

**Kershaw County Planning and Zoning Commission**  
**Minutes - Work Session**  
**November 20, 2008, 5:30 p.m.**  
**County Council Chambers, 515 Walnut Street**  
**Camden, SC 29020**

Members Present: Lewis Shaw, David Brown, Charles Cottingham, Karen Eckford, George Gibson, and Richard Simmons

Members Absent: Dan Matthews

Staff Present: Carolyn Hammond and John Newman

**Call to Order**

Chairman, Lewis Shaw, called the meeting to order at 5:30 p.m.

**Old Items**

In reference to Division One of the Land Development Regulations, Section 5:1.5-2 (When Required to Connect to Community Sewerage System), John Newman presented the Utility Director's recommendation that the figures relating to subdivision size remain the same, but that they apply to both gravity flow and forced main. The Commission expressed their desire for two separate sets of standards; one for gravity flow and one for forced main. Mr. Newman said the Utility Director was agreeable to coming up with an alternative recommendation. John Newman will work with him on revised standards.

**Discussion of Draft Lake Wateree Overlay District (LWOD)**

John Newman pointed out all of the changes in the text that had been made upon the Planning Commission's recommendations during their November 13, 2008 meeting. In addition to those recommended changes, the following were noted:

John Newman is awaiting Duke Energy's definition of the project boundary for Section 3:7.4-2 (Establishment of the Lake Wateree Overlay District) and for Section 3:7.4-6 A (Lake Wateree Shoreline Buffer Regulations).

In reference to Section 3:7.4-6 B 2 a 5) (Lake Wateree Shoreline Buffer Regulations), John Newman explained that he had talked to Duke about the utilities and other types of structures that may need to go within the boundary. The following text has been recommended:

*5.) Eminent Domain - Activities conducted by the U.S. Government, the State of South Carolina, Kershaw County, railroads, public utilities, or other entities that typically have the power of eminent domain (e.g., utility or roadway right-of-way, construction and maintenance) are not subject to the provisions of this Section. However, such activities, where practicable, should be conducted in a manner that is consistent with the requirements of the Lake Wateree Shoreline Buffer regulations.*

Buffer exceptions need to be made for public recreational facilities. This will added to Section 3:7.4-6 (Lake Wateree Shoreline Buffer Regulations). John Newman is in the process of researching these guidelines. He passed around a sketch of Kershaw County's proposed park on

Lake Wateree to show an illustration of how the buffers could be implemented in such areas. He has been in contact with Tony Bebber at PRT and will have him review his draft language before presenting it to the Planning Commission.

When discussing Section 3:7.4-6 (Lake Wateree Shoreline Buffer Regulations), John Newman reported that after taking a second look at the planting requirement for restoring the buffer, he proposed revising the table in the current draft. The draft below will be used. These figures are in line with NRCS and many other standards for mature buffer density.

<i>Vegetation Type</i>	<i>Number of Plantings</i>	<i>Coverage</i>	<i>Minimum Number of Species</i>
<i>Large-Maturing Tree</i>	<i>1</i>	<i>Per 200 sq. ft.</i>	<i>3</i>
<i>Small-Maturing Tree or Shrubbery</i>	<i>1</i>	<i>Per 100 sq. ft.</i>	<i>4</i>
<i>Groundcover Plugs</i>	<i>70</i>	<i>Per 100 sq. ft.</i>	<i>1</i>
<i>Groundcover Seedlings</i>	<i>General Seed Broadcast</i>	<i>Complete Coverage of Bare Soil</i>	<i>1</i>

A discussion was held about the LWOD On-Site Sewage Disposal Systems Regulations (Section 3:7.4-8). Public education of these regulations will be important. John Newman reported that he has learned that engineered systems are under required maintenance agreements with DHEC and should most likely be exempted from the LWOD septic inspection requirements. He will check with DHEC for further input.

