water sensitive urban design

Residential Subdivision Development

1. Application

This development type applies to the subdivision of land for residential purposes, creating at least one or more additional lots.

Residential swale drainage at Lynbrook Estate, Melbourne. Shallow batter slopes on the drain allow driveway crossovers without the need for culverts. Swale width and regular drains delivering flow to a piped underground stormwater system mean that flows are rarely deeper than grass height.

2. Objectives

- Integrate natural and/or existing site topographical features into the subdivision design.
- Maximise use of natural and/or existing features for multiple use.
- Minimise capital and maintenance costs per household for municipal 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 subdivision development. They are described in more detail in the relevant practice note.

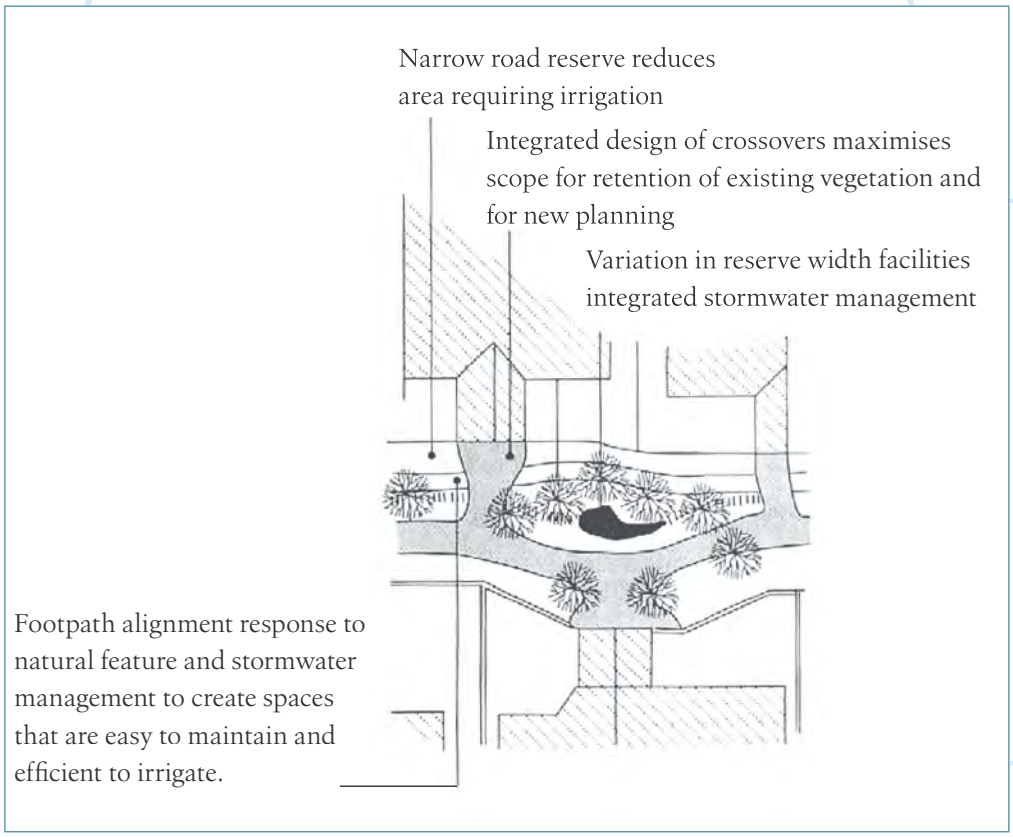
Technique	*Practice Note Reference*
Rainwater tanks	Practice Note No.1
Infiltration Devices	Practice Note No.2
Paving	Practice Note No.3
Landscaping	Practice Note No.4
Drainage Design	Practice Note No.5
Wastewater reuse	Practice Note No.6
Rain gardens and Bioretention systems	Practice Note No.7
Vegetated swales and buffers	Practice Note No.8
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 residential subdivision development. In addition to the features shown, water sensitive design subdivisions offer opportunities for:

- Narrow road reserves which reduce the area requiring irrigation.
- Integrates design of accesses and crossovers to maximize scope for retention of existing vegetation and for new plantings.
- Variation in road reserve widths to facilitate integrated stormwater management and substantial plantings.
- Footpath alignments that respond to natural features and stormwater management to create spaces that are easy to maintain and efficient to irrigate.
- Porous paving for accesses, driveways and parking areas.
- Common trenching and closer alignment of services to improve scope for reduced verges to retain existing vegetation and plant new vegetation.
- Appropriate landscape practices that include the selection of species to reduce water demand.



Examples of a stormwater system for a residential subdivision

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

Source: EPA NSW

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