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Buffer Projects in the Town of Wakefield and City of Somersworth

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Strafford Regional Planning Commission

NHEP Buffer Project:

Town of Wakefield
Buffer Evaluation Form and Fact Sheet

City of Somersworth
Draft Riparian and Wetland Buffer Ordinance

A Final Report to
The New Hampshire Estuaries Project

Submitted by

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Executive Summary

Participants in the Wakefield Buffer Project include SRPC staff, members of the Acton Wakefield Watershed Alliance (AWWA), local board and commission members, and the Wakefield Town Planner, Kathy Menici. AWWA members included: Linda Schier, Carol Lafond, Marge Kimball and Adam Soukimas. Town Staff included Joe Fluet (Planning board Chair) and Nancy Spencer Smith (Conservation Commission). The goals of AWWA are to educate and inform shoreland property owners about the harmful effects of erosion and uncontrolled stormwater runoff on water quality of its lakes and ponds. AWWA focuses their on-the-ground efforts to repair, restore and preserve healthy functioning buffers and to prevent erosion problems. This project addressed these goals by developing education and outreach materials for shoreland property owners in the communities of Wakefield, NH and Acton, ME. A Buffer Evaluation Form and Fact Sheet were developed for this purpose. Because of a change in direction for the project mid-year, SRPC staff intends to continue working with this group in January to refine the Buffer Evaluation Form and Fact Sheet to ensure that if meets the needs of AWWA. A final copy of these materials will be provided to NHEP when completed.

Introduction

Acton Wakefield Watersheds Alliance – History

In 2004, community members interested in protecting and improving the water quality of lakes and streams that lie within the Ossipee and Salmon Falls watersheds in the communities of Wakefield, NH and Acton, ME, formed the Acton Wakefield Watersheds Alliance (AWWA). The current membership is made up of both community residents and seasonal owners of property at area lakes, including Balch, Belleau, Great East, Horne Pond, Lovell, Pine River Pond, and Wilson. The mission of AWWA is to preserve or restore the water quality in these watersheds by raising awareness of the problems of erosion and it's effect on water quality and correcting erosion problems. In the summer of 2005, AWWA hired two local youths and worked with two Maine Youth Conservation Corps (YCC) to complete two demonstration projects. The first on Great East Lake stabilized a path that had been eroding into the lake over the years. The YCC put in steps that stabilized the slope and redirected runoff from both the stairs and from the roofline into planted and mulched areas where it could be absorbed. A meandering mulched path with shrubs planted alongside was created to access the lake. A second project on Pine River Pond prevented road runoff from washing sand, soil and other pollutants into the lake. A berm was built and planted with bushes along the roadside to stop and absorb the runoff from the road from reaching the lake. Stepping stone walkways were installed and the entire area, except for a narrow perched beach, was mulched and planted with ground cover to prevent runoff. Both of these projects demonstrated that erosion could be stopped in an environmentally friendly manner that also beautifies the property.

About the Acton Wakefield Watersheds Alliance

The Acton Wakefield Watershed Alliance (AWWA) is a lake protection organization dedicated to preserving the water quality and value of the lakes and ponds of Wakefield, NH and Acton,

ME. AWWA's mission is to preserve or restore the water quality in these watersheds through scientific study, remediation of impairments and public education regarding the importance of water quality. Erosion, which washes pollutants into our lakes and ponds, is the largest cause of water quality degradation. For this reason the Alliance continues to direct its effort toward erosion projects.

AWWA through its Youth Conservation Corps (YCC) work on various shoreland and buffer restoration projects and stormwater management projects throughout the lakes region communities of Acton and Wakefield. In their 2006 inaugural season, AWWA and the YCC performed remediation for storm water and erosion problems on ten properties in the Acton Wakefield Lakes Region. The focus of the AWWA YCC project is to identify and address erosion problems that directly affect and impair water quality and subsequently remediate them through the utilization of Best Management Practices (BMPs). This year more than thirty other properties were provided with a personal technical assistance plan outlining specifically how the homeowners can remediate their erosion problems themselves. These practices have been established by the scientific community as the most effective, responsible, and sustainable way of alleviating erosion issues. In just one season, the AWWA YCC projects prevented the loss of almost sixteen tons of sediment from eroding into our lakes annually thanks to the implementation of these BMPs.

Project Goals and Objectives

The primary goal of this project was to:

- ✓ raise awareness and knowledge about the importance of maintaining riparian buffers and for preserving water quality and wildlife habitat., and
- ✓ shoreland property owners about the values that healthy functioning buffers provide.

The objectives of this project were to:

1. develop a simple method for shoreland property owners to determine the condition of their buffer,
2. evaluate their use of land within and adjacent to the buffer, and
3. learn more about how to improve and manage their buffer.

Activities

SRPC staff met with members of AWWA and the Wakefield Town Planner in a series of work sessions to identify goals and objectives for the project and develop the appropriate tools to achieve them. This working group also communicated by email to develop content for the work products described in the "Results and Discussion" section below. At the first planning meeting in March 2007, members of the planning board and conservation commission and staff from the Wakefield Water Department joined in the discussions.

Results and Discussion

AWWA felt strongly that this Buffer Project should focus on education and outreach to shoreland property owners, given the vast number of lakes and ponds in the region that are

already developed with homes and the importance to the local economy of maintaining these surface water bodies for recreational and aesthetic purposes, and to maintain property values. Having worked extensively in the lakes region for several years, AWWA knew first hand that often small changes in maintenance practices, behaviors and awareness provided enormous results in restoring and maintaining healthy functioning buffers. ***Initial discussions about the scope of the Buffer Project (and the scope of work for the NHEP grant) included developing a buffer management plan for a Town owned riparian property; however, due to available funding, AWWA decided to focus efforts on the education and outreach materials, and not develop the buffer management plan, given that the YCC already had the technical expertise to produce a buffer management plan on their own.***

Finally, the working group decided to produce a buffer evaluation form and a buffer fact sheet for shoreland and riparian property owners. The purpose of these materials is three-fold:

- ✓ first, educate property owners about what a buffer is and how to identify problems relating to erosion and runoff,
- ✓ second, provide them with an evaluation tool to reference when working with a professional (landscape architect, contractor or engineer) on making improvements to their shoreline and buffer, such as plant selection, grading, stormwater management and shoreline stabilization, and
- ✓ third, describe ways to improve habitat and water quality by reducing impervious surfaces, mowing less, applying appropriate amounts of fertilizer, and adopting a "go natural" approach to maintaining a buffer.

Conclusions

The AWWA Buffer Evaluation Form and Fact Sheet developed for this project will serve as a technical reference and teaching tool for future AWWA YCC projects in the communities of Wakefield, NH and Acton, ME. These materials will also help AWWA further their goal to foster a coordinated (interstate) watershed approach to preserving water quality in their many lakes and ponds. By providing this information, AWWA hopes to instill a strong sense of stewardship in shoreland property owners and empower them to make simple lifestyle changes and improvements to their buffers that will benefit water quality in these watersheds. AWWA intends to report back to SRPC about the effectiveness of the materials in their outreach and education efforts after the 2008 summer work season.

Recommendations

1. The local land use boards and conservation commissions should be encouraged to provide the AWWA Buffer Evaluation Form and Fact Sheet with all applications for discretionary permits, and subdivision and site plan approvals.

2. The AWWA Buffer Evaluation Form and Fact Sheet could be posted on the website for the Towns of Acton, ME and Wakefield, NH for easy access by property owners and should be available in the Town Hall and public library in these communities.

3. Local schools could incorporate the AWWA Buffer Evaluation Form and Fact Sheet into their curriculum and use it as a general teaching tool for students, teachers and parents.

4. The AWWA could expand their use of Buffer Evaluation Form and Fact Sheet to all residents and businesses in their communities to promote wise use of land and practices that protects overall water quality in the Ossipee and Salmon Falls watersheds.

