Flowing Together

Jamie Dawson considers the benefits of environmental sustainable landscape design for commercial projects.

Environmentally sustainable development (ESD) is one of the key issues of the new millennium — conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life can be improved. But many muse as to what this *really* means and how it can be achieved.

In landscape architecture, designers world-wild are encouraging greater use of sustainable drainage solutions. This usually means less pipes and greater use of swales, wetlands, retardation basins, and generally encouraging overland flow from hard surfaces into landscape areas. Groundwater recharging, slowing of flow peaks and velocities, and the opportunity for more natural settings, even in urban areas, are key benefits.

This generally allows better and more diverse plant growth on the project site and less downstream impacts during storm events. The specifics of each project determine financial management. Achieving a cost effective and successful ESD outcome often requires some lateral thinking and/or added design skill or effort.

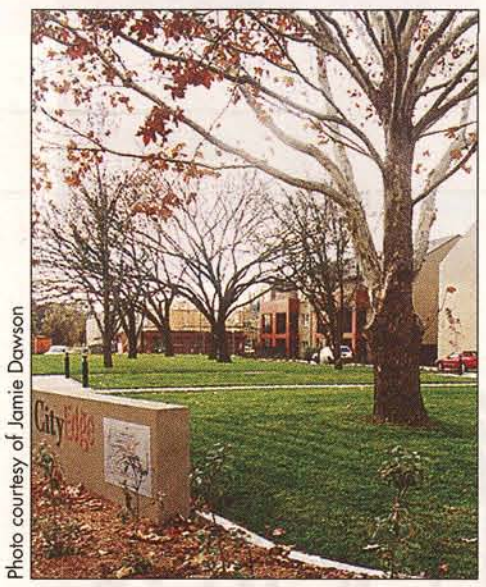

Photo courtesy of Jamie Dawson

City Edge

The City Edge medium density project at O'Connor shops, which has redeveloped the old MacPherson Court, is one example. A quality development has been created retaining large mature deciduous trees as a focal point within a large internal park. The project landscape architects (Enviro Links Design) and engineers (Bill Guy & Partners) explored diverse opportunities for groundwater recharge, porous pavements, bio-filters, minimal pipe solutions and onsite detention. However, the retention of the mature trees limited landscape-based ESD, as their crowns covered nearly 40 per cent of the green open space.

At the same time, the Sullivans Creek Action Group was keen to trial wetlands in the northern suburbs storm catchment feeders to improve water quality in the lake. A favoured site was next to City Edge. The developers, CIC Pendon in association with Canberra Community Housing, agreed to largely fund the offsite pilot trial wetland constructed as the forefront for future environmental works in the Sullivans Creek catchment. As a result, a wetland has been created next to City Edge which provides habitat for some water birds and other wildlife, and an attractive landscape feature that residences overlook. Most of the City Edge stormwater and some existing stormwater pipes from the public areas and streets discharge to the wetland, to strip nutrient and reduce sediment prior to entering Sullivans Creek.

