

**NATURAL RESOURCES CONSERVATION SERVICE**  
**CONSERVATION PRACTICE STANDARD**  
**FOREST TRAILS AND LANDINGS**

(Ft. and Ac.)

**CODE 655**

**DEFINITION**

A temporary or infrequently used route, path or cleared area.

**PURPOSE**

- Provide routes for temporary or infrequent travel by people or equipment for management activities.
- Provide periodic access for removal and collection of forest products.

**CONDITIONS WHERE PRACTICE APPLIES**

Trails and landings, including skid trails, are applicable on forest land. They typically connect to an Access Road-560.

Use ACCESS ROADS – NC Practice Standard 560 for trails/travel-ways that will be designed and used frequently or repeatedly and remain permanently for vehicular traffic.

**CRITERIA**

Use the following criteria in planning and applying this practice. The general criteria apply to all Forest Trails and Landings. Additional criteria may apply based on the intended purpose(s) of the practice.

**General Criteria Applicable To All Purposes**

**Design and Construction** - Use the current **NC Forestry BMP Manual** for specific design information, drawings, illustrations, etc. for planning/sizing/constructing forest roads/trails/landings and their associated water and sediment control practices including water breaks, broad-based dips, rolling dips, water bars, cross-road pipe drainage, temporary culverts, stream crossings and bridges.

Trails and landings will be of a size, gradient, number and location to accomplish the intended purpose for expected traffic and equipment.

Avoid locating trails and landings on poorly suited soils of low-bearing strength and sites such as wetlands, riparian areas, critical wildlife habitat, or other environmentally sensitive areas.

Locate trails on the contour to the greatest extent possible and incorporate breaks in grade (rolling dips or rolled grades) for trails on slopes. Skid logs uphill (with front ends off the ground) as practicable to minimize mechanical displacement of soil. Trails and landings will be set back from water bodies and water courses. Stream Crossings, if necessary, will be minimized in size and number.

Assure safe ingress and egress from trails and landings to junctions with access roads. Refer to the practice standard Access Road-560 for travel-ways including logging spur roads needing construction design and possibly surfacing to accommodate frequent, intensive, or repeated vehicular traffic.

Trails and landings shall be located and minimized in number and size to reduce adverse onsite and off-site impacts such as accelerated erosion, slope failure, water quality and riparian area degradation, stream channel and streambank damage, hydrologic modification, aesthetics, unacceptable damage to advance regeneration or residual growing stock, or fragmentation of wildlife habitat.

Timing and use of equipment shall be appropriate for site and soil conditions to maintain site productivity and minimize soil rutting, erosion, displacement and compaction.

Drainage and erosion control measures shall be integrated with trails and landings and located to minimize detrimental effects of concentrated

Conservation practice standards are reviewed periodically and updated if needed. To obtain the current version of this standard, contact your Natural Resources Conservation Service [State Office](#) or visit the [Field Office Technical Guide](#).

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flow, erosion and sedimentation rates both during and after trail/landing use.

After usage, stream crossings will be restored and stabilized. Refer to applicable drainage and erosion-sedimentation prediction technology and practice standards such as Critical Area Planting-342, Structure for Water Control-587, Stream Crossing-578 and Mulching-484, as well as state forestry Best Management Practices.

**Additional Criteria to Provide for Temporary or Infrequent Travel by People for Management Activities**

Trails and landings intended or anticipated for management activities in subsequent years shall be designated for reuse to minimize the need for new trails and landings and associated site impacts.

Layout and size of trails will depend on the size of equipment needed to traverse the trail for management. Equipment for forest management activities ranges in size from 4-wheeler/ATV to bulldozer, but generally will not be as large as equipment used for harvest of forest products.

Trails into remote forest stands should accommodate equipment needed for fire suppression.

**Additional Criteria to Provide Periodic Access for the Removal and Collection of Forest Products**

Minimum width of a primary trail will normally be 10-14 feet, possibly more, for a single track of forest harvest equipment. Width will be increased as necessary at curves and spots for overtaking or passing.

Washed or cleaned crushed stone (1½ - 3 inches, ASTM C 33 size number 3 or 4) or other similar protection should cover the last 100 feet of a primary trail before it intersects a public paved highway to prevent mud from causing driving hazards. This section of trail that joins a public highway should be carefully located to allow adequate sightlines for trucks entering and exiting a forest harvest site.

Landings or logging decks should be located in advance of trail construction. Trail approaches to the landing should have a low grade. Forest product type, loading method, and type of

loading/hauling equipment will dictate landing size.

