



Stormwater Management

for Landscape Gardening and Garden Maintenance

EPA 498/03

Why is this information important?

This information aims to help owners, managers and staff of landscape gardening and general maintenance businesses comply with their general environmental duty by preventing pollutants generated by their activities from entering the stormwater system.

Benefits for you and your business

The potential benefits of addressing any environmental issues or problems associated with your business include:

- minimising the risk of environmental fines and prosecutions
- demonstrating compliance with the Environment Protection Authority's Codes of Practice
- improving the public image of your business
- long-term cost savings through increased efficiency and reduced costs
- improving environmental conditions for all employees.

What is stormwater?

Stormwater is rainwater that flows across outside surfaces into stormwater drains and gutters in the street. Water that enters stormwater drains is not treated and flows directly into creeks, rivers, and oceans. It should only contain clean rainwater, and no pollutants such as general rubbish, lawn clippings, fertilisers, irrigation water, sediment or dust.

What you should know about environmental laws in South Australia

A number of laws, regulations, policies and guidelines help protect the environment in South Australia and give guidance to business and the general community (see Table 1).

The new *Environment Protection (Water Quality) Policy 2003* (the Water Quality Policy) offers the most specific protection for the State's waters. It prohibits the pollution of the stormwater system and our natural waters. The Policy has general obligations which every person, business and industry must comply with as well as specific obligations for particular activities. Failure to comply with any of these obligations may result in the issuing of a \$300 fine, Environment Protection Order, and/or prosecution.

Clause 17 (1) of the Water Quality Policy states that a person must not discharge or deposit a pollutant listed in Part 1 of Schedule 4 of the Policy into any waters or onto land where it might enter any waters. The pollutants listed in Schedule 4 Part 1 which relate to landscapers and gardeners include: agricultural chemicals; brick, bitumen or concrete cutting wastewater; building construction or demolition waste; building washwater; rubbish; sawdust; and washdown water from cleaning vehicles, plant or equipment. Under Clause 17 (2) of the Policy, fertilisers, green waste, soil, clay, gravel or sand must not be discharged or deposited into any waters.

For more information on the Water Quality Policy visit the EPA web site at www.epa.sa.gov.au or telephone (08) 8204 2004.

Table 1: Legislation protecting stormwater and the environment

Legislation	Section	Offence	Penalty
Environment Protection Act	25	General environmental duty to prevent pollution of the environment	Emergency Protection Order or Clean-up Order
	79	Causing serious environmental harm	Body corporate—\$1,000,000 Natural person—\$250,000 and/or 4 yrs imprisonment (Div 4).
	80	Causing material environmental harm	Body corporate—\$250,000 Natural person—\$120,000 and/or 2 yrs imprisonment (Div 5).
	82	Causing environmental nuisance	\$30,000 (Div 3 fine)
Environment Protection (Water Quality) Policy	17	Obligation not to discharge or deposit listed pollutants into waters or onto certain land	Mandatory provision Category B offence: Intentional or reckless contravention—\$30,000 and/or 7 yrs imprisonment (Div 3). Contravention—\$4,000 and/or 1 yr imprisonment, or \$300 on-the-spot fine (Div 6).
Public and Environmental Health Act	18	Discharge of waste in a public place	\$30,000 (Div 3 fine)
Local Government Act	235 (1)	A person who, without the council's authorisation or permit—(b) deposits goods, materials, earth, stone gravel, or any other substance on a public road or public place is guilty of an offence.	\$5000 or \$315 on-the-spot fine

Make sure you know your legal obligations regarding water and environmental pollution in general.

Why is stormwater pollution an issue?

Landscapers carry out many activities that can potentially pollute stormwater. *The first step is to always ensure that stormwater does not get contaminated.* Think about all your work practices and ensure that none lead to contamination of water that will run into the street and stormwater drains. Think about your outdoor activities: when it rains, will water run off the site, and will this water be polluted? How can I stop polluting our creeks, rivers and oceans?

Water discharged to the sewer is treated by SA Water but restrictions apply on the types of wastewater discharged. Many liquid wastes cannot go down the sewer, as they will interfere with the delicate biological processes used by SA Water to treat wastewater. Businesses and industry disposing of wastewater must have an SA Water Trade Waste permit, and pre-treatment facilities may also be required to modify the wastewater before it is discharged to the sewer.

Any discharges to the sewer must be in accordance with the requirements of the SA Water Trade Wastes section—telephone 8207 1350 or fax 8207 1361.

How the landscape gardener can prevent stormwater pollution

Incorporate the following guidelines into your daily tasks.

