

## **HEARING OFFICERS' REPORT**

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### **Consolidated Buffer Mitigation Rule**

Adoption of 15A NCAC 02B .0295  
Repeal of 15A NCAC 02B .0242  
Repeal of 15A NCAC 02B .0244  
Repeal of 15A NCAC 02B .0252  
Repeal of 15A NCAC 02B .0260  
Repeal of 15A NCAC 02B .0268  
Repeal of 15A NCAC 02B .0609

April 2013

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**INTRODUCTION:****PUBLIC HEARING OFFICER:**

Dr. Ernest Larkin – Environmental Management Commission

**PUBLIC HEARINGS INFORMATION:**

Date:	February 6, 2013
Location:	Raleigh, NC
Number of Attendees:	13
Speakers:	0

Date:	February 12, 2013
Location:	Winterville, NC
Number of Attendees:	6
Speakers:	2

A total of 12 individuals or organizations commented on the proposed rules. Of these, 11 submitted written comments, one made oral comments at the public hearings, and 1 presented both oral and written comments.

**REASONS FOR PROPOSED RULEMAKING:**

Pursuant to G.S. 143-214.20, the Environmental Management Commission is to adopt rules concerning construction of alternative measures of buffer mitigation that reduces nutrient loading as well as or better than the riparian buffer that is lost.

The proposed rule (15A NCAC 02B .0295) will provide mitigation options not currently available to DOT, developers, industry and private individuals. In addition to providing greater regulatory flexibility, the proposed changes incorporate current technical and operational techniques into the rules as well as bring consistency to the current riparian buffer mitigation rules. The proposed rule adheres to the principles of Executive Order 70. It advances the public interest and is designed to achieve its objective in a cost-effective and timely manner. The proposed rule was developed through a public stakeholder process.

**PROPOSED REPEAL OF 15A NCAC 02B 0242, .0244, .0252, .0260, .0268 and .0609**

The proposed rule consolidates the relevant portions of these current rules, incorporates current technical and operational techniques, and provides greater regulatory flexibility in approving compensatory mitigation for riparian buffer impacts. It is necessary to repeal the current rules and direct applicants to follow the new proposed rule.

## SUMMARY

Comments received during the public hearing process were varied, and a relatively large number of comments were received from a relatively small number of commenters. The comments touched on all parts of the Rule. This report provides detailed response to each comment area and those responses are included in the sections following this summary section.

Some general comments involved definitions of terms used throughout the Rule, asking for clarity and/or consistence with the Federal Mitigation Rule. Comments regarding definitions of the terms “Restoration Site” and “Enhancement Site” were concerned with the somewhat subjective nature of the definitions, and the apparent need for the Division to evaluate each potential mitigation site for suitability for enhancement or restoration. However, based on the Divisions’ experience regarding site-specific conditions and variability related to existing versus potential buffer function, the need exists for Division staff to make on-site assessment and the ability to make site-specific decisions that support the over purposes of both the Riparian Buffer Protection Rules and the proposed Consolidated Buffer Mitigation Rule. Some revisions were made, however, to provide more clarity.

Another general comment related to language at various parts of the Rule that could be construed to apply to applicants for riparian buffer authorizations, versus applying to buffer mitigation providers. Clarifying language was added to specify the requirements that apply to all buffer mitigation projects, including applicant-provided mitigation, mitigation provided by a private mitigation bank, or mitigation provided by the North Carolina Ecosystem Enhancement Program (NCEEP).

There were a considerable number of comments regarding the requirements for performance bonds to ensure site construction and monitoring are completed and non-wasting endowments to provide funds for long-term management by the stewardship agency/ultimate easement holder. Several commenters supported the requirement for bonds and endowments. One commenter asked whether bonding was required for all mitigation projects or just applicant-provided mitigation. Bonding is required for all applicants except the NCEEP, as NCEEP will follow the N.C. Department of Administration contracting laws and regulations found in General Statute (G.S.) 143-48, G.S. 143-129, and 01 North Carolina Administrative Code (NCAC) 05B .0300 to ensure that full implementation of contracted services are accomplished. Similarly, one commenter asked if the amount of the monitoring bond can be reduced each year as project milestones are met. This process is allowed and is currently included in the mitigation banking instruments for a number of mitigation banks.

Several commenters indicated that the requirement for a non-wasting endowment is too restrictive. All mitigation providers are required to ensure that they include provisions for long-term stewardship into their project designs. Language was added providing flexibility, requiring the use of non-wasting endowments “or other financial mechanisms for perpetual maintenance and protection”.

One commenter recommended the use of ratios rather than multipliers to be consistent with other mitigation programs. The Rule was revised to use ratios rather than multipliers.

One commenter raised concerns that wetland areas within a buffer to be impacted should not be removed from the mitigation requirement calculation, stating that this could result in the mitigation of riparian wetlands with non-riparian wetlands, resulting in a net loss of riparian wetlands. Generally, the U.S. Army Corps of Engineers (USACE) requires “in-kind” mitigation, where riparian wetlands are mitigated with riparian wetlands and non-riparian wetlands are mitigated with non-riparian wetlands.

During the rule development process, the EMC expressed a preference for mitigation being conducted as close to the impact site as possible. Three options were developed that could assist in siting mitigation projects closer to the impact sites. The current process is that buffer mitigation must be provided within the same eight-digit HUC, with the ability of the Division to approve mitigation in an adjacent HUC (but

within the same river basin) on a case-by-case basis, with a 2:1 ratio applied (presented as Option A). One commenter preferred Option A. One commenter chose Option B, which provides a reduction in buffer mitigation requirement (0.75:1) for on-site or mitigation within the same 12-digit HUC, but required a higher ratio (1.5:1) within the eight-digit but outside the 12-digit HUC. One commenter chose Option C, which provides the incentive of Option B for on-site or within the 12-digit HUC, but not the “penalty” for outside the 12 but within the eight-digit HUC.

One commenter stated that mitigation should be done in close proximity to the impact site, but recommended even stronger measures (multipliers) associated with the 14 and 11-digit HUCs. Finally, several commenters recommended a river-basin approach with no incentives for proximity to the impact site.

Based on the comments received, we recommend Option C, as it provides incentives for mitigation closer to the site per the EMCs comments, but does not penalize mitigation consistent with current procedures within the eight-digit HUC. Mitigation in an adjacent (but same river basin) HUC could be approved on a case-by-case basis at a 2:1 ratio.

Several comments were received regarding geographic restrictions outlined in the Rule. One commenter supported the Falls Lake restrictions, but with additional restrictions or multipliers for the different sub-watersheds, while another commenter stated that the geographic restrictions within the Falls Lake watershed make it more difficult to find mitigation sites. An additional commenter stated that no additional restrictions beyond the locational ratios should be used. However, the Falls Lake Rules (along with the Randleman, Jordan Lake and Goose Creek Rules) were written to address problems in particular water bodies, so mitigation needs to be tied closely to those affected water bodies.

A number of comments were received regarding the widths of the riparian buffer mitigation, as well as allowing buffer mitigation on ephemeral and man-made waters (e.g. ditches) discharging to intermittent and perennial streams, consistent with the nutrient rules. While there are multiple benefits associated with wider buffers, based on water quality research on buffers, the water quality benefits, particularly related to nutrient/pollutant removal, decrease substantially on riparian buffers wider than 75 feet. Additional study on the value of wider buffers and the resultant credit value is recommended. In addition, while allowing buffer mitigation on ephemeral channels and other conveyances would be consistent with the Division’s nutrient rules, the quantifiable benefits to downstream water quality are unclear, and their value relative to restoring buffers on intermittent and perennial streams needs to be determined.

One commenter stated that it is not always possible or practical to eliminate existing impervious surface cover or stormwater conveyances from a proposed riparian buffer mitigation site. A primary function of the riparian buffers is nutrient/pollutant removal from stormwater flows by having diffuse flow through the vegetated buffer. The presence of impervious surfaces or concentrated flow through the buffer via ditches, pipes or drain tiles is contrary to a basic premise of the buffer rules. If concentrated flow can be converted to diffuse flow or otherwise treated to remove nutrients/pollutants prior to discharging to the surface water, then the site may be considered viable as a buffer mitigation site.

One commenter provided a wide range of comments regarding vegetation/planting plans. Some revisions to the Rule were made to make some technical aspects of planting plans consistent with other types of compensatory mitigation. However, the goal of the buffer mitigation project is to restore a diverse forested riparian zone with all of the attendant functions. Natural regeneration and the presence of volunteer species on a mitigation site is taken into consideration when evaluating the progress of the site, but excessive growth of such species can result in reduced diversity or even a monoculture situation that is not consistent with the goal of a buffer mitigation project. Similarly, reduction of the planted species from five native forest species down to two is not consistent with the goal of a diverse forested riparian buffer.

During the rule development process, we received considerable input from municipalities and other local governments regarding providing flexibility in establishing riparian buffer mitigation sites within urban areas, specifically on sites with existing sewer easements. Comments from parties representing a large number of municipal governments were also received on this topic. Two options were presented; Option 1 in which no credit could be generated within maintained sewer easements regardless of the buffer zone in which they are located (but could get credit for narrower urban buffer discussed elsewhere), and Option 2 which allowed for the maintained portion of Zone 2 of the buffer to generate buffer mitigation credit. Several commenters did not support providing any credit for sites in which sewer easements were present. Two comments strongly supported Option 2. Based on the input provided, we recommend Option 2, as this option was supported by a large number of stakeholders and provides options for restoring, preserving and protecting buffers in urban areas. This option has been moved to the paragraph describing Alternative Buffer Mitigation.

Several comments were received regarding monitoring buffer mitigation sites. One commenter suggested clarification that the monitoring period could be extended if performance standards were not being met after five years, and this comment was incorporated into the Rule. Another commenter stated that there was little benefit to or necessity for submitting annual mitigation reports. Annual reporting is standard practice and is consistent with other types of mitigation activities, and the reports provide data on the performance of the site and documents the site trending toward the desired condition (forested riparian buffer). Monitoring reports are also a critical milestone in the credit release process for riparian buffer mitigation banks.

A number of comments from one commenter were received regarding donation of property. Revisions were made removing restrictions on the minimum restorable lengths of buffer on property to be donated. One question was received about the value of the property, the amount of the endowment required, and how inflation will be considered. These items would be determined between the party donating the property and the party receiving the property. Clarifications were made deleting some relic language from an early version of the Rule and clarifying requirements related to concentrated flow through the buffer to be consistent with revisions made to a previous portion of the Rule. Clarification was added that property may be donated to the State of North Carolina, and not the NCEEP.

Eight commenters supported to general concept or specific forms of flexible/alternative buffer mitigation. A number of comments were received regarding requirements for 1:1 traditional buffer mitigation requirements, no practical alternatives demonstrations, public comment periods, and nutrient removal efficiencies on alternative buffer mitigation projects. After reviewing comments, it was decided that vegetative alternative options were technically the same as traditional mitigation projects (e.g. planting trees) and would not be subject to the above-stated requirements. These requirements would apply to all structural options.

Two options were presented related to allowing buffer mitigation credit from being generated on previously-constructed sites. Option 1 stated that credit could be generated on sites that had been constructed and were in monitoring. Option 2 allowed credit to be generated within a period of ten years from the effective date of the Rule. Each option was supported by two commenters. One commenter expressed concern regarding “flooding the market” with unclaimed mitigation credits. One commenter stated that projects that had been constructed previously and were finished monitoring could not demonstrate buffer functional uplift. With respect to inability to demonstrate functional uplift, a provider seeking credit for an existing site would need to document the prior conditions at the site and provide a description of the activities undertaken to restore/enhance the site, as well as demonstrate that monitoring for at least five years shows that buffer mitigation success criteria have been met. With respect to the market issues, the concern regarding this issue is mainly with the NCEEP. While NCEEP may receive additional credits in certain areas of the state, recent legislation has created a hierarchy for most mitigation seekers that directs them to mitigation banks (provided they have appropriate and available

credit) before procuring credits from NCEEP. The effect on the market would likely be minimal. Due to the amount of time that has elapsed (and may still elapse) for the development and implementation of this Rule, Option 2 is recommended.

Several comments were received both in support of and against allowing buffer mitigation credit on coastal plain headwater stream restoration sites. One commenter stated that the Division should not award any riparian buffer credit for coastal headwater stream restoration sites, and questions the environmental benefit of these restoration sites. The commenter cites the USACE Coastal Plain Stream Guidance as saying that the driving force behind awarding stream credit for these headwater “streams” is to create additional mitigation sites. However, the commenter has misinterpreted the coastal plain headwater guidance. Rather, the guidance was written in recognition that traditional stream restoration techniques are not appropriate on coastal plain headwater streams, and attempts to use such techniques have met with failure. This guidance provides alternative methodologies for siting and restoring these streams in a more natural, appropriate manner. Simply replanting buffers along modified, straightened streams (actually ditches carrying jurisdictional flows) would not provide the desired benefits, as many of these ditches are so deep and incised that subsurface flow would be beneath the root zone of the vegetation, and the desired nutrient removal would not occur. However, such benefits would be derived from buffers along headwater valley restoration sites.

Buffer preservation elicited a number of comments. Two commenters supported preservation of urban buffers. One commenter was not in support of preservation except in exceptional circumstances. Two commenters stated that where preservation is allowed, it should be at a 10:1 ratio only. Ratios were developed to provide greater credit for preservation of streams that are not subject to riparian buffer rule protections (streams that do not appear on the applicable maps), as opposed to subject (e.g. mapped) streams. During the rule development process numerous municipal stakeholders requested that the rule consider alternative options for the restoration, enhancement and preservation of urban stream buffers. For preservation of subject streams, two options were presented. Option 1 allowed mitigation credit on all subject streams (urban or rural) at a 10:1 ratio. Option 2 provided credit generation at 10:1 for rural and 3:1 for urban streams, providing a financial incentive for the protection of urban stream buffers. Based on stakeholder input, Option 2 is recommended. For all preservation, applicants requiring mitigation would be required to provide a 1:1 replacement of the impact footprint prior to utilizing preservation credits for the remainder of their mitigation requirement.

Five commenters generally supported the concept of narrower buffers allowed on urban streams. A variety of comments questions the minimum buffer width allowed of 20 feet; suggestions ranged from 15 to 30 feet. One commenter stated that full credit cannot be given for buffers less than the required 50 feet. They supported partial credit for narrower urban buffers only where stormwater control is present (including upstream of the mitigation site). Full credit” as referred to in the Rule does not mean the amount of credit generated by a 50-foot buffer. “Full credit” would be the actual amount of riparian buffer restored. As stated in the Rule, on-site stormwater management allows for more favorable buffer crediting depending on buffer width. Requiring a provider to provide stormwater treatment on properties upstream from the proposed buffer mitigation site and on property not under the control of the mitigation provider is not feasible. Reductions in available credit are applied to recognize the lowered function of narrower buffers. However, during the stakeholder process there was considerable interest by municipal stakeholders for opportunities to do buffer mitigation in urban areas. With respect to the minimum buffer width selected at 20 feet, a 2005 EPA publication which compared a wide variety of studies related to buffer width and nitrogen removal showed that a six meter (19.8 feet) wide buffer has a nitrogen removal efficiency of approximately 50%.

One commenter provided extensive and wide-ranging comments regarding enhancement of partially vegetated grazing areas. They stated that the requirement to demonstrate that grazing has been the predominant land use “for at least the past 20 years” is arbitrary and unwarranted. The presence of

woody understory vegetation should not exclude a site from consideration. If present, then the site would be an excellent preservation area. The commenter objected to the requirement for permanent fencing, and stated that providing for livestock exclusion via the conservation easement would be sufficient and would not require permanent fencing. However, we feel that some demonstration that the land has been used for grazing for an extended length of time is necessary; otherwise, there is nothing to stop someone from releasing cattle into a wooded riparian area for a period of days or weeks and then proposing excluding the cattle and getting mitigation credit. The language has been revised to “since the effective date of the applicable buffer rule.” The presence of woody understory vegetation would not eliminate a site from consideration; it may be a good candidate for preservation. If the site has been grazed for some extended period of time but most of the forest structure remained intact, it would qualify for enhancement credit under this section of the Rule at 2:1 ratio, versus preservation for 10:1. This would be based on the functional uplift resulting from excluding cows from the stream channel and riparian buffer. With respect to cattle exclusion, it is unclear how exclusion via a Conservation Easement would be sufficient to keep cattle out of the riparian buffer without a fence. Should the land use or ownership of the land outside of the conservation easement change such that the fence is no longer necessary, this could be communicated to the stewardship organization.

One commenter stated that the method used to calculate the “original load reduction” of the impacted buffer was not specified when proposing structural mitigation options. This part was clarified that to estimate the rate of nutrient removal of the impacted buffer, the applicant shall either propose a method acceptable to the Division or use a method previously approved by the Division.

One commenter stated that annual reporting for structural options would require reporting in perpetuity, which places unnecessary burdens and costs on the regulated public. However, after discussion, the hearing officer determined that annual reporting was necessary to ensure that the nutrient removal function of the mitigation continue to offset the loss of nutrient removal due to the impact, which will continue in perpetuity.

One commenter stated that structural or non-structural options should be allowed to be considered to replace any structural options that need to be removed/replaced. This part of the Rule has been revised to allow replacement of a structural option with another structural option or a non-structural option.

One commenter asked whether local governments proposing structural mitigation options have a waiver to the bonding and endowment requirements as specified in other parts of the Rule. Local governments do not have a waiver, and the Rule has been revised to clarify.

The methodology for accounting for various types of mitigation credit on mitigation sites was a significant topic of discussion during the stakeholder process, resulting in three options being presented in the Rule. Three commenters preferred Option 1 (stream mitigation sites can generate riparian buffer credit and stream and buffer credit are tracked and sold independently). Three commenters preferred Option 3 (a stream mitigation site can only generate stream mitigation credits; buffer projects must be stand alone). No comments were received regarding Option 2, which was a hybrid proposal with complex accounting difficulties. One commenter stated that the requirement to mitigate for buffers should not be required when stream impacts occur; these will be mitigated for when stream mitigation is performed. With respect to buffer mitigation being accomplished when stream mitigation is done, that may not always be sufficient, as the footprint of the buffer impact associated with a particular length of stream impact may not be the same as the buffer associated with the same number of linear feet of stream mitigation. When a diagonal stream impact occurs there can be more square footage of buffer impact than in the same linear footage of stream impacted perpendicularly. Sinuosity of the impacted stream can also alter the amount of buffer impacts occurring. In addition, the buffer mitigation required by the zonal multipliers would not be included in the buffer provided along with the stream mitigation. Finally, there still remain stream mitigation sites with available credit that do not have 50-foot buffers for varying

reasons. The assumption that stream mitigation buffers will offset the footprint of the stream impact buffers may not always be true.

With respect to the recommended option, we recommend Option 3, with the caveat that buffer mitigation credit can be generated on Coastal Plain headwater stream mitigation sites, as long as no wetland mitigation credit is being generated within the 100-foot wide stream valley.

A summary of both oral and written comments provided at the public hearings and written comments submitted during the comment period are provided in this document, along with the corresponding responses to each comment. Revised rule language (as revised from the public notice rule language) has been included for instances when public comments have resulted in recommended changes to the draft rule. Where possible, common themes expressed by multiple individuals have been grouped together and paraphrased in order to allow for concise responses. The numbers shown in parentheses following each comment correspond to the enumerated list of individuals or organizations providing comments, and this list is included as Appendix A. Detailed hearing minutes and recorded audio files are included as part of the public record and are available upon request. A copy of all written comments received is included as Appendix B and a copy of all oral comments given is included as Appendix C.

SUMMARY OF PROPOSED REVISIONS IN RESPONSE TO PUBLIC COMMENTS:

- 15A NCAC 02B .0295(a) – added language clarifying that the Rule applies to both buffer applicants and buffer mitigation providers.
- 15A NCAC 02B .0295(b)(3), (12), (13) – revised definitions to clarify “Restoration Site”, “Enhancement Site”, and “Preservation Site” while retaining staff flexibility in decisions-making.
- 15A NCAC 02B .0295(b)(4) – deleted “Government Entity” as the term was not used in the Rule.
- 15A NCAC 02B .0295(b)(5), (16) – defines “Locational Ratios” and “Zonal Ratios”.
- 15A NCAC 02B .0295(b)(6) – removed stream stability from the definition of monitoring period
- 15A NCAC 02B .0295(b)(8), (9) – the definitions of “Off-site” and “On-site” were revised to be more consistent with the definitions in the Federal Mitigation Rule.
- 15A NCAC 02B .0295(b)(15) – revised the definition of “Urban”.
- 15A NCAC 02B .0295(c) – changed title of paragraph to include mitigation site requirements.
- 15A NCAC 02B .0295(c) – included the wording “or other financial mechanism for perpetual maintenance and protection” and deleted the exemption for local governments as that exemption is covered by the new language.
- 15A NCAC 02B .0295(e) – replaces the term “multipliers” with “ratios” to be more consistent with federal mitigation terminology.
- 15A NCAC 02B .0295(e)(1) – selected Option C.
- 15A NCAC 02B .0295(f) – added clarifying language regarding threatened or endangered species.
- 15A NCAC 02B .0295(g)(5) – added “or drain tiles”.
- 15A NCAC 02B .0295(g)(6)(B) – included term “native shrub species”, changed maximum amount of one species of planted stem to 50%, revised the success criterion to 260 planted stems per acre, and changed this to be at the completion of monitoring instead of at maturity.
- 15A NCAC 02B .0295(g)(6)(C) – revised to require grading plan only where applicable.
- 15A NCAC 02B .0295(g)(6)(D) – replaced the term “pesticide” with “herbicide”.
- 15A NCAC 02B .0295(g)(6)(E) – removed “stream stability” from the monitoring plan.
- 15A NCAC 02B .0295(g)(9) – selected Option 2 with revised language for clarity and moved to the alternatives section in (k)(2)(E).
- 15A NCAC 02B .0295(g)(9) – included the term “native shrub species”, revisions for clarity regarding success criteria and replacement of trees. Specified that additional monitoring may be needed if success criteria are not met and corrected numbering.
- 15A NCAC 02B .0295(g)(10) – clarified “completion bond” and included the wording “or other financial mechanism for perpetual maintenance and protection”.
- 15A NCAC 02B .0295(i) – included suggested language related to payment to NCEEP.
- 15A NCAC 02B .0295(j) – added “in lieu of payment” to clarify what is covered in this Paragraph.
- 15A NCAC 02B .0295(j)(2) – included the wording “or other financial mechanism for perpetual maintenance and protection”.
- 15A NCAC 02B .0295(j)(3)(A) – deleted a confusing provision regarding “riparian areas not currently protected by the State’s riparian protection program.
- 15A NCAC 02B .0295(j)(3)(B) – eliminated minimum size restrictions on restorable buffer areas on donation sites.
- 15A NCAC 02B .0295(j)(3)(D) – clarified requirements for property to be donated with respect to impervious surface and diffuse flow.
- 15A NCAC 02B .0295(j)(3)(I) – clarified sewer connections in Zone 2 allowed for the property to be in accordance with paragraph (k)(2)(E).
- 15A NCAC 02B .0295(j)(3)(L) – clarified that property can be donated to the State of North Carolina, not NCEEP.
- 15A NCAC 02B .0295(j)(3)(M) – clarified financial mechanisms for protection.

- 15A NCAC 02B .0295(k)(1)(B)(C) – deleted requirements for nutrient removal rate determination and public notice and comment for alternative options specifically listed in the Rule as this has been accomplished through this rulemaking process.
- 15A NCAC 02B .0295(k)(1)(B) –selected Option 2.
- 15A NCAC 02B .0295(k)(2)(B) – replaced existing language with “buffer credit ratios”, provided clarity regarding preservation and removed the requirement to demonstrate a threat for preservation.
- 15A NCAC 02B .0295(k)(2)(C) – selected Option 2, provided clarity regarding preservation and removed the requirement to demonstrate a threat for preservation.
- 15A NCAC 02B .0295(k)(2)(D) – revised for clarity on buffer area to be credited on urban stream mitigation sites.
- 15A NCAC 02B .0295(k)(2)(E) – moved 15A NCAC 02B .0295(j)(3)(I) here.
- 15A NCAC 02B .0295(k)(2)(F) – revised to allow for flexibility in assessing livestock grazing sites for mitigation potential.
- 15A NCAC 02B .0295(k)(3)(C) – revised to clarify minimum treatment levels for structural BMPs.
- 15A NCAC 02B .0295(k)(3)(H) – included the option to replace a structural measure with a non-structural measure.
- 15A NCAC 02B .0295(k)(3)(K) – clarifies language regarding financial mechanisms.
- 15A NCAC 02B .0295(l)(3) – selected Option 3 and added a caveat for coastal plain headwater stream mitigation sites as outlined in Part (k)(2)(A) of this Rule.

## SUMMARY OF PROPOSED REVISIONS – TECHNICAL CORRECTIONS

- 15A NCAC 02B .0295 – removed an extra space.
- 15A NCAC 02B .0295(a)(1) – removed language at the end so just the rules were cited.
- 15A NCAC 02B .0295(b)(7) – removed “each year” from the definition.
- 15A NCAC 02B .0295(c)(2) – cited the general statute that outlines the hierarchy of mitigation options for different entities instead of using the current statute language as the statute may change.
- 15A NCAC 02B .0295(c)(3) – changed “and” to “or”.
- 15A NCAC 02B .0295(c)(5) – removed an extra space.
- 15A NCAC 02B .0295(d)(1) – changed “causing the impact to the riparian buffer” to “impacting the riparian buffer”.
- 15A NCAC 02B .0295(d)(4) – corrected rule citation to reflect “02H” instead of “2H”.
- 15A NCAC 02B .0295(f) – removed an extra space.
- 15A NCAC 02B .0295(f)(1)(C) – removed “and”.
- 15A NCAC 02B .0295(f)(1)(D) – added “and” and corrected rule citation to reflect “02B” instead of “2B”.
- 15A NCAC 02B .0295(f)(2) – removed an extra space and added “federally listed threatened or endangered aquatic” on line 5 for clarity.
- 15A NCAC 02B .0295(g)(1) – removed an extra space and removed “and”.
- 15A NCAC 02B .0295(g)(3), (4) – removed Part 4 and added the reference to Paragraph (e) in Part 3.
- 15A NCAC 02B .0295(g)(3)(B) – clarified how to measure the 50 feet.
- 15A NCAC 02B .0295(g)(5) – corrected numbering.
- 15A NCAC 02B .0295(g)(6) – corrected numbering.
- 15A NCAC 02B .0295(g)(7) – corrected numbering and removed sentence at the end referring to violations.
- 15A NCAC 02B .0295(g)(8) – corrected numbering and edited language for clarity.
- 15A NCAC 02B .0295(h) – removed an extra space and clarified which banks may be used to be those that are approved by DWQ, not those that are posted online.
- 15A NCAC 02B .0295(j)(1) – corrected citations to other parts of this Rule and corrected rule citation to reflect “02B” instead of “2B”.
- 15A NCAC 02B .0295(j)(2) – corrected grammatical errors.
- 15A NCAC 02B .0295(j)(3)(C) – removed an extra space.
- 15A NCAC 02B .0295(j)(3)(M) – removed an extra space on line 30.
- 15A NCAC 02B .0295(k)(1)(E) – removed this Part as this is defined elsewhere within the Rule.
- 15A NCAC 02B .0295(k)(1)(C) – clarified language regarding conservation easements.
- 15A NCAC 02B .0295(k)(1)(D) – clarified language regarding bonds.
- 15A NCAC 02B .0295(k)(2) – removed an extra space.
- 15A NCAC 02B .0295(k)(2)(B) – changed “unmapped stream” to “non-subject streams” as Randleman does not require a stream to be depicted on a map to be subject to the buffer rules, updated the citation for the DWQ stream ID method, and changed “thru” to “through”.
- 15A NCAC 02B .0295(k)(2)(C) – changed “mapped” to “subject” as Randleman does not require a stream to be depicted on a map to be subject to the buffer rules and changed “thru” to “through”.
- 15A NCAC 02B .0295(k)(3)(B) – removed extra spaces and clarified “rule or permit”.
- 15A NCAC 02B .0295(k)(3)(C) – removed an extra space.
- 15A NCAC 02B .0295(k)(3)(D) – changed to require innovative BMPs to follow Chapter 20 in the Stormwater BMP Manual.
- 15A NCAC 02B .0295(k)(3)(E) – removed an extra space.
- 15A NCAC 02B .0295(k)(3)(I) – changed “similar” to “equal”.
- 15A NCAC 02B .0295(k)(3)(J) – changed to clarify recorded drainage easement requirements.
- 15A NCAC 02B .0295(k)(4) – clarified the public notice requirement.

- 15A NCAC 02B .0295(1) – removed an extra space on line 29.
- 15A NCAC 02B .0295(1)(+) – removed this Subparagraph as it may limit buffer mitigation in the Jordan and Randleman watersheds as these are water supplies.
- 15A NCAC 02B .0295(1)(2) – removed as nutrient offset requirements are outlined in 15A NCAC 02B .0240.
- 15A NCAC 02B .0295(1)(1) – updated numbering and revised language for clarity.
- 15A NCAC 02B .0295(2) – updated numbering, changed “provided” to “generated”, corrected rule citation to reflect “02H” instead of “2H” and removed “as long as riparian wetland mitigation is implemented”.

COMMENTS RECEIVED AND RESPONSES:15A NCAC 02B .0295(a) PURPOSE:

1. This paragraph as written states that the proposed Rule applies to applicants seeking to impact riparian buffers. As such, the rule is confusing about what requirements apply to applicants for buffer authorizations versus mitigation providers (mitigation banks or EEP). The Rule should be rewritten and restructured to list applicant requirements separately from expectations for mitigation providers. (5)

*Response: This paragraph has been revised to reflect that the purpose is also to include requirements for buffer mitigation providers.*

***Proposed revision to 15A NCAC 02b .0295(a) PURPOSE:***

*The purpose of this Rule is to set forth the mitigation requirements that apply to applicants who wish to impact a riparian buffer, and to set forth requirements for buffer mitigation providers. Buffer mitigation is required when one of the following applies:*

15A NCAC 02B .0295(b) DEFINITIONS:

1. (3) The definition of Enhancement Site provides no specificity as to what constitutes this level of credit. The Rule appears to be moving toward a subjective determination of enhancement versus restoration. (2, 5)

*Response: The definition was written to provide flexibility for addressing site-specific conditions based on DWQs experience over the years in assessing potential buffer mitigation sites. The definition for Enhancement has been revised to indicate that plantings would maximize buffer functions.*

***Proposed revision to 15A NCAC 02b .0295(b) DEFINITIONS:***

*(3) "Enhancement Site" means riparian zone sites that shall be distinguished from restoration or preservation sites by being characterized by conditions between restoration and preservation such that the planting of woody stems (i.e. shrubs or saplings) will maximize nutrient removal and other buffer functions.*

2. (4) Suggestion to reword government entities as follows: "Government Entity" means the State and its agencies and subdivisions, the federal government, and those units of local government that meet the requirements set forth in G.S. 143-214.11. (5)

*Response: In reviewing the Rule as written, the term Government Entity was not used in the body of the Rule. This definition was not needed and was deleted.*

***Proposed revision to 15A NCAC 02b .0295(b) DEFINITIONS:***

*~~(4) "Government Entity" means the State and its agencies and subdivisions, the federal government, and units of local government.~~*

3. (7) A number of comments were received regarding the requirement for non-wasting endowments. (2, 4, 5, 6, 9, 10)

*Response: Please see responses below in 15A NCAC 02B .0295(c) APPLICATION REQUIREMENTS AND MITIGATION OPTIONS:*

4. (8) and (9). The definition of “On-site” as written is ambiguous. The meanings of terms such as “On-site” and “Off-site” need to be the same in the Rule as they are in federal stream and wetland mitigation guidance or regulations. (5).

The definition for the term “Off-site” should be corrected by deleting the reference to a 12-digit HUC. (10)

*Response: The definitions of On-site and Off-site have been revised to be consistent with the Federal Mitigation Rule definitions with the exception of the reference to contiguous parcels, which was unclear in the Federal Mitigation Rule.*

**Proposed revisions to 15A NCAC 02b .0295(b) DEFINITIONS:**

~~(8) “Off-site” means off the property on which the buffer impacts occur but within the most recent version of the Watershed Boundary Dataset (WBD), located at <http://datagateway.nres.usda.gov> using the 12 digit HUC prepared by the United States Geological Survey~~

~~(7) “Off-site” means an area that is not located on the same parcel of land as the impact site.~~

~~(9) “On-site” means on the property on which the impact occurred and which is owned by the applicant or to which the applicant holds an easement adequate to allow the proposed mitigation.~~

~~(8) “On-site” means an area located on the same parcel of land as the impact site.~~

5. (12 and 13) Definitions of buffer enhancement, restoration and preservation are, as written, qualitative and subjective. The current definitions require that DWQ staff make all buffer mitigation determinations as opposed to staff verifying mitigation credits as proposed. Such ambiguity leaves the Rule open to arbitrary and capricious enforcement, which does not benefit the regulated public and injects uncertainty in the cost of regulatory compliance. The high subjectivity will also require more DWQ staff time and effort to review proposed sites. (5)

*Response: The definitions were revised to provide more clarity while still allowing Division staff to use best professional judgment in evaluating potential mitigation sites.*

**Proposed revisions to 15A NCAC 02b .0295(b) DEFINITIONS:**

~~(12) “Preservation Site” means riparian zone sites that are characterized by a closed canopy of tree species of greater than or equal to five inches diameter at breast height (dbh) or characterized by a dense growth of smaller woody stems a natural forest consisting of the forest strata and diversity of species appropriate for the physiographic province.~~

~~(13) “Restoration Site” means riparian zone sites that are characterized by an absence of trees greater than or equal to five inches diameter at breast height (dbh) and by a lack of dense growth of smaller woody stems (i.e. shrubs or saplings) or sites that are characterized with scattered individual trees such that the tree canopy is less than 25% of the cover and by a lack of dense growth of smaller woody stems (i.e. shrubs or saplings) by open tree canopies such that the planting of woody stems will maximize nutrient removal and other buffer functions. With open tree canopies, the extent of the canopy shall be measured from the outer edge of the drip zone of the tree~~

6. (14) Recommends developing a clear definition of urban that will be used in the context of this Rule rather than referencing a Session Law. (5)

*Response: The definition of urban has been revised.*

**Proposed revision to 15A NCAC 02b .0295(j) DEFINITIONS FUND:**

~~(15) “Urban” means a percent impervious cover of at least 24% in the watershed upstream of the upper end of the mitigation reach~~ an area that is designated as an urbanized area under the most

recent federal decennial census or within the corporate limits of a municipality. and areas where post-construction stormwater requirements apply according to Session Law 2006-246.

15A NCAC 02B .0295(c) APPLICATION REQUIREMENTS AND MITIGATION OPTIONS:

1. Two commenters stated that they support completion bonds and non-wasting endowments to ensure that buffer mitigation sites will be successful in replacing unavoidable impacts to buffers and that such sites are afforded-long term protection. **(4, 6)**

However, several other commenters stated that non-wasting endowments can be problematic. It was suggested that some flexibility be given and alternatives to an endowment should be considered. Negotiations should be left to the provider and potential stewardship agency. **(2, 5)**

One commenter stated that the EMC should only require an endowment for mitigation projects that are alternative structural projects. They went on to say that when a conservation easement is accepted by an organization or agency, it is receiving a benefit for which it paid nothing. It would be unfair to applicants to impose the additional burden of a long-term endowment. **(10).**

One commenter indicated that the EMC should provide an exemption from the bonding requirements for applicants that have an established track record of success. **(10)**

One commenter stated that it was unclear if a completion bond is required of all mitigation providers or just applicant-provided mitigation. Requiring a completion bond for monitoring and maintenance exceeds current standards which require bonding through the site construction phase. Monitoring is a services contract which is not appropriate for bonding. For mitigation providers like banks and EEP, these measures would be overly burdensome. DWQ should consider a method to lower the bond as project milestones are met. Non-wasting endowments also introduce additional costs. Currently as much as 20-50% of site costs will be used to pay for long-term management. Ideally these should require no more management than regulated buffers. **(5)**

One commenter stated that the requirement of a non-wasting endowment is more restrictive than the Federal Mitigation rule of 2008. A non-wasting endowment is an option in the Federal Rule but is not required. **(9)**

*Response: With regard to flexibility related to the requirement for non-wasting endowments, the phrase "or other financial mechanism for perpetual maintenance and protection" has been inserted into applicable locations within the body of the Rule. This will allow the mitigation provider and the stewardship entity to determine the most appropriate financial mechanism for funding the long-term stewardship of the site.*

*With respect to the issue raised regarding bonding for monitoring and maintenance, DWQ currently requires this for all buffer mitigation banks. For each mitigation bank, a bond is generally submitted to DWQ annually. After completion of the restoration/enhancement activities, a separate monitoring/maintenance bond is secured for the estimated cost to implement the monitoring and maintenance plan. Monitoring bonds shall be in effect for a minimum of five years, and until performance standards are met and all credits have been released. Upon approval by DWQ, the amount of the bond may be reduced each year based on the adjusted cost to complete the monitoring. Bonding is required for all applicants except the NCEEP, as NCEEP will follow the N.C. Department of Administration contracting laws and regulations found in General Statute (G.S.) 143-48, G.S. 143-129, and 01 North Carolina Administrative Code (NCAC) 05B .0300 to ensure that full implementation of contracted services are accomplished.*

*While we appreciate the level of services and success rates demonstrated by numerous buffer mitigation providers in NC, the purpose of the performance bonds are to ensure that buffer mitigation sites are completed and are successful. However, financial conditions change, and exempting a provider from bonding based on past successes carries risks, particularly if released credits are used to offset impacts, and the provider finds themselves financially unable to complete the required milestones.*

*With respect to the amount of long-term management and that mitigation sites should require no more management than regulated buffers, mitigation sites are situated within a conservation easement that prevents many if not all of the exempt and allowable uses presented in the Table of Uses in each buffer Rule. Since the mitigation site is intended to offset authorized impacts, allowable uses within the mitigation site would represent a loss of function and a loss of offset for the original impacts. The stewardship entity is required to conduct inspections of the easement boundaries as needed to ensure that the conditions of the conservation easement are not violated.*

*While it is true the organization or agency to which the conservation easement is transferred for stewardship is not paying for the easement, they are accepting the responsibility for long-term stewardship of the site. These responsibilities require funding that is able to regenerate to allow for stewardship in perpetuity. A non-wasting endowment or other appropriate financial mechanism is required to provide this funding.*

*Also, per a previous comment regarding applicability of the Rule to buffer mitigation providers, the title of this paragraph has been revised to indicate that the requirements for mitigation sites apply to mitigation providers as well.*

**Proposed revision to 15A NCAC 02b .0295(c) APPLICATION REQUIREMENTS, MITIGATION SITE REQUIREMENTS, AND MITIGATION OPTIONS:**

*For all options except payment of a fee under Paragraph (h) or (i), the proposal shall include conservation easements or similar legal mechanisms to ensure perpetual maintenance and protection of the mitigation site's nutrient removal and other water quality functions, a non-wasting endowment or other financial mechanism for perpetual maintenance and protection, and a completion bond(s) that is payable to the Division sufficient to ensure that land purchase, construction, monitoring and maintenance are completed. The bond shall be secured for the estimated cost to implement the monitoring and maintenance plan. Upon approval by the Division, the amount of the bond may be reduced each year based on the adjusted cost to complete the monitoring.*

*Note: Rule revised where appropriate to reflect the above revisions.*

**15A NCAC 02B .0295(d) AREA OF IMPACT:**

1. (4) One commenter indicated that wetlands located within the buffer impact area should not be deducted from the required buffer mitigation. The commenter further states that the Rule does not preclude riparian wetlands from being mitigated in a non-riparian location, resulting not only in a net loss of riparian buffer but a loss of wetland riparian buffer. (6)

*Response: Except in very rare instances, in-kind wetland mitigation is required by USACE for impacts to wetlands that require mitigation. Impacts to riparian wetlands are mitigated for through restoration or enhancement of riparian wetlands, and non-riparian impacts are mitigated by non-riparian mitigation. Where USACE is not requiring mitigation for impacts to wetlands within the buffer, these areas are then included in the calculations for determining the buffer mitigation requirement.*

Another comment stated that DWQ should also remove any area associated with stream impacts that will require stream mitigation. This would eliminate the practice of double-charging for stream buffers and riparian buffers and simplify the determination of mitigation credits by keeping stream mitigation separate from buffer mitigation. **(5)**

*Response: Please see responses below in 15A NCAC 02B .0295(l).*

15A NCAC 02B .0295(e) AREA OF MITIGATION BASED ON ZONAL AND LOCATIONAL MULTIPLIERS:

1. The Rule references “zonal”, “geographic” and “locational” multipliers. Each multiplier type used in the Rule needs to be clearly defined in (b) and the terms used consistently throughout. Traditionally, the term “mitigation ratio” has been used; it is not clear why the Rule seeks to introduce a new term, “multiplier”. Because this aspect of the Rule will have significant ramifications on compliance costs, it is imperative that the language be unambiguous.**(5)**

*Response:*

*The term “multiplier has been replaced with “ratios”. The zonal and locational ratios have been included in the definitions section.*

2. (1) Three options were presented related to the location of mitigation projects relative to the location of impacts. A variety of responses were received on this issue, with some choosing one of the options while others suggested alternative options.

One commenter chose Option A, which provides mitigation credit at a 1:1 ratio for either on-site mitigation or mitigation within the eight-digit HUC. **(4)**

One commenter chose Option B, which provides an incentive (0.75:1) for on-site mitigation, mitigation credit at a 1:1 ratio for within the 12-digit HUC, but adds a penalty (1.5:1) for mitigation outside the 12-digit HUC but within the same eight-digit HUC. **(7)**

Two commenters stated that the EMC should adopt a same-river-basin approach (e.g. mitigation anywhere in the same river basin as the impact), but if the EMC selects one of the three options presented, it should select Option C, which provides for incentives (e.g. reduced mitigation credit required) for on-site mitigation and mitigation within the same 12-digit HUC as the impact, but no penalties for mitigation outside the 12-digit HUC but within the eight-digit HUC. **(10, 12)**

One commenter chose Option C as it provided an incentive to locate mitigation close to the impact site, and was no more restrictive than the Federal Mitigation Rule. **(9)**

One commenter stated that mitigation should be done in close proximity to the impact site, but recommended even stronger measures to ensure mitigation is close to the impact site, including multipliers based on mitigation within the 14, 11 and eight-digit HUCs. This commenter also recommended that on-site mitigation should not receive a reduction in credit requirement. **(6)**

Alternatively, one commenter indicated that mitigation should be sited based on a watershed approach, and incentivizing on-site mitigation or mitigation in smaller areas (e.g. 14-digit HUC) promotes small, scattered mitigation sites that increase costs due to loss of economy of scale when planning and constructing mitigation projects. **(5)**

Response: Recommend Option C. The EMC believes there is merit to encourage mitigation closer to the impact. This option incentivizes doing mitigation closer to the impact site, but does not penalize mitigation conducted within the eight digit HUC.

**Proposed revisions to 15A NCAC 02b .0295(e) AREA OF MITIGATION BASED ON ZONAL AND LOCATIONAL MITIGATION RATIOS:**

The Authority shall determine the required area of mitigation for each zone by applying each of the following multipliers ratios to the area of impact calculated under paragraph (d) of this Rule with a 3:1 multiplier ratio for Zone 1 and 1.5:1 multiplier ratio for Zone 2, except that the required area of mitigation for impacts proposed within the Goose Creek watershed ~~as is~~ 3:1 for the entire buffer and the Catawba River watershed ~~as is~~ 2:1 for Zone 1 and 1.5:1 for Zone 2, and,

- (1) In addition to the multipliers ratios listed above in paragraph (e), the applicant or mitigation provider must use the locational multipliers ratios as applicable based on location of the proposed mitigation site relative to that of the proposed impact site; Mitigation options shall be available to applicants

~~Option A: — use the following locational multipliers as applicable based on location of the proposed mitigation site relative to that of the proposed impact site. Once the multipliers are determined, an option is to pay for the required mitigation. Payment of a compensatory mitigation fee to a mitigation bank if mitigation credits are available pursuant to Paragraph (h) of this rule or payment of a compensatory mitigation fee to the Riparian Buffer Restoration Fund pursuant to Paragraph (i) of this Rule. Payment to the Riparian Buffer Restoration Fund for applicants other than Government Entities shall be available only when payment to a mitigation bank pursuant to Paragraph (h) of this rule is not available. Alternative mitigation options shown in Paragraph (k) of this rule shall be subject to these locational multipliers. Mitigation may be conducted within an adjacent eight digit HUC at a 2:1 ratio if written documentation of the impracticality of conducting mitigation within the appropriate 8 digit HUC is reviewed and approved by the Division;~~

~~Option B: — use the following locational multipliers as applicable based on location of the proposed mitigation site relative to that of the proposed impact site. Once the multipliers are determined, an option is to pay for the required mitigation. Payment of a compensatory mitigation fee to a mitigation bank if mitigation credits are available pursuant to Paragraph (h) of this rule or payment of a compensatory mitigation fee to the Riparian Buffer Restoration Fund pursuant to Paragraph (i) of this Rule. Payment to the Riparian Buffer Restoration Fund for applicants other than Government Entities shall be available only when payment to a mitigation bank pursuant to Paragraph (h) of this rule is not available. Alternative mitigation options shown in Paragraph (k) of this rule shall be subject to the following locational multipliers. Mitigation may be conducted within an adjacent 8 digit HUC at a 2:1 ratio if written documentation of the impracticality of conducting mitigation within the appropriate 8 digit HUC is reviewed and approved by the Division;~~

<i>Adjacent 8 digit HUC</i>	<i>Within 8 digit HUC</i>	<i>Within 12 digit HUC</i>	<i>Mitigation option</i>
<i>n/a</i>	<i>n/a</i>	<i>0.75</i>	<i>1) On-site mitigation</i>
<i>2.0</i>	<i>1.5</i>	<i>1</i>	<i>2) All other types of mitigation</i>

~~Option C: use the following locational multipliers as applicable based on location of the proposed mitigation site relative to that of the proposed impact site. Mitigation options shall be available to applicants. A written demonstration of practicality shall be submitted to the Division for review and approval and shall take into account the cost and availability of these options with the following conditions:~~

<i>Adjacent 8 digit HUC</i>	<i>Within 8 digit HUC</i>	<i>Within 12 digit HUC</i>	<i>Mitigation option</i>
<i>n/a</i>	<i>n/a</i>	<i>0.75</i>	<i>1) On-site mitigation</i>
<i>2.0</i>	<i>1.0</i>	<i>0.75</i>	<i>2) All other types of mitigation</i>

- ~~(A) On-site mitigation is 0.75:1 except within the Randleman Lake watershed which is 1:1;~~
- ~~(B) Within the 12 digit HUC is 0.75:1 except within the Randleman Lake watershed which is 1:1;~~
- ~~(C) Within the 8 digit HUC is 1:1 except as provided in sub-item (f) below;~~
- ~~(D) In the adjacent 8 digit HUC is 2:1 except as provided in sub-item (f) below.~~

***Proposed revision to 15A NCAC 02b .0295(b) DEFINITIONS:***

~~(5) “Locational Ratio” means a mitigation ratio applied to the mitigation requirements based on the location of the mitigation site relative to the impact site.~~

~~(16) “Zonal Ratio” means a mitigation ratio applied to impact amounts in the respective zones of the riparian buffer.~~

**15A NCAC 02B .0295(f) GEOGRAPHIC RESTRICTIONS ON LOCATION OF MITIGATION:**

1. (1)(A) One commenter supported the Falls Lake geographic restrictions, and encouraged additional restrictions or multipliers for the upper and lower Falls Lake watersheds to incentivize mitigation within the subwatershed in which an impact occurs. (7)

Another commenter stated that the application of these geographic restrictions within the Falls Lake watershed makes it more difficult and expensive to acquire and develop mitigation sites. (5)  
 One commenter stated that all buffer mitigation requirements should follow the restrictions presented in 15A NCAC 02B .0295(e). (9)

*Response: The Geographic Restrictions exist because the respective buffer rules were written to protect specific localized water bodies rather than entire river basins. Applying additional restrictions or multipliers for the upper and lower Falls Lake watersheds could be difficult and expensive and there is no requirement for these additional multipliers in the Falls Lake Nutrient Management Strategy.*

2. (2) One commenter stated that historically, it has been difficult to get authorization to restore streams and buffers in areas where threatened or endangered species are present. (5)

*Response: Restoration of buffers in areas where threatened or endangered species are present does not require permitting, and the activities associated with buffer restoration are unlikely to affect aquatic life in adjacent water bodies. Buffer restoration along aquatic resources harboring threatened or endangered species would likely be beneficial to those species. A minor revision was made for clarity.*

***Proposed revision to 15A NCAC 02b .0295(f) GEOGRAPHIC RESTRICTIONS:***

*(2) Buffer mitigation for impacts within watersheds with riparian buffer rules that also have federally listed threatened or endangered aquatic species may be done within other watersheds with the same federally listed threatened or endangered species as long as the impacts are in the same river basin and same physiographic province as the mitigation site.*

**15A NCAC 02B .0295(g) RIPARIAN BUFFER RESTORATION OR ENHANCEMENT:**

1. One commenter provided extensive comments as to the important functions that riparian buffers have, and that riparian buffers should be at a minimum 100 feet wide. **(6)**

*Response: The definitions of riparian buffers, their measurement and their width are located in each of the riparian buffer rules, which are not part of this rulemaking process.*

2. One commenter stated that the DWQ staff making on-site determinations on potential buffer sites' suitability for enhancement versus restoration do not always demonstrate the qualifications and abilities needed to evaluate the sites. A simple appeal process should be included in this section. **(5)**

*Response: It is the responsibility of DWQ to oversee and approve riparian buffer compensatory mitigation. That responsibility includes the requirement to ensure that a particular mitigation site will provide appropriate mitigation credit for offsets to impacts to riparian buffers that the Sponsor of the project has no knowledge of. Since the assessment of the suitability of a mitigation site is not a permit decision, and such a decision will not negatively affect a landowner's use of such a site (the technical evaluation and approval of the mitigation site by DWQ should be part of the due diligence process conducted before acquiring the site) it is unnecessary to have a formal appeal process. While discussion regarding the merits of a particular site is appropriate during the evaluation process, ultimately DWQ is the regulatory agency and their determination is final.*

3. (4)(A) and (B) One commenter stated that in addition to allowing buffer mitigation on intermittent and perennial streams, buffer credit should be allowed to be generated along ephemeral channels (already allowed in Goose Creek watershed) and other conveyances that discharge or drain to intermittent or perennial streams. This commenter goes on to say that buffer mitigation credit should be considered with appropriate mitigation ratios for widths out to 200 feet. Allowing wider buffers would expand opportunities to improve water quality, significantly reduce costs, and bring consistency between DWQ's riparian buffer and nutrient rules which both have the same goals of improving water quality. **(5)**

*Response: We have considered these requests. While there are multiple benefits associated with wider buffers, based on water quality research on buffers, the water quality benefits, particularly related to nutrient/pollutant removal, decrease substantially on riparian buffers wider than 75 feet. Additional study on the value of wider buffers and the resultant credit value require further study. In addition, while allowing buffer mitigation on ephemeral channels and other conveyances would be consistent with the Division's nutrient rules, the quantifiable benefits to downstream water quality are unclear, and their value relative to restoring buffers on intermittent and perennial streams needs to be determined.*

One commenter stated that the lack of a definition of “top of bank” and reference to the edge of a surface water are too subjective and transient leaving this measurement open to interpretation. **(5)**

*Response: The measurement of the riparian buffer and reference to the top of bank and edge of surface water are presented in 15A NCAC 02B.0243(4)(a), and are not part of this rulemaking process.*

4. (6) One commenter suggested including drain tiles as a prohibited feature in buffer areas, as these features are subsurface and may not be considered stormwater conveyances. **(7)**

Another commenter stated that it is not always possible or practical to eliminate existing impervious cover or stormwater conveyances such as ditches or pipes. Viable and beneficial sites with such features should still be eligible for credit if measures are taken to provide for diffuse flow or with credit reductions commensurate with the offending features or structures. **(5)**

*Response: A primary function of the riparian buffers is nutrient/pollutant removal from stormwater flows by having diffuse flow through the vegetated buffer. The presence of impervious surfaces or concentrated flow through the buffer via ditches, pipes or drain tiles is contrary to a basic premise of the buffer rules. If concentrated flow can be converted to diffuse flow or otherwise treated to remove nutrients/pollutants prior to discharging to the surface water, then the site may be considered viable as a buffer mitigation site. Not all sites are suitable as mitigation sites simply because they are available and affordable.*

5. (7)(B) One commenter provided rather extensive and wide-ranging comments regarding vegetation plans. The comments state that (7)(B) should be reworded to include planting of woody shrubs, should explicitly allow early successional species, and should not limit planting to species indicated in (k)(2)(E). The commenter states that there is no scientific basis for the success criterion of 320 stems per acre at year 5 or closeout, and reference systems will typically only have a fraction of that number of trees. The reference to a site’s stem density at maturity is ill-chosen, as mitigation sites are not monitored to maturity. In addition, the 320 stem-per-acre standard is less than proposed monitoring guidelines for streams. Density measurement should be allowed on a one-acre basis, and the practice of excluding areas within a single tree drip line should be eliminated. The word “Planted” should be eliminated from the monitoring standards so natural regeneration approaches are allowed. The use of reference sites should be encouraged. The standard of limiting one species to no more than 25% of the total planted stems is different from the proposed stream guidance which limits a species to 50%. The two species required in the current buffer mitigation rules is adequate to meet water quality improvement goals. **(5)**

*Response: The Rule will be reworded to include planting of native woody shrub species on buffer mitigation sites. Early successional species are generally not encouraged for inclusion in planting plans as these tend to colonize naturally, sometimes to the point of out-competing desirable planted stems. Inclusion of such species on planting plans would be dependent on the potential for such species to naturally colonize (e.g. proximity of the site to existing seed sources, etc.) and will be considered on a case-by-case basis. We agree that revising the performance standard for planted vegetation survival at buffer sites to 260 stems per acre at the end of the monitoring period is consistent with vegetative success criteria for other mitigation types, and should be sufficient to demonstrate that a buffer mitigation site is on a trajectory to develop into a diverse forested riparian buffer. Stem density measurements are made by counting planted and volunteer stems within a sample plot and then extrapolation to a stems per acre basis. The drip line measurement has been eliminated. We feel that retaining the requirement for a specific planted stem density as a success*

criterion is important to ensure that the restored buffer is trending toward the establishment of a diverse riparian forest. Natural regeneration is taken into consideration by DWQ staff when evaluating the progress of a buffer mitigation site, but can lead to monoculture situations if not monitored and adaptive management performed on an as-needed basis. We agree that revising the limit of stems of a single species from 25% to 50% is consistent with vegetative performance standards for other mitigation types; however, if the presence of such species (especially volunteer species) results in mortality of planted stems and a reduction of diversity, adaptive management may be warranted. Similarly, we feel that retaining the requirement for a minimum of five native hardwood species (with exceptions for problem sites that will be addressed on a case-by-case basis) will result in a more diverse riparian forest.

**Proposed revision to 15A NCAC 02b .0295(g) RIPARIAN BUFFER RESTORATION, OR ENHANCEMENT:**

(76)(B) A vegetation plan which shall include a minimum of five native hardwood tree species and/or native shrub species, where no one species is greater than ~~25%~~ 50% of planted stems, planted at a density sufficient to provide ~~320 trees~~ 260 stems per acre at ~~maturity~~ the completion of monitoring. The Division may approve alternative planting plans upon consideration of factors including site wetness and plant availability;

6. (7)(C) One commenter stated that a grading plan should not be required as part of the restoration or enhancement plan unless grading is proposed. (5)

*Response: We concur. The Rule will be reworded to indicate that a grading plan must be submitted if applicable.*

**Proposed revision to 15A NCAC 02b .0295(g) RIPARIAN BUFFER RESTORATION, OR ENHANCEMENT**

(76)(C) A grading plan (if applicable). The site shall be graded in a manner to ensure diffuse flow through the entire riparian buffer;

7. (7)(D) One commenter stated that the Rule should simply state that pesticide applications shall be made in accordance with state and federal rules, rather than including the specifics in the current draft Rule. Also, there is no (G)(5) in the Rule (5).

*Response: We appreciate this comment but feel the specificity is appropriate. The term "pesticide" was replaced with "herbicide". The numbering has been corrected.*

**Proposed revision to 15A NCAC 02b .0295(g) RIPARIAN BUFFER RESTORATION, OR ENHANCEMENT:**

(76)(D) A schedule for implementation including a fertilization and herbicide plan that will include protective measures to ensure that fertilizer and herbicide is not deposited downstream from the site and will be applied per manufacturers guidelines. ~~Pesticides~~ herbicides used must be certified by EPA for use in or near aquatics sites.—~~Pesticides~~ and must be applied in accordance with the manufacturers' instructions,

8. (7)(E) One commenter stated that the requirement to monitor for stream stability is unnecessary. (5)

*Response: The intent here was simply for the responsible party to visually observe the stream and note if significant degradation occurs during the monitoring period which would be detrimental to the buffer mitigation project.*

9. (8) One commenter objected to the requirement that a buffer mitigation site be restored/enhanced within one year of approval of the buffer mitigation plan. (5)

*Response: The rule includes the ability of an applicant or mitigation provider to request an alternative implementation schedule. Such a schedule would simply need to be requested and would be approved by DWQ. The majority of buffer mitigation projects approved to date by DWQ have not had problems complying with a one-year implementation time period.*

10. (10) One commenter stated that they preferred Option 1 for buffer mitigation on sites with sewer easements. (4)

Two commenters strongly supported Option 2 (credit for maintain sewer easement footprint in Zone 2). (8, 11)

One commenter supported Option 2 but suggested that credit should be allowed for any type of maintained easements, not just sanitary sewer easements. (12)

One commenter stated that the footprint of any maintained utility easement that compromises the buffer benefits provided by a site should be removed from the amount creditable for restoration or enhancement. The options presented provide no meaningful benefits, but add extra complexity where it is not needed. Restoration of riparian buffers in areas containing utility easements should be encouraged. DWQ is introducing Zone 1 and Zone 2 type mitigation types; this complicates and adds costs to mitigation asset accounting for providers and is likely to place unnecessary financial burdens on the regulated public. (5)

*Response: Allowing for crediting of maintained vegetation in Zone 2 of the buffer (Option 2) provides greater flexibility and options for mitigation sites in urban areas. Option 2 was recommended by a variety of stakeholders during the Rule development process and was supported by several commenters. The EMC supports Option 2 however recommends that this option be included as an alternative buffer mitigation option.*

*NOTE: The section on sewer easements and buffer mitigation has been reworded for clarity and has been moved under 15A NCAC 02b .0295(k)(2)(E) ALTERNATIVE BUFFER MITIGATION OPTIONS*

***Proposed revision to 15A NCAC 02b .0295(g) RIPARIAN BUFFER RESTORATION, OR ENHANCEMENT:***

~~*(10) Option 1: If the proposed mitigation site contains a sewer easement, the portion of the easement located within Zone 1 or Zone 2 is not suitable for buffer mitigation. However, the applicant may get narrower buffer credit in accordance with Part (k)(2)(D) of this rule,*~~

~~*Option 2: If the proposed mitigation site contains a sewer easement, the portion of the easement located within Zone 1 is not suitable for buffer mitigation except that buffer credit for a dedicated sewer easement shall be given to satisfy the Zone 2 buffer requirement if the sewer easement is at least 30 feet wide and it is required to be maintained in a condition which meets the vegetative requirements of the collection system permit, and if the applicant will restore or enhance the forested buffer in Zone 1 adjacent to the sewer easement,*~~

***Proposed addition/revision to 15A NCAC 02b .0295(k) ALTERNATIVE BUFFER MITIGATION OPTIONS:***

*(2)(E) Sewer easement within the buffer. If the proposed mitigation site contains a sewer easement in Zone 1, that portion of the sewer easement is not suitable for buffer mitigation. If the proposed mitigation site contains a sewer easement in Zone 2, the portion of the sewer easement in Zone 2 may*

be suitable for buffer mitigation if the applicant restores or enhances the forested buffer in Zone 1 adjacent to the sewer easement, the sewer easement is at least 30 feet wide, the sewer easement is required to be maintained in a condition which meets the vegetative requirements of the collection system permit, and diffuse flow is provided across the entire buffer width.

11. (11) One commenter suggested adding “additional years of monitoring may be required if the objectives under paragraph (g) have not been achieved at the end of the five year monitoring period”. (7)

One commenter stated there is little benefit to or necessity for annual reporting on buffer mitigation sites. The commenter states that providers are required map (*sic*) and monitor each individual planted stem, which is regulatory overkill. This subparagraph also requires the applicant to replace trees that do not survive and to maintain diffuse flow. The commenter stated that it is unclear if this would apply to third party mitigation providers. In addition, the requirement to replace stems that do not survive would not make sense as initial plantings are done at a far greater density than is required to meet success criteria.(5)

*Response: DWQ will incorporate the sentence from Commenter 7 to provide clarification that monitoring must demonstrate achievement of performance standards to be deemed successfully completed.*

*DWQ is responsible for overseeing all buffer mitigation projects in North Carolina. Annual performance monitoring is standard practice for all other types of mitigation projects. Submitting annual monitoring reports for review provide data on the performance of the site and documents the site trending toward the desired condition (forested riparian buffer). Monitoring reports are also necessary as part of the credit release procedures for mitigation banks. DWQ does not require mapping of individual stems. DWQ’s monitoring requirement is monitoring of both planted and volunteer stem density through the use of vegetation monitoring plots for five years or until performance standards are met, whichever is greater. Data are reported by species and number of stems of both planted and volunteers, which are then extrapolated as stems per acre. Some providers elect to utilize the Carolina Vegetative Survey (CVS) protocols which do involve mapping of individual stems in each vegetation plot, and also includes a vigor assessment, but this has never been a DWQ requirement.*

***Proposed revision to 15A NCAC 02b .0295(g) RIPARIAN BUFFER RESTORATION, OR ENHANCEMENT:***

*(H 9) The applicant or mitigation provider shall submit written annual reports for a period of five years after the restoration or enhancement showing that the trees and/or native shrub species planted ~~have survived~~ are meeting success criteria and that diffuse flow through the riparian buffer has been maintained. The applicant shall replace trees ~~that do not survive~~ and restore diffuse flow if needed during that five-year period. Additional years of monitoring may be required if the objectives under paragraph (g) have not been achieved at the end of the five-year monitoring period.*

12. (12) Two commenters stated that they support completion bonds and non-wasting endowments to ensure that buffer mitigation sites will be successful in replacing unavoidable impacts to buffers and that such sites are afforded-long term protection. (4, 6)

One commenter stated that the EMC should only require an endowment for mitigation projects that are alternative structural projects. They went on to say that when a conservation easement is accepted by an organization or agency, it is receiving a benefit for which it paid nothing. It would be unfair to applicants to impose the additional burden of a long-term endowment. (10).

