

## TECHNICAL MEMORANDUM

TOPIC: Land Use Regulations Review

PROJECT: Southeast Connecticut Drinking Water quality Management Plan (DWQMP)  
MMI # 3448-01

DATE: May 14, 2008

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### Introduction

As part of developing the DWQMP for the southeast Connecticut region, land use within the existing active drinking water supply watershed lands in Groton and Ledyard as well as in the potential future watersheds located in Groton, Ledyard, Preston, and North Stonington have been evaluated. A large body of study throughout the country has found water quality and land use to be inextricably linked, making management of development within sensitive watersheds an important tool to long term management and protection of water quality. As such, this analysis evaluates the current land use practices in each of the watershed communities. In evaluating land use, current zoning classifications are of interest in that they provide the framework for future development patterns and hence, potential impacts to water quality that may result from development. The following discussion briefly summarizes existing zoning in each community, followed by a summary of the current land use regulations in each town.

### Existing Water Supply Watershed Zoning

Within the Town of Ledyard, some 88% (6.5 square miles) of the drinking water supply watershed area is zoned residential. The residential areas are zoned for two-acre, 1.5-acre and one-acre density. The rural density residential areas are located in the center of the watershed around the Morgan Pond and Ledyard Reservoirs. The Ledyard Center village district (LCVD) and commercial industrial park (CIP) zones occupy 6% of the Great Brook watershed. The remaining 6% of the watershed is open water associated with the reservoir.

The portion of the watershed within the Town of Groton is dominated by residential zoning. The one-acre RU-40 zone is the most rural and abundant Groton designation within the watershed, occupying 4.6 square miles (32%) of the watershed area within Groton. The half-acre RU-20 zone comprises 1.6 square miles (11%) of the watershed, and is primarily located along the western edge of the watershed. There are some small areas of multi-family residential land use scattered throughout the watershed in Groton.

Groton's remaining portions of the watershed are a combination of industrial and commercial land uses. The commercial area extends along the Route 12 and Route 184 corridors. An industrial zone is located to the east of Smith Lake and Poheganut Reservoirs.

Potential Future Water Supply Watershed Zoning

The potential future water supply watersheds lie in Groton, North Stonington, Ledyard and Preston. In North Stonington, which has the smallest watershed area of all watershed communities, all potential watershed lands are zoned two-acre residential (R-80).

In Preston, zoning designations within future potential watersheds are one-acre residential (R60) with commercial zones (R-C) along the Route 2 corridor, north of the Mashantucket Pequot Tribal Nation. North of Amos Lake is a commercial area and the Preston City Village District (PCVD). Preston has designated a large area surrounding Amos Lake the Special Amos Lake Protection District (R-S), limiting intense activities to protect the water quality of the lake.

Ledyard zoning districts include one-acre and 1.5-acre residential areas (R40 and R60) and a large tract of Rural Residential (R80) within the Mashantucket Pequot Tribal Nation, with high density Resort Commercial Cluster District (RCCD) surrounding the reservation to the east.

Zoning in the Town of Groton in the future watershed areas is primarily residential (RU40) with small sections of commercial zoning along Route 184.

Land Use Regulations and Processes

Each of the towns within the watershed area has specific sets of land use regulations that govern development and guide land use decisions. These regulations are updated regularly to reflect the changing needs of the individual communities. Table 1 (at the end of this memorandum) is a summary of the regulations in each town that were reviewed.

Each town has established land use commissions and staff that review development applications for consistency with the regulations and guide the development process. Town commissions and staff are as follows:

**Town of Groton**

- ✓ Planning Commission
- ✓ Zoning Commission
- ✓ Inland Wetlands Commission

Groton directly employs professional staff in both the planning and engineering departments that assist in evaluating land use applications. This staff includes professional planners, professional engineers, zoning enforcement officers and building officials.

**Town of Ledyard**

- ✓ Planning Commission
- ✓ Zoning Commission
- ✓ Inland Wetlands Commission
- ✓ Conservation Commission (Advisory)

Ledyard employs a director of planning and development as well as a zoning officer who works with the Zoning and Wetlands Department. Additional staff includes building officials and the water and sewer authority.

**Town of Preston**

- ✓ Planning and Zoning Commission (Combined)
- ✓ Inland Wetlands and Watercourses Commission
- ✓ Conservation Commission (Advisory)

Preston employs a full time planner. The First Selectman serves as the Public Works Director. The Town employs a registered sanitarian, as well as a zoning enforcement officer and inland wetlands officer.

**Town of North Stonington**

- ✓ Planning and Zoning Commission (Combined)
- ✓ Inland Wetlands and Watercourses Commission
- ✓ Conservation Commission (Advisory)

North Stonington employs a full time zoning enforcement officer/planner. Additional staff includes a registered sanitarian, an inland wetlands officer, and building officials.

Land use regulations for each community were evaluated to identify land use practices that have the potential to impact water quality. Table 2 presents a summary of these regulations.

**TABLE 1**  
**Summary of Land Use Regulations Reviewed**

<i>Regulation Type</i>	<i>Groton</i>		<i>Ledyard</i>		<i>Preston</i>		<i>North Stonington</i>	
	<i>Source</i>	<i>Latest Revision Date</i>	<i>Source</i>	<i>Latest Revision Date</i>	<i>Source</i>	<i>Latest Revision Date</i>	<i>Source</i>	<i>Latest Revision Date</i>
Plan of Conservation & Development	Hard Copy	2002	Town Web Site	2005	Hard Copy	2003	Town Web Site	2003
Wetland Regulations	Town Web Site	2006	Town Web Site	2008	Emailed PDF	2006	Town Web Site	1999
Subdivision Regulations	Town Web Site	2006	Town Web Site	2007	Town Web Site	2005	Town Web Site	2006
Zoning Regulations	Town Web Site	2007	Town Web Site	2007	Town Web Site	2006	Town Web Site	Current
Table of Permitted Uses	Town Web Site	Current						
Zoning Map	Town Web Site	Current			Town Web Site	Current	Town Web Site	2007
Economic Development Plan	Town Web Site	2006	Town Web Site	1998, 2007				
Parks Regulations	Town Web Site	2003						
Stormwater Ordinance			Town Web Site	1995				
DPW Annual Reports			Town Web Site	2007				
Map or List of Open Space			Town Web Site	2007				
Road and Drainage Standards	Hard Copy and CD	2002						

