

Article 201: AQUIFER PROTECTION ORDINANCE

(Adopted 03/14/89; Amended 03/13/90, 03/10/92, 03/8/94, 03/12/96, 03/08/05, 03/13/12; 03/12/13, 03/12/19, 03/08/2022, 03/14/2023)

201.1 AUTHORITY AND PURPOSE

Pursuant to RSA 674:16-21, the Town of Kingston hereby adopts an Aquifer Protection District and accompanying regulations in order to protect, preserve and maintain potential groundwater supplies and related groundwater recharge areas within a known aquifer identified by the United States Geological Survey. The objectives of the aquifer protection district are:

- A.** to protect the public health and general welfare of the citizens of Kingston;
- B.** to prevent development and land use practices that would contaminate or reduce the recharge of the identified aquifer;
- C.** to promote future growth and development of the Town, in accordance with the Master Plan, by ensuring the future availability of public and private water supplies;
- D.** to encourage uses that can appropriately and safely be located in the aquifer recharge areas.

201.2.1 DEFINITIONS

- A. Animal Feedlot:** A commercial agricultural establishment consisting of confined feeding areas and related structures used for the raising of livestock. An animal feedlot shall be considered one on which more than five (5) animals are raised simultaneously to protect the public health and general welfare of the citizens of Kingston;
- B. Aquifer:** For the purpose of this Ordinance, aquifer means a geologic formation, group of formations, or part of a formation that is capable of yielding quantities of groundwater usable for municipal or private water supplies.

- C. Dwelling Unit:** A building or that portion of a building consisting of one or more rooms designed for living and sleeping purposes, including kitchen and sanitary facilities and intended for occupancy by not more than one family or household.
- D. Groundwater:** All the water below the land surface in the zone of saturation or in rock fractures capable of yielding water to a well.
- E. Groundwater Recharge:** The infiltration of precipitation through surface soil materials into groundwater. Recharge may also occur from surface waters, including lakes, streams and wetlands.
- F. Leachable Wastes:** Waste materials, including solid wastes, sludge and agricultural wastes that are capable of releasing contaminants to the surrounding environment.
- G. Mining of Land:** The removal of geologic materials such as topsoil, sand and gravel, metallic ores, or bedrock to be crushed or used as building stone.
- H. Non-Conforming Use:** Any lawful use of buildings, structures, premises, land or parts thereof existing as of the effective date of this Ordinance, or amendment thereto, and not in conformance with the provisions of this Ordinance, shall be considered to be a non-conforming use.
- I. Non-Municipal Well:** Any well not owned and operated by the Town of Kingston or its agent.
- J. Recharge Area:** The land surface area from which groundwater recharge occurs.
- K. Regulated Substance:** Any substance material or waste the use generation, handling, storage treatment or disposal of which is regulated by any local or state government authority, including any of the same designated by any authority as hazardous, genetic, cloning, fetal, or embryonic. *(Added 03/14/2023)*
- L. Sludge:** Residual materials produced by the sewage treatment process.

M. Small Quantity Generator: Any generator who generates hazardous waste at a rate of less than 100 kilograms per month of total hazardous waste and less than one kilogram per month of acutely hazardous waste. *(Amended 3/12/13)*

N. Solid Waste: Any discarded or abandoned material including refuse, putrescible material, septage, or sludge, as defined by New Hampshire Solid Waste Rules He-P 1901.03. Solid waste includes solid, liquid, semi-solid, or certain gaseous waste material resulting from residential, industrial, commercial, mining, and agricultural operations.

O. Structure: Refer to Article Preamble II Definitions, B (21), Structure. *(Amended 3/8/22)*

P. Toxic or Hazardous Materials: Any substance or mixture of such physical, chemical, or infectious characteristics as to pose a significant, actual or potential hazard to water supplies, or other hazard to human health, if such substance or mixture were discharged to land or waters of this Town. Toxic or hazardous materials include, without limitation, volatile organic chemicals, petroleum products, heavy metals, radioactive or infectious wastes, acids and alkalies, and include products such as pesticides, herbicides, solvents and thinners, and such other substances as defined in New Hampshire Water Supply and Pollution Control Rules, Section Ws 410.04 (I), in New Hampshire Solid Waste Rules He-P 1901.03 (v), and in the Code of Federal Regulations 40 CFR 261. Wastes generated by the following commercial activities are presumed to be toxic or hazardous, unless and except to the extent that anyone engaging in such an activity can demonstrate the contrary to the satisfaction of the Planning Board:

- Airplane, boat and motor vehicle service and repair;
- Chemical and bacteriological laboratory operation;
- Dry Cleaning;
- Electronic circuit manufacturing;
- Metal plating, finishing and polishing;
- Motor and machinery service and assembly;
- Painting, wood preserving and furniture stripping;
- Pesticide and herbicide application;
- Photographic processing;
- Printing.

