28
Culverts in fish habitat streams need to be sized to allow fish to pass at all life stages. Structures over non-fish habitat streams must be designed to handle 100-year flood events.
Relief culverts divert road and ditch water onto the forest floor. They are most effective on steep road grades, high traffic areas and on vertical curves or dips.

Forest Roads

Roads are an essential part of a well-managed forest. But if not properly constructed and maintained, they can be a source of sediment to streams and can pose other risks to public resources and public safety. Proper planning, construction, and maintenance of forest roads helps minimize soil erosion and protects forest productivity, water quality, and fish/wildlife habitat. Planning also minimizes the miles of roads built and maintained, which saves money and increases efficiency.

30 INTRODUCTION
31 ROAD MAINTENANCE AND ABANDONMENT PLANS
32 LOCATING A NEW FOREST ROAD
33 EXISTING ROADS | END HAULING
34 LANDINGS
36 DRAINAGE
40 STREAM CROSSING STRUCTURES
42 MAINTAINING FOREST ROADS DURING HARVEST USE
46 ON-GOING MAINTENANCE

FOREST PRACTICES RULES

APPLICABLE WASHINGTON ADMINISTRATIVE CODES (WACS)
222-24-020 | 222-24-025 | 222-24-030 | 222-24-035
222-24-040 | 222-24-050 | 222-24-060

Understanding Forest Roads

Washington has rules affecting road construction and maintenance. The Forest Practices Act and Rules apply to all private and state forest roads.

Forest Practices Rules require that forest landowners construct and maintain roads to minimize damage to public resources, such as water quality and fish habitat. This chapter discusses various resource protection measures, also known as best management practices (BMPs), that will help you achieve this goal. Best management practices include:

- Minimizing new road construction
- Providing fish passage
- Minimizing road runoff
- Preventing erosion
- Protecting stream bank stability
- Maintaining wetland functions

Before You Begin a Road Maintenance or Construction Activity

Prior approval from either DNR or Washington Department of Fish and Wildlife (WDFW) may be required in the following instances:

1. Constructing or maintaining a road where there is risk of sediment entering water or wetlands
2. Operating equipment near streams, unstable slopes or other sensitive sites
3. Installing or replacing stream crossings

Permits You'll Likely Need to Conduct Road Maintenance or Construction

Work on forest roads may require one or both of the following permits:

1. Forest Practices Application/ Notification
2. Hydraulic Project Approval

Contact the DNR region office nearest your property for more information on which permit you will need

Road Maintenance and Abandonment Plans

A Road Maintenance and Abandonment Plan (RMAP) is a forest road inventory and schedule for any needed road work. It is prepared by the landowner and approved by the Washington Department of Natural Resources (DNR).

All large forest landowners are required to submit a RMAP. Some small forest landowners are required to submit a "checklist RMAP" which is a form landowners fill out to indicate they have assessed their roads and identified any potential road maintenance problems. If a problem is identified, DNR can provide advice on how to correct it.

LARGE FOREST LANDOWNERS

Annually harvest more than 2 million board feet of timber from their own land.

SMALL FOREST LANDOWNERS

Annually harvest 2 million board feet or less of timber from their own land.

IS A CHECKLIST RMAP REQUIRED?

If you are a small forest landowner, answer the following questions to see if a RMAP is required:

A Is this Forest Practices Application/ Notification (FPA/N) for timber harvest or salvage?

No. A checklist RMAP is not required.
Yes. A checklist RMAP may be required. Go to B

B Are you hauling timber on existing forest roads on your property?

No. A checklist RMAP is not required.
Yes. A checklist RMAP may be required. Go to C

C Do you own more than 80 acres of forest land in Washington State?

Yes. A checklist RMAP is required with this Forest Practices Application/Notification .

No. A checklist RMAP may be required. Go to D

D Is this Forest Practices Application/ Notification on a block of forest land that contains more than 20 contiguous acres?

Yes. A checklist RMAP is required with this Forest Practices Application/Notification.

No. A checklist RMAP is not required. Ask DNR for an informational brochure on forest road maintenance.

A Road Maintenance brochure and Checklist RMAP form are available at the Forest Practices website at http://www.dnr.wa.gov/BusinessPermits/ForestPractices/

FOREST PRACTICES RULES

Even if you do not have a RMAP requirement, your forest roads must still meet the road maintenance requirements in WAC 222-24-052.

Locating a New Forest Road

New forest roads should fit the natural topography so that minimum changes to the natural features will occur. Special attention should be given to the location of roads near streams or wetlands to minimize delivery of sediment or changes to the natural direction of the stream.

When locating a road, consider the following guidelines:

- Locate roads where the risk of dirt and mud entering water is minimized and where there will be the least disturbance to stream channels, lakes, wetlands, and floodplains.
- Minimize the number of stream crossings.
- Reduce duplication of roads. Investigate using existing roads across another ownership before constructing new roads.

In general, reduce the amount of road in the following locations:

- Parallel or next to a stream of any size
- Across or immediately adjacent to wetlands
- On landslide prone locations or across the head or toe of old landslide deposits
- On steep slopes

WETLAND DELINEATION AND MAPPING

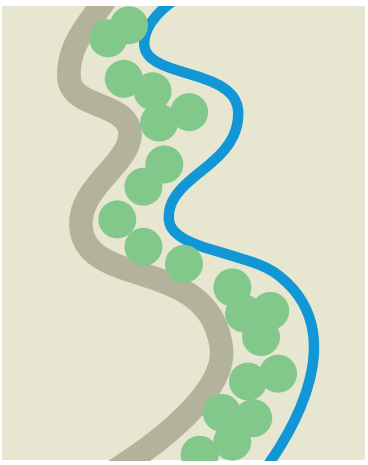
FOREST PRACTICES MANUAL

To properly locate new roads in or near wetlands, the wetland boundaries may need to be identified and mapped (page 85). For more information, please see **Board Manual Section 8**: Guidelines for Wetland Delineation.