**Table 2**  
**Southeast Connecticut DWQMP**  
**Summary of Municipal Land Use Regulations**

Town / Regulation	Established Upland Review Area	Winter Maintenance Requirements Specified (e.g., limit salt or sand)	Max Coverage (%)	Aquifer Protection District / Watershed Protection District	Zero Increase in Runoff Requirement	Water Quality Requirements / Standards	Reference to 2002 Sediment and Erosion Control Guidelines	Reference to 2004 Stormwater Quality Manual	Roadway Widths Vary Based on Use?	Sidewalks Mandatory?
Groton	100' / 30' <sup>1</sup>	Yes	70%	Yes	Yes	Yes <sup>2</sup>	Yes	No	Yes	Yes
Ledyard	100'	No	80%	No <sup>3</sup>	No	Yes	Yes	No	Yes	See Note 7
Preston	100'	No	70%	Yes <sup>8</sup>	No	Yes	Yes	No	Yes	No
North Stonington	100' / 300' <sup>5</sup>	No	See Note 6	Yes <sup>4</sup>	Yes	Yes	Yes	Yes	Yes	No

**Notes:**

1. Varies based on activity.
2. For Water Resource Protection District
3. ZR Section 8.3.3 does require special study for developments of 30 lots or more where private wells are proposed within public water supply watersheds.
4. SR Section 6.4 requires that natural runoff capacity not be altered unless it is substituted.
5. 300' from Amos Lake per Section 7 of ZR
6. Varies by zone. 70% in Specialized Districts; 30% in Preston City Village District
7. The Ledyard Center Village Districts (LCVD) 1 and 2 require 10' wide sidewalks. The LCVD-3 and Multi-Family Village District require 5' wide sidewalks.
8. The Amos Lake Protection District

## TOWN OF GROTON

### Town of Groton Zoning Regulations

Groton Zoning Regulations Section 6.12 establishes the Water Resource Protection District. Creation of this district is "deemed essential to protect water supply sources in the Town and is promulgated under Public Act 85-279. As groundwaters and surface waters have been shown to be easily, and in many cases, irrevocably contaminated by many common land uses, it is imperative that all reasonable controls over land use, waste disposal and material storage be exercised. This district is designed to protect the following existing and future water supply resources: extensive stratified drift aquifers, surface water reservoirs, and areas in which groundwater is the sole source for water supply." Although underlying zoning districts apply, the following are prohibited in the Water Resource Protection District:

Any industrial, commercial, or other use in which the manufacture, use, storage, transport, process or disposal of hazardous materials or waste is a principal activity.
Sanitary landfill, septage lagoon, wastewater treatment facility for municipal or industrial wastes.
Road salt storage.
Junkyard, salvage yard, truck terminal.
Automotive service operations: fuel stations, auto service stations, body shops, rust proofing, and auto sales dealerships.
Engine repair and machine shops.
Dry cleaners, printers, furniture strippers, photo processors and photo labs. Screen printing/embroidery of clothing is permitted subject to the following conditions: 1. A zero discharge/closed loop system shall be employed. 2. There shall be no production discharge to sanitary sewer, on-site septic or groundwater/surface water. 3. Periodic inspections to insure compliance with the purpose of the Water Resource Protection District shall be permitted. 4. The applicant must demonstrate the method and technology used for the removal of all wastes and fluids used in the production process.
Dental offices, beauty salons, car washes, science, research or medical laboratories, unless public sewer and water are available.
Medical offices which do not perform laboratory, x-ray, or other services which result in the production of chemical wastes and kennel facilities may be permitted in unsewered areas by special permit subject to the following conditions: 1. Septic tank installations shall be designed with provisions for sampling at the outlet baffle. 2. Applicant shall provide verification that septic system is serviced by a waste hauler. 3. Floor drains, excluding those only accepting animal waste, which discharge to the ground, septic systems, storm sewers or to any surface water body are prohibited. Floor drains may discharge to a holding tank which is periodically pumped out. Floor drains only accepting animal waste shall first discharge into a settling tank prior to release into a septic system. 4. Floor surfaces in work areas and chemical storage areas shall be sealed with an impermeable material resistant to acids, caustics, solvents, oils or any other substance which may be used or generated at the facility. 5. Wastewater, other than domestic sewage, shall be disposed of using best management practices. In addition, kennel facilities shall be subject to the following conditions: Dipping is prohibited. Outside runs shall be roofed and not allowed in flood zones. Swales or drains shall be required to direct stormwater away from runs. A list of chemicals and cleaning agents to be used shall be provided and approved. Pesticides, pesticide-laden disinfectants, and products containing aromatic hydrocarbons, coal tar, and organic phosphates shall not be used or stored on the site.

Additional restrictions applicable to the Water Resource Protection District include:

#### 6.12-4 Lot and Parking Coverage, Buffers and Setbacks

- "A. Total lot coverage, which shall include all impervious surfaces, shall not exceed 70% of total lot area. Within this overall requirement, the total minimum parking area required by any provisions of Section 7.2 shall determine the maximum amount of impervious parking area allowed. Excess parking beyond the minimum requirement established shall be constructed of a pervious material, deemed acceptable by the Planning Commission/Planning Department, subject to underlying soil permeability, level of ground water, lot slope, and maintenance needs of the project (e.g. sweeping and washing). In no case shall the parking requirement permit the impervious coverage calculation to exceed the 70% maximum.
- B. A minimum of 20% of total lot area shall be retained in its natural state with no more than minor removal of existing trees and vegetation. Areas within this 20% minimum that should not be disturbed include 100-year flood plains and slopes in excess of 25 percent.
- C. A minimum 50 foot buffer shall be maintained between watercourses and directly adjacent stream belt wetlands and the developed land area."

#### 6.12-5.C Other Requirements and Restrictions

- "1. The use of underground drywells or leaching trenches is not allowed for any stormwater from developed parking areas.
- 2. Stormwater discharges from rooftops shall not be directed to impervious surfaces. The stormwater shall discharge to the ground or to other stormwater infiltration structure(s), utilizing best management practices.
- 3. Following development, all stormwater should be directed to the same wetland or watercourse that received the stormwater prior to development.
- 4. Stormwater discharges shall terminate at least 100' from a class AA watercourse unless such termination is impractical or advantageous to water quality.
- 5. Detention ponds, basins, swales or other measures designed to treat runoff, contain pollution and/or control peak flows, and infiltrate clean water, may be required. Detention structures, when required, shall be designed such that there is no net increase in the peak rate of runoff over pre-developed conditions for the 1, 2, 5, 10, and 25-year storms.
- 6. Grease, oil and other floating liquid/solid separators may be required when deemed necessary by the Commission to mitigate impacts to surface and/or groundwater resources.
- 7. Structures or treatment measures to settle suspended materials and evaporate volatile materials including swales, basins, and structures designed to trap oil and sediments.
- 8. The drainage design shall maximize overland flow of stormwater prior to discharge to stormwater basins, wetlands or watercourses. This may be accomplished by the elimination of curbing, provision of leak-offs, the use of grassed swales and/or use of

- other best management practices to promote stormwater renovation, reduce point discharges, and to reduce the discharge of heavy metals and nutrients.
9. Stormwater discharges to wetlands or watercourses shall be treated first by a detention pond, grassed swale or other best management practice designed to remove 80% of total suspended solids.
  10. Restriction of salt (NaCl) application."

