NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

HILLSIDE DITCH

(Ft.)

CODE 423

DEFINITION

A channel that has a supporting ridge on the lower side constructed across the slope at defined vertical interval and gradient, with or without a vegetative barrier.

PURPOSE

To safely control the flow of water by diverting runoff into a protected outlet.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies to sloping sites where surface flow is damaging sloping upland, and there is sufficient soil depth for constructing a hillside ditch system. ***They shall not be used as a substitute for Diversions or Terraces and will not be used to provide protection to buildings, roads or other improvements***

CRITERIA

Location. Hillside ditch systems shall be designed to fit land conditions such as soil texture, and field slope. They shall drain from the ridge to a stable outlet.

Outlets. Adequate outlets with enough capacity to dispose of discharge water without creating an erosion hazard shall be provided before beginning construction. Such outlets may be a natural or constructed waterway, a stable watercourse, or a stable disposal area, such as well-established pasture. Criteria for a grassed waterway shall be that in Conservation Practice Standard 412 - Grassed Waterway.

Length. Maximum length draining in one direction should be 400 feet. This length may be extended if necessary to reach a stable outlet. In no case shall the maximum length exceed 500 feet.

Permissible velocities. Velocity in the channel shall be compatible with the soil and shall not exceed the limits in EFH Part 650, Chapter 14, Table 14-3.

Horizontal spacing and cross-section area. The maximum horizontal spacing and minimum cross-sectional area per 100 ft of ditch shall be as specified in Table 1.

Table 1

Average Slope (percent)	Maximum Spacing (feet)	Minimum cross-sectional area per 100-ft length (square feet)
12 or less	40	0.35
12-25	35	.3
25-40	25	.2

Establishment of vegetative barriers will be required in areas where average slopes exceed 25%. Follow guidance of vegetative barrier installation found in Conservation Practice Standard 601 - Vegetative Barrier.

CONSIDERATIONS

When planning this practice, consider the following as applicable:

Effects upon components of the water budget, especially effects on volumes and rates of runoff,

infiltration, evaporation, transpiration, deep percolation, and ground water recharge.

Filtering effects of vegetation on movement of sediment and dissolved and sediment-attached substances.

Short-term and construction-related effects of this practice on the quality of downstream water.

Potential for development of saline seeps or other salinity problems resulting from increased infiltration in the presence of restrictive layers.

Potential to affect significant cultural resources.

Effects of snowcatch and melt on water budget components.

Effects on erosion and the movement of sediment, pathogens, and soluble and sediment-attached substances by runoff.

Effects on the visual quality of the water resources.

PLANS AND SPECIFICATIONS

Plans and specifications for constructing hillside ditches shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose. ***Additional requirements for support data can be located in 210-VI-EFH, WV-45, "Preparation of Engineering Plans Design and Construction Support Data for Conservation Practices".***

Specifications may be developed from applicable NEH-20 specifications or West Virginia 700 series specifications. The attached specification may also be used with the following guidelines:

1. ***Limits of Hillside Ditch construction will be shown on the drawings.***
2. ***Grade, spacing and typical sections of the ditches will be shown on the drawings.***
3. ***Special measures to control erosion and prevent sedimentation, when planned, will be shown on the drawings.***
4. ***Disposal methods and areas for disposal of trash and debris will be shown on the drawings.***
5. ***Vegetative requirements will be shown on the drawings or in an appropriate seeding specification.***

OPERATION AND MAINTENANCE

An Operation and Maintenance plan shall be prepared for use by the landowner or operator. The plan shall include provisions to address the following, as a minimum:

Periodic inspections and maintain hillside ditch capacity, ridge height and the outlets.

All vegetative growth and/or debris interfering with the proper functioning of the ditch shall be removed as necessary.

All debris interfering with the outlet operation shall be removed as necessary.

Well-established vegetation shall be maintained in the outlet at all times in order to provide stability.

Sediment accumulated after rainfall period in the ditches shall be removed and disposed of properly, as needed, to maintain the required minimum cross section and grade.

Repairs should be made as soon as possible.

Maintenance of the area by mowing or chemical weed control, where appropriate.

Maintenance of vegetation by fertilization, liming, and/or reseeding.