

Inkerman Oasis Development

Port Phillip, Victoria

This project is a \$90 million joint venture with a private developer to achieve mixed community and private housing at low cost for City of Port Phillip. The water conservation feature of this 245-unit residential project resides in recycling treated domestic bathroom greywater and roof and ground flow stormwater for toilet flushing and garden irrigation. Different combinations of recycling technology are used for stormwater and grey water. They include two membrane bioreactor tanks, an aeration balance tank, a 400 square metre urban wetlands and an ultraviolet disinfection unit. This wastewater reuse project will be the first greywater recycling of its kind in Victoria and the only project in Australia that combines stormwater and greywater recycling for residential use. Further unique features include the medium density nature of the development and an on-site treatment solution.



Why this activity?

In 1994, as a result of local government amalgamations, one of three municipal depot sites became surplus to Council's requirements. Port Phillip designated this site for a community housing project, under its housing program. After intensive investigation between 1996 and 2000, the Council decided to establish a demonstration project setting best practice ecologically sustainable design (ESD) in four key areas: economic, social, cultural and environmental. This project was also a great opportunity to lift the benchmark for medium and high density, mixed private and community housing residential development.

How was the business case made within council?

Between 1994 and 1996, internal Council research featured targets across the four policy pillars of sustainability: social (community housing), environmental (ESD features), economic (value of community housing unit returns) and cultural (integrated art). These targets were distributed to key people.

The business case was made easier because the project provided returns across all Council's sustainability target areas with achievable targets, at low cost and the value of the community housing returns exceeded the original book value of the site.

The primary, innovative aspect of this project was the partnership between local government and a developer. Instead of simply selling the property for its market value, perhaps with a set of development conditions, the developer was given the opportunity to leverage off the donated land value to meet Council's four sustainability returns in return for meeting the Council's objectives while being able to profit from developing the balance of the land for private housing. Development was required to be in the form of mixed private-community housing under a public-private partnership.

In the social sector, for example, the City of Port Phillip normally invests in community housing through shared joint venture funding with the State. The development model for this business case transferred the capital cost for construction to the developer. Similarly, within the environmental arena, responsibility for financing and delivering the innovative water conservation initiative and recycled water features was transferred to the developer whilst allowing Port Phillip to demonstrate its leadership within the community and across Australia as the initiator. Council initially facilitated partial capital funding by procuring a Commonwealth Government grant.



Moreover, the completed system will allow the reduction of potable water requirements for the project by about 40% in summer and 20% in winter. The cost savings are calculated to be 12 kilolitres per day across the development, with a cost savings of \$12 per day or around \$4,400 for the development in a year, a low figure due to the current low cost of water in Victoria.

What happened?

Port Phillip Council engaged a team of consultants to develop a Masterplan for the project. A steering committee was established with key players within Council and key members from a consultant team consisting of the Urban Land Corporation, Ecumenical Housing Inc., William Kelly & Associates (integrated public art) and Williams Boag Pty Ltd Architects.

Over a three year period, the Council and the consultant team undertook a range of actions which added to the site value from a \$5.2 million book asset to one valued in the order of \$7.5 million, thereby making the project more viable for a developer.

The Council articulated its own vision for the project in an initial Masterplan by deciding, before issuing tenders, which ESD features should be included based on an environmental guidelines list of ESD returns.

After a public tender process, Port Phillip Council nominated a preferred developer, Inkerman Developments Pty Ltd. To ensure a successful project, interest from developers and commitment from the preferred developer, Port Phillip was assisted by the expertise of the Urban Land Corporation (now VicUrban). The Corporation provided Council with information such as expectations of the developer and negotiation on the content of the development agreement.

Inkerman Development engaged Williams Boag as project architect and refined the Masterplan, following negotiation with Council to ensure viability and 'buildability' that included the feasibility of ESD features in the context of returns for Inkerman Developments and priority ESD to achieve state and national ESD precedent. The negotiations resulted in selecting treated domestic greywater and stormwater for toilet flushing and garden irrigation as the most appropriate ESD elements to implement given it is unprecedented and difficult to achieve nature.

At this time, as few trials of such urban water recycling projects had been conducted, all risks and regulations needed to be assessed thoroughly. Wastewater recycling is one of the hardest ESD features to achieve in regards to health risks, authorities approval (EPA Victoria and the Department of Human Services endorsement) and regulation. One of the key solutions to achieving regulatory approval had been demonstrating that the system operates as a 'closed loop' system to avoid discharge to nearby water bodies via the drainage system. The system was negotiated, designed and built by the ESD sub-consultant, Integrated Eco-Villages Pty. Ltd.

Using greywater for toilet flushing and gardens protects Melbourne's water resources. Council's decision to initiate and invest in these innovative ESD features is being and will continue to be rewarded.

Stage one of the development including the water recycling system was completed in May 2003, the system was commissioned in October 2004, water quality testing will be completed in October 2005 and recycled water supplied in December 2005 when the first units are connected to recycled water for toilet flushing and landscape irrigated by recycled water.

What resources were needed?

The main resource pressure in the council was 60% of one employee's time for a four year project investigation and master planning period between 1996 and 2000, and considerable but fluctuating time commitments since then.

For the Masterplan, related investigation and ongoing negotiation and monitoring until final staged development completion, an estimated \$624,000 was invested. This was recouped from the developer at settlement of the Contract of Sale by exchanging two community housing units to be provided for cash equivalent to this cost. Following Council transferring its land to the private sector, Inkerman Developments raised capital funding independently.

The incorporation of stormwater into the wastewater recycling system and reuse for toilet flushing was made possible by an initial \$267,214 Commonwealth Government grant from the Living Cities, Urban Stormwater Initiative Program 2000/2001 and was more than matched by a contribution by Inkerman Developments.

The wastewater recycling system is managed by South East Water Ltd (SEWL) under a six-year maintenance and monitoring agreement with Inkerman Developments and the body corporate. The recycling system had subsequently been supported by a \$125,000 innovation grant from SEWL. Maintenance operating costs are estimated to be \$40–60 per residential unit annually.

What monitoring has been done?

As at September 2005, SEWL and CSIRO were monitoring water quality and system technology for final approval to connect residents to treated, recycled water (expected by October to December 2005). SEWL's water quality testing aims to meet EPA and Department of Human Services requirements.

Future monitoring after the six year agreement will either be continued by SEWL or another competent and capable private company that may emerge as similar systems become more widespread.

What lessons were learnt?

For successful partnerships with developers, councils need to be transparent about their expectations. Instead of asking developers about their vision, it is important that councils or other initiating bodies have their own vision about the project and assist along with the State governments and water authorities with providing achievable water recycling targets, regulatory requirements (approvals took two years to negotiate as there were no State guidelines at the time) and expected capital costs and anticipated front-end, authority head works charges. The construction requirements of the wetlands could have been better integrated into the overall development construction process.

A detailed, comprehensive development agreement provided legal protection for Council and Inkerman Developments and certainty around design deliverables. However, the good relations and environment of personal trust between Inkerman Developments and its consultants with key Council staff were key to overcoming negotiation obstacles and successful achievement of the overall development that delivered the water recycling system.

What challenges were faced?

The main challenge regarding the water recycling feature of this project has been to meet emerging regulation standards and the time demands of complying with the different authorities involved.

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