Table 5.1-3 lists the Permitted Uses in each zone:

The Water Resource Protection overlay currently overlays Residential zones RMF and RU; Commercial Districts OMF, CA, and CB; and Industrial Districts IPA and IPC.

By definition, uses permitted in these zones are also permitted in the overlay zone except for those specified in the table above. Some permitted uses may not fit within the goals of the overlay zone such as:

Use	Zone	Restriction
Commercial Farm or Nursery	RMF, RU, OMF, CA, CB, IPA, IPC	Permitted as of right but subject to district regs. And special conditions
Filling or Extraction of Earth Products	RMF, RU, OMF, CA, CB, IPA, IPC	Permitted as of right but subject to district regs. And special conditions
Campgrounds	RU	Permitted as of right but subject to district regs. And special conditions
Carnival or Fair	RMF, RU, OMF, CA, CB, IPA, IPC	Permitted as of right but subject to district regs. And special conditions
Golf Course	RU, IPA, IPC	Permitted as of right but subject to district regs.
Public Playground, Playfield, or Park	RMF, RU, OMF, CA, CB, IPA, IPC	Permitted as of right but subject to district regs.
Riding or Boarding Stable	RU, IPA, IPC	Permitted as of right but subject to district regs. And special conditions
Financial, Business, and Gvmnt Srvcs	OMF, CA, CB, IPA, IPC	Permitted as of right but subject to district regs.
Car Wash	CA, CB	Permitted as of right but subject to district regs. And special conditions
Cemetery – New	RU, IPA, IPC	Permitted as of right but subject to district regs. And special conditions
Commercial Kennel or Stable	RU, IPA, IPC	Permitted as of right but subject to district regs. And special conditions
Marine Craft and Equipment Display and Sales	CA, CB	Permitted as of right but subject to district regs.
Tires, Batteries, and Accessories	CA, CB	Permitted as of right but subject to district regs.
Trailer, Farm and Heavy Equipment Sales	CB	Permitted as of right but subject to district regs.
Electric Transformer Substation	OMF, CA, CB, IPA, IPC	Permitted as of right but subject to district regs.
Motor Freight Terminal	CB	Permitted as of right but subject to district regs.
Railroad Freight Station	IPA, IPC	Permitted as of right but subject to district regs.
Industrial – Food and Kindred Products (miscellaneous)	IPA	Permitted as of right but subject to district regs.
Industrial – Apparel and Other Fabricated Textile Products	IPA	Permitted as of right but subject to district regs.
Industrial – Furniture and Fixtures	IPA	Permitted as of right but subject to district regs.
Industrial – Paper, printing, publishing, and allied industries	IPA	Permitted as of right but subject to district regs.
Plastic forming, pressing and assembly	IPA	Permitted as of right but subject to district regs.

#### 6.2-7 Building Coverage

*"There is no restriction on the maximum area that a building can cover in the DDD."*

#### 6.3-4 Building and Development Standards

*"B. In no case shall new construction at the foundation line be located less than 25 feet from the Mystic River at mean water level elevation.*

*D. In no case shall building coverage exceed 65% of the lot area."*

#### 6.10-3 Permitted Uses

*"Uses specifically not allowed in the NMDD include drive-up window facilities, outdoor storage of equipment, cars and other vehicles, and automobile related facilities such as muffler shops, car repair facilities, etc. Said prohibition does not apply to the dispensing of gasoline."*

### **Town of Groton Subdivision Regulations**

Erosion and Sediment (E&S) Control Plan: Section 3.3 of the Subdivision Regulations requires that "whenever plans for the proposed subdivision show that it will result in the cumulative disturbance of more than one-half acre of land, the applicant will submit with the subdivision plan an erosion and sediment control plan that presents, in mapped and narrative form, the measures to be taken to control erosion and sedimentation both during and after construction." The E&S plan shall be based on "Connecticut Guidelines for Soil Erosion and Sediment Control," available from the Council on Soil and Water Conservation of the Connecticut Department of Environmental Protection.

#### 4.4 Drainage, Storm Sewers, and Flood Prevention:

*" (1) General Requirements*

*a) The Planning Commission shall not approve any plan of subdivision which does not make adequate provision for storm or flood water runoff control. The storm water management system shall be separate and independent of any sanitary sewer system and shall, wherever possible, utilize techniques designed to recharge ground water, minimize downstream flooding, etc."*

*4.4.3.b.iv: "Low-lying lands along watercourses subject to flooding or overflowing during storm periods, whether or not included in areas for dedication, shall be preserved and retained in their natural state as drainage ways."*

*4.4.2.c) "Accommodation of Upstream Drainage Areas - A culvert or other drainage facility shall be large enough to accommodate potential runoff from its entire upstream drainage area whether inside or outside the subdivision. The Director of Public Works shall determine the necessary size of the facility, based on applicable construction standards and specifications assuming conditions of maximum potential watershed development permitted by the Zoning Regulations."*

*4.4.2.d) "Effect on Downstream Drainage Areas - The applicant shall study the effect of the subdivision on existing downstream drainage facilities outside the area of the subdivision. Where it is anticipated that the additional runoff incidental to the development of the subdivision will*

overload an existing downstream drainage facility, the Planning Commission may require the developer to take steps to minimize the impact on downstream properties."

#### 4.7 Sidewalks and Curbs

" (1) Required Improvements

a) Four-foot wide concrete sidewalks shall be included in the non-pavement right-of-way on both sides of proposed local roads such as access, village and subvillage roads, and five-foot wide sidewalks shall be similarly included in arterial and collector roads and any other roads, regardless of classification which border commercial, industrial or multi-family tract subdivisions. Where subdivisions front on existing roads, the Commission may require sidewalks along the respective subdivision lot frontage. In addition, in order to promote pedestrian safety and provide for a convenient sidewalk system for present and prospective needs, the Commission may require extension of the sidewalk for a reasonable distance beyond the subdivision lot frontage. These requirements shall apply to all subdivisions, unless waived by the Commission in accordance with Section 1.10 of these regulations. This section shall not supersede the requirements for sidewalk installation prescribed in the Zoning Regulations for sites subject to site plan review and approval by the Planning Commission. (Eff: 6/1/92)

b) Concrete curbs shall be provided on both sides of all streets in all subdivisions and shall be constructed to provide for driveway curb cuts and sidewalk ramps at intersections at the time of construction.

e) In lieu of the required sidewalks, the Commission may require construction of a 6' wide bituminous concrete sidewalk/bike path to encourage the use of bikes."

