



WSUD and the built form

Melissa Bradley, Program Manager

Adelaide Sustainable Building Network
28 June 2016



Water Sensitive SA - established to build the capacity of all organisations with a role in the planning, design, approval, construction or maintenance of new developments and infrastructure to implement best practice water sensitive urban design (WSUD)

Program Partners



Natural Resources
Adelaide and Mt Lofty Ranges

LOCAL GOVERNMENT RESEARCH & DEVELOPMENT SCHEME



TEA TREE GULLY
Naturally Better



What we provide:

- WSUD policy development and implementation pathways
- specialist training
- networking opportunities and peer-to-peer
- more accessible WSUD research for practitioners
- guidelines and tools
- information sharing through our website, e-newsletter, blog articles and forums.



Angas Street, Adelaide adjacent SAPOL
Photo: Water Sensitive SA

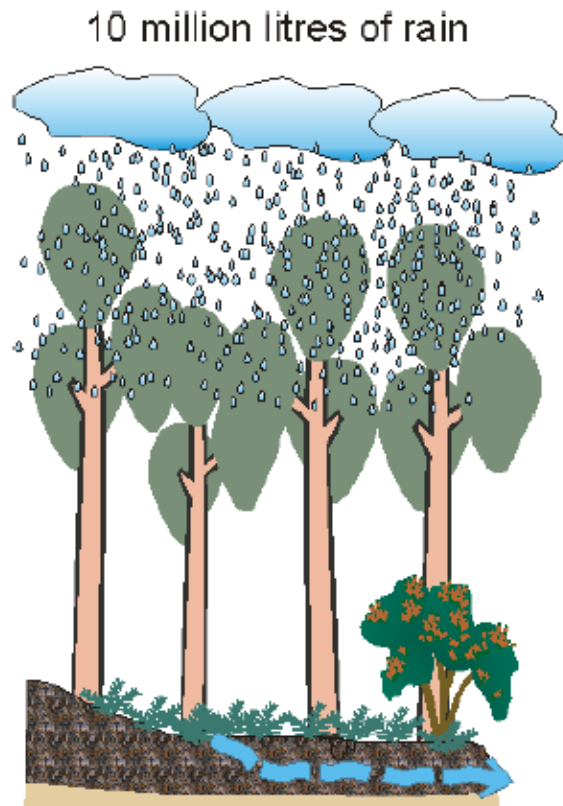
Principles

- Re-integrate water back into urban landscape – create microclimate
- Re-use of water at source (or close as possible)
- Protect receiving water quality (streams and marine)
- Fit for purpose water use



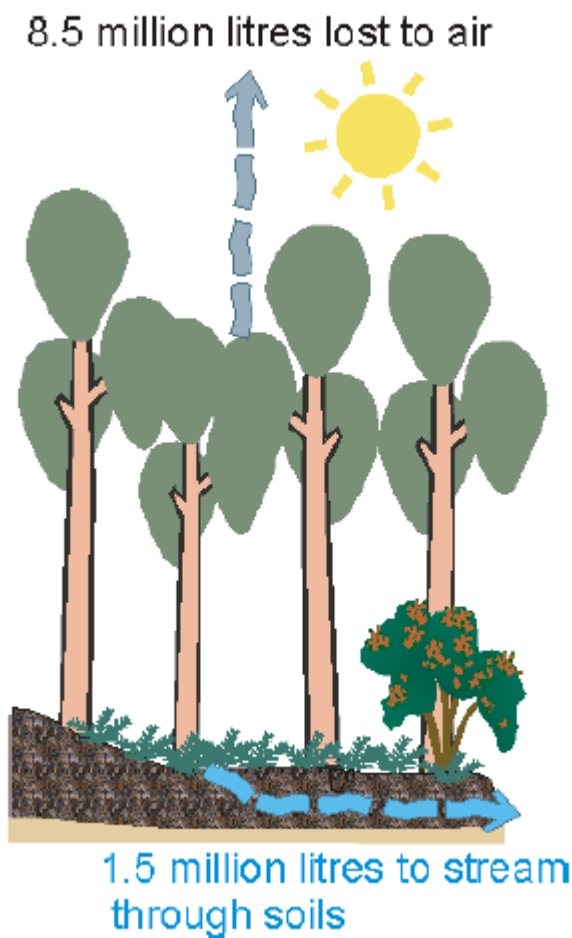
Urbanisation and changes to catchment hydrology

