

NATURAL RESOURCES CONSERVATION SERVICE
VIRGINIA CONSERVATION PRACTICE STANDARD

ACCESS ROAD

(Feet)

CODE 560

DEFINITION

A travelway for vehicles constructed as part of a conservation plan.

or equipment, speed, loads, soil, climatic, and other conditions under which vehicles and equipment are expected to operate need to be considered. Planned work shall comply with all federal, state, and local laws and regulations.

PURPOSE

To provide a fixed route for vehicular travel for resource activities involving the management of timber, livestock, agriculture, wildlife habitat, and other conservation enterprises while protecting the soil, water, fish, wildlife, and other adjacent natural resources.

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

Sound engineering practices shall be followed to ensure that the road meets the requirements of its intended use and that maintenance requirements are acceptable.

CONDITIONS WHERE PRACTICE APPLIES

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

LOCATION

Roads shall be located to serve the purpose intended, to facilitate the control and disposal of surface and subsurface 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 shall be located where they can be maintained and where water management problems are not created. To reduce potential pollution, roads shall be located away from watercourses, where possible. Where roads must be located adjacent to waterbodies, buffers shall be utilized to the extent practicable.

Access roads range from seasonal use roads, designed for low speed and rough driving conditions, to all-weather roads heavily used by the public and designed with safety as a high priority. Some roads are only constructed for a single purpose; i.e., control of forest fires, logging and forest management activities, access to remote recreation areas, or access for maintenance of facilities.

ALIGNMENT

The gradient and horizontal alignment shall be adapted to the intensity of use, mode of travel, the type of equipment and load weights, and the level of development.

CRITERIA

Access roads shall be designed to serve the enterprise or planned use with the expected vehicular or equipment traffic. The type of vehicle

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

Grades normally should not exceed 10 percent except for short lengths, but maximum grades of 18 percent or more may be used if necessary for special uses such as logging roads, field access roads, fire protection roads, or other roads not intended for public access.

For stream crossings, the road should be aligned so that it crosses perpendicular to the channel as much as possible.

WIDTH

The minimum width of the roadbed is 14 feet for one-way traffic and 20 feet for two-way traffic. The roadbed width includes a tread-width of 10 feet for one-way traffic or 16 feet for two-way traffic. Each type of road also requires 2 feet of shoulder width on each side. Single-lane logging or special-purpose roads can have a minimum width of 10 feet, with greater widths at curves and turnouts. The two-way traffic width shall be increased approximately 4 feet for trailer traffic. The shoulder width may be either gravel or grass.

Turnouts shall be used on single lane roads where vehicles travel in both directions on a limited basis. Where turnouts are used, road width shall be increased to a minimum of 20 feet for a distance of at least 30 feet.

SIDE SLOPES

All cuts and fills shall be designed to have stable slopes of a minimum of 2 horizontal to 1 vertical on heights of less than 4 feet. For short lengths, rock areas, or very steep hillsides, steeper slopes may be permitted, if soil conditions warrant and special stabilization measures are installed.

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 intended use and runoff conditions. Culverts, bridges, fords, 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. When a culvert or bridge is installed in a drainage way, its minimum capacity shall convey the design storm runoff without causing erosion or road overtopping. Table 1 lists minimum design storm frequencies for various road types.

Table 1. Minimum Design Storm Frequencies

Road Type	Storm Frequency
Forest Access Roads, Farm Field Access Roads	2 year – 24 Hour
Farm Driveways, Recreation Facility Access Roads	10 year – 24 Hour
Public Access Roads, Campgrounds, etc.	25 year – 24 Hour

An erosion resistant low point or overflow area may be constructed across the access road to supplement culvert capacity on non-public use roads. Culverts, bridges, fords and hardened overflow areas should be installed so the road crossing does not significantly impact fish migration.

Roadside ditches shall be adequate to provide surface drainage for the roadway and deep enough, as needed, to serve as outlets for subsurface drainage. At a minimum, the roadside ditch shall be 1.0 foot below the top of road surface to provide internal drainage. Ditch channels shall be designed to be on stable grades or protected with structures or linings for stability.

Water-breaks or water-bars may be used to control surface runoff on low-intensity use forest, farm, or similar roads. On steep grades where runoff and erosion is anticipated down the road, water bars should be considered. Water bars must be constructed of materials that are

compatible with the use and maintenance of the road surface. Water bar discharge areas must be well vegetated or have other erosion resistant materials. See Table 2 for recommended spacing of water bars.

Table 2. Recommended Water-Bar Spacing

Road Grade (%)	Spacing (Ft.) *
2-4	200
4-6	135
6-9	100
9-12	80
12-18	60

* (Recommended spacing based on average soil conditions and precipitation amounts)

Surface crowning can also help direct road runoff into the side drainage ditches. Unobstructed flow into the ditches must be maintained to prevent flows from causing roadside erosion. Provide a turnaround at the end of dead end roads. In some areas, turnarounds may also be desirable for stream, lake, recreation, or other access purposes.

