

Unified Stream Methodology
Frequently Asked Questions and Answers
May 13, 2008

The Unified Stream Methodology (“USM”) was developed as a result of a collaborative effort between the Norfolk District and the DEQ, to establish a unified and consistent method for use in Virginia, to assess proposed stream impacts and determine the appropriate amount of stream mitigation needed to offset those impacts. The purpose of this document is to answer questions frequently posed by individuals who have used the USM.

Stream Relocations

- **Can relocations that result in an improved stream quality be “banked” for future impacts?** *In order to “bank” credits, a Mitigation Banking Instrument is required. However, on a case-by-case basis, the improvement of a relocated channel may be considered for use as compensation for current impacts, or for future impacts in subsequent phases of the same project, by the same permittee on other projects within the same watershed, and when approved in advance by the Corps and DEQ.*
- **Can relocations be counted as compensation credit (“CC”)?** *Relocated stream channels may be considered self-mitigating, if they are designed using principles of Natural Stream Channel Design, are of equal or better quality than the original channel, and are stable. The Corps and DEQ project managers (“PMs”) will determine whether a relocated stream channel is self-mitigating, or whether it requires additional compensation. On a case-by-case basis, it is possible that additional credits derived from stream relocation may be applied to off-set the Compensation Requirement (“CR”) on the same project. This decision will be made by the Corps and DEQ PMs.*

When a relocated stream is ‘channelized’, it may require full mitigation (Impact Factor of 1). However, when some, but not all, elements of natural stream channel design are used, the CR may be lowered on a case-by-case basis.

Applicants should include a description of how the relocated stream channel will be monitored and managed after any performance standards have been achieved, to ensure the long-term sustainability of the resource.

Assessments – General

- **How are braided systems assessed?** *In most cases, a braided channel would be assessed as one channel. However, in the situation where there are several distinct channels that intersect at one or more points, they may be assessed separately. In order to accurately*

determine the channel condition for braided channels, the assessor would need to look at watershed conditions, such as valley slope, channel location, land use, active disturbance, erosion, etc. These conditions would will help the assessor decide whether or not the braiding is natural and stable, which may be the case on high-bedload Rosgen “A” channels running out of the mountains into alluvial valleys; or low-gradient Rosgen DA (deltaic) stream systems. Since there are a wide variety of field conditions, it is best to consult your Corps/DEQ PMs regarding braided channels.

- **Can the USM Assessment be used to determine the CR for an enforcement case?** *The USM was not specifically designed for this purpose; however, if the Corps/DEQ PMs choose, the USM may be used as a tool in an enforcement case. Using all information available, such as upstream and downstream conditions, site information, aerial photographs, etc., may enable an evaluator to better estimate the pre-impact condition of a stream, Impact Factor (IF), and CR.*

Riparian Buffer Assessments

- **Why does the Optimal category include areas with maintained understory?** *The “Optimal” category has been changed to read “Tree stratum (dbh > 3 inches) present, with > 60% tree canopy cover **AND a non-maintained understory.**” The “Low Suboptimal” category has been changed to read “Riparian areas with tree stratum (dbh > 3 inches) present, with >30% tree canopy cover and a maintained understory.”*

Instream Habitat Assessments

- **Why isn’t the diversity of organisms and/or water chemistry evaluated along with physical habitat?** *The intent was to create a rapid, practical assessment tool to assist in determining consistent compensation requirements and compensation crediting that does not require specialized training or expertise. Furthermore, biological and/or chemical parameters may vary depending on the time of year the sampling is conducted and depending on recent weather patterns or recent disturbances to the stream. Biological and chemical sampling could be impractical and financially burdensome for this rapid assessment tool.*

Crediting – General

- **If a conceptual plan can be credited using the USM, does that mean that it is acceptable to the agencies?** *No. The USM is merely a crediting methodology, or a means by which to determine consistently the credits generated by a compensation plan. The USM does not determine if the mitigation plan is appropriate compensation for the impacts in a particular case; nor does it determine if the compensation site or design is appropriate and acceptable. That determination is made by Corps/DEQ PM’s.*

