

Protecting our waterways

with Water Sensitive Urban Design

Water Sensitive Urban Design

The development of cities (or urban areas) using conventional approaches can have a negative impact on the health of our waterways. Rain or floods in a developed, urban environment can also negatively affect waterway health. Water Sensitive Urban Design (WSUD) seeks to minimise these impacts using a holistic approach to city planning and development, which embraces the management and conservation of water.

WSUD can also be incorporated on your property to capture, treat and reuse stormwater. By utilising WSUD in your home or backyard, you can help to significantly improve the quality and quantity of water entering our local waterways.

Some of the principles of WSUD are to:

- protect the water quality of surface and ground water
- minimise demand on the piped water supply system
- minimise sewage discharges to the natural environment
- incorporate collection, treatment and/or reuse of stormwater runoff
- reuse treated wastewater and reduce the amount created
- increase social amenity in urban areas through multi-purpose green areas, landscaping and water art.



Fitzgibbon Chase - Water Sensitive Urban Design Project and winner of the 'BP-Water Sensitive Urban Design Award' at the 2012 Healthy Waterways Awards.

Rainfall impacts: natural vs urban

Natural catchment

Under natural conditions, a large amount of rainfall soaks into the ground to replenish groundwater and provide a source of water for plants.

Rainfall which is not absorbed by plants or the soil becomes runoff. This runoff drains into local streams and creeks, and eventually the ocean.

Modified, urban catchment

In urban areas, impervious or hard surfaces (such as roads and roofs) reduce the amount of rainfall that can soak into the ground. When rain falls on these hard surfaces, it cannot soak into the ground and becomes stormwater runoff.

Stormwater travels through drains and underground pipes into our creeks and rivers, carrying with it a range of pollutants and increasing the potential for erosion.

In addition, as cities are built, soil from poorly managed construction sites can be washed into waterways.

Stormwater impacts

The types of pollutants found in stormwater include litter, nutrients (such as nitrogen and phosphorus), and sediment (soil and mud). Sediment in the water reduces water quality and may smother important areas of aquatic habitat, such as seagrass and corals.

When it rains, the volume and speed of water being discharged from stormwater pipes into waterways can also disrupt ecosystems and cause flooding and erosion problems.



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Stormwater carries a range of pollutants and increases the potential for erosion.



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Flood of Ideas

Water Sensitive Urban Design helps to mitigate flood impacts by considering the natural water cycle in city planning and development. Flood of Ideas was initiated by Healthy Waterways and the State Library of Queensland after the January 2011 flood to gather diverse and creative ideas from the community on how we can better plan for future floods. Check out the 600 submissions at www.floodofideas.org.au



What you can do

There are a number of simple and creative ways that you can implement WSUD around your home such as:

- Install a rainwater tank
- Build a raingraden
- Use porous paving
- Create a green wall or green roof.



Rainwater tanks provide water for toilets, gardens, hot water systems and laundry.

Install a rainwater tank

Installing a rainwater tank is one of the easiest ways to reduce the amount of stormwater leaving your property.

Rainwater tanks can provide water for toilets, gardens, hot water systems and laundry. Using locally sourced water supplies can save on energy needed for treatment and pumping, and lessen the amount of wastewater reaching waterways.

Tanks are available in a range of sizes and styles including large, small, underground and under deck tanks.

Build a raingarden

Building a raingarden on your property is a fun and inexpensive way to improve local water quality and enhance the beauty of your backyard.

Raingardens are garden beds that use native plants and soil to capture, filter and treat stormwater runoff from your driveway or roof.

Raingardens reduce flooding by sending the water back underground rather than into the street. In addition, raingardens promote biodiversity by providing habitat for wildlife.

Check out our step-by-step guide on how to build a raingarden at: www.healthywaterways.org



Raingardens capture pollutants and reduce the amount of stormwater runoff.



Use porous pavement

Using porous pavement instead of traditional concrete reduces the amount of stormwater runoff that flows off your property by allowing water to pass through the surface and into the soil underneath.

Porous pavement is a specially designed paving material that allows water to pass through it. Porous paving often looks the same as traditional asphalt or concrete but incorporates void spaces into the design to allow for infiltration. If well-maintained, porous pavement also filters pollutants from stormwater runoff.



Porous pavement often looks like traditional asphalt or concrete.

University of South Australia



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Green walls are like vertical gardens that can be inside or outside a building.

Create a green wall or green roof

A green roof is a roof that has planted vegetation partially or completely covering the surface. These roofs require low maintenance vegetation that can tolerate heat, cold, drought and wind.

Green walls (or living walls) are self sufficient vertical gardens that are attached to the external or internal wall of a building. The plants receive water and nutrients from within the vertical support instead of from the ground.

For more information on green walls and green roofs, check out www.greenroofsaustralasia.com.au

Healthy Waterways

Healthy Waterways is a not-for-profit, non-government organisation working to protect and improve waterway health in South East Queensland. Our Water by Design Program enables individuals and organisations to achieve sustainable urban water management using initiatives such as Water Sensitive Urban Design.



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Find out more about waterway health and keep up-to-date with the latest news and events.



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There are other fact sheets and educational resources available. For more information about the waterways of South East Queensland please visit the Healthy Waterways website.

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