# Removing vegetation from waterways

## Current recommended practice

greenadelaide.sa.gov.au

GREEN ADELAIDE

# Contents

# Part 1

## 1.1 What is the purpose of this document?

This Green Adelaide Current Recommended Practice (CRP) outlines the procedure that applies if you are planning to remove vegetation in or near a waterway within the Green Adelaide region. It sets out whether a water affecting activity (WAA) permit is required for the activity, and how the activity must be undertaken to be exempt from a WAA permit.

This document is in three parts:

- Part 1 guides you in determining whether or not a permit (and/or other approval) is required.
- Part 2 sets out the outcomes that MUST be achieved, if the activity will be undertaken under this procedure and without a permit.
- Part 3 provides information and guidance on methods that can be used to ensure the required outcomes are achieved.

Note: in this procedure, the term 'waterway' includes creeks, rivers, lakes, springs, wetlands, on-stream dams, estuaries and other natural watercourses, whether modified or not. The procedure also applies to the floodplains of these waterways.

## 1.2 Background

Under the *Landscape South Australia Act 2019,* specific activities that affect waterways in the Green Adelaide region can only be undertaken with a WAA permit. These activities are set out in sections 104(3) and 104(4) of the Act.

The Green Adelaide Board has approved that WAA permits are not always required if the activity is undertaken in line with an agreed CRP, such as this procedure. These CRPs have been developed to encourage landholders to properly manage waterways. There are penalties that may apply if you undertake activities without the necessary permit, or if you don't follow this procedure correctly.

## 1.3 How do I use this procedure?

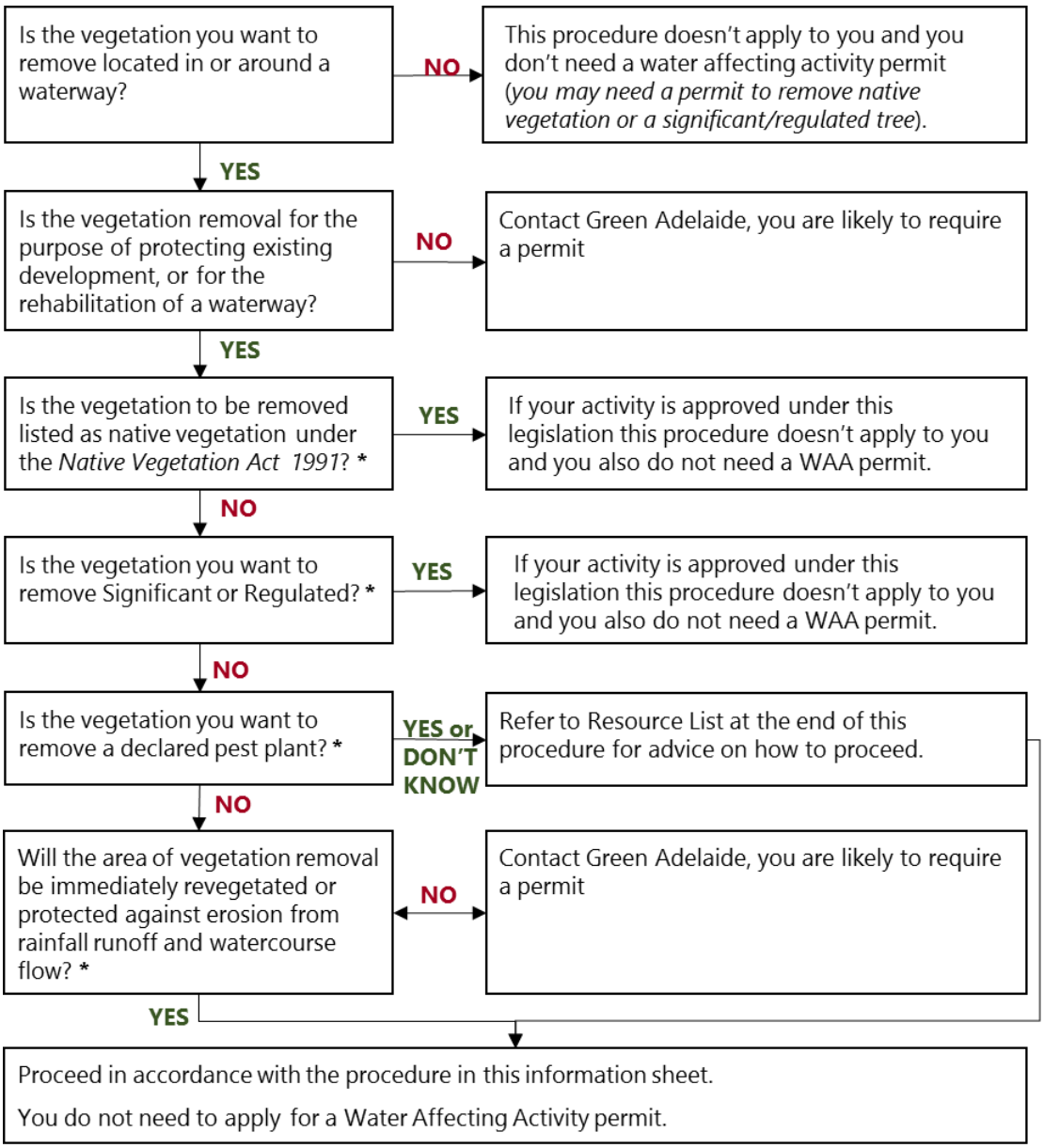
1. Confirm whether your property is in the Green Adelaide area, consulting the map at greenadelaide.sa.gov.au/about-us#ourarea or by contacting Green Adelaide.

