

## **Hornsby Shire Council and AFCE Environment & Building P/L**

**Project Title:** Redevelopment of La Mancha Caravan Park  
Berowra

**Catchment area:** Berowra Creek Catchment

**Sub Catchment:** Sams Creek catchment

### Project Summary:

This project involves a partnership between Council, Consultant and Developer to develop and implement Water Sensitive Urban Design (WSUD) initiatives for a proposed 59 dwelling multi-unit housing estate on the site of “La Mancha” Caravan Park located at 901-903 Pacific Highway Berowra. The development proposed is an integrated design based on ecologically sustainable development (ESD) principles, including best practice water sensitive urban design (see attached reports prepared by Glendinning Minto & Associates and AFCE Environment & Building Consultants). These requirements are in line with Council’s Sustainable Water Development Control Plan which has been in place since 1998.

The 6.4 hectare site is upon a ridgetop and is surrounded by sensitive dry sclerophyll, Hawkesbury Sandstone bushland (Berowra Valley Regional Park) which has in the past suffered localised dieback and weed infestation from the existing land-use. There are no recognised creeks or drains for stormwater discharge. The challenge is to institute WSUD in order to significantly improve upon the quality, volume, rate, frequency and method of stormwater discharge to the surrounding bushland in order to achieve ecologically sustainable development. The WSUD will therefore be broad-ranging since it will be required to address all components of stormwater management (as per Consultants report).

A steering committee was established with a wide range of Council personnel from different departments including planners, engineers, landscapers and environmental scientists as well as personnel from the Consultant and Developer organisations. The committee jointly gave pre-DA lodgement advice on the investigation and design requirements for WSUD implementation. The partnership between Council, Consultant and Developer initiated by the Sustainable Water Challenge presents a unique opportunity to jointly investigate, brainstorm and learn about WSUD and provide fundamental capacity building for personnel in all three of the partnered organisations.

### **Project Outcomes**

## **Organisational**

1. Development and implementation of practical and meaningful WSUD on-the-ground in order to achieve ecologically sustainable development requirements of Council's existing policies;
2. Capacity building in WSUD for personnel from all three partnered organisations especially with respect to:
  - a. Understanding the need for WSUD
  - b. General knowledge of WSUD
  - c. Practicability of various WSUD elements
  - d. Design and cost implications of WSUD elements; and
3. Stormwater management cultural change for all three partnered organisations.

Staff involved in the Challenge from Council were fortunate to have been long associated with the development and integration of Council's Sustainable Water DCP (1998) which aims to integrate and apply WSUD into the development control process and Council's own improvement programs. As a result, the arranged multi-disciplinary meetings used to progress this development proposal are a common occurrence among staff assessing the larger, integrated developments such as this one. Through initiatives with it's special Environment Levy (since 1994) and the commencement of the Local Government Amendment (ESD) Act 1997, Council has adopted a strategic approach towards the incorporation of ESD principles when carrying out their own functions. The approach has created linkages between Council's environmental charter, its approval function, its management plan, annual report and State of Environment Report (SoER).

## **Environmental**

The impact of stormwater runoff threatens the natural resource value of these sub-catchments through continued wetting and high nutrient laden runoff entering these sensitive downstream environments. The proposed capture, treatment and reuse works will prevent sediments and associated bound pollutants from leaving the site and contaminating the riparian and bushland habitats. The filtration and reuse of stormwater runoff will prevent the introduction of exotic weed species, which might otherwise result in habitat loss and eutrophication of waterways downstream. By minimizing stormwater flow, further scouring and erosion of bushland habitat will be prevented and further dieback of forest communities, through excessive stormwater inundation, will also be prevented.

The project will also address the generally inadequate level of understanding regarding water conservation and value and the threat of stormwater pollution to environmental integrity. The site will also promote the use of xeriscaping with

native plants to minimize water use in public and private gardens and to minimize the spread of exotic plant species. In particular, the project will stand to highlight best environmental management practices, water minimization and water re-use for application at both the individual dwelling and sub-catchment level.

The developer will also issue handbooks to future residents to ensure they understand further ESD components of the subdivision including energy efficient street lighting and homes (solar power, solar hot water, gas & passive solar design features), provision of compost bins per dwelling and AAA rated water fittings, toilets and appliances.