CITY OF SOMERSWORTH: DRAFT RIPARIAN AND WETLAND BUFFER ORDINANCE

Executive Summary

SRPC staff worked cooperatively with the City of Somersworth Conservation Commission and the City Planner, Dave Sharples, to develop a draft Riparian and Wetland Buffer Ordinance to replace the existing Wetland Conservation District ordinance. After years of reviewing applications, the Conservation Commission and the City Planner recognized that the standards and criteria in the existing wetland ordinance needed to be updated to reflect current knowledge of the importance of buffers in maintaining water quality and the lack of jurisdictional streams, rivers and water bodies protected under the State's Comprehensive Shoreland Protection Act.

The new ordinance proposes a mandatory 250-foot limited use buffer to all wetlands and surface water bodies (first order and higher perennial streams, lakes, ponds) in the City. If adopted, a 25-foot no-disturb and naturally vegetated buffer will be required for all new lots created after that date. The ordinance also proposes a conditional use permit approval, issued by the Planning Board with recommendations from the Conservation Commission, for limited uses within the 100-foot buffer.

Introduction

The City of Somersworth currently has a Wetland Conservation District ordinance. Although a 100-foot buffer zone is required, the ordinance does not include specific setbacks for buildings and structures within the buffer zone. Each application is evaluated by the Conservation Commission who makes recommendations to the applicant and ultimately to the Planning Board on appropriate wetland setbacks on a site-specific basis. However, the City has no buffer protections for the many smaller streams and brooks that in most cases are headwater tributaries to the Cocheco and the Salmon Falls Rivers. The only fourth order stream in Somersworth protected under the Comprehensive Shoreland Protection Act is the Salmon Falls River.

Project Goals and Objectives

The primary goal of this project was to develop an ordinance that would comprehensively require buffers and setbacks for all surface water bodies and wetlands in the City for the protection of water quality and wildlife habitat.

The objectives of this project were to:

4. establish specific setbacks for buildings, structures and septic systems within a limited use buffer;
5. define a list of specific high-risk prohibited uses and activities within the buffer;
6. develop performance standards for water quality protection within the buffer; and
7. provide buffer protections for all surface water bodies not covered under the Comprehensive Shoreland Protection Act.

Activities

SRPC staff met with members of the Somersworth Conservation Commission and the City Planner, Dave Sharples, beginning in December 2006 to discuss the goals and objectives of developing a buffer ordinance. Members of the Somersworth Conservation Commission are: Frank Richardson (Chair), Imants Miller, Al Bryan, Jason Schrack, Liz Wilson, Scott Gessis and Daniel Hartigan. These participants formed a working group that met monthly from January through December of 2007 (with a special marathon work session in August which lasted 4 hours!) to develop this ordinance. At meetings and through email correspondence, many model ordinances from New Hampshire and across the country were reviewed in order to identify key elements and methods of protection that might be included in this new ordinance. SRPC staff with the City Planner identified elements and administrative procedure from the existing ordinance that would be part of the new ordinance.

Results and Discussion

SRPC staff intends to continue working with the City of Somersworth to finalize the Riparian and Wetland Buffer Ordinance for review by the Planning Board and the public hearing and approval process. SRPC will provide to NHEP a copy of the final ordinance when completed and notice of subsequent adoption.

Conclusions

Somersworth is one of the first communities to utilize the model ordinances in the Innovative Land Use Guide (developed by the Department of Environmental Services, Office of Energy and Planning, and the Regional Planning Commissions) to develop a shoreland and wetland protection ordinance that includes stricter standards than existing state regulations. Because most of the streams and waterways in Somersworth are not under the jurisdiction of the Comprehensive Shoreland Protection Act, this ordinance will provide water quality protection for the many important headwater streams and major tributaries in the Cocheco River and Salmon Falls watersheds and to wetlands that are an integral part of these drainage systems. In addition, the ordinance will ensure that the potentially harmful affects of development are reduced and mitigated - through the implementation of setbacks, stormwater management, and erosion and sedimentation controls - to preserve riparian and upland habitat that is vital for many species of wildlife that utilize both aquatic and terrestrial environments.

Recommendations (for future work or management strategies)

5. A series of public meetings or workshops should be held to educate the public, property owners and the development community about the requirements of the new ordinance.

6. If adopted, a fact sheet could be developed and mailed to residents and property owners that would be affected by the new ordinance. This fact sheet could be posted on the City's website.

7. Outreach materials could be developed for the local schools to use as teaching tools and to raise awareness of students, teachers and parents.

8. The City could create a buffer demonstration project to illustrate the requirements of the ordinance and the benefits of requiring buffers for wetlands, rivers, streams and other surface waters.

APPENDIX A. Town of Wakefield: Buffer Evaluation Form

ACTON WAKEFIELD WATERSHEDS ALLIANCE
P.O. Box 235
Union, NH
Phone: 603.473.2500
Email: awwa@adelphia.com

SHORELAND BUFFER EVALUATION FOR PROPERTY OWNERS

BUFFERS are the simplest and most effective way to protect streams, rivers, lakes, ponds and wetlands. **BUFFERS** are undisturbed vegetated areas adjacent to the waters edge and wetlands. **BUFFERS** serve to protect water quality from the sometimes harmful affects of upland development and direct disturbances. Preserving and restoring buffers is essential to protecting water quality.

Use this form to find out if you:

- ✓ have a problem with flooding in your yard
- ✓ would like to improve the condition of your buffer
- ✓ would like to develop a management or planting plan for your buffer
- ✓ have an unstable and eroding shoreline.

Let's Get Started !

PART 1. COMPLETE THE QUESTIONS BELOW TO EVALUATE FLOOD AND EROSION PROBLEMS.

Place a check in the column that describes how often these events happen on your property.

0 = Never 1 = Once per year 2 = Six or more times per year 3 = Monthly or more often

0	1	2	3	Description of Condition
				Increase in water levels above the average high water / shoreline
				Ponding of water in yard for more than one day
				Runoff from rain flows across yard in small streams
				Runoff from rain flows from driveway toward the shoreline
				Runoff from rain flows from roof or gutters toward the shoreline
				Exposed soil in patches or gullies caused by runoff from rain
				Cloudy water in lake, pond or stream after a rainstorm along your shoreline
				Blocks of soil, trees or vegetation falling into water at shoreline

Part 1 Total Points: _____

PART 2. EVALUATE THE CONDITION OF YOUR BUFFER *FROM THE SHORELINE TO 20 FEET INLAND.*

Place a check in the column that describes the conditions on your property.

Column A

1 =Most or All 2 =About Half 3 =Little to None

1	2	3	Description of Condition
			Low lying plants are present
			Shrubs are present
			Trees are present

Column B

4 =Little to None 5 =About Half 6 =Most or All

4	5	6	Description of Condition
			Grass is present
			Exposed soil is present
			Structures or other hard surfaces

Total Points from Column A and Column B: _____

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NewHampshire EstuariesProject

This project was funded in part by a grant from the New Hampshire Estuaries Project, as authorized by the U.S. Environmental Protection Agency's National Estuary Program.

PART 3. EVALUATE THE CONDITION OF YOUR BUFFER *FROM 20 FEET INLAND TO 50 FEET INLAND.*

Place a check in the column that describes the conditions on your property.

Column A

1 =Most or All 2 =About Half 3 =Little to None

1	2	3	Description of Condition
			Low lying plants are present
			Shrubs are present
			Trees are present

Column B

4 =Little to None 5 =About Half 6 =Most or All

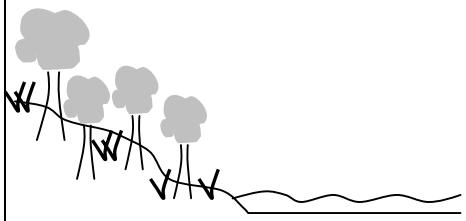
4	5	6	Description of Condition
			Grass is present
			Exposed soil is present
			Structures or other hard surfaces

Total Points from Column A and Column B: _____

PART 4. CHOOSE THE SKETCH (ONE FROM EACH ROW) THAT BEST SHOWS WHAT YOUR SHORELINE LOOKS LIKE.

