

Chapter 4

NATURAL RESOURCES

PART 1: BACKGROUND

Section 1: Introduction

The purpose of this section is to understand what land uses are best suited for the community and where these uses can be best located by analyzing the natural features and physical characteristics of the area.

Development in Round Hill is largely influenced by its surrounding physiographic features and natural resources. The town is surrounded by agricultural and forest land which the local community and its many visitors have enjoyed due in large part to its natural settings, well balanced ecosystems, and its high scenic value. There are natural and man-made features that enforce the agricultural boundaries which make up the town. To the south of the town is Sleeter Lake, Simpson Creek (west branch of the north fork of Goose Creek) and Round Top Hill (from which Round Hill gets its name). To the north is the Washington and Old Dominion Railroad right-of-way and a branch of the north fork of Goose Creek. To the east are several branches of the north fork of Goose Creek.

Within the Town of Round Hill there are many large, mature tree species such as: sycamore, copper beech, linden, tulip, walnut and maple. These, along with the surrounding open space and the other physiographic features, have established, influenced, and remain a central component in the character and identity of Round Hill.

Section 2: Topographic Features

(Refer to Map 4-1 Topography). Topography is the analysis of the form and slope of the land in order to determine the suitability of specific areas for particular uses. The land in Round Hill varies from gentle slopes (over most of the area) to the steep slopes of the Blue Ridge Mountains. Elevation in the area varies from around 450 feet above sea level to a high of 1,712 feet on one of the peaks of the Blue Ridge Mountains. There are several significant knolls in the foothill area, one of these being Round Top, which lies southwest of the town. Due to the varied topography, any land in the planning area over 700 feet in elevation is subject to specific county regulations in accordance with the county's Mountainside Overlay Zoning District. Steep slopes need to be maintained in order to minimize erosion, downstream flooding, structural damage to roads and buildings, and environmental pollution. The topographic map on the following page provides a visual layout of the topography within the planning district.

Section 3: Geological Features

A major portion of the Round Hill area is located in the Piedmont Upland physiographic province, which lies between the Blue Ridge Mountains and Catoclin Ridge.

The primary geological formation is greenstone and altered igneous rock originally formed by volcanic action. The rock formations that form the Round Hill area are crystalline rather than porous. Well yields are derived from the fractures within these formations. Although groundwater is of generally high quality, supplies can be inconsistent and difficult to locate. These rock formations can also pose additional problems for development depending on the depth of soil covering these hard bedrock formations; blasting may be required prior to or during construction.

Table 4-1 below indicates the drainage and slope characteristics of soils found in the Round Hill area, and Map 4-2 Soils Map provides a visual layout of soils found within the planning area. The specific soil symbols shown on the map are listed below (Table 4-1), including mapping unit number, name, slope percentage, flooding potential (if any), and hydrologic group.

TABLE 4-1
SOIL MAPPING UNITS AND HYDROLOGIC GROUPS

No.	Mapping Unit Name	Slope	Flooding Potential	Group
02A	Codorus silt loam	0-3%	Occasional flooding	(C)
4A	Hatboro loam	0-3%	Frequent flooding	(D)
10B	Mongle loam	0-7%	Brief ponding	(D)
17B	Middleburg silt loam	1-7%		(B)
20C	Purcellville & Tankerville soils	7-15%		(B)
20D	Purcellville & Tankerville soils	15-25%		(C)
28B	Eubanks loam	2-7%		(B)
28C	Eubanks loam	7-15%		(C)
29B	Eubanks loam, stony	2-7%		(B)
29C	Eubanks loam, stony	7-15%		(C)
30C	Tankerville and Philomont soils	7-15%		(B)
30D	Tankerville and Philomont soils	15-25%		(C)
31B	Philomont and Tankerville soils	2-7%		(B)
38B	Swampoodle silt loam	1-7%	Brief ponding	(C)
59C	Airmont loam, very rubbly	7-15%		(D)
82B	Scattersville silt loam	1-7%	Brief ponding	(D)

NOTE: This chart serves as a legend to Map 4-1 Soils

(Source: Interpretive Guide to the Use of Soils Maps, Loudoun County, Virginia, 2000, County Extension Office, Loudoun County Dept. of Building and Development.)

Section 4: Hydrologic Features

(Refer to Map 4-3 Floodplain). The Round Hill area is divided into three watersheds of the Potomac River Basin. Two ridgelines, one near the northern boundary of the planning area, as defined by the *Round Hill Area Management Plan* (RHAMP), and the one near the southern boundary, divide most of the farming area into the Goose Creek watershed. The small portion of the area that lies to the north of the Goose Creek watershed is part of the Catoctin Creek watershed, and to the south of the Goose Creek watershed lies the Beaver Dam watershed. Approximately 560 acres of this land is located within the 100-year floodplain of Simpsons Creek, Sleeter Lake, and tributaries of Catoctin, Goose, and Beaver Dam Creeks. Since existing county policies designate floodplain areas as environmentally critical, land uses within floodplains will be subject to special zoning regulations.