- **Are reference reaches always required for restoration and enhancement projects, or are analog and analytical methodologies for NSCD acceptable?** *Reference reaches are required where available and appropriate. Analog and analytical methodologies are also acceptable, if an appropriate reference reach cannot be found. The manual is being changed to reflect this.*
- **How does one calculate the length of a stream restoration project?** *The length of a stream restoration project is the length of the restored channel actually constructed and depicted in as-built survey, rather than the length of the stream prior to the restoration project.*
- **Calculation of credits is difficult at the conceptual mitigation stage. Should the crediting be recalculated on the final plan?** *Yes. The credits should be recalculated, based on the final compensation plan and as-built survey, in order to determine if the CR has been satisfied. The final mitigation plan must reflect the intent of the conceptual mitigation plan. If, at that time, it is determined that the CR has not been satisfied, the permittee may satisfy the remainder of the CR at a bank or trust fund, upon Corps/DEQ PM approval. The need for permit modifications will be determined in accordance with the applicable permit regulation by the PM's.*

Credits beyond those needed for the project (typically exceeding 5% of a permit's CR) and that are planned for, or designed, in advance will be considered to off-set other future impacts, at the Corps and DEQ's discretion, provided that 1) Excess credits are derived from activities that are integral to the compensation proposal; 2) use of excess credits is approved in advance by the Corps and DEQ and is accounted for in the permit; 3) excess credits are used by the same permittee; 4) excess credits are used for subsequent phases of the project or another project within the same or adjacent HUC and same river watershed; and 5) the excess credits are not available for sale to third parties. Other restrictions on the use of excess credits may be determined based on the specifics of the project.

- **How are braided systems credited?** *Regardless of whether an applicant is going to restore an unstable braided system to a stable non-braided system, or whether an applicant is going to restore/preserve a naturally stable braided channel, both cases would be considered for crediting as one channel. In the situation where there are several distinct channels that intersect at one or more points, it may be considered unlikely that the channels could be maintained and, therefore, one channel crediting may be appropriate. Again, consult your Corps/DEQ PM's on both appropriateness and crediting of stream compensation involving braided systems.*
- **Are riparian buffers required for all restoration and enhancement projects?** *Yes. Restoration or enhancement projects that do not include at least a 25' buffer on both*

sides of the stream are not acceptable. This has been clarified on the new USM forms. Please refer to the Restrictions under the Restoration and Enhancement categories.

Enhancement Crediting

- **Are habitat structures credited per structure or per length of structure?** *Habitat structures are credited per foot per bank. USM Form 3 has been corrected to reflect this.*
- **Can bio-remediation techniques be stacked with stream bank plantings?** *Yes. The credits for both activities can be derived over the same length of stream channel. Form 3 has been revised to reflect this.*
- **What if a stream enhancement plan includes a section where hard stabilization measures are necessary? (i.e. riprap over an exposed utility line)?** *The USM does not provide credit for this activity in a compensation plan. However, this may be a necessary part of the compensation plan in order to protect an existing structure or stabilize the channel and may be acceptable. Prior to designing such a project, applicants should consult Corps/DEQ PM's to ensure that such a site is acceptable for stream compensation.*

Riparian Buffer Crediting

- **How is the preservation credit of a riparian buffer along a restoration or enhancement stream reach determined?** *To determine preservation credit of a riparian buffer along a restoration/enhancement reach, the High Quality Score is used as the credit (0.14). Form 3 has been changed to provide clarification.*
- **The assessment requires an evaluation of a 100-foot buffer. What if a preservation reach only includes a 50-foot buffer due to property constraints?** *Follow the assessment directions regardless of the width of buffer being preserved. For example, if only 50' is preserved, the entire 100' buffer is assessed to determine the RCI and preservation credit. When determining the compensation credit, only the actual area preserved (50') receives credit.*
- **How does one measure the buffer for crediting purposes?** *Please see the attached examples.*

The area of buffer activities will be calculated from the plan sheets and will therefore be an aerial (horizontal) square footage measurement, rather than an "on the ground" square footage measurement. This reflects the way stream restoration plans have been

credited in the past and the way wetland restoration plans are reviewed. It also provides the only reasonable way for staff to verify calculated credits. Example 1 provides further clarification.

