GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

# Buffer Mitigation Guidance

This guidance serves as a framework to provide predictability and consistency for the development, review, and approval of mitigation plans for buffer variances. It provides a method for determining mitigation requirements for variance applications. For the purposes of this document, mitigation is those conditions, actions, or measures taken to reduce the severity of the loss of buffer functions caused by the buffer intrusion.

While this guidance is not intended for use as project design criteria, appropriate use of the methods described here should reduce uncertainty in the development of mitigation plans and allow quicker review of applications.

These procedures should not be interpreted as a promise or guarantee that a project satisfying the criteria or guidelines presented will be assured a buffer variance. The Director of the Georgia Environmental Protection Division (EPD) has the responsibility to consider each project on a case-by-case basis and may determine in any specific situation that a buffer variance should be denied, modified, suspended or revoked. This guidance does not preclude or modify any requirements in the Georgia Erosion and Sedimentation Act of 1975 (O.C.G.A. 12-7), DNR Rules on Georgia Department of Transportation Minimum Requirements and Buffer Variance Criteria (391-3-7-.04), DNR Rules on Buffer Variance Procedures and Criteria (391-3-7-.05), or DNR Rules on Coastal Marshlands Buffer Variance Procedures and Criteria (391-3-7-.11).

Ongoing and future buffer studies may lead to updates to this document.

**When Mitigation is Required**

Mitigation is **required** for each of the two criteria in Georgia's Rules for Erosion and Sedimentation Control Section 391-3-7-.04(2)(a) and (b) (Georgia Department of Transportation Minimum Requirements and Buffer Variance Criteria), for each of the 11 criteria in Section 391-3-7-.05(2)(a–k) (Buffer Variance Procedures and Criteria) and for each of the 11 criteria in Section 391-3-7-.11(a–k)(Coastal Marshlands Buffer Variance Procedures and Criteria). Criteria (a) and (b) in Section 391-3-7-.04(2), Criteria (h), (i), (j), (k)1., and major impacts under (k)2. in Section 391-3-7-.05(2) and Criteria (h), (i), (j), (k)1. and major impacts under (k)2. in Section 391-3-7-.11(2) require mitigation in accordance with the guidance described below. Mitigation for the remaining criteria is as described in 391-3-.05(7)(d)(1-10) and 391-3-.11(7)(d)(1-9). EPD staff will evaluate each application to ensure that the proposed mitigation offsets the buffer impacts.

Please note that minor land disturbing activities, such as home gardening, home landscaping, etc. and other activities identified in EPD's *Minor Land-Disturbing Activities* guidance document are not subject to these requirements. In addition, Variance by Rule activities in 391-3-7-.11(9) are not subject to these requirements.

## Mitigation Requirements

A buffer extending out from a buffered feature serves three main functions: (1) post-development total suspended solids and stormwater runoff reduction, (2) water quality protection and (3) aquatic/buffer habitat protection. The following mitigation requirements were established to address all three functions. All applicants applying for a buffer variance must comply with the following three components, as applicable:

### 1. *Post-Development Total Suspended Solids and/or Stormwater Runoff Reduction*

The applicant must use on-site minimum stormwater management standards that conform to guidance established in Section 4.2.3 of the Georgia Stormwater Management Manual (or "Blue Book") to either retain the first 1.0" of rainfall on the site or intercept the stormwater runoff from the first 1.2" of rainfall and reduce average annual post-development total suspended solids (TSS) loadings by 80%.

If located within Georgia's Coastal Nonpoint Source Management Area, the applicant must also use on-site minimum stormwater management standards that conform to the guidance established in the Coastal Stormwater Supplement to the Georgia Stormwater ManagementManual to reduce the stormwater runoff volume generated by the first 1.2" of rainfall. However, if the full 1.2" of stormwater runoff volume cannot be reduced due to site characteristics or constraints, it should be intercepted and treated to provide for at least an 80% reduction in TSS loads and a reduction in nitrogen and bacteria loads to the maximum extent possible.