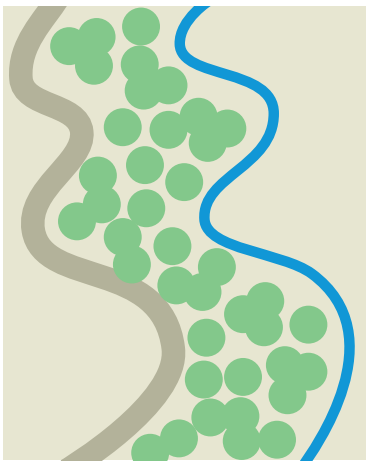
ACTIVITY MAP

The location of forest roads must be shown on the activity map submitted with a FPA/N. Any trees removed for road construction outside the timber harvest unit must be indicated on the FPA/N.

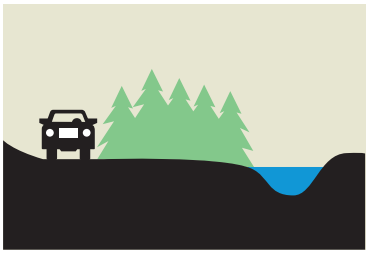
AVOID THIS OPTION



ACCEPTABLE OPTION



BEST OPTION



Existing Roads

Using existing roads instead of building new roads can sometimes be more cost-effective and can have fewer environmental impacts.

Evaluate existing roads for maintenance needs, future uses, and necessary upgrades to meet Forest Practices Rules.

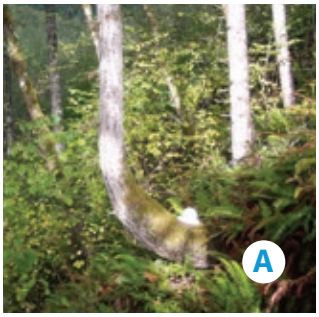
Consider using existing roads and landings if:

- They are in appropriate locations and fit your needs
- New construction will have more impacts on resources than using old roads

Sometimes existing roads are in unsuitable places. For instance, you wouldn't want to use an old road or skid road that parallels a stream, has little or no vegetation between it and a stream, or one that goes straight up a natural drainage channel.

Consider consulting with professionals to help identify erodible soils and slide prone areas, which may be characterized by:

- Steep slopes
- Clay soils
- Uneven topography
- Pistol-butted (curved) trees
- Slumps, dips, and cracks
- Evidence of previous slides



A Trees with pistol-butts (curved) can indicate the soil may be unstable and therefore unsuitable for road building.

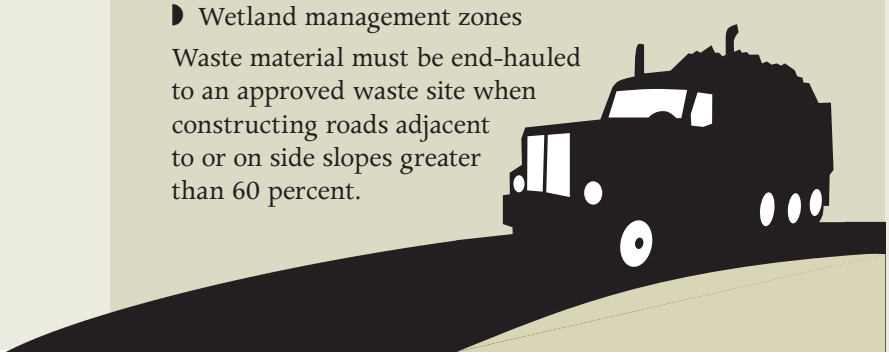
B This road would need to be evaluated for future use. Was the road failure caused by improper culvert sizing or was it caused by something else?

End Hauling

Good road location and design eliminates or minimizes end hauling, which is the removal of excavated materials from the site. However, end hauling will be necessary if there is potential for displaced materials to enter:

- Type A or B wetlands (see page 85)
- The 100-year flood level of any streams.
- Wetland management zones

Waste material must be end-hauled to an approved waste site when constructing roads adjacent to or on side slopes greater than 60 percent.



FPA/N FOREST PRACTICES APPLICATION HINT

Locations where end hauling will take place, as well as spoils disposal areas, must be indicated on the activity map submitted with a FPA/N.

FOREST PRACTICES MANUAL

For more information on end hauling, please see **Board Manual Section 3**: Guidelines for Forest Roads and **Board Manual Section 16**: Unstable Slopes.

Landings

Landings are areas where logs are brought during a harvest before they are loaded on a truck. Due to the high use landings receive, they have the potential to impact soils and deliver sediment to nearby waterways.

- Review the road design plan with the logging operator to minimize the number of landings and ensure that they are not larger than necessary for safe operation.
- Locate landings on well-drained areas. Slope the surface of the landing to drain water onto the forest floor.

