

Erosion and Sediment Control Measures

2.2 Cut-outs



A *cut-out* (also known as water bar) is a constructed channel that directs stormwater from a track.

Cut-outs are also used to *decommission* roads or tracks after an operation is completed, to control stormwater *run-off*.

They are simple to construct, effective, and easily maintained. They may be used to divert stormwater into stormwater or *sediment* control measures like *flumes* or *sediment* traps.

Cut-outs are one of a family of stormwater control measures that increase the life of the road or track and road *water table* by reducing erosion and maintenance costs. They can also reduce the likelihood of *sediment* delivery to *rivers*.



Effective *cut-out* on harvesting extraction track.

This guide is provided as a reference document and does not constitute a statutory obligation under the Resource Management Act 1991 or the National Environmental Standards for Plantation Forestry.

Please refer to the 'how to use' section of the introduction at <http://docs.nzfoa.org.nz/forest-practice-guides/> for advice on how to use this guide.

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A Where and when to use

1. Use *cut-outs* to direct stormwater:
 - a. On all tracks as necessary to control stormwater on the track.
 - b. On roads that have been *decommissioned* as necessary to control stormwater.
 - c. On low volume roads where road *culverts* have been removed and access is required.

B Where not to use

Not applicable for this FPG.

C Design

1. Consider *cut-out* location as part of road or *landing sediment* and/or stormwater control measures.
2. Where there are highly erodible soils, consider additional measures (e.g. armour the *water table* or *berm*) if *cut-off* spacing is restricted by the terrain.

D Construction

1. Construct sufficient *cut-outs* to reduce the volume and velocity of *run-off* to reduce the erosive power of the water.
2. Locate *cut-outs* where the outlet would not cause additional erosion.

E Maintenance

1. Prepare a routine maintenance plan including heavy rainfall response measures.
2. *Cut-outs* need regular maintenance, especially on new construction.
3. Check critical *cut-outs* to ensure they are functioning after a heavy rain event.

F Other methods

1. *Water tables* and road drainage *culverts*, *flumes* and *berms*.
2. *Cut-outs* also complement *sediment* control measures such as *sediment traps*, *soak holes*, *sediment ponds* and *slash bunds*.

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G Technical specification guidelines

The following table is for recommended *culvert* spacing and can be used as a guide for *cut-outs*.

Grade	Soil or rock erodibility – separation distance in metres			
	High	Moderate	Low	Non-erosive rock
18% (1 in 6)	40	80	120	200
14% (1 in 7)	50	90	140	220
12% (1 in 8)	55	100	160	240
11% (1 in 9)	60	115	180	260
10% (1 in 10)	65	130	210	300
8% (1 in 12)	80	165	250	350

National Environmental Standards for Plantation Forestry

Relevant regulations for *sedimentation* are 26, 27, 31, 33, 56.

Contact

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Other Practice Guides in this series

- 2.1 Water Tables
- 2.2 Cut-outs**
- 2.3 Berms
- 2.4 Road Drainage (Stormwater) Culverts
- 2.5 Flumes
- 2.6 Sediment Traps and Soak Holes
- 2.7 Silt Fences
- 2.8 Sediment Retention Ponds

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