Name of Practice: CREP HERBACEOUS RIPARIAN BUFFERS
DCR Specification No. CRWQ-1

This document specifies terms and conditions for the Virginia Department of Conservation and Recreation's Conservation Reserve Enhancement Program (CREP) herbaceous riparian buffers best management practices, that are applicable to all contracts, entered into with respect to that practice.

A. Description and Purpose

Herbaceous riparian buffers are vegetative buffers that are located along the banks of water courses to filter runoff, anchor soil particles, and protect banks against scour and erosion. Even the best conservation measures on a farm allow some soil movement during heavy rains. Riparian buffers are the stream's last line of defense against pollution. Since riparian buffers trap eroded soil, they help keep sediment out of streams. The buffers also improve water quality by filtering out fertilizers, pesticides, and microorganisms that otherwise might reach waterways. In addition, herbaceous buffers along streams serve as environmental corridors. They provide valuable food, cover, and travel ways for some wildlife species. As a result, they permit a greater diversity of wildlife, which, in turn, contributes to a more stable environment. These living filters are aesthetically pleasing as well.

Cost-share and tax credit will be provided to install and maintain herbaceous riparian buffers that are located adjacent to cropland or animal holding areas.

B. Policies & Specifications for establishing CREP herbaceous riparian buffers for water quality

1. All trees, stumps, brush, rocks and similar materials that may interfere with installing the herbaceous riparian buffer should be removed. The materials should be disposed of in a manner that will not degrade the quality of the environment or interfere with the proper functioning of the buffer.

2. No-till planting is preferable. If grading is necessary, conventional equipment can be used for preparing the seedbed, fertilizing and maintenance.

3. Lime and fertilize according to soil test.

4. Select a seed mixture of permanent vegetation that satisfies the State minimum specifications and is appropriate for the time of planting.

5. Herbaceous riparian buffers planned for sediment and related pollutant control under the CREP are subject to the following state specifications.

6. Herbaceous riparian buffers must be a minimum 35' in average width or up to

one-third of the flood plain;

i. Except that herbaceous riparian buffers established in conjunction with a CP-29 practice must be a minimum of 50 feet in average width.
ii. The maximum filter width eligible for cost-share payment and tax credit is 120 feet.

7. Herbaceous riparian buffers must be located adjacent to a live or intermittent waterway, or open sinkhole, within a pasture and otherwise eligible to participate in. An intermittent waterway is considered as being, but not limited to, any channel or flood prone area where periodic water flow or storage is diverted by surface drainage. Herbaceous riparian buffers may be installed along intermittent waterways where judged appropriate and feasible by the local technical authority.

8. The vegetative cover must be maintained without additional cost-share or tax credit for a life span of the associated CREP contract. Cost-Share and tax credit must be refunded if the operator destroys the cover during this time. This practice is subject to spot check by the District throughout the life of the practice.

9. State cost-share and tax credit will be provided only one time per filter strip, while that land is under the same ownership.

10. Grass filter strips shall be designed and installed to filter sheet flow, rather than concentrated flow. If concentrated flow will occur, land smoothing or the use of some other BMP or combination of BMPs may be required.

11. Select an appropriate planting mix for filtering runoff and protecting water quality from the NRCS Plant Establishment Guide for Virginia

12. Maintenance
    i. In cropland or marginal pasture, a herbaceous riparian buffer should be maintained on each side of the watercourse.
    ii. Protect the buffer from damage by livestock.
    iii. Do not use as a roadway.
    iv. Avoid operations that leave tillage or wheel marks.
    v. Woody stems should not be allowed to exceed 2 inches in diameter.
    vi. Avoid damaging buffer area with herbicides.

13. Herbaceous riparian buffers planned for runoff from concentrated livestock areas or controlled overland flow for the treatment of liquid wastes are subject to NRCS Specification 393 Filter Strip, 466 Land Smoothing, and 572 Spoil Spreading.

14. All practice components implemented must be maintained for the lifespan of the CREP contract. By accepting either a cost-share payment or a state tax credit for this practice the participant agrees to maintain all practice components for the specified lifespan. This practice is subject to spot check by the District throughout the lifespan of the practice and failure to maintain the practice may result in reimbursement of cost share and/or tax credits.

