

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 listed in ~~Subparagraphs (1) and (2) of this~~ Paragraph (c) of this Rule and to set forth requirements for buffer mitigation providers.

(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 pursuant to Rules .0233, .0243, .0250, .0259, .0267 or .0607 of this Subchapter to implement the riparian buffer program.
- ~~(2)~~ "Compensatory Buffer Mitigation Bank" means a buffer mitigation site created by a mitigation provider and approved for mitigation credit by the Division through execution of a mitigation banking instrument.
- ~~(2)~~(3) "Division" means the Division of Water Resources of the North Carolina Department of Environment and Natural Resources.
- ~~(3)~~(4) "Enhancement Site" means a riparian zone site characterized by conditions between that of a restoration site and a preservation site such that the establishment of woody stems (i.e., tree or shrub species) will maximize nutrient removal and other buffer functions.
- ~~(4)~~(5) "Hydrologic Area" means the Watershed Boundary Dataset (WBD), located at no cost at <http://data.nconemap.com/geoportal/catalog/search/resource/details.page?uuid={16A42F31-6DC7-4EC3-88A9-03E6B7D55653}> using the eight-digit Hydrologic Unit Code (HUC) prepared by the United States Geological Survey.
- ~~(5)~~(6) "Locational Ratio" means the mitigation ratio applied to the mitigation requirements based on the location of the mitigation site relative to the impact site as set forth in Paragraph (f).
- ~~(7)~~ "Mitigation banking instrument" means the legal document for the establishment, operation, and use of a mitigation bank.
- ~~(6)~~(8) "Monitoring period" means the length of time specified in the approved mitigation plan during which monitoring of vegetation success and other anticipated benefits to the adjacent water as listed in the ~~authorization certification~~ mitigation approval is done.
- ~~(7)~~(9) "Non-wasting endowment" means a fund that generates enough interest to cover the cost of the long term monitoring and maintenance.
- ~~(8)~~(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 available at no cost at http://www.epa.gov/wed/pages/ecoregions/ncsc_eco.htm.
- ~~(9)~~(11) "Preservation Site" means riparian zone sites that are characterized by a natural forest consisting of the forest strata and diversity of species appropriate for the Omernik Level III ecoregion available at no cost at http://www.epa.gov/wed/pages/ecoregions/level_iii_iv.htm.
- ~~(10)~~(12) "Restoration Site" means riparian zone sites that are characterized by an absence of trees and by a lack of dense growth of smaller woody stems (i.e., shrubs or saplings) or sites that are characterized by scattered individual trees such that the tree canopy is less than 25 percent of the cover and by a lack of dense growth of smaller woody stems (i.e., shrubs or saplings).
- ~~(11)~~(13) "Riparian buffer mitigation unit" means a unit representing a credit of riparian buffer mitigation that offsets one square foot of riparian buffer impact.
- ~~(12)~~(14) "Riparian wetland" means a wetland that is found in one or more of the following landscape positions:
 - (A) in a geomorphic floodplain;
 - (B) in a natural topographic crenulation;
 - (C) contiguous with an open water equal to or greater than 20 acres in size; or
 - (D) subject to tidal flow regimes excluding salt/brackish marsh wetlands.
- ~~(13)~~(15) "Urban" means an area that is designated as an urbanized area under the most recent federal decennial census available at no cost at <http://www.census.gov/> or within the corporate limits of a municipality.
- ~~(14)~~(16) "Zonal Ratio" means the mitigation ratio applied to impact amounts in the respective zones of the riparian buffer as set forth in Paragraph (e) of this Rule.

(c) ~~APPLICATION MITIGATION REQUIREMENTS, MITIGATION SITE REQUIREMENTS AND MITIGATION OPTIONS.~~ Buffer mitigation ~~is shall be~~ required when one of the following applies:

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- (1) The applicant has received an authorization certificate for impacts ~~that cannot be avoided or practicably minimized~~ pursuant to Rules .0233, .0243, .0250, .0259, .0267 or .0607 of this Subchapter and is required to perform mitigation as a condition of the authorization certificate; or
- (2) The applicant has received a variance pursuant to Rules .0233, .0243, .0250, .0259, .0267 or .0607 of this Subchapter and is required to perform mitigation as a condition of a variance approval.