The Map 4-3 the Floodplain Map provides a visual layout of hydrologic features within the planning area. The areas labeled “A” and “AE” are special flood hazard areas inundated by 100-year floods. Flood elevations are shown with the “AE” areas.

PART 2: OPPORTUNITIES & CHALLENGES

Section 1: Growth Management

The Town prides itself on its strategic location surrounded by agricultural land and conservation land as well as its close ties to Sleeter Lake and the Blue Ridge Mountains. It is a goal of the Town to maintain its natural resources, scenic vistas, and wildlife habitats for future generations. While neighboring jurisdictions to the east of Round Hill have been transformed with high growth and development over the past 20 years, the Town has been able to limit growth and support only low impact and low density residential development. There has been constant growth outside of town limits producing medium to high density development, but it has been well managed through a joint planning and development relationship with the county. The growth outside of town, but within the Joint Land Management Area, has remained within the greenbelt that was established to the north and east of Round Hill decades ago. The Town wants to find creative ways to permit limited growth in the future, while maintaining a sustainable balance with its surrounding environment, in order to protect the key environmental features that make Round Hill unique.

Section 2: Stormwater Management

Stormwater management is a major environmental challenge for the town. The majority of Round Hill was built over 50 years ago without proper stormwater “best” management practices that are required for all new development today. Many homes built have various issues related to stormwater runoff flooding their yards and basements. In 2004, the Town conducted a survey that was designed to solicit input on known drainage problems on residential properties. These survey responses were used as the foundation of the 2005 Stormwater Master Plan which studied the drainage issue and proposed a strategic plan to correct the majority of drainage and stormwater problems over the course of 20 years. The first major project that has been initiated from this master plan is the Main Street Enhancement Project. This project’s main focus is enhancing pedestrian travel, but a critical and much needed outcome will be the creation of curb and gutter to redirect stormwater runoff away from properties along Main Street starting at the Train Station and continuing down to Loudoun Street. At the intersection of Main and Loudoun Streets the project will turn and continue east along Loudoun Street becoming the Franklin Park Trail project. The curb and gutter will continue to channel the stormwater until it reaches Goose Creek.

When Phase 1 is complete, the Town will reevaluate the stormwater issues and study the impact of the reduction of Main Street stormwater runoff. It is anticipated that a complete stormwater retrofit of the entire Town could take 10 to 20 years because it is a major multi-phase capital improvement project that will require years of planning and project management, as well as millions of dollars in project costs. In the short term, the Town will find ways to work with property owners to educate them on affordable stormwater retrofits that they can complete on their private property to reduce flooding.

Section 3: Environmental Stewardship

(Refer to Map 4-4 Green Infrastructure). The Town of Round Hill has benefitted over the past 25 years from receiving various parcels of land and easements. From open space dedications to park land, the Town has accumulated a significant amount of land and natural resource management responsibilities for a Town of less than 300 households and less than 15 staff members. The Town recognizes that it is the duty of the staff and officials to properly manage the land and easements in order to maintain the long-term benefits of these important assets.

Currently, the Town does not have a system for monitoring the status of all its land and easements to ensure for the proper management of all legal, financial, and environmental responsibilities. This monitoring should include land and easements located within town but owned by other entities (such as the two stormwater ponds in town limits). These ponds are owned by two homeowner's associations, but the Town does not have an enforcement mechanism in place to regulate the maintenance of these ponds.

Section 4: Sleeter Lake

Sleeter Lake is a 65 years old 100-acre man-made lake to the southeast of Round Hill. The lake was constructed in the 1960s to serve as a vital source of water for Colonel Sleeter to irrigate apple and peach orchards on his 850-acre farm known as Hill High Orchards.

Landowners who live along the shoreline own private access points to enter the lake. The Villages of Round Hill Homeowners Association offers boating and fishing opportunities at Sleeter Lake from their private access point. Homeowners are able to rent boats in-season or keep their own equipment in lakeside storage facilities. The Round Hill Associates rezoning in 1989 proffered a public access point to the Town of Round Hill at the site of a future Sleeter Lake Park located off of Lakefield Road.

The north fork of Goose Creek rises at the east end of Sleeter Lake in Round Hill and flows 13.3 miles (21.4 km) in a southeastward direction, joining with the main branch in the water gap of the Catoctin Mountain. Sleeter Lake is home to a variety of fish including bream, bluegill, bullhead, pickerel, perch and smallmouth bass.