Avoid:

- Excessive cuts and fills
- Constructing landings on soils with potential for erosion
- Constructing landings adjacent to streams or wetlands

Landings cannot be located in the following areas:

- Natural drainage channels
- Channel migration zones
- Core and inner zones of riparian management zones
- Type Np (non-fish perennial) Riparian Management Zones
- Sensitive sites
- Within 30 feet of any Type Np or Ns (non-fish seasonal) stream
- Type A & B wetlands or their Wetland Management Zones

When constructing landings, fill materials should be free of loose stumps and other woody debris. These materials can cause the landing to fail and potentially deliver sediment to streams.

If the landing will be used in wet weather, make sure sufficient rock has been added to the surface to prevent rutting and that adequate drainage devices have been installed.

ACTIVITY MAP

The location of landings must be shown on the activity map submitted with a FPA/N.

Locate landings on well-drained areas. Slope the surface of the landing to drain water onto the forest floor.

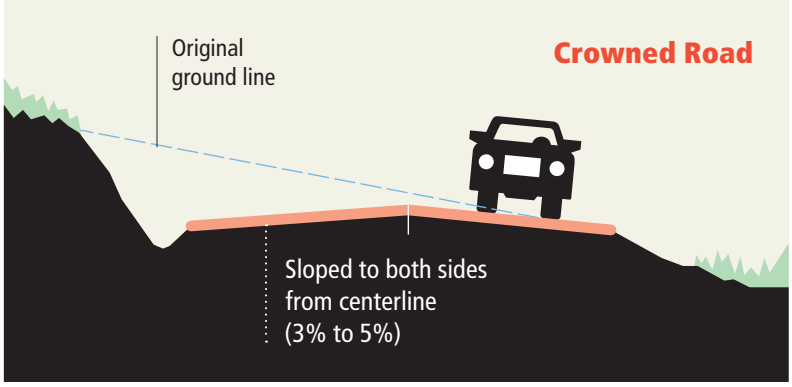
Drainage

Controlling water on and adjacent to roads is essential to protecting both the structure of a road and the surrounding environment. Water runoff, if not managed properly, can lead to rutting, slumping of road fill, erosion of roadbed material, and ultimately sediment entering the stream.

Various strategies can be used to control water and effectively move it away from a road and onto the forest floor where it will not damage either a landowner's investment or water quality. The following illustrations show strategies for shaping the surface of the road to control water runoff:

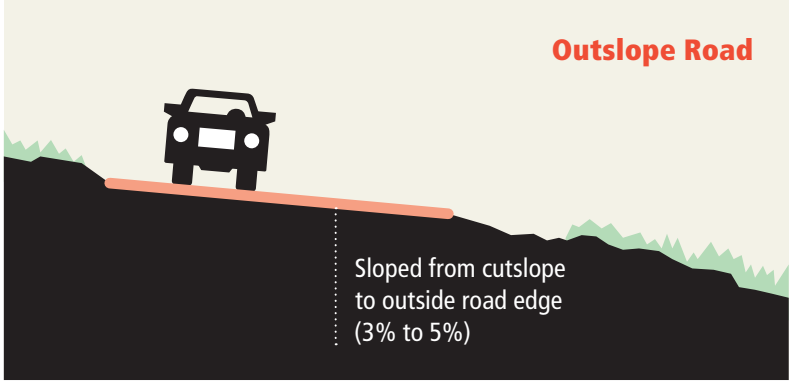
FOREST PRACTICES MANUAL

For more information on grading and when to use crowned, out-sloped, or in-sloped roads, please see **Board Manual Section 3**: Guidelines for Forest Roads.



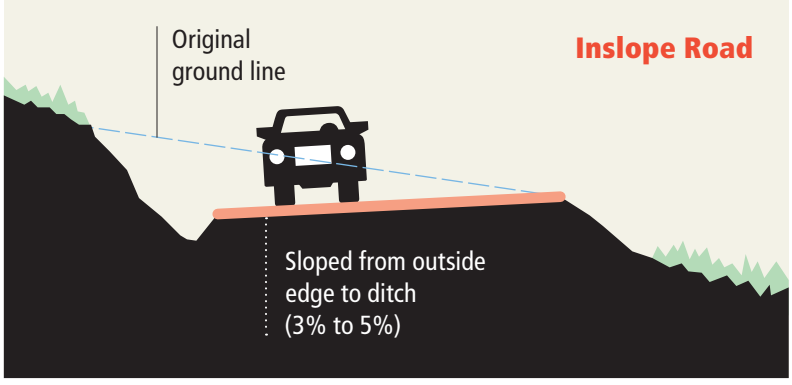
WHEN TO USE

- On high use roads.
- When the road, ditches and other drainage structures can be routinely maintained.
- On double-lane main hauling roads.
- During periods of slippery or icy road conditions.
- Effective on any road grade.



WHEN TO USE

- On gentle grades (< 8%).
- Where constructing and maintaining ditches is not possible.
- On low use or unused roads.
- In areas where the outslope can be maintained to prevent rutting.



WHEN TO USE

- Surface drainage needs to be carried to a ditch.
- If outsloping would cause fill erosion.
- To avoid runoff from directly entering a stream.
- Slippery road conditions.
- On steeper road grades.

Ditches

Well-constructed ditches are essential to maintain proper drainage.

Ditch water should not flow directly into streams and wetlands. Water collected in ditches should be directed to the forest floor or other vegetated areas at regular intervals through ditch-outs or relief culverts.

Seeding ground cover or installing sediment filters, such as straw bales or rock weirs, in ditches helps:

- Catch and filter sediment
- Reduce velocity of water
- Reduce maintenance

Clean ditches only as needed to maintain water flow. Some vegetation in the ditch may help reduce erosion. Clean catch basins as needed to keep them functional.

