

## **WATERBARS**

Waterbars are constructed on roads, skid trails, and landings to help minimize the volume of water flowing over these exposed areas and to remove water to places where it will not cause erosion. These guidelines, if utilized, will help reduce erosion and meet the requirements of the Road Construction and Harvesting Rules of the Forest Practices Act. On roads with regular vehicular traffic, rolling dips may be preferable to waterbars. Guidelines for these will be covered in a later NOTE.

Location:

1. Space waterbars (W) to prevent concentrations of water and to remove runoff water from disturbed and unstable soil areas. Spacing will depend on soil type and slope. Suggested guidelines are included in Table I, Water Bar Spacing Guide.
2. Precaution should be taken to prevent the direct entry of runoff into live streams. Water flowing off the waterbar should flow onto rocks, slash, vegetation, duff, or other less erodible material. Don't divert water to other skid trails or bare ground, especially loose soil.
3. Place waterbars above changes in grade to prevent water from flowing down steeper portions of roads or skid trails.
4. Place waterbars above intersections of roads, skid trails, and landings to prevent water from flowing over these disturbed areas.
5. Place waterbars so that diverted water will not flow onto lower parallel skid trails or roads.
6. Avoid water accumulations on landings by careful placement of waterbars above landings. Crossditch, waterbar, or outslope landings to prevent puddling.
7. Runoff water from waterbars should not be directed onto fill material unless a down spout or other energy dissipator is provided and the water is drained away from the fill.
8. Avoid placing waterbars in swales, gullies, or low areas where the water has no escape. Place waterbars above these areas.

Table I  
WATER BAR SPACING GUIDE

Road Grade %	Soil Type		
	Granitic or Sandy	Shale or Gravel	Clay
2	900	1000	1000
4	600	1000	800
6	500	1000	600
8	400	900	500
10	300	800	400
12	200	700	400
15	150	500	300
20	150	300	200
25+	100	200	150

Distances are approximate only, and should be varied to take advantage of natural features.

Construction:

1. Waterbars are generally constructed with a blade equipped tractor, however, hand constructed waterbars may be desirable in some locations.
2. Each waterbar should be cut into the solid soil below dust or loose soil to a depth of at least 8 inches.
3. Each waterbar should have a continuous, firm berm of soil built at least 12 inches above the normal road grade downhill, and parallel to the waterbar cut.
4. All waterbars need to be open at the lower end so water can easily run off. Hand shovel work may be necessary to insure free flow of water out of the waterbar. Hand shovel work during and after rainfall may also be necessary to maintain effective waterbars.
5. The size of the waterbar will depend on the anticipated amount of precipitation, erodibility of the soils, and vehicular traffic. Increases in these factors require larger waterbars.
6. Avoid driving tractors over constructed waterbars. This may be achieved by beginning waterbar construction at the bottom and working up the skid trail or road.

Alignment:

1. Alignment is the angle of the waterbar to the direction across the skid trail or road.
2. Alignment should not be straight across (perpendicular to) the road but angled downward, normally not more than a 45° angle, to catch and direct runoff water to the waterbar outlet.
3. Puddling of water behind a water bar is not good practice; the puddle area may become filled with sediment and the waterbar may fail as continuing runoff flows downhill.

NOTE: Forest Practices Notes is distributed monthly to all those involved with the logging industry. Its purpose is to provide information useful in the reduction of natural resource damage. Additional copies are available through any office of the State Forester.

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