



UI Extension Forestry Information Series II

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Best Management Practices (BMPs) for Forest Roads in Idaho

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Idaho's forestland owners and managers share a responsibility to protect for protecting our most important natural resource - water. The Idaho Forest Practices Act (IFPA) has rules that guide forest practices on federal, state, and private lands to protect, maintain, and enhance Idaho's natural Resources. IFPA Rules are mandatory best management practices (BMPs) that focus on maintaining high water quality.

Best management practices (BMPs) are defined by IFPA Rules as "practices, or combinations of practices, found to be the most effective and practicable means

of preventing or reducing nonpoint source pollution from forest activities."

BMPs include standards for road construction, reconstruction, and maintenance that maintain forest productivity, water quality, and fish and wildlife habitats. Most private forest landowners will not have the expertise or the equipment needed to build a forest road themselves, but many will have need of a road on their forestland at sometime, whether it be an temporary, unimproved road to haul logs from a single harvest, or a permanent road used for access and multiple harvests.

Forest roads are regarded as the largest sediment producers on forested lands, producing up to 90% of all sediment from forest activities. Properly planning, designing, constructing, and maintaining forest roads can significantly decrease or eliminate erosion and sedimentation into streams, thereby protecting and even improving water quality.

The Idaho Forest Practices Act provides standards and guidelines for road construction, reconstruction, and maintenance that will maintain forest productivity, water quality, and fish and wildlife habitat.

When planning a forest road:

- ensure road specifications and plans are consistent with good safety practices and are designed to be no wider than necessary for safety and anticipated use;
- plan roads to the minimum standards for the intended use;
- adapt the plan to the site's soils and terrain;
- do not locate the road in stream protection zones (SPZs), except for approaches to stream crossings;



Forest road systems are one of the most important and costly part of a forest operation.

Photo by Yvonne Barkley, University of Idaho Extension

- plan for areas of vegetation between roads and streams;
- design minimal and balanced cuts and fills, especially near streams, and fit the road to the natural terrain as closely as possible. Compact fill material or plan to dispose of evacuated waste material on geologically stable sites;
- design roads to drain naturally, outsloping or insloping with cross-drainage and by grade changes when possible. Plan for effective, well-placed dips, water bars, cross-drainage, or substrate surface drainage;
- place relief culverts or roadside ditches where natural drainage will protect the road surface, excavation, or embankment. Plan culvert locations to prevent fill erosion or direct discharge of sediment into streams;
- designate a minimum number of stream crossings. Stream crossings must be planned and installed as stated in the Stream Channel Alteration Law, Title 42; Chapter 38, Idaho Code;
- be sure all Class I stream culvert installations allow fish passage;
- ensure that culverts are designed to carry 50-year peak flows. Culvert sizing tables are provided in the Idaho Forest Practices Act for North Idaho and the Salmon River Drainage and for South Idaho.

“The minimum culvert size required for stream crossings shall not be less than 18 inches in diameter, with the exception of that area of the Snake River Drainage upstream from the mouth of the Malad River, including the Bear River basin, where the minimum size shall be 15 inches”; and

- be aware that culverts used for temporary crossings are exempt from the 50-year design requirement, but must be removed immediately after they are no longer needed and before the spring runoff period.