2. Use the decision tree below to check whether you can undertake your activity without a WAA permit. If you are not sure, contact Green Adelaide.

3. If you need to apply for a permit, go to greenadelaide.sa.gov.au/discover/water-plans-permits

4. If you determine that you do not need a WAA permit, you should then read Parts 2 and 3 of this procedure carefully, before going ahead with your vegetation removal. Make sure you understand the required outcomes and follow the described methods which will help you to achieve these outcomes.

# 1.4 WAA Permit requirement decision tree




Whether you require a permit or are exempt, it is a good idea to talk to any neighbours or others that share waterway or floodplain ownership with you about the activities you're proposing. The destruction or removal of vegetation is likely to impact on them and their property. If you share a boundary or easement, you may be legally obliged to consult other property owners.

# Part 2

## 2.1 Required outcomes

To comply with this procedure, you must achieve the outcomes identified in the following table. Further information on required outcomes is available in Green Adelaide's Water Affecting Activity Control policy at greenadelaide.sa.gov.au/discover/water-plans-permits

**If the work method you propose is different to the advice presented in this procedure, or if you are unable to meet any of these required outcomes, you must contact Green Adelaide to discuss your situation before proceeding.**

| Outcome | How to achieve the outcome |
|---|---|
| Vegetation shall be destroyed only where it is for the protection of existing development or infrastructure, or rehabilitation of a waterway. | • Be clear about the objectives of the vegetation removal.<br>• Refer to Part 3, planning for and undertaking vegetation removal. |
| Vegetation destruction or removal must not result in increased erosion. | • Refer to Part 3, Timing of works. |
| Vegetation destruction or removal must not result in increased flooding. | • Refer to Part 3, Control methods – Remove vegetation cuttings. |
| Vegetation destruction or removal must not result in bed and bank instability. | • Refer to Part 3, Timing of works. |
| Vegetation destruction or removal must not result in downstream sedimentation. | • Refer to Part 3, Timing of works. |
| Vegetation destruction or removal must not result in decline in water quality. | • Refer to Part 3, Timing of works. |
| Vegetation destruction or removal must not result in alteration to the natural flow regime of a waterway. | • Choose the vegetation control method in Part 3 that best allows you to protect vegetation that is not targeted for removal for the purpose of protecting existing development or infrastructure, or rehabilitation of a waterway |
| Vegetation destruction or removal must not result in destruction of significant habitat for wildlife. | • Refer to Part 3, Control methods. |

# Part 3

## 3.1 Methods for destroying or removing vegetation

This part of the procedure provides you with guidelines and information to assist you in achieving the required outcomes set out in Part 2.

### Planning for and undertaking vegetation removal

Careful consideration and planning will ensure your work is successful. Before you start, consider the following.

1. Know your waterway or floodplain by:
    - observing your waterway or floodplain for 12 months if possible
    - understanding how flow, water height and width changes with the seasons.

2. Be clear and precise about what you want to achieve by considering the following:
    - creating a safe and liveable environment
    - protecting your property by maintaining stormwater flow to minimise potential flood damage to built and agricultural assets (including crops)
    - improving habitat for native fauna, including insects, fish, birds, mammals and reptiles.

3. Be aware of the potential unintended consequences such as:
    - impacting on the natural habitat or biodiversity of the area by removing vegetation
    - increasing erosion by removing vegetation at the wrong time, from the wrong place or with no plan
    - elevated localised ambient and water temperatures as soils and hard surfaces heat up with reduced shading.

### Timing of the works

Depending on the method used, vegetation removal along waterways and floodplains generally begins in late Spring, and accompanying revegetation completed by the following winter. To achieve the outcomes of avoiding sedimentation or decline in water quality, it is strongly recommended that you treat or remove vegetation along waterways which are subject to seasonal flow at times of low or no water flow, usually in late spring and summer. If you are unsure of the best time of year to remove your vegetation, please contact Green Adelaide.

