

**NATURAL RESOURCES CONSERVATION SERVICE  
CONSERVATION PRACTICE STANDARD**

**ACCESS ROAD**

(feet)

**CODE 560**

**DEFINITION**

A travelway constructed as part of a conservation plan.

**Scope**

This standard applies to vehicular and equipment roads constructed to provide access to farms, ranches, fields, conservation systems, structures, woodlands, and recreation areas.

**PURPOSES**

To provide a fixed route for travel for moving livestock, produce, equipment, and supplies; and to provide access for proper operation, maintenance, and management of conservation enterprises while controlling runoff to prevent erosion and maintain or improve water quality.

**CONDITIONS WHERE PRACTICE APPLIES**

Where access is needed from a private or public road or highway to a conservation enterprise or measure, or where travelways are needed in a planned land use area.

**CRITERIA**

Access roads shall be designed to serve the enterprise or planned use with the expected vehicular or equipment traffic. The type of vehicle or equipment, speed, loads, climatic, and other conditions under which vehicles and equipment are expected to operate need to be considered.

Visual resources and environmental values shall be considered in planning and designing the road system.

Access roads range from seldom used trails to all-weather roads heavily used by the public and built to very high standards. Some trails facilitate control of forest fires are used for logging, serve as access to remote areas for recreation, or are used for maintenance of facilities.

Where general public use is anticipated, roads should be designed to meet applicable federal, state, or local criteria.

Sound engineering practices shall be followed to insure that the road meets the requirements of its intended use and that maintenance requirements are in line with operating budgets.

Clearing of land and disposal of residue shall be carried out in accordance with state laws and county ordinances.

Cross-section. The minimum width of a single-lane field road is 10 feet.

Cut slopes shall be 3/4:1 or flatter and fill slopes shall be 1-1/2:1 or flatter.

The cross-section shall be adequate to carry collected water to protected drop inlets or in protected waterways to appropriate release points. Roads may be out-sloped only where adequate provisions are made to collect the runoff water and to discharge the flow into stable water courses.

**Location**

Roads shall be located to serve the purpose intended, to facilitate the control and disposal of water, to control or reduce erosion, to make the best use of topographic features, and to include scenic vistas where possible. The roads should generally follow natural contours and slopes to minimize disturbance of drainage patterns. Roads should be located where they can be maintained and so water management problems are not created. To reduce pollution, roads should not be located too near watercourses.

**Alignment**

The gradient and vertical and horizontal alignment shall be adapted to the intensity of use, mode of travel, and the level of development.

Grades normally should not exceed 10 percent except for short lengths, but maximum grades of 20 percent or more may be used if necessary for special uses.

### **Width**

The minimum width of the roadbed is 14 ft for one-way traffic and 20 ft for two-way traffic. Single-land logging or special-purpose roads have a minimum width of 10 ft, with greater widths at curves and turnouts. The two-way traffic width shall be increased approximately 4 ft for trailer traffic.

The minimum tread width is 10 ft for one-way traffic and 15 ft for two-way traffic. The tread width for two-way traffic shall be increased approximately 4 ft for trailer traffic.

The minimum shoulder width is 2 ft on each side of the tread width.

Where turnouts are used, road width shall be increased to a minimum of 20 ft for a distance of 30 ft.

### **Types of Field Roads**

1. Ingress-egress roads (commonly called connecting road); are used as the main travel routes into and out of the field and may be constructed on grades as steep as loaded vehicles can travel safely, usually no steeper than 10 percent. These roads should be surfaced with either gravel or asphalt.
2. Diversion roads; are placed around the hillside either on a contour or on a grade less than 2 percent. They have a cross-section sloped inward to collect and convey runoff water to a designed outlet. These roads are used mainly during harvest and are usually surfaced with a vegetative cover.
3. Bench roads; are constructed either on a contour or a grade less than 2 percent and have a cross-section sloped outward. However, on hillsides where Bench roads are constructed, a Diversion road is to be constructed to collect the runoff at intervals of 15 feet of vertical distance.
4. Ridge roads (sometimes called fire breaks); are constructed along ridges mainly to control the spread of fire. These roads are always maintained in a "bare" condition.
5. Logging roads; are constructed in forested areas to provide management control of forest and removal of logs during timber harvesting.

6. Pasture or rangeland roads; are constructed in rangeland to provide for pasture management.

### **Side slopes**

All cuts and fills shall have side slopes designed to be stable for the particular site conditions.

Areas with geological conditions and soils subject to slides shall be avoided or treated to prevent slides.

### **Drainage**

The type of drainage structure used will depend on the type of enterprise and runoff conditions. Culverts, bridges, or grade dips for water management shall be provided at all natural drainageways. 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.

Roadside ditches shall be adequate to provide surface drainage for the roadway and deep enough, as needed to serve as outlets for subsurface drainage. Channels shall be designed to be on stable grades or protected with structures or linings for stability.

Water breaks or bars may be used to control surface runoff on low-intensity use forest or similar roads.

When roads are at cross slope with the land, waterbars and drop inlets shall be installed across the roadway at intervals. Where water is to be conveyed along the road for more than 150 feet, a protected ditch should be considered.

The drainage system shall be designed to convey the 10-year, 24-hour storm runoff.

To convey water down a hillside, the installation of Grassed Waterway (412) or Underground Outlet (620) will be necessary. In order to reduce sediment pollution, it may be necessary to construct Sediment Basins (350). These measures are to be designed according to the applicable practice standard.

