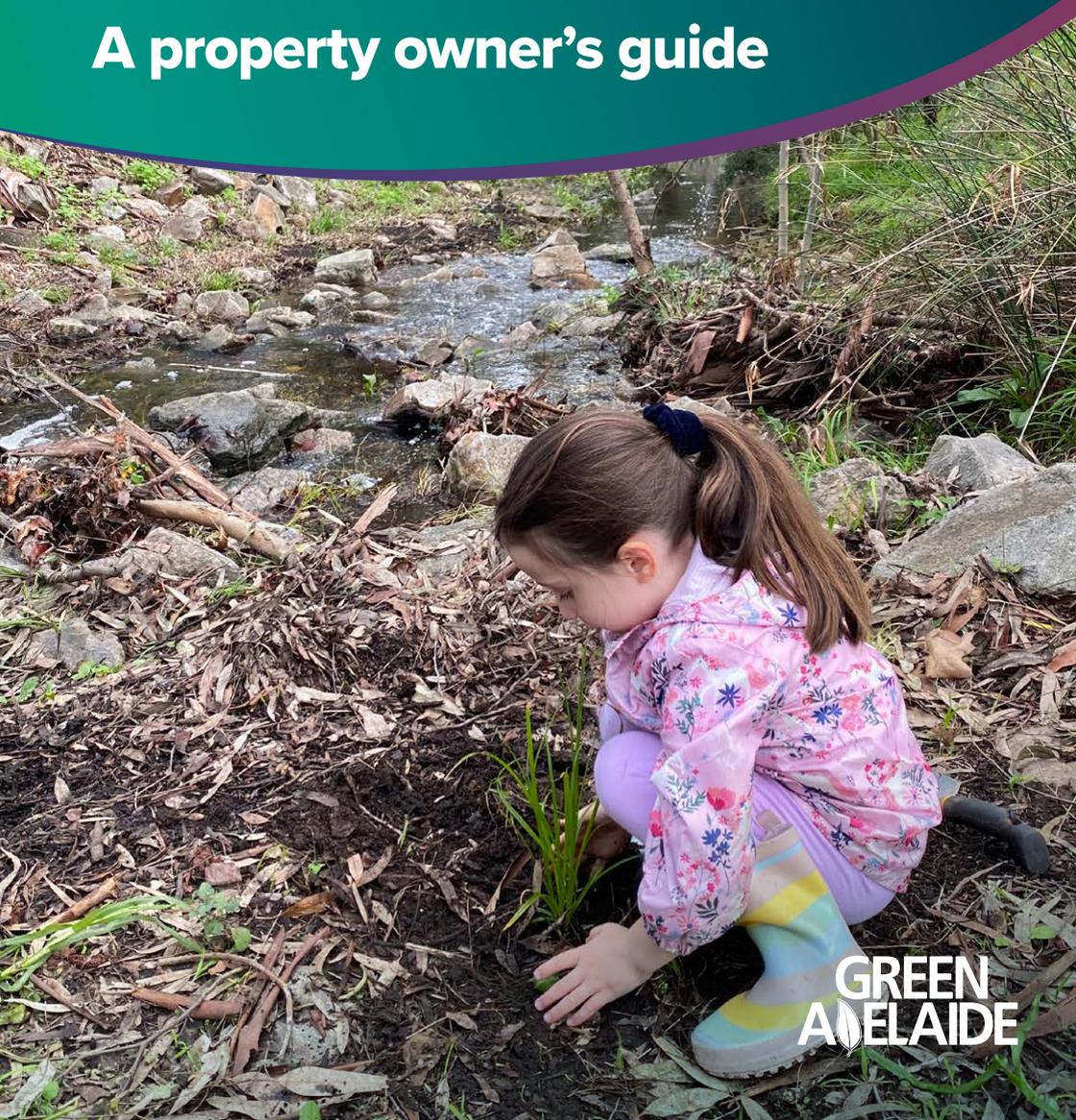


Looking after waterways

A property owner's guide



**GREEN
ADELAIDE**

Recognition of Kurna Miyurna and Yarta

We acknowledge and respect the traditional owners of the Adelaide Plains - the Kurna Miyurna (Kurna people) and are committed to strengthening relationships with them through our partnership with Warpulai Kumangka (meaning 'working together').