The “goal” for a buffer is calculated by the stream length (based on the planned length) multiplied by 100’, for each bank. These numbers are used for crediting purposes only. The area of each Riparian Buffer activity is measured from the plan sheet as square feet. For a very sinuous stream, a plan may provide for buffers located 100’ from the outside bends of the stream channel but may not meet this “goal”. Not meeting this “goal” does not result in a rejection of the plan or loss of credits. Credit is provided for the square footage of each activity conducted.

Conversely, it is possible to exceed the “goal” in a case where the mitigation plan includes a 100-foot buffer, measured from the outer bends of a sinuous stream channel. Again, credit is given based on the activity conducted and the area of that activity. Example 2 provides further clarification

- **How are buffers credited at the confluence of two streams?** *The credit given for compensation activities is based on the specific riparian activity being conducted, and the square footage of that activity. Buffer areas may have a drainage divide that determines which stream at a confluence they are serving. Therefore, you may choose to use this divide to determine the buffer credit for each stream. However, the credit for the same riparian area cannot be counted twice. Example 3 of this document provides further clarification.*
- **How is the creation, restoration, or enhancement of wetlands located within the riparian buffer credited?** *Currently, wetlands located within the riparian buffer are credited exactly like upland areas in stream compensation calculations. The activity conducted in a wetland area will be credited based on the activity conducted (planting, invasive species removal, or preservation). Preserved, enhanced, created, or restored wetlands located within a riparian buffer may be treated as wetland credits OR stream credits, but not both. We will consider granting additional credit for wetlands located within a buffer in future USM revisions. Please note that creation of wetlands within a riparian buffer is not appropriate for all stream types or in all cases.*
- **How does one credit Riparian Buffer activities on one side of a stream?** *Provided the plan is acceptable to the agencies, credit is given for the area of the riparian buffer that is being preserved or planted. As noted previously, projects typically must include at least a 25’ buffer on both sides of the stream. However, the Corps/DEQ may accept one-sided stream buffers, on a case-by-case basis, for larger order streams. In order to credit one-sided stream buffers, the area of activity and corresponding credit are entered in Form 3 only for the side of the stream where the activity occurs.*

- **What is meant by ‘missing’ vegetation?** *Form 3 has been changed to substitute the word “maintained” for the previously-used word “missing”. “Missing” (or, now “maintained”) vegetation is that vegetation which is either prevented from growing or is removed as part of maintaining a particular condition in a layer of vegetation. For example, mowing grass in a buffer area would result in that layer being considered as “maintained” or “missing.” If the grass is growing in its natural state and not mowed, but no shrubs or trees are present, then credit would be reduced on account of the two “missing” layers of shrubs and trees.*