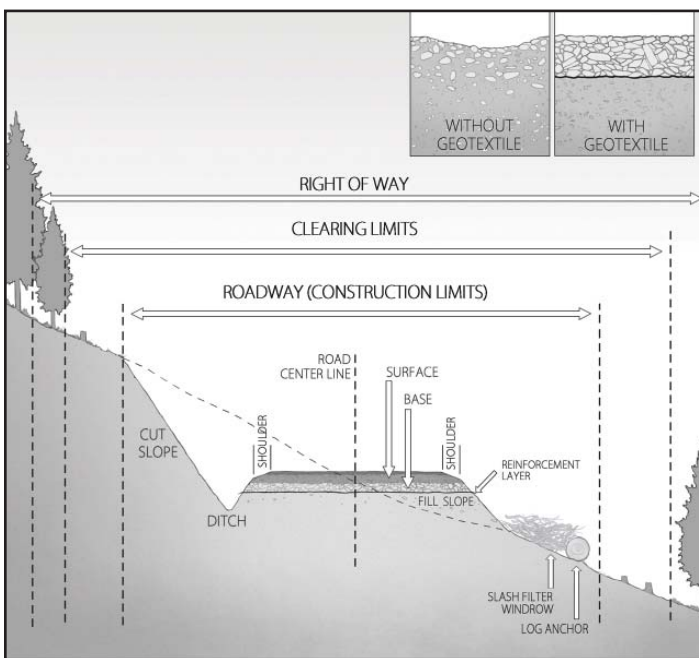
Construction

The most important thing a private forest landowner can do when constructing a forest road is to hire an experienced and skilled contractor. Call several and ask for references. And although you may not be constructing the road yourself, a little knowledge and a few tips on the good, the bad, and the ugly of road construction can go a long way towards ensuring that your road will withstand the test of time.

Most forest roads are constructed by excavating a road surface. The bulldozer starts at the top of the cut slope, excavating and sidecasting material until the desired road grade and its width is obtained. While cut-and-fill road construction is common for gentle terrain, fullbench roads are usually built on slopes over 65%. In full-bench construction, the entire road surface is excavated into the hill. The excavated material is pushed or hauled to an area needing fill or to a disposal area.

During construction:

- debris, excess soil and rock, and other material from cut-and-fill operations must not enter streams. Excess material should be placed on geologically stable sites outside the stream protection zone to prevent erosion and material from entering streams;
- erodible exposed surfaces such as road surfaces, cut- and/or fill-slopes, borrow pits, and waste piles must be stabilized prior to fall or spring runoff by seeding, compacting, rocking, mulching, or other suitable means.
- compact road fill material to settle it, and reduce erosion and water entry into the fill. Minimize snow, ice, frozen soil, and woody debris buried in embankments;



Anatomy of a forest road.

Illustration by Noah Kroese Illustrations

- no significant amount of woody material should be incorporated into fills. Limited slash and debris may be windrowed along the toe of the fill to provide a filter near stream crossings; and
- postpone earthwork or material hauling when roads are saturated and likely to erode.

Maintenance

A well-maintained road provides safe access to your forested land for management activities, recreation, and fire control. Regular maintenance activities ensure minimal disturbance to forest productivity, water quality, and fish and wildlife habitats. Maintenance of active and inactive roads will differ. All forest roads should have debris associated with road maintenance placed where it will not enter streams, and repair slumps, slides, and other erosion sources that could cause sediment from entering streams. Ensure that all forest roads used during the winter maintain their drainage capabilities, keeping culverts, ditches, and other structures free of snow and ice. Consider limiting access during wet periods.

Active forest roads are those that are being used for hauling forest products, rock, and other road building materials. Maintain active roads by:

- keeping culverts and ditches functional;
- maintaining proper drainage; and
- postponing hauling and other heavy use during wet seasons.

Inactive forest roads are those that are no longer used for commercial hauling but are maintained for access for fire control, management activities, recreational use, and occasional use for minor forest harvesting. Maintain inactive forest roads by:

- clearing culverts and ditches after active use and ensuring the road surface is left in a condition to minimize erosion. Culverts and ditches will need to be maintained thereafter as needed; and
- blocking roads, seasonally or permanently, to vehicular traffic to prevent undue degradation.

Long-term inactive forest roads are those not intended to be used in the near future, but will likely be used again in the distant future. Long-term inactive roads should be left in a condition to control erosion, and blocked to vehicular traffic. The Idaho Department of Lands may require you to remove bridges, culverts,



Forest road maintenance is of critical importance.

Photo by Yvonne Barkley, University of Idaho Extension

ditches, and unstable fill. Any bridges left in place must be maintained by the landowner.

Permanently abandoned roads are those that are not intended to be used again. The Idaho Forest Practices Act has requirements for permanently abandoned roads:

- all drainage structures must be removed and roadway sections treated to minimize erosion and landslides;
- all stream gradients must be restored to their natural slope and the road surface treated to break-up compacted areas;
- fill slopes of roads within stream protection zones must be pulled back to provide for long-term stability; and
- all bare earth areas created while constructing, using, and maintaining the road must be stabilized by seeding, armoring, mulching, or other suitable means.

For more information on the Idaho Forest Practices Act and Forestry BMPs, contact your local Idaho Department of Lands Forest Practices Advisor and request a copy of *Rules Pertaining to the Idaho Forest Practices Act, Title 38, Chapter 13, Idaho Code*.