One commenter stated that it was unclear if a completion bond is required of all mitigation providers or just applicant-provided mitigation. Requiring a completion bond for monitoring and maintenance exceeds current standards which require bonding through the site construction phase. Monitoring is a services contract which is not appropriate for bonding. For mitigation providers like banks and EEP, these measures would be overly burdensome. DWQ should consider a method to lower the bond as project milestones are met. Non-wasting endowments also introduce additional costs. Currently as much as 20-50% of site costs will be used to pay for long-term management. Ideally these should require no more management than regulated buffers. (5)

*Response: See responses regarding bonding and endowments under 15A NCAC 02B. 0295(c).*

***Proposed revision to 15A NCAC 02b .0295(g) RIPARIAN BUFFER RESTORATION, OR ENHANCEMENT:***

*(4210) A completion bond(s) that is payable to the Division sufficient to ensure shall be provided for the mitigation site to account for all that land purchase, construction, monitoring and maintenance costs are completed. A non-wasting endowment or other financial mechanism for perpetual maintenance and protection must be provided for the site to ensure perpetual, long-term monitoring and maintenance.*

**15A NCAC 02B .0295(i) PAYMENT TO THE RIPARIAN BUFFER RESTORATION FUND:**

1. (1) Comment suggested revising (1) to read “ Applicants who choose to satisfy some or all of their mitigation determination by paying a compensatory mitigation fee to the Riparian Buffer Restoration Fund. Payment made to the NCEEP (the Program) shall be contingent upon acceptance of the payment to the Program. The financial, temporal and technical ability of the Program to satisfy the mitigation request will be considered to determine whether the Program will accept or deny the request and shall meet the requirements of 15A NCAC 02B .0269 (Riparian Buffer Mitigation Fees to the NC Ecosystem Enhancement Program). (5)

*Response: The recommended language will be incorporated into the Rule.*

***Proposed revision to 15A NCAC 02b .0295(j) PAYMENT TO THE RIPARIAN BUFFER RESTORATION FUND:***

*Applicants who choose to satisfy some or all of their mitigation determination by paying a compensatory mitigation fee to the Riparian Buffer Restoration Fund shall meet the requirements of 15A NCAC 02B .0269 (Riparian Buffer Mitigation Fees to the NC Ecosystem Enhancement Program). Payment made to the NCEEP (the Program) shall be contingent upon acceptance of the payment to the Program. The financial, temporal and technical ability of the Program to satisfy the mitigation request will be considered to determine whether the Program will accept or deny the request.*

**15A NCAC 02B .0295(j) DONATION OF PROPERTY:**

1. One commenter stated that this paragraph covers two completely separate types of property donation and combining them only perpetuates confusion. One type of donation involves donation of land for preservation mitigation and the other type is donation in lieu of payment. (5)

*Response: Revisions have been made stating that this paragraph is only for donation in lieu of payment, it does not cover donation of land for preservation.*

***Proposed revision to 15A NCAC 02B .0259(j)***

*Applicants who choose to satisfy their mitigation determination by donating real property or an interest in real property in lieu of payment shall meet the following requirements:*

2. One commenter stated that donation in lieu of payment is not only restricted to riparian buffer mitigation and any site proposed is evaluated based on its restoration or enhancement potential and its value compared to the fees assessed by the EEP In-Lieu Fee program and subject to approval by regulatory agencies as a mitigation site. The specifications for donation of land in lieu of payment listed in (b) probably do not need to be enumerated in this Rule as EEP staff would visit the site and perform a viability review. (5)

*Response: The requirement to have a collective minimum length of 1,000 linear feet per 2,500 linear feet has been removed. Flexibility has also been added for buffers less than 50-feet wide in urban areas.*

***Proposed revision to 15A NCAC 02B .0259(j)***

*(3)(BA) For the Neuse ~~and Tar-Pamlico, Randleman~~ basins, the Catawba River mainstem below Lake James, and the Randleman and Jordan Reservoir Watersheds, the restorable riparian buffer on the property shall have ~~a collective minimum length of 1,000 linear feet per 2,500 linear feet along a surface water and a minimum width of 50 feet as measured horizontally on a line perpendicular to a vertical line marking the edge of the top of bank to the surface water.~~ For the Catawba River mainstem below Lake James, the width of the riparian buffer shall begin at the most landward limit of the top of the bank and extend landward a minimum distance of 50 feet, measured horizontally on a line perpendicular to a vertical line marking the edge of the top of the bank. For the mainstem lakes located on the Catawba River mainstem, the width of the riparian buffer shall begin at the most landward limit of the full pond level and extend landward a minimum distance of 50 feet, measured horizontally on a line perpendicular to a vertical line marking the edge of the full pond level. A minimum distance of less than 50 feet may only be allowed for projects in accordance with paragraph (k)(2)(D) below;*

3. (2) One commenter asked who will set the amount of the endowment. How will inflation be considered? (5)

*Response: The amount of the endowment and impacts from inflation are determined between the party donating the property and the party receiving the donation. This subparagraph has been revised for clarity.*

***Proposed revision to 15A NCAC 02B .0259(j)***

*(2) The donation of conservation easements or similar legal protection mechanism that includes a non-wasting ~~endowment~~ endowment or other financial mechanism for perpetual maintenance and protection to satisfy compensatory mitigation requirements shall be accepted only if ~~the conservation easement or similar legal mechanism that includes a non-wasting endowment~~ it is granted in perpetuity.*

4. (3)(A) One commenter stated that it is not clear what “riparian areas not currently protected by the State’s riparian buffer protection program” are. Are these areas that are not subject to the buffer rules because they are not forested? (5)

*Response: This is a relic from a previous rule and has been deleted.*

***Proposed revision to 15A NCAC 02B .0259(j)***

~~(3)(A) The property shall contain riparian areas not currently protected by the State's riparian buffer protection program that are in need of restoration or enhancement rather than preservation;~~

5. (3)(D) One commenter stated that a structure located within a buffer zone should not exclude a site from consideration as a mitigation site. (5)

*Response: This requirement has been reworded to be consistent with the requirement found in (g)(5) of this Rule and allow for the removal of structures and infrastructure.*

**Proposed revision to 15A NCAC 02B .0259(j)**

~~(3)(DC) The property shall not require excessive measures for successful restoration, such as removal of structures or infrastructure~~ have any impervious cover or stormwater conveyances such as ditches, pipes or drain tiles. If impervious cover or stormwater conveyances exist, they shall be eliminated and the flow converted to diffuse flow. Restoration of the property shall be capable of fully offsetting the adverse impacts of the requested use;

6. (3)(F) One commenter asked who shall determine the “value of the property minus site identification and land acquisition costs”? (5)

*Response: This shall be determined between the party donating the property and the party receiving the donation.*

7. (3)(I) One commenter stated that this conflicts with paragraph (g)(10) which allows sewer easements adjacent to buffer mitigation zones. (5)

*Response: Language has been added to provide an exception for sewer connections as provided for in paragraph (k)(2)(E).*

**Proposed revision to 15A NCAC 02B .0259(j)**

~~(3)(HH) The property shall not contain structures or materials that present health or safety problems to the general public. If wells, septic, water or sewer connections exist, they shall be filled, remediated or closed at owner's expense in accordance with state and local health and safety regulations before the interest is transferred.~~ Sewer connections in Zone 2 may be allowed for project in accordance with paragraph (k)(2)(E) below;

8. (3)(L) One commenter stated that the EEP does not own property or easements. The State does so they would be donated to the State of North Carolina. (5)

*Response: The language has been edited to reflect the State of North Carolina.*

**Proposed revision to 15A NCAC 02B .0259(j)**

~~(3)(LK) Fee simple title to the property or a conservation easement in the property shall be donated to the NC Ecosystem Enhancement Program or a similar organization approved by the Division to conduct the restoration or enhancement-state of North Carolina; and~~

9. (3)(M) One commenter stated that the entity enforcing the easement, their responsibilities and any financial mechanism required must be identified prior to the easement being recorded. It must be clear where any liability lies and the level of funding for any endowment requirement. (5)

*Response: The language has been edited to clarify the responsibilities.*

**Proposed revision to 15A NCAC 02B .0259(j)**

*(3)(M) Upon completion of the buffer restoration or enhancement, the property or the easement shall be donated to a local land trust or to a local government or other state organization that ~~is willing to accept the property or easement~~ will hold and enforce the conservation easement and the interests. The donation shall be accompanied by a non-wasting endowment or other financial mechanism for perpetual maintenance and protection sufficient to ensure perpetual long-term monitoring and maintenance, except that where a local government has donated a conservation easement and has entered into a binding intergovernmental agreement with the Division to manage and protect the property consistent with the terms of the conservation easement, such local government shall not be required to provide a non-wasting endowment or other financial mechanism for perpetual maintenance and protection.*

15A NCAC 02B .0295(k) ALTERNATIVE BUFFER MITIGATION OPTIONS:

1. Eight commenters supported the concept of or specific forms of flexible/alternative buffer mitigation. **(2, 4, 7, 8, 9, 10, 11, 12)**
2. (k)(2)(A) One commenter stated that the Division should not award any riparian buffer credit for coastal headwater stream restoration sites, and questions the environmental benefit of these restoration sites. The commenter cites the U.S. Army Corps of Engineers Coastal Plain Stream Guidance as saying that the driving force behind awarding stream credit for these headwater “streams” is to create additional mitigation sites. **(6)**

*Response: the commenter has misinterpreted the coastal plain headwater guidance. Headwater, first-order streams can be found throughout the piedmont in valleys on pasture land, agricultural land and hay fields that are degraded, and may have been modified (e.g. straightened and enlarged). However, these streams are generally in or near their natural pre-disturbance location and represent excellent candidates for stream restoration. These types of restoration opportunities are rarely found in the coastal plain, where, headwater streams historically were not in the form of single-thread, meandering channels. The low slope and small watersheds associated with headwater streams did not result in the energy to create typical stream channels, but these were rather wide swales with diffuse and braided flow patterns. In many cases, these features were obliterated in rendering the land suitable for agriculture, The lands were ditched and drained, and the valley signatures were not discernible. Where traditional stream restoration (e.g. restoration of single-thread, meandering channels) was attempted in the location of ditched features, the result was a non-flowing, sinuous ditch. Recent research employing the use of LiDAR has allowed for the identification of the original subtle valleys, and restoration of these features is accomplished by plugging and filling existing ditches, reshaping the original contours, and allowing the natural diffuse flow path to be restored.*

*Simply replanting buffers along modified, straightened streams (actually ditches carrying jurisdictional flows) would not provide the desired benefits, as many of these ditches are so deep and incised that subsurface flow would be beneath the root zone of the vegetation, and the desired nutrient removal would not occur. However, Such benefits are derived from buffers along headwater valley restoration sites.*

3. A general recommendation was made to use the terms mitigation ratios and mitigation credits rather than square feet and acres wherever applicable. **(5)**

*Response: The Rule will be revised to utilize mitigation ratios where applicable.*

**Proposed revision to 15A NCAC 02B .0259(k)**

**(2)(c) ... Restoration or enhancement is required with an area at least equal to the footprint of the buffer impact. The remaining mitigation requirement may be provided by preservation at a 10:1**

~~buffer credit ratio as long as the proposed preservation site area is ten times larger than the mitigation area required under Paragraph (e) of this Rule in non-urban areas and a 3:1 buffer credit ratio three times larger than the mitigation area required under Paragraph (e) of this Rule in urban areas.~~

*NOTE: Ratios have been replaced multipliers elsewhere in the Rule.*

One commenter stated that all alternative buffer mitigation should be subjected to a 1:1 traditional buffer mitigation threshold and a rigorous public review process. **(6)**

*Response:*

*All buffer mitigation proposals are reviewed thoroughly by DWQ staff. With respect to public notice requirements, please see Response number 5 (response to comments on (1)(C)) below. In addition, the non-structural vegetative options are technically comparable with "traditional" buffer mitigation. Therefore, the requirements for a 1:1 requirement for traditional restoration or enhancement for the footprint of the impact are limited to structural options only (with the exception of preservation).*

4. (1)(A) One commenter disagreed with the requirement for a no practical alternatives demonstration. Alternative practices in some areas may have much greater benefits to local watersheds than planting forest buffers. Instead of adding onerous regulatory justifications, DWQ should encourage alternative mitigation practices. **(5)**

*Response: The purpose of the Rule is to mitigate for impacts to riparian buffers. Similar to the concept of "in-kind" mitigation as referred to in the federal Mitigation Rule, the preference for compensatory mitigation for impacts to riparian buffers would be replacement with riparian buffers. As discussed elsewhere in the public comments, buffers provide numerous ancillary benefits to water quality beyond nutrient/pollutant removal in streams that may not be replaced by some types of alternative mitigation. Therefore, mitigation providers should first seek to mitigate "in-kind", e.g. through restoration/enhancement of riparian buffer areas before moving to alternative mitigation options. A concise description of the efforts to identify and secure traditional buffer mitigation opportunities should be part of any proposal to utilize any of the alternative options*

5. (1)(B) One commenter pointed out that coastal headwater stream mitigation and unmapped stream mitigation are physically identical to "traditional" riparian buffer restoration (e.g. planting of trees/vegetation) and should be exempted from the nutrient removal demonstration. **(10)**
6. (1)(C) One commenter opposes the proposed 60-day comment period on alternative mitigation site proposals. The comment period could result in potentially costly delays and places an undue burden on the regulated public. **(5)**

*Response: The listed flexible/alternative measures included in the Rule were a result of stakeholder input and have been posted for public notice and comment. In addition, the non-structural vegetative options are technically comparable with "traditional" buffer mitigation. Therefore, the requirements for the nutrient removal determination and public comment period have been removed from all listed alternative mitigation options. Public notice, comment, and EMC approval are required only on alternative buffer mitigation measures that have not been already listed in the Rule and are proposed under (k)(2)(4).*

***Proposed revision to 15A NCAC 02B .0259(k)***

*(1) Any proposal for alternative mitigation shall be provided in writing to the Division and shall meet the following content and procedural requirements for approval by the Division:*

- (A) *Demonstration of no practical alternative. The application shall describe why traditional buffer mitigation options are not practical for the project;*
- ~~(B) The application shall demonstrate that the proposed alternative removes an equal or greater annual mass load of nutrients to surface waters as the buffer that is approved by the Division for impact following the calculation of impact and mitigation areas pursuant to Paragraphs (d) and (e) of this Rule. To estimate the rate of nutrient removal of the impacted buffer, the applicant shall either propose a method acceptable to the Division or use a method previously approved by the Division. Prior to approval, both methods shall be subject to public notice through the 401 Certification Mailing List and public comment in accordance with 15A NCAC 2H.0503;~~
- ~~(C) Public Notice and Comment. All proposals shall be reviewed by the Division for completeness and then be subject to public comment through 60 day notice on the 401 Certification Mailing List in accordance with 15A NCAC 2H.0503;~~

7. (1)(D) Two commenters supported the allowance of riparian buffer credits to be generated on sites that were previously constructed and are in monitoring, or within 10 years from the effective date of this Rule. Both commenters cited the lengthy rulemaking process associated with this particular Rule, as well as the statutory authority for this Rule has been in place for over 10 years **(4, 10)**

Two commenters disagreed with the allowance of riparian buffer credit to be generated on previously-constructed sites. One commenter stated that projects that are beyond the monitoring period will not be able to demonstrate functional uplift and therefore should not be eligible for buffer credits. Another commenter stated that allowing credit on sites that have been in the ground for a number of years would dilute the buffer mitigation credit market and result in uncertainty in the market. **(2, 6)**

*Response: Recommend Option 2. With respect to inability to demonstrate functional uplift, a provider seeking credit for an existing site would need to document the prior conditions at the site and provide a description of the activities undertaken to restore/enhance the site, as well as demonstrate that monitoring for at least five years shows that buffer mitigation success criteria have been met.*

*With respect to the market issues, the concern regarding this issue is mainly with the NCEEP. While NCEEP may receive additional credits in certain areas of the state, recent legislation has created a hierarchy for most mitigation seekers that directs them to mitigation banks (provided they have appropriate and available credit) before procuring credits from NCEEP. The effect on the market would likely be minimal.*

***Proposed revision to 15A NCAC 02B .0259(k)***

~~(DB) Option 1: Projects that have been constructed and are within the required monitoring period as of the effective date of this Rule are eligible for use as alternative buffer mitigation. Projects that have completed monitoring and have been released by the Division as of the effective date of this Rule are not eligible for use as alternative buffer mitigation;~~

*Option 2: Projects that have been constructed and are within the required monitoring period on the effective date of this Rule are eligible for use as alternative buffer mitigation. Projects that have completed monitoring and have been released by the Division on or before the effective date of this Rule are eligible for use as alternative buffer mitigation for a period of ten years from the effective date of this Rule.*

8. (2) One commenter made a general comment that the best option for non-structural vegetative options would be restoration of riparian areas along conveyances that lead into streams, ponds and lakes, consistent with the nutrient reduction techniques used for nutrient offset mitigation. (5)

*Response: Please see responses above in 15A NCAC 02B .0295(g)(4)(A) and (B) RIPARIAN BUFFER RESTORATION, OR ENHANCMENT*

9. (2)(B) and (C) Two commenters specifically expressed support for allowing buffer mitigation credit to be generated through restoration/enhancement of riparian buffers on unmapped streams. (7, 9)

*Response: For clarification purposes the term "unmapped" was replaced with "non-subject streams". In addition, Multipliers were replaced with ratios per an earlier comment.*

Two commenters stated that where preservation is allowed, it should be at a 10:1 ratio only. (4, 6)

Two commenters specifically supported the preservation of urban buffer (8, 11)

*Response: Recommend Option 2. Subject streams have more buffer protections than non-subject streams, which are not protected by riparian buffer rules. Therefore, more value is provided to preserving these streams by providing buffer credit at a 5:1 ratio, rather than the 10:1 proposed for non-subject streams. In addition, during the Rule development process, a number of municipal stakeholders expressed an interest in incentivizing the protection of intact stream buffers in urban areas. Therefore, 3:1 was proposed.*

***Proposed revision to 15A NCAC 02B .0259(k)***

*(2)(B) ~~Unmapped Stream Buffer Mitigation on Non-Subject Streams. Restoration or enhancement of buffers may be conducted on intermittent or perennial streams that are exempt not subject to from riparian buffer rules by virtue of not being shown on maps as further specified in individual rules referenced in Paragraph (f). These streams shall be confirmed as intermittent or perennial streams by Division staff or staff from a local delegated program using the 2010 or later version of the Division's stream identification manual the Division publication, Methodology for Identification of Intermittent and Perennial Streams and Their Origins (v.4.11, 2010), or more recent version. Preservation of these stream buffers that meet the definition of a preservation site may also be proposed in order to permanently protect the buffer from cutting, clearing, filling and grading and similar activities that would affect the functioning of the buffer. Restoration or enhancement is required with an area at least equal to the footprint of the buffer impact, and the remaining mitigation requirement may be provided by preservation at a 5:1 buffer credit ratio, provided that the preservation site area is five times larger than the mitigation area required under Paragraph (e) of this Rule, and restoration or enhancement is proposed with an area equal to the mitigation area required under Paragraph (e) of this Rule. The preservation site shall protect at least a 50 foot wide wooded forested riparian buffer and shall meet the requirements of Subparagraph (j)(2) and parts (j)(3), (G), (H), (I), (K) and (M) of this Rule. The proposal shall meet all applicable requirements of Paragraph (g) of this Rule. Applicant shall provide a written description for the Division's approval of the demonstrable threat to the buffer mitigation site and its functioning to provide nutrient removal and other water quality benefits. No existing or new stormwater discharges are allowed thru through the buffer.~~*

*(2)(C): ~~Option 1: Preservation of mapped stream buffers Buffer preservation may be proposed in order to permanently protect the buffer from cutting, clearing, filling and grading and similar activities that would affect the functioning of the buffer above and beyond the protection afforded by the existing buffer rules on sites that meet the definition of a preservation site along streams, estuaries or ponds that are subject to buffer rules as long as the proposed preservation site area is~~*

~~ten times larger than the mitigation area required under Paragraph (e) of this Rule in non-urban areas and three times larger than the mitigation area required under Paragraph (e) of this Rule in urban areas. In addition, buffer restoration or enhancement is also proposed with an area equal to the mitigation area required under Paragraph (e) of this Rule. Reduced buffer mitigation credit can be given per Part (k)(2)(D) of this Rule in urban areas. Applicant shall provide a written description for the Division's approval of the demonstrable threat to the buffer mitigation site and its functioning to provide nutrient removal and other water quality benefits. No existing or new stormwater discharges are allowed thru the buffer.~~

~~Option 2: Preservation of Buffers on mapped Subject stream Streams buffers Buffer preservation may be proposed in order to permanently protect the buffer from cutting, clearing, filling and grading and similar activities that would affect the functioning of the buffer above and beyond the protection afforded by the existing buffer rules on sites that meet the definition of a preservation site along streams, estuaries or ponds that are subject to buffer rules. Restoration or enhancement is required with an area at least equal to the footprint of the buffer impact. The remaining mitigation requirement may be provided by preservation at a 10:1 buffer credit ratio as long as the proposed preservation site area is ten times larger than the mitigation area required under Paragraph (e) of this Rule in non-urban areas and a 3:1 buffer credit ratio three times larger than the mitigation area required under Paragraph (e) of this Rule in urban areas. In addition, buffer restoration or enhancement is also proposed with an area equal to the mitigation area required under Paragraph (e) of this Rule. Reduced buffer mitigation credit can be given per Part (k)(2)(D) of this Rule in urban areas. The preservation site shall meet the requirements of Subparagraph (j)(2) and Parts (j) (3)(D), (G), (H), (I), (K) and (M) of this Rule. Applicant shall provide a written description for the Division's approval of the demonstrable threat to the buffer mitigation site and its functioning to provide nutrient removal and other water quality benefits. No existing or new stormwater discharges are allowed thru through the buffer.~~

10. (2)(D) One commenter stated that full credit cannot be given for buffers less than the required 50 feet. They supported partial credit for narrower urban buffers only where stormwater control is present (including upstream of the mitigation site). Mitigation sites should not be bypassed with piping, ditches or other conveyances. (6)

Another commenter indicated that lower credit should be given for buffers less than 50 feet wide, and stated that a 30-foot buffer should be the minimum width allowed. (7)

*Response: "full credit" as referred to in the Rule does not mean the amount of credit generated by a 50-foot buffer. "Full credit" would be the actual amount of riparian buffer restored. As stated in the Rule, on-site stormwater management (e.g. treatment or conversion of all concentrated stormwater flows through the buffer to diffuse flow) allows for more favorable buffer crediting depending on buffer width. Requiring a provider to provide stormwater treatment on properties upstream from the proposed buffer mitigation site and on property not under the control of the mitigation provider is not feasible, particularly in downstream areas within large urban watersheds. Reductions in available credit are applied to recognize the lowered function of narrower buffers. However, during the stakeholder process there was considerable interest by municipal stakeholders for opportunities to do buffer mitigation in urban areas, which are often closer to impact sites than traditional buffer mitigation sites in rural areas within the eight-digit HUC. With respect to the minimum buffer width selected at 20 feet, a 2005 EPA publication which compared a wide variety of studies related to buffer width and nitrogen removal showed that a three meter (9.8 feet) wide buffer has a nitrogen removal efficiency of 50%.*

**Proposed revision to 15A NCAC 02B .0259(k)**

(2)(D) Narrower buffers on urban streams. *Buffer restoration or enhancement with widths less than 50 feet may be proposed along urban streams. If buffers greater than or equal to 31 feet in width are proposed and on-site stormwater management is provided to control local sources of nutrients and other pollutants, then full buffer credit shall be awarded for the ~~mitigation area required under Paragraph (e) of this Rule~~ area of buffer restored or enhanced. A total of 75% of full credit shall be awarded for buffers between 20 and 30 feet wide if on-site stormwater management is provided to control local sources of nutrients and other pollutants. If on-site stormwater management is not provided, then 50% of full credit shall be provided for buffers between 31 and 50 feet wide and 25% of full credit for buffers between 20 and 30 feet wide. Buffers less than 20 feet wide shall receive no buffer credit regardless of whether on-site stormwater management is provided.*

11. (2)(E) One commenter provided extensive and wide-ranging comments regarding enhancement of partially vegetated grazing areas. They stated that the requirement to demonstrate that grazing has been the predominant land use “for at least the past 20 years” is arbitrary and unwarranted. The presence of woody understory vegetation should not exclude a site from consideration. If present, then the site would be an excellent preservation area. The commenter objected to the requirement for permanent fencing, and stated that providing for livestock exclusion via the conservation Easement would be sufficient and would not require permanent fencing. (5)

*Response: Some demonstration that the land has been used for grazing for an extended length of time is necessary; otherwise, there is nothing to stop someone from releasing cattle into a wooded riparian area for a period of days or weeks and then proposing excluding the cattle and getting mitigation credit. The language has been modified to remove “for at least the past 20 years” and replaced with “since the effective date of the applicable buffer rule.” The presence of woody understory vegetation would not eliminate a site from consideration. It may render the site not appropriate for restoration or enhancement, but the site may be a good candidate for preservation. If the site has been grazed for some extended period of time but most of the forest structure remained intact, it would qualify for enhancement credit under this section of the Rule at 2:1 ratio, versus preservation for 10:1. This would be based on the functional uplift resulting from excluding cows from the stream channel and riparian buffer. With respect to cattle exclusion, it is unclear how exclusion via a Conservation Easement would be sufficient to keep cattle out of the riparian buffer without a fence. Should the land use or ownership of the land outside of the conservation easement change such that the fence is no longer necessary, this could be communicated to the stewardship organization.*

**Proposed revision to 15A NCAC 02B .0259(k)**

~~(2)(EF) Enhancement of grazing areas adjacent to streams. Buffer credit at a 2:1 ratio shall be available for an applicant who proposes permanent exclusion of grazing livestock that otherwise degrade the stream and riparian zone through trampling, grazing or waste deposition by fencing the livestock out of the stream and its adjacent buffer. The riparian buffer area contained by fencing shall be two times greater than the mitigation area required under Paragraph (e) of this Rule. The applicant shall document the condition and aerial coverage of canopy and woody understory, and shall propose planting of understory trees and shrubs as well as young canopy tree species as necessary to achieve buffer restoration provide an enhancement plan to the standards identified in Paragraph (g). The applicant shall demonstrate that grazing was the predominant land use for at least the past 20 years and that woody understory is absent as a result of grazing history. Conservation easements or other similar legal mechanism shall ensure perpetual maintenance of permanent fencing since the effective date of the applicable buffer rule.~~

12. (3)(C) One commenter stated that the method that will be used to calculate the “original load reduction” provided by the existing buffer is not specified. (5)

*Response: This part has been revised to clarify the requirements.*

**Proposed revision to 15A NCAC 02B .0259(k)**

*(3)(C) Minimum treatment levels: Any structural BMP shall provide at least 30% total nitrogen and 35% total phosphorus removal as demonstrated by a scientific and engineering literature review as approved by the Division. ~~The total load reduction from structural BMPs shall be at least equivalent to the original load reduction provided by the existing square feet of buffer being impacted; The application shall demonstrate that the proposed alternative removes an equal or greater annual mass load of nutrients to surface waters as the buffer that is approved by the Division for impact following the calculation of impact and mitigation areas pursuant to Paragraphs (d) and (e) of this Rule. To estimate the rate of nutrient removal of the impacted buffer, the applicant shall either proposed a method acceptable to the Division or use a method previously approved by the Division;~~*

13. (3)(F) One commenter stated that requiring perpetual maintenance eliminates this option for all entities except local governments who agree to fund maintenance in perpetuity. (5)

*Response: The mitigation is intended to be permanent similar to the permanent impact to the buffer that is being mitigated for. This requirement for maintenance is consistent with other state stormwater program requirements.*

14. (3)(G) One commenter stated that annual reporting would require reporting in perpetuity given the requirement set forth in part (F). This places unnecessary burdens and costs on the regulated public. (5)

*Response: After discussion, we felt that annual reporting was necessary to ensure that the nutrient removal function of the mitigation continue to offset the loss of nutrient removal due to the impact, which will continue in perpetuity.*

15. (3)(H) One commenter stated that structural or non-structural options should be allowed to be considered in this part to replace any structures to be removed. (5)

*Response: We concur. This part has been revised as shown below.*

**Proposed revision to 15A NCAC 02B .0259(k)**

*(3)(~~H~~I) Removal and replacement of structural options: If a structural option is proposed to be removed and cannot be replaced on site, then a structural or non-structural measure of equal or better nutrient removal capacity shall be constructed as a replacement with the location as specified by Paragraph (e) of this Rule;*

16. (3)(K) One commenter asked whether local governments have a waiver to this requirement as specified in other parts of the Rule. (5)

*Response: The local governments do not have a waiver of this requirement. This part has also been revised to incorporate language that has been included in other parts of the Rule.*

**Proposed revision to 15A NCAC 02B .0259(k)**

*(K) ~~Bonding and endowment. Provisions for bonding for construction, monitoring and maintenance as well as provision for a long term, non-wasting endowment for monitoring and maintenance shall be provided in the submittal to the Division. A completion bond(s) that is payable to the Division sufficient to ensure that land purchase, construction, monitoring and maintenance are completed. A non-wasting endowment or other financial mechanism for perpetual maintenance and protection must be provided.~~*

15A NCAC 02B .0295(l) ACCOUNTING FOR BUFFER CREDIT, NUTRIENT OFFSET CREDIT AND STREAM CREDIT

1. (5) Three commenters preferred Option 1 (current methodology of accounting). (9, 10, 12)

One commenter stated that while Option 1 is presented as current policy, it differs from practice. Currently, all nutrient offset projects are required to be stand-alone (5)

Three commenters preferred Option 3 (stream mitigation projects are stand-alone projects; neither buffer nor nutrient credit can be generated on stream mitigation sites). (4, 6, 7)

No comments were received in favor of Option 2.

One commenter stated that the requirement to mitigate for buffers mitigation should not be required when stream impacts occur; these will be mitigated for when stream mitigation is performed. (5)

*Response: With respect to buffer mitigation being accomplished when stream mitigation is done, that may not always be sufficient, as the footprint of the buffer impact associated with a particular length of stream impact may not be the same as the buffer associated with the same number of linear feet of stream mitigation. When a diagonal stream impact occurs there can be more square footage of buffer impact than in the same linear footage of stream impacted perpendicularly. Sinuosity of the impacted stream can also alter the amount of buffer impacts occurring. In addition, the buffer mitigation required by the zonal multipliers would not be included in the buffer provided along with the stream mitigation. Finally, there still remain stream mitigation sites with available credit that do not have 50-foot buffers for varying reasons. The assumption that stream mitigation buffers will offset the footprint of the stream impact buffers may not always be true.*

*With respect to the options, after much discussion, Option 3 is recommended, with the caveat that buffer mitigation credit will be allowed to be generated on coastal plain headwater stream restoration sites. Simply replanting buffers along modified, straightened coastal plain streams (actually ditches carrying jurisdictional flows) would not provide the desired benefits, as many of these ditches are so deep and incised that subsurface flow would be beneath the root zone of the vegetation, and the desired nutrient removal would not occur. However, such benefits are derived from buffers along headwater valley restoration sites.*

***Proposed revision to 15A NCAC 02B .0259(k)***

*(l)(3) Buffer mitigation or nutrient offset credit cannot be generated within streams which provide stream mitigation credit required by 15A NCAC 02H .0506 except for coastal headwater stream mitigation sites as outlined in Part (k)(2)(A) of this Rule.*

**RECOMMENDATION:**

Following a careful and comprehensive review of all the submitted written comments, oral comments, supporting data, the hearing officer recommends that the North Carolina Environmental Management Commission adopt 15A NCAC 02B .0295, including:

- Option C in (e);
- A variation of Option 2 in (g)(10), which includes moving this option to the alternatives portion of the rule under (k)(2)(E);
- Option 2 in (k)(1)(D), which is now (k)(1)(B);
- A variation of Option 2 in (k)(2)(C), which includes revisions as described above;
- A variation of Option 3 in (l)(5), which is now (l)(3) and includes revisions as described above;
- All other proposed revisions described above.

The hearing officer also recommends that the North Carolina Environmental Management Commission repeal 15A NCAC 02B 0242, .0244, .0252, .0260, .0268 and .0609.

Appendix G contains the hearing officer's recommended rule language for 15A NCAC 02B .0295, 0242, .0244, .0252, .0260, .0268 and .0609.

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**APPENDIX A – COMMENTER INDEX**

**COMMENTER INDEX**

<b><u>Index Number</u></b>	<b><u>Commenter</u></b>	<b><u>Representing</u></b>	<b><u>Type of comment</u></b>
1	Abraham, Mark	Forsite Capital	written
2	Allden, Tara	Restoration Systems, LLC	oral
3	Alvis, Jerry	Self	written
4	Dorney, John	Self	written
5	Ellison, Michael	NCEEP	written
6	Gisler, Geoffrey	Southern Environmental Law Center on behalf of the Pamlico-Tar River Foundation, Haw River Assembly, the Yadkin Riverkeeper, and the North Carolina Conservation Network.	written
7	Hermann, Mike	Watershed Investments NC	written
8	McLawhorn, Daniel	Neuse River Compliance Association	written
9	Paugh, Leilani	NCDOT	written
10	Smith, Ross	PCS Phosphate Company, Inc.	oral and written
11	Wynia, Erin	NC League of Municipalities	written
12	Zarzecki, Robert	Self	written

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**APPENDIX B – WRITTEN COMMENTS RECEIVED**

**Kulz, Eric**

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**From:** Mark Abraham [mark@forsiteinc.com]  
**Sent:** Monday, March 18, 2013 11:08 AM  
**To:** Kulz, Eric  
**Subject:** Comments on Proposed 2B.0295

Eric,

I attended the informational meeting on nutrient offset mitigation last Friday. I hope you can help clarify something I thought I understood from the meeting: Are lands currently under a conservation easement excluded from becoming either a buffer mitigation bank or nutrient offset bank? Does proposed 2b.0295 address this?

I've been reading the proposed ruling and can't figure that out, other than the possible conflict of requiring a bank to be placed under perpetual conservation if it already is?

Thank you and best regards,

Mark Abraham  
Forsite Capital  
5320 Old Pineville Road  
Charlotte, NC 28217  
(704) 717-5527 – Direct  
(704) 717-9100 – Office  
(404) 354-6302 – Mobile  
[www.forsiteinc.com](http://www.forsiteinc.com)

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**Kulz, Eric**

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**From:** Mark Abraham [mark@forsiteinc.com]  
**Sent:** Monday, March 18, 2013 4:53 PM  
**To:** Kulz, Eric  
**Cc:** Tom McKittrick  
**Subject:** Comments on Proposed Rule 02B 0.295 Consolidated Buffer Mitigation Rule - Conservation Easements

Eric,

Please accept this email in response to the request for public comments due March 18 on the above proposed rule.

Tom McKittrick of Forsite Development and I attended the Annual Nutrient Offset Mitigation Informational Meeting. During the meeting a comment suggested that lands currently under a conservation easement would not be eligible for the creation of a nutrient offset or buffer mitigation bank and that if those in attendance felt differently to provide comment to the proposed rules. I understand this proposed rule does not address mitigation banking, per se, but rather the requirements for the protection and maintenance of riparian buffers. Nor do I see anything in Rule 02B .0240 expressly prohibiting conservation easement land to be included within the creation of a mitigation bank.

If clarification of the rules would be required to consider such land to be appropriate for either a buffer mitigation bank or a nutrient offset bank, we would highly recommend the inclusion of such clarification.

Further enhancements to lands under conservation easements provide the same benefits and value contemplated for other suitable properties. Encouraging such enhancements to such lands seems to be good public policy. We believe that, just as all lands are considered for suitability, that conservation easements be considered under similar guidelines.

Thank you for considering these comments and we look forward to working with you and the DWQ in the future

Best regards,

Mark Abraham

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**Kulz, Eric**

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**From:** jerryalvis [jerryalvis@earthlink.net]  
**Sent:** Tuesday, January 22, 2013 1:25 PM  
**To:** Kulz, Eric  
**Cc:** 'jerryalvis'  
**Subject:** RE: Public Hearing for Mitigation Program Requirements for Protection and Maintenance of Riparian Buffers

Mr Kulz:

I sincerely thank you for your prompt, informative, and exceptionally courteous response. If all officials of government reacted with such patience and responsiveness, there would be a huge citizen approval. I am not sure I have captured the total meaning and significance of the information you have provided, but I have and will continue to study it.

Just a personal aside: I've spent 42, beginning 43 years, living on the Neuse in Foxcroft subdivision off Buffalo Road east of Capital Blvd. My river bank ownership is almost 400', and up to 2000 I owned a farm across the river with a lengthy frontage. All these years, I have debated myself as to whether trees on the very edge of the banks are positive or negative ecological factors. It is undeniable that trees in such proximity to the river regularly fall into it. Equally undeniable is that some in the same proximity hold on for decades and preserve the bank below them. I suppose you have made provision for a scientific evaluation for replanting unforested banks that includes a consideration of how close to plant.

Again; I'm very appreciative of your response. Thanks.

Jerry

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**From:** Kulz, Eric [mailto:eric.kulz@ncdenr.gov]  
**Sent:** Tuesday, January 22, 2013 10:15 AM  
**To:** jerryalvis  
**Subject:** RE: Public Hearing for Mitigation Program Requirements for Protection and Maintenance of Riparian Buffers

Mr. Alvis:

Thank you for your comments regarding the proposed consolidated buffer mitigation rule. Please note that the proposed Milburnie Dam Stream Mitigation Bank is not in any way related to the consolidation of the buffer rules, as no Neuse riparian buffer credit can be generated from the proposed bank. Buffer credit is generated through restoration of unforested buffers along streams and rivers within the Neuse basin, and protection of those restored buffers with a conservation easement in perpetuity. As much of the land along the river is already forested, and no conservation easement is being put in place, buffer credit cannot be generated.

The main purpose for the proposed consolidated buffer rule is to provide options for mitigating authorized impacts to the protected buffers beyond traditional restoration of unforested buffers along streams. The original enabling legislation included a provision for alternatives that remove nutrients as well as or better than the buffers that are impacted. For whatever reason (before my time) this provision was not included in any of the buffer rules. This provision was supported by stakeholders (the regulated public) during the initial drafting of this rule several years ago.

Another reason this rule as drafted was to incorporate updated technical information related to buffer mitigation. This information is intended for use by whoever is doing buffer mitigation; applicants electing to do their own mitigation, the state in-lieu fee program (NCEEP) or mitigation banks.

With regard to mitigation banks providing stream and wetland mitigation, both USACE and DWQ review proposals for mitigation. The mitigation banking process is very transparent as outlined in the 2008 Federal Mitigation Rule. All proposals for mitigation banks are reviewed by the Interagency Review Team (IRT) which includes USACE, DWQ, EPA, the Wildlife Resources Commission, The US Fish and Wildlife Service, and several other agencies.

With respect to the Milburnie Dam project, we reviewed RSs draft prospectus in 2011 and provided a list of comments regarding additional information we need to see in order to evaluate the project. We did not participate in the public meeting held by RS as we have not had an application submitted for the removal of the dam. With respect to the bank moving forward, I don't know when we expect additional documentation and/or an application.

Once an application is submitted to us, we reserve the right to hold a public meeting to provide information and discuss the application and accompanying documents. Whether or not a public meeting is held is up to the Director.

Again, thank you for taking the time to comment on the proposed rule. Please feel free to contact me if you have additional questions regarding the rule or the mitigation process.

Eric W. Kulz  
 Environmental Senior Specialist  
 N.C. Division of Water Quality  
 Wetlands, Buffers, Stormwater - Compliance & Permitting Unit  
 1650 MSC  
 Raleigh, NC 27699-1650  
 Phone: (919) 807-6476

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**From:** jerryalvis [mailto:jerryalvis@earthlink.net]  
**Sent:** Monday, January 21, 2013 3:20 PM  
**To:** Kulz, Eric  
**Cc:** 'jerryalvis'  
**Subject:** Public Hearing for Mitigation Program Requirements for Protection and Maintenance of Riparian Buffers

**Hello Mr. Kulz**

**I am a long-time riparian landowner on the Neuse north of Old Milburnie Dam, and, with my family, a significant contributor of land value to our Neuse parks and greenways (Alvis Farm Community Park).**

**I have been a trial lawyer, one time trial judge, for almost 55 years, but I am earnestly trying to recover. I am totally opposed to the application of Restoration Systems LLC to the COE for permission to tear down OMD. My personal analysis of some of the major representations in that application has me believing that those are major misrepresentations. And I fully intend to bring pressure on federal and state law enforcement to investigate and act on those actions in the event that the COE does not deny the application. It is my personal opinion that making false or misleading**

representations to the COE in an effort to obtain personal or entity gain is a serious criminal offense.

Your agency's posting of the proposed changes for protection and maintenance of riparian buffers, is numbling illerate. Who, what group, wrote that stuff? Mitigation bankers? Guarantee you it is mostly so vague a competent judge will declare it unenforceable. And, from my initial reading, the title is a fog and phony deal -- it is more about the profitable business of mitigation banking. Where can I find the names of the investors in the 'bank' that wants to tear down OMD? Are you one?

The Neuse above OMD is not polluted. OMD is not causing pollution. The flowing water is replaced 24/7/365 by the required release from Falls Reservoir. Acres upon acres of wetland filters and wildlife incubators would be destroyed by the tear down, while the inflow from major highways and mounting development will increase so that the reduced Neuse flow would become highly toxicant. And the tear down will destroy the most beautiful stretch of the Neuse in Wake County, the centerpiece of our parks and greenways in which we have invested millions. This part of the Neuse ecology has developed over 100 years, yet RS would contend it can produce a new, totally natural, wonderful replacement in a couple of years. Bull.

I have lived here on the Neuse for 42 years, and hunted, fished, and explored this stretch of the river for about 52 years. I have drunk the water, eat the fish and ducks, I am not dead yet, just a youngster in my 79th yol.

I have a couple of strongly felt political criticisms of mitigation banking. It is largely a government created monopoly for private/secretive for profit investors. I think much of the enabling legislation is unconstitutional. Isn't it absolutely absurd that the City of Raleigh has thought of buying 'credits' that RS may get from the COE for a teardown of OMD so our City can dam the Little River for an additional needed public water source? The public has to pay tax money to hustlers for permission to provide for the public need! First graders in any of our schools would see that as wrong in twenty minutes. Yet the City is silent.

I also think it is anti-citizen-tax-payer for executives of RS to be appointed to public boards and agencies that have tremendous influence on the opportunities for their

mitigation banking secretive brotherhood. Stinks. Isn't your agency head the 'withdrawn' executive officer of RS? Where's George H. now; Pryor? Other RSees?

Mr. Kulz, there may be a public controversy and a federal lawsuit coming, and I ask that you keep honest records of all activity related to mitigation banking, OMD, and RS. If you don't, you will likely have a full chance under oath to explain why. Just as will RS representatives and their touted 'experts.'

I thought the COE, by unauthorized delegation of authority by the EPA, had the authority over the application for OMD. But after struggling through the agency language of the proposal, it looks like maybe DENR is saying it is sole boss. That so?

I admit that I am totally exasperated with the manner in which our elected and appointed officials abuse our citizen taxpayers for their own cash benefit. And, though I would rather not have a fight, I will fight rather than live in shame of letting myself and my tax paying ken be abused. I'm already pushing the media, the legislature, the state and local law enforcement folks, and some government and private watchdogs. I think we can do our country a huge service. And a nice way to move on for an old guy.

Jerry S. Alvis Sr.

Attorney/Neuse Riparian Landowner

John Dorney  
2838 Stuart Drive  
Durham, NC 27707

March 18, 2013

Eric Kulz  
NC Division of Water Quality  
Department of Environment and Natural Resources

1650 Mail Service Center,  
Raleigh, NC 27699-1650

Dear Mr. Kulz:

RE: Comments on Proposed Flexible (Alternative) Buffer Mitigation Rules 15A NCAC 2B .0295

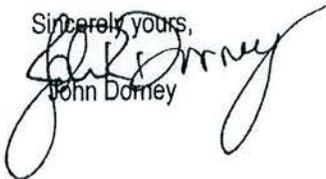
I attended the public hearing on March 6, 2013 in Raleigh and have read the proposed rules. My comments are provided below. In general, I believe that these rules are long overdue and will provide important options for compensatory buffer mitigation which will have similar or higher water quality benefits than traditional mitigation. Equally importantly, these rules will provide options in locations where traditional buffer mitigation is lacking (such as urban areas and the outer coastal plain).

1. The general provisions in the proposed rules with regard to conservation easements, completion bonds and non-wasting endowments provide crucial assurance that buffer mitigation sites will be successful in replacing the unavoidably impacted buffers in these watersheds. For the most part, these rules institutionalize long-standing policy of the Division of Water Quality as well as the US Army Corps of Engineers for wetland and stream mitigation projects.
2. Mitigation Location – This provision clarifies the existing rule and captures the long-standing practice of using the 8-digit HUC as the basis for compensatory mitigation which is the standard service area for wetland and stream mitigation in North Carolina. The three options provide various approaches building on the 8-digit HUC, the 12-digit HUC, or on-site mitigation to address the concern that sole use of the 8-digit HUC could result in mitigation far from the actual impact since there are four (Neuse) to five (Tar-Pamlico) 8-digit HUCs in these major river basins. Unfortunately the 12-digit HUCs number in the 100s for each of these river basins and in my opinion, present insurmountable logistical issues with respect to tracking of impacts and mitigation sites mainly for mitigation providers such as bankers and the NC Ecosystem Enhancement Program as well as DWQ's staff who would have to keep track of the impacts and mitigation. Therefore, I support Option A which is the 8-digit HUC with a multiplier for adjacent HUCs for this issue perhaps with the additional option of a lower ratio for on-site mitigation if this option can be added to the proposed rules without additional delay in the rule making process.
3. Accounting for buffer, nutrient offset and stream mitigation credit – Three approaches are proposed which address the concern about additionality or counting of credits for multiple purposes. As you know, this has been a very controversial issue which now can be clearly addressed by the rules. I support Option 3 which has the advantage of being a clearly defined alternative and would result in the most environmental benefit. The concern that there would be unrecoverable costs for stream

work is realistic but my experience is that the vast majority of buffer mitigation sites do not require stream work and that planting of trees suffices to restore the buffer. The projected cost in the fiscal analysis would be offset by the provision of preservation and other options in the rules especially the option for coastal headwater wetland mitigation, buffer preservation and enhancement of grazed areas and the restoration and enhancement option for sewer easements (discussed below).

4. Optional methods of buffer mitigation
  - a. Restoration and enhancement options for sewer easements – Two options are provided in the proposed rules that relate to possible buffer credits for sewer easements along streams. I support Option 1 which does not allow credits for sewer easements. In many cases, sewers actually are sources of nutrients (either through catastrophic leaks or more subtle, chronic leaks that are undetected). Allowing these areas which can often be sources of nutrients to provide buffer credit is counter-intuitive. Also from the scientific literature, it is clear that deep rooted, woody vegetation provides more nutrient removal than the grassy vegetation such as that along sewer lines.
  - b. Constructed options – This provision of the rule allows "grandfathering" of credits from already constructed sites that otherwise meet the provisions of the rules. Given the fact that the statutory authority for the rule has been in effect for at least a decade, I support Option 2 which allows a ten year window to claim buffer credits for mitigation projects which have been closed out. The delay in adopting this rule should not be a *de facto* penalty to mitigation providers and Option 2 fairly takes this delay into account. In addition, the money saved by the public for this option more than offsets the cost of the important parts of the rule which would be more restrictive than the present rules.
  - c. Non-structural options
    - i. Preservation of stream buffers along mapped streams – Two options are presented for preservation of buffers along streams. The options differ in that one allows 10:1 mitigation for all preservation along mapped streams and the other allows 3:1 mitigation for preservation along urban streams. I support the first option to allow 10:1 mitigation credit for all mapped streams since most of the urban stream buffers are in public ownership and therefore already protected. Therefore, giving 3:1 buffer credit for stream buffers that are already protected does not provide additional protection for downstream water quality.
  - d. Structural options – It is crucially important to allow these options under careful review and approval of DWQ staff since there are some areas of the buffered watersheds (urban areas and Tar-Pamlico 04 and 05) where options for traditional mitigation are few and far between.
  - e. Other options as approved by the NC Environmental Management Commission - Especially important is the provision for EMC review and approval (after public notice and comment) for other options that are developed in the coming years. For instance, recent research on floating wetland islands in existing wet detention ponds show promise to reduce nutrient levels from these ponds without massive and expensive reconstruction efforts. This rule will encourage innovative approaches to stormwater management and nutrient reduction to the benefit of downstream waters.

Thank you for the opportunity to review and comment on these important proposed rules. I can be reached at 919-522-6364 if you have any questions.

Sincerely yours,  
  
 John Dorney



March 18, 2013

Mr. Eric Kulz  
 NCDENR/DWQ –Wetlands and Stormwater Branch  
 1617 Mail Service Center  
 Raleigh, NC 27699-1617

Mr. Kulz,

The N.C. Ecosystem Enhancement Program appreciates the opportunity to comment on the proposed rule 15A NCAC 02B 0.295, Mitigation Program Requirements for Protection and Maintenance of Riparian Buffers. EEP supports the consolidation and increased flexibility the new rule offers. As a partner agency with DWQ in the protection and enhancement of our state's water quality and a valuable source of data and experience in buffer mitigation with nearly 700 acres of buffer mitigation projects, EEP is a distinctive source of practical experience related to buffer mitigation project implementation. EEP staff has worked with DWQ staff for over ten years to develop a program that offers efficient and effective mitigation solutions for developers in North Carolina. EEP offers riparian buffer mitigation in the Neuse, Tar-Pamlico and Catawba river basins as well as in the Randleman, Goose Creek and Jordan watersheds. One of EEP's goals is to continue to provide this service to our customers reliably and consistently while adjusting to improvements in the state of the art and science of restoration.

It is EEP's view that 15A NCAC 02B 0.295 as written misses the mark on the objective of the buffer mitigation rules as a whole. This Rule is an opportunity to establish practicable expectations for riparian buffer mitigation projects that facilitate mitigation project development to protect water quality through the implementation of well-planned, cost effective, and successful mitigation projects. To that end, the Rule should avoid being overly exclusive and focus on protecting riparian corridors which are under-protected, restoration and enhancement of areas that will improve water quality along streams and other conveyances that lead to streams, and the progression of any approved mitigation site toward a mature riparian forest. As written, the Rule is incompatible with the DENR Mission Statement. It is not reflective of the variety of legitimate, diverse and thoughtful scientific perspectives and fails to recognize the intent of the buffer rules can be achieved in a variety of equally effective ways.

EEP staff has reviewed the rules and the options therein and offer the following comments for your consideration. *The rule paragraphs, subparagraphs and parts (in parentheses) are included as reference and comments are numbered 1., 2., 3., without parentheses under each rule paragraph title:*

**(a) PURPOSE**

This paragraph explicitly states that the proposed Rule applies to applicants seeking to impact riparian buffers. As such, the Rule is confusing about what requirements apply to applicants for buffer authorizations versus third-party mitigation providers like mitigation banks and the EEP. Historically, mitigation requirements presented in the buffer mitigation rules have been interpreted by DWQ to develop policy applied to buffer mitigation sites implemented by third party mitigation providers. It is essential that any ambiguity be eliminated; this Rule is an ideal opportunity to accomplish that. Consequently the rule should be rewritten and restructured to list applicant requirements separately from

*Restoring... Enhancing... Protecting Our State*



expectations for mitigation providers. The above comment notwithstanding, EEP staff has commented on various portions of the rule since applicability to our program is not explicit at this time.

**(b) DEFINITIONS**

1. (3) "Enhancement Site" This definition provides no specificity as to what constitutes this level of credit.
2. (4) EEP suggests rewording the definition of Government Entities in (b) as follows: "Government Entity" means the State and its agencies and subdivisions, the federal government, and those units of local government that meet the requirements set forth in G.S. 143-214.11.
3. (7) The endowment model has proven to be problematic for entities that have not considered how low the rates of returns can be. At a minimum, alternatives to the endowment model should be considered and the rules should explicitly invite alternative long-term management approaches.
4. (9) ("On-site") As written, this definition is ambiguous. Adjacent parcels may be an applicant's property, but may not be considered on-site and could be in different basins or HUCs. The regulated public will greatly benefit from clear rules that maintain definitions that are consistent between regulatory programs. The meanings of terms such as "on-site" and "off-site" need to be the same in the subject Rule as they are in federal stream and wetland mitigation guidance or regulations.
5. (12) "Preservation Site" We suggest that DWQ develop a clear and reasonable definition. Sites with a closed canopy are in many instances ideal candidates for enhancement and even restoration activities particularly if they lack understory vegetation. A better definition would consider woody stem density, basal area, and vertical structure. As written, use of the concept of "dense growth" is too subjective and could even include exotic and invasive woody vegetation. The definition needs to explicitly exclude invasive species and may need to also exclude non-native vegetation.
6. (13) "Restoration Site" This definition is subjective and overly prescriptive and could involve too many detailed measurements. A clear definition would focus on woody stem density and simplify the approach to restoration so that applicants and mitigation providers can focus on pollutant removal functions of properly-functioning riparian buffers.
7. The definitions of buffer enhancement, restoration and preservation are, as written, qualitative and subjective. The intent of leaving these definitions open to interpretation by DWQ staff appears to be an effort to maximize functional uplift and approve appropriate credit ; however, the current definitions require that DWQ staff make all buffer mitigation determinations as opposed to staff verifying mitigation credits as proposed. Such ambiguity leaves the rules open to arbitrary and capricious enforcement, which does not benefit the regulated public and injects significant uncertainty in the cost of regulatory compliance. The high subjectivity will also require significantly more DWQ staff time and effort to review proposed sites.
8. (14) "Urban" We recommend developing a clear definition of urban that will be used in the context of this Rule rather than referencing a Session Law.

**(d) AREA OF IMPACT**

- (4) With respect to determining the area of impact and deducting the "area of any wetlands that are subject to and compliant with riparian wetland mitigation requirements" DWQ should also remove any area associated with stream impacts that will require stream mitigation. This would eliminate the practice of double charging for stream buffers and riparian buffers and simplify the determination of mitigation credits by keeping stream mitigation separate from buffer mitigation. Such an approach would also

eliminate the complicated asset accounting currently required of mitigation providers and also proposed in other paragraphs of .0295. See also the comment under paragraph (l).

**(e) AREA OF MITIGATION BASED ON ZONAL AND LOCATIONAL MULTIPLIERS**

1. The Rule references “zonal”, “geographic” and “locational” multipliers. Each multiplier type used in the final Rule needs to be clearly defined in (b) and the terms used consistently throughout. The term Geographic Multiplier is used in (g)(4) and, though it appears to refer to the locational multipliers in (e), the wording is not clear. Traditionally the term “mitigation ratio” has been used; it is not clear why the Rule seeks to introduce a new term, “multiplier.” Because this aspect of the Rule will have significant and substantial ramifications on compliance costs, it is imperative that the language be unambiguous.

2. (A) EEP does not support the use of locational multipliers applied to mitigation sites presented in the Rule. The EEP uses a watershed approach to prioritize areas for implementation of mitigation projects. The purpose of this approach is to focus mitigation resources in areas where they will have the greatest benefit to local watershed functions. Both federal and state regulations establish a preference for compensatory mitigation to be carried out in a watershed planning context. However, some of the options presented in the Rule seem to be establishing new preferences, or at least incentivizing on-site mitigation which abundant research has demonstrated to be the least environmentally successful mitigation option. On-site mitigation has typically been more likely to be poorly implemented, has higher encroachment risks after implementation, and is of lower functional value. Given the overwhelming preponderance of the scientific literature, it is unclear why Options B and C contain incentives that give the highest preference for on-site mitigation without regard for watershed planning.

Further, incentivizing on-site mitigation promotes development of numerous very small mitigation sites. Most riparian buffer impacts are less than one acre. DWQ should evaluate the full ramifications of promoting mitigation sites that are 0.01 to 0.25 acres in size. The localized benefits of providing mitigation near the impact site could be overwhelmed by poor project design, easement violations and encroachments, and the costs of construction, monitoring, stewardship, and enforcement. The current cost of stewardship is approximately \$55,000 per site. For projects less than 1 acre, stewardship costs alone would represent greater than 50 percent of mitigation costs. Larger projects achieve economies of scale that result in better designs, more effective and efficient implementation, monitoring and stewardship costs, reduced costs of regulatory oversight, and fewer enforcement actions of lesser severity. Larger projects carried out through a watershed planning context promote efficiency and improved environmental outcomes. The rules should be rewritten to reflect these verities.

The unjustified preferences reflected in lower mitigation ratios of sites based solely on their close proximity to the impact is counter to the federal mitigation rule that promotes watershed planning-based and advanced mitigation for other regulatory programs. It is also counter to research which led to the change in the federal mitigation rule, the state laws regarding EEP that emphasize watershed planning-based project selection, and EEP’s watershed planning-based site selection criteria. Better ratios should be offered for projects located in LWPs, TLWs, and for advanced mitigation.

3. With regards to the locational multiplier options presented, it is EEP’s recommendation that no preference should be given for on-site mitigation for the reasons stated above. Additionally, there is no scientifically valid reason for moving to a 12-digit HUC locational multiplier. Adding this multiplier is not meaningful for most impacts and would not likely result in measurable water quality improvements. Using 12-digit HUC adds an additional layer of regulatory complexity that presents an unnecessary burden on the regulated public. It is important that this Rule maximize compatibility with other state and federal requirements. 15A NCAC 02B .0240, which governs nutrient offset payments, requires the DWQ to track the 10-digit HUC for nutrient offset impacts in order to better inform the nutrient offset mitigation site approval process. EEP suggests that DWQ consider making the Rule consistent with

existing related rules by providing for a mechanism for the Division to track buffer impacts by a smaller water area and use those data to inform future decisions.

**(f) GEOGRAPHIC RESTRICTIONS ON LOCATION OF MITIGATION**

1. (1) The proposed Rule is an opportunity to relieve the regulated public from requirements that make the siting of mitigation sites difficult and the acquisition unnecessarily expensive. The Rule and the associated DWQ fiscal analysis fail to acknowledge that current and proposed restrictions on the location of mitigation presented in (f)(1)(A) do represent increased costs to the regulated public without presenting supporting data to show water quality benefits resulting from the restrictions. The DWQ Fiscal Analysis (dated October 2012) does not appear to present the higher costs associated with these policy decisions.

2. (2) Historically, it has been difficult to get authorization to restore streams and buffers in areas where an endangered or threatened species is present. Often only planting is allowed, but the streams are usually unstable (which make them nonviable sites). The intent of this subparagraph is well-meaning, but the actual implementation is likely to introduce uncertainty, unnecessary complexity, and practical limitations for projects.

**(g) RIPARIAN BUFFER RESTORATION, OR ENHANCEMENT**

1. The Division staff vested with the authority to make an on-site determination as to whether a potential mitigation site qualifies as a restoration or enhancement do not always demonstrate the qualifications and abilities needed to evaluate site conditions and mitigation potential in a manner consonant with reasonable applications of the rules. A simple, rapidly completed appeals process should be part of this section so that the spirit and intents of water quality regulations can be advanced without undue financial burdens and project delays being imposed on the regulated public.

2. (4)(A) and (B) In addition to ephemeral streams, other conveyances that discharge or drain to intermittent or perennial streams should be allowed to be used for mitigation as they are often more effective at treating water quality problems. Their exclusion is contrary to the rule's purpose and undermines the rules' efficacy. Buffer restoration mitigation credit should be considered at appropriate ratios for widths that exceed fifty feet up to 200 feet. While research has demonstrated that pollutant removal rates begin to diminish slightly as buffer widths exceed seventy-five feet, other important benefits such as landscape stability and wildlife habitat increase rapidly. Allowing providers to extend riparian buffer mitigation sites past fifty feet would greatly expand the opportunities to improve water quality, significantly reduce costs, and bring consistency between DWQ's riparian buffer and nutrient rules which both have the same goals of improving water quality.

3. (4) (A) and (B) The lack of a definition of "top of bank" and reference to the edge of a surface water are too subjective and transient leaving this measurement open to interpretation.

4. (6) It is not always possible or practical to eliminate existing impervious cover or stormwater conveyances such as ditches or pipes, and elsewhere in the proposed rule these actions are referred to as "excessive measures" [J(3)(d)]. Viable and beneficial sites with such features should still be eligible for credit if measures are taken to provide for diffuse flow or with credit reductions commensurate with the offending features or structures.

5. (7)(B) This part is overly prescriptive on some fronts and too vague on others. The goal of any approved planting plan should be the establishment of a riparian forest. (7)(B) should be reworded to state that the planting can include native woody shrub species, should explicitly allow early successional species, and should not limit planting to tree species as indicated in(k)(2)(E) and confirmed in discussions with DWQ staff. There is no scientific basis for setting a density of 320 stems per acre at year 5 or at close-out, and reference systems will typically exhibit only a fraction of that number of trees. The reference to a site's stem density at maturity is ill-chosen; mitigation sites are not monitored to maturity,

rather they are typically monitored for 5 years, until success criteria have been met. In addition, this standard differs significantly from existing and proposed stream monitoring guidance and should be reduced to offer consistency between regulatory programs. . The Rule lacks specific measuring guidance which has led to inconsistent field calls by DWQ staff or its delegates. Density measurement should be allowed on a one acre basis and the practice of excluding areas with a single tree's drip line should be eliminated. The word "Planted" should be eliminated from any monitoring standards or success criteria so that existing seed banks and other natural regeneration approaches are allowed. Doing so will reduce unnecessary burdens on the regulated public. DWQ should also encourage, but not require, the use of reference sites to inform planting plans. Furthermore, the standard to restrict any one species to no more than 25% of planted stems is significantly different from the proposed stream guidance which uses 50%. EEP does not believe this standard has any scientific basis. The two species required in the current buffer mitigation rules is adequate to meet water quality improvement goals and should be the consistent standard.

6. (7)(C) A grading plan should not be required unless grading is proposed as part of the mitigation plan. As written, any mitigation plan submitted for review and approval requires a grading plan.

7. (7)(D) The Rule should simply state that "pesticide applications shall be made in accordance with state and federal rules". There is no need to get into compliance with EPA or other specifics.

