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Stream Buffer Mitigation Guidance

This guidance serves as a framework to provide predictability and consistency for development, review and approval of compensatory mitigation plans for stream buffer variances. It provides a method for determining mitigation requirements for variance application.

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 stream buffer variance. The Georgia Environmental Protection Division (EPD) Director 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 or 391-3-7-.05 DNR Rules on Buffer Variance Procedures and Criteria.

On-going and future stream buffer studies may lead to changes to this document.

Georgia's Customer Service Initiative

On July 25, 2006, Governor Sonny Perdue kicked off the employee awareness phase of his Customer Service Initiative to raise the level of customer service in State government. The Governor's Initiative focuses on the theme of "Faster, Friendlier and Easier" service to customers.

As a part of these efforts, the EPD NonPoint Source Program was tasked with developing two documents: *Stream Buffer Mitigation Guidance*, and *Streambank and Shoreline Stabilization Guidance*. These documents will provide consistent and uniform guidance and recommendations for individuals planning to implement these types of projects.

When Mitigation is Required

As stated in Section 391-3-7-.05 (Buffer Variance Procedures and Criteria) of the DNR Rules for Erosion and Sedimentation Control, only 10 project categories (criteria 391-3-7-.05(2) a-j) exist for which the EPD Director will review a buffer variance application. For each project category or criterion, EPD staff will evaluate the applicant's need to mitigate impacts to the buffer. Whether mitigation is necessary for a variance applicant applying under criteria (a) through (g) will be determined by the project's potential impact. However, any applicant applying under criteria (h), (i) or (j) is required to mitigate the buffer disturbance based on guidance described below. Landowners are required, regardless of project criterion, to mitigate for impacts that occurred without the issuance of a variance. Please note that minor land disturbing activities, such as home gardening, home landscaping, etc. are not subject to these requirements.

Mitigation Requirements

A buffer extending out from a stream serves three main functions: hydrologic, water quality, and aquatic/buffer habitat protection. The following mitigation requirements were established to address all three functions. All applicants applying for a stream buffer variance before impacting the buffer must comply with the following three components:

1. Hydrologic Protection – The applicant must use on-site minimum stormwater management standards that conform to guidance established in Section 1.3 of the Georgia Stormwater Management Manual (or "Blue Book"). These practices reduce downstream bank and channel erosion; reduce downstream flooding; and by capturing run-off from the first 1.2" of rainfall ensure an 80% reduction in total suspended solids (TSS).

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 other pollutants can be selected from Appendix A. The applicant must choose an appropriate BMP or "treatment train"; that is, a combination of BMPs, to fully address all pollutants of concern generated on site. For the first 1.2" of rainfall, the BMP or treatment train must result in at least 60% pollutant removal efficiency from the site run-off for each pollutant of concern. (Please refer to Section 3.1.6 of the Blue Book for calculating removal rates of treatment trains). Should the applicant choose practices not listed in Appendix A, 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 oil and grease as pollutants. Pollutant removal efficiencies for these oil and grease BMPs must be included in the stream buffer variance application.

3. Aquatic/Buffer Habitat Protection – To protect aquatic and buffer habitats, an applicant has the option of completing either (a) or (b) below. If a U.S. Army Corps of Engineers (COE) Section 404 Permit is required, only (a) must be completed.

a. Complete the COE requirements for Section 404 Permitting included in their published Standard Operating Procedures.
b. Complete one of the following:
    i. Preserve land:
        1. 1.5 times the impacted area if the preservation occurs on-site
        2. 3 times the impacted area if the preservation occurs off-site
    ii. Restore land:
        1. 1 times the impacted area if the restoration occurs on-site
        2. 2 times the impacted area if the restoration occurs off-site

    The preservation and/or restoration must be done permanently through a restrictive covenant. The land to be preserved or restored:
    - 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 larger trees);
    - May be trimmed to provide "lines of sight" to provide a view of a house and/or surface water; however, an entire trophic layer must NOT be removed.

