



**ACT**  
Government

Capital Woodlands and Wetlands  
Conservation Trust



**JERRABOMBERRA**  
WETLANDS



ACT GOVERNMENT & JERRABOMBERRA  
WETLANDS MANAGEMENT COMMITTEE

**JERRABOMBERRA WETLANDS**

Concept Plan

Cover Image:  
View across Jerrabomberra Wetlands toward the Kingston Foreshore.

# JERRABOMBERRA WETLANDS CONCEPT PLAN

Prepared for:



**ACT**  
Government  
Territory and Municipal Services

ACT GOVERNMENT - TAMSD  
GPO Box 158  
Canberra ACT 2601



**ACT**  
Government  
Environment and Planning

ACT GOVERNMENT - EPD  
GPO Box 158  
Canberra ACT 2601



**JERRABOMBERRA**  
WETLANDS

JERRABOMBERRA WETLANDS  
MANAGEMENT COMMITTEE

Prepared by

## **CLOUSTON Associates**

*Landscape Architects • Urban Designers • Landscape Planners*

Level 2, 17 Bridge Street • Sydney NSW 2000

PO Box R1388 • Royal Exchange NSW 1225 • Australia

Telephone +61 2 8272 4999 • Facsimile +61 2 8272 4998

Contact: Leonard Lynch

Email • [sydney@clouston.com.au](mailto:sydney@clouston.com.au)

Web • [www.clouston.com.au](http://www.clouston.com.au)

With

**Robert Jessop PTY LTD,**

**Sellick Consultants,**

**Wilde and Woollard,**

**and**

**Susan Conroy.**

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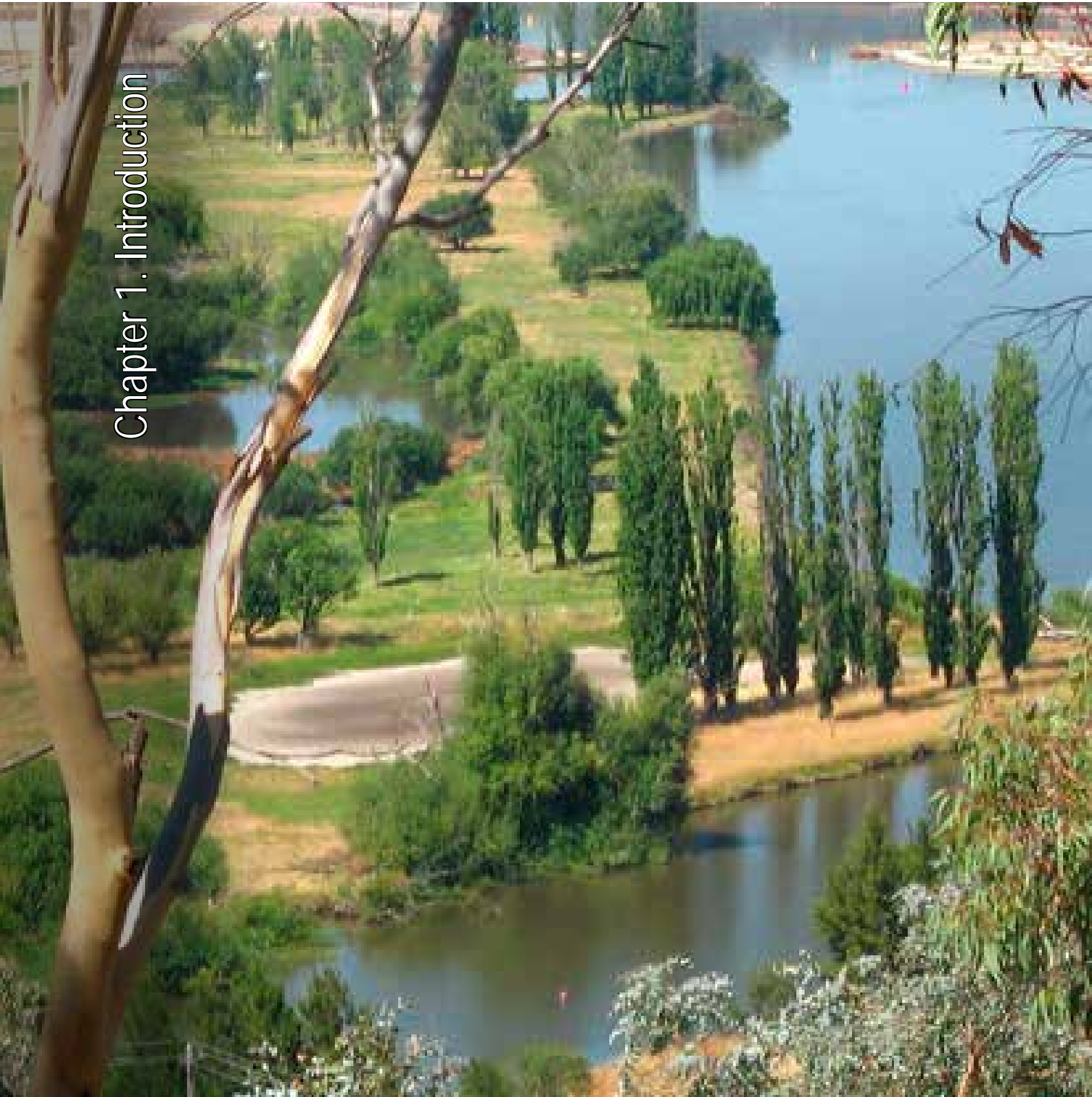
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Chapter 1. Introduction



## CHAPTER 1 - INTRODUCTION

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*"As I walk this beautiful Country of mine I stop, look and listen and remember the spirits from my ancestors surrounding me. That makes me stand tall and proud of who I am - a Ngunnawal warrior of today".*

*Carl Brown, Ngunnawal (Elder) Wollabalooa Murringe*

### **Introduction**

In a landscape that has witnessed an extraordinary transformation in the last 190 years, the Jerrabomberra Wetlands provide a critical link between the past and the present of Canberra, creating a strong narrative that ties together people, environment, their stories and indeed the spirit of place evoked in Carl Brown's words.

### **Purpose**

While the original natural environment of the Wetlands site has been highly modified the floodplain continues to perform a critical natural-systems function in this modified form, being described as a novel ecosystem.

However, as the wetlands are bordered by on-going urban development, they are at risk of becoming increasingly isolated and subject to further external impacts that have the potential to undermine their rich natural, cultural heritage and social values.

To realise the value of the Wetlands in the broader community, the ACT Government prepared a Plan of Management for the Reserve (2010) and subsequently with the oversight of the Jerrabomberra Wetlands Management Committee, commenced a planning process to lay down options for future management in a master plan.

It became evident in the development of the 2012 master plan that there was insufficient data and evidence base to substantiate its proposals and consequently the Board of Management prepared the Resources and Values of the Jerrabomberra Wetlands report (2013). This document provides the evidence of the site's ecological and cultural values. It also sets goals, objectives and guiding principles that underpin a clear vision for the future of the Wetlands:

*"A diverse and dynamic floodplain landscape and wetland resource, inspiring the community to enjoy and appreciate its natural and cultural values, and to participate actively in its care and management " (JWBM 2013).*

To inform clear planning and design guidance to best realise the values outlined in the Resource and Values Report, the Management Committee also prepared a Directions Report (2014).

Accordingly, this Concept Plan provides a spatial interpretation of these two reports. It describes a ten year vision for the Wetlands while balancing conservation, recreation, education and other management objectives. Importantly it also establishes the approach to integration with neighbouring land uses, particularly for the proposed development at East Lake, and the need to ensure the management of any impacts on the operators of the Canberra Airport.

In essence, this report sets the strategy and the design framework for a paradigm of wetlands and floodplain management at the very heart of the nation's capital.



1950: The alignment of the former Rail Line can be seen on the left of the image before the filling of Lake Burley Griffin.



1965: The causeway channel is now evident in this picture. Jerrabomberra Creek Channel is now broadened.



1972: The silt trap pond is evident at the bottom right of the picture.



1980: The existing education centre can be seen at the lower right of the image.



## A SHORT HISTORY

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One of the earliest accounts of Aboriginal occupation in the area tells of fishing in the Molonglo River, while the landscape of this area is believed to have supported a successful hunting and gathering economy. Jerrabomberra Creek has been recognised as a ceremonial pathway which guided Aboriginal visitors to the central corroboree ground on the floodplain (now lying below Lake Burley Griffin). Visitors would sit below Mount Pleasant until they were formally welcomed and then escorted to the corroboree.

The Molonglo River's north bank (adjacent to the Wetlands) appears to be the first camp site used by Europeans within the present ACT Border. The Wetlands floodplain was first settled by Europeans in 1825 - referring to the area as the "Limestone Plains" in reference to the stone outcrops in the area - when James Ainslie occupied the area with 700 sheep. He also built the first homestead on the site (named Limestone Cottage) in 1833.

After Federation in 1901, a site for the capital was sought, and Canberra was selected. The Australian Capital Territory was declared on 1 January 1911 and an international competition was held to design the new capital city. The competition was won by architect Walter Burley Griffin.

Before WWI, Mill Flat was used by the Royal Military College for encampment of personnel, for practising manoeuvres, and for field engineering instruction and used for experimental trench warfare training. Later, the area was divided up as soldier settlement schemes, with soldiers managing the land for agriculture under leases.

The Griffin Plan for the City of Canberra included a railway line from the Canberra Railway Yard to the north, crossing the Molonglo River and terminating in Civic. A timber trestle bridge was completed over the Molonglo River and the rail line was opened in 1921. A flood in 1920s destroyed the bridge and it was never rebuilt.

The construction of Lake Burley Griffin commenced in 1960 and was filled in 1964. This led to the back-up of water in the Molonglo River and in Jerrabomberra Creek creating one of the most important wetland habitat areas in the ACT. (See opposite). At this juncture the grasslands were supporting very productive and innovative dairy farming.

In the 1980s extensive fill was introduced to the site resulting from the construction of the new Parliament House, while stringent efforts were also being made to protect the Wetlands by consolidating power lines, retaining the Fyshwick sewage ponds and ensuring the eastern parkway did not encroach on the Wetlands.

Today the Jerrabomberra Wetlands Nature Reserve forms part of the nature reserve network managed by the ACT Parks and Conservation Service.

In 2011, in recognition of the Wetlands special significance, the ACT Government established the Capital Woodland and Wetlands Conservation Trust. The Trust looks to harness community expertise to guide the environmental management of the Jerrabomberra Wetlands and the Mulligans Flat Woodland Sanctuary. It also aims to partner with the business community and government to improve the environments of both reserves through innovative projects. As a subcommittee of the Trust, the Jerrabomberra Management Committee works with Government to enhance ecosystem restoration and, through educational and eco-tourism opportunities, broadens community understanding of the Wetland's values.

## RELEVANT STUDIES AND PLANS

Many studies and plans relevant to this report have been prepared over recent years, brief summaries of which are provided in Appendix 1. Outlined below is a short overview of the four most recent studies and plans that relate specifically to the Wetlands.



### **Resources and Values of Jerrabomberra Wetlands (RVJW), (JW) Jerrabomberra Wetlands Board of Management (JWMC, 2013)**

The RVJW summarises fresh perspectives from studies, and reviews, generate new understandings of natural, and cultural resources, that broaden and enrich appreciation of the area. The Report seeks to:

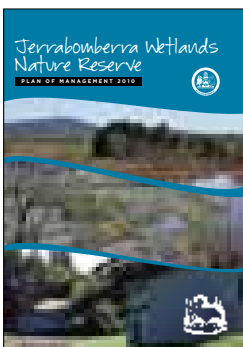
- inform and influence policy, planning and management decision - making which may have an impact on resources and values of the Jerrabomberra Wetlands Nature Reserve
- broaden and strengthen community connection with the Reserve and participation in its care and management (JWBM, 2013).



### **Jerrabomberra Wetlands - Directions**

#### **Jerrabomberra Wetlands Management Committee (JWBM, 2014)**

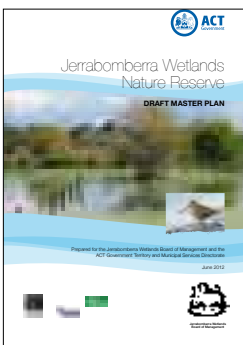
The Directions Paper was generated to aid the Concept Plan process by providing a spatial synthesis of the findings in the RVJW. It does not seek to duplicate the report, instead guides the reader to the appropriate pages in the RVJW.



### **Jerrabomberra Wetlands Nature Reserve - Plan of Management 2010 ACT Government - TAMSD (ACTG, 2010)**

The Plan of Management (PoM) is a statutory document that outlines how the Jerrabomberra Wetlands is to be managed for the next 10 years. The Plan takes into account public expectations, new and proposed land uses on adjacent lands and waters, the need to maintain and enhance environmental quality and the statutory requirements relevant to the management of the reserve. The PoM outlines:

- Values - What is important about Jerrabomberra Wetlands
- Objectives - What is hoped to be achieved in the management of the area
- Policies and Actions - The means by which the objectives will be attained.



### **Jerrabomberra Wetlands Nature Reserve - Draft Master Plan 2012 Eco Logical Australia (EA, 2012 )**

A Draft Master Plan for Jerrabomberra Wetlands Nature Reserve was released for public comment in August 2012. The draft aimed “to articulate concepts and designs that will lay the strategic framework for capital improvements at Jerrabomberra Wetlands”. The main aims and objectives of the master plan were:

- Conservation - Enhance habitat and ecological processes. Protect natural and cultural heritage elements and facilitate effective wetlands management
- Infrastructure - Provide new constructed habitat and visitor facilities
- Interface - Account for interface/buffering treatments along sensitive boundaries

For reasons outlined in the introduction, the Management Committee chose not to adopt this Master Plan but use it as a basis for further study and preparation of a concept plan.

## STATUTORY PLANNING

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Summarised below are the principal acts and policies that inform this Concept Plan with an outline of their relevance to planning of the wetlands.

### **National Capital Plan 2013**

Planning of the Jerrabomberra Wetlands Nature Reserve (JWNR) is directly informed by the National Capital Plan (NCP) which contains policies that refer to the site.

### **The Planning and Development Act 2007**

The Act establishes the Territory Plan which sets out the strategic directions and planning principles, policies, controls and codes for all land use zones in the ACT. The Act (s50) prevents the Territory, or a Territory authority, from doing anything inconsistent with the Territory Plan or the National Capital Plan.

Management objectives for categories of public land are also defined in the Planning and Development Act 2007 (ACT) (Schedule 3, s317). Jerrabomberra Wetlands is public land reserved for the purposes of Nature Reserve for which the management objectives are:

- To conserve the natural environment.
- To provide for public use of the area for recreation, education and research.

### **Territory Plan**

The purpose of the Territory Plan is to manage land use change and development in a manner consistent with strategic directions. It must not be inconsistent with the National Capital Plan. This document precedes the Jerrabomberra Wetlands Plan of Management and determines in a broad sense what areas of land will be used for what purpose.

### **ACT Planning Strategy**

The ACT Planning Strategy, adopted by the ACT Government in June 2012, replaces the Canberra Spatial Plan. The Strategy provides long term planning policy and goals to promote orderly and sustainable development, consistent with the social, environmental and economic aspirations of the people. The Strategy sets out actions to deliver five outcomes, each of which reflects the intent of The Canberra Plan. Nine strategies have been developed to set the course for change to achieve these desired future outcomes.

### **Nature Conservation Act 2014**

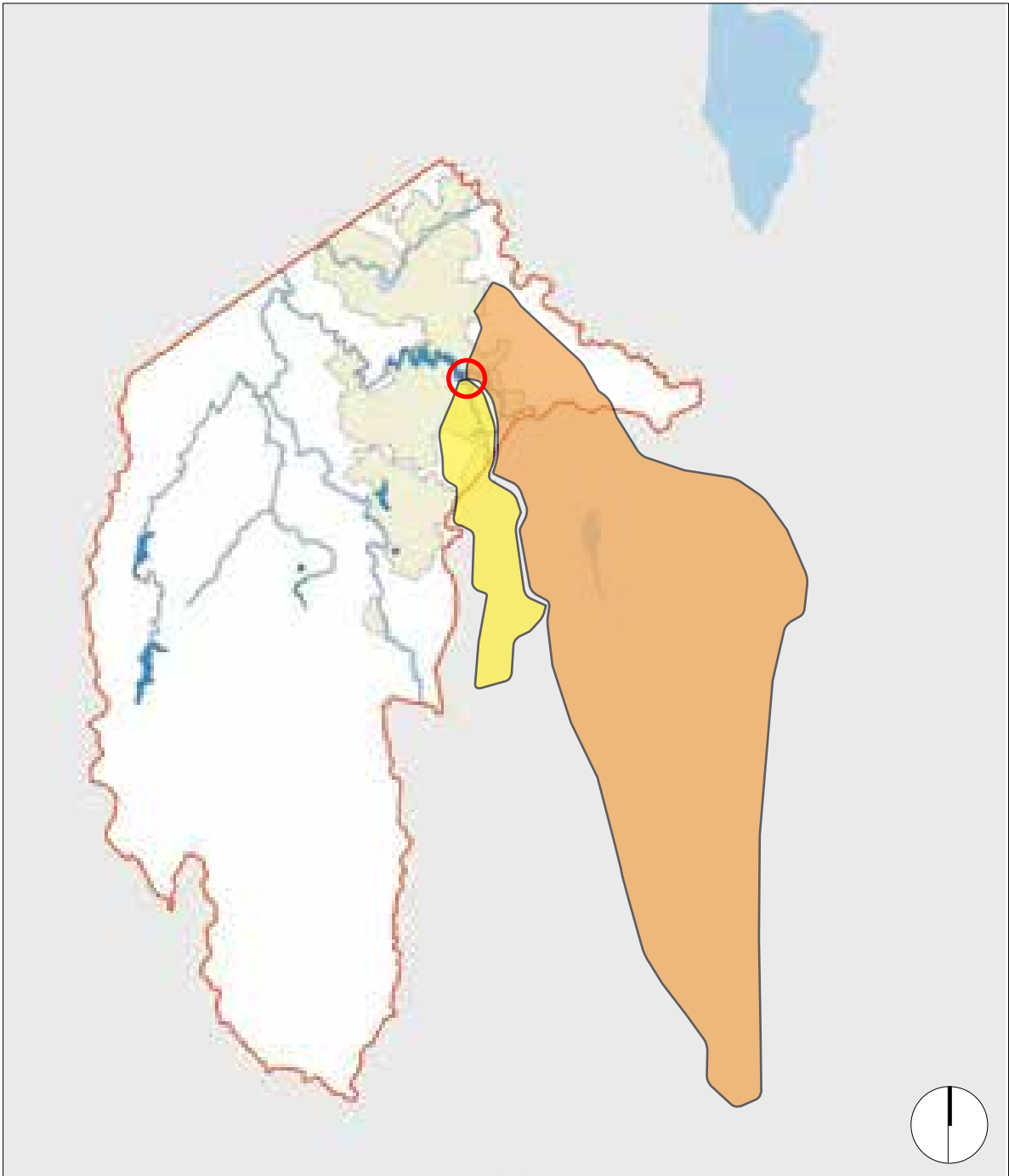
The Nature Conservation Act provides for the protection and conservation of native plants and animals, declaration of threatened species and ecological communities, and gives authority for the Conservator of Flora and Fauna to manage public land reserved for conservation of the natural environment, such as Jerrabomberra Wetlands..

### **Water Resources Act 2007**

The Water Resources Act provides for the sustainable use and management of ACT water resources; the protection of aquatic ecosystems and aquifers from damage and, where practicable, reversal of past damage. The ACT water resources strategy and environmental flow guidelines for streams are established under the Act.

### **ACT Water Strategy 2013**









Objectives and actions within this document that related to Jerrabomberra Wetlands included catchment management, riparian zone management, and water sensitive urban design.



**REGIONAL CONTEXT**

**N.T.S**

*LEGEND*

- |   |                               |   |                 |   |                              |
|---|-------------------------------|---|-----------------|---|------------------------------|
|  | Molonglo River catchment      |  | Rivers          |   | Australian Capital Territory |
|  | Jerrabomberra Creek catchment |  | Lakes           |  | Jerrabomberra Wetlands       |
|  | Urban areas                   |  | New South Wales |   |                              |

## REGIONAL CONTEXT AND CATCHMENTS

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### **Molonglo River Catchment**

The Molonglo River with a catchment of about 78,000ha above Lake Burley Griffin rises below the Gourock Range in NSW and travels approximately 80km before entering the ACT. The Molonglo is joined by the Queanbeyan River that rises near Jerangle and has a length of about 104km and a catchment of 96,000ha. The Googong Dam was completed across the Queanbeyan River in 1979, (see figure opposite).

### **Jerrabomberra Creek Catchment**

Jerrabomberra Creek rises near Royalla, with a total length of about 30km and a catchment of about 12,800ha (see figure opposite).

### **Water Bodies and Wetlands**

The water bodies and wetlands within the ACT make an important contribution to the Territory's ecological resources and are the dominant feature of many parts of the National Capital Open Space System (Hogg and Wicks, 1989). The ACT's water bodies and wetlands provide habitat for a variety of plants and animal species, particularly waterbirds.

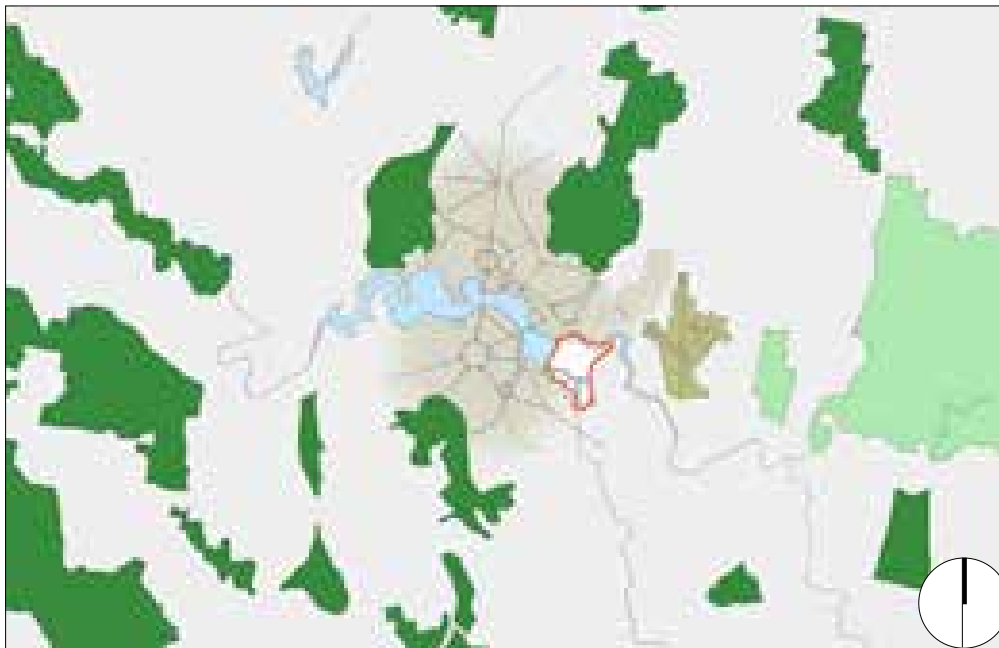
Such aquatic habitats include naturally occurring rivers, freshwater swamps, marshes, wetlands and bogs generally in the upland (Brindabella Ranges), and rivers, creeks and artificial lakes, dams and ponds of the lower, agricultural and urban lands, especially around Canberra. The ACT has 13 nationally important wetlands, 11 in Namadgi National Park, and 2 in urban Canberra, comprising Jerrabomberra Wetlands and Horse Park wetlands in Gungahlin (ACT Government 2007).

The most significant lowland waterbird areas in the ACT are the artificial water and wetland habitats of the Jerrabomberra Wetlands, Lake Burley Griffin and Lake Ginninderra. These areas contain deeper open water, as well as shallower water, with occasional emergent vegetation, wetlands, reed beds and other riparian vegetation (Hogg and Wicks, 1989).





While the rivers and creeks are naturally occurring, all of the lakes and ponds and some of the wetlands have been artificially created and contain aquatic communities of various ages and in various successional stages. Since 2009, the ACT Government has integrated wetland development into the design of urban sediment traps and water quality control ponds (ACT Government 2009). While these artificial water bodies have widely differing ecological values, all contribute to the ACT's aquatic and wetland habitat. Both the natural and artificial water bodies and wetlands act as one integrated system with many birds moving to and from its constituent parts, and into the surrounding NSW countryside, e.g. Lake George (Australian Government 1984).

The Jerrabomberra Wetlands and Lake act as an important refuge for birds, especially during extended periods of drought as occurred in the late 1970s and early 1980s.

## CITY CONTEXT

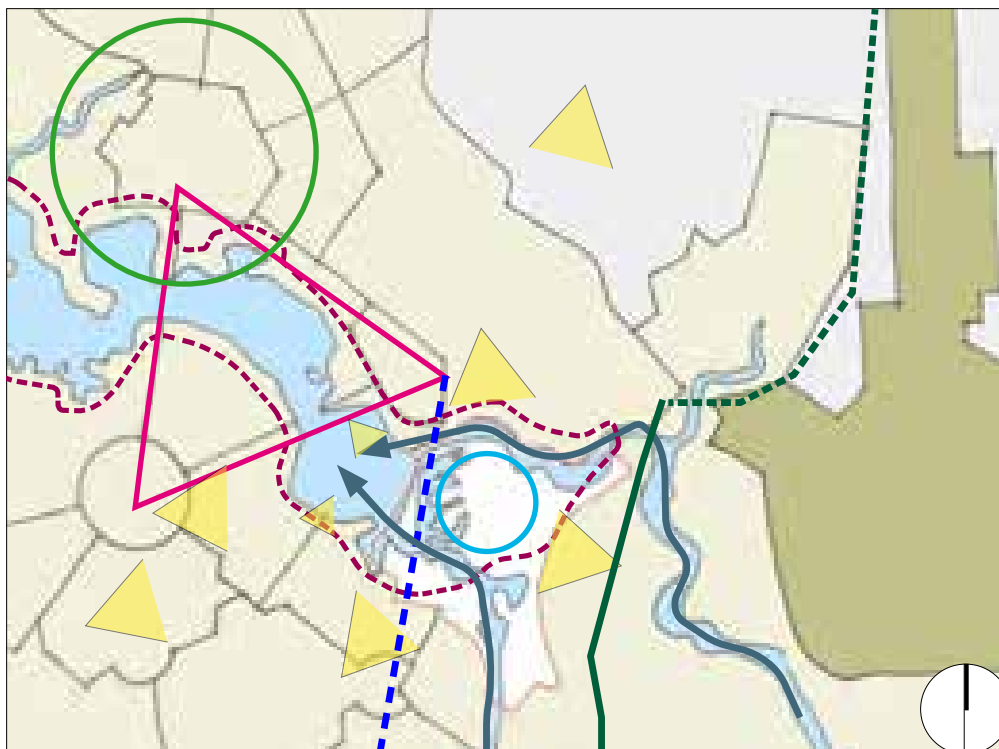


### LEGEND












-  ACT Canberra Nature Parks
-  Pine forests
-  Canberra Airport
-  Urban Areas

**N.T.S**

## LAKE CONTEXT



### LEGEND

-  Lake Burley Griffin
-  Canberra Airport
-  Cycle/pedestrian loop
-  Causeway axis
-  Majura Road
-  Monaro Highway
-  Molonglo River and Jerrabomberra Creek
-  Parliamentary Triangle
-  View perspectives. (refer to text for site locations)
-  Canberra City Centre
-  Rural landscape - floodplains

**N.T.S**

## CITY AND LAKE CONTEXT

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### **Lake Burley Griffin and ACT Canberra Nature Park**

The Wetlands cover approximately 201ha of land situated only 4 kilometres from Canberra City centre. The construction of Scrivener Dam on western edge of the Molonglo River created Lake Burley Griffin in 1964. This resulted in the permanent flooding of the lower reaches of Jerrabomberra Creek and Molonglo River, creating one of the most valuable wetland habitat areas in the ACT. Jerrabomberra Wetlands is the only wetland of 33 separate reserves that comprise the Canberra Nature Parks. (See 'City Context' figure opposite).

### **Canberra Airport**

Canberra Airport is located 3km to the East of Jerrabomberra Wetlands. The Airport has expanded rapidly in recent years and there are plans to expand further and increase services in the future. The daily management of the airport has no significant impact on the wetlands, but the need to not increase potential bird strike to aircraft is an important goal for the planning, design and management of the Wetlands.

### **Molonglo River and Jerrabomberra Creek.**

The Wetland site is positioned at the junction of two watercourses, which have shaped the area into the form that we see today. The Molonglo River to the north, and the Jerrabomberra Creek to the south, set the natural boundaries to the site and both flow into the East Basin of Lake Burley Griffin.

### **Cycle/Pedestrian Loop**

The National Capital Plan sets the framework for the implementation of the Lakeside cycle/pedestrian route which now circumnavigates Lake Burley Griffin by a (largely) off-road trail. The section of cycle path through the wetlands has recently been completed.

### **View Perspectives**

The Wetlands is a relatively large area of open space in an urban context but which cannot readily be seen in totality, except from elevated viewpoints at Mount Ainslie, Mount Pleasant and Red Hill. Some of these views have become obscured by the growth of vegetation. Because of their lakeside connection, the wetlands are visible from Lake parks (Bowen and Grevillea), Parliament House, and the neighbouring developments of Kingston Foreshore and East Lake. (See 'Lake Context' figure opposite).

### **Rural Landscape**

Grazing of cattle in the reserve is a continuation of the main land use of the area since early European settlement and contributes to the rural landscape character.