8. (7)(E) While potentially beneficial, it is unclear how this standard is authorized under the regulations. The requirement to monitor for stream stability is unnecessary. Streams are regulated elsewhere; the Rule should be limited to actions necessary to effectively mitigate buffer impacts and eliminate redundancy that overburdens the regulated public; therefore no stream monitoring should be required. Finally, compelling the regulated public to monitor for "other anticipated benefits" introduces more opportunities for arbitrary and capricious enforcement by DWQ. This phrase is too vague and the general requirement should be eliminated. The financial burden that this entire section is likely to impose on the regulated public is not justified.

9. (8) This part is not reflective of DENR's mission to, at its essence, operate as a customer service organization. There are many examples of situations when a proposed mitigation effort would not take place within one year after the Division has approved the restoration or enhancement plan including, but not limited to some sites benefitting from a staged construction phase, delays in the impacts to buffers that required mitigation and seasonal considerations. From a customer service perspective, this part would be made compatible with the DENR Mission Statement if it simply required that the mitigation plan establish an implementation schedule.

10. (10) The footprint of any maintained utility easement that compromises the buffer benefits provided by a site should be removed from the amount creditable for restoration or enhancement. The options presented provide no meaningful benefits, but add extra complexity where it is not needed. Restoration of riparian buffers in areas that contains utility easements should be encouraged.

11. (10) DWQ is introducing zone 1 and zone 2 mitigation types; this complicates and adds costs to mitigation asset accounting for providers and is likely to place unnecessary financial burdens on the regulated public.

12. (11) There is little benefit to or necessity for annual reporting on buffer restoration sites. EEP recommends less frequent reporting requirements to minimize costs related to reporting and monitoring. With regard to the survival of planted woody stems (not only trees), plant survival is not the objective. The objective is to restore and maintain a forested riparian zone. Currently, providers are required map and monitor each individual planted stem, which is regulatory overkill. The overall establishment (via all plant regeneration methods) should be incentivized and the determination of success should be based on

the progression towards the reestablishment of mature forested buffers. This subparagraph also requires the applicant to replace trees (stems) that do not survive and to maintain diffuse flow. When the mitigation is provided by a third party, this would not be the applicant's responsibility, it would be the provider's. Restructuring this rule to list applicant and provider requirements separately would eliminate this confusion. In addition, the requirement to "replace trees (stems) that do not survive" would not make sense as initial plantings are done at a far greater density than is required to meet success criteria. Also, the cost of this requirement is not justified by any benefits that might accrue to water quality.

13. (12) Though it is unclear if this subparagraph applies to all providers or only to permittees providing their own mitigation, the requirement to have a completion bond for monitoring and maintenance exceeds current standards which require bonding through the site construction phase. Monitoring is a services contract which is not appropriate for bonding. For mitigation providers like banks and the EEP, these measures would be overly burdensome. Bonding at this level will significantly increase costs to developers. DWQ should consider, at a minimum, a method that would lower the bond as project milestones are met. Non-wasting endowments also introduce significant additional costs. Stewardship has developed into possibly the most costly aspect of mitigation. We need to find another solution so as to avoid continuously increasing costs of site stewardship. These additional dollars could be focused on restoring more buffers and placing more areas under easement. Currently as much as 20 -50 % of site costs will be used to pay for long-term management. Ideally these should require no more management than any other regulated buffer (which is minimal).

14. There is no (g)(5) listed in this paragraph.

**(i) PAYMENT TO THE RIPARIAN BUFFER RESTORATION FUND**

1. EEP recommends this paragraph be reworded as follows in order to make clear that the NCEEP must first agree to accept payment before payment can be submitted: "Applicants may choose to satisfy some or all of their mitigation determination by paying a compensatory mitigation fee to the Riparian Buffer Restoration Fund. Payments made to the NCEEP (the Program) shall be contingent upon acceptance of the payment by the Program. The financial, temporal and technical ability of the Program to satisfy the mitigation request will be considered to determine whether the Program will accept or deny the request and shall meet the requirements of 15A NCAC 02B .0269 (Riparian Buffer Mitigation Fees to the NC Ecosystem Enhancement Program)."

2. In addition, the DWQ should make it clear that all mitigation proposals are subject to approval by the Division and that these rules do not imply any particular mitigation proposal will be approved.

**(j) DONATION OF PROPERTY**

1. This paragraph covers two completely separate types of property donation. Combining them into a single paragraph (j) serves only to perpetuate confusion for applicants considering these options. One type of donation of property involves donation of land for preservation mitigation and would only involve the DWQ and any approved stewardship entity. The other type of donation is referred to as donation in lieu of payment. In this mechanism the land being donated is being offered to offset fees that are due to the EEP In-Lieu Fee Mitigation Programs. Donation in lieu of payment is not only restricted to riparian buffer mitigation. Any site proposed for donation in lieu of payment is evaluated based on its restoration or enhancement potential and its value compared to the fees assessed by the EEP In-Lieu Fee program and subject to approval by regulatory agencies as a mitigation site. The specifications for donation of land in lieu of payment listed in (B) probably do not need to be enumerated in this Rule as EEP staff would visit the site and perform a viability review. As it is written now, this paragraph references requirements for preservation mitigation donation and donation in lieu of payment together; it would be impossible for any applicant to discern which requirements apply to each donation type. Comments on individual subparagraphs and parts of (j) are offered below.

2. (j)(2) Who will set the amount of the endowment? How will inflation be considered? 3. (j)(3)(A) It is not clear what “riparian areas not currently protected by the State's riparian buffer protection program” are. Are these areas that are not subject to the buffer rules because they are not forested?

3. (j)(3)(D) A structure located within a buffer zone should not exclude a site from consideration as a mitigation site.

4. (j)(3) This section seems to conflict with G(10) which allows for sewer easements adjacent to buffer mitigation zones. In (j)(3)(F) who shall determine the “value of the property minus site identification and land acquisition costs”?

5. (j)(3)(L) The EEP does not own property or easements. The State does so they would be donated to the State of North Carolina. The transaction can be administered or coordinated with EEP or the DENR Stewardship Program.

6. (j)(3)(M) The entity enforcing the easement, their responsibilities and any financial mechanism required must be identified prior to the easement being recorded. It must be clear where any liability lies and the level of funding for any endowment required. There are many models of land trusts holding easements and several of these do not include them performing any enforcement, management, etc.

#### **(k) ALTERNATIVE BUFFER MITIGATION OPTIONS**

1. As a general recommendation, this rule should use the terms mitigation ratios and mitigation credits wherever applicable. Referring to feet and acres for mitigation requirements perpetuates confusion between those who need mitigation credit and third party mitigation providers. There are a number of references to the mitigation site areas needing to be five or ten times larger than the required mitigation area; it would be far less confusing if credits were used.

EEP strongly disagrees that alternative mitigation should only occur when there is no practical alternative. In many areas, practices such as regenerative stormwater conveyance and stormwater wetlands will have much greater benefits for local watersheds than planting forest buffers. Instead of adding onerous regulatory justifications, the DWQ should encourage alternative mitigation practices.

2. (1)(C) EEP opposes the proposed 60 day comment period on alternative mitigation site proposals. Again, it is unclear if this applies to all mitigation proposals or to proposals submitted by permit applicants. The comment period could result in potentially costly delays in mitigation procurement even delaying whether NCEEP could issue acceptance letters to developers who elect to use EEP and request mitigation credits. This requirement places undue burdens on the regulated public.

3. (1)(D) Since in either option offered, the subject credits have not been utilized, it should not matter when they were built or constructed. Any such credits are also subject to review and approval by the Division as an alternative mitigation option and must meet any other requirements set forth in (k) which may be intended to apply to third party mitigation providers.

4. (1)(F) This should be rewritten as follows to reflect that easement themselves do not provide protection, appropriate enforcement does: The mitigation area shall be placed under a perpetual conservation easement or similar legal mechanism that provides for protection of the property's buffer functions.

5. (2)(A) With respect to the following : “In addition, all success criteria including tree species, tree density, diffuse flow and stream success criteria specified by the Division in any required written approval of the site must be met.” We recommend replacing “tree species” with “woody vegetation species” to include all woody stems that have been approved as part of the planning plan. Likewise with

“tree density.” It is unclear what is meant by “stream success criteria” since these areas do not have streams. Please reference comments above related to reporting frequency.

6. (2)(B) Current rules do not disallow mitigation on unmapped streams, rather DWQ interpretation of rules has. This explicit inclusion in Rule should not be considered an alternative measure and should not be subject to the additional justifications necessary to meet the requirements in (k). Restoration and enhancement of forested buffers on unmapped streams as well as on other conveyances would lead to water quality improvements thus meeting the purpose of compensatory mitigation and would serve to fulfill requirements set forth in G.S. 143-214.20 by offering alternatives that would undoubtedly increase water quality improvement and protection.

7. (2)(C) Showing demonstrable threat to a preservation area is an unnecessary, ambiguous, and restrictive requirement. DWQ should incentivize buffer preservation given that nearly all buffers are threatened by future development. Regarding the following restrictive language: “No existing or new stormwater discharges are allowed thru the buffer (*sic*),” EEP recommends adding “without approval by DWQ. Such approval shall not be unreasonably withheld.” There is a need for a method to extract credit when these impacts do occur (as some will be unavoidable).

8.(2)(C) EEP supports Option 2 in this subparagraph as it clearly provides for protection of more urban streams.

9. (2)(D) EEP supports approval of narrower buffers in urban areas, but a better policy choice for (D) would include far less complicated language here. It is not clear why 20 feet was chosen as DWQ has long purported that significant nutrient removal occurs in the first 15 feet.

10. (2)(E) The DWQ should define “young canopy tree species” as this is not a term in common use. Contrary to offering a penalty mitigation ratio, EEP recommends better mitigation ratios be approved when livestock is permanently excluded from ephemeral, intermittent and perennial streams, provided the buffer mitigation area proposed for credit has 200 woody stems 5 years after planting total, regardless of provenance. A higher ratio is justified by the removal of direct water quality stressors. The proposed lower mitigation ratio conflicts with fundamental scientific understanding.

11. (2)(E) The requirement to demonstrate that grazing has been the predominant land use for “at least the past 20 years” is arbitrary and unwarranted and eliminates many ideal sites from consideration. Further, the requirement to substantiate the extent of grazing increases site implementation costs and ignores the common practice of farmers rotating hay production, for example, with grazing activities. The presence of woody understory vegetation should not exclude a site from consideration. If present, then the site would be an excellent preservation area. Too often, environmental rules and policies require waiting until a site is completely degraded before beneficial conservation measures are allowed to take place. Allowing providers to restore and protect these quickly degrading systems before they become overly costly would lead to more effective and efficient results. The requirement of legal mechanisms to “ensure perpetual maintenance of permanent fencing” is a new and potentially costly addition to this type of enhancement. Maintenance in perpetuity and a permanent fencing requirement would be all but impossible to achieve thus excluding this beneficial mitigation activity from consideration for most developers and mitigation providers. Providing for livestock exclusion via the Conservation Easement would be sufficient and would not require permanent fencing.

12.(2) The best option for Non-structural vegetative options is not listed. Restoration of riparian forested vegetation along water conveyances that lead into streams, ponds, and lakes is currently the primary nutrient reduction technique used under the nutrient rules to which this rule is complimentary. Many buffer mitigation sites are currently impaired by not allowing the headwater areas (different and more encompassing than coastal headwater wetland areas) to be treated. There is little evidence to suggest that

this should not be included as a primary means to reduce nutrient loading in this Rule as well – even if mitigation credit is adjusted.

13. This entire section is an example of regulatory rigidity and fails to recognize that the intent of the buffer rule can be achieved in many equally effective ways. EEP suggests this portion of the rule be completely rewritten so that it reflects the spirit of the Department's Mission Statement.

14. (3)(C) The method that will be used to calculate the "original load reduction" provided by the existing buffer is not specified.

15. (3)(F) Requiring perpetual maintenance eliminates this option for all entities except local governments who agree to fund maintenance in perpetuity.

16. (3)(G) Annual reporting would require reporting in perpetuity given the requirement set forth in part (F). This places unnecessary burdens and costs on the regulated public.

17. (3)(H) Structural or non-structural options should be allowed to be considered in this part to replace any structures to be removed.

18. (3)(K) Do local governments have waiver to this requirement as specified in other parts of the rule?

**(I) ACCOUNTING FOR BUFFER CREDIT, NUTRIENT OFFSET CREDIT AND STREAM MITIGATION CREDIT**

1.(4) The and at the end of this part is not needed.

2. (5) Though Option 1 is presented as current policy it differs from current practice. Currently, all nutrient offset projects are required to be stand-alone.

3. (5) Option 2: This option would complicate accounting significantly without producing any benefit to water quality. This option should be rejected in favor of one that reflects fundamental economic and scientific considerations.

4. Again, the option that would work best is not listed. There is ongoing concern among stakeholders over "credit additionality" issues. Currently when a stream is impacted, the applicant is typically required to mitigate for the stream and the buffer- they are "double charged" by the regulatory agency. Since mitigation for both impact types is required, the DWQ allows mitigation providers to count buffer and stream mitigation credits (they are "double counted"). When wetlands are impacted, buffer is not charged which is why double counting is not allowed when wetlands are present. Nutrient offset mitigation is not associated with stream, buffer or wetland impacts, and is based on impervious surface and nutrient loading calculations from a development. This is why nutrient mitigation has always been stand-alone (i.e. no double counting). The current options create additional complexity that is not necessary. The easier solution would be to not require buffer mitigation when streams are impacted- just like buffer mitigation is not required when wetlands are impacted. These resources are already going to be mitigated when the stream mitigation is produced because buffers are required in order to get stream mitigation credit on a mitigation site. That allows buffer, stream, and nutrient mitigation to only be charged once and all mitigation projects to be stand alone for these resources. This would greatly simplify the accounting and be easier for the development community to understand. Streams and wetlands might still overlap in the first 50 feet adjacent to the stream, but that is to be promoted since these are connected ecosystems that should be built together when possible.

**CONCLUSION:**

This effort to consolidate buffer mitigation rules and present additional options to providers and permit applicants is welcomed since current rules are scattered among various rules throughout 15A NCAC 02B and are cumbersome to navigate. It should be noted that the Division's practice of issuing clarification memos that formulate policy has been confusing, disruptive and costly to the regulated public. We offer that any attempt to clarify rules must be authorized under rule. Clarifications not clearly authorized in rules should involve stakeholder input and collaboration and must include a notification process for interested parties.

This Rule represents an opportunity to reduce ambiguity and clarify requirements for buffer mitigation sites. The final Rule must reduce uncertainty and any likelihood of arbitrary and capricious enforcement that occurs when agency staff operates in a manner that isolates them from their partners and customers rather than as an integral component of DENR's public service mission.

DWQ staff have, during this comment period been exceptionally responsive to questions and requests for clarification that EEP staff has had. Again, thank you for considering our comments.

Sincerely,

A handwritten signature in blue ink, appearing to read "Michael Ellison", with a long horizontal flourish extending to the right.

Michael Ellison  
Acting Director

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March 18, 2013

***Via U.S. and Electronic Mail***

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**RE: Proposed Riparian Buffer Mitigation Rule**

Mr. Kulz:

Please accept these comments on the Riparian Buffer Mitigation Rule on behalf of the Southern Environmental Law Center, the Pamlico-Tar River Foundation (“PTRF”), Haw River Assembly, the Yadkin Riverkeeper, Inc, and the North Carolina Conservation Network. Healthy riparian buffers are essential to the protection and restoration of water quality in North Carolina. We appreciate DWQ’s consideration of these comments.

**I. Effective Riparian Buffers Are Essential to the Health of North Carolina’s Waters.**

Riparian buffers are essential to healthy aquatic ecosystems. They not only provide terrestrial habitat for semi-aquatic organisms, they play an important role in maintaining water quality by controlling sediment, stabilizing stream banks, reducing channel erosion, trapping nutrients, removing pesticides as well as other contaminants, and absorbing flood waters.<sup>1</sup> Buffers also play an important role in maintaining groundwater quality.<sup>2</sup> Although most of the rules being consolidated into the Proposed Rule were initially promulgated to focus on a buffer’s direct interception of nutrient pollution, a growing understanding of the role of instream processes on nutrient removal argues for mitigating the indirect impacts of buffer removal (e.g. hydrology, stream velocity, organic matter input, sedimentation, stream biota) as well. Thus to be consistent with mitigation requirements under the EMC’s other water quality authorities, the Proposed Rule should set standards for mitigation that will protect all aspects of water quality while limiting the use of those mitigation options which focus exclusively on nutrient reduction. Therefore, the use of flexible options or alternatives to buffer mitigation must be limited to those

<sup>1</sup> Seth Wenger, *A Review of the Scientific Literature on Riparian Buffer Width, Extent and Vegetation*, Office of Public Service & Outreach, Institute of Ecology, Office of Public Service & Outreach, Institute of Ecology, University of Georgia 10 (March 5, 1999), available at <http://lakemargaretconservation.org/docs/buffer%20literature%20review1.pdf>.

<sup>2</sup> Todd A.H., *Water Quality Functions of Forested Riparian Buffers in Chesapeake Bay Watershed*, 21 ENVIRONMENTAL MANAGEMENT 5, 687-712.

circumstances where it can be shown that water quality is enhanced beyond that which would be achieved with a buffer mitigation.

Riparian buffers must be wide to be effective at performing multiple water quality functions. For sediment control, studies show that “[b]uffers of 30-100m (98-328 ft) or more might be necessary” for long-term sediment retention.<sup>3</sup> Some studies find that a “30 m (98 ft) buffer was necessary to prevent impacts” from logging and that “buffers less than 30 m showed a range of effects similar to those found where no stream protection was provided.”<sup>4</sup> Simply stated, “[l]arger buffer widths are necessary to ensure protection of high value streams” or when “a high level of multiple buffer functions are desired.”<sup>5</sup> The North Carolina Wildlife Resources Commission has applied these findings specifically to North Carolina’s environment and determined that “[f]or a buffer to effectively perform all riparian processes, wider contiguous buffers (100-300 feet) are recommended.”<sup>6</sup> When a threatened or endangered species inhabits a watershed, the NCWRC recommends, “[a] 200-foot native, forested buffer on perennial streams and a 100-foot forested buffer on intermittent streams . . . be required for new developments.”<sup>7</sup>

Buffers should be “continuous along streams. Gaps, crossings or other breaks in the riparian buffer allow direct access of surface flow to the stream, compromising the effectiveness of the system.”<sup>8</sup> More specifically, “road crossings, utility right-of-ways, and other breaks in the riparian corridor effectively reduce the buffer width to zero and provide a conduit for runoff and pollutants to enter the stream.”<sup>9</sup> These breaks in the buffer can have a synergistic effect. “Discontinuous buffer segments can impair riparian functions disproportionate to the relative occurrence of the breaks in the buffer, and multiple crossings can result in cumulative impacts.”<sup>10</sup> In the context of mitigation, fragmentation presents a particular problem when the original buffer impact severs a riparian corridor. The Proposed Rule currently includes no way to reflect that heightened impact in calculating mitigation obligations. We recommend that the Division add provisions addressing the impact of fragmentation either through a generalized ratio or through one specifically applied when a buffer impact compromises the ecological functionality of a much larger system.

<sup>3</sup> Wenger, *supra* n.1 at 16.

<sup>4</sup> *Id.*

<sup>5</sup> A.H. Todd, *Making Decisions About Riparian Buffer Width*, in Proceedings of the American Water Resources Association International Conference on riparian ecology and management in multi-land use watersheds, 445, 445-446 (2000).

<sup>6</sup> North Carolina Wildlife Resources Commission, Guidance Memorandum to Address and Mitigate Secondary and Cumulative Impacts to Aquatic and Terrestrial Wildlife Resources and Water Quality at 6 (2002) (“NCWRC Guidance”).

<sup>7</sup> NCWRC Guidance at 11. The recommended standards of 200-foot buffers on perennial streams and 100-foot buffers on intermittent streams may not be sufficient in some circumstances. The slope of the buffer plays a critical role in its functioning. One study found “that as buffer slope increased from 11% to 16%, sediment removal efficiency declined by 7-38%.” Wenger, *supra* n.1 at 16.

<sup>8</sup> Wenger, *supra* n.1 at 17.

<sup>9</sup> C.W. May & R.R. Horner, *The Cumulative Impacts of Watershed Urbanization on Stream-Riparian Ecosystems*, in Proceedings of the American Water Resources Association International Water Conference on Riparian Ecology and Management in Multi-land Use Watersheds 281, 283 (2000).

<sup>10</sup> NC Division of Water Quality, Goose Creek Technical Support Document at 29 (on file with DWQ).

North Carolina's waters need wide, healthy buffers to adequately protect water quality. DWQ's 2012 list of Category 5 impaired waters clearly illustrates this need. That list spans 177 pages and includes waters from across the State that DWQ is obligated to restore under the federal Clean Water Act.<sup>11</sup> Effective riparian buffer policies should be a cornerstone of the restoration and protection of these waters as well as the protection of waters that are currently meeting water quality standards. The Proposed Rule falls short of being protective of water quality in several ways and should be revised based on the recommendations briefly summarized below.

Several issues cut across the various forms of buffer mitigation addressed by the Proposed Rule. Across all forms, the Proposed Rule should ensure that:

- **Avoidance and minimization are properly considered before compensatory mitigation.** Many applicants overlook or inadequately consider these essential first steps, resulting in unnecessary destruction of riparian buffers and degradation of water quality. The Proposed Rule applies when an applicant has received an "authorization certificate," .0295(a)(1), or a variance, .0295(a)(2), pursuant to any of several other rules. We support DWQ's decision to reiterate the avoidance and minimization requirements in .0295(a)(1), but Authorization Certificate must include a description of alternatives considered and rejected to be meaningful.
- **Mitigation is implemented successfully.** The best-designed mitigation projects can only offset impacts if they are implemented. The requirements that mitigation proposals include a non-wasting endowment and a completion bond, .0295(c), are essential and must be maintained.
- **Mitigation fully replaces lost ecological functions.** Some mitigation fails to provide the intended functional replacement. Mitigation proposals and monitoring programs must include functional criteria to ensure that restored buffers accomplish their intended purpose.
- **Mitigation replaces lost functions in perpetuity.** Buffers provide their ecological benefits in perpetuity so long as they are not destroyed; mitigation intended to replace those functions must similarly be perpetual.
- **Mitigation liabilities reflect the geographic relationship between impact sites and mitigation sites.** Even successful buffer mitigation can only truly replace the functions lost at an impact site if the mitigation is required to maintain an ecologically based, geographic connection to the impact site.

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<sup>11</sup> NC 2012 Integrated Report Category 5-303(d) list, available at [http://portal.ncdenr.org/c/document\\_library/get\\_file?uuid=2dbffc77-1c7b-4979-9b60-4cd2a06094af&groupId=38364](http://portal.ncdenr.org/c/document_library/get_file?uuid=2dbffc77-1c7b-4979-9b60-4cd2a06094af&groupId=38364).

**II. Mitigation Proposals must include detailed information about the proposed project, criteria to ensure functional replacement, and financial assurance of completion and long-term maintenance.**

The Proposed Rule correctly requires documentation of the proposed mitigation as well as financial mechanisms to ensure that the mitigation is completed. As with the current rule with the Tar-Pamlico Basin, the rule requires a written description of the required area of mitigation and the area and type of mitigation proposed. 15A N.C. Admin. Code 02B.0295(c). Those mitigation sites must then be evaluated by DWQ, and functional criteria must be established to ensure that mitigation sites improve water quality. Those functional criteria should include requirements related to chemical and biological integrity of the waterbody. Finally, the rule expressly requires that the mitigation determination must be attached to the Authorization Certification. That requirement should be expanded to include documentation of each alternative evaluated to determine that there are no practical alternatives to destroying the buffer and DWQ's basis for rejecting each alternative. Each of these provisions is essential and must be carried forward in the final rule. Further, the requirement for a non-wasting endowment as well as a completion bond are critical elements to the rule that must be maintained in the final rule.

**III. Wetlands Within the Destroyed Buffer Area Must Continue to be Included in Calculating the Total Mitigation Requirement.**

Wetlands within the buffer should not be deducted from the required mitigation. As outlined in the 1994 Tar-Pamlico Basin Water Quality Management Plan, these wetland buffers are critical to stream health. "The location of riparian wetlands allows them the opportunity to receive nutrients from the surrounding landscape as well as through overbank flooding." 1994 Tar-Pamlico Basin Water Quality Management Plan at 6-23. Unless these lost functions are mitigated with riparian buffers, the result will be degradation of water quality.

The provisions in 15A N.C. Admin. Code 02H.0506 require wetlands within the buffer zone to be mitigated at a 4:1 ratio, but does not ensure that that mitigation is performed in a riparian zone. The modification in the Proposed Rule, .0295(d)(4), does not preclude riparian wetlands from being mitigated in non-riparian locations. Therefore, the result is not only a net loss in riparian buffer, but a loss of wetland riparian buffer which plays a greater role in controlling sediment and nutrient transport than upland riparian buffers. Section .0295(d)(4) must be deleted.

**IV. Riparian Buffer Mitigation Must Be Done in Close Proximity to the Impact Site.**

As urban centers expand, and land values increase, it is important that the riparian buffer rules maintain and restore the integrity of urban and suburban streams. Central to that goal is requiring a limited geographic boundary in which mitigation is allowed to offset impacts. By requiring this limited scope, the riparian buffer rules will prevent urban and suburban streams from being sacrificed as their riparian buffers are destroyed and those impacts are mitigated in rural watersheds.

Existing rules mandate a geographic connection between impact and mitigation sites as well as the river system the rules are designed to protect. For example, the Tar-Pamlico, Neuse, and Catawba buffer mitigation rules require:

1. Neuse River: “The mitigation effort shall be the same distance from the Neuse River estuary as the proposed impact, or closer to the estuary than the impact, and as close to the location of the impact as feasible.” 15A N.C. Admin. Code 02B.0242(4).
2. Catawba River: “The mitigation effort shall be the same distance from the Catawba River as the proposed impact and as close to the location as the impact as feasible.” 15A N.C. Admin. Code 02B.0244(4).
3. Tar-Pamlico River: “The mitigation effort shall be located the same distance from the Pamlico River estuary as the proposed impact, or closer to the estuary than the impact, and as close to the location of the impact as feasible.” 15A N.C. Admin. Code 02B.0260(4).

The Proposed Rule includes three options for locational multipliers. None of the three options provided appropriately weight the multipliers. These locational multipliers must be further restricted to encourage mitigation in close proximity to the impact site. As a threshold requirement, the applicant must identify the specific mitigation site it intends to use to offset impacts before any impacts can be allowed. If that site will be developed through permittee-provided mitigation or by the Ecosystem Enhancement Program, then the applicant must also provide site plans detailing the proposed mitigation. This identification is a necessary first step to evaluating whether proposed mitigation may offset the proposed buffer impact.

The Proposed Rule’s locational multipliers should be modified in three ways. First, no mitigation should be allowed outside of the 8-digit hydrologic unit code where the impact is located. Mitigating for riparian buffer impacts outside of the 8-digit HUC will not provide water quality benefits to the affected waterbody. Further, even with the locational multiplier, mitigating in more rural 8-digit HUCs may be more economical than mitigating within more densely developed HUCs, thereby sacrificing water quality in areas with higher land costs. Therefore, the adjacent 8 digit HUC options should be removed from the Proposed Rule.

Second, the Proposed Rule should be revised to evaluate mitigation based on the 8, 11, and 14-digit HUCs. We continue to believe that with rigorous adherence to avoidance and minimization requirements for riparian buffers, that all permittees should be able to meet their mitigation obligation in close proximity to the impact site. Allowing mitigation as far out as the 8-digit HUC, however, could accommodate unusual circumstances if appropriate locational multipliers are implemented. Because the 8-digit HUC is expansive, the applicant should be required to demonstrate that mitigation within the 14- and 11-digit HUCs is unavailable before satisfying its mitigation determination with mitigation outside of these HUCs.

Third, the locational multipliers should be revised to promote mitigation close to impact sites and to promote wider buffers in areas where it would be ecologically appropriate, such as in areas providing habitat for endangered aquatic species or outstanding resource waters.

Mitigation in the 14-digit HUC should be subject to a 1.0 multiplier. Mitigation outside the 14-digit HUC, but within the 11-digit HUC should be subject to a 2.0 multiplier. Finally, Mitigation outside the 11-digit HUC but within the 8-digit HUC should be subject to a 3.0 multiplier.

Implementing these recommended changes results in the following chart:

<u>Within 8 digit HUC</u>	<u>Within 11 digit HUC</u>	<u>Within 14 digit HUC</u>	<u>Mitigation option</u>
<u>n/a</u>	<u>n/a</u>	<u>1.0</u>	<u>1) On site mitigation</u>
<u>3</u>	<u>2</u>	<u>1.0</u>	<u>2) All other types of mitigation</u>

These locational multipliers can only be effective if the mitigation site location is known at the time of permitting. Therefore, any assumption of mitigation obligation by EEP pursuant to .0295(i) must include the identification of the proposed mitigation site before a project can be permitted.

Although on-site mitigation should provide water quality benefits in close proximity to the impact site, it should not result in the reduction of mitigation required as provided in Option B and Option C. The ratios for mitigation are intended to take into account both the lag time between the lost function at the impact site as well as failure rates. On-site mitigation does not ameliorate these two concerns and therefore does not justify a reduction in the required level of mitigation.

As part of this assessment, the riparian buffer mitigation rules must recognize that landscape position of buffers affects their function. The current rules reflect this importance by requiring mitigation to occur in close proximity to the affected river.<sup>12</sup> The proposed rules must maintain this link between buffer mitigation and the targeted river by maintaining existing limitations on mitigating farther from the river or estuary than the impact site. DWQ is required to implement rules that will “provide protection of water quality that is equivalent to or greater than that provided by the riparian buffer that is lost.” N.C. Gen. Stat. § 143-214.20(a2)(4). As riparian buffers provide different levels of water quality protection depending on their landscape position and surrounding land use; the rule must recognize those varying levels of protection by requiring buffers to be mitigated in the same landscape position, to meet the “equivalent or greater” requirements of the current rules; be mitigated pursuant to a watershed restoration plan that will ensure that the mitigation results in water quality benefits; or some other mechanism that fulfills the statutory mandate. Simply requiring mitigation close to the impact site cannot ensure the required water quality benefits. Therefore, DWQ must amend the rule to maintain existing protections by adding section (f)(3) that states “The mitigation effort shall be located the same distance from the watershed’s major river as the proposed impact, or closer to the river than the impact, and as close to the location of the impact as feasible.” “Major river” should be

<sup>12</sup> 15A N.C. Admin. Code 02B.0242(4), 15A N.C. Admin. Code 02B.0244(4), 15A N.C. Admin. Code 02B.0260(4).

defined to mean the river or estuary that is intended to be protected by the corresponding riparian buffer rules.

The importance of this requirement is reflected in the other provisions of section (f). Section (f)(1) requires mitigation to be done in specific watersheds for water bodies that have been determined to need additional protection due to impairment. Section (f)(2) requires mitigation to be done in watersheds with protected species if the impact is to a watershed with the protected species. Both of these sections recognize the need for the protection provided by riparian buffers for impaired water bodies and sensitive species. By maintaining the proximity requirements in the existing rules, the Final Rule would aid in preventing waterbodies from being imperiled to the point that watershed-specific management plans, such as those referenced in (f)(1), are required. We should not wait until waters are severely impaired to implement mitigation requirements that recognize the importance of riparian buffers. The Proposed Rule hastens the degradation of water quality by removing the proximity requirement. The Final Rule should repair that damage.

#### **V. Any Donation of Conservation Easements Must Include Restrictions on Allowable Impacts.**

Conservation easements are accepted under the Proposed Rule as an option for satisfying mitigation requirements. Proposed 15A N.C. Admin. Code 02B.0295(j)(2). These easements are only acceptable if granted in perpetuity. DWQ should amend 02B.0295(j)(2) to include a requirement that all easements contain restrictions on the allowable uses in the buffer. The allowable uses at a minimum should conform to the Wildlife Resources Commission recommendations for allowable uses in riparian buffers. The Commission's guidance suggests that "sewer lines, water lines, and other utility infrastructure be kept out of riparian buffer areas."<sup>13</sup> Furthermore, buffer areas that receive preservation credit shall not be allowed to install vertical bulkheads. Installation of bulkheads is significant problem in coastal watersheds and leads to degradation of riparian buffers.

#### **VI. New Mitigation Alternatives Under the Proposed Rule Must be Subject to Standards That Promote Mitigation Through Buffer Restoration or Enhancement and Ensure Perpetual Replacement of Buffer Function.**

The Proposed Rule significantly expands the variety of mitigation options available under the rules. The Rule properly requires a finding of no practical alternative and public notice through the 401 Certification Mailing List. The Rule does not, however, provide the proper balance between traditional buffer mitigation and alternative options. As discussed below, the rule should re-establish a hierarchy favoring traditional buffer mitigation, clarify standards for alternative buffer mitigation, and reduce the uncertainty provided by open-ended alternatives.

While in draft form, the Proposed Rule provided a hierarchy with a preference for mitigation through restoration or enhancement of riparian buffers over alternative riparian buffer mitigation. That hierarchy should be included in the final rule. Applicants proposing alternative buffer mitigation must be required to demonstrate that buffer restoration or enhancement for the

<sup>13</sup> *Id.* at 8 (internal citations omitted).

entire mitigation obligation is not practical and provide a minimum of restoration equal to the proposed impacts.

- A. All alternative buffer mitigation should be subjected to a 1:1 traditional buffer mitigation threshold and a rigorous public review process.

We strongly support the Proposed Rule's inclusion of a threshold requiring 1:1 restoration or enhancement of riparian buffers before implementing structural buffer mitigation options. We recommend applying this threshold to all alternative buffer mitigation options, both structural and non-structural. No project should result in a net loss of riparian buffers that are protected under the rules. Implementing this threshold for all alternative mitigation projects is a step in the direction of meeting that goal.

- B. DWQ should define appropriate methods for calculating current nutrient removal function of existing buffers.

The cornerstone of the alternative buffer mitigation program established by the Proposed Rule is determining the existing nutrient removal function of the existing buffer, yet the Proposed Rule in .0295(k)(1)(B) leaves that determination wholly undefined. Rather than leaving this determination open-ended, DWQ should 1) define criteria and methods that must be used to evaluate nutrient removal function and 2) establish a baseline of nutrient removal for all riparian buffers based on existing literature. Given the anticipated cost of certain alternative buffer mitigation options, it will be in the applicant's best interest to find that existing buffers provide no nutrient removal – thereby reducing their obligation to mitigate. Therefore, this provision must be more detailed and include minimum standards. Otherwise, it threatens to undermine the buffer mitigation rule.

- C. Alternative buffer mitigation credit should not be granted to projects that have completed monitoring.

The Proposed Rule recognizes the need for the measurement of functional criteria in evaluating riparian buffer mitigation. Therefore, only those projects that can demonstrate functional uplift should be eligible for riparian buffer credit under the rule. Projects that are beyond the monitoring period will not be able to demonstrate that uplift and therefore should not be eligible for buffer credits. Option 2 in .0295(k)(1)(D) should be rejected. Option 1 should be modified to require mitigation sites to incorporate functional criteria developed under .0295(c) by DWQ in order to eligible for riparian buffer credits.

- D. Preservation, if included, should be limited to those circumstances where it provides the maximum environmental benefit.

In cases where proposed mitigation includes preservation, we ask that DWQ establish requirements that ensure that preservation occurs where it provides the maximum environmental benefit. As an initial matter, no preservation credit should be awarded for any buffers within the control of the applicant. The federal mitigation rule (33 C.F.R. § 332.3(h)) allows preservation when 1) the resources to be preserved provide important physical, chemical, or biological functions for the watershed; 2) the resources to be preserved contribute significantly to the

ecological sustainability of the watershed; 3) preservation is determined to be appropriate and practicable; and, 4) the resources are under threat of destruction or adverse modifications. The federal rule further states that in determining the ratio for preservation, the district engineer “must consider the relative importance of both the impacted and the preserved aquatic resources in sustaining watershed functions.” 40 C.F.R. § 332.8(o)(6). We strongly recommend that DWQ only allow preservation at a 10:1 ration. In addition, we strongly recommend that DWQ adopt analogous requirements for the state buffer rules and make the following suggestions for improvements to the Proposed Rule.

The Proposed Rule, .0295(e), sets out the requirements for the location of mitigation sites. Currently, the proposed rules make recommendations requiring the location to be within a certain size hydrologic area. Our recommendations regarding the appropriate size hydrologic area are addressed fully above in Section IV. However, we also recommend that DWQ include provisions limiting preservation as a mitigation option based on the threatened status of the area, state of the buffer, or the sensitivity of the resources to be protected.

Preservation should only be allowed where it would preserve threatened, unique, or ecologically significant rivers, streams, or wetlands and their associated riparian areas. Preservation credit should only be awarded when the proposed sites are under real threat of destruction. The areas that would be included as unique or ecologically significant include outstanding resource waters, high quality waters, trout waters, primary nursery areas, and waters providing habitat for endangered or sensitive aquatic species.

Proposed 15A Admin. Code 02B.0295(e) includes multipliers for determining the area of mitigation according to specific watershed’s buffer requirements and multiplier ratio. In addition to the limitation on the preservation sites available, we propose that DWQ include a multiplier or equivalent requirement for riparian buffer preservation that would expand the width of the buffer area to be protected and require the buffer to be protected on both sides of the stream. The need for and benefits of wide naturally vegetated riparian buffers is addressed fully in Section II above. To establish adequate buffer widths and/or multipliers, we recommend consulting the scientific literature cited above and the North Carolina Wildlife Resources Commission’s recommendations for buffer widths that are protective of sensitive areas.<sup>14</sup> Based on our review of the literature, that buffer width should be no less than 100 feet.

Because buffer preservation, unlike restoration or enhancement, cannot replace lost functions from the destroyed riparian buffer that is being mitigated for, mitigation ratios for preservation should be greater than those for restoration or enhancement. Therefore, the final rule should incorporate Option 1 in .0295(k)(2)(C).

E. Narrower buffers on urban streams must include adequate stormwater control.

Full credit cannot be given for buffers less than the required 50 feet. We would support partial credit for narrower urban buffers only in cases where stormwater control is present. Without adequate stormwater control, especially upstream of the proposed buffer mitigation site, the buffer’s functions will degrade over time due to stream incision and bank erosion. Proposed

<sup>14</sup> NCWRC Guidance, *supra* n. 6 at 6.

mitigation sites must demonstrate that the buffer is not bypassed by piping, ditches, or other conveyances.

- F. Coastal headwater stream restoration buffer credits must provide demonstrable benefits.

Coastal headwater stream restoration, as described in the U.S. Army Corps of Engineers and DWQ's 2005 guidance document, provides stream credit for restoration zero to first order streams that lack an actual stream channel. The apparent motivating factor for awarding stream mitigation credit to these sites is "an increasing need for compensatory stream mitigation in the outer coastal plain of North Carolina."<sup>15</sup> The Proposed Rule builds on this guidance by allowing riparian buffer credit to be awarded along these stream valleys.

DWQ should not award any riparian buffer mitigation for coastal headwater stream restoration if the riparian buffers are required for stream mitigation credit. First, it is not clear that doing so provides an environmental benefit. As the guidance makes clear, the driving force behind awarding stream mitigation credit for these headwater "streams" is to create additional mitigation sites. DWQ should not award additional mitigation credit for these sites without demonstrating the environmental benefits that these resources provide.

Second, awarding riparian buffer credits for coastal headwater stream restoration requires credit stacking if credit is awarded for headwater stream restoration. As noted in the guidance, "[a] 50-foot buffer is typically required for stream mitigation projects in the coastal plain."<sup>16</sup> Therefore, buffer mitigation credit allowed by the Proposed Rule would not require any additional environmental restoration and would not provide any additional environmental benefit. Thus, coastal headwater stream restoration should not generate riparian buffer credits that overlap with the buffers required for stream mitigation.

- G. Structural mitigation options should be closely monitored to ensure perpetual function.

As noted in Section I above, buffers provide essential habitat, control sediment, stabilize stream banks, reduce channel erosion, remove a variety of contaminants, and absorb floodwaters as well as trap nutrients.<sup>17</sup> There is no reason to unnecessarily narrow the scope moving forward since buffer rules may be promulgated to control other parameters in the future. Therefore, we recommend that DWQ set standards for structural mitigation that will protect all aspects of water quality while limiting the use of those mitigation options focused exclusively on nutrient removal efficiency.

We support the requirement in .0295(k)(3)(A) that all projects achieve a minimum of 1:1 restoration or enhancement of buffers before turning to structural alternatives to meet the rest of their mitigation obligations. This minimum requirement is important to maintaining and

<sup>15</sup> U.S. Army Corps of Engineers and N.C. Division of Water Quality, Information Regarding Stream Restoration in the Outer Coastal Plain of North Carolina at 2 (Dec. 1, 2005).

<sup>16</sup> *Id.*

<sup>17</sup> Wenger, *supra* note 1.

restoration of natural hydrology as a new subsection of alternative buffer mitigation nonstructural options, .0295(k)(3). The critical components that should be required for restoration of original hydrology to count as mitigation are: (1) a plan for retrofits to restore hydrology; (2) a calculation of the resulting reduction in nutrient loadings from the site; (3) near-term monitoring and bonding; (4) commitments and an endowment for perpetual protection; and (5) an exclusion, parallel to .0242(j)(4)(B), covering hydrologic restoration efforts pursued to satisfy other local, state, or federal rules. Including a restoration of original hydrology option could be used to accommodate urban stream restorations projects where the restoration of 50 feet of buffer is impossible but other options exist to restore the natural hydrology.

- H. Other Alternative Buffer Mitigation Options should be deleted or, at a minimum, must be defined.

The Final Rule should omit section .0295(k)(4). The undefined catch-all creates a case-by-case analysis with no defined limits or standards and minimal procedure. Moreover, it appears to be unnecessary given the significant increase in variety of mitigation options available under the Proposed Rule.

If the section is maintained, standards must be added. Before accessing this option, applicants must be required to demonstrate that they have no practical alternative and provide a minimum of 1:1 restoration or enhancement.

## **VII. Mitigation Options Must Provide Perpetual Function Replacement.**

An enduring challenge for mitigation is ensuring that it continues to replace lost functions in the near term following construction and in perpetuity. The consolidated mitigation buffer rule should provide for both.

The Proposed Rule requires that an applicant demonstrate that a buffer has been restored or enhanced within one year, .0295(g)(8), and that monitoring continue for five years to demonstrate survival of trees and diffuse flow, .0295(g)(11). These requirements must be expanded to include monitoring of functional criteria required to be developed under .0295(c).

## **VIII. Credit Stacking Should Be Prohibited.**

Credit stacking as proposed in Option 1 section .0295(l) of the Proposed Rule provides no environmental benefit and should be prohibited. Rather than advancing the goal of maintaining and restoring water quality in North Carolina, it would allow mitigation credit to be granted for projects providing no additional water quality benefit.

As written, Option 1 would allow a single square foot of property to provide mitigation credit for both stream restoration and buffer mitigation or nutrient offset. But allowing credit stacking will result in an environmental loss by allowing a single mitigation site to offset multiple stream impacts from different projects. Credit stacking occurs when a mitigation bank restores a stream, wetland, and/or buffer, and then is allowed to sell multiple kinds of credits from the single underlying acreage of land. This type of stacking is problematic because a

stream or wetland will not remain healthy without an upland buffer; so the sale of a stream or credit implies the permanent protection of the adjacent buffer, leaving no buffer credit available to sell. For example, a developer may purchase stream credits (including the required buffers) to offset stream impacts at site A. Years later, a second developer may purchase the previously credited buffers to offset buffer impacts at site B. Ultimately, two streams are degraded (through direct impacts at site A and buffer impacts at site B), but only one stream is restored. This loss is unacceptable and should not be authorized by the Proposed Rule. Option 3 should be selected in the Final Rule.

Thank you for considering these comments on the Proposed Riparian Buffer Mitigation Rule. If you have any questions, please do not hesitate to contact me at (919) 967-1450 or [ggisler@selcnc.org](mailto:ggisler@selcnc.org).

Sincerely,



Geoffrey R. Gisler

**From:** mherrmann [mherrmann@watershedinvestmentsnc.net]  
**Sent:** Monday, March 18, 2013 11:56 AM  
**To:** Kulz, Eric  
**Subject:** Comments on 15A NCAC 02B .0295

Eric – Thank you for the opportunity to comment on the proposed rule .0295 on riparian buffer mitigation requirements. My comments on the proposed rule follow:

1. Under .0295 (e), three options to the rule are presented. I support the use of Option B with the following recommendations. The geographic restrictions under paragraph (f) for Jordan and Falls NMS should also be addressed and included as multipliers. The upper portion of Jordan and Falls are the most polluted areas of these lakes. Multipliers should be added as incentive for mitigation to locate in these areas. For example, allowing Haw or LNH buffer impacts to be mitigated in the UNH would benefit the overall lake restoration. A 1.0 multiplier for cross-subwatershed mitigation to offset buffer impacts in the headwaters of these watersheds could be that incentive. A 1.5 multiplier should apply for impacts within the subwatershed but outside the 12-digit HUC.
2. I support the inclusion of Falls Lake geographic restrictions and encourage additional restrictions and/or multipliers to make it consistent with the nutrient strategy. Under paragraph (f)(1), the restrictions for the upper and lower Falls watershed present in the Nutrient Strategy should be applied to buffer impacts. That allows mitigation in the upper watershed to be used for impacts throughout the watershed while mitigation in the lower watershed can only apply to impacts in the lower Falls subwatershed. See #1 for comments on multipliers.
3. To make the rule more explicit in prohibiting features which bypass the buffer, under (g)(6), please include tile drains as a prohibited feature not allowed in buffer areas. These features are prevalent in agricultural landscapes like those that are often used for mitigation. They are, however, in the subsurface so they may not be considered stormwater conveyances. Depending on how they are managed, they can bypass buffers and their associated nutrient reducing functions.
4. (g)(11) – Suggest adding that monitoring be “for a **minimum** period of five years after the restoration or enhancement showing that the trees planted have survived and that diffuse flow through the buffer has been maintained”. **Additional years of monitoring may be required if the objectives under paragraph (g) have not been achieved at the end of the five-year monitoring period.**
5. (k)(2)(B) I support the inclusion of this paragraph. Restoration of unmapped P/I streams is as important as restoration of mapped P/I streams. This also improves flexibility for achieving the objectives of the buffer rules and may help lower rule costs.
6. (k)(2)(D) Buffers less than 50-ft can provide many functions but they are diminished (see Mayer et al. in 2007). As such, credits for these buffers should be lowered (e.g., 0.75). Also, a 30-ft buffer should be the minimum that qualifies considering that stream channels can migrate and could relocate to other areas within the protective easement. Too narrow buffer would more easily be circumvented, potentially losing the intended protections of the buffer. Also, the reduced buffer credit for widths less than 50ft should also apply to agricultural settings where it may be easier to sustain diffuse flow.
7. (l)(5) Support Option 3. As indicated in the last Neuse and Tar-Pam Basin plans, nutrient loading to the estuaries has shown no significant difference in overall nitrogen loading since the early 1990’s. In addition to the Division’s continued implementation of its nutrient reduction policies, more restoration work is needed to lower nutrient levels. Options 1 and 2 are policies that do not support the restoration needed to lower nutrient flows to the estuary.
8. One additional comment on content not included in the rule. A crediting framework should be created

to allow buffer credit for widths wider than 50-feet. While these areas are not protected under buffer rules, in many instances, they provide important functions. Multipliers could be used to adjust the credit given to these areas so that the 50-foot priority area is most desirable to restore.

Mike Herrmann  
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(p) 919-533-9195  
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Neuse River Compliance Association®  
P.O. Box 1410  
Clayton, N.C. 27528 - 1410

March 14, 2013

Mr. Eric Kulz, Environmental Senior Specialist  
NCDENR, Division of Water Quality  
1650 Mail Service Center  
Raleigh, N.C. 27699-1650

Dear Mr. Kulz:

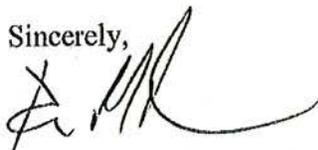
On behalf of the Neuse River Compliance Association ("NRCA") we support the "Proposed Consolidated Buffer Mitigation Rule" currently being circulated for public comment, provided that the options described below are selected.

The NRCA supports "Option 2" under (g)(10) "*Riparian Buffer Restoration, or Enhancement*" because wastewater system collection permits mandate only grass or similar vegetation (an effective buffer) and this ensures compliance with that State issued permit. Additionally, the NRCA supports "Option 2" under (k)(2)(10) "*Alternative Buffer Mitigation Options*" because it provides for smaller sites for preservation in urban areas encouraging preservation of buffers on these streams.

We would like to take this opportunity to thank the Division of Water Quality staff who met and worked with the NRCA members on this rule package. Together the "Proposed Rule" has been crafted to allow flexibility in meeting the goals of environmental protection and allows alternative solutions in the implementation the rule.

If you require any additional information please let us know.

Sincerely,



Daniel F. McLawhorn, Chairman

cc: LNBA/NRCA Board

## Neuse River Compliance Association Membership

Town of Apex  
Town of Benson  
Town of Cary  
Town of Clayton  
Contentnea MSD  
Town of Farmville  
Dupont-Kinston  
City of Goldsboro  
City of Havelock  
Johnston County  
Town of Kenly  
Town of LaGrange  
City of New Bern  
Progress Energy - Carolinas  
City of Raleigh  
City of Wilson  
City of Kinston  
Aqua, North Carolina  
South Granville Water and Sewer Authority  
Marine Corp Air Station - Cherry Point  
Carolina Water Service, Utilities, Inc.

**Kulz, Eric**

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**From:** Paugh, Leilani Y  
**Sent:** Friday, March 08, 2013 1:22 PM  
**To:** Kulz, Eric  
**Cc:** Chapman, Amy  
**Subject:** Comments on buffer rule changes

Hi Eric

In general, we are in support of the consolidation of the buffer rules from multiple basins and the changes to the mitigation requirements.

We want to provide the following comments about some of the specific requirements and options proposed.

Section (c) and Section (g)(12) state that a non-wasting endowment is required. This is more restrictive than the Federal Mitigation Rule of 2008. A non-wasting endowment is an option in the Federal Rule but not required as part of the long term stewardship of a site.

We prefer Option C of Section (e) Option C based on (1) the incentive provided to locate mitigation in close proximity to the impact and (2) this option is no more restrictive than the Federal rule allowing mitigation within the 8 digit Hydrologic unit without a penalty.

Section (f) specifies geographic restrictions for listed watersheds. All buffer mitigation requirements should follow the same geographic restrictions as outlined in the multiple options in Section (e).

We are in support of the more flexible options offered for buffer mitigation including the revised definition of what qualifies as restoration and enhancement including unmapped streams and grazing areas, coastal headwater stream mitigation, preservation of buffers on mapped streams , narrow buffers on urban channels, and acceptance of stormwater BMP's.

We prefer Option 1 of Section (l) that allows for buffer mitigation on stream mitigation sites with a 50 foot wide buffer. We are not opposed to restriction of buffer credit and wetland credit within the same area since NCDOT is not required to mitigation for impacts to both in the same area.

We appreciate the opportunity to comment on the proposed rules.

LeiLani Paugh  
NCDOT PDEA NES  
ICI Group Leader

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PCS PHOSPHATE COMPANY, INC.  
1530 NC Highway 306 S Aurora, NC U.S.A. 27806

**VIA CERTIFIED MAIL**

March 18, 2013

VIA email to: [eric.kulz@ncdenr.gov](mailto:eric.kulz@ncdenr.gov)

VIA USPS to:

Eric Kulz  
NCDENR/DWQ-Wetlands and Stormwater Branch  
1650 Mail Service Center  
Raleigh, North Carolina 27699-1650

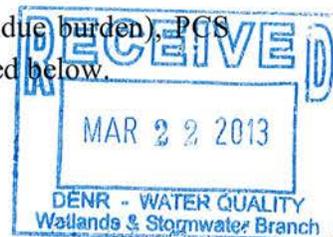
Re: PCS comments on Proposed Consolidated Buffer Mitigation Rule  
(Adoption of 15A NCAC 02B .0295; Repeal of 15A NCAC 02B .0242, .0244, .0252,  
.0260, .0268 and .0609)

Dear Mr. Kulz:

PotashCorp – PCS Phosphate Company, Inc. (PCS) mines phosphate ore in Beaufort County in compliance with the Tar-Pamlico riparian buffer rules (15A NCAC 2B .0259 - .0260) that were adopted to reduce nutrient loading in the Tar-Pamlico basin under the Tar-Pamlico Nutrient Sensitive Waters Management Strategy. On January 15, 2013, proposed rules were published in the North Carolina Register that would consolidate and modify EMC riparian buffer mitigation rules, including the adoption of a new mitigation rule, 15A NCAC 2B .0295, and the repeal of the existing Tar-Pamlico riparian buffer mitigation rule, 15A NCAC 2B.0260.

One aspect of the proposed rule is especially welcome: DWQ will begin reviewing riparian mitigation proposals that use mitigation options authorized years ago by the General Assembly.

In order to produce a final rule that will not be unfair, economically counterproductive, and inconsistent with General Assembly policy and the principles of Executive Order No. 70 (including cost effectiveness, necessity, relevance, clarity, and preventing undue burden), PCS believes that certain adjustments to the proposed rule are necessary, as discussed below.



Mitigation multipliers based on location

COMMENT: The EMC should expressly adopt a same-river-basin approach, without any location-of-mitigation multiplier. But, if the EMC selects one of the published options, it should select Option C for 15A NCAC 2B .0295(e)(1). The EMC should eliminate Option B from consideration.

EXPLANATION: The General Assembly authorizes riparian buffer mitigation *anywhere in the same river basin* as the impact, N.C. Gen. Stat. § 143-214.20(a2)(3)-(5), except for the use of mitigation banks. N.C. Gen. Stat. § 143-214.20(a2)(1) (limited to same 8-digit HUC).

However, under the EMC's existing rules, mitigation (other than payment of fees) is only accepted if it is in the *same 8-digit HUC* as impacts. The proposed rule relaxes this overly restrictive approach only slightly, by authorizing mitigation in an *adjacent HUC*, 15A NCAC 2B .0295(e)(1). But mitigation in an adjacent HUC is only available if same-HUC mitigation is not practical, *id.*, and will be subject to a 2:1 multiplier which is an economic penalty against needed economic activity and development. The proposed slight expansion from the current same-HUC policy is still more restrictive than the governing statute provides. Further, the use of multipliers under Options A, B, and C for 15A NCAC 2B .0295(e)(1) all exacerbate this overly restrictive approach. PCS believes the simplest and best approach is also the lawful one: authorize mitigation within the same river basin as impacts in accordance with N.C. Gen. Stat. § 143-214.20, without imposing the economic penalty of multipliers.

If the EMC is persuaded that it can lawfully reject the statutory approach and selects instead from the published options, Option C should be adopted because it offsets the economic penalties of the multipliers by including a 0.75 multiplier for mitigation within the same 12-digit HUC (smaller than an 8-digit HUC) as the impact.

Option B imposes a penalty in the form of a 1.5 multiplier on mitigation that is in the *same 8-digit HUC*. This approach exacerbates the failure to embrace the General Assembly's statutory same-basin policy. Option B should be completely eliminated from consideration.

The proposed location restrictions and multipliers and the proposed exaggerated use of those restrictions and multipliers are all contrary to Executive Order No. 70 because they are unnecessary and would impose undue burdens (unnecessary costs and delay).

Credit for alternative buffer mitigation sites constructed before effective date of rule

COMMENT: Option 2 for 15A NCAC 2B .0295(k)(1)(D) should be adopted.

EXPLANATION: The statute, N.C. Gen. Stat. § 143-214.20(a2)(5), provides for buffer mitigation by “[C]onstruction of an alternative measure that reduces nutrient loading as well as or better than the riparian buffer that is lost . . .” Mitigation projects have been constructed in reliance on the statute and in anticipation of the adoption of rules to implement this statutory

requirement. Due to the lengthy rulemaking process, some mitigation projects may complete the monitoring phase prior to the effective date of the proposed rule. Basic fairness requires that these mitigation projects be accepted for review by DWQ under the proposed rule. Only Option 2 for 15A NCAC 2B .0295(k)(1)(D) provides this basic fairness. Option 1 would contradict the General Assembly's policy regarding this mitigation option, be unfair to those who relied on the General Assembly's decision, and be contrary to the policies of Executive Order No. 70.

#### Credit Accounting on Mitigation Sites

COMMENT: Option 1 for 15A NCAC 2B .0295(l)(5) should be adopted.

EXPLANATION: Option 1 reflects the current status and DWQ's historic policy. Option 2 and Option 3 are more restrictive than current policy, contrary to Executive Order No. 70, and would add yet another layer of counterproductive economic penalty for beneficial activities that are identified as allowable with mitigation, such as mining.

#### Coastal headwater stream mitigation and unmapped stream mitigation

COMMENT: Coastal headwater stream and unmapped stream mitigation should be exempted from the nutrient removal demonstration by adding the following phrase at the beginning of the first sentence of 15A NCAC 2B .0295(k)(1)(B): "With the exception of an application for coastal headwater stream mitigation or unmapped stream mitigation,".

EXPLANATION: Coastal headwater stream and unmapped stream mitigation projects are physically identical to "traditional" riparian buffer mitigation that is not subject to this requirement. There is no sound technical or scientific basis for imposing this requirement on coastal headwater stream and unmapped stream mitigation. This requirement would be contrary to Executive Order No. 70 because it is unnecessary, would impose undue burdens (unnecessary costs and delay), and is not cost-effective.

#### Endowment requirement

COMMENT: The EMC should only require an endowment for mitigation projects that are alternative structural projects.

EXPLANATION: The proposed rule would require all mitigation sites to have a non-wasting endowment for long-term monitoring and maintenance. 15A NCAC 2B .0295(c) (required for all mitigation except fees), (g)(11) (restoration and enhancement), (j)(3)(M) (donation of property), (k)(1)(G) (alternative vegetative), and (k)(3)(K) (alternative structural). When a conservation easement or fee title is accepted by an organization or agency, it is receiving a *benefit* for which it paid nothing. It would be unfair to applicants to impose the additional burden of a long-term endowment. The one potentially reasonable use of an endowment is for alternative structural mitigation which is the one type of mitigation that does not provide a self-perpetuating natural

riparian buffer. Otherwise, an endowment requirement would be unfair and contrary to Executive Order No. 70 as unnecessary and unduly burdensome.

#### Bond requirement

COMMENT: For applicants that have an established track-record of success, the EMC should provide an exemption from the completion bond requirement at 15A NCAC 2B .0295(c).

EXPLANATION: The proposed rule would require a completion bond for land purchase, construction, monitoring, and maintenance costs. 15A NCAC 2B .0295(c), (g)(11), (k)(1)(G), and (k)(3)(K). PCS has successfully completed large mitigation projects without bonding any mitigation project. In contrast, the proposed rule would provide an exemption for local governments that is *not* based on a track record of success. 15A NCAC 2B .0295(c). The following sentence should be added to 15A NCAC 2B .0295(c): “The bond that is required of applicants under this rule, is not required of applicants that have previously established successful riparian buffer mitigation restoration, enhancement, and alternative vegetative or structural mitigation to the satisfaction of DWQ.” The imposition of a bond requirement on applicants with a proven track-record, such as PCS, would be unfair and contrary to Executive Order No. 70 because it is unnecessary and imposes unnecessary burdens.

#### Definition of “off-site”

COMMENT: The definition for the term “off-site,” 15A NCAC 2B .0295(b)(8), should be corrected by deleting the reference to a 12-digit HUC.

EXPLANATION: The reference to a 12-digit HUC is probably an unintended artifact of the revision process. The term is only used once at 15A NCAC 2B .0295(c)(1). If the definition as currently proposed is actually adopted, it would produce the following version of 15A NCAC 2B .0295(c)(1):

The applicant may propose any of the following types of mitigation...: (1) Applicant provided on-site or off-site [i.e., off the property on which the buffer impacts occur but within the most recent version of the Watershed Boundary Dataset (WBD), located at <http://datagateway.nrcs.usda.gov> using the 12 digit HUC prepared by the United States Geological Survey[.]

The substantive provisions of the proposed rule, *see, e.g.*, 15A NCAC 2B .0295(e), authorize mitigation in the 8-digit HUC and adjacent 8-digit HUC. However, the proposed definition of “off-site” would narrow the mitigation that an applicant may *propose* to the 12-digit HUC which is smaller than even the 8-digit HUC. The reference to a 12-digit HUC needs to be deleted.

Technical error

COMMENT: Add to this rulemaking a conforming technical amendment to 15A NCAC 2B .0259(10)(b), as follows: Delete the citation to "15A NCAC 2B .0260" and insert a citation to "15A NCAC 2B .0295."

EXPLANATION: The Tar-Pamlico riparian buffers rule at 15A NCAC 2B .0259(10)(b) refers to 15A NCAC 2B .0260. However, the proposed rule will delete 15A NCAC 2B .0260.

Thank you again for the opportunity to comment on this proposed rule.

Sincerely,



Ross M. Smith  
Manager, Environment & Energy  
PotashCorp-Aurora(PCS Phosphate Company, Inc.)



215 NORTH DAWSON STREET  
 RALEIGH, NC 27603  
 POST OFFICE BOX 3069 | 27602-3069  
 919-715-4000 | FAX: 919-733-9519  
 WWW.NCLM.ORG

To: Mr. Eric Kulz, Environmental Senior Specialist  
 From: Erin Wynia, Legislative & Regulatory Issues Manager  
 Re: Comments on Flexible Buffer Mitigation Rules 15A NCAC 02B .0295  
 Date: March 18, 2013

Dear Mr. Kulz,

On behalf of the 542 members of the N.C. League of Municipalities, I am pleased to offer these comments on draft rule 15A NCAC 02B .0295: Mitigation Program Requirements for Protection and Maintenance of Riparian Buffers. League members support the aims of this rule: (1) to provide greater regulatory flexibility in methods to meet buffer mitigation obligations; (2) to incorporate technical and operational techniques into the rules; and (3) to codify existing DWQ buffer guidance.

League members support the language presented in the draft rule, especially sections designed to improve their ability to undertake buffer mitigation projects in urban areas. With regard to several of the options presented in the draft noticed for public comment, the League members support the following options:

**(g)(10):** This item describes the types of mitigation permitted on parcels that contain a sewer easement. These easements are common along streams because sewer lines are typically placed parallel to streams, the lowest point in most landscapes. Because engineers design sewer systems to optimize the effects of gravity, in most wastewater collection systems, pipes have been laid next to streams.

