GENERAL EROSION & SEDIMENT CONTROL STANDARDS AND SPECIFICATIONS FOR MITIGATION BANK CONSTRUCTION

August 2014

I. INTRODUCTION

Persons engaging in the creation and operation of mitigation banks in multiple jurisdictions within Virginia may submit general erosion and sediment control (ESC) standards and specifications to the Department of Environmental Quality (DEQ) for review and approval. Section 62.1-44.15:55.E. of the Virginia ESC Law (VESCL) allows the annual submission of general ESC specifications to DEQ in lieu of submitting project-specific ESC plans to localities for review and approval. Specifically, this provision is for mitigation banks that are operated in accordance with applicable federal and state guidance, laws, and regulations for the establishment, use, and operation of mitigation banks, pursuant to a Mitigation Banking Instrument (MBI) approved by the Virginia Department of Environmental Quality, the Virginia Marine Resources Commission, and/or the U.S. Army Corps of Engineers. Wetland and/or stream projects for compensatory mitigation of individual project impacts, *i.e.*, permit-specific compensation not for the purpose of selling mitigation credits, must comply with the requirements of the appropriate local erosion and sediment control program.

While DEQ approval of general ESC specifications alleviates the need for individual plan submittal, it does not negate the requirement for preparation of project-specific ESC plans. Likewise, it does not relieve the owner or operator from compliance with any other local ordinance or regulation (*i.e.*, other than ESC) including the submission of plans, obtaining of permits, or providing of financial assurances as may be required by such ordinances and regulations.

Terms and conditions of federal and state water quality permits must be adhered to during construction. This guidance recognizes and supports the requirements of any and all environmental permits required for site construction, and is not intended to supersede those requirements.

II. Regulated Land-disturbing Activities

Land-disturbing activities commonly associated with the construction of mitigation banks are regulated under the VESCL (Title 62.1, Chapter 3.1, Article 2.4 of the Code of Virginia), the Virginia Erosion and Sediment Control Regulations (9VAC25-840), and the Virginia Stormwater Management Program Permit Regulations (9VAC25-870). The VESCL defines a land-disturbing activity as any man-made change to the land surface that may result in soil erosion from water or wind and the movement of sediments into state waters or onto lands in the Commonwealth. Section 62.1-44.15:55.E. addresses mitigation banks specifically as regulated land disturbing activities under the VESCL. Consequently, any land-disturbing activities involved in the creation, enhancement, or restoration of wetlands and/or streams are regulated by DEQ. All environmental permits for unavoidable impacts to wetlands and streams are also conditioned on the installation and maintenance of appropriate ESC measures.

Regulated land-disturbing activities include, but are not limited to:

1. Clearing, grubbing, grading, stockpiling, tillage, topsoiling and other activities involved in the creation, restoration or modification of wetland cells, stream channels or upland buffers;
2. Construction or removal of dams, berms, embankments, levees, and associated water control structures;
3. Modification or removal of subsurface drainage tile and filling in of drainage ditches;
4. The construction of access roads, staging areas, and borrow/spoil sites;
5. Activities associated with maintenance of water control structures, such as clearing rights-of-ways;
6. All associated off-site disposal sites;
7. Crossing, work within or adjacent to, or modification of existing wetland features associated with the land-disturbance;
8. Crossing, work within or adjacent to, or modification of stream channels and other drainage features associated with the land-disturbance;
9. Construction or modification of onsite or offsite stormwater conveyance or stormwater management facilities associated with site development; and
10. Construction of trails, raised walks, observation platforms, or other public or private facilities.

III. General ESC Standards and Specifications Submittal Process

General ESC specifications for the construction of wetland and/or stream mitigation banks shall be submitted annually to:

David Aho
Stormwater Compliance Specialist
DEQ Piedmont Regional Office
4949-A Cox Road
Glen Allen, VA 23060
(804) 527-5024

Or electronically to David.Aho@deq.virginia.gov

DEQ shall have 60 days in which to review and approve the specifications. Submittal of individual project specific plans to DEQ is not necessary. Per 62.1-44.15:55.E, upon approval the company will be invoiced for $1000 to cover the costs associated with review and approval, projection inspections, and compliance. Approved ESC specifications must be incorporated into the site plans, and the plans made available on site. DEQ has authority to enforce general ESC specifications.

