Grassed Waterway/Vegetated Filter System

Conservation Practice Job Sheet ***412***

Natural Resources Conservation Service (NRCS) ***April 1997***

Landowner_____

Definition

A grassed waterway/vegetated filter system is a natural or constructed vegetated channel that is shaped and graded to carry surface water at a nonerosive velocity to a stable outlet that spreads the flow of water before it enters a vegetated filter.

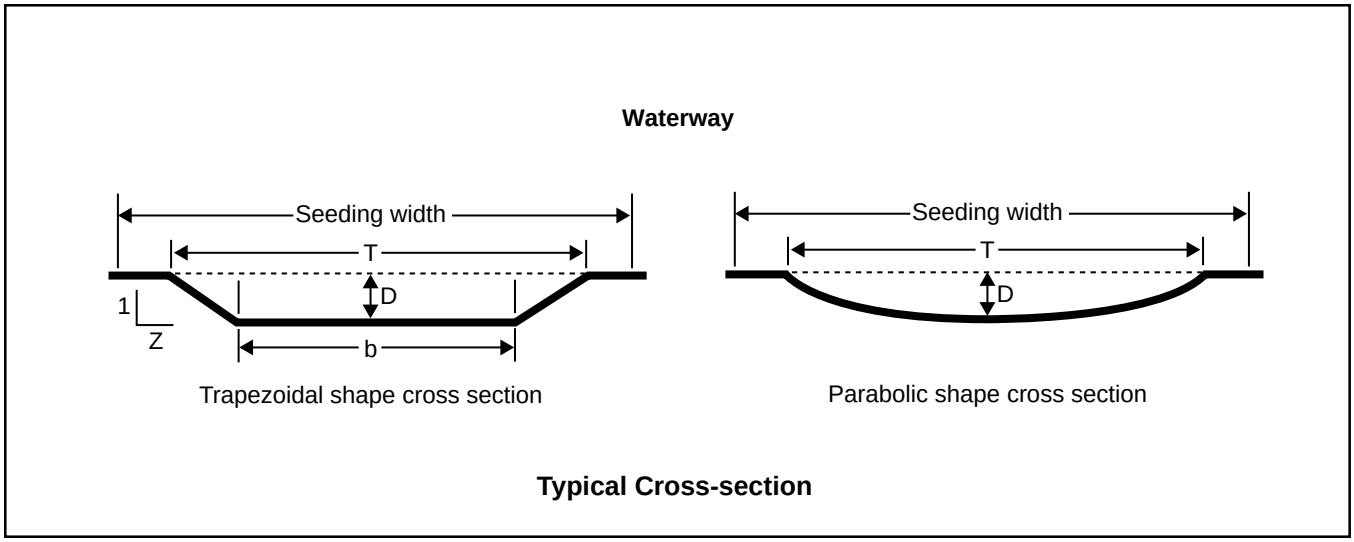
Purpose

Grassed waterways convey runoff from terraces, diversions, or other water concentrations. Vegetation in the waterway protects the soil from erosion caused by concentrated flows, while carrying water downslope. The stable outlet is designed to slow and spread the flow of water before the water enters a vegetated filter.

The vegetated filter is designed to trap sediment and increase infiltration so that other pollutants, such as pesticides and nutrients, can be reduced from surface runoff. The grassed waterway also offers diversity and cover for wildlife.

Where used

- Where water concentrates and gully erosion is a problem, commonly in draws and other low-lying areas.
- As outlets for other conservation practices, such as diversions and terraces.
- Where a stable, spreading-type outlet and vegetated filter can be designed and maintained.



Typical Cross-section

Vegetation establishment

Establish the waterway vegetation according to Critical Area Planting Practice (342). For the stable, spreading type outlet, select perennial plant species (native species are encouraged where possible) that have compatible characteristics to the site. Use sod-forming plants that have stiff, upright stems that provide a dense filter. Use the recommendations for filter strips for the area below the outlet. Establish vegetation before allowing water to flow in the waterway. Use irrigation and mulch to hasten establishment of vegetation as necessary.