C. Rate(s)

1. For all BMPs identified on farm conservation plans the CREP cost share rate is twenty-five percent (25%) of FSA approved eligible cost or one half of the FSA cost share for all CREP components.

2. As set forth by Virginia Code § 58.1-339.3 and §58.1-439.5, Virginia law currently provides a tax credit for implementation of certain BMP practices. The current tax credit rate, which is subject to change in accordance with the Code of Virginia, is 25% of the total eligible cost not to exceed $17,500.00.

2. If an applicant receives cost-share, only the percent of the total cost of the project that the applicant contributed is used to determine the tax credit.

D. Technical Responsibility

Technical and administrative responsibility is assigned to qualified technical DCR and District staff in consultation, where appropriate and based on the controlling standard, with DCR, Virginia Certified Nutrient Management Planner(s), NRCS, DOF, and VCE. Individuals certifying technical need and technical practice installation shall have appropriate certifications as identified above, and/or Engineering Job Approval Authority (EJAA), for the designed and installed component(s). All practices are subject to spot check procedures and any other quality control measures.

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METHOD OF CALCULATING EROSION REDUCTION FOR FILTER STRIP (WQ-1)

The effectiveness of vegetative filter strip is directly related to a variety of site-specific conditions. Except for the actual area of grass vegetation, filter strips do not reduce active erosion in the contributing field, but only trap a percentage of the delivered sediment passing through this grass vegetation. Not all of the sediment that occurs in the field reaches the filter strip. For these reasons, the effectiveness of a filter strip must take into account sediment delivery and trapping efficiency in the calculation of water quality benefits.

Step 1: Determine size of filter strip and erosion rate.

a. Determine the length (lf.) and width (ft) for calculating the area (acres) of the filter strip. Acres will be the extent technically authorized in

b. Using RUSLE, determine soil loss occurring in the field. Enter this erosion rate in the BMP tracking program

Step 2: Determine trapping efficiency of the filter area.

a. Determine the amount of delivered sediment to the filter strip by calculating the effective length of slope of the contributing field to the filter area. Maximum length allowed is 400 feet. Multiply the length of the filter strip (lf.) from Step 1 times the length of slope. Divide this number by 43,560 sq. ft. /acre to determine the contributing acreage.

$$\frac{\text{Length of Filter Strip x Length of Slope}}{43{,}560}$$

Next, the contributing acreage is multiplied by the soil loss rate occurring on the field (previously calculated in Step #1) times a sediment delivery ratio (SDR) occurring in the field itself. Assume a SDR of 0.5.

Area x Erosion Rate x SDR = Delivered Sediment Load

b. Determine the amount trapped by multiplying the delivered sediment load times the trapping coefficient of the vegetation.

Sediment Load x Trapping Coefficient = Sediment Trapped

Use one of the following coefficients for your calculations:

Strip Width	Coefficient
35'	0.35
50'	0.50
100'	0.75

This trapping efficiency expressed in tons/year is entered into the tracking program as the gross erosion reduction.

Example: 1,000-foot filter strip is planned for a 50-acre field; the slope length of the contributing area is approximately 250 feet. US soil loss rate is approximately 6 tons/ac/year. The filter strip itself is 50' wide.

Step 1: Size of filter area to be entered into the tracking program as the extent requested.

Erosion rate of 6 tons/ac./yr to be entered into the tracking program as S&R erosion reduction.

Step 2: Trapping efficiency

a. Delivered Sediment

$$\frac{\text{Length of filter strip (1,000) x Length of Slope (250)}}{43{,}560}$$

$$\frac{1{,}000 \times 250}{43{,}560} = 5.7 \text{ acres of contributing field}$$

Area (5.7 ac) x Erosion Rate (6 tons/ac/yr) x SDR (0.5)

5.7 x 6 x 0.5 = Delivered Sediment Load of 17.1

b. Trapping coefficient

Sediment Load (17.1) x Trapping Coefficient (0.5) = 8.55

Round 8.55 up to 9 and enter into the tracking program as gross erosion