The Town will need to continue to be good stewards of the lake to protect its ecology and viewsheds. As owners of the two main access points, the Town will need to develop strategies to work with the Villages of Round Hill Homeowners Association to responsibly manage the lake.

Sleeter Lake was formed by a dam (state inventory number 10710) that requires constant maintenance, management, and enforcement to reduce the chances of any failure. The Virginia Department of Conservation and Recreation (DCR) dam safety staff works to ensure that dams are properly and safely designed, built, operated, and maintained. Dams in Virginia are classified by hazard potential - high, significant, or low. Classification may change according to how a given dam's failure might affect lives and property downstream. DCR classified Sleeter Lake Dam as a Significant Hazard Dam that meets minimum public safety standards. The prioritization of dams was determined by an analysis of failure modes, number of people

downstream, and estimated cost of rehabilitation. The two failure modes analyzed are: dam overtopping and seepage. It is a private dam owned by the Villages of Round Hill. The Town should continue to check with the HOA on a regular basis to understand the status of the dam since failure could endanger lives, property and infrastructure. Another concern for the dam is if upgrades are required in the future, they can cost between \$750,000 and \$8,000,000 (based on a 2011 report “Costs, Funding and Prioritization of Virginia Dams to Meet Minimum Public Safety Standards”).

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Natural Resources

Goals, Objectives & Strategies

Theme: Advocate for environmental stewardship by encouraging responsible use and protection of the natural environment through conservation and sustainable practices. Stewardship of the environment refers to protecting the environment through recycling, conservation, regeneration, and restoration. The responsibility for environmental quality should be shared by all those whose actions affect the environment.

Goal 1: Require careful site planning and design in land development applications to maintain a high degree of quality in the protection, enhancement, and management of the natural environment and natural resources.

- a) **Objective:** Ensure the following strategies are considered in the review of land development applications in relation to land use patterns and a sustainable community.
1. Strategy: Protect against the destruction of, or encroachment upon environmentally sensitive areas.
 2. Strategy: Protect against the destruction of, or encroachment upon scenic views, woodlands, and natural areas.
 3. Strategy: Require areas of open space to serve as wildlife habitats and as natural reductions in stormwater runoff.
 4. Strategy: Protect the existing topography and tree cover as key site planning elements in the town gateways and corridors.
 5. Strategy: Protect and connect natural resource areas such as steep slopes and natural drainages.
 6. Strategy: Adopt amendments to the Zoning Ordinance and the Subdivision & Land Development Ordinance to regulate the above strategies or consider adding guidelines to support the above strategies in the future Round Hill design guidelines.
- b) **Objective:** Ensure the following strategies are considered in the review of land development applications in relation to landscaping and the natural environment.
1. Strategy: Preserve existing native plants and trees while incorporating new elements to significantly improve and enhance local natural resources.

2. Strategy: Prevent and control erosion and runoff, which in turn preserves aesthetics and reduces maintenance, through the use of planters, landscaping and trees.
3. Strategy: Reinforce a sense of community and project the image of a small historic town, through the use of planters, landscaping and trees.
4. Strategy: Adopt amendments to the Zoning Ordinance and the Subdivision & Land Development Ordinance to regulate the above strategies or consider adding guidelines to support the above strategies in the future Round Hill design guidelines.

Goal 2: Strive to reduce stormwater impacts and encourage the use of stormwater best management practices wherever opportunities exist.

- a) Objective: Require sustainable stormwater best management practices for all new development.
 1. Strategy: Enact or otherwise implement best practices for the design and engineering of stormwater management facilities independently or in cooperation with Loudoun County.
 2. Strategy: Promote use of shared and regional stormwater retention basins for existing and future development where low impact development approaches to on-site storm water management are not practical or feasible.
 3. Strategy: Design storm facilities to be an integral part of the development plan for maintaining or creating waterways that are natural in appearance.
 4. Strategy: Develop an inspection and monitoring system of in-town stormwater ponds, stormwater easements and other installed stormwater best management practices, not located on Town owned land.
 5. Strategy: Adopt amendments to the Zoning Ordinance and the Subdivision & Land Development Ordinance to regulate the above strategies or consider adding guidelines to support the above strategies in the future Round Hill design guidelines.
- b) Objective: Give high priority to promoting stormwater retrofits to existing sites that currently are without proper stormwater management.
 1. Strategy: Consider stormwater retrofit incentives and assistance to encourage private property owners to reduce stormwater runoff and pollution by capturing and infiltrating stormwater on-site.
 2. Strategy: Prepare materials for a residential stormwater retrofit program to educate residents on how to capture and infiltrate rain water to reduce stormwater runoff.