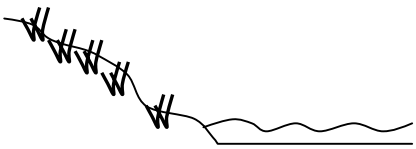
What does your buffer look like?

1- Fully Forested Buffer



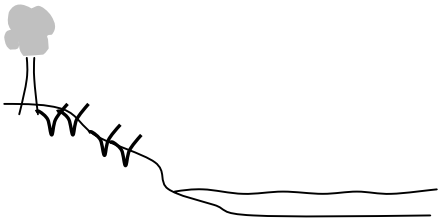
2- Partially Forested Buffer

3- Little to No Buffer

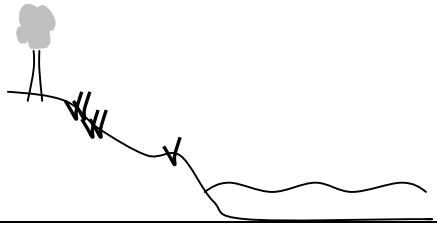


What does your shoreline or bank look like?

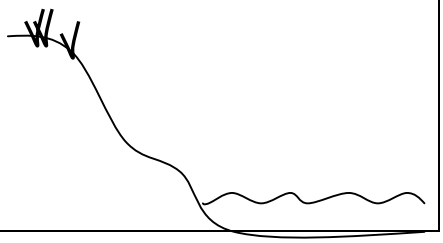
1- Minor Erosion



2- Moderate Erosion



3- Severe Erosion



Part 4 Total Points: _____

PART 6. WHAT DOES YOUR BUFFER SCORE MEAN?

TOTAL POINTS: _____ (from all Columns in each Part of form)

Point Range	*Rating*	*Explanation*
39-49 points	Excellent	Great vegetation, less hard surface, no erosion or flooding
50-60 points	Good	Refer to Fact Sheet for buffer management methods
61-71 points	Fair	Work to increase vegetation cover and reduce hard surfaces
72-84 points	Need Help	Evaluate use of your buffer using the Fact Sheet as a guide

If you have a problem or need more information contact:

Acton Wakefield Watersheds Alliance

for assistance with

Evaluating the problem…….Finding a solution…....and……Developing a plan!

APPENDIX B. Town of Wakefield: Buffer Fact Sheet

THE IMPORTANCE OF SHORELAND BUFFERS

The Basics of Buffer Function and Configuration

The simplest and most effective way to protect surface waters - streams, rivers, lakes, ponds - and wetlands is to leave an area of undisturbed natural vegetation adjacent to the water body. These undisturbed vegetated areas adjacent to surface waters and wetlands are ***BUFFERS***, which perform functions that protect the water quality from upland and direct disturbances. Preserving and restoring buffers is essential to protecting surface waters.

What Buffers Are. There are many types, configurations, and sizes of riparian buffers. Depending upon the landscape features of a watershed, buffers can be strips of grassy meadows leading to the water's edge, thickly forested upland areas or shrub and forested floodplain areas that provide a transition zone between development areas and adjacent surface waters. Riparian buffers can reduce or prevent the affects of adjacent land uses and protect water quality by providing a separation between upland development and human activity, and nearby surface waters.

Functions and Values of Buffers. When left undisturbed and intact, buffers help to maintain clean water and healthy aquatic wildlife. Buffers provide valuable benefits and services to protect not only wildlife but also people. ***Buffer functions:***

⇒ Stabilize stream banks and shorelands with healthy root systems and soil structure;

⇒ Moderate the impact of heavy rains by absorbtion and slowing flows;

⇒ Naturally filter and capture sediment and pollutants from runoff;

⇒ Protect people and property from flood damage by slowing and storing flood waters;

⇒ Shade the shoreline to lower water temperatures. Cooler water holds more oxygen which is essential to aquatic animals;

⇒ Provide organic matter that helps give soil structure and hold oxygen and moisture. The duff layer (fallen leaves, small twigs, and dead vegetation) also absorbs heavy rain, holds moisture, and can act as a natural mulch to prevent weeds and invasive species;

⇒ Enhance property values by improving the appearance, beauty and aesthetics of the shoreland;

⇒ Provide wildlife habitat within tree canopy and understory, grass and shrub layers, and downed woody debris;

⇒ Provide organic matter and woody material (logs, branches, trees) that falls into the water, which serves as food and habitat for the aquatic life in the water body;

⇒ Reduce time, money and effort required for care and maintenance ***and*** improve scenic beauty and aesthetics along our shorelines.

Buffer Width. Many factors including slope, soil type, adjacent land use, impervious surface cover, floodplain, vegetation type, and watershed condition and topography all influence buffer width necessary to preserve functions and values. Even for narrow creeks and intermittent or small streams, buffers are important for sediment control, water quality, flood storage, and aquatic health and diversity. Protection of smaller creeks and streams is so important because they:

- ✓ *are common across the landscape -more miles than higher order streams; and*
- ✓ *feed larger streams and rivers - one of the best ways to protect larger rivers is to protect the small streams that flow into them.*

What Property Owners Can Do?

Enhance buffers with plantings; improve the quality of your land and the aesthetic, recreational, and wildlife opportunities that a healthy functioning buffer can provide.

Seek a balance that satisfies waterfront lifestyle and recreational needs while sustaining shoreland habitat and water quality at the same time.

Manage and enhance shoreland buffers.

Restore degraded shoreland habitat by re-establishing native plant communities.

Minimize human disturbances to the shoreland buffer and adjacent lands.

BUILDING THE BETTER BUFFER

The best method to protect water quality of streams and wetlands and in your well, is a woodland or other naturally vegetated buffer.
A variety of trees, shrubs and ground cover will do the best job of filtering runoff and providing habitat diversity for wildlife. The bigger the buffer, the better, especially if you have a
lawn, landscaped area or garden where fertilizers and pesticides are used, or if there are
parking lots, roads, or hillsides sending runoff through your yard into the stream.

- ✓ Plant buffers between your house and the street to filter runoff before it enters a storm drain or ditch or into surface waters.
- ✓ Plant buffers along a parking area or driveway, such as perennial flower beds, shrub borders, or fern gardens.

Develop a Planting Plan

- √ Determine a schedule that gets the plants in the ground when they are ready to grow.
- √ Plant trees and shrubs when they are dormant, in early spring before budding and after the ground thaws or in autumn after leaf fall.
- √ Identify the work zone in the field. Consider property boundaries, permit restrictions, utilities, special natural/cultural features, and sensitive habitat.
- √ Draw a planting or landscape design to help you decide how many plants are needed. Be sure there are enough to create an effective buffer.
- √ Plant Spacing - shrubs 3-5' apart, small trees (25' at maturity) 15' apart, large trees 25' apart, and ground covers 1-3' apart. This spacing will result in a dense buffer when plants mature. Wider spacing in strategic places can provide water quality protection and allow for a view.

Active Revegetation

If you want quicker results, "build" your buffer by adding plants, shrubs and trees. Select plants that are native (adapted to local conditions) and provide multiple layers from the forest floor on up.

Natural Revegetation

Simply let your shoreland or riparian land ***GO WILD*** by creating a no-mow zone, and watch the changes that occur! Birds, squirrels, wind, water, and wandering roots from nearby plants will find their way to your streambank, delivering your future forest in the form of seeds, nuts, berries, and runners. Over time plants can be added (native species) and removed (invasive or unhealthy ones). The ***GO WILD*** approach is the easiest and cheapest way to encourage a buffer, and you won't need a permit, but you'll have to wait awhile and if your bank is poorly vegetated, it may erode in the meantime.

