soil and to determine groundwater conditions.

**Engineer:** A professional engineer (civil or sanitary) currently registered as such in the Commonwealth of Massachusetts.

**Field Tests:** Soil percolation tests and deep test holes in which soil character and groundwater elevation are observed and recorded, which are witnessed by Nashoba, and which may serve as a basis for the design of a system.

**Leaching Facility:** An approved structure used for the dispersion of sewage effluent into the soil.

**Leaching Strata:** The soil interval extending from the inlet invert (for leaching pits, galleries and chambers) or distribution line invert (for leaching beds and trenches) to a level 5 feet below the bottom of the system; the soil interval used as the basis for computing the capacity of the system.

**Estimated Seasonal High Groundwater Elevation:** The maximum (highest) levels that the groundwater table (top surface of zone of water-saturated soil) is likely to reach during the life of the system. Seepage is regarded as discharge from a saturated zone. Estimated seasonal high groundwater elevation is the design-basis groundwater level.

**Nashoba Associated Boards of Health:** Hereinafter referred to as “Nashoba.” A regional health district, of which the Town of Boxborough is a member, which acts as agent for the Boxborough Board of Health in matters including those pertaining to the implementation and enforcement of the provisions of 310 CMR 15.001-15.505.

**Perimeter Drain:** Also called interceptor drain and curtain drain. A drain constructed for the purpose of intercepting and diverting groundwater flow so as to lower the groundwater level.

**Primary Leaching Area:** Area that includes the proposed or existing leaching facility.

**Reserve Area:** Also referred to as expansion area and reserve leaching area. An area delineated on a plan, suitable for the subsurface dispersion into the soil of sewage effluent of a daily volume not less than the capacity of the primary leaching facility, reserved for use in the event that the primary leaching facility fails and upon which no permanent structures shall be constructed.

**Sanitarian:** A registered sanitarian currently registered as such in the Commonwealth of Massachusetts.

**Sewage:** Also referred to as sanitary sewage. Any water-carried putrescible waste resulting from the discharge of water closets, laundry tubs, washing machines, sinks, showers or dishwashers. Specifically excluded are substances not normally associated with residential use and any substance or combination of substances which because of quantity, concentration, or physical or chemical characteristics poses, in the judgment of the Board, present or potential hazard to human health, safety or welfare, or to the environment and not specifically prohibited by Title 5.

**Subsurface Sewage Disposal System:** Also referred to as system or septic system. All components of an individual system for the subsurface disposal of sanitary sewage, including but not limited to building sewer, septic tanks, pump chambers, distribution boxes, leaching facilities, all connecting pipes outside cellar walls and all other components and appurtenances thereto.

**Unsuitable Test Hole:** A percolation rate in excess of thirty minutes an inch as it relates to new construction, or a deep test hole, which exhibits less than five feet of naturally occurring soil.

**SECTION 3. ADMINISTRATION**

The Board reserves the right to exercise all authority and perform all functions assigned to and normally exercised by its agent.

**SECTION 4. GENERAL REQUIREMENTS**

**4.1 Application for Disposal Works Construction Permit**

An application for disposal works construction permit (hereinafter referred to as a permit) shall be filed with the Board for all installations and repairs of systems. A fee shall be paid to the Town at the time of application, as determined by a fee schedule adopted by and on file with the Board.

**4.2 Application for Lot Inspection**

An application for lot inspection shall be made to Nashoba, and any fee required by Nashoba therefore shall be paid to Nashoba at that time. All field tests to be used as a design basis for a system shall be conducted by an engineer and shall be witnessed by Nashoba. Inspections required during construction of a system shall be made by Nashoba.

**4.3 Fill Easement**

No Certificate of Compliance shall be issued if fill associated with any component of the system extends onto an adjacent lot, or if the plan requires that fill associated with the reserve area extend onto an adjacent lot, unless an appropriate easement is duly executed by the owner of said lot and recorded and a copy of said easement is submitted to the Board. The permit for a system requiring a fill easement shall state that requirement.

**4.4 Availability of Water Supply**

Reference is made to General Laws Chapter 40, Section 54. No building permit shall be issued for the construction of a building which would necessitate the use of water therein until a water supply approved by Nashoba and appropriate to the use of the building has been constructed on the lot.