Warpulai Kumangka is a high level strategic advisory group to Green Adelaide. The group provides guidance on environmental and cultural matters.

This collaboration is an innovative, world-leading model for cultural engagement in the environmental sector, and strengthens shared visions for the future.

We work with Warpulai Kumangka to build capacity in the community and raise awareness of Kurna cultural knowledge, values and lore. Through this capacity building, we strive to embed Kurna Cultural Practices and land management methods in environmental projects and activities that are happening on Kurna Yarta (Kurna Country).



'Kardalta Tarntanya'
by Kurna artist
Allan Sumner

This guide has been created to help metropolitan Adelaide property owners to care for waterways in and around their property.

It provides information about your responsibilities, and how you can help keep Adelaide’s creeks, rivers and wetlands healthy.

Contents

Using this guide	3	Tips for managing works around waterways.....	12
Why are healthy waterways important?.....	4	How do you care for waterways?	14
Habitat for native plants and animals	4	Be mindful when building structures	14
Healthy landscapes and coasts	4	Keep waterways clear of debris.....	15
Signs of a healthy waterway.....	6	Prevent and control erosion.....	15
Common problems with waterways.....	7	Minimise your stormwater runoff.....	16
Land ownership and waterways	8	Keep local native plants.....	16
Waterways within a property	8	Remove exotic trees and plants.....	16
Waterways on the property boundary.....	8	Invasive plants and weeds.....	16
Waterways in an easement.....	8	Keep your runoff pollution-free.....	17
What are you responsible for?	9	Tips for planting and revegetation.....	18
Do you need a permit or approval?	10	Preparation.....	18
Water Affecting Activity Permits	10	Planting.....	19
Current Recommended Practices	11		
Development Approvals.....	11		



A message from Warpulai Kumangka

Water features prominently in our Dreaming, our Stories and our Songlines. Our waterways are our lifeblood, the veins of Country that flow and sustain all.

Unfortunately, Kurna waters have suffered greatly due to the ongoing destruction and mismanagement of the land, and this in turn has affected how the land holds and provides water for us. It is imperative for our future to bring our waterways back, as close to their original state as possible.

We can do this by integrating ancient knowledge and land management techniques that recognise and respect the interconnected relationships between all – the waters, the land, the skies; the animals, the plants, the people – into our modern revitalisation practises. When you understand these connections, you understand that caring for Country is holistic, and improves the health of all.

Remember - we are a part of this ecosystem, not separate to it. As we heal Country we are healing ourselves, while ensuring a future for those who walk, grow and flow on these lands long after we have.





Using this guide

Adelaide's urban waterways are the creeks, rivers and wetlands around the metropolitan area. They provide benefits for both people and the environment – and the healthier they are, the greater the benefits.

Healthy waterways provide important habitat for native plants and animals, clean water naturally and move stormwater out to sea.

The actions that you take in and around your property can impact your local waterway. Obstructions such as bridges and fences may interfere with water flow. Exotic trees can contribute to erosion and reduce water quality, while weeds can smother natural habitat.

This guide shows you how to identify a healthy waterway and it outlines the common problems that affect waterways. It explores your responsibilities as a property owner and what you can do to improve the health of your local waterway.

Whether you have a waterway on or near your property or undertake construction, building or restoration work around waterways, this guide will assist you to determine when a permit is required and where to go for further information.

Why are healthy waterways important?

Habitat for native plants and animals

Urban waterways are one of the few remaining natural landscapes in our environment that can support a diverse ecosystem of native plants and animals.

Waterways and their surrounding landscape in the Adelaide metropolitan area, are home to a range of native wildlife with 244 species of birds, 27 mammals, 47 reptiles, 13 freshwater fish and 7 species of frogs.