Forested Buffers

Keeping a forested buffer along a stream is also the key to prime fish habitat both at home and in the river beyond. Woody debris (logs, trees, branches) helps create pools, riffles, and gravel beds. Fallen logs provide cover for fish to rest and hide from predators. Streamside forests capture rainfall better than any other land use, preventing flooding and recharging groundwater so the stream has enough flow in summer months. Natural buffers provided habitat to more species of wildlife than any other type of environment, particularly birds such as eagles, herons and osprey.

How to Manage a Forested Buffer

- √ Leave natural instream woody debris undisturbed to create pools and provide cover and shade for fish.
- √ Remove a natural snag only if it clearly represents a flood hazard.
- √ Cut only large leaning trees which threaten to pull their roots into the water; leave the root systems intact.
- √ Remove disease- or insect-infested trees.
- √ Limit stream crossings.
- √ Disturb the duff layer as little as possible.
- √ Best care is the least care when it comes to a stream buffer.
- √ Leave the natural forest floor, with its "litter" of fallen leaves and twigs, which help the buffer break down pollutants and soak up water; raking or removing them defeats its purpose.

Select the Plants

Let Nature Be Your Guide! Locate a natural buffer nearby to see what plants species thrive in the local environment. The more natural the buffer vegetation, the more natural it will look, the better it will perform, and the less care it will need. Native plants may also require less care than non-native plants. Another benefit - native plants and native birds, butterflies, and wildlife are a good match.

RULES OF THUMB TO MANAGE AND CARE FOR BUFFERS

TIP! **Try for a mix of different kinds of plants** to provide more diverse habitat and a prolonged and varied leaf fall to provide food sources for wildlife. It will also help avoid trouble with pests that attack specific plants. Be sure to include deciduous plants, since their leaf litter is important for maintaining the duff layer and soils.

TIP! **Use plants that have multiple functions** such as for erosion control, timber source, stream woody debris, nuts, fruit, berries, and nesting. Don't forget aesthetics — consider seasonal foliage color, flowers, fruits, and branching habit. Native perennials provide blooms and attract butterflies. Berry-bearing shrubs attract birds.

TIP! **Plant dominant species** or species that are unlikely to multiply and/or reseed quickly (such as trees) to manage buffer vegatation. The height of streamside vegetation should equal or exceed the stream width to provide adequate shade to keep the water cool.

TIP! **Understand natural succession.** Plant communities naturally change over time, and if you may leave your buffer in a natural state, nature will choose a menu of plants for you! Pioneer species (those that appear first and adapted to bare soils and lots of light) are gradually replaced by longer-lived species that can grow and reproduce under more shaded and protected conditions. If you plant early successional species to stabilize an eroding streambank, be aware that longer-lived plants may eventually replace them over time.

WHAT CAN PROPERTY OWNERS DO?

Enjoying your waterfront property in an environmentally friendly way does not require you to leave it entirely undeveloped. The methods described below can be applied to new development on a previously undeveloped property, to existing developed property and especially when property is being redeveloped.

4 Key Steps To Minimizing Runoff and Erosion On Your Property

- √ **Site design** – development that fits in the landscape features of a site
- √ **Limiting impervious surfaces** – stormwater runoff prevention by reducing the source
- √ **Stormwater management** – treat runoff by directing to vegetated areas where it can be absorbed to minimize impacts
- √ **Vegetated buffers** – a natural and cost effective way to manage runoff and protect water quality

NewHampshire EstuariesProject

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ACTON WAKEFIELD WATERSHEDS ALLIANCE
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Union, NH
Phone: 603.473.2500
Email: awwa@adelphia.com

APPENDIX C. City of Somersworth: Draft Riparian and Wetland Buffer Ordinance

RIPARIAN AND WETLAND BUFFER DISTRICT ORDINANCE
(to replace Zoning Ordinance Section 13 Wetlands Conservation Overlay District)
CITY OF SOMERSWORTH, NEW HAMPSHIRE

I. Title and Authority

A. Title: This Ordinance shall be known as the "Riparian and Wetland Buffer District Ordinance" of the City of Somersworth, New Hampshire.

B. Authority: Pursuant to the authority granted by RSA 483-B:8, Municipal Authority; RSA 674:17 I., Purposes of Zoning Ordinances; this ordinance is hereby adopted by the City of Somersworth, New Hampshire to protect the public health, safety, and general welfare.

II. Purpose

The purpose of this ordinance is to protect the quality of surface waters and wetlands; to protect riparian and aquatic ecosystems; and to provide for the environmentally sound use of land resources.

The streams and rivers of Somersworth supply much of the water required by Somersworth citizens for their drinking water supply and other municipal and industrial uses. The Somersworth City Council finds that the protection of the surface waters and wetlands of Somersworth is vital to the health, safety and economic welfare of its citizens. It is the desire of Somersworth to protect and maintain surface water resources by implementing these regulations for the establishment, protection, and maintenance of a vegetated buffer adjacent to all surface water bodies and wetlands within our jurisdictional authority.

III. Intent

It is therefore the intent of this ordinance to establish a riparian and wetland buffer of regulated development and limited land use adjacent to all surface water bodies and wetlands in Somersworth to preserve the economic values, public benefits and environmental resources provided by buffers including:

- protecting public and private water supplies;
- trapping sediment and other pollutants in surface runoff;
- providing groundwater recharge through infiltration of runoff;
- promoting bank stabilization and reduce erosion; protect riparian wetlands;
- minimizing the impact of floods; maintain stream base flow;
- protecting wildlife habitat by providing shade from tree canopy;
- generally maintaining water quality; and
- providing scenic value and recreational opportunity.

IV. Applicability

A. Riparian and Wetland Buffer District**.** The Riparian and Wetland Buffer District of the City of Somersworth, New Hampshire is an overlay district superimposed over the existing conventional zoning districts of the municipality. It includes within its boundary a protected shoreland on either side of all 1st, 2nd, 3rd and 4th order and higher rivers and streams, a protected shoreland adjacent to all surface waters, and a buffer to all wetlands located within

the municipality. The Riparian and Wetland Buffer District does not apply to fire ponds and farm ponds as defined in this ordinance.

B. District Boundaries. The boundaries of the Riparian and Wetlands Buffer District ("the District") shall encompass all land within a horizontal distance of 100 feet perpendicular from the reference line of any surface waters and wetlands as defined by this Ordinance. It is the responsibility of an applicant to fully identify and delineate on a property all surface waters and wetlands.

C. Interpretation of District Boundaries. Where uncertainty exists as to the exact location of district boundary lines, the Code Enforcement Officer or designee shall be the final authority as to boundary locations.

D. This ordinance shall apply to proposed development, structures, uses, activities and disturbance, and changes in use on all parcels of land within the Riparian and Wetland Buffer District unless otherwise specified in this Ordinance.

E. This ordinance shall apply to all timber harvesting activities not permitted under RSA 227:J.

F. This ordinance shall apply to surface mining operations except those operations that are operating in compliance with an approved permit from the City of Somersworth under Section XI Excavation of Earth Products.

G. This ordinance shall not apply to agricultural operations that are covered by an approved Natural Resources Conservation Service (NRCS) conservation plan that includes the application of best management practices (BMPs).

H. Any lands within the Riparian and Wetland Buffer District approved as an "Urban Exemption Area" under the Comprehensive Shoreland Protection Act shall be exempt from the requirements of this ordinance.

V. Definitions

For the purposes of this chapter, the terms "shoreland" and "riparian" shall be used interchangeably to refer to uplands connected to or immediately adjacent to the shoreline or bank of a stream, river, pond, lake or reservoir and adjacent to wetlands. The terms "riparian buffer" shall refer to the shoreline, floodplain or upland area adjacent to surface waters and "wetland buffer" shall refer to the upland area adjacent to wetlands in the Riparian and Wetland Buffer District.