**For major impacts under criteria (a) and (b) in Section 391-3-7-.04(2), (h), (k)1. and (k)2. in Section 391-3-7-.05 (2) and (h), (k)1. and (k)2. in Section 391-3-7-.11(2), justification must be provided and mitigation credits or preservation will be required as a substitute when post-developmentTSS and/or stormwater runoff reduction cannot be addressed on the site. Mitigation credit purchase or preservation must be in accordance with the Standard Operating Procedure in Appendix B, *Calculations for Buffer Credits and Preservation.***

### 2. *Water Quality Protection*

The applicant must implement on-site best management practices (BMPs) that address common post-construction pollutants other than TSS. Practices used to address these pollutants can be selected from the BMP Selection Guide, Table 4.1.3-1 of the Georgia Stormwater Management Manual. The applicant must choose an appropriate BMP or "treatment train" (a combination of BMPs) to fully address all pollutants of concern generated on-site. The BMP or "treatment train" shall be designed to retain the first 1.0" of rainfall on-site or at a designated off-site treatment area to the maximum extent practicable. If the entire 1.0" runoff reduction standard cannot be achieved, the remaining runoff from the 1.2" rainfall event must be treated by BMPs and must result in at least 60% pollutant removal efficiency from the site run-off for each pollutant of concern. Please refer to Section 4.1.6.1 of the Blue Book for calculating removal rates of "treatment trains." Should the applicant choose practices not listed in Table 4.1.3-1, documented and proven pollutant removal efficiency rates must be submitted with the proposed practice and be accepted by EPD during the application review process. Developments with significant parking spaces and/or high-volume traffic areas must implement BMPs addressing oiland grease as pollutants. Pollutant removal efficiencies for these oil and grease BMPs must be included in the buffer variance application.

**For major impacts under criteria (a) and (b) in Section 391-3-7-.04(2), (h), (k)1. and (k)2., in Section 391-3-7-.05 (2) and (h), (k)1. and (k)2. in Section 391-3-7-.11(2), justification must be provided and mitigation credits or preservation will be required as a substitute when water quality protection cannot be addressed on the site. Mitigation credits and preservation must be in accordance with the Standard Operating Procedure in Appendix B, *Calculations for Buffer Credits and Preservation*. Buffer variance requests must provide documentation that the project has avoided and minimized buffer impacts to the fullest extent practicable. All efforts must be made to avoid piping a stream in place. Alternatives such as relocation with natural channel design and buffer restoration must be considered. If other alternatives are not feasible, a rationale supporting piping must be included in the buffer variance application.**

### *3. Aquatic/Buffer Habitat Protection*

To protect aquatic and buffer habitats, an applicant must comply with the following:

a. Criterion (h) in Section 391-3-7-.05 (2) and criterion (h) in Section 391-3-7-.11(2)

    1. Mitigation must be in accordance with the USACE Section 404 Permitting requirements included in the published USACE Standard Operating Procedures. Additional credit purchase may be required in accordance with the Standard Operating Procedure in Appendix B, *Calculation for Buffer Credits* and *Preservation*.

b. Criterion (k)1. in Section 391-3-7-.05(2) and (k)1. in Section 391-3-7-.11(2) and major impacts under criterion (k)2. in Section 391-3-7-.05 (2) and (k)2. in Section 391-3-7-.11(2)

    1. Mitigation credits must be purchased in accordance with the Standard Operating Procedure in Appendix B, *Calculation for Buffer Credits* and *Preservation,* or

    2. Preserve State waters buffer:
        i. 1.5 times the impacted area if the preservation occurs on-site
        ii. 3 times the impacted area if the preservation occurs off-site

    The preservation must be done permanently through a conservation easement. The land to be preserved:

    - Must contain native riparian species;
    - Must be "multi-trophic;" i.e., have low growing grasses, forbs (non-woody flowering plants other than grass), and other plants; small trees, bushes and shrubs AND canopy cover (medium to large trees);
    - May be trimmed to provide "lines to sight" to provide a view of a house and/or surface water; however, an entire trophic layer must NOT be removed.
    - Documentation verifying the legal protection of the permanent conservation easement must be provided to EPD at least 14 days prior to any land disturbance on the site.

c. Criteria (a) and (b) in Section 391-3-7-.04(2)

    1. Mitigation Credits must be purchased in accordance with the Standard Operating Procedure in Appendix B, *Calculation for Buffer Credits* and *Preservation.*

**EPD prefers that these mitigation practices be done on-site;** however, the nature of the project may necessitate that these practices occur off site. If the mitigation must be done off site, it must remain within the same 10-digit hydrologic unit code (HUC) watershed as the buffer impact. For large projects covering multiple 10-digit HUC watersheds, the mitigation practices may be completed in any of the affected HUC-10 watersheds. The US Geological Survey, the Natural Resources Conservation Service, or EPD can provide maps and delineations of HUC-10 watersheds.