Any applicant ~~who seeks approval to impact riparian buffers~~ covered under this Paragraph this Rule who is required by Paragraph (a) shall submit to the ~~Division Authority~~ 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 shall not impact buffers until the ~~Division Authority~~ approves the mitigation plan and issues written authorization approval.

(d) AREA OF IMPACT. The ~~authority Authority~~ shall determine the area of impact in square feet to each ~~zone~~ Zone as defined by the applicable riparian buffer Rules .0233, .0243, .0250, .0259, .0267 or .0607 of this Subchapter of the proposed riparian buffer ~~impact~~ by adding the following:

- (1) The area of the footprint of the use impacting the riparian buffer;
- (2) The area of the boundary of any clearing and grading activities within the riparian buffer necessary to accommodate the use; and
- (3) The area of any ongoing maintenance corridors within the riparian buffer associated with the use.

The ~~authority 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 02H .0506 and are located within the proposed riparian buffer impact area.

(e) AREA OF MITIGATION REQUIRED ON ZONAL MITIGATION RATIOS. The ~~authority Authority~~ shall determine the required area of mitigation for each ~~zone~~ Zone by applying each of the following ratios to the area of impact calculated under Paragraph (d) of this Rule:

Basin/Watershed	Zone 1 Ratio	Zone 2 Ratio
Neuse River Basin (15A NCAC 02B .0233)	3:1	1.5:1
Catawba River Basin (15A NCAC 02B .0243)	2:1	1.5:1
Randleman Lake Watershed (15A NCAC 02B .0250)	3:1	1.5:1
Tar-Pamlico River Basin (15A NCAC 02B .0259)	3:1	1.5:1
Jordan Lake Watershed (15A NCAC 02B .0267)	3:1	1.5:1
Goose Creek Watershed (15A NCAC 02B .0607)	3:1 ^A	

^A The Goose Creek Watershed does not have a Zone 1 and Zone 2. The mitigation ratio in the Goose Creek Watershed is 3:1 for the entire buffer.

(f) AREA OF MITIGATION REQUIRED ON LOCATIONAL MITIGATION RATIOS. The applicant or mitigation provider shall use the following locational ratios as applicable based on location of the proposed mitigation site relative to that of the proposed impact site. Locational ratios shall be as follows:

Location	Ratio
Within the 12-digit HUC ^A	0.75:1
Within the eight-digit HUC ^B	1:1
In the adjacent eight-digit HUC ^{B,C}	2:1

^A Except within the Randleman Lake Watershed. Within the Randleman Lake Watershed the ratio is 1:1.

^B Except as provided in Paragraph (g) of this Rule.

^C To use mitigation in the adjacent eight-digit HUC, the applicant shall describe why buffer mitigation within the eight-digit HUC is not practical for the project.

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

- (1) In the following cases, mitigation shall be performed in the same watershed ~~in which~~ where the impact is located:
 - (A) Falls Lake Watershed, as defined in Rule .0275 of this Section;
 - (B) Goose Creek Watershed, as defined in Rule .0601 of this Subchapter;
 - (C) Randleman Lake Water Supply Watershed, as defined in Rule .0248 of this Section;
 - (D) Each subwatershed of the Jordan Lake watershed, as defined in Rule .0262 of this Section; and

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- (E) Other watersheds 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 federally listed threatened or endangered aquatic species as long as the impacts are in the same river basin and same Omernik Level III ecoregion ~~available at no cost at http://www.epa.gov/wed/pages/ecoregions/level_iii_iv.htm~~ as the mitigation site.

(h) MITIGATION OPTIONS FOR APPLICANTS. 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 riparian buffer restoration site or enhancement site pursuant to Paragraph (n) of this Rule;
- (2) Payment of a compensatory mitigation fee to a compensatory buffer mitigation bank if buffer credits are available pursuant to Paragraph (i) of this Rule or payment of a compensatory mitigation fee to the Riparian Buffer Restoration Fund pursuant to Paragraph (j) of this Rule. Payment shall conform to the requirements of G.S. 143-214.20;
- (3) Donation of real property or of an interest in real property pursuant to Paragraph (k) of this Rule; or
- (4) Alternative buffer mitigation options pursuant to Paragraph (o) of this Rule.
- (5) Other buffer mitigation options when approved by the Environmental Management Commission as a condition of a variance approval.