Accessory Structure or Use – a use or structure located on the same lot and customarily incidental and subordinate to the primary structure, including but not limited to paths, driveways, patios, any other improved surface, pump houses, gazebos, woodsheds, garages, or other outbuildings. A deck or similar extension of the primary structure or a garage attached to the primary structure by a roof or a common wall is considered part of the primary structure.
Best Management Practices (BMPs) - a proven or accepted structural, non-structural, or vegetative measure the application of which reduces erosion or sedimentation, stabilizes stream channels, or reduces peak storm discharge, or improves the quality of stormwater runoff, or

diminishes the quantity of stormwater runoff flowing to a single location by using multiple BMPs at separate and dispersed locations. BMPs also include construction site maintenance measures such as removing construction debris and construction waste from construction sites and disposing of debris and waste appropriately in order to reduce contamination of stormwater runoff.

Base flow – the groundwater contribution to stream flow arising from submerged springs and seeps.

Canopy – the more or less continuous vegetative cover formed by tree crowns in a wooded area.

Development is defined as:

1. The improvement of property for any purpose involving building;
2. Subdivision or the division of a tract or parcel of land into two or more parcels;
3. The combination of any two or more lots, tracts, or parcels of property for any purpose; and
4. The preparation of land for any of the above purposes.

Disturbance – an activity in which natural vegetation is removed, soil is exposed, removed, or the land surface is altered.

Farm Pond – a depression made in the land surface or constructed with berms, usually made of earth, to detain water for irrigation, waterfowl, other farm uses or activities, or for recreation.

Fire Pond - a depression made in the land surface or constructed with berms, usually made of earth, used to store water for the purpose of fire suppression or prevention.

First Order Streams – are intermittent and perennial streams identified as either dashed lines or solid lines on the New Hampshire Hydrography Dataset (NHHD) or the most recent edition of USGS topographic maps, where mapped.

Ground Cover – any herbaceous or woody plant which normally grows to a mature height of 2 feet or less, especially mat forming vegetation which stabilizes the soil.

Headwater Streams – intermittent streams and perennial streams of first and second order.

Impervious Surface – any areas covered by material that prevents or impedes the infiltration of water into the soil. Examples of impervious surfaces include buildings, roofs, decks, patios, and paved, and gravel or crushed stone driveways, paths, parking areas, and walkways.

Lot of Record – a legally created parcel, the plat and description of which has been recorded at the registry of deeds for the county in which it is located.

Natural Vegetation –trees, shrubs, herbaceous plants and other woody plants.

Non-Conforming Lot – a single lot of record, which, at the effective date of adoption or amendment of this Ordinance, does not meet the dimensional requirements of the district in which it is located or a lot that does not meet the requirements of this ordinance.

Non-Conforming Structure – a structure which does not meet any one or more of the following dimensional requirements; setback, height, or lot coverage, but which is allowed solely because it was in lawful existence at the time this Ordinance or subsequent amendments take effect, or a structure that does not meet the requirements of this ordinance

Non-Conforming Use – use of buildings, structures, premises, land or parts therefore which is not permitted in the district in which it is situated, but which is allowed to remain solely because it was in lawful existence at the time this Ordinance or subsequent amendments take effect, or a use that does not meet the requirements of this ordinance

Nonpoint Source Pollution - pollution that is generated by various land use activities rather than from an identifiable or discrete source, and that is conveyed to waterways through natural

processes, such as rainfall, stormwater runoff, or groundwater seepage rather than by direct discharges.

Mean High Water Level – see Reference Line definition.

Ordinary High Water Mark - the line on the shore, running parallel to the main stem of the river, established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the immediate bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Primary Structure – a structure built for the support, shelter or enclosure of persons, animals, goods, or property of any kind, as well, as anything constructed or erected with a fixed location on or in the ground. The primary structure is central to the fundamental use of the property and is not accessory to the use of another structure on the same premises.

Reference Line – is defined by this Ordinance as follows:

(a) for natural fresh water bodies without artificial impoundments, the natural mean high water level (including the natural mean high water level for waterbodies as determined by the NH Department of Environmental Services in the List of Public Waters published by the Department pursuant to RSA 271:20.II.);
(b) for artificially impounded fresh water bodies with established flowage rights, the limit of the flowage rights, and for water bodies without established flowage rights, the waterline at full pond as determined by the elevation of the spillway crest;
(c) for third and fourth order and higher rivers and streams, the ordinary high water mark;
(d) for first and second order streams, the extent of the defined channel; and
(e) for wetlands as defined by this ordinance, the edge of wetlands

Riparian and Wetland Buffer - a vegetated area, including trees, shrubs, and herbaceous vegetation that exists or is established to protect a stream, river, lake, pond, reservoir, or wetland.

Setback – the horizontal distance from the reference line of a water body to the nearest part of a structure, road, parking space or other regulated object or area.

Shoreland – the area of land adjacent to the reference line of a stream, river, pond, lake, or other similar body of water.

Stream, Ephemeral – a drainage feature that carries only stormwater in direct response to precipitation with water flowing only during and shortly after large precipitation events. An ephemeral stream may or may not have a well-defined channel, the aquatic bed is always above the water table, and stormwater runoff is the primary source of water. An ephemeral stream typically lacks the biological, hydrological, and physical characteristics commonly associated with the continuous or intermittent.

Stream, Intermittent – a well-defined channel that contains water for only part of the year, typically during winter and spring when the aquatic bed is below the water table. The flow may be heavily supplemented by stormwater runoff. An intermittent stream often lacks the biological and hydrological characteristics commonly associated with the conveyance of water. Intermittent streams (or portions thereof) are portrayed as dashed blue lines on a USGS topographic map, where mapped.

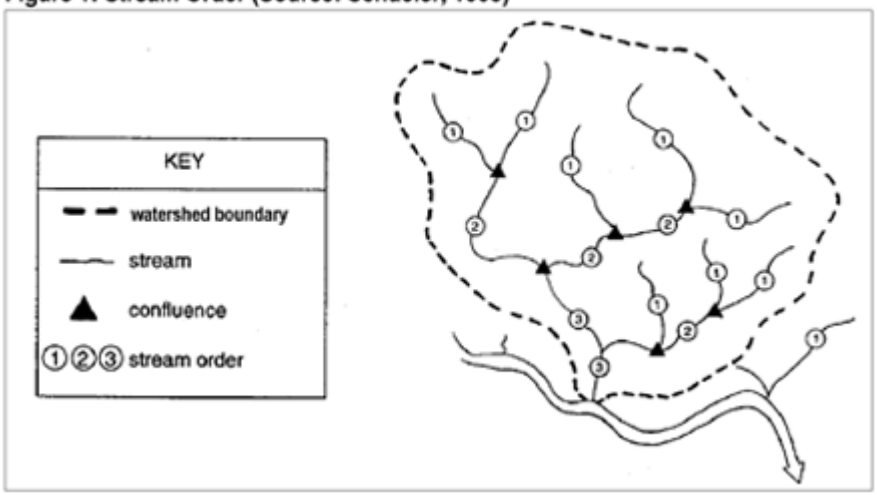
Stream, Perennial - a stream that normally flows year round because it is sustained by groundwater discharge as well as by surface water. A perennial stream exhibits the typical biological, hydrological, and physical characteristics commonly associated with the continuous conveyance of water. Perennial streams (or portions thereof) are portrayed as solid blue lines on a USGS topographic map, where mapped.

~~**Stream Channel** - part of a watercourse either naturally or artificially created that contains an intermittent or perennial base flow of groundwater origin. Base flows of groundwater origin can be distinguished by any of the following physical indicators:~~

1. ~~Hydrophytic vegetation, hydric soil, or other hydrologic indicators in the area(s) where groundwater enters the stream channel in the vicinity of the stream headwaters, channel bed, or channel banks;~~
2. ~~Flowing water not directly related to a storm event; and~~
3. ~~Historical records of a local high groundwater table, such as well and stream gauge records.~~

Stream Order - a classification system for streams based on stream hierarchy based on the number of tributaries. The higher up in the watershed and the smaller the stream, the lower its numerical classification. For example, a first-order stream does not have tributaries and is a headwaters stream that originates from concentrated overland flow, springs and/or seeps. (See Figure 1.)