### **Town of Groton Wetland Regulations**

Section 4.3 specifies that "all activities in wetlands or watercourses involving filling, excavation, dredging, clear-cutting, grading, and excavation or any other alteration or use of wetlands or watercourses not specifically permitted by this section shall require a permit from the Agency in accordance with Section 5 of these regulations."

Section 5.3 establishes recommendations for the following "setbacks and buffers":

Use or Activity	Buffer
Subsurface sewage disposal system	100'
Building structure primary, and/or accessory structure	100'
Removal or deposition of earth material or demolition debris, grading	100'
Storage or stockpiling of any construction material, debris, motor vehicles, or installation of portable sanitation equipment	50'

Note, however, that the table in the regulations identifies each distance as a "buffer." The Agency may "require or establish distances or areas exceeding or below this recommendation."

The Town defines "regulated activity" as:

*"...any operation or use of a wetland or watercourse involving removal or deposition of material; or any obstruction, construction, alteration, or pollution of such wetlands or watercourses, and those activities adjacent to wetlands or watercourses..."*

The Town defines "major activity" as:

*" any activity including, but not limited to, the following activities which may have a major effect or significant impact on the area for which an application has been filed or on another part of the inland wetland or watercourse system:*

- 1. Any activity involving a deposition or removal of material which will or may have a major effect or significant impact on the regulated area or on another part of the inland wetland or watercourse system (this generally shall be 100 cubic yards or more); or*
- 2. Any activity which substantially changes the natural channel or may inhibit the natural dynamics of a watercourse system; or*
- 3. Any activity which substantially diminishes the natural capacity of an inland wetland or watercourse to support desirable fisheries, wildlife, or other biological life, prevent flooding, supply water, assimilate waste, facilitate drainage, or other functions; or*
- 4. Any activity which causes substantial turbidity, siltation, or sedimentation in a wetland or watercourse; or*
- 5. Any activity which causes a substantial change in the flow of a natural watercourse or in the groundwater levels of the regulated area; or*
- 6. Any activity which causes or has the potential to cause pollution of a wetland or watercourse, as may be measured by the Department of Environmental Protection Water Quality Standards and Classifications; or*
- 7. Any activity which destroys or adversely affects unique wetland or watercourse areas having demonstrable scientific or educational value."*

### **Town of Groton Park Regulations**

Under General Rules:

*"All pets must be kept under control at all times. Pet feces must be removed from the park. Pets are prohibited at community events, special events and at certain parks that support sport activities."*

Under Open Space:

*"Pets must be kept under control and pet feces must be removed from all parks."*

### **Town of Groton Dept. of Public Works Road & Drainage Standards**

Section 3.3 Sidewalks and Curbs: *"Concrete sidewalks shall be included in the non-paved right-of-way on both sides of all streets in all subdivisions. Concrete curbs shall be provided on both sides of all streets in all subdivisions."*

### Section 3.4 Drainage:

- 3.4.A.1: *All proposed roads and modifications to existing roads shall have a separate stormwater drainage system...*
- A.2: *All roads should be built with curbs and a "closed" drainage system...*
- B.1: *It is the downstream owner's responsibility to design his drainage facilities to adequately carry the upstream runoff...*
- C.2: *The SCS TR-55 method shall be used for medium-sized drainage areas (20-2,000 acres) or when detention is needed.*
- F.1: *Underdrains shall be installed in all known wet areas that if left wet would affect the integrity of the roadway. They shall also be placed in areas found to be wet during construction...*
- G.1: *If at all possible, footing drains for foundations shall outlet on the property they area serving. If outletting on to the property is not possible then the footing drain may be connected to a storm system structure directly in front of the property served with approval from the Director.*
- G.3: *Sump pumps shall not be connected to any storm system pipe or structure.*

### Section 3.5 Erosion and Sedimentation Control

- "A. *When erosion and sedimentation control is required...then the plans shall be consistent with the Connecticut Council on Soil & Water Conservation document "Connecticut Guidelines for Soil Erosion and Sediment Control"*

## **Town of Groton 2002 Plan of Conservation and Development**

### Section 4: Protect Natural Resources

The section identifies the Town's goal of protecting water quality and specifies that "Education programs must address such issues as residential, commercial, and municipal hazardous wastes, lawn and garden fertilizer/chemicals, sediment runoff, septic maintenance, yard c composting, resource recovery/recycling, and similar issues."

Specific actions to address water quality are listed:

- Incorporating stormwater management provisions in the Towns zoning regulations
- Retrofitting antiquated stormwater systems at and near redeveloped sites
- Using "best management practices" such as vegetative buffers and bio-infiltration islands
- Establishing minimum standards for stormwater treatment systems
- Establishing standards for "zero net increase" in total suspended solids, runoff rates, and volumes
- Redefining lot coverage to include all impervious surfaces
- Restricting the clearing of steep slopes
- Instituting road standards that encourage curbless and narrower roads, share driveways and parking, and alternative pervious parking surfaces
- Retrofitting existing stormwater systems
- Regular street sweeping
- Storm drain stenciling projects

The following recommendations are offered:

1. Continue to monitor and protect water quality in Groton
2. Strive to preserve and/or acquire extensive wetland and stream belt systems
3. Continue to implement watershed protection regulations in public water supply watersheds
4. Examine the amount of impervious surfaces allowed in all zones and areas
5. Establish strict standards for impervious coverage in significant watersheds
6. Continue to reduce pollution from septic systems
7. Continue to reduce pollution from marine waste
8. Continue careful review of septic designs by all departments prior to approval
9. Encourage the Ledge Light Health District to develop a program to guide property owners on acceptable practices in non-sewered areas
10. Continue to reduce pollution from storm drainage systems, including trapping, removing, and suitably disposing of sediment from storm drains
11. Upgrade the location, construction, and operation of salt storage areas...
12. Implement educational programs for Groton residents...

## TOWN OF LEDYARD

### Town of Ledyard Zoning Regulations

Section 3.8.3 specifies that "for disturbance of greater than one-half acre, an erosion and sediment plan will be submitted as per Section 12.2."

Section 3.8.5 specifies that "For creation of greater than 10,000 S.F. of new impervious surfaces, the application will comply with the Stormwater Management Ordinance"

The Design Objectives for Resort Commercial Cluster District (RCCD): Section 5.2.5 specifies that plans shall "Require best management practices available for all land uses located in close proximity to aquifer recharge areas."