A When needed, use sediment traps, especially when ditch water cannot be re-routed to the forest floor before entering streams or wetlands.

B Exposed soils on edges of roads can be seeded with native grasses or clover to minimize surface runoff.

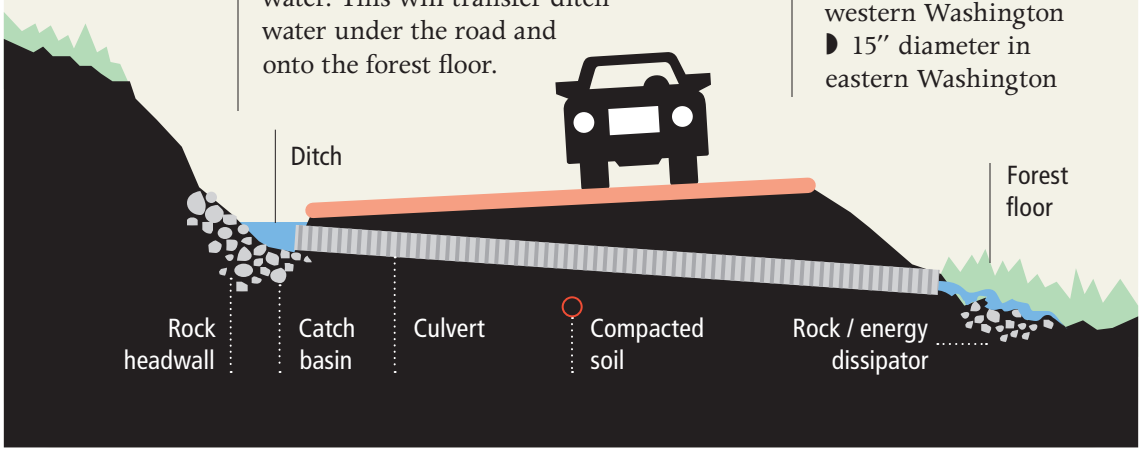
Relief Culverts

WHEN TO USE

Install relief culverts to manage and control ditch water. This will transfer ditch water under the road and onto the forest floor.

RELIEF CULVERTS MUST BE AT LEAST

- 18″ diameter in western Washington
- 15″ diameter in eastern Washington



Drainage Structures

Drainage structures are used to deliver road runoff collected from ditches onto the forest floor or vegetated areas. They include relief culverts, water bars, rolling dips, and ditch-outs. Drainage structures minimize erosion of ditches and should be placed frequently enough to reduce sediment from entering water.

Use culverts, energy dissipaters, or a DNR-approved alternative when necessary to:

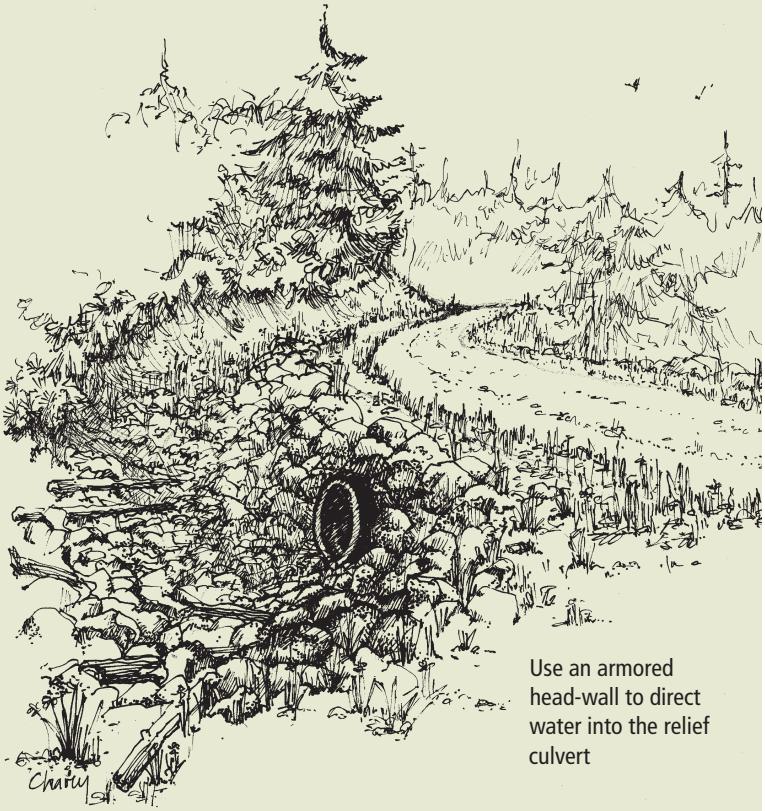
- Protect road surfacing
- Protect fill slopes
- Return water to its natural course
- Reduce the water velocity
- Protect the discharge point from erosion

Relief Culverts

Relief culverts or cross drains are very effective for removing ditch and road water.

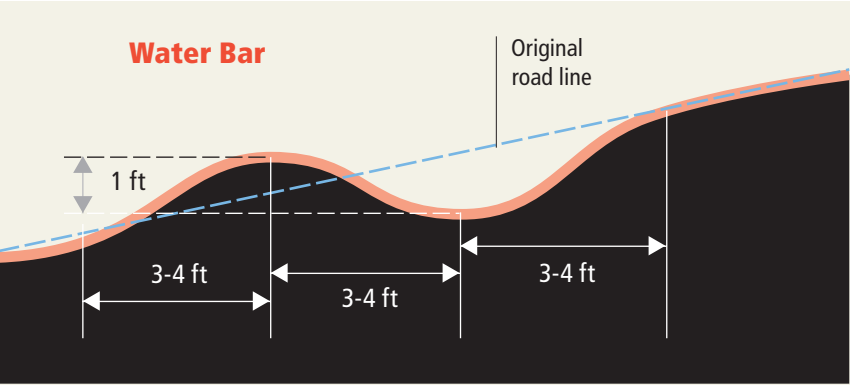
FOREST PRACTICES MANUAL

For relief culverts spacing guidelines, see **Board Manual Section 3**: Guidelines for Forest Roads.