Provide parking space as needed to keep vehicles off the road or from being parked in undesirable locations.

SURFACING

Access roads shall be given a wearing course or surface treatment if required by traffic needs, soils, climate conditions, or erosion and/or dust control needs. The type of treatment depends on local conditions, available materials, and the existing road base. On weak bearing capacity soils such as silts, organics, and clays, the surface treatment should be underlain with a geotextile material specifically designed for road stabilization applications when the road is used on a regular basis. 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 after considering potential impacts on stabilizing vegetation.

CONSTRUCTION OPERATIONS

Construction operations should be carried out in such a manner that erosion and air and water pollution are minimized and held within legal limits. Construction shall include the following requirements as necessary for the job:

1. Trees, stumps, roots, brush, weeds, and other objectionable material shall be removed from the work area.
2. Unsuitable material shall be removed from the roadbed area.
3. Grading, sub-grade preparation, and compaction shall be done as needed.
4. Surfacing shall be done as needed.

TRAFFIC SAFETY

Passing lands, 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 or as required by local regulations.

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 (see *Plant Establishment Guide for Virginia* and

Virginia Conservation Practice Standard *Critical Area Planting (Code 342)*). 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 organic or inorganic material (see Virginia Conservation Practice Standard *Mulching (Code 484)*), or in accordance with local regulations.

Roadside channels, cross drains, and drainage structure inlets and outlets shall be designed to be stable (see Virginia Conservation Practice Standard *Structure for Water Control (Code 587)*). If protection is needed, riprap or other similar materials shall be used.

Watercourses and water quality shall be protected during and after construction by erosion-control facilities and maintenance. Filter strips, water and sediment control basins, and other conservation practices shall be used and maintained as needed.

ENVIRONMENTAL CONCERNS

Planning and implementation of this practice will be preceded by an environmental evaluation using the "Environmental Evaluation Data Sheet", Form VA-EE-1, or equivalent, and related guidelines found in General Manual, 190, Part 410 (Virginia Amendments).

WETLANDS

Impacts to existing wetland functions shall be assessed. All USDA wetland conservation provisions apply, including technical assistance and mitigation requirements. See General Manual 190, Part 410 (Virginia Amendments).

CONSIDERATIONS

Consider visual resources and environmental values during the planning and designing of the road system.

Access roads should be located where minimal adverse impacts will affect wetlands, waterbodies and wildlife habitat. Consideration should be given to the following:

- Effects on downstream flows or aquifers that would effect other water uses or users.
- Effects on the volume and timing of downstream flow to prohibit undesirable environmental, social, or economic effects.
- Short-term and construction-related effects of this practice on the quality of on-site downstream water courses.
- Overall effects on erosion and the movement of sediment, pathogens, and soluble and sediment-attached substances that would be carried by runoff from construction activities.
- Effects on wetlands and water-related wildlife habitats that would be associated with the practice.
- Effects on upland wildlife habitat, such as hedgerows and other food and cover elements.

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.

DESIGN DATA

1. Record site investigation data on SCS-538 or other suitable format.
2. Include sketches showing location, grade, cross-section, drainage structures, erosion control measures, treadway surface, etc.
3. Show computations for drainage structures and erosion control measures.
4. Record all engineering survey data used in design and construction layout and checkout.
5. Identify planned use of road.

CHECK DATA

1. Gradient of road.
 2. At least one cross-section.
 3. Dimensions and elevations of drainage structures.
 4. Any deviations from design.
 5. Statement that adequate vegetation has been established.
5. *Plant Establishment Guide for Virginia*, USDA, NRCS.
 6. "Woodland Access Roads and Trails", BMP Forestry Standard and Specification, Commonwealth of Virginia.

OPERATION AND MAINTENANCE

An operation and maintenance plan will be developed and carried out for the life of the practice.

The following activities will be included in the plan:

1. Inspect culverts, roadside ditches, water bars, and outlets after each major runoff event and restore flow capacity as needed.
2. Maintain vegetated areas in adequate cover. Re-seed and mow as needed.
3. Fill low areas in travel treads and re-grade, as needed, to maintain road cross section.
4. Inspect roads with water-bars periodically to ensure proper cross section is available and outlets are stable.

REFERENCES

1. Engineering Field Manual, Chapters 1, 2, 3, 4, 5, 6, 9 & 17, USDA, NRCS.
2. VA, NRCS, Field Office Technical Guide (FOTG), Section IV.
3. 700 Series Construction Specifications, VA, NRCS.
4. General Manual, Section 190, Part 410, NRCS (Virginia Amendments).

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ACCESS ROAD

Approved Practice Narrative

(Feet)

CODE 560

560 D1 Access Road: An access road will be installed to provide a fixed access for vehicular traffic in accordance with the attached specifications.

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