In transit

Transporting equipment to different sites usually requires the use of an open tray utility or truck. Cover loose items, such as waste packaging and sand, with a tarpaulin to avoid polluting the roadway. Dry wastewater from wash down or brick cutting, or contain it in some way, before driving so that it cannot spill onto the road and pollute stormwater.

Irrigation

South Australia is the driest state in the driest inhabited continent on earth, so water is very precious. As part of the horticultural industry, you have a role in educating the public and encouraging the planting of more water-efficient gardens. Understandably, even the hardest gardens need watering in summer, so consider these basic guidelines.

- Make sure irrigation is set up to minimise wastage. Recommend more efficient dripper systems and optimal times of the day for watering. Suggest rainwater tanks for watering the garden and consider including tank installation in your services.
- Prevent sprinklers from discharging straight into the gutter. Adelaide mains water contains high levels of chlorine which can have a sterilising effect on creeks and rivers, killing tiny organisms which help to keep rivers clean naturally.
- Over watering can lead to excess runoff which may transport sediments, giving stormwater a muddy or cloudy appearance. In rivers, cloudy water can reduce light and stop important aquatic plants from growing.
- Encourage the revegetation of any bare ground as soon as possible to prevent sediment-laden runoff from these areas.

For further information on water use and irrigation, see *Nursery Industry Water Management: Best Practice Guidelines, Australia 1997*, published by the Nursery Industry Association of Australia and available from the Nursery and Garden Industry of SA, telephone 8271 1012 or 8372 6822.

For information on the current level of water restrictions visit the SA Water web site at www.sawater.com.au, or telephone 1800 130 952.

Green waste

'Green waste' might sound environmentally friendly, but leaves, grass, tree limbs, etc. are not good for our waterways. As green waste breaks down and rots, it increases nutrient levels in the water, leading to imbalances and outbreaks of problem toxic algae. The rotting process can also greatly reduce levels of dissolved oxygen in the water, killing fish and other water organisms.

Make sure green waste dropped or blown by the wind into gutters or driveways is swept or vacuumed up to prevent stormwater pollution.

Mowing

Motorised lawn mowers contribute to noise and air pollution. They also burn fossil fuels, a precious resource that should be conserved where possible. Make sure YOUR mower has minimum impact on the environment.

- Always refuel your mower in an area where spills cannot be carried into stormwater by rainwater or irrigation. Make sure you have a spill response procedure and spill kit ready in case of a fuel spill.
- Store fuel in an area where any leaks can be easily contained.

Fertilising

While fertilisers can provide excellent nutrients for our soils and garden plants, excessive nutrients in rivers can cause outbreaks of toxic algae and reduce oxygen levels in water.

- Stop fertilisers from entering the stormwater system by preventing irrigation and stormwater runoff. Use temporary booms or bunding to soak up runoff before it reaches street gutters.
- Beware of weather conditions. High winds can carry fertiliser off site with the potential to pollute stormwater. Develop a spill response procedure and have your spill kit handy in case of accidental spills of liquid fertiliser or pesticide onto sealed surfaces.
- Store chemicals in a contained area.

Pesticides

Pesticides are potentially one of the most damaging pollutants in our waterways as they can kill delicate native plants and organisms. Without some of these plants and animals in rivers, the waterway cannot support other life such as fish and frogs. They can literally kill the system. Apart from the active toxic component, pesticides usually contain a surfactant (wetting agent) to help spread the toxin, which can be just as damaging to the natural system as the toxin itself.

Pesticides may be introduced to the aquatic environment by spillage, accidental discharge, or direct use near aquatic environments. Remember to consider stormwater drains as part of the natural aquatic environment.

Always try to adhere to best practice pesticide management guidelines. The EPA is in the process of developing a Code of Practice for Environmentally Responsible Pesticide Use. The Mount Lofty Ranges Watershed Chemical Users project conducts workshops on pesticide use for residents of the watershed. Contact the EPA Watershed Protection Office for further information—telephone (08) 8139 9900, or e-mail epainfo@epa.sa.gov.au.

- Always read and follow the label instructions. Do not prepare pesticide mixes in areas where an accidental spill could run into a stormwater drain or waterbody. Preferably prepare mixes in an area with an impervious floor that will contain any spillage so it can be cleaned up. Have some absorbent material nearby to assist with spillage containment—domestic kitty litter does a good job.
- Reserve herbicides for use when they are absolutely necessary. If the job is small, remove weeds manually. Only apply pesticides to the target area.
- Do not use during periods of rain. Plants generally need 24 hours to effectively absorb the herbicide through their leaves. Rain during this absorption phase may wash the pesticide off and into the stormwater system.
- Do not spray during windy conditions as wind may transport herbicide to non-target species and stormwater systems. Use wanding, cutting and injection methods. For deciduous trees, inject the herbicide just after leaf drop to prevent the herbicide being transported into waterways through leaf litter.

