

**Natural Resources Conservation Service
Conservation Practice Standard**

**GRASSED WATERWAY
(Ac.)
CODE 412**

DEFINITION

A natural or constructed channel that is shaped or graded to required dimensions and established in suitable vegetation for the stable conveyance of runoff.

PURPOSE

To convey runoff from terraces, diversions, contour farming or other water concentrations without causing erosion or flooding and to improve water quality.

CONDITIONS WHERE PRACTICE APPLIES

All sites where added capacity, vegetative protection, or both are required to control erosion resulting from concentrated runoff and where such control can be achieved by using this practice alone or combined with other conservation practices. This practice is not applicable where its construction would destroy important woody wildlife cover and the present watercourse is not seriously eroding.

CRITERIA

Capacity. The minimum capacity shall be that required to convey the peak runoff expected from a storm of 10-year frequency, 24-hour duration. When slope is less than 1 percent, out-of-bank flow may be permitted if such flow will not cause excessive erosion. The minimum in such cases shall be the capacity required to remove the water before crops are damaged.

Velocity. Design velocities shall not exceed those obtained by using the procedures, "n" values, and recommendations in the Engineering Field Manual or SCS-TP-61, Handbook of Channel Design for Soil and Water Conservation. Design velocities in grassed waterways shall not exceed 5.0 ft/sec. Good vegetative cover, mulch netting, temporary gully barriers, and proper maintenance will be

needed to establish and maintain waterways having velocities approaching 5.0 ft/sec.

Width. The bottom width of trapezoidal waterways shall not exceed 100 ft unless multiple or divided waterways or other means are provided to control meandering of low flows.

Side slopes. Side slopes shall not be steeper than a ratio of two horizontal to one vertical. They should be designed to accommodate the land user's equipment.

Depth. The minimum depth of a waterway that receives water from terraces, diversions, or other tributary channels shall be that required to keep the design water surface elevation at, or below, the design water surface elevation in the terrace, diversion, or other tributary channel at their junction when both are flowing at design depth. A minimum of 0.2 foot shall be added to the design depth for freeboard.

Drainage. Subsurface drains (606), underground outlets (620), stone center waterways, or other suitable measures shall be provided for in the design for sites having prolonged flows, a high water table, or seepage problems. Water-tolerant vegetation may be an alternative on some wet sites.

Outlets. All grassed waterways shall have a stable outlet with adequate capacity to prevent ponding or flooding damages. The outlet can be another vegetated channel, an earth ditch, a grade stabilization structure, or other suitable outlets.

Waterbars or berms. Will be installed if needed to force water into the waterway.

Establishment of vegetation. Grassed waterways will be vegetated according to practice standard "Critical Area Planting" (342).

Conservation practice standards are reviewed periodically and updated if needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service.

CONSIDERATIONS

Vegetation. The most critical time in successfully installing grassed waterways is when vegetation is being established. Special protection such as mulch anchoring, straw or hay bale dikes, or other diversion methods are warranted at this critical period.

Irrigation. Supplemental irrigation may also be warranted to establish quality vegetation.

Timing. The vegetation should be well established before large flows are permitted in the channel. Vegetation will be established prior to construction of terraces or diversions unless:

- a. Special protection such as mulch anchoring, hide-a-bale dikes, or other suitable methods are used during the vegetation establishment period and,

- b. There is strong assurance that initial establishment period maintenance will be provided.

PLANS AND SPECIFICATIONS

Specifications for establishment and operation of this practice will be prepared for each field or treatment unit according to the criteria, considerations and operation and maintenance described in this standard. Specifications will be recorded using approved specification sheets, job sheets or narrative statement in the plan.

OPERATION AND MAINTENANCE

A maintenance program shall be established to maintain waterway capacity, vegetative cover, and the outlet. Vegetation damaged by livestock, machinery, herbicides, or erosion must be repaired promptly. Fence protection shall be provided when needed.