Water on a hectare of forest over a year



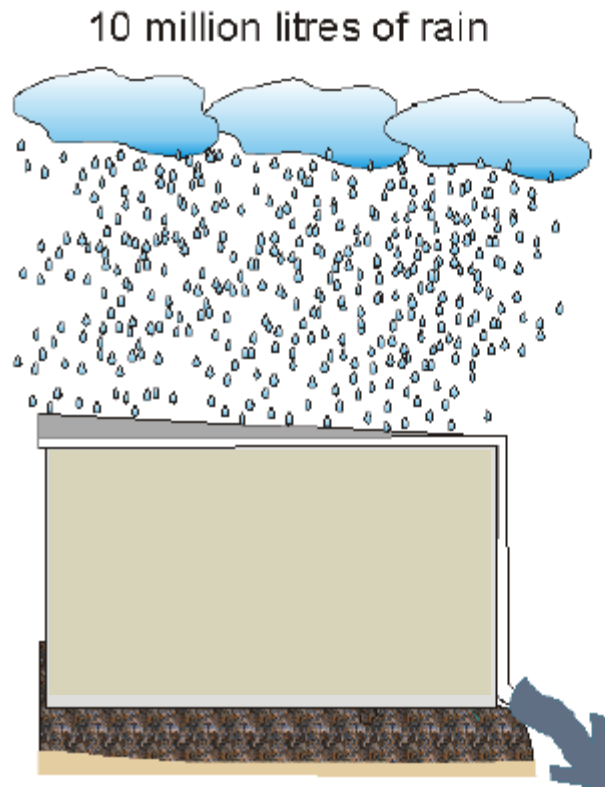
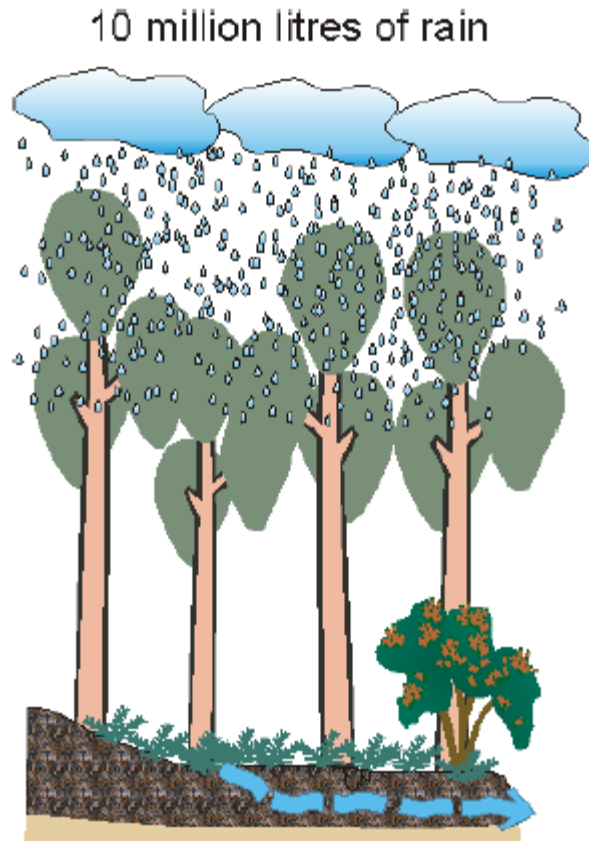
Source: Centre for Water Sensitive Cities

Water on a hectare of forest over a year



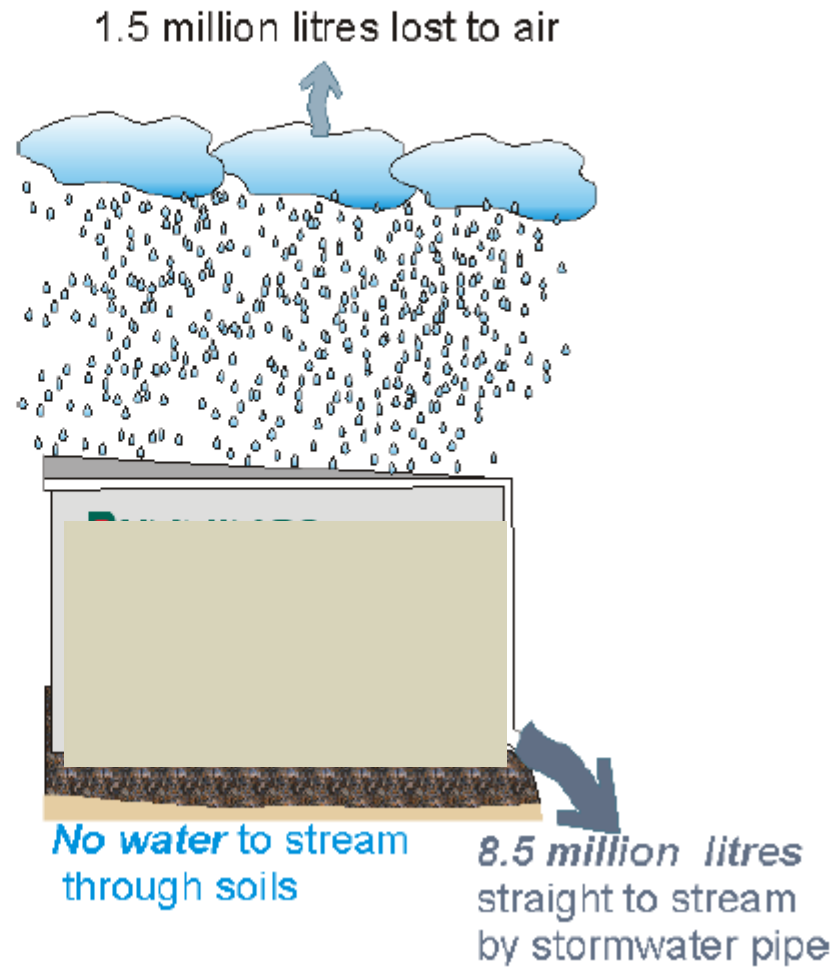
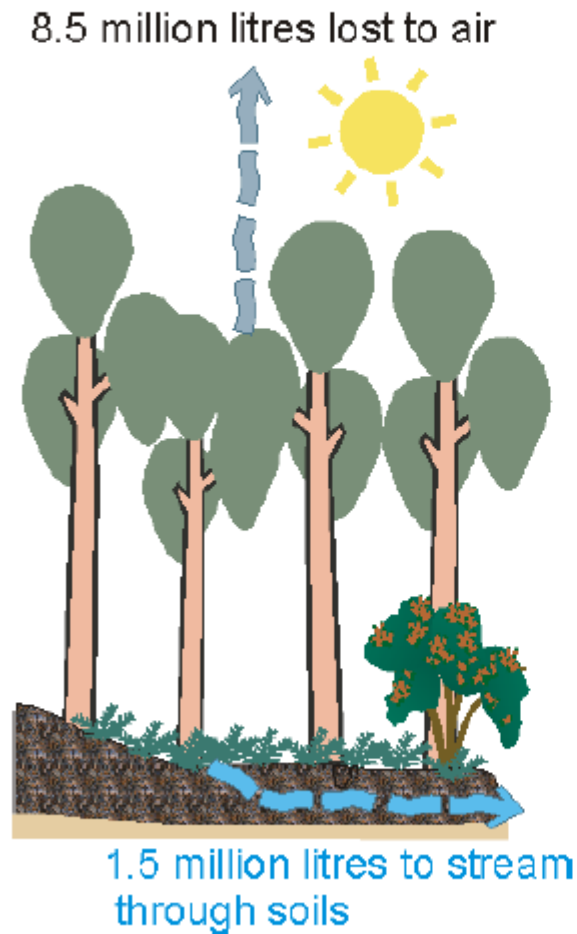
Source: Centre for Water Sensitive Cities

