

# ACCESS ROAD

(Feet)  
Code 560

Natural Resources Conservation Service  
Conservation Practice Standard

## I. Definition

A travel way for equipment and vehicles constructed as part of a conservation plan.

## II. Purposes

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.

## III. Conditions Where Practice Applies

This standard may be applied as part of a conservation management system where access is needed from a private or public road to a conservation measure, cropland, woodland, recreational area, or where travel ways are needed in planned land use areas.

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.

This practice does not apply to Animal Trails and Walkways, Standard 575; Forest Trails and Landings, Standard 655; Heavy Use Area Protection, Standard 561; Recreational Trails and Walkways, Standard 568; or Stream Crossing, Standard 578. The above standards can be found in the NRCS Field Office Technical Guide (FOTG), Section IV.

## IV. Federal, Tribal, State, and Local Laws

Users of this standard should be aware of potentially applicable federal, tribal, state and local laws, rules, regulations, or permit requirements governing access roads. This standard does not contain the text of federal, tribal, state, or local laws.

## V. 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.

If soil and climatic conditions are favorable, road banks and disturbed areas shall be vegetated as soon as possible after final grading. 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. Vegetation shall be established according to Wisconsin NRCS FOTG, Section IV, Standard 342, Critical Area Planting. Mulching shall meet the requirements of FOTG Standard 484, Mulching.

### A. Access Roads

Roads shall be designed to serve the planned use with the expected vehicular or equipment traffic. The type of vehicle or equipment, speed, loads, soil, climatic, and other conditions under which vehicles and equipment are expected to operate must be incorporated into the design.

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

#### 1. 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 should be located where they can be maintained and so

water management or quality problems are not created. To reduce potential pollution, roads shall be located away from water bodies and watercourses. Overland flow should not be impeded. Utilize buffers where possible to protect waterbodies.

2. Alignment

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

Grades normally should not exceed 10 percent, except for short lengths. Maximum grades of 18 percent should only be exceeded if necessary for special uses such as logging roads, field access roads, fire protection roads, or other roads not accessible for use by the general public.

Roads approaching a stream or drainage way should be aligned so the crossing can be as perpendicular to the channel as possible.

3. Width

a. Public Roads

The minimum roadbed width 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. The shoulder width may be either gravel or grass.

*Turnouts*<sup>1</sup> 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 30 feet.

b. Non-Public Roads

Single-lane logging, field access, or other similar non-public roads shall have a minimum width of 10 feet, with greater widths at curves and turnouts for equipment.

4. Side Slopes

All cuts and fills shall be designed to have stable slopes of a minimum of 2 horizontal to 1 vertical (2:1) 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 geologic conditions and soils subject to slides shall be avoided or treated to prevent slides.

5. Drainage

The type of drainage structure used will depend on the intended use and runoff conditions. Drainage structures such as culverts, open top culverts, broad or narrow based dips for cross drains, diversion ditches, and water bars may be required to safely dispose of runoff water on low-intensity use forest, field access, or similar roads. See Table 1 for recommended spacing of drainage structures.

**Table 1**

**Recommended Distances Between Drainage Structures**

Road Grade %	Distance (feet)
1	400
2	250
5	130
10	80
15	50
20	40

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.

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.

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 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.

6. Channel Crossing

Channel crossings shall be provided at all natural drainage ways. Channel crossings

shall be designed according to Wisconsin NRCS FOTG, Section IV, Standard 578, Stream Crossing.

Culverts, bridges, fords, and hardened overflow areas should be installed so the road crossing does not significantly impact fish migration.

7. Surfacing

Roads shall be given a wearing course or surface treatment if required by traffic needs,

soils, climate, erosion control, or particulate matter emission control. The type of treatment depends on local conditions, available materials, and the existing road base. Table 2 contains minimum cross section options.

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.