201.3 DISTRICT BOUNDARIES

A. Location:

The boundaries of the Aquifer Protection District are those areas designated as "Stratified Drift Aquifer" and Stratified Drift Aquifer Over Glacio-Estuarine Silts and Clays as found on the Map entitled Saturated Thickness and Transmissivity of stratified Drift in the Exeter, Lamprey, and Oyster River Basins, Southeastern New Hampshire, (Study entitled Geohydrology and Water Quality of Stratified-Drift Aquifers in the Exeter, Lamprey and Oyster River Basins, Southeastern New Hampshire, WRI 88-4128, published in 1990); and areas designated as Fine-Grained Stratified Drift, Coarse-Grained Stratified Drift or Coarse-Grained Stratified Drift Overlying Fine-Grained Stratified Drift, as found on the map entitled Saturated Thickness, Transmissivity, and Materials of Stratified-Drift Aquifers in the Lower Merrimack and Coastal River Basins, Southeastern New Hampshire, (Study entitled Geohydrology and Water Quality of Stratified-Drift Aquifers in the Lower Merrimack and Coastal River Basins, Southeastern New Hampshire, WRI 91-4025, published in 1992).

Zone A is that area of the aquifer delineated as a result of a detailed USGS study of the Kingston area aquifer within the Merrimack River Watershed (Stekl and Flanagan, 1992) that shows that the extent and quality of the aquifer is exceptional. A groundwater model developed by the USGS within this report estimates that seven wells pumping a total of four million gallons per day can be sustained by the aquifer. Zone A is the area of the center of Kingston analyzed by this model and reflected on the accompanying map entitled, "Aquifer Protection District, Zones A and B", available in the Kingston Planning Board office. Zone B is the remaining aquifer area in Town as determined by the two USGS Studies indicated in paragraph one, above. *(Amended: 3/13/12, 3/12/13)*

The Aquifer Protection District is a zoning overlay district which imposes additional requirements and restrictions to those of the underlying, base district zoning. In all cases, the more restrictive requirement(s) shall apply.

B. Recharge Areas:

For the purpose of this Ordinance, the primary recharge area for the identified aquifer is considered to be co-terminus with that aquifer.

No secondary recharge area has been identified at the time of enactment.

C. Appeals:

Where the bounds of the identified aquifer or recharge area, as delineated, are in doubt or in dispute, any landowner aggrieved by such delineation may appeal the boundary location to the Planning Board. Upon receipt of such appeal, the planning Board shall suspend further action development plans related to the area under appeal and shall engage, at the landowner's expense, a qualified hydrogeologist to prepare a report determining the proper location and extent of the aquifer and recharge area relative to the property in question. The aquifer delineation shall be modified by such determination subject to review and approval by the Planning Board.

201.4 USE REGULATIONS

A. Minimum Lot Size:

The minimum lot size within the Aquifer Protection District for each dwelling unit, if a residential use, shall be three acres or 130,680 square feet in Zone A or Zone B. For each principal building, if a non-residential use, in Zone A the minimum lot size shall be three acres, or 130,680 square feet and in Zone B shall be two acres or 87,120 square feet if located in a commercial or industrial district.

B. Hydrogeologic Study:

For development proposals within the Aquifer Protection District, a hydrogeologic study shall be required for the following:

1. subdivision of ten (10) lots or greater;
2. any septic system or series of septic systems designed for 2,400 gallons per day or greater contained in one lot.

For residential subdivision of ten (10) lots or less, the Planning Board shall determine, on a case-by-case basis, the need for a hydrogeologic study.

For residential subdivisions of ten (10) lots or less the Planning Board shall determine, on a case-by-case basis, the need for a hydrogeologic study. Particularly sensitive sites may include areas that have septic systems in close proximity to wells, or may contain excessively drained soils or steep slopes.