Minimum Requirements for General ESC Standards and Specifications Submittal

General ESC specifications for the construction of mitigation banks must include a discussion of those ESC measures, policies and procedures that will be implemented during regulated land-disturbing activities. This information needs to include:

1. Complete contact information.
2. Discussion of how the company shall meet the Minimum Standards of the Virginia Erosion & Sediment Control Regulations (9VAC25-840-40). Please ensure that construction sequence, installing ESC measures as a first step, methods of crossing streams and wetlands, and maintaining easements are addressed.
3. A list of ESC practices that will be employed during the land-disturbing activity as specified in the Virginia Erosion and Sediment Control Handbook (Handbook), the Virginia Stormwater Management Handbook, and/or the Virginia Stream Restoration and Stabilization Best Management Practices Guide.
4. A list of proposed ESC practices modified from the Handbook, including a narrative description of how each measure meets the Minimum Standards, standard detail, symbol, and notes to be utilized on ESC plans.
5. A list of ESC practices not specified in the Handbook, including a narrative description on how each measure meets the Minimum Standards, standard detail, symbol, and notes to be utilized on ESC plans.
6. Variance requests for modifications to minimum standards (9VAC25-840-40). Please see the next section.
7. Provide project-specific information on all mitigation bank projects planned to be constructed. Include the following information:

    a. Project names
    b. Project locations and driving directions
    c. On-site project managers' names and contact information
    d. Project descriptions
    e. Natural resources within or adjacent to the site
    f. Adjacent land uses
    g. Total and disturbed acreage
    h. Location and plans for offsite disposal or borrow areas
    i. Projected start and finish dates
    j. Obligation to contact DEQ concerning projects unknown at submittal

DEQ shall be notified of all applicable land-disturbing projects to be constructed under the approved general standards and specifications, even if the information on a given project is unknown at ESC Specification submittal. Project information may be submitted to DEQ at:

David.Aho@deq.virginia.gov

IV. Variance Requests

To have any of the VESCR minimum standards (9VAC25-840-40) modified or waived requires a written variance request to DEQ as part of the submittal. The request should clearly explain why the specified minimum standard is not practicable and how the intent of the minimum standard and the ESC law and regulations will be met. Common examples include:

- MS-6: Utilization of reinforced silt fence in lieu of a sediment trap for areas less than 3 acres, as traps cannot practically be excavated, and the slopes are relatively flat.
- MS-6: Utilization of wetland berms with stone outlets in lieu of sediment basins for areas over 3 acres, as basins cannot practically be excavated, and an appropriate treatment volume can be achieved with the berm.

V. Erosion & Sediment Control Handbook Standards and Specifications

The success of a mitigation bank is determined by the site's ability to provide self-sustaining recognized functions within a natural landscape setting. The construction of a mitigation bank therefore involves unique challenges to ESC not found on many construction sites. These include:

- Proximity to regulated natural resources, such as wetlands, streams, and threatened/endangered species
- Level grade, with frequent flooding and inundated soils
- Soils subject to compaction
- Unique soil, soil amendment, and plant specifications
- Construction of water control structures
- Soil disposal from grading operations
- Restoration activities within natural streams

The Minimum Standards found in the VESCR are minimum state requirements for controlling erosion and sedimentation from land-disturbing activities. The following discussion focuses on the applicability of the standards and specifications found in the Virginia ESC Handbook to land-disturbing activities associated with the construction of wetland mitigation banks.