Replace the forest with a building



Source: Centre for Water Sensitive Cities

Stormwater runoff a BIG flow problem



Source: Centre for Water Sensitive Cities

Change to hydrograph pre and post development

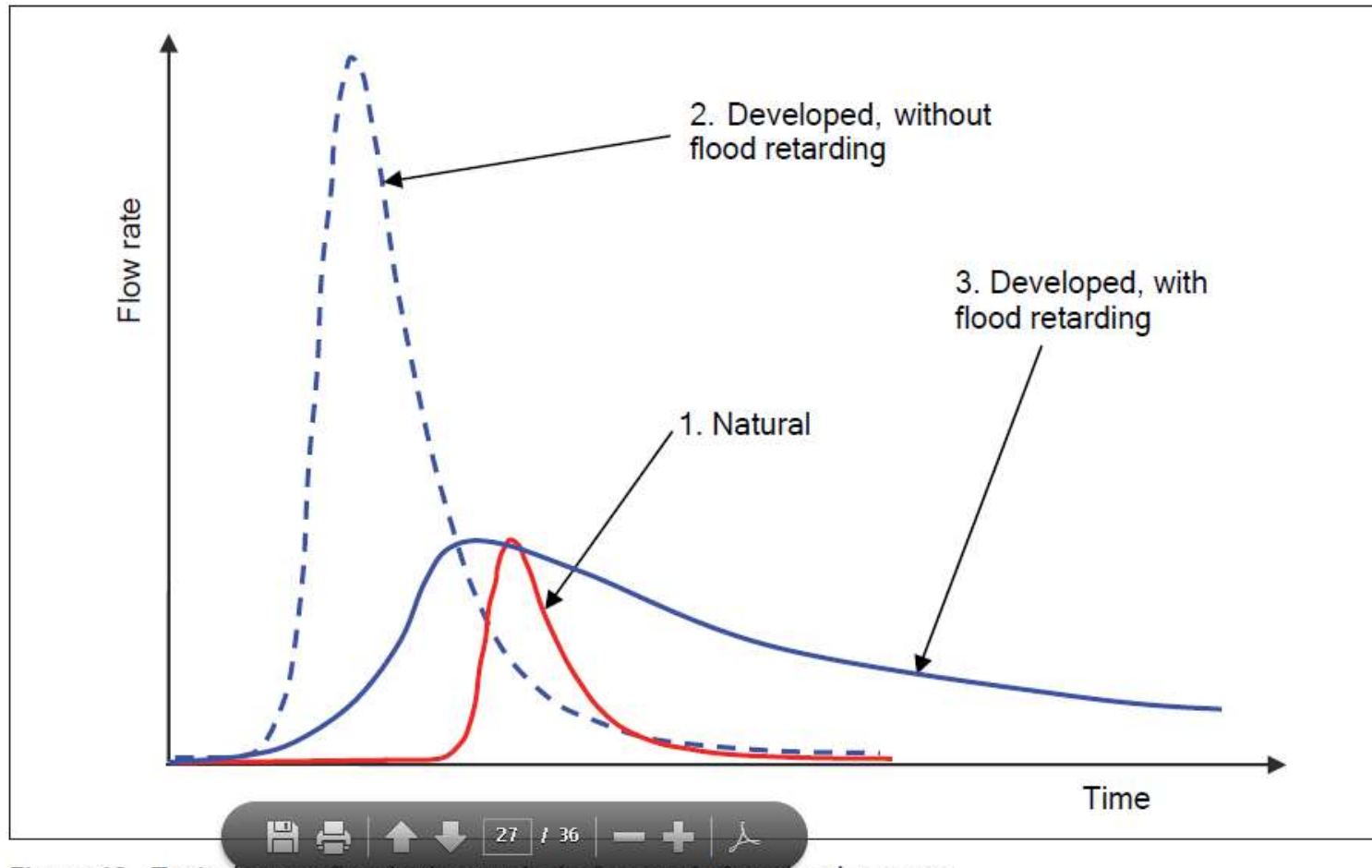


Figure 12 - Typical storm flow hydrographs before and after development

Catchment scale



Oaklands Park Wetlands Source: City of Marion

Catchment scale



St Clair Wetlands

Precinct scale



Kevin Taylor Park, Bowden Urban Village

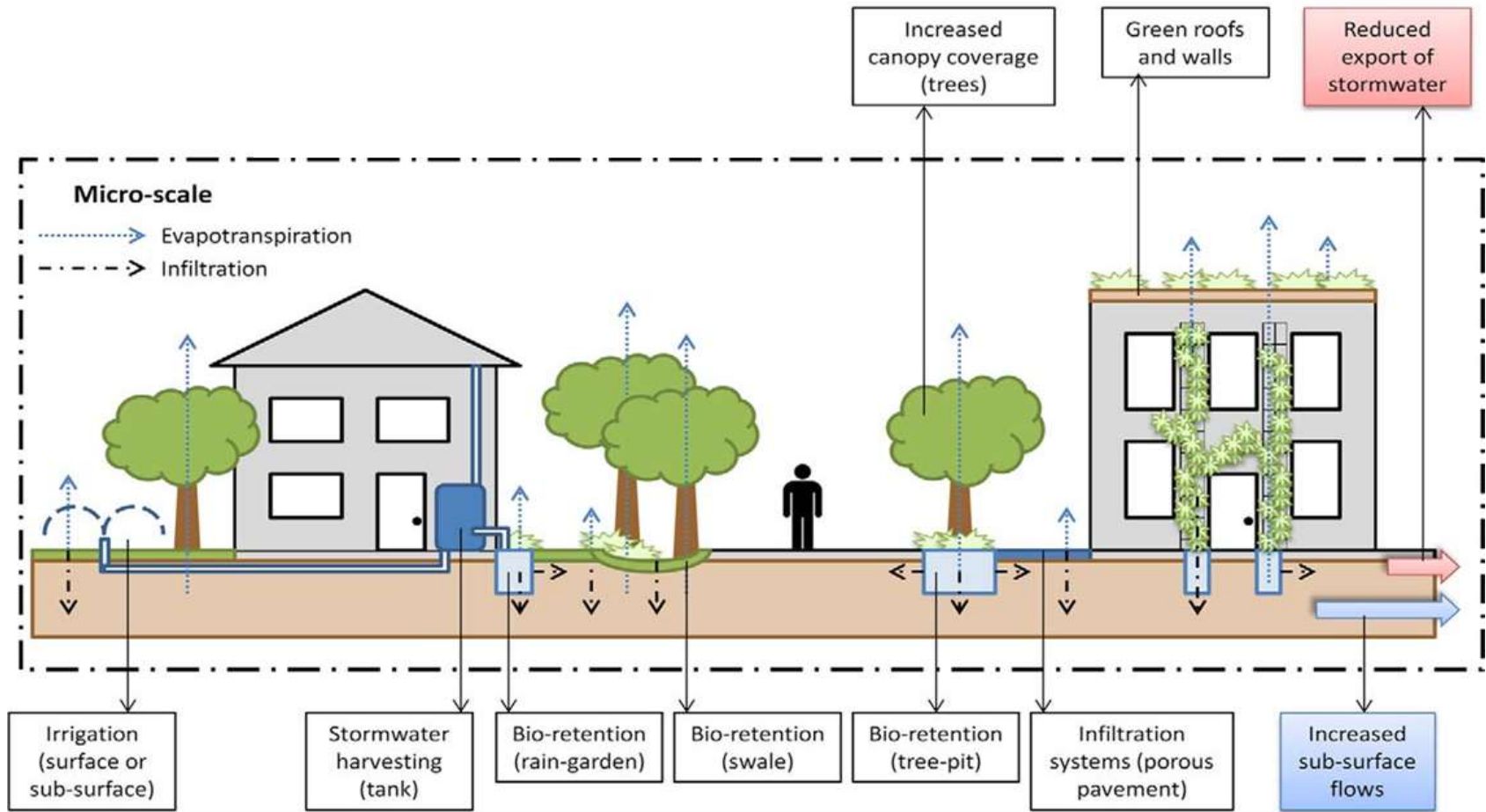
30 Year Plan for Greater Adelaide

- 70% of new housing stock from infill development and
- remaining 30% from greenfield sites
- 258,000 net additional dwellings in Greater Adelaide (including Murray Bridge) by 2040
- population increase of 560,000
- downward trend in median allotment sizes
 - 375 m² in 2011-13 compared with
 - 520m² in 2002-03 (UDIA, 2013)



Dana McCauley Stonnington Leader
May 04, 2015 12:00AM

Reducing stormwater runoff benefits water cycle



Source: Coutts et al. (2012)