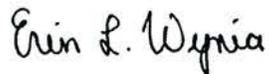
In addition, permit terms for wastewater collection systems require system operators – mostly local governments – to clear a maintenance corridor on land above the pipes. In this corridor, the permits do not allow the growth of woody-stem vegetation as such vegetation can cause line blockages that lead to the environmental harm of sanitary sewer overflows. **League members strongly support “Option 2”** because wastewater collection system permits only allow for grass or similar vegetation (a proven effective buffer), and Option 2 ensures a system with pipes in buffer zones can comply with its collection system permit.

NCLM Comments  
15A NCAC 02B .0295: Mitigation Program  
Requirements for Protection and  
Maintenance of Riparian Buffers  
March 11, 2013

(k)(2)(C): This item allows an alternative of accomplishing mitigation through preservation of mapped stream buffers. Since finding open spaces in urban areas is difficult, League members support "Option 2" because it provides for a smaller preservation site in urban areas to encourage preservation of buffers on these streams.

The League believes that this set of rules is an improvement on the existing N.C. Administrative Code and is a step towards flexible buffer mitigation in urban areas. Thank you for the opportunity to provide these comments.

Respectfully submitted,



Erin L. Wynia  
Legislative & Regulatory Issues Manager  
[ewynia@nclm.org](mailto:ewynia@nclm.org)  
(919) 715-4126

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To: N.C. Department of Environment & Natural Resources (NCDENR)  
N.C. Division of Water Quality (DWQ)  
Wetlands, Buffers, Stormwater Compliance & Permitting Unit  
Attn: Mr. Eric Kulz  
1650 Mail Service Center  
Raleigh, NC 27699-1650

From: Robert M. Zarzecki  
Raleigh, NC

Date: March 18, 2013

**Re: Comments on Public Notice  
Proposed Consolidated Buffer Mitigation Rule (15A NCAC 02B .0295)**

---

Dear Mr. Kulz:

I appreciate the opportunity to comment on the proposed Mitigation Program Requirements for Protection and Maintenance of Riparian Buffers, 15A NCAC 02B .0295, a.k.a. "Consolidated Buffer Mitigation Rule". I request the DWQ take the following comments into consideration.

1. **Location of Mitigation Multipliers** – If only the three options within the proposed rule are available, then option "C" should be used. However, the new rule should not require mitigation beyond that of the current rule. For example, the current Neuse mitigation rules only state that the mitigation site needs to be "...*the same distance from the Neuse River estuary as the proposed impact, or closer...*". Additional mitigation multipliers should not be required as long as this holds true, even if the mitigation site is in an adjacent or other HUC closer to the estuary. Rewarding sites that are closer to the impact (those on-site or within the 12-digit HUC) is a good idea though. So, DWQ should consider a modified version of Option "C" with a 1.0 multiplier for adjacent or other 8-digit HUC sites at or closer to the estuary.
2. **Existing Sanitary Sewer Easements** – This should apply to any type of maintained easements, not just sanitary sewer. "Option 2" should be used.
3. **Preservation** – Preservation of unmapped streams should be allowed on any surface water conveyance (ditch, ephemeral streams, or otherwise) that discharges to surface waters (intermittent streams, etc.). Preservation for unmapped streams should have a 3:1 ratio or better, since these conveyances are not regulated, but many times result in significant nutrient loading to the receiving waters. Those willing to preserve such systems should be rewarded for doing so. If only the two options in the proposed rule exist for preservation of mapped streams, then "Option 2" should be used. However, a 5:1 ratio or less, instead of a 10:1 ratio, should be used to be consistent with wetland

regulations. For buffered streams, one option would be to use a 3:1 ratio for Zone 2 and 5:1 ratio for Zone 1, since Zone 1 is regulated currently as “undisturbed” with less available “uses”.

4. **Non-Regulated Surface Waters** – Unmapped streams and other non-regulated surface water conveyances (e.g., ditches, etc.) should be eligible for buffer restoration, enhancement and preservation.
5. **Buffer Width** – Credit should be given to those willing to restore, enhance or preserve buffers wider than 50 feet up to 200 feet. This credit should be done at the same ratios as the first 50-feet, with the requirement that at least a 1:1 ratio of length of impacted buffer to buffer mitigation is provided.
6. **Retroactive Credit** – “Option 2” should be used.
7. **Credit Accounting on Mitigation Sites** – “Option 1” should be used.
8. **Donation of Property** – Properties that allow for any form of riparian buffer mitigation should be eligible, not just restoration or enhancement, and not just non-protected riparian areas. Historic properties on site should be allowed, as long as riparian buffer mitigation is viable.
9. **Nutrient Offset Buffer Mitigation** – This rule should consolidate all forms of State mandated riparian buffer mitigation. The use of riparian buffer mitigation required under the Nutrient Offset rules should be incorporated into this rule. For example, preservation of riparian buffers should be a viable option under the Nutrient Offset rules.

Sincerely,

**Robert Zarzecki**

Digitally signed by Robert Zarzecki  
 DN: cn=Robert Zarzecki, o=S&EC, PA,  
 ou=Wetlands Department,  
 email=bzarzecki@sandec.com, c=US  
 Date: 2013.03.18 16:17:01 -04'00'

Robert M. Zarzecki

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**APPENDIX C – ORAL COMMENTS RECEIVED**

Proposed Consolidated Buffer Mitigation Rule  
Public Hearing 02/12/13

Tara Disey Allden Comments

Thanks. I am Tara Disey Allden with Restoration Systems in Raleigh.

The Rule will benefit providers and permittees.

Regarding the requirement of long-term endowments, we would encourage you to leave negotiations between the easement holder and provider. The State should not dictate the agreement. The biggest risk to the planted areas is the easement boundary.

With regard to the definitions of restoration vs. enhancement, these are moving toward subjective determinations of closed canopy that will be hard to see in the field.

Regarding the issue of retroactive credit, we prefer option 1 for projects currently in monitoring. The 10-year period for getting credits would result in uncertainty in the market. The State would get assets they did not have to negotiate for and dilute the market.

Proposed Consolidated Buffer Mitigation Rule  
Public Hearing 02/12/13

RMS comments

Good evening.

My name is Ross Smith and I represent PotashCorp – PCS Phosphate Company, Inc. (PCS) as Manager, Environment and Energy. PCS mines phosphate ore in Beaufort County in compliance with the Tar-Pamlico riparian buffer rules that were adopted to reduce nutrient loading in the Tar-Pamlico basin under the Tar-Pamlico Nutrient Sensitive Waters Management Strategy.

I appreciate the opportunity to provide comments related to the Proposed Consolidated Buffer Mitigation Rule. I also appreciate the efforts by DENR to address this issue, and specifically to John Dorney, Amy Chapman, Eric Kulz and other DWQ staff for facilitating this process.

Detailed comments will be provided in written form, and summary statements will be provided at this time.

Statutory reference: As stated in Slide 2 of Mr. Kulz's presentation, "construction of an alternative measure (of buffer mitigation) that reduces nutrient loading as well as or better than the riparian buffer that is lost" is specifically referenced in the state statute (N. C. G.S. 143-214.20), but this provision does not currently appear in the state rules. We understand the new rules, when adopted, will be used by DWQ to administer the riparian buffer mitigation program in compliance with this existing statutory requirement.

Location of Mitigation Multipliers: As stated in Slide 7 of Mr. Kulz's presentation, three options for "mitigation multipliers" are provided for review and comment.

- For reference, the underlying statute, N.C. Gen. Stat. § 143-214.20, consistently uses the term, "in the same river basin." For example, N.C. Gen. Stat. § 143-214.20(a2)(5) states, "Construction of an alternative measure that reduces nutrient loading as well as or better than the riparian buffer that is lost **in the same river basin** as the riparian buffer that is lost and that is approved by the Department." The quote from the statute that appears on Slide 2 of Mr. Kulz's presentation is terminated immediately prior to the phrase "in the same river basin."

- As shown in Option A, DWQ has historically used a baseline of the 8-digit HUC. Although the statute appears to be clear that mitigation in the same river basin is acceptable, PCS does not object to DWQ's continued use of the 8-digit HUC basis.
- However, Option B requires a location penalty for mitigation within the 8-digit HUC. The Option B penalty is more restrictive than DWQ historic implementation, is inconsistent with DWQ's past practices, and increases the extent to which the rule contradicts the governing statute. Therefore, Option B should not be considered for adoption into this rule.
- Option C provides an incentive for mitigation within the 12-digit HUC without a location penalty for mitigation within the 8-digit HUC. This option is worthy of consideration.
- PCS supports adoption of Option A or Option C as related to mitigation location.
- Note: The artificial HUC driven location requirement, whether 12 or 8, takes away the options that the General Assembly intended to give regulators to identify where mitigation could be best placed.

Retroactive Credit for Alternative Buffer Mitigation Sites: reference to Slide 19 from Mr. Kulz's presentation.

- Mitigation projects have been constructed in reliance on the statutory provision that accepts alternative buffer mitigation. Some of these projects are currently in various stages of monitoring.
- Due to the protracted process of development, review, adoption and implementation of the proposed consolidated rule, some of the mitigation projects may complete the monitoring phase and be eligible for issuance of buffer credits prior to implementation of the proposed rule.
- Provisions should be included in the proposed rule to provide buffer mitigation credit eligibility for these projects.
- Option 2 provides some certainty of credit eligibility for a period of ten years from the effective date of the rule, assuming that the rule can be finalized within a reasonable period of time.
- PCS supports adoption of Option 2.

Credit Accounting on Mitigation Sites: reference to slide 20 from Mr. Kulz's presentation.

- Option 1, allowing buffer and stream mitigation with separate accounting on the same site, reflects the current status and historic policy by DWQ, and allows for flexibility of the use of credits on mitigation sites.
- Option 2 and Option 3 are more restrictive than current policy.

- PCS supports adoption of Option 1.

Definition of “Off-site”:

- The definition of “Off-site” has a clause that limits the definition to a 12-digit HUC.
- The definition of “On-site” means on the property on which the impact occurred.
- It stands to reason that “Off-site” would be everything else, regardless of the HUC.
- Therefore, the 12-digit HUC clause should be deleted from the definition of “Off-site”.

Thank you again for the opportunity to comment on this proposed rule.

**Ross M. Smith**

Manager, Environment and Energy  
PotashCorp-Aurora (PCS Phosphate Company, Inc.)  
1530 NC Hwy 306 South  
Aurora, NC 27806

(O): 252-322-8270

(C): 252-916-3061

Fax: 252-322-4444

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**APPENDIX D – HEARING OFFICER DESIGNATION MEMO**



## ENVIRONMENTAL MANAGEMENT COMMISSION

NORTH CAROLINA  
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

Stephen T. Smith  
Chairman

Charles Peterson  
Vice Chairman

Pat McCrory, Governor  
John E. Skvarla, III, Secretary

Christopher J. Ayers  
Yvonne C. Bailey  
Marvin S. Cavanaugh, Sr.  
Marion Deerhake  
Tom Ellis  
William L. Hall, Jr.  
Benne C. Hutson  
Steve P. Keen  
Ernest W. Larkin

Kevin C. Martin  
Jeffrey V. Morse  
Darryl D. Moss  
David B. Peden  
Dickson Phillips III  
Amy E. Pickle  
Clyde E. Smith, Jr.  
Steve W. Tedder

January 10, 2013

### MEMORANDUM:

To: Ernest W. Larkin  
Environmental Management Commission

From: Stephen T. Smith, Chair  
Environmental Management Commission

Subject: Hearing Officer Appointment

I hereby appoint you to serve as the hearing officer for public hearings to be held for the Proposed Consolidated Buffer Mitigation Rule and Proposed Repeal of Buffer Mitigation Rules for the Neuse, Tar-Pamlico and Catawba River Basins, and Randleman Lake, Jordan Lake and Goose Creek Watersheds. The hearings are scheduled as follows:

<p><b><u>February 6, 2013</u></b> 7:00 p.m. Archdale Building Ground Floor Hearing Room 512 N. Salisbury Street Raleigh, NC 27604</p>	<p><b><u>February 12, 2013</u></b> 7:00 p.m. Pitt Community College Goess Student Center Goess Multipurpose Room #137-139 169 Bulldog Run Winterville, NC 28590</p>
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Karen Higgins (919-807-6360) will provide staff support for you and will provide further information regarding the exact locations of the public hearings. Please present your findings and recommendations to the Environmental Management Commission. Thank you for your assistance and service.

cc: Chuck Wakild, Lois Thomas, Karen Higgins, Hearing Record File

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**APPENDIX E – NOTICE OF TEXT**

file



# NOTICE OF TEXT

[Authority G.S. 150B-21.2(c)]

<b>OAH USE ONLY</b>	
VOLUME:	
ISSUE:	

CHECK APPROPRIATE BOX:

- Notice with a scheduled hearing
- Notice without a scheduled hearing
- Republication of text. Complete the following cite for the volume, issue, and date of previous publication, as well as blocks 1 - 5 and 8 - 15. If a hearing is scheduled, complete block 6.  
Previous publication of text was published in Volume:      Issue:

1. Rule-Making Agency: Environmental Management Commission
2. Agency obtained G.S. 150B-19.1 certification: <input checked="" type="checkbox"/> OSBM certified on: October 12, 2012 <input type="checkbox"/> RRC certified on: <input type="checkbox"/> Not Required
3. Agency website postings: <ul style="list-style-type: none"> <li>• Text of proposed rule posted at: <a href="http://portal.ncdenr.org/web/wq/rules">http://portal.ncdenr.org/web/wq/rules</a></li> <li>• Explanation and reason for proposed rule posted at:</li> <li>• Federal Certification posted at:</li> <li>• Instructions for oral and written comments posted at: <a href="http://portal.ncdenr.org/web/wq/event-calendar">http://portal.ncdenr.org/web/wq/event-calendar</a></li> <li>• Fiscal Note if prepared posted at: <a href="http://portal.ncdenr.org/web/wq/rules">http://portal.ncdenr.org/web/wq/rules</a></li> </ul>
4. Proposed Action -- Check the appropriate box(es) and list <u>rule citation(s)</u> beside proposed action:  <input checked="" type="checkbox"/> ADOPTION: 15A NCAC 02B .0295  <input type="checkbox"/> AMENDMENT:  <input checked="" type="checkbox"/> REPEAL: 15A NCAC .02B .0242, 15A NCAC .02B .0244, 15A NCAC .02B .0252, 15A NCAC .02B .0260, 15A NCAC .02B .0609, and 15A NCAC 02B .0268
5. Proposed effective date: January 1, 2014
6. Is a public hearing planned? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No  If yes:    Public Hearing date: 2/6/13 (Raleigh); 2/12/13 (Winterville) Public Hearing time: 7:00 PM (Both) Public Hearing Location: Ground Floor Hearing Room, Archdale Building, 512 N. Salisbury St., Raleigh 27604 Goess Multi-Purpose Room, Rm # 137-139, Pitt Community College Goess Student Center, 169 Bulldog Run, Winterville, NC 28590
7. If no public hearing is scheduled, provide instructions on how to demand a public hearing: There will be two public hearings. They will be posted on the DWQ website located at: <a href="http://portal.ncdenr.org/web/wq/event-calendar">http://portal.ncdenr.org/web/wq/event-calendar</a> , on the DWQ listserv and in the applicable local newspapers.
8. Explain Reason For Proposed Rule(s): This proposed rule is required per General Statute 143-214.20. Per this statute, the Environmental Management Commission was to adopt rules concerning construction of alternative measures of buffer mitigation that reduces nutrient loading as well as or better than the riparian buffer that is lost.  This proposed rule will provide mitigation options not currently available to DOT, developers, industry and private individuals. In addition to providing greater regulatory flexibility, the proposed changes incorporate contemporary technical and operational techniques into the rules. This proposed rule adheres to the Principles of Executive Order 70 Rules and were developed through a public stakeholder process. The new rule advances the public interest and are designed to achieve their objectives in a cost-effective and timely manner.  The rules being repealed will be replaced with this new rule (15A NCAC .02B .0295).

9. The procedure by which a person can object to the agency on a proposed rule: Written comments or by email

**Procedure for Subjecting a Proposed Rule to Legislative Review:** If an objection is not resolved prior to the adoption of the rule, a person may also submit written objections to the Rules Review Commission. If the Rules Review Commission receives written and signed objections in accordance with G.S. 150B-21.3(b2) from 10 or more persons clearly requesting review by the legislature and the Rules Review Commission approves the rule, the rule will become effective as provided in G.S. 150B-21.3(b1). The Commission will receive written objections until 5:00 p.m. on the day following the day the Commission approves the rule. The Commission will receive those objections by mail, delivery service, hand delivery, or facsimile transmission. If you have any further questions concerning the submission of objections to the Commission, please call a Commission staff attorney at 919-431-3000.

10. The person to whom written comments may be submitted on the proposed rule:

Name: Eric Kulz

Address: NCDENR

Division of Water Quality, 1650 MSC

Raleigh, NC 27699-1650

Phone (optional):

Fax (optional): (919) 807-6494

E-Mail (optional): eric.kulz@ncdenr.gov

11. Comment Period Ends: March 18, 2013

12. Fiscal impact (check all that apply).

If this form contains rules that have different fiscal impacts, list the rule citations beside the appropriate impact.

- State funds affected  
 Environmental permitting of DOT affected  
 Analysis submitted to Board of Transportation  
 Local funds affected  
 Date submitted to OSBM:  
 Substantial economic impact ( $\geq$ \$500,000)  
 Approved by OSBM  
 No fiscal note required by G.S. 150B-21.4

13. Rule-making Coordinator: Jennifer Everett

Address: 1601 MSC  
 Raleigh, NC 27699-1601

Phone:

E-Mail: Jennifer.Everett@ncdenr.gov

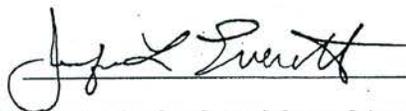
Agency contact, if any: Eric.Kulz@ncdenr.gov

Phone:

E-mail: eric.kulz@ncdenr.gov

14. The Agency formally proposed the text of this rule(s) on  
 Date: November 13, 2012

15. Signature of Agency Head\* or Rule-making Coordinator:



\*If this function has been delegated (reassigned) pursuant to G.S. 143B-10(a), submit a copy of the delegation with this form.

Typed Name: Jennifer Everett

Title: Rulemaking Coordinator

1 15A NCAC 02B .0295 is proposed for adoption as follows:

2  
3 15A NCAC 02B .0295 MITIGATION PROGRAM REQUIREMENTS FOR PROTECTION AND  
4 MAINTENANCE OF RIPARIAN BUFFERS  
5

6 (a) PURPOSE. The purpose of this Rule is to set forth the mitigation requirements that apply to applicants who  
7 wish to impact a riparian buffer when one of the following applies:

- 8 (1) The applicant has received an authorization certificate, for impacts that cannot be avoided or  
9 practicably minimized, pursuant to 15A NCAC 02B .0233, 15A NCAC 02B .0243, 15A NCAC  
10 02B .0250, 15A NCAC 02B .0259, 15A NCAC 02B .0267 and 15A NCAC 02B .0607 protection  
11 and maintenance of existing riparian buffers: purpose, applicability, jurisdiction and exemptions.  
12 (2) The applicant has received a variance pursuant to 15A NCAC 02B .0233, 15A NCAC 02B .0243,  
13 15A NCAC 02B .0250, 15A NCAC 02B .0259, 15A NCAC 02B .0267 and 15A NCAC 02B  
14 .0607 and is required to perform mitigation as a condition of a variance approval.

15 (b) DEFINITIONS. For the purpose of this Rule, these terms shall be defined as follows:

- 16 (1) "Authority" means either the Division or a local government that has been delegated or designated  
17 to implement the riparian buffer program.  
18 (2) "Division" means the Division of Water Quality of the North Carolina Department of  
19 Environment and Natural Resources.  
20 (3) "Enhancement Site" means riparian zone sites that shall be distinguished from restoration or  
21 preservation sites by being characterized by conditions between restoration and preservation.  
22 (4) "Government Entity" means the State and its agencies and subdivisions, the federal government,  
23 and units of local government.  
24 (5) "Hydrologic Area" means the Watershed Boundary Dataset (WBD), located at  
25 <http://datagateway.nrcs.usda.gov> using the eight-digit Hydrologic Unit Code (HUC) prepared by  
26 the United States Geological Survey.  
27 (6) "Monitoring period" means the length of time specified in the approved mitigation plan during  
28 which monitoring of vegetation success, stream stability, and other anticipated benefits to the  
29 adjacent water as listed in the Authorization Certification is done.  
30 (7) "Non-wasting endowment" means a fund that generates enough interest each year to cover the cost  
31 of the long term monitoring and maintenance.  
32 (8) "Off-site" means off the property on which the buffer impacts occur but within the most recent  
33 version of the Watershed Boundary Dataset (WBD), located at <http://datagateway.nrcs.usda.gov>  
34 using the 12 digit HUC prepared by the United States Geological Survey  
35 (9) "On-site" means on the property on which the impact occurred and which is owned by the  
36 applicant or to which the applicant holds an easement adequate to allow the proposed mitigation.

- 1           (10)   “Outer Coastal Plain” means the portion of the state shown as the Middle Atlantic Coastal Plain  
2                   (63) on Griffith, et al (2002) “Ecoregions of North and South Carolina”. Reston, VA, United  
3                   States Geological Survey.
- 4           (11)   “Physiographic province” means one of the four Level III ecoregion shown on Griffith, et al  
5                   (2002) “Ecoregions of North and South Carolina”. Reston, VA, United States Geological Survey.
- 6           (12)   “Preservation Site” means riparian zone sites that are characterized by a closed canopy of tree  
7                   species of greater than or equal to five inches diameter at breast height (dbh) or characterized by a  
8                   dense growth of smaller woody stems.
- 9           (13)   “Restoration Site” means riparian zone sites that are characterized by an absence of trees greater  
10                  than or equal to five inches diameter at breast height (dbh), by a lack of dense growth of smaller  
11                  woody stems, or by open tree canopies such that the planting of woody stems will maximize  
12                  nutrient removal and other buffer functions. With open tree canopies, the extent of the canopy  
13                  shall be measured from the outer edge of the drip zone of the tree.
- 14          (14)   “Riparian wetland” means a wetland that is found in one or more of the following landscape  
15                  positions: in a geomorphic floodplain; in a natural topographic crenulation; contiguous with an  
16                  open water greater than or equal to 20 acres in size; or subject to tidal flow regimes excluding  
17                  salt/brackish marsh wetlands.
- 18          (15)   “Urban” means a percent impervious cover of at least 24% in the watershed upstream of the upper  
19                  end of the mitigation reach and areas where post-construction stormwater requirements apply  
20                  according to Session Law 2006-246.

21   (c) APPLICATION REQUIREMENTS AND MITIGATION OPTIONS. Any applicant who seeks approval to  
22   impact riparian buffers covered under this Rule and who has met the requirements of Paragraph (a) shall submit to  
23   the Division a written mitigation proposal that calculates the required area of mitigation and describes the area and  
24   location of each type of proposed mitigation. The applicant may not impact buffers until the Division has approved  
25   the mitigation plan by issuance of written authorization. For all options except payment of a fee under Paragraph (h)  
26   or (i), the proposal shall include conservation easements or similar legal mechanisms to ensure perpetual  
27   maintenance and protection of the mitigation site’s nutrient removal and other water quality functions, a non-  
28   wasting endowment, and a completion bond that is payable to the Division sufficient to ensure that land purchase,  
29   construction, monitoring and maintenance are completed. An exception would be where the applicant is a local  
30   government and has entered a binding intergovernmental agreement with the Division to complete the project and  
31   manage and protect the property consistent with the requirements of this rule, such local government shall not be  
32   required to provide a non-wasting endowment or a performance bond. For each mitigation site, the Division shall  
33   identify appropriate functional criteria to measure the anticipated benefits of the mitigation to the adjacent water.  
34   The Division shall issue a mitigation determination that specifies the area, type and location of mitigation and the  
35   water quality benefits to be provided by the mitigation site. The mitigation determination issued according to this  
36   rule shall be included as an attachment to the Authorization Certification. The applicant may propose any of the  
37   following types of mitigation and shall provide a written demonstration of practicality that takes into account the

1 relative cost and availability of potential options, as well as information addressing all requirements associated with  
 2 the option proposed:

3 (1) Applicant provided on-site or off-site riparian buffer restoration, enhancement or preservation  
 4 pursuant to Paragraph (g) of this Rule;

5 (2) Payment of a compensatory mitigation fee to a mitigation bank if buffer credits are available  
 6 pursuant to paragraph (h) of this Rule or payment of a compensatory mitigation fee to the Riparian  
 7 Buffer Restoration Fund pursuant to Paragraph (i) of this Rule. Payment to the Riparian Buffer  
 8 Restoration Fund shall be an option for applicants other than Government Entities only when  
 9 credits are not available from a mitigation bank located within the same 8-digit cataloguing unit as  
 10 the buffer impact pursuant to Paragraph (h) of this Rule is not available;

11 (3) Donation of real property or of an interest in real property pursuant to Paragraph (j) of this Rule;  
 12 and,

13 (4) Alternative buffer mitigation options pursuant to Paragraph (k) of this Rule;

14 (d) AREA OF IMPACT. The Authority shall determine the area of impact in square feet to each zone of the  
 15 proposed riparian buffer impact by adding the following:

16 (1) The area of the footprint of the use causing the impact to the riparian buffer;

17 (2) The area of the boundary of any clearing and grading activities within the riparian buffer  
 18 necessary to accommodate the use;

19 (3) The area of any ongoing maintenance corridors within the riparian buffer associated with the use,  
 20 and

21 (4) The Authority shall deduct from this total the area of any wetlands that are subject to and  
 22 compliant with riparian wetland mitigation requirements under 15A NCAC 2H .0506 and are  
 23 located within the proposed riparian buffer impact area.

24 (e) AREA OF MITIGATION BASED ON ZONAL AND LOCATIONAL MULTIPLIERS. The Authority shall  
 25 determine the required area of mitigation for each zone by applying each of the following multipliers to the area of  
 26 impact calculated under paragraph (d) of this Rule with a 3:1 multiplier for Zone 1 and 1.5:1 multiplier for Zone 2,  
 27 except that the required area of mitigation for impacts proposed within the Goose Creek watershed as 3:1 for the  
 28 entire buffer and the Catawba River watershed as 2:1 for Zone 1 and 1.5:1 for Zone 2, and,

29 (A) In addition to the multipliers listed above in paragraph (e), the applicant must:

30  
 31 Option A: use the following locational multipliers as applicable based on location  
 32 of the proposed mitigation site relative to that of the proposed impact site. Once the  
 33 multipliers are determined, an option is to pay for the required mitigation. Payment of a  
 34 compensatory mitigation fee to a mitigation bank if mitigation credits are available  
 35 pursuant to Paragraph (h) of this rule or payment of a compensatory mitigation fee to the  
 36 Riparian Buffer Restoration Fund pursuant to Paragraph (i) of this Rule. Payment to the  
 37 Riparian Buffer Restoration Fund for applicants other than Government Entities shall be

1                    available only when payment to a mitigation bank pursuant to Paragraph (h) of this rule is  
 2                    not available. Alternative mitigation options shown in Paragraph (k) of this rule shall be  
 3                    subject to these locational multipliers. Mitigation may be conducted within an adjacent  
 4                    eight digit HUC at a 2:1 ratio if written documentation of the impracticality of conducting  
 5                    mitigation within the appropriate 8 digit HUC is reviewed and approved by the Division.

6  
 7                    Option B:        use the following locational multipliers as applicable based on location  
 8                    of the proposed mitigation site relative to that of the proposed impact site. Once the  
 9                    multipliers are determined, an option is to pay for the required mitigation. Payment of a  
 10                   compensatory mitigation fee to a mitigation bank if mitigation credits are available  
 11                   pursuant to Paragraph (h) of this rule or payment of a compensatory mitigation fee to the  
 12                   Riparian Buffer Restoration Fund pursuant to Paragraph (i) of this Rule. Payment to the  
 13                   Riparian Buffer Restoration Fund for applicants other than Government Entities shall be  
 14                   available only when payment to a mitigation bank pursuant to Paragraph (h) of this rule is  
 15                   not available. Alternative mitigation options shown in Paragraph (k) of this rule shall be  
 16                   subject to the following locational multipliers. Mitigation may be conducted within an  
 17                   adjacent 8 digit HUC at a 2:1 ratio if written documentation of the impracticality of  
 18                   conducting mitigation within the appropriate 8 digit HUC is reviewed and approved by  
 19                   the Division.

<u>Adjacent 8 digit HUC</u>	<u>Within 8 digit HUC</u>	<u>Within 12 digit HUC</u>	<u>Mitigation option</u>
<u>n/a</u>	<u>n/a</u>	<u>0.75</u>	<u>1) On site mitigation</u>
<u>2.0</u>	<u>1.5</u>	<u>1</u>	<u>2) All other types of mitigation</u>

20  
 21                    Option C:        use the following locational multipliers as applicable based on location  
 22                    of the proposed mitigation site relative to that of the proposed impact site. Mitigation  
 23                    options shall be available to applicants. A written demonstration of practicality shall be  
 24                    submitted to the Division for review and approval and shall take into account the cost and  
 25                    availability of these options with the following conditions:

<u>Adjacent 8 digit HUC</u>	<u>Within 8 digit HUC</u>	<u>Within 12 digit HUC</u>	<u>Mitigation option</u>
<u>n/a</u>	<u>n/a</u>	<u>0.75</u>	<u>1) On site mitigation</u>

2.0	1.0	0.75	2) All other types of mitigation
-----	-----	------	----------------------------------

(B) Donation of property shall satisfy all the conditions of Paragraph (j) of this Rule.

(f) GEOGRAPHIC RESTRICTIONS ON LOCATION OF MITIGATION. Mitigation shall be performed in the same river basin in which the impact is located with the following additional specifications:

(1) In the following cases, mitigation shall be performed in the same watershed in which the impact is located:

(A) Falls Lake Watershed;

(B) Goose Creek Watershed;

(C) Randleman Lake Water Supply Watershed; and

(D) Each subwatershed of the Jordan Lake watershed, as defined in Rule 15A NCAC 2B .0262.

(E) Other watershed restrictions as specified in riparian buffer protection rules adopted by the Commission.

(2) Buffer mitigation for impacts within watersheds with riparian buffer rules that also have federally listed threatened or endangered aquatic species may be done within other watersheds with the same species as long as the impacts are in the same river basin and same physiographic province as the mitigation site.

(g) RIPARIAN BUFFER RESTORATION, OR ENHANCEMENT. Enhancement, and restoration shall have the objective of establishing a forested riparian buffer according to the requirements of this paragraph. Division staff shall make an on-site determination as to whether a potential mitigation site qualifies as a restoration or enhancement site based on the applicable definition in Paragraph (b) of this Rule. Persons who choose to meet their mitigation requirement through riparian buffer restoration or enhancement, shall also meet the following requirements:

(1) The restoration area is equal to the required area of mitigation determined pursuant to Paragraph (e) of this Rule; and,

(2) The enhancement area is three times larger than the required area of mitigation determined pursuant to Paragraph (e) of this Rule.

(3) The location of the restoration or enhancement shall comply with the requirements of Paragraph (f) of this Rule.

(4) The location of restoration or enhancement shall comply with any geographic multiplier as specified under Paragraph (e) of this rule

(A) For the Catawba River mainstem below Lake James, the width of the riparian buffer shall begin at the most landward limit of the top of the bank and extend landward a distance of 50 feet, measured horizontally on a line perpendicular to a vertical line marking the edge

1 of the top of the bank. For the mainstem lakes located on the Catawba River mainstem,  
2 the width of the riparian buffer shall begin at the most landward limit of the full pond  
3 level and extend landward a distance of 50 feet, measured horizontally on a line  
4 perpendicular to a vertical line marking the edge of the full pond level. Buffer mitigation  
5 in the Catawba watershed may be done along the lake shoreline as well as along  
6 intermittent and perennial stream channels throughout the watershed.

7 (B) For the Goose Creek Watershed the riparian buffer restoration or enhancement site shall  
8 have a minimum width of 50 feet as measured horizontally on a line perpendicular to the  
9 surface water and may include restoration or enhancement of existing riparian areas,  
10 restoration or enhancement of streamside areas along first order ephemeral streams that  
11 discharge/outlet into intermittent or perennial streams, and preservation of the streamside  
12 area along first order ephemeral streams that discharge or outlet into intermittent or  
13 perennial stream at a 5:1 ratio as long as there is also an amount of restoration or  
14 enhancement equivalent to the amount of permitted impact.

15 (6) The mitigation site shall provide diffuse flow across the entire buffer width. Any existing  
16 impervious cover or stormwater conveyances such as ditches or pipes shall be eliminated and the  
17 flow converted to diffuse flow.

18 (7) The applicant or mitigation provider shall submit a restoration or enhancement plan for written  
19 approval by the Division. The restoration or enhancement plan shall demonstrate compliance with  
20 the requirements of Sub-Paragraphs (1) through (4) of this Paragraph and shall contain the  
21 following in addition to elements required in Paragraph (c):

22 (A) A map of the proposed restoration or enhancement site;

23 (B) A vegetation plan which shall include a minimum of five native hardwood tree species,  
24 where no one species is greater than 25% of planted stems, planted at a density sufficient  
25 to provide 320 trees per acre at maturity. The Division may approve alternative planting  
26 plans upon consideration of factors including site wetness and plant availability;

27 (C) A grading plan. The site shall be graded in a manner to ensure diffuse flow through the  
28 entire riparian buffer, and,

29 (D) A schedule for implementation including a fertilization and herbicide plan that will  
30 include protective measures to ensure that fertilizer and herbicide is not deposited  
31 downstream from the site and will be applied per manufacturers guidelines. Pesticides  
32 used must be certified by EPA for use in or near aquatics sites. Pesticides must be  
33 applied in accordance with the manufacturers' instructions, and

34 (E) A monitoring plan including monitoring of vegetative success, stream stability, and other  
35 anticipated benefits to the adjacent water as listed in the Authorization Certification.

36 (8) Within one year after the Division has approved the restoration or enhancement plan, the applicant  
37 or mitigation provider shall present documentation to the Division that the riparian buffer has been  
38 restored or enhanced unless the Division agrees in writing to a longer time period due to the

1 necessity for a longer construction period. If documentation is not presented within this timeframe,  
2 then the person shall be in violation of the Authority's riparian buffer protection program.

3 (9) The mitigation area shall be placed under a perpetual conservation easement or similar legal  
4 mechanism to provide for protection of the property's nutrient and sediment removal functions.

5 (10) Option 1: If the proposed mitigation site contains a sewer easement, the portion of the easement  
6 located within Zone 1 or Zone 2 is not suitable for buffer mitigation. However, the applicant may  
7 get narrower buffer credit in accordance with (k)(2)(D) of this rule.

8  
9 Option 2: If the proposed mitigation site contains a sewer easement, the portion of the easement  
10 located within Zone 1 is not suitable for buffer mitigation except that buffer credit for a dedicated  
11 sewer easement shall be given to satisfy the Zone 2 buffer requirement if the sewer easement is at  
12 least 30 feet wide and it is required to be maintained in a condition which meets the vegetative  
13 requirements of the collection system permit, and if the applicant will restore or enhance the  
14 forested buffer in Zone 1 adjacent to the sewer easement.

15  
16 (11) The applicant or mitigation provider shall submit written annual reports for a period of five years  
17 after the restoration or enhancement showing that the trees planted have survived and that diffuse  
18 flow through the riparian buffer has been maintained. The applicant shall replace trees that do not  
19 survive and restore diffuse flow if needed during that five-year period, and

20 (12) A completion bond shall be provided for the mitigation site to account for all land purchase,  
21 construction, monitoring and maintenance costs. A non-wasting endowment must be provided for  
22 the site to ensure perpetual, long term monitoring and maintenance.

23 (h) PURCHASE OF BUFFER MITIGATION CREDITS FROM A PRIVATE OR PUBLIC MITIGATION  
24 BANK. Applicants who choose to satisfy some or all of their mitigation determination by purchasing mitigation  
25 credits from a private or public mitigation bank shall meet the following requirements:

26 (1) The mitigation bank from which credits are purchased is listed on the Division's webpage  
27 (<http://portal.ncdenr.org/web/wq/swp/ws/401/certsandpermits/mitigation>) and shall have available  
28 riparian buffer credits;

29 (2) The mitigation bank from which credits are purchased shall be appropriately located as described  
30 in Paragraphs (e) and (f) of this Rule; and,

31 (3) After receiving a mitigation acceptance letter from the mitigation provider, proof of payment for  
32 the credits shall be provided to the Department prior to any activity that results in the removal or  
33 degradation of the protected riparian buffer.

34 (i) PAYMENT TO THE RIPARIAN BUFFER RESTORATION FUND. Applicants who choose to satisfy some or  
35 all of their mitigation determination by paying a compensatory mitigation fee to the Riparian Buffer Restoration  
36 Fund shall meet the requirements of 15A NCAC 02B .0269 (Riparian Buffer Mitigation Fees to the NC Ecosystem  
37 Enhancement Program).

1 (j) DONATION OF PROPERTY. Applicants who choose to satisfy their mitigation determination by donating  
2 real property or an interest in real property shall meet the following requirements:

3 (1) The donation of real property interests may be used to either partially or fully satisfy the payment  
4 of a compensatory mitigation fee to the Riparian Buffer Restoration Fund pursuant to Paragraph  
5 (h) of this Rule. The value of the property interest shall be determined by an appraisal performed  
6 in accordance with Part (i)(4)(D) of this Rule. The donation shall satisfy the mitigation  
7 determination if the appraised value of the donated property interest is equal to or greater than the  
8 required fee. If the appraised value of the donated property interest is less than the required fee  
9 calculated pursuant to 15A NCAC 2B .0269, the applicant shall pay the remaining balance due.

10 (2) The donation of conservation easements or similar legal mechanism that includes a non-wasting  
11 endowment to satisfy compensatory mitigation requirements shall be accepted only if the  
12 conservation easement or similar legal mechanism that includes a non-wasting endowment is  
13 granted in perpetuity.

14 (3) Donation of real property interests to satisfy the mitigation determination shall be accepted only if  
15 such property meets all of the following requirements:

16 (A) The property shall contain riparian areas not currently protected by the State's riparian  
17 buffer protection program that are in need of restoration or enhancement rather than  
18 preservation;

19 (B) For the Neuse, Tar-Pamlico, Randleman basins and the Jordan Reservoir Watershed, the  
20 restorable riparian buffer on the property shall have a collective minimum length of 1,000  
21 linear feet per 2,500 linear feet along a surface water and a minimum width of 50 feet as  
22 measured horizontally on a line perpendicular to the surface water. For the Catawba  
23 River mainstem below Lake James, the width of the riparian buffer shall begin at the  
24 most landward limit of the top of the bank and extend landward a distance of 50 feet,  
25 measured horizontally on a line perpendicular to a vertical line marking the edge of the  
26 top of the bank. For the mainstem lakes located on the Catawba River mainstem, the  
27 width of the riparian buffer shall begin at the most landward limit of the full pond level  
28 and extend landward a distance of 50 feet, measured horizontally on a line perpendicular  
29 to a vertical line marking the edge of the full pond level;

30 (C) The size of the restorable riparian buffer on the property to be donated shall equal or  
31 exceed the acreage of riparian buffer required to be mitigated under the mitigation  
32 responsibility determined pursuant to Paragraph (e) of this Rule;

33 (D) The property shall not require excessive measures for successful restoration, such as  
34 removal of structures or infrastructure. Restoration of the property shall be capable of  
35 fully offsetting the adverse impacts of the requested use;

36 (E) The property shall be suitable to be successfully restored, based on existing hydrology,  
37 soils, and vegetation;

- 1           (F) The estimated cost of restoring and maintaining the property shall not exceed the value of  
2           the property minus site identification and land acquisition costs unless the applicant  
3           supplies financial assurance acceptable to the Division for restoration and maintenance of  
4           the buffer;
- 5           (G) The property shall not contain any building, structure, object, site, or district that is listed  
6           in the National Register of Historic Places established pursuant to Public Law 89-665, 16  
7           U.S.C. 470 as amended;
- 8           (H) The property shall not contain any hazardous substance or solid waste such that water  
9           quality could be adversely impacted, unless the hazardous substance or solid waste can be  
10           properly remediated before the interest is transferred;
- 11           (I) The property shall not contain structures or materials that present health or safety  
12           problems to the general public. If wells, septic, water or sewer connections exist, they  
13           shall be filled, remediated or closed at owner's expense in accordance with state and local  
14           health and safety regulations before the interest is transferred;
- 15           (J) The property and adjacent properties shall not have prior, current, or known future land  
16           use that would inhibit the function of the restoration effort;
- 17           (K) The property shall not have any encumbrances or conditions that are inconsistent with the  
18           requirements of this rule or purposes of the buffer rules.
- 19           (L) Fee simple title to the property or a conservation easement in the property shall be  
20           donated to the NC Ecosystem Enhancement Program or a similar organization approved  
21           by the Division to conduct the restoration or enhancement; and
- 22           (M) Upon completion of the buffer restoration or enhancement , the property or the easement  
23           shall be donated to a local land trust or to a local government or other state organization  
24           that is willing to accept the property or easement. The donation shall be accompanied by  
25           a non-wasting endowment sufficient to ensure perpetual long-term monitoring and  
26           maintenance , except that where a local government has donated a conservation easement  
27           and has entered into a binding intergovernmental agreement with the Division to manage  
28           and protect the property consistent with the terms of the conservation easement , such  
29           local government shall not be required to provide a non-wasting endowment.
- 30           (4) At the expense of the applicant or donor, the following information shall be submitted to the  
31           Division with any proposal for donations or dedications of interest in real property:
- 32           (A) Documentation that the property meets the requirements laid out in Subparagraph (i)(3)  
33           of this Rule;
- 34           (B) US Geological Survey 1:24,000 (7.5 minute) scale topographic map, county tax map,  
35           USDA Natural Resource Conservation Service County Soil Survey Map, and county road  
36           map showing the location of the property to be donated along with information on  
37           existing site conditions, vegetation types, presence of existing structures and easements;

1           (C) A current property survey performed in accordance with the procedures of the North  
 2           Carolina Department of Administration, State Property Office as identified by the State  
 3           Board of Registration for Professional Engineers and Land Surveyors in "Standards of  
 4           Practice for Land Surveying in North Carolina." Copies may be obtained from the North  
 5           Carolina State Board of Registration for Professional Engineers and Land Surveyors,  
 6           3620 Six Forks Road, Suite 300, Raleigh, North Carolina 27609;

7           (D) A current appraisal of the value of the property performed in accordance with the  
 8           procedures of the North Carolina Department of Administration, State Property Office as  
 9           identified by the Appraisal Board in the "Uniform Standards of Professional North  
 10           Carolina Appraisal Practice." Copies may be obtained from the Appraisal Foundation,  
 11           Publications Department, P.O. Box 96734, Washington, D.C. 20090-6734; and,

12           (E) A title certificate.

13 (k) ALTERNATIVE BUFFER MITIGATION OPTIONS. Some or all of a buffer mitigation requirement may be  
 14 met through any of the alternative mitigation options described in this Paragraph. Any proposal for alternative  
 15 mitigation shall meet, in addition to the requirements of Paragraphs (c), (e) and (f), the requirements set out in the  
 16 sub-paragraph addressing that option as well as the following requirements:

17           (1) Any proposal for alternative mitigation shall be provided in writing to the Division and shall meet  
 18           the following content and procedural requirements for approval by the Division:

19           (A) Demonstration of no practical alternative. The application shall describe why traditional  
 20           buffer mitigation options are not practical for the project;

21           (B) The application shall demonstrate that the proposed alternative removes an equal or  
 22           greater annual mass load of nutrients to surface waters as the buffer that is approved by  
 23           the Division for impact following the calculation of impact and mitigation areas pursuant  
 24           to Paragraphs (d) and (e) of this Rule. To estimate the rate of nutrient removal of the  
 25           impacted buffer, the applicant shall either propose a method acceptable to the Division or  
 26           use a method previously approved by the Division. Prior to approval, both methods shall  
 27           be subject to public notice through the 401 Certification Mailing List and public  
 28           comment in accordance with 15A NCAC 2H .0503;

29           (C) Public Notice and Comment. All proposals shall be reviewed by the Division for  
 30           completeness and then be subject to public comment through 60-day notice on the 401  
 31           Certification Mailing List in accordance with 15A NCAC 2H .0503;

32           (D) Option 1: Projects that have been constructed and are within the required monitoring  
 33           period as of the effective date of this Rule are eligible for use as alternative buffer  
 34           mitigation. Projects that have completed monitoring and have been released by the  
 35           Division as of the effective date of this Rule are not eligible for use as alternative buffer  
 36           mitigation.

1                   Option 2: Projects that have been constructed and are within the required monitoring  
2                   period on the effective date of this Rule are eligible for use as alternative buffer  
3                   mitigation. Projects that have completed monitoring and have been released by the  
4                   Division on or before the effective date of this Rule are eligible for use as alternative  
5                   buffer mitigation for a period of ten years from the effective date of this Rule.

6  
7                   (E) Buffer mitigation ratios shall be applied to these alternative buffer mitigation options, and

8                   (F) The mitigation area shall be placed under a perpetual conservation easement or similar  
9                   legal mechanism to provide for protection of the property's buffer functions.

10                  (G) A completion bond shall be provided for the mitigation site to account for all land  
11                  purchase, construction, monitoring and maintenance costs. A non-wasting endowment  
12                  must be provided for the site to ensure perpetual, long term monitoring and maintenance.

13                  (2) ALTERNATIVE BUFFER MITIGATION – NON-STRUCTURAL, VEGETATIVE OPTIONS.

14                  (A) Coastal Headwater Stream Mitigation. Wooded buffers planted along Outer Coastal  
15                  Plain headwater stream mitigation sites can be approved as riparian buffer mitigation as  
16                  long as the site meets all applicable requirements of Paragraph (g) of this Rule. In  
17                  addition, all success criteria including tree species, tree density, diffuse flow and stream  
18                  success criteria specified by the Division in any required written approval of the site must  
19                  be met. The area of the buffer shall be measured perpendicular to the length of the valley  
20                  being restored. The area within the proposed buffer mitigation shall not also be used as  
21                  wetland mitigation. Monitoring of the site must be for at least five years from the date of  
22                  planting by providing annual reports for written DWQ approval.

23                  (B) Unmapped Stream Buffer Mitigation. Restoration or enhancement of buffers may be  
24                  conducted on intermittent or perennial streams that are exempt from riparian buffer rules  
25                  by virtue of not being shown on maps as further specified in individual rules referenced  
26                  in Paragraph (f). These streams shall be confirmed as intermittent or perennial streams by  
27                  Division staff or staff from a local delegated program using the 2010 or later version of  
28                  the Division's stream identification manual. Preservation of these stream buffers that  
29                  meet the definition of a preservation site may also be proposed in order to permanently  
30                  protect the buffer from cutting, clearing, filling and grading and similar activities that  
31                  would affect the functioning of the buffer, provided that the preservation site area is five  
32                  times larger than the mitigation area required under Paragraph (e) of this Rule, and  
33                  restoration or enhancement is proposed with an area equal to the mitigation area required  
34                  under Paragraph (e) of this Rule. The preservation site shall protect at least a 50 foot  
35                  wide wooded riparian buffer. The proposal shall meet all applicable requirements of  
36                  Paragraph (g) of this Rule. Applicant shall provide a written description for the  
37                  Division's approval of the demonstrable threat to the buffer mitigation site and its

1 functioning to provide nutrient removal and other water quality benefits. No existing or  
2 new stormwater discharges are allowed thru the buffer.

3 (C) Option 1: Preservation of mapped stream buffers. Buffer preservation may be proposed  
4 in order to permanently protect the buffer from cutting, clearing, filling and grading and  
5 similar activities that would affect the functioning of the buffer above and beyond the  
6 protection afforded by the existing buffer rules on sites that meet the definition of a  
7 preservation site along streams, estuaries or ponds that are subject to buffer rules as long  
8 as the proposed preservation site area is ten times larger than the mitigation area required  
9 under Paragraph (e) of this Rule, and buffer restoration or enhancement is also proposed  
10 with an area equal to the mitigation area required under Paragraph (e) of this Rule.  
11 Applicant shall provide a written description for the Division's approval of the  
12 demonstrable threat to the buffer mitigation site and its functioning to provide nutrient  
13 removal and other water quality benefits. No existing or new stormwater discharges are  
14 allowed thru the buffer.

15  
16 Option 2: Preservation of mapped stream buffers. Buffer preservation may be proposed  
17 in order to permanently protect the buffer from cutting, clearing, filling and grading and  
18 similar activities that would affect the functioning of the buffer above and beyond the  
19 protection afforded by the existing buffer rules on sites that meet the definition of a  
20 preservation site along streams, estuaries or ponds that are subject to buffer rules as long  
21 as the proposed preservation site area is ten times larger than the mitigation area required  
22 under Paragraph (e) of this Rule in non-urban areas and three times larger than the  
23 mitigation area required under Paragraph (e) of this Rule in urban areas. In addition,  
24 buffer restoration or enhancement is also proposed with an area equal to the mitigation  
25 area required under Paragraph (e) of this Rule. Reduced buffer mitigation credit can be  
26 given per Paragraph (D) of this Rule in urban areas. Applicant shall provide a written  
27 description for the Division's approval of the demonstrable threat to the buffer mitigation  
28 site and its functioning to provide nutrient removal and other water quality benefits. No  
29 existing or new stormwater discharges are allowed thru the buffer.

30 (D) Narrower buffers on urban streams. Buffer mitigation with widths less than 50 feet may  
31 be proposed along urban streams. If buffers greater than or equal to 31 feet in width are  
32 proposed and on-site stormwater management is provided to control local sources of  
33 nutrients and other pollutants, then full buffer credit shall be awarded for the mitigation  
34 area required under Paragraph (e) of this Rule. A total of 75% of full credit shall be  
35 awarded for buffers between 20 and 30 feet wide if on-site stormwater management is  
36 provided to control local sources of nutrients and other pollutants. If on-site stormwater  
37 management is not provided, then 50% of full credit shall be provided for buffers

1 between 31 and 50 feet wide and 25% of full credit for buffers between 20 and 30 feet  
 2 wide. Buffers less than 20 feet wide shall receive no buffer credit regardless of whether  
 3 on-site stormwater management is provided. Any remaining mitigation requirements  
 4 must be provided at additional mitigation sites.

5 (E) Enhancement of grazing areas adjacent to streams. Buffer credit at a 2:1 ratio shall be  
 6 available for an applicant who proposes permanent exclusion of grazing livestock that  
 7 otherwise degrade the stream and riparian zone through trampling, grazing or waste  
 8 deposition by fencing the livestock out of the stream and its adjacent buffer. The riparian  
 9 buffer area contained by fencing shall be two times greater than the mitigation area  
 10 required under Paragraph (e) of this Rule. The applicant shall document the condition  
 11 and aerial coverage of canopy and woody understory, and shall propose planting of  
 12 understory trees and shrubs as well as young canopy tree species as necessary to achieve  
 13 buffer restoration to the standards identified in Paragraph (g). The applicant shall  
 14 demonstrate that grazing was the predominant land use for at least the past 20 years and  
 15 that woody understory is absent as a result of grazing history. Conservation easements or  
 16 other similar legal mechanism shall ensure perpetual maintenance of permanent fencing.

17 (3) ALTERNATIVE BUFFER MITIGATION STRUCTURAL STORMWATER TREATMENT  
 18 OPTIONS.

19 (A) For all structural options: Riparian buffer restoration or enhancement is required with an  
 20 area at least equal to the footprint of the buffer impact, and the remaining mitigation  
 21 resulting from the multipliers can be met through structural options;

22 (B) Structural measures already required by other local, state or federal rule cannot be used as  
 23 alternative buffer mitigation, except to the extent such measure(s) exceed the  
 24 requirements of such rule. Stormwater Best Management Practices (BMPs) -bioretention  
 25 facilities, constructed wetlands, infiltration devices and sand filter are all potentially  
 26 approvable Best Management Practices for alternative buffer mitigation. Other Best  
 27 Management Practices may be approved only if they meet the nutrient removal levels  
 28 outlined in (3)(C) below. Existing or planned BMPs for a local, state or federal permit  
 29 may be retrofitted or expanded to improve their nutrient removal if this level of treatment  
 30 would not be required by other local, state or federal rules. In this case, the predicted  
 31 increase in nutrient removal may be counted toward alternative buffer mitigation;

32 (C) Minimum treatment levels: Any structural BMP shall provide at least 30% total nitrogen  
 33 and 35% total phosphorus removal as demonstrated by a scientific and engineering  
 34 literature review as approved by the Division. The total load reduction from structural  
 35 BMPs shall be at least equivalent to the original load reduction provided by the existing  
 36 square feet of buffer being impacted;

37 (D) All proposed structural Best Management Practices shall follow the Division's current or  
 38 a later version of the 2009 Stormwater Best Management Practice Design Manual. If a

1                   proposed structural Best Management Practice is not addressed in this Manual, then a  
 2                   scientific and engineering literature review shall be submitted with the designs for written  
 3                   approval by the Division. The design shall be as effective as the practices described in  
 4                   the Division's stormwater manual;

5                   (E) An operation and maintenance plan is required to be approved by the Division for all  
 6                   structural options;

7                   (F) Continuous and perpetual maintenance is required for all structural options and shall  
 8                   follow the Division's current or more recent version of the 2009 Stormwater Best  
 9                   Management Practice Design Manual;

10                  (G) Annual reports shall be sent in writing to the Division of Water Quality concerning  
 11                  operation and maintenance of all structural options approved under this rule.

12                  (H) Removal and replacement of structural options: If a structural option is proposed to be  
 13                  removed and cannot be replaced on site, then a structural measure of equal or better  
 14                  nutrient removal capacity shall be constructed as a replacement with the location as  
 15                  specified by Section (e) of this Rule;

16                  (I) Renovation or repair of structural options: If a structural option must be renovated or  
 17                  repaired, it shall be renovated to provide similar or better nutrient removal capacity as  
 18                  originally designed;

19                  (J) Structural options as well as their operation and maintenance are the responsibility of the  
 20                  landowner or easement holder unless the Division agrees in writing to operation and  
 21                  maintenance by another responsible party. Structural options shall be shown on the  
 22                  property deed or another document constituting an encumbrance on the property, with a  
 23                  note that operation and maintenance is the responsibility of the landowner, easement  
 24                  holder or other responsible party; and.

25                  (K) Bonding and endowment. Provisions for bonding for construction, monitoring and  
 26                  maintenance as well as provision for a long term, non-wasting endowment for monitoring  
 27                  and maintenance shall be provided in the submittal to the Division.

28                  (4) OTHER ALTERNATIVE BUFFER MITIGATION OPTIONS. Other riparian buffer mitigation  
 29                  options may be considered by the Division on a case-by-case basis after public notice  
 30                  through the Division's 401 Certification Mailing List and opportunity for comment as  
 31                  long as the options otherwise meet the requirements of this Rule. Division staff shall  
 32                  present recommendations to the Environmental Management Commission for a final  
 33                  decision with respect to any proposal for alternative buffer mitigation options not  
 34                  specified in this Rule.

35                  (l) ACCOUNTING FOR BUFFER CREDIT, NUTRIENT OFFSET CREDIT AND STREAM MITIGATION  
 36                  CREDIT. Buffer mitigation credit, nutrient offset credit, wetland mitigation credit and stream mitigation credit  
 37                  shall be accounted for in accordance with the following:

- 1           (1) Riparian buffers required for Water Supply Watershed rules shall not generate credit for buffer  
 2           mitigation, nutrient offset mitigation or stream mitigation projects.  
 3           (2) Nutrient offset credits can be generated outside of the stream buffer width required for stream  
 4           mitigation.  
 5           (3) Buffer and nutrient offset credits cannot be counted in the same square footage for mitigation credit.  
 6           (4) Buffer mitigation or nutrient offset credit cannot be provided within wetlands which provide  
 7           wetland mitigation credit required by 15A NCAC 2H .0506, as long as riparian wetland mitigation is  
 8           implemented and  
 9           (5) Option 1: Buffer mitigation or nutrient offset credit can be generated on stream mitigation sites as  
 10           long as the restored or enhanced riparian buffer is at least 50 feet.

11           Option 2: Buffer mitigation or nutrient offset credit can be generated and approved on stream  
 12           mitigation sites for impacts to streams and buffers as long as the restored or enhanced riparian buffer is  
 13           at least 50 feet wide and is not providing wetland mitigation credit required by 15A NCAC 2H .0506.  
 14           If impacts are to buffers only, then mitigation can be done on a buffer-only mitigation site. In this  
 15           case, stream credits will be no longer be available from that stream mitigation site once the buffer  
 16           credits are subtracted.

17           Option 3: Buffer mitigation or nutrient offset credit cannot be generated on stream mitigation sites.

18  
 19           History Note: Authority 143-214.1; 143-214.5; 143-214.7; 143-214.20; 143-215.3(a)(1); S.L. 1998, c. 221; 143-  
 20           215.6A; 143-215.6B; 143-215.6C; 143-215.8A; 143-215.8B; 143-282(c); 143B-282(d); S.L. 1999,  
 21           c. 329, s. 7.1; S.B. 824-2003; S.L. 2005-190; S.L. 2006-259; S.L. 2009-337; S.L. 2009-486.  
 22           Eff. date January 1, 2014.

1 15A NCAC 02B .0242 is proposed for repeal as follows:

2

3 15A NCAC 02B .0242 NEUSE RIVER BASIN: NUTRIENT SENSITIVE WATERS MANAGEMENT  
4 STRATEGY: MITIGATION PROGRAM FOR PROTECTION AND MAINTENANCE OF EXISTING  
5 RIPARIAN BUFFERS

6

7 *History Note: Authority 143-214.1; 143-214.7; 143-215.3(a)(1); S.L. 1998, c. 221;*

8 *Temporary Adoption Eff. June 22, 1999;*

9 *Eff. August 1, 2000.*

10 *Repealed Eff. January 1, 2014*

1 15A NCAC 02B .0244 is proposed for repeal as follows:

2

3 15A NCAC 02B .0244 CATAWBA RIVER BASIN: MITIGATION PROGRAM FOR PROTECTION AND  
4 MAINTENANCE OF EXISTING RIPARIAN BUFFERS IN THE CATAWBA RIVER BASIN

5

6 *History Note:* Authority G.S. 143-214.1; 143-214.7; 143-215.3(a)(1); S.L. 1999, c. 329, s. 7.1; S.B. 824-2003;

7

*Temporary Adoption Eff. June 30, 2001 (exempt from 270 day requirement - S.L. 2001-418 & S.L.*

8

*2003-340);*

9

*Eff. August 1, 2004.*

10

*Repealed Eff. January 1, 2014*

1 15A NCAC 02B .0252 is proposed for repeal as follows:

2

3 15A NCAC 02B .0252 RANDLEMAN LAKE WATER SUPPLY WATERSHED: MITIGATION PROGRAM  
4 FOR PROTECTION AND MAINTENANCE OF EXISTING RIPARIAN BUFFERS

5

6 *History Note:* Authority 143-214.1; 143-214.7; 143-215.3(a)(1); S.L. 1998, c. 221;

7

*Eff. June 1, 2010.*

8

*Repealed Eff. January 1, 2014*

1 15A NCAC 02B .0260 is proposed for repeal as follows:

2

3 15A NCAC 02B .0260 TAR-PAMLICO RIVER BASIN - NUTRIENT SENSITIVE WATERS  
4 MANAGEMENT STRATEGY: MITIGATION PROGRAM FOR PROTECTION AND MAINTENANCE  
5 OF RIPARIAN BUFFERS

6

7 *History Note: Authority 143-214.1; 143-214.7; 143-215.3(a)(1); 143-215.6A; 143-215.6B; 143-215.6C; 143B-*

8 *282(d); S.L. 1999, c. 329, s. 7.1;*

9 *Temporary Adoption Eff. January 1, 2000;*

10 *Eff. August 1, 2000.*

11 *Repealed Eff. January 1, 2014*

1 15A NCAC 02B .0268 is proposed for repeal as follows:

2

3 **15A NCAC 02B .0268 JORDAN WATER SUPPLY NUTRIENT STRATEGY: MITIGATION FOR**  
4 **RIPARIAN BUFFERS**

5

6 *History Note: Authority 143-214.1; 143-214.5; 143-214.7; 143-215.3(a)(1); 143-215.6A; 143-215.6B; 143-*  
7 *215.6C; 143 215.8B; 143B-282(c); 143B-282(d); S.L. 1999-329, s. 7.1.; S.L. 2005-190; S.L. 2006-*  
8 *259;*

9 *Eff. August 11, 2009;*

10 *Amended Eff. September 1, 2011.*

11 *Repealed Eff. January 1, 2014*

1 15A NCAC 02B .0609 is proposed for repeal as follows:

2

3 15A NCAC 02B .0609 SITE SPECIFIC WATER QUALITY MANAGEMENT PLAN FOR THE GOOSE  
4 CREEK WATERSHED (YADKIN PEE-DEE RIVER BASIN): MANAGE ACTIVITIES WITHIN  
5 RIPARIAN BUFFERS: MITIGATION REQUIREMENTS FOR BUFFER IMPACTS

6

7 *History Note: Authority G.S. 143-214.1; 143-215.3(a)(1); 143-215.8A;*

8 *Eff. February 1, 2009*

9 *Repealed Eff. January 1, 2014*

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**APPENDIX F – FISCAL ANALYSIS**

## VERSION 7.0

## Fiscal Analysis –Buffer Mitigation Rules

(15A NCAC 2B .0295, .0242, .0244, .0252, .0260, .0268, and .0609)

Prepared by NC Division of Water Quality staff

October 10, 2012

## Rule Citation Numbers –

15A NCAC 2B .0295: Mitigation Program Requirements for Protection and Maintenance of Riparian Buffers

15A NCAC 02B .0242: Mitigation for Existing Buffers in the Neuse River Basin

15A NCAC 02B .0244: Mitigation for Existing Buffers in the Catawba River Basin

15A NCAC 02B .0252: Randleman Lake Mitigation for Existing Buffers

15A NCAC 02B .0260: Mitigation for Existing Buffers in the Tar-Pamlico River Basin

15A NCAC 02B .0268: Jordan Lake Mitigation for Existing Buffers

15A NCAC 02B .0609: Goose Creek Watershed Buffer Mitigation Rule

(Appendix)

## DENR Division - Division of Water Quality

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## Impact Summary:

State Government:	Yes
N.C. Department of Transportation:	Yes
Local Governments:	Yes
Federal Government:	Yes
Small Businesses:	Yes
Substantial Impact:	Yes

**Authorizing Statutes:** G.S. 143-214.5; G.S. 143-214.7; G.S. 143-214.20; G.S. 143-215.3(a)(1); G.S. 143-215.6A; G.S. 143-215.6B; G.S. 143-215.6C; G.S. 143-215.8A; G.S. 143 215.8B; G.S. 143B-282(c),(d); S.L. 1998, c. 221; S.L. 1999, c. 329, s. 7.1, S.B. 824-2003; S.L. 2005-190; S.L. 2006-259.