**4.5 Issuance of Disposal Works Construction Permit**

All systems or series of systems for the treatment and disposal of sanitary sewage above or below the ground surface on a facility are required to be approved and permitted prior to construction regardless of existing or proposed design flows. After reviewing a plan, Nashoba shall prepare a permit and shall forward the permit to the Board. If Nashoba approves the plan, the agent shall sign the permit. If Nashoba does not approve the plan, the agent shall submit to the Board, with the permit, a written summary of the reasons for not approving the plan. At a scheduled meeting, the Board shall review the plan, the permit and any other applicable documents and shall issue the permit by signing it or shall deny the permit and provide the applicant or the applicant's representative with the reasons for denial.

All systems greater than 2,000 gal. shall include nitrogen removal treatment in accordance with recirculating sand fillers or equivalent technology.

#### **4.6 Inspections during Construction**

Nashoba shall inspect the construction of a system at stages specified on the permit. These may include, but are not necessarily limited to, the completed excavation prior to placement of stone, any stone or other fill material prior to the placement thereof, and structural components of the system prior to the installation thereof. As a minimum, Nashoba shall inspect all structural components of a system after they are installed and before they are covered. Construction shall not proceed beyond a stage requiring inspection until such inspection has been conducted and approval has been granted by Nashoba. Appointments for inspections shall be made with Nashoba at least twenty-four hours prior thereto.

#### **4.7 As-Built Plans**

After construction is completed, **an as-built plan by the design engineer/sanitarian of the permitted plan** shall be prepared and submitted to Nashoba and to the Board, showing final grading, as-built elevations, and location of existing components. No overlays will be accepted for as-built plans. As-built plans shall be prepared, signed and professionally stamped by the design engineer/sanitarian. The as-built plan for installation or repair of a system shall not be prepared by the individual or firm under whose Disposal Works Installer's Permit the work has been performed.

#### **4.8 Certificate of Compliance**

Nashoba shall, after approving the construction of a system, prepare a Certificate of Compliance and forward it to the Board. The Board shall review the permit, the as-built plan and any other appropriate information and shall issue (by signing) the Certificate of Compliance if, in the judgment of the Board, the construction is in accordance with the plan, the permit and all applicable regulations and statutes. Deviations from the approved plan may constitute grounds for denial of a Certificate of Compliance. If unanticipated conditions encountered during construction necessitate deviations from the approved plan, it shall be the responsibility of the applicant to request prior approval for such deviations from Nashoba or the Board. No building with a system that has been installed or repaired after the effective date of these regulations shall be occupied unless a Certificate of Compliance has been issued for the system.

#### **4.9 Shared Systems**

The use of a subsurface sewage disposal system by more than one lot is prohibited. The system shall be located entirely within the lot being served by the system.

#### **4.10 Hydrogeologic Studies**

Applicants for subdivision approval and Approval Not Required plans shall perform hydrogeologic studies in accordance with guidelines provided by the Board, to assess the cumulative impact of septic systems and other contaminant sources on groundwater quality.

### **SECTION 5. FIELD TESTS**

The results of all field tests performed in the vicinity of a proposed or existing system, including the reserve leaching area, shall be provided to Nashoba and the Board on the plan or on sheets referenced on and attached to the plan and certified by the engineer. No field test data shall be used as a design basis unless Nashoba has witnessed the field tests.

## **5.1 Preparation for Field Tests**

An appointment shall be made with Nashoba at least forty-eight hours in advance to witness field tests in the area of the proposed system. Excavations for field tests should be dug on the same day as the testing, but in no case shall they be dug more than twenty-four hours before testing. If excessive slumping or deterioration occurs prior to testing, Nashoba may require cleaning out or re-excavation. Reasonable safety measure shall be taken to prevent access to deep test holes left unattended.

## **5.2 Deep Test Holes**

Deep test holes can be done at any time during the year. At least two deep test holes shall be located within the proposed primary leaching area and at least two deep test holes shall be located within the proposed reserve leaching area. Deep test holes must be performed by a current DEP Licensed Soil Evaluator. The number and locations of deep test holes shall provide reasonable assurance of the range of soil conditions. Nashoba may require additional deep test holes based on site conditions. A 25-foot minimum offset from an unsuitable test hole to the proposed primary and reserve leaching areas is required.