Streetscale

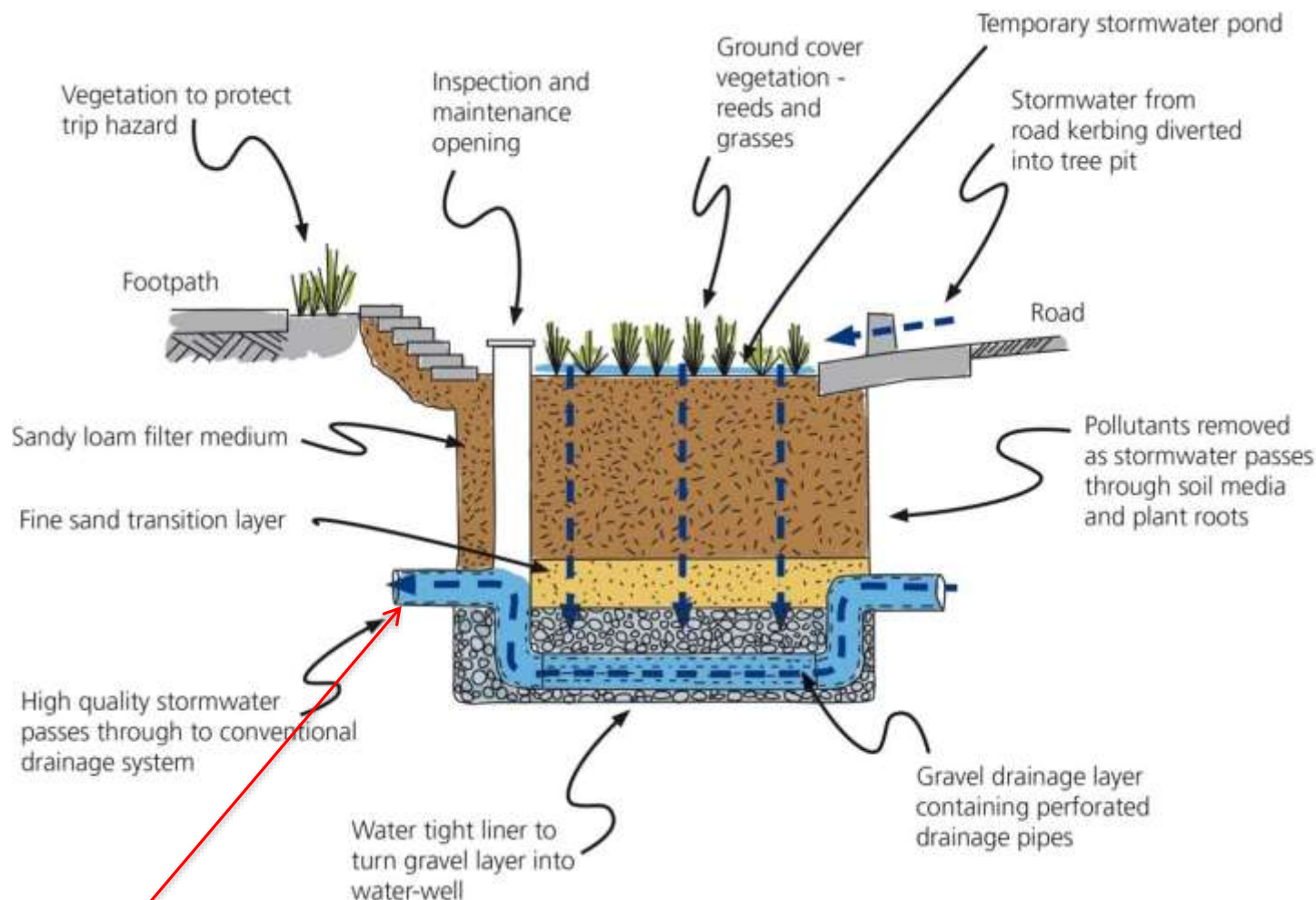


Lochiel Park



Murchison Street, Mansfield Park

In-ground design



Note: Need 0.5% min. grade from invert of outlet to stormwater system

Source: City of West Torrens

Allotment Scale

We are getting this....



Source: Tonkin Consulting



But we want this....



Unions Street Dulwich, B-Pods
(infiltration systems)



Angas Street raingarden



Christie Walk Source: Baden Myers



www.cocksauld.com.au

Allotment WSUD Solutions

- onsite detention
- collection and reuse of rainwater and stormwater on site
 - onsite retention
 - rain gardens
 - vegetated swales and buffer strips
 - direction of flow from impervious ground surfaces to landscaped areas.
- reduced impervious areas
 - site coverage
 - permeable paving
- water conservation