**Statement of Necessity:** These proposed rule changes in Rule 2B .0295 will provide mitigation options not currently available to DOT, developers, and private individuals. In addition to providing greater regulatory flexibility, the proposed changes incorporate contemporary technical and operational techniques into the rules. These proposed amendments adhere to the Principles of Executive Order 70 Rules and were developed through a public stakeholder process. The new rules advance the public interest and are designed to achieve their objectives in a cost-effective and timely manner.

The division also seeks to repeal the current buffer mitigation rules (2B .0242, .0244, .0252, .0260, .0268, and .0609), since they are proposed to be consolidated and replaced by 15A NCAC .02B .0295, "Mitigation Program Requirements for Protection and Maintenance of Riparian Buffers". The purpose of this consolidation is to bring consistency to the current riparian buffer mitigation rules. A reduction in the number of rules is in the public interest and consistent with the principles of Executive Order 70.

#### **I. Executive Summary:**

First of all, the proposed rule will consolidate six existing buffer mitigation rules into one buffer mitigation rule. This purpose of this consolidation is to bring consistency to the currently riparian buffer mitigation rules. The current buffer mitigation rules that will be repealed and essentially combined into rule .0295 include:

- 15A NCAC 02B .0242: Mitigation for Existing Buffers in the Neuse River Basin
- 15A NCAC 02B .0244: Mitigation for Existing Buffers in the Catawba River Basin
- 15A NCAC 02B .0252: Randleman Lake Mitigation for Existing Buffers
- 15A NCAC 02B .0260: Mitigation for Existing Buffers in the Tar-Pamlico River Basin
- 15A NCAC 02B .0268: Jordan Lake Mitigation for Existing Buffers
- 15A NCAC 02B .0609: Goose Creek Watershed Buffer Mitigation Rule

The second part of this rulemaking would provide additional mitigation options for the regulated community and allow for the flexibility that has been requested by the various stakeholder groups in these mitigation rules. Stakeholders have expressed concern to the Division of Water Quality (Division) that they are unable to build their projects because they cannot achieve the amount of buffer mitigation required in the current buffer mitigation rules. The proposed rule would address this issue by providing a variety of new mitigation options for those areas where the current buffer mitigation rules are not feasible. An example of this is that in the Tar-Pamlico 05 8-digit Hydrologic Unit (HUC), there are no more viable buffer mitigation sites that would adhere to the current buffer mitigation rules. Stakeholders have stressed the necessity of the consolidated buffer mitigation rule to allow for flexibility in difficult situations such as this. In several instances, if the stakeholders are unable find acceptable buffer mitigation for their proposed or actual permits, then thousands of jobs could potentially be lost. It is important to note that this proposed rule will not expand the area subject to riparian buffer rules.

Finally, the rules address related mitigation issues to ensure that the replacement for the unavoidable impacted buffers will reduce future nutrient loading. The proposed rules are authorized by G.S. 143-214.20 which states (in part) "Construction of an alternative measure (of buffer mitigation) that reduces nutrient loading as well as or better than the riparian buffer that is lost."

These options were developed to give regulated parties greater flexibility and potentially lower cost of compliance by providing additional options for buffer mitigation. Other proposed changes to the buffer mitigation rules may reduce the cost of mitigation on a case-by-case basis (for instance the allowance of

buffer preservation) depending on the extent to which the regulated community and mitigation providers take advantage of this new provision in the rule. Similarly, the proposed rules on mitigation location may increase cost depending on which option the Environmental Management Commission (EMC) chooses following public hearing. Finally the portion of the rule on accounting for buffer, nutrient offset and stream mitigation credit (.0295 (k)) may or may not increase mitigation cost depending on which option the EMC selects following public hearing and comment. The table below summarizes estimated annual costs and benefits and states whether it was possible to quantify them based on the amount of available information. A more detailed breakdown of cost and benefit estimates is located in Tables 4-8.

**Table 1: Estimated Annual Costs and Benefits Presented in this Analysis, Quantified or Un-quantified**

	Un-quantified*	Quantified*
<b>Costs:</b>		
Completion Bond and Non-wasting Endowment		\$110,000/year
Mitigation Location Change		\$0 - \$1,830,000/year, depending on option EMC chooses
Credit Accounting		\$0 - \$1,500,000/year depending on option EMC chooses.
Additional cost from more expensive mitigation options (Structural Options)	X	
<b>Benefits:</b>		
Cost savings from more advantageous mitigation location	X (expected to be at least as high as additional costs for mitigation location change)	
Cost savings from cheaper mitigation options	X	
Additional Development Potential	X	
Additional Buffer Acreage	X (unclear impact on water quality; potential net benefits from nutrient removal of \$20,000/acre)	
Preservation of Unmapped Streams	X	
Sewer Easements		\$0-\$490,000 benefit/year depending on option EMC chooses.
Buffer Mitigation Beyond the 5-Year Monitoring Period		\$3.4 million one-time benefit

\* Based on the percentage of buffer mitigation required by different parties during 2005-2010, DENR estimates that most of the impacts (90%) listed in this table would be incurred by NC DOT and by private development.

Based on this analysis, the proposed rules will have a net benefit to stakeholders by allowing them to construct projects the current buffer mitigation rules prohibit. General economic theory asserts that if a site developer chooses to use one of these options then, to that individual, the increased cost is lower than the expected project benefits. Projects undertaken using optional mitigation options would result in a net benefit of undetermined value. Based on 2005-2010 data on entities seeking mitigation, the agency estimates that more than half of the costs and benefits would be ultimately incurred by DOT, and more than a third by private developers. Aside from the sewer easement benefit to municipalities, other state agencies and local governments would only see a small portion of the costs and benefits presented in Table 1. DENR does not expect any significant changes related to overseeing the implementation of most of the options in these rules, with the exception of Option 2 for buffer and stream mitigation accounting.

There also may be public benefit in the form of less water pollution at the estuary if these proposed rules increase the total amount of buffer acreage. Although, water quality in some locations before the estuary point may be affected, depending on hydrological and geological properties of the location and if mitigation occurs further from the impact area. Given the uncertain impact of water quality, DENR is inviting the public to comment on this issue.

The main source of uncertainty in this analysis is the number of options available for particular choices as well as the inherently variable cost of land and applicability of specific options for specific sites. Through the public hearing process, stakeholders will comment on the options presented in this analysis to assist the EMC in selecting final rule language. The fiscal note has investigated the potential cost and benefits associated with different options and the division will amend the note after the public comment period to reflect any policy changes.

## **II. Background and Description of Proposed Rules:**

This fiscal analysis was prepared to assist members of the EMC and the public in their review of the proposed Alternative Buffer Mitigation Rules (15A NCAC 2B .0295). Requests from the regulated community for more flexibility to achieve mitigation prompted this rulemaking. The division developed these rules with extensive input from stakeholders meetings held on February 9, 2009, December 9, 2009 and April 6 and 19, 2010. The draft rules were presented to the Water Quality Committee (WQC) of the EMC on September 2009, November 2009, November 2010, January 2011, March 2011, July 2011, September 2011, January 2012 and May 2012. In July 2012, the rules were taken to the full EMC. The WQC requested consideration of three different alternatives for calculating the amount of required mitigation based on location considerations and for the accounting of buffer, stream and nutrient offset credits.

Several stakeholders have expressed concerns about the lack of buffer mitigation options. Presently the two options are payment into a mitigation bank or planting a buffer along a stream that currently is not planted. This issue is important to address because in some areas of the Tar-Pamlico basin, there are no more viable buffer mitigation sites for compliance with the current buffer mitigation rules. Stakeholders, including companies and professional site developers, are unable to proceed with projects if they need

to mitigate for buffers in that area. Potentially thousands of jobs could be lost if alternative buffer mitigation measures are not allowed.

These proposed rule amendments adhere to the Principles of Executive Order 70 Rules and seek to reduce the impact on regulated parties by allowing more mitigation options. The proposed rule change serves the public interest and is designed to achieve their objectives in a cost-effective and timely manner. None of these alternative mitigation options would be required. Rather, stakeholders and mitigation providers would pursue these options on a case-by-case basis. These amendments also are intended to protect the applicable estuaries and increase the water quality in these estuaries. Other proposed rule changes would update standard practices, scientific information, and the information provided during the stakeholder process outlined above. An analysis of each of the main provisions proposed in rule .0295, above what is currently required in the rules proposed repealed, follows in the next section of this fiscal analysis. This analysis uses the present practice of buffer mitigation based on the average requirements for buffer mitigation from 2005 thru 2010 from the Division's Basinwide Management System (BIMS) permit tracking system as a baseline. The main proposed rule provisions are:

- A. Provisions that apply to all buffer mitigation options;
- B. Approaches that apply to all mitigation proposals; and
- C. Optional methods of buffer mitigation allowed in the proposed rules.

#### **A. Buffer mitigation provisions**

Three new provisions in the rules would apply to any proposed approach for buffer mitigation. These are:

- a. Conservation easements;
- b. Completion bonds; and
- c. Non-wasting endowments for long term operation and maintenance.

Conservation easements are in the current buffer mitigation rules. Completion bonds and non-wasting endowments are standard requirements of compensatory mitigation for wetland and stream mitigation for 404/401 permitting under the Clean Water Act for many years, but have not been required consistently to buffer mitigation requirements for the state's riparian buffer protection programs. As such, these requirements may or may not increase the cost of buffer mitigation compared to the present cost of mitigation as outlined in Section III below. The proposed changes require that these new measures provide equivalent types and levels of protection to what is currently in the buffer mitigation rules.

#### **B. Approaches applying to all mitigation proposals**

- a. **Mitigation Location.** The present rules require location of the mitigation to be as close or closer to the impact “as feasible”. The division and the mitigation banking community have long interpreted this rule to mean that mitigation will be required in the standard 8-digit Hydrologic Unit (HUC) as used for the 404/401 permitting programs.<sup>1</sup> A HUC’s number is inversely related to the size of its watershed. The larger the HUC number, the smaller its watershed.

The proposed rule change would allow for mitigation outside of the standard 8-digit HUC, as long as a location multiplier is applied after the area of mitigation is computed. To determine the area of mitigation under the present rules, an impact multiplier is applied to the area of buffers impacted by the project: if Zone 1<sup>2</sup> of the buffers is impacted, a multiplier of 3 is applied to the area of impact (a multiplier of 2 in the Catawba River Basin), and if Zone 2<sup>3</sup> of the buffers is impacted, a multiplier of 1.5 is applied to the area of impact. None of these options would increase or decrease water quality benefits to the estuary. The proposed rule maintains the impact multipliers and offers three options for location multipliers as follows:

- i. Option A - Mitigation would continue to be allowed within the 8-digit HUC, and then it would also be allowed at a higher multiplier (2.0) in the adjacent HUC. Example: If mitigation is done in an adjacent HUC and assuming 200 square feet of Zone 1 buffer impacts, the area of mitigation would have to be 1,200 sq ft [=200sqft of impact × 3 impact multiplier is required for Zone 1 impacts × 2 for an adjacent HUC multiplier= 1,200 sq ft.
- ii. Option B - Mitigation on-site would benefit from a reduced multiplier of 0.75; mitigation within the 12-digit HUC at the subwatershed level would only be subject to Zone 1 and Zone 2 impact multipliers; mitigation within the 8-digit HUC would be at a higher (1.5) multiplier; and mitigation would be allowed within the adjacent 8-digit HUC at a higher (2) multiplier.

<sup>1</sup> Note that a single 8-digit HUC occupies a larger area than a single 12-digit HUC. For instance, there are four 8-digit HUC’s in the Neuse basin and seventy-five 12-digit HUCs in the same river basin.

<sup>2</sup> For intermittent and perennial streams, Zone 1 begins at the most landward limit of the top of the bank or the rooted herbaceous vegetation and extends landward a distance of 30 feet on all sides of the surface water, measured horizontally on a line perpendicular to a vertical line marking the edge of the top of the bank. For ponds, lakes and reservoirs located within a natural drainage way, Zone 1 begins at the most landward limit of the normal water level or the rooted herbaceous vegetation and extends landward a distance of 30 feet, measured horizontally on a line perpendicular to a vertical line marking the edge of the surface water or rooted herbaceous vegetation.

<sup>3</sup> Zone 2 starts at the outer edge of Zone 1 and extends landward 20 feet as measured horizontally on a line perpendicular to the surface water.

**Table 2: Mitigation Option B**

Adjacent 8-digit HUC	Within 8 digit HUC	Within 12 digit HUC	Mitigation option
n/a	n/a	0.75	1) On site mitigation
2.0	1.5	1	2) All other types of mitigation

Example: If mitigation is done within the 12-digit HUC with on-site mitigation and assuming 200 square feet of Zone 1 buffer impacts, the area of mitigation would be 450 sq ft [=200sqft of buffer impact × 3 impact multiplier is required for Zone 1 impacts × 0.75 for the 12 digit HUC multiplier].

- iii. Option C - Mitigation on-site would be at a reduced (0.75) ratio, within the 12-digit HUC at a reduced (0.75) ratio, and then within the adjacent 8-digit HUC at a higher (2.0) multiplier.

**Table 3: Mitigation Option C**

Adjacent 8-digit HUC	Within 8-digit HUC	Within 12-digit HUC	Mitigation option
n/a	n/a	0.75	1) On site mitigation
2.0	1.0	0.75	2) All other types of mitigation

Example: If mitigation is done in an adjacent 8-digit HUC with coastal headwater stream mitigation and assuming 200 square feet of Zone 1 buffer impacts, the area of mitigation would be 1,200 sq ft [=200sqft of impact × 3 impact multiplier is required for Zone 1 impacts × 2 for an adjacent 8-digit HUC multiplier for all other types of mitigation].

- b. **Accounting for buffer, nutrient offset and stream mitigation credit.** The rule proposes three options to address this issue. The current rules do not address accounting for buffer, nutrient and stream mitigation credit. The division currently uses Option 1 outlined below but this issue has generated considerable controversy. Comparing these different proposals will give the EMC, regulated community and others more information about the benefits and drawbacks to each option.
  - i. Option 1 - Buffer (or nutrient offset) and stream mitigation credits can be counted for both sets of credits on a particular mitigation site. However, buffer and nutrient offset credits cannot be provided at the same location on the same site, nor can sites that are offering wetland mitigation also provide buffer or nutrient offset credit. The division presently uses this option for the existing rules.
  - ii. Option 2 - Buffer (or nutrient offset) and stream mitigation credits could only be counted for both sets of credits if the impact also was to both streams and buffers.

This option would require the division to determine if impacts were to buffers only (impacts which are parallel to streams) rather than to both streams and buffers (impacts which cross streams). The type of required mitigation would then be matched up with the type of mitigation (stream and buffer versus buffer only). This would complicate the tracking of buffer and stream mitigation for mitigation providers and may result in some stream mitigation credits being unusable for compensatory mitigation in instances where only buffer mitigation is required. The potential benefit is that stakeholders would have more opportunity to obtain buffer mitigation credits since more buffer mitigation opportunities would exist. As in Option 1, buffer and nutrient offset credits cannot be provided at the same location on the same site nor can sites that are offering wetland mitigation also provide buffer or nutrient offset credit. Presently the division makes no such distinction.

- iii. Option 3 – Buffer (or nutrient offset) and stream mitigation would not overlap at all in this option. In this case, the buffers planted next to stream mitigation sites could not be used for buffer credit unless the mitigation provider was willing to completely forego stream credit at the site. In many cases, stream mitigation is needed to have an effective buffer mitigation project. This means that there would be unrecoverable costs for the stream channel work with this option, which would have to be offset by higher mitigation fees as outlined below in Section III. As in Option 1, buffer and nutrient offset credits cannot be provided at the same location on the same site nor can sites that are offering wetland mitigation also provide buffer or nutrient offset credit.

### C. Optional methods of buffer mitigation

The proposed rule change would allow several optional measures to the traditional buffer mitigation of planting trees in non-wooded buffer adjacent to streams. **None of these options would be required.** Rather, stakeholders and mitigation providers would pursue these options on a case-by-case basis. These additional options are being proposed to give the regulated community more flexibility in achieving the required mitigation. These options will enable developers to have projects in otherwise undevelopable areas. These options may cost more than traditional mitigation and if the developers chose to use these options it is in indication that they expect to make a net profit from the project even with increased cost. Based on the stakeholder input these are the proposed optional methods:

- a. **Restoration and enhancement options** – Allowing some buffer credits for sewer easements would benefit certain stakeholders that must maintain sewer lines in the protected riparian buffer. Allowing sewer easements for buffer mitigation credit would open mitigation options in this scenario. The proposed rule presents two options for public comment that deal with the amount of credit that would be offered.

- b. **Constructed projects** – The proposed rules would allow mitigation projects that have been constructed to be used as alternative mitigation. Two options are proposed for public comment:
- i. Option 1 allows the use of constructed projects as long as they are still in the required monitoring phase on the date the proposed rule become effective, and
  - ii. Option 2 allows their use for 10 years after they have been released by the Division, as long as they are released before the proposed rule become effective.
- c. **Non-structural options**
- i. **Coastal Headwater Stream Mitigation** – This involves a relatively new way of conducting stream mitigation in subtle stream valleys in the outer coastal plain where extensive earth moving and engineering design are limited to filling of any existing ditches and planting appropriate trees. This practice has been done at about ten sites in the past five years with good success in replacing functioning riparian wetland buffers while minimizing mitigation cost.
  - ii. **Mitigation along unmapped streams** – Presently the division interprets the existing rules such that acceptable mitigation sites must be along streams shown on the most current version of the 1:24,000 United States Geological Survey (USGS) topographic map or published County Soil Survey. The division estimates about 95 percent of the stream length in any given area is captured by the use of these maps. However, the remaining approximate 5 percent of the stream length cannot be used as mitigation sites.
    - 1) **Restoration and enhancement of unmapped streams** – The proposed rules would allow buffer restoration or enhancement along streams not depicted on these maps, thereby providing additional sites for buffer mitigation.
    - 2) **Preservation of stream buffers along unmapped streams** – The proposed rules would allow mitigation credit for preservation of wooded buffers along unmapped streams in these watersheds at a 5:1 ratio. There would still be a requirement for 1:1 restoration or enhancement (ratio is applied to size of impact area before zone and locational multipliers) to ensure the amount of buffers along streams in these watersheds is not diminished. Since protection of these buffers would be determined on a case-by-case basis, it is not clear how much this alternative would be used by developers in these watersheds. However, given the more favorable ratio it is likely that stakeholders would pursue this option more frequently than the option which allows preservation of buffers along mapped streams.
  - iii. **Preservation of stream buffers along mapped streams** – The proposed rules have two options.
    - 1) **Option 1:** Would allow mitigation credit for preservation of wooded buffers along streams shown on the USGS or County Soils Survey maps at a 10:1 ratio. There would still be a requirement for 1:1 restoration or

enhancement (ratio is applied to impact area before zone and locational multipliers) in order to make certain that the amount of buffers along streams in these watersheds is at least stable. For example, if you impact 100 linear feet of stream, you would have to restore or enhance 100 linear feet of stream with a 50-foot buffer along both sides of the stream and preserve 1,000 linear feet of stream that is currently buffered. Since protection of these buffers would be determined on a case-by-case basis, it is not clear how much this alternative would be used by stakeholders in these watersheds.

- 2) Option 2: Would allow mitigation credit for preservation of wooded buffers along streams shown on the USGS or County Soils Survey maps at a 10:1 ratio in non-urban areas and a 3:1 ratio in urban areas. There would still be a requirement for 1:1 restoration or enhancement in order to make certain that the amount of buffers along streams in these watersheds is at least stable.
    - iv. Restoration of narrower buffers along urban streams- This option allows restoration of 30-foot wide buffers along urban streams rather than the required 50-foot wide buffer. Full or partial buffer credit would be given depending on buffer width and whether appropriate on-site stormwater management is provided. Municipalities that desire to develop a mitigation bank for their own impacts and NC Ecosystem Enhancement Program (EEP) projects in public parks will probably be the major users of this option.
 

Enhancement of grazing areas – The present rules do not provide buffer mitigation credit for excluding grazing livestock from erodible stream banks. The proposed rules would allow buffer mitigation credit to be given for exclusion of livestock from areas with limited tree planting. This option would provide credit for selected sites that today are ineligible for buffer mitigation credit. Although these sites are not widespread throughout watersheds, this option could potentially have a significant impact on reducing livestock nutrient input (pollution) into streams.
- d. **Structural options** - Stormwater Best Management Practices (BMPs). The proposed rules allow engineered solutions to nutrient removal including constructed wetlands, bio-retention areas, infiltration devices and sand filters, as well as wet ponds followed by measures for diffuse flow. These practices may be proposed in areas where other options are limited since these engineered approaches tend to be more expensive than planting trees along non-wooded streams. Stormwater BMPs are standard designs with which the engineering and regulatory communities are very familiar based on several decades of experience in designing, reviewing, constructing and maintaining these facilities especially in urban areas.

- e. **Other options as approved by the EMC** - The rules contain a provision for stakeholders or mitigation providers to develop other alternative approaches for nutrient reduction and propose them to the EMC for buffer credit. The proposed method of mitigation would have to be placed out to public notice and comment by the division before presentation to the EMC for formal approval.

### III. Potential Economic Impact Associated with 15A NCAC 2B .0295 – Alternative Buffer Mitigation Rules

**Baseline cost of buffer mitigation** – The baseline cost for buffer mitigation was determined by searching the division’s Basinwide Management System (BIMS) database, which tracks buffer impacts and corresponding buffer mitigation requirements. The division has complied the mitigation requirements for 2005 through 2010 (see Table 4).

**Table 4: Buffer impacts and mitigation required from 2005 to 2010**

	Amount of buffer impact approved (square feet)*	Amount of buffer mitigation required (square feet)
<b>2005</b>	4,562,214	1,626,301
<b>2006</b>	6,269,646	10,014,325
<b>2007</b>	4,005,858	585,160
<b>2008</b>	6,506,069	7,511,487
<b>2009</b>	4,927,865	1,407,728
<b>2010</b>	1,925,690	977,728
<b>Average</b>	4,699,557	3,687,122

\*These impacts include allowable, allowable with mitigation and prohibited uses that are currently in the buffer rules. Only allowable with mitigation and prohibited uses require mitigation.

As of January 31, 2012, the cost of buffer mitigation increased from 96 cents to 99 cents per square foot, per rule 02B .0269, based on the construction costs index factor published in the *Engineering New Record*. The division used the \$0.99 per square foot rate and the average amount of buffer mitigation in 2005-2010 to estimate the average buffer mitigation costs associated with the proposed mitigation rule to be about \$3,650,000. Session Law 2011-394 (HB 119) makes a change in the provision for requiring buffer mitigation that could affect these calculations. The Session Law essentially states that mitigation will not be required for construction of a single family residence located on a lot adjacent to salt marsh. To determine the effect of this provision on the amount of mitigation required, BIMS was searched for all projects in this timeframe (July 2005 thru June 2010) which were adjacent to SA, SB or SC waters which we assume could have salt marsh buffers. A total of 35 projects (from a total of 343 projects adjacent to these waters which required buffer mitigation) were identified which required a total of 40,882 square feet of buffer mitigation. In general, these impacts are relatively small with

correspondingly small buffer mitigation requirements. Since this amount is a very small percentage of the total mitigation required over this timeframe (0.2 percent), this analysis was not adjusted to reflect this policy change.

Given that there is no particular trend in the amount of buffer mitigation requirement per year, the six year average amount and 99 cents per square foot of mitigation cost 4 was used in the following analysis to determine the potential additional cost of other options.

DWQ queried BIMS for the same timeframe to identify what groups are providing buffer mitigation across the state. This analysis shown in Table 5 below shows DOT and private land developers were required to provide the vast majority of buffer mitigation. Therefore, DWQ assumes that most of the impacts (both costs and benefits) of these proposed rule changes would be incurred by these two parties, with DOT incurring half the impacts.

**Table 5- Applicants and percentage of total square feet of buffer mitigation from 2005 to 2010**

Applicant	Percentage of Buffer Mitigation
NCDOT	54.73
Private Development	35.48
Local Government	4.52
Federal Government	4.15
Single Family Residential Lots	1.11
State Government Other Than DOT	0.01

### **Additional cost for various provisions in proposed rules**

#### **A. Provisions Applying to all Required Mitigation**

The rules contain three provisions that would apply to all mitigation proposals - conservation easements, completion bonds, and non-wasting endowments for long-term operation and maintenance. Conservation easements and completion bonds are payable to the division to ensure land purchase, construction, monitoring and maintenance are completed on a buffer mitigation site. Conservation easements are already required on all stream and wetland mitigation sites. Therefore, this provision will have no additional cost compared to the present cost of buffer mitigation since mitigation bankers presently calculate this option into mitigation sites. Also, completion bonds, while not currently required in rule, are a standard practice on most sites, and including the bonds as a requirement in the proposed rules would not create an impact in reality.

Completion bonds and non-wasting endowments (or equivalent measures) are instruments that ensure the cost of long term monitoring and maintenance are covered. These measures are becoming more common for mitigation sites but are not universally required for buffer mitigation. The purpose of non-

wasting endowments is to generate enough annual interest from the endowment to hire staff for periodic visits to sites in the future to make certain that the buffers functioning to remove nutrients from urban and rural stormwater runoff. The cost of non-wasting endowments varies from location to location and with the level of required oversight so it is difficult to find a single number to represent the cost of the non-wasting endowment. Based on estimates from the NC EEP and discussions with private mitigation bankers in North Carolina, an average of no more than about three-percent of the overall cost of mitigation seems reasonable. The endowment principle would be collected at the time of payment to the EEP program, effectively raising the cost by three cents per square foot of mitigation. Therefore requiring non-wasting endowments and completion bonds (or equivalent measures) could add about \$110,000 annually to the cost of buffer mitigation for whichever one is used by the applicant. The division derived this figure by multiplying three cents by the average annual square feet of buffer mitigation and the current cost of mitigation per square foot ( $3\% \times \$ .99 \times 3,687,122 = \$109,500$ ).

## **B. Approaches Applying to all Mitigation Proposals**

### **a. Mitigation Location**

The proposed rules have three options as follows:

- i. Option A: Mitigation within the 8 digit HUC and then at a higher multiplier (2.0) in the adjacent HUC.
- ii. Option B: Mitigation on-site at a reduced (0.75) multiplier, within the 12-digit HUC, at the subwatershed level (using the standard multipliers), within the 8-digit HUC at a higher (1.5) multiplier, and then within the adjacent 8-digit HUC at a higher (2) multiplier.
- iii. Option C: Mitigation on-site at a reduced (0.75) multiplier, within the 12-digit HUC at a reduced (0.75) multiplier, and then within the adjacent 8-digit HUC at a higher (2.0) multiplier.

Option A (mitigation within the 8-digit HUC) is similar to the present process or requiring 1:1 mitigation with the 8-digit HUC, but also allows mitigation in the adjacent 8-digit HUC. Option A would most probably have no additional cost in comparison to the current rules since the double amount of mitigation required for the adjacent HUC, and implicitly the higher land costs, would deter many from using that option. Note that land costs are the biggest component of mitigation costs.

Option B (on-site or 12-or-8-digit HUC) would only require 75 percent of the mitigation if it is done on site, the present amount of mitigation would be required in the 12-digit HUC and then 50 percent more mitigation would be required if the mitigation was in the 8-digit HUC but not in the 12-digit HUC where the impact occurred. There would be some additional costs for a higher multiplier for within 8-digit HUC mitigation, which is the most likely type of mitigation location to be chosen. On-site mitigation is usually very limited since most streams have existing wooded buffers, so there would not be many opportunities for savings from the lower multiplier and lower land costs for on-site mitigation. Again, mitigation in the adjacent HUC is expected to be used seldom due to higher land costs.

Option C would require less mitigation than the current rules if mitigation is performed on-site or within the 12-digit HUC. Again, adjacent 8-digit HUC or on-site mitigation is expected to be very limited. In addition, given fewer mitigation options available in smaller HUCs and the potentially higher cost to perform mitigation in those HUCs, there might not be any savings from Option C versus what the current requirements are.

Data on the availability of mitigation sites and on the location of mitigation sites relative to impact sites are not readily available, so the following analysis is based on division staff's professional judgment and experience on buffer projects. Given the small size and relatively large number of 12-digit HUC units (for instance, there are about seventy-five, 12-digit HUC's in the Neuse and Tar-Pamlico basins in contrast to the four 8-digit HUC's in those basins) leads to staff to use best professional judgment to estimate that mitigation in the 8-digit HUC would still be the norm with a few exceptions of on-site mitigation and mitigation within the 12-digit HUC. The division also believes that Option A could be more expensive than Options B and C due to the absence of the 12-digit HUC lower multiplier option for the rare cases an applicant would have available sites for mitigation in the 12-digit HUC. Options B and C could be cheaper having the 12-digit HUC lower multiplier option, and could lead to decreases in the total annual cost, at the rate of \$0.25 per square foot if mitigation is possible within the 12-digit HUC. Any additional cost that are incurred from having higher multipliers for adjacent 8-digit HUCs would be offset by the benefits the regulated party would incur (otherwise the adjacent 8-digit HUC would not be chosen). Option B, however, due to the requirements of a higher multiplier for the 8-digit HUC than the current rules, could increase annual costs by about \$1,830,000 [= 0.5 × (about 3,690,000 sq ft of required mitigation per year × 99 cents)].

Note that the proposed location mitigation options may have an indirect impact on property owners in some parts of the state. To the extent that mitigation will be performed in sites with a higher location multiplier, and depending on the land prices in the selected location, mitigation providers could incur higher land related costs that would translate into benefits for property owners. Conversely, owners may be negatively impacted if the overall size of areas of mitigation is smaller or mitigation is performed on less expensive plots of land. Given the uncertainties related to which mitigation location language will be chosen by EMC and what choices mitigation seekers will make as a result, it is difficult to determine what the net impact to property owners may be, but it is likely to vary throughout the state.

The division feels there is no difference in the three location options in water quality benefits to the estuary. However, these options might lead to changes in water quality upstream depending on the amount of impact and mitigation, as well as hydrologic and geologic properties of some locations.

#### **b. Accounting for buffer, nutrient offset and stream mitigation credit**

Three credit accounting options are presented in the proposed rules. These options were developed during a stakeholder meeting held in Raleigh on December 9, 2009. The division and EEP staff reviewed these options in January 2011 and estimated the additional cost associated with the options. The cost varied depending on whether stream restoration is needed on any particular site or whether simply planting trees would suffice. For Option 2, the accounting that would be required by the division and mitigation providers (including private bankers and the EEP) would be complex but possible. The

following costs were estimated for each option compared to the present approach that the division uses.

**Option 1** - would allow the counting of both buffer and stream mitigation credits on a site. Nutrient offset credits and buffer credits could not occur on the same site. Similarly, wetland mitigation credit could not also be counted as buffer or nutrient offset credit. All of these procedures are consistent with the process currently followed by the division so there is no additional cost associated with this option.

**Option 2** - is an option that is a compromise between the way the division does business now with buffer and stream mitigation (Option 1) and how some private mitigation bankers have voiced they would like to see buffer and stream mitigation done (Option 3). Option 2 is preferred by several environmental conservation groups and would allow buffer and stream mitigation at the same site if the impact was to both streams and buffers. For instance, an impact from the construction of a road crossing of a stream channel could do mitigation at a stream and buffer mitigation site. However, if the impact was to buffers only (for instance for a sewer line that runs parallel to a stream rather than crossing the stream), then mitigation would be at a buffer only site. Any stream mitigation credit associated with that site would not be available for 401 Certification (the permit). This option could be more expensive than the current practice since many buffer mitigation sites also require grading of the landscape to create a stream channel and this cost could not be recovered from the site under this proposed option. The higher cost also reflects the fact that the site costs could not be used to support stream mitigation credit. Based on division and EEP staff estimates of the cost of mitigation and what percent of buffer projects also require channel work, the division believes that this option would increase costs at least 24 percent for a stable channel and 41 percent for an unstable channel. These cost increases are based on staff's professional knowledge of these practices. So, the estimated cost increase would be between \$880,000 and \$1,500,000 [=24% or 41% × (about 3,690,000 sq ft of required mitigation per year × 99 cents)]. Of the 39 buffer and nutrient offset mitigation projects done by the EEP, only two (5 percent) required streambank work in addition to tree planting. Therefore, the actual cost would be closer to the 24 percent increase rather than the 41 percent increase, and the 24 percent cost increase assumption is used in this analysis. Furthermore, this option would also significantly increase DENR's staff time since buffer mitigation is currently tracked separately from stream and wetland mitigation and reconciling the two would be difficult and time consuming. The Division is unable to quantify at this time what the impact on staff time might be.

**Option 3** - would not allow buffer mitigation to occur on sites where stream mitigation credits are generated. This is a rather simple option to track with existing accounting systems but would greatly increase the cost of mitigation. Division and EEP staff estimate based on best professional judgment that this option would increase costs by about 41 percent for stable streams and 99 percent for unstable streams since any work done on the channel could not be covered without raising mitigation fees. The estimated impact would be an increase of between \$ 1,500,000 and \$3,600,000 [=41% or 99% × (about 3,690,000 sq ft of required mitigation per year × 99 cents)]. Since only 5 percent of the 39 buffer and nutrient offset mitigation projects done by the EEP required streambank work in addition to tree planting (i.e. were unstable stream projects), the actual cost increase would be closer to the 41 percent rather than 99 percent, and the 41 percent cost increase assumption is used in this analysis.

### C. Optional methods for buffer mitigation

The proposed rules also would create optional methods of buffer mitigation to allow the regulated community greater flexibility and potentially lower the cost of compliance. The three categories of methods include non-structural options, structural options and other options as approved by EMC. It is unclear whether the availability of greater mitigation alternatives in itself would result in any significant savings in terms of costs related to locating and securing a mitigation site.

#### a. Constructed Projects

The proposed rules would allow for buffer mitigation credit past the five-year monitoring period and there are two options proposed for EMC's consideration:

- i. **Option 1:** Would allow for buffer mitigation projects constructed within the required monitoring period as of the effective date of this Rule to be eligible for use as alternative buffer mitigation. Projects that have completed monitoring and have been released by the division as of the effective date of this Rule are not eligible for use as alternative buffer mitigation.
- ii. **Option 2:** Projects that have been constructed and are within the required monitoring period on the effective date of this Rule are eligible to use alternative buffer mitigation. Projects that have completed monitoring and have been released by the division on or before the effective date of this Rule are eligible to use alternative buffer mitigation for a period of ten years from the effective date of this Rule.

There should be no change in cost or benefit from Option 1. Giving final mitigation credit at the end of the five-year monitoring period is consistent with how buffer mitigation projects are currently handled. Option 2 would allow for about three projects to be accepted for mitigation. The benefit to the stakeholders (one by private industry and two by mitigation banks) would be approximately \$3.4 million, based on information they provided. This option is being requested by stakeholders that were installing alternative buffer mitigation projects, but due to the length of time the rulemaking process is taking, they will not get credit past the normal 5-year monitoring period.

The private industry project has 19.57 acres of buffer impact for which they need mitigation. The mitigation required is 46.28 acres (Zone 1:  $11.28 \times 3 = 33.84$  acres and Zone 2:  $8.29 \times 1.5 = 12.44$  acres). Potential buffer credit, including the coastal headwater valleys they have already planted, is 100 acres. Only 28 acres of buffer restored could be counted in accordance with the current rules. Therefore, 72 acres would be additional buffer credit if the proposed rules pass. This benefit cost would be  $72 \text{ acres} \times 43,560 \text{ sq ft} \times 99 \text{ cents} = \$3.1 \text{ million}$ . If they can't receive the coastal headwater valley credit, they could only receive 28 acres of buffer mitigation credit which would be  $28 \text{ acres} \times 43,560 \times 99 \text{ cents} = \$1.2 \text{ million}$ .

Two mitigation banks seeking buffer mitigation credit for cattle exclusion measures they have already undertaken have paid \$305,000 (\$115,000 for one bank and \$190,000 for the other bank).

This net one-time benefit with the two banks (\$115,000 + \$190,000=\$305,000) and one private industry project (\$3.1 million) being able to gain credit for buffer mitigation currently not allowed in the rules would equal \$3.4 million.

#### **b. Non-structural options**

By creating more opportunities for the regulated community to perform mitigation themselves rather than paying into the Riparian Buffer Restoration Fund or a mitigation bank, the proposed rule might lead to the regulated community incurring more costs related to conservation easements (mostly related to land costs), completion bonds, and non-wasting endowments (see discussion above for the potential cost of a non-wasting endowment). However, the regulated community also benefit from not paying the Fund or mitigation bank fees. The potential cost and benefit associated with each of the new mitigation options are presented below.

**Coastal Headwater Wetland mitigation** – This type of mitigation is somewhat cheaper than standard stream mitigation since less engineering and site manipulation is needed. The EEP and a private developer have each restored about five of these streams. Compared to traditional mitigation, coastal headwater mitigation costs about 10 percent less according to these sources. The average cost for doing this form of mitigation would be \$0.89 per square foot. The division does not expect this form of mitigation to be used often due to the fact it is limited to coastal buffered counties and the lack of availability of coastal headwater wetlands.

**Restoration of buffers along unmapped streams** – The cost of this mitigation would be the same as mitigation along mapped streams since the costs of design, land acquisition, planting, stream work, and monitoring would be exactly the same. The advantage of this option is that it would expand the possible number of buffer mitigation sites, which would allow some flexibility and perhaps decrease the time spent on identifying a mitigation site. However, since the use of the two maps covers about 95 percent of the stream length, the number of additional sites would be limited. The USGS topographic maps underestimate streams on the coast but overestimate streams in the piedmont. Soil survey maps from NRCS overestimate streams on the coast, but underestimate streams in the piedmont. Based on division research, taking these two maps together as the current buffer rules require will provide a 95 percent accuracy in locations of buffered streams in the buffered basins in North Carolina. With only 5 percent of the overall streams in the buffered basins not being accurately shown on one of the two maps, the division staff thinks very few projects will be able to utilize the restoration of unmapped streams option in the proposed rules.

**Preservation of stream buffers along unmapped streams** – This option would allow the preservation of buffers along unmapped streams at a 5:1 ratio along with 1:1 buffer restoration. This option would again only be useful for stakeholders with large amounts of unmapped streams on their property, which is a rare occurrence. A smaller number of streams would need to have a conservation easement and non-wasting endowment since only 5 percent of the overall streams in the buffered basins could

potentially be captured in this option. The overall cost of this option would only be a little less than the preservation of stream buffers along mapped streams. Based on the cost of conservation easements and non-wasting endowments, the division estimates that this option would cost less than traditional mitigation but anticipates that it could only rarely be utilized. The USGS topographic maps underestimate streams on the coast but overestimate streams in the piedmont. Soil survey maps from NRCS overestimate streams on the coast, but underestimate streams in the piedmont. Based on division research, taking these two maps together as the current buffer rules require provides a 95 percent accuracy in locations of buffered streams in the buffered basins in North Carolina. With only 5 percent of the overall streams in the buffered basins not being accurately shown on one of the two maps, DWQ thinks very few streams will be able to utilize the preservation of unmapped streams option in the proposed rules.

**Preservation of stream buffers along mapped streams** – This option would allow mitigation credit at a 10:1 ratio for preservation. The agency is requesting public comment on an option to allow 10:1 preservation for non-urban streams, but at a rate of 3:1 for urban streams. With either option, there would also be the requirement for a 1:1 buffer restoration or enhancement. The practicality of this option varies widely depending on the site but it could be a valuable option for large, private developments that will preserve the remaining streams on a site or for urban projects where locating a large preservation site could be very problematic. Preserving an area of stream buffer in urban areas, even if it is smaller, would have a positive effect on the water quality in the applicable basins. In these cases, the costs for preservation will be the conservation easement and non-wasting endowment along with the required 1:1 restoration or enhancement. This option could reduce the cost of mitigation for large developments with sufficient amounts of stream to preserve, although they may experience higher costs related to land. We assume that preservation will only be a viable option for residential developments (since only those developments are likely to contain large amounts of buffers to preserve) and possibly for public projects such as sewer lines and greenway since the municipalities that pursue these projects often own land along streams. Projects such as road crossings and commercial development were not considered as likely to utilize this option since the NC Department of Transportation typically only purchases rights-of-way for the road itself and commercial development typically is on a relatively small parcel which would be unlikely to have significant amounts of streams.

**Restoration of narrower buffers along urban streams** – This option would allow 30-foot wide buffers (rather than 50-foot wide buffers) along urban streams. The cost of the buffers would be 40 percent less (1 minus 30/50), or about 40 cents less per square foot of buffer, and conservation easement costs related to land may be lower, but this saving would probably be more than offset by the requirement for on-site stormwater management. This cost varies tremendously by site and cannot be generally estimated; the construction costs alone vary \$4,000 to \$60,000 per acre of site, or about \$0.1-1.4 per square foot (NC State University, 2003 and IHS Global Insight Inflation data). However, the division believes that any savings of buffer planting will be more than offset by the cost for construction of on-site stormwater Best Management Practices. The practical benefit of this option is that it would increase the number of potential mitigation sites greatly in urban areas. This option will also allow stakeholders to gain credit on streams that are highly eroding due to larger stormwater inputs from the development around the streams that would greatly benefit from a restored buffer that is narrower than what is

currently allowed in the buffer mitigation rules. Overall, the division thinks this option would not be cheaper than traditional mitigation. Stakeholders have stated during the policy development process that having this option is necessary for areas where this may be the only option for obtaining buffer mitigation credit. This is an indication that stakeholders value the benefit of having a greater number of developable sites more than the potential increase in cost.

**Sewer Easements** – The proposed rule would allow for some credit to be gained from properties where there is a sewer easement.

**Option 1:** The portion of the sewer easement located in Zone 1 or Zone 2 of the buffers could not be counted towards buffer mitigation credit. This is due to the fact that per the current buffer mitigation rules and this proposed rule, in order to obtain mitigation credit you must plant the buffer. However, under the proposed rule, the applicant may get narrower buffer credit in accordance with (k)(2)(D) of this rule.

**Option 2:** If the proposed mitigation site contains a sewer easement, the portion of the easement located within Zone 1 will not be for buffer mitigation credit, but credit would be granted for a dedicated sewer easement in Zone 2 buffer if:

1. the sewer easement is at least 30 feet wide, and
2. the sewer easement is maintained in a condition which meets the vegetative requirements of the collection system permit, and
3. the applicant will restore or enhance the forested buffer in Zone 1 adjacent to the sewer easement.

The sewer easement option would benefit stakeholders, especially municipalities, who maintain sewer lines in protected riparian buffers. Allowing this option would increase mitigation options and would result in lower mitigation costs for these stakeholders. However, this relaxation of the Zone 1 forested buffer required in the current buffer rule will result in weakened protection of the estuary. This means there would be diminished public water quality benefits associated with this option.

Using data from 2005-2010 in the BIMS database, division staff calculated that there were 41 utility line projects (water or sewer lines) that required buffer mitigation totaling 496,312 square feet of required buffer mitigation. This could equate to a benefit to municipalities of \$491,000 (496,312 square feet × 99 cents) of buffer mitigation if Option 2 is chosen.

**Enhancement of grazing areas** – This option would allow grazed areas with scattered trees to be counted as buffer restoration or enhancement at a 2:1 ratio. The cost of this option would be about double the cost of traditional mitigation since the only cost that would not have to be borne by the mitigation would be to lower the cost of planting depending on the site. Fencing would be the notable extra cost associated with this use. However, this option would again increase the number of potential mitigation sites. Costs associated with this use would be approximately \$1.20 a linear foot per Soil and Water Conservation Program estimates. An estimate on how much this would add to a project is unknown due to the variability in the size of the mitigation projects.

### c. Structural options

Structural options allowed by this proposed rule include constructed wetlands, bio-retention facilities, infiltration devices and wet ponds followed by wooded filter strips. The costs of these facilities are (in general) much higher than the simple planting of trees along un-wooded stream channels. In addition, the cost of designing, constructing and operating constructed wetlands can be highly variable (Hathaway and Hunt 2007, Virginia Water Resources Research Center 2011). It is not clear how large a constructed wetland would have to be to be used in place of planting a wooded buffer along streams since the rules require that the proponent get EMC approval for the calculation method for the particular site. In general, the division thinks that structural options would likely be more expensive than traditional buffer mitigation but that the exact cost would vary from site to site. The lower cost estimate for this option is estimated to be \$91,000 (Hathaway and Hunt 2007, Virginia Water Resources Research Center 2011). The main advantage of this option is that it would increase the number of potential mitigation options in locations where such choices may become limited (such as in urban areas or locations such as Tar-Pamlico 04 and 05 where stream densities are naturally low). Therefore, there would be a time savings to the stakeholders due to the increased mitigation options. The division asked several stakeholders to place a value on this option. Several developers stated that having this as an option could greatly cut planning costs on larger projects where the amount of available buffer mitigation could be very limited or scarce. In situations where this option is used, stakeholders are willing to pay for structural options and anticipate this option's benefits are equal to or greater than the costs.

Other options as approved by the EMC – This provision in the rule would allow a stakeholder or mitigation provider to propose another type of buffer mitigation that neither the division nor the stakeholders have anticipated to date. Since this option is so broad, an estimate of the cost of this option is not possible until the exact option is proposed to the EMC. Presumably, a stakeholder or mitigation provider would only propose a less expensive option when compared to traditional mitigation if traditional mitigation options were still available in a certain area. This option could cost division staff time to review and prepare a presentation to the EMC for approval. Costs associated with staff time would be dependent on how often these other options were being proposed by stakeholders. The division does not expect other options to be used often, so costs should be minimal.

The impact discussion above does not account for the fact that providing additional opportunities for mitigation might result in the regulated community building more projects that require buffer mitigation than before. Additionally, while some of the options above are estimated to increase the cost of mitigation, it is assumed that any person that opts for that method of mitigation is deriving an additional benefit that is at least equal to the additional cost estimated.

#### IV. Water Quality Benefits of Riparian Buffers

Riparian buffers have been well documented to provide crucial water quality benefits including transformation and removal of nutrients, removal of sediment, removal of toxicants such as heavy metals, removal of pathogens such as bacteria and viruses, provision of shade for in-stream temperature control, stabilization of stream banks, and provision of leaves and woody material to stream channels for aquatic life support. The extensive scientific research done in North Carolina and across the world has made it clear that a wooded buffer is essential to the health of the aquatic ecosystem of the adjacent water. Some of this research is summarized below. Because the water quality benefits of buffers vary greatly from site to site, quantification of these benefits into dollar values is challenging. In addition, these benefits will only be potentially realized at the estuary point in instances when the proposed rule change increases the total amount of buffers. Also, in areas where buffer mitigation is no longer available, such as in Tar-Pamlico 04 and 05 HUC, nutrients to the Tar-Pamlico estuary could increase. The hope with these proposed rules is to allow for more options, other than planting a buffer, to counter any increases in nutrients to the estuaries for those who are running into this problem of no viable buffer restoration sites.

**Nutrient transformation and removal** – Riparian buffers can remove significant amounts of nitrogen and phosphorus and thereby protect downstream waters from eutrophication. For instance, Mayer, *et al.* (2007) conducted an extensive review of the scientific literature on the removal of nitrogen by riparian buffers and provided a regression equation to predict the removal of total nitrogen by various widths of riparian buffers. His work found that a 50-foot wide buffer removed about 70 percent of the total nitrogen entering the buffer through stormwater. Similarly, for phosphorus, research has shown riparian buffers have significant reductions in phosphorus levels in stormwater runoff (Wenger 1999) with a 9 meter (30-foot) wide buffer removing 46 to 79 percent of total phosphorus.

**Sediment removal** – Riparian buffers can remove significant amounts of sediment. For instance, Dillaha, *et al.* (1988) found that even a fairly narrow buffer of 15 feet was able to remove 76 to 87 percent of sediment. Wider buffers (30 feet) were more effective and removed from 88 to 95 percent of sediment depending on slope. On steeper slopes, wider buffers are probably needed but in general, the 50-foot buffer required by state riparian buffer rules will remove the vast majority of sediment.

**Toxicant removal** – Buffers remove significant amounts of toxicants such as heavy metals or organic pollutants found in stormwater runoff. Wenger (1999) summarized various publications and based on the limited data available in the scientific literature, concluded that buffers at least 50-feet wide are needed with wider buffers on steeper slopes.

**Pathogen removal** – Buffers can remove significant amounts of these pathogens – bacteria and viruses from stormwater. For instance, Trask, *et al.* (2004) reported that buffers were very effective in removing *Cryptosporidium parvum* from simulated runoff. Similarly, Collins, *et al.* (2004) found that fecal bacteria (*Escherichia coli* and *Campylobacter*) were removed by buffer strips and concluded that buffers of at least 15-feet in width were needed to markedly reduce the levels of fecal bacteria in simulated runoff. Finally, Stout, *et al.* (2005) examined runoff transport of fecal coliforms from manure and concluded that buffers can remove significant amounts of these pollutants. In general, it is clear that buffers such

as those required by the state's riparian buffer rules can remove significant amounts of bacteria from stormwater runoff.

**Provision of shade** – Wooded riparian buffers can significantly reduce stream temperatures during the hot, summer months. Wenger (1999) that a width of at least 30-feet was important for temperature control. Researchers in Georgia (Jones, et al 2006) examined the importance of wooded buffers to trout populations in the Appalachian Mountains in Georgia. They concluded that streams with 50-foot wide buffers had higher temperatures than those with 100-foot wide buffers with a predicted 66 to 97 percent reduction in trout populations in streams with the narrower buffers.

**Stabilization of stream banks** – Wooded buffers have significant effect on stabilizing stream banks and preventing their erosion and impact on downstream waters. Wenger (1999) concluded that buffer widths sufficient for other purposes should also be sufficient to prevent stream bank erosion. Therefore, the 50-foot state riparian buffer width should have significant benefits in stabilizing streambanks.

**Provision of leaves and woody debris**- Woody debris and trees leaves are essential inputs of energy and nutrients into streams since they (and the bacteria and fungi growing on them) provide food for aquatic insects which are the base of the aquatic food chain. Little research has been done on the width needed to provide this essential function but research reported from the piedmont of North Carolina (Dorney, personal communication, September 23, 2011) showed that about 95 percent of tree leaves in forested riparian buffers fall within 50-feet of the stream channel. Therefore once again, the 50-foot state riparian buffer width should have significant benefits in providing leaves to stream ecosystems

It is clear that wooded riparian buffers are essential to healthy streams and provide essential and highly beneficial effects on water quality. In fact, it can be stated from this work that without wooded buffers along streams, water quality will dramatically decrease. A study done concerning lake water quality in the United States (Kramer, *et al.* 2006) concluded that riparian buffers were a more cost effective way than retrofitting a stormwater best management practice to address phosphorus which resulted in decreased lake water quality in 24 of the 25 lakes studied. Protection and restoration of wooded buffers provides a significant economic benefit to water quality since they can be used in place of more expensive water treatment measures.

Assuming that the cost of nutrient removal provides a lower bound estimated of the value placed on nutrient reduction, the Division used information from the NCEEP program to estimate some of these benefits in monetary terms.

The North Carolina EEP nutrient offset credit rate is \$18.49/lb for nitrogen (N) and \$142.02/lb for phosphorus (P). EEP Estimates that over a 30-year period, one acre of forested riparian buffer prevents 2,273 lbs--N and 146.4 lbs--P from reaching surface waters. Therefore, assuming constant removal cost rates, one acre of forested riparian buffer has a value of: \$18.49/lb X 2,273 lbs--N--30 years = \$42,027.77 and \$142.02/lb X 146.4 lbs--P--30 years = \$20,793.19.

Wooded riparian buffers provide both ecosystem services through different mechanisms. The combined nutrient removal value for one acre of restored forested riparian buffer over a 30-year period is

\$62,820. The price for a riparian buffer mitigation credit through North Carolina EEP Is \$0.99/square foot, which translates to \$43,124/acre. Assuming the value placed on water quality is mimicked by the costs EEP incurs to remove nitrogen and phosphorous, the net benefit of an acre of riparian buffer would be about \$20,000 over a 30-year period. Given all the options available to the regulated community, it is unclear how many more acres of riparian buffers would result from the proposed rule change.

From the non-structural options that the proposed rule present, the most likely to be employed is the narrower buffers along urban streams, where projects would receive either partial credit or be required to build some stormwater BMPs. While it is unclear whether cost savings from the narrower buffer offset the BMP costs, there is some indication that the public benefits from restoration and BMP would surpass the costs. A 2004 study along the Little Tennessee River found that the benefit cost ratio for riparian restoration plus a BMP ranged from about 4 for 2 miles of restoration to 16 for 6 miles of restoration (Holmes et. al., 2004).

While water quality in the estuary is not expected to deteriorate, there may be undesired effects in certain locations where the mitigation would be further away from the impact, or may be provided in a form that is not as efficient at providing the same water quality benefits given the geological and hydrological properties of the location. A study on two different sections of buffer on the same stream showed the two sections performed differently despite being in close proximity to one another (Messer et. al., 2012).

#### **V. Summary of Costs and Benefits for Proposed Rules.**

The impacts of various options outlined in the rules are described above. These costs are summarized in Tables 6 through 8 below.

The overall cost and benefit of these flexible buffer mitigation rules will vary across the state depending on construction and land costs as well as the availability of traditional buffer mitigation sites. Perhaps the area of the state where these options will be most useful is in coastal plain locations such as Tar-Pamlico 04 and 05 area. This 8-digit HUC is centered on the Washington, NC area and (as is typical of coastal plain areas) is naturally characterized by few streams. In addition, these streams usually have wooded buffers since the buffer areas are often riparian wetlands and too wet for agriculture. For these reasons, locating traditional buffer mitigation sites in this area has become problematic. The availability of these options will provide an expanded list of buffer mitigation possibilities needed to compensate for unavoidable buffer impact for important development activities such as roadway improvements.

**Table 6 – Summary of Annual Costs of Various Options in the Proposed Rules compared to the 2005 – 2010 Baseline: Provisions that would apply to all buffer mitigation options**

Item	Description of option	Percent increase in cost	Estimated additional annual cost or benefit
Conservation easement	Agreement that limits use of land	0 percent	Zero additional cost-already required for mitigation sites
Completion bonds	Financial agreement that insures a project has the money to be completed	0 percent	Zero additional cost-already standard practice for mitigation sites
Non-wasting endowment	Agreement so funds are available for periodic site visits to insure buffers are functioning	3 percent	\$110,000 estimated annual cost-not universally required for buffer mitigation sites

**Table 7 - Summary of Annual Costs of Various Options in the Proposed Rules compared to the 2005 – 2010 Baseline: Approaches in the Rules which would apply to all mitigation proposals.**

Item	Description of option	Percent increase in cost	Estimated additional annual cost or benefit
Mitigation Location Option A	8-digit HUC	0 percent	Zero additional cost or benefit
Option B	On-site followed by 12-digit HUC as standard area and 8-digit HUC with 1.5 multiplier	Up to 50 percent increase due to 1.5 multiplier for 8-digit HUC	\$1,830,000 of additional annual cost; some benefit from reduced ratio for mitigation in the 12 digit HUC
Option C	On-site followed by 12-digit HUC as standard area and 8-digit HUC with 1.0 multiplier	Unclear	Zero additional cost for those mitigating in 8-digit HUC; some benefit from reduced ratio for mitigation in the 12 digit HUC but might be offset by higher cost and fewer mitigation options

Item	Description of option	Percent increase in cost	Estimated additional annual cost or benefit
Accounting for buffer, nutrient offset and stream mitigation credit	Option 1 – No restriction on accounting	0 percent	Zero additional cost or savings. This option is currently how division handles buffer and stream mitigation
	Option 2 – align impacts with mitigation	24 percent annual increase	\$880,000 of additional annual cost; plus additional DENR staff time
	Option 3 – disallow buffer credit on stream mitigation sites	41 percent annual increase	\$1,500,000 of additional annual cost
Mitigation credit for alternative measures			
Option 1	Credit after five- year monitoring period release	0 percent Would be a benefit with additional options gaining credit	No additional cost
Option 2	Credit up to ten years from effective date of the rule	0 percent	Could be up to \$3.4 million in additional benefits (one- time benefit)

**Table 8 - Summary of Annual Costs of Various Options in the Proposed Rules compared to the 2006 – 2010 Baseline: Optional methods of buffer mitigation allowed in the proposed rules**

Item	Description of option	Percent increase in cost	Estimated additional annual cost or benefit
Non-structural options	Coastal headwater stream mitigation	-10 percent	10 percent cheaper than current methods
	Restoration of buffers along unmapped streams	0 percent	There will be no additional costs and more sites will be available for mitigation. There is a time savings by stakeholders being able to gain credit for restoring buffers on streams not mapped on their property

Item	Description of option	Percent increase in cost	Estimated additional annual cost or benefit
	Preservation of buffers along unmapped streams	Slightly less costly than traditional mitigation.	This option will lower costs but can seldom be used since unmapped streams ( 5 percent of total) could use this option.
	Preservation of buffers along mapped streams	Less costly than traditional mitigation.	There would be more opportunities to perform mitigation saving stakeholders time to identify a mitigation area, as well as a small cost difference between this option and traditional mitigation.
	Restoration of narrower buffers along urban streams	Variable and cannot be determined since the higher cost of the required on-site stormwater management may or may not offset the lower cost associated with a narrower buffer.	Overall cost implications will be site specific and this option will increase the number of sites available for mitigation
Sewer Easement Mitigation Credit: Option 1:	No credit for grassed easements in the buffer	No increase	No increase
Option 2:	Credit for grassed easements in the buffer	Could lead to increased nutrient run-off to the estuaries due to less forested buffers	\$491,000 benefit for municipalities
Enhancement of grazed areas		Costs \$1.20 per linear foot	This method would be double the cost of traditional methods but would increase the number of available sites.

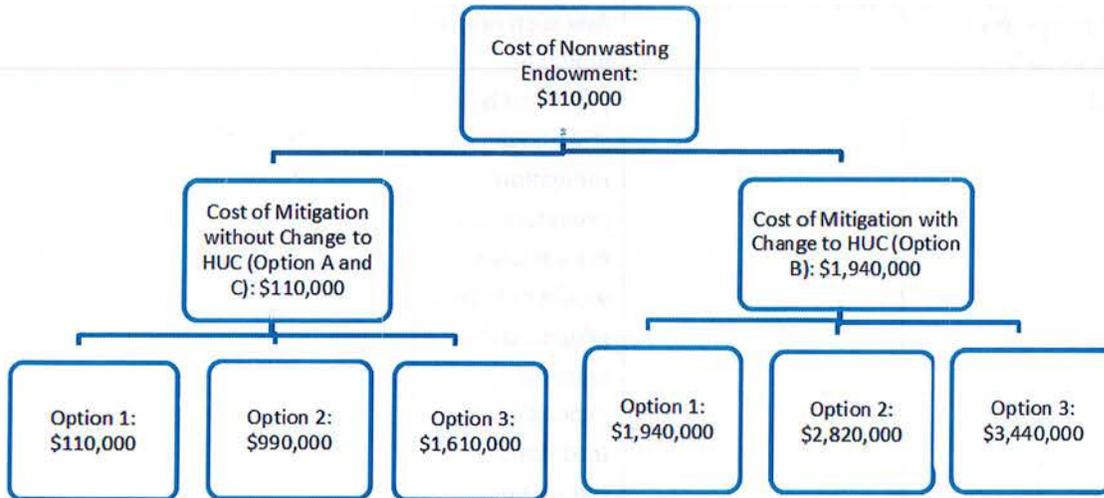
Item	Description of option	Percent increase in cost	Estimated additional annual cost or benefit
Structural options	Various options including constructed wetlands, bioretention, and infiltration devices	Cost of structural options are substantially higher than standard buffer mitigation.	This method is more costly but will increase the number of mitigation sites. These solutions may work in situations where projects would be unable to proceed otherwise.
Other options as approved by the EMC		Any such option would be proposed by stakeholders or mitigation providers and presumably would only be proposed if it were less expensive than traditional mitigation.	N/A
Water Quality Benefits		None	If rule change results in more acres of riparian buffer, there could be a benefit of about \$20,000 over 30 years.

Based on this analysis, staff thinks these proposed rules will not be cost prohibitive and will have a net benefit to stakeholders by allowing them to construct projects the current buffer mitigation rules prohibit. Local governments and state facilities are subject to these costs whenever buffer mitigation is required for their projects.

#### VI. Threshold Decision After Preliminary Rules Evaluation

The total cost of this rule package depends on the specific options selected by the EMC and the actions of future permit applicants. With certainty, annual costs will increase by about \$110,000 for the creation of non-wasting endowments. These costs will be proportional to the number of mitigation credits each project needs to purchase. One action the EMC is considering would be to reduce the mitigation area from an 8-digit HUC to the 12-digit HUC. The division estimates that this change, in addition to the non-wasting endowment, would increase costs by \$1,830,000. There are three different options for buffer

mitigation accounting. If Option 1 is selected, costs will not increase. Selection of Option 2 would result in additional estimated costs between \$880,000 and \$1,500,000 each year, although the lower estimate is more likely. Option 3 would be the most costly option and result in a range of annual estimated cost increase between \$1,500,000 to \$3,600,000, although the lower estimate is more likely. The following chart depicts the flow of decisions and known costs.



We do not know if stakeholders will use these methods, the frequency of use or the scope of future projects. However, general economic theory asserts that if a site developer chooses to use one of these options, then to that individual, the increased cost is lower than the expected project benefits. Projects undertaken using optional mitigation options would result in a net benefit of undetermined value.

Some of the benefits from these proposed rule changes are quantifiable such as the \$3.4 million dollar benefit for extending the timeline for alternative mitigation credit, \$490,000 for sewer easement credit and other benefits have values that we are unable to estimate. The greatest benefit of these rule changes is that they will give land developers, local governments, and state agencies such as DOT, more ways to perform mitigation and to find acceptable mitigation sites closer to the impacted site. Projects that may not have been possible to develop in the past will now be more feasible. In general, these options will provide valuable options for stakeholders and mitigation providers in situations where traditional mitigation options are scarce or exhausted. In those instances, the provision of these options would allow important development to proceed, which otherwise would be prevented from occurring by the lack of compensatory mitigation. If these options lead to an increase in buffer preservation, the

public will experience some or all of the benefits presented in section IV. DENR does not have enough data and information to be able to provide any significant estimates for the number of additional projects that would be built as a result of having additional mitigation options.

