

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD**

ANIMAL TRAILS AND WALKWAYS

(Ft.)

CODE 575

DEFINITION

Established lanes or travel ways that facilitate animal movement.

PURPOSE

- Provide or improve access to forage, water, working/handling facilities, and/or shelter,
- Improve grazing efficiency and distribution, and/or
- Protect ecologically sensitive, erosive and/or potentially erosive sites.

CONDITIONS WHERE PRACTICE APPLIES

On lands where control of animal movement is needed.

CRITERIA

General Criteria Applicable to All Purposes

All planned work shall comply with all federal, state, and local laws and permit conditions and requirements. The landowner shall obtain all necessary permits prior to construction or any land clearing activities.

Animal trails or walkways shall be constructed wide enough to accommodate movement of animals and access by operator for management and maintenance.

Trails or walkways shall be designed and constructed with consideration of site soil characteristics.

Cultural resources, threatened or endangered species, wetlands, streambanks, floodways or other ecologically sensitive areas, and areas of special scenic value will be protected through the proper design and placement of trail(s) or walkway(s).

Trails or walkways shall be constructed in such a manner that accelerated erosion will not occur. Where necessary, diversions with a stable outlet will be provided. Surface shall be crowned or outsloped, as needed.

Location. Animal trails or walkways shall be located to make the best use of topographic features. Trails shall generally follow natural contours to the extent practical and minimize disturbance of drainage patterns. A vegetative buffer of at least 20 feet shall be maintained between the trail and all water bodies, perennial and non-perennial streams, and sinkholes or other sensitive areas. If 20 feet is unattainable, use other means to keep polluted runoff from entering these sensitive areas.

Conservation practice standard 578, Stream Crossing, will be used when animal trails or walkways cross streams or other shallow water bodies.

Drainage and Erosion Control. Provisions shall be made for surface and subsurface drainage, as needed, and of disposal of runoff water without causing erosion or water quality impairment. The type of drainage structure used will depend on the intended use and runoff conditions. Culverts, bridges, fords, or grade dips for water management shall be provided at all natural drainage ways. The capacity and design shall be consistent with sound engineering principles and shall be adequate for the class of vehicle, type of road, development, or use. When a culvert or bridge is installed in a drainage way, its minimum capacity shall convey the 10-year 24-hour design storm runoff (or the channel capacity at the floodplain elevation, whichever is less) without causing erosion or road overtopping.

Width. Animal trails or walkways shall be constructed wide enough to accommodate movement of animals and access by operator

for management and maintenance.

Cross Slope. The cross slope of the trail or walkway will not vary more than 3 percent.

Surface Material. Sensitivity of the animal's feet (e.g. dairy cows), with respect to the intended purpose of the trail or walkway, will be included as a design parameter in selecting the surface material for trails or walkways.

For vegetated trails or walkways, Bermuda and/or tall fescue mixtures shall be established and managed according to the Conservation Practice Standard Critical Area Planting (Code 342). Bermuda shall be established between May 1 and July 1. Tall fescue shall be established between August 15 and October 1. Where maintaining vegetative cover is not possible, Heavy Use Area Protection (Code 561) will be used to provide adequate surface protection.

Trails or walkways seeded or planted to vegetative cover will be protected from use and/or grazing until the vegetation is fully established.

Fencing. Fencing will be used when needed to keep animals confined to the trail or walkway until the desired destination is reached. Fencing will meet the requirements of Fence (Code 382).

Criteria for Broad-based Dips

Broad-based dips are a dip and reverse slope in the trail surface with an outslope in the dip to

provide natural cross drainage. Dips shall not be used on trails that have a grade greater than 10 percent. Dips shall be constructed as follows:

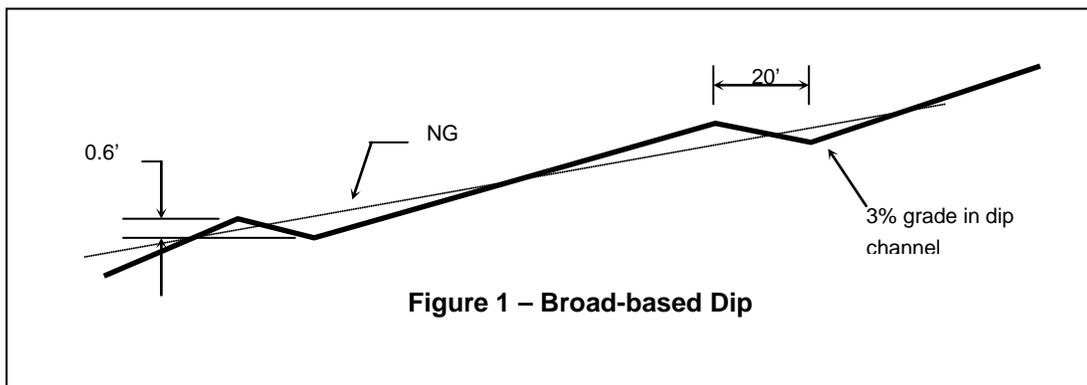
1. Use the following formula as a guide to dip spacing:

$$\text{Spacing (in feet)} = \frac{400}{\text{slope \%}} + 100'$$

The following table gives the spacing for broad-based dips computed using the formula.