Hydrogeologic studies shall be performed by a qualified hydrogeologist registered in the State of New Hampshire. This study shall be sufficiently detailed to evaluate the development's impacts to groundwater within both the parcel to be developed and the surrounding land. All hydrogeologic studies shall include at least the following:

1. Multi-level monitoring wells (to evaluate soil stratigraphy);
2. Cumulative impact nitrogen loading analysis employing a saturation build-out model. The analysis shall include verification that the development will not cause the nitrate nitrogen (NO₃-N) concentration in groundwater beyond the site to exceed 5 mg/l; in zone B this standard is 10 mg/l;
3. Permeability testing;
4. Water quality sampling analysis;
5. Water table contours and groundwater flow direction.

C. Maximum Lot Coverage:

Within the Aquifer Protection District, no more than 15 percent (15%) of a single lot may be rendered impervious to groundwater infiltration in Zone A. In Zone B, no more than 25 percent (25%) of a single lot may be rendered impervious to groundwater infiltration. However, in Zone A, lot coverage may be increased up to thirty-five percent (35%) and in Zone B lot coverage may be increased up to sixty percent (60%) if the applicant can show, to the satisfaction of the Planning Board, stormwater management techniques that would allow for recharge on the property to be developed. *(Amended 03/08/2005, 03/13/2012, 03/12/2019)*

D. Septic System Design Installation:

All Septic Systems shall conform to the Subsurface Disposal System Rules and Regulations of the Kingston Board of Health.

E. Prohibited Uses:

The following uses are prohibited in both Zone A and B of the Aquifer Protection Zone unless noted otherwise below and except where permitted to continue as a non-conforming use. Such uses shall include, but not be limited to:

1. Disposal of solid waste (as defined by NHRSA 149:M) other than brush or stumps generated on the property on which they are to be disposed.
2. Hazardous waste facilities as defined under RSA 147-A.
3. Disposal of liquid or leachable wastes except that from one or two-family residential subsurface disposal systems, or as otherwise permitted as a conditional use.
4. Subsurface storage of petroleum and other refined petroleum products. *(Amended 03/14/2023)*
5. Industrial uses which discharge contact type process waters on-site. Non-contact cooling water is permitted.
6. Outdoor storage of road salt or other de-icing chemicals.
7. Dumping of snow containing de-icing chemicals brought from outside the district.
8. Commercial animal feedlots.
9. Establishments with On-Site Dry cleaning are prohibited. In Zone B such facilities require a Special Exception from the Zoning Board of Adjustment that imposes additional protections for groundwater. *(Amended 03/08/2005; 03/13/12)*
10. Automotive service and repair shops. In Zone B such facilities require a special exception from the Zoning Board of

Adjustment that imposes additional protections for groundwater.

11. Automotive junk and salvage yards.
12. Wastewater or septage lagoon.
13. Petroleum bulk plant or terminal
14. Gas stations. *(Amended 03/14/2023)*
15. Commercial laundry and Laundromat.
16. Car wash facilities.
17. Manufacturing using petroleum based products. In Zones A and B such facilities require a special exception from the Zoning Board of Adjustment that imposes additional protections for groundwater.
18. Use or generation of hazardous materials greater than small quantity generators or greater than 25 gallons of regulated substances; except where permitted in association with 14 and 17 above.
19. All on site handling, disposal, storage, processing or recycling of hazardous or toxic materials.

F. Permitted Uses:

The following activities may be permitted provided they are conducted in accordance with the purposes and intent of this Ordinance:

1. Any use permitted by Articles 102-110, 202, 206, 207; Sections 1, 2, 5, 7, 8 and 9 of Article 301; Articles 302-304, 407, 409, 410, 902, 1003 and 1004 of the Ordinances, Rules and Regulations of the Town of Kingston, New Hampshire, except as prohibited in Section 4 of this article. *(Note: These articles were formerly referenced as Articles IV – VII prior to the Town's Ordinance Book's re-codification in 2009.)*

2. Activities designed for conservation of soil, water, plants and wildlife.
3. Outdoor recreation, nature study, boating, fishing and hunting where otherwise legally permitted.
4. Normal operation and maintenance of existing water bodies and dams, splash boards and other water control, supply and conservation devices.
5. Foot, bicycle, and/or horse paths and bridges.
6. Maintenance, repair of any existing structure, provided there is no increase in impermeable surface above the limit established in Section 201.4 of this Article.
7. Farming, gardening, nursery, forestry, harvesting and grazing, provided that fertilizers, herbicides, pesticides, manure and other leachables are used appropriately at levels that will not cause groundwater contamination and are stored under shelter.
8. Dry cleaning establishments for drop-off and pick-up only with no dry cleaning to take place on site. *(Amended 03/08/2005)*

G. Conditional Uses:

The following uses, if allowed in the underlying zoning district, are permitted only after a Conditional Use Permit is granted by the Kingston Planning Board:

1. Industrial and commercial uses not otherwise prohibited in Section 201.4 of this Article;
2. Multi-family residential development;
3. Sand and gravel excavation and other mining provided that such excavation or mining is not carried out within eight (8) vertical feet of the seasonal high water table and that periodic inspections are made by the Planning Board or its agent to determine compliance.