The following changes were also made to the Section on On-Site Sewage Disposal Systems Regulations:

A copy of the inspection report and ~~paid receipt~~ *sewage disposal manifest* from the pumping contractor shall be submitted to the Building Official within ten (10) days of the inspection.

*4. Time Between Inspections - If an inspection has been conducted pursuant to a sale of real estate interest or a change of occupancy within three years of a subsequent sale of real estate interest or change of occupancy of the subject site, a new inspection shall not be required unless the sale or change of occupancy will result in increased sewage flow into the system.*

**Discussion of Draft Water Quality Buffers**

John Newman presented the Commission with a report titled, Summary of Sources Justifying the 100 Foot Buffer Width On Perennial Streams (attached). After reviewing the information, the group decided that the buffer width would be set at 100 feet. For situations where these buffer widths would present a hardship, the following exemption was recommended for Section 5:3.6-1 (Basic Requirements for Water Quality Buffers).

*B. Exception to Required Buffer Width - An application for an exception to the required buffer width may be submitted for consideration providing that a study is conducted by a qualified Professional Engineer that includes the following factors:*

- 1. The slope of the site from the highest elevation on the site to the surface elevation of the stream, lake, or pond.*

2. *Annual rainfall.*
3. *Site soil type.*
4. *Type of vegetation within the buffer.*
5. *Amount of impervious surfaces on-site (including roof tops).*
6. *Other characteristics specific to the site.*

*The study shall demonstrate that a proposed buffer width that is less than the required width will afford the same water quality protection as the required width in the following standards:*

1. *Erosion control.*
2. *Nutrient, pesticide, and biocontaminant (fecal coliform) removal.*
3. *Stream temperature.*

John Newman recommended adding the following addition to Section 5:3.6-2 D.5. (Disturbance of Buffers):

4. *If an application for an exception to the required buffer width has been approved, a note must be provided stating, "Exception to required buffer width approved \_\_\_\_\_ (date)."*

#### **Other Items**

The need for further work sessions was discussed. John Newman will send an e-mail regarding possible dates.

#### **Adjournment**

Karen Eckford motioned to adjourn. George Gibson seconded, and all voted in favor. The meeting adjourned at 6:27 p.m.

Respectfully submitted,

*Carolyn B. Hammond*

Carolyn B. Hammond  
Secretary

SUMMARY OF SOURCES JUSTIFYING THE 100 FOOT BUFFER WIDTH ON  
PERENNIAL STREAMS

**US EPA October 2005**

**Riparian Buffer Width, Vegetative Cover, and Nitrogen Removal Effectiveness:  
A Review of Current Science and Regulations**

“This report does not provide a one-size-fits-all recommendation for such a design or width but rather attempts to identify generalizations and trends extracted from published literature that will aid managers in making decisions about establishing, maintaining, or restoring riparian buffers in watersheds of concern.”

“The most effective buffers are at least 30 meters, or 100 feet wide, composed of native forest, and are applied to all streams, including very small ones.”

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**USC Center for Environmental Policy July 2000**

**FINAL REPORT OF THE STATEWIDE TASK FORCE ON RIPARIAN FOREST  
BUFFERS**

Technical Recommendations for Buffer Widths

**Recommended Statewide Minimum Buffer for Riparian Forest Buffer Width:**

**Riparian Forest Buffers**

To protect water quality and to realize other benefits, the Task Force should require a riparian forest buffer (RFB) with a minimum width of 35 feet of native vegetation on both sides of all perennial and intermittent streams and rivers, lakes, estuarine waters and coastal marshes. Buffer widths should increase with increasing slope in the terrain. Buffer requirements on ephemeral channels and non-coastal wetlands should be determined on a site-by-site basis. Buffers on ephemeral channels may be less than 35 feet in width and include other non-forested permanent vegetation types.

**Non-forest Riparian Buffers**

100 foot buffer of native vegetation on both sides of the water body to better enhance water quality in non-forested areas and to provide additional benefits to wildlife.