Figure 1: Stream Order (Source: Schueler, 1995)



Stream or River – means a free-flowing body of water or segment or tributary of such water body (RSA 483:4, XVII.)

Structure – anything built for the support, shelter or enclosure of persons, animals, goods or property of any kind, together with anything constructed or erected with a fixed location on or in the ground. The term includes structures temporarily or permanently located, such as decks, patios, and satellite dishes.

Stormwater or Surface Water Runoff – water that flows over the surface of land resulting from rainfall or snowmelt. Surface water enters streams and rivers to become channelized stream flow.

Stormwater Management Plan – an analysis and plan designed in accordance with rules adopted by the NH DES under RSA 541-A for terrain alteration under RSA 485-A:17, to manage stormwater and control erosion and sediment, during and after construction.

Surface Waters and Water Bodies – those portions of waters of the state as defined by RSA 482-A:4, which have standing water or flowing water at or on the surface of the ground. This includes but is not limited to rivers, streams, lakes, and ponds (Env-Wt 101.88).

Surface Water Pollution - contamination of surface water by introduction of sediment, nutrients, toxicants, chemicals, pesticides or fertilizer derived from a land use, activity or point source.

Vernal Pool – an ephemeral shallow surface water body in a depression that lacks a permanent outflow, fills with water seasonally (mostly during spring and early summer), and generally dries out for most of the year. (adapted from U.S. Fish & Wildlife Service and *Vernal Pools: Natural History and Conservation* by Elizabeth A. Colburn, 2004).

Water Dependent Use or Structure – a use or structure that services and supports activities that require direct access to, or contact with the water, or both, as an operational necessity and that requires a permit under RSA 482-A, including but not limited to a dock, pier, breakwater, beach, boathouse, retaining wall, or launching ramp. Hydroelectric facilities, including, but not limited to, dams, dikes, penstocks, and powerhouses, shall be recognized as water dependent structures; however, these uses are exempt from the requirements of this Ordinance.

Wetland - an area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal conditions does support, a prevalence of vegetation typically adapted for life in saturated soil conditions (RSA 482-A:2). For the purpose of this ordinance, vernal pools shall be included in this definition.

VI. Riparian Buffer and Wetland Buffer Requirements

A. The riparian buffer and wetland buffer shall consist of a strip of land extending 100 feet perpendicular from the reference line and along the full boundary of all surface water bodies and wetlands. As described in Section VI.B., the riparian and wetland buffer width shall be adjusted to include contiguous areas such as steep slopes or erodible soils, where development or disturbance may adversely affect surface waters and wetlands.

B. The riparian buffer and wetland buffer width shall be modified if steep slopes are within close proximity to or drain into surface water bodies and wetlands. In those cases, the riparian and wetland buffer width shall be expanded to include all contiguous slopes greater than 20 percent as measured over a 10-foot horizontal interval.

D. No-Disturb Buffer. A no-cut, no-disturb vegetated riparian and wetland buffer shall be maintained and preserved within 25 feet perpendicular from the reference line. The buffer shall be managed and maintained in accordance with the requirements of Section IX.

E. Waterfront Buffer. Within 25-100 feet perpendicular from the reference line, the following standards apply to maintenance of a wooded waterfront buffer:
   1. Starting from the northerly or easterly boundary of the property, and working along the shoreline, the waterfront buffer shall be divided into 50 by 50 foot segments. Within each segment a minimum combined tree and sapling score of at least 50 points shall be maintained. If for any reason there is insufficient area for a full segment, the number of points required to be maintained in that partial segment shall be proportional to that required of a full segment.
   2. Tree and sapling diameters shall be measured at 4½ feet above the ground and are scored as follows:

Diameter	Score
1 inch to 6 inches	1
greater than 6 inches to 12 inches	5
greater than 12 inches	10

3. Dead, diseased, or unsafe trees or saplings shall not be included in scoring.
4. If the total tree and sapling score in any 50 foot by 50 foot segment exceeds 50 points, then trees and saplings may be removed as long as the sum of the scores for the remaining trees and saplings in that segment does not total less than 50 points. Trees and saplings may be removed from partial segments provided that the sum of the scores for the remaining trees and saplings in that partial segment is equal to or greater than the proportional point requirement.
5. The planting of native trees and saplings as necessary to at least maintain either the existing combined tree and sapling score or the minimum score required. Any action that would result in a combined tree and sapling score less than the minimum score required where the segment initially meets the minimum score or would result in any reduction of the combined tree and sapling score where the segment does not initially meet the minimum score is not permitted.
6. Owners of lots that were legally developed prior to April 1, 2008 may maintain but not enlarge cleared areas, including but not limited to existing lawns and beaches, within the waterfront buffer. Conversion to or planting of cleared areas with native species of ground cover, shrubs, saplings, and trees is encouraged but shall not be required unless it is necessary to meet the requirements.

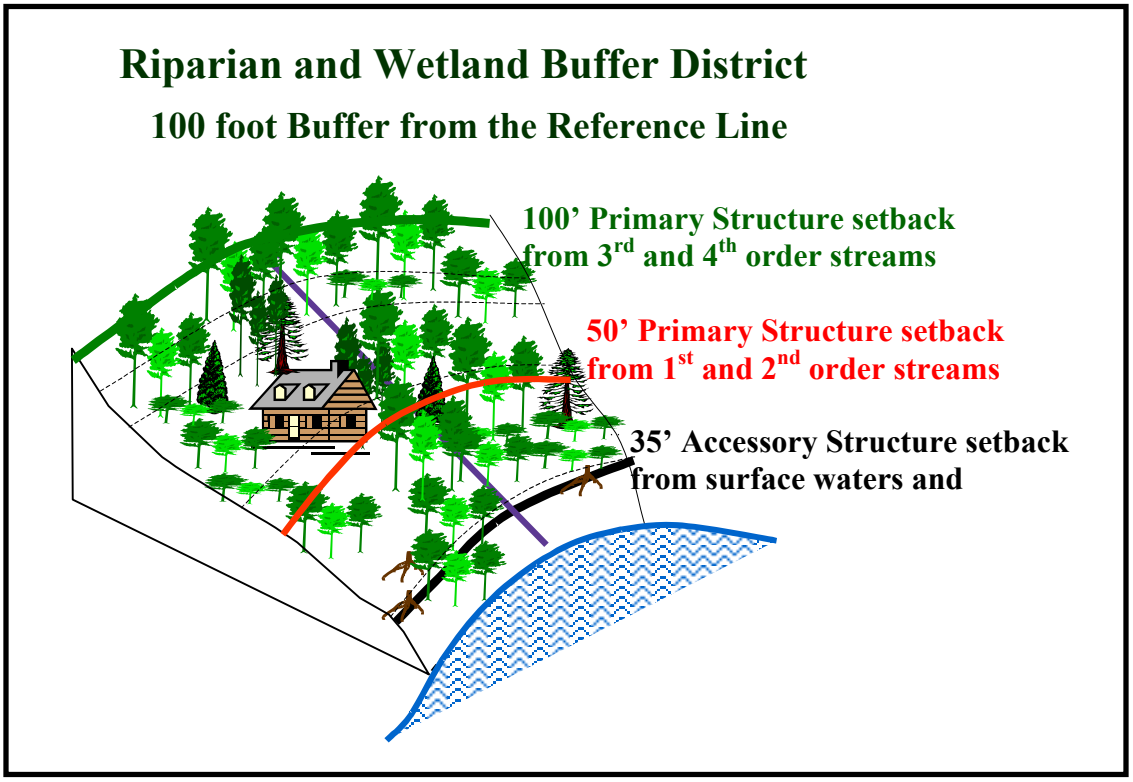
NOTE: Properties with shorefront on a fourth order or high river or stream are exempt from the requirements of Sections VI.E for waterfront buffers and VI.F for impervious surface cover; the requirements of the Comprehensive Shoreland Protection Act for waterfront buffer and impervious surface cover shall apply to these properties.