## **VII. Uncertainties in Analysis**

The main source of uncertainty in this analysis is the number of options available for particular choices as well as the inherently variable cost of land and applicability of specific options for specific sites. Once the EMC conducts public hearings and then narrows the options, there will be more information to inform a more precise estimate of the cost of these rules. Through the public hearing process, stakeholder will comment on the options presented in this analysis to assist the EMC in selecting final rule language. This rule package was designed with several different alternative courses of action. This fiscal note has investigated the potential cost and benefits associated with different options. The Environmental Management Commission will make a final determination on the actual proposed rule language after these alternatives are taken out for public comment.

If this proposed mitigation rule is not initiated, then projects in certain HUCs will not be allowed to be constructed. Currently, applicants are able to build their projects in most HUCs, but some HUCs such as Tar-Pam 04 and 05 do not have available buffer restoration sites and therefore there are no viable buffer mitigation sites. The inability to meet the mitigation per the current buffer rules could cost the state jobs with the projects failure to build per the current buffer mitigation rules.

If this proposed mitigation rule is passed, then more buffer impact projects could be permitted. However, the division does not think that water quality would be reduced to these estuaries. Per this rule, buffers would be restored in areas where a buffer does not currently exist and other alternative options could be used that would replace the functions of the buffer that may be removed with the permitted buffer projects.

There is an uncertainty of the actual square feet of buffer mitigation required from 2005-2010 because the data that was used in this analysis does include data prior to the recession that the United States is currently experiencing.

Structural options are new to the rule so it will be difficult to place a cost or benefit to these. In the beginning these options may be more expensive than currently used restoration, but these could ultimately become cheaper over time with more applicants using these or other alternative options.

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## Appendix

**15A NCAC 02B .0242 NEUSE RIVER BASIN: NUTRIENT SENSITIVE WATERS MANAGEMENT  
STRATEGY: MITIGATION PROGRAM FOR PROTECTION AND  
MAINTENANCE OF EXISTING RIPARIAN BUFFERS**

The following are the requirements for the Riparian Buffer Mitigation Program for the Neuse Basin:

- (1) ~~PURPOSE.~~ The purpose of this Rule is to set forth the mitigation requirements that apply to the Neuse Basin existing riparian buffer protection program, as described in Rule 15A NCAC 2B .0233.
- (2) ~~APPLICABILITY.~~ This Rule applies to persons who wish to impact a riparian buffer in the Neuse Basin when one of the following applies:
  - (a) ~~A person has received an Authorization Certificate pursuant to 15A NCAC 2B .0233 for a proposed use that is designated as "allowable with mitigation."~~
  - (b) ~~A person has received a variance pursuant to 15A NCAC 2B .0233 and is required to perform mitigation as a condition of a variance approval.~~
- (3) ~~THE AREA OF MITIGATION.~~ The required area of mitigation shall be determined by either the Division or the delegated local authority according to the following:
  - (a) ~~The impacts in square feet to each zone of the riparian buffer shall be determined by the Division or the delegated local authority by adding the following:~~
    - (i) ~~The area of the footprint of the use causing the impact to the riparian buffer.~~
    - (ii) ~~The area of the boundary of any clearing and grading activities within the riparian buffer necessary to accommodate the use.~~
    - (iii) ~~The area of any ongoing maintenance corridors within the riparian buffer associated with the use.~~
  - (b) ~~The required area of mitigation shall be determined by applying the following multipliers to the impacts determined in Sub-item (3)(a) of this Rule to each zone of the riparian buffer:~~
    - (i) ~~Impacts to Zone 1 of the riparian buffer shall be multiplied by 3.~~
    - (ii) ~~Impacts to Zone 2 of the riparian buffer shall be multiplied by 1.5.~~
    - (iii) ~~Impacts to wetlands within Zones 1 and 2 of the riparian buffer that are subject to mitigation under 15A NCAC 2H .0506 shall comply with the mitigation ratios in 15A NCAC 2H .0506.~~
- (4) ~~THE LOCATION OF MITIGATION.~~ The mitigation effort shall be the same distance from the Neuse River estuary as the proposed impact, or closer to the estuary than the impact, and as close to the location of the impact as feasible.
- (5) ~~ISSUANCE OF THE MITIGATION DETERMINATION.~~ The Division or the delegated local authority shall issue a mitigation determination that specifies the required area and location of mitigation pursuant to Items (3) and (4) of this Rule.
- (6) ~~OPTIONS FOR MEETING THE MITIGATION DETERMINATION.~~ The mitigation determination made pursuant to Item (5) of this Rule may be met through one of the following options:
  - (a) ~~Payment of a compensatory mitigation fee to the Riparian Buffer Restoration Fund pursuant to Item (7) of this Rule.~~
  - (b) ~~Donation of real property or of an interest in real property pursuant to Item (8) of this Rule.~~
  - (c) ~~Restoration or enhancement of a non-forested riparian buffer. This shall be accomplished by the applicant after submittal and approval of a restoration plan pursuant to Item (9) of this Rule.~~
- (7) ~~PAYMENT TO THE RIPARIAN BUFFER RESTORATION FUND.~~ Persons who choose to satisfy their mitigation determination by paying a compensatory mitigation fee to the Riparian Buffer Restoration Fund shall meet the following requirements:

- (a) ~~SCHEDULE OF FEES:~~ The amount of payment into the Fund shall be determined by multiplying the acres or square feet of mitigation determination made pursuant to Item (5) of this Rule by ninety six cents per square foot or forty one thousand, six hundred and twenty five dollars per acre.
- (b) ~~The required fee shall be submitted to the Division of Water Quality, Wetlands Restoration Program, MAIL SERVICE CENTER 1619, RALEIGH, NC 27699-1619 prior to any activity that results in the removal or degradation of the protected riparian buffer for which a "no-practical alternatives" determination has been made.~~
- (c) ~~The payment of a compensatory mitigation fee may be fully or partially satisfied by donation of real property interests pursuant to Item (8) of this Rule.~~
- (d) ~~The Division shall review the fee outlined in Sub-item (7)(a) of this Rule every two years and compare it to the actual cost of restoration activities conducted by the Department, including site identification, planning, implementation, monitoring and maintenance costs. Based upon this biennial review, the Division shall recommend revisions to Sub-item (7)(a) of this Rule when adjustments to this Schedule of Fees are deemed necessary.~~
- (8) ~~DONATION OF PROPERTY.~~ Persons who choose to satisfy their mitigation determination by donating real property or an interest in real property shall meet the following requirements:
- (a) ~~The donation of real property interests may be used to either partially or fully satisfy the payment of a compensatory mitigation fee to the Riparian Buffer Restoration Fund pursuant to Item (7) of this Rule. The value of the property interest shall be determined by an appraisal performed in accordance with Sub-item (8)(d)(iv) of this Rule. The donation shall satisfy the mitigation determination if the appraised value of the donated property interest is equal to or greater than the required fee. If the appraised value of the donated property interest is less than the required fee calculated pursuant to Sub-item (7)(a) of this Rule, the applicant shall pay the remaining balance due.~~
- (b) ~~The donation of conservation easements to satisfy compensatory mitigation requirements shall be accepted only if the conservation easement is granted in perpetuity.~~
- (c) ~~Donation of real property interests to satisfy the mitigation determination shall be accepted only if such property meets all of the following requirements:~~
- (i) ~~The property shall be located within an area that is identified as a priority for restoration in the Basinwide Wetlands and Riparian Restoration Plan developed by the Department pursuant to G.S. 143-214.10 or shall be located at a site that is otherwise consistent with the goals outlined in the Basinwide Wetlands and Riparian Restoration Plan.~~
- (ii) ~~The property shall contain riparian buffers not currently protected by the State's riparian buffer protection program that are in need of restoration.~~
- (iii) ~~The restorable riparian buffer on the property shall have a minimum length of 1000 linear feet along a surface water and a minimum width of 50 feet as measured horizontally on a line perpendicular to the surface water.~~
- (iv) ~~The size of the restorable riparian buffer on the property to be donated shall equal or exceed the acreage of riparian buffer required to be mitigated under the mitigation responsibility determined pursuant to Item (3) of this Rule.~~
- (v) ~~The property shall not require excessive measures for successful restoration, such as removal of structures or infrastructure. Restoration of the property shall be capable of fully offsetting the adverse impacts of the requested use.~~
- (vi) ~~The property shall be suitable to be successfully restored, based on existing hydrology, soils, and vegetation.~~
- (vii) ~~The estimated cost of restoring and maintaining the property shall not exceed the value of the property minus site identification and land acquisition costs.~~

- (ix) The property shall not contain any building, structure, object, site, or district that is listed in the National Register of Historic Places established pursuant to Public Law 89-665, 16 U.S.C. 470 as amended.
  - (x) The property shall not contain any hazardous substance or solid waste.
  - (xi) The property shall not contain structures or materials that present health or safety problems to the general public. If wells, septic, water or sewer connections exist, they shall be filled, remediated or closed at owner's expense in accordance with state and local health and safety regulations.
  - (xii) The property and adjacent properties shall not have prior, current, and known future land use that would inhibit the function of the restoration effort.
  - (xiii) The property shall not have any encumbrances or conditions on the transfer of the property interests.
- (d) At the expense of the applicant or donor, the following information shall be submitted to the Division with any proposal for donations or dedications of interest in real property:
- (i) Documentation that the property meets the requirements laid out in Sub-Item (8)(c) of this Rule.
  - (ii) US Geological Survey 1:24,000 (7.5 minute) scale topographic map, county tax map, USDA Natural Resource Conservation Service County Soil Survey Map, and county road map showing the location of the property to be donated along with information on existing site conditions, vegetation types, presence of existing structures and easements.
  - (iii) A current property survey performed in accordance with the procedures of the North Carolina Department of Administration, State Property Office as identified by the State Board of Registration for Professional Engineers and Land Surveyors in "Standards of Practice for Land Surveying in North Carolina." Copies may be obtained from the North Carolina State Board of Registration for Professional Engineers and Land Surveyors, 3620 Six Forks Road, Suite 300, Raleigh, North Carolina 27609.
  - (iv) A current appraisal of the value of the property performed in accordance with the procedures of the North Carolina Department of Administration, State Property Office as identified by the Appraisal Board in the "Uniform Standards of Professional North Carolina Appraisal Practice." Copies may be obtained from the Appraisal Foundation, Publications Department, P.O. Box 96734, Washington, D.C. 20090 6734.
  - (v) A title certificate.
- (9) **RIPARIAN BUFFER RESTORATION OR ENHANCEMENT.** Persons who choose to meet their mitigation requirement through riparian buffer restoration or enhancement shall meet the following requirements:
- (a) The applicant may restore or enhance a non-forested riparian buffer if either of the following applies:
    - (i) The area of riparian buffer restoration is equal to the required area of mitigation determined pursuant to Item (3) of this Rule.
    - (ii) The area of riparian buffer enhancement is three times larger than the required area of mitigation determined pursuant to Item (3) of this Rule.
  - (b) The location of the riparian buffer restoration or enhancement shall comply with the requirements in Item (4) of this Rule.
  - (c) The riparian buffer restoration or enhancement site shall have a minimum width of 50 feet as measured horizontally on a line perpendicular to the surface water.

- (d) ~~The applicant shall first receive an Authorization Certificate for the proposed use according to the requirements of 15A NCAC 2B .0233. After receiving this determination, the applicant shall submit a restoration or enhancement plan for approval by the Division. The restoration or enhancement plan shall contain the following:~~
- ~~(i) A map of the proposed restoration or enhancement site.~~
  - ~~(ii) A vegetation plan. The vegetation plan shall include a minimum of at least two native hardwood tree species planted at a density sufficient to provide 320 trees per acre at maturity.~~
  - ~~(iii) A grading plan. The site shall be graded in a manner to ensure diffuse flow through the riparian buffer.~~
  - ~~(iv) A fertilization plan.~~
  - ~~(v) A schedule for implementation.~~
- (e) ~~Within one year after the Division has approved the restoration or enhancement plan, the applicant shall present proof to the Division that the riparian buffer has been restored or enhanced. If proof is not presented within this timeframe, then the person shall be in violation of the State's or the delegated local authority's riparian buffer protection program.~~
- (f) ~~The mitigation area shall be placed under a perpetual conservation easement that will provide for protection of the property's nutrient removal functions.~~
- (g) ~~The applicant shall submit annual reports for a period of five years after the restoration or enhancement showing that the trees planted have survived and that diffuse flow through the riparian buffer has been maintained. The applicant shall replace trees that do not survive and restore diffuse flow if needed during that five year period.~~

*History Note: Authority 143-214.1; 143-214.7; 143-215.3(a)(1); S.L. 1998, c. 221;  
Temporary Adoption Eff. June 22, 1999;  
Eff. August 1, 2000.*

#### **15A NCAC 02B .0244 CATAWBA RIVER BASIN: MITIGATION PROGRAM FOR PROTECTION AND MAINTENANCE OF EXISTING RIPARIAN BUFFERS IN THE CATAWBA RIVER BASIN**

The following are the requirements for the Riparian Buffer Mitigation Program for the Catawba River Basin:

- (1) **PURPOSE.** The purpose of this Rule is to set forth the mitigation requirements that apply to maintain and protect existing riparian buffers on the Catawba River mainstem below Lake James and mainstem lakes from and including Lake James to the North Carolina/South Carolina border in the Catawba River Basin, as described in Rule 15A NCAC 02B .0243.
- (2) **APPLICABILITY.** This Rule applies to persons who wish to impact a riparian buffer in the Catawba Basin when one of the following applies:
  - (a) A person has received an Authorization Certificate pursuant to 15A NCAC 02B .0243 for a proposed use that is designated as "allowable with mitigation."
  - (b) A person has received a variance pursuant to 15A NCAC 02B .0243 and is required to perform mitigation as a condition of a variance approval.
- (3) **THE AREA OF MITIGATION.** The required area of mitigation shall be determined by either the Division or a local government with an approved riparian buffer ordinance according to the following:

- (a) The impacts in square feet to each zone of the riparian buffer shall be determined by adding the following:
  - (i) The area of the footprint of the use causing the impact to the riparian buffer.
  - (ii) The area of any clearing and grading activities within the riparian buffer necessary to accommodate the use.
  - (iii) The area of any ongoing maintenance corridors within the riparian buffer associated with the use.
- (b) The required area of mitigation shall be determined by applying the following multipliers to the impacts determined in Sub item (3)(a) of this Rule:
  - (i) Impacts to Zone 1 of the riparian buffer shall be multiplied by 2.
  - (ii) Impacts to Zone 2 of the riparian buffer shall be multiplied by 1.5.
- (4) ~~THE LOCATION OF MITIGATION.~~ The mitigation effort shall be the same distance from the Catawba River as the proposed impact and as close to the location of the impact as feasible.
- (5) ~~ISSUANCE OF THE MITIGATION DETERMINATION.~~ The Division or a local government with an approved buffer program shall issue a mitigation determination that specifies the required area and location of mitigation pursuant to Items (3) and (4) of this Rule.
- (6) ~~OPTIONS FOR MEETING THE MITIGATION DETERMINATION.~~ The mitigation determination made pursuant to Item (5) of this Rule may be met through one of the following options:
  - (a) Payment of a compensatory mitigation fee to the Riparian Buffer Restoration Fund pursuant to Item (7) of this Rule.
  - (b) Donation of real property or of an interest in real property pursuant to Item (8) of this Rule.
  - (c) Restoration or enhancement of a non-forested riparian buffer as defined in the Rule 15A NCAC 02B .0243. This shall be accomplished by the applicant after submittal and approval of a restoration plan pursuant to Item (9) of this Rule.
- (7) ~~PAYMENT TO THE RIPARIAN BUFFER RESTORATION FUND.~~ Persons who choose to satisfy their mitigation determination by paying a compensatory mitigation fee to the Riparian Buffer Restoration Fund shall meet the following requirements:
  - (a) ~~SCHEDULE OF FEES:~~ The amount of payment into the Fund shall be determined by square feet of mitigation determination made pursuant to Item (5) of this Rule by ninety-six cents per square foot.
  - (b) The required fee shall be submitted to the Division of Water Quality, Wetlands Restoration Program, Mail Service Center 1619, Raleigh, NC 27699-1619 prior to any activity that results in the removal or degradation of the protected riparian buffer for which a "no practical alternatives" determination has been made.
  - (c) The payment of a compensatory mitigation fee may be fully or partially satisfied by donation of real property interests pursuant to Item (8) of this Rule.
  - (d) The Division shall review the fee outlined in Sub item (7)(a) of this Rule every two years and compare it to the actual cost of restoration activities conducted by the Department, including site identification, planning, implementation, monitoring and maintenance costs. Based upon this biennial review, the Division shall recommend revisions to Sub item (7)(a) of this Rule when adjustments to this Schedule of Fees are deemed necessary.
- (8) ~~DONATION OF PROPERTY.~~ Persons who choose to satisfy their mitigation determination by donating real property or an interest in real property shall meet the following requirements:
  - (a) The donation of real property interests may be used to either partially or fully satisfy the payment of a compensatory mitigation fee to the Riparian Buffer Restoration Fund pursuant to Item (7) of this Rule. The value of the property interest shall be determined by an appraisal performed in accordance with Sub item (8)(d)(iv) of this Rule. The donation shall satisfy the mitigation determination if the appraised value of the donated property interest is equal to or greater than the required fee. If the appraised value of the

- donated property interest is less than the required fee calculated pursuant to Sub-item (7)(a) of this Rule, the applicant shall pay the remaining balance due.
- (b) The donation of conservation easements to satisfy compensatory mitigation requirements shall be accepted only if the conservation easement is granted in perpetuity.
- (c) Donation of real property interests to satisfy the mitigation determination shall be accepted only if such property meets all of the following requirements:
- (i) The property shall be located within an area that is identified as a priority for restoration in the Basinwide Wetlands and Riparian Restoration Plan for the Catawba River Basin developed by the Department pursuant to G.S. 143-214.10 or shall be located at a site that is otherwise consistent with the goals outlined in Basinwide Wetlands and Riparian Restoration Plan for the Catawba River Basin.
  - (ii) The property shall contain riparian buffers not currently protected by the State's riparian buffer protection program that are in need of restoration.
  - (iii) The restorable riparian buffer on the property shall have a minimum length of 1000 linear feet along a surface water and a minimum width of 50 feet. For the Catawba River mainstem below Lake James, the width of the riparian buffer shall begin at the most landward limit of the top of the bank and extend landward a distance of 50 feet, measured horizontally on a line perpendicular to a vertical line marking the edge of the top of the bank. For the mainstem lakes located on the Catawba River mainstem, the width of the riparian buffer shall begin at the most landward limit of the full pond level and extend landward a distance of 50 feet, measured horizontally on a line perpendicular to a vertical line marking the edge of the full pond level.
  - (iv) The size of the restorable riparian buffer on the property to be donated shall equal or exceed the acreage of riparian buffer required to be mitigated under the mitigation responsibility determined pursuant to Item (3) of this Rule.
  - (v) The property shall not require excessive measures for successful restoration, such as removal of structures or infrastructure. Restoration of the property shall be capable of offsetting the adverse impacts of the requested use.
  - (vi) The property shall be suitable to be restored, based on existing hydrology, soils, and vegetation.
  - (vii) The estimated cost of restoring and maintaining the property shall not exceed the value of the property minus site identification and land acquisition costs.
  - (ix) The property shall not contain any building, structure, object, site, or district that is listed in the National Register of Historic Places established pursuant to Public Law 89-665, 16 U.S.C. 470 as amended.
  - (x) The property shall not contain any hazardous substance or solid waste.
  - (xi) The property shall not contain structures or materials that present health or safety problems to the general public. If wells, septic, water or sewer connections exist, they shall be filled, remediated or closed at owner's expense in accordance with state and local health and safety regulations.
  - (xii) The property and adjacent properties shall not have prior, current, or known future land use that would inhibit the function of the restoration effort.
  - (xiii) The property shall not have any encumbrances or conditions on the transfer of the property interests.
- (d) At the expense of the applicant or donor, the following information shall be submitted to the Division with any proposal for donations or dedications of interest in real property:

- (i) Documentation that the property meets the requirements laid out in Sub-Item (8)(e) of this Rule.
- (ii) US Geological Survey 1:24,000 (7.5 minute) scale topographic map, county tax map, USDA Natural Resource Conservation Service County Soil Survey Map, and county road map showing the location of the property to be donated along with information on existing site conditions, vegetation types, presence of existing structures and easements.
- (iii) A current property survey performed in accordance with the procedures of the North Carolina Department of Administration, State Property Office as identified by the State Board of Registration for Professional Engineers and Land Surveyors in "Standards of Practice for Land Surveying in North Carolina." Copies may be obtained from the North Carolina State Board of Registration for Professional Engineers and Land Surveyors, 3620 Six Forks Road, Suite 300, Raleigh, North Carolina 27609.
- (iv) A current appraisal of the value of the property performed in accordance with the procedures of the North Carolina Department of Administration, State Property Office as identified by the Appraisal Board in the "Uniform Standards of Professional North Carolina Appraisal Practice." Copies may be obtained from the Appraisal Foundation, Publications Department, P.O. Box 96734, Washington, D.C. 20090-6734.
- (v) A title certificate.

~~(9) RIPARIAN BUFFER RESTORATION OR RIPARIAN BUFFER ENHANCEMENT.~~ Persons who choose to meet their mitigation requirement through riparian buffer restoration or enhancement shall meet the following requirements:

- (a) The applicant may restore or enhance a non-forested riparian buffer if either of the following applies:
  - (i) The area of riparian buffer restoration is equal to the required area of mitigation determined pursuant to Sub-Item (3)(b) of this Rule.
  - (ii) The area of riparian buffer enhancement is three times larger than the required area of mitigation determined pursuant to Sub-Item (3)(b) of this Rule.
- (b) The location of the riparian buffer restoration or enhancement shall comply with the requirements in Item (4) of this Rule.
- (c) The riparian buffer restoration or riparian buffer enhancement site shall have a minimum width of 50 feet. For the Catawba River mainstem below Lake James, the width of the riparian buffer shall begin at the most landward limit of the top of the bank and extend landward a distance of 50 feet, measured horizontally on a line perpendicular to a vertical line marking the edge of the top of the bank. For the mainstem lakes located on the Catawba River mainstem, the width of the riparian buffer shall begin at the most landward limit of the full pond level and extend landward a distance of 50 feet, measured horizontally on a line perpendicular to a vertical line marking the edge of the full pond level.
- (d) The applicant shall first receive an Authorization Certificate for the proposed use according to the requirements of 15A NCAC 02B .0243. After receiving this determination, the applicant shall submit a riparian buffer restoration or riparian buffer enhancement plan for approval by the Division. The riparian buffer restoration or riparian buffer enhancement plan shall contain the following:
  - (i) A map of the proposed riparian buffer restoration or riparian buffer enhancement site.
  - (ii) A vegetation plan. The vegetation plan shall include a minimum of at least two native hardwood tree species planted at a density sufficient to provide 320 trees per acre at maturity.

- (iii) A grading plan. The site shall be graded in a manner to ensure diffuse flow through the riparian buffer.
- (iv) A fertilization plan.
- (v) A schedule for implementation.
- (e) Within one year after the Division has approved the riparian buffer restoration or riparian buffer enhancement plan, the applicant shall present proof to the Division that the riparian buffer has been restored or enhanced. If proof is not presented within this timeframe, then the person shall be in violation of both the State and a local riparian buffer ordinance.
- (f) The mitigation area shall be placed under a perpetual conservation easement that will provide for protection of the property's nutrient removal functions.
- (g) The applicant shall submit annual reports for a period of five years after the riparian buffer restoration or riparian buffer enhancement showing that the trees planted have survived and that diffuse flow through the riparian buffer has been maintained. The applicant shall replace trees that do not survive and restore diffuse flow if needed during that five-year period.

*History Note: Authority G.S. 143-214.1; 143-214.7; 143-215.3(a)(1); S.L. 1999, c. 329, s. 7.1; S.B. 824-2003; Temporary Adoption Eff. June 30, 2001 (exempt from 270 day requirement - S.L. 2001-418 & S.L. 2003-340); Eff. August 1, 2004.*

#### **15A NCAC 02B .0252 RANDLEMAN LAKE WATER SUPPLY WATERSHED: MITIGATION PROGRAM FOR PROTECTION AND MAINTENANCE OF EXISTING RIPARIAN BUFFERS**

The following are the requirements for the Riparian Buffer Mitigation Program for the Randleman Lake Water Supply Watershed:

- (1) **PURPOSE.** The purpose of this Rule is to set forth the mitigation requirements that apply to the Randleman Lake Water Supply Watershed existing riparian buffer protection program, as described in Rule 15A NCAC 02B .0250.
- (2) **APPLICABILITY.** This Rule applies to persons who wish to impact a riparian buffer in the Randleman Lake water supply watershed when one of the following applies:
  - (a) A person has received an Authorization Certificate pursuant to 15A NCAC 02B .0250 for a proposed use that is designated as potentially allowable with mitigation; and
  - (b) A person has received a variance pursuant to 15A NCAC 02B .0250 and is required to perform mitigation as a condition of a variance approval.
- (3) **THE AREA OF MITIGATION.** The required area of mitigation shall be determined by either the Division or the delegated local authority according to the following:
  - (a) The impacts in square feet to each zone of the riparian buffer shall be determined by the Division or the delegated local authority by adding the following:
    - (i) The area of the footprint of the use causing the impact to the riparian buffer;
    - (ii) The area of the boundary of any clearing and grading activities within the riparian buffer necessary to accommodate the use; and
    - (iii) The area of any ongoing maintenance corridors within the riparian buffer associated with the use; and
  - (b) The required area of mitigation shall be determined by applying the following multipliers to the impacts determined in Sub item (3)(a) of this Rule to each zone of the riparian buffer:
    - (i) Impacts to Zone 1 of the riparian buffer shall be multiplied by 3;

- (ii) Impacts to Zone 2 of the riparian buffer shall be multiplied by 1.5; and
  - (iii) Impacts to wetlands within Zones 1 and 2 of the riparian buffer that are subject to mitigation under 15A NCAC 02H .0506 shall comply with the mitigation ratios in 15A NCAC 02H .0506.
- ~~(4) THE LOCATION OF MITIGATION.~~ The mitigation effort shall be the same distance from the Cape Fear River or its tributaries and within the watershed of Lake Randleman as the proposed impact, or closer to the Cape Fear River and within the watershed of Lake Randleman than the impact, and as close to the location of the impact as feasible.
- ~~(5) ISSUANCE OF THE MITIGATION DETERMINATION.~~ The Division or the delegated local authority shall issue a mitigation determination that specifies the required area and location of mitigation pursuant to Items (3) and (4) of this Rule.
- ~~(6) OPTIONS FOR MEETING THE MITIGATION DETERMINATION.~~ The mitigation determination made pursuant to Item (5) of this Rule may be met through one of the following options:
- ~~(a) Payment of a compensatory mitigation fee to the Riparian Buffer Restoration Fund pursuant to Item (7) of this Rule;~~
  - ~~(b) Donation of real property or of an interest in real property pursuant to Item (8) of this Rule; and~~
  - ~~(c) Restoration or enhancement of a non-forested riparian buffer. This shall be accomplished by the applicant after submittal and approval of a restoration plan pursuant to Item (9) of this Rule.~~
- ~~(7) PAYMENT TO THE RIPARIAN BUFFER RESTORATION FUND.~~ Persons who choose to satisfy their mitigation determination by paying a compensatory mitigation fee to the Riparian Buffer Restoration Fund shall do so in accordance with 15A NCAC 02B .0269.
- ~~(8) DONATION OF PROPERTY.~~ Persons who choose to satisfy their mitigation determination by donating real property or an interest in real property shall meet the following requirements:
- ~~(a) The donation of real property interests may be used to either partially or fully satisfy the payment of a compensatory mitigation fee to the Riparian Buffer Restoration Fund pursuant to Item (7) of this Rule. The value of the property interest shall be determined by an appraisal performed in accordance with Sub Item (8)(d) (iv) of this Rule. The donation shall satisfy the mitigation determination if the appraised value of the donated property interest is equal to or greater than the required fee. If the appraised value of the donated property interest is less than the required fee calculated pursuant to Item (7) of this Rule, the applicant shall pay the remaining balance due;~~
  - ~~(b) The donation of conservation easements to satisfy compensatory mitigation requirements shall be accepted only if the conservation easement is granted in perpetuity;~~
  - ~~(c) Donation of real property interests to satisfy the mitigation determination shall be accepted only if such property meets all of the following requirements:~~
    - ~~(i) The property shall be located within an area that is identified as a priority for restoration in the Basinwide Wetlands and Riparian Restoration Plan developed by the Department pursuant to G.S. 143-214.10 or shall be located at a site that is otherwise consistent with the goals outlined in the Basinwide Wetlands and Riparian Restoration Plan;~~
    - ~~(ii) The property shall contain riparian buffers not currently protected by the State's riparian buffer protection program that are in need of restoration;~~
    - ~~(iii) The restorable riparian buffer on the property shall have a minimum length of 1000 linear feet along a surface water and a minimum width of 50 feet as measured horizontally on a line perpendicular to the surface water;~~

- ~~(iv) The size of the restorable riparian buffer on the property to be donated shall equal or exceed the acreage of riparian buffer required to be mitigated under the mitigation responsibility determined pursuant to Item (3) of this Rule;~~
  - ~~(v) The property shall not require excessive measures for successful restoration, such as removal of structures or infrastructure. Restoration of the property shall be capable of fully offsetting the adverse impacts of the requested use;~~
  - ~~(vi) The property shall be suitable to be successfully restored, based on existing hydrology, soils, and vegetation;~~
  - ~~(vii) The estimated cost of restoring and maintaining the property shall not exceed the value of the property minus site identification and land acquisition cost;~~
  - ~~(viii) The property shall not contain any building, structure, object, site, or district that is listed in the National Register of Historic Places established pursuant to Public Law 89-665, 16 U.S.C. 470 as amended;~~
  - ~~(ix) The property shall not contain any hazardous substance or solid waste;~~
  - ~~(x) The property shall not contain structures or materials that present health or safety problems to the general public. If wells, septic, water or sewer connections exist, they shall be filled, remediated or closed at owner's expense in accordance with state and local health and safety regulations;~~
  - ~~(xi) The property and adjacent properties shall not have prior, current, and known future land use that would inhibit the function of the restoration effort; and~~
  - ~~(xii) The property shall not have any encumbrances or conditions on the transfer of the property interests; and~~
  - ~~(xiii) The location of the donation of real property shall comply with the requirements in Item (4) of this Rule.~~
- ~~(d) At the expense of the applicant or donor, the following information shall be submitted to the local governments, except state and federal entities shall submit to the Division, with any proposal for donations or dedications of interest in real property:~~
- ~~(i) Documentation that the property meets the requirements laid out in Sub Item (8)(e) of this Rule;~~
  - ~~(ii) US Geological Survey 1:24,000 (7.5 minute) scale topographic map, county tax map, USDA Natural Resource Conservation Service County Soil Survey Map, and county road map showing the location of the property to be donated along with information on existing site conditions, vegetation types, presence of existing structures and easements;~~
  - ~~(iii) A current property survey performed in accordance with the procedures of the North Carolina Department of Administration, State Property Office as identified by the State Board of Registration for Professional Engineers and Land Surveyors in "Standards of Practice for Land Surveying in North Carolina." Copies may be obtained from the North Carolina State Board of Registration for Professional Engineers and Land Surveyors, 3620 Six Forks Road, Suite 300, Raleigh, North Carolina 27609;~~
  - ~~(iv) A current appraisal of the value of the property performed in accordance with the procedures of the North Carolina Department of Administration, State Property Office as identified by the Appraisal Board in the "Uniform Standards of Professional North Carolina Appraisal Practice." Copies may be obtained from the Appraisal Foundation, Publications Department, P.O. Box 96734, Washington, D.C. 20090-6734; and~~
  - ~~(v) A title certificate.~~

- ~~(9) RIPARIAN BUFFER RESTORATION OR ENHANCEMENT. Persons who choose to meet their mitigation requirement through riparian buffer restoration or enhancement shall meet the following requirements:~~
- ~~(a) The applicant may restore or enhance a non-forested riparian buffer if either of the following applies:
 
    - ~~(i) The area of riparian buffer restoration is equal to the required area of mitigation determined pursuant to Item (3) of this Rule; and~~
    - ~~(ii) The area of riparian buffer enhancement is three times larger than the required area of mitigation determined pursuant to Item (3) of this Rule;~~~~
  - ~~(b) The location of the riparian buffer restoration or enhancement shall comply with the requirements in Item (4) of this Rule;~~
  - ~~(c) The riparian buffer restoration or enhancement site shall have a minimum width of 50 feet as measured horizontally on a line perpendicular to the surface water;~~
  - ~~(d) Enhancement and restoration shall both have the objective of establishing a forested riparian buffer according to the requirements of this Item. Enhancement shall be distinguished from the restoration based on existing buffer conditions. Where existing woody vegetation is sparse, that is greater than or equal to 100 trees per acre, but less than 200 trees per acre, a buffer may be enhanced. Where existing woody vegetation is absent, that is less than 100 trees per acre, a buffer may be restored;~~
  - ~~(e) The applicant shall first receive an Authorization Certificate for the proposed use according to the requirements of 15A NCAC 02B .0250. After receiving this determination, the applicant shall submit a restoration or enhancement plan for approval by the local government, except for state and federal entities that shall submit a restoration or enhancement plan for approval to the Division. The restoration or enhancement plan shall contain the following:
 
    - ~~(i) A map of the proposed restoration or enhancement site;~~
    - ~~(ii) A vegetation plan. The vegetation plan shall include a minimum of at least two native hardwood tree species planted at a density sufficient to provide 320 trees per acre at maturity;~~
    - ~~(iii) A grading plan. The site shall be graded in a manner to ensure diffuse flow through the riparian buffer;~~
    - ~~(iv) A fertilization plan; and~~
    - ~~(v) A schedule for implementation;~~~~
  - ~~(f) Within one year after the Division has approved the restoration or enhancement plan, the applicant shall present proof to the Division that the riparian buffer has been restored or enhanced. If proof is not presented within this timeframe, then the person shall be in violation of the State's or the delegated local authority's riparian buffer protection program;~~
  - ~~(g) The mitigation area shall be placed under a perpetual conservation easement that will provide for protection of the property's sediment removal functions; and~~
  - ~~(h) The applicant shall submit annual reports for a period of five years after the restoration or enhancement showing that the trees planted have survived and that diffuse flow through the riparian buffer has been maintained. The applicant shall replace trees that do not survive and restore diffuse flow if needed during that five-year period.~~

*History Note: Authority 143-214.1; 143-214.7; 143-215.3(a)(1); S.L. 1998, c. 221; Eff. June 1, 2010.*

**15A NCAC 02B .0260 TAR-PAMLICO RIVER BASIN - NUTRIENT SENSITIVE WATERS  
MANAGEMENT STRATEGY: MITIGATION PROGRAM FOR PROTECTION AND MAINTENANCE  
OF RIPARIAN BUFFERS**

The following are requirements for the Riparian Buffer Mitigation Program for the Tar-Pamlico Basin:

- (1) **PURPOSE.** The purpose of this Rule is to set forth the mitigation requirements that apply to the riparian buffer protection program in the Tar-Pamlico Basin, as described in Rule 15A NCAC 2B .0259, and whose surface waters are described in the Schedule of Classifications, 15A NCAC 2B .0316.
- (2) **APPLICABILITY.** This Rule applies to persons who wish to impact a riparian buffer in the Tar-Pamlico Basin when one of the following applies:
  - (a) A person has received an Authorization Certificate pursuant to 15A NCAC 2B .0259 for a proposed use that is designated as "allowable with mitigation."
  - (b) A person has received a variance pursuant to 15A NCAC 2B .0259 and is required to perform mitigation as a condition of a variance approval.
- (3) **THE AREA OF MITIGATION.** The required area of mitigation shall be determined by either the Division or the delegated local authority according to the following:
  - (a) The impacts in square feet to each zone of the riparian buffer shall be determined by the Division or the delegated local authority by adding the following:
    - (i) The area of the footprint of the use causing the impact to the riparian buffer.
    - (ii) The area of the boundary of any clearing and grading activities within the riparian buffer necessary to accommodate the use.
    - (iii) The area of any ongoing maintenance corridors within the riparian buffer associated with the use.
  - (b) The required area of mitigation shall be determined by applying the following multipliers to the impacts determined in Sub item (3)(a) of this Paragraph to each zone of the riparian buffer:
    - (i) Impacts to Zone 1 of the riparian buffer shall be multiplied by 3.
    - (ii) Impacts to Zone 2 of the riparian buffer shall be multiplied by 1.5.
    - (iii) Impacts to wetlands within Zones 1 and 2 of the riparian buffer that are subject to mitigation under 15A NCAC 2H .0506 shall comply with the mitigation ratios in 15A NCAC 2H .0506.
- (4) **THE LOCATION OF MITIGATION.** The mitigation effort shall be located the same distance from the Pamlico River estuary as the proposed impact, or closer to the estuary than the impact, and as close to the location of the impact as feasible.
- (5) **ISSUANCE OF THE MITIGATION DETERMINATION.** The Division or the delegated local authority shall issue a mitigation determination that specifies the required area and location of mitigation pursuant to Items (3) and (4) of this Rule.
- (6) **OPTIONS FOR MEETING THE MITIGATION DETERMINATION.** The mitigation determination made pursuant to Item (5) of this Rule may be met through one of the following options:
  - (a) Payment of a compensatory mitigation fee to the Riparian Buffer Restoration Fund pursuant to Item (7) of this Rule.
  - (b) Donation of real property or of an interest in real property pursuant to Item (8) of this Rule.
  - (c) Restoration or enhancement of a non-forested riparian buffer. This shall be accomplished by the applicant after submittal and approval of a restoration plan pursuant to Item (9) of this Rule.
- (7) **PAYMENT TO THE RIPARIAN BUFFER RESTORATION FUND.** Persons who choose to satisfy their mitigation determination by paying a compensatory mitigation fee to the Riparian Buffer Restoration Fund shall meet the following requirements:

- (a) ~~SCHEDULE OF FEES:~~ The amount of payment into the Fund shall be determined by multiplying the acres or square feet of mitigation determination made pursuant to Item (5) of this Rule by ninety six cents per square foot or forty one thousand, six hundred and twenty five dollars per acre.
- (b) ~~The required fee shall be submitted to the Division of Water Quality, Wetlands Restoration Program, 1619 Mail Service Center, Raleigh, NC 27699-1619 prior to any activity that results in the removal or degradation of the protected riparian buffer for which a "no practical alternatives" determination has been made.~~
- (c) ~~The payment of a compensatory mitigation fee may be fully or partially satisfied by donation of real property interests pursuant to Item (8) of this Rule.~~
- (d) ~~The Division of Water Quality shall review the fee outlined in Sub item (7)(a) of this Rule every two years and shall compare it to the actual cost of restoration activities conducted by the Department, including site identification, planning, implementation, monitoring and maintenance costs. Based upon this biennial review, the Division of Water Quality shall recommend revisions to Sub item (7)(a) of this Rule when adjustments to this Schedule of Fees are deemed necessary.~~
- (8) ~~DONATION OF PROPERTY.~~ Persons who choose to satisfy their mitigation determination by donating real property or an interest in real property shall meet the following requirements:
- (a) ~~The donation of real property interests may be used to either partially or fully satisfy the payment of a compensatory mitigation fee to the Riparian Buffer Restoration Fund pursuant to Item (7) of this Rule. The value of the property interest shall be determined by an appraisal performed in accordance with Sub item (8)(d)(iv) of this Rule. The donation shall satisfy the mitigation determination if the appraised value of the donated property interest is equal to or greater than the required fee. If the appraised value of the donated property interest is less than the required fee calculated pursuant to Sub item (7)(a) of this Rule, the applicant shall pay the remaining balance due.~~
- (b) ~~The donation of conservation easements to satisfy compensatory mitigation requirements shall be accepted only if the conservation easement is granted in perpetuity.~~
- (c) ~~Donation of real property interests to satisfy the mitigation determination shall be accepted only if such property meets all of the following requirements:~~
- (i) ~~The property shall be located within an area that is identified as a priority for restoration in the Basinwide Wetlands and Riparian Restoration Plan developed by the Department pursuant to G.S. 143-214.10 or shall be located at a site that is otherwise consistent with the goals outlined in the Basinwide Wetlands and Riparian Restoration Plan.~~
- (ii) ~~The property shall contain riparian buffers not currently protected by the State's riparian buffer protection program that are in need of restoration.~~
- (iii) ~~The restorable riparian buffer on the property shall have a minimum length of 1000 linear feet along a surface water and a minimum width of 50 feet as measured horizontally on a line perpendicular to the surface water.~~
- (iv) ~~The size of the restorable riparian buffer on the property to be donated shall equal or exceed the acreage of riparian buffer required to be mitigated under the mitigation responsibility determined pursuant to Item (3) of this Rule.~~
- (v) ~~The property shall not require excessive measures for successful restoration, such as removal of structures or infrastructure. Restoration of the property shall be capable of fully offsetting the adverse impacts of the requested use.~~
- (vi) ~~The property shall be suitable to be successfully restored, based on existing hydrology, soils, and vegetation;~~

- (vii) ~~The estimated cost of restoring and maintaining the property shall not exceed the value of the property minus site identification and land acquisition costs.~~
  - (ix) ~~The property shall not contain any building, structure, object, site, or district that is listed in the National Register of Historic Places established pursuant to Public Law 89-665, 16 U.S.C. 470 as amended.~~
  - (x) ~~The property shall not contain any hazardous substance or solid waste.~~
  - (xi) ~~The property shall not contain structures or materials that present health or safety problems to the general public. If wells, septic, water or sewer connections exist, they shall be filled, remediated or closed at owner's expense in accordance with state and local health and safety regulations.~~
  - (xii) ~~The property and adjacent properties shall not have prior, current, and known future land use that would inhibit the function of the restoration effort.~~
  - (xiii) ~~The property shall not have any encumbrances or conditions on the transfer of the property interests.~~
- (d) ~~At the expense of the applicant or donor, the following information shall be submitted to the Division with any proposal for donations or dedications of interest in real property:~~
- (i) ~~Documentation that the property meets the requirements laid out in Sub Item (8)(c) of this Rule.~~
  - (ii) ~~US Geological Survey 1:24,000 (7.5 minute) scale topographic map, county tax map, USDA Natural Resource Conservation Service County Soil Survey Map, and county road map showing the location of the property to be donated along with information on existing site conditions, vegetation types, presence of existing structures and easements.~~
  - (iii) ~~A current property survey performed in accordance with the procedures of the North Carolina Department of Administration, State Property Office as identified by the State Board of Registration for Professional Engineers and Land Surveyors in "Standards of Practice for Land Surveying in North Carolina." Copies may be obtained from the North Carolina State Board of Registration for Professional Engineers and Land Surveyors, 3620 Six Forks Road, Suite 300, Raleigh, North Carolina 27609.~~
  - (iv) ~~A current appraisal of the value of the property performed in accordance with the procedures of the North Carolina Department of Administration, State Property Office as identified by the Appraisal Board in the "Uniform Standards of Professional North Carolina Appraisal Practice." Copies may be obtained from the Appraisal Foundation, Publications Department, P.O. Box 96734, Washington, D.C. 20090-6734.~~
  - (v) ~~A title certificate.~~
- (9) ~~RIPARIAN BUFFER RESTORATION OR ENHANCEMENT. Persons who choose to meet their mitigation requirement through riparian buffer restoration or enhancement shall meet the following requirements:~~
- (a) ~~The applicant may restore or enhance a non-forested riparian buffer if either of the following applies:~~
    - (i) ~~The area of riparian buffer restoration is equal to the required area of mitigation determined pursuant to Item (3) of this Rule.~~
    - (ii) ~~The area of riparian buffer enhancement is three times larger than the required area of mitigation determined pursuant to Item (3) of this Rule.~~
  - (b) ~~The location of the riparian buffer restoration or enhancement shall comply with the requirements in Item (4) of this Rule.~~

- ~~(c) The riparian buffer restoration or enhancement site shall have a minimum width of 50 feet as measured horizontally on a line perpendicular to the surface water.~~
- ~~(d) The applicant shall first receive an Authorization Certificate for the proposed use according to the requirements of 15A NCAC 2B .0259. After receiving this determination, the applicant shall submit a restoration or enhancement plan for approval by the Division. The restoration or enhancement plan shall contain the following:
 
  - ~~(i) A map of the proposed restoration or enhancement site.~~
  - ~~(ii) A vegetation plan. The vegetation plan shall include a minimum of at least two native hardwood tree species planted at a density sufficient to provide 320 trees per acre at maturity.~~
  - ~~(iii) A grading plan. The site shall be graded in a manner to ensure diffuse flow through the riparian buffer.~~
  - ~~(iv) A fertilization plan.~~
  - ~~(v) A schedule for implementation.~~~~
- ~~(e) Within one year after the Division has approved the restoration or enhancement plan, the applicant shall present proof to the Division that the riparian buffer has been restored or enhanced. If proof is not presented within this timeframe, then the person shall be in violation of the State's or the delegated local authority's riparian buffer protection program.~~
- ~~(f) The mitigation area shall be placed under a perpetual conservation easement that will provide for protection of the property's nutrient removal functions.~~
- ~~(g) The applicant shall submit annual reports for a period of five years after the restoration or enhancement showing that the trees planted have survived and that diffuse flow through the riparian buffer has been maintained. The applicant shall replace trees that do not survive and restore diffuse flow if needed during that five year period.~~

*History Note: Authority 143-214.1; 143-214.7; 143-215.3(a)(1); 143-215.6A; 143-215.6B; 143-215.6C; 143B-282(d); S.L. 1999, c. 329, s. 7.1;  
Temporary Adoption Eff. January 1, 2000;  
Eff. August 1, 2000.*

## **15A NCAC 02B .0268 JORDAN WATER SUPPLY NUTRIENT STRATEGY: MITIGATION FOR RIPARIAN BUFFERS**

The following are requirements for the Riparian Buffer Mitigation Program for the Jordan watershed, as prefaced in 15A NCAC 02B .0262:

- (1) **PURPOSE.** The purpose of this Rule is to set forth the mitigation requirements that the local governments in the Jordan watershed and listed in 15A NCAC 02B .0262, and in the cases stated in 15A NCAC 02B .0267(3) the Division, shall apply to the riparian buffer protection program called for in 15A NCAC 02B .0267. Additionally this Rule will help to protect the water supply uses of Jordan Reservoir and of designated water supplies throughout the Jordan watershed. Local programs shall be established to meet or exceed the minimum requirements of this Rule. For the types of buffer activities listed in 15A NCAC 02B .0267(3), the Division shall apply the requirements of this Rule wherever local governments are referenced. The requirements of this Rule shall supersede all locally implemented buffer requirements stated in 15A NCAC 02B .0214 through .0216 as applied to WS II, WS III, and WS IV waters in the Jordan watershed. Local governments may choose to implement more stringent requirements, including the one hundred

foot buffer requirement set out in Sub-Items (3)(b)(i) of 15A NCAC 02B .0214 through .0216 for high-density developments.

- (2) ~~APPLICABILITY.~~ This Rule applies to persons who wish to impact a riparian buffer in the Jordan watershed when one of the following applies:
- (a) A person has received an Authorization Certificate pursuant to 15A NCAC 02B .0267 for a proposed use that is designated as "allowable with mitigation;" or
  - (b) A person has received a variance pursuant to 15A NCAC 02B .0267 and is required to perform mitigation as a condition of a variance approval.
- (3) ~~ISSUANCE OF THE MITIGATION APPROVAL.~~ The local government shall issue a mitigation approval upon determining that a proposal meets the requirements set out in this Rule. The approval shall identify at a minimum the option chosen, the required and proposed areas, and either the mitigation location or the offset payment amount as applicable.
- (4) ~~OPTIONS FOR MEETING THE MITIGATION REQUIREMENT.~~ The mitigation requirement may be met through one of the following options:
- ~~<http://www.saw.usace.army.mil/WETLANDS/Mitigation/mitbanks.html>~~ (a) Payment of a compensatory mitigation fee to the Riparian Buffer Restoration Fund pursuant to 15A NCAC 02B .0269 contingent upon acceptance of payments by the NC Ecosystem Enhancement Program, or to a private mitigation bank that complies with banking requirements of the US Army Corps of Engineers, currently set out at or from the US Army Corps of Engineers, P.O. Box 1890, Wilmington, NC, 28402-1890, and the applicable trading criteria in 15A NCAC 02B .0273;
  - (b) Donation of real property or of an interest in real property pursuant to Item (7) of this Rule; or
  - (c) Restoration or enhancement of a non-forested riparian buffer pursuant to the requirements of Item (8) of this Rule.
- (5) ~~THE AREA OF MITIGATION.~~ The local government shall determine the required area of mitigation, which shall apply to all mitigation options identified in Item (4) of this Rule and as further specified in the requirements for each option set out in this Rule, according to the following:
- (a) The impacts in square feet to each zone of the riparian buffer shall be determined by the local government by adding the following:
    - (i) The area of the footprint of the use causing the impact to the riparian buffer;
    - (ii) The area of the boundary of any clearing and grading activities within the riparian buffer necessary to accommodate the use; and
    - (iii) The area of any ongoing maintenance corridors within the riparian buffer associated with the use.
  - (b) The required area of mitigation shall be determined by applying the following multipliers to the impacts determined in Sub-item (5)(a) of this Rule to each zone of the riparian buffer:
    - (i) Impacts to Zone One of the riparian buffer shall be multiplied by three;
    - (ii) Impacts to Zone Two of the riparian buffer shall be multiplied by one and one-half; and
    - (iii) Impacts to wetlands within Zones One and Two of the riparian buffer that are subject to mitigation under 15A NCAC 02H .0506 shall comply with the mitigation ratios in 15A NCAC 02H .0506.
- (6) ~~THE LOCATION OF MITIGATION.~~ For any option chosen, the mitigation effort shall be located within the same sub-watershed of the Jordan watershed, as defined in Rule .0262 of this Section, and the same distance from the Jordan Reservoir as the proposed impact, or closer to the Reservoir than the impact, and as close to the location of the impact as feasible. Alternatively, the applicant may propose mitigation anywhere within the same sub-watershed of the Jordan watershed, as defined in Rule .0262 of this Section, provided that the mitigation proposal accounts for differences in delivery of nutrients to the affected arm of Jordan Reservoir resulting from

differences between the locations of the buffer impact and mitigation. Additional location requirements for the property donation option are enumerated in Sub-Item (7)(e)(i) of this Rule.

~~(7) DONATION OF PROPERTY. Persons who choose to satisfy their mitigation determination by donating real property or an interest in real property shall meet the following requirements:~~

~~(a) The donation of real property interests may be used to either partially or fully satisfy the payment of a compensatory mitigation fee to the Riparian Buffer Restoration Fund pursuant to 15A NCAC 02B .0269. The value of the property interest shall be determined by an appraisal performed in accordance with Sub-item (7)(d)(iv) of this Rule. The donation shall satisfy the mitigation determination if the appraised value of the donated property interest is equal to or greater than the required fee. If the appraised value of the donated property interest is less than the required fee calculated pursuant to 15A NCAC 02B .0269, the applicant shall pay the remaining balance due;~~

~~(b) Accepted only if the conservation easement is granted in perpetuity;~~

~~(c) Donation of real property interests to satisfy the mitigation determination shall be accepted only if such property meets all of the following requirements:~~

~~(i) In addition to the location requirements of Item (6), the property shall be located within an area that is identified as a priority for restoration in, or is otherwise consistent with the goals of, the *Basinwide Wetlands and Riparian Restoration Plan for the Cape Fear River Basin* developed by the Department pursuant to G.S. 143-214.10;~~

~~(ii) The property shall contain riparian buffers not currently protected by the State's riparian buffer protection program that are in need of restoration as defined in Sub-Item (8)(d) of this Rule;~~

~~(iii) The restorable riparian buffer on the property shall have a minimum length of 1000 linear feet along a surface water and a minimum width of 50 feet as measured horizontally on a line perpendicular to the surface water;~~

~~(iv) The size of the restorable riparian buffer on the property to be donated shall equal or exceed the area of mitigation responsibility determined pursuant to Item (5) of this Rule;~~

~~(v) Restoration shall not require removal of man-made structures or infrastructure;~~

~~(vi) The property shall be suitable to be successfully restored, based on existing hydrology, soils, and vegetation;~~

~~(vii) The estimated cost of restoring and maintaining the property shall not exceed the value of the property minus site identification and transaction costs;~~

~~(viii) The property shall not contain any building, structure, object, site, or district that is listed in the National Register of Historic Places established pursuant to Public Law 89-665, 16 U.S.C. 470 as amended;~~

~~(ix) The property shall not contain any hazardous substance or solid waste;~~

~~(x) The property shall not contain structures or materials that present health or safety problems to the general public. If wells, septic, water or sewer connections exist, they shall be filled, remediated or closed at owner's expense in accordance with state and local health and safety regulations;~~

~~(xi) The property and adjacent properties shall not have prior, current, and known future land use that would inhibit the function of the restoration effort; and~~

~~(xii) The property shall not have any encumbrances or conditions on the transfer of the property interests;~~

~~(d) At the expense of the applicant or donor, the following information shall be submitted to the local government with any proposal for donations or dedications of interest in real property:~~

- (i) Documentation that the property meets the requirements laid out in Sub-Item (7)(c) of this Rule;
  - (ii) US Geological Survey 1:24,000 (7.5 minute) scale topographic map, county tax map, USDA Natural Resource Conservation Service County Soil Survey Map, and county road map showing the location of the property to be donated along with information on existing site conditions, vegetation types, presence of existing structures and easements;
  - (iii) A current property survey performed in accordance with the procedures of the North Carolina Department of Administration, State Property Office as identified by the State Board of Registration for Professional Engineers and Land Surveyors in "Standards of Practice for Land Surveying in North Carolina." Copies may be obtained from the North Carolina State Board of Registration for Professional Engineers and Land Surveyors, 3620 Six Forks Road, Suite 300, Raleigh, North Carolina 27609;
  - (iv) A current appraisal of the value of the property performed in accordance with the procedures of the North Carolina Department of Administration, State Property Office as identified by the Appraisal Board in the "Uniform Standards of Professional North Carolina Appraisal Practice." Copies may be obtained from the Appraisal Foundation, Publications Department, P.O. Box 96734, Washington, D.C. 20090-6734; and
  - (v) A title certificate.
- (8) ~~RIPARIAN BUFFER RESTORATION OR ENHANCEMENT.~~ Persons who choose to meet their mitigation requirement through riparian buffer restoration or enhancement shall meet the following requirements:
- (a) The applicant may restore or enhance a non-forested riparian buffer if either of the following applies:
    - (i) The area of riparian buffer restoration is equal to the required area of mitigation determined pursuant to Item (5) of this Rule; or
    - (ii) The area of riparian buffer enhancement is three times larger than the required area of mitigation determined pursuant to Item (5) of this Rule;
  - (b) The location of the riparian buffer restoration or enhancement shall comply with the requirements in Item (6) of this Rule;
  - (c) The riparian buffer restoration or enhancement site shall have a minimum width of 50 feet as measured horizontally on a line perpendicular to the surface water;
  - (d) Enhancement and restoration shall both have the objective of establishing a forested riparian buffer according to the requirements of this Item. Enhancement shall be distinguished from restoration based on existing buffer conditions. Where existing trees are sparse, that is greater than or equal to 100 trees per acre but less than 200 trees per acre, a buffer may be enhanced. Where existing woody vegetation is absent, that is less than 100 trees per acre, a buffer may be restored;
  - (e) The applicant shall first receive an Authorization Certificate for the proposed use according to the requirements of 15A NCAC 02B .0267. After receiving this determination, the applicant shall submit a restoration or enhancement plan for approval by the local government. The restoration or enhancement plan shall contain the following:
    - (i) A map of the proposed restoration or enhancement site;
    - (ii) A vegetation plan. The vegetation plan shall include a minimum of at least two native hardwood tree species planted at a density sufficient to provide 320 trees per acre at maturity;

- (iii) A grading plan. The site shall be graded in a manner to ensure diffuse flow through the riparian buffer;
  - (iv) A fertilization plan; and
  - (v) A schedule for implementation;
- (f) Within one year after the local government has approved the restoration or enhancement plan, the applicant shall present proof to the local government that the riparian buffer has been restored or enhanced. If proof is not presented within this timeframe, then the person shall be in violation of both the State's and the local government's riparian buffer protection program;
- (g) The mitigation area shall be placed under a perpetual conservation easement that will provide for protection of the property's nutrient removal functions; and
- (h) The applicant shall submit annual reports for a period of five years after the restoration or enhancement showing that the trees planted have survived and that diffuse flow through the riparian buffer has been maintained. The applicant shall replace trees that do not survive and restore diffuse flow if needed during that five-year period.

*History Note: Authority 143-214.1; 143-214.5; 143-214.7; 143-215.3(a)(1); 143-215.6A; 143-215.6B; 143-215.6C; 143-215.8B; 143B-282(c); 143B-282(d); S.L. 1999-329, s. 7.1.; S.L. 2005-190; S.L. 2006-259; Eff. August 11, 2009; Amended Eff. September 1, 2011.*

**15A NCAC 02B .0609 SITE SPECIFIC WATER QUALITY MANAGEMENT PLAN FOR THE GOOSE CREEK WATERSHED (YADKIN PEE-DEE RIVER BASIN): MANAGE ACTIVITIES WITHIN RIPARIAN BUFFERS: MITIGATION REQUIREMENTS FOR BUFFER IMPACTS**

- ~~(a) PURPOSE.~~ The purpose of this Rule is to set forth the mitigation requirements that apply to the Goose Creek Watershed existing riparian buffer protection program, as described in 15A NCAC 02B .0605, .0606, and .0607.
- ~~(b) APPLICABILITY.~~ This Rule applies to persons who wish to impact a riparian buffer in the Goose Creek Watershed when one of the following applies:
- ~~(1) A person has received an Authorization Certificate pursuant to 15A NCAC 02B .0607 for a proposed use that is designated as potentially allowable requiring both DWQ approval and mitigation.~~
  - ~~(2) A person has received a variance pursuant to 15A NCAC 02B .0606 and is required to perform mitigation as a condition of a variance approval.~~
- ~~(c) THE AREA OF MITIGATION.~~ The required area of mitigation shall be determined by either the Division of Water Quality or the delegated local authority according to the following:
- ~~(1) The impacts in square feet to the riparian buffer shall be determined by the Division of Water Quality or the delegated local authority by adding the following:
 
    - ~~(A) The area of the footprint of the use causing the impact to the riparian buffer.~~
    - ~~(B) The area of the boundary of any clearing and grading activities within the riparian buffer necessary to accommodate the use.~~
    - ~~(C) The area of any ongoing maintenance corridors within the riparian buffer associated with the use.~~~~
  - ~~(2) The required area of mitigation shall be determined by applying the following multipliers to the impacts determined in Subparagraph (c)(1) of this Rule to each zone of the riparian buffer:
 
    - ~~(A) Impacts to the riparian buffer shall be multiplied by three.~~
    - ~~(B) Impacts to wetlands within the riparian buffer that are subject to mitigation under 15A NCAC 02H .0506 shall comply with the mitigation ratios in 15A NCAC 02H .0506.~~~~
- ~~(d) THE LOCATION OF MITIGATION.~~ The mitigation effort shall be within the Goose Creek Watershed, as close to the location of the impact as feasible.
- ~~(e) ISSUANCE OF THE MITIGATION DETERMINATION.~~ The Division of Water Quality or the delegated local authority shall issue a mitigation determination that specifies the required area and location of mitigation pursuant to Paragraph (c) of this Rule.
- ~~(f) OPTIONS FOR MEETING THE MITIGATION DETERMINATION.~~ The mitigation determination made pursuant to Paragraph (c) of this Rule may be met through one of the following options:
- ~~(1) Payment of a compensatory mitigation fee to the Riparian Buffer Restoration Fund pursuant to Paragraph (g) of this Rule.~~
  - ~~(2) Donation of real property or of an interest in real property pursuant to Paragraph (h) of this Rule.~~
  - ~~(3) Restoration or enhancement of a non-forested riparian buffer. This shall be accomplished by the applicant after submittal and approval of a restoration plan pursuant to Paragraph (i) of this Rule.~~
- ~~(g) PAYMENT TO THE RIPARIAN BUFFER RESTORATION FUND.~~ Persons who choose to satisfy their mitigation determination by paying a compensatory mitigation fee to the Riparian Buffer Restoration Fund shall meet the following requirements:
- ~~(1) SCHEDULE OF FEES:~~ The amount of payment into the Fund shall be determined by multiplying the acres or square feet of mitigation determination made pursuant to Paragraph (c) of this Rule by ninety-six cents (\$.96) per square foot or forty-one thousand, six hundred and twenty-five dollars (\$41,625) per acre.
  - ~~(2) The required fee shall be submitted to the Division of Water Quality, Wetlands Restoration Program, MAIL SERVICE CENTER 1619, RALEIGH, NC 27699-1619 prior to any activity that results in the removal or degradation of the protected riparian buffer for which a "no practical alternatives" determination has been made.~~

- (3) The payment of a compensatory mitigation fee may be fully or partially satisfied by donation of real property interests pursuant to Paragraph (h) of this Rule.
- (4) The Division of Water Quality shall review the fee outlined in Subparagraph (g)(1) of this Rule every two years and compare it to the actual cost of restoration activities conducted by the Department, including site identification, planning, implementation, monitoring and maintenance costs. Based upon this biennial review, the Division of Water Quality shall recommend revisions to Subparagraph (g)(1) of this Rule when adjustments to this Schedule of Fees are deemed necessary.
- (h) DONATION OF PROPERTY. Persons who choose to satisfy their mitigation determination by donating real property or an interest in real property shall meet the following requirements:
- (1) The donation of real property interests may be used to either partially or fully satisfy the payment of a compensatory mitigation fee to the Riparian Buffer Restoration Fund pursuant to Paragraph (g) of this Rule. The value of the property interest shall be determined by an appraisal performed in accordance with Part (h)(4)(D) of this Rule. The donation shall satisfy the mitigation determination if the appraised value of the donated property interest is equal to or greater than the required fee. If the appraised value of the donated property interest is less than the required fee calculated pursuant to Subparagraph (g)(1) of this Rule, the applicant shall pay the remaining balance due.
  - (2) The donation of conservation easements to satisfy compensatory mitigation requirements shall be accepted only if the conservation easement is granted in perpetuity.
  - (3) Donation of real property interests to satisfy the mitigation determination shall be accepted only if such property meets all of the following requirements:
    - (A) The property shall be located within an area that is identified as a priority for restoration in the Basinwide Wetlands and Riparian Restoration Plan developed by the Department pursuant to G.S. 143-214.10 or shall be located at a site that is otherwise consistent with the goals outlined in the Basinwide Wetlands and Riparian Restoration Plan;
    - (B) The property shall contain riparian areas for restoration, defined in 15A NCAC 02B .0243, not currently protected by the State's riparian buffer protection program that merit restoration;
    - (C) The size of the restorable riparian buffer on the property to be donated shall equal or exceed the acreage of riparian buffer required to be mitigated under the mitigation responsibility determined pursuant to Paragraph (e) of this Rule;
    - (D) The property shall not require excessive measures for successful restoration, such as removal of structures or infrastructure. Restoration of the property shall be capable of fully offsetting the adverse impacts of the requested use;
    - (E) The property shall be suitable to be successfully restored, based on existing hydrology, soils, and vegetation;
    - (F) The estimated cost of restoring and maintaining the property shall not exceed the value of the property minus site identification and land acquisition costs;
    - (G) The property shall not contain any building, structure, object, site, or district that is listed in the National Register of Historic Places established pursuant to Public Law 89-665, 16 U.S.C. 470 as amended;
    - (H) The property shall not contain any hazardous substance or solid waste;
    - (I) The property shall not contain structures or materials that present health or safety problems to the general public. If wells, septic, water or sewer connections exist, they shall be filled, remediated or closed at owner's expense in accordance with state and local health and safety regulations;
    - (J) The property and adjacent properties shall not have prior, current, and known future land use that would inhibit the function of the restoration effort;

- (K) The property shall not have any encumbrances or conditions on the transfer of the property interests.
- (4) At the expense of the applicant or donor, the following information shall be submitted to the Division of Water Quality with any proposal for donations or dedications of interest in real property:
- (A) Documentation that the property meets the requirements laid out in Subparagraph (b)(3) of this Rule.
- (B) US Geological Survey 1:24,000 (7.5 minute) scale topographic map, county tax map, USDA Natural Resource Conservation Service County Soil Survey Map, and county road map showing the location of the property to be donated along with information on existing site conditions, vegetation types, presence of existing structures and easements.
- (C) A current property survey performed in accordance with the procedures of the North Carolina Department of Administration, State Property Office as identified by the State Board of Registration for Professional Engineers and Land Surveyors in "Standards of Practice for Land Surveying in North Carolina." Copies may be obtained from the North Carolina State Board of Registration for Professional Engineers and Land Surveyors, 3620 Six Forks Road, Suite 300, Raleigh, North Carolina 27609.
- (D) A current appraisal of the value of the property performed in accordance with the procedures of the North Carolina Department of Administration, State Property Office as identified by the Appraisal Board in the "Uniform Standards of Professional North Carolina Appraisal Practice." Copies may be obtained from the Appraisal Foundation, Publications Department, P.O. Box 96734, Washington, D.C. 20090-6734.
- (E) A title certificate.
- (i) ~~RIPARIAN BUFFER RESTORATION OR ENHANCEMENT.~~ Persons who choose to meet their mitigation requirement through riparian buffer restoration or enhancement shall meet the following requirements:
- (1) The applicant may restore or enhance riparian buffer defined in 15A NCAC 02B .0243 if either of the following applies:
- (A) The area of riparian buffer restoration is equal to the required area of mitigation determined pursuant to Paragraph (e) of this Rule; or
- (B) The area of riparian buffer enhancement is three times larger than the required area of mitigation determined pursuant to Paragraph (e) of this Rule.
- (2) The location of the riparian buffer restoration or enhancement shall comply with the requirements in Paragraph (d) of this Rule.
- (3) The riparian buffer restoration or enhancement site shall have a minimum width of 50 feet as measured horizontally on a line perpendicular to the surface water and may include the following:
- (A) Restoration/enhancement of existing riparian areas.
- (B) Restoration/enhancement and respective preservation of streamside areas when the stream is not depicted on USGS map or Soil Survey.
- (C) Preservation of streamside areas when the stream is not depicted on USGS map or Soil Survey.
- (D) Restoration/enhancement and respective preservation of streamside areas along first order ephemeral streams that discharge/outlet into intermittent or perennial streams.
- (E) Preservation of the streamside area along first order ephemeral streams that discharge/outlet intermittent or perennial stream.
- (4) Other individual/innovative mitigation projects may be approved by the Division of Water Quality that meet the purpose of this Rule.
- (5) The applicant shall first receive an Authorization Certificate for the proposed use according to the requirements of 15A NCAC 02B .0607. After receiving this determination, the applicant shall submit a restoration or enhancement plan for approval by the Division of Water Quality. The

Division of Water Quality shall approve plans that meet the requirements of this Rule. The restoration or enhancement plan shall contain the following:

- (A) A map of the proposed restoration or enhancement site.
  - (B) A vegetation plan. The vegetation plan shall include a minimum of two native hardwood tree species planted at a density sufficient to provide 320 trees per acre at maturity.
  - (C) A grading plan. The site shall be graded in a manner to ensure diffuse flow through the riparian buffer.
  - (D) A fertilization plan.
  - (E) A schedule for implementation.
- (6) Within one year after the Division of Water Quality has approved the restoration or enhancement plan, the applicant shall present proof to the Division of Water Quality that the riparian buffer has been restored or enhanced. If proof is not presented within this timeframe, then the person shall be in violation of the State's or the delegated local authority's riparian buffer protection program.
- (7) The mitigation area shall be placed under a perpetual conservation easement that will provide for protection of the property's nutrient removal functions.
- (8) The applicant shall submit annual reports for a period of five years after the restoration or enhancement showing that the trees planted have survived and that diffuse flow through the riparian buffer has been maintained. The applicant shall replace trees that do not survive and restore diffuse flow if needed during that five-year period.