When applying herbicides, you must consider the required outcome of not causing a decline in water quality or affecting habitat. If applying herbicide, you should always follow the product instructions, and never apply when rain is forecast. Herbicides are generally most effective during spring and summer when plant growth is strongest. Further information on when to target particular weed species can be found at pir.sa.gov.au/biosecurity/weeds and weeds.org.au.

### Control methods

Different removal methods are effective on different weed species and trees of different ages. Methods range from hand-pulling seedlings when the soil is moist, vegetation cutting and removal, and careful and targeted use of herbicides.

More mature trees may need to be cut down, with or without the subsequent application of herbicide, and usually require follow up treatment. There are special requirements for herbicide use you must observe when working around water which include choosing safe products and following correct methods of application. Herbicide spray drift of fine spray droplets can cause damage to the surrounding plants, aquatic animals and people.

The range of control methods approved to achieve the required outcomes in this procedure is summarised below. Depending on the vegetation control you're considering, the least invasive, chemical free methods are always preferred.

It is also important to monitor areas where vegetation has been removed to identify and treat new regrowth. It may take several attempts to successfully remove the target vegetation.

**Hand pulling:** Hand pulling is suitable where there is a small number of plants with roots that are not too deep. Ensure the majority of the root has been removed and minimise soil disturbance. Ensure that any disturbed soil is tamped down. This can be achieved by filling holes left by uprooted vegetation and compacting the soil to reflect the natural ground profile. If the plant has the ability to reshoot from fragments or has mature seeds attached, carefully pull, bag, remove and destroy the plants appropriately, taking care not to spill seeds along the way.

**Grubbing and / or digging out:** This method involves digging plants out using a tree popper, mattock, spade or hoe and is suitable for a small number of plants. It can be used for removing single stemmed plants with stems from 6 cm to 1.5 meters high (diameter must be 8 cm or less). A great deal of soil disturbance and subsequent erosion can result, so ensure that disturbed soil is tamped down. This can be achieved by filling holes left by uprooted vegetation and compacting the soil to reflect the natural ground profile. Roots and branches must be removed and disposed of appropriately away from the waterway.

**Cut and paint / swab:** The main stems or trunks are cut off at the base (as low as possible to the ground) using a chainsaw, axe, brush cutter or other cutting device, and the stump immediately painted or sprayed with an approved herbicide in accordance with the label instructions. Apply the herbicide promptly (within 10-15 seconds) before the plant begins to seal the cut preventing penetration of the herbicide into the sap stream. You can cut or grind the main stems or trunks to ground level, but you should leave the stem and root ball below ground level in place to reduce erosion risks.

Make sure you observe safe practices when using chemicals, and always wear personal protective equipment.

**Drill and fill:** Use a drill to make 45-degree angle holes into the plants' cambium layer (where sap flows just beneath the bark layer). Holes should be at least 4 cm deep (deeper for trees with thick bark). Fill the hole with an approved herbicide within 3 seconds before the plant seals the cut preventing penetration of the herbicide into the sap stream. Repeat every 2.5–5 cm around the base of the plant until it has been circled. For this method to be effective, the trunk diameter should be no smaller than 5 cm.

This method results in leaving the dead trees standing and may be appropriate where access to completely remove the tree will be difficult and damaging to the surrounding area, or where you want to leave the tree in place for habitat.

Make sure you observe safe practices when using chemicals, and always wear personal protective equipment.

**Chipping /frilling:** Similar to the drill and fill method, however a small hatchet, narrow-bladed axe or chisel with a mallet is used to frill or chip the outer layers of the trunk at 45-degree angles, exposing the cambium layer. These cuts must circle the entire trunk at approximately 2.5–5 cm intervals at about waist height. Immediately apply an approved herbicide to the exposed cambium. To be effective, the trunk diameter should be no smaller than 5 cm.

This method results in leaving the dead trees standing and may be appropriate where access to completely remove the tree will be difficult and damaging to the surrounding area, or where you want to leave the tree in place for habitat.

Make sure you observe safe practices when using chemicals, and always wear personal protective equipment.

**Foliar application**: The targeted and careful application of herbicide using a handheld spray unit or brush to wipe leaves can be used to treat herbaceous and grassy non-native vegetation. As for other chemical treatment methods, only use herbicides approved for the intended purpose in accordance with the label instructions. Never apply when rain is forecast, or when it is windy. Never spray herbicides over pooled or flowing water, and always apply facing away from the waterway.

Make sure you observe safe practices when using chemicals, and always wear personal protective equipment.

