

# Lake Burley Griffin and Lakeshore Landscape Heritage Report

## Introduction

Lake Burley Griffin heritage area includes all the lake waters from Scrivener Dam to the confluence of the Queanbeyan and Molonglo Rivers, the waters of Jerrabomberra Creek, Jerrabomberra Wetlands Reserve and the mouth of Sullivans Creek. The heritage area includes the all the open space lake landscape of parks, open spaces reserves, arboreta, wetlands, road reserves, walkways, and bikeways. The area is part of the Designated Areas, owned and managed by the Commonwealth of Australia.

The heritage significance of Lake Burley Griffin has been well documented in several reports that include *Lake Burley Griffin Conservation Area*, nomination to the former National Estate (2003), *Lake Burley Griffin and Lakeshore Parklands* nominated to the National Heritage List (2011 and 2013), *Lake Burley Griffin and Adjacent Lands* nominated to the Commonwealth Heritage List (2010) and the *Lake Burley Griffin Heritage Assessment* Final Report by Godden Mackay Logan (GML) (2009). The heritage report prepared for the LBG website is a compilation of the information in these studies. This heritage report desires to be inclusive of heritage at all levels, from local level to national level. We recognise that some values could have been overlooked and welcome comments.

The report is presented in 4 parts:

- Heritage Values
- History
- Description
- References

## Heritage Values

*In this report, heritage values are described against the Commonwealth Heritage Criteria therefore as having significance to the Commonwealth at a local level. However many of the values have been described in reports as being of national significance, that is of outstanding value to the nation.*

### Criterion A

#### Course and pattern of history

In the course and pattern of Australia's history, Lake Burley Griffin and Lakeshore Parklands exists as a major component of the Griffin plan that Australians had the foresight to accept and implement as the national capital. Lake Burley Griffin and Lakeshore Parklands are of outstanding significance in Australia's history as major components of the prize winning plan for Canberra, a city written into the nation's founding Constitution.

The idea of a lake as a central feature of Canberra emerged as a part of the 1909 proposals for the site for the national capital. The surveyor, Charles Robert Scrivener, who was instrumental in the selection of the site for Canberra gave one of the reasons for recommending the Canberra site as the opportunity afforded for 'storing water for ornamental purposes at reasonable cost.

Griffin's lake was designed to create an ornamental water feature using the Molonglo River, which passes through the centre of Canberra and covers a flood plain with some karst features. His practical motive was the control of the flood plain for climatic amelioration. The lake, developed from its initial design, lies astride the intersection of the main 'land axis' of the city extending from Mount Bimberi to Mount Ainslie and the 'water axis' that extends from Black Mountain across the three central water basins. The Griffin vision for the lake system also reflects landscape water systems established in America towards the end of the 19<sup>th</sup> Century in the works of Frederick Law Olmsted, with the inclusion of arboreta, parks, gardens, naturalistic landscapes, wetlands and landscape features with strong evergreen planting at the Eastern and Western lake horizons.

Modifications to the formality of east and west basins in the 1960s along with the removal of East Lake reduced the size of the original Griffin lake plan. The impoundment of the lake waters by Scrivener Dam in 1964 and the construction of the two bridges Commonwealth Avenue Bridge and Kings Avenue Bridge in the 1960s crossing the 11 km long lake were engineering accomplishments of the era. The extensive lake landscape was established by surveyors, bureaucrats, urban planners, engineers, architects, horticulturalists, landscape architects, hydrologists and scientists who respected Griffin's design and developed the most successful urban lake landscape in Australia that provided the lake landscape setting and the landscape setting to the two bridges.

The lake waters are formed into three basins, bays and a lake with the impoundment waters mostly from the Molonglo River Catchment, Jerrabomberra Creek and Sullivan's Creek. Islands are present in the lake water. Since the inauguration of the Lake and its landscape surrounds there has been continual landscape development

From its design inception the lake has been the centrepiece of the central national area of Canberra, forming an important part of the immediate foreground of the Parliamentary Zone and the city's main recreation zone. Its parklands have become a venue for national

memorialization and for national and local events and local citizen recreation.

## **Criterion B**

### **Rarity**

Excerpt from *Lake Burley Griffin Heritage Assessment Final Report*, Godden Mackay Logan (GML) (2009):

Lake Burley Griffin and Lakeshore Parklands, is outstanding to the nation for its rarity as a designed urban lake and green system that brings together the outstanding works of planning, engineering, landscape design and landscape development to create the magnificent urban lake that is the centre-piece of Australia's national capital

As the water axis of Griffin's plan for Canberra, it plays a unique role in realising the geometry of Griffin's plan and is the core of the most ambitious and most successful example of twentieth century urban planning in Australia'.

There are features in the lake and lake landscape that are rare in Australia as noted in the report *Lake Burley Griffin Heritage Assessment Final Report*, Godden Mackay Logan (GML) (2009):

- The German designed and built hydraulically operated fish belly flap gates of Scrivener Dam, which allow for a precise control of water levels. The fish belly flap gates are rare in a national context.
- The large surviving grassy woodland area now modified to grassland, at Yarramundi Reach displays significant characteristics of the natural temperate grasslands community. The area is listed in the ACT Lowland Native Grassland Conservation Strategy as a 'Category 2' Temperate Grassland Site.<sup>6</sup> Through this listing, it is also included as a Threatened Ecological Community under the EPBC Act. The grassland at Yarramundi Reach also provides habitat for the striped legless lizard (a declared threatened species under the Nature Conservation Act 1980 (ACT), and listed as a threatened species under the EPBC Act) and Perunga grasshopper (a declared threatened species under the Nature Conservation Act). The natural value is a combination of a remnant of pre-European vegetation community, an occurrence of a listed threatened ecological community and the provision of habitat services for listed threatened species.
- The yellow box-Blakely's red gum woodland community of Stirling Park is listed as a threatened ecological community under the EPBC Act and is noted in the ACT Lowland Woodland Conservation Strategy<sup>7</sup> as a 'lowland woodland on National Land'. The community also provides habitat for button wrinklewort (a declared threatened species under the Nature Conservation Act, and listed as a threatened species under the EPBC Act). The habitat of this species within Stirling Park and the Majura Field Range has recently been nominated to the ACT Heritage Register.<sup>8</sup> The natural value is a combination of a remnant of pre-European vegetation community, an occurrence of a listed threatened ecological community and the provision of habitat services for listed threatened species.
- Wetland habitats at Yarramundi Inlet, Acacia Inlet and Warrina Inlet, comprising reed beds, fringing terrestrial vegetation and open water, provide habitat for a diverse population of waterfowl and land birds. The JAMBA<sup>9</sup> listed Latham's snipe is recorded from these wetlands. This species is listed as a Migratory Wetland Species under the

EPBC Act. Other locally rare species recorded here include the greater crested grebe, the little bittern, the little grassbird, and the musk duck. The natural heritage value of these habitat areas is part of the listing of Lake Burley Griffin as an Indicative Place on the Commonwealth Heritage List and the Register of the National Estate.