**Table 2**  
**Access Road Cross Section**

Option	Cross Section Option*	Soil Drainage Classification		
		Well to Moderately Well Drained	Somewhat Poorly Drained	Poorly Drained
A	Raised earth	X		
B	Minimum 6" <i>crushed stone</i>	X		
C	Minimum 6" crushed stone over WCS-13** Class IV geotextile	X	X	
D	Minimum 4" crushed stone over a 6" base course of <i>graded rock</i>	X	X	
E	Minimum 4" of crushed stone over 8" base course of graded rock over WCS-13 Class IV geotextile	X	X	X
F	Minimum 4" of crushed stone over an 8" base course of graded rock over 6" of sand and fine gravel	X	X	X

\* 3" of concrete or 3" of blacktop can be substituted for the crushed stone contained in any option.

\*\*WCS-13: Wisconsin Construction Specification 13, Geotextiles.

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

8. 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. The

angle of the two centerlines should be nearly perpendicular.

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.

Dead-end roads shall be provided with a turnaround.

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

#### 9. Water Access Points

Access points used for subsistence food collection shall meet or exceed requirements specified in Wisconsin NRCS FOTG Section IV, Standard 578, Stream Crossing.

#### 10. 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:

- a. Trees, stumps, roots, brush, weeds, and other objectionable material shall be removed from the work area.
- b. Unsuitable material shall be removed from the roadbed area.
- c. Grading, sub-grade preparation, and compaction shall be done as needed.
- d. Surfacing shall be done as needed.

Measures must be in place to limit the generation of particulate matter during construction.

#### 11. 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 Wisconsin FOTG Section IV Standard 342, Critical Area Planting). 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 Wisconsin FOTG Section IV Standard 484, Mulching), or in accordance with local regulations.

Roadside channels, cross drains, and drainage structure inlets and outlets shall be designed to be stable. 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.

### VI. Considerations

Additional recommendations relating to design which may enhance the use of, or avoid problems with this practice, but are not required to ensure its basic conservation function are as follows.

- A. Visual resources and environmental values should be considered in planning and designing the road system.
- B. When available, consider using organic bio-degradable materials as a surface treatment.
- C. Turnarounds may be desirable for stream, lake, recreation, or other access purposes.
- D. Access road surface treatment for weak-bearing capacity soils should be underlain by a geotextile to minimize required maintenance.
- E. Access roads should be located where minimal adverse impacts will affect wetlands, water bodies, watercourses, wildlife habitat, and air quality. Consideration should be given to the following.
  - Effects on downstream flows or aquifers that would affect 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.
  - Establishing vegetation on road shoulders wider than the 2-4 feet.
  - Limiting the number of vehicles and vehicle speed will reduce the potential for generation of particulate matter and decrease safety and air quality concerns.

## VII. 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.

## VIII. Operation and Maintenance

An Operation and Maintenance Plan shall be developed that is consistent with the purpose of this practice, intended life of the components, and criteria for design.

The plan shall include but is not limited to:

- A. Provisions for timely maintenance to insure that the access roads function properly.
- B. Periodic replacement of livestock hoof contact material in channel crossings due to livestock travel or erosion by runoff events.
- C. Inspection of culverts, roadside ditches, water bars, and outlets after major runoff events and restoration of flow capacity as needed.
- D. Maintenance of vegetated areas in adequate cover including mowing and reseeding.
- E. Filling of low areas in travel treads and regrading as needed to maintain road cross section.
- F. Inspection of roads with water-bars periodically to insure proper cross section is available and outlets are stable.

## IX. References

USDA, Natural Resources Conservation Service, Wisconsin Field Office Technical Guide, Section IV, Conservation Practice Standards and Specifications.

USDA, Natural Resources Conservation Service, National Engineering Handbook, Part 650, Engineering Field Handbook.

Wisconsin's Forestry Best Management Practices for Water Quality, Wisconsin Department of Natural Resources, Bureau of Forestry.

## X. Definitions

*Turnouts (V.A.3.a.)* – A wider section in the road to allow vehicles to pass.

*Crushed stone (V.A.7.)* – 100% passing 3/4 in sieve and 10% maximum passing the #200 sieve.

*Graded rock (V.A.7.)* – 100% passing the base course thickness dimension and a maximum of 10% passing the 3/4 inch sieve. All sizes between the limits shown on the drawings are to be represented.