The site will serve as a model and demonstration of best practice both across the Hornsby Shire and regionally.

### **Technical**

The WSUD features promoted by Council officers and considered for the proposed development are featured in the attached Consultants report and include:

- a. Stormwater conservation and recycling for toilets, washing machines and irrigation through the use of rainwater collection tanks on each dwelling
- b. Roadside grass swales
- c. Bio-sand filtration pits
- d. Constructed conventional and linear wetland
- e. Gross pollutant traps
- f. Dedicated carwashing facilities
- g. Ongoing resident education programmes
- h. Detention
- i. Evapotranspiration-buffer strips
- j. Water saving appliances
- k. Porous pavements
- l. Xeriscaping – use of native plants.

In addition, members of Council's staff also attended a WSUD seminar/workshop on "Tackling the issues – cost maintenance and salinity" held 26 March 2003, and arranged to meet one of the WSUD officers at a case study site located at Victoria Park in Zetland (Landcom) to gain first hand applied knowledge.

### **Transferable**

Among Council's programs to pursue WSUD, there are many that are related to, or have an impact on, traditional local government engineering. The implications of achieving sustainable economic and social development in local government whilst maintaining ecological integrity has placed new demands on the roles of engineers and scientists. Understanding the framework of sustainable

development and the process working towards its implementation requires different qualities from those expected of traditionally educated professionals. Changes have been made to design principles to incorporate initiatives outlined in Council's Sustainable Water DCP. This includes incorporating ecological considerations into projects such as minimising newly constructed impervious areas, maximising infiltration and focusing on the construction and reconstruction of more natural systems with consideration for habitat creation and preservation, and the aesthetics of completed projects. Watercourses are now rarely piped, grass swales have been trialed in some streets as a substitute for traditional kerb and gutter design, construction of porous pavements have been trialed, rainwater tanks are being promoted on all new community buildings, and improving water quality is now an integral part of the design philosophy. This new philosophy is now part of our new design specifications for civil infrastructure.

Prior to lodgement of the Development Application, a number of formal meetings were held between the developer, consultant and key Council staff in Council's Chambers. This was essential in order to flag legislative and policy requirements, raise historical and current issues and to communicate the importance of water sensitive urban design and its integration with other ESD principles.

### **Difficulties Encountered**

The bringing together of different mono-disciplined individuals into a single multi-disciplinary team can prove difficult at times. There is potential to create a divergence of professional opinion and often dynamic tensions can hinder resolutions. This is particularly evident on issues such as water quality vs flooding and bushfire risk vs preservation of biodiversity, where there is a need for shared values or common ground which serves as the basis for ongoing professional interaction. In order to achieve integrated decision making on these more complex issues, it is important to maintain ongoing links and communication between staff in working towards a inter-disciplinary or more highly productive trans-disciplinary approach.

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**Pictures, Maps and Further Details (to be forwarded in mail)**

1. La Mancha Cara-Park brochure (A4 sheet)
2. AFCE Environment & Building Consultants Report on WSUD (bound report)
3. Glendinning Minto & Associates P/L Consultant Report (A4 abstract)
4. Aerial photo of proposed development (A3 sheet)
5. Subdivision Plan (A3 sheet)
6. Self-evaluation Matrix results.
7. Newspaper article.

## Team Members

### Original Staff involved

### Position (Council)

Anthony Collins	Catchment Remediation Project Manager
Neil Keraunos	Env. Scientist (Water Quality)
Rob Rajca	Manager Design & Construction
Michael Bickford	Drainage Engineer
Kurt Henkel	Landscape Coordinator, Parks & Landscape
*Simone Hubbard	Environmental Assessment Officer
Jamie Slaven	Env. Scientist – Bushland & Biodiversity
James Farrington	Manager, Strategic Planning
Kylie Fomiatti	Health & Building Surveyor
John Noakes	Subdivision Engineer
*Graham Mallison	Manager, Subdivisions
Mark Taylor	Env & Civil Consulting Engineer
Leigh Appleyard	Env & Civil Consulting Engineer
Ken Butler	Developer

\* Note: Since left Council

## Team Leader's Contact Details

### Project team leaders (Joint):

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