- The aquatic ecosystem of the lake provides a habitat for the Murray cod, which is listed as a threatened species under the EPBC Act. The natural value here is the provision of habitat services for listed threatened species.

### **Criterion C**

#### **Research Potential**

Excerpt from *Lake Burley Griffin Heritage Assessment Final Report*, Godden Mackay Logan (GML) (2009):

- Lake Burley Griffin, in the context of Griffin's Plan for Canberra, its subsequent realisation as a designed landscape, the original Griffin plan and later design overlays are all the subject of significant and ongoing research in the areas of urban planning, architecture, landscape architecture and the history of those subjects, as well as research into the work of key practitioners: Walter Burley Griffin, Marion Mahoney, John Sulman, Charles Weston, Lindsay Pryor, Sir William Holford, Dame Sylvia Crowe, Richard Clough, Peter Harrison, Trevor Gibson, and John Overall.
- The design of some of the features of the lake, including the German designed and built fish belly flap gates of Scrivener Dam and the bridges provide the opportunity for further research and teaching potential.
- The occurrence of threatened species in the Yarramundi grasslands (striped legless lizard and Perunga grasshopper) and at Stirling Park (button wrinklewort), and threatened ecological communities (yellow box—Blakely's red gum woodland and temperate natural grassland) provide opportunities for ecological research of habitat and population relationships. The lake's wetlands offer similar opportunities for the study of resident and migratory birds.
- The Lake Burley Griffin Management Plan notes that the lake presents opportunities for research into freshwater ecosystems<sup>11</sup>; this would, however, be limited to the context of artificially impounded water bodies in urban environments.
- The Indigenous archaeological sites possess research potential as evidence of the traditional lifeways and economy of Aboriginal people in this region prior to European settlement.

### **Criterion D**

#### **Exemplar of design style**

As a designed landscape from the early 20th Century, Lake Burley Griffin and Lakeshore Parklands embodies a green water system of river, formal basins, naturalistic lake with wetlands and islands impounded by a dam and spanned by two gracious early twentieth century bridges. The surrounding parklands contain a series of landscape expressions that range from formal areas with a predominance of hard landscaping, to planted gardens, recreation and horticultural parks, naturalistic landscape areas, wetlands and arboreta that flow together as an entire lake perimeter parkland. Also as 20th Century designed landscape, it embodies contemporary ideas on the importance of landscape as an urban

design and social element. There is no other city lake in Australia that has such a central designed lake and landmark feature. The lake system design style in its original form is typical of urban park chains present in the American work of Frederick Law Olmsted.

The outstanding merit of Griffin's design is the attention he paid to the natural landform. The natural terrain of the Molonglo flood plain needed only a little help from the hand of its designer for its transcendence into magnificent ornamental waters; likewise the gentle slopes of the foreshores for transformation into parklands, natural gathering places for the enjoyment of spectacle on the water, enjoyment of the national imagery of the parliamentary triangle and scenic vistas of rare relief in the heart of a city. The scale of the lake basins remains perfectly in harmony with the surrounding natural environment while restraint continues to be exercised in maintaining low scale built form along the foreshores.

Griffin demonstrated in his design for Canberra that water, spaces and horizontality were key elements. Marion Mahoney Griffin's renderings aesthetically demonstrate the unbroken horizontal plane of the lake waters, retaining walls and vegetation in the lake edge space. The lake edge landscape spaces are the intentional interface between the city and the waters with the predominantly intact landscape perimeter promoting a flowing horizontal visual expression.

During the construction and establishment of the lake in the early 1960s, the Griffin inspired landscape area was overlain by a contemporary informal landscape style, led by Richard Clough, head of Landscape Design for the NCDC who collaborated with English colleagues, William Holford and Sylvia Crowe. Clough softened some of the lake boundaries, established structural planting and with advice from Crowe instigated an ornamental landscape design in Commonwealth Park.

## **Criterion E Aesthetic**

Lake Burley Griffin and Lakeshore Parklands is outstanding to the nation for its beauty and other aesthetic properties that is highly valued by the Australian community. It provides a tranquil place, a central city oasis and a landscape setting for the many naturalistic vistas of landscape and water. It is the central core of waters and landscape that is linked to tree covered hills and distant mountains by the city's fundamental geometry of its land and water axes. The lake and its parklands provide a reflective setting for the national monumental architecture along its southern side of the Central Basin. The lake waters and dark rim of water edge plantings add a reflective and in at times misty ethereal dimension to the Central City. The lake and its landscaped surrounds provide a forecourt vista for national buildings such the provisional Parliament House and Parliament House.

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The scale of the lake basins remains perfectly in harmony with the surrounding natural environment while restraint continues to be exercised in maintaining low scale built form along most of the foreshores.

At a time almost a century after the initial design, the lake shore offers serial views and

vistas loved by the community, documented in the Study of the Social Value of Lake Burley Griffin and its Setting. The lake waters unify the city, the calm, quiet, peaceful presence of the lake, the reflective qualities, and visual diversity of the lake and lakeshores from the designed landscapes to the more natural and 'organic' areas at the eastern and western extents. Bird life on the lake waters adds interest and ephemeral qualities. Vistas are a critical aesthetic feature and include, vistas across the lake to the Parliamentary Zone and Parliament House, from the land axis in the Parliamentary Zone to Mount Ainslie, along the water axis from Black Mountain, along the length of the lake to the National Arboretum. The many moods of the lake provide an ethereal quality.

The Water Axis runs from Black Mountain across West Basin, through Central Basin where it is and parallel to the southern shore of the Basin and disappears into Jerrabomberra Wetlands.

The lake parklands provide a variety landscapes that offer a range of aesthetic experiences. The landscapes components extend around the basins and lake shores such as: formal hard landscapes of the southern Central Basin, decorative gardens of Lennox Gardens; the arrays of mature plantings, gardens, spaces and tiered water features of Commonwealth Park; the natural landscape of Black Mountain Peninsula and the West Lake shores, the arboreta plantings, mature trees of horticultural plots and windbreaks at Weston Park, naturalistic indigenous plantings of Grevillea Park and Kings Park, the river environment of Molonglo Reach and the bird habitat area and wetlands of Acacia Inlet, Yarramundi Inlet, Warrina Inlet and Jerrabomberra Wetlands.

Significant vistas across the lake and along axis direct the eye to terminal features. The open Rond Terraces designed as a low open auditorium by Griffin, provide a visual sweep to the Land Axis Vista as it leads the eye from the plane the lake to Mount Ainslie, and as well, provide an open area for experiencing the vista to Parliament House. Along Commonwealth Avenue the lake shore parks sweep the vista experience to City Hill. The vistas are highly valued by the community and visitors. All of the landscape offers venues for recreation while Commonwealth Park and Rond Terraces also offer venues and spaces for celebration, recreation and games, and have an aesthetic ambience of joy and fun.

#### **Criterion F Creative and Technical Achievement**

Lake Burley Griffin and Lakeshore Parklands is outstanding for its design and creative achievement that is of significance to the Australian nation for being an essential component of the Griffin visionary plan that links and unifies the land and water axes and vistas of the Australia's most successful urban plan.