Section 12.2 specifies the requirements for the Erosion and Sediment Control and states that "The E & S plan shall be based on the "Connecticut Guidelines for Soil Erosion and Sediment Control," (1985) as amended."

Soil, Gravel and Stone Removal: Section 12.5 specifies that " No operation shall take place closer than a minimum of fifty (50) feet from a stream, pond or lake" (Section 12.5.4.2) and that " Any surface water flowing from the excavated area shall flow through appropriate sediment control devices before leaving the site" (Section 12.5.4.7)

6.4.2 Any disturbed area of a lot or property which is not used for the location of buildings, structures, accessory uses, off-street parking, loading and storage areas, or similar purposes shall be landscaped and maintained in such a manner as to minimize storm water runoff.

### Town of Ledyard Subdivision Regulations

Section 4.1.1 specifies that "land subject to flooding, including tidal flooding, shall not be subdivided for any use whereby danger to health or public safety, as determined by the Ledyard Planning commission, may result."

Section 4.8.8 specifies the design guidelines for Conservation Subdivisions and states that "wherever possible ponds, streams, wetlands should be adjacent, contiguous or included in the open space. Shade should be preserved within wetlands areas and at least 25 feet from ponds and streams."

Section 4.8.9 specifies that "common driveways serving more than one dwelling are encouraged" and Section 5.5 details requirements of shared driveway "in order to minimize adverse environmental impacts..."

Erosion and Sedimentation Control Plan: Section 7.1 of the Subdivision Regulations requires that "whenever plans for a subdivision show construction of improvements or building related to the subdivision that will result in the disturbance of more than one-half acre of land, the applicant will submit, as part of the subdivision plan, and Erosion & Sediment Control Plan that

presents, in mapped and narrative form the measures to be taken to control erosion and sedimentation both during and after construction. The Erosion & Sediment Plan shall be based on best available technology as set forth in *Connecticut Guidelines for Soil Erosion and Sediment Control*, available from the Connecticut Department of Environmental Protection."

Section 7.2 specifies that "it is the obligation of the Applicant to register the product with the Department of Environmental Protection's Bureau of Water Management, Engineering and Enforcement Division, if proposed construction activities will result in the disturbance of five or more total acres land area on a site. If required by the Department of Environmental Protection, the Applicant shall develop and adhere to a Construction Activity Stormwater Pollution Control Plan."

Requirements for Approval of Subdivision not Including New Public Streets: Section 8.5.3 requires that "water studies, prepared by a certified geohydrologist, shall be submitted by the applicant for all subdivisions containing 30 or more lots in which private water supply wells are proposed, and for all subdivision where community water supply systems to be operated by SCWA or the Town of Ledyard are proposed. Water studies shall address the adequacy of ground water supplies and the effect of the proposed subdivision on existing surrounding wells."

#### **Town of Ledyard Wetland Regulations**

Section 2.1 defines "Regulated Activity" as "any operation within or use of a wetland or watercourse involving removal or deposition of material, or any obstruction, construction, alteration or pollution of such wetlands or watercourses, but shall not include the specified activities in Section 22a-40 of the Connecticut General Statutes. Furthermore, any clearing, grubbing, filling, grading, paving, excavating, construction, depositing or removing of material and discharging of storm water on the land within 100 feet, measured horizontally from the boundary of any wetland or watercourse, is a regulated activity. The Agency may rule that any other activity located within such upland review area or in any other non-wetland or non-watercourse area is likely to impact or affect wetlands or watercourses and is a regulated activity."

Section 4.3 specifies that "All activities in wetlands or watercourses involving filling, excavating, dredging, clear cutting, clearing, or grading or any other alteration or use of a wetland or watercourse not specifically permitted by this Section and otherwise defined as a regulated activity by these regulations shall require a permit from the Agency in accordance with Section 6 of these regulations, or for certain regulated activities located outside of wetlands and watercourses from the duly authorized agent in accordance with Section 12 of these regulations."

#### **Town of Ledyard – Ordinance Regulating the Management of Stormwater Runoff**

The purpose of this Ordinance is to "establish stormwater management policy and specifications which will protect citizens from the danger of improper drainage and flooding by controlling stormwater runoff."

The Ordinance identifies the types of measures permitted to reduce rates of post-development runoff, including:

- Grassy or vegetated strips, swales and ponding areas within or around parking lots
- Grassed or riprap-lined waterways and swales, riprap check dams and level spreaders
- Groundwater recharge measures, such as roof downspouts connected to drywells, gravel driveways and parking areas, retention basins, and infiltration trenches
- Detention basins

Section 4.C specifies that "reliance upon natural runoff detention or retention capacity of wetlands not located on property under control of the applicant is permitted, provided that such capacity is demonstrated through hydrologic analysis conducted by a Professional Engineer."

Part III. Section 1.A.2. specifies that "the SCS TR-55 method shall be used for medium drainage areas (200-2,000 acres)."

Part IV. Section 2.C. specifies that "Grassy or vegetated strips and swales in parking areas shall have a pervious subgrade in order to be considered in the runoff calculations."

### **Town of Ledyard – Plan of Conservation and Development**

"The town should continue to support higher density residential development and diverse housing type construction as a component of mixed use development near Ledyard Center, along the Route 12 corridor and where water and/or sewer is available, and lower density single family development in outlying areas or in support of prevailing development patterns."

"The Regulations for the Protection and Preservation of Inland Wetlands and Watercourses (IWWC), Zoning regulations and Subdivision regulations should be reviewed and amended where necessary. Particular attention should be paid to the following:

- Require set back requirements or non-disturbance areas of no less than 25 feet (50 feet for septic) from wetlands for any residential development. The regulation should require the "buffer" be posted every 50 feet prior to any construction.
- Require all conservation areas be posted every 50 feet and the posting be done prior to any construction.
- Encourage innovative site design including open space/conservation subdivisions design to protect important environmental or natural features by offering density bonuses or making other regulatory concessions, where appropriate.
- Ensure that no inappropriate commercial uses are allowed in residential zones. "

"In areas with public water or sewer, or where a community system is proposed, current zoning regulations allow for cluster development. The current regulations are not true cluster regulations since they simply permit smaller lot sizes. They do not address design, open space preservation or protection of natural resources. Both zoning and subdivision regulations should be revised to encourage true cluster or conservation development, in areas served by water and sewer, for the

purpose of preserving and linking open space and natural resources, as well as possibly promoting the construction of diverse housing types."