### **Floodplains**

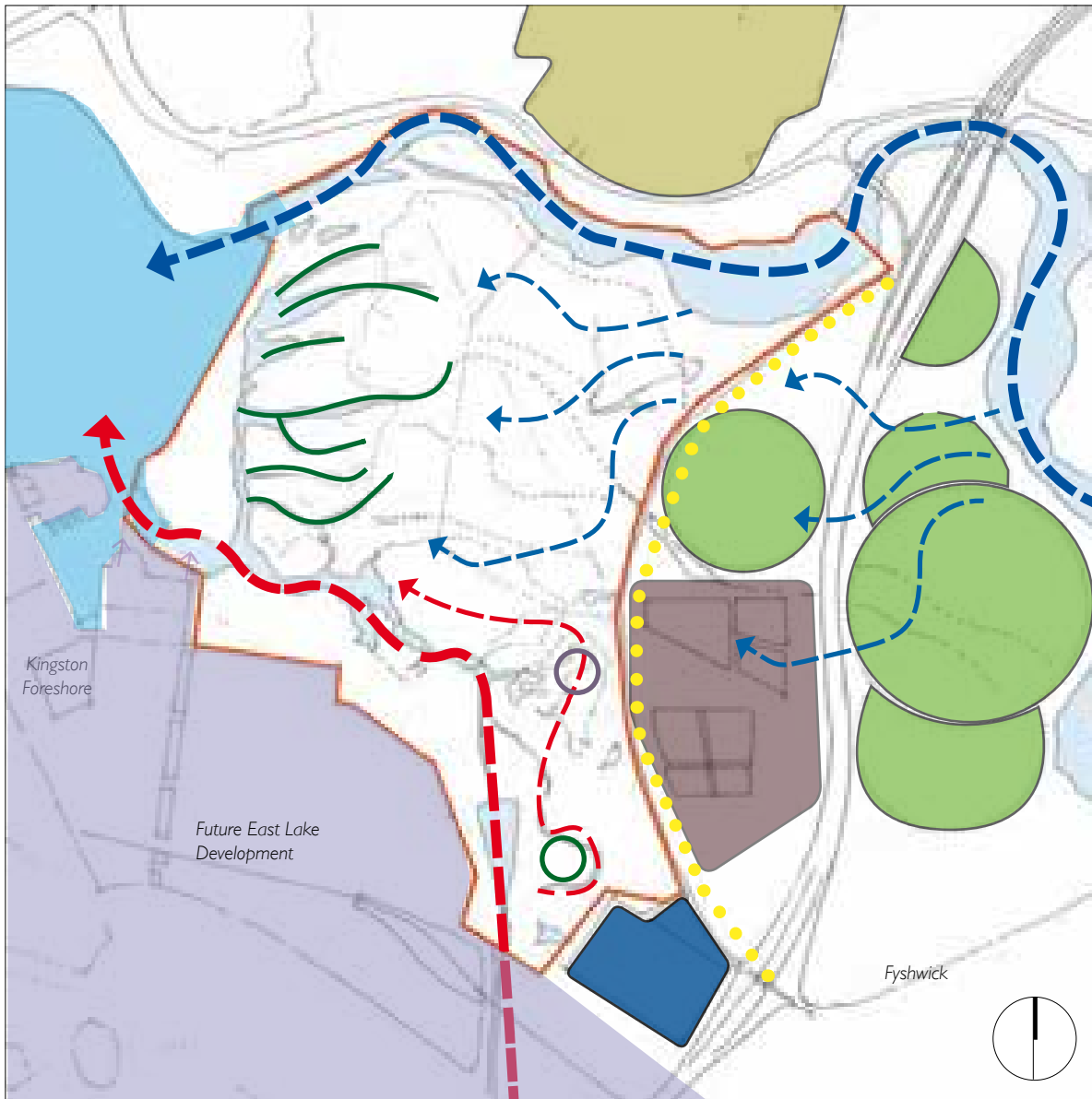
The reserve largely consists of open water, wetlands and associated floodplains located where two streams with degraded catchments (Molonglo River and Jerrabomberra Creek) enter Lake Burley Griffin.

### **Parliamentary Triangle and Water Axis**

The Parliamentary Triangle, is the ceremonial precinct of Canberra, containing some of Australia's most significant buildings. This was a significant feature of Walter Burley Griffins Plan for Canberra. The Water Axis runs at right angles to the Land Axis along the length of Lake Burley Griffin.

### **Monaro Highway**






A significant highway and tourist route lies adjacent to the Wetlands.







**LOCAL CONTEXT**

LEGEND

-  North boundary: Royal Military College
-  East boundary: Turf farm
-  East boundary: Fyshwick sewage treatment
-  South boundary: Wetlands, business park
-  South/West Boundary: Kingston Foreshore, East Lake

-  Lake Burley Griffin
-  Molonglo River
-  Molonglo Flood Flows
-  Jerrabomberra Creek
-  Jerrabomberra Flood Flows

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-  Paleochannels
-  Dairy Farm Road
-  Jerrabomberra Billabong
-  Kellys Swamp



## LOCAL CONTEXT

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### **Molonglo River and Jerrabomberra Creek**

Each of these watercourses has associated floodplains, and secondary channels. The Molonglo River has formed a broad, expansive floodplain with a series of scroll bars and former flood channels (some of which are paleochannels). The floodplain of Jerrabomberra Creek is smaller with notable features including a Billabong and Kellys Swamp.

Other sources of water that impact the Wetlands come from surface stormwater from the Fyshwick area, the Turf Farm to the east of the Wetlands and the East Lake development site.

### **Lake Burley Griffin**

Lake Burley Griffin is one of the most important landscape features of Canberra in its role as the national capital. The system of natural and artificial drainage channels at Jerrabomberra was fortuitously at the right level to create prime waterbird habitats when the lake filled. The lake is maintained at a relatively constant level, but this may fall by a small amount during dry periods

### **Urban Developments**

The south-western boundary to the Wetlands has recently been transformed into the popular urban edge of Kingston Foreshore. This has provided new high density residential and commercial space to Canberra on a lake setting. Urban growth will continue to extend along the Wetlands management boundary through the proposed new East Lake development.

### **Fyshwick Sewage Treatment Plant**

The Sewage Plant is located to the eastern boundary of the Wetlands bordering Dairy Road. The treatment ponds currently provide complementary habitat for birds and bird watchers are able to cross over into the area.

### **Flood Levels**

During extreme wet conditions, flooding of the Molonglo River and Jerrabomberra Creek occurs across their floodplains (flood flows).

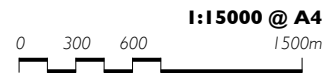
### **Adjoining Land Uses**

Below is a brief summary of land uses that surround the Wetlands:

1. North Boundary (Molonglo River)
  - Royal Military College Duntroon (Education)
2. East Boundary (Dairy Road)
  - Turf Farm (agricultural)
  - Fyshwick Sewage Treatment Plant
3. South Boundary (Evolving developments)
  - Wetlands Foreshore Business Park (Infrastructure)
4. South/West Boundary
  - Kingston Foreshore
  - East Lake development



THE WETLANDS TODAY



## THE WETLANDS TODAY

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The location of this large and complex floodplain landscape at the very heart of the nation's capital offers an unique opportunity for the community and visitors alike to understand how natural systems function successfully in urbanised environments - even where heavily modified - and the roles they play in the sustainability and liveability of our cities. The principal elements of these valuable wetlands are briefly described below.

### **Dairy Flat**

Most of the Wetlands is on an alluvial terrace (Dairy Flat) of the Molonglo River. The relatively wide valley enables preservation of ancient sediments and landforms, which record behaviour of the river and creek systems over time. Soils in the floodplain are clay dominant, formed from alluvium deposited by Molonglo River and Jerrabomberra Creek.

### **Paleochannels**

Traces of paleochannels and levee banks are visible throughout the site and are an important habitat for migrating birds. These are connected to Jerrabomberra Reach on their western end by a dredged channel.

### **Causeway Channel**

An embankment was built for the Civic Railway, with Jerrabomberra Creek diverted northward in a channel cut across the floodplain. While the embankment is no longer clearly evident, the Causeway channel remains and connects Lake Burley Griffin with lower ends of swales and flood channels on the Molonglo floodplain.

### **Shoveler Pool**

Created by the excavation of soil to extend shallow water habitat and mudflats, the Shoveler Pool is part of a series of depressions on the Molonglo River floodplain in the north-eastern sector of the reserve. During high flows, the pool and surrounding lands are inundated by flood flows.

### **Dunes**

Two ancient sand dune systems are found on the southern side of the Dairy Flat floodplain.

### **Kellys Swamp and Jerrabomberra Billabong**

Kellys Swamp is a semi-permanent water body surrounded by intermittently flooded mudflats. Jerrabomberra Billabong, in the southern part of the reserve, receives water during high flows in Jerrabomberra Creek.

### **Silt Trap**

A silt trap has been constructed on the Jerrabomberra Creek as part of works undertaken to protect Lake Burley Griffin from sedimentation.

### **Wetlands Learning Centre**

The Wetlands Learning centre was incorporated into the existing education centre on Dairy Road. This is managed by the Parks and Conservation Service within the Territory and Municipal Services Directorate.

### **Bird Hides**

There are five bird hides located within the Reserve, three at Kellys Swamp and two at Jerrabomberra Pool.

## Chapter 2. Issues and Opportunities

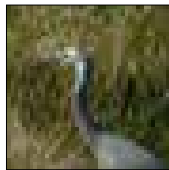


## CHAPTER 2 - ISSUES AND OPPORTUNITIES

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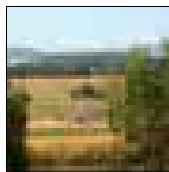
In this section a brief summary is provided of the Principal Issues and Opportunities that arise from analysis of the site and review of the background documents.

These Issues and Opportunities are summarised under the following headings and illustrated in each case with an annotated map.



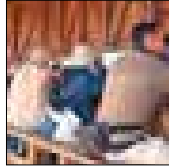
### **NATURAL ENVIRONMENT**

Covering all aspects of the Wetlands natural environment including geology, geomorphology, hydrology, flora and fauna.



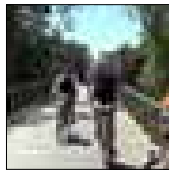
### **CULTURAL HERITAGE**

Covering the full spectrum of the Wetlands heritage from early Aboriginal occupation of the land prior to European settlement, through to contemporary heritage.



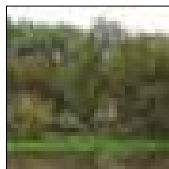
### **FACILITIES AND USES**

Covering built infrastructure that supports the management and visitor experience of the Wetlands from bird hides, paths and visitor centre.



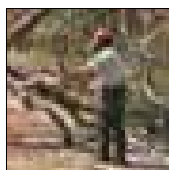
### **ACCESS AND CIRCULATION**

Covering every aspect of movement from visitor arrival, circulation within the site, universal access and maintenance/emergency access.



### **IMAGE AND CHARACTER**

Covering the visual character, amenity and identity of the site from views and vistas, to landmarks and horizons.

















### **MANAGEMENT AND MAINTENANCE**

Covering the operational aspects of managing and maintaining the Wetlands natural systems and visitor experience.



**NATURAL ENVIRONMENT**

LEGEND

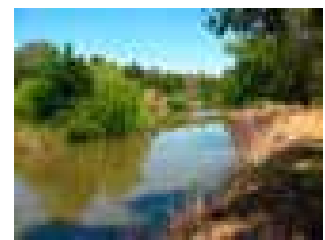
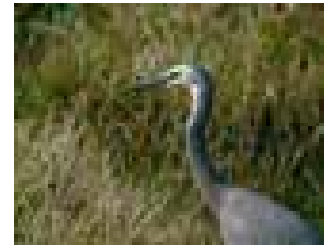
- |   |                                  |   |   |   |                                   |
|---|----------------------------------|---|---|---|-----------------------------------|
|  | Refuge primary habitat           |  | Silt trap, billabong and Kellys Swamp                   |  | Tree lined creek edge             |
|  | Refuge buffer                    |  | Contaminated landfill                                   |  | Dunes morphology                  |
|  | Fyshwick industrial estate       |  | Floodplain system. Water movement                       |  | Paleochannels                     |
|  | Wetlands Foreshore Business Park |  | Molonglo River and Jerrabomberra Creek                  |  | Fyshwick Sewerage Treatment Plant |
|  | Turf farms                       |  | Kingston Foreshore and East Lake Developments interface |   |                                   |

**1:15000 @ A4**  
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## NATURAL ENVIRONMENT

### EXISTING STATUS

A unique combination of natural and cultural heritage values have created the Jerrabomberra Wetlands. Originally a more intermittent river system and floodplain landscape, the Wetlands exist as result of the legacy of Walter Burley Griffin plan, creating a modified natural environment that nonetheless retains significant ecological value. Management focus has been on waterbirds and waterbird habitat but as documented in the 'Resources and Values' report, this has now shifted to embrace a much wider suite of aquatic and terrestrial ecological values, including cultural and historical values. The opportunity now presents itself to develop these values, whilst being mindful to result in no net increase in the risk of bird strike at Canberra Airport.








### ISSUES AND OPPORTUNITIES

- Water movement across the site is very complex. The water levels and inundation patterns reflect the interplay between seasonal rainfall and evaporation, discharges from adjacent catchments, backwater from Lake Burley Griffin and ground water movement
- As this is a dynamic river floodplain system subject to periodic wetting and drying, there is an opportunity to integrate this into the educational outcomes for the site
- The floodplain system is fed by ten external catchments of varying water quality that are not controlled by the site. The opportunity exists to engage more directly with these catchment managers
- Nearby Fyshwick industrial estate drains directly into the Wetlands and has very poor water quality. The turf farm uses treated effluent for irrigation and the impacts of this on the site water quality are unknown
- The site is relatively isolated ecologically and is heavily impacted by exotic species, particularly *Phalaris aquatica*, and in places has limited floristic and faunal diversity
- Introduced fish species such as carp are problematic in the paleochannels and through all of the water bodies in the wetlands connected to Lake Burley Griffin
- The Wetlands are characterised by unusual geology (e.g. limestone, sand dunes), yet this is not presently evident to visitors
- The proximity of Canberra Airport needs to become a routine consideration when new developments or changes in habitat management are proposed. This is an opportunity to diversify the appeal of the Wetlands, focusing more on other aquatic fauna such as platypus
- The ancient paleochannels of the Molonglo River are also a regionally significant geomorphological feature. These warrant protection and appropriate management
- The paleochannels are connected directly to Lake Burley Griffin. There is an opportunity to introduce a more natural water level dynamic by installing an embankment or regulator at the junction of the Causeway Channel and Jerrabomberra Reach which would allow the channel and paleochannels to draw down during the summer-autumn period
- Ongoing control of woody weeds is required with particular attention to ACT declared pest plant species, and their replacement with more desirable species and plant communities.

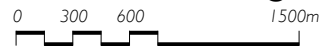


**CULTURAL HERITAGE**

**LEGEND**

-  Causeway/railway axis
-  Water axis
-  WW1 trench systems
-  Soldier settlement
-  Grazing management. Rural landscape

**1:15000 @ A1**

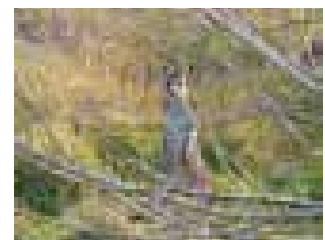
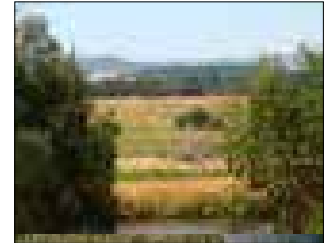




## CULTURAL HERITAGE

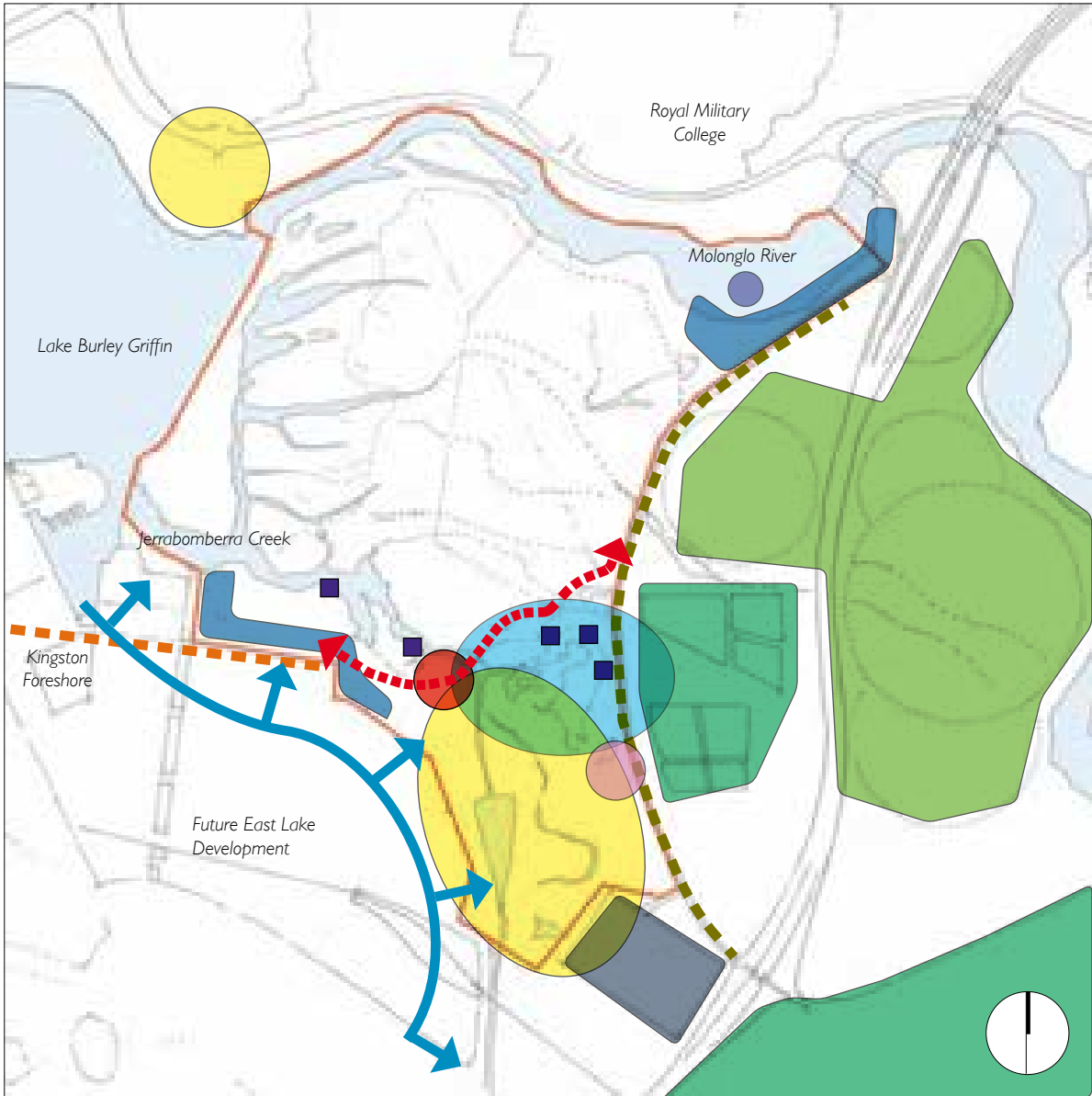
### EXISTING STATUS

The rich and compelling history of the floodplain and wetlands remains largely obscure to anyone who visits this landscape today; the visitor would be unaware perhaps of the long cultural association with the Ngunnawal People, for whom this place was not only a source of food but an important meeting place. Nor might they realise that the wetlands today are a direct result of the damming of the Molonglo River in 1964 to form Lake Burley Griffin as part Griffin's plan for Canberra. Likewise, the creation of a causeway and railway line across the wetlands, the agricultural uses of the site for dairying and soldier settlement or the demonstration World War I trenches dug on the site might well be unknown to the visitor. Weaving this engaging and important story into the planning and design of the Wetlands' future will significantly broaden the awareness and understanding of this valuable landscape.



### ISSUES AND OPPORTUNITIES

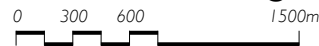
- The Ngunnawal People have had a continuing connection to the landscape over the past 25,000 years. The river valley was a key resource for a diverse source of food, and was important for corroborees associated with trade and ceremony. There is an opportunity to better integrate this story.
- Walter Burley Griffin's winning scheme for the Capital has created the lake which has resulted in the current novel ecosystem. The contrast of organic and geometric forms could be richly interpreted
- Grazing management of the exotic grasslands has created a particular rural character consistent with its use over the last 100 years
- The Reserve was a training ground for the Duntroon-based Trench Warfare & Bombing School during WWI (operated 1916-17). The form of the trenches (and location) can inspire design to express site stories to future generations
- WWI restrictions lead to initial light construction railway/tramway with trestle bridge and embankment which diverted Jerrabomberra Creek. The bridge was destroyed in floods of 1922 and 1925 and never restored. Opportunities exist to integrate this story
- Soldier settlement schemes aimed to repatriate soldiers returning after World War I and to boost population and infrastructure in regional areas. There is a strong military history to the Wetlands site that design can draw upon
- All historical site stories can be drawn upon and interpreted through design such as public art
- Griffin's Water Axis runs the length of Lake Burley Griffin at right angles to the Land Axis. It may be used in planning and interpretation within the Wetlands


















**FACILITIES AND USES**

**1:15000 @ A4**

**LEGEND**



- |   |  |   |   |   |                                   |
|---|--|---|---|---|-----------------------------------|
|  | Ecological opportunities. Core bird watching area                              |  | Compatible recreational opportunities                   |  | Existing Wetlands Learning Centre |
|  | Water quality opportunities. Kellys Swamp, Jerrabomberra Billabong, silt trap. |  | Kingston Foreshore and East Lake Developments interface |  | Water recreation                  |
|  | Wetlands Foreshore Business Park   |  | Shared cycle/pedestrian footpath                        |  | Existing bird hides               |
|  | Agricultural practices - turf farm   |  | New Visitor Centre opportunity                          |  | Dairy Road                        |
|  | Industrial practices - sewage treatment ponds, Fyshwick.                       |  | ACT Hospice   |  | Eyre Street                       |

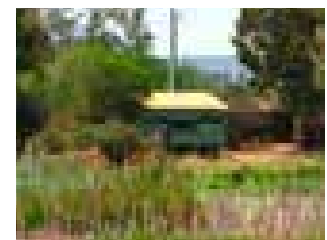
## EXISTING FACILITIES AND USES

### EXISTING STATUS

The current Wetlands management facilities comprise demountable buildings, located off Dairy Road. They include management offices and educational spaces which serve as a Learning Centre for promoting the values of the wetlands. Kellys Swamp provides the core habitat for local and migratory birds to the Wetlands, which can be viewed from 3 bird hides. An additional 2 bird hides are located at Jerrabomberra Pool.

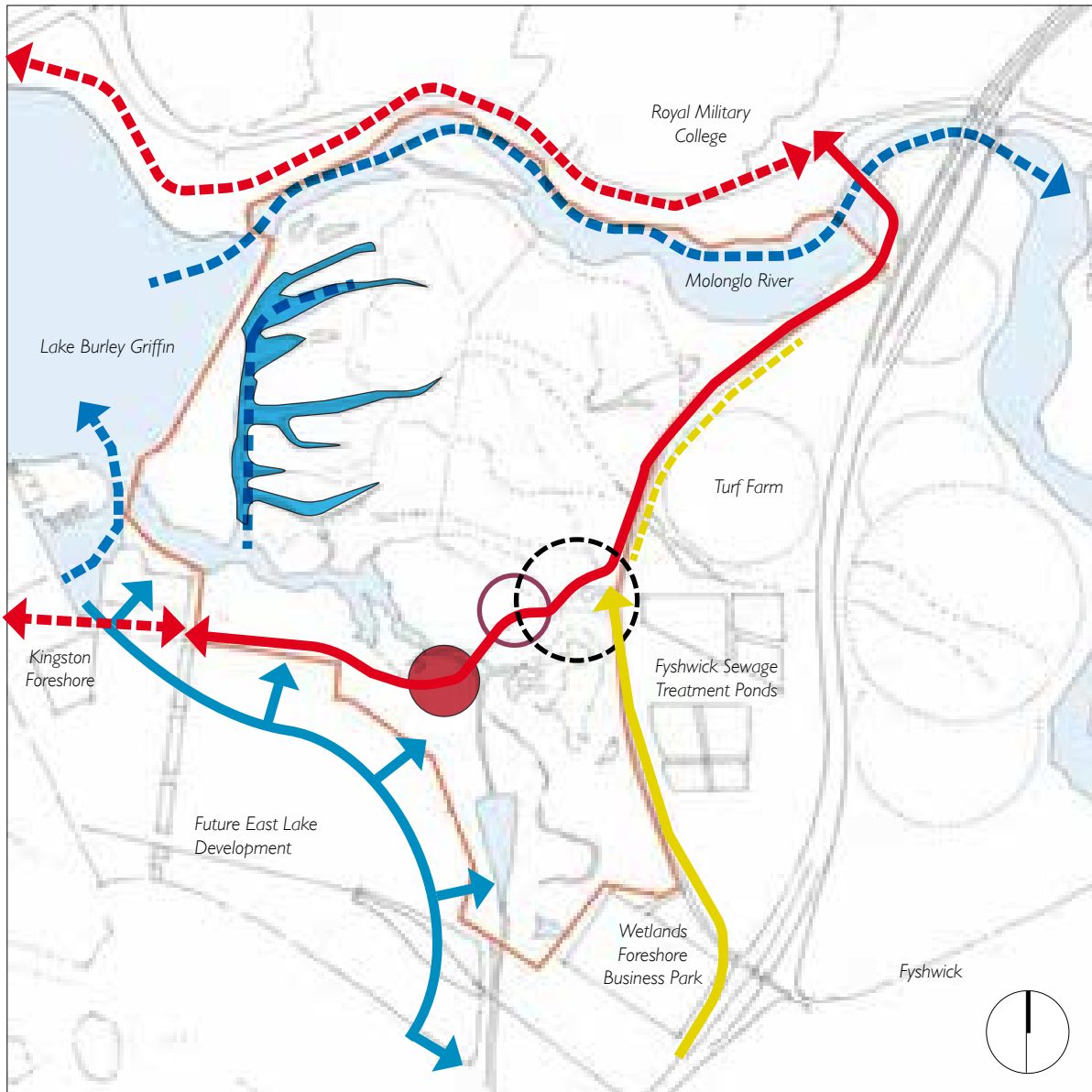


Kingston Foreshore and East Lake developments will place new pressures on the Wetlands through the development interface, associated water management systems and recreational needs. This will be in addition to the current pressures placed on the Wetlands by the surrounding industrial and agricultural practices. Principal uses of the site focus on the educational aspects of the Wetlands, which are also popular with birdwatchers. Broader public use of the site is primarily focused on the shared cycle/footpath that runs through the wetlands between Eyre Street and Dairy Road. A basic car park off Dairy Road is provided for visitors.













### ISSUES AND OPPORTUNITIES

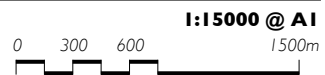
- The new developments of Kingston Foreshore and East Lake will provide better access to the Wetlands creating opportunities for more direct community engagement with the site and its future management
- Increased resident population on the Wetlands' boundary brings with it the risk of activities that may potentially be damaging to the resource (e.g. domestic animals, and incompatible recreation), requiring both a design and management response
- Storm water quantity and quality to the Wetlands will be modified in direct response to the pressure associated with the new developments. The Wetlands can provide water treatment opportunities which will also provide ecological functions and educational roles
- Progressive rehabilitation of the Wetlands such as reconfiguring the Silt Trap, closing or regulating the Causeway Channel and re-creating the anabranche provides the opportunity for a series of case histories at a future Visitor Centre with appeal to Canberra residents, tourists and educational organisations, amongst others
- Any new Visitor Centre also provides opportunities to combine visitor management teams, educators, researchers and field management staff under the one roof, for optimal communications
- There is a need to establish clearer strategies around compatible public recreation activities and the locations for such in the Wetlands (eg walking and cycling routes and user facilities such as seating, tables, shelters, play etc). In this regard an opportunity exists to develop a small new recreation site on the Molonglo River
- Water recreation, particularly kayak access, requires clear management strategies, (e.g. encouragement along Molonglo River, exclusion from Jerrabomberra Creek)
- The neighbouring Fyshwick Sewage Treatment Pond, provides complementary bird habitats to the Wetlands. Liaising with the plant's managers to agree how to safely integrate bird watching within their site
- Agreeing an improved interface and integration between the Wetlands Foreshore Business Park and the Wetlands in terms of proposed future land use, environmental management and visual amenity will be an important initiative



**ACCESS AND CIRCULATION**

LEGEND

-  Future Visitor Centre opportunity
-  Kingston Foreshore and East Lake Developments interface
-  Currently accessible by boat
-  Existing cycle route
-  Existing Lake Burley Griffin cycle/pedestrian track
-  Existing entrance off Dairy Road
-  Closed road
-  Cycle/pedestrian and bird watching conflict
-  Existing entry with carpark
-  Paleochannels



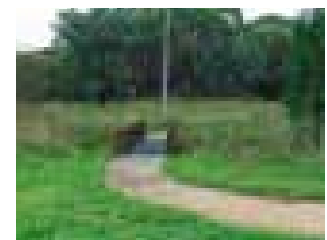
## ACCESS AND CIRCULATION

### EXISTING STATUS

The Wetlands provide Canberra with a rare opportunity to experience a floodplain landscape in the heart of the city. Visitors currently access the Wetlands by car from Dairy Road, off the Monaro Highway. This entrance is near the Wetlands Learning Centre while the main public car park presently sits somewhat isolated in the Wetlands landscape.

The secondary access point off Eyre Street, is not highly visible nor widely used, although this will inevitably change with the development of East Lake. The two Wetland access points are connected by a shared pathway that runs through the Wetland. This shared path presently creates conflict among its various users (pedestrians, cyclists and bird watchers). The path also divides the Wetlands.

Finding vehicular, footpath or cycle path access points to the Wetlands is not presently intuitive, while the partly closed Dairy Road conveys a sense of impermanency and ambiguity about access and circulation around and into the Wetlands generally.