Natural areas along waterways provide food, water and shelter for animals and form what is called a wildlife corridor. Wildlife corridors connect otherwise isolated areas across the urban landscape, enabling wildlife to move between them and have access to a greater range. This connectivity also promotes greater genetic exchange between wildlife populations, making them more resilient to environmental stresses and change.

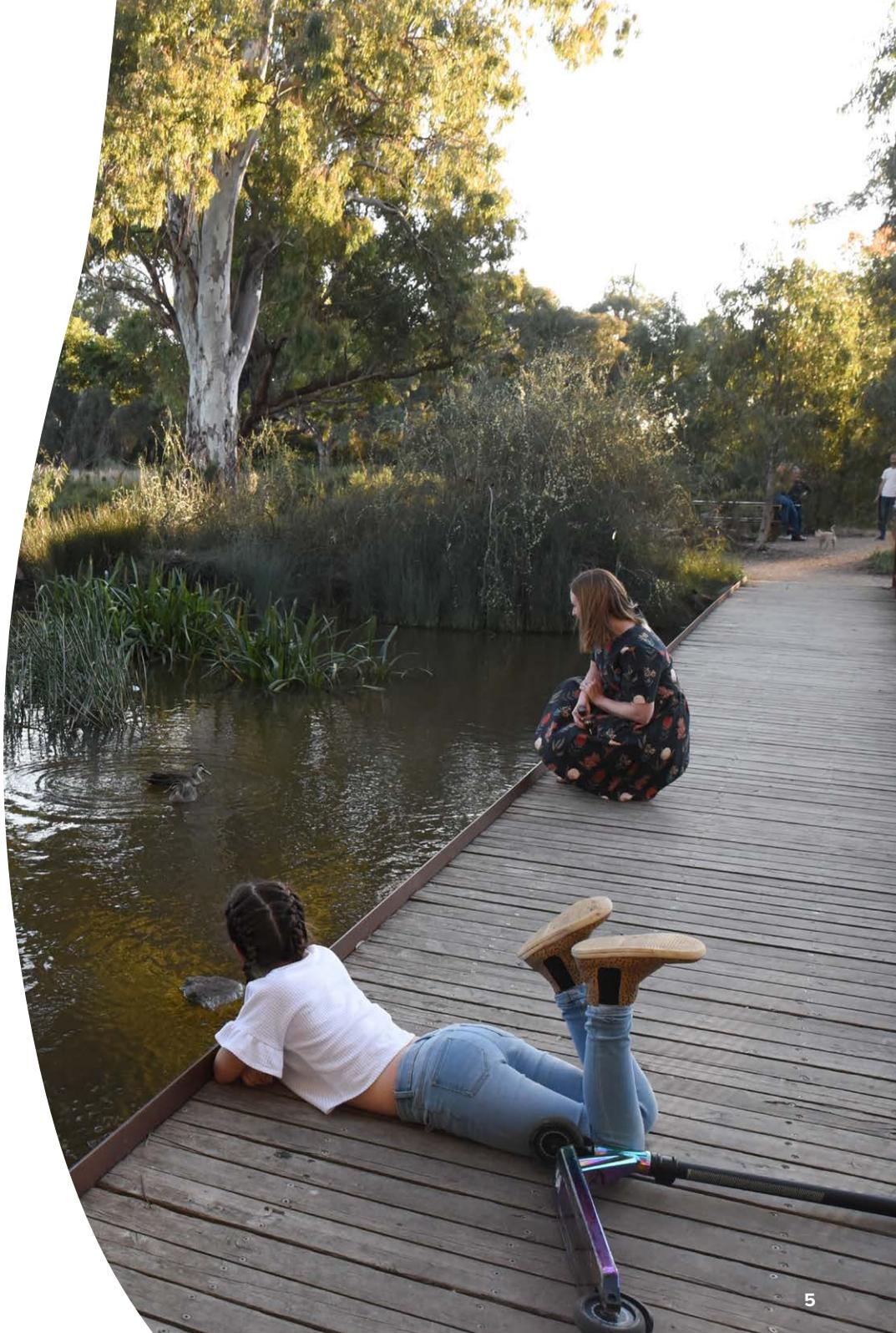
Healthy landscapes and coasts

Waterways collect stormwater runoff from the surrounding urban landscape and your land before flowing downstream to a larger creek or river system and eventually out to sea.