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 application of the zonal mitigation ratios in Paragraph (e) and locational mitigation ratios in Paragraph (f) may be met through other mitigation options.

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

- (1) The compensatory buffer mitigation bank from which credits are purchased ~~is listed on the Division's webpage (<http://portal.ncdenr.org/web/wq/swp/ws/401>) and ~~has~~ shall have available riparian buffer credits approved by the Division;~~
- (2) The compensatory buffer mitigation bank from which credits are purchased shall be located as described in Paragraphs (e), (f), and (g) of this Rule; and
- (3) After receiving a mitigation acceptance letter from the ~~mitigation provider~~ compensatory buffer mitigation bank, proof of payment for the credits shall be provided to the ~~Division Authority~~ prior to any activity that results in the removal or degradation of the protected riparian buffer.

(j) PAYMENT TO THE RIPARIAN BUFFER RESTORATION FUND. Applicants who choose to satisfy some or all of their mitigation ~~determination requirement~~ by paying a compensatory mitigation fee to the Riparian Buffer Restoration Fund shall meet the requirements of Rule .0269 of this Section. Payment made to the NC Ecosystem Enhancement Program (the Program) shall be contingent upon acceptance of the payment by the Program. The Program shall consider their financial, temporal, and technical ability to satisfy the mitigation request to determine whether they shall accept or deny the request.

(k) DONATION OF PROPERTY. Applicants who choose to satisfy their mitigation ~~determination requirement~~ by donating real property or an interest in real property to fully or partially offset an approved payment into the Riparian Buffer Restoration Fund pursuant to Paragraph (j) of this Rule shall ~~meet the following requirements~~ do so in accordance with 15A NCAC 02R .0403.

(l) MITIGATION SITE REQUIREMENTS FOR APPLICANTS AND MITIGATION PROVIDERS. For each mitigation site proposed by an applicant or mitigation provider under Paragraphs (n) or (o), the ~~Division Authority~~ shall identify functional criteria to measure the anticipated benefits of the mitigation to the adjacent water. The ~~Division Authority~~ 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. For all options except payment of a fee under Paragraphs (j) or (k) of this Rule, the proposal shall include a commitment to provide~~ All mitigation proposals shall meet the following criteria:

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- (1) The location of the ~~restoration or enhancement~~ buffer mitigation site shall comply with the requirements of Paragraphs (e), (f), and (g) of this Rule. In the Catawba watershed, buffer mitigation may be done along the lake shoreline as well as along intermittent and perennial stream channels throughout the watershed.
- (2) The mitigation proposal shall include a commitment to provide:
- ~~(1)(A)~~ (A) a perpetual conservation easement or similar ~~legal protection~~ preservation mechanism to ensure perpetual stewardship that protects the mitigation site's nutrient removal and other water quality functions;
 - ~~(2)(B)~~ (B) ~~a commitment to provide~~ a non-wasting endowment or other dedicated financial surety to provide for the perpetual land management and maintenance of lands or structures ~~financial mechanism for perpetual stewardship and protection~~; and
 - ~~(3)(C)~~ (C) ~~a commitment to provide~~ financial assurance in the form of a completion bond, credit insurance, letter of credit, escrow, or other vehicle acceptable to the Authority that is payable to, or for the benefit of, the Division Authority in an amount sufficient to ensure that land or easement purchase the property is secured in fee title or by easement, and that planting or construction, monitoring, and maintenance are completed as necessary to meet success criteria as specified in the approved mitigation plan. This financial assurance obligation shall not apply to the NC Ecosystem Enhancement Program.
- (3) Diffuse flow of runoff shall be maintained in the riparian buffer. Any existing impervious cover or stormwater conveyances such as ditches, pipes, or drain tiles shall be eliminated and the flow converted to diffuse flow. If the applicant or mitigation provider determines that elimination of existing stormwater conveyances is not feasible, then ~~the applicant or mitigation provider they~~ shall include a justification and shall provide a delineation of the watershed draining to the stormwater outfall and the percentage of the total drainage by area treated by the riparian buffer with the mitigation plan specified in Paragraph (n) or Paragraph (o) for Division Authority approval; during mitigation plan review and approval. the Division The Authority may reduce mitigation credit proportionally.
- (4) Sewer easement within the buffer. If the proposed mitigation site contains a sewer easement in Zone 1, that portion of the sewer easement within Zone 1 is not suitable for buffer mitigation credit. 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 credit if:
- ~~(i)(A)~~ (i)(A) the applicant or mitigation provider restores or enhances the forested buffer in Zone 1 adjacent to the sewer easement;
 - ~~(ii)~~ (ii) ~~the sewer easement is at least 30 feet wide;~~
 - ~~(iii)(B)~~ (iii)(B) the sewer easement is required to be maintained in a condition that meets the vegetative requirements of the collection system permit; and
 - ~~(iv)(C)~~ (iv)(C) diffuse flow is provided across the entire buffer width.
- ~~The proposal shall meet all applicable requirements of Paragraph (i) of this Rule for restoration or enhancement. The proposal shall meet all applicable requirements of Part (m)(2)(C) of this Rule for preservation.~~
- (5) The applicant or mitigation provider shall provide a site specific credit/debit ledger to the Division Authority at regular intervals as specified in the mitigation plan approval or Mitigation Banking Instrument once credits are established and until they are exhausted.
- (6) 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 sites. Projects that have completed monitoring and released by the Division on or before the effective date of this Rule are eligible for use as ~~alternative~~ buffer mitigation sites for a period of 10 years from the effective date of this Rule.
- (6) Buffer mitigation credit, nutrient offset credit, wetland mitigation credit, and stream mitigation credit shall be accounted for in accordance with the following:
- ~~(1)(A)~~ (1)(A) Buffer mitigation used for buffer mitigation credit shall not be used for nutrient offset credits;
 - ~~(2)(B)~~ (2)(B) Buffer mitigation ~~or nutrient offset~~ credit shall not be generated within wetlands that provide wetland mitigation credit required by 15A NCAC 02H .0506; and

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~~(3)(C)~~ Either ~~buffer~~ Buffer mitigation or ~~nutrient offset~~ credit may be generated on stream mitigation sites as long as the width of the restored or enhanced riparian buffer meets the requirements of Subparagraph (n)(1).

(m) RIPARIAN BUFFER MITIGATION UNITS. Mitigation activities shall generate riparian buffer mitigation units as follows:

Mitigation Activity	Square Feet of Mitigation Buffer	Riparian Buffer Mitigation Units Generated
Restoration <u>Site</u>	1	1
Enhancement <u>Site</u>	2	1
Preservation <u>Site</u> on Non-Subject Urban Streams	3	1
Preservation <u>Site</u> on Subject Urban Streams	3	1
Preservation <u>Site</u> on Non-Subject Rural Streams	5	1
Preservation <u>Site</u> on Subject Rural Streams	10	1

(n) RIPARIAN BUFFER RESTORATION SITE OR ENHANCEMENT SITE. ~~Division Authority~~ staff shall make an on-site determination as to whether a potential mitigation site qualifies as a restoration site or enhancement site as defined in Paragraph (b) of this Rule. Riparian buffer restoration sites or enhancement sites shall meet the following requirements:

(1) Buffer restoration sites or enhancement sites may be proposed as follows:

Urban Areas		Non-Urban Areas	
Buffer width (ft)	Proposed Percentage of Full Credit	Buffer width (ft)	Proposed Percentage of Full Credit
Less than 20	0 %	Less than 20	0 %
20-29	75 %	20-29	0 %
30-100	100 %	30-100	100 %
101-200 A	50 % ^A	101-200 ^A	50 % ^A

^A The area of the buffer mitigation site beyond 100 linear feet from the top of bank shall comprise no more than 10 percent of the total area of buffer mitigation.