**Duplication of Undisturbed Riparian Forest Buffers**

300 foot buffer of native vegetation on both sides of the water body to provide comparable benefit of an undisturbed riparian system.

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**SCDHEC / NOAA**

## **Vegetated Riparian Buffers and Buffer Ordinances**

### **Recommendations for Vegetated Buffers and Buffer Ordinances in South Carolina**

Minimum average width 50 feet. The inner (streamside) zone of 25 feet (approximately two mature trees deep) needs to be left pristine and forested. A width of 50 feet plus 25 feet of turf (residential backyard) before reaching the first pavement or structure is preferable, while a width of 100 feet (75 feet plus 25 feet of turf) is optimum and should be attempted where possible.

**A.** Attempt to make two-thirds of the vegetated buffer at least 75 feet wide. Consider incentives to developers (e.g. density bonuses elsewhere or property tax exemptions) for providing buffers of 75 or 100 feet.

**B.** Do not allow the buffer to become too fragmented. Continuity is as important as buffer width. Do not allow more than 10% of the buffer to be less than 33 feet (10 meters) wide.

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### **Yale School of Forestry and Environmental Studies April 2005 Riparian Buffer Zones: Functions and Recommended Widths**

#### **Fixed Buffer Widths**

A fixed buffer width is the easiest to administer. However, care must be taken to select the appropriate width for the resources you are targeting. Studies unanimously support the conclusion that buffer efficiency at filtering out pollutants increases with width. However, this does not increase infinitely, and the goal is to find the most efficient width. For example, a study in the Mid-Atlantic<sup>16</sup> found that 90% of sediments were removed by a 62 ft. riparian buffer, but only 94% were removed by more than doubling the buffer width to 164 ft.

If a fixed buffer width is chosen, it should be on the conservative side to provide leeway for slope and soil type. Data for the Eightmile River watershed show that significant areas of the land bordering the river have slopes that are above 15%. Therefore, we believe it is necessary to make a fixed buffer width wider than the average minimum recommendation of 100 ft.

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University of Georgia Institute of Ecology March 5, 1999

#### **A REVIEW OF THE SCIENTIFIC LITERATURE ON RIPARIAN BUFFER WIDTH, EXTENT AND VEGETATION**

“Studies have yielded a range of recommendations for buffer widths; buffers as narrow as 4.6 m (15 ft) have proven fairly effective in the short term, although wider buffers provide greater sediment control, especially on steeper slopes. Long-term studies suggest the need for much wider buffers. It appears that a 30 m (100 ft) buffer is sufficiently

wide to trap sediments under most circumstances, although buffers should be extended for steeper slopes. An absolute minimum width would be 9 m (30 ft). To be most effective, buffers must extend along all streams, including intermittent and ephemeral channels. Buffers must be augmented by limits on impervious surfaces and strictly enforced on-site sediment controls. Both grassed and forested buffers are effective at trapping sediment, although forested buffers provide other benefits as well. Buffers are short-term sinks for phosphorus, but over the long term their effectiveness is limited. In many cases phosphorus is attached to sediment or organic matter, so buffers sufficiently wide to control sediment should also provide adequate short-term phosphorus control. However, long-term management of phosphorus requires effective on-site management of its sources. Buffers can provide very good control of nitrogen, include nitrate. The widths necessary for reducing nitrate concentrations vary based on local hydrology, soil factors, slope and other variables. In most cases 30 m (100 ft) buffers should provide good control, and 15 m (50 ft) buffers should be sufficient under many conditions. It is especially important to preserve wetlands, which are sites of high denitrification activity.”

The study recommends that if a fixed width option is used, the recommended width is 100 feet:

*“Fixed buffer width of 100 ft.* The buffer applies to all streams that appear on US Geological Survey 1:24,000 topographic quadrangles or, alternatively, all perennial streams plus all intermittent streams of second order or larger.”