What takes place in the upstream catchment and waterway affects the water quality and condition downstream. Plants and animals that live in or near waterways are vulnerable to changes caused by human actions all along a watercourse. If you live in metropolitan Adelaide, you live in a catchment and have a responsibility to care for it.

Healthy waterways also provide many recreational benefits for the community and create places for people to connect with nature.





Signs of a healthy waterway



Most waterways throughout Adelaide have been modified to allow for urban expansion, protection against flooding and to control erosion. Many have had sections cleared of surrounding vegetation, been widened, straightened, narrowed and sometimes lined with concrete or rock. Despite the urban expansion, some sections still retain natural characteristics including earth and rock channels and surrounding native vegetation.

Healthy waterways can be expected to have the following characteristics:

- stable and intact bed and banks with minimal erosion
- a channel free of major obstructions allowing water to flow downstream
- clean, mostly clear water free from excessive sediment, algae, rubbish and odour
- a good cover of dense and diverse native vegetation
- cool water temperature (the higher the temperature the less oxygen available for aquatic animals)
- thriving native wildlife populations.



Common problems with waterways

Activities that impact negatively on the health of our urban waterways include development on or close to a waterway bed and banks, and unchecked stormwater runoff flowing into waterways. These result in poor water quality and increased flow rate and volume, which in turn can cause flooding and impact on aquatic animals and surrounding habitat. Typical problems impacting the health of our urban waterways include the following:

- an increase (or decrease) in the volume of flow or changes to the timing, duration and seasonal pattern of flows
- unstable, slumping, cracking and eroding banks
- barriers such as fences, walls, weirs, thick vegetation or fallen trees that block or deflect water movement
- excessive soil buildup from bank erosion filling the waterway and reducing its ability to carry floodwaters
- excess nutrients in the water from fertiliser, leaf debris from exotic trees, and dog droppings
- algal growth due to lack of shade and warm water temperatures
- pollutants such as pesticides, oil, grease, metals, dumped yard waste and construction debris
- unsuitable type or location of trees and vegetation.



Land ownership and waterways

Waterways can be located on land owned by an individual or business, on a property boundary, within an easement across your property or in public parks and reserves.

Waterways within a property

There are 3 ways that a waterway can be located on your property, these include:

- it is clearly seen within your block boundary
- it is piped underground and you may see a shallow drainage line
- it is adjacent to your fence and so may be deemed on your property if your fence was not built on your property line.

Waterways on the property boundary

A property boundary can be the centre of a waterway or river that separates you from your neighbour. This means that responsibility is shared between neighbouring property owners.

Waterways in an easement

An easement is a section of land on your property which gives someone else a legal right to use or access that area. Common easements include access roads, shared driveways or an area to allow access for utility providers or councils to perform maintenance.

If a waterway is located within an easement, then the other party could share the responsibility for the waterway and may enter your land to maintain it.

Familiarise yourself with your Certificate of Title as this contains accurate property boundaries and/or the existence of any easements and access and responsibility rights.



What are you responsible for?

If you are fortunate enough to have a wetland, creek or river running through your property, it's your responsibility to help look after it.

Property owners have legislative responsibilities to maintain waterways under the *Landscape SA Act 2019* (the LSA Act), particularly when undertaking any work in or near a waterway, or on its banks or floodplains.

This includes ensuring the waterway is in good condition, water flow can continue through and downstream of your property and that you take reasonable measures to

prevent damage to the beds, banks and to the ecosystems that depend on it. As the owner of land adjoining or including an urban waterway you are required to conduct maintenance and repairs to your section of waterway.

You also have legal responsibilities regarding Aboriginal Heritage when carrying out works on or around waterways. To find out more about Aboriginal sites and objects of significance visit agd.sa.gov.au/aboriginal-affairs-and-reconciliation



Do you need a permit or approval?