(2) The applicant or mitigation provider shall submit to the Authority a restoration or enhancement plan for written approval ~~by the Division~~. The restoration or enhancement plan shall demonstrate compliance with the requirements of this Paragraph and Subparagraphs (1) through (3) of this Paragraphs (l) and (m) and shall also contain the following ~~in addition to the elements required in Paragraph (e) of this Rule~~:

- (A) A map of the proposed restoration or enhancement site;
- (B) A vegetation plan that shall include a minimum of four native hardwood tree species or four native hardwood tree and native shrub species, where no one species is greater than 50 percent of established stems, ~~established~~ planted at a density sufficient to provide 260 stems per acre at the completion of monitoring. Native hardwood and native shrub volunteer species may be included to meet the final performance standard of 260 stems per acres. The ~~Division Authority~~ may approve alternative vegetation plans upon consideration of factors, including site wetness and plant availability to meet the requirements of this Part;
- (C) A grading plan (if applicable). The site shall be graded in a manner to ensure diffuse flow through the entire riparian buffer;
- (D) A schedule for implementation, including a fertilization and herbicide plan if applicable; and
- (E) A monitoring plan, including monitoring of vegetative success and other anticipated benefits to the adjacent water ~~as listed in the authorization certification~~.

(3) Within one year after ~~the Division Authority has approved approval of~~ the restoration or enhancement mitigation plan, the applicant or mitigation provider shall present documentation to the ~~Division Authority~~ that the riparian buffer has been restored or enhanced unless the ~~Division~~

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Authority agrees in writing prior to that date to a longer time period ~~due to the necessity for a longer construction period.~~

- (4) The applicant or mitigation provider shall submit written annual reports for a period of five years after the restoration or enhancement has been conducted showing:
- (A) ~~the survival of that~~ the trees or tree and shrub species planted;
 - (B) whether the vegetation of the site is expected to ~~are meeting meet~~ success criteria; and
 - (C) ~~that~~ diffuse flow through the riparian buffer has been maintained.

The applicant or mitigation provider shall replace trees or shrubs and restore diffuse flow if needed during that five-year period. If the Authority determines that the objectives identified in this Paragraph have not been achieved at the end of the five-year monitoring period, the Authority may require ~~Additional additional~~ years of monitoring. ~~may be required if the objectives under Paragraph (i) have not been achieved at the end of the five-year monitoring period.~~

(o) 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 the requirements ~~Subparagraphs (1) through (3) of this Paragraphs (l) and (m) of this Rule and~~ the requirements set out in the named Subparagraph addressing that option, ~~and shall meet the following content and procedural requirements for approval by the Division:~~

~~(1) — ALTERNATIVE BUFFER MITIGATION — NON STRUCTURAL, VEGETATIVE OPTIONS~~

- (1) Coastal Headwater Stream Mitigation. Wooded buffers planted along Outer Coastal Plain headwater stream mitigation sites may also be approved as riparian buffer mitigation credit as long as if the site meets all applicable requirements of Paragraph (n) of this Rule. In addition, all success criteria ~~including woody species, stem density, diffuse flow, and stream success criteria~~ specified in the approval of the stream mitigation site by the Division ~~in any required written approval of the site~~ shall 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 site shall not also be used as wetland mitigation. The applicant or mitigation provider shall monitor the site for at least five years from the date of planting ~~by providing and provide~~ annual reports for written Division approval.
- (2) Buffer Restoration and Enhancement on Non-Subject Streams. Restoration or enhancement of buffers may be conducted on intermittent or perennial streams that are not subject to the applicable riparian buffer ~~rules~~ Rules .0233, .0243, .0250, .0259, .0267 or .0607 of this Subchapter. These streams shall be confirmed as intermittent or perennial streams by Division staff certified per G.S. 143-215.25A using the Division publication, Methodology for Identification of Intermittent and Perennial Streams and Their Origins (v.4.11, 2010) available at no cost at <http://portal.ncdenr.org/web/wq/swp/ws/401/waterresources/streamdeterminations>. The proposal shall meet all applicable requirements of Paragraph (n) of this Rule.
- (3) Preservation of Buffer on Non-subject streams. Preservation of buffers on intermittent or perennial streams that are not subject to the applicable riparian buffer Rules .0233, .0243, .0250, .0259, .0267 or .0607 of this Subchapter ~~rules~~ may be proposed in order to permanently protect the buffer from cutting, clearing, filling, grading, and similar activities that would affect the functioning of the buffer. These streams shall be confirmed as intermittent or perennial streams by Division staff certified per G.S. 143-215.25A using the Division publication, Methodology for Identification of Intermittent and Perennial Streams and Their Origins (v.4.11, 2010). The preservation site shall meet the requirements of Subparagraph (n)(1), (i)(3), (i)(6) and Parts (l)(3)(D), (E), (F), (H) and (J) of this Rule and the requirements set forth in 15A NCAC 02R .0403(c)(7), (8) and (11). ~~Preservation shall be proposed only when restoration or enhancement with an area at least equal to the footprint of the buffer impact has been proposed.~~
- (4) Preservation of Buffers on Subject Streams. Buffer preservation may be proposed on streams that are subject to the applicable riparian buffer Rules .0233, .0243, .0250, .0259, .0267 or .0607 of this Subchapter in order to permanently protect the buffer from cutting, clearing, filling, grading, and similar activities that would affect the functioning of the buffer 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. The preservation site shall meet the requirements of Subparagraph (n)(1), (i)(3), (i)(6) and Parts (l)(3)(D), (E), (F), (H) and (J) of this Rule and the requirements set forth in 15A NCAC 02R .0403(c)(-7), (8) and (11).