"Because of Ledyard's dependency on groundwater and reservoirs for its water supply, septic systems must be located, installed and repaired with great care. Many developable areas remaining in Ledyard are characterized by shallow depth to bedrock, steep slopes, a high groundwater table, and/or the presence of wetlands. The subdivision requirement that all new building lots contain seventy-five percent contiguous non-wetland area should be enforced consistently and uniformly and not waived. Rezoning proposals that will increase density in areas served by on-site septic systems that would circumvent regulations intended to protect wetlands, well fields or neighboring wells should not be approved by the Zoning or Planning Commissions. Current minimum acreage and zoning requirements for building lots should be maintained in all environmentally sensitive areas served by individual on-site septic systems in order to guarantee sufficient primary and reserve leaching areas."

"The State of Connecticut's *Conservation & Development Policies Plan, 1998-2003* states that preservation and protection of watershed lands is a primary goal of the state, and that treatment technology alone cannot guarantee clean water. Source protection should be implemented in all state-designated public water supply watersheds and aquifer protection overlay zones, and groundwater recharge areas surrounding small community wellfields. Ledyard contains three DEP-designated aquifer protection overlay areas. No future rezoning is recommended that will result in a decrease in lot size or in allowed density of development within any aquifer protection overlay area. Emphasis should instead be placed on instituting Best Management Practices (BMP) for new development, rehabilitating existing problems caused by past development, and careful monitoring of existing land uses by water companies whose wells are located in these areas (WPCA, SCWA or CTAmerica). Additional source protection measures can be provided by development of subdivision, zoning and public improvement standards which address stormwater run-off, limit the extent of impervious surfaces and control runoff as development review criteria to minimize impact on natural and man-made drainage systems. Care should be taken to manage and control stormwater drainage. Subdivision, zoning and public works standards should be reviewed to ensure that calculations are required to show 0% increase in run off to man-made and natural drainage systems resulting from development to minimize impacts to property and the environment."

Whenever resurfacing of a local street or road is planned, plans should include improved stormwater runoff controls capable of reducing serious pollution and erosion problems. These retrofits are considered "best management practices," and include:

- Excavation of accumulated sediment and removal of brush and debris from the inlet and outlet sides of existing drainage pipes and culverts, including flushing out of existing pipes filled with sediments.
- Installation of new head and endwalls at drainage culverts, as necessary.
- Repair of erosion damage on the outlet side of drainage culverts by installing riprap lined plunge pools and channels.

- ☐ Identification of erosion gullies at the edge of existing pavement, and installation of preventative measures.
- ☐ Installation of additional stormwater collection systems.
- ☐ Installation and maintenance of erosion and sedimentation controls in conformity with the *Connecticut Guidelines for Soil Erosion and Sediment Control*, published by the CT Council on Soil and Water Conservation, pursuant to Section 22a-328 of the General Statutes.

## TOWN OF NORTH STONINGTON

### Town of North Stonington Zoning Regulations

North Stonington Zoning Regulations Section 406 establishes the Aquifer Protection Overlay Area. Regulations set forth conditional uses, special permit uses and prohibited uses in this area.

The following conditional uses are permitted in the Aquifer Protection Overlay Area:

1. Agricultural users provided they adhere to Best Management Practices for the storage or application of fertilizers, pesticides, herbicides, fungicides, or other chemicals associated with agricultural operations, manure
2. Silica sand mining and processing operation provide they limit the deposition of earthen materials remaining from operation to clean, inert, and uncontaminated rock or soil...
3. Maintenance, washing, servicing, or repair of commercial, industrial, or fleet motor vehicles or equipment....provided the service offered is performed on an impervious surface designed to collect, contain, and properly dispose of fuels, lubricants, fluids and other potential groundwater contaminants.

Although underlying zoning districts apply, the following are prohibited in the Aquifer Protection Overlay Area:

1. Any use requiring the manufacture, generation, or on-site disposal of a Hazardous Substance in any quantity.
2. Heating oil, motor fuel, or gasoline storage tanks that are not accessible to complete visual inspection of the tank.
3. Wet ink-printing operation. Print Shop.
4. Warehousing or bulk storage of chemicals as the principal use.
5. Mortuary, morgue, funeral home or parlor, embalming operation.
6. Commercial boat building, servicing, maintenance, repair, reconditioning, or painting; boat yard.
7. Boat or marine inboard or outboard engine servicing, maintenance, repair or reconditioning.
8. Commercial extermination service; pest exterminator operation.
9. Gasoline service station; gasoline wholesale or retail sales operation.
10. Motor vehicle servicing, maintenance, or repair operation or garage.
11. Commercial petroleum product storage or distribution facility; heating oil, motor fuel, or gasoline depot.
12. Dry cleaning operation.
13. Laundromat, self-service laundry, commercial laundry; fabric, rug, or carpet cleaning establishment.
14. Motor vehicle radiator repair shop.
15. Motor vehicle body repair, reconditioning, painting, rust proofing, or undercoating; body shop.

16. Motor vehicle washing operation, car wash, truck wash.
17. Veterinary operation; kennel; pet washing or grooming operation; commercial or municipal animal shelter as a principal use.
18. Fabric dyeing operation.
19. Industrial or commercial chemical or biological laboratory as a principal use; chemical or biological research facility.
20. Photographic processing or laboratory as a principal use.
21. Furniture stripping, refinishing, or reconditioning operation.
22. Machine shop as a principal use.
23. Metal fabrication, heat-treating, annealing, refining, reduction, rescaling, descaling, plating, casting rolling, milling, smelting, electroplating, foundry.
24. Wastewater or sewage treatment plant or facility other than package sewage treatment plants, such as Sequencing Batch Reactors that are approved by the Connecticut Department of Environmental Protection and on-site septic system.
25. Pipelines for the multiple distribution of hazardous Substances or petroleum products.
26. Septage or septic waste lagoon or pit; sludge disposal; solid waste disposal; dredge material deposit; fly-ash disposal.
27. Commercial, industrial, or municipal storage of road salt, road de-icing materials, or road ice control chemicals.
28. Junkyard; reclamation yard; salvage yard; materials recycling operation; scrap metal storage.
29. Landfill; dump; mixed waste disposal; sanitary landfill.

Special Agricultural Building: Section 706 specifies that "no such building or any associate waste storage or treatment area shall be located slower than...300 feet...from a watercourse."

Golf Course Development: Section 725 specifies a requirement for an Environmental Management Report as part of any application package. Volume 3 of this report must include a Groundwater Quality Monitoring Plan; a Surface Water Quality Monitoring Plan; a Habitat/Vegetation Enhancement Monitoring Plan; and a Solid Waste Management Plan.

Soil Erosion and Sediment Control Plan: Section 807 specifies that "whenever plans for the proposed development show that it will result in the disturbance of more than 0.5 acres of land, the applicant shall submit with the Site Plan and erosion and sediment control plan that presents, in mapped and narrative form, the measures to be taken to control erosion and sedimentation both during and after construction...the Plan shall be based on *Connecticut Guidelines for Soil Erosion and Sediment Control*, available from the Natural Resources Center of the Connecticut Department of Environmental Protection."

