

Water Sensitive Urban Design Elements

Water Sensitive Urban Design is used to save water and remove pollutants from storm water before it reaches our drains. Using Water Sensitive Urban Design is most successful when it is considered early in site design and building design. Instead of designing roof and paved areas to drain directly to a storm water pipe, the water is directed to Water Sensitive Urban Design for treatment or reuse before it reaches the Council's storm water drain. All of the Water Sensitive Urban Design elements described below can be used in your landscape design.

Rainwater tanks to collect roof water

The greatest benefits come from plumbing rain water tanks to internal toilets. You save water and help protect our local creeks and water catchments. Only a small tank is needed. The size of the tank can be matched to your roof area and the number of people typically occupying the house or business premises.



Rainwater tanks come in all shapes and sizes

Water Sensitive Urban Design Elements

Bioretention systems

These are simple systems that can be used outside as part of the landscaping. They are very versatile and can even be designed as a planter box that collects water from above-ground areas. Bioretention systems are a very effective way to collect sediments and filter pollution out of the water. They are self-contained so they can be used with any soil type. Filtered water is collected by a perforated pipe at the bottom of the bioretention system that is connected to the normal storm water drain.

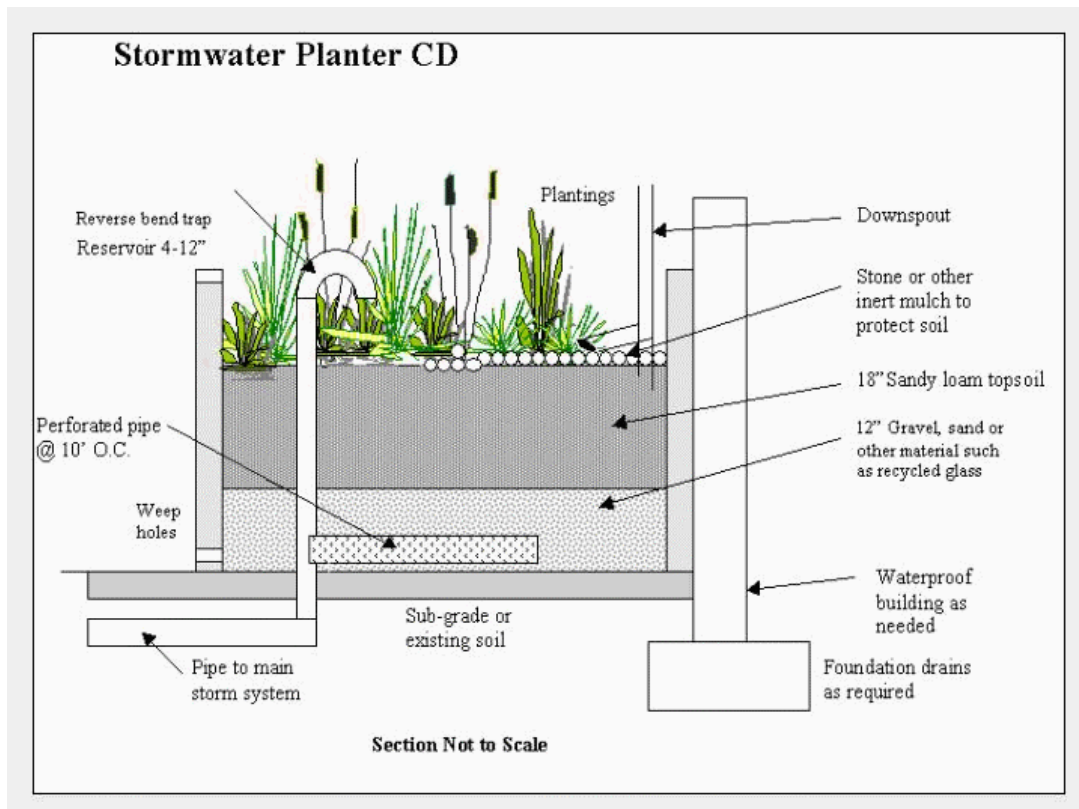


Cremorne Street, Richmond



Parker Street, Pascoe Vale

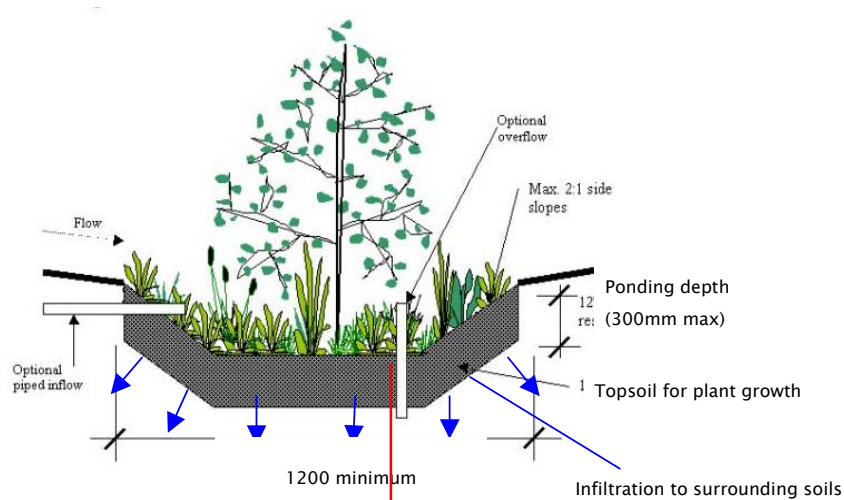
These bioretention systems collect the water runoff from the footpath and road. They could just as easily be part of a medium density development with a drive.