F. The total impervious surface area within any lot shall not exceed ten percent (10%) of the area of the parcel or lot located within the Riparian and Wetland Buffer District.

I. Setbacks for Structures. Within the Riparian and Wetland Buffer District, structures shall be setback as follows (refer to diagram below):
   1. Primary structures shall be located a minimum distance of 50 feet from the reference line of all first and second order streams, and 100 feet of all third and fourth order and higher streams, and all lakes, ponds, reservoirs and wetlands.

   2. Accessory structures shall be located a minimum distance of 35 feet from the reference line of all surface water bodies and wetlands.

H. All stormwater runoff from residential and commercial development must be treated before discharge within the Riparian and Wetland Buffer District in accordance with the standards of the City of Somersworth Site Plan Regulations and Subdivision Regulations.



I. A site plan, in accordance with the requirements of Section VIII, shall be submitted to the Code Enforcement Officer with all applications for a building, grading or clearing permit or other disturbance proposed within the Riparian and Wetland Buffer District.

VII. Riparian and Wetland Buffer District Regulations

A. Prohibited Uses, Structures and Activities

The following uses, structures and activities are prohibited within the Riparian and Wetland Buffer District:

1. Establishment or expansion of salt storage yards, automobile junk yards and solid or hazardous waste facilities.
2. Establishment or expansion of animal feedlot operations, dry cleaning establishments, and automobile service and repair shops.
3. Laundry/car wash establishments not on municipal or public sewer.
4. Disposal or land application of bio-solids, including septage, sewage sludge, animal manure.
5. Subsurface disposal of pollutants from sewage treatment facilities, other than on-site septic systems.
3. Storage of hazardous waste and substances (as defined under RSA 147-A), including but not limited to road salt, de-icing chemicals, herbicides, pesticides, or fertilizer. Limestone may be used within 25 feet of the reference line of any property.

4. Twenty-five to one-hundred (100) feet beyond the reference line, only low phosphate, slow release nitrogen fertilizer or limestone may be used on lawns or areas with grass.
5. Bulk or temporary storage of chemicals above or below ground.
6. Bulk or temporary storage of petroleum products or hazardous materials above or below ground, excluding normal residential or business use of liquid petroleum products and heating fuels for on-premise use.
7. Sand and gravel excavations (as defined in RSA 155-E).
8. Mining or the processing of excavated materials.
9. Dumping or disposal of snow and ice collected from roadways or parking areas from outside of the Shoreland Protection District.
10. Any use or activity not expressly permitted by this Ordinance.

B. Permitted Uses, Structures and Activities

All necessary state and local approvals and permits shall be obtained prior to the commencement of any activity within the Riparian and Wetland Buffer District. The following uses, structures and activities are permitted within the Riparian and Wetland Buffer District, subject to state and local approval:

1. All permitted uses allowed within the municipality's underlying zoning district(s), except those uses expressly prohibited under Section VII.A.
2. Water-dependent structures, or any part thereof, built over, on or within adjacent public waters subject to the jurisdiction of RSA 483-B 9.2 c. shall be constructed only as approved by the NH DES, pursuant to RSA 482-A. All water-dependent uses or structures or parts thereof, built over, on or within the adjacent waters subject to this Ordinance shall be required to obtain a Conditional Use Permit from the City of Somersworth Planning Board in accordance with the requirements of Subsection C. Conditional Uses following.
3. Other permitted uses within the Riparian and Wetland Buffer District, subject to necessary local and state approval, include the following:
    a. Footpaths and trails composed of pervious materials and limited to 4 feet in width with minimal removal of vegetation for construction;
    b. Public water supply facilities, including water supply intakes, pipes, water treatment facilities, pump stations and disinfectant stations;
    c. Public water and sewage treatment facilities;
    d. Hydroelectric facilities, including, but not limited to dams, dikes, penstocks and powerhouses;
    e. Public utility lines and associated structures, facilities and rights of way;
    f. Existing solid waste facilities, including the construction of accessory structures and other activities consistent with the operation of the facility and its solid waste permit, including filling, grading and installing monitoring wells and other drainage structures;
    g. Flood control structures; and,
    h. Public access facilities, including boat ramps.

C. Conditional Uses

The Planning Board may grant a Conditional Use Permit concurrently with site plan or subdivision approval after proper public notice and public hearing for the following uses within the Riparian and Wetland Buffer District subject to all applicable local, state and federal regulations:

1. A change in use or expansion of a non-conforming structure, non-conforming use or non-conforming activity in existence at the time of adoption of this ordinance;
2. Roads, driveways, bridges, access ways, and utilities in accordance with the following standards:
   a. The applicant may be required to provide an analysis to ensure that no economically feasible alternative is available.
   b. The right-of-way should be the minimum width needed to allow for maintenance and installation of an access way or utility right of way.
   c. The angle of the crossing shall be perpendicular to the riparian and wetland buffers in order to minimize clearing requirements and shall be located to minimize overall disturbance to the buffer.
   d. The minimum number of road crossings should be used within each subdivision, with no more than one buffer crossing permitted for every 1,000 feet of the riparian and wetland buffers.
3. Stormwater management in accordance with the following standards:
   a. The applicant may be required to provide an analysis to ensure that no economically feasible alternative is available and that the project is either necessary for flood control, or significantly improves the water quality or habitat of the surface water body or wetland.
   b. For new developments, onsite and nonstructural alternatives will be preferred over structural facilities within the riparian and wetland buffers.
   c. When constructing stormwater management facilities (i.e., BMPs), the area cleared will be limited to the area required for construction and adequate maintenance and access, as outlined in *Best Management Practices to Control Nonpoint Source Pollution: A Guide for Citizens and Town Officials (2004)* and as amended or revised by NH Department of Environmental Services.
   d. Material dredged or otherwise removed from a BMP shall be stored outside the riparian and wetland buffers.
4. Marinas developed in accordance with the following requirements:
   a. Minimum shoreland frontage shall be 300 feet with an additional 25 feet of shoreland frontage per boat slip.
   b. Off street parking shall be provided at a rate of 360 square feet per parking space.
   c. Submission of an environmental impact study including measures to mitigate potential negative impact on the adjacent waters, including but not limited to:
      (1) Measures to prevent leakage or spills of fuels, lubricants, wastewater and other potential pollutants into the public waters;
      (2) Assurances that impact on wetlands and other related sensitive areas have been avoided.

d. Submission of a site plan which includes locations of rest rooms, buildings, parking areas and all related support facilities with assurances that these facilities shall be permanently available to the project.
e. Receipt of a wetland permit from NH DES.

5. Water dependent uses and structures including, but not limited to, docks, wharves, boat ramps, etc. All water dependent uses and structures shall be approved as a Conditional Use Permit in accordance with the following requirements:
   a. The use is in keeping with the purpose and intent of this Ordinance.
   b. The least impacting route and methodology for the use have been selected as the best practicable alternative.
   c. Canopies and seasonal covers extend only over the boat slips and shall be removed during the non-boating season.

D. Conditional Use Permit Applications.

1. Before the Planning Board undertakes a conditional use review, the applicant shall make application, on forms provided in the Department of Planning and Economic Development, to the Conservation Commission for review and comment. The Planning Board shall review and make part of the record any comments or recommendations from the Conservation Commission with regard to the request for a conditional use.
2. The Planning Board may attach such conditions to the granting of a conditional use permit as it deems necessary to carry out the purposes of the Riparian and Wetland Buffer Ordinance. Such conditions may include but shall not be limited to:
   a. Erosion control measures;
   b. Modifications in project design to maintain natural hydrologic conditions of surface water bodies and wetlands, riparian and wetland buffers, and circulation of waters;
   c. Dedication of easements to protect surface water bodies and wetlands, and riparian and wetland buffers;
   d. Modification of waste disposal and water supply facilities;
   e. Limitations on the total portion of any lot within the District that may be graded, filled or otherwise altered;
   f. Requirements that structures be elevated on piles or otherwise protected from natural hazards; and
   g. Planting or replanting of vegetation within the District and construction of new surface water bodies or wetlands equivalent to damaged or destroyed areas.
3. All applications for a Conditional Use Permit shall be accompanied by a site plan in accordance with the requirements of Section VIII.
4. The Planning Board shall act on a conditional use application within thirty (30) days of the close of the public hearing. Except where additional information is required by the Planning Board, then such action may be extended by ninety (90) days. In acting on the application the Planning shall, in writing, deny, approve, or conditionally approve the proposed activity.