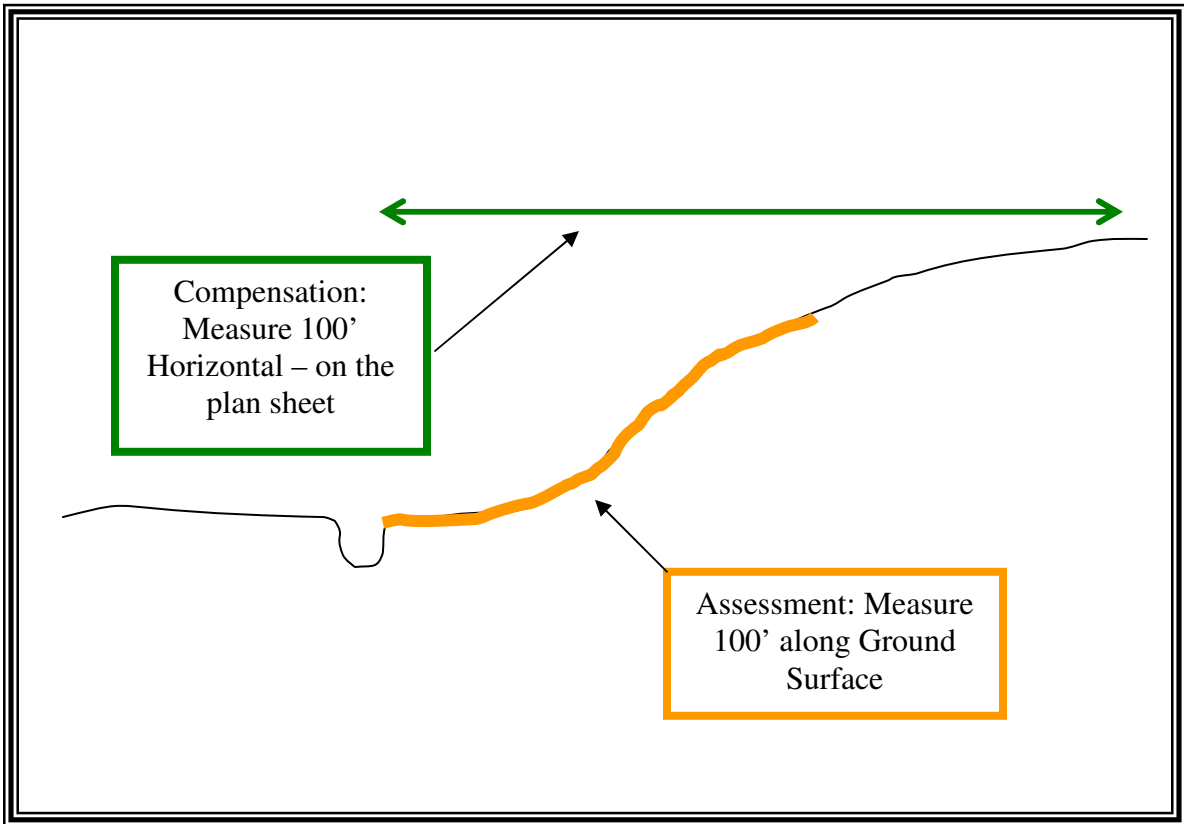
- **How is Buffer Re-establishment credited?** *Buffer Re-establishment is credited based on the area where invasives are dominant. Following invasive treatment, the area must be planted using the Heavy Buffer Planting criteria, less any deduction due to “maintained” vegetative layers. Buffer Re-establishment credit is reserved for cases where a highly or moderately invasive species is dominant in a particular area and where treatment or removal of the invasive species will not adversely affect the stability of the stream or the function of the riparian area. In order to receive “Buffer Re-establishment Credit”, one must completely remove all invasive species, disk the soil, and then establish a heavy buffer in its place (>400 stems per acre).*

- **How are buffers greater than 200’ credited?** *USM Form 3 has been revised to reflect the crediting for buffers greater than 200’. For buffers greater than 100 feet in width, applicants will use the second chart on Form 3, and will enter the square footage that is greater than 100 feet, along with its percentage greater than 100 feet. For example, for the Heavy Planting of two 250-foot buffers on a 1000-foot stream, one would enter, under “Within First 100’, 100,000 square feet, 100% area, and 0.38 credit, for each bank. Then “Outside First 100’” one would enter “150,000 square feet, 150%, and .19 credit” for each bank.*

