



Raingardens:

Changing 'down under' with ideas from Down Under.

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Scottish Green Infrastructure Forum
Green Infrastructure: a growing need
Glasgow City Chambers
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Overview

Context

Raingardens

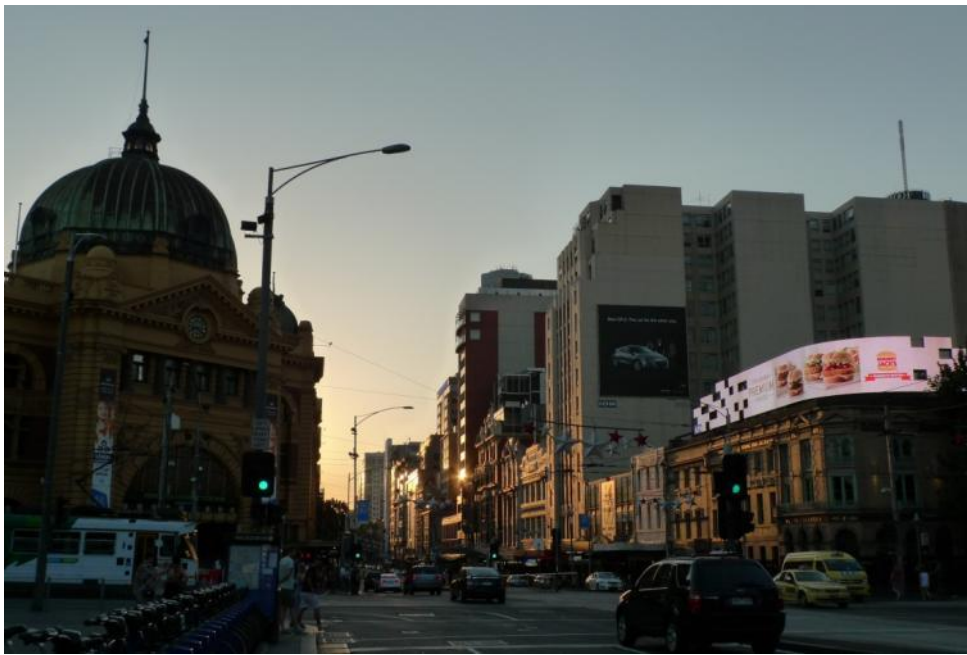
Evolution

Enthusiasm

Recommendations

Context







Policy Response:

Best Practice Environmental Management Guidelines (1999)

Objective to remove....

80% TSS of typical urban annual load

45% TN of typical urban annual load

45% TP of typical urban annual load

70% litter of typical urban annual load

and retain **flows to 1:1.5** at pre-dev levels

.....from urban stormwater runoff

Industry Response:

Green infrastructure solutions!

Some early adopters in development

Water management authority; wetlands and industry capacity building

Local government leadership for street scale retrofits and community action

Raingardens emerge as the GI Star!

BUT.... with inconsistent results!