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Infiltration

Infiltration filters the water through soil before it is spread to the surrounding soils. Water flows into the prepared area (see diagram) before moving through the topsoil. There is no pipe to collect the filtered water. A reasonably large area may be needed because the soil types found in Moreland generally have a slow infiltration rate. Be careful using these in smaller sites as the water needs to be kept well away from building footings. A good alternative to infiltration is a bioretention system.

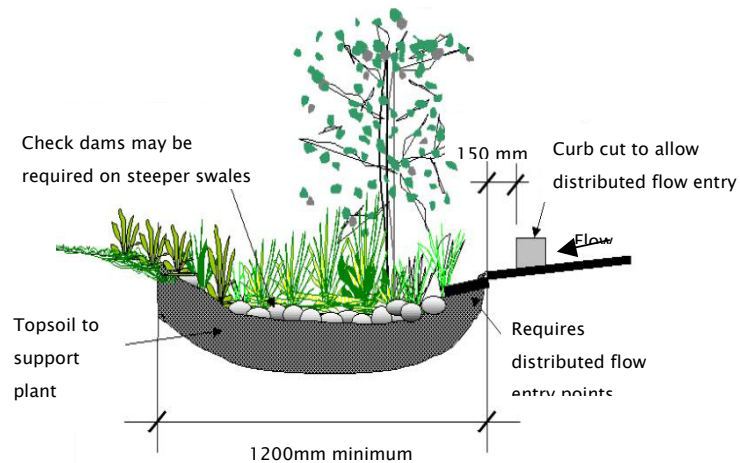


Infiltration should not be used too close to buildings or where soil drainage is poor.

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Swales

Swales are usually planted with grass and are a familiar sight in country towns. While often used instead of kerb and channel, they can also be used in private landscaping. They collect sediments and filter water but are not as effective at removing pollutants as bioretention systems. Filtered water can be collected through a perforated pipe that is connected to the normal storm water drain.



Typical section through a swale



Swales can be used inside or outside the property boundary.

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Buffer strips

Buffer strips can be planted grass or other vegetation. They are used for pre-treatment in combination with other Water Sensitive Urban Design elements (for example, the bioretention planter strip shown in the photograph on the left). They remove coarse material, slow down water and distribute the water evenly. When using a kerb, kerb cuts allow the water to reach the buffer strip (centre photograph).

