



Stormwater Management

for Car Yards

EPA 494/3

Why do car yard owners need this information?

These guidelines address the wastewater produced by the frequent car washing in car yards and the impact that this has on the receiving waterways. Other guidelines deal with engine cleaning and other cleaning activities.

What is stormwater?

Stormwater is rainwater that flows across outside surfaces into stormwater drains and gutters in the street. The water is not treated and flows directly to our creeks, rivers, groundwaters and oceans. Stormwater should only contain clean rainwater, and *no* pollutants such as general rubbish, industrial waste, heavy metals, oils and greases.

Benefits for you and your business

By addressing the potential stormwater pollution problems at your car yard you:

- reduce your pollution contribution to our waterways
- improve the public image of the car sales industry
- increase your compliance with the legislation
- receive fewer public complaints.

Why is it important?

Car washing from car yards, particularly those in high density strips along main roads can produce large volumes of wastewater containing a range of pollutants including sediment, rubber, oil and grease, lead and zinc residues, and nutrients such as phosphates. These can all have a harmful impact on the health of our waterways.

Nutrients from detergents that are washed into the stormwater system contribute to problems such as rampant algal growth, which can decrease oxygen availability for aquatic plants and animals and ultimately kill them. Some algal blooms (such as blue-green algae) can also be toxic and risk public health. Using biodegradable phosphate detergents is only of benefit to the environment if detergent wastewater is directed to the sewage system and the treated effluent is re-used to grow plants.

Table 1 shows the list of pollutants from car washing and their impact on our receiving waterways.

Table 1: Typical pollutants associated with car washing

Pollutant type	Impact
Oil and grease	Harm aquatic life, mainly by smothering or preventing oxygen transfer to the water.
Sediment (soils, sand, clay, gravel, etc.)	Decreases visibility to aquatic organisms and reduces light availability for plants. Heavy metals and other pollutants attach to the sediment particles, which transport them through waterways and harm water quality.
Nutrients (nitrogen and phosphorous)	Can cause algal blooms which harm aquatic life by depleting oxygen in the water and decreasing light penetration for plant growth. Promote unwanted weed growth.
Heavy metals (cadmium, chromium, copper, zinc and lead)	Toxic effects on both aquatic plants and animals. Can build up in aquatic species such as mussels, which can then have an impact all the way through the food chain.

Cars for sale need to look presentable and must be cleaned often, especially when they are located on busy main roads where dust and road grime continuously accumulate. The options in these guidelines allow car yard operators to keep cars presentable while minimising pollution of local creeks, rivers and oceans.

What legislation governs stormwater pollution?

The stormwater system is protected by a number of different laws including the *Environment Protection Act 1993*, the *Environment Protection (Water Quality) Policy 2003* (the Water Quality Policy), the *Local Government Act 1934*, the *Development Act 1993* and the *Public and Environmental Health Act 1987*.

The new 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 of the Water Quality Policy states that a person must not discharge or deposit a pollutant listed in Schedule 4 of the Policy into any waters or onto land where it might enter any waters. The pollutants listed in Schedule 4 which relate to Car Yards include: washdown water from cleaning vehicles, cleaning agents, detergents and their by-products, engine coolant, fuel dispensing area washwater, hard waste (e.g. vehicles, tyres, batteries, metal parts, piping), motor vehicle servicing or repair waste, oil, grease, lubricants, petroleum products, rubbish, and solvents. For more information on the Water Quality Policy visit the EPA web site at www.epa.sa.gov.au or telephone (08) 8204 2004.

Issues

The main issues relating to stormwater pollution in car yards are:

- washing cars using detergents and the wastewater entering the stormwater system.
- car wash bays and degreasing operations not having the correct structures to prevent discharge into the stormwater system.
- engine leaks and spills (e.g. oil, coolant) washing into the stormwater system.

What can car yard managers and staff do to prevent pollution of the stormwater system?

Below are some options for you to consider to minimise the impact of your business on local waterways.