Griffin demonstrated in his design for Canberra that water, spaces and horizontality were key elements. Marion Mahoney Griffin's renderings aesthetically demonstrate the unbroken horizontal plane of the lake waters, retaining walls and vegetation in the lake edge space. The lake edge landscape spaces are the intentional interface between the city and the waters with the predominantly intact landscape perimeter promoting a flowing horizontal visual expression.

Griffin, inspired by the great American landscape architect Frederick Law Olmsted had a love of geography and botany. He gave to Australia a unique landscape vision to make a city where landscape features, low level buildings and an abundance of spaces are the most significant features. The land and water axes connect the mountains and hills with

the central city waters. The triangular geometric pattern bisected by the axes sets the framework for the national capital and city's urban form.

The lake waters embody the water axis that intersects with the land axis in the Central Basin. The lake waters and parklands is a major segment of the captured land axis view that engages the eye, sweeps down from Parliament House, fans out at the lake and then sweeps up at the Rond Terraces to terminate in the now forested conical Mount Ainslie with the war memorial nestled at its base, and the return vista, from Mount Ainslie to Parliament House is equally impressive.

The lake and the lakeshore parklands as a critical component of the central vista expanse are Australia's outstanding landscape design achievement that has been respected and safeguarded during Canberra's one hundred years of planning and development. Although major planning additions were undertaken by Sir William Holford in 1955 that reduced the size of the lake from the original larger Griffin delineation, the Holford plan respected the open landscape space of the Rond Terraces and Griffin's planned, the park that became Commonwealth Park.

The development of the graciously curved Commonwealth Avenue and Kings Avenue Bridges along with the Carillon and Captain Cook Jet help focus the vista within the Central Basin. Subsequent landmark buildings, planning and landscaping work undertaken by the eminent planners and landscape architects of National Capital Development Commission (NCDC) have all respected the visual masterwork of the lake, lakeshore parklands and land axis vista as well as the West Lake naturalistic and public recreation area.

The Lake Burley Griffin and Lakeshore Parklands design was scientifically underpinned by hydrology flow research and by structural engineering of the dam, the bridges and the retaining walls. Landscaping design and works including the shaping of the lake and its islands, creation of terraces, retention and reinforcement of native plantings, water edge plantings, and mass plantings for seasonal and contrasting colour, form and spaces.

The landscape design and works was the largest landscape project undertaken by the NCDC under the direction of Richard Clough and implemented by the Parks and Gardens Section of the Department of the Interior. The NCDC was awarded the Australian Institute of Landscape Architecture Award of Landscape Excellence in 1986 for its Lake Burley Griffin entry.

The structural features of lake landscape, Scrivener Dam, and Commonwealth and Kings Avenue Bridges are individually outstanding achievements of design of technology. Commonwealth Park, Kings Park, Lennox Gardens, Weston Park, the Peace Park, and Jerrabomberra Wetlands Nature Reserve and West Lake Naturalistic area are major features linked by landscaped foreshore open spaces to form the lakeshore parkland. The combination of the structural and landscape features all contribute to the greater landscape masterwork of Lake Burley Griffin and Lakeshore Parklands that is outstanding to the nation for its technical and creative achievement.

### **Criterion G Social Value**

The Lake Burley Griffin and Lakeshore Parklands is a popular nucleus of the city attracting countless visitors to its walks, cycle paths and picnic grounds with the recently established

R.G. Menzies' walk being a most popular and well utilised recreation resource. The landscape area of Rond Terraces links Commonwealth Park and Kings Park and due to its openness to enable the major land axis vista it is a significant space that is the venue for national and international events such as triathlons. Commonwealth Park is the venue for Floriade that brings thousands of visitors annually to Canberra. Rond Terraces is the gathering area for visitors and the local community enjoying celebratory events such as night fireworks, monument lighting, and social cultural entertainment events such as 'Stopera' operas several of which have been held at Rond Terraces.

The social heritage importance covering attachment by community members, the use of the lake and parklands for recreation, promenading, enjoying celebratory local, biking, rowing, picnicking, swimming national and national international events such as triathlons by the Canberra community and visitors to the national capital is substantiated by the reports by Pipitone, Marshall et al and Godden Mackay Logan.

Excerpt from *Lake Burley Griffin Heritage Assessment Final Report*, Godden Mackay Logan (GML) (2009: 185)

For Australians

Lake Burley Griffin plays an important role in representing the image of Canberra to the nation—and potentially internationally. Its symbolic and landmark value as part of the national capital's landscape is well recognised and widely valued.

For Australians, especially those who have visited Canberra, Lake Burley Griffin is a well-recognised symbol of Canberra, forming the centre point of the national capital designed landscape. The evidence gathered in the study, although limited for the Australian and international community, demonstrates that it is Lake Burley Griffin in its landscape context—especially as part of the Griffin plan—that is valued.

For the Canberra Community

Lake Burley Griffin is highly valued by the Canberra community as a unifying element in an iconic cultural landscape that helps define their city as the nation's capital, and contributes significantly to their identity, lifestyle and sense of purpose. The achievement of creating the lake has been, and continues to be, regarded with pride by the Canberra community.

Lake Burley Griffin is strongly recognised by the Canberra community as an important element in the Canberra landscape, frequently visible and ever-present in daily life, acting as a reference point and a backdrop. Lake Burley Griffin has a powerful presence.

Lake Burley Griffin is highly valued by the Canberra community as an important community gathering place within the heart of the city, used as the setting for large public events, and a place experienced and enjoyed by Canberrans for over 35 years for leisure and as a visual delight.

Lake Burley Griffin is highly valued by the Canberra community as a place that represents the eventual realisation of the Griffin design for Canberra, creating an arena for community celebration and engagement within a highly-regarded designed and natural landscape.

Lake Burley Griffin is highly valued by the Canberra community as a place of personal memory and experience.

The evidence gathered in the GML study demonstrated that the Canberra community has a strong attachment to the lake as a whole, as well as to a range of individual places on



and around the lake, and the lake within its immediate and wider landscape context. These values were shared across the community, irrespective of the nature, length and frequency of association.

## **Criterion H**

### **Associational Value**

Lake Burley Griffin and Lakeshore Parklands is most famously associated with Canberra's eminent designer, Walter Burley Griffin and was named in his honour when Prime Minister Robert Menzies inaugurated the lake in 1964. It also has a strong association with Charles Robert Scrivener, the surveyor who investigated and recommended the Molonglo River and Limestone Plains for the site of Canberra and after whom Scrivener Dam is named. It has an association with Griffin's wife and partner, the architect Marion Mahoney Griffin who shared Griffin's love of nature and was responsible for the exquisite renderings of the prize-winning plan. Sir Robert Menzies and John Overall who played a pivotal role making the lake happen along with the English urban planner, Sir William Holford who was commissioned to finalise the plan of the lake and lakeshore parklands and Dame Sylvia Crowe the English Landscape Architect commissioned to plan the gardens of Commonwealth Park. Thomas Charles Weston and Lindsay Prior also have a strong association for their role in afforestation of the parklands and arboreta prior to the lake works and its filling.

