



Water Sensitive Urban Design (WSUD)

What is Water Sensitive Urban Design?

Water Sensitive Urban Design (WSUD) is an approach that integrates the management of all water resources and the entire water cycle into the urban development process.

WSUD includes:

- Utilising water-saving measures within and outside domestic, commercial, industrial and institutional premises to minimise demand for drinking and non-drinking water supplies.
- Storage, treatment and beneficial use of runoff (at building and street level, including stormwater).
- Treatment and reuse of wastewater.
- Using vegetation for treatment purposes, water-efficient landscaping, and enhancing biodiversity and amenity.

Many different WSUD measures form a 'tool kit', from which individual measures can be selected in specific response to the particular characteristics of any development (or redevelopment).

Those measures are outlined, and described in detail, in the WSUD Technical Manual, which can be found online at: www.sa.gov.au/topics/planning-and-property/land-and-property-development/planning-professionals/water-sensitive-urban-design

WSUD recognises all the water streams in the total water cycle as valuable resources, including:

- Rainwater (collected from the roof);
- Runoff (including stormwater) collected from all impervious surfaces;
- Potable mains water (drinking water);
- Groundwater;
- Greywater (water from bathroom taps, showers and laundries); and
- Blackwater (from toilets and kitchen sinks).

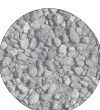
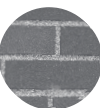
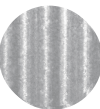
Applying appropriate measures in the design and operation of developments makes it possible to (among other things):

- Stabilise and improve the health of coastal waters, inland watercourses and groundwater systems;
- Make more efficient use of water resources;
- Minimise demand on the reticulated water supply system;
- Reduce flood risk in urban areas, and
- Reduce erosion of waterways, slopes and banks.

Clean Site and WSUD

The KESAB **Clean Site** program complements and supports the goals of Water Sensitive Urban Design principles by:

- minimising the impact of building on existing natural features and ecological processes through industry education and awareness raising;
- protecting the quality of surface and ground waters through innovative pollution prevention methods on site;
- improving the quality of and minimising polluted water discharges to natural waterways and the marine and coastal environments by implementing onsite sediment and erosion controls, and
- adding value to large housing developments, while minimising their impacts on drainage infrastructure through ongoing industry education.



**WSUD approaches are supported by the
Adelaide and Mount Lofty Ranges Natural Resources Management Board**

For further information

Other Water Sensitive Urban Design (WSUD) Summary Sheets are available.

To download these, visit watersensitivesa.com for further information on WSUD.

The **Clean Site** program is a KESAB *environmental solutions* industry education initiative supported by the EPA, Construction Industry Training Board, the Adelaide and Mount Lofty Ranges Natural Resources Management Board and Office of Green Industries SA in partnership with Master Builders SA and the HIA.



Guiding Principles of WSUD

A number of guiding principles underpin the objectives for water management and the implementation of WSUD.

These guiding principles and how they can be applied are outlined below, and should be addressed when undertaking the planning and implementation of water management strategies. Many opportunities exist for WSUD measures to address more than one of these principles.

WSUD Principle	Example of WSUD Approach
Incorporate water resources as early as possible prior to developing a concept design in the land use planning process	<ul style="list-style-type: none"> - Review what WSUD measures might be appropriate for a site prior to developing a concept design - Meet with council early in the concept design phase
Address water resource issues and conservation of biodiversity at the catchment and subcatchment level	<ul style="list-style-type: none"> - Develop a stormwater (or water) management plan to guide actions in the catchment - Limit the increase in runoff volume by using natural drainage paths and infiltration basins
Ensure water management planning is precautionary and recognises intergenerational equity, conservation of biodiversity and ecological integrity	<ul style="list-style-type: none"> - Protect waterways by providing a buffer of natural vegetation to urban development - Use native vegetation in all runoff management plans and all landscaping to maximise habitat values
Recognise water as a valuable resource and ensure its protection, conservation and reuse	<ul style="list-style-type: none"> - Ensure that developments incorporate water-efficient appliances - Ensure that fit-for-purpose reuse is incorporated on site or in the catchment
Recognise the need for site-specific solutions and implement appropriate non-structural and structural solutions	<ul style="list-style-type: none"> - Install rainwater tanks to collect rainwater for toilet flushing and outdoor use - Minimise the use of hard engineered structures
Protect ecological and hydrological integrity	<ul style="list-style-type: none"> - Use natural channel design and landscaping to ensure that the drainage network mimics/complements the natural ecosystem - Control sediment-laden runoff from disturbed areas, particularly during construction
Integrate good science and community values in decision making	<ul style="list-style-type: none"> - Use natural channel design and landscaping to ensure that the drainage network mimics/complements the natural ecosystem - Control sediment-laden runoff from disturbed areas, particularly during construction
Ensure equitable cost sharing	<ul style="list-style-type: none"> - Consider life-cycle costs of any WSUD measures - Provide rebate incentives for implementation of onsite measures that reduce the need for drainage infrastructure upgrades

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