### ISSUES AND OPPORTUNITIES

- Kingston Foreshore and East Lake developments create a new boundary to the Wetlands that will become a major access and movement corridor. This will improve a sense of arrival if well integrated into the Wetlands concept plan
- These new developments will increase the urban population to the south boundary of the Wetlands. This will become a viable option for a new main entrance, and an arrival road for a new Visitor Centre
- Vehicle access to a new Visitor Centre will need to accommodate parking for coaches and buses as well as cars
- There are opportunities to create a network of tracks and paths that takes the user on a variety of journeys with a range of experiences (bird watching, paleochannels, etc), whilst also reducing conflicts between walkers, cyclists and birdwatchers. Such trails should also include external links (eg south along Jerrabomberra Creek)
- There would be value in separating cyclists' and walkers' paths to the benefit of both and for reducing disturbance of wildlife. This might also achieve a better outcome in enhancing this part of a full path circuit around the Lake
- Access to areas of high natural, ecological and cultural values (eg Refuge and Buffer Zones) will need to be carefully managed to ensure the protection of these values. This may need to combine physical and management constraints
- Dairy Road (currently closed road in its northern part), could provide vehicle access to a possible new recreation node bordering Molonglo Reach. At present the road is closed beyond the car park, due to inappropriate vehicle use
- The site's general flatness provides an opportunity to optimise universal access across all parts of the Wetlands
- Boat access via Molonglo Reach to a potential recreation area on the Wetlands northern boundary would seem desirable while access to Jerrabomberra Creek should continue to be excluded to minimise disturbance to bird habitat
- Management access tracks for maintenance of the powerlines on the west of the site provides an opportunity to create a controlled/guided tour route and management boundary
- Wayfinding signage requires redesign once entries and paths are finalised



**IMAGE AND CHARACTER**

**LEGEND**

- |   |                                |   |   |   |   |
|---|--------------------------------|---|---|---|---|
|  | Open grassland                 |  | Wetlands Foreshore Business Park not well integrated    |  | Paleochannels. Limited visibility at distance               |
|  | Enclosed creek landscape       |  | Industrial Practices - sewage treatment ponds, Fyshwick |    | Existing powerlines. Strong feature in views, to be removed |
|  | Enclosed creek landscape       |  | Future East Lake built form urban interface             |    | Important vistas  |
|  | Molonglo river front           |   |   |   |   |
|  | Turf farm. Flat open landscape |   |   |   |   |

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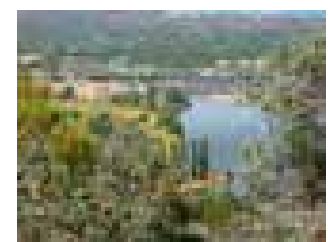
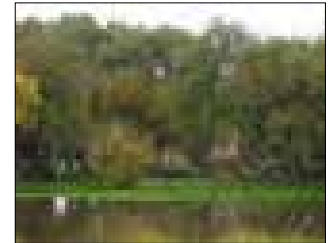
## IMAGE AND CHARACTER

### EXISTING STATUS

Opportunities exist to improve the visual and landscape character of the Wetlands and thereby foster a more coherent appreciation of the natural and cultural heritage of the area amongst the broader community and for interstate and overseas visitors.

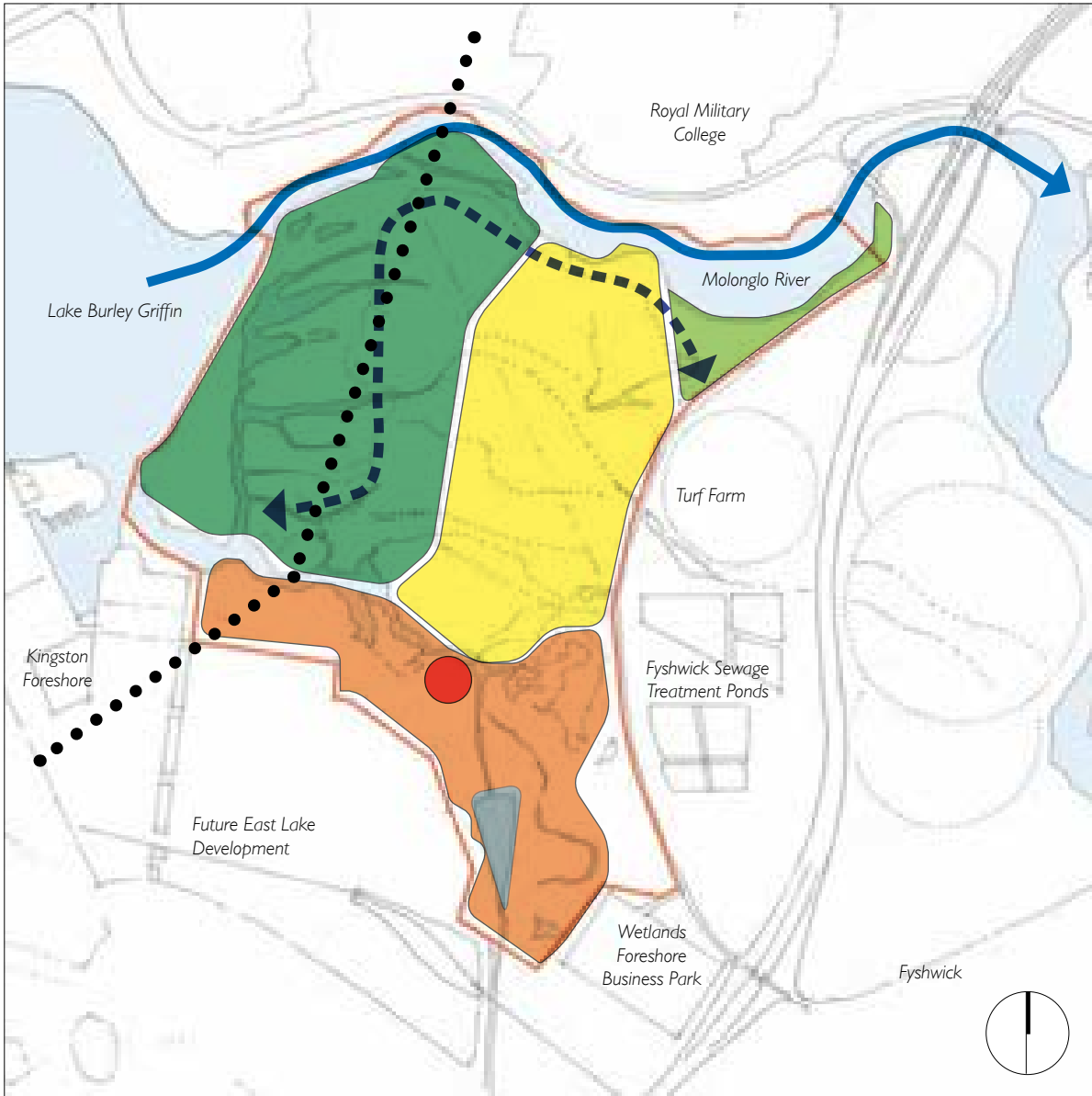
Factors that are working against this wider appreciation include absence or loss of higher elevation views across the Wetlands and floodplain, limited locations around the Wetlands management boundary where views can be had of the reserve, remnants of exotic tree species in the landscape, detracting elements in the landscape (overhead powerlines, weeds etc) constructed water management devices (eg levee bank), poor visual environment of entries and roads and the mixture of design language from contemporary (eg curved bridge and cycle racks) to conservative (eg bird hides), reflecting various phases of upgrades over recent years.

However, the Wetlands landscape retains 'strong bones', with the opportunity to address these issues without the need for major interventions whilst also creating the foundations for a more coherent story line for visitors.



### ISSUES AND OPPORTUNITIES

- Creating a more integrated water management and wetland habitat for the areas of Kellys Swamp, Jerrabomberra Billabong, regulated paleochannels, a reconfigured Silt Trap and Jerrabomberra Reach (including re-establishment of the anabranch) will generate a more holistic landscape that can demonstrate to visitors the dynamics of wet and dry cycles
- The unique geomorphological characteristics of the Wetlands (eg dunes) could be given greater visible profile through views from key visitor nodes and associated interpretation
- Evidence of the paleochannels could be conveyed to the wider community by creating a 'demonstration' channel (aligned on an existing channel) close to the Dairy Road boundary path
- Preventative measures to be undertaken for Kellys Swamp and the Billabong for domestic pets - through use of fences and refuge islands
- Previous landuses - and thus the heritage - of this landscape could be visibly reflected through continuing activities such as grazing, artwork and interpretation
- Improving the vistas of the Wetlands from both within (rural floodplains, Wetlands), and onto the Wetlands from the surrounding landmarks (hills, Parliament House, Lake Burley Griffin) should be explored, as might small landmark features such as a windmill to pump water for stock
- Key views and backdrops (eg across the Lake, to the fountain, capital buildings, the distant hills etc) should be protected by precluding planting obscuring them
- The new Wetland interface with Kingston Foreshore and East Lake will change the present southern boundary character. This may require East Lake development building height controls and planting strategies to address views into and out of the Wetlands
- Some powerlines have already been removed or placed underground and options to remove the remainder should continue to be explored
- There is an opportunity to introduce a more contemporary design language to the Wetlands and thus widen visitor appeal

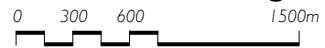


**EXISTING MANAGEMENT AND INFRASTRUCTURE**

LEGEND

- Primary habitat
- Grazing management
- Opportunity for recreation node management
- Need to address function of silt trap
- Appropriate interface with new developments. Management of stormwater, pets and recreation
- Maintenance access to powerlines
- Manage boat access to Molonglo River
- Need for maintenance access circulation

**1:15000 @ A1**





## MANAGEMENT AND INFRASTRUCTURE

### EXISTING STATUS

Protecting the Wetland's value is based around the primary management objectives of biodiversity, landscape, recreation, education, research and cultural heritage. These objectives derive from its city context, and the pressures the new developments to the area will place on the Wetlands in the foreseeable future. This presupposes an approach to management that recognises the Wetlands' status as a novel ecosystem. Inherent in that assumption is the need to adopt strategies that reflect the varying management approaches ranging from 'Conservation' at one end of the spectrum to 'Remediation' at the other, as described in the RVJW (page 65).

Also central to the sustainability of the Wetlands' long term management and maintenance is the necessity to build strong partnerships with the community and stakeholders with a view to the former's active involvement in maintenance and the latter's understanding of their impact on the Wetlands.



### ISSUES AND OPPORTUNITIES

- Each zone requires a clear approach to management. There is a need to identify management zones with specific objectives eg 'Conservation' for core habitat (Zone 1), Remediation for degraded habitat (eg Zone 3) etc
- The planning, design and development of an appropriate interface with the new developments of Kingston Foreshore and East Lake is central, not least in managing stormwater entering the Wetlands, but also in managing pets and compatible recreation
- Dialogue with upstream landholders is crucial to viable maintenance of the Wetlands with negative impacts from quantity and quality of external water flows needing to be demonstrably reduced over time
- Minimising the management and maintenance impacts of major flood events (eg maintaining key visitor infrastructure above flood level, managing silt and debris etc) requires related design thinking as does improving the Silt Trap functionality
- An holistic approach to managing grassland requires an ability to test differing approaches (eg grazing, fire etc), but also requires a commitment as to what degree native species may or may not be practically reintroduced and maintained at any significant scale
- Co-location of both management and field staff into the same building will be most productive. This does not however preclude the benefits of 'outlying' buildings for specific uses matched to their locations (ie for field research, maintenance compounds etc)
- Developing a communications strategy for community engagement will ensure clearer understanding of the Wetlands values, its relevance to people's day-to-day lives and the long term protection and care of the site by its residential neighbours
- Long term practices for the removal, or significant reduction of high priority exotic weed species (terrestrial and aquatic) without disturbance to native wildlife will be an important focus
- Methods introduced to exclude (fences), or control (refuge islands, perching sites in water) pest animals will be critical
- Monitoring of bird species and regular contact with the Airport will be essential



*The Reserve includes some man-made wetlands such as the Silt Trap on Jerrabomberra Creek*

## IMPLICATIONS OF ISSUES AND OPPORTUNITIES

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The implications of the foregoing issues and opportunities analysis for the development of the Wetlands Concept Plan that follows may be summarised as follows:

### **Natural Environment**

- There is a need to recognise the Wetlands novel ecosystem, to manage the natural systems accordingly and to interpret and educate about this as a positive attribute of the Wetlands' environment
- All aspects of the floodplain environment should be interpreted from geomorphology and hydrology to all flora and fauna, both native and exotic
- The Wetlands should be managed to create habitat for diverse terrestrial and aquatic native fauna and not simply for bird species

### **Cultural Heritage**

- The site's rich cultural heritage, both Aboriginal and non-Aboriginal, needs to be made more evident and relevant to visitors and the community in the landscape of the Wetlands
- An integrated cultural heritage narrative should be woven into all visitor experiences, to be realised through education, recreation, public art and landscape design

### **Facilities and Uses**

- Facilities and recreation opportunities should be focused on generating return visitation for tourists and the local community
- Both land and water based recreation must be appropriate to the sensitive natural environment of the Wetlands

### **Access and Circulation**

- Access and circulation must be designed around and be compatible with the varying landscape and habitats of the Wetlands, optimising and fostering day to day interaction of the local community and appealing to visitors as part of the Canberra experience

### **Image and Character**

- Elevated locations within the Wetlands should be employed wherever practical to provide visitors and daily users with an appreciation of the scale and diversity of the Wetlands
- Identifying, retaining and enhancing major views, vistas, landmarks and backdrops, seen from within and outside the Wetlands, will be critical to the visitor experience

### **Management and Maintenance**

- Ongoing liaison and co-ordination with adjoining landowners, particularly with respect to stormwater management, will be central to the long term health of the Wetlands
- Managing the Wetlands so as to not increase the risk of aircraft bird strike risk and liaising regularly with the airport owners and authorities will ensure a transparent partnership approach
- Developing and nurturing partnerships, particularly with the local community and adjoining land users will foster long term ownership and care of the Wetlands.

*|| A diverse and dynamic floodplain landscape and wetland resource, inspiring the community to enjoy and appreciate its natural and cultural values, and to participate actively in its care and management. ||*

## CHAPTER 3 - CONCEPT PLAN

---

This chapter sets out the proposals for the Wetlands' future, drawing on the Vision created by the Jerrabomberra Wetlands Board of Management in 2013 (see opposite) and described and illustrated under the following headings.

### STRATEGIC DIRECTION

The Strategic Direction describes and illustrates the planning, design and management rationale, based on the management precincts for the Wetlands developed by the Management Committee.

### PRINCIPLES

The Principles form the foundation for the Concept Plan proposals identifying the planning and design rationale under the same suite of headings that framed the analysis in Chapter 2. The Principles not only inform the direction for new works but also act as the reference point for revised proposals where circumstances dictate that concepts require review.

### CONCEPT PLAN

The Concept Plan provides a rendered plan of how the Wetlands' may appear in the future. The plan describes all of the proposals for the Wetlands over the long term, including spatial arrangements and relationships, environmental improvements, heritage conservation and boundary design. The proposals for circulation around the Wetlands and proposed recreational uses are further described and illustrated in diagrammatic form. The proposals in the Concept Plan are aspirational only and most will be subjected to further consultation and planning processes.

### CONCEPT PLAN PRECINCTS

The Precinct Plans provide more detail on the possible options for specific precincts of the Wetlands that include:

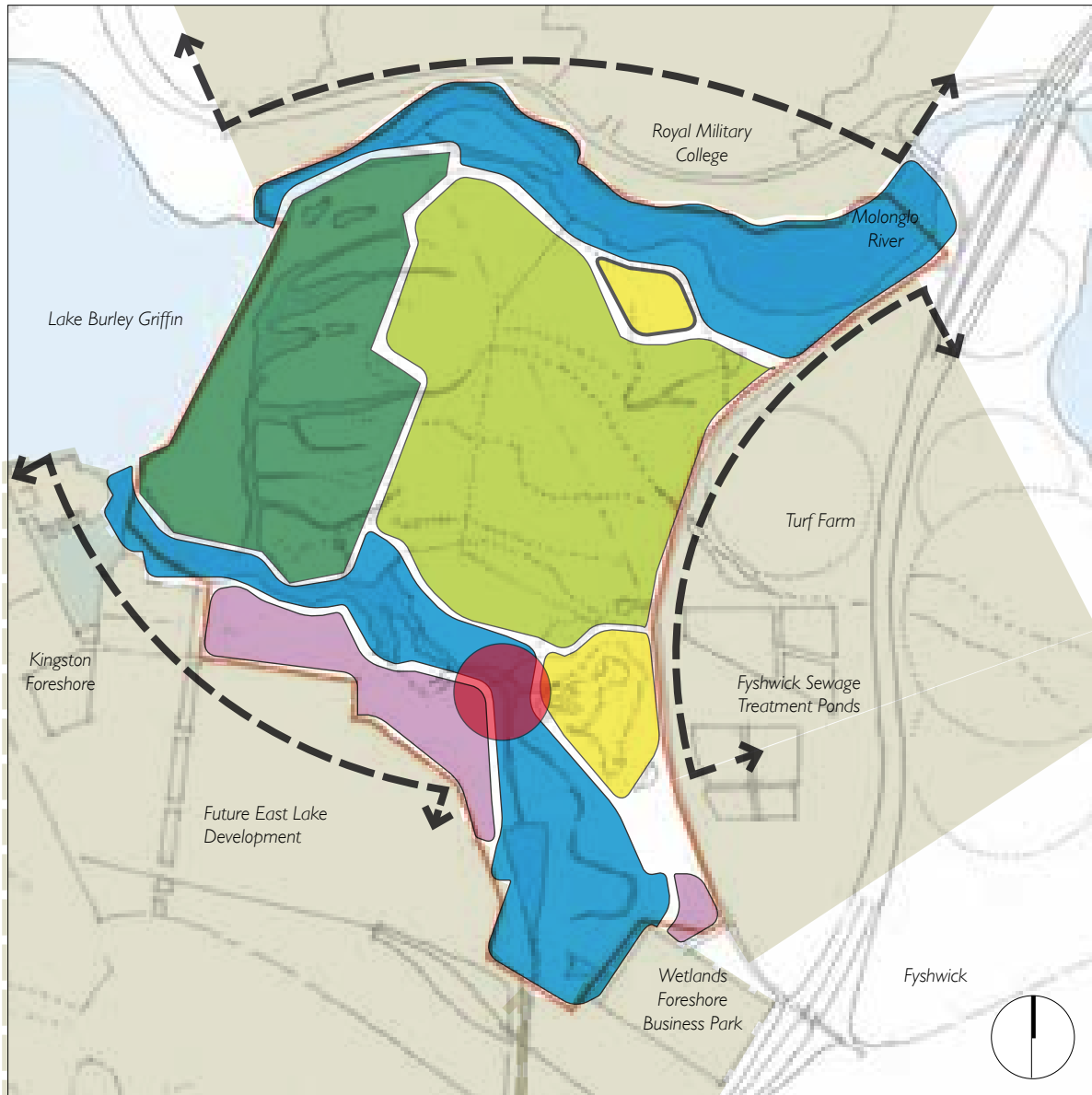
- East Lake Interface
- Visitor Centre
- Kellys Swamp
- Jerrabomberra Billabong
- Molonglo Reach Park

Each Precinct is illustrated and the proposals further described in cross sections and perspective sketches.

### LANDSCAPE CHARACTER

This section provides images from a range of places around Australia and overseas that illustrate best practice planning and design in urban wetlands and which give an indication of the intended design character for the varying landscape zones and boundaries within the Wetlands.

# STRATEGIC DIRECTION



## STRATEGIC DIRECTION

LEGEND. SEE OPPOSITE

1:15000 @ A1



## STRATEGIC DIRECTION

---

The planning, design and management rationale for each Management Precinct illustrated opposite is described below.



### **HUB**

The Hub is the visitor focus for the Wetlands, being the principal arrival point for all first time visitors and the location for a future possible Visitor Centre and associated car park. All of the major paths in the Wetlands emanate from or pass through the Hub, including path circuits leading from and back to the Visitor Centre.



### **FLOODPLAIN FAUNA REFUGE - ZONE 1**

This zone comprises the core conservation zone for fauna refuge in the Wetlands. Its strong existing conservation and natural heritage values generated by the paleochannels - this is a regular sighting location of Lathams Snipe - and its relative remoteness from urban activity and movement mean that access to this area will be controlled and managed.



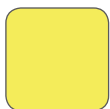
### **FLOODPLAIN INTERPRETIVE - ZONE 2**

Zone 2 lies at the heart of the Wetlands, comprised principally of grasslands with shallow depressions that issue into the paleochannels in Zone 1 and which experience wet and dry cycles through seasons and from year to year. This expansive floodplain landscape has long associations with agriculture, providing the opportunity to conserve and interpret its ecological, geomorphological and cultural values through ongoing grazing and the testing and development of grassland management techniques to encourage native grasses.



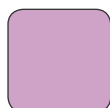
### **RIVERINE INTERPRETIVE - ZONE 3**

Jerrabomberra Creek and Molonglo River shape and define the floodplain landscape and form the northern and southern boundaries of the Wetlands. With Molonglo River as consistently open water and the original Jerrabomberra Creek subject to periodic wet and dry phases in its upper sections, both offer an opportunity for active management and interpretation of riverine dynamics and their influence on the floodplain's ecology.



### **WETLAND INTERPRETIVE - ZONE 4**

Both Kellys Swamp and the Jerrabomberra Billabong lie above the level of Jerrabomberra Creek and thus their hydrological regime can be directly managed to achieve wet and dry cycles to enhance terrestrial and aquatic fauna habitat. Lying close to a possible Visitor Centre this zone will be accessible for interpretation of these values.



### **RIVERINE/TERRESTRIAL INTERFACE - ZONE 5**

This interface zone between the Wetlands and adjoining urban land uses - principally the proposed East Lake Development and the existing Wetlands Foreshore Business Park - require an integrated design and management approach that ensures that impacts such as stormwater runoff, weed invasion and recreation activities generated by those land uses are mitigated.

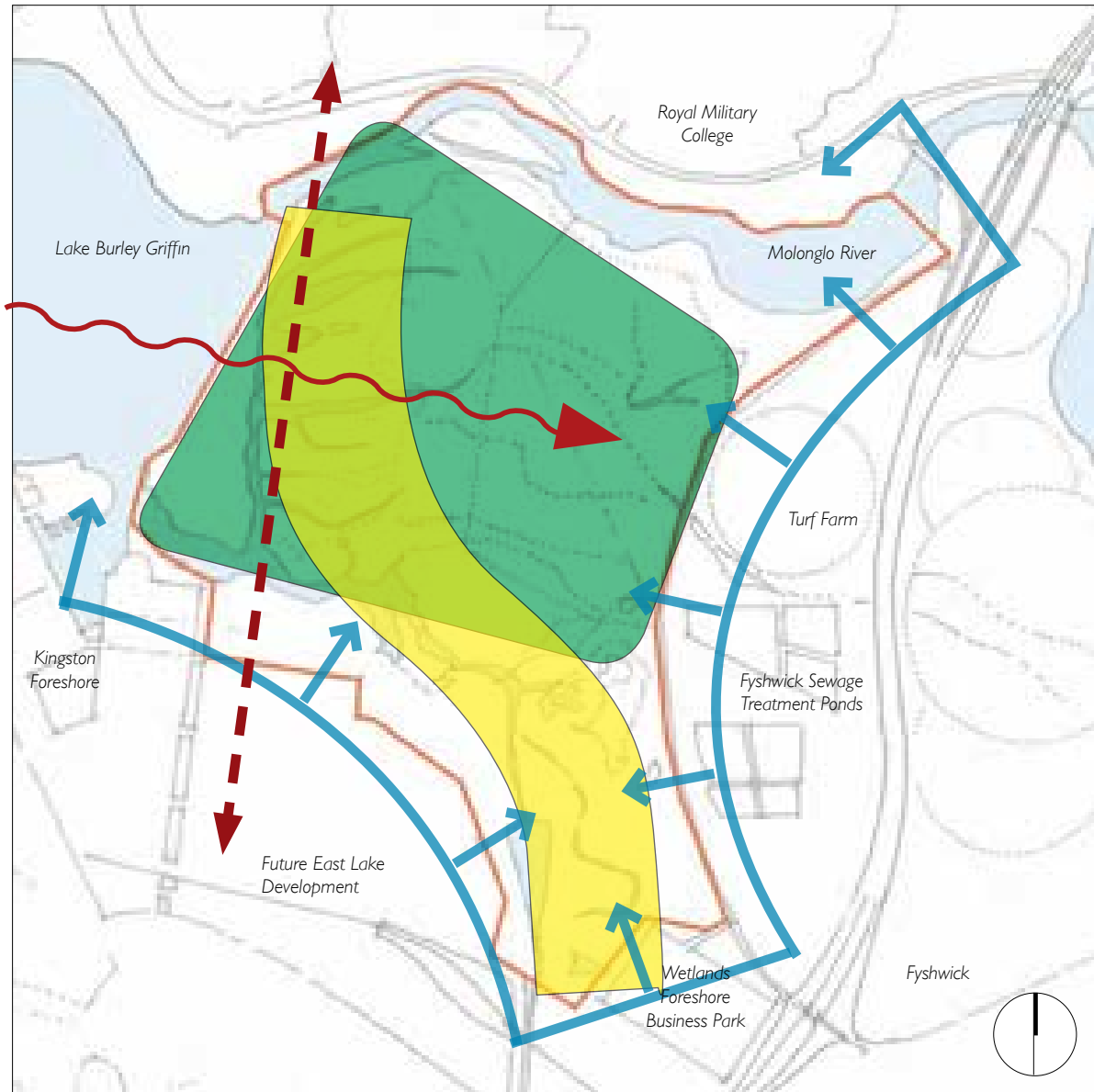


### **FILTER/TRANSITION/BACKDROP**

Although the surrounding landscapes to the Wetlands are managed by other landowners and agencies, co-ordination with those parties on integrated cross boundary management as well as the active management of views to and from those locations is the purpose of this zone.



# PRINCIPLES • ENVIRONMENT AND HERITAGE



**PRINCIPLES - ENVIRONMENT AND HERITAGE**  
 LEGEND. SEE OPPOSITE

**1:15000 @ A1**  
 0 300 600 1500m



## PRINCIPLES • ENVIRONMENT AND HERITAGE


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The environmental and cultural heritage significance of the Wetlands is neither widely appreciated in the community nor recognised by the adjoining landowners and users, whose activities have a profound effect on the Wetlands' ecology and its cultural values. Working closely with the adjoining landowners and promoting the Wetlands' significance and relevance to the community will be pivotal in restoring these values over time.



### Protect and manage the resource as a floodplain landscape

- Protect the refuge areas and refuge buffer areas of the resource through fencing and managed access controls
- Manage mudflat areas for migratory birds through mechanical or other means
- Investigate methods to manage exotic weed species and particularly exotic grasslands to eventually reinstate with native species suited to the site ecology
- Investigate the need and practicality for cost effective reduction of damage due to carp and other exotic fish by managing their recruitment in the Wetlands. Use island creation, water barriers and resident agreements to minimise habitat and fauna impacts of domestic animals



### Improve the upstream water quality feeding the Wetlands

- Work with upstream land managers and government agencies to promote best practice in improving the quality of water flowing from upstream catchments
- Promote local Water Sensitive Urban Design (WSUD) measures to minimise the impact of urban run-off and pollutants entering the wetlands from Fyshwick industrial estate
- Provide WSUD measures to manage water quality flowing off the proposed East Lake development. Use these as part of the wetland story
- Continue to monitor and review the water quality entering the Wetlands



### Provide habitat suitable for native floodplain fauna

- Focus upon improvements to habitat diversity and enhancements for terrestrial and aquatic species to expand visitor appeal and interest. (eg. fish, turtles, reptiles and birds)
- Modify waterbird habitats to target those waterbird species that are not considered high bird strike risk
- Where practical restore natural stream flows (eg through the creek anabranch)
- Optimise functionality, environmental values, safety and aesthetics of all water bodies (eg silt trap)



### Celebrate cultural values of the site

- Promote the continuous Aboriginal cultural association with the site and its significance through an integrated narrative from pre European settlement to today
- Interpret the Burley Griffin legacy as the driver of the current wetland novel ecosystem and associated land uses (eg dairying)
- Tell the story of the changes over the site as a result of European settlement, including how the wetlands and valley would have appeared before the Lake was constructed

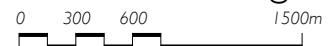
## PRINCIPLES • ACCESS AND CIRCULATION



### PRINCIPLES - ACCESS AND CIRCULATION

LEGEND. SEE OPPOSITE

1:15000 @ A1



## PRINCIPLES • ACCESS AND CIRCULATION

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An experience of Jerrabomberra Wetlands should be enjoyable and memorable. From finding your way to the Visitor Centre and then getting around the site, it should be safe, legible, convenient and inspiring. Access and circulation around the site should be planned for a variety of experiences from a brief introduction to a fully immersive visit and the routes designed and managed accordingly to engage the visitor while protecting the resource.



