



TEXAS A&M FOREST SERVICE

Timber Management: Road and Stream Crossing BMPs

Reliable access to forest land is essential to carry out forest management activities. Some roads are built to be used for the life of the tract while others are only built for short-term use, such as during a harvest. It is always a good idea to determine the intended use and life span of any road you plan to build. In any case, whether you are building a new road or upgrading/maintaining an existing road, BMPs need to be implemented.

The interaction of traffic on exposed soil makes forest roads particularly susceptible to erosion. In fact, forest roads have been found to contribute up to 90 percent of the total sediment pollution on forestry sites. In order to maintain good access and prevent sediment from your road system reaching your streams, you need to ensure that all necessary BMPs are followed. They can be as simple as revegetating a road with grass or ensuring that your road surface is well drained by installing water bars and wing ditches.

It is always best to avoid stream crossings whenever practical alternatives exist. Properly implemented stream crossings enable traffic to traverse streams, drains, and ditches when necessary, while protecting water quality. Stream crossings can be permanent or temporary depending on the intended traffic type and frequency. Some crossings are designed specifically for skidding, some for truck and vehicular traffic only, while some can handle both. Be sure you select the crossing type most suited for the situation, correctly install it in the best location, and follow all appropriate BMPs.

More information regarding installing roads and proper stream crossings can be found in the BMP Handbook. For a copy of the BMP Handbook please visit <http://tfsweb.tamu.edu> or your local Texas A&M Forest Service office.



Rock is an excellent choice for roads that remain wet for extended periods of time or for roads with a high erosion potential.



Culvert crossings should be properly sized and armored to prevent them from washing out.

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BMP Guidelines for Forest Roads

- Use soil surveys, topographical maps, aerial photographs and site reconnaissance to help determine the best location for your road.
- Avoid constructing roads on steep slopes. Instead, design them to follow the contour of the land whenever possible.
- Avoid constructing roads in Streamside Management Zones, wet areas, and other sensitive areas.
- Balance cut and fill areas.
- Avoid crossing streams whenever practical alternatives exist.
- Minimize the size and length of the road.
- Ensure that your road surface is well drained by installing appropriate water control structures such as waterbars and wing ditches (waterbars are better suited for temporary roads or roads with light traffic).
- Crown and ditch high traffic roads
- Cut trees along the sides of the road to allow sunlight to dry the road.
- Stabilize and close roads that are no longer in use.
- Inspect your roads periodically for problems.



Planting grass along roadways is an inexpensive way to prevent erosion from occurring.

BMP Guidelines for Stream Crossings

- Choose proper stream crossing depending on purpose and intended traffic type and level.
- The number of stream crossings should be kept to a minimum.
- Stream crossings should be constructed to minimize the disturbance to stream banks and existing stream channels.
- Equipment should be kept out of the stream bed.
- Stream crossings should be installed perpendicular to the stream channel.
- Approaches should be constructed at a 90 degree angle to the stream crossing.
- All culverts should be of adequate size to carry the normal water flow anticipated during heavy rains (see culvert sizing chart in BMP Handbook).
- Culvert crossings should be routinely inspected to ensure the pipe is open, allowing proper water flow.
- Temporary crossings should be removed immediately once they are no longer needed.
- Stream banks and approaches should be properly restored and stabilized.
- Legacy stream crossings are not always the best option and should be thoroughly inspected before reactivating them.
- Dirt crossings should never be used and are never recommended.



Bridgemats provide a good alternative for temporary stream crossings with minimal impacts to water quality.