



# SPOUTING

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## *Are Wetlands the Forgotten Hero in Stormwater Management?*

It was nearly 2 decades ago when wetlands were thought to be the ultimate solution to improve the quality of stormwater emanating from our urban catchments. I know because I was involved in much of this research to develop this technology while working for the NSW state government to combat eutrophication after an 1100km bloom appeared in the Murray Darling river system. Although the adoption of wetland technology was relatively slow in urban development, the popularity steady grew as the community realized the many other benefits of wetlands and come to understand some of the myths. However wetland solutions seem to be losing favour in our industry with bio-retention systems being the preferred flavour. Is this just a fad or are the wetland solutions out of date? Do we have the right balance in our stormwater management solutions?

Val Mag and Neil Craigie put forward an argument that wetlands are being overlooked and they should be adopted more widely in



the industry. Is this the case? Check out the article on Page 2, and let us know your thoughts –

email us at [office@stormwatervictoria.com.au](mailto:office@stormwatervictoria.com.au)

See ya around the traps,  
Rod Wiese, President SV

## Stormwater Reuse Creates Community Pride at Green Gully Reserve

To help ensure a secure and sustainable water supply for Melbourne, City West Water works with local councils, the Department of Health, industry and community groups on various alternative water supply initiatives. Parsons Brinckerhoff (PB) has worked with City West Water and Brimbank City Council on one such initiative, aimed at finding new sources of water to irrigate local sporting fields at Green Gully Reserve in Keilor Downs.

Since 2005, City West Water has coordinated studies investigating catchment scale alternative **water sources across Melbourne's inner west**, including sewer mining, groundwater, stormwater harvesting and numerous other alternative sources. Green Gully Reserve was identified as a key opportunity during this study and PB worked with City West Water and Brimbank City Council to develop a feasibility assessment and options analysis for the site. Stormwater harvesting was identified as the preferred alternative water source, and preliminary water balance modelling was completed to confirm this recommendation. Since then, PB has assisted City West Water and Brimbank City

Council in the design of an innovative stormwater **harvesting scheme, which will reduce the site's current annual potable water demand for irrigation by over 70%.**

The scheme secured funding from the DSEWPAC 2010 *National Urban Water and Desalination Plan* and the Victorian Department of Sustainability and Environment (DSE) *Vision for Werribee Plains* program. Development of the scheme has required the collaboration of many stakeholders including Melbourne Water, Brimbank City Council, DSEWPAC, DSE and local community groups.

The scheme involves the diversion of stormwater from two local main drains into a 3 ML above ground open water storage, where it will be screened and treated, if required, before being used across the site for irrigation. The scheme will be operated in part by Brimbank City Council, and part by City West Water. As a capability building initiative by Brimbank City Council, an operation and maintenance manual will be produced involving key stakeholders throughout its development.

**This "drought-proofing" initiative will provide the local community with a recreation venue that may be enjoyed for both active and passive recreation all year round: one that they will be proud to call their own.**

By Nathan Clements,  
Water Engineer, Parsons Brinckerhoff

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## Are Wetlands the Forgotten Hero in Stormwater Management? . . . from pg 1

WSUD initiatives are now everywhere. As designers of these systems we take the opportunity whenever we can to inspect constructed assets and one point is becoming very clear. By far the most successful WSUD initiative which can be implemented (at both the large and small scale) are wetland systems.

In Melbourne, one of the great legacies of organisations such as the Dandenong Valley Authority and the MMBW is the declaration of flood plain areas. These areas offer wonderful opportunities in regard to wetland placement. If a regional wetland is placed in a flood plain to deal with a local development, benefits can be retention of the natural creek and its floodplain and enhancement of the environmental, landscape and recreational values. Wetlands allow for environmentally sensitive designs that protect all creek/floodplain assets.

Again and again wetlands meet all Best Management Practice (BMP) and Water Sensitive Urban Design (WSUD) objectives. As set out in Australian Runoff Quality Guidelines (IEAust 2006), the guiding principles of WSUD are centred on achieving integrated water cycle management solutions linked to an ecologically sustainable development focus aimed at:

- Treating urban stormwater to meet water quality objectives for harvesting and/or discharge to surface waters,
- Using stormwater in the urban landscape to maximise the visual and recreational amenity of developments,
- Protecting and often enhancing natural ecosystems and environments,
- Reducing runoff and impervious surfaces by use of infiltration, local storage, mulched landscape areas and other porous surfaces, and adding value while minimizing development costs.

Usually sediment basin/wetlands are placed within flood plain systems on local pipe outlets to retain the natural creek. This is known as an offline design. An alternative WSUD solution in situations like this could have been to use site **scale BMP's such as bioretention systems etc. If only site scale BMP's are utilised, the only outcome for the creek environment is that the floodplain (usually a mowed park) is more or less being retained.** Sediment basin/wetland pondages do a real WSUD job and add to environmental diversity and other flood plain values.