**Additional Information**

Buffers

According to the Georgia Erosion and Sedimentation Act of 1975 O.C.G.A. 12-7-3(2), a buffer is defined as "the area of land immediately adjacent to the banks of State waters in its natural state of vegetation, which facilitates the protection of water quality and aquatic habitat." There is an established 25-foot buffer along banks of all State waters, as measured horizontally from the point where vegetation has been wrested by normal stream flow or wave action, except wherethe EPD Director determines to allow a variance that is at least as protective of natural resources and the environment as a 25-foot buffer. There is an established 50-foot buffer, as measured horizontally from the point where vegetation has been wrested by normal stream flow or wave action, along the banks of any State waters classified as "trout streams." There is established a 25-foot buffer along coastal marshlands, as measured horizontally from the coastal marshland-upland interface (Jurisdictional Determination (JD) Line), as determined in accordance with the "Coastal Marshlands Protection Act of 1970." On-site preservation mitigation areas must be permanently protected through a conservation easement discussed above under "Mitigation Requirements."

For a complete listing of the Buffer Variance Procedures and Criteria and Coastal Marshlands Buffer Variance Procedures and Criteria in the Rules for Erosion and Sedimentation (391-3-7), please go to: http://epd.georgia.gov/existing-rules-and-corresponding-laws.

Coastal Nonpoint Source Management Area

Georgia's Coastal Nonpoint Source Management Area comprises the first two tiers of counties that border the Atlantic Ocean. This 11-county area is also known as the *Coastal Management Program Service Area* and is synonymous with the area regulated by the Georgia Coastal Management Act. Counties include: Bryan, Brantley, Camden, Charlton, Chatham, Effingham, Glynn, Liberty, Long, McIntosh and Wayne.

Coordination with Section 404 and/or Section 10 Permits

Applicants for a buffer variance under criterion (a) in Section 391-3-7-.04(2) of the DNR Rules on Georgia Department of Transportation Minimum Requirements and Buffer Variance Criteria, criterion (h) in Section 391-3-7-.05 of the DNR Rules on Buffer Variance Procedures and Criteria and criterion (h) in Section 391-3-7-.11 of the DNR Rules on Coastal Marshlands Buffer Variance Procedures and Criteria must also apply for and obtain a permit under Section 404 of the federal Water Pollution Control Act Amendment of 1972, 33 U.S.C. Section 1344 or Section 10 of the Rivers and Harbors Act of 1899 from the USACE. EPD will review such variance applications concurrently with the USACE's review of the permit application. Mitigation for the buffer variance may include mitigation required for the Section 404 and/or Section 10 permit(s) permit as well as mitigation required to address EPD's buffer variance rules.

Impacted Area

The area of impact, as used in this document, includes buffer areas impacted by filling, piping, re-routing, other buffer impacts and/or other ecological effects relevant to DNR Rule 391-3-7-.05(2) and 391-3-7-.11(2).

Maintenance

An essential component of a comprehensive stormwater management program is the ongoing operation and maintenance of the various components of the stormwater drainage, control, and conveyance systems. Failure to provide effective maintenance can reduce the hydraulic capacity and the pollutant removal efficiency of stormwater controls and conveyance systems. See Chapter 7, "Stormwater System Operations and Maintenance" of the Georgia Stormwater Management Manual, for a complete discussion of maintenance. http://www.atlantaregional.com/environment/georgia-stormwater-manual

Mitigation Scheduling

As much as possible, mitigation should be done before or at the same time as the authorized buffer impacts. This can reduce loss of buffer functions and facilitate compliance. However, it is recognized that because of equipment availability, job scheduling and other factors typical of construction projects, it may be necessary to do mitigation during the overall project development, but after the buffer impacts. This is usually acceptable provided the time between impacts and mitigation is minimized and the mitigation is completed within one growing season after the adverse impacts have occurred. ***Credit purchase must occur at least 14 days prior to any land disturbance on-site. When preserving state water buffers, documentation verifying the legal protection of the permanent conservation easement must be provided to EPD at least 14 days prior to any land disturbance on the site.***