### **Town of North Stonington Subdivision Regulations**

Erosion and Sediment (E&S) Control Plan: Section 5.5 specifies that "whenever plans for a subdivision show construction or improvements or buildings related to the subdivision that will results in the disturbance of more than ½ acre of land, the applicant will submit, as part of the subdivision plan, an E&S Control Plan that presents, in mapped and narrative form, the measures to be taken to control erosion and sedimentation both during and after construction...The E&S

Control Plan shall be based on *Connecticut Guidelines for Soil Erosion and Sediment Control*, available from the Natural Resources Center of the Connecticut Department of Environmental Protection."

Stormwater Management: Section 5.6 establishes that a Stormwater Management Plan is required for any development requiring a Site Plan or for a Subdivision/Re-Subdivision that disturbs over one (1) acre of land over the total project area. The stormwater management plan is to be designed to be consistent with the "Connecticut Stormwater Quality Manual" as amended.

Drainage: Section 6.4 specifies that "an adequate system of storm water drainage shall be provided and no natural watercourse shall be altered or obstructed in such a way as to reduce the natural runoff capacity unless substitute means of runoff are provided."

### **Town of North Stonington Wetland Regulations**

The Town has a specified upland review area of 100 feet measured horizontally from the boundary of any wetland or watercourse and defines "regulated activity" as:  
*"...any operation within or use of a wetlands or watercourse involving removal or deposition of material, or any obstruction, construction, alteration or pollution, of such wetlands or watercourses, but shall not include the specified activities in Section 4 of these regulations. Furthermore, any clearing, grubbing, filling, grading, paving, excavating, constructing, depositing or removing of material and discharging of storm water on the land within 100 feet measured horizontally from the boundary of any wetland or watercourse is a regulated activity. The Agency may rule that any other activity located within such upland review area or in another non-wetland or nonwatercourse area is likely to impact or affect wetlands or watercourses and is a regulated activity..."*

### **Town of North Stonington Plan for Conservation and Recreation Lands and Recommendations for Use of Land Areas**

General Recommendations in the Plan include:

"5. Encourage development on steep slopes and shallow to bedrock land areas that can, by creative design and suitable regulations, meet necessary sanitary, safety, and protective requirements without defacing rural viewsapes and consuming farm lands. This is important for conserving farm lands and farming.

7. Encourage road and site design that fits the land forms and does not excessively disturb the land by excessive width, excessive impervious covering, and excessive excavation."

Section B of the plan focuses on the goal of permanently protecting water quality and quantity. It specifies:

"1. Allow no increase in the size of the existing commercial and industrial zones, or increase in the density of development within the present residential zones that are designed to protect water resources and the rural character of the town.

2. Develop and implement a program for monitoring risk of pollution to surface and underground waters, and risk to maintaining adequate quantity of waters needed to protect species habitat, and conservation and recreation resources of the town.

3. Avoid sewers in all residential zones in order to afford maximum protection of water resources and rural character of the town. Sewers in residential areas will lead to increased density destroying rural character and leading to pollution of surface and underground waters from increased non-point source pollution, and leakage and other failures of the sewer infrastructure and systems."

It also specifies the following goals:

" a. Keep a low density of development within the upper and middle reaches of the Shunock, Wyassup, and Green Fall watersheds.

b. Monitor surface and stratified drift aquifer water quantity and quality with an ongoing and effective program in order to find and take corrective action before large scale damage occurs.

c. Strictly regulate and enforce the protective intent of the aquifer protection overlay area and wetlands buffer zone regulations.

d. Prevent overdevelopment that risks water quality from point or non-point sources, or risks loss of stream flow or water levels in habitats for wildlife or other species of special concern. "

### **Town of North Stonington Conservation Commission Plan for Conservation and Recreation Lands and Recommendations for Use of Land Areas**

Section B focuses on the goal to permanently protect water quality and quantity.

"1. Allow no increase in the size of the existing commercial and industrial zones, or increase in the density of development within the present residential zones that are designed to protect water resources and the rural character of the town.

2. Develop and implement a program for monitoring risk of pollution to surface and underground waters, and risk to maintaining adequate quantity of waters needed to protect species habitat, and conservation and recreation resources of the town.

3. Avoid sewers in all residential zones in order to afford maximum protection of water resources and rural character of the town. Sewers in residential areas will lead to increased density destroying rural character and leading to pollution of surface and underground waters from increased non-point source pollution, and leakage and other failures of the sewer infrastructure and systems."

"Areas Kept Open to Protect Public Health and Safety: Steep slopes (greater than 25%), shallow depths to bedrock (less than four feet), flood prone areas, wetland soils, swamps, wet lands, buffer areas, and soils with high water tables (less than 24-inches), drinking water protection."

## TOWN OF PRESTON

### Town of Preston Zoning Regulations

Section 2.8 specifies that "no driveway shall have drainage that is directed to the town road unless approved by the First Selectman and provided such drainage is directed into an existing or approved drainage system. Greater than 8% grade requires pavement or surfaced with an acceptable alternative that will prevent erosion."

Preston Zoning Regulations: Section 7 establishes the R-S Special Amos Lake Protection District, created to limit intensive activities which might produce surface runoff and groundwater contamination that could harm the lake. Permitted uses are the same uses as in residential districts, except for the regulations that livestock shall not be kept within 100' of a watercourse or within 300' of the edges of Amos Lake.

Section 13.1.1 specifies that "no building or disturbance to the land shall be located or completed within 100' of any waterbody, watercourses or wetland unless approved by the Wetlands Commission"

Section 4: R-120 Residential District specifies that "Buildings housing animals and areas of concentrated storage of animal waste shall be not less than...one hundred feet (100') from any streams, pond or marsh or swamp area."

Section 11: Specialized District specifies that "Buildings shall not occupy more than twenty percent (20%) of the lot, and all uses, including parking and storage areas, shall not occupy more than seventy percent (70%) of the lot."

Thames River Design District: Maximum lot coverage by buildings is 25%, without public water and sewer service; 40% with both public water and sewer service.

Campus Preservation Overlay Zone: Maximum lot coverage by buildings is 75%.

Planned Business Overlay Zone: Environmental Protection: "Landscaping and stormwater drainage structures associated with site development shall be of a design and layout to minimize potential water quality impacts of non-point source runoff, including hydrocarbons, fertilizers and pesticide applications. Stormwater drainage structures shall be designed to relate harmoniously with the adjacent landscape and structures."

Section 11C.11.e "For uses requiring a significant number of parking spaces, several smaller interconnected parking areas separated by landscaped islands are encouraged rather than a single larger parking lot."