**Remove vegetation cuttings**: For all methods, vegetation cuttings or material should be removed so that it does not create litter, reduce water quality or result in flow blockage (and flooding) concerns downstream. Some vegetation species can regrow from cuttings and attached seeds present opportunities for plants to re-establish on your property as well as downstream.

## Special considerations when working around water

You may need specialist equipment to control vegetation that is difficult to reach or located within pooled or flowing water. In these situations, it is strongly recommended that you engage qualified weed control contractors to do the work.

Only treat or remove vegetation if you are able to safeguard the area against soil erosion, rainfall, water flow or wind immediately following works using the methods outlined in this procedure. Even non-native vegetation can be better than no vegetation in safeguarding against erosion and providing some habitat, so if removing vegetation, you must be ready to revegetate the area treated.

The table below sets out the timing of vegetation removal activities depending on the removal method, which should be followed to make sure the required outcomes are achieved.

| Vegetation type | Location | Removal Method | Timing of works |
|---|---|---|---|
| Trees (including saplings) | Bed | 1. Hand pulling<br>2. Grubbing/digging out<br>3. Cut and paint/swab<br>4. Drill and fill<br>5. Chipping/frilling<br>6. Foliar application | Methods 1-6. Low rainfall months when waterway is dry or experiencing little or no flow.<br><br>Methods 4-6. Spring and Summer, when sap flow is strongest. |
| | Bank | 1. Hand pulling<br>2. Grubbing/digging out<br>3. Cut and paint/swab<br>4. Drill and fill<br>5. Chipping/frilling<br>6. Foliar application | Methods 1, 2. Any time of year.<br><br>Methods 3-6. Spring and Summer, when sap flow is strongest. |
| Understorey (the layer of vegetation beneath the tree canopy, includes bushes and shrubs) | Bed | 1. Hand pulling<br>2. Grubbing/digging out<br>3. Cut and paint/swab<br>4. Foliar application | Methods 1-4. Low rainfall months when waterway is dry or experiencing little or no flow.<br><br>Methods 3, 4. Spring and Summer, when sap flow is strongest. |

| | | | |
|---|---|---|---|
| | Bank | 1. Hand pulling<br>2. Grubbing/digging out<br>3. Cut and paint/swab<br>4. Foliar application | Methods 1, 2. Any time of year.<br><br>Methods 3-6. Spring and Summer, when sap flow is strongest. |
| Aquatic* (plants growing within and under water) | Bed | 1. Hand pulling<br>2. Grubbing/digging out | Methods 1, 2. Low rainfall months when waterway is dry or experiencing little or no flow. |
| Herbaceous/ grasses<br>(plants with little or no woody tissue) | Bed | 1. Hand pulling<br>2. Grubbing/digging out<br>3. Foliar application | Methods 1-4. Low rainfall months when waterway is dry or experiencing little or no flow. |
| | Bank | 1. Hand pulling<br>2. Grubbing/digging out<br>3. Foliar application | Methods 1-3. Any time of year. |

* Remember that common reeds and bulrushes are native plants, and are protected by the Native Vegetation Act 2003.

# Part 4

## 4.1 Help and further information

### Resource list

- Green Adelaide Water Affecting Activity Control policy – greenadelaide.sa.gov.au/discover/water-plans-permits
- *Landscape South Australia Act 2019* - legislation.sa.gov.au
- Native Vegetation Clearing Maps and information – environment.sa.gov.au/topics/native-vegetation/clearing/maps
- Regulated and significant trees - sa.gov.au/topics/planning-and-property/land-and-property-development/property-development/regulated-and-significant-trees
- Controlling declared weeds in SA - pir.sa.gov.au/biosecurity/weeds/controlling-weeds

### Aboriginal Cultural Heritage

There are legal responsibilities regarding Aboriginal Cultural Heritage when carrying out works on or around waterways in South Australia. For further information visit - agd.sa.gov.au/aboriginal-affairs-and-reconciliation

## Green Adelaide can help

If you are still unsure whether you require a permit or not, please contact Green Adelaide for assistance.

Waterway vegetation removal must be undertaken at the right time and in the right way, and Green Adelaide can help ensure your works are best suited for your site.

This is a free service and is aimed at ensuring the best outcome for you, your property and your waterway.


Green Adelaide

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Note: This document is a **Current Recommended Practice** procedure approved by the Green Adelaide Board, as provided for in Section 2.1 of the *Green Adelaide Water Affecting Activity Control Policy*. The purpose of these procedures is to set out what the board considers to be the most appropriate approach, methodology and/or design for undertaking activities pursuant to section 104 of the *Landscape SA Act 2019*, and the circumstances under which there may be an exemption from the requirement for a Water Affecting Activity permit.