- Avoid spraying within and around watercourses (including stormwater drains). Consult the Environment Protection Authority on 8204 2004 if spraying in these areas is absolutely necessary.
- Store pesticides as hazardous goods and keep accidental spill contingency plans. Dispose of unwanted chemicals at a licensed liquid waste facility. Triple rinse empty chemical containers and puncture them before disposal. Look into recycling options for containers. You must not pour unwanted pesticides or rinse water into drains, gutters, a sink or the toilet because they will eventually be released to the environment. You must not bury unused pesticides or pesticide containers because they can contaminate soil and leach into groundwater and stormwater.
- Avoid using old pesticides and herbicides as they may be a danger to your health and the environment.
- Train all staff in the correct use of pesticides and on their potential impacts on the stormwater system.

Make sure you are familiar with all of your legal obligations for using pesticides. In addition to those mentioned in Table 1 you must comply with the *Agricultural and Veterinary Products (Control of Use) Act 2002*, the *Dangerous Substances Act 1979*, and the *Occupational Health, Safety and Welfare Act 1986*.

Building

Landscape gardeners may perform all manner of building activities in daily operations, with retaining walls and paving being the most common structures built. Building and construction activities must comply with the EPA's *Stormwater Pollution Prevention Code of Practice for the Building and Construction Industry 1999*. This code is linked to the Water Quality Policy and is now mandatory. Further practical advice can be found in the EPA's *Handbook for Pollution Avoidance on Building Sites 2003*.

Paving

Brick and paver cutting has a huge potential to pollute stormwater with dirty wastewater flowing along sealed surfaces into gutters. All wastewater and dust from cutting must be prevented from entering the stormwater system. Do not cut bricks on the road or footpath.

- Consider purchasing a 'BRIKASAURUS' (a brick cutter which recycles water and captures all dust pollutants) or invest in a Spill Safe mat to hold all wastewater and pump it into a drum for proper disposal.
- Alternatively, perform all cutting on an appropriate vegetated area where wastewater cannot reach the stormwater, and use a hessian bag attached to your cutter to filter the wastewater.

Concreting

Prevent all residues and wastes from concrete works from entering the stormwater system.

- Perform on-site mechanical or manual concrete mixing in a designated area capable of containing all excess water, residues and waste.
- If site conditions require the use of concrete pumps from roadways, provide temporary booms or bunds across all down-slope gutters to contain any spillage. Remove spilt slurry from the road before the bunds are removed.

Carpentry

When cutting wood, collect and dispose of sawdust so that it cannot pollute the stormwater system.

Excavation

- Try to prevent machinery from dragging sediments off site and into gutters. Sweep out or vacuum surrounding street gutters at the end of the day to prevent stormwater pollution from overnight rains.
- If it is necessary to leave stockpiles of fill on a site, construct a silt fence around the base of the stockpile. A silt fence is a temporary sediment control measure made from woven fencing mesh and filter fabric. Silt fences are quick and easy to install and can be moved from site to site.
- Always give piles of fill a light spray of water before leaving them for the day. This causes a crust to form over the top, reducing the likelihood of wind erosion.
- If using moss rocks make sure your supplier has not removed them from riverbanks, as this can cause serious erosion up stream.

Equipment wash down

Wash vehicles and equipment on an appropriate vegetated area or in an approved wash bay. Do NOT wash vehicles in the street or driveway.

Wash bays are generally connected to the sewer, or occasionally to an underground tank which is pumped out by a licensed liquid waste contractor. If you wish to install your own wash bay, ask your local council for planning approval. Contact SA Water Trade Wastes section (8207 1350) for advice on wash bay design and pre-treatment requirements. Well designed wash bays should be enclosed on three sides to prevent splash contamination of their surroundings, with a speed hump at the entrance to prevent water from escaping. The wash bay should be roofed to prevent entry of rain, and the floor paved with concrete.

The information in this document is from a series of fact sheets developed by the Stormwater Pollution Prevention Projects. Visit www.catchments.net/initiatives/initiatives_stormwater.shtml for more information on stormwater issues.

FURTHER INFORMATION

Legislation

Legislation may be viewed on the Internet at: www.parliament.sa.gov.au/dbsearch/legsearch.htm

Copies of legislation are available for purchase from:

Government Information Centre	Telephone:	13 23 24
	Internet:	www.info.sa.gov.au

For general information please contact:

Environment Protection Authority	Telephone:	(08) 8204 2004
GPO Box 2607	Facsimile:	(08) 8204 9393
Adelaide SA 5001	Freecall (country):	1800 623 445
	Internet:	www.epa.sa.gov.au