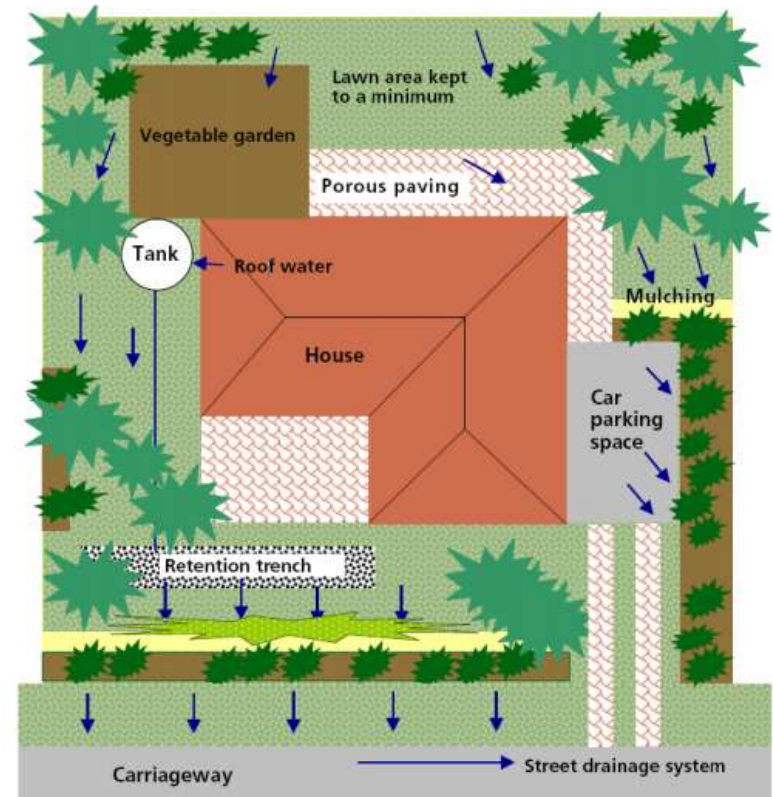
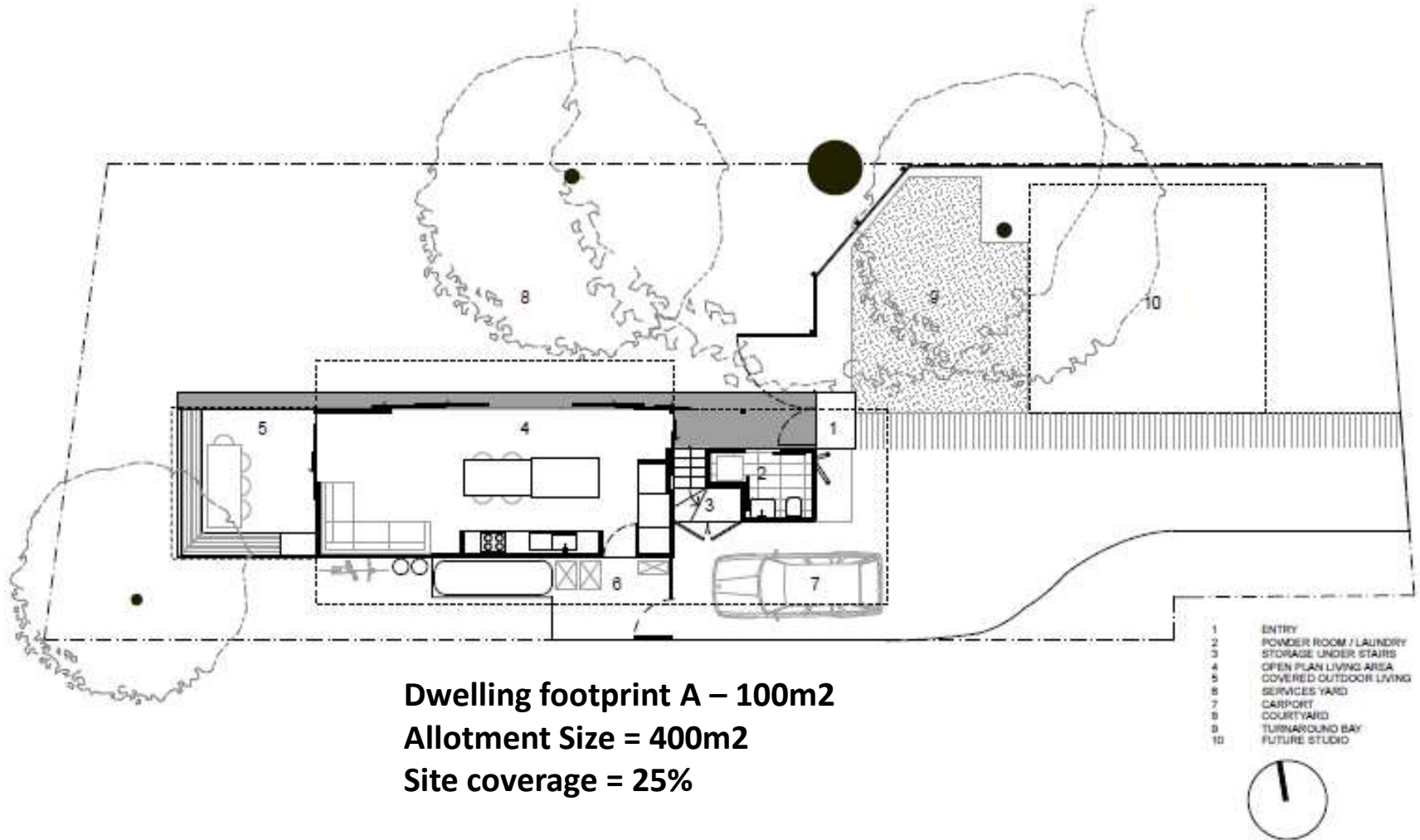


Figure 2.1 Example of an Overall WSUD Strategy for a Typical Suburban Dwelling

Source: LHC CREMS (2002)