### Create a strong clear sense of identity and arrival

- Locate a future Visitor Centre in an easy to find location. Visible to first time user
- Provide a strong sense of arrival to the Visitor Centre that enhances the Wetland/nature experience. Ensure Dairy Road car park also offers a clear arrival experience
- Ensure the Visitor Centre maximises the visitor experience and appreciation of wetlands, through visibility and proximity to the Wetlands
- Work with the ACT tourism industry to promote the Wetlands as a nature based destination for both visitors and locals



### Make it safe and easy to find your way around

- Provide a legible and simple pathway network supported by clear way finding signage where required
- Provide for a high level of pedestrian amenity through shaded walkways. Provide a hierarchy of walkways from shared paths to low key pedestrian only paths
- Provide for continuous universally accessible paths of travel for walking with minimal or no step barriers
- Maximise waterfront connectivity to Jerrabomberra Creek. Provide a continuous pedestrian only foreshore path to the southern side of Jerrabomberra Creek
- Promote safe and convenient pedestrian access and minimise conflict with commuter bicycles and vehicles



### Manage access to protect key habitat areas of the resource

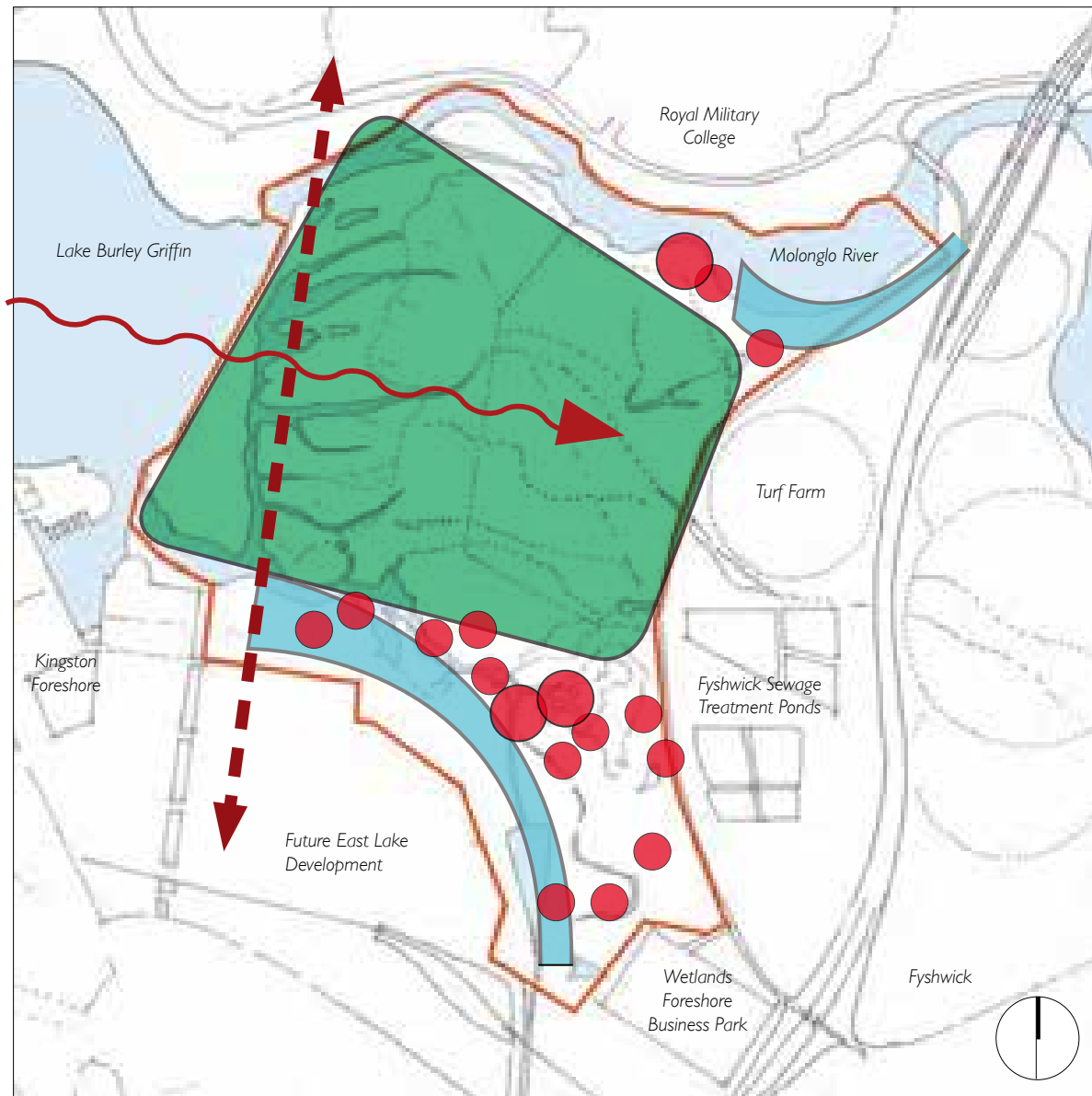
- Manage and protect key habitat through limited / fenced and gated pathway access, and barriers to water craft access to refuge areas and refuge buffers
- Provide night lighting in high use pedestrian areas only, minimising impacts on habitat



### Provide a range of safe and convenient options to experience the site

- Provide a range of options to experience the site from self guided tours, managed tours and remote cameras
- Provide a range of walking loops to experience the site catering for a range of abilities, available time and protection of sensitive areas
- Consider potential for easy and convenient transport around the site for visitors (eg bike hire)
- Provide safe and convenient cycle tracks that require low speed movement and minimise pedestrian conflict by separating commuter and recreational cyclists
- Provide opportunities to experience the Wetlands in close proximity to the water and from elevated positions

## PRINCIPLES • FACILITIES AND USES



### PRINCIPLES - FACILITIES AND USES

LEGEND. SEE OPPOSITE

1:15000 @ A1



## PRINCIPLES • FACILITIES AND USES

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The principal focus for visitors and local residents in experiencing the site is the environment of the Wetlands. Accordingly facilities that are needed to support and enhance that experience must have minimal footprint and be designed in harmony with their context.



### **Provide a range of complementary visitor facilities and attractions.**

- Facilitate a range of complementary activities and attractions catering for all ages, abilities and time frames. Provide opportunities that cater for short walks, one to two hour walks. Promote the provision of short accessible walks that have a wider appeal and maximise viewing opportunities for birds and fauna
- Build upon the current bird watching attraction and develop opportunities to extend the appeal of the Wetlands through terrestrial habitats and other fauna
- Plan for new long term Visitor and Management Centre
- Update the existing bird hides to a more contemporary and engaging character that reflects the City context whilst minimising their visual prominence
- Provide additional bird hides, walking trails and boardwalks
- Provide a range of self-guided walks and experiences
- Provide opportunities for guided tours and special access tours
- Investigate viability of complementary commercial opportunities such as cafe/ restaurant and visitor shop



### **Build upon cultural and natural stories of the Wetlands that reflect its sense of place.**

- Provide an engaging interpretive overlay to the site that celebrates its rich cultural and natural values
- Provide high tech opportunities for viewing wildlife (eg remote cameras)



### **Limit visitor access to refuge and refuge buffer areas.**

- Manage access to refuge areas and refuge buffers through fences and gates



### **Provide a safe and secure environment for visitors and residents.**

- Provide flexible open space areas in the western part of the site to cater for future local residents to take pressure off the more sensitive wetland environments
- Provide night-time lighting of areas of the parkland adjacent to residential areas where required for safety and where it will not compromise habitat in the wetlands
- Provide recreation areas and opportunities serviced by road and water access to the Molonglo Reach area

### **Build upon existing education and research.**

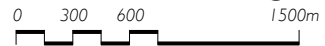
- Build upon Jerrabomberra Wetlands as a centre for excellence in Wetland research and education. Research and education around the values and functioning of a Novel Ecosystem. In particular engage the community in monitoring flora and fauna

# PRINCIPLES • IMAGE AND CHARACTER



**PRINCIPLES - IMAGE AND CHARACTER**  
LEGEND. SEE OPPOSITE

**1:15000 @ A1**

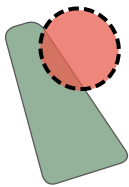


## PRINCIPLES • IMAGE AND CHARACTER

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The Jerrabomberra Wetlands have a particular floodplain character and quality that forms their identity. In particular, retaining the wide, flat, open landscape of the Wetlands needs to be balanced with opportunities for visitors and passers by to appreciate its scale and significance from differing locations within and around the site.

### Provide a meaningful and memorable experience for both visitors and locals.



- Provide a memorable wetland experience that builds upon the natural qualities of the place and cultural stories by using a range of opportunities and vantage points to experience these
- Encourage return visitors with a range of seasonal activities linked to the natural systems and dynamics, particularly of wetland dry phases
- Provide opportunities for festivals, functions and events that are appropriate to the wetlands. Promote events that raise awareness of the Wetland's values

### Provide a range of character and visual identities for the site.



- Build upon the high quality wetland areas of Jerrabomberra Creek and Kellys Swamp
- Retain, in the mid-term, the cultural landscape features (e.g. some exotic vegetation) that are visible from Lake Burley Griffin
- Consider long term options for the reinstatement of a more native grasslands ecosystem
- Provide a range of different spaces that clearly identify their use from recreation through to conservation

### Maximise visual connectivity to the Wetlands.



- Manage and protect any key external views into the Wetlands where possible
- Provide vantage points and pathways close to the waterways and wetlands to maximise viewing opportunities without causing disturbance
- Protect key view corridors, framed views and backdrops and retain visual cues in the landscape as to its heritage and history (e.g. pasture grazing)
- Consider long term opportunities for removing the overhead powerlines
- Consider elevated locations where a significant extent of the wetlands can be seen (eg a tower, elevated walkway)

### Use a consistent design language and palette of materials for the site.

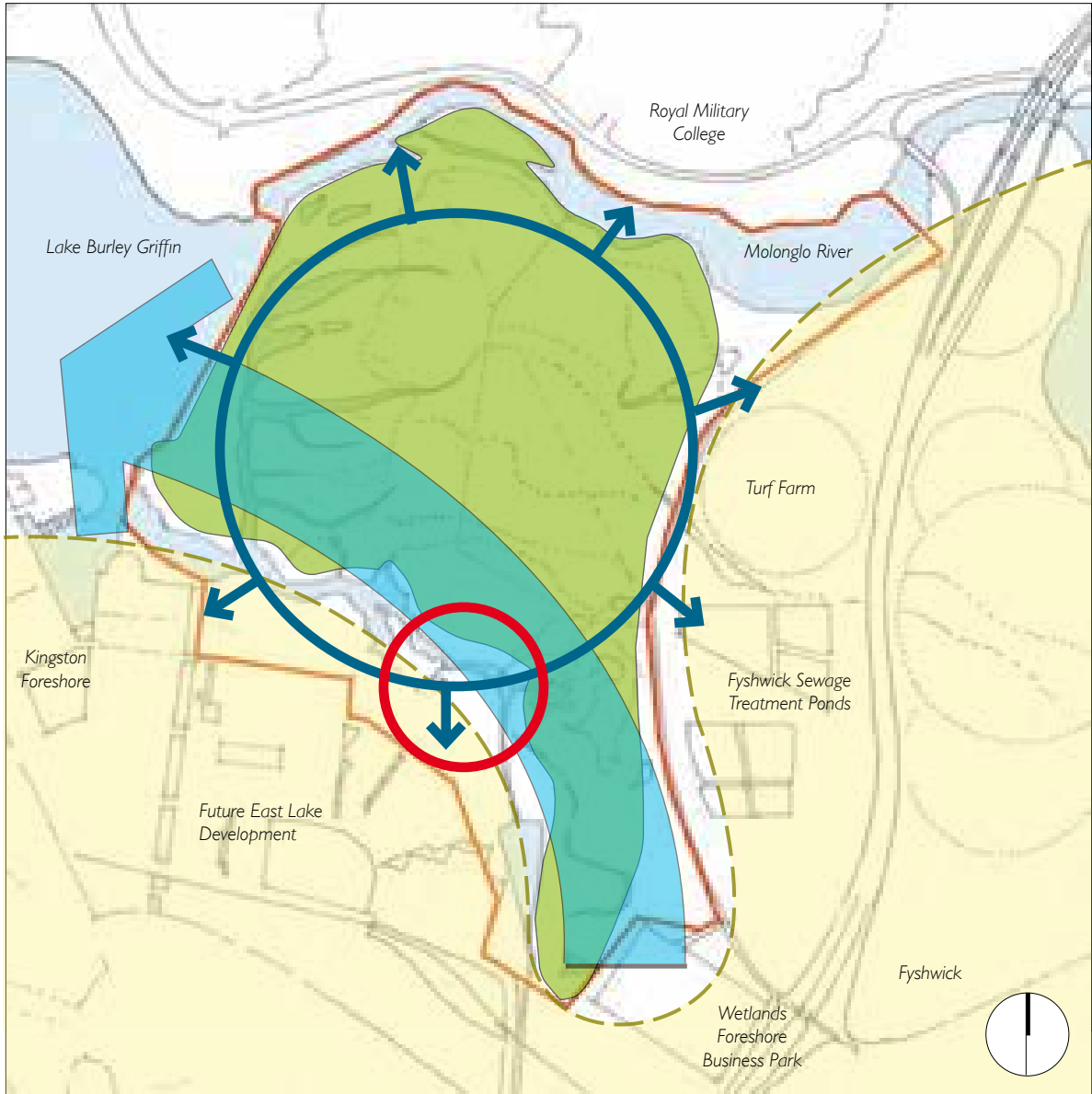


- Employ a consistent design language using a limited palette of materials to provide visual continuity and identity to the site
- Ensure any built form is consistent with the quality of the landscape setting
- Site key buildings and essential infrastructure above the 1:100 year floodplain, or design for flood inundation

### Provide an integrated interpretive story of Jerrabomberra Wetlands.

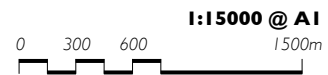
- Integrate Aboriginal and European cultural values and natural system stories into the visitor's Wetland experience

# PRINCIPLES • MANAGEMENT AND INFRASTRUCTURE



## PRINCIPLES - MANAGEMENT AND INFRASTRUCTURE

LEGEND. SEE OPPOSITE





## PRINCIPLES • MANAGEMENT AND INFRASTRUCTURE

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Effective and sustainable management and maintenance of the Wetlands relies not only on suitable access, qualified staff and infrastructure, but as importantly in building long term partnerships with neighbouring landowners, government agencies, educational establishments and particularly with the local community.



### **Provide a co-ordinated and integrated catchment based approach to planning and management of the upstream catchments.**

- Work with upstream land managers and government agencies to promote good quality management to improve the quality of water flowing from upstream catchments. Refer also to environment and heritage principles
- Instigate WSUD measures that target improvements to water quality from key urban catchments of East Lake and Fyshwick



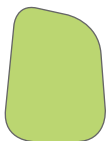
### **Foster community appreciation and understanding of the Wetland Values.**

- Develop an engagement and communications strategy with the local community and visitors to be stewards and ambassadors for the Wetlands and volunteers in its management
- Work in partnership with tourism agencies and industry to promote the values of the Wetlands as a destination



### **Provide robust design solutions that can withstand periodic flooding and inundation.**

- Design facilities and fixtures that are required to be below the 1:100 year event to be robust enough to withstand inundation or to minimise damage and associated recovery costs
- Design for high volume flows and siltation through Jerrabomberra Creek in flood events



### **Aim for long term removal or significant reduction in priority exotic weed species.**

- Continue to investigate long term management to establish a more diverse natural species community
- Investigate a range of cost effective management practices to remove long term exotic weed species and in particular *Phalaris aquatica*
- Where appropriate, retain exotic planting (where non-invasive), to contribute to the Wetlands image, character and cultural values



Morshead Drive

Royal Military College

Lake Burley Griffin East Basin

Molonglo Reach

3

2

1

4

5

Turf Farm

Monaro Highway

Jerrabomberra Reach

8

Kingston Foreshore

6

7

16

11

Dairy Road

Fyshwick Sewage Treatment Ponds

Future East Lake Development

9

10

13

Green Space

15

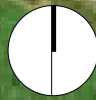
12

14

Wetlands Foreshore Business Park

Fyshwick

CONCEPT PLAN



1:15000 @ A4

0 150 300 450 750m

Neighbouring Wetland Treatment

AERIAL PHOTOGRAPH. SOURCE NEARMAP

## CONCEPT PLAN: OVERVIEW

The Concept Plan opposite illustrates how the Wetlands may appear over the long term as the proposals described in this Concept Plan are considered and possibly implemented. Proposals in the Concept Plan are aspirational only and most will be subjected to further consultation and planning processes. The planning and design framework of these proposals is briefly outlined under the following headings.

### Natural Environment

The major proposals to enhance the natural values of the Wetlands relate principally to water management with the purpose of diversifying aquatic and terrestrial fauna habitat; proposals include blocking off or regulating the southern entry to the paleochannels, re-establishment of the former alignment of the Jerrabomberra Creek through the Billabong with an associated flow control of the Silt Trap. Additional woodlands on the Wetlands management boundary add further habitat.

### Cultural Heritage

The proposals for conserving and interpreting the Wetlands' cultural heritage adopt an integrated narrative approach to both Aboriginal and non-Aboriginal heritage, weaving a continuous story of the Wetlands' evolution through time. Associated facilities and amenities include interpretation and education at the future possible Visitor Centre, outdoor learning spaces, interpretive trails, permanent and temporary public art installations across the wetlands. Conservation of artefacts (old posts, trenches, machinery etc) will be important.

### Access and Circulation

An integrated access and circulation system into and around the Wetlands is designed to protect its natural values while permitting visitors and the general public to understand and enjoy the many values of this site. Visitor access by car and bus could be from Eyre Street directly to the proposed Visitor Centre while vehicle access to Molonglo Reach Park could be limited to daylight hours. The continuation of the cycle path that circles Lake Burley Griffin is located just outside the Wetlands management boundary, while a suite of paths and path circuits within the wetlands vary in type from short loops to managed access paths in sensitive locations.

### Recreation and Tourism

As with circulation and access, recreation within the Wetlands is designed to conserve the site's natural and heritage values whilst promoting peaceful activities that enhance enjoyment and appreciation of the site. Accordingly, grass areas for picnics and general passive recreation could be located close to the boundaries at locations such as Molonglo Reach Park and in small spaces on the East Lake Boundary. The opportunity to hold Wetlands focused events can be had at the former Oval and a grass area behind the Visitor Centre. Recreation within the Wetlands is focused on an extensive walking path network.

### Visitors Facilities and Infrastructure

The major possible facilities within the Wetlands are the Visitor Centre and car park, a research and education facility at the site of the former Kellys Farm and offices, a flexible event space at the former Causeway Oval, the Molonglo Reach Park and an extensive path network and viewing hides.

### Image and Character

The landscape of the Wetlands should retain its open character with additional open woodland on the site's southern and eastern boundaries forming both a backdrop and framed views across the site. The design character for all new landscape elements and structures should be contemporary in style.

## LEGEND

- ① Molonglo Reach Park
- ② Shoveler Pool
- ③ Paleochannels
- ④ Causeway channel
- ⑤ Dairy flat
- ⑥ Jerrabomberra Pool
- ⑦ Sand dunes
- ⑧ Goldenholm Pond
- ⑨ Possible Visitor Centre
- ⑩ Proposed Visitor Centre car park
- ⑪ Flexible event/play lawn
- ⑫ Demonstration farm
- ⑬ Kellys Swamp
- ⑭ Jerrabomberra Billabong
- ⑮ Anabranch
- ⑯ Existing car park



Morshhead Drive

Royal Military College

Lake Burley Griffin East Basin

Molonglo Reach

3

2

1

4

5

Turf Farm

Monaro Highway

Jerrabomberra Reach

8

Kingston Foreshore

6

7

16

Dairy Road

11

Fyshwick Sewage Treatment Ponds

Future East Lake Development

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East Lake Recreational Park

15

12

14

Wetlands Foreshore Business Park

Fyshwick

CONCEPT PLAN



1:15000 @ A4

0 150 300 450 750m

Neighbouring Wetland Treatment

AERIAL PHOTOGRAPH. SOURCE NEARMAP

## ACCESS, CIRCULATION AND RECREATION

The proposals for access to the Wetlands, circulation within the site, recreation opportunities and visitor facilities are further described below.

### Access and Circulation

The various forms of access and circulation available could comprise the following:







- **Bus and Vehicle:** access to the Visitor Centre gained from a tree-lined driveway off Eyre Street leading to a car park and bus parking, pick up and drop-off area. Vehicle access to Molonglo Reach park could be available during daylight hours with a gate, just north of the existing car park on Dairy Road (16) locked at night
- **Cycle Access and Circulation:** a shared cycle/footpath created along the Wetlands's southern and eastern boundaries to form the principal commuter and recreation cycle path in the locality being part of the cycle route that loops the Lake. A shared path with a series of gates/stiles to slow cyclists and reduce feral and domestic animal access to the Wetlands links Eyre Street and Dairy Road
- **Pedestrian Access:** there are 3 types of dedicated footpaths. 'Open' paths are ungated and available to the public and visitors at any time (these paths include routes across the wetlands and short or long circuit paths); a 'Gated' path links Eyre Street and Dairy Road as described above; and 'Controlled' paths are sited in areas of the Wetlands where high value conservation or seasonal uses by native fauna require managed access. Control may comprise exclusion of access or guided access
- **Emergency and Maintenance Access:** emergency vehicles will be able to gain road access to high public use areas any time. Maintenance vehicle access will be available on all roads and most major paths. Service access to the power lines will be available on the existing tracks through the grasslands
- **Universal Access:** given the generally flat landscape of the floodplain it is anticipated that all paths will be universally accessible.
















### Recreation and Events

With all recreation oriented to the site's natural, cultural and scenic values, possible future facilities and amenities are focused on quiet enjoyment of the Wetlands, minimising disturbance to native aquatic, terrestrial and avian fauna:

- **Lawns and play areas:** these should be confined to the site boundaries with the major space at Molonglo Reach Park. While paths, lawns, shelters and nature based play will be provided, it is not anticipated that barbeques, water, toilets or power will be provided
- **Walking and cycling:** an extensive network will be provided as described above
- **Water recreation:** it is proposed that kayaks would be able to land on a beach at the Molonglo Reach Park
- **Events space:** a grassed flexible events space is proposed on the site of the former Oval (11), to be used for educational, arts, promotional or community events related to the Wetlands

### LEGEND

-  Shared off road. cycle/footpath (open)
-  Shared off road. cycle/footpath (gated)
-  Speed controls
-  Dedicated footpath (open)
-  Dedicated footpath (controlled)
-  Gate/style/endpoint

-  1 Molonglo Reach Park
-  2 Shoveler Pool
-  3 Paleochannels
-  4 Causeway channel
-  5 Dairy flat
-  6 Jerrabomberra Pool
-  7 Sand dunes
-  8 Goldenholm Pond
-  9 Proposed Visitor Centre
-  10 Visitor Centre car park
-  11 Flexible event/play lawn
-  12 Demonstration farm
-  13 Kellys Swamp
-  14 Jerrabomberra Billabong
-  15 Anabranch
-  16 Existing car park

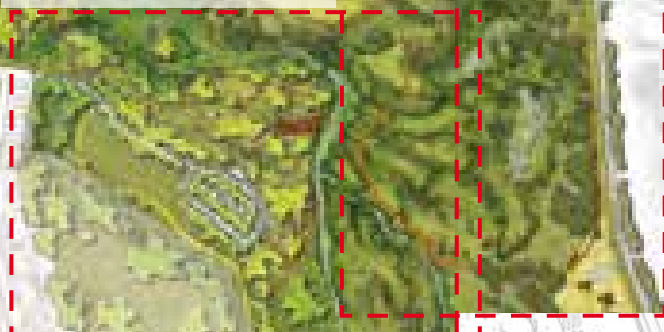
Precinct 5 - Molonglo Reach Park



Precinct 1 - East Lake/Green Space Interface



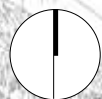
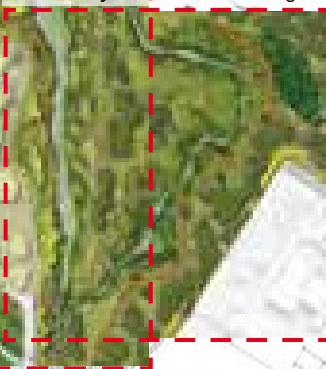
Precinct 2 - Future Possible Visitor Centre



Precinct 3 - Kellys Swamp



Precinct 4 - Jerrabomberra Billabong



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## CONCEPT PLAN PRECINCTS

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### **Precinct 1 - East Lake Interface**

Refer to Page 56 - 59



### **Precinct 2 - Future Possible Visitor Centre**

Refer to Page 60 - 65



### **Precinct 3 - Kellys Swamp**

Refer to Page 66 - 69



### **Precinct 4 - Jerrabomberra Billabong**

Refer to Page 70 - 73



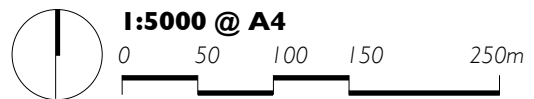
### **Precinct 5 - Molonglo Reach Park**

Refer to Page 74 - 77



AERIAL PHOTOGRAPH. SOURCE NEARMAP

### PRECINCT 1 - EAST LAKE INTERFACE





## PRECINCT 1 - EAST LAKE INTERFACE

This precinct falls within the Riverine/Terrestrial Interface (Zone 5) management zone described in Strategic Direction at the beginning of this chapter. The Concept Plan proposals illustrated opposite are underpinned by the following design approaches:

### Boundary Paths and Landscapes

A shared cycle and pedestrian path could form the boundary definition with East Lake. The path runs parallel to Eyre Street in its western section and from there, borders the proposed East Lake recreation space. This creates an effective and easily recognisable property boundary and maintenance edge.

### Water Sensitive Urban Design

The management of stormwater run-off from the future East Lake development is a critical dimension of the successful boundary integration with the Wetlands. The East Lake Treatment Wetlands (2) will treat stormwater from the development before it reaches Jerrabomberra Creek in line with the recommendations of the East Lake feasibility studies outlined at the beginning of this report.

### Integrated Streetscapes

To ensure a fully integrated interface it is proposed that the north/south streets in the East Lake development are lined with native trees of species complementary to a floodplain landscape. In particular it is proposed that a broad landscape median with informal tree groupings be provided along The Causeway leading to the Wetlands, along the line of the Griffin Axis. Where possible, such plantings and any woodland planting within the Wetlands will be located such that clear views into the Wetlands site can be had from most of the interface with East Lake.

### Recreational Spaces

There could be two specific recreation/event spaces within this interface landscape, namely:

- Flexible event space (9); to maintain flexibility for a range of event types this space will generally be kept as mown lawn with additional open woodland plantings on its boundaries and paths on all sides
- Open lawn space adjoining the proposed Visitor Centre car park site. This will also be a flexible space but typically may be used for picnics by visitors to the Wetlands and as a general runabout and lunchtime space for schoolchildren brought to the site by bus
- Shade will be offered by trees on it's boundaries where access paths also run

### New Woodlands

To increase the fauna habitat diversity of the Wetlands and to act as a viewing frame into the wetlands it is proposed that additional open woodland plantings be provided along the interface boundary. These would be trees typical of the Wetlands transition ecotone which would be planted in discontinuous informal groupings, permitting ample light to reach the ground and maintaining clear lines of sight along the boundary paths as well as casual surveillance from the future East Lake. Broken groups of woodland to minimise bushfire risk.

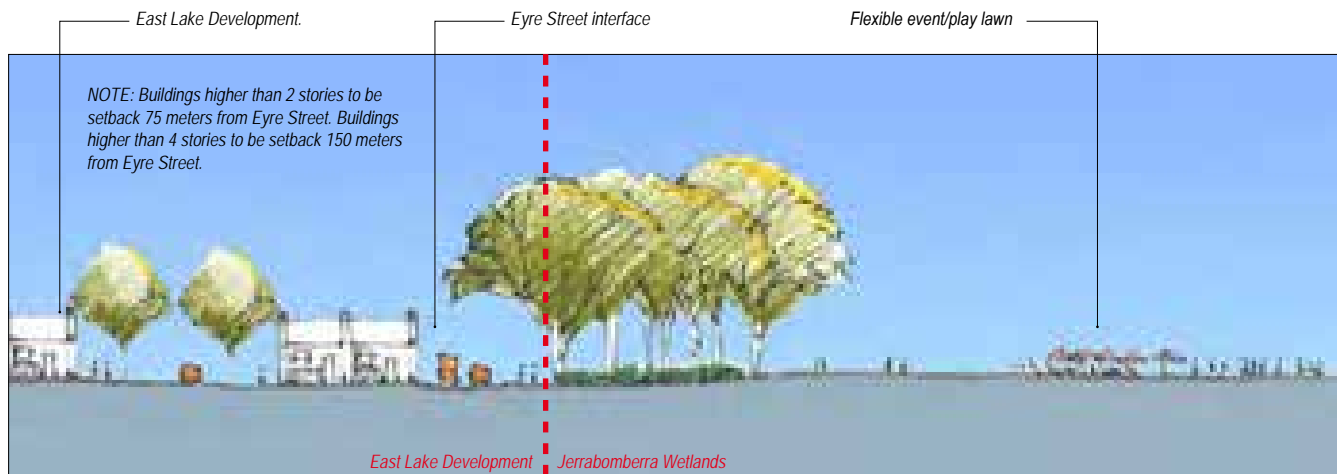
### Future East Lake Building Frontage

Future East Lake development should follow building height restrictions to protect the Wetlands 'natural environment' appearance and visitor experience. Buildings higher than 2 stories to be setback 75 meters from Eyre Street. Buildings higher than 4 stories to be setback 150 meters from Eyre Street.

