ARTICLE XVI
AQUIFER PROTECTION OVERLAY DISTRICT

175-84. Authority and Purpose.

Pursuant to RSA 674:16-21, the Town of Durham adopts an Aquifer Protection Overlay District and accompanying regulations in order to protect, preserve and maintain existing and potential groundwater supplies and related groundwater recharge areas within the town. The objectives of the Aquifer Protection Overlay District are:

A. To protect the public health and general welfare of the citizens of Durham.

B. To prevent development and land use practices that could potentially contaminate or reduce the rate of recharge of identified aquifers.

C. To provide for future growth and development of the town, in accordance with the Master Plan, by ensuring the future availability of safe public and private water supplies.

D. To permit uses that can appropriately and safely be located in the aquifer recharge areas.

175-84.1 Definitions

The following definitions apply in this overlay district:

Aquifer – 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. Aquifer includes both bedrock aquifers and stratified drift aquifers.

Aquifer Recharge Area – The area in which water is absorbed that eventually reaches the zone of saturation in one or more aquifers.

Leachable Wastes. Waste materials, including but not limited to solid wastes, sewage sludge and agricultural wastes, that can leach contaminants into the groundwater or surface water resources.

175-85. District Boundaries.

A. ***Location***.

1. The Aquifer Protection Overlay District is defined as the area shown on the map entitled "Aquifer Protection District" and is hereby adopted as part of the Official Zoning Map of the Town of Durham. The Aquifer Protection Overlay District includes the area delineated by the 1988-89 United States Geological Survey aquifer delineation studies, as amended or updated, and other site-specific engineering studies.

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

B. ***Appeals***.

1. When the actual boundary of the Aquifer Protection Overlay District is in dispute by any landowner or abutter actually affected by said boundary or the location of the boundary is challenged by an applicant, an abutter, a landowner, the Code Enforcement Officer, the Conservation Commission, or the Planning Board, petition shall be made, in writing, by the challenger to the Zoning Administrator. The Zoning Administrator shall engage a

Qualified Hydrogeologist to prepare a report addressing the location and extent of the aquifer and recharge area relative to the property in question, and the location of the overlay district boundary. The cost for the review shall be borne by the challenger unless the Planning Board determines that the review is in the general public interest and the cost should therefore be borne by the Town. Any appeals must address a minimum of 5 acres or an entire lot, whichever is lesser in area. This report shall include but not be limited to the following:

a. A 2-foot-interval topographic layout prepared by a registered land surveyor of the property(s) in question.

b. A high-intensity soils map of the property(s) in question prepared by a Certified Soil Scientist qualified in hydrologic studies, including a written report of the scientist's on-site field inspection and test boring data, for all test borings and test pits taken. The professional seal of the Certified Soil Scientist shall be affixed to all maps and reports submitted.

c. The Aquifer Protection Overlay District boundary shall be overlaid on the plat, and the newly proposed boundary location shall be indicated on the same plat by a broken line.

d. Evidence derived from a pumping test(s) and a sufficient number of test borings, test pits, observation wells and groundwater elevations to clearly demonstrate that the area in question does not meet the definition of "Aquifer" or "Aquifer Recharge Area" as defined under Article II of this ordinance. All evidence must be gathered in accordance with Section 175-87.

e. Any additional mapping, hydrogeologic reports or information which becomes available as a result of recent or ongoing scientific investigation(s) of the locations and extent of aquifers performed by this United States Geological Survey, New Hampshire State agencies or boards, the Town of Durham or agents of any of the above.

2. The Planning Board may, based upon any findings or reports submitted under this section, recommend to the Town Council of the Town of Durham that the boundary or area designation of the Aquifer Protection Overlay District be adjusted to more correctly define the aquifer(s) and recharge area(s) on a site-specific, case-by-case basis. In all cases the burden of proof shall rest with the applicant or property owner.

175-86. Use Regulations.

A. ***Minimum lot size***. The minimum lot size shall be governed by the dimensional controls outlined in the applicable zoning district.

B. ***Maximum lot coverage***. Within the Aquifer Protection Overlay District, no more than 20 percent of a lot used for residential or commercial purposes shall be rendered impervious to groundwater infiltration.

C. ***Site drainage***. All runoff from impervious surfaces, except roof and exterior foundation drains, shall be directed into an underground storm sewer system and directed to a detention/holding pond outside of the aquifer and aquifer recharge area. Any detention or holding pond must be located down the potentiometric gradient from any existing or potential Town well(s) and in

the location where anticipated pumping will not so reverse the gradient that infiltrating water from the basin is drawn back into the well(s). The design and the construction of any detention or holding pond must be approved by the Public Works Department and the Planning Board.

D. ***Use of deicing chemicals***. There shall be minimal use of road salt or other deicing chemicals on all public and private roads and parking lots within the district. These chemicals shall be free of sodium and chloride to the greatest extent possible.