Options for structural surroundings of the car yard

Some existing sites have difficulty managing wastewater because of their design and the structure of the surrounds. Despite this, all car yards should be able to use at least one of the options given here to maximise the water retention on site or develop an alternative. Existing sites may not need structural changes if you change washing procedures to ensure that no wastewater leaves the site. New sites should consider the design and structure of the site, as well as washing procedures, to ensure that wastewater is minimised and contained on site.

- Surround the site with gardened areas that are capable of absorbing the wastewater runoff so that none escapes into the stormwater system.
- Surface the site with gravel or another permeable or semi-permeable material that will allow increased infiltration of the wastewater, preventing it from entering the stormwater system. This can also help with oil spills or leaks as the contaminated gravel can be removed and replaced, so rain can't wash oil residue into the stormwater system.
- Install permeable pavers or cement lattice, with rubble or grass in the open sections of the lattice to retain wastewater on site. Find out if the soil on your site is suitable for this option.
- Create a bund around the entire site to help retain all water on site. Ramp style bunds or channels over driveways allow vehicles to enter and leave easily.

Options for washing procedures

Car yards without a wash bay

- Clean car bodies by using a bucket or hose and a chamois. Use a trigger nozzle on a hose to minimise the volume of water generated and the possibility of it leaving the site. Use minimal amounts of water while cleaning the vehicle so excess water that can enter the stormwater system isn't generated. This method will decrease water consumption as well as solve the problem of using detergent. Have cars detailed before they arrive at the yard by a car detailer with the appropriate trade waste facility.
- Wash cars on a spill-safe mat or other containment device (where practical). Detergent can be used with this method as long as no wastewater escapes the mat and is disposed of either to an approved trade waste facility or onto a garden bed.
- Use a dust removal product that picks up dust from the car surface without water or chemicals. It may not be as effective for car yards on exceptionally busy roads where a lot of road grime accumulates.
- Clean cars with new products that require only a cloth and the product, and no water.

Car yards with a wash bay

- Detergent washing is acceptable as long as the wash bay drains to an approved trade waste treatment facility and has appropriate bunding to contain all of the waste so that none escapes into any nearby stormwater drains. The wash bay should also be roofed so stormwater cannot enter.
- The treatment facility should be capable of treating the wastewater being generated. Check it regularly and pump out the sludge as required.

Wash bay requirements (SA Water Trade Wastes)

General

- Only wastewater complying with SA Water's standards of acceptance may be discharged to sewer.
- Wastewater containing organic solvents may be discharged to sewer if permission from SA Water is granted.
- Only quick breaking detergents /degreasers shall be used in conjunction with vehicle washing activities.

Washing area design

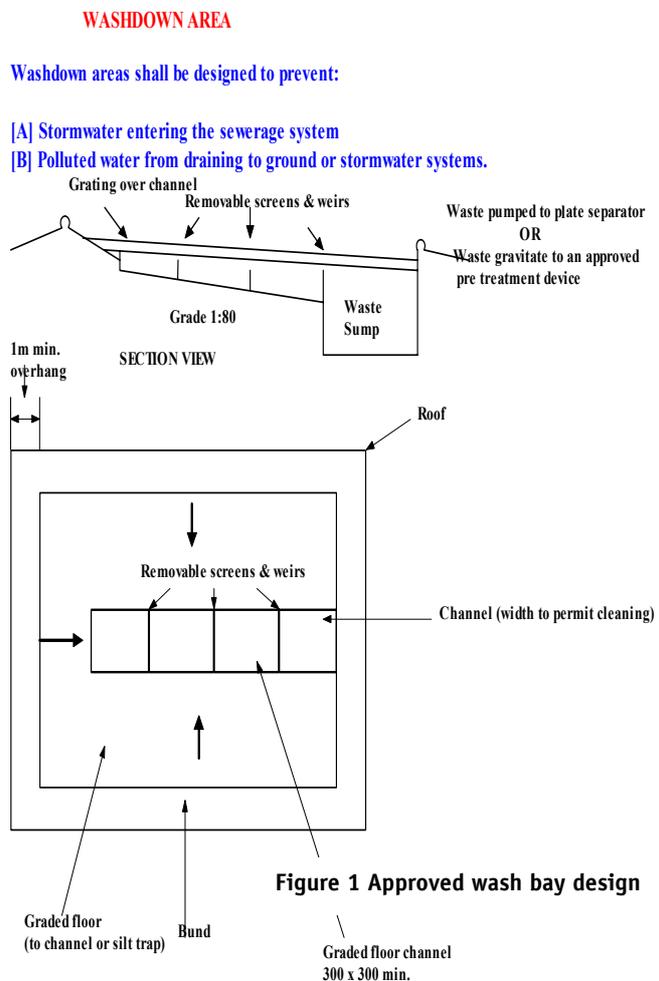
All vehicles shall be washed in an area with the following features:

- a minimum slope of 1-in-80 to the drainage point
- a bund designed and constructed to:
 - prevent all stormwater runoff from entering the sewer
 - contain all wastewater
- durable bund and washdown areas impervious to washwaters and related chemicals
- a roof having a minimum overhang of 1 metre for each 3 metres of height above the bund, to exclude wind driven rainfall (if such an overhang is impractical, walls or skirts may be used)
- in exceptional circumstances, where it is impractical to roof a bunded washing area, approval may be obtained from the SA Water Trade Wastes section.

An approved wash bay is shown in Figure 1.

Pre-treatment

- Wastewater from vehicle washing shall drain to a graded channel fitted with weir(s) which retain rapidly settling solids and/or perforated screen(s) for retaining gross solids.
- The channel shall be designed to facilitate cleaning of trapped material.
- Where grease/oil exceeds SA Water's standard of acceptance (e.g. cleaning of chassis or engine bays) the channel shall drain to a pump sump. Wastewater shall then be pumped by a positive displacement pump to an approved above-ground coalescing plate separator, before discharge to sewer.
- Where oil/grease is within SA Water's acceptance limits, (e.g. cleaning of road grime from body exterior) the channel shall drain to an approved suspended solids settling chamber before discharge to sewer.
- Where the pH of the wastewater is likely to be outside SA Water's limits (pH 6–10), an automatic pH correction system and safety shut off valve shall be installed.
- All cars being washed with detergent must be washed in the wash bay or appropriate washing facility and not in the yard (unless the yard is designed so that no wastewater is discharged



from the premises). Cars that require touch ups can be cleaned with a bucket/hose and chamois within the car yard (ensuring no wastewater escapes the yard).

Car yard maintenance

The car yard should be maintained and kept clean to minimise the impact of surface runoff into the stormwater system. Cleaning methods also have the potential to impact on the stormwater system. Hosing down the yard is an unacceptable method of cleaning: it will increase the amount of pollutants taken into the stormwater system. Vacuum sweeping or dry sweeping with brooms are the preferred method of cleaning. If blowers or brooms are used, sweepings should be directed into a pile to be collected and placed on a garden or into a bin.

Spills

Any spills such as oil or radiator leaks should be cleaned up by using absorbent materials or, if it is on a gravel or rubble type of surface, the affected area can be removed and replaced. The material can then be sealed in a container and put into a bin. This will minimise the amount of residual oil and other materials being washed into the stormwater system.

Stormwater as a valuable resource

South Australia is the driest state on the driest continent, therefore we should be trying to conserve whatever water we do have. It doesn't matter what type of set-up the car yard has, minimising the amount of water used in the washing process will save you money and conserve water. It may also ensure that you are not discharging anything from your site, thereby complying with the current legislation. Minimise water use by using a low pressure water nozzle, dry cleaning, or using a bucket and a chamois.

Stormwater is a valuable resource that is generally wasted, and can be used to not only conserve water but to save money spent on mains water, or trade waste discharge. These costs can be reduced by installing rainwater tanks for washing and/or other uses; or installing a reuse or recycling system.

For information on water restrictions visit the SA Water web site, or telephone 1800 130 952.

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:

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