

# Liege Street Wetland

Land use / development type	Scale
Retrofitting	Precinct (subdivision)

Stormwater Controls	Scale
Constructed Wetland	Precinct (subdivision)

Local Government
City of Canning

Swan River Trust in partnership with the City of Canning, South East Regional Centre for Urban Landcare (SERCUL), Department of Environment and Conservation, Water Corporation and Two Rivers Catchment Group developed the Liege Street Demonstration Constructed Wetland. The wetland was designed by Syrinx Environmental Pty Ltd and was constructed in 2004.

Located at Carden Drive in Cannington the constructed wetland was the first substantial project of the Drainage Nutrient Intervention Program (DNIP). The project has been successful in reducing nutrients entering the Canning River from a major urban catchment with an area of 530 ha.

Historical land use practices in urban, industrial, and agricultural areas have resulted in high nutrient loading within Perth's drainage network which ultimately flows into the Swan Canning river system. In recent times high nutrient levels have led to algal blooms and fish kills.

In an effort to reduce nutrient loading into the Canning River, the

## Key Project Features

- Retrofitting of an area of public open space into a constructed wetland (approximately 1 ha) to improve stormwater quality
- Improvement in stormwater quality from the urban catchment before entering the Canning River
- Design of the wetland ensures that during high flows, the water will be conveyed quickly through the wetland to minimise the risk of flooding
- Creation of a passive recreation area for public use which also has educational benefits for the community

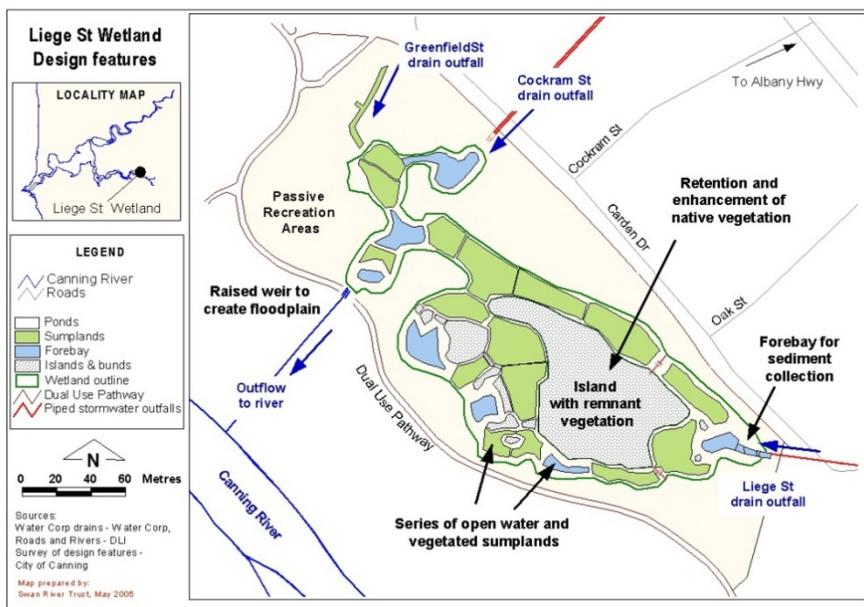


Image courtesy of the Swan River Trust



Image courtesy of SERCUL



Image courtesy of Syrinx



Image courtesy of Syrinx

## Development Costs

Conceptual design and construction/ revegetation specifications	\$63,000
Construction <sup>1</sup>	\$726,000
Planting and restoration activities <sup>2</sup>	\$74,000
<b>Total (ex GST)<sup>3,4,5,6</sup></b>	<b>\$863,000</b>

<sup>1</sup> Approximate figure, includes in-kind funding

<sup>2</sup> Includes supervision time but does not account for volunteer time (not tracked but significant)

<sup>3</sup> Construction/revegetation costs only relate to wetland design and implementation and not landscape elements (eg signage, boardwalks, paths, seating, etc)

<sup>4</sup> costs in 2004-05

<sup>5</sup> SRT, Water Corporation, City of Canning staff time for planning not quantified

<sup>6</sup> Costs relate to implementation of both the ~1ha wetland and the entire ~4ha site in which the wetland is located

## Maintenance Costs<sup>1,2</sup>

2005/2006	\$30,200
2006/2007	\$30,300
2007/2008	\$20,200
2008/2009	\$24,600
2009/2010	\$24,100
2010/2011	\$21,100

<sup>1</sup> All figures are an approximation of costs which includes supervision time but does not account for volunteer time and excludes GST. Planning and management for staff at Swan River Trust, Water Corporation, and City of Canning have not been quantified

<sup>2</sup> Costs relate to maintenance of both the ~1 ha wetland and the entire ~4ha site in which the wetland is located

## Issues

The wetland is located within the once degraded Bush forever Site 224.

High to moderate acid sulphate soils exist on site.

Flows with elevated levels of nutrients and other pollutants from a large urban catchment are conveyed into the Canning River.

## Outcomes

In 2006 the project was awarded the Stormwater Industry Association National Award for Excellence in Stormwater Management. It also received a Western Australian Environment Award in the Bush, Land and Waterways category.

Initial reports in 2007 revealed the wetland had performed and reached its short term targets for nitrogen and phosphorus removal during base flows. Turbidity, algae and heavy metal concentrations also measured favourably against the National ecosystem protection guidelines with the exception of zinc levels. Measurements within the sedimentation forebay were exhibiting high levels of metal accumulation indicating the

effectiveness of its design to reduce pollutants.

The site has also become a place where many species of fauna can be seen. Nesting turtles and birds are a strong indication of the success of the project in creating habitat.

Currently the upland vegetation is in good condition with around 70 different native species.

Approximately 70-95% native vegetation cover occurs in 70% of the upland zone. In recent years there has been a decline in the coverage of emergent macrophytes across the vegetated areas of the wetland believed to be a result of high organic loading, insufficient aeration and iron and sulphate presence. The resultant recent

unfavourable conditions for plant growth are impacting on the water quality treatment efficiency and ecology of the wetland.

Action is now occurring to better understand the working of the wetland and work is being planned to rectify the issues. It is now considered that inline and passive systems need to be designed to reduce the proportion of permanently inundated surface flow area. Sub surface and wet/dry basins may prove to be more effective approaches.

Along with environmental benefits, the Liege Street Wetland has provided a place for passive recreation and educational opportunities for the community.



Image Courtesy of Swan River Trust



Image Courtesy of Syrinx



Contact details for further information

Swan River Trust (08) 9278 0900

South East Regional Centre for Urban Landcare (08) 9458 5664



Government of Western Australia  
Department of Planning



Government of Western Australia  
Department of Water