3. Strategy: Encourage, wherever feasible, stormwater management facilities or rain gardens to capture and slow runoff, decreasing demands on existing storm drain infrastructures.
- c) Objective: Community stormwater solutions should remain a critical capital improvement project need.
1. Strategy: Update the Round Hill Stormwater Management Plan to reflect completed stormwater management projects and reevaluate remaining projects such as flooding, erosion, and inadequate stormwater management facilities.
 2. Strategy: Incorporate the stormwater management map and priority list into the capital improvement plan and relevant ordinances.
 3. Strategy: Prevent stormwater from collecting on streets by providing drainage at driveways that presently have none through partnering with adjoining property owners and VDOT where appropriate.

Goal 3: Promote environmental stewardship as a mechanism to increase community viability, economic health, and sense of place.

- a) Objective: Increase connections between Round Hill and the Appalachian Trail to promote community awareness and increase knowledge of the trail as a local asset.
1. Strategy: Become a member of the national designation network “Appalachian Trail Community.”
 2. Strategy: Establish a Round Hill Appalachian Trail Advisory Committee made up of local Appalachian Trail volunteers and supporters.
 3. Strategy: Include the Appalachian Trail in Town marketing and provide educational materials at the Town Office.
 4. Strategy: Increase dialogue with county officials about the importance of the Appalachian Trail to Round Hill.
 5. Strategy: Encourage local residents to volunteer at the Bears Den and Blackburn Trail Centers.
 6. Strategy: Educate residents of the benefits of membership in the Potomac Appalachian Trail Club and Appalachian Trail Conservancy.
 7. Strategy: Maintain a partnership with Round Hill Elementary School to encourage teachers and students to take part in Trail to Every Classroom (TTEC).

- b) **Objective:** Support the Virginia Bird and Wildlife Trail Program as a way to unify existing and potential Round Hill area wildlife-watching sites into a cohesive environmental stewardship program for local residents.
1. Strategy: Host public input sessions with members of the local wildlife-watching community to learn what makes the Round Hill area attractive to birders and other wildlife watchers.
 2. Strategy: Accept nominations from the local wildlife-watching community for the Town Council to consider submitting at least one wildlife-watching site to the Virginia Bird & Wildlife Trail Program.
 3. Strategy: Encourage local organizations and businesses to feature landscaping and gardens that will attract birds, honeybees, and butterflies in order to provide natural habitats to help the town co-exist with native wildlife in the area.
 4. Strategy: Develop a list of key locations for wildlife-watching and recommendations on how to protect these sites and incorporate them into Round Hill parks or new development projects.
- c) **Objective:** Promote and ensure the long-term health, prosperity, and protection of town’s urban canopy.
1. Strategy: Recognize existing trees, according to their size and species, as town assets (if they are appropriate for the town) and encourage their protection.
 2. Strategy: Consider a tree stewardship program to plan for succession, and initiate opportunities to add trees as part of infrastructure and private development projects.
 3. Strategy: Become a member of the national designation network “Tree City USA.”

Goal 4: Encompass an environmental ethic that it is the Town’s ongoing responsibility to supervise, enhance, and maintain its properties, easements and facilities in a way that protects and preserves the environment and its natural resources for future generations.

- a) **Objective:** Maintain a higher standard of leadership in environmental stewardship when managing town-owned facilities and Town operations.
1. Strategy: Consider the town’s impact on the environment when conducting all utility operations.
 2. Strategy: Ensure the Town sets a good example for other property owners to follow as good stewards of the environment by properly caring for the land, water, and wildlife located on the same property of town-owned facilities and parks.
 3. Strategy: Host environmental education programs at town-owned facilities and parks addressing such topics as water conservation and tree maintenance.

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4. Strategy: Partner with local environmental groups and community service groups to utilize town-owned facilities and parks to display or host “best practice” examples such as rain gardens or wildlife habitats.
- b) Objective: Protect natural resources and assure the preservation of “critical environmental areas” located within town-owned land and easements.
1. Strategy: Recognize that when acquiring easements and parcels of land, the Town also assumes the duty to protect, maintain, and preserve these easements and parcels of land for future generations in a condition which is equal to or better than the condition of the land at the time it was acquired or developed.
 2. Strategy: Protect and preserve the land known as the “Hook” or the “Nature Preserve” located off of Hayman Lane.
 3. Strategy: Preserve the land known as “Sleeter Lake Park” located on Lakefield Road for future generations as an area for public recreation purposes while promoting environmental responsibility.