Protecting Existing Natural Resources

Mitigation banks are usually constructed as interwoven with existing wetlands and streams, including habitat for threatened and endangered plants and wildlife. Avoidance and minimization of impacts to these resources are critical. Preconstruction meetings with all site contractors are fundamental to clarify grading limits. Detailed surveying and flagging are essential. Some considerations to avoid unpermitted jurisdictional impacts include:

1. Planning
    a. Staging operations
    b. Site access points and right-of-ways
    c. Staging and lay-down areas
    d. Spoil disposal areas
    e. Pollution prevention
    f. Time-of-year restrictions
2. Detailed and accurate fencing, taping and signage
3. Stream crossings to protect channel bed and banks
4. Wetland crossings to minimize rutting and compaction

Applicable ESC Practices for Wetland Construction

Wetlands retain runoff. However, there are points during construction where adjacent natural resources may become subject to sedimentation. Three basic strategies used to control erosion and prevent sediment moving offsite are 1) minimizing soil exposure and erodibility, 2) reducing erosive flows, and 3) cleaning sediment-laden runoff. Minimizing soil exposure is achieved through the staging of land-disturbing activities with prompt vegetative or other stabilization practices. Erosive flows are controlled by maintaining non-erosive sheet flow across the site, or by conveying concentrated flow around or across the site to adequate channels or pipes. Removing suspended sediment from runoff is accomplished by slowing down flow to allow sediment to settle out, utilizing practices such as silt fence and rock check dams. Two additional concerns are controlling dust and minimizing tracking onto public roadways.

The relatively flat grades and shallow depth to groundwater attendant with wetlands restricts traditional ESC measures. Practices designed to treat runoff from large areas, such as temporary sediment traps and sediment basins, are often not practicable due to the difficulty with construction and drainage. Consequently, focus should be placed on diverting off-site stormwater flows, maintaining and treating sheet flow across the site, and using ESC measures within drainage features other than live streams. The berms and stone outlets often constructed with wetland creation may be utilized effectively as ESC.

Recommended practices from the Handbook include:

1. Temporary stone construction entrance
2. Construction road stabilization
3. Silt fence
4. Temporary diversion
5. Modified sediment trap
6. Drainage features
    a. Channel lining
    b. Check dam
    c. In-line sediment traps
    d. Grade stabilization structure
    e. Culvert inlet protection
    f. Outlet protection/energy dissipation
7. Berms, embankments and levees
8. Fill slopes
    a. Tracking & roughening
    b. Fill diversion
    c. Slope drain
9. Dust control

Working in Live Watercourses and Water Bodies

When work within a watercourse or water body is unavoidable, the most effective ESC is to "work in the dry". This involves either working during a period when the work area is normally dry, or hydrologically excluding the area where the work is to occur. Water within these work areas that has become sediment-laden must be treated before discharging (MS-16), the remaining sediment removed to an upland area and stabilized, and the channel stabilized before the barrier is removed (MS-11). Stabilization of areas adjoining a water body or stream must proceed immediately upon completion of the work (MS-15). New or reworked channels must be adequately stabilized before rerouting the stream into them. Recommended practices from the Handbook include:

1. Coffer dams, sheet pile
2. Turbidity curtain
3. Pump-around diversion
4. Stream diversion
5. Dewatering structure
6. Vegetative or structural shoreline or streambank stabilization

A recommended reference for ESC with stream restoration is The Virginia Stream Restoration and Stabilization Best Management Practices Guide, a joint publication of DEQ, DCR, and NOAA.