Native Riparian Plant Species

Native riparian plant species are species that are adapted to riparian forests, marsh edges, and/or stream edges in Georgia and the Southeast. The applicant should use the information in EPD's *Streambank and Shoreline Stabilization Guidance* or contact either the local Cooperative Extension Office or National Resources Conservation Service (NRCS) Office to determine the most appropriate species for the area. The website for the Georgia Cooperative Extension Service is: http://extension.uga.edu/

Contact information for the NRCS district offices in Georgia can be found at:
http://offices.sc.egov.usda.gov/locator/app?agency=nrcs

Conservation Easement

A conservation easement is a legal agreement that places permanent conservation restrictions on the property and is recorded in the deed records. A conservation easement prevents development and requires that the land be managed for its conservation values. Property owners should make allowances for any foreseeable circumstances (e.g., utility lines, power lines, road crossings, ditch maintenance, etc.) that may conflict with the inherent restrictions of the easement. Property owners must select an appropriate holder for the conservation easement in accordance with O.C.G.A. 44-10-2. EPD may not be the holder of the conservation easement.

Wrested Vegetation

Wrested vegetation means the movement of water that removes soil, debris and vegetation,creating a clear demarcation between water flow and vegetative growth.

Appendix A

***Pollutant Removal Efficiency Rates by Practices***

| BMP | Stormwater Management & Treatment | | | | | | |
|---|---|---|---|---|---|---|---|
| | **$WQ_v$ / TSS** | **$CP_v$** | **$Q_{p25}$ / $Q_f$** | **Total Phosphorus** | **Total Nitrogen** | **Fecal Coliform** | **Metals** |
| **Bioretention Basins** [3, 5, 6] | 85% | ❖ | ❖ | 80% | 60% | 90% | 95% |
| **Bioslopes** [7] | 85% | ❖ | X | 60% | 25% | 60% | 75% |
| **Downspout Disconnects** [2] | 80% | X | X | 25% | 25% | N/A** | 40% |
| **Dry Detention Basins** [6] | 60% | X | ✓ | 10% | 30% | N/A** | 50% |
| **Dry Extended Detention Basins** [2] | 60% | ✓ | ✓ | 10% | 30% | N/A** | 50% |
| **Dry Wells** [2] | 100% | ❖ | X | 100% | 100% | 100% | 100% |
| **Enhanced Dry Swales** [1] | 80% | ❖ | X | 50% | 50% | X | 40% |
| **Enhanced Wet Swales** [1] | 80% | ❖ | X | 25% | 40% | X | 20% |
| **Grass Channels** [1] | 50% | ❖ | X | 25% | 20% | X | 30% |
| **Gravity (oil-grit) Separators** [2] | 40% | X | X | 5% | 5% | N/A | N/A |
| **Green Roofs** [2] | 80% | X | X | 50% | 50% | N/A** | N/A** |
| **Infiltration Trenches** [10] | 100% | ❖ | ❖ | 100% | 100% | 100% | 100% |
| **Multi-Purpose Detention Basins** [2] | Varies | X | ❖ | N/A** | N/A** | N/A** | N/A** |
| **Organic Filters** [2] | 80% | ❖ | X | 60% | 40% | 50% | 75% |
| **Permeable Bricks/Blocks** [2] | 80% | ❖ | ❖ | 50% | 50% | N/A** | 60% |
| **Pervious Concrete** [2] | 80% | ❖ | ❖ | 50% | 65% | N/A** | 60% |
| **Porous Asphalt (excludes OGFC)** [2] | 80% | ❖ | ❖ | 50% | 50% | X | 60% |
| **Proprietary Systems** [2] | Varies | Varies | Varies | Varies | Varies | Varies | Varies |
| **Rainwater Harvesting** [2] | Varies | ❖ | X | Varies | Varies | Varies | Varies |
| **Regenerative Stormwater Conveyance** [8] | 80% | X | X | 70% | 70% | N/A** | N/A** |
| **Sand Filters** [1] | 80% | ❖ | X | 50% | 25% | 40% | 50% |
| **Site Reforestation/Revegetation** [2] | N/A** | N/A** | N/A** | N/A** | N/A** | N/A** | N/A** |
| **Soil Restoration** [2] | N/A** | N/A** | N/A** | N/A** | N/A** | N/A** | N/A** |
| **Stormwater Planters / Tree Boxes** [2] | 80% | X | X | 60% | 60% | 80% | N/A |
| **Stormwater Ponds** [2] | 80% | ✓ | ✓ | 50% | 30% | 70% | 50% |
| **Stormwater Wetlands – Level 1** [1] | 80% | ✓ | ✓ | 40% | 30% | 70% | 50% |
| **Stormwater Wetlands – Level 2** [4] | 85% | X | X | 75% | 55% | 85% | 60% |
| **Submerged Gravel Wetlands** [2] | 80% | X | X | 50% | 20% | 70% | 50% |
| **Underground Detention** [2] | 0% | ✓ | ✓ | 0% | 0% | 0% | 0% |
| **Vegetated Filter Strips** [1] | 60% | ❖ | X | 20% | 20% | X | 40% |