The Planning Board may grant a Conditional Use Permit for those uses listed above only after written findings of fact are made that all of the following conditions are met:

- a) the proposed use will not detrimentally affect the quality of the groundwater contained in the aquifer by directly contributing to pollution or by increasing the long-term susceptibility of the aquifer to potential pollutants;
- b) the proposed use will not cause a significant reduction in the long-term volume of water contained in the aquifer or in the storage capacity of the aquifer;
- c) the proposed use will discharge no waste water on site other than that typically discharged by domestic waste water disposal systems and will not involve on-site storage or disposal of toxic or hazardous wastes as herein defined;
- d) the proposed use complies with all other applicable sections of this Article.
- e) a hydrogeologic study shall be submitted for uses whose septic system is designed for more than 2,400 g.p.d. In Zone A, a study shall be submitted for any septic system designed for more than 2,000 g.p.d.

The Planning Board may require that the applicant provide data or reports prepared by a qualified hydrogeologist to assess any potential damage to the aquifer that may result from the proposed use. The Planning Board shall engage such professional assistance as it requires to adequately evaluate such reports and to evaluate, in general, the proposed use in light of the above criteria.

H. Special Exception Criteria:

1. the proposed use will not detrimentally affect the quality of the groundwater contained in the aquifer by directly contributing to pollution or be increasing the long-term susceptibility of the aquifer to potential pollutants;
2. the proposed use will not cause a significant reduction in the long-term volume of water contained in the aquifer or in the storage capacity of the aquifer;
3. the proposed use complies with all other applicable sections of the Article.
4. a hydrogeologic study shall be submitted for uses whose septic system is designed for more than 2,400 g.p.d. In Zone A, a study shall be submitted for any septic system designed for more than 2,000 g.p.d.
5. The Zoning Board of Adjustment may require that the applicant provide data or reports prepared by a qualified hydrogeologist to assess any potential damage to the aquifer that may result from the proposed use. The Zoning Board of Adjustment shall engage such professional assistance as it requires to adequately evaluate such reports and to evaluate, in general, the proposed use in light of the above criteria.

201.5 SPECIAL EXCEPTION FOR LOTS OF RECORD

Upon application to the Board of Adjustment, a special exception shall be granted to permit the erection of a structure on a non-conforming lot within the Aquifer Protection District provided that all of the following conditions are met:

- A.** The lot upon which an exception is sought was an official lot of record, as recorded in the Rockingham County Register of Deeds, prior to the date on which this amendment was posted and published in the Town.
- B.** The use for which an exception is sought cannot feasibly be carried out on a portion or portions of the lot which are outside the Aquifer Protection District.

- C. Due to the provisions of the Aquifer Protection District, no reasonable and economically viable use of the lot can be made without the exception.
- D. The design and construction of the proposed use will, to the extent practical, be consistent with the purpose and intent of this Section.

201.6 DESIGN AND OPERATIONS GUIDELINES

Where applicable the following design and operation guidelines shall be observed within the Aquifer Protection District:

- A. **Nitrate loading.** No development shall cause the nitrate-nitrogen (NO₃-N) concentration to exceed 5 mg/l in the groundwater beyond the site. In Zone B the nitrate-nitrogen (NO₃-N) concentration shall not exceed 10 mg/l in the groundwater beyond the site.
- B. **Safeguards.** Provision shall be made to protect against toxic or hazardous materials discharge or loss resulting from corrosion, accidental damage, spillage, or vandalism through measures such as: spill control provisions in the vicinity of chemical or fuel delivery points; secured storage areas for toxic or hazardous materials; and indoor storage provisions for corrodible or dissolvable materials. For operations which allow the evaporation of toxic or hazardous materials into the interiors of any structures, a closed vapor recovery system shall be provided for each such structure to prevent discharge of contaminated condensate into the groundwater.
- C. **Location.** Where the premises are partially outside of the Aquifer Protection Overlay Zone, potential pollution sources such as on-site waste disposal systems shall be located outside the Zone to the extent feasible.
- D. **Drainage.** All runoff from impervious surfaces shall be recharged on the site, and diverted toward areas covered with vegetation for surface infiltration to the extent possible. Dry wells shall be used only where other methods

are not feasible, and shall be preceded by oil, grease, and sediment traps to facilitate removal of contaminants.

