

Residential Multi-unit Development

1. Application

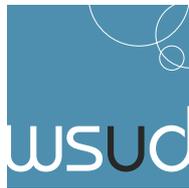
This development type applies to the development and use of land for multi-unit residential purposes, on a single lot.



Residential unit development in St Kilda, Melbourne. Development utilises greywater treatment and reuse, stormwater reuse, bioretention gardens and permeable paving.

2. Objectives

- Integrate natural and/or existing site topographical features into the development design.
- Maximise use of natural and/or existing features for multiple use.
- Minimise capital and maintenance costs per household for infrastructure.
- Maximise amount of public open space.
- Maximise opportunity to direct stormwater runoff into the ground or waterbody (where safe, compatible and appropriate to the function of the area or waterbody).
- Maintain availability of water during restrictions
- Make more efficient use of water
- Assist maintenance of garden / landscaping
- Water supply for bushfire protection
- Reduce flood risk
- Prevent erosion
- Improve water quality



3. Common Techniques

The following techniques are commonly used in water sensitive design strategies for residential multi-unit development. They are described in more detail in the relevant practice note.

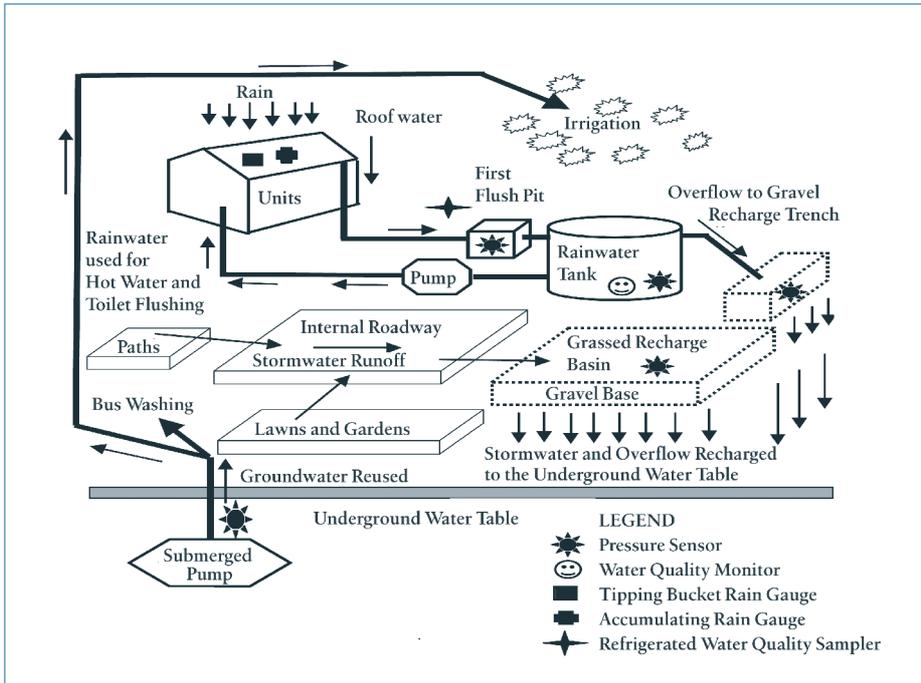
<i>Technique</i>	<i>Practice Note Reference</i>
Rainwater tanks	Practice Note No.1
Infiltration Devices	Practice Note No.2
Paving	Practice Note No.3
Landscaping	Practice Note No.4
Drainage Design	Practice Note No.5
Wastewater reuse	Practice Note No.6
Rain gardens and Bioretention systems	Practice Note No.7
Vegetated swales and buffers	Practice Note No.8
Water efficient fittings & appliances	Practice Note No.9
Stormwater Ponds	Practice Note No.10
Wetland design, construction and maintenance	Practice Note No.11

4. Site strategy

Any combination of the techniques (i.e., rainwater tanks, porous paving, filtration/ infiltration devices, landscape practices) listed above can be very effective at achieving the objectives mentioned above. For maximum effectiveness, these measures need to be carefully designed as part of an overall strategy that considers local site conditions.

The figure below shows a possible overall strategy for a multi-unit development. In addition to the features shown, water sensitive design multi-unit developments offer opportunities for:

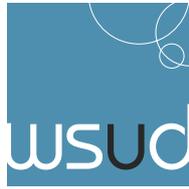
- Narrow driveways to maximise the permeable area.
- Integrates design of driveways to maximise scope for retention of existing vegetation and for new plantings.
- Variation in driveway widths to facilitate integrated stormwater management and substantial plantings.
- Footpaths integrated with driveways and respond to natural features and stormwater management to create spaces that are easy to maintain and efficient to irrigate.
- Porous paving for driveways and parking areas.
- Common trenching and closer alignment of services to improve scope for reduced disturbance and trenching to retain existing vegetation and plant new vegetation.
- Appropriate landscape practices that include the selection of species to reduce water demand.



Schematic of water sensitive multi-unit layout utilising groundwater recharge and stormwater reuse. [source: Coombes P. J., Argue J. R., and Kuczera, G. (2000): "Figtree Place": A case study in water sensitive urban development". Urban Water Journal, Elsevier Science, London, UK, in press]

Example of an overall stormwater strategy for a multi-unit development

Appendix A (Site Planning) provides more detail on how to prepare an integrated site plan that incorporates water sensitive design considerations.



water sensitive urban design

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