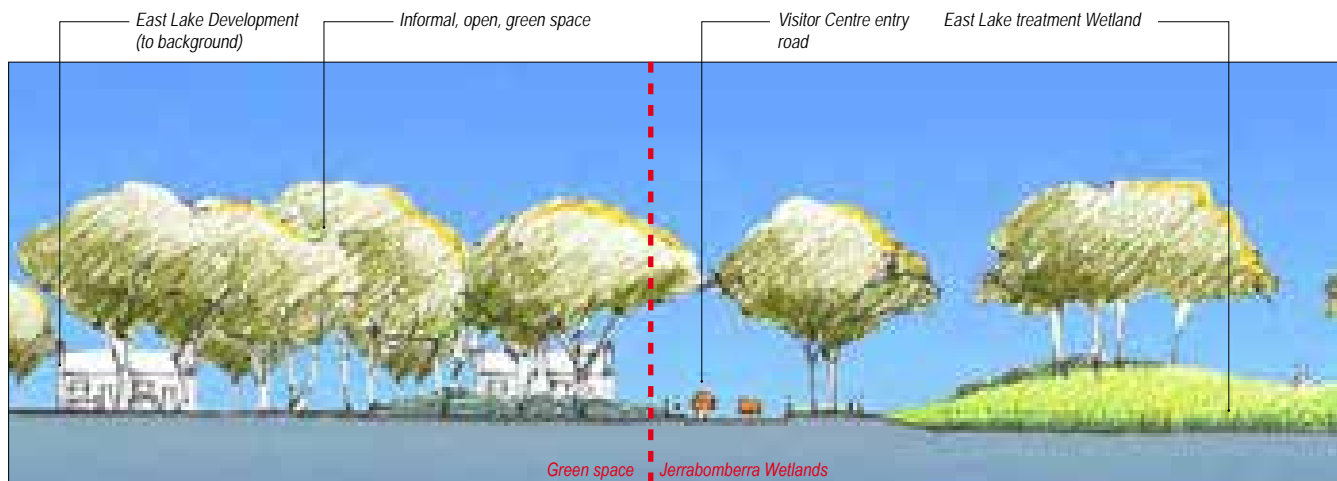
### LEGEND

- 1 Jerrabomberra Wetlands
- 2 East Lake treatment Wetland
- 3 Dune hill
- 4 Dairy flat
- 5 Woodland walk
- 6 Future Possible Visitor Centre
- 7 Visitor Centre car park
- 8 New open spaced lawn
- 9 Flexible event/play lawn
- 10 East Lake Development Local Parkland
- 11 Causeway Axis
- 12 Cycleway
- 13 Green, informal, open space (outside wetlands management boundary)
- 14 Canberra Railway Museum

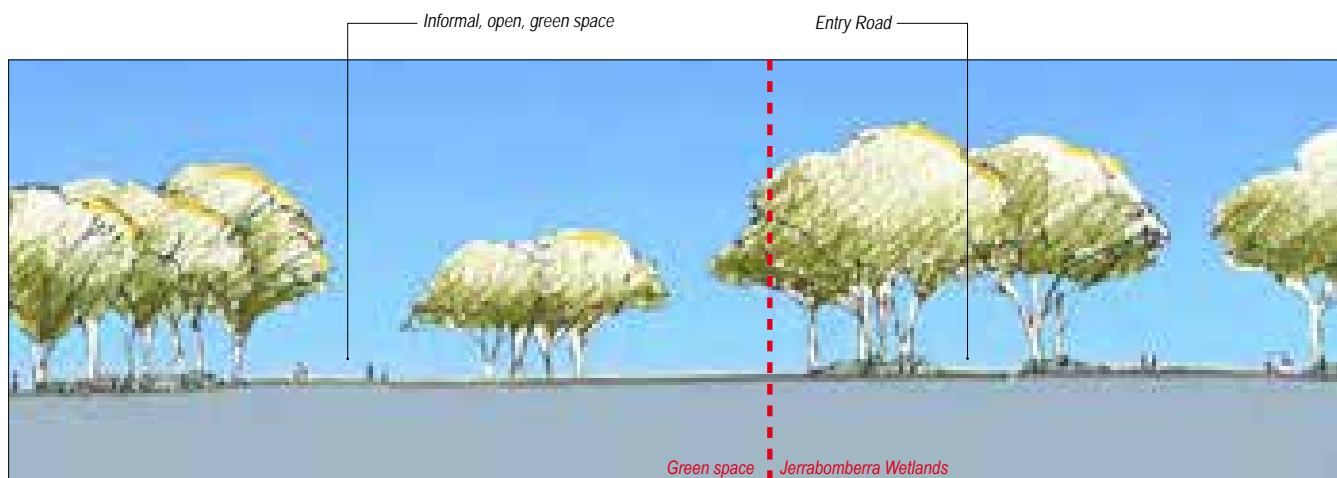
# PRECINCT 1 - EAST LAKE INTERFACE



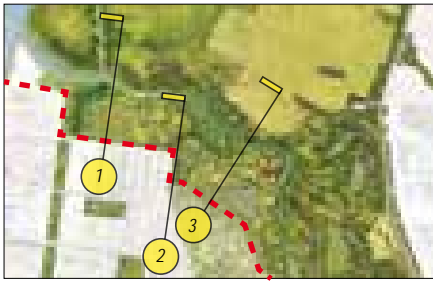
SECTION 1 - East Lake interface - flexible event/play Lawn



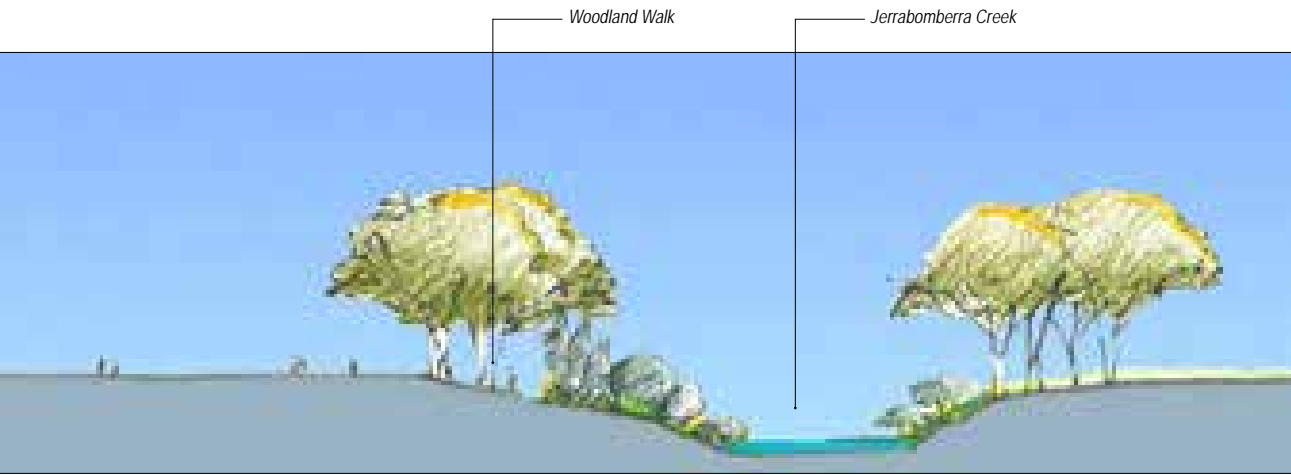
SECTION 2 - Green space/Jerrabomberra Wetlands



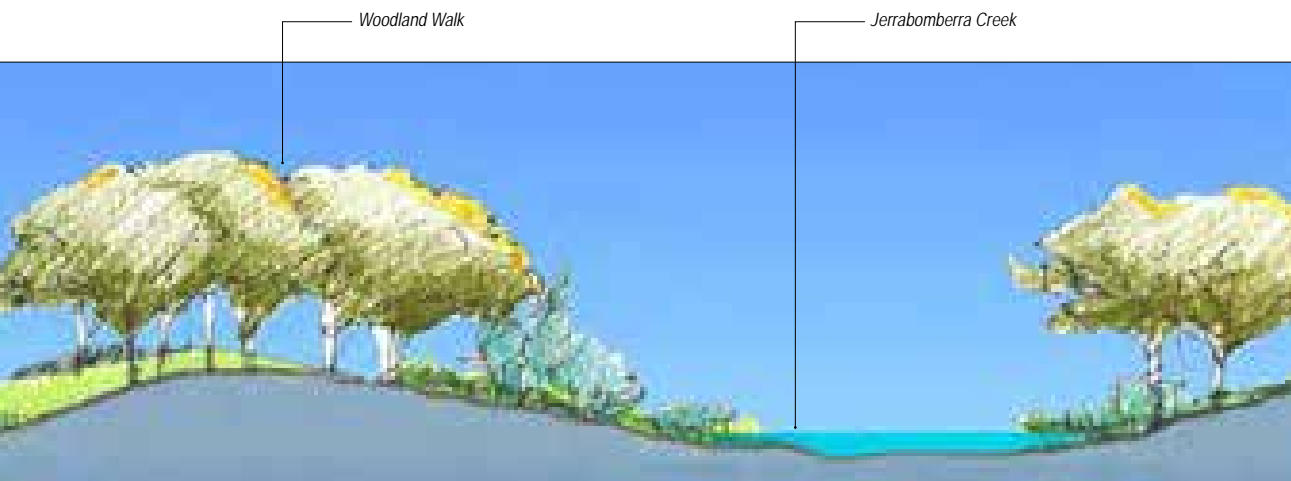
SECTION 3 - Green space/Jerrabomberra Wetlands



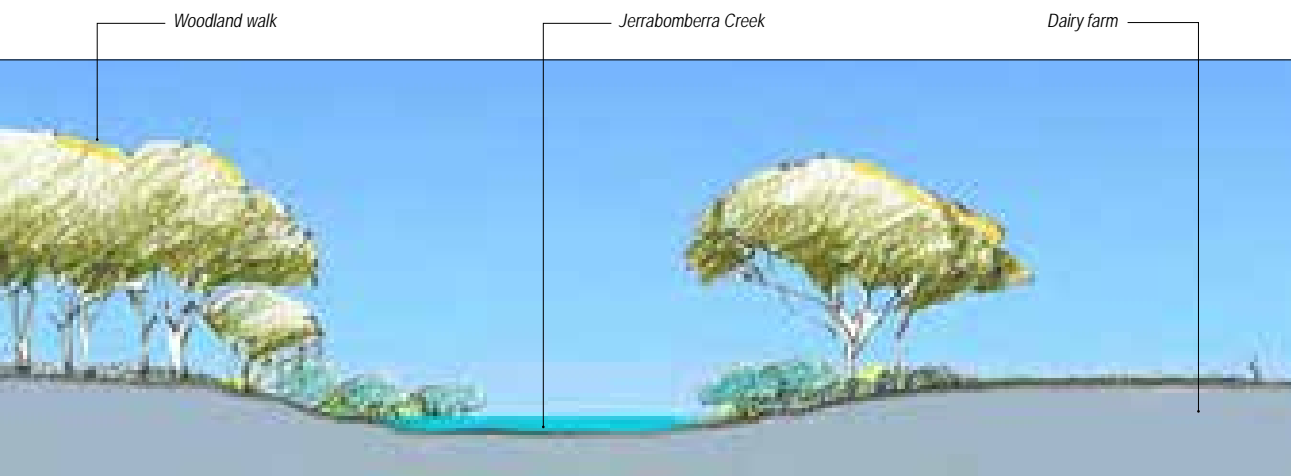
SECTIONS KEYPLAN



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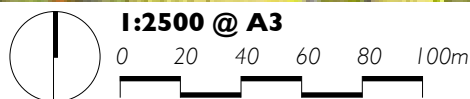


## PRECINCT 2 - VISITOR CENTRE



## LEGEND

- ① New Visitor Centre
- ② Arrival entry
- ③ Pedestrian bridge
- ④ Cafe terrace
- ⑤ New Wetlands decks
- ⑥ Open water opposite Visitor Centre
- ⑦ Open vistas
- ⑧ New entry road
- ⑨ Drop-off
- ⑩ Carpark
- ⑪ Bus parking
- ⑫ Raised lookout space
- ⑬ New open space lawn
- ⑭ Existing trees retained
- ⑮ Open woodland buffer
- ⑯ Play/shelters
- ⑰ Cycleway
- ⑱ Green space
- ⑲ Existing pedestrian bridge
- ⑳ New polishing wetland
- ㉑ Loop walks
- ㉒ Bird hides
- ㉓ Demonstration farm
- ㉔ Long term relocation of Wetlands Learning Centre building for better views
- ㉕ Existing Kellys Swamp
- ㉖ Refuge island
- ㉗ New anabranch
- ㉘ Existing carpark refurbished
- ㉙ Dairy Road
- ㉚ Eyre Street



## PRECINCT 2 - POSSIBLE VISITOR CENTRE

The Visitor Centre could be located within the Hub management precinct, described in the Strategic Directions at the beginning of this chapter. The centre - located on an existing knoll adjoining Jerrabomberra Creek and associated facilities could comprise of:

- Car park, bus park and pick up/drop off area and access footbridge to the centre
- The centre building could include exhibition space, shop/cafe, teaching rooms, large interior viewing area across the wetlands administration area, exterior lower level viewing and education deck

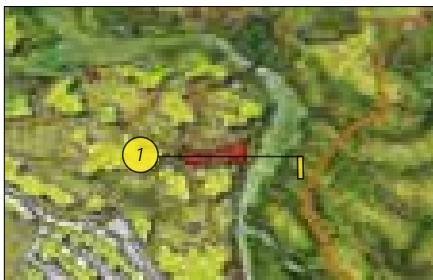
Potential design approaches to the centre and its surrounds are briefly described below.

### Strong Sense of Arrival/Address and Orientation

- The arrival experience for the Visitor Centre starts at the entry gate off Eyre Street with an immediate introduction to the wetland environment in the form of the proposed wetland ponds to the north of the entry
- The entry road provides vistas through the new and existing woodland onto the Wetlands with emerging views of the new Visitor Centre as the car park is reached
- A pedestrian bridge provides an elevated connection between the Visitor Centre and car park crossing over a small wetland
- From the centre a network of linked walking tracks and circuits are provided that will allow access to all of the varying wetland habitats and which can be completed in varying timeframes from a matter of minutes up to one hour

### Visitor Centre Located Above the 100yr Floodplain

- The knoll location lies above the 1:100 year flood levels, permitting the centre to be suspended above the water and free of flood impacts
- This elevation and location provides sweeping views of the Wetlands most notably of Jerrabomberra Creek, Dairy Flat and Kellys Swamp
- The elevated position makes the Visitor Centre highly visible both from within the Wetlands, and the neighbouring Canberra context



SECTION KEYPLAN

### Central Hub Location

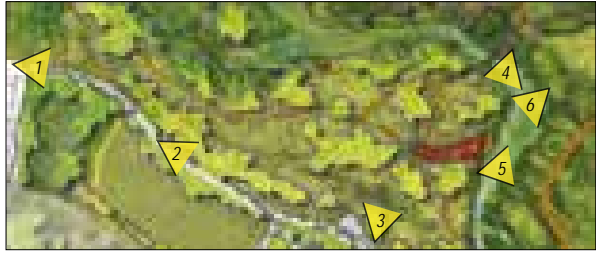
- Providing direct vehicle access to the centre without creating vehicle congestion in adjoining streets
- A short and direct pedestrian / cycle connection to Dairy Road and the Molonglo Reach Park
- Ready accessibility and visual access to all of the varying wetlands habitat from the centre
- Direct visual access to open water in Jerrabomberra Creek
- A central location equidistant from most of the major facilities (e.g. event space, Dairy Road, Kellys Swamp, education and research centre)

### An Integrated Interpretive Narrative.

- The centre combines facilities and opportunities to present an integrated interpretation of the site through views of all parts of the site, visual connection to geological features such as the dunes
- Paths emanating from the centre lead to spaces and places where visitors and schoolchildren can be shown all aspects of the site's Aboriginal and non-Aboriginal heritage



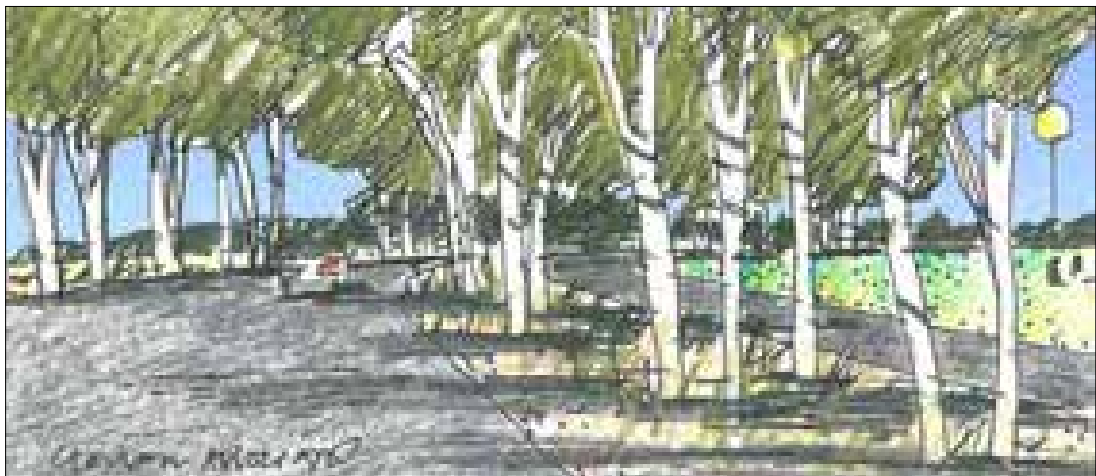
SECTION 1 - Visitor Centre elevation above Jerrabomberra Creek (100yr flood). Walkways engage with the Wetlands at the lower level.



PERSPECTIVE KEYPLAN



PERSPECTIVE 1 - New Visitor Centre arrival off Eyre Street. New wellands at entry create sense of arrival.



PERSPECTIVE 2 - Existing trees frame entry road with new open space interface with East Lake Development.

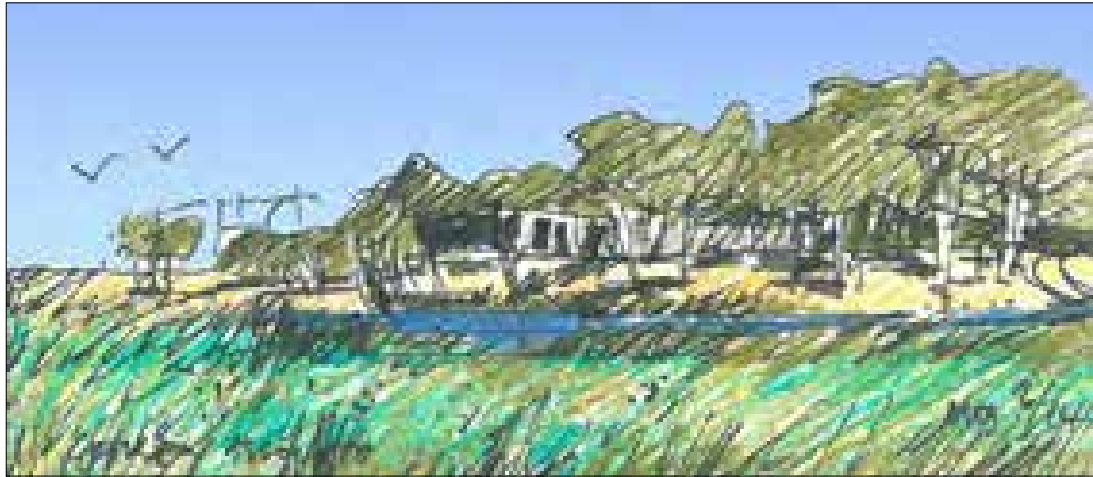


PERSPECTIVE 3 - Pedestrian bridge links car park with new Visitor Centre.



## PRECINCT 2 - VISITOR CENTRE

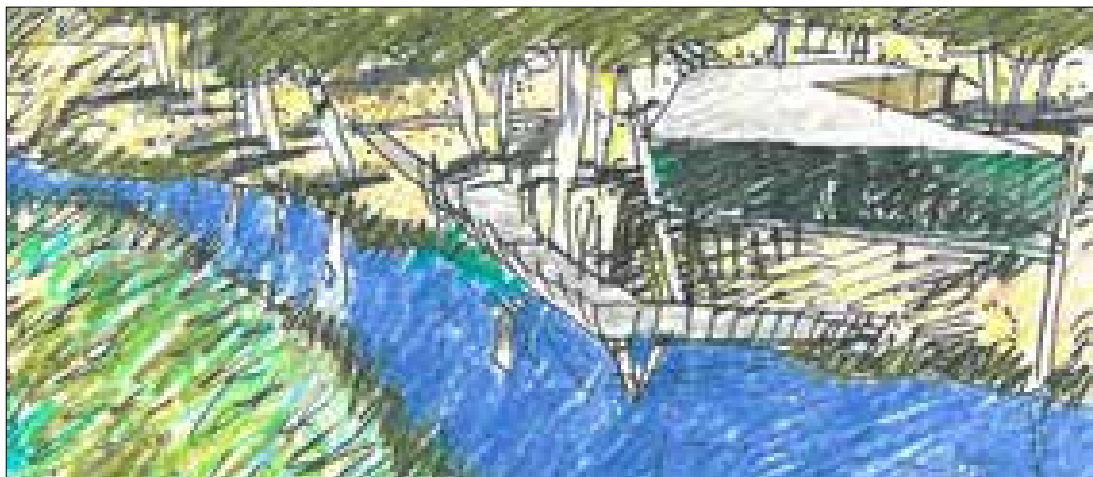
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*PERSPECTIVE 4 - View across Jerrabomberra Creek to the new Visitor Centre.*



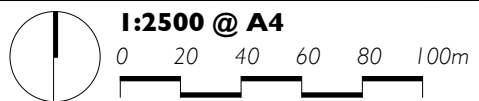
*PERSPECTIVE 5 - Lower pedestrian boardwalks that engage with the Wetlands.*



*PERSPECTIVE 6 - Elevated view of the Visitor Centre and possible connection with Jerrabomberra Creek through pedestrian trails.*



PRECINCT 3 - KELLYS SWAMP



## PRECINCT 3 - POSSIBLE FUTURE KELLYS SWAMP ENHANCEMENTS

Kellys Swamp lies within the Wetlands Interpretive Management Precinct (Zone 4). With its location commanding clear views and ready path access from the Visitor Centre, Kellys Swamp will be managed to enhance its ecological values and habitats to maintain its standing as the jewel of the Wetlands.

New walking tracks, contemporary viewing platforms and bird hides could be introduced at ground level providing visitors with a variety of experiences that will encourage return visitation. Kellys Swamp is also sited close to the Wetlands Learning Centre adjoining the site of the possible future Demonstration Farm.

The proposals for Kellys Swamp illustrated opposite are underpinned by the following possible design approaches:

### Rehabilitation of Natural Values in Kellys Swamp

- Rehabilitation of the anabranch of Jerrabomberra Creek includes control of upstream flows and thus greater ability to control water levels in the swamp
- Full functioning of the valve adjoining the swamp will permit control of wet and dry cycles in Kellys swamp independent of water levels in the lake

### Bird Hides and Paths

- Contemporary bird hides are located at the edge of Kellys Swamp on its northern side to minimise backlighting and fauna disturbance
- A backdrop of trees to the north of Kellys Swamp provides a visual buffer to the path linking Dairy Road and the Visitor Centre as well as the circuit path that borders the northern end of Kellys Swamp

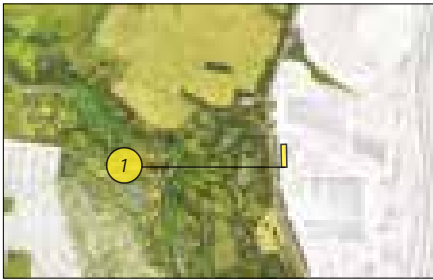
### Wetlands Learning Centre

- The Wetlands Learning Centre has direct access to a circuit path linking to Kellys Swamp and from there westward toward the Visitor Centre
- Maintenance access off Dairy Road gives ready access to the Wetlands Learning Centre and Kellys Swamp

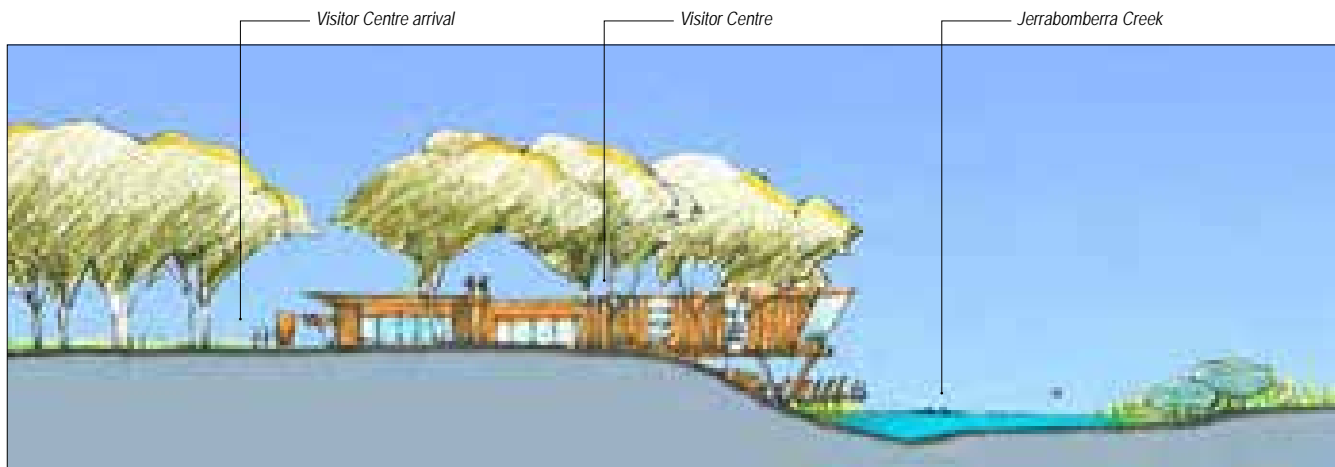
### LEGEND

- ① Existing Kellys Swamp
- ② Visitor Centre
- ③ Visitor car park
- ④ Contemporary bird hides
- ⑤ Widen Jerrabomberra Creek
- ⑥ Loop walks
- ⑦ Dairy paddocks
- ⑧ New Wetlands board walks
- ⑨ Existing pedestrian bridge
- ⑩ Dairy Road
- ⑪ Cycleway
- ⑫ Open vista
- ⑬ Refuge island
- ⑭ New anabranch
- ⑮ Existing car park
- ⑯ Pedestrian arrival bridge
- ⑰ Dune hill
- ⑱ Relocation of Wetlands Learning Centre building
- ⑲ Demonstration farm

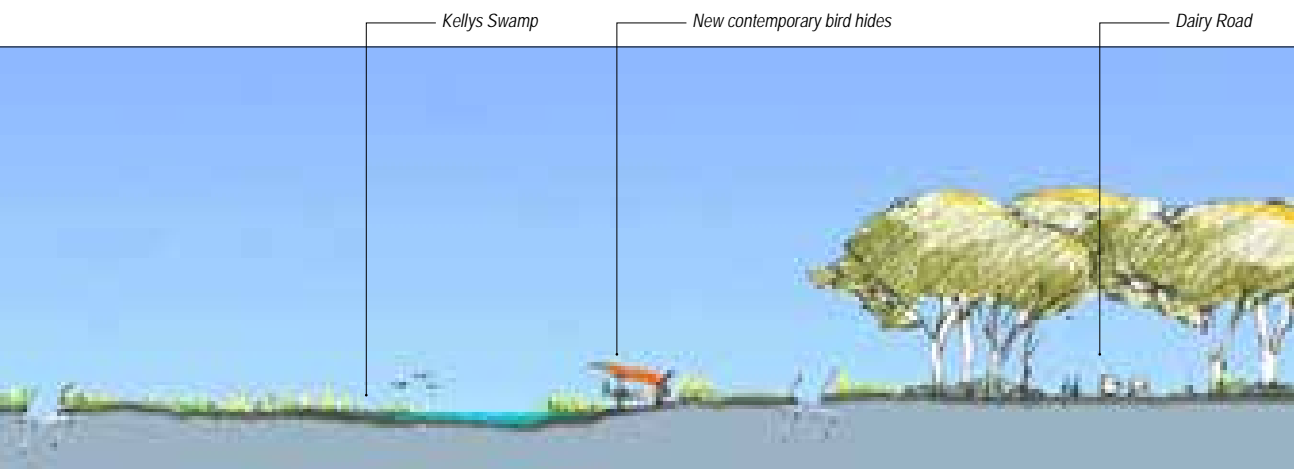
## PRECINCT 3 - POSSIBLE FUTURE KELLYS SWAMP ENHANCEMENTS



SECTION KEYPLAN



SECTION 1 - Visitor Centre vistas across Kellys Swamp

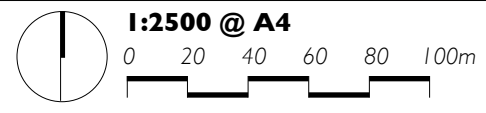


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AERIAL PHOTOGRAPH. SOURCE NEARMAP

PRECINCT 4 - JERRABOMBERRA BILLABONG



## PRECINCT 4 - JERRABOMBERRA BILLABONG

Jerrabomberra Billabong lies within the Riverine Interpretive Management Precinct (Zone 3). The proposals for the Billabong illustrated opposite are underpinned by the following possible design approaches:

### Flows Restored to the Anabranh

- Existing Silt Trap (6) reconfigured restoring some original stream flow to the anabranh that optimises the environmental values of wetlands and marshes
- Weir controls (3) from Jerrabomberra Creek into the anabranh (typically 10% of creek flows) controls water levels in the Billabong, including during flood periods
- Less area of open water means less habitat attractive to large waterbirds such as pelicans and swans that may pose a risk to the airport
- The redesigned levee bank to the former Silt Trap (4) still deflects flood flows into the creek, protecting the Billabong
- The 'island' effect (2) created by the restored flows in the Billabong assists with refuge nature of this part of the Wetlands
- a bio-retention rain garden (7) treats water issuing into the Wetlands from Fyshwick industrial area

### Bird Hides and Paths

- Contemporary bird hides are located along the access paths at the edge of the Billabong on the eastern side
- Commuter cyclists are provided with an uninterrupted boundary cycle route enhancing their journey around East Lake Development and the Wetlands connecting to Fyshwick without disturbing the Wetlands
- Pedestrian paths run parallel with the cycle path but are positioned at a lower level engaging more closely with the Wetlands

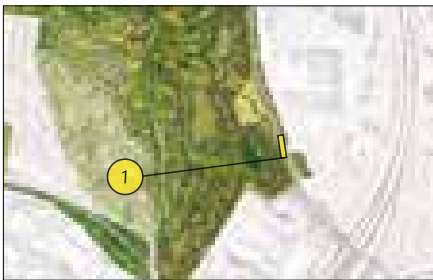
### Integration with Wetlands Foreshore Business Park