The National Capital Development Commission as the key authority responsible for the engineering, hydrological and landscaping works Lake Burley Griffin has a lasting association, the National Capital Development, Peter Harrison, Chief Town Planner and Richard Clough as chief landscape architect for the NCDC were responsible for directing the design and implementation of all the landscaping works during the construction of the lake. All the associations are of outstanding national value.

## **Criterion I**

### **Indigenous Tradition**

Excerpt from *Lake Burley Griffin Heritage Assessment Final Report*, Godden Mackay Logan (GML) (2009: 187)

Although Lake Burley Griffin Study Area holds significance for the current Indigenous community, no group was of the opinion that the lake itself was significant as part of Indigenous tradition. The prevailing view of Indigenous stakeholders was, however, that the Indigenous sites in the study area, and below the surface of the lake, meet the threshold for Commonwealth Heritage Listing under this criterion. Representatives of Aboriginal stakeholder groups have indicated that each of the recorded sites is valued by the local Aboriginal community as important as part of local Indigenous tradition. These sites are the 12 previously recorded sites at Yarramundi Reach and the possible Aboriginal scarred tree at Stirling Park.

In addition, 12 of these places have been formally recognised by the ACT Government as being places of heritage significance, and have been listed as Registered Places on the ACT Government's Heritage Register.

The sites, comprising isolated finds and small artefact scatters, remain as the only evidence of the traditional lifeways and economy of the Aboriginal people prior to European settlement. This evidence has remained despite the drastic changes to the

landscape that occurred as a result of the flooding of the valley floor and the activities that have taken place in the immediate vicinity of the artefacts, which include past agricultural activities, tree clearance, tree plantings, commercial forestry activities and infrastructure (roads, buildings) construction. The site of the former Old Canberra Hospital on Acton Peninsula also holds value for the Ngunnawal because a large number of the current Indigenous community were born there, have been treated for illnesses, or have died or lost family members at that place. Sites of birth and death hold significance to the Ngunnawal.

## History

The following information is compiled from the Lake Burley Griffin Conservation Area nomination to the National Estate (2003) repeated in the Commonwealth Heritage List Nomination (2010) the nominations to the National Heritage List (2012 and 2014) and the *Lake Burley Griffin Heritage Assessment Final Report by Godden Mackay Logan (GML)* (2009). New information has been included and referenced.

### Planning History

Coinciding with the opening of Parliament in 1901 was the 1901 congress of Engineers, Architects, Surveyors and Others Interested in the Building of the Federal Capital of Australia. The congress advocated that the site for the Federal Capital should have an abundant water supply to furnish the creation of lakes, gardens and fountains.

The government surveyor Charles Scrivener investigated a number of possible sites for Australia's federal capital and recommended the Canberra site on the Molonglo River because of the ability to utilise waters of the Molonglo and Queanbeyan Rivers for ornamental waters for the city. The site for the city was agreed by the Prime Minister and the Premier of New South Wales. The Commonwealth then negotiated rights over the Molonglo and Queanbeyan Rivers. In order to incorporate a lake in the city planning, gauging weirs were established on the Molonglo near Yarralumla Dairy and on the Queanbeyan River near Bradley's Creek.

In 1911 a design competition for planning the federal capital city in the Molonglo Basin, was launched with requirements for ornamental water, parks and gardens. Locations for weirs and river gauging flow stations were included. A thousand copies of the conditions and design material were sent to 10 cities around the world and 137 design entries were received, including 42 Australian entries.

At the time of the competition, two major urban planning philosophies 'City Beautiful' and 'Garden City' coincided. The City Beautiful style consisted of a conceptualised city with integrated classical style urban buildings, public parks and tree lined streets building as a campaign against city ugliness. The style was a mix of natural beauty, formality, axes neo-classicism and the Beaux Arts in its combination of architecture, landscape, sculpture and water features (Freestone p160-163). Garden City planning initiated by Ebenezer Howard to combine the best features of town and country and interpretations of the style were implemented in Australia's early Twentieth Century suburbs. These styles were contemporary references for the concept for landscape and water scheme being dominant in the design for the Federal Capital. The engineer, JA Smith, was one of the majority of judges who awarded first prize to Walter Burley Griffin in 1912 for his entry in the Federal Capital Design Competition with plans were exquisitely rendered by Griffin's wife, Marion Mahony Griffin.

*(From the NHL nomination 2012)*

Walter Burley Griffin's design for Canberra embodied the existing landscape as a major feature. Griffin's plan was superior to other competitors, blending the mountains and hills as features of the geometric layout, and incorporating his philosophy of equality,

democracy and progress. The water feature of the lake crossed a grand triangle, which linked the functions of the city and had three minor hills as its vertices (Firth 2000).

Griffin, having worked in the Chicago offices of Frank Lloyd Wright was knowledgeable about natural geography and botany and in his American landscape work he used indigenous plants and sought 'to rehabilitate landscapes to recapture primeval nature (Vernon 1998: 91). Griffin was known to have been inspired by the 1898 World's Columbian Exposition, Chicago and its planner Daniel Hudson Burnham with the foreshore central park and urban perimeter forests (Harrison 1995: 14-15) designed by landscape architect Frederick Law Olmsted. The major natural feature of the Chicago Exposition was water as a system of basins, canals and a lagoon. By the time Griffin was entering his professional life, Olmsted was renowned for his major landscaping achievements such as Central Park, New York and the Boston Park System, promoting overall naturalistic landscapes with variety of scenery, including arboreta, woodlands, picturesque interludes, open meadow like areas and the restoration of fens (wetlands) with their waving reeds. In the late 19th Century the 'gardenesque' style was at its heyday but its excesses were an anathema to Olmsted and the style never employed in his landscapes (Zaitzevsky 1982: 21).

The original design for the lake presented in Walter Burley Griffin's award winning plan for Australia's capital city of 1912, was modified slightly in 1913 after he had seen the site and been appointed as Federal Capital Director of Design and Construction. The 1913 plan accompanied by the Report Explanatory of the Preliminary General Plan 1913, consisted of a formal central water basin of curved edges, two circular formal basins to the east and west of the central basin and larger lake water bodies further to the east and west. The water system of basins lakes formed part of Griffin's geometry for the Canberra Plan. The extensive east basin was at a higher level and was planned to be fluctuating so that the central basins levels could be maintained. In 1920, after six years of enduring obstacles created by bureaucrats and politician, Griffin resigned from his government position in December (Kabos 2006-14).

From 1925 the Federal Capital Commission headed by Sir John Butters took control of development of Canberra with greater statutory powers. A proposal to construct a dam in 1926 was postponed. Extensive planting under the office of Parks and Afforestation was undertaken, and Griffin on a visit to Canberra in 1926 pleaded for more native flora planting. Issues regarding the development of the lake were managed by Percy Owen, the first Director General of Works.