### **5.2.1 Soil Descriptions**

Recorded information shall include the elevations of the estimated seasonal high water table groundwater seepage, soil layers, boulders, unsuitable material, ledge and the character of soil layers below subsoil. Soil descriptions shall include visual estimates of percentages of cobbles, gravel, sand and silt/clay.

### **5.2.2 Elevation**

At least one estimated seasonal high groundwater determination shall be made in the primary leaching area and at least one shall be made in the reserve area. The number and locations of the determinations shall provide a reasonable basis for assessing groundwater conditions in the area of the system. Nashoba or the Board may require determinations in addition to the minimum number specified herein. Estimated seasonal high water table observations shall be made in deep test holes or in monitoring wells if soil conditions make it difficult to identify the estimated seasonal high water table. Nashoba shall witness the installation of such wells. The wells shall consist of 1\_-inch to 2-inch diameter Schedule 40 PVC pipe that is substantially slotted at the lower end. Both ends of the pipe shall be tightly capped prior to installation. The excavation shall be carefully back filled around the well screen with clean granular fill or with the cleanest material available from the deep test hold excavation. Topsoil and subsoil shall be returned to the excavation last. Care shall be taken to avoid damaging the pipe with large rocks during back filling. The above ground end of the pipe shall remain capped except while water level measurements are being made. Periodic water level measurements shall be made and recorded. Nashoba shall witness wet season determinations.

### **5.2.3 Minimum Depth of Soil**

The minimum depth of naturally occurring soil above unsuitable material such as sapprolite, shist, ledge, bedrock, A, BC horizons, and fill shall be 5 ft.

## **5.3 Percolation Tests**

Percolation tests for new construction may only be completed between 5//30 – 11/1. At least one percolation test shall be located within the primary leaching area and at least one percolation test shall be

located within the reserve area. Additional percolation tests may be required by Nashoba to determine the vertical and/or lateral variations in soil conditions. Percolation tests shall not be performed in deep test holes. The results of all percolation tests performed on a lot, in or near the area of the system, shall be presented on the plan. Percolation tests that are discontinued, failed, or otherwise deemed unsuitable from the Nashoba Agent shall not be used in the proposed leaching area. A 25 ft. minimum offset from the proposed leaching areas (both primary and reserve) is required for unsuitable percs.

#### **5.4 Restoration**

Deep test holes and holes for percolation tests shall be filled in within twenty-four (24) hours after completion of lot inspection by Nashoba.

#### **5.5 Location of Reserve Area**

The location of reserve area shall be designed so that it is able to be brought into service without discontinuation of primary system; reserve trenches, pits galleries, chambers between the primary system are not permitted. Reserve areas for upgrades if feasible shall be designed.

### **SECTION 6                    SYSTEM DESIGN CRITERIA**

All information related to and necessary for the design or repair of a system shall be included on the plan or on sheets referenced on and attached to the plan and certified by the engineer/sanitarian.

#### **6.1 Leaching Area**

The minimum leaching area to be installed shall be determined from 310 CMR 15.242(1) with the following exceptions: percolation rates over 20 minutes an inch shall be designed by using the L.T.A.R. of 0.33 gpd/sq. ft.

#### **6.2 Perimeter Drains**

Drains shall only be installed during periods of low groundwater, typically July – September. Perimeter drains shall be gravity flow only; no pumped drain system shall be allowed. The effectiveness of a perimeter drain system in lowering the maximum groundwater elevation shall be determined by deep test holes or monitoring wells as described in Sections 2 and 5.2.2. Effectiveness monitoring shall be performed during the usual high groundwater period of March and April only.

#### **6.3 Distance to Watercourse**

No part of a system, which includes fill for breakout grading purposes, shall be constructed within 100 ft. of any watercourse.

#### **6.4 Distance to Wells**

No part of a system (sewer lines, tanks, leaching area, pump chambers, etc.) shall be constructed within 100 ft. of any existing or proposed water supply well or within 50 ft. of any existing or proposed heat pump well. The restrictions stated in this subsection do not apply to wells that are abandoned and plugged, sealed, back filled or otherwise rendered permanently unusable. An offset of 50 ft. (minimum) shall be maintained from an “irrigation” or other non-potable supply to any SAS.