It is preferred that these mitigation practices be done on site. However, they will often have to occur off site due to the nature of the project. 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 Soil and Water Conservation Service, or EPD can provide maps and delineations of HUC-10 watersheds.

Additional Information

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

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 where the EPD Director determines to allow a variance that is at least as protective as a 25 foot buffer of natural resources and the environment. 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'. Therefore, mitigation areas must be adjacent to state waters and will not be considered acceptable if they do not include a minimum width of 25 feet or 50 feet, respectively. In addition, buffer mitigation areas must be permanently protected through a restrictive covenant as discussed above under "Mitigation Requirements".

For a complete listing of the Buffer Variance Procedures and Criteria in the Rules for Erosion and Sedimentation (391-3-7), please go to: http://www.gaepd.org/Documents/rules_exist.html

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 Seven, "Stormwater System Operations and Maintenance" of the *Georgia Stormwater Management Manual, Volume 1* for a complete definition of maintenance.
http://www.georgiastormwater.com/vol1/gsmmvol1.pdf

Native Riparian Plant Species
Native riparian plant species should be species that are adapted to riparian forests and/or stream edges in Georgia and the Southeast. The applicant should contact either the local Cooperative Extension Office or National Resources Conservation Service (NRCS) Office to determine the most appropriate species for the area. The web site for the Georgia Cooperative Extension Service is: http://www.caes.uga.edu/extension/index.html

Contact information for the NRCS district offices in Georgia can be found at:
ftp://ftp-fc.sc.egov.usda.gov/GA/PI/areamap.pdf

Restrictive Covenants

A restrictive covenant is one in which a property owner places permanent conservation restrictions on the property. A restrictive covenant 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 covenant.
For the COE's "Restrictive Covenant Guidance", please go to:
http://www.saw.usace.army.mil/wetlands/Mitigation/Documents/restrictive%20covenants8-03.pdf

Mitigation Scheduling

As much as possible, mitigation should be done at the same time or as, or even before, 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 impact. 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.

Wrested Vegetation

Wrested vegetation is vegetation that has been disturbed, moved, or removed by flowing water creating a clear demarcation between water flow and vegetative growth.

Coordination with Section 404 Permits

Applicants for a stream buffer variance under criterion (h) in Section 391-3-7-.05 of the DNR Rules on Buffer Variance Procedures and Criteria must also apply for and obtain a federal Clean Water Act (CWA) Section 404 permit from the U.S. Army Corps of Engineers (COE). EPD will review such variance applications at the same time the COE is reviewing the Section 404 application. Mitigation for the buffer variance may include mitigation required for the Section 404 permit as well as mitigation required to address EPD's buffer variance rules.

Appendix A
Pollutant Removal Efficiency Rates by Practices

Structural Control	Total Suspended Solids	Total Phosphorus	Total Nitrogen	Fecal Coliform	Metals
Stormwater Ponds	80	50	30	70*	50
Constructed Wetlands	80	40	30	70*	50
Bioretention Areas	80	60	50	~	80
Sand Filters	80	50	25	40	50
Infiltration Trench	80	60	60	90	90
Enhanced Dry Swale	80	50	50	~	40
Enhanced Wet Swale	80	25	40	~	20
Filter Strip	50	20	20	~	40
Grass Channel	50	25	20	~	30
Organic Filter	80	60	40	50	75
Underground Sand Filter	80	50	25	40	50
Submerged Gravel Wetland	80	50	20	70	50
Gravity (Oil-Grit) Separator	40	5	5	~	~
Porous Concrete	**	50	65	~	60
Modular Porous Paver System	**	80	80	~	90
Alum Treatment	90	80	60	90	75
Proprietary System	***	***	***	***	***

* If no resident waterfowl population is present

** Due to the potential for clogging, porous concrete and modular block paver systems should not be used for the removal of sediment or other coarse particle pollutants

*** The performance of specific proprietary commercial devices and systems must be provided by the manufacturer and should be verified by independent third party sources and data

~ Insufficient data to provide removal efficiency

Source: Georgia Stormwater Management Manual, Volume 2, Section 3.1-7