Engineering research and analyses over the next 50 years considered how to implement Griffin's concept of central unifying bodies of water in the Molonglo flood plain. The Depression delayed the development of Canberra. In 1938 the Minister for the Interior announced in Parliament, the appointment of a board of architectural experts, the National Capital Development and Planning Commission (NCDPC) to monitor the development of Canberra. The development of the lake was suggested on a few occasions. The NCDPC removed the East Lake basin and the railway connection to North Canberra as designed by Griffin, from the plans for the Lake.

### **Post World War II History**

By the 1950s, Canberra had a generation of residents and consisted of well-spaced suburbs that included extensive gardens and tree planting, with the north and south areas separated by the Molonglo river flats. A number of schemes for Canberra's lake were

proposed such as the Ribbon of Water Scheme in 1953 and the Molonglo Lakes in 1953 as an alternative to West Lake with a dam at Acton (Hince 1994: 183). The Senate Inquiry 1954 - 55 'to inquire into and report upon the development of Canberra in relation to the original plan and subsequent modification and matters incidental thereto' reversed the decision for a chain of lakes and West Lake was found to be desirable, and the racecourse and golf links in the flood plain were removed. The Inquiry Committee also recommended a single authority to control Canberra headed by a Commission with guaranteed funding, a central park to be developed, access to Canberra's vistas and look-out points, and a body of experts to advise on aesthetic standards (Reid 2002, p.134).

Prime Minister Robert Menzies, during the 1950s, appointed Sir William Holford, a British planner to advise on how to proceed with the planning and building of Canberra. William Holford was invited by Menzies in 1957 to review the Griffin plan (Firth 2000:145 ). Holford proposed a reduction in the size and formality of Griffin's plan for the lake, in order to follow the natural contour. However the presence of cavernous limestone at Acton prevented Holford's proposal for the dam wall at Acton (Butze 1987). The National Capital Development Commission (NCDC) Act was passed in 1957 and John Overall was appointed the Commissioner in 1958 (Reid 2002: 249).

With regard to civil engineering design, Australians were greatly influenced by American schemes for harnessing water to achieve soil conservation, irrigation, flood control and hydro power. The Snowy River Scheme had a significant effect on Canberra. It provided considerable technical expertise and the organisation of the Snowy Mountains Hydro Electric Authority was used as a model for the statutory authority of the NCDC. The NCDC had full responsibility for the lake and the planning team consisted of Clive Price, Executive Engineer (Design), Bill Minty, Lakes Project Engineer, Peter Harrison, Chief Town Planner and Richard Clough, Director of Landscape Design. During 1959 contracts were let for Scrivener Dam and work had commenced on the bridges. The main agencies for the design of the Lakes Scheme were William Holford and Associates, Guy Maunsell and Partners, the Department of Works, and Rankine and Hill.

### **Lake Earthworks**

The lake earthworks and dam were commenced in 1960 and works proceeded at great speed. By July 1962 the work on the dam was almost completed, the lake edge construction was nearly finished, top soiling and grassing of the parkland progressing, the ponds and footbridge in the Central Park, and the Rond Point Pool and jets completed (Altenburg 1993, pp 39). Cutting and filling in the West Lake area was used to form an island where Springbank homestead once stood. Another island was formed by cutting through a finger of land at Yarralumla, and an island in the Central Basin was formed near Kings Avenue Bridge. Extensive tree planting was undertaken with native and exotic species.

Kings Avenue Bridge was opened in 1962. Commonwealth Avenue Bridge incorporating stones from Waterloo Bridge, a gift from Britain, was opened in 1963. Despite encountering some difficulties in the dam foundations in 1962, Scrivener Dam was completed with the gates being officially closed on 20 September 1963 and the official impounding begun. The water reached the final level of 556 metres on 29 April 1964 and in April 1964 it was officially inaugurated by Prime Minister Menzies. The lake was named to commemorate the original designer of the city, Walter Burley Griffin. By giving Griffin's name to the most visually prominent element in the city the Government confirmed its confidence in the NCDC to interpret Griffin's plan (Firth 2000:183).

The cost of lakes scheme was given as \$5,039,050 for the cost of the dam, the crest gates, control building and ancillary services, the relocations of power lines, tree removals for the lake floor, the formation of lake basins and edge construction. After the lake filled, in 1964, recreation developments including a tourist ferry terminal, picnic facilities were constructed. In 1966/67 the Water Police Headquarters building was completed.

Two vertical memorials were installed in the lake a mile apart on either side of the land axis. The water jet is a memorial to James Cook (completed in 1969) and the Carillon completed in 1970, was a gift from the British Government to mark the 50th Jubilee of the founding of Canberra. A report, *An Open Space System for Canberra* in the 1970s resulted in increasing the recreational use of the lake.

### **Hydrology**

Although it had been suggested 1908 that the Commonwealth secure the water catchment for Canberra's proposed water features that never occurred. The Lake Burley Griffin Catchment Protection Scheme was established in the early 1960s due to concerns that the new lake could be subject to high levels of sedimentation due to the degraded state of much of its rural catchment. A tripartite scheme between the Commonwealth and State governments was designed to reduce siltation and ran from 1965 - 1998 covering the Molonglo and Queanbeyan River catchments and tackled the degradation of rural land, which began in the 1820s with the destruction of the 'chain of ponds' drainage networks and continued with tree clearing and overstocking.

Between and 1920's and 1950's, a number of reports to parliament were prepared on the form of future development of Canberra and hydrological data was collected about the Molonglo River flows with input from engineers. The NCDC recognized the importance of the lake, and was able to draw on the earlier studies and on the technical resources and hydrological data available through Commonwealth departments and authorities regarding the behaviour of the lake in terms of floods and droughts and of scour and siltation. Other studies provided information on water quality, effects of climate and health, hazards of unsightly margins, mosquitoes and midges and the possible disbenefits from changes in land uses.

Following the construction of and filling of the lake, work began to realign the Jerrabomberra Creek Waterway in 1968-69 to provide a bed load trap to minimise saltation into the Lake. In 1978 the Lake reached a critical condition of water quality with a major pollutant being Queanbeyan sewage effluent. The regulation of flow into Lake Burely Griffin was improved with the construction of Googong Dam on the Queanbeayan River, inaugurated in 1979. However, the original proposal for a regulating Dam on the Molonglo River has never been implemented.

### **Landscape Development**

Although Griffin brought new ideas in terms of landscape design to Canberra, these were mostly in terms of broad concepts. Griffin had designed formal and informal landscapes in America, loved nature and as a young man spent much time exploring the natural environment around his hometown, Chicago. When in Australia with his wife, Marion Mahony Griffin, compiled lists of native plants and their value in landscaping work (Clough and Gray, 1964).

The Molonglo River flats contained eucalypts, grasslands, exotic trees and pasture

grasses. Specific lake edge planting commenced in Canberra by Charles Weston, Superintendent of Parks, Gardens and Afforestation (1913-16) with planting along the shores of the future lake. Weston was given power to choose the nature of the trees to be planted and the style of planting. Griffin initiated *Cupressus* and *Cedrus* spp. plantings on bare hills on the western reaches of the lake and the more controversial plantation of Redwoods at Piallago that was to be East Lake Park (Gray 1999: 95-98). These two groups of plantings would have given the lake strong dark evergreen terminal parks at the eastern and western extremities. By 1915 Griffin developed a concept plan for a continental arboretum extending into his planned botanic garden at Black Mountain, to contribute to the ornamental and recreation setting of the city and be important for education.