### **Surfacing**

Access roads shall be given a wearing course or surface treatment if required by traffic needs, climate, erosion control, or dust control. The type of treatment depends on local conditions, available materials, and the existing road base. If these factors or the volume of traffic is not a problem, no special treatment of the surface is required.

Unsurfaced roads may require controlled access to prevent damage or hazardous conditions during adverse climatic conditions.

Toxic and acid-forming materials shall not be used on roads. This should not be construed to prohibit use of chemicals for dust control and snow and ice removal.

### **Traffic safety**

Passing lanes, turnouts, guardrails, signs, and other facilities as needed for safe traffic flow shall be provided. Traffic safety shall be a prime factor in selecting the angle and grade of the intersection with public highways. Preferably, the angles shall be not less than 85 degrees. The public highway shall be entered either at the top of a hill or far enough from the top or a curve to provide visibility and a safe sight distance. The clear sight distance to each side shall not be less than 300 feet, if site conditions permit.

The turning radius of roads shall consider the minimum radius of the farm equipment or trucks that are expected to use the road.

### **Erosion control**

If soil and climatic conditions are favorable, roadbanks and disturbed areas shall be vegetated as soon as possible and skid trails, landings, logging, and similar roads shall be vegetated after harvesting or seasonal use is completed. If the use of vegetation is precluded and protection against erosion is needed, protection shall be provided by non-vegetative materials, such as gravel or other mulches.

Roadside channels, cross drains, and drainage structure inlets and outlets shall be designed to be stable without protection. If protection is needed, riprap or other similar materials shall be used.

Disturbed areas that are not part of the road wearing surface shall be established to a vegetative cover as soon as practical after construction. Seedbed preparation, seeding, fertilizing, and mulching shall be according to Practice Standards for Critical Area Plantings (342) or Cover and Green Manure Crop (340).

### **General criteria**

Watercourses and water quality shall be protected during and after construction by erosion-control

facilities and maintenance. Filter strips, sediment and water control basins, and other conservation practices shall be used and maintained as needed.

Dead end roads shall be provided with a turnaround. In some areas turnarounds may also be desirable for stream, lake, recreation, or other access purposes.

Parking space as needed shall be provided to keep vehicles off the road or from being parked in undesirable locations.

## **CONSIDERATIONS**

### **Water Quantity**

When the area which access roads occupy is compared to the total area of the farm or watershed, this practice may have a negligible effect on water quantity. Note: An average farm has approximately 1.5 percent of the land in access roads.

1. Effects on the water budget, especially on volumes and rates of runoff, infiltration, evaporation, transpiration, deep percolation and ground water recharge.
2. Effects of snowcatch and melt on water budget components.
3. Effects on downstream flows or aquifers that would affect other water uses or users.
4. Effects on the volume of and timing of downstream flow to prohibit undesirable environmental, social, or economic effects.

### **Water Quality**

The type of construction, maintenance, and the road's location determine the road's effect on water quality. When the access road is located across the slope, the runoff from the area upslope of the road may be retarded in the roadside ditches. This may cause sediment to be deposited in the ditch and along the roadside, reducing sediment delivery to the receiving waters. Runoff from the area downslope of the road may not be affected except where the road culverts or low water crossings may concentrate the discharge of the runoff from an uphill area. This may result in a higher carrying capacity of the outlet channel resulting in increased bank and channel erosion and direct transport of this detached sediment, deicing salts and related pollutants.

There may be a concentration of pollutants in the roadside ditches, increased infiltration, and an increase in soluble chemicals being percolated into the soil water and into the ground water.

When access roads impound water from runoff and snowmelt they may cause the development of saline seeps in certain geologic settings.

1. Short-term and construction-related effects of this practice on the quality of on site downstream water courses.
2. Effects on erosion and the movement of sediment, pathogens, and soluble and sediment-attached substances that would be carried by runoff.
3. Effects on the visual quality of water resources.
4. Effects on the movement of dissolved substances below the root zone toward the ground water.
5. Effects on wetlands and water-related wildlife habitats that would be associated with the practice.

#### **Endangered Species Considerations**

Determine if installation of this practice with any others proposed will have any effect on any federal or state listed Rare, Threatened or Endangered species or their habitat. NRCS's objective is to benefit these species and others of concern or at least not have any adverse effect on a listed species. If the Environmental Evaluation indicates the action may adversely affect a listed species or result in adverse modification of habitat of listed species which has been determined to be critical habitat, NRCS will advise the land user of the requirements of the Endangered Species Act and recommend alternative conservation treatments that avoid the adverse effects. Further assistance will be provided only if the landowner selects one of the alternative conservation treatments for installation; or at the request of the landowners, NRCS may initiate consultation with the Fish and Wildlife Service, National Marine Fisheries Service and/or California Department of Fish and Game. If the Environmental Evaluation indicates the action will not affect a listed species or result in adverse modification of critical habitat, consultation generally will not apply and usually would not be initiated. Document any special considerations for endangered species in the Practice Requirements Worksheet.

#### **PLANS AND SPECIFICATIONS**

Plans and specifications for constructing access roads shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose.

#### **OPERATION AND MAINTENANCE**

A maintenance plan should be prepared and reviewed with the owner. The plan should address the following items:

1. Quality of vegetative growth
2. Erosion along waterways
3. Surface condition of road