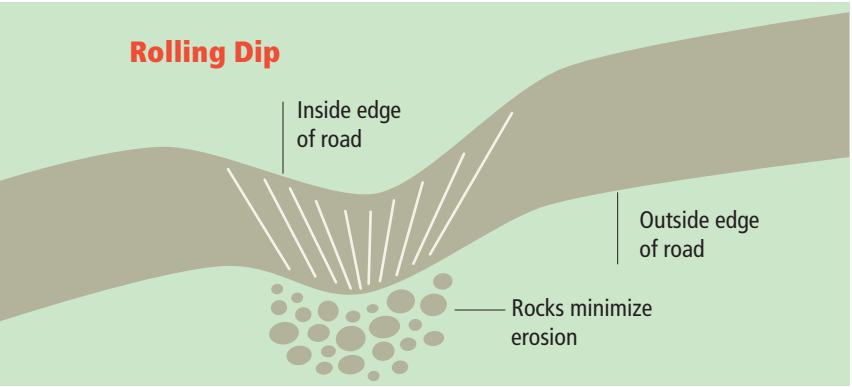


Use an armored head-wall to direct water into the relief culvert

ILLUSTRATION BY JANE CHAVEY / DNR

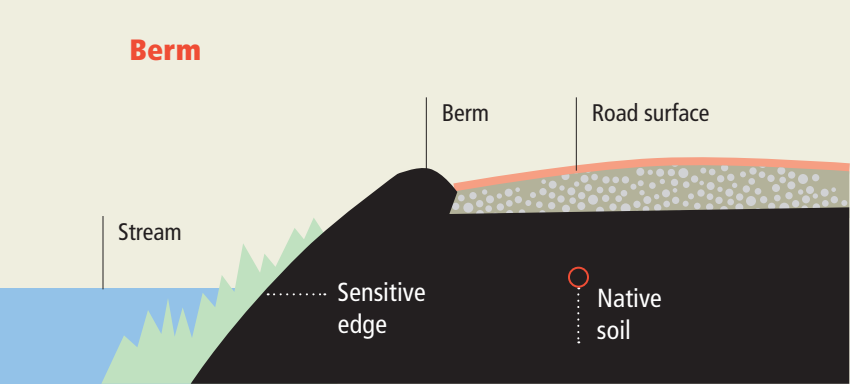


Water bars and rolling dips serve the same purpose – both divert water from ditches and the road surface. A water bar is a small hump built into the road surface that runs the width of the road at an angle sufficient to drain water to either a ditch, the forest floor, or a vegetated surface. Water bars are most effective on low-use roads because they require frequent maintenance.

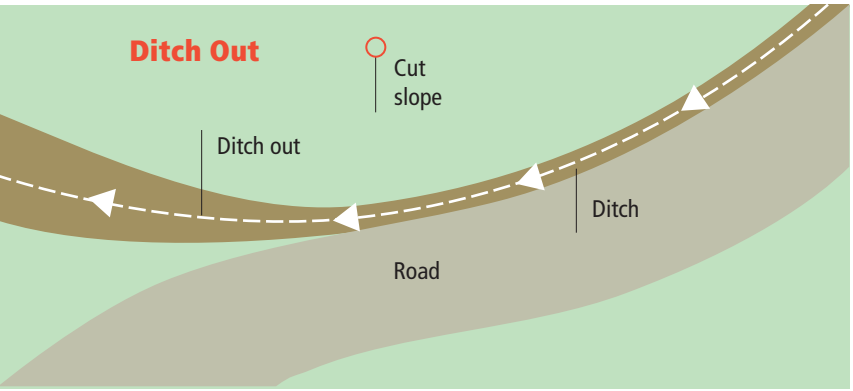


A rolling dip is a gentle roll in the road surface, sloped to carry water to the outside edge of the road. Use energy dissipaters, such as rocks, at the outlet of both water bars and rolling dips to minimize erosion.

Rolling dips should be constructed to accommodate truck haul if that is the intended use of the road.



Berms are constructed by using a grader to create short earthen barriers along the edge of a road. Berms are good to use where a road parallels a stream or wetland. Berms should be kept to a minimum length. Any water that flows along the berm edge needs to be routed to the forest floor in an area that will not affect a stream or wetland. In most cases, an insloped road surface is a better option.



Another type of ditch relief structure that can be used in some instances to route ditch flow to the forest floor is a **ditch out**. Use ditch outs when the terrain allows ditch water to be drained away from the road on the same side the ditch is on. These structures are most common on ridge tops and switchbacks. Ditch outs should not be used where water will drain toward an unstable slope or directly into a stream or wetland.

Stream Crossing Structures

Washington State has very specific requirements for sizing and locating stream crossing structures (such as bridges, culverts, or fords). Structures over fish habitat streams must be designed to allow fish passage for all life stages. Structures over non-fish habitat streams must be designed to handle flood events.