- Groups of open woodland plantings on the western boundary of the Business Park provide a visual foil to the Business Park, integrating rather than screening this adjoining land use
- The Management Committee will continue to liaise with the owners of the Business Park to ensure boundary landscapes are better integrated into the Wetlands

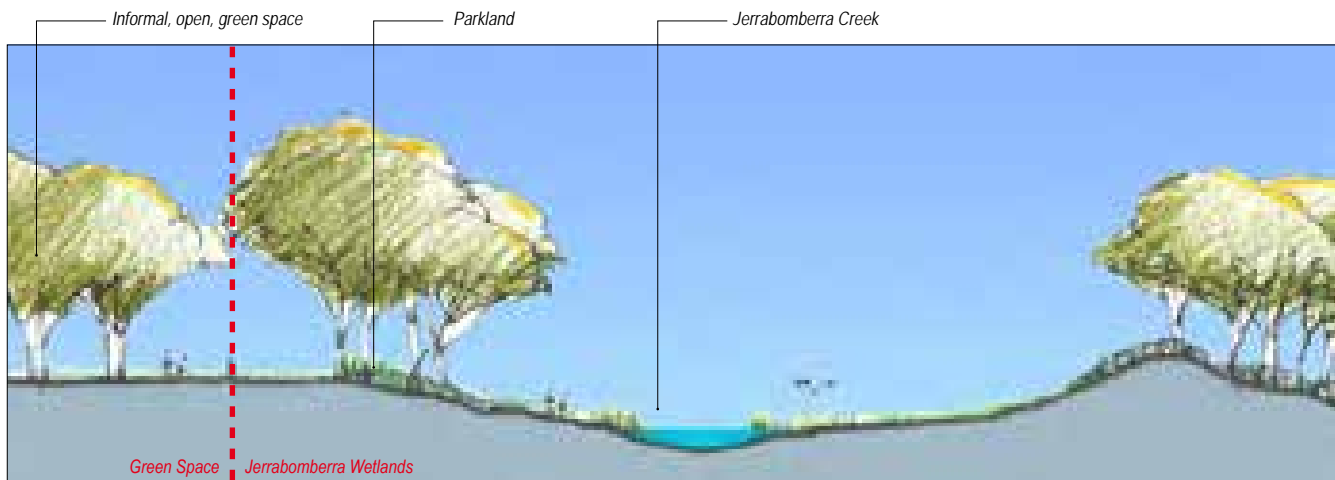
### LEGEND

- ① Billabong Wetland
- ② Anabranh island
- ③ New directional weir
- ④ Existing berm retained. Regraded to be more natural
- ⑤ Berm to allow water through to billabong
- ⑥ Silt trap remodelled to be more natural in appearance
- ⑦ New Fyshwick bio-retention rain garden.
- ⑧ New bird hide
- ⑨ Proposed pedestrian loop path
- ⑩ New bridge crossing
- ⑪ New Cycleway
- ⑫ New Cycleway at top of embankment
- ⑬ Jerrabomberra creek
- ⑭ Dairy Road
- ⑮ Planted embankment
- ⑯ Green space
- ⑰ Wetlands Foreshore Business Park

# PRECINCT 4 - JERRABOMBERRA BILLABONG

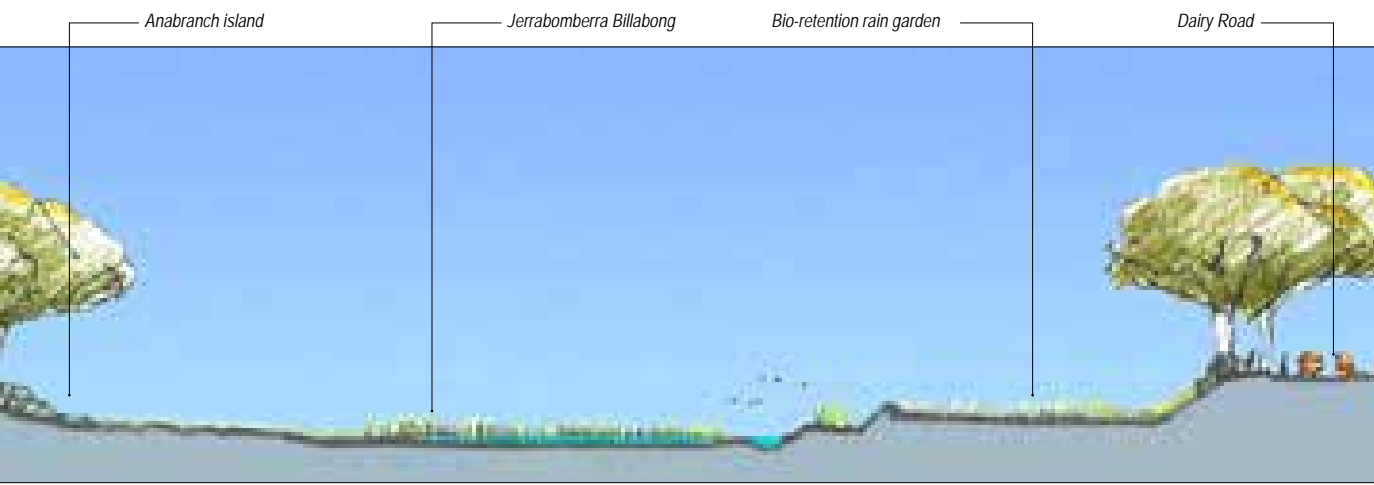


SECTION KEYPLAN



SECTION 1 - East Lake Development over Jerrabomberra Billabong





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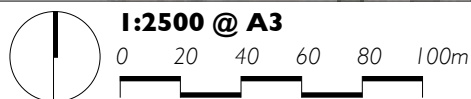
PRECINCT 5 - MOLONGLO REACH PARK



AERIAL PHOTOGRAPH. SOURCE: NEARMAP

## LEGEND

- ① New lawn terrace
- ② New play - interpretation of WW1 trenches
- ③ New dairy reference
- ④ New picnic area
- ⑤ New parking
- ⑥ Paleochannel trail
- ⑦ Shoveler Pool
- ⑧ New bird hide
- ⑨ Heritage road
- ⑩ Additional wetlands
- ⑪ Existing exotic species
- ⑫ New Indigenous species - suited to ecology
- ⑬ New boardwalk
- ⑭ Molonglo River
- ⑮ Canoe Beach
- ⑯ Dairy Road
- ⑰ Turn around
- ⑱ Dairy flat
- ⑲ New management fence
- ⑳ Animal control pedestrian gates
- ㉑ Turf farm



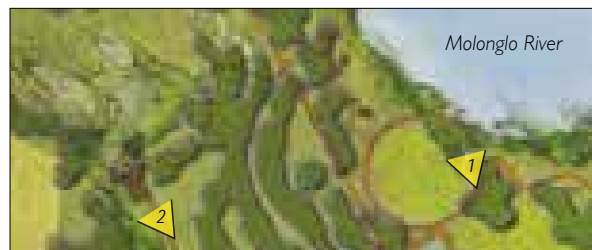
## PRECINCT 5 - MOLONGLO REACH PARK

This precinct crosses three management zones described in Strategic Direction namely the Riverine Interpretive (Zone 3), the Wetland Interpretive (Zone 4) and the Floodplain Interpretive (Zone 2). The purpose of this park is to ease the recreational pressure on the Wetlands and to act as an accessible introduction to the Wetlands experience.

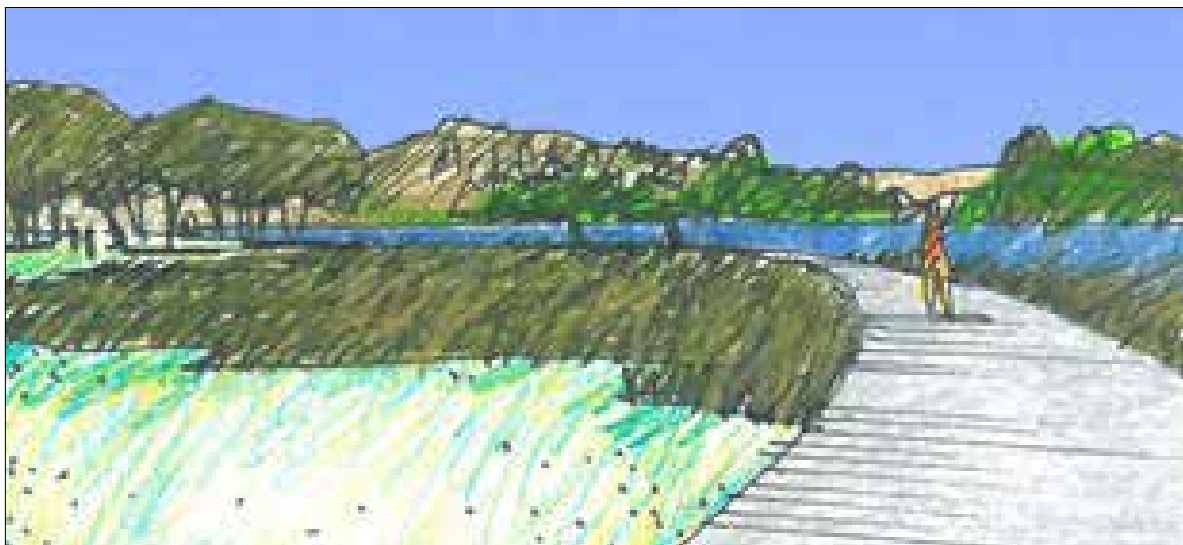
Key design elements in this precinct could include:

- Car park spaces adjoining Dairy Road (5) and a turnaround space at the road termination (17)
- Interpretive play space (2) that draws on wetlands by link to the top of a paleochannel and the play space forms reflecting the experimental World War I trenches that still lie beneath the ground
- Circular recreation lawn space (1) suitable for runabout, picnics and children's games connected to the water's edge with a boardwalk through a fringing wetland on the Molonglo River shoreline
- Public artwork through the park (3) that reflects many former uses including dairying, military camps, soldier settlement and Aboriginal gathering places
- A small beach area suitable for kayak landing (15) and picnic shelters (4)
- Retention of the heritage access road (9)
- Gated pathway and maintenance track to the paleochannels and grasslands (20)

The park would be accessible by car, cycle or footpath along Dairy Road. Car access will be confined to daylight hours, access controlled by a gate at the southern end of Dairy Road.



PERSPECTIVE KEYPLAN



PERSPECTIVE 1 - Molonglo Boardwalk over New Wetlands

## PRECINCT 5 - MOLONGLO REACH PARK

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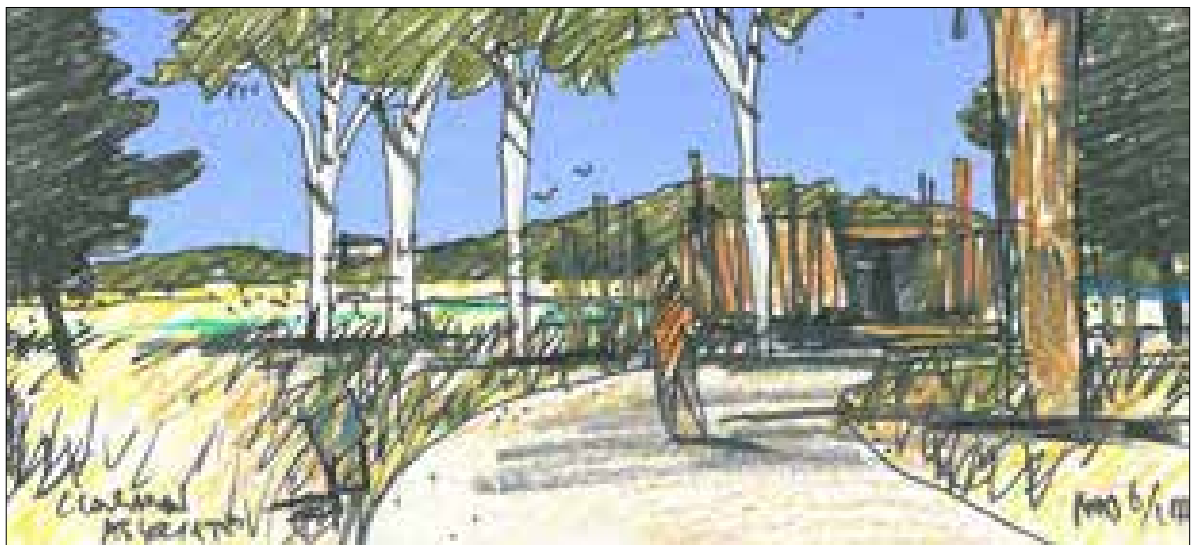
The Concept Plan proposals illustrated on the previous pages are underpinned by the following design approaches:

### Introducing Wetlands Through Recreation

- The paths, play and artwork are all part of the recreation experience but are designed to subtly introduce visitors to the values and benefits of the Jerrabomberra Wetlands
- The location of the park next to the Shoveler Pool allows immediate access to bird hides for users of the park
- The park is located away from the most sensitive environments in the Wetlands but close to an access road and adjoining the main cycle path that loops the Lake. Through these connections, the park will be activated by the public passing through or using the area as a rest spot

### A Water and Land Experience

- The opportunity to launch and retrieve kayaks from the small beach permits visitors to enjoy the Wetlands from land and water and to experience the diverse aquatic and terrestrial fauna
- The boardwalk adjoining the river permits safe access to a fringing wetland along the river's edge
- Woodland plantings and retained trees within the park add to the appreciation of the Wetlands diverse habitats

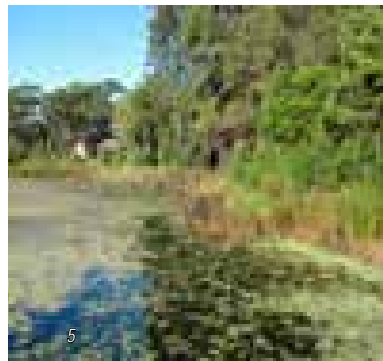
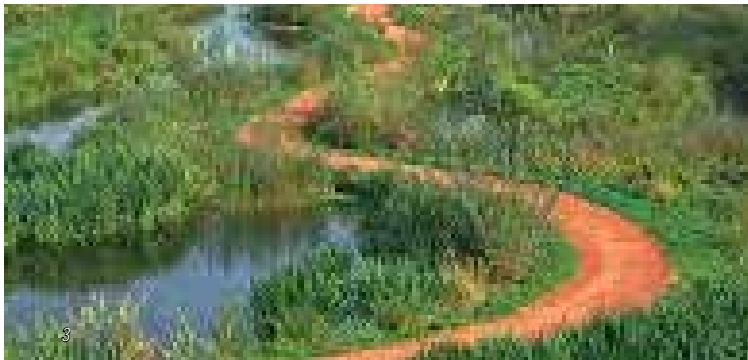
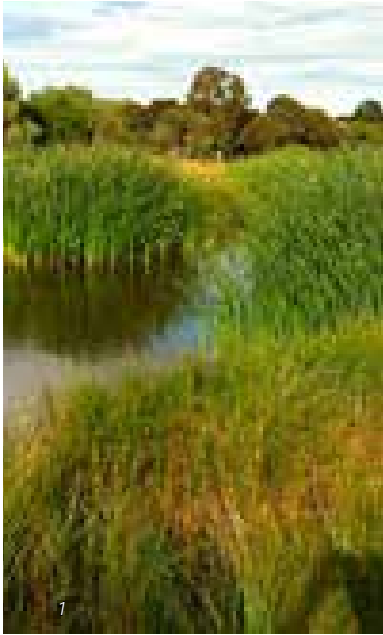


PERSPECTIVE 2 - Paleochannel Trail to Shoveler Pool Bird Hides

## LANDSCAPE CHARACTER

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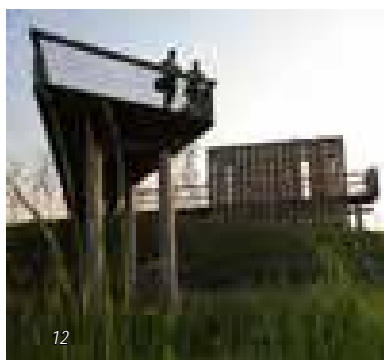
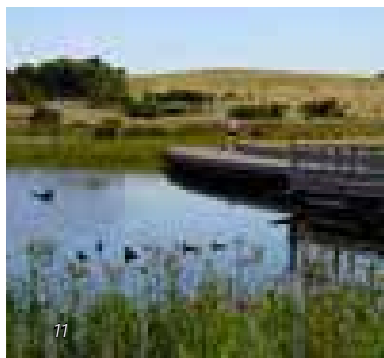
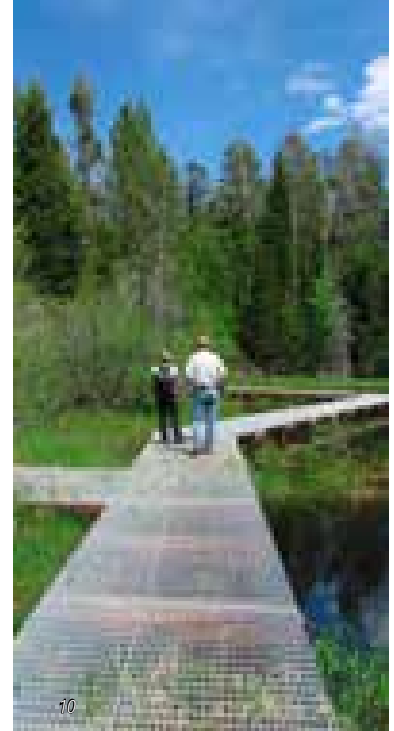
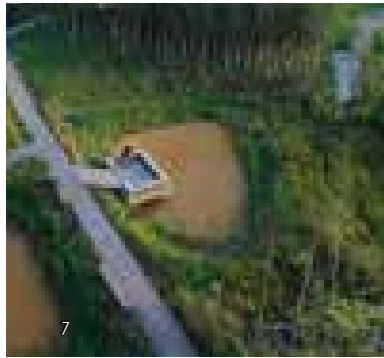
The images on the following pages provide examples of the desired future character for the various landscape types across the Wetlands. These images illustrate core conservation, transition, edge and cultural landscapes.



### CORE CONSERVATION

## LANDSCAPE CHARACTER

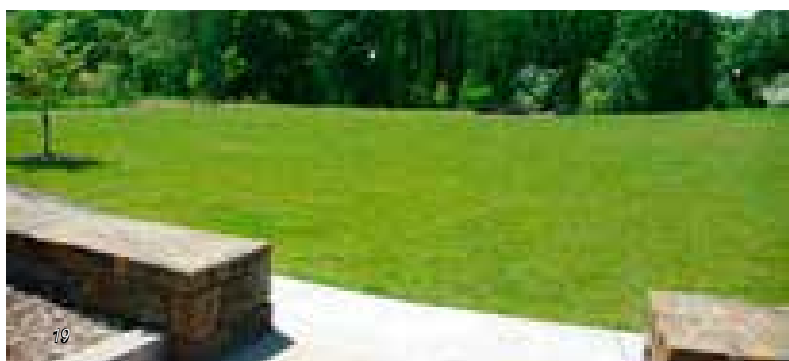
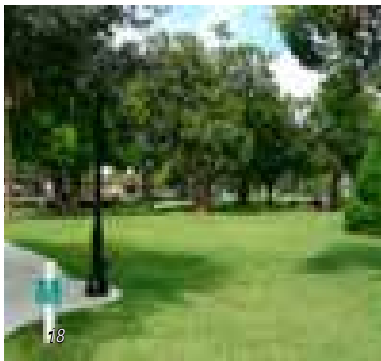
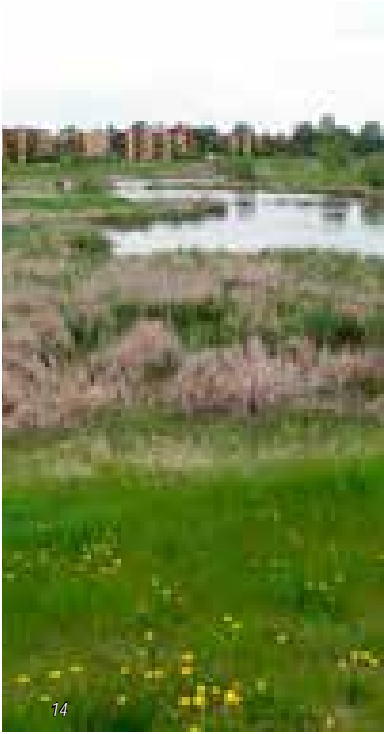
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## TRANSITION LANDSCAPES

# LANDSCAPE CHARACTER

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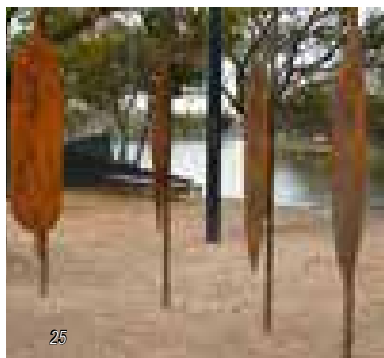
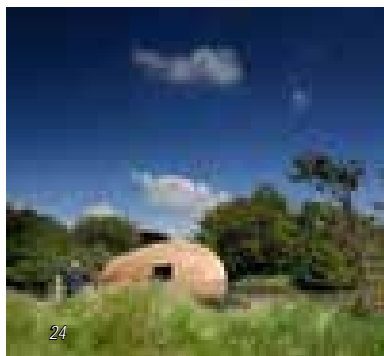


## EDGE LANDSCAPES



## LANDSCAPE CHARACTER

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## CULTURAL LANDSCAPES

## REFERENCES

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## REFERENCES - IMAGES

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- In-text:* Image 1 (Source City of Onkaparinga. Image by unknown)  
*Reference list:* [http://onkaparingacity.com/onka/living\\_here/doing\\_business/onkaparinga\\_water\\_services/water\\_reuse\\_scheme/brodie\\_water\\_reuse\\_scheme.jsp](http://onkaparingacity.com/onka/living_here/doing_business/onkaparinga_water_services/water_reuse_scheme/brodie_water_reuse_scheme.jsp)
- In-text:* Image 2 (Source Pioneer Catchment Landcare. Image by unknown)  
*Reference list:* <http://www.pioneercatchment.org.au/projects/slade-point-reserve>
- In-text:* Image 3 (Environmental News Service. Image by City of Kent)  
*Reference list:* <http://www.ens-newswire.com/ens/mar2009/2009-03-16-092.asp>
- In-text:* Image 4 (CLOUSTON)
- In-text:* Image 5 (Alexandria Sydney Park wetlands. Image by Jim)  
*Reference list:* <http://sydney-city.blogspot.com.au/2010/05/alexandria-sydney-park-wetlands.html>
- In-text:* Image 6 (CLOUSTON)
- In-text:* Image 7 (Qunli Stormwater Park, China. Image by Kongjian Yu)  
*Reference list:* <http://www.asla.org/2012awards/026.html>
- In-text:* Image 8 (Source Landezine. Image by unknown)  
*Reference list:* <http://www.landezine.com/index.php/2014/01/gasp-by-room11/gasp-by-room11-11/>
- In-text:* Image 9 (Source Landezine. Image by unknown)  
*Reference list:* <http://www.landezine.com/index.php/2014/01/gasp-by-room11/gasp-by-room11-05/>
- In-text:* Image 10 (Source The Sibbett Group. Image by unknown)  
*Reference list:* <http://sibbettgroup.com/work/project/laurance-rockefeller-preserve#11>
- In-text:* Image 11 (Source The City of Sydney. Image by unknown)  
*Reference list:* <http://sydneyyoursay.com.au/sydneypark/photos/1381>
- In-text:* Image 12 (Qunli Stormwater Park, China. Image by Kongjian Yu)  
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*Reference list:* <http://www.asla.org/2012awards/026.html>
- In-text:* Image 14 (Source Eco Friendly Ask. Image by unknown)  
*Reference list:* <http://www.ecofriendlysask.ca/2013/03/nature-in-our-backyard-saskatoons.html>
- In-text:* Image 15 (Source Wikipedia. Image by unknown)  
*Reference list:* [http://en.wikipedia.org/wiki/Playa\\_Vista,\\_Los\\_Angeles](http://en.wikipedia.org/wiki/Playa_Vista,_Los_Angeles)

## REFERENCES - IMAGES (CONT)

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- In-text:* Image 16 (CLOUSTON)
- In-text:* Image 17 (Source Taylor Cullity Lethlean. Image by Unknown)  
*Reference list:* <http://www.tcl.net.au/projects/masterplans/springthorpe-masterplan>
- In-text:* Image 18 (Park Plaza Gardens. Image by Simon Veness)  
*Reference list:* <http://www.attraction-tickets-direct.co.uk/forum/showthread.php?12007-Park-Plaza-Gardens-A-Winter-Park-Classic>
- In-text:* Image 19 (Source Wikimedia Commons. Image by unknown)  
*Reference list:* [http://commons.wikimedia.org/wiki/File:Dairy\\_Creek\\_Park\\_Hillsboro\\_Oregon\\_open\\_space.JPG](http://commons.wikimedia.org/wiki/File:Dairy_Creek_Park_Hillsboro_Oregon_open_space.JPG)
- In-text:* Image 20 (Source Furry. Image by unknown)  
*Reference list:* <http://www.furry.org.au/kangaroos/art/andrew-scrap/andrew-scrap.html>
- In-text:* Image 21 (CLOUSTON)
- In-text:* Image 22 (Source The Australian. Image by unknown)  
*Reference list:* <http://www.theaustralian.com.au/executive-living/artistic-additions/story-e6frg9zo-1226358561442>
- In-text:* Image 23 (CLOUSTON)
- In-text:* Image 24 (Source Arthitectural, PAD studio & Stephen Turner. Image by unknown)  
*Reference list:* <http://www.theaustralian.com.au/executive-living/artistic-additions/story-e6frg9zo-1226358561442>
- In-text:* Image 25 (CLOUSTON)
- In-text:* Image 26 (CLOUSTON)

*All other images within the Report supplied by CLOUSTON*

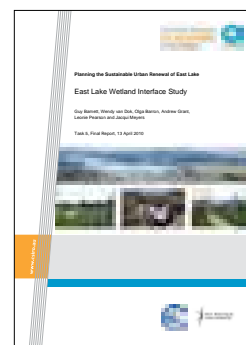
## BACKGROUND STUDIES

### **East Lake Wetland Interface Study** **CSIRO Sustainable Ecosystems (CSIRO, 2010)**

This document informs the planning and design of the interface between the proposed East Lake Development and the conservation values of the Jerrabomberra Wetlands Nature Reserve. The study addresses these interface considerations through:

- A technical analysis of existing conditions and issues
- A review of stakeholder documents and engagement processes to understand stakeholder aspirations and expectations
- Exploration and development of guiding principles and design considerations to inform a broader integrated 'design concept'.

The study aims to balance stakeholder expectations and establish a robust framework for future planning (CSIRO, 2013).



### **East Lake - Draft Planning and Design Framework** **SGS Economics and Planning (SGS, 2013)**

This report creates a vision and the guiding principles that will inform subsequent detailed planning to develop the East Lake area over a period of 30 years. The recommendations have been developed from extensive community and stakeholder consultation. The report is structured in two parts covering:

- site investigation covering strategic location, policy context, description of study area, key issues and best model for sustainable development
- a summary of the key planning and design principles, which graphically demonstrate the design layers that create the underlying fabric. This will ultimately lead to the East Lakes being a showcase sustainable development for Canberra and Australia.



### **East Lake Site Preparation Feasibility Study** **AECOM (AECOM, 2013)**

This report assesses the logistics and evaluates the feasibility of various site preparation options for contaminated and geotechnically unsuitable fill materials previously identified at the East Lake site. The report covers:

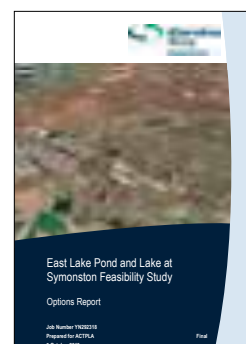
- remediation objectives, technical practicability, and logistical constraints.
- remediation options (4) investigated for the site parallel to cost-benefit analysis with the intention of preparing the site for sale and development.
- combination of financial, social and environmental benefits of the scheme.



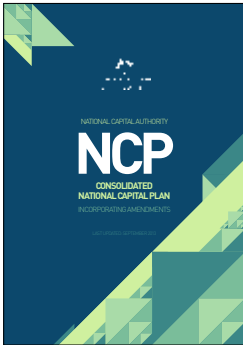
### **East Lake Pond and Lake at Symonston Feasibility Study** **Cardno Young (CY, 2010)**

The continuing health and functionality of waterways is a key characteristic of sustainable development in the proposed East Lake Area. The objective of this report is to investigate in a sustainable manner the lake and pond options along Jerrabomberra Creek which are focussed on water quality, flood modelling, landscape assessment and ecological issues. The study provides cost-effective solutions by recommending:

- construction of 8 off-line regional ponds and 1 off-line regional biofilter. These facilities would reduce pollutants from their catchments before being discharged into Jerrabomberra Creek.
- construction of an off-line wetland to treat stormwater. This wetland would supplement water inflows into Kellys Swamp Wetland.



## BACKGROUND STUDIES (CONT'D)



### **National Capital Plan 2013**

#### ***Australian Government - National Capital Authority (AGNCA, 2013)***

Planning of the Jerrabomberra Wetlands Nature Reserve (JWNR) is directly informed by the National Capital Plan (NCP) which contains policies that refer to the site. These are:

- protection of the JWNR as a wildlife refuge in a national capital and urban context, with facilities designed to realise the area's potential as a significant conservation and education resource for Canberra residents, tourists and international visitors.
- maintain and enhance the rural and floodplain's landscape character and strengthening of the perception and appreciation of the JWNR and its surroundings as an integral part of the landscape of Lake Burley Griffin and the setting for the National Capital.
- completion of a Lakeside pedestrian/cycle path (AGNCA, 2013).