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~~Preservation shall be proposed only when restoration or enhancement of an area at least equal to the footprint of the buffer impact has been proposed.~~

- (5) Enhancement of grazing areas adjacent to streams. Buffer credit at a 2:1 ratio shall be available for an applicant or mitigation provider 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 applicant or mitigation provider shall provide an enhancement plan as set forth in Paragraph (n). The applicant or mitigation provider shall demonstrate that grazing was the predominant land use since the effective date of the applicable buffer rule.
- (6) Mitigation on ephemeral channels. For purposes of riparian buffer mitigation as described in this Part, an "ephemeral channel" is defined as a natural channel exhibiting discernible banks within a topographic crenulation (V-shaped contour lines) indicative of natural drainage on the 1:24,000 scale (7.5 minute) quadrangle topographic map prepared by the U.S. Geologic Survey, or as seen on digital elevation models with contours developed from the most recent available LiDAR data [available at no cost at http://www.ncfloodmaps.com/lidar.htm](http://www.ncfloodmaps.com/lidar.htm). Ephemeral channels only flow for a short period of time after precipitation in the immediate area and do not have periods of base flow sustained by groundwater discharge. The applicant or mitigation provider shall provide a delineation of the watershed draining to the ephemeral channel. The entire area proposed for mitigation shall be within the contributing drainage area to the ephemeral channel. The ephemeral channel shall be directly connected to an intermittent or perennial stream and contiguous with the rest of the mitigation site protected under a perpetual conservation easement. The area of the mitigation site on ephemeral channels shall comprise no more than 25 percent of the total area of [buffer](#) mitigation. The proposal shall meet all applicable requirements of Paragraph (n) of this Rule for restoration or enhancement. The proposal shall meet all applicable requirements of Part ~~(o)(2)(C)-(3) or (o)(4)~~ of this Rule for preservation.
- (7) Restoration and Enhancement on Ditches. For purposes of riparian buffer mitigation as described in this Part, a "ditch" is defined as a man-made channel other than a modified natural stream that was constructed for drainage purposes. To be used for mitigation, a ditch shall meet all of the following criteria:
- (A) be directly connected with and draining towards an intermittent or perennial stream;
 - (B) be contiguous with the rest of the mitigation site protected under a perpetual conservation easement;
 - (C) stormwater runoff from overland flow shall drain towards the ditch;
 - (D) be between one and three feet in depth; and
 - (E) the entire length of the ditch shall have been in place prior to the effective date of the applicable buffer rule.

The width of the restored or enhanced area shall not be less than 30 feet and shall not exceed 50 feet for crediting purposes. The applicant or mitigation provider shall provide a delineation of the watershed draining to the ditch. The watershed draining to the ditch shall be at least four times larger than the restored or enhanced area along the ditch. The perpetual conservation easement shall include the ditch and the confluence of the ditch with the intermittent or perennial stream, and provide language that prohibits future maintenance of the ditch. The proposal shall meet all applicable requirements of Paragraph (n) of this Rule for restoration or enhancement.