## **6.5 Distance to Property Line**

No part of a septic system shall be constructed within 20 ft. of any property line.

## **6.6 Retaining Walls and Impervious Barriers**

Retaining walls and impervious barriers for new construction used for breakout grading purposes around the leaching areas are not permitted. If necessary, and approved by the Boxborough Board of Health, retaining walls used for upgrades of failing septic systems must be constructed of reinforced concrete in compliance with the subheadings (a)-(g) of 301 CMR 15.255(2).

## **6.7 Pump Systems**

Rail systems are required for all pump systems to allow for removal of the pump for repair, maintenance, or replacement. Force mains exceeding 250 ft. shall be prominently marked by an object identifying its location. Once the force main is installed it must be pressure tested, witnessed by Nashoba, at least twice working pressure p.s.i. for 15 minutes prior to backfill. The Board will issue pump and treatment guidelines for design and installation of these components.

## **SECTION 7 PLANS**

Plans for the construction of systems shall be prepared by an engineer/sanitarian, as described in Section 7 and in 310 CMR 15.220 and shall be submitted to Nashoba and the Boxborough Board of Health.

### **7.1 Scale**

Plans shall be prepared at a scale of one inch equals twenty feet (1"=20').

### **7.2 Required Information**

The following information, in addition to that required by 310 CMR 15.220, shall be provided on all plans and **as-built plans**:

- Identification of lot by street number or Assessor's parcel number.
- Identification of the "W" district.
- Locus, lot lines, street(s), driveway, dimensions of lot and locations and dimensions of proposed and existing building.
- Date of plan and of each revision thereto.
- Signature and professional seal of the design engineer/sanitarian.
- Date(s) of observations of groundwater elevations
- Existing topography and proposed grading changes, shown by contours at 2 ft. intervals or less based on the Boxborough datum, National Geodetic Vertical Datum (NGVD) 1929.
- Location of neighboring septic systems within 200 ft. and sources of pollution within 400 ft. of proposed well.
- Materials to be used for building sewer and distribution piping, and types of joints.
- Locations and elevations of all system components.
- A complete scale profile of the entire system and elevations.
- Invert elevations of pipes at both ends and at each change in slope.

- For systems with lines more than 100 ft. long between the cellar wall and distribution box: groundwater, soil and bedrock conditions along proposed route of pipe; type of pipe and joints; locations and details of clean-outs and manholes.
- For perimeter drains: location; pipe invert elevations at both ends and at each change in slope and each change in direction; and cross section showing design details.

**SECTION 8                      MAINTENANCE**

**8.1      Septic Tank Pumping Program**

Every owner or agent of premises served by a system should have the septic tank pumped no less frequently than once in every three-year period. For multi-family dwellings, including condominiums, apartments, motels, hotels and boarding houses, the owner or agent shall have the septic tank pumped at least once every year and shall provide to the Board written proof of such pumping, by paid invoice or other suitable documentation from a septic handler who has a current permit as required by 310 CMR 15.202(1).

**8.1.A.** – The licensed hauler is required to provide to the Boxborough Board of Health the date(s) of pumping, address, volume pumped and final destination of the effluent disposal location.

**8.2      Repairs**

The owner of a failed system shall, within seven (7) days of such failure, notify Nashoba and shall, within thirty (30) days of such failure, apply to the Board for a Sewage Disposal Works Construction Works Permit, pay the required fee to the Board, and submit plans to the Board and to Nashoba.

The owner of a failed system is required to pump the system as often as necessary to prevent sewage from breaking out of the ground. System failures are required to be brought into compliance with the Local Boxborough Regs. and Title 5 within six (6) months of indication of the failing system. This includes obtaining a Certificate of Compliance within six months.

**SECTION 9                      REVOCAATION**

The Board reserves the right to revoke any approval, permit or Certificate of Compliance which is found to be based on incorrect, incomplete or misleading information.

**SECTION 10                      SEVERABILITY**

The provisions of these regulations are severable, and if any of its provisions are held to be unconstitutional or otherwise invalid by any court of competent jurisdiction, the decision of such court shall not affect or impair any of the remaining provisions.

BY BOXBOROUGH BOARD OF HEALTH

[Signed by Boxborough Board of Health October 18, 2000]