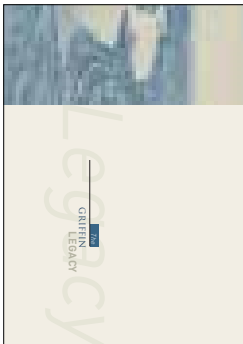


### **Australian Aviation Wildlife Strike Statistics**

#### ***Australian Transport Safety Bureau (ATSB, 2012)***

This report provides the aviation industry with statistics to assist them with controlling the risks associated with bird and animal strikes. The report analyses existing Australian airport data to help identify emerging trends. This report assist in the understanding of:

- the nature of bird strikes and what are the most common causes of such events.
- characteristics of common birds and animals involved and the consequences of these strikes
- how to identify and reduce safety-related risks.

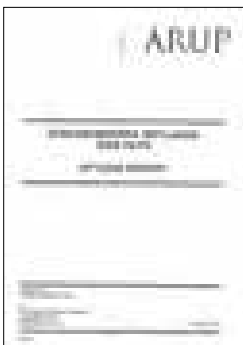


### **The Griffin Legacy (GL)**

#### ***Australian Government - National Capital Authority (AGNCA, 2004)***

The JWNR has been considered in the Griffin Legacy which vision seeks to:

- enhance and extend the JWNR environment along Jerrabomberra Creek to form part of a major wetlands park – an eco-education and recreation resource for the city
- develop a wetlands recreation park in the location of Griffin's East Lake in the degraded areas of the Jerrabomberra Wetlands (Dairy Road).
- enhance wetlands habitat and include interpretation, boardwalks and picnic grounds.
- upgrade Jerrabomberra Creek as an integrated linear park, serving an important recreation corridor to Lake Burley Griffin, and as recreation frontage (AGNCA, 2004).



### **Jerrabomberra Wetlands Bike Path - Options Report**

#### ***Ove Arup & Partners (OAP, 2000)***

This report explores six possible cycle/pedestrian routes setout through Dairy Road, the education centre and Jerrabomberra Wetlands. Once the cycle/pedestrian routes were conceptualised and developed, a detailed evaluation of the options was conducted, which included:

- Overview of impacts on waterbirds, bird watching, path users, landscape and compatibility with JW Management Plan
- Path convenience and connections to existing/future paths
- Construction costs
- Detailed analysis of final cycle/pedestrian route which was then constructed.

## **JERRABOMBERRA WETLANDS - DIRECTIONS**

**Paper prepared for the  
Jerrabomberra Wetlands Nature Reserve Concept Plan**



Jerrabomberra Wetlands c. late 1990s - unknown photographer

**Prepared by the  
Jerrabomberra Wetlands Nature Reserve  
Board of Management 2014**

## SCOPE

This Paper addresses Jerrabomberra Wetlands Nature Reserve ('Jerrabomberra Wetlands' or 'the Reserve'), as declared in 1990 under the *Nature Conservation Act 1980* and in 1993 under the *Land (Planning and Environment) Act 1991*, as well as the former education site used by Birrigai Outdoor School which adjoins the Reserve on Dairy Road.

Attention is also paid to some areas and activities outside Jerrabomberra Wetlands which may affect values or management of the Reserve.

## BACKGROUND – 'RESOURCES AND VALUES' REPORT

A draft Master Plan for Jerrabomberra Wetlands Nature Reserve was prepared in 2012 and released for public comment. The Board of Management was concerned that some proposals in the draft Master Plan were based on inadequate information and did not take into account key principles, objectives, constraints or opportunities. This prompted reconsideration of both the values and the future management of the Reserve.

From 2012 to 2013, the Board undertook a series of studies and reviews. These generated new understandings of the area's natural and cultural resources, which broadened and enriched appreciation of what it offers the community.

The Board also developed a renewed vision of the Jerrabomberra Wetlands in the 21st century. This substantially repositions Jerrabomberra Wetlands in terms of its ecological and cultural values, and possibilities for its continuing development and management.

The resultant Report 'Resources and Values of Jerrabomberra Wetlands' (2013) recognises:

- A long and continuing pattern of encroachment to service urban growth, which has brought with it irreversible ecological isolation
- Diminishing investment in management capacity and long-term pressure from intensified climatic variability, which bring with them high levels of uncertainty
- A duty of care to minimise risk of aircraft bird strike, which constrains options for increased waterbird habitat
- A broader and richer view to be taken of natural and cultural values, as a floodplain landscape, cultural landscape, and novel ecosystem
- Expanded scope for interpretation and education, encompassing non-avian and terrestrial fauna, a broader and richer view of the area's environmental and cultural history, continuing cultural and spiritual connection for Aboriginal people, and new interactions with the local arts community
- Opportunities for our changing urban communities to participate in caring actively for the area, and in collective building of cultural, historical and ecological knowledge and understanding
- New and innovative partnership opportunities across multiple sectors, for collaboration, contribution and financial investment



**PURPOSE – ‘DIRECTIONS’ PAPER**

The ‘Resources and Values’ Report is organised thematically e.g. the section ‘Access and use’ discusses that theme as it applies across all parts of the Reserve.

To complement that Report, this Paper provides a ‘directory’ of sorts. It is organised geographically e.g. the section ‘Kellys Swamp’ discusses key matters pertaining to that part of the Reserve. In doing this, it does not seek to duplicate the Report, instead directing the reader to the relevant pages in the Report.

This is intended to facilitate preparation of the Design Report in the Concept Plan process, which will guide planning and development within the Reserve and in its interface with urban development projects.

The Report and this Paper share the same purpose:

- to inform and influence policy, planning and management decision-making; and
- to broaden and strengthen community connection with the Reserve, and participation in its care and management.

As outlined in Fig.1 below, both documents aim to shape choices about investment in infrastructure and interpretation / education to support and sustain value in the natural and cultural resources which the Reserve contains and offers to the community.

These documents do not seek to be definitive about design requirements but rather are part of an evolving system of enquiry, planning and decision-making, to explore options and make choices which are responsive, informed and principled.



**Fig. 1 Schematic of resource management policy, planning and decision-making for Jerrabomberra Wetlands**

Both the Report and this Paper are written as guidance for the Board of Management and for policy and planning decision-makers and their agents. Both documents are available to the broader community, although they have not been developed specifically for this audience.

It is anticipated that the Paper will have an on-going value beyond the Concept Plan Design Report stage.

**INFORMED AND PRINCIPLED DECISION-MAKING**

The ‘Resources and Values’ Report outlines some of the options for management and development, interpretation/education, partnership building, research, survey and reporting.

The list of options identified in the Report is incomplete, untested and not weighted for priority. To some extent, this reflects the limited assessment and data available at the time. For example, hydro-geological assessment was based on four months of groundwater data only; vegetation and habitat mapping, and fauna surveys were yet to be carried out.

Development of a more definitive list of options, and investigation, testing and evaluation of their viability and priority, represent additional work associated with preparation of the Concept Plan.

The Vision and Guiding Principles in the Report address multiple objectives and recognise the potential for conflict between values and options. This requires that assessment of development and management options is undertaken in an integrated manner.

To this end, the Board has developed an Integrated Assessment Framework for systematic development of projects and programs, testing against a range of principles and objectives, and assignment of priorities.

A high-level summary of factors which are cross-related in the Framework matrix is in Table 1 (the Framework contains much finer detail):

| <i>Vertical axis:</i><br>Key Vision elements   | <i>Horizontal axis:</i><br>Key Enquiry, Development & Management tasks   |
|--|--|
| Enhanced natural resource values<br>Landscape-cultural connections (past, present & future)<br>Enriched visitor experience of wetland and other values<br>Enhanced landscape & ecosystem services<br>Learning from wetlands as an adaptive landscape, ecological, cultural & management system<br>Community participation in caring for the Wetlands and in contributing to funding<br>Minimised risk of adverse impacts on neighbours | Vegetation, habitat & fauna surveys & monitoring<br>Geo-technical surveys<br>Hydrologic and water quality monitoring<br>Compilation of cultural history and stories<br>Compilation of natural resource values<br>Evaluation of performance across program areas, review & reporting<br>Infrastructure development (access, facilities, Learning Centre)<br>Management of drainage<br>Biomass reduction (grazing, slashing, burning)<br>Provision of fencing<br>Habitat development and re-vegetation<br>Management of feral animals<br>Management of weeds |

**Table 1 Summary of high-level structure of the Integrated Assessment Framework**

The Board will apply this Framework during preparation of the Concept Plan (and beyond) to:

- develop a more definitive program of management, development and research related projects and priorities; and
- identify criteria and parameters to guide design of each of the projects.

The Board will also apply its preferred approach to structured decision-making (p.67) and to survey, monitoring, review and reporting (pp.97-106).

It is essential that in preparing the Concept Plan the consultant interacts regularly with the Board to identify issues, opportunities, constraints, and priorities.

*Jerrabomberra Wetlands – Directions Paper*

**DIRECTORY**

This page directs the reader to key pages in the ‘Resources and Values’ Report:

- Part 1 provides useful background information and discussion
- Part 2 sets out established Values and Objectives, and the renewed Vision and Guiding Principles which shape all choices and priorities across the Reserve
- Part 3 sets out in detail a range of opportunities to sustain the Values, and give effect to the Objectives, Vision and Guiding Principles

Table 2 below aligns this with the ‘schematic’ in Fig.1:

**GOALS & AIMS**

|  |  |
|--|--|
| <b>Previously published information, objectives and statements of values</b> | Values and objectives drawn from the National Capital Plan and Plan of Management are summarised on pp.64-65 in Part 2<br><br>These have shaped the ‘Resources & Values’ document  |
| <b>New information and redefined statements of values</b>                    | The majority of Part 1 pp.6-61 is new or redefined information, with statements of values on: p.9 Landscape; p.10 Natural resources; p.17 Geomorphology; p.30 Ecosystem; pp 47-49 Cultural resources<br><br>Management implications are outlined in pp.50-61   |
| <b>Redefined vision<br/>Guiding Principles</b>                               | In Part 2, based on existing and new information, the Board redefined a Vision in both a succinct form and a narrative form (pp.62-63), the former included below<br><br>This was associated with clarified terminology (p.65) and a set of Guiding Principles to inform and influence decision-making (pp.66-67), included below<br><br>The Board will weigh the Vision against, and apply the Guiding Principles to, all proposals for development |

**PLANNING & MANAGEMENT APPROACHES AND OPTIONS**

|   |  |                 |
|---|--|-----------------|
| <b>Infrastructure &amp; facilities</b><br><br><b>Interpretation &amp; education</b> | Part 3 (pp.68-96) describes opportunities, options and constraints in development, addressing: |                 |
| pp.76-84  |  | pp.68-75, 90-92 |
| pp.85-90, 92-93   |  | pp.94-96        |

**Table 2 Summary directory for ‘Resources & Values’ Report**

*Jerrabomberra Wetlands – Directions Paper*

**VISION**

*A diverse and dynamic floodplain landscape and wetland resource,  
inspiring the community  
to enjoy and appreciate its natural and cultural values, and  
to participate actively in its care and management*

**GUIDING PRINCIPLES**

The Board of Management has developed a set of Guiding Principles to inform and influence decision-making:

|  |  |
|--|--|
| <b>Being a 'good citizen' and 'good neighbour'</b>                         | We accept a duty of care to minimise adverse impacts on our neighbours and the broader Canberra-Queanbeyan community from management of the Reserve<br>Specifically, we accept a duty of care to not increase the risk of aircraft bird strike at Canberra International Airport   |
| <b>Striking an appropriate balance between conflicting uses and values</b> | We acknowledge and promote multi-purpose use and values in the Reserve e.g. aesthetic, appropriate recreation, education / interpretation<br>We work to manage potential tensions and conflicts between different uses and values, recognising that these may offer opportunities and benefits<br>In managing potential tensions and conflicts, priority is given: <ul style="list-style-type: none"> <li>• firstly, to the long-term integrity of natural / ecological resource values (both condition and function)</li> <li>• secondly, to education/interpretation values; and</li> <li>• then, all other considerations with regard to access and use, or external / imposed impacts</li> </ul> |
| <b>Access and use</b>  | We enable access and uses which are appropriate to the place and its values<br>Access and uses must not compromise resource qualities and values of the place<br>Multiple mechanisms are available to respond to access and uses (e.g. physical, temporal, programmatic)   |
| <b>External/ imposed impacts on Reserve values</b>                         | We encourage location of urban infrastructure, including stormwater pollution control devices and associated wetlands, outside the Reserve wherever feasible<br>Where no feasible alternative exists, we seek to: <ul style="list-style-type: none"> <li>• maximise the potential to enhance natural/ecological resource values (in condition and function) while minimising risk of aircraft bird strike</li> <li>• develop arrangements which address costs and maximise benefits, and with shared responsibilities</li> <li>• ensure that trade-offs are transparent and communicated</li> </ul>  |
| <b>Sustainability</b>  | We emphasise community engagement / ownership / partnership (including sponsorship opportunities) to achieve the vision and uphold the primary values  |
| <b>Adaptability</b>  | We recognise that knowledge / understanding of resources and values is dynamic, and requires research, survey, monitoring and review to enable adaptation to changing conditions and opportunities   |

*Jerrabomberra Wetlands – Directions Paper*

**SPECIFIC AREA PRIORITIES AND OPTIONS**

The following pages address specific areas or precincts, as indicated in Fig.2 below. For each such area, important priorities and options are summarised, with the reader directed to key pages in the ‘Resources and Values’ Report to provide deeper background and increased detail.

The summaries list design elements (edged in red), and also include matters of internal and external management context which are likely to affect design options.



**Fig.2 Specific areas / precincts**

These areas / precincts are organised according to the zones set out in the Plan of Management (Table 3):

|  |   |      |
|--|---|------|
| <b>Refuge Area<br/>(Zone 1)</b>                                      | <a href="#">Refuge Area adjacent to Molonglo Reach</a>  | p.9  |
|  | <a href="#">Causeway channel and palaeochannels</a>   | p.10 |
| <b>Refuge Buffer<br/>(Zone 2)</b>                                    | <a href="#">Jerrabomberra Reach</a>   | p.12 |
|  | <a href="#">Dairy Flat Grassland</a>  | p.13 |
| <b>Conservation,<br/>Education<br/>&amp; Recreation<br/>(Zone 3)</b> | <a href="#">Molonglo Reach</a>  | p.15 |
|  | <a href="#">Shoveler Pool area</a>  | p.16 |
|  | <a href="#">Jerrabomberra Creek left (southern) bank/<br/>south-west interface with East Lake</a> | p.17 |
|  | <a href="#">Learning Centre site</a>  | p.19 |
|  | <a href="#">Silt Trap, Billabong &amp; south-east interface</a>                                   | p.20 |
|  | <a href="#">Kellys Swamp</a>  | p.22 |

**Table 3 Specific areas / precincts relative to Plan of Management Zones**

*Jerrabomberra Wetlands – Directions Paper*

Design requirements and considerations do not apply in the same way across all geographic areas / precincts (Table 4):

| Design requirements/ factors           | Refuge Area (Zone 1)                   |                                     | Refuge Buffer (Zone 2) | Conservation, Education & Recreation (Zone 3) |                |                    |  |                      |   |              |
|--|--|-------------------------------------|------------------------|---|----------------|--------------------|--|----------------------|---|--------------|
|  | Refuge Area adjacent to Molonglo Reach | Causeway channel and palaeochannels | Jerrabomberra Reach    | Dairy Flat Grassland                          | Molonglo Reach | Shoveler Pool area | Jerrabomberra Creek / south-west interface | Learning Centre site | Silt Trap, Billabong & south-east interface | Kellys Swamp |
| Access/entry points                    |  |                                     |                        |   | ●              | ●                  | ●  |                      | ●   | ●            |
| Walking track development              | ●                                      | ●                                   |                        | ●   | ●              | ●                  | ●  |                      | ●   | ●            |
| Bird hide modification/development     |  | ●                                   |                        |   |                | ●                  | ●  | ●                    |   |              |
| Bridge/crossing development            |  | ●                                   |                        |   |                |                    | ●  |                      | ●   |              |
| Cycleway modification/development      |  |                                     |                        |   |                |                    | ●  |                      | ●   | ●            |
| Vehicle access or parking modification | ●                                      |                                     |                        |   |                |                    | ●  | ●                    | ●   | ●            |
| Access restrictions (inc. seasonal)    | ●                                      | ●                                   |                        | ●   |                |                    |  |                      |   | ●            |
| Boating access restriction             | ●                                      | ●                                   | ●                      |   | ●              |                    |  |                      |   |              |
| Recreational facilities development    |  |                                     |                        |   |                |                    | ●  | ●                    | ●   | ●            |
| Cultural facilities                    |  |                                     |                        |   |                |                    | ●  | ●                    |   |              |
| Building modification/development      |  |                                     |                        |   |                |                    | ●  | ●                    |   | ●            |
| Fencing modification/development       |  | ●                                   |                        |   |                |                    | ●  |                      |   |              |
| Lighting                               |  |                                     |                        |   |                |                    | ●  | ●                    |   |              |
| Wetland modification/development       | ●                                      | ●                                   |                        | ●   |                | ●                  | ●  | ●                    | ●   | ●            |
| Stormwater/pollution management        |  |                                     |                        | ●   |                | ●                  | ●  |                      | ●   | ●            |
| Vegetation modification/development    | ●                                      | ●                                   | ●                      | ●   | ●              | ●                  | ●  | ●                    | ●   | ●            |
| Grazing management                     |  | ●                                   |                        | ●   |                | ●                  |  |                      |   | ●            |
| Interpretation/education development   | ●                                      | ●                                   | ●                      | ●   | ●              | ●                  | ●  | ●                    | ●   | ●            |
| Signage                                | ●                                      | ●                                   | ●                      | ●   | ●              | ●                  | ●  | ●                    | ●   | ●            |
| Related areas outside Reserve          |  |                                     |                        | ●   |                |                    | ●  |                      | ●   |              |
| Community (neighbour) focus            |  |                                     |                        |   |                |                    | ●  |                      | ●   |              |

**Table 4 Key to design requirements and factors across geographic areas / precincts**

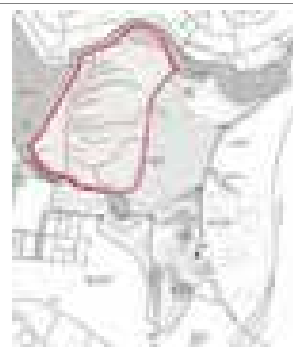
## Jerrabomberra Wetlands – Directions Paper

### Refuge Area (Zone 1)

North-western area of the Reserve

Includes:

- the Peninsula
- Jerrabomberra Backwaters
- other palaeochannels
- exotic grassland



#### Overview of values and management priority

- This area is the focus for, or the emphasis within, previously identified conservation values and the primary focus for declaration of the Reserve (p.73)
- It is valued for its place in the landscape, the geomorphological features within it, and the variety of habitat types which it provides for aquatic wildlife, in particular for listed migratory species, and for grassland species (pp.34, 36, 37, 54)
- Management priority is conservation of wetland habitats, waterbird populations and landscape character, ensuring controlled and limited public access (p.73) , consistent with duty of care to minimise aircraft bird strike risk (pp.55-57)
- Modified in the past by: excavation of Causeway channel / diversion of Jerrabomberra Creek, and construction / removal of Civic railway embankment; powerline construction and maintenance; construction / edge definition of East Basin of Lake Burley Griffin (LBG); and exotic plant species
- Cultural heritage associations include: Limestone Plains; Campbell family estates (Pialligo / Duntroon) from the Molonglo to Mugga Mugga; Soldier Settlement leases; Civic construction railway embankment and bridge; major flood damage; Dairy Lease No. 1 (Big Gun Dairy/Cargill's) (pp.43-49)
- Causeway channel and lower palaeochannels are permanently flooded backwaters of LBG; other palaeochannels and shallow wetlands rely on stormwater discharges (pp.32-36)
- No walking tracks or developed public facilities, at present

#### Management and protection requirements

- National Capital Plan ~ A1 Nature Conservation Core Area /  
A1: Jerrabomberra Backwaters: wildlife refuge area, controlled access  
B: Wetland Buffer Zone / B1: Dairy Flat West: rural buffer zone (western part)
- **Controlled public access** to avoid disturbance of waterbirds, in particular listed migratory species when they are visiting (international treaty obligations) (pp.69, 73, 74, 75)
- **Appropriate buffering** from Conservation, Education & Recreation areas (Zone 3)
- **Controlled grazing** for grassland biomass management (including seasonal adjustment of grazing regimes). The aim is to confine stock to the floodplain area and away from selected riparian zones, Shoveler Pool and palaeochannels for protection of mudflats, shallow wetlands, riparian areas, and floodplain marshland/grassland (p.54, 58, 59, 77)
- **Enhanced interpretation / education** (pp.92-93)

## Jerrabomberra Wetlands – Directions Paper

### Refuge Area (Zone 1)...continued

*Options to improve management of values*

### Whole of Refuge Area

- **Vegetation management** to include (p.54):
  - Enhanced riparian biomass and woody vegetation for bird roosting and diving
  - Encouragement of self-establishing species or planting with sedges, grasses, or rushes
  - Varied grassland management regimes and long-term replacement strategy to promote a mosaic of different habitats and associated fauna
  - Reduction in fire fuel load (terrestrial grassland/pasture habitats) (p.58)
- **Seasonal adjustment of access restrictions** to enable new interpretation / education opportunities at times of year when migratory species are not present (pp.69, 73, 74, 75, 79)
- **Seasonal adjustment of grazing regimes** to exclude cattle from shallow wetland areas (including palaeochannels) at times of year when migratory species are most common, and to reintroduce at other times, as the need arises to control vegetation (p.59)  
 It may be useful to sub-divide Zone 1 (Wildlife Refuge) and Zone 2 (Refuge Buffer) to apply different management strategies to different sub-zones, including temporal zoning e.g. cattle grazing and public access allowed at a specified certain time of the year (p.79)
- **Interpretation / education** to also address aquatic mammals, grasslands (p.54), cultural heritage (pp.92-93)

### Refuge Area adjacent to Molonglo Reach

*Note:* This section deals with terrestrial parts adjoining and interacting with Molonglo Reach. Unlike parts of the Refuge Area adjacent to Jerrabomberra Reach, there is no Buffer (Zone 2) where the Refuge Area adjoins Molonglo Reach (Zone 3). Potential additional restrictions in lower parts of Molonglo Reach to protect Refuge Area values are detailed below under 'Conservation, Education & Recreation areas (Zone 3)'.

- **Re-establishment of the small island refuge** in Molonglo Reach by reconnecting the secondary channel and modifying vehicle access  
 The aim is to replace the small causeway with a form of access which assists exclusion of predators (coupled with appropriate fencing), while enabling (potentially seasonal) access for powerline maintenance (pp.76, 77, 80)
- **Supplementary watering of some palaeochannels and wetlands 2 & 3** near the Molonglo / LBG confluence, at times when these are largely dry  
 This expands shallow water habitats next to Molonglo Reach to provide, and interpret, a different sort of wetland for visitors (p.80)  
 Can be related to new walking trails ('Molonglo River Walk' and 'Grassland Walk') (pp.87, 90)
- **Screening of inlets into Wetlands 1 & 2**, when coupled with closure of the Causeway channel connection to Jerrabomberra Reach / LBG, may enable eradication of Common Carp (p.60)



*Jerrabomberra Wetlands – Directions Paper*

**Refuge Area (Zone 1)...continued**

*Options to improve management of values...continued*

**Causeway channel and palaeochannels**

- Construction of an **earth barrier across the mouth of the Causeway channel**, aiming to:
  - reduce surface area of open permanent water (potential reduction in bird strike risk)
  - enable variable water levels in Causeway channel and palaeochannels by active management and, in turn, promote riparian vegetation and enhance biodiversity
  - assist control of Common Carp
  - exclude boating access; and
  - reduce silt deposition from lake waters (pp. 50, 54, 57, 60, 71, 76, 80)

With removal of the connection to Jerrabomberra creek and LBG, previous nomenclature of ‘the Peninsula’ and ‘Jerrabomberra Backwaters’ appears to be less appropriate
- Consideration of a **new ‘Grasslands Walk’** along the existing powerline maintenance track, linked to a new ‘Molonglo River Walk’, with branches into screened hides and walkways at selected points along the southern (left) bank of the Molonglo River, and into Shoveler Pool [Zone 3] (pp.90, 91)  
 This may also include side tracks into selected locations along the Causeway channel, subject to detailed assessment (p.87), linked to ‘seasonal adjustment of access restrictions’ described above (may require development of different routes for different seasons)
- **Supplementary watering of some palaeochannels** by drawing from LBG, the Molonglo, or the aquifer, to enhance water distribution across floodplain wetlands  
 For some, this may include management of inflow to wetlands fed by surface water, via a series of low (e.g. 0.3m height) timber bulwarks or weirs  
 This modification aims to provide, and interpret, an example of a different sort of wetland for visitors, leaving others naturally dry (p.80)  
 This must be consistent with duty of care to minimise aircraft bird strike risk (pp.55-57)
- Development of some palaeochannels upstream of the powerline maintenance track as managed wetlands, modifying flows with **control devices constructed under crossings** on the track (p.76)
- **Recovery of riparian zones** along palaeochannels and swales (pp.54, 75), including (p.77):
  - Staged removal of exotic species (including willows) to ensure adequate replacement for habitat purposes
  - Replacing exotic species with native species (endemic and local provenances where possible)
  - Landscape screening in key areas to minimise disturbance to birds
- **Re-examination of value for Snipe** of the Peninsula area, following desiccation of previously important habitat from low lake levels in recent years (p.59)
- Investigation of a **fence across the Peninsula** to exclude mammalian predators (p.77)
- **Rehabilitation of earthen pads** following removal of the overhead powerlines
- Enhancement of **interpretation / education resources**, including (pp.75, 92-93):
  - Carefully controlled access, screening and walkways in new walking track options
  - Use of remote camera / video display of sensitive fauna e.g. visiting migratory species viewed in the Learning Centre
  - Regulatory signage to restrict access by land or water

## Jerrabomberra Wetlands – Directions Paper

### Refuge Buffer (Zone 2)

Includes:

- Jerrabomberra Reach
- exotic grassland in the north-eastern and central areas of the Reserve



### Overview of values and management priority

- Management priority is to separate the Refuge Area (Zone 1) from the more active and populated areas for Conservation, Education & Recreation (Zone 3)
- Valued for (pp.34, 37, 54):
  - landscape character (rural floodplain of Dairy Flat; corridor of Jerrabomberra Reach)
  - habitat types for a range of aquatic and grassland species, including exotic grassland and ephemeral wetland habitats for smaller birds and wetland species, hunting areas for raptors; and
  - geomorphological features on the floodplain (palaeochannels, palaeodunes)
- Shares with Zone 1 the goal of conserving wetland habitats, waterbirds, and landscape character, with controlled and limited public access (p.73)
- No walking tracks or developed public facilities, at present
- Dairy Flat grasslands modified in the past by grazing, cropping, cultivation, irrigation, and (at the periphery) by Googong water main and powerline construction
- Palaeochannels and grassland / marshland areas rely on stormwater discharges (pp.32-36)
- Largely devoid of trees and shrubs (p.37), with limited planted woodland isolated within grassland areas (p.83)
- Cultural heritage associations include: Limestone Plains; Campbell family estates (Pialligo / Duntroon) from the Molonglo to Mugga Mugga; diversion of Jerrabomberra Creek for Civic railway embankment; Soldier Settlement leases; Dairy Lease No. 2 (Kelly's / Kanbra Jersey Stud) (pp.43-49)

### Management and protection requirements

- National Capital Plan ~ B: Wetland Buffer Zone / B1: Dairy Flat West: rural buffer zone [No Specific Area Policy defined for Jerrabomberra Reach]
- **Controlled public access and use** to provide buffer between Refuge Area (Zone 1) and Conservation, Education & Recreation areas (Zone 3)
- **Controlled grazing** for grass biomass management, with seasonal adjustment of grazing regimes, and application of 'crash grazing' as required  
The broad aim is to confine stock to the floodplain area and away from selected riparian zones, Shoveler Pool and palaeochannels for protection of mudflats, shallow wetlands, riparian areas, and floodplain marshland/grassland (pp.54, 58, 59, 77)
- **Enhanced interpretation / education** (pp.92-93)

## Jerrabomberra Wetlands – Directions Paper

### Refuge Buffer (Zone 2)...continued

Options to improve management of values...continued

### Whole of Refuge Buffer

- **Vegetation management** to include (p.54):
  - Encouragement of self-establishing species or planting with sedges, grasses, or rushes
  - Varied grassland management regimes and long-term replacement strategy to promote a mosaic of different habitats and associated fauna
  - Reduction in fire fuel load (terrestrial grassland / pasture habitats) (p.58)
- Development of **increased landscape connectivity**, encompassing riparian, grassland, shrubland and woodland areas  
This seeks sub-regional scale connectivity to: waterway ‘corridors’ of Molonglo River, Jerrabomberra Creek and Woolshed Creek; constructed wetlands and water sensitive urban design; and forested ridges of Canberra Nature Park (p.77)
- **Interpretation/education** (pp.92-93) to address also grasslands (p.54) and cultural heritage (linked to development of the new ‘Grasslands Walk’, described in Zones 1 and 3)

### Jerrabomberra Reach

- **External context:** Lower parts adjoin directly intensive urban development at Kingston Foreshores. This includes wetlands constructed as part of water sensitive urban design.
- Additional to closure of the Causeway channel connection to Jerrabomberra Reach [Zone 1] (p.57), establishment of a broader ecological / educational program to harvest Common Carp as they move from LBG into the Reserve to spawn.  
This would likely involve a **temporary Carp trap** (e.g. from September to December) set in Jerrabomberra Reach, with Carp manually removed from the trap and converted to fertiliser.  
This may be a partnership program with the ACT Government and other adjacent stakeholders (e.g. National Capital Authority), to assess the impact of control in the Reserve on Carp numbers in Lake Burley Griffin (p.60)
- **Recovery of riparian zones** along Jerrabomberra Reach (p.54), including (p.77):
  - Staged removal of exotic woody species (including willows) to ensure adequate replacement for habitat purposes
  - Replacing exotic species with native species (endemic and local provenances where possible)
  - Landscape screening in key areas to minimise disturbance to birds
- Reaffirmation of **restrictions on boating access** on Jerrabomberra Reach (noting recent changes to the Boat Harbour at Kingston)  
Boating access is not permitted on Jerrabomberra Reach within the Reserve (except for direct access between Lake Burley Griffin and the Boat Harbour); access to land parts of the Reserve from these waterways is not permitted.  
Educational material including signs to advise of these restrictions and the reasons for them  
The proposed earth barrier across the Causeway channel [Zone 1] would also serve to prevent boat access to that channel (p.71)