E. ***Prohibited uses***. The following uses shall not be permitted in the Aquifer Protection Overlay District, except where permitted to continue as a nonconforming use as allowed by 175-86.G.:

1. Disposal of all solid waste either by stockpiling, landfilling or through injection wells that disposes waste into the ground.
2. All on-site handling, disposal, storage, processing or recycling of toxic or hazardous materials.
3. Disposal of liquid or leachable wastes from all residential, commercial or industrial systems.
4. Subsurface storage of petroleum and other refined petroleum products.
5. All industrial uses.
6. Storage of road salt and other deicing chemicals.
7. Dumping of snow containing deicing chemicals brought from outside of the Aquifer Protection Overlay District.
8. Commercial animal feedlots where animals are kept.
9. Automotive service and repair shops, and junk- and salvage yards.
10. Mining of land, unless it is incidental to a permitted use; sand and gravel excavation and other mining that is permitted, provided that such excavation or mining is not carried out within 8 vertical feet of the seasonal high-water table and that periodic inspections are made by the planning staff or its agent to determine compliance.
11. Dumping, spreading or any other application or use of treated soils or sludge from a sewage treatment plant.

F. ***Permitted uses***. The following uses are permitted, provided that they are conducted in accordance with the purposes and intent of this Article:

1. All uses permitted in the underlying zoning district and those regulated as Conditional Uses pursuant to Article VII. There must also be an approved hookup to the town's sewer system and the installation of an underground storm sewer system in accordance with Subsection C above.
2. Maintenance and repair of any existing structure in conformance with the regulations of this Article.
3. Farming, gardening, nursery, forestry, harvesting, grazing and recreational uses, provided that fertilizers, pesticides and other management practices are deemed safe by the Strafford County Conservation District. These uses of land in the Aquifer Protection Overlay District

must not cause groundwater contamination that is deemed harmful to the aquifer, as determined by the Town of Durham and its consultants.

G. ***Nonconforming uses***. Any nonconforming use may continue and may be maintained and repaired, unless such use is determined by the Town Council or the Health Officer to be a potential hazard to water quality within the underlying aquifer or to public health and safety.

175-87. Hydrogeologic Study.

Within the Aquifer Protection Overlay District, a hydrogeologic study shall be required for any proposal for a conservation subdivision or for any development that requires site plan review and for all appeals of the District boundaries pursuant to Section 175-85.B.

A. ***Standards***. Hydrogeologic studies shall be performed by a Qualified Hydrogeologist. These studies shall be sufficiently detailed to evaluate the development's impacts to groundwater within the parcel to be developed and the surrounding land. All hydrogeologic studies shall include at least the following:

1. An adequate number of subsurface borings in order to determine the site geology and stratigraphy. Boring requirements are as follows:
    a. For sites up to 30 acres, the parcel shall contain a minimum of 1 boring per 3 acres, with a minimum of 3 borings for a site. For sites greater than 30 acres, additional borings of at least 1 per 10 acres are required.
    b. At least 20 percent of the borings shall be sampled utilizing the split-spoon sampling technique.
    c. Not less than 25 percent of the borings but at least 1 boring shall be dug to bedrock.
2. Identification of water table contours and groundwater flow directions, with water table measurements using a series of shallow observation wells screened at the water table. The number of observation wells required shall be the same as the number of borings required.
3. Water quality sampling and analysis to determine existing conditions, measuring the following parameters: nitrate-nitrogen (NO_3-N), ammonia-nitrogen (NH_3-N), pH and specific conductance. An analysis of at least the following additional parameters shall be conducted on one strategically selected sample: arsenic, radon, sodium, chloride, iron, manganese, copper, lead, and mercury.
4. An analysis of cumulative impact nitrogen loading employing a saturation build-out model. The analysis shall include verification that the development will not cause the nitrate-nitrogen (NO_3-N) concentration to exceed 5 milligrams per liter in the groundwater at the down-gradient property boundary.

175-88. Design and Performance Standards.

A. ***Nitrate loading***. No development shall cause the nitrate-nitrogen (NO_3-N) concentration to exceed 5 milligrams per liter in the groundwater beyond the site.

B. ***Safeguards.*** Provision shall be made to protect against toxic or hazardous material 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 interior of any structure, 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 District, potential pollution sources such as on-site waste-disposal systems shall be located outside and down gradient of the Aquifer Protection Overlay District to the extent feasible.

175-89. Conditional Use Permit Required.

The provisions of the Aquifer Protection Overlay District shall be administered by Zoning Administrator together with the planning staff and the Durham Town Council. All development proposals shall require a Conditional Use Permit pursuant to Article VII of this ordinance if located in the Aquifer Protection Overlay, in accordance with the rules and regulations of this chapter. Such review and approval shall precede the issuance of any building permit by the Town of Durham.