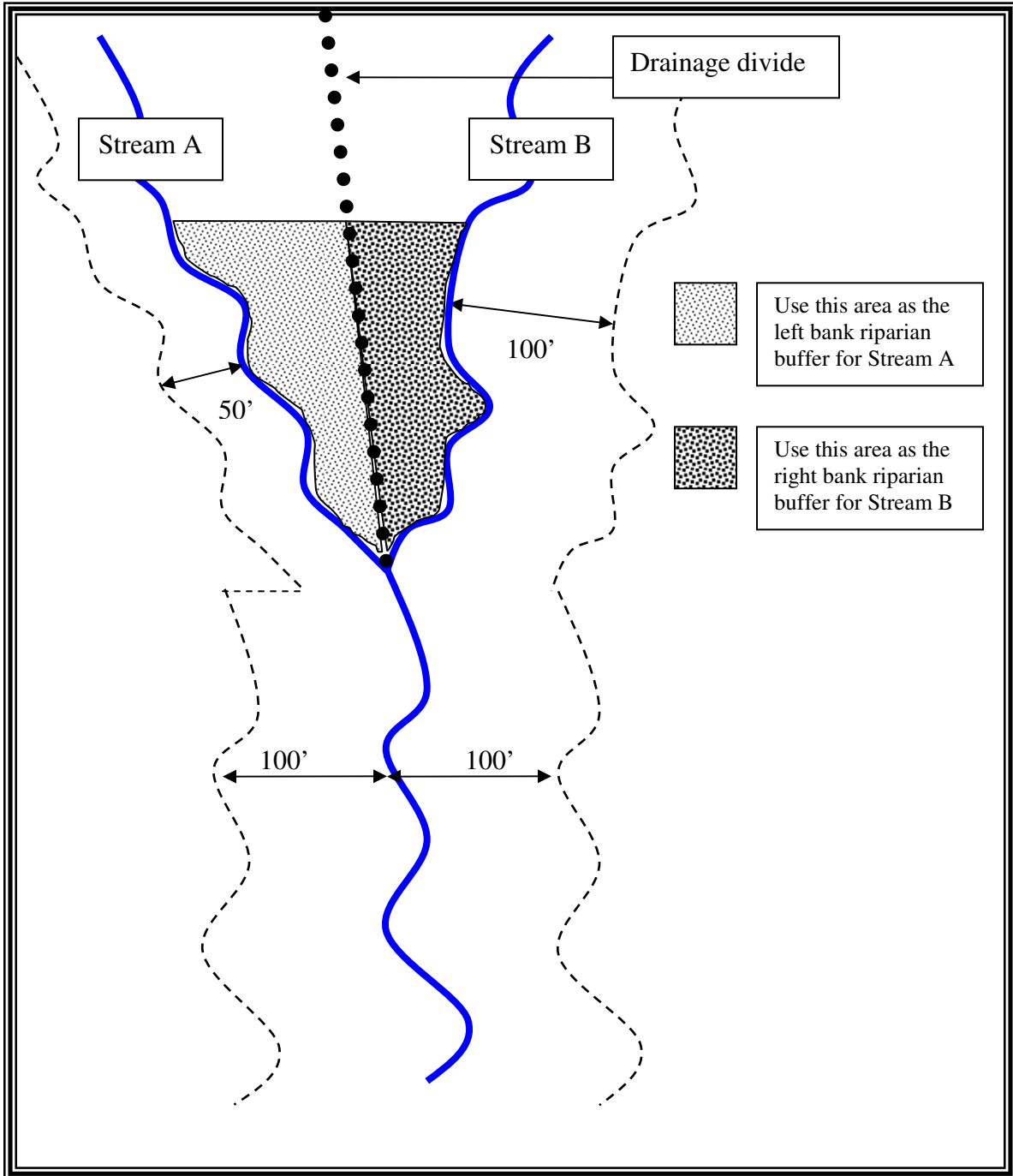
- **Can forested riparian buffers be harvested and then replanted for credit?** *No. It is not the intention of the USM to encourage or allow harvesting of forest, and the subsequent planting of new trees in its place for credit. Instead, the credit specified for the Buffer Planting categories under the Riparian parameter are intended to apply to areas that are currently barren, mowed, or otherwise maintained. Therefore, the Corps and DEQ will not accept a plan where the riparian buffer has been cut or timbered within the previous five years. Likewise, areas recently timbered, converted to agriculture, and proposed to be planted, will not be acceptable. This five-year period subsequent to the harvest will allow the Corps and DEQ to better assess the stability of the channels and associated riparian area, and the need for any restoration/enhancement measures, as well as whether or not the site is acceptable for stream compensation.*