✓ - BMP can meet the stormwater management or treatment requirement

❖ - BMP may meet the stormwater management or treatment requirement depending on size, configuration, and site constraints

X - BMP may contribute but is not likely to fully meet the stormwater management or treatment requirement

* - Minimum drainage area of ten acres is required to maintain the permanent pool (unless groundwater is present).

**- Helps restore pre-development hydrology, which implicitly reduces post-construction stormwater runoff rates, volumes and pollutant loads.

**Pollutant Removal References:**

1: Original Georgia Stormwater Management Manual, 2001
2: Previous Coastal Stormwater Supplement to the Georgia Stormwater Management Manual, 2009
3: Bioretention - Watershed Benefits. Low Impact Development Urban Design Tools. 04 April 2014.
4: The Next Generation of Stormwater Wetlands. EPA Wetlands and Watersheds Article Series (2008) Center for Watershed Protection
5: Bioretention Performance, Design, Construction, and Maintenance. North Carolina Cooperative Extension Service. Hunt, William. 2006
6: North Carolina Department of Environment and Natural Resources Stormwater Best Management Practices Manual. 2007
7: Washington State Department of Transportation (WSDOT) Highway Runoff Manual, 2011.
8: West Virginia Stormwater Management Design Guidance Manual, 2012
9: Georgia Department of Transportation (GDOT) Drainage Manual, 2014
10: Pollutant removal rates based on 100% infiltration with no underdrain

Source: Georgia Stormwater Management Manual, Volume 2, Table 4.1.3-1

## Appendix B

## Standard Operation Procedure

### *Calculations for Buffer Credits and Preservation*

Typically, the highest number of stream credits that any USACE approved mitigation bank can generate per square foot of stream restoration is approximately 0.046 stream credits. This includes the restoration of the stream channel and associated stream buffer. Using this number as a basis, mitigation banks are encouraged to maximize the riparian areas (i.e., stream buffer areas) surrounding restored streams within the mitigation bank boundaries.

Since USACE mitigation banks are located off-site from potential buffer encroachments, a 2.5 multiplier is applied to the mitigation calculations. Therefore, this buffer mitigation alternative requires the procurement of 0.115 stream credits per square foot of stream buffer impact.

Example 1:

> 2500 $ft^2$ of buffer impact X 0.046 credits per $ft^2$ X 2.5 factor for off-site = 287.5 stream credits = **288 stream credits**

To encourage the use of USACE mitigation banks in close proximity to the buffer encroachment, if the applicant purchases credits from a mitigation bank in the same 12-digit HUC, a "in-watershed" multiplier of 0.9 will be placed on the number of stream credits needed to serve as mitigation for the proposed buffer impact. However, if the applicant purchases credits outside the 12-digit HUC, but within the larger 8-digit HUC, an "in-basin" multiplier of 1.0 will be placed on the number of steam credits needed to serve as mitigation for the proposed buffer impact. If the applicant purchases credits outside the 8-digit HUC, but within the Primary Service Area (PSA)/Secondary Service Area (SSA) serving the 8-digit HUC, an "out of basin" multiplier of 1.1 will be placed on the number of stream credits needed to serve as mitigation for the proposed buffer impact.