- E. Well Abandonment.** When well are abandoned in the Aquifer protection District such abandonment will take place following the standards outlined in NH WE-604.
- F. Agricultural Activities.** Agricultural activities undertaken within the Aquifer Protection District shall comply with *Best Management Practices for Agriculture In NH*, July 2008 and updates.
- G. Blasting.** Best management practices for blasting shall be followed in the Aquifer Protection district
- H. Inspection.** All conditional uses granted under Section 201.4 of this Article shall be subject to twice-annual inspections by the Building Inspector or other agent designated by the Selectmen. The purpose of these inspections is to ensure continued compliance with the conditions under which approvals were granted. A fee for inspection shall be charged to the owner according to a fee schedule determined by the Selectmen.

201.7 NON-CONFORMING USES

Any non-conforming use may continue and may be maintained, repaired and improved, unless such use is determined to be an imminent hazard to public health and safety. No non-conforming use may be expanded, changed to another non-conforming use, or renewed after it has been discontinued for a period of 12 months or more.

201.8 General Requirements

- A.** Installation of geothermal wells and geothermal systems requires town notification to the Building Inspector and Planning Board.
- B.** Expansion or redevelopment of non-residential uses requires full compliance with the standards found in the Aquifer Protection District.
- C.** Long term water quality monitoring may be required by the Planning Board or other Town agent as necessary.

- D. New groundwater withdrawal application materials shall be submitted to the Board of Selectmen and Planning Board.
- E. NH Department of Environmental Services registered water users shall submit their reports to the Town Building Inspector.
- F. Facilities that store and use regulated substances shall submit, with their application to the Planning Board, an adequate spill prevention, control and countermeasure (SPCC) plan approved by the Kingston Fire Department.
(Added 03/14/2023)

201.9 ADMINISTRATION

A. General:

The provisions of the Aquifer Protection District shall be administered by the Planning Board. All development proposals, other than single or two-family residential construction not involving the subdivision of land, shall be subject to subdivision and/or site plan review and approval in accordance with Planning Board rules and regulations. Such review and approval shall precede the issuance of any building permit by the Town.

B. Enforcement:

The Board of Selectmen shall be responsible for the enforcement of the provisions and conditions of the Aquifer Protection District. This enforcement shall be undertaken in compliance with RSA 676 or RSA 485-C.

201.9 EFFECTIVE DATE

This Article shall become effective upon the date of passage.

Updated Aquifer Protection Maps – Aquifer Zones A & B Kingston, New Hampshire (May, 2022)

A significant stratified drift aquifer underlies much of Kingston. This aquifer in combination with several ponds and rivers within the aquifer make up a valuable surface water-groundwater resource. The original Kingston aquifer protection ordinance was adopted in 1989 and has been periodically

updated. In 2011 the ordinance was modified to assure that the most vulnerable and significant aquifer areas are protected and to allow additional land use flexibility was possible in certain areas.

A modified aquifer protection ordinance was adopted that separates the aquifer area into two protective zones – Zone A is the most productive groundwater zone as determined by the United States Geological Survey (Stekl and Flanagan, 1992) and includes the area most likely to be used as a future municipal water source. The dark yellow and orange zones on the map are areas where the sand and gravel is most permeable and has the largest water saturated depth. The combination of permeability and saturated depth is termed transmissivity. The yellow-tan aquifer areas are generally less transmissive and provide recharge to the more transmissive zones. Zone B also contains considerable groundwater resources but the aquifer is less transmissive. This aquifer area is represented as a yellow-tan color on the maps.

Zone A land use has more restrictions, requires a lower impervious surface allowance and includes increased stormwater management requirements. The water quality requirement for developments also stipulates that the concentration of nitrate will not exceed 5 milligrams per liter at the downgradient property boundary or compliance boundary.

Zone B requires increased stormwater management and lower impervious surface cover than currently allowed but the overall impervious cover percentage is higher than that in Zone A. There are fewer prohibited uses in this zone, but those uses are required to be monitored with regular inspections and spill control planning. The water quality requirement for developments also stipulates that the concentration of nitrate will not exceed 10 milligrams per liter at the downgradient property boundary or compliance boundary.