Trail Grade (percent)	Approximate Distance between Dips (feet)
1	500
2	300
5	180
10	140

2. The minimum front slope width shall be 20 feet with a 3 percent reverse grade in the trail as shown in **Figure 1**.
3. The dip and reverse grade section may require bedding with gravel for stability.
4. Install dips to outlet water on undisturbed or stable areas.



Criteria for Water Breaks

Water breaks are a combined shallow trench and ridge constructed across a trail or walkway. The following guides should be followed for installing water breaks:

1. Dig a shallow trench 6" to 12" deep at an angle of approximately 30 degrees downslope to turn surface water off the road.
2. The outflow end of the bar should be fully open and extend far enough beyond the edge of road to safely convey runoff water away from the road surface.
3. The uphill end of the bar shall extend beyond the side ditch line to fully intercept any ditch flows. When appropriate, water breaks shall be installed using the following spacing guide:

Trail Grade (percent)	Approximate Distance between Breaks (feet)
1	400
2	245
5	125
10	78
15	58
20	47

Additional Criteria Applicable to Providing or Improving Access to Forage, Water, Working/Handling Facilities and/or Shelter

Trails and walkways will be designed and constructed of sufficient size to accommodate the expected frequency of use and animal type(s) planned for the operation.

When needed to facilitate movement of animals through a series of paddocks or pastures, gate openings and lane layouts shall allow for efficient flow of animals with the least amount of stress.

Additional Criteria Applicable to Improving Grazing Efficiency and Distribution

Fenced or unfenced animal trails or walkways will be used to distribute grazing to overcome terrain features causing uneven grazing distribution and pressure.

CONSIDERATIONS

Conservation Practice Standard 528, Prescribed Grazing, can be used to further improve grazing distribution and pressure.

Other conservation practices, such as Use Exclusion, Code 472 can be used in conjunction with trails or walkways to minimize the impact on sensitive areas.

For areas of high livestock concentration, such as around ponds, tanks, troughs, or other feeding areas, use Heavy Use Area Protection, Code 561.

Consider limiting width to prevent usage as a roadway. For travelways used by vehicles or equipment for purposes other than management and maintenance of animal trails or walkways, use Access Road, Code 560.

Consider using rock riprap, geotextile, and heavy use surfacing material to construct water breaks in extreme heavy traffic locations and/or steep locations to prevent quick deterioration of the water breaks.

PLANS AND SPECIFICATIONS

Plans and specifications for installing animal trails or walkways shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose. Plans and specifications shall include construction plans, drawings, job sheets or other similar documents. These documents shall specify the requirements for installing the practice, including the location and the kind, amount, and quality of materials to be used.

OPERATION AND MAINTENANCE

The operation and maintenance (O&M) plan shall specify that the trails or walkways and associated practices be inspected annually and after significant storm events to identify repair and maintenance needs.

The O&M plan shall detail the level of repairs needed to maintain the effectiveness and useful life of the practice. These repairs should include, but are not limited to, the following:

- Periodic grading or re-shaping trails or walkways to maintain the designed grade and dimensions,

- Periodic addition of surfacing materials where used,
- Re-seeding of areas in which the vegetation has been damaged or destroyed, and/or
- Mending of fences and replacement of gates.

Periodic removal and management of manure accumulations will be addressed in the O&M plan.

For multiple adjacent vegetated walkways the O&M plan should provide guidance as to the rotation of walkways to allow for recovery of vegetation and for improvement of traffic - supporting conditions.

REFERENCES:

Heady, H.F. and R.D. Child. 1994. Rangeland ecology and management. Western Press.

Holechek, J.L., R.D. Pieper, and C.H. Herbel. 2004. Range management: principles and practices. Pearson-Prentice Hall.

United States Department of Agriculture, Forest Service, 2007. Trail Construction and Maintenance Notebook. Washington, DC.

USDA-NRCS. 2003. National range and pasture handbook, revision 1. Washington, DC.

Vallentine, J.F. 1971. Range development and improvement. Brigham Young University Press.

Wood, Gene. 2007. Recreational horse trails in rural and wildland areas: design, construction and maintenance. Clemson University.