Example 2:

> 2500 $ft^2$ of buffer impact X 0.046 credits per $ft^2$ X 2.5 factor for off-site = 287.5 stream credits
>
> 287.5 stream credits X 0.9 in-watershed multiplier = 258.75 stream credits = **259 stream credits**

Example 3:

> 2500 $ft^2$ of buffer impact X 0.046 credits per $ft^2$ X 2.5 factor for off-site = 287.5 stream credits
>
> 287.5 stream credits X 1.0 in-basin multiplier = 287.5 stream credits = **288 stream credits**

Example 4:

> 2500 $ft^2$ of buffer impact X 0.046 credits per $ft^2$ X 2.5 factor for off-site = 287.5 stream credits
>
> 287.5 stream credits X 1.1 out of basin multiplier = 316.25 stream credits = **317 stream credits**

**If post-development total suspended solids and stormwater runoff reduction and/or water quality protection components (see page 2 of this guidance) cannot be addressed on the site, justification must be provided and mitigation credits will be required as a substitute:**

When applying under **criterion (k)**, a multiplier of 1.1 or 1.2 will be placed on the number of stream credits needed to serve as mitigation for the proposed buffer impact. If only one component cannot be addressed, use a multiplier of 1.1. If both components cannot be addressed, use a multiplier of 1.2.

Example 5:

2500 $ft^2$ of buffer impact X 0.046 credits per $ft^2$ X 2.5 factor for off-site = 287.5 stream credits

287.5 stream credits X 1.1 out of basin multiplier = 316.25 stream credits

316.25 stream credits X 1.1 multiplier for hydrologic **or** water quality protection = 347.875 stream credits = **348 stream credits**

Example 6:

2500 $ft^2$ of buffer impact X 0.046 credits per $ft^2$ X 2.5 factor for off-site = 287.5 stream credits

287.5 stream credits X 1.1 out of basin multiplier = 316.25 stream credits

316.25 X 1.2 multiplier for hydrologic **and** water quality protection = 379.5 stream credits = **380 stream credits**

When applying under **criterion (h)**, a multiplier of 1.1 or 1.2 will be placed on the number of stream credits needed to serve as mitigation for not addressing the post-development total suspended solids and stormwater runoff reduction and/or water quality protection components. These stream credits are calculated by first determining the number of stream credits required according to the State's Standard Operating Procedure. The applicant then calculates the number of stream credits with the multiplier of 1.1 or 1.2 for not addressing post-development total suspended solids and stormwater runoff reduction and/or water quality protection components. Lastly, the applicant calculates the difference between the two stream credit calculations. This difference is the amount of stream credits that must be purchased to offset not addressing post-development total suspended solids and stormwater runoff reduction and/or water quality protection components.

Example 7:

2500 $ft^2$ of buffer impact X 0.046 credits per $ft^2$ X 2.5 factor for off-site = 287.5 stream credits

287.5 stream credits X 1.1 out of basin multiplier = 316.25 stream credits

316.25 X 1.1 multiplier for hydrologic **or** water quality protection = 347.875 stream credits

347.875 stream credits – 316.25 stream credits = 31.625 stream credits = **32 stream credits**

Example 8:

2500 $ft^2$ of buffer impact X 0.046 credits per $ft^2$ X 2.5 factor for off-site = 287.5 stream credits

287.5 stream credits X 1.1 out of basin multiplier = 316.25 stream credits

316.25 stream credits X 1.2 multiplier for hydrologic **and** water quality protection = 379.5 stream credits

379.5 stream credits – 316.25 stream credits = 63.25 stream credits = **64 stream credits**

Equivalent out of kind mitigation bank credits (i.e., wetland) will be considered if no stream mitigation credits are available in the PSA/SSA. Typically, the highest number of wetland credits that any USACE approved mitigation bank can generate per acre of wetland restoration is approximately 4 wetland credits. Since USACE mitigation banks are located off-site from potential buffer encroachments, a 2.5 multiplier is applied to the mitigation calculations.

Example 9:

(2500 $ft^2$ of buffer impact X 4 credits per acre) / 43,560 $ft^2$ X 2.5 factor for off-site = 0.574 wetland credits = **0.6 wetland credits**

The additional credit calculation steps must be followed as shown in Examples 2 through 8 above.

If the buffer of a saltwater marsh is impacted, saltwater marsh credits must be purchased if they are available. The credits are calculated as shown in Example 9 above. The additional credit calculation steps must be followed as shown in Examples 2 through 8 above. If saltwater marsh credits are not available, then wetland credits and/or stream credits can be purchased.