VIII. Site Plan Requirements

A. The site plan shall set forth an informative, conceptual, and schematic representation of the proposed activity by means of maps, graphs, charts, or other written or drawn documents so as to enable the Planning Board an opportunity to make a reasonably informed decision regarding the proposed activity.

B. All plans submitted as part of a Conditional Use Permit Application and prepared for recording and all right-of-way plans shall clearly:
   1. Show the extent of any forest buffer on the subject property;
   2. Label all riparian and wetland buffers;
   3. Provide a note to reference any riparian and wetland buffer stating "There shall be no clearing, grading, construction or disturbance of vegetation except as permitted by the local and state regulations"; and
   4. Provide a note to reference any protective covenants governing riparian and wetland buffers areas (if applicable stating: "Any riparian and wetland buffer shown hereon is subject to protective covenants that may be found in the land records and that restrict disturbance and use of these areas."

C. The site plan submitted as part of a Conditional Use Permit Application shall contain the following information:
   1. A location or vicinity map;
   2. The scale of plans should be 1"=50' to 1"=100' scale to provide sufficient detail of the project site and its features;
   3. Field delineated and surveyed streams, springs, seeps, bodies of water, and wetlands (include a minimum of 200 feet into adjacent properties) with the direction of flow shown;
   4. Field delineated and surveyed riparian and wetland buffers, with plans signed and stamped by a certified wetland scientist and a licensed professional surveyor;
   5. Limits of the 100-year floodplain
   6. Hydric soils mapped in accordance with the NRCS soil survey of the site area;
   7. Slopes greater than 20 percent over a ten foot interval for all lands within the Riparian and Wetland Buffer District;
   8. Tree inventory in accordance with the standards of the Comprehensive Shoreland Protection Act (Env.WQ 1406.08(k) and Env.WQ 1411.01); and
   9. A narrative of the species and distribution of existing vegetation within the buffer.

D. For all projects approved under a Conditional Use Permit, permanent markers in the form of signage approved by Planning Board shall be placed at the edge of riparian and wetland buffer to delineate their boundary. Markers shall be installed prior to final approval of a clearing and grading plan or the issuance of a building permit.

IX. Riparian and Wetland Buffer Management and Maintenance

A. Within the District, riparian and wetland buffers shall be managed to enhance and maximize the unique value of the resource. Management includes specific limitations on alteration of the natural conditions of these resources. The following structures, practices, and activities

are permitted in riparian and wetland buffers subject to the review of the Conservation Commission.

1. Tree pruning, including the removal of dead, diseased, unsafe, or fallen trees, saplings, shrubs is permitted. Individual trees that are in danger of falling, causing damage to dwellings or other structures, or causing blockage of the stream may be removed; however the required point score within the waterfront buffer shall be maintained (refer to the requirements of Section VI.E).
2. Preservation of dead and living trees that provide dens and nesting places for wildlife is encouraged.
3. Planting and reforesting efforts to restore the natural vegetation is encouraged.
4. Stream restoration projects, facilities and activities approved by the state are permitted.
5. Water quality monitoring and stream gauging are permitted, as approved by the state.
6. Other timber cutting techniques may be undertaken within under the advice and guidance of a state or federal forestry agency or the Natural Resource Conservation Service if necessary to preserve the forest from extensive pest infestation, disease infestation, or threat from fire.
7. No mechanized logging, no clear cutting of trees, and no cutting or removal of vegetation and natural ground cover below 3 feet in height shall be permitted.

B. All riparian and wetland buffers within subdivisions and site plans approved after adoption of this Ordinance shall be maintained through a declaration of protective covenant, which is required to be submitted for approval by the Planning Board. The covenant shall be recorded in the land records and shall run with the land and continue in perpetuity.
Note: *This protective covenant can be kept either by the local government agency responsible for management of environmental resources or by an approved nonprofit organization. An example Land Trust Agreement (document available at http://www.epa.gov/owow/nps/ordinance/osm1.htm#land).*

C. All lease agreements for activities permitted within the riparian and wetland buffer area must contain a notation regarding the presence and location of protective covenants for riparian and wetland buffers and shall contain information on the management and maintenance requirements for riparian and wetland buffers for the new property owner.

D. Riparian and wetland buffers may be allowed to grow into a vegetated state through natural regeneration, but methods to enhance the successional process such as active reforestation may be used when deemed necessary by _____ (*natural resources or forestry agency*) to ensure the preservation and propagation of the buffer area. Forest buffer areas may also be enhanced through reforestation or other growth techniques as a form of mitigation for achieving buffer preservation requirements.

X. Non-Conforming Lots, Uses and Structures

A. General Purpose. It is the intent of this Ordinance to promote the conforming use of land located within the Riparian and Wetland Buffer District, except that non-conforming lots, structures and uses that existed before the effective date of this Ordinance or amendments

thereto shall be allowed to continue, subject to the requirements as set forth in this section. Except as otherwise provided in this Ordinance, a non-conforming lot, use or structure shall not be permitted to become more non-conforming.

B. Non-conforming Lots. Non-conforming, undeveloped lots of record that are located within the Riparian and Wetland Buffer District shall comply with the following restrictions, in addition to any other requirements of the municipality's zoning ordinance:
    1. Except when otherwise prohibited by law, present and successive owners of an individual undeveloped lot may construct a building or structure on it, notwithstanding the provisions of this Ordinance.
    2. Conditions may be imposed which, in the opinion of the municipality's Zoning Board of Adjustment as appropriate, more nearly meet the intent of this Ordinance, while still accommodating the applicant's rights.
    3. Building on non-conforming lots of record also include but not limited to docks, piers, boathouses, boat loading ramps, walkways, and other water dependent structures, consistent with this Ordinance.

C. Non-conforming Uses. Existing uses, which are non-conforming under this ordinance, may continue until the use ceases to exist or the use is discontinued for a period of one year. Within the Riparian and Wetland Buffer District, an existing non-conforming use may not be changed to another non-conforming use and an existing nonconforming use may not be expanded. Existing non-conforming uses shall be required to meet the requirements of this ordinance to the maximum extent possible.

D. Non-conforming Structures. Except as otherwise prohibited, non-conforming structures, erected prior to the effective date of this Ordinance or amendments thereto, located within the Riparian and Wetland Buffer District may be repaired, renovated, or replaced in kind using modern technologies, provided the result is a functionally equivalent use. Such repair or replacement may alter the interior design or existing foundation, but no expansion of the existing footprint or outside dimensions shall be permitted. An expansion that increases the sewage load to an on-site septic system, or changes or expands the use of a septic system or converts a structure to condominiums or any other project identified under RSA 485-A:29-44 and rules adopted to implement it shall require NH DES approval. Between the primary building line and the reference line, no alteration shall extend the structure closer to the adjacent water body, except that the addition of a deck open porch is permitted up to a maximum of 12 feet towards the reference line. (The problem is, once people have an "open porch" it is too tempting to convert it to living space. An open porch is also another pitched roof which increases stormwater velocity. If you decide to leave it in, it should be precisely defined in the glossary)

XI. Conflict With Other Regulations

Where the standards and management requirements of this buffer ordinance are in conflict with other laws, regulations, and policies regarding streams, steep slopes, erodible soils, wetlands, floodplains, timber harvesting, land disturbance activities, or other environmental protective measures, the more restrictive shall apply.