You may need approval to undertake certain activities along or near a waterway as it can have adverse impacts on the health and condition of the waterway and the ecosystems that depend on it.

The permits or approvals involved are a Water Affecting Activity Permit from Green Adelaide, Development Approval from your local council and/or follow a Current Recommended Practice detailed by Green Adelaide.

Water Affecting Activity Permits

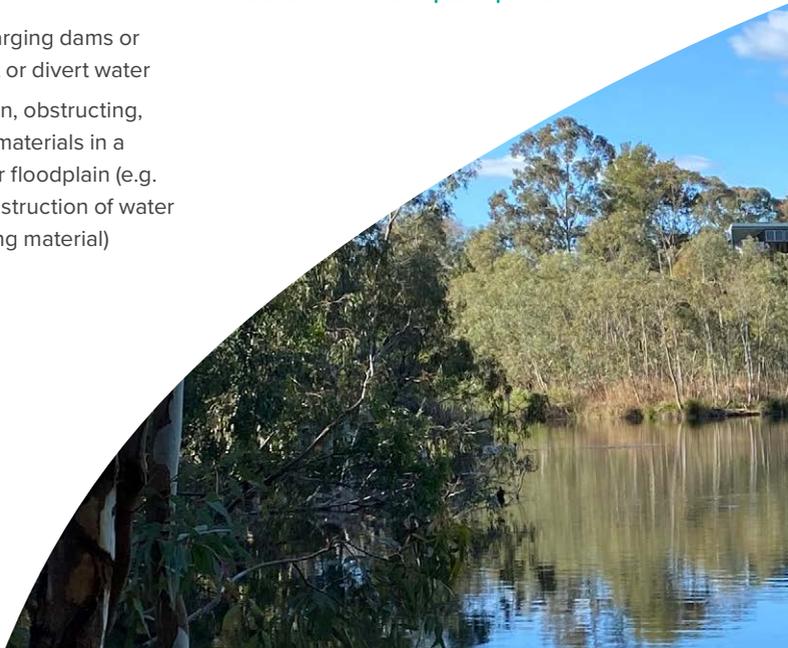
There are a number of activities that are identified under the LSA Act as Water Affecting Activities and may require a permit to be issued by Green Adelaide. These include:

- constructing or enlarging dams or structures to collect or divert water
- building structures in, obstructing, or depositing solid materials in a watercourse, lake or floodplain (e.g. erosion control, construction of water crossings or dumping material)

- excavating material from a watercourse, lake or floodplain (e.g. excavating or cleaning soaks, waterholes and on-stream dams)
- destroying vegetation in a watercourse, lake or floodplain (e.g. removal of reeds)
- draining or discharging water or brine into a watercourse or lake (e.g. desalination waste, stormwater including urban discharge, drainage and salinity control).

These permits are designed to ensure that works are completed appropriately and do not pose any danger to you or the public or have a negative impact on the waterway on your property or that of your neighbours.

Apply for a permit at: greenadelaide.sa.gov.au/discover/water-plans-permits



Current Recommended Practices

Green Adelaide has developed Current Recommended Practices (CRPs) for some common Water Affecting Activities.

If the activity you want to undertake is covered by the scope of a CRP, you are not required to apply for a Water Affecting Activity permit. If it is outside the scope of a CRP, a permit will be required.

Read the CRPs at: greenadelaide.sa.gov.au/discover/water-plans-permits.

Development Approvals

Local council approval may be required where the proposed works are considered to be ‘development’ under the *Planning, Development and Infrastructure Act 2016*.

It is best to check with your local council first to see if your proposed activity requires development approval.

In this case a separate Water Affecting Activity permit is not required.



Tips for managing works around waterways

When you need to undertake works on or around the waterway on your property consider the following:

- Be sure works do not constrict or limit the waterway channel.
- Seek advice from qualified professionals if you have a problem along your waterway as actions you take may have consequences up and downstream.
- Undertake works during low flow periods (October to March) to give erosion control and stabilisation works the best chance of success.
- Where possible work with neighbours up and downstream to develop a coordinated approach to maintenance and repair.
- Take before and after photos, then adjust your maintenance or repair work when you see how your waterways responds.
- Ensure erosion control works take place before re-vegetating near a waterway.