Weston wished to reserve the land delineated by Griffin as the continental arboretum and plant it with nurse trees as a temporary arrangement but Griffin insisted on the immediate establishment of a large scale cork oak plantation as a commercial landscape venture (Gray 1999: 85-88). From 1922, Weston established a framework of trees on the western ridge behind what is now known as Regatta Point, using exotic and indigenous conifers. The Federal Capital Commission in 1923 recommended that tree planting should be in clumps to create the effect of copses (Gray, 1999 p 186), and Weston undertook informal tree plantings in other lakeshore areas, including clumps of trees and windbreaks in Weston Park above the 1825ft contour. Tree plantings around the lake were continued by Lindsay Pryor and David Shoobridge. Planting done by Pryor included the Westlake area, now known as Yarramundi Reach where advanced stock of deciduous trees as an arboretum was planted on the extensive grassland (Hince 1994).

Harry Oakman was appointed the first Director of Landscape, with an aim to provide facilities and landscapes at the suburban level in playgrounds, open spaces street trees, sport centres and roads, and at the Capital City level in lookouts, Lake and Parliamentary surrounds. Oakman was succeeded by Richard Clough. Clough was the first landscape architect employed by the National Capital Development Commission in 1958 and later became Director of the Landscape and Environment Branch.

By 1959 extensive landscaping in the lake area had been established while extensive natural native woodland landscape extended from Black Mountain down to Black Mountain Peninsular and opposite the proposed lake area – along Stirling Ridge (Clough and Gray 1964). Clough regarded broad landscape issues such as relating urban edges to landforms and the natural landscape of great importance. The design of the central area was essentially a formal composition in which the lake basins, ridges, avenues and buildings are to be framed and embellished by a strong pattern of planting. The NCDC accepted that: the character of natural landscape should be maintained; the existing brown-grey colour of the landscape should predominate but light fresh green should be used around the lake margins and darker conifers for boundaries and backgrounds; autumn colours should be fully exploited for the formal and dramatic parts of the landscape; flowering trees and shrubs should be massed in small enclosures; the Central Axis and Kings and Commonwealth Avenues should be planted formally; the scale of the planting of open spaces should be related to the expected use; and while preserving a sense of unity, the design should aim at creating recognizable character in specific areas (Altenburg 1993:32 -37).

The landscape around the lake was planned as a huge recreation park. Richard Clough using Holford's recommendation and his own studies produced an overall plan showing

the extent and treatment of the lakeside parklands. It was the largest landscape project undertaken by the NCDC and implemented by the Parks and Gardens Section of the Department of the Interior. It was done in two stages, the first involved the establishment of major planting in more than 400 ha of lakeside parklands in conjunction with the engineering construction of the lake. Quantities of topsoil were removed from the river flats and spread on sports grounds, street verges and stockpiled. The second stage involved the development of public and service facilities, landscape design around buildings, aquatic planting, installation of lawn irrigation and horticultural park development (Altenburg 1993:37) (Clough and Gray 1964).

In 1964 Dame Sylvia Crowe advised the NCDC on Commonwealth Gardens The Aquarium Pond (later Nerang Pool) footbridge was constructed as a two span in-situ concrete beam continuous over central pier and despite the success of the lake, the design for East Lake by Griffin has never been implemented,

### **Tree planting**

A great deal of early Canberra tree planting around the lake such as the plantings at Weston and Commonwealth Parks was undertaken under the direction of Thomas Charles Weston, Lindsay Prior, Harry Oakman, and others. Tree planting by the NCDC during the era of lake construction, is documented by Clough and Gray (1964:4). The work included total of 42,000 of container stock and 13,000 open rooted stock that was planted in during the years 1959-1963 (ibid:5).

Scientific aspects of aquatic plants and marine life were also investigated with the assistance of CSIRO. Dr Betty Philips, who had been an ecologist with the Snowy Mountains Hydroelectric Scheme in the 1950s and in June 1960 was appointed Botanist at the Canberra Botanic Gardens, commenced water edge experimental plantings.

Within the park are 200 cherry trees donated by the Japanese Prime Minister Ohira in 1980. A spring floral event named Floriade was developed as a Bicentennial celebration in 1988 and was such an outstanding success it has been an annual festival since that occasion.

### **Structural Engineering Works**

The original concept of Burley Griffin's series of formal basins with informal bodies of water up-stream and down-stream, became one large lake with one surface level (as suggested by Scrivener 50 years before), impounded and controlled by a single dam structure, and crossed by two major bridges.

Maunsell and partners in association with William Holford and Partners were the engineering consultants for the supervision of the Ponds area and all the central road works and the fountains. Messrs. Rankine and Hill were the consultants on the West Lake and West Basin areas. The Department of Public Works were responsible for the lake dam and East Basin. The contract for the dam was awarded to Citra.

Faults in the foundation bedrock of the river-bed at the dam site could have greatly delayed or increased the cost of the structure, but for post-tensioning techniques recently developed. The control of the water level at the 556 metre level (1825 feet) determined by the model test, was only possible with the new "fish belly" crest gates built in Germany. These gates also freed the dam from an awkward superstructure treatment, and allowed a road to run over it.



Apart from the dam wall, Commonwealth and Kings Avenue bridges constructed to span the lake, were feats of engineering accomplishment. Both were constructed with an elevation of a single geometrical arc formed by a continuous pre-stressed concrete box girder having a uniform depth of nine feet. Commonwealth Avenue Bridge as the major route to the Parliamentary Triangle, included design features of pillars in an Art Deco style. Prime Minister RG Menzies, 10 March 1962, opened Kings Avenue Bridge. Commonwealth Avenue Bridge was opened to traffic in November 1963 and formally opened by Prime Minister RG Menzies, October 1964.

An artificial wall was needed on the south bank with splays at right angles to Kings and Commonwealth Avenue bridges to facilitate the flow of the river through the half -circle it made from Fyshwick to Acton.

### **Social Use**

The western basin was most suitable for boating activities and recommended as an area that should be kept free of any non-conforming features. Activities proposed for the Lake included a triangular sailing course for West Lake, an Olympic rowing course, starting in East Basin near the Power house and finishing in the Central Basin, water skiing in East Basin and a boat harbour near Kingston. Lotus Bay and Yarralumla Bay were thought to offer the best facilities for yacht anchorage and related activities. In addition, boat hire, toilets, kiosks and restaurants, ramps, jetties and wharves were proposed.

The concept of the Central Park (later renamed as Commonwealth Park) was set in the Holford report, including the shape of the shoreline and the Aquarium Pond (that followed Griffin's plan).

The flood plain at Jerrabomberra wetland has been difficult to control although a wetland with rich bird life has developed from the series of natural and artificial drainage channels when the creation of Lake Burley Griffin obstructed and regulated the flow of the Molonglo River and Jerrabomberra Creek. It was designated as a Nature Reserve in 1990. The causeway included in the Griffin Plan that separated the East and Central Basins has never been developed.