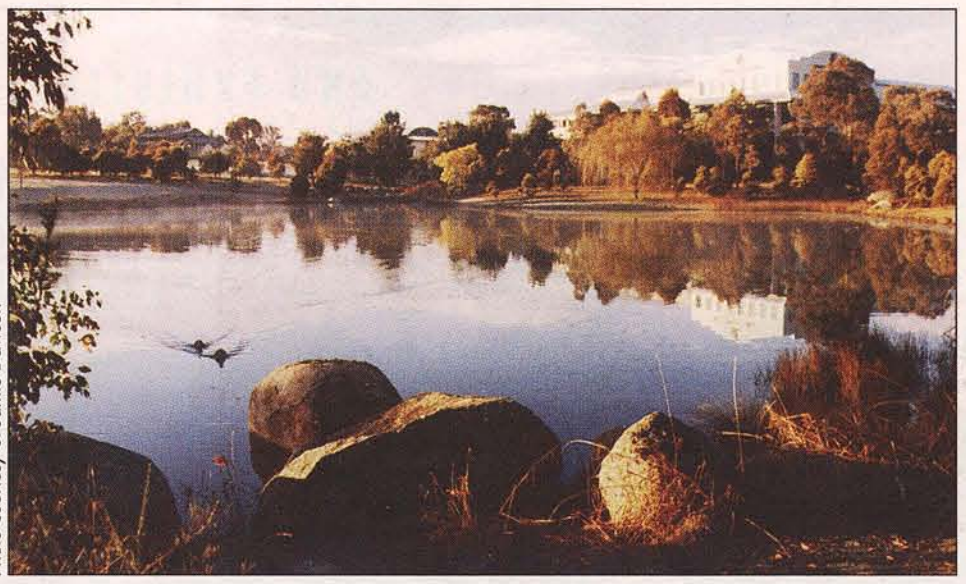

Photo courtesy of Jamie Dawson

Fern Hill

Achieving substantial year-round improvements to water quality that is fed to Lake Burley Griffin from numerous highly urbanised catchments, such as Sullivans Creek, would require possibly hundreds of 'city edge wetlands' offline to the main flow path, and numerous other management practices and micro scale initiatives within individual house and commercial blocks.

Canberra is increasingly incorporating ESD designs into the landscape of commercial developments as the benefits to the project and the community become better recognised. The solutions and key benefits that are targeted in each are often diverse, but they all contribute positively.

For example, the Kingston Foreshore Authority has commissioned Dorrough Britz to design an Ecopond — a water garden within the development at the point where the stormwater from the southern suburbs catch-ment enters the new Boat Harbour. This large pond will incorporate reed beds for nutrient stripping and sediment trapping, a deep-water pond for visual appeal and water collection, and a re-circulating wetland stream to assist aeration and boost oxygen levels. Solar-powered pumps will provide the recirculation. These proposals will combine to assist in improving the water quality discharge from both the site and the Kingston catchment into Lake Burley Griffin.

Arguably the most environmentally sustainable approach of the proposal is to use the treated water for irrigation to help reduce the demand for potable water usage at Kingston Foreshore by up to 50 per cent. Few can argue that the use of drinking water for watering the lawn (or flushing the toilet) is a non-sustainable use of a scarce resource. The drought and the water catchment erosion potential following the January fires mean that the whole community now recognises the value of water, and hopefully this consciousness will not recede once good rains return.

In the mid-1980s, Lester Firth and Associates at Fern Hill Technology Park designed an inspired man-made but 'natural' multi-building setting. The now mature landscape illustrates the appeal of the natural drainage philosophy where it can integrate swales, wetlands and lakes.

At the University of Canberra Innovations Centre the first stage of office development has been constructed with no in-ground stormwater pipes. The syphonic roof drainage discharges directly onto rock-lined retarding ponds, channels and cascades on both sides of the building designed by Enviro Links Design as 'natural' features within the landscape. The channels discharge to swales that offer groundwater recharge and nutrient stripping macrophytes and turf. The eastern swale will in future discharge to a large wetland.

The carpark designed by Young Consulting Engineers drains to either a rock lined central median or perimeter grassed swales with small intermittent soakages. Both discharge to small reedy wetlands at either end. The larger one will incorporate a fallen tree crown as a bird roost. The roof drainage cascades and the carpark swales are both designed to offer a more interactive attractive landscape to deal with drainage in a manner that has significant environmental benefits compared to underground pipes.

A similar approach was successfully undertaken by Kiah, Glen Wilson and Alan Bonham at the Ainslie Village in the late-1980s. On the steeper slopes hard lined channels are often incorporated. In other areas grassing and small wetlands are integrated to combine to create the diverse setting preferred by the residents.

The future potential for environmentally sustainable developments with a landscaped drainage focus is immense. Integrating water saving techniques, such as soil moisture sensors and low evaporation underground irrigation, offers further complimentary advantages.

ESD can be innovative and exciting to see implemented, and it can be logical and suited to the site or project. It takes more care to design, but the natural and built environment and its users share the benefits well into the future. ■

Jamie Dawson founded Enviro Links Design Pty Ltd in 1997 as a Canberra-based multi-disciplinary design practice. He has over 20 years experience as a landscape architect, golf course architect and environmental planner, ranging from small to large projects in both private and public developments.