How do you care for waterways?

Green Adelaide works with individuals and councils to protect waterways and there's a lot you can do to help.

As well as having legal responsibilities, property owners can help protect and care for waterways through voluntary restoration and revegetation activities, good design and well-thought-out landscape and home maintenance.

Some key activities to be aware of are:

Be mindful when building structures

Structures can be bridges, retaining walls, fences, decks or sheds, culverts, pipes, fords, weirs, piers or footings. A permit is required to build structures in waterways and on floodplains and remove or modify any structure. It is a good idea to seek expert advice on construction before applying for a permit.

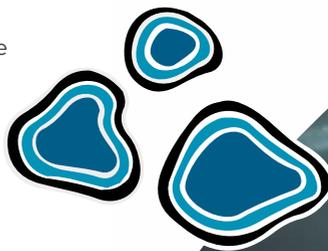
A structure in a waterway can deflect flows and cause erosion, scouring and deepening of the bed, undermining banks and damage any concrete channel or rock linings.

These structures also have the potential to block or impede water flow, cause costly sediment build-up and become traps for debris – all leading to increased flood risk. Some structures require earthworks and the removal of vegetation which can decrease the stability of the banks.

When water is present, fish migrate up and down waterways in search of food and habitat. Some of our native fish rely on migrating between waterways and the sea to complete their lifecycle. When structures create barriers to the passage of fish and other wildlife, they stop the fish migration, up and downstream.

Under-sized or poorly constructed culverts (a structure that channels water past an obstacle) can block or be damaged by the erosive forces of concentrated water, leading to increased flooding potential and structure failure. A permit may be required to construct a culvert or other type of crossing.

Structures built on floodplains decrease a waterway's ability to accommodate floodwater and can increase flooding potential up and downstream. Flat low-lying land next to waterways may seem attractive for development but waterways are constantly re-shaping their channels and this land may be subject to flooding, increasing the risk of property damage or complete loss of structures.



Keep waterways clear of debris

Large amounts of debris, sediment build-up and rubbish can block the flow of waterways, cause upstream flooding, or if it redirects flow it may cause bank erosion. In this case it is a good idea to remove excess debris from your waterway. A permit is required to remove rock, sand or soil from a watercourse.

Never dump leaves, grass clippings or prunings onto banks or into waterways. Although leaves and organic waste are biodegradable, adding them to a waterway can cause blockages and deplete oxygen in the water when they break down.

Prevent and control erosion

Avoid damage to waterway beds and banks by keeping activities along the banks of your waterway to a minimum and creating a buffer zone of vegetation between the waterway and your property's buildings.

The type of action necessary to repair eroding banks varies from site to site, but simply allowing your waterway more room to move can avoid threatening erosion problems. Do not use old household items or concrete debris to stabilise banks. This practice can be dangerous and is illegal.



Minimise your stormwater runoff

Stormwater runoff can be minimised by directing all gutters or downpipes to a rainwater tank, reducing paved areas and other hard surfaces, and keeping water and pipes from flowing directly into the waterway or onto the banks.

Where possible, direct runoff from paved areas to garden beds or spread flows out across vegetated areas to allow the water to soak into the soil.

Where stormwater is approved for discharge direct to a waterway, ensure the bed and banks are protected with either plants or carefully placed rocks in order to reduce the impact of fast-flowing water.

Keep local native plants

Protect any existing native vegetation and plant new native trees and plants. Local native species are best suited to the conditions in your area and provide the type of food and shelter that native wildlife need to survive.

Native plants will also help to prevent erosion. Reeds and rushes are especially important for bed and bank stability due to their dense root systems that reinforce and bind together the soil. These plants can be used in the bed and up the slope of the banks. In times of flood, these plants lie flat and allow floodwater to pass over them unrestricted.

