NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

FOREST TRAILS AND LANDINGS

(Ft.)

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.

CRITERIA

General Criteria Applicable To All Purposes

This conservation practice is exempt from receiving coverage under TDEC's (Tennessee Department of Environment and Conservation) ARAP permits as long as NRCS provides technical or financial assistance for this conservation practice. This exemption allows this conservation practice to be installed adjacent to and across streams. The TDEC ARAP exemption does not change the permitting requirements for the U. S. Army Corps of Engineers permits (404), the Tennessee Valley Authority permits (26a – if located within the Tennessee River drainage area.), or any permits that may be required by local units of government.

The exception to the TDEC ARAP exemption described in the previous paragraph is planned to impound the stream, place fill material in a wetland, provide drainage for a wetland, or directly impact a wetland. If this conservation practice is planned in a wetland, then it is no longer exempt from the ARAP process. If planned on a stream or in a wetland, these conservation practices are required to apply for and receive U. S. Army Corps of Engineers permits (404), Tennessee Department of Environment and Conservation permits (ARAP), Tennessee Valley Authority permits (26a – if located within the Tennessee River drainage area.), and any permits that may be required by local units of government. All conditions listed within the permits shall be followed during the installation of the practice.

Trails and landings will be of minimum size, minimum number, gradient, and location to accomplish the intended purpose.

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.

Those 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.

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. Whenever ruts develop deeper than 6 inches, logging operation shall be suspended until drier conditions occur.

Drainage and erosion control measures shall be integrated with trails and landings and located to minimize detrimental effects of concentrated flow, erosion and sedimentation rates both during and after trail/landing use. Trails and landings shall be revegetated to control erosion as needed during the operation, and immediately following completion of the operation. 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.

Measures, including use of chemicals or mechanical treatment, will be employed if necessary to protect against locally invasive species. If pesticides are used, refer to the Brush Management standard (314).

Skid Trails

Skid trails shall not be through stream channels, springs, seeps, sinkholes, or other wet areas. Skid trails that must cross a stream shall be as near to right angles as possible, and must utilize a temporary bridge or culvert to minimize damage. Fords shall not be utilized to skid across streams. Skid trails shall always be located outside sensitive areas to the extent possible.

Drainage and erosion control measures for trails shall be used and located to minimize water flows and erosion rates to acceptable levels.

During logging, skid trails shall be limited to grades of 2-30% without erosion control treatments. Grades greater than 30% are limited to short distances and require waterbars to be installed. When waterbars are required they shall be spaced every 30 feet, with the bar at least 12 inches higher and the ditch 12 inches lower than the surface of the trail. Waterbars shall be angled 20-30 degrees downslope, with a stable outlet for carrying water.

Once forestry operations are completed, water bars shall be constructed on all skid trails to control erosion and safely dispose of surface runoff according to the following spacing:

Water Bar Spacing	
Trail gradient (%)	Spacing in Feet
2	250
5	135
10	80
15	60
20	45
25	40
30	35

Skid trails shall not be oriented directly up or down hill. Orientation shall be on contour or along a “zigzag” pathway to the extent possible.

The width of a skid trail shall be the narrowest possible to allow passage of skidding equipment and the turning of skidded logs. Only those trail sections planned as future firebreaks shall be widened in accordance with the Firebreak standard, 394.

Stream bridges or culverts for skid trails shall be located on firm soils at narrow points, temporary in nature, and removed from the stream upon completion of the logging operation. Any stream

bridges or temporary culverts installed under the Stream Crossing standard (578) that impact more than 20 linear feet of streambank may require an Aquatic Resources Alteration Permit (ARAP) from the Tennessee Department of Environment and Conservation. All required state and federal permits relative to the installation of temporary bridges or culverts within streams shall be obtained prior to installation.

Temporary culverts shall be sized properly to provide adequate drainage during the logging operation. Pipe sizes can be determined using procedures in the *NRCS National Engineering Handbook*. As a guide, the following table provides approximate culvert sizes:

Culvert Size	Drainage Area – Acres		
Diameter in inches	Steep	Rolling	Flat
15	1	6	11
24	5	20	39
36	14	59	115
42	20	89	175

At least 12 inches of material for smaller pipes, and up to one half the diameter of larger than 24 inch diameter pipes, must be placed over the culvert to prevent log skidders from crushing the pipe. Culverts must be wide enough to allow safe passage of the skidder and still have a minimum 1.5 to 1 side slope on each side of the fill. Installation and removal must be performed in a manner that minimizes disturbance of stream channel banks and soil movement, and maintains free movement of fish and aquatic species.

Landings

Landings shall be located to minimize adverse onsite and off-site impacts such as accelerated erosion, riparian area degradation, stream channel and streambank damage, hydrology modification, aesthetics or unacceptable damage to advance regeneration, residual growing stock or wildlife habitat.

Landings shall not be established within 50 feet of riparian or streamside management zones, waterways (wet weather conveyances), caves, springs, seeps or sinkholes.

Landings shall be established on slightly sloping ground that provides good drainage with minimal erosion potential (ideally 2-5%).

CONSIDERATIONS

This practice and/or associated practices may include placement of fill material, the clearing of trees, and/or the construction of ditches or subsurface drainage pipes in low lying and floodplain type situations. The placement of fill material, the clearing of trees, and/or the installation of new ditches or drainage tiles in areas that are potentially wetlands may be a violation of the Swampbuster portion of the Food Security Act, the Clean Water Act, and the Tennessee State Water Quality Control Act. All of these areas should be evaluated for wetland potential thoroughly prior to implementation of this practice and/or other associated practices.

Locate landings and trails to preserve aesthetic qualities.

Landings established near roads should be screened from the road by an adequate buffer for aesthetic and safety purposes.

Consider locating landings first and design skid trails to approach landings within the most minimal grades possible
.
Consider locating landings at least 100 feet away from perennial or intermittent streams and other sensitive areas for wildlife protection.

If possible, avoid spacing skid trails closer than 200 feet. Avoid joining several skid trails at one point, as the disturbed area will continue to expand at the trail intersection.

Skid trails and landings should not exceed 10% of the work area.

Consider the need for diversions above landings if excessive upslope runoff may enter.

Consider packing down leftover logging debris on frequently used trails during operations for better erosion control.

Consider impacts to wildlife from increased fragmentation of the forest stand. Creation of

openings can benefit some wildlife species (e.g., early successional and edge species) yet be detrimental to others (e.g., forest interior species).

Trails and landings, particularly after usage, may be utilized and managed for wildlife food and cover plantings. Refer to appropriate wildlife habitat practice standards, e.g., Upland Wildlife Habitat Management, 645, and Early Successional Habitat Development/ Management, 647.

Those 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.

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

To the extent practical favor native species for revegetating trails and landings. Measures will be used to protect against invasive species.

Consider cultural resources and environmental concerns such as threatened and endangered species of plants and animals, natural areas and wetlands.

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

Regular and timely inspections for adverse effects will be conducted with trails and landings and associated measures maintained or restored as necessary.

Trails and landings utilized and managed as firebreaks will be properly maintained to accomplish this purpose.

Access to trails and landings shall be controlled when and where needed for erosion abatement, safety and liability, and reduced maintenance costs. Refer to the practice standard Access Control-472 as needed.

Trails and landings no longer needed may be decommissioned. Refer to the practice standard Road/Trail/Landing Closure and Treatment-654, as needed.

REFERENCES

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