



Managing Flood Debris Works on Waterways

INFORMATION SHEET

All works and activities in, under, on or over the bed and banks of designated waterways in Victoria require a permit from the relevant Catchment Management Authority. <https://www.necma.vic.gov.au/About-Us/Programs-Initiatives/Undertake-Works-on-Waterways>

BACKGROUND

Management of flood debris in and along waterways may be needed when accumulated timber is impacting on fencing, pumps and other private or public infrastructure, blocking access or has potential to/or is causing excessive bank erosion. The management of flood debris (woody debris) and fallen trees in streams may be undertaken to:

- Reduce bank erosion that is directly linked to the accumulated wood or fallen trees,
- Restore flow capacity that was available prior to the blockage occurring, and
- Protect public and private infrastructure, such as bridges and roads.

IS FLOOD DEBRIS GOOD OR BAD?

In many instances, the need to remove flood debris is obvious, such as for clearing fences, culverts and bridges.

However, it is often not necessary, or even desirable, to remove all debris after a flood.

In addition to potential habitat benefits, debris often captures sediment and slows down or disrupts flows and can thus be of future benefit to reducing impacts of flooding. Debris and deposits can also assist in the natural stabilisation of the waterway.

WHAT DOES FLOOD DEBRIS CONSIST OF?

- Inorganic debris such as fencing, sheets of iron, tyres and chemical drums are all common things to encounter when clearing flood debris – **expect the unexpected and be prepared to be able to handle this material safely and responsibly.**
- Debris that is predominantly made up of willow branches (or even entire up-rooted willow trees) should always be removed. Willow debris will take root and grow within the waterway. This often leads to the establishment of islands within the waterway that tend to cause “outflanking” types of erosion. Willow debris is also very light – it readily floats



- and so is highly susceptible to being swept away to cause further damage elsewhere in future events.
- Native Hardwood debris is usually less common than willow, however can certainly still cause issues. The advantage of hardwood timber in waterways include:
 1. Hardwood (e.g. *Eucalyptus* trees) is heavy, with a greater density than water and so tends to sink, or at least is much more resistant to being re-mobilised.
 2. Native hardwood dies once it has been uprooted, and so does not lead to issues of “living islands” within the waterway common with willow debris.
 3. Native hardwood timber is durable, and can have long lasting benefits to the waterway in terms of habitat, trapping sediment and reducing erosion (particularly when placed against the bank – see below)

HOW MUCH DO I NEED TO REMOVE AND FROM WHERE?

Removal of debris is costly and time consuming, so focus on what is important, where there is an impact to something, rather than being overwhelmed by the idea of removing it all.

- **Focus on critical infrastructure threats first** – fences, bridges, culverts and erosion around major blockages that may place assets at risk are the priority.
- Debris that has lodged mid-stream should be the focus of additional removal efforts, rather than debris that is trapped against the banks.
- A debris blockage that extends **more than a third** of the way across the waterway should be a higher priority than lesser quantities; blockages of less than a third of the width of the waterway are far less likely to cause future trouble with obstruction or erosion.
- All **willow debris** should generally be removed.
- Small diameter, loose material of mixed timber types should generally be removed, although occasionally this material can form dense rafts against stream banks (usually when caught on an existing stump) that capture sediment and help commence healing, or stabilisation, of the bank.
- **Fallen hardwood trees should generally not be removed in their entirety**, except where causing an immediate threat or damage. Rather, swing the tree towards the bank until it is less than 45 degrees to the direction of flow, with the heads (branches) facing downstream. If safe to do so, lop branches that stick straight up in the air – these protrusions are far more likely to catch further debris that may lead to problems in the future. Lopping to reduce the overall canopy bulk whilst retaining the trunk and larger branches is the ideal way to deal with very large trees.

HOW SHOULD I REMOVE FLOOD DEBRIS?

Removal of debris can impact on the waterway if not carried out correctly. Excessive removal and “clean-up” is likely to trigger further erosion and instabilities across a large area. To minimise the risks, observe the following precautions:

- Ensure you have a works on waterways permit, from the Catchment Management Authority, prior to commencing.
- Disturbance to the bed and banks of the waterway must be kept to a minimum.

- Works should be undertaken with machinery that is suitable for excavating or grabbing material with minimal impacts to the waterway. Rubber tyred (e.g. front end loaders or tractors fitted with stick rakes), or machines that have a long reach (e.g. excavators) are the most desirable items of equipment. Bulldozers are highly disruptive and have no place in waterways.
- Machinery activity should be undertaken from the top of the bank of the waterway, where possible.
- Any debris removed from the waterway must be left in a manner where it cannot slip or be moved by future floodwaters, into the waterway.
- Burning out debris blockages in waterways is not a solution. This approach can lead to further pollution of the waterway, is unsafe and incomplete burns usually only serve to loosen debris piles that are subsequently swept downstream to cause future issues. There is also the risk that hidden inorganic pollutants may be within the debris pile that could create significant pollution issues.

LANDHOLDERS WORKING ON WATERWAYS

All works and activities in, under, on or over the bed and banks of designated waterways in Victoria require a permit from the relevant Catchment Management Authority.

This process is to enable works to happen while ensuring that the works do not adversely affect the health and values of waterways.

The North East CMA waive the permit application fee for all works on waterways applications for the removal of flood debris following significant flood events.

More information, and the application form, can be found at: <https://www.necma.vic.gov.au/About-Us/Programs-Initiatives/Undertake-Works-on-Waterways>