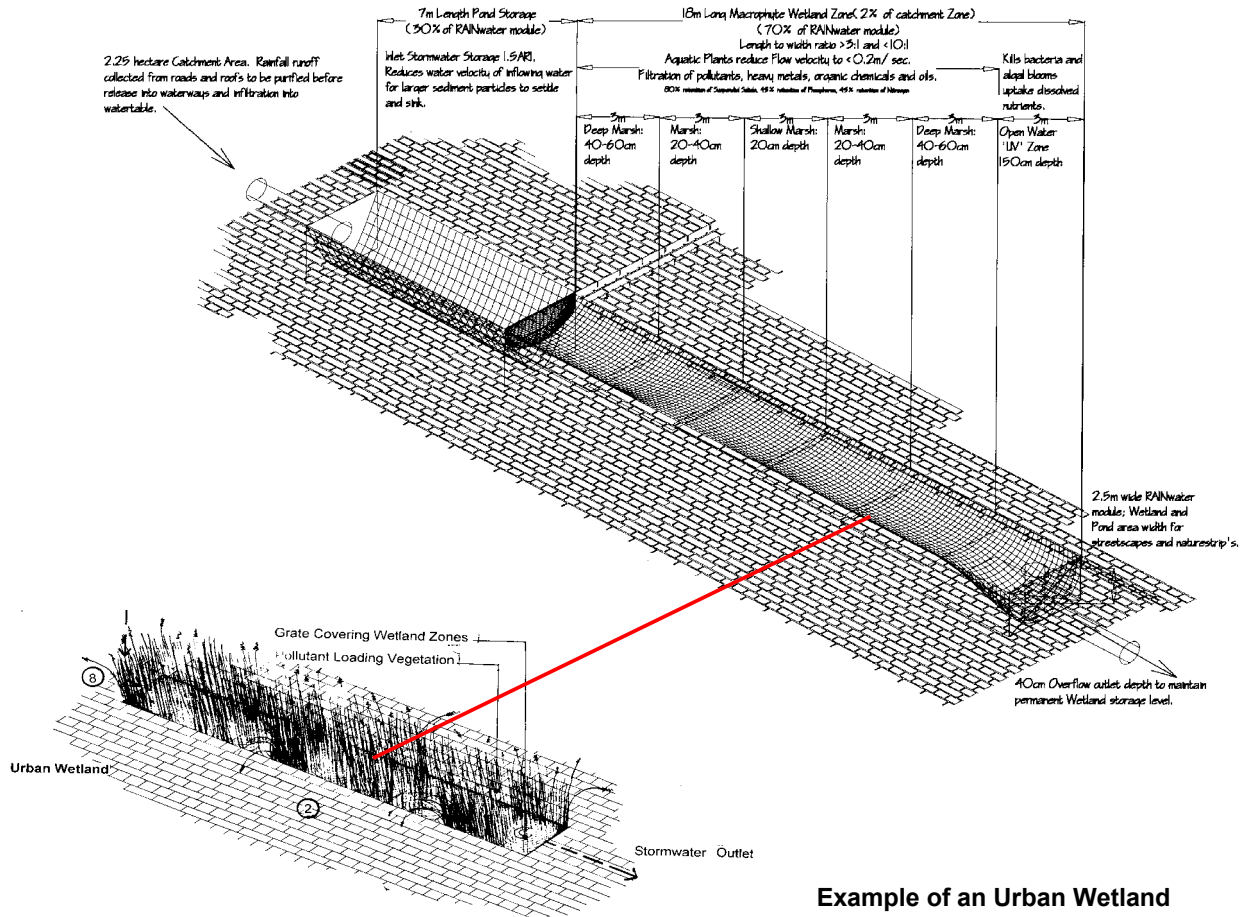


Buffer strips are for pre-treatment and can be adapted to many landscaping situations.

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Wetlands

Wetlands don't have to be big. You can build a mini-wetland as a forecourt or courtyard feature. Instead of filling your water feature from the tap, feed it with rain water that would otherwise go directly into the drain. Wetlands need two systems – one to collect sediments and one with plants to filter other pollutants. They are an effective way of dealing with the storm water problem. Water filtered by the wetland can be re-used in the garden or fed to the normal storm water drain.



Mini wetlands can be used as a design feature in forecourts and courtyards. They can be sized to any situation.

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Litter traps (also known as GPTs)

Entry grates

While reducing litter is the best solution, litter is still a fact of life. Litter traps collect paper, plant material and other forms of litter that are washed into the storm water drain. They are fitted inside storm water pits or near drainage outfalls. There are many products on the market that serve the purpose. Litter traps are usually only used for larger commercial sites, or in Council or Melbourne Water drains. An alternative for smaller sites is to use an entry grate to collect litter before it can be washed into the storm water drain.



Litter traps



Entry grate

Sources of products and materials

Rainwater tanks can be purchased off-the-shelf. Many hardware stores now stock rainwater tanks. Your plumber may also be able to organise a tank for you.

The materials needed to construct other Water Sensitive Urban Design elements are generally available through building and landscaping supplies, hardware stores and plumbing supplies.

Sources of further technical information

Water Sensitive Urban Design elements are designed based on scientific and engineering principles. They can be sized to fit any situation. They are usually sized in relation to the area they will collect stormwater from, that is, to provide effective pollutant treatment for the amount of water that will typically flow through them during small rain storms. Sources of technical information include:

- Council technical engineering drawings
- Urban Stormwater Best Practice Environmental Management Guidelines, CSIRO publishing
- WSUD Engineering Procedures: Stormwater, EPA Victoria