Wetlands are also ideally suited to replacing small drains (usually the drains the farmer originally cut). This is known as online design. Provided extreme flow velocities are low, the change in landscape from a straight cut drain to a wide, vegetated wetland system is amazing! Maintaining flow continuity through a wetland is required for good water quality and high environmental habitat values.

Online wetland systems, often integrated with flood retarding basins, can easily be managed with the appropriate design know-how so that multi-purpose objectives of flood mitigation and water quality treatment can be satisfied. Losing extra land to often unsightly floodway bypasses and losing **out on flood mitigation benefits just doesn't make any sense.** It is certainly not conducive to good landscape and social outcomes.

The most important element in wetland design is appropriate design of the sediment basin. In addition, the most important maintenance activity in wetland maintenance is regular cleanout of this sediment basin. In addition, sacrificial sediment storage capacity can also be factored in to design. If these tasks are achieved well, wetlands can represent the best in long term sustainable design. Calculations (using MUSIC) indicate that, if sediment ponds are working well (and cleaned out regularly), wetlands should not require resetting for 50 – 100 years. Certainly personal monitoring of the assets we have designed (some of which are over 20 years old) indicates that this prediction is not without sound basis. Surely this is the type of sustainable landscape outcome we should all be striving for?

Calculations and observations such as those above should be **cited when the predictable "wetland maintenance" issues are raised within the design process.** It is imperative that the sediment ponds are cleaned out when required. However, if designed well, this should only be every 5 – 10 years or so (more if sacrificial storage is provided). As such, wetland systems should be no more expensive to maintain than terrestrial floodways and pipes which require ongoing mowing and eventual replacement. Is it as simple as replacing a mower every 3-4 months with an excavator and truck every 5 years?

It should be remembered by everyone that sediment management is an issue to be addressed with all WSUD design. When the surface area and storage capacity of wetland systems is compared to bioretention systems of equivalent catchment area and performance, it is our firm opinion that properly designed wetland systems provide the best solution to the issue capturing course sediment **AND** fine pollutants while complying with the other WSUD objectives.

It is essential from a community/environmental viewpoint that every opportunity to integrate multi-purpose use and values in each and every drainage asset is taken. Water authorities must play the lead role here as it is waterway and wetland-type assets which form the prime landscape features in any drainage path.

To this end engineers must work with ecologists, landscape architects, geological consultants, hydrogeological consultants and maintenance personal to ensure that recreational, landscape **and environmental values are "designed-in" as fully integrated components of the waterway systems.** WSUD should not just focus on water quality treatment and minimum maintenance. More and more we must look to wetlands to ensure ALL WSUD objectives are fully addressed both now and well into the future.

Neil Craigie  
Valerie Mag

Neil M Craigie Pty Ltd  
Stormy Water Solutions

Stormy Water Solutions is extremely pleased to be offering two courses in Melbourne in October and November 2011.

The two courses are being offered:

- Drainage System Design Methods: 13th – 14th October 2011, and
- Water Sensitive Urban Design, Concept Design: 10th and 11th November 2011

For more information, please email or phone Valerie Mag at Stormy Water Solutions on stormywater@optusnet.com.au and the phone number is (03) 9511 5911.

## Stormwater Victoria's Biggest Day Out

The day is almost upon us!  
 August 10th, 2011 - **Stormwater Victoria's AGM & Breakfast Tour**, followed by our Who Else Is Who seminar & finished with an industry information session from the Department of Environment on the \$100 million 3rd round funding of the National Urban and Desalination Plan.  
**It's going to be a big day!**

Presenting their award winning water strategy project at the Royal Melbourne Golf Course, **Permeate Partners will lead the "Water for Irrigation" tour bright and early to kick off the day.**

This will be very closely followed by our AGM and breakfast in the function rooms of the Golf

Club, to elect the 2011-2012 SV committee and conduct official proceedings.

We will be in great company for the Who Else Is Who seminar, as our guest speakers are a wide range of industry leaders, and will be presenting on their involvement in the new MAC roadmap.

We wrap up the day with an information session on the 3rd round stormwater grants from the Department of Environment.

You can register through our office, at [office@stormwatervictoria.com.au](mailto:office@stormwatervictoria.com.au), or 0409.978.453.



## 2011 Excellence Awards

We have now closed submissions for our Excellence Awards event, and are delighted about the projects that have been received. This is one of our very exciting annual events, which recognises and encourages excellence in the innovation, development, completion and management of stormwater projects and the people involved. It is a great celebration of our peers in the industry, and recognises accomplishments in the areas of:

- Excellence in Strategic or Master Planning
- Excellence in Infrastructure
- Excellence in Asset Management
- Excellence in Research, Innovation, Policy or Education

**We'll be contacting our finalists, after a round of interviews on August 19th, and our winners will be announced at the awards dinner. So, book the 7<sup>th</sup> September in your diaries as this is party night at Crown!**

See our website for more details and remember to register early as tables will be limited.