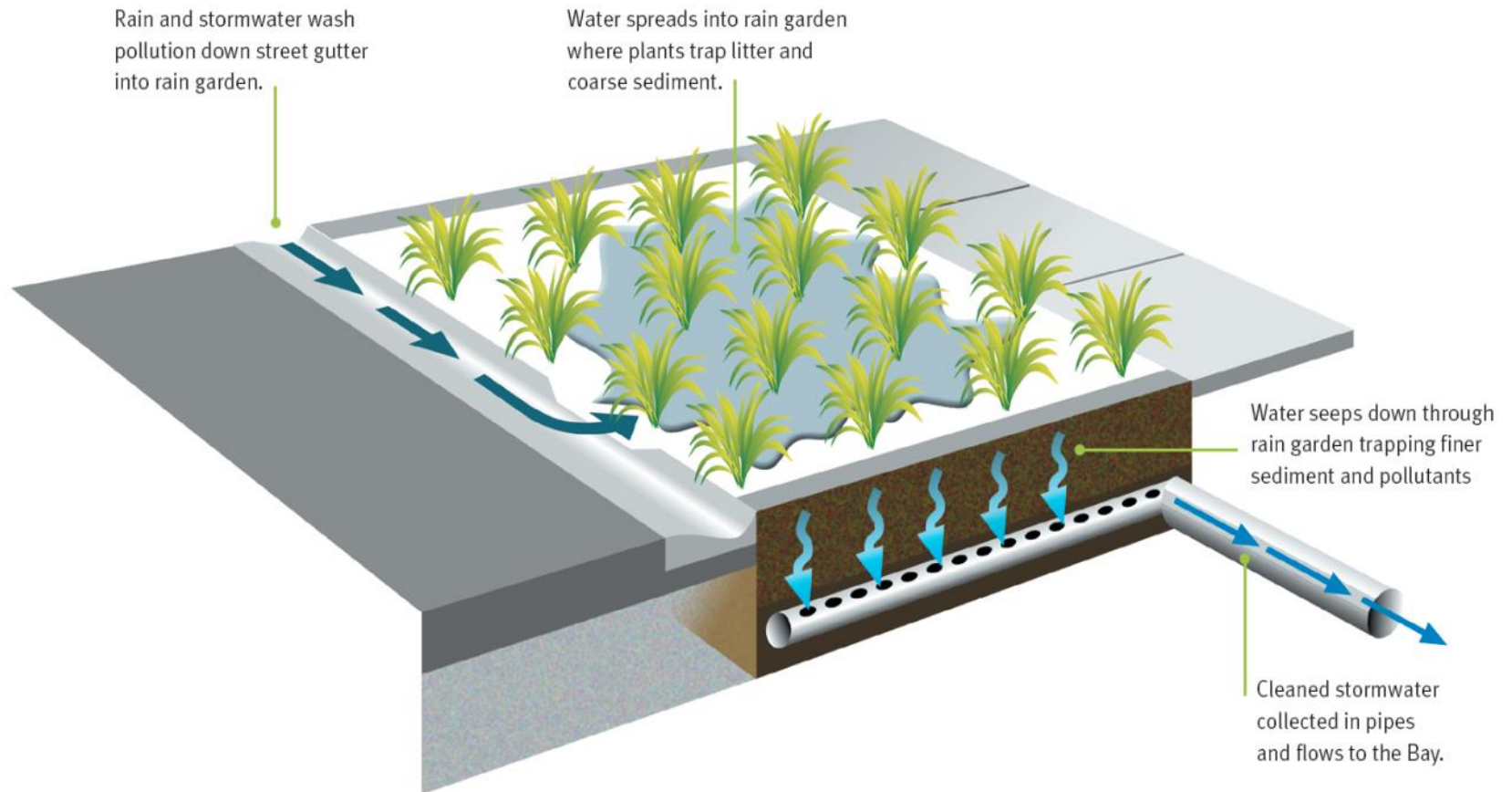


Raingardens

“What’s a raingarden mate?”



Raingarden concept

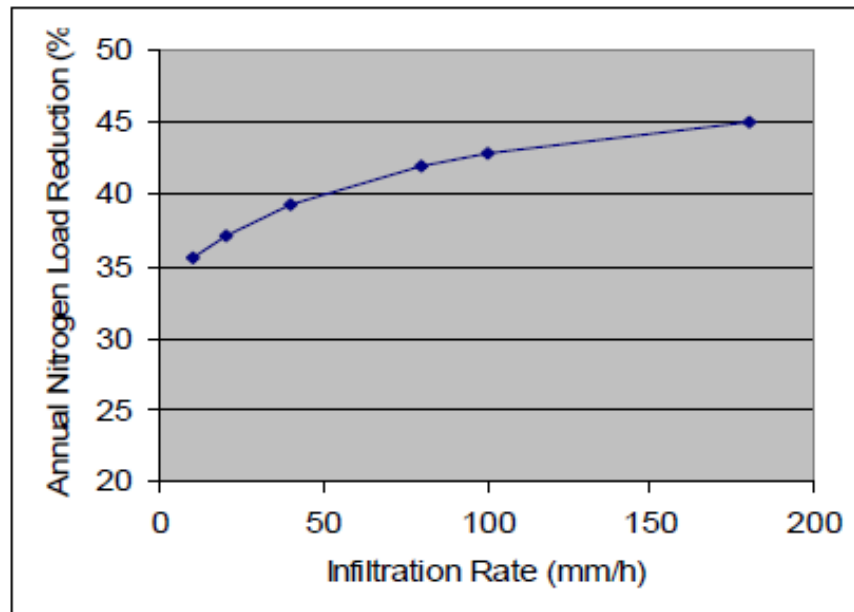


Scale and application

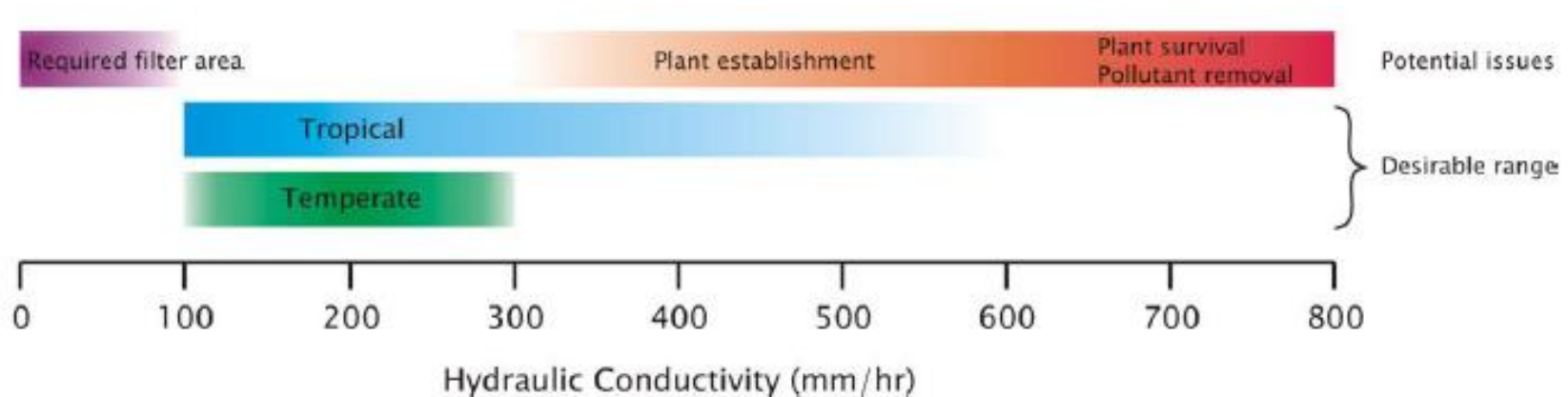


Evolution

Filtration media: *getting it right!*



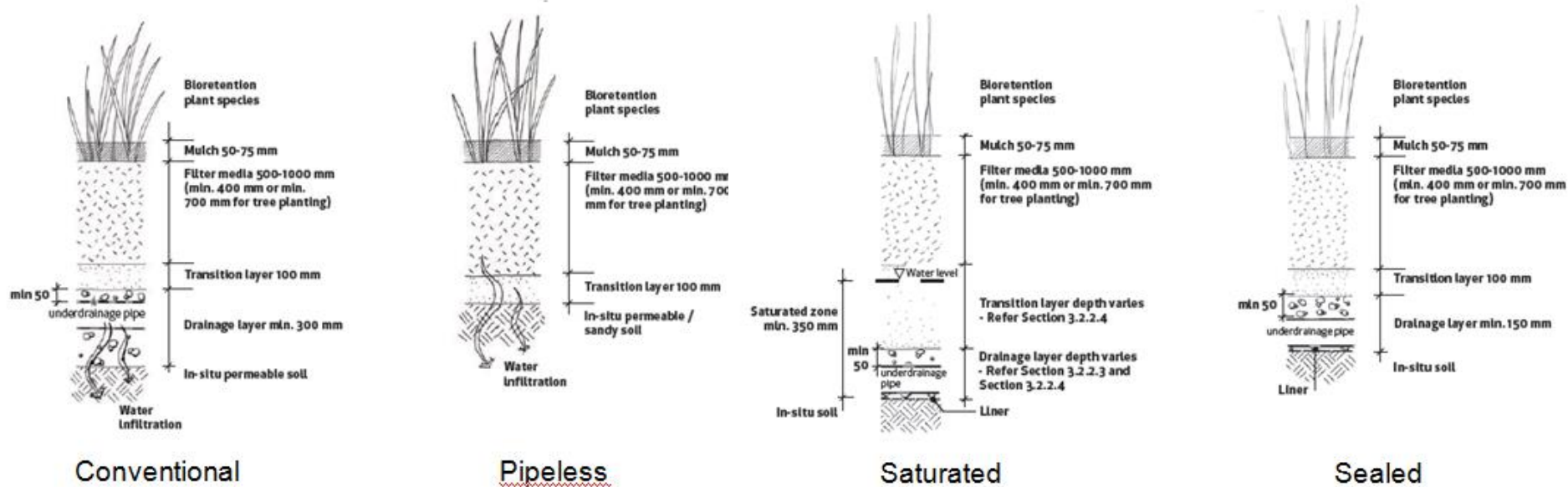
The screenshot shows the website for the MONASH University Water for Liveability Centre. The header includes the university logo and name, a search bar, and navigation links: HOME, ABOUT, PROGRAMS, CRC FOR WSC, RESOURCES, INTRANET, NEWS & EVENTS, LINKS, and CONTACT US. Below the header is a banner image showing various water management features like a biofilter, rainwater harvesting, and a pond. A sidebar on the left lists 'WSUD Technologies' with sub-links for 'Vegetated Filtration Systems/Biofilters', 'Non-Vegetated Filtration Systems', and 'Associated Publications'. The main content area is titled 'Vegetated Filtration Systems/Biofilters' and contains text about the role of vegetation in managing urban stormwater.