Reduced impervious areas

The 100m2 house



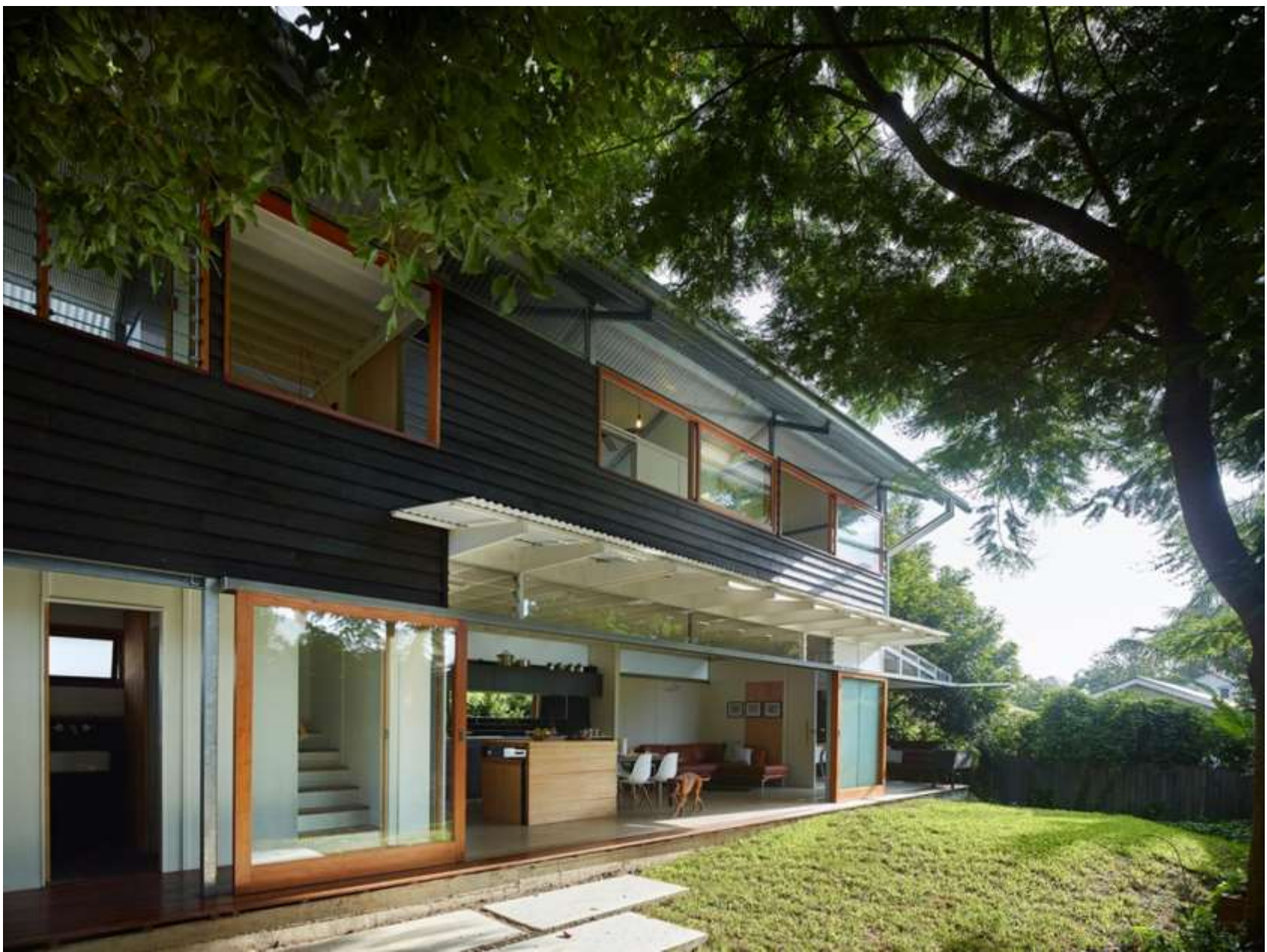
Source: Levesque & Derrick Architects, lada.com.au



Source: Levesque & Derrick Architects, lada.com.au

5,000L rainwater
tank for:

- Toilet flushing
- Laundry
- garden



Source: Levesque & Derrick Architects, lada.com.au



Source: Levesque & Derrick Architects, lada.com.au

Minimise impervious surface areas by:



Source: www.hdsustainablelandscapes.com



Source: www.houzz.com



Source: www.shedforce.com



Source: www.staceroofing.co.uk

Christie Walk



Permeable pavements



Source: www.marshalls.co.uk

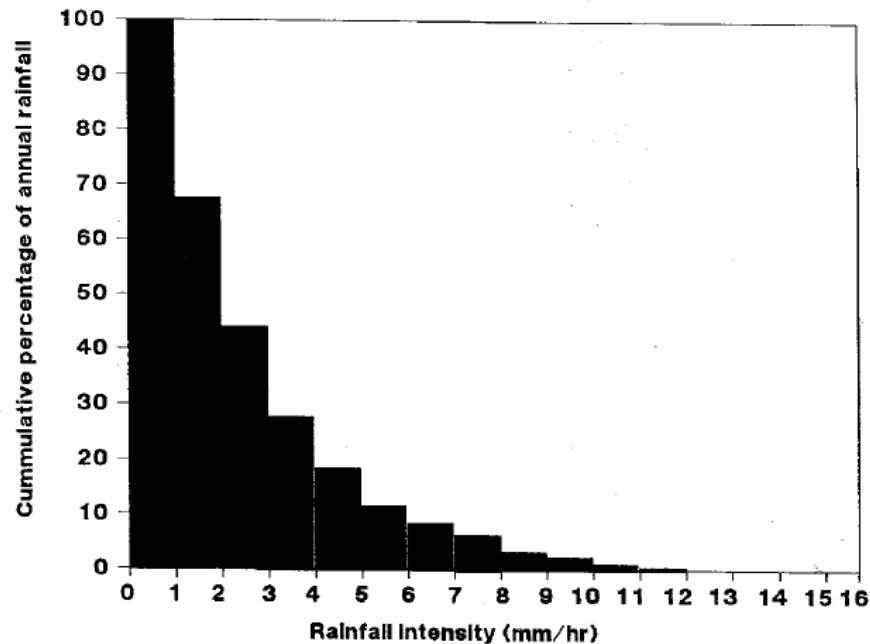


Source: Baden Myers

Permeable paving – its worth it



Figure 19: Percentage of annual rainfall which exceeds the stated hourly rainfall intensity



Source: Pevleic, P. (1992), The potential for storage and re-use of Adelaide's stormwater runoff using the upper quaternary groundwater system.

Blocks <250m²



Source: galleryliving.com.au

Dwelling footprint A – 130m²
Allotment Size = 230m²
Site coverage 56%

Create space for WSUD





Source: www.maxiplas.com



Source: rosemarkwatertanks.com.au



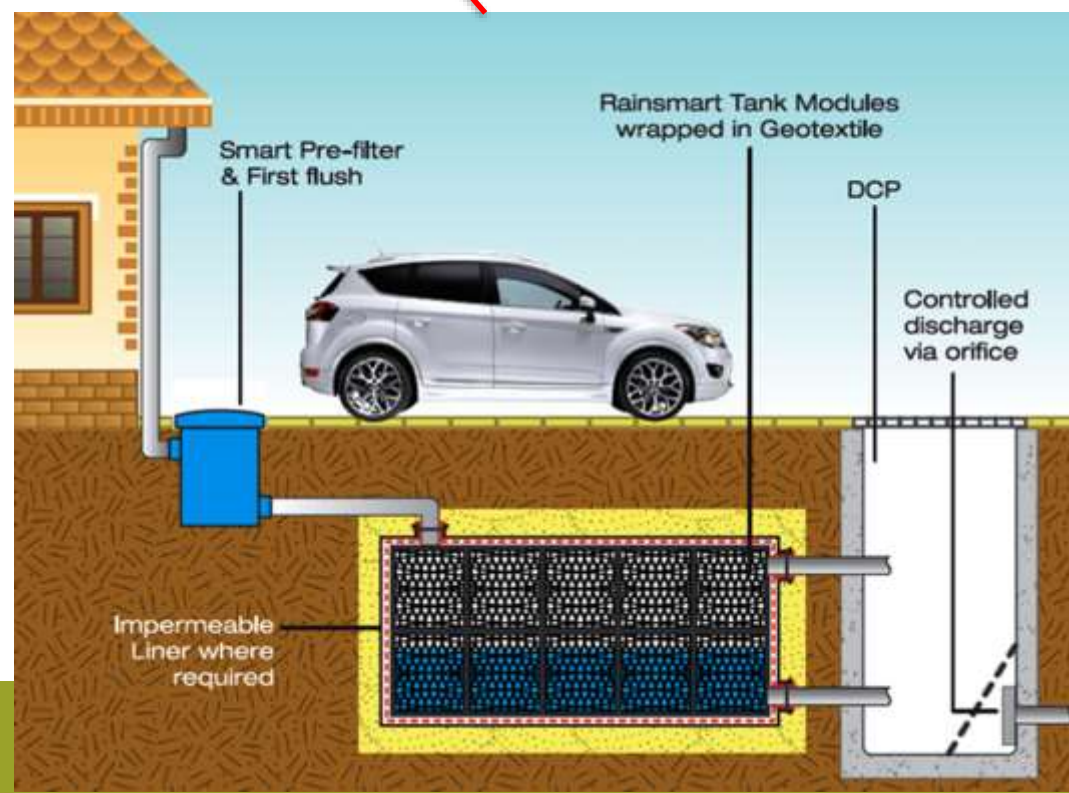
Source: www.tightspottanks.com.au/



LIVERABLE WATER SENSITIVE

Create space for WSUD





Source: rainsmartsolutions.com.au

Upcoming Seminars & Training



Upcoming training

09 How to use the BeST tool from CIRIA – a cost-benefit analysis tool for WSUD

SEP 16

09 SEPTEMBER - 10:00am to 1:45pm

Upcoming events

27 WSUD solutions to underperforming asphalt in commercial developments

JUL 16

27 JULY - 3:30pm to 5:00pm

25 Engaging communities in the transition to water sensitive cities

AUG 16

25 AUGUST - 12:30pm to 3:00pm

19 Bowden Urban Village – working towards a Green Star Community rating through integrated water cycle management

OCT 16

19 OCTOBER - 3:30pm to 5:30pm





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