Lake Burley Griffin was formally inaugurated by Prime Minister Sir Robert Menzies who named it in honour of the inspired Canberra designer, Walter Burley Griffin, who had died in India in 1937.

## Description

The following information is compiled from the Lake Burley Griffin Conservation Area nomination to the National Estate (2003) repeated in the Commonwealth Heritage List Nomination (2010) the nominations to the National Heritage List (2012 and 2014) and the *Lake Burley Griffin Heritage Assessment Final Report by Godden Mackay Logan (GML)* (2009). New information has been included and referenced. This description was prepared in July 2015.

### **Lake Burley Griffin and Lakeshore Landscape**

Lake Burley Griffin heritage area includes all the lake waters from Scrivener Dam to the confluence of the Queanbeyan and Molonglo Rivers, the waters of Jerrabomberra Creek that create the boundary of Jerrabomberra Wetlands Reserve and the mouth of Sullivans Creek. The heritage area includes the all the open space lake landscape of parks, reserves, wetlands, road reserves, and walkways. The open space areas include Commonwealth Park, Kings Park, Commonwealth Place, the NGA Sculpture Garden, the Peace Garden, Lennox Gardens that includes the Nara Garden and Canberra Chinese Garden. Weston Park and Black Mountain Peninsula Park that are woodland picnic area parks, Bowen Park a swan feeding site and Grevillea Park a loose space for casual events. Important natural areas; Jerrabomberra Wetlands, Acacia Inlet, Yarramundi Reach, Molonglo Reach and the native woodland of Stirling Ridge extending from the ridge into Attunga Point. It also includes the structural elements of the lake retaining walls, Scrivener Dam and Commonwealth and Kings Avenue Bridges that span the lake. Commemorative and memorial features include the Canberra Carillon on an island setting, Captain Cook memorial jet. The lake landscape is the settings for National institutions that border the lake include the National Library of Australia, the High Court of Australia, the National Gallery of Australia, and the National Museum of Australia. On the south side of the lake Yarralumla Bay and Lotus Bay provide venues for boathouses, water police and a Yacht Club.

Lake Burley Griffin covers an area of some 634 hectares and has a total volume of about 33,000 mega litres. It has a length of about 9 kilometres, an average depth of 4.5 metres and a maximum depth of 20 metres. Shore length is approximately 40.5 kilometres. The Lake surface is maintained at 556 metres (1825 feet) above sea level subject to temporary variations due to flood management requirements and other catchment inflow effects. The lake is also a sediment trap that helps protect the Murrumbidgee River and Burrunjuck Reservoir from excessive siltation. The flooding of Lake Burley Griffin has resulted in the creation of wetland habitats - the Jerrabomberra Wetlands.

Lake management is a Commonwealth responsibility administered by the National Capital Authority, with day-to-day management undertaken by arrangements with various agencies within A.C.T. Territory Government. Catchment protection in NSW was undertaken until 1998 under a Commonwealth – State Agreement.

### **Structures**

Scrivener Dam is a concrete gravity dam, 33 metres high and 235 metres long. Three sluice valves at the base of the dam are used to maintain the lake level. During low flow periods, water is released from Googong Dam to maintain the lake within .25 metres of its

normal level (NCPA 1995). Scrivener Dam spillway consists of 5 bays of free overflow crest, controlled by hydraulically operated "fish belly" flap gates, with capacity of 8,500 cubic metres per second (Smith and Coltheart, and C.J. Price). The dam structure incorporates a roadway that provides one of three crossings of the lake. The others, at Commonwealth and Kings Avenues, are major bridges. Each is a twin structure, with separate parallel carriageways.

Kings Avenue parallel structures use longitudinal precast pre-stressed concrete T beams forming separate carriageways, each of 7 spans totaling 270 metres. Underpass roads for exit and entry are provided at the south end only within the bridge spans. Kings Avenue Bridge was designed with wide piers to block out East Basin, viewed at the time as 'not so attractive'.

Commonwealth Avenue bridge structures are of 5 spans totaling 310 metres, of fully continuous pre-stressed design. It has a higher camber than Kings Avenue Bridge, a design feature to allow for yachts to sail beneath. The end pylons give added importance to the bridge as the main route to Parliament House. To provide an exit and entry cloverleaf layout, separate structures are built on the main bridge's south approaches, totaling 49 metres each, in 4 approximately equal spans.

### **Vegetation and Wildlife**

Original woodland trees and pre-Canberra plantings from pastoral properties remain in scattered locations in the lakes parklands. These include *Eucalyptus blakeli*, *E. melliodora* (Yarralumla), *E. bridgesianna* (Acton Peninsula), *Pinus radiata* and *Salix* spp. (Duntroon), *P. radiata* and *Cedrus deodara* (Yarralumla), *Cupressus macrocarpa* (Yarralumla and Lennox Gardens), *Populus nigra* 'Italica' (near the Hyatt Hotel), *Salix babylonica* (near Blundells Cottage and at Molonglo Reach). A great deal of tree planting was undertaken in the early Canberra years is present today as significant tree plantings such as the plantings at Weston and Commonwealth Parks. Extant tree planting for different regions of the lake, undertaken by the NCDC during the era of lake construction, is documented by Clough and Gray (1964:4).

Several of the groups of trees planted for the lake edge have been recognised as notable trees (Pryor and Banks 1991) and include *Taxodium distichum* (Weston Park, Black Mountain Peninsula and Nerang Pool) and *Salix fragilis* (Acton Park). Within Commonwealth Park are several commemorative trees and a number of notable trees, some of which are locally rare in Weston Park and the lakeshore arboretum (Pryor and Banks 1991).

Natural native woodlands of Black Mountain and Stirling Ridge remain as significant natural environments.

In ecological terms, the lake has created valuable wetland habitats, offers some protection against excessive siltation downstream, and the Dam fills an important flood control function. However, Lake Burley Griffin does not provide the necessary environmental conditions for the successful breeding of many introduced and native fish species and as a result does not maintain viable fish populations without regular restocking (Environment ACT 2000). Although the 1995 Lake Burley Griffin Management Plan recognises that despite being artificial in origin, the lake has become one of the most significant aquatic ecosystems in the ACT, many of its natural values are contained within the Jerrabomberra Wetlands Nature Reserve.

Despite the presence of exotic plants, the margins of the main water bodies of Jerrabomberra Wetlands provide significant aquatic habitat with a mix of rushes and sedges growing in conjunction with mainly exotic tree species such as willows *Salix* spp. and poplars *Populus* spp. Some amenity plantings of native species have been undertaken around the public use areas. Key habitat features of the area include large parts of Dairy Flat (a depositional floodplain of the Molonglo River), as well as open water areas such as Jerrabomberra Pool, Jerrabomberra Reach, Kelly's Swamp, Shoveller Pool and Molonglo Reach. The wetlands also provide areas of reed beds, marshlands, mudflats, gravel beaches, grasslands and drowned trees, all of which add to the area's high level of habitat diversity.

