

# **Onkaparinga River Recreation Park Wetlands and Open Space Concept**

## **Community Information**

### **About the Project**

The Hickinbotham Group has entered into a partnership with the Department of Environment and Water (DEW) and the City of Onkaparinga (COO) to design and construct an open space and wetland system as a seamless extension to the existing Onkaparinga River Recreation Park. This agreement was signed on the 14<sup>th</sup> October, under a common seal from the Minister of Environment and Water and the City of Onkaparinga.

The land is owned by DEW, the wetlands and open space will be designed and constructed by Hickinbotham's consultant team and will be managed and maintained by the City of Onkaparinga, as part of Council's open space system. These partner organisations have reviewed the Concept Design and provide in-principle support for the design and its contribution to stormwater management, biodiversity and water quality. Hickinbotham's consultant engineers, ecologists and landscape architects will work closely with Council's engineers, open space planners, asset managers and natural areas conservation managers to ensure that the detailed design achieves the agreed outcome. There will also be a shared approach between DEW ecologists and the Hickinbotham Team to habitat establishment, particularly to support vulnerable species such as the Yellowish Sedge Skipper butterfly.

The wetlands are set in natural vegetation and will provide an important habitat for birds and aquatic wildlife species. The surrounding open space will provide opportunities for recreation including walking, unstructured play and peaceful relaxation.

### **Previous community and stakeholder consultation helped inform the Concept Design**

The purpose of this paper is to provide information about the Concept Plan for the open space and wetland system. It describes the ways that the design has addressed the main outcomes suggested through the consultation on the project conducted in 2017 and 2018.

This information material focusses on those components of the project related to stormwater management, open space and recreation.

Previous consultation included an Open House Community Drop-in Session held on Saturday 2 September 2017 in Port Noarlunga. Over 60 community members participated in this event. In addition, 150 people completed on-line feedback forms. The input of these stakeholders and members of the surrounding communities informed the preparation of the Master Plan. In February 2018 the Hickinbotham Group presented the design responses to the earlier community feedback in a second Open House Drop-in session at Port Noarlunga and at a series of face-to-face meetings with stakeholder groups

## **What did those who responded to consultation opportunities want to see considered for open space, ecology and stormwater management?**

Those engaged in the community consultation wanted to see a range of environmental and community outcomes, including the planting of native vegetation to support the biodiversity of the existing Onkaparinga River Recreation Park, green links and pedestrian paths through the development to better connect those living in the surrounding areas with the Recreation Park. They also wanted to see an effective, well-managed flood management system that respects the estuary and river environment; enhanced local ecosystems and more community spaces for natural play, quiet reflection in nature, walking and connecting with family and friends.

Overall, the community wanted the project to optimise the environmental and community benefits. The development plan and wetland concept have responded to the community feedback with a key focus on open space and the planned wetland, with a strong emphasis on delivering environmental outcomes, access for recreation and a sustainable approach to the longer-term maintenance of the system.

### **Design of open space and wetlands**

The overall design of the wetlands system is being designed by leading local engineering consultants WGA. The design approach has adopted best practice environmental design for an integrated wetland system that achieves biodiversity habitat, effective stormwater management and quality useable open space. It is considered to provide a highly innovative, site-specific response that will provide long term benefits for the environment and community.

### **Biodiversity and Habitat**

The wetland system has been designed to respect the ecology of the *Port Noarlunga Reef* and *Onkaparinga River Sanctuary Zones* by ensuring that stormwater entering the system from the residential development will be detained on site during peak rainfall events and then be released slowly through a specially designed porous rock weir to the riparian zone south of the Onkaparinga River. The porous rock weir provides a soft engineering approach to releasing treated stormwater over a proposed length of 200m into the river's riparian zone.

The design of the wetland system will feature a variety of wet and dry aquatic and terrestrial habitats to maximise habitat opportunities and to increase the biodiversity in the park.

Furthermore, it is intended that the proposed revegetation throughout the wetlands and open space will complement and extend the restoration of the Yellowish Sedge Skipper butterfly habitat being

undertaken by DEW on adjacent land. The wetland geometry has been proposed to minimise impacts to the large trees currently existing on the site.