Adjustment Factors – General

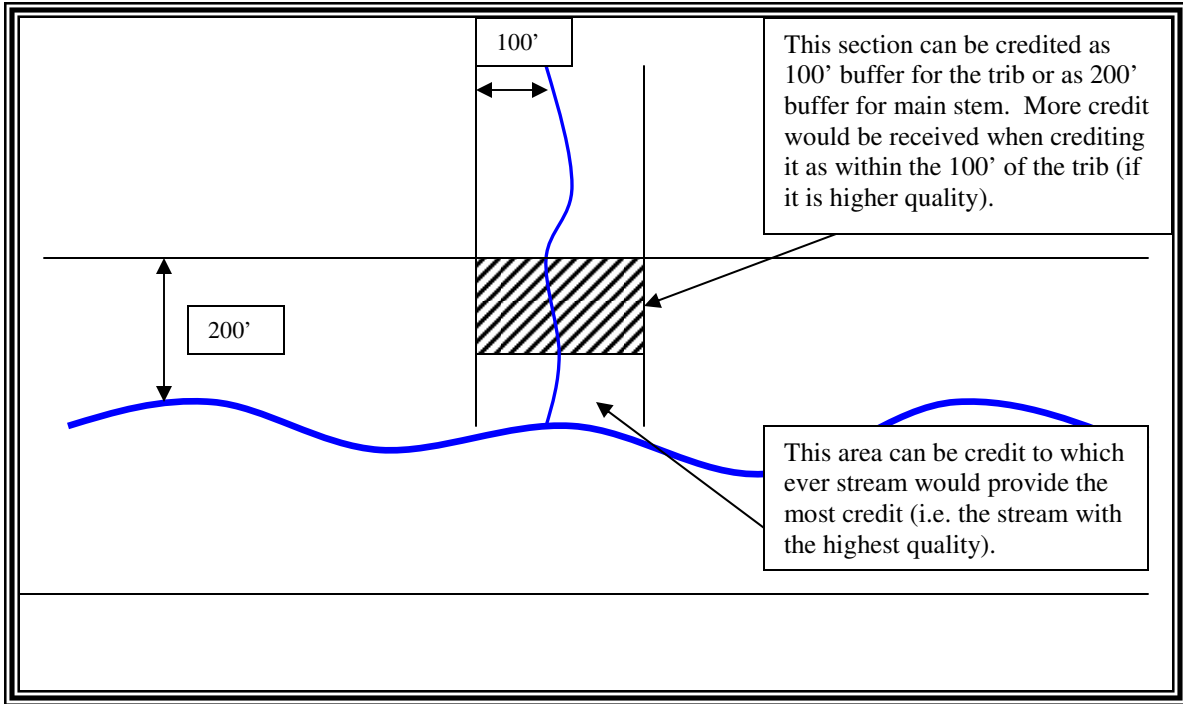
- **How is the credit for Adjustment Factors determined?** *The credits for an Adjustment Factor (“AF”) are determined based on many site-specific conditions. The USM Manual describes the factors the agencies will consider when assigning AF credit for a given project. When applicants propose credit for AF’s, they should provide a narrative explanation of the applicable site conditions that warrant an adjustment and a justification for the AF credit chosen, based on the factors specified in the manual. The Corps and DEQ will make the final determination on the amount of credit an applicant will receive, and will also consult with resource agencies to make this determination, where appropriate. The Corps and DEQ intend to maintain “case studies” on projects that receive Adjustment Factor credit. These “case studies” will be used as guidance for PM’s when applying AF’s. The Corps and DEQ are currently considering providing further clarification on AF’s.*



Example 1 – Riparian Buffer Assessment and Crediting



Example 2 – Riparian Buffer Crediting at Stream Confluence



Example 3 – Crediting Overlapping Riparian Areas