For all projects, the applicant must identify and provide a rationale for the chosen bank as part of the stream buffer variance application. In addition, the applicant applying under criterion (k)1. must provide a letter from the USACE documenting that the water body identified in the stream buffer application is not considered a jurisdictional water under Section 404 of the Clean Water Act.

All stream buffer impacts that are granted by EPD via a variance will have a discrete document number. This document number generated by EPD will be the reference for tracking the sale of stream credits and will be used to report sales of stream credits to the USACE. The mitigation bank from which the stream credits will be purchased has the responsibility of notifying the USACE of the credit transaction by way of inputting the credit transaction into the RIBITS system via the Internet.

***Credit purchase must occur at least 14 days prior to any land disturbance on-site.*** If the applicant purchases mitigation credits after this deadline, a multiplier of 1.5 will be placed on the number of stream credits needed to serve as incentive to comply with the aforementioned deadline. Once the transaction has been completed, the mitigation bank will provide the applicant with a sales receipt verifying the transaction. This receipt shall be forwarded to EPD by return receipt certified mail (or similar service) by the applicant to document buffer mitigation compliance.

**The following calculations must be used to calculate mitigation for preservation:**

**If post-development total suspended solids and stormwater runoff reduction and/or water quality protection components (see page 2 of this guidance) cannot be addressed on the sites that are mitigated by preservation, justification must be provided and additional preservation will be required as a substitute.**

When applying under **criterion (k)**, a multiplier of 1.1 or 1.2 will be placed on the square footage of preservation needed to serve as mitigation for the proposed buffer impact. If only one componentcannot be addressed, use a multiplier of 1.1. If both components cannot be addressed, use a multiplier of 1.2.

Example 10 for Preservation Criterion (k):

**On-site**

2500 $ft^2$ of impact X 1.5 = 3750 $ft^2$

3750 $ft^2$ X 1.1 multiplier for hydrologic **or** water quality protection = 4125 $ft^2$

3750 $ft^2$ X 1.2 multiplier for hydrologic **and** water quality protection = 4500 $ft^2$

**Off-site**

2500 $ft^2$ of impact X 3 = 7500 $ft^2$

7500 $ft^2$ X 1.1 multiplier for hydrologic **or** water quality protection = 8250 $ft^2$

7500 $ft^2$ X 1.2 multiplier for hydrologic **and** water quality protection = 9000 $ft^2$

For **Georgia Department of Transportation buffer variance applications under criteria (a) and (b)** in Section 391-3-7-.04(2) which propose a trout stream buffer impact, a multiplier of 2.0 will be placed on the number of stream credits needed to serve as mitigation.

Example 11 for trout stream buffer mitigation:

5000 $ft^2$ of buffer impact X 0.046 credits per $ft^2$ X 2.5 factor for off-site X 2.0 for trout stream = 1,150 stream credits

1,150 stream credits X 1.1 out of basin multiplier = **1,265 stream credits**

**If post-development total suspended solids and stormwater runoff reduction and/or water quality protection components (see page 2 of this guidance) cannot be addressed on the site, justification must be provided and mitigation credits will be required as a substitute:**

A multiplier of 1.1 or 1.2 will be placed on the number of stream credits needed to serve as mitigation for the proposed trout stream buffer impact. If only one component cannot be addressed, use a multiplier of 1.1. If both components cannot be addressed, use a multiplier of 1.2.

Example 12:

5000 ft2 of buffer impact X 0.046 credits per ft2 X 2.5 factor for off-site X 2.0 for trout stream = 1,150 stream credits

1,150 stream credits X 1.1 out of basin multiplier = 1,265 stream credits

1,265 stream credits X 1.1 multiplier for hydrologic or water quality protection = 1,391.5 stream credits = **1,392 stream credits**

Example 13:

5000 ft2 of buffer impact X 0.046 credits per ft2 X 2.5 factor for off-site X 2.0 for trout stream = 1,150 stream credits

1,150 stream credits X 1.1 out of basin multiplier = 1,265 stream credits

1,265 stream credits X 1.2 multiplier for hydrologic **and** water quality protection = **1,518 stream credits**

Note: For Georgia Department of Transportation buffer variance applications under criteria (a) and (b) in Section 391-3-7-.04(2), which propose a non-trout stream buffer impact, it may be appropriate to use examples 11, 12 or 13 above excluding the 2.0 multiplier.