Remove exotic trees and plants

Exotic plants such as willows, ash, poplar and bamboo can be invasive, block flow, displace other vegetation and provide no real habitat or food for native birds and animals. A permit may be required to remove vegetation from a waterway. Consult a professional before large tree removal.

Many exotic trees are also deciduous, meaning they drop all their leaves in late autumn. This large influx of leaf material breaks down rapidly in the water, reducing oxygen and releasing a lot of nutrients in a short time, which can lead to algal blooms. Native species shed their leaves steadily over the course of a year, so there's a consistent input of organic material into the water.

Invasive plants and weeds

Weeds are plants such as gorse, blackberry, briar rose and olive and they can interfere with flow and induce localised flooding, alter habitat, and in most cases do not effectively hold banks together. These plants also take growing space away from native plants and create dense shade that prevents their growth. They also don't provide good habitat for native animals. Consider removing such vegetation in carefully planned stages, refer to vegetation removal Current Recommended Practice for further information.

Keep your runoff pollution-free

- Avoid or minimise use of fertilisers, herbicides and pesticides – they can make their way into waterways and create algal blooms.
- When undertaking new landscaping or rebuilding a path or driveway, consider using materials that allow rainwater to pass through to the soil such as gravel, permeable pavers, or decking.
- Direct the runoff from paved areas into native gardens where water can soak into the soil, thereby removing pollutants, supporting plant life and replenishing groundwater.
- Cover exposed piles of construction material or soil where rain can carry them into a waterway.
- Collect and dispose of pet waste away from waterways. Pet waste increases bacterial levels which can cause algal blooms and deplete oxygen from the water.
- Keep leaves and litter out of street gutters and drains as it can clog stormwater drains and create localised flooding.
- Wash your car or equipment on a grassy or gravel area where soapy water can filter into the soil. Soap (even biodegradable forms) can harm fish and other aquatic life.
- Avoid hosing down paved surfaces like driveways. Use a broom instead and put debris in the kerbside rubbish collection bin.