Preston City Village District:

"The lot coverage shall include all parking, whether pervious or impervious, and all other impervious surfaces. The total lot coverage shall not exceed thirty percent (30%) of the lot area."

Section 13 – Supplementary Regulations:

"No building or disturbance to the land shall be located or completed within one hundreds feet (100') of any waterbody, watercourses (if subject to flooding its highest flood line) or wetland, unless approved by the Preston Conservation Inland Wetlands Commission."

Section 13.17 – Animal Wastes:

"No animal or poultry wastes shall be stored within...three hundred feet (300') of a watercourse, or on sloping land which may drain onto another property or into a watercourse or wetland."

**Town of Preston Subdivision Regulations**

Erosion and Sediment (E&S) Control Plan Section 5.5 specifies that "Whenever plans for a subdivision show construction of improvements or buildings related to the subdivision that will result in the disturbance of more than one-half acre of land, the applicant will submit, as part of the subdivision plan, E&S control plan that presents, in mapped and narrative form, the measures to be taken to control erosion and sedimentation both during and after construction. The E&S plan shall be based on *Connecticut Guidelines for Soil Erosion and Sediment Control*"

Section 5.7.3 requires that, if a subdivision includes any portion of a watercourse located within an A Zone or FIRM map for Preston and subdivision would result in the alteration or relocation of that watercourse, a hydrological design by P.E. shall be submitted indicating flood-carrying capacity of watercourse will not be impaired by construction or additional runoff

Section 5.7.4 specifies that "No subdivision shall be laid out in a manner which will obstruct or prevent the efficient drainage of land or surroundings lands or cause flooding in downstream areas. Commission MAY require plans showing measures to be taken to avoid excessive storm water runoff from new subdivisions."

Section 6.2.5 specifies that a driveway serving a rear lot will have the least possible harmful impact on natural features.

Street Design: Section 6.3.1 specifies that "Curbs shall be provided along both edges of all street travel paths for their entire length."

Drainage: Section 6.5 specifies that "an adequate system of storm water drainage shall be provided and installed by the subdivider and no natural watercourse shall be altered or obstructed in such a way as to reduce natural runoff capacity unless substitute means of runoff are provided. The developer shall provide additional capacity in adjacent culverts and other drainage features for accommodating increased runoff from proposed development. The Commission may require culverts and other storm water drainage installations where it deems necessary to connect with one or more natural watercourses."

This section also specifies that:

- Drainage be designed for a minimum 25-year storm. The commission may require a greater storm frequency if conditions could create life-threatening situations.
- Catch basins be provided at low points with double grate catch basins having 4' sumps
- The commission may require underdrains where excessive groundwater or watercourses or wetlands are encountered in the roadway
- If the Town anticipates future development that will increase the drainage flow on a town street, the Town may exercise the right to require additional drainage capacity in the subdivision exceeding requirements present at the time of approval.
- The discharge of all stormwater shall be into suitable streams or rivers or into storm sewers, ditches, or other town drainage facilities with adequate capacity to carry the additional water
- If a subdivision is to be constructed in sections, the developer may be required to install drainage in future sections.

Floodway Encroachment: Section 6.14 specifies that "all encroachments, including fill, new construction, substantial improvements to existing structures, and other development are prohibited [in floodway] certification by a registered professional engineer is provided by the applicant demonstrating that such encroachment shall not result in any increases in flood levels during the base flood."

Waivers: Section 8 specifies that regulation requirements may be waived if: "strict adherence would result in the alteration or destruction of a significant or unique natural feature, such as a large tree, watercourse, wetland or rock formation" or "strict adherence would result in significant alteration of the natural land contour in a manner that would aggravate natural drainage or cause erosion and sedimentation problems that would be difficult to control or correct."

### **Town of Preston Wetland Regulations**

The Town has a specified upland review area/"Regulated Area" of 100 feet. The Town defines "Regulated Activity" as:

"...any operation within or use of a wetland or watercourse, or regulated area, involving removal or deposition of material or any obstruction, construction, alteration or pollution, of such wetlands and watercourses, or regulated area..."

## Town of Preston Plan of Conservation and Development

The plan points out that land uses within the Amos Lake watershed include a golf center, agricultural activities, small-scale businesses, medium-density houses, and churches. Most of the watershed is part of the Amos Lake Protection District, but a small portion is zoned for commercial uses.

"Preston's land was rated for development constraints or environmental sensitivity. Specifically, the following features were considered to render land environmentally sensitive to development:

- Maximum slope of 20 percent or greater;
- Regulated wetland soil;
- Shallow depth to bedrock or rock outcroppings;
- Seasonal high water table (within three feet of the ground surface);
- Areas located in the 100-year floodplain;
- Areas located within the Amos Lake watershed;
- Areas located above aquifers (coarse-grain deposits at least 10 feet thick); or
- Areas listed in the NDDB.

### Conservation Areas:

"Areas designated as Conservation Areas on the Plan Map generally have at least one of the following features: within the 100-foot buffer along each side of a stream; indicated on the Natural Diversity Database; extensive wetlands; 100-year floodplains; or existing open space. In some cases, severely sloped areas are included. Areas designed as Conservation Areas do not necessarily preclude development."

"P&Z should consider rezoning sensitive areas or creating an overlay zone to require open space (cluster) subdivisions."

### Natural Resources preservation Goals (portion):

1. Reduce impervious services for new construction
  - reduce paved portion of cul-de-sacs, consider requiring vegetated islands with mountable curbs or hammerhead turn-arounds
  - encourage the use of grass pavers in commercial developments
  - investigate cluster subdivisions
2. Revise stormwater standards and practices to ensure that stormwater does not impact sensitive resources
  - Require stormwater infiltration in those areas where appropriate
  - Drainage standards should be revised to require detention of the first one-inch of rainwater of a storm for new subdivision streets and non-residential parking lots
3. Ensure that Amos Lake is protected
  - P&Z should revise zoning requirements in the Special Amos Lake Protection District. The regulations currently allow certain land uses that are known as having a high pollution potential.
  - Consider adopting a watershed management plan for the Amos Lake watershed.
4. Adopt protection measures for particular uses allowed in Preston that have the potential to result in environmental impacts

- Uses such as barber shops, beauty salons, dry cleaners, and automobile repair and rental businesses may warrant additional ground and surface water protection measures
5. Ensure that existing and future water supplies are adequately protected
- Consider adopting groundwater protection regulations for the land over the aquifer that serves the Preston Plains Water Company (in the vicinity of Avery Pond)
  - Consider adopting stream protection measures for Shewville Brook

Map and Ordinance Evaluations.doc