*History Note: Authority G.S. 143-214.1; 143-215.3(a)(1); 143-215.8A;  
Eff. February 1, 2009.*

#### **15A NCAC 02B .0295 MITIGATION PROGRAM REQUIREMENTS FOR PROTECTION AND MAINTENANCE OF RIPARIAN BUFFERS**

(a) **PURPOSE.** The purpose of this Rule is to set forth the mitigation requirements that apply to applicants who wish to impact a riparian buffer when one of the following applies:

- (1) The applicant has received an authorization certificate, for impacts that cannot be avoided or practicably minimized, pursuant to 15A NCAC 02B .0233, 15A NCAC 02B .0243, 15A NCAC 02B .0250, 15A NCAC 02B .0259, 15A NCAC 02B .0267 and 15A NCAC 02B .0607 protection and maintenance of existing riparian buffers: purpose, applicability, jurisdiction and exemptions.
- (2) The applicant has received a variance pursuant to 15A NCAC 02B .0233, 15A NCAC 02B .0243, 15A NCAC 02B .0250, 15A NCAC 02B .0259, 15A NCAC 02B .0267 and 15A NCAC 02B .0607 and is required to perform mitigation as a condition of a variance approval.

(b) **DEFINITIONS.** For the purpose of this Rule, these terms shall be defined as follows:

- (1) "Authority" means either the Division or a local government that has been delegated or designated to implement the riparian buffer program.
- (2) "Division" means the Division of Water Quality of the North Carolina Department of Environment and Natural Resources.
- (3) "Enhancement Site" means riparian zone sites that shall be distinguished from restoration or preservation sites by being characterized by conditions between restoration and preservation.
- (4) "Government Entity" means the State and its agencies and subdivisions, the federal government, and units of local government.
- (5) "Hydrologic Area" means the Watershed Boundary Dataset (WBD), located at <http://datagateway.nrcs.usda.gov> using the eight-digit Hydrologic Unit Code (HUC) prepared by the United States Geological Survey.

- (6) “Monitoring period” means the length of time specified in the approved mitigation plan during which monitoring of vegetation success, stream stability, and other anticipated benefits to the adjacent water as listed in the Authorization Certification is done.
- (7) “Non-wasting endowment” means a fund that generates enough interest each year to cover the cost of the long term monitoring and maintenance.
- (8) “Off-site” means off the property on which the buffer impacts occur but within the most recent version of the Watershed Boundary Dataset (WBD), located at <http://datagateway.nrcs.usda.gov> using the 12 digit HUC prepared by the United States Geological Survey
- (9) “On-site” means on the property on which the impact occurred and which is owned by the applicant or to which the applicant holds an easement adequate to allow the proposed mitigation.
- (10) “Outer Coastal Plain” means the portion of the state shown as the Middle Atlantic Coastal Plain (63) on Griffith, et al (2002) “Ecoregions of North and South Carolina”. Reston, VA, United States Geological Survey.
- (11) “Physiographic province” means one of the four Level III ecoregion shown on Griffith, et al (2002) “Ecoregions of North and South Carolina”. Reston, VA, United States Geological Survey.
- (12) “Preservation Site” means riparian zone sites that are characterized by a closed canopy of tree species of greater than or equal to five inches diameter at breast height (dbh) or characterized by a dense growth of smaller woody stems.
- (13) “Restoration Site” means riparian zone sites that are characterized by an absence of trees greater than or equal to five inches diameter at breast height (dbh), by a lack of dense growth of smaller woody stems, or by open tree canopies such that the planting of woody stems will maximize nutrient removal and other buffer functions. With open tree canopies, the extent of the canopy shall be measured from the outer edge of the drip zone of the tree.
- (14) “Riparian wetland” means a wetland that is found in one or more of the following landscape positions: in a geomorphic floodplain; in a natural topographic crenulation; contiguous with an open water greater than or equal to 20 acres in size; or subject to tidal flow regimes excluding salt/brackish marsh wetlands.
- (15) “Urban” means a percent impervious cover of at least 24% in the watershed upstream of the upper end of the mitigation reach and areas where post-construction stormwater requirements apply according to Session Law 2006-246.

(c) APPLICATION REQUIREMENTS AND MITIGATION OPTIONS. Any applicant who seeks approval to impact riparian buffers covered under this Rule and who has met the requirements of Paragraph (a) shall submit to the Division a written mitigation proposal that calculates the required area of mitigation and describes the area and location of each type of proposed mitigation. The applicant may not impact buffers until the Division has approved the mitigation plan by issuance of written authorization. For all options except payment of a fee under Paragraph (h) or (i), the proposal shall include conservation easements or similar legal mechanisms to ensure perpetual maintenance and protection of the mitigation site’s nutrient removal and other water quality functions, a non-wasting endowment, and a completion bond that is payable to the Division sufficient to ensure that land purchase, construction, monitoring and maintenance are completed. An exception would be where the applicant is a local government and has entered a binding intergovernmental agreement with the Division to complete the project and manage and protect the property consistent with the requirements of this rule, such local government shall not be required to provide a non-wasting endowment or a performance bond. For each mitigation site, the Division shall identify appropriate functional criteria to measure the anticipated benefits of the mitigation to the adjacent water. The Division shall issue a mitigation determination that specifies the area, type and location of mitigation and the water quality benefits to be provided by the mitigation site. The mitigation determination issued according to this rule shall be included as an attachment to the Authorization Certification. The applicant may propose any of the following types of mitigation and shall provide a written demonstration of practicality that takes into account the relative cost and availability of potential options, as well as information addressing all requirements associated with the option proposed:

- (1) Applicant provided on-site or off-site riparian buffer restoration, enhancement or preservation pursuant to Paragraph (g) of this Rule;
- (2) Payment of a compensatory mitigation fee to a mitigation bank if buffer credits are available pursuant to paragraph (h) of this Rule or payment of a compensatory mitigation fee to the Riparian Buffer Restoration Fund pursuant to Paragraph (i) of this Rule. Payment to the Riparian Buffer Restoration Fund shall be an option for applicants other than Government Entities only when credits are not available from a mitigation bank located within the same 8-digit cataloguing unit as the buffer impact pursuant to Paragraph (h) of this Rule is not available;
- (3) Donation of real property or of an interest in real property pursuant to Paragraph (j) of this Rule; and,
- (4) Alternative buffer mitigation options pursuant to Paragraph (k) of this Rule;

(d) AREA OF IMPACT. The Authority shall determine the area of impact in square feet to each zone of the proposed riparian buffer impact by adding the following:

- (1) The area of the footprint of the use causing the impact to the riparian buffer;
- (2) The area of the boundary of any clearing and grading activities within the riparian buffer necessary to accommodate the use;
- (3) The area of any ongoing maintenance corridors within the riparian buffer associated with the use, and
- (4) The Authority shall deduct from this total the area of any wetlands that are subject to and compliant with riparian wetland mitigation requirements under 15A NCAC 2H .0506 and are located within the proposed riparian buffer impact area.

(e) AREA OF MITIGATION BASED ON ZONAL AND LOCATIONAL MULTIPLIERS. The Authority shall determine the required area of mitigation for each zone by applying each of the following multipliers to the area of impact calculated under paragraph (d) of this Rule with a 3:1 multiplier for Zone 1 and 1.5:1 multiplier for Zone 2, except that the required area of mitigation for impacts proposed within the Goose Creek watershed as 3:1 for the entire buffer and the Catawba River watershed as 2:1 for Zone 1 and 1.5:1 for Zone 2, and,

- (A) In addition to the multipliers listed above in paragraph (e), the applicant must:

Option A: use the following locational multipliers as applicable based on location of the proposed mitigation site relative to that of the proposed impact site. Once the multipliers are determined, an option is to pay for the required mitigation. Payment of a compensatory mitigation fee to a mitigation bank if mitigation credits are available pursuant to Paragraph (h) of this rule or payment of a compensatory mitigation fee to the Riparian Buffer Restoration Fund pursuant to Paragraph (i) of this Rule. Payment to the Riparian Buffer Restoration Fund for applicants other than Government Entities shall be available only when payment to a mitigation bank pursuant to Paragraph (h) of this rule is not available. Alternative mitigation options shown in Paragraph (k) of this rule shall be subject to these locational multipliers. Mitigation may be conducted within an adjacent eight digit HUC at a 2:1 ratio if written documentation of the impracticality of conducting mitigation within the appropriate 8 digit HUC is reviewed and approved by the Division.

Option B: use the following locational multipliers as applicable based on location of the proposed mitigation site relative to that of the proposed impact site. Once the multipliers are determined, an option is to pay for the required mitigation. Payment of a compensatory mitigation fee to a mitigation bank if mitigation credits are available pursuant to Paragraph (h) of this rule or payment of a compensatory mitigation fee to the Riparian Buffer Restoration Fund pursuant to Paragraph (i) of this Rule. Payment to the Riparian Buffer Restoration Fund for applicants other than Government Entities shall be available only when payment to a mitigation bank pursuant to Paragraph (h) of this rule is

not available. Alternative mitigation options shown in Paragraph (k) of this rule shall be subject to the following locational multipliers. Mitigation may be conducted within an adjacent 8 digit HUC at a 2:1 ratio if written documentation of the impracticality of conducting mitigation within the appropriate 8 digit HUC is reviewed and approved by the Division.

<u>Adjacent 8 digit HUC</u>	<u>Within 8 digit HUC</u>	<u>Within 12 digit HUC</u>	<u>Mitigation option</u>
n/a	n/a	0.75	1) On site mitigation
2.0	1.5	1	2) All other types of mitigation

Option C: use the following locational multipliers as applicable based on location of the proposed mitigation site relative to that of the proposed impact site. Mitigation options shall be available to applicants. A written demonstration of practicality shall be submitted to the Division for review and approval and shall take into account the cost and availability of these options with the following conditions:

<u>Adjacent 8 digit HUC</u>	<u>Within 8 digit HUC</u>	<u>Within 12 digit HUC</u>	<u>Mitigation option</u>
n/a	n/a	0.75	1) On site mitigation
2.0	1.0	0.75	2) All other types of mitigation

(B) Donation of property shall satisfy all the conditions of Paragraph ( j ) of this Rule.

(f) GEOGRAPHIC RESTRICTIONS ON LOCATION OF MITIGATION. Mitigation shall be performed in the same river basin in which the impact is located with the following additional specifications:

(1) In the following cases, mitigation shall be performed in the same watershed in which the impact is located:

- (A) Falls Lake Watershed;
- (B) Goose Creek Watershed;
- (C) Randleman Lake Water Supply Watershed; and
- (D) Each subwatershed of the Jordan Lake watershed, as defined in Rule 15A NCAC 2B .0262.
- (E) Other watershed restrictions as specified in riparian buffer protection rules adopted by the Commission.

(2) Buffer mitigation for impacts within watersheds with riparian buffer rules that also have federally listed threatened or endangered aquatic species may be done within other watersheds with the same species as long as the impacts are in the same river basin and same physiographic province as the mitigation site.

(g) RIPARIAN BUFFER RESTORATION, OR ENHANCEMENT. Enhancement, and restoration shall have the objective of establishing a forested riparian buffer according to the requirements of this paragraph. Division staff shall make an on-site determination as to whether a potential mitigation site qualifies as a restoration or enhancement site based on the applicable definition in Paragraph (b) of this Rule. Persons who choose to meet their

mitigation requirement through riparian buffer restoration or enhancement, shall also meet the following requirements:

- (1) The restoration area is equal to the required area of mitigation determined pursuant to Paragraph (e) of this Rule; and,
- (2) The enhancement area is three times larger than the required area of mitigation determined pursuant to Paragraph (e) of this Rule.
- (3) The location of the restoration or enhancement shall comply with the requirements of Paragraph (f) of this Rule.
- (4) The location of restoration or enhancement shall comply with any geographic multiplier as specified under Paragraph (e) of this rule
  - (A) For the Catawba River mainstem below Lake James, the width of the riparian buffer shall begin at the most landward limit of the top of the bank and extend landward a distance of 50 feet, measured horizontally on a line perpendicular to a vertical line marking the edge of the top of the bank. For the mainstem lakes located on the Catawba River mainstem, the width of the riparian buffer shall begin at the most landward limit of the full pond level and extend landward a distance of 50 feet, measured horizontally on a line perpendicular to a vertical line marking the edge of the full pond level. Buffer mitigation in the Catawba watershed may be done along the lake shoreline as well as along intermittent and perennial stream channels throughout the watershed.
  - (B) For the Goose Creek Watershed the riparian buffer restoration or enhancement site shall have a minimum width of 50 feet as measured horizontally on a line perpendicular to the surface water and may include restoration or enhancement of existing riparian areas, restoration or enhancement of streamside areas along first order ephemeral streams that discharge/outlet into intermittent or perennial streams, and preservation of the streamside area along first order ephemeral streams that discharge or outlet into intermittent or perennial stream at a 5:1 ratio as long as there is also an amount of restoration or enhancement equivalent to the amount of permitted impact.
- (6) The mitigation site shall provide diffuse flow across the entire buffer width. Any existing impervious cover or stormwater conveyances such as ditches or pipes shall be eliminated and the flow converted to diffuse flow.
- (7) The applicant or mitigation provider shall submit a restoration or enhancement plan for written approval by the Division. The restoration or enhancement plan shall demonstrate compliance with the requirements of Sub-Paragraphs (1) through (4) of this Paragraph and shall contain the following in addition to elements required in Paragraph (c):
  - (A) A map of the proposed restoration or enhancement site;
  - (B) A vegetation plan which shall include a minimum of five native hardwood tree species, where no one species is greater than 25% of planted stems, planted at a density sufficient to provide 320 trees per acre at maturity. The Division may approve alternative planting plans upon consideration of factors including site wetness and plant availability;
  - (C) A grading plan. The site shall be graded in a manner to ensure diffuse flow through the entire riparian buffer, and,
  - (D) A schedule for implementation including a fertilization and herbicide plan that will include protective measures to ensure that fertilizer and herbicide is not deposited downstream from the site and will be applied per manufacturers guidelines. Pesticides used must be certified by EPA for use in or near aquatic sites. Pesticides must be applied in accordance with the manufacturers' instructions, and
  - (E) A monitoring plan including monitoring of vegetative success, stream stability, and other anticipated benefits to the adjacent water as listed in the Authorization Certification.

- (8) Within one year after the Division has approved the restoration or enhancement plan, the applicant or mitigation provider shall present documentation to the Division that the riparian buffer has been restored or enhanced unless the Division agrees in writing to a longer time period due to the necessity for a longer construction period. If documentation is not presented within this timeframe, then the person shall be in violation of the Authority's riparian buffer protection program.
- (9) The mitigation area shall be placed under a perpetual conservation easement or similar legal mechanism to provide for protection of the property's nutrient and sediment removal functions.
- (10) Option 1: If the proposed mitigation site contains a sewer easement, the portion of the easement located within Zone 1 or Zone 2 is not suitable for buffer mitigation. However, the applicant may get narrower buffer credit in accordance with (k)(2)(D) of this rule.

Option 2: If the proposed mitigation site contains a sewer easement, the portion of the easement located within Zone 1 is not suitable for buffer mitigation except that buffer credit for a dedicated sewer easement shall be given to satisfy the Zone 2 buffer requirement if the sewer easement is at least 30 feet wide and it is required to be maintained in a condition which meets the vegetative requirements of the collection system permit, and if the applicant will restore or enhance the forested buffer in Zone 1 adjacent to the sewer easement.

- (11) The applicant or mitigation provider shall submit written annual reports for a period of five years after the restoration or enhancement showing that the trees planted have survived and that diffuse flow through the riparian buffer has been maintained. The applicant shall replace trees that do not survive and restore diffuse flow if needed during that five-year period, and
- (12) A completion bond shall be provided for the mitigation site to account for all land purchase, construction, monitoring and maintenance costs. A non-wasting endowment must be provided for the site to ensure perpetual, long term monitoring and maintenance.

(h) PURCHASE OF BUFFER MITIGATION CREDITS FROM A PRIVATE OR PUBLIC MITIGATION BANK. Applicants who choose to satisfy some or all of their mitigation determination by purchasing mitigation credits from a private or public mitigation bank shall meet the following requirements:

- (1) The mitigation bank from which credits are purchased is listed on the Division's webpage (<http://portal.ncdenr.org/web/wq/swp/ws/401/certsandpermits/mitigation>) and shall have available riparian buffer credits;
- (2) The mitigation bank from which credits are purchased shall be appropriately located as described in Paragraphs (e) and (f) of this Rule; and,
- (3) After receiving a mitigation acceptance letter from the mitigation provider, proof of payment for the credits shall be provided to the Department prior to any activity that results in the removal or degradation of the protected riparian buffer.

(i) PAYMENT TO THE RIPARIAN BUFFER RESTORATION FUND. Applicants who choose to satisfy some or all of their mitigation determination by paying a compensatory mitigation fee to the Riparian Buffer Restoration Fund shall meet the requirements of 15A NCAC 02B .0269 (Riparian Buffer Mitigation Fees to the NC Ecosystem Enhancement Program).

(j) DONATION OF PROPERTY. Applicants who choose to satisfy their mitigation determination by donating real property or an interest in real property shall meet the following requirements:

- (1) The donation of real property interests may be used to either partially or fully satisfy the payment of a compensatory mitigation fee to the Riparian Buffer Restoration Fund pursuant to Paragraph (h) of this Rule. The value of the property interest shall be determined by an appraisal performed in accordance with Part (i)(4)(D) of this Rule. The donation shall satisfy the mitigation determination if the appraised value of the donated property interest is equal to or greater than the required fee. If the appraised value of the donated property interest is less than the required fee calculated pursuant to 15A NCAC 2B .0269, the applicant shall pay the remaining balance due.

- (2) The donation of conservation easements or similar legal mechanism that includes a non-wasting endowment to satisfy compensatory mitigation requirements shall be accepted only if the conservation easement or similar legal mechanism that includes a non-wasting endowment is granted in perpetuity.
- (3) Donation of real property interests to satisfy the mitigation determination shall be accepted only if such property meets all of the following requirements:
- (A) The property shall contain riparian areas not currently protected by the State's riparian buffer protection program that are in need of restoration or enhancement rather than preservation;
  - (B) For the Neuse, Tar-Pamlico, Randleman basins and the Jordan Reservoir Watershed, the restorable riparian buffer on the property shall have a collective minimum length of 1,000 linear feet per 2,500 linear feet along a surface water and a minimum width of 50 feet as measured horizontally on a line perpendicular to the surface water. For the Catawba River mainstem below Lake James, the width of the riparian buffer shall begin at the most landward limit of the top of the bank and extend landward a distance of 50 feet, measured horizontally on a line perpendicular to a vertical line marking the edge of the top of the bank. For the mainstem lakes located on the Catawba River mainstem, the width of the riparian buffer shall begin at the most landward limit of the full pond level and extend landward a distance of 50 feet, measured horizontally on a line perpendicular to a vertical line marking the edge of the full pond level;
  - (C) The size of the restorable riparian buffer on the property to be donated shall equal or exceed the acreage of riparian buffer required to be mitigated under the mitigation responsibility determined pursuant to Paragraph (e) of this Rule;
  - (D) The property shall not require excessive measures for successful restoration, such as removal of structures or infrastructure. Restoration of the property shall be capable of fully offsetting the adverse impacts of the requested use;
  - (E) The property shall be suitable to be successfully restored, based on existing hydrology, soils, and vegetation;
  - (F) The estimated cost of restoring and maintaining the property shall not exceed the value of the property minus site identification and land acquisition costs unless the applicant supplies financial assurance acceptable to the Division for restoration and maintenance of the buffer;
  - (G) The property shall not contain any building, structure, object, site, or district that is listed in the National Register of Historic Places established pursuant to Public Law 89-665, 16 U.S.C. 470 as amended;
  - (H) The property shall not contain any hazardous substance or solid waste such that water quality could be adversely impacted, unless the hazardous substance or solid waste can be properly remediated before the interest is transferred;
  - (I) The property shall not contain structures or materials that present health or safety problems to the general public. If wells, septic, water or sewer connections exist, they shall be filled, remediated or closed at owner's expense in accordance with state and local health and safety regulations before the interest is transferred;
  - (J) The property and adjacent properties shall not have prior, current, or known future land use that would inhibit the function of the restoration effort;
  - (K) The property shall not have any encumbrances or conditions that are inconsistent with the requirements of this rule or purposes of the buffer rules.
  - (L) Fee simple title to the property or a conservation easement in the property shall be donated to the NC Ecosystem Enhancement Program or a similar organization approved by the Division to conduct the restoration or enhancement; and

- (M) Upon completion of the buffer restoration or enhancement, the property or the easement shall be donated to a local land trust or to a local government or other state organization that is willing to accept the property or easement. The donation shall be accompanied by a non-wasting endowment sufficient to ensure perpetual long-term monitoring and maintenance, except that where a local government has donated a conservation easement and has entered into a binding intergovernmental agreement with the Division to manage and protect the property consistent with the terms of the conservation easement, such local government shall not be required to provide a non-wasting endowment.
- (4) At the expense of the applicant or donor, the following information shall be submitted to the Division with any proposal for donations or dedications of interest in real property:
- (A) Documentation that the property meets the requirements laid out in Subparagraph (i)(3) of this Rule;
- (B) US Geological Survey 1:24,000 (7.5 minute) scale topographic map, county tax map, USDA Natural Resource Conservation Service County Soil Survey Map, and county road map showing the location of the property to be donated along with information on existing site conditions, vegetation types, presence of existing structures and easements;
- (C) A current property survey performed in accordance with the procedures of the North Carolina Department of Administration, State Property Office as identified by the State Board of Registration for Professional Engineers and Land Surveyors in "Standards of Practice for Land Surveying in North Carolina." Copies may be obtained from the North Carolina State Board of Registration for Professional Engineers and Land Surveyors, 3620 Six Forks Road, Suite 300, Raleigh, North Carolina 27609;
- (D) A current appraisal of the value of the property performed in accordance with the procedures of the North Carolina Department of Administration, State Property Office as identified by the Appraisal Board in the "Uniform Standards of Professional North Carolina Appraisal Practice." Copies may be obtained from the Appraisal Foundation, Publications Department, P.O. Box 96734, Washington, D.C. 20090-6734; and,
- (E) A title certificate.
- (k) ALTERNATIVE BUFFER MITIGATION OPTIONS. Some or all of a buffer mitigation requirement may be met through any of the alternative mitigation options described in this Paragraph. Any proposal for alternative mitigation shall meet, in addition to the requirements of Paragraphs (c), (e) and (f), the requirements set out in the sub-paragraph addressing that option as well as the following requirements:
- (1) Any proposal for alternative mitigation shall be provided in writing to the Division and shall meet the following content and procedural requirements for approval by the Division:
- (A) Demonstration of no practical alternative. The application shall describe why traditional buffer mitigation options are not practical for the project;
- (B) The application shall demonstrate that the proposed alternative removes an equal or greater annual mass load of nutrients to surface waters as the buffer that is approved by the Division for impact following the calculation of impact and mitigation areas pursuant to Paragraphs (d) and (e) of this Rule. To estimate the rate of nutrient removal of the impacted buffer, the applicant shall either propose a method acceptable to the Division or use a method previously approved by the Division. Prior to approval, both methods shall be subject to public notice through the 401 Certification Mailing List and public comment in accordance with 15A NCAC 2H .0503;
- (C) Public Notice and Comment. All proposals shall be reviewed by the Division for completeness and then be subject to public comment through 60-day notice on the 401 Certification Mailing List in accordance with 15A NCAC 2H .0503;
- (D) Option I: Projects that have been constructed and are within the required monitoring period as of the effective date of this Rule are eligible for use as alternative buffer

mitigation. Projects that have completed monitoring and have been released by the Division as of the effective date of this Rule are not eligible for use as alternative buffer mitigation.

Option 2: Projects that have been constructed and are within the required monitoring period on the effective date of this Rule are eligible for use as alternative buffer mitigation. Projects that have completed monitoring and have been released by the Division on or before the effective date of this Rule are eligible for use as alternative buffer mitigation for a period of ten years from the effective date of this Rule.

- (E) Buffer mitigation ratios shall be applied to these alternative buffer mitigation options, and
  - (F) The mitigation area shall be placed under a perpetual conservation easement or similar legal mechanism to provide for protection of the property's buffer functions.
  - (G) A completion bond shall be provided for the mitigation site to account for all land purchase, construction, monitoring and maintenance costs. A non-wasting endowment must be provided for the site to ensure perpetual, long term monitoring and maintenance.
- (2) ALTERNATIVE BUFFER MITIGATION – NON-STRUCTURAL, VEGETATIVE OPTIONS.
- (A) Coastal Headwater Stream Mitigation. Wooded buffers planted along Outer Coastal Plain headwater stream mitigation sites can be approved as riparian buffer mitigation as long as the site meets all applicable requirements of Paragraph (g) of this Rule. In addition, all success criteria including tree species, tree density, diffuse flow and stream success criteria specified by the Division in any required written approval of the site must be met. The area of the buffer shall be measured perpendicular to the length of the valley being restored. The area within the proposed buffer mitigation shall not also be used as wetland mitigation. Monitoring of the site must be for at least five years from the date of planting by providing annual reports for written DWQ approval.
  - (B) Unmapped Stream Buffer Mitigation. Restoration or enhancement of buffers may be conducted on intermittent or perennial streams that are exempt from riparian buffer rules by virtue of not being shown on maps as further specified in individual rules referenced in Paragraph (I). These streams shall be confirmed as intermittent or perennial streams by Division staff or staff from a local delegated program using the 2010 or later version of the Division's stream identification manual. Preservation of these stream buffers that meet the definition of a preservation site may also be proposed in order to permanently protect the buffer from cutting, clearing, filling and grading and similar activities that would affect the functioning of the buffer, provided that the preservation site area is five times larger than the mitigation area required under Paragraph (e) of this Rule, and restoration or enhancement is proposed with an area equal to the mitigation area required under Paragraph (e) of this Rule. The preservation site shall protect at least a 50 foot wide wooded riparian buffer. The proposal shall meet all applicable requirements of Paragraph (g) of this Rule. Applicant shall provide a written description for the Division's approval of the demonstrable threat to the buffer mitigation site and its functioning to provide nutrient removal and other water quality benefits. No existing or new stormwater discharges are allowed thru the buffer.
  - (C) Option 1: Preservation of mapped stream buffers. Buffer preservation may be proposed in order to permanently protect the buffer from cutting, clearing, filling and grading and similar activities that would affect the functioning of the buffer above and beyond the protection afforded by the existing buffer rules on sites that meet the definition of a preservation site along streams, estuaries or ponds that are subject to buffer rules as long as the proposed preservation site area is ten times larger than the mitigation area required

under Paragraph (e) of this Rule, and buffer restoration or enhancement is also proposed with an area equal to the mitigation area required under Paragraph (e) of this Rule. Applicant shall provide a written description for the Division's approval of the demonstrable threat to the buffer mitigation site and its functioning to provide nutrient removal and other water quality benefits. No existing or new stormwater discharges are allowed thru the buffer.

Option 2: Preservation of mapped stream buffers. Buffer preservation may be proposed in order to permanently protect the buffer from cutting, clearing, filling and grading and similar activities that would affect the functioning of the buffer above and beyond the protection afforded by the existing buffer rules on sites that meet the definition of a preservation site along streams, estuaries or ponds that are subject to buffer rules as long as the proposed preservation site area is ten times larger than the mitigation area required under Paragraph (e) of this Rule in non-urban areas and three times larger than the mitigation area required under Paragraph (e) of this Rule in urban areas. In addition, buffer restoration or enhancement is also proposed with an area equal to the mitigation area required under Paragraph (e) of this Rule. Reduced buffer mitigation credit can be given per Paragraph (D) of this Rule in urban areas. Applicant shall provide a written description for the Division's approval of the demonstrable threat to the buffer mitigation site and its functioning to provide nutrient removal and other water quality benefits. No existing or new stormwater discharges are allowed thru the buffer.

(D) Narrower buffers on urban streams. Buffer mitigation with widths less than 50 feet may be proposed along urban streams. If buffers greater than or equal to 31 feet in width are proposed and on-site stormwater management is provided to control local sources of nutrients and other pollutants, then full buffer credit shall be awarded for the mitigation area required under Paragraph (e) of this Rule. A total of 75% of full credit shall be awarded for buffers between 20 and 30 feet wide if on-site stormwater management is provided to control local sources of nutrients and other pollutants. If on-site stormwater management is not provided, then 50% of full credit shall be provided for buffers between 31 and 50 feet wide and 25% of full credit for buffers between 20 and 30 feet wide. Buffers less than 20 feet wide shall receive no buffer credit regardless of whether on-site stormwater management is provided. Any remaining mitigation requirements must be provided at additional mitigation sites.

(E) Enhancement of grazing areas adjacent to streams. Buffer credit at a 2:1 ratio shall be available for an applicant who proposes permanent exclusion of grazing livestock that otherwise degrade the stream and riparian zone through trampling, grazing or waste deposition by fencing the livestock out of the stream and its adjacent buffer. The riparian buffer area contained by fencing shall be two times greater than the mitigation area required under Paragraph (e) of this Rule. The applicant shall document the condition and aerial coverage of canopy and woody understory, and shall propose planting of understory trees and shrubs as well as young canopy tree species as necessary to achieve buffer restoration to the standards identified in Paragraph (g). The applicant shall demonstrate that grazing was the predominant land use for at least the past 20 years and that woody understory is absent as a result of grazing history. Conservation easements or other similar legal mechanism shall ensure perpetual maintenance of permanent fencing.

(3) ALTERNATIVE BUFFER MITIGATION STRUCTURAL STORMWATER TREATMENT OPTIONS.

- (A) For all structural options: Riparian buffer restoration or enhancement is required with an area at least equal to the footprint of the buffer impact, and the remaining mitigation resulting from the multipliers can be met through structural options;
  - (B) Structural measures already required by other local, state or federal rule cannot be used as alternative buffer mitigation, except to the extent such measure(s) exceed the requirements of such rule. Stormwater Best Management Practices (BMPs) -bioretention facilities, constructed wetlands, infiltration devices and sand filter are all potentially approvable Best Management Practices for alternative buffer mitigation. Other Best Management Practices may be approved only if they meet the nutrient removal levels outlined in (3)(C) below. Existing or planned BMPs for a local, state or federal permit may be retrofitted or expanded to improve their nutrient removal if this level of treatment would not be required by other local, state or federal rules. In this case, the predicted increase in nutrient removal may be counted toward alternative buffer mitigation;
  - (C) Minimum treatment levels: Any structural BMP shall provide at least 30% total nitrogen and 35% total phosphorus removal as demonstrated by a scientific and engineering literature review as approved by the Division. The total load reduction from structural BMPs shall be at least equivalent to the original load reduction provided by the existing square feet of buffer being impacted;
  - (D) All proposed structural Best Management Practices shall follow the Division's current or a later version of the 2009 Stormwater Best Management Practice Design Manual. If a proposed structural Best Management Practice is not addressed in this Manual, then a scientific and engineering literature review shall be submitted with the designs for written approval by the Division. The design shall be as effective as the practices described in the Division's stormwater manual;
  - (E) An operation and maintenance plan is required to be approved by the Division for all structural options;
  - (F) Continuous and perpetual maintenance is required for all structural options and shall follow the Division's current or more recent version of the 2009 Stormwater Best Management Practice Design Manual;
  - (G) Annual reports shall be sent in writing to the Division of Water Quality concerning operation and maintenance of all structural options approved under this rule.
  - (H) Removal and replacement of structural options: If a structural option is proposed to be removed and cannot be replaced on site, then a structural measure of equal or better nutrient removal capacity shall be constructed as a replacement with the location as specified by Section (e) of this Rule;
  - (I) Renovation or repair of structural options: If a structural option must be renovated or repaired, it shall be renovated to provide similar or better nutrient removal capacity as originally designed;
  - (J) Structural options as well as their operation and maintenance are the responsibility of the landowner or easement holder unless the Division agrees in writing to operation and maintenance by another responsible party. Structural options shall be shown on the property deed or another document constituting an encumbrance on the property, with a note that operation and maintenance is the responsibility of the landowner, easement holder or other responsible party; and.
  - (K) Bonding and endowment. Provisions for bonding for construction, monitoring and maintenance as well as provision for a long term, non-wasting endowment for monitoring and maintenance shall be provided in the submittal to the Division.
- (4) OTHER ALTERNATIVE BUFFER MITIGATION OPTIONS. Other riparian buffer mitigation options may be considered by the Division on a case-by-case basis after public notice

through the Division's 401 Certification Mailing List and opportunity for comment as long as the options otherwise meet the requirements of this Rule. Division staff shall present recommendations to the Environmental Management Commission for a final decision with respect to any proposal for alternative buffer mitigation options not specified in this Rule.

(I) ACCOUNTING FOR BUFFER CREDIT, NUTRIENT OFFSET CREDIT AND STREAM MITIGATION CREDIT. Buffer mitigation credit, nutrient offset credit, wetland mitigation credit and stream mitigation credit shall be accounted for in accordance with the following:

- (1) Riparian buffers required for Water Supply Watershed rules shall not generate credit for buffer mitigation, nutrient offset mitigation or stream mitigation projects.
- (2) Nutrient offset credits can be generated outside of the stream buffer width required for stream mitigation.
- (3) Buffer and nutrient offset credits cannot be counted in the same square footage for mitigation credit.
- (4) Buffer mitigation or nutrient offset credit cannot be provided within wetlands which provide wetland mitigation credit required by 15A NCAC 2H .0506, as long as riparian wetland mitigation is implemented and
- (5) Option 1: Buffer mitigation or nutrient offset credit can be generated on stream mitigation sites as long as the restored or enhanced riparian buffer is at least 50 feet.

Option 2: Buffer mitigation or nutrient offset credit can be generated and approved on stream mitigation sites for impacts to streams and buffers as long as the restored or enhanced riparian buffer is at least 50 feet wide and is not providing wetland mitigation credit required by 15A NCAC 2H .0506. If impacts are to buffers only, then mitigation can be done on a buffer-only mitigation site. In this case, stream credits will be no longer be available from that stream mitigation site once the buffer credits are subtracted.

Option 3: Buffer mitigation or nutrient offset credit cannot be generated on stream mitigation sites.

History Note: Authority 143-214.1; 143-214.5; 143-214.7; 143-214.20; 143-215.3(a)(1); S.L. 1998, c. 221; 143-215.6A; 143-215.6B; 143-215.6C; 143-215.8A; 143-215.8B; 143-282(c); 143B-282(d); S.L. 1999, c. 329, s. 7.1; S.B. 824-2003; S.L. 2005-190; S.L. 2006-259; S.L. 2009-337; S.L. 2009-486.  
Eff. Insert date here.

**APPENDIX G – HEARING OFFICER’S RECOMMENDED RULE TEXT FOR 02B  
.0295, .0242, .0244, .0252, .0260, .0268, AND .0609.**

1 15A NCAC 02B .0295 is proposed for adoption as follows:

2  
3 **15A NCAC 02B .0295 MITIGATION PROGRAM REQUIREMENTS FOR PROTECTION AND**  
4 **MAINTENANCE OF RIPARIAN BUFFERS**

5  
6 (a) PURPOSE. The purpose of this Rule is to set forth the mitigation requirements that apply to applicants who  
7 wish to impact a riparian buffer and to set forth requirements for buffer mitigation providers. Buffer mitigation is  
8 required when one of the following applies:

9 (1) The applicant has received an authorization certificate, for impacts that cannot be avoided or  
10 practicably minimized, pursuant to 15A NCAC 02B .0233, 15A NCAC 02B .0243, 15A NCAC  
11 02B .0250, 15A NCAC 02B .0259, 15A NCAC 02B .0267 and 15A NCAC 02B .0607;

12 (2) The applicant has received a variance pursuant to 15A NCAC 02B .0233, 15A NCAC 02B .0243,  
13 15A NCAC 02B .0250, 15A NCAC 02B .0259, 15A NCAC 02B .0267 and 15A NCAC 02B  
14 .0607 and is required to perform mitigation as a condition of a variance approval.

15 (b) DEFINITIONS. For the purpose of this Rule, these terms shall be defined as follows:

16 (1) “Authority” means either the Division or a local government that has been delegated or designated  
17 to implement the riparian buffer program.

18 (2) “Division” means the Division of Water Quality of the North Carolina Department of  
19 Environment and Natural Resources.

20 (3) “Enhancement Site” means riparian zone sites that shall be distinguished from restoration or  
21 preservation sites by being characterized by conditions between restoration and preservation such  
22 that the planting of woody stems (i.e. shrubs or saplings) will maximize nutrient removal and other  
23 buffer functions.

24 (4) “Hydrologic Area” means the Watershed Boundary Dataset (WBD), located at  
25 <http://datagateway.nrcs.usda.gov> using the eight-digit Hydrologic Unit Code (HUC) prepared by  
26 the United States Geological Survey.

27 (5) “Locational Ratio” means a mitigation ratio applied to the mitigation requirements based on the  
28 location of the mitigation site relative to the impact site.

29 (6) “Monitoring period” means the length of time specified in the approved mitigation plan during  
30 which monitoring of vegetation success and other anticipated benefits to the adjacent water as  
31 listed in the Authorization Certification is done.

32 (7) “Non-wasting endowment” means a fund that generates enough interest to cover the cost of the  
33 long term monitoring and maintenance.

34 (8) “Off-site” means an area that is not located on the same parcel of land as the impact site.

35 (9) “On-site” means an area located on the same parcel of land as the impact site.

36 (10) “Outer Coastal Plain” means the portion of the state shown as the Middle Atlantic Coastal Plain  
37 (63) on Griffith, et al (2002) “Ecoregions of North and South Carolina”. Reston, VA, United  
38 States Geological Survey.

- 1           (11)    “Physiographic province” means one of the four Level III ecoregion shown on Griffith, et al  
 2                   (2002) “Ecoregions of North and South Carolina”. Reston, VA, United States Geological Survey.
- 3           (12)    “Preservation Site” means riparian zone sites that are characterized by a natural forest consisting  
 4                   of the forest strata and diversity of species appropriate for the physiographic province.
- 5           (13)    “Restoration Site” means riparian zone sites that are characterized by an absence of trees and by a  
 6                   lack of dense growth of smaller woody stems (i.e. shrubs or saplings) or sites that are  
 7                   characterized with scattered individual trees such that the tree canopy is less than 25% of the cover  
 8                   and by a lack of dense growth of smaller woody stems (i.e. shrubs or saplings).
- 9           (14)    “Riparian wetland” means a wetland that is found in one or more of the following landscape  
 10                   positions: in a geomorphic floodplain; in a natural topographic crenulation; contiguous with an  
 11                   open water greater than or equal to 20 acres in size; or subject to tidal flow regimes excluding  
 12                   salt/brackish marsh wetlands.
- 13          (15)    “Urban” means an area that is designated as an urbanized area under the most recent federal  
 14                   decennial census or within the corporate limits of a municipality.
- 15          (16)    “Zonal Ratio” means a mitigation ratio applied to impact amounts in the respective zones of the  
 16                   riparian buffer.

17    (c) APPLICATION REQUIREMENTS, MITIGATION SITE REQUIREMENTS AND MITIGATION OPTIONS.

18    Any applicant who seeks approval to impact riparian buffers covered under this Rule and who has met the  
 19    requirements of Paragraph (a) shall submit to the Division a written mitigation proposal that calculates the required  
 20    area of mitigation and describes the area and location of each type of proposed mitigation. The applicant may not  
 21    impact buffers until the Division has approved the mitigation plan by issuance of written authorization. For all  
 22    options except payment of a fee under Paragraph (h) or (i), the proposal shall include conservation easements or  
 23    similar legal protection mechanisms to ensure perpetual maintenance and protection of the mitigation site’s nutrient  
 24    removal and other water quality functions, a non-wasting endowment or other financial mechanism for perpetual  
 25    maintenance and protection, and a completion bond(s) that is payable to the Division sufficient to ensure that land  
 26    purchase, construction, monitoring and maintenance are completed. For each mitigation site, the Division shall  
 27    identify appropriate functional criteria to measure the anticipated benefits of the mitigation to the adjacent water.  
 28    The Division shall issue a mitigation determination that specifies the area, type and location of mitigation and the  
 29    water quality benefits to be provided by the mitigation site. The mitigation determination issued according to this  
 30    rule shall be included as an attachment to the Authorization Certification. The applicant may propose any of the  
 31    following types of mitigation and shall provide a written demonstration of practicality that takes into account the  
 32    relative cost and availability of potential options, as well as information addressing all requirements associated with  
 33    the option proposed:

- 34           (1)    Applicant provided on-site or off-site riparian buffer restoration, enhancement or preservation  
 35                   pursuant to Paragraph (g) of this Rule;
- 36           (2)    Payment of a compensatory mitigation fee to a mitigation bank if buffer credits are available  
 37                   pursuant to paragraph (h) of this Rule or payment of a compensatory mitigation fee to the Riparian

1 Buffer Restoration Fund pursuant to Paragraph (i) of this Rule. Payment must conform to the  
 2 requirements of G.S. 143-214.20;

3 (3) Donation of real property or of an interest in real property pursuant to Paragraph (j) of this Rule;  
 4 or,

5 (4) Alternative buffer mitigation options pursuant to Paragraph (k) of this Rule;

6 (d) AREA OF IMPACT. The Authority shall determine the area of impact in square feet to each zone of the  
 7 proposed riparian buffer impact by adding the following:

8 (1) The area of the footprint of the use impacting the riparian buffer;

9 (2) The area of the boundary of any clearing and grading activities within the riparian buffer  
 10 necessary to accommodate the use;

11 (3) The area of any ongoing maintenance corridors within the riparian buffer associated with the use,  
 12 and

13 (4) The Authority shall deduct from this total the area of any wetlands that are subject to and  
 14 compliant with riparian wetland mitigation requirements under 15A NCAC 02H .0506 and are  
 15 located within the proposed riparian buffer impact area.

16 (e) AREA OF MITIGATION BASED ON ZONAL AND LOCATIONAL MITIGATION RATIOS. The Authority  
 17 shall determine the required area of mitigation for each zone by applying each of the following ratios to the area of  
 18 impact calculated under paragraph (d) of this Rule with a 3:1 ratio for Zone 1 and 1.5:1 ratio for Zone 2, except that  
 19 the required area of mitigation for impacts proposed within the Goose Creek watershed is 3:1 for the entire buffer  
 20 and the Catawba River watershed is 2:1 for Zone 1 and 1.5:1 for Zone 2, and,

21 (1) In addition to the ratios listed above in paragraph (e), the applicant or mitigation provider must  
 22 use the following locational ratios as applicable based on location of the proposed mitigation site relative to  
 23 that of the proposed impact site. Mitigation options shall be available to applicants:

24 (A) On-site mitigation is 0.75:1 except within the Randleman Lake watershed which is 1:1;

25 (B) Within the 12 digit HUC is 0.75:1 except within the Randleman Lake watershed which is 1:1;

26 (C) Within the 8 digit HUC is 1:1 except as provided in sub-item (f) below;

27 (D) In the adjacent 8 digit HUC is 2:1 except as provided in sub-item (f) below.

28 For use of paragraph (D) above, the applicant shall describe why buffer mitigation within the 8 digit HUC  
 29 is not practical for the project

30 (2) Donation of property shall satisfy all the conditions of Paragraph (j) of this Rule.

31 (f) GEOGRAPHIC RESTRICTIONS ON LOCATION OF MITIGATION. Mitigation shall be performed in the  
 32 same river basin in which the impact is located with the following additional specifications:

33 (1) In the following cases, mitigation shall be performed in the same watershed in which the impact is  
 34 located:

35 (A) Falls Lake Watershed;

36 (B) Goose Creek Watershed;

37 (C) Randleman Lake Water Supply Watershed;

1 (D) Each subwatershed of the Jordan Lake watershed, as defined in Rule 15A NCAC 02B .0262;  
 2 and

3 (E) Other watershed restrictions as specified in riparian buffer protection rules adopted by the  
 4 Commission.

5 (2) Buffer mitigation for impacts within watersheds with riparian buffer rules that also have federally  
 6 listed threatened or endangered aquatic species may be done within other watersheds with the  
 7 same federally listed threatened or endangered aquatic species as long as the impacts are in the  
 8 same river basin and same physiographic province as the mitigation site.

9 (g) RIPARIAN BUFFER RESTORATION OR ENHANCEMENT. Enhancement and restoration shall have the  
 10 objective of establishing a forested riparian buffer according to the requirements of this paragraph. Division staff  
 11 shall make an on-site determination as to whether a potential mitigation site qualifies as a restoration or  
 12 enhancement site based on the applicable definition in Paragraph (b) of this Rule. Persons who choose to meet their  
 13 mitigation requirement through riparian buffer restoration or enhancement shall also meet the following  
 14 requirements:

15 (1) The restoration area is equal to the required area of mitigation determined pursuant to Paragraph  
 16 (e) of this Rule.

17 (2) The enhancement area is three times larger than the required area of mitigation determined  
 18 pursuant to Paragraph (e) of this Rule.

19 (3) The location of the restoration or enhancement shall comply with the requirements of Paragraph  
 20 (e) and (f) of this Rule.

21 (A) For the Catawba River mainstem below Lake James, the width of the riparian buffer shall  
 22 begin at the most landward limit of the top of the bank and extend landward a distance of 50  
 23 feet, measured horizontally on a line perpendicular to a vertical line marking the edge of the  
 24 top of the bank. For the mainstem lakes located on the Catawba River mainstem, the width of  
 25 the riparian buffer shall begin at the most landward limit of the full pond level and extend  
 26 landward a distance of 50 feet, measured horizontally on a line perpendicular to a vertical line  
 27 marking the edge of the full pond level. Buffer mitigation in the Catawba watershed may be  
 28 done along the lake shoreline as well as along intermittent and perennial stream channels  
 29 throughout the watershed.

30 (B) For the Goose Creek Watershed the riparian buffer restoration or enhancement site shall have  
 31 a minimum width of 50 feet as measured horizontally on a line perpendicular to a vertical line  
 32 marking the edge of the top of the bank and may include restoration or enhancement of  
 33 existing riparian areas, restoration or enhancement of streamside areas along first order  
 34 ephemeral streams that discharge/outlet into intermittent or perennial streams, and  
 35 preservation of the streamside area along first order ephemeral streams that discharge or outlet  
 36 into intermittent or perennial stream at a 5:1 ratio as long as there is also an amount of  
 37 restoration or enhancement equivalent to the amount of permitted impact.

- 1           (5) The mitigation site shall provide diffuse flow across the entire buffer width. Any existing  
2           impervious cover or stormwater conveyances such as ditches, pipes or drain tiles shall be  
3           eliminated and the flow converted to diffuse flow.
- 4           (6) The applicant or mitigation provider shall submit a restoration or enhancement plan for written  
5           approval by the Division. The restoration or enhancement plan shall demonstrate compliance with  
6           the requirements of Sub-Paragraphs (1) through (4) of this Paragraph and shall contain the  
7           following in addition to elements required in Paragraph (c):
- 8           (A) A map of the proposed restoration or enhancement site;  
9           (B) A vegetation plan which shall include a minimum of five native hardwood tree species and/or  
10           native shrub species, where no one species is greater than 50% of planted stems, planted at a  
11           density sufficient to provide 260 trees per acre at the completion of monitoring. The Division  
12           may approve alternative planting plans upon consideration of factors including site wetness  
13           and plant availability;  
14           (C) A grading plan (if applicable). The site shall be graded in a manner to ensure diffuse flow  
15           through the entire riparian buffer;  
16           (D) A schedule for implementation including a fertilization and herbicide plan that will include  
17           protective measures to ensure that fertilizer and herbicide is not deposited downstream from  
18           the site and will be applied per manufacturers guidelines. Herbicides used must be certified  
19           by EPA for use in or near aquatics sites and must be applied in accordance with the  
20           manufacturers' instructions, and;  
21           (E) A monitoring plan including monitoring of vegetative success and other anticipated benefits  
22           to the adjacent water as listed in the Authorization Certification.
- 23           (7) Within one year after the Division has approved the restoration or enhancement plan, the applicant  
24           or mitigation provider shall present documentation to the Division that the riparian buffer has been  
25           restored or enhanced unless the Division agrees in writing to a longer time period due to the  
26           necessity for a longer construction period.
- 27           (8) The mitigation area shall be placed under a perpetual conservation easement or similar legal  
28           protection mechanism to provide for protection of the property's nutrient removal and other water  
29           quality functions.
- 30           (9) The applicant or mitigation provider shall submit written annual reports for a period of five years  
31           after the restoration or enhancement showing that the trees and/or native shrub species planted are  
32           meeting success criteria and that diffuse flow through the riparian buffer has been maintained.  
33           The applicant shall replace trees and restore diffuse flow if needed during that five-year period.  
34           Additional years of monitoring may be required if the objectives under paragraph (g) have not  
35           been achieved at the end of the five-year monitoring period, and
- 36           (10) A completion bond(s) that is payable to the Division sufficient to ensure that land purchase,  
37           construction, monitoring and maintenance are completed. A non-wasting endowment or other  
38           financial mechanism for perpetual maintenance and protection must be provided.

1 (h) PURCHASE OF BUFFER MITIGATION CREDITS FROM A PRIVATE OR PUBLIC MITIGATION BANK.

2 Applicants who choose to satisfy some or all of their mitigation determination by purchasing mitigation credits from  
3 a private or public mitigation bank shall meet the following requirements:

4 (1) The mitigation bank from which credits are purchased has been approved by the Division and  
5 shall have available riparian buffer credits (a list is available on the Division's webpage  
6 <http://portal.ncdenr.org/web/wq/swp/ws/401>);

7 (2) The mitigation bank from which credits are purchased shall be appropriately located as described  
8 in Paragraphs (e) and (f) of this Rule; and,

9 (3) After receiving a mitigation acceptance letter from the mitigation provider, proof of payment for  
10 the credits shall be provided to the Department prior to any activity that results in the removal or  
11 degradation of the protected riparian buffer.

12 (i) PAYMENT TO THE RIPARIAN BUFFER RESTORATION FUND. Applicants who choose to satisfy some or  
13 all of their mitigation determination by paying a compensatory mitigation fee to the Riparian Buffer Restoration  
14 Fund shall meet the requirements of 15A NCAC 02B .0269 (Riparian Buffer Mitigation Fees to the NC Ecosystem  
15 Enhancement Program). Payment made to the NC Ecosystem Enhancement Program (the Program) shall be  
16 contingent upon acceptance of the payment to the Program. The financial, temporal and technical ability of the  
17 Program to satisfy the mitigation request will be considered to determine whether the Program will accept or deny  
18 the request.

19 (j) DONATION OF PROPERTY. Applicants who choose to satisfy their mitigation determination by donating  
20 real property or an interest in real property in lieu of payment shall meet the following requirements:

21 (1) The donation of real property interests may be used to either partially or fully satisfy the payment  
22 of a compensatory mitigation fee to the Riparian Buffer Restoration Fund pursuant to Paragraph  
23 (i) of this Rule. The value of the property interest shall be determined by an appraisal performed  
24 in accordance with Part (j)(4)(D) of this Rule. The donation shall satisfy the mitigation  
25 determination if the appraised value of the donated property interest is equal to or greater than the  
26 required fee. If the appraised value of the donated property interest is less than the required fee  
27 calculated pursuant to 15A NCAC 02B .0269, the applicant shall pay the remaining balance due.

28 (2) The donation of a conservation easement or similar legal protection mechanism that includes a  
29 non-wasting endowment or other financial mechanism for perpetual maintenance and protection to  
30 satisfy compensatory mitigation requirements shall be accepted only if it is granted in perpetuity.

31 (3) Donation of real property interests to satisfy the mitigation determination shall be accepted only if  
32 such property meets all of the following requirements:

33 (A) The property shall contain riparian areas that are in need of restoration or enhancement rather  
34 than preservation;

35 (B) For the Neuse and Tar-Pamlico basins, the Catawba River mainstem below Lake James, and  
36 the Randleman and Jordan watersheds, the restorable riparian buffer on the property shall  
37 begin at the most landward limit of the top of the bank and extend landward a minimum  
38 distance of 50 feet, measured horizontally on a line perpendicular to a vertical line marking

1           the edge of the top of the bank. For the mainstem lakes located on the Catawba River  
2           mainstem, the width of the riparian buffer shall begin at the most landward limit of the full  
3           pond level and extend landward a minimum distance of 50 feet, measured horizontally on a  
4           line perpendicular to a vertical line marking the edge of the full pond level. A minimum  
5           distance of less than 50 feet may only be allowed for projects in accordance with paragraph  
6           (k)(2)(D) below;

7           (C) The size of the restorable riparian buffer on the property to be donated shall equal or exceed  
8           the acreage of riparian buffer required to be mitigated under the mitigation responsibility  
9           determined pursuant to Paragraph (e) of this Rule;

10          (D) The property shall not have any impervious cover or stormwater conveyances such as ditches,  
11          pipes or drain tiles. If impervious cover or stormwater conveyances exist, they shall be  
12          eliminated and the flow converted to diffuse flow. Restoration of the property shall be  
13          capable of fully offsetting the adverse impacts of the requested use;

14          (E) The property shall be suitable to be successfully restored, based on existing hydrology, soils,  
15          and vegetation;

16          (F) The estimated cost of restoring and maintaining the property shall not exceed the value of the  
17          property minus site identification and land acquisition costs unless the applicant supplies  
18          financial assurance acceptable to the Division for restoration and maintenance of the buffer;

19          (G) The property shall not contain any building, structure, object, site, or district that is listed in  
20          the National Register of Historic Places established pursuant to Public Law 89-665, 16 U.S.C.  
21          470 as amended;

22          (H) The property shall not contain any hazardous substance or solid waste such that water quality  
23          could be adversely impacted, unless the hazardous substance or solid waste can be properly  
24          remediated before the interest is transferred;

25          (I) The property shall not contain structures or materials that present health or safety problems to  
26          the general public. If wells, septic, water or sewer connections exist, they shall be filled,  
27          remediated or closed at owner's expense in accordance with state and local health and safety  
28          regulations before the interest is transferred. Sewer connections in Zone 2 may be allowed for  
29          projects in accordance with paragraph (k)(2)(E) below;

30          (J) The property and adjacent properties shall not have prior, current, or known future land use  
31          that would inhibit the function of the restoration effort;

32          (K) The property shall not have any encumbrances or conditions that are inconsistent with the  
33          requirements of this rule or purposes of the buffer rules.

34          (L) Fee simple title to the property or a conservation easement in the property shall be donated to  
35          the state of North Carolina; and

36          (M) Upon completion of the buffer restoration or enhancement, the property or the easement shall  
37          be donated to a local land trust or to a local government or other state organization that will  
38          hold and enforce the conservation easement and the interests. The donation shall be

1 accompanied by a non-wasting endowment or other financial mechanism for perpetual  
 2 maintenance and protection sufficient to ensure perpetual long-term monitoring and  
 3 maintenance, except that where a local government has donated a conservation easement and  
 4 has entered into a binding intergovernmental agreement with the Division to manage and  
 5 protect the property consistent with the terms of the conservation easement, such local  
 6 government shall not be required to provide a non-wasting endowment.

7 (4) At the expense of the applicant or donor, the following information shall be submitted to the  
 8 Division with any proposal for donations or dedications of interest in real property:

9 (A) Documentation that the property meets the requirements laid out in Paragraph (j)(3) of this  
 10 Rule;

11 (B) US Geological Survey 1:24,000 (7.5 minute) scale topographic map, county tax map, USDA  
 12 Natural Resource Conservation Service County Soil Survey Map, and county road map  
 13 showing the location of the property to be donated along with information on existing site  
 14 conditions, vegetation types, presence of existing structures and easements;

15 (C) A current property survey performed in accordance with the procedures of the North Carolina  
 16 Department of Administration, State Property Office as identified by the State Board of  
 17 Registration for Professional Engineers and Land Surveyors in "Standards of Practice for  
 18 Land Surveying in North Carolina." Copies may be obtained from the North Carolina State  
 19 Board of Registration for Professional Engineers and Land Surveyors, 3620 Six Forks Road,  
 20 Suite 300, Raleigh, North Carolina 27609;

21 (D) A current appraisal of the value of the property performed in accordance with the procedures  
 22 of the North Carolina Department of Administration, State Property Office as identified by  
 23 the Appraisal Board in the "Uniform Standards of Professional North Carolina Appraisal  
 24 Practice." Copies may be obtained from the Appraisal Foundation, Publications Department,  
 25 P.O. Box 96734, Washington, D.C. 20090-6734; and,

26 (E) A title certificate.