*Jerrabomberra Wetlands – Directions Paper*

**Refuge Buffer (Zone 2)...**continued

Options to improve management of values...continued

**Dairy Flat Grassland**

- **External context:** The eastern edge adjoins directly the Dairy Road corridor and the Lake cycleway Stormwater includes discharge from Goldenholm Pond, the turf farm and the Fyshwick Sewerage Treatment Plant (p.20); these provide complementary habitat for waterbirds (p.38) Goldenholm Pond may be considered as a potential addition to the Reserve (p.84)
- **Seasonal adjustment of access restrictions** to enable new interpretation /education opportunities at times of year when migratory species are not present (pp.69, 73, 74, 75, 79)
- **Seasonal adjustment of grazing regimes** to exclude cattle from shallow wetland areas (including selected palaeochannels) (p.59)  
It may be useful to sub-divide Zone 1 (Refuge Area) and Zone 2 (Refuge Buffer) to apply different management strategies to different sub-zones, including temporal zoning e.g. cattle grazing and public access allowed at a specified certain time of the year (p.79)
- **Supplementary watering of some palaeochannels** by drawing from LBG, the Molonglo, or the aquifer, to enhance water distribution across floodplain wetlands, consistent with duty of care to minimise aircraft bird strike risk (pp.55-57)  
This may include management of inflow to wetlands fed by surface water, via a **series of low (e.g. 0.3m height) timber bulwarks or weirs**  
This modification aims to provide and interpret an example of a different sort of wetland for visitors, leaving others naturally dry (p.80)
- Consideration of **construction of a new wetland** with a ‘chain-of-ponds’ structure in the broad palaeochannel to the west of Kellys Swamp and towards the Learning Centre site  
This aims to enable variable water levels, an ‘ephemeral zone’ around the edges, enhanced productivity, a sustained visitor wetlands experience, and an improved vista from the Learning Centre (pp.76, 81)  
This needs to be consistent with duty of care to minimise aircraft bird strike risk (pp.55-57)
- **Recovery of riparian zones** along palaeochannels and swales (p.54), including (p.77):
  - Staged removal of exotic woody species (including willows) to ensure adequate replacement for habitat purposes
  - Replacing exotic species with native species (endemic and local provenances where possible)
  - Landscape screening in key areas to minimise disturbance to birds
- **Extension of woodland areas** to develop landscape ‘stepping-stones’ for birds and other terrestrial species, particularly between the two river systems  
This aims to both increase abundance of woodland birds in the Reserve and improve connectivity across the Reserve for a range of other terrestrial species  
Appropriateness of tree and shrub planting on the floodplain needs to be investigated (pp.77, 83)
- Development of **increased floristic and structural diversity in grasslands**, including (p.77):
  - Nurturing, monitoring, and extension where feasible, of remnant native grassland areas
  - Gradual replanting or seeding with native grassland species
  - A system of crash grazing and/or fire to provide a sparse ground vegetation matrix

**Conservation, Education & Recreation  
(Zone 3)**

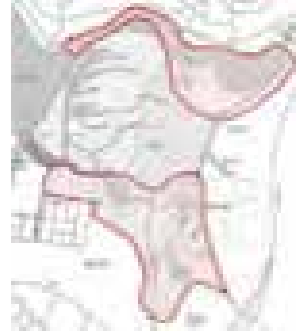
Includes:

*Northern*

- Molonglo Reach
- Shoveler Pool

*Southern*

- Jerrabomberra Creek, Jerrabomberra Pool
- Kellys Swamp
- Silt trap, Billabong



*Overview of values and management priority*

- The southern area has been the customary focus for public access and use, recreation and interpretation / education, due to past educational facilities, promotion of Kellys Swamp and associated carpark, walking tracks, hides, cycleway / bridge, and other facilities. This focus is likely to continue, with modifications to minimise conflicts between uses / users as major residential developments increase population densities. The southern area includes the preferred site for the Bialigee Learning Centre. The former Birrigai office site may remain the location for management / operational facilities, although this may move to the vicinity of the Learning Centre. The silt trap is an ‘unnatural’ feature, with severely depleted ecology, and is ineffective as a silt trap. The hydrological isolation of the cut-off meander and Billabong has diminished ecological values. These features are a focus for rehabilitation effort, coupled with expanded interpretation / education.
- In the northern area, despite being a significant waterbody in the Reserve, Molonglo Reach has in the past had minimal attention in planning and interpretation / education (p.34). With no promotion and no facilities, it is likely that few on-water users recognise that they are in the Reserve. This area is suitable for additional low-key development and a broader range of passive uses.
- Both areas are valued for diverse habitat types for waterbirds, terrestrial birds and non-avian species e.g. eastern water rat and platypus; habitats include permanent deep water, riparian zones, ephemeral wetlands; planted woodland suitable for terrestrial bird species; and a range of educational and recreational opportunities (p.37)
- The northern area (Molonglo Reach-Shoveler Pool) has been modified in the past by: grazing, cropping, cultivation, irrigation; exotic plant species; sand & gravel extraction; fill excavation for powerline construction; Googong water main construction; modification of hydrology and drainage at Shoveler Pool
- The southern area (Jerrabomberra Creek floodplain) has been modified in the past by: grazing; exotic plant species; reshaping of Jerrabomberra Creek-Molonglo / LBG junction; powerline construction; sewer rising main construction; levee / hydrological modification for silt trap construction; landfill and waste disposal; cycleway construction
- Cultural heritage associations include (pp.43-49): first European contact 1820; Limestone Plains; Campbell family estates (Pialligo / Duntroon) from the Molonglo to Mugga Mugga; fords and bridges; Civic construction railway embankment / causeway; flood history; RMC Duntroon activities; Soldier Settlement leases; Dairy Leases No.1 and No. 2; Causeway oval; LBG protection works; Dairy Flat Education Centre
- The southern area is the interface with the East Lake urban renewal area and with the Wetlands Foreshores Business Park, and is likely to be a major focus for stakeholder partnership approaches e.g. ‘Bush on the Boundary’ model (pp.94-96)

## Jerrabomberra Wetlands – Directions Paper

### Conservation, Education & Recreation (Zone 3)...continued

#### Management and protection requirements

- National Capital Plan:
  - Northern: B: Wetland Buffer Zone | B1: Dairy Flat West: rural buffer zone; C: Recreation | C1: Molonglo Reach Recreation: informal riverside area with controlled public access
  - Southern: A: Nature Conservation Core Area | A2: Jerrabomberra Pool and Kellys Swamp environs: diverse habitat with public access; B: Wetland Buffer Zone | B2: Dairy Flat Centre: educational facility
- Enhanced interpretation / education

#### Options to improve management of values

#### Molonglo Reach

This section deals with Molonglo Reach itself. Terrestrial parts of the Refuge Area (Zone 1) adjoining and interacting with Molonglo Reach are detailed in that section

- *External context:* The northern edge adjoins directly the corridor of Morshead Drive and the Lake cycleway and associated active recreation spaces  
Some upstream parts of the Molonglo may be considered as a potential addition to the Reserve (p.84)
- Consideration of **additional access restrictions in lower parts of Molonglo Reach.**  
This recognises that, unlike parts of the Refuge Area adjacent to Jerrabomberra Reach, there is no Buffer (Zone 2) where the Refuge Area adjoins Molonglo Reach (Zone 3). This may include (pp.71, 75):
  - Prohibition of boat landing, and restrictions on use of motor boats, active (team / organised) boating, and fishing in the section downstream from the site of the old Duntroon Ford (the point where the boundary between NCP Specific Policy Areas B1 and C1 meets the Molonglo)
  - Public access to land areas only by permit issued by the Parks & Conservation Service for conduct of research or study relating to species using these areas
  - Upstream of the Duntroon Ford site, active, motorised and team / organised boating and fishing to be permitted, consistent with protection of natural values
  - Provision of educational materials on these provisions to boating groups and in signs on site
  - Seeking cooperative effort with boating groups in monitoring use and access as part of a wider monitoring program to gauge effectiveness
- Additional low-key development and a broader range of passive uses  
Consideration of a **new 'Molonglo River Walk'**, with branches into screened hides and walkways at selected points along the southern (left) bank of the Molonglo, and into Shoveler Pool  
Also linked to a new 'Grasslands Walk' along the existing powerline maintenance track (pp. 90, 91). This may also include side tracks into selected locations in the Refuge Area [Zone 1], subject to detailed assessment (p.87), and linked to proposed 'seasonal adjustment of access restrictions'
- **Recovery of riparian zones** along the Molonglo (p.54), including (p.77):
  - Staged removal of exotic species (including willows) to ensure replacement for habitat purposes
  - Replacing exotic species with native species (endemic and local provenances where possible)
  - Landscape screening in key areas to minimise disturbance to birds
- **Interpretation / education** (pp.92-93) linked to development of a 'Molonglo River Walk'/Grasslands Walk' (pp.90, 91), to also address: aquatic mammals, grasslands (p.54); cultural heritage, awareness for Molonglo Reach users (on the water and on the right / northern bank) that they are in the Reserve

## Jerrabomberra Wetlands – Directions Paper

### Conservation, Education & Recreation (Zone 3)...continued

#### Options to improve management of values...continued

#### Shoveler Pool area

- **External context:** The eastern edge adjoins directly the Dairy Road corridor and the Lake cycleway  
Stormwater includes discharge from the turf farm (p.20)  
The turf farm provide complementary habitat for waterbirds (p.38)  
Some upstream sections of the Molonglo riparian zone may be considered as a potential addition to the Reserve (p.84)
- Consideration of an **additional (northern) entry point** at the north eastern corner of the Reserve for public (pedestrian) access (p.69).  
This reflects significant interpretation / education potential in this part of the Reserve  
It relates to the existing cycleway entry point near Dairy Flat bridge, and consideration will be given to placing cycle racks near Dairy Road
- Related to the above, additional low-key development and a broader range of passive uses  
Includes the **new 'Molonglo River Walk'** detailed above for Molonglo Reach, with branches into screened hides and walkways at selected points along the left (southern) bank of the Molonglo, and into Shoveler Pool.  
May require 'seasonal adjustment of access restrictions' to protect the Refuge Area (pp.90, 91).  
The start point of the River Walk uses the old route to the Duntroon (later Dairy Flat) Ford across the Molonglo
- Related to the above, **upgraded presentation of Shoveler Pool and environs** to provide and interpret an example of a different sort of wetland for visitors. This may include:
  - New scrapes to provide additional ephemeral shallows (p.76)
  - Lengthening the duration of wetting of Shoveler Pool by: potential working of clay into the bed of the Pool to limit infiltration losses (p.80); water flow control devices capturing and directing flows (p.76); and potential supplementary watering from water bodies or the aquifer (p.80)
  - Consideration of island refuges within Shoveler Pool (p.77)
  - Control of cattle grazing by fencing, and relocation of the existing stock yards away from Shoveler Pool (p.77)
  - Two additional bird hides at Shoveler Pool and the palaeochannel area (p.86)
  - Revegetation for screening and aesthetic purposesThis needs to be consistent with duty of care to minimise aircraft bird strike risk (pp.55-57)
- **Interpretation/education** (pp.92-93) linked to development of a 'Molonglo River Walk' / 'Grasslands Walk' (pp. 90, 91), to address:
  - aquatic mammals, grasslands (p.54)
  - broader range of wetland types
  - cultural heritage relating to first European camp / landscape description (1820), Pialligo/Duntroon estate, flood history, fords and bridges, RMC Duntroon activities, sand and gravel extraction
  - awareness for Molonglo Reach users (on the water and up to the right / northern bank) that they are in the Reserve

*Jerrabomberra Wetlands – Directions Paper*

**Conservation, Education & Recreation (Zone 3)...continued**

*Options to improve management of values...continued*

**Jerrabomberra Creek left (southern) bank / south-west interface with East Lake**

This does not include the preferred site for the Byaligee Learning Centre, which is described further below

- *External context:* Will receive stormwater discharge from the East Lake urban renewal area  
Limestone outcrop and Cargill’s cottage may be considered as potential additions to the Reserve (p.84)
- Development of measures for **control of domestic pets** (beyond fencing), with legislative requirement for digital tagging, cat containment and/or curfew to manage domestic pets within a set distance of the boundary (p.70)
- Broader recreational use adjacent to residential areas and the Learning Centre  
Provision of **largely informal recreational facilities** related to passive uses which support Reserve values, and (secondarily) to the least active types of recreational uses e.g. picnics not barbecues, open play spaces not playgrounds, walking tracks not exercise equipment.
- Development of facilities, spaces and routes associated with the Byaligee Learning Centre, including:
  - Relocation of the **bird hide** above Jerrabomberra Pool, if displaced by the Learning Centre (p.86)
  - A new or enlarged **carpark** off Eyre Street (p.86)
  - Low-speed cycle access provided to the Learning Centre (p.87) as part of **additional shared paths** for slower-paced cycling and for pedestrians; monitoring of the effectiveness of managing joint use of paths by cyclists and pedestrians (p.71)
  - An additional **footbridge** across Jerrabomberra Creek next to the Learning Centre (p.87), with attention paid to design to discourage access by pets and pest animals
  - A small low-key **family space** with tables and open spaces close to the Learning Centre (p.86)
  - A 10m high **lookout** considered south of the existing cycle path footbridge (p.86)
  - Security **lighting** provided around the Learning Centre, with overhead, downward facing lights on paths through the East Lake interface and to the Learning Centre (p.87)
  - Artistic treatment of paths, spaces and places to reflect **Aboriginal themes** in the Learning Centre, with design embracing images such as water, platypus, bird of prey, and snake (echoing the original sinuous course of the Molonglo at Limestone Plains) (pp.88-89)
- Development of an **Aboriginal cultural facility** (workshop and area) near the Learning Centre, possibly at the old Causeway oval (Eyre Street), for cultural learning, as a community centre, arts and crafts hub, and place of healing. Intended to include (p.85):
  - **Spaces** for dance, creative art, tool making, weaving, grinding, men’s and women’s craft, and other demonstrations and activities
  - An associated **cultural walking trail** for interpretation of bush-tucker and landscape knowledge including sources of wild food and medicine, fibre, materials for tools, transport etc
- Entry and interpretive **signage** to include Ngunnawal language and incorporate Ngunnawal knowledge, naming of places, natural features, plants, animals and other resources  
Signs and maps to show **dual European/Aboriginal naming** and descriptions, as negotiated (p.85)

Continued →



*Jerrabomberra Wetlands – Directions Paper*

**Conservation, Education & Recreation (Zone 3)...continued**

*Options to improve management of values...continued*

**Jerrabomberra Creek left (southern) bank / south-west interface with East Lake...continued**

- Development of **stormwater treatment wetlands** to the south of Jerrabomberra Creek, associated with East Lake residential development and the Learning Centre, consistent with duty of care to minimise aircraft bird strike risk (pp.55-57).  
This may offer expanded opportunities for wetland interpretation in an area more removed from the Airport and less likely to contribute to bird strike risk. Water surface area increase would be neutral if traded-off against removal of the Jerrabomberra Silt Trap by reconnection of the Billabong (p.57).  
This would not involve 'hard' structures, but may include (p.76):
  - stormwater treatment wetlands and ponds, and bio-filter systems
  - swales intercepting peak stormwater flows
  - integration of walkways and entrance to the Learning Centre with constructed wetlands systems
 Associated development of **ponds for educational use** close to the Learning Centre, including some for public demonstration of benefits of controlling Eastern Gambusia (p.60)
  
- **Fencing and gating** at or near the Reserve boundary to (p.70):
  - exclude domestic pets and introduced pests for protection/conservation of fauna and flora
  - provide security for some facilities
  - provide legal identification of the Reserve and conditions of entry and use
 Edge fencing and gating design needs to:
  - recognise that any fence may be unsightly, and may be perceived by neighbours as a barrier to their use of the area, which may inhibit efforts to build partnership with local communities
  - be combined with **landscaping** to reduce visual impact without compromising effectiveness
  - investigate options to exclude pets and introduced pests in spite of the current open cycleway through the Reserve, which complicates physical exclusion
  
- Consideration of an **additional access / entry point** on the south eastern corner of the Reserve. This anticipates development of a Jerrabomberra Creek park corridor and cycleway south to Canberra Ave, in association with the East Lake development (p.69)  
**Diversion of the open cycleway** around the south-eastern corner of the Reserve or across the northern end of the Silt Trap would expand options for both commuting (high-speed) and recreational cyclists, for walkers, and for exclusion of pets and pest species from the current cycleway route (p.71)  
This needs to be related to development of a new Billabong Trail (pp.90-91)
  
- **Interpretation/education** (pp.92-93) to address:
  - wetland forms and values, associated with new stormwater wetland development (p.57)
  - aquatic mammals, particularly platypus (p.54)
  - control of Common Carp and Eastern Gambusia (p.60)
  - cultural heritage relating to Limestone Plains; Campbell family estates (Pialligo / Duntroon); flood history; Civic construction railway embankment / causeway; Soldier Settlement leases; dairying, particularly Dairy Lease No.1 (Big Gun Dairy / Cargill's); Causeway oval
  - use of entry points to present educational and interpretive messages on values of the wetlands and to reinforce that domestic pets are excluded from the Reserve (p.70)
  - awareness for Jerrabomberra Reach and creek users that they are in the Reserve
  - strong cultural / artistic themes as connection to Kingston Foreshores arts community

Continued →

## Jerrabomberra Wetlands – Directions Paper

### Conservation, Education & Recreation (Zone 3)...continued

#### Options to improve management of values...continued

#### Jerrabomberra Creek left (southern) bank / south-west interface with East Lake...continued

- **Potential additions to the Reserve (p.84):**
  - limestone outcrops in the grounds of the weights and measures station, Eyre [formerly Newcastle] Street, Kingston – directly opposite Learning Centre site  
Interpretation of Limestone Plains; potential operational use of buildings (instead of Dairy Road)
  - Cargill's cottage from Dairy lease No.1 (Big Gun Dairy), adjacent to / south of the weigh station  
Interpretation of floodplain dairying, flood history; currently used for artist-in-residence programs, with potential for this use to continue with a focus on the Reserve

### Learning Centre site

- Development of the **Biyaligee Learning Centre** (pp.85, 88-89, 92-93)

- Vision (p.62):  
*The exciting Biyaligee Learning Centre is the hub of professional interpretation and education programs and facilities presenting layers of stories offered by the area.*  
*These assist visitors to learn about the dynamics, processes and values of a floodplain landscape, and about cultural heritage of the Ngunnawal and neighbouring nations, early European settlement of the Limestone Plains, key phases in development of the National Capital, and some of the significant environmental events which have affected the area and people around it.*
- Biyaligee Learning Centre shaped by Ngunnawal landscape knowledge, with displays and programs on stories, pathways and traditional knowledge
- A facility of similar size and function to the Namadgi Visitor Centre, with a range of facilities described in pp.88-89
- Sited above Jerrabomberra Reach and Jerrabomberra Pool, with a vista over several wetland areas and the floodplain, with Mount Pleasant as a backdrop
- Offering remote camera/video display of sensitive species and other fauna in the Reserve (pp.75, 86)
- Easy access from Eyre Street and the main cycleway
- Site located on past landfill, to be taken into account in design and construction
- The name Biyaligee (or Byalegee) reflects both the earliest name for the area and its original inhabitants, and the earliest European use for the Campbell estate of Pialligo (later Duntroon).
- Design of the building and grounds to reflect floodplain landscape character, and to draw from iconic and totemic species which are important to Ngunnawal culture, such as the wedge-tailed eagle, snake (echoing the serpentine course of the Molonglo), and platypus.
- A potential Ngunnawal phrase capturing the spirit of the Centre is: *yerrabi ngadyung biyaligee* (~ 'follow the waters of our ancestors').
- Potential for formal linkages with Mugga-Mugga education centre, complementing that centre's focus on Limestone Plains pastoral estates and families ('Molonglo to Mugga Mugga')
- Proximity to proposed additions to the Reserve: limestone outcrops in Eyre Street (Limestone Plains theme); weigh station in Eyre Street (potential operational use); and Cargill's cottage (Big Gun Dairy/dairying history theme, used for artist-in-residence programs) (p.84)

## Jerrabomberra Wetlands – Directions Paper

### Conservation, Education & Recreation (Zone 3)...continued

#### Options to improve management of values...continued

#### Silt Trap, Billabong & south-east interface

- **External context:** Adjoins directly the Wetlands Foreshores Business Park and the East Lake urban renewal area  
Stormwater includes discharge from Fyshwick, including impervious areas and areas of contaminated fill, as well as the Jerrabomberra Creek catchment (p.20)  
Some upstream parts of Jerrabomberra Creek provide complementary habitat for waterbirds (p.38)  
Upstream parts of Jerrabomberra Creek require control of woody weeds to reduce re-infestation
- Urgent development of **pollution interception and detention devices** appropriate to the high risk of Fyshwick industrial area discharging pollution onto the Reserve (p.51)  
Siting of interception and treatment devices outside the Reserve, particularly Gross Pollutant Traps which have high maintenance costs and undesirable impacts  
For leases close to the Reserve boundary and/or groundwater recharge areas (p.51):
  - assessment of potential impacts/risks from untreated, partially treated, and fully treated discharge
  - investigation of pollution interception devices with reduced scale and visual impact
  - an integrated risk management approach with upstream and at-source management measures
  - a monitoring program to capture data adequate for determining impacts and risks.Where uncontrolled dumping of wastes may generate discharge onto the Reserve, initiation of either 'containment' or 'in-situ chemical and biological remediation' measures to reduce future risk.  
Works near Wetlands Foreshores Business Park need to take into account the limited occurrence of *Eleocharis acuta-Amphibromus nervosus* wetlands (ref. Eco Logical Australia 2014)
- **Rehabilitation of the Billabong area** (pp.75, 76, 77), consistent with duty of care to minimise aircraft bird strike risk (pp.55-57).  
This aims to:
  - re-establish hydrological connection of the creek to its floodplain
  - provide base inflow and partial flood flows with fresh fine sediment accumulation
  - remove fine sediment from the cut-off meander, with benefits for instream faunaThis includes (pp.75, 76, 77):
  - Diversion of some base flow from Jerrabomberra Creek to the Billabong, using bores, pumps or by breaching the levee upstream and downstream to establish a more natural flow
  - Remedial work on the original creek channel outlet from the Billabong, to its intersection with the modified creek alignment
  - Provision for control of Common Carp movement in any flow control devices, where feasible  
Works near the Billabong need to take into account the limited occurrence of *Eleocharis acuta-Amphibromus nervosus* wetlands (ref. Eco Logical Australia 2014)
- Related to the above, **redesign of the silt trap and channel** to deliver additional ecological services (pp.75, 76, 77). This may include:
  - A series of gabion walls to promote sedimentation, re-establishing a curvilinear channel form
  - Roosts, perches and island refuges in the silt trap

Continued →

### Jerrabomberra Wetlands – Directions Paper

#### Conservation, Education & Recreation (Zone 3)...continued

Options to improve management of values...continued

#### Silt Trap, Billabong & south-east interface...continued

- Consideration of an **additional access / entry point** on the south eastern corner of the Reserve  
This anticipates development of a Jerrabomberra Creek park corridor and cycleway south to Canberra Ave, in association with the East Lake development (p.69)  
Diversion of the open cycleway around the south-eastern corner of the Reserve or across the northern (downstream) end of the Silt Trap would expand options for both commuting and recreational cyclists, for walkers, and for exclusion of pets and pest species from the current cycleway route (p.71)  
This needs to be related to development of a new Billabong Trail (pp.90-91)
- Development of a new **Billabong Trail** (pp.90-91):
  - Temporary mown trail leading southwards from Kellys Swamp, passing around the Billabong and returning via the levee, with views across the Reserve
  - A footbridge across Jerrabomberra Creek downstream of the silt trap, enabling a link trail between the Kellys Loop and (Jerrabomberra) Creek Walk  
This would enable almost total separation of pedestrians and cyclists within the Reserve, and may open up options to exclude domestic pets and animal pests
  - Crossing at the upstream end of the silt trap - causeway for machinery, stepping stones for walkers  
This proposal needs to be related to potential diversion of the cycleway around the south-eastern corner of the Reserve, or across the northern end of the Silt Trap, to join Dairy Road (p.71)
- Priority for **expanded woodland planting** adjacent to Fyshwick, to provide visual screening from the Wetlands Foreshores Business Park (p.83)
- **Interpretation/education** (pp.92-93) to address:
  - wetland forms and values, including cutoff meander, landfill / LBG protection works / silt trap / levee floodplain modifications (pp.13-14), and any new stormwater or pollution control development (p.51)
  - Tertiary terrace gravels (p.13)
  - aquatic mammals, particularly platypus (p.54)
  - cultural heritage relating to: Duntroon windmill; flood history; sand & gravel extraction; Soldier Settlement leases; dairying, particularly Dairy Lease No.2 (Kelly's Farm / Kanbra Jersey Stud) (pp.43-49)
  - use of entry points to present educational and interpretive messages on values of the wetlands and to reinforce that domestic pets are excluded from the Reserve (p.70)  
This needs to be related to development of the new Billabong Trail (pp.90-91)

*Jerrabomberra Wetlands – Directions Paper*

**Conservation, Education & Recreation (Zone 3)...continued**

*Options to improve management of values...continued*

**Kellys Swamp**

- **External context:** Adjoins directly the Dairy Road corridor, public access  
Stormwater includes discharge from the southern part of the Fyshwick Sewage Treatment Plant (p.20)  
Treatment Plant ponds provide complementary habitat for waterbirds (p.38)
- **Redesign of the carpark** at Kellys Swamp (Dairy Road) to reduce negative impacts and to address issues related to security and aesthetics (p.86)
- Retention of the **Birrigai office**, pending development of additional operational infrastructure, and consistent with interpretation of the educational use of the site  
Consideration of implications and opportunities if the office area is developed as a hub for environmental community groups  
Removal of surplus Birrigai sheds, consistent with interpretation of Kellys Farm/ Dairy Flat Farm site  
Expansion of the existing office carpark to cater for overflow bus parking and organised groups (p.86)
- Consideration of **extending duration of water availability** in Kellys Swamp, holding at least a small pool over the mid- to late summer period, if this is desired in the future (p.81), consistent with duty of care to minimise aircraft bird strike risk (pp.55-57).  
The aim is to prolong presence of waterbirds for viewing, without preventing natural cyclic drying-out of most of the wetland.  
‘Topping-up’ (by piping from elsewhere) is not feasible because of this wetland’s aquifer connection. This suggests:
  - Increasing depth of a section of the bed a further 300mm into the underlying aquifer to extend inundation; or
  - Re-establishing hydrological connection with Jerrabomberra Creek.
  - Maintenance of periodic inundation zones and protection e.g. from cattle grazing; enhancement where viable (p.54)
- Periodic drying-out of Kellys Swamp and mesh screening of the piped inlet to **remove Common Carp** and lessen reinvasion, to reduce turbidity and help manage the spread of Typha and other water plants (can be included in interpretation / education) (p.60)
- Reconsideration of **adjacent vegetation types** around Kellys Swamp for habitat diversity and interpretation / education.
  - Considering moist grassland to the west as a distinctive habitat element of Kellys Swamp (p.34)
  - Encouraging self-establishing species or planting with sedges, grasses, rushes (p.54)
  - Establishing varied grassland management regimes to promote a mosaic of different habitats and associated fauna (p.54)
  - Development and interpretation of a long-term replacement strategy to increase the value of grassland for a range of fauna as habitat and foraging area (p.54)
  - Establishment of planted woodland on selected areas to form a mosaic and offer ‘stepping-stones’ across an otherwise open landscape for both terrestrial and avian fauna (p.54)

Continued →

## Jerrabomberra Wetlands – Directions Paper

### Conservation, Education & Recreation (Zone 3)...continued

#### Options to improve management of values...continued

#### Kellys Swamp...continued

- Completion of Kellys Loop trail and connection to other **walking trail loops** (pp.90-91):
  - Completion of a connecting boardwalk to form a loop around the entire Kellys Swamp, with easy grade and much of it accessible by wheelchair Parking is at the Kellys carpark
  - Connection with a new Billabong Trail leading southwards from Kellys Swamp, passing around the Billabong and returning via the levee, with views across the Reserve; and a potential link trail between the Kellys Loop and the Creek Walk on Jerrabomberra Creek
  - Consideration of protection measures to restrict access to wetland areas inside the Kellys Loop trail, as an area of higher value
- Provision of additional **infrastructure along the cycle path** (fountain, bike rack, signage) to encourage visitors into the Reserve (p.87)
- Development of procedures and approaches to enable **temporary closure of hides** if breeding is occurring, especially for those species which breed in colonies or are tree nesters, and inclusion of this in interpretation / education.

Without nearby habitat to which they can move if disturbed, many such bird species are not likely to remain at wetlands with high levels of disturbance e.g. Kellys Swamp.

A restricted area of approximately 100m radius may suffice, applied when the species arrives (p.74)
- **Interpretation/education** (pp.92-93) to address:
  - wetland forms and values, natural drying-wetting cycles, control of Common Carp
  - cultural heritage relating to: Soldier Settlement leases; dairying, particularly Dairy Lease No.2 (Kelly's Farm / Kanbra Jersey Stud); Dairy Flat Education Centre; Birrigai (pp.43-49)
  - use of entry points to present educational and interpretive messages on values of the wetlands and to reinforce that domestic pets are excluded from the Reserve (p.70)

This needs to be related to development of the Kellys Loop and associated link to the Creek Walk (pp.90-91), and to any opportunities for complementary interpretation / education offered by proximity to the Fyshwick Sewage Treatment Plant ponds (p.79)