Spread slash/limbs across landings/logging decks during harvest operations to provide soil cover and help prevent sediment runoff.

**CONSIDERATIONS**

A permit may be required from the US Army Corps of Engineers if fill material is placed in a stream or wetland, and, the trail or road is intended for purposes other than ongoing silviculture, which is generally recognized as timber management.

Forest trails (skid, haul) and landings (loading decks) are the forestry activity that can cause increased erosion and sediment yields unless location/construction is well planned.

Preplanning forest trails and landings can save time and money. A preharvest plan should be developed showing approximate locations of harvest trails, potential log landings, sawmill sites, stream crossings, etc. along with streams, wetlands and other sensitive areas that need to be considered. Timing of harvest should be included. Harvesting the furthestmost timber first allows trails to be stabilized with slash/etc as activity progresses toward a landing or deck.

Forest trails and landings can be constructed and stabilized a year or more ahead of planned harvest or management activities.

Where possible in steep terrain, locate landings just below the ridgeline, near the top of the slope, and use a fan pattern of primary skid trails that extend outwards from the deck, and down slope, with the trails converging at the landing. This disperses water runoff over a larger area.

Properly located trails and landings of sufficient width and location may be utilized and managed as firebreaks.

Crossings over defined water channels are the most critical points on a trail; use extra care planning in these areas.

Use existing trails where practical, unless existing trails do not meet current requirements of this standard.

Consider portable, temporary bridges or bridge panels ("bridgemats") to cross streams where temporary culverts are not practical.

Consider impacts to wildlife from increased fragmentation of the forest stand. Creation of openings by trails and landings can benefit early successional and edge species but may not be favorable to wildlife that prefer contiguous forest canopy or 'forest interior' areas.

Trails and landings, particularly after usage, may be utilized and managed for wildlife food and cover plantings. Refer to appropriate wildlife habitat practice standards (Wildlife Upland Habitat Management – NC Practice Standard 645 and Early Successional Habitat Development – NC Practice Standard 647).

Favor native species for revegetating trails and landings. Protect against establishment and spread of invasive species.

The landowner will usually be responsible for trail maintenance after harvest activity.

Consider cultural resources and environmental concerns such as threatened and endangered species of plants and animals, natural areas and wetlands. *This practice has the potential to affect National Register listed, or eligible, significant cultural resources (Cultural Resources Information - NC, FOTG Section II). Follow NRCS state policy for considering cultural resources during planning.*

### PLANS AND SPECIFICATIONS

Specifications for applying this practice shall be prepared for each site and recorded using approved specification sheets, job sheets, technical notes and narrative statements in the conservation plan, or other acceptable documentation.

### OPERATION AND MAINTENANCE

The following actions shall be carried out to insure that this practice functions as intended throughout its expected life. These actions include normal repetitive activities in the application and use of the practice (operation), and repair and upkeep of the practice (maintenance).

- Conduct periodic inspections of landings and trails during use, especially near

streams, water bodies, wetlands, etc.; repair as necessary by:

- Constructing additional erosion, sediment and water control practices or structures where and as needed to alleviate problems identified during active use/service.
- Reworking areas to remove ruts.
- Restrict traffic and delay hauling when soil moisture conditions become too wet.
- As silvicultural activities are completed, shape and smooth trail and landing surfaces as needed, ensure that drainage systems are functioning, and provide a ground cover on bare areas.
- Maintain landings and trails used as firebreaks to accomplish this purpose.
- Restrict access to landings and trails when and where needed for erosion control, safety, liability, and reduced maintenance costs (refer to Access Control - NC Practice Standard 472).

Retire landings and trails no longer needed, and not used as firebreaks. Select an appropriate closure level based on severity of environmental concern associated with existing roads, trails, and landings; future access requirements; and short-term disturbance effects resulting from closure and treatment activities (Refer to Road, Trail, Landing Closure and Treatment – NC Practice Standard 354).

### REFERENCES

Garland, John. 1997. Designated Skid Trails Minimize Soil Compaction. Woodland Workbook, Oregon State University Extension Service, EC1110.

University of Minnesota. 2002. Broad-Based Dips. Forest Management Practices Fact Sheet #6, Managing Water Series.

Foresters Field Handbook, 1998, NC Division of Forest Resources

North Carolina Forestry Best Management Practices Manual, amended 2006, NC Forest Service Publication number FM-08-01.