Seventy-seven species of water birds have been recorded within the Nature Reserve. This represents most of the water bird species that are found in southeastern Australia. Sixteen of these species use the area to breed. Notable amongst the water birds to use the area are the Latham's snipe *Gallinago hardwickii*, the common greenshank *Tringa nebularia*, the red-necked stint *Calidris ruficollis* and the sharp-tailed sandpiper *Calidris acuminata*, all of which are protected under the Japan Australia Migratory Bird Agreement and the China Australia Migratory Bird Agreement.

Ninety-six species of terrestrial birds have also been recorded within the wetland area. They generally utilize the reed beds on the shores of the open water bodies.

In addition, platypus *Ornithorincus anatinus*, eastern snake-necked tortoises *Chelodina longicollis*, and eastern water-rats *Hydromys chryocaster* have also been recorded in the area.

### **Recreation and Social Activities**

The Lake's foreshores contain extensive parklands that offer a range of passive and active recreation opportunities, some of which is developed as designed gardens and formal landscaping such as

Commonwealth Park, Kings Park, the Sculpture Garden, the Peace Park, Parkes Place foreshore area, Lennox Gardens, Yarralumla (the Governor General's Residence). Parklands and recreation areas with designed but more informal landscaping such as Aspen Island, Bowen Park, Weston Park, Yarramundi Reach, Springbank Island, Spinnaker Island, Grevillea Park, Molonglo Reach. Black Mountain Peninsula has naturalistic landscapes, and Jerrabomberra Wetland, Acacia Inlet, Yarramundi Inlet and Warrina Inlet have been developed as wetlands for native fauna. Arboretum style planting clumps by Weston and others were established in Weston Park and an Arboretum at Yarramundi Reach established by Lindsay Pryor. The array of landscapes offers a variety of scenery, landscape interest and aesthetic experiences.

The lake waters have defined sailing and rowing courses and the water is also used to irrigate some of the nearby parklands and the Royal Canberra Golf Course. Boathouses are established in Yarralumla Bay and Black Mountain Peninsula Park.

### **Aesthetic Qualities and Social Appreciation**

The Lake unifies the central precincts and national areas of Canberra and gives central Canberra a high aesthetic quality. It successfully expresses the water axis - a major component of the Walter Burley Griffin design concept. It provides a system of linked water bodies and recreation parklands.

The lake waters and lake shore parklands of the Central Basin capture the base of the land axis vista landscape designed by Griffin and perpetuated by subsequent planners as an visual aesthetic masterpiece that combines plantings, spaces, the water plane, hills and tree canopies to lead the eye from Parliament House to Mount Ainslie and vice versa. Commonwealth Park and Kings Park are extremely popular for active and passive recreation. Commonwealth Park with Nerang Pool and tiered water features, gardens, tree plantings and open lawn areas is a highly valued recreation and aesthetic resource. The grassed area between the two parks is the nexus of the parklands and land axis vista and its open space is important for experiencing the vista. The low curved forms of the bridges and the vertical features of the Carillon and Captain Cook Jet assist in delineating and focusing the vista space.

The Central Basin is the centrepiece of the National Area in the immediate foreground of the Parliamentary Zone, and unites the wider cityscape and public spaces on its foreshores, which provide settings for major national buildings. The completed project brings into focus the natural beauty of distant mountains and adjacent hillsides and visually unites them with a landscape setting for public institutions, complemented by low profile graciously curved bridges.

The lake is a most admired component of the Canberra plan providing a reflective setting for public buildings, a tranquil nucleus for Canberra City. It provides extensive ephemeral and at certain times ethereal aesthetic qualities. It is a major feature of Canberra's viewpoints at Black Mountain, Mount Ainslie and Red Hill

Buildings enhanced by the lake setting include the National Library, Commonwealth Place, the High Court and the National Gallery. Structural features that enhance the lake's aesthetic qualities include Commonwealth and Kings Avenue bridges, Captain Cook Jet, the Carillon. All the water edge plantings including the poplars at Yarramundi Reach, the Swamp Cypresses at Weston Park, the Cypresses at Acton Peninsula, Weeping Willows, River Sheoaks at Black Mountain Peninsula and Pryor's Arboretum, and the many planted and existing trees.

Jerrabomberra Wetlands Nature Reserve continues to provide an important environmental education resource. Bird hides and paths have been constructed near Jerrabomberra Pool and Kelly's Swamp for community recreation and education. Dairy Road, the main access point for the Jerrabomberra Wetlands, was altered to prevent through-traffic. This has greatly reduced the amount of background noise in the immediate area and has enhanced the wildlife experience for visitors to the wetlands.

The water surface and foreshores provide the city with many venues for recreation, social and public events and community gathering and present easy access to national buildings set in adjacent landscape. A great range of water sports is conducted on the lake and boat sheds or clubhouses are located at Yarralumla Bay, Orana Bay, Lotus Bay and Black Mountain Peninsula and there is a ferry terminal at Acton.

Commonwealth Park is used for celebratory events and festivals such as the Canberra Day, fun runs, the hugely successful Floriade, Australia Day citizenship ceremonies, and fireworks displays events and many sculptural art works. The Carillon on Aspen Island, was a gift from the British Government to commemorate the Golden Jubilee of the National Capital of Australia. A display centre has been developed at Regatta Point. The recently

completed R.G. Menzies Walk is most popular for walking, cycling, jogging. The Rond Terraces following Griffins vision for an open amphitheatre is a place for gatherings, celebratory events viewing vistas, fireworks and monument lighting, recreation and entertainment activities.

The West Lake area of Lake Burley Griffin and its lakeshore parklands is an area of naturalistic landscape with tree-lined foreshores and water-bird life that extends around the northern and western edges of West Lake. Black Mountain Peninsula is a significant central landscape feature of the West Lake naturalistic area. As a narrow strip of land it is entirely devoted to recreation activities within the naturalistic landscape setting.

Black Mountain peninsula is a foreground feature of vistas to Black Mountain landscape from the southern shores of the lake and from Weston Park Black Mountain Peninsular Park. Some of the lakeshore plantings at Black Mountain Peninsula and Weston Park such as the *Taxodium distichum* and the *Alnus glutinosa* are species that were historically researched by Dr Betty Phillips and Professor Lindsay Prior and subsequently planted as water edge plantings in the 1950s. Much of the tree planting by the National Capital Development Authority (NCDC) around the lake is significant today. Eucalypt planting at Nara Grove developed in 1996 is considered a place of significance by the ACT Government. The Nara Grove has had festivals and continuing plantings. Lake Burley Griffin and Foreshores are noted in the National Capital Plan (2006) as intending to provide a range of recreational, educational and symbolic experiences of the National Capital, both formal and informal parkland settings with particular landscape character or themes.

In Lennox Gardens special parks have been established; the Canberra Nara Park and the Chinese Garden donated by the City of Beijing as a Centenary gift. A special park, 'Boundless' catering to different levels of children's ability was established Kings Park as a project to celebrate Canberra's centenary.

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