If the project involves dam removal, care must be taken to prevent discharge of the accumulated sediment behind the embankment. The following sequence should to be considered:

1. Pump out the basin through a filtering device or dewatering structure
2. Remove as much of the sediment from the basin as practicable
3. Relocate sediment to an upland area and stabilize
4. Remove or breach the embankment

Vegetative and Other Stabilization – Additional Recommendations

Wetland (hydric) soils have unique properties due to frequent inundation and flooding. When creating wetlands, topsoil should be stockpiled. Care must be taken to minimize and remediate compaction from construction activities; organic amendments should be considered. Temporary stabilization practices must be incorporated into the grading and planting plans. Recommended practices include:

1. Soil modification
    a. Tillage/subsoiling
    b. Topsoiling
    c. Soil amendments
2. Seeding with a wetland seed mix as soon as practicable
3. Adherence to the approved planting plan
4. Mulching; avoid straw and other mulch that may contain seed from invasive species
5. Geotextile or other channel stabilization

Plant species used in wetland mitigation vary considerably from those specified in the Handbook. Many seed companies now offer seed mixes specifically for wetlands. The specifications for temporary seeding and mulch must avoid potentially invasive species. Information on invasive plant species in Virginia can be found on the DCR Natural Heritage website: http://www.dcr.virginia.gov/natural_heritage/invspinfo.shtml.

Stormwater Management

In urbanized areas concentrated flow from surrounding land uses may impact wetlands and streams. The two primary issues with stormwater discharges are erosive flows and water quality. Concentrated flows entering wetlands can channelize and downcut, ultimately draining the wetlands. Runoff must be converted into non-erosive sheet flow before discharging into

wetlands through the use of level spreaders. Dividing the incoming flows and utilizing multiple entry points into the wetlands can greatly reduce the damage and enhance wetland hydrology. Likewise, concentrated stormwater discharge can damage stream riparian areas and banks. Stormwater discharge should be conveyed to the stream channel, or converted into non-erosive sheet flow when discharged into the riparian area.

Stormwater inputs into mitigation banks can result in sediment deposition and nutrient enrichment, impacting surface waters. Stormwater quality may be enhanced through practices including grassed swales, sediment forebays, or treatment wetlands to pre-treat runoff discharged unto the site. Intercepting and infiltrating runoff in upland areas can significantly enhance water quality and enhance groundwater recharge supporting wetland hydrology.

For further information on standards, specifications and engineering guidance on stormwater management, please refer to the 1999 Virginia Stormwater Management Handbook or other guidance found on the DEQ Stormwater website at

deq.state.va.us/Programs/Water/Laws,Regulations,Guidance/Guidance/StormwaterManagementGuidance.aspx

VI. VPDES Construction General Permit

Construction projects resulting in disturbance equal to or greater than one (1) acre require a VPDES Construction General Permit for Stormwater (CGP). Disturbance within a jurisdictional impact area authorized by a 404 permit is not subject to the requirements of the CGP (9VAC25-870-300.2). However, when construction activities outside the 404 jurisdictional area (*e.g.* access roads, lay-down areas, upland grading) exceed 1 acre the project requires CGP coverage.

A copy of the CGP and necessary forms may be found at:

http://deq.state.va.us/Programs/Water/StormwaterManagement/VSMPPermits.aspx.

A stormwater pollution prevention plan (SWPPP) is required as a condition of the CGP. A SWPPP must be prepared for each project built under the approved general ESC specifications, and will be reviewed on site during DEQ inspections.

VII. Compliance

Persons conducting land-disturbing activities for mitigation banks are required to provide the project specific information outlined in Section IV to David.Aho@deq.virginia.gov at least 2 weeks prior to construction.

A project specific ESC plan is required for each project covered under the general ESC specifications approved by DEQ. The owner or operator is required to conduct inspections in accordance with the law and regulations or the general ESC specifications approved by DEQ. In addition, a CGP may be required for each project as discussed in Section IV. DEQ Regional Office staff will inspect mitigation bank construction projects covered under general ESC specifications, and may undertake enforcement action if a project is out of compliance.

VIII. Additional Information

Visit DEQ's website at

http://www.deq.state.va.us/Programs/Water/StormwaterManagement.aspx

to find the law, regulations, forms and guidance discussed in this document. Questions regarding land-disturbance with wetland or stream mitigation bank projects, ESC standards and specifications, variance requests, or related issues should be directed to David Aho at (804) 527-5024, or to David.Aho@deq.virginia.gov.