27 (k) Alternative Buffer Mitigation OPTIONS. Some or all of a buffer mitigation requirement may be met through  
 28 any of the alternative mitigation options described in this Paragraph. Any proposal for alternative mitigation shall  
 29 meet, in addition to the requirements of Paragraphs (c), (e) and (f), the requirements set out in the sub-paragraph  
 30 addressing that option as well as the following requirements:

31 (1) Any proposal for alternative mitigation shall be provided in writing to the Division and shall meet  
 32 the following content and procedural requirements for approval by the Division:

33 (A) Demonstration of no practical alternative. The application shall describe why traditional  
 34 buffer mitigation options are not practical for the project;

35 (B) Projects that have been constructed and are within the required monitoring period on the  
 36 effective date of this Rule are eligible for use as alternative buffer mitigation. Projects that  
 37 have completed monitoring and have been released by the Division on or before the effective

1 date of this Rule are eligible for use as alternative buffer mitigation for a period of ten years  
 2 from the effective date of this Rule; and

3 (C) The mitigation area shall be placed under a perpetual conservation easement or similar legal  
 4 protection mechanism to provide for protection of the property's nutrient removal and other  
 5 water quality functions;

6 (D) A completion bond(s) that is payable to the Division sufficient to ensure that land purchase,  
 7 construction, monitoring and maintenance are completed. A non-wasting endowment or other  
 8 financial mechanism for perpetual maintenance and protection must be provided.

9 (2) ALTERNATIVE Buffer Mitigation – NON-STRUCTURAL, VEGETATIVE options.

10 (A) Coastal Headwater Stream Mitigation. Wooded buffers planted along Outer Coastal Plain  
 11 headwater stream mitigation sites can be approved as riparian buffer mitigation as long as the  
 12 site meets all applicable requirements of Paragraph (g) of this Rule. In addition, all success  
 13 criteria including tree species, tree density, diffuse flow and stream success criteria specified  
 14 by the Division in any required written approval of the site must be met. The area of the  
 15 buffer shall be measured perpendicular to the length of the valley being restored. The area  
 16 within the proposed buffer mitigation shall not also be used as wetland mitigation.  
 17 Monitoring of the site must be for at least five years from the date of planting by providing  
 18 annual reports for written DWQ approval.

19 (B) Buffer Mitigation on Non-Subject Streams. Restoration or enhancement of buffers may be  
 20 conducted on intermittent or perennial streams that are not subject to riparian buffer rules.  
 21 These streams shall be confirmed as intermittent or perennial streams by Division staff or  
 22 staff from a local delegated program using the Division publication, *Methodology for*  
 23 *Identification of Intermittent and Perennial Streams and Their Origins (v.4.11, 2010)*, or more  
 24 recent version. Preservation of these stream buffers that meet the definition of a preservation  
 25 site may also be proposed in order to permanently protect the buffer from cutting, clearing,  
 26 filling and grading and similar activities that would affect the functioning of the buffer.  
 27 Restoration or enhancement is required with an area at least equal to the footprint of the  
 28 buffer impact, and the remaining mitigation requirement may be provided by preservation at a  
 29 5:1 buffer credit ratio. The preservation site shall protect at least a 50 foot wide forested  
 30 riparian buffer and shall meet the requirements of Subparagraph (j)(2) and Parts (j) (3)(D),  
 31 (G), (H), (I), (K) and (M) of this Rule. The proposal shall meet all applicable requirements of  
 32 Paragraph (g) of this Rule. No existing or new stormwater discharges are allowed through the  
 33 buffer.

34 (C) Preservation of Buffers on Subject Streams. Buffer preservation may be proposed in order to  
 35 permanently protect the buffer from cutting, clearing, filling and grading and similar activities  
 36 that would affect the functioning of the buffer above and beyond the protection afforded by  
 37 the existing buffer rules on sites that meet the definition of a preservation site along streams,  
 38 estuaries or ponds that are subject to buffer rules. Restoration or enhancement is required

1 with an area at least equal to the footprint of the buffer impact. The remaining mitigation  
 2 requirement may be provided by preservation at a 10:1 buffer credit ratio in non-urban areas  
 3 and a 3:1 buffer credit ratio in urban areas. Reduced buffer mitigation credit can be given per  
 4 Part (k)(2)(D) of this Rule in urban areas. The preservation site shall meet the requirements of  
 5 Subparagraph (j)(2) and Parts (j) (3)(D), (G), (H), (I), (K) and (M) of this Rule. No existing  
 6 or new stormwater discharges are allowed through the buffer.

7 (D) Narrower buffers on urban streams. Buffer restoration or enhancement with widths less than  
 8 50 feet may be proposed along urban streams. If buffers greater than or equal to 31 feet in  
 9 width are proposed and on-site stormwater management is provided to control local sources of  
 10 nutrients and other pollutants, then full buffer credit shall be awarded for the area of buffer  
 11 restored or enhanced. A total of 75% of full credit shall be awarded for buffers between 20  
 12 and 30 feet wide if on-site stormwater management is provided to control local sources of  
 13 nutrients and other pollutants. If on-site stormwater management is not provided, then 50%  
 14 of full credit shall be provided for buffers between 31 and 50 feet wide and 25% of full credit  
 15 for buffers between 20 and 30 feet wide. Buffers less than 20 feet wide shall receive no  
 16 buffer credit regardless of whether on-site stormwater management is provided.

17 (E) Sewer easement within the buffer. If the proposed mitigation site contains a sewer easement  
 18 in Zone 1, that portion of the sewer easement is not suitable for buffer mitigation. If the  
 19 proposed mitigation site contains a sewer easement in Zone 2, the portion of the sewer  
 20 easement in Zone 2 may be suitable for buffer mitigation if the applicant restores or enhances  
 21 the forested buffer in Zone 1 adjacent to the sewer easement, the sewer easement is at least 30  
 22 feet wide, the sewer easement is required to be maintained in a condition which meets the  
 23 vegetative requirements of the collection system permit, and diffuse flow is provided across  
 24 the entire buffer width.

25 (F) Enhancement of grazing areas adjacent to streams. Buffer credit at a 2:1 ratio shall be  
 26 available for an applicant who proposes permanent exclusion of grazing livestock that  
 27 otherwise degrade the stream and riparian zone through trampling, grazing or waste  
 28 deposition by fencing the livestock out of the stream and its adjacent buffer. The applicant  
 29 shall provide an enhancement plan to the standards identified in Paragraph (g). The applicant  
 30 shall demonstrate that grazing was the predominant land use since the effective date of the  
 31 applicable buffer rule.

32 (3) ALTERNATIVE Buffer Mitigation Structural STORMWATER TREATMENT options.

33 (A) For all structural options: Riparian buffer restoration or enhancement is required with an area  
 34 at least equal to the footprint of the buffer impact, and the remaining mitigation resulting from  
 35 the multipliers can be met through structural options;

36 (B) Structural measures already required by other local, state or federal rule or permit cannot be  
 37 used as alternative buffer mitigation, except to the extent such measure(s) exceed the  
 38 requirements of such rule. Stormwater Best Management Practices (BMPs) - bioretention

1 facilities, constructed wetlands, infiltration devices and sand filter are all potentially  
2 approvable Best Management Practices for alternative buffer mitigation. Other Best  
3 Management Practices may be approved only if they meet the nutrient removal levels outlined  
4 in Part (3)(C) of this Subparagraph. Existing or planned BMPs for a local, state or federal  
5 rule or permit may be retrofitted or expanded to improve their nutrient removal if this level of  
6 treatment would not be required by other local, state or federal rules. In this case, the  
7 predicted increase in nutrient removal may be counted toward alternative buffer mitigation;

8 (C) Minimum treatment levels: Any structural BMP shall provide at least 30% total nitrogen and  
9 35% total phosphorus removal as demonstrated by a scientific and engineering literature  
10 review as approved by the Division. The application shall demonstrate that the proposed  
11 alternative removes an equal or greater annual mass load of nutrients to surface waters as the  
12 buffer that is approved by the Division for impact following the calculation of impact and  
13 mitigation areas pursuant to Paragraphs (d) and (e) of this Rule. To estimate the rate of  
14 nutrient removal of the impacted buffer, the applicant shall either propose a method  
15 acceptable to the Division or use a method previously approved by the Division;

16 (D) All proposed structural Best Management Practices shall follow the Division's current or a  
17 later version of the 2009 Stormwater Best Management Practice Design Manual. If a specific  
18 proposed structural Best Management Practice is not addressed in this Manual, follow  
19 Chapter 20 in this Manual for approval;

20 (E) An operation and maintenance plan is required to be approved by the Division for all  
21 structural options;

22 (F) Continuous and perpetual maintenance is required for all structural options and shall follow  
23 the Division's current or more recent version of the 2009 Stormwater Best Management  
24 Practice Design Manual;

25 (G) Annual reports shall be sent in writing to the Division of Water Quality concerning operation  
26 and maintenance of all structural options approved under this rule.

27 (H) Removal and replacement of structural options: If a structural option is proposed to be  
28 removed and cannot be replaced on site, then a structural or non-structural measure of equal  
29 or better nutrient removal capacity shall be constructed as a replacement with the location as  
30 specified by Paragraph (e) of this Rule;

31 (I) Renovation or repair of structural options: If a structural option must be renovated or  
32 repaired, it shall be renovated to provide equal or better nutrient removal capacity as  
33 originally designed;

34 (J) Structural options as well as their operation and maintenance are the responsibility of the  
35 landowner or easement holder unless the Division agrees in writing to operation and  
36 maintenance by another responsible party. Structural options shall be located in recorded  
37 drainage easements for the purposes of operation and maintenance and shall have recorded  
38 access easements to the nearest public right-of-way. These easements shall be granted in

1 favor of the party responsible for operating and maintaining the structure, with a note that  
 2 operation and maintenance is the responsibility of the landowner, easement holder or other  
 3 responsible party; and

4 (K) Bonding and endowment. A completion bond(s) that is payable to the Division sufficient to  
 5 ensure that land purchase, construction, monitoring and maintenance are completed and a  
 6 non-wasting endowment or other financial mechanism for perpetual maintenance and  
 7 protection must be provided..

8 (4) OTHER ALTERNATIVE BUFFER MITIGATION OPTIONS. Other riparian buffer mitigation  
 9 options may be considered by the Division on a case-by-case basis after 30-day public notice  
 10 through the Division's Water Quality Certification Mailing List in accordance with 15A NCAC  
 11 02H .0503 as long as the options otherwise meet the requirements of this Rule. Division staff  
 12 shall present recommendations to the Environmental Management Commission for a final  
 13 decision with respect to any proposal for alternative buffer mitigation options not specified in this  
 14 Rule.

15 (l) ACCOUNTING FOR BUFFER CREDIT, NUTRIENT OFFSET CREDIT AND STREAM MITIGATION  
 16 CREDIT. Buffer mitigation credit, nutrient offset credit, wetland mitigation credit and stream mitigation credit  
 17 shall be accounted for in accordance with the following:

18 (1) Buffer mitigation that is used for buffer mitigation credit cannot be used for nutrient offset credit;

19 (2) Buffer mitigation or nutrient offset credit cannot be generated within wetlands which provide  
 20 wetland mitigation credit required by 15A NCAC 02H .0506; and

21 (3) Buffer mitigation or nutrient offset credit cannot be generated within stream projects which  
 22 provide stream mitigation credit required by 15A NCAC 02H .0506 except for coastal headwater  
 23 stream mitigation sites as outlined in Part (k)(2)(A) of this Rule.

24  
 25 History Note: Authority 143-214.1; 143-214.5; 143-214.7; 143-214.20; 143-215.3(a)(1); S.L. 1998, c. 221; 143-  
 26 215.6A; 143-215.6B; 143-215.6C; 143-215.8A; 143-215.8B; 143-282(c); 143B-282(d); S.L. 1999,  
 27 c. 329, s. 7.1; S.B. 824-2003; S.L. 2005-190; S.L. 2006-259; S.L. 2009-337; S.L. 2009-486.  
 28 Eff. date January 1, 2014.

1 15A NCAC 02B .0242 is proposed for repeal as follows:

2

3 **15A NCAC 02B .0242 NEUSE RIVER BASIN: NUTRIENT SENSITIVE WATERS MANAGEMENT**  
4 **STRATEGY: MITIGATION PROGRAM FOR PROTECTION AND MAINTENANCE OF EXISTING**  
5 **RIPARIAN BUFFERS**

6

7 *History Note: Authority 143-214.1; 143-214.7; 143-215.3(a)(1); S.L. 1998, c. 221;*

8 *Temporary Adoption Eff. June 22, 1999;*

9 *Eff. August 1, 2000.*

10 *Repealed Eff. January 1, 2014*

1 15A NCAC 02B .0244 is proposed for repeal as follows:

2

3 **15A NCAC 02B .0244 CATAWBA RIVER BASIN: MITIGATION PROGRAM FOR PROTECTION AND**  
4 **MAINTENANCE OF EXISTING RIPARIAN BUFFERS IN THE CATAWBA RIVER BASIN**

5

6 *History Note: Authority G.S. 143-214.1; 143-214.7; 143-215.3(a)(1); S.L. 1999, c. 329, s. 7.1; S.B. 824-2003;*  
7 *Temporary Adoption Eff. June 30, 2001 (exempt from 270 day requirement - S.L. 2001-418 & S.L.*  
8 *2003-340);*

9

*Eff. August 1, 2004.*

10

*Repealed Eff. January 1, 2014*

1 15A NCAC 02B .0252 is proposed for repeal as follows:

2

3 **15A NCAC 02B .0252 RANDLEMAN LAKE WATER SUPPLY WATERSHED: MITIGATION PROGRAM**  
4 **FOR PROTECTION AND MAINTENANCE OF EXISTING RIPARIAN BUFFERS**

5

6 *History Note: Authority 143-214.1; 143-214.7; 143-215.3(a)(1); S.L. 1998, c. 221;*

7 *Eff. June 1, 2010.*

8 *Repealed Eff. January 1, 2014*

1 15A NCAC 02B .0260 is proposed for repeal as follows:

2

3 **15A NCAC 02B .0260 TAR-PAMLICO RIVER BASIN - NUTRIENT SENSITIVE WATERS**  
4 **MANAGEMENT STRATEGY: MITIGATION PROGRAM FOR PROTECTION AND MAINTENANCE**  
5 **OF RIPARIAN BUFFERS**

6

7 *History Note: Authority 143-214.1; 143-214.7; 143-215.3(a)(1); 143-215.6A; 143-215.6B; 143-215.6C; 143B-*  
8 *282(d); S.L. 1999, c. 329, s. 7.1;*

9 *Temporary Adoption Eff. January 1, 2000;*

10 *Eff. August 1, 2000.*

11 *Repealed Eff. January 1, 2014*

1 15A NCAC 02B .0268 is proposed for repeal as follows:

2

3 **15A NCAC 02B .0268 JORDAN WATER SUPPLY NUTRIENT STRATEGY: MITIGATION FOR**  
4 **RIPARIAN BUFFERS**

5

6 *History Note: Authority 143-214.1; 143-214.5; 143-214.7; 143-215.3(a)(1); 143-215.6A; 143-215.6B; 143-*  
7 *215.6C; 143 215.8B; 143B-282(c); 143B-282(d); S.L. 1999-329, s. 7.1.; S.L. 2005-190; S.L. 2006-*  
8 *259;*

9 *Eff. August 11, 2009;*

10 *Amended Eff. September 1, 2011.*

11 *Repealed Eff. January 1, 2014*

1 15A NCAC 02B .0609 is proposed for repeal as follows:

2  
3 **15A NCAC 02B .0609 SITE SPECIFIC WATER QUALITY MANAGEMENT PLAN FOR THE GOOSE**  
4 **CREEK WATERSHED (YADKIN PEE-DEE RIVER BASIN): MANAGE ACTIVITIES WITHIN**  
5 **RIPARIAN BUFFERS: MITIGATION REQUIREMENTS FOR BUFFER IMPACTS**

6  
7 *History Note: Authority G.S. 143-214.1; 143-215.3(a)(1); 143-215.8A;*  
8 *Eff. February 1, 2009*  
9 *Repealed Eff. January 1, 2014*

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**APPENDIX H – HEARING OFFICER’S RECOMMENDED RULE TEXT FOR 02B .0295  
SHOWING ALL PROPOSED REVISIONS**

1 15A- NCAC 02B .0295 is proposed for adoption as follows:

2  
3 15A NCAC 02B .0295 MITIGATION PROGRAM REQUIREMENTS FOR PROTECTION AND  
4 MAINTENANCE OF RIPARIAN BUFFERS

5  
6 (a) PURPOSE. The purpose of this Rule is to set forth the mitigation requirements that apply to applicants who  
7 wish to impact a riparian buffer and to set forth requirements for buffer mitigation providers. Buffer mitigation is  
8 required when one of the following applies:

- 9 (1) The applicant has received an authorization certificate, for impacts that cannot be avoided or  
10 practicably minimized, pursuant to 15A NCAC 02B .0233, 15A NCAC 02B .0243, 15A NCAC  
11 02B .0250, 15A NCAC 02B .0259, 15A NCAC 02B .0267 and 15A NCAC 02B .0607; ~~protection~~  
12 ~~and maintenance of existing riparian buffers: purpose, applicability, jurisdiction and exemptions.~~  
13 (2) The applicant has received a variance pursuant to 15A NCAC 02B .0233, 15A NCAC 02B .0243,  
14 15A NCAC 02B .0250, 15A NCAC 02B .0259, 15A NCAC 02B .0267 and 15A NCAC 02B  
15 .0607 and is required to perform mitigation as a condition of a variance approval.

16 (b) DEFINITIONS. For the purpose of this Rule, these terms shall be defined as follows:

- 17 (1) "Authority" means either the Division or a local government that has been delegated or designated  
18 to implement the riparian buffer program.  
19 (2) "Division" means the Division of Water Quality of the North Carolina Department of  
20 Environment and Natural Resources.  
21 (3) "Enhancement Site" means riparian zone sites that shall be distinguished from restoration or  
22 preservation sites by being characterized by conditions between restoration and preservation such  
23 that the planting of woody stems (i.e. shrubs or saplings) will maximize nutrient removal and other  
24 buffer functions.  
25 ~~(4) "Government Entity" means the State and its agencies and subdivisions, the federal government,~~  
26 ~~and units of local government.~~  
27 (4) "Hydrologic Area" means the Watershed Boundary Dataset (WBD), located at  
28 http://datagateway.nrcs.usda.gov using the eight-digit Hydrologic Unit Code (HUC) prepared by  
29 the United States Geological Survey.  
30 (5) "Locational Ratio" means a mitigation ratio applied to the mitigation requirements based on the  
31 location of the mitigation site relative to the impact site.  
32 (6) "Monitoring period" means the length of time specified in the approved mitigation plan during  
33 which monitoring of vegetation success, ~~stream stability,~~ and other anticipated benefits to the  
34 adjacent water as listed in the Authorization Certification is done.  
35 (7) "Non-wasting endowment" means a fund that generates enough interest ~~each year~~ to cover the cost  
36 of the long term monitoring and maintenance.  
37 (8) "Off-site" means ~~off the property on which the buffer impacts occur but within the most recent~~  
38 ~~version of the Watershed Boundary Dataset (WBD), located at http://datagateway.nrcs.usda.gov~~

1 ~~using the 12-digit HUC prepared by the United States Geological Survey an area that is not located~~  
 2 ~~on the same parcel of land as the impact site.~~

3 (9) ~~“On-site” means on the property on which the impact occurred and which is owned by the~~  
 4 ~~applicant or to which the applicant holds an easement adequate to allow the proposed mitigation an~~  
 5 ~~area located on the same parcel of land as the impact site.~~

6 (10) “Outer Coastal Plain” means the portion of the state shown as the Middle Atlantic Coastal Plain  
 7 (63) on Griffith, et al (2002) “Ecoregions of North and South Carolina”. Reston, VA, United  
 8 States Geological Survey.

9 (11) “Physiographic province” means one of the four Level III ecoregion shown on Griffith, et al  
 10 (2002) “Ecoregions of North and South Carolina”. Reston, VA, United States Geological Survey.

11 (12) “Preservation Site” means riparian zone sites that are characterized by a ~~closed canopy of tree~~  
 12 ~~species of greater than or equal to five inches diameter at breast height (dbh) or characterized by a~~  
 13 ~~dense growth of smaller woody stems natural forest consisting of the forest strata and diversity of~~  
 14 ~~species appropriate for the physiographic province.~~

15 (13) “Restoration Site” means riparian zone sites that are characterized by an absence of trees ~~greater~~  
 16 ~~than or equal to five inches diameter at breast height (dbh) and;~~ by a lack of dense growth of  
 17 smaller woody stems ~~(i.e. shrubs or saplings);~~ or ~~sites that are characterized with scattered~~  
 18 ~~individual trees such that the tree canopy is less than 25% of the cover and by a lack of dense~~  
 19 ~~growth of smaller woody stems (i.e. shrubs or saplings).~~ ~~by open tree canopies such that the~~  
 20 ~~planting of woody stems will maximize nutrient removal and other buffer functions. With open~~  
 21 ~~tree canopies, the extent of the canopy shall be measured from the outer edge of the drip zone of~~  
 22 ~~the tree.~~

23 (14) “Riparian wetland” means a wetland that is found in one or more of the following landscape  
 24 positions: in a geomorphic floodplain; in a natural topographic crenulation; contiguous with an  
 25 open water greater than or equal to 20 acres in size; or subject to tidal flow regimes excluding  
 26 salt/brackish marsh wetlands.

27 ~~(15) “Urban” means a percent impervious cover of at least 24% in the watershed upstream of the upper~~  
 28 ~~end of the mitigation reach an area that is designated as an urbanized area under the most recent~~  
 29 ~~federal decennial census or within the corporate limits of a municipality and areas where post-~~  
 30 ~~construction stormwater requirements apply according to Session Law 2006-246.~~

31 ~~(15)(16) “Zonal Ratio” means a mitigation ratio applied to impact amounts in the respective zones of the~~  
 32 ~~riparian buffer.~~

33 (c) APPLICATION REQUIREMENTS, MITIGATION SITE REQUIREMENTS AND MITIGATION OPTIONS.

34 Any applicant who seeks approval to impact riparian buffers covered under this Rule and who has met the  
 35 requirements of Paragraph (a) shall submit to the Division a written mitigation proposal that calculates the required  
 36 area of mitigation and describes the area and location of each type of proposed mitigation, The applicant may not  
 37 impact buffers until the Division has approved the mitigation plan by issuance of written authorization. For all  
 38 options except payment of a fee under Paragraph (h) or (i), the proposal shall include conservation easements or

1 similar legal protection mechanisms to ensure perpetual maintenance and protection of the mitigation site's nutrient  
 2 removal and other water quality functions, a non-wasting endowment or other financial mechanism for perpetual  
 3 maintenance and protection, and a completion bond(s) that is payable to the Division sufficient to ensure that land  
 4 purchase, construction, monitoring and maintenance are completed. ~~An exception would be where the applicant is a~~  
 5 ~~local government and has entered a binding intergovernmental agreement with the Division to complete the project~~  
 6 ~~and manage and protect the property consistent with the requirements of this rule, such local government shall not~~  
 7 ~~be required to provide a non-wasting endowment or a performance bond.~~ For each mitigation site, the Division shall  
 8 identify appropriate functional criteria to measure the anticipated benefits of the mitigation to the adjacent water.  
 9 The Division shall issue a mitigation determination that specifies the area, type and location of mitigation and the  
 10 water quality benefits to be provided by the mitigation site. The mitigation determination issued according to this  
 11 rule shall be included as an attachment to the Authorization Certification. The applicant may propose any of the  
 12 following types of mitigation and shall provide a written demonstration of practicality that takes into account the  
 13 relative cost and availability of potential options, as well as information addressing all requirements associated with  
 14 the option proposed:

15 (1) Applicant provided on-site or off-site riparian buffer restoration, enhancement or preservation  
 16 pursuant to Paragraph (g) of this Rule;

17 (2) Payment of a compensatory mitigation fee to a mitigation bank if buffer credits are available  
 18 pursuant to paragraph (h) of this Rule or payment of a compensatory mitigation fee to the Riparian  
 19 Buffer Restoration Fund pursuant to Paragraph (i) of this Rule. ~~Payment to the Riparian Buffer~~  
 20 ~~Restoration Fund shall be an option for applicants other than Government Entities only when~~  
 21 ~~credits are not available from a mitigation bank located within the same 8 digit cataloguing unit as~~  
 22 ~~the buffer impact pursuant to Paragraph (h) of this Rule is not available~~ must conform to the  
 23 requirements of G.S. 143-214.20;

24 (3) Donation of real property or of an interest in real property pursuant to Paragraph (j) of this Rule;  
 25 and/or,

26 (4) ~~=~~ Alternative buffer mitigation options pursuant to Paragraph (k) of this Rule;

27 (d) AREA OF IMPACT. The Authority shall determine the area of impact in square feet to each zone of the  
 28 proposed riparian buffer impact by adding the following:

29 (1) The area of the footprint of the use ~~causing the impacting to~~ the riparian buffer;

30 (2) The area of the boundary of any clearing and grading activities within the riparian buffer  
 31 necessary to accommodate the use;

32 (3) The area of any ongoing maintenance corridors within the riparian buffer associated with the use,  
 33 and

34 (4) The Authority shall deduct from this total the area of any wetlands that are subject to and  
 35 compliant with riparian wetland mitigation requirements under 15A NCAC 02H .0506 and are  
 36 located within the proposed riparian buffer impact area.

(e) AREA OF MITIGATION BASED ON ZONAL AND LOCATIONAL ~~MULTIPLIERS~~ MITIGATION RATIOS. The Authority shall determine the required area of mitigation for each zone by applying each of the following ~~multipliers-ratios~~ to the area of impact calculated under paragraph (d) of this Rule with a 3:1 ~~multiplier ratio~~ for Zone 1 and 1.5:1 ~~multiplier-ratio~~ for Zone 2, except that the required area of mitigation for impacts proposed within the Goose Creek watershed ~~as-is~~ 3:1 for the entire buffer and -the Catawba River watershed ~~as-is~~ 2:1 for Zone 1 and 1.5:1 for Zone 2, -and,

(1) In addition to the ~~multipliers-ratios~~ listed above in paragraph (e), the applicant or mitigation provider must:

~~Option A: — use the following locational multipliers as applicable based on location of the proposed mitigation site relative to that of the proposed impact site. Once the multipliers are determined, an option is to pay for the required mitigation. Payment of a compensatory mitigation fee to a mitigation bank if mitigation credits are available pursuant to Paragraph (h) of this rule or payment of a compensatory mitigation fee to the Riparian Buffer Restoration Fund pursuant to Paragraph (i) of this Rule. Payment to the Riparian Buffer Restoration Fund for applicants other than Government Entities shall be available only when payment to a mitigation bank pursuant to Paragraph (h) of this rule is not available. Alternative mitigation options shown in Paragraph (k) of this rule shall be subject to these locational multipliers. Mitigation may be conducted within an adjacent eight digit HUC at a 2:1 ratio if written documentation of the impracticality of conducting mitigation within the appropriate 8 digit HUC is reviewed and approved by the Division;~~

~~Option B: — use the following locational multipliers as applicable based on location of the proposed mitigation site relative to that of the proposed impact site. Once the multipliers are determined, an option is to pay for the required mitigation. Payment of a compensatory mitigation fee to a mitigation bank if mitigation credits are available pursuant to Paragraph (h) of this rule or payment of a compensatory mitigation fee to the Riparian Buffer Restoration Fund pursuant to Paragraph (i) of this Rule. Payment to the Riparian Buffer Restoration Fund for applicants other than Government Entities shall be available only when payment to a mitigation bank pursuant to Paragraph (h) of this rule is not available. Alternative mitigation options shown in Paragraph (k) of this rule shall be subject to the following locational multipliers. Mitigation may be conducted within an adjacent 8 digit HUC at a 2:1 ratio if written documentation of the impracticality of conducting mitigation within the appropriate 8 digit HUC is reviewed and approved by the Division;~~

<del>Adjacent 8 digit HUC</del>	<del>Within 8 digit HUC</del>	<del>Within 12 digit HUC</del>	<del>Mitigation option</del>
<del>n/a</del>	<del>n/a</del>	<del>0.75</del>	<del>1) On site mitigat</del>

			ion
2.0	1.5	1	2) All other types of mitigation

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~~Option C:~~ use the following locational multipliers-ratios as applicable based on location of the proposed mitigation site relative to that of the proposed impact site. Mitigation options shall be available to applicants. ~~A written demonstration of practicality shall be submitted to the Division for review and approval and shall take into account the cost and availability of these options with the following conditions:~~

- (A) On-site mitigation is 0.75:1 except within the Randleman Lake watershed which is 1:1;
- (B) Within the 12 digit HUC is 0.75:1 except within the Randleman Lake watershed which is 1:1;
- (C) Within the 8 digit HUC is 1:1 except as provided in sub-item (f) below;
- (A)(D) In the adjacent 8 digit HUC is 2:1 except as provided in sub-item (f) below.

Adjacent 8 digit HUC	Within 8 digit HUC	Within 12 digit HUC	Mitigation option
n/a	n/a	0.75	1) On site mitigation
2.0	1.0	0.75	2) All other types of mitigation

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For use of paragraph (D) above, the applicant shall describe why buffer mitigation within the 8 digit HUC is not practical for the project

(2) Donation of property shall satisfy all the conditions of Paragraph (-j) of this Rule.

(f) GEOGRAPHIC RESTRICTIONS ON LOCATION OF MITIGATION. Mitigation shall be performed in the same river basin in which the impact is located with the following additional specifications:

- (1) In the following cases, mitigation shall be performed in the same watershed in which the impact is located:
  - (A) Falls Lake Watershed;
  - (B) Goose Creek Watershed;
  - (C) Randleman Lake Water Supply Watershed; ~~and~~
  - (D) Each subwatershed of the Jordan Lake watershed, as defined in Rule 15A NCAC 02B .0262-; and

1 (E) Other watershed restrictions as specified in riparian buffer protection rules adopted by the  
2 Commission.

- 3 | (2) Buffer mitigation for impacts within watersheds with riparian buffer rules that also have federally  
4 listed threatened or endangered aquatic species may be done within other watersheds with the  
5 | same federally listed threatened or endangered aquatic species as long as the impacts are in the  
6 same river basin and same physiographic province as the mitigation site.

7 | (g) RIPARIAN BUFFER RESTORATION, OR ENHANCEMENT. Enhancement, and restoration shall have the  
8 objective of establishing a forested riparian buffer according to the requirements of this paragraph. Division staff  
9 shall make an on-site determination as to whether a potential mitigation site qualifies as a restoration or  
10 enhancement site based on the applicable definition in Paragraph (b) of this Rule. Persons who choose to meet their  
11 mitigation requirement through riparian buffer restoration or enhancement, shall also meet the following  
12 requirements:

- 13 | (1) The restoration area is equal to the required area of mitigation determined pursuant to Paragraph  
14 | (e) of this Rule; ~~and,~~  
15 | (2) The enhancement area is three times larger than the required area of mitigation determined  
16 pursuant to Paragraph (e) of this Rule.  
17 | (3) The location of the restoration or enhancement shall comply with the requirements of Paragraph  
18 | (e) and (f) of this Rule.

19 | ~~(4) — The location of restoration or enhancement shall comply with any geographic~~  
20 ~~multiplier as specified under Paragraph (e) of this rule~~

22 (A) For the Catawba River mainstem below Lake James, the width of the riparian buffer shall  
23 begin at the most landward limit of the top of the bank and extend landward a distance of 50  
24 feet, measured horizontally on a line perpendicular to a vertical line marking the edge of the  
25 top of the bank. For the mainstem lakes located on the Catawba River mainstem, the width of  
26 the riparian buffer shall begin at the most landward limit of the full pond level and extend  
27 landward a distance of 50 feet, measured horizontally on a line perpendicular to a vertical line  
28 marking the edge of the full pond level. Buffer mitigation in the Catawba watershed may be  
29 done along the lake shoreline as well as along intermittent and perennial stream channels  
30 throughout the watershed.

31 (B) For the Goose Creek Watershed the riparian buffer restoration or enhancement site shall have  
32 a minimum width of 50 feet as measured horizontally on a line perpendicular to a vertical line  
33 marking the edge of the top of the bank~~the surface water~~ and may include restoration or  
34 enhancement of existing riparian areas, restoration or enhancement of streamside areas along  
35 first order ephemeral streams that discharge/outlet into intermittent or perennial streams, and  
36 preservation of the streamside area along first order ephemeral streams that discharge or outlet  
37 into intermittent or perennial stream at a 5:1 ratio as long as there is also an amount of  
38 restoration or enhancement equivalent to the amount of permitted impact.

1 | (65) The mitigation site shall provide diffuse flow across the entire buffer width. Any existing  
 2 | impervious cover or stormwater conveyances such as ditches, ~~or pipes~~ or drain tiles shall be  
 3 | eliminated and the flow converted to diffuse flow.

4 | (76) The applicant or mitigation provider shall submit a restoration or enhancement plan for written  
 5 | approval by the Division. The restoration or enhancement plan shall demonstrate compliance with  
 6 | the requirements of Sub-Paragraphs (1) through (4) of this Paragraph and shall contain the  
 7 | following in addition to elements required in Paragraph (c):

8 | (A) A map of the proposed restoration or enhancement site;

9 | (B) A vegetation plan which shall include a minimum of five native hardwood tree species and/or  
 10 | native shrub species, where no one species is greater than 250% of planted stems, planted at a  
 11 | density sufficient to provide 320-260 trees per acre at ~~maturity~~the completion of monitoring.  
 12 | The Division may approve alternative planting plans upon consideration of factors including  
 13 | site wetness and plant availability;

14 | (C) A grading plan (if applicable). The site shall be graded in a manner to ensure diffuse flow  
 15 | through the entire riparian buffer;

16 | (D) A schedule for implementation including a fertilization and herbicide plan that will include  
 17 | protective measures to ensure that fertilizer and herbicide is not deposited downstream from  
 18 | the site and will be applied per manufacturers guidelines. ~~Pesticides~~ Herbicides used must be  
 19 | certified by EPA for use in or near aquatics sites. ~~Pesticides~~ and must be ~~applied in~~  
 20 | accordance with the manufacturers' instructions, ~~and~~;

21 | (E) A monitoring plan including monitoring of vegetative success, ~~stream stability~~, and other  
 22 | anticipated benefits to the adjacent water as listed in the Authorization Certification.

23 | ~~(87)~~ Within one year after the Division has approved the restoration or enhancement plan, the applicant  
 24 | or mitigation provider shall present documentation to the Division that the riparian buffer has been  
 25 | restored or enhanced unless the Division agrees in writing to a longer time period due to the  
 26 | necessity for a longer construction period. ~~If documentation is not presented within this timeframe,~~  
 27 | ~~then the person shall be in violation of the Authority's riparian buffer protection program;~~

28 | (98) The mitigation area shall be placed under a perpetual conservation easement or similar legal  
 29 | protection mechanism to provide for protection of the property's nutrient removal and sediment  
 30 | other water quality removal functions;

31 | ~~(109) Option 1: If the proposed mitigation site contains a sewer easement, the portion of the easement~~  
 32 | ~~located within Zone 1 or Zone 2 is not suitable for buffer mitigation. However, the applicant may~~  
 33 | ~~get narrower buffer credit in accordance with Part (k)(2)(D) of this rule;~~

34 | \_\_\_\_\_  
 35 | ~~Option 2: If the proposed mitigation site contains a sewer easement, the portion of the easement located~~  
 36 | ~~within Zone 1 is not suitable for buffer mitigation except that buffer credit for a dedicated sewer~~  
 37 | ~~easement shall be given to satisfy the Zone 2 buffer requirement if the sewer easement is at least~~  
 38 | ~~30 feet wide and it is required to be maintained in a condition which meets the vegetative~~

1 requirements of the collection system permit, and if the applicant will restore or enhance the  
2 forested buffer in Zone 1 adjacent to the sewer easement;

3  
4 ~~(1119)~~ The applicant or mitigation provider shall submit written annual reports for a period of five years  
5 after the restoration or enhancement showing that the trees and/or native shrub species planted  
6 have survived are meeting success criteria and that diffuse flow through the riparian buffer has  
7 been maintained. The applicant shall replace trees ~~that do not survive~~ and restore diffuse flow if  
8 needed during that five-year period. Additional years of monitoring may be required if the  
9 objectives under paragraph (g) have not been achieved at the end of the five-year monitoring  
10 period, and

11 ~~(12140)~~ A completion bond(s) that is payable to the Division sufficient to ensure shall be provided for the  
12 mitigation site to account for all that land purchase, construction, ~~monitoring and maintenance~~  
13 ~~costs are completed.~~ A non-wasting endowment or other financial mechanism for perpetual  
14 maintenance and protection must be provided ~~for the site to ensure perpetual, long term~~  
15 ~~monitoring and maintenance.~~

16 (h) PURCHASE OF BUFFER MITIGATION CREDITS FROM A PRIVATE OR PUBLIC MITIGATION  
17 BANK. Applicants who choose to satisfy some or all of their mitigation determination by purchasing mitigation  
18 credits from a private or public mitigation bank shall meet the following requirements:

- 19 (1) The mitigation bank from which credits are purchased ~~is has been approved by the Division and~~  
20 ~~shall have available riparian buffer credits (a list is available on listed on the Division's webpage~~  
21 ~~(<http://portal.ncdenr.org/web/wq/swp/ws/401/eertsandpermits/mitigation>) and shall have available~~  
22 ~~riparian buffer credits;~~
- 23 (2) The mitigation bank from which credits are purchased shall be appropriately located as described  
24 in Paragraphs (e) and (f) of this Rule; and,
- 25 (3) After receiving a mitigation acceptance letter from the mitigation provider, proof of payment for  
26 the credits shall be provided to the Department prior to any activity that results in the removal or  
27 degradation of the protected riparian buffer.

28 (i) PAYMENT TO THE RIPARIAN BUFFER RESTORATION FUND. Applicants who choose to satisfy some or  
29 all of their mitigation determination by paying a compensatory mitigation fee to the Riparian Buffer Restoration  
30 Fund shall meet the requirements of 15A NCAC 02B .0269 (Riparian Buffer Mitigation Fees to the NC Ecosystem  
31 Enhancement Program). Payment made to the NC Ecosystem Enhancement Program (the Program) shall be  
32 contingent upon acceptance of the payment to the Program. The financial, temporal and technical ability of the  
33 Program to satisfy the mitigation request will be considered to determine whether the Program will accept of deny  
34 the request.

35 (j) DONATION OF PROPERTY. Applicants who choose to satisfy their mitigation determination by donating  
36 real property or an interest in real property in lieu of payment shall meet the following requirements:

- 37 (1) The donation of real property interests may be used to either partially or fully satisfy the payment  
38 of a compensatory mitigation fee to the Riparian Buffer Restoration Fund pursuant to Paragraph

(hi) of this Rule. The value of the property interest shall be determined by an appraisal performed in accordance with Part (ij)(4)(D) of this Rule. The donation shall satisfy the mitigation determination if the appraised value of the donated property interest is equal to or greater than the required fee. If the appraised value of the donated property interest is less than the required fee calculated pursuant to 15A NCAC 02B .0269, the applicant shall pay the remaining balance due.

(2) The donation of a conservation easements or similar legal protection mechanism that includes a non-wasting endowment or other financial mechanism for perpetual maintenance and protection to satisfy compensatory mitigation requirements shall be accepted only if ~~the conservation easement or similar legal mechanism that includes a non-wasting endowment-it~~ is granted in perpetuity.

(3) Donation of real property interests to satisfy the mitigation determination shall be accepted only if such property meets all of the following requirements:

(A) The property shall contain riparian areas ~~not currently protected by the State's riparian buffer protection program~~ that are in need of restoration or enhancement rather than preservation;

(B) For the Neuse ~~and~~, Tar-Pamlico, ~~Randleman~~ basins, the Catawba River mainstem below Lake James, and the Randleman and Jordan Reservoir-Wwatersheds, the restorable riparian buffer on the property ~~shall have a collective minimum length of 1,000 linear feet per 2,500 linear feet along a surface water and a minimum width of 50 feet as measured horizontally on a line perpendicular to the surface water. For the Catawba River mainstem below Lake James, the width of the riparian buffer~~ shall begin at the most landward limit of the top of the bank and extend landward a minimum distance of 50 feet, measured horizontally on a line perpendicular to a vertical line marking the edge of the top of the bank. For the mainstem lakes located on the Catawba River mainstem, the width of the riparian buffer shall begin at the most landward limit of the full pond level and extend landward a minimum distance of 50 feet, measured horizontally on a line perpendicular to a vertical line marking the edge of the full pond level. A minimum distance of less than 50 feet may only be allowed for projects in accordance with paragraph (k)(2)(D) below;

(C) The size of the restorable riparian buffer on the property to be donated shall equal or exceed the acreage of riparian buffer required to be mitigated under the mitigation responsibility determined pursuant to Paragraph (e) of this Rule;

(D) The property shall not ~~require excessive measures for successful restoration, such as removal of structures or infrastructure~~ have any impervious cover or stormwater conveyances such as ditches, pipes or drain tiles. If impervious cover or stormwater conveyances exist, they shall be eliminated and the flow converted to diffuse flow. Restoration of the property shall be capable of fully offsetting the adverse impacts of the requested use;

(E) The property shall be suitable to be successfully restored, based on existing hydrology, soils, and vegetation;

- 1 (F) The estimated cost of restoring and maintaining the property shall not exceed the value of the  
 2 property minus site identification and land acquisition costs unless the applicant supplies  
 3 financial assurance acceptable to the Division for restoration and maintenance of the buffer;
- 4 (G) The property shall not contain any building, structure, object, site, or district that is listed in  
 5 the National Register of Historic Places established pursuant to Public Law 89-665, 16 U.S.C.  
 6 470 as amended;
- 7 (H) The property shall not contain any hazardous substance or solid waste such that water quality  
 8 could be adversely impacted, unless the hazardous substance or solid waste can be properly  
 9 remediated before the interest is transferred;
- 10 (I) The property shall not contain structures or materials that present health or safety problems to  
 11 the general public. If wells, septic, water or sewer connections exist, they shall be filled,  
 12 remediated or closed at owner's expense in accordance with state and local health and safety  
 13 regulations before the interest is transferred. Sewer connections in Zone 2 may be allowed for  
 14 projects in accordance with paragraph (k)(2)(E) below;
- 15 (J) The property and adjacent properties shall not have prior, current, or known future land use  
 16 that would inhibit the function of the restoration effort;
- 17 (K) The property shall not have any encumbrances or conditions that are inconsistent with the  
 18 requirements of this rule or purposes of the buffer rules.
- 19 (L) Fee simple title to the property or a conservation easement in the property shall be donated to  
 20 the ~~NC Ecosystem Enhancement Program or a similar organization approved by the Division~~  
 21 ~~to conduct the restoration or enhancement~~ state of North Carolina; and
- 22 (M) Upon completion of the buffer restoration or enhancement-, the property or the easement shall  
 23 be donated to a local land trust or to a local government or other state organization that ~~is~~  
 24 ~~willing to accept the property or easement~~ will hold and enforce the conservation easement  
 25 and the interests. The donation shall be accompanied by a non-wasting endowment ~~or other~~  
 26 ~~financial mechanism for perpetual maintenance and protection~~ sufficient to ensure perpetual  
 27 long-term monitoring and maintenance-, except that where a local government has donated a  
 28 conservation easement and has entered into a binding intergovernmental agreement with the  
 29 Division to manage and protect the property consistent with the terms of the conservation  
 30 easement-, such local government shall not be required to provide a non-wasting endowment.
- 31 (4) At the expense of the applicant or donor, the following information shall be submitted to the  
 32 Division with any proposal for donations or dedications of interest in real property:
- 33 (A) Documentation that the property meets the requirements laid out in Paragraph (j)(3) of this  
 34 Rule;
- 35 (B) US Geological Survey 1:24,000 (7.5 minute) scale topographic map, county tax map, USDA  
 36 Natural Resource Conservation Service County Soil Survey Map, and county road map  
 37 showing the location of the property to be donated along with information on existing site  
 38 conditions, vegetation types, presence of existing structures and easements;

1 (C) A current property survey performed in accordance with the procedures of the North Carolina  
 2 Department of Administration, State Property Office as identified by the State Board of  
 3 Registration for Professional Engineers and Land Surveyors in "Standards of Practice for  
 4 Land Surveying in North Carolina." Copies may be obtained from the North Carolina State  
 5 Board of Registration for Professional Engineers and Land Surveyors, 3620 Six Forks Road,  
 6 Suite 300, Raleigh, North Carolina 27609;

7 (D) A current appraisal of the value of the property performed in accordance with the procedures  
 8 of the North Carolina Department of Administration, State Property Office as identified by  
 9 the Appraisal Board in the "Uniform Standards of Professional North Carolina Appraisal  
 10 Practice." Copies may be obtained from the Appraisal Foundation, Publications Department,  
 11 P.O. Box 96734, Washington, D.C. 20090-6734; and,

12 (E) A title certificate.

13 (k) Alternative Buffer Mitigation OPTIONS. Some or all of a buffer mitigation requirement may be met through  
 14 any of the alternative mitigation options described in this Paragraph. Any proposal for alternative mitigation shall  
 15 meet, in addition to the requirements of Paragraphs (c), (e) and (f), the requirements set out in the sub-paragraph  
 16 addressing that option as well as the following requirements:

17 (l) Any proposal for alternative mitigation shall be provided in writing to the Division and shall meet  
 18 the following content and procedural requirements for approval by the Division:

19 (A) Demonstration of no practical alternative. The application shall describe why traditional  
 20 buffer mitigation options are not practical for the project;

21 ~~(B) The application shall demonstrate that the proposed alternative removes an equal or greater~~  
 22 ~~annual mass load of nutrients to surface waters as the buffer that is approved by the Division~~  
 23 ~~for impact following the calculation of impact and mitigation areas pursuant to Paragraphs (d)~~  
 24 ~~and (e) of this Rule. To estimate the rate of nutrient removal of the impacted buffer, the~~  
 25 ~~applicant shall either propose a method acceptable to the Division or use a method previously~~  
 26 ~~approved by the Division. Prior to approval, both methods shall be subject to public notice~~  
 27 ~~through the 401 Certification Mailing List and public comment in accordance with 15A~~  
 28 ~~NCAC 2H .0503;~~

29 ~~(C) Public Notice and Comment. All proposals shall be reviewed by the Division for~~  
 30 ~~completeness and then be subject to public comment through 60 day notice on the 401~~  
 31 ~~Certification Mailing List in accordance with 15A NCAC 2H .0503;~~

32 ~~(D) Option 1: Projects that have been constructed and are within the required monitoring~~  
 33 ~~period as of the effective date of this Rule are eligible for use as alternative buffer mitigation.~~  
 34 ~~Projects that have completed monitoring and have been released by the Division as of the~~  
 35 ~~effective date of this Rule are not eligible for use as alternative buffer mitigation.~~

36  
 37 ~~Option 2: Projects that have been constructed and are within the required monitoring~~  
 38 ~~period on the effective date of this Rule are eligible for use as alternative buffer mitigation.~~

1 Projects that have completed monitoring and have been released by the Division on or before  
 2 the effective date of this Rule are eligible for use as alternative buffer mitigation for a period  
 3 of ten years from the effective date of this Rule.; and

4  
 5 ~~(E) Buffer mitigation ratios shall be applied to these alternative buffer mitigation options, and~~

6 ~~(FC) The mitigation area shall be placed under a perpetual conservation easement or similar~~  
 7 ~~legal protection mechanism to provide for protection of the property's nutrient removal and~~  
 8 ~~other water quality functions. The mitigation area shall be placed under a perpetual~~  
 9 ~~conservation easement or similar legal mechanism to provide for protection of the property's~~  
 10 ~~buffer functions.;~~

11 ~~(GD) A completion bond(s) that is payable to the Division sufficient to ensure that land~~  
 12 ~~purchase, construction, monitoring and maintenance are completed. A non-wasting~~  
 13 ~~endowment or other financial mechanism for perpetual maintenance and protection must be~~  
 14 ~~provided. A completion bond shall be provided for the mitigation site to account for all land~~  
 15 ~~purchase, construction, monitoring and maintenance costs. A non-wasting endowment must~~  
 16 ~~be provided for the site to ensure perpetual, long-term monitoring and maintenance.~~

17 (2) ALTERNATIVE Buffer Mitigation – NON-STRUCTURAL, VEGETATIVE options.

18 (A) Coastal Headwater Stream Mitigation. Wooded buffers planted along Outer Coastal Plain  
 19 headwater stream mitigation sites can be approved as riparian buffer mitigation as long as the  
 20 site meets all applicable requirements of Paragraph (g) of this Rule. In addition, all success  
 21 criteria including tree species, tree density, diffuse flow and stream success criteria specified  
 22 by the Division in any required written approval of the site must be met. The area of the  
 23 buffer shall be measured perpendicular to the length of the valley being restored. The area  
 24 within the proposed buffer mitigation shall not also be used as wetland mitigation.  
 25 Monitoring of the site must be for at least five years from the date of planting by providing  
 26 annual reports for written DWQ approval.

27 (B) ~~Unmapped Stream~~ Buffer Mitigation on Non-Subject Streams. Restoration or enhancement  
 28 of buffers may be conducted on intermittent or perennial streams that are ~~exempt not subject~~  
 29 ~~to from~~ riparian buffer rules ~~by virtue of not being shown on maps as further specified in~~  
 30 ~~individual rules referenced in Paragraph (f).~~ These streams shall be confirmed as intermittent  
 31 or perennial streams by Division staff or staff from a local delegated program using ~~the 2010~~  
 32 ~~or later version of the Division's stream identification manual~~ the Division publication,  
 33 Methodology for Identification of Intermittent and Perennial Streams and Their Origins  
 34 (v.4.11, 2010), or more recent version. Preservation of these stream buffers that meet the  
 35 definition of a preservation site may also be proposed in order to permanently protect the  
 36 buffer from cutting, clearing, filling and grading and similar activities that would affect the  
 37 functioning of the buffer. Restoration or enhancement is required with an area at least equal  
 38 to the footprint of the buffer impact, and the remaining mitigation requirement provided may

1 ~~be provided by preservation at a 5:1 buffer credit ratio, that the preservation site area is five~~  
 2 ~~times larger than the mitigation area required under Paragraph (e) of this Rule, and restoration~~  
 3 ~~or enhancement is proposed with an area equal to the mitigation area required under~~  
 4 ~~Paragraph (e) of this Rule.~~ The preservation site shall protect at least a 50 foot wide ~~wooded~~  
 5 ~~forested riparian buffer and shall meet the requirements of Subparagraph (j)(2) and Parts (j)~~  
 6 ~~(3)(D), (G), (H), (I), (K) and (M) of this Rule.~~ The proposal shall meet all applicable  
 7 requirements of Paragraph (g) of this Rule. ~~Applicant shall provide a written description for~~  
 8 ~~the Division's approval of the demonstrable threat to the buffer mitigation site and its~~  
 9 ~~functioning to provide nutrient removal and other water quality benefits.~~ No existing or new  
 10 stormwater discharges are allowed ~~thru~~ through the buffer.

- 11 (C) ~~Option 1: Preservation of mapped stream buffers.~~ Buffer preservation may be proposed in  
 12 order to permanently protect the buffer from cutting, clearing, filling and grading and similar  
 13 activities that would affect the functioning of the buffer above and beyond the protection  
 14 afforded by the existing buffer rules on sites that meet the definition of a preservation site  
 15 along streams, estuaries or ponds that are subject to buffer rules as long as the proposed  
 16 preservation site area is ten times larger than the mitigation area required under Paragraph (e)  
 17 of this Rule, and buffer restoration or enhancement is also proposed with an area equal to the  
 18 mitigation area required under Paragraph (e) of this Rule. ~~Applicant shall provide a written~~  
 19 ~~description for the Division's approval of the demonstrable threat to the buffer mitigation site~~  
 20 ~~and its functioning to provide nutrient removal and other water quality benefits.~~ No existing  
 21 or new stormwater discharges are allowed ~~thru~~ through the buffer.

22  
 23 ~~Option 2: Preservation of Buffers on mapped Subject streamStreams buffers.~~ Buffer  
 24 preservation may be proposed in order to permanently protect the buffer from cutting,  
 25 clearing, filling and grading and similar activities that would affect the functioning of the  
 26 buffer above and beyond the protection afforded by the existing buffer rules on sites that meet  
 27 the definition of a preservation site along streams, estuaries or ponds that are subject to buffer  
 28 rules. ~~Restoration or enhancement is required with an area at least equal to the footprint of~~  
 29 ~~the buffer impact. The remaining mitigation requirement may be provided by preservation at~~  
 30 ~~a 10:1 buffer credit ratio as long as the proposed preservation site area is ten times larger than~~  
 31 ~~the mitigation area required under Paragraph (e) of this Rule in non-urban areas and a 3:1~~  
 32 ~~buffer credit ratio three times larger than the mitigation area required under Paragraph (e) of~~  
 33 ~~this Rule in urban areas. In addition, buffer restoration or enhancement is also proposed with~~  
 34 ~~an area equal to the mitigation area required under Paragraph (e) of this Rule.~~ Reduced buffer  
 35 mitigation credit can be given per Part (k)(2)(D) of this Rule in urban areas. ~~The preservation~~  
 36 ~~site shall meet the requirements of Subparagraph (j)(2) and Parts (j) (3)(D), (G), (H), (I), (K)~~  
 37 ~~and (M) of this Rule.~~ ~~Applicant shall provide a written description for the Division's~~  
 38 ~~approval of the demonstrable threat to the buffer mitigation site and its functioning to provide~~

~~nutrient removal and other water quality benefits.~~ No existing or new stormwater discharges are allowed ~~thru~~ through the buffer.

(D) Narrower buffers on urban streams. Buffer ~~restoration or enhancement mitigation~~ with widths less than 50 feet may be proposed along urban streams. If buffers greater than or equal to 31 feet in width are proposed and on-site stormwater management is provided to control local sources of nutrients and other pollutants, then full buffer credit shall be awarded for the ~~mitigation area required under Paragraph (e) of this Rule~~ area of buffer restored or enhanced. A total of 75% of full credit shall be awarded for buffers between 20 and 30 feet wide if on-site stormwater management is provided to control local sources of nutrients and other pollutants. If on-site stormwater management is not provided, then 50% of full credit shall be provided for buffers between 31 and 50 feet wide and 25% of full credit for buffers between 20 and 30 feet wide. Buffers less than 20 feet wide shall receive no buffer credit regardless of whether on-site stormwater management is provided. ~~Any remaining mitigation requirements must be provided at additional mitigation sites.~~

(E) Sewer easement within the buffer. If the proposed mitigation site contains a sewer easement in Zone 1, that portion of the sewer easement is not suitable for buffer mitigation. If the proposed mitigation site contains a sewer easement in Zone 2, the portion of the sewer easement in Zone 2 may be suitable for buffer mitigation if the applicant restores or enhances the forested buffer in Zone 1 adjacent to the sewer easement, the sewer easement is at least 30 feet wide, the sewer easement is required to be maintained in a condition which meets the vegetative requirements of the collection system permit, and diffuse flow is provided across the entire buffer width.

~~(EE)~~ Enhancement of grazing areas adjacent to streams. Buffer credit at a 2:1 ratio shall be available for an applicant who proposes permanent exclusion of grazing livestock that otherwise degrade the stream and riparian zone through trampling, grazing or waste deposition by fencing the livestock out of the stream and its adjacent buffer. ~~The riparian buffer area contained by fencing shall be two times greater than the mitigation area required under Paragraph (e) of this Rule.~~ The applicant shall ~~document the condition and aerial coverage of canopy and woody understory, and shall propose planting of understory trees and shrubs as well as young canopy tree species as necessary to achieve buffer restoration~~ provide an enhancement plan to the standards identified in Paragraph (g). The applicant shall demonstrate that grazing was the predominant land use ~~for at least the past 20 years since the effective date of the applicable buffer rule and that woody understory is absent as a result of grazing history.~~ ~~Conservation easements or other similar legal mechanism shall ensure perpetual maintenance of permanent fencing.~~

(3) ALTERNATIVE Buffer Mitigation Structural STORMWATER TREATMENT options.

- 1 (A) For all structural options: Riparian buffer restoration or enhancement is required with an area  
 2 at least equal to the footprint of the buffer impact, and the remaining mitigation resulting from  
 3 the multipliers can be met through structural options;
- 4 (B) Structural measures already required by other local, state or federal rule or permit cannot be  
 5 used as alternative buffer mitigation, except to the extent such measure(s) exceed the  
 6 requirements of such rule. Stormwater Best Management Practices (BMPs) - bioretention  
 7 facilities, constructed wetlands, infiltration devices and sand filter are all potentially  
 8 approvable Best Management Practices for alternative buffer mitigation. Other Best  
 9 Management Practices may be approved only if they meet the nutrient removal levels outlined  
 10 in Part (3)(C) of this Subparagraph. Existing or planned BMPs for a local, state or federal  
 11 rule or permit may be retrofitted or expanded to improve their nutrient removal if this level of  
 12 treatment would not be required by other local, state or federal rules. In this case, the  
 13 predicted increase in nutrient removal may be counted toward alternative buffer mitigation;
- 14 (C) Minimum treatment levels: Any structural BMP shall provide at least 30% total nitrogen and  
 15 35% total phosphorus removal as demonstrated by a scientific and engineering literature  
 16 review as approved by the Division. ~~The total load reduction from structural BMPs shall be at~~  
 17 ~~least equivalent to the original load reduction provided by the existing square feet of buffer~~  
 18 ~~being impacted~~The application shall demonstrate that the proposed alternative removes an  
 19 equal or greater annual mass load of nutrients to surface waters as the buffer that is approved  
 20 by the Division for impact following the calculation of impact and mitigation areas pursuant  
 21 to Paragraphs (d) and (e) of this Rule. To estimate the rate of nutrient removal of the  
 22 impacted buffer, the applicant shall either propose a method acceptable to the Division or use  
 23 a method previously approved by the Division;
- 24 (D) All proposed structural Best Management Practices shall follow the ~~Division's~~ current or a  
 25 later version of the 2009 Stormwater Best Management Practice Design Manual. If a specific  
 26 proposed structural Best Management Practice is not addressed in this Manual, ~~then a~~  
 27 ~~scientific and engineering literature review shall be submitted with the designs for written~~  
 28 ~~approval by the Division~~follow Chapter 20 in this Manual for approval.~~The design shall be~~  
 29 ~~as effective as the practices described in the Division's stormwater manual;~~
- 30 (E) An operation and maintenance plan is required to be approved by the Division for all  
 31 structural options;
- 32 (F) Continuous and perpetual maintenance is required for all structural options and shall follow  
 33 the Division's current or more recent version of the 2009 Stormwater Best Management  
 34 Practice Design Manual;
- 35 (G) Annual reports shall be sent in writing to the Division of Water Quality concerning operation  
 36 and maintenance of all structural options approved under this rule.
- 37 (H) Removal and replacement of structural options: If a structural option is proposed to be  
 38 removed and cannot be replaced on site, then a structural or non-structural measure of equal

or better nutrient removal capacity shall be constructed as a replacement with the location as specified by Paragraph (e) of this Rule;

(I) Renovation or repair of structural options: If a structural option must be renovated or repaired, it shall be renovated to provide similar equal or better nutrient removal capacity as originally designed;

(J) Structural options as well as their operation and maintenance are the responsibility of the landowner or easement holder unless the Division agrees in writing to operation and maintenance by another responsible party. Structural options shall be ~~shown on the property deed or another document constituting an encumbrance on the property located in recorded drainage easements for the purposes of operation and maintenance and shall have recorded access easements to the nearest public right-of-way. These easements shall be granted in favor of the party responsible for operating and maintaining the structure,~~ with a note that operation and maintenance is the responsibility of the landowner, easement holder or other responsible party; and

(K) Bonding and endowment. ~~A completion bond(s) that is payable to the Division sufficient to ensure that land purchase, construction, monitoring and maintenance are completed and a non-wasting endowment or other financial mechanism for perpetual maintenance and protection must be provided. Provisions for bonding for construction, monitoring and maintenance as well as provision for a long term, non-wasting endowment for monitoring and maintenance shall be provided in the submittal to the Division.~~

(4) OTHER ALTERNATIVE BUFFER MITIGATION OPTIONS. Other riparian buffer mitigation options may be considered by the Division on a case-by-case basis after 30-day public notice through the Division's ~~401-Water Quality~~ Certification Mailing List in accordance with 15A NCAC 02H .0503 and opportunity for comment as long as the options otherwise meet the requirements of this Rule. Division staff shall present recommendations to the Environmental Management Commission for a final decision with respect to any proposal for alternative buffer mitigation options not specified in this Rule.

(I) ACCOUNTING FOR BUFFER CREDIT, NUTRIENT OFFSET CREDIT AND STREAM MITIGATION CREDIT. Buffer- mitigation credit, nutrient offset credit, wetland mitigation credit and stream mitigation credit shall be accounted for in accordance with the following:

~~(1) Riparian buffers required for Water Supply Watershed rules shall not generate credit for buffer mitigation, nutrient offset mitigation or stream mitigation projects;~~

~~(2) \_\_\_ Nutrient offset credits can be generated outside of the stream buffer width required for stream mitigation;~~

~~(3) Buffer mitigation that is used for buffer mitigation credit cannot be used for and nutrient offset credits cannot be counted in the same square footage for mitigation credit;~~

1 ~~(32)~~ Buffer mitigation or nutrient offset credit cannot be ~~provided-generated~~ within wetlands which  
2 provide

3 wetland mitigation credit required by 15A NCAC 02H .0506, ~~as long as riparian wetland mitigation is~~  
4 ~~implemented~~; and

5 ~~(3) — Option 1: Buffer mitigation or nutrient offset credit can be generated on stream mitigation sites as~~  
6 ~~long as the restored or enhanced riparian buffer is at least 50 feet.~~

7 ~~(4) — Option 2: Buffer mitigation or nutrient offset credit can be generated and approved on stream~~  
8 ~~mitigation sites for impacts to streams and buffers as long as the restored or enhanced riparian~~  
9 ~~buffer is at least 50 feet wide and is not providing wetland mitigation credit required by 15A~~  
10 ~~NCAC 2H .0506. If impacts are to buffers only, then mitigation can be done on a buffer only~~  
11 ~~mitigation site. In this case, stream credits will be no longer be available from that stream~~  
12 ~~mitigation site once the buffer credits are subtracted.~~

13 ~~(5)(3) — Option 3: Buffer mitigation or nutrient offset credit cannot be generated~~ within stream projects  
14 which provide ~~on~~ stream mitigation ~~sites~~ credit required by 15A NCAC 02H .0506 except for  
15 coastal headwater stream mitigation sites as outlined in Part (k)(2)(A) of this Rule.

16  
17 History Note: Authority 143-214.1; 143-214.5; 143-214.7; 143-214.20; 143-215.3(a)(1); S.L. 1998, c. 221; 143-  
18 215.6A; 143-215.6B; 143-215.6C; 143-215.8A; 143-215.8B; 143-282(c); 143B-282(d); S.L. 1999,  
19 c. 329, s. 7.1; S.B. 824-2003; S.L. 2005-190; S.L. 2006-259; S.L. 2009-337; S.L. 2009-486.  
20 Eff. date January 1, 2014.