If you plan to install a stream crossing structure you will need to submit a FPA/N. Your FPA/N serves as your request to the Washington State Department of Fish and Wildlife (WDFW) for their Hydraulics Project Approval (HPA) permit.

After you submit the FPA/N, a field biologist from WDFW may contact you requesting additional information to issue a HPA, which may be required when work is done in or near fish habitat streams or wetlands.

Specific protection measures for streams will be identified in your HPA. In general, it will tell you:

- When the structure can be installed
- Minimum sizes of structures relative to the size of the stream
- Design requirements
- When to remove structures, if necessary
- When and where to plant or seed disturbed soils
- Other special requirements

Culverts in Fish Habitat Streams

Each permit will have size and installation requirements for culverts. *See photo above.*

Culverts in Non-Fish Habitat Streams

Each permit will have size and installation requirements for culverts. Both FPA/N and HPA rules require:

NP STREAMS

Must pass 100-year flood with consideration for passage of woody debris

Must be at least 24" diameter in Western and Eastern Washington

NS STREAMS

Must be at least:

18" diameter in Western Washington

15" diameter in Eastern Washington

FOREST PRACTICES MANUAL

For guidance on sizing culverts, see **Board Manual Section 3**: Guidelines for Forest Roads.

Culverts in Fish Habitat Streams

Culverts in fish habitat streams are sized to allow all fish species to pass during all life stages (fry to adult). Washington State Department of Fish and Wildlife regulates the installation of culverts on fish habitat streams and can provide assistance with culvert sizing.

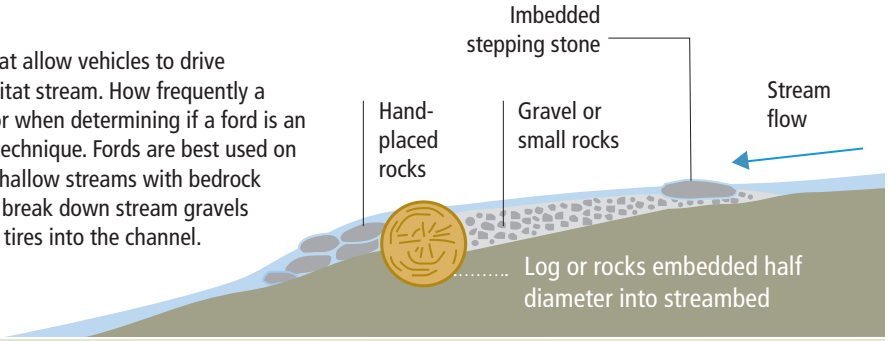
Bridges

Bridges are used to cross large streams or streams that transport large amounts of woody debris. For wide stream channels, bridges are often preferable to large culverts as they can be less expensive and less complicated to install. Earth embankments near bridges should be protected to prevent erosion during times of high water. Road runoff should be diverted before it reaches the bridge to prevent sediment from entering the stream.

A well-constructed bridge allows the stream to function more naturally.

Fords

Fords are stream crossings that allow vehicles to drive directly across a non-fish habitat stream. How frequently a road is used is the main factor when determining if a ford is an appropriate stream crossing technique. Fords are best used on rarely used roads that cross shallow streams with bedrock bottoms. Frequent traffic will break down stream gravels and deliver mud from vehicle tires into the channel.



Temporary Crossings

Temporary stream crossing structures typically are short, pre-manufactured bridges that are laid across a stream during a harvest and then removed when the harvest is complete. If a stream crossing is needed to access small areas of timber or is needed for harvest, a temporary crossing is a practical option. They also are useful on complex crossings where fish passage is difficult or on roads where washouts are likely. Often, the long-term maintenance cost of a permanent crossing will exceed the cost of installation, making temporary crossings more economical. The crossing can usually be restored to the original condition. In more complicated instances, temporary crossings may be the only option due to the risk of damage to natural resources.

Permanent and temporary stream crossing structures must be indicated on the activity map submitted with a FPA/N. Temporary structures can only be used for one season and must be abandoned when indicated on the FPA/N.

Maintaining Roads During Harvest Use

Forest road surfaces can soften due to rain or periods of thawing. Using roads in the wet season can cause fine sediment to enter streams through muddy runoff water. The mixture of fine sediment and water is also known as "turbidity." Turbidity refers to the very small, dissolved materials that remain suspended in water and prevent light from penetrating. Consistently high turbidity levels can cause stress to fish, affect fish feeding rates, impair their homing instincts, and reduce growth rates. Sediment also can smother fish eggs and affect aquatic insect life.

Cold Weather

When plowing snow for winter timber harvest, it's best to leave two to four inches of snow on the surface. It is also advisable to provide breaks in the snow berm to allow road drainage; however, avoid locating breaks where road runoff will drain to streams or wetlands. Remember, wheel tracks in the snow will channel meltwater down the road instead of to the forest floor.

Post-Harvest Maintenance

After harvest, make sure drainage structures are functional. Inspect and maintain culvert inlets and outlets, drainage structures, and ditches so that water continues to move across or under the road and doesn't cause erosion. Provide effective road surface drainage, such as water bars, crowned and/or out sloped surfaces, and sediment traps.

Road Surfacing BMP

Surfacing can increase the cost of a forest road. However, covering the dirt surface with more weather resistant material reduces the amount of sediment entering water. By reducing the risk of soil erosion, road surfacing may also extend your operating season.

Usually, rock is used to provide this durable surface. The best type of rock for this purpose should be hard with sharp corners (fractured), a mix of sizes, along with adequate fines (very small pieces); try to avoid using round rock. Fractured rock packs better and makes a more durable road surface. The fines seal the surface from water, making it resistant to breakdown under heavy traffic. Sometimes adequately fractured rock, called pit run, can be dug directly from quarries. In other cases, rock needs to be crushed, sized, and mixed to provide a quality aggregate product. Rock surfacing needs to be deep enough to prevent serious rutting.

Use rock with sharp corners (fractured) to reduce the risk of soil erosion. Fractured rock packs better and makes a more durable road surface.

Covering the dirt surface with more weather resistant material reduces the amount of sediment entering water. By reducing the risk of soil erosion, road surfacing may also extend your operating season.

Check for ditches, culverts, water-crossing structures, water bars, flumes, and energy dissipaters that may be blocked, eroded or not functioning.

Suggestions for Success

The following list has suggestions to help you achieve management objectives while protecting long-term investments and public resources. These suggestions may exceed Forest Practices Rules.

☐ Regularly inspect roads for maintenance needs before, during, and/or after:

- Stormy weather
- Freeze-thaw conditions
- The spring thaw or winter wet season
- Log hauling or heavy traffic
- The end of dry season prior to the start of the wet season

When inspecting roads:

☐ Check for ditches, culverts, water-crossing structures, water bars, flumes, and energy dissipaters that may be blocked, eroded or not functioning.

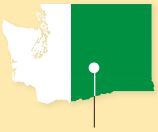
☐ Check for evidence of cracking, rutting and poor drainage in the road surface.

☐ Schedule repairs for identified problems.

When plowing snow from roads in:

WESTERN WASHINGTON

- Try to avoid snow plowing roads; if you must, don't disturb the road surface.



EASTERN WASHINGTON

- Plow roads, leaving 2-4 inches of snow on the surface.

General Maintenance Strategies

Grading at appropriate times helps extend the life of your road by maintaining proper drainage and preventing pooling of excess water, which can damage the sub-grade.

☐ Avoid grading roads unnecessarily or when soils are saturated or excessively dry.

☐ Install and/or replace culverts during the dry season.

☐ Check road surface material prior to harvest or heavy use, and especially during the rainy season; additional surfacing material may be needed.

☐ Mark culverts on the ground before grading.

☐ Do not use roads during excessively wet or freeze/thaw conditions.

☐ Reduce any sediment that has the potential to enter streams or wetlands; measures include using fabric or spreading straw to stabilize surfaces prone to erosion and not using the road.

☐ Control roadside vegetation, but if using chemicals, keep them away from streams and wetlands.

☐ Exposed soil can be seeded with native grass or clover along roadsides to help control erosion, provide forage, and minimize vegetation maintenance costs.

☐ Limit unwanted use/access.

Maintenance of orphaned roads is not required, but if the road poses a risk to public resources or safety, the location must be noted on your RMAP.

On-Going Maintenance

Road maintenance is the ongoing responsibility of the landowner, even after the forest practices operation is completed. Roads must be maintained to prevent damage to public resources.

Be aware of early signs of road damage, such as ruts. They indicate that the road is deteriorating. Serious damage to road surfaces starts with excess and standing water. Both are a sign of road drainage problems. Avoid damage by properly sloping the road surface so water runs off onto the forest floor.

Road surfaces should maintain a stable running surface and provide functional surface drainage. Avoid grading sections of road that do not need it. Grading creates a source of sediment by loosening the compacted surface. Raise the blade where grading is not needed. Grading active haul roads during rainy weather may cause sediment to enter streams and can damage the road surface.

Significant amounts of road surfacing can be lost as dust. Applying water can decrease dust. Occasionally, other dust abatement materials are used, such as oil and other chemicals. However, these can be pollutants, and caution should be used near streams and wetlands. (Please see the Chemical Use chapter on page 120.)

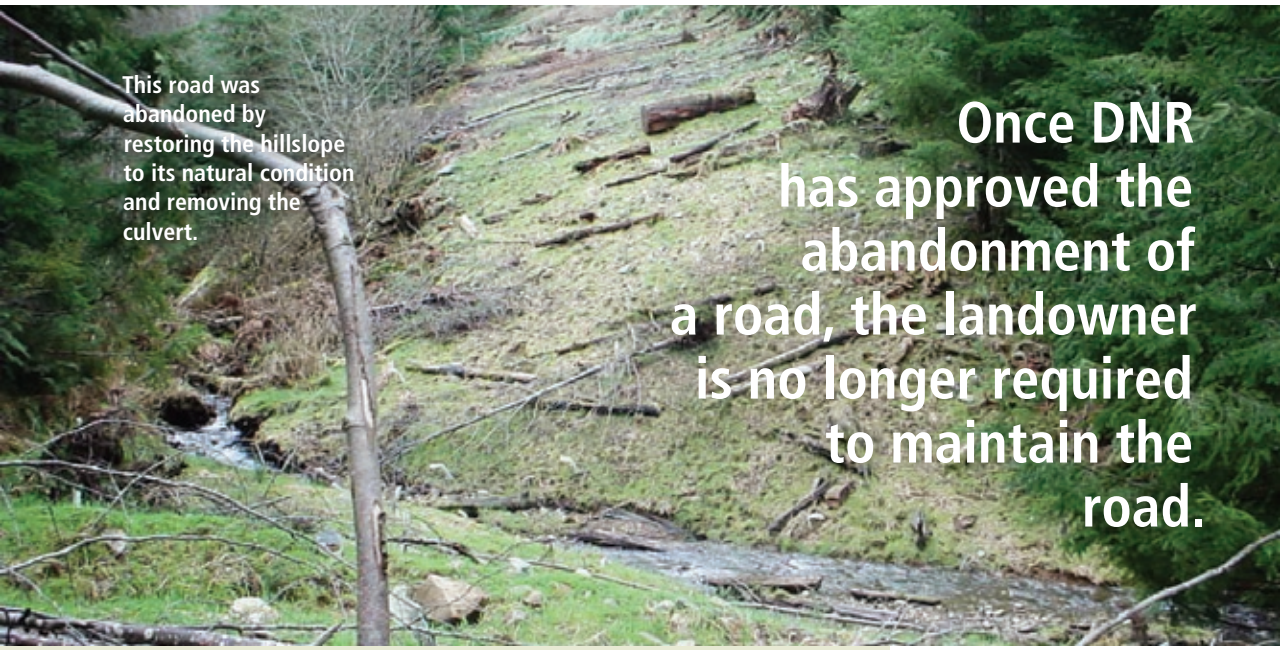
▲ Orphaned Roads

An orphaned road is a road or railroad grade that the forest landowner has not used for forest practices activities since 1974. If orphaned roads pose a risk to public resources or public safety, their location must be included on the map submitted with a landowner's Checklist RMAP.

Control Roadside Vegetation

CONTROL ROADSIDE VEGETATION TO:

- Increase visibility for drivers
- Allow sunlight to dry out the road surface
- Minimize organic debris falling on the road and blocking drainage



This road was abandoned by restoring the hillslope to its natural condition and removing the culvert.

Once DNR has approved the abandonment of a road, the landowner is no longer required to maintain the road.

Access to this road has been blocked.

ACTIVITY MAP

Roads that will be abandoned must be shown on the activity map submitted with a FPA/N and can only be used for one season. They must be abandoned before the FPA/N expires.

Abandonment

Forest roads that no longer need to be used can be abandoned. To abandon a road, many factors must be considered, the most important of which are the road's location and potential impacts to public resources.

Abandonment strategies may involve the removal of stream crossing structures and unstable road fill, installing water bars, revegetating exposed soils, and other similar techniques. In many cases, it may be cheaper to abandon a road than to maintain it, especially if the road is not likely to be used for many years. DNR must approve the roadwork before the road can be considered abandoned. After DNR has approved the completed work associated with the abandonment plan, the landowner is no longer required to maintain the road.

ANY FOREST ROAD MAY BE ABANDONED BY FOLLOWING PROPER PROCEDURES, WHICH MAY INCLUDE:

- Minimizing erosion
- Ensuring roads do not inhibit water movement through wetlands
- Leaving ditches in a condition that reduces erosion
- Removing bridges, culverts, or fords
- Stabilizing cuts and removing fill
- Blocking vehicle access
- Installing erosion control measures, such as water bars
- Seeding exposed soils to control erosion

Suggestions for Success

The following list has suggestions to help you achieve management objectives while protecting long-term investments and public resources. These suggestions may exceed Forest Practices Rules.

☑ **I have read the Forest Roads chapter**

☐ **Assemble property information**

- Forest practices activity map
- Forest practices resource map
- Aerial photos
- Property deeds, surveys, or real estate contracts
- Check with DNR for information on sensitive wildlife species and cultural resources
- Check for legal access and obtain if necessary

☐ **Determine purpose of road network**

- Length of time needed (long-term for future activities such as thinning, tree planting, future harvest, permanent culvert/road vs. temporary culvert/road)
- Year-round or seasonal use
- Method of harvest

☐ Locate all

- Streams and wetlands within 200 feet of the road and verify water typing
- Bogs or low nutrient fens; roads should not be constructed in these areas
- Potentially unstable slopes or landforms (See **Board Manual Section 16**: Guidelines for Evaluating Potentially Unstable Slopes and Landforms)

FOREST PRACTICES MANUAL

- Property lines and harvest area boundaries
- Existing roads and landings
- Rock sources, if needed

☐ Properly design and locate roads to:

- Follow contours of the terrain to take advantage of natural drainage
- Minimize potential for erosion
- Accommodate harvest and transportation needs
- Minimize number of landings
- Minimize cuts, fills, and stream crossings
- Meet safety considerations

☐ If building roads in difficult terrain and/or unstable areas, a qualified expert's report may be necessary

☐ To minimize impacts to public resources, avoid:

- Excessively steep terrain
- Potentially unstable slopes and landforms
- Multiple crossings over the same stream
- Filling, draining, and crossing wetlands
- Roads that parallel wetlands and streams
- Narrow canyons
- Excessive number of roads
- Large cuts and fills
- Road gradients greater than 12 percent
- Areas of historical, cultural, and archaeological importance (see page 20 for more information)

☐ Plan for the proper number, size and location of

- Culverts
- Turn-outs
- Wide curves
- End-haul and spoil disposal areas

☐ If placing culverts, bridges, or fords in fish habitat streams:

- Contact the Washington State Department of Fish and Wildlife for information and requirements at (360) 902-2200

☐ To assist the road construction operator and in preparation for filling out the Forest Practices Application/Notification activity map make a simple map showing:

- Property and harvest unit boundaries
- Physical features, e.g., streams, wetlands, steep slopes, etc.
- Road locations

☐ Obtain all required permits from city, county, state, and federal agencies

☐ Communicate your plans with neighbors, adjacent landowners, and Washington Tribal governments

☐ Plan for long-term road maintenance