- (8) ~~ALTERNATIVE BUFFER STORMWATER TREATMENT OPTIONS~~ [Stormwater Treatment Options](#). All stormwater treatment options shall meet the following requirements:
- ~~(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 may be met through structural options;~~
- (A) Structural measures already required by other local, state or federal rule or permit cannot be used as alternative buffer mitigation [credit](#), except to the extent such measure(s) exceed the requirements of such rule or permit. Stormwater Best Management Practices (BMPs), including bioretention facilities, constructed wetlands, infiltration devices and sand filter are all potentially approvable (BMPs) [by the Division](#) for alternative buffer mitigation [credit](#). Other BMPs may be approved only if they meet the nutrient removal levels outlined in Part ~~(H)(8)(B)(C)~~ of this Subparagraph. Existing or planned BMPs for a local, state, or federal rule or permit may be retrofitted or expanded to improve their

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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 credit;

- (B) Minimum treatment levels: Any structural BMP shall provide at least 30 percent total nitrogen and 35 percent total phosphorus removal as demonstrated by a scientific and engineering literature review as approved by the Division. The mitigation proposal shall demonstrate that the proposed alternative removes an equal or greater annual mass load of nutrients to surface waters as the buffer impact authorized in the authorization certificate or variance, following the calculation of impact and mitigation areas pursuant to Paragraphs (d), (e), and (f) of this Rule. To estimate the rate of nutrient removal of the impacted buffer, the applicant or mitigation provider shall use ~~a method previously approved by the Division~~ the NC Division of Water Quality – Methodology and Calculation for determining nutrient reductions associated with Riparian Buffer Establishment available at no cost at http://portal.ncdenr.org/c/document_library/get_file?uuid=55c3758f-5e27-46cf-8237-47f890d9329a&groupId=38364. The applicant or mitigation provider may propose an alternative method of estimating the rate of nutrient removal for consideration and review by the Division;
- (C) All proposed structural BMPs shall follow the Division's 2009 Stormwater Best Management Practice Design Manual available at no cost at <http://portal.ncdenr.org/web/lr/bmp-manual>. If a specific proposed structural BMP is not addressed in this Manual, the applicant or mitigation provider shall follow Chapter 20 in this Manual for approval;
- (D) All structural options are required to have Division approved operation and maintenance plans;
- (E) All structural options are required to have continuous and perpetual maintenance and shall follow the Division's 2009 Stormwater Best Management Practice Design Manual;
- (F) Upon completion of construction, the designer for the type of BMP installed shall certify that the system was inspected during construction and that the BMP was constructed in substantial conformity with plans and specifications approved by the Division;
- (G) 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 in a location as specified by Paragraph (f) and (g) of this Rule shall be constructed as a replacement;
- (H) Renovation or repair of structural options: If a structural option must be renovated or repaired, it shall be renovated to provide equal or better nutrient removal capacity than as originally designed; and
- (I) Structural options as well as their operation and maintenance are the responsibility of the landowner or easement holder unless the Division gives written approval for another responsible party to operate and maintain them. Structural options shall be 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 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 shall be provided.~~
- (9) CASE-BY-CASE APPROVAL FOR OTHER ALTERNATIVE BUFFER MITIGATION OPTIONS. Other alternative riparian buffer mitigation options may be ~~considered by~~ submitted to the Division for review and recommendation to the Environmental Management Commission on a case-by-case basis as long as the options otherwise meet the requirements of this Rule. Prior to recommendation to the Environmental Management Commission the Division shall issue a ~~after~~ 30-calendar day public notice through the Division's ~~Water Quality Certification~~ Mailing List in accordance with 15A NCAC 02H .0503 ~~as long as the options otherwise meet the requirements of~~

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~~this Rule~~. Division staff shall present recommendations including comments received during the public notice period to the Environmental Management Commission for a final decision with respect to any proposal for other alternative buffer mitigation options not ~~specified~~described in this Rule.

*History Note: Authority 143-214.1; 143-214.5; 143-214.7; 143-214.20; 143-215.3(a)(1); 143-215.6A; 143-215.6B; 143-215.6C; 143-215.8A; 143-215.8B; 143-282(c); 143B-282(d); S.L. 1998-221; S.L. 1999-329, s. 7.1; S.L. 2001-418, s. 4.(a); S.L. 2003-340, s. 5; S.L. 2005-190; S.L. 2006-259; S.L. 2009-337; S.L. 2009-486; S.L. 2014-95;
~~Temporary Adoption Eff. October 24, 2014.~~*