Operation and maintenance

- Tillage and row direction should be perpendicular to the grassed waterway to allow surface drainage into the waterway and to prevent flows along edges.
- Provide stabilized machinery crossings, where needed, to prevent rutting of the waterway.
- Protect vegetation from direct herbicide sprays and use plant species tolerant of chemicals used.
- The grassed waterway outlet should be kept as wide and shallow as possible to slow the velocity of water, increase infiltration, and spread flows evenly across a wide area before entering a vegetated filter.

Conservation management system

Grassed waterway/vegetated filter systems and filter outlets are normally established as part of a conservation management system to address the soil, water, air, plant, and animal resource concerns and the landowner's objectives. Grassed waterway/vegetated filter systems are an important part of the overall soil erosion and water quality plan. They are used along with other needed conservation practices located in the field, such as contour buffers, terraces, crop residue management, and nutrient and pesticide management. Waterways located below areas of high sediment production need special design and additional maintenance. Other measures to reduce sediment production or to trap sediment should be considered.

Wildlife

The grassed waterway and filter system can also enhance the wildlife objectives depending on the vegetative species used and management practiced. Consider using native or adapted vegetative species that can provide food and cover for important wildlife. Delay mowing of waterway and filter area until after the nesting season.

Specifications

Site-specific requirements are listed on the specifications sheet. Additional provisions are entered on the job sketch sheet. Specifications are prepared in accordance with the NRCS Field Office Technical Guide. See practice standards Grassed Waterway (412) and Filter Strip (393).

Grassed Waterway/Vegetated Filter System – Specifications Sheet

Landowner_____ Field number_____

Purpose (check all that apply)	
☐ Convey concentrated flow runoff	☐ Reduce pollutants from runoff
☐ Prevent gully erosion	☐ Other (specify):

Location and Layout
Waterway shape ☐ Parabolic ☐ Trapezoidal
Field number _____ (For exact location see job sketch)

Design information - Grassed Waterway	**1**	**2**	**3**
Waterway number			
Reach number			
Grade (%)			
Depth-D (ft)			
Top width-T (ft)			
Bottom width-b (ft) (trapezoidal only)			
Side slopes (Z:1)			
Length (ft)			
Seeding width (ft)			
Seeding area (acres)			
Plant establishment			
Species*			
Seeding rate (PLS) (lb/acre)			
Lime (tons/acre)			
N (lb/acre)			
P_2O_5 (lb/acre)			
K_2O (lb/acre)			

*For multiple species separate with a /. (example species 1/species 2/species 3)

Vegetated filter layout and plant establishment			
Waterway number			
Strip width (ft)			
Strip length (ft)			
Area of filter strip (acres)			
Slope (%)			
Species*			
Seeding rate (PLS) (lb/acre)			
Lime (lb/acre)			
N (lb/acre)			
P_2O_5 (lb/acre)			
K_2O (lb/acre)			

*For multiple species separate with a /. (example species 1/species 2/species 3)

Site Preparation
Prepare firm seedbed. Apply lime and fertilizer according to recommendations.
Planting Method(s)
Drill grass and legume seed _____ inches deep uniformly over area. Establish stand of vegetation according to recommended seeding rate. If necessary, mulch newly seeded area with _____ tons per acre of mulch material. May seed small grain as a companion crop at the rate of _____ pounds per acre, but clip or harvest before it heads out.
Operation and Maintenance
Maintain original width and depth of the grass area. Regularly remove debris and sediment from waterway and filter area. Harvest, mow, reseed, and fertilize to maintain good vegetation. Inspect periodically after every major storm and repair any eroding or bare areas.

Grassed Waterway/Vegetated Filter System – Job Sketch

If needed, an aerial view or a side view of the grassed waterway/vegetated filter system can be shown below. Other relevant information, such as complementary practices, and adjacent field or tract conditions including structures and crop types, and additional specifications may be included.

Scale 1"=_____ ft. (NA indicates sketch not to scale: grid size=1/2" by 1/2")

Additional Specifications and Notes: