



STATE FOREST NOTES

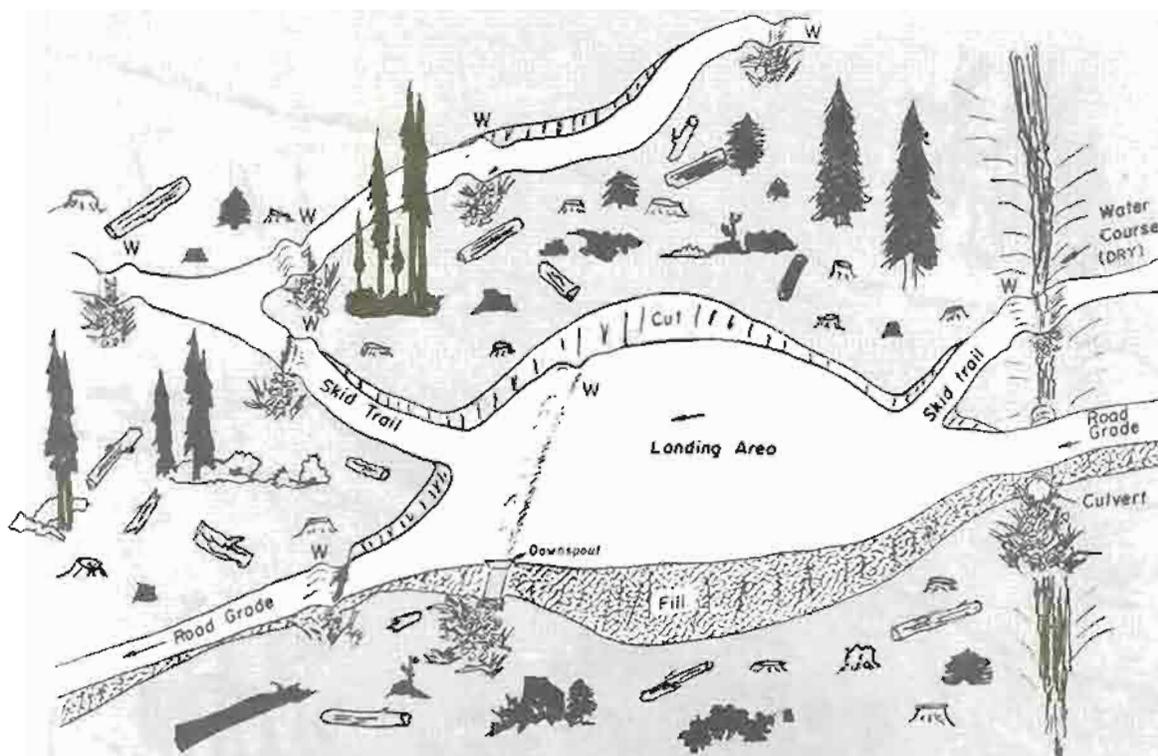
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WATERBREAKS

WATERBREAKS ARE CONSTRUCTED ON ROADS, SKID TRAILS AND LANDINGS TO HELP MINIMIZE THE VOLUME OF WATER FLOWING OVER THESE EXPOSED AREAS AND REMOVE WATER TO PLACES WHERE IT WILL NOT CAUSE EROSION. THESE GUIDELINES, IF UTILIZED, WILL HELP REDUCE EROSION AND MEET THE REQUIREMENTS OF THE FOREST PRACTICE ACT.

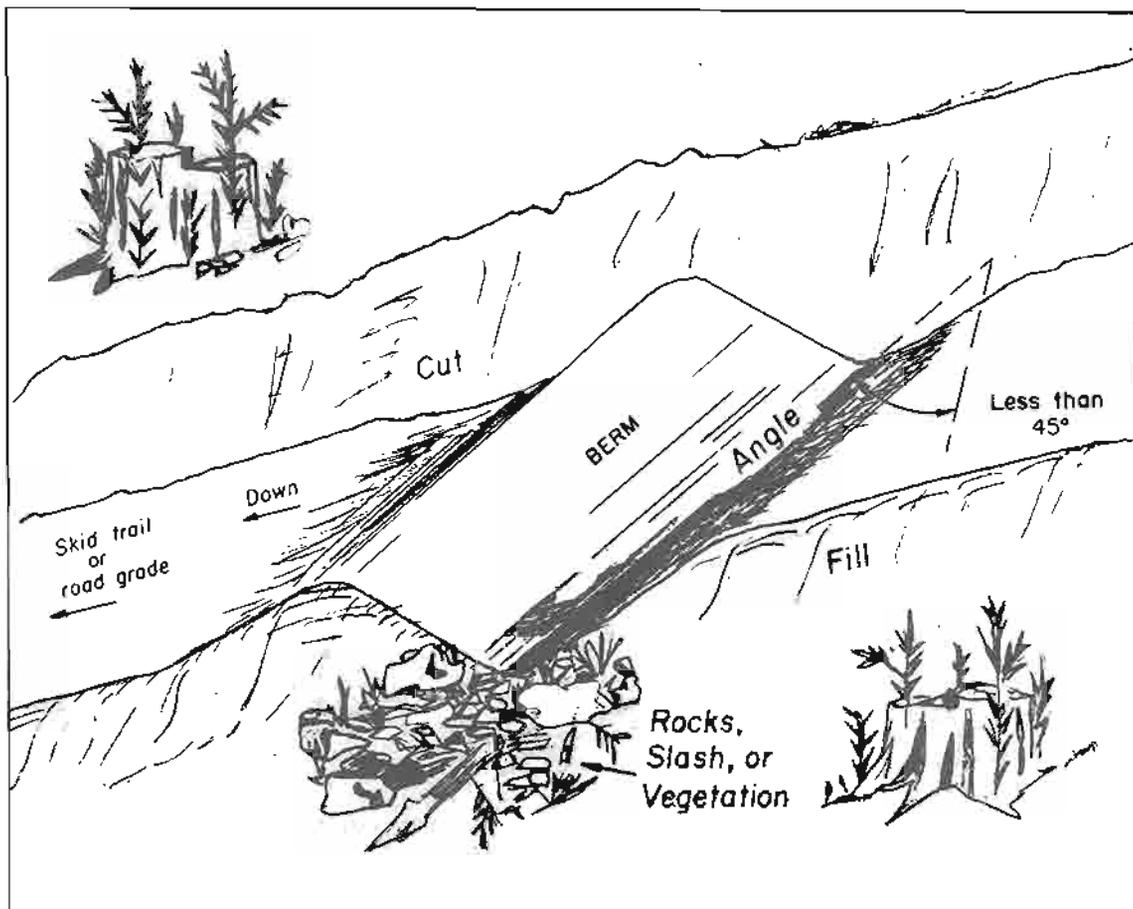


Location:

1. Space waterbreaks (W) to prevent concentrations of water volume and to remove runoff water from disturbed and unstable soil areas. Spacing will depend on the appropriate District Forest Practice Rules utilizing the erosion hazard rating guides and slope of the ground, and the following factors.
2. Where possible place the waterbreak to divert all runoff into a natural water course. Water flowing off the waterbreak should be 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 waterbreaks above changes in grade to prevent water from flowing down steeper portions of roads or skid trails.
4. Place waterbreaks above intersections of roads, skid trails, and landings to prevent water from flowing down over these disturbed areas.
5. Place waterbreaks so that diverted water will not flow onto lower parallel skid trails or roads.
6. Avoid water accumulations upon landings by careful placement of waterbreaks above landings. Crossditch, waterbreak, or outslope landings to prevent poddling.
7. Runoff water from waterbreaks 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.

Construction:

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



Alignment:

1. Alignment is the angle of the waterbreak to the direction across the skid trail or road.
2. Alignment should not be straight across (perpendicular to) the road but angled downward, never more than a 45° angle, to catch and direct runoff water to the waterbreak outlet.
3. Puddling of water behind a waterbreak is not acceptable, the puddle area may become filled with sediment and the waterbreak may fail as continuing runoff flows downhill.

Note: These guidelines should be used together with the erosion control requirements in the District Forest Practice Rules, Sections 915.5, 935.4 and 955.1 of Title 14, California Administrative Code. On access roads that will have vehicle traffic, rolling dips should be used instead of waterbreaks. Guidelines for this feature will be covered in another State Forest Note.