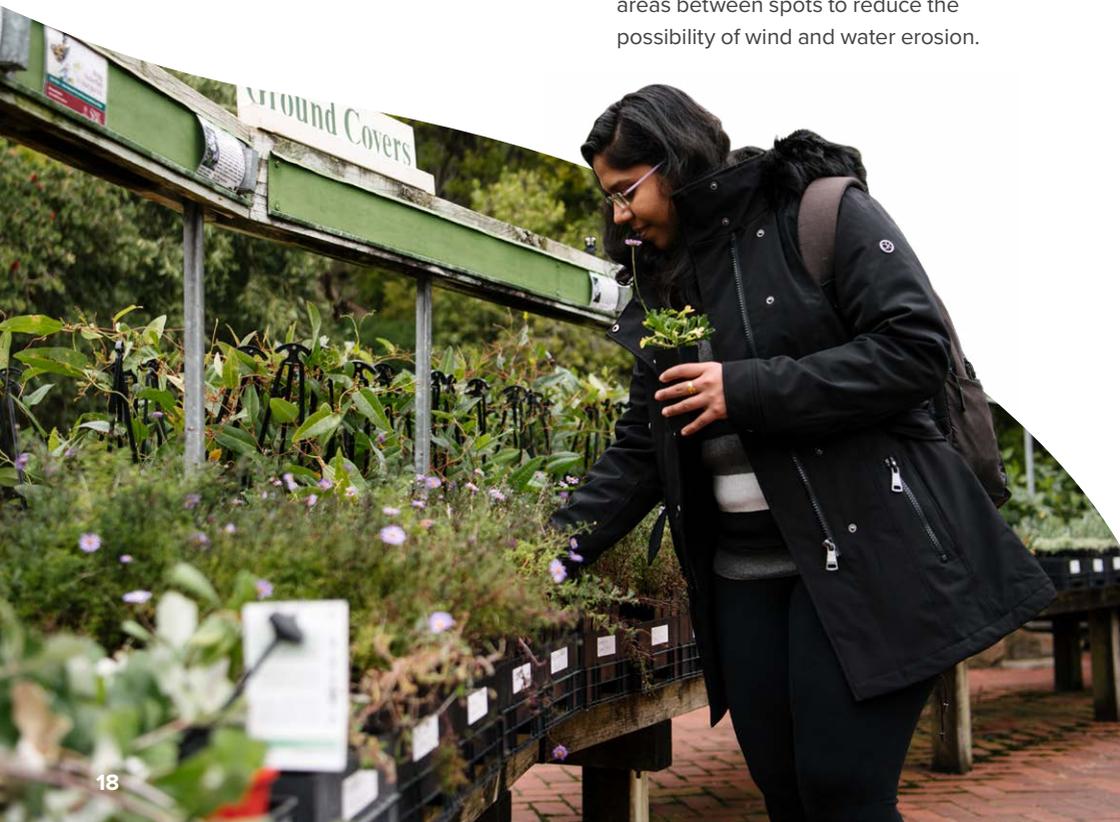
Tips for planting and revegetation

Planting the right native trees, shrubs and grasses along a waterway slows the flow of water and protects the banks from erosion. Shady, green corridors along waterways also have a cooling effect and reduce heat.

The following tips will help you to prepare and plan your maintenance, landscaping and gardening around waterways.

Preparation

- Complete erosion control activities and weed management first before planting.
- Contact a local nursery to find out which locally native species will best suit your site and order ahead of time.
- Remove weeds first to greatly improve native plant or seedling survival over summer and improve growth rates.
- Herbicide is best applied two to three weeks prior to planting to create a weed-free spot for plants. Leave untreated areas between spots to reduce the possibility of wind and water erosion.



- Plant in early winter or spring (June to October) or early autumn in areas with less than 550 mm of rainfall, to give plants the best chance to establish using natural rainfall.

Planting

- Add mulch around your plantings to reduce evaporative water loss by over 70%, reduce weed growth and improve soil structure and productivity.
- Place tree guards around your plants until they are established to help protect them from summer heat, wind, accidental trampling and animals.
- Plant local native species as they have adapted to survive the local conditions and don't need fertilisers or pesticides, can be more resilient to disease and provide the best food source for our native animals.
- Choose plants that will reduce flooding such as local native rushes and sedges that flatten in the direction of flow,

allowing water to pass unrestricted.

- Reeds and rushes are especially important for waterway stability due to their dense root systems that reinforce the soil by binding it together, they also shield the soil from direct contact with water flow.

The Botanic Gardens of South Australia has developed a handy plant selector which can be used to select the plants most suited to your area (plantselector.botanicgardens.sa.gov.au)



Need more help?

Green Adelaide

greenadelaide.sa.gov.au

Permits and approvals

Water Affecting Permits and Current Recommended Practices

greenadelaide.sa.gov.au/discover/water-plans-permits

Contact your local council for advice on development approvals.

Pest plants and weed control

Biosecurity SA

pir.sa.gov.au/biosecurity

Weeds Australia

weeds.org.au

Want to talk to someone?

Chat water permits

Green Adelaide

(08) 7424 5760

dew.greenadelaide@sa.gov.au

Chat easements and certificate of title

Land Services and Lands Titles Office

(08) 8226 3983

www.sa.gov.au





Disclaimer: This guide is intended to help you find good advice about urban waterways. No legal liability is accepted for the information, errors or omissions contained in this booklet.

Green Adelaide

81 - 95 Waymouth Street
Adelaide SA 5000

T: (08) 7424 5760

E: dew.greenadelaide@sa.gov.au

greenadelaide.sa.gov.au

f @GreenAdelaide

 @GreenAdelaideSA

 @GreenAdelaideSA

#GreenAdelaide



With the exception of the Piping Shrike emblem, and other material or devices protected by Aboriginal rights or a trademark, and subject to review by the Government of South Australia at all times, the content of this document is licensed under the Creative Commons Attribution 4.0 Licence. All other rights are reserved.

© Crown in right of the State of South Australia
2022 | FIS 912544



This document is printed
on 100% recycled paper.

**GREEN
ADELAIDE**