The design of the wetlands system will feature a predominantly freshwater aquatic system as inflow from the urban catchment as stormwater enters the wetland. However, this will move towards a brackish aquatic wetland environment close to the river's flood plains and estuary.

Based on the complexity of aquatic zones and terrestrial vegetation, the wetland will contribute to a more complex ecosystem within the park, creating greater biodiversity, habitat opportunities for a large variety of flora and fauna. In this regard, the wetland will facilitate ecosystem services to the park and Onkaparinga River's floodplains.

## Water Quality

The design of the wetland system meets all of the Environment Protection Agency (EPA) requirements to a high level. The design is based on adopting best practice Australian design guidelines meaning that the wetland will control stormwater inflow through the system so that it is appropriately treated, prevents erosion and is released in an environmentally sensitive manner. The wetland design includes a system of deep and shallow pools, wet and dry marshes, flood plain areas, rock spillways to ensure the wetland is robust and sustainable. Treated stormwater will be released from the wetland along a 200m long porous rock weir within a linear overflow vegetated swale comprising of interconnected brackish marsh pools. This approach appropriately addresses erosion risks and will integrate strong environmental values along the riparian zone. This feature will be the first of its kind in South Australia.

A Gross Pollutant Trap (GPT) within the development will extend the life of the wetland system as well as trap litter and sediments from the urban catchment. This will facilitate easy maintenance and provide further protection to the wetland system.

Revegetation of the new wetland will use indigenous species of local provenance to respect the park and its environment. In this regard aquatic and terrestrial species will be selected to be planted into the wetland to suit the variety of zones that will be created. This work will involve close collaboration with ecologists and conservation staff from DEW and Council.

## Flood Mitigation

The design for the system includes a number of features that will reduce the flow velocity in high rainfall and inflow events to protect the system and the downstream riparian zone. These include a series of rock spillways and a discharge control pit to control residence time and water levels, rock riffles at the island to accommodate changes in levels, the linear overflow swale and the porous rock weir with its mix of native clumping sedge species, large rocks, rock ballast and compacted soils. Overall, it is intended that the wetland will feature a focus on soft engineering techniques with environmental design.

## Community Enjoyment

The Concept Plan provides for an additional 1.1 km of walking trails in a natural environment designed to contribute to the biodiversity habitat. There is significant scientific evidence that being in nature and being physically active provides improvements to people's physical health and mental wellbeing. Sensory learning is important for children's development and this wetland environment will provide new opportunities for informal and unstructured nature play. Those seeking peaceful relaxation will find places that support quiet reflection.

Creating a habitat for a variety of birds, frogs, lizards and insects provides Citizen Science opportunities for people of all ages who are interested in observing and monitoring the natural environment. Birdwatching is likely to be a popular activity in the new wetlands area due to the different species attracted by different habitat zones.

## Access and Recreation

The Concept Plan indicates two new access points for pedestrians from the southern end. These will provide opportunities for residents of all areas south of the river to connect with the Onkaparinga River Recreation Park. They will be able to enjoy walking trails and boardwalks that create a new trail loop as well as links to existing trails in the park. The wetlands provide a significant increase in the size and quality of the Regional Open Space available to residents living in the City of Onkaparinga as well as visitors to the area.

## Future Maintenance

The wetland system has been designed to facilitate access for maintenance which will be undertaken by the City of Onkaparinga. There will be access for the removal of sediment and rubbish from the Gross Pollutant Trap and removal of sediment from the wetland inlet pond. Access around the perimeter of the wetland will also enable vegetation maintenance to be carried out when necessary.

## Summary

This paper is designed to be read in conjunction with the Concept Plan. The Concept Plan demonstrates the ways that the design of the wetland system will contribute to enhanced biodiversity habitat, high standards of water quality, effective flood mitigation, accessible maintenance and additional recreation opportunities that support community health and wellbeing.

The implementation of the wetland system shown in the Concept Plan will make a significant contribution to increasing community access to the highly valued Onkaparinga River Recreation Park. It will provide a seamless connection between the proposed residential development and the recreation park, while protecting the natural environment for future generations.