Filtration media: *materials and configuration*

Layer	Description	Depth	Notes:
Mulch	Stone aggregate Match surrounding landscape No fines	50mm	
Filtration media	Washed sand Siliceous or calcareous Max 2-4% Clay (<0.002mm) Max 4-8% Silt (0.002 – 0.5mm)	300mm min 600mm recommended	Tests: hydraulic conductivity and PSD (samples not meeting hydraulic conductivity test must not be used) Ameliorate to the attain the required horticultural properties where required – typically applied to top 75mm (e.g. agricultural lime at 10-30kg/100m ² ,
Transition	Washed sand/course sand 90% particles over 0.25mm	100mm	Courser than filtration layer
Drainage	Course sand/fine gravel No particles > 7mm More than 70% range of 4-7mm Less than 20% range of 2-4mm No particles below 2mm	Min 100mm	Courser than transition layer
Pipe bed / surround	Min 20mm aggregate pipe bed Min 20mm aggregate cover over pipe.	Min 20mm	

Filtration media: *materials and configuration*



A different approach to the SuDS manual;

Transition layer in place of geotextile fabric

Avoids use of conventional soil (loam)

Designed to achieve a predictable water quality outcome

Edithvale Recreation Reserve

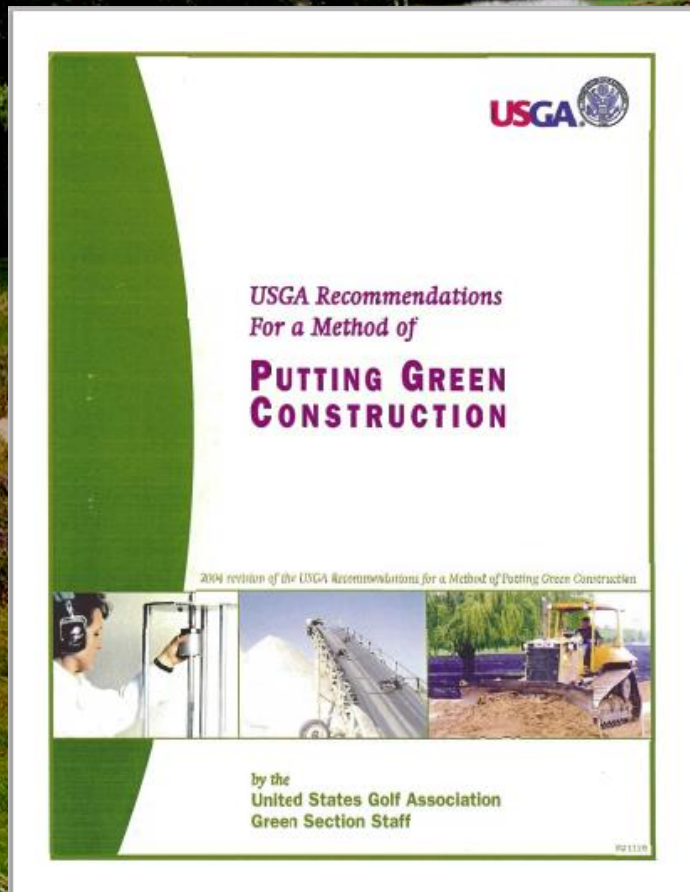
City of Kingston, Melbourne, Australia

September 2015

Images: Alan West



Filtration media – industry parallels



“.....The USGA green profile employs layers of free-draining materials built up over a pipe drainage scheme. The laboratory testing of the gravel, blinding (if used) and rootzone is critical to the success of the construction. All selected materials must conform to specific requirements....”

**Saturated Hydraulic Conductivity:
Minimum of 150mm/hr**

enthusiasm





healthy waterways Raingardens

[Home](#)[What is a raingarden?](#)[Raingardens in Melbourne](#)[News & Events](#)[About us](#)[eNews](#)

Help protect the environment and contribute to healthy waterways by building a raingarden.

► Learn how to build a raingarden at your home!



What is a raingarden?

A raingarden resembles a regular garden bed, except that it has layers of sandy soil beneath...

[> Learn More](#)



Why build a raingarden?

Raingardens are an easy way to create a water efficient garden and improve the health of your local creek...

[> Learn More](#)



How do I build a raingarden?

Build your own raingarden today by following our easy step by step instructions...

[> Learn More](#)

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Raingardens in Melbourne

Thank you for registering your raingarden to help us exceed our target of 10,000 raingardens

Help the environment and save water in the garden

Are you looking for innovative ideas for sustainable homes and gardening? If you want a low maintenance garden and are

Creative and sustainable landscaping design ideas

Sustainable gardening is becoming increasingly important to everyone in Melbourne. Not only do raingardens use water



<https://www.youtube.com/watch?v=hbbVX0q7WTI>



Going forward in the UK

Raise the profile of diffuse urban pollution in the UK

Raingardens for surface water separation schemes?

What is the predictable and consistent formula?

Make your own case study....

Questions:

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