[www.stormwatervictoria.com.au](http://www.stormwatervictoria.com.au)



## South Australia Tour ... On their way!

After being rescheduled last month, due to the ash clouds generated by Puyehue volcano in Chile, the SA knowledge sharing tour of stormwater harvesting projects will be on their way this week.

**The tour has become very popular, with numbers grown since last month's delay, so the networking opportunities are great, and the tour coincides with the announcement of the 3<sup>rd</sup> round of Stormwater Harvesting funding by the federal government.**

It looks to be a great trip!

## AWA Catchment Management Conference

The Australian Water Association Catchment Management Specialist Network has organised a conference to build co-operative relationships between land managers and catchment managers in relation to water supply aspects of catchment management. The event will be in Wangaratta on August 22nd & 23rd. For more information, visit: [www.awa.asn.au](http://www.awa.asn.au).

## AILA/SV Mini Seminar - Botanical Gardens

Stormwater Victoria was pleased to partner with the Australian Institute of Landscape Architects for this very successful event at the Royal Botanical Gardens last month. Aside from being cold, wet & windy (appropriately!), the tour was enjoyed by all. Special thanks and acknowledgement to our committee member Leigh Holmes, and to AILA for their work on this event and also to Melbourne Water for their generous sponsorship.

### Dates for the Calendar

Aug. 10th, 2011:  
**Stormwater's Biggest Day Out**  
 -Annual General Meeting-  
 -Who Else Is Who-  
 -Industry Briefing on \$100m Stormwater funding-

Aug. 22nd&23rd, 2011:  
 AWA Catchment Management Conference

Sept. 7th, 2011:  
 Excellence Awards

Oct. 19th, 2011:  
 Mini Seminar #4

## Have Your Say!

The State Government is currently undertaking a Statutory Policy Review. A discussion paper has been developed jointly by EPA and DSE.

<https://epanote2.epa.vic.gov.au/EPA/Publications.nsf/PubDocsLU/1370?OpenDocument>

It is looking at first principles. Do we need SEPPs? More regulation? Less regulation? Other tools? Comments need to be in by 19<sup>th</sup> August.

The advocacy groups welcomes any thoughts for our response – by 10<sup>th</sup> August.

Please indicate your interest to:  
[office@stormwatervictoria.com.au](mailto:office@stormwatervictoria.com.au)

## IN THE OFFICE

### REMINDER!! RENEW YOUR MEMBERSHIP

We have several events and mini seminars coming up over the next few months, so make sure you renew your membership to ensure that you get all the information and discounted rates.

Keep in mind that as a member, you will continue to enjoy the following benefits:

- Subscription to our bi-monthly State-based e-newsletter called *Spouting* providing information on topical stormwater issues related to Victoria
- Subscription to our quarterly national-based newsletter called *SIA Bulletin* which provides a bigger picture of what all States are doing in stormwater management.
- Opportunity to advocate to government and business for sustainable stormwater management by having access to Stormwater Victoria committee members
- Opportunity to request information and education
- Lobbying power with the State and National backing to achieve Stormwater Victoria objectives.

We are constantly working to update and improve information and resources to our members. Some of the initiatives which are currently under development are:

- Updating the website in conjunction with a national communications strategy
- Hosting of the 2012 National Stormwater Conference in Melbourne
- Coordinating the national GPT validation project with CSIRO
- Continuing to build our relationship with the new Minister for Water, Hon. Peter Walsh

You can download a membership application/renewal form from our website - [www.stormwatervictoria.com.au](http://www.stormwatervictoria.com.au).

**Should you have any questions regarding your membership, please don't hesitate** to email the Stormwater Victoria office at [office@stormwatervictoria.com.au](mailto:office@stormwatervictoria.com.au) , or call the office on 0409 978 453.

## CSIRO Water Management Survey

CSIRO is conducting a survey on operational and management issues of stormwater systems conducted by CSIRO, and would like some feedback from the community. Within CSIRO, the Water for a Healthy Country Flagship is working with governments, industries and communities to develop the knowledge needed to substantially improve the way we use and manage water

**By participating in this project you would be helping to further CSIRO's understanding and knowledge into promoting decentralized greywater and stormwater systems.** By further understanding the management of greywater and stormwater systems it is hoped that that understanding will be able to support the growth of these alternative water supply systems.

All information given in this survey will remain confidential and participants are free to withdraw their information at any time.

Please contact our office if you are interested in participating:  
[Office@stormwatervictoria.com.au](mailto:Office@stormwatervictoria.